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

General

Ocularis is OnSSI's flagship IP-video surveillance and security platform which includes a full-fledged VMS, combined with central management of end-user rights and video recording and distribution.

The Ocularis Platform is offered in five feature sets – PS, IS, CS, LS and ES – to meet the needs of organizations of all sizes and types.

The Ocularis PS Feature Set was designed for organizations with limited live monitoring and alerting, operating in either single or multiple locations.

Major System Components

Ocularis PS is a unified, modular software platform that consists of a number of components:

1. **Ocularis Base:** Provides system-wide management for shared assets, user rights management, and video distribution.
2. **Ocularis Recorder Component (RC):** provides video recording, storage management, video delivery to users, and camera management.
3. **Ocularis Client:** Access to video, management of alerts, and shared event handling is done through the unified Video Client software.
4. **Add-Ons and Integrated Applications** including:
 - Integrated physical security solutions via Datalink (generic) Events
 - Axis Entry Manager Integration

System Highlights

- **Full-Fledged multi-site, multi-server VMS**

Ocularis PS manages video received from cameras connected to multiple recording servers at multiple sites, with central management of user rights, video distribution and shared assets.

- **Open-architecture Non-Proprietary Technology**

Ocularis runs on off-the-shelf PC hardware; and supports all leading manufacturers' cameras and devices (over 3700 models), all industry-standard compression formats (MPEG4, MJPEG, H.263, H.264 plus MxPEG) and the ONVIF, ONVIF Profile S and PSIA standards.

- **Camera NVR Support**

Ocularis supports using Axis camera NVRs (that have been configured using Axis Camera Companion), eliminating the need for a PC-based NVR.

- **Ocularis Mix & Match**

Ocularis features the ability to use multiple different recorders under the same Base. This allows users to tailor the system to meet their needs. Ocularis Mix & Match allows a PS user to install RC-P and camera NVRs in the same system with centralized user and event management.

- **Per-Camera Configuration of Video Streaming, Recording and Archiving Parameters**

System resources are optimized through per-camera configuration for compression level/format, image resolution, bandwidth, framerate, conditional

recording, retention time, archiving frequency, archiving location and more.

- **Flexible Archiving**

Multiple archiving instances per day to local storage devices, performed transparently to the user.

- **Central Management for Video Client Asset and User Authorization Data**

All RC-P recording servers and Ocularis Client users are managed by the Ocularis Base, which manages users' rights to specific cameras and functions system wide, and distributes all shared assets.

- **Highly Intuitive Unified Video Client**

Ocularis Client offers a user-friendly operator interface that takes only minutes of training to for full proficiency.

- **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.

- **Multiple Investigation Tools**

Ocularis Client's investigation tools include the Kinetic Motion Timeline, multi-parameter motion detection, and the Time Slicer and the Motion Slicer toolset.

Detailed Features and Functionality

Ocularis Base

The Ocularis Base Application manages the flow of event, user and system status data from the various system components.

- **Event Management**

Datalink messages (generic events) received from external systems are managed through the Ocularis Base administrator.

- **Event Prioritization**

Datalink messages (generic events) can be prioritized from 0-10 with a corresponding color code and can also be assigned customizable audio tones. Events handling options are configurable as well.

- **Composite Events ('Event Fusion')**

Composite Events are created by linking two datalink messages (generic events), configured by sequence order, time interval and logical conditioning. 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.

- **Automatic Push Video Alerting (Blank Screen Monitoring)**

Upon a datalink event, a push-video alert of the associated camera (one or more cameras) can be sent to users running the Ocularis Client application. In addition, the alert can be configured to trigger alarms or send notifications to users.

- **Simple Recording Server Management**

Any number of RC-P and camera NVR recorders can be managed under Ocularis Base allowing for unlimited system scalability.

- **Management of Users, User Groups and Authorizations**

Users are assigned to Active Directory-supported authorization groups, granting users rights for cameras, assets and operations (including PTZ controls and presets, accessing recorded video and initiating recording for specific cameras).

