Eocortex

Version 4.3

Admin guide

Part 1

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.

Features

- Analytics
    - Automatic reports
    - Usage of neural networks
    - Video analytics server
    - Testing of video analysis modules
    - Trial license for the License Plate Recognition (Complete) module
    - Different databases of faces and license plates for different cameras
    - Work time logging (Complete) report
    - Integration of thermal cameras and face recognition
    - Replication of remote databases of faces and license plate numbers
- Integration
    - Using Modbus protocol to communicate with I/O devices
- Eocortex Client
    - Alarms
    - User tasks
    - Server and Client views
    - Electronic signature
    - Watermark on video
    - Displaying camera time zones
- Server features
    - Multiserver system
    - Floating licensing
    - Secure Connections
    - Two addresses for the same server
    - Server decoding on video cards
    - Client P2P connection to server
    - Decoding B frames of H.264 and H.265 video streams

- Generation of RTSP links to cameras in Eocortex Configurator application
- Limitation of client connections
- Using PostgreSQL
- Client Authorization events
- Audio playback on the camera
- Custom notifications and webhooks
- Security
  - Access depth limitation for the archive
  - Active Directory Single Sign-On

Analytics

- Automatic reports
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Automatic reports

The **Automatic reports** feature setting is available for specific video analytics modules. Using this setting, it is possible to specify regular sending or saving of reports containing data generated by the module. The tab also displays information about each generated report.

Note

The automatic reports are available for the following video analysis modules:

- Personnel Activity Monitoring

- People Counting

- License Plate Recognition (Complete)

- License Plate Recognition (Light)

- Face Recognition (Complete)

- Face Recognition (Light)

- Object Classification and Counting

- Unique Visitor Counting

- License plate recognition

Each server generates its unique report. Thus, if one automatic report is configured for cameras attached to several servers, several reports will be generated simultaneously.

Usage of neural networks

Part of the **Eocortex** video analysis modules uses neural networks.

Neural networks are presented as an additional installation package.

Starting from version 3.6 of **Eocortex**, two different packages can be used:

- The **Eocortex Neural Networks Standard** package

- The **Eocortex Neural Networks Special** package

Note

Eocortex Neural Networks Standard and **Eocortex Neural Networks Special** packages support simultaneous use of multiple video cards for analyzing video streams. However, correct work of the analytics is possible only when using video cards that are identical to each other by their technical properties.

Comparison of neural networks packages

Capabilities	Eocortex Neural Networks Standard	Eocortex Neural Networks Special
The first appearance of the neural network package in **Eocortex**	2.5	3.6
Operating systems	- Windows 10 - Windows Server 2016 - Ubuntu 20.04, 22.04 - Debian 10, 11 - CentOS 7	- Windows 10 - Windows Server 2016 - Ubuntu 20.04, 22.04 - Debian 10, 11 - CentOS 7
Silent installation on Windows systems	Yes	No

Capabilities	Eocortex Neural Networks Standard	Eocortex Neural Networks Special
The ability of some modules to work without a discrete graphics card	Yes	No
Minimum requirements when using a discrete graphics card	• A processor that supports AVX instructions; • An **NVIDIA** video card (GPU) with the computation capacity index of at least 6.5 and with at least 4 Gb of memory; the parameters and performance of the video card must be similar or better than those of **NVIDIA GTX 1650 Super** model; • Version of the video card driver at least 460; • Swap file at least half of the total RAM size. If the package will be installed on a virtual machine, it may additionally be required to: • Enable support for AVX instructions in the guest machine settings;	• A processor that supports AVX instructions; • An **NVIDIA** graphics card (GPU) with an index of compute capability of at least 7.0 or higher and video memory capacity of at least 6 GB; herewith, other characteristics and performance of the graphics card must be no lower than that of **NVIDIA RTX 3050** or **NVIDIA RTX 2060** model. • Version of the video card driver at least 460; • Swap file at least half of the total RAM size. If the package will be installed on a virtual machine, it may additionally be required to: • Enable support for AVX instructions in the guest machine settings;

Capabilities	Eocortex Neural Networks Standard	Eocortex Neural Networks Special
	• Use GRID drivers for GPU virtualization.	• Use GRID drivers for GPU virtualization.
Advantages	X	Frames are processed faster
	X	The load on the graphics card has been significantly decreased, which allows processing many more cameras simultaneously
Consumption of resources of the central processing unit (CPU) and random access memory (RAM)	Does not depend on the used neural network package Depends on the number of cameras being processed Depends on the video analysis modules used	
Consumption of resources of the graphics card (GPU)	Depends on the video analysis modules used	
Technologies supported by CUDA	FP32	FP32, FP16
When the central processing unit (CPU) load is high	Video analysis frequency decreases	Analysis modules stop working
Video analytics		
Counting People in Queue	Yes	Yes
Emergency Vehicle Detection	Yes	Yes
Face Mask Detection	Yes	Yes
Face Recognition (Complete)	Yes	Yes

Capabilities	Eocortex Neural Networks Standard	Eocortex Neural Networks Special
Face Recognition (Light)	Yes	Yes
Fire and Smoke Detection	Yes	Yes
Fall Detection	Yes	Yes
Object Classification and Counting	Yes	Yes
Search for Objects	Yes	Yes
Tracking	Yes	Yes
Uniform Detection	Yes	Yes
Unique Visitor Counting	Yes	Yes

Video analytics server

Video analytics server is a server exclusively dedicated to launching video analysis modules that process video data sent from other servers. Having said that, the video analytics server does not perform archiving of the video data being analyzed nor its broadcasting to client workplaces; these actions are performed on the general servers of a video surveillance system. Thus, the Video analytics server allows to remove the load associated with video analysis from the rest of the servers.

The **Video analytics server** supports all the video analysis modules apart from the following:

- **Loud Sound Detection**

- **FishEye Dewarping**

Warning

If the Video analytics server is operating under Linux, it will also be affected by the corresponding restrictions on the video analytics modules.

To assign a server as a **Video analytics server**, it is required to install a special license on it. At that, other licensing capabilities will become unavailable on this server.

Consequently, if the server was used as a Video Surveillance server before, it is required to transfer all of its cameras to another Video Surveillance server before using it as a **Video analytics server**.

Assignation of the server as a **Video analytics server** for a camera is performing in the camera connection settings of the **Eocortex Configurator** application.

Features and limitations

Warning

The **Video analytics server** must be of the same version as the video surveillance servers whose video it processes.

A single video surveillance server may have connections with several video analytics servers, and a single video analytics server can process video streams from several video surveillance servers.

If a video analytics server has been assigned for a camera, a motion detection will also be performed on the video analytics server; all the features that use the results of the operation of the motion detector, however, will continue running on the main server.

If a video analytics server has been assigned for a camera, all the video analytics enabled on the camera, with the exception of the unsupported modules, will be processed on the video analytics server.

The video analytics server does not perform recording of the archive, events or any other data related to video processing, apart from the logs that monitor operability. All the events and the archive are recorded on the main server.

To ensure proper operation of the license plate recognition modules and the modules that use neural networks, the corresponding components are required to be installed on the video analytics server. However, it is not necessary to install such components on the video surveillance server.

For the license plate recognition module to work, it is required to install the corresponding license protection key on the video analytics server.

The video analytics server cannot be set as main, backup, or replication server for the cameras.

The video analytics server cannot operate under Windows 7 operating system.

The main server cannot use a video analytics server if it runs under Windows 7.

It is not recommended to use the video analytics server as a main server in a multiserver system since it may lead to malfunctions of such system due to the fact that the video analytics server is under high load of the video analysis modules.

The operation of the archive on the main server when recording by the signal of a motion detector running on the video analytics server is described below.

- When recording to the archive by the signal of a motion detector, the results of data processing on the video analytics server will be used.

- In case the connection with the video analytics server is lost, the continuous recording to the archive will be enabled. The recording to the archive will stop as soon as the connection with the video analytics server is restored.

- The continuous recording to the archive will also start if the video analytics server has not sent any events of movement or lack thereof in the course of 30 seconds.

Warning

If the connection with the video analytics server is lost, the video from the camera will not be analyzed. The software motion detection will not work either.

Testing of video analysis modules

Eocortex provides a simple way of obtaining trial licenses for any video analysis modules used in the current version of the software.

To obtain a trial license, please do the following:

1. Launch the Eocortex Configurator application.

2. Open the **Video analytics** page.

3. Select the module highlighted grey (this color is used to mark the modules that are not used in the system).
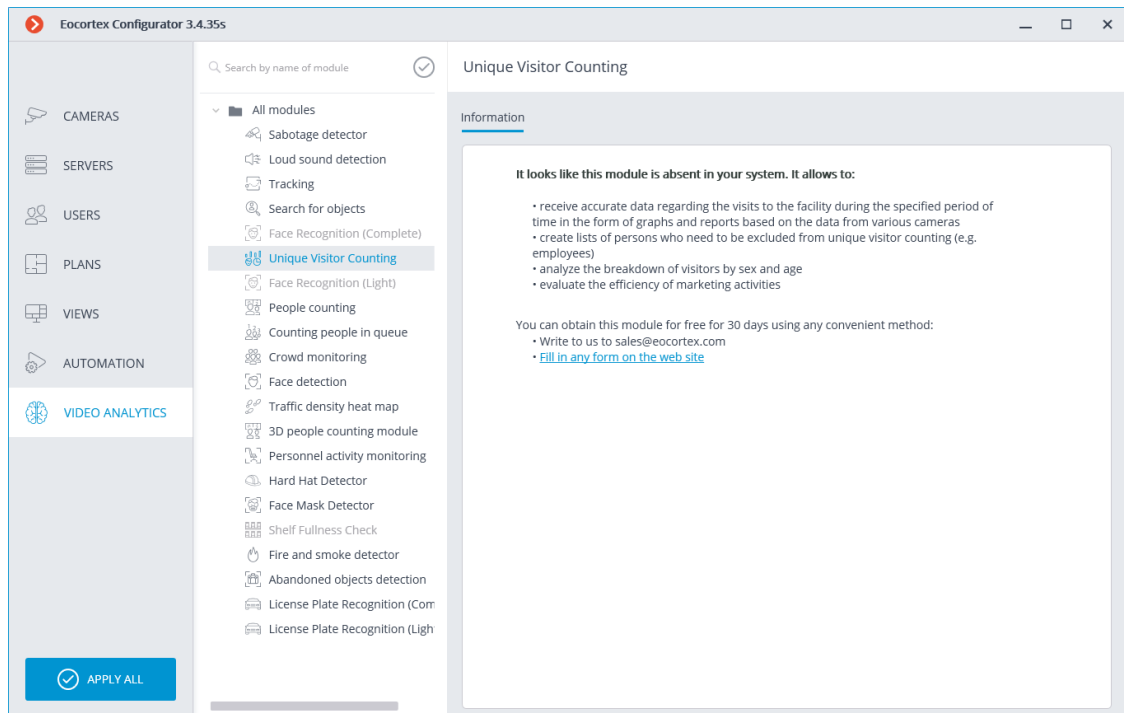
4. Request the license by any option displayed on the **Information** tab.

Note

The **Automatic reports** tab is not available for the trial modules.

Trial license for the License Plate Recognition (Complete) module

The trial license ordering tool that allows trying out the module to the full extent is embedded into the configuration interface of the **License Plate Recognition (Complete)** module's settings in the **Eocortex Configurator** application.

This tool permits to order one of the following **License Plate Recognition (Complete)** licenses that allow to perform recognition of the license plates during 60 days on 4 cameras assigned to the server:

- Type of license: **Highway (25 fps)**

- Type of license: **Parking (6 fps)**

Warning

These temporary licenses will not work on virtual machines.

Requesting and installing a temporary license

Warning

Before ordering and using a temporary license, it is required to install the License Plate Recognition (Complete) module on your server.

To order a trial license, launch the **Eocortex Configurator** application, go to the ⬠⬠ Cameras tab, then select a camera in the list on the left side of the page, switch to the Analytics tab and press the (trial) button located in the upper right corner of the module's card.
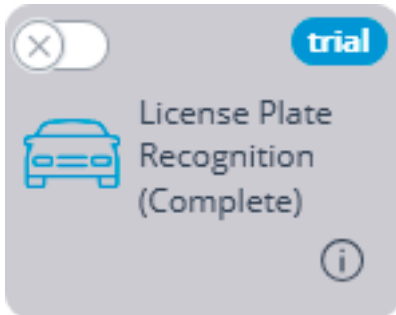
The trial license ordering and tracking window will open.
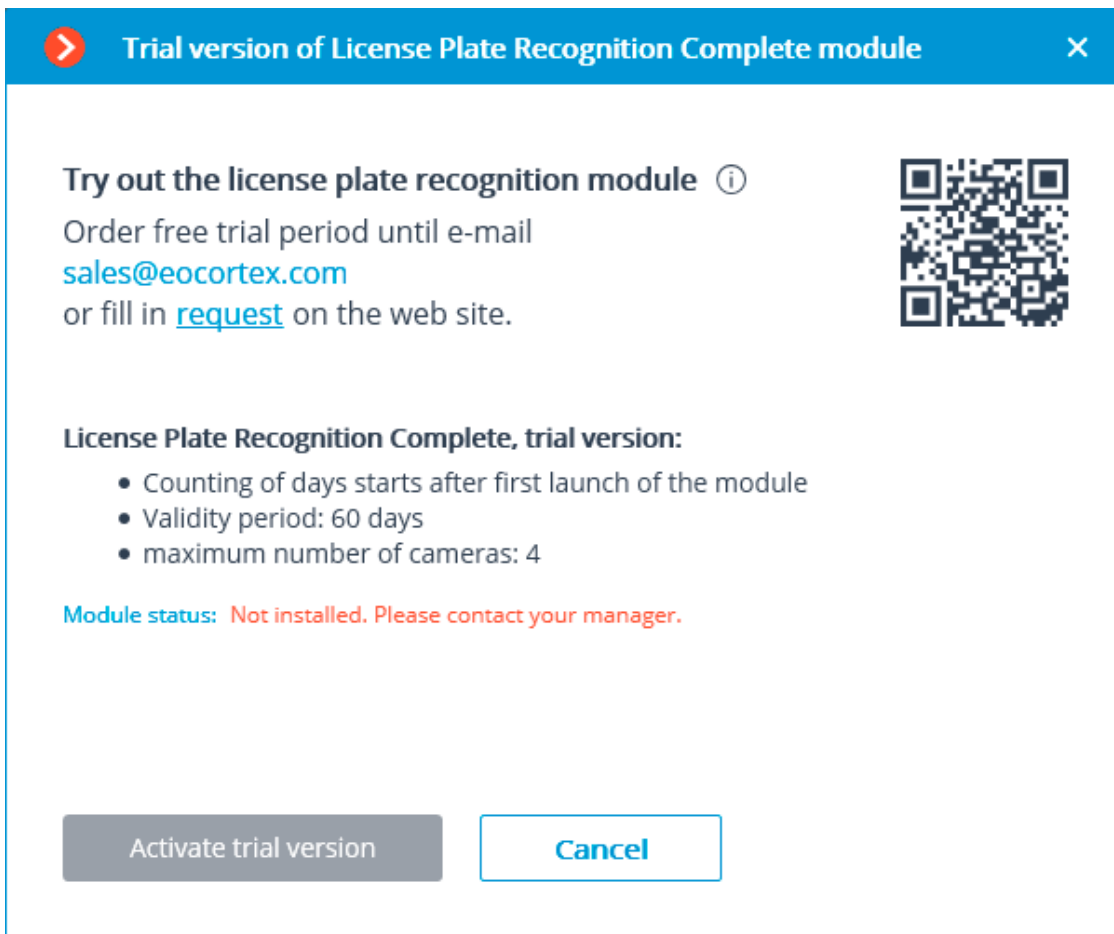
You need to request the issuance of a trial license, using one of the following ways:

• Contact your personal manager at **Eocortex**;

• Call the phone number shown in the window;

- Fill in the form made available in the link shown in the window (by clicking the word **request**);

- Scan the QR code shown in the window and complete the form on the web site using your mobile device (the QR code leads to the license request form).

Upon receiving a notification from the manager of **Eocortex** that the update of the **Eocortex** server license has been completed (i.e. when the **License Plate Recognition (Complete)** trial license has been added to the server license), it is required to update the license on the server. To do that, it is required to click on the **Update license** link in the trial license ordering and tracking window. The **License installation** wizard will open. In this window, you will be offered to perform an automatic update of the license on your server. Depending on the existing license, you will be offered to automatically update your software or USB key (see License update).

As soon as the **Eocortex** license on the server is updated and the server is restarted, it will be possible to activate the trial license of the **License Plate Recognition (Complete)** module. To perform the activation, it is required to click on the **Activate trial version** button in the trial license ordering and tracking window.

To activate, it is necessary to specify the type of the module for which the license will be activated: **Parking** or **Highway**. After that, press **Select**.

As soon as the trial license is successfully activated, the trial license ordering and tracking window will show the license data.

Instead of the **trial** button, the number of days left before the end of the trial period will be displayed.

End of the temporary license validity period

Starting from the ninth day before the end of the trial license validity period, every time the client application is launched, the notification regarding the upcoming stop of the module's operation will appear.

Additionally, the day counter in the **Eocortex Configurator** application will change its color to attract the attention of the system administrator.

When the trial license validity period ends, the **License Plate Recognition (Complete)** module will stop functioning, and the notification regarding the absence of a license key required for starting the module will appear in the client application. However, the **Eocortex** license for using the **License Plate Recognition (Complete)** module will be retained, and it will be possible to use it in the future provided that the permanent license for the module is purchased.

Also, the **trial** button will disappear from the module's card upon expiration of the trial version validity period.

Errors during activation and use of the trial license

Below is the list of errors displayed in the **Module status:** line of the trial license ordering and tracking window.

- **It is required to request and update the license of your server. Please contact your manager.** This status is displayed in case of an absence of the **License Plate Recognition (Complete)** module license on the server.

- **Not installed. Please download the module from the web site and install it.** This status appears when there is no **License Plate Recognition (Complete)** module installed on the server.

- **No connection with server. Please wait until the server restarts.** This status is shown in the process of restarting the server after updating the **Eocortex** license.

- **Error when receiving info from server.** The appearance of this status is unlikely. For example, it can appear if the server was rolled back from version 3.1 to an earlier version, while the trial license ordering and tracking window was still open.

Frequently asked questions

Q: I installed version 3.1, but the **trial** button never appeared.

A: There are several possible causes of the **trial** button not appearing:

- Server version is earlier than 3.1;

- Camera is bound to a different server;

- **Eocortex Configurator** has no direct access to the server to which the camera is attached;

- The trial license has already been used on the given server;

- A permanent license is already installed on the given server.

Q: What will happen if another temporary license for the **License Plate Recognition (Complete)** module is installed in **Eocortex Configurator**?

A: Such license will be displayed as well as the trial license. I.e., a day counter will be displayed in **Eocortex Configurator**, and 9 days before the license expiration date a corresponding notification will appear in the client application.

At the same time, if in the earlier version of **Eocortex** a trial license has already been activated on this server, it will not be possible to activate a new trial license.

Q: Is it possible to activate a separate trial license on each server of a multi-server system, or it is only allowed to activate a trial license on one of the servers of such system?

A: It is possible to activate a trial license on each server of a multi-server system.

Q: The following error message appears when attempting to activate a trial license: **Failure to activate trial license. Possible cause: installation on virtual machine.** What to do in this case?

A: Probably, an old version of the **License Plate Recognition (Complete)** module is installed on the server. It is required to install version 3.1 or later of the module.

Different databases of faces and license plates for different cameras

Eocortex permits to create a database of faces or license plates for a specific camera or a group of cameras. It allows to add cameras of different users to the system and to work with various databases.

The support of several databases is available for the following modules:

- **Face Recognition (Complete)**.

- **License Plate Recognition (Complete)**.

Warning

The setup of different databases for different cameras is available only via REST API.

Setup

It is required to specify the same unique identifier of a database to use the same unique database on several cameras.

Note

The identifier of the database is the DbId string that can only be set via REST API.

To perform the setup, it is required to do the following:

1. Enable the module on the camera in the **Eocortex Configurator** application.

2. Send a request with the same value of the **DbId** parameter to nodify the settings of the corresponding recognition module via REST API for all cameras on which it is required to use the same unique database.

3. In the **Eocortex Configurator** application, go to the **Users** tab and press the **Users of Eocortex applications** button, then set up the rights in such a way as to grant each user the access only to those cameras that have the same database identifier.

Warning

When editing a database from the **Eocortex Client** application, it is imperative that all the cameras of the connected client have the same database; otherwise, one of the databases will be selected randomly.

Limitations and unique features

The Database identifier field has been added to the settings of each module to enable the user to set a unique database.

Face Recognition (Complete)   ✕

Main settings   Detection zone   **Database "Complete"**   Time logging areas

○ Local
● Remote

Address	Port	Type
192.168.200.228	3050	● Windows
		○ Linux

Name
SYSDBA

Password
●●●●●●●● 👁

Connection check

Database identifier

Db1

[Save] [Cancel]

License plate recognition   ✕

Countries   Barrier gate control   Recognition settings   **License Plate Database "Complete"**   Automation

○ Local
● Remote

Enter IP address and port of server with vehicle license plate database (for multi-server configuration)

Address	Port	Type
127.0.0.1	3050	● Windows
		○ Linux

User name
SYSDBA

Password
●●●●●●●●

Connection check

Database identifier

123

[Apply] [Cancel] [By default]

Warning

The **Database identifier** field is not initially displayed upon enabling the **License Plate Recognition (Complete)** or **Face Recognition (Complete)** modules.
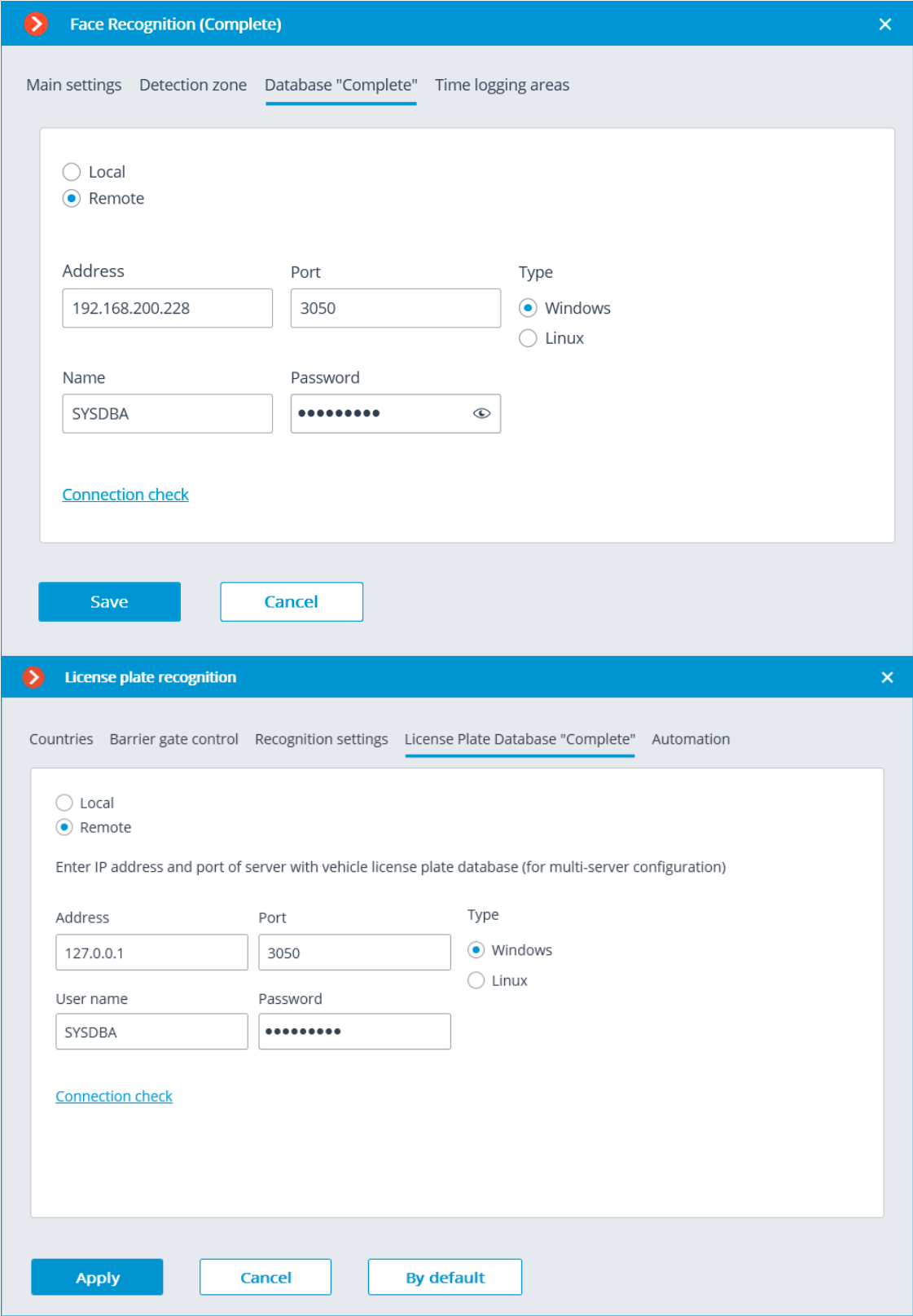
Note

To use this feature, it is required to specify the Database identifier via REST API.

The blank value of the identifier is indicative of the fact that all the cameras are interacting with the same database.

The quantity of the unique databases is not limited.

The number of cameras that can be connected to the selected database is not limited.

Filename creation rules

For the face database: DatabaseID_FRDATABASECOMPLETE.FDB.

E.g.:

- FRDATABASECOMPLETE.FDB: common face database Complete.

- USER12713_FRDATABASECOMPLETE.FDB: unique face database Complete.

For license plate databases: DatabaseID_PRDATABASE.FDB.

E.g.:

- PRDATABASE.FDB: common license plate database.

- USER12713_PRDATABASE.FDB: unique license plate database.

Note

The similar rules apply for the replicated databases.

Warning

The filename (**Database ID**) must be no more than 32 symbols long, contain Latin letters, numbers and the underscore (_). If this rule is not followed, the unique database will not be set.

The **Database ID** is case-insensitive — the same database will be created for **myperfectdb** and **MyPeRfeCtDb**.

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.

Note

If a face was recognized at the exit of the zone, but was not recognized at the entrance, the person's time in the zone will be counted from 00:00.

Integration of thermal cameras and face recognition

For some camera models that combine the features of a thermal camera and a normal surveillance one, it is possible to send the thermal camera data to the face recognition module.

Warning

This option is available for a limited number of camera models only and can be used exclusively in the 64-bit Windows version of **Eocortex**.

To enable this capability, go to the **Camera analytics** tab in the camera settings of the **Eocortex Configurator** application, activate **Temperature for recognized faces**, open the settings window by pressing ⬚ and set the alarm temperature that will generate the alarm events. It is also required to enable and set up any face recognition module on the camera.
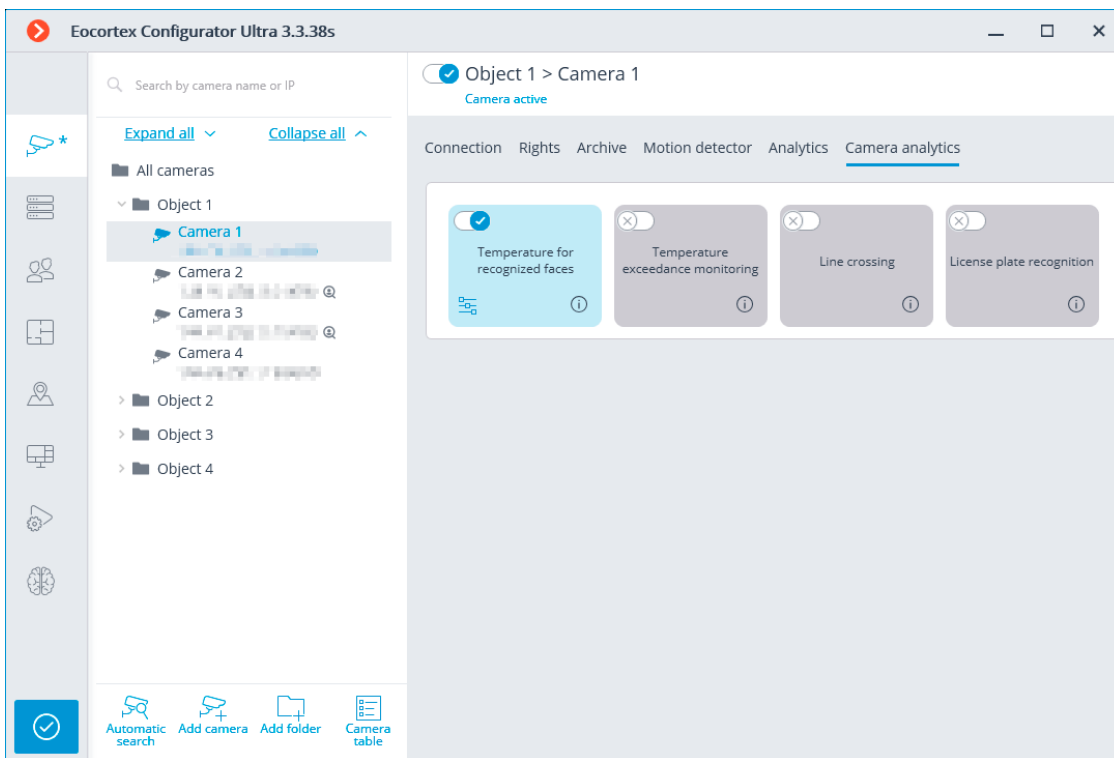
When everything is done, it will become possible to set up a task upon the event of **Face with high temperature detected**.

In the **Eocortex Client** application, the temperature of the person will be displayed in the real-time video on the face recognition panel.
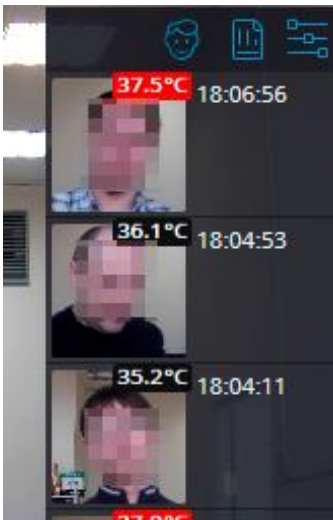
In case a person running a fever is detected, a corresponding event will be registered in the event log. The corresponding frame from the archive will be displayed upon selecting this event; the recognized face will be highlighted by a rectangular frame.

The temperature of the person will be registered in the report regarding the recognized faces. Persons running a fever will be marked by orange rectangular frames, those with normal temperature will be marked by grey frames.

It is also possible to filter the list to display the persons with high temperature.

Replication of remote databases of faces and license plate numbers

For the face recognition and license plate recognition modules, the replication of the remote database allowing to perform recognition even in the temporary absence of a connection with the remote databases has been implemented.

The replication works as follows:

When a remote database (hereinafter face or license plate database is meant) is used on the server where the recognition is performed (to which the

recognition cameras are bound), a local copy (replica) of the remote database is created. Further, a synchronization of the local copy with the remote database is performed. In the event of losing connection with the remote database, its local copy will be used.

All the modifications made to the database (adding, editing and removing entries) is performed exclusively upon availability of a connection with the remote database. When the connection is lost, the recognition will be performed on the basis of the entries present in the local copy of the database.

The remote database is copied (replicated) to the server in the following cases:

- Immediately after the changes to the database are made by the camera bound to the server or by the client computer connected to the server;

- Immediately after the connection of the server with the remote database is established (in case the connection was lost before that or the server has just been launched);

- Once every minute (if the connection has not been interrupted, and no changes have been made from the computer).

Warning

The replication was introduced in Version 3.1. In addition, the structure of the database has changed, as compared with the versions 3.0 and earlier. Due to that fact, in order to work properly with the remote database, it is required to update the version on all the video surveillance system servers, including the one where the remote database is located.

Note

If for some reason it becomes necessary to roll back to Version 3.0 or earlier, it is required to contact Eocortex technical support team.

Eocortex Client
- Alarms
- User tasks
- Server and Client views
- Electronic signature
- Watermark on video
- Displaying camera time zones

Alarms

Alarm — condition that requires attention. In **Eocortex** the alarm is always connected with a certain camera and appears in response to the system event or user action.

Warning

The camera will switch to the alarm state if **Guard mode** is enabled on the camera at the time of the event or action triggers the alarm.

Note

Guard mode and alarm notifications are set up and operated individually at each workplace, independently of other workplaces.

Enabling guard mode ❯

Guard mode can be enabled as follows:

- Automatically, using a schedule (see Eocortex Client / Workplace settings / Sheduled Guard mode).

- Manually, from the context menu of the camera cell (see Eocortex Client / Camera view cell / Context menu).

Alarm generation ❯

Alarm on the camera occurs as follows (and **Guard mode** must be enabled on the camera):

- Automatically, when a certain event occurs on the camera or system, if alarm generation is configured for this event.

- Manually, by clicking the alarm button (see Eocortex Client / Main Window / Alarm button.

- Manually, from the context menu of the cell (see Eocortex Client / Camera view cell / Context menu).

- Manually, when performing a user task, if alarm generation is configured for this task (see Eocortex Client / User tasks).

Display ❯

It is possible to use normal cells, alarm cells and alarm monitor for displaying cameras in the **Alarm** state.

Normal monitor: The monitor used to display the camera images in normal mode.

- **Normal cell**: The screen grid cell on a normal monitor used to display the camera image in normal mode.

- **Alarm cell**: Screen grid cell on a normal monitor. This cell refers for displaying the image from the camera with an alarm.

- **Alarm monitor**: Monitor intended for displaying the image from the cameras with an alarm.

Possibilities and limitations of alarm monitor:

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

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

- The alarm monitor supports the following screen grids: 1, 2×2, 3×3, 4×4, 5×5, 6×5, 6×6, 7×7, 8×8, 9×9, 10×10, 11×10, 15×10; 14×12; 16×16.

When an alarm triggers on one of the cameras with guard mode enabled, the alarm will be displayed in the **Eocortex Client** application as follows:

- If the camera in the **Alarm** state isn't displayed yet, and the alarm cells or an alarm monitor are used in the workplace, this camera will be placed in a free alarm cell or in a free cell of an alarm monitor.

  Note

  If both alarm cells and alarm monitor are used, the camera in the **Alarm** state will be placed in both.

  Note

 Alarm cells and alarm monitor cells are considered free in the following cases:

  – If no camera placed in the cell.

  – If all alarms are accepted, rignored or expired.

  After processing all alarms in the camera, this camera is not hidden from the cell, although the cell is considered as free.
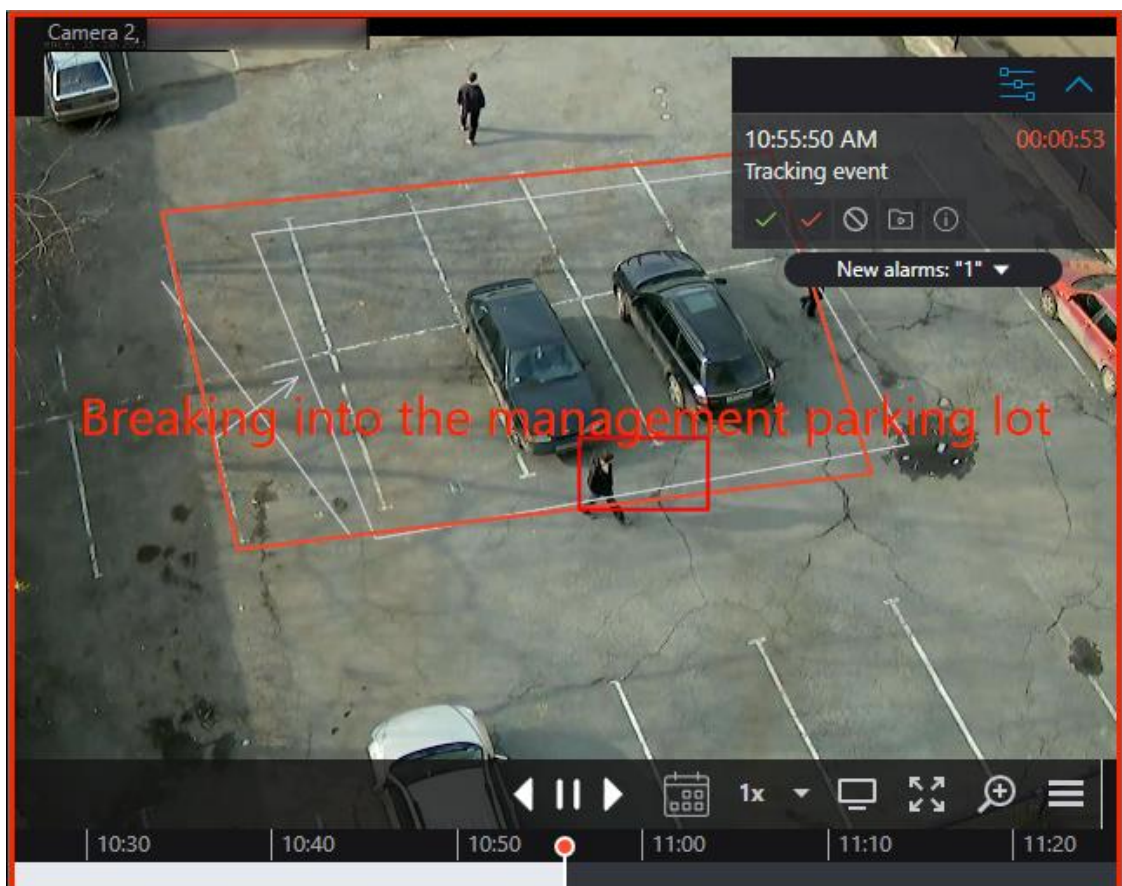
Alarm notifications 〉

The camera cell in the **Alarm** state will be highlighted with a colored frame on the screen.
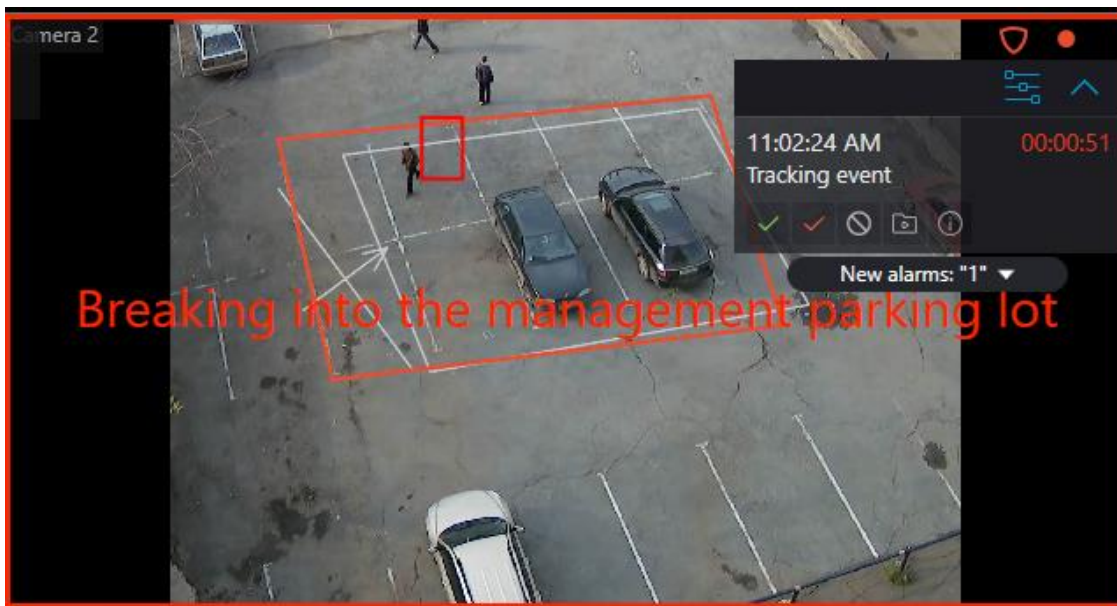
The alarm panel is displayed in the upper right corner of the cell.

Alarm panel allows:

- Process (accept, mark as false and ignore) the alarms.

- Switch to archive playback mode at the moment of the alarm triggering.

- Display the cameras placed near the alarm triggered camera.

  Such cameras are opened in an optimal grid, in which it is possible to work as usual: move cameras between cells, switch between live video and archive playback, work with alarms etc.

  In order to return to the original view, it is necessary to either close the view with nearby cameras or switch to one of the available views.

- Open the alarm card.
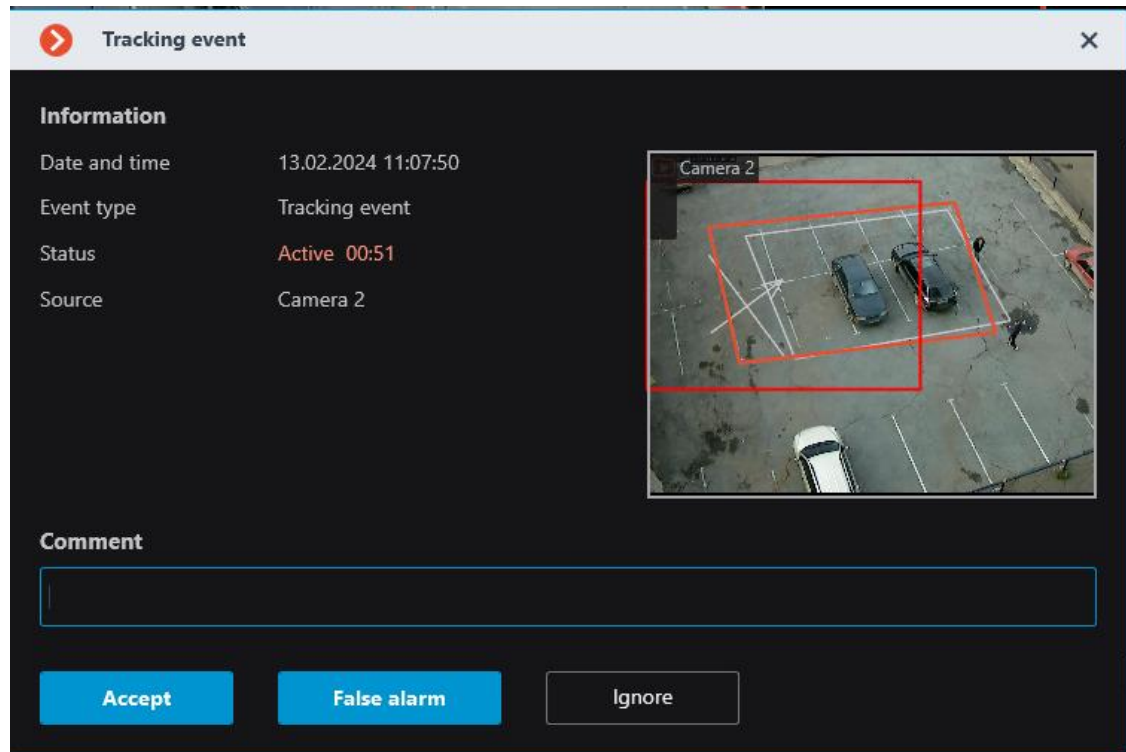
The alarm panel can be turn to [!] icon. By clicking on the icon, the alarm panel will be opened.

It is also possible to expand a feed with all unprocessed alarms under the taskbar

Depending on the settings, it is possible for the cell to output text describing the alarm, as well as frames and other graphic elements indicating the object or situation that triggered the alarm.
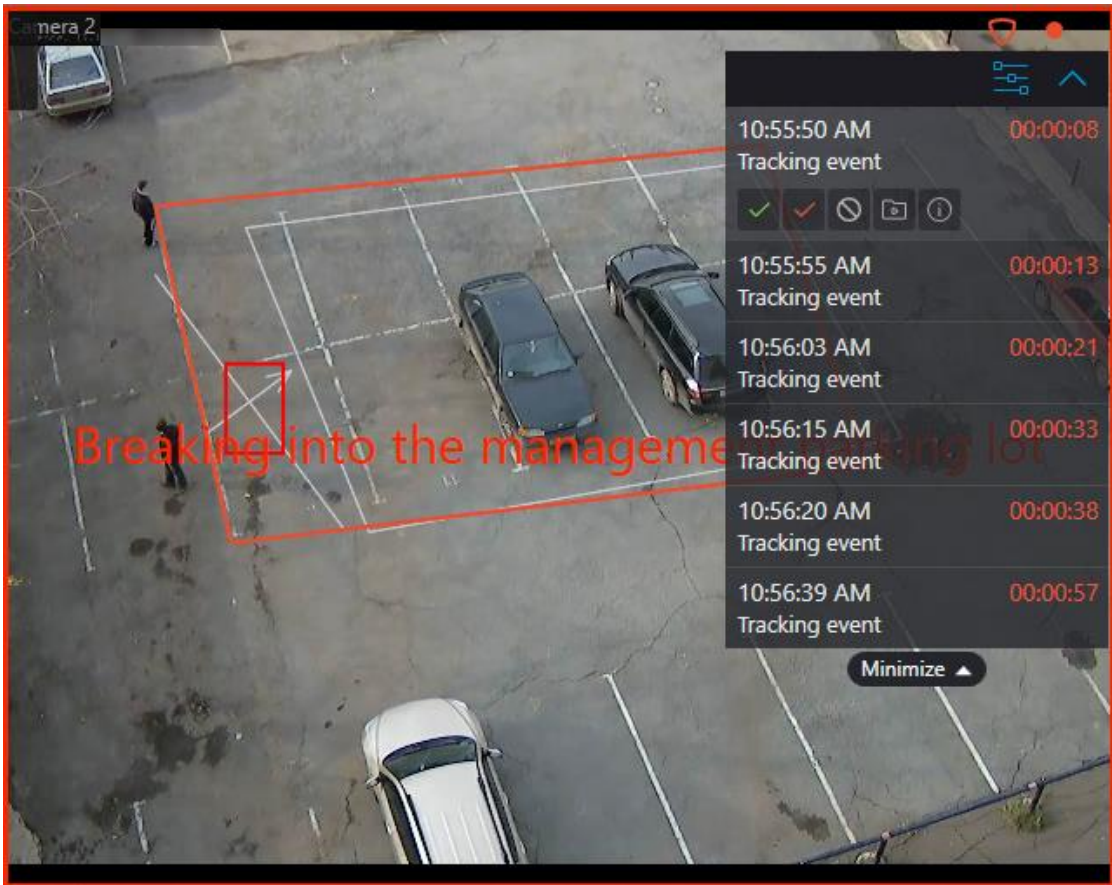
In addition to alarm visual notifications, it is possible to set audible notifications.

Note

The alarm parameters that are configured by video surveillance system administrator:

- Requirements for the alarm processing.

- Timeframe after which the alarms considered missed.

- Alarms explanatory inscriptions and visual elements.

- Nearby cameras list.

- Predefined sound signal.

Note

Alarm parameters that can be configured by video surveillance system operator in the setting of the workplace (if authorized by the video surveillance system administrator)

- Default sound signal.

Alarm processing >

Each alarm must be processed within the set time.

Processed alarms are accepted, marked as false or ignored alarms.

To process an alarm, it is necessary to press the corresponding button on the alarm panel located in the cell of the camera. The time remaining until the end of the alarm processing time is displayed on the alarm panel in the timer to the right of the alarm name.
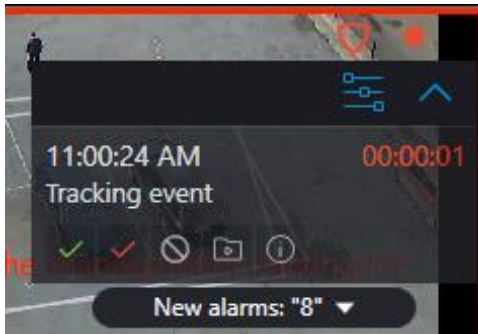
Alarm processing settings may include requirements for users to comment on alarms as they are processed. The user must enter a comment and press the acknowledge button within the time limit for processing. After the time expires, the alarm will be missed and the acknowledge button will become unavailable.

An alarm not processed within the set time is considered missed.
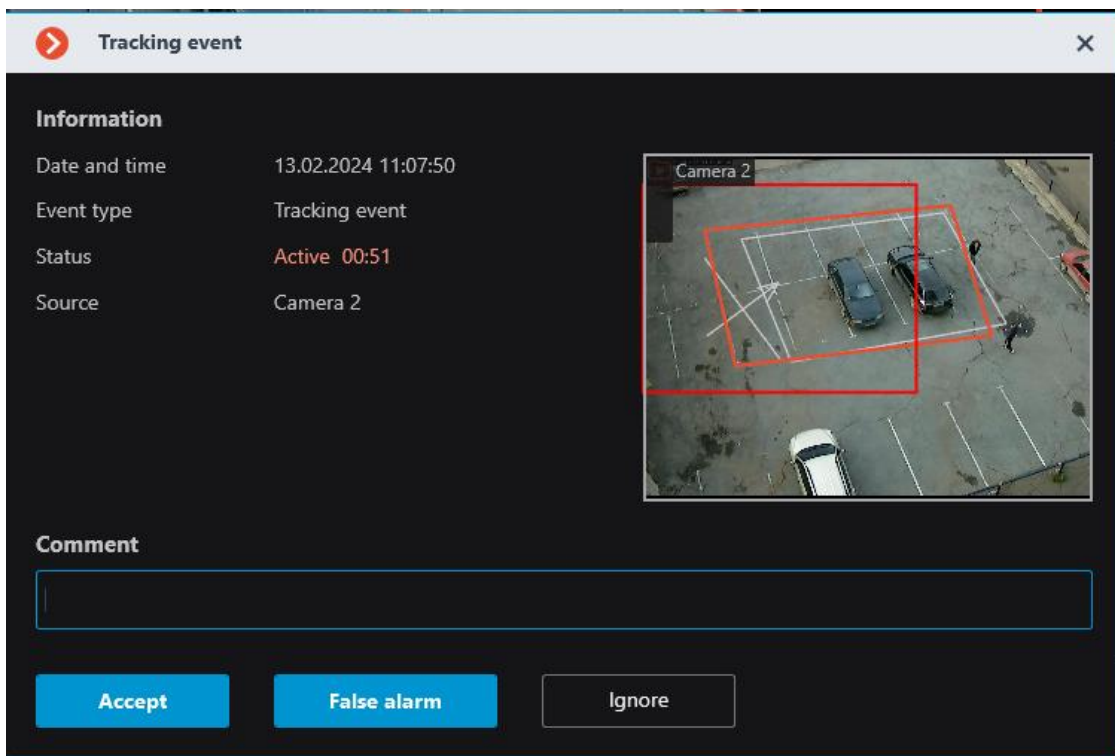
If there are missed alarms, the notification indicator appears in the lower right corner of the screen, clicking on it will open an alarm notifications list.

Clicking on the notification will open Events log, filtered by missed alarms.

Note

The requirements for alarm processing, including the time allotted for processing, are set by the video surveillance system administrator. The administrator can also prohibit certain user groups from marking false alarms and ignoring alarms.

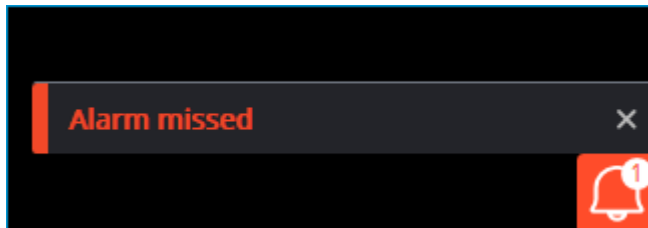If at one workplace the same camera in the **Alarm** state is displayed in several cells, including on different monitors, then after the processing of the alarm in one of the cells, the alarm will be automatically processed in the other cells.

If the one camera is in Guard mode at different workplaces, alarms from this camera will be displayed at all workplaces. In this case,

• Alarms that are accepted or marked as false at one workplace will be identified as accepted or false at other workplaces.

- Alarms that are ignored at one workplace will continue to be unacknowledged at the other workplaces.

Viewing alarms in the archive ❯

All alarms are stored in the Events log.

When viewing the Event Log, it is possible to filter alarms by various criteria.

Note

In the event log, accepted and ignored alarms are indicated as informational events, while new, false and missed alarms are indicated as alarm events.

It is possible to go to the archive from the Event Log by the time of the alarm.

The alarm cells and the alarm monitor can be configured for direct display of the playback at the moment of alarm occurrence.

Note

The alarm text and graphic elements are similar in both archive playback and live view.

Alarms on maps and object plans ❯

For cameras placed on the site plans, it is possible to configure the workplace to display their transition to the **Alarm** state.

Note

This capability is not present in some types of licenses.

In this case, Alarm state cameras will be colored red.
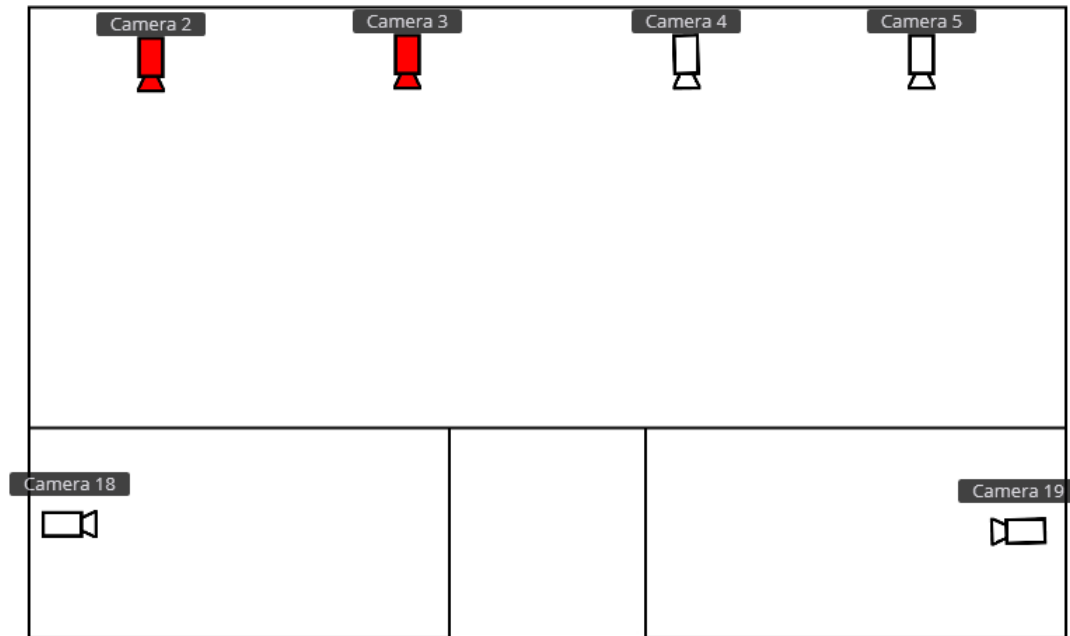
The indication can be removed in one of the following ways:

- By hovering the cursor over the camera and waiting for the preview window to appear.

- By clicking the camera icon on the plan.

- By accepting the alarm in the application window on the regular or alarm monitor.

Warning

Removal of alarm indication on plans or maps does not remove the alarm state on this camera.

Configurator alarm settings ❯

In the Eocortex Configurator application, in the automation settings for **Alarm generation** action the following settings can be configured:

- A list of cameras installed near the camera with alarm event. For each alarm can be set no more than 262 cameras.

- What to open in the camera cell triggered by an alarm: live view or playback?

- The user groups that will be notified when an alarm is triggered.

- Alarm processing time.

- Alarm processing brief instruction text.

- Is a comment required when processing an alarm.

- The camera cell frame color and text that notifies about alarms.

- Audiofile used for alarm sound notification.

In addition, different user groups can be assigned rights to process alarms, including individual rights to mark false alarms and ignore alarms.

Client alarm and guard mode settings ⟩

In the Eocortex Client application in the workplace settings it is possible to configure the following settings:

- Sheduled Guard mode

- User alarms

- Alarm monitor and Alarm cells

User tasks

The users of **Eocortex** client applications can start any actions implemented in the video surveillance system, as well as the sequences of such actions, by themselves. To do that, the user tasks are added to the **Eocortex Configurator** application, following which these tasks can be launched in Android, iOS, and Windows client applications.

To prevent an erroneous launch of the tasks, the launch confirmation option has been introduced: the tasks where this option is enabled will only be launched after an additional confirmation by the user.

It is possible to forbid launching user tasks in the user rights settings: all the tasks on all cameras or individual tasks on the specified cameras can be forbidden. By default, all users have permission to launch user tasks.

Launching tasks in the client applications is performed in a similar manner, differing only in details.

If user tasks are set up on a camera, and the user has the rights to execute these tasks, then, in the client application, in the observation mode, during the activation of such camera, the or button will be displayed in the cell, depending on the number of tasks that can be launched on the camera (one or more).

If only one task is set up on the camera, it will be executed upon clicking the button.

If there are several tasks set up on the camera, a list of those tasks will open upon clicking 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.

After launching the task, the corresponding notification will appear on the screen.

Eocortex Client ＞

Button for a single task:
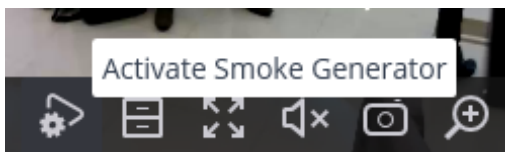
Button and list for multiple tasks:
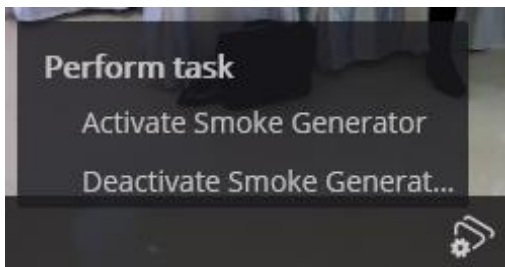
Selection for one task with confirmation:
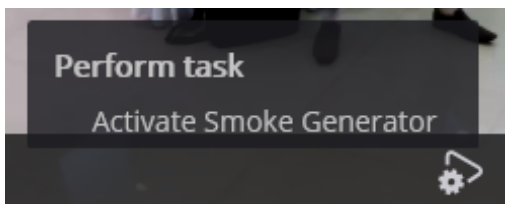
Selection for one of several tasks:
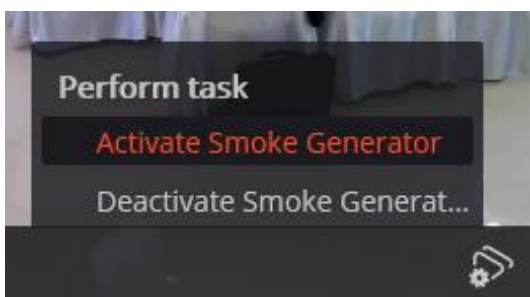
Confirmation for one task:
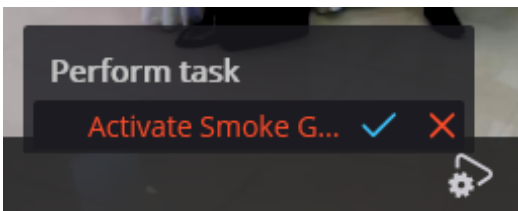
Confirmation for one of several tasks:
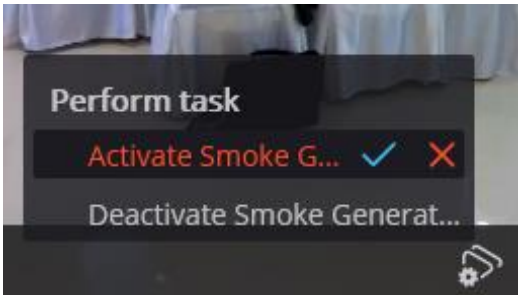
Confirmation of task run:
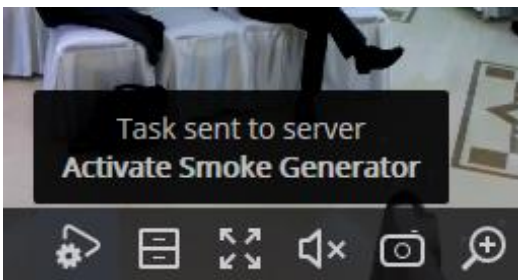
Eocortex Web Client 〉

Clicking on the button displays a list of tasks:

Confirmation of task completion:
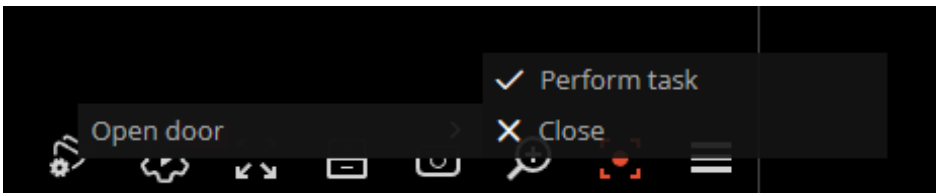
Notification about task launch in the upper right corner of the screen:
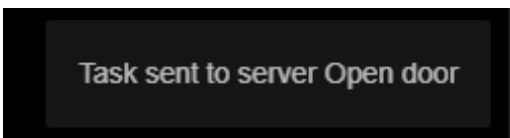
To display the images from the cameras on the screen in the client applications, **Eocortex** uses **Views** – grids with the images from the cameras shown in the cells. There are two types of views: Server and Client ones.

- **Server View** is a view created by a video surveillance system administrator in **Eocortex Configurator**. The server views are available in the **Eocortex Client** application as well as in the mobile client applications working under Android and iOS. In a multi-server system, the server views are available when connecting to any server of the system via the client application. At that, the server view is added to the client application at the moment of launching it. Thus, if you create or modify a server view, the changes will appear only after the restart of the application.

- **Client View** is a view created by a user in the client application. The client views are available only on a particular device or computer on which they were created, and only for the particular user who created them. Upon the termination of a session of working with the client application, all the client views that contain no cameras are deleted.

Warning

The server views that contain no cameras will not be added to the client application when it is launched.

