

Intelligent Video Management Software

BEHAVIOR
ANALYTICS



MOMENT



DEEP
LEARNING
ANALYTICS



TRACKING
SPECIFIC
OBJECT

25 Years of Innovation in Video Surveillance & Security

FIRST
VIDEO ANALYTICS
PRODUCT



1996

MOTION
WAVELET
CODEC



1998

INTELLECT PSIM
FIRST SAFE CITY
PROJECT



2003

STARTING
AXXON NEXT VMS
DEVELOPMENT



2008

FORENSIC SEARCH
TECHNOLOGIES



2011

AI ANALYTICS



2017

CLOUD

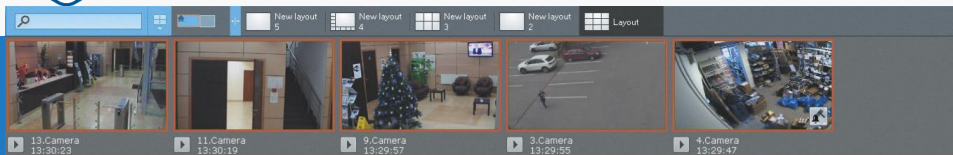


2021



Streamlined User Interface

Quick to configure
Easy to manage



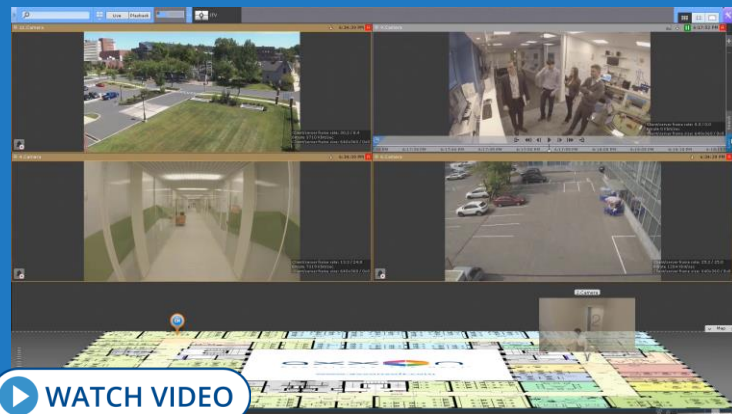
ALARMS PANEL:

- Video thumbnails of recent alarms that require operator attention
- A separate list of already processed alarms

AUTO-DISCOVERY WIZARD:

- Better experience with mass addition and configuration of cameras
- Easier creation and configuration of video archives

- LAYOUTS SCREEN – functional and attractively designed
- INFORMATION BOARDS – display events, system information, statistics, and web pages

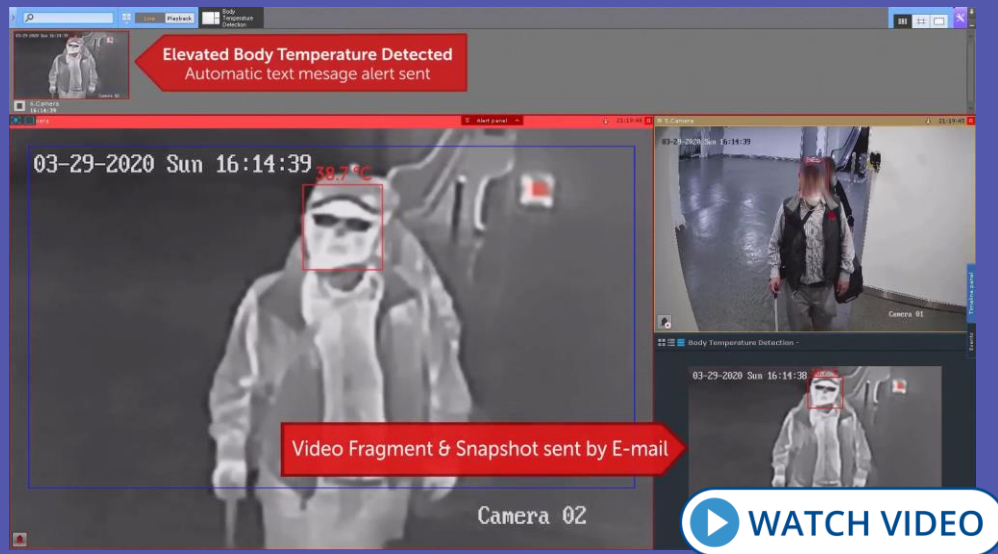


axxonsoft
EXPERIENCE THE NEXT[®]



Pandemic Control Solutions

#STOPCOVID19



- Non-contact body temperature measurement with fever screening cameras.
- Social distancing violation detection.
- Face mask presence/absence detection.



AI Behavior Analytics

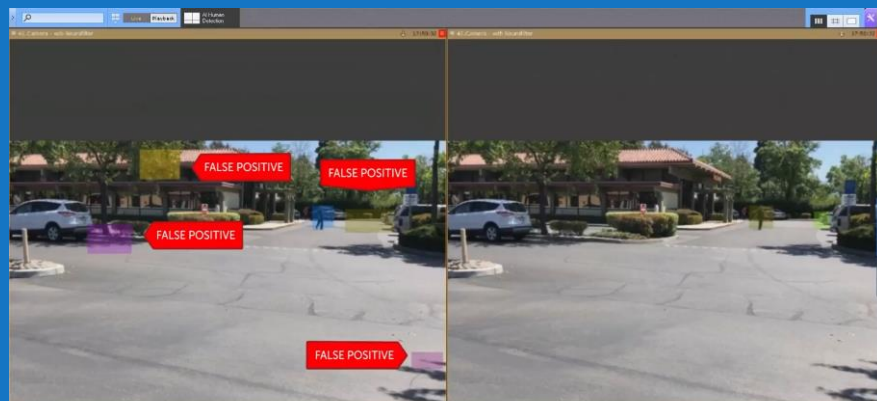
Posture detection



Behavior Analytics recognizes situations of risk early on by detecting specific human postures: for example, a cashier's raised arms, or a person crouching by an ATM. People counter tracks the total number of individuals within a specified area and notifies staff upon reaching/exceeding the pre-defined limit. Handrail holding detection helps in labor safety enforcement at production facilities, construction sites, working at height, etc.



AI Human Detection



Standard video motion detection



AI human detection

False alarms reduction



Thermal camera object tracking



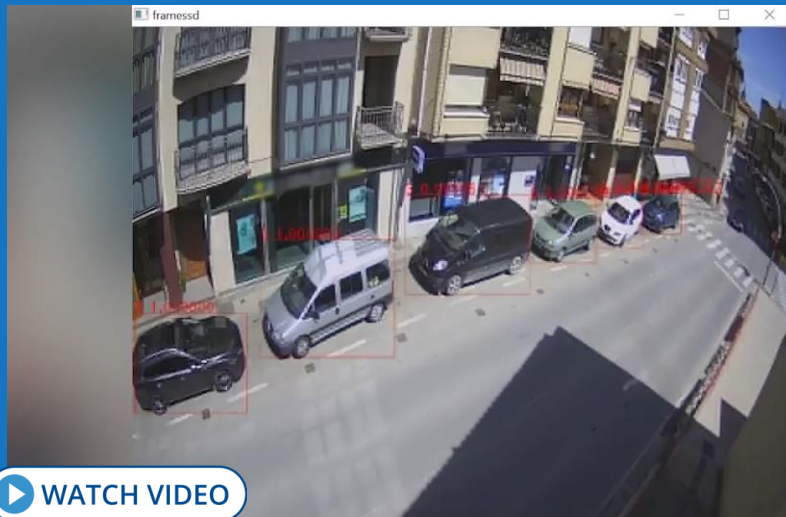
AI Object Tracker





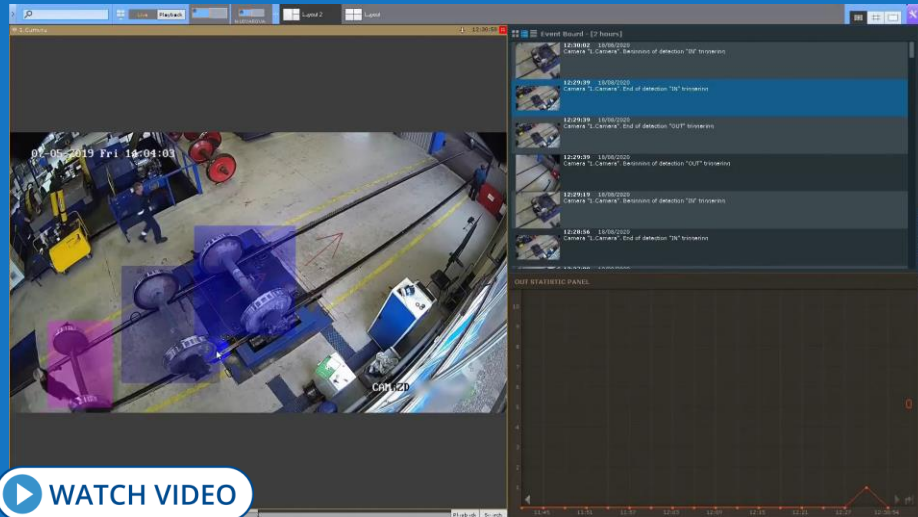
AI Object Detection

AI Object Tracker



[WATCH VIDEO](#)

Parking time control



[WATCH VIDEO](#)

