Eocortex

Version 4.2

Admin guide

Part 1

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Introduction

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

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

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

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**
- **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**

Automatic reports

The **Automatic reports** feature setting is available for certain 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 will also display 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 own report. Thus, if one automatic report is configured for cameras attached to several servers, then several reports will be generated at the same time.

More details about setting up automatic reports.

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 10

Capabilities	Eocortex Neural Networks Standard	Eocortex Neural Networks Special
	Windows Server 2016 Ubuntu 20.04, 22.04 Debian 10, 11 CentOS 7	Windows Server 2016 Ubuntu 20.04, 22.04 Debian 10, 11 CentOS 7
Silent installation on Windows systems	Yes	No
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; Use GRID drivers for GPU virtualization.	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.

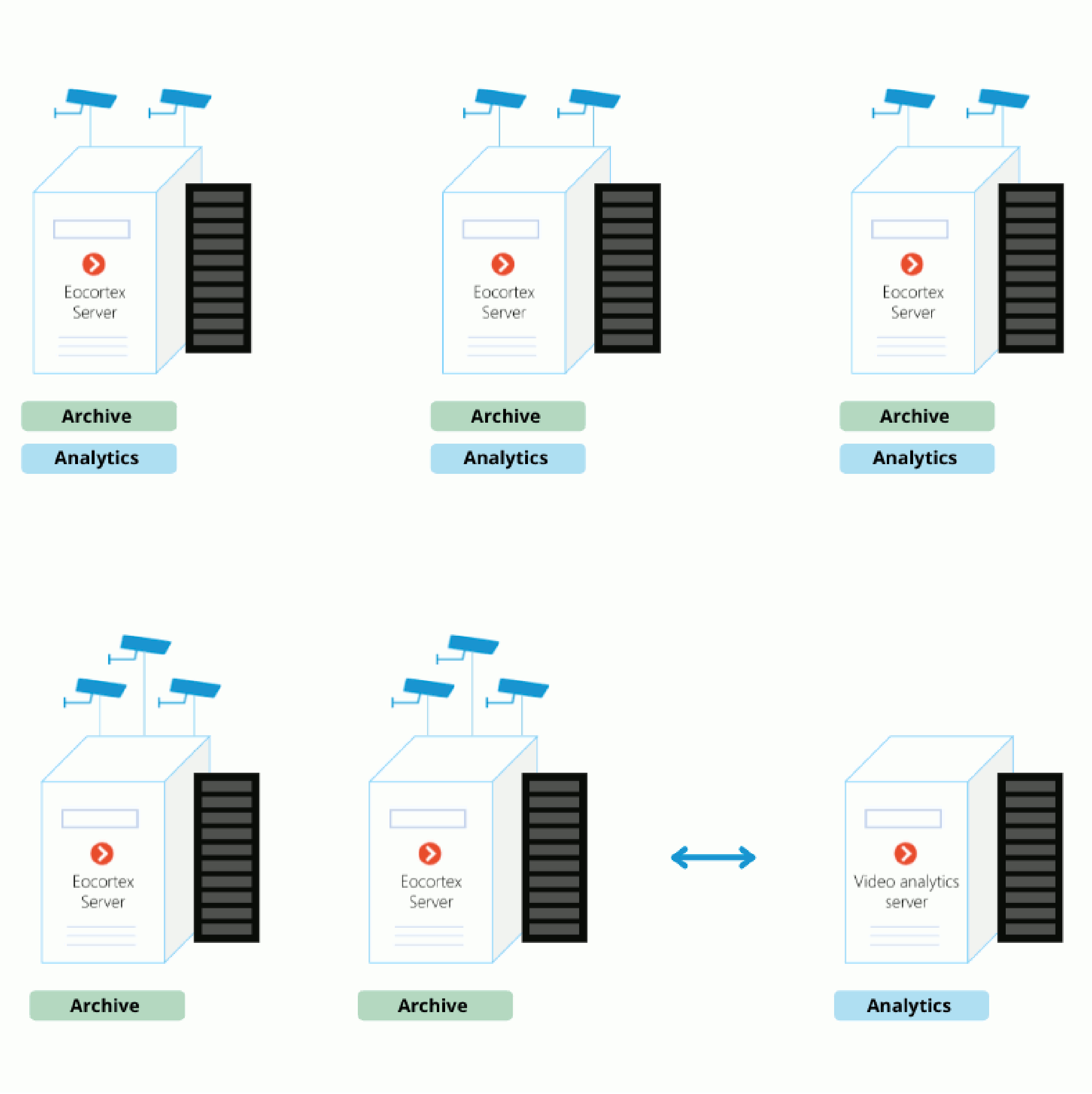
Capabilities	Eocortex Neural Networks Standard	Eocortex Neural Networks Special
Advantages	X	Frames are processed faster
	X	The load on the graphics card has been significantly decreased, which allows processing many more cameras simultaneously
Consumption of resources of the central processing unit (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) and **Unique Visitor Counting**	Yes	Yes
Face Recognition (Light)	Yes	Yes

Capabilities	Eocortex Neural Networks Standard	Eocortex Neural Networks Special
Fire and Smoke Detection	Yes	Yes
Object Classification and Counting	Yes	Yes
Search for Objects	Yes	Yes
Tracking	Yes	Yes
Uniform Detection	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.

Pictures


Eocortex Server
Archive
Analytics
Eocortex Server
Archive
Analytics
Eocortex Server
Archive
Analytics
Eocortex Server
Archive
Eocortex Server
Archive
Video analytics server
Analytics

Details

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

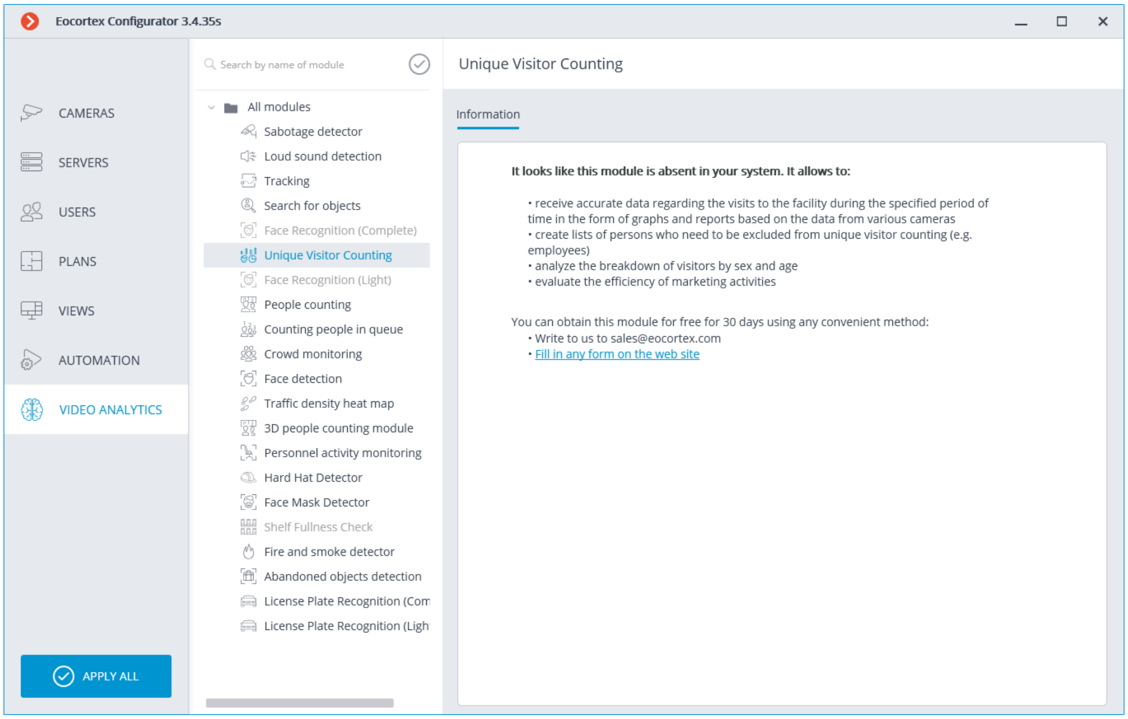
If the connection with the video analytics server is lost, the video from the camera will not be analyzed. The software motion detection will not work either.

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 **launch the Eocortex Configurator application** 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).


Eocortex Configurator 3.4.35s
CAMERAS
SERVERS
USERS
PLANS
VIEWS
AUTOMATION
VIDEO ANALYTICS
APPLY ALL
Search by name of module
All modules
Sabotage detector
Loud sound detection
Tracking
Search for objects
Face Recognition (Complete)
Unique Visitor Counting
Face Recognition (Light)
People counting
Counting people in queue
Crowd monitoring
Face detection
Traffic density heat map
3D people counting module
Personnel activity monitoring
Hard Hat Detector
Face Mask Detector
Shelf Fullness Check
Fire and smoke detector
Abandoned objects detection
License Plate Recognition (Com
License Plate Recognition (Ligh
Unique Visitor Counting
Information

It looks like this module is absent in your system. It allows to:

- receive accurate data regarding the visits to the facility during the specified period of time in the form of graphs and reports based on the data from various cameras
- create lists of persons who need to be excluded from unique visitor counting (e.g. employees)
- analyze the breakdown of visitors by sex and age
- evaluate the efficiency of marketing activities

You can obtain this module for free for 30 days using any convenient method:

- Write to us to sales@eocortex.com
- Fill in any form on the web site

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

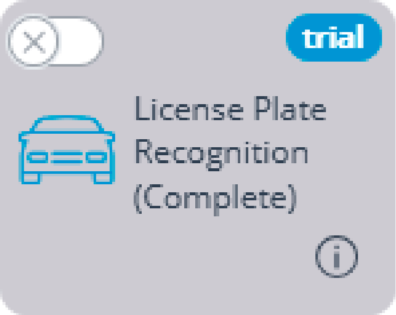
These temporary licenses will not work on virtual machines.

Requesting and installing a temporary license

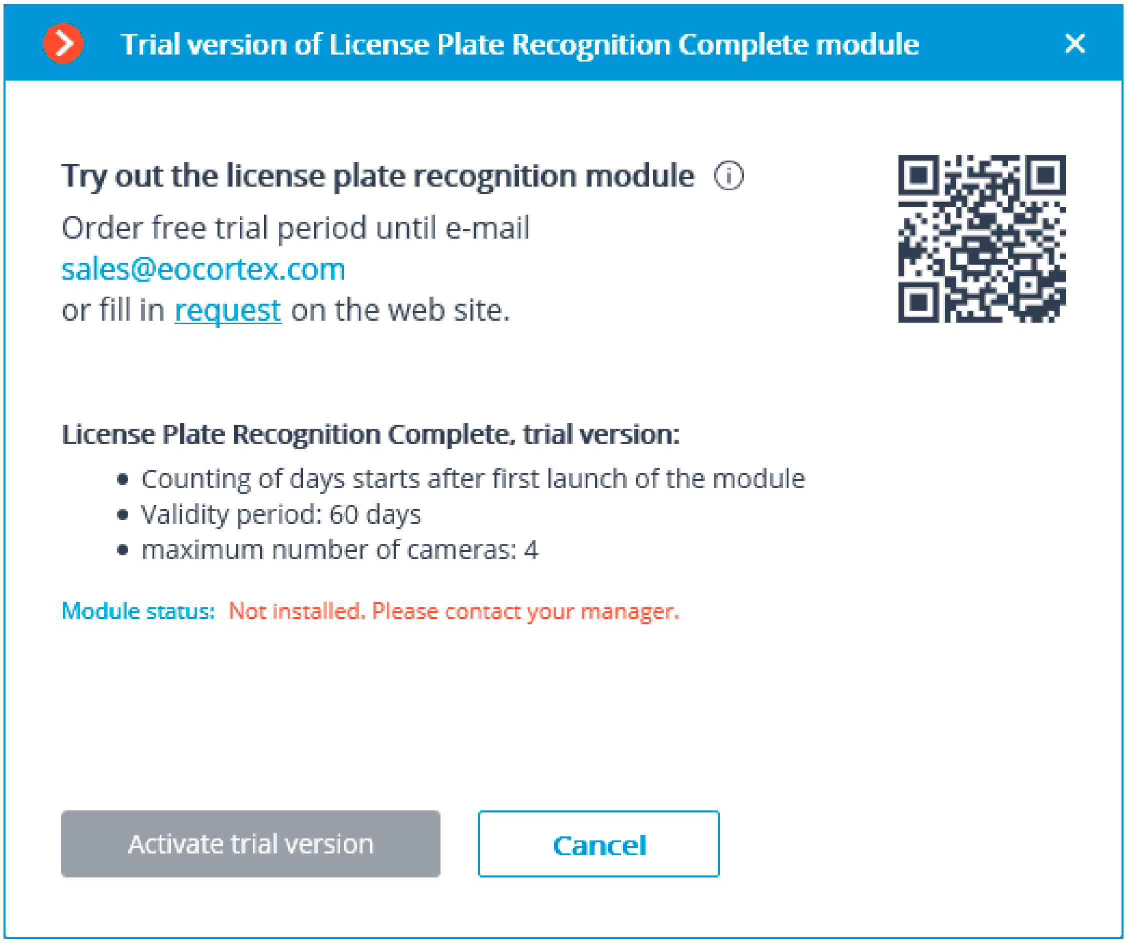
Warning

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.



Trial version of License Plate Recognition Complete module

Try out the license plate recognition module

Order free trial period until e-mail
sales@eocortex.com
or fill in request on the web site.

License Plate Recognition Complete, trial version:

- Counting of days starts after first launch of the module
- Validity period: 60 days
- maximum number of cameras: 4

Module status: Not installed. Please contact your manager.

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:

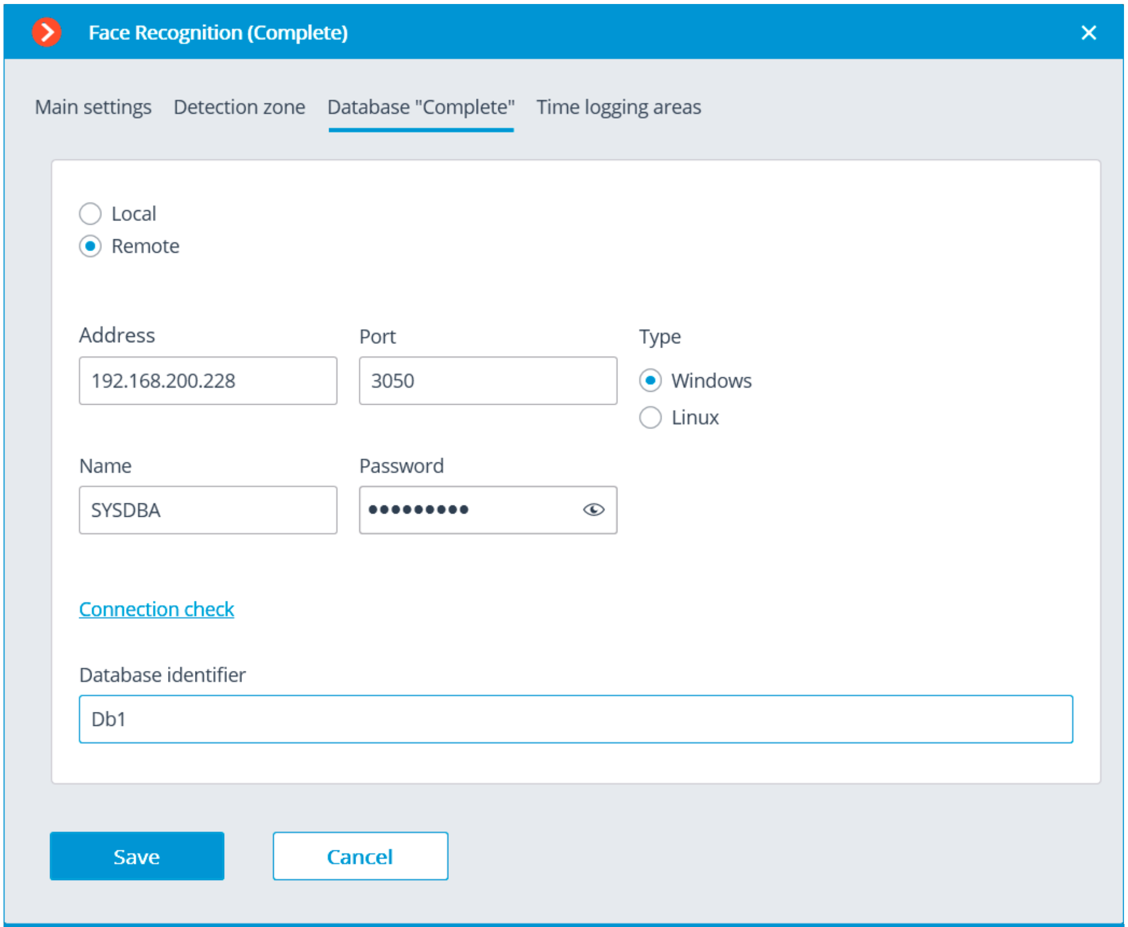
1. Enable the module on the camera in the **Eocortex Configurator** application.
2. Send a request with the same value of the **DbId** parameter to nodify the settings of the corresponding recognition module via REST API for all cameras on which it is required to use the same unique database.
3. In the **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

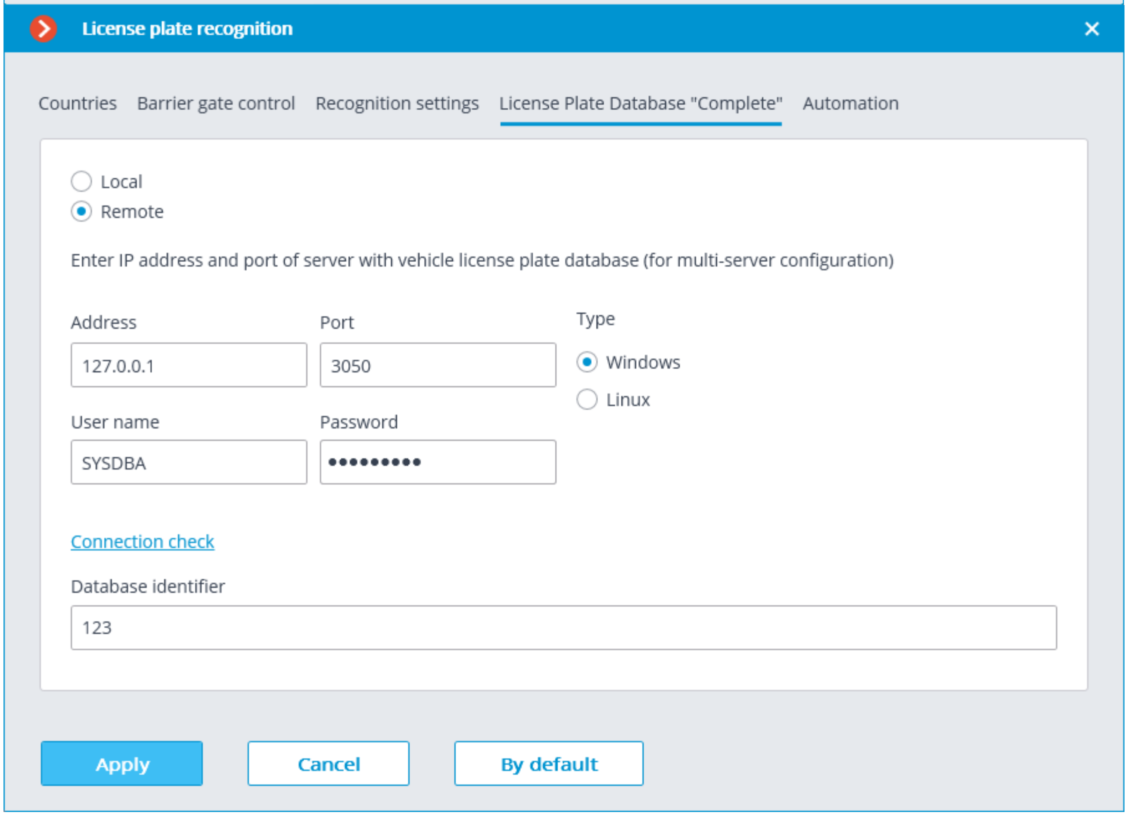
The Database identifier field has been added to the settings of each module to enable the user to set a unique database.


Face Recognition (Complete)
Main settings
Detection zone
Database "Complete"
Time logging areas
Connection check
Save
Cancel

○ Local
● Remote

Address: 192.168.200.228
Port: 3050
Type: ● Windows ○ Linux
Name: SYSDBA
Password: ●●●●●●●●●●

Database identifier: Db1


License plate recognition
Countries
Barrier gate control
Recognition settings
License Plate Database "Complete"
Automation
Connection check
Apply
Cancel
By default

○ Local
● Remote

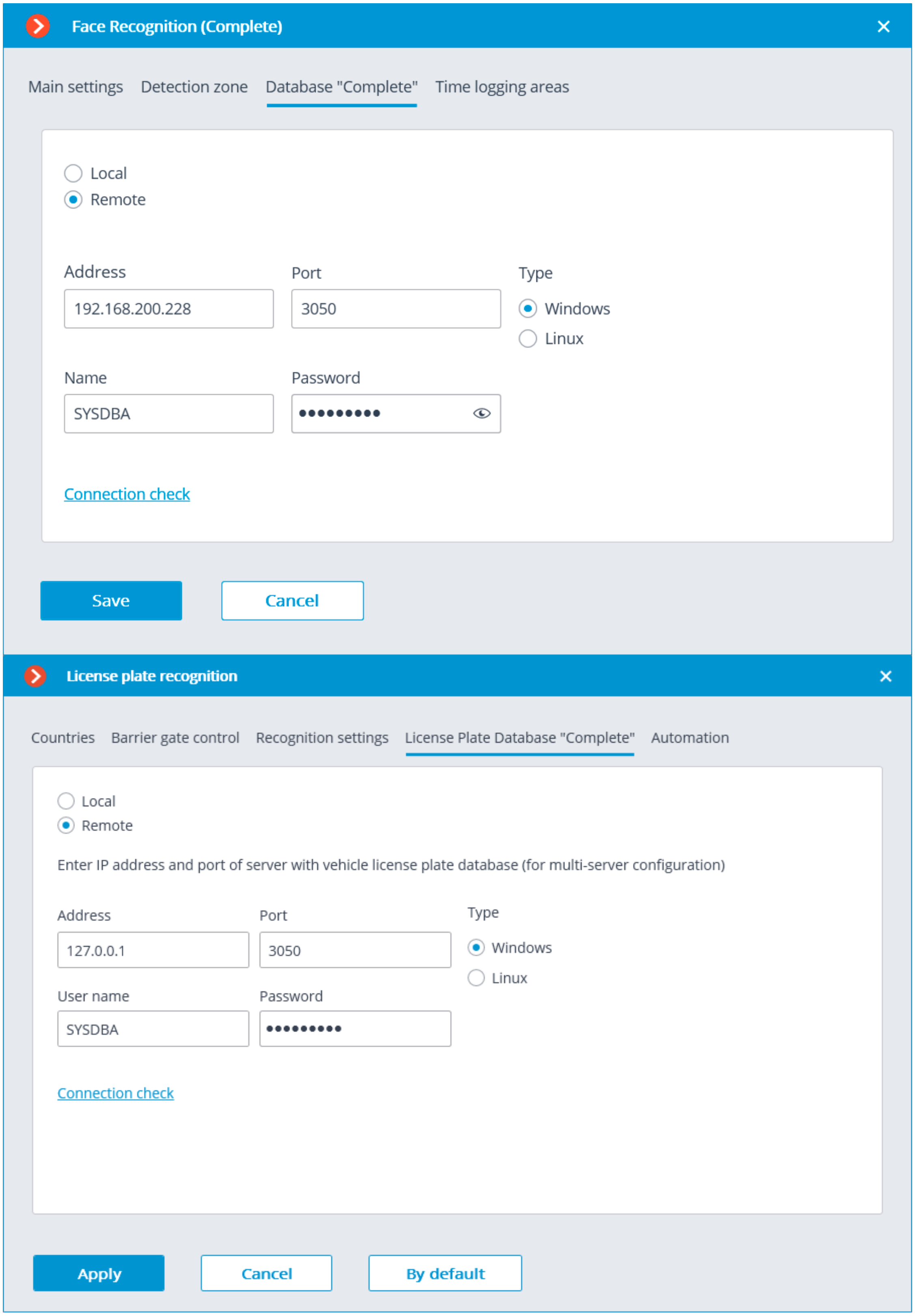
Enter IP address and port of server with vehicle license plate database (for multi-server configuration)

Address: 127.0.0.1
Port: 3050
Type: ● Windows ○ Linux
User name: SYSDBA
Password: ●●●●●●●●●●

Database identifier: 123

Warning

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


Face Recognition (Complete)
Main settings
Detection zone
Database "Complete"
Time logging areas
Connection check
Save
Cancel
License plate recognition
Countries
Barrier gate control
Recognition settings
License Plate Database "Complete"
Automation
Connection check
Apply
Cancel
By default

○ Local
● Remote

Address: 192.168.200.228
Port: 3050
Type: ● Windows ○ Linux
Name: SYSDBA
Password: ●●●●●●●●●●

○ Local
● Remote

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

Address: 127.0.0.1
Port: 3050
Type: ● Windows ○ Linux
User name: SYSDBA
Password: ●●●●●●●●●●

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.

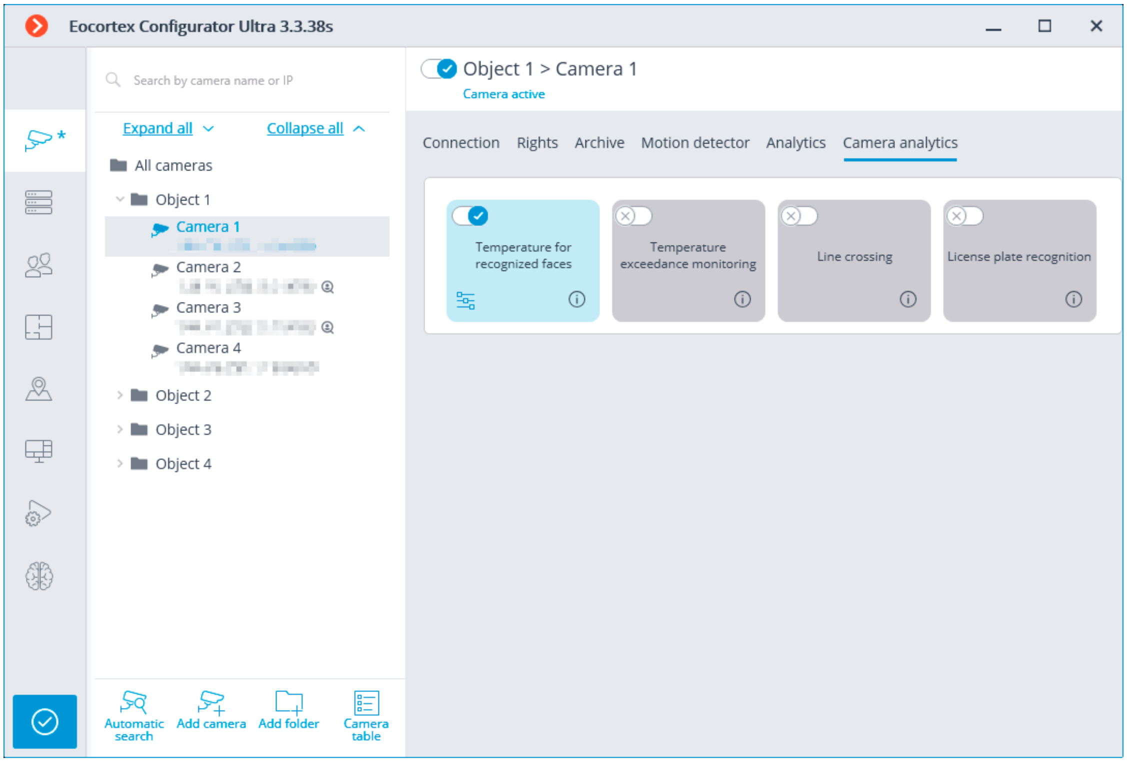
Integration of thermal cameras and face recognition

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.

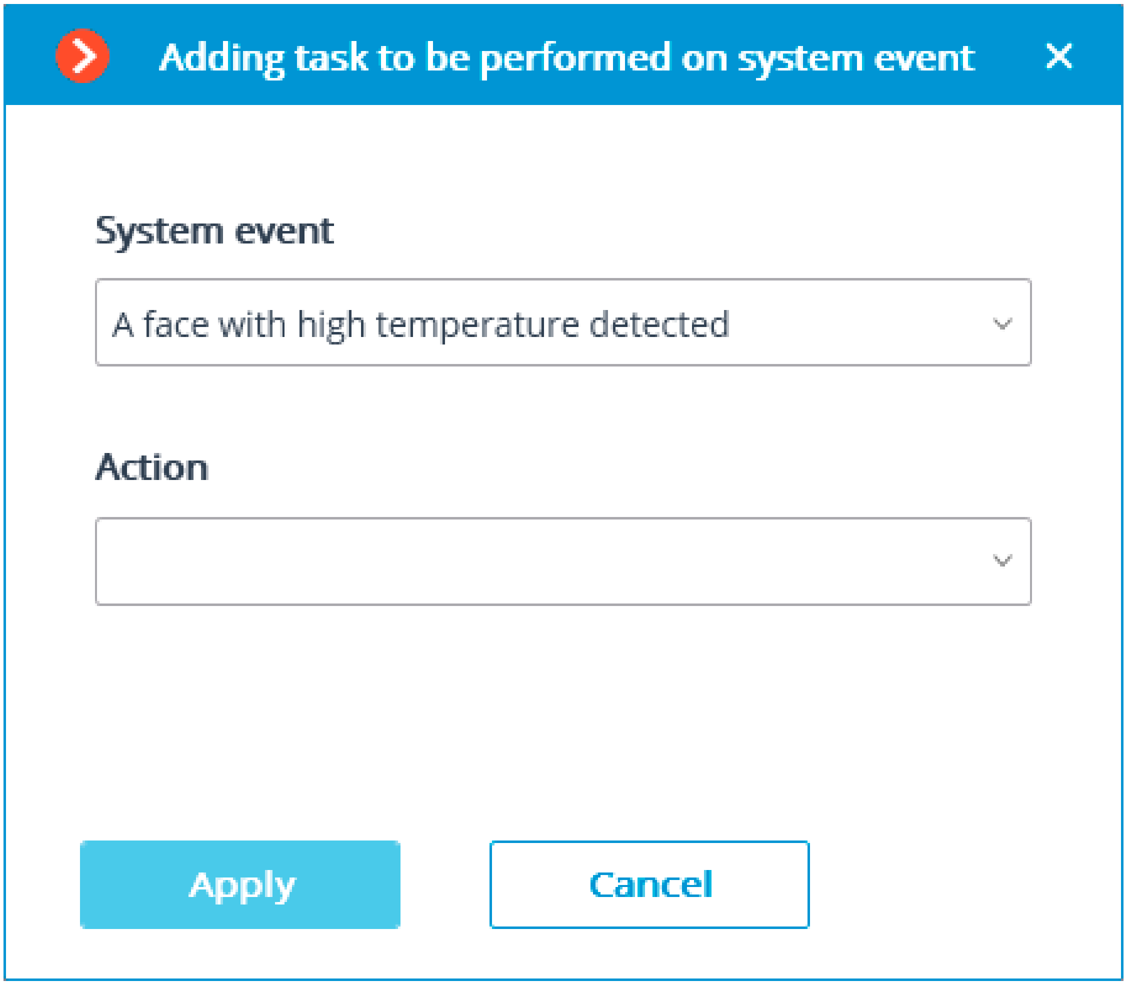
Warning

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.


Eocortex Configurator Ultra 3.3.38s
Search by camera name or IP
Expand all
Collapse all
All cameras
Object 1
Camera 1
Camera 2
Camera 3
Camera 4
Object 2
Object 3
Object 4
Automatic search
Add camera
Add folder
Camera table
Object 1 > Camera 1
Camera active
Connection
Rights
Archive
Motion detector
Analytics
Camera analytics
Temperature for recognized faces
Temperature exceedance monitoring
Line crossing
License plate recognition

When everything is done, it will become possible to set up a task upon the event of **Face with high temperature detected**.

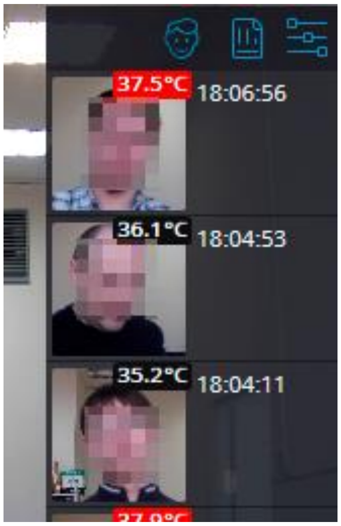

Adding task to be performed on system event
Apply
Cancel

System event

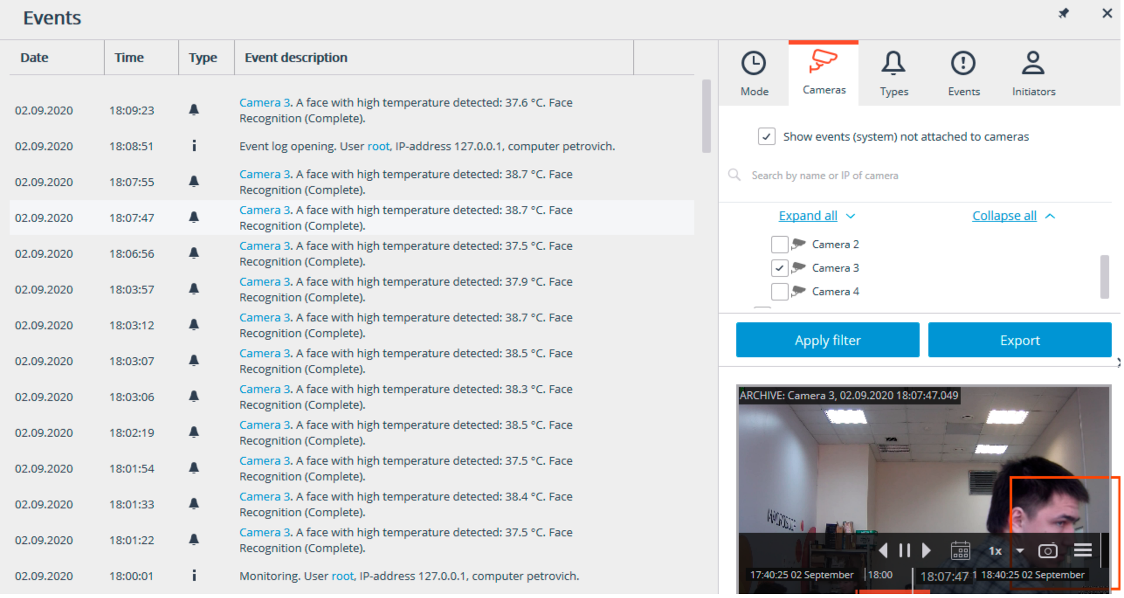
A face with high temperature detected

Action

In the **Eocortex Client** application, the temperature of the person will be displayed in the real-time video on the face recognition panel.


37.5°C 18:06:56
36.1°C 18:04:53
35.2°C 18:04:11

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.


Events
Mode
Cameras
Types
Events
Initiators
Expand all
Collapse all
Apply filter
Export
ARCHIVE: Camera 3, 02.09.2020 18:07:47.049
17:40:25 02 September
18:00
18:07:47
18:40:25 02 September
1x

Date	Time	Type	Event description
02.09.2020	18:09:23	🔔	Camera 3. A face with high temperature detected: 37.6 °C. Face Recognition (Complete).
02.09.2020	18:08:51	i	Event log opening. User root, IP-address 127.0.0.1, computer petrovich.
02.09.2020	18:07:55	🔔	Camera 3. A face with high temperature detected: 38.7 °C. Face Recognition (Complete).
02.09.2020	18:07:47	🔔	Camera 3. A face with high temperature detected: 38.7 °C. Face Recognition (Complete).
02.09.2020	18:06:56	🔔	Camera 3. A face with high temperature detected: 37.5 °C. Face Recognition (Complete).
02.09.2020	18:03:57	🔔	Camera 3. A face with high temperature detected: 37.9 °C. Face Recognition (Complete).
02.09.2020	18:03:12	🔔	Camera 3. A face with high temperature detected: 38.7 °C. Face Recognition (Complete).
02.09.2020	18:03:07	🔔	Camera 3. A face with high temperature detected: 38.5 °C. Face Recognition (Complete).
02.09.2020	18:03:06	🔔	Camera 3. A face with high temperature detected: 38.3 °C. Face Recognition (Complete).
02.09.2020	18:02:19	🔔	Camera 3. A face with high temperature detected: 38.5 °C. Face Recognition (Complete).
02.09.2020	18:01:54	🔔	Camera 3. A face with high temperature detected: 37.5 °C. Face Recognition (Complete).
02.09.2020	18:01:33	🔔	Camera 3. A face with high temperature detected: 38.4 °C. Face Recognition (Complete).
02.09.2020	18:01:22	🔔	Camera 3. A face with high temperature detected: 37.5 °C. Face Recognition (Complete).
02.09.2020	18:00:01	i	Monitoring. User root, IP-address 127.0.0.1, computer petrovich.

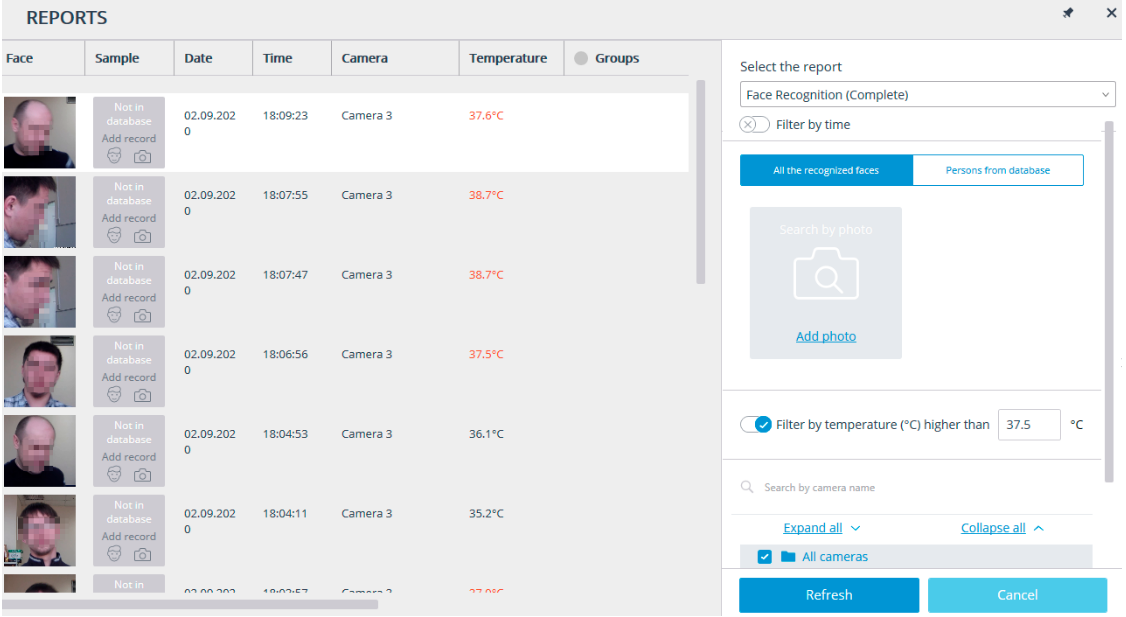
☑ Show events (system) not attached to cameras

Search by name or IP of camera

☐ Camera 2
☑ Camera 3
☐ Camera 4

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.


REPORTS
All the recognized faces
Persons from database
Search by photo
Add photo
Expand all
Collapse all
Refresh
Cancel

Face	Sample	Date	Time	Camera	Temperature	Groups
	Not in database Add record	02.09.2020	18:09:23	Camera 3	37.6°C	
	Not in database Add record	02.09.2020	18:07:55	Camera 3	38.7°C	
	Not in database Add record	02.09.2020	18:07:47	Camera 3	38.7°C	
	Not in database Add record	02.09.2020	18:06:56	Camera 3	37.5°C	
	Not in database Add record	02.09.2020	18:04:53	Camera 3	36.1°C	
	Not in database Add record	02.09.2020	18:04:11	Camera 3	35.2°C	

Select the report: Face Recognition (Complete)

○ Filter by time

● Filter by temperature (°C) higher than 37.5 °C

Search by camera name

☑ All cameras

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:

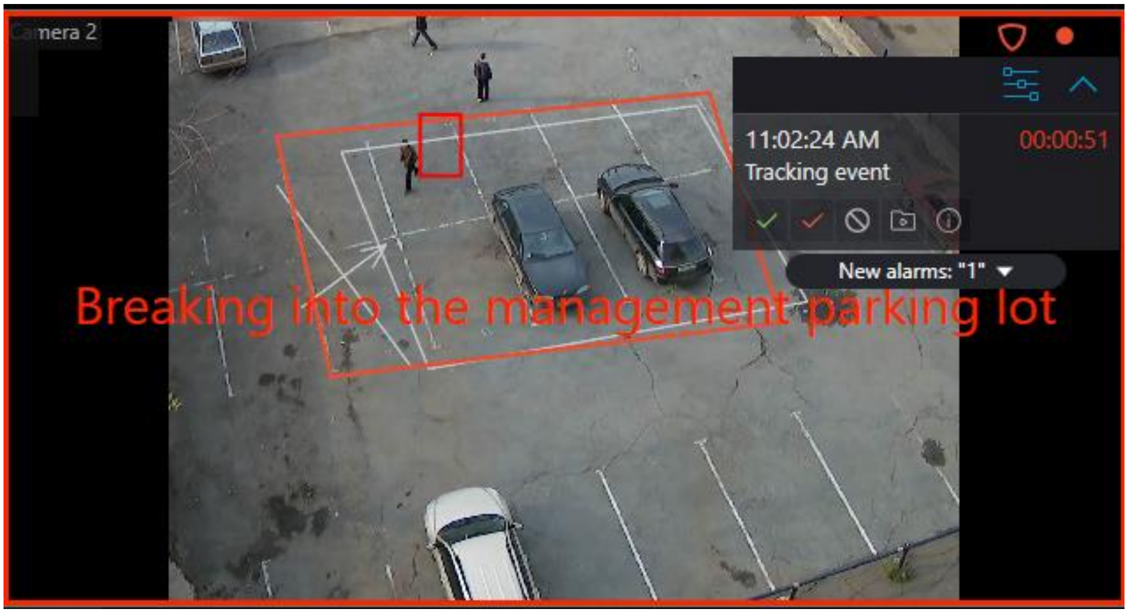
– If no camera placed in the cell.

– 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

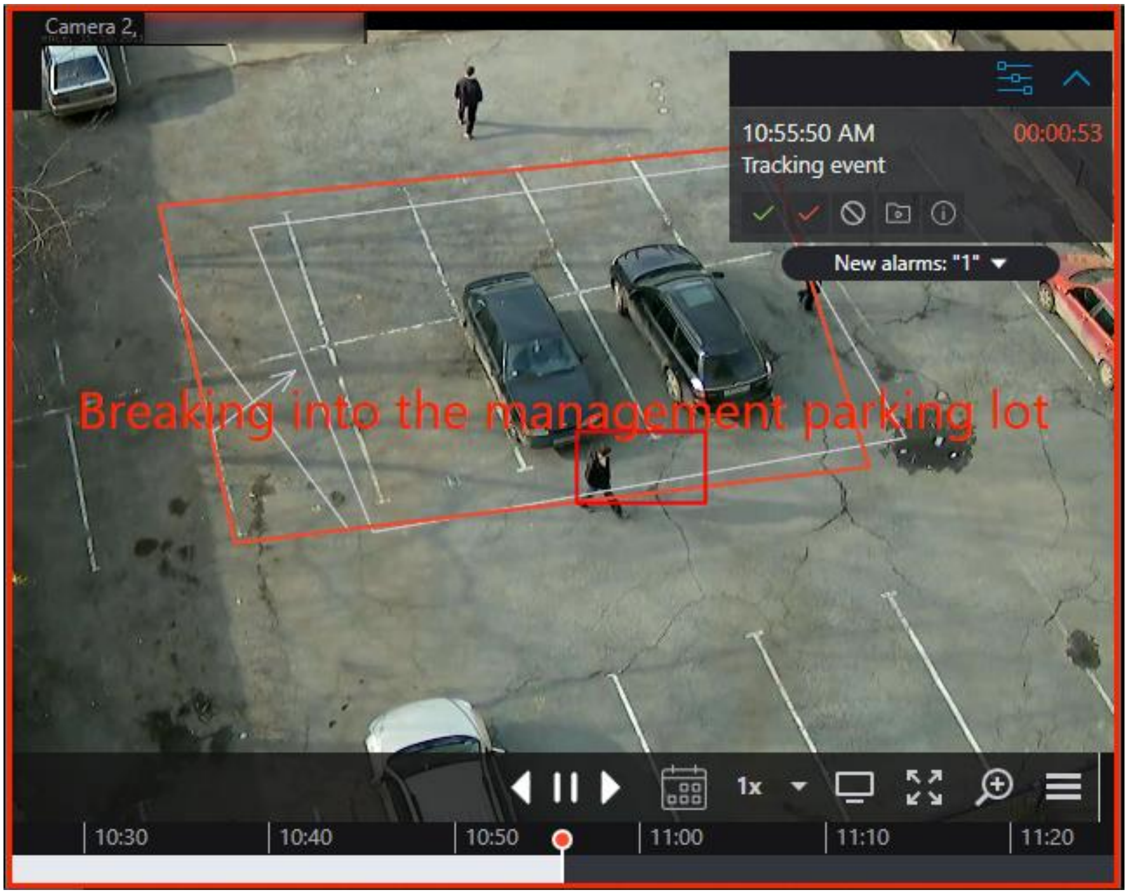
The camera cell in the **Alarm** state will be highlighted with a colored frame on the screen.


Camera 2
11:02:24 AM
00:00:51
Tracking event
New alarms: "1"
Breaking into the management parking lot

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.

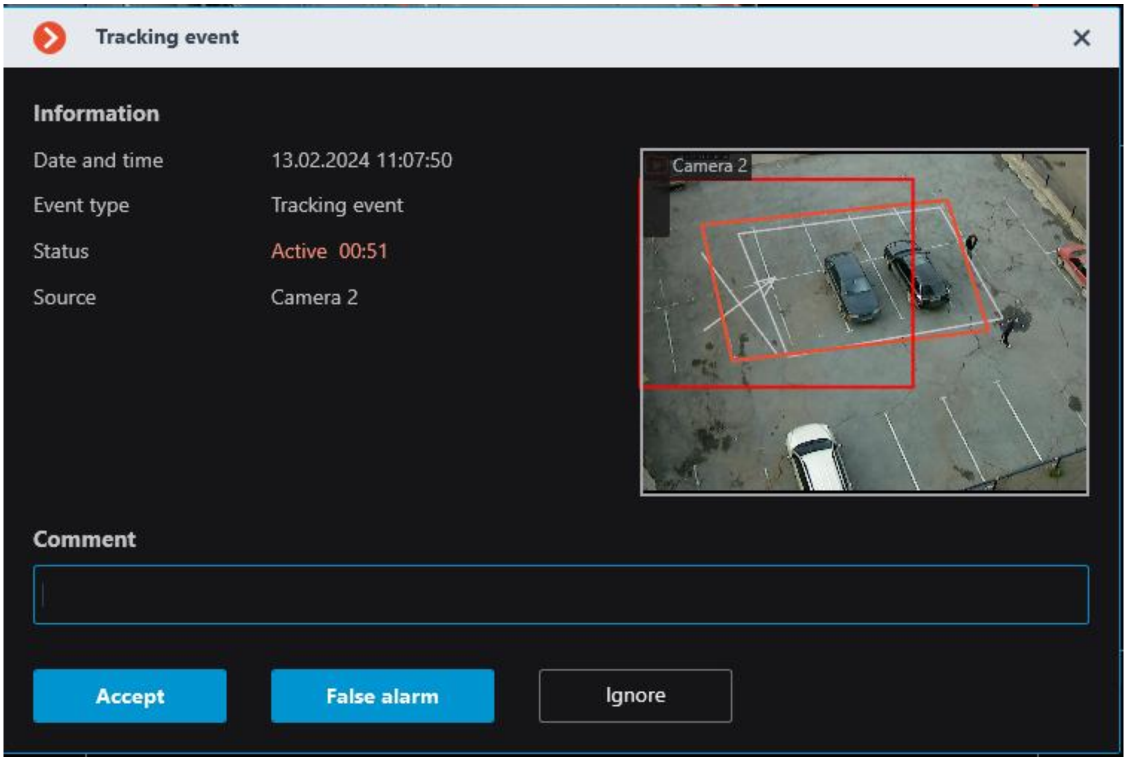

Camera 2,
10:55:50 AM
00:00:53
Tracking event
New alarms: "1"
Breaking into the management parking lot
1x
10:30
10:40
10:50
11:00
11:10
11:20

- 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.



Tracking event

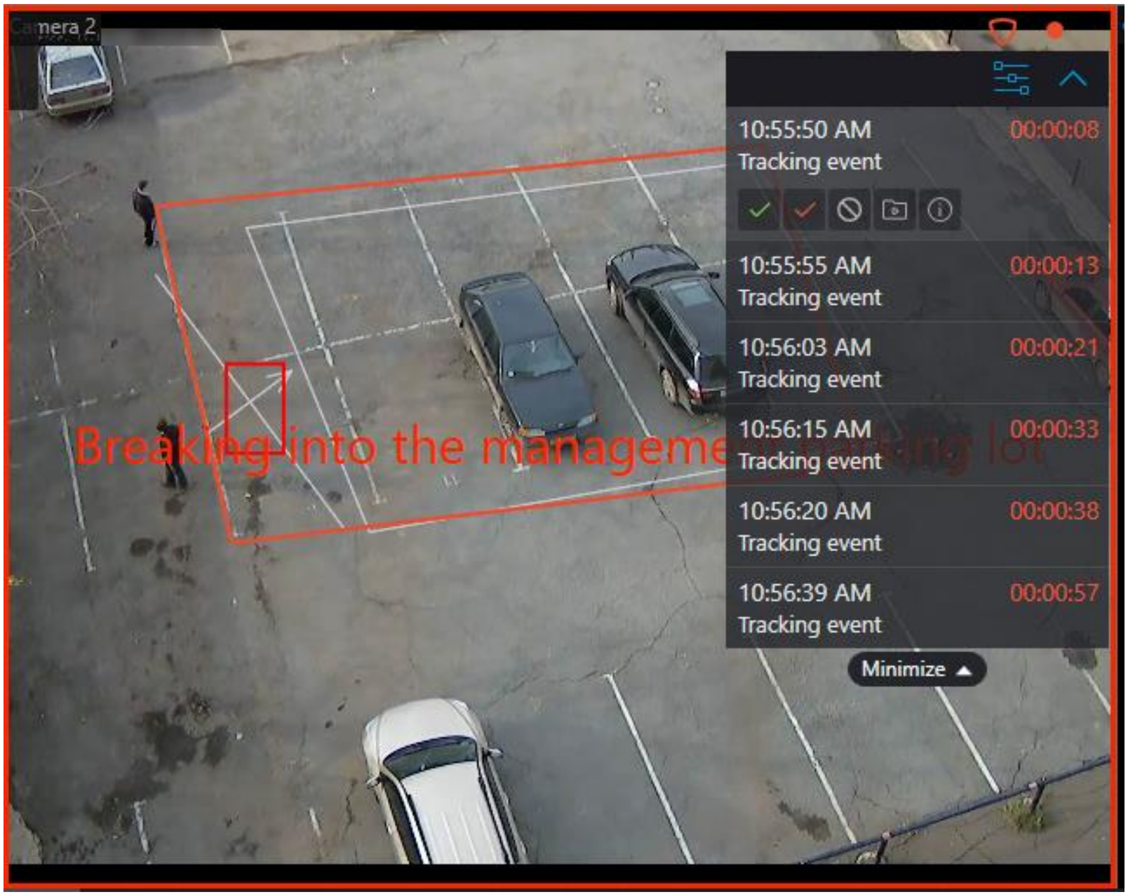
Information

Date and time	13.02.2024 11:07:50
Event type	Tracking event
Status	Active 00:51
Source	Camera 2

Comment

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



10:55:50 AM 00:00:08
Tracking event

10:55:55 AM 00:00:13
Tracking event

10:56:03 AM 00:00:21
Tracking event

10:56:15 AM 00:00:33
Tracking event

10:56:20 AM 00:00:38
Tracking event

10:56:39 AM 00:00:57
Tracking event

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)

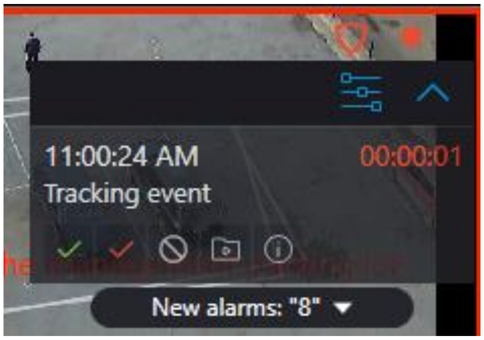
- Default sound signal.

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.



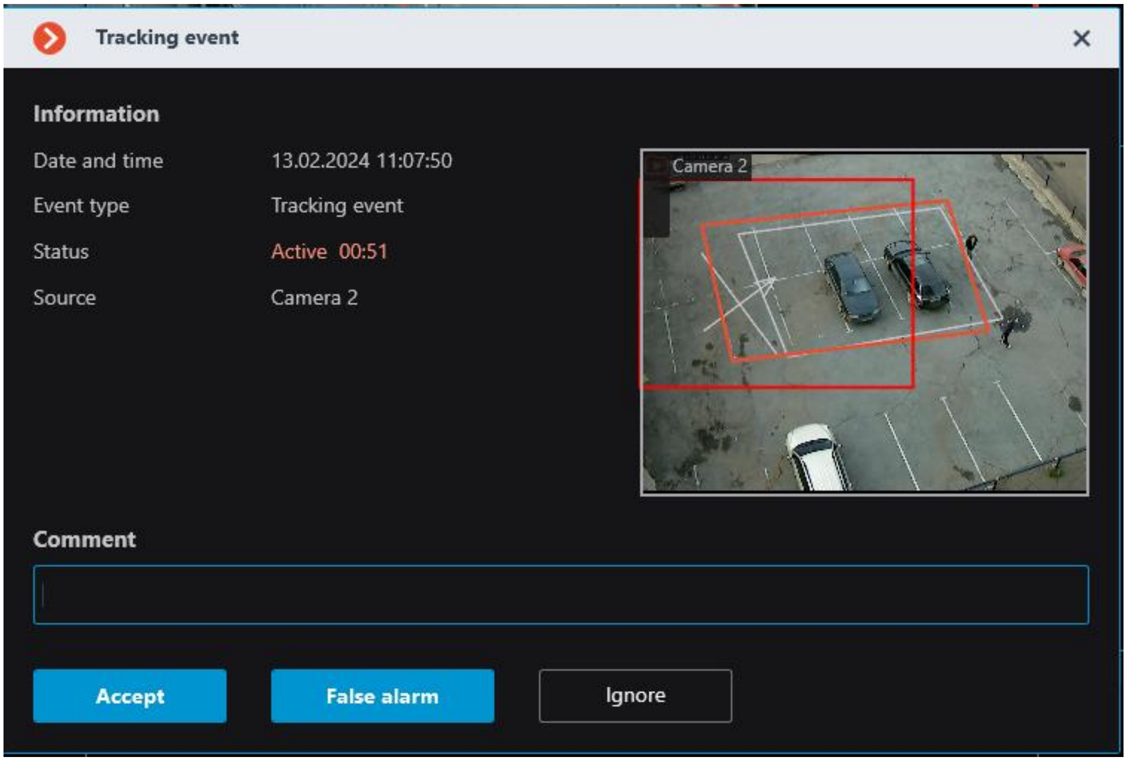
11:00:24 AM

Tracking event

00:00:01

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.



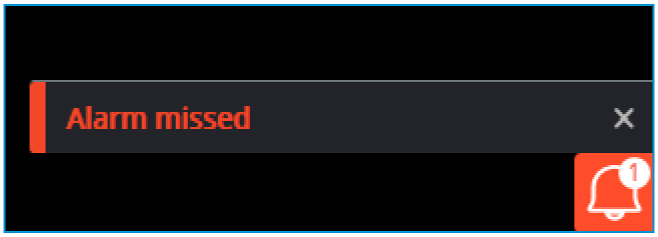
Tracking event

Information

Date and time	13.02.2024 11:07:50
Event type	Tracking event
Status	Active 00:51
Source	Camera 2

Comment

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.



Alarm missed

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.

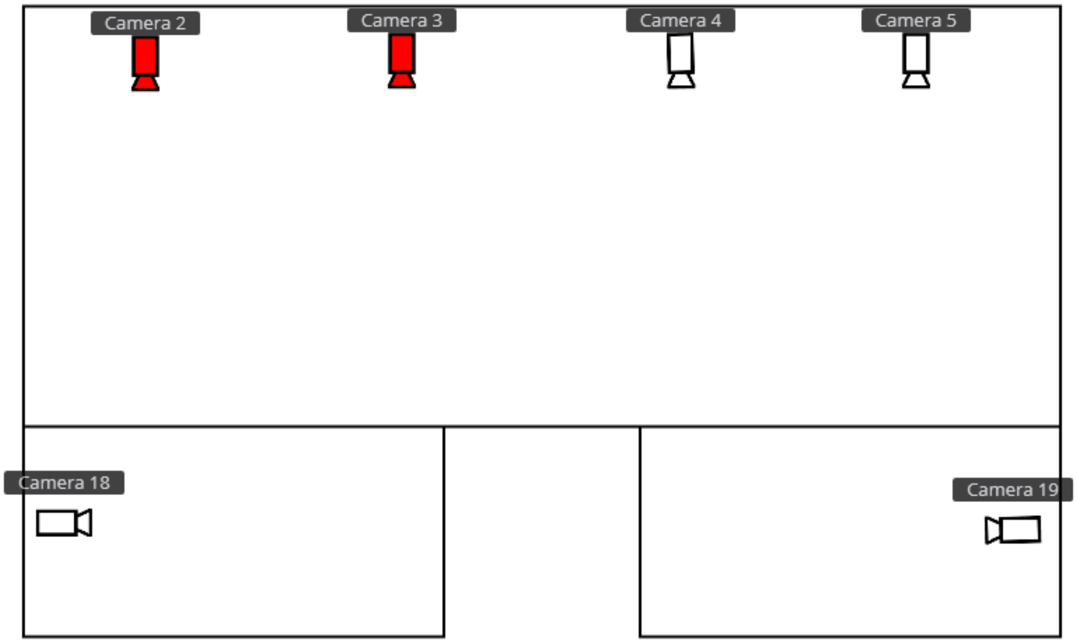
Alarms on maps and object plans

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 enable 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 quantity 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 pressing the button.

If there are several tasks set up on the camera, a list of those tasks will open upon pressing the button, and the task will be executed only as it is selected in the list.

If the launch confirmation has been set in the configuration of the task, a dialog will open before the launch. In this dialog, it will be possible to confirm or cancel the launch.

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

Server and Client views

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.

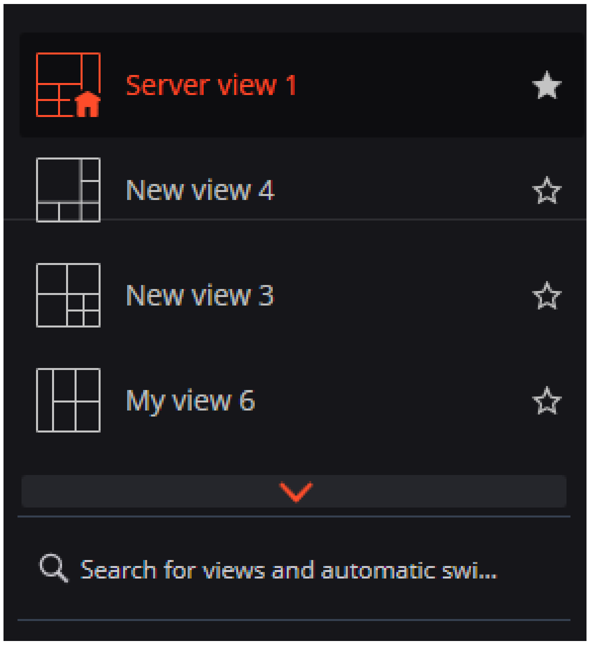
- **Server View** is a view created by a video surveillance system administrator in **Eocortex Configurator**. The server views are available in the **Eocortex Client** application as well as in the mobile client applications working under Android and iOS. In a multi-server system, the server views are 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 version of the **OpenSSL v1.1.1s Light** 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 v1.1.1s Light use:

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

   For Win32 OpenSSL v1.1.1s Light 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)** with the IP address of the service.

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.

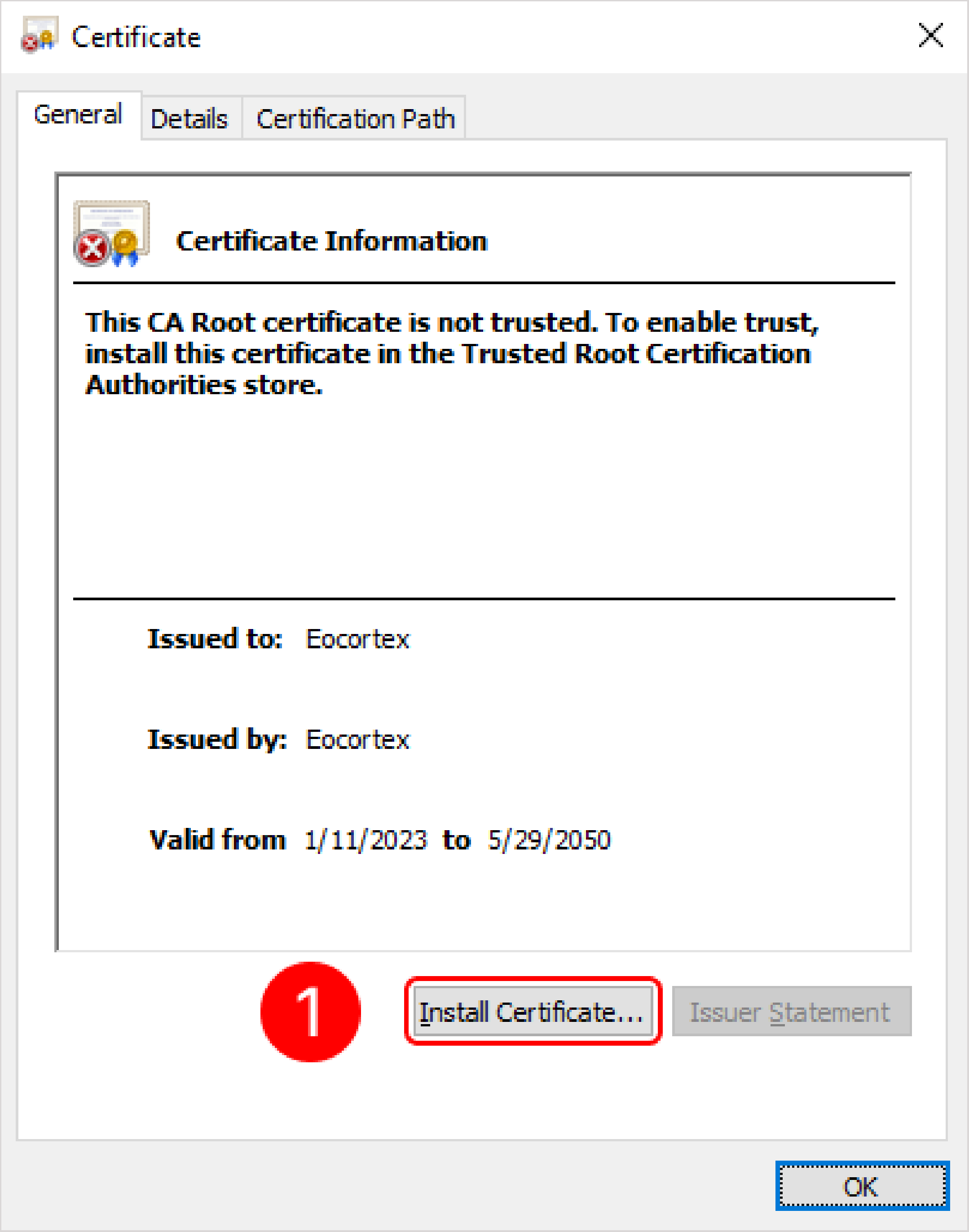
The corresponding **.pfx** files must be given to users and imported into the operating system at their workstations.

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

Importing certificates into the system

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

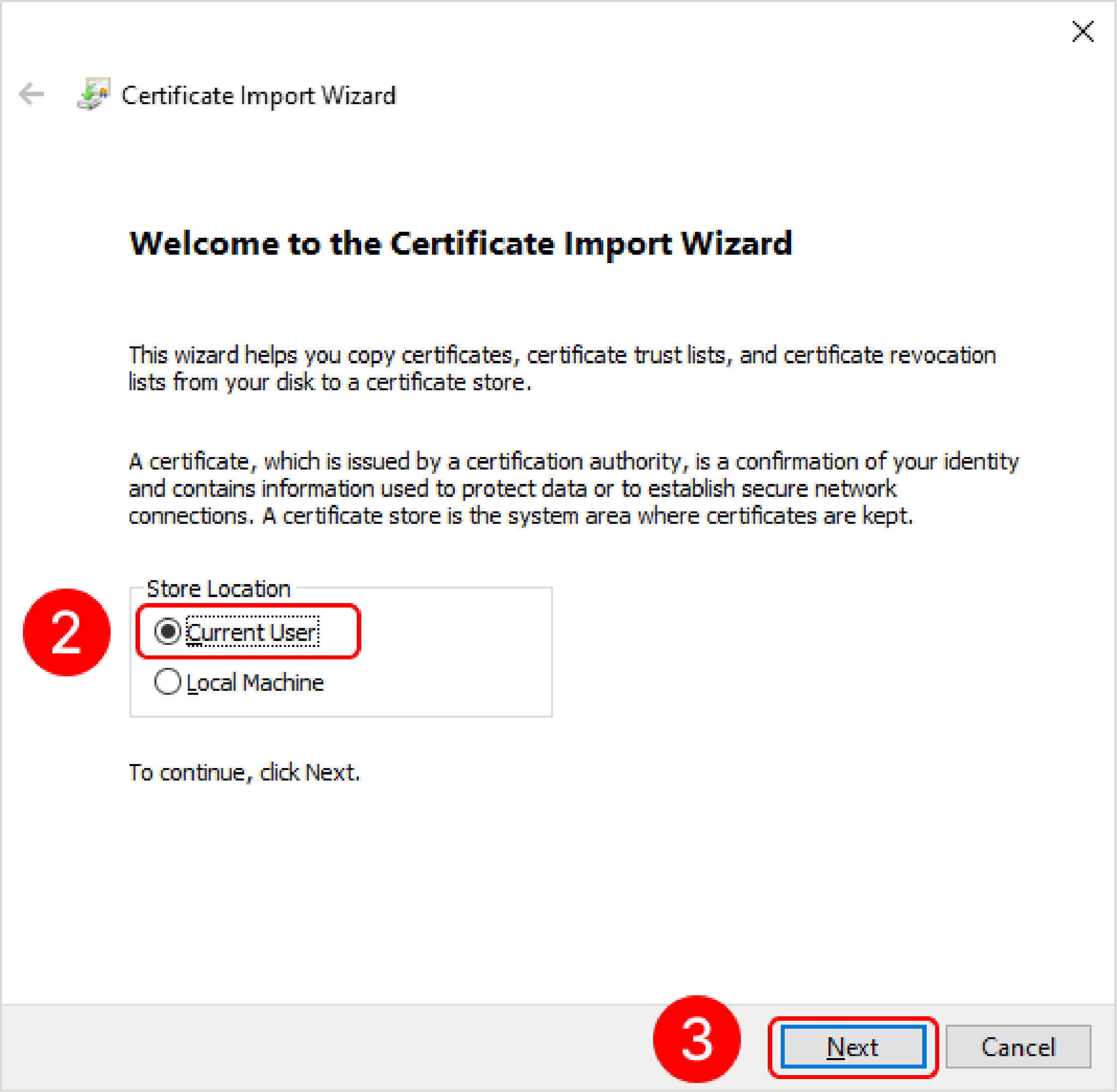
This CA Root certificate is not trusted. To enable trust, install this certificate in the Trusted Root Certification Authorities store.

