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VAPT



OWASP



MITRE



VIDEO SURVEILLANCE SYSTEM

Technical Specifications



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iOS



macOS



LENS





LENS

 **View**

Introduction

See the Bigger Picture with VIEW 3.0

LENS introduces VIEW, an advanced video management software designed to meet the needs of large-scale, mission-critical enterprise applications. Developed to handle complex deployments, VIEW 3.0 supports unlimited cameras, servers, users, and video analytics, depending on licensing.

In today's world, organizations face an avalanche of video footage, far more than just storage can handle. What they need are tools that transform this raw data into meaningful insights. That's exactly why VIEW 3.0 was created: a platform that effortlessly manages vast deployments while offering intelligence that goes beyond the surface.

What sets VIEW 3.0 apart is its intelligence. Developed through years of R&D in computer vision, video computing, artificial intelligence, and machine learning, the system leverages advanced AI-powered video analytics.

With VIEW3.0, LENS raises the bar in video management—because managing video data shouldn't just be about keeping an eye on things. It's about seeing the bigger picture.

Purpose of The Document

The purpose of this document is to provide a detailed overview of the technical specifications and features of the LENS VIEW 3.0. It serves as a reference for customers, partners, and internal teams to understand the system's capabilities, configuration options, and compatibility with various hardware and network environments. This document outlines the key functionalities, supported formats, storage solutions, and security features of the VIEW 3.0, helping users make informed decisions about deploying or integrating the system into their surveillance and monitoring setups.

Full Product Specifications

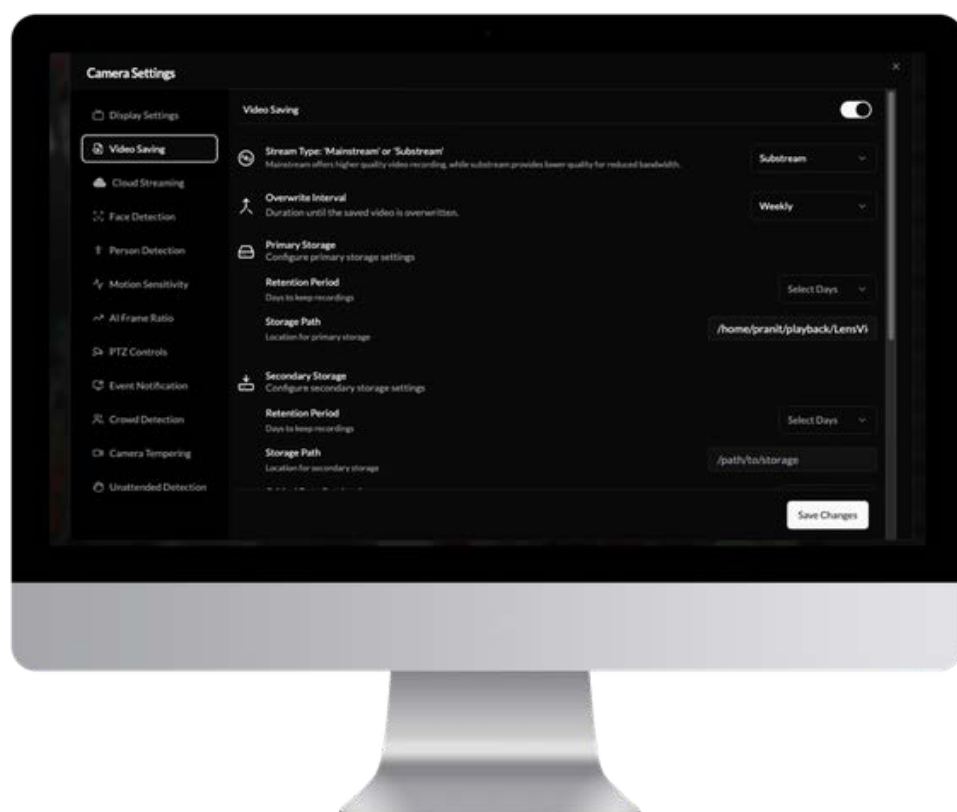
Comprehensive Recording Capabilities

- Records in H.264, H.265, MPEG4, or MJPEG formats with a minimum of 25 fps at Full HD (1080p) resolution, maintaining up to 90 days of video retention.
- Dual streaming capabilities for efficient bandwidth management.
- Supports multiple simultaneous streams per camera for multi-tile display.
- Supports various streaming modes, RTP over UDP, RTP over RTSP, RTP over HTTP, and RTP over multicast, even in low network bandwidth environments.
- Supports IP cameras and encoders from multiple vendors.
- Allows same camera stream in multiple tiles with separate timelines.
- Handles recording and archiving based on set camera configurations.
- Supports DAS, NAS, IPSAN, and direct storage, enabling centralized NVR management with video search, playback, management, and downloads.
- PostgreSQL database support with scalable architecture for enterprise-grade data management and storage requirements.
- Editable clips with autosave, editable titles/descriptions, device-aware export slider, adjustable timings, and storyboard saving.
- Allows saving with descriptions and comments, which are exported in HTML format and displayed as subtitles to viewers in the storyboard.
- Export time slider auto-populates with devices, allows additions, and saves clips with comments as subtitles.
- Operators can set multiple motion zones per camera with adjustable sensitivity. The UI shows timeline markers for matching motion events.
- Supports all video resolutions from CIF to 20MP HD.
- Enables hourly recording configuration per video input with customizable schedules for motion-based recording, event-triggered recording, and recording suspension periods for optimized storage management.
- The Video Surveillance System is designed as an end-to-end IP-based solution utilizing Full HD IP cameras to ensure scalable, high-quality video capture and network-based distribution across all system components.
- Offers multi-drive storage options, including NAS, iSCSI, DAS, or local/network drives, with flexible recording paths per camera.
- Supports dual-stream recording with low-bitrate storage.
- Stores audio & video together in the same file for a complete record of events.

Full Product Specifications

Comprehensive Recording Capabilities

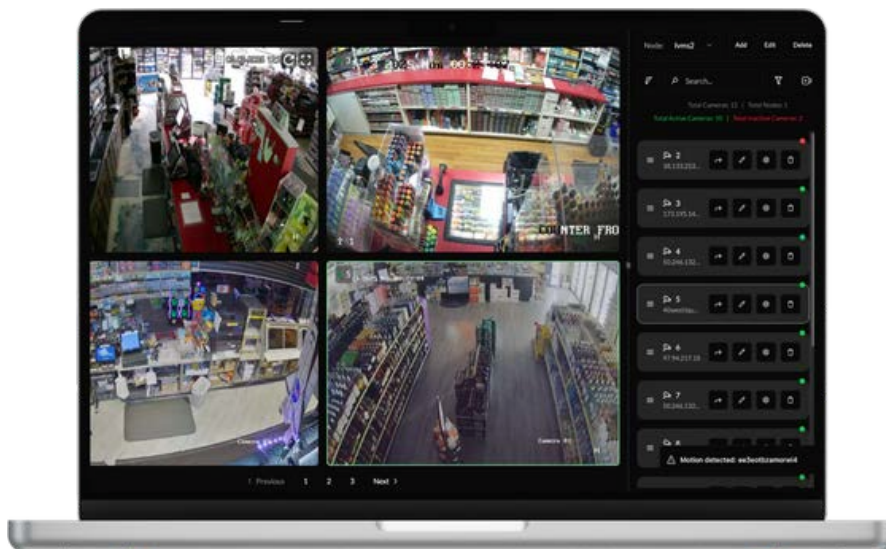
- Supports H.264, H.265, MPEG-4, MJPEG compression
- Supports RAID-configured (RAID 5/6 or better) storage for data reliability.
- Provides programmable pre-buffer and post-buffer recording features ranging from 10 seconds to 60 minutes for enhanced event capture.
- Automatically calculates storage requirements based on camera count, days of retention, and available storage.
- Opens the preview in a resizable full-screen window, with storyboard drafts that can be saved or loaded using the "Save draft..." and "Load draft" buttons, respectively.
- Supports SD card recording retrieval for ONVIF G Profile cameras.
- Multiple recording schedules per camera without additional licenses.
- Supports optimized H.264/H.265 decoding with Intel Media SDK for enhanced performance.
- Includes recording servers for video storage, camera communication, and playback.
- Color invert filter supports both color and black-and-white modes.



