eocortex

Eocortex 4.1
Technical Specification

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About Eocortex

Eocortex is a global provider of the open platform software with smart video analytics for creating video surveillance systems.

Eocortex systems not only receive, store and broadcast video from surveillance cameras, but also provide a rich set of video analytics, while remaining simple to design, easy to install, easy to configure and easy to operate. Regular updates and technical support are provided free of charge.

Open API and SDK make it easy to integrate **Eocortex** video management software with external systems.

The present specification contains the overview and the comparison of the capabilities provided by each type of **Eocortex** licenses.

More details on the capabilities of **Eocortex** can be found in the documentation posted on eocortex.com.

Licensing

A single **Eocortex** license permits the connection of one IP camera with the capabilities listed in the license documentation.

Client software, including mobile applications and Web client are provided free of charge.

The following types of **Eocortex** licenses are available:

- **ML** is a great solution for creating smaller systems with up to 20 IP cameras. It allows building a system with one server and two client workstations. This version does not support video analytics modules but, if necessary, it can be upgraded to the **LS** or **ST** versions.

- **LS** is suitable for creating a video surveillance system with up to 400 IP cameras. It allows combining up to 5 servers and 10 client workstations in a single system. This version supports all the video analytics modules at an additional cost. If necessary, this version can be upgraded to the **ST** version.

- **ST** is designed for building scalable video surveillance systems with an unlimited number of IP cameras, servers and client workstations. This version is compatible with all video analytics modules. Several modules are included free of charge, others are available at an additional cost.

- **Enterprise** is designed for building large, scalable video surveillance systems with a wide range of features and an unlimited number of IP cameras, servers, and client workstations. This version includes all the features of **ST** with some additional features useful for larger systems. Some of the video analytics modules are already included in the license price, while others are available for an additional fee.

- **ULTRA** is intended for creating large scalable video surveillance systems with the full list of product features and containing an unlimited number of IP cameras, servers and client workstations. All video analytics modules, except for the License Plate Recognition modules, are already included in the license price.

Multiserver system can only combine servers with the same type of licenses, subject to the restrictions imposed by these licenses.

> ⓘ In addition to the license types listed above, other license types containing other sets of licensed features and license restrictions may be used.

License protection methods:

- **Hardware USB key**: The hardware key that must be connected to the USB port of the video surveillance server. The hardware key can be reinstalled on another server if required.

- **Software key**: On activation, it binds to a specific computer.

√: available, included with the base license; +: available at additional cost; −: not available

⚠️ The amount of each of the licensing parameters within one license protection key can not exceed 4000. For example, one license protection key may have:

- 4000 licenses to work with 1 IP camera;
- 4000 licenses for the Face Recognition Complete module;
- 4000 licenses for the License Plate Recognition Complete module;
- 4000 licenses for the FishEye Dewarping module.

Within one system, multiple license keys can be used simultaneously.

For **Enterprise** and **ULTRA** licenses, floating licensing is available, allowing to use a single license key on several **Eocortex** servers.

A floating license states the total number of cameras, modules and other licensed features. The video surveillance system administrator distributes the cameras among the servers at his discretion. The system core automatically distributes the appropriate licenses among the servers.

A key with a floating license is called a network key. Any type of key can be used as a network key: either a USB key or a software key.

The network key can be installed on any **Eocortex** server located in the same local network or VPN as the servers using this key.

A key that applies only to the **Eocortex** server on which the key is directly installed is called a local key.

Within the same **Eocortex** video surveillance system several network and local keys can be used. However, each individual server can use only one of the keys to license the cameras attached to this server.

√ : available, included with the base license; + : available at additional cost; − : not available

Main features

Feature	Value	Description
Windows operating systems	Windows 8 / 8.1 / 10 / 11 Windows Server 2012 / 2012 R2 / 2016 Windows embedded for Intel x64 platforms, with full functionality of abovementioned Windows versions	Windows family operating systems that can be used for launching server applications of a video surveillance system
GNU/Linux operating systems	Debian 10, 11 Ubuntu 20.04, 22.04 CentOS 7	GNU/Linux family operating systems that can be used for launching server applications of a video surveillance system Range of features of server applications launched under GNU/Linux is limited (see description of limitations below)
Video Archive	Proprietary archive structure and format	The video and audio archive has a proprietary structure and format
Database	PostgreSQL 12	DBMS for storing events, video analytics modules data and other information
Video Stream Formats	MJPEG, MPEG-4, H.264, H.264+, H.265, H.265+, MxPEG, Smart Stream, Wisestream, Zipstream	List of supported video codecs
Audio Stream Formats	PCM, G.711U, G.711A, G.722.1, G.726, G.729A, GSM-AMR, AAC	List of supported audio codecs

$\sqrt{}$: available, included with the base license; $+$: available at additional cost; $-$: not available

Feature	Value	Description
Standards	ONVIF (Profile S, Profile T, Profile G), PSIA (ver. 1.2), RTSP	List of supported video surveillance standards
Cameras and Devices	More than 6000 models of more than 180 manufacturers. The detailed list is posted on the web site.	List of supported cameras and devices
Resolution	Limited only by IP camera capabilities	Resolution of the image obtained from the cameras
FPS	Limited only by IP camera capabilities	Framerate of the video stream received from the cameras
Interface Languages	Dutch, English, French, Russian, Spanish	Languages used in system settings and client applications

$\sqrt{}$: available, included with the base license; $+$: available at additional cost; $-$: not available

Variations in functionality depending on type of license

Feature	ML	LS	ST	Enterprise	Ultra	Description
Cameras per server	20	80	Not limited[1]			Maximum number of cameras on one server
Servers in the system	1	5	Not limited			Maximum number of servers in the system
Workstations	2	10	Not limited			Maximum number of client workstations in the system
Floating licensing	—	—	—	√	√	Allows using the same license key on various servers

[1] For ULTRA licenses, Face Recognition modules are available only in systems containing at least 50 licenses for 1 IP camera in total

√ : available, included with the base license; + : available at additional cost; − : not available

Cameras and devices

Feature	OS		Description
	Windows	Linux	
Connection to IP cameras and devices	√	√	Network connection to IP video cameras, network video recorders, video servers, encoders
IPv4 support	√	√	Connecting cameras using IPv4 addresses, including auto search for such cameras in the network
IPv6 support	√	√	Connecting cameras using IPv6 addresses, including auto search for such cameras in the network
PTZ cameras	√	√	Support of PTZ camera features
Audio stream reception	√	√	Reception of sound from cameras
Duplex audio mode	√	√	Transmission of sound from the operator's workstation to the loudspeaker or audio out of the camera
Sending audio to a camera	√	√	Transmits audio from the server to the loudspeaker or audio output of the camera. Can be performed both by scenario and by user command
Decoding of B-frames	√	√	Decoding of B-frames of video streams encoded in H.264 and H.265

√: available, included with the base license; +: available at additional cost; −: not available

Feature	OS		Description
	Windows	Linux	
ONVIF™	√	√	ONVIF™ Profile S, Profile T, Profile G support
PSIA	√	√	PSIA version 1.2 support
Auto search for IP cameras	√	√	Automatic search for cameras that support ONVIF or UPnP in the local network
Remote configuring of IP cameras	√	√	Camera setup using Eocortex Configurator application without connecting to the camera web interface. Available for a limited list of cameras. Depending on the model, the following settings may be available: IP address, codec, resolution, framerate, compression rate
Utilization of custom ports	√	√	Possibility to use non-standard network ports of cameras and devices that are used by the specific models of such devices
Support for multiple video streams from the camera	√	√	Possibility to receive up to four video streams from an IP camera, each with its particular parameters: codec, framerate, and resolution
Camera in-built Motion Detector	√	√	Use of built-in Motion Detector of the IP camera

√ : available, included with the base license; + : available at additional cost; − : not available

