V2217 Series
Intelligent Video Management Software

Infinova®
The Integrator's Manufacturer

- **Feature-rich yet cost-effective solution**
- **Software based video management System**
- **Manages external devices along with video sources**
- **Supports wide range of video sources and external devices**
- **Highly optimized system which can manage thousands of video sources and external devices**
- **Runs on industry standard hardware and network components, no custom hardware requirements**
- **Supports virtual machines and virtualization platforms**
- **Supports wide range of storage devices**
- **Option for project specific customizations**

Simultaneous Functioning

- Recording
- Alarms handling
- Client software request handling
- Live view
- Camera control
- Map view
- Video analytics
- Playback
- Configuration
- Report generation
- Failover management
- Redundant recording

Video Input

- Hybrid solution which supports analog video as well as IP video
- Video capture from wide range of IP video sources – video cameras, video encoders, video servers
- Video capture from analog cameras through wide range of video capture devices – PCI video capture cards, USB video capture cards, video capture cards supporting on-board video compression
- Video capture from DVRs
- Supports video sources compliant with ONVIF specifications
- H.264, MPEG4, MJPEG, MxPEG formats
- Mega pixel (up to 10 megapixels) cameras
- IR / thermal cameras
- Fixed cameras and PTZ cameras
- 360 degree / fish-eye cameras
- Built in video capture algorithms to minimize the bandwidth usage
- Independent FPS, resolution and bit rate settings for display stream, recording stream and video analytics stream
- Auto search / camera discovery for IP video devices
- Auto search digitized inputs from analog cameras
- Add multiple cameras, with a single button click
- Edit video capture settings for multiple cameras, with a single button click
- Add linked cameras from a single video source (like video server or DVR), with a single button click
- Recommended settings guidance for each type of video source while adding cameras
- Capture and record audio stream
- Optional GPS co-ordinate specification for every camera
- User configurable 'Channel name' for every camera
- Y-flip video to manage difference in co-ordinate systems
- Automatic restore of video connection
- Flexible architecture to quickly integrate any new cameras

Multi-stream Cameras

- Advanced algorithms for optimized handling of multiple streams from cameras
- Flexible stream selection options which assist in designing the solution, exactly as per the project requirements
- Selection of 2 streams for live video display. Best stream for each display operation is intelligently selected by the software, to keep resource utilization to minimal
- Selection of recording stream for every camera
- Selection of stream for motion detection and video analytics processing for every camera
- Selection of stream for live video display on mobile clients

360 Degree Cameras

- Full support for 360 degree panoramic view cameras (and 360 degree lenses)
- Client side (display time) de-warping of fish-eye streams for live video as well as recorded video
- Complete control on de-warping parameters like camera mounting type, de-warping mode (fish-eye, virtual PTZ, half panorama, full panorama etc), image parameters (brightness, contrast etc)
- Virtual PTZ control for de-warped video streams
- Interactive virtual PTZ on de-warped streams using mouse
- Capture different channels directly from 360 degree camera – fish-eye stream, virtual PTZ stream, half panorama, full panorama etc, if camera supports these channels

- Independently record one or more channels captured from a 360 degree camera, with independent recording configuration for each channel
- Seamless PTZ control on channels which support PTZ operations
- Independent PTZ control for each channel
- Multiple video resolution streams capture for each channel – to work with optimization algorithms
- Automatic linking of channels from a 360 degree camera
- Configure name for each linked group of channels
- Single click operation to switch to any of the linked channels

Video Sequences

- A video sequence defines list of cameras and dwell time for each camera
- During display of a video sequence, the list of cameras is iterated cyclically, each camera being displayed for the specified dwell time
- No limit on number of video sequences which can be defined
- Video sequences can be defined in the server software, and are available for all connected clients, based on the privilege definitions
- Local video sequences can be defined in client software
- All defined video sequences are available in the tree controls associated with various screens. Video sequences can be viewed using normal drag and drop operation
- Optimized processing of video sequences, to use minimal resources

External Devices

- Manage external devices like – access control cards, motion sensors, fire alarms, fence control devices, zone controllers etc
- Support for TCP/IP MODBUS communication
- Primary and secondary videos association with external devices
- Provides video evidence for alerts and logs generated by external devices
- Alarm capture from connected external devices
- Full alarm handling configuration for alarms captured from connected external devices, similar to internal alarms generated from the software
- Flexible architecture to quickly integrate any new external device

External Systems

- Integration with external 3rd party DVRs, through DVR SDK / API
- Integration with external 3rd party NVRs, through NVR SDK / API
- Integration with external 3rd party VMSs, through VMS SDK / API
- Live video capture, PTZ control, playback video access, alarms capture from external recorders
- Sending control commands and notifications to external recorders
- Integration with external 3rd party license plate recognition systems through system SDK / API
- Integration with external 3rd party face recognition systems through system SDK / API
- Integration with external 3rd party license plate recognition cameras through camera SDK / API
- Dedicated 'License plate recognition' screen with live summary view and reports
- Dedicated 'Face recognition' screen with live summary view and reports
- Save license plate images
- Save human face images