Wheelset maintenance control



AI Object Detection/Counting



Railway traffic statistics collection

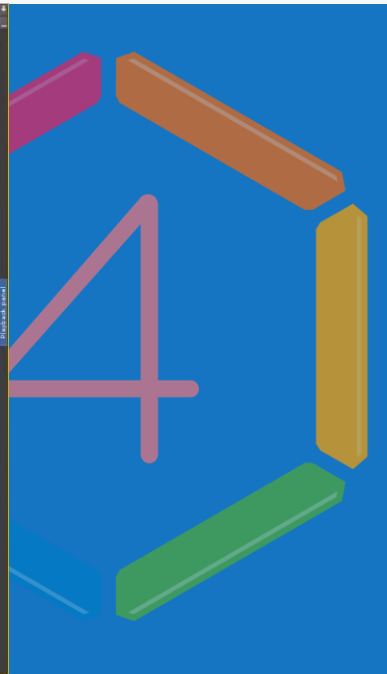


Animal counter



AI Protective Gear Use Control

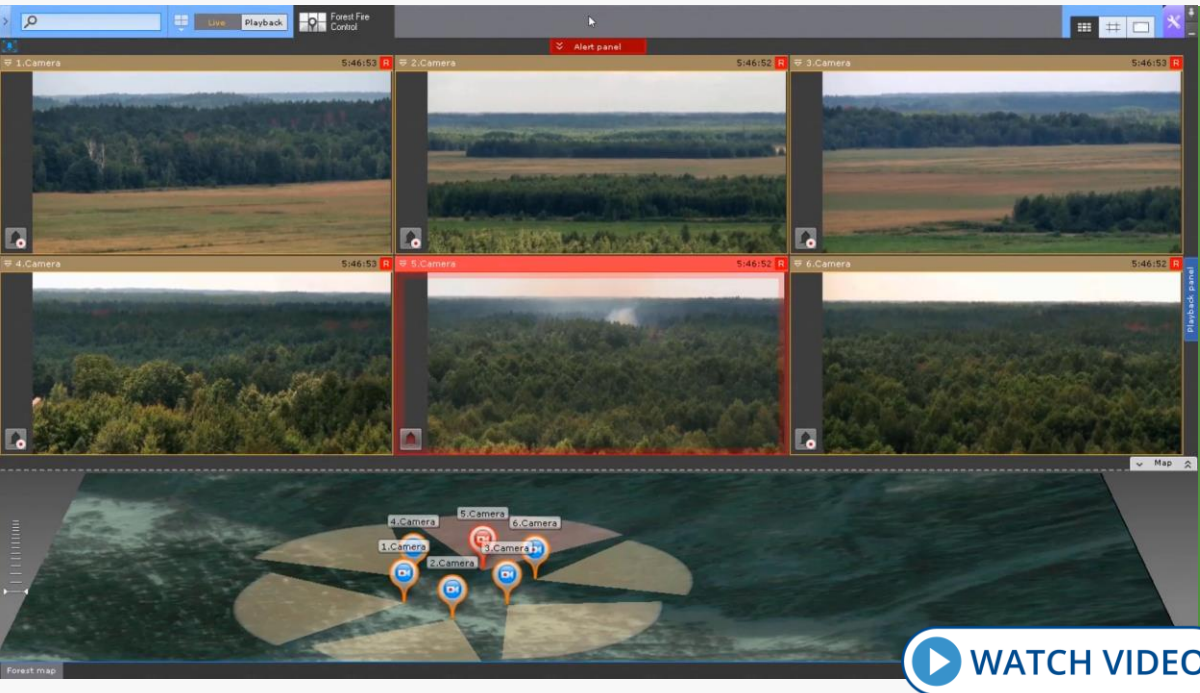
Detect situations
of risk early on





AI Fire/Smoke Detection

Detect fire early in open and large enclosed spaces



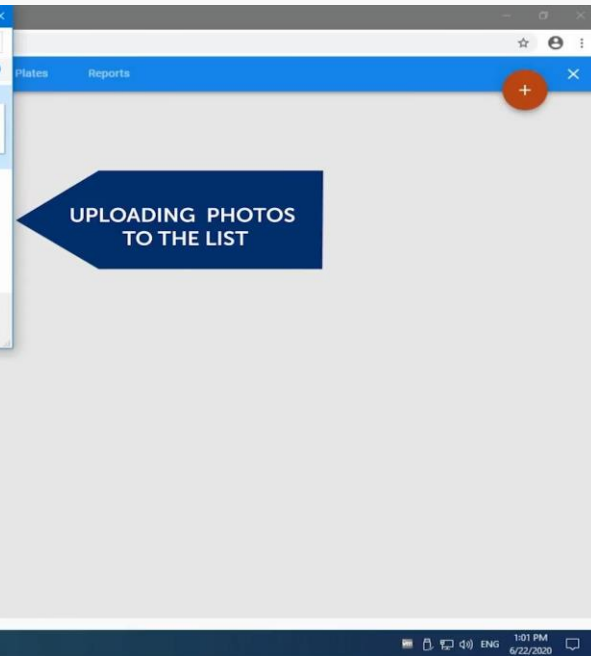
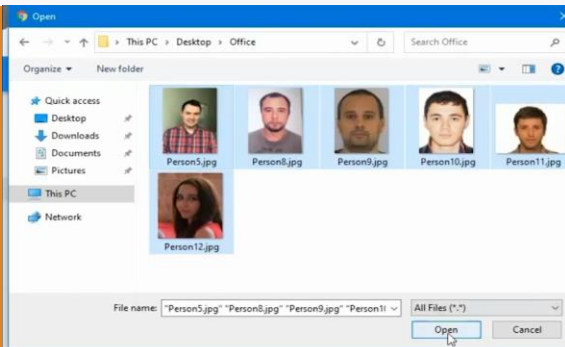
Intelligent fire and smoke video detection operates in areas where other types of sensors are ineffective, e.g., in open spaces. It provides early detection of fire hotspots which leads to a significant reduction in damage.



Facial Recognition

Positive/negative watchlists support

Use AxxonNet cloud service to create watchlists and synchronize them across all servers connected to your AxxonNet account. Upon detecting a face, a list-specific response scenario is launched. You can use this option to create lists of VIP and/or unwanted visitors and automatically notify the retail or security staff of their entry.



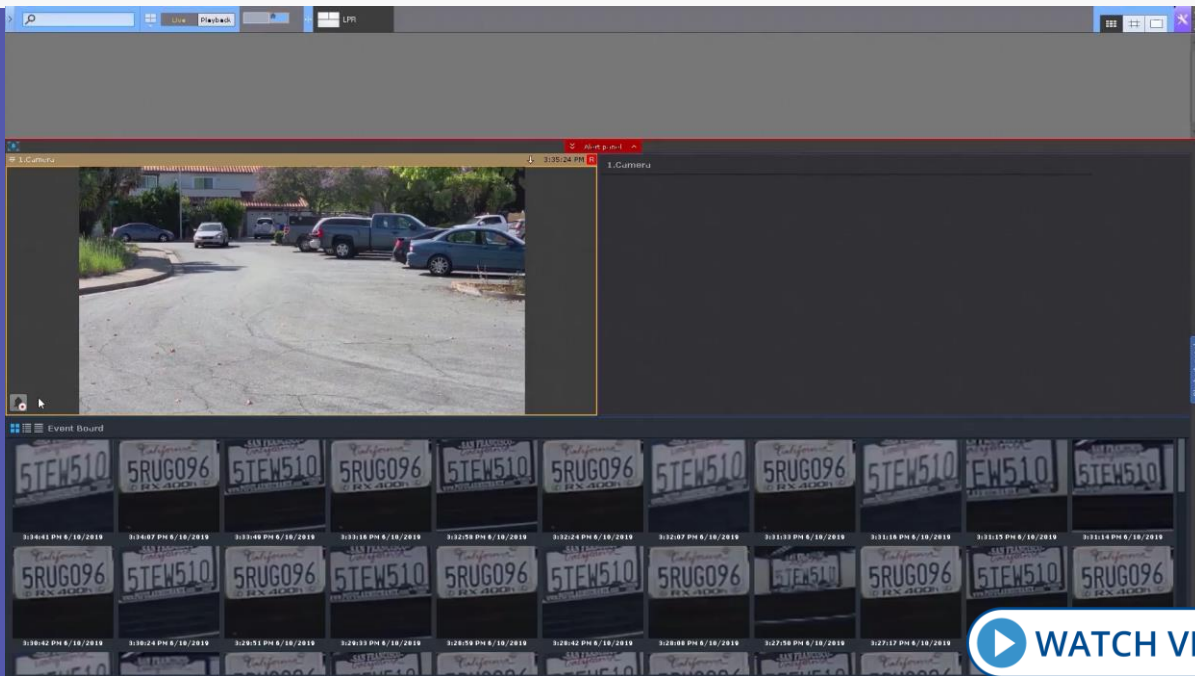
[WATCH VIDEO](#)



License Plate Recognition



Positive/negative
watchlists support



Create watchlists using AxxonNet cloud service.

Configure automatic scenarios when a match is found. For instance, notify the operator if the recognized number is on the negative watchlist.

ANPR runs on the server side or on supported LPR/ANPR cameras.





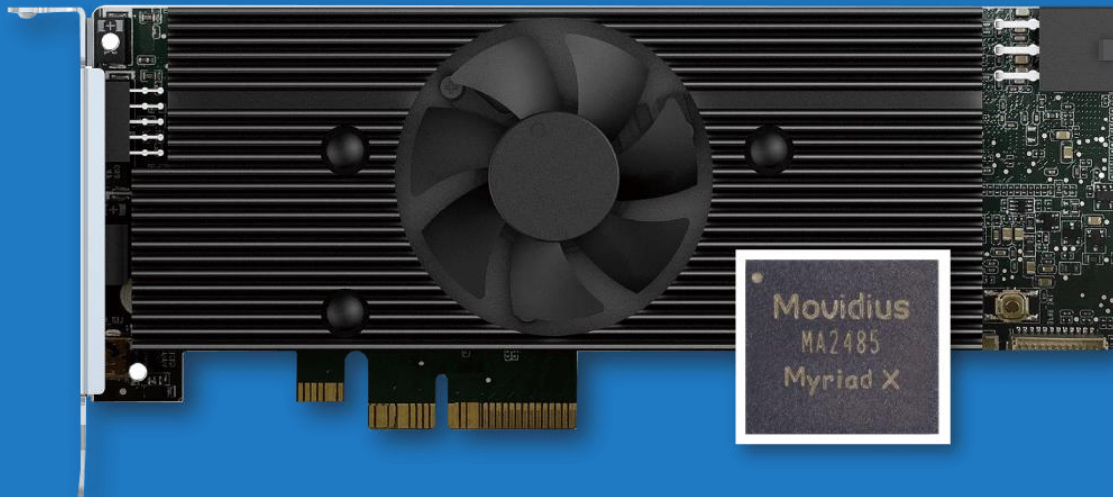
Intel® Distribution of OpenVINO™ Toolkit

Increase AI performance

OpenVINO™ toolkit extends AxxonSoft AI analytics workloads across Intel® hardware (including accelerators) and maximizes performance.