Feature	OS		Description
	⊞	🐧	
Camera archive	√	√	Access to the archives located on the memory cards of the cameras, including the possibility of simultaneous viewing of the archives of several cameras and synchronization of the Eocortex archive with the camera archive (e.g. if the camera was working without connection with the Eocortex server for some time)
Signal I/O ports	√	√	Support of camera signal I/O ports
Service PTZ functions	√	√	Support of service features of PTZ cameras: lens washing, wiper
Video from video recorders, servers and encoders	√	√	Reception of real-time video from analog and IP cameras connected to video recorders, servers and encoders
Archive of video recorders and servers	√	√	Access to the internal archives of the video recorders and video servers, including the possibility of simultaneous viewing of the archives of several channels of the video recorders and servers and synchronization of the Eocortex archive with the archive of a video recorder or a server (e.g. if the video recorder or server worked for some time without connection with the Eocortex server)
Sound from video recorders, servers and encoders	√	√	Reception of real-time audio from analog and IP cameras connected to the video recorders, servers and encoders, as well as recording the sound captured by these devices

√ : available, included with the base license; + : available at additional cost; − : not available

Feature	OS		Description
	⊞	🐧	
PTZ via video recorders, servers and encoders	√	√	Control of analog and IP PTZ cameras connected to video recorders, servers and encoders
Panoramic and multi-lens cameras	√	√	Support of various modes used in panoramic and multi-lens cameras
Thermal cameras	√	√	Obtaining images from thermal cameras
Audio devices	√	√	Support of sound transmitting IP devices (for a limited list of devices)
Door phone support	√	√	Interaction with call panels of door phones connected via IP: video reception, reception and transmission of sound, unlocking door locks (for a limited list of devices)
Self-sufficient driver packages	√	−	Self-sufficient driver packages (DevicePack) for ensuring backwards compatibility of IP cameras and devices after updating the server application
Camera diagnostics	√	√	Diagnostics of cameras from Eocortex Configurator application in order to identify issues with their connection and functioning

√: available, included with the base license; +: available at additional cost; −: not available

Feature	OS		License					Description
	⊞	🐧	ML	LS	ST	Enterprise	Ultra	
Video analytics built into a camera	√	√	−	+	+	+	√	Support of in-camera video analytics. The following video analysis features are available: • Monitoring the temperature of recognized persons • Line crossing • License plate recognition • Area monitoring • Sabotage Detector • Queue size monitoring • Fog and smoke detection • Objects detector • Sound detector • People Counting • People Counting in area • Abandoned items detector

√ : available, included with the base license; + : available at additional cost; − : not available

Video analytics

Feature	OS		Description
	⊞	🐧	
Decoding on GPU	√	√	Decoding of the stream under analysis on the GPU to reduce the CPU load on the server. Available for all supported codecs except MxPEG and MPEG-4. NVIDIA video card with support for decoding of the selected codec is required

Feature	OS		License					Description
	⊞	🐧	ML	LS	ST	Enterprise	Ultra	
Motion Detector	√	√	√	√	√	√	√	Detecting movement in the frame using real-time video stream analysis. The possibility to set several detection zones, with an option of limiting the dimensions of objects to be detected in each zone. It is possible to limit the frequency of the analysis in order to reduce server load

√: available, included with the base license; +: available at additional cost; −: not available

Feature	OS		License					Description
	⊞	🐧	ML	LS	ST	Enterprise	Ultra	
Video analytics server	√	√	–	+	+	+	+	One of the servers can be assigned as a video analytics server. Video analysis modules will operate on this server, processing video sent to the video analytics server from other servers. Archiving and broadcasting data to client workplaces will be performed by general video surveillance servers. The video analytics server allows to take the load connected with video analytics off the general servers
Video analytics built into a camera	√	√	–	+	+	+	√	Support of in-camera video analytics. The following video analysis features are available: - line crossing monitoring; - high temperature monitoring; - monitoring the temperature of recognized persons
Abandoned Objects Detection	√	√	–	+	√	√	√	Detecting the objects that are left without motion for a preset period of time
Auto Zoom	√	√	√	√	√	√	√	Displaying a separate zoomed-in area of the frame where moving objects are present

√: available, included with the base license; +: available at additional cost; –: not available

Feature	OS		License					Description
	⊞	🐧	ML	LS	ST	Enterprise	Ultra	
Counting People in Queue	√	√	–	+	+	+	√	Counting People in Queues. Allows to specify up to six control zones with individual threshold values for each zone. Creating reports with a possibility of sending them according to a time schedule
Cross-camera Tracking	√	√	–	+	√	√	√	Chronologically based search on several cameras for a person previously found with the Search for Objects module with the ability to create a video clip from the found fragments, as well as with the building of a route on the plans, if the cameras with the found fragments are positioned on them
Crowd Monitoring	√	√	–	+	+	+	√	Calculating the quantity of people in crowds, notifying the operator about the exceedance of the preset threshold values. It is possible to set up to 6 control zones with individual threshold values for each zone. Reports creation is available
Face Detection	√	√	–	+	√	√	√	Detecting faces in the frame
Face Mask Detector	√	√	–	√	√	√	√	Detecting people not wearing medical face masks in the frame.

√: available, included with the base license; +: available at additional cost; –: not available

Feature	OS		License					Description
	▢	🐧	ML	LS	ST	Enterprise	Ultra	
Face Recognition (Complete)	√	√	–	+	+	+	√ [1]	Recognizing faces using a database. Recognition of turned and masked faces. Determining sex, age and emotions of recognized persons. Recognizing faces using an archive. Creating reports
								High performance video cards (GPUs) are always used for recognition; at that, all the appropriate video cards installed on the server will be used
								Search for persons in the database by image
								Possibility to set own database for individual cameras or groups of cameras.
								Replication of a remote database allowing to perform recognition even in case of temporary absence of connection with the server where the main database is stored
								Additional report allowing to monitor the presence of people on the specified territory, including work time logging, is available
								Exporting reports to XLS, CSV, PDF.
								Displaying the temperature received from video cameras with thermal sensors. Highlighting the faces of people running a fever
								Importing data from external files to face database

√ : available, included with the base license; + : available at additional cost; – : not available

Feature	OS		License					Description
	⊞	🐧	ML	LS	ST	Enterprise	Ultra	
Face Recognition (Light)	√	√	−	+	+	+	√¹	Recognizing faces using a database Creating reports It is possible to use a high-performance video card (GPU) for recognition Replication of a remote database allowing to perform recognition even in case of temporary absence of connection with the server where the main database is stored. Displaying the temperature received from video cameras with thermal sensors. Highlighting the faces of people running a fever. Importing data from external files to face database.
Fire and Smoke Detector	√	√	−	+	+	+	√	Detecting the presence of smoke and open fire
FishEye Dewarping	√	√	−	+	+	+	√	Software dewarping of Fisheye camera images
Frame Area Blurring	√	√	√	√	√	√	√	Blurring areas of a frame of archived real-time video and freeze frames in Eocortex Client application

√ : available, included with the base license; + : available at additional cost; − : not available

Feature	OS		License					Description
	⊞	🐧	ML	LS	ST	Enterprise	Ultra	
License Plate Recognition (Complete)	√	√	−	+	+	+	+	Recognition of license plates of vehicles travelling at the speeds of up to 250 kmh (or up to 20 kmh for the Parking license).
								Recognition of license plates of 120 countries.
								Recognition of up to 10 license plates in a frame.
								Maintaining a license plate database. Possibility to load license plates into the database from external files.
								Possibility to set own database for individual cameras or groups of cameras.
								Replication of a remote database allowing to perform recognition even in case of temporary absence of connection with the server where the main database is stored.
								Creation of license plate groups, including for the purposes of interception and automatic opening of a rising arm barrier.
								Downloading recognized license plates into external files.
								Manual and automatic rising arm barrier control.
								Counting the number of vehicles in parking lots.
								Counting the time spent by vehicle in the parking lot.