Audio Devices

- Ability to add independent audio devices
- Audio data captured from audio devices is recorded independently
- Recorded audio data can be played back, synchronized in time, with video devices and audio streams associated with video sources

Device Groups

- One or more device groups can be defined to associate related devices together.
- All defined device groups are available in the tree controls associated with various screens, as a single node and all devices added to that device group as sub-nodes
- 'Exclusive device selection' option to easily define device groups with no devices included in more than one group
- 'All devices' device group is available by default and includes all devices
- Device groups are used for user privilege assignments
- Device groups can be used for categorizing devices displayed in the tree controls, associated with various screens.

Type of Alarms

- Network loss
- Network recovery
- Video loss
- Video recovery
- Low disk space
- Disk space recovery
- Recording failure
- Recording restored
- Motion detected
- No motion
- Camera tampering detection
- Video Analytics alarms
- Alerts generated by the cameras and video servers
- Alerts generated by the integrated external devices like access control systems, fence control systems etc
- External digital alarm input
- Alarms from relay devices
- Alarms from devices supporting MODBUS protocol

Alarms Management

- User configurable alarm handling for each type of alarm
- Alarm handling rules to configure alarm handling for specific type of alarm generated from each device independently. Provides completely flexibility to configure alarm handling for each type of alarm, and to customize alarm handling for alarm generated by a specific device
- Alarms stacking / queuing
- Alarm categories – Logs, Warnings and Alerts
- User configurable colors for alarm categories. Alarms list uses these colors to indicate alarm category
- Advanced alarm acknowledgement screen displaying active alarms queue, displaying live video and alarm videos associated with each of the alarms in the queue. Quick access to multi-channel playback and video export associated with search results
- Dedicated recent alarms screen, with support for alarm video view with navigation controls. Quick access to multi-channel playback and video export associated with search results

- User configurable 'Alarm name' definition for specific type of alarms generated from specific devices. This allows operators to understand an alarm more clearly and also improves the alarm reports output.
- Wide range of alarm handing options configurable for each type of alarm from individual sources
- Video overlay indicator
- Pop up alarm acknowledge window
- Manual alarm acknowledgement
- Time threshold based automatic alarm acknowledgement
- An alarm can be acknowledged from any computer which displays the alarm acknowledgement for that alarm. Acknowledged alarm is then removed from the active alarms list of all computers
- Play sound / audio
- Indicators on map – blinking icons or alarm indication on videos embedded in map
- Start multi-channel recording
- Move one or more PTZ cameras to pre-defined presets
- Start pre-defined tours for one or more PTZ cameras
- Send digital output signal
- Pop up live video screen
- Pop up preconfigured video screen
- Send e-mail – through standard SMTP server or Microsoft Exchange Server
- Save image
- Execute user defined macros
- Send to FTP
- Send SMS – through 'Phone network gateway' application
- Initiate phone call – through 'Phone network gateway' application
- Publish as RSS feed, with options to configure the alarms to be included in the RSS feed response
- Generate test alarms for quick tests of alarm handling configurations

Motion Detection

- Seamless integration of motion detection results available from cameras
- Motion detection processing from application
- Independent motion detection settings for every camera
- 'Motion detected' and 'No motion' alarms to indicate start of motion and end of motion
- Advanced motion detection algorithm with high accuracy and low resource utilization
- Record on motion
- Motion detection meta-date overlay on videos with configuration for overlay level – no overlay, only motion indicator, motion grids, full overlay
- Option to exclude motion detection alarms from alarms database entries

Video Analytics

- Video analytics on IR cameras and thermal cameras
- Support for video analytics on PTZ cameras, while the camera is in 'Home' position. Video analytics is automatically disabled when camera moves from the home position and video analytics is automatically started when camera is moved back to home position
- Seamless integration of video analytics module as video analytics is not a separate software application. No manual synchronization and maintenance is needed
- Dedicated video analytics screen to display analyzed videos from multiple cameras, with analytics meta-data overlay. Quick access to video analytics settings for each camera
- Independent video analytics settings for every camera
- Easy to manage, tightly integrated simple user interface
- Enhanced algorithms which need only few parameters to be configured to get good results from video analytics in most of the deployment situations. Advanced parameters are available, to handle special situations
- Local or remote processing of video analytics
- Availability of wide range of standard analytics features
- Intrusion detection
- Wrong direction movement, detection
- Line crossing / trip-wire
- Camera tamper / scene change detection
- Crowd detection
- Un-attended object detection
- Queue length detection
- Asset protection
- Loitering detection
- Tailgating detection

- Object stopped detection
- People counting, Vehicles counting
- Object trace / travel path
- Object speed calculation
- Digital auto-tracking
- Vibration removal
- Flexible architecture to quickly support customized video analytics features
- Option of project specific combined analytics on data generated by multiple external devices and video streams
- Option to use 3rd party video analytics libraries using their SDKs

