BLUEWAVE

We protect the assets that matter most.
People | Property | Privacy
www.bluewavesecurity.com

BLUE EYE

BlueEye is a limitlessly scalable Video Management Software that combines comprehensive support for 10,000+ IP devices and a streamlined user interface. **BlueEye** offers unique value through features like smart forensic search in recorded video and customizable video analytics powered by artificial intelligence.

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AI-POWERED ANALYTICS

Behavior Analytics
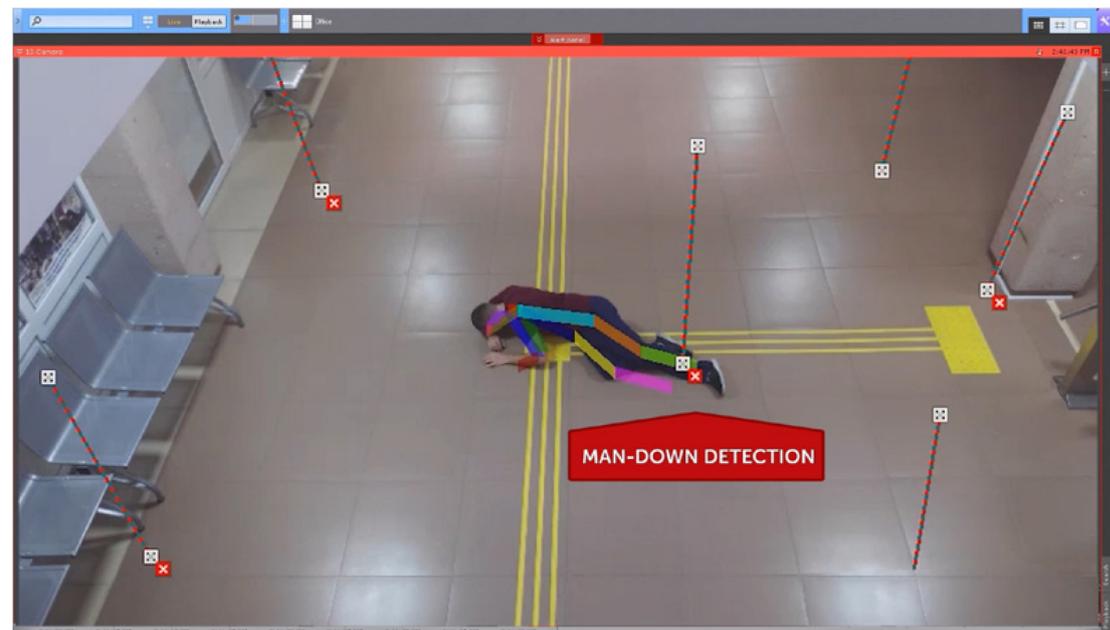
Human pose recognition

Behavior Analytics recognizes situations of risk early on by detecting specific human postures: for example, an individual lying down, a cashier's raised arms, or a person crouching by an ATM. Handrail holding detection helps in labor safety enforcement at production facilities, construction sites, working at height, etc.

Tracking and counting specific object types
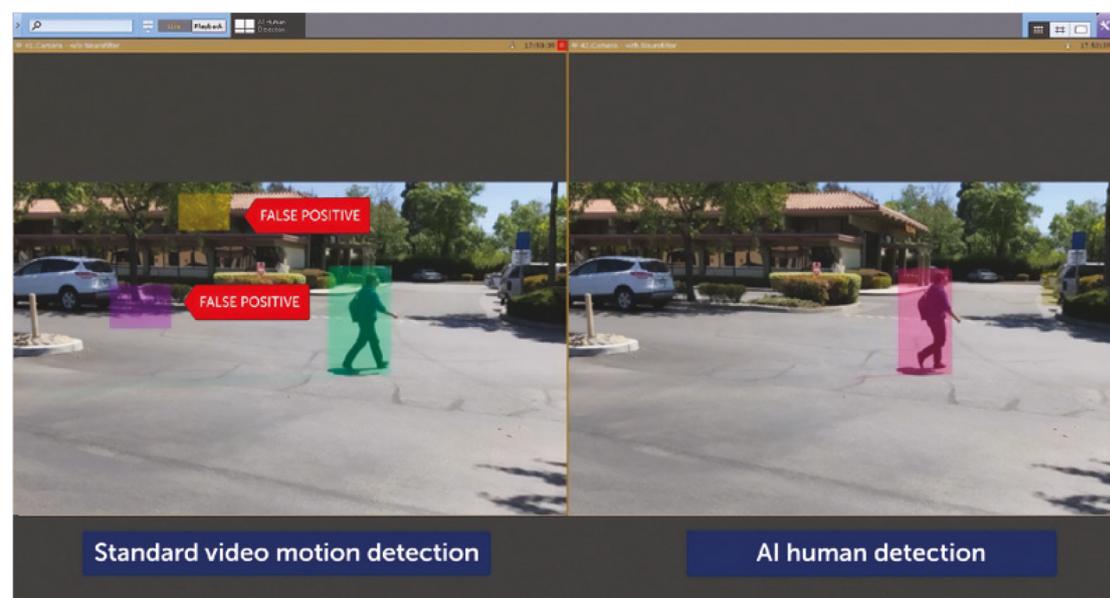
Neural networks trained to perform customer-specific tasks

When applied to the **Object Tracker**, the neural network accurately detects specific types of moving objects, e.g. humans or vehicles. This technology can filter out false alarms in busy scenes where multiple moving objects might interfere with the results. You can apply any conventional video analytics (loitering, line crossing, object appearance and disappearance, etc.) to the detected objects.

The **Neural Counter** counts moving or static objects of a specific type within the scene, e.g. cars in a parking lot, people on the sales floor, wares moving on a conveyor belt, etc. This is a valuable tool for non-security-related solutions.

**Neural networks can meet the needs of a particular facility by learning from video material obtained onsite.**

Smoke and fire detection

Intelligent fire and smoke video detection operates in areas where other types of sensors are ineffective, e.g. in open spaces. It provides early detection of fire hotspots which leads to a significant reduction in damage.

