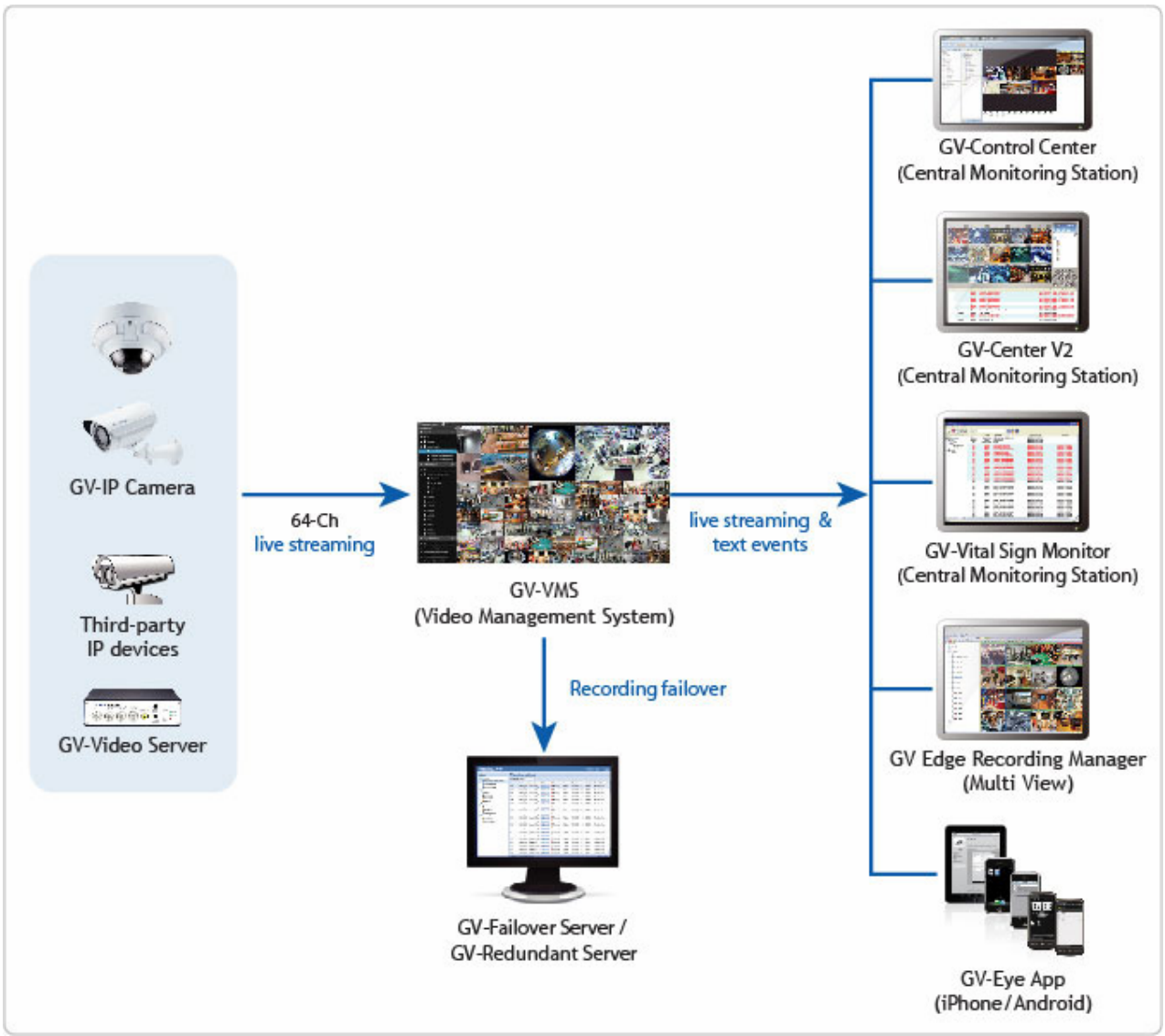
GV-VMS

INTRODUCTION

GV-VMS is a comprehensive video management system that records up to 64 channels of GeoVision and/or third-party IP devices. The live view and playback layout can be easily adjusted with the intuitive drag-and-drop function. GV-VMS comes with a variety of intelligent video analytics to offer precise monitoring and to reduce the need for manual supervision. The built-in Webcam Server allows users to remotely access live view and recordings from anywhere using Web browsers, mobile app and Remote ViewLog. Compatibility with GV-CMS (GeoVision Central Monitoring Station) and interoperability with a wide selection of third party IP cameras through ONVIF and PSIA make GV-VMS a versatile and effective surveillance solution.



