



i2V Systems



Intelligent and Integrated
Video Solutions

i2V Enterprise VMS





i2V Enterprise Edition software is a powerful IP video management system designed for large scale, mission-critical enterprise applications, supporting unlimited cameras, servers, users and video analytics(based on license).

i2V is unique in itself with advanced Client - Server Architecture and integrated i2V Video Analytics. Built Incident-Event-Action framework further strengthens the whole solution with advanced Alarm Event Management over multiple devices other than cameras

Built on innovative Open Framework Video Management platform for both Analog and IP Video Devices making scalable hybrid Video Surveillance solution allowing easy integration of 3rd party security devices

Suitable for medium to large installations demanding Video surveillance over multiple locations. Multi Server Failover Architecture can expand from medium installation in more than one system to large installations in multiple recording servers and Management server.

Highlights

1. Performance: Maximum
2. Multiple Recording Server support. Expandable to Unlimited number of cameras.
3. Number of client license: 10 (By default but can be increased further).
4. Open Software supports cameras from more than 100 brands including ONVIF, supports non- proprietary hardware and storage
5. Scalable client-server based distributed network architecture, user friendly interface, supporting multiple Recording Servers per Management Server
6. Supports unlimited cameras, servers, users and video analytics (based on available hardware and license).
7. Fail-over and Redundancy ensuring uninterrupted access to both live and recorded video
8. Video wall and multiple monitor support for scalable video display of large number of cameras
9. SNMP Trap supported
10. Support LDAP, Microsoft Active Directory supported
11. Unicast, Multicast streaming available
12. Web and Mobile surveillance available
13. Event based playback available
14. Video Time Lapse or Video Synopsis feature to summarize the video of hours to seconds.
15. Built in Video Analytics Framework. Separate license required: Perimeter Trip wire, Missing object, Abandoned object, Object tracking, camera tampering, object counting, zone intrusion, stopped vehicle, wrong way direction, no helmet detection, triple riding fire detection, image enhancement etc.. Support Video analytic on live video and recorded video
16. Fourplex mode via Live View, Recording, Video Analytics and Playback simultaneously. Supports two-way audio for selected cameras
17. Advanced camera sequencing available
18. Motion detection based recording
19. Complete backup available
20. E-Maps/GIS showing real time device alarms with option to view live or recorded video
21. Third party Device Integration: Integration with devices other than cameras via SDK and software triggers provided by connected hardware controllers. Device can be Access Control, Motion Sensors and Door Switches, Fire alarms etc. VMS SDK also available.
22. Supports all Windows-64 bit OS including Windows-8,10 and Windows Server-2016, 2019



1. i2V Configuration Client



- a. Configuration client is the user Interface for configuring i2V server, cameras, encoder and other devices.
- b. Device, server, events, alerts , alarms and schedules settings
- c. Test Live view, recording and streaming properties of devices
- d. Storage settings for add, edit, delete of storage drives
- e. Add cameras, Tags, groups, views and user to create hierarchical tree
- f. Support for Remote and Local Configuration setting
- g. Remote Camera configuration & Recording Server Configuration
- h. Add/delete/edit camera, encoder, server and other devices
- i. User Guide/Manuals and Technical Manuals available
- j. Search Camera and view device(s) based on standard criteria like Camera ID/ Name, Location, Group, etc.
- k. Automatically synchronize Date/Time by using NTP
- l. Advanced recordings options (Video only, Audio only, Video plus Audio, Retention rules, Archive/backup rules, and storage limits etc.)
- m. System performance, operation status, Storage and network communication based health check.
- n. Generate logs & reports in Graphical & Tabular form and export in csv, pdf, excel or more format with zip archive

2. i2V Live View Client



- a. Live View of 101 cameras simultaneously on a single system provided hardware support
- b. Default, Custom live view/Tab screen configuration. Simple drag-drop of cameras. Screen views displaying up to 101 cameras with View saving support on local and remote system
- c. Live View of Cameras from Multiple Servers, Supports OSD from cameras.
- d. Digital zoom on live video and Still images(snapshots)
- e. Configurable Matrix views with size and number of cameras. Pre-defined views from full screen, 1x1 to 8x8
- f. Matrix/View Switching: Save and retrieve user views with pre-loaded cameras. Option to share views with other users.
- g. Camera/Workspace Sequencing: Select cameras and time interval Option to play, pause, forward camera from server or directly. Option to share sequence with authorized user.
- h. Instant playback with Live view and view live events
- i. Automatic Dual Streaming feature (Switching from Low to High Quality on Full screen mode)
- j. Support for Local and Remote live view access via Desktop client
- k. Live view through Web and Android, ios phones/Tablets etc.
- l. PC shortcuts keywords to help user to maximize view, switch view, save/copy snapshot, print snapshot etc.