Full Product Specifications

Comprehensive Recording Capabilities

- Adaptive frame rate: lowers when idle, spikes during alarms, captures 5 mins post-event.
- Enables low-bitrate stream transcoding at the recording server.
- Database and disk usage with notification support for storage thresholds.
- Advanced AI-based motion detection and event tagging for video searches.
- Supports event-based video synopsis export.
- Intelligent storage allocation based on camera usage patterns.
- Supports sequential/real-time playback, comments, subtitles, replays, & draft sharing.
- Camera setting changes restart only the affected camera.
- Supports Nvidia H.264 decoding for improved efficiency & reduced CPU load.
- Summarises 2-hour video footage in under 10 minutes.
- Supports timeline-based segments with object movement data.
- Simultaneous display of events from different timestamps.
- Supports backup and restoration of recorder server configuration.
- Auto-calculates storage needs by camera count, retention, and drive size (1080p @ 25 FPS).
- Summarizes 2-hour video footage in under 10 minutes.
- Supports timeline-based segments with object movement data.
- Simultaneous display of events from different timestamps.



Full Product Specifications

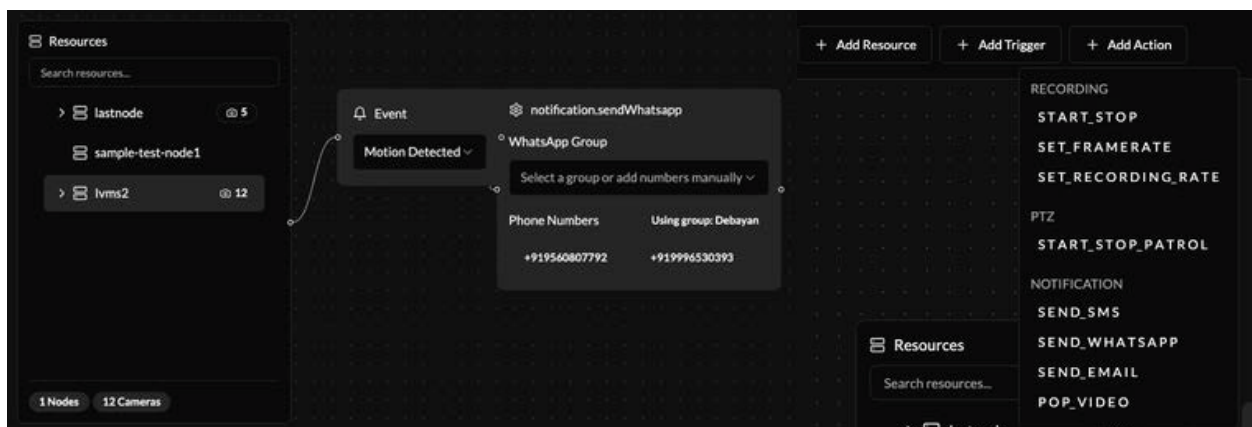
Comprehensive Recording Capabilities

- Exports video recordings in .avi and .mp4 formats for easy playback across Windows, Linux, macOS, and Unix.
- Archive retention and protected clip management
- Supports secure, authenticated export to both client and remote PCs.
- Routes video/audio over IP via unicast or multicast depending on client setup.
- Features robust alarm triggers, including window pop-ups, email, and sound notifications for recording or video loss events.
- Allows PTZ cameras to automatically shift to pre-configured presets upon alarm triggers, improving situational awareness.
- Enhances image quality in fog, rain, and low light using AI analytics.
- Displays cameras from multiple recorders on a single monitor.
- Supports IP Multicast and Unicast streaming based on network strength.
- Estimates recording size and tracks disk usage per camera.
- Offers 128GB SD recording with auto-sync, caching, and 30-day retention.
- Allows import and playback of exported videos from local or network storage.
- Enables object reconstruction without altering original footage.
- Offline video file processing supported for summarization.
- Summarized videos exportable in standard formats.
- Storage optimization for summarized vs. original video data.



Comprehensive Recording Capabilities

- Automatically archives videos older than 90 days, managing storage efficiently with FIFO deletion.
- Handles stream routing (unicast/multicast/server) per camera configuration.
- Encryption for secure communications between clients and servers, with optional password protection or digital signatures for file integrity verification.
- Undergoes regular security audits and holds a Security Clearance Certificate, ensuring OWASP-compliant cybersecurity protection
- Exported videos are saved in a secure, tamper-proof format.
- Multiple Secured Streaming Options (256-bit AES Encryption, Digital Certificates, Multi-Stream Control)
- Can share primary, secondary, third, or any combination of streams to save bandwidth.
- Supports SRTP for secure media encryption.
- Supports tamper-proof video export.
- Unified search for local & cloud recordings
- Ensures end-to-end security with 256-bit AES encryption for all communications, 4096-bit RSA with SHA-384 hashing for tamper-proof data, SEF export format with a 24-character password, and dual-password authentication for users.
- Allows exporting recorded video to USB drives, DVDs, and external hard disks.
- Operators can start/stop camera recording with one click.
- Random encryption key with periodic changes.



Full Product Specifications

Comprehensive Recording Capabilities

- In case of server disconnection, cameras record locally and automatically sync once connectivity is restored, requiring no manual intervention.
- Edge-recorded clips automatically sync when connectivity returns.
- Supports cloud-based storage solutions alongside traditional storage.
- Select between device storage or server storage for recordings.
- Provides email and pop-up alerts for low disk space to ensure continuous operation.
- Export videos in AVI, MP4, WMV, MKV, SEF, or ASF with digital signing and password protection, along with audio clips, text clips, and storyboards.
- Includes a file export tool for single-frame images and video files((BMP, GIF, MP4, SEF, etc.)
- Thru Cast (Direct Streaming from Camera to Client Without VMS Server Involvement)
- Enables creation, export, and sharing of incident clips (labels, descriptions, comments, SEF format, dual password).
- Allows quick review of recorded video.
- Allows simultaneous recording, live monitoring, playback of archived video, audio, and data, network transmission, and changes to settings.
- Users can export, print, view, and create still image archives.
- Supports searching and exporting recorded videos and filtering event lists by date, time, event type, camera, location, alarm, motion, or priority.
- Supports multi-live streaming, multicasting, Thru-Cast, and RTP transport for efficient bandwidth and 10,000-viewer scalability.