√: available, included with the base license; +: available at additional cost; −: not available

Feature	OS		License					Description
	⊞	🐧	ML	LS	ST	Enterprise	Ultra	
Licence Plate Recognition (Light)	√	–	–	+	+	+	+	Recognition of license plates of vehicles travelling at the speeds of up to 150 kmh (or up to 30 kmh for the Parking license). Recognition of license plates of 43 countries. Maintaining a license plate database. Possibility to load license plates into the database from external files. Replication of a remote database allowing to perform recognition even in case of temporary absence of connection with the server where the main database is stored. Creation of license plate groups, including for the purposes of interception and automatic opening of a rising arm barrier. Downloading recognized license plates into external files. Manual and automatic rising arm barrier control. Counting the number of vehicles in parking lots. Counting the time spent by vehicle in the parking lot.
Loud Sound Detection	√	√	–	+	+	+	√	Registering the sound whose level is in excess of the limit preset by the user

√: available, included with the base license; +: available at additional cost; –: not available

Feature	OS		License					Description
	⊞ Windows	🐧 Linux	ML	LS	ST	Enterprise	Ultra	
Object Classification and Counting	√	√	−	+	+	+	√	Counting the number of objects crossing defined lines or residing in preset free-form areas, and differentiating objects by category. Both all moving objects and only objects of a selected category can be counted: people; animals; vehicles. Vehicles can be counted by type: cars, buses, trucks, motorcycles. In the client application it is possible to enable the display of object boundaries depending on the category
People Counting	√	√	−	+	+	+	√	Counting the number of visitors entering and exiting — both through one and several entrances. Setting up counting zones allowing to determine the number of people in the zones in real time. Creating reports with a possibility of sending them according to a time schedule
Personnel Activity Monitoring	√	√	−	+	+	+	√	Monitoring personnel activity on the selected workplaces. Allows to set up to six control zones with individual threshold values for each zone. Reports creation is available
Sabotage Detector	√	√	√	√	√	√	√	Detecting camera defocusing, turning the camera away from the predetermined direction, flaring and overlapping

√: available, included with the base license; +: available at additional cost; −: not available

Feature	OS		License					Description
	⊞	🐧	ML	LS	ST	Enterprise	Ultra	
Search for Objects	√	√	–	+	√	√	√	Search in the archive for • any moving objects: o in a set rectangular area; o crossing a set line. • people: o any people; o by the color of clothes; o by samples from the archive or an image file. • vehicles: o by category: passenger cars and trucks, buses, two-wheel transport; o by color; o by samples from the video archive or an image file. • dangerous objects. • animals. • faces.
Shelf Fullness Check	√	√	–	+	+	+	√	Shelf Fullness Check. Helps to fill the shelves on time upon their emptying

√: available, included with the base license; +: available at additional cost; –: not available

Feature	OS		License					Description
	⊞	🐧	ML	LS	ST	Enterprise	Ultra	
Tracking	√	√	–	+	√	√	√	Tracking moving objects in the camera's field of view. Generating alerts on intersecting lines and borders, entering the dedicated zone, prolonged stay in the zone. Interactive search in the archive for an event of crossing the line set by the operator. It is possible to track all moving objects as well as the ones of a preset type: people, vehicles, animals. Vehicles can be tracked by type: cars, buses, trucks, motorcycles. In the client application, you can enable the display of object frames depending on the category. It is possible to set up the Tracking of objects whose dimensions are within the preset range
Traffic Density Heat Map	√	√	–	+	+	+	√	Visualizing traffic intensity in different areas of the frame, both in real time and during a specified interval. It is possible to superimpose the heat map on the field of view of the camera placed on a site plan. Creating reports
Uniform Detector	√	√	–	+	+	+	√	Detection of people without overalls. Depending on the settings, it is possible to detect: the color of the overalls, the absence of vests, the absence of helmets. It is also possible to set individual detection zones

√: available, included with the base license; +: available at additional cost; –: not available

Feature	OS		License					Description
	⊞	🐧	ML	LS	ST	Enterprise	Ultra	
Unique Visitor Counting	√	√	−	+	+	+	√ [1]	Creating the Unique Visitor Counting reports based on Face Detection and recognition, including information regarding age, sex and emotions of visitors. It is possible to exclude certain groups from the calculation to avoid, for example, counting employees. High performance video cards (GPUs) are always used for recognition; at that, all the appropriate video cards installed on the server will be used.

[1] For ULTRA licenses, Face Recognition modules are available only in systems containing at least 50 licenses for 1 IP camera in total

√: available, included with the base license; +: available at additional cost; −: not available

Integration

Feature	OS		Description
	Windows	Linux	
Open SDK	√	√	The set of libraries and code samples in C# not only ensure seamless integration of third-party products with Eocortex, but also allow to develop proprietary video surveillance system components
Open API	√	√	Contains a set of documented API, JSON and XML requests, ensuring interaction with the components of the Eocortex video surveillance system
RTSP server	√	√	Connection to the server via RTSP to receive video streams in H.264, H.265 and MJPEG formats
ONVIF server	√	√	Connection to the server via the ONVIF protocol. Available options: • receiving video streams (with sound) in H.264, H.265 and MJPEG formats; • lists of available cameras and enabled video analysis modules; • connection via both HTTP and HTTPS; • receiving a number of system events; • getting links for connection to cameras via the RTSP server
Modbus protocol support	√	√	Connecting devices that support the Modbus protocol. Transferring events from these devices to Eocortex for use in automation scenarios. Sending signals from Eocortex to these devices

√ : available, included with the base license; + : available at additional cost; − : not available

Feature	OS		Description
	Windows	Linux	
Embedding video on a website	√	√	Integrating video from cameras on a website with the following features: • Switching between live viewing and archive playback; • Selecting streams; • Switching to full screen mode
Integration with Honeywell's Pro-Watch® comprehensive security platform	√	–	Receiving events from Honeywell's Pro-Watch®, setting response to these events, and viewing the received events in the Events Log of the Eocortex Client application
Integration with Paxton Net2 systems	√	–	Receiving Paxton Net2 events, setting up responses to such events as well as viewing the received events in the Events Log of the Eocortex Client application; sending the event that initiates opening of a door from Eocortex to Paxton Net2
Integration with Siemens DMS8000 access control and security and fire alarm system	√	–	Receiving events from Siemens DMS8000, setting response to these events, and viewing the received events in the Events Log of the Eocortex Client application
Integration with BioStar 2	√	√	Receiving events from Suprema BioStar2 in the real-time mode, storing them in the archive and using them in automation scenarios. Sending commands to the ACS to control the door state

√: available, included with the base license; +: available at additional cost; –: not available

Feature	OS		Description
	⊞	🐧	
Integration with ZKBioSecurity ACS	√	√	Receiving events from the ZKBioSecurity ACS, configuring automatic actions in response to received events, viewing received events in the Events log of the Eocortex Client application

Feature	OS		License					Description
	⊞	🐧	ML	LS	ST	Enterprise	Ultra	
Integration with POS terminals	√	–	–	+	+	+	+	Receiving real-time information about cash transactions from POS terminals, displaying this information on the screen, storing it in the archive and using it in automation scenarios and when viewing the archive.