Note

In the client application, a server view can be distinguished from a client view by the presence of an icon in the form of a house in the lower right corner of the schematic representation of this view of the server application.
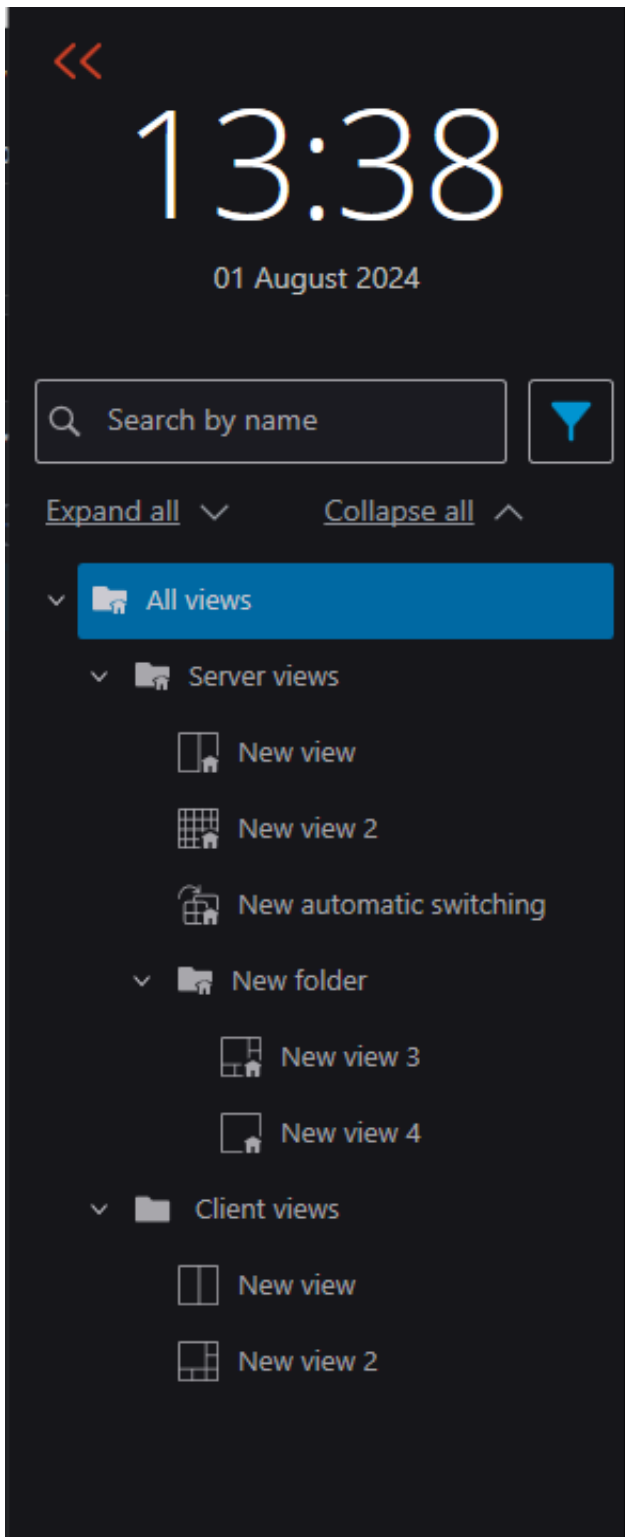
Note

Until version 3.0 inclusively, it was possible to use server views only for displaying cameras. That said, it was possible to select a screen grid in the client application and place cameras in its cells as required.

When upgrading from version 3.0 or lower to version 3.1 or higher, the last used screen grid will be converted to the pinned client view.

Electronic signature

The electronic signature permits to confirm the authenticity of the exported file, as well as its ownership.

Note

The availability of an electronic signature is one of the requirements of the General Data Protection Regulation (GDPR).

Preparation of electronic signature ＞

The exported files are electronically signed using X509 certificates. Only the certificates that use the RSA asymmetric algorithm are supported.

The signatory's root certificate can be either a self-signed root certificate or a certificate purchased from a certification authority.

The end certificates must be generated on the basis of the signatory's main certificate, one for each user. These certificates must be installed on a computer. Their installation is carried out either by means of the operating system or using specialized software.

The signatory's root certificate must be included in the trusted list of the relying party.

Certificate generation ＞

File signing certificates can be generated using the free OpenSSL utility.

It is necessary to select the current version of the **OpenSSL** distribution kit that matches the bitness of the operating system used.

The steps below are a sequence of commands that should be executed on the **Command line**.

1. Add the **OpenSSL** folder to the **PATH** environment variable.

   For Win64 OpenSSL use:

   path=%path%C:\Program Files\OpenSSL-Win64\bin\;

   For Win32 OpenSSL use:

   path=%path%C:\Program Files\OpenSSL-Win32\bin\;

2. Create a directory that will contain the generated certificates. On the command line, navigate to the created directory.

3. Create the root certificate private key file:

   openssl genrsa -out rootCertKeyName.key 2048

4. Create the root certificate:

   openssl req -x509 -new -key rootCertKeyName.key -days 10000 -out rootCertName.crt

   Note

   The command will prompt for the certificate details.

5. Create the service private key:

   openssl genrsa -out serviceCertKeyName.key 2048

6. Create the Certificate Signing Request (CSR):

   openssl req -new -key serviceCertKeyName.key -out serviceCertRequestName.csr

   Note

   The command will prompt for the certificate details.

   An important point is to fill in information about the **Common Name (e.g. server FQDN or YOUR name)**. **Common Name** is the string that will be displayed in the certificate signer information. If this field is left blank, the result will be an empty string.

7. Create the service certificate by signing the CSR with the root certificate:

   openssl x509 -req -in serviceCertRequestName.csr -CA rootCertName.crt -CAkey rootCertKeyName.key -CAcreateserial -out serviceCertName.crt -days 5000

8. Export the certificate and private key into a single file:

   openssl pkcs12 -export -out serviceCertFileName.pfx -inkey serviceCertKeyName.key -in serviceCertName.crt -certfile rootCertName.crt

Note

Steps 5 — 8 should be repeated for each user who needs to generate a certificate. To do this, you need to replace the **serviceCertName** string in the commands with the **username** written in Latin letters without spaces.

The corresponding **.pfx** files must be given to users and imported into the operating system at their workstations.

The root certificate **rootCertName.crt** must be imported into the operating system at all workstations where it is planned to verify the electronic signature.

Root certificate (Relying Party)

To add a root certificate, double-click on the **rootCertName.crt** file. This will open the **Add Certificate Wizard** window. Next, follow the steps indicated by the numbers in the images below:

Certificate ✕

General | Details | Certification Path

Certificate Information

This CA Root certificate is not trusted. To enable trust, install this certificate in the Trusted Root Certification Authorities store.

Issued to: Eocortex

Issued by: Eocortex

Valid from 1/11/2023 **to** 5/29/2050

① [Install Certificate...] [Issuer Statement]

[OK]

×

Certificate Import Wizard

Welcome to the Certificate Import Wizard

This wizard helps you copy certificates, certificate trust lists, and certificate revocation lists from your disk to a certificate store.

A certificate, which is issued by a certification authority, is a confirmation of your identity and contains information used to protect data or to establish secure network connections. A certificate store is the system area where certificates are kept.

Store Location

2 ● Current User

○ Local Machine

To continue, click Next.

3 Next   Cancel

Certificate Import Wizard

×

← Certificate Import Wizard

Certificate Store
Certificate stores are system areas where certificates are kept.

Windows can automatically select a certificate store, or you can specify a location for the certificate.

○ Automatically select the certificate store based on the type of certificate

4 ◉ Place all certificates in the following store

Certificate store:

5 [   ] [Browse...]

[Next]   [Cancel]

Select Certificate Store

×

Select the certificate store you want to use.

6

- 📁 Personal
- 📁 **Trusted Root Certification Authorities**
- 📁 Enterprise Trust
- 📁 Intermediate Certification Authorities
- 📁 Active Directory User Object
- 📁 Trusted Publishers

☐ Show physical stores

7 [OK]   [Cancel]

Certificate Import Wizard

Certificate Store

Certificate stores are system areas where certificates are kept.

Windows can automatically select a certificate store, or you can specify a location for the certificate.

○ Automatically select the certificate store based on the type of certificate

◉ Place all certificates in the following store

Certificate store:

Trusted Root Certification Authorities   Browse...

8   Next   Cancel

×

← Certificate Import Wizard

Completing the Certificate Import Wizard

The certificate will be imported after you click Finish.

You have specified the following settings:

| Certificate Store Selected by User | Trusted Root Certification Authorities |
| Content | Certificate |

⑨ [Finish]   [Cancel]
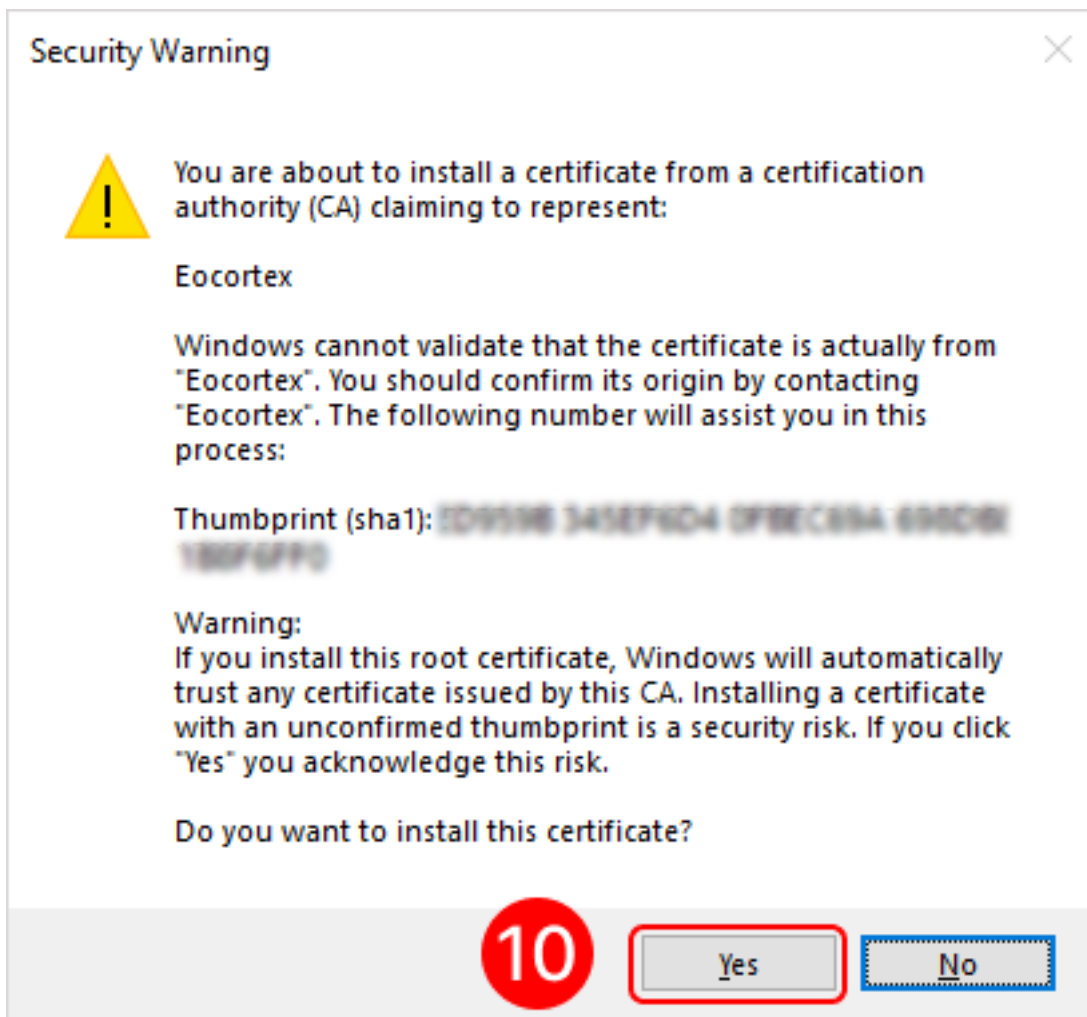
User certificate (Signer)

To add a personal user certificate that will be used for signing files, double-click on the **user.pfx** file. This will open the **Add Certificate Wizard** window. Next, you need to follow the steps in the images below:

×

← Certificate Import Wizard

Welcome to the Certificate Import Wizard

This wizard helps you copy certificates, certificate trust lists, and certificate revocation lists from your disk to a certificate store.

A certificate, which is issued by a certification authority, is a confirmation of your identity and contains information used to protect data or to establish secure network connections. A certificate store is the system area where certificates are kept.
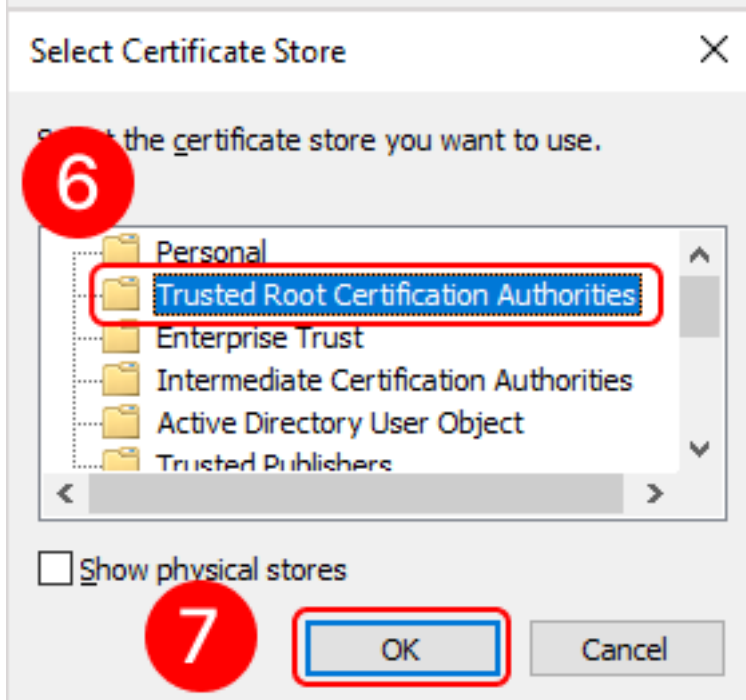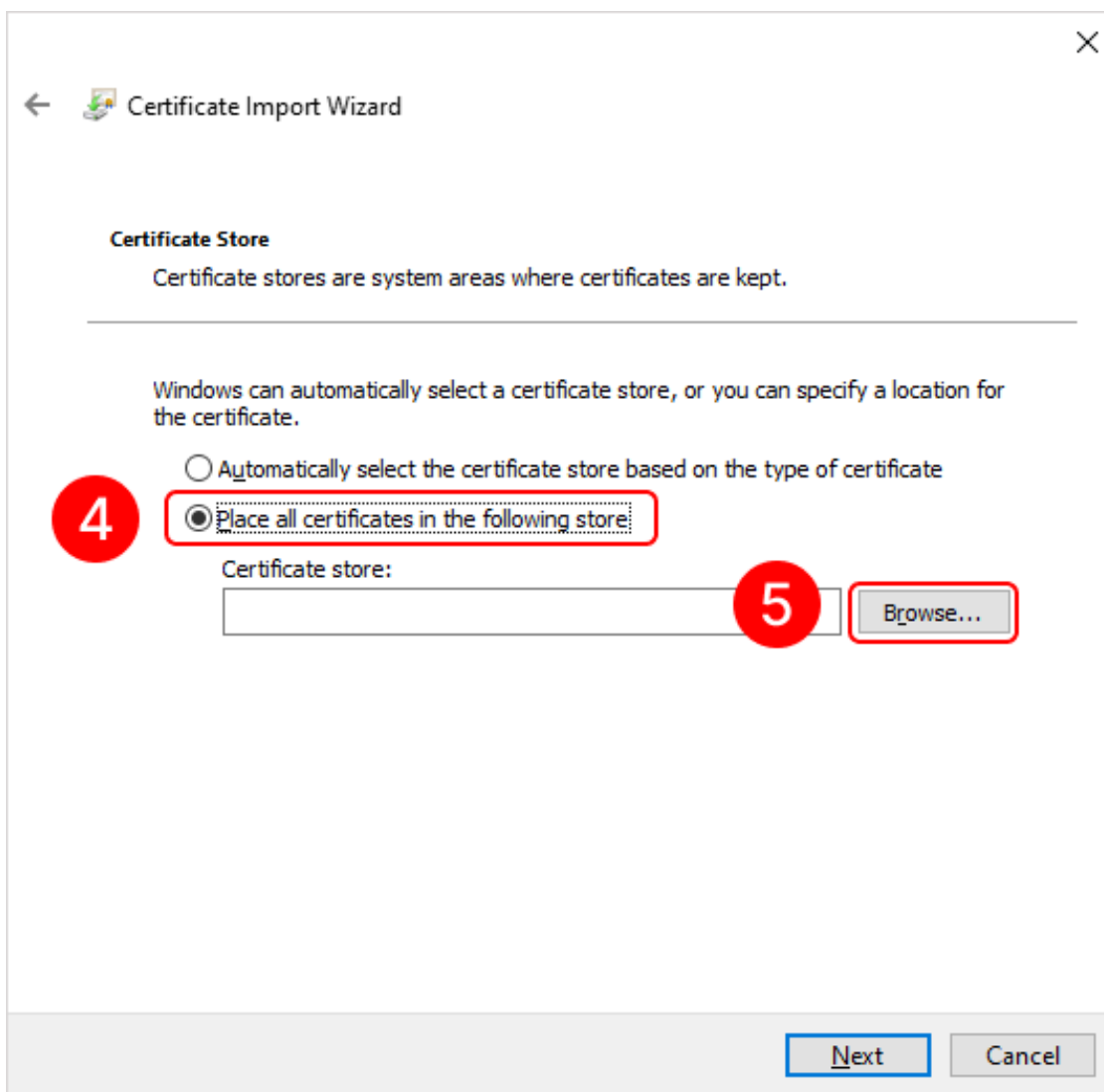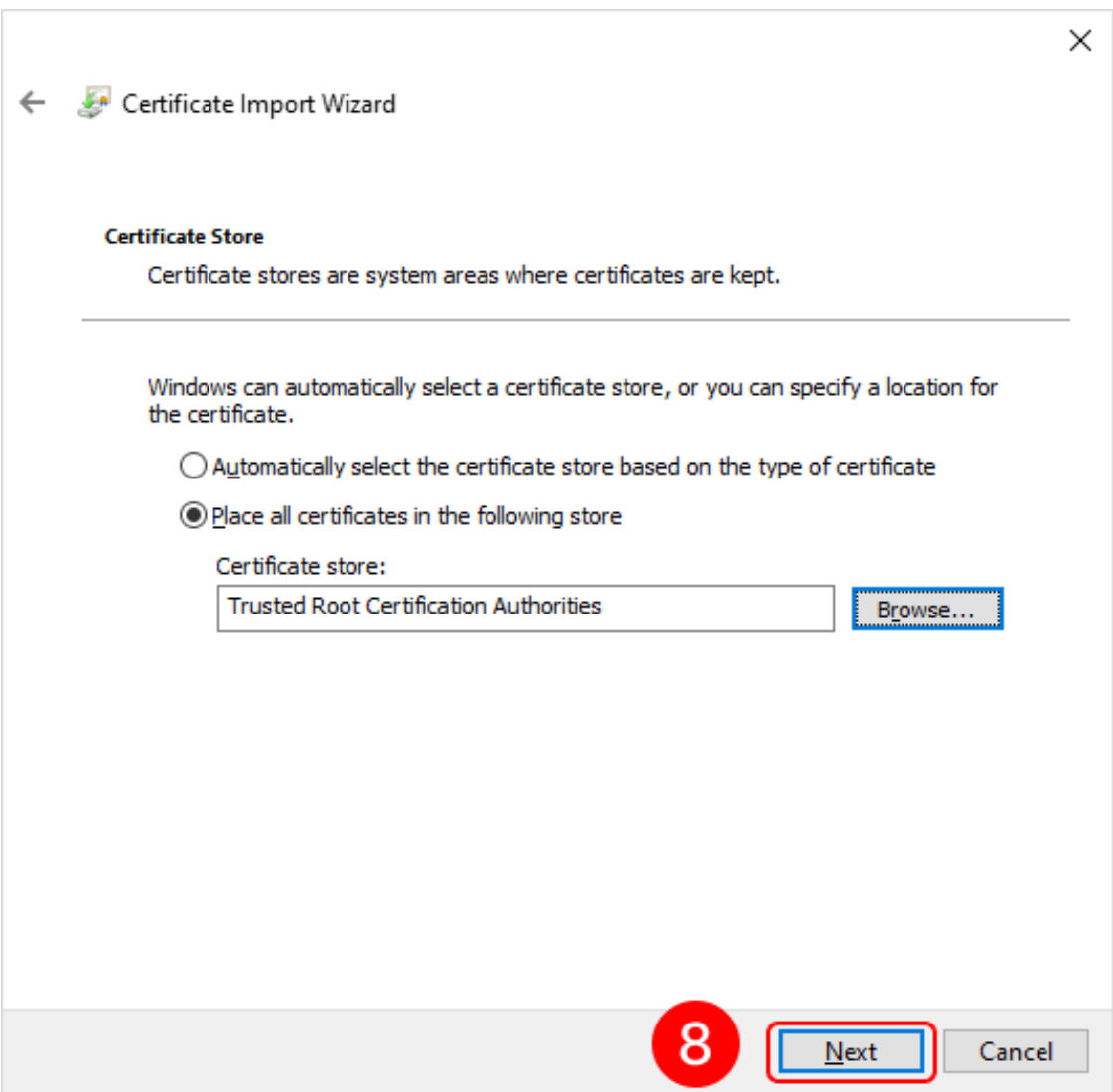
Store Location
- ● Current User
- ○ Local Machine

To continue, click Next.

Next   Cancel

Certificate Import Wizard

File to Import

Specify the file you want to import.

File name:

⬛⬛⬛⬛⬛⬛⬛⬛⬛⬛⬛⬛⬛⬛⬛   Browse...

Note: More than one certificate can be stored in a single file in the following formats:

Personal Information Exchange- PKCS #12 (.PFX,.P12)

Cryptographic Message Syntax Standard- PKCS #7 Certificates (.P7B)

Microsoft Serialized Certificate Store (.SST)

3   Next   Cancel

×

← 🔧 Certificate Import Wizard

Private key protection
To maintain security, the private key was protected with a password.

Type the password for the private key.

Password:

[   ]

☐ Display Password

Import options:

☐ Enable strong private key protection. You will be prompted every time the private key is used by an application if you enable this option.

☐ Mark this key as exportable. This will allow you to back up or transport your keys at a later time.

☐ Protect private key using virtualized-based security(Non-exportable)

☑ Include all extended properties.

④ [**Next**]   [Cancel]

×

← Certificate Import Wizard

Certificate Store

Certificate stores are system areas where certificates are kept.

Windows can automatically select a certificate store, or you can specify a location for the certificate.

⦿ Automatically select the certificate store based on the type of certificate

○ Place all certificates in the following store

Certificate store:

[   ] Browse...
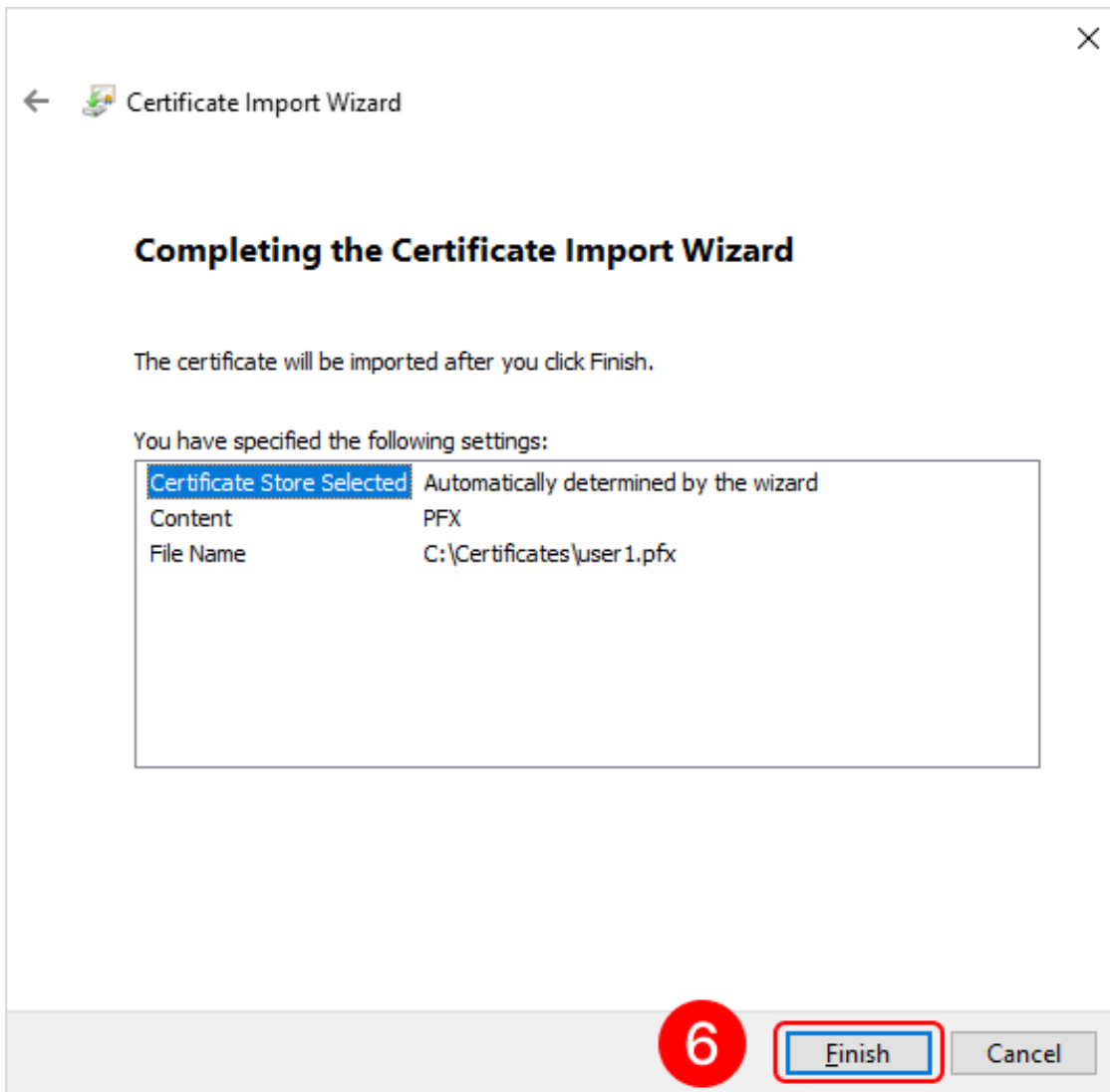
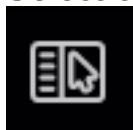⑤ [Next] Cancel

Eocortex Client application setup 〉

1. Open the **Eocortex Client** application under the account that will be used to export the signed files.

2. Go to the control panel clicking on the button located in the upper left corner of the window.

3. Select the item **Settings** in the menu, then select the subitem

    Workplace settings.

4. Go to the **Export** tab.

5. Enable the Electronic signature option using the switch ![switch].

6. Press the button **Select a certificate**.
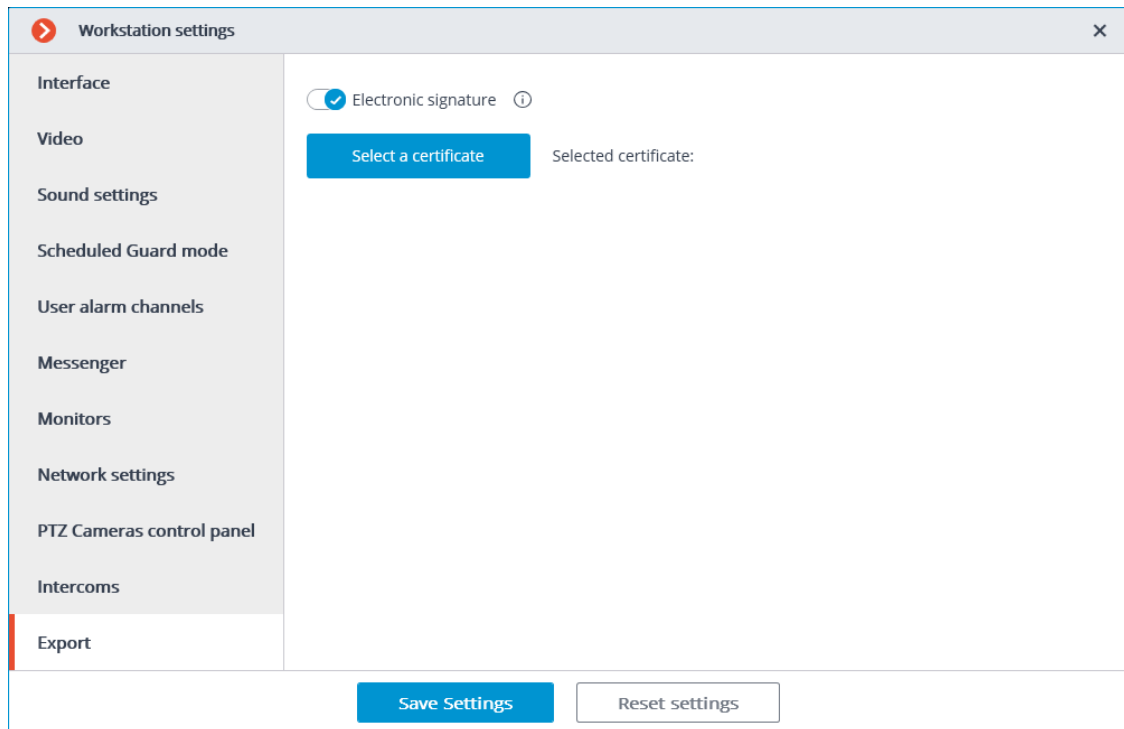
7. In the opened window, select the certificate that the given user will use for signing the files.

Warning

It is important that the imported certificate has a private key. If there is no such key, or the certificate uses an asymmetric algorithm other than RSA, then when you will receive the following error message when trying to select such a certificate:
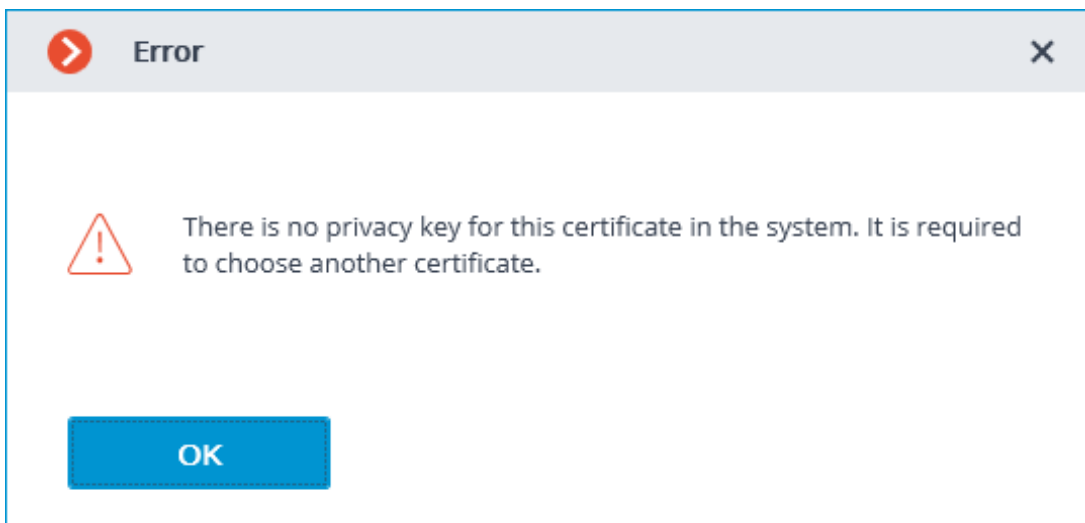
Signing a saved frame 〉

In order to sign a saved frame, click on the icon in the active cell or in the archive cell, or open the context menu and select the **Save frame** item.

Subsequently, open the item Frame with digital signature in the window that has appeared.
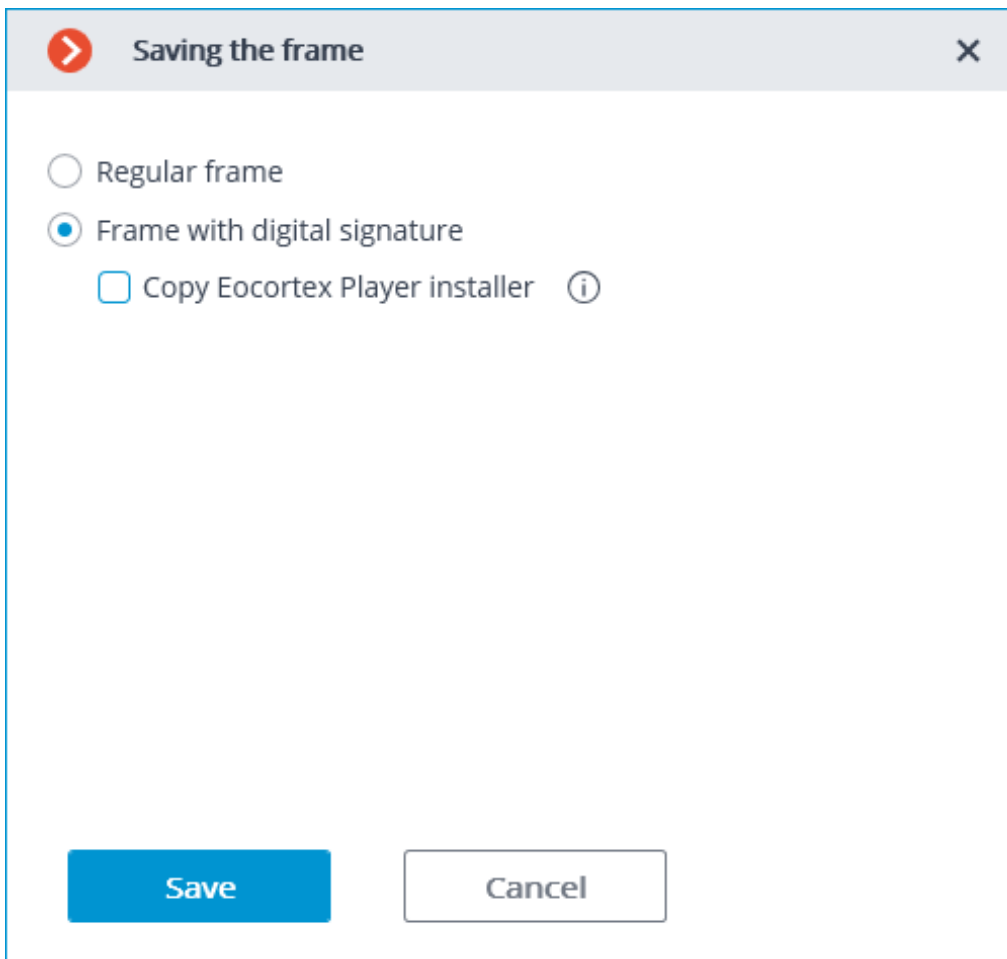
Pressing the **Save** button opens the dialog screen with the option of selecting the storage location for the frame to be saved.

Warning

If an electronic signature has not been set, the dialog screen with the option of selecting the storage location for the frame to be saved will open immediately instead of the **Save frame** window.

Signing video clips to be exported 〉

Enable the option **Sign the file** in the Archive export window in order to sign the archive to be exported.
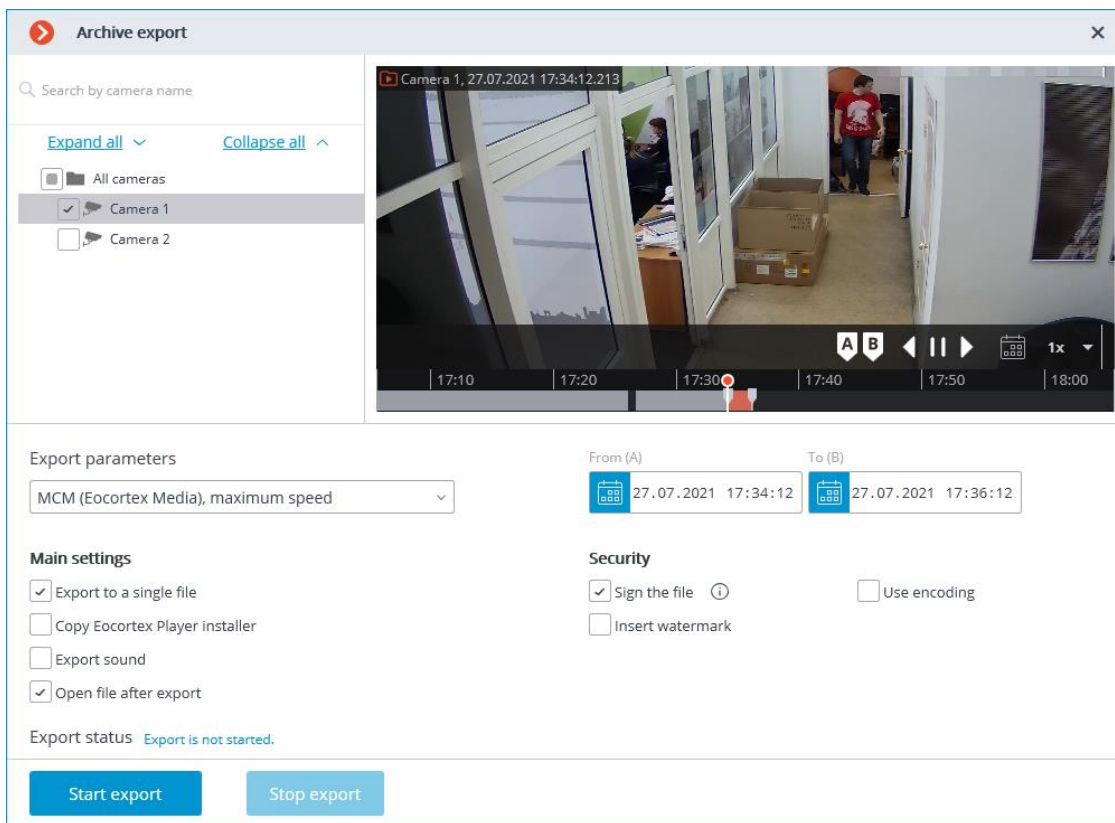
Warning

If an electronic signature has not been set, the **Sign the file** item will not be available.

Note

The electronic signature file is saving alongside the exported file. The signature file name consists of the exported file name and the **msig** extension.

Verification ❯

The **Eocortex Player** application is used to check the signed files. To check the electronic signature of a file, open the file with the msig extension, or open it with the **Check electronic signature** button in the window of the application.
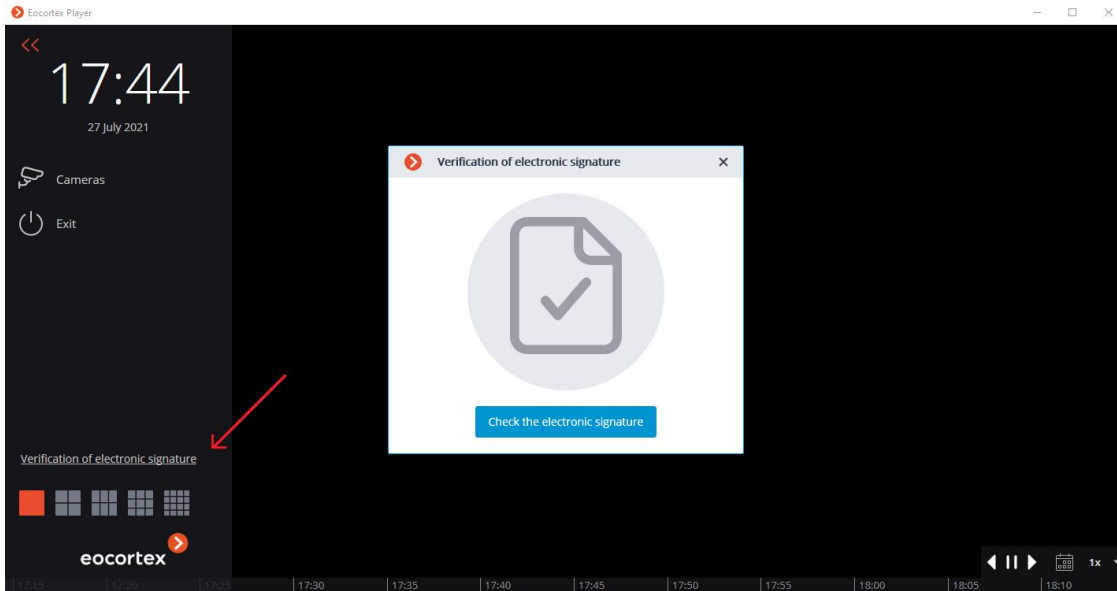
Note

Eocortex Player will try to find and check the exported file automatically. If an error occurs during the process, you will be prompted to select the file manually.

The following window will appear in case of a successful verification:
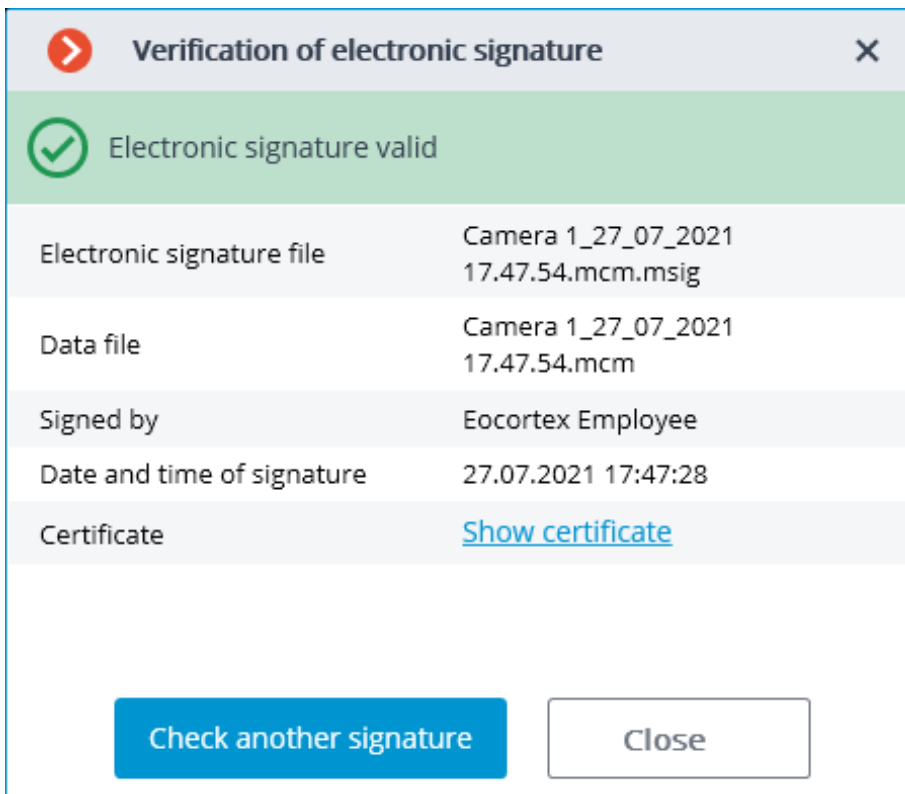
If the file has been modified, the following window will appear:

If the certificate is not a trusted one but the file has not been modified, the following window is displayed:

Additionally, the status of the electronic signature can be viewed in MCM format in the cells of the **Eocortex Player**. To do this, it is required to move the cursor over the status icon. The verification takes place automatically if the corresponding signature file was found.
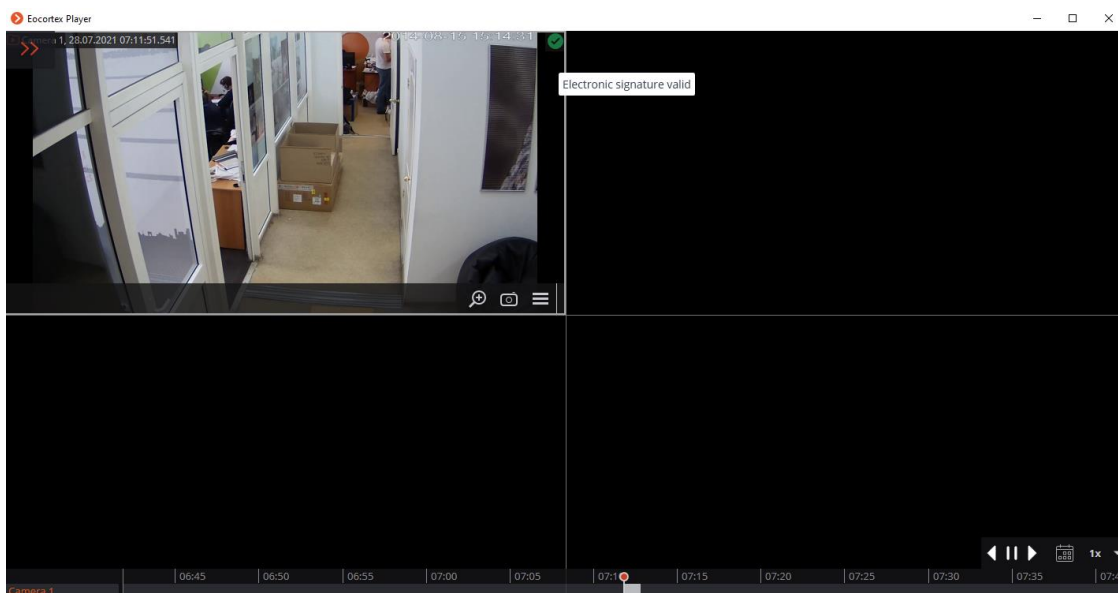
Click on the status icon to view the details.

Export

Watermark on video

Eocortex has the ability to overlay a watermark on live and archived video. This will help to identify the source of video content leakage occurred when viewing and exporting video, as well as saving and printing a frame in the **Eocortex Client** application. When the watermark is enabled, the information about the user who has downloaded the video or frame will be displayed on the video and frame.

Description >

Watermark option allows overlaying the camera image with information about the user who is accessing the camera. The watermark can be applied both when viewing the video in the **Eocortex Client** application and when exporting archive fragments and saving or printing individual frames.

Note

Overlay and display settings can be configured by the surveillance system administrator in the **Eocortex Configurator** application. By default, both the overlay and display options are disabled.

The watermark applies to an image as text composed as follows:

- Date and time of the device where the **Eocortex Client** application is running

- Name of computer

- Username of **Eocortex** user

Watermark can be composed of all attributes at once, or only some of them.

For the applied watermark it is possible to set the color and transparency, as well as to choose the method of text arrangement on the image as one of the following options:

- One watermark on the diagonal

- Multiple watermarks on the diagonal

- One watermark on the horizontal

- Multiple watermarks on the horizontal

Individual watermark overlay settings can be set for each camera.

The overlay settings are consistent for the camera, so the watermark will have the same appearance and structure both when viewing the video in the **Eocortex Client** application and when exporting the video or frames. So, even when exporting an archive for a group of cameras at once, each camera will have its own watermark according to the specified settings.

Note

If the **Date and time** attribute is enabled, its behavior will be different when viewing video and frames in the **Eocortex Client** application and exporting. So, when viewing video in the application, this attribute displays the current computer time, while in the exported video and on the saved frame it will display the time when the export process started.

Watermark overlay settings are set for the camera, so the watermark will have the same appearance and structure for all users who are defined to see it. At the same time, different groups of users can be provided with different watermark display settings in the **Eocortex Client** application by selecting one of the following display options:

- Only on live view

- Only on archive view

- Always

Note

If the **Only on live view** option is selected, the watermark will not be applied to exported archive fragments and frames saved or printed from the archive.

Watermark is compatible with the option of overlaying an image from a file.

Configuring the watermark in Eocortex Configurator ❯

Note

Configuration of the watermark displaying for a camera is available only to users, who have rights to configure that camera.

Individual camera

To set up the watermark displaying for a single camera, do the following:

1. Run the **Eocortex Configurator** application.

2. Go to the 📷 **Cameras** section.

3. Select a camera in the list.

4. Switch to the **Watermark** on the right part of the window.

5. Enable the ✅ **Display watermark** feature.

   Note

   By default, this option is disabled.

6. Configure the watermark displaying.
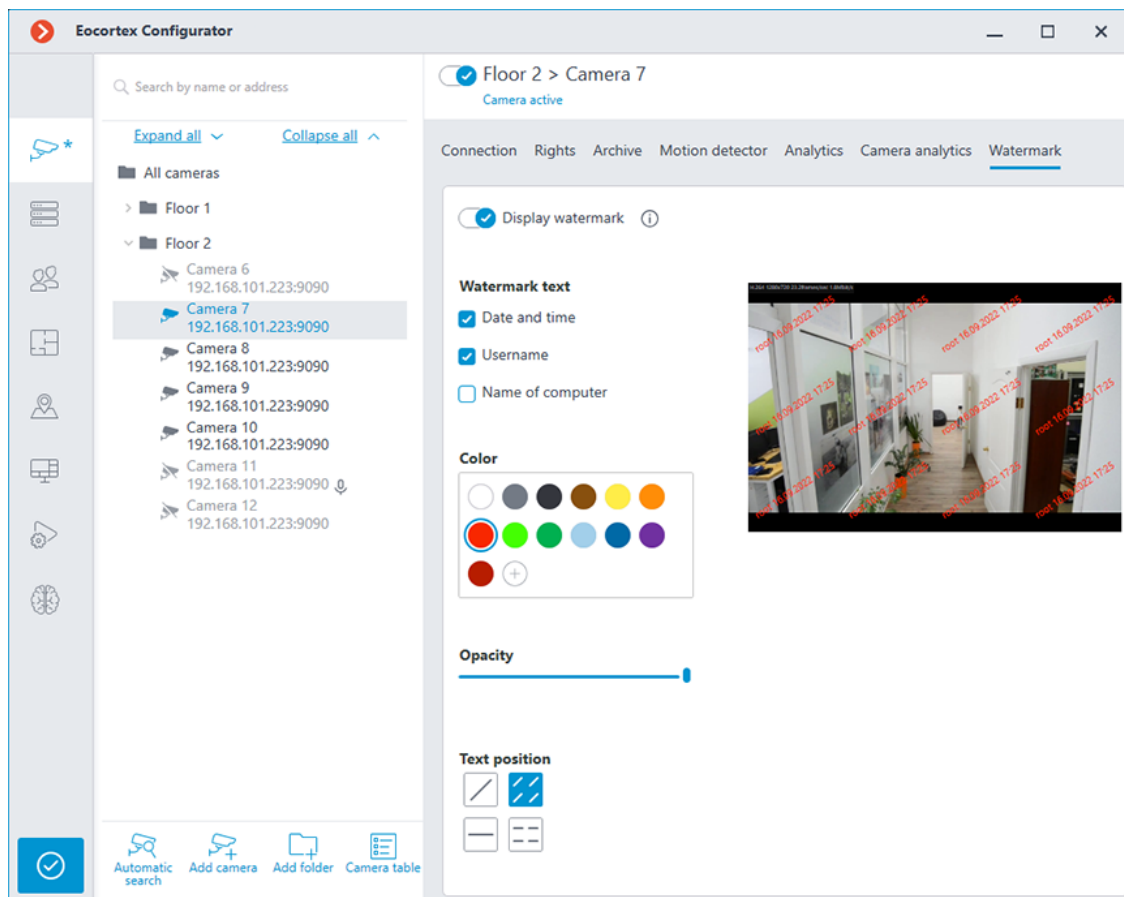
7. Enable displaying of the watermark in the user rights settings.

8. Apply settings.

Group of cameras

To set up the watermark displaying for a group of cameras, do the following:

1. Run the **Eocortex Configurator** application.

2. Go to the **Cameras** section.

3. Select a group of cameras in the list.

4. Click the **Change camera group settings** button on the right part of the window;

5. In the window that opens, switch to the **Watermark** tab;

6. Configure the watermark displaying.
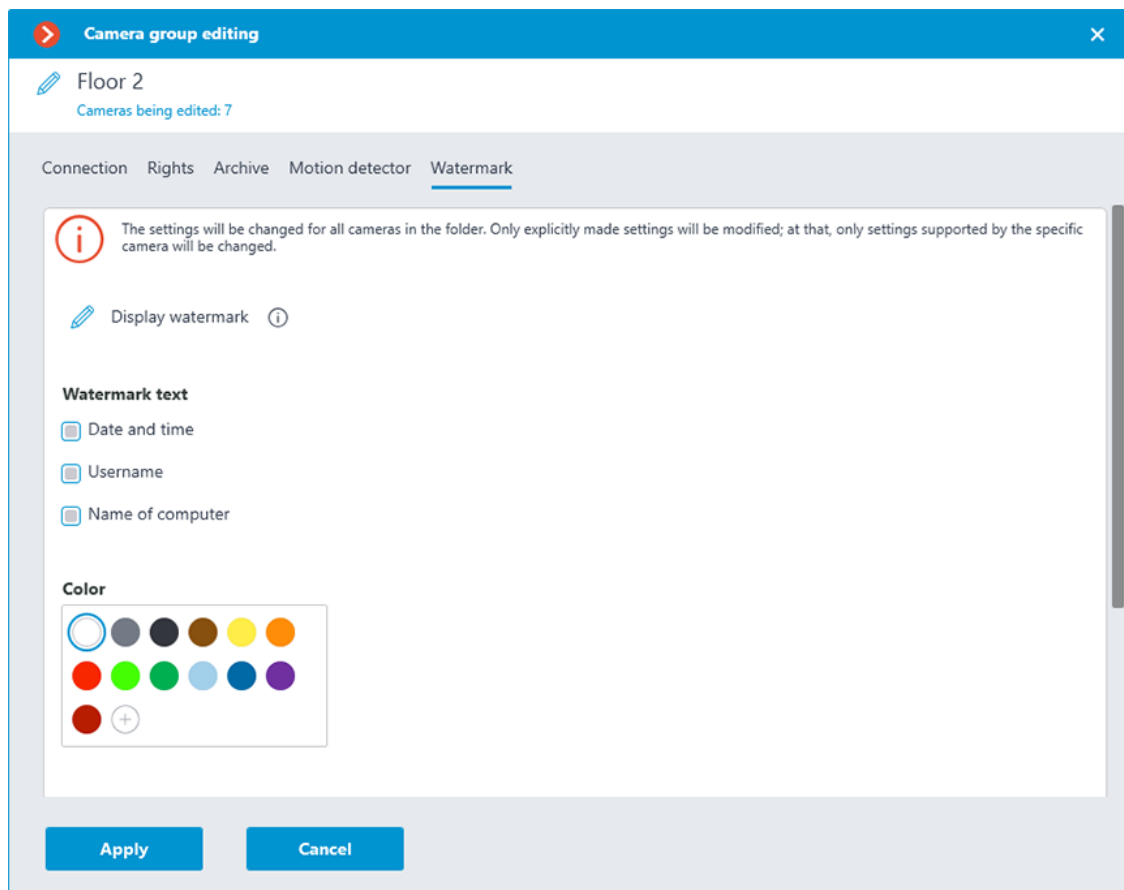
Warning

The watermarked video preview is not available when setting up a camera group.

7. To change the settings for all cameras in the selected group, click **Apply**.

   Enable displaying of the watermark in the user rights settings.

8. Apply settings.

Watermark properties

Below is a description of the available settings:

- **Watermark text**: In this group of settings, it is possible to select the parameters that will be displayed in the watermark:

- **Date and time**

- **Username** running **Eocortex Client**.

- **Name of computer**, on which **Eocortex Client** is running.

- **Color**: the color of the watermark text. If the desired color is not presented in the preset palette, it can be added by pressing the ⊕ button.

- **Opacity**: The leftmost position of the slider corresponds to the minimum opacity value — 10%; the rightmost position of the slider corresponds to 100%.

- **Text position**: location and orientation of the watermark. The following options are available:

- ▱: Single watermark diagonally from left to right, bottom to top;

- ▱: Multiple watermarks diagonally from left to right, bottom to top;

- ▭: Single watermark horizontally, in the center of the cell;

- ▭: Multiple horizontal watermarks.

Note

When selecting options with multiple watermarks, the number of marks is determined by the size of the cell.

Configuring user rights ⟩

By default, displaying of the watermark is disabled for all user groups.

Warning

In **Eocortex** systems running with **Enterprise** and **ULTRA** licenses, the watermark is not visible in the **Eocortex Client** application and is not overlaid on exported content for users with **Senior administrator** access rights.

To enable displaying/hiding of the watermark for a user group, follow these steps:

1. Run the **Eocortex Configurator** application.

2. Go to the 👥 **Users** section.

3. Select the **Users of Eocortex applications** subsection.

4. Select a group of users and click the **Edit** button.

5. In the window that opens, switch to the **Basic** tab.

6. Enable the **Display watermark on video** permission and set the desired displaying mode.

    Note

    If the option **Only on live view** is selected, the watermark will not be applied to the exported archive fragments and frames.
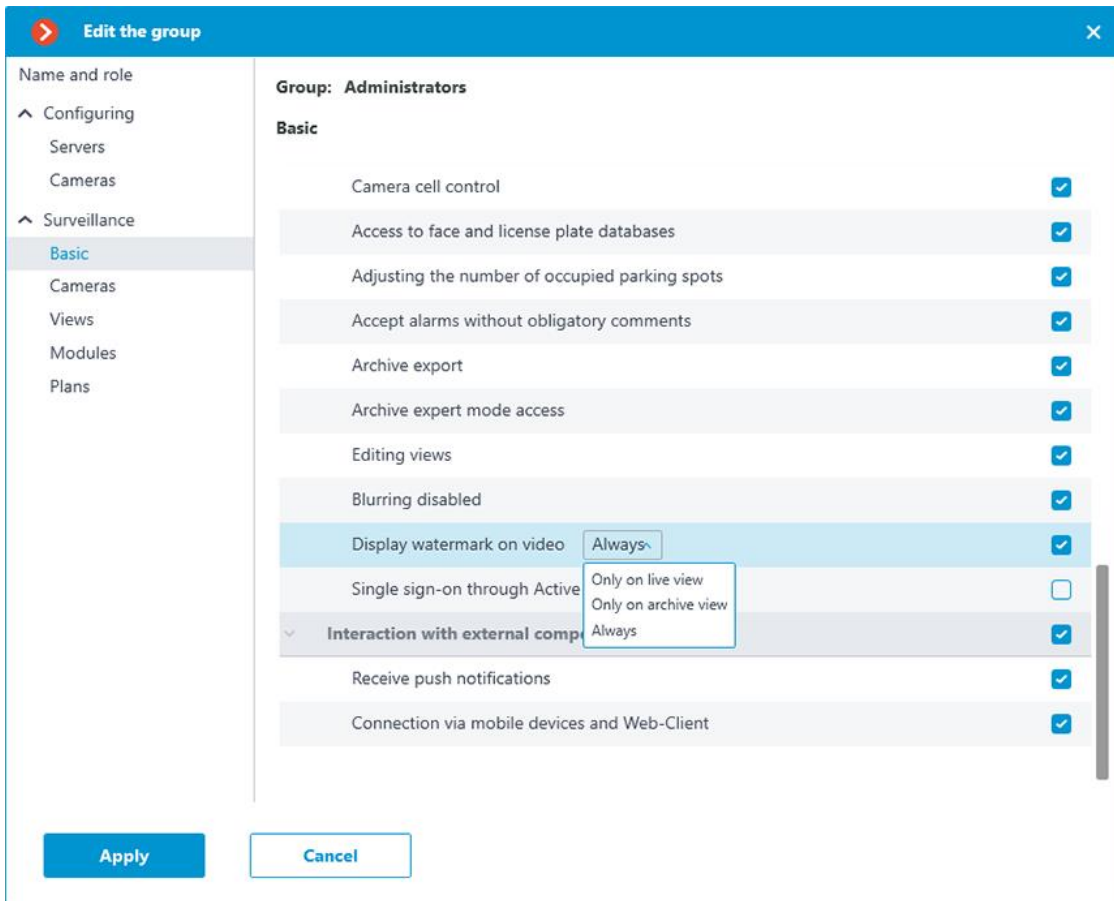
Using in the Eocortex Client application ❯

If the camera is set to display a watermark and the user has been given the **Display watermark on video** permission, the **Eocortex Client** application will display the watermark in the cell with the video stream from that camera both during live viewing and archive playback.
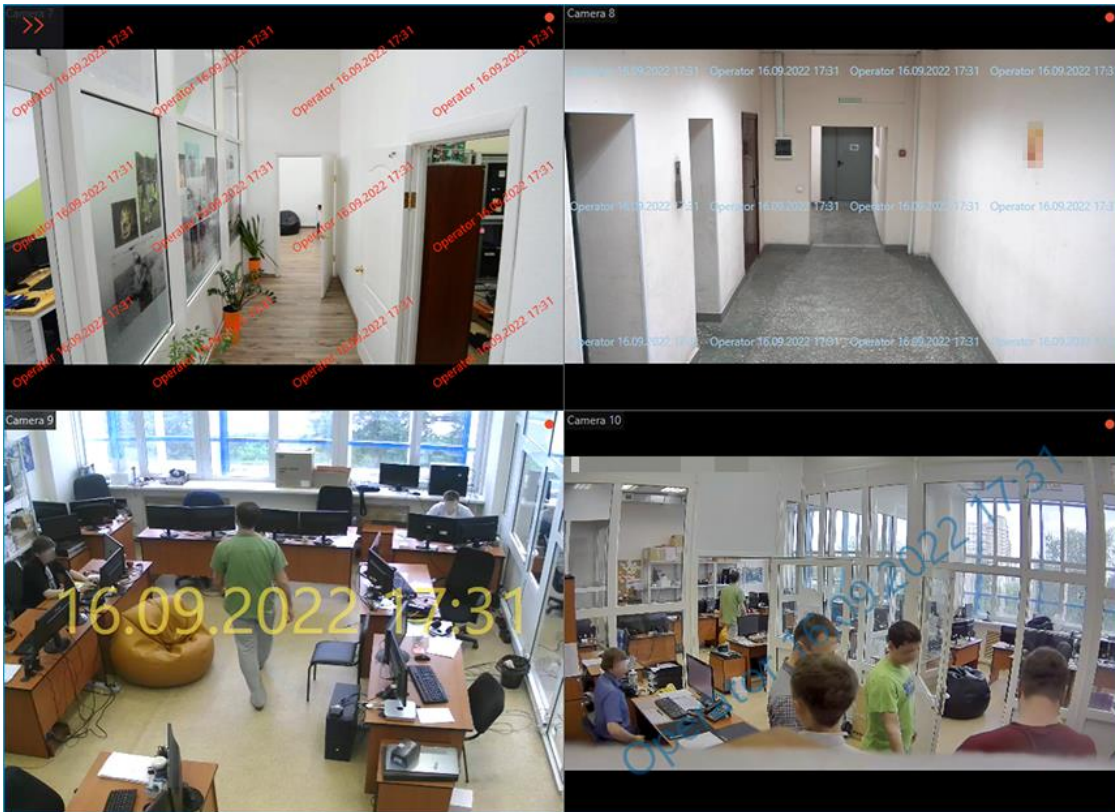
Warning

In **Eocortex** systems running with **Enterprise** and **ULTRA** licenses, the watermark is not visible in the **Eocortex Client** application and is not overlaid on exported content for users with **Senior administrator** access rights.

The watermark is not visible in the preview section of the Fragments mode.
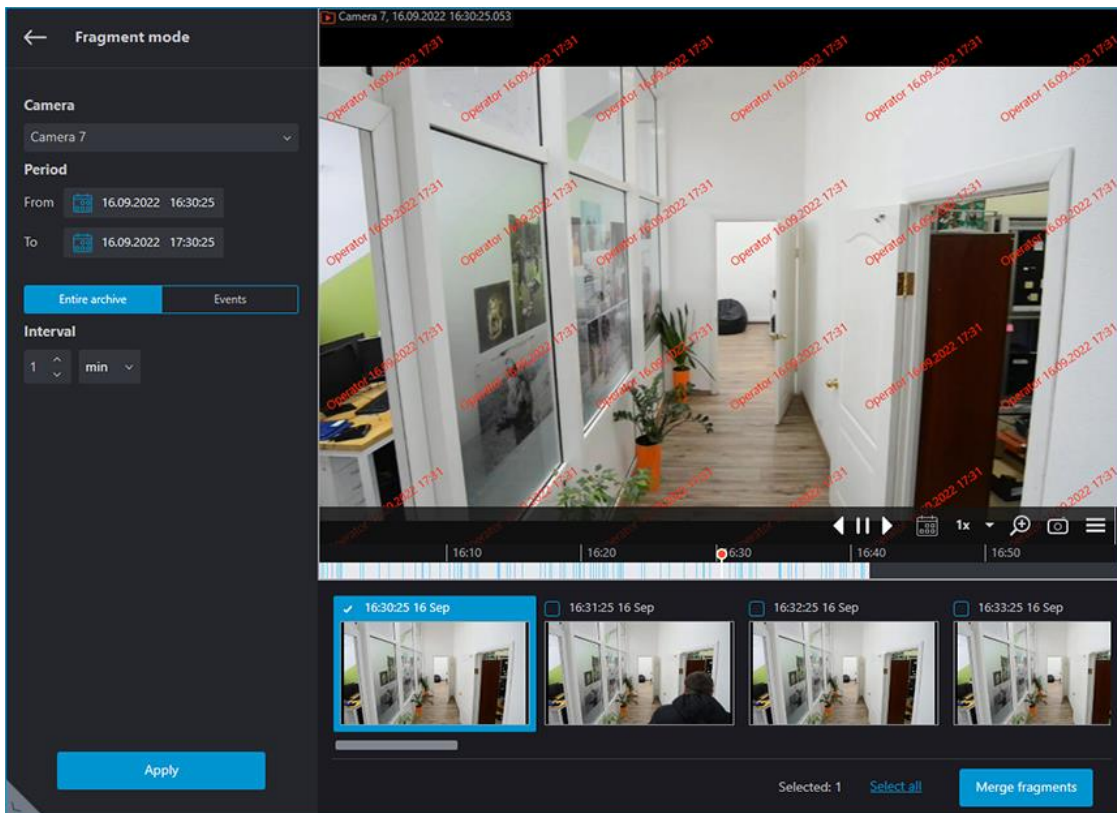
When saving or printing a frame, the watermark that is currently displayed in the camera cell will be applied to an image with all lines and columns unchanged.