- **Schedule-Based Distribution of Events to Users**

Multiple activity ranges for each day of the week, as well as for overriding holidays, are configured through a simple GUI.

- **Schedule-Based Actions on Events**

Multiple actions may be configured on event including:

- Send email notification to one or more recipients
- Move PTZ camera to preset
- Send HTTP GET/POST request
- Send TCP/UDP package

- **Camera Array Views for Video Client User**

By logging in to the Ocularis Base, users gain access to Views – arrays of different dimension and pane size combination, containing camera streams, hotspots, carousels, web pages and images, and push-video panes. View panes can be configured for image resolution, framerate, carousel dwell time, etc.

- **User Audit Logging**

All user activity may be logged by enabling auditing in Ocularis Base. An easy-to-use query tool is provides easy-to-read, color-coded results and export capability.

- **Repository for Shared Assets System Wide**

Shared asset management, including maps for easy navigation to cameras, icons and events tagging/classification tables.

RC-P Recorder

- **Native 64-bit:** 64-bit recording server provides for optimal utilization of available hardware resources
- **Scalable Architecture:** Unlimited number of cameras, connected to multiple recording servers (up to 26 cameras per server) at multiple sites; support for MJPEG, MPEG4, MxPEG, H.263 and H.264 compression formats, at image resolutions up to 12MP (and higher) and framerates of 30 fps or more; support for analog cameras via a wide range of IP video encoders.
- **Recorder Administrator Application:** Each RC-P recording server is configured via an administration application for setup and configuration of cameras and I/O devices, camera event settings, archive settings, scheduling, and soft buttons for manually triggered events.
- **System Configuration Wizards:** Used for adding cameras, configuring video, scheduling recordings, adjusting motion detection, and user configuration.
- **Device Discovery and Detection:** Cameras and other devices are automatically discovered and detected based on user preferences (Universal Plug and Play, Broadcast and IP Range scanning).
- **Batch Device Configuration:** Settings for cameras, connected to multiple recorders, can be configured as a batch action.
- **Export/Import of Configuration Data:** allows backup of recorder configuration files for fast recovery. Configuration data can be set off-line, allowing the configuration of the system prior to physical installation.
- **Set Automatic System Restore Points:** Restore Points are created each time a configuration change is confirmed. Current and previous five sessions are stored and can be reapplied.
- **Recording and Archiving:** Unlimited recording with per-camera configuration for compression format (for multiple format cameras); image resolution; frame rate; image parameters (brightness, contrast), archiving retention time, and archiving location.
- **Maintenance Free, Transparent Archiving:** Multiple archiving instances per day on local drives. No down-time during transfer for video to archive.
- **Multi/dual-stream support:** separate video streams, at different resolution, video format and framerate settings, can be assigned for live monitoring and recording (e.g. MJPEG for live, MPEG4 for recording), for maximizing CPU, bandwidth and storage resources.
- **Recording Settings:** Individual cameras can be configured for recording on motion, continuous recording, or either based by schedule; and for pre- and post-recording (buffer) on motion/event. Optional speed-up recording on event.
- **PTZ Preset Settings:** 25 presets per PTZ camera, controllable from each camera's view pane in Ocularis Client.
- **Audio:** One way audio (from camera/IP device-connected microphones, with multiple audio channels per server. Audio from cameras is recorded and included in export of evidence (as AVI file).
- **Networking:** Support for Multi-Network operation; Network Addressing Translation (NAT) and DNS
- **Network Topology:** Support for segmented (VLAN or dedicated network) or shared networks, for physical network separation between the camera and the recording servers and video clients.
- **Outside Network Access:** the RC-P administrator is able to allow/prevent access from outside the local IP address range. The configuration settings allow selecting an Outside IP Address, Outside IP Port, Local IP Ranges, Maximum Number of Clients.
- **Logging:** Detailed logging, including Overall System log, Event log and Audit log.
- **Virtualization:** Support for VMware and MS Hyper-V.
- **Background Operation:** RC-P runs as a Windows® service, with no need for user login. Service can be stopped/started, and provides system status and logging information.
- **Advanced Motion Detection:** RC-P offers three resolution levels of motion detection with automatic sensitivity adjustment for changing lighting conditions.