Information from POS terminals is received via TCP/IP in the format of ESC/POS® commands |

√: available, included with the base license; +: available at additional cost; −: not available

Eocortex Client application

Feature	OS		Description
	⊞	🐧	
Eocortex Client application	√	—	Eocortex Client is a full-featured application with an intuitive user interface that provides access to all video surveillance features with just a few clicks: live video playback, archive playback, PTZ camera control, viewing system events, using video analytics, setting up the system
Direct connection to cameras	√	—	Direct connection to cameras from the operator's computer
Connection to cameras through server	√	—	Connection from the operator's computer to the servers to which the cameras are bound
Connection to cameras through proxy server	√	—	Connection from the operator's computer to one proxy server that, in its turn, is connected to the servers to which the cameras are bound
System event log	√	—	Event Log contains information about all events registered in the system, including starting and stopping server applications, information about connections to cameras, changes of settings, user actions, alarms, video analytics results and other events. To make it easier to find events in the log, it is possible to filter and sort them by various criteria
Displaying time zones	√	—	In the application, the camera time can be displayed in two modes: • in the time zone of the operating system in which the Client is running • in the time zone of the camera itself

√ : available, included with the base license; + : available at additional cost; — : not available

Feature	OS		Description
	⊞	🐧	
Watermarking	√	−	Displaying the watermark in a camera on-screen cell: both during live view and archive playback. Overlaying the watermark when printing and saving a frame, as well as exporting video in AVI and MP4 format with timestamps
H.264 decoding on video card	√	−	Decoding of H.264 on a video card in order to reduce the CPU load and increase the speed of video stream processing. Video card with DXVI support is required
Opening cameras in browser	√	−	Possibility to open HTML pages of the cameras in the browser
Automatic update of Windows-based Client application	√	−	Automatic update of the Eocortex Client application when connecting to the Eocortex server
P2P connection to server	√	−	P2P connection to the servers registered in Eocortex Cloud

√ : available, included with the base license; + : available at additional cost; − : not available

Screen and video wall

Feature	OS		Description
	⊞	🐧	
Display modes	√	—	Variety of display modes: both full-screen mode and many screen grids with different number of cells (up to 262). Some screen grids have cells with vertical orientation
Camera drag-and-dropping	√	—	Dragging and dropping cameras from one screen grid to another using a mouse or a touch screen
Digital zoom	√	—	Zooming in real-time and archived video to the whole cell of a grid or to full screen
Frame aspect ratio control	√	—	Choosing various ways of displaying video in a screen grid cell: keeping proportions of the video transmitted by the camera; stretching the image to the cell size; with automatic selection of optimal display mode. In addition to the default mode for all cells, it is possible to set a separate display mode for each cell
Video stream buffering	√	—	Increasing the smoothness of the image due to frame buffering

√: available, included with the base license; +: available at additional cost; —: not available

Feature	OS		Description
	Windows	Linux	
Screen profiles (Views)	√	—	Facilitation and acceleration of the video surveillance process is ensured due to the possibility to select the preset screen profiles (views) — screen grids with the preestablished sets of cameras. The views can be set both centrally and locally. The centrally preset views are available from any workplace for any user who has the rights to view the cameras set in the view. The views preset on a remote workplace are only available on the particular PC and only for the user who created them. It is possible to create an unlimited number of views of any type
Automatic switching of screen profiles	√	—	Automation of the video surveillance process by means of automatic switching the screen profiles (views) on the display. The sequences of the automatic views switching are set centrally. It is possible to set up an unlimited number of such sequences
Multiple displays	√	—	Support for multiple monitors within a single workstation
Overview monitor	√	—	Using one of the displays to view in full screen any camera selected on the other display in grid mode

√ : available, included with the base license; + : available at additional cost; − : not available

Feature	OS		License					Description
	⊞	🐧	ML	LS	ST	Enterprise	Ultra	
Video wall	√	–	–	–	–	√	√	Capability of creating a videowall using the software. The videowall can consist of any number of monitors connected to a computer with the Eocortex Client software running

√ : available, included with the base license; + : available at additional cost; – : not available

Archive playback

Feature	OS		Description
	Windows	Linux	
Archive playback in a separate cell	√	–	Playing back the archived videos in a selected screen cell simultaneously with real-time video broadcasting in other cells
Simultaneous playback of the archives of several cameras	√	–	Starting simultaneous playback of video from several cameras on the same screen. It is possible to simultaneously play back video from up to 25 cameras
Playback speed selection	√	–	Archive playback at different speeds. Options in the single camera playback mode: x0.1, x0.5, x1, x2, x5, x10, x60, x120. Options in the simultaneous archive playback mode are: x0.5, x1, x2, x5, x10, x20, x40, x60, x120
Frame-by-Frame archive playback	√	–	Step by step playback by clicking the button. Available only in the simultaneous archive playback mode. Single step size options: frame, 0.1s, 0.5s, 1s, 5s, 10s, 30s
Viewing archive fragments	√	–	Fragments of the video archive are displayed and played

√ : available, included with the base license; + : available at additional cost; – : not available

Feature	OS		Description
	⊞	🐧	
Archive playback tools	√	—	Availability of various video archive playback control tools: interactive timeline showing the presence of an archive; a calendar showing days for which the archived videos are available; selection of speed (from 0,1x to 120x) and archive playback direction
Playback of combined archives	√	—	Automatic switching between playing back the archives stored on server and on camera in cases when the archive is only available on camera
Archive bookmarks	√	—	Marking archive fragments with bookmarks. Creating user categories of archive bookmarks. Filtering archive bookmarks using various criteria
Timeline	√	—	Viewing of the archive, events and archive bookmarks on the timeline

√: available, included with the base license; +: available at additional cost; —: not available

PTZ

Feature	OS		Description
	Windows	Linux	
Basic PTZ functions	√	–	Support of basic PTZ camera features: turning and tilting with adjustable speed of movement, zoom in/out (optical zoom), manual and automatic focusing
Presets	√	–	Transition between preset PTZ camera positions
Automatic patrolling (tours)	√	–	Creating customized transition sequences (tours)
AreaZoom	√	–	Support of AreaZoom feature implemented on some of the cameras: camera positioning and optical zoom of the area selected by the user on the screen using a mouse or touch-based
PTZ emulation for panoramic cameras	√	–	Simulation of PTZ control for panoramic cameras
Interactive control of PTZ cameras	√	–	Manual PTZ camera control using a mouse, a touch screen, a keyboard, a game joystick, as well as the specialized PTZ consoles and joysticks
Virtual PTZ Joystick	√	–	Pan and tilt control of the camera using virtual joystick displayed on screen allows to change rotation speed and return camera to home position

√ : available, included with the base license; + : available at additional cost; – : not available

Feature	OS		Description
	⊞	🐧	
Automatic PTZ camera control	√	–	Control of PTZ cameras according to schedule and upon occurrence of a certain event
User setup of joystick and PTZ console	√	–	Assigning joystick axes and user actions to joystick and PTZ console buttons

Feature	OS		License					Description
	⊞	🐧	ML	LS	ST	Enterprise	Ultra	
Priorities for interactive PTZ camera control	√	√	–	–	–	√	√	Assignment of priorities for interactive PTZ camera control: user with higher priority can override the user with lower priority

√ : available, included with the base license; + : available at additional cost; − : not available

Site plans and maps

Feature	OS		Description
	⊞	🐧	
Site plans	√	—	Displaying of two-dimensional site plans with devices placed on them
Consistency of plans	√	—	Creating site plans consistency by placing points of transition between the plans
Cameras on site plans	√	—	Displaying cameras on site plans with the possibility to indicate their fields of view. Viewing of video from the camera on the plan: - By overlaying the image onto a field of view specified on the plan - By jumping to the camera view on the main screen of the Eocortex Client application - In the preview window that opens when hovering the cursor over the camera - In the additional camera cells available on the same screen with the plan Creating views from the cameras placed on site plans
Sensors and relays on site plans	√	—	Displaying sensors and relays connected to signal inputs and outputs of the cameras on the site plans. Visualizing the status of sensors and relays placed on the site plans. Switching of relay states
Notifications on site plans	√	—	Displaying alarm indicators and changes of camera status on a plan, displaying current alarms on the related tab

√: available, included with the base license; +: available at additional cost; —: not available

Feature	OS		License					Description
	⊞	🐧	ML	LS	ST	Enterprise	Ultra	
Video analytics on site plans	√	–	–	–	–	√	√	Visualizing data of individual video analysis modules on the fields of view of the cameras placed on site plans
Integration with cartographic services	√	–	–	–	–	√	√	Display geographic maps provided by [%=GUI/GIS/MainView.OsmMapProvider%] and [%=GUI/GIS/MainView.GoogleMapProvider%] map services with the ability to change the display mode
Cameras on maps	√	–	–	–	–	√	√	Displaying cameras on maps with the possibility to indicate their fields of view. Viewing of video from the camera on the plan: • By overlaying the image onto a field of view specified on the plan • By jumping to the camera view on the main screen of the Eocortex Client application • In the preview window that opens when hovering the cursor over the camera Creating views from the cameras placed on site plans

√ : available, included with the base license; + : available at additional cost; – : not available