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.

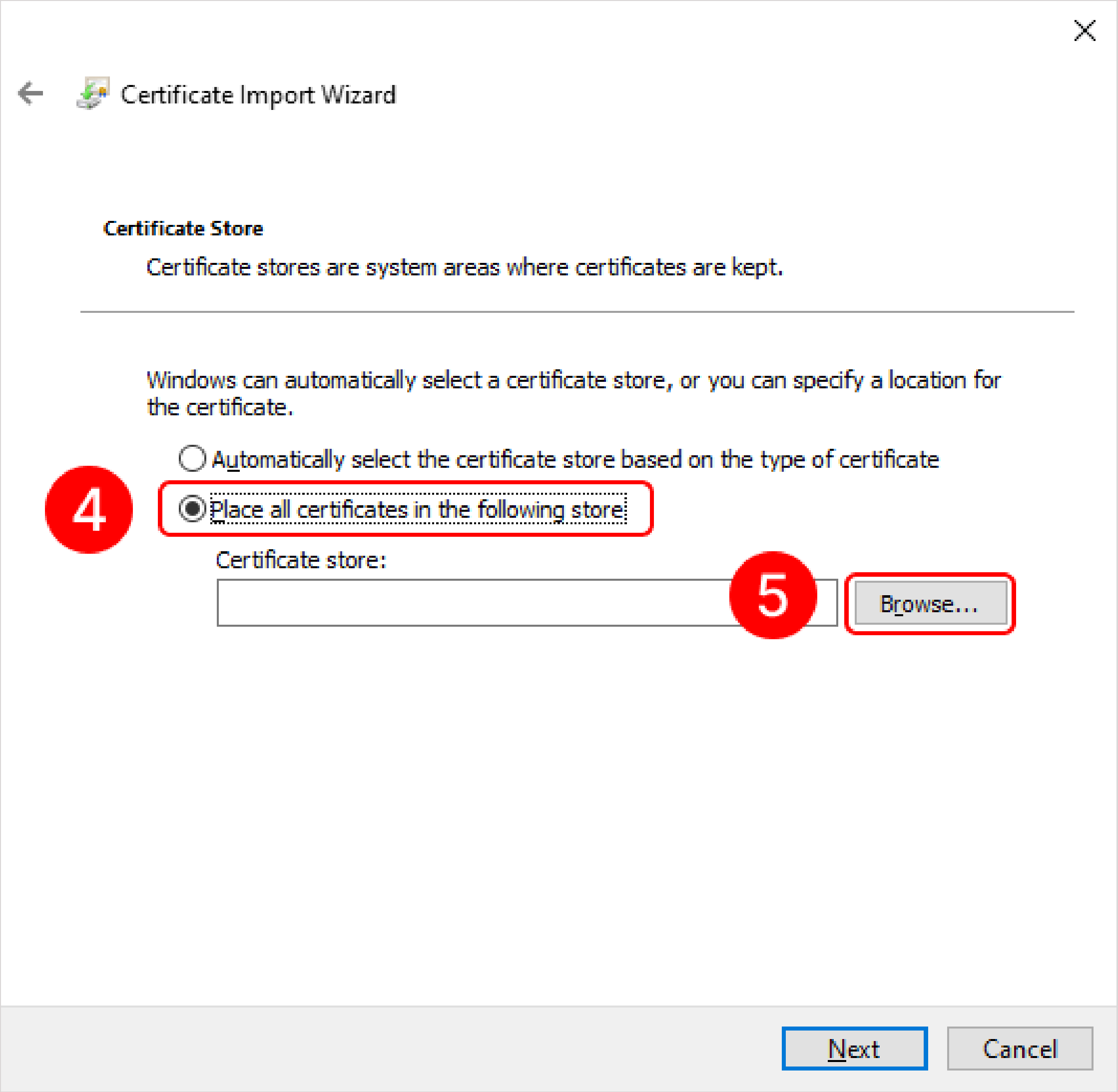
A certificate, which is issued by a certification authority, is a confirmation of your identity and contains information used to protect data or to establish secure network connections. A certificate store is the system area where certificates are kept.

Store Location

● Current User

○ Local Machine

To continue, click Next.


Certificate Import Wizard
4
5
Browse...
Next
Cancel

Certificate Store

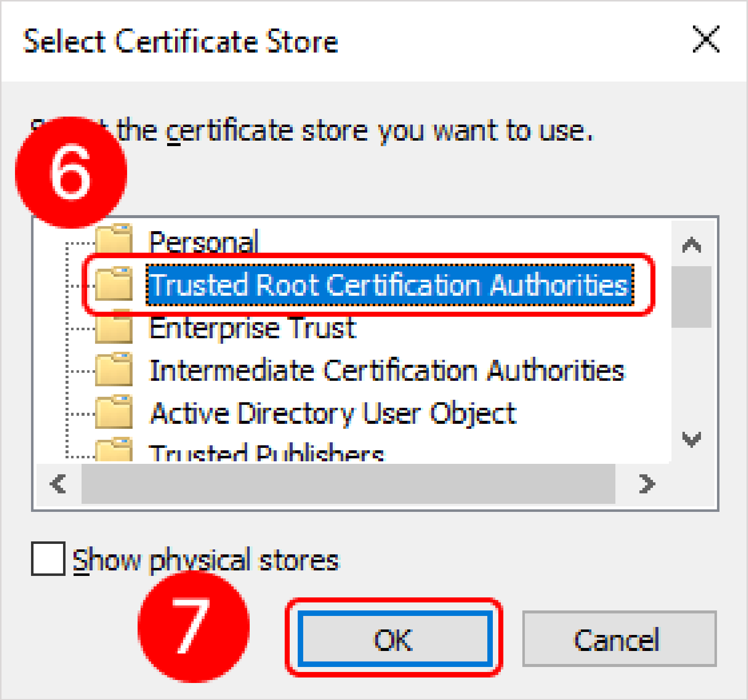
Certificate stores are system areas where certificates are kept.

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

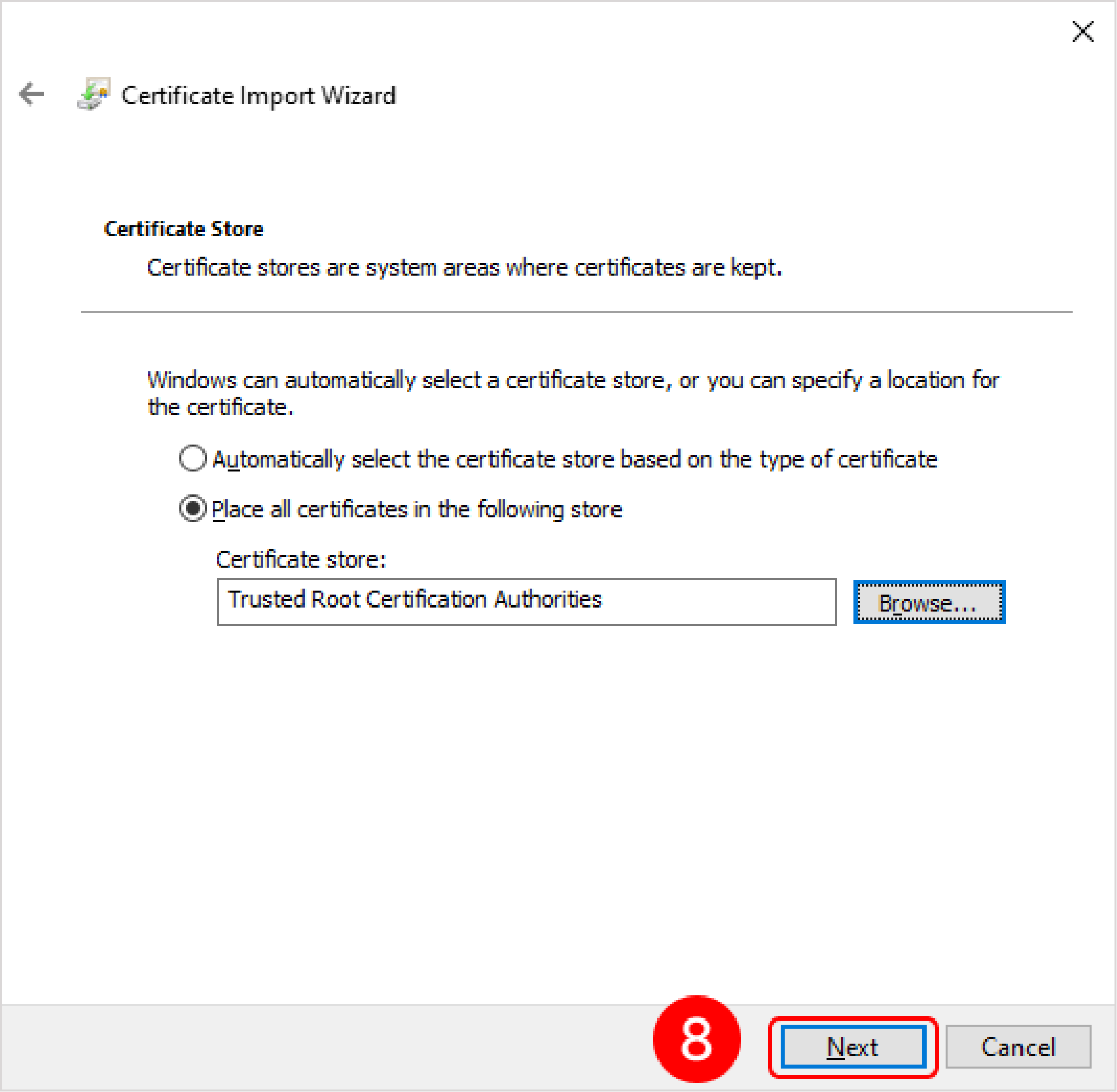
● Place all certificates in the following store

Certificate store:


Select Certificate Store
6
Personal
Trusted Root Certification Authorities
Enterprise Trust
Intermediate Certification Authorities
Active Directory User Object
Trusted Publishers
7
OK
Cancel

S t the certificate store you want to use.

☐ Show physical stores



Certificate Import Wizard

Certificate Store

Certificate stores are system areas where certificates are kept.

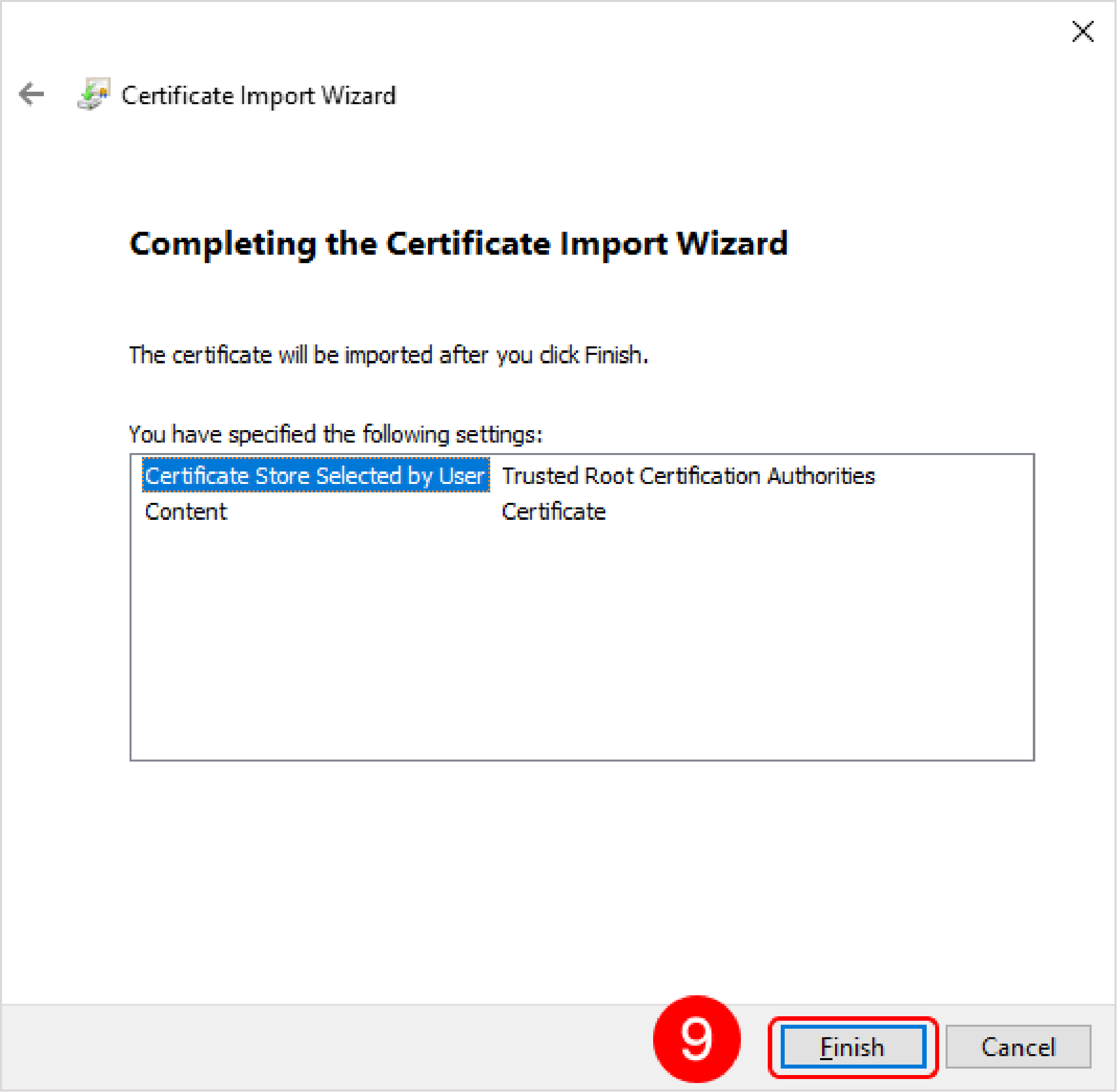
Windows can automatically select a certificate store, or you can specify a location for the certificate.

○ 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



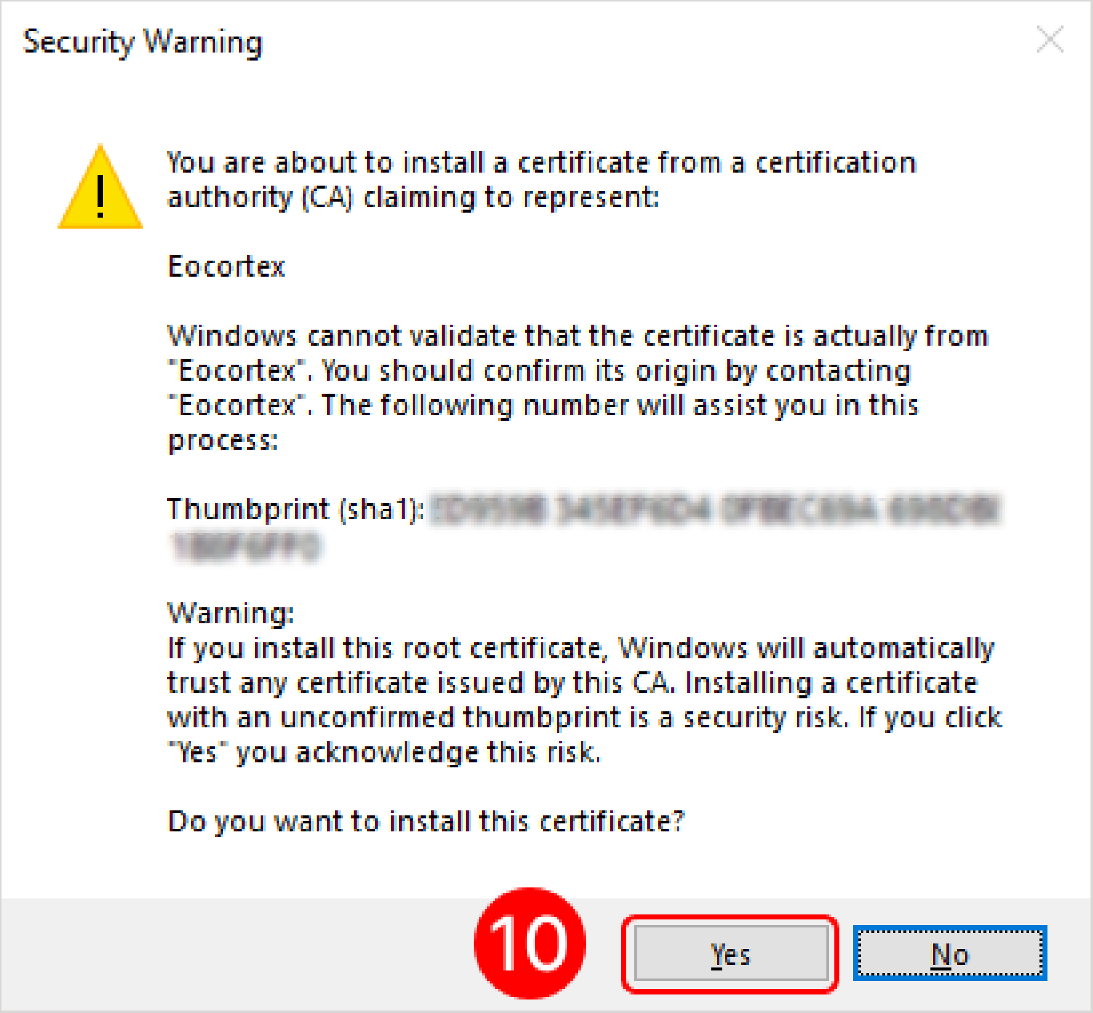
Certificate Import Wizard
Finish
Cancel
9

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



Security Warning

You are about to install a certificate from a certification authority (CA) claiming to represent:

Eocortex

Windows cannot validate that the certificate is actually from "Eocortex". You should confirm its origin by contacting "Eocortex". The following number will assist you in this process:

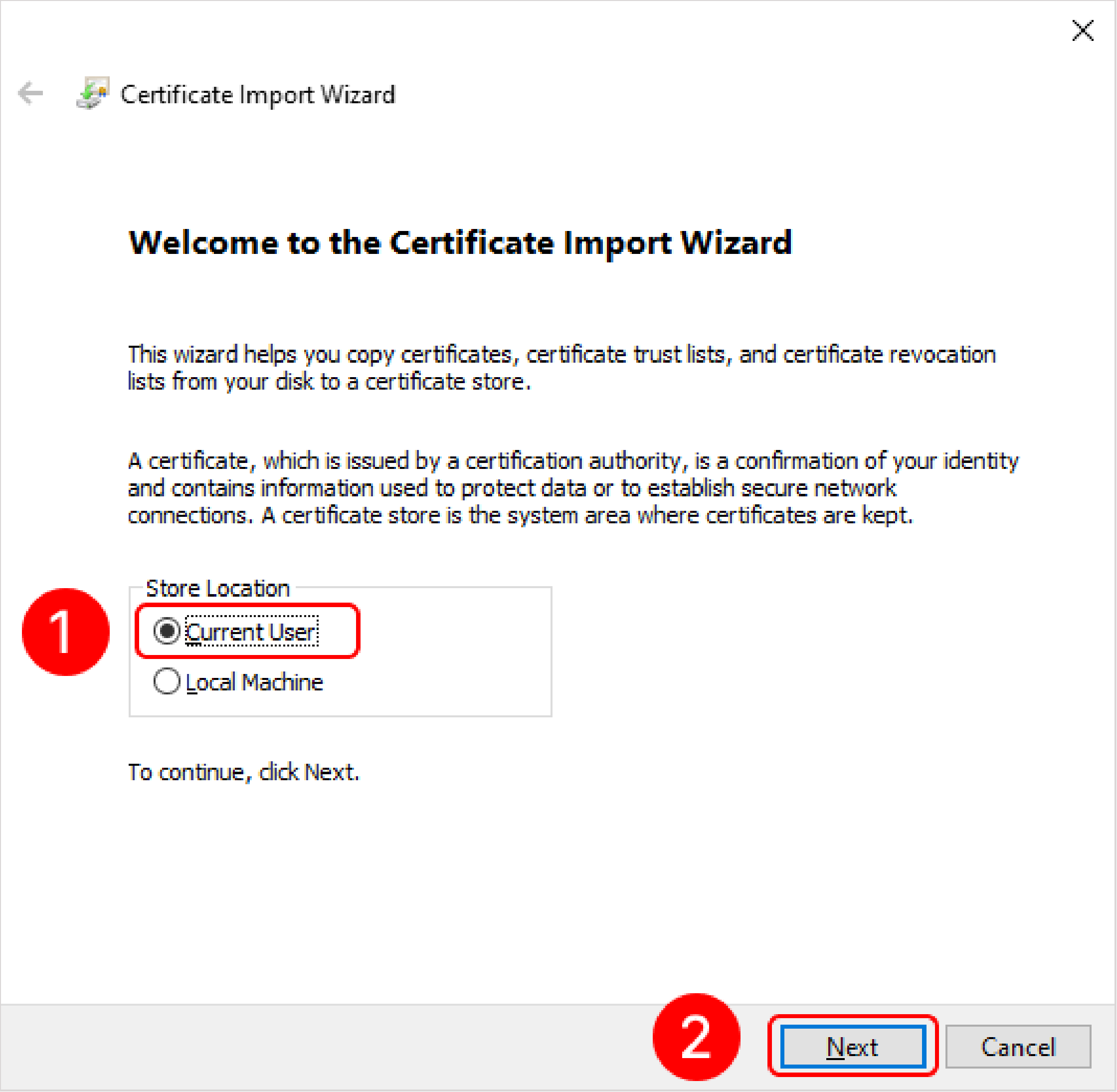
Thumbprint (sha1): [redacted]

Warning:
If you install this root certificate, Windows will automatically trust any certificate issued by this CA. Installing a certificate with an unconfirmed thumbprint is a security risk. If you click "Yes" you acknowledge this risk.

Do you want to install this certificate?

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:



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.

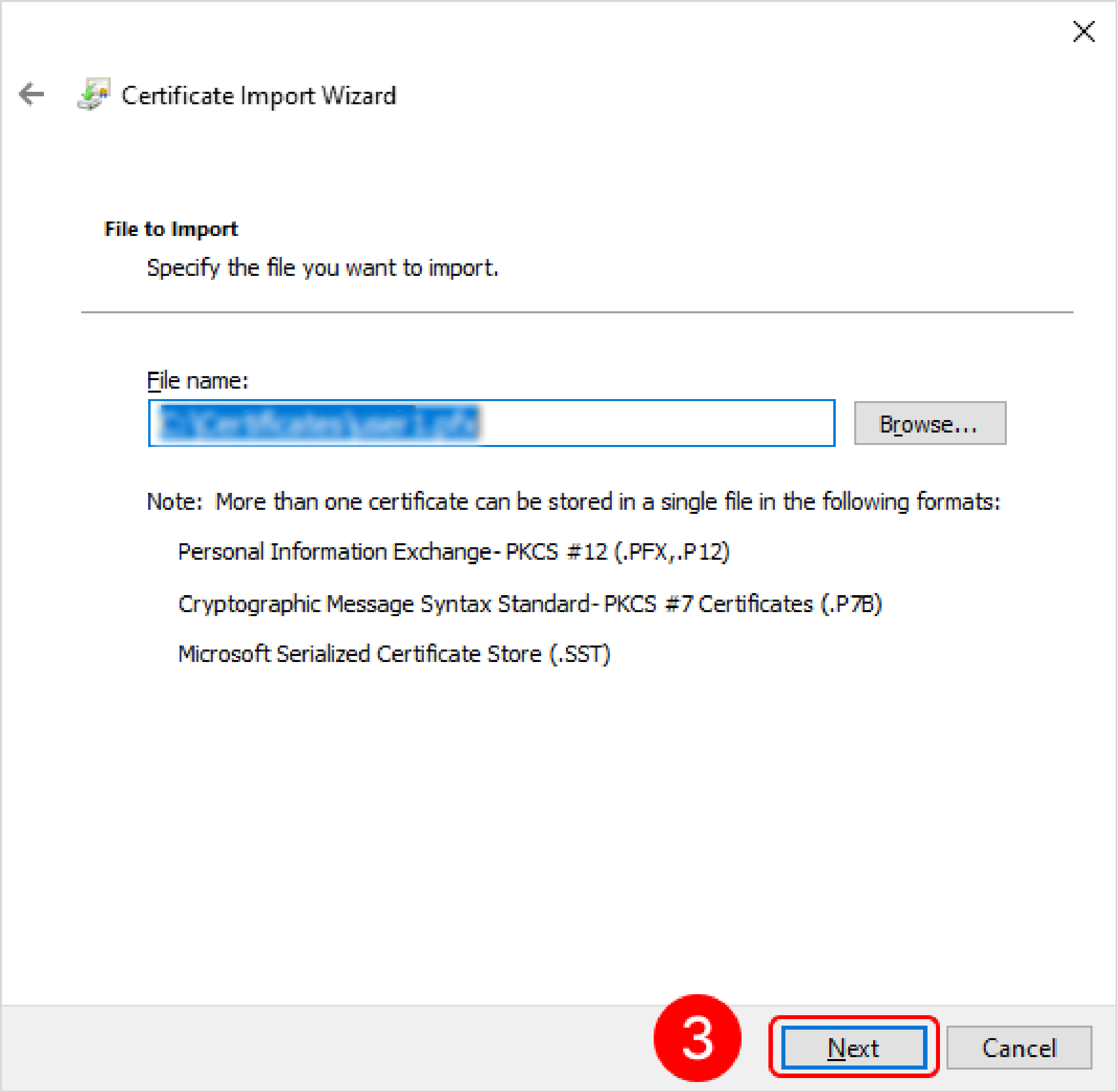
A certificate, which is issued by a certification authority, is a confirmation of your identity and contains information used to protect data or to establish secure network connections. A certificate store is the system area where certificates are kept.

Store Location

① ● Current User

○ Local Machine

To continue, click Next.



Certificate Import Wizard

File to Import

Specify the file you want to import.

File name: [redacted]

Browse...

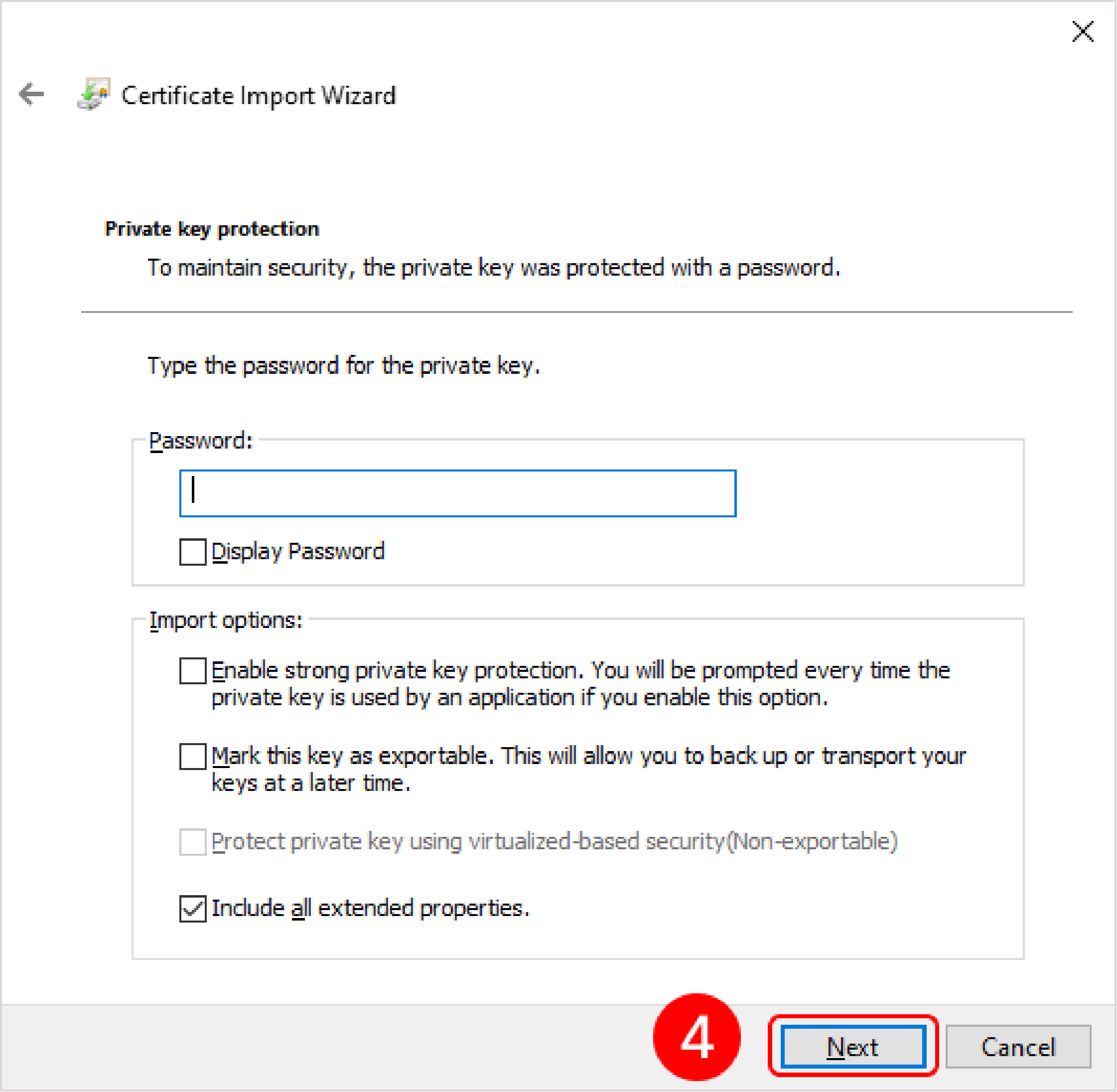
Note: More than one certificate can be stored in a single file in the following formats:

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

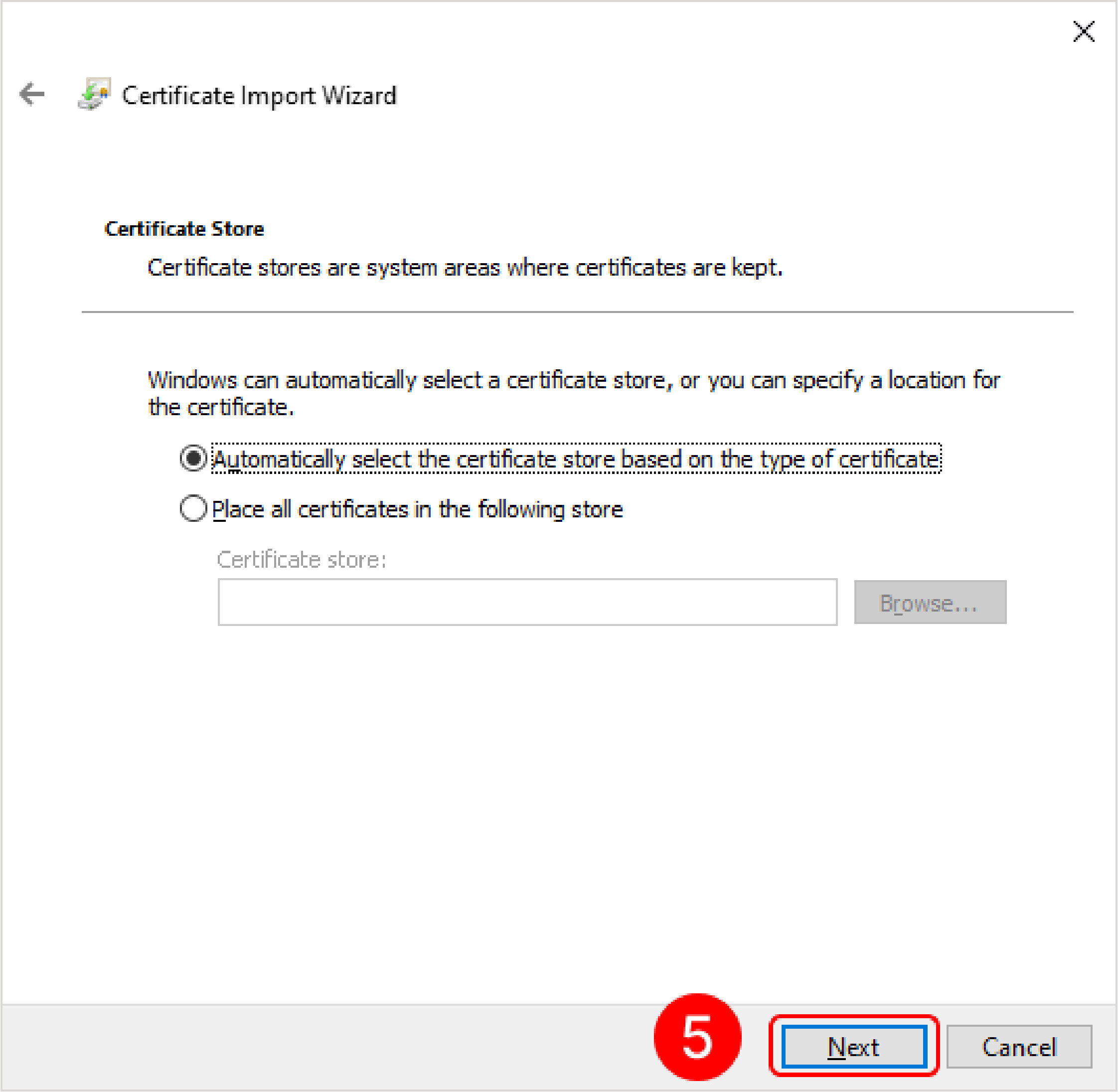
Import options:

☐ 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.


Certificate Import Wizard
Browse...
5
Next
Cancel

Certificate Store

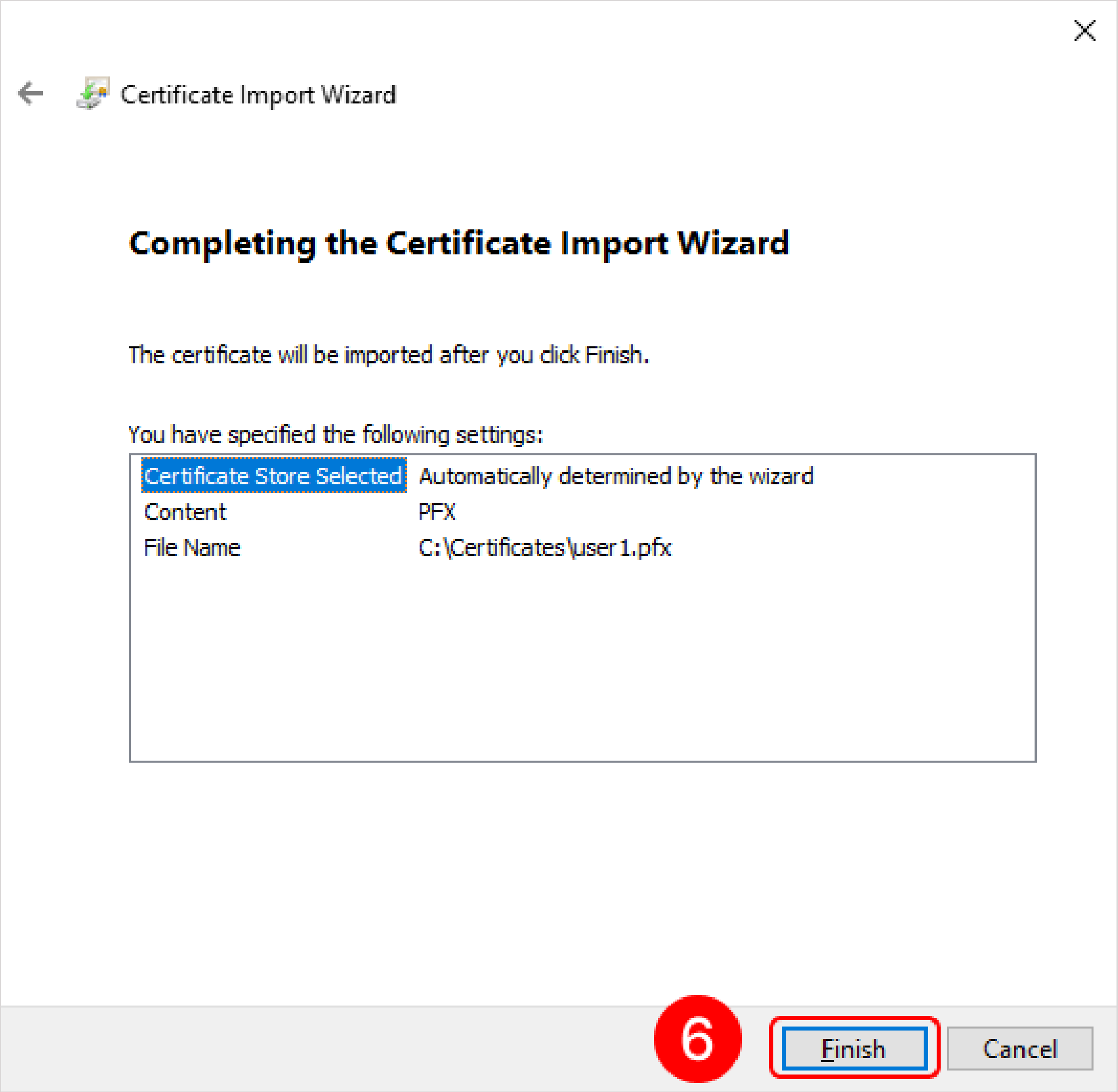
Certificate stores are system areas where certificates are kept.

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:



Completing the Certificate Import Wizard

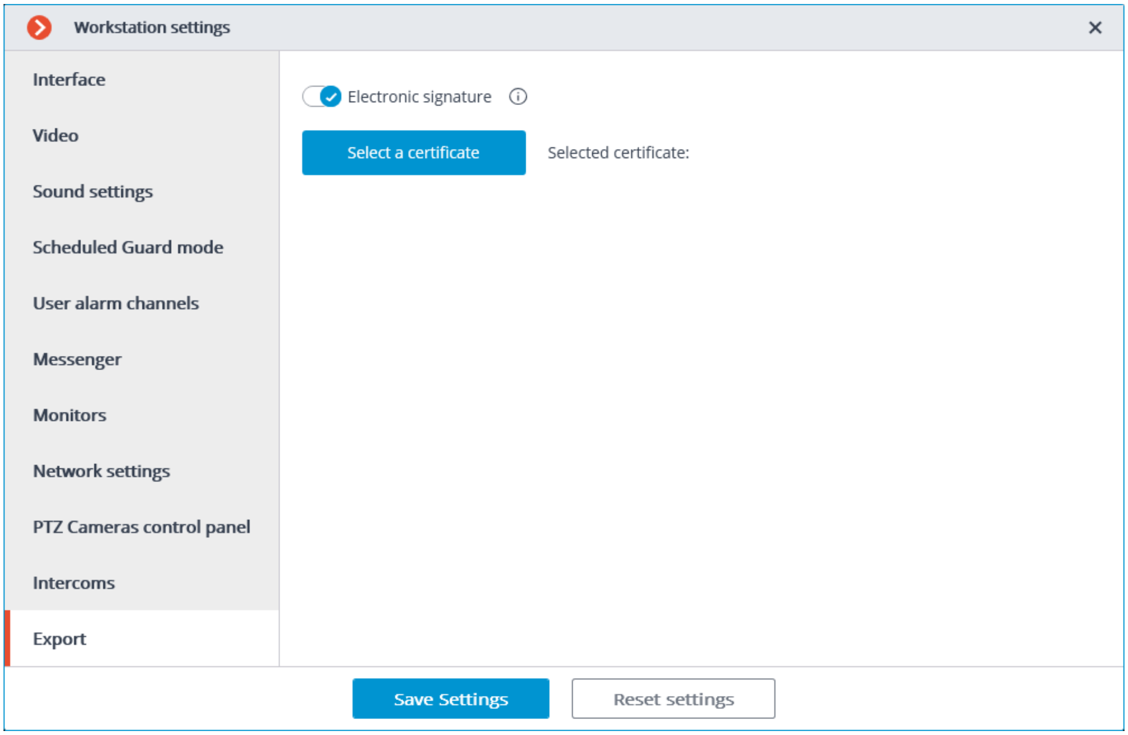
The certificate will be imported after you click Finish.

You have specified the following settings:

Certificate Store Selected	Automatically determined by the wizard
Content	PFX
File Name	C:\Certificates\user1.pfx

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 ✓.
6. Press the button **Select a certificate**.


Workstation settings
Interface
Video
Sound settings
Scheduled Guard mode
User alarm channels
Messenger
Monitors
Network settings
PTZ Cameras control panel
Intercoms
Export
Select a certificate
Save Settings
Reset settings

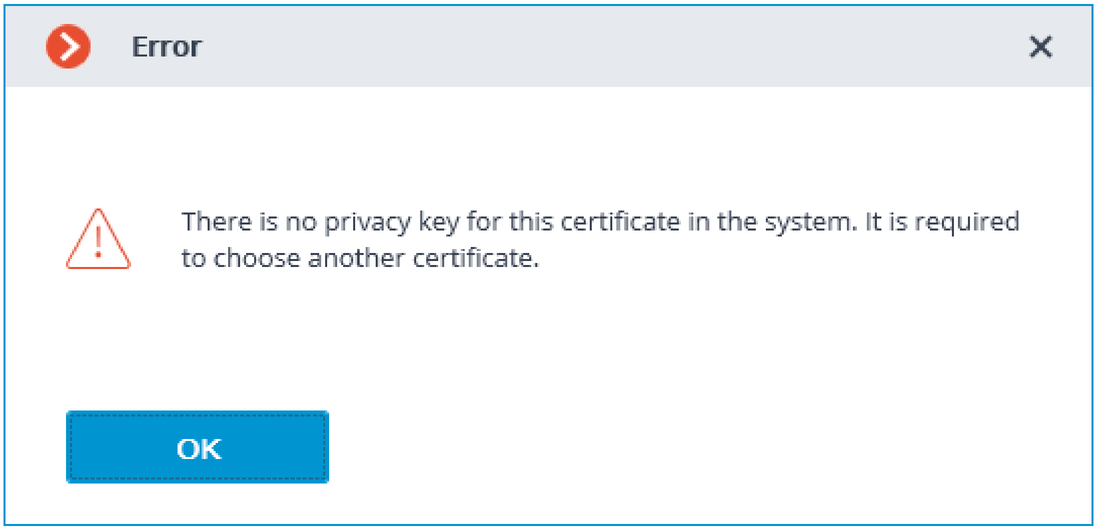
☑ Electronic signature

Selected 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:

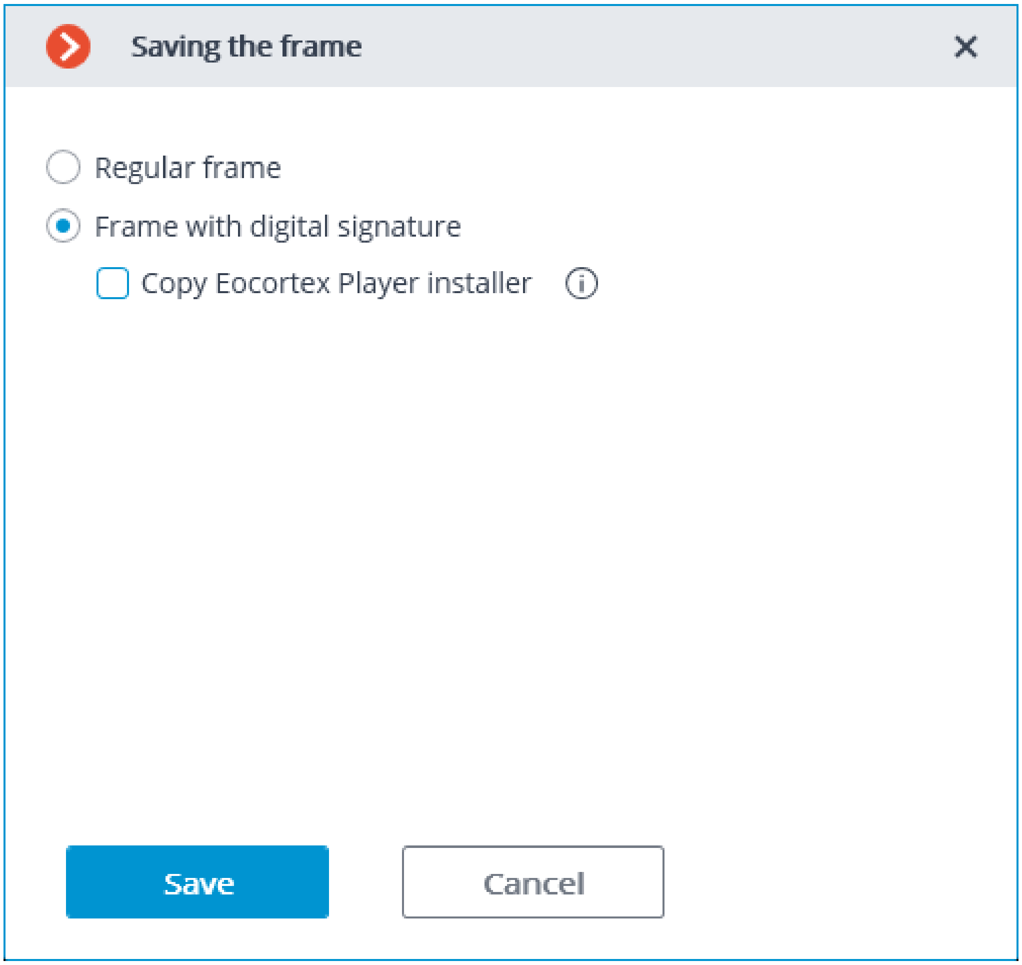


There is no privacy key for this certificate in the system. It is required to choose another certificate.

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.



○ Regular frame
● Frame with digital signature
☐ Copy Eocortex Player installer

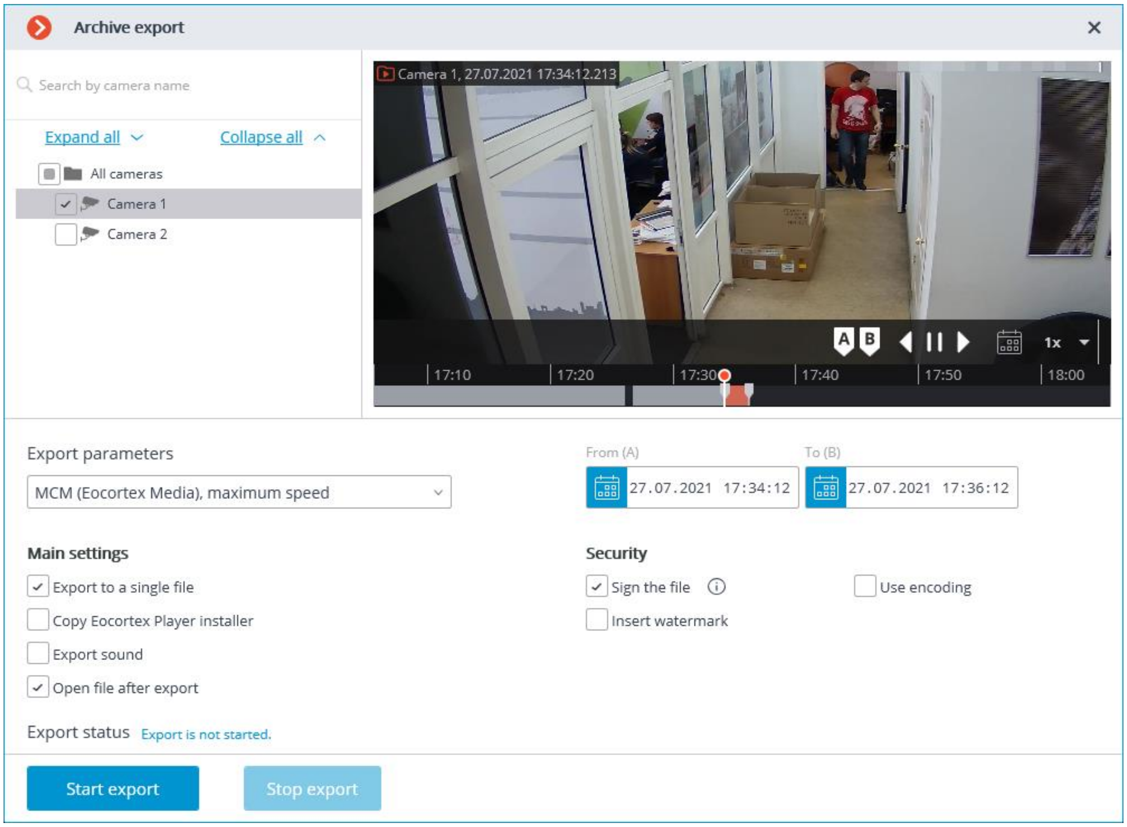
Pressing the **Save** button opens the dialog screen with the option of selecting the storage location for the frame to be saved.

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.


Archive export
Search by camera name
Expand all
Collapse all
All cameras
Camera 1, 27.07.2021 17:34:12.213
A B
1x
17:10
17:20
17:30
17:40
17:50
18:00
Start export
Stop export

☐ All cameras
☑ Camera 1
☐ Camera 2

Export parameters
MCM (Eocortex Media), maximum speed

From (A) 27.07.2021 17:34:12
To (B) 27.07.2021 17:36:12

Main settings
☑ Export to a single file
☐ Copy Eocortex Player installer
☐ Export sound
☑ Open file after export

Security
☑ Sign the file
☐ Insert watermark
☐ Use encoding

Export status Export is not started.

Warning

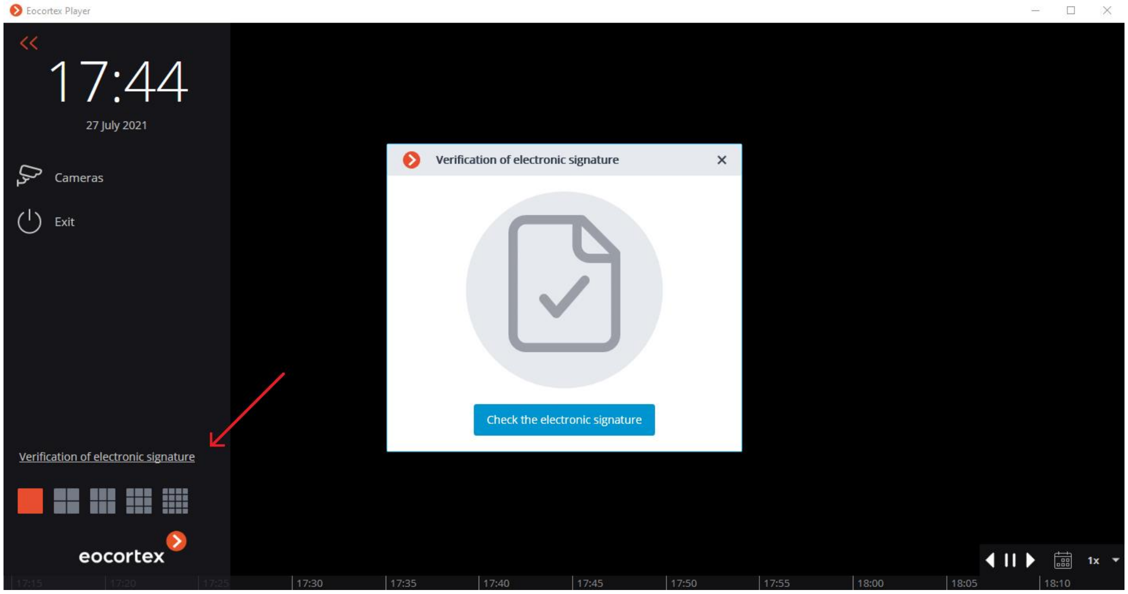
If an electronic signature has not been set, the **Sign the file** item will not be available.

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

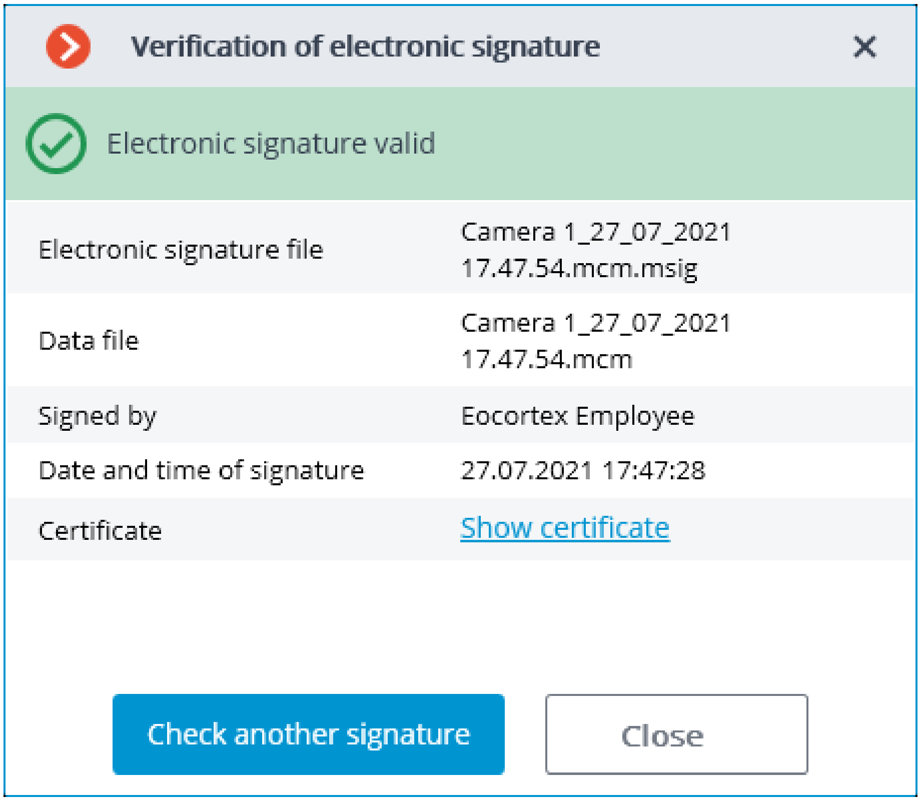
The **Eocortex Player** application is used to check the signed files. To check the electronic signature of a file, open the file with the msig extension, or open it with the **Check electronic signature** button in the window of the application.


Eocortex Player
17:44
27 July 2021
Cameras
Exit
Verification of electronic signature
eocortex
Verification of electronic signature
Check the electronic signature
17:30
17:35
17:40
17:45
17:50
17:55
18:00
18:05
18:10
1x

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.

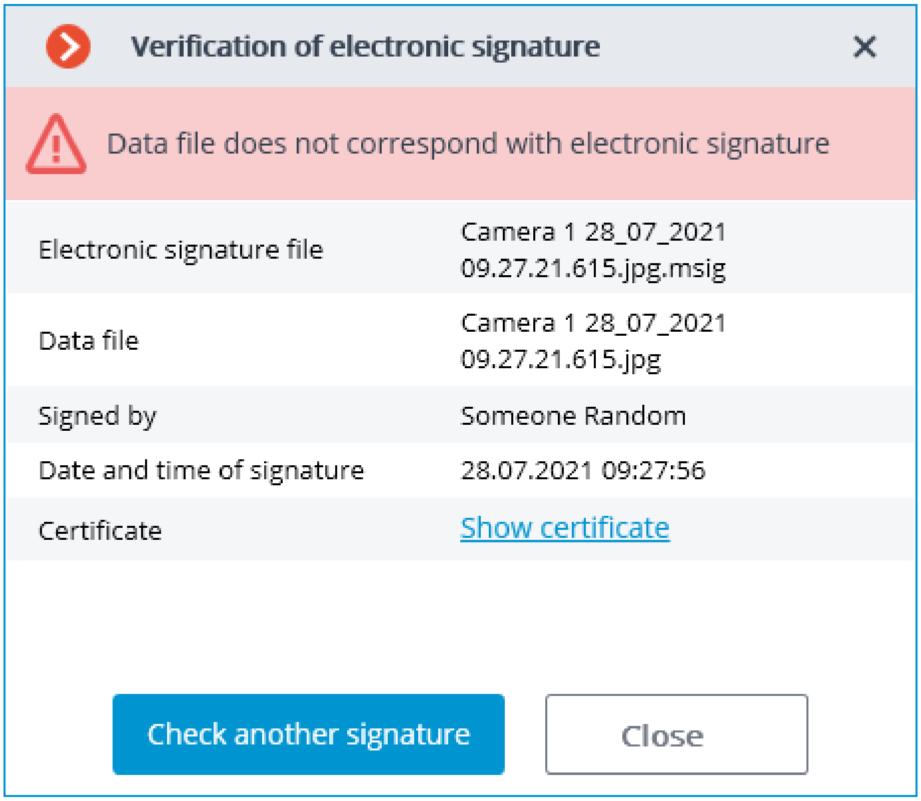
The following window will appear in case of a successful verification:


Verification of electronic signature
Check another signature
Close

Electronic signature valid

Electronic signature file	Camera 1_27_07_2021 17.47.54.mcm.msig
Data file	Camera 1_27_07_2021 17.47.54.mcm
Signed by	Eocortex Employee
Date and time of signature	27.07.2021 17:47:28
Certificate	Show certificate

If the file has been modified, the following window will appear:

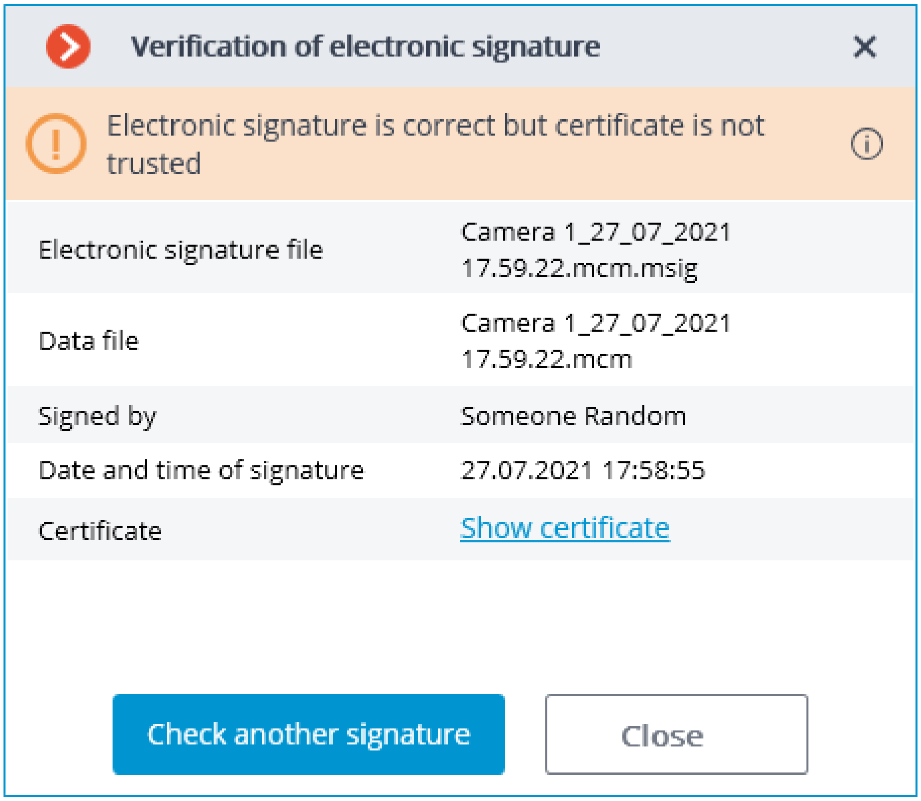

Verification of electronic signature

Data file does not correspond with electronic signature

Electronic signature file	Camera 1 28_07_2021 09.27.21.615.jpg.msig
Data file	Camera 1 28_07_2021 09.27.21.615.jpg
Signed by	Someone Random
Date and time of signature	28.07.2021 09:27:56
Certificate	Show certificate

Check another signature
Close

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

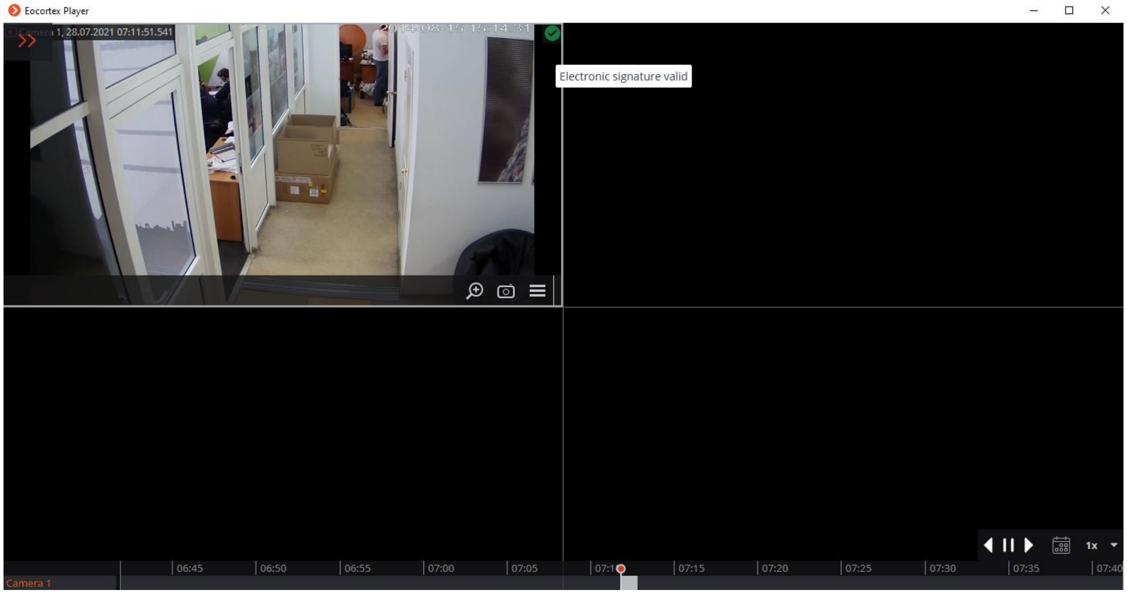

Verification of electronic signature

Electronic signature is correct but certificate is not trusted

Electronic signature file	Camera 1_27_07_2021 17.59.22.mcm.msig
Data file	Camera 1_27_07_2021 17.59.22.mcm
Signed by	Someone Random
Date and time of signature	27.07.2021 17:58:55
Certificate	Show certificate

Check another signature
Close

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.


Eocortex Player
Camera 1, 28.07.2021 07:11:51.541
2014-08-15 15:14:31
Electronic signature valid
1x
06:45
06:50
06:55
07:00
07:05
07:10
07:15
07:20
07:25
07:30
07:35
07:40
Camera 1

Click on the status icon to view the details.

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

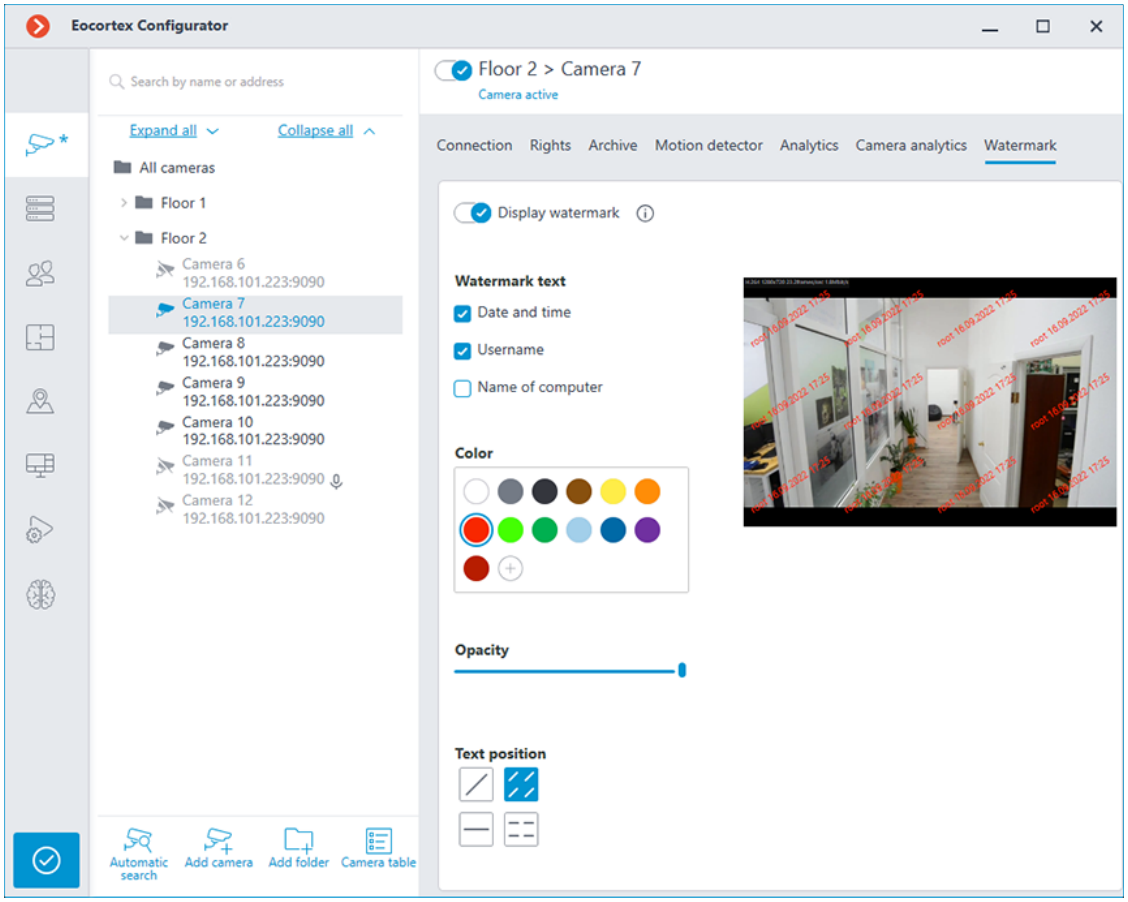
To set up the watermark displaying for a single camera, do the following:

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.