Full Product Specifications

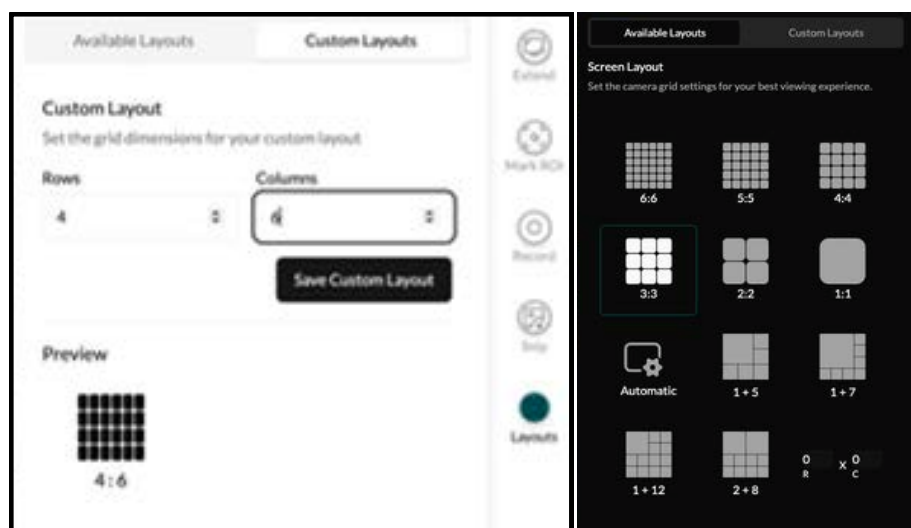
Live View, Playback & PTZ Control

- Supports up to 1024+ live videos and up to 64 playback videos simultaneously on one screen or multiple monitors using software video wall.
- Supports native camera FPS (incl. 25, 30) and all resolutions.
- Offers dynamic/predefined layouts like Fullscreen, 2x1, 2x2, 3x3, etc.
- Uses dual streams with auto-switch to high-res in fullscreen.
- Captures streams only when needed to optimize resources.
- SQL & backups available through GUI for secure configuration archiving.
- Search vehicle images by type with auto-play and delay options.
- Automatically adjust stream quality to network conditions.
- Multi-monitor support for extended camera viewing.
- Dynamically connect cameras to workstations for live or recorded viewing.
- VMS clients must be capable of viewing new and existing IP cameras in single camera tree for unified operation
- Auto-switch shall allow displaying the videos according to the rules set by the user, which can be set as auto-switch in one group, auto-switch among groups, or combined auto-switch or scheduled auto switch.
- Remotely control PTZ functions with auto-executing presets.
- Tracks object movement across multiple cameras with synced timeline.
- Scene replay with timeline showing object movement across cameras.
- Speed-based object filtering with actual kmph values.
- Live appearance similarity search across video sources.
- Enables seamless display of both live camera feeds and archived recordings through web browser interface
- Filter presets for quick object identification.
- Automatically pauses background camera streams to optimize bandwidth utilization, ensuring efficient network resource allocation during multi-camera operations.
- Provides intuitive click-to-track functionality for rapid forensic analysis, enabling operators to trace person movement patterns across multiple cameras in both live and archive modes. Features intelligent setup and cross-camera tracking to determine origin and destination paths for comprehensive investigative support.

Full Product Specifications

Live View, Playback & PTZ Control

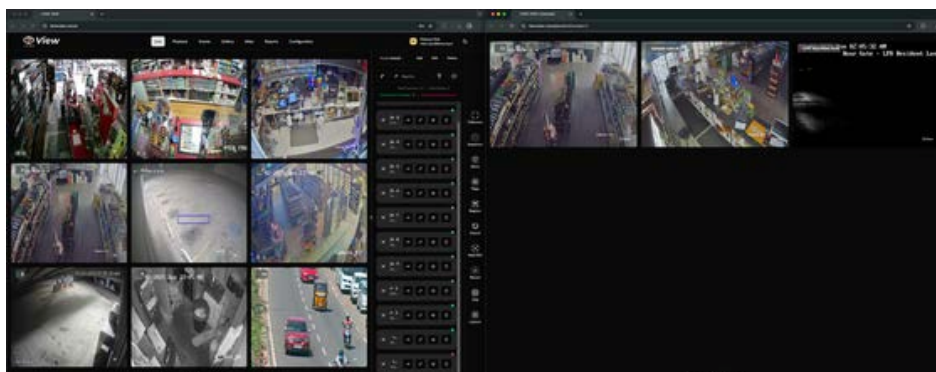
- VMS server & client software supports multicast stream capture from cameras.
- Frame rate and GOP control per camera stream configuration
- Search queries and bookmarks persist across user sessions.
- Users can share layouts, and they are visible to all users with the same profile.
- Allows creation of multiple camera sequences with adjustable dwell times.
- Users can create, close, resize, control windows, and access **About** for help.
- Captures live video directly, without extra bandwidth usage.
- Supports simultaneous recording, live monitoring, and playback of video, audio, and data, with live view and playback for at least 10 local or remote clients.
- Supports Virtual Matrix for building video walls & matrices with separate display & operator console servers.
- Automatically zooms and tracks objects in real time.
- Magnifying glass to enable detailed inspection of specific video areas
- Adjusts and auto crops camera views for optimal framing.
- Direct control of camera bitrate, quality, FPS, and resolution from the VMS
- Users can open, close, rename, and adjust tab grids.
- Adjust camera, cast, streaming, and display settings or close the camera.
- Allows per-user control over concurrent streams and bandwidth limits, with stream prioritization based on user roles.
- Offers customizable camera views with user-defined cameras, shape, size, sequencing, and configurable rows and columns.



Full Product Specifications

Live View, Playback & PTZ Control

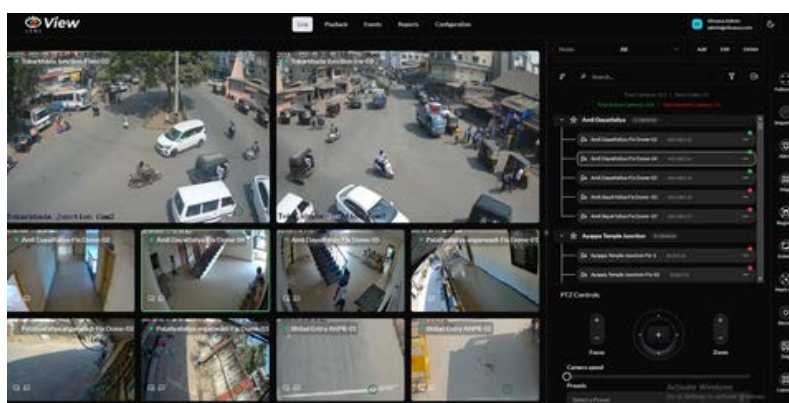
- Supports Pan, Tilt, Digital Zoom, full-view, zoomed display, snapshot zooming, and PTZ focus indicator.
- GUI provides easy monitoring with menu, profile control, device tree, playback, camera control, and alarms in one window.
- Supports PTZ controls via Spotter Web Mobile, including zoom, focus, and presets.
- Supports multiple-view layouts with dynamic camera view switching & shared user access.
- The real-time live view displayed in 1/4/6/9/13/16 windows through the C/S or B/S clients.
- Users can toggle between original size and full-screen video display.
- Users can edit dome camera tours, presets, and home position.
- Auto-switch videos based on user-defined rules, within groups or scheduled.
- Graphical User Interface (GUI) with Centralized Controls (Menu, Profile, Device Tree, Timeline, Alarms, Camera Controls, etc.)
- Features advanced activity search for quick event detection and clip retrieval.
- Allows one-click export, including time slider clips, with built-in player.
- Supports sequential, all-camera, and manual playback modes.
- Allows saving bookmarks with descriptions for video, audio, and text.
- Scalable UI with simultaneous full and zoomed-in views.
- Bookmarks can be exported to a storyboard.
- Supports 32 synced channels and multichannel export with video, audio, & text.
- Supports comprehensive recorded video search by time, date, video source, and image region with results displayed through clickable timeline navigation and thumbnail image galleries for rapid event identification.



Full Product Specifications

Live View, Playback & PTZ Control

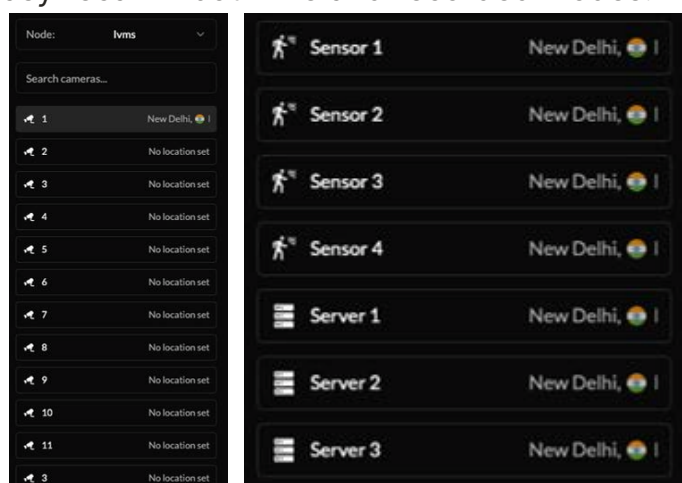
- PTZ controls support mouse, gaming/joystick input, on-screen Click-and-Zoom, and preset/tour modes.
- Multi-camera layout control with dynamic switching
- Camera and recording settings managed centrally
- Features digital zoom for fixed and PTZ cameras, activated on any client workstation, moves with the mouse cursor, and doesn't affect video recording.
- Camera Toolbar with Export, Print, Zoom, Audio Control, 360° De-Warping, Image Controls, and Plug-Ins
- Users can export clips with the built-in Player. Play sequentially or select cameras manually.
- Cameras can be selected and displayed in any tile.
- Enables system control via mouse, keyboard, or CCTV keyboard, with area zoom and click-to-center for PTZ cameras.
- Supports multi-streaming cameras, automatically selecting the best stream based on grid cell resolution.
- Allows storyboard creation by selecting the first clip via the camera toolbar, drag-and-drop, or right-click from the alarm list.
- Users can define, store, and recall custom layouts, including window dimensions, positions, image filters, and active profile data.
- Intelligently selects the optimal stream based on grid resolution
- Supports both dark and light UI themes.
- Allows users to select camera events, adjust export times, and add clips via toolbar controls, drag-and-drop, or right-click from the alarm list.
- Saves digital zoom positions for live and archive modes across all camera types. Integrates with patrols, alarms, and layer tile assignments for enhanced operational control.