- Customizable layout for live view and playback with drag-and-drop support
- Support for multi-monitor display
- Support for Microsoft SQL and Access database type
- Support for Service Mode
- Support for up to 64 channels
- Support for over 1,000 IP camera models
- Auto search for IP cameras
- Support for H.264, H.265 and MJPEG codec
- Support for resolution from CIF to megapixels
- Smart Dual Streaming for monitoring and recording
- Support for H.264, H.265 GPU decoding and GPU fisheye dewarping
- Intelligent video analytics
- PIP and Focus View functions
- Multi-level password management and support for authentication server
- Smart timeline playback and instant playback
- Support for e-mail notification upon events
- I/O and alarm management with e-map and visual automation
- Remote viewing and playback using iOS/Android devices, Web browsers, and GV-Edge Recording Manager
- Centralized management with GV-CMS
- Fisheye 360 degree de-warping for live view and playback

Features

Monitoring

- Support for 64 channels in GV-VMS and CMS applications
- Support for H.264, H.265 GPU decoding and GPU fisheye dewarping
- Customizable layout for live view and playback with drag-and-drop support
- Multi-monitor display to show live view and playback on different monitors
- Support for Microsoft SQL and Access database type
- Support for over 500 GeoVision and 3rd party IP camera models – see IP Camera Support List
- Auto search for IP cameras
- Support for H.264, H.265, and MJPEG codec
- Support for resolution from CIF to megapixels
- Smart Dual Streaming for monitoring and recording
- Panel resolution up to 4K
- Noise Tolerance for Motion Detection
- E-map
- System log
- Support for up to 1,000 accounts for logins and passwords
- Multi-level passwords protection and password expiration management
- I/O devices control
- PTZ control panel and PTZ auto functions
- System Idle Protection
- Live view buffer and frame rate control
- Live View Object Index to show the objects or faces captured
- Dual stream on-demand display
- Fisheye dewarping for GeoVision and 3rd party fisheye cameras
- Support for ONVIF, PSIA, and RTSP protocols

Intelligent Recording, Smart Search and Easy Playback

- Continuous recording (round-the-clock) and recording triggered by motion detection, alarm and schedule
- Adjustable recording quality and frame rate for each camera
- Pre-motion/IO and post-motion/IO recording
- Timeline Search
- Object search
- Thumbnail browse to quickly search for specific frames within video footage
- Instant Playback
- Extracting frames from a video clip during playback
- Support for Daylight Saving Time (DST)
- Support for recording in standard H.264, H.265, and MJPEG codec
- Support for configuration change without stopping recording
- Continuous playback of set frames A to B
- AVI repair utility

Video Merging and Export

- Exporting video recording within a specified time range
- Exporting videos in EXE format, playable with any third-party players
- Exporting videos of multiple channels in a single AVI video
- Support for Windows burning software
- Time Merge function for exporting a full-length video with recorded and non-recorded periods
- Support for saving dewarped fisheye view in AVI format

Notification

- E-mail notification with attached video images upon specified alert conditions
- Camera popup upon motion or I/O trigger
- Computer alarm upon recording errors, input, motion and other alarm conditions
- Video lost detection and notification through on-screen message

Video Analytics

- Object Counting
- People Counting
- Intrusion Alarm
- Face Detection
- Privacy Mask
- Panorama View
- Defog Function
- Video Stabilization
- Wide Angle Lens Dewarping
- Motion Detection
- Crowd Detection
- Scene Change Detection
- Unattended and Missing Object Detection
- Fisheye dewarping and object tracking in fisheye view
- Heat Map

Utilities

- Dynamic DNS
- Digital watermark
- Windows lockup
- Fast backup and restore (FBR)
- Bandwidth Control program
- Skype Video Utility to notify upon motion / input trigger *****

WebCam for Remote Surveillance

- SSL Encrypt Connection Support
- UPnP™ Support
- Control Panel on Single View to provide instant information and operation
- Support for PIP, Focus View, Defogging Live Videos, and Video Stabilizer in Single View
- Restricting Power User and User to access WebCam Server at specified time length
- Event List Query
- Download Center
- Remote E-Map with pop-up live images upon input trigger

Advanced I/O Control

- Visual Automation to intuitively trigger an output by clicking on the camera view
- Virtual I/O control
- Record video, send e-mail notification and trigger output upon input trigger
- Move PTZ camera to a preset location on input trigger
- Latch Trigger feature

Remote Monitoring Software

- WebCam
- GV-Mobile Server
- GV-Edge Recording Server (Windows /Mac) *
- GV-Eye for Android Smartphones and iPhone / iPod / iPad

IT Technology

- RSA Network Security
- Authentication Server: centralized control of password settings in multiple GV-VMS with support for Windows Active Directory

Integration with Centralized Management Software

- GV-Center V2
- GV-Vital Sign Monitor
- GV-Dispatch Server
- GV-Control Center

Note:

1. To remotely view from 33 to 64 channels on the GV-Edge Recording Server (Windows version), you will need to purchase an additional license. Currently, GV-Edge Recording Server (Mac version) only supports remote connection with up to 32 channels.
2. Skype version 7 or later is not supported currently.