To watermark the exported video, go to the **Archive export** window and click **Start export**. When selecting a camera from the list of cameras, the watermark configured for that camera will be displayed on the preview.
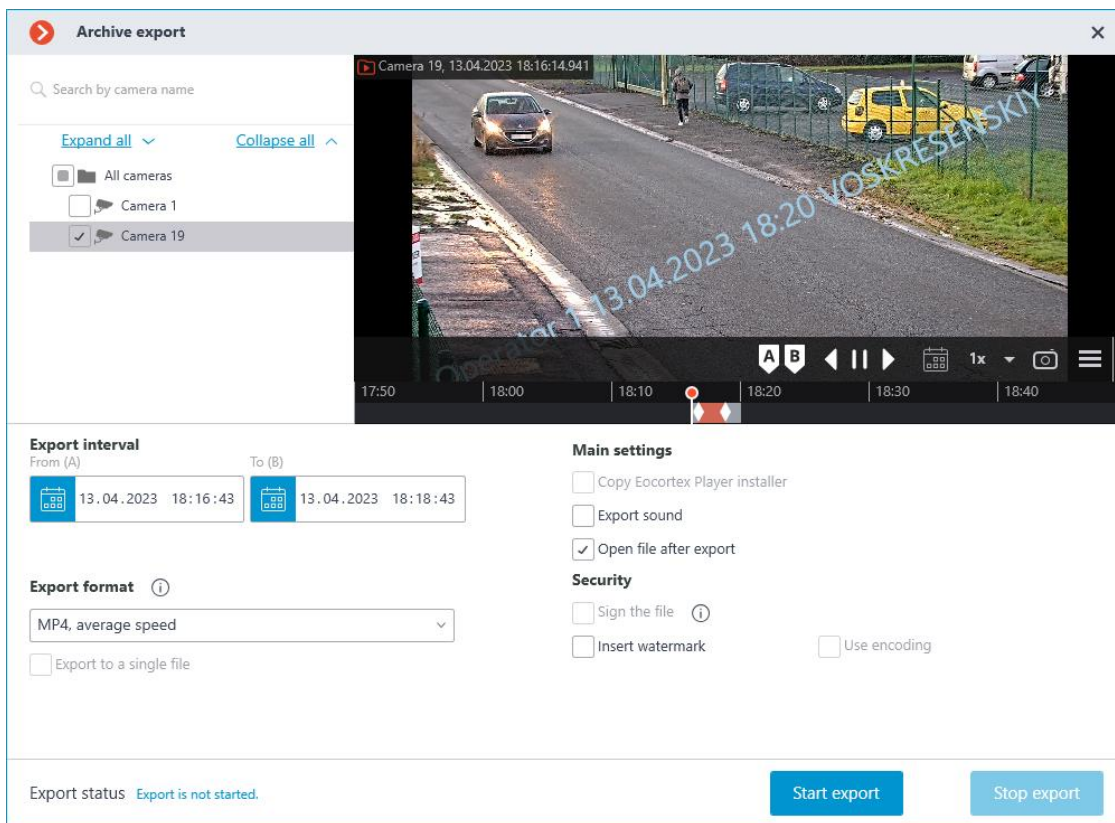
Warning

For cameras with applied watermark, exporting the archive in the formats **MCM** and **MP4 without time stamps, high speed** is not available. If at least one camera with enabled watermark is selected when exporting an archive for a group of cameras, exporting to the specified formats will be blocked for the entire group.

The same information is available in the tooltip next to the format selection menu.
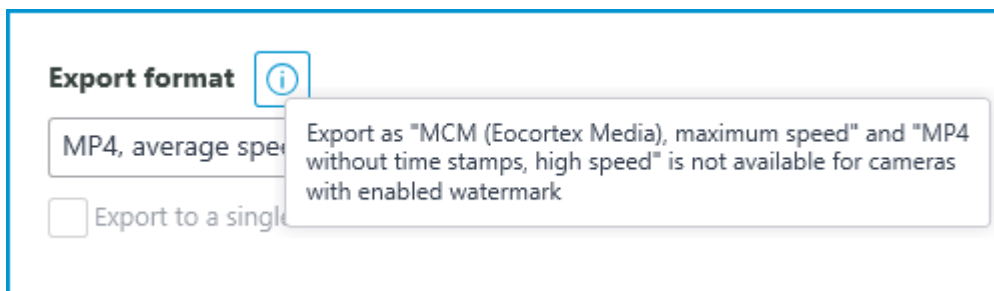
In addition to the text watermark, when exporting videos it is possible to overlay an image from a file to the lower right corner of the frame. These options are compatible with each other and can be used simultaneously. The image from the file will overlay the watermark text.
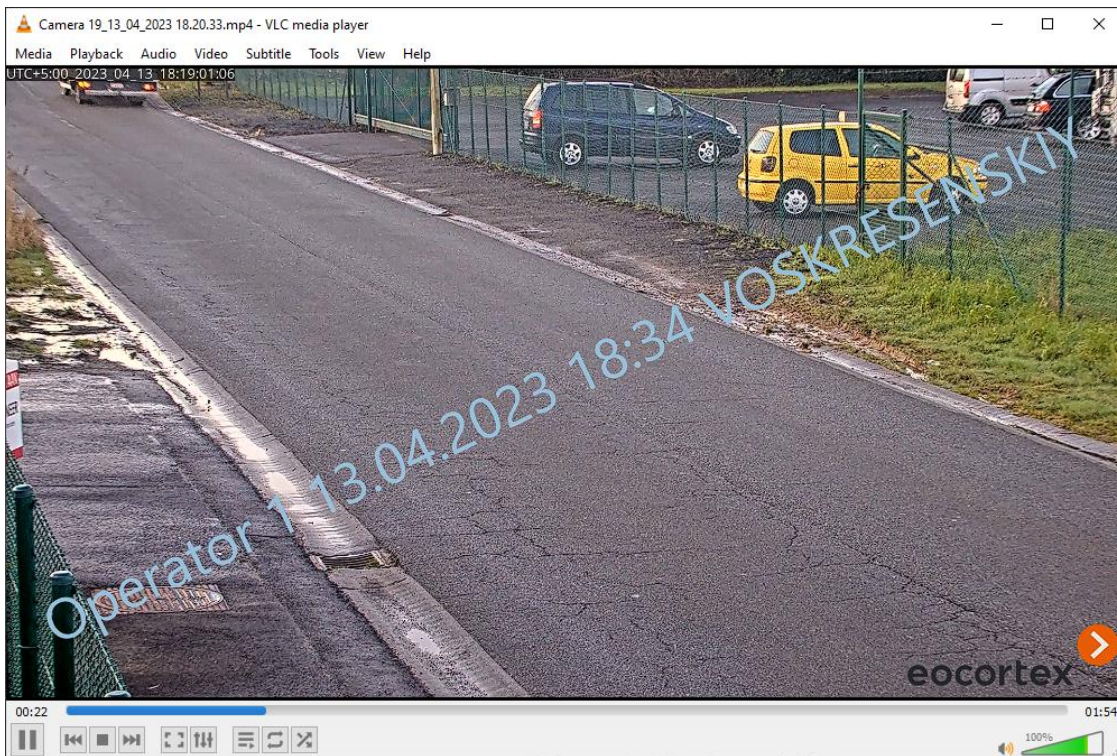
Requirements and recommendations ❯

Warning

In **Eocortex** systems running with **Enterprise** and **ULTRA** licenses, the watermark is not visible in the **Eocortex Client** application and is not overlaid on exported content for users with **Senior administrator** access rights.

- The watermark is not visible in the preview section of the Fragments mode.

- For cameras with a watermark overlay, exporting the archive via HTTP API and mobile application is not available.

- For cameras with applied watermark, exporting the archive in the formats **MCM** and **MP4 without time stamps, high speed** is not available. If at least one camera with enabled watermark is selected when exporting an archive for a group of cameras, exporting to the specified formats will be blocked for the entire group.

- If the **Username** in the watermark will be too lengthy, its display will be scaled to fit on the screen.

- If the option **Only on live view** is selected, the watermark will not be applied to the exported archive fragments and frames.

- The watermark will not be applied to frames saved with the **Save frame** action, which can be created on the **Automation** tab of the **Eocortex Configurator** application.

Time of a camera can be displayed in the **Eocortex** applications in two modes:

1. in the time zone of the client workstation;

2. in the time zone of the camera.

Description ›

Warning

Setting the time zones of the cameras and selecting the time display mode on the cameras are available for **Eocortex** applications version 3.6 and higher. Earlier versions of **Eocortex** applications do not support these features.

By default, configuration of the time zones is not active. When this features is enabled, it is enabled centrally for the entire system.

If the camera time zone setting is not active, then in client applications, the time on the cameras will always be displayed in the time zone of the computer or device where the application is running.

If the camera time zone setting is active:

- By default, the camera has the same time zone as the server it is linked to.

- By default, the server has the same time zone as the operating system it is installed.

- The server may be assigned a different time zone than the operating system's time zone.

- The camera may be assigned a different time zone than the server's time zone.

- In the client application, it is possible to select which time zone will be displayed for the camera: the time zone of the client workstation/device or the camera's own time zone.

Note

By default, client applications display time on the camera in the time zone of the client computer/device.

Setting the time zones of servers and cameras is carried out in the **Eocortex Configurator** application.

The selection of time display mode on the camera is carried out in client applications.

Setting in Eocortex Configurator ❯

Displaying camera time zone

To activate the camera time zone display feature:

1. Launch the **Eocortex Configurator** application.

2. Open the ▤ **Servers** section.

3. In the list of servers, select the ▤ **General settings**.

4. Switch to the **Cameras** on the page that opens.

5. Activate the **Consider time zones** feature.
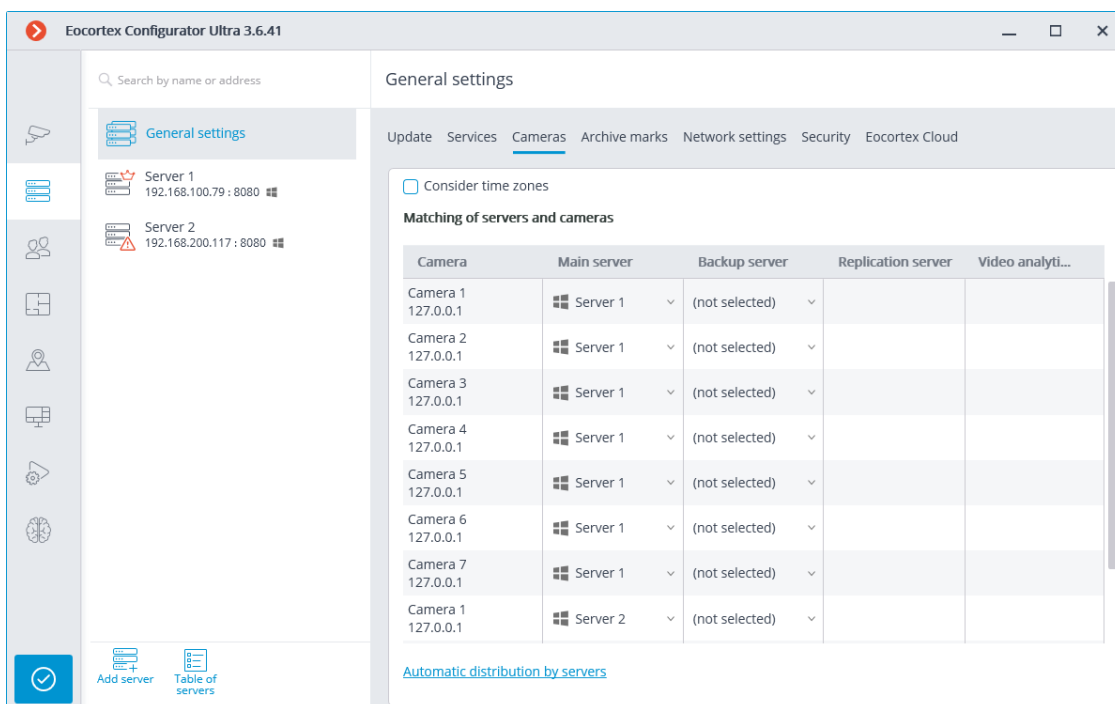
Server time zone

To set up the time zone of the server:

1. Launch the **Eocortex Configurator** application.

2. Open the ▤ **Servers** section.

3. Select the server in the list.

4. Switch to the **Cameras** on the page that opens.

5. In the drop-down menu, select the needed time zone.

Note

Along with the change of the server time zone, the time zone of the cameras linked to it will also change.

The list of available time zones depends on the operating system on which the **Eocortex Configurator** application is running.
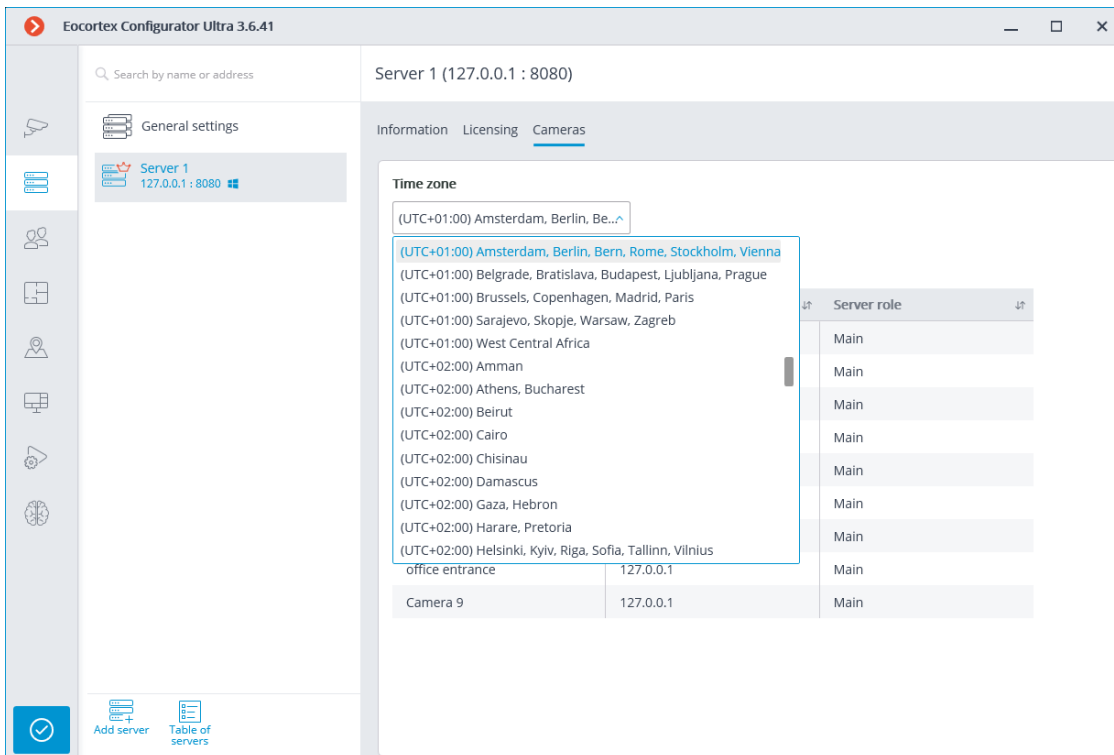
Individual camera time zone

To set up the time zone of the camera to be different from the time zone of the server the camera is linked to:

1. Launch the **Eocortex Configurator** application.

2. Open the Cameras section.

3. Select the camera in the list.

4. Select the **Connection** tab on the page that opens.

5. In the **Time zone** group of settings, set the time zone:

   – **Server time zone**: the time zone of the server the camera is linked to will be used.

- **Camera time zone**: the selected time zone will be used, regardless of what time zone has the server the camera is linked to.
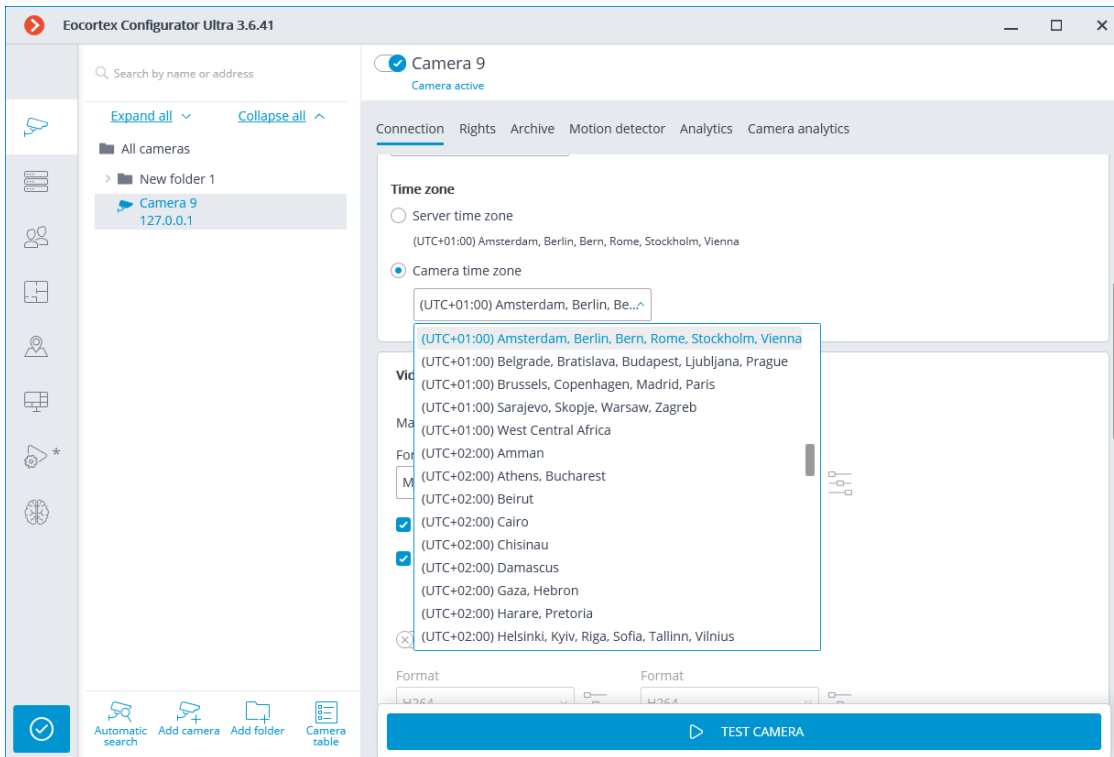
Group of cameras time zone

If the time zone settings must be changed for the group of cameras:

1. Launch the **Eocortex Configurator** application.

2. Open the ⌐ **Cameras** section.

3. Select the group of cameras in the list.

4. Click the **Change camera group settings** button on the page that opens.

5. In the **Time zone** group of settings, set the time zone:

   - **Server time zone**: the time zone of the server the camera is linked to will be used.

   - **Camera time zone**: the selected time zone will be used, regardless of what time zone has the server the camera is linked to.

Note

If the **Server time zone** option is selected for the group of cameras and the Main server has not been changed for this group in the group settings window, each camera will use the time zone of the server it is linked to.
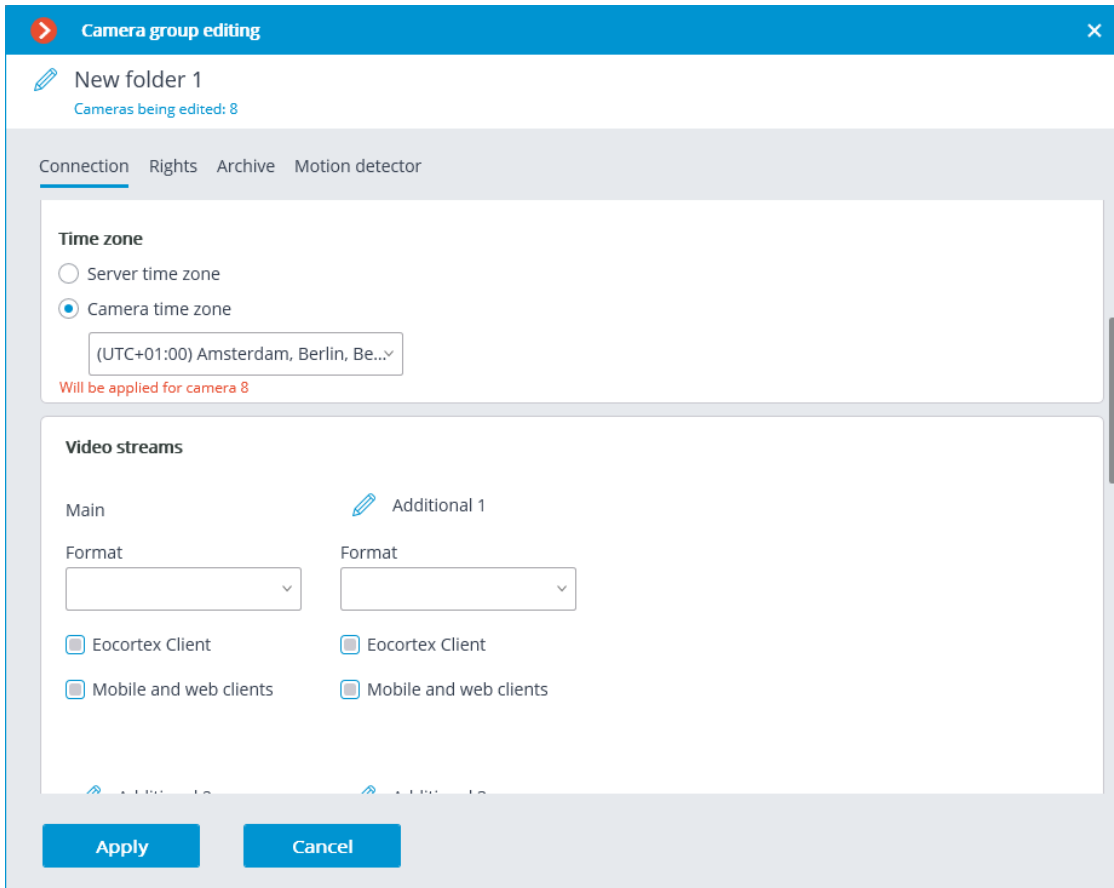
Warning

In case of the multiserver system, the main server must have the version of **Eocortex** 3.6 or higher to be installed. Otherwise, the entire system will not be able to use the time zone settings.

Note

Recommendations for upgrading servers in a multiserver system to **Eocortex** version 3.6 from lower versions:

1. Update the main server.

2. Update the subordinate servers.

The time zone on the subordinate server will be set when:

- the update process will be completed;

- connection with the main server will be restored.

If the **Consider time zones** option is enabled in the **Eocortex Configurator** application, the **Eocortex Client** application will work in the time zones configured on the cameras/servers.

To work in the time zone of the computer running the **Eocortex Client** application, the user need to select the ⛭ **Settings** section, open the 🔳 **Workplace settings** subsection and on the **Interface** tab enable the **Use client time** option.

Note

By default, this option is disabled.
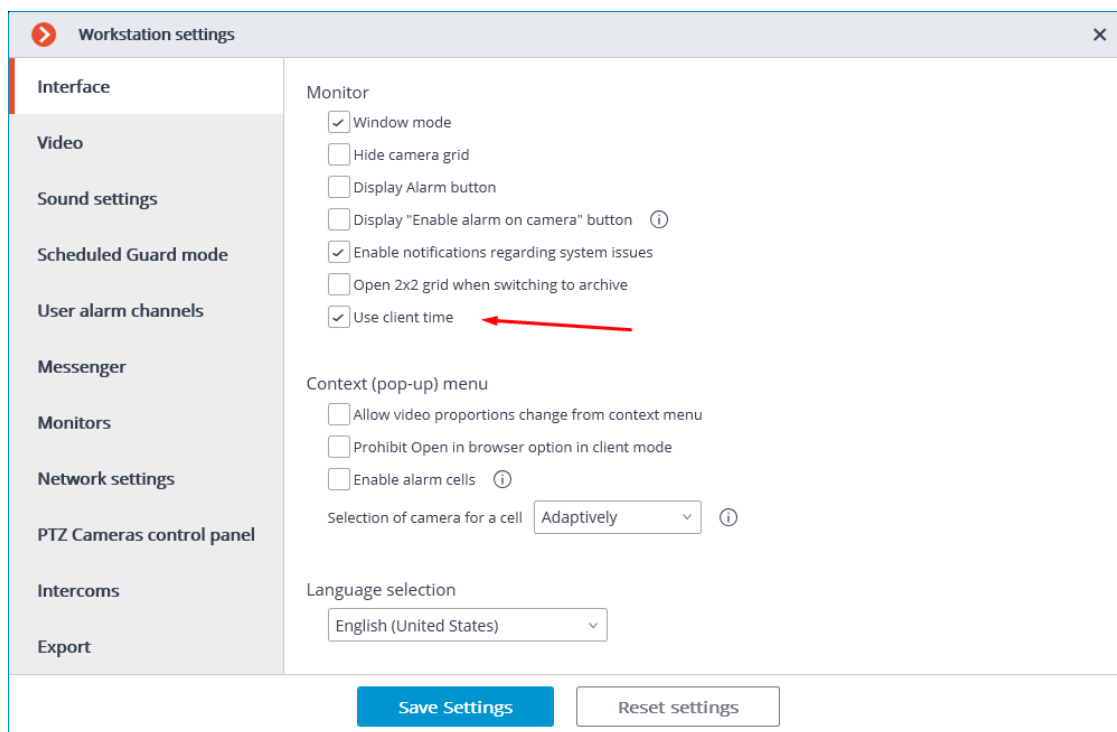
Single camera archive

When viewing the single camera archive, the archive cell displays the time zone that is configured on the selected camera.

Note

The actual offset displayed in the cell may differ from the offset in the list of time zones in the **Eocortex Configurator** application settings, if the daylight saving is applicable for the selected time zone.
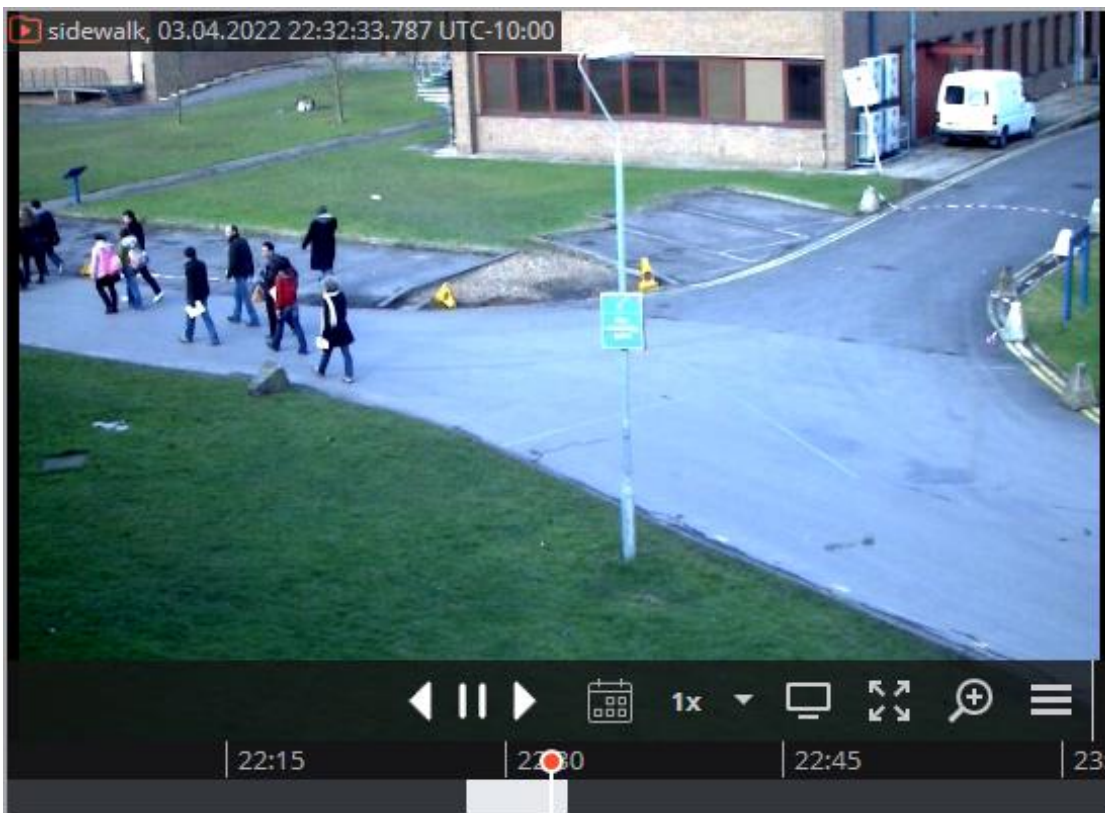
Archive of multiple cameras

When several cameras are selected for simultaneous viewing of the archive, the time is displayed for the selected time zone.

The list of available time zones consists of those time zones that are configured on cameras and servers, as well as the time zone of the computer running the **Eocortex Client** application.

Note

By default, the time zone of the computer running the **Eocortex Client** application will be selected.
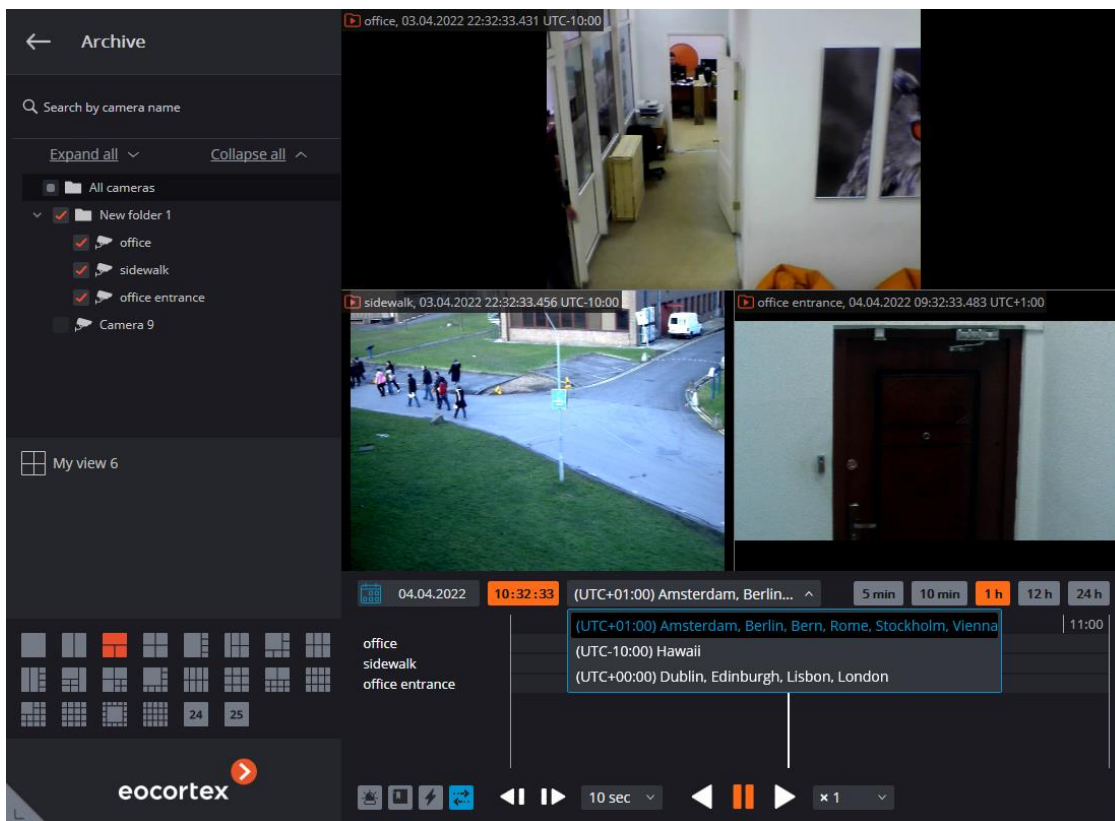
Note

When a new time zone is selected, the time on the timeline will change according to the selected time zone. For example, if the user changes the time zone from UTC+05:00 to UTC+03:00, then the values on the timeline would decrease by 2 hours.

Note

During video playback in synchronous view, the time and the time zone at the top of the camera cells are not displayed.

Events log

Search for archive events in the Event log can be configured considering the time zone.

The **Camera time** column displays the time of the event in the time zone of camera.

Archive export

By default, the archive is exported in the time zone of the computer running the **Eocortex Client** application.

To export the archive considering the time zone of camera, the **Use camera time zone** option need to be activated.

In this mode, the archive fragments for each of the selected cameras will be exported at an individual time interval, based on the specific time zones selected for each of them. The time value specified as the beginning and end of the exported fragment will correspond to the same intervals of the time zones of each of the cameras.
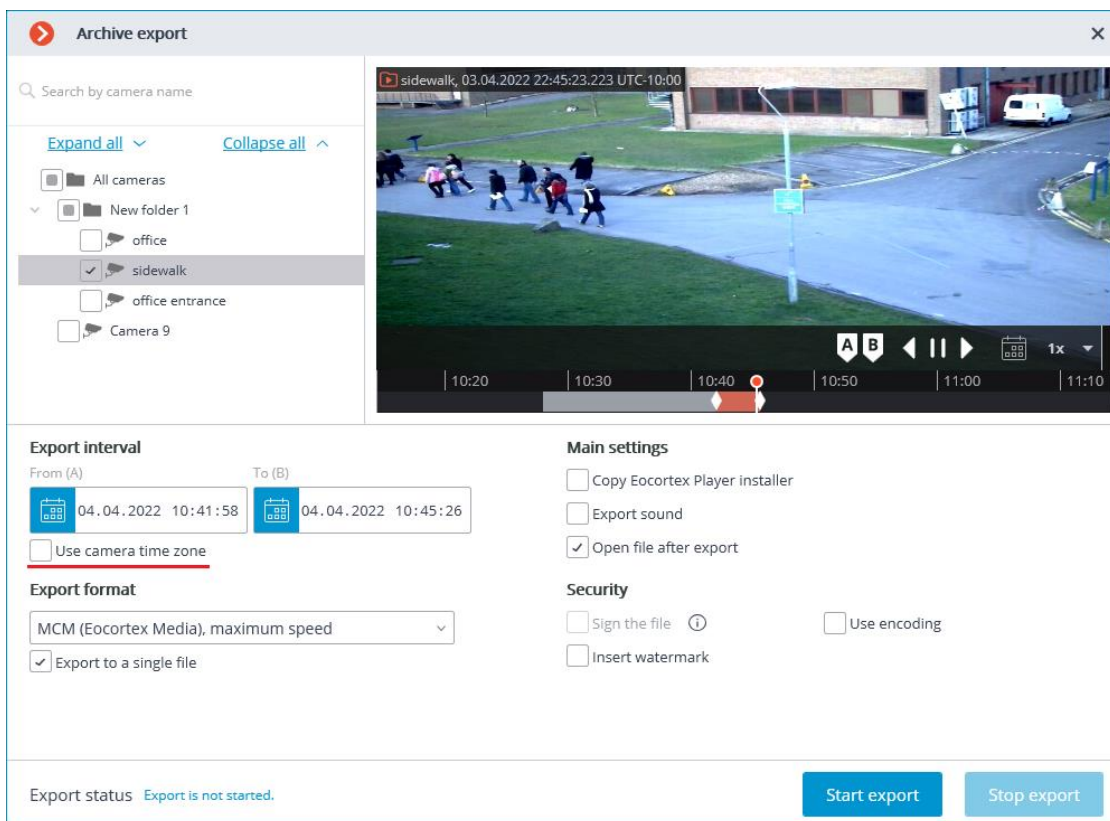
For example, the **Eocortex Client** application is running on a computer with the UTC+4:00 time zone. It is required to export the archive from 12:00 to 16:00 for three cameras located in the following time zones: UTC+5, UTC+3 and UTC+8.

If the archive fragment has been exported considering the time zones, then when viewing the export result for several cameras with different time zones, in the **Eocortex Player** application, archive fragments will be displayed on the timeline with the shift equal to the difference between the time zone of each camera and the local time zone of the workstation.
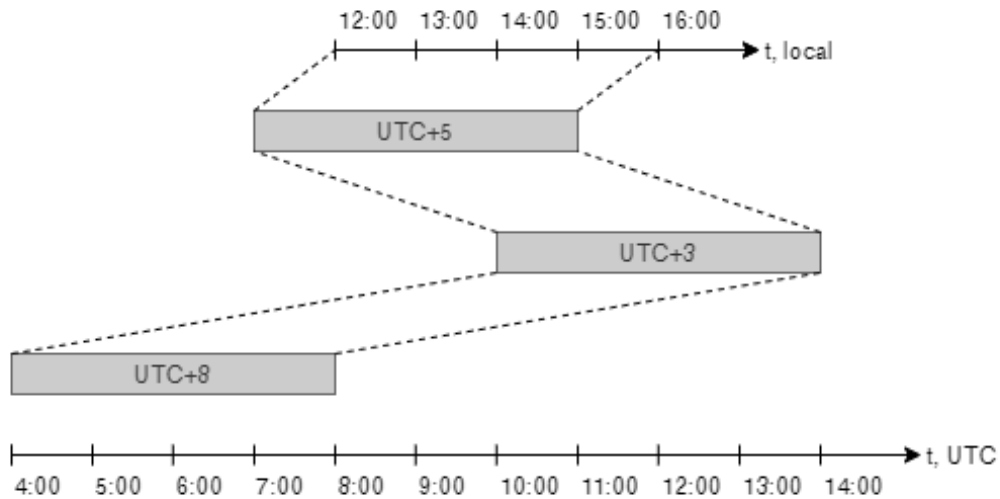
Note

It is recommended to export archive fragments recorded with the same time zone selected.

The time for archive fragments exported in AVI and MP4 format will be displayed considering the time zones in which they were recorded, regardless of whether the feature is enabled or not.

Fragment mode

When using the fragment mode, the time zone of the selected camera is used to display and set up all times.
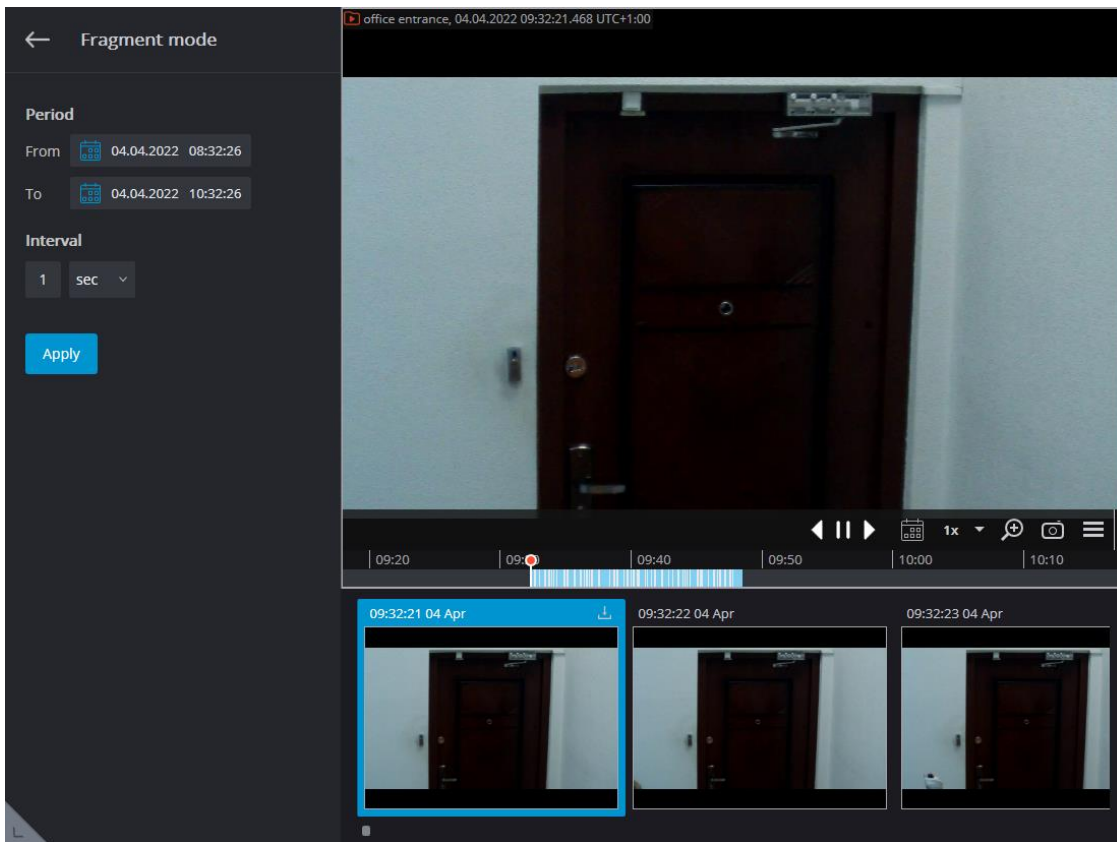
Eocortex Player

In the **Eocortex Player** application, the time zone can be selected from the drop-down menu.
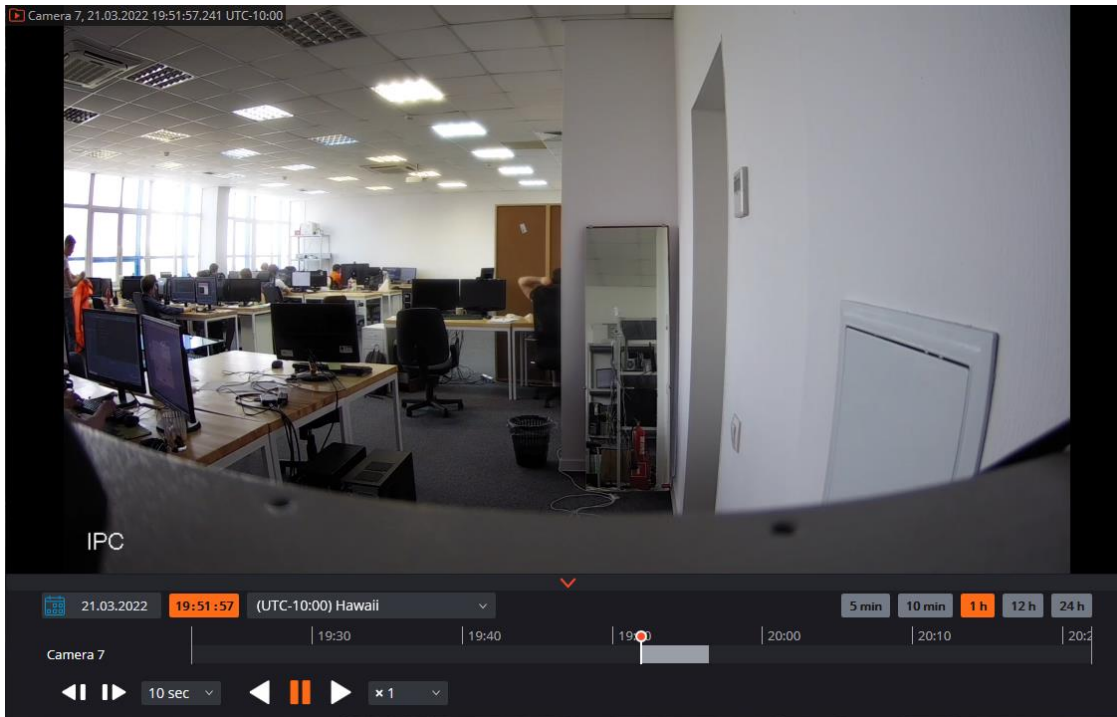
Note

For selection will be available those time zones that were configured on the exported cameras.

Note

If several MCM files or an MCM file with multiple cameras exported using camera time zones in the **Eocortex Player** application is open, the time zone of the first exported camera will be selected by default.

If the file that open has been exported without considering the time zones, the time zone of the computer on which the **Eocortex Player** application is running will be selected by default.

Eocortex Web Client ❯

In the **Eocortex Web Client**, when viewing an archive, the video is displayed in the configured camera time zone.
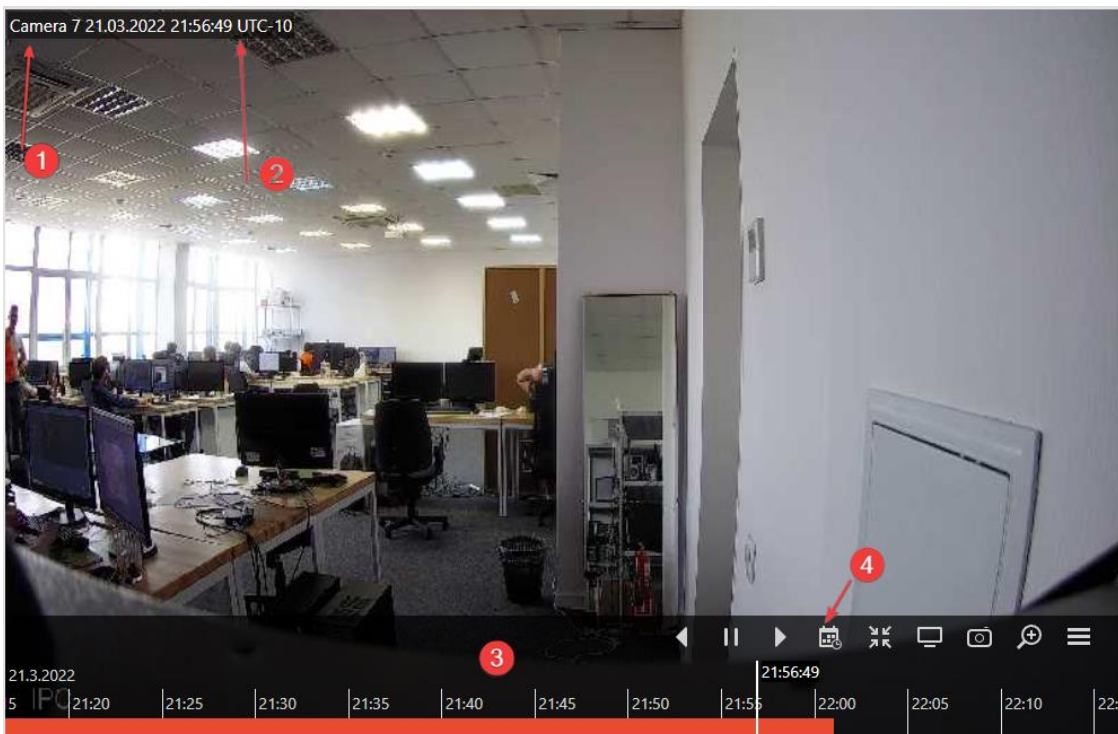
1. Camera name;

2. Time zone;

3. Timeline of the archive;

4. Calendar for selecting a timestamp.

Note

If the **Consider time zones** option is enabled on the **Eocortex** server, then:

- the camera cell displays the actual time with the shift of the time zone, considering daylight saving time, relevant at the time the page was opened;

- the timeline and calendar for time selection are displayed in the time zone of the camera.

Note

If the **Consider time zones** option is disabled on the **Eocortex** server, then:

- camera time zone is not displayed;

- the timeline and calendar for time selection are displayed in the local time of the computer/device.

Note

Analytics events with timestamps, such as events in the panel of recognized faces, are displayed in the local time of the computer/device; when the user goes to the archive for the selected event, the time in the archive will be displayed in the camera time zone.

Related references ❯

Enabling considering time zones in the **Eocortex Configurator** application

Setting the server time zone in the **Eocortex Configurator** application

Setting the camera time zone in the **Eocortex Configurator** application

Setting the client time zone in the **Eocortex Client** application

Server features
- Multiserver system
- Floating licensing
- Secure Connections
- Two addresses for the same server
- Server decoding on video cards
- Client P2P connection to server
- Decoding B frames of H.264 and H.265 video streams
- Generation of RTSP links to cameras in Eocortex Configurator application
- Limitation of client connections
- Using PostgreSQL
- Client Authorization events
- Audio playback on the camera
- Custom notifications and webhooks

To ensure scalability and fault tolerance of multiserver video surveillance systems, as well as to minimize service data exchange over the network and reduce collisions associated with server synchronization, **Eocortex** uses a Main server architecture. A description of this architecture can be found below.

Note

The Main server architecture was first introduced in **Eocortex** version 2.2. Previously, all servers in a multi-server system had equal rights which could lead to significant performance degradation and collisions.

In a multiserver system, only one server is the Main server. The rest of the servers in the multiserver system are called Secondary servers and interact with the Main server to update settings. Since the settings are synchronized by the Secondary servers making queries to the Main server and not vice versa, the Main server must be accessible to all servers in a multiserver system.

Warning

All servers in a multiserver system must have Eocortex installed of the same version by major and minor version numbers.

The version number of the **Eocortex** has three parts: **M.N.R**; **M:** major version, **N:** minor version, **R:** release number.

Main server ⟩

The main server stores and allows to edit the following data:

- General system settings: data regarding servers, cameras, users etc.;

- Data regarding licenses of each server;

- Information about the most recent connection of each Secondary server to the main server;

- Site plans.

Note

The information about the most recent connections of the Secondary server to the Main is used, in particular, for diagnostics: if the Secondary server has not connected to the Main within the last 2 minutes, then its status will be changed accordingly.

Also, the functions of the main server include checking the authorization of each incoming queries from system users, including those from external applications.

Secondary server ⟩

The Secondary server stores and allows you to modify its own single-server configuration, which contains the settings of this server and cameras bound to it, as well as a number of other parameters, including the location (address: port) of the main server. Also, the Secondary server stores a copy of the general settings obtained from the Main server, in case the main server fails.

Every few seconds the Secondary server connects to the Main server for synchronization purposes. The interval between connections is determined automatically and ranges from 5 to 15 seconds. In addition, the connection to the Main server occurs immediately after changes are made to the settings of the Secondary server.

The following tasks are performed within the scope of synchronization (moreover, some of the tasks are not performed during each synchronization session, but only when certain events occur or certain conditions are met):

- The main server receives the information regarding the operability of the Secondary server;

- The Secondary server performs time synchronization with the main server;

- The main server receives information regarding the modification of settings and about licenses of the main server;

- The Secondary server receives from the main server the information regarding the necessity to launch or stop the backup or channel replication processes coming from other servers;

- The Secondary server downloads a copy of the general settings from the main server.

In addition to synchronization requests, the Secondary server redirects requests from client applications to the Main server, if necessary.

Fail safety ⟩

To ensure that the main server does not become a common point of failure, a mechanism of transferring a copy of the general system settings to each Secondary server has been implemented. Below is the list of events and conditions for the general settings to be automatically downloaded by the Secondary servers:

- Once every 12 hours;

- Upon the launch of the Secondary server;

- When the number of servers in the system has changed;

- When the number of channels in the system has changed;

- When the system users have changed;

- Upon the change of binding of cameras to the servers;

- When the bindings of replication or backup bindings have changed.

Thus, in the event of a failure of the main server, any of the remaining servers in the system can be designated as the main server.

Adding other servers and multiserver systems 〉

Note

The following terms are introduced for the purposes of this document:

Current system is a multiserver system or a system consisting of a single server connected to the **Eocortex Configurator** application at the given moment.

External system is a multiserver system or a system consisting of a single server that is being connected to the current system.

Note

To connect an external system, it is required to connect only one of the external system servers to the current system — after connecting, the **Eocortex Configurator** application will send information to the other servers of the external system that the main server of the current system becomes their main server. In other words, when a server of another system joins the current system, all servers on that external system will join the current system.

Warning

In the process of connecting an external system, the **Eocortex Configurator** application must have access to all servers of this system in order to inform them of the new address of the main server.

In case the **Eocortex Configurator** application does not have access to any server of the external system at the time of connecting, such server will attempt to automatically receive information about the change of address of the main server from the server that was the main server in the external system.

If the operation of obtaining a new address of the main server by an unavailable server automatically did not lead to the connection of this server to the current system (for example, if the main server of the external system was unavailable), it is necessary to make direct connection to this server using the **Eocortex Configurator** application, subsequently changing the address of the

main server on the server (specifying the address of the main server of the current system).

The following happens when an external system is connected:

- All the servers of the external system will be added to the current system.

- On the former main server of the external system, all the general settings of the external system will be deleted, including users and the associated permissions. Further, to connect to the former servers of the external system, the authorization system of the current system will be used.

- All the cameras and folders of the external system will be added to the current one. In this case, the camera settings and the distribution of cameras among servers will be preserved.

- All site plans, archive bookmark categories, screen profiles and profile switching lists will be added to the current system from the external one.

- If the **Eocortex Configurator** application is connected to the servers of the external system at the time of connecting, then, depending on whether the username and password of the current and external systems for this session match or not, the client application will either automatically restart or remain idle until the user restarts it under the correct username and password.

Warning

Each server has its unique identifier **ServerID**. When copying **Eocortex Server** with existing settings, this identifier will be the same. If you try to add such a server to the system, an error about the existence of the server in the system will be displayed. In this case, before adding a copy of the server to the system, delete all of its configuration files except for the **licence.lic** file and then configure the server again. The configuration files are located in the **C:/ProgramData/EocortexServerConfigs** folder.

To transfer camera settings to the added server, exporting and importing their configurations can be used.
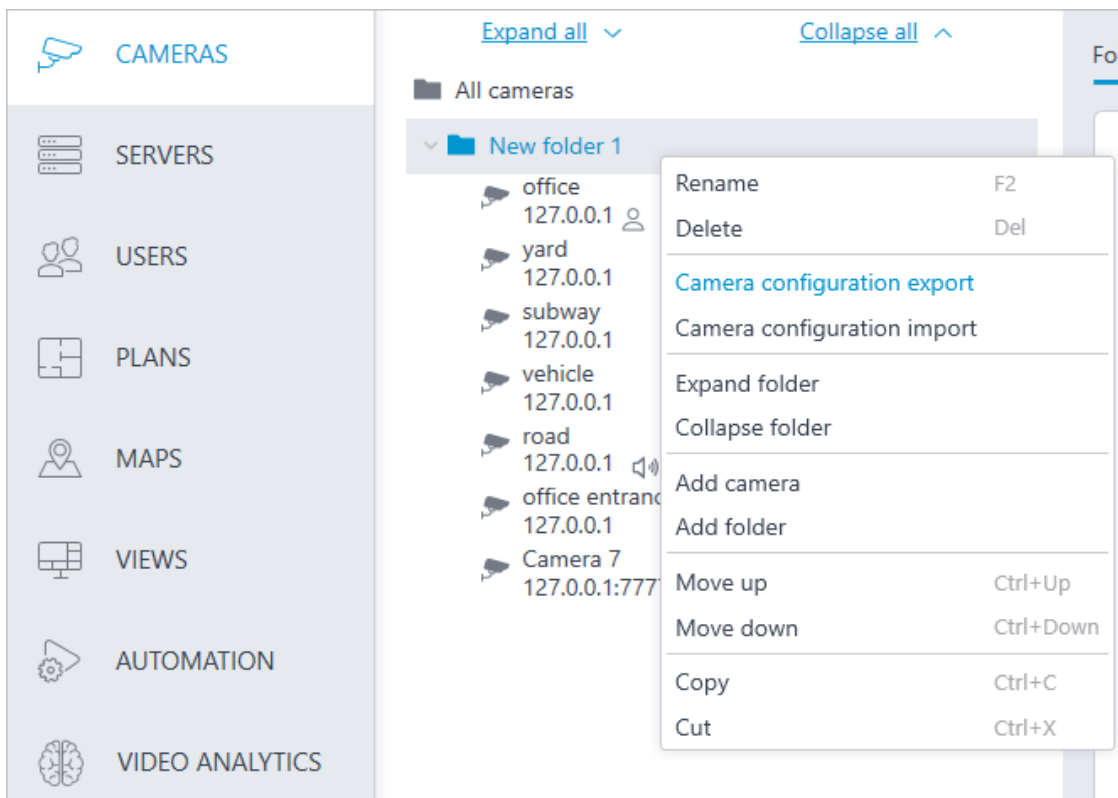
Disconnections of servers ❯

The following terms are introduced for the purposes of this document:

Current system is a multiserver system to which the **Eocortex Configurator** application is connected at the moment of disconnection.

Disconnected system is a system with a single server that is disconnected from the current system.

Warning

The Main server cannot be disconnected from a multiserver system. If such need arises, it is required to designate another server in the system as the Main one before disconnecting.

The following happens when a server is disconnected from the system:

- The disconnected server is removed from the general settings of the current system. This means that all the cameras for which the disconnected server was the primary one, as well as all replication and backup bindings associated with the disconnected server will be removed from the general settings and site plans.

- The disconnected server becomes the main server of the single-server system.

- General settings for the single server system are created on the disconnected server. At the same time, all cameras for which this server was the main one at the time of disconnection are preserved. However, all replication and backup bindings are removed from the settings, as well as all cameras for which this server has been designated as a replication or backup server. If the server was a replication one before disconnection, after disconnection it becomes a basic server.

- The disconnected system retains all users of the current system with their assigned permissions.

- The disconnected system retains all site plans, archive bookmark categories, screen profiles, and profile switch lists. At the same time, all cameras that remain in the current system will be removed from the site plans.

- The archive of replicated and backup cameras will remain on the disconnected server, and it will be possible to view it using the **Local monitoring and backup archive** utility. This archive will be deleted as the disk space is filled with the current archive from the cameras remaining on the disconnected server. In this case, if the disconnected server is re-connected to the current system, the archive of replicated and backup cameras will become available for viewing in the **Eocortex Client** application.

- If the **Eocortex Client** application is connected to the servers at the time of disconnection, it will continue to operate and will be automatically restarted only if the system is modified in such a way that the parameters of the current display, user rights, settings of currently displayed channels and a number of other settings are affected.

As a result, two systems with the same set of users and their rights, as well as site plans, categories of archived bookmarks, screen profiles and profile switching lists will be available after the server's disconnection.

Interaction of client applications with servers ⟩

Eocortex client applications include **Eocortex Client**, **Eocortex Web Client** and mobile client applications.

To work in a multiserver system, the users of client applications do not need to know the address of the main server and connect specifically to it — it will be sufficient to connect to any of the servers in the system. In this case, if the user connects to a Secondary server that does not have access to the Main server, the client application will only have access to those cameras that are bound to that server.

Floating licensing

The **Floating licensing** implemented in **Eocortex** allows using a single license key on several **Eocortex** servers.

Note

This capability is not present in some types of licenses.

Note

In the terminology of **Eocortex**, the keys with the floating license are called network keys to distinguish them from the traditional keys that are now called local keys.

The total number of cameras, modules and other licensed features are shown in the floating license. The administrator of a video surveillance system can distribute the cameras among servers at his/her discretion. However, it is not required to distribute the licenses among servers because the system core does it automatically. Whereby, upon binding the cameras to another server, the corresponding licenses will be moved accordingly.

Floating licensing is available in certain types of licenses. It allows using a single license key on several **Eocortex** servers.

The floating licenses can be used on any license protection keys, be it USB or software ones.

In a floating license, the total number of cameras, modules and other licensed features is shown. The video surveillance system administrator distributes the cameras among servers at his/her discretion; the system core automatically distributes the corresponding licenses among the servers.

The floating license key is called network key and is installed on any **Eocortex** server located in the same local area network (or VPN) with the servers that use this key.

Several network and local keys can be installed within the same **Eocortex** video surveillance system. However, on each individual server, it is possible to use only one key for licensing the cameras bound to this server.

Warning

Only one license can be activated on a single server, irrespective of whether this license is local or floating.

The network key must be installed on a computer where the **Eocortex** server is installed.

The network keys can only be used on the **Eocortex** servers of versions 3.1 and later. It is not possible to use the network keys on the earlier versions of the software, even as local keys.

In order to ensure access to a network key, it is required to allow the outgoing TCP and UDP traffic for the 1947 port both on the server where the key is installed and on the servers that use this key.

A single network key can be used in several **Eocortex** video surveillance systems. In such a case, the parameters of the key will not be shown correctly in the **Eocortex Configurator** application of each system because the systems have no information regarding the usage of licenses by other systems.

Note

A network key is to be installed on any **Eocortex** server of the same local network or VPN where the servers using that key are located.

Several network and local keys can be installed in the same **Eocortex** video surveillance system. However, the number of local keys is limited by the quantity of **Eocortex** servers, but the number of network keys is unlimited.

The floating licenses can be used on any HASP keys, be it software or USB ones.

Secure Connections

To ensure proper data protection, **Eocortex** permits to use SSL/TLS security certificates for encrypting data being transferred between the system components.

It is possible to set secure connections using the SSL/TLS security certificates for the following:

- Connecting **Eocortex** server to IP cameras;

- Connecting **Eocortex Configurator** application to **Eocortex** server;

- Connecting **Eocortex Client**, **Eocortex Web Client**, **Mobile Android client Eocortex video surveillance**, **Mobile iOS client Eocortex video surveillance** client applications to **Eocortex** server.

At the same time, the insecure connection is used for the following connections:

- Data transfer between **Eocortex** servers in a multiserver system;

- Data transfer between **Eocortex** components and third-party systems, if the secure connection feature has not been implemented specifically during the process of integration with such systems;

- Multicasting of streaming video by **Eocortex** server for its use in **Eocortex Client** application.

- Any SSL/TLS certificates are accepted, i.e. **Eocortex** does not check whether these certificates are trusted or not.

- The secure connection capability is available for the limited list of models. However, certain features may not be available when using secure connection with some models of cameras that support secure connection.

- The upgrade of **Eocortex** software to provide a capability of secure connection to certain camera models is performed per special request in accordance with the existing procedures.

Should the **Eocortex Configurator** application fail to establish the secure connection to the **Eocortex** servers, such servers will be marked as unavailable in the list of servers. A situation can also occur when in the course of adding a new server using the secure connection it is not possible to properly finalize the addition procedure. This issue may appear due to the inability of the server to launch using a secure port – it may be occupied by another application or made unavailable in the settings of the environment. In this case, it is required to free the corresponding port and ensure network access to it.

If the server's secure port is not available from the client application, the broadcasting from the cameras assigned to this server will stop, the archive of these cameras will not be played back, no reports on these cameras will be created in the client application, etc.