Feature	OS		License					Description
	⊞	🐧	ML	LS	ST	Enterprise	Ultra	
Sensors and relays on maps	√	–	–	–	–	√	√	Displaying sensors and relays connected to signal inputs and outputs of the cameras on maps. Visualizing the status of sensors and relays placed on maps. Switching of relay states
Locations on maps	√	–	–	–	–	√	√	Saving the position on the map in the list of locations for quick navigation
Objects on maps	√	–	–	–	–	√	√	Indicating objects on maps with the possibility of linking plans for a quick transition to a detailed plan of the area and back
Notifications on maps	√	–	–	–	–	√	√	Displaying alarm indicators and changes of camera status on the map, displaying current alarms on the related tab

√: available, included with the base license; +: available at additional cost; –: not available

Alarms

Feature	OS		Description
	⊞	🐧	
Guard mode	√	—	Using special mode of camera operation that implies generation of an alarm as a reaction to certain events. The camera may be set to the guard mode both manually and automatically, on schedule of by occurrence of an event
Alarm generation	√	√	Setting up automatic alarm generation when certain events occur on cameras put on guard. Generating alarms by operators. Developing customer alarm generation mechanisms using Eocortex API and SDK
Registering and processing of alarms	√	—	Registering alarms in an event log. Setting up actions and sequences of actions to be executed when an alarm is registered, including sending alarm notifications
Alarm notifications	√	—	Immediate visual and audible notification of video surveillance operators about registered alarms
Alarms on plans and maps	√	—	Displaying alarm indication on maps and plans
Alarm monitor	√	—	Utilizing one of the monitors to display images from the cameras where an alarm has occurred. Possibility to automatically exclude the camera from the alarm monitor screen after a specified time interval since the alarm occurred. Possibility to display alarms on the alarm monitor only. Delayed video play. Cell pinning

√ : available, included with the base license; + : available at additional cost; — : not available

Feature	OS		Description
	⊞	🐧	
Alarm cells	√	—	Utilizing part of the regular monitor's cells to display images from the cameras on which the alarm occurred
User alarm on-screen button	√	—	Switching on and off the user alarm on selected cameras by the operator using the on-screen alarm button

√: available, included with the base license; +: available at additional cost; —: not available

Archive management

Feature	OS		Description
	⊞ (Windows)	🐧 (Linux)	
Archive recording modes	√	√	Recording to the archive can be made continuously, by the operator's command, by the camera Motion Detector, by Eocortex software Motion Detector, by any video surveillance system event, as well as on schedule, including the possibility to combine other recording modes with the scheduled one
Archive arrangement	√	√	The archive of each server stores the recordings of only those cameras that were bound to it at the moment of the recording. The archive is stored on the server's logical drives that are determined by the operation system. It is possible to use any acceptable devices as storage media: HDD, SSD, RAID, external storage drives, network drives, as well as their combinations. Video and audio data are stored in the archive in the format received from an IP camera. The rate of recording and playback of the archive is only restricted by the hardware. To increase performance while using several logical drives, the recording is made to all the available drives simultaneously. If one of the drives becomes unavailable, the recording of new data to it stops and is redistributed to the available drives. Reciprocally, when the drive becomes available, the recording to it resumes. The archive has a circular structure: when the space allocated for it becomes fully used up, new archive files start to replace the oldest ones, overwriting them, taking into account the archive depth parameters set for each camera

√: available, included with the base license; +: available at additional cost; −: not available

Feature	OS		Description
	Windows	Linux	
Archive size optimization	√	√	The size of the archive is limited only by the drive capacity and the operating system. Storage limits can be set for each logical drive: maximum size of archive, minimum allowable free space. Various archive size limits can be set for all and for each IP camera. Additional options allowing to reduce the size of the archive are available: skipping of frames without motion, storing key frames only, switching archive recording between low and high-resolution streams
Prerecording and post-recording	√	√	A capability to set the short intervals of time within which the recording to the archive will be performed before the start of an event that triggers the recording (prerecording) and after the start of an event that triggers the stop of the recording (post-recording). The duration of the intervals can be set in the range of 1 to 10 seconds.
Adding of drives	√	√	Scalable drive space for video archive storage
Archive replication	√	√	Dedicated replication server allows to copy the archives of the set cameras from other servers. The archive depth of the replication server may be different from the original one
Archive depth report	√	√	Creating reports regarding the archive depth allowing to monitor the availability of the archive per camera and per date

√: available, included with the base license; +: available at additional cost; −: not available

Feature	OS		License					Description
	⊞	🐧	ML	LS	ST	Enterprise	Ultra	
Archive decimation after the preset period of time	√	√	–	–	–	√	√	Reducing the number of frames in the archive after the preset time interval. It is possible to set up the decimation in two stages: after the first interval, the number of frames in the archive is reduced to one preset value, and after the second interval the additional reduction of the number of frames takes place
Episode archive	√	√	–	–	–	√	√	Storing individual archive fragments separately from the main archive without time limit
Saving the archive when moving a camera to another server	√	√	–	√	√	√	√	In a multi-server system, moving a camera to another server is performed without losing its archive, provided that the moving is done with the built-in setting tools of the video surveillance system

√: available, included with the base license; +: available at additional cost; –: not available

Automation

Feature	OS		Description
	⊞ Windows	🐧 Linux	
Scheduled actions	√	√	Executing actions or sequences of actions on schedule. Creating flexible schedules ranging from a single run to regular runs, with various periods: in set number of seconds, minutes, hours, days; at the preset time, week days, dates of a month, and using some other parameters. Scheduled actions can be set either for an individual camera or for several cameras at the same time
Actions by events	√	√	Executing actions or sequences of actions by occurrence of the preset events. It is possible to set flexible conditions of the execution of actions. Event actions can be set either for an individual camera or for several cameras at the same time
Actions performed by user command	√	√	Performing actions or sequences of actions by a client application's user command. Available for users of client apllications for Android, iOS, Windows and Linux

√ : available, included with the base license; + : available at additional cost; − : not available

Feature	OS		Description
	⊞	🐧	
Automation actions	√	√	Available automation actions: Turn on recording; Turn on washer; Turn on autofocus mode; Play audio on camera speaker; Disable recording; Execute action in Suprema Biostar 2; Alarm generation; Add an event to door phone log; Run external application on server; Change the video stream to be recorded to archive to the main one; Disable decimation when recording to archive; Open door Paxton Net2; Send HTTP or HTTPS request to an external system with HTTP API; Send Push notifications to mobile devices; Send to messenger; Send report by email; Send notification by email; Send notification by SMS; Pause; Send signal to Camera output; Save frame; Set camera position
Automation events	√	√	Available automation events: Large number of people in queue; Large crowd of people; Fire; Call over the door phone; Loud sound; Motion; Smoke; Parking vehicle counter has been changed; Parking lot occupancy has changed; External alarm start; Motion started; Inactive zone; License plate detected; Emergency vehicle detected; Face detected; Face detected (Face Recognition module); A person running a fever detected; Loss of connection with analog camera; Loss of connection with camera; End of external alarm; Motion stopped; Abandoned object; Tracking of moving objects; No connection with camera; No face mask; Object Classification and Counting; Shelf empty; Received a check from a POS-terminal; Line from POS terminal received; User alarm; Maximum number of people in counting zone exceeded; Video surveillance sabotage; Signal to camera input; Honeywell Pro-Watch event; Paxton Net2 event; Siemens DMS8000 event; ZKBioSecurity event; External system event; Parking event; Tracking event; Request to close gate; Request to open gate; Connecting to analog camera; Establishing connection with camera; Number of people in counting zone is back to allowed

√: available, included with the base license; +: available at additional cost; −: not available