Recording

- User configurable video resolution, frame-rate and bit-rate setting for each channel independent of other channels
- Ability to configure recording settings for a video channel group, with a single button click
- Multiple recording modes – continuous, scheduled, alarm-based, combined 'scheduled and alarm based'
- Scheduled recording – weekly schedule configuration with ability to select or de-select any hour within a week for recording
- Scheduled recording – with day specific over-rides for up to 5 dates. The original weekly schedule remains unchanged, which eliminates the risk of accidental changes and eliminate maintenance activities.
- Pre-event and post-event recording up to 99 minutes
- Option for full FPS recording on alarm, and low FPS recording in non-alarm conditions, with pre-alarm and post-alarm period configuration up to 99 minutes
- Operator activated recording
- Audio stream recording
- Video overlay text
- Available disk space and expected recording time indicators
- Recording history timeline
- Watermarking on recorded video
- Recorded data tampering detection
- Automatic storage space recycling, with user configuration for finer control on the recycling process
- User configurable thresholds for – 'recycle start threshold', 'recycle stop threshold' and 'low disk space alarm threshold'
- Option to exclude data associated with alarms, during recycling operations
- Network time server synchronization
- Multiple drives selection for recording
- All selected drives are used for recording simultaneously, to distribute the load. Each drive is processed independently
- Intelligent allocation of video channels to recording drives, to distribute the load and to maximize the recording duration for all cameras
- Manual over-ride for recording drive selection for any camera
- Ability to re-assign recording drives for all cameras, at any stage
- Supports recording on local hard disks, USB storages, Direct-attached Storage (DAS), Network-attached storage (NAS), Storage Area Networks (SAN)
- Supports iSCSI
- Supports network shared drives
- Supports RAID configured storage devices
- Fail-over recording with fully automatic data synchronization
- Redundant recording
- Option to use recorded data from video source (e.g. DVRs), and not

recording it locally, to save bandwidth and storage space

Video Search

- Recorded data report for specified camera
- Any camera can be selected from the drop down menu
- Calendar displaying recorded data availability state for each day – full data available, no data available, partial data available
- Recording history timeline indicator
- 24 hour video history timeline indicating time periods for which recorded data is available
- Video timeline focus indicator – with option to select focus duration interval. Quick access next interval and previous interval buttons
- Video timeline with 1 second interval indicating recorded video availability for each second
- Video playback synchronized with timeline indicators
- Option to use original aspect ratio for video display
- Click on recording history timeline to view associated video, with video navigation control – play, pause, rewind, fast forward, slow rewind, slow forward
- Indication on timelines for currently displayed video time
- Quick access to multi-channel playback and video export
- Automated recording history cache creation for fast access to recording history information
- Option to manually re-create recording history cache for specified camera for specified duration

Playback

- Synchronized playback of multiple video channels, up to 64 video channels
- Synchronized audio playback with ability to enable / disable audio playback associated with every video channel being played back
- Video navigation - play, pause, up to 16X fast forward and up to 16X rewind
- Slow speed playback – fast forward and rewind, up to 0.25X
- Alarm based playback
- 'Go-to' specified video time
- Frame by frame playback – previous frame and next frame
- Non-synchronized playback screen – where each video can be played for independent video times

Video View Screens

- Separate live video screens and playback video screens
- Tree view of video channels, sequences, external devices
- Automatic linking of video channels from same video source
- Single click operation to switch to any of the linked channels
- Device groups
- Indicators for state of cameras and devices – online / offline
- Indicators for static cameras and PTZ cameras
- Indicators for recording status of every channel – recording on, recording off, recording error
- Drag and drop camera selection for viewing
- Double click on tree control item to view video
- Camera selection modes – locked and un-locked. In un-locked mode first empty video container is selected for displaying the video
- Virtual matrix operations
- Patrolling mode
- Several screen layout options e.g. 1X1, 2X2, 3X3, 3X4, 4X4, 5X5, 5X6, 6X6, 7X7, 8X8, 1+5, 1+7, 1+9, 1+11, 1+12, 1+15, 1+16
- Page navigation within a layout