Number plate recognition
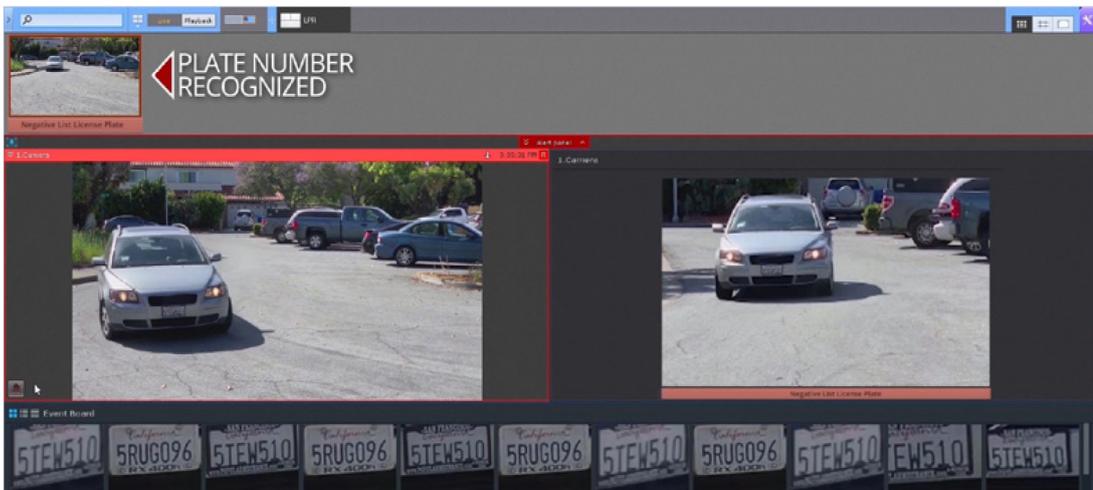
Configure automatic scenarios when a match is found. For instance, notify the operator when the recognized number is on the negative watchlist or open the barrier when the number is on the access list. ANPR runs on the server side or on supported LPR/ANPR cameras.

Hardware AI acceleration

Blue Eye **can perform hardware video decoding** on integrated Intel® GPUs and NVIDIA graphics cards. For AI acceleration, it supports graphics cards, dedicated AI accelerators, and embedded CPU capabilities:

- Integrated GPUs and AI acceleration technologies in Intel® CPUs.
- Intel® Movidius™ VPU.
- NVIDIA GeForce, Quadro, Tesla, etc.

Using hardware acceleration increases server performance, which helps reduce the cost of an intelligent video surveillance system and its maintenance.

SMART **FORENSIC SEARCH**

MomentQuest
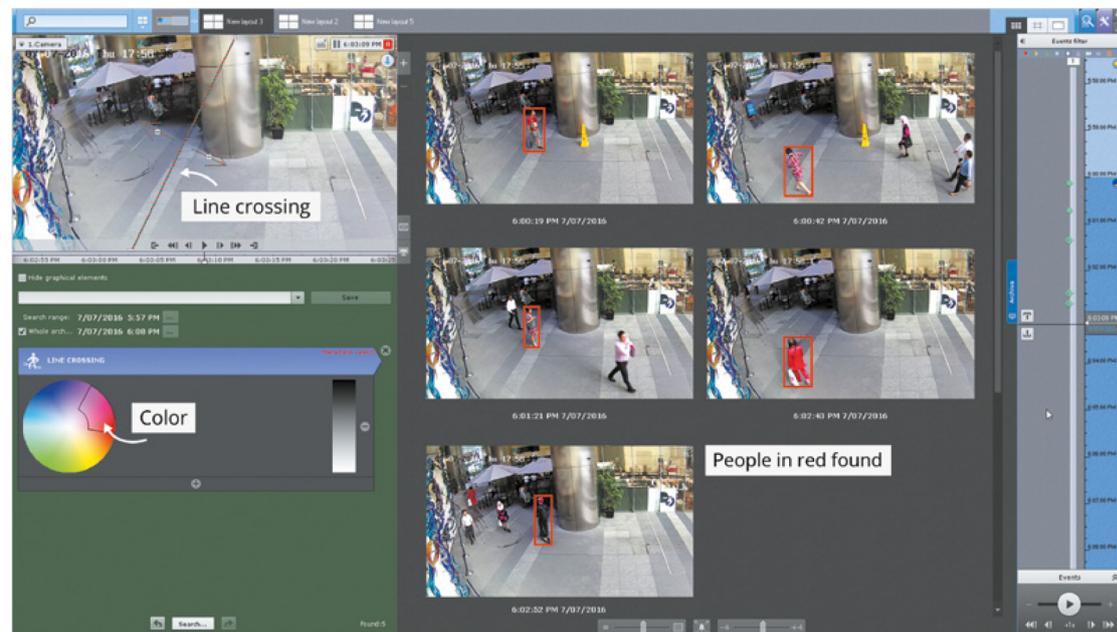
MomentQuest analyzes live video and generates a stream of metadata — a lean description of moving objects within the scene — which is recorded along with video stream. To retrieve recorded footage of an event of interest, just enter specific criteria: motion in area(s), crossing of a line, object color or size, etc. Within seconds the system displays thumbnails of relevant video episodes. Save a search query for later use on any camera.

Near-instant forensic search for recorded video

Face and number plate search
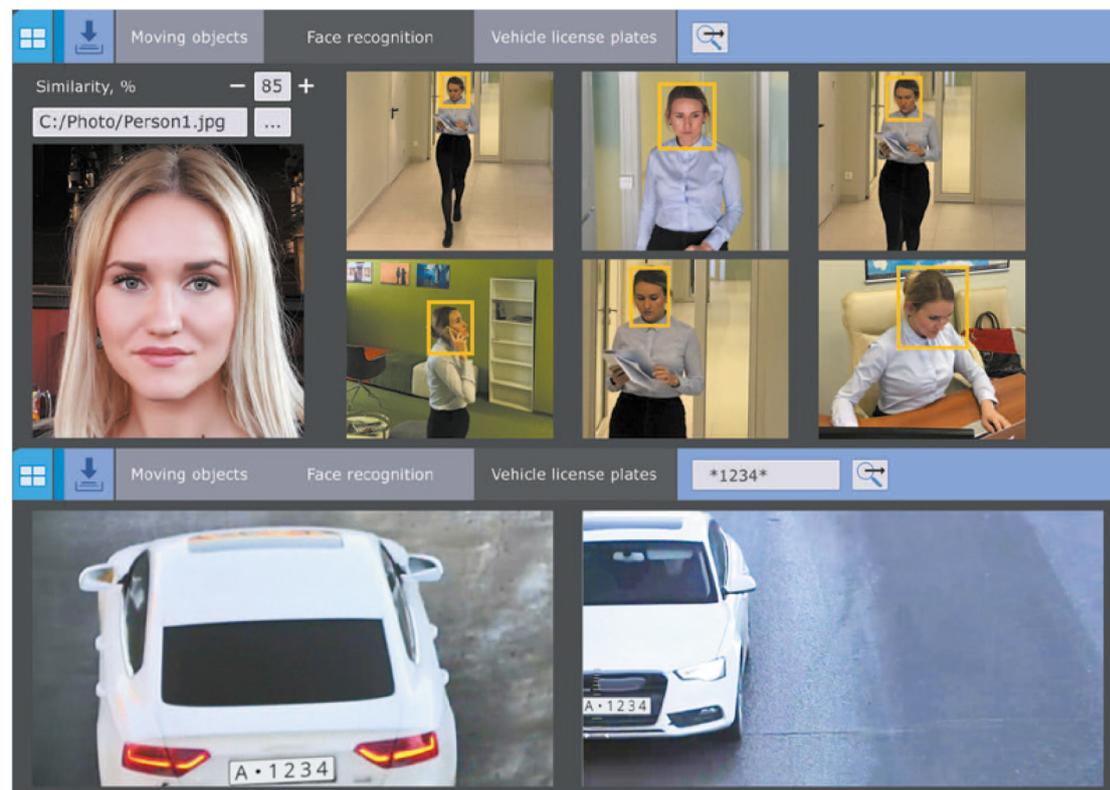
Quickly find people and vehicles of interest

Blue Eye captures and recognizes human faces and vehicle number plates. You can quickly check a person's photo or a vehicle number, full or partial, against the video footage. Multiple camera search is also possible.