- m. Ability to make bookmark of any portion of video
- n. Ability to create a stitched video footage from multiple cameras
- o. Function buttons: Snapshot, Camera settings, Audio-Video settings, Volume
- p. Display fps, resolution, date/time, codec on tile/pane
- q. Screen Lock and background live view enabling
- r. Video stream capture from Direct Camera or from i2V Video Streaming Server
- s. Option to change Live View directly from cameras or from VMS server using RTSP and HTTP
- t. Print with comment or without comment based image
- u. Configure Matrix view and set view as a default startup screen
- v. Live View and Playback of same cameras at same time
- w. Privacy masking feature in Live view

3. i2V Playback Client



- a. Intelligent Search based on Date/Time/Camera, Name, ID, Location for more than one camera simultaneously
- b. Quick/Instant Search of event based recordings e.g. Motion Detection more than one camera simultaneously
- c. Play, Stop, Pause, Fast forward, Reverse playback, seek-bar, Slow, frame by frame Playing options, synchronization option, supports OSD from cameras
- d. Digital zoom on recording and Still images(snapshots)
- e. Video file export in avi, asf, mp4 at user defined locations to play files in Windows Media Player/VLC player/i2V authorized Player and image in jpeg format
- f. Image enhancement on recorded videos
- g. Remote and Local access of Recorded Videos and Event snapshots
- h. Playback through Web and Android, ios phones/Tablets
- i. Video Analytics Events snapshot based search
- j. Timeline bar to show and replay recordings.
- k. Ability to make bookmark of any portion of video and view list of all bookmarks
- l. Video lock/Un-Lock features available
- m. Export Digitally Sign, 56/128/256 bit Encryption based tamperproof recordings at local and remote systems
- n. Support Forensic and Investigation mode.

4. Web Client

- a. Support for H.265 Codec Live & Playback Streaming.
- b. Support administration and monitoring
- c. Dashboarding Capabilities, such that the Dashboard should Support for Drawings/Maps GIS Layer, OSM Layer, Autocad .dwg File, .JPEG file format, .PDF file format, Customized Video Grid for Live & Playback of Video & Events Table
- d. Show the Camera details with Key Performance Indicators like, Total Cameras connected, Total Cameras Disconnected, Status Visualization in the form of Pie Chart
- e. Reporting functionality in the form Camera Uptime, Downtime.
- f. Show the Recording server status Report, Storage Space Available status & Reports



5. Video Analytics & Event Based Playback



- a. Intelligent Video Analysis for 24/7 surveillance with support for devices from different vendors.
- b. Detection of server based analytic events and integrate edge/cameras analytic events on same/different camera and Trigger event on VMS client System
- c. Wizard based Video Analytics Configuration
- d. Defining schedule and timings for Analytics Real time analytic events generated alerts & alarms like Sound, Email, SMS , Camera alarm (camera specific)
- e. Video Blinking and Pop Up alarms with audio
- f. Get event alerts on all Clients based on user assigned cameras
- g. View snapshots of Analytics events and generate report in graph, tabular form
- h. Playback on an event Search history of Analytics events.
- i. Search history of Analytics events. Search based on camera, type of event, or date & time Events
- j. Events based recording: Pre-Post buffer recording up to 5 minutes
- k. Option to draw up to atleast 20 areas and zone in each camera
- l. Run macros on event /alarm
- m. Low frame to high frame rate recording on events