- Multiple video view screens (up to 14)
- Independent control of video view screen size and position on the monitors
- Independent layout settings for each video screen
- View up to 144 live videos and up to 64 playback videos in single video screen
- Option to maintain aspect ratio of the video stream during display (Display square pixels)
- 'Hide user interface' / 'view videos only' mode
- Instant replay with user configurable instant replay time
- Compact layout button
- Time indication – current time and video time
- Quick access toolbar for each video window
- Several video overlay options with text font and color configuration support
- Advanced algorithms to use multiple video resolution streams from video sources for minimum resource utilization
- Double click to view high resolution video
- Option to initialize the high resolution video window with currently displayed video stream, till high resolution video stream is available from the server / camera
- High resolution video window size control – full screen or user defined size
- Right click menu on each video for quick access to various features
- Image snapshot from live video and playback video
- Copy image to clipboard
- Add video bookmark
- Single click video export
- Single click video export for all videos displayed in the video screen
- Y-flip video control for every video
- Quick switch to linked channel
- Single click 'close all videos'
- On-screen camera PTZ control using mouse
- Camera PTZ control window which can be moved to any desired location on the monitor
- Recording history calendar with access to video search screen
- Quick access to video source information
- Quick access to digital operation configuration
- Quick access to camera PTZ, preset and tours control
- Multiple monitors support
- Option to select hardware acceleration for video display operations
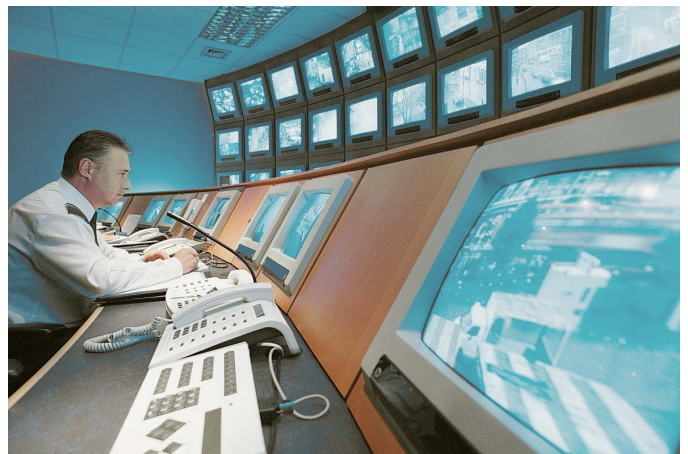
Video Overlay Options

- Video overlay text color configuration
- Camera name overlay
- Timestamp overlay
- Camera IP address overlay
- Bandwidth usage overlay
- Video resolution overlay
- Video frame rate overlay
- Recording state indicator overlay
- Audio play state indicator overlay
- Video loss indication
- Audio loss indication
- Server disconnection indication
- Motion detection overlay with configuration for overlay level – no overlay, only motion indicator, motion grids, full overlay

Video Screen Layout Profiles

- Layout profiles to configure different layouts on a single screen
- Layout profiles include the layout grid selection and camera selection for every video container
- Single click switching between layout profiles
- No limit on number of layout profiles that can be defined
- Layout profile sequences to change layout profile automatically after 'dwell time'
- Cyclic operation in layout profile sequence
- Pause layout profile sequence
- Move to next layout profile in the sequence
- Move to previous layout profile in the sequence
- No limit on number of layout profile sequences that can be defined

Video Panorama (Video Stitching)

- Defining relative arrangement of videos from multiple cameras, to get a single stitched video view
- Simple configuration with 2 point association. Advanced algorithm to arrange the video orientation based on 2 point association input from user
- Video panorama for live video as well as for playback video
- Full video navigation control for panorama – play, pause, fast forward, rewind, slow forward, slow rewind
- Instant replay for panorama

Camera Control

- Camera pan tilt zoom control
- Camera PTZ speed control
- Camera PTZ – auto zoom. User can select a rectangle and camera is zoomed to show the video for the selected rectangle
- Camera control priority settings for users with control lock time setting. Locks camera control assignment for next user if another user with higher priority is controlling the camera
- Unlimited user hierarchy levels for camera control priority.
- Move PTZ camera to home position
- On-screen camera PTZ using mouse
- Camera PTZ control window which can be moved to any desired location on the monitor
- Camera PTZ mode selection – manual or automatic, for cameras which support camera PTZ mode selection feature
- Iris control
- Focus control

- Image parameters control – color / black and white video, brightness, saturation, contrast, sharpness, hue
- Presets – add, remove, go-to
- Preset image capture and display for better indication of camera position in that preset
- Tours – add, modify, start, stop
- Tour configuration by specifying presets and dwell time
- Unlimited presets can be added to a tour
- Configure video stream parameters for every video channel independently
- Configure video stream parameters for a video channel group, with a single button click
- Configure on-screen display parameters for a video channel group, with a single button click
- Configure camera time for a video channel group, with a single button click
- Import camera names defined inside video sources to VMS; for a video channel group, with a single button click
- Export camera names defined inside VMS to individual video sources; for a video channel group, with a single button click

CCTV Keyboards and Joysticks

- Supports all standard USB joysticks and gaming controllers which are compliant with Microsoft Windows operating system
- Zoom direction configuration (zoom in and zoom out) with respect to joystick clock-wise or anti-clock-wise rotation, for uniform user experience independent of make and model of the joystick controller
- Supports CCTV keyboards
- Open platform architecture allows quickly supporting any new custom CCTV keyboard or Joystick
- Video screen selection
- Video camera selection in the selected video screen
- PTZ control of the selected video camera
- Communication status logs to assist during initial set up and maintenance