Full Product Specifications

Live View, Playback & PTZ Control

- Instant playback pop-ups are available on event click.
- Enhancement analytics available in playback, offering:
 - Video sharpening, brightness and contrast adjustment.
 - Color switching (black & white or color).
 - Edge detection on/off.
 - Custom text addition and print support.
- Remote adjustment of camera image parameters including brightness.
- Advanced Image Control Plug-In (Edge Highlighting, Histogram, Noise Reduction, De-Interlacing, Flip, Mirror)
- Real-time event search functionality integrated within live and playback views.
- Automatic camera grouping feature that intelligently categorizes cameras based on location.
- Resizable alarm/event list pane with scroll and filter controls
- Supports live view switching via RTSP (thin client) and HTTP (thick client).
- Controls PTZ, iris, focus, presets, and dome patterns.
- Supports device search within the device tree.
- Allows multi-camera searches across specified parameters.
- Quickly detect and export the last 25 events with Advanced Activity Search.
- Context menus and quick toolbars available on each video tile.
- Enables customized FOV presets, with wide and narrow angle configurations optimized for area or focused coverage.
- Supports preset-based auto-tracking and intelligent PTZ handoff between linked cameras.
- Saves preconfigured arrangements of video, audio, POS data, maps, and events with easy recall in both live and recorded modes.



Full Product Specifications

Live View, Playback & PTZ Control

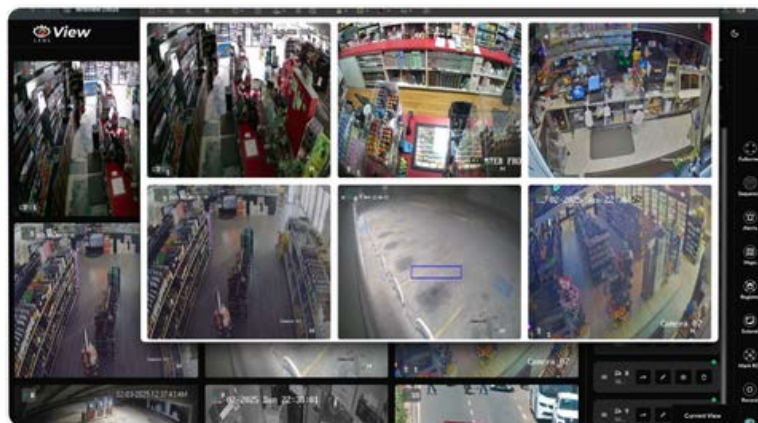
- Playback Navigation View includes:
 - Recording server and camera list.
 - Calendar displaying recorded video availability for each day.
 - 24-hour timeline indicating recorded video availability.
 - Detailed 10-minute timeline for finer navigation.
 - Clicking a timeline point plays video from that time.
- Supports a video lock feature for secure playback.
- Supports synchronized and independent multi-camera playback.
- Offers tab & timeline workflows for video, alarms, & access control to guide users.
- Allows event-based timeline visualization with colored markers.
- Users can view, save, share, and manage bookmarks and tab content, including shared and password-protected items.
- Supports concurrent recording, monitoring, and playback across multiple cameras.
- Controls playback with play, pause, forward, and speed buttons; per-tile controls allow starting, pausing, and resuming video streams.
- Supports closing the component bar and switching modes.
- Users can view alarms, activity, playlists, device tree, descriptions, tabs, menu bar, status messages, and connection status.
- Supports H.265 streaming for Live & Playback.
- Provides comprehensive fisheye camera integration with advanced image de-warping capabilities. Supports multiple display modes including virtual PTZ, panorama, double panorama, quad view, and original fisheye view for flexible surveillance coverage and enhanced situational awareness.



Full Product Specifications

Live View, Playback & PTZ Control

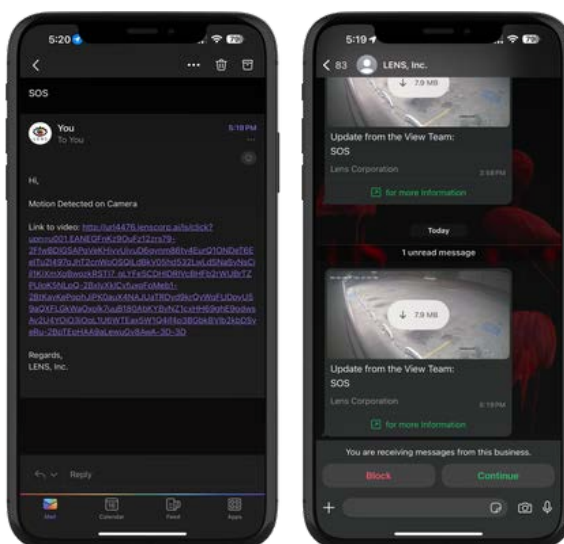
- Two-way audio between cameras & VMS with mute, volume control, and broadcast to multiple cameras.
- Supports multi-speed playback of recorded video.
- Supports single or multi-timelines for playback with click-based navigation.
- Supports three audio communication modes: Closed Mode (audio channels remain off), Listen Mode (users can hear audio but cannot transmit), and Talk Mode (users can communicate from the client station to the camera).
- Simultaneous Client Operations Without Affecting Archive Server Performance (Live View, Playback, PTZ, Maps, Alarms, I/O Control, etc.)
- Export searched results as pictures, data, or both in customizable formats.
- 60 FPS Camera Support with Automatic Frame Rate Selection
- Users can view, manage, share, and schedule their layouts.
- Enables audio playback alongside video, and the monitor supports multiple audio layouts with collections of clips.
- Enables playback of audio mixed from live and recorded sources, with independent volume control and mute options.
- Bookmarked events appear visibly on the playback timeline for easy access.
- Facilitates multi-point PTZ coordination with synchronized presets and preset-based analytical triggers.
- Displays the level of motion at any point on a timeline.
- Advanced graphical replay with built-in analytics
- Enables comprehensive audio search functionality with synchronized video playback, maintaining perfect audio-video timing for forensic analysis and event review.



Full Product Specifications

Web-based Surveillance & Remote Viewing

- Multi-language support, including state official language.
- Windows machine recording and storage in VMS library.
- Central server-side configuration for mobile video push.
- Mobile Client supports MDM for secure device, app, and data management.
- Ability to view live video from mobile devices (iOS/Android) with up to 25 concurrent users, even without proprietary apps.
- Receive SMS and push notifications for critical alerts on mobile devices.
- Full PTZ control is available via both the mobile app and remote locations.
- VMS and Mobile App support for multiple sites across WAN, centralized control and viewing.
- Internet Gateway for Remote Access to Live & Playback Video, PTZ, and Digital I/O
- Supports GIS Layer & OSM Layer; Autocad (.dwg), Live Video Grid available.
- Admin groups can remotely control operator clients with set access rights and full-screen view.
- Provides full mobile application functionality via WLAN and cellular networks, enabling live and archive video viewing, server action triggers through intuitive software buttons, and complete alarm display and search capabilities on Android and iOS devices.