If the insecure connection to server is prohibited, the **Eocortex Client** and **Eocortex Web Client** applications connected to it will be automatically restarted using the secure connection. At the same time, the **Mobile Android client Eocortex video surveillance** and **Mobile iOS client Eocortex video surveillance** will not be restarted in this situation. The **Eocortex Configurator** application will not be restarted either (otherwise, the control over the server could be lost). When prohibiting the insecure connection to the server, such prohibition will become valid for all the new connections from the **Eocortex Client**, **Eocortex Web Client**, **Mobile Android client Eocortex video surveillance** and **Mobile iOS client Eocortex video surveillance** applications. At that, the **Eocortex Client** application will use a secure connection in a compulsory manner even in case of an attempt to establish an insecure connection.

- The confirmation of a certificate is required for each individual user of the operating system on each device that uses the certificate.

- The reliable (trusted) certificate is the one that is issued by a well-recognized (trusted) certification authority.

- For each secure connection to the server from the **Eocortex Web Client** application, the verification of reliability of the certificate used for the encryption of the session is performed in the web browser. If it is not possible to confirm the certificate's reliability, the user gets an insecure connection warning.

- In case that in the course of establishing a secure connection to server from the **Eocortex Configurator** and **Eocortex Client** applications it will be detected that the certificate being used is not a trusted one, the dialog box with a question regarding the trustworthiness of this certificate will appear. In this dialog box, the user will be able to forbid the connection or allow one-time or permanent use of the certificate. If the permission to use the certificate is permanent, the warning will not appear again.

- The verification of the certificate's authenticity is performed every time when a secure connection to server is established from the **Eocortex Configurator** and **Eocortex Client** applications. If the certificate is not trusted, the user will see a dialog box with the information about the certificate and with the possibility to reject the connection or confirm the use of the certificate. In case of the latter choice, the certificate will be considered trusted and its further confirmation will not be required. However, after the expiration of the certificate's validity period the confirmation to use it will be required for each new session.

If a third-party security certificate for the server is not installed or it has been impossible to load it during the launch of the server, the self-signed TLS certificate will be used for establishing secure connections with the server. Such certificate is generated on the server in the process of creating a new configuration of the video surveillance system. The self-signed TLS certificate has the following disadvantages:

- The certificate can be replaced by an insecure one within the network; the user may not even notice that, confirming the insecure connection.

- The users of the web application will have to confirm the insecure connection every time; it may lead to the distrust of the users.

The particularities of the use of certificates in the **Eocortex Client** *application are as follows* ❯
- During the use of the **Eocortex Client** application in a multiserver system, the verification of the security certificate may be performed in the course of operation. At that, when the untrusted certificates are detected, the corresponding notifications are shown in the lower right corner of the screen, and the connection with the servers using such certificates is blocked until the user makes a corresponding decision.

- All the events of accepting the security certificates are registered in the event log of a video surveillance system.

- In case of using the **Eocortex Client** application in the multi-display mode, the notification regarding the insecure connection will appear on the main display only.

- It is possible to disable the verification of the security certificates for the **Eocortex Client** application using the special launch parameter.

Two addresses for the same server

In **Eocortex**, it is possible to use two addresses for connecting for the same server:

- **Local address**: the main address of the server. It is possible to use this address for connecting to a server within the local network.

- **Additional address**: the address that is set optionally. This address will be used in a situation when it is not possible to connect to the server using a local address.

Setup ❯

To use the additional address, it is required to enable the option **Use additional (public) address** on the **Information** tab located on the **Servers** page.

Note

The connection to the server is always carried out using the local address first. If the connection to the local address fails, the connection to the additional address shall be made.

One exception is the connections to the server for the purpose of broadcasting live video. In such a case, if the connection to the local address is unsuccessful, a connection to the additional address will be made. Then, in case of a successful connection, a timer starts, which checks the availability of the local address every 10 minutes. When access to the local address is restored, a connection to this address occurs.

This algorithm is used not only for client connections to the server but also for connecting servers that broadcast real-time video in proxy mode.

Server decoding on video cards

If a software motion detector and/or server-based video analytics modules are used to process video streams received from cameras, video stream decoding on video cards (GPUs) can be enabled on the server. That makes it possible to:

- Reduce the load on the central processing units (CPUs).

- Process more cameras on the same server.

- Use less efficient CPUs.

Requirements and recommendations ❯
- Only video cards from the list on the NVIDIA website are supported.

- H.264, H.265 and MJPEG codecs are supported.

    Note

    Decoding video encoded with MJPEG on the GPU does not provide an advantage over decoding that video on the CPU.

    Detailed information on video resolution limitations and supported codec profiles is on the NVIDIA website.

Enabling and customizing ❯

To enable and configure server decoding on the video card:

1. Start **Eocortex Configurator** application.

2. Switch to the **Servers** page.

3. Select the server in the list and on the **Information** tab, click **Configure** (or select **Configure** from the context menu).
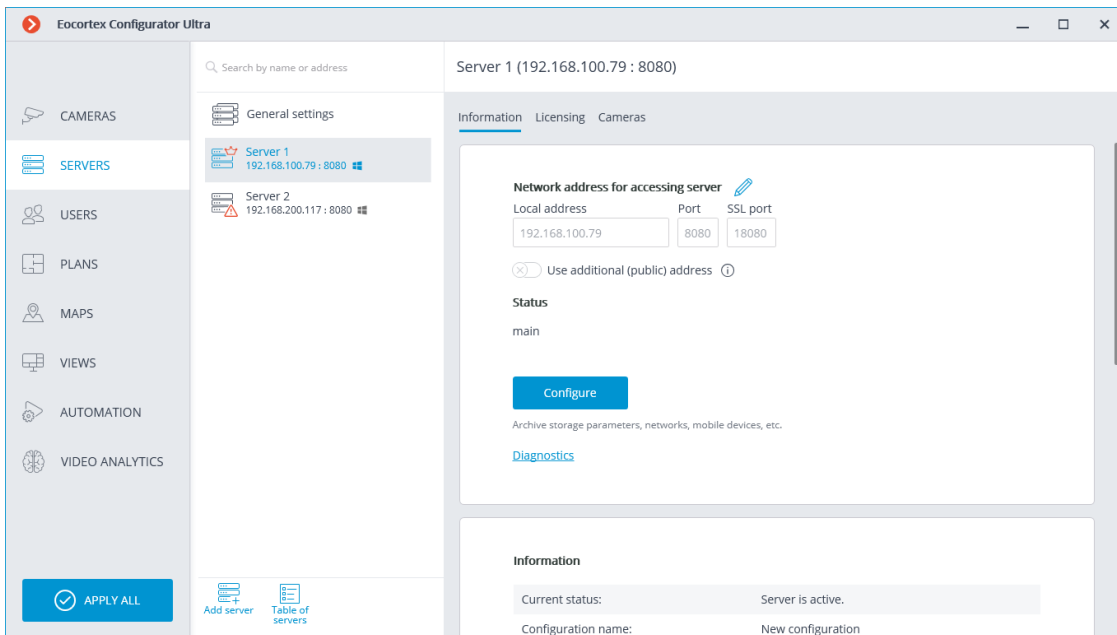
4. In the window that opens, switch to the **Other** tab.
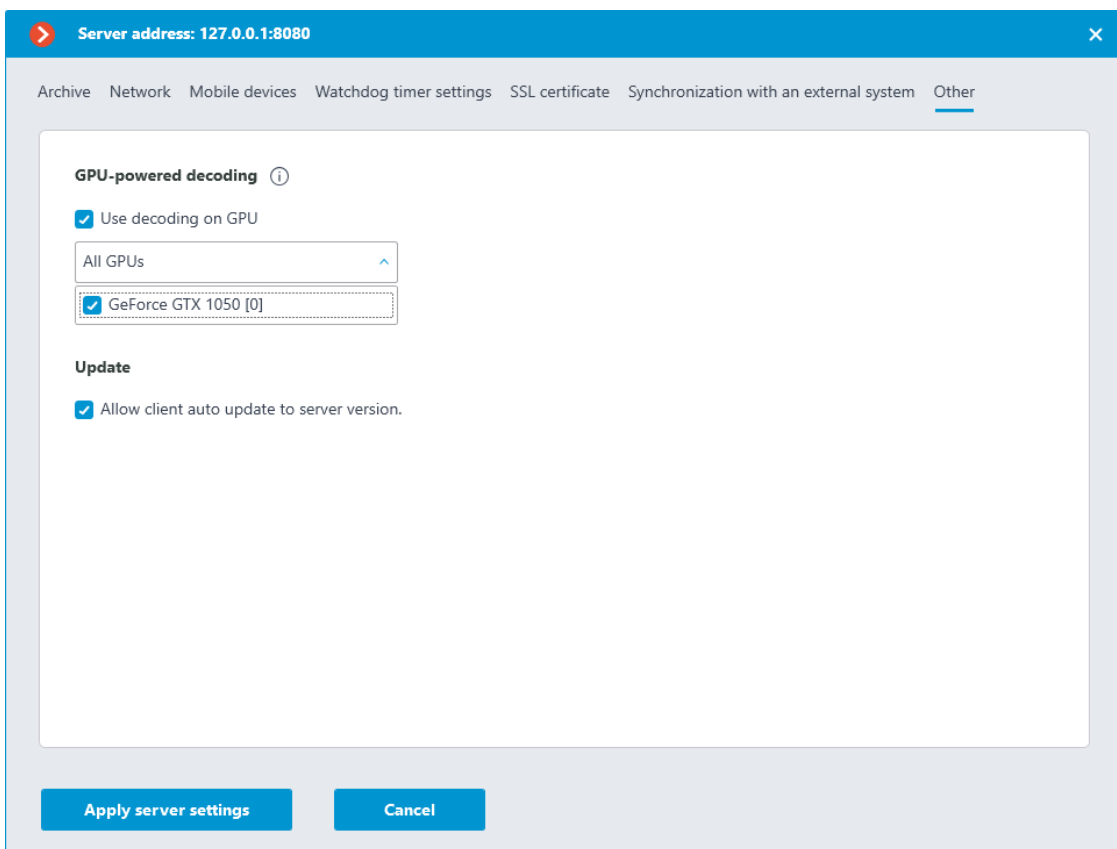
5. Enable the **Use decoding on GPU** option.

6. If multiple graphics cards are installed on the server, select the graphics cards to be used for decoding from the list.

7. Click the **Apply server settings** to save the changes.

After the initial server installation or after upgrading from version 4.0 and below, the **Use decoding on GPU** option is disabled by default. After upgrading the server from version 4.1 and above, the state of the **Use decoding on GPU** option is retained.

Video card list:

- The list displays all **NVIDIA** video cards found on the system, even if the video cards do not support decoding.

- The video cards in the list are sorted in descending order of performance. Thus, the first video card in the list (number **[0]**) will be the one with the highest performance. However, the order of graphics cards in the **Eocortex** list may not match the order of graphics cards in the **NVIDIA System Management Interface** utility (nvidia-smi) because the utility sorts graphics cards by bus ID. Also, on Windows, the order of graphics cards in the **Eocortex** list may not match the order of graphics cards in **Task Manager** because the latter uses **DirectX** numbering.

- The **Eocortex** server identifies graphics cards by their unique serial numbers **(UUID)**. Therefore, if you replace a previously selected graphics card with a similar one, the new graphics card will not be automatically selected for decoding.

- For **GRID** video cards, changing the profile or number of virtual GPUs will also change the **UUID**.

- If the **Use decoding on GPU** option is enabled, and the **Eocortex** server does not detect any selected for decoding graphics cards - the highest performing (first in the list) graphics card will be automatically selected. Also, the first video card will be selected when the **Eocortex** server is upgraded from version 4.1 if decoding was enabled before the upgrade.

Load balancing:

- When the server starts, all cameras are decoded on the CPU. Decoding on GPU will begin only after 30-40 seconds of server operation. The balancing is performed automatically every 10 seconds.

- Load balancing assumes maintaining the optimal average load of the GPU decoding unit between 75% and 85% and video memory utilization up to 80-90%. Thus, if the load on the GPU decoding block does not exceed 75%, a part of the cameras would transferred to the GPU. If the load on the GPU decoding unit exceeds 85%, then a part of the cameras would transferred to the CPU.

- Cameras that are disabled in the configurator are not taken into account in load balancing.

- If multiple streams are received from a camera, all streams are transferred during load balancing.

- To more optimally distribute the load between GPUs, the principle of reducing the number of cameras distributed per balancing cycle is used. That is, the more graphics cards are used for decoding, the smaller portions of cameras will be transferred to them, and as a result, the load between graphics cards will be distributed more accurately.

Possible problems and their elimination ❯

1. GPU load is too high.

   Eocortex Client and **Eocortex Status Info** will display a warning when the total GPU load exceeds 85%. If the load becomes less than the threshold, the warning will disappear.

   Reduce the GPU load by one or more of the following methods:

   – Disable the **Use decoding on GPU** option in the server settings.

   – Change video analytics settings, including disabling some or all video analytics modules.

   – Install additional GPUs.

   – Move some cameras to another server.

2. No suitable and/or previously selected video cards were found on the server.

   Error options:

   – **Suitable GPUs were not found on the server**

   – **The following previously selected GPUs were not found on the server:** list of GPUs

   The possible cause is that there are no **NVIDIA** video cards in the system, or they are malfunctioning.

   If server settings are applied in this situation, either the previously selected and newly found graphics cards or the first graphics card in the list will be selected after the problem is fixed.

Client P2P connection to server

The P2P (Peer-to-peer) technology allows to connect to the **Eocortex** server using the **Eocortex Client** application running on a remote computer from

anywhere in the world, if both have internet access. At that, the **Eocortex** server does not have to have a public static IP address or to be in the same VPN with the client computer. Thus, when it is required to connect to the **Eocortex** servers via internet, is becomes significantly easier to set up the networks and the need to rent public static IP addresses or VPN servers is eliminated.

Before connecting to the **Eocortex** server via the **Eocortex Client** application using the P2P technology, it is required to do the following:

1. Create an account in **Eocortex Cloud**.

2. Connect **Eocortex** servers to **Eocortex Cloud**.

3. Connect to **Eocortex Cloud** via **Eocortex Client**.

Creating an account in Eocortex Cloud ⟩

To create an account in **Eocortex Cloud**, it is required to follow the link https://cloud.eocortex.com/account/register

After creating an account, a message will be sent to the indicated address. To confirm, go to the link in the message or press **Activate**.

Connecting servers to **Eocortex Cloud** ⟩

After creating the account in **Eocortex Cloud**, it is required to connect a video surveillance system to it. To do that, go to the general server settings in the **Eocortex Configurator** application, then go to the **Eocortex Cloud** tab, enter the **Eocortex Cloud** account data (email and password) and, finally, press the **Connect** button.

Warning

The **Eocortex Cloud** connection setup is only available to the users with full rights (in case of the **Enterprise** and **ULTRA** licenses these are the users who are included in the group with the **Senior administrators** rights).

After the successful connection, the status will change to **System connected**.

Warning

The settings will come into effect only after they are applied.

Client P2P connection ⟩

After having connected the video surveillance system to Eocortex Cloud, it becomes possible to connect to it using P2P. For that end, a new type of connection was added to the authorization window of the **Eocortex Client**

application called Connection to **Eocortex Cloud**. To connect, it is required to enter the email and password of the **Eocortex Cloud** account.

Description of **Eocortex Client** in case of its connection to server via P2P:

Warning

When making a connection via P2P using **Eocortex Cloud**, the user of **Eocortex Client** will have full rights for the access to the video surveillance system.

On the other hand, the **Eocortex Configurator** application does not support the P2P access; thus, the user who has connected to the system vis P2P, will not be able to launch **Eocortex Configurator** from the client application.

Besides, when connecting via P2P, the **Eocortex Configurator** application will not be able to perform an automatic upgrade to the server's version.

Note

When connected to a multi-server system via P2P, it is possible to view the cameras only from those servers that are connected to **Eocortex Cloud** have internet access.

At the same time, if the main server has access to the internet, it is possible to gain the P2P access to the cameras of the servers without internet access but which are in the same local network or VPN with the main server by enabling a proxy access thru the main server.

Warning

If the **Eocortex** server is disconnected from the system that is already connected to **Eocortex Cloud**, that server will be disconnected from **Eocortex Cloud** and its **Eocortex Cloud** connection settings will be deleted.

Note

When combining two systems connected to **Eocortex Cloud**, the system being connected will be disconnected from the initial **Eocortex Cloud** account and connected to the account of the system to which it is being connected.

Note

Since in case of a P2P connection the data, in most instances, will be transmitted via internet, a secure connection will be employed.

Failure to connect to system via P2P ❯

First, it is required to make sure that the system is connected to **Eocortex Cloud**. To do so, go to the **Eocortex Cloud** account and check the list of the connected servers. If the list is empty, it may be possible that the main server has no internet access and cannot connect to **Eocortex Cloud**.

If there are servers in the list but the main server has the **Disconnected** status, it is required to make sure that the server is in a working order.

In case the main server has the **Connected** status, but it is impossible to connect to the system, it is likely that the server or the client are in the network that does not support P2P connections.

Below are the options of the network organization that do not support P2P connections:

- Server and client are on the computer that is in the network after the router with *Symmetric NAT*.

- Server and client are on the computer that is in the network after two or more routers with different NATs.

Questions and answers 〉

How many video surveillance systems can be connected to a single **Eocortex Cloud** account?

Only one video surveillance system can be connected to a single **Eocortex Cloud** account.

Are there any limitations as regards the number of system servers connected to **Eocortex Cloud**?

There are no such limitations.

Is the load on the client and the server different depending on the type of connection (standard or P2P)?

On the client, the load is the same in both cases. The server, on the contrary, may consume somewhat more CPU resources when connected via P2P. The load depends on the volume of traffic sent by the server via P2P. The maximum increase of the load via P2P can reach 50% of the standard connection load. For example, if the server used 20% of the CPU capacity to transmit data to the client applications under the standard connection, this load can increase to 30% when all the clients are connected via P2P.

Are there any traffic limitations in case of a P2P connection?

Yes. First, the maximum throughput of a single channel with the camera stream is around 40 Mbps. Second, since in the majority of cases the connection is via internet, the speed depends on a provider's internet plan.

Decoding B frames of H.264 and H.265 video streams

In H.264 and H.265 codecs, the following types of frames are used for video stream compression:

- **I-frames** (reference frames, key frames) contain all the fragments of the image being encoded.

- **P-frames** (differentially dependent frames) contain new fragments of the image being encoded or the changes in relation to the key frame.

- **B-frames** (bidirectionally dependent) encode the difference between the neighboring frames by making reference to the encoded fragments in the key and differentially dependent frames.

The video stream compressed using the B-frames have higher rate of compression in comparison with the video streams that were compressed using I and P-frames only. Thus, the video stream compressed using the B-frames requires less channel width for transmission via the network (from the camera to the server and from the server to the client application). It also occupies less drive space when stored in the archive. The volume of storage saving may reach 40% as compared with the video where only I and P-frames are used.

The practically achievable compression value depends on many parameters, such as the number of details in a frame, the intensity of movement, the resolution, the frame rate and other characteristics, including those related to the codec's developer. At that, in most cases, the compression rate increases with the increase of the resolution and the frame rate.

At the same time, more computing power is needed for encoding the B-frames in comparison with encoding I and P-frames only.

Moreover, the use of the B-frames results in the increased delay in real-time video. It happens because the encoding and decoding of the B-frames requires buffering.

The capability of encoding the B-frames is usually indicated in the documentation of a camera. For example, the **IBP** or **IBBP** support may be stated. In such a case, the H.264/H.265 video codec must, as a rule, support the profile not lower than the **Main Profile**.

It is possible to ascertain if **Eocortex** supports the reception of a video stream with B-frames from a certain camera by contacting **Eocortex** technical support team.

The debugging information can provide data regarding the presence of the B-frames in a video stream. To obtain this data, it is required to enable the output of the debugging information in the **Eocortex Client** application. The indication of **(B)** will imply that the B-frames are present in the video stream.

Generation of RTSP links to cameras in Eocortex Configurator application

The generation of RTSP links allows to facilitate the process of setting up the receipt of the video stream from a camera via the RTSP server of **Eocortex**.

Note

Before, the RTSP links had to be created manually. The detailed process is described in the SDK and API documentation.

Generating a link for a specific camera 〉

To obtain a RTSP link, perform the following steps:

1. Launch the Eocortex Configurator application.

2. Open the ⌐ Cameras page.

3. Select a camera and open the context menu with the right mouse button.

4. Select the item that allows to copy the RTSP address of the main or alternative stream.
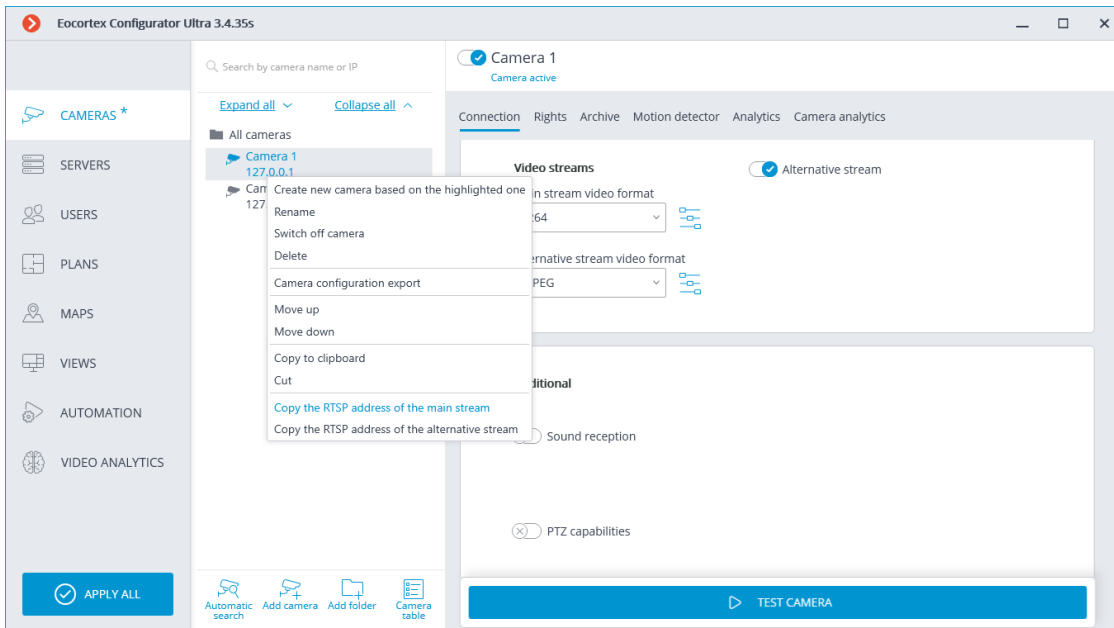
Note

A separate link is generated for each of the streams — main and alternative. At that, the parameter **streamtype=alternative** is used for the alternative video stream.

Generating links for a list of cameras 〉

To obtain the RTSP links, do the following:

1. Launch the Eocortex Configurator application.

2. Open the ⌐ Cameras page.

3. Press the **Cameras table button**.

4. Press the **Export** button.

5. Save the file in the CSV format.

Warning

The link does not contain user's login or password – they need to be entered manually in the system where the link is copied.

The RTSP links are not generated if the XPS format has been selected for export.

Note

The RTSP links are also generated for those cameras that have been disabled in the configuration.

For many systems, the login and password can be pasted directly into the link after the protocol and before the address as follows:
rtsp://login:pass@address/rtsp?channelid=0eea2046-7d4c-4a25-9df8-e0aedae99bed.

Some applications allow to indicate login and password in the separate entry fields or request them.

The RTSP broadcasting may be disabled on the **Eocortex** server; that is why it is required to enable the possibility of RTSP connections to the server before the generation of links.

By default, the IP cameras use port 554 for RTSP broadcasting. However, the port can be modified in the network settings of the server.
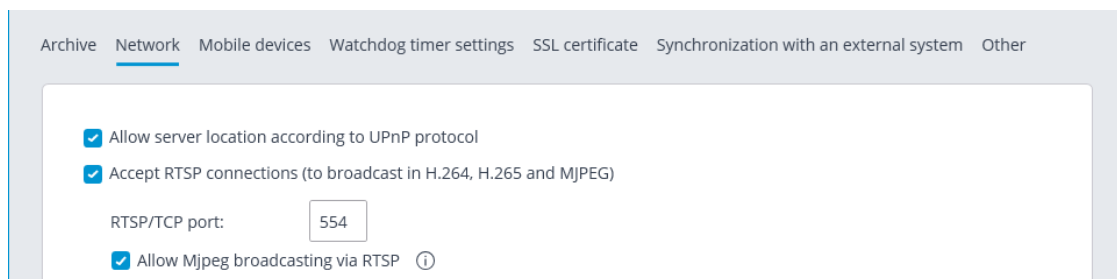
Samples of RTSP links ⟩

Non-standard RTSP port, main stream:
rtsp://192.168.100.118:556/rtsp?channelid=0eea2046-7d4c-4a25-9df8-e0aedae99bed

Non-standard RTSP port, sound reception enabled, alternative stream:
rtsp://192.168.100.118:556/rtsp?channelid=00c8365c-8c42-46a3-bcdd-

5187461e9bb2&login=test&password=81DC9BDB52D04DC20036DBD8 313ED055&sound=on&streamtype=alternative

Example use of a RTSP link 〉

To connect to the **Eocortex** server via RTSP from the same server as well as from another server, including the cloud one, it is required to do the following:

1. Copy the RTSP link from the server from which the video stream is received via RTSP.

2. Using the **Eocortex Configurator** application, connect to the server that will receive the video stream.

3. Add a RTSP camera and insert the RTSP link into the address field. Enter the **Eocortex** login and user name in the corresponding fields.

Address (IP address or URL)

| 🔓 | rtsp://127.0.0.1:554/rtsp?channelid=e0a6d63d- IPv4 | 𝓮 |

Device

Brand	Device type	Model
RTSP/RTP device ∨	Camera ∨	RTSP/RTP device ∨

Authorization

Username	Password
test	•••• 👁

The RTSP link is inserted in other applications in the similar fashion, e.g., Windows Media, VLC, MPlayer, RealPlayer, Media Player Classic video players.

Limitation of client connections

Eocortex permits to limit the number of connections to the video surveillance system under the same account.
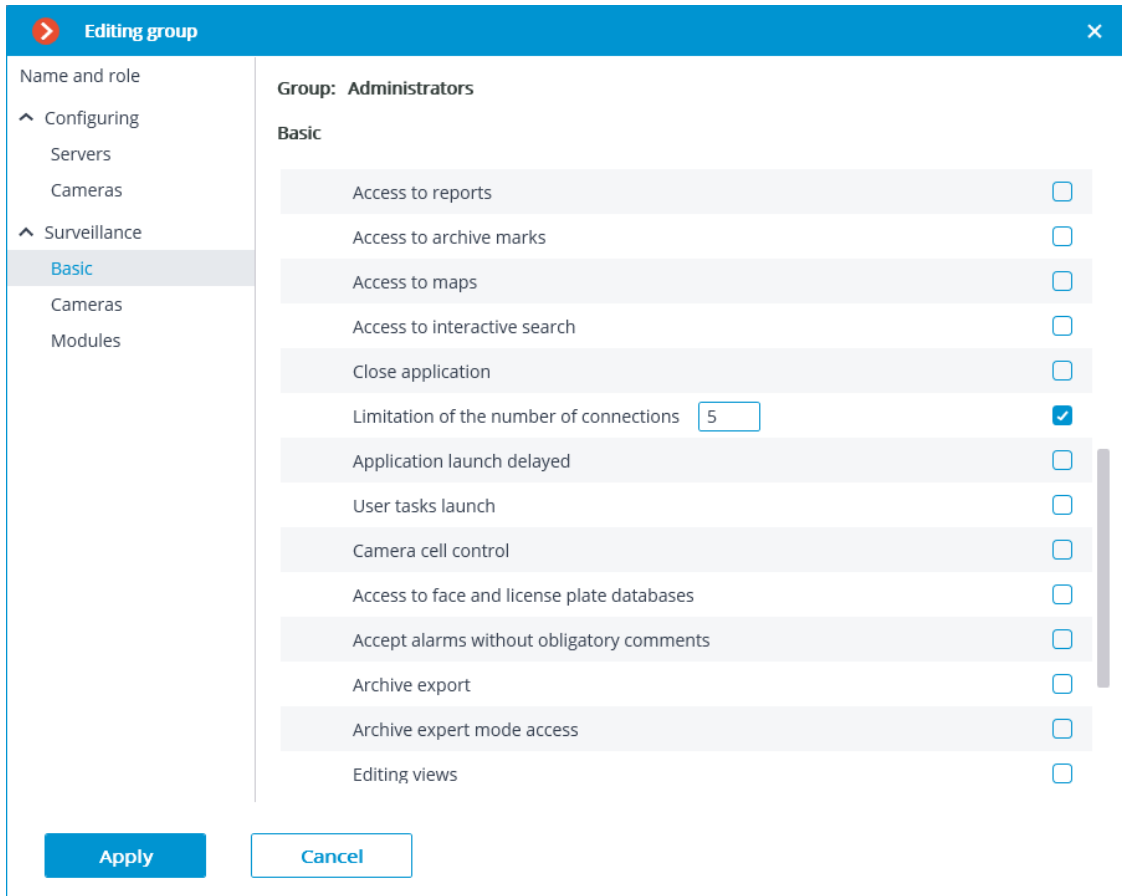
Note

This option is disabled by default.

Setup of group rights

To limit the number of client connections to a user group, it is required to configure the group rights as follows:

1. Open the **Eocortex Configurator** application, go to the tab ![icon] **Users** and press the button **Users of Eocortex applications**.

2. Select a group and press Edit.

3. Go to the tab Basic.

4. Enable the Limitation of the number of connections right and indicate the maximum number of connections for the group members.

Note

The value of the number of connections for users of the group must be at least 1 and no more than 1000. When the right is enabled for the first time, the value is equal to 1.

5. Apply settings.

Warning

New settings will become effective as soon as they are applied.

Warning

The stated limitation applies to each user of the group.

Note

The limitation on the number of client connections also applies to Active Directory users, whereby:

- If an Active Directory user is added to the group as a user, the restriction will apply to him, as well as to the regular users of **Eocortex**.

- If an Active Directory group is added as a user, the restriction will be applied separately to each user of this group.

If the limit has already been reached, an attempt to connect via the client application will result in a message that the number of client connections has been exceeded.

Information ✕

Connection refused: the number of simultaneous connections permitted for your account has been exceeded.

OK

eocortex ❯ Eocortex Web Client

User

user1

Password

☐ Remember me

Log in

✕

Authentication failed
The number of simultaneous connections permitted for your account has been exceeded.

Management of client connections ❯

Client Connection Limitation is the maximum number of unique client connections made under the same user account.

Note

The connections are counted for each account, not as a total for a group of users.

A unique connection identifier is used to track the connections. Each connection to the system is unique in the **Eocortex Client** application. In the **Eocortex Web Client** application, a unique identifier is bound to the address of the client connection to the server.

Warning

If the browser is running in the **Incognito** mode, each tab will have its own identifier.

Warning

If **Eocortex Web Client** is launched from another browser, it will have a different identifier.

Warning

After enabling the right and applying the settings, client connections exceeding the limit will be disconnected randomly.

Warning

After reducing the number of connections and applying the settings, current connections that exceed the new limit are not terminated.

Warning

A client connection is considered completed if it has not sent requests to the server within 6 minutes.

Thus, when the connection limit is reached, after the completion of one client application, at least 6 minutes must pass to allow a new connection using the same credentials.

Requirements, limitations, features ❯

Warning

For this feature to work correctly, it is necessary to ensure that each **Eocortex** server has access to the main server of the system. The reason is that it is the main server that is responsible for counting the client connections throughout the system.

When the connection to the main server is lost, the member server will only count its own connections and restrict connections based on this data. Thus, if the main server is unavailable, the number of client connections for the system as a whole may be exceeded.

After the connection is restored, the main server updates its data using the information from the member server. If after updating the total number of connections by one user has exceeded the limit, the client applications will

remain connected. However, new connections by the same user will not be possible.

Warning

The limitation will not work correctly if the system has servers running Windows 7, since the connections for such servers will be counted locally.

If the main server is using Windows 7, all servers in the system will count the connections locally.

Warning

Since **Eocortex** version **4.0**, support for **Windows 7** and **Windows Server 2008** operating systems, as well as **32-bit versions** of other operating systems, is no longer available. This should be considered when installing or upgrading **Eocortex** to version **4.0** or higher.

Warning

If the system has servers with **Eocortex** version 3.3 or lower, the client connections to such servers will not be taken into account when limiting the overall number of connections.

Note

When connecting to the **Eocortex** server of version 3.4 and higher with **Eocortex Client** application of version 3.3 or lower, such connections will be counted. In this case, if the connection limit is exceeded, the following error window will appear in the client application:
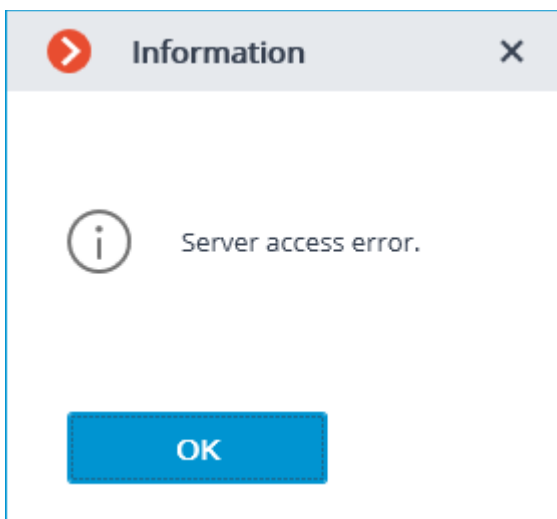
Using PostgreSQL

Note

This feature is available for all **Eocortex** licenses and requires no additional licensing.

Starting from version 3.4 of **Eocortex**, certain components use PostgreSQL database management system of version 11 or later.

Using PostgreSQL in Eocortex ❯

Version Eocortex	Required PostgreSQL version	Components Eocortex	PostgreSQL installation	
			Windows	Linux
3.3 or lower	Not required	—	Not required	Not required
3.4–3.6	11	**Search for Objects** analytics module	Automatically, when installing the **Search for Objects** module with the **Eocortex Neural Networks** package	Separate PostgreSQL installation
4.0 or higher	12	All **Eocortex** databases	Automatically, when installing Eocortex Server or Eocortex Standalone from the common distributive	Separate PostgreSQL installation

Requirements and recommendations ❯

- The minimum required DBMS version when working with **Eocortex** 3.6 or lower is PostgreSQL 11.

- The minimum required DBMS version when working with **Eocortex** 4.0 or higher is PostgreSQL 12.

- If the system version 3.4-3.6 uses or has previously used the **Search for Objects** module, then after updating to version 4.0 the first time **Eocortex** starts, the module database will be moved to the **EocortexArchivedb** directory common to all databases. Module's operation will be suspended while the database is being moved.

- If the system previously used Face or License Plate Recognition modules, then after updating to version 4.0 the first time **Eocortex** starts, databases of these modules will migrate from Firebird to PostgreSQL. The modules will be suspended during the migration.

- Before installing the required version of PostgreSQL, it is recommended to uninstall other DBMS versions to avoid conflicts.

- It is recommended to install PostgreSQL automatically during the installation of **Eocortex** components.

- It is recommended to use local disks for storing the database. The use of network drives for this purpose is prohibited.

- In large systems it is not recommended to use the same disk for parallel recording of the video archive and the database, as it may adversely affect the performance of the database.

- The proper operation of **Eocortex** is not guaranteed when transferring database privileges to manually created DBMS users.

Client Authorization events

In the Event log of **Eocortex Client** application, authorization events for **Desktop**, **Web** and **Mobile** clients can be viewed.

Events

Time	Type	Event description
21.03.2022 16:41:12	i	Successful authentication. Client type: Web, user: root, IP-address: 192.168.100.79.
21.03.2022 16:41:11	i	Successful authentication. Client type: Desktop, user: root, IP-address: 127.0.0.1, computer: ▮▮▮▮▮.
21.03.2022 16:41:06	i	Successful authentication. Client type: Mobile, user: root, IP-address: 192.168.50.145.

Note

Events are generated at the first authorization and after 6 minutes of no connection with the client.

Note

If at the moment of authorization, the user is blocked in the system or the number of allowed connections is exceeded, then the event is not generated.

Warning

If an authorization attempt is made by a mobile application with version 3.3 or lower to the **Eocortex** server with version 3.6 or higher, then the event is not generated.

Custom notifications and webhooks

Eocortex provides the option of sending extended and customizable information about the event to external users and automated systems. This is possible by adding special template variables when configuring actions in the **Automation** section.

Only certain **Actions** can be set up with template variables.

This feature can be used, for example, to send the name, group and ID of a recognized person to the ACS so that the ACS will open the door.

Read more about custom notifications and webhooks.

In **Eocortex** it is possible to play the audio file on the camera speaker by scenario or as a user task. This feature makes it possible to ensure safety and inform people, e.g., in case of smoke or fire on the site.

Note

Playback of the audio recording on the camera is performed by transmitting a pre-selected audio file from the **Eocortex** server to the camera.

Setting in Eocortex Configurator 〉

Warning

Audio playback is only available on cameras that have a built-in speaker or that allows to connect an external one.

Do the following to set up audio playback on the camera:

1. Run the **Eocortex Configurator** application.

2. Go to the 🎥 **Cameras** page.
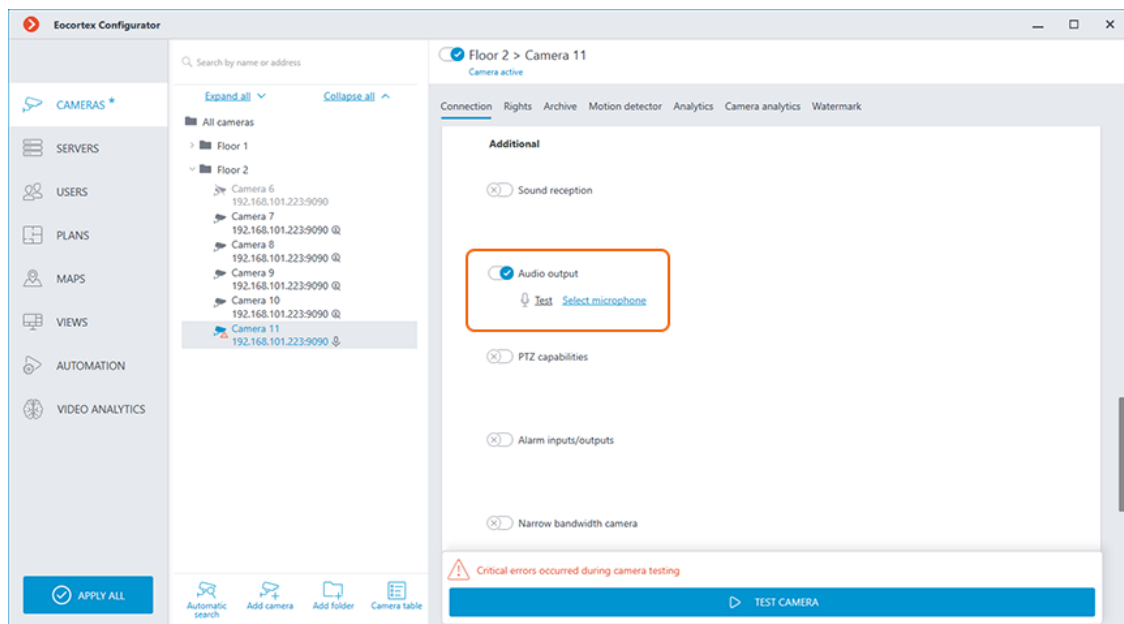
3. Select a camera in the list.

4. Scroll down the camera settings to the **Additional** section and activate the ✅ **Sound transmission** slider.

5. Go to the ⚙️ **Automation** page.
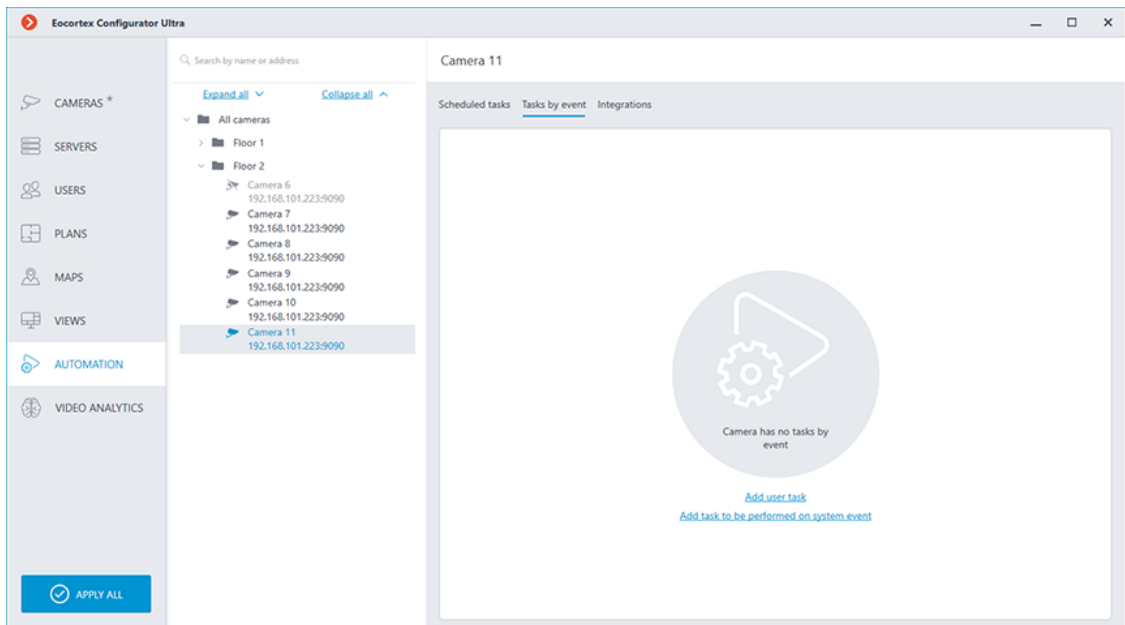
6. Select the camera or an entire folder in the list.

7. On the right part of the window, switch to the **Tasks by event** tab.

8. Select from the Events menu the event in the system for which the audio recording is to be played.

9. Select from the Actions list the **Play audio on camera speaker** and press the **Apply** button.
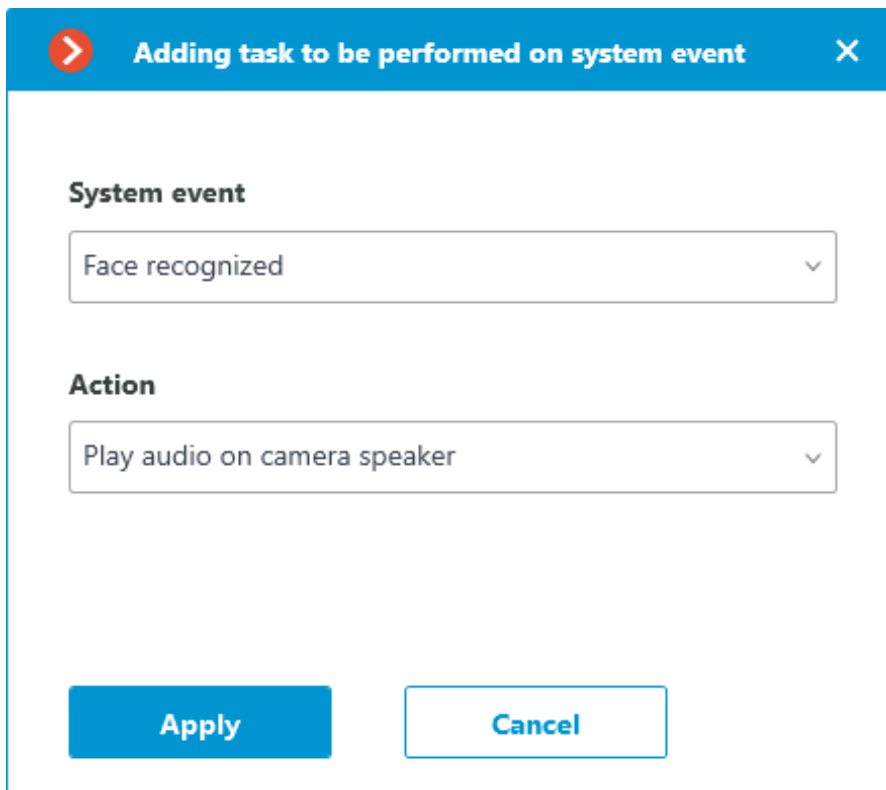
10. Select an audio file.
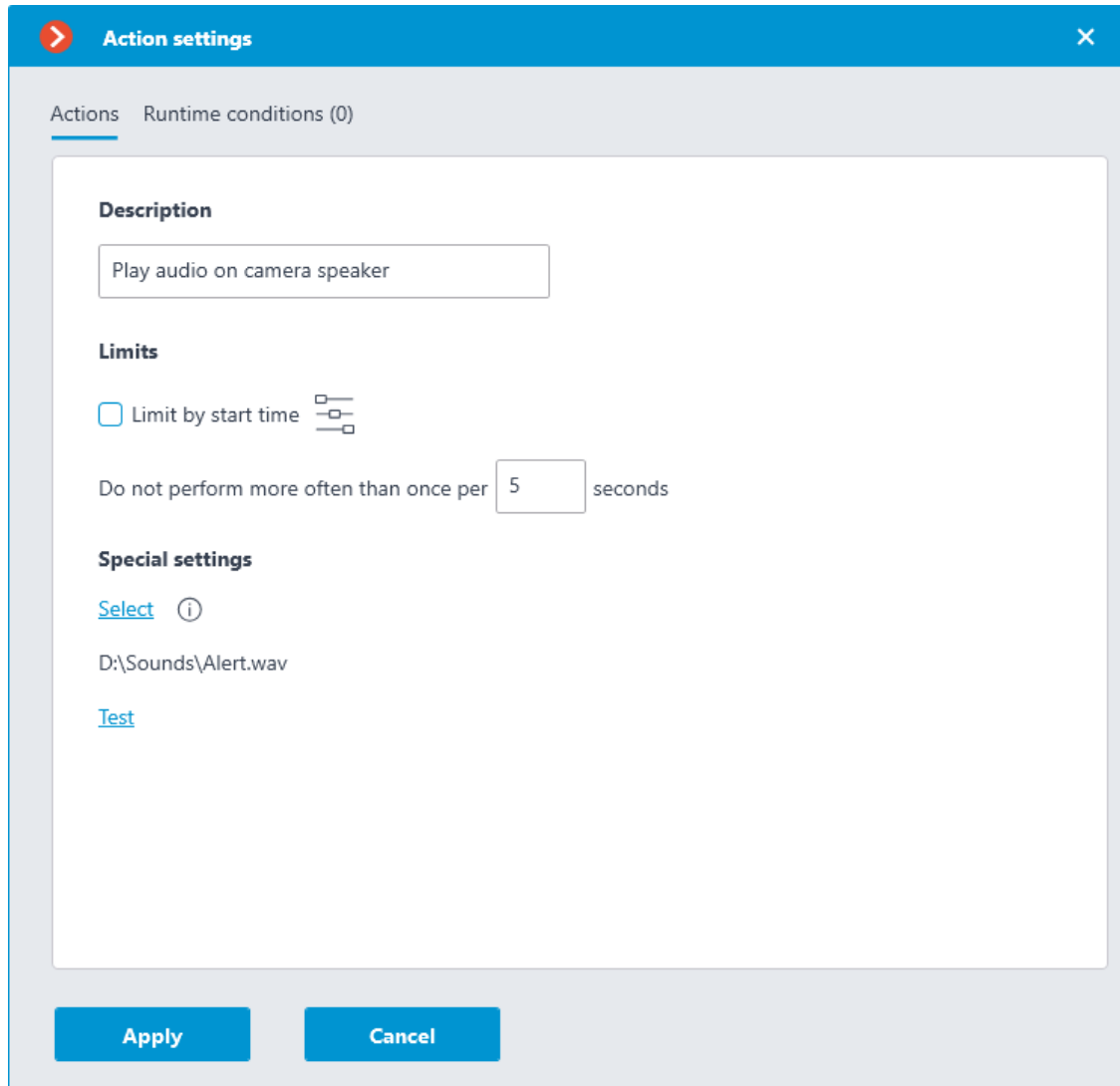
Warning

The audio file must be on the same computer with the **Eocortex** server to which the camera is connected. When configuring the **Play audio on camera speaker** action, the **Eocortex Configurator** application must be launched on this computer.

The duration of the audio record should not exceed the time interval specified in the **Do not perform more often than once per** parameter.

11. Test the playback of the audio on the camera by pressing the **Test** button.

12. Apply settings.

Note

The same way can be configured user tasks, executing the **Play audio on camera speaker** action.

Requirements to the audio file ❯

- File format: WAV

- Sampling Rate: 8000Hz

- Bits Per Sample: 16

- Channels: 1

Warning

It is recommended to make a short pause at the beginning of the audio track, since part of the track can be lost if the connection with the camera takes a long time.

Security

- Access depth limitation for the archive
- Active Directory Single Sign-On

Access depth limitation for the archive

Users with the limited access depth feature enabled will not be able to view the archive for the time preceding the limitation specified. The same limitation applies to the events access and to reports generation.

In case the access depth limitation for the archive is enabled for the user, then the accessible archive time limits in the **Eocortex Client** application will vary assuming the specified limitations. For example, with the 15-minute access limit, the user will be able to access only the last 15 minutes of the archive within the timeline at each moment.

Note

Access depth limitation for the archive covers all client applications.

Warning

Access depth limitation for the archive does not cover the episodes recorded by **Episode archive** service.

Enabling and setting ❯

Warning

Access depth limitation for the camera archive can be enabled and configured only in case of having access right to the archive.

Limits are configured with the help of integer values ranging from **1** to **9999**. Available measuring units are minutes, hours, or days.

Warning
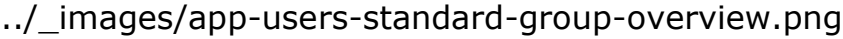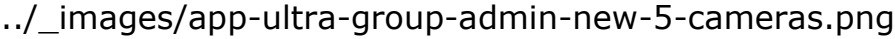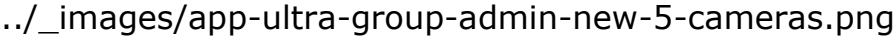
If a value exceeding the archive storage period on the server is entered, the limitation value will be reduced.

You can enable and configure the access depth limitation for the archive for the following items:

- Group of users

- Group of cameras

- Individual camera

Below are step-by-step instructions for each item:

Group of users

1. Start the **Eocortex Configurator** application.

2. Open the Users page.

   ../_images/app-users-standard-group-overview.png
3. In the tree, select the group of users that needs configuration of archive access depth and press the **Edit** button.

   ../_images/app-ultra-group-admin-new-5-cameras.png
4. Click on the **Cameras** tab in the opened editing window.

   ../_images/app-ultra-group-admin-new-5-cameras.png
5. Configure the access depth of the archive for the cameras that need to be limited.

6. Apply settings for the group of users.

Group of cameras

1. Start the **Eocortex Configurator** application.

2. Open the Cameras page.

   ../_images/cameras-all.png
3. In the tree, select the group of cameras that needs configuration of archive access depth and press the **Change camera group settings** button.

   ../_images/group-info.png
4. Click on the **Cameras** tab in the opened editing window.

../_images/group-rights.png

5. Configure the access depth of the archive for the groups of users that need to be limited.

6. Apply settings for the group of cameras.

Individual camera

1. Start the **Eocortex Configurator** application.

2. Open the Cameras page.

    ../_images/cameras-all.png

3. Select the camera that needs configuration of archive access depth in the tree.

    ../_images/camera-config.png

4. Click on the **Cameras** tab.

    ../_images/camera-rights.png

5. Configure the access depth of the archive for the groups of users that need to be limited.

Warning

The module will start working only when the settings are applied.

Active Directory Single Sign-On

Eocortex supports the capability of logging into the system using **Active Directory** Pass-Through Authentication. This allows users to log into the **Eocortex** system through a domain user account without re-entering the login and password manually.

Note

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

Warning

Single Sign-On through **Active Directory** is available only for servers running on Windows.

Usage

To log in to the system through **Active Directory** SSO, do the following:

1. Run the **Eocortex Client**, **Eocortex Configurator** or **Eocortex Standalone** application.

2. Select the ⊞ **Active Directory** account type.

3. Select the user to log in at the bottom of the authorization window.

Note

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.

Note

An **Active Directory** domain user, in order to be able to log into **Eocortex**, must be added by the system administrator to the **Eocortex** user list.

Adding Active Directory user ❯

To add an **Active Directory** domain user (or entire group of users) to the system, do the following:

1. Run the **Eocortex Configurator** application.

2. Open the **Users** page.

3. Select the **Users of Eocortex applications** tab.
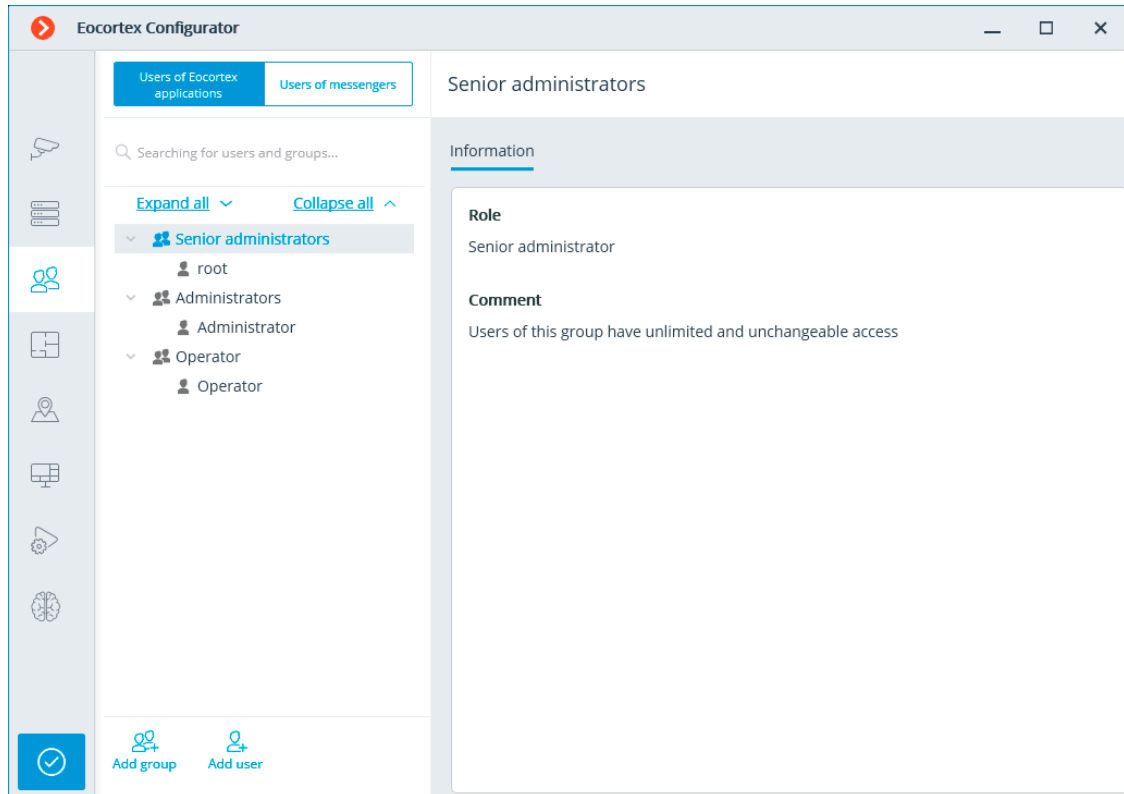
4. Click the **Add user** button.

5. In the window that opens, click the **Change type to Active Directory user** link.
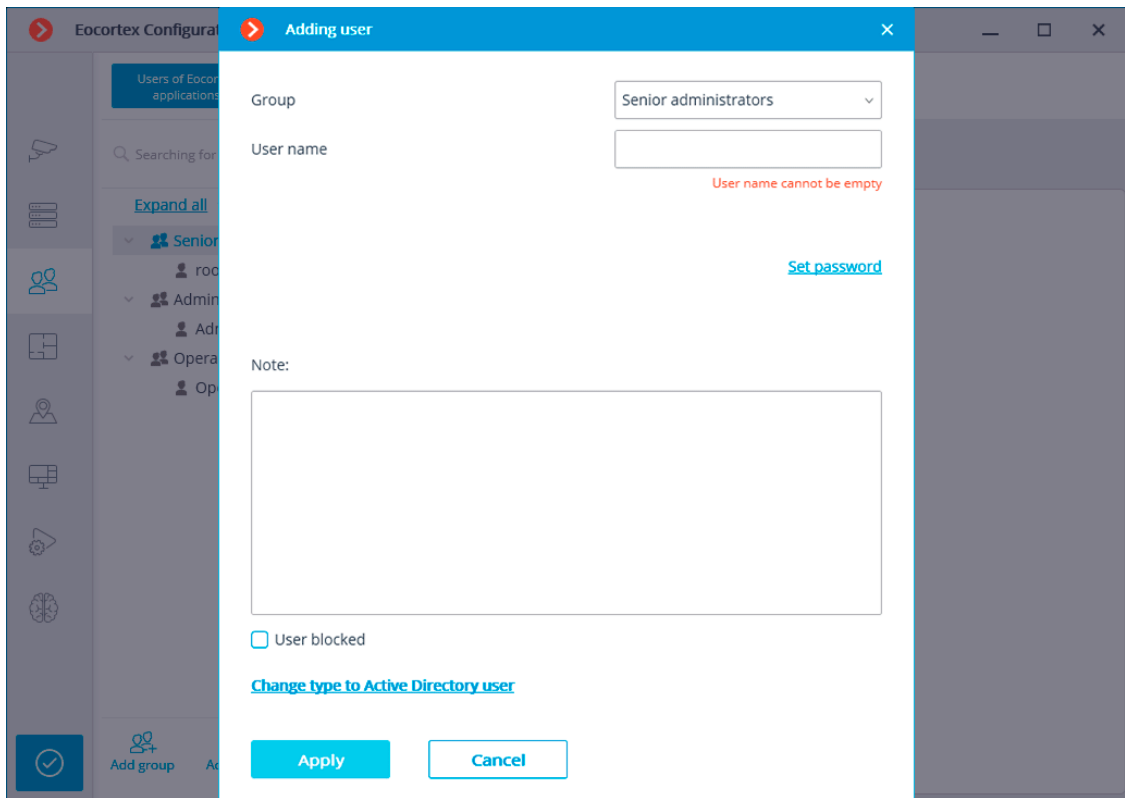
6. Type the username and password of the **Active Directory** account that has rights to search in **Active Directory** domain.
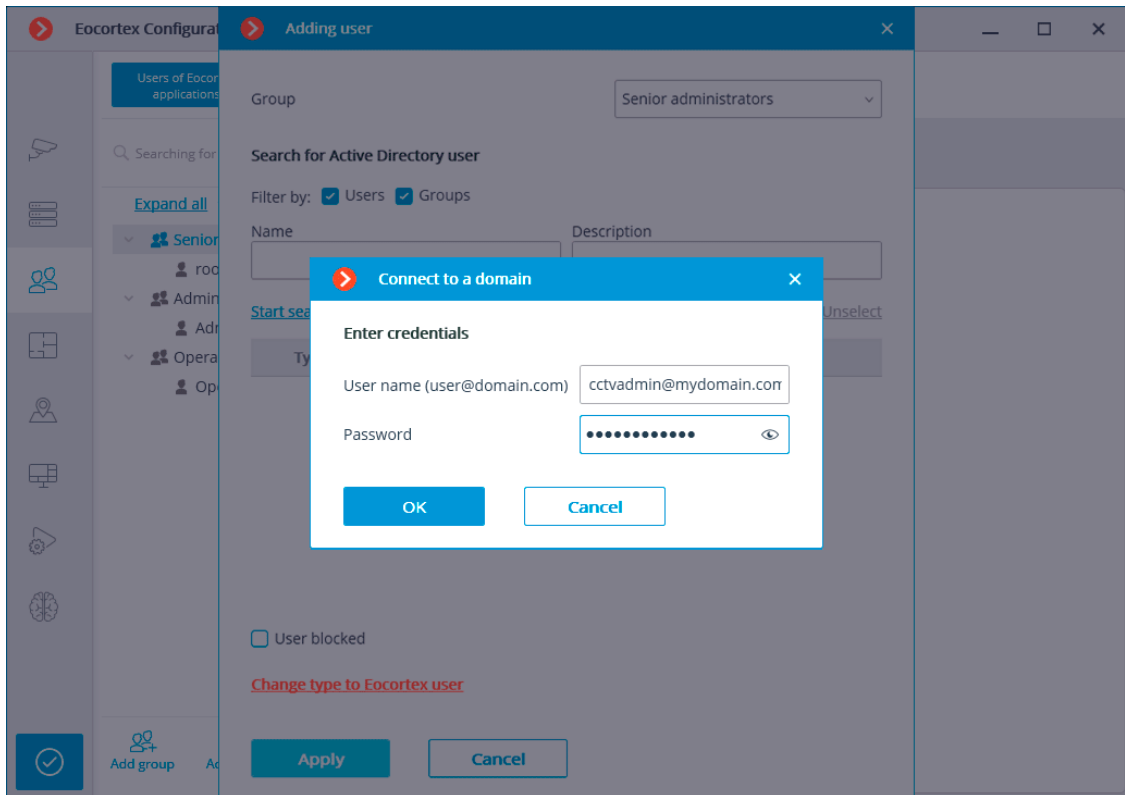
Find and select needed individual users or groups of users.
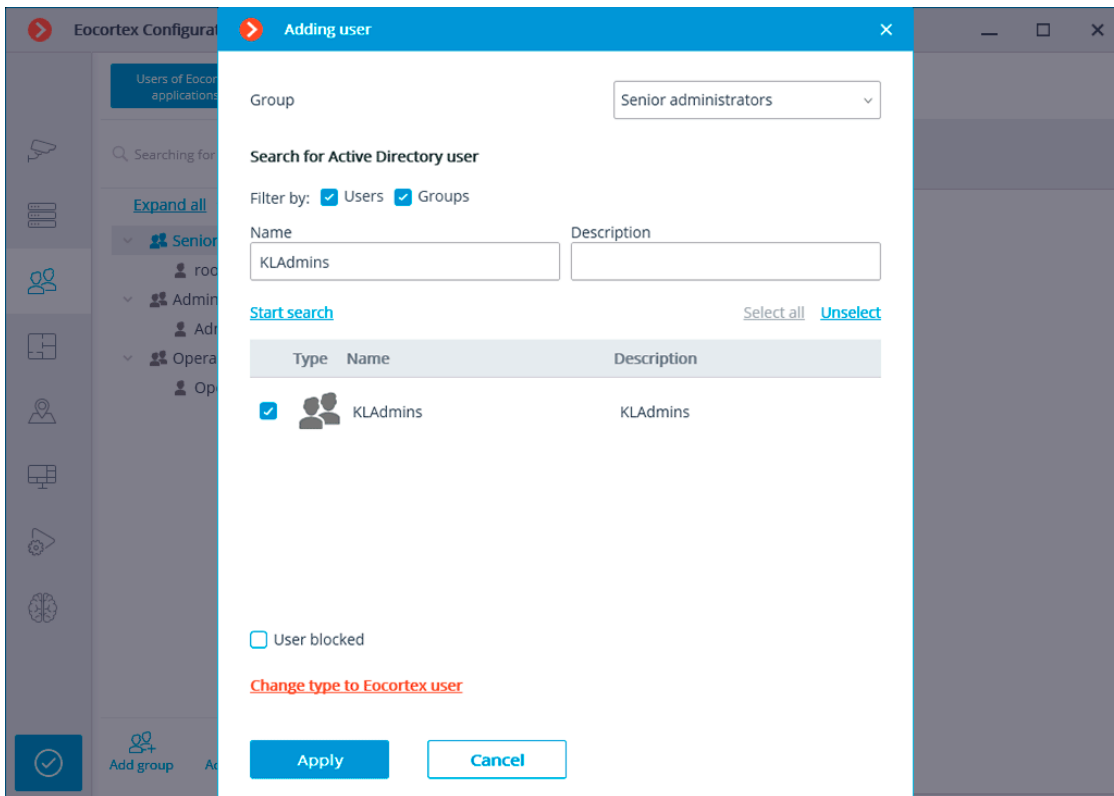
Note

When adding a group of **Active Directory** users to the system, the same access rights set in the system will apply to all users of this group.