Digital Operations

- Digital PTZ
- On-screen digital PTZ using mouse
- Switch to home position (full video display) for digital PTZ
- Digital PTZ speed control
- Digital PTZ on paused video
- Magnification glass with zoom and size control
- Interactive digital PTZ using mouse controls
- Digital PTZ – auto zoom. User can select a rectangle and display is zoomed to show the video portion from the selected rectangle
- Digital auto-tracking. An object in the video is tracked by digitally zooming on it and continuously following it.
- Vibration removal
- Display-time (client-side) de-warping for 360 degree cameras

Users and Privileges

- Multiple user levels and privileges
- Built in standard privileges
- Ability to define custom privileges
- Ability to allow or dis-allow features for every custom privilege
- Ability to allow or dis-allow device group access for every custom privilege

- Built in standard uses
- Ability to define custom users
- Unlimited number of users can be added
- Ability to associate / change privilege for any user
- Unlimited number of users can be associated with a privilege
- Ability to disable a user. Ability to delete a user
- Administrator control to change password for any user
- User information registration e.g. name, address, phone number etc
- Active Directory integration

Video Export

- Quick export mode – starts video export for selected camera and continues till user ends the playback. Default video export parameters are used for quick export mode
- Advanced export mode – with all export parameters available for user configuration
- Video export based on time duration or alarm
- Export video for multiple cameras simultaneously
- Option for watermarking on exported video – custom text, camera name, timestamp; with option to set watermark text color
- Option to specify file name for exported video
- Standard format video export, exported video can be played in any standard media player like Windows Media Player
- Option to select the quality of video exported in standard format – high quality and standard quality. This also allows controlling the file size of the exported video file
- Native format video export along with player application
- Option to add password protection for native video export. The exported native video can be accessed only after providing correct password

Video Bookmarks

- Operators can quickly bookmark video from any camera, for a specific time-stamp, along with a comment
- Video bookmarks search to generate reports
- Search video bookmarks based on bookmark source, bookmark creator user, bookmark comment (with wild card search) and time duration
- Video bookmark search - bookmark video display with video navigation controls for play, pause, fast forward, rewind, slow play and slow rewind
- Video bookmark search - quick access to multi-channel playback and video export

Reports and Logs

- Current session logs view
- Current session alarms view
- Detailed user logs, activity reports, system logs

- Search user logs to generate reports
- User logs search based on user and time duration
- Report includes details like activity description, along with IP address of the computer which initiated the activity
- Alarms search to generate alarm reports
- Search alarms based on alarm type, alarm source, alarm name (with wild card search) and time duration
- Alarm search - alarm video display with video navigation controls
- Alarm search - quick access to multi-channel playback and video export associated with search results
- Export video for all alarms in the search result, with a single button click
- Print logs and reports
- Save logs and reports in TXT, CSV or PDF formats
- PDF format reports include associated images embedded inside PDF file
- Automated daily reports creation and save
- Automated daily reports e-mailing
- Print images
- Video bookmarks search to generate reports
- Search video bookmarks based on bookmark source, bookmark creator user, bookmark comment (with wild card search) and time duration
- Video bookmark search - bookmark video display with video navigation controls
- Video bookmark search - quick access to multi-channel playback and video export associated with search results

Status Reports

- Detailed status reports which indicate system state
- 'Save report' option for all status reports displayed in the software. These saved reports are useful in offline custom analysis of the site.
- Video channel availability – online / offline status for all streams from each of the video channels
- Recording status for all channels
- Video analytics status for all channels
- Bandwidth utilization status for all streams from each of the video channels
- Storage space utilization graph – view by video channel and time interval
- Video stream parameters – resolution, FPS, bitrate etc for all streams from each of the channels
- User configurable parameters summary for all channels
- List of current client requests being processed by the server
- Phone network gateway communication status
- CCTV Keyboards and joysticks communication status

Interactive Maps

- Multiple map view screens
- Multi-level maps with hyperlinks for quick navigation between levels
- Static image maps – support industry standard image formats like BMP and JPEG
- Multiple image support
- Dynamic maps – Google Maps and Openstreet Maps
- Tree view of cameras and devices
- Drag and drop camera, device and video sequence selection
- Camera and device indicators on map
- Alarm indication on map
- Embedded live video display of multiple channels and sequences on

map
- Option for high resolution video view for any camera
- Option to send camera video to predefined video screen, which can be resized and positioned anywhere
- Field of view configuration for each camera – direction, angle, range
- User configurable map overlay indicators – static camera, PTZ camera, map link, video sequences, external devices
- User configurable map overlay text – font, color, background color
- User configurable camera field of view indication for each camera – on/off, color, fill mode
- Privilege function to enable / disable map settings configuration for a logged in user
- 'Lock settings' mode to test camera configuration, as an operator with no access to map settings
- Export map configuration to server as a map configuration template
- Import map configuration template from server, for quick synchronization of map settings between multiple clients
- 'Hide user interface' mode
- Digital PTZ for map image
- Interactive digital PTZ on map image using mouse, with PTZ speed control
- Map location presets – add, edit, go-to
- Combining multi-level maps and map location presets, provides complete flexibility to define quick links to map view of any target region.