Full Product Specifications

Web-based Surveillance & Remote Viewing

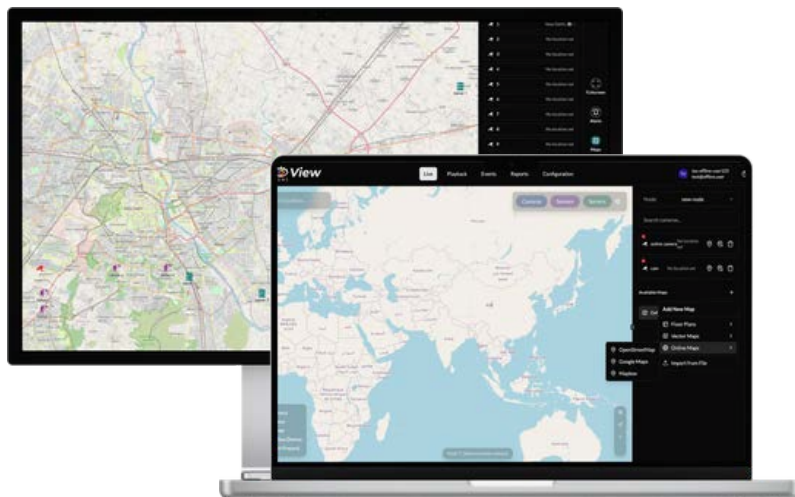
- Remote administration via the Internet.
- Secure mobile access with 2FA & device binding
- Supports browser-based viewing.
- Remote diagnostic and troubleshooting tools for administrators.
- Encrypted mobile access, ensuring all data is protected during transmission.
- Database support per schematic (three options selectable by purchaser), including MS-SQL-based directory architecture.
- Shows real-time camera status with connected/disconnected counts and graphs.
- Supports comprehensive camera uptime/downtime reports accessible through the reporting module.
- Web-based dashboard for object behavior monitoring.
- Remote access to object tracking reports and visualizations.
- Real-time summarized playback accessible via remote interface.
- Role-based client module offers tailored interfaces for administrators, live operators, and archive viewers.
- Supports loading of custom SSL certificates, enabling end-users to deploy their own certificates for secure web client access while maintaining organizational security compliance.
- Provides browser-based access without requiring any client-side installations or plugins.
- Delivers full web client functionality via any web browser while supporting custom SSL certificate deployment for organizational security compliance and enhanced encryption standards.



Full Product Specifications

Advanced E-Map Navigation

- Supports two types of E-Maps: third-party GIS-based or JPEG-based for independent management.
- Displays spatial positions of cameras, checkpoints, and E-Police locations for easy navigation.
- User-defined watchlists and tracking on E-Map
- Tile locking/focused tracking on map or UI
- Digital PTZ for map supports zoom and pan controls
- Supports map presets for quick region switching and camera view coverage display for efficient monitoring.
- E-map interface allows clicking cameras to view live feed in display tiles.
- Enables vehicle search by license plate and time period with history playback.
- Shows detailed information and images of passing vehicles.
- Supports Graphical Site Representation (Maps) to display camera and device locations with clickable hyperlinks for map interlinking and camera selection.
- Enables advanced analytics with full camera calibration to reduce false alarms.
- Geo-spatial object location display for enhanced situational awareness.
- User-defined area inclusion/exclusion for object tracking.
- Supports unlimited number of maps with JPG, PNG, BMP, and GIF file formats. Features mouse hover preview windows displaying live camera feeds, lasso selection for automatic matrix arrangement of multiple cameras, and comprehensive camera icon field of view customization including color, transparency, rotation, angle adjustment, and radius control. Enables flexible entity name label display with mouse-over or permanent visibility options.



Full Product Specifications

Intelligent Alarm Management

- Customizable alarm schedules with priority levels and multi-linkage options.
- Supports camera, device, IO, and server alarms.
- Storage management with failover options
- Device health and firmware monitoring with security alerts
- Configurable reactivation thresholds and detailed alarm procedures.
- Supports recording, alerts, control, comments, and customization.
- Auto health checks with service restart and server reboot for stability.
- Generates detailed alarm reports for quick response and analysis.
- Alarm Management Server logs events, processes I/O alarms, and triggers automated actions like alerts and PTZ presets.
- Logs events, processes I/O alarms, & triggers actions like alerts & PTZ presets.
- Dwell alerts, ANPR-based search, match alerts, filters, & object-specific flags.
- Displays cameras only on alarm, auto-resizing matrix grid for multiple alerts.
- Alarms are highlighted in yellow/red in the device tree and profile/area maps.
- Users can control and close digital input/output and text data devices.
- Alarms appear on the time slider with auto-grouping upon zoom.
- Alarm settings are adjustable via the activity panel.
- Supports "New Alarm First," rotation, and back-and-forth circulation.
- Allows silencing alarms for 5 minutes to 24 hours to reduce false alerts.
- Assigns priority levels and directs alarms to specific users instead of all.
- VMS shall support Camera Forwarding functionality providing instant access during critical incidents by forwarding active cameras to another user or AD group without involving the administrator and without requiring changes to user rights.
- Users in the same group can manage and view assigned alarms in real time.
- Maintains a single alarm stack across multiple recording servers.
- Alerts are automatically sent to registered recipients using WhatsApp messenger with alarm images and 3-minute alarm videos delivered directly to selected WhatsApp numbers for immediate incident response
- Users can add comments to alarms for context and tracking.
- Triggers alarms for motion, audio, text, signal loss, third-party, & VCA events.
- Prioritizes, routes alarms, manages groups, and consolidates servers.
- The system supports alarm triggering via digital input (I/O) devices, including external panic buttons. Upon activation, the associated camera automatically pops up on designated client workstations with configured priority handling.

Full Product Specifications

Proactive System Management

- Automates time sync, backups, reboots, and health checks.
- Features an inbuilt secure data distribution method for fault tolerance.
- Provides a centralized interface for device monitoring and management.
- Tracks real-time server status with categorized performance metrics.
- Monitors device status across organizational units for seamless control.
- Tracks live user sessions with login details, IP, and duration.
- Generates logs & reports in graphical/tabular formats with PDF & Excel export.
- Provides a unified interface for managing security across all monitored sites.
- Provides real-time status of recording servers and storage.
- Supports automatic stream reset and manual reload/closure.
- Supports report generation with export to PDF, Excel, and more.
- Real-time system diagnostics with device status indicators (Normal, Recording, No Signal, Offline, Connecting, Disconnected)
- Supports concurrent video processing with load balancing, bandwidth optimization, and failover for uninterrupted performance.
- Network-based Server/NVR deployment
- Built-in vendor maintenance and health monitoring tools for proactive upkeep.
- Provides Pre-Failure Alerts (CPU, RAM, RAID, HDD, NIC, Power Supply)
- Continuous monitoring of NVRs, cameras, storage, and servers.
- Activates low-latency mode and optimizations when CPU > 85%.
- Instantly detects and reports NVR HDD errors to prevent data loss.
- Real-time NVR camera monitoring with uptime and disconnection reports.
- Integrated alarms for obstruction, tampering & environmental hazards.
- Seamless alarm escalation to enterprise platforms.
- Allows administrators to manually clear archived data and system caches
- Supports display and management of unlimited connected cameras.
- Simple database query processing tool to search through the health status information, enabling operators to quickly locate and analyze system performance data and historical health records.
- The VMS supports SNMP v2 and SNMP v3 for integration with third-party network monitoring systems and enterprise management platforms.



Full Product Specifications

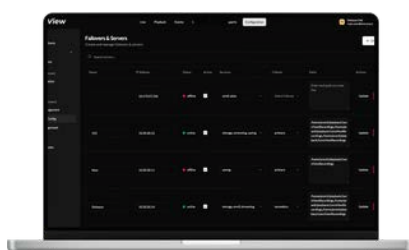
Administration & System Management

- Auto device discovery via UPnP/ONVIF for seamless integration.
- Real-time and scheduled backup to Near DR Servers/Storage.
- Supports open architecture with non-proprietary hardware, network, & storage.
- The VMS system shall utilize commercial-off-the shelf(COTS) computer workstations, servers, networking devices and storage equipment..
- Supports SRTP for secure media encryption
- No software limit on cameras per recording server.
- Per-camera encryption for all or selected cameras.
- HTTPS & SRTP streaming with encryption for camera-server communication.
- Admins can control users, devices, streams, & settings through the VMS Client.
- Direct IP-camera configuration (IP, firmware update, no-restart)
- UPS integration for power loss, environment data, and tamper alerts.
- Admins control user access to devices, settings, plugins, & profiles in the VMS app and GUI.
- Granular, role-based GUI privileges with per-user profiles.
- Add all cameras in one click and bulk-configure same-model devices instantly.
- Auto switchover to redundant servers with failover in 30-45 seconds and auto-sync on primary restore.
- Comprehensive video summarization with custom model training, detailed tracking reports, and SLA-compliant execution.
- Unique, unmodifiable usernames & complete operation logs for internal review.
- Supports face blurring, moving object blurring, and privacy zones, configurable under System configuration, with privacy features in exported clips.
- Scalable client-server architecture, compatible with Windows Server 2016/10, supports keyboard, mouse & DirectX joystick.
- Restricts access by binding login to a designated computer, preventing unauthorized logins from other devices.
- Supports latest tested operating system versions as recommended by VMS OEM, ensuring optimal performance and security with current OS releases
- Captures, stores, and delivers video, audio, and alarm data to connected VMS clients upon request, ensuring centralized data management and seamless client access across the surveillance network.
- Compatible with virtual machine environments deployed on physical servers, providing flexible infrastructure deployment options for enterprise virtualized environments.