Eocortex Configurator
Search by name or address
Expand all
Collapse all
All cameras
Floor 1
Floor 2
Camera 6
192.168.101.223:9090
Camera 7
192.168.101.223:9090
Camera 8
192.168.101.223:9090
Camera 9
192.168.101.223:9090
Camera 10
192.168.101.223:9090
Camera 11
192.168.101.223:9090
Camera 12
192.168.101.223:9090
Automatic search
Add camera
Add folder
Camera table
Floor 2 > Camera 7
Camera active
Connection
Rights
Archive
Motion detector
Analytics
Camera analytics
Watermark
Color
Opacity
Text position

☑ Display watermark

Watermark text

☑ Date and time

☑ Username

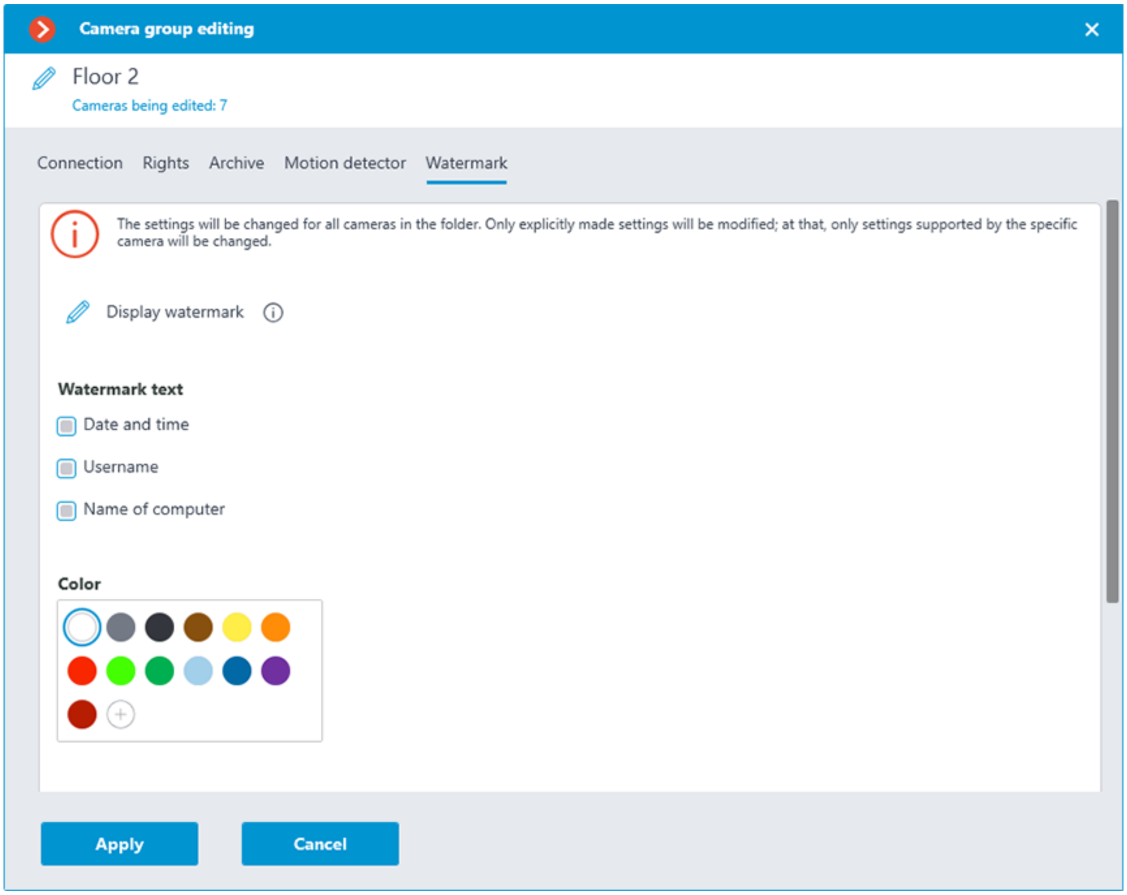
☐ Name of computer

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.



Floor 2

Cameras being edited: 7

The settings will be changed for all cameras in the folder. Only explicitly made settings will be modified; at that, only settings supported by the specific camera will be changed.

Display watermark

Watermark text

☐ Date and time

☐ Username

☐ Name of computer

Color

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.

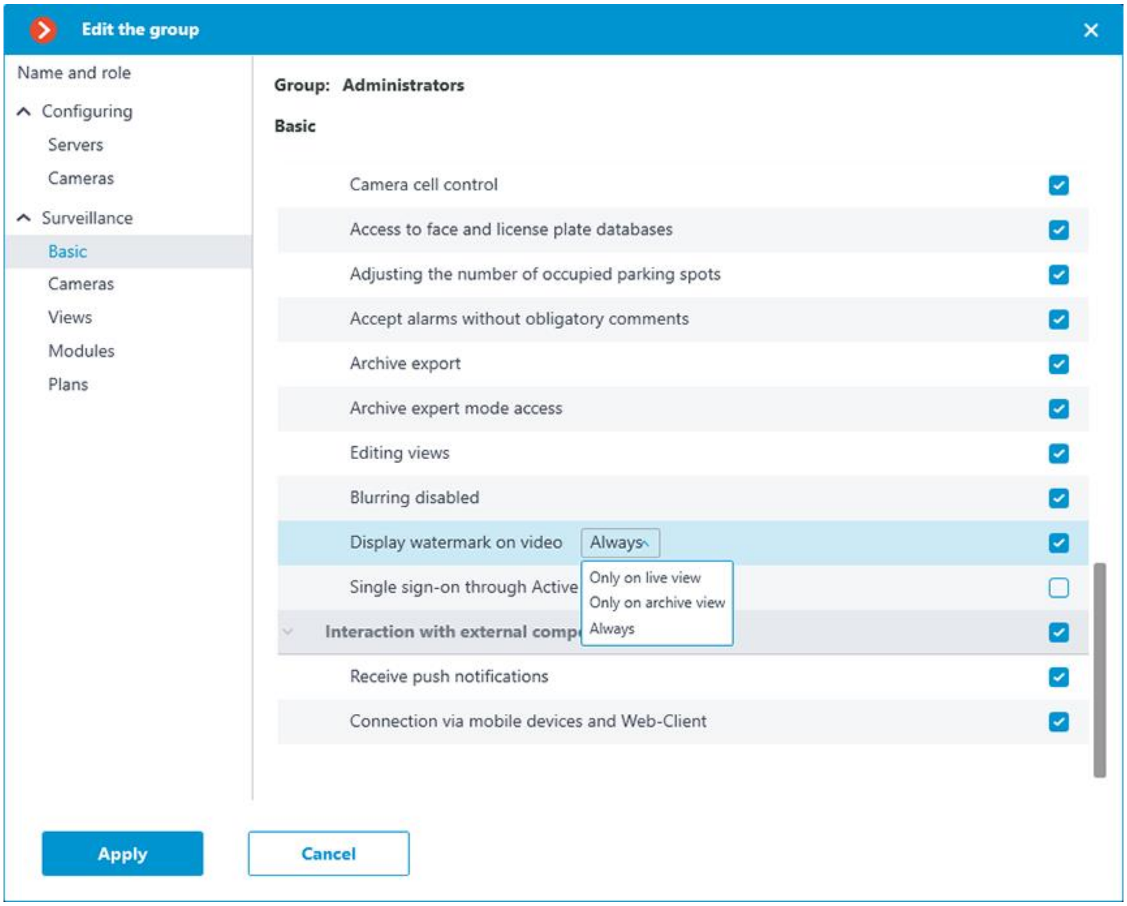
To enable displaying/hiding of the watermark for a user group, follow these steps:

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.


Edit the group
Name and role
Configuring
Servers
Cameras
Surveillance
Basic
Cameras
Views
Modules
Plans
Only on live view
Only on archive view
Always
Apply
Cancel

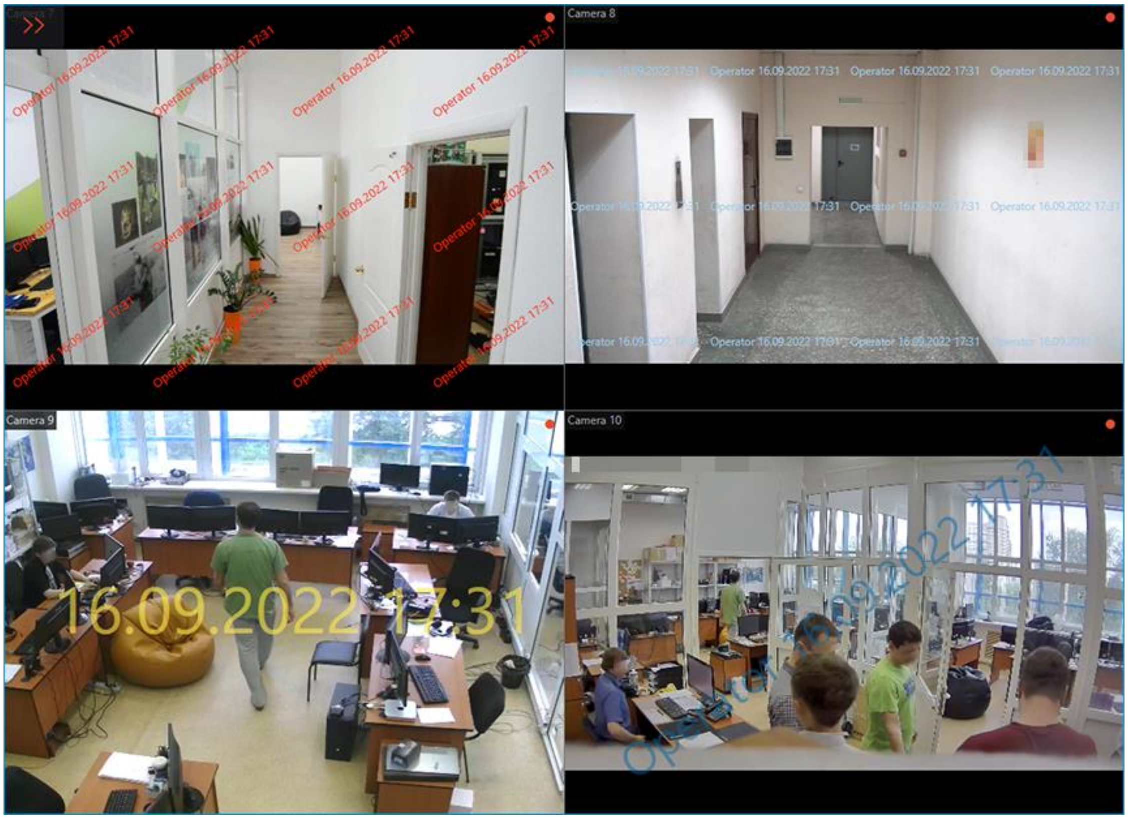
Group: Administrators

Basic

Camera cell control ☑
Access to face and license plate databases ☑
Adjusting the number of occupied parking spots ☑
Accept alarms without obligatory comments ☑
Archive export ☑
Archive expert mode access ☑
Editing views ☑
Blurring disabled ☑
Display watermark on video: Always ☑
Single sign-on through Active ☐
Interaction with external comp ☑
Receive push notifications ☑
Connection via mobile devices and Web-Client ☑

Using in the Eocortex Client application

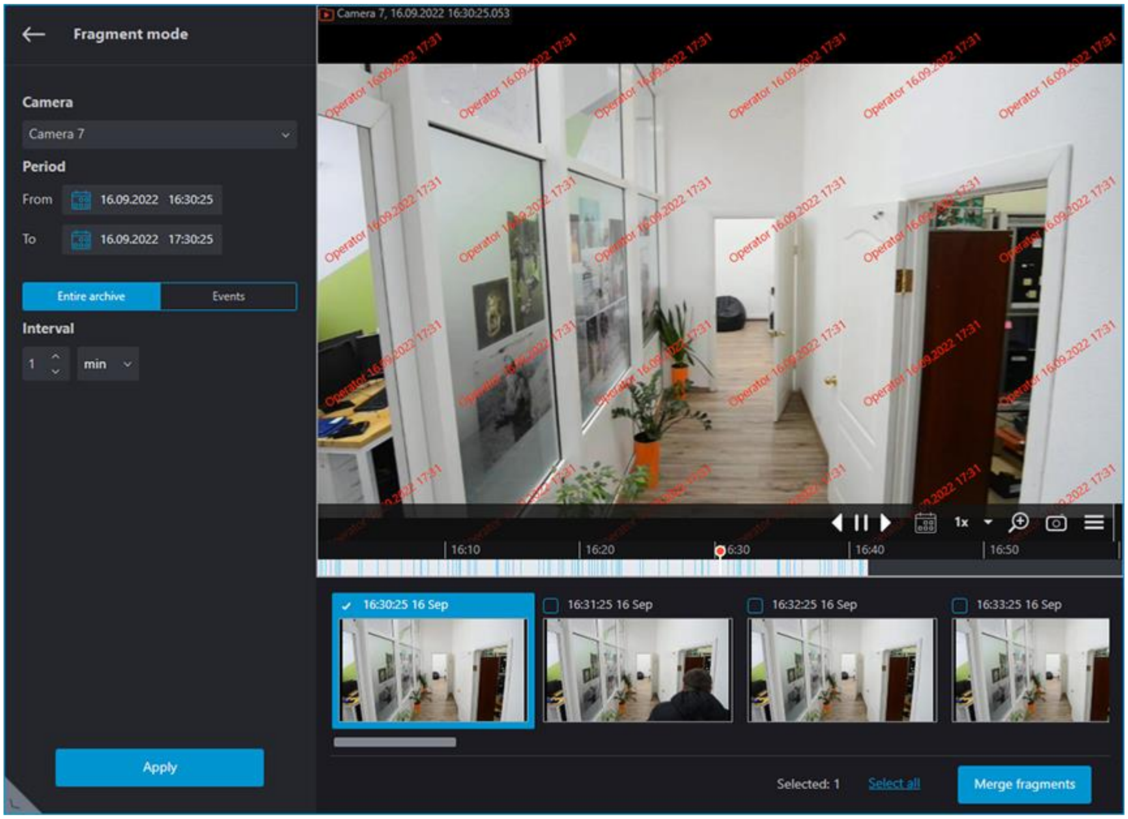
If the camera is set to display a watermark and the user has been given the **Display watermark on video** permission, the **Eocortex Client** application will display the watermark in the cell with the video stream from that camera both during live viewing and archive playback.


Camera 7
Camera 8
Camera 9
Camera 10
Operator 16.09.2022 17:31
16.09.2022 17:31

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.



Camera 7, 16.09.2022 16:30:25.053

Camera: Camera 7

Period

From 16.09.2022 16:30:25

To 16.09.2022 17:30:25

Interval: 1 min

☑ 16:30:25 16 Sep

☐ 16:31:25 16 Sep

☐ 16:32:25 16 Sep

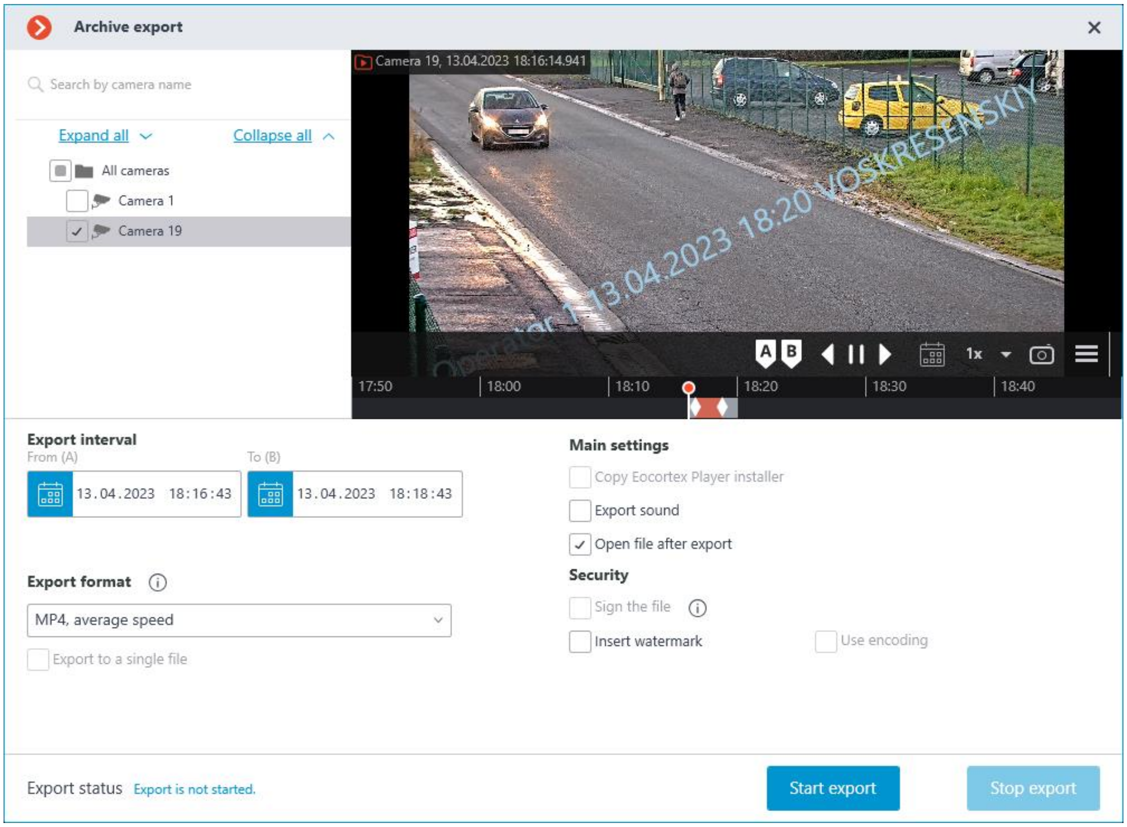
☐ 16:33:25 16 Sep

Selected: 1

Fragment mode
Entire archive
Events
Apply
Operator 16.09.2022 17:31
1x
16:10
16:20
16:30
16:40
16:50
Select all
Merge fragments

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.


Archive export
Search by camera name
Expand all
Collapse all
All cameras
Camera 1
Camera 19
Camera 19, 13.04.2023 18:16:14.941
Operator 1 13.04.2023 18:20 VOSKRESENSKIY
A B
1x
17:50
18:00
18:10
18:20
18:30
18:40

Export interval
From (A) 13.04.2023 18:16:43
To (B) 13.04.2023 18:18:43

Export format: MP4, average speed
☐ Export to a single file

Main settings
☐ Copy Eocortex Player installer
☐ Export sound
☑ Open file after export

Security
☐ Sign the file
☐ Insert watermark
☐ Use encoding

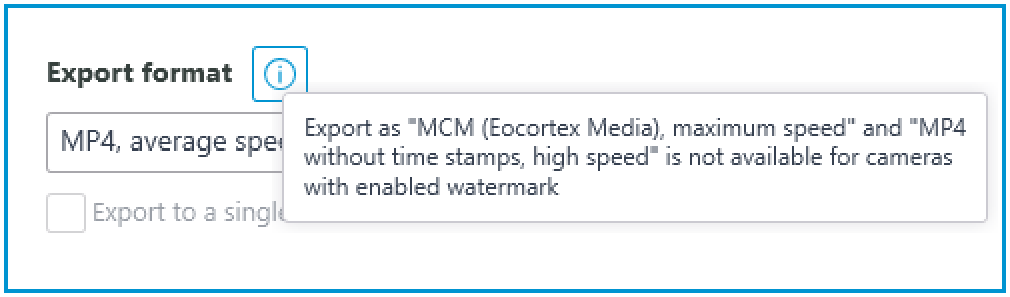
Export status: Export is not started.

Start export
Stop export

Warning

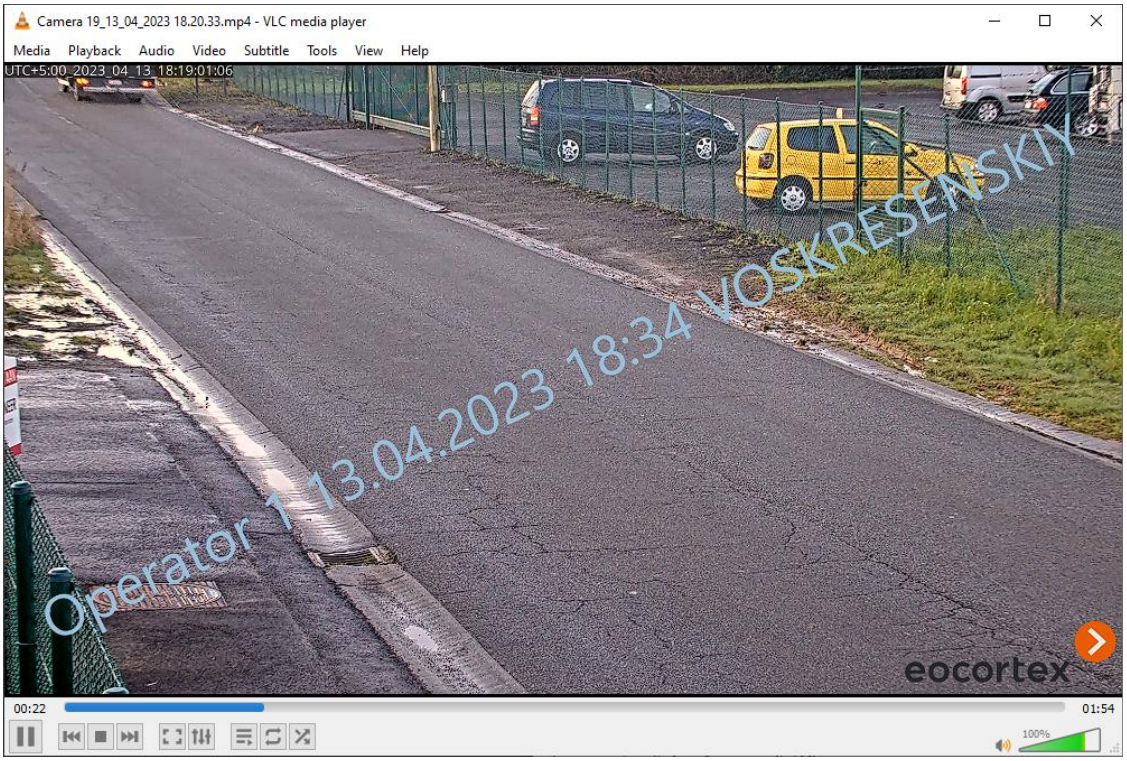
For cameras with applied watermark, exporting the archive in the formats **MCM** and **MP4 without time stamps, high speed** is not available. If at least one camera with enabled watermark is selected when exporting an archive for a group of cameras, exporting to the specified formats will be blocked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

The same information is available in the tooltip next to the format selection menu.


Export format
MP4, average spe
Export to a single

Export as "MCM (Eocortex Media), maximum speed" and "MP4 without time stamps, high speed" is not available for cameras with enabled watermark

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.


Camera 19_13_04_2023 18.20.33.mp4 - VLC media player
Media
Playback
Audio
Video
Subtitle
Tools
View
Help
UTC+5:00 2023 04 13 18:19:01:06
Operator 1 13.04.2023 18:34 VOSKRESENSKIY
eocortex
00:22
01:54
100%

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.

Displaying camera time zones

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.

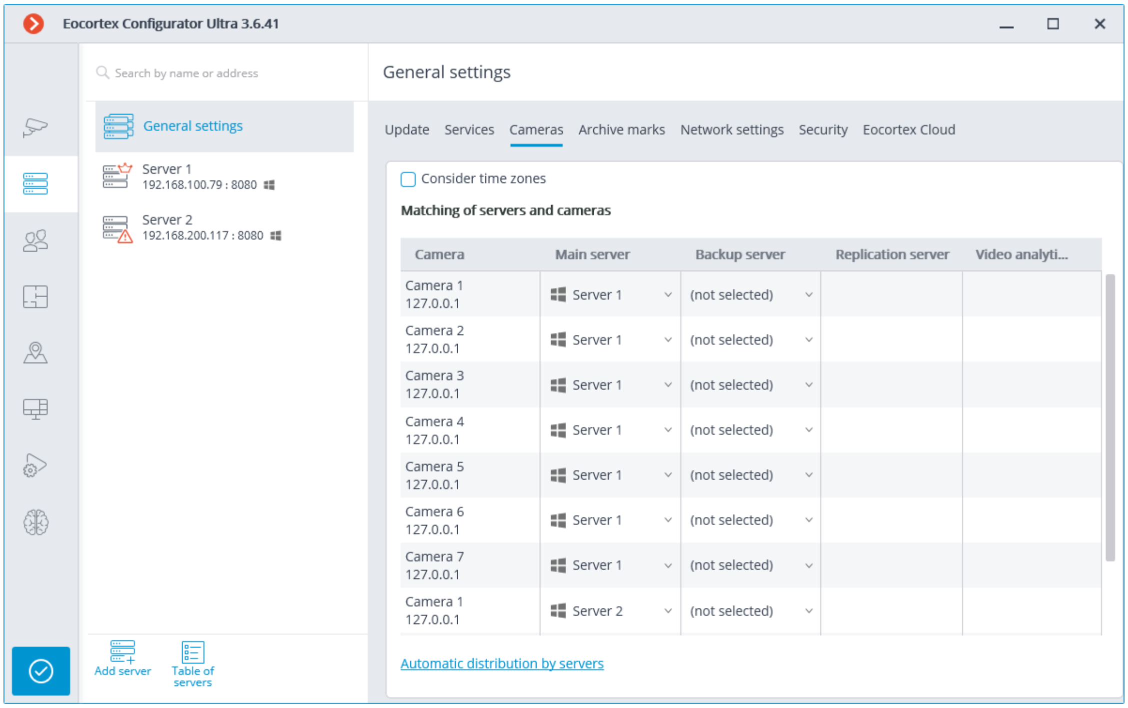
Setting in Eocortex Configurator

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.


Eocortex Configurator Ultra 3.6.41
Search by name or address
General settings
Server 1
192.168.100.79 : 8080
Server 2
192.168.200.117 : 8080
Add server
Table of servers
General settings
Update
Services
Cameras
Archive marks
Network settings
Security
Eocortex Cloud
Automatic distribution by servers

☐ Consider time zones

Matching of servers and cameras

Camera	Main server	Backup server	Replication server	Video analyti...
Camera 1 127.0.0.1	Server 1	(not selected)		
Camera 2 127.0.0.1	Server 1	(not selected)		
Camera 3 127.0.0.1	Server 1	(not selected)		
Camera 4 127.0.0.1	Server 1	(not selected)		
Camera 5 127.0.0.1	Server 1	(not selected)		
Camera 6 127.0.0.1	Server 1	(not selected)		
Camera 7 127.0.0.1	Server 1	(not selected)		
Camera 1 127.0.0.1	Server 2	(not selected)		

Server time zone

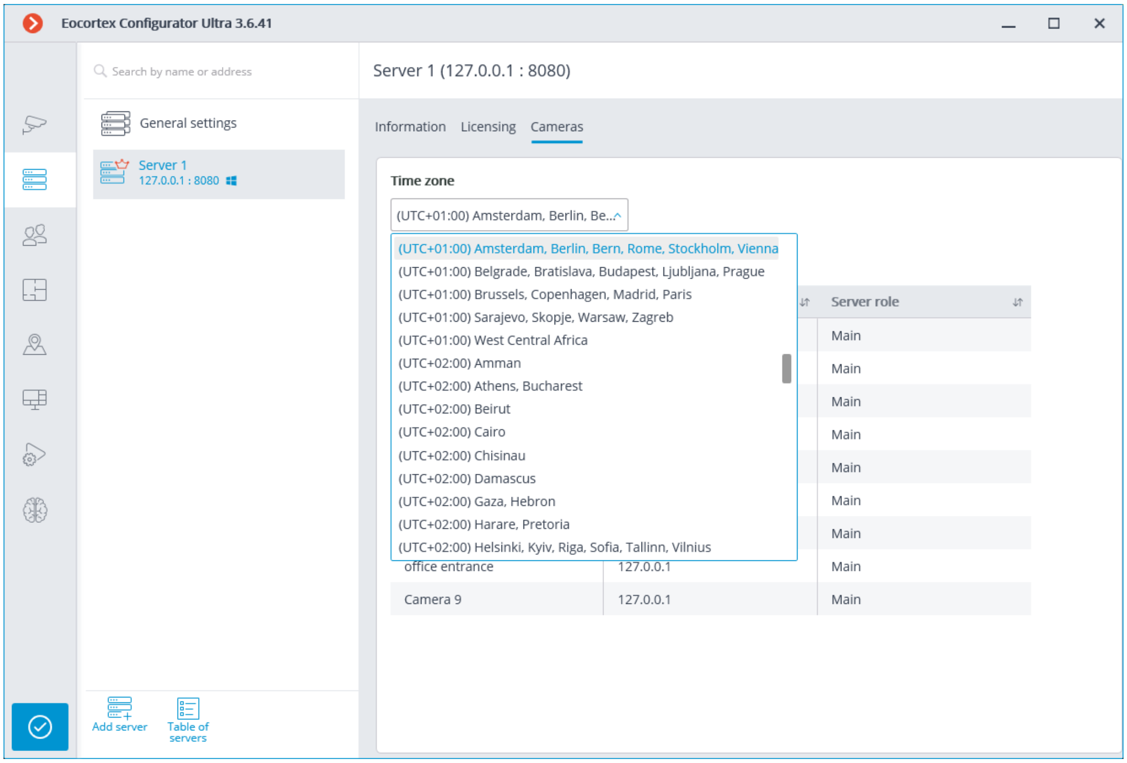
To set up the time zone of the server:

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.

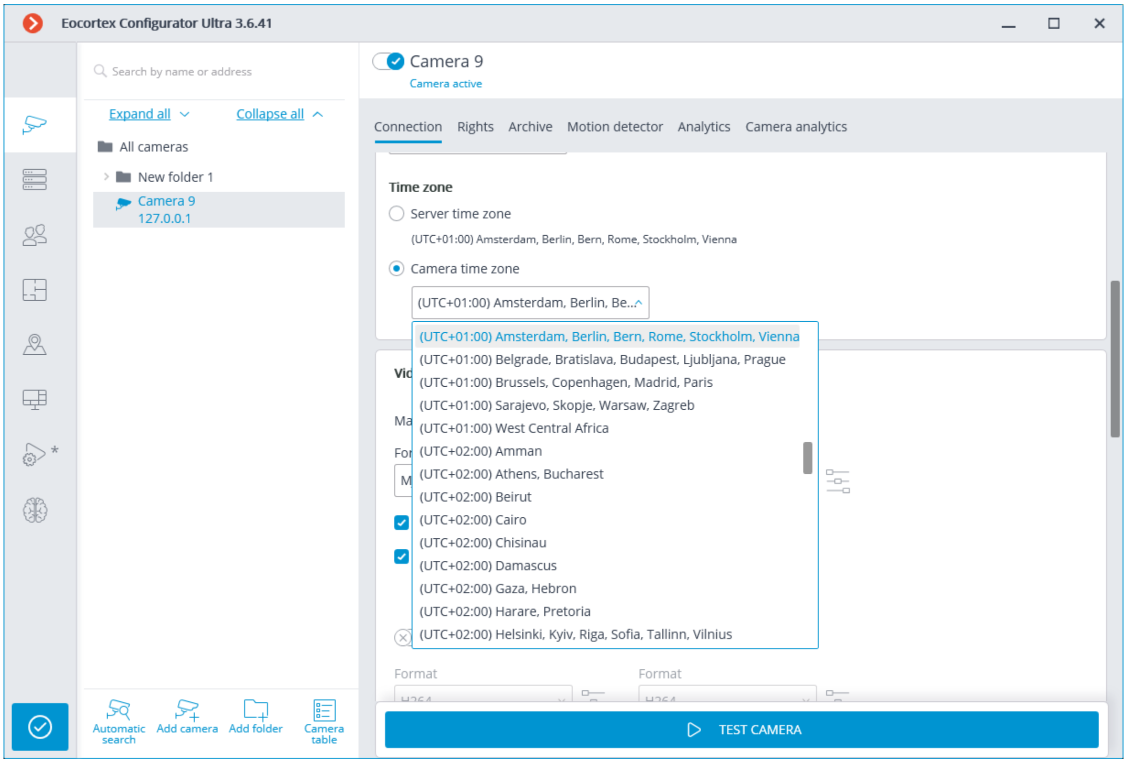

Eocortex Configurator Ultra 3.6.41
Search by name or address
General settings
Server 1
127.0.0.1 : 8080
Server 1 (127.0.0.1 : 8080)
Information
Licensing
Cameras
Time zone
(UTC+01:00) Amsterdam, Berlin, Be...
(UTC+01:00) Amsterdam, Berlin, Bern, Rome, Stockholm, Vienna
(UTC+01:00) Belgrade, Bratislava, Budapest, Ljubljana, Prague
(UTC+01:00) Brussels, Copenhagen, Madrid, Paris
(UTC+01:00) Sarajevo, Skopje, Warsaw, Zagreb
(UTC+01:00) West Central Africa
(UTC+02:00) Amman
(UTC+02:00) Athens, Bucharest
(UTC+02:00) Beirut
(UTC+02:00) Cairo
(UTC+02:00) Chisinau
(UTC+02:00) Damascus
(UTC+02:00) Gaza, Hebron
(UTC+02:00) Harare, Pretoria
(UTC+02:00) Helsinki, Kyiv, Riga, Sofia, Tallinn, Vilnius
Server role
Main
Main
Main
Main
Main
Main
Main
office entrance
127.0.0.1
Main
Camera 9
127.0.0.1
Main
Add server
Table of servers

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.


Eocortex Configurator Ultra 3.6.41
Search by name or address
Expand all
Collapse all
All cameras
New folder 1
Camera 9
127.0.0.1
Camera 9
Camera active
Connection
Rights
Archive
Motion detector
Analytics
Camera analytics
Automatic search
Add camera
Add folder
Camera table
TEST CAMERA
(UTC+01:00) Amsterdam, Berlin, Bern, Rome, Stockholm, Vienna
(UTC+01:00) Belgrade, Bratislava, Budapest, Ljubljana, Prague
(UTC+01:00) Brussels, Copenhagen, Madrid, Paris
(UTC+01:00) Sarajevo, Skopje, Warsaw, Zagreb
(UTC+01:00) West Central Africa
(UTC+02:00) Amman
(UTC+02:00) Athens, Bucharest
(UTC+02:00) Beirut
(UTC+02:00) Cairo
(UTC+02:00) Chisinau
(UTC+02:00) Damascus
(UTC+02:00) Gaza, Hebron
(UTC+02:00) Harare, Pretoria
(UTC+02:00) Helsinki, Kyiv, Riga, Sofia, Tallinn, Vilnius
Format
Format

Time zone
○ Server time zone
(UTC+01:00) Amsterdam, Berlin, Bern, Rome, Stockholm, Vienna
● Camera time zone
(UTC+01:00) Amsterdam, Berlin, Be...

Group of cameras time zone

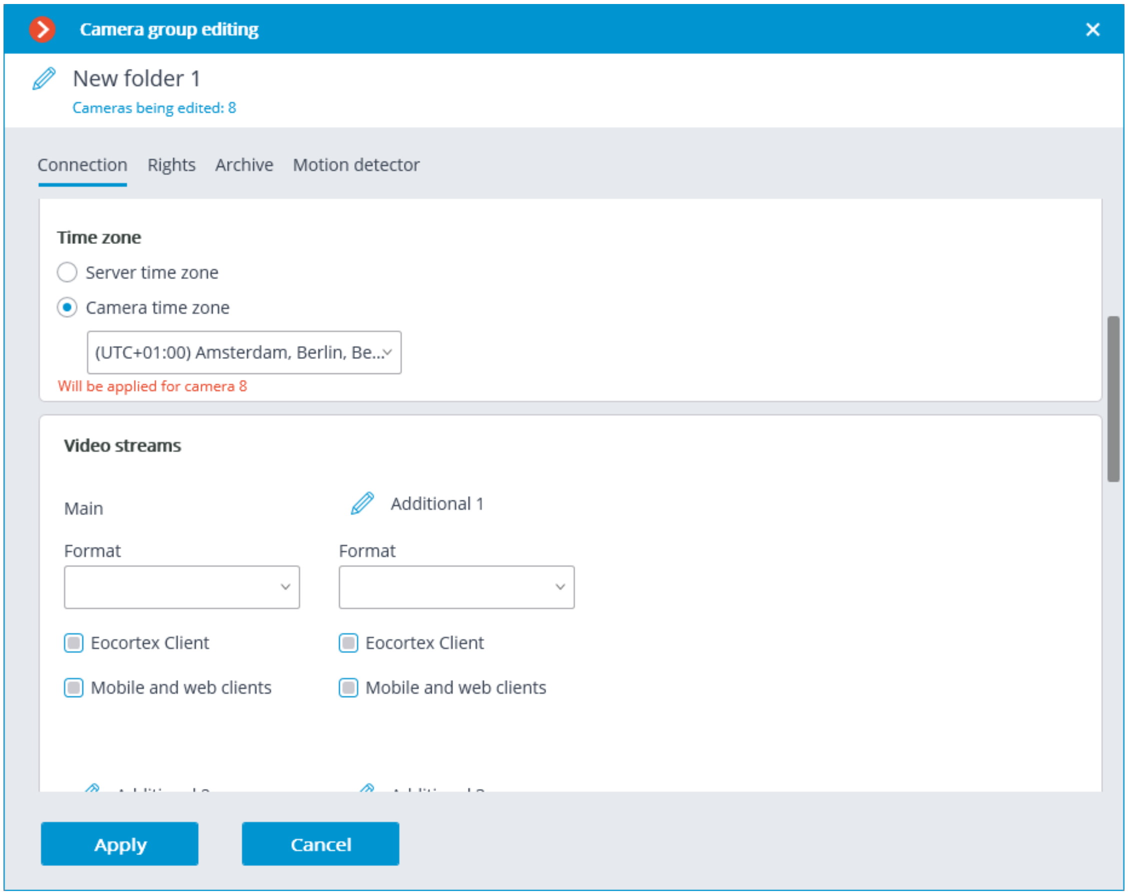
If the time zone settings must be changed for the group of cameras:

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.


Camera group editing
Connection
Rights
Archive
Motion detector
Video streams
Main
Additional 1
Format
Format
Apply
Cancel

New folder 1

Cameras being edited: 8

Time zone

○ Server time zone

● Camera time zone

(UTC+01:00) Amsterdam, Berlin, Be...

Will be applied for camera 8

☐ Eocortex Client

☐ Mobile and web clients

☐ Eocortex Client

☐ Mobile and web clients

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.

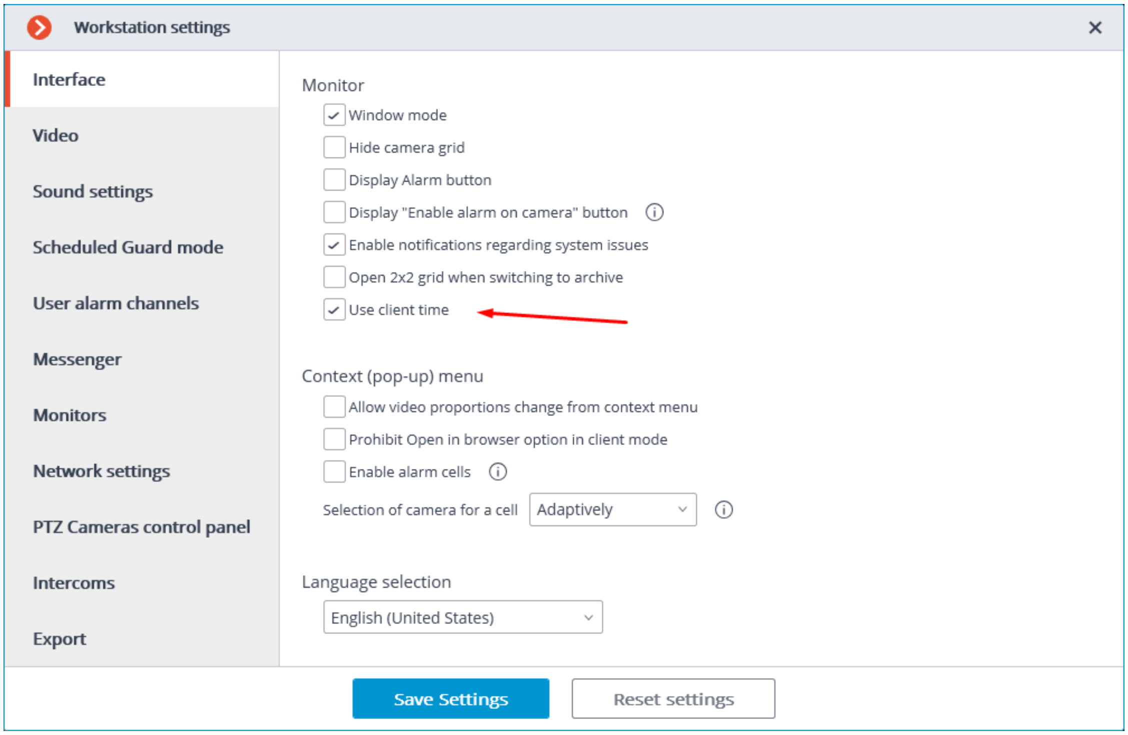
Setting in Eocortex Client

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.


Workstation settings
Interface
Video
Sound settings
Scheduled Guard mode
User alarm channels
Messenger
Monitors
Network settings
PTZ Cameras control panel
Intercoms
Export
Save Settings
Reset settings

Monitor

☑ Window mode
☐ Hide camera grid
☐ Display Alarm button
☐ Display "Enable alarm on camera" button
☑ Enable notifications regarding system issues
☐ Open 2x2 grid when switching to archive
☑ Use client time

Context (pop-up) menu

☐ Allow video proportions change from context menu
☐ Prohibit Open in browser option in client mode
☐ Enable alarm cells

Selection of camera for a cell: Adaptively

Language selection: English (United States)

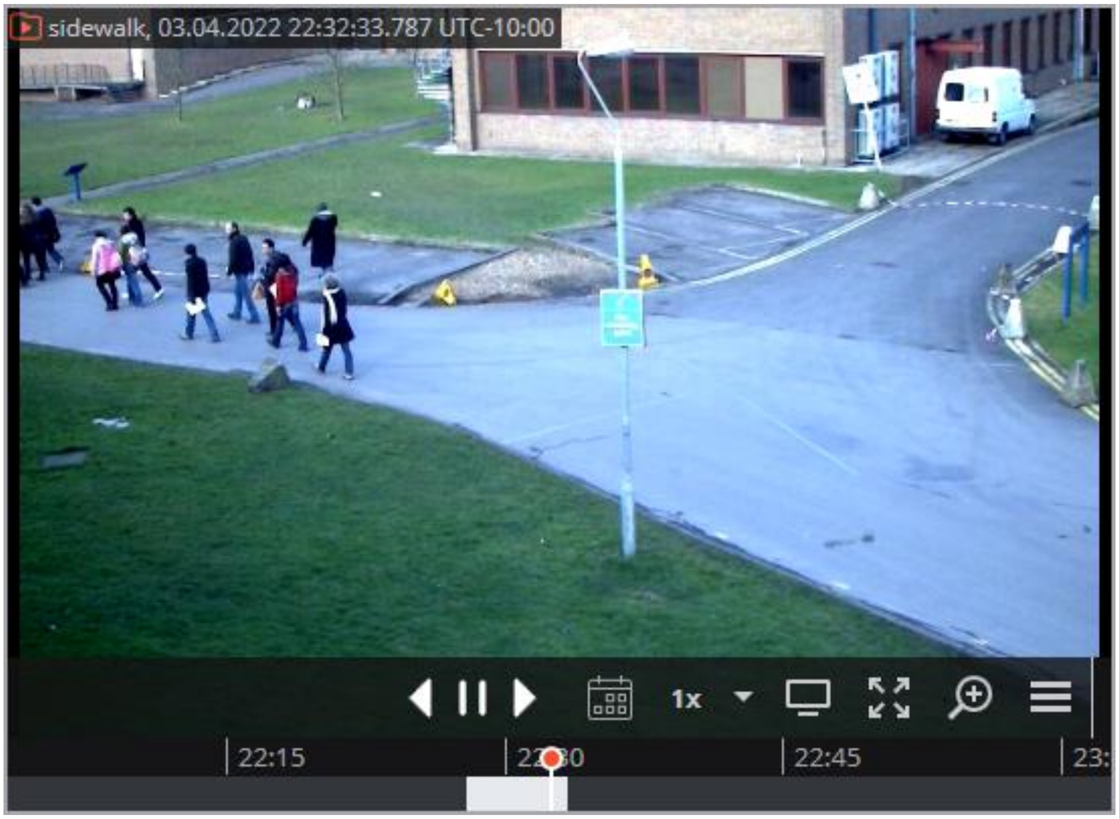
Using time zones

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.


sidewalk, 03.04.2022 22:32:33.787 UTC-10:00
1x
22:15
22:30
22:45
23:

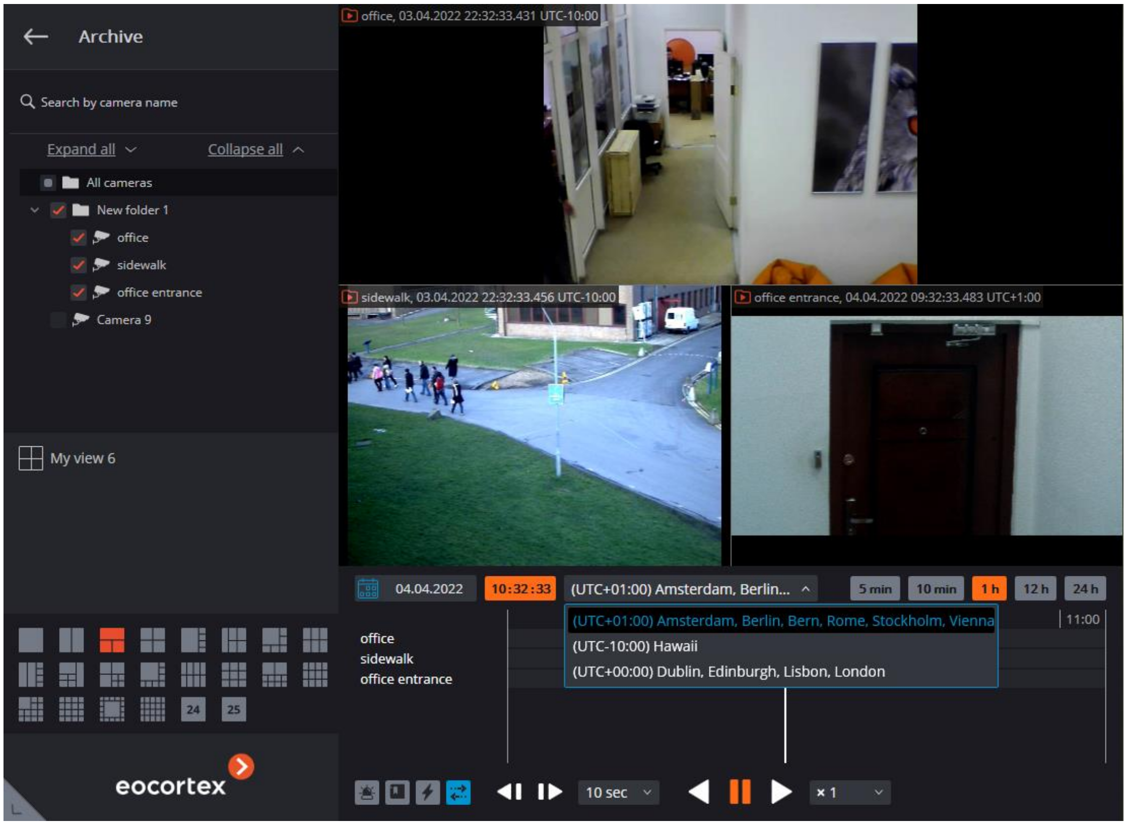
Archive of multiple cameras

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.


Archive
Search by camera name
Expand all
Collapse all
All cameras
New folder 1
office
sidewalk
office entrance
Camera 9
My view 6
eocortex
office, 03.04.2022 22:32:33.431 UTC-10:00
sidewalk, 03.04.2022 22:32:33.456 UTC-10:00
office entrance, 04.04.2022 09:32:33.483 UTC+1:00
04.04.2022
10:32:33
(UTC+01:00) Amsterdam, Berlin...
5 min
10 min
1 h
12 h
24 h
(UTC+01:00) Amsterdam, Berlin, Bern, Rome, Stockholm, Vienna
(UTC-10:00) Hawaii
(UTC+00:00) Dublin, Edinburgh, Lisbon, London
11:00
office
sidewalk
office entrance
10 sec
× 1

Note

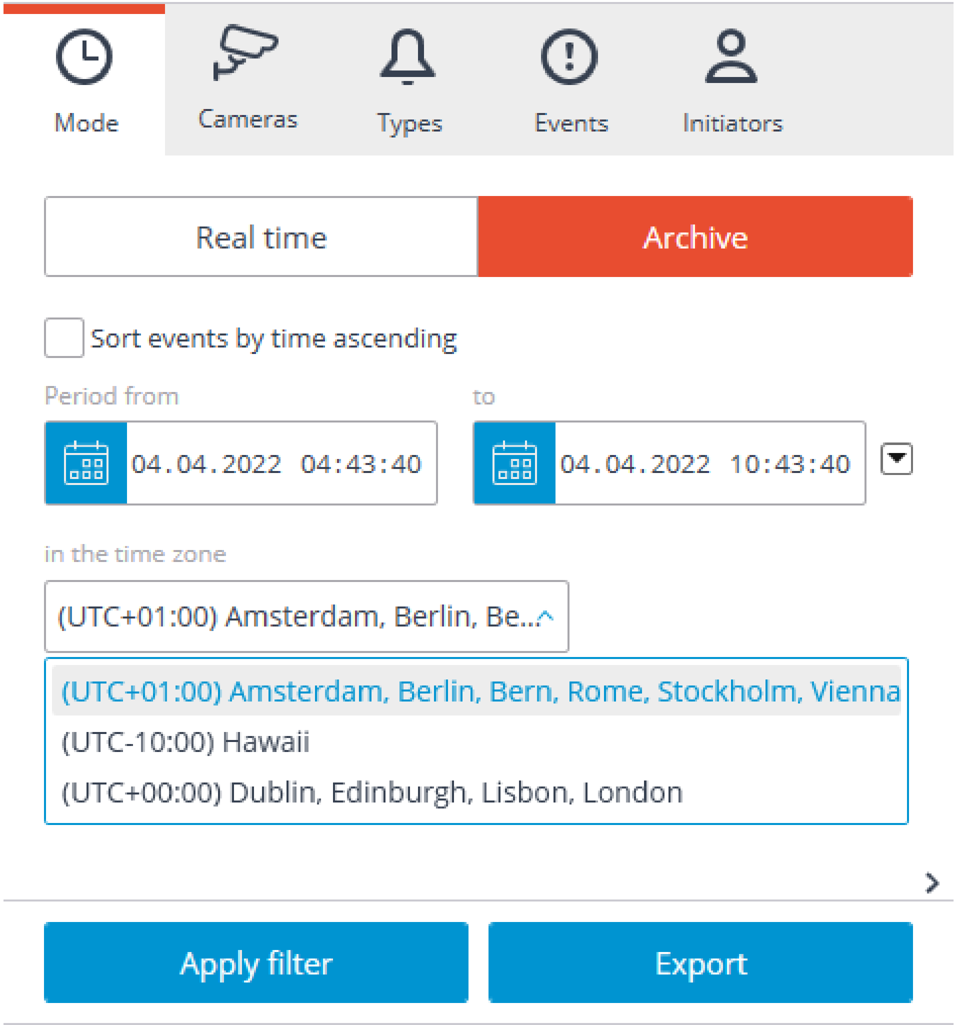
When a new time zone is selected, the time on the timeline will change according to the selected time zone. For example, if the user changes the time zone from UTC+05:00 to UTC+03:00, then the values on the timeline would decrease by 2 hours.

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.



☐ Sort events by time ascending

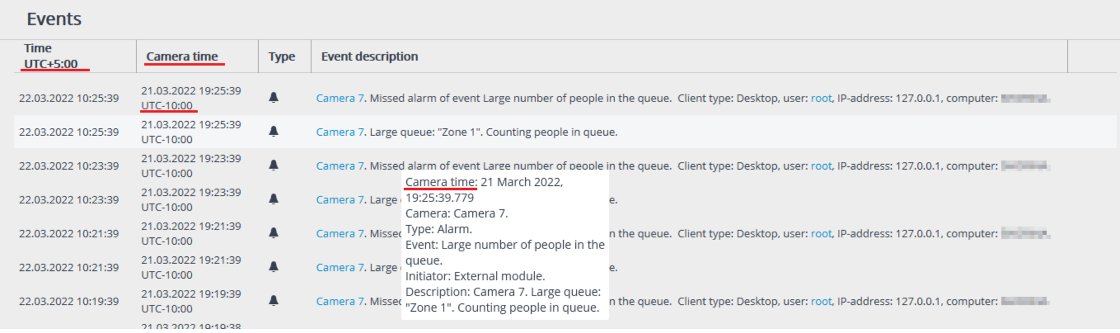
Period from 04.04.2022 04:43:40 to 04.04.2022 10:43:40

in the time zone

(UTC+01:00) Amsterdam, Berlin, Be...

(UTC+01:00) Amsterdam, Berlin, Bern, Rome, Stockholm, Vienna
(UTC-10:00) Hawaii
(UTC+00:00) Dublin, Edinburgh, Lisbon, London

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



Events

Time UTC+5:00	Camera time	Type	Event description
22.03.2022 10:25:39	21.03.2022 19:25:39 UTC-10:00	🔔	Camera 7. Missed alarm of event Large number of people in the queue. Client type: Desktop, user: root, IP-address: 127.0.0.1, computer: [redacted].
22.03.2022 10:25:39	21.03.2022 19:25:39 UTC-10:00	🔔	Camera 7. Large queue: "Zone 1". Counting people in queue.
22.03.2022 10:23:39	21.03.2022 19:23:39 UTC-10:00	🔔	Camera 7. Missed alarm of event Large number of people in the queue. Client type: Desktop, user: root, IP-address: 127.0.0.1, computer: [redacted].
22.03.2022 10:23:39	21.03.2022 19:23:39 UTC-10:00	🔔	Camera 7. Large e.
22.03.2022 10:21:39	21.03.2022 19:21:39 UTC-10:00	🔔	Camera 7. Missed n the queue. Client type: Desktop, user: root, IP-address: 127.0.0.1, computer: [redacted].
22.03.2022 10:21:39	21.03.2022 19:21:39 UTC-10:00	🔔	Camera 7. Large e.
22.03.2022 10:19:39	21.03.2022 19:19:39 UTC-10:00	🔔	Camera 7. Missed n the queue. Client type: Desktop, user: root, IP-address: 127.0.0.1, computer: [redacted].
	21.03.2022 19:19:38		

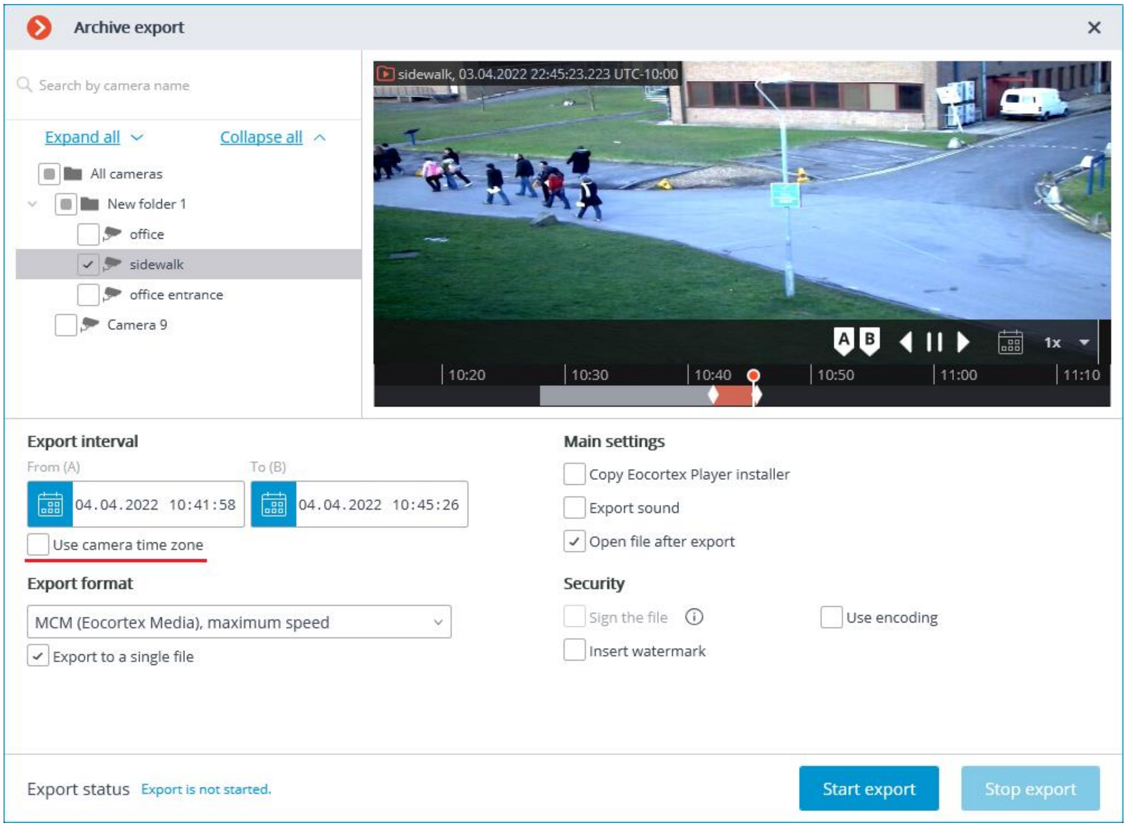
Camera time: 21 March 2022, 19:25:39.779
Camera: Camera 7.
Type: Alarm.
Event: Large number of people in the queue.
Initiator: External module.
Description: Camera 7. Large queue: "Zone 1". Counting people in queue.

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.


Archive export
Search by camera name
Expand all
Collapse all
All cameras
New folder 1
office
sidewalk
office entrance
Camera 9
sidewalk, 03.04.2022 22:45:23.223 UTC-10:00
A
B
1x
10:20
10:30
10:40
10:50
11:00
11:10
Start export
Stop export

Export interval

From (A): 04.04.2022 10:41:58

To (B): 04.04.2022 10:45:26

☐ Use camera time zone

Export format

MCM (Eocortex Media), maximum speed

☑ Export to a single file

Main settings

☐ Copy Eocortex Player installer

☐ Export sound

☑ Open file after export

Security

☐ Sign the file

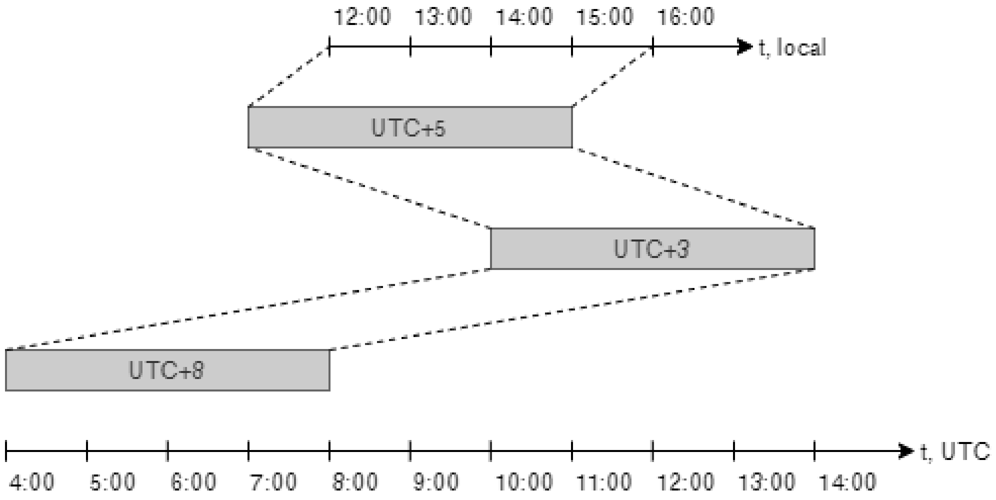
☐ Use encoding

☐ Insert watermark

Export status Export is not started.

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.


12:00
13:00
14:00
15:00
16:00
t, local
UTC+5
UTC+3
UTC+8
t, UTC
4:00
5:00
6:00
7:00
8:00
9:00
10:00
11:00
12:00
13:00
14:00

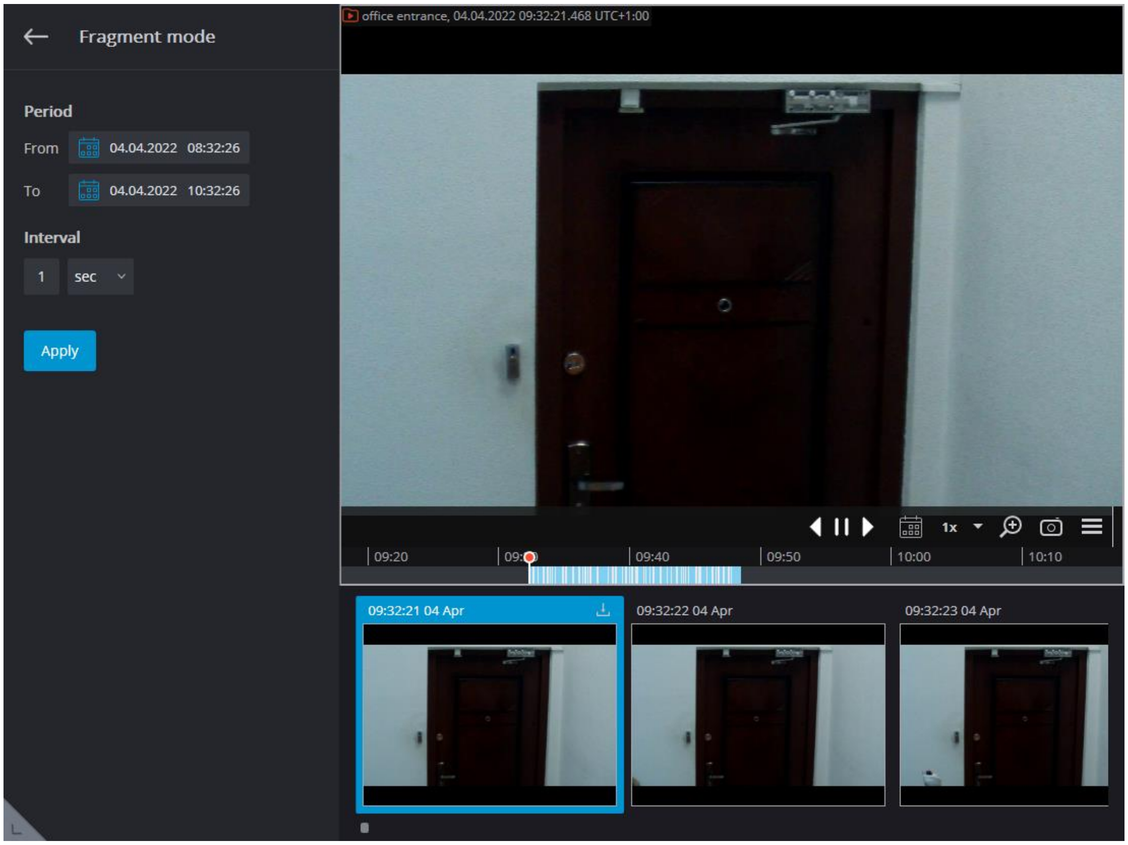
Note

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.



office entrance, 04.04.2022 09:32:21.468 UTC+1:00

Fragment mode

Period

From 04.04.2022 08:32:26

To 04.04.2022 10:32:26

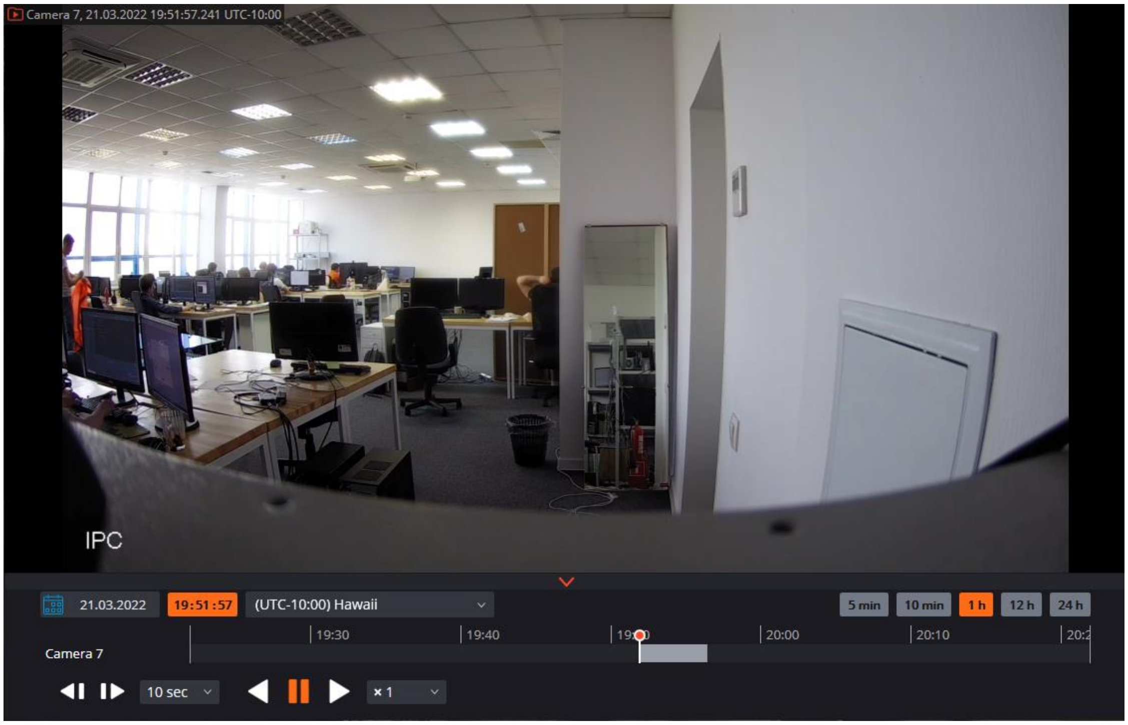
Interval

1 sec

Apply
1x
09:20
09:
09:40
09:50
10:00
10:10
09:32:21 04 Apr
09:32:22 04 Apr
09:32:23 04 Apr

Eocortex Player

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



Camera 7, 21.03.2022 19:51:57.241 UTC-10:00

21.03.2022 19:51:57 (UTC-10:00) Hawaii

IPC
5 min
10 min
1 h
12 h
24 h
19:30
19:40
19:
20:00
20:10
20:
Camera 7
10 sec
× 1

Note

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

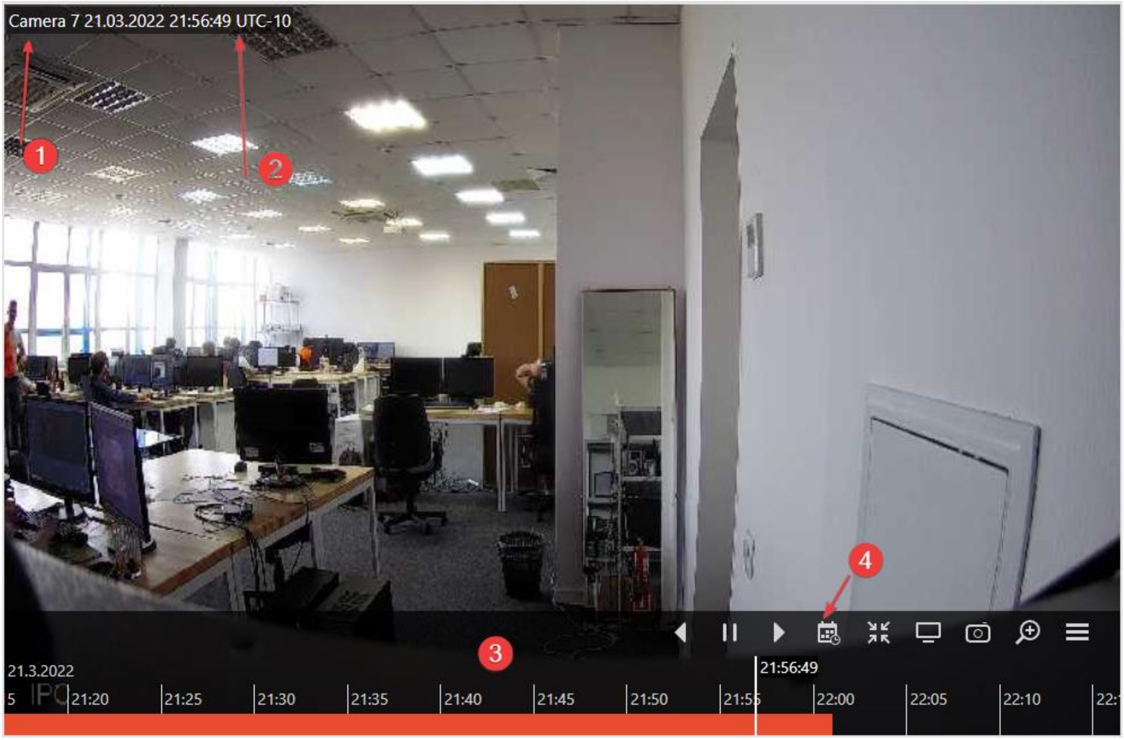
Note

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.


