



# Ocularis Ultimate

## Ultimate video management for large and demanding environments

Ocularis is a video management system for enterprise and corporate projects with an emphasis on tactical real-time operations and live visualization. From convenience stores to citywide deployments and everything in between, Ocularis can scale up to accommodate an infinite number of cameras to match your growing system needs.

Ocularis lets you record video from IP network cameras – as well as analog cameras using encoders – and can be enhanced by integrating advanced tools like smart motion detection, access control, biometrics and behavior analytics.

The Ocularis platform is offered in three models – Professional, Enterprise and Ultimate – to meet the needs of organizations of all sizes and types.

Ocularis Ultimate provides centralized management of users, cameras and servers and features recording server failover, redundant management servers, multicast to client capability, edge recording support to protect against network outages, video aging for storage optimization and Ocularis VideoWall, which allows for collaborative control of video walls at multiple command and control centers.

Ocularis Ultimate can also incorporate camera streams from other Ocularis installations with the optional OpenSight add-on for centralized monitoring of multiple systems.

For the full list of features, see the Ocularis Architecture & Engineering (A&E) document, available by request.

# Ocularis Ultimate
## Features

**Easily connect many security related applications**

The Event Interface (QEI) breaks new ground to connect Ocularis to third-party security products using a flexible, driver-based approach. All events from third-party applications such as access control, burglar alarm and many more can now be visualized within the Ocularis client, for example by displaying them in maps and floor plans or opening the relevant camera streams.

**Open architecture for easy integrations**

With the available Analytics Interface (QAI), Ocularis provides an open and standardized interface for technology and solution partners to easily develop plugins to connect Ocularis with their product portfolios. By using the QAI, any edge or server-based analytics solution on the market can be easily integrated.

**Failover and redundancy for maximum uptime**

Ocularis Enterprise includes at no extra cost both recording server failover and redundant management server capabilities to keep your critical video system operational 24/7.

**Video mirroring***

Ocularis Ultimate offers the option to automatically mirror your video data on the failover recorder providing complete disaster recovery redundancy.

*Requires optional licensing

**Open architecture for easy integrations**

Ocularis allows the integration of a host of add-on components via tools including data link events, API commands, contact closure and more. A free software development kit (SDK) is also available for third-party manufacturers to integrate their systems into Ocularis.

**Composite events (“Event Fusion”)**

Composite events are created by linking two events or alerts, configured by sequence order, time interval and logical conditioning (e.g., “If Door ‘A’ opens, but no motion is detected on camera ‘N,’ within 15 seconds”). Composite events can be fused with other events to create complex detection scenarios, and assigned priority for push video and handling by Ocularis client operators.

**No proprietary hardware requirements**

Ocularis runs on non-proprietary, off-the-shelf PC hardware and is also supported in virtual environments such as Microsoft Hyper-V and VMware. Ocularis supports leading manufacturers’ cameras and devices — including almost all embedded analytics and features — as well as ONVIF and ONVIF Profile S standards, allowing you to use the right camera technology for your application.

**End-to-end data security**

Ocularis uses modern TLS 1.2 encryption protocols to secure camera-to-server communications, server-to-server communications and client-to-server communications. Recorded video is protected by using a randomized data structure containing no camera identification information.

**Automatic recorder patch updates**

Recorder patch updates are automatically downloaded and applied in Ocularis, keeping the system up to date and secure. Administrators may also choose to download and install patches manually. This is the most effective way to make sure all of your servers are updated 100% of the time.

**Dynamic data management**

Ocularis Ultimate features efficient and dynamic data management with automatic load balancing across multiple storage volumes with no archiving requirements.

### Video backup

Automatically create a copy of your video data in another location - either on-site or off-site - to protect your important recordings. Video backup can also be used with mobile NVRs in transportation applications to offload video from a bus, train, delivery van or patrol car to a central location for review.

### Flexible recording options

Ocularis features both Standard (continuous) and Alarm Recording, based on motion detection or other alarm input. Each recording mode can be configured with different retention policies ensuring that all critical video data is captured and saved. Alarm Recording can also be configured to use a secondary stream for added recording flexibility and optimal use of storage.