Full Product Specifications

Administration & System Management

- Offers native 1:N failover management without relying on OS-level clustering.
- Native 1 : N failover with config sync via backup/restore and SQL mirroring; geo-distributed failover support
- Automated health checks ensure VMS optimization & prevent functionality loss.
- Supports role-based security, real-time hardware monitoring, agent-free management, and automated updates.
- Add & manage unlimited number of recording servers under the same management server.
- Centralized configuration with multi-profile user support.
- Role-based access control allows user authentication and rights management.
- Dashboard includes bandwidth & storage planning calculator.
- Supports L3 switches and multi-subnet architectures for easy scalability.
- Operates cameras & workstations independently of archive servers.
- Dynamically balances server-client loads for optimal performance.
- Supports client applications including system, web, video wall, & mobile clients.
- Supports login by username and password, also manages all user information, permissions, license, operation information and system information.
- Enhances security with 2FA and restricted audit log access.
- Activity logs with user-wise timestamps.
- First-time login and device linking require QR code-based sync.
- OTPs refresh every 30 seconds, time-synced.
- Supports user-specific camera and feature access with password protection.
- Enables admin-controlled camera operations & monitoring.
- Includes plug-ins for alarms, AVM, 360° view, diagnostics, image controls, monitoring, smart search, profile mapping, VCA, web browsing, and zoom.
- Supports OpenID protocol for standardized authentication and single sign-on capabilities, enabling seamless integration with enterprise identity management systems.
- The VMS supports MS-SQL 2012 or higher (including SQL mirroring and failover architecture) as well as equivalent enterprise-grade database engines as per deployment requirements.



Full Product Specifications

Administration & System Management

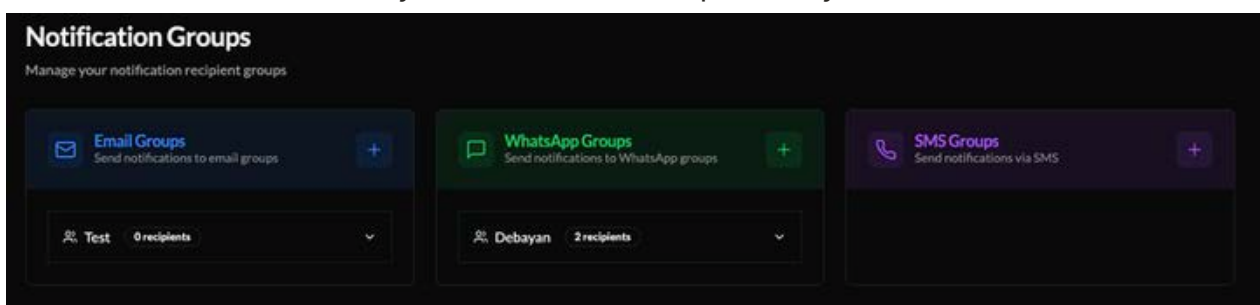
- Dual-operator login RBAC with user restrictions, password expiry, and logout.
- Analytics alarms in live and playback modes
- Customizable dashboards per user role and preference.
- Authenticates user validity via the system management server.
- Complete server logs capturing login access, system settings changes, archiving events, video/recording loss, and user activity.
- Help tab with full operational and software guidance.
- Alarm acknowledgment, incident creation, snooze, and manual triggers.
- Configurable user privileges with rights saved in assignable profiles.
- Works with Ethernet, Wi-Fi, fiber, and cellular (4G/LTE) networks for deployment flexibility.
- User activity alarms (login/logout/fail), audit logging, and enforces password complexity, expiry, and logout policies.
- Capture and configure all edge analytics alarms into the VMS alarm database.
- Administrator Permissions (User Group Role Management for Hardware & User Admin Rights)
- Supports end-user, system, browser & mobile client programs
- Runs on both Windows and Linux (64-bit) for optimal performance.
- Admin can assign user rights to access, modify, and manage plug-in roles.
- Supports 10 concurrent clients by default, expandable to 20 at no extra cost, with scalability for 50+ clients via separate licensing.
- Runs as a Windows service, managing operations, communication, authentication, logs, and system health.
- Client programs support up to 20 concurrent users & multiple profiles per user.

Role Management				
Create and manage role definitions				
Search roles...				
Role Name	Users	Permissions	Importance	Actions
Administrator	1 users	1 permissions	Level 10	
Operator	0 users	1 permissions	Level 9	
User	1 users	1 permissions	Level 8	
Role Assignment				
2 users • 3 roles available				
Search users...				
User	Email	Current Role	Assign Role	Last Updated
Dehayan Deb	dehayan@thecorp.com	Administrator	Default role	Invalid Date
Dehayan	dehayan@thecorp.com	User	Default role	Invalid Date

Full Product Specifications

Administration & System Management

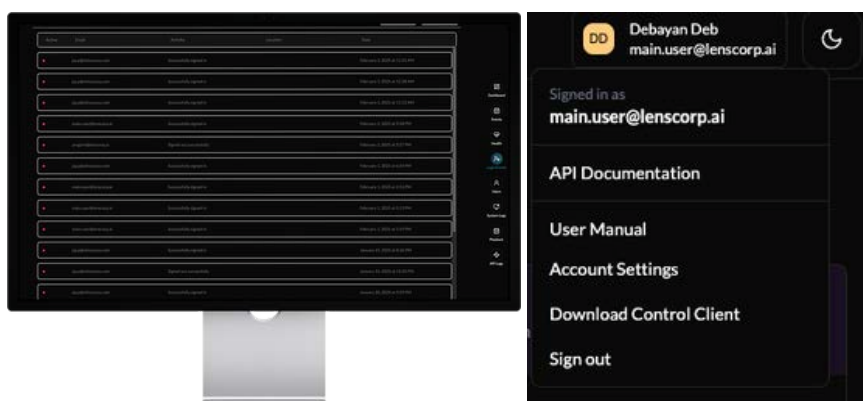
- Watchdog monitors VMS for issues like offline cameras, servers, and network loss, with alerts for external failures.
- Operates as a single-unit system with centralized management.
- Admins can grant users access to mixed mode and privacy masks.
- Automatic clearing of notifications after issue resolution for accurate status.
- Daily backup of VMS settings for easy restore after OS reinstall.
- Configurable daily alarm reports sent automatically via email.
- Supports customizable email settings (user, SMTP, port, credentials).
- Storyboard Feature (Create, Edit, Save, Share, and Export Video Sequences with Descriptions, Subtitles, & Playback Modes)
- Users can customize general, export, plug-in, alarm, stream, display, advanced, storyboard, and data cache settings.
- Supports recorder server backup and restore.
- Users can modify general, clip export, image export, plug-in, alarm, stream, display, advanced, storyboard export, and data cache settings.
- Admin can limit user access to playback streams from 1 minute to 24 hours.
- Allows changing cameras anytime without extra cost or license key updates.
- No online activation required for VMS operation.
- Unified monitoring of live video, alarms, and recordings with integrated access control events.
- Network health and camera status monitoring are integrated into the UI.
- Supports a Dual Password Feature for administrators.
- Provides a detailed operations guide for users within the client software.
- UI adapts to user roles with customizable layouts, unifying video, alarms, and access control with layered event and map overlays.