Setup and control

Feature	OS		Description
	Windows	Linux	
System setup tools	√	√	All system settings are made in the Eocortex Configurator application with remote or local connection to one of the Eocortex servers
Eocortex Status Info utility	√	−	Eocortex Status Info utility is designed for launching and stopping Eocortex Server application, as well as for setting up and performing diagnostics of Eocortex video surveillance system. The utility is launched automatically at the start of the operating system and is displayed in the task bar on the computer where the Eocortex Server is running. The system status and diagnostic notifications are displayed in the utility's window
Preview without saving changes	√	√	Watching video stream from camera with the preset configuration
Adding cameras with the same parameters	√	√	Possibility to add cameras with the settings similar to those of the already connected cameras to the system
Group setup of cameras	√	√	Possibility to simultaneously set up common parameters for a group of cameras
Automatic starting of applications	√	√	Possibility to automatically start Eocortex applications after the start of the operating system. Configuring automatic authentication after an application has started

√: available, included with the base license; +: available at additional cost; −: not available

Feature	OS		Description
	⊞	🐧	
Compatibility of versions	√	√	Compatibility of client software with server software of earlier versions

Feature	OS		License					Description
	⊞	🐧	ML	LS	ST	Enterprise	Ultra	
Eocortex Union (Beta)	–	√²	–	–	–	√	√	Eocortex Union is a platform that provides convenient access from the same point to several Eocortex video surveillance systems at the same time. The Eocortex Union includes client applications, configuration and system health monitoring tools
Dragging and dropping cameras between servers	√	√	–	√	√	√	√	Switching cameras from one server to another with several clicks
Multiserver systems	√	√	–	√	√	√	√	Unifying several servers, including those geographically distributed, in a common system via local and global TCP/IP networks

√ : available, included with the base license; + : available at additional cost; – : not available

Feature	OS		License					Description
	⊞	🐧	ML	LS	ST	Enterprise	Ultra	
Centralized setup of distributed video surveillance systems	√	√	–	√	√	√	√	To set up a multiserver system, it is sufficient to connect to one of the servers of the system
Centralized update of all the system's servers	√	–	–	√	√	√	√	Capability to remotely update all the system's servers from one application; it is also possible to roll back to the previous version remotely
System health monitoring	√	√	–	–	–	√	√	Monitoring the current state of the video surveillance system components: current status of servers, including their accessibility, CPU and memory load, operability of video analytics and archiving subsystems, network and HDD state, camera connection status as well as monitoring certain other parameters. The monitoring subsystem allows to send notifications regarding critical events via email in accordance with the list and levels of control parameters set by the user

2 The installation package is only available for the specified OS, the connection is available for all supported OS

√ : available, included with the base license; + : available at additional cost; – : not available

Security

Feature	OS		Description
	⊞	🐧	
Access management	√	√	Flexible system of user rights to access objects and features of the system, including the limitation of access to the specific cameras and differentiation of rights for viewing real-time video and playing back the archive. The rights are assigned to the security groups. The authorization is made on the level of specific users with their individual passwords; each of these users in included into one of the security groups. The users and the security groups are the integral elements of the video surveillance systems
Secure connections	√	√	Using TLS and SSL security certificates for encoding data transmitted between cameras and Eocortex servers, as well as between the servers and client applications, including mobile and web ones, and also the Eocortex Configurator application
Electronic signature	√	‒	Using safety certificates for signing frames being saved and video clips being downloaded
Limitation of client connections	√	√	Limiting the number of simultaneous client connections to the system under the same account

√ : available, included with the base license; + : available at additional cost; ‒ : not available

Feature	OS		License					Description
	⊞	🐧	ML	LS	ST	Enterprise	Ultra	
Control of access to system settings	√	√	–	–	–	√	√	Limitation of access of different user groups to the individual system settings, including the access to the settings of certain servers and cameras. At that, it is possible to deny access to all settings for certain user groups on all types of licenses
Support of Microsoft® Active Directory	√	√	–	–	–	√	√	Supporting authorization using Microsoft® Windows or Microsoft® Active Directory accounts. Using Microsoft® Windows or Microsoft® Active Directory groups as security groups.
Support of Microsoft® Active Directory pass-through authentication	√	–	–	–	–	√	√	Possibility to quickly log into the system using the same Active Directory account that was used to log into the operating system

√: available, included with the base license; +: available at additional cost; –: not available

Centralization and scaling

Feature	OS		Description
	Windows	Linux	
Multiserver architecture	√	√	Provides high flexibility of the system and resiliency of its components
Main and subordinate servers	√	√	By default, one server in the system is assigned as the main server, and the others as subordinate. The system parameters are stored on the main server. Each subordinate server stores a backup copy of the system parameters. Such architecture ensures the integrity of the system, providing, at the same time, the fault tolerance in cases when the subordinate servers lose connection with the main server. Moreover, in case of a failure of the main server, any subordinate server can be assigned as the main one without losing the system settings
System integration	√	√	To connect another multiserver system to the current video surveillance system, it is sufficient to connect one of the servers of this system; the other servers will be connected automatically
Disconnection of servers	√	√	When a server is disconnected from the multiserver system, all the cameras bound to it are disconnected as well; the camera settings are preserved. Thus, the simple and trouble-free migration of servers between multiserver systems is ensured

√ : available, included with the base license; + : available at additional cost; − : not available

Feature	OS		License					Description
	▣	🐧	ML	LS	ST	Enterprise	Ultra	
Video analytics server	√	√	−	+	+	+	+	One of the servers can be assigned as a video analytics server. Video analysis modules will operate on this server, processing video sent to the video analytics server from other servers. Archiving and broadcasting data to client workplaces will be performed by general video surveillance servers. The video analytics server allows to take the load connected with video analytics off the general servers

√: available, included with the base license; +: available at additional cost; −: not available

Reliability and failover

Feature	OS		Description
	Windows	Linux	
Backup drives	√	√	One or more drives may be assigned to operate as backup drives: they will be used for recording only in case of failure of all the main drives; at that, once one of the main drives becomes available, the recording to the backup drives will stop.
Cold backup of servers	√	√	In case of failure of the server with the USB protection key, it is possible to transfer the USB key to a cold redundancy server with the pre-installed Eocortex application, then activate the current license bound to the USB key on the given server. In a multiserver system, it is sufficient to connect the new server to the system and assign the cameras of the failed server to it; at that, all the camera settings will be saved. In the single-server system, it will be required to use the camera configuration file saved before
Self-diagnostics	√	√	In the course of operation, the video surveillance system components perform automatic self-diagnostics, informing the users about the issues encountered and giving recomendations regarding their rectification
Increased database reliability	√	√	Automatic creation of backup copies of the database and automatic restoration of the database after failures

√ : available, included with the base license; + : available at additional cost; − : not available

Feature	OS		License					Description
	⊞	🐧	ML	LS	ST	Enterprise	Ultra	
Archive backup	√	√	–	–	–	√	√	Simultaneous recording of the video archive and database to the main and backup drives installed on the same server
Hot backup of servers	√	√	–	+	+	√	√	In case of a failure of the server itself or all of its drives, the cameras assigned to it will be processed by other servers, including the broadcasting of the real-time video and the recording to the archive. In case of the fast backing up, the switching to the redundancy server happens within 10 seconds from the moment of losing the connection with the main server. In case of the constant backing up, connecting to cameras is performed continuously from two servers that process and archive videos from these cameras. In case one of the servers is down, the video and archive data will be available on another server
Constant camera backup	√	√	–	+	+	√	√	The cameras are constantly connected to two servers that process and archive video from these cameras. If one of the servers fails, video and archive will be available when connecting to the other server

√: available, included with the base license; +: available at additional cost; –: not available

Export and printout

Feature	OS		Description
	Windows	Linux	
Frame saving	√	—	Saving a frame of its fragment on a disk as a JPEG, PNG or BMP file. Overlaying the watermark on the image. Saving files with an electronic signature
Frame printing	√	—	Printing out a frame or its fragment. Overlaying the watermark on the image
Video archive export	√	—	Exporting a video archive fragment to AVI, MP4 and Eocortex proprietary format. Export to MP4 can be performed with or without time stamps. Eocortex proprietary format supports the possibility to export multiple cameras to a single file for simultaneous playback. Adding a watermark to the downloaded archive. Encoding the downloaded archive using a password. Saving files with an electronic signature