Axxon Next supports the latest Intel® Vision Accelerator Design products with Intel® Movidius™ VPU:

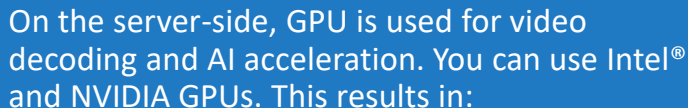
- Mustang-V100-MX8
- Neural Compute Stick 2



IoT Solutions
Alliance

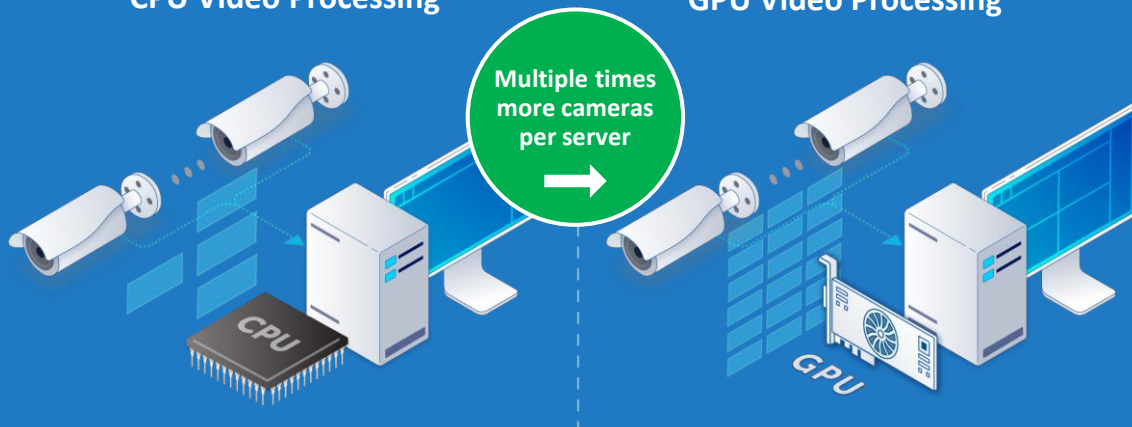


Cost-effective systems with video analytics



- Reduced footprint on the server CPU performance when video analytics is applied.
- Servers can handle more concurrent video streams at HD resolution and even higher.
- More cameras can be connected to a single server, reducing hardware expenses and support issues.

GPU Video Processing





Client-Side GPU Acceleration

Display more cameras on the client's screen

You can use Intel® Quick Sync Video technology or NVIDIA NVDEC chips for client-side GPU video decoding. This results in:

- Reduced footprint on the client CPU performance, especially when decoding H.265 video feeds.
- Dramatically improved decoding times, which is essential for smooth playback.
- More cameras can be displayed on the client's screen, or you can use client computers with lower performance specs.

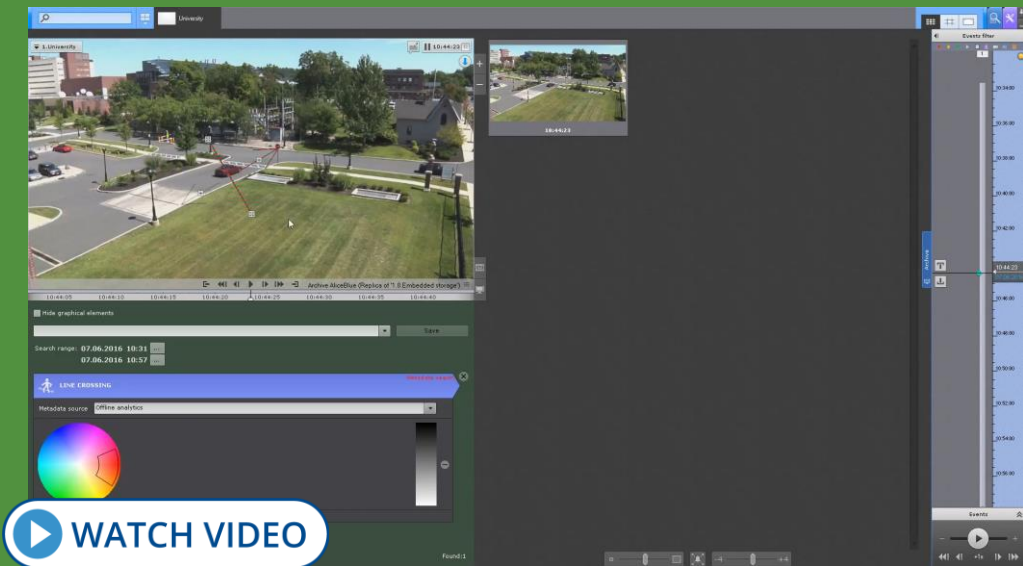




MomentQuest Smart Search

Near-instant forensic
search for recorded video

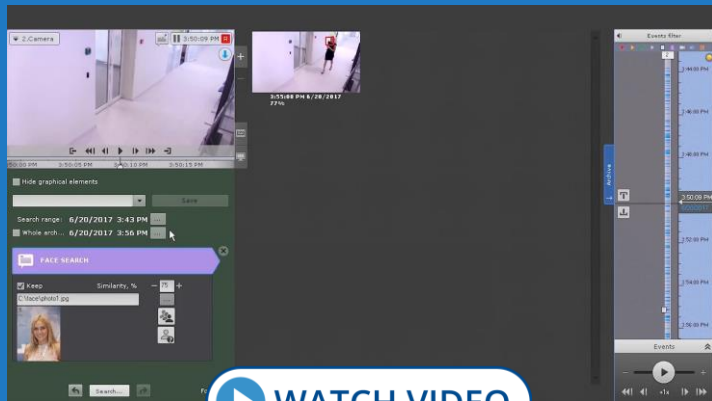
MomentQuest analyzes live video and generates a stream of metadata – a lean description of moving objects within the scene – which is recorded along with video stream. To retrieve recorded footage of an event of interest, just enter specific criteria: motion in area(s), crossing of a line, object color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





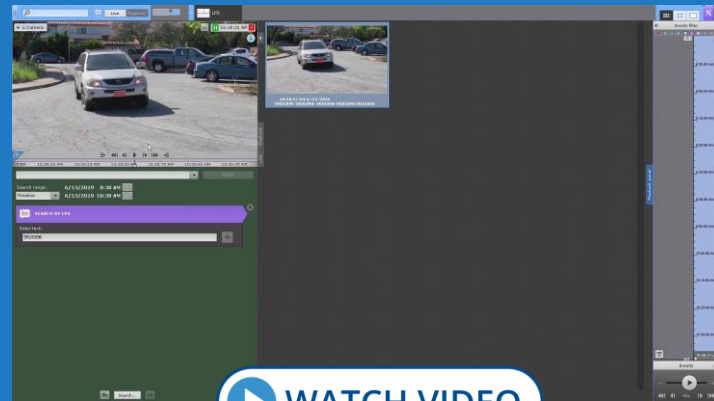
Face and License Plate Search

Quickly find people and vehicles of interest



[WATCH VIDEO](#)

Axxon Next 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.

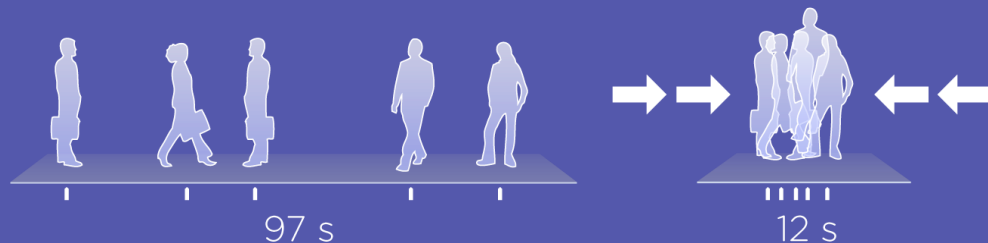


[WATCH VIDEO](#)



TimeCompressor

Motion events
summary



TimeCompressor captures objects in motion at different times and displays them in a condensed motion events summary. The tool is a viable alternative to the painstaking process of scrolling through hours of footage. You can also view search results (MomentQuest, face and number plate search) in TimeCompressor mode.





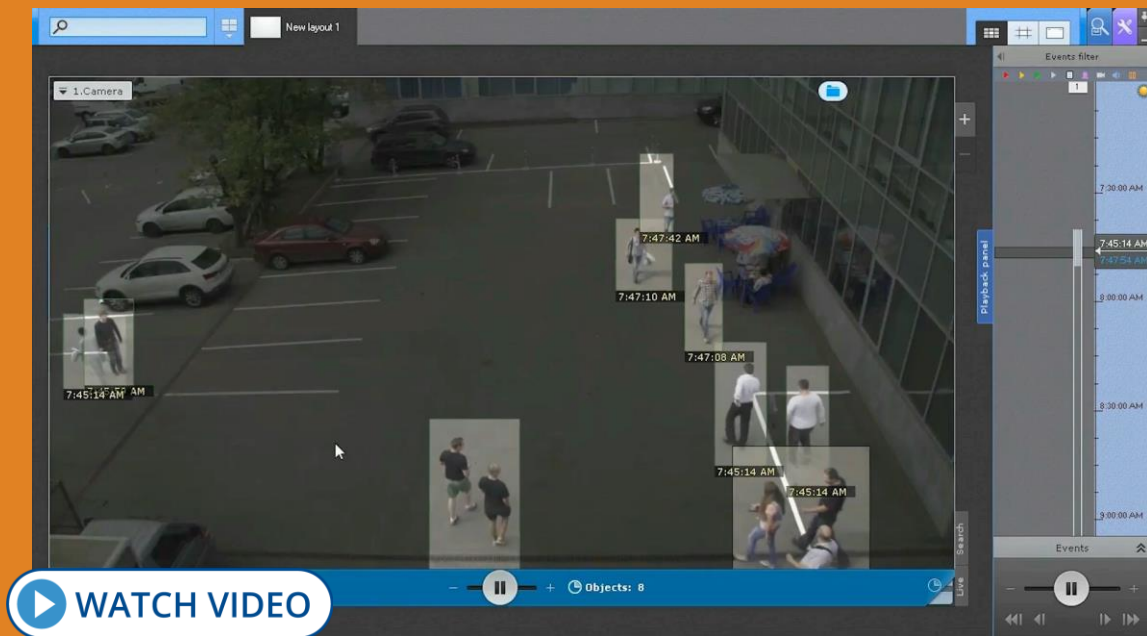
Offline Analytics

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
- TimeCompressor
- Face search
- Number plate search