### Server-based detectors

In addition to supporting camera-based motion detection and analytics, Ocularis also includes efficient server-based motion detection with multiple regions of interest, each with its own sensitivity and threshold adjustments. Ocularis also includes server-based tampering detection and reference image comparison to monitor the status of your cameras.

### User audit logging

All user and administrator activity may be logged by enabling audit logging in Ocularis Base. A built-in query tool provides easy-to-read, color-coded results with export capability for further investigation and statistical reporting.

### Smart camera drivers

Smart camera drivers for Allnet, Arecont, Axis, Bosch, Convision, Canon, Dahua, Eclipse, FLIR, Grundig, Hikvision, Interlogix, Northern, Panasonic, Hanwha Techwin, Sony, THK Security, Vanderbilt, Vivotek and more support almost all embedded analytics and features. This allows full use of the camera's capabilites including the latest H.265 HEVC compression.

### Support for thousands of other cameras

Ocularis also supports thousands of cameras from dozens of technology partners with model-specfic drivers and also includes full support for ONVIF and ONVIF Profile S compatible cameras. This extensive camera support allows customers to choose the right camera for the application.

### Critical camera failover

Ocularis features automatic switching of interrupted or disconnected video streams in any live view within two-to-three seconds — including maps and blank screen events — to designated alternate camera streams. This unique feature ensures operators never lose sight of the situation.

### Multistreaming support

Ocularis takes advantage of multiple streams from cameras to minimize bandwidth usage to web, mobile and desktop clients. With automatic stream selection, Ocularis client displays the optimal stream for viewing. Multiple streams can also be used to optimize recording by using a lower resolution for standard recording and a full-resolution stream for alarm recording.

### PTZ priority support

When something important happens, it is critical that the correct user has exclusive control of the PTZ cameras. With PTZ priority values ranging from one to 99, as well as PTZ priority timeout values, it is easy to conform PTZ priority to any customer system.

### Video protection mode

One of the greatest fears of every system administrator is that sensitive video will be leaked to unauthorized parties or uploaded to social media. Such disclosure of video can result in bad PR, financial damages or criminal charges. Ocularis allows the administrator to select which cameras have additional text overlays to minimize the risks and create deterrence, showing the user's name when viewing the camera in browse mode or when creating video exports.

# Ocularis Ultimate

Features, system components and requirements

## Features

### Intuitive unified desktop client

Ocularis client offers a user-friendly operator interface with support for up to eight displays with independent functionality and both local and remote video wall control.

### Advanced web and mobile clients

Up to 16 cameras can be viewed live in both the Ocularis web client and mobile apps. Playback, Alert Handling and AVI Export are also supported. Ocularis mobile apps are available for Android and iOS devices free of charge and the web client supports multiple browsers across Mac and PC.

### Unlimited shared and private views

On the desktop, Ocularis client users can create and save an unlimited number of views of different sizes (up to 8 x 8 panes), consisting of camera streams, carousels, hotspots, web pages and blank screen panes for receiving automatic (on-event) and manual (peer-to-peer) push-video alerts.

### Exclusive investigation toolset

Ocularis client's dynamic TimeSlicer can shorten investigation time to seconds instead of hours or even days by quickly showing thumbnails in different time steps or via built-in motion detection. The Kinetic Timeline provides fast access to continuous historical data with a backward and forward swipe navigation and color codes to help identify recorded video.

### Live monitoring with instantaneous investigation

While monitoring live video feeds, users can perform basic investigation on individual cameras — playback, digital PTZ and optical PTZ (for PTZ cameras) — without the need to switch to a dedicated investigation mode.

### 360-degree camera dewarping

Ocularis client features native dewarping of 360-degree cameras from ACTi, Axis, Bosch, OnCam Grandeye, Panasonic, Pelco, Samsung, Sentry 360 and Vivotek as well as for cameras equipped with the ImmerVision Panamorph lens.

### Embedded integration with BriefCam analytics

Use a market-leading analytics solution inside Ocularis client. All Ocularis and BriefCam user functionality is available together inside the same user interface.