Camera 7 21.03.2022 21:56:49 UTC-10
1
2
4
3
21.3.2022
21:56:49
21:20
21:25
21:30
21:35
21:40
21:45
21:50
22:00
22:05
22:10

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.

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**

Multiserver system

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.

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 VLAN) 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 VLAN 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.

Particularities of the secure connection of Eocortex server to cameras

- 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 particularities of the SSL/TLS certificates being installed on the server are as follows

- 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.

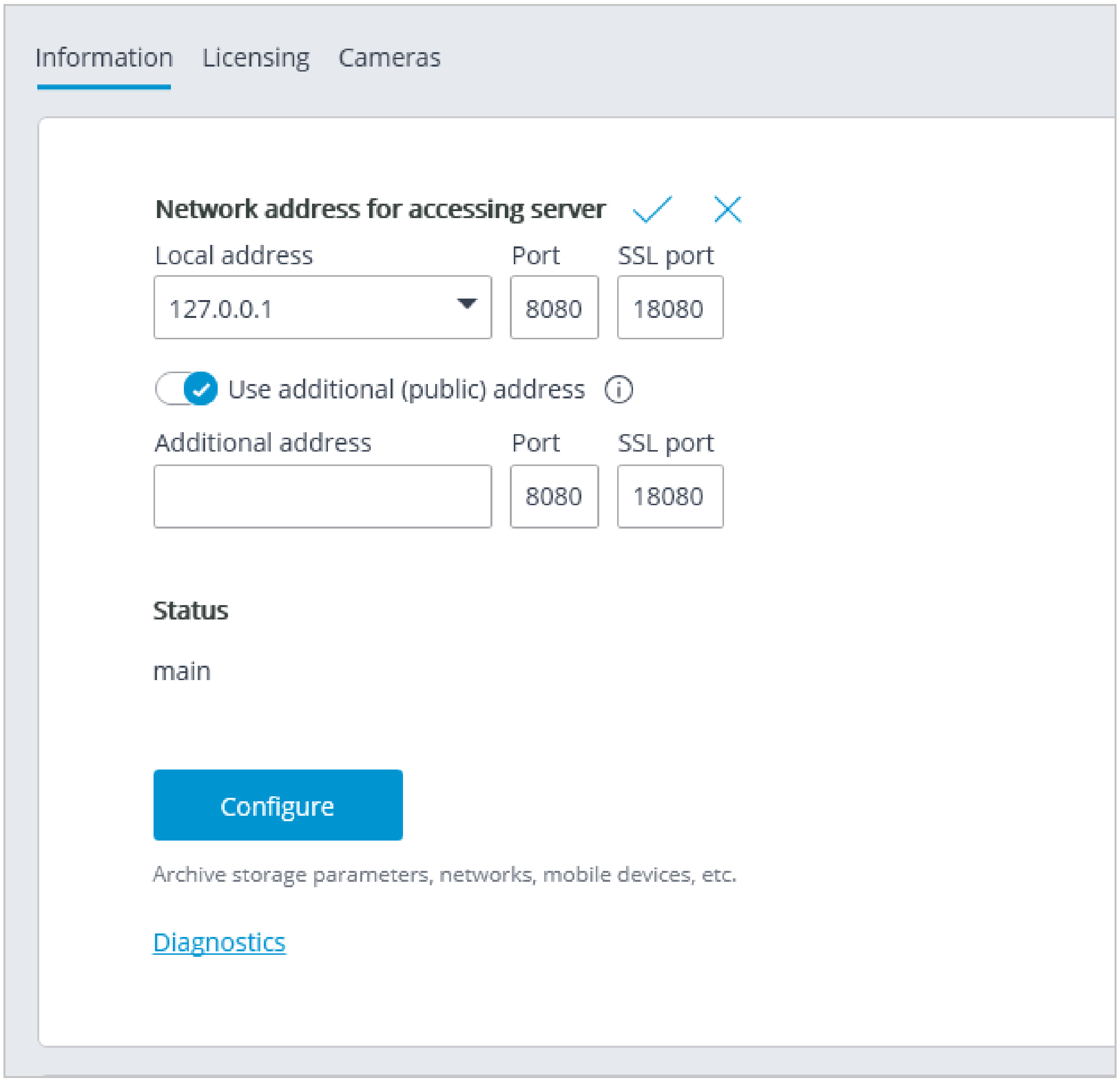
Two addresses for the same server

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

In order 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.



Network address for accessing server

Local address: 127.0.0.1
Port: 8080
SSL port: 18080

☑ Use additional (public) address

Additional address:
Port: 8080
SSL port: 18080

Status

main

Archive storage parameters, networks, mobile devices, etc.

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. This 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

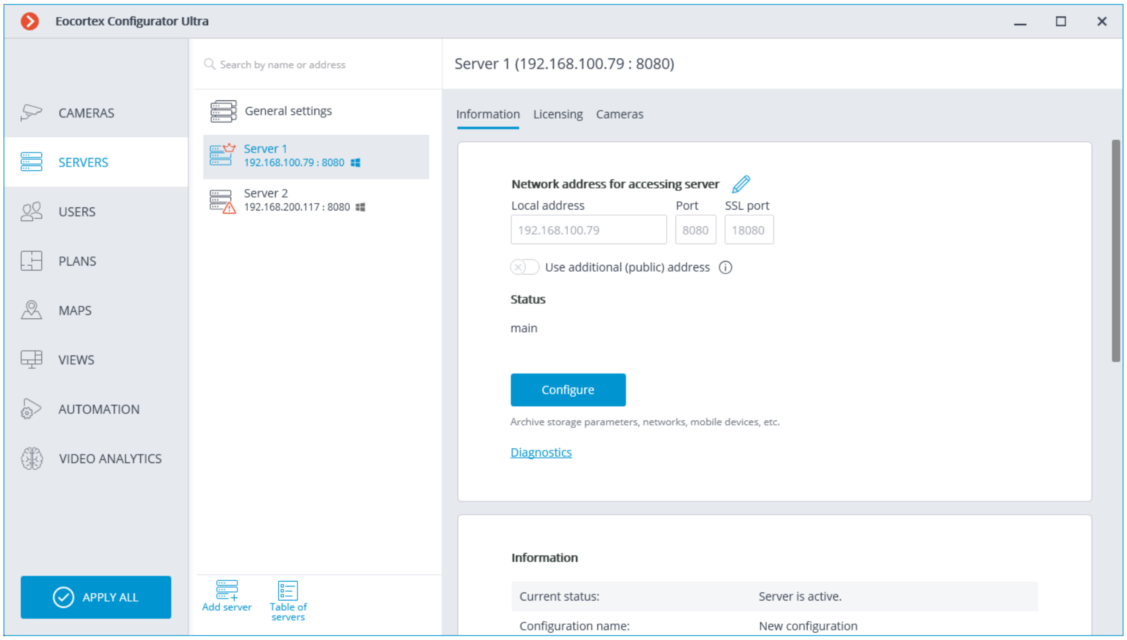
Decoding video encoded with MJPEG on the GPU does not provide an advantage over decoding that video on the CPU.

For detailed information on video resolution limitations and supported codec profiles can be found 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 **page Servers**.
3. Select the server in the list and on the **Information** tab, click **Configure** (or select **Configure** from the context menu).



Eocortex Configurator Ultra
CAMERAS
SERVERS
USERS
PLANS
MAPS
VIEWS
AUTOMATION
VIDEO ANALYTICS
APPLY ALL
Search by name or address
General settings
Server 1
192.168.100.79 : 8080
Server 2
192.168.200.117 : 8080
Add server
Table of servers
Information
Licensing
Cameras
Configure
Diagnostics

Server 1 (192.168.100.79 : 8080)

Network address for accessing server

Local address: 192.168.100.79
Port: 8080
SSL port: 18080

Use additional (public) address

Status

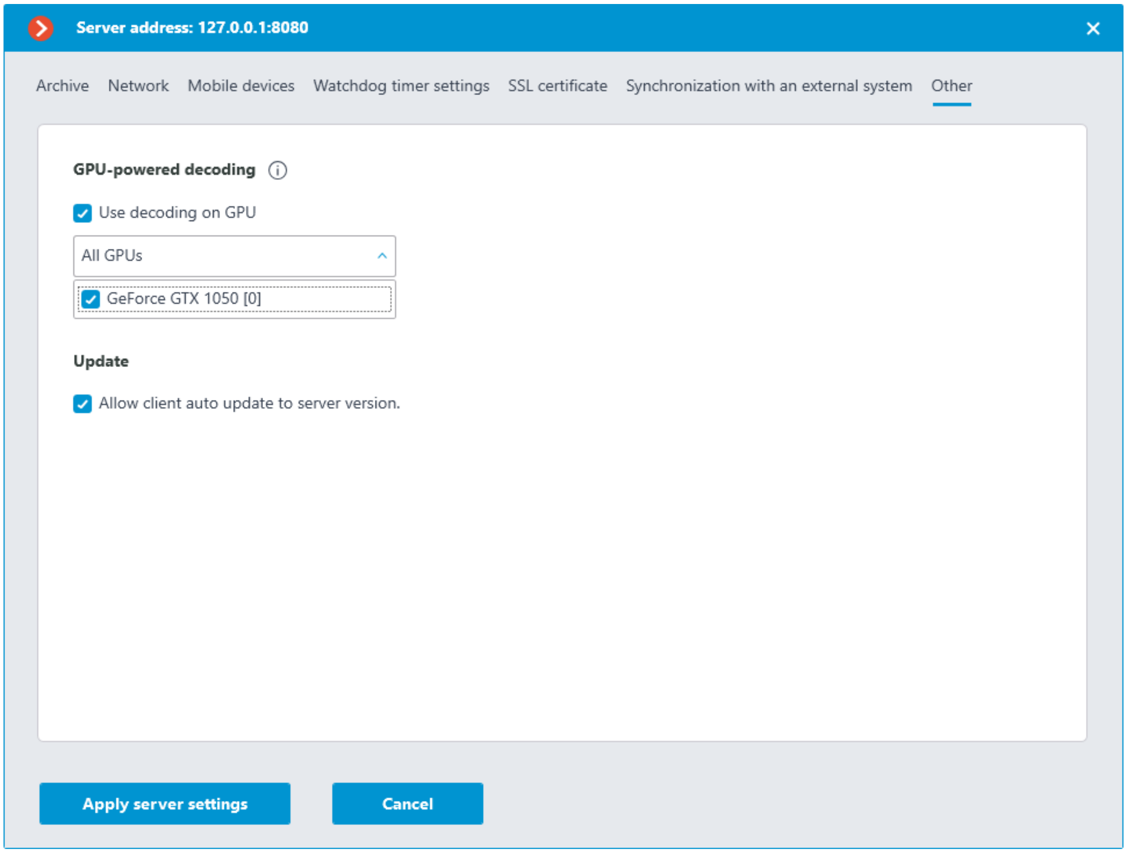
main

Archive storage parameters, networks, mobile devices, etc.

Information

Current status:	Server is active.
Configuration name:	New configuration

4. In the window that opens switch to the **Other** tab.



Server address: 127.0.0.1:8080
Archive
Network
Mobile devices
Watchdog timer settings
SSL certificate
Synchronization with an external system
Other
Apply server settings
Cancel

GPU-powered decoding

☑ Use decoding on GPU

All GPUs

☑ GeForce GTX 1050 [0]

Update

☑ Allow client auto update to server version.

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.

Features of setup and use

After the initial server installation or after upgrading the server 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** server does not detect any of the graphics cards selected for decoding when the **Eocortex** option is enabled, 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 start only after 30-40 seconds of server operation. Thereafter, balancing is done 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 unit does not exceed 75%, then some of the cameras will be shifted to the GPU. If the load on the GPU decoding unit exceeds 85%, then some of the cameras will be moved 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 will be transferred during load balancing.
- For more optimal load balancing 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, provided that both of them have internet access. At that, the **Eocortex** server does not have to have a public static IP address or to be in the same VLAN 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 VLAN 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 VLAN 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**.

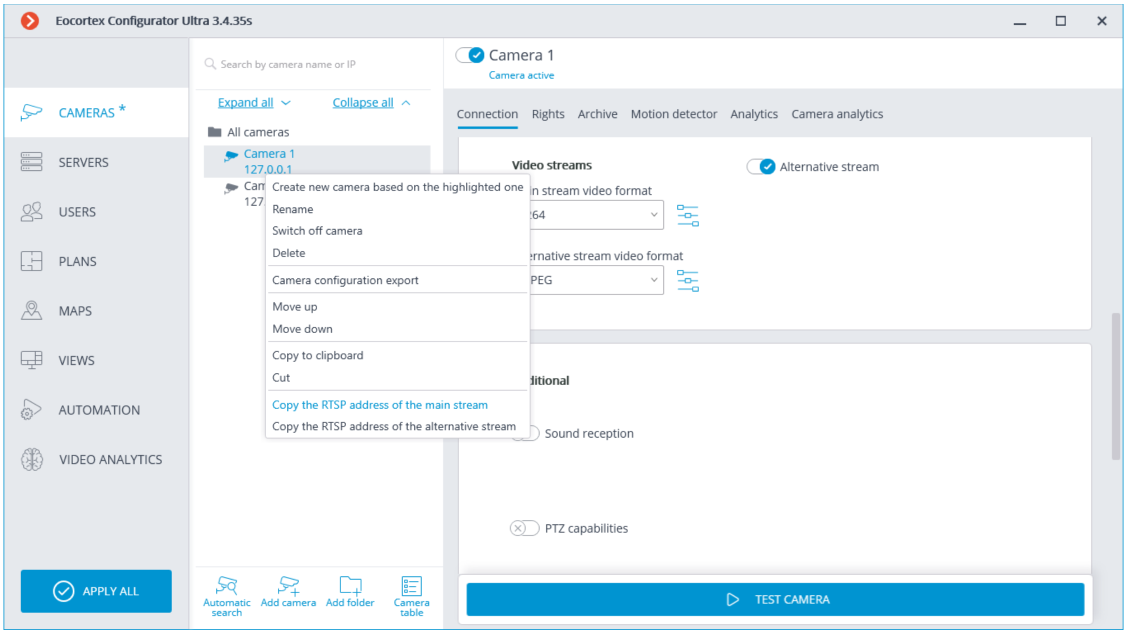
Note

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, it is required to perform the following steps:

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


Eocortex Configurator Ultra 3.4.35s
Search by camera name or IP
Expand all
Collapse all
CAMERAS *
SERVERS
USERS
PLANS
MAPS
VIEWS
AUTOMATION
VIDEO ANALYTICS
APPLY ALL
All cameras
Camera 1
127.0.0.1
Cam
127
Create new camera based on the highlighted one
Rename
Switch off camera
Delete
Camera configuration export
Move up
Move down
Copy to clipboard
Cut
Copy the RTSP address of the main stream
Copy the RTSP address of the alternative stream
Automatic search
Add camera
Add folder
Camera table
Camera 1
Camera active
Connection
Rights
Archive
Motion detector
Analytics
Camera analytics
Video streams
Alternative stream
in stream video format
64
ernative stream video format
PEG
ditional
Sound reception
PTZ capabilities
TEST CAMERA

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 **launch the Eocortex Configurator application** 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

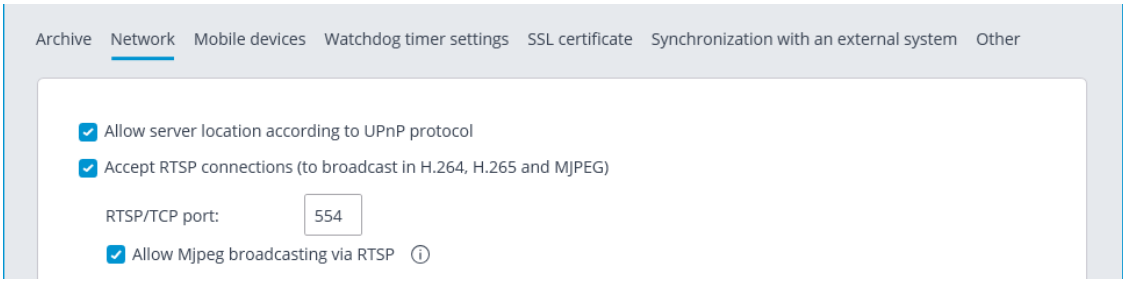
The RTSP links are also generated for those cameras that have been disabled in the configuration.

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**.



☑ Allow server location according to UPnP protocol

☑ Accept RTSP connections (to broadcast in H.264, H.265 and MJPEG)

RTSP/TCP port: 554

☑ Allow Mjpeg broadcasting via RTSP

Samples of RTSP links

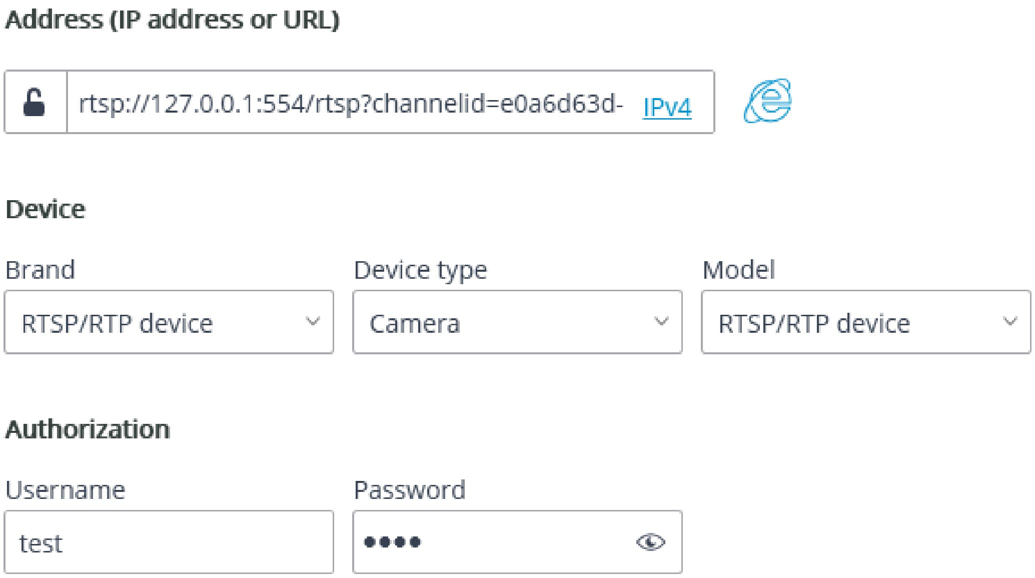
Non-standard RTSP port, main stream:
rtsp://192.168.100.118:556/rtsp?channelid=0eea2046-7d4c-4a25-9df8-e0aedae99bed

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=81DC9BDB52D04DC20036DBD8313ED055&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-

Device

Brand: RTSP/RTP device

Device type: Camera

Model: RTSP/RTP device

Authorization

Username: test

Password: ••••

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.

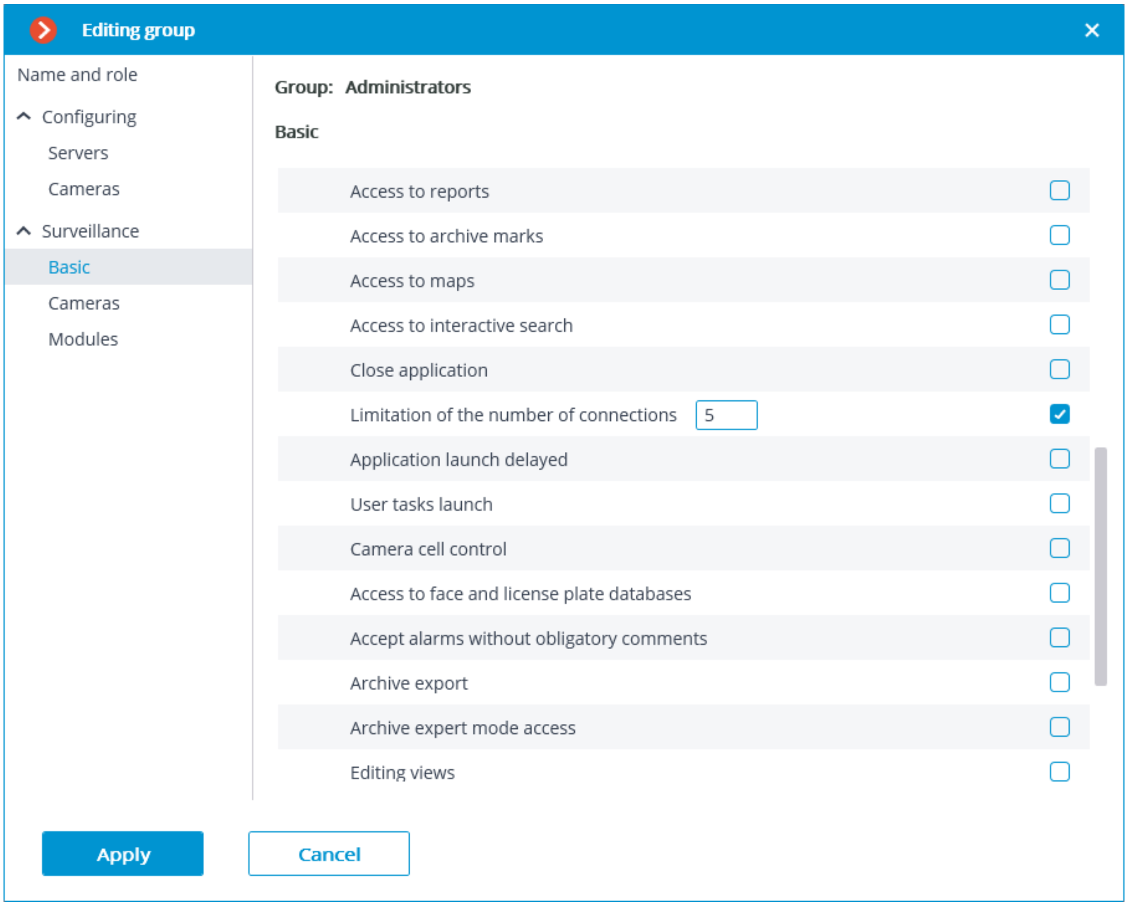
Note

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 **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.



Group: Administrators

Basic

- Access to reports ☐
- Access to archive marks ☐
- Access to maps ☐
- Access to interactive search ☐
- Close application ☐
- Limitation of the number of connections 5 ☑
- Application launch delayed ☐
- User tasks launch ☐
- Camera cell control ☐
- Access to face and license plate databases ☐
- Accept alarms without obligatory comments ☐
- Archive export ☐
- Archive expert mode access ☐
- Editing views ☐

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

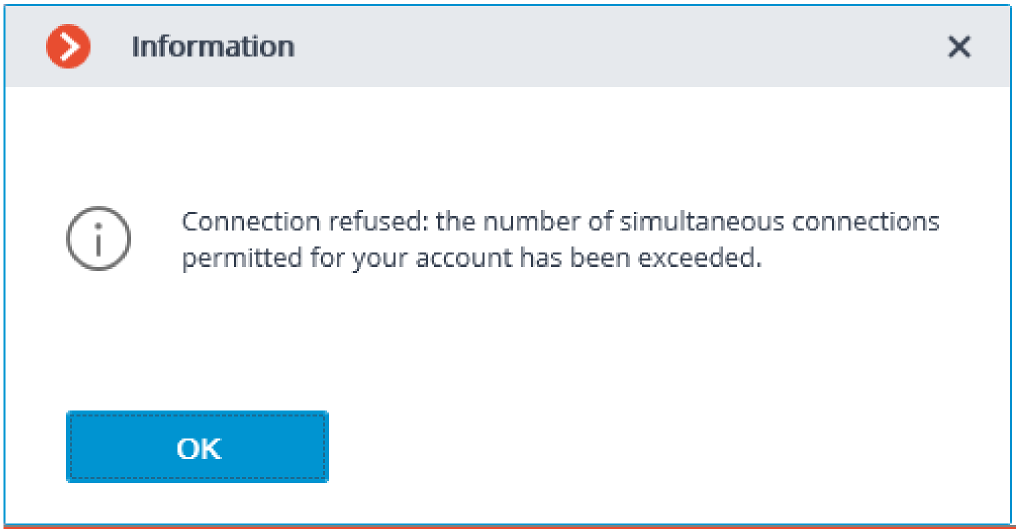
The stated limitation applies to each user of the group.

Note

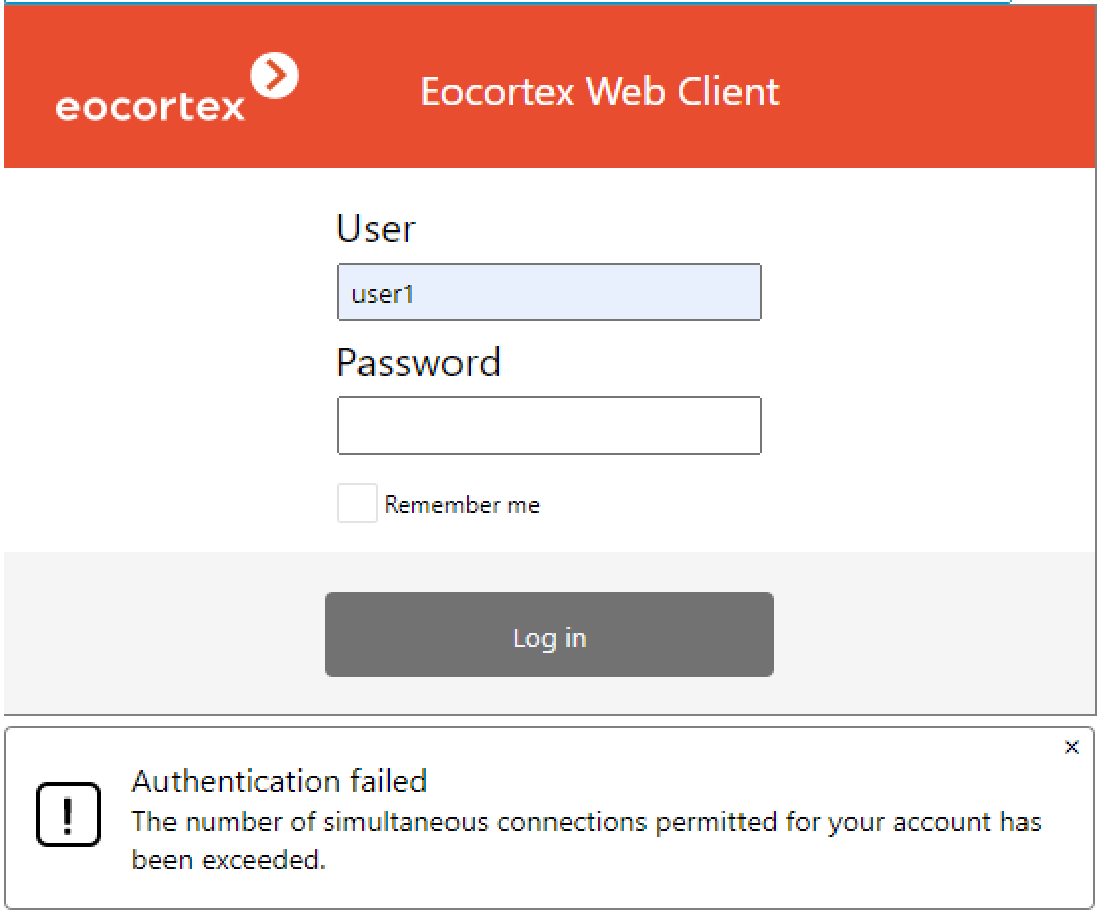
The limitation on the number of client connections also applies to Active Directory users, whereby:

- 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.



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



User
user1

Password

☐ Remember me

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

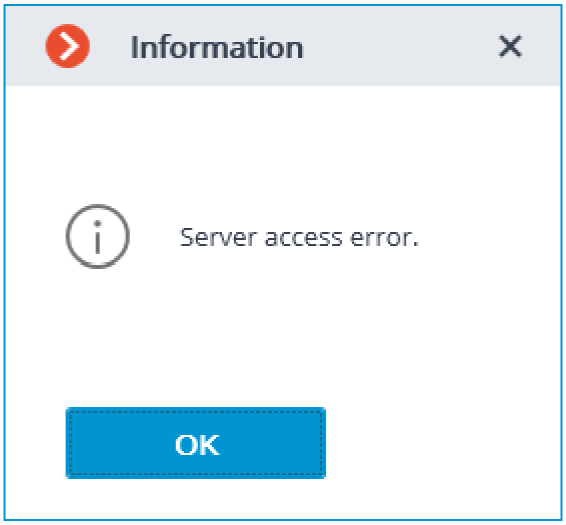
Since **Eocortex** version **4.0**, support for **Windows 7** and **Windows Server 2008** operating systems, as well as **32-bit versions** of other operating systems, is no longer available. This should be considered when installing or upgrading **Eocortex** to version **4.0** or higher.

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:



Server access error.

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

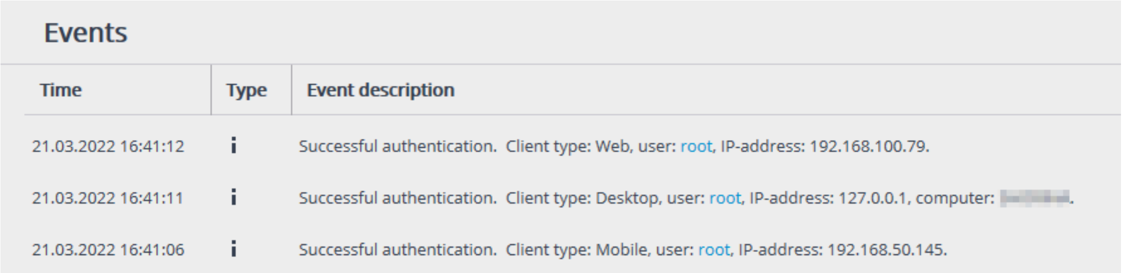
Version Eocortex	Required PostgreSQL version	Components Eocortex	PostgreSQL installation	
			Windows	Linux
3.3 or lower	Not required	—	Not required	Not required
3.4–3.6	11	**Search for Objects** analytics module	Automatically, when installing the **Search for Objects** module with the **Eocortex Neural 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: [redacted].
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**.

Audio playback on the camera

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

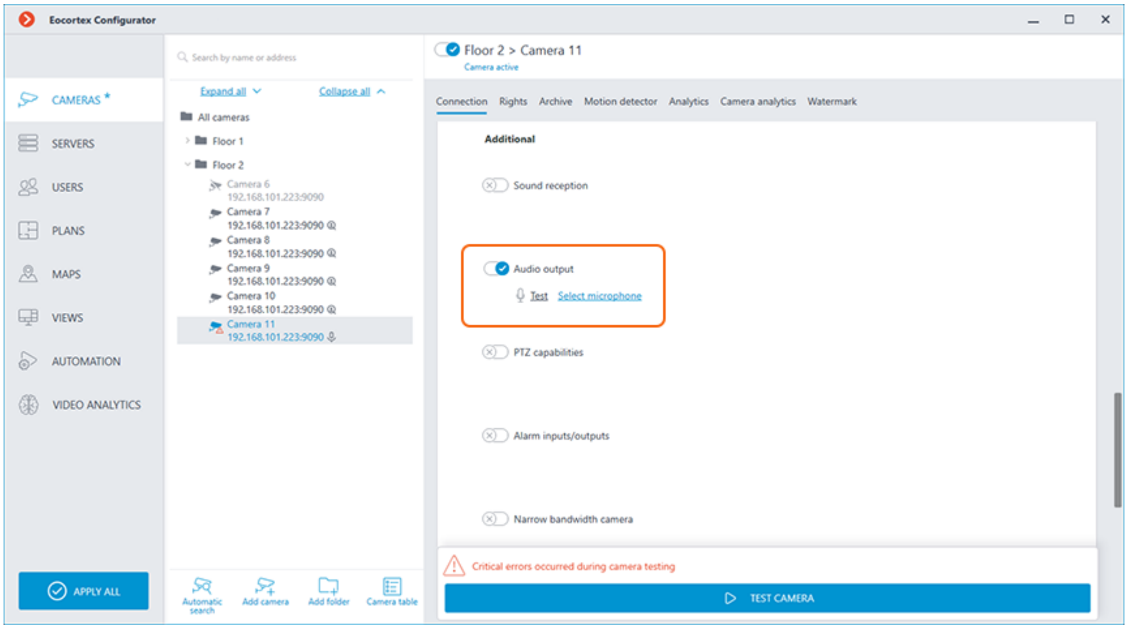
Warning

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.

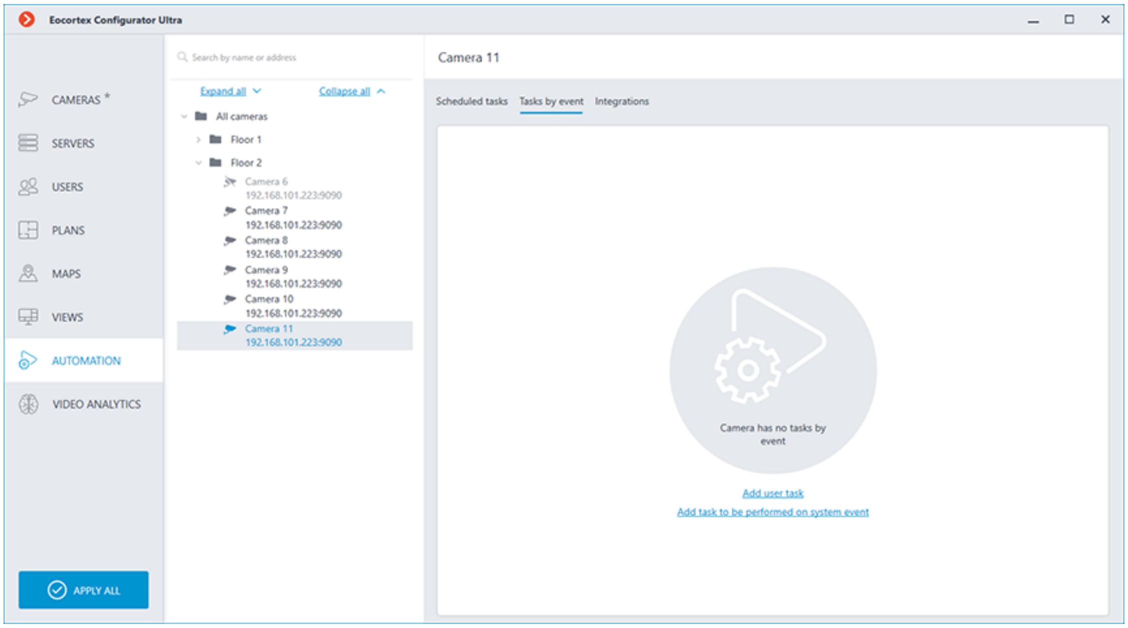
2. Go to the **Cameras** page.


Eocortex Configurator
Search by name or address
CAMERAS *
SERVERS
USERS
PLANS
MAPS
VIEWS
AUTOMATION
VIDEO ANALYTICS
APPLY ALL
Expand all
Collapse all
All cameras
Floor 1
Floor 2
Camera 6
192.168.101.223:9090
Camera 7
192.168.101.223:9090
Camera 8
192.168.101.223:9090
Camera 9
192.168.101.223:9090
Camera 10
192.168.101.223:9090
Camera 11
192.168.101.223:9090
Automatic search
Add camera
Add folder
Camera table
Floor 2 > Camera 11
Camera active
Connection
Rights
Archive
Motion detector
Analytics
Camera analytics
Watermark
Additional
Sound reception
Audio output
Test
Select microphone
PTZ capabilities
Alarm inputs/outputs
Narrow bandwidth camera
Critical errors occurred during camera testing
TEST CAMERA

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.

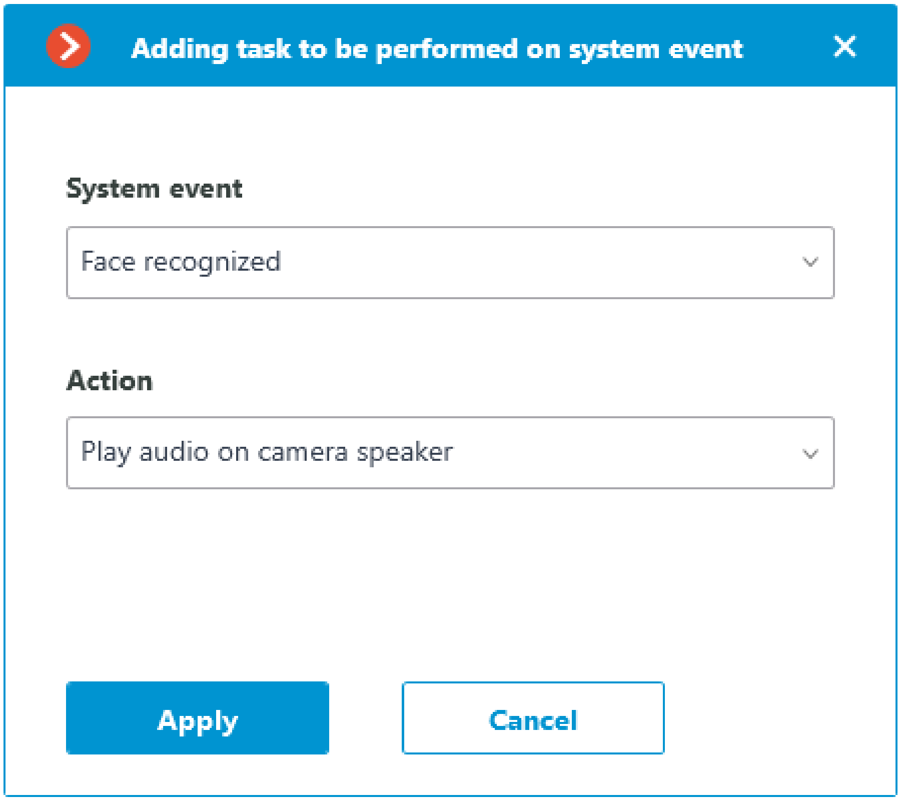

Eocortex Configurator Ultra
Search by name or address
CAMERAS *
SERVERS
USERS
PLANS
MAPS
VIEWS
AUTOMATION
VIDEO ANALYTICS
APPLY ALL
Expand all
Collapse all
All cameras
Floor 1
Floor 2
Camera 6
192.168.101.223:9090
Camera 7
192.168.101.223:9090
Camera 8
192.168.101.223:9090
Camera 9
192.168.101.223:9090
Camera 10
192.168.101.223:9090
Camera 11
192.168.101.223:9090
Camera 11
Scheduled tasks
Tasks by event
Integrations
Camera has no tasks by event
Add user task
Add task to be performed on system event

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.

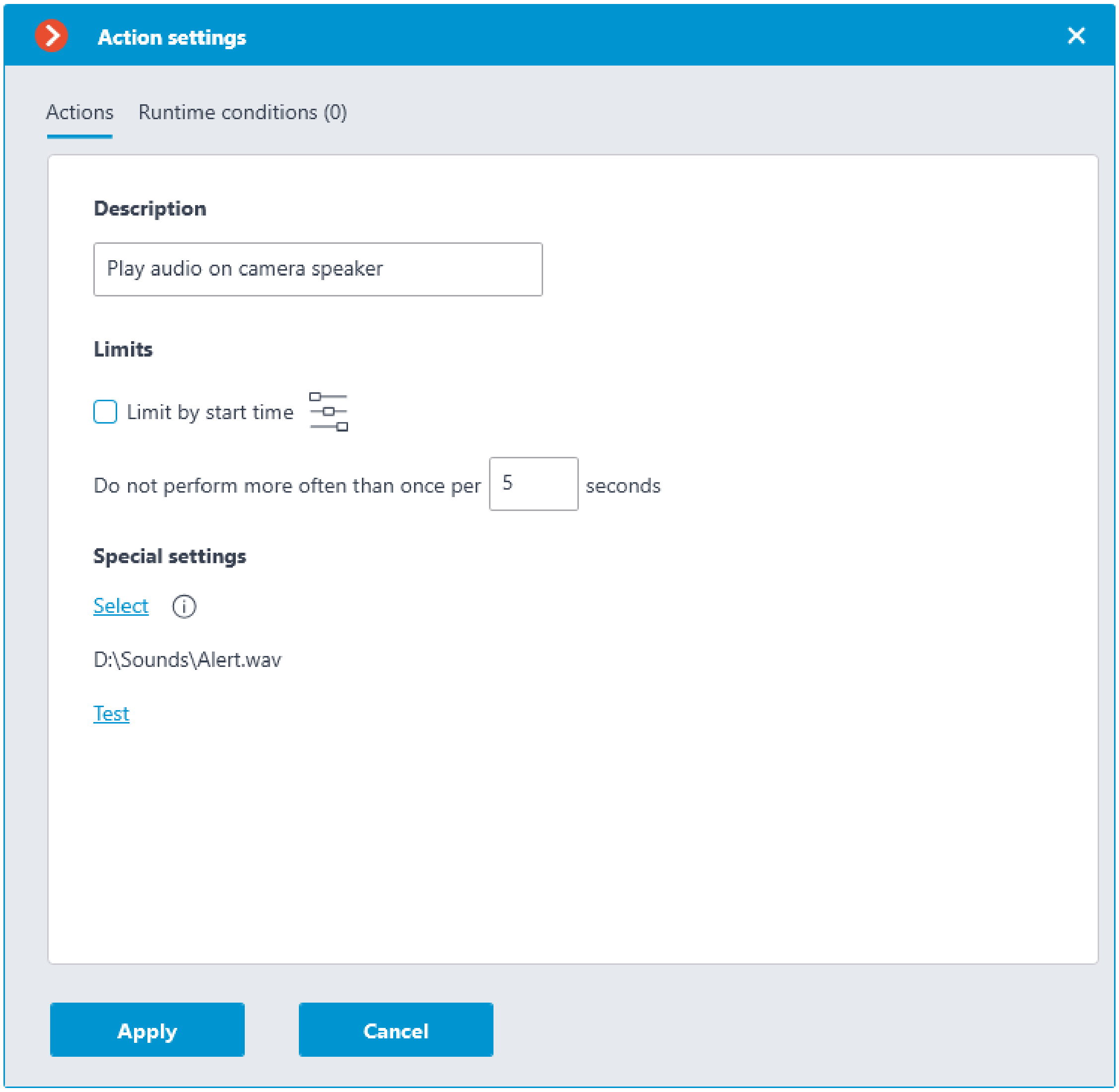


Adding task to be performed on system event
Apply
Cancel

System event: Face recognized

Action: Play audio on camera speaker

10. Select an audio file.



Description

Play audio on camera speaker

Limits

☐ Limit by start time

Do not perform more often than once per 5 seconds

Special settings

D:\Sounds\Alert.wav

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 limited access depth feature enabled will not be able to view the archive for the time period 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 **Eocortex Client** application will vary assuming the specified limitations. For example with the 15 minutes 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.

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

- Group of users
- Group of cameras
- Individual camera

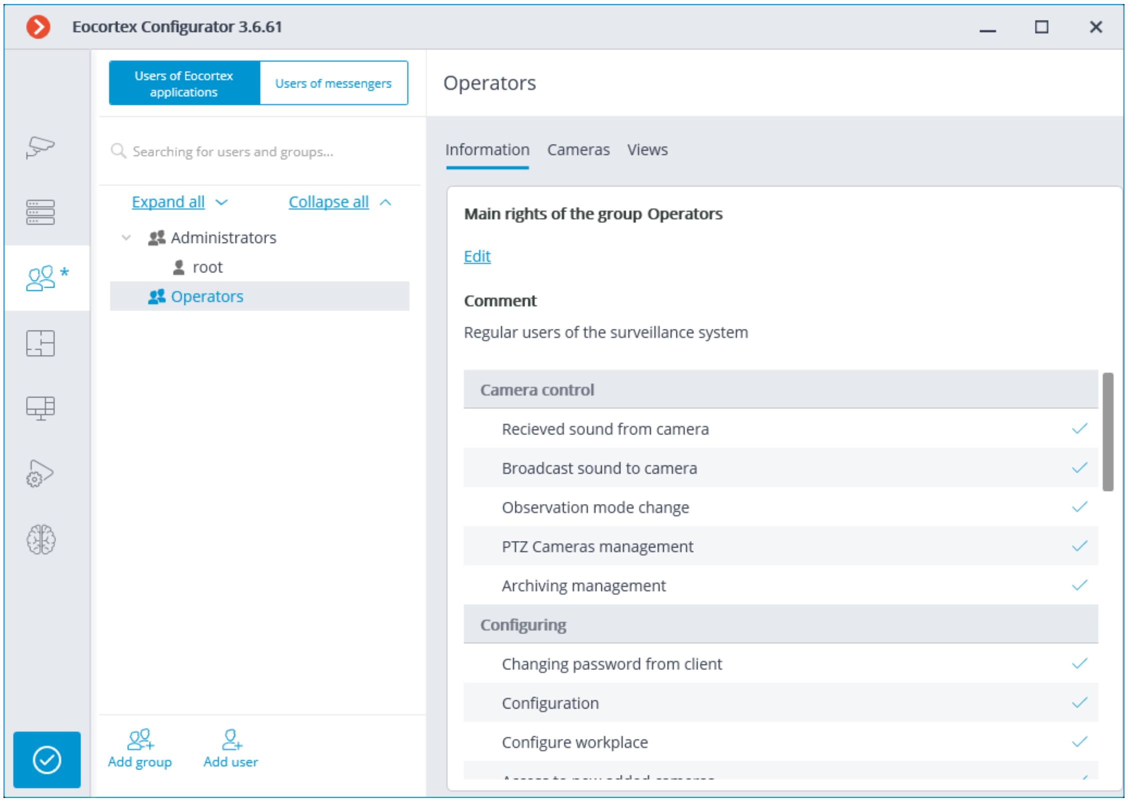
Below are step-by-step instructions for each item:

Group of users

sync:

usergroup

1. **Start Eocortex Configurator** application.
2. Open **Users** page.


Eocortex Configurator 3.6.61
Users of Eocortex applications
Users of messengers
Searching for users and groups...
Expand all
Collapse all
Administrators
root
Operators
Add group
Add user
Operators
Information
Cameras
Views

Main rights of the group Operators

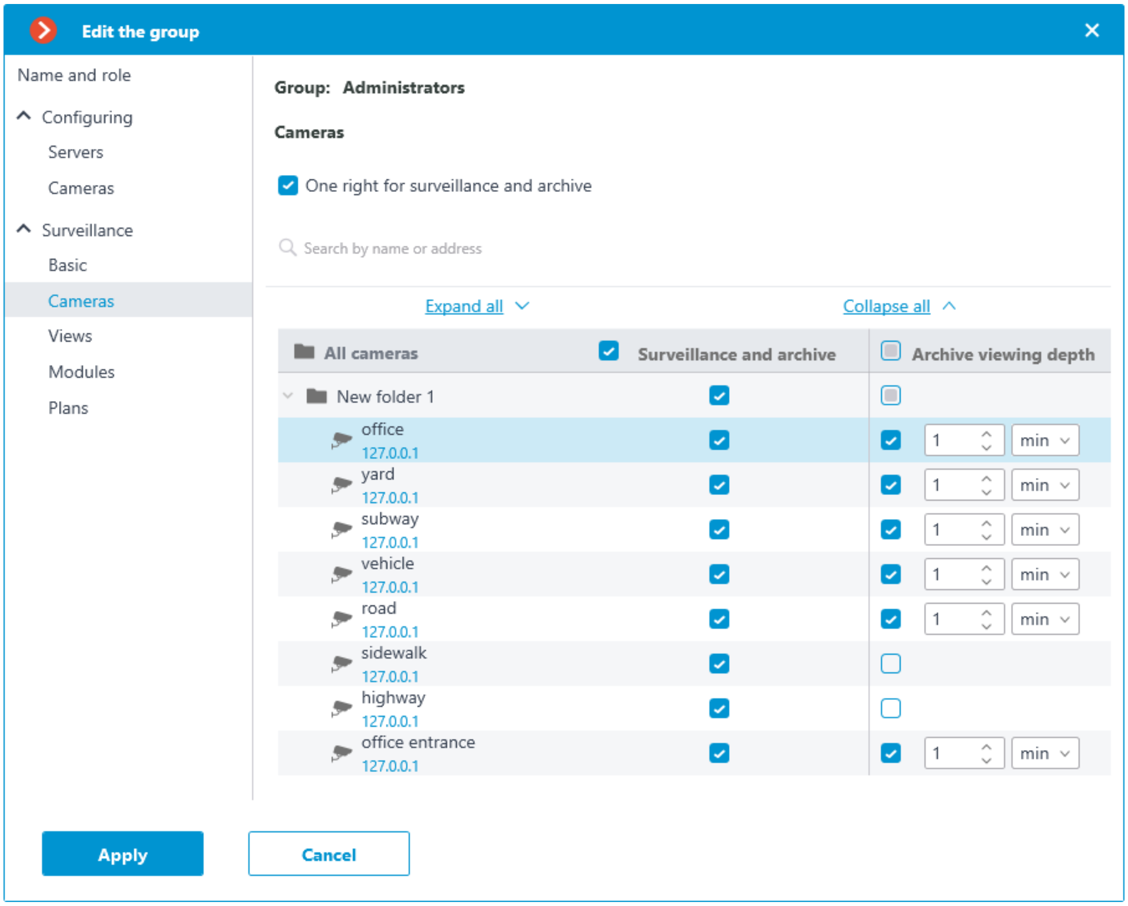
Edit

Comment

Regular users of the surveillance system

Camera control	
Recieved sound from camera	✓
Broadcast sound to camera	✓
Observation mode change	✓
PTZ Cameras management	✓
Archiving management	✓
Configuring	
Changing password from client	✓
Configuration	✓
Configure workplace	✓

3. In the tree select the group of users that needs configuration of archive access depth and press **Edit** button.


Edit the group
Name and role
Configuring
Servers
Cameras
Surveillance
Basic
Cameras
Views
Modules
Plans
Search by name or address
Expand all
Collapse all
Apply
Cancel

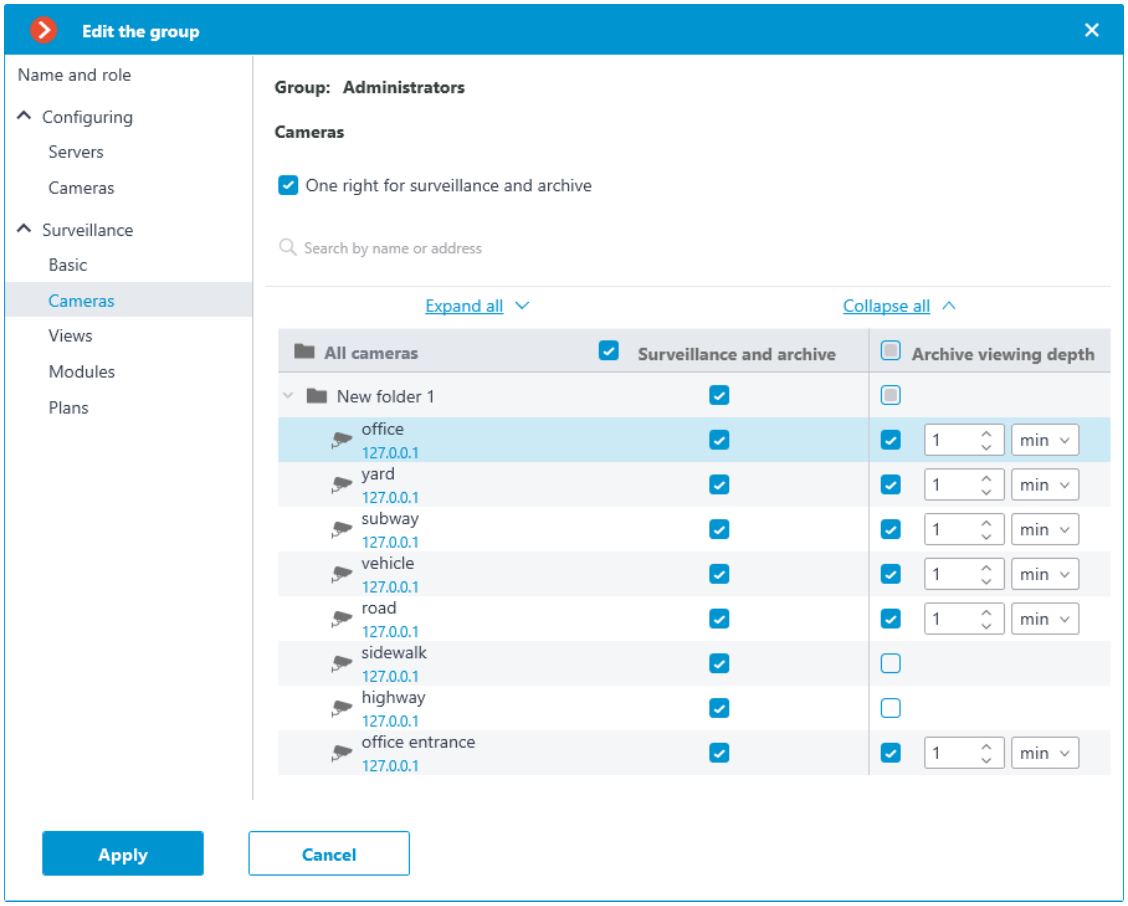
Group: Administrators

Cameras

☑ One right for surveillance and archive

All cameras	☑ Surveillance and archive	☐ Archive viewing depth
New folder 1	☑	☐
office 127.0.0.1	☑	☑ 1 min
yard 127.0.0.1	☑	☑ 1 min
subway 127.0.0.1	☑	☑ 1 min
vehicle 127.0.0.1	☑	☑ 1 min
road 127.0.0.1	☑	☑ 1 min
sidewalk 127.0.0.1	☑	☐
highway 127.0.0.1	☑	☐
office entrance 127.0.0.1	☑	☑ 1 min

4. In the opened editing window click on **Cameras** tab.


Edit the group
Name and role
Configuring
Servers
Cameras
Surveillance
Basic
Cameras
Views
Modules
Plans
Search by name or address
Expand all
Collapse all
Apply
Cancel

Group: **Administrators**

Cameras

☑ One right for surveillance and archive

All cameras	☑ Surveillance and archive	☐ Archive viewing depth		
New folder 1	☑	☐		
office 127.0.0.1	☑	☑	1	min
yard 127.0.0.1	☑	☑	1	min
subway 127.0.0.1	☑	☑	1	min
vehicle 127.0.0.1	☑	☑	1	min
road 127.0.0.1	☑	☑	1	min
sidewalk 127.0.0.1	☑	☐		
highway 127.0.0.1	☑	☐		
office entrance 127.0.0.1	☑	☑	1	min

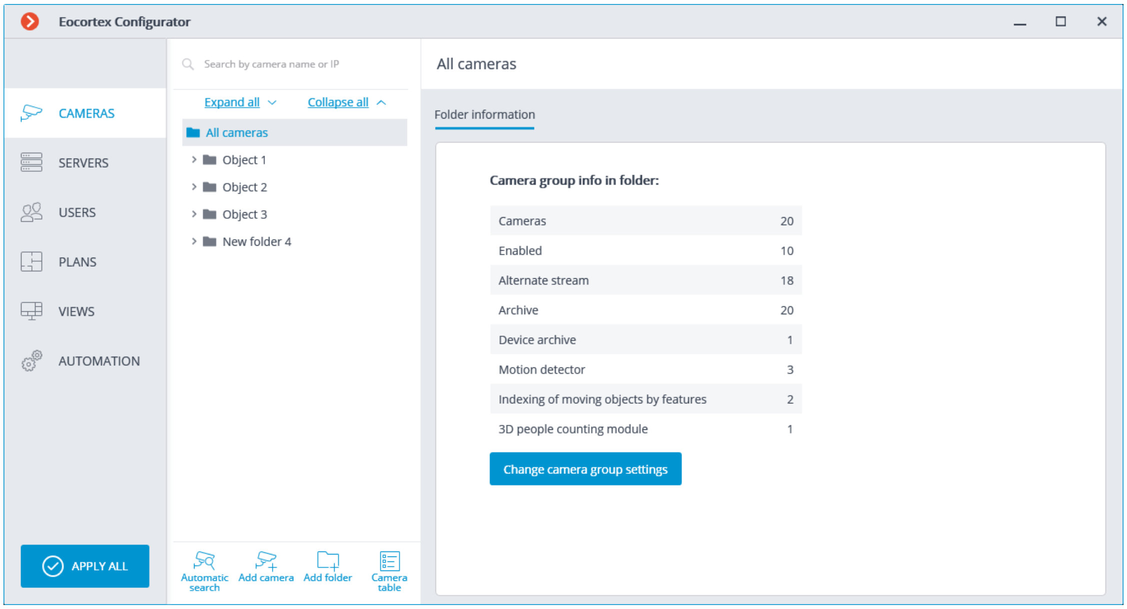
5. Configure the access depth of the archive for the cameras that need to be limited.
6. Apply settings for the group of users.

Group of cameras

sync:

camgroup

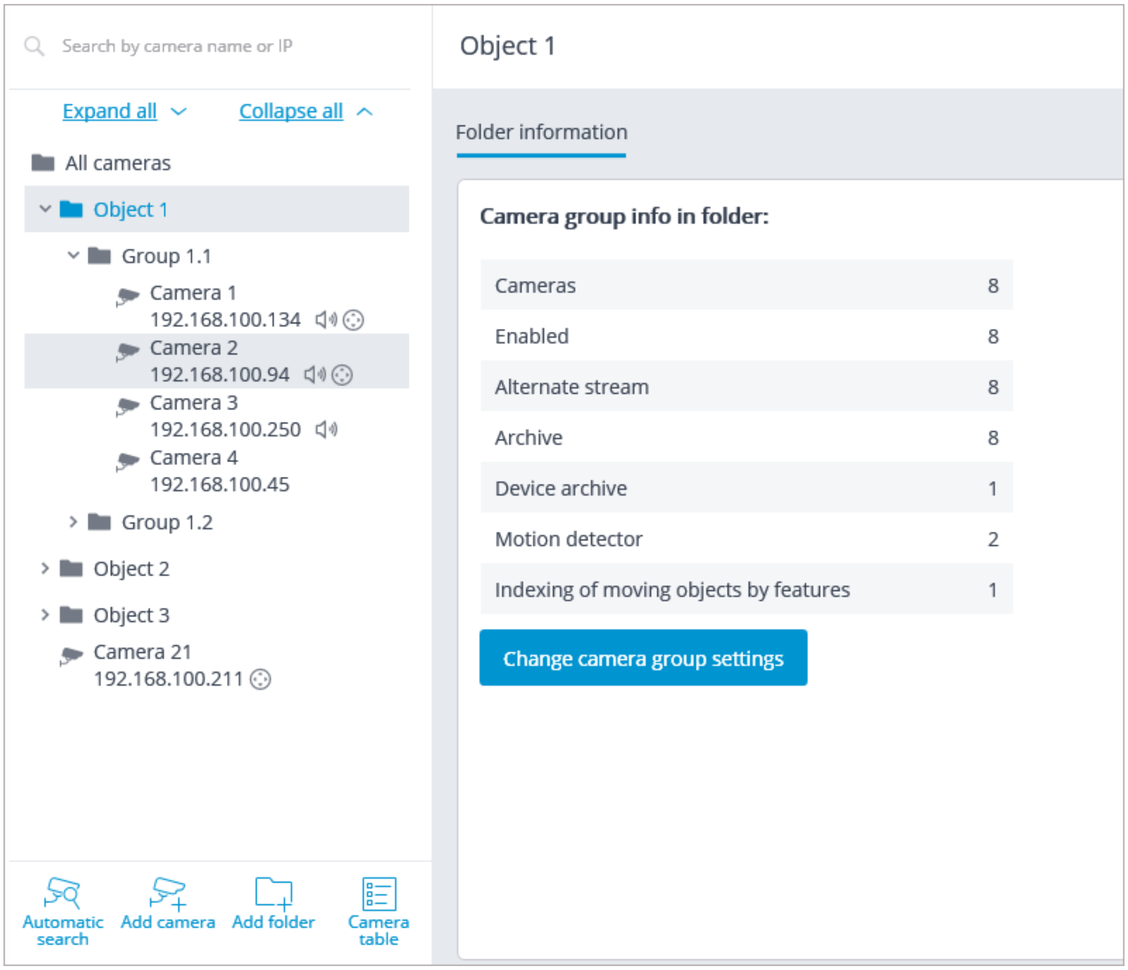
1. **Start Eocortex Configurator** application.
2. Open **Cameras** page.


Eocortex Configurator
CAMERAS
SERVERS
USERS
PLANS
VIEWS
AUTOMATION
APPLY ALL
Search by camera name or IP
Expand all
Collapse all
All cameras
Object 1
Object 2
Object 3
New folder 4
Automatic search
Add camera
Add folder
Camera table
All cameras
Folder information
Change camera group settings

Camera group info in folder:

Cameras	20
Enabled	10
Alternate stream	18
Archive	20
Device archive	1
Motion detector	3
Indexing of moving objects by features	2
3D people counting module	1

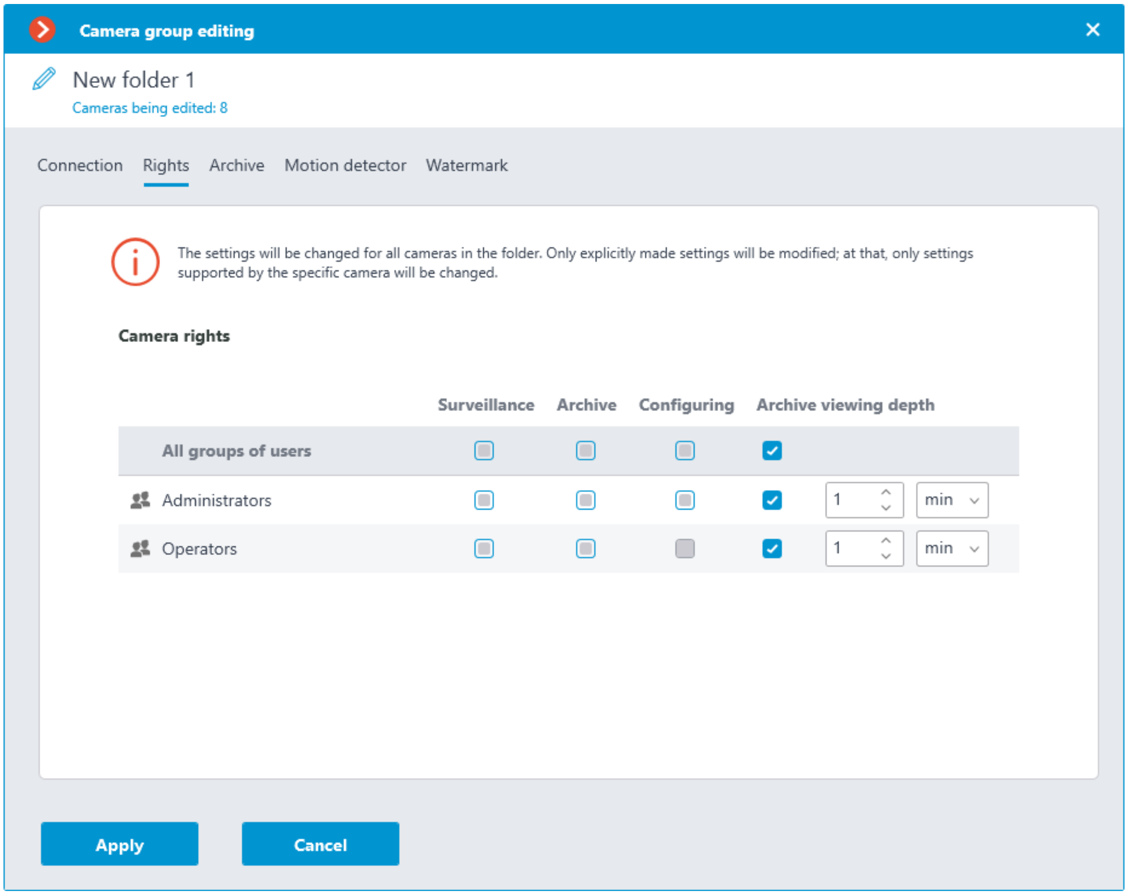
3. In the tree select the group of cameras that needs configuration of archive access depth and press **Change camera group settings** button.


Search by camera name or IP
Expand all
Collapse all
All cameras
Object 1
Group 1.1
Camera 1
192.168.100.134
Camera 2
192.168.100.94
Camera 3
192.168.100.250
Camera 4
192.168.100.45
Group 1.2
Object 2
Object 3
Camera 21
192.168.100.211
Automatic search
Add camera
Add folder
Camera table
Object 1
Folder information
Change camera group settings

Camera group info in folder:

Cameras	8
Enabled	8
Alternate stream	8
Archive	8
Device archive	1
Motion detector	2
Indexing of moving objects by features	1

4. In the opened editing window click on **Cameras** tab.



Camera group editing

New folder 1

Cameras being edited: 8

Connection
Rights
Archive
Motion detector
Watermark

The settings will be changed for all cameras in the folder. Only explicitly made settings will be modified; at that, only settings supported by the specific camera will be changed.

Camera rights

	Surveillance	Archive	Configuring	Archive viewing depth		
All groups of users	☐	☐	☐	☑		
Administrators	☐	☐	☐	☑	1	min
Operators	☐	☐	☐	☑	1	min

Apply
Cancel

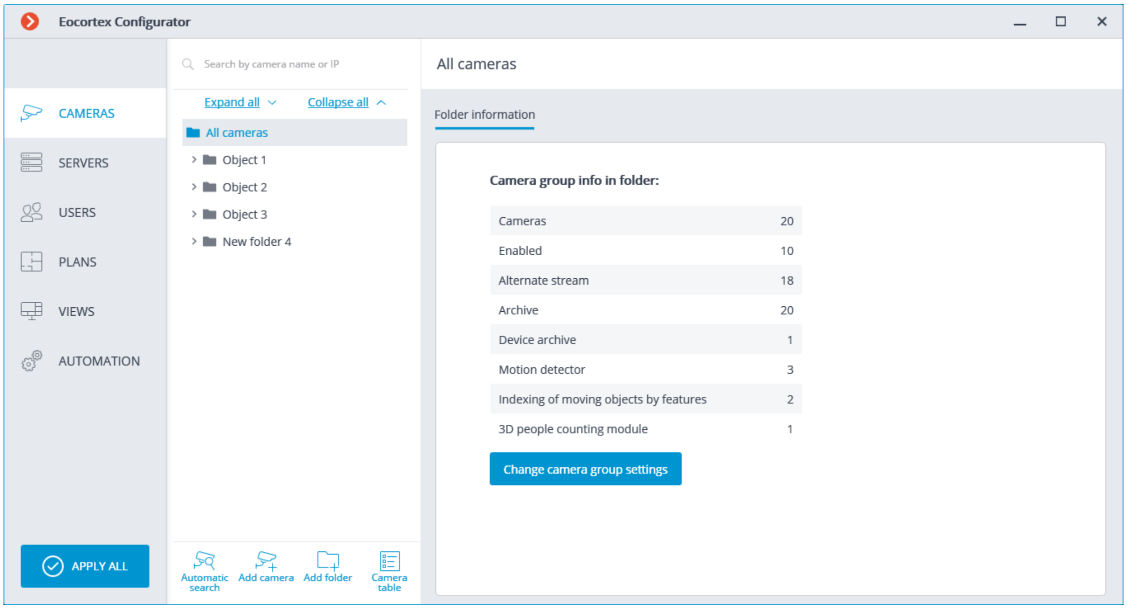
5. Configure the access depth of the archive for the groups of users that need to be limited.
6. Apply settings for the group of cameras.