Configuring access rights ⟩

Note

Active Directory Single Sign-On authorization is enabled by default only for the **Senior administrators** user group.

To enable Single Sign-On authorization for other users, do the following:

1. Run the **Eocortex Configurator** application.

2. Open the ⧉ **Users** page.

3. Select the **Users of Eocortex applications** tab.

4. Select a group of users to provide permissions to use **Active Directory** SSO and click the **Edit** button.
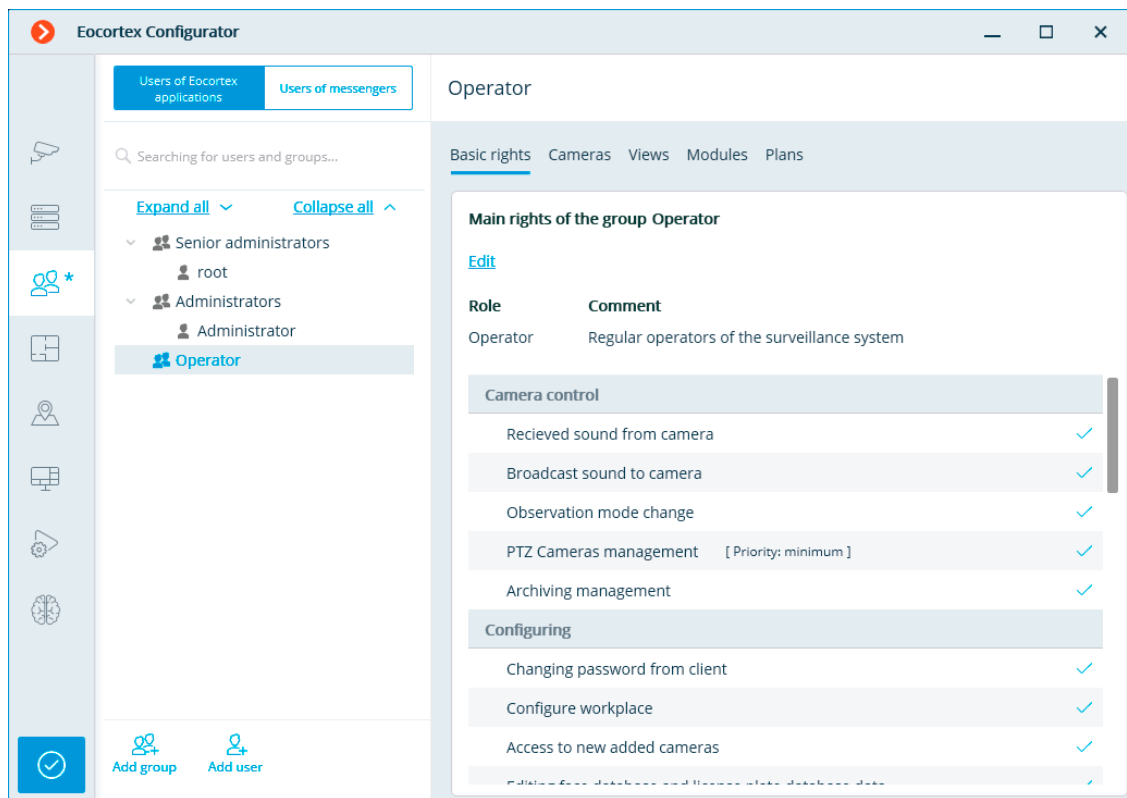
5. Switch to the **Basic** tab of the window that opens.

6. Enable the **Single sign-on through Active Directory** permission.
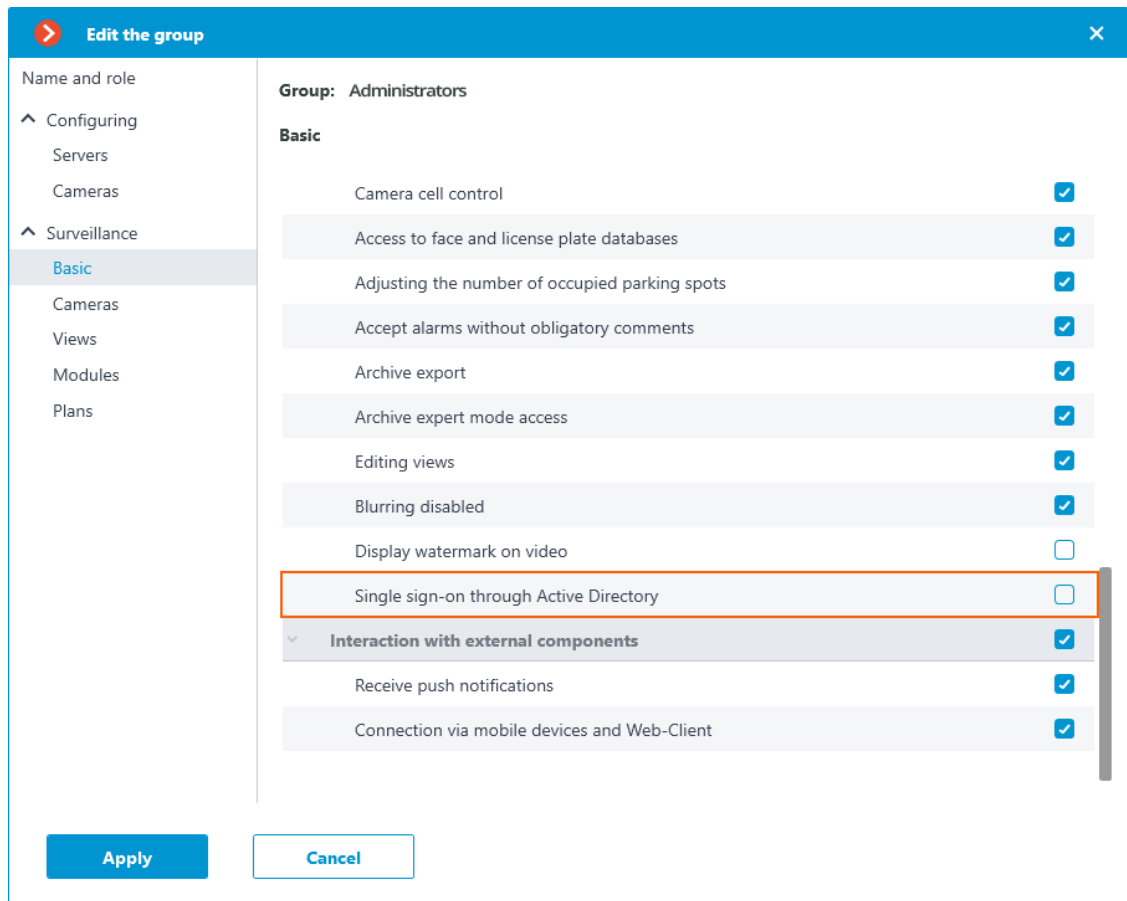
Note

If a user belongs to two **Active Directory** groups at the same time, access rights will be assigned according to the group that is higher in the group list.

Requirements ⟩

Warning

If an **Eocortex** system with **ULTRA** licenses, consisting of server applications version 1.4 or earlier, and containing Active Directory users or groups, needs to be upgraded to version 1.5 or later, then before updating must be removed from configurations of all Active Directory users and groups, and after the update, re-add these users and groups. This is because the older versions configuration lacks the complete information required to authorize these users into the **Eocortex** system.

- **Eocortex Standalone** and **Eocortex Server** require being running under the domain user.

- For **Eocortex Standalone**, log in to the operating system under the domain user and run the application.

- For **Eocortex Server**, set the domain user credentials to the Log On tab of the service properties.

  Note

  By default, **Eocortex Server** is launched under the LOCALSYSTEM user.

Deployment

- Guidelines for choosing and configurating hardware platform
- Windows-based applications
- Linux-based applications
- Installing neural networks
- Installing and updating the license

Guidelines for choosing and configurating hardware platform

You can calculate the minimum hardware platform requirements online on eocortex.com, on the Software for IP Cameras / Calculator page.

While selecting the hardware platform consider, if necessary, the potential increase (near future expansion plan) in the number of channels.

The drive subsystem must comply with the design load. It is recommended to use RAID to increase system speed and reliability; take into account the performance in case of drive failure. The server drive subsystem must also provide a certain reserve bandwidth (read rate) to allow convenient archive search.

It is recommended to install two network interface controllers (NIC); configure one of them for camera subnet and another for **Eocortex Client** requests.

Benefits:

- camera isolation;

- reduces network traffic in a public network.

If network storages (NAS, SAN) are used to store archives, we recommend installing an additional NIC for these purposes.

Provide reserve computer resources in the amount of 3% of CPU load per connected client for fast client request serving. The server drive subsystem must also provide a certain reserve bandwidth (read rate) to allow convenient archive search.

When using the hot backup function consider that in case of failure of one of the servers, its load is distributed on the others. For example, if there are only 2 servers, they work together and "backup" each other; each must have a capacity sufficient to handle all video streams from all cameras.

To achieve maximum performance disable processor power-saving technologies before installing the OS:

- **SpeedStep** or **EIST** for Intel

- **Cool'n'Quiet** for AMD

This setting can be configured in **BIOS**, usually in **Advanced / CPU**.

If you use SATA-drives, do not forget to set **AHCI** value for **SATA Mode**. This setting can be configured in **BIOS**, usually in **Advanced / SATA**, but only for controllers that support this mode.

Windows-based applications
- Guidelines for Windows settings
- Installing Eocortex software from a common installer
- Installing Eocortex Client
- Updating Eocortex software
- Removing Eocortex software
- Usage of PostgreSQL on Windows
- Installing, updating, and removing Episode archive
- Installing, updating, and removing Long-term database
- Installing, updating, and removing Monitoring

Guidelines for Windows settings

The computer must use one of **Microsoft Windows** operating systems provided in specification:

- Windows 8

- Windows 8.1

- Windows 10

- Windows 11

- Windows Server 2012

- Windows Server 2012 R2

- Windows Server 2016

- Windows Server 2019

- Windows Server 2022

- Windows Server Windows Embedded for Intel x64 with the full functionality of abovementioned Windows versions

Warning

Since **Eocortex** version **4.0**, support for **Windows 7** and **Windows Server 2008** operating systems, as well as **32-bit versions** of other operating systems, is no longer available. This should be considered when installing or upgrading **Eocortex** to version **4.0** or higher.

Before installing **Eocortex** applications, you must configure the operating system:

- Install all **Windows** updates and then turn off Auto-update.

- Select the time zone corresponding to the server location, then either specify the exact time that corresponds to this time zone, or synchronize the time of the computer with one of the time servers in the local network or on the Internet, then disable time synchronization on this computer.

- Switch the power settings to high performance mode: **Control Panel / Power options: High performance**. Also in the power supply settings disable automatic disconnection of disks and USB-devices because for round-the-clock systems they should be on all the time and switching off during operation can cause malfunction of the **Eocortex** video server.

- Disable Users Accounts Control (UAC): **Control Panel / User Accounts / Change User Account Control settings: Never Notify**.

- Disable the firewall. If the security policies do not permit disabling the firewall, the network ports that allow the surveillance server to communicate with the cameras, client computers and applications must be open.

Note

Particularly for most systems, it is sufficient to white-list the following ports:

Incoming TCP connections:

- 8080 — HTTP (unsecured connection) port to communicate with client computers and other servers;

- 18080 — HTTPS (secured connection) port to communicate with client computers and other servers;

- 8089 — communication port for mobile and web clients with proxying disabled. Proxying is enabled by default, but can be switched in the Server settings section of the **Eocortex Configurator** application.

Outgoing TCP connections:

- 8080 — HTTP (unsecured connection) port to communicate with the main server of the multiserver system;

- 80 — connection port for communications with cameras via HTTP or ONVIF protocols;

- 554 — connection port for communications with cameras via RTSP;

- 443 — connection port for communications with cameras via HTTPS.

For databases:

- 5432 — for PostgreSQL;

- 3050 — for Firebird.

For Eocortex services:

- 8899 — for Episode archive;

- 8999 — for Long-term database;

- 8889 — for Eocortex System Monitoring.

For additional licensing services:

- 1947 - for the HASP licensing server.

Also, depending on the settings of the cameras used and the **Eocortex** features enabled, it may be necessary to open other ports for incoming and outgoing connections.

Installed antivirus should not scan HTTP and RTSP traffic, including input video streams from IP cameras, as this significantly reduces the system performance. Add Eocortex module executable files to the list of trusted applications of antivirus and firewall, as video stream checking requires significant computing resources.

Warning

Some antivirus software (such as NOD32) blocks video streams even when disabled, since they "embedding" their own components at the system drivers level when installed. Thus, to ensure correct operation and performance we recommend removing antivirus software from Eocortex video servers, if possible.

Warning

It is not recommended to install **Eocortex** applications on the same computer as other surveillance or screen capture software, even if the specified software is not started while **Eocortex** applications are running. This may cause the **Eocortex** software to malfunction or completely fail.

Installing Eocortex software from a common installer

Note

The most up-to-date version of **Eocortex** can be downloaded from the eocortex.com website at the Support / Software Installation Packages Supported page.

Warning

The **Eocortex Client** and **Eocortex Server** applications must be in the same version.

Eocortex applications are installed from a common installer (**EocortexMainCommon Installer.exe**). This installer allows installation of the following applications:

- **Eocortex Server** is server software for a network video surveillance system used to receive, analyze, process and archive video data from IP cameras. It is installed on a single machine, where the data is processed and the archive is stored. **Eocortex Server** is a **Windows** service; it is launched at computer startup and runs in the background.

- **Eocortex Client** is network client of a video surveillance system that allows viewing video in real time and from the archive, controlling cameras, audio and intelligent modules by using Configurator. It is installed on the computers of operators, security chief and other surveillance system users. Eocortex Client does not require a USB-key and a license file for operation.

- **Eocortex Standalone** is software that combines the functions 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 separately launched software with window interface.

- **Eocortex System Monitoring** is a subsystem that permits to monitor the status of the video surveillance system components.

  Note

  This capability is not present in some types of licenses.

Within one installation procedure, you can install both separate applications and all included in the installer. **Eocortex Server** and **Eocortex Standalone** are mutually exclusive (you can install either **Eocortex Server** or **Eocortex Standalone**).

Warning

Before installing **Eocortex Server** or **Eocortex Standalone**, it may be required to fully delete the video server installed earlier because in case of a standard uninstallation of **Eocortex** the setup files are left uninstalled. Their presence may cause conflicts or errors (see Removing Eocortex software).

Warning

The complete uninstallation of the video server installed earlier is not required if the server of the same bit depth was installed on the PC earlier. In this case, the installation will be considered by the system as updating (see Updating Eocortex software).

Warning

During the installation use the account that has full access rights to the local computer on which **Eocortex Server** and **Eocortex Standalone** software is installed.

Warning

Starting from version 3.4 of **Eocortex**, certain components use PostgreSQL database management system of version 11 or later. In this respect, before installing version 3.4 and higher (as well as when upgrading from version 3.3 and lower to version 3.4 and higher), it is required to review the PostgreSQL installation information.

Warning

If you use an **Eocortex** USB-key, plug it into a server USB-port.

Warning

When using the multiserver configuration, the version numbers of merged servers must match.

Note

The bit depth of the applications being installed is determined automatically depending on the bit depth of **Windows** OS. However, it is possible to choose the installation of 32-bit versions of **Eocortex** on a 64-bit version of **Windows**.

Warning

Since **Eocortex** version **4.0**, support for **Windows 7** and **Windows Server 2008** operating systems, as well as **32-bit versions** of other operating systems, is no longer available. This should be considered when installing or upgrading **Eocortex** to version **4.0** or higher.

Close all **Windows** applications before installing **Eocortex** software and run the **EocortexMainCommon Installer.exe** file.

Select the installation language. This language will be used both during installation and during further operation of the application on this computer. Click the **OK** button.
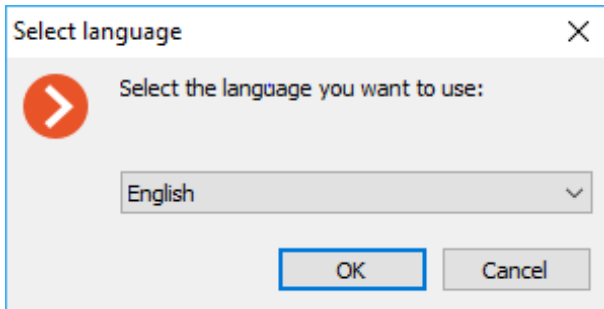
Setup wizard window will open. Follow the instructions:

Note

Make the selection of application you want to install on the machine. Checking the option **Manually set installation path** allows defining absolute paths for each application that you may install.

Setup - Eocortex

Choose components
Which Eocortex components should be installed?

Select only those components that need to be installed

- ☑ Server
- ☐ Standalone
- ☑ Client

☐ Manually set installation path

[< Back] [Next >] [Cancel]

Setup - Eocortex

Choose directory
Eocortex components will be installed in the following directories

Eocortex Server

`C:\Program Files\Eocortex Server`   [Browse...]

Eocortex Client

`:\Users\Operator\AppData\Local\Programs\Eocortex Client`   [Browse...]

[< Back] [Install] [Cancel]

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
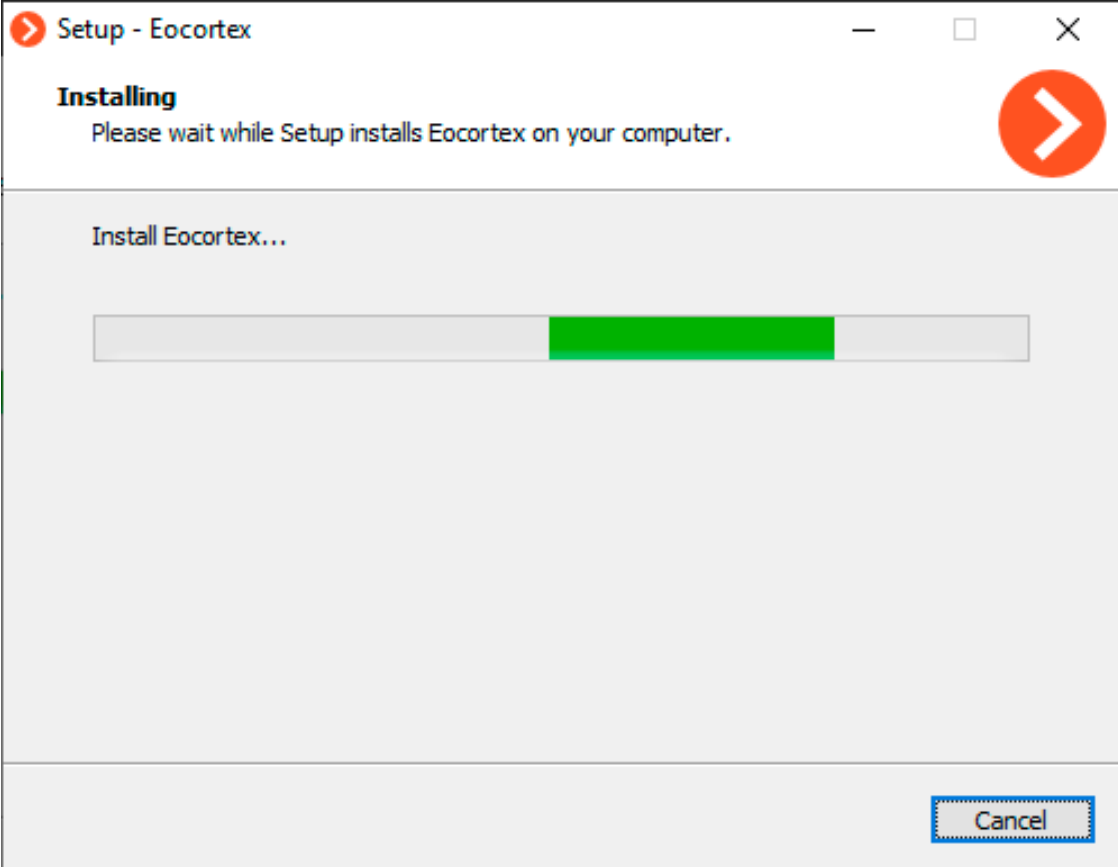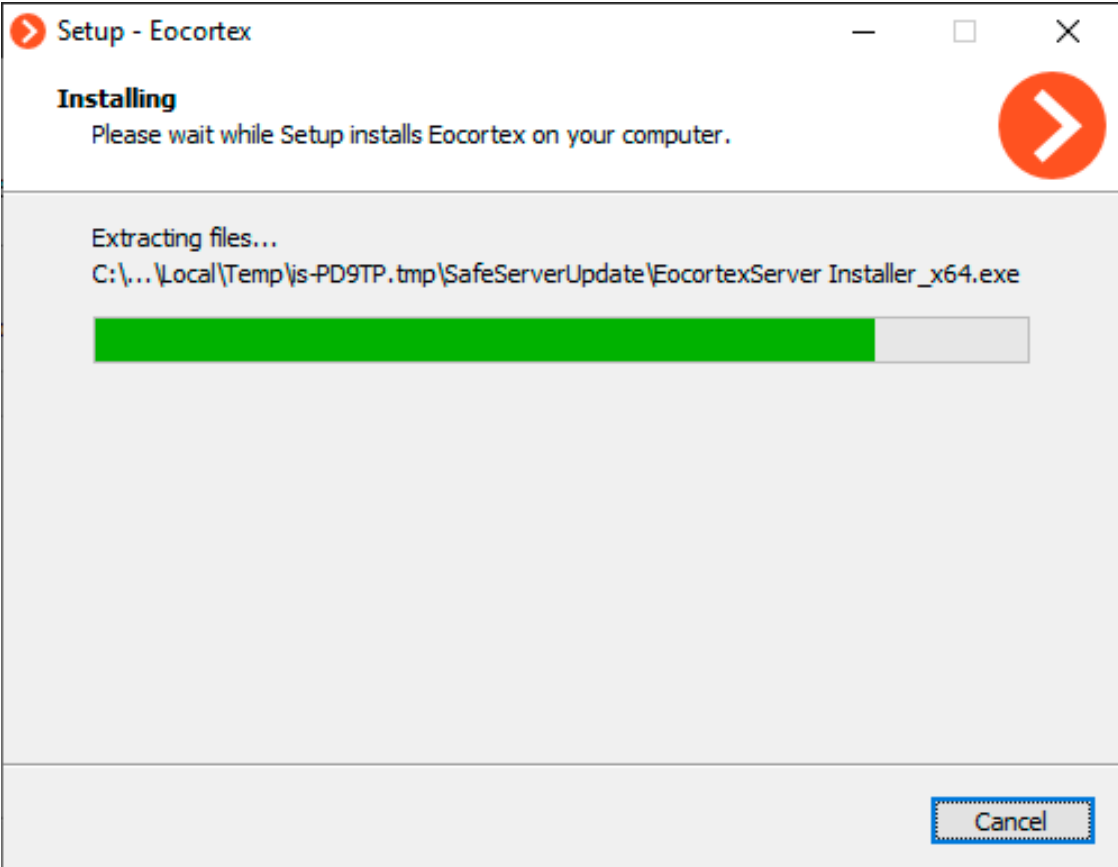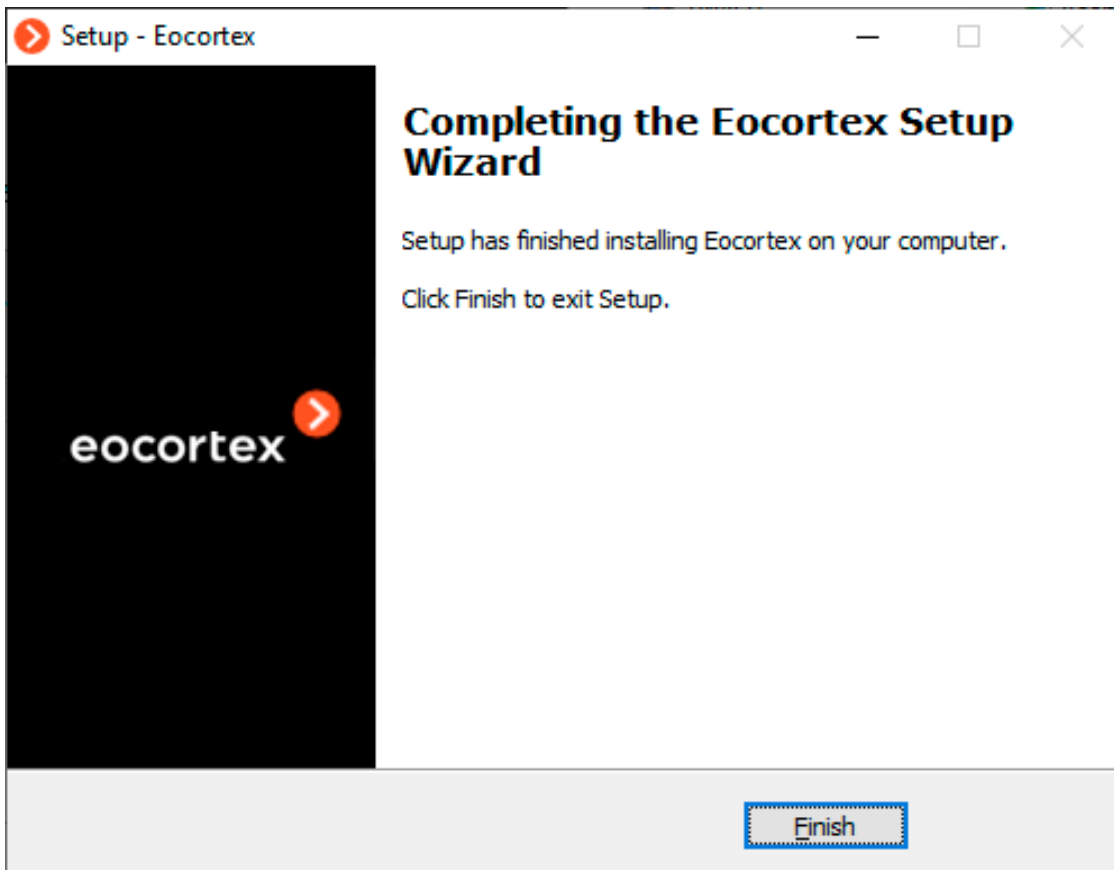
Note

When installation of the video server is finished, the application will start automatically: **Eocortex Server** — as a Windows system service, **Eocortex Standalone** — as a WPF application. At that, a root user with a blank password is created (by default) with full rights (username and password are recommended to be changed).

When setup wizard is closed, **Eocortex Server Info** window opens. When clicking the button **Install the license**, you will be prompted to Install or update the license.
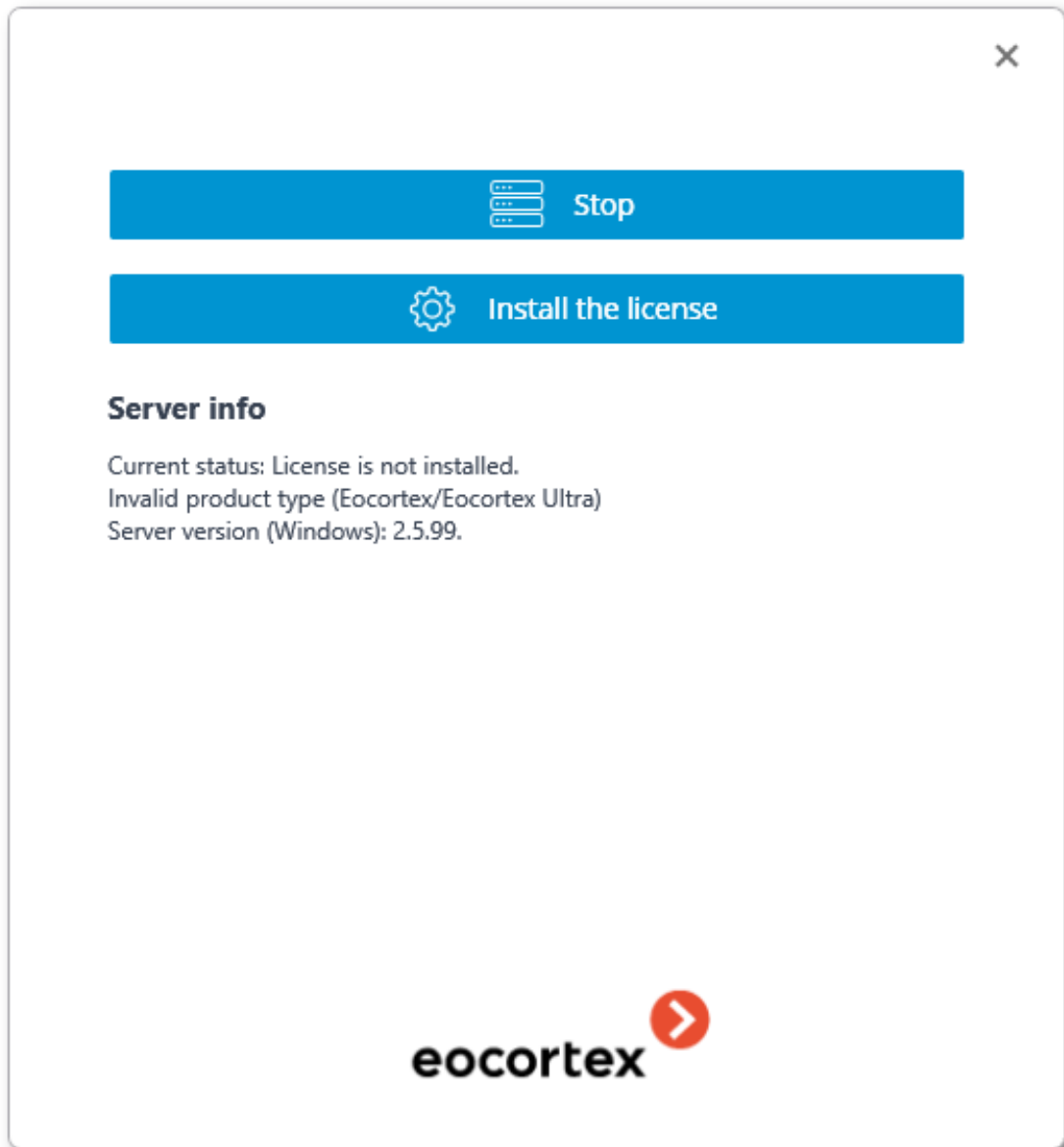
Installing Eocortex Client

Note

The most up-to-date version of **Eocortex** can be downloaded from the eocortex.com website at the Support / Software Installation Packages Supported page.

Warning

The **Eocortex Client** and **Eocortex Server** applications must be in the same version.

Warning

Installation of **Eocortex Client** should be performed via the account of the user by whom this application shall be used. If the application is to be used by

several users with different accounts, you should install the application for each of such user.

Close all Windows applications before installing **Eocortex Client**; run the **EocortexClientCommon Installer.exe** file located in the installer root folder.

Select the installation language. This language will be used both during installation and during further operation of the application on this computer. Click the **OK** button.
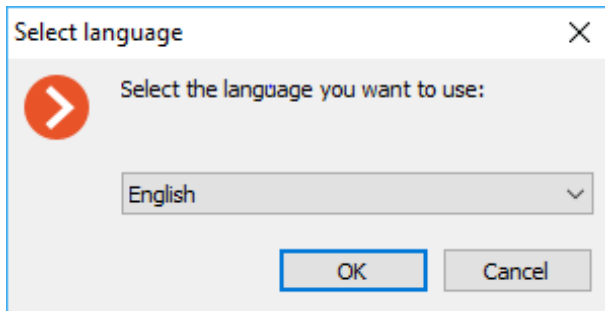
If **Eocortex Client** is already installed on the computer for this account, the user will be prompted to uninstall the previous instance of the application. Clicking **No** will abort the installation and leave the previous instance. Clicking **Yes** will remove the previous instance and open the **Eocortex Client** installation wizard window.

If **Eocortex Client** is being installed for the first time for the account on this computer, the **Eocortex Client** installation wizard window will open. Follow the instructions of the wizard.

Setup - Eocortex Client

Welcome to the Eocortex Client Setup Wizard

This will install Eocortex Client version 2.3.171 on your computer.

It is recommended that you close all other applications before continuing.

Click Next to continue, or Cancel to exit Setup.

eocortex

Next >   Cancel

Setup - Eocortex Client

Choose the installation parameters
Choose the folder and software bitness Eocortex Client

Eocortex Client will be installed in the folder

Click "Next" to continue. If you want to choose other folder, click "Search".

C:\Users\petrovich\AppData\Local\Programs\Eocortex Client   Browse...

Choose bitness...

< Back   Install   Cancel

Updating Eocortex software

Updating **Eocortex** applications can be done by installing the latest version of the application over the older one (see Installing Eocortex software from a common installer). During installation, the program files of the previous version are deleted, but all settings as well as the archive and the license binding are

retained. Thus, no additional settings are required after installing the new software version.

Warning

Starting from version 3.4 of **Eocortex**, certain components use PostgreSQL database management system of version 11 or later. In this respect, before installing version 3.4 and higher (as well as when upgrading from version 3.3 and lower to version 3.4 and higher), it is required to review the PostgreSQL installation information.

Warning

When upgrading an application, the new version must be of the same bit depth as the previously installed version. For example, if **Eocortex Server** (32-bit) was previously installed, then when updating, select the same **Eocortex Server** (32-bit) option. Please note that when installing with "default" values, the application bit depth is determined automatically according to the digit capacity of the Windows operating system.

Warning

Since **Eocortex** version **4.0**, support for **Windows 7** and **Windows Server 2008** operating systems, as well as **32-bit versions** of other operating systems, is no longer available. This should be considered when installing or upgrading **Eocortex** to version **4.0** or higher.

Note

It is recommended to enable **Eocortex Client** automatic update in the server settings to preserve compatibility between the server after the upgrade and the existing client computers. In addition, **Eocortex Client** can be installed from its own distribution package.

Note

If there is a need to change the license without having to change the version or bit depth of the server application, no update is required. Just update the license.

Versions of Eocortex

The version number of **Eocortex** applications consists of three parts: **M.N.R**, where **M** means a major version, **N** is for a minor version, and **R** is a release number.

Note

The most up-to-date version of **Eocortex** can be downloaded from the eocortex.com website at the Support / Software Installation Packages Supported page.

When updating the **Eocortex** server application from an old version to the latest one, follow the recommendations below.

Depending on the version of the installed **Eocortex** server application:

- If the version of the currently installed server application differs from the recent one only by the release number, then you can update directly to the latest version.

- If the version of the currently installed server application differs from the recent one by the number of the major or minor version, then you need to successively update the server application.

Warning

Successive updating requires you to start the server at least once after upgrading to each subsequent version.

Warning

Successive update presumes keeping the system settings and the archive of cameras. However, there is a small chance of losing the settings or the archive.

Warning

Similarly, there is an upgrade from an older to a newer version that is not up-to-date.

Removing Eocortex software

Depending on the purpose, **Eocortex** software can be removed in one or two steps:

Step 1: **Remove the software but keep the settings** — only executable files and libraries are removed; all settings, the license and the archive are saved. This procedure is used only if it is planned to install **Eocortex** software with the same bit depth later (the same procedure is performed automatically when you update your **Eocortex** software.)

Step 2: **Complete removal of Eocortex products** — all settings and the license will be removed. This procedure is used if it is planned to install **Eocortex** server software of another bit depth later or completely remove it from the computer.

Remove the software but keep the settings ⟩

Open the **Programs and Features** in **Control Panel** (⊞ **Start** / ⚙ **Control Panel**.)

Select the **Eocortex** product to be removed and press **Uninstall** button.

*Complete removal of **Eocortex** products* ❯

Warning

Complete removal of **Eocortex** applications should be performed only after the step with keeping the settings.

In order to permanently remove the **Eocortex** application, you should delete the installation folder from the disk, as well as all subfolders that start with **Eocortex**, in the **ProgramData** folder on the system disk.

In addition, **EocortexArchive** folders are created on archived disks. If you want to delete the archive, then these folders are deleted.

Usage of PostgreSQL on Windows

PostgreSQL can be installed on Windows both in manual mode, using its own distribution packages of the required version, and in automatic mode as one of **Eocortex** components.

Scan for PostgreSQL on a computer ❯

During the installation, the presence of PostgreSQL installed on the **Eocortex** is checked. Further steps will depend on the results of this check:

- If PostgreSQL is installed and its version as required or higher, then **Eocortex** will use this installed instance.

- If PostgreSQL is installed, but its version is lower than required, then during the **Eocortex** installation process it will be prompted to update PostgreSQL to the required version. The updated instance of PostgreSQL will be used by Eocortex afterwards.

- If PostgreSQL is not installed, then during the **Eocortex** installation process it will be prompted to install PostgreSQL of the required version. During the installation process, a DBMS user with the name **postgres** and password **masterkey** will be automatically created.

Note

As part of the installation process, a DBMS user with the name postgres and the password masterkey will be automatically created.

Note

Depending on the Eocortex version, requirements to PostgreSQL version and automatic PostgreSQL installation processes will differ:

- For **Eocortex** 3.4-3.6 it is required to install PostgreSQL 11.

- For **Eocortex** 4.0 and higher it is required to install PostgreSQL 12.

Installation and update of PostgreSQL for Eocortex 3.4-3.6 ⟩

Eocortex versions 3.4-3.6 require PostgreSQL version 11 to store **Search for Objects** module events. All other events and modules use Firebird.

Note

The most up-to-date version of **Eocortex** can be downloaded from the eocortex.com website at the Support / Software Installation Packages Supported page.

The following is a description of PostgreSQL installation in automatic mode, performed during the installation of other Eocortex components:

1. Install **Eocortex Server** or **Eocortex Standalone** to a computer. If **Eocortex Server** or **Eocortex Standalone** is already installed, move to the next step.

2. Stop **Eocortex** operation. For **Eocortex Server**, this can be done using the **Eocortex Status Info** utility or in the Windows Services management snap-in. For **Eocortex Standalone**, this can be done via the context menu of the application icon in the taskbar.

3. Run the **Eocortex Neural Networks Standard** installation package of the version corresponding to the installed **Eocortex** instance.

4. In the list of analytics to install, select the **Search for Objects** module and click **Next**.

5. If PostgreSQL is not installed or has a lower version than required, a window prompting to install the required version of PostgreSQL will open. Confirm installation; change the installation path if necessary. Click **Next**.

6. Proceed according to the instructions of the Installation Wizard.

7. Restore **Eocortex** operation.

Installation and update of PostgreSQL for Eocortex 4.0 ⟩

Eocortex versions 4.0 and higher require PostgreSQL version 12 to store all internal databases.

Note

The most up-to-date version of **Eocortex** can be downloaded from the eocortex.com website at the Support / Software Installation Packages Supported page.

The following is a description of PostgreSQL installation in automatic mode, performed during the installation of other Eocortex components:

1. Install **Eocortex Server** or **Eocortex Standalone** to a computer. If **Eocortex Server** or **Eocortex Standalone** is already installed, move to the next step.

2. If PostgreSQL is not installed or has a lower version than required, a window prompting to install the required version of PostgreSQL will open. Confirm installation; change the installation path if necessary. Click **Next**.

3. Proceed according to the instructions of the Installation Wizard.

Database setup for event recording 〉

Due to the fact that this improvement does not provide any new features for users in terms of using **Eocortex**, using the PostgreSQL database does not require any additional settings other than the already existing database event recording settings. To start writing events to the system database:

1. Run the Eocortex Configurator application and go to the **Servers** page.

2. Select a server in the list.

3. Select the **Information** tab on the right part of the window and click **Configure**.

4. In the window that opens, select the **Archive** tab and set for one of available drives the **Archive + database** or **Database only** role.

5. Apply settings.

Warning

Additional PostgreSQL configuration is required if the system uses remote databases for the **Face Recognition** or **License Plate Recognition** modules. See the **Analytics modules databases** section.

Change of default user password 〉

If the default **postgres** user created during installation is used, but it is necessary to use a custom password, follow these steps:

Warning

All the following steps must be made directly on the server for which the changes are being made.

1. Stop **Eocortex** operation. For **Eocortex Server**, this can be done using the **Eocortex Status Info** utility or in the Windows Services management snap-in. For **Eocortex Standalone**, this can be done via the context menu of the application icon in the taskbar.

2. Launch the **psql** utility as a DBMS user. To do this, run the command line, go to the directory with the utility (Default: **C:\Program Files\PostgreSQL\bin**) and run the command:

    psql -U postgres

3. Input the current password to confirm the login (Default: **masterkey**).

4. Change the password with the command:

    ALTER ROLE postgres WITH PASSWORD 'newPassword';

    where **newPassword** is a new password for **postgres** user.

5. Open the **C:\ProgramData\EocortexServerConfig** directory and edit the **ArchiveSystem.xml** configuration file with any text editor.

6. Find the **PostgreSqlConfig** section and edit **User** and **Password** lines according to new DBMS user credentials.

    The following is an example of such settings:

    ```
    <PostgreSqlConfig>
       <Ip>127.0.0.1</Ip>
       <Port>5432</Port>
       <User>postgres</User>
       <Password>newPassword</Password>
    </PostgreSqlConfig>
    ```

7. To allow the system making backups of database files, make sure that new credentials are added to the DBMS password file. To do this, go to the **C:\Users\[UserName]\AppData\Roaming\postgresql** directory and edit the **pgpass.conf** file with any text editor. Check that the selected user has access to the **Eocortex** database files.

8. Restore **Eocortex** operation.

Analytics modules databases ❯

If the **Face Recognition** or **License Plate Recognition** modules are used in the system, the DBMS user editing will affect their bases as well.

If the **Local** Database is used, **Eocortex** will use the name and password specified in the **ArchiveSystem.xml** file to access the database.

If the **Remote** Database is used, changing the PostgreSQL credentials on the server storing the database will require a new name and password to be entered in the settings of all cameras that use the database.

Note

Use case:

Server 1 hosts the face database.

Server 2 hosts a number of cameras that use the face database from Server 1.

Modifying the DBMS user on Server 2 will not affect access to the face database hosted on Server 1.

Modifying the DBMS user on Server 1 will require new data to be specified for all cameras on Server 2 that use the face database hosted on Server 1.

Warning

Remote access to databases is not allowed by default in PostgreSQL and must be additionally configured if remote databases are used for analytics.

The steps below must be performed directly on the server hosting the database of the module.

1. Go to the directory with the PostgreSQL configuration files.

   Default path:

   C:\ProgramData\postgredb\

2. Edit the file **postgresql.conf** with any text editor and add a line like the following:

   listen_addresses = '*'

   The specified example allows receiving requests to databases from all available network adapters of the server. If it is necessary to limit the list of adapters allowed to receive requests, replace the **/*** symbol with the exact address of the network adapter. More details about this setting can be found in the PostgreSQL 12 documentation.

3. Edit the file **pg_hba.conf** with any text editor and add a line like the following:

   host all all 192.168.0.0/24 md5

   The specified example allows remote connections to all databases stored on the server for all users who are connecting from the 192.168.0.XXX network address range. If other addressing is used in the system network, it is necessary to specify the appropriate address range instead of displayed. It is allowed to enter several lines with different address ranges. More details about this setting can be found in the PostgreSQL 12 documentation.

4. Restart the **postgresql-x64-12** service with the command prompt or by the default **Services** snap-in.

Removal of PostgreSQL 〉

Although PostgreSQL can be installed together with **Eocortex**, a simple removal of video surveillance system does not automatically delete DBMS.

PostgreSQL can be uninstalled using regular Windows tools designed for this purpose. For example, using the **Programs and features** snap-in from **Control panel** or **Apps and Features** from the **Settings** window.

Warning

Removal of PostgreSQL does not automatically remove its settings. When reinstalling the DBMS on the same computer, PostgreSQL will retain the settings from the previously created configuration files.

Installing, updating, and removing Episode archive

The **Episode archive** service provides the possibility to keep individual archive fragments for an unlimited time. Using the **Episode archive** service, you can be sure that important archive fragments will not be lost due to loop recording or corruption of the main archive.

Note

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

The **service** can be installed on any computer without installing the **Eocortex** server on it.

Only one **service** instance can be configured for the entire system.

Installation 〉

Note

The service uses **PostgreSQL 12** to manage the database. If the required DBMS version is not installed on the device, a prompt to install it will be given while the **Setup Wizard** is running.

Below are the steps to install the **Episode archive** service:

1. Download the **Eocortex Services Installer** software from the Download software page.

2. Run the **EocortexServices Installer.exe** file.

3. Select the installation language.

4. Read and accept the **License Agreement**.

5. Select the service on the **Choose components** page, and then follow the steps of the **Setup Wizard**.
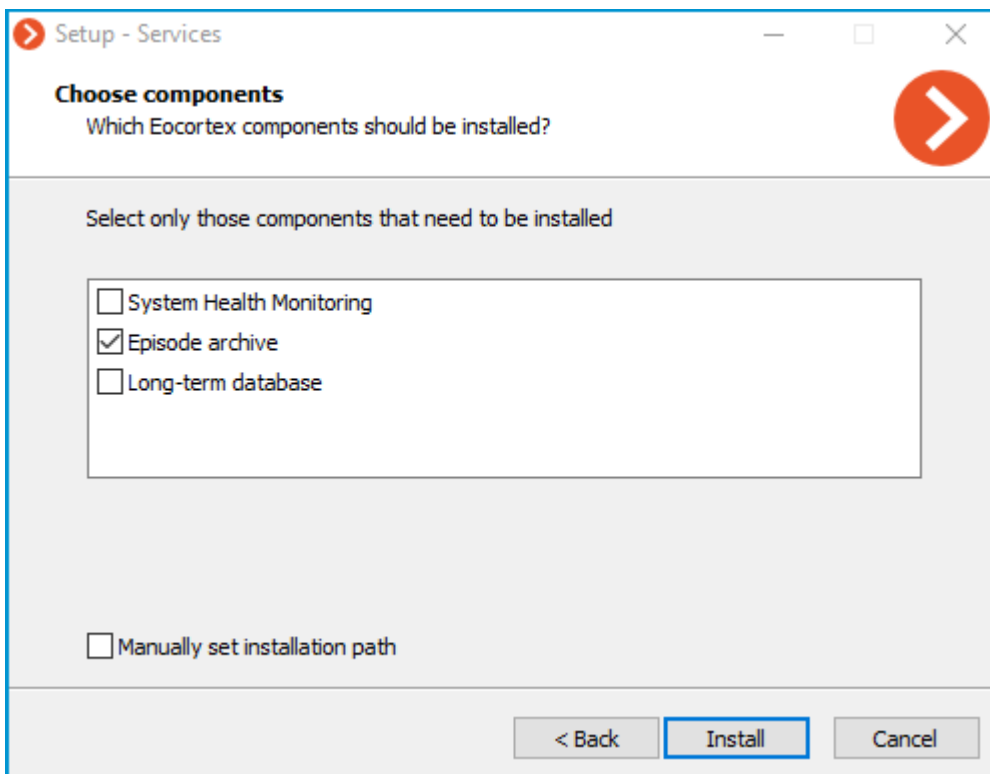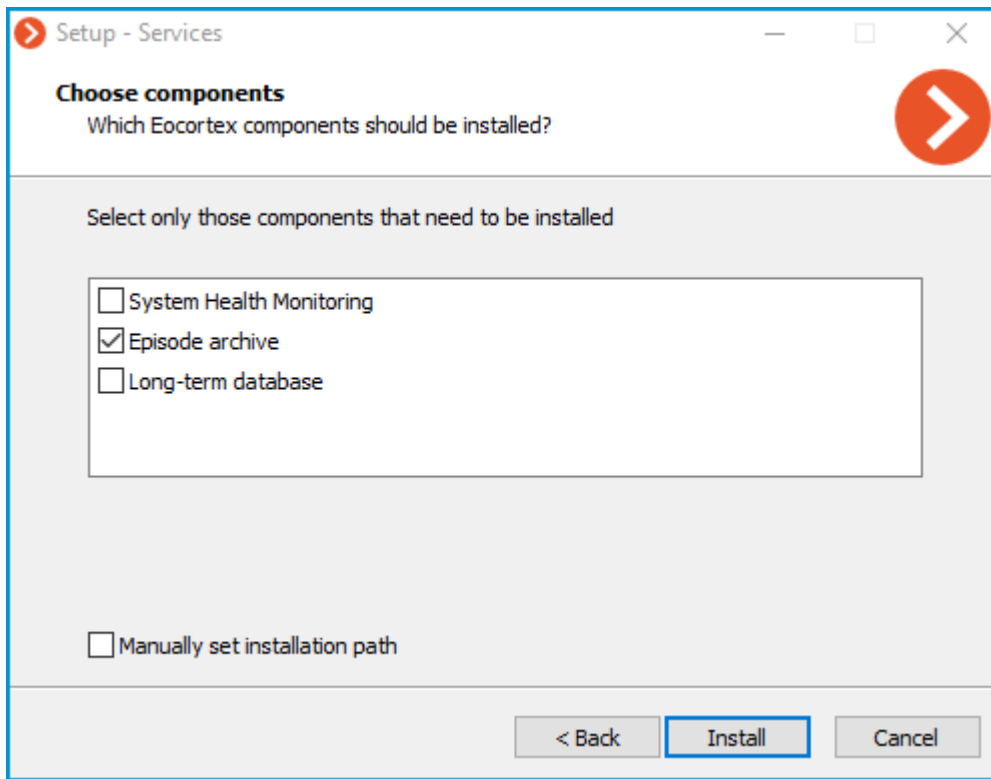
Note

By default, the **Episode archive** service installs to the **C:Program FilesEocortexArchiveEpisodesService** directory.

In case if it is necessary to set a custom installation path, enable the **Manually set installation path** option in the **Choose components** screen.
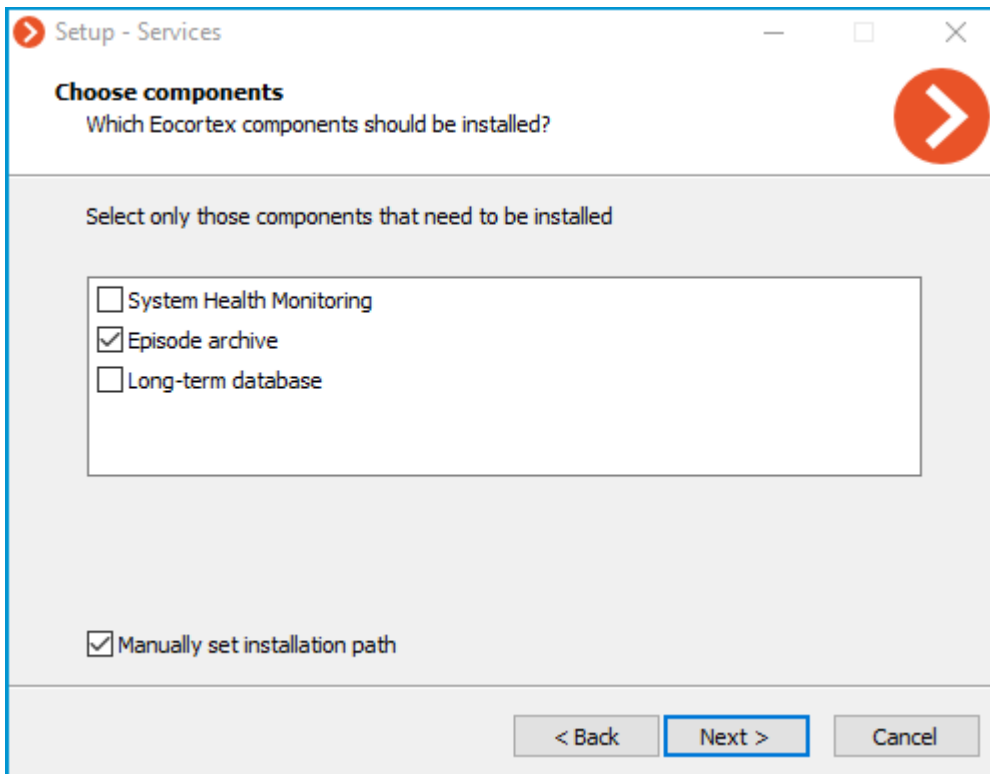
With this option enabled, the possibility to set a custom installation path will be available on the next screen of the **Setup Wizard**.
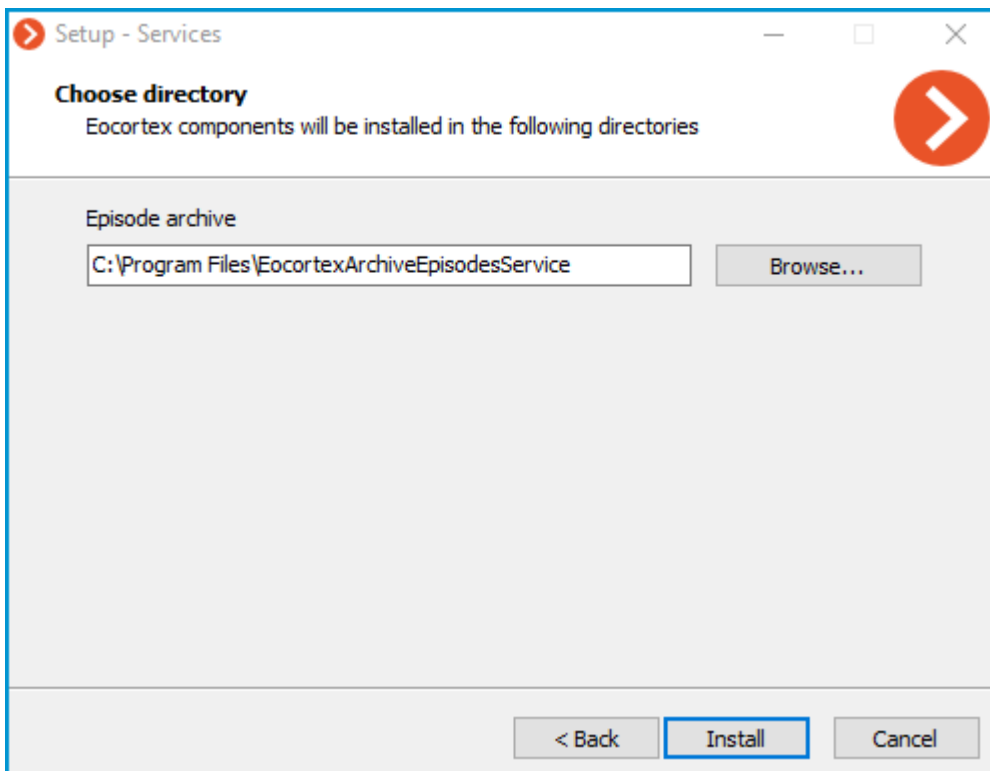
Note

The service will register as a Windows service and will start automatically at OS startup.

Note

Service name: **EocortexArchiveEpisodesService**

Update 〉

The service update can be performed similarly to the installation process, just using a newer version of the installation package.

Uninstallation 〉

The service can be uninstalled using the standard **Apps and Features** snap-in from the **Windows Control Panel**.

Network settings of the service 〉

Warning

These settings should be made on the device where the service is installed.

Description

As part of the installation process, a configuration file **appsettings.json** containing network settings will be created in the root directory of the service.

Default path:

C:\Program Files\EocortexArchiveEpisodesService\appsettings.json

Below is an example of default settings:

```
{
   "ConnectionStrings": {
      "DatabaseConnectionTemplateWithoutDbName": "Host=localhost; Port=5432;Database={0};Username=postgres;Password=masterkey"
   },
   "Serilog": {
      "MinimumLevel": {
         "Default": "Debug",
         "Override": {
            "Default": "Information",
            "Microsoft": "Warning",
            "Microsoft.Hosting.Lifetime": "Information"
         }
      },
      "WriteTo": [
         {
```

```json
          "Name": "Logger",
          "Args": {
            "configureLogger": {
              "Filter": [
                {
                  "Name": "ByIncludingOnly",
                  "Args": {
                    "expression": "(@Level = 'Error' or @Level = 'Fatal' or @Level = 'Warning')"
                  }
                }
              ],
              "WriteTo": [
                {
                  "Name": "File",
                  "Args": {
                    "path": "%LogsDir%/service.log",
                    "rollOnFileSizeLimit": true,
                    "fileSizeLimitBytes": "52428800",
                    "retainedFileCountLimit": 10
                  }
                }
              ]
            }
          }
        },
        {
          "Name": "Console",
          "Args": {
            "outputTemplate": "===> {Timestamp:HH:mm:ss.fff zzz} [{Level}] {Message}{NewLine}{Exception}"
          }
        }
      ],
      "Enrich": [
        "FromLogContext",
        "WithMachineName",
        "WithThreadId"
      ],
      "Properties": {
        "Application": "LongTerArchiveService"
      }
    },
    "AllowedHosts": "\*",
    "EpisodesDbRelativePath": "ArchiveServiceData/episodes-database",
    "AlwaysRedirectToHttps": "false",
    "Network": {
      "Endpoints": {
        "Http": {
          "Url": "http://\*:8899"
```

```
            }
          }
       }
  }
```

Change the HTTP port

To change the HTTP port, find the following section in the configuration file:

```
"Network": {
    "Endpoints": {
        "Http": {
            "Url": "http://0.0.0.0:8899"
        }
    }
},
```

And set a custom port in the **Url** line instead of the default **8899**.

Enable HTTPS connection

To add an SSL certificate to the service configuration and enable HTTPS connection, change the Network section by one of the following ways:

```
"Network": {
    "Endpoints": {
        "Http": {
            "Url": "http://0.0.0.0:8899"
        },
        "Https": {
            "Url": "https://0.0.0.0:18899",
            "Certificate": {
                "Path": ".pfx file",
                "Password": "cert_password"
            }
        }
    }
}
```

Where:

- **Path**: Location of the PFX file of the certificate.

- **Password**: Password of the certificate.

```
"Network": {
    "Endpoints": {
        "Http": {
            "Url": "http://0.0.0.0:8899"
        },
        "HttpsInlineCertAndKeyFile": {
            "Url": "https://0.0.0.0:18899",
            "Certificate": {
```

```
            "Path": ".pem/.crt file",
            "KeyPath": ".key file",
            "Password": "cert_password"
        }
      }
    }
}
```

Where:

- **Path**: Location of the .pem/.crt file of the certificate.

- **KeyPath**: Location of the .key file of the certificate.

- **Password**: Password of the certificate.

```
"Network": {
   "Endpoints": {
      "Http": {
         "Url": "http://0.0.0.0:8899"
      },
      "Https": {
         "Url": "https://0.0.0.0:18899",
         "Certificate": {
            "Subject": "Subject",
            "Store": "Store",
            "Location": "Location",
            "AllowInvalid": "true/false"
         }
      }
   }
}
```

Where:

- **Subject**: Name of the certificate subject.

- **Store**: Name of the certificate storage.

- **Location**: Location of the certificate storage. By default, CurrentUser.

- **AllowInvalid**: State of the policy of using invalid (e.g. self-signed) certificates. By default, it's false.

Note

Changing the HTTPS port can be done similarly to the HTTP port, but for the relevant section.

Forced redirect to HTTPS

To enable forced redirection of all requests to the service to a secured connection, find and change the value from **false** to **true** for the following line:

"AlwaysRedirectToHttps": false,

Note

After saving the settings, the service must be restarted via the **Services** snap-in to take all changes into effect.

It is also possible to restart the service via the terminal using the following command:

sudo systemctl restart eocortexarchiveepisodes

Warning

Changing other settings provided in the configuration file may cause the service to malfunction or fail. It is not recommended to change settings that are not described in the present documentation.

Installing, updating, and removing Long-term database

The **Long-term database** service ensures storing of selected types of events and access to them regardless of the archive storage settings. With this service there is no need to be concerned that event data will be lost if the archive is deleted.

Note

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

The **service** can be installed on any computer without installing the **Eocortex** server on it.

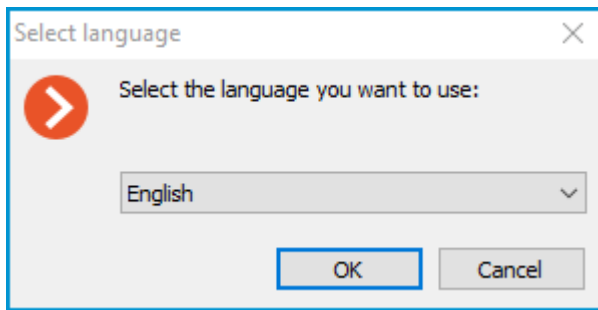Only one **service** instance can be configured for the entire system.
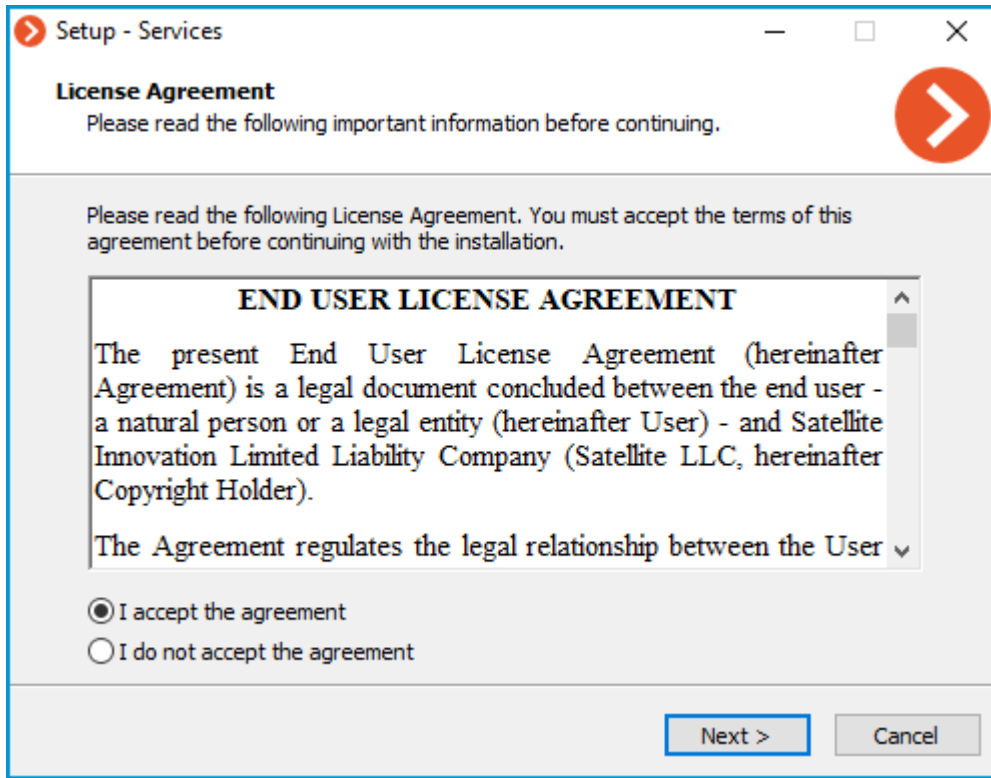
Installation 〉

Note

The service uses **PostgreSQL 12** to manage the database. If the required DBMS version is not installed on the device, a prompt to install it will be given while the **Setup Wizard** is running.