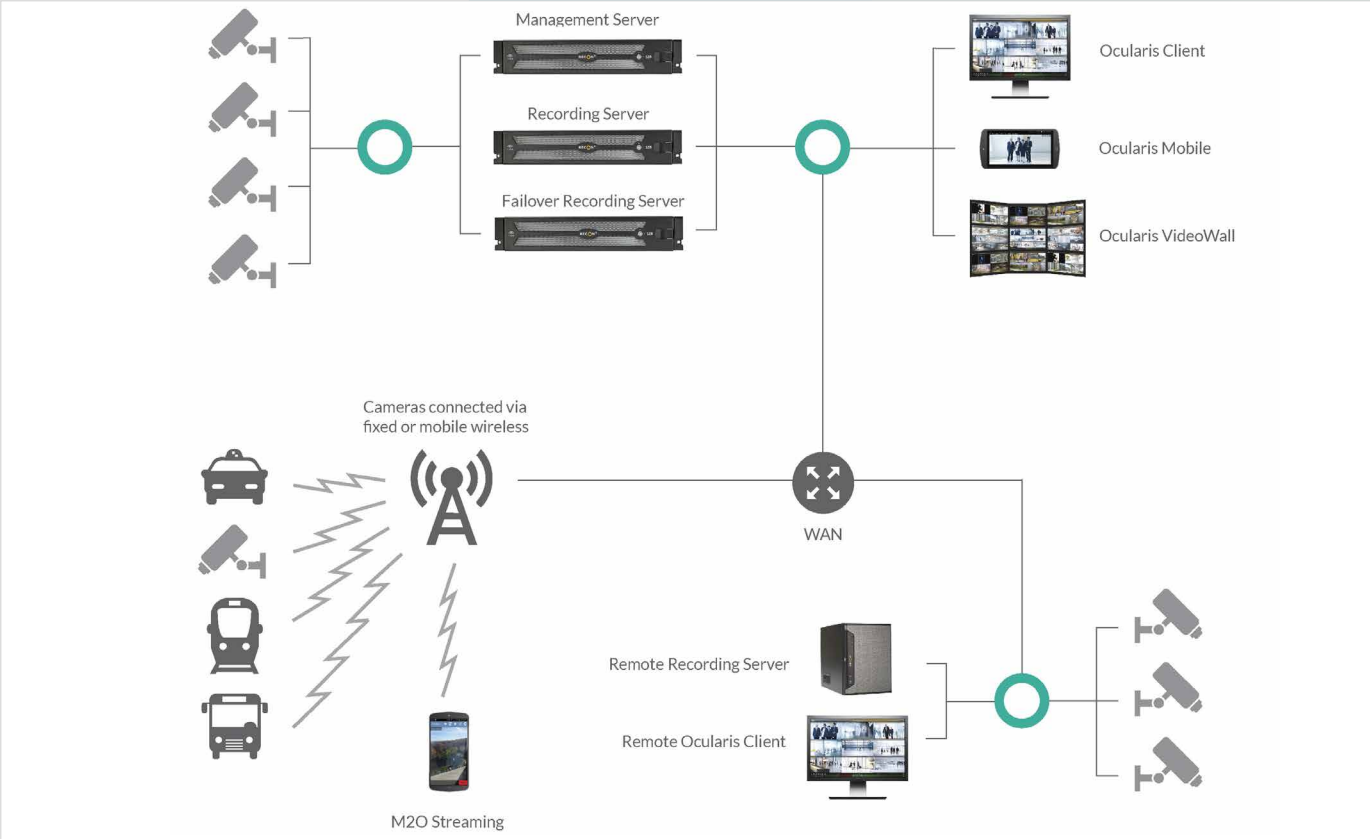
### Shared event handling

All events generated within the Ocularis system — or integrated third-party systems — can be handled from any client with real-time alerting via pop-up video on the desktop client, notifications on the mobile clients or pop-up alerts on the web client. Alerts can also be displayed on maps and shared with third-party systems.

### Capture video on the spot

With M20 (Mobile-to-Ocularis), mobile devices can be used to stream video into Ocularis*, just like another IP camera.