Individual camera

sync:

singlecam

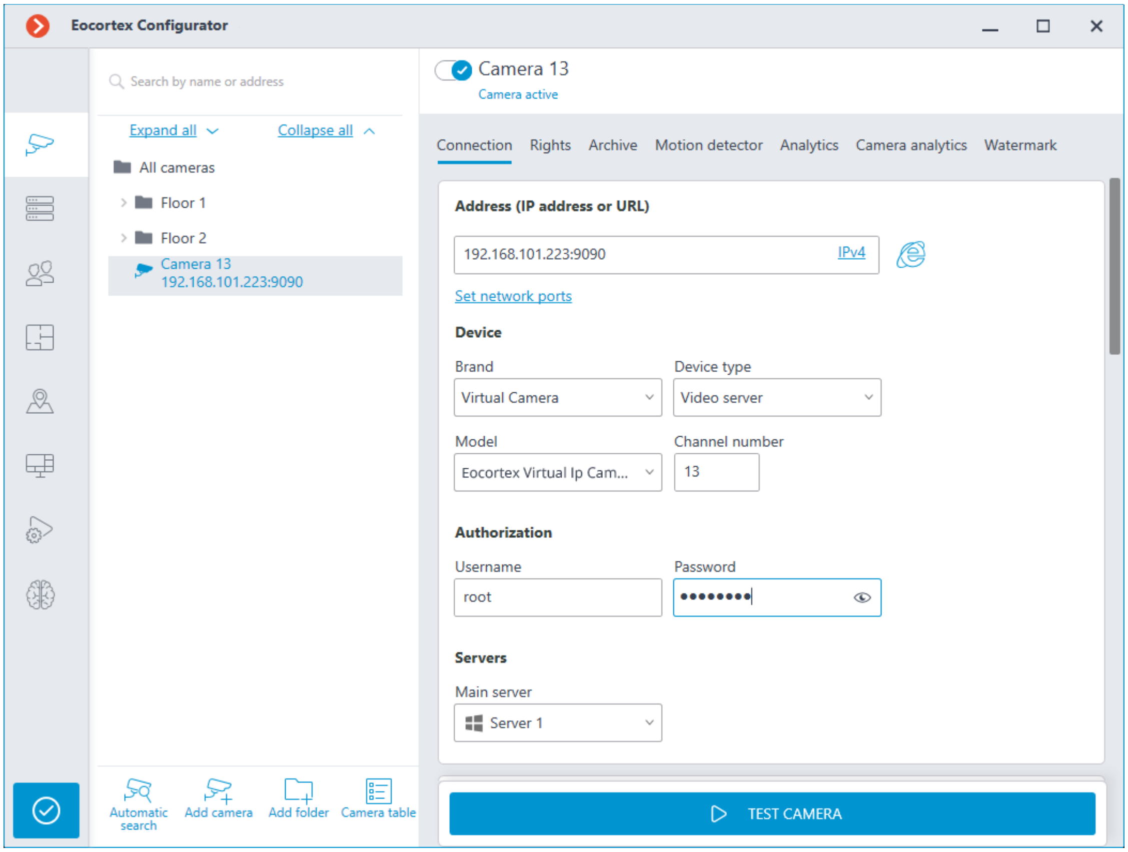
1. **Start Eocortex Configurator** application.
2. Open **Cameras** page.


Eocortex Configurator
CAMERAS
SERVERS
USERS
PLANS
VIEWS
AUTOMATION
APPLY ALL
Search by camera name or IP
Expand all
Collapse all
All cameras
Object 1
Object 2
Object 3
New folder 4
Automatic search
Add camera
Add folder
Camera table
All cameras
Folder information
Change camera group settings

Camera group info in folder:

Cameras	20
Enabled	10
Alternate stream	18
Archive	20
Device archive	1
Motion detector	3
Indexing of moving objects by features	2
3D people counting module	1

3. In the tree select the camera that needs configuration of archive access depth.


Eocortex Configurator
Search by name or address
Expand all
Collapse all
All cameras
Floor 1
Floor 2
Camera 13
192.168.101.223:9090
Automatic search
Add camera
Add folder
Camera table
Camera 13
Camera active
Connection
Rights
Archive
Motion detector
Analytics
Camera analytics
Watermark
IPv4
Set network ports
TEST CAMERA

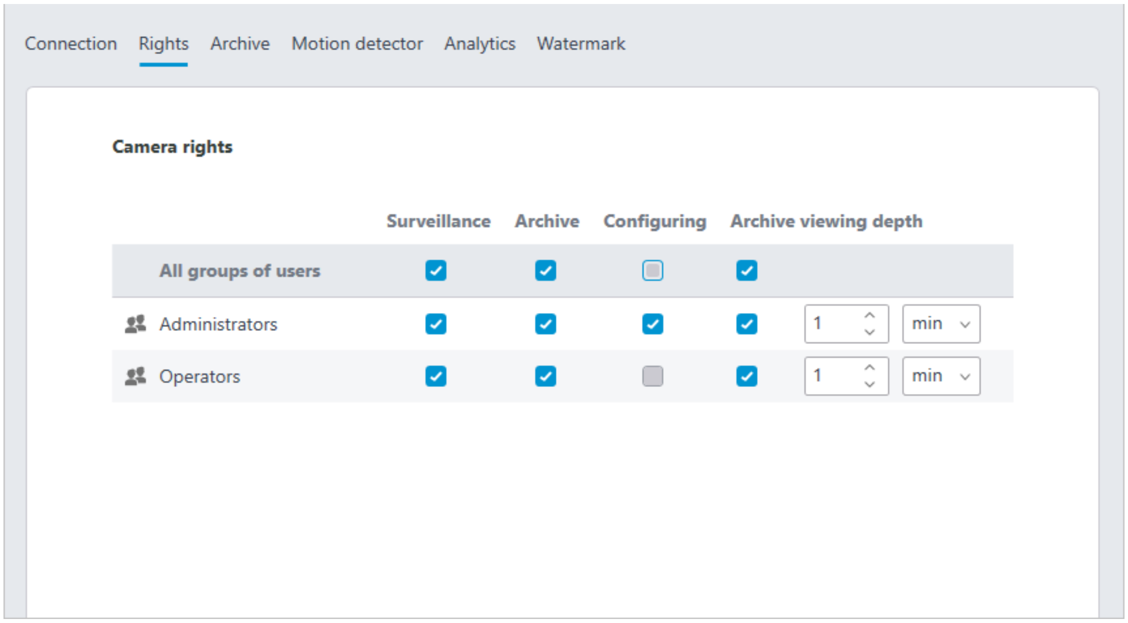
Address (IP address or URL): 192.168.101.223:9090

Device
Brand: Virtual Camera
Device type: Video server
Model: Eocortex Virtual Ip Cam...
Channel number: 13

Authorization
Username: root
Password: ••••••••

Servers
Main server: Server 1

4. Click on **Cameras** tab.



Camera rights

	Surveillance	Archive	Configuring	Archive viewing depth		
All groups of users	☑	☑	☐	☑		
Administrators	☑	☑	☑	☑	1	min
Operators	☑	☑	☐	☑	1	min

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

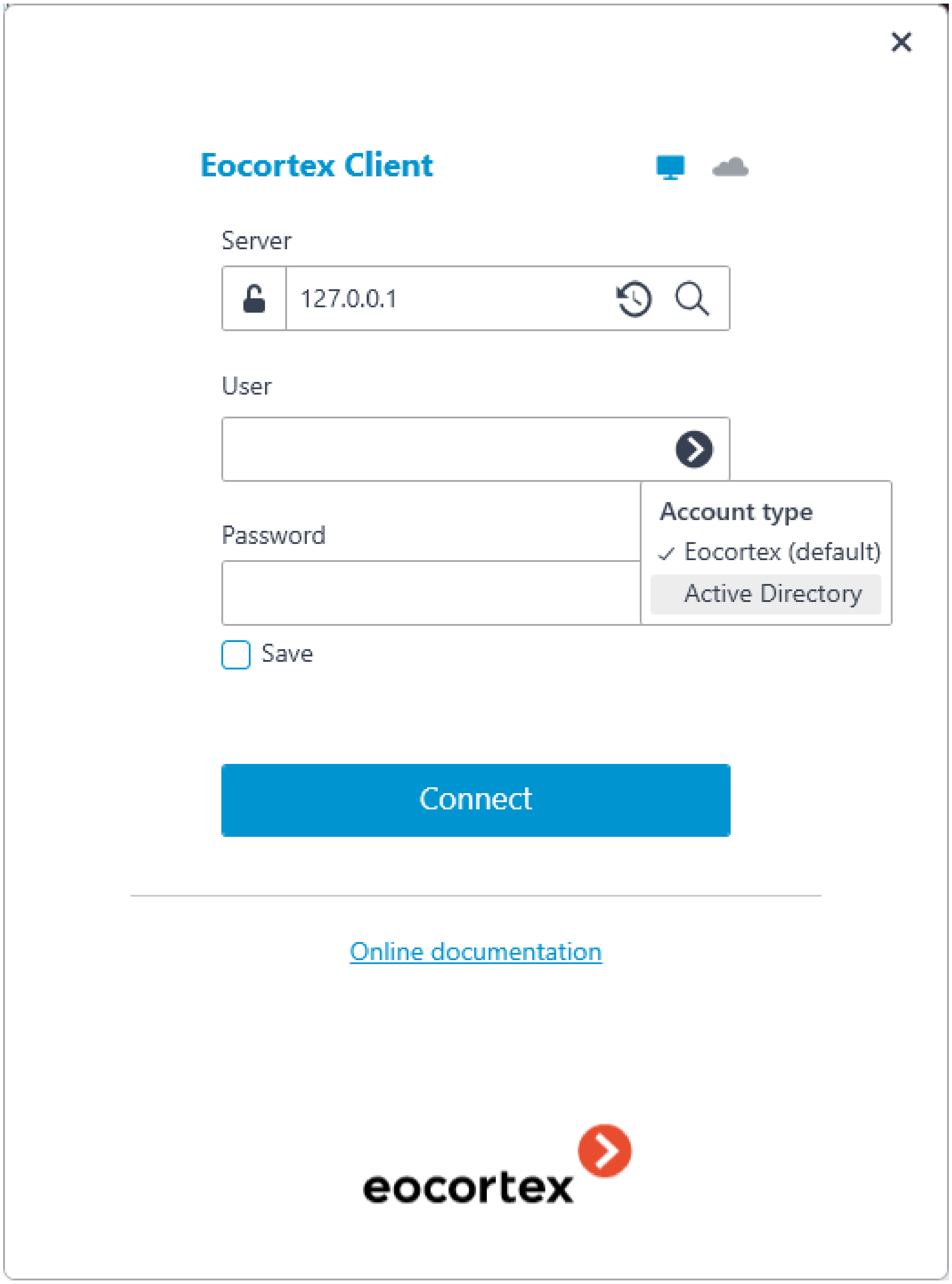
Single Sign-On through **Active Directory** is available only for servers running on Windows.

Usage

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

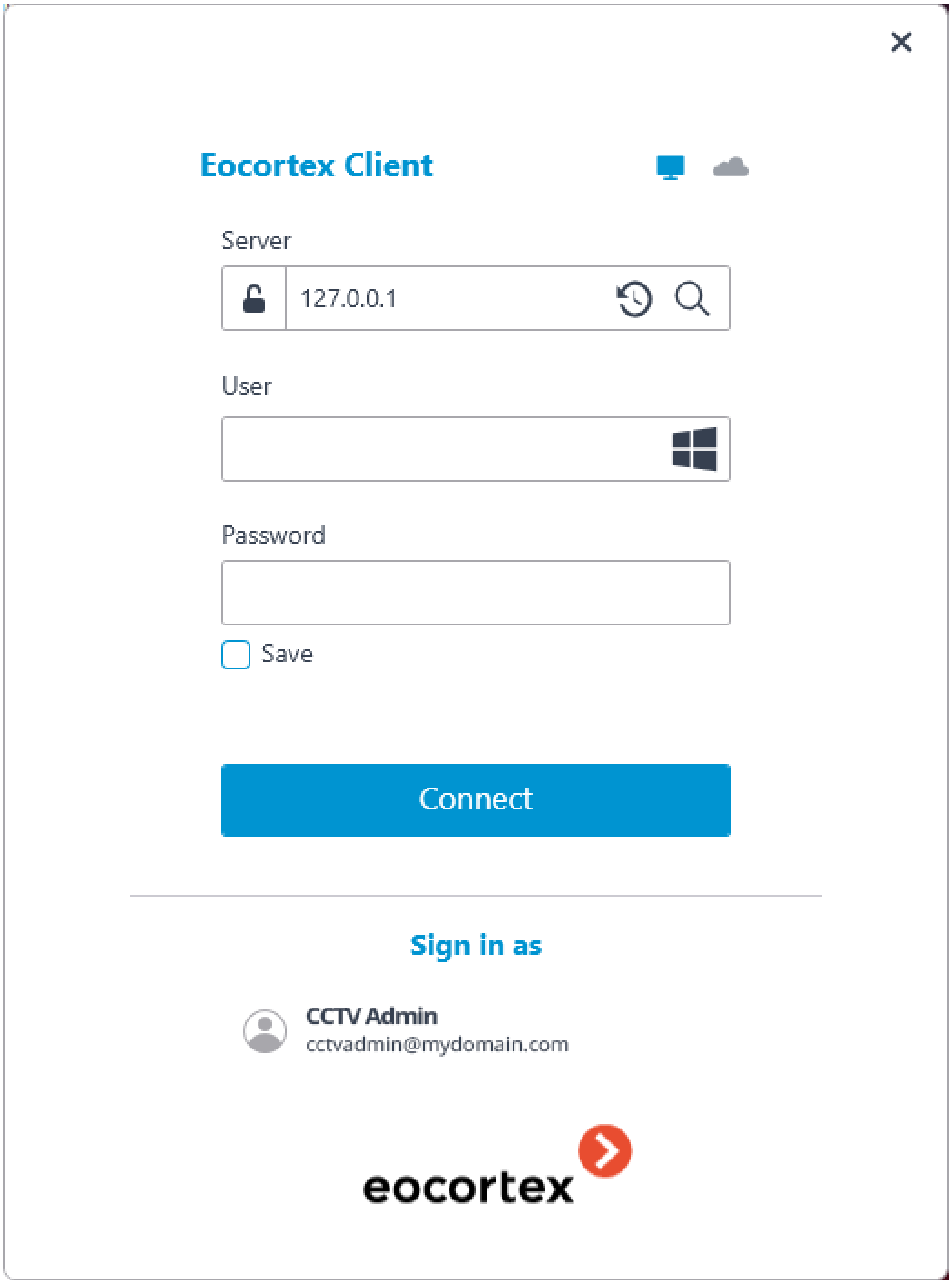
1. Run the **Eocortex Client**, **Eocortex Configurator** or **Eocortex Standalone** application.

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


Eocortex Client
User
Password
Account type
✓ Eocortex (default)
Active Directory
☐ Save
Connect
Online documentation
eocortex

Server: 127.0.0.1

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


Eocortex Client
Server
User
Password
☐ Save
Connect
Sign in as
CCTV Admin
cctvadmin@mydomain.com
eocortex

Server: 127.0.0.1

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.

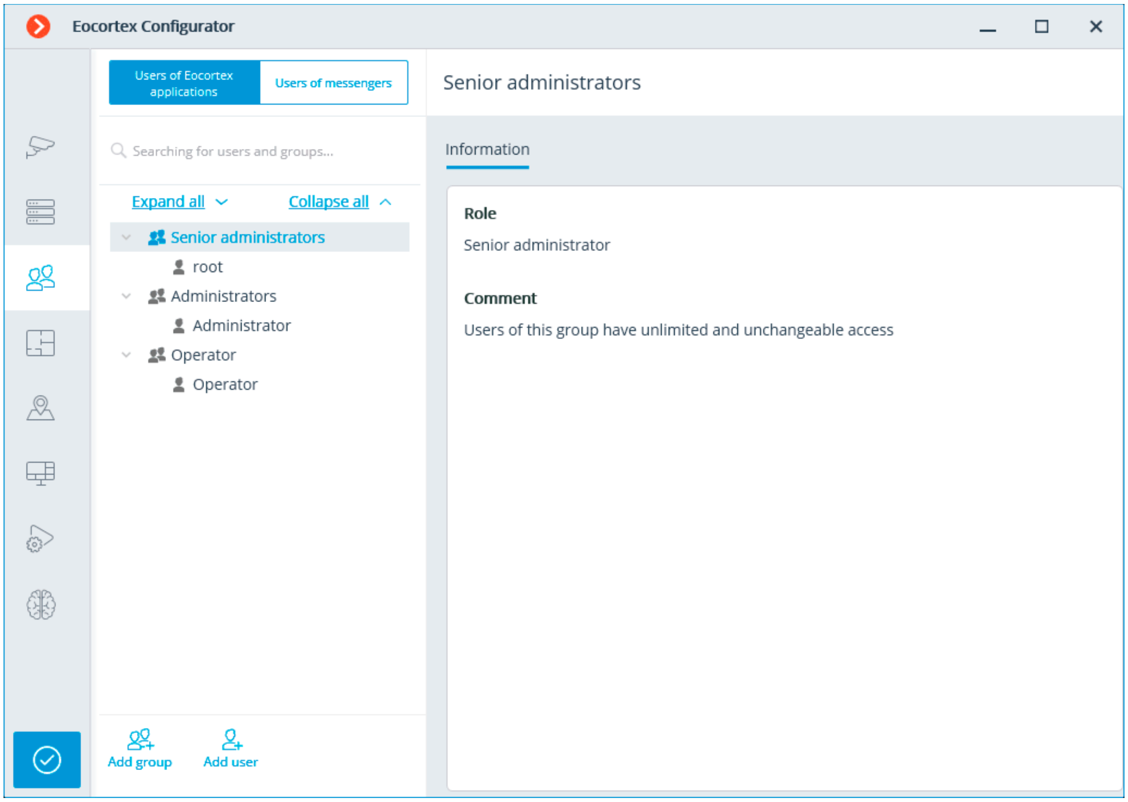
Note

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.


Eocortex Configurator
Users of Eocortex applications
Users of messengers
Searching for users and groups...
Expand all
Collapse all
Senior administrators
root
Administrators
Administrator
Operator
Operator
Add group
Add user
Senior administrators
Information

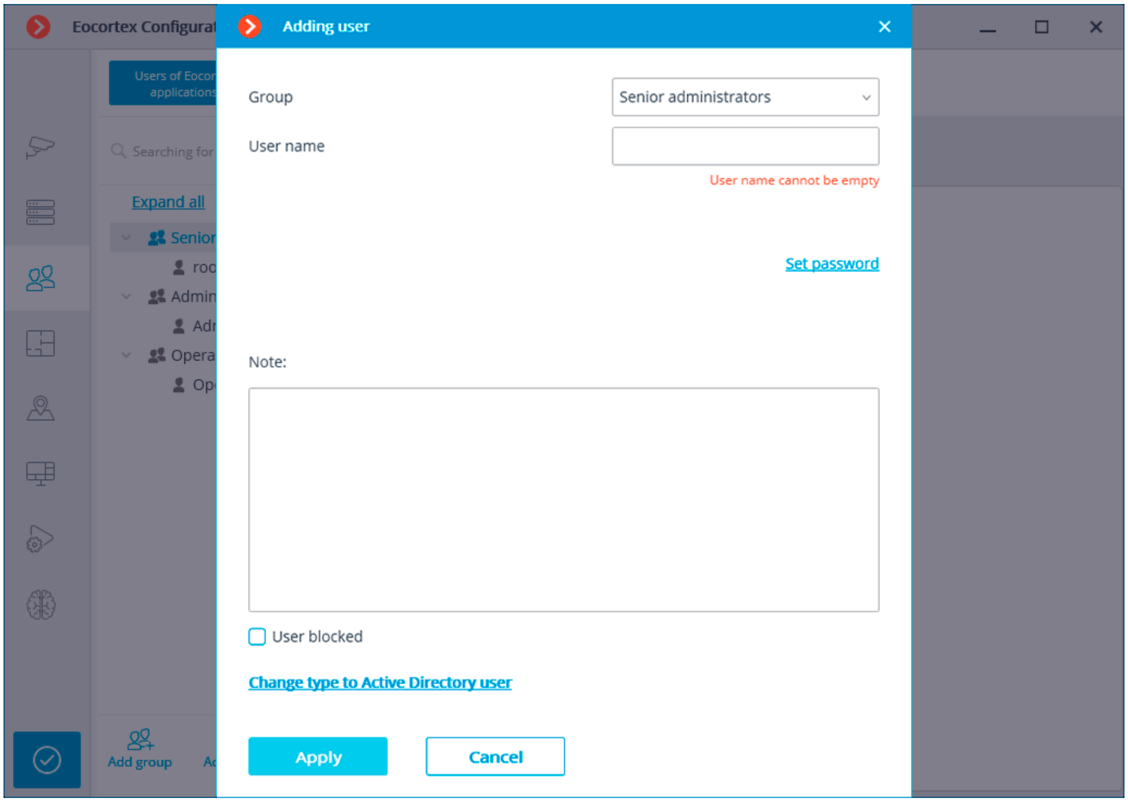
Role

Senior administrator

Comment

Users of this group have unlimited and unchangeable access

4. Click the **Add user** button.
5. In the window that opens, click the **Change type to Active Directory user** link.


Eocortex Configurat
Adding user
Users of Eocor
applications
Searching for
Expand all
Senior
roo
Admin
Adr
Opera
Op
Add group
Ad
Set password
Change type to Active Directory user
Apply
Cancel

Group: Senior administrators

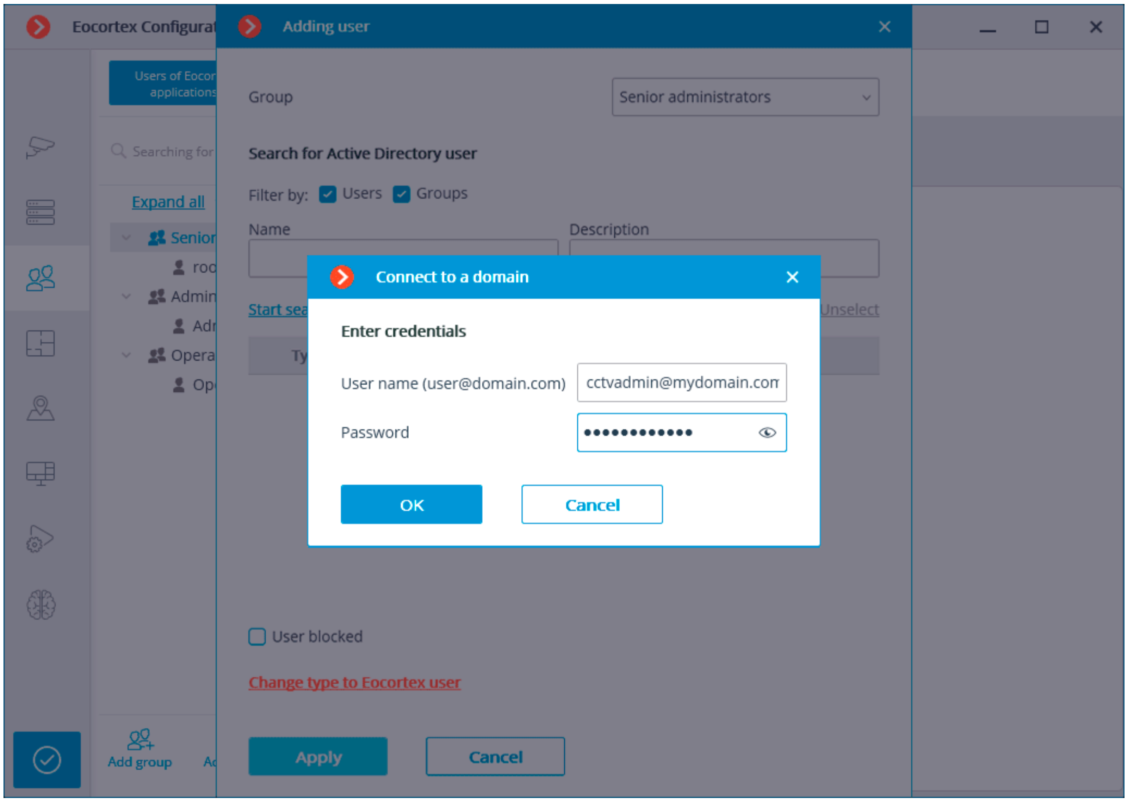
User name:

User name cannot be empty

Note:

☐ User blocked

6. Type the username and password of the **Active Directory** account that has rights to search in **Active Directory** domain.


Eocortex Configurat
Adding user
Users of Eocor
applications
Searching for
Expand all
Senior
roo
Admin
Adr
Opera
Op
Add group
Ad
Name
Description
Start sea
Unselect
Ty
Connect to a domain
OK
Cancel
Change type to Eocortex user
Apply
Cancel

Group: Senior administrators

Search for Active Directory user

Filter by: ☑ Users ☑ Groups

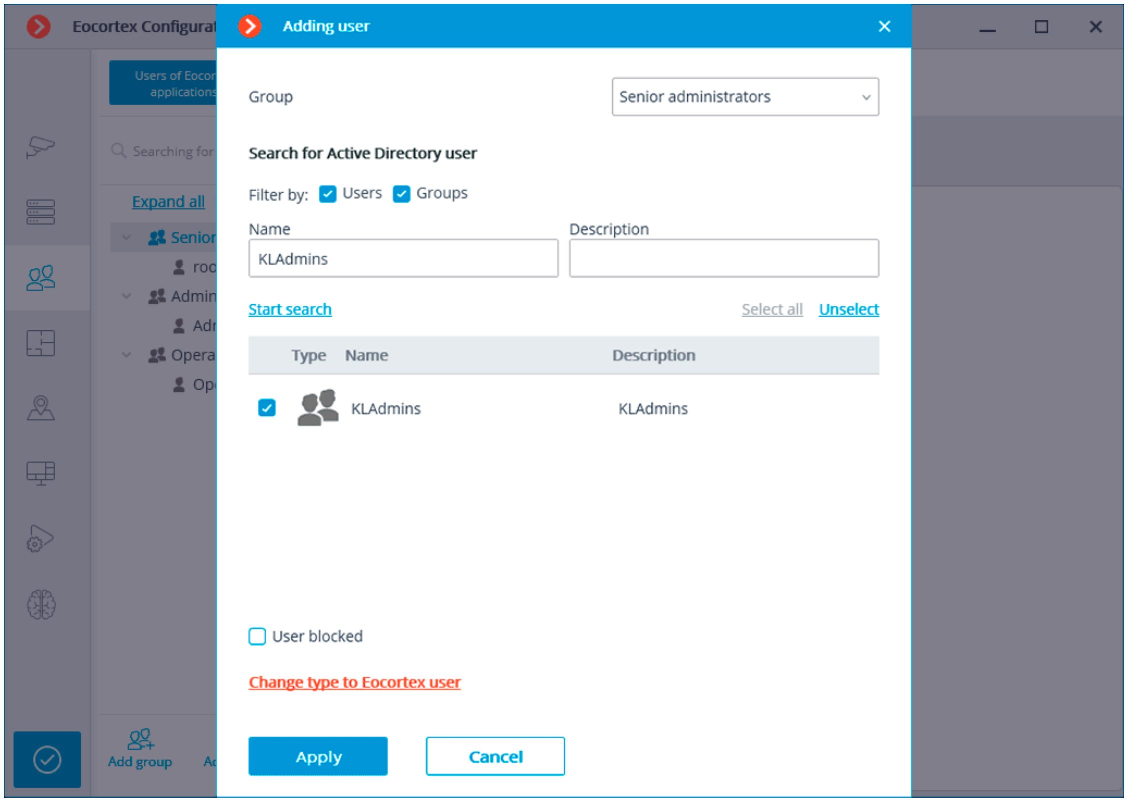
Enter credentials

User name (user@domain.com): cctvadmin@mydomain.com

Password: •••••••••••••

☐ User blocked

Find and select needed individual users or groups of users.


Eocortex Configurat
Adding user
Users of Eocor applications
Searching for
Expand all
Add group
Start search
Select all
Unselect
Apply
Cancel

Group: Senior administrators

Search for Active Directory user

Filter by: ☑ Users ☑ Groups

Name: KLAdmins

Description:

	Type	Name	Description
☑		KLAdmins	KLAdmins

☐ User blocked

Change type to Eocortex user

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.

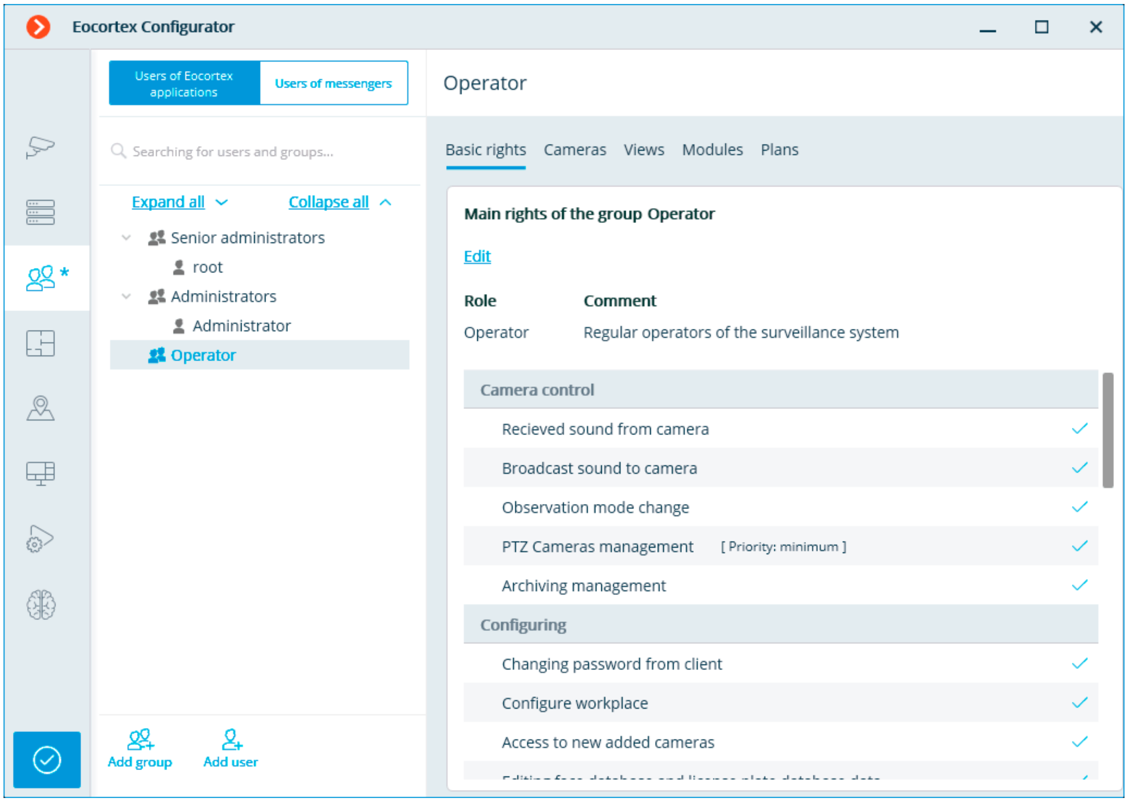
Configuring access rights

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.


Eocortex Configurator
Users of Eocortex applications
Users of messengers
Searching for users and groups...
Expand all
Collapse all
Senior administrators
root
Administrators
Administrator
Operator
Add group
Add user
Basic rights
Cameras
Views
Modules
Plans
Edit

Operator

Main rights of the group Operator

Role	Comment
Operator	Regular operators of the surveillance system

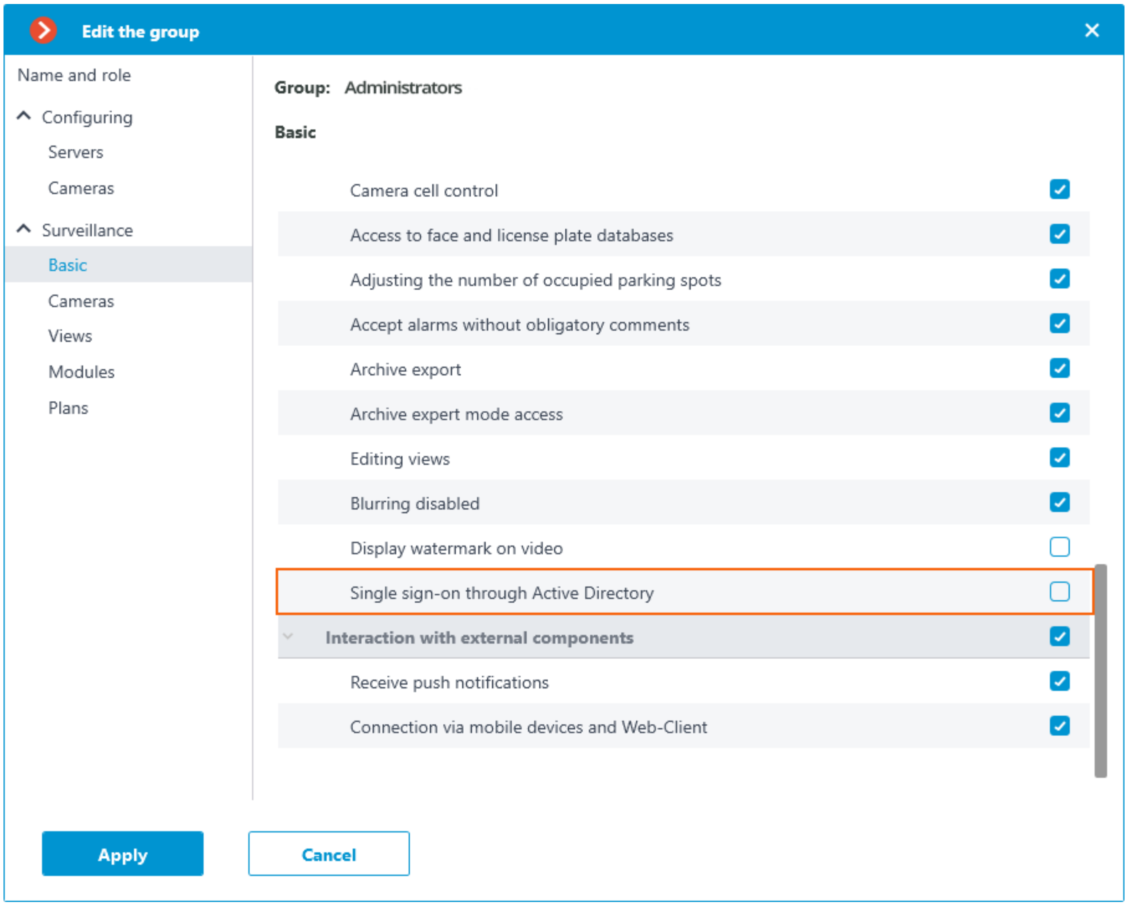
Camera control

- Recieved sound from camera ✓
- Broadcast sound to camera ✓
- Observation mode change ✓
- PTZ Cameras management [Priority: minimum] ✓
- Archiving management ✓

Configuring

- Changing password from client ✓
- Configure workplace ✓
- Access to new added cameras ✓

5. Switch to the **Basic** tab of the window that opens.
6. Enable the **Single sign-on through Active Directory** permission.


Edit the group
Name and role
Configuring
Servers
Cameras
Surveillance
Basic
Cameras
Views
Modules
Plans
Apply
Cancel

Group: Administrators

Basic

- Camera cell control ☑
- Access to face and license plate databases ☑
- Adjusting the number of occupied parking spots ☑
- Accept alarms without obligatory comments ☑
- Archive export ☑
- Archive expert mode access ☑
- Editing views ☑
- Blurring disabled ☑
- Display watermark on video ☐
- Single sign-on through Active Directory ☐

Interaction with external components ☑

- Receive push notifications ☑
- Connection via mobile devices and Web-Client ☑

Requirements

Warning

If an **Eocortex** system with **Eocortex 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 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

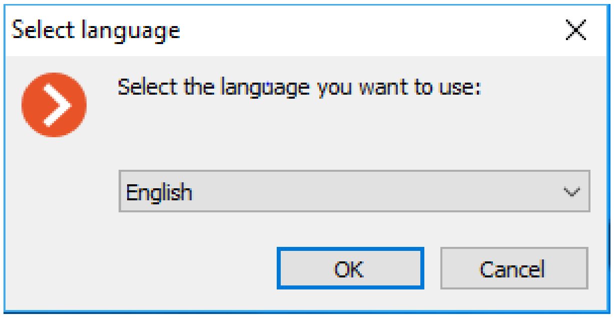
The bit depth of the applications being installed is determined automatically depending on the bit depth of **Windows** OS. However, it is possible to choose the installation of 32-bit versions of **Eocortex** on a 64-bit version of **Windows**.

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.

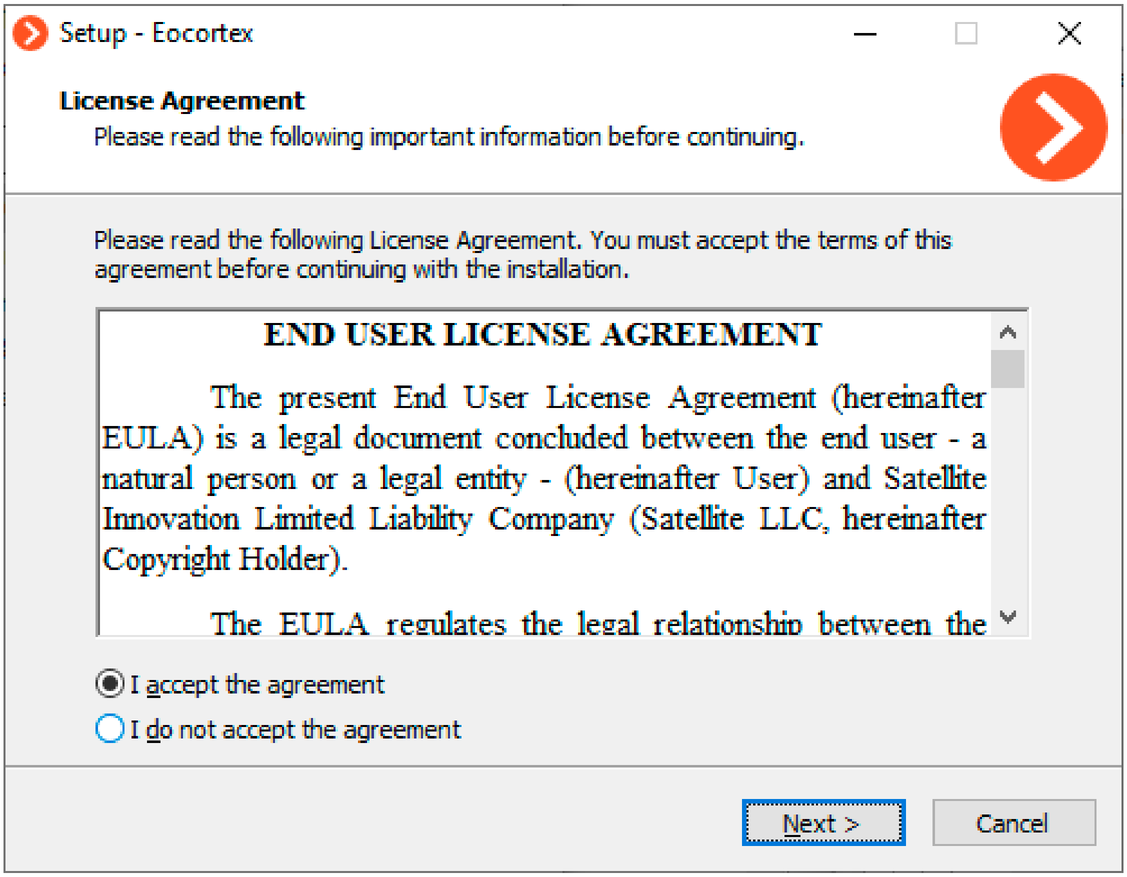
Select the installation language. This language will be used both during installation and during further operation of the application on this computer. Click the **OK** button.



Select the language you want to use:

English

Setup wizard window will open. Follow the instructions:



Setup - Eocortex
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

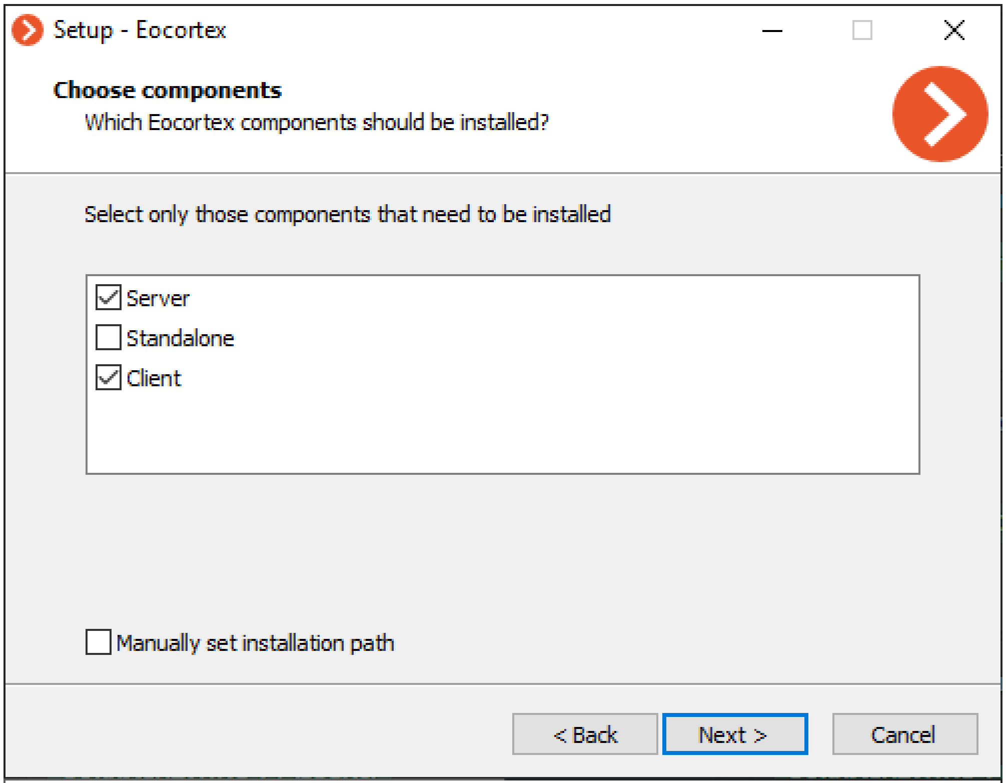
● I accept the agreement

○ I do not accept the agreement

Next >
Cancel

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
< Back
Next >
Cancel

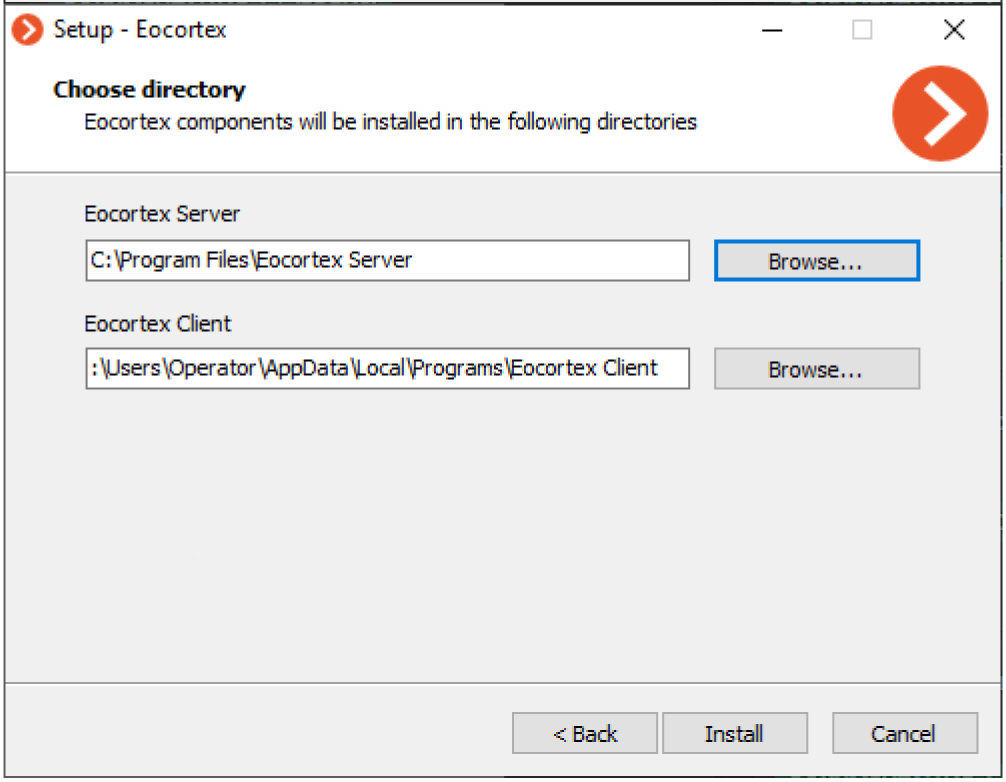
Choose components

Which Eocortex components should be installed?

Select only those components that need to be installed

☑ Server
☐ Standalone
☑ Client

☐ Manually set installation path

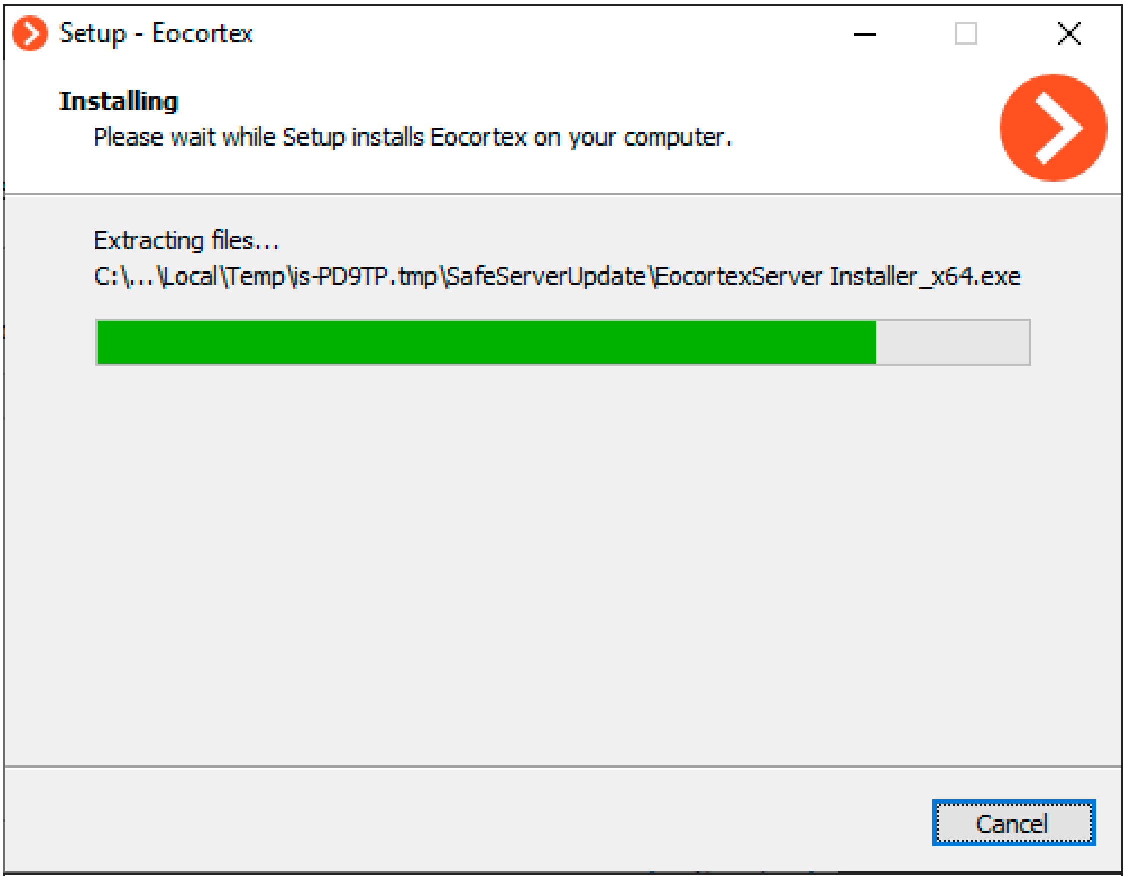

Setup - Eocortex
Browse...
Browse...
< Back
Install
Cancel

Choose directory

Eocortex components will be installed in the following directories

Eocortex Server: C:\Program Files\Eocortex Server

Eocortex Client: :\Users\Operator\AppData\Local\Programs\Eocortex Client

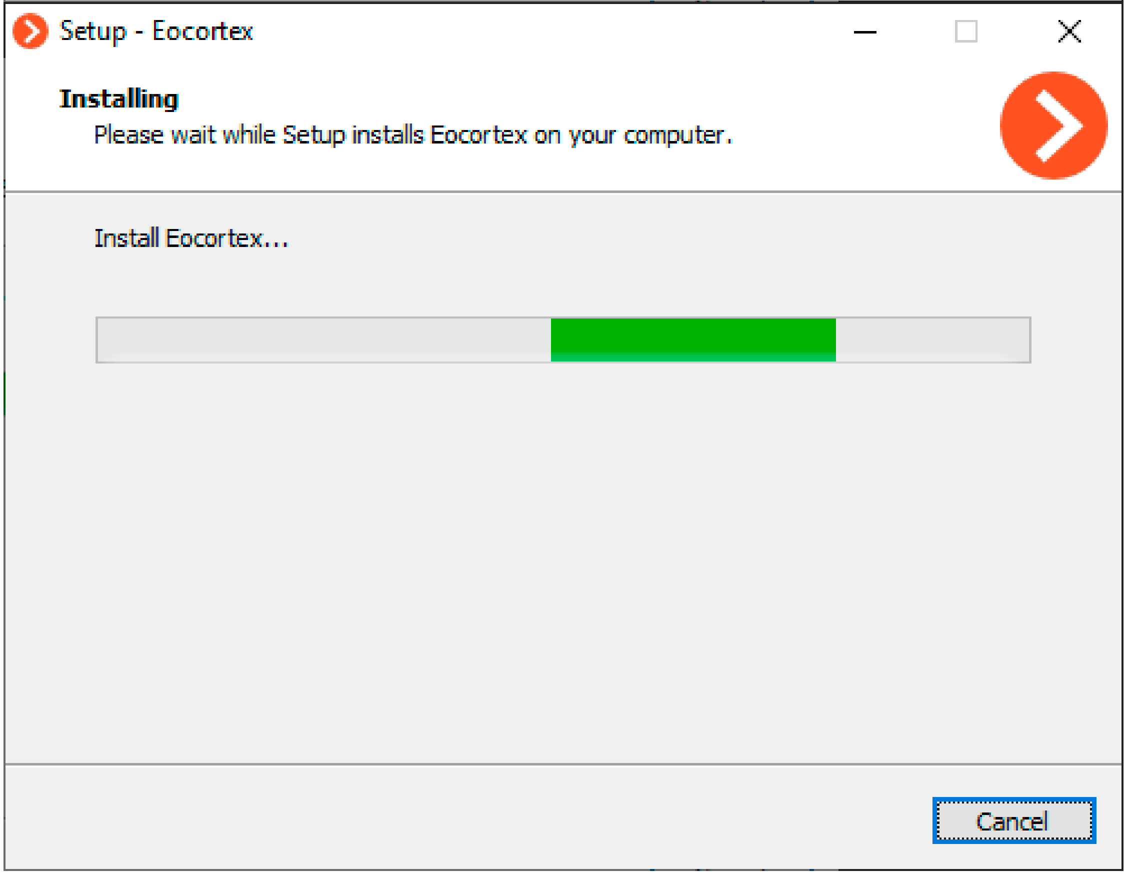

Setup - Eocortex
Cancel

Installing

Please wait while Setup installs Eocortex on your computer.

Extracting files...

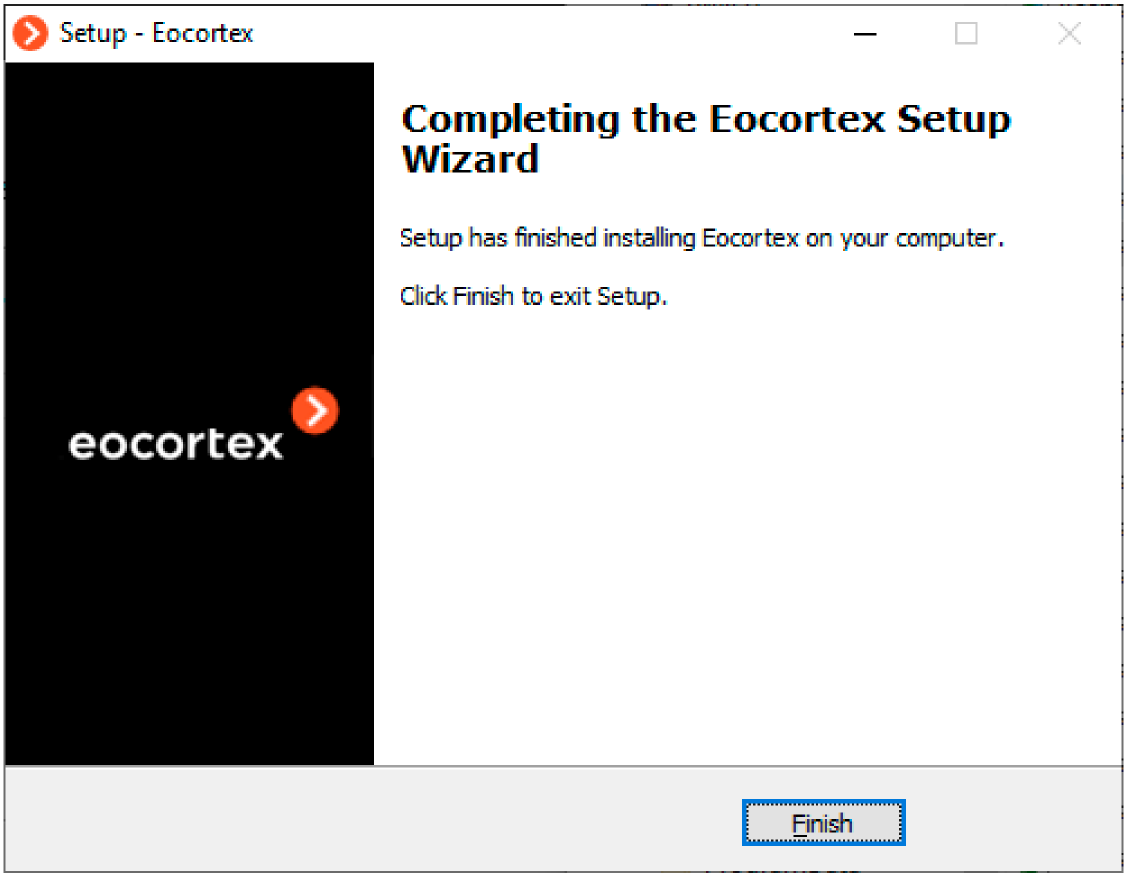
C:\...\Local\Temp\is-PD9TP.tmp\SafeServerUpdate\EocortexServer Installer_x64.exe


Setup - Eocortex
Cancel

Installing

Please wait while Setup installs Eocortex on your computer.

Install Eocortex...



Completing the Eocortex Setup Wizard

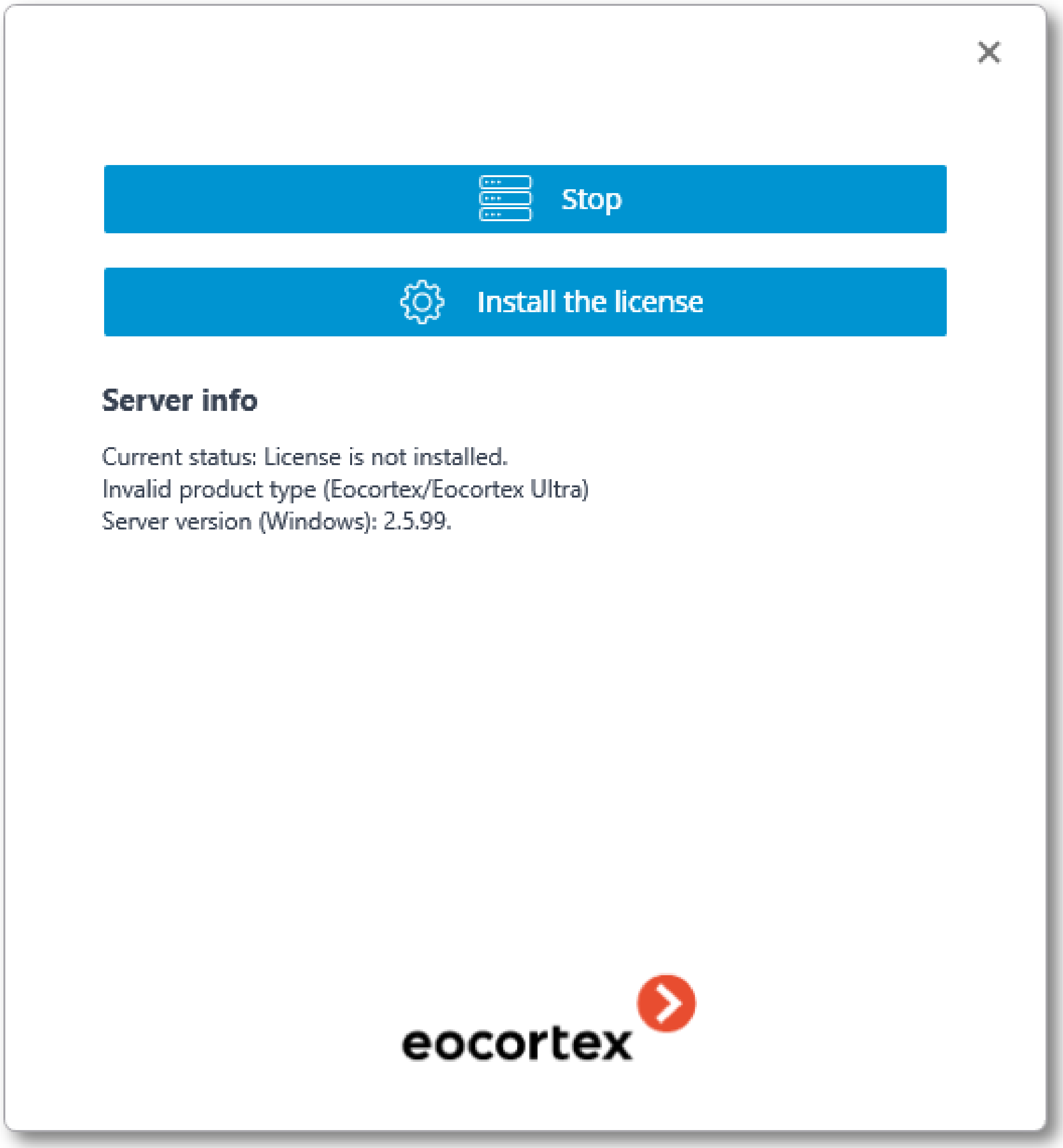
Setup has finished installing Eocortex on your computer.

Click Finish to exit Setup.

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**.



Server info

Current status: License is not installed.
Invalid product type (Eocortex/Eocortex Ultra)
Server version (Windows): 2.5.99.

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

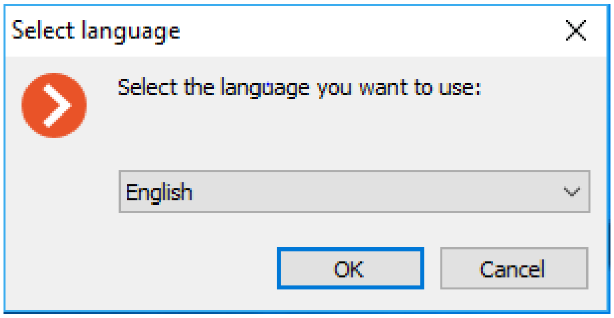
The **Eocortex Client** and **Eocortex Server** applications must be in the same version.

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.

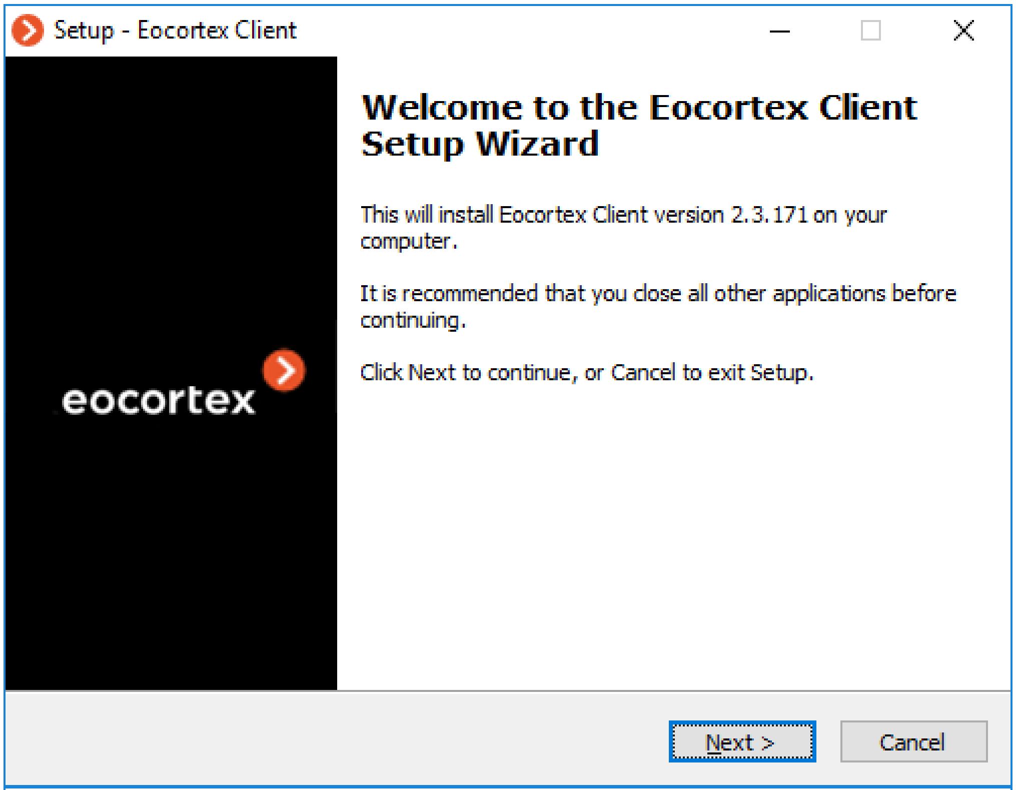
Close all Windows applications before installing **Eocortex Client**; run the **EocortexClientCommon Installer.exe** file located in the installer root folder.

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.

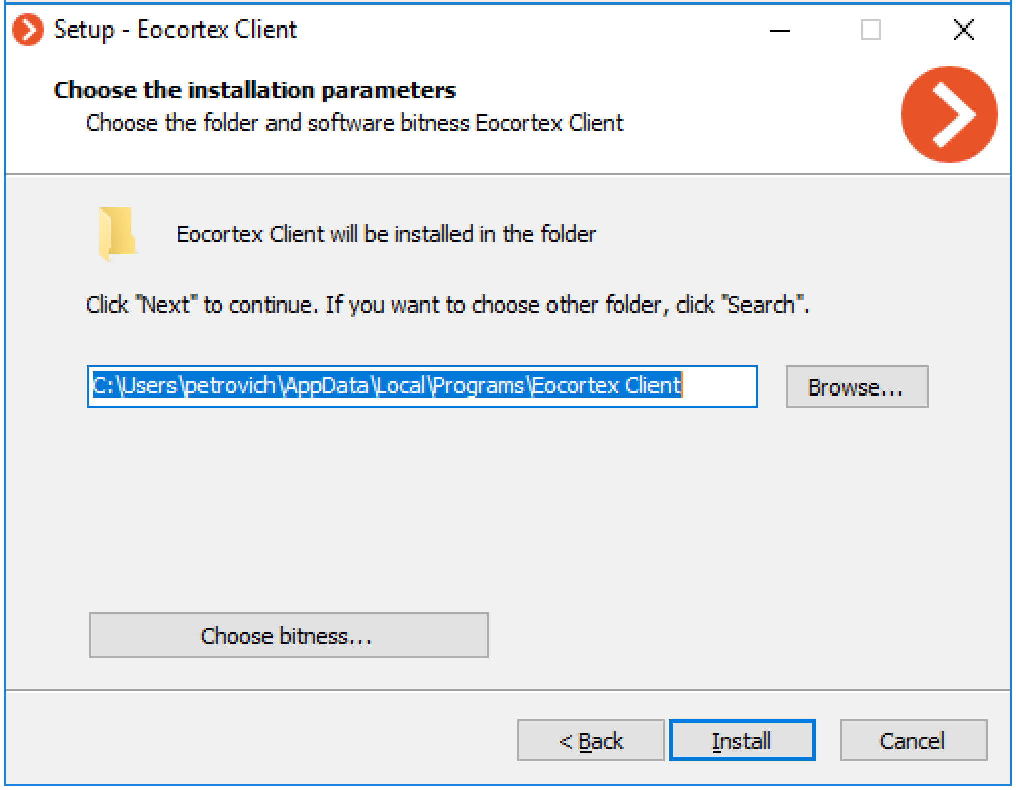

Setup - Eocortex Client
eocortex
Next >
Cancel

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.