6. Recordings and Storage

- a. Video Recording and Management as Windows service
- b. Supports recording in NAS,SAN, DAS, iSCSI and local hard disk.
- c. Supports recording in Hot storage as well as Cold storage
- d. Integrated with Cloud object storage API for S3 storage
- e. Recordings of different cameras at different drive path. Expandable based on system, storage media and network bandwidth availability.
- f. Video Recording: H.265, H.264, MJPEG, MPEG4, H.263, MPEGs and 5-25/30/60fps. All Camera supported resolutions, streams and frame rate.
- g. Support megapixel video cameras at least 1000 Mbps at 64 MP resolution
- h. Scheduled/Continuous/Manual Recordings and Motion based recordings, Event Trigger, Video Analytic Based Recording at all Camera supported resolutions, streams and frame rate
- i. Supports Dual Streaming from cameras
- j. Option for RTP over UDP, RTP over TCP , RTSP, HTTP, RTSP over HTTP streaming or both in live and recording
- k. Pre-Post buffer recording for events as per defined time.
- l. Storage and Bandwidth calculator. Defining multiple storage drive at camera level.
- m. Store recording in folder in tree structure
- n. Transcoding to low bit rate H.265, H.264 or MPEG4 for remote and mobile clients
- o. Option to Start/Stop recording manually for individual camera or automatic start recording after power resume
- p. Support multiple storage formats
- q. Support video cum audio recording with defined permission
- r. System and network communication based health check
- s. Continuous only key frame based recording and adjust bit rate as per requirement.
- t. Support primary and secondary/backup storage settings for individual camera feeds
- u. Tamper-proof recording

- v. Automatic Edge/SD Card recording Synchronization feature available (automatically merge camera local storage with the server-based recordings on connectivity restore)
- w. Storage Auto Switching option available
- x. Define limits and alerts for low disk space at warning and recording stopped levels
- y. Option for Video Pop up, Email and sound alarm on video loss during recording

7. i2V E-Map Client



- a. Importing of maps supporting all standard image formats i.e. file types JPG, PNG, GIF, BMP , vector images
- b. Supports Google /GIS Maps for location add/edit/search and saving the map image
- c. Unlimited level of linking of E-maps in hierarchical tree manner
- d. Easy interface via Drag and Drop of the cameras on to the map
- e. Camera blinking, sound alarm, video popup in case of event detection alerts
- f. Camera video stream disconnection detection and automatic display of the connection status
- g. Any time Live view display of the camera video with just a mouse click of the Camera icon on E-map

8. Live Events and Alarm Monitoring

- a. Live Event monitoring with camera viewing.
- b. Playback of events by clicking on an event
- c. Video Popup/Blink & Sound Alarms in Live View
- d. Analytics can be applied at lower resolution or Full HD-1080P resolution, H.265, H.264 compression and 5-25/60fps.
- e. Generate alarm on System failure and video loss
- f. **Escalation Matrix:** All events and alarms can be defined with escalation matrix. For example In case of no response from operator, immediate SMS to higher Authorities

9. Alarm Management

- a. Event notification, monitoring and acknowledge events generated from cameras, VMS system, third party devices, I/O devices by taking appropriate action (by send SMS, email, IVR call, mobile popup to respective authority)
- b. Alerts/notifications on Mobile phones with and without SMS using Push technology
- c. Display surrounding camera view in separate tile on alarm generation.
- d. Selected Layout open in separate window panel on alarm.
- e. Adjustable event time and screen layout
- f. Generate e-reports based on alarm event, date-time and camera

10. PTZ Control

- a. PTZ Soft keyboard joystick for PTZ cameras.
- b. Move camera using Pan, Tilt, zoom. Fetch and set Presets Tour, Pattern and other ptz camera functions
- c. Separate PTZ control panel.
- d. Auto Pan & Patrol options, On screen option, Control Hide, Optical Zoom available
- e. USB , RS 232 and Gaming and joystick support
- f. Support PTZ in android and ios mobile



11. Fail-over/Redundant Server

- a. Failover server ensuring uninterrupted access to database, live and recorded video in case of failure of Primary/Main Recording Server
- b. Very fast Detection failure of Primary Recording Sever
- c. Single Fail-over server can take over cameras from multiple Recording servers
- d. Event notification of all Fail-over events in Management Server
- e. Support Automatic failover of Management, streaming, database and recording server in N:1 and N+N configuration
- f. Continuous network communication based health check of Primary Recording Server
- g. Fail-over Server take over reducing the system downtime to few seconds (Approx. within 30 sec)
- h. Supports multiple Fail-over servers to be added on same Management Server
- i. Automatic real time live video update in the all active Live view Clients after take over of the Fail-over server
- j. Automatic database synchronization
- k. Support Manual failover