Ocularis Client and Ocularis Viewer

Ocularis Client

- **Unified Client for Ocularis:** Ocularis Client is the main video client for all OnSSI Ocularis solutions.
- **Limited Concurrent Users:** Up to 4 concurrent Client connections per RC-P recorder, and no incremental cost for additional Ocularis Clients.
- **User Authentication:** Basic or Windows Active Directory-supported authentication to Ocularis Base. (Basic or local Windows login for Ocularis Client Limited Mode.)
- **Touchscreen-enabled, Intuitive Interface:** Ocularis Client's intuitive, touchscreen-enabled GUI reacts to the user's actions, presenting only the controls and tools required by the current mode of operation.
- **Multiple Screen Support:** supports up to eight connected displays.
- **Mixed Content Views:** Users can select among unlimited private or administrator-configured pane arrays of different sizes (up to 8x8 panes), consisted of camera streams, carousels, hotspots, HTML content (requires file support on client machine), and panes for receiving automatic (on-event) and manual (peer-to-peer) push-video alerts.
- Personalized display attributes:
 - Display mode (windowed or full screen)
 - Select active local monitors
 - Set interface language (English, French, Spanish, Portuguese, Arabic, Italian, German, Dutch, Finnish, Russian and Swedish)
 - Manage video streaming attributes for MPEG4/H.264 cameras
 - Set joystick (physical and virtual) sensitivity to eliminate unintentional joystick positioning data from being sent to the client
- **Pane View/Full Screen Toggle:** Any view pane can be toggled **between** pane and full-screen viewing modes.
- **Live Monitoring Assisted by Instantaneous Investigation:** A-synchronous live monitoring, with per-camera controls for:
 - Playback
 - Pause/Live
 - Digital PTZ
 - Optical PTZ and PTZ presets (for PTZ cameras)
 - Dedicated parsing controls for cameras equipped with 360-degree (Panomorphic) lens.
- **Critical Camera Failover:** Ocularis Client features automatic switching of interrupted or disconnected video streams in any live view – including maps and blank screen events – to designated alternate streams as configured in Ocularis Base.
- **Digital PTZ:** Applicable in all viewing modes, and assisted by PIP (Picture-in-Picture) for easy orientation. Control methods include draw rectangle, mouse wheel zoom in/out, and dragging selected PTZ region in PIP window.
- **Unified Optical PTZ Control:** All PTZ cameras are manipulated using the same controls. Controls include:
 - Mouse wheel (zoom in/out)
 - Variable zoom ribbon
 - Zoom in/out buttons
 - Click-to-center
 - Click-draw zoom rectangle (for supported devices)
 - PTZ preset list (unlimited presets)
 - Virtual joystick
 - Physical joystick
- **360-Degree Lens Controls:** Special controls are provided for de-warping views from fixed cameras equipped with 360-degree lenses. The de-warped view emulates a PTZ camera, with simulated pan, tilt and zoom. 360-degree de-warping is available for both wall or ceiling mounted cameras, in single or quad view within a single camera pane, with playback and digital zoom controls.
- **Camera Offline Notification:** In the event that a camera goes offline (lost communication or other camera failure), a **visual** alert in the form of a prominent red 'X' will immediately appear, overlaying the last received frame.
- **Change Cameras on the Fly:** In all viewing modes, the current camera can be instantly replaced by **selecting** another camera from a drop-down list. The camera list is equipped with a quick-access filter, which displays only the camera names that include the entered alphanumeric combination.