Setup - Eocortex Client
Browse...
Choose bitness...
< Back
Install
Cancel

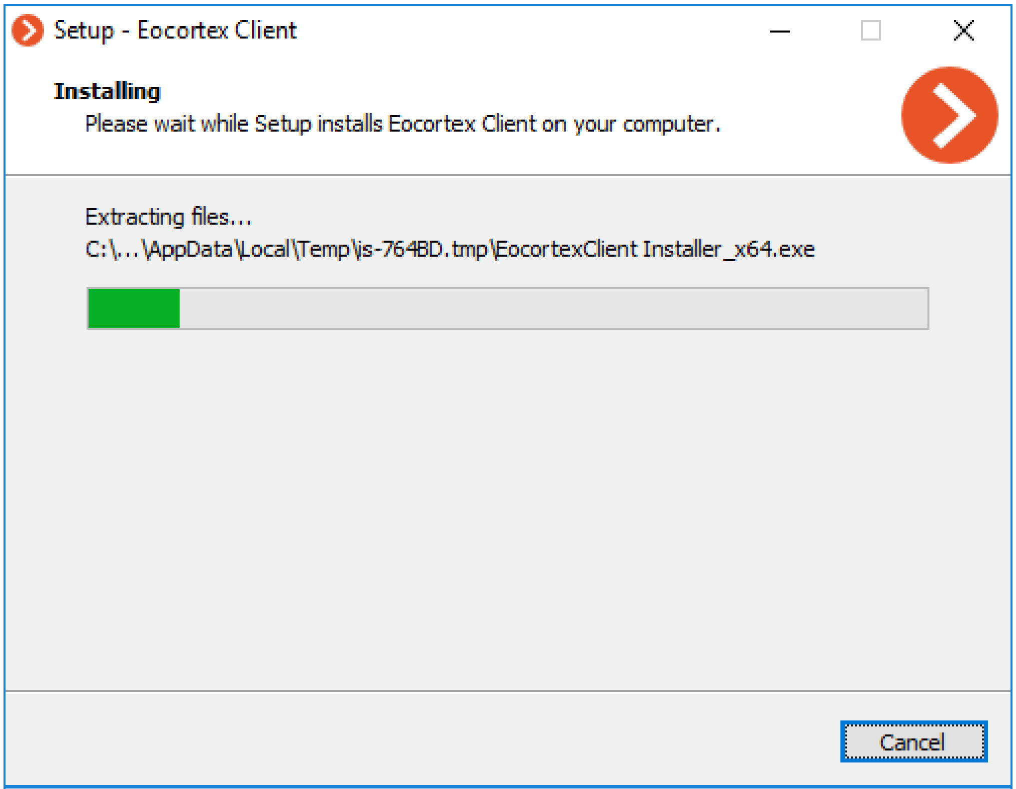
Choose the installation parameters

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

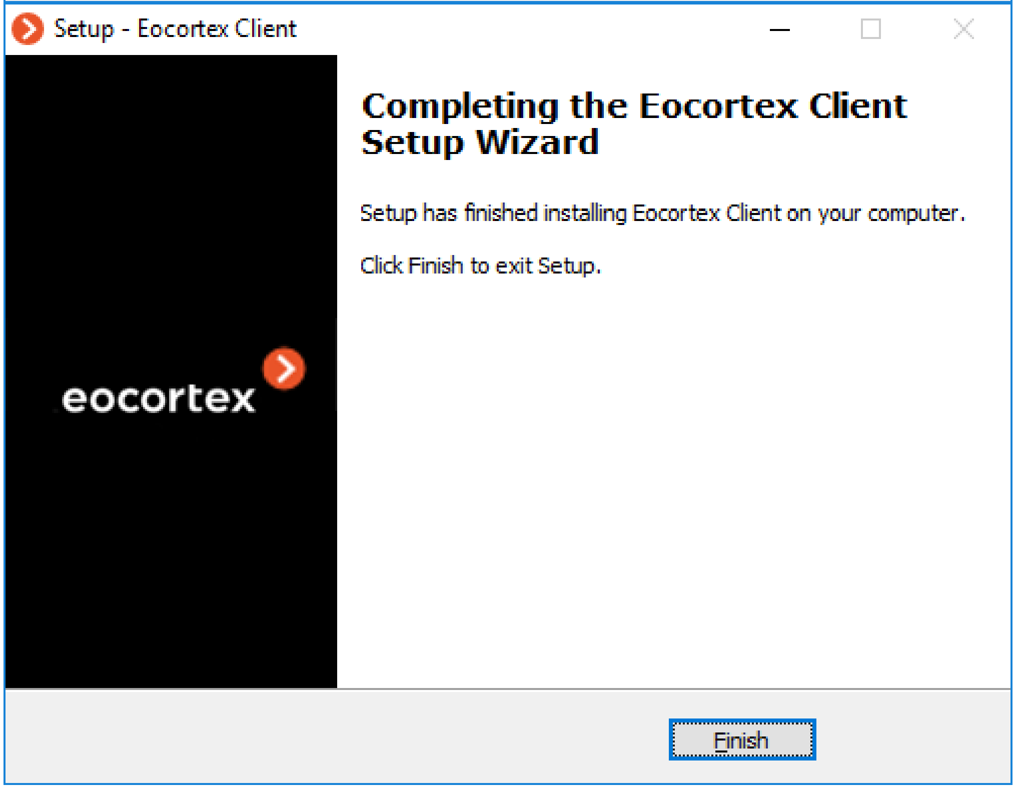

Setup - Eocortex Client
Cancel

Installing

Please wait while Setup installs Eocortex Client on your computer.

Extracting files...

C:\...\AppData\Local\Temp\is-764BD.tmp\EocortexClient Installer_x64.exe


Setup - Eocortex Client
eocortex
Finish

Completing the Eocortex Client Setup Wizard

Setup has finished installing Eocortex Client on your computer.

Click Finish to exit Setup.

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.

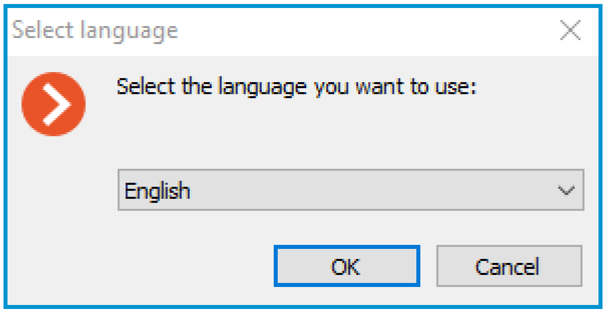
Installation

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.

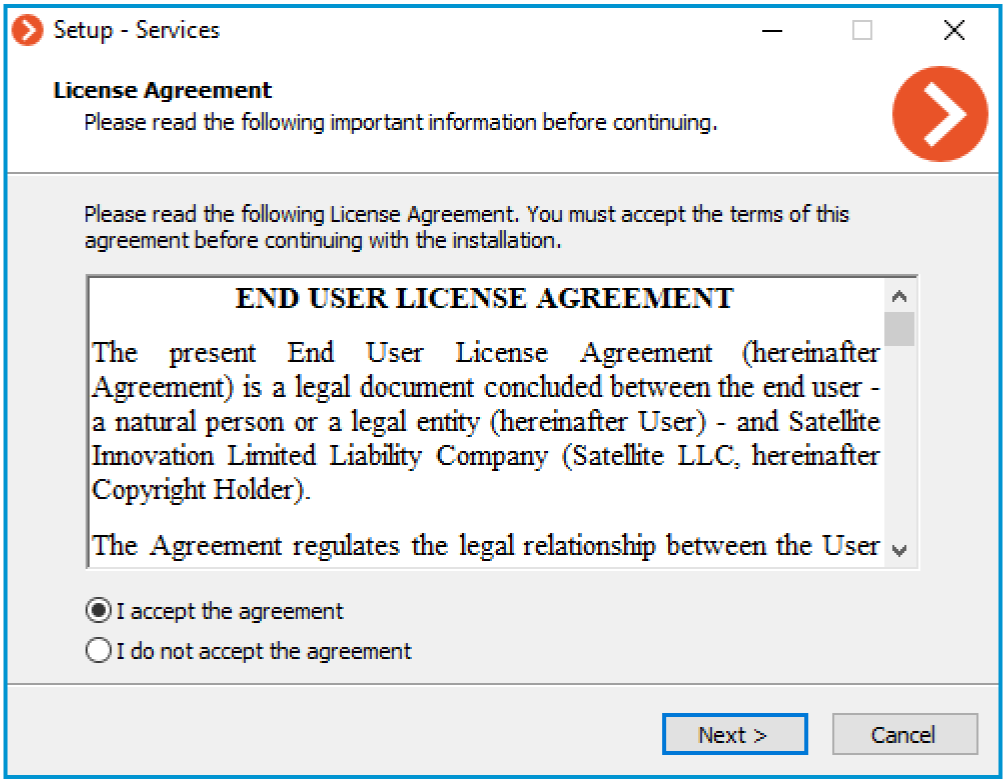


Select language

Select the language you want to use:

English

4. Read and accept the **License Agreement**.



License Agreement

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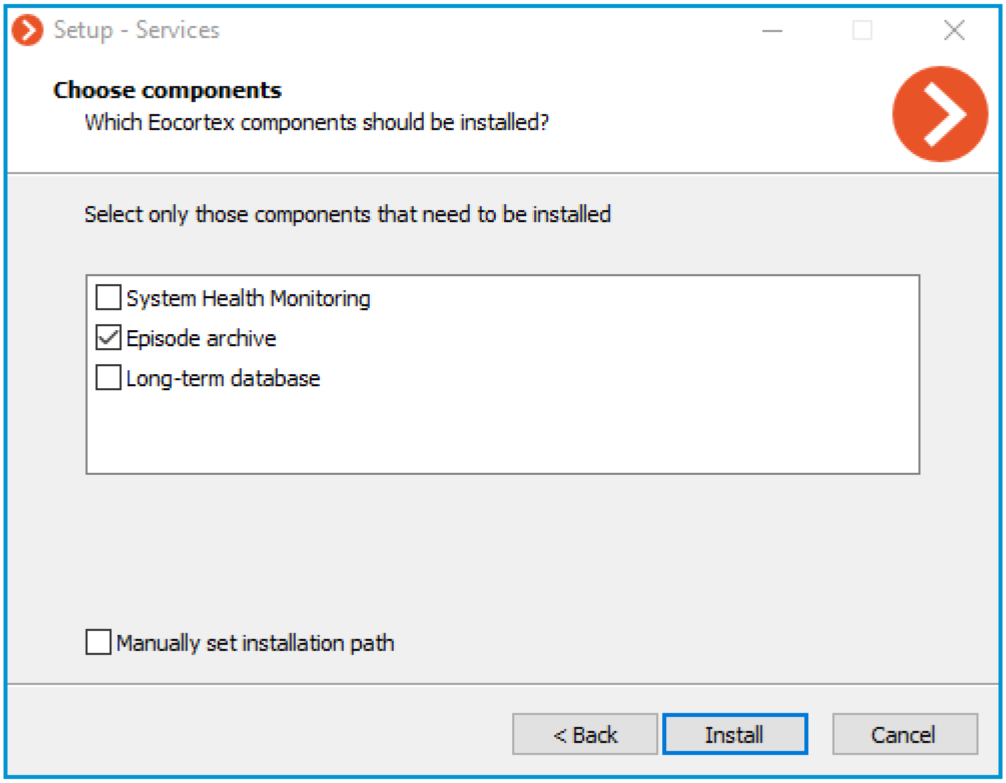
5. Select the service on the **Choose components** page, and then follow the steps of the **Setup Wizard**.



Choose components

Which Eocortex components should be installed?

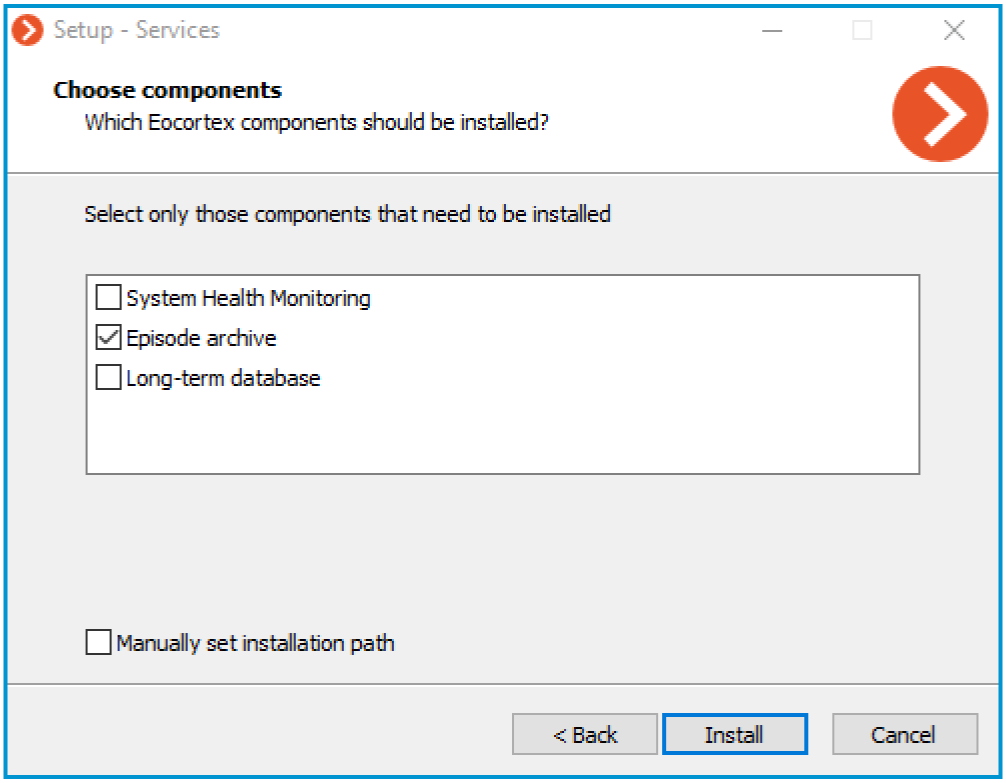
Select only those components that need to be installed

☐ System Health Monitoring

☑ Episode archive

☐ Long-term database

☐ Manually set installation path



Setup - Services

Choose components

Which Eocortex components should be installed?

Select only those components that need to be installed

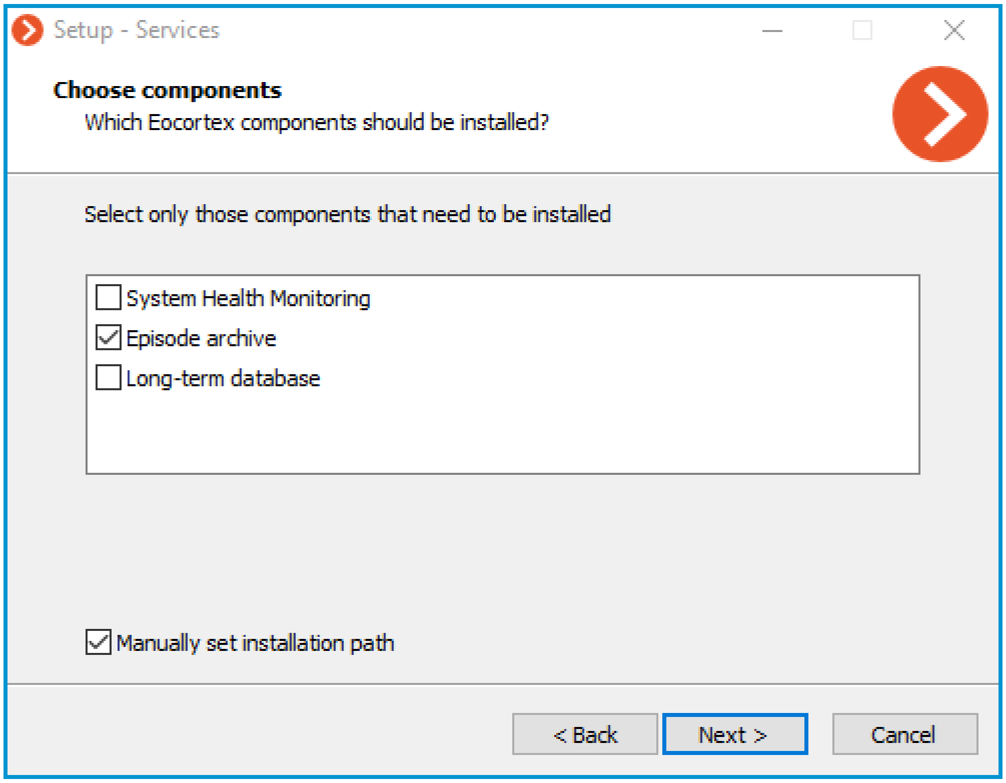
☐ System Health Monitoring
☑ Episode archive
☐ Long-term database

☐ Manually set installation path

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.


Setup - Services

Choose components

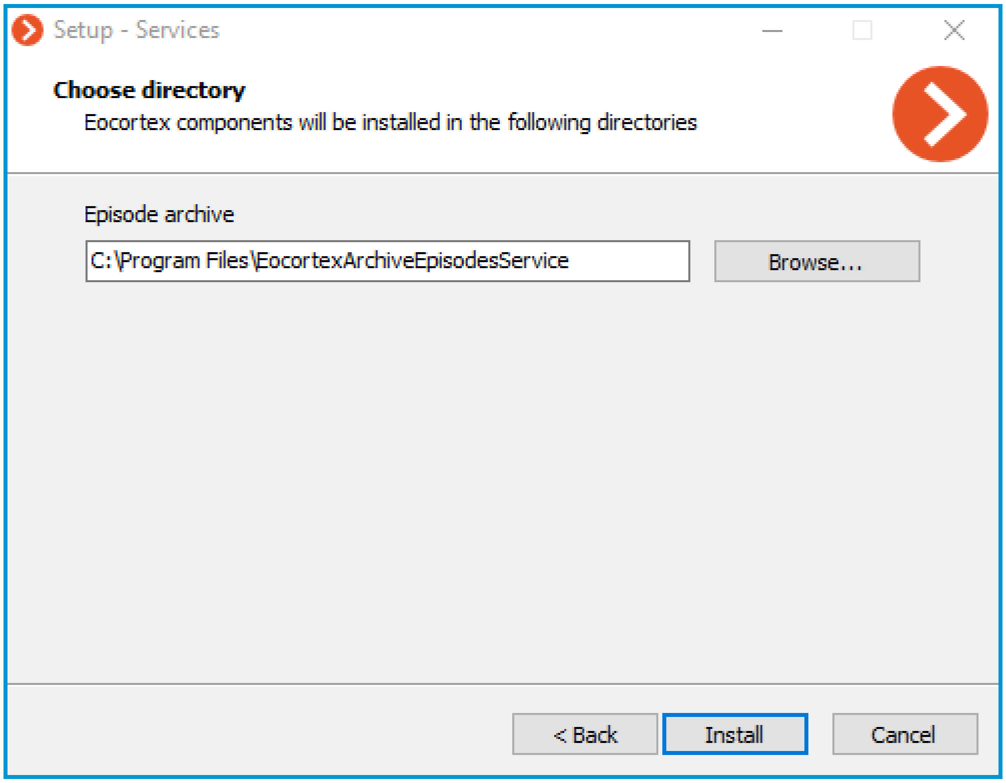
Which Eocortex components should be installed?

Select only those components that need to be installed

☐ System Health Monitoring
☑ Episode archive
☐ Long-term database

☑ Manually set installation path

With this option enabled, the possibility to set a custom installation path will be available on the next screen of the **Setup Wizard**.


Setup - Services

Choose directory

Eocortex components will be installed in the following directories

Episode archive: C:\Program Files\EocortexArchiveEpisodesService

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

Note

After saving the settings, the service must be restarted via the **Services** snap-in to take all changes into effect.

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.

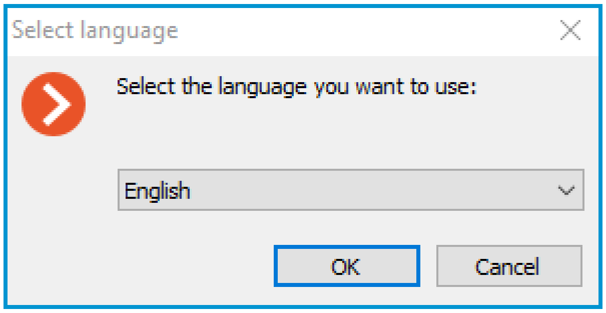
Installation

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.

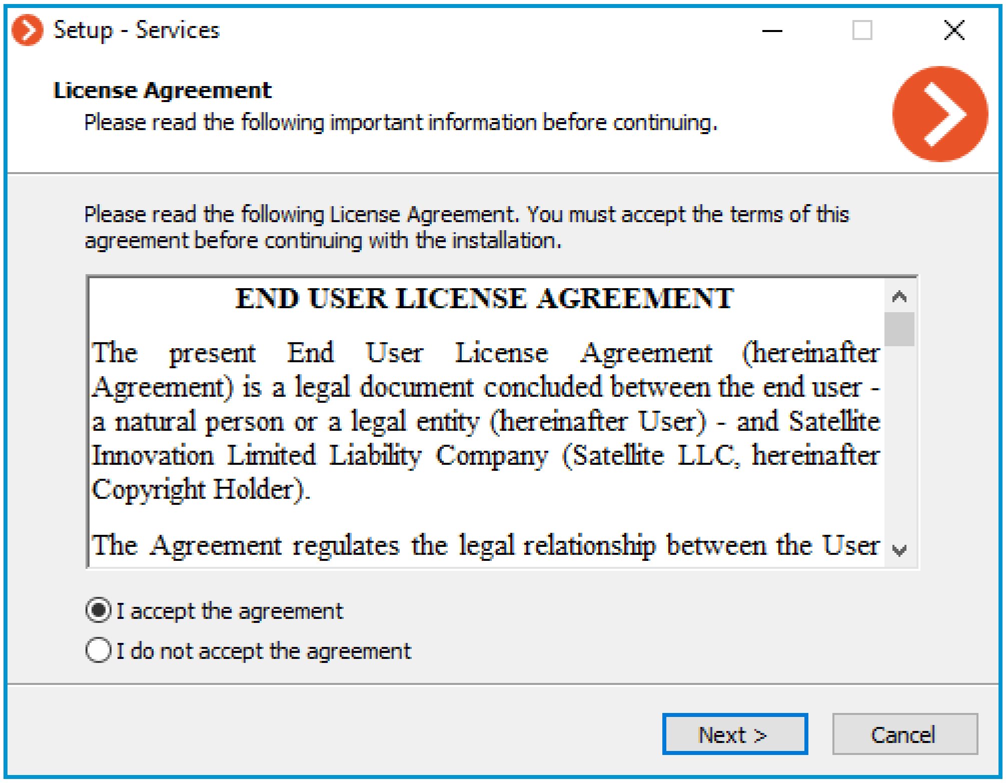


Select language

Select the language you want to use:

English

4. Read and accept the **License Agreement**.



Setup - Services

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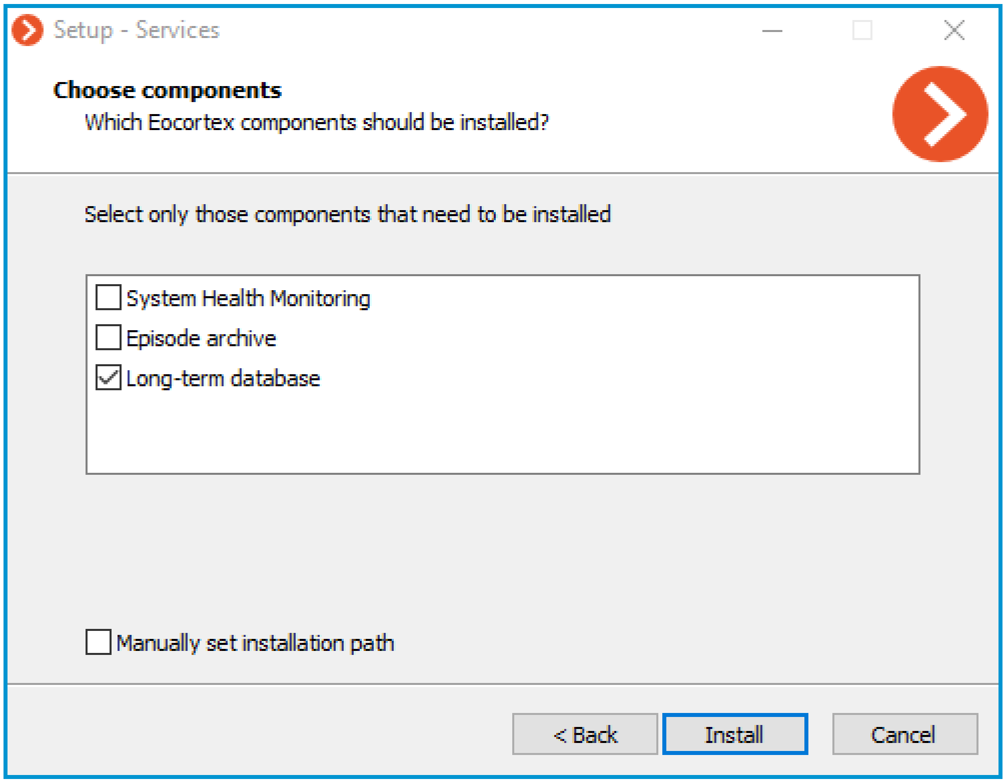
5. Select the service on the **Choose components** page, and then follow the steps of the **Setup Wizard**.



Setup - Services

Choose components

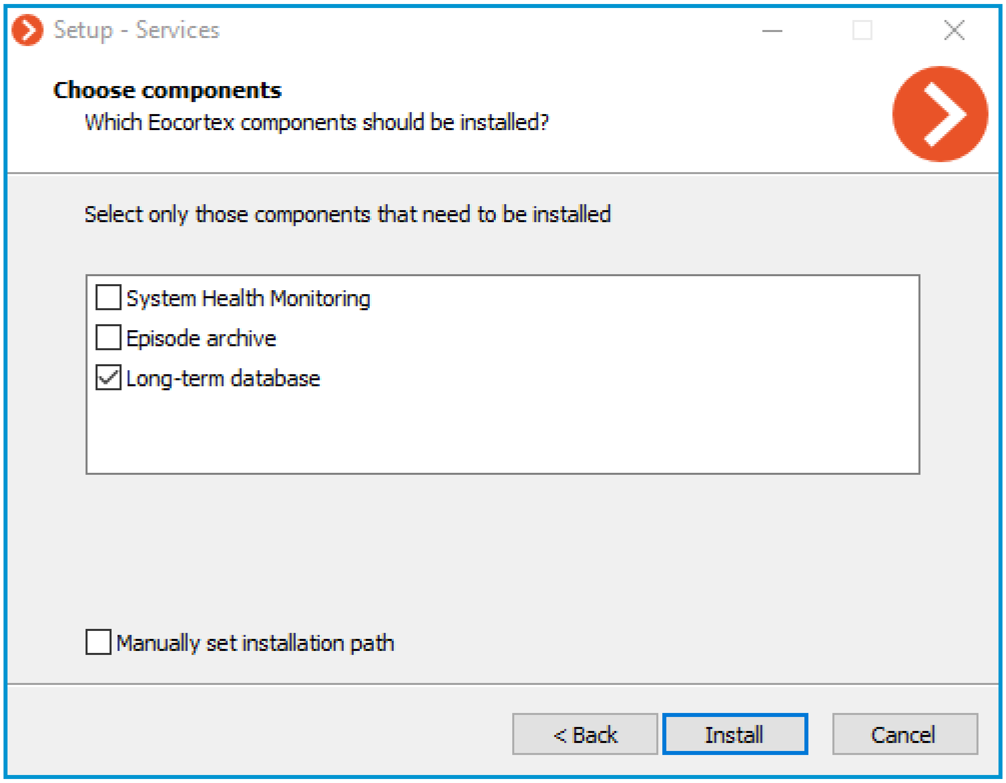
Which Eocortex components should be installed?

Select only those components that need to be installed

☐ System Health Monitoring
☐ Episode archive
☑ Long-term database

☐ Manually set installation path

< Back
Install
Cancel



Setup - Services

Choose components

Which Eocortex components should be installed?

Select only those components that need to be installed

☐ System Health Monitoring
☐ Episode archive
☑ Long-term database

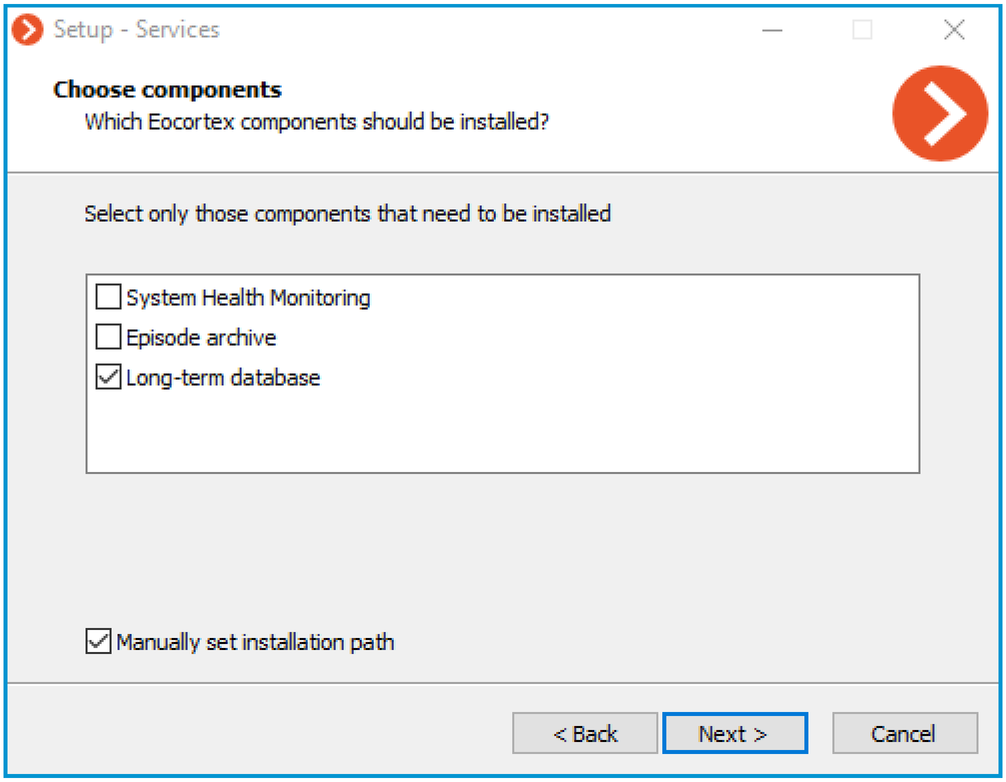
☐ Manually set installation path

< Back
Install
Cancel

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.

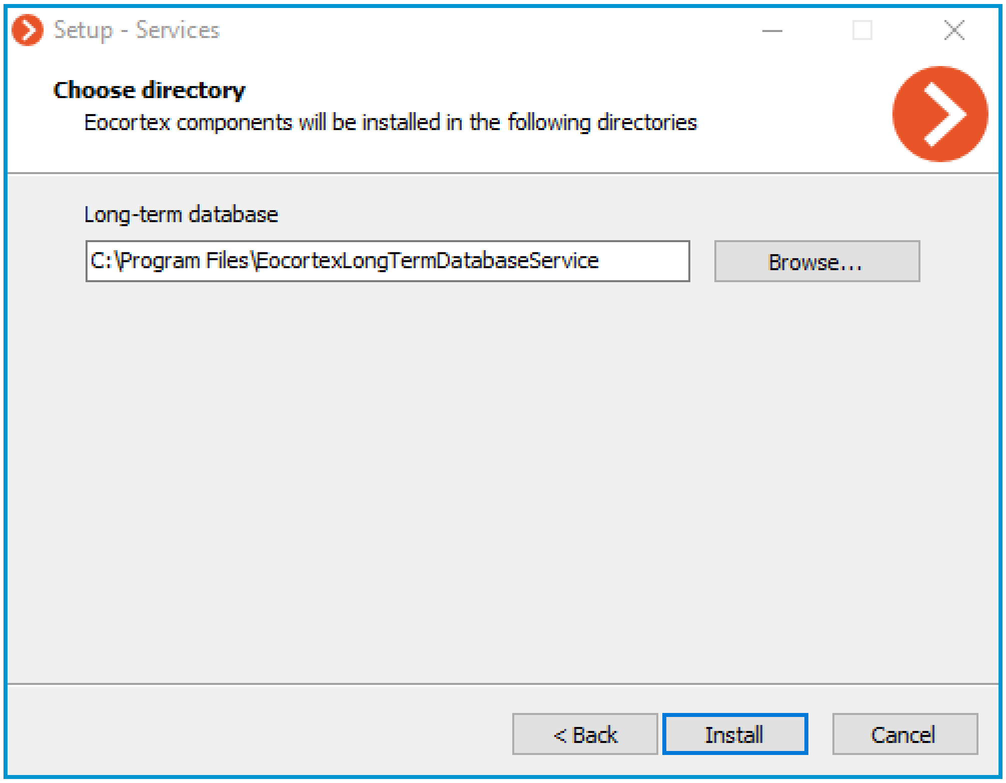

Setup - Services
Choose components
Which Eocortex components should be installed?
< Back
Next >
Cancel

Select only those components that need to be installed

☐ System Health Monitoring
☐ Episode archive
☑ Long-term database

☑ Manually set installation path

With this option enabled, the possibility to set a custom installation path will be available on the next screen of the **Setup Wizard**.


Setup - Services
Choose directory
Eocortex components will be installed in the following directories
Browse...
< Back
Install
Cancel

Long-term database: C:\Program Files\EocortexLongTermDatabaseService

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

Note

After saving the settings, the service must be restarted via the **Services** snap-in to take all changes into effect.

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.

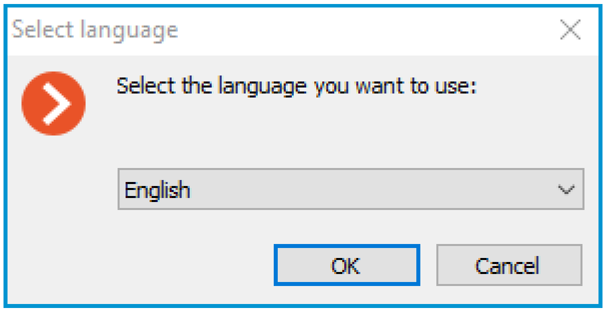
The **service** can be installed on any computer without installing the **Eocortex** server on it.

Only one **service** instance can be configured for the entire system.

Installation

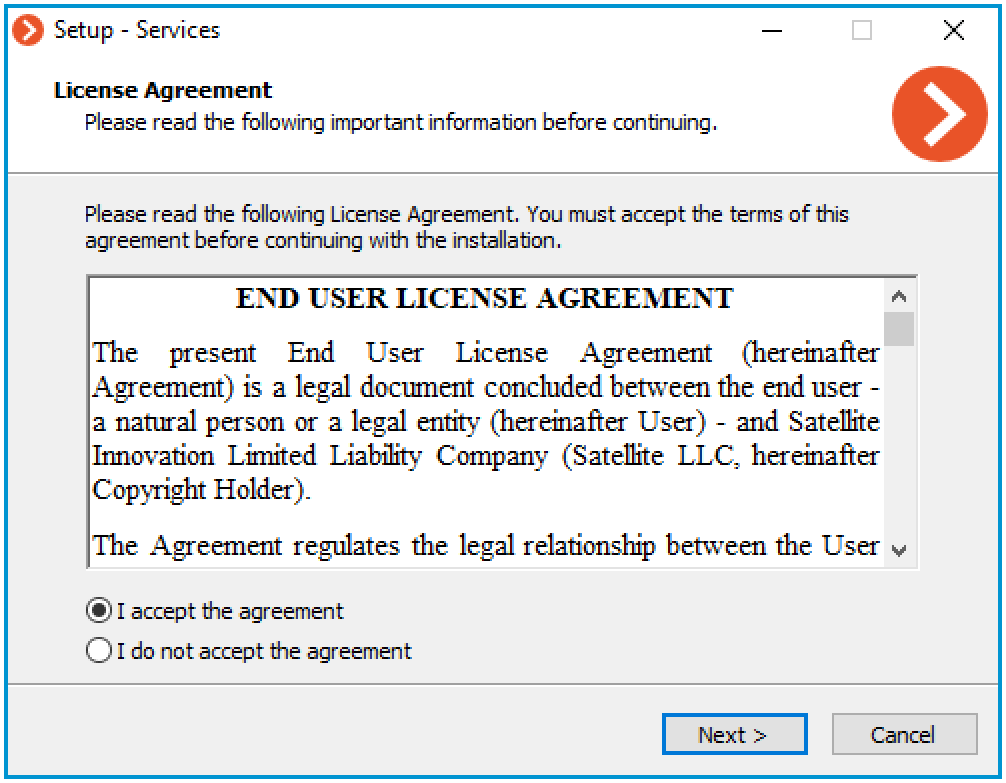
Below are the steps to install the **Monitoring** service:

1. Download the **Eocortex Services Installer** software from the **Download software** page.
2. Run the **EocortexServices Installer.exe** file.
3. Select the installation language.



Select language
Select the language you want to use:
English
OK
Cancel

4. Read and accept the **License Agreement**.



Setup - Services
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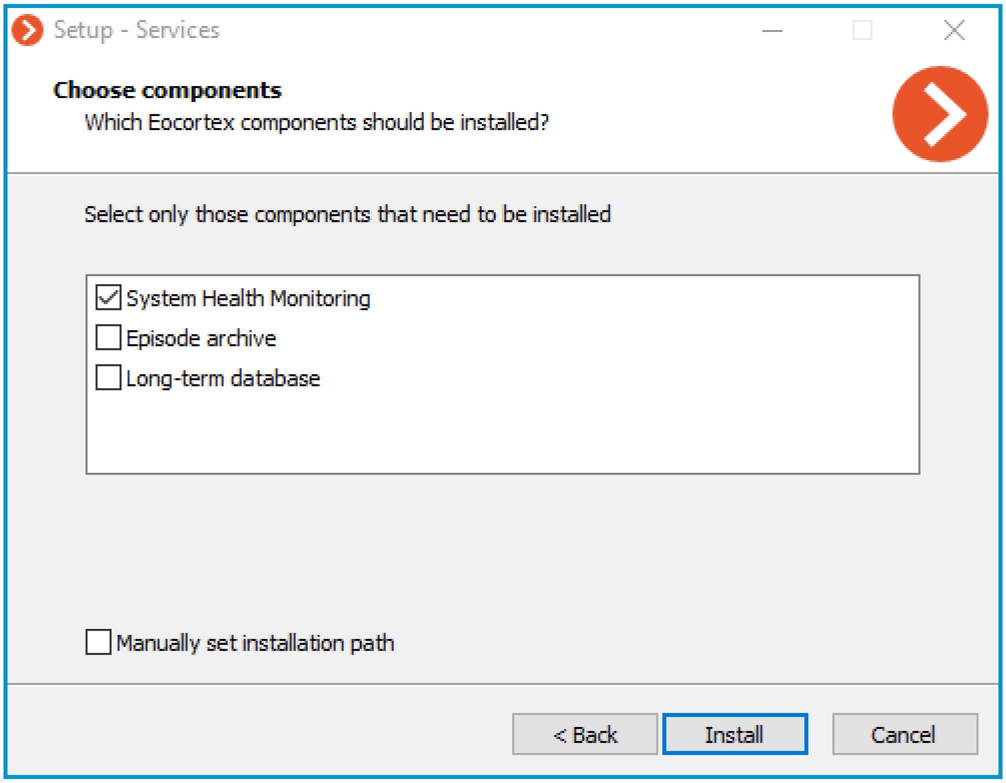
Next >
Cancel

5. Select the service on the **Choose components** page, and then follow the steps of the **Setup Wizard**.


Setup - Services

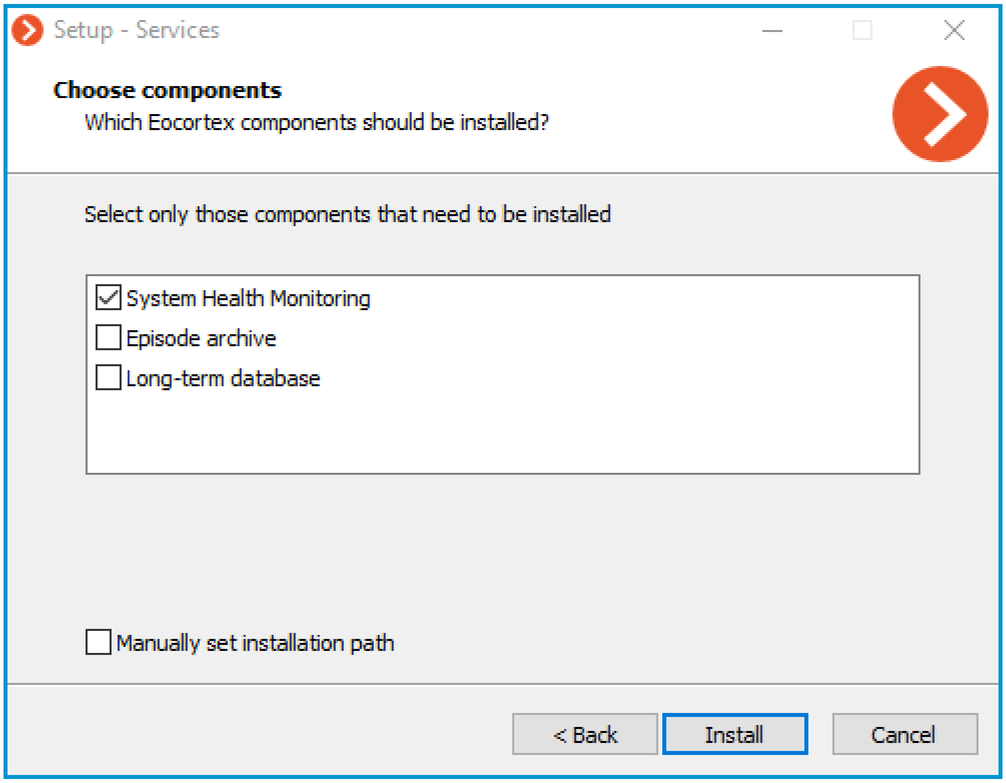
Choose components

Which Eocortex components should be installed?

Select only those components that need to be installed

☑ System Health Monitoring
☐ Episode archive
☐ Long-term database

☐ Manually set installation path


Setup - Services

Choose components

Which Eocortex components should be installed?

Select only those components that need to be installed

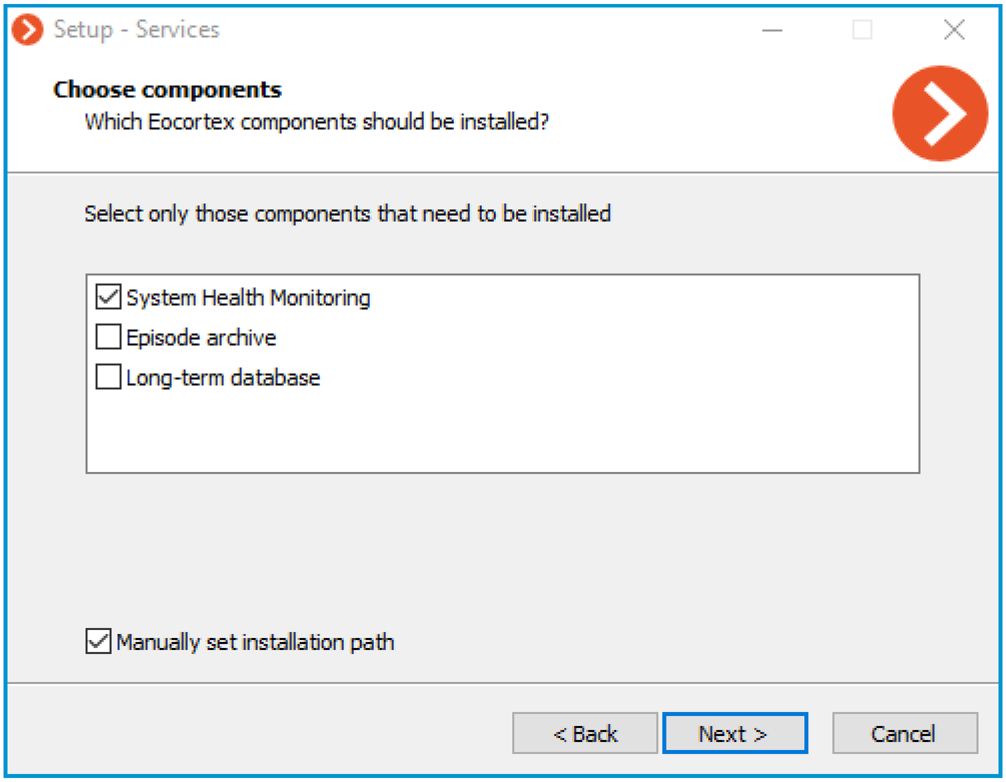
☑ System Health Monitoring
☐ Episode archive
☐ Long-term database

☐ Manually set installation path

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.


Setup - Services
Choose components
< Back
Next >
Cancel

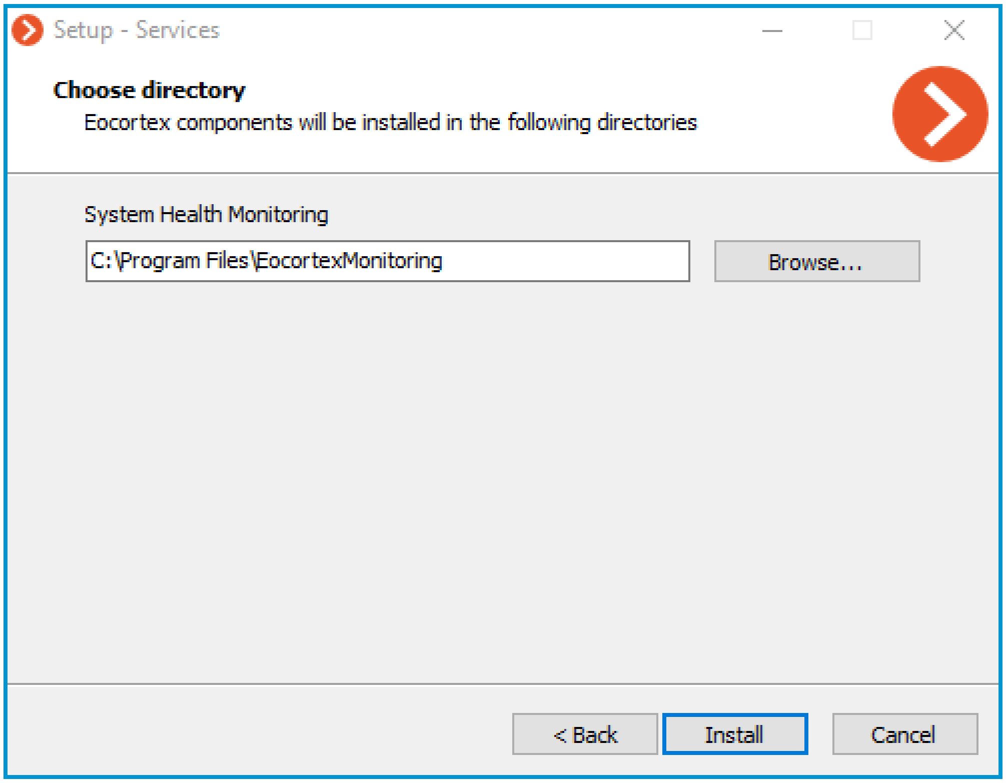
Which Eocortex components should be installed?

Select only those components that need to be installed

☑ System Health Monitoring
☐ Episode archive
☐ Long-term database

☑ Manually set installation path

With this option enabled, the possibility to set a custom installation path will be available on the next screen of the **Setup Wizard**.


Setup - Services
Choose directory
Browse...
< Back
Install
Cancel

Eocortex components will be installed in the following directories

System Health Monitoring: C:\Program Files\EocortexMonitoring

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
- Debian 10, 11
- CentOS 7

Warning

Operability on other Linux distributions is not guaranteed.

Note

Supported file systems: ext2, ext3, ext4, btrfs, ntfs (using ntfs-3g).

- **Guidelines for Linux settings**
- **Technical features of Linux version**
- **Installation of Eocortex Server under Linux**
- **Usage of PostgreSQL on Linux**
- **Deployment of Eocortex Client on Linux using Flatpak**
- **Installing, updating, and removing Episode archive**
- **Installing, updating, and removing Long-term database**
- **Installing, updating, and removing Monitoring**
- **Licensing**

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

sync:

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

sync:

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"
```

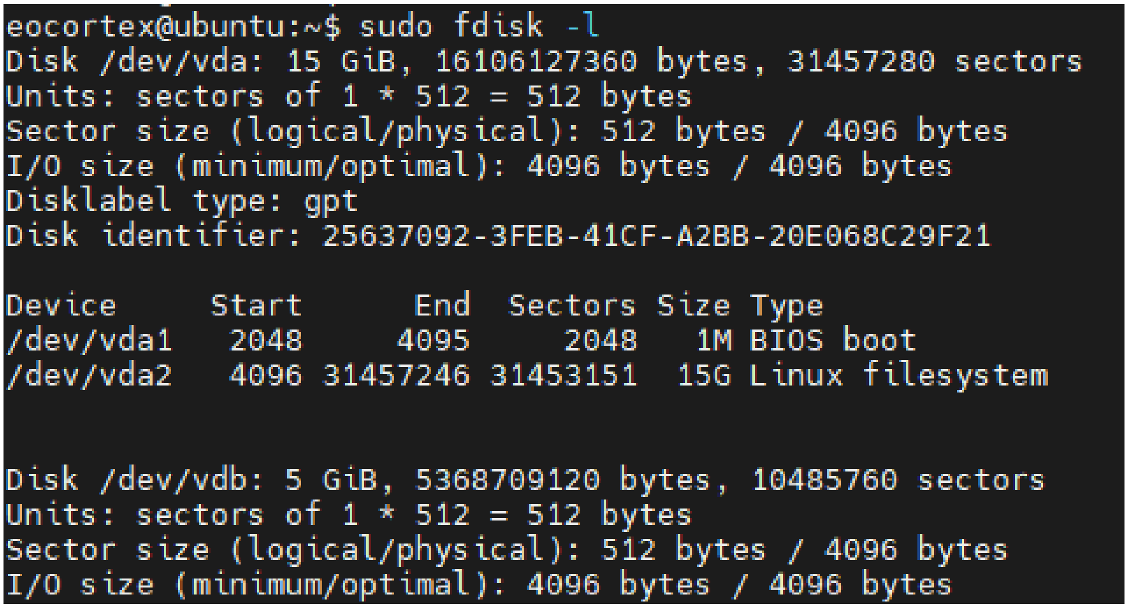
Adding new drives to the system

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
```

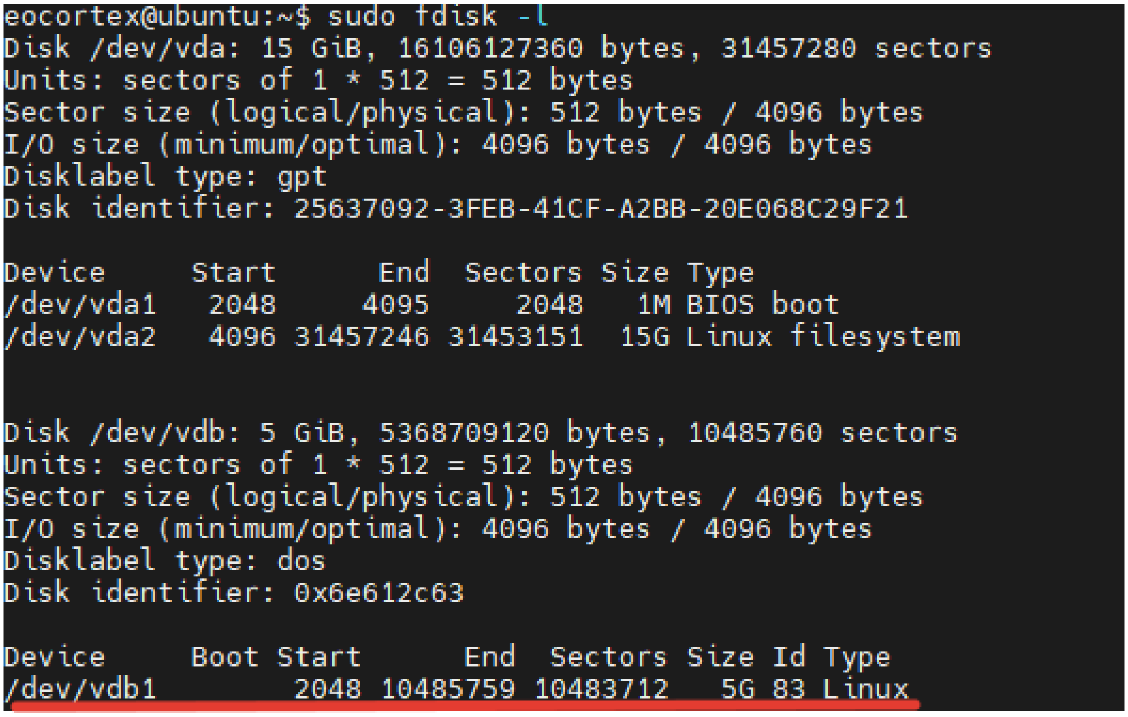
2. Create a partition on the disk:

sudo fdisk /dev/vbd

To further configure the default disk, enter the **n** character, then press **Enter** four times and enter the **w** character.

.. image:: /install/img/create-disk-partition.png

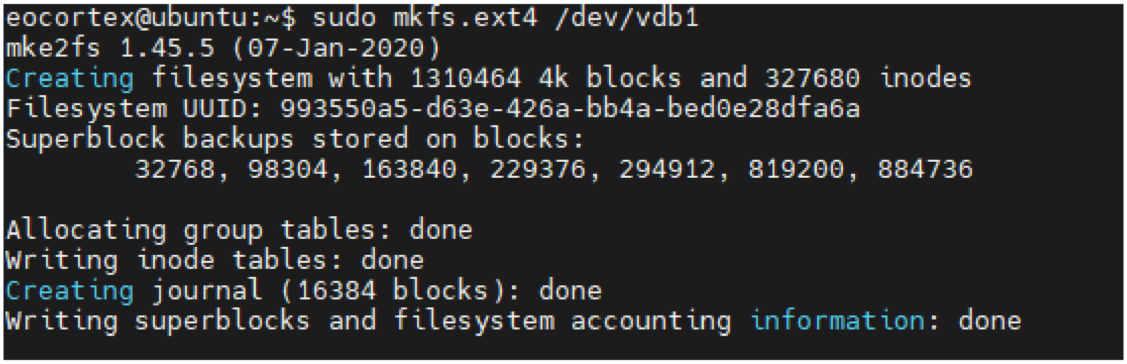
3. Check if the partition was created correctly:



```
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

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
```

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.*
```

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 ~/EocortexPackages/
```

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
```

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.

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
```

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.

To uninstall the **Eocortex Server** application, run the following command:

```
sudo apt-get remove eocortex
```

Ubuntu

Supported versions:

- Ubuntu 20.04
- Ubuntu 22.04

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
```

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.*
```

> 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 ~/EocortexPackages/
```

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
```

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.

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
```

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.

To uninstall the **Eocortex Server** application, run the following command:

```
sudo apt-get remove eocortex
```

CentOS

Supported versions:

- CentOS 7

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
```

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.*
```

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
   ```

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
   ```

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.

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

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.

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.

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
```

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
```

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

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.

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.

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
```

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
   ```

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**).

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
```

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 versions Eocortex Client

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
```

View a list of the current versions of **Eocortex Client** using the command:

```
sudo flatpak remote-ls | grep eocortex
```

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 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 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
```

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. 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
```

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
- 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-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

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
# 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;Database={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 @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.

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.

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 10, 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%**.

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
```

Ubuntu 20.04, 22.04

Online installation

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
```

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-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 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-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. 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
```

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
- 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=longtermdatabase;Username=eocortex;Password=
masterkey;",
      "ConnectionStringWithDatabasePlaceholder":
"Host=localhost;Port=5432;Database={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.

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 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
```

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)

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-monitoring-server
```

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-monitoring-server
```

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-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.

- **Installing Eocortex Neural Networks Standard package**
- **Installing Eocortex Neural Networks Special package**

Installing Eocortex Neural Networks Standard 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** 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

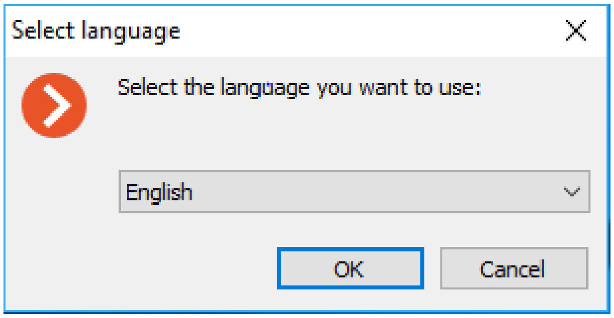
The installation of the **Eocortex Neural Networks Standard** package shall be performed under the account of the same user who will operate the application. If the application is to be launched by multiple users with different accounts, the installation must be performed for each of these users under 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.



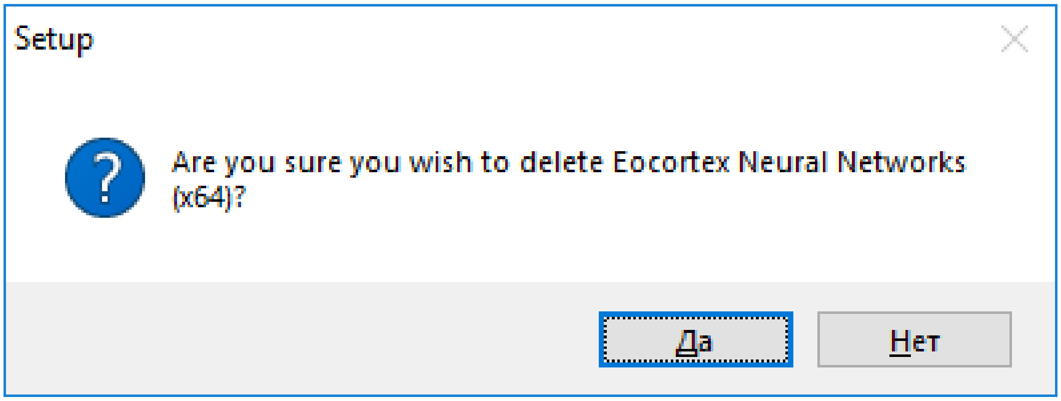
Select language

Select the language you want to use:

English

Note

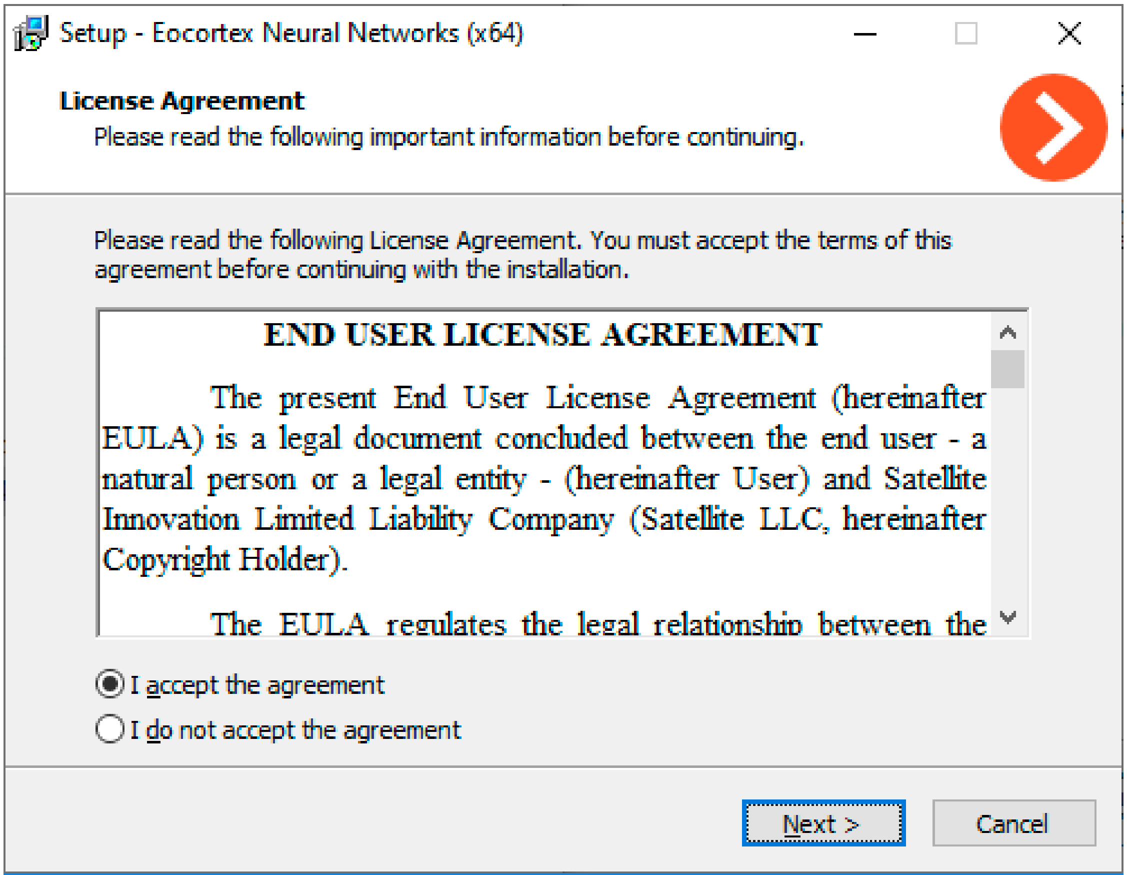
If the **Eocortex Neural Networks Standard** package has already been installed on this computer, the user will be recommended to remove the previous copy of the software. In case **No** is clicked, the installation will be aborted, and the previous copy will remain. If **Yes** is clicked, the previous copy will be deleted, and the **Eocortex Neural Networks Standard** installation wizard window will open.



Are you sure you wish to delete Eocortex Neural Networks (x64)?

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)
Next >
Cancel

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.

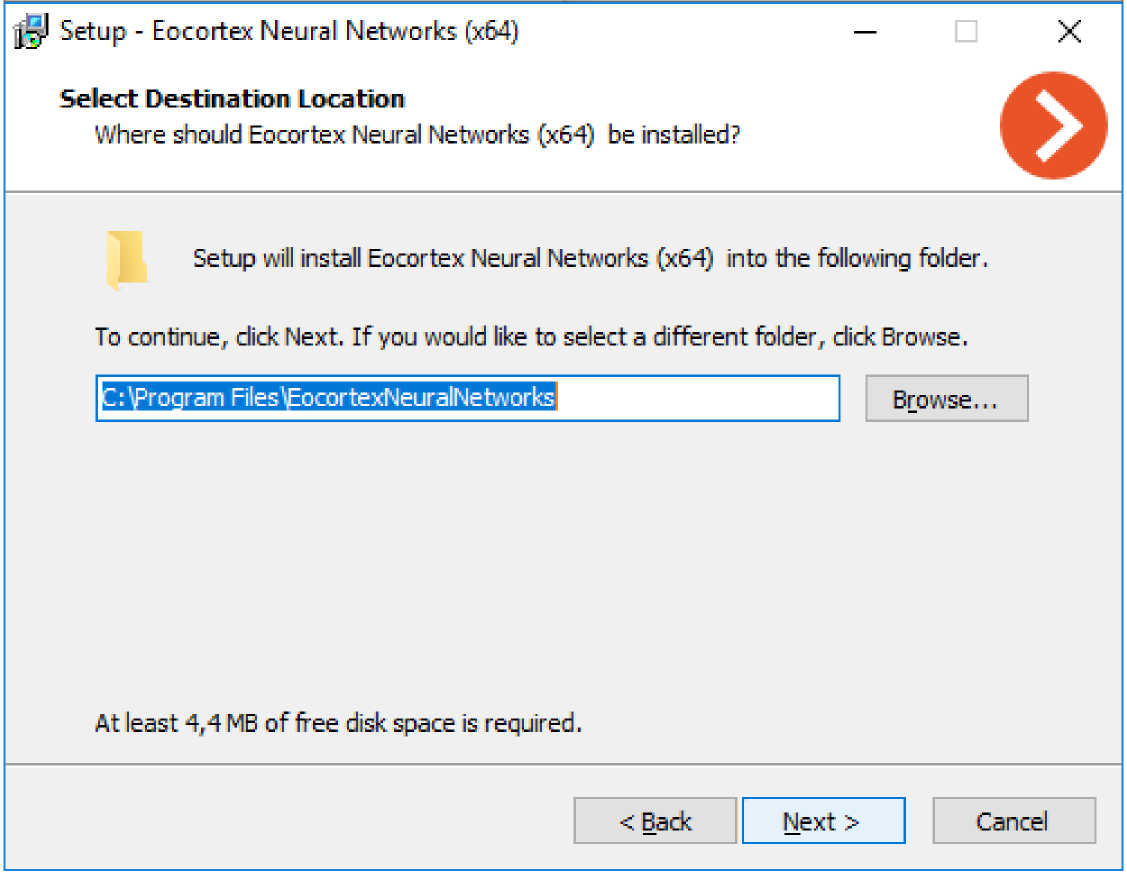
END USER LICENSE AGREEMENT

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


Setup - Eocortex Neural Networks (x64)
Browse...
< Back
Next >
Cancel

Select Destination Location

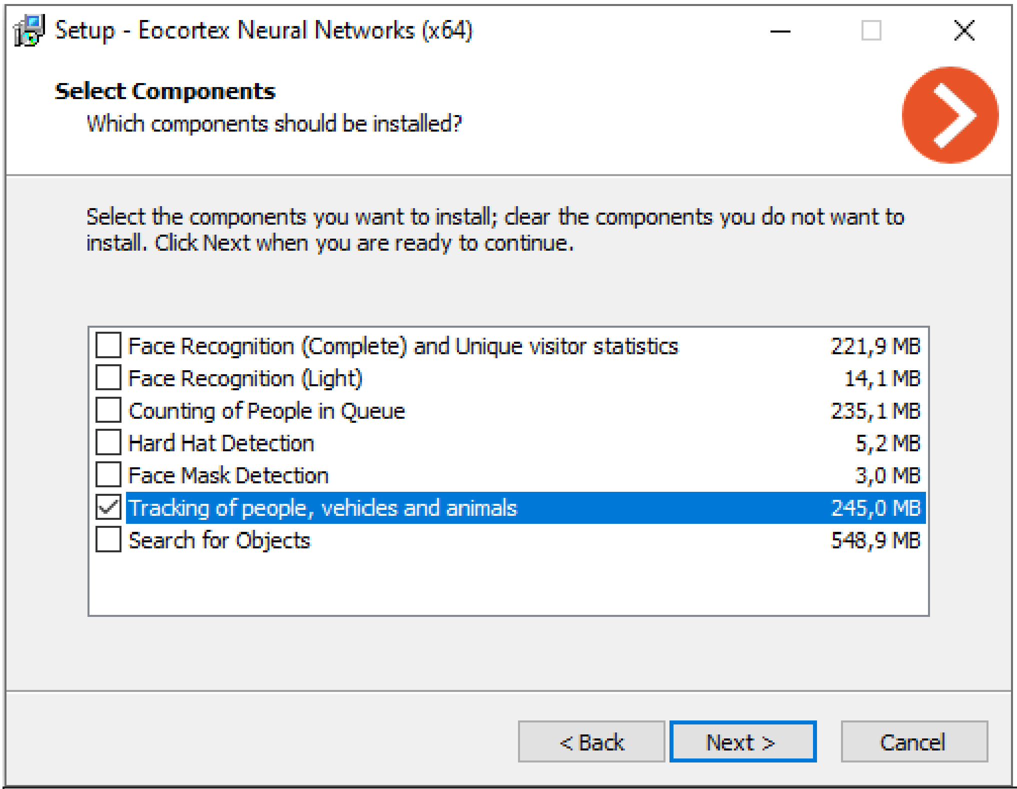
Where should Eocortex Neural Networks (x64) be installed?

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

At least 4,4 MB of free disk space is required.



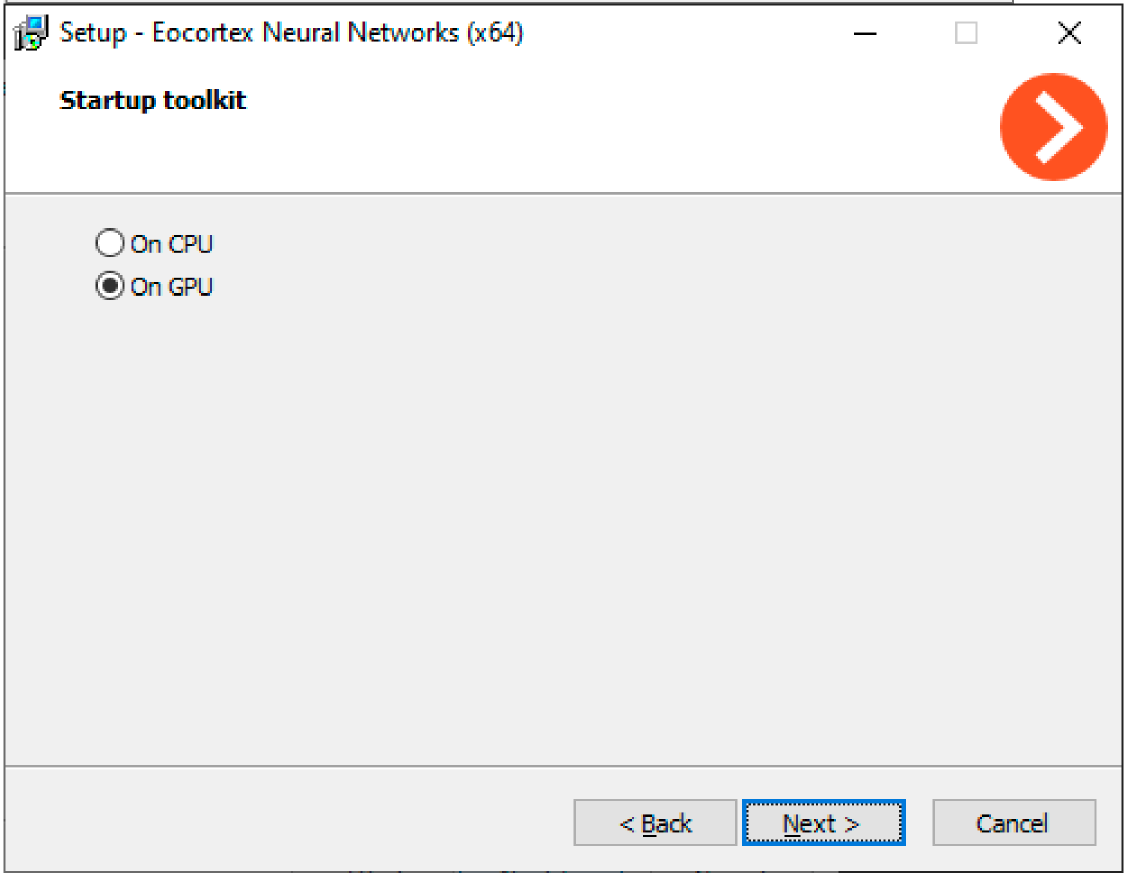
Setup - Eocortex Neural Networks (x64)

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.

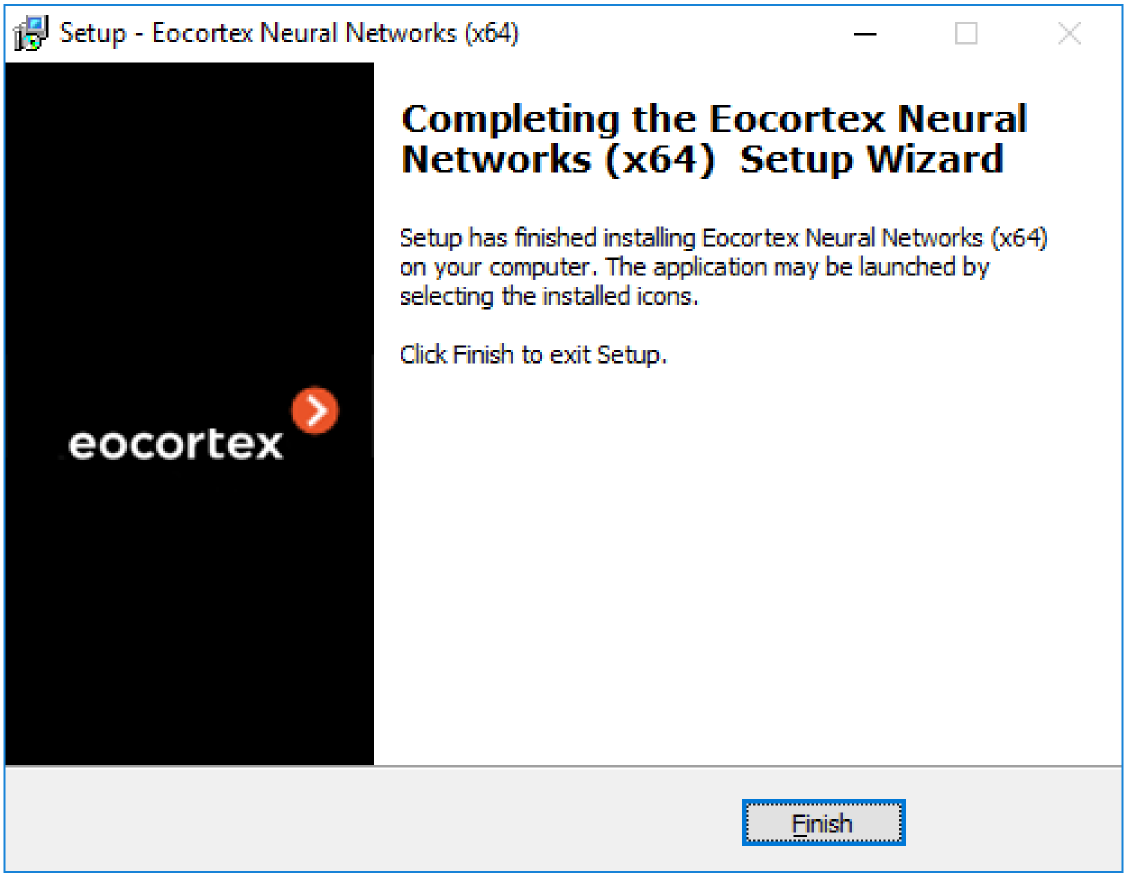
☐	Face Recognition (Complete) and Unique visitor statistics	221,9 MB
☐	Face Recognition (Light)	14,1 MB
☐	Counting of People in Queue	235,1 MB
☐	Hard Hat Detection	5,2 MB
☐	Face Mask Detection	3,0 MB
☑	Tracking of people, vehicles and animals	245,0 MB
☐	Search for Objects	548,9 MB



Setup - Eocortex Neural Networks (x64)

Startup toolkit

○ On CPU
● On GPU



Completing the Eocortex Neural Networks (x64) Setup Wizard

Setup has finished installing Eocortex Neural Networks (x64) on your computer. The application may be launched by selecting the installed icons.

Click Finish to exit Setup.

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
search"
```

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:\ProgramData\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 **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 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 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

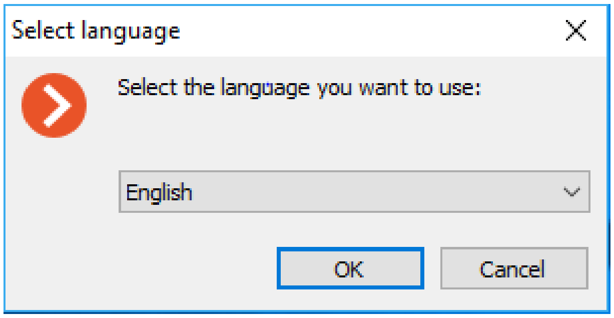
The installation of the **Eocortex Neural Networks Special** package shall be performed under the account of the same user who will operate the application. If the application is to be launched by multiple users with different accounts, the installation must be performed for each of these users under 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.