Surveillance Tasks

- Ability to configure one or more surveillance tasks which are performed as per the configured schedule
- Independent schedule configuration for every task. Schedule can be set as daily or weekly
- One or more surveillance tasks can be configured for same camera

User Interface

- Multiple monitors and video walls support
- Virtual matrix operations
- Built-in intuitive GUI for all camera control features including PTZ, presets, tours etc.
- Video thumbnail display to identify the specified camera
- Full screen view of any video channel
- Quick set up wizard for easy initial configuration
- All screens can be resized to custom sizes
- Single click 'Fit to screen size' support for all screens
- Simultaneous functioning of all features
- View video channels as a list or as thumbnails
- 'Reconnect to all cameras' button
- 'Save report' option for all lists displayed in the software. These saved reports are useful in offline custom analysis of the site.
- 'Lock server' to restrict un-authorized changes to server configuration
- Tree control displaying list of devices, also indicates the device state – online / offline, recording ok / recording error, PTZ camera / fixed camera. Different images are displayed for each of these states for all devices listed in the tree control

Multi-Language Support

- Supports multiple languages
- Advanced internationalization framework, to quickly support a new language

- Supported languages – Arabic, Bengali, Bulgarian, Catalan, Chinese, Croatian, Czech, Danish, Dutch, English, Estonian, Filipino, Finnish, French, German, Greek, Haitian, Creole, Hebrew, Hindi, Hmong Daw, Hungarian, Indonesian, Irish, Italian, Japanese, Kannada, Korean, Latvian, Lithuanian, Marathi, Norwegian, Persian(Farsi), Polish, Portuguese, Portuguese(Brazil), Romanian, Russian, Slovak, Slovenian, Spanish, Swahili, Swedish, Tamil, Telugu, Thai, Turkish, Ukrainian, Vietnamese

Data Management

- Archiving or deleting older recorded data
- Manual data clean up
- Scheduled data clean up, with support for daily, weekly or monthly schedule and cleaning up data older than specified number of days
- Manual data archiving
- Scheduled data archiving, with support for daily, weekly or monthly schedule and cleaning up data older than specified number of days
- Video player application is available along with the archived data for accessing archived data
- Offline data viewer screen for accessing archived data
- Option to exclude data associated with alarms, from clean up and archive operations
- Automatic storage space recycling, with user configuration for finer control on the recycling process
- User configurable thresholds for – 'recycle start threshold', 'recycle stop threshold' and 'low disk space alarm threshold'
- Option to exclude data associated with alarms, during recycling operations
- User activity logs recycling, with user configurable options to control the recycling process

Network Configuration

- Support for configuring 3 types of networks as completely independent networks – input network, output network and storage network; to allow fully flexible network design
- Input network is network connecting cameras and the server computer, Output network is the network connecting the server computer and the client computer(s), Storage network is the network connecting the server computer and the storage device(s)
- Allows keeping input network completely free of network bandwidth utilization fluctuations due to client connections. Input network always has calculated network utilization and ensures reliable video capture from cameras.
- Allows keeping storage network completely free of network bandwidth utilization fluctuations due to client connections. Storage network always has calculated network utilization and ensures reliable data storage
- User configurable IP address selection for input network and output network
- If IP address is not available / valid, when server software is executed; it automatically switches to the available IP address, and gives notification

alarm, and ability to view alert camera video
- Support for Apple Safari browser on iPhone and iPad, as HTTP client
- Settings to control video quality and bandwidth utilization for HTTP client and Smart Phone client video requests

Workstation Client Application

- Windows PC client application for operator workstations, which supports full operator features like viewing, browsing, report generation
- Connect to server using IP address or server computer domain name
- Can connect to server software running on a computer in same network as client computer
- Can connect to server software running on a computer which is behind NAT and available through port forwarding
- Client software can be download from server URL
- Automatic version check and client software version upgrade, if required
- 'Site book' feature which can list multiple servers with the connection information. Without typing complete connection information every time, client can quickly connect to a server available in the site book
- Multi-site monitor - connect to multiple servers and view combined data
- Simultaneously view live videos from multiple servers
- Simultaneously view time synchronized playback videos from multiple servers
- Automatic time synchronization between multiple connected server computers
- Quick configuration wizard for one time configurations
- Multiple screens concept which includes one main screen and optional one or more additional screens
- Main screen has compact user interface, including tree control listing all devices, camera control console, video display layout, alarms history list, alarm acknowledgement console and menus to access various client functions
- Option to set main screen as live video screen or playback video screen
- Alarms history list supports right click menus to quickly export alarm video, to display alarm video in playback video screen, to clear alarms list
- Supports multiple monitors
- Ability to configure number of live video screens, number of playback video screens, number of map screens, maximum number of cameras in a live screen and maximum number of cameras in a playback screen – to control resources utilization and restricting operators for performing operations which may affect resource utilization
- Client specific CCTV keyboard and joystick configurations
- Client specific alarms handling configuration
- Option to reset server features and server application from client application, if privileges are available for the user logged in to the client application