Full Product Specifications

Administration & System Management

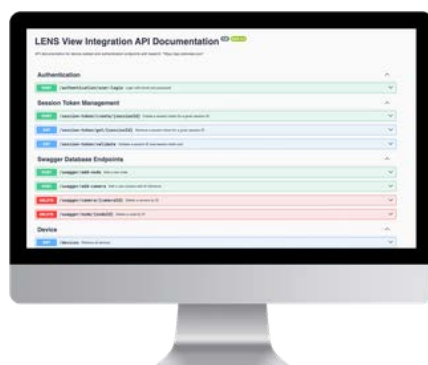
- Supports multiple Master Server connections and desktop shortcuts.
- Supports multiple sub-networks for cameras, VMS, clients, and storage.
- Supports all forms of IP network connectivity, including AN, WAN, VPN, Internet, and Wireless.
- Supports offline licensing management, with licenses valid for the hardware's lifetime unless the hardware or OS changes.
- Licensing requires only the server/recorder MAC ID, not cameras.
- Widget-level data from 3rd party systems using OPC & BACnet.
- VMS software licenses linked to computer hardware, allowing easy replacement of cameras without affecting the license.
- Lifetime-valid perpetual licensing provided, available as SaaS.
- Session timeout and auto-logout for web/mobile clients.
- Offers an unlimited license model with no base or channel modules.
- Supports Ethernet, Wi-Fi, fiber, and 4G/LTE for flexible deployment.
- Instant camera replacement with the original IP, no reconfiguration necessary.
- Server supports adding multiple master recorders for system expansion.
- Protects, detects, and recovers from cyber threats while ensuring secure boot and firmware integrity.
- Prevents unauthorized execution, tampering, and rollback attacks using a hardware-based Root of Trust.
- Client applications verify user validity via the system management server.
- Configurable password policies with complexity, expiration, & scheduled locks.
- Dashboard shows password strength and suggests hardware improvements.
- VMS system must seamlessly integrate with existing installed VMS deployed by Smart City for common operating picture for police department.



Full Product Specifications

Device and Camera Support

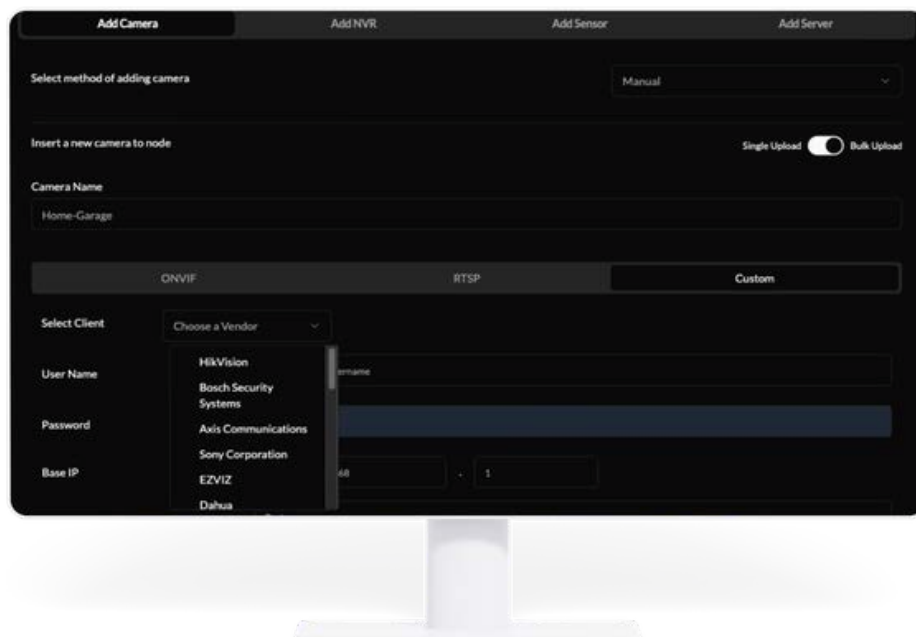
- Provides VMS software API/SDK for integration within ICCC scope.
- VMS software is compliant with data privacy laws, ensuring proper planning, design, and policy regulation for video surveillance systems.
- Support for advanced IP camera features like analytics overlays, heat maps, and face recognition.
- Integration with third-party analytics platforms.
- Camera KPIs available in Reports section.
- Compatible with motorized, fixed, and varifocal lenses for site-specific coverage needs.
- Integration with video, data, digital I/O, scheduled I/O, and logical I/O.
- Supports integration with Access Control Systems, Fire-Alarm Systems, and industrial protocols (MODBUS, MODBUS TCP/IP) through open API/SDK architecture for unified security management.
- Supports virtual cameras for integration with software-based video sources.
- Virtual Camera Support (Define Zoomed-In Views from Existing Cameras, Up to 45 Virtual Cameras Per Feed)
- Supports multi-site deployments with 24/7 surveillance and vendor-agnostic integration.
- Features an inbuilt Camera Audit facility that tracks camera order, name, shortcut, status, footage details, and reference images, with the ability to select one or multiple cameras for the audit summary.
- Allows audit summary includes camera name, audit image, status, comment, admin details, and exportable PDF file; it tracks the workstation accessing the record.
- Supports mobile devices as streaming video sources, enabling smartphones and tablets to function as CCTV cameras within the VMS infrastructure for expanded surveillance coverage and flexible deployment scenarios.



Full Product Specifications

Device and Camera Support

- Supports various IP cameras, encoders & DVRs with no hardware limits.
- AI video analytics on cameras or server (24/7)
- Custom allocation of analytics to cameras
- File-format utilization for enrollment (JPEG, PNG, BMP, TIFF, etc.)
- Camera uptime/downtime reporting available.
- Capable of integrating community surveillance cameras of any make and type that are ONVIF Profile S, G, M, and T certified.
- Scalable, cyber-resilient VMS with 4096-bit RSA encryption, and SHA-384 hashing.
- Compatible with bullet and dome cameras for indoor/outdoor use
- Enables viewing and record retrieval via ICCC edge gateway at no extra cost
- Easy menus with camera setup & batch config options.
- Compatible with 3rd-party VMS and platforms for unified video summarization, cross-camera object tracking, and format-agnostic data processing.
- Custom allocation of analytics to cameras
- Appliances come pre-loaded with VMS as per full specs.
- ONVIF Full Member for smooth third-party integration.
- Scalable VMS supporting 5000+ cameras with easy license and server expansion.



Full Product Specifications

Device and Camera Support

- Locate devices within the viewing application with quick search functionality
- Auto lens focusing for clear imaging of moving or variable-distance subjects.
- Flexible mounting with adjustable brackets for precise camera alignment.
- Minimum 4 camera streams for Face Recognition Software at stations
- Supports at least 40 different camera makes. Below are some:
 - HIKVISION Digital Technology Co., Ltd.
 - Honeywell Commercial Security (Honeywell International Inc.)
 - CP PLUS GmbH & Co. KG (Aditya Infotech Ltd.)
 - Pelco Inc. (A Motorola Solutions Company)
 - Panasonic i-PRO Sensing Solutions Co., Ltd.
 - Avigilon Corporation (A Motorola Solutions Company)
 - Dahua Technology Co., Ltd.
 - Axis Communications AB
 - Bosch Security Systems
 - Hanwha Techwin Co., Ltd.
 - Intelbras S/A
 - Mobotix AG
 - Zhejiang Uniview Technologies Co., Ltd.
 - VIVOTEK Inc.
 - Huawei Technologies Co., Ltd.
 - IDIS Co., Ltd.
 - GeoVision Inc.
 - TVT Digital Technology Co., Ltd.
 - Milesight Technology Co., Ltd.
 - Sony Corporation
 - Merit LILIN Ent. Co., Ltd.
 - Tiandy Digital Technology Co., Ltd.
 - Sunell Technology Corporation
 - Micronet Communications Inc.
 - Moxa Inc.
 - Zavio Inc.
 - Brickcom Corporation
 - Grundig Security
 - NTIC CCTV
 - FLIR Systems, Inc.
 - Pixord Corporation
 - Truen Co., Ltd.
 - ACTi Corporation
 - Forenix
 - ICANTek Co., Ltd.
 - Sanyo Electric Co., Ltd.
 - Arecont Vision Costar, LLC
 - JVC Professional Products Company
 - Sparsh Security Solutions Pvt. Ltd
 - D-Link Corporation
 - ZKTeco Co., Ltd.
 - Toshiba Corporation