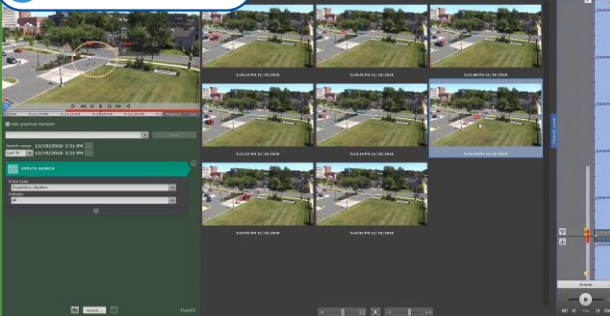


Other Search Options

Simple yet effective



WATCH VIDEO



Search by alarm events



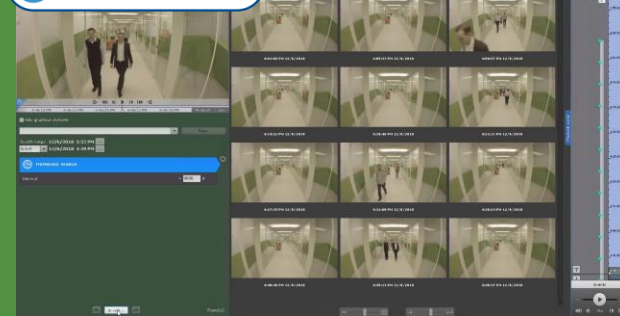
WATCH VIDEO



Search
by bookmarks



WATCH VIDEO

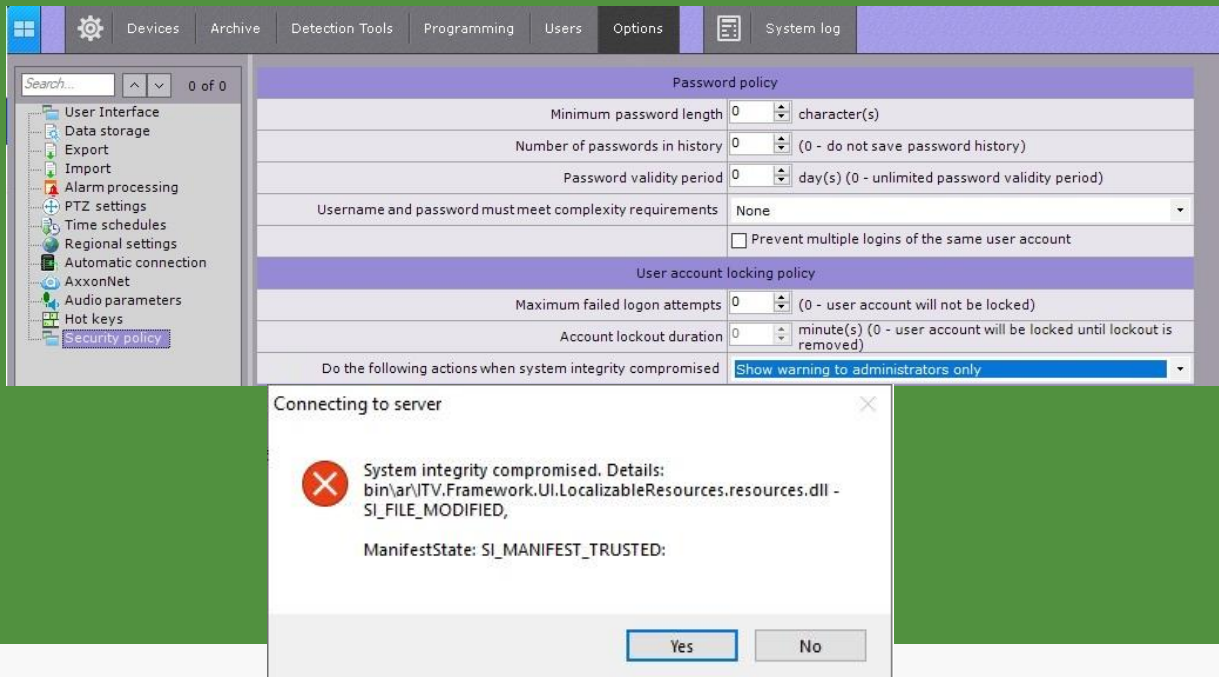


Search by time intervals
(TimeSlice)



System Integrity Check

Prevent unauthorized interference with your VMS



When you start servers and clients, Axxon Next automatically checks the digital signature for all executable files. If all files are in place and match their signatures, a “System integrity check passed successfully” record appears in the system log.

Otherwise, you can set the system to perform one of the pre-configured actions:

- Show warning to administrators.
- Show warning to all users.
- Block users without admin rights.
- Stop non-vital services.



Security Policy

Protect your VMS from unauthorized access

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. You can set a range of permissible IP addresses for the client computers; users can also access the server with administrator confirmation.

Configure the user security policy:

- Set the minimum password length.
- Store password history.
- Set a password expiry date.
- Set the required password strength.
- Prevent multiple simultaneous sessions.
- Block the user and specify the ban time/number of failed login attempts.

The screenshot shows the 'Security policy' configuration window. The left sidebar lists various settings categories, with 'Security policy' selected. The main window is divided into three sections: Password policy, User account locking policy, and Filter of allowed IP addresses.

Password policy

- Minimum password length: 0 character(s)
- Number of passwords in history: 0 (0 - do not save password history)
- Password validity period: 0 day(s) (0 - unlimited password validity period)
- ☐ Username and password must meet complexity requirements
- ☐ Prevent multiple logins of the same user account

User account locking policy

- Maximum failed logon attempts: 0 (0 - user account will not be locked)
- Account lockout duration: 0 minute(s) (0 - user account will be locked until lockout is removed)

Filter of allowed IP addresses

IP address: 10.0.12.1 Prefix: 24 Add

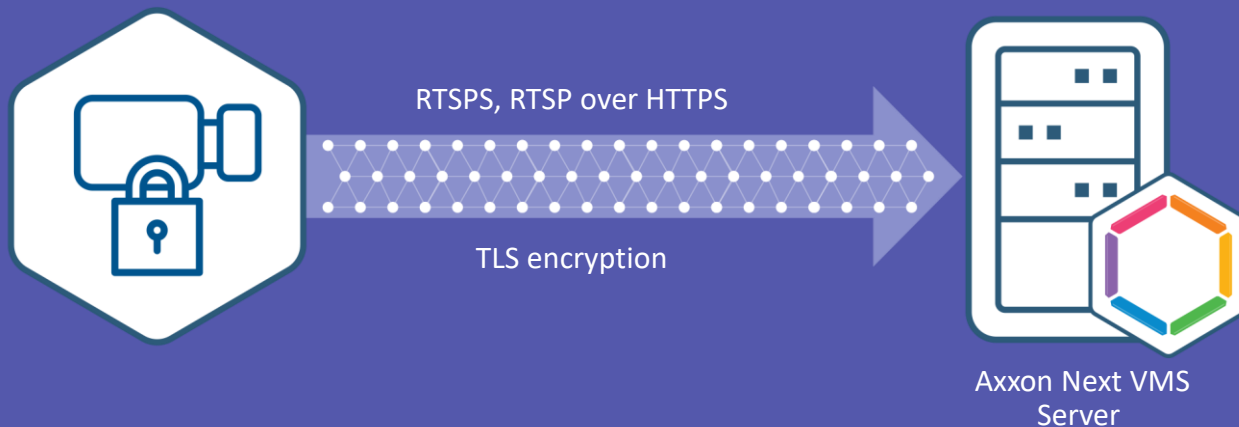
	Delete	IP address	Prefix	Filtering range
▶	×	10.0.12.39	32	10.0.12.39
	×	10.0.11.31	24	10.0.11.0 - 10.0.11.255



Secure Camera Connection

Encrypted video
streaming

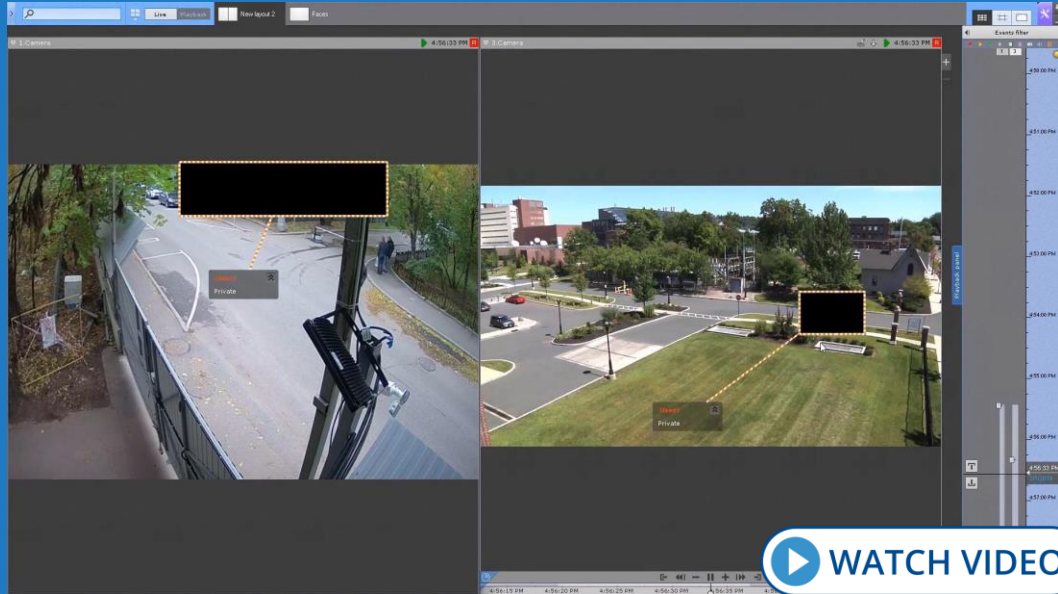
- Axxon Next receives encrypted video streams from cameras.
- Supports RTSPS, and RTSP over HTTPS for ONVIF compliant devices.
- Supports TLS encryption.