Standard search options
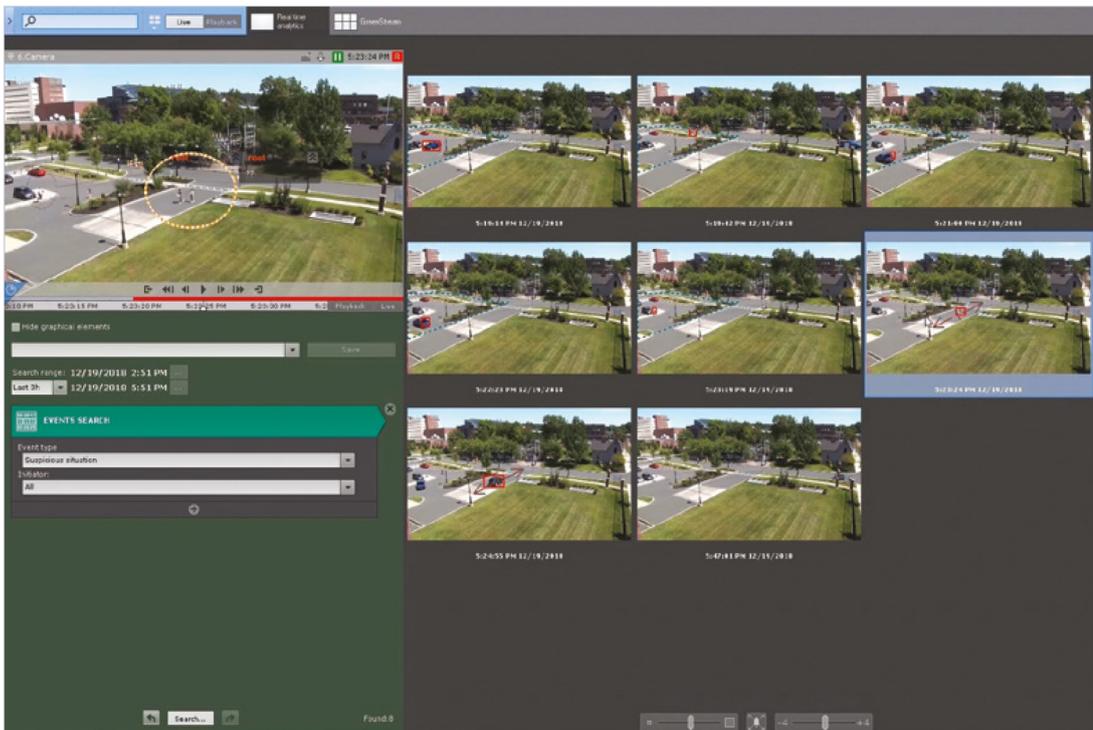
You can quickly find recorded events of interest using simple yet effective functions: search by alarm events, search by bookmarks, and search by time intervals (time slicing).

- Search by alarm events: filter alarms by type and initiator.
- Search by bookmarks: view all bookmarked events, or search by operators' comments.
- Time slicing: split the selected time interval into video fragments of the specified duration.

Offline Analytics

MomentQuest

Face Search

Number Plate Search

Fully functional forensic search in imported videos

Import any video footage and analyze it with forensic search. The following functions can be applied to imported videos:

- MomentQuest
- Face search
- Number plate search

BLUEWAVE RETAIL PACK

POS supervision

BlueEye receives data from cash registers and links it to video feeds. The receipt text is superimposed on the video or displayed in a separate pane. You can also use receipt data to quickly search for POS transaction videos in the recorded footage. This offers a full picture of what's happening at the checkout and helps reveal violations that are almost impossible to detect using conventional video surveillance.
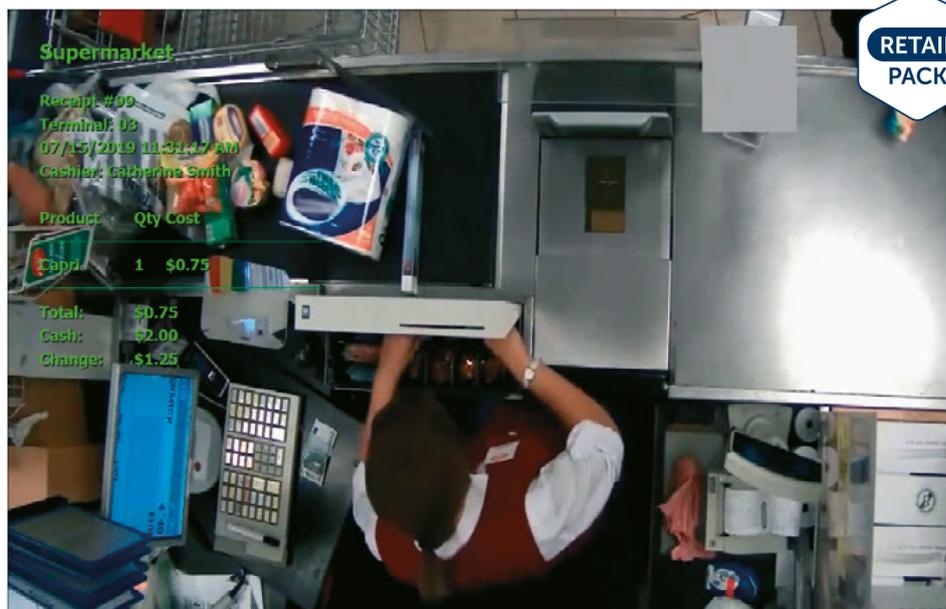
Queue management

The tool detects the number of people in queueing areas. Knowing actual customer numbers empowers you to manage human resources in both the short and long term.

Visitor counter

This tool counts customers entering or exiting the store or a specific area. The information collected may be used, along with sales data, to estimate your sales conversion rate and/or for market research.

Facial recognition

Configure an automatic scenario when a match is found. The positive watchlist may notify store personnel of regular customer arrivals, while the negative watchlist may indicate shoplifters.