- **Smart Carousel Monitoring:** Carousel panes, displaying cameras in a predefined sequence, include controls for pause/restart rotation, next and previous camera.
- **Manual Push-Video Alerting:** Users are able to send a live push-video alert to other Ocularis Client users (selectable from a drop-down list). Pushed video alerts can be investigated using playback, digital PTZ and Optical PTZ controls.
- **Copy Current Camera View to Clipboard:** Users are able to copy live or recorded camera views, for pasting in other documents or editing using image editing software. Copies performed while digitally zoomed will copy only the zoomed-in portion of the video.
- **Snapshot:** Feature allows operators to easily create JPEG still image
- **Live and Playback Audio:** Audio is available in both live and playback mode with optional push-to-talk functionality for workstation microphone.
- **Start Recording Control:** Users are able to initiate the recording of a live-monitored camera, for the time period specified in the recorder application.
- **Switch Audio Streams:** Audio streams from camera-connected microphones can be switched on and off, selectable from a menu list.
- **Activate Outputs:** I/O devices can be activated directly from Ocularis Client, including visual and audio alarms, contact closure, etc.
- **Investigation and Access to Events:** Multiple tools are provided for quickly accessing and investigating video:
 - **Synchronous Camera View:** Current live monitoring view will carry upon transitioning to Browse mode, with synchronous playback, skip to next/previous event and skip to next/previous event sequence.
 - **Go to Time/Date:** Simple smartphone style interface control
 - **Kinetic Motion Timeline:** Scalable horizontal timeline, with kinetic variability (responding to the momentum and speed of the user's 'swiping' movement) allows reviewing extended periods of recorded video in a short time, with color indicators for recorded video and detected motion.
 - **Highly Configurable Motion Detection:** Can be calibrated for percentage of changed pixels within the motion detection zone; sensitivity and detection sampling time interval.
- **'Time Slicer' Tool Set:** The Time Slicer tool set auto-generates thumbnails, for rapid drill-down to the moment of an event, based on time interval, motion detection, camera alerts and alert sequences. All Time Slicer tools enable the application of digital PTZ to all slices, by drawing a region in the Time Slicer main pane.
- **Shared Event Handling:** All events generated within the Ocularis system, or detected by external/add-on devices, are entered in a dynamically-updated, shared among all authorized users. Users are able to access, investigate and handle events directly from a dedicated event handling interface, with an on-map indicator of the camera that triggered the event and dual video panes displaying the recorded event and a live stream. Handled events may be accessed by the administrator for continued handling.
- **Event Bookmarking and Export of Evidence:**
 - Segments of video for bookmarking and exported are graphically selected on the Kinetic Motion Timeline.
 - Bookmarks are tagged, classified and commented by users, and copied into a Bookmark database. Bookmarked events are presented along all event information and thumbnail of the incident.
 - Video evidence is exported as:
 - annotated still image report
 - multiple still frames
 - audio-included AVI file (using RC-I only) with annotated preamble; optionally export only the zoomed-in portion of video pane
 - court-admissible, multi-camera video database package, which can be played back directly from the export media using the Ocularis Viewer with 128 or 256-bit AES encryption and password protection.
 - Video export tasks are performed seamlessly in the background; tools include job status (% and bar graph) and cancel button.
- **Map-based Navigation:** cameras and entire views are accessible through a map-based interface, used also for displaying video on in a **local** video wall configuration (for displays

connected to the same machine as the Ocularis Client application).

- Multiple maps, with hyperlinked icons to other maps, cameras and views. Map images are scalable and movable.
- On-map live preview windows of cameras and camera groups, with full playback, digital PTZ and optical PTZ (where available) controls.
 - Cameras, as well as entire views (consisting of live cameras, push video alert panes, automatic push video alert panes and HTML/graphics) are pushed to local displays by simple drag-and-drop. Cameras displayed on local video walls are located on their respective maps via a Locator control.

Note that Hotspot panes (used for displaying a camera in full resolution and framerate) are not supported.