*Requires a camera license




System diagram

## System requirements

**Supported operationg systems (all 64 bit)**

- Microsoft Windows 10 (Updates: Anniversary, Creators, Fall Creators) (Professional, Enterprise)
- Microsoft Windows Server 2012 (Standard, Datacenter)
- Microsoft Windows Server 2012 R2 (Standard, Datacenter)
- Microsoft Windows Server 2016 (Standard, Datacenter)
- Microsoft Windows Server 2019 (Standard, Datacenter)

## System components

### Ocularis client

Unified operator interface for live monitoring, playback and investigation, alert management, map navigation and local video wall control for workstation connected displays

### Ocularis base

Manages the flow of event, user and system status data from the various system components and provides Active Directory authentication for client operators

### Ocularis media server

Enables web and mobile access to video and alerts and also serves as the gateway for M2O video from mobile devices

### Ocularis recorder

The Ocularis recorder is built upon the foundation of the core management service and one or more servers running the device manager service. These may be installed together or on separate servers. System configuration, alarm processing and video data storage are handled by the Ocularis recorder components.

### Ocularis VideoWall

Manage multiple video walls from Ocularis client and collaborate with other users; Ocularis VideoWall may also be used to create video walls from standard PCs, eliminating the cost of hardware-based controller

# Ocularis Ultimate

## System requirements

### Hardware recommendations

All Ocularis components may be installed on the same PC/server.

**Ocularis base**

- CPU: Intel Core i3 or better
- RAM: 8 GB
- Hard Drive: Minimum 250 GB
- Software: Microsoft .NET 4.6.2 Framework; IIS 6.0 or newer

**Ocularis recorder**

Recommended:

- CPU: Intel Core i7-4930K at 3.40GHz or Intel Xeon E5-2640 v3 at 2.60GHz
- RAM: 16 GB
- HDD: 500 GB free disk space at 7200 RPM for OS and applications additional storage as required for video storage
- Network: Ethernet with 1000 MBit/s. Do not team NICs except for fault tolerance (bandwidth aggregation not supported)

Minimum:

- CPU: Intel Core i3 M 370 at 2.40GHz
- RAM: 8 GB
- HDD: 100 GB free disk space for OS and applications
- Additional storage as required for video storage
- Network: Ethernet with 1000 MBit/s. Do not team NICs except for fault tolerance (bandwidth aggregation not supported)

**Ocularis media server***

- CPU: Intel Xeon E3 Series or Intel Core i5 (or better) recommended
- RAM: Minimum 8 GB (reserve 4GB for Ocularis Media Server if installing with other Ocularis applications)
- Hard Drive: 50GB or more
- Software: Microsoft, .NET 4.0 Framework, .NET 4.6.2 Framework and Internet Information Services (IIS) 6.0 or newer

**Ocularis client****

- CPU: Intel Core i5 or better
- RAM: 8 GB minimum (16 GB or more recommended)
- Software: DirectX 9.0 or newer, Microsoft .NET 4.6.2 Framework
- Graphics Adapter: PCI-Express, minimum 256 MB RAM

*May be installed on the same PC/server (all-in-one system) and is also supported in virtual environments

** Supported in virtual environments

Please visit the online storage and hardware calculator for detailed system requirements or contact us.

# Ocularis Ultimate

## Feature set comparison

| Ocularis system features | Professional | Enterprise | Ultimate |
|---|---|---|---|
| | PRO | ENT | ULT |
| Number of cameras per system | unlimited | unlimited | unlimited |
| Number of recorders per system | unlimited | unlimited | unlimited |
| Number of concurrent client connections | unlimited | unlimited | unlimited |
| Ocularis Mix & Match - combining multiple recorder types in a single system | ✓ | ✓ | ✓ |
| Ocularis OpenSight option for sharing video between Ocularis systems | remote | remote | main/remote |
| Critical Camera Failover for camera failure protection | ✓ | ✓ | ✓ |
| Centralized user management with color-coded audit logging of user activity | ✓ | ✓ | ✓ |
| Includes Active Directory support for secure system access | ✓ | ✓ | ✓ |
| Data Link and Network I/O event integration | ✓ | ✓ | ✓ |
| Event Fusion / Composite Events | ✓ | ✓ | ✓ |
| Ocularis web and mobile clients included with optional M2O (Mobile-to-Ocularis) video streaming | ✓ | ✓ | ✓ |
| PTZ Priority | ✓ | ✓ | ✓ |
| **Ocularis client features** | | | |
| License-free and unlimited Ocularis client installations and connections | ✓ | ✓ | ✓ |
| Multilevel map navigation with live camera previews | ✓ | ✓ | ✓ |
| Support for 8 independently controlled displays from a single workstation | ✓ | ✓ | ✓ |
| Embedded integration with BriefCam Analytics inside Ocularis client | ✓ | ✓ | ✓ |
| Remote VideoWall function for command and control centers | × | optional | standard |
| Dynamic TimeSlicer thumbnail search and Kinetic Timeline for quick and easy investigations | ✓ | ✓ | ✓ |
| Create, save and manage unlimited shared and private views | ✓ | ✓ | ✓ |
| TLS 1.2 encryption for client-server communications | ✓ | ✓ | ✓ |
| Secure multicamera database export with included Viewer (with or without audio) | ✓ | ✓ | ✓ |
| Snapshot still image export and printed incident report | ✓ | ✓ | ✓ |
| Single camera AVI export capability (with or without audio) | ✓ | ✓ | ✓ |
| Multicamera bookmarking function to preserve important video | × | ✓ | ✓ |
| Support for USB joysticks for PTZ control | ✓ | ✓ | ✓ |
| Alert management with support for metadata overlays on maps and video | ✓ | ✓ | ✓ |
| Video Flagging to quickly and easily mark a moment in time for later review | × | ✓ | ✓ |
| One-File export to easily and securely share video evidence with third parties | × | ✓ | ✓ |
| Video Protection Mode | ✓ | ✓ | ✓ |