Heat map

A heat map is a graphic representation of visitor activity (visitor numbers/time spent) in different store areas. The heat map can be generated from tracking data for all objects or objects specified with forensic search criteria.
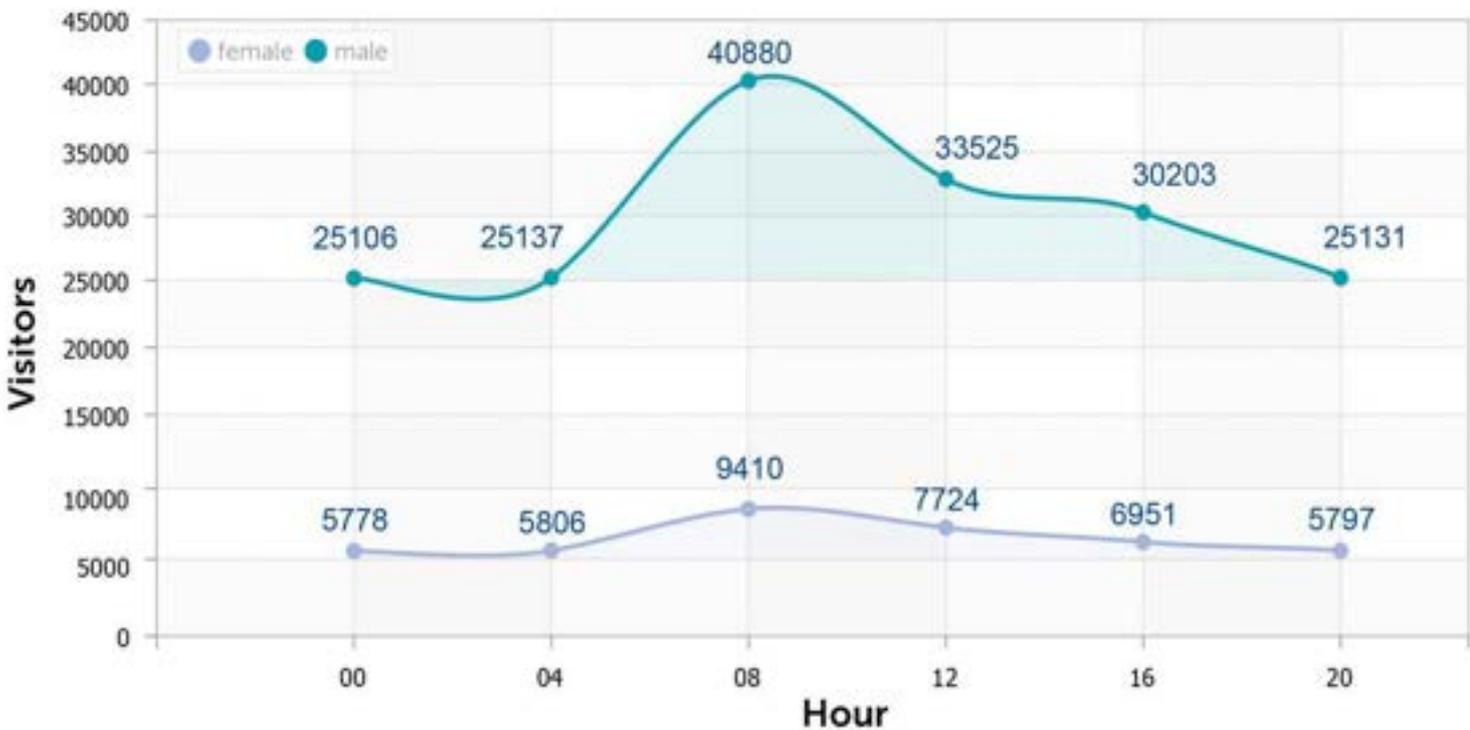

Age and gender guesstimation

The facial recognition tool guesstimates the age and gender of visitors. The saved data may be used for customer analysis, digital signage targeting, and other marketing purposes.

Online comprehensive reports

You can build custom reports based on visitor count, queue length, age and gender guesstimation, and data generated by Blue Eye video analytics tools. Blue Eye cloud service enables you to obtain reports from any store within your retail chain using the web interface.

LIVE VIDEO MODE

Interactive 3D map
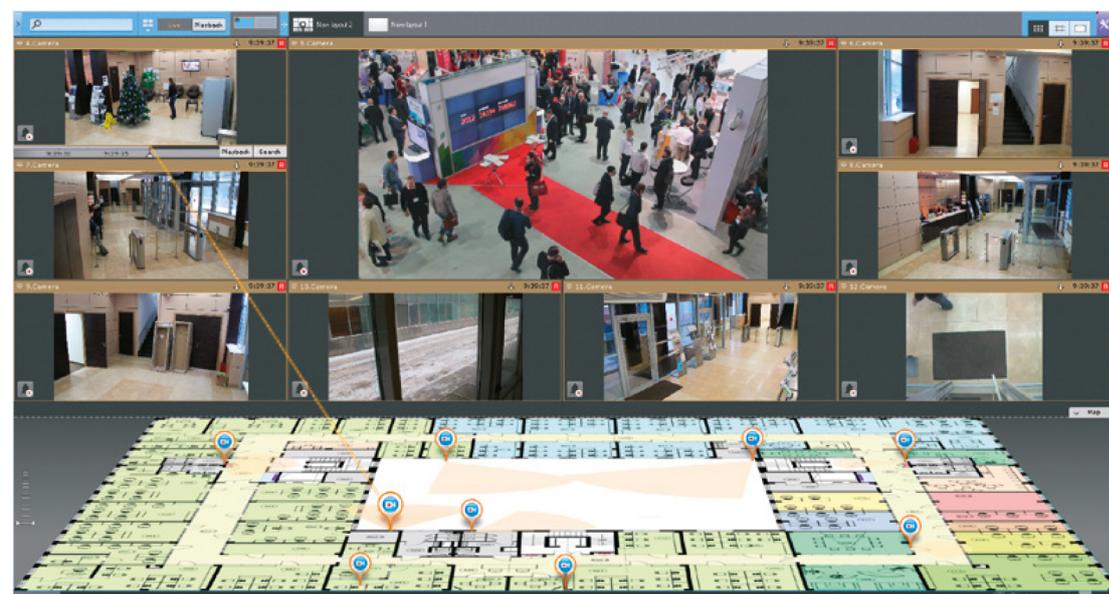
Show video
on a site map

Interactive 3D map superimposes camera locations on a site map and displays camera views in the same window. You can instantly pinpoint where a selected camera is located. Cameras in the current layout are color-coded by their status.

In **Immersion mode,** a semi-transparent video is superimposed on the map. This makes it easy to see where an object is located and where it is going.

Tag&Track


Follow an object of
interest, zone by zone

Tag&Track Lite

- All cameras are linked to a site map.
- Operator selects a moving object to track.
- If the object leaves the field of view of one camera Blue Eye predicts where it will appear next.
- The "destination" camera is highlighted in the current layout.
- Tag&Track Lite also works in Immersion and Archive mode.

Tag&Track Pro

- Get the "big picture" of everything happening at a site with fixed cameras.
- Obtain detailed imagery of the objects moving around it with PTZ cameras.
- A PTZ camera automatically tracks objects across multiple fixed cameras.
- Both sets of images can be recorded, which is important for event investigation.