√: available, included with the base license; +: available at additional cost; —: not available

Mobility

Feature	OS		Description
	⊞ (Windows)	🐧 (Linux)	
Web Client	√³	√³	Viewing of real-time and archived video in any browser with HTML5 support.
			Possibility to perform authorization using an Active Directory account (having a corresponding license).
			Adaptation to screens of different sizes and resolutions: desktops and laptops, tablets, smartphones.
			Viewing system events in the Event Log.
			When using video analytics, liveview is available for the Face Recognition and People Counting modules
Mobile Client for Android	√³	√³	Viewing live and archive video on mobile devices, including listening to audio from cameras and controlling PTZ cameras.
			A smart assistant that allows to interact with the application through voice and text commands.
			Viewing the cameras' placement on online maps.
			Displaying on cameras both the device time and the time of the cameras.
			Dark and light design themes.
			Saving a video clip containing a fragment of the video archive to the device.
			Events log, including video analytics modules events. Filtering and searching for events in the log

√ : available, included with the base license; + : available at additional cost; — : not available

Feature	OS		Description
	▦	🐧	
Mobile Client for iOS	√³	√³	Viewing live and archive video on mobile devices, including listening to audio from cameras and controlling PTZ cameras. A smart assistant that allows to interact with the application through voice and text commands. Viewing the cameras' placement on online maps. Displaying on cameras both the device time and the time of the cameras. Dark and light design themes. Saving a video clip containing a fragment of the video archive to the device. Events log, including video analytics modules events. Filtering and searching for events in the log
Messengers	√	√	The service that connects the Eocortex video surveillance systems with the popular messengers, allowing to receive the images from the cameras, event notifications, server status reports and other information via the messengers

[3] Connection to the server running on the specified OS is supported

√ : available, included with the base license; + : available at additional cost; − : not available

Feature	OS		License					Description
	⊞	🐧	ML	LS	ST	Enterprise	Ultra	
Internal Chat	√	–	–	–	–	√	√	Exchanging messages, screen profiles and certain settings between the users

√: available, included with the base license; +: available at additional cost; –: not available

Differences in versions for different OS

Cameras and devices

Feature	OS		Description
	Windows	Linux	
Self-sufficient driver packages	√	−	Self-sufficient driver packages (DevicePack) for ensuring backwards compatibility of IP cameras and devices after updating the server application

√ : available, included with the base license; + : available at additional cost; − : not available

Video analytics

Feature	OS		Description
	Windows	Linux	
License Plate Recognition (Light)	√	−	Recognition of license plates of vehicles travelling at the speeds of up to 150 kmh (or up to 30 kmh for the Parking license). Recognition of license plates of 43 countries. Maintaining a license plate database. Possibility to load license plates into the database from external files. Replication of a remote database allowing to perform recognition even in case of temporary absence of connection with the server where the main database is stored. Creation of license plate groups, including for the purposes of interception and automatic opening of a rising arm barrier. Downloading recognized license plates into external files. Manual and automatic rising arm barrier control. Counting the number of vehicles in parking lots. Counting the time spent by vehicle in the parking lot.

√: available, included with the base license; +: available at additional cost; −: not available

Integration

Feature	OS		Description
	Windows	Linux	
Integration with Honeywell's Pro-Watch® comprehensive security platform	√	–	Receiving events from Honeywell's Pro-Watch®, setting response to these events, and viewing the received events in the Events Log of the Eocortex Client application
Integration with Paxton Net2 systems	√	–	Receiving Paxton Net2 events, setting up responses to such events as well as viewing the received events in the Events Log of the Eocortex Client application; sending the event that initiates opening of a door from Eocortex to Paxton Net2
Integration with Siemens DMS8000 access control and security and fire alarm system	√	–	Receiving events from Siemens DMS8000, setting response to these events, and viewing the received events in the Events Log of the Eocortex application
Integration with ZKBioSecurity ACS	√	–	Receiving events from the ZKBioSecurity ACS, configuring automatic actions in response to received events, viewing received events in the Events log of the Eocortex Client application
Integration with POS terminals	√	–	Receiving real-time information about cash transactions from POS terminals, displaying this information on the screen, storing it in the archive and using it in automation scenarios and when viewing the archive. Information from POS terminals is received via TCP/IP in the format of ESC/POS® commands

√ : available, included with the base license; + : available at additional cost; – : not available

Eocortex Client application

Feature	OS		Description
	⊞	🐧	
Eocortex Client application	√	−	Eocortex Client is a full-featured application with an intuitive user interface that provides access to all video surveillance features with just a few clicks: live video playback, archive playback, PTZ camera control, viewing system events, using video analytics, setting up the system
Direct connection to cameras	√	−	Direct connection to cameras from the operator's computer
Connection to cameras through server	√	−	Connection from the operator's computer to the servers to which the cameras are bound
Connection to cameras through proxy server	√	−	Connection from the operator's computer to one proxy server that, in its turn, is connected to the servers to which the cameras are bound
System event log	√	−	Event Log contains information about all events registered in the system, including starting and stopping server applications, information about connections to cameras, changes of settings, user actions, alarms, video analytics results and other events. To make it easier to find events in the log, it is possible to filter and sort them by various criteria

√: available, included with the base license; +: available at additional cost; −: not available

Feature	OS		Description
	⊞	🐧	
Displaying time zones	√	–	In the application, the camera time can be displayed in two modes: • in the time zone of the operating system in which the Client is running • in the time zone of the camera itself
Watermarking	√	–	Displaying the watermark in a camera on-screen cell: both during live view and archive playback. Overlaying the watermark when printing and saving a frame, as well as exporting video in AVI and MP4 format with timestamps
H.264 decoding on video card	√	–	Decoding of H.264 on a video card in order to reduce the CPU load and increase the speed of video stream processing. Video card with DXVI support is required
Opening cameras in browser	√	–	Possibility to open HTML pages of the cameras in the browser
Automatic update of Windows-based Client application	√	–	Automatic update of the Eocortex Client application when connecting to the Eocortex server
P2P connection to server	√	–	P2P connection to the servers registered in Eocortex Cloud

√ : available, included with the base license; + : available at additional cost; – : not available

Screen and video wall

Feature	OS		Description
	⊞	🐧	
Display modes	√	—	Variety of display modes: both full-screen mode and many screen grids with different number of cells (up to 262). Some screen grids have cells with vertical orientation
Camera drag-and-dropping	√	—	Dragging and dropping cameras from one screen grid to another using a mouse or a touch screen
Digital zoom	√	—	Zooming in real-time and archived video to the whole cell of a grid or to full screen
Frame aspect ratio control	√	—	Choosing various ways of displaying video in a screen grid cell: keeping proportions of the video transmitted by the camera; stretching the image to the cell size; with automatic selection of optimal display mode. In addition to the default mode for all cells, it is possible to set a separate display mode for each cell
Video stream buffering	√	—	Increasing the smoothness of the image due to frame buffering
Screen profiles (Views)	√	—	Facilitation and acceleration of the video surveillance process is ensured due to the possibility to select the preset screen profiles (views) — screen grids with the preestablished sets of cameras. The views can be set both centrally and locally. The centrally preset views are available from any workplace for any user who has the rights to view the cameras set in the view. The views preset on a remote workplace are only available on the particular PC and only for the user who created them. It is possible to create an unlimited number of views of any type

√: available, included with the base license; +: available at additional cost; —: not available

Feature	OS		Description
	⊞	**🐧**	
Automatic switching of screen profiles	√	–	Automation of the video surveillance process by means of automatic switching the screen profiles (views) on the display. The sequences of the automatic views switching are set centrally. It is possible to set up an unlimited number of such sequences
Multiple displays	√	–	Support for multiple monitors within a single workstation
Overview monitor	√	–	Using one of the displays to view in full screen any camera selected on the other display in grid mode

Feature	OS		License					Description
	⊞	**🐧**	ML	LS	ST	Enterprise	Ultra	
Video wall	√	–	–	–	–	√	√	Capability of creating a videowall using the software. The videowall can consist of any number of monitors connected to a computer with the Eocortex Client software running