Select language

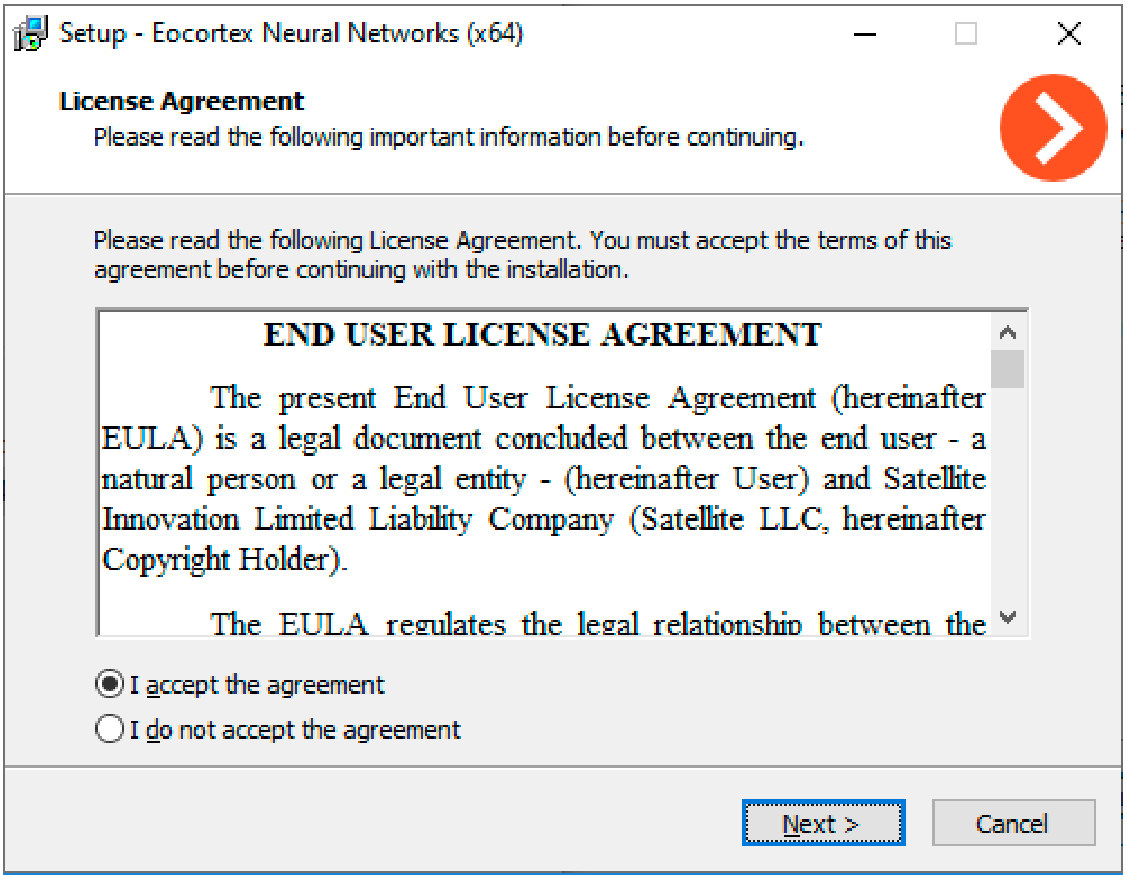
Select the language you want to use:

English

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)
Next >
Cancel

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.

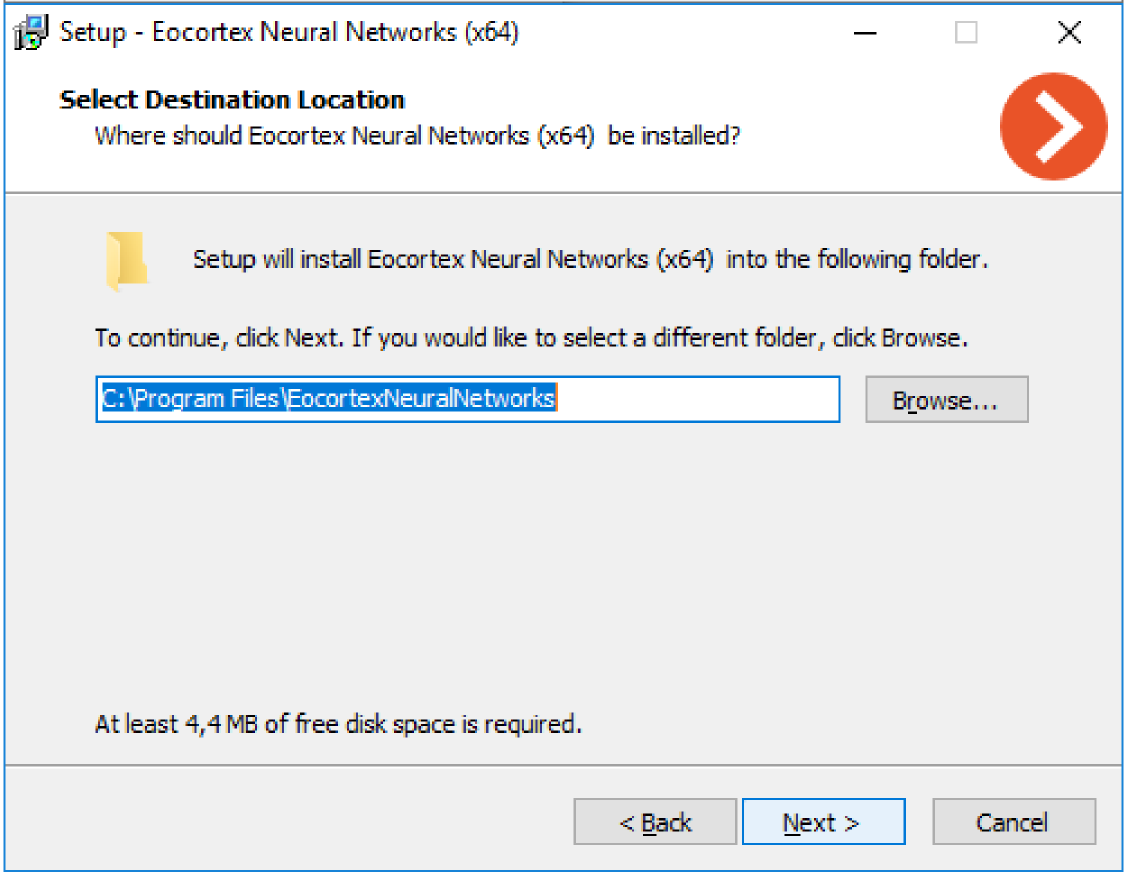
END USER LICENSE AGREEMENT

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


Setup - Eocortex Neural Networks (x64)
Browse...
< Back
Next >
Cancel

Select Destination Location

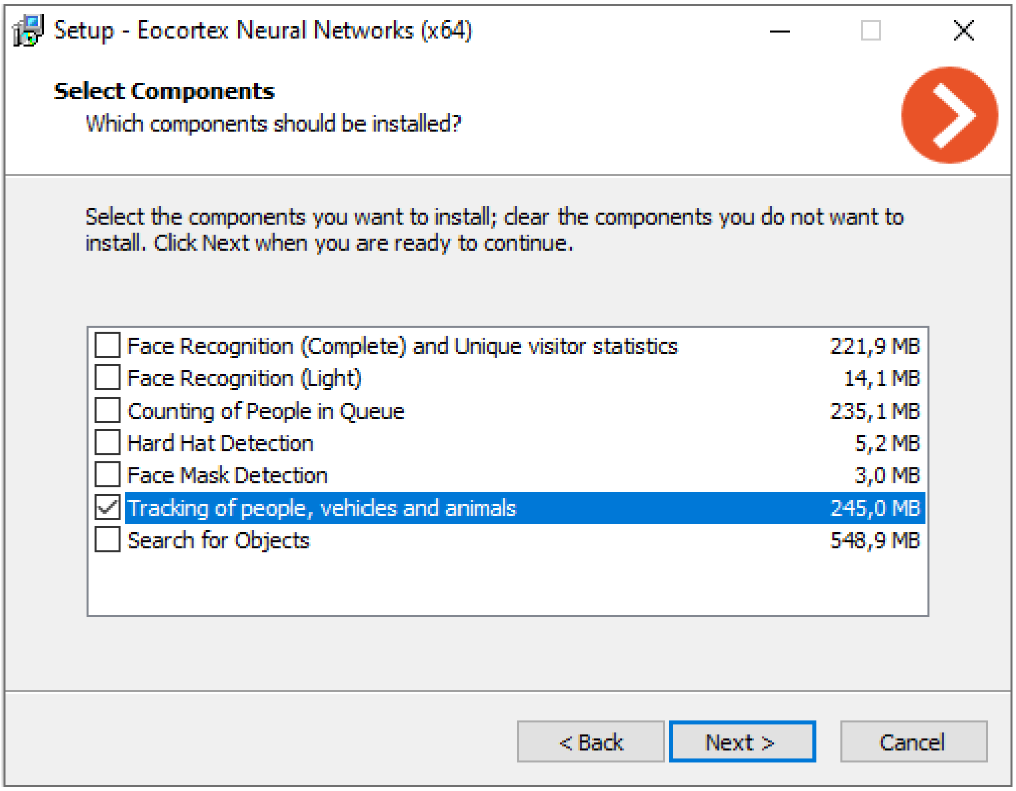
Where should Eocortex Neural Networks (x64) be installed?

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

At least 4,4 MB of free disk space is required.



Select Components

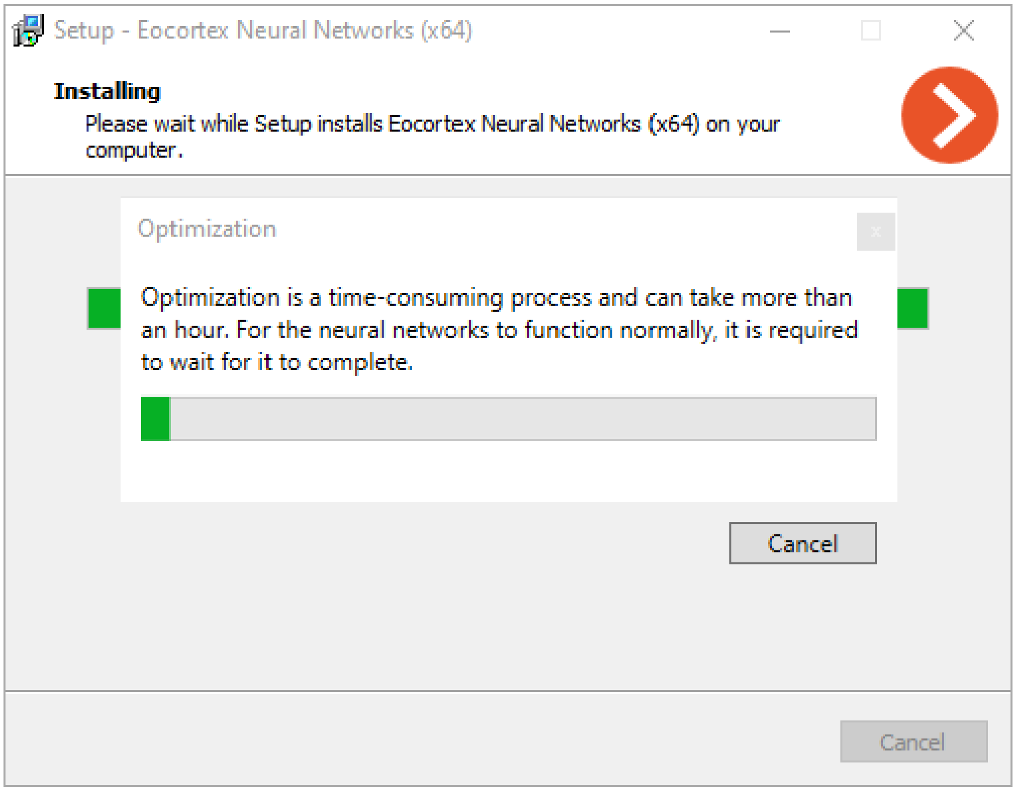
Which components should be installed?

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

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.

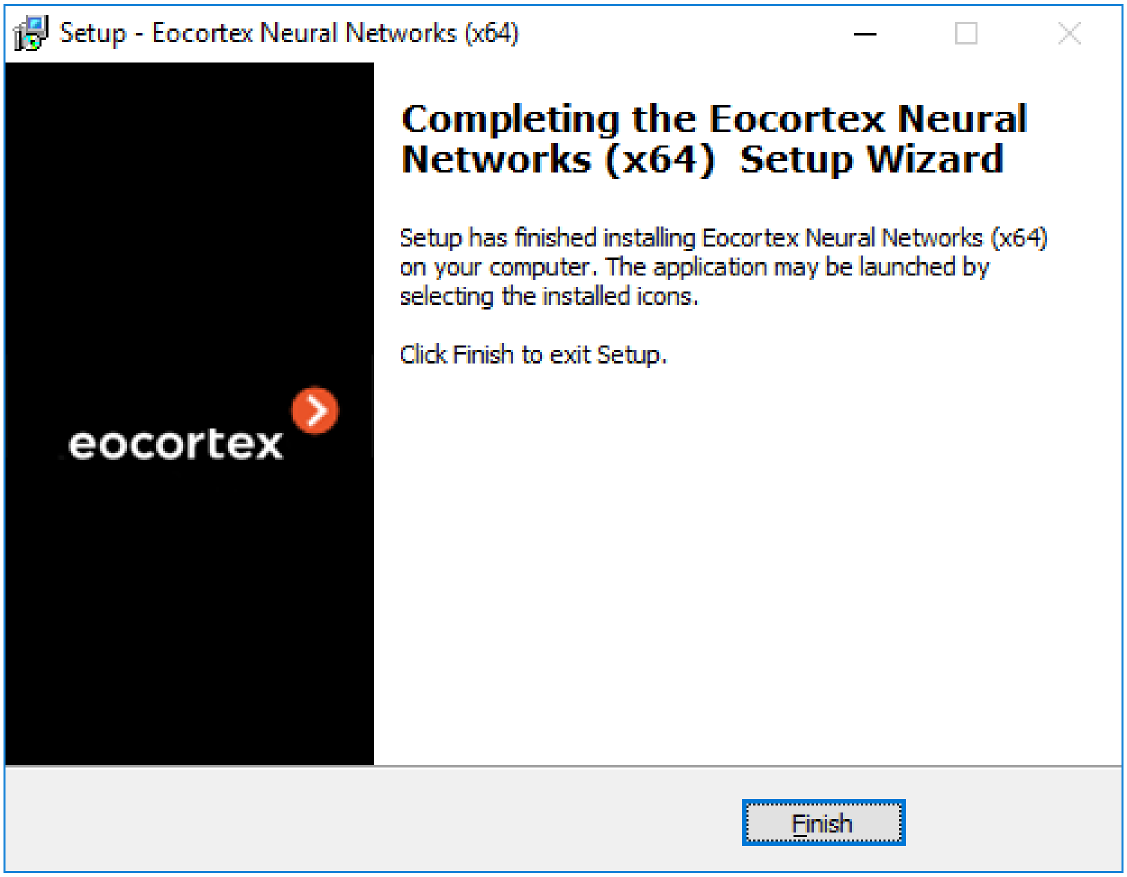

Setup - Eocortex Neural Networks (x64)
Installing
Optimization
Cancel
Cancel

Please wait while Setup installs Eocortex Neural Networks (x64) on your computer.

Optimization is a time-consuming process and can take more than an hour. For the neural networks to function normally, it is required to wait for it to complete.

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.



Completing the Eocortex Neural Networks (x64) Setup Wizard

Setup has finished installing Eocortex Neural Networks (x64) on your computer. The application may be launched by selecting the installed icons.

Click Finish to exit Setup.

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 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 VLAN) 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 VLAN 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**
- **USB key offline activation**
- **Software key online activation**
- **Software key offline activation**
- **License update**

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**.

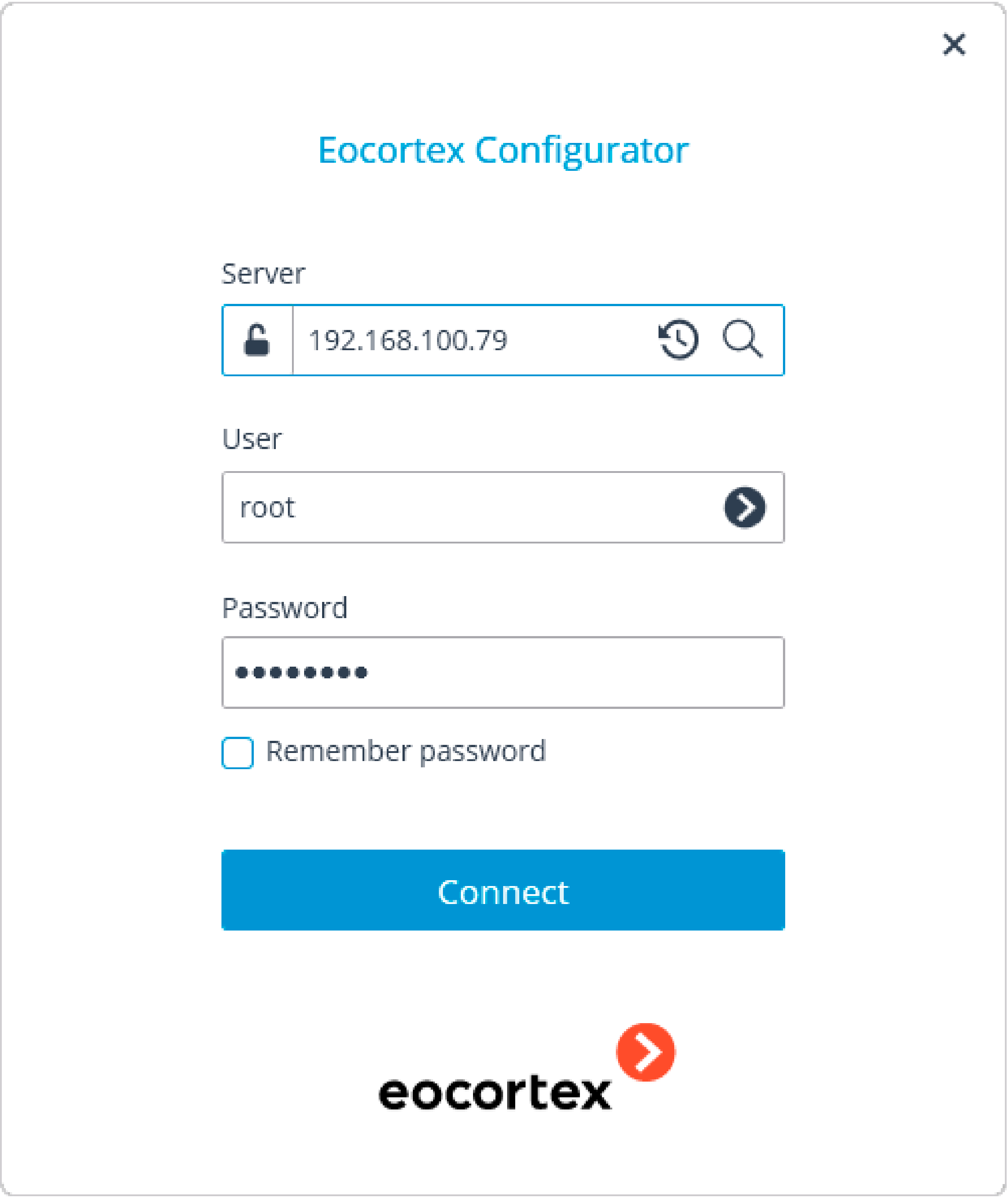
Warning

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**.



Eocortex Configurator

Server

192.168.100.79

User

root

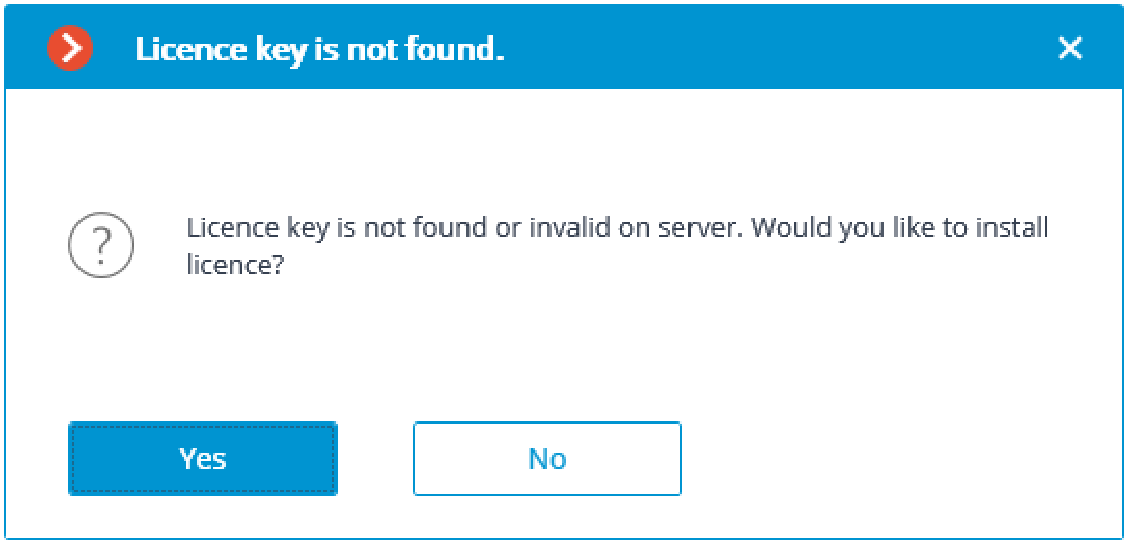
Password

●●●●●●●●●

☐ Remember password

Connect

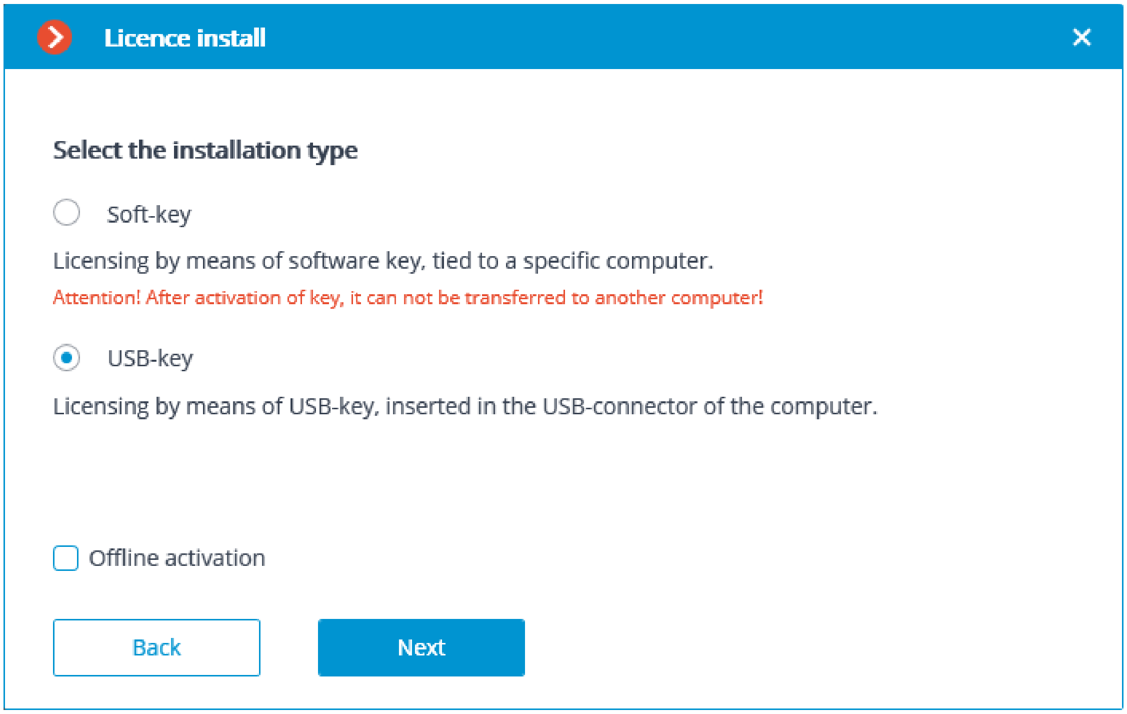
If no license is installed and activated on the server, you will be prompted to install the license. If accepted, the **License Installation** wizard will be launched.



Licence key is not found.

Licence key is not found or invalid on server. Would you like to install licence?

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.

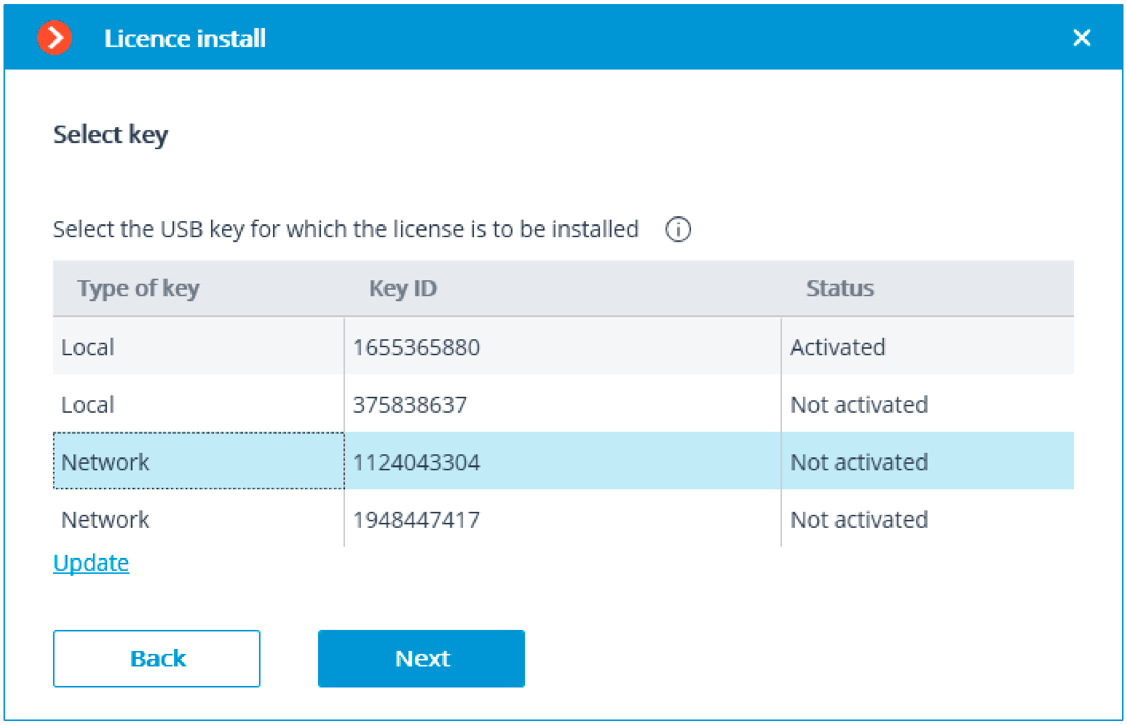
Attention! After activation of key, it can not be transferred to another computer!

● USB-key

Licensing by means of USB-key, inserted in the USB-connector of the computer.

☐ Offline activation

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**.

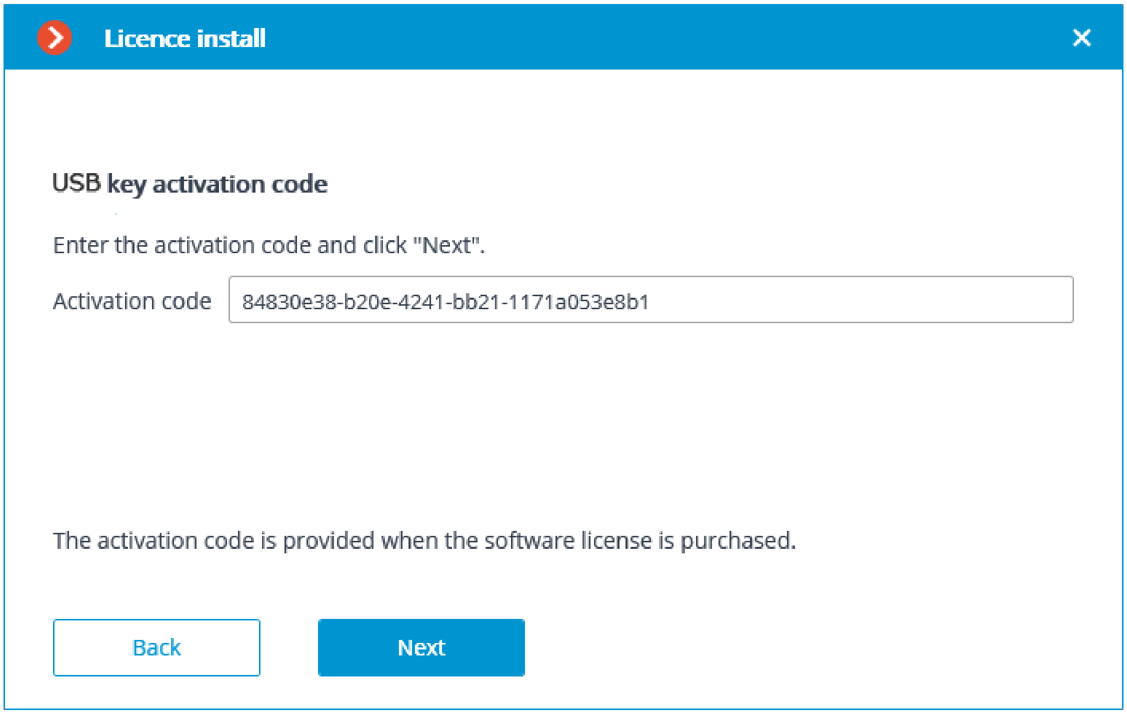


Select key

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

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.



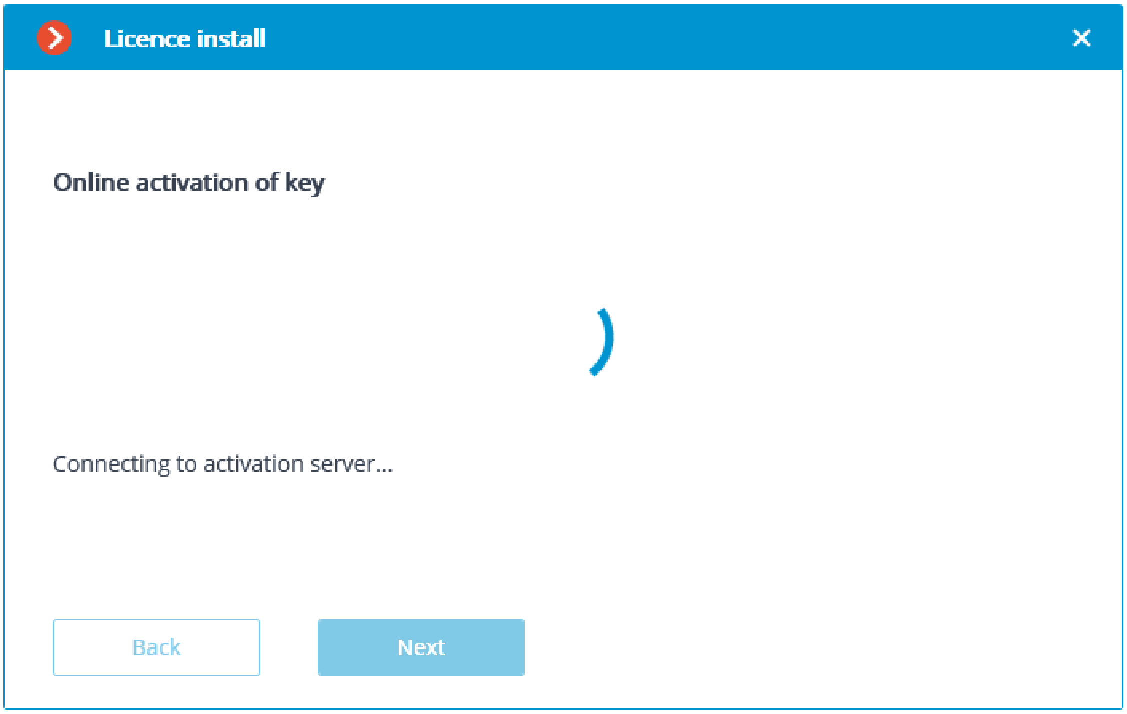
USB key activation code

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.

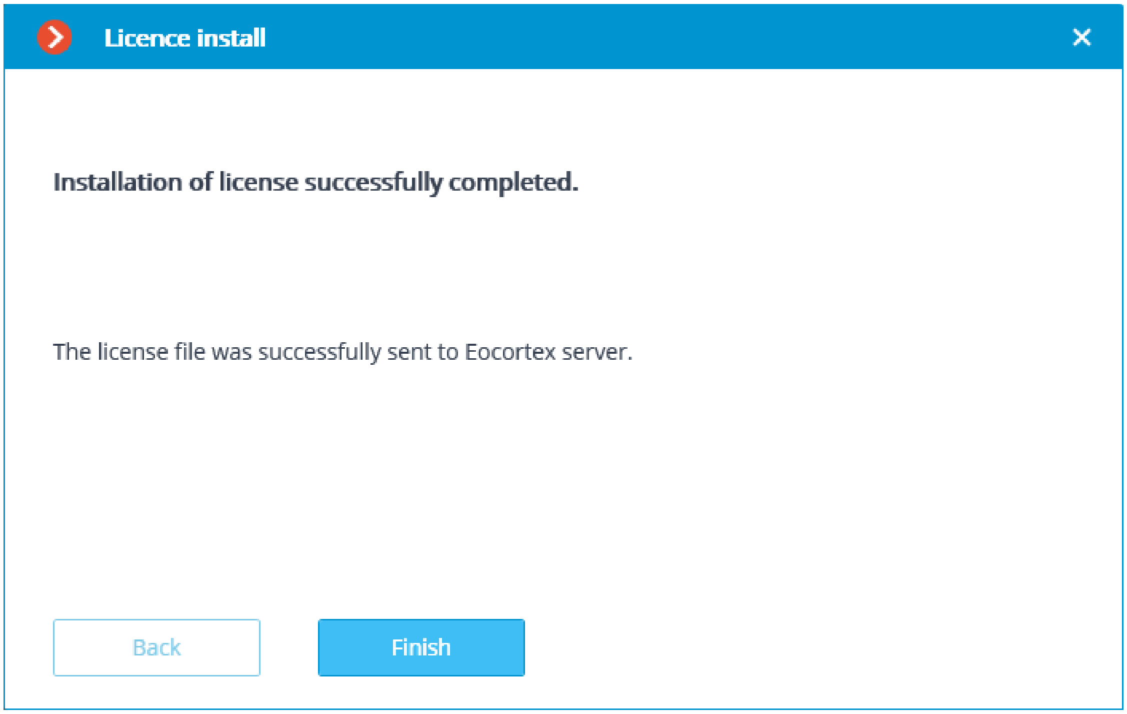
The online key activation page will be shown during the activation process.



Online activation of key

Connecting to activation server...

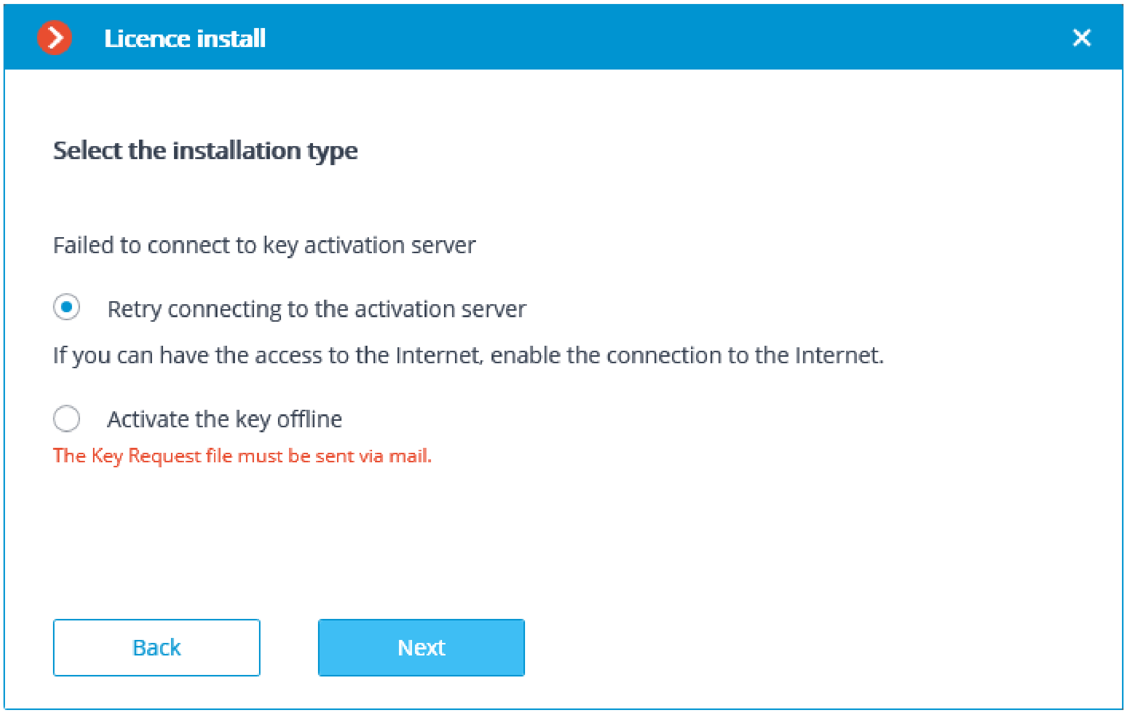
In case of successful activation, the **License has been successfully installed** window will appear. In order to exit the license installation wizard, press **Finish**.



Installation of license successfully completed.

The license file was successfully sent to Eocortex server.

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.



Select the installation type

Failed to connect to key activation server

● Retry connecting to the activation server

If you can have the access to the Internet, enable the connection to the Internet.

○ Activate the key offline

The Key Request file must be sent via mail.

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 has to contact the license supplier (seller).

USB key offline activation

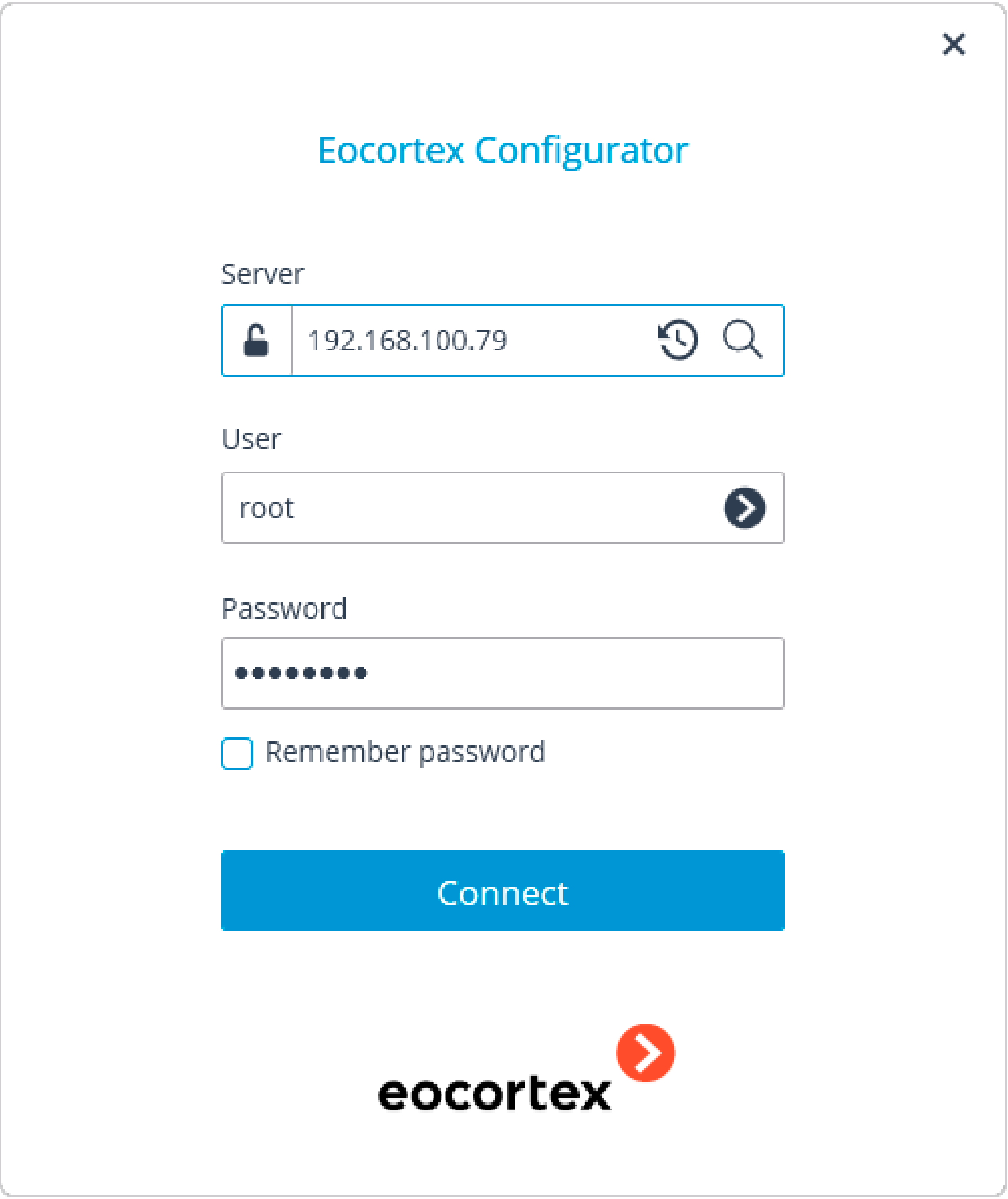
Warning

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**.



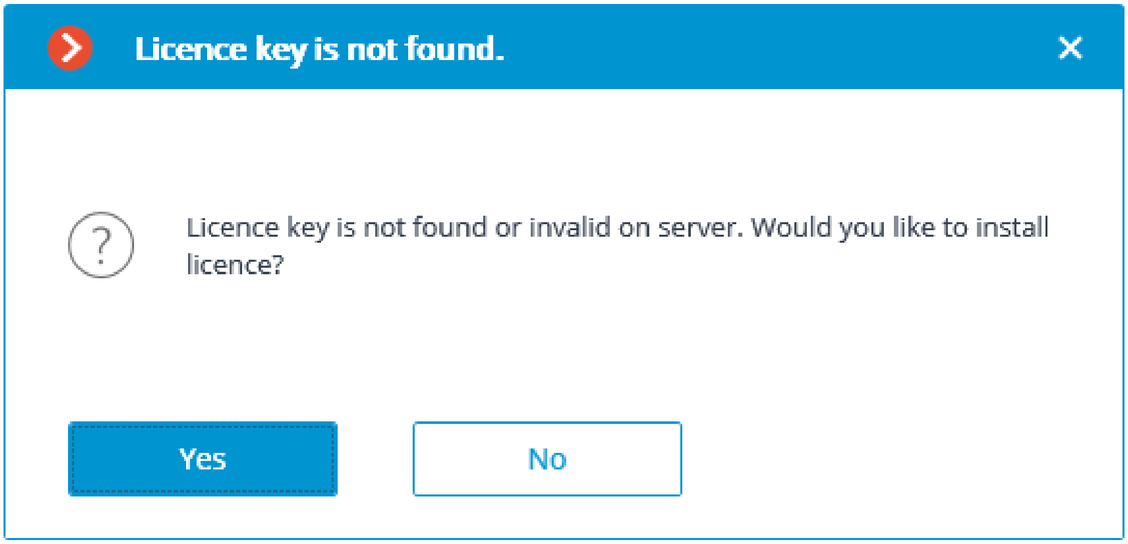
Server: 192.168.100.79

User: root

Password: ●●●●●●●●●

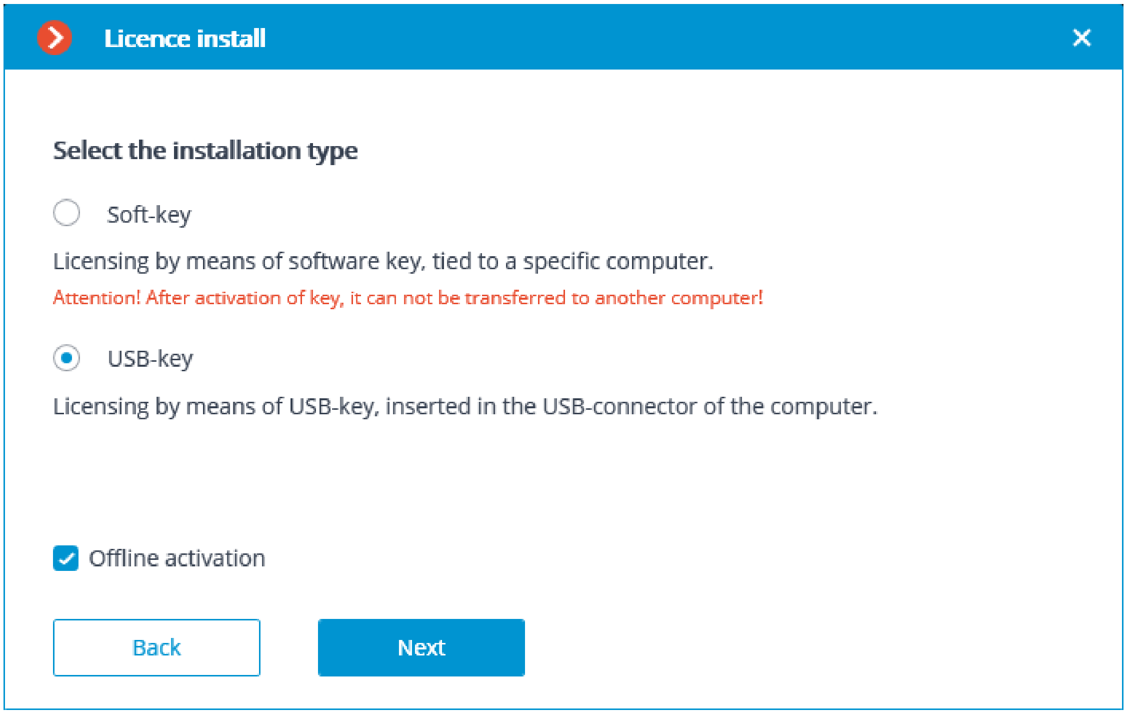
☐ Remember password

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 or invalid on server. Would you like to install licence?

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**.



Select the installation type

○ Soft-key

Licensing by means of software key, tied to a specific computer.

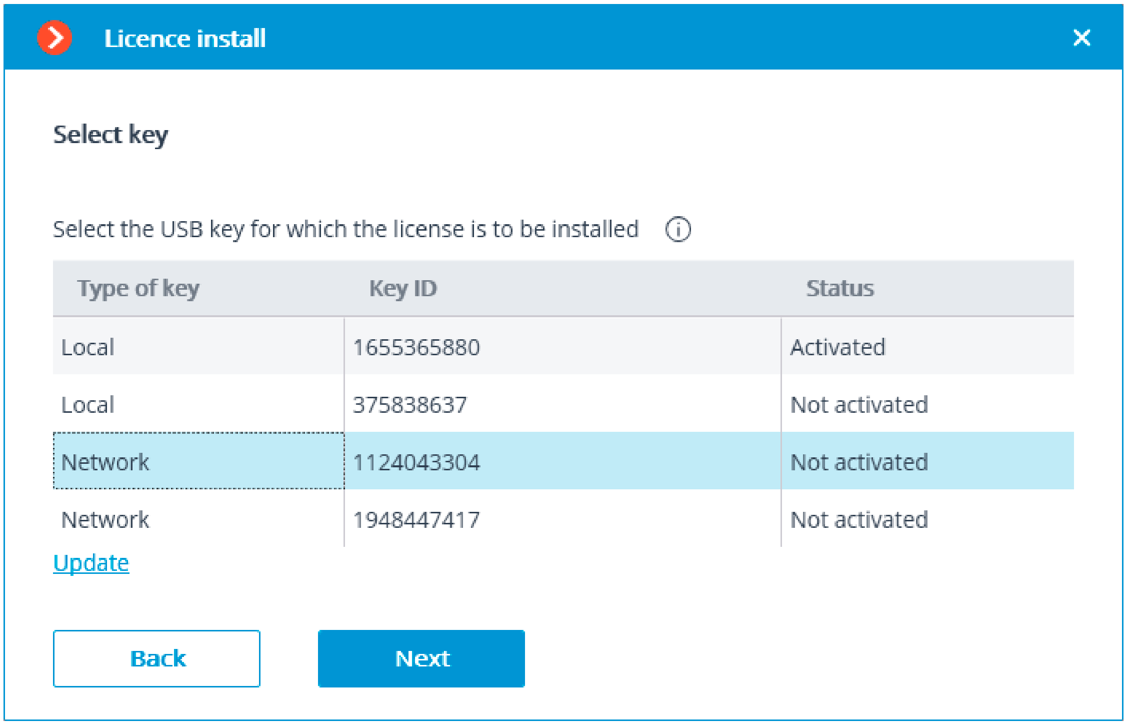
Attention! After activation of key, it can not be transferred to another computer!

● USB-key

Licensing by means of USB-key, inserted in the USB-connector of the computer.

☑ Offline activation

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**.

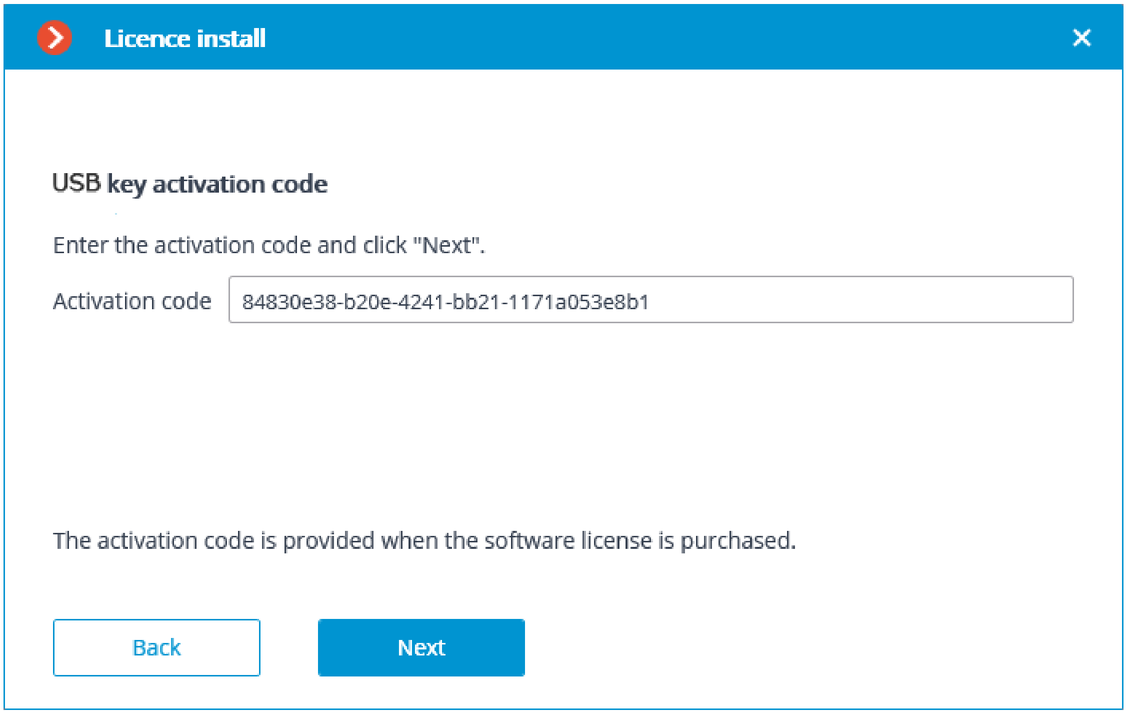


Select key

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

If the key is activated for the first time, the **USB key activation code** will be requested.



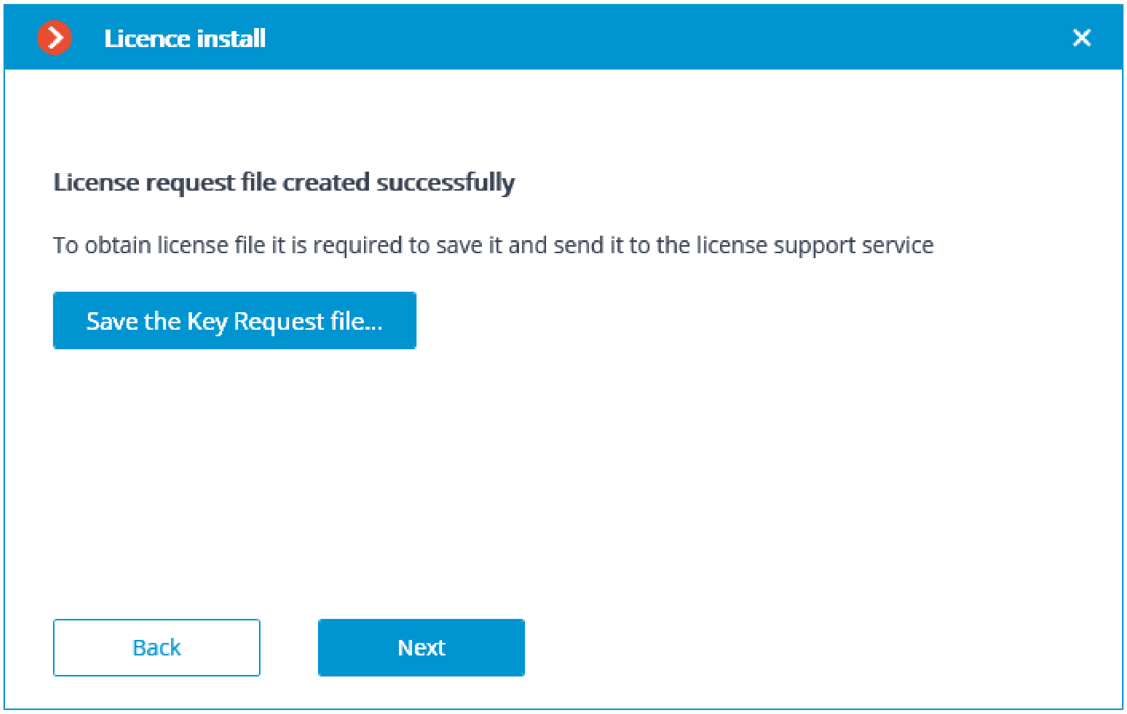
USB key activation code

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.

License request file created successfully window will be opened, where you should **Save the Key Request file...** and press **Next**.

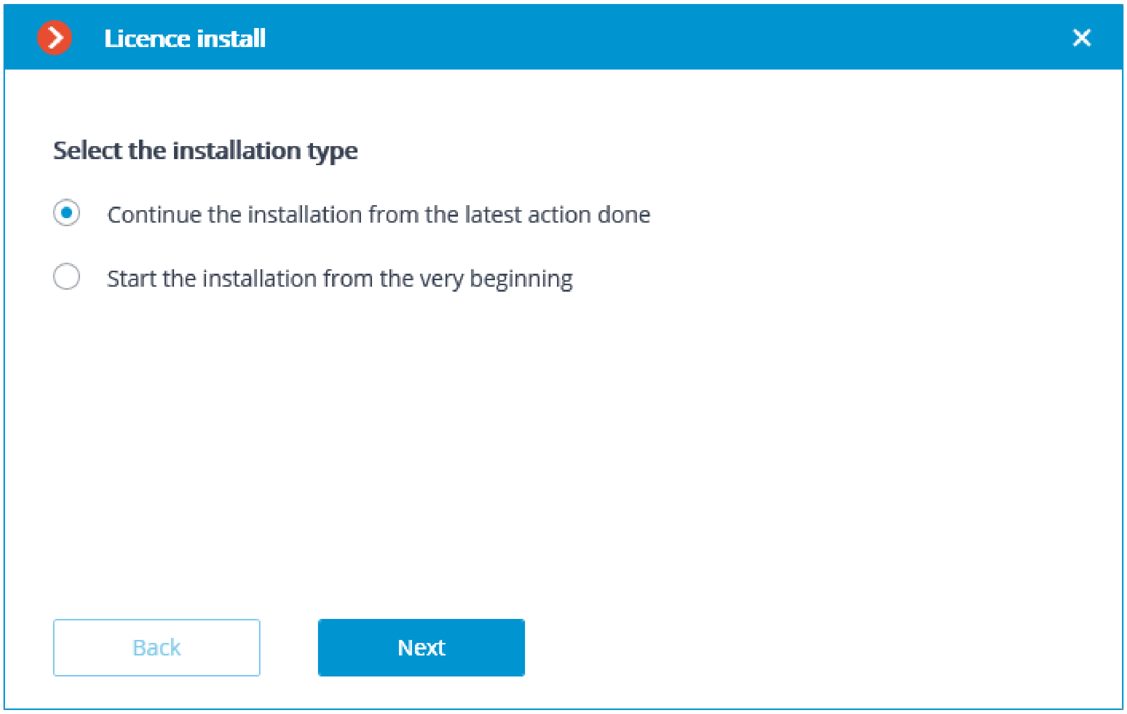

Licence install
×
Save the Key Request file...
Back
Next

License request file created successfully

To obtain license file it is required to save it and send it to the license support service

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.


Licence install
×
Back
Next

Select the installation type

● Continue the installation from the latest action done

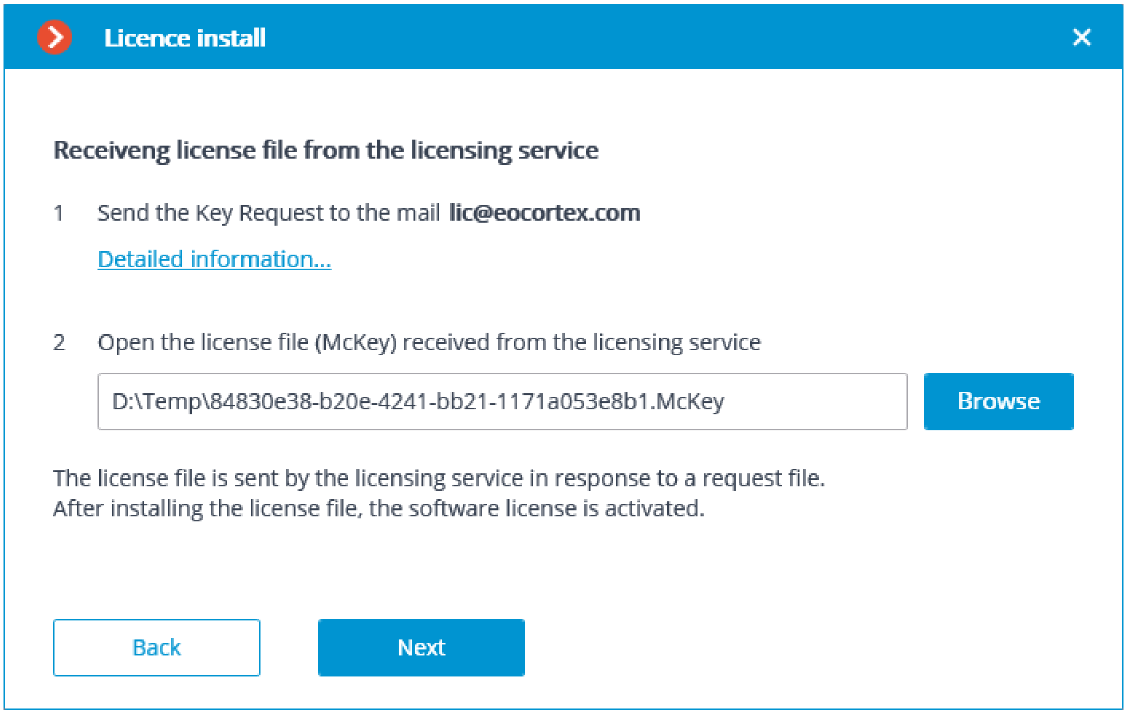
○ Start the installation from the very beginning

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.