FrameMerge
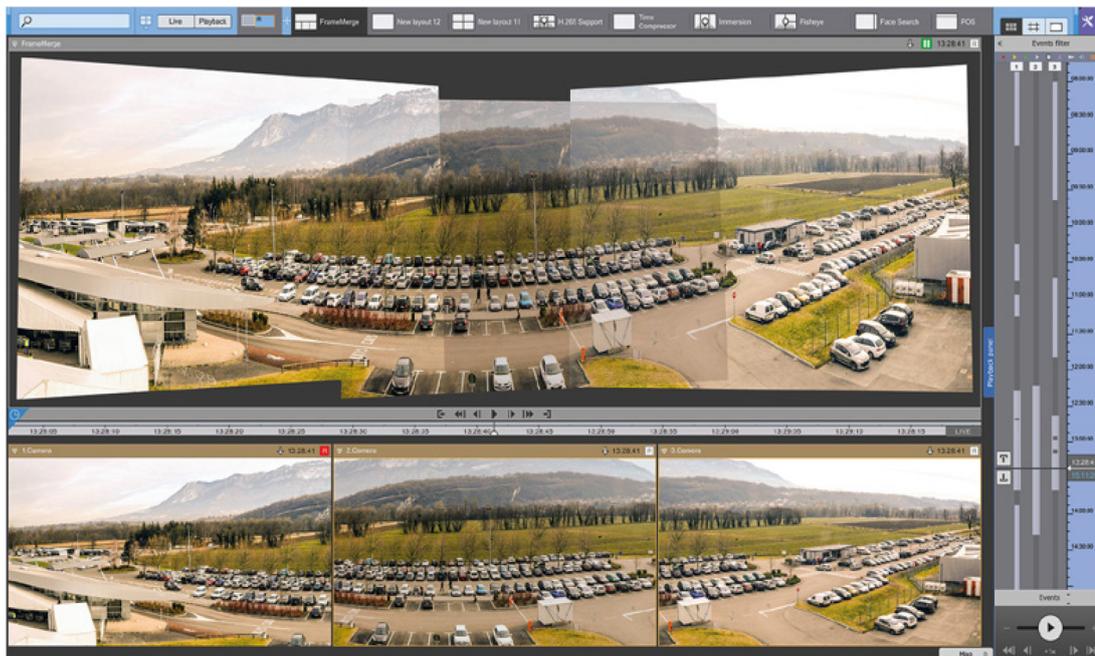
Effective control over extended areas

With FrameMerge, you can:

- combine a panoramic view from up to 3 camera feeds
- view the resulting video in Live or Archive mode
- export panoramic videos to standard .avi or .mkv files
- select and zoom into any part of the panoramic image in a linked Dialog Board

Autozoom
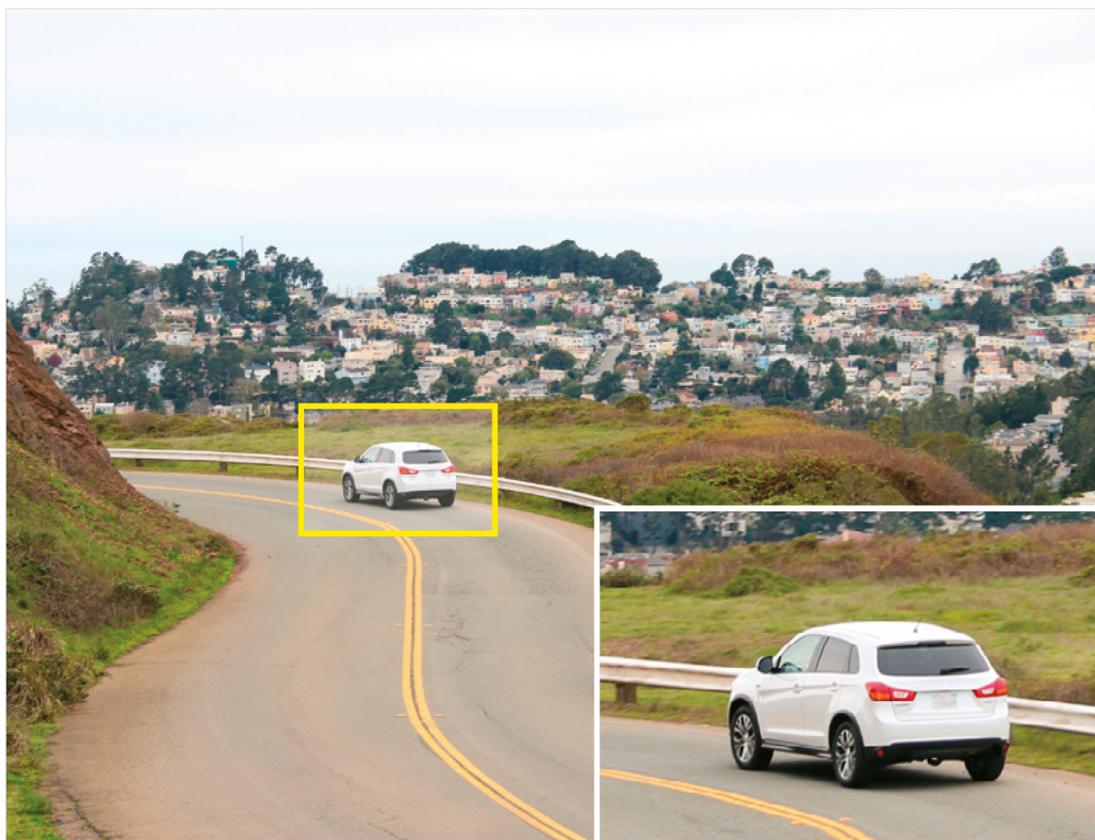
Track and zoom in on moving objects

Autozoom automatically follows objects in the field of view. Enlarges the area of the scene in which moving objects are located and follows the objects as they move. Works both with fixed cameras (via digital zoom) and fisheye cameras.

Image dewarping

Image correction (dewarping) is performed on the GPU of the client computer, without any additional burden on the CPU. Several normal, dewarped images with different aspect ratios are displayed on the client screen. Blue Eye supports standard fisheye-lens cameras as well as Immervision panomorph lenses.