√: available, included with the base license; +: available at additional cost; –: not available

Archive playback

Feature	OS		Description
	⊞ (Windows)	🐧 (Linux)	
Archive playback in a separate cell	√	—	Playing back the archived videos in a selected screen cell simultaneously with real-time video broadcasting in other cells
Simultaneous playback of the archives of several cameras	√	—	Starting simultaneous playback of video from several cameras on the same screen. It is possible to simultaneously play back video from up to 25 cameras
Playback speed selection	√	—	Archive playback at different speeds. Options in the single camera playback mode: x0.1, x0.5, x1, x2, x5, x10, x60, x120. Options in the simultaneous archive playback mode are: x0.5, x1, x2, x5, x10, x20, x40, x60, x120
Frame-by-Frame archive playback	√	—	Step by step playback by clicking the button. Available only in the simultaneous archive playback mode. Single step size options: frame, 0.1s, 0.5s, 1s, 5s, 10s, 30s
Viewing archive fragments	√	—	Fragments of the video archive are displayed and played

√: available, included with the base license; +: available at additional cost; —: not available

Feature	OS		Description
	⊞	🐧	
Archive playback tools	√	—	Availability of various video archive playback control tools: interactive timeline showing the presence of an archive; a calendar showing days for which the archived videos are available; selection of speed (from 0,1x to 120x) and archive playback direction
Playback of combined archives	√	—	Automatic switching between playing back the archives stored on server and on camera in cases when the archive is only available on camera
Archive bookmarks	√	—	Marking archive fragments with bookmarks. Creating user categories of archive bookmarks. Filtering archive bookmarks using various criteria
Timeline	√	—	Viewing of the archive, events and archive bookmarks on the timeline

√: available, included with the base license; +: available at additional cost; —: not available

PTZ

Feature	OS		Description
	⊞	🐧	
Basic PTZ functions	√	–	Support of basic PTZ camera features: turning and tilting with adjustable speed of movement, zoom in/out (optical zoom), manual and automatic focusing
Presets	√	–	Transition between preset PTZ camera positions
Automatic patrolling (tours)	√	–	Creating customized transition sequences (tours)
AreaZoom	√	–	Support of AreaZoom feature implemented on some of the cameras: camera positioning and optical zoom of the area selected by the user on the screen using a mouse or touch-based
PTZ emulation for panoramic cameras	√	–	Simulation of PTZ control for panoramic cameras
Interactive control of PTZ cameras	√	–	Manual PTZ camera control using a mouse, a touch screen, a keyboard, a game joystick, as well as the specialized PTZ consoles and joysticks
Virtual PTZ Joystick	√	–	Pan and tilt control of the camera using virtual joystick displayed on screen allows to change rotation speed and return camera to home position

√ : available, included with the base license; + : available at additional cost; – : not available

Feature	OS		Description
	⊞	🐧	
Automatic PTZ camera control	√	–	Control of PTZ cameras according to schedule and upon occurrence of a certain event
User setup of joystick and PTZ console	√	–	Assigning joystick axes and user actions to joystick and PTZ console buttons

√: available, included with the base license; +: available at additional cost; –: not available

Site plans and maps

Feature	OS		Description
	⊞	🐧	
Site plans	√	–	Displaying of two-dimensional site plans with devices placed on them
Consistency of plans	√	–	Creating site plans consistency by placing points of transition between the plans
Cameras on site plans	√	–	Displaying cameras on site plans with the possibility to indicate their fields of view. Viewing of video from the camera on the plan: • By overlaying the image onto a field of view specified on the plan • By jumping to the camera view on the main screen of the Eocortex Client application • In the preview window that opens when hovering the cursor over the camera • In the additional camera cells available on the same screen with the plan Creating views from the cameras placed on site plans
Sensors and relays on site plans	√	–	Displaying sensors and relays connected to signal inputs and outputs of the cameras on the site plans. Visualizing the status of sensors and relays placed on the site plans. Switching of relay states
Notifications on site plans	√	–	Displaying alarm indicators and changes of camera status on a plan, displaying current alarms on the related tab

√ : available, included with the base license; + : available at additional cost; – : not available

Feature	OS		License					Description
	⊞	🐧	ML	LS	ST	Enterprise	Ultra	
Video analytics on site plans	√	–	–	–	–	√	√	Visualizing data of individual video analysis modules on the fields of view of the cameras placed on site plans
Integration with cartographic services	√	–	–	–	–	√	√	Display geographic maps provided by [%=GUI/GIS/MainView.OsmMapProvider%] and [%=GUI/GIS/MainView.GoogleMapProvider%] map services with the ability to change the display mode
Cameras on maps	√	–	–	–	–	√	√	Displaying cameras on maps with the possibility to indicate their fields of view. Viewing of video from the camera on the plan: • By overlaying the image onto a field of view specified on the plan • By jumping to the camera view on the main screen of the Eocortex Client application • In the preview window that opens when hovering the cursor over the camera Creating views from the cameras placed on site plans

√: available, included with the base license; +: available at additional cost; –: not available

Feature	OS		License					Description
	⊞	🐧	ML	LS	ST	Enterprise	Ultra	
Sensors and relays on maps	√	−	−	−	−	√	√	Displaying sensors and relays connected to signal inputs and outputs of the cameras on maps. Visualizing the status of sensors and relays placed on maps. Switching of relay states
Locations on maps	√	−	−	−	−	√	√	Saving the position on the map in the list of locations for quick navigation
Objects on maps	√	−	−	−	−	√	√	Indicating objects on maps with the possibility of linking plans for a quick transition to a detailed plan of the area and back
Notifications on maps	√	−	−	−	−	√	√	Displaying alarm indicators and changes of camera status on the map, displaying current alarms on the related tab

√: available, included with the base license; +: available at additional cost; −: not available

Alarms

Feature	OS		Description
	⊞	🐧	
Guard mode	√	–	Using special mode of camera operation that implies generation of an alarm as a reaction to certain events. The camera may be set to the guard mode both manually and automatically, on schedule of by occurrence of an event
Registering and processing of alarms	√	–	Registering alarms in an event log. Setting up actions and sequences of actions to be executed when an alarm is registered, including sending alarm notifications
Alarm notifications	√	–	Immediate visual and audible notification of video surveillance operators about registered alarms
Alarms on plans and maps	√	–	Displaying alarm indication on maps and plans
Alarm monitor	√	–	Utilizing one of the monitors to display images from the cameras where an alarm has occurred. Possibility to automatically exclude the camera from the alarm monitor screen after a specified time interval since the alarm occurred. Possibility to display alarms on the alarm monitor only. Delayed video play. Cell pinning
Alarm cells	√	–	Utilizing part of the regular monitor's cells to display images from the cameras on which the alarm occurred
User alarm on-screen button	√	–	Switching on and off the user alarm on selected cameras by the operator using the on-screen alarm button

√ : available, included with the base license; + : available at additional cost; – : not available

Setup and control

Feature	OS		Description
	⊞	🐧	
Eocortex Union	–	√	Eocortex Union is a platform that provides convenient access from the same point to several Eocortex video surveillance systems at the same time. The Eocortex Union includes client applications, configuration and system state monitoring tools
Eocortex Status Info utility	√	–	Eocortex Status Info utility is designed for launching and stopping Eocortex Server application, as well as for setting up and performing diagnostics of Eocortex video surveillance system. The utility is launched automatically at the start of the operating system and is displayed in the task bar on the computer where the Eocortex Server is running. The system status and diagnostic notifications are displayed in the utility's window
Centralized update of all the system's servers	√	–	Capability to remotely update all the system's servers from one application; it is also possible to roll back to the previous version remotely

√ : available, included with the base license; + : available at additional cost; – : not available

Security

Feature	OS		Description
	Windows	Linux	
Support of Microsoft® Active Directory pass-through authentication	√	−	Possibility to quickly log into the system using the same Active Directory account that was used to log into the operating system

√: available, included with the base license; +: available at additional cost; −: not available