Receiveng license file from the licensing service

1 Send the Key Request to the mail **lic@eocortex.com**

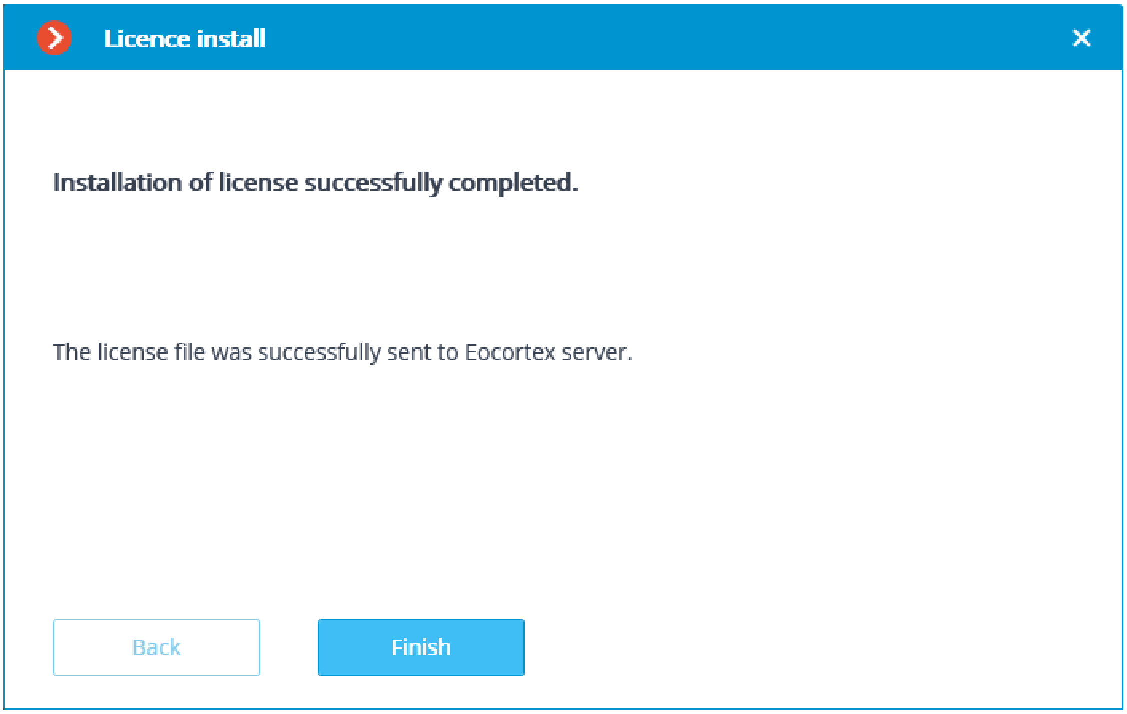
Detailed information...

2 Open the license file (McKey) received from the licensing service

D:\Temp\84830e38-b20e-4241-bb21-1171a053e8b1.McKey

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.

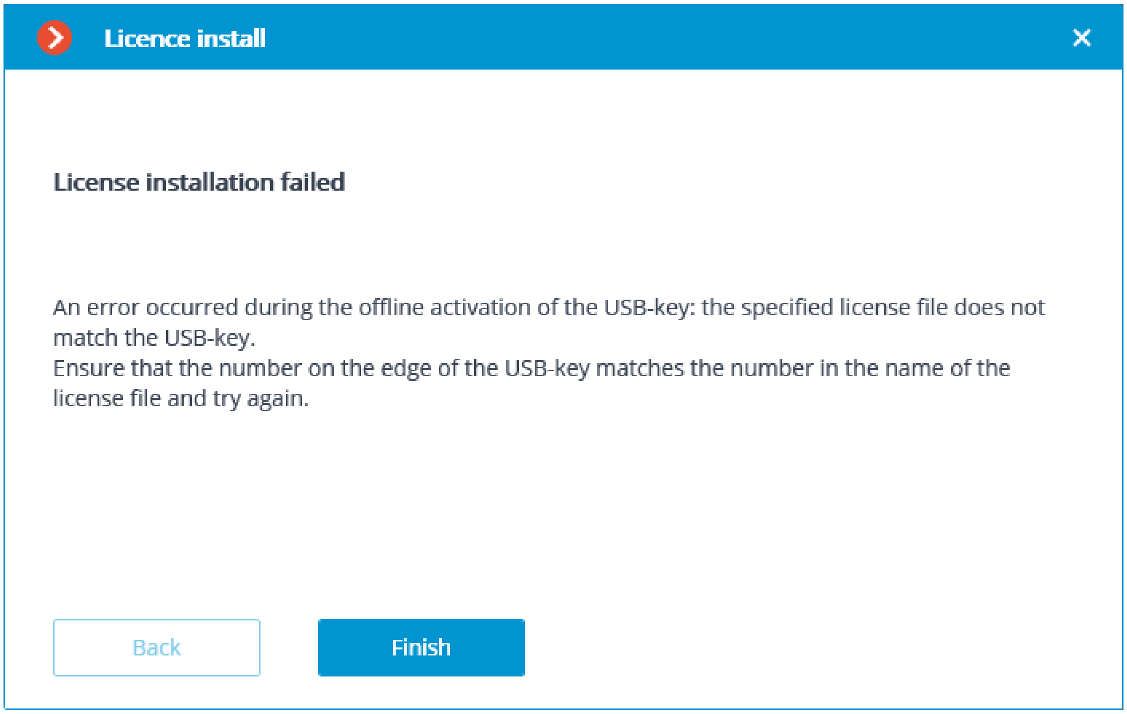
In case of successful activation the **Installation of license successfully completed** page will appear. Press **Finish** to exit the licensing wizard.



Installation of license successfully completed.

The license file was successfully sent to Eocortex server.

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.



License installation failed

An error occurred during the offline activation of the USB-key: the specified license file does not match the USB-key.
Ensure that the number on the edge of the USB-key matches the number in the name of the license file and try again.

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

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.

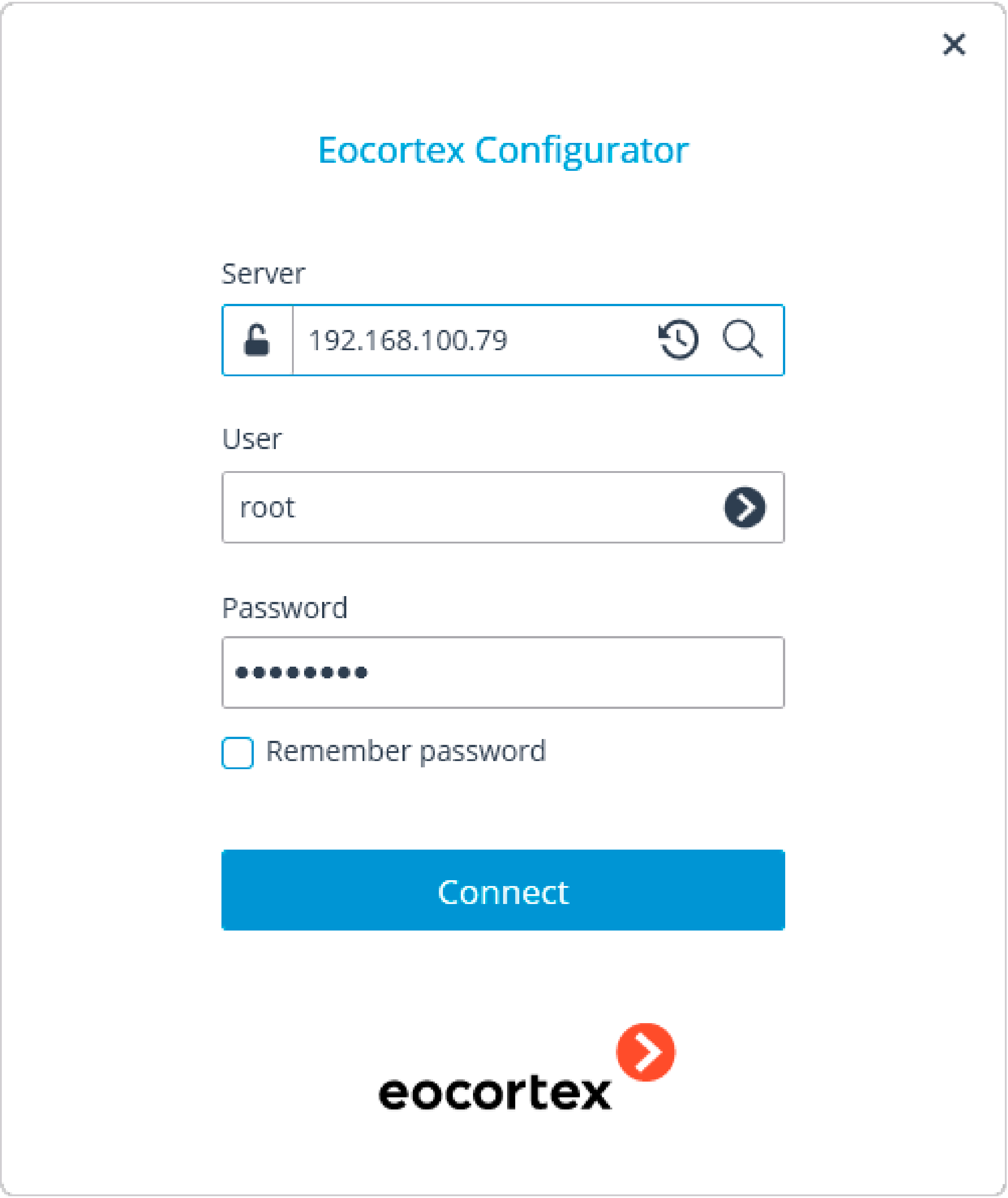
Warning

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**.


Eocortex Configurator
Connect
eocortex

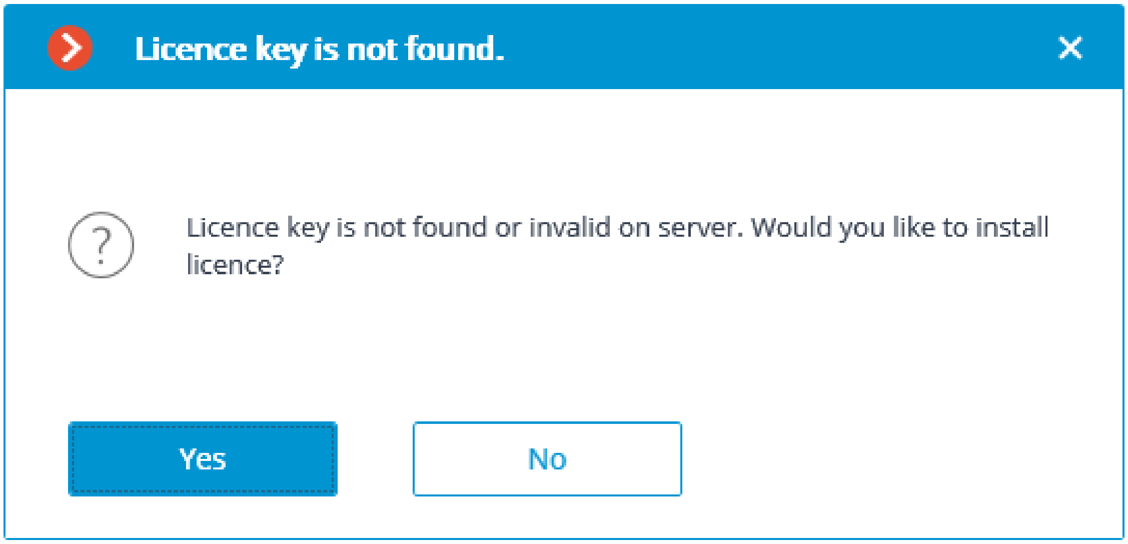
Server
192.168.100.79

User
root

Password
●●●●●●●●●

☐ Remember password

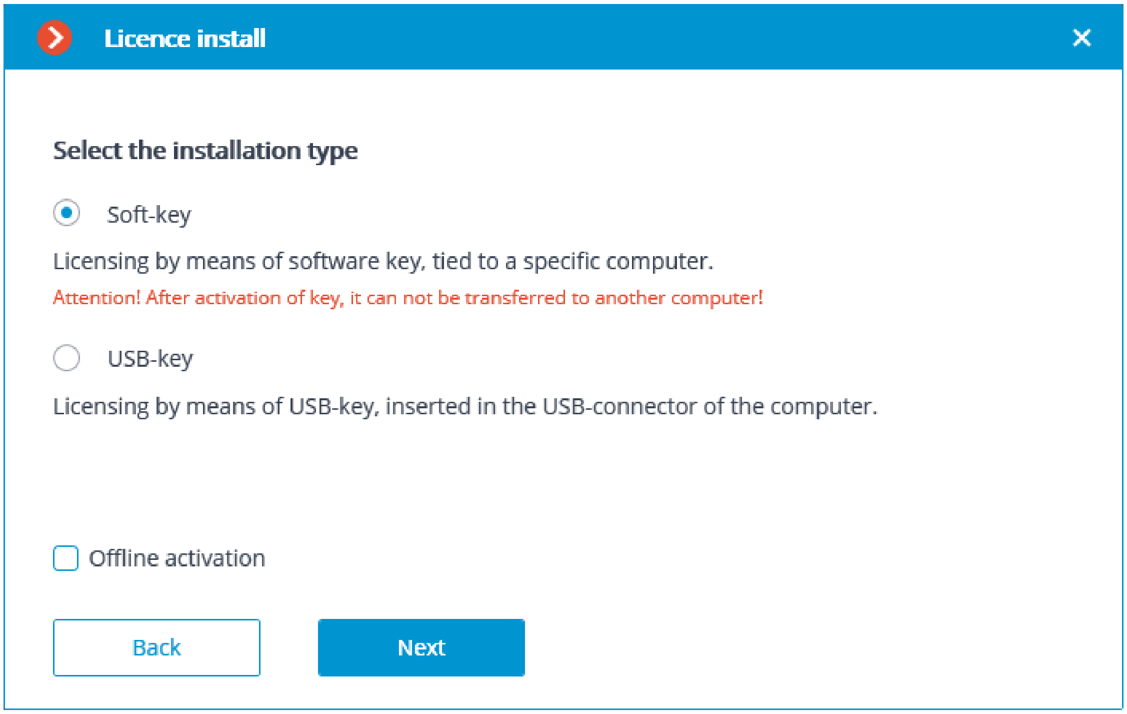
If no license is installed and activated on the server, you will be prompted to install the license. If accepted, the **License Installation** wizard will be launched.



Licence key is not found.

Licence key is not found or invalid on server. Would you like to install licence?

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**.



Licence install

Select the installation type

● Soft-key

Licensing by means of software key, tied to a specific computer.

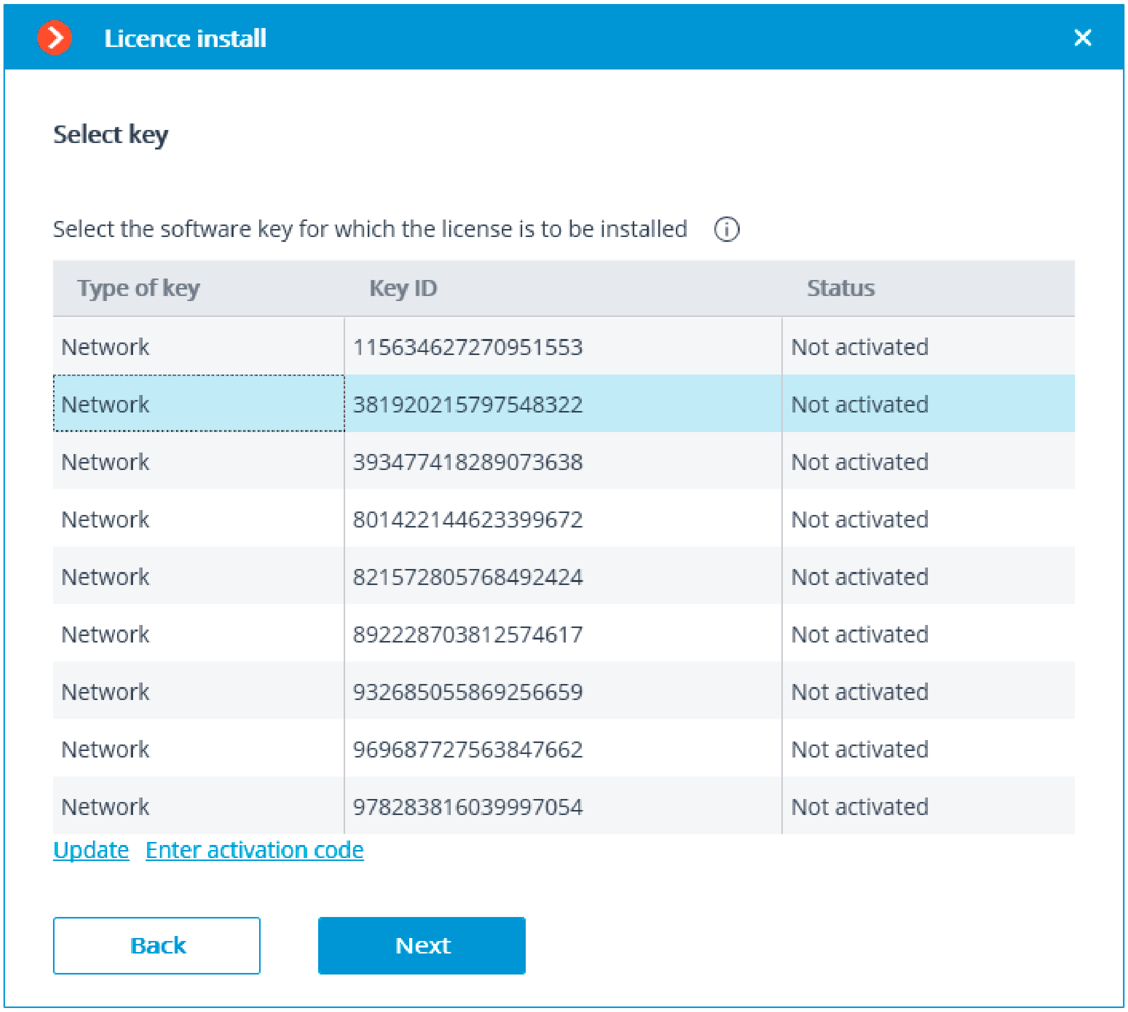
Attention! After activation of key, it can not be transferred to another computer!

○ USB-key

Licensing by means of USB-key, inserted in the USB-connector of the computer.

☐ Offline activation

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**.



Select key

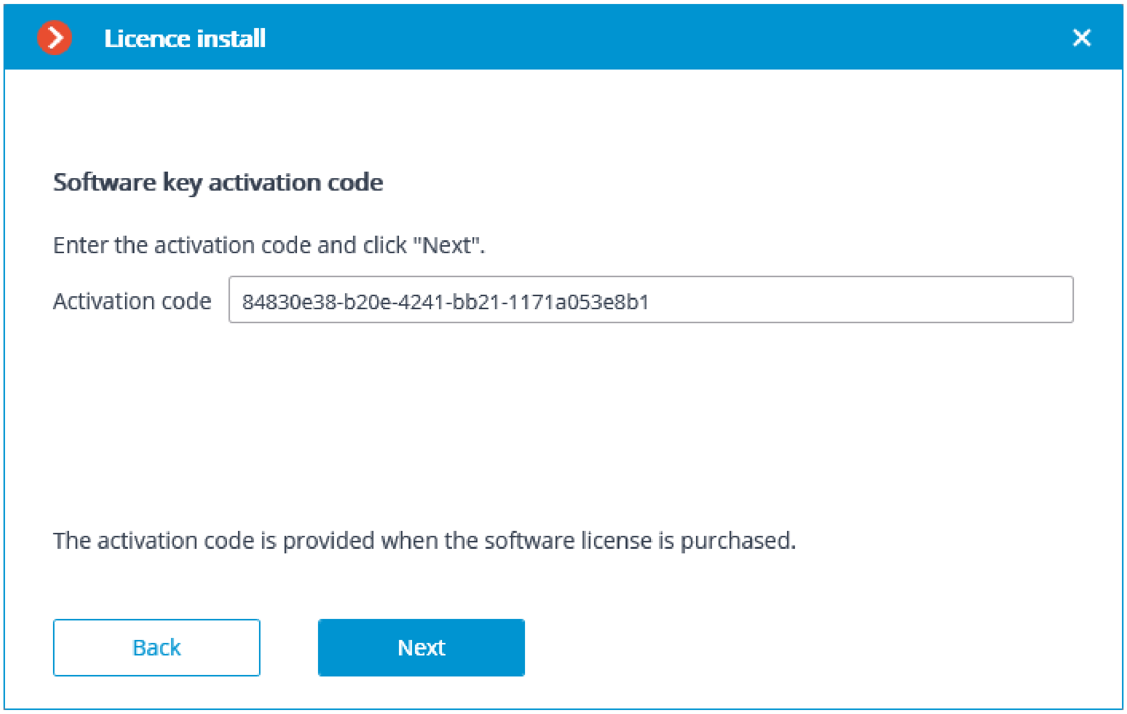
Select the software key for which the license is to be installed

Type of key	Key ID	Status
Network	115634627270951553	Not activated
Network	381920215797548322	Not activated
Network	393477418289073638	Not activated
Network	801422144623399672	Not activated
Network	821572805768492424	Not activated
Network	892228703812574617	Not activated
Network	932685055869256659	Not activated
Network	969687727563847662	Not activated
Network	978283816039997054	Not activated

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.



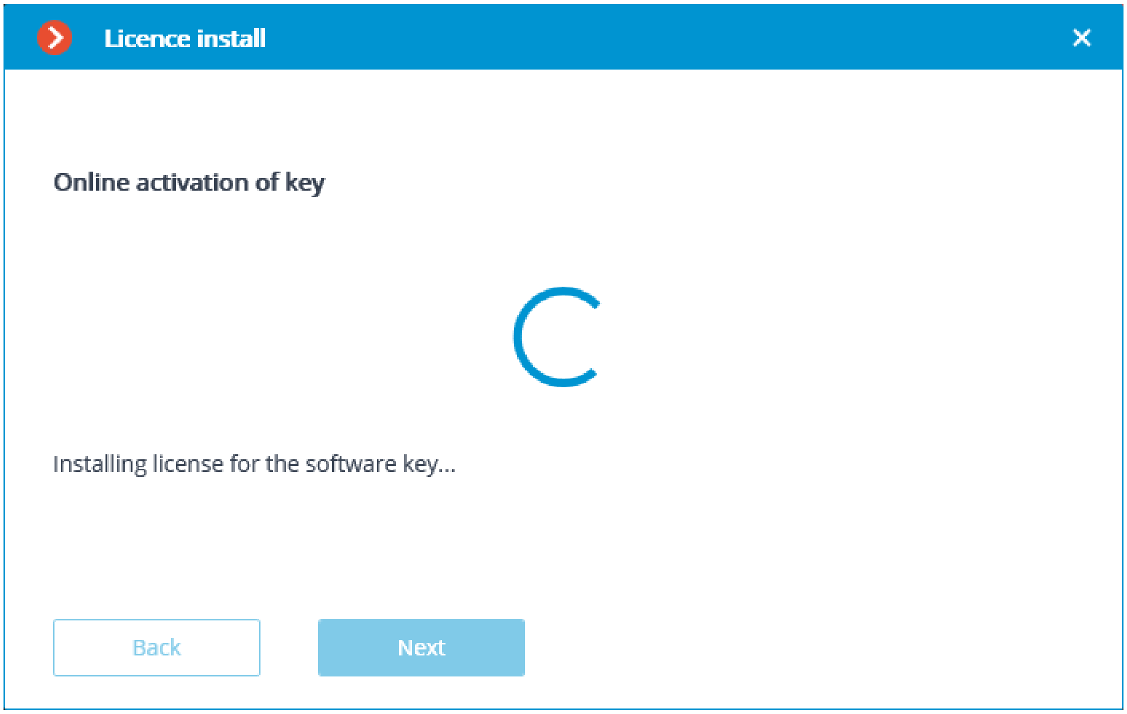
Software key activation code

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.

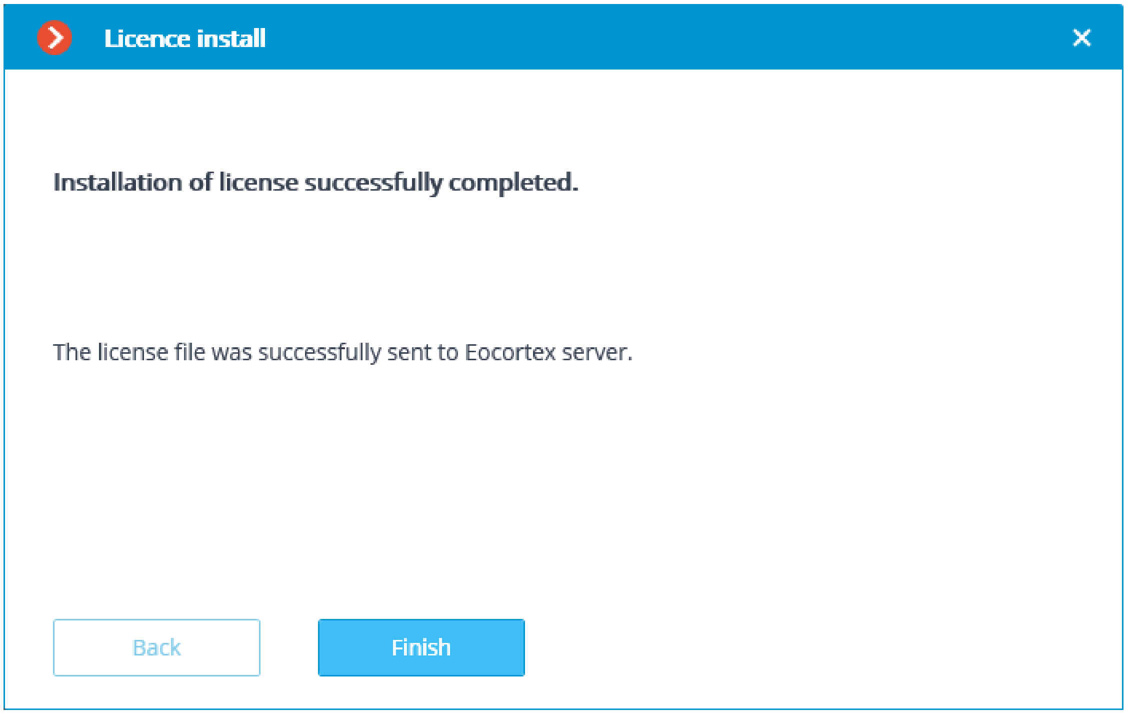
The next step is key activation. In case of an existing internet connection, after entering the code and pressing **Next**, the **Eocortex** server will connect to a remote license activation server and will try to perform automatic key activation in accordance with the licenses assigned to such key. The online activation of key page will be shown during the activation process.



Online activation of key

Installing license for the software key...

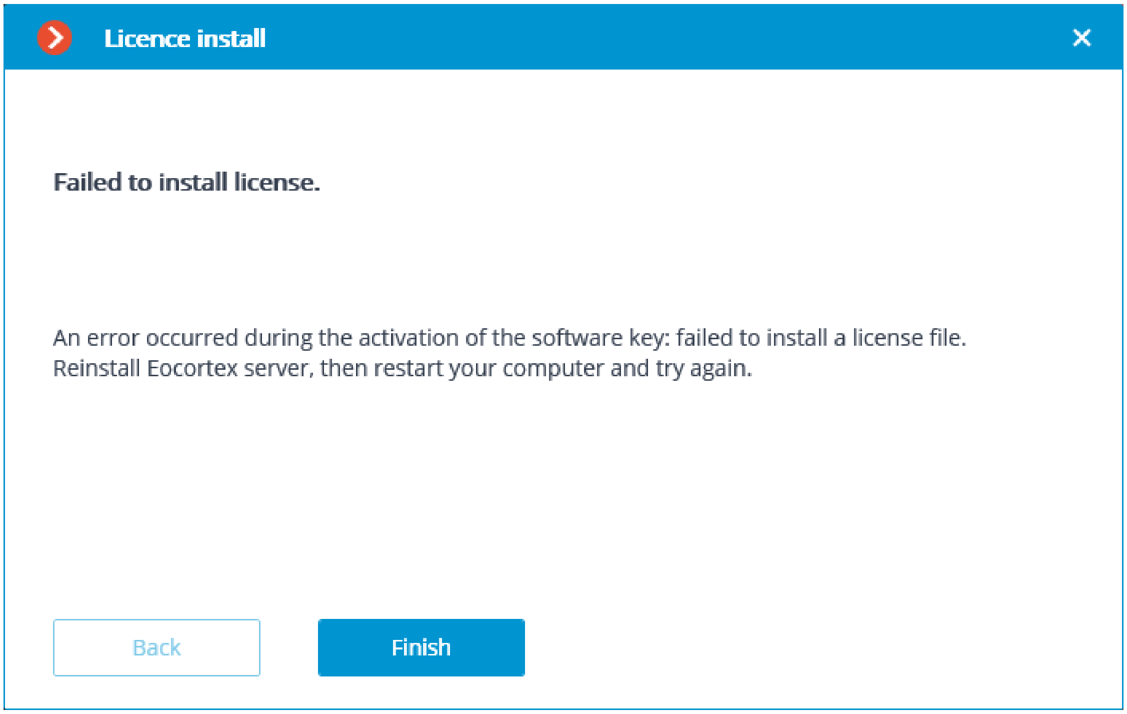
In case of successful activation, the **Installation of license successfully completed** window will appear. In order to exit the licensing wizard, the user has to press **Finish**.



Installation of license successfully completed.

The license file was successfully sent to Eocortex server.

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.



Failed to install license.

An error occurred during the activation of the software key: failed to install a license file.
Reinstall Eocortex server, then restart your computer and try again.

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)

Software 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**.

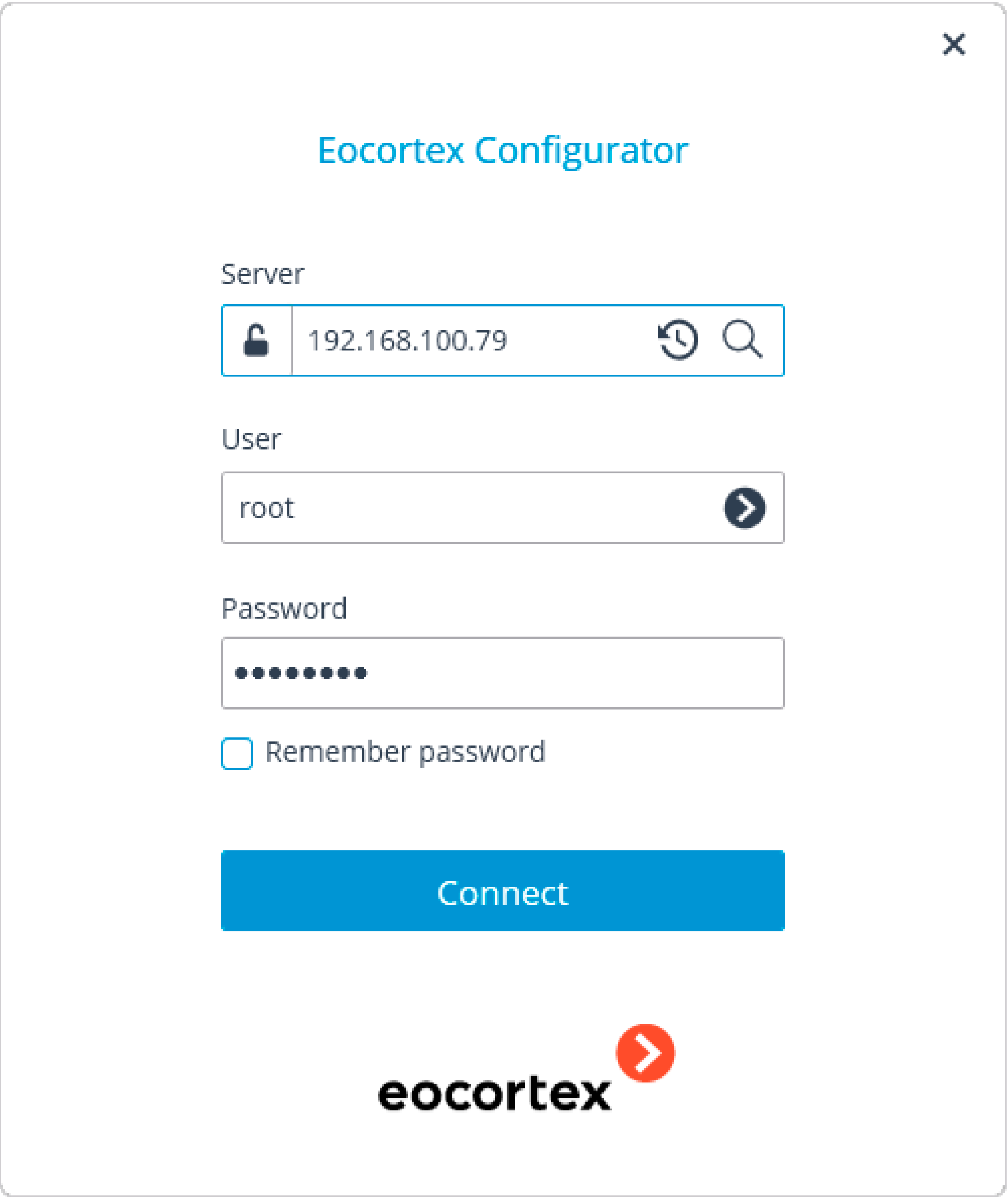
Warning

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**.



Eocortex Configurator

Server
192.168.100.79

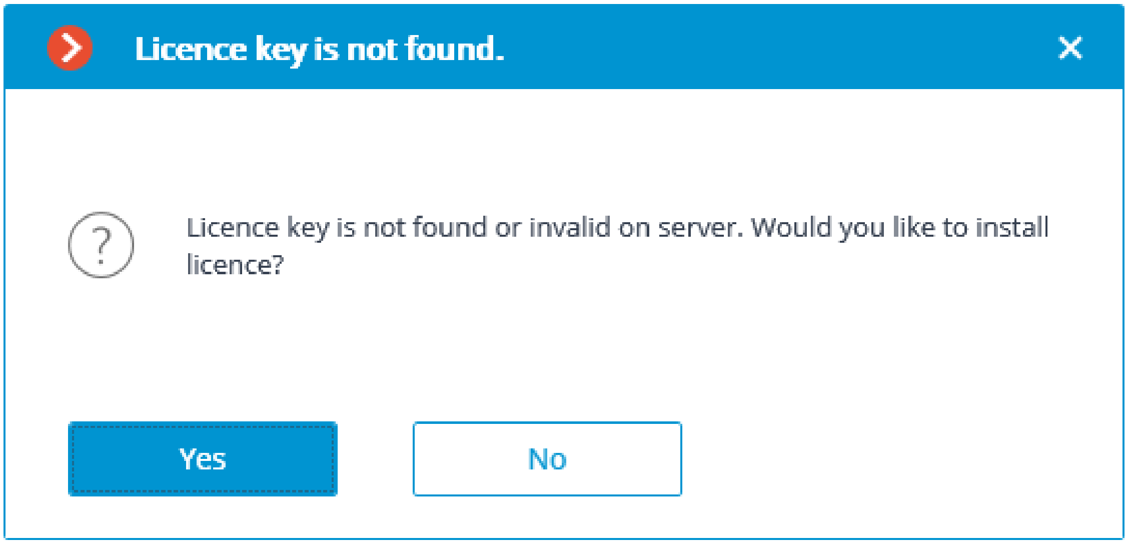
User
root

Password
●●●●●●●●●

☐ Remember password

Connect
eocortex

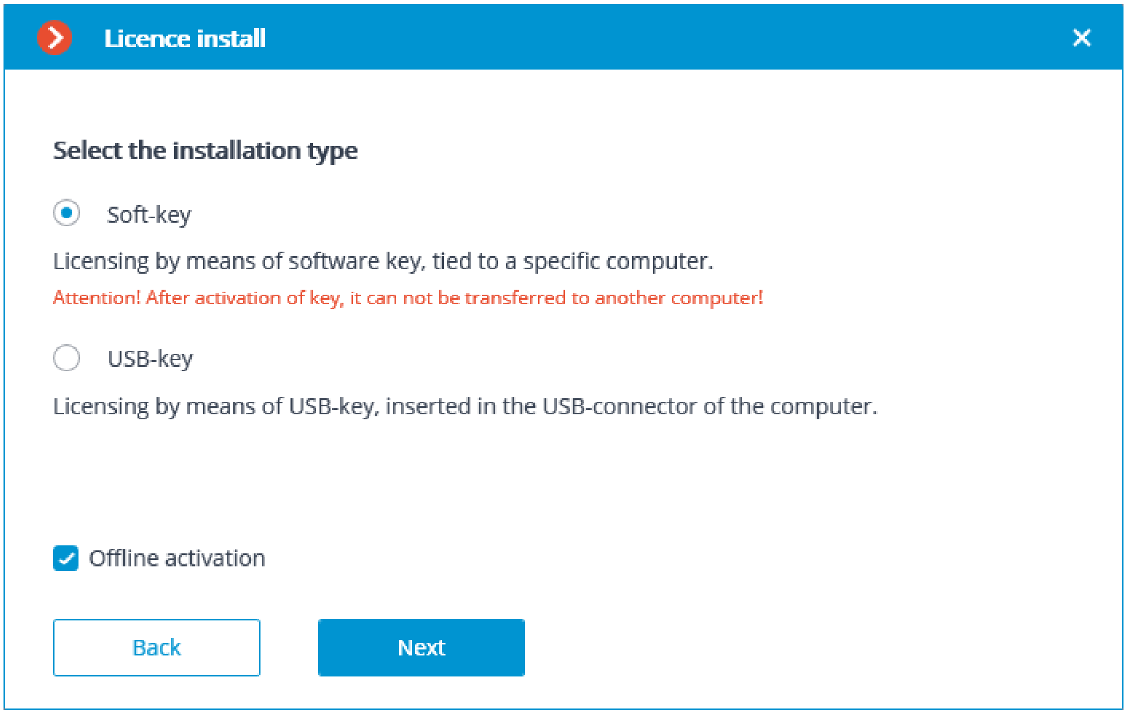
If no license is installed and activated on the server, you will be prompted to install the license. If accepted, the **License Installation** wizard will be launched.



Licence key is not found.

Licence key is not found or invalid on server. Would you like to install licence?

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**.



Licence install

Select the installation type

● Soft-key

Licensing by means of software key, tied to a specific computer.

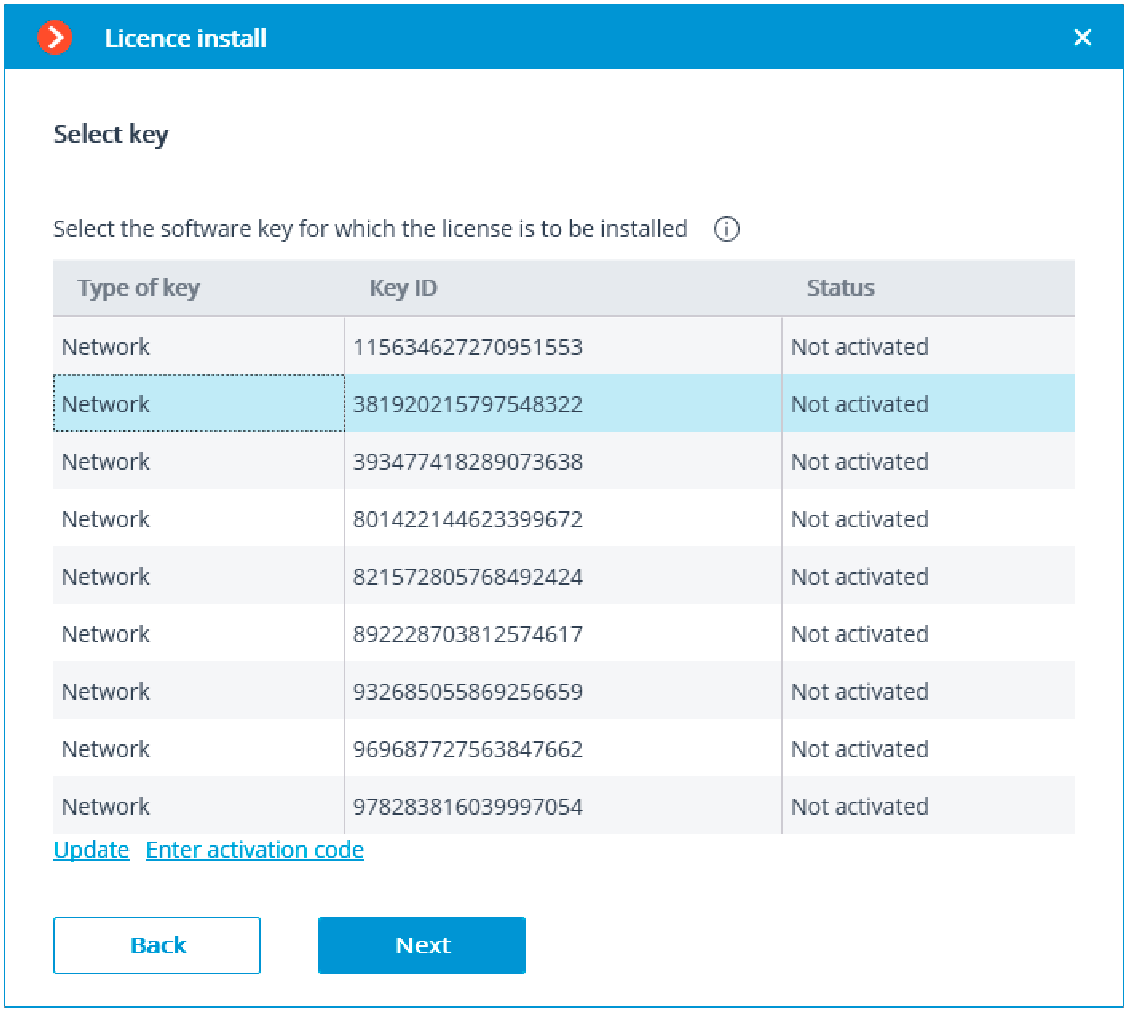
Attention! After activation of key, it can not be transferred to another computer!

○ USB-key

Licensing by means of USB-key, inserted in the USB-connector of the computer.

☑ Offline activation

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**.



Select key

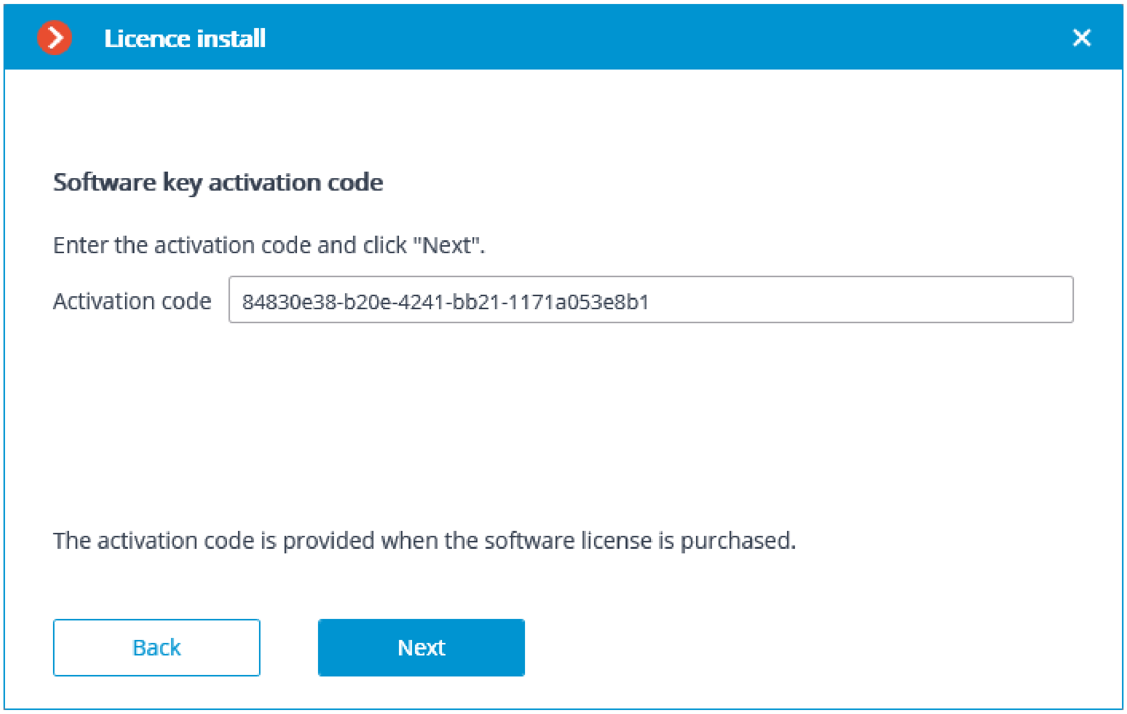
Select the software key for which the license is to be installed

Type of key	Key ID	Status
Network	115634627270951553	Not activated
Network	381920215797548322	Not activated
Network	393477418289073638	Not activated
Network	801422144623399672	Not activated
Network	821572805768492424	Not activated
Network	892228703812574617	Not activated
Network	932685055869256659	Not activated
Network	969687727563847662	Not activated
Network	978283816039997054	Not activated

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

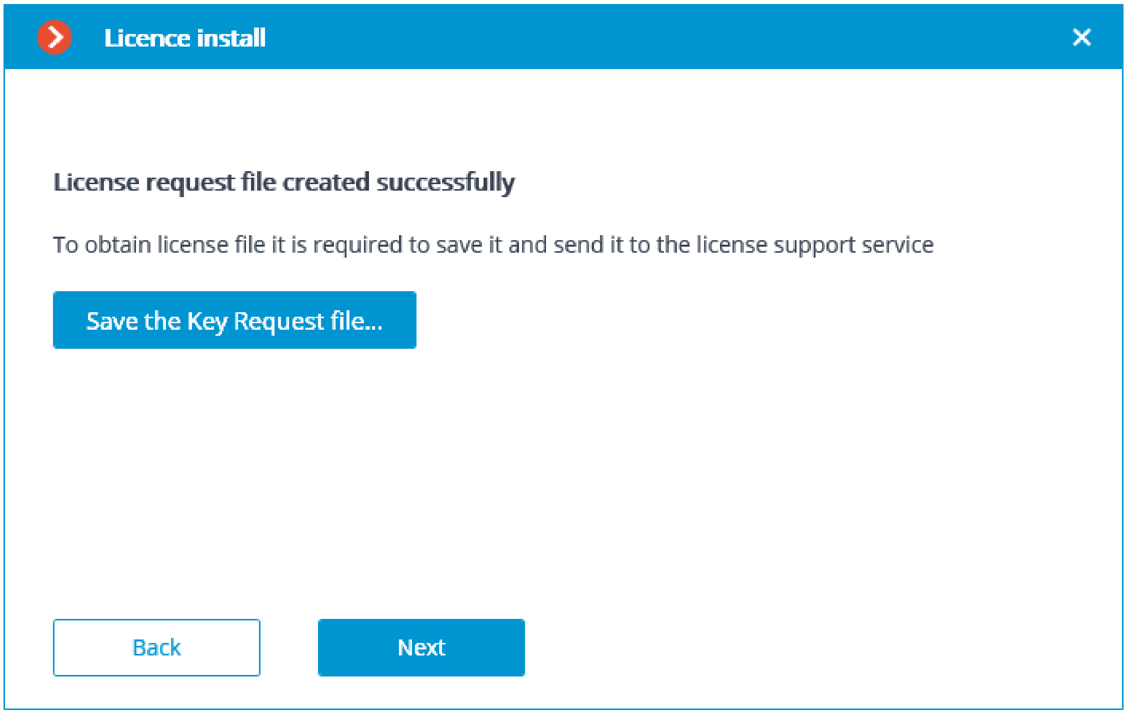
Enter the activation code and click "Next".

Activation code: 84830e38-b20e-4241-bb21-1171a053e8b1

The activation code is provided when the software license is purchased.

Back
Next

License request file created succesfully window will be opened, where you should **Save the Key Request file...** and press **Next**.


Licence install
×

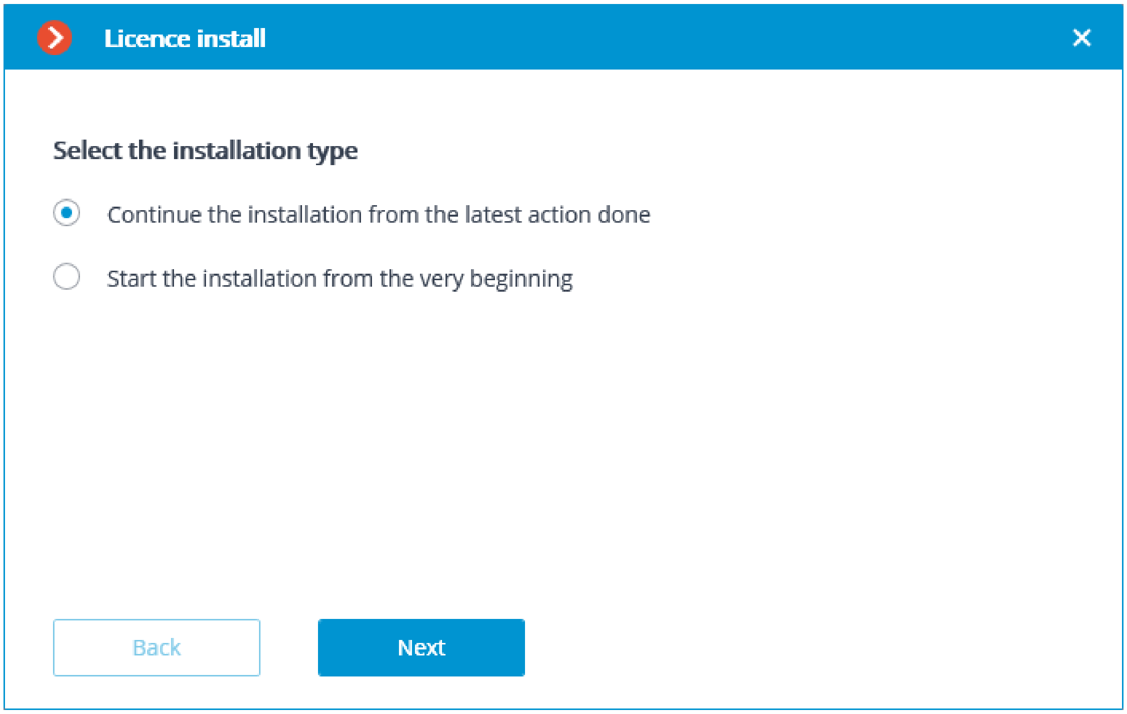
License request file created successfully

To obtain license file it is required to save it and send it to the license support service

Save the Key Request file...
Back
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.



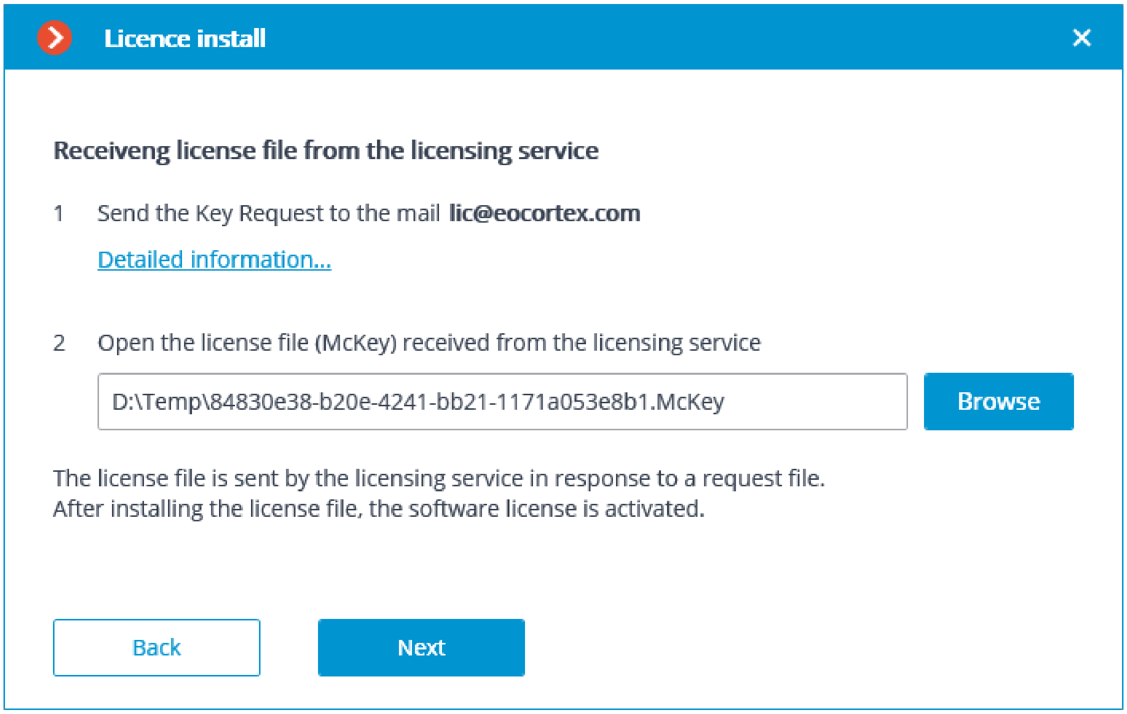
Select the installation type

● Continue the installation from the latest action done

○ Start the installation from the very beginning

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**.



Receiveng license file from the licensing service

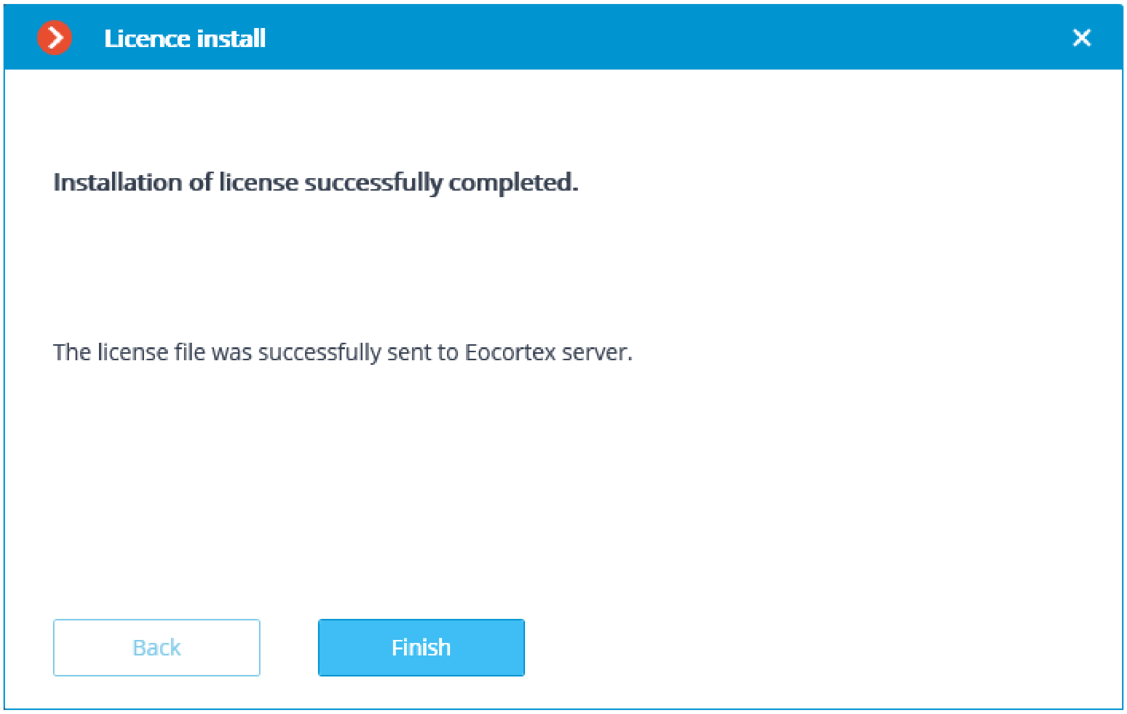
1 Send the Key Request to the mail **lic@eocortex.com**

2 Open the license file (McKey) received from the licensing service

D:\Temp\84830e38-b20e-4241-bb21-1171a053e8b1.McKey

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.

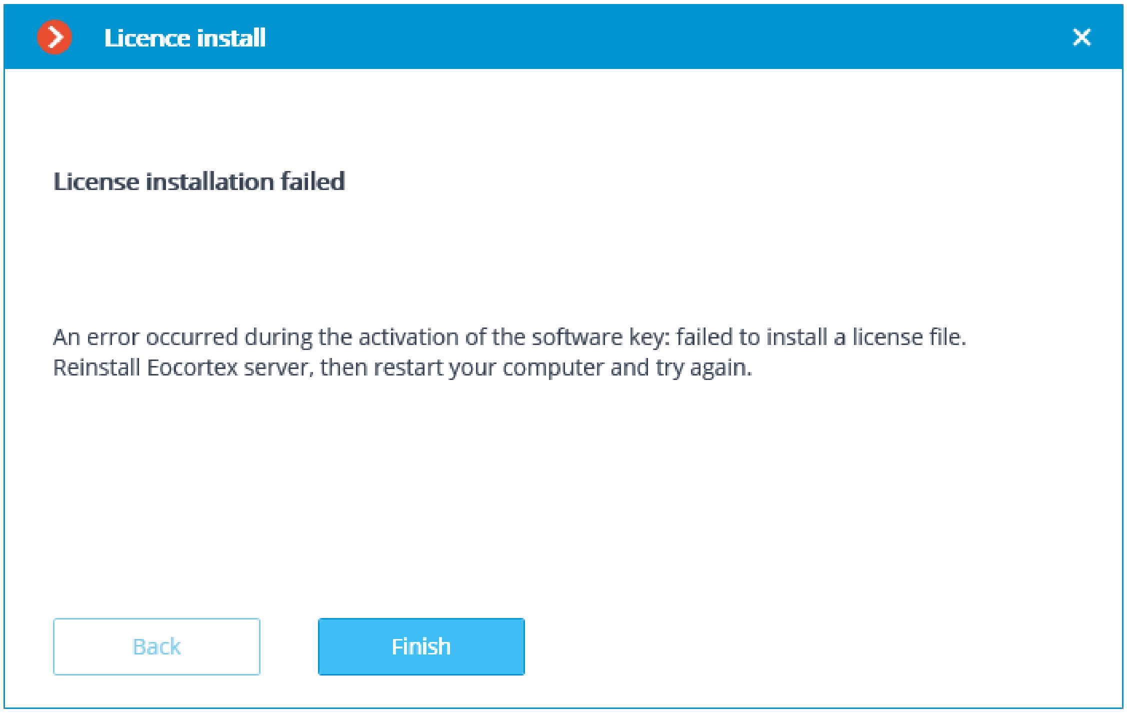
In case of successful activation, a new installation of **License successfully completed** window will appear. In order to exit the licensing wizard, the user has to press **Finish**.



Installation of license successfully completed.

The license file was successfully sent to Eocortex server.

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.



License installation failed

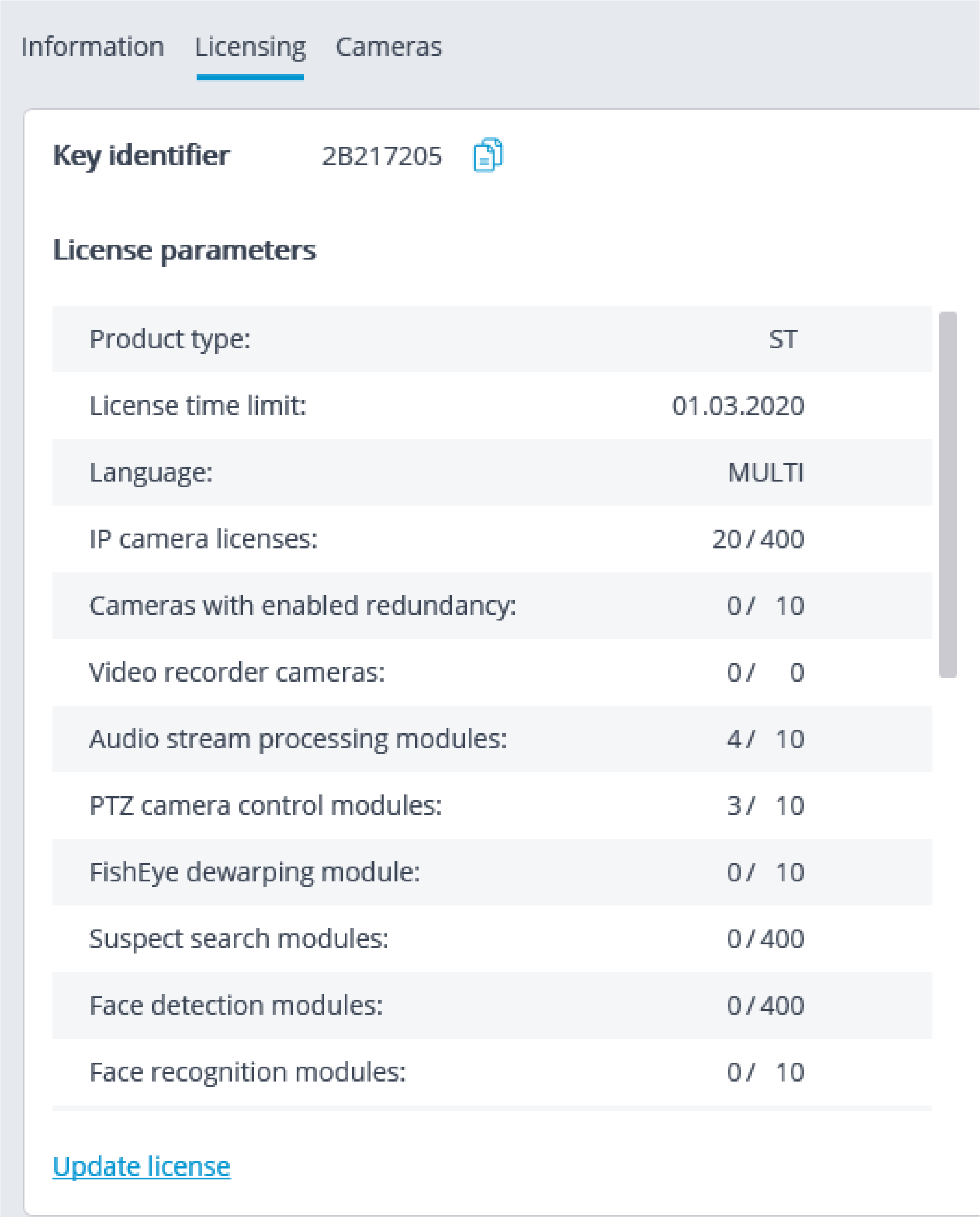
An error occurred during the activation of the software key: failed to install a license file.
Reinstall Eocortex server, then restart your computer and try again.

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).

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.

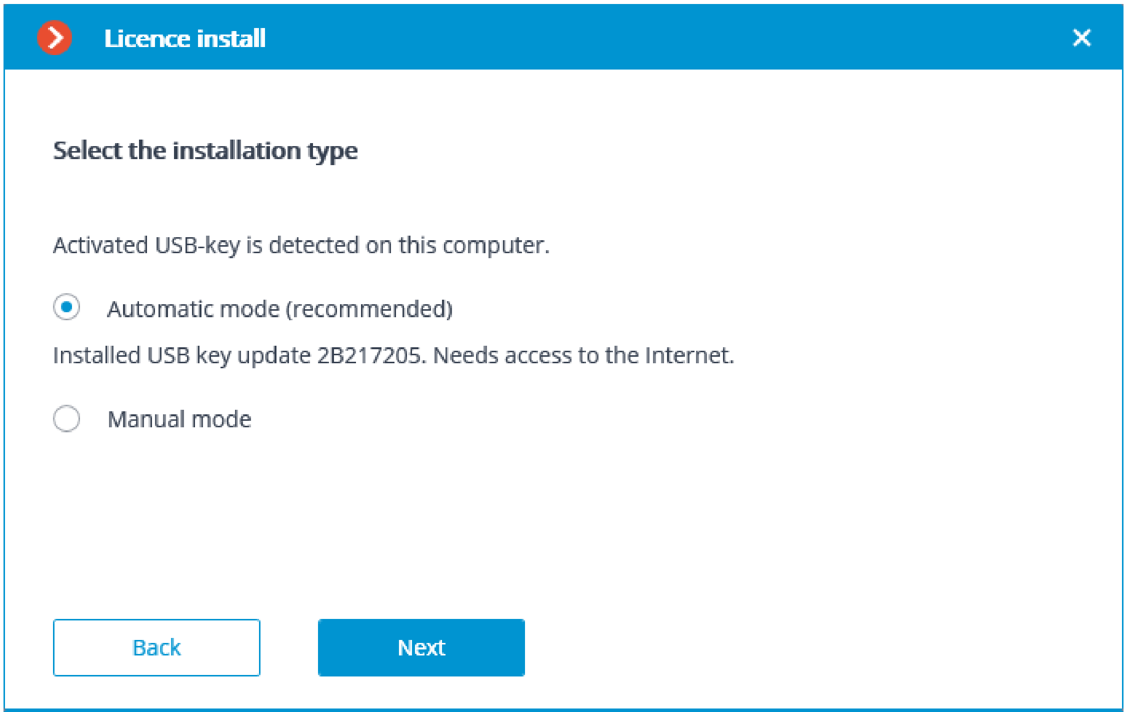


Key identifier 2B217205

License parameters

Product type:	ST
License time limit:	01.03.2020
Language:	MULTI
IP camera licenses:	20 / 400
Cameras with enabled redundancy:	0 / 10
Video recorder cameras:	0 / 0
Audio stream processing modules:	4 / 10
PTZ camera control modules:	3 / 10
FishEye dewarping module:	0 / 10
Suspect search modules:	0 / 400
Face detection modules:	0 / 400
Face recognition modules:	0 / 10

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**.



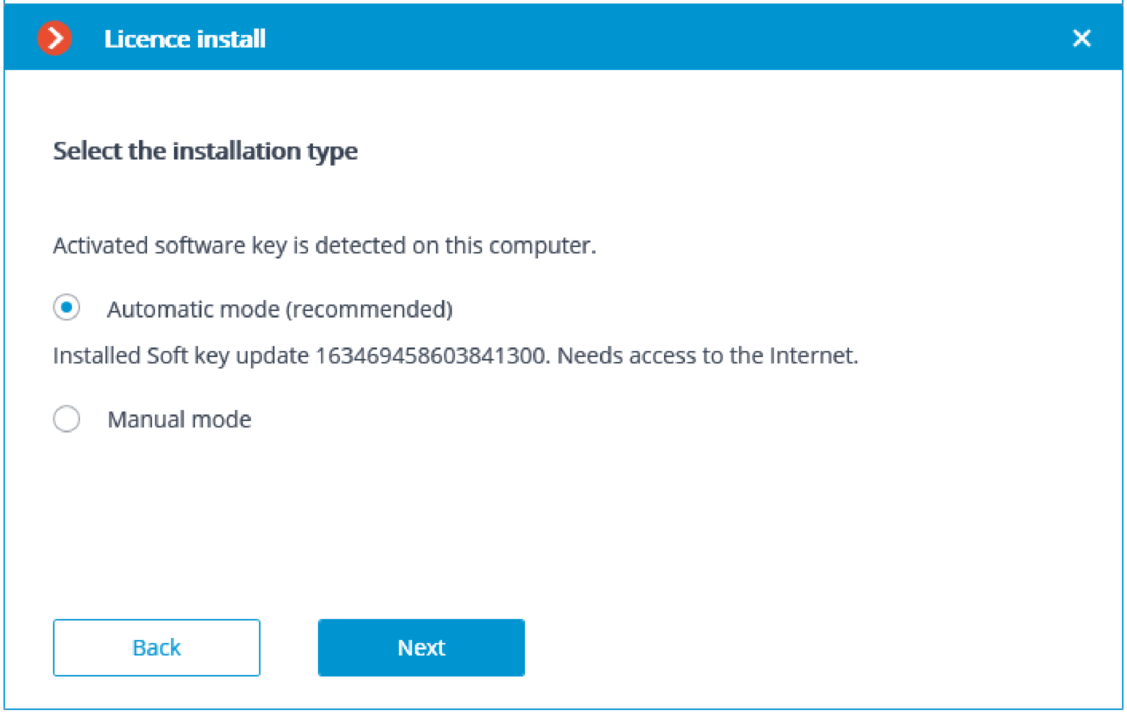
Select the installation type

Activated USB-key is detected on this computer.

● Automatic mode (recommended)

Installed USB key update 2B217205. Needs access to the Internet.

○ Manual mode



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