Support for fisheye cameras

Video wall management
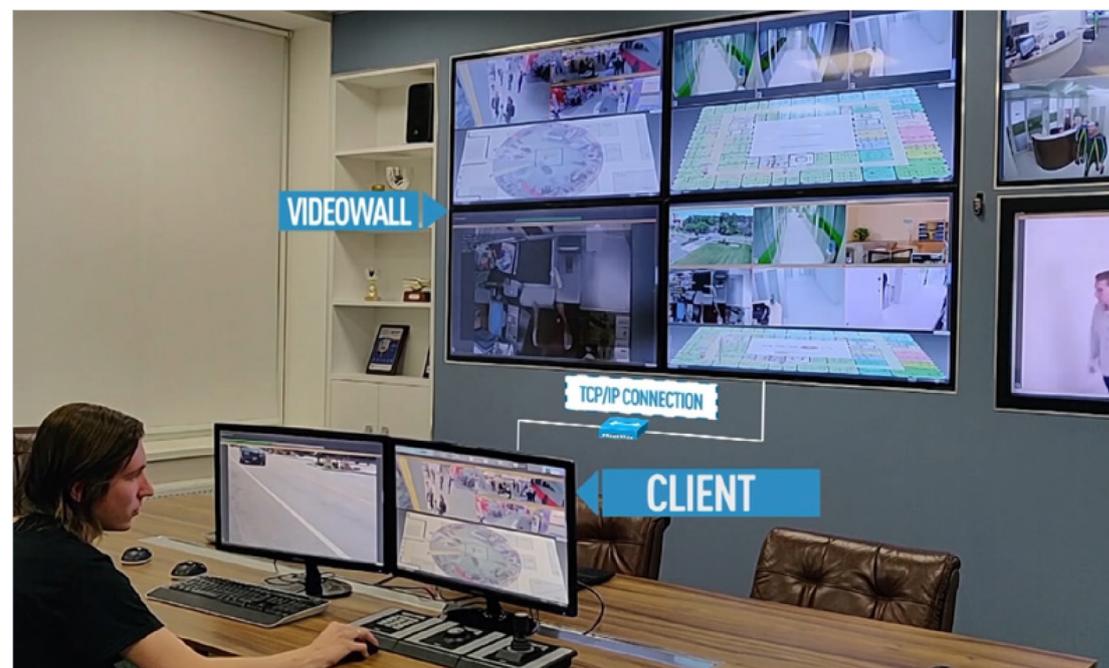
Incredibly useful for monitoring hubs

Effective management of video walls and layouts at large distributed sites:

- Send any available layout to any client computer within the system.
- Draw operator's attention to an event captured by one of the cameras in the layout.
- Show an event to all operators by sending the relevant layout to a video wall.
- Designate any client computer or several computers as a video wall.
- Manage it from any remote client connected to any server within the domain.

VIDEO FOOTAGE
MANAGEMENT

Support for edge storage

View and sync video on SD cards

Blue Eye supports on-camera (edge) storage. On-camera storage is automatically detected by Blue Eye when the relevant camera is added to the system configuration. The viewing client can display video recorded to SD cards. You can set up continuous replication of video, audio, and metadata from edge storage.

Archive replication via Interoperability Driver

Centralized storage for vehicle-based NVRs

Video footage can be synced between independent Blue Eye systems via the Interoperability Driver. Replication starts automatically when the source server is connected to the destination server. This can be used, for example, to centralize video storage of Blue Eye-based NVRs installed on vehicles.

Export functions

Enhanced export features for recorded video

- Instant export of still frames and videos from Live Video or Archive mode.
- Export to password-protected .zip file.
- Simultaneous export of recorded video from multiple cameras.
- Manage the size of exported video files: if the file size exceeds the value specified, the video is split into several files.
- Pruning (frame dropping) of exported video.
- Privacy masking: before exporting, select areas to block with solid color in the exported video sequence or image.
- Export of image zones (including dewarped fisheye frames).
- Export of user comments to recorded video.

Privacy settings

Hide objects or faces from those in specified user roles

Privacy settings are essential for compliance with GDPR (The EU General Data Protection Regulation). You can mask any static or moving objects in recorded video from those in specified user roles. You can also hide faces using the face detection tool. The objects or faces will be blocked while viewing and searching the archive, as well as on exported video.

REMOTE ACCESS

Cross-System Client

Manage independent systems in the same interface

Cross-System Client is useful at geographically distributed sites or multiple-location chains, such as retail stores or gas stations. You can configure and operate remote surveillance systems on a single client workstation:

- Connect a single client workstation to multiple surveillance servers on different domains.

- All settings and cameras associated with these servers are consolidated in a single convenient view.

- Operators can access multiple independent surveillance systems simultaneously.

Web Client
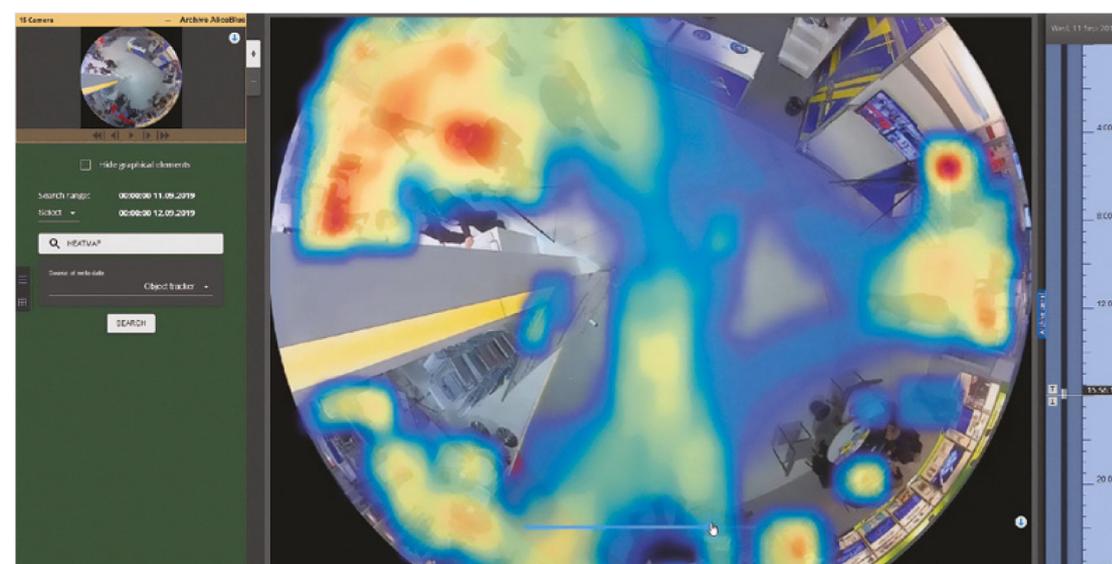
Video monitoring in your browser

Connects securely over the HTTPS protocol.
Supports H.264, H.265, MJPEG, and multi-streaming cameras.

You can:

- Configure various camera layouts.

- Search recorded video by faces, plate numbers, events, criteria (MomentQuest), and time intervals (time slicing).

- View motion heat maps.

- View alarm events.

- Work with bookmarks.

- Control PTZ cameras.

- Apply digital zoom.

- Export still frames and videos.

- View camera and video archive statistics.

PERFORMANCE & RESOURCE OPTIMIZATION

GreenStream

Basic Stream

12 cams Full HD

Full HD

12 VS **49**

GREENSTREAM High-Quality Video Stream Low-Quality Video Stream

16 cams 480 x 270 **16 cams** 480 x 270 **16 cams** 480 x 270 **1 camera** Full HD

1 High-Quality Video Stream **2** Low-Quality Video Stream

Save network bandwidth and client CPU resources with adaptive video streaming

GreenStream automatically selects a camera stream matching the current resolution of the video on the client screen. For instance:

- On a 1920 x 1080 screen with a 4 x 4 camera layout, each camera screen is only 480 x 270.