12. Motion Detection

- a. Defining motion detection Zones of any shape, size
- b. Detect Object that move within, enter, or exit a scene and triggering an event to VMS
- c. Object size and sensitivity parameters
- d. Turn on/off motion detection based on day/date/time schedule
- e. Motion based Pre-Post Buffer Recordings

13. Events, Alarms & Logs Management

- a. Motion Detection Events
- b. Video Loss or recording Aborted Alarm
- c. Recording and Live View aborted Events
- d. Signal Loss events
- e. User Login and Server start- stop logs
- f. Archiving Success-Failure Events
- g. Low disk space events. Option of email and Video Pop up on Low disk space event
- h. IVR Message, SNMP Trap, Email, SMS alerts on configurable events
- i. Quick Event based search for recorded videos
- j. Input/output (NO-NC) Relay Support: System has ability to activate, deactivate relay and support recording based on inputs or alarms.

14. User Management

- a. Desktop based and Web based Administrative interface
- b. Configurable users with their details, roles and permission: Administrator, Viewer based on Configuration Settings, Live view, Recording, Playback, PTZ access, Video Export, Audio settings, E-map, Video Analytics etc.
- c. Camera or camera groups assignment to users
- d. Interface to save basic details (including mobile number & email id) of the use, operator & other personnel requiring Viewing / Administration rights to the system.
- e. User based matrix views
- f. Encrypted Password Authentication for live, playback at local/client/remote login over LAN, WAN, Internet
- g. Dual Password Authentication using Access control integration, Mobile OTP etc. at client and server system
- h. Assign permissions to multiple user with single click
- i. Export Logs and user action reports
- j. Onscreen instructions and help menu is available

15. Camera Management

- a. Automatic Device discovery over the Network.
- b. Support for UPnP, ONVIF-S,G, T,Q & Bonjour Services
- c. Add cameras manually by ip address, port number, username, password etc.
- d. Supports more than 100+ camera/encoder, DVR/NVRbrands
- e. Add, delete, update all cameras/devices in single click
- f. Fetch/Edit settings like resolution, fps, profile, time of all cameras with single click
- g. Defining camera names, camera groups and assigning user roles/privileges
- h. Option to add other devices like Analog cameras, IP Cameras, encoders, microphone-speakers.
- i. Support
- j. Apply configuration setting of added devices to new devices by single click.
- k. Import camera details from excel/csv file
- l. Automatic camera sequencing on alarms/live video/playback

16. Client Software

- a. Support all IP/Analog cameras, 360 camera, encoders, microphone-speakers
- b. Decoding of 64 simultaneous streams or more from any video encoder or recorder.
- c. Support simultaneous viewing of Live vide and recorded video in same panel.
- d. Support decoding of High, Main, or Base profiles of H.265, H.264, MJPEG and MPEG-4 encoded video streams
- e. Support Multi- monitor and Video Wall.
- f. Fully compatible with decoder hardware, no need of authentication
- g. Support video de-coding of : H.265, H.264, MJPEG, MPEG4, MPEGs and 5-25/30/60fps. All Camera supported resolutions (4 CIF, 720p,1080p etc.) , profiles/ streams (High, Main, Base), and frame rate (5-25/60).
- h. Customizable video grid with 1x1, 2x2 to 8x8, (1+5, 1+7, 1+9, 1+12, 1+16) and custom layouts options.
- i. Support view switching and camera sequencing
- j. Support customizable GUI, secure authentication, one-click access, drag-drop, context menu, shortcut keys etc.
- k. Ability to save and retrieve presets for fisheye cameras
- l. Support decoding algorithm configuration including the GPU/Video cards or the CPU to decode video
- m. Ability of Auto Switching or Adaptive Switching: automatically switch to a lower resolution, lower bit-rate stream on full screen mode.
- n. Live view and Playback available at the same time
- o. Multiple Local/remote login concurrently using defined credentials.
- p. Control of views, sequencing using mouse, keyboard and integrated CCTV joystick
- q. Option to configure SOUND Alarm, SNMP, Video POP up, Mobile Phone Push Notifications, SOP execution on alert
- r. Incident Management and Escalation Matrix
- s. All events and alarms can be defined with escalation matrix. Acknowledge option is available or put an alarm to snooze, in-progress, pending list
- t. Automatic fault tolerance feature available.
- u. System performance, operation status, Storage and network communication based health check.
- v. Generate logs & reports in Graphical & Tabular form and export in csv, pdf, excel or more format
- w. Ability to de-wrap 360 degree camera in Quad, Double view
- x. Customized and user defined report, SLA Report, MIS report can be generated