Failover Management

- Failover management server which can monitor one or more main servers – supports 1:1 failover configuration and 1:N failover configuration
- Fully automated failover operations, no human inputs are needed after one time failover management configuration is done

Fail-safe Operation

- Watchdog to continuously monitor application health
- Automatic saving all settings including user interface settings, screen sizes, screen location across multiple monitors
- Automatic full system restore after unexpected events like power loss
- System diagnostics parameters display
- Fully distributed architecture with no single-point failure
- Automatic optimization to lower resource usage, after the settings are done
- One click import and export of all settings for back up or for replicating the same set up on another computer
- Failover management server
- Redundant recording server
- Automated application maintenance and computer maintenance
- Designed to work 24X7 without requiring human inputs

Client Applications

- Standard server-client architecture
- Encrypted data communication between server and clients
- Support for port forwarding to support remote clients, when server computer is behind NAT
- User configurable 'Site name' to easily identify each site / server
- Automatic time synchronization with server computer
- Windows PC client for operator workstations
- Integrated web server which supports HTTP client – support for standard browsers Internet Explorer, Mozilla FireFox, Google Chrome, Apple Safari
- Smart Phone client, with real time alert notification with sound

- Automated VMS configurations synchronization between failover server and main servers
- When one of the monitored main server fails, processing is switched to the failover management server
- Client applications are redirected to failover server automatically
- When main server is online, processing is switched back to main server. Failover server starts monitoring all the main servers again
- Client applications are redirected to main server automatically
- Data recorded during failover processing is synchronized with main server automatically; with best possible bandwidth utilization for the synchronization operation to ensure primary VMS activities are not affected
- Failover management server can be configured in 2 modes – shared storage and non-shared storage
- In case of shared-storage, the physical location of the storage is shared between the failover server and the main server, hence no data synchronization is needed after failover processing cycle
- Some of the storage devices do not support shared access to the storage space from 2 computers. Non-shared storage mode is used in these cases

Redundant Recording

- Redundant recording server can be associated with every main server
- Fully automated redundant recording operations, no human inputs are needed after one time configuration is done
- Automated VMS configurations synchronization between redundant recording server and main server
- Redundant recording server replicates the main server and runs as a copy of main server and ensures that copy of recording is available all the time

Calculators and Tools

- Storage space calculator
- Storage throughput test application
- Bandwidth requirement calculator
- Network throughput test application
- Computer resource monitoring and reporting tool
- Camera ping / availability test tool
- Camera parameters manager tool
- VMS health check and reporting tool
- VMS resource configuration manager tool
- Diagnostic check tool, with auto repair functionality

Quick and Smooth Deployments

- Simplest and fool-proof software installation, with all dependencies automatically detected and communicated to the user
- No external software dependency, hence no synchronization and maintenance for external softwares
- Integrated single server application which includes all components – video management, hybrid NVR/DVR, video analytics, video streamer and gateway
- Simple and intuitive user interface
- Advanced user interface options to fulfill deployment site specific requirements
- Minimal learning curve for first time users. No formal training required
- Quick configuration wizards
- System notifications window which indicates warning and errors for situations which need attention. Some notifications are user acknowledgeable and some are not. Notifications are automatically removed when warning / error condition is resolved
- Computer resources monitoring and reports generation in form of graphs and tables.
- Resource monitoring includes total CPU utilization, CPU core utilization for all cores, memory utilization, network utilization, hard disk utilization, number of threads, number of handles, number of GDI objects, CPU utilization by the VMS application, hard disk space
- Advanced resource utilization fine tuning options to handle all deployment situations
- Advanced background operations priority configuration options, to ensure main VMS operations always get highest priority and have required resources available all the time
- Diagnostic check tool which analyzes the software configuration, computer configuring and complete system, to suggest possible improvements
- Automated application maintenance and computer maintenance
- Automated daily back up of configuration, on storage drive

Integration & SDK

- Security management System Client SDK - for other software systems to communicate with VMS. This SDK can be used to create a full featured customized client software
- Security management System Client SDK versions – OCX SDK and C++ SDK
- OCX SDK provides ActiveX control which can be embedded in any Windows application including .Net applications, native VC++ applications, web pages etc for quick integration and video access from external systems
- Basic functional integration using OCX SDK requires calling only 1 method from ActiveX control, hence integration can be realized very quickly. Based on the calling application's requirements, other methods can be integrated for further control of the ActiveX
- Security management System Alarm Communication SDK - for integrating external devices. The external device manufacturer can use this SDK to send alarms to the VMS
- Security management System Image Access API – to query live or recorded image from any camera available in the Security management System
- Security management System XML Based Alarm Communication API - for integrating external devices. The external manufacturer can use this SDK to send alarms to the VMS
- Security management System Remote Configuration SDK