- GreenStream eliminates the need to transmit full resolution streams from all cameras.

Metadata from IP devices

Metadata is a lean description of moving objects within the scene. It is used for real-time video analysis or forensic search. Metadata is generated on cameras with embedded object trackers. — No need to decompress video on the server side. CPU burden on the video server is significantly reduced. — Server can handle more video streams.

Use Edge Analytics, save server computing power

Client-side GPU acceleration

CPU 82% CPU 32%

WITHOUT GPU ACCELERATION **WITH GPU ACCELERATION**

Reduce hardware expenses

- Hardware video decoding on Intel® GPUs and NVIDIA graphics cards.

- Reduced client CPU load, especially when decoding H.265 video feeds.

- Smooth playback of dozens of Full HD videos.

- Using client computers with lower CPU performance specs.

- Building large video walls based on just a few client computers.

UDP and multicasting

Blue Eye features a whole range of tools for reducing bandwidth consumption and making security systems more efficient. Live video can be streamed from a server to remote computers via UDP, multicasting is supported as well. **Multicasting frees up network capacity and optimizes resource usage.**

Frees up network bandwidth

& INTEGRATION AUTOMATION

External event support

### Quick and simple integration with third-party systems

Connect to external devices and systems: access control devices, security control panels, third-party software, and more. Blue Eye can:

- receive external events
- save them into its database
- cross-reference events with recorded video
- search events by a character string
- display event data in real time in a separate pane
- show events as captions on top of video

Macros

Event response wizard

Blue Eye supports flexible configuration of complex system response to any specified set of events. Use IF...THEN logic to create a macro that automatically performs an unlimited number of actions in the system. Macros allow programming reactions to particular events at system and device level.
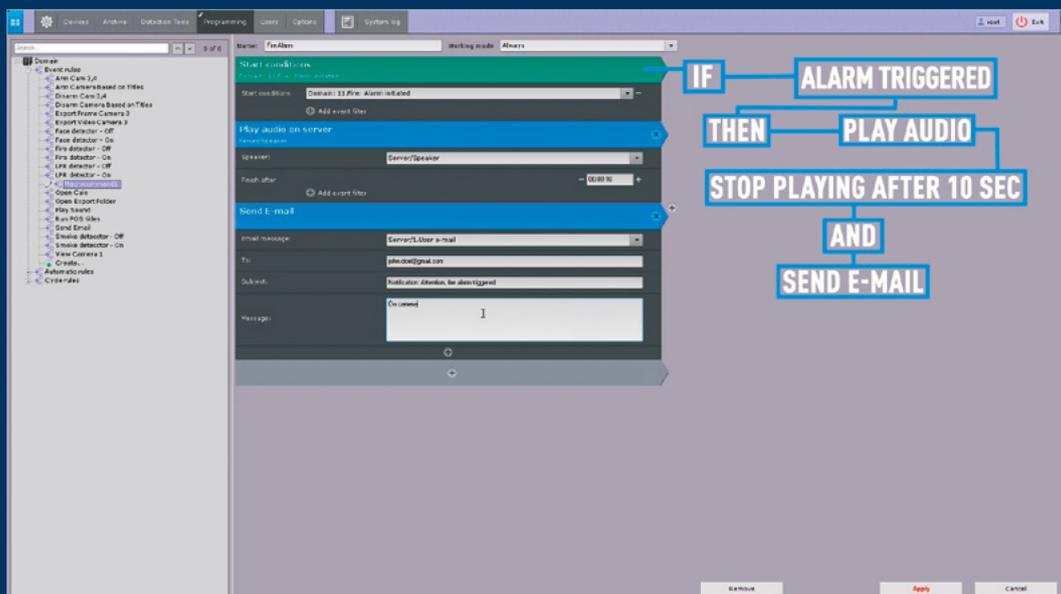
FAULT TOLERANCE & ADMINISTRATION

Failover

Maximum VMS redundancy
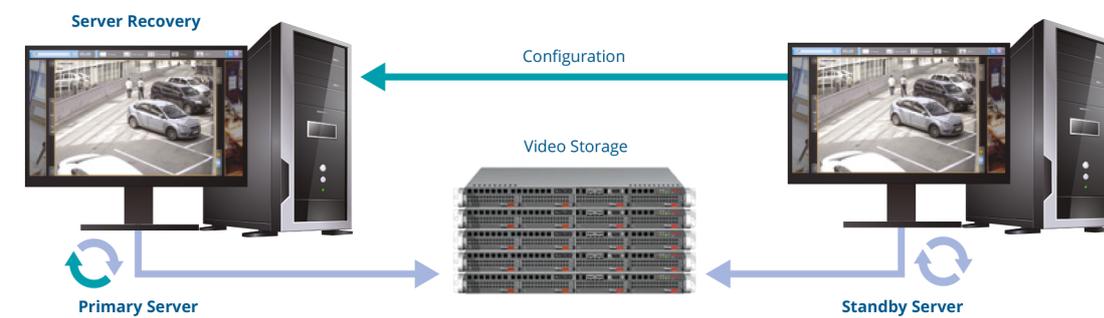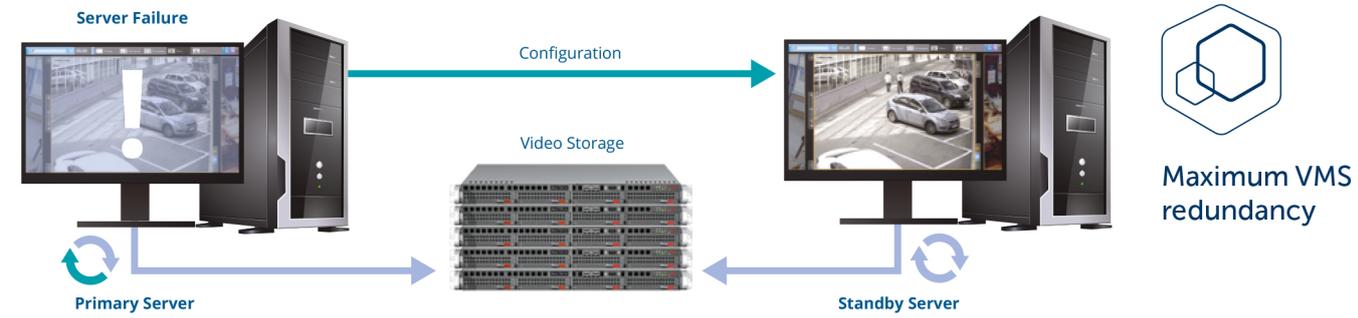
Failover quickly switches to a standby server when communication with the primary server is lost. The standby server automatically takes over all functions from the offline or malfunctioning server. Live video streaming and recording resume immediately. You can suspend any server in the cluster with no system downtime, e.g. for maintenance.