Full Product Specifications

Analytics Overview

- Real-time 3D reconstruction from 2D feeds with 5% accuracy.
- PTZ handoff and manual target tracking.
- Automatically maps camera positions in 3D & scales from 1 to 16 feeds.
- All-condition comparative, adaptive & hermeneutic motion detection
- Provision for multiple face samples of the same person.
- Advanced search with attributes, color, combinations, and fall detection.
- Smart face recognition, live capture, matching, enhancement, and enrollment.
- Robust recognition, handles occlusions, expression changes, low light & motion
- Matching technology – best-in-class 1:N matching and optional 1:1 verification
- Face recognition works online/offline, with instant mobile and email alerts.
- Smart enrolment – Add photos, detect duplicates & enhance images
- Configure line-crossing, loitering, and unattended-object rules, define analytics zones for real-time alerts, and achieve over 90% detection accuracy.
- Detects and alerts on tampering of face-recognition cameras.
- Face-recognition alerts by category (blacklist, VIP, staff).
- Supports interactive 3D scene navigation with pan, tilt, zoom, and orbit.
- Automatically activates recording based on analytics-driven events.
- Handles a minimum of 100 cameras or more with analytics in one recorder.
- Track visitor traffic with hourly to monthly analysis using People Counting.
- Supports analytics for loitering, tailgating, and unauthorized entry detection.
- Supports event detection like line crossing, crowd alerts & object removal, object detection, hand gestures
- Integrates thermal and visual smoke/flame detection for early fire response.
- Supports slip & fall detection for high-risk or compliance-sensitive areas.
- Enables automatic PTZ handoff and preset tracking of moving objects.
- Supports camera masking & blindness detection for real-time sabotage alerts.
- Combines analytics for intrusion, loitering, ANPR, face recognition, and human



OBJECT CLASSIFICATION



TRIPWIRE



RUNNING DETECTION



AI-BASED
PICKPOCKET
DETECTION

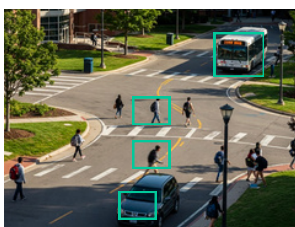
Full Product Specifications

Analytics Overview

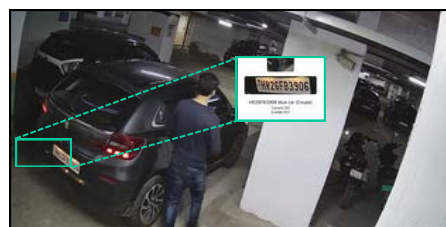
- ANPR captures vehicle plates and driver images for all vehicle types, with high accuracy day and night, supporting boom barrier integration and English plates.
- Allows configurable protection and manual correction of plate reads, with easy hotlist creation, full/partial/wildcard search, and multi-field hotlist queries.
- Fully integrated with forensic analytics and Alarm Centre, including map-based real-time ANPR monitoring.
- Supports advanced multi-criteria vehicle search and tracking by color, type, plate, date/time, and location, including detection of vehicles without or improper plates with UI filtering.
- Provides vehicle counting and classification with historical data, aggregated multi-camera counts, bidirectional counts, and multiple counting lines per camera.
- Real-time alerts for vehicle events, including wrong-way movement and illegal parking, displayed on live GIS/map views.
- Sends alerts via HTTP, email, and mobile notifications.
- Object extraction (Human, Animal, Vehicle) with superimposition.
- Appearance-based similarity search across multiple video sources.
- Advanced metadata and attribute-based video summarization.
- Highlighted object export in summarized content.
- Object similarity search with timeline-based visualization.
- Analytics dashboard for object of interest.



AUTOMATIC NUMBER PLATE RECOGNITION



VEHICLE & PERSON TRACING



PARKING SLOT DETECTION & MANAGEMENT



FACIAL RECOGNITION SYSTEM



FALL DETECTION

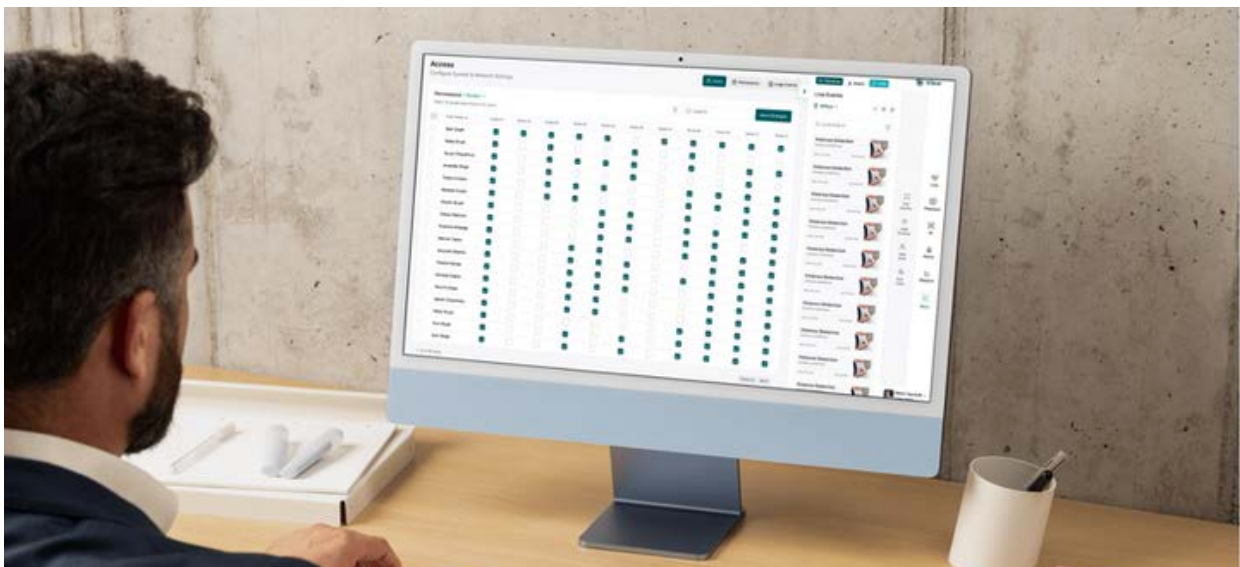


IMAGE SEGMENTATION

Full Product Specifications

Compliance & Security Features

- End-to-end control over design, manufacturing and core technology rights
- Strict sourcing policies to avoid unvetted external partners
- Includes advanced, vendor-integrated antivirus protection.
- Follows industry best practices for cybersecurity and hardening standards.
- Core code hosted only within approved jurisdictions
- Enterprise-grade scalability, accurate, real-time & offline performance
- Certified authenticity & secure code residency.
- Maintains IP documentation as per governance standards.
- Avoids protocols that bypass standard security measures.
- Ensures accuracy benchmarks for object detection.
- NIST-aligned performance benchmarking for summarization.
- SLA compliance for training, integration, and upgrades.
- API specifications available for secure integration.
- Secures all remote data transfers using TLS and AES encryption protocols.
- VMS with 5,000+ cameras deployed in 3+ projects.
- VMS OEM with a registered office and software center in India for 3+ years.
- UI does not allow enabling any security-compromising protocols.
- Product authenticity is ensured through trusted OEM partnerships.
- Preconfigured security and system hardening with Microsoft tools.
- STQC certified, ensuring compliance with Indian security standards.



Full Product Specifications

Hardware Requirements & Compatibility

- Supports high-performance Intel Xeon processors with multi-core processing.
- Operates efficiently with 64GB DDR4 RAM or higher.
- Supports RAID1 SSDs for OS and applications, ensuring reliability.
- Compatible with RAID6 storage up to 18 x 20TB HDDs (360TB+).
- Integrates with high-speed networks, supporting 2x 1G & 2x 10G ports.
- Ensures uptime with redundant hot-plug, FCC Class A certified power supplies.
- Compatible with a 2U Rack or better form factor for efficient hardware deployment.
- Database capacity – up to 1 000 000 faces, scalable via licensing
- Hardware, memory, and storage requirements outlined for video summarization.
- Dedicated video summarization server architecture supported.
- Supports both online and offline feed processing.
- Raw data utilization for model training included.





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