Below are the steps to install the **Long-term database** service:

1. Download the **Eocortex Services Installer** software from the Download software page.

2. Run the **EocortexServices Installer.exe** file.

3. Select the installation language.

4. Read and accept the **License Agreement**.

5. Select the service on the **Choose components** page, and then follow the steps of the **Setup Wizard**.
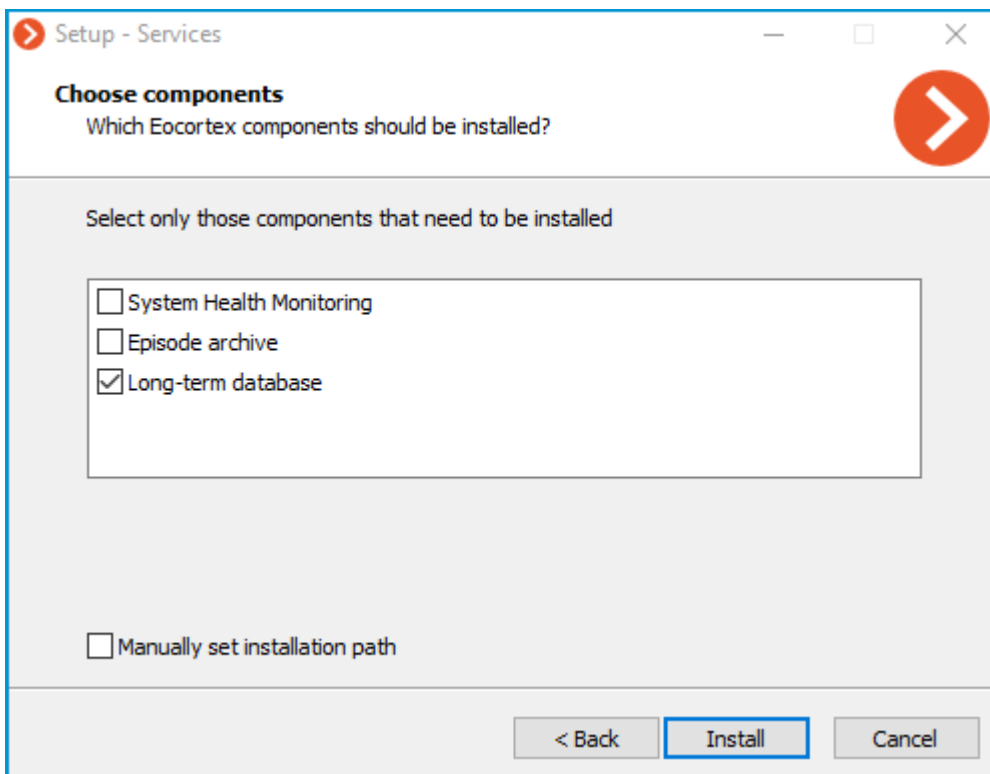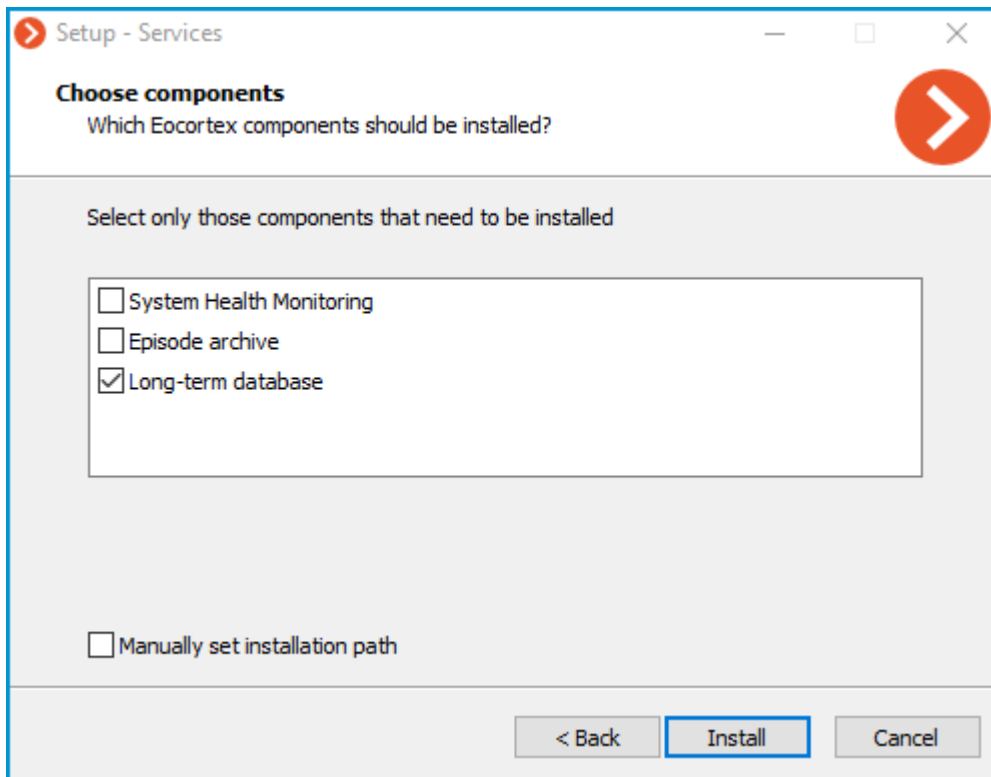
Note

By default, the **Long-term database** service installs to the **C:Program FilesEocortexLongTermDatabaseService** directory.

In case if it is necessary to set a custom installation path, enable the **Manually set installation path** option in the **Choose components** screen.
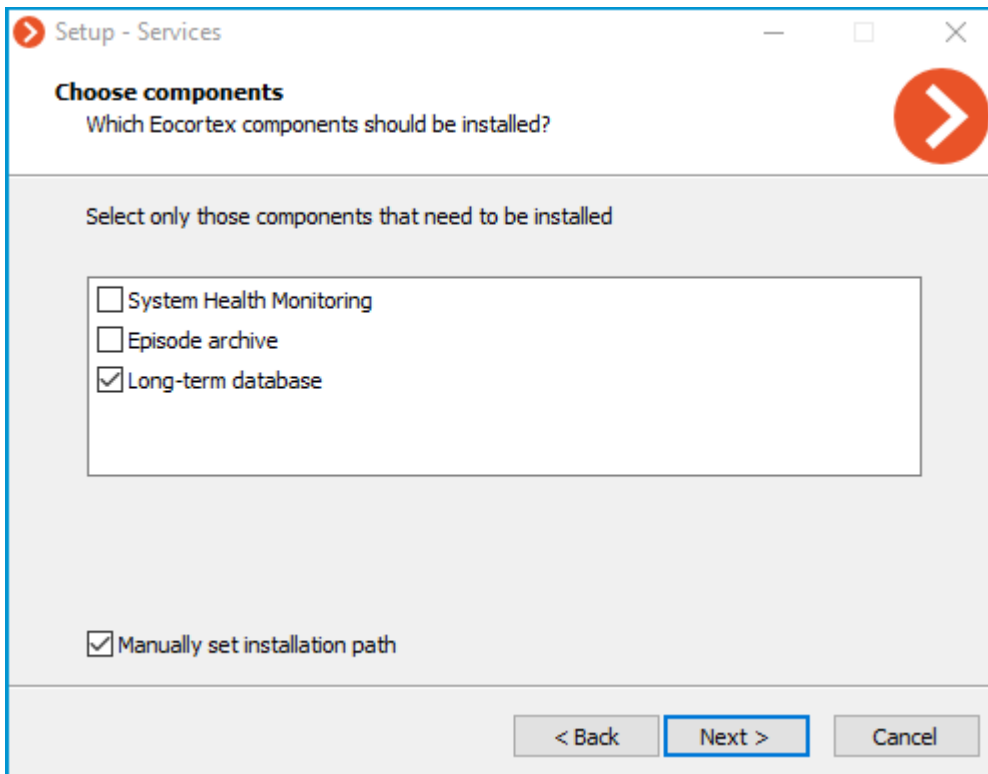
With this option enabled, the possibility to set a custom installation path will be available on the next screen of the **Setup Wizard**.
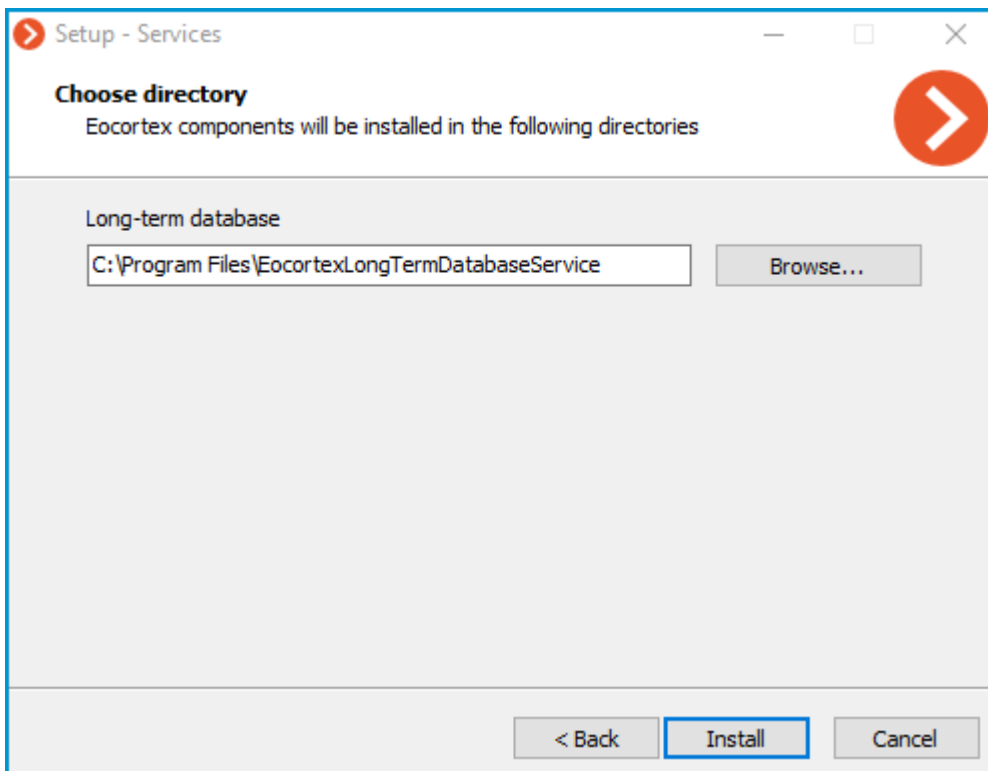
Note

The service will register as a Windows service and will start automatically at OS startup.

Note

Service name: **EocortexLongTermDatabase**

Update >

The service update can be performed similarly to the installation process, just using a newer version of the installation package.

Uninstallation >

The service can be uninstalled using the standard **Apps and Features** snap-in from the **Windows Control Panel**.

Network settings of the service >

Warning

These settings should be made on the device where the service is installed.

Description

As part of the installation process, a configuration file **appsettings.json** containing network settings will be created in the root directory of the service.

Default path:

C:\Program Files\EocortexLongTermDatabaseService\appsettings.json

Below is an example of default settings:

```
{
    "Application": {
        "Brand": "Eocortex",
        "AppName": "LongTermDatabase"
    },
    "Logging": {
        "LogLevel": {
            "Default": "Information",
            "Microsoft.AspNetCore": "Warning"
        }
    },
    "AllowedHosts": "*",
    "AlwaysRedirectToHttps": false,
    "Network": {
        "Endpoints": {
            "Http": {
```

```
              "Url": "http://*:8999"
            }
          }
        },
    "ConnectionStrings": {
        "DefaultConnectionString": "Host=localhost;Port=5432;Database=longtermdatab
ase;Username=postgres;Password=masterkey;",
        "ConnectionStringWithDatabasePlaceholder": "Host=localhost;Port=5432;Databa
se={0};Username=postgres;Password=masterkey;"
    }
}
```

Change the HTTP port

To change the HTTP port, find the following section in the configuration file:

```
"Network": {
    "Endpoints": {
        "Http": {
            "Url": "http://*:8999"
        }
    }
},
```

And set a custom port in the **Url** line instead of the default **8999**.

Enable HTTPS connection

To add an SSL certificate to the service configuration and enable HTTPS connection, change the Network section as follows:

```
"Network": {
    "Endpoints": {
        "Http": {
            "Url": "http://*:8999"
        },
        "HttpsInlineCertFile": {
            "Url": "https://*:18999",
            "Certificate": {
                "Path": "path_to_the_cert",
                "Password": "cert_password"
            }
        }
    }
}
```

Where:

- **Path**: Location of the PFX file of the certificate.

- **Password**: Password of the certificate.

Note

Changing the HTTPS port can be done similarly to the HTTP protocol, but for the **HttpsInlineCertFile** section.

Forced redirect to HTTPS

To enable forced redirection of all requests to the service to a secured connection, find and change the value from **false** to **true** for the following line:

"AlwaysRedirectToHttps": false,

Note

After saving the settings, the service must be restarted via the **Services** snap-in to take all changes into effect.

It is also possible to restart the service via the terminal using the following command:

sudo systemctl restart eocortexarchiveepisodes

Warning

Changing other settings provided in the configuration file may cause the service to malfunction or fail. It is not recommended to change settings that are not described in the present documentation.

Installing, updating, and removing Monitoring

The **Eocortex System Monitoring** service allows controlling the status of the video surveillance system components and receiving immediate notifications about problems occurring with them.

Note

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

The **service** can be installed on any computer without installing the **Eocortex** server on it.

Only one **service** instance can be configured for the entire system.

Installation ⟩

Below are the steps to install the **Monitoring** service:

1. Download the **Eocortex Services Installer** software from the Download software page.

2. Run the **EocortexServices Installer.exe** file.

3. Select the installation language.
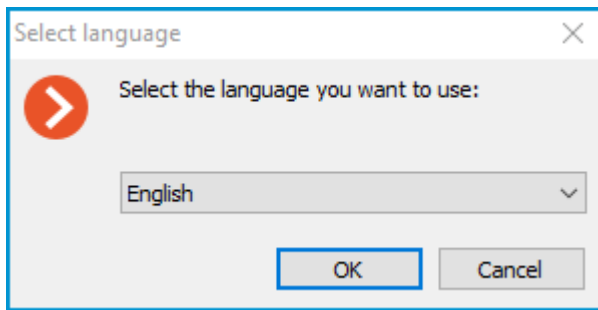
4. Read and accept the **License Agreement**.
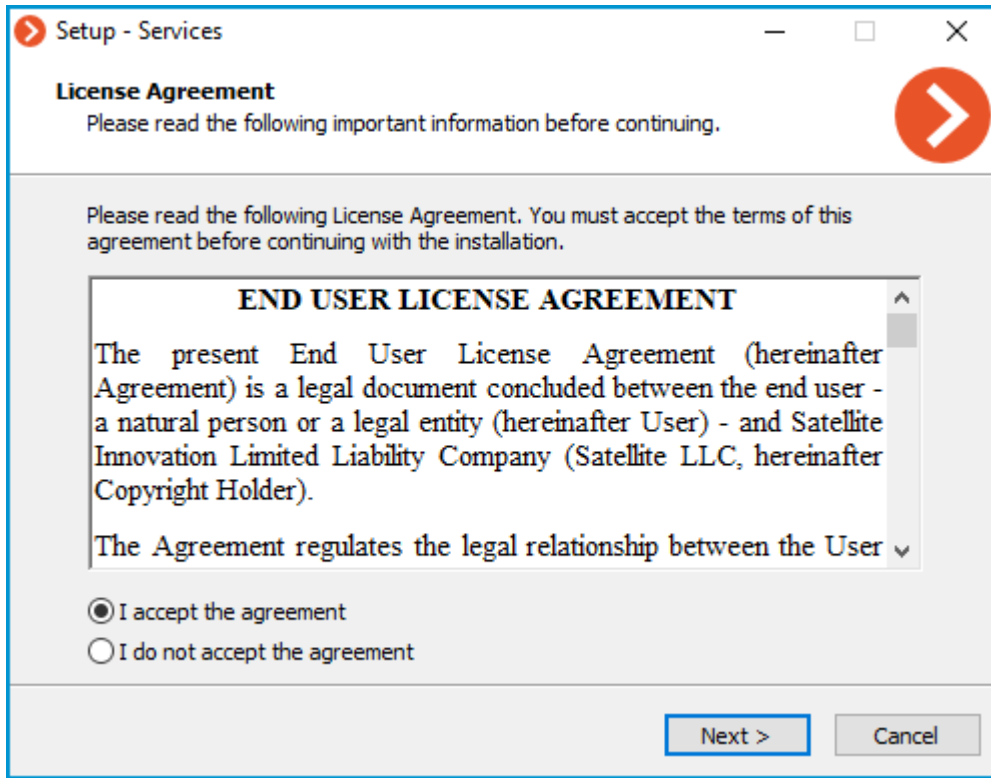
5. Select the service on the **Choose components** page, and then follow the steps of the **Setup Wizard**.
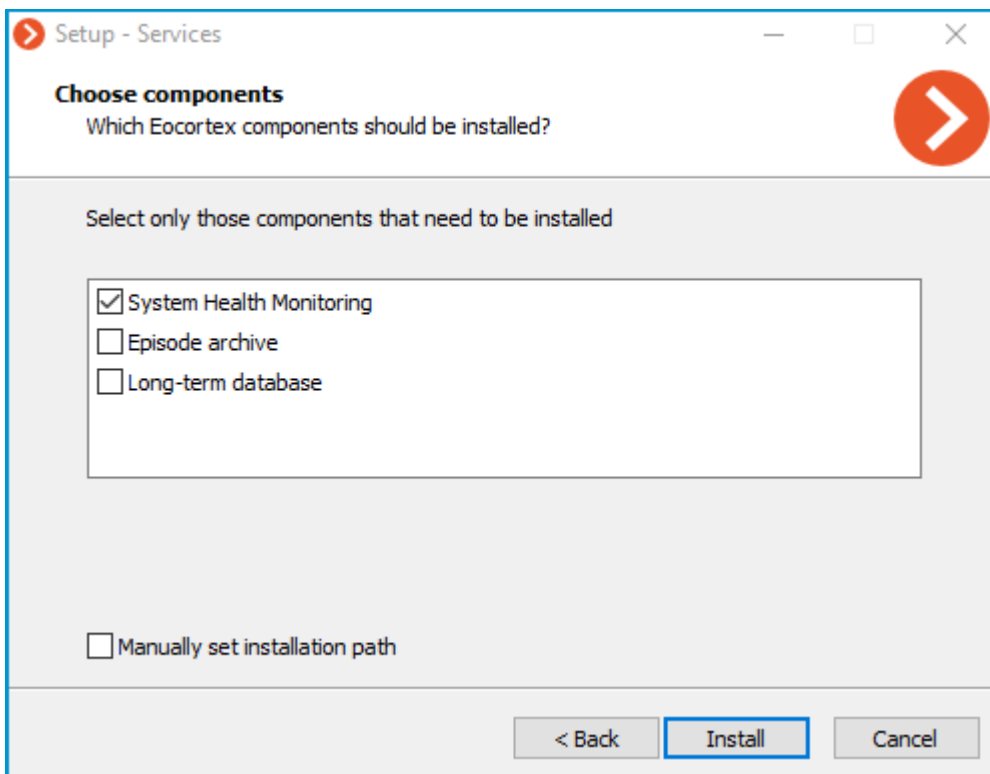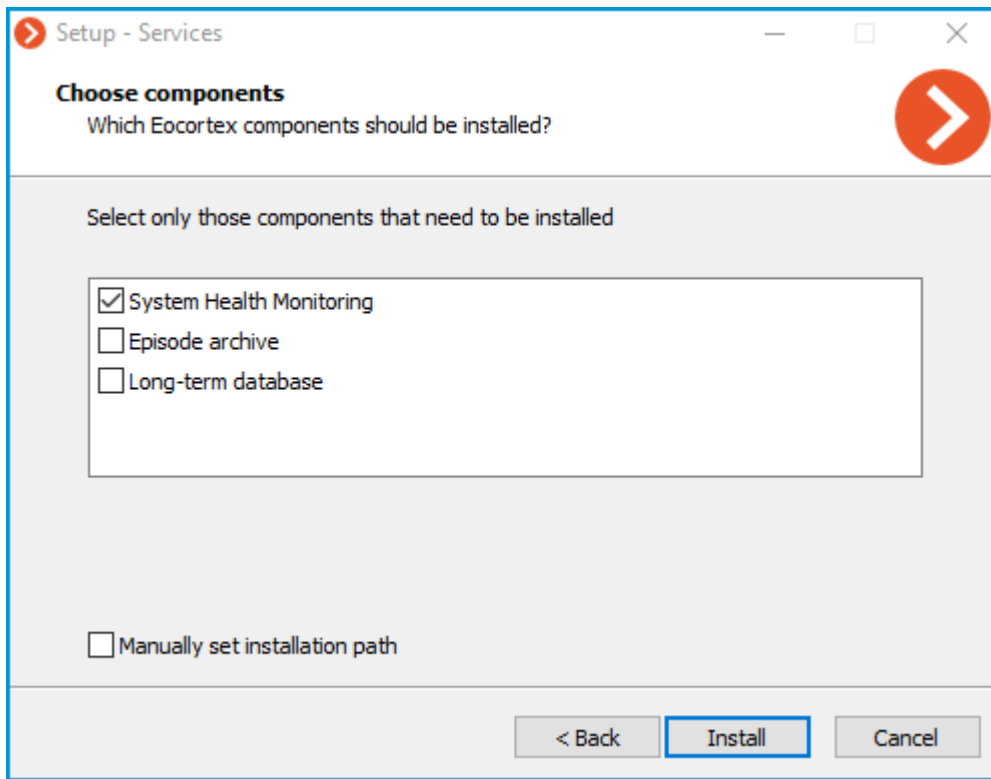
Note

By default, the **Monitoring** service installs to the **C:Program FilesEocortexMonitoring** directory.

In case if it is necessary to set a custom installation path, enable the **Manually set installation path** option in the **Choose components** screen.
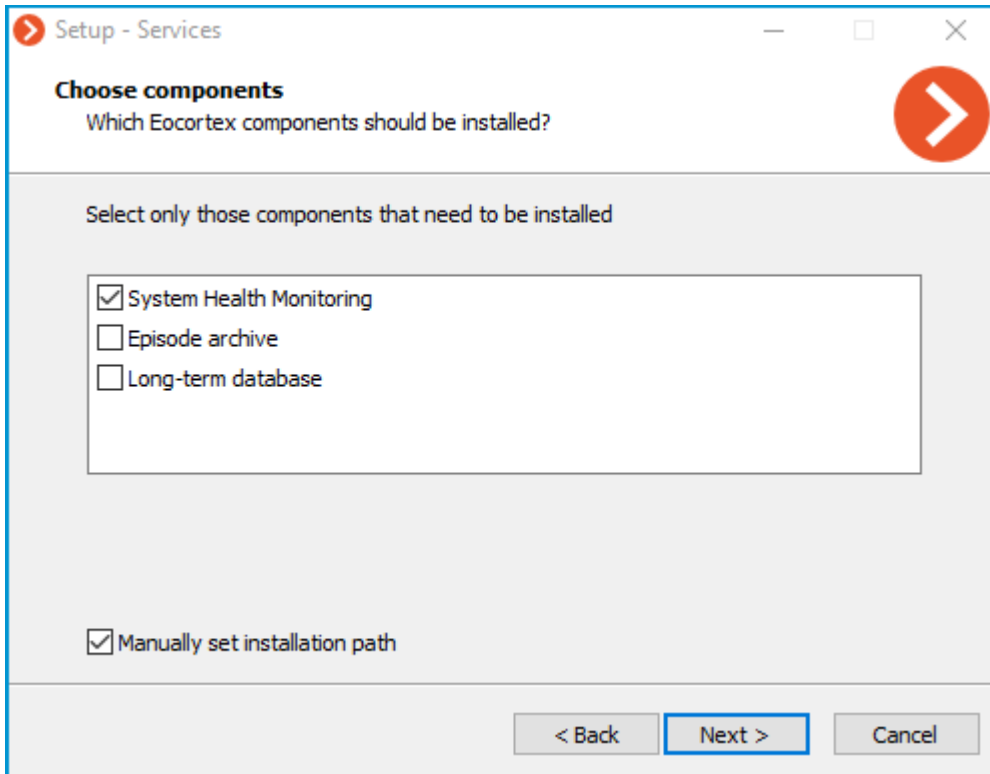
With this option enabled, the possibility to set a custom installation path will be available on the next screen of the **Setup Wizard**.
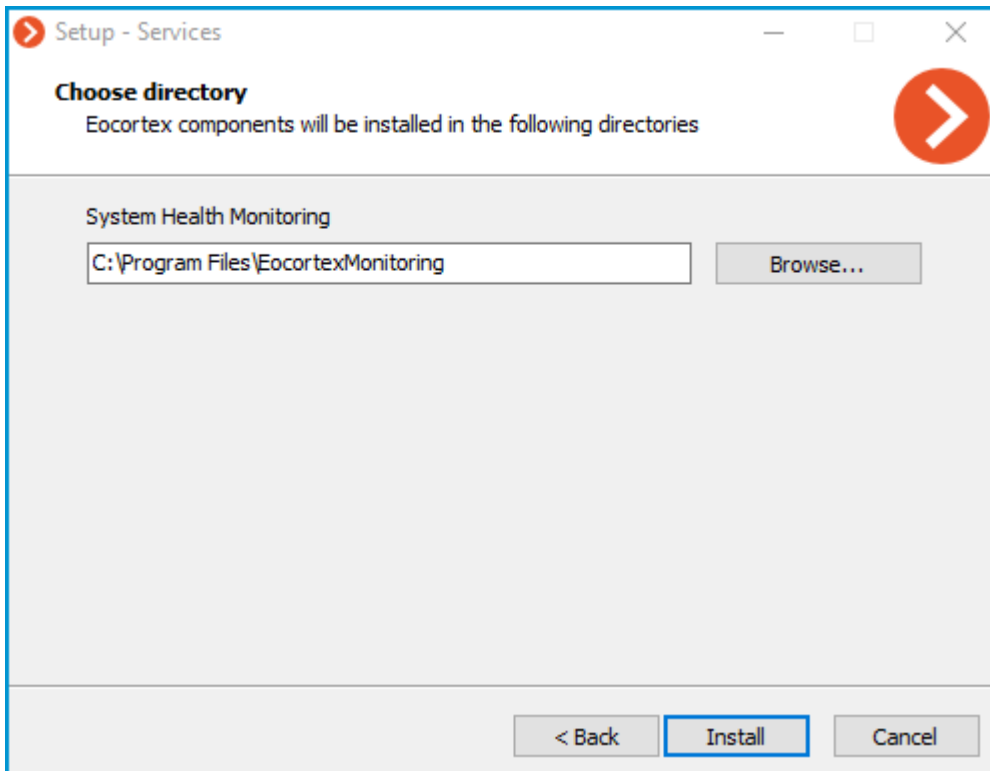
Note

The service will register as a Windows service and will start automatically at OS startup.

Note

Service name: **EocortexMonitoring**

Update 〉

The service update can be performed similarly to the installation process, just using a newer version of the installation package.

Uninstallation 〉

The service can be uninstalled using the standard **Apps and Features** snap-in from the **Windows Control Panel**.

Network settings of the service 〉

Note

The **Monitoring** service does not provide any options to change the network connection settings.

Note

Service uses HTTP port 8889 for connection without option to change it.

Monitoring Agent 〉

To collect and transmit data about the state of the Eocortex server and cameras connected to it, an additional **Monitoring** Agent service is used.

The service installs and updates at the same time as the **Eocortex** Server components are deployed, so there is no need to install the **Agent** individually.

Note

The service will register as a Windows service and will start automatically at OS startup.

Note

Service name:**EocortexMonitoringAgent**

Linux-based applications

Eocortex Server can work under Linux operating system. However, come features will be unavailable. The differences in the functionality of **Eocortex**

Server applications based on Windows and Linux are listed in the specification of **Eocortex**.

Compatible Linux distributions:

- Ubuntu 20.04, 22.04, 24.04

- Debian 10, 11, 12

- CentOS 7

Warning

Operability on other Linux distributions is not guaranteed.

Note

Guidelines for Linux settings

Recommended versions of related packages

In case of any issues with **Eocortex Server** stability, it is required to check that the installed versions correspond with those recommended:

Ubuntu, Debian

- Runtime .NET Core (ver. 6.0)

- PostgreSQL (ver. 12.0)

- Nginx (ver. 1.10)

- OpenSSL (ver. 1.1)

- GnuPG (ver. 2.1.18)

- Parted (ver. 3.2)

- libgdiplus (ver. 4.2)

- libvdpau-dev (ver. 1.1.1)

- libc6-dev (ver. 2.24)

CentOS

- Runtime .NET Core (ver. 6.0)

- PostgreSQL (ver. 12.0)

- Nginx (ver. 1.12)

- OpenSSL (ver. 1.1)

- GnuPG (ver. 2.0.22)

- Parted (ver. 3.1)

- libgdiplus (ver. 2.10)

- libvdpau-dev (ver. 1.1.1)

- libc6-dev (ver. 2.24)

- glibc-devel (ver. 2.17)

- policycoreutils-python (ver. 2.5)

In case of a significant discrepancy between the installed and the recommended versions, it is required to install the package dependency of the version indicated in the recommendations.

You can check what version is installed using the following command:

Ubuntu, Debian

sudo apt list --installed | grep package_name

CentOS

sudo yum list installed | grep package_name

Note

When deploying Eocortex components on multiple devices, it is recommended to synchronize date and time settings for all used devices.

Technical features of Linux version

Location of server files 〉

The essential files of the **Eocortex** server are located on the following paths:

- Server folder: **/opt/EocortexServer**

- Server logs: **/opt/EocortexServer/Eocortex/Logs_EocortexServer**

- Server configuration: **/opt/EocortexServer/EocortexServerConfigs**

Automatic drive mounting when launching a server 〉

At startup, the **Eocortex** server automatically mounts all suitable drive partitions to the **/mnt/{uuid}** folder, where **uuid** is the universal unique identifier of the drive partition. This is done to ensure that when the system is rebooted, the **Eocortex** server can still write the archive even if the partitions have not been mounted by the user beforehand. It is not recommended to mount drive partitions and configure recording of the archive to them independently and without a particular need.

Automatic drive mounting is not performed for system drives, software RAID drives, etc, i.e. disks flagged as:

- **boot**
- **esp**
- **bios_grub**
- **legacy_boot**
- **msftres**
- **irst**
- **root**
- **swap**
- **raid**

The list of flags for a partition can be obtained by using the command:

parted -l

The following file systems are supported:

- **ext2**
- **ext3**
- **ext4**
- **btrfs**
- **reiserfs**
- **ntfs**

The file system can be identified by using the command:

df -Th | grep "^/dev"

Adding new drives to the system ⟩

When manually adding a new disk to the system, it is required to physically connect the disk, format it and create a partition on it. After that, the **Eocortex** server will automatically mount this disk at startup, as described above.

Disks can be added manually with the **fdisk** utility:

1. Check the information about the disk:

   sudo fdisk -l

```
eocortex@ubuntu:~$ sudo fdisk -l
Disk /dev/vda: 15 GiB, 16106127360 bytes, 31457280 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 4096 bytes
I/O size (minimum/optimal): 4096 bytes / 4096 bytes
Disklabel type: gpt
Disk identifier: 25637092-3FEB-41CF-A2BB-20E068C29F21

Device      Start      End  Sectors Size Type
/dev/vda1    2048     4095     2048   1M BIOS boot
/dev/vda2    4096 31457246 31453151  15G Linux filesystem


Disk /dev/vdb: 5 GiB, 5368709120 bytes, 10485760 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 4096 bytes
I/O size (minimum/optimal): 4096 bytes / 4096 bytes
```

2. Create a partition on the disk:

    sudo fdisk /dev/vbd

    To further configure the default disk, enter the **n** character, then press **E
    nter** four times and enter the **w** character.

    .. image:: /install/img/create-disk-partition.png

3. Check if the partition was created correctly:

```
eocortex@ubuntu:~$ sudo fdisk -l
Disk /dev/vda: 15 GiB, 16106127360 bytes, 31457280 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 4096 bytes
I/O size (minimum/optimal): 4096 bytes / 4096 bytes
Disklabel type: gpt
Disk identifier: 25637092-3FEB-41CF-A2BB-20E068C29F21

Device      Start      End  Sectors Size Type
/dev/vda1    2048     4095     2048   1M BIOS boot
/dev/vda2    4096 31457246 31453151  15G Linux filesystem


Disk /dev/vdb: 5 GiB, 5368709120 bytes, 10485760 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 4096 bytes
I/O size (minimum/optimal): 4096 bytes / 4096 bytes
Disklabel type: dos
Disk identifier: 0x6e612c63

Device     Boot Start      End  Sectors Size Id Type
/dev/vdb1        2048 10485759 10483712   5G 83 Linux
```

4. Create an **ext4** file system in the new partition:

sudo mkfs.ext4 /dev/vdb1

```
eocortex@ubuntu:~$ sudo mkfs.ext4 /dev/vdb1
mke2fs 1.45.5 (07-Jan-2020)
Creating filesystem with 1310464 4k blocks and 327680 inodes
Filesystem UUID: 993550a5-d63e-426a-bb4a-bed0e28dfa6a
Superblock backups stored on blocks:
        32768, 98304, 163840, 229376, 294912, 819200, 884736

Allocating group tables: done
Writing inode tables: done
Creating journal (16384 blocks): done
Writing superblocks and filesystem accounting information: done
```

5. Restart Eocortex:

sudo systemctl restart eocortex

6. Once restarted, set up the archive in the **Eocortex Configurator** application.

Note

Description of working with drives using **gnome-disk**.

Note

When adding a drive with an existing partition to the system, no additional settings are required.

Warning

The **Eocortex** server only works with drives that have been partitioned. On drives with no partitions but with a file system the correct operation of the application and the archive is not guaranteed. To use such a drive, follow the steps described above, as when adding a new drive to the system. Note that in this case the data on the drive will be erased.

Operating aspects of Firebird database ⟩

After installing the **Eocortex** server, a situation may arise when writing to the archive is being performed but the database is absent (that is, the events are not saved in the log). This can happen after the drive for writing the archive to has been mounted in the user's folder. To solve this issue, it is necessary for the operating system user under whose credentials the database is accessed (the user **firebird**) to provide read access at the mounting point of the drive to which the archive is written.

This can be achieved using two methods described below.

- Remounting the drive for writing to the archive in the system folder rather than in the folder of the current user.

- Checking the path from the root (**/**) to the mounting point of the drive. The user **firebird** must have read access for every directory. It is possible to view directory permissions using the command:

  sudo ls -l

  Note

  The user **firebird** belongs to other users.

  To give the user **firebird** a permission to read the current directory, use the command:

  sudo chmod o+r

Warning

The second method should be used only when it is required to mount the drive in the selected folder, or when it is not permitted to change the mounting point.

Saving frames to drive ⟩

Saving frames (according to schedule, in response to a system event, or by user command) is allowed to any drive except the system one. If the frames are not being saved, it is required to make sure that the drive selected for saving is not the system one.

Access to cameras by domain names ⟩

By default, **Linux** prioritizes IPv6 addresses when resolving a domain name. Some camera plugins in **Eocortex** may not work with IPv6 addresses.

To solve this issue, it is required to add the following entry to the file **/etc/gai.conf**:

precedence ::ffff:0:0/96 100

As a result, when resolving all domain names, preference will be given to the IPv4 addresses.

If it is required to set an IPv4 address for a specific name, it is possible to add a corresponding entry to the file **/etc/hosts**. For example:

192.168.100.1 cam-1.mycompany.com

Server shutdown and restart ⟩

The commands that control the state of the **Eocortex** server are shown below.

Server shutdown:

systemctl stop eocortex.service

Server launch:

systemctl start eocortex.service

Server restart:

systemctl restart eocortex.service

Server status check (active/inactive):

systemctl status eocortex.service

Installation of Eocortex Server under Linux

Warning

Starting from version 3.4 of **Eocortex**, certain components use PostgreSQL database management system of version 11 or later. In this respect, before installing version 3.4 and higher (as well as when upgrading from version 3.3 and lower to version 3.4 and higher), it is required to review the PostgreSQL installation information.

Note

After completion of the installation, it is required to connect to the server using the **Eocortex Configurator** application launched on the Windows computer, and activate the license on the server.

The **Eocortex Configurator** application is installed on the Windows computer in the process of installing any of the following applications on the same computer: **Eocortex Client**, **Eocortex Server** or **Eocortex Standalone**.

Below are the sequences of commands used depending on the installation method and the Linux installation package used.

Debian

Supported versions:

- Debian 10

- Debian 11

- Debian 12

Installation of the latest version with access to the Internet ⟩

1. Add the **Eocortex** repository:

   wget -O - https://packages.eocortex.com/deb/install/eocortex-deps-debian.sh | bash

2. Install the **Eocortex Server** application:

   sudo apt install eocortex

Installation of specific version with access to the Internet ⟩

1. Add the **Eocortex** repository:

   wget -O - https://packages.eocortex.com/deb/install/eocortex-deps-debian.sh | bash

2. Check out the list of available versions in the repository:

   sudo apt show eocortex -a

3. Install the **Eocortex Server** application of the needed version (e.g. 4.1):

   sudo apt install eocortex=4.1.*

Installation without access to the Internet ⟩

Warning

For this installation method, you will need a computer with Internet access and an operating system that matches the one on which you want to install the **Eocortex Server** application.

1. Clear local repository:

   sudo apt-get clean

2. Add the **Eocortex** repository:

   wget -O - https://packages.eocortex.com/deb/install/eocortex-deps-debian.sh | bash

3. Download all necessary packages (dependencies):

   sudo apt-get install -d -y eocortex

4. Create the EocortexPackages directory and move all downloaded packages into it:

   mkdir ~/EocortexPackages/ && cp -R /var/cache/apt/archives/*.deb ~/Eocortex Packages/

5. Copy the entire EocortexPackages directory to a USB drive and transfer the data to the server. Install the **Eocortex Server** application with all dependencies using the following command:

   sudo dpkg -i /path/to/EocortexPackages/*.deb

Silent installation ❯

To avoid appearance of redundant questions during the installation, it is required to set up **debconf**. The following command is used for this purpose:

dpkg-reconfigure debconf

First, it will be suggested to select the interface for interacting with **debconf**.

Then, it will be required to choose the lowest permissible priority of the questions to be displayed.

Later, during the installation process, the system will automatically substitute answers to the lower priority questions, taking these answers from the **debconf** database. The rest of the questions (with the selected and higher priority) the user will have to answer on their own, in an interactive mode.

To select the **critical** priority, it is required to execute the following command:

echo debconf debconf/priority select critical| debconf-set-selections

If it is necessary to turn off duplicate questions, it is possible to clearly tell the system not to ask a question since it has already been seen before. To do this, it is required to manually add the flag "seen" for the desired question in the **/var/cache/debconf/config.dat** file.

Name: eocortex/license-agreed

Template: eocortex/license-agreed

Value: true

Owners: eocortex

Flags: seen

To install **Firebird** without questions, it is required to add a database access password for **debconf** by running the following command, substituting **password_value** with an actual password:

echo firebird3.0-server shared/firebird/sysdba_password/first_install password password_value | debconf-set-selections

The existing templates and their values can be viewed in the **/var/cache/debconf/config.dat** file.

Update with access to the Internet ❯

1. Update the **Eocortex** repository:

```
sudo rm /etc/apt/sources.list.d/eocortex.list
```

```
wget -O - https://packages.eocortex.com/deb/install/eocortex-deps-debian.sh |
bash
```

2. Install the latest version of **Eocortex Server** application:

```
sudo apt-get install eocortex
```

Update without access to the Internet ⟩

The steps are identical to the installation without access to the Internet. To update the **Eocortex Server** application on a device without Internet access, repeat the steps above.

Uninstallation ⟩

To uninstall the **Eocortex Server** application, run the following command:

```
sudo apt-get remove eocortex
```

Ubuntu

Supported versions:

- Ubuntu 20.04

- Ubuntu 22.04

- Ubuntu 24.04

Installation of the latest version with access to the Internet ⟩

1. Add the **Eocortex** repository:

```
wget -O - https://packages.eocortex.com/deb/install/eocortex-deps-ubuntu.sh |
bash
```

2. Install the **Eocortex Server** application:

```
sudo apt install eocortex
```

Installation of specific version with access to the Internet ⟩

1. Add the **Eocortex** repository:

```
wget -O - https://packages.eocortex.com/deb/install/eocortex-deps-ubuntu.sh |
bash
```

2. Check out the list of available versions in the repository:

```
sudo apt show eocortex -a
```

3. Install the **Eocortex Server** application of the needed version (e.g. 4.1):

   sudo apt install eocortex=4.1.*

Installation without access to the Internet ⟩

Warning

For this installation method, you will need a computer with Internet access and an operating system that matches the one on which you want to install the **Eocortex Server** application.

1. Clear local repository:

   sudo apt-get clean

2. Add the **Eocortex** repository:

   wget -O - https://packages.eocortex.com/deb/install/eocortex-deps-ubuntu.sh | bash

3. Download all necessary packages (dependencies):

   sudo apt-get install -d -y eocortex

4. Create the EocortexPackages directory and move all downloaded packages into it:

   mkdir ~/EocortexPackages/ && cp -R /var/cache/apt/archives/*.deb ~/Eocortex Packages/

5. Copy the entire EocortexPackages directory to a USB drive and transfer the data to the server. Install the **Eocortex Server** application with all dependencies using the following command:

   sudo dpkg -i /path/to/EocortexPackages/*.deb

Silent installation ⟩

To avoid appearance of redundant questions during the installation, it is required to set up **debconf**. The following command is used for this purpose:

dpkg-reconfigure debconf

First, it will be suggested to select the interface for interacting with **debconf**.

Then, it will be required to choose the lowest permissible priority of the questions to be displayed.

Later, during the installation process, the system will automatically substitute answers to the lower priority questions, taking these answers from the

debconf database. The rest of the questions (with the selected and higher priority) the user will have to answer on their own, in an interactive mode.

To select the **critical** priority, it is required to execute the following command:

echo debconf debconf/priority select critical| debconf-set-selections

If it is necessary to turn off duplicate questions, it is possible to clearly tell the system not to ask a question since it has already been seen before. To do this, it is required to manually add the flag "seen" for the desired question in the **/var/cache/debconf/config.dat** file.

Name: eocortex/license-agreed

Template: eocortex/license-agreed

Value: true

Owners: eocortex

Flags: seen

To install **Firebird** without questions, it is required to add a database access password for **debconf** by running the following command, substituting **password_value** with an actual password:

echo firebird3.0-server shared/firebird/sysdba_password/first_install password password_value | debconf-set-selections

The existing templates and their values can be viewed in the **/var/cache/debconf/config.dat** file.

Update with access to the Internet ⟩

1. Update the **Eocortex** repository:

   sudo rm /etc/apt/sources.list.d/eocortex.list

   wget -O - https://packages.eocortex.com/deb/install/eocortex-deps-ubuntu.sh | bash

2. Install the latest version of **Eocortex Server** application:

   sudo apt-get install eocortex

Update without access to the Internet ⟩

The steps are identical to the installation without access to the Internet. To update the **Eocortex Server** application on a device without Internet access, repeat the steps above.

Uninstallation ⟩

To uninstall the **Eocortex Server** application, run the following command:

sudo apt-get remove eocortex

CentOS

Supported versions:

- CentOS 7

Installation of the latest version with access to the Internet ⟩

1. Add the **Eocortex** repository:

   wget -O - https://packages.eocortex.com/rpm/install/eocortex-deps-centos.sh | bash

2. Install the **Eocortex Server** application:

   sudo yum install eocortex

Installation of specific version with access to the Internet ⟩

1. Add the **Eocortex** repository:

   wget -O - https://packages.eocortex.com/rpm/install/eocortex-deps-centos.sh | bash

2. Check out the list of available versions in the repository:

   sudo yum list --showduplicates eocortex

3. Install the **Eocortex Server** application of the needed version (e.g. 4.1):

   sudo yum install eocortex-4.1.*

Installation without access to the Internet ⟩

Warning

For this installation method, you will need a computer with Internet access and an operating system that matches the one on which you want to install the **Eocortex Server** application.

1. Add the **Eocortex** repository:

   wget -O - https://packages.eocortex.com/rpm/install/eocortex-deps-centos.sh | bash

2. Install yum extensions:

```
sudo yum install -y yum-utils
```

3. Create the EocortexPackages directory:

```
mkdir EocortexPackages
```

4. Go to the created directory and download all necessary packages (dependencies):

```
sudo yumdownloader --downloadonly eocortex --resolve
```

5. Copy the entire EocortexPackages directory to a USB drive and transfer the data to the server. Install the **Eocortex Server** application with all dependencies using the following command:

```
sudo rpm -ivh EocortexPackages/*.rpm
```

Update with access to the Internet 〉

1. Update the **Eocortex** repository:

```
sudo rm /etc/apt/sources.list.d/eocortex.list
```

```
wget -O - https://packages.eocortex.com/rpm/install/eocortex-deps-centos.sh | bash
```

2. Install the latest version of **Eocortex Server** application:

```
sudo yum update eocortex
```

Update without access to the Internet 〉

The steps are identical to the installation without access to the Internet. To update the **Eocortex Server** application on a device without Internet access, repeat the steps above.

Uninstallation 〉

To uninstall the **Eocortex Server** application, run the following command:

```
sudo yum remove eocortex
```

Usage of PostgreSQL on Linux

For versions **Eocortex** 3.4-3.6, the installation of PostgreSQL on Linux can be done only in manual mode.

Note

When installing the DBMS, it is recommended to follow the instructions for the desired OS distribution from the PostgreSQL official website.

Debian, Ubuntu

Installation and update of PostgreSQL for Eocortex 3.4-3.6 ❯

Eocortex versions 3.4-3.6 require PostgreSQL version 11 to store **Search for Objects** module events. All other events and modules use Firebird.

Warning

PostgreSQL will not be installed automatically during the installation of **Eocortex** components, so it is necessary to install the required DBMS version manually before installing the **Eocortex Server** application.

Below are sample instructions on how to manually install PostgreSQL 11 on Linux.

Depending on the availability of Internet on the device, installation can be done in one of the two ways described below:

- **Online** installation when the device has access to the Internet

- **Offline** installation when the device has no access to the Internet

Online

1. Add the PostgreSQL file repository to the OS configuration:

   sudo sh -c 'echo "deb http://apt.postgresql.org/pub/repos/apt $(lsb_release -cs)-pgdg main" > /etc/apt/sources.list.d/pgdg.list'

2. Download the repository signature key:

   wget --quiet -O - https://www.postgresql.org/media/keys/ACCC4CF8.asc | sudo apt-key add -

3. Update the package list:

   sudo apt-get update

4. Install PostgreSQL of the required version:

   sudo apt-get -y install postgresql-11

Offline

1. Download the PostgreSQL installation package of the required version and its dependencies from the official PostgreSQL repository, using a device with Internet access.

2. Transfer the downloaded packages to the **Eocortex** server.

3. Install packages using the dpkg command with the -i parameter.

Database setup for event recording ❯

Because this improvement does not provide any new features for users in terms of using **Eocortex**, using the PostgreSQL database does not require any additional settings other than the already existing database event recording settings. To start writing events to the system database:

1. Run the Eocortex Configurator application and go to the **Servers** page.

2. Select a server in the list.

3. Select the **Information** tab on the right part of the window and click **Configure**.

4. In the window that opens, select the **Archive** tab and set for one of available drives the **Archive + database** or **Database only** role.

5. Apply settings.

Warning

Additional PostgreSQL configuration is required if the system uses remote databases for the **Face Recognition** or **License Plate Recognition** modules. See the **Analytics modules databases** section.

Change of default user password ❯

If the default **eocortex** DBMS user created during installation is used, but it is necessary to use a custom password, follow these steps:

Warning

All the following steps must be made directly on the server for which the changes are being made.

1. Stop **Eocortex** operation. To do this, use the following command in Terminal:

    systemctl stop eocortex.service

2. Use the **psql** utility to set new password for **postgres** user. Launch the utility by running the following command in the Terminal:

    psql -U eocortex -h 127.0.0.1 -d postgres

3. Input the current password to confirm the login (Default: **masterkey**).

4. Change the password with the command:

    ALTER USER CURRENT_USER PASSWORD 'newPassword';

    where **newPassword** is a new password for **eocortex** user.

5. Open the **/opt/EocortexServer/EocortexServerConfigs/** directory and edit the **ArchiveSystem.xml** configuration file with any text editor.

6. Find the **PostgreSqlConfig** section and edit **User** and **Password** lines according to new DBMS user credentials.

   The following is an example of such settings:

```
<PostgreSqlConfig>
   <Ip>127.0.0.1</Ip>
   <Port>5432</Port>
   <User>eocortex</User>
   <Password>newPassword</Password>
</PostgreSqlConfig>
```

7. To allow the system making backups of database files, make sure that new credentials are added to the DBMS password file. To do this, go to the home directory of the OS user and edit the **.pgpass** file with any text editor. Check that the selected user has access to the **Eocortex** database files.

8. Restore **Eocortex** operation. To do this, use the following command in Terminal:

   systemctl start eocortex.service

Analytics modules databases 〉

If the **Face Recognition** or **License Plate Recognition** modules are used in the system, the DBMS user editing will affect their bases as well.

If the **Local** Database is used, **Eocortex** will use the name and password specified in the **ArchiveSystem.xml** file to access the database.

If the **Remote** Database is used, changing the PostgreSQL credentials on the server storing the database will require a new name and password to be entered in the settings of all cameras that use the database.

Note

Use case:

Server 1 hosts the face database.

Server 2 hosts a number of cameras that use the face database from Server 1.

Modifying the DBMS user on Server 2 will not affect access to the face database hosted on Server 1.

Modifying the DBMS user on Server 1 will require new data to be specified for all cameras on Server 2 that use the face database hosted on Server 1.

Warning

Remote access to databases is not allowed by default in PostgreSQL and must be additionally configured if remote databases are used for analytics.

The steps below must be performed directly on the server hosting the database of the module.

1. Go to the directory with the PostgreSQL configuration files.

   Default path:

   /etc/postgresql/12/main/

2. Edit the file **postgresql.conf** with any text editor and add a line like the following:

   listen_addresses = '*'

   The specified example allows receiving requests to databases from all available network adapters of the server. If it is necessary to limit the list of adapters allowed to receive requests, replace the ***** symbol with the exact address of the network adapter. More details about this setting can be found in the PostgreSQL 12 documentation.

3. Edit the file **pg_hba.conf** with any text editor and add a line like the following:

   host all all 192.168.0.0/24 md5

   The specified example allows remote connections to all databases stored on the server for all users who are connecting from the 192.168.0.XXX network address range. If other addressing is used in the system network, it is necessary to specify the appropriate address range instead of displayed. It is allowed to enter several lines with different address ranges. More details about this setting can be found in the PostgreSQL 12 documentation.

4. Restart the service by running the following command in the Terminal:

   sudo systemctl restart postgresql-12.service

Removal of PostgreSQL   〉

Although PostgreSQL is used by Eocortex, a simple removal of Eocortex does not automatically delete PostgreSQL. Below are command samples for uninstalling the system together with the DBMS.

Partial removal

If it is necessary to remove the installed version of PostgreSQL together with Eocortex and save the settings, do the following command:

sudo apt-get --purge remove postgresql postgresql-* sudo apt-get autoremove eocortex

Warning

Removal of PostgreSQL by this method does not automatically remove its settings. When reinstalling the DBMS on the same computer, PostgreSQL will retain the settings from the previously created configuration files.

Complete removal

If it is necessary to completely remove the installed version of PostgreSQL, use the following sequence of commands:

sudo apt-get --purge remove postgresql*

sudo apt-get purge postgresql

sudo apt-get autoremove postgresql

sudo rm -r /etc/postgresql/

sudo rm -r /etc/postgresql-common/

sudo rm -r /var/lib/postgresql/

sudo userdel -r postgres

sudo groupdel postgres

CentOS

Installation and update of PostgreSQL for Eocortex 3.4-3.6 ⟩

Eocortex versions 3.4-3.6 require PostgreSQL version 11 to store **Search for Objects** module events. All other events and modules use Firebird.

Warning

PostgreSQL will not be installed automatically during the installation of **Eocortex** components, so it is necessary to install the required DBMS version manually before installing the **Eocortex Server** application.

Below are sample instructions on how to manually install PostgreSQL 11 on Linux.

Depending on the availability of Internet on the device, installation can be done in one of the two ways described below:

- **Online** installation when the device has access to the Internet

- **Offline** installation when the device has no access to the Internet

Online

1. Add the PostgreSQL file repository to the OS configuration:

   sudo yum install -y https://download.postgresql.org/pub/repos/yum/reporpms/EL-7-x86_64/pgdg-redhat-repo-latest.noarch.rpm

2. Install PostgreSQL of the required version:

   sudo yum install -y postgresql11-server

Offline

1. Download the PostgreSQL installation package of the required version and its dependencies from the official PostgreSQL repository, using a device with Internet access.

2. Transfer the downloaded packages to the **Eocortex** server.

3. Install packages using the dpkg command with the -i parameter.

Database setup for event recording   ⟩

Because this improvement does not provide any new features for users in terms of using **Eocortex**, using the PostgreSQL database does not require any additional settings other than the already existing database event recording settings. To start writing events to the system database:

1. Run the Eocortex Configurator application and go to the **Servers** page.

2. Select a server in the list.

3. Select the **Information** tab on the right part of the window and click **Configure**.

4. In the window that opens, select the **Archive** tab and set for one of available drives the **Archive + database** or **Database only** role.

5. Apply settings.

Warning

Additional PostgreSQL configuration is required if the system uses remote databases for the **Face Recognition** or **License Plate Recognition** modules. See the **Analytics modules databases** section.

If the default **eocortex** DBMS user created during installation is used, but it is necessary to use a custom password, follow these steps:

Warning

All the following steps must be made directly on the server for which the changes are being made.

1. Stop **Eocortex** operation. To do this, use the following command in Terminal:

   systemctl stop eocortex.service

2. Use the **psql** utility to set new password for **postgres** user. Launch the utility by running the following command in the Terminal:

   psql -U eocortex -h 127.0.0.1 -d postgres

3. Input the current password to confirm the login (Default: **masterkey**).

4. Change the password with the command:

   ALTER USER CURRENT_USER PASSWORD 'newPassword';

   where **newPassword** is a new password for **eocortex** user.

5. Open the **/opt/EocortexServer/EocortexServerConfigs/** directory and edit the **ArchiveSystem.xml** configuration file with any text editor.

6. Find the **PostgreSqlConfig** section and edit **User** and **Password** lines according to new DBMS user credentials.

   The following is an example of such settings:

   ```
   <PostgreSqlConfig>
      <Ip>127.0.0.1</Ip>
      <Port>5432</Port>
      <User>eocortex</User>
      <Password>newPassword</Password>
   </PostgreSqlConfig>
   ```

7. To allow the system making backups of database files, make sure that new credentials are added to the DBMS password file. To do this, go to the home directory of the OS user and edit the **.pgpass** file with any text editor. Check that the selected user has access to the **Eocortex** database files.

8. Restore **Eocortex** operation. To do this, use the following command in Terminal:

```
systemctl start eocortex.service
```

Analytics modules databases ❯

If the **Face Recognition** or **License Plate Recognition** modules are used in the system, the DBMS user editing will affect their bases as well.

If the **Local** Database is used, **Eocortex** will use the name and password specified in the **ArchiveSystem.xml** file to access the database.

If the **Remote** Database is used, changing the PostgreSQL credentials on the server storing the database will require a new name and password to be entered in the settings of all cameras that use the database.

Note

Use case:

Server 1 hosts the face database.

Server 2 hosts a number of cameras that use the face database from Server 1.

Modifying the DBMS user on Server 2 will not affect access to the face database hosted on Server 1.

Modifying the DBMS user on Server 1 will require new data to be specified for all cameras on Server 2 that use the face database hosted on Server 1.

Warning

Remote access to databases is not allowed by default in PostgreSQL and must be additionally configured if remote databases are used for analytics.

The steps below must be performed directly on the server hosting the database of the module.

1. Go to the directory with the PostgreSQL configuration files.

    Default path:

    /var/lib/pgsql/12/data/

2. Edit the file **postgresql.conf** with any text editor and add a line like the following:

    listen_addresses = '*'

    The specified example allows receiving requests to databases from all available network adapters of the server. If it is necessary to limit the list of adapters allowed to receive requests, replace the ***** symbol with the exact address of the network adapter. More details about this setting can be found in the PostgreSQL 12 documentation.

3. Edit the file **pg_hba.conf** with any text editor and add a line like the following:

    host all all 192.168.0.0/24 md5

    The specified example allows remote connections to all databases stored on the server for all users who are connecting from the 192.168.0.XXX network address range. If other addressing is used in the system network, it is necessary to specify the appropriate address range instead of displayed. It is allowed to enter several lines with different address ranges. More details about this setting can be found in the PostgreSQL 12 documentation.

4. Restart the service by running the following command in the Terminal:

    sudo systemctl restart postgresql-12.service

Removal of PostgreSQL ⟩

Although PostgreSQL is used by Eocortex, a simple removal of Eocortex does not automatically delete PostgreSQL. Below are command samples for uninstalling the system together with the DBMS.

Partial removal

If it is necessary to remove the installed version of PostgreSQL together with Eocortex and save the settings, do the following command:

sudo yum remove postgresql* autoremove eocortex

Warning

Removal of PostgreSQL by this method does not automatically remove its settings. When reinstalling the DBMS on the same computer, PostgreSQL will retain the settings from the previously created configuration files.

Complete removal

If it is necessary to completely remove the installed version of PostgreSQL, use the following sequence of commands:

sudo yum --purge remove postgresql*

sudo yum purge postgresql

sudo yum autoremove postgresql

sudo rm -r /etc/postgresql/

sudo rm -r /etc/postgresql-common/

sudo rm -r /var/lib/postgresql/

sudo userdel -r postgres

sudo groupdel postgres

Deployment of Eocortex Client on Linux using Flatpak

Note

The installation requires a graphical shell.

The entire installation must be done under a pre-created user with administrator privileges (using **sudo**).

Without using **sudo**, the **Eocortex Client** will only be installed for the current user. Also, you may be required elevating the privileges during the components installation.

After installation, application shortcuts do not appear on the desktop but in the application menu of the system's graphical shell.

Note

All commands for installing, updating, and uninstalling the **Eocortex Client** application should be executed in the terminal.

Below are the sequences of actions for installing, updating, and uninstalling the **Eocortex Client** application.

Warning

During the installation process, the computer must have internet access. This is necessary to download the necessary dependencies.

Warning

Recommended desktop environments: **GNOME** and **KDE**. When using **MATE** and the **Marco** window manager, modal windows and drop-down lists may not work correctly.

Installation of the latest version of Eocortex Client ❯

1. Install **Flatpak** and add the **Eocortex** Flatpak repository:

   wget -O - https://packages.eocortex.com/flatpak/install/eocortex.sh | bash

   Note

   During the installation of **Flatpak**, all necessary dependencies and directories are downloaded, so the installation may take more than 5 minutes.

2. Install the **Eocortex Client** application:

   sudo flatpak install eocortex com.eocortex.client//latest

3. Then, it is necessary to re-enter the GUI or restart the PC so that the **Eocortex Client** shortcuts appear in the application menu.

Launch the applications ❯

Once the installation is complete, you can run the Eocortex Client, Eocortex Configurator and Eocortex Player applications.

At the first launch of the application it is necessary to select the interface language. After that the application initialization will start, which may take 5-10 minutes.

The interface of applications under Linux is similar to the interface of these applications under Windows.

Applications can be launched not only from the application menu, but also from the terminal.

Eocortex Client

flatpak run com.eocortex.client

Eocortex Configurator

flatpak run --command=runconfigurator.sh com.eocortex.client

Eocortex Player

flatpak run --command=runplayer.sh com.eocortex.client

Update the minor version of an already installed application Eocortex Client ❯

To upgrade the minor version, run the following command:

sudo flatpak update com.eocortex.client

Installation of other Eocortex Client versions ❯

For example, if you want to upgrade from version 4.1 to 4.2, you must first install 4.2:

sudo flatpak install com.eocortex.client//4.2

and then upgrade to version 4.2 using the command:

sudo flatpak make-current com.eocortex.client//4.2

After that, you need to relaunch the graphical shell or restart your PC to update the shortcuts in the application menu.

When you run the **Eocortex Client**, the initialization process will occur again, which will take 5 or 10 minutes.

View a list of the current versions of **Eocortex Client** using the command:

sudo flatpak remote-ls | grep eocortex

Uninstalling of Eocortex Client ❯

To uninstall the **Eocortex Client**, use the command:

sudo flatpak uninstall com.eocortex.client

Automatic connection of Eocortex Client ❯

To set up an automatic connection of the **Eocortex Client** when running via a shortcut in the application menu, you need to specify the server IP address (or domain name), port, username, and password in the file **/var/lib/flatpak/app/com.eocortex.client/current/active/files/bin/runclient.sh** after **"${WINE}" "${CLIENTPATH}/${brand^}Client.exe"**.

Example:

"${WINE}" "${CLIENTPATH}/${brand^}Client.exe" -server office.server.com -port 8080 -user root -password qwerty

```
#/bin/bash

. /app/bin/bootstrap.sh

"${WINE}" "${CLIENTPATH}/${brand^}Client.exe" -server office.server.com -port 8080 -user root
```

To connect via SSL, you must specify the port using the **-ssl-port** parameter instead of *-port*, and use the **-connectionprotocol** parameter with the value **1** to establish an HTTPS connection. The insertion point of the **-connectionprotocol** parameter does not matter.

Example:

"${WINE}" "${CLIENTPATH}/${brand^}Client.exe" -server office.server.com -sslport 18080 -connectionprotocol 1 -user root -password qwerty

If you want to disable SSL-certificate validation, you can use the **-disablesslcertificatesvalidation** parameter.

Example:

"${WINE}" "${CLIENTPATH}/${brand^}Client.exe" -server office.server.com -port 8081 -disablesslcertificatesvalidation -user root -password qwerty

Unsupported features ❯
- Electronic signature of exported video and screenshots.

- Auto-update of the client application.

- Active Directory Single Sign-On.

- View video in the camera's field of view on maps and plans.

- View heat maps on plans.

- Automatic opening of exported video.

- Operation of **Local monitoring and backup archive** utility.

Requirements, limitations, recommendations ❯

- It is not recommended to use **MATE** with **Marco** window manager as a desktop environment due to the following behavior of this combination: When running **Eocortex Client** application in full-screen mode, the main window with camera cells is always placed on top of other windows (e.g. archive export or application settings) by default. As an alternative solution, it is recommended to use the **Cinnamon** graphical shell.

- When using **NVIDIA** graphics cards for display, it is recommended to use proprietary drivers at least version 470.

- Only USB connection is supported for PTZ remotes. Remote controllers connected by other means are not guaranteed to work.