# Ocularis Ultimate

## Feature set comparison

| Ocularis recorder features | Professional (PRO) | Enterprise (ENT) | Ultimate (ULT) |
|---|---|---|---|
| Number of cameras per server | 128 | 500 | 500 |
| Centralized recorder management | ✗ | ✓ | ✓ |
| Fully redundant recorder manager without using clustering | ✗ | ✓ | ✓ |
| Automatic recorder patch update service | ✓ | ✓ | ✓ |
| Automatic failover of recording servers | ✗ | ✓ | ✓ |
| Efficient and dynamic data load balancing with no archiving requirements | ✓ | ✓ | ✓ |
| Video data aging (grooming) for long term storage optimization | ✗ | ✗ | ✗ |
| Automatic mirroring of video data to failover recorder for complete redundancy | ✗ | ✗ | optional |
| Automatic edge recording retrieval after network disconnect | ✗ | ✓ | ✓ |
| Automatic Video Backup of important data to another location | ✓ | ✓ | ✓ |
| Support for H.265, H.264, MPEG-4, MJPEG and MxMPEG compression formats | ✓ | ✓ | ✓ |
| Support for camera-based analytics including Axis Dynamic Event Stream | ✓ | ✓ | ✓ |
| Server-based motion detection, tampering detection and reference image comparison | ✓ | ✓ | ✓ |
| Support for thousands of IP cameras plus ONVIF, ONVIF Profile S, generic RTPSP and MJPEG drivers | ✓ | ✓ | ✓ |
| Smart camera drivers for most major camera manufacturers (see our supported devices list on the web for complete details) | ✓ | ✓ | ✓ |
| Support for multi-streaming from cameras for efficient bandwidth utilization | ✓ | ✓ | ✓ |
| TLS 1.2 and HTTPS (SSL) encryption for camera to recorder communication | ✓ | ✓ | ✓ |
| License-free digital input/output device support (number of devices) | 5 | unlimited | unlimited |
| Simultaneous standard and alarm recording with separate retention policies | ✓ | ✓ | ✓ |
| Two-way audio support for select cameras and audio only devices | ✓ | ✓ | ✓ |
| Multicast live view from recorder to Ocularis client | ✗ | ✗ | ✓ |

Hexagon is the global leader in digital reality solutions, combining sensor, software and autonomous technologies. We are putting data to work to boost efficiency, productivity, quality and safety across industrial, manufacturing, infrastructure, public sector, and mobility applications. Our technologies are shaping production and people-related ecosystems to become increasingly connected and autonomous – ensuring a scalable, sustainable future.

Hexagon's Safety, Infrastructure & Geospatial division improves the resilience and sustainability of the world's critical services and infrastructure. Our solutions turn complex data about people, places and assets into meaningful information and capabilities for better, faster decision-making in public safety, utilities, defense, transportation and government. Learn more at hexagon.com and follow us @HexagonAB.