17. Archiving

- a. Defining Archiving settings at individual camera level.
- b. Archive recordings to local or remote(ftp) system
- c. Automatic delete recordings after set number of days.
- d. Automatic Archive on low disk space.
- e. Customize recording archiving/retention setting for specific camera

18. Secure Communication & Scalable Licensing

- a. Supports free addition of cameras on already licensed Servers with only Camera license
- b. Scalable licensing model supporting unlimited cameras per server based on the available hardware configuration
- c. Reliable through fault-tolerant and multiple levels of redundancy
- d. Support multiple client components i.e. Live View, Playback and E-map based on the license
- e. Two-way audio communication between camera and VMS and option to send/broadcast Audio to multiple cameras
- f. Provides Feature based selection matrix facilitating different options while choosing the license
- g. Camera License not tied to MAC address of cameras
- h. Fully compatible with standard (COTS) hardware
- i. Unrestricted camera replacement in case of camera failure
- j. Secure client server communication using various secure communication methods like HTTPS, SRTP, TLS, AES-256, 1096 bit based encryption etc.
- k. Multi language support
- l. Multi Monitor & Video Wall support** based on the available hardware configuration
- m. Easy license retrieval in case of system failure
- n. Easy to download, install and upgrade software from the website or link provide by support team.
- o. Fully encrypted database with encrypted password.
- p. Support Automatic/ manual backup at a pre-defined time.
- q. Supports all network connectivity's like LAN, Wan, VPN and wireless
- r. Scalable with Antivirus and Proxy firewall network
- s. Support virtual server to minimize hardware cost
- t. Fully Cyber Secure and Risk Management framework to handle by generating Uptime, down time reports, system health status etc.

19. Multi Monitor & Video Wall support

- a. Automatic detection of additional display monitors connected the system
- b. Enables display of video screen layouts on the monitors to display as video wall
- c. Supports default screen views or custom screen views to be displayed on Secondary monitors
- d. Supports simultaneous display of the live video screen layouts in both Primary monitor and Secondary monitors
- e. All saved screen video list available at the Secondary monitors for easy selection of different views

- f. Supports camera sequencing on both Primary monitor and Secondary monitors with configurable display time
- g. Supports as many number of monitors as supported by the video display card

20. Third Party Device Integration

- a. Supports all ONVIF supported device
- b. Support Open interface to ensure seamless integration with 3rd party system and development of user plugins, adapters
- c. Integration with devices other than cameras through SDK/API and software triggers provided by connected hardware controllers. Device can be PA System, Access Control, Motion Sensors and Door Switches, Fire alarms, Face Recognition, ALPR, RLVD, external video Analytics, edge analytics, ICCV platform etc.
- d. VMS is fully integrated with i2V Facial Recognition, Number Plate Software
- e. VMS support integration with External Video content Analytics
- f. Supports Integration with GIS Map ((like Google map, Bing map, ESRI Arc GIS map, etc.).
- g. VMS Cloud platform available
- h. Rest based SDK/API is available having HTTP requests and parse JSON responses for allowing other systems manufacturers to develop customized interfaces

21. Mobile Support:

- a. An android and ios based mobile application to view the video feed.
- b. Configurable Matrix views with size and number of cameras. Swiping gestures to switch between camera grids and also with individual cameras to get to full screen mode.
- c. Screenshot/snapshot of the live & recorded frame
- d. Receive alarms notifications and alert Pop-up using using XMPP/MQTT etc.
- e. Mobile App support for multiple sites spread across LAN/WAN/INTERNET
- f. Support Remote Administration over internet
- g. Grid of 8 cameras visible when a tablet device is used in a landscape mode Screenshot/snapshot of the live frame
- h. PTZ control includes manual control, pre-set positions and camera tours etc.
- i. Easy date and time search for video footage.

About i2V

i2V stands for Intelligent Integrated Video. i2V is a technology R&D company focusing on design, development and production of Intelligent Surveillance solutions. i2V specializes in development of VMS(Video Management System), Video Analytics and Integrated Command Center.