Hardware Requirements

- Minimum hardware requirement for server software – Intel P4 processor, 2GB RAM, 200 GB hard disk space for 32 channels system
- Minimum hardware requirement for client software – Intel P4 processor, 2GB RAM, 1GB graphics card, 200 GB hard disk space for 32 channels system.
- Operating System – Windows XP (SP3), Windows Vista, Windows 7, Windows 8, Windows Server 2003, Windows Server 2008, Windows Server 2008 R2, Windows Server 2012
- Supports both 32 bit and 64 bit Windows OS versions

VMS Architecture
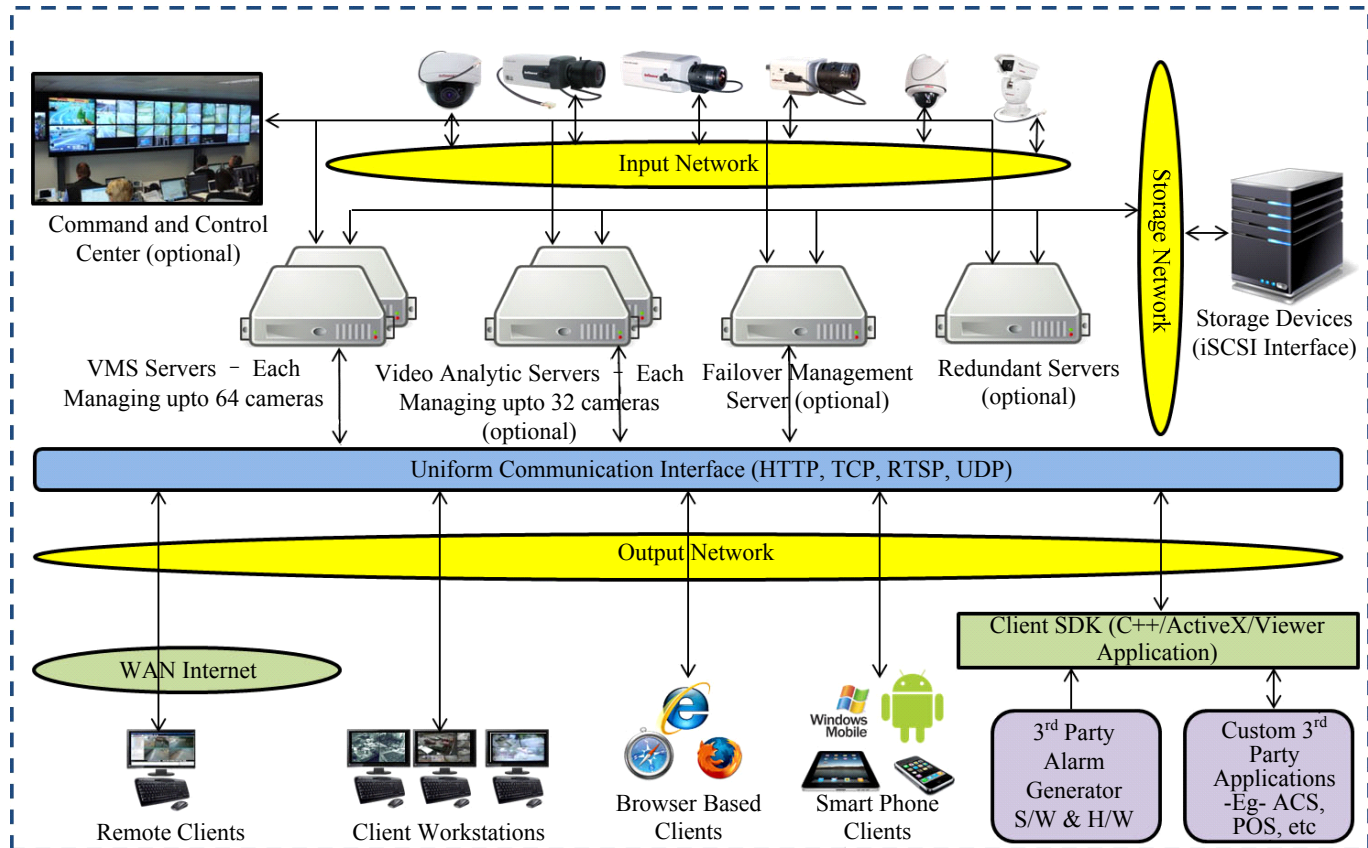
- Open platform system
- Fully distributed architecture
- Integrated single server application which includes all components – video management, hybrid NVR/DVR, video analytics, video streamer and gateway
- No single point failure. System continues to function even if all other servers go offline and single server is active
- Built-in video analytics module with seamless user interface
- Advanced algorithms to use multiple resolution streams supported by the cameras for automated system optimization and minimum resource utilization
- Optimized for multi core processors
- Scalable and expandable architecture. Cameras, server and clients can be added without affecting existing functional system
- Fully backward compatible software upgrades