- When installing an application in the **MATE** desktop environment with the **Marco** window manager, it is possible that the appearance of third-party applications may change in. This is due to changes in the OS window manager settings required for correct operation of the application.

Troubleshooting ❯

Problem 1

Eocortex Client fails to install or start without displaying any errors.

Cause

The installation was not completed.

Solution

Ensure that the user has permission to install the application and that the computer has unobstructed access to the Internet. Delete the results of the previous application installation attempt, restart the computer and try again.

Problem 2

Secondary application windows (Archive Export, Application Settings, etc.) do not open or open in the background.

Cause

A combination of the MATE graphical shell with the marco window manager is used, with which full-screen applications are always placed on top of other windows.

Solution 2.1

Switch to the desired window using the Alt+Tab key combination.

Solution 2.2

Change the MATE graphical shell to a different one. For example, cinnamon.

Problem 3

The error "GPG verification enabled, but no summary found (check that the configured URL in remote config is correct)" appears during installation.

Cause

The repository metadata has changed.

Solution 3.1

Remove the flatpak repository Eocortex and add a new one:

sudo flatpak remote-delete eocortex

wget -O - https://packages.eocortex.com/flatpak/install/eocortex.sh | bash

Note

Suggestions and issue reports can be sent to support@eocortex.com.

Installing, updating, and removing Episode archive

The **Episode archive** service provides the possibility to keep individual archive fragments for an unlimited time. Using the **Episode archive** service, you can be sure that important archive fragments will not be lost due to loop recording or corruption of the main archive.

Note

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

The **service** can be installed on any computer without installing the **Eocortex** server on it.

Only one **service** instance can be configured for the entire system.

The service can be installed using the following two options:

- Online, if the device has Internet access.

- Offline, if the device does not have Internet access.

Debian

Supported versions:

- Debian 10

Online installation ❯

1. Add Eocortex repository:

   wget -O - http://packages.eocortex.com/deb/install/eocortex-deps-debian.sh | bash

2. Install the service.

   sudo apt-get install eocortex-archive-episodes-service

Offline installation ❯

Warning

For this installation method, you will need a computer with Internet access and the same operating system as the one on which you want to install the **Episode archive** service.

1. Clear local repository:

   sudo apt-get clean

2. Add Eocortex repository:

   wget -O - http://packages.eocortex.com/deb/install/eocortex-deps-debian.sh | bash

3. Install all required packages (dependencies):

   sudo apt-get install -d -y eocortex-archive-episodes-service

4. Create the ArchiveEpisodesPackages directory and transfer all downloaded packages to it:

   mkdir ~/ArchiveEpisodesPackages/ && cp -R /var/cache/apt/archives/*.deb ~/ArchiveEpisodesPackages/

5. After that, copy the entire ArchiveEpisodesPackages directory to a USB drive and transfer the data to the server. Install the **Episode archive** service and all dependencies using the following command:

   sudo dpkg -i /path_to_ArchiveEpisodesPackages/*.deb

Dependencies ❯

The following dependency packages must be installed in the operating system for the service to work:

- aspnetcore-runtime-6.0 (>= 6.0)

- debconf (>= 0.5)

- postgresql-12

During the online installation the dependency packages will be installed automatically, while during the offline installation they may require to be installed manually.

To check if a package is installed and its version, use the command **dpkg -s %package_name%**.

Update ❯

To update the service, run the following commands:

sudo apt-get update

sudo apt-get install eocortex-archive-episodes-service

Or download a new version package from the repository and install it manually using the **dpkg** command.

Uninstallation ❯

To uninstall the service, use the following command:

sudo apt-get remove eocortex-archive-episodes-service

CentOS

Supported versions:

- CentOS 7

Online installation ❯

1. Add Eocortex repository:

    wget -O - http://packages.eocortex.com/rpm/install/eocortex-deps-centos.sh | bash

2. Install the service.

    sudo yum install eocortex-archive-episodes-service

Warning

For this installation method, you will need a computer with Internet access and the same operating system as the one on which you want to install the **Episode archive** service.

1. Add Eocortex repository:

    wget -O - http://packages.eocortex.com/rpm/install/eocortex-deps-centos.sh | bash

2. Install yum extensions:

    sudo yum install -y yum-utils

3. Install all required packages (dependencies):

    sudo yumdownloader --downloadonly --downloaddir=~/ArchiveEpisodesPackages eocortex-archive-episodes-service --resolve

4. After that, copy the entire ArchiveEpisodesPackages directory to a USB drive and transfer the data to the server. Install the **Episode archive** service and all dependencies using the following command:

    sudo rpm -ivh /path_to_ArchiveEpisodesPackages/*.rpm

The following dependency packages must be installed in the operating system for the service to work:

*   aspnetcore-runtime-6.0 >= 6.0

*   policycoreutils-python >= 2.5

*   postgresql12-server

During the online installation the dependency packages will be installed automatically, while during the offline installation they may require to be installed manually.

To check if a package is installed and its version, use the command **sudo rpm -qa | grep %package_name%**.

To update the service, run the following command:

sudo yum update eocortex-archive-episodes-service

Or download a new version package from the repository and install it manually using the **rpm** command.

Uninstallation ⟩

To uninstall the service, use the following command:

sudo yum remove eocortex-archive-episodes-service

Specifics of work ⟩

When hosting the service on CentOS, specific problems may arise when the service is trying to work with its database. To avoid them, change the PostgreSQL settings.

Open the file **pg_hba.conf** in any text editor.

Default path:

/var/lib/pgsql/12/data/pg_hba.conf

Change the authentication method in the file from **ident** to **md5** for all types of connections.

Before

# TYPE	DATABASE	USER	ADDRESS	METHOD
# "local" is for Unix domain socket connections only				
local	all	all		ident
# IPv4 local connections:				
host	all	all	127.0.0.1/32	ident
# IPv6 local connections:				
host	all	all	::1/128	ident

After

# TYPE	DATABASE	USER	ADDRESS	METHOD
# "local" is for Unix domain socket connections only				
local	all	all		md5
# IPv4 local connections:				
host	all	all	127.0.0.1/32	md5

After

IPv6 local connections:

host   all   all   ::1/128   md5

Network settings of the service ⟩

Warning

These settings should be made on the device where the service is installed.

Description

As part of the installation process, a configuration file **appsettings.json** containing network settings will be created in the root directory of the service.

Default path:

/opt/eocortexArchiveEpisodesService/appsettings.json

Below is an example of default settings:

```
{
   "ConnectionStrings": {
      "DatabaseConnectionTemplateWithoutDbName": "Host=localhost; Port=5432;Da
tabase={0};Username=eocortex;Password=masterkey"
   },
   "Serilog": {
      "MinimumLevel": {
         "Default": "Debug",
         "Override": {
            "Default": "Information",
            "Microsoft": "Warning",
            "Microsoft.Hosting.Lifetime": "Information"
         }
      },
      "WriteTo": [
         {
            "Name": "Logger",
            "Args": {
               "configureLogger": {
                  "Filter": [
                     {
                        "Name": "ByIncludingOnly",
                        "Args": {
                           "expression": "(@Level = 'Error' or @Level = 'Fatal' or @Leve
l = 'Warning')"
                        }
                     }
                  ],
```

```
            "WriteTo": [
                {
                    "Name": "File",
                    "Args": {
                        "path": "%LogsDir%/service.log",
                        "rollOnFileSizeLimit": true,
                        "fileSizeLimitBytes": "52428800",
                        "retainedFileCountLimit": 10
                    }
                }
            ]
        }
    },
    {
        "Name": "Console",
        "Args": {
            "outputTemplate": "===> {Timestamp:HH:mm:ss.fff zzz} [{Level}] {Message}{NewLine}{Exception}"
        }
    }
],
"Enrich": [
    "FromLogContext",
    "WithMachineName",
    "WithThreadId"
],
"Properties": {
    "Application": "LongTerArchiveService"
}
},
"AllowedHosts": "*",
"EpisodesDbRelativePath": "ArchiveServiceData/episodes-database",
"AlwaysRedirectToHttps": "false",
"Network": {
    "Endpoints": {
        "Http": {
            "Url": "http://*:8899"
        }
    }
}
}
```

Change the HTTP port

To change the HTTP port, find the following section in the configuration file:

```
"Network": {
    "Endpoints": {
        "Http": {
            "Url": "http://0.0.0.0:8899"
```

```
      }
    }
  },
```

And set a custom port in the **Url** line instead of the default **8899**.

Enable HTTPS connection

To add an SSL certificate to the service configuration and enable HTTPS connection, change the Network section by one of the following ways:

```
"Network": {
    "Endpoints": {
        "Http": {
            "Url": "http://0.0.0.0:8899"
        },
        "Https": {
            "Url": "https://0.0.0.0:18899",
            "Certificate": {
                "Path": ".pfx file",
                "Password": "cert_password"
            }
        }
    }
}
```

Where:

- **Path**: Location of the PFX file of the certificate.

- **Password**: Password of the certificate.

```
"Network": {
    "Endpoints": {
        "Http": {
            "Url": "http://0.0.0.0:8899"
        },
        "HttpsInlineCertAndKeyFile": {
            "Url": "https://0.0.0.0:18899",
            "Certificate": {
                "Path": ".pem/.crt file",
                "KeyPath": ".key file",
                "Password": "cert_password"
            }
        }
    }
}
```

Where:

- **Path**: Location of the .pem/.crt file of the certificate.

- **KeyPath**: Location of the .key file of the certificate.

- **Password**: Password of the certificate.

```
"Network": {
   "Endpoints": {
      "Http": {
         "Url": "http://0.0.0.0:8899"
      },
      "Https": {
         "Url": "https://0.0.0.0:18899",
         "Certificate": {
            "Subject": "Subject",
            "Store": "Store",
            "Location": "Location",
            "AllowInvalid": "true/false"
         }
      }
   }
}
```

Where:

- **Subject**: Name of the certificate subject.

- **Store**: Name of the certificate storage.

- **Location**: Location of the certificate storage. By default, CurrentUser.

- **AllowInvalid**: State of the policy of using invalid (e.g. self-signed) certificates. By default, it's false.

Note

Changing the HTTPS port can be done similarly to the HTTP port, but for the relevant section.

Forced redirect to HTTPS

To enable forced redirection of all requests to the service to a secured connection, find and change the value from **false** to **true** for the following line:

"AlwaysRedirectToHttps": false,

Note

After saving the settings, the service must be restarted via the **Services** snap-in to take all changes into effect.

It is also possible to restart the service via the terminal using the following command:

sudo systemctl restart eocortexarchiveepisodes

Warning

Changing other settings provided in the configuration file may cause the service to malfunction or fail. It is not recommended to change settings that are not described in the present documentation.

Related references ⟩

Overview of the service

Use in the **Eocortex Client** application

Episode archive

Installation of **Episode archive** on Windows

Installing, updating, and removing Long-term database

The **Long-term database** service ensures storing of selected types of events and access to them regardless of the archive storage settings. With this service there is no need to be concerned that event data will be lost if the archive is deleted.

Note

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

The **service** can be installed on any computer without installing the **Eocortex** server on it.

Only one **service** instance can be configured for the entire system.

The service can be installed using the following two options:

- Online, if the device has Internet access.

- Offline, if the device does not have Internet access.

Debian

Supported versions:

- Debian 10

- Debian 11

Online installation ⟩
1. Add Eocortex repository:

   wget -O - http://packages.eocortex.com/deb/install/eocortex-deps-debian.sh | bash

2. Install the service.

sudo apt-get install eocortex-long-term-database-service

Offline installation ›

Warning

For this installation method, you will need a computer with Internet access and the same operating system as the one on which you want to install the **Long-term database** service.

1. Clear local repository:

   sudo apt-get clean

2. Add Eocortex repository:

   wget -O - http://packages.eocortex.com/deb/install/eocortex-deps-debian.sh | bash

3. Install all required packages (dependencies):

   sudo apt-get install -d -y eocortex-long-term-database-service

4. Create the LongTermDatabasePackages directory and transfer all downloaded packages to it:

   mkdir ~/LongTermDatabasePackages/ && cp -R /var/cache/apt/archives/*.deb ~/LongTermDatabasePackages/

5. After that, copy the entire LongTermDatabasePackages directory to a USB drive and transfer the data to the server. Install the **Long-term database** service and all dependencies using the following command:

   sudo dpkg -i /path_to_LongTermDatabasePackages/*.deb

Dependencies ›

The following dependency packages must be installed in the operating system for the service to work:

- aspnetcore-runtime-6.0 (>= 6.0)

- debconf (>= 0.5)

- postgresql-12

During the online installation the dependency packages will be installed automatically, while during the offline installation they may require to be installed manually.

To check if a package is installed and its version, use the command **dpkg -s %package_name%**.

To update the service, run the following commands:

sudo apt-get update

sudo apt-get install eocortex-long-term-database-service

Or download a new version package from the repository and install it manually using the **dpkg** command.

To uninstall the service, use the following command:

sudo apt-get remove eocortex-long-term-database-service

Ubuntu

Supported versions:

- Ubuntu 20.04

- Ubuntu 22.04

1. Add Eocortex repository:

   wget -O - http://packages.eocortex.com/deb/install/eocortex-deps-ubuntu.sh | bash

2. Install the service.

   sudo apt-get install eocortex-long-term-database-service

Warning

For this installation method, you will need a computer with Internet access and the same operating system as the one on which you want to install the **Long-term database** service.

1. Clear local repository:

   sudo apt-get clean

2. Add Eocortex repository:

   wget -O - http://packages.eocortex.com/deb/install/eocortex-deps-ubuntu.sh | bash

3. Install all required packages (dependencies):

    sudo apt-get install -d -y eocortex-long-term-database-service

4. Create the LongTermDatabasePackages directory and transfer all downloaded packages to it:

    mkdir ~/LongTermDatabasePackages/ && cp -R /var/cache/apt/archives/*.deb ~/LongTermDatabasePackages/

5. After that, copy the entire LongTermDatabasePackages directory to a USB drive and transfer the data to the server. Install the **Long-term database** service and all dependencies using the following command:

    sudo dpkg -i /path_to_LongTermDatabasePackages/*.deb

Dependencies 〉

The following dependency packages must be installed in the operating system for the service to work:

- aspnetcore-runtime-6.0 (>= 6.0)

- debconf (>= 0.5)

- postgresql-12

During the online installation the dependency packages will be installed automatically, while during the offline installation they may require to be installed manually.

To check if a package is installed and its version, use the command **dpkg -s %package_name%**.

Update 〉

To update the service, run the following commands:

sudo apt-get update

sudo apt-get install eocortex-long-term-database-service

Or download a new version package from the repository and install it manually using the **dpkg** command.

Uninstallation 〉

To uninstall the service, use the following command:

sudo apt-get remove eocortex-long-term-database-service

CentOS

Supported versions:

- CentOS 7

1. Add Eocortex repository:

    wget -O - http://packages.eocortex.com/rpm/install/eocortex-deps-centos.sh | bash

2. Install the service.

    sudo yum install eocortex-long-term-database-service

Warning

For this installation method, you will need a computer with Internet access and the same operating system as the one on which you want to install the **Long-term database** service.

1. Add Eocortex repository:

    wget -O - http://packages.eocortex.com/rpm/install/eocortex-deps-centos.sh | bash

2. Install yum extensions:

    sudo yum install -y yum-utils

3. Install all required packages (dependencies):

    sudo yumdownloader --downloadonly --downloaddir=~/LongTermDatabasePackages eocortex-long-term-database-service --resolve

4. After that, copy the entire LongTermDatabasePackages directory to a USB drive and transfer the data to the server. Install the **Long-term database** service and all dependencies using the following command:

    sudo rpm -ivh /path_to_LongTermDatabasePackages/*.rpm

The following dependency packages must be installed in the operating system for the service to work:

- aspnetcore-runtime-6.0 >= 6.0

- policycoreutils-python >= 2.5

- postgresql12-server

During the online installation the dependency packages will be installed automatically, while during the offline installation they may require to be installed manually.

To check if a package is installed and its version, use the command **sudo rpm -qa | grep %package_name%**.

Update ⟩

To update the service, run the following command:

sudo yum update eocortex-long-term-database-service

Or download a new version package from the repository and install it manually using the **rpm** command.

Uninstallation ⟩

To uninstall the service, use the following command:

sudo yum remove eocortex-long-term-database-service

Network settings of the service ⟩

Warning

These settings should be made on the device where the service is installed.

Description

As part of the installation process, a configuration file **appsettings.json** containing network settings will be created in the root directory of the service.

Default path:

/opt/EocortexLongTermDatabaseService/appsettings.json

Below is an example of default settings:

```
{
    "Application": {
        "Brand": "Eocortex",
        "AppName": "LongTermDatabase"
    },
    "Logging": {
        "LogLevel": {
            "Default": "Information",
            "Microsoft.AspNetCore": "Warning"
        }
    },
```

```
    "AllowedHosts": "*",
    "AlwaysRedirectToHttps": false,
    "Network": {
        "Endpoints": {
            "Http": {
                "Url": "http://*:8999"
            }
        }
    },
    "ConnectionStrings": {
        "DefaultConnectionString": "Host=localhost;Port=5432;Database=longtermdatab
ase;Username=eocortex;Password=masterkey;",
        "ConnectionStringWithDatabasePlaceholder": "Host=localhost;Port=5432;Databa
se={0};Username=eocortex;Password=masterkey;"
    }
}
```

Change the HTTP port

To change the HTTP port, find the following section in the configuration file:

```
"Network": {
    "Endpoints": {
        "Http": {
            "Url": "http://*:8999"
        }
    }
},
```

And set a custom port in the **Url** line instead of the default **8999**.

Enable HTTPS connection

To add an SSL certificate to the service configuration and enable HTTPS connection, change the Network section as follows:

```
"Network": {
    "Endpoints": {
        "Http": {
            "Url": "http://*:8999"
        },
        "HttpsInlineCertFile": {
            "Url": "https://*:18999",
            "Certificate": {
                "Path": "path_to_the_cert",
                "Password": "cert_password"
            }
        }
    }
}
```

Where:

- **Path**: Location of the PFX file of the certificate.

- **Password**: Password of the certificate.

Note

Changing the HTTPS port can be done similarly to the HTTP protocol, but for the **HttpsInlineCertFile** section.

Forced redirect to HTTPS

To enable forced redirection of all requests to the service to a secured connection, find and change the value from **false** to **true** for the following line:

"AlwaysRedirectToHttps": false,

Note

After saving the settings, the service must be restarted via the **Services** snap-in to take all changes into effect.

It is also possible to restart the service via the terminal using the following command:

sudo systemctl restart eocortexarchiveepisodes

Warning

Changing other settings provided in the configuration file may cause the service to malfunction or fail. It is not recommended to change settings that are not described in the present documentation.

Installing, updating, and removing Monitoring

The **Eocortex System Monitoring** service allows controlling the status of the video surveillance system components and receiving immediate notifications about problems occurring with them.

Note

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

The **service** can be installed on any computer without installing the **Eocortex** server on it.

Only one **service** instance can be configured for the entire system.

Once installed, the **service** will start automatically.

Note

Service name: **eocortexmonitoring.service**

The service can be installed using the following two options:

- Online, if the device has Internet access.

- Offline, if the device does not have Internet access.

Debian

Supported versions:

- Debian 10

Online installation 〉

1. Add Eocortex repository:

   wget -O - http://packages.eocortex.com/deb/install/eocortex-deps-debian.sh | bash

2. Install the service.

   sudo apt-get install eocortex-monitoring-server

Offline installation 〉

Warning

For this installation method, you will need a computer with Internet access and the same operating system as the one on which you want to install the **Long-term database** service.

1. Clear local repository:

   sudo apt-get clean

2. Add Eocortex repository:

   wget -O - http://packages.eocortex.com/deb/install/eocortex-deps-debian.sh | bash

3. Install all required packages (dependencies):

   sudo apt-get install -d -y eocortex-monitoring-server

4. Create the MonitoringPackages directory and transfer all downloaded packages to it:

   mkdir ~/MonitoringPackages/ && cp -R /var/cache/apt/archives/*.deb ~/MonitoringPackages/

5. After that, copy the entire MonitoringPackages directory to a USB drive and transfer the data to the server. Install the **Monitoring** service and all dependencies using the following command:

   sudo dpkg -i /path_to_MonitoringPackages/*.deb

The following dependency packages must be installed in the operating system for the service to work:

- aspnetcore-runtime-6.0 (>= 6.0)

- debconf (>= 0.5)

During the online installation the dependency packages will be installed automatically, while during the offline installation they may require to be installed manually.

To check if a package is installed and its version, use the command **dpkg -s %package_name%**.

To update the service, run the following commands:

sudo apt-get update

sudo apt-get install eocortex-monitoring-server

Or download a new version package from the repository and install it manually using the **dpkg** command.

To uninstall the service, use the following command:

sudo apt-get remove eocortex-monitoring-server

CentOS

Supported versions:

- CentOS 7

1. Add Eocortex repository:

   wget -O - http://packages.eocortex.com/rpm/install/eocortex-deps-centos.sh | bash

2. Install the service.

   sudo yum install eocortex-monitoring-server

Offline installation ›

Warning

For this installation method, you will need a computer with Internet access and the same operating system as the one on which you want to install the **Long-term database** service.

1. Add Eocortex repository:

   wget -O - http://packages.eocortex.com/rpm/install/eocortex-deps-centos.sh | bash

2. Install yum extensions:

   sudo yum install -y yum-utils

3. Install all required packages (dependencies):

   sudo yumdownloader --downloadonly --downloaddir=~/MonitoringPackages eocortex-monitoring-server --resolve

4. After that, copy the entire MonitoringPackages directory to a USB drive and transfer the data to the server. Install the **Long-term database** service and all dependencies using the following command:

   sudo rpm -ivh /path_to_MonitoringPackages/*.rpm

Dependencies ›

The following dependency packages must be installed in the operating system for the service to work:

- aspnetcore-runtime-6.0 >= 6.0

- policycoreutils-python >= 2.5

During the online installation the dependency packages will be installed automatically, while during the offline installation they may require to be installed manually.

To check if a package is installed and its version, use the command **sudo rpm -qa | grep %package_name%**.

Update ›

To update the service, run the following command:

sudo yum update eocortex-monitoring-server

Or download a new version package from the repository and install it manually using the **rpm** command.

Uninstallation 〉

To uninstall the service, use the following command:

sudo yum remove eocortex-monitoring-server

Network settings of the service 〉

Note

The **Monitoring** service does not provide any options to change the network connection settings.

Note

Service uses HTTP port 8889 for connection without option to change it.

Monitoring Agent 〉

To collect and transmit data about the state of the Eocortex server and cameras connected to it, an additional **Monitoring** Agent service is used.

The service is installing and updating at the same time as the **Eocortex** server components are deploying, so there is no need to install the **Agent** individually.

Once installed, the service will start automatically.

Note

Service name: **eocortexmonitoringagent.service**

Installing neural networks

Part of the **Eocortex** video analysis modules uses neural networks.

Neural networks are presented as an additional installation package.

Starting from version 3.6 of **Eocortex**, two different packages can be used:

- The **Eocortex Neural Networks Standard** package
- The **Eocortex Neural Networks Special** package

Comparison of neural networks packages

Note

Eocortex Neural Networks Standard and **Eocortex Neural Networks Special** packages support simultaneous use of multiple video cards for analyzing video streams. However, correct work of the analytics is possible only when using video cards that are identical to each other by their technical properties.

Warning

If the **Face Recognition (Complete)** module is used, the face databases will be automatically updated at the first start after updating **Eocortex** and the **Eocortex Neural Networks** package from version 3.3 or lower to version 3.4 or higher. It will take some time.

Warning

Since version 4.0, **Eocortex** uses PostgreSQL for all internal databases. When upgrading from earlier versions, it is recommended also to read the information about PostgreSQL installation.

Requirements and recommendations ❯

Warning

Stable operation of the package is guaranteed only under the following operating systems:

- Windows 10

- Windows Server 2016

- Ubuntu 20.04, 22.04

- Debian 10, 11

- CentOS 7

Workability of the package is not guaranteed when using other operating systems.

Minimum hardware requirements:

- A processor that supports AVX instructions;

- An **NVIDIA** video card (GPU) with the computation capacity index of at least 6.5 and with at least 4 Gb of memory; the parameters and performance of the video card must be similar or better than those of **NVIDIA GTX 1650 Super** model;

- Version of the video card driver at least 460;

- Swap file at least half of the total RAM size.

If the package will be installed on a virtual machine, it may additionally be required to:

- Enable support for AVX instructions in the guest machine settings;

- Use GRID drivers for GPU virtualization.

Note

Simultaneous use of several video cards for analyzing camera streams is acceptable. However, correct work of the analytics is possible only when using video cards that are identical to each other by their technical properties.

Warning

Eocortex must use video cards selected for running neural networks in monopoly mode. It is not allowed to use such card for other applications or tasks that consume GPU resources, including for displaying video. Simultaneous use of a video card for several tasks may lead to incorrect system operation: from analytics performance degradation to server instability.

Warning

Simultaneous execution of tasks of video displaying and analysis with the **Face Recognition (Complete)** or **Unique Visitor Counting** modules working on the **Eocortex Neural Networks Standard** package can cause significant lags of face recognition processes when using graphics cards of **GTX 10XX** and **GTX 16XX** series with 4 GB of video memory or less. It is recommended to use dedicated graphics cards for these tasks.

Note

The package must be installed only on the computer with the **Eocortex Server** application. Moreover, this server should be the main one for cameras using neural network modules.

Installation under Windows

Pre-install preparations 〉

The **Eocortex Neural Networks Standard** package for Windows is not directly dependent on having the **Eocortex Server** application deployed on the computer at the installation moment. Applications can be installed in any order.

Eocortex Neural Networks Standard for Windows comes as a single installation package, containing neural networks for analysis both exclusively on the CPU and using the GPU. The choice of the analysis mode is made at the stage of the package installation.

If the analysis is planned to be performed only on the CPU, no additional preparation of the computer is required before installing the **Eocortex Neural Networks Standard** package.

If the analysis is to be performed using the GPU, the latest graphics card driver package must be installed from the official NVIDIA website before installing the **Eocortex Neural Networks Standard** package.

Warning

The graphics card drivers installed automatically with the OS have limited functionality and do not support GPU analysis.

Note

The most up-to-date version of **Eocortex** can be downloaded from the eocortex.com website at the Support / Software Installation Packages Supported page.

Regular installation of the package ❯

Warning

The installation of the **Eocortex Neural Networks Standard** package shall be performed under the account of the same user who will operate the application. If the application is to be launched by multiple users with different accounts, the installation must be performed for each of these users under his/her account.

Warning

Before installing the **Eocortex Neural Networks Standard** package, close all **Eocortex** applications, including stopping the **Eocortex Server** application.

To install the **Eocortex Neural Networks Standard** package, run the **EocortexNeuralNetworksCommon Installer.exe** file.

In the **Select language** window, choose the language that will be used during the installation and in the course of operating the software on the computer.
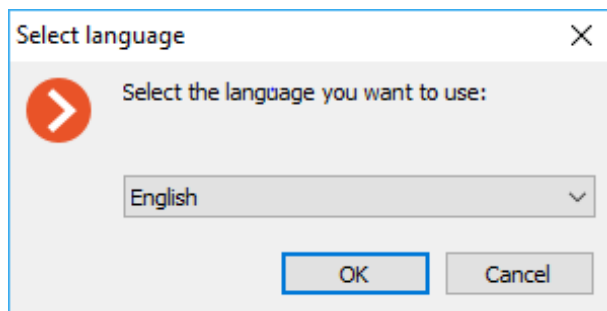
Note

If the **Eocortex Neural Networks Standard** package has already been installed on this computer, the user will be recommended to remove the previous copy of the software. In case **No** is clicked, the installation will be aborted, and the previous copy will remain. If **Yes** is clicked, the previous copy will be deleted, and the **Eocortex Neural Networks Standard** installation wizard window will open.
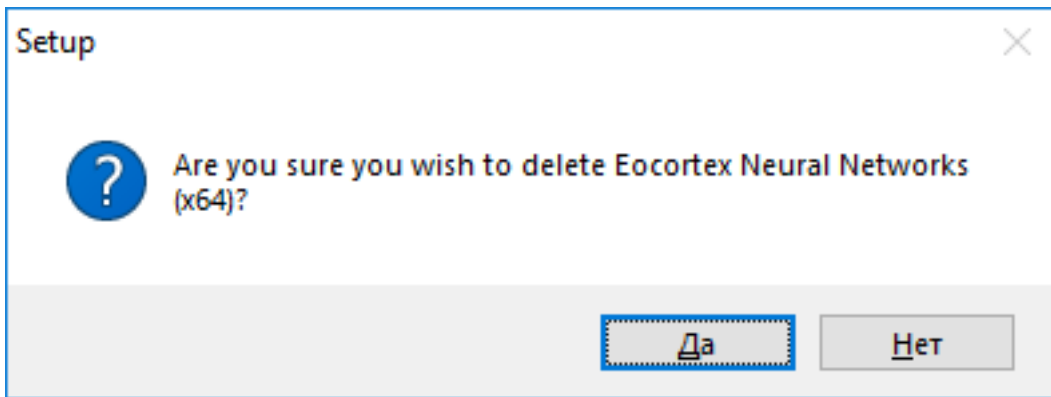
If the **Eocortex Neural Networks Standard** suite is being installed on the computer for the first time, the **Eocortex Neural Networks Standard** installation wizard will open without interruptions.

Follow the wizard steps to proceed.

Setup - Eocortex Neural Networks (x64)

License Agreement
Please read the following important information before continuing.

Please read the following License Agreement. You must accept the terms of this agreement before continuing with the installation.

> ### END USER LICENSE AGREEMENT
>
> The present End User License Agreement (hereinafter EULA) is a legal document concluded between the end user - a natural person or a legal entity - (hereinafter User) and Satellite Innovation Limited Liability Company (Satellite LLC, hereinafter Copyright Holder).
>
> The EULA regulates the legal relationship between the

◉ I accept the agreement
◯ I do not accept the agreement

[Next >]   [Cancel]

Setup - Eocortex Neural Networks (x64)

Select Destination Location
Where should Eocortex Neural Networks (x64) be installed?

Setup will install Eocortex Neural Networks (x64) into the following folder.

To continue, click Next. If you would like to select a different folder, click Browse.

`C:\Program Files\EocortexNeuralNetworks`   [Browse...]

At least 4,4 MB of free disk space is required.

[< Back]   [Next >]   [Cancel]

Setup - Eocortex Neural Networks (x64)

Select Components

Which components should be installed?

Select the components you want to install; clear the components you do not want to install. Click Next when you are ready to continue.

☐ Face Recognition (Complete) and Unique visitor statistics	221,9 MB
☐ Face Recognition (Light)	14,1 MB
☐ Counting of People in Queue	235,1 MB
☐ Hard Hat Detection	5,2 MB
☐ Face Mask Detection	3,0 MB
☑ Tracking of people, vehicles and animals	245,0 MB
☐ Search for Objects	548,9 MB

< Back   Next >   Cancel

Setup - Eocortex Neural Networks (x64)

Startup toolkit

○ On CPU
◉ On GPU

< Back   Next >   Cancel

Silent installation of the package ❯

Starting from version 3.5, a silent installation of the **Eocortex Neural Networks Standard** package is available.

Note

The term *silent installation* refers to the installation of software in automatic mode that does not require active participation of the user.

Warning

The silent installation of the **Eocortex Neural Networks Standard** package should be performed under the administrator account.

Warning

The silent installation of the **Eocortex Neural Networks Standard** package is available only under Windows.

Warning

All the components of the **Eocortex Neural Networks Standard** package will be installed during the silent installation.

Warning

Before installing the **Eocortex Neural Networks Standard** package, close all **Eocortex** applications, including stopping the **Eocortex Server** application.

To perform silent installation of the **Eocortex Neural Networks Standard** package, run the **EocortexNeuralNetworksCommon Installer.exe** file with the **/VERYSILENT** key.

Example:

EocortexNeuralNetworksCommon Installer.exe /VERYSILENT

When the **/LOG** key is specified, information about the installation progress will be written to the file **%User%\AppData\Local\Temp\Setup Log %Installation_Date% # % Random_number%.txt** (for example, **C:\Users\User\AppData\Local\Temp\Setup Log 2021-07-15 # 012.txt**).

The **/PostgreDbPath** key can be used to specify the path to the PostgreSQL database.

Example:

EocortexNeuralNetworksCommon Installer.exe /VERYSILENT /PostgreDbPath="e:\int s earch"

Note

By default, PostgreSQL is installed to the **C:\ProgramData\postgredb** directory.

Example of installation path logging (when launching with the key **/LOG**):

2021-07-16 14:59:05.447 Path to the Search for Objects database PostgreSQL: C:\Pr ogramData\postgre

If PostgreSQL is already installed, it will be used for the **Eocortex Neural Networks Standard** package components as well.

Example of installation path logging (when launching with the key **/LOG**):

2021-07-15 15:33:42.532 A PostgreSQL database has been found, which will be used to store the data of the Search for Objects module. Path to database: C:\Program Files \Eocortex Interactive Search\postgre

Installation under Linux

Pre-install preparations 〉

The **Eocortex Neural Networks Standard** package for Linux is directly dependent on the **Eocortex Server** application being deployed on the computer at the moment of the package installation. It is necessary to install

Eocortex Server before installing the **Eocortex Neural Networks Standard** package.

Eocortex Neural Networks Standard for Linux comes in two separate installation packages, containing neural networks for the required analysis mode — only on CPU or using GPU. The choice of analysis mode is made at the stage of downloading the installation package.

If the analysis is to be performed only on the CPU, no additional preparation of the computer is required before installing the strong.Application.NeuralNetworksStandard| package.

If the analysis is to be performed using the GPU, the latest graphics card driver package must be installed from the official NVIDIA website before installing the **Eocortex Neural Networks Standard** package.

Warning

The Nouveau kernel module, which provides graphics support for Linux, is not suitable for GPU analysis.

Installation of graphics card driver 〉

The following steps are necessary if the analysis is to be performed using the GPU. If it is planned to perform analysis only on the CPU, this step can be skipped.

The driver installation process may vary depending on your operating system. The instructions below are provided as an example, alternative installation methods can be found in the documentation for the selected operating system.

Warning

All actions must be performed as a user with administrator privileges.

Ubuntu

1. Find the appropriate driver package in the repository by running the command in the Terminal:

   sudo ubuntu-drivers devices

2. Install the selected driver package:

   sudo apt install nvidia-driver-[version]

   Where **nvidia-driver-[version]** is the actual name of the package.

3. Reboot the OS:

   sudo reboot

4. Check that the drivers have been installed successfully:

    sudo lshw -c video

5. Check that the graphic card is successfully initialized by the OS:

    sudo nvidia-smi

Debian

1. Download the appropriate driver package from the NVIDIA official website.

2. Install kernel header files:

    sudo apt-get install linux-headers-$(uname -r)

3. Install the **build-essentials** metapackage:

    sudo apt-get install build-essential

4. Deactivate the Nouveau module. Open the **/etc/default/grub** file with a text editor and add the following to the **GRUB_CMDLINE_LINUX** line:

    rd.driver.blacklist=nouveau nouveau.modeset=0

5. Put the Nouveau module into the blacklist. Edit (or create) the **/etc/modprobe.d/blacklist.conf** file with a text editor, and add the line below to the end of it:

    blacklist nouveau

6. Update the bootloader configuration by running the following command in the Terminal:

    sudo update-grub

7. Update the file system image by running the following command in the Terminal:

    sudo update-initramfs -u

8. If X server is enabled, disable GUI startup after reboot:

    sudo systemctl isolate multi-user.target

9. Reboot the OS:

    sudo reboot

10. Browse to the directory with the previously downloaded driver package.

11. Grant the execution privileges to the previously downloaded package:

chmod a+x NVIDIA-Linux-x86_64-[version].run

Where **NVIDIA-Linux-x86_64-[version]** is the actual name of the package.

12. Install the driver package:

sudo ./NVIDIA-Linux-x86_64-[version].run

Where **NVIDIA-Linux-x86_64-[version]** is the actual name of the package.

13. Reboot the OS again:

sudo reboot

CentOS

Supported versions:

- CentOS 7

1. Download the appropriate driver package from the NVIDIA official website.

2. Install kernel header files:

sudo yum -y install kernel-devel

3. Install the **Development Tools** metapackage:

sudo yum -y groupinstall "Development Tools"

4. Deactivate the Nouveau module. Open the **/etc/default/grub** file with a text editor and add the following to the **GRUB_CMDLINE_LINUX** line:

rd.driver.blacklist=nouveau nouveau.modeset=0

5. Put the Nouveau module into the blacklist. Edit (or create) the **/etc/modprobe.d/blacklist.conf** file with a text editor, and add the line below to the end of it:

blacklist nouveau

6. Update the bootloader configuration by running the following command in the Terminal:

sudo grub2-mkconfig -o /boot/grub2/grub.cfg

7. Update the file system image by running the following command in the Terminal:

```
sudo mv /boot/initramfs-$(uname -r).img /boot/initramfs-$(uname -r)-nouveau
.img
```

```
sudo dracut /boot/initramfs-$(uname -r).img $(uname -r)
```

8. Reboot the OS:

```
sudo reboot
```

9. If X server (GUI) is enabled, then disable it via terminal:

```
sudo init 3
```

10. Browse to the directory with the previously downloaded driver package.

11. Grant the execution privileges to the previously downloaded package:

```
chmod a+x NVIDIA-Linux-x86_64-[version].run
```

Where **NVIDIA-Linux-x86_64-[version]** is the actual name of the package.

12. Install the driver package:

```
sudo ./NVIDIA-Linux-x86_64-[version].run
```

Where **NVIDIA-Linux-x86_64-[version]** is the actual name of the package.

13. Reboot the OS again:

```
sudo reboot
```

Installation of the package ⟩

Eocortex Neural Networks Standard for Linux comes in two separate installation packages:

- **eocortex-neural-networks-cpu** is a neural network package designed to perform analysis using only CPU.

- **eocortex-neural-networks-gpu** is a neural network package with the ability to use the GPU to perform analysis.

The **eocortex-neural-networks-gpu-optimized** package available in the repository belongs to the **Eocortex Neural Networks Special**. This is a separate neural network package, installation of which is not required when deploying the **Eocortex Neural Networks Standard** package.

Installation of the **Eocortex Neural Networks Standard** package on Linux can be performed in two ways:

- **Online**, when the installation package is fetched from the **Eocortex** repository along with all dependency packages. Requires Internet access on the computer.

- **Offline**, when the installation package must be pre-downloaded from the **Eocortex** repository, and all dependency packages must be installed manually. Does not require Internet access on the computer.

Warning

Before installing the **Eocortex Neural Networks Standard** package, ensure that the **Eocortex Server** application is installed on the computer.

Online installation

1. Stop the **Eocortex Server** application:

   sudo systemctl stop eocortex

2. Run the installation of the selected neural network package with the corresponding command:

   Ubuntu/Debian, analysis only on CPU:

   sudo apt-get install eocortex-neural-networks-cpu

   Ubuntu/Debian, analysis using GPU:

   sudo apt-get install eocortex-neural-networks-gpu

   CentOS 7, analysis only on CPU:

   sudo yum install eocortex-neural-networks-cpu

   CentOS 7, analysis using GPU:

   sudo yum install eocortex-neural-networks-gpu

3. Wait until installation is complete.

4. Start the **Eocortex Server** application back:

   sudo systemctl start eocortex

Offline installation

1. Make sure that all required dependency packages are installed on the computer:

   - cuda-license-11-0

   - cuda-cudart-11-0

   - cuda-cublas-11-0

- cuda-cufft-11-0

- cuda-curand-11-0

- cuda-cusolver-11-0

- cuda-cusparse-11-0

- cuda-npp-11-0

- cuda-nvgraph-11-0

- cuda-nvjpeg-11-0

- cuda-nvrtc-11-0

- cuda-libraries-11-0

If a dependency package is missing or its version does not match, download and install the missing package from the repository.

Ubuntu/Debian:

https://packages.eocortex.com/deb/public/pool/main/c/

https://packages.eocortex.com/deb/public/pool/main/libc/

https://packages.eocortex.com/deb/public/pool/main/libn/

CentOS 7:

https://packages.eocortex.com/rpm/

2. Download the selected neural network package from the repository.

Ubuntu/Debian, analysis only on CPU:

https://packages.eocortex.com/deb/public/pool/main/e/eocortex-neural-networks-cpu/

Ubuntu/Debian, analysis using GPU:

https://packages.eocortex.com/deb/public/pool/main/e/eocortex-neural-networks-gpu/

CentOS 7:

https://packages.eocortex.com/rpm/

3. Stop the **Eocortex Server** application:

sudo systemctl stop eocortex

4. Browse to the directory with the previously downloaded neural network package and run the installation.

    Ubuntu/Debian:

    dpkg -i eocortex-neural-networks-[type]_[version]_amd64.deb

    CentOS 7:

    yum install eocortex-neural-networks-[type]_[version]_amd64.deb

    Where [type] is the analysis mode (cpu or gpu) and [version] is the actual version of the package.

5. Wait until installation is complete.

6. Start the **Eocortex Server** application back:

    sudo systemctl start eocortex

Installing Eocortex Neural Networks Special package

Warning

If the **Face Recognition (Complete)** module is used, the face databases will be automatically updated at the first start after updating **Eocortex** and the **Eocortex Neural Networks** package from version 3.3 or lower to version 3.4 or higher. It will take some time.

Warning

Since version 4.0, **Eocortex** uses PostgreSQL for all internal databases. When upgrading from earlier versions, it is recommended also to read the information about PostgreSQL installation.

Requirements and recommendations ❯

Warning

Stable operation of the package is guaranteed only under the following operating systems:

- Windows 10

- Windows Server 2016

- Ubuntu 20.04, 22.04

- Debian 10, 11

- CentOS 7

Workability of the package is not guaranteed when using other operating systems.

Minimum hardware requirements:

- A processor that supports AVX instructions;

- An **NVIDIA** graphics card (GPU) with an index of compute capability of at least 7.0 or higher and video memory capacity of at least 6 GB; herewith, other characteristics and performance of the graphics card must be no lower than that of **NVIDIA RTX 3050** or **NVIDIA RTX 2060** model.

- Version of the video card driver at least 460;

- Swap file at least half of the total RAM size.

If the package will be installed on a virtual machine, it may additionally be required to:

- Enable support for AVX instructions in the guest machine settings;

- Use GRID drivers for GPU virtualization.

Note

Simultaneous use of several video cards for analyzing camera streams is acceptable. However, correct work of the analytics is possible only when using video cards that are identical to each other by their technical properties.

Warning

Eocortex must use video cards selected for running neural networks in monopoly mode. It is not allowed to use such card for other applications or tasks that consume GPU resources, including for displaying video. Simultaneous use of a video card for several tasks may lead to incorrect system operation: from analytics performance degradation to server instability.

Note

The package must be installed only on the computer with the **Eocortex Server** application. Moreover, this server should be the main one for cameras using neural network modules.

Installation under Windows

Pre-install preparations 〉

The **Eocortex Neural Networks Special** package for Windows is not directly dependent on having the **Eocortex Server** application deployed on the computer at the installation moment. Applications can be installed in any order.

The **Eocortex Neural Networks Special** package does not have an analysis mode without using the GPU, so before installing the package, it is necessary to install the latest drivers for the graphics card from the official NVIDIA website.

Warning

The graphics card drivers installed automatically with the OS have limited functionality and do not support GPU analysis.

Note

The most up-to-date version of **Eocortex** can be downloaded from the eocortex.com website at the Support / Software Installation Packages Supported page.

Installation of the package 〉

Warning

The installation of the **Eocortex Neural Networks Special** package shall be performed under the account of the same user who will operate the application. If the application is to be launched by multiple users with different accounts, the installation must be performed for each of these users under his/her account.

Warning

Before installing the **Eocortex Neural Networks Special** package, close all **Eocortex** applications, including stopping the **Eocortex Server** application.

To install the **Eocortex Neural Networks Special** package, run the **EocortexNeuralNetworksOptimized Installer.exe** file, located in the root folder of the package.

In the **Select language** window, choose the language that will be used during the installation and in the course of operating the software on the computer.
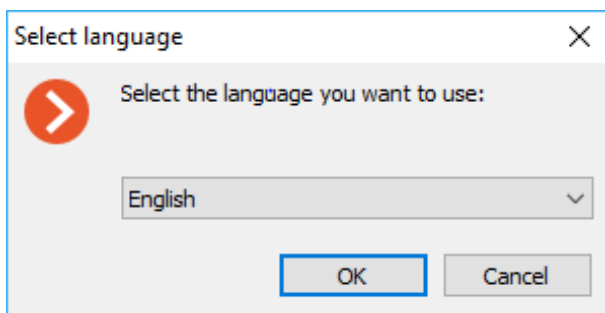
Note

If the **Eocortex Neural Networks Special** package has already been installed on this computer, the user will be recommended to remove the previous copy of the software. In case **No** is clicked, the installation will be aborted, and the

previous copy will remain. If **Yes** is clicked, the previous copy will be deleted, and the **Eocortex Neural Networks Special** installation wizard window will open.

If the **Eocortex Neural Networks Special** package is being installed on the computer for the first time, the **Eocortex Neural Networks Special** installation wizard will open without interruptions. Follow the wizard steps to proceed.

Setup - Eocortex Neural Networks (x64)

License Agreement
Please read the following important information before continuing.

Please read the following License Agreement. You must accept the terms of this agreement before continuing with the installation.

> ### END USER LICENSE AGREEMENT
>
> The present End User License Agreement (hereinafter EULA) is a legal document concluded between the end user - a natural person or a legal entity - (hereinafter User) and Satellite Innovation Limited Liability Company (Satellite LLC, hereinafter Copyright Holder).
>
> The EULA regulates the legal relationship between the

(•) I accept the agreement

( ) I do not accept the agreement

[Next >]   [Cancel]

Setup - Eocortex Neural Networks (x64)

Select Destination Location
Where should Eocortex Neural Networks (x64) be installed?

Setup will install Eocortex Neural Networks (x64) into the following folder.

To continue, click Next. If you would like to select a different folder, click Browse.

C:\Program Files\EocortexNeuralNetworks   [Browse...]

At least 4,4 MB of free disk space is required.

[< Back]   [Next >]   [Cancel]

Warning

If the **Eocortex Neural Networks Standard** package was previously installed on the computer, the optimization of neural network data will be performed during the installation process. This operation takes significant time and can take more than an hour.
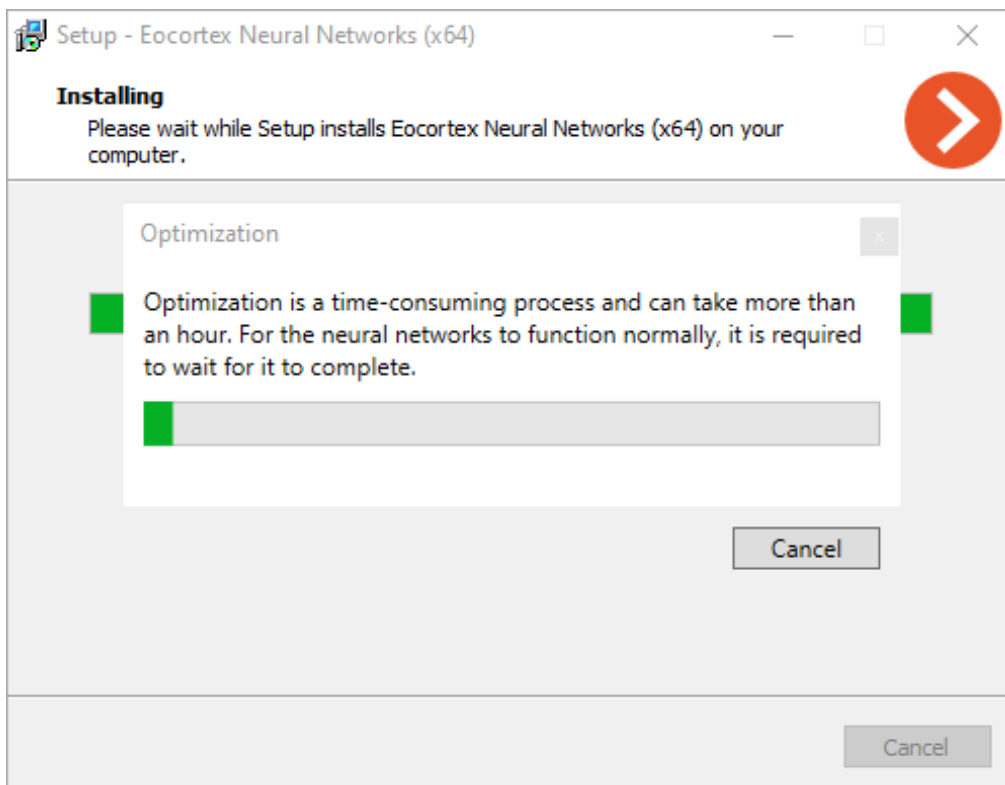
Warning

If the **Eocortex Neural Networks Special** package is updating or installing for the first time, the installation process will take up to 15 minutes.
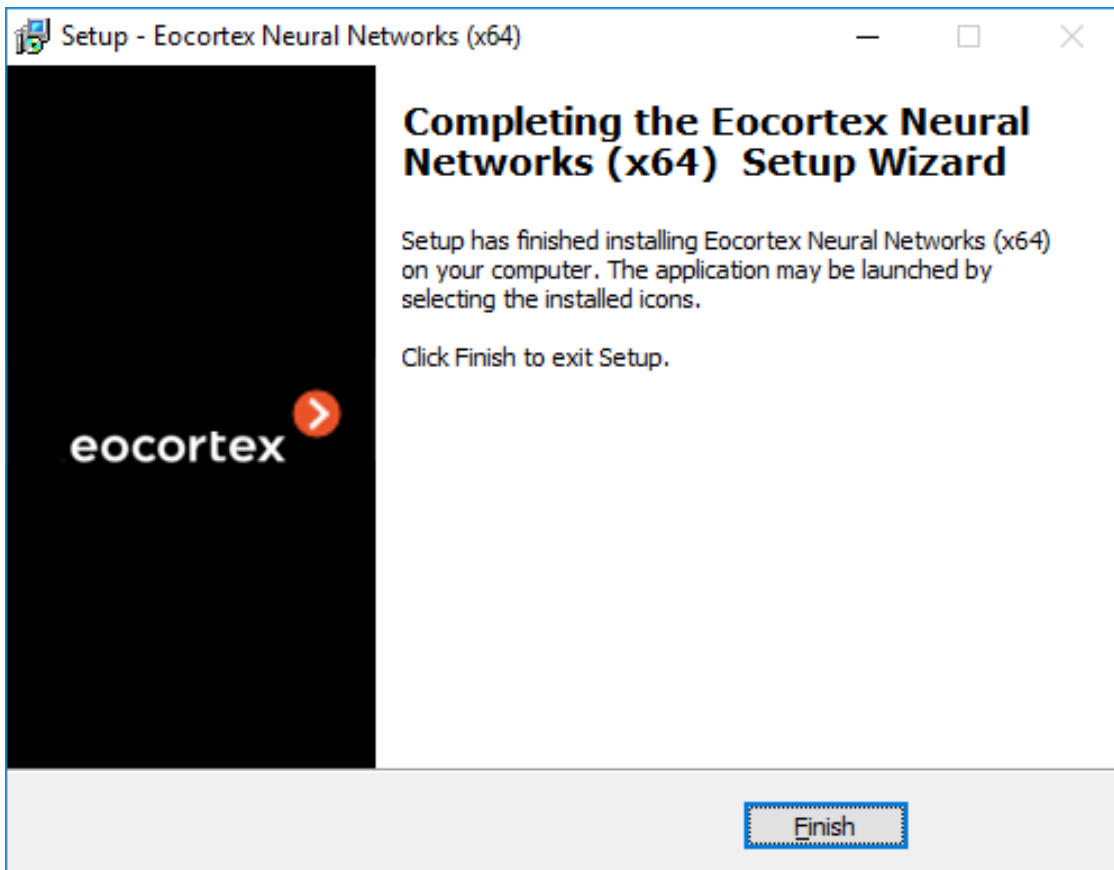
Installation under Linux

Pre-install preparations ❯

The **Eocortex Neural Networks Special** package for Linux is directly dependent on the **Eocortex Server** application being deployed on the computer at the installation moment. It is necessary to install **Eocortex Server** before installing the **Eocortex Neural Networks Special** package.

The **Eocortex Neural Networks Special** package does not have an analysis mode without using the GPU, so before installing the package, it is necessary to install the latest drivers for the graphics card from the official NVIDIA website.

Warning

The Nouveau kernel module, which provides graphics support for Linux, is not suitable for GPU analysis.

Installation of graphics card driver ❯

The driver installation process may vary depending on your operating system. The instructions below are provided as an example, alternative installation methods can be found in the documentation for the selected operating system.

Warning

All actions must be performed as a user with administrator privileges.

Ubuntu

1. Find the appropriate driver package in the repository by running the command in the Terminal:

   sudo ubuntu-drivers devices

2. Install the selected driver package:

   sudo apt install nvidia-driver-[version]

   Where **nvidia-driver-[version]** is the actual name of the package.

3. Reboot the OS:

   sudo reboot

4. Check that the drivers have been installed successfully:

   sudo lshw -c video

5. Check that the graphic card is successfully initialized by the OS:

   sudo nvidia-smi

Debian

1. Download the appropriate driver package from the NVIDIA official website.

2. Install kernel header files:

   sudo apt-get install linux-headers-$(uname -r)

3. Install the **build-essentials** metapackage:

   sudo apt-get install build-essential

4. Deactivate the Nouveau module. Open the **/etc/default/grub** file with a text editor and add the following to the **GRUB_CMDLINE_LINUX** line:

   rd.driver.blacklist=nouveau nouveau.modeset=0

5. Put the Nouveau module into the blacklist. Edit (or create) the **/etc/modprobe.d/blacklist.conf** file with a text editor, and add the line below to the end of it:

   blacklist nouveau

6. Update the bootloader configuration by running the following command in the Terminal:

sudo update-grub

7. Update the file system image by running the following command in the Terminal:

   sudo update-initramfs -u

8. If X server is enabled, disable GUI startup after reboot:

   sudo systemctl isolate multi-user.target

9. Reboot the OS:

   sudo reboot

10. Browse to the directory with the previously downloaded driver package.

11. Grant the execution privileges to the previously downloaded package:

   chmod a+x NVIDIA-Linux-x86_64-[version].run

   Where **NVIDIA-Linux-x86_64-[version]** is the actual name of the package.

12. Install the driver package:

   sudo ./NVIDIA-Linux-x86_64-[version].run

   Where **NVIDIA-Linux-x86_64-[version]** is the actual name of the package.

13. Reboot the OS again:

   sudo reboot

CentOS

Supported versions:

- CentOS 7

1. Download the appropriate driver package from the NVIDIA official website.

2. Install kernel header files:

   sudo yum -y install kernel-devel

3. Install the **Development Tools** metapackage:

   sudo yum -y groupinstall "Development Tools"

4. Deactivate the Nouveau module. Open the **/etc/default/grub** file with a text editor and add the following to the **GRUB_CMDLINE_LINUX** line:

rd.driver.blacklist=nouveau nouveau.modeset=0

5. Put the Nouveau module into the blacklist. Edit (or create) the **/etc/modprobe.d/blacklist.conf** file with a text editor, and add the line below to the end of it:

   blacklist nouveau

6. Update the bootloader configuration by running the following command in the Terminal:

   sudo grub2-mkconfig -o /boot/grub2/grub.cfg

7. Update the file system image by running the following command in the Terminal:

   sudo mv /boot/initramfs-$(uname -r).img /boot/initramfs-$(uname -r)-nouveau .img

   sudo dracut /boot/initramfs-$(uname -r).img $(uname -r)

8. Reboot the OS:

   sudo reboot

9. If X server (GUI) is enabled, then disable it via terminal:

   sudo init 3

10. Browse to the directory with the previously downloaded driver package.

11. Grant the execution privileges to the previously downloaded package:

    chmod a+x NVIDIA-Linux-x86_64-[version].run

    Where **NVIDIA-Linux-x86_64-[version]** is the actual name of the package.

12. Install the driver package:

    sudo ./NVIDIA-Linux-x86_64-[version].run

    Where **NVIDIA-Linux-x86_64-[version]** is the actual name of the package.

13. Reboot the OS again:

    sudo reboot

Installation of the package ❯

Eocortex Neural Networks Special for Linux comes as a single installation package named **eocortex-neural-networks-gpu-optimized**.

Warning

The **eocortex-neural-networks-cpu** and **eocortex-neural-networks-gpu** packages available in the repository belong to the Eocortex Neural Networks Standard. This is a separate neural network package, installation of which is not required when deploying the **Eocortex Neural Networks Special** package.

Warning

If the **Eocortex Neural Networks Standard** package was previously installed on the computer, the optimization of neural networks data will be performed during the installation process. This operation takes a significant amount of time and can take up to one hour.

Warning

If the **Eocortex Neural Networks Special** package is updating or installing for the first time, the installation process will take up to 15 minutes.

Installation of the **Eocortex Neural Networks Special** package on Linux can be performed in two ways:

- **Online**, when the installation package is fetched from the **Eocortex** repository along with all dependency packages. Requires Internet access on the computer.

- **Offline**, when the installation package must be pre-downloaded from the **Eocortex** repository, and all dependency packages must be installed manually. Does not require Internet access on the computer.

Warning

Before installing the **Eocortex Neural Networks Special** package, ensure that the **Eocortex Server** application is installed on the computer.

Online installation

1. Stop the **Eocortex Server** application:

   sudo systemctl stop eocortex

2. Run the installation of the neural network package with the corresponding command:

   Ubuntu/Debian:

   sudo apt-get install |File.LinuxNeuralNetSpecialName|

   CentOS 7:

   sudo yum install |File.LinuxNeuralNetSpecialName|

3. Wait until the installation process including neural network data optimization is complete.

4. Start the **Eocortex Server** application back:

   sudo systemctl start eocortex

Offline installation

1. Make sure that all required dependency packages are installed on the computer:

   – cuda-license-11-0

   – cuda-cudart-11-0

   – cuda-cublas-11-0

   – cuda-cufft-11-0

   – cuda-curand-11-0

   – cuda-cusolver-11-0

   – cuda-cusparse-11-0

   – cuda-npp-11-0

   – cuda-nvgraph-11-0

   – cuda-nvjpeg-11-0

   – cuda-nvrtc-11-0

   – cuda-libraries-11-0

   If a dependency package is missing or its version does not match, download and install the missing package from the repository.

   Ubuntu/Debian:

   https://packages.eocortex.com/deb/public/pool/main/c/

   https://packages.eocortex.com/deb/public/pool/main/libc/

   https://packages.eocortex.com/deb/public/pool/main/libn/

   CentOS 7:

   https://packages.eocortex.com/rpm/

2. Download the **eocortex-neural-networks-gpu-optimized** package from the repository.

Ubuntu/Debian:

https://packages.eocortex.com/deb/public/pool/main/e/eocortex-neural-networks-gpu-optimized

CentOS 7:

https://packages.eocortex.com/rpm/

3. Stop the **Eocortex Server** application:

   sudo systemctl stop eocortex

4. Browse to the directory with the previously downloaded neural network package and run the installation.

   Ubuntu/Debian:

   dpkg -i eocortex-neural-networks-gpu-optimized_[version]_amd64.deb

   CentOS 7:

   yum install eocortex-neural-networks-gpu-optimized_[version]_amd64.deb

   Where [version] is the actual version of the package.

5. Wait until the installation process including neural network data optimization is complete.

6. Start the **Eocortex Server** application back:

   sudo systemctl start eocortex

Installing and updating the license

To license an **Eocortex** server, it is required to activate a license bound to a software key or a USB key.

The license can be local or floating:

- A **local license** is bound to the local key installed directly on the computer with the licensed server application of **Eocortex**. The features specified in the license will be only available for the cameras bound to the given server.

- A **floating license** is bound to the network key installed on any of the servers accessible from the licensed computer in the local network. The network licenses provide floating licensing.

Note

To update the license of a previously activated key, activate the procedure for this key again.

Note

When transferring USB key to another computer, install and activate the license on the new computer. For offline activation, use the existing license file for this key.

Note

Several different types of keys may be installed on the server — both multiple hardware (USB) keys and one software key. Only one key can be activated. If you need to use a license for another key on the server, you should run the license installation procedure and activate that key.

Note

When installing and upgrading the license, it's preferable to provide Internet connection to the server, as the most convenient way of key activation its automatic activation via the Internet. Generally, key installation and activation requires the performance of the sequence of steps, offered by the wizard, which are predefined by default.

Warning

The HASP software key that is installed on a physical machine binds to the hard drive serial number, motherboard ID, and other hardware components, including processors and network cards. If the hard drive or motherboard fails, the license tied to this key will only be active if most of the other system components remain unchanged.

Warning

The HASP software key that is installed on a virtual machine binds to the virtual MAC address, CPU properties, and UUID of the virtual machine. If any of specified components mismatches, the license bound to this key will become inactive.

The total number of cameras, modules and other licensed features are shown in the floating license. The administrator of a video surveillance system can distribute the cameras among servers at his/her discretion. However, it is not required to distribute the licenses among servers because the system core does it automatically. Whereby, upon binding the cameras to another server, the corresponding licenses will be moved accordingly.

Floating licensing is available in certain types of licenses. It allows using a single license key on several **Eocortex** servers.

The floating licenses can be used on any license protection keys, be it USB or software ones.

In a floating license, the total number of cameras, modules and other licensed features is shown. The video surveillance system administrator distributes the cameras among servers at his/her discretion; the system core automatically distributes the corresponding licenses among the servers.

The floating license key is called network key and is installed on any **Eocortex** server located in the same local area network (or VPN) with the servers that use this key.

Several network and local keys can be installed within the same **Eocortex** video surveillance system. However, on each individual server, it is possible to use only one key for licensing the cameras bound to this server.

Warning

Only one license can be activated on a single server, irrespective of whether this license is local or floating.

The network key must be installed on a computer where the **Eocortex** server is installed.

The network keys can only be used on the **Eocortex** servers of versions 3.1 and later. It is not possible to use the network keys on the earlier versions of the software, even as local keys.

In order to ensure access to a network key, it is required to allow the outgoing TCP and UDP traffic for the 1947 port both on the server where the key is installed and on the servers that use this key.

A single network key can be used in several **Eocortex** video surveillance systems. In such a case, the parameters of the key will not be shown correctly in the **Eocortex Configurator** application of each system because the systems have no information regarding the usage of licenses by other systems.

Note

A network key is to be installed on any **Eocortex** server of the same local network or VPN where the servers using that key are located.

Several network and local keys can be installed in the same **Eocortex** video surveillance system. However, the number of local keys is limited by the quantity of **Eocortex** servers, but the number of network keys is unlimited.