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 with solid color while viewing and searching the archive, as well as on exported video.



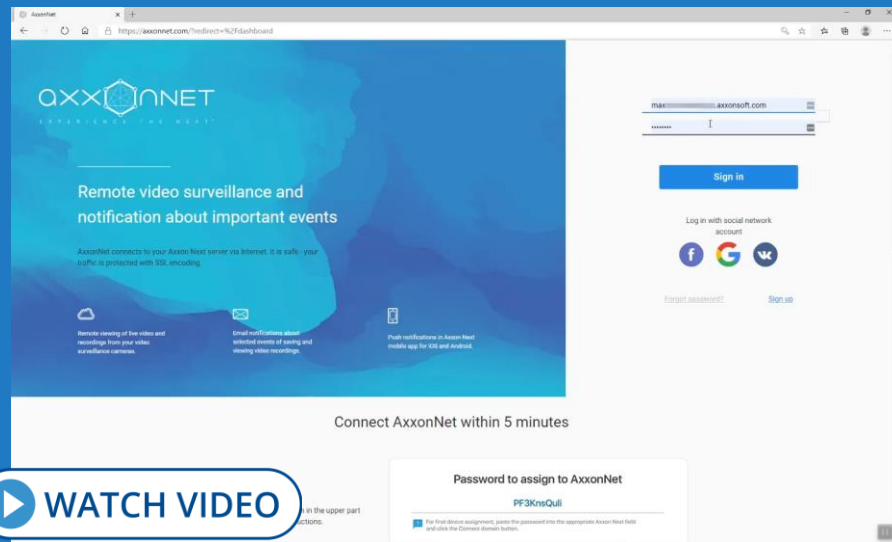
Cloud-Managed VMS

Remote video monitoring and
event notification

AxxonNet securely connects to your Axxon Next VMS servers via the HTTPS protocol. TLS encryption safeguards the data transmitted from the server to the cloud. Password hashing ensures that user passwords are inaccessible to attackers.

With AxxonNet, you can:

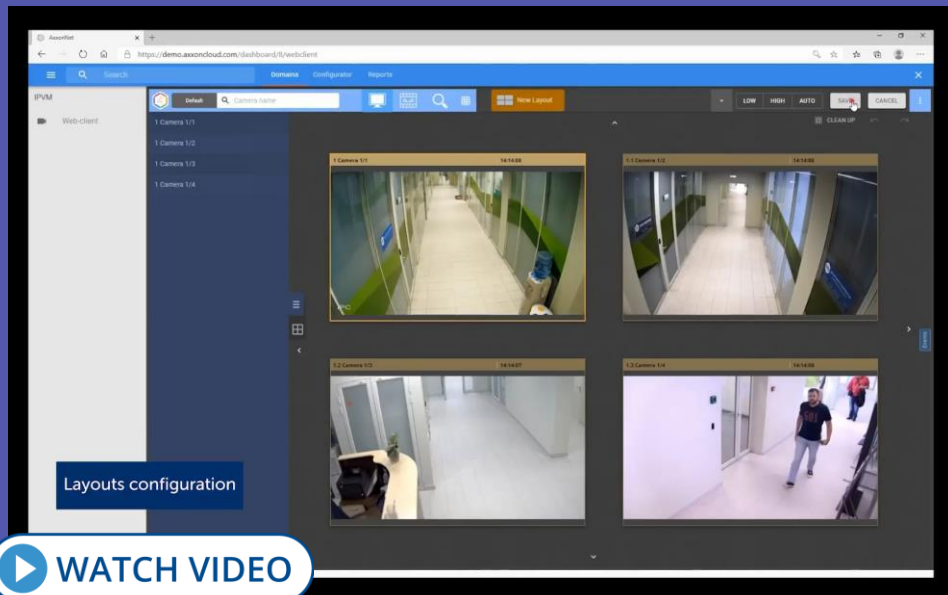
- Use all Web Client's features and view reports.
- Receive email notifications on the events of specified types and view linked videos stored in the cloud.
- Send push notifications on certain events to mobile clients.
- Create face and license plate watchlists.
- Create users and roles for your Axxon Next VMS.
- Store and activate Axxon Next license files.





Web Client

Video monitoring in your browser



WEB CLIENT enables you to:

- Use various layouts.
- Search recorded video by faces, plate numbers, events, criteria (MomentQuest), and time intervals (TimeSlice).
- View motion heat map.
- View alarm events.
- Work with bookmarks.
- Control PTZ cameras.
- Apply digital zoom.
- Export still frames and videos.
- View camera and video archive statistics.



POS Supervision

Axxon Next Retail Pack

Axxon Next 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 use receipt data to retrieve POS transaction videos from the recorded footage.





Queue Management

Axxon Next Retail Pack

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

Axxon Next Retail Pack

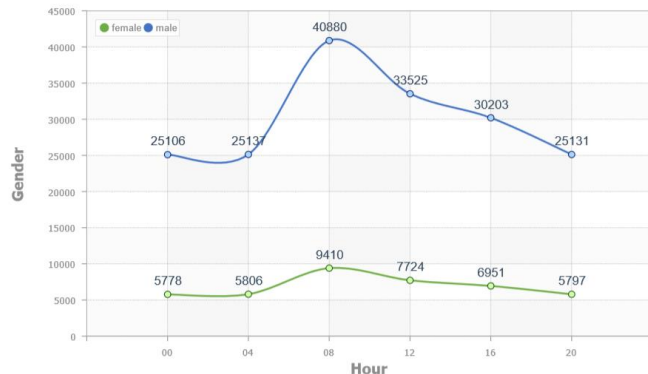
This tool counts customers entering or exiting the store or a specific area. The information collected may be used, along with sales data, to estimate your sales conversion rate and/or for market research.





Age and Gender Guesstimation

Axxon Next Retail Pack



Gender	Hour						Total
	00	04	08	12	16	20	
female	5778	5806	9410	7724	6951	5797	41466
male	25106	25137	40880	33525	30203	25131	179982
Total	30884	30943	50290	41249	37154	30928	221448

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.





Heat Map

Axxon Next Retail Pack



Heat map opacity



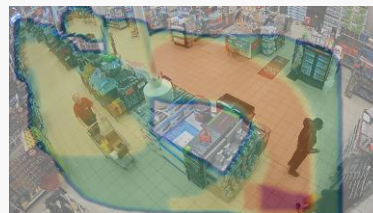
WATCH VIDEO

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.

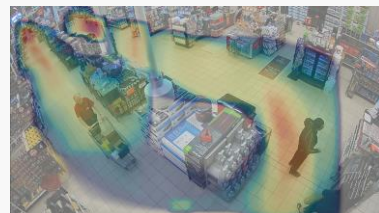
Query



Visitor numbers



Time spent

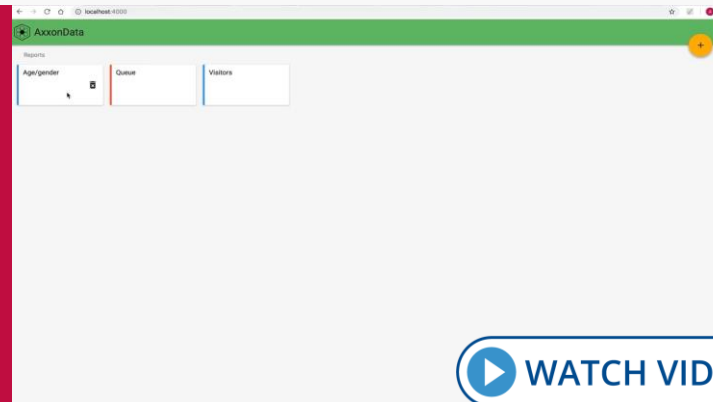
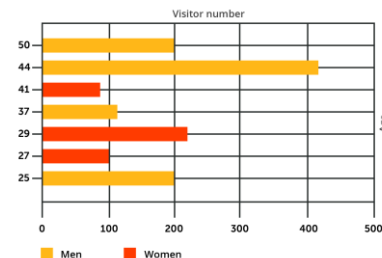
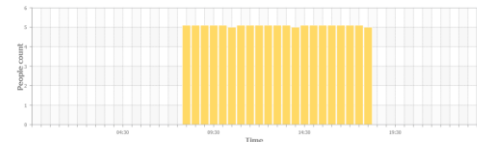
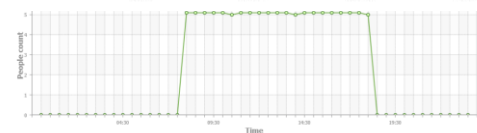
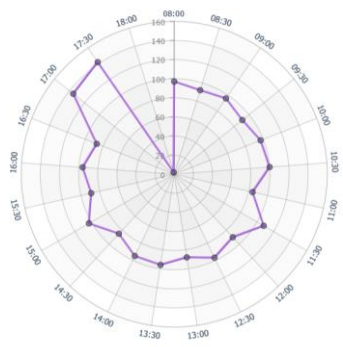
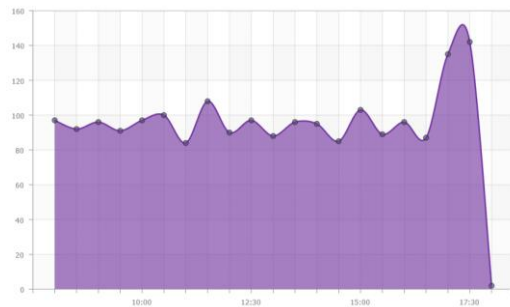




Online Comprehensive Reports

AxxonData

Visitor distribution by hour



You can build custom reports based on visitor count, queue length, and age and gender guesstimation. AxxonNet cloud service enables you to obtain reports from any store within your retail chain via the web interface.



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.