- **Keyboard Shortcuts:** Users can configure keyboard shortcuts for a large number of commonly used controls, including pan, tilt and zoom; go to presets; next/previous image; playback; toggle between minimized and maximized view pane; minimize application and more.
- **Memory Usage Indicator:** provides information for memory and graphics card resources usage.
- **Event Coordinator Status Indicator:** if the OnSSI Event Coordinator Service on the Ocularis Base machine stops, an additional icon will appear in the Application Control section on all logged in Ocularis Client screens.

Ocularis Viewer

The Ocularis Viewer is a standalone application that allows viewing multi-camera video databases, without the need for an installed video client application. The Viewer is uploaded to, and runs directly from, the portable media used for exporting video evidence.

Video database export is used typically where an AVI file is not acceptable as evidence, or for exporting multiple camera streams within the same file.

Features of the Video Database Viewer include:

- Comprehensive set of playback controls: play, frame-by-frame, skip to end/beginning of video or go to specific time stamp. Playback is synchronous for all cameras displayed.

- Scalable timeline, color coded for motion activity and areas of recorded video. The timeline can be dragged to control multi-camera synchronous playback.
- Digital PTZ (pan, tilt & zoom).
- Export video of selected camera as AVI file, optionally preceded by a preamble including video and camera data as well as user's annotations.
- Export still-image (.jpg) annotated incident report, or multiple-frame still-image folder.
- Video quality can be set to Low, Medium or High to optimize performance.

Hardware Requirements for Ocularis PS v4.1 Components

Ocularis Base Server

- CPU: Intel® Core™ i5 or better (if running on a workstation) or Intel® Xeon®, (Dual Core or better recommended)
- RAM: 4 GB (8 GB if using 64-bit OS)
- Hard Drive: 500 GB or more for large systems utilizing extensive Video DB Bookmarking. If no bookmarking is being used, then 50 GB is sufficient.
- Operating System: Windows® 7, Windows® 8, Windows® Server 2003 or Windows Server 2008 (32 or 64-bit), Windows® Server 2012 (64-bit)
- Note: The Ocularis Base can be installed and deployed on the same machine as the RC-P recorder machine(s) and does not require a dedicated server.
- Note: Supported in virtual environment.

Ocularis Administration Client

- CPU: Intel Core i5 or better
- RAM: Minimum 4 GB (8 GB is using 64-bit OS)
- Operating System: Windows Vista Business, Ultimate, Enterprise, Windows 7 Professional or Ultimate (32 or 64-bit), Windows 8
- Graphics Adapter: Adapter: PCI-Express, 256 MB RAM, Direct 3D supported

Note: the Ocularis Administration Client does not require a dedicated PC.

RC-P Recorder

- CPU: Intel® Core™ i5 or better (if running on a workstation) or Intel® Xeon®, (Dual Core or better recommended)
- RAM - Minimum 4 GB or more recommended
- Hard Disk Space: Minimum 100 GB free (depends on number of cameras, rules, and logging settings).
- OS: Windows Vista Business, Ultimate, Enterprise (all 64-bit), or Windows 7 Professional, Ultimate or Enterprise (all 64-bit), Windows 8 (64-bit), Server 2008/2012 (64-bit).
- Software: .NET 4.0 Framework, .NET 4.5 Framework

Note: Supported in virtual environment

Ocularis Client

- CPU: Intel Core i5 or better (Intel Core i7 or better for 20+ megapixel streams)
- RAM: Minimum 4 GB (8 GB if using 64-bit OS)
- Operating System: Windows Vista Business, Ultimate, Enterprise, or Windows 7 Professional, Ultimate or Enterprise (32 or 64-bit), Windows 8
- Graphics adapter: PCI-Express, minimum 256 MB RAM, Direct 3D supported.
- Guidelines for video RAM Requirements:
 - 20 simultaneous video streams: 256MB minimum
 - 50 simultaneous video streams: 512MB minimum

Note: Be conscious of stream type, resolution, and number when designing a client workstation.

Note: Ocularis Client is not supported on a virtual machine.

Note: For demonstration purpose, trial systems or small systems (supporting less than 8 cameras), all software components can be run on one workstation provided the appropriate hardware specifications are met