System update
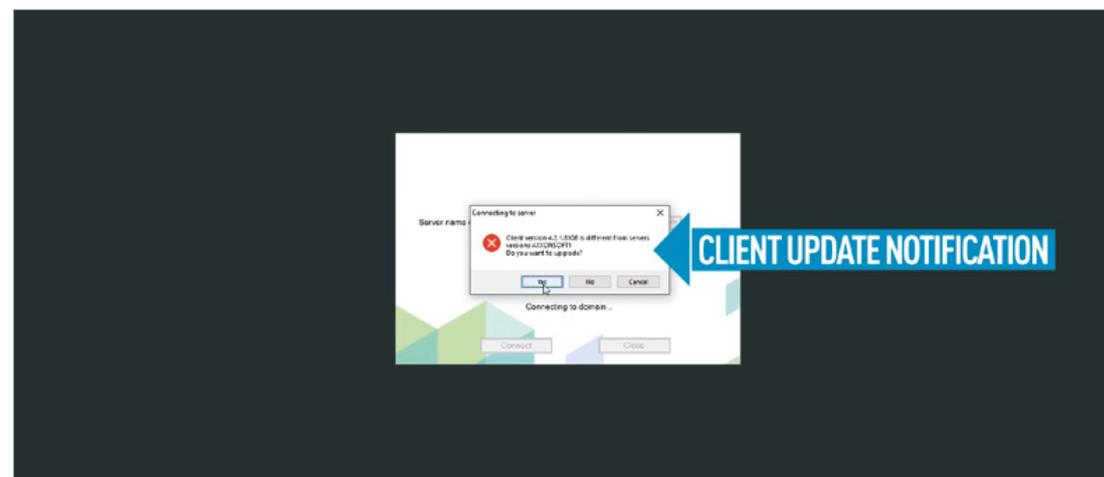
Your VMS is always up-to-date

Silent servers update

You can update all servers within a cluster in silent mode. To do this, select the required distribution in the .zip archive or specify a web link. Servers can be updated simultaneously or in turn, which enables continuous system operation during updates.

Automatic client update

When your Blue Eye client connects to the server with a newer version of the Blue Eye VMS, you will be prompted to update your client software. After confirmation, the update process is performed automatically.

Security policy
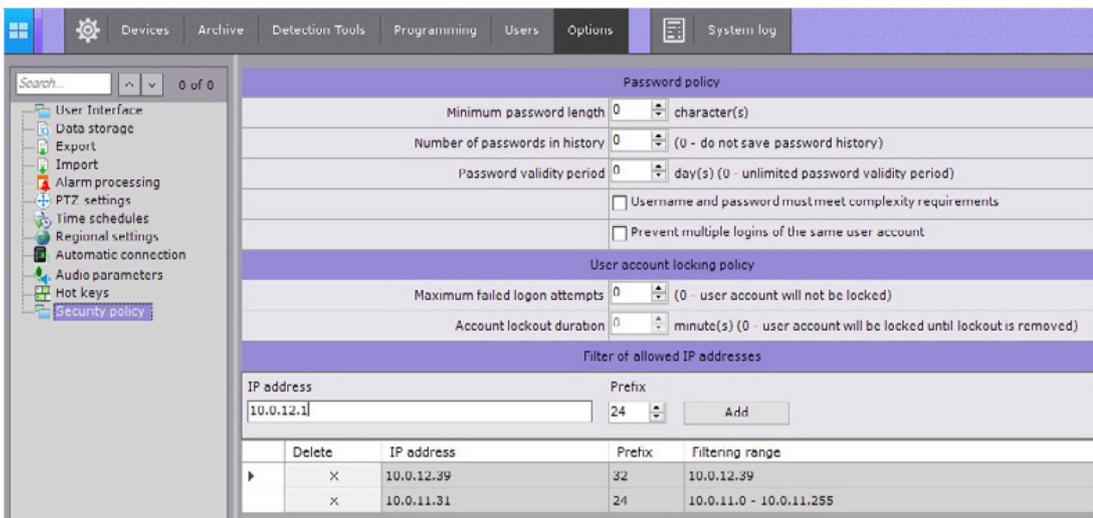
Protect your VMS from unauthorized access

Set up:

- The minimum password length.

- A password validity period.

- The number of passwords in history.

- Password strength control.

- Prevention of multiple simultaneous sessions of the same user.

- Account lockout time/number of failed login attempts.

- A range of permissible IP addresses for client computers.

- Access to the server with administrator confirmation.

Each user-related event includes the user's IP address. When accessing the server, the MAC address of the client computer is registered in the system event log. The Export Start event includes the username.

LDAP authentication
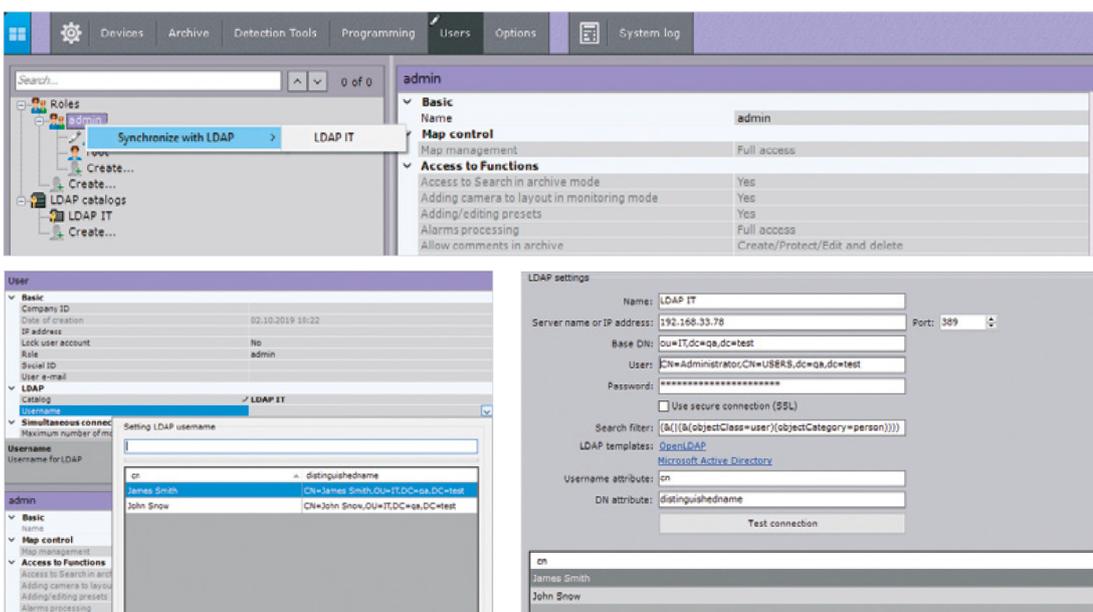
Integrate with existing enterprise network services

This feature makes it possible to **deduplicate user administration tasks** for sysadmins at large companies. Operators can log in to a surveillance system by entering their domain credentials. The sysadmin connects LDAP directory to Blue Eye and selects which users to add. He can also associate VMS access rights with corporate directory groups. When a user profile is deleted on the LDAP server, it can be automatically deleted in Blue Eye.

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