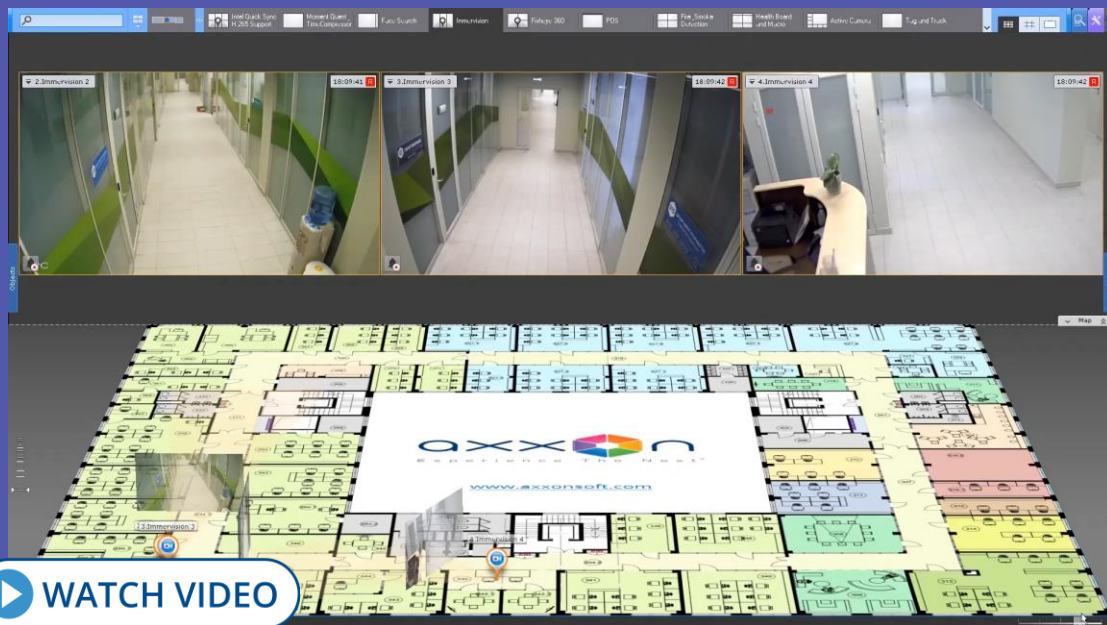




Image Dewarping

Support for fisheye cameras



- 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.
- Axiom Next supports standard fisheye-lens cameras as well as **IMMERVISION** panomorph lenses.



FrameMerge

Effective control over
extended areas

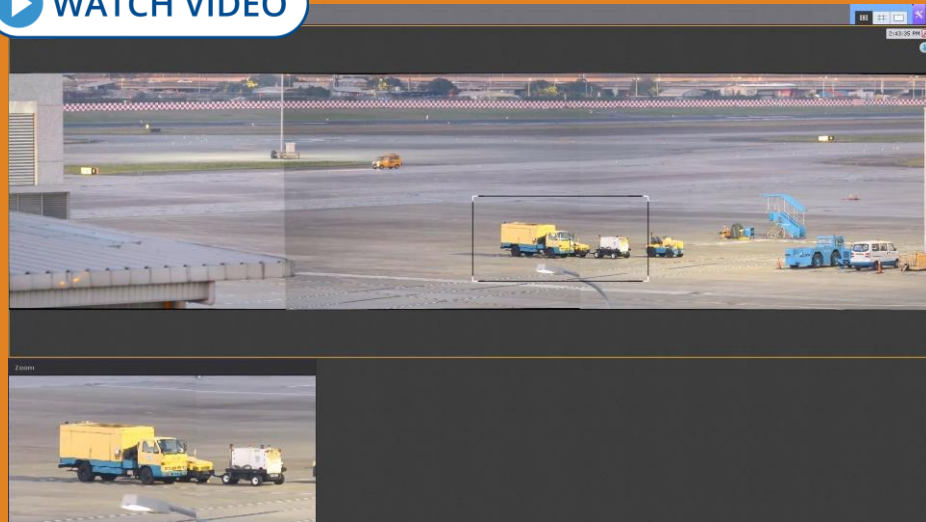


WITH FRAMEMERGE,
YOU CAN:

- 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.

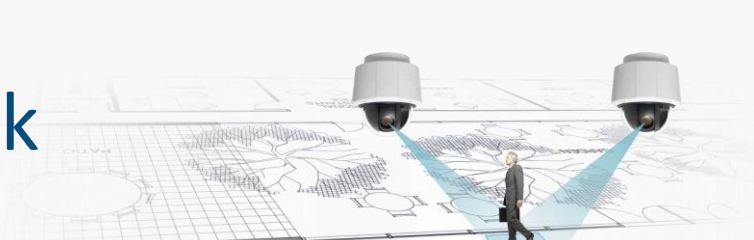


 WATCH VIDEO





Tag&Track



Use multiple cameras to track objects

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, Axson Next 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.



Links Between Cameras

Track objects from
camera to camera



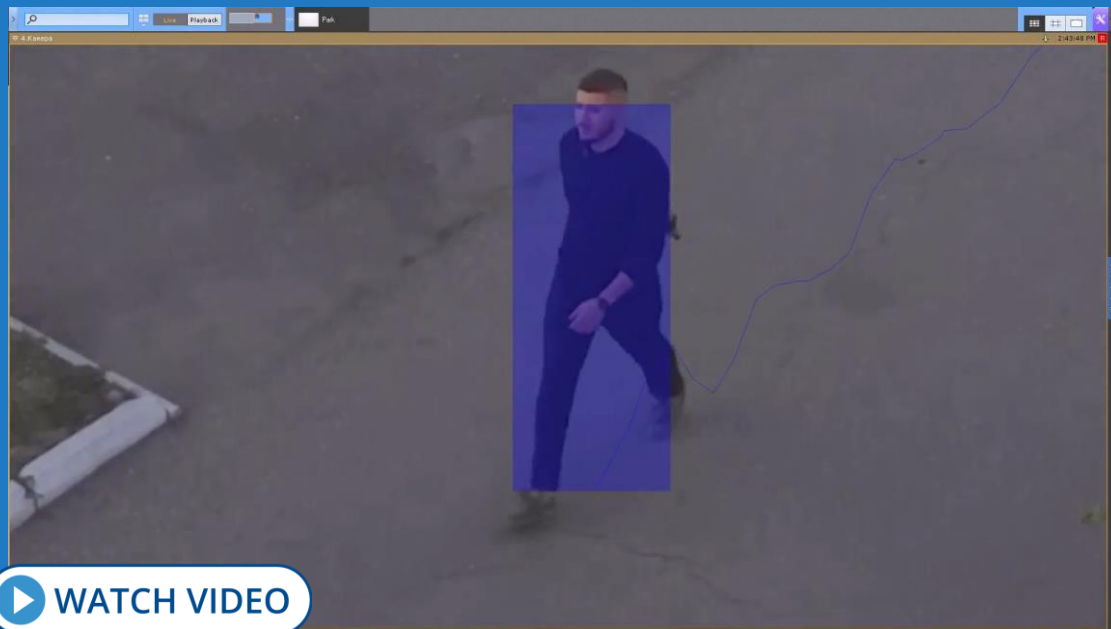
You can include links to other cameras in a camera window. Clicking a link brings you to the linked camera. This function facilitates object tracking between different camera FOVs.



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.



 WATCH VIDEO



Hotkeys



Quick and handy
Faster operator reaction

Hotkeys – combinations of keyboard keys or joystick buttons:

- Trigger certain actions in the system
- A quicker way of accessing frequently used commands
- Reduce the reaction time

Control Axxon Next-based systems with:

- Standard PC keyboards
- CCTV controller keyboards

Axxon Next hotkeys:

- Default (easy-to-remember generic combinations)
- User-configurable



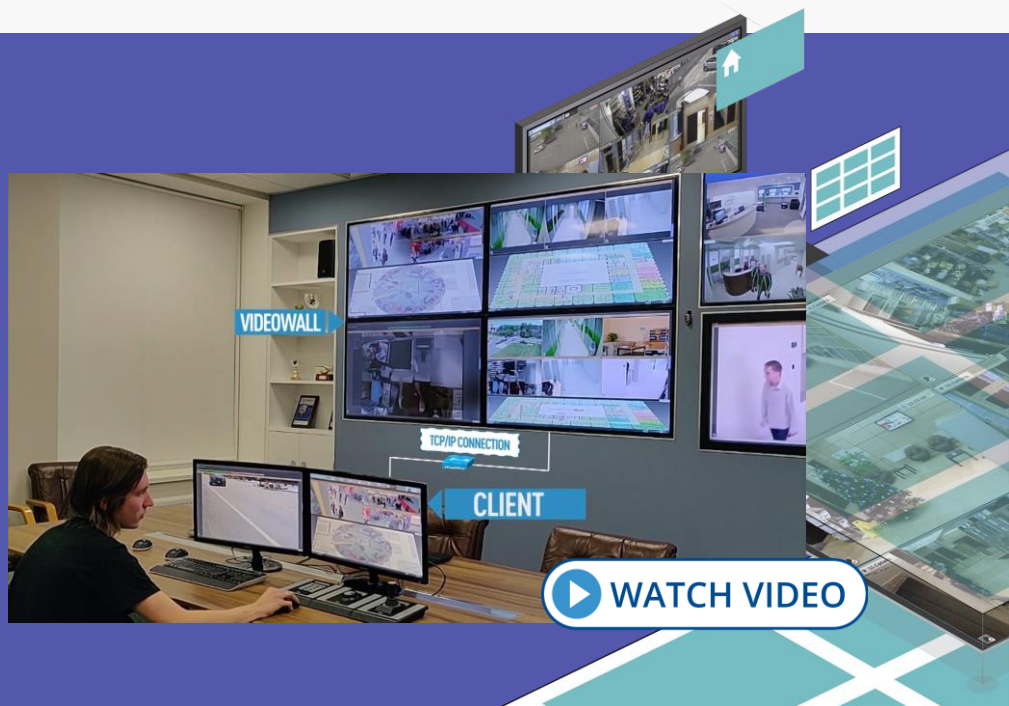


Video Wall Management

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** with sufficient monitors as a video wall.
- Manage it from any remote client connected to any server within the Axxon domain.





Cross-System Client

More options for security systems management

Cross-System Client is useful at geographically distributed sites or multiple-location chains, such as retail stores or gas stations.

- 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.