The floating licenses can be used on any HASP keys, be it software or USB ones.
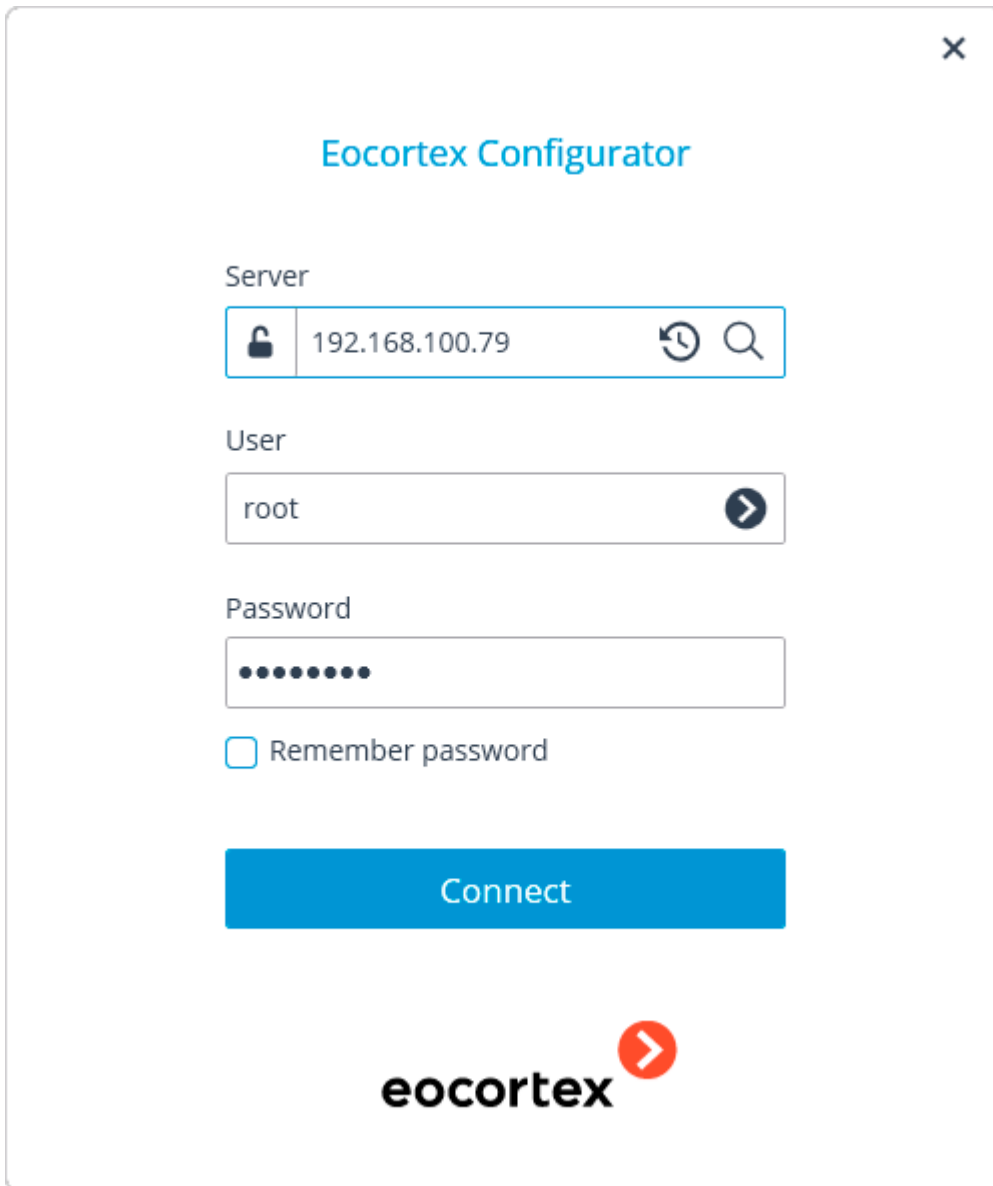
USB key online activation

Warning

In order to install and activate a key, the user has to obtain an activation code, which looks like **XXXXXXXX-XXXX-XXXX-XXXX-XXXXXXXXXXXX**,

where **X** can be hex digit (i.e., 0123456789abcdef). Here's an example of the activation code: **a46a6d3e-17f6-416c-9da2-10cb4b80574e**.
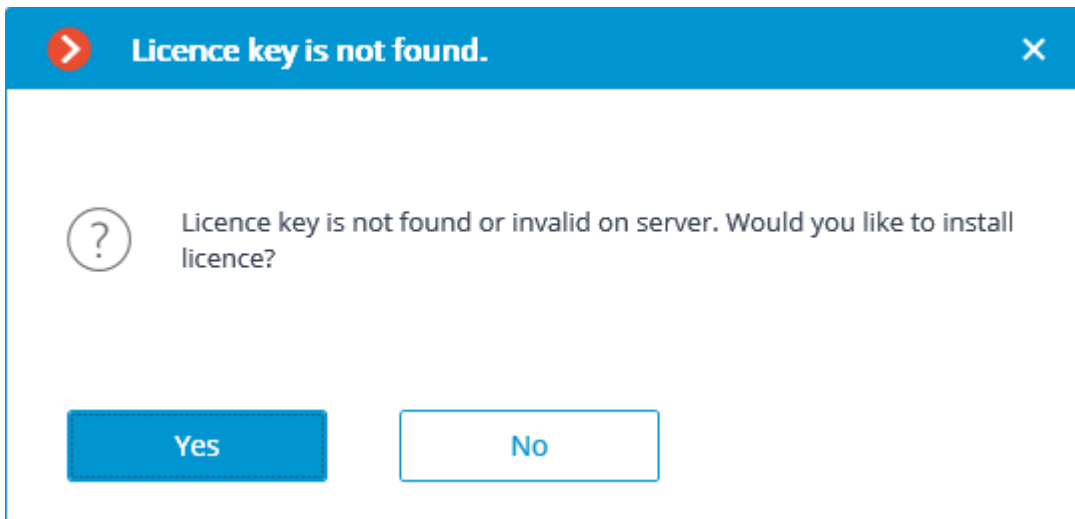
Warning

In order to install and activate a USB key, the **Eocortex Configurator** has to be launched on the server where the **Eocortex Server** (or **Eocortex Standalone**) application is installed.

Warning

For online activation of the key installed on the server, it is required that this server has access to the Internet.

To install, activate, or update a license, you must run the **Eocortex Configurator**. In the opened authorization window, select the server, specify the account type, enter the user name and password with configuration rights, then click **Connect**.

If no license is installed and activated on the server, you will be prompted to install the license. If accepted, the **License Installation** wizard will be launched.

Licence key is not found.　✕

(?)　Licence key is not found or invalid on server. Would you like to install licence?

[Yes]　[No]

In order to install a USB key, it's required to choose the corresponding option on the **Select the installation type** page and press **Next**.

Licence install　✕

Select the installation type

○　Soft-key

Licensing by means of software key, tied to a specific computer.
Attention! After activation of key, it can not be transferred to another computer!

●　USB-key

Licensing by means of USB-key, inserted in the USB-connector of the computer.

☐ Offline activation

[Back]　[Next]

The **Select key** page will appear, showing the list of USB keys connected to the server and available network keys (network keys are available for some of the licenses only). To continue the installation process, the user has to choose the required key and press **Next**.

Select key

Select the USB key for which the license is to be installed ⓘ

Type of key	Key ID	Status
Local	1655365880	Activated
Local	375838637	Not activated
Network	1124043304	Not activated
Network	1948447417	Not activated

Update

Back   Next

The following step, i.e. key activation, depends on the availability of the internet connection. If the connection is not available, please see the USB key offline activation. 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. If the key is being activated for the first time, the **USB key activation code** will be requested.
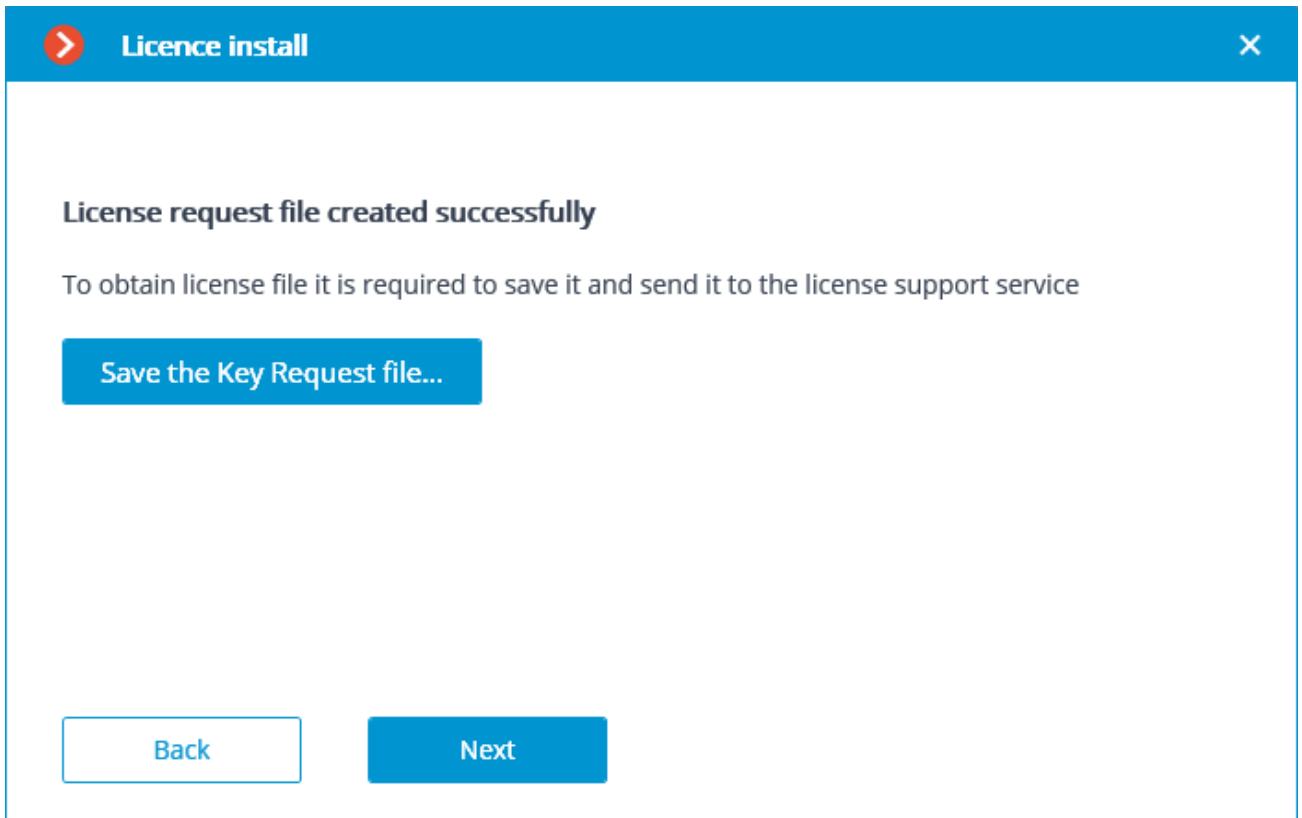
Licence install

USB key activation code

Enter the activation code and click "Next".

Activation code   84830e38-b20e-4241-bb21-1171a053e8b1

The activation code is provided when the software license is purchased.

Back   Next
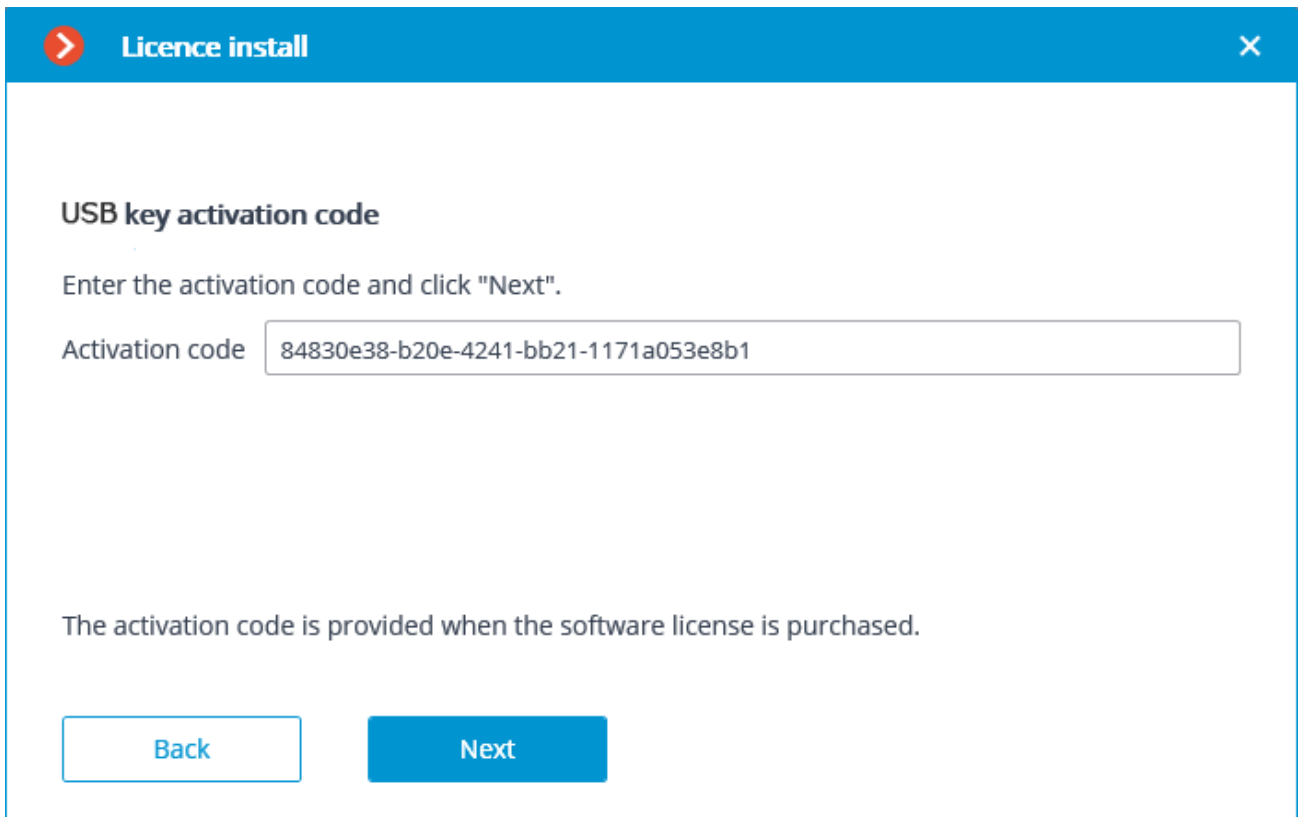
The online key activation page will be shown during the activation process.

Licence install

Online activation of key

Connecting to activation server...

Back   Next
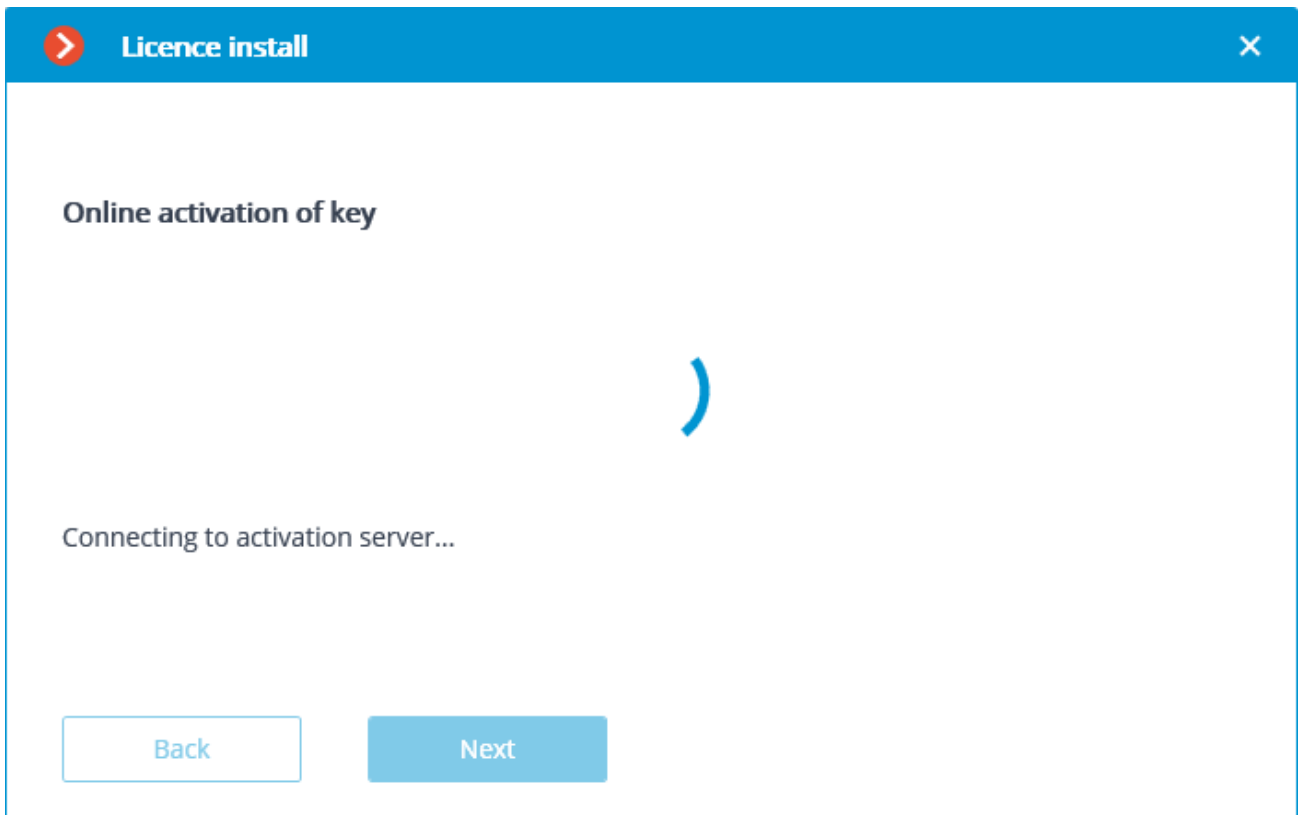
In case of successful activation, the **License has been successfully installed** window will appear. In order to exit the license installation wizard, press **Finish**.
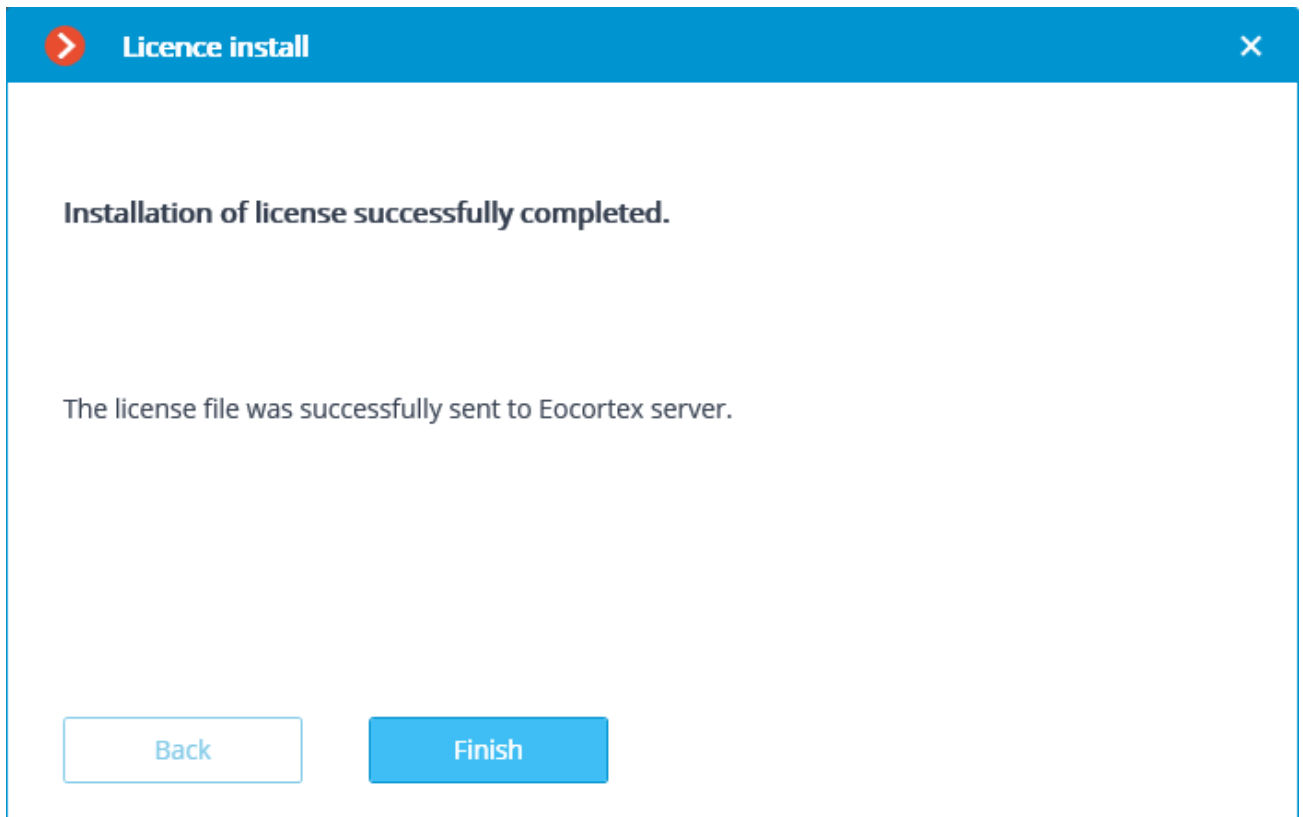
If an error occurs during activation, the user will see the **Failed to install the license** page. It will be required to finish the license installation process (press **Finish**), resolve the problem and start the license installation process from the beginning.
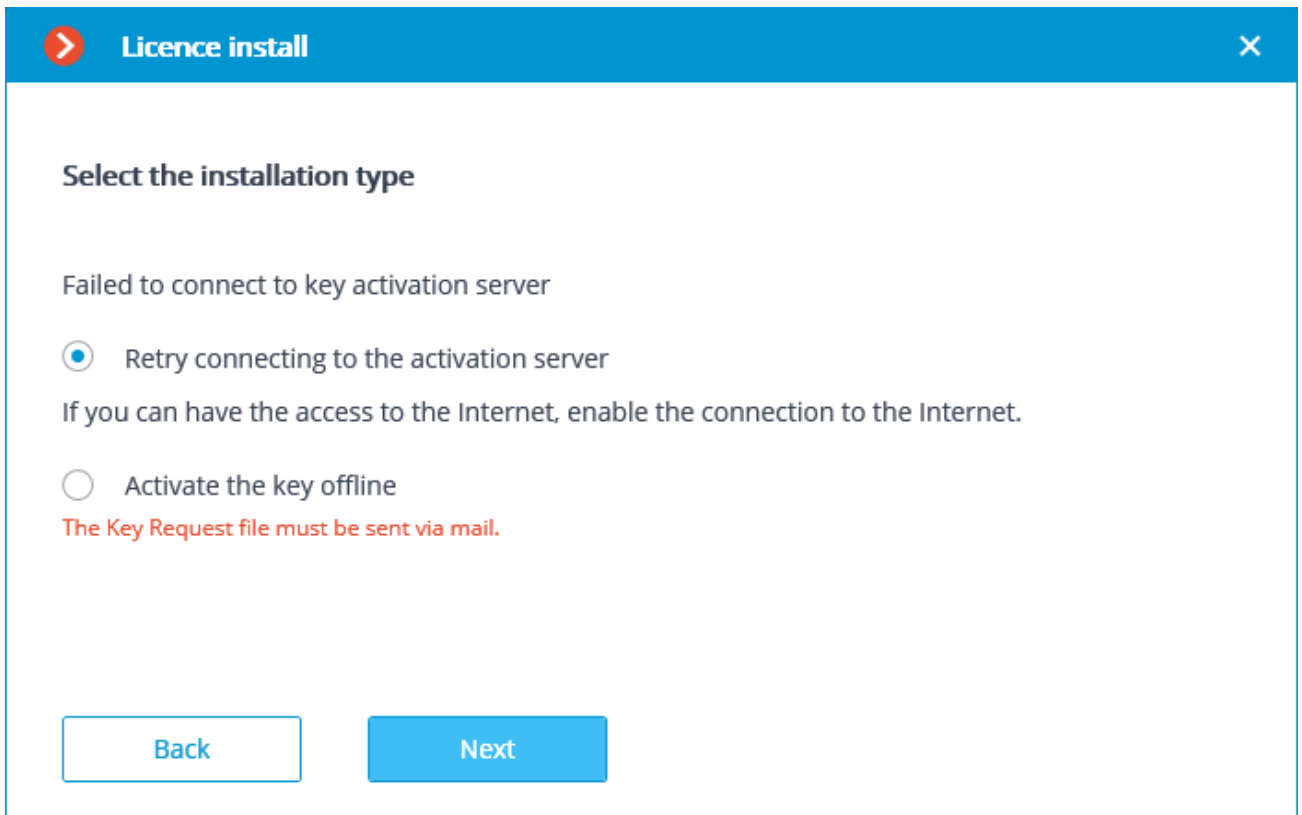
Note

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 route elements;

- the selected key has no assigned licenses. In such a situation, the user must contact the license supplier (seller).

USB key offline activation

Warning

In order to install and activate a key, the user has to obtain an activation code, which looks like **XXXXXXXX-XXXX-XXXX-XXXX-XXXXXXXXXXXX**, where **X** can be hex digit (i.e., 0123456789abcdef). Here's an example of the activation code: **a46a6d3e-17f6-416c-9da2-10cb4b80574e**.

Warning

In order to install and activate a USB key, the **Eocortex Configurator** has to be launched on the server where the **Eocortex Server** (or **Eocortex Standalone**) application is installed.

To install, activate, or update a license, you must run the **Eocortex Configurator**. In the opened authorization window, select the server, specify the account type, enter the user name and password with configuration rights, then click **Connect**.

If no license is installed and activated on the server, you will be prompted to install the license. If accepted, the **License Installation** wizard will be launched.

In order to install a USB key, it's required to choose the corresponding option on the **Select the installation type** page, tick the **Offline activation** checkbox and press **Next**.
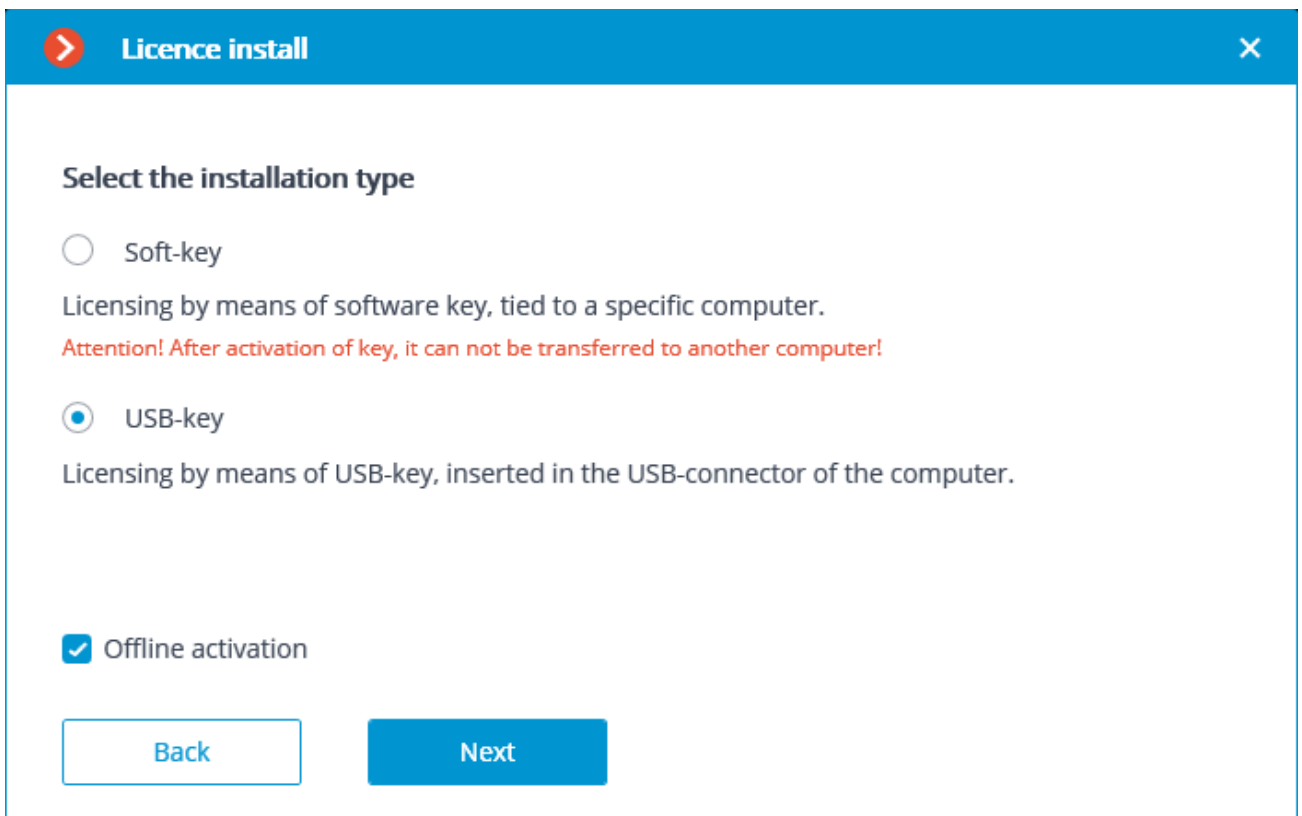
The **Select key** page will appear, showing the list of USB keys connected to the server and available network keys (network keys are available for some of the licenses only). To continue the installation process, the user has to choose the required key and press **Next**.

Licence install

Select key

Select the USB key for which the license is to be installed ⓘ

Type of key	Key ID	Status
Local	1655365880	Activated
Local	375838637	Not activated
Network	1124043304	Not activated
Network	1948447417	Not activated

Update

Back   Next

If the key is activated for the first time, the **USB key activation code** will be requested.

Licence install

USB key activation code

Enter the activation code and click "Next".

Activation code   84830e38-b20e-4241-bb21-1171a053e8b1

The activation code is provided when the software license is purchased.

Back   Next

License request file created successfully window will be opened, where you should **Save the Key Request file...** and press **Next**.

Note

You may close the wizard after this step. At the next launch you will be prompted to continue the installation from the step at which it was interrupted.
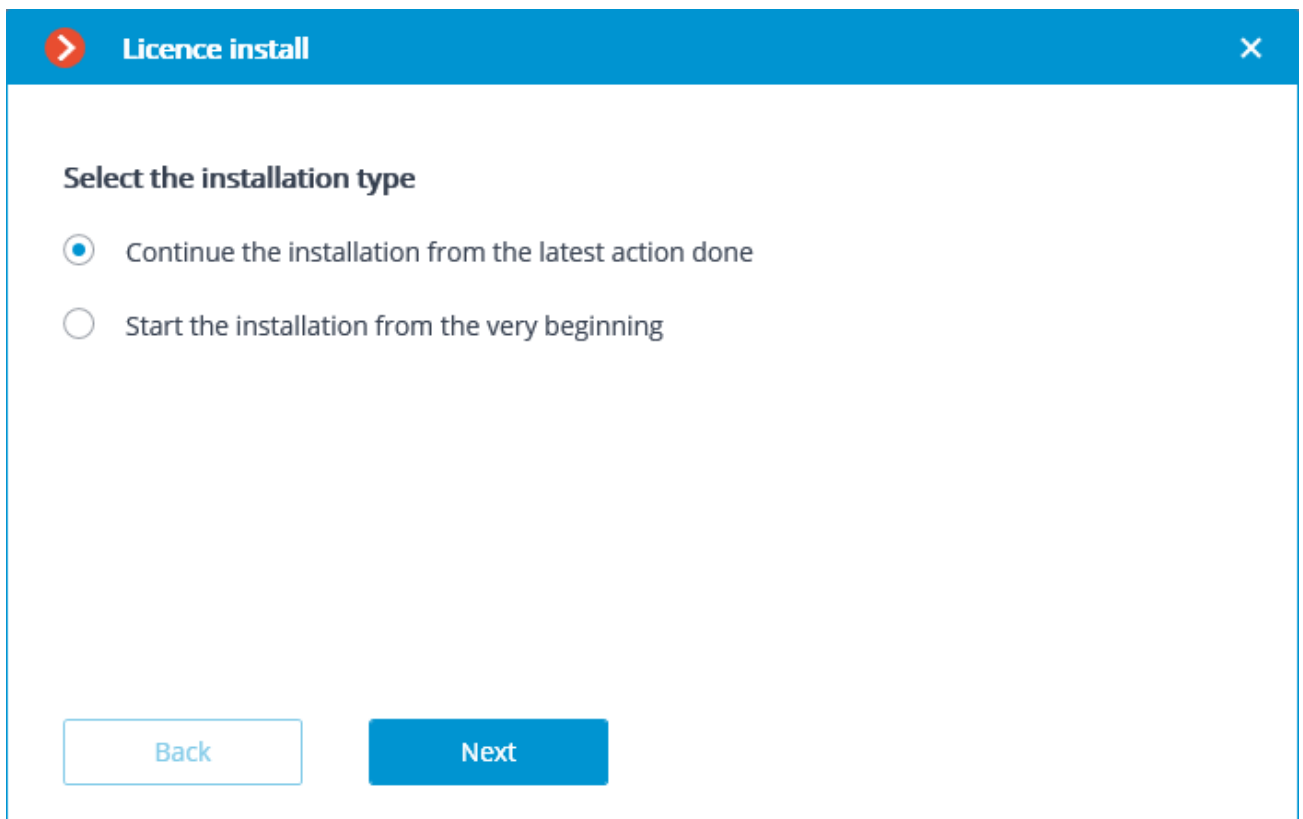
The created license request file (with ***.McKeyRequest** extension) has to be attached to an e-mail and sent to lic@eocortex.com. An e-mail with a ***.McKey** license file will be sent in response (keeping in mind that all answers are sent by the activation server in automatic mode, waiting after sending the license request file will take minimum time).

After receiving the license file, you must continue installation from the step at which the license file is installed (with the extension ***.McKey**). Select the license file the **Browse...** button, then press **Next**.

Note

If the key has already been activated before, the license installation wizard will proceed to this step immediately after the key selection.

Licence install

Receiveng license file from the licensing service

1   Send the Key Request to the mail **lic@eocortex.com**

    Detailed information...

2   Open the license file (McKey) received from the licensing service

    D:\Temp\84830e38-b20e-4241-bb21-1171a053e8b1.McKey   **Browse**

The license file is sent by the licensing service in response to a request file.
After installing the license file, the software license is activated.

Back   Next

In case of successful activation the **Installation of license successfully completed** page will appear. Press **Finish** to exit the licensing wizard.

Licence install

Installation of license successfully completed.

The license file was successfully sent to Eocortex server.

Back   Finish

In case an error occurs during activation, the user will see the **Failed to install the license** page. It will be required to finish the license installation process (press **Finish**), resolve the problem and start the license installation process from the beginning.
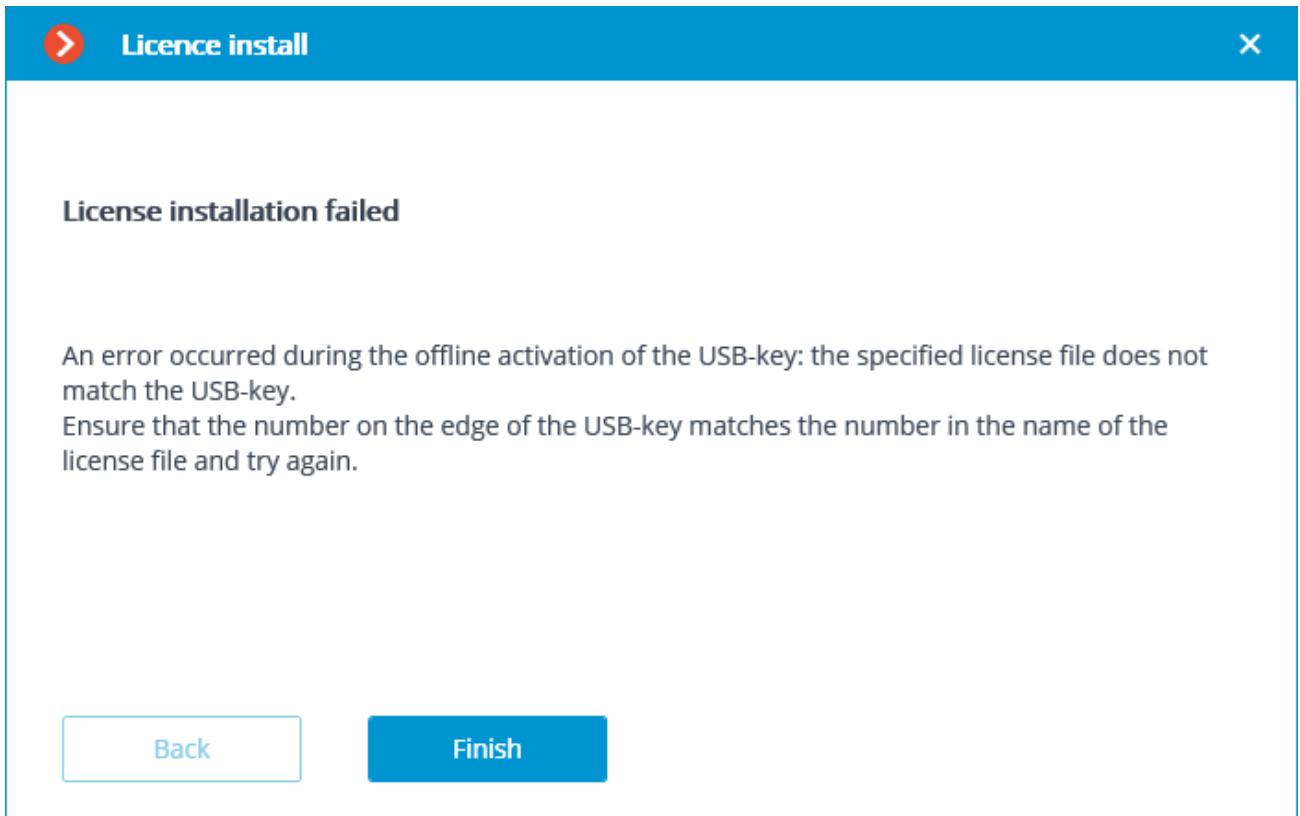
Note

The most probable cause of the offline activation error is the inconsistency between the license file and the USB key.

Software key online activation

Warning

The HASP software key that is installed on a physical machine binds to the hard drive serial number, motherboard ID, and other hardware components, including processors and network cards. If the hard drive or motherboard fails, the license tied to this key will only be active if most of the other system components remain unchanged.

Warning

The HASP software key that is installed on a virtual machine binds to the virtual MAC address, CPU properties, and UUID of the virtual machine. If any of

specified components mismatches, the license bound to this key will become inactive.

Warning

In order to install and activate a key, the user has to obtain an activation code, which looks like **XXXXXXXX-XXXX-XXXX-XXXX-XXXXXXXXXXXX**, where **X** can be hex digit (i.e., 0123456789abcdef). Here's an example of the activation code: **a46a6d3e-17f6-416c-9da2-10cb4b80574e**.

Warning

It is prohibited to install more than one **Eocortex** software key on the server.

Warning

In order to install and activate a software key, the **Eocortex Configurator** has to be launched on the server, where the **Eocortex Server** (or **Eocortex Standalone**) application is installed.

Warning

For online activation of the key installed on the server, it is necessary that this server has access to the Internet. If such connection is not available, please see the Software key offline activation.

To install, activate, or update a license, you must run the **Eocortex Configurator**. In the opened authorization window, select the server, specify the account type, enter the user name and password with configuration rights, then click **Connect**.

Software key offline activation

Warning

The HASP software key that is installed on a physical machine binds to the hard drive serial number, motherboard ID, and other hardware components, including processors and network cards. If the hard drive or motherboard fails, the license tied to this key will only be active if most of the other system components remain unchanged.

Warning

The HASP software key that is installed on a virtual machine binds to the virtual MAC address, CPU properties, and UUID of the virtual machine. If any of specified components mismatches, the license bound to this key will become inactive.

Warning

In order to install and activate a key, the user has to obtain an activation code, which looks like **XXXXXXXX-XXXX-XXXX-XXXX-XXXXXXXXXXXX**,

where **X** can be hex digit (i.e., 0123456789abcdef). Here's an example of the activation code: **a46a6d3e-17f6-416c-9da2-10cb4b80574e**.

Warning

It is prohibited to install more than one **Eocortex** software key on the server.

Warning

In order to install and activate a software key, the **Eocortex Configurator** has to be launched on the server, where the **Eocortex Server** (or **Eocortex Standalone**) application is installed.

To install, activate, or update a license, you must run the **Eocortex Configurator**. In the opened authorization window, select the server, specify the account type, enter the user name and password with configuration rights, then click **Connect**.

If no license is installed and activated on the server, you will be prompted to install the license. If accepted, the **License Installation** wizard will be launched.

In order to software key offline activation, it's required to choose the corresponding variant on the **Select the installation type** page, turn on the **Offline activation** checkbox and press **Next**.

The **Select key** page will appear, showing the list of available software and network keys (network keys are available for some of the licenses only). To

continue the installation process, the user has to choose the required key and press **Next**.

Warning

After pressing **Next**, the software key is being linked to the computer, thus it's going to be impossible to transfer it to any other machine. If the activation process was launched mistakenly, the user has to press **Back** and close the **License installation** window.

Next, the key activation code will be requested.

License request file created succesfully window will be opened, where you should **Save the Key Request file...** and press **Next**.

Note

After this step, you can close the wizard. In the course of next running you shall be prompted to continue the installation from the step at which it was interrupted.
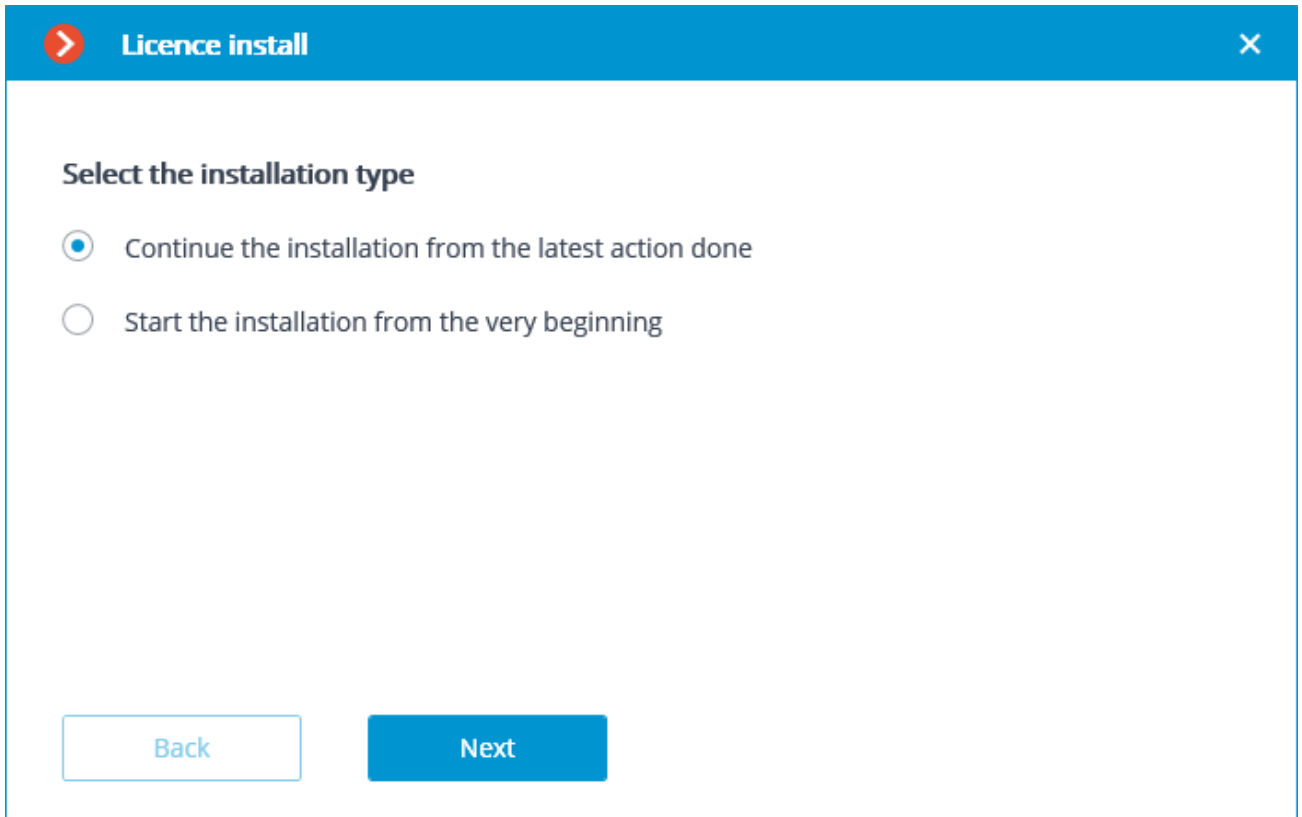
The created license request file (with ***.McKeyRequest** extension) has to be attached to an e-mail and sent to lic@eocortex.com. An e-mail with a ***.McKey** license file will be sent in response (keeping in mind that all answers are sent by the activation server in automatic mode, waiting after sending the license request file will take minimum time).

After receiving the license file, you should continue installation from the step, at which the license file is installed (with the extension ***.McKey**). License file is selected using **Browse...** button, and then you should press **Next**.

Licence install ✕

Receiveng license file from the licensing service

1   Send the Key Request to the mail **lic@eocortex.com**

    Detailed information...

2   Open the license file (McKey) received from the licensing service

    D:\Temp\84830e38-b20e-4241-bb21-1171a053e8b1.McKey   Browse

The license file is sent by the licensing service in response to a request file.
After installing the license file, the software license is activated.

Back   Next

In case of successful activation, a new installation of **License successfully completed** window will appear. In order to exit the licensing wizard, the user has to press **Finish**.

Licence install ✕

Installation of license successfully completed.

The license file was successfully sent to Eocortex server.

Back   Finish
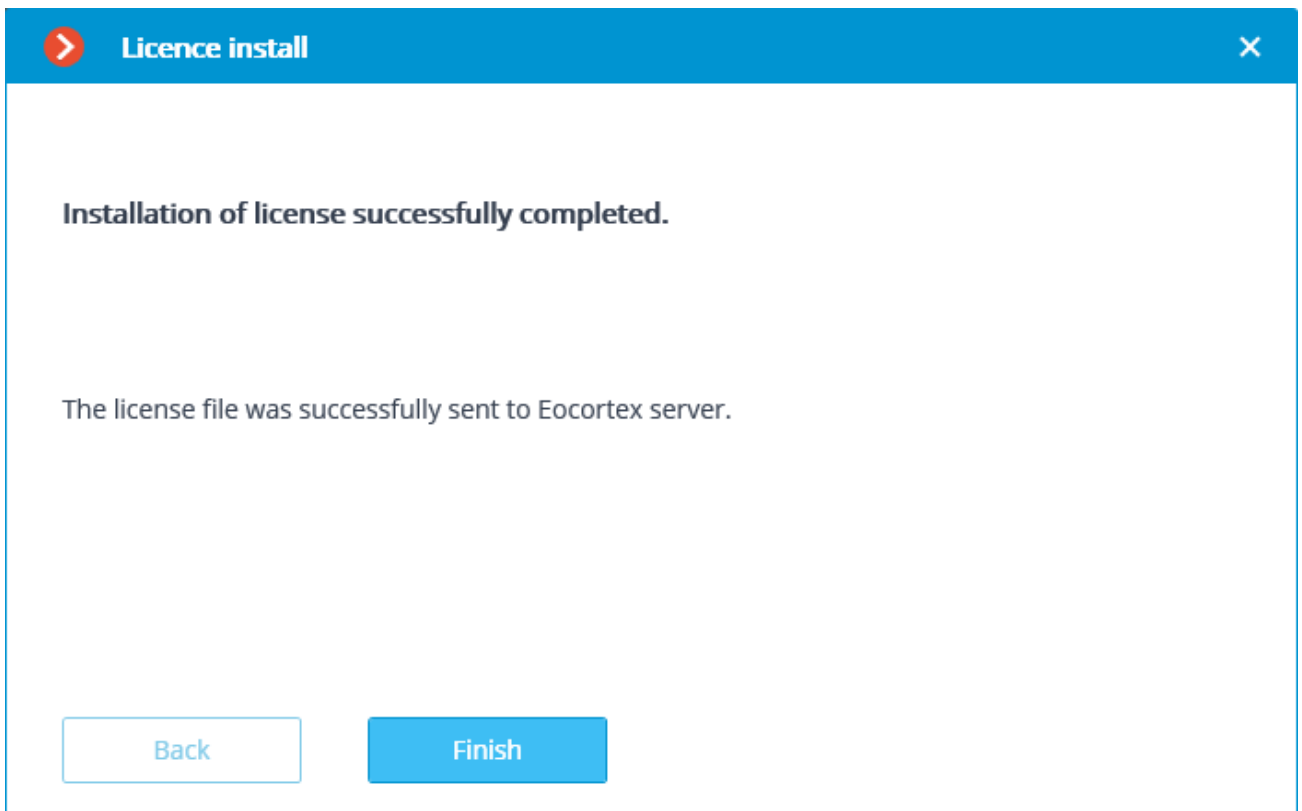
In case if an error occurs during activation, the user will see the **Failed to install the license** page. It's required to finish the license installation process (press Finish), resolve the problem and start the license installation process from the very beginning.

Note

The most probable cause of the offline activation error is the inconsistency between the license file and the computer, which was used to create the request file (i.e. activation on different computer).

If no license is installed and activated on the server, you will be prompted to install the license. If accepted, the **License Installation** wizard will be launched.
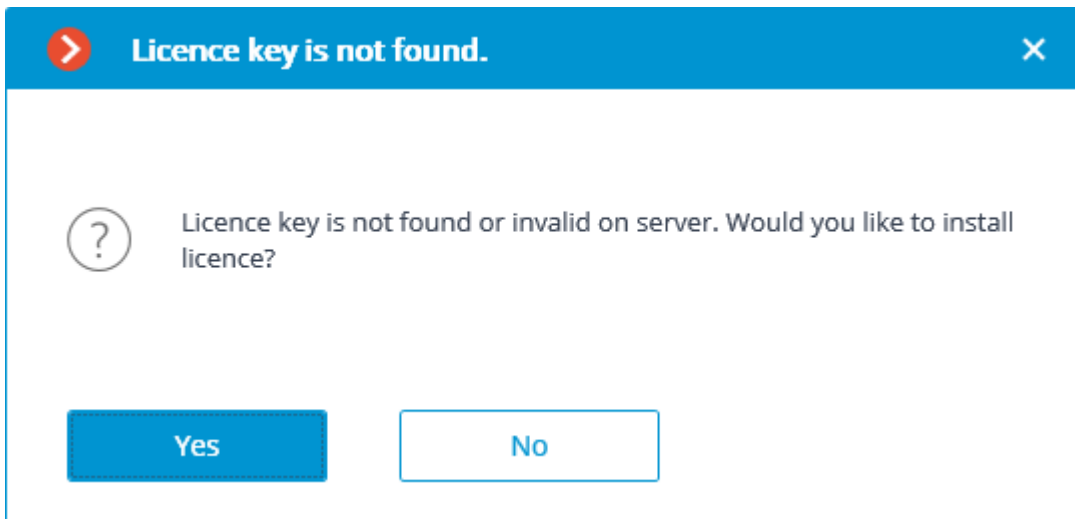
In order to install the license software key, the user has to select the corresponding menu item on the **Select the installation type** page and press **Next**.

The **Select key** page will appear, showing the list of available software and network keys (network keys are available for some of the licenses only). To continue the installation process, the user has to choose the required key and press **Next**.

Warning

After pressing **Next**, the software key is being linked to the computer, thus it's going to be impossible to transfer it to any other machine. If the activation process was launched mistakenly, the user has to press **Back** and close the **License installation** window.

Next, the key activation code will be requested.

Licence install ✕

Software key activation code

Enter the activation code and click "Next".

Activation code 84830e38-b20e-4241-bb21-1171a053e8b1

The activation code is provided when the software license is purchased.

Back   Next

The next step is key activation. In case of an existing internet connection, after entering the code and pressing **Next**, the **Eocortex** server will connect to a remote license activation server and will try to perform automatic key activation in accordance with the licenses assigned to such key. The online activation of key page will be shown during the activation process.
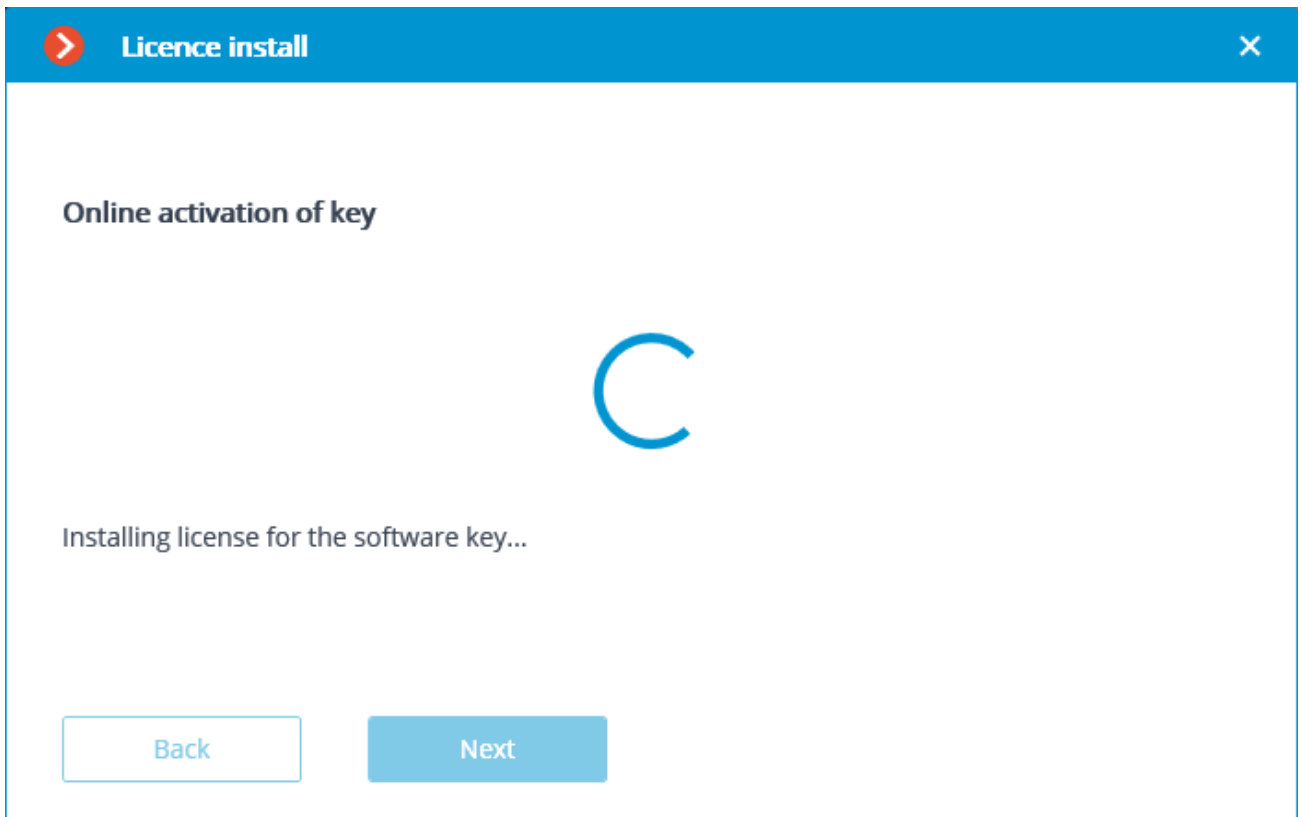
In case of successful activation, the **Installation of license successfully completed** window will appear. In order to exit the licensing wizard, the user has to press **Finish**.
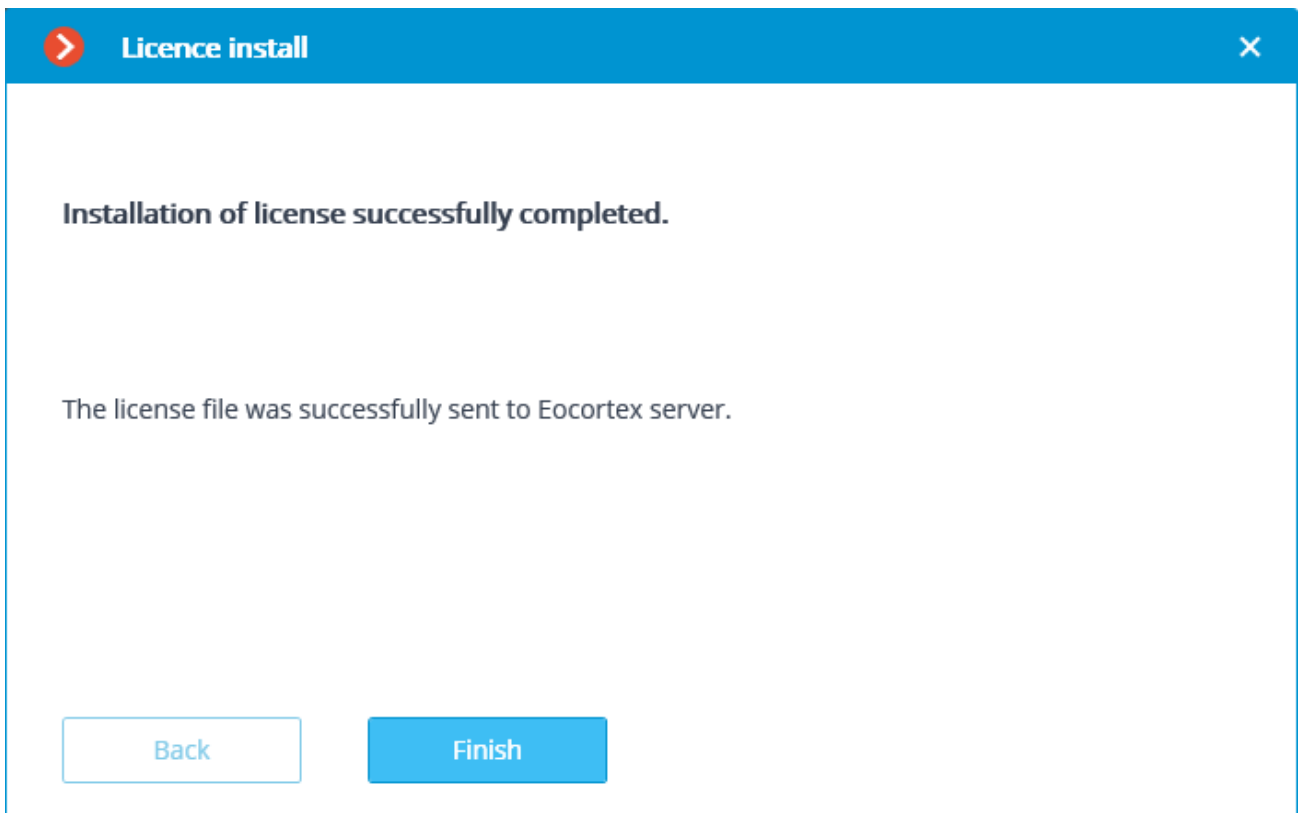
In case if an error occurs during activation, the user will see the **Failed to install license** page. It's required to finish the license installation process (click **Finish**), resolve the problem and start the license installation process from the very beginning.
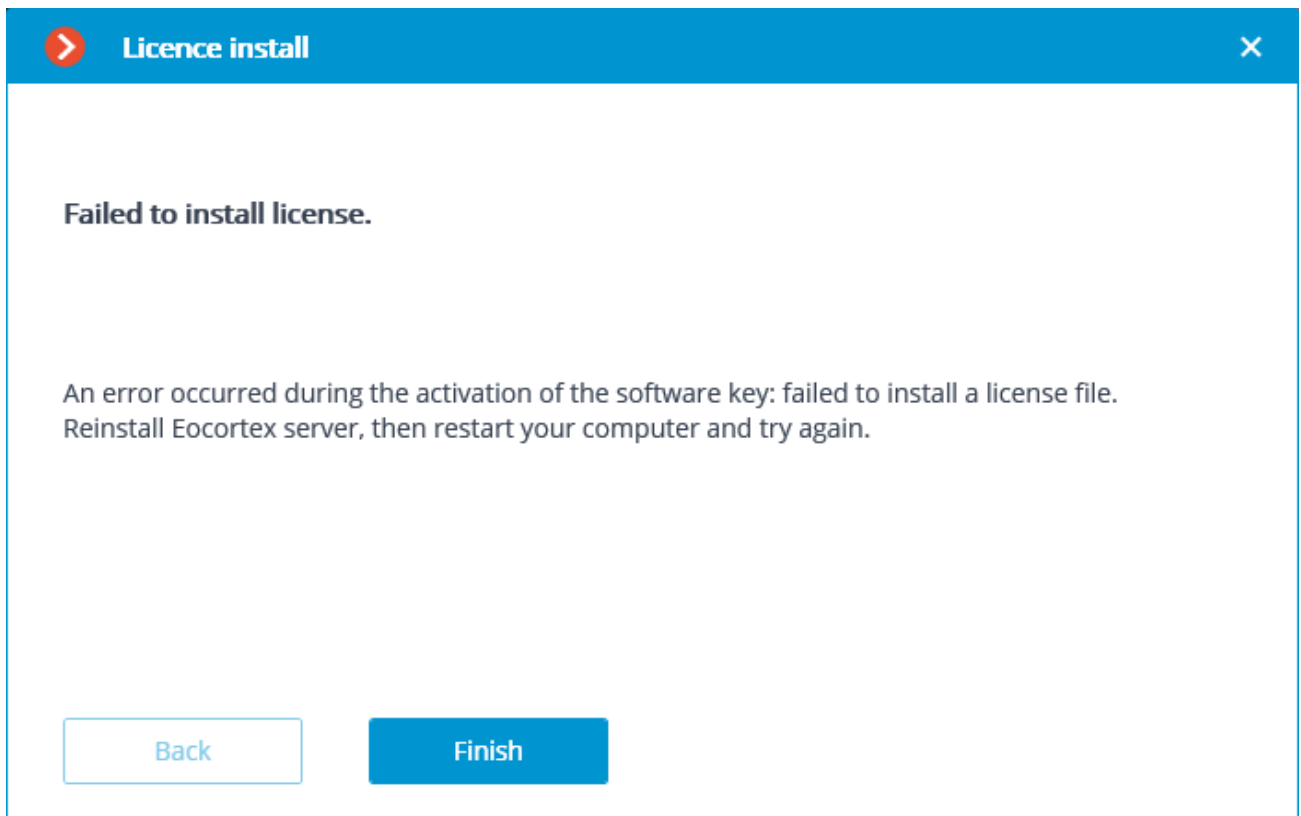
Note

Possible online activation errors:

- connection with the license activation server was interrupted during the activation process; e.g. due to a connection problem, low speed of connection or due to a problem with one of route elements

- the selected key has no assigned licenses. In such situation the user has to contact the license supplier (seller)

License update

If it is required to update the current license, or install and activate the license for a different key, need in Eocortex Configurator application go to the ⊞ Servers tab, select a server in the list on the left side of the page, and on the page of server settings, on the **Licensing** tab, press **Update license** button.

License install master window will open, in which, depending on the license used on the server, you shall be offered to update the software or USB key automatically. All actions are similar to those ones, which are used when installing the license.

Licence install ✕

Select the installation type

Activated USB-key is detected on this computer.

◉ Automatic mode (recommended)

Installed USB key update 2B217205. Needs access to the Internet.

◯ Manual mode

[Back] [Next]

Licence install ✕

Select the installation type

Activated software key is detected on this computer.

◉ Automatic mode (recommended)

Installed Soft key update 163469458603841300. Needs access to the Internet.

◯ Manual mode

[Back] [Next]