Configure and operate remote surveillance systems on a single client workstation



Mobile Clients

Free apps for iOS, Android,
and Apple TV

Display cameras according to created layouts or groups



With our apps, you can:

- View live and recorded video.
- Control PTZ cameras.
- Work with fisheye cameras.
- Use digital zoom.
- Receive push notifications.
- Run macros.
- Use maps.



GreenStream

Save network bandwidth and client CPU resources with adaptive video streaming

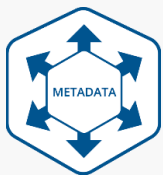
GreenStream

automatically selects a camera stream matching the current resolution of the video on the client screen.



For instance:

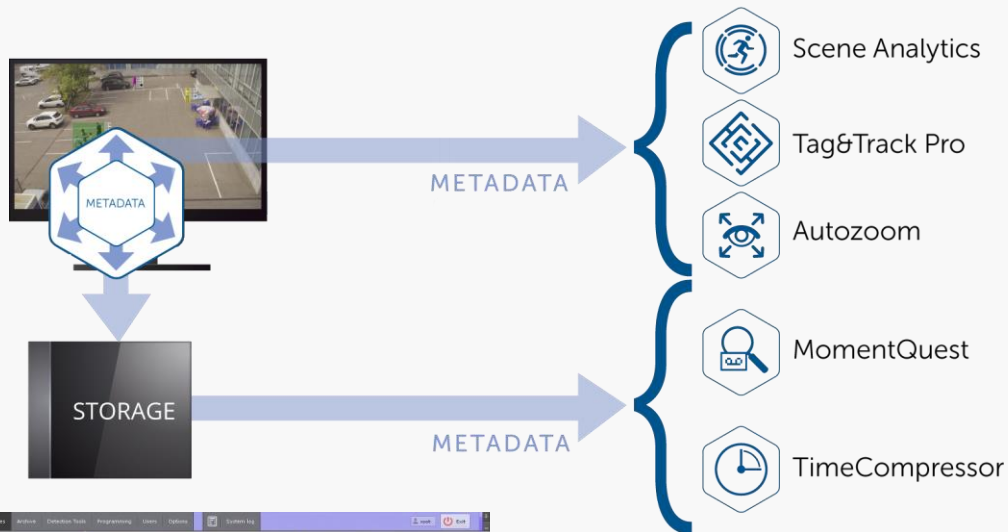
- On a 1920 x 1080 screen with a 4 x 4 camera layout, each camera screen is only 480 x 270.
- GreenStream eliminates the need to transmit full resolution streams from all cameras.



Metadata From IP Devices

Use Edge Analytics,
save server computing power

- Axxon Next receives, stores, and links to video feeds event metadata from edge-based video detection tools.
- Axxon Next also receives “raw” metadata (scene descriptions) from smart cameras to use it for real-time video analysis and forensic search.
- Metadata is generated on smart cameras. – No need to decompress video on the server side.
- CPU burden on the video server is significantly reduced. – Server can handle more video streams.





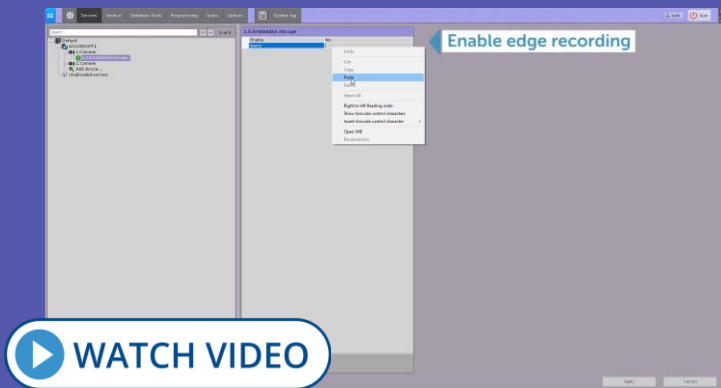
Support for Edge Storage



View and sync video
on SD cards

- Axxon Next supports **ON-CAMERA (EDGE) STORAGE**.
- On-camera storage is automatically detected by Axxon Next 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.

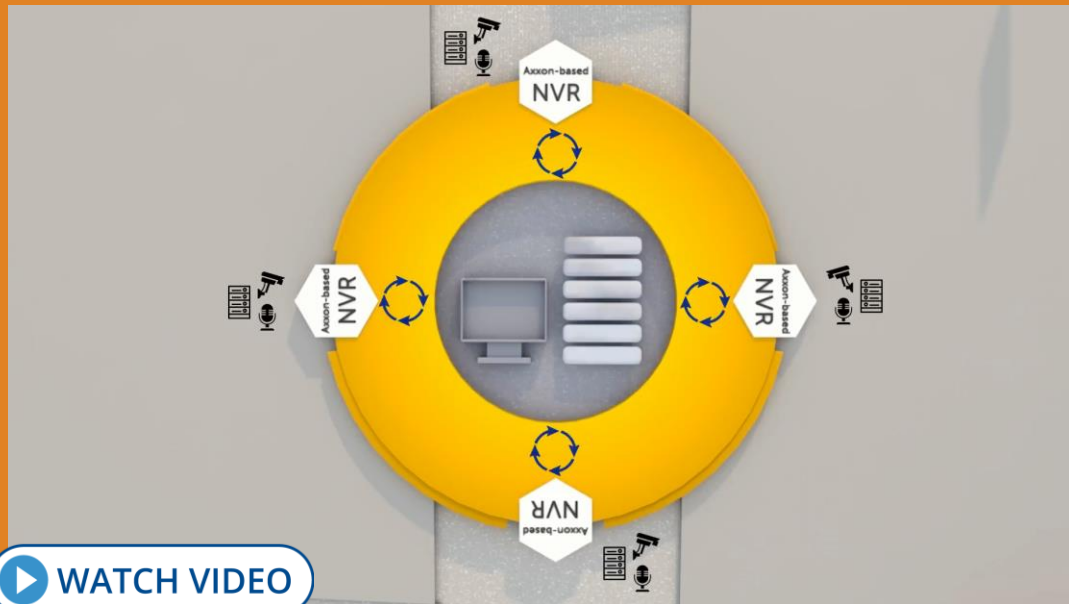




Archive Replication via Interoperability Driver

Centralized storage
for vehicle-based NVRs

Video footage can be synced between independent Axon Next 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 Axon-based NVRs installed on vehicles.



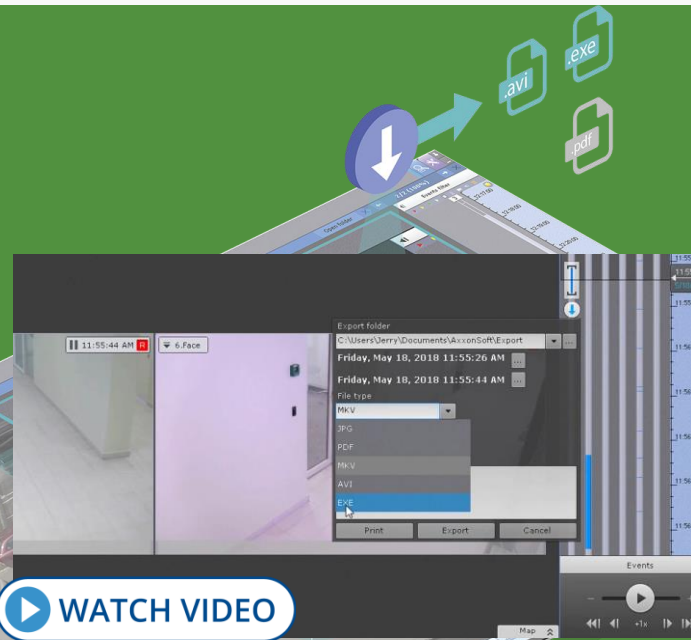
[WATCH VIDEO](#)



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.**

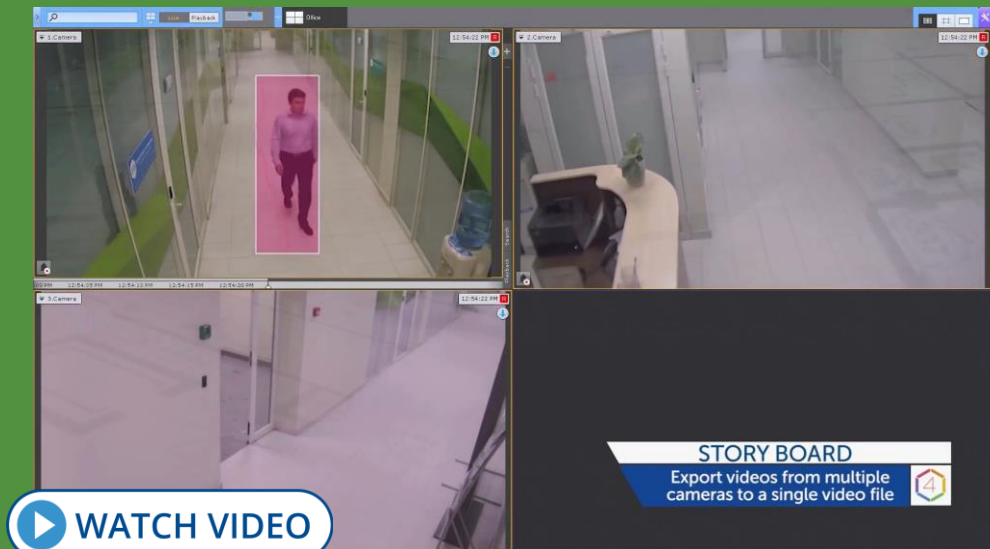




Story Board

Convenient video investigation

- Select video episodes recorded by different cameras and export them to a single video file.
- This is useful for video investigation when an object of interest moves between different camera FOVs.

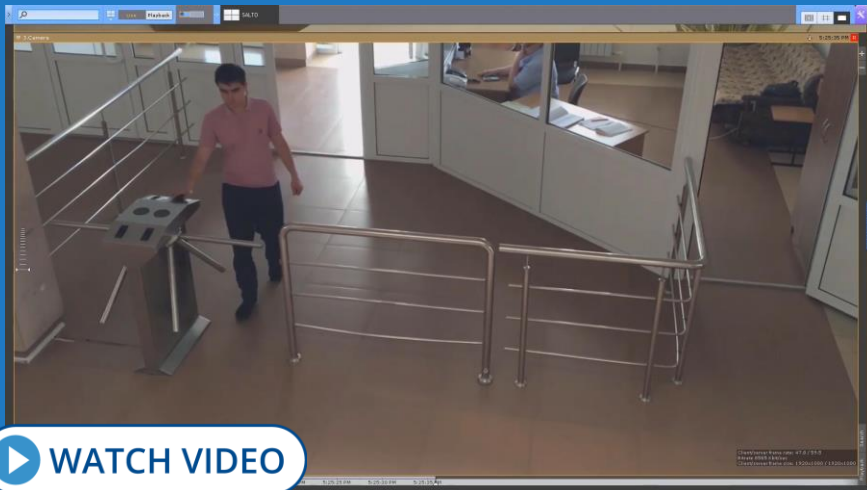




External Systems Integration

Receive and process event data from third-party systems

- Connect to external devices and systems: access control systems, security control panels, third-party software, and more.
- Quick and simple integration with third-party systems.



AXXON NEXT CAN:

- Accept external events.
- Save them into its database.
- Cross-reference events with recorded video.
- Search events by a text string.
- Display event data in real time in a separate pane.
- Show events as captions on top of video.





Macros

Customizable event response scenarios

IF **ALARM TRIGGERED**

THEN **PLAY AUDIO**

STOP PLAYING AFTER 10 SEC

AND **SEND E-MAIL**

WATCH VIDEO

- Axxon Next 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 enable programming reactions to particular events at system and device level.

Waiting
Camera 1. Alarm | 5 minutes

Timeout 5 minutes

Filters Camera 1. Alarm

Execute if event occurred

- Record to archive
Always initiate | Archive
- Record to archive
Open layout with camera

Execute if event did not occur

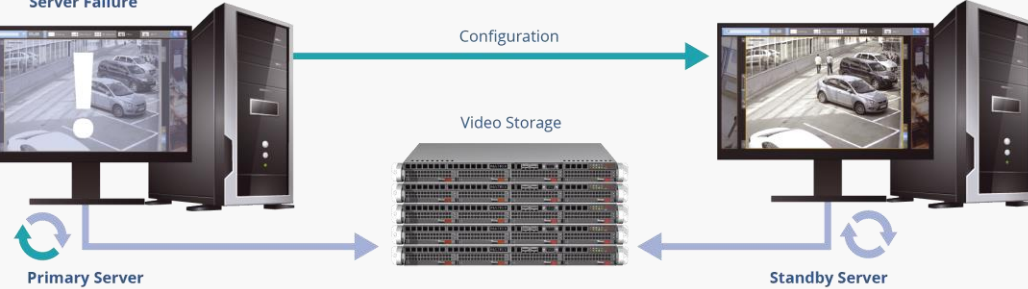
- Switch over relay
Camera 1. | Relay 1 | 00:01:00



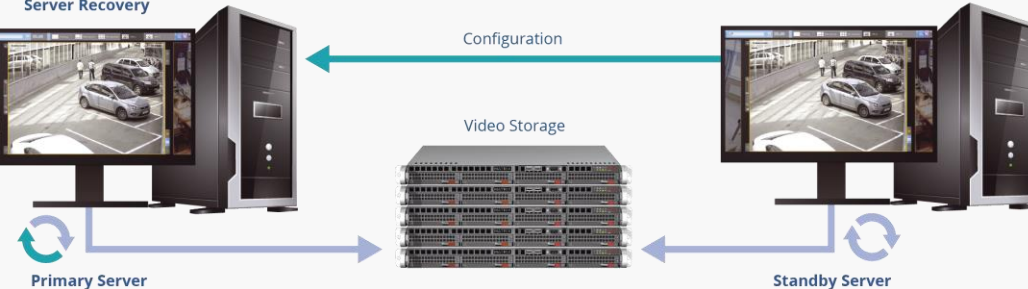
Failover

Server redundancy in distributed systems

Server Failure



Server Recovery



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 off-line 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.



Self-Checking Service

System reliability

Type of failure	Action
Out of RAM	Relaunch of Axxon Next's most RAM-consuming process
A camera is connected but does not send data	Relaunch of the corresponding process or micro-service
No events from a detection tool	Relaunch of the corresponding process or micro-service
No records in video footage	Relaunch of the corresponding process or micro-service
No footage is recorded on detection	Relaunch of the corresponding process or micro-service
Out of system disk space	Deletion of logs Clearing the database from system events of more than 7 days old

Self-checking service tests the operability of Axxon Next components and launches pre-specified actions in case of emergency.

Aside from the listed failures, the service detects internal errors of the Axxon Next software and performs required actions for each case.



Axxon Next Updates

Free version update
Free support
No maintenance
fees





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. This approach makes system updates a breeze.

WATCH VIDEO

Server name	Status
QA-T40 172.17.18.40 Manager	Updating...
QA-T42 172.17.18.42 Manager	Updating...
QA-T44 172.17.18.44 Manager	Updating...

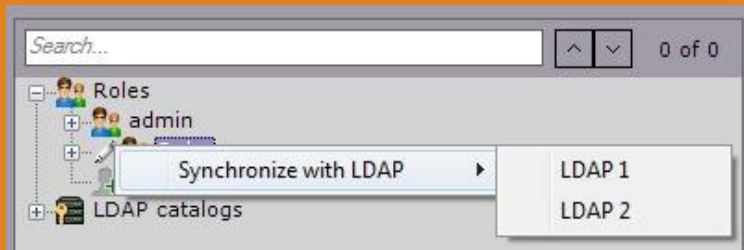
Automatic client update

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



LDAP Authentication

Integrate with existing enterprise network services



cn	entrydn
alexey dyndalev	cn=alexey dyndalev,ou=qa,ou=Groups,dc=example,dc=com
andrey vasiliev	cn=andrey vasiliev,ou=dev,ou=Groups,dc=example,dc=com
danil serov	cn=danil serov,ou=dev,ou=Groups,dc=example,dc=com
ilya smirnov	cn=ilya smirnov,ou=it,ou=common,ou=Groups,dc=example,dc=com
name1 surname1	cn=name1 surname1,ou=load,ou=Groups,dc=example,dc=com
name2 surname2	cn=name2 surname2,ou=load,ou=Groups,dc=example,dc=com
name3 surname3	cn=name3 surname3,ou=load,ou=Groups,dc=example,dc=com

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 Axxon Next 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 Axxon Next.



Product Versions

Standard Features

Functionality	Axxon Next Start	Axxon Next Professional	Axxon Next Universe
Number of servers in a distributed system	Unlimited	Unlimited	Unlimited
Total number of cameras in a system	64	Unlimited	Unlimited
Free software updates	+	+	+
Real-time analytics (Object Tracker)	+	+	+
Edge analytics (camera metadata)	+	+	+
Edge storage (playback only)	+	+	+
GreenStream	+	+	+
3D maps	+	+	+
Web client	+	+	+
TimeSlice (search by time intervals)	+	+	+
Macros	+	+	+
ONVIF Profiles G, S, T	+	+	+
Video bookmarking	+	+	+
AxxonNet cloud service	+	+	+
TimeCompressor	—	+	+
Cross-System Client	—	+	+
Storage replication	—	—	+
Failover	—	—	+
Videowall	—	—	+
LDAP service	—	—	+

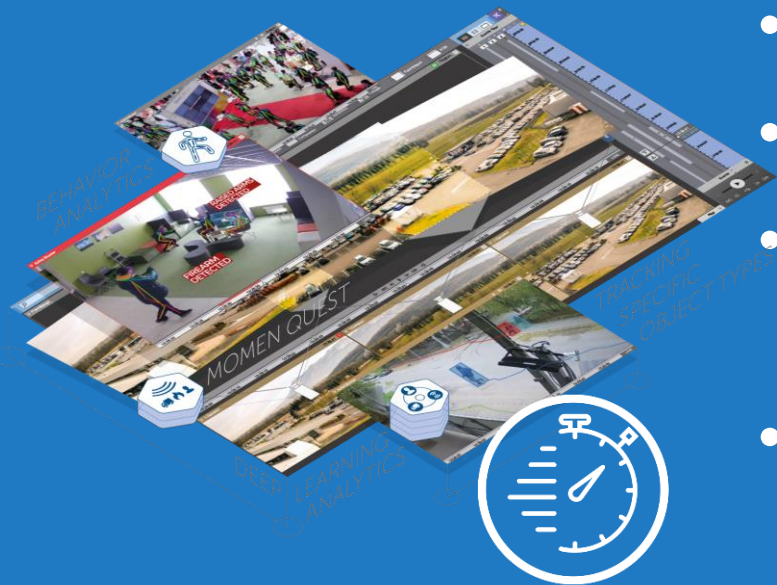
AI Feature License Pack

Functionality	Axxon Next Start	Axxon Next Professional	Axxon Next Universe
MomentQuest	–	Add-on	+
Face search			
Face mask detection			
LPR/ANPR* search			
Tag&Track			
AI human/vehicle detection			
AI fire and smoke detection			
Retail Pack			
AxxonData reports			
Add-On Modules			
External event support (POS, access control systems)	Add-on	Add-on	Add-on
Facial recognition (positive/negative watchlist)	–	Add-on	Add-on
LPR/ANPR* (positive/negative watchlist)	–	Add-on	Add-on
Custom AI analytics	–	Add-on	Add-on
Water level detection	–	Add-on	Add-on
Protective gear detection	–	Add-on	Add-on
Behavior Analytics	–	Add-on	Add-on
Offline Analytics	–	–	Add-on

* Please contact us to find out if LPR/ANPR is supported for your country and get detailed information about the licensing policy.



More Functionality



- Linux server support
- UDP unicast/multicast support
- H.264 and H.265 support for Web Client
- Support for ONVIF Profiles G, S, T

Mexico City International Airport

Case study



[▶ WATCH VIDEO](#)

AxxonSoft implemented two command and control monitoring centers and a forensic area for video management and investigation. Its video surveillance system features 2,250 cameras, real-time video analytics, including neural network human detection, and intelligent search across recorded videos – face and license plate search, multiple criteria search, and motion events summary.



E X P E R I E N C E T H E N E X T ®

THANK YOU!

www.axxonsoft.com