License

GV-VMS supports connection with up to connection with up to 64 IP devices. You can connect up to 32 channels of GV-IP Devices for free. If you need to connect more than 32 channels of GV-IP Devices or connect with third-party IP devices, license is required.

Supported Devices	Channels	License
GV IP Devices Only	32 ch	No license required
	64 ch	GV-VMS Pro license required, 32 ch per license
GV + 3rd-Party IP Devices	16 ch	**Trial Version:** 16 channels of 3rd-Party IP devices
	32 ch	3rd-Party license required, in increments of 1 ch
	64 ch	2 licenses required: • GV-VMS Pro license, 32 ch per license. • 3rd-Party license, in increments of 1 ch.

Note:

1. GV-USB Dongle comes in internal and external dongles. It is recommended to use the internal GV-USB Dongle to have the Hardware Watchdog function, which restarts the PC when Windows crashes or freezes.
2. GeoVision offers a 60-day trial period that allows you to connect to 16 channels of third-party IP devices without license. Currently, you cannot remotely access the trial channels using remote applications.

Recommended System Requirements

Below are the recommended PC requirements for connecting GV-VMS with 32 and 64 channels of GV and 3rd party IP cameras (dual streams).

CPU	GV-VMS (Up to 32 Channels)	GV-VMS Pro (Up to 64 Channels)
OS	64-bit Windows 7 / 8 / 8.1 / 10 / Server 2008 R2 / Server 2012 R2	
CPU	4th Generation i3-4130, 3.4 GHz	4th Generation i7-4770, 3.4 GHz
Memory	8 GB RAM	16 GB RAM
Graphic Card	Please see the GPU Decoding Specifications below.	
Note: To use the fisheye dewarping function, the graphic card must support DirectX 10.1 or above.		

GPU Decoding Specifications

A higher total frame rate can be achieved if your CPU or external VGA supports GPU decoding.

On-board VGA: GPU decoding is only supported when using the following Intel chipsets:

For **H.264** Video Compression

- 2nd Generation Intel Core i3 / i5 / i7 Desktop Processors (Sandy Bridge) - only support 1 MP to 2 MP videos
- 3rd Generation Intel Core i3 / i5 / i7 Desktop Processors (Ivy Bridge)
- 4th Generation Intel Core i3 / i5 / i7 Desktop Processors (Haswell / Haswell Refresh)
- 6th Generation Intel Core i3 / i5 / i7 Desktop Processors (Skylake)

For **H.265** Video Compression

- 6th Generation Intel Core i3 / i5 / i7 Desktop Processors (Skylake)

External VGA: GPU decoding is only supported when using NVIDIA graphics cards with compute capability 3.0 or above and memory 2 G or above. To look up the commute capability of the NVIDIA graphics cards, refer to: https://developer.nvidia.com/cuda-gpus.

Note: NVIDIA graphic cards do not support H.265 GPU decoding.

On-board VGA + external VGA: To have both the on-board VGA and external VGA perform GPU decoding, the VGAs must follow their respective specifications listed above.

Note:

1. If you have both on-board VGA and external VGA installed, the on-board VGA must be connected to a monitor for H.264 / H.265 GPU decoding.
2. You can install multiple external graphics cards if needed.
3. CUDA compute capability 5.0 or higher is required to ensure optimal performance. For more information, see Total frame rate and number of channels supported.

Minimum Network Requirements

The data transmitting capacity of GV-VMS depends on the number of Gigabit connections available. The numbers of Gigabit network cards required to connect 64 channels are listed below according to the resolution and codec of the source video.

Codec	Resolution	Bitrate Used (Mbps)	Total FPS for 64 ch	Gigabit Network Cards Required	Max. Channels Supported per Network Card
H.264	1.3 MP	5.05	1920	1	Max. 64 ch / card
	2 MP	7.01	1920	1	Max. 64 ch / card
	3 MP	10.48	1280	1	Max. 64 ch / card
	4 MP	11.65	960	2	Max. 50 ch / card
	5 MP	16.48	640	2	Max. 38 ch / card
	8 MP	17.14	1600	2	Max. 38 ch / card
	12 MP	16.67	960	2	Max. 38 ch / card
H.265	3 MP	7.06	1920	1	Max. 64 ch / card
	4 MP	9.44	1600	1	Max. 64 ch / card
	5 MP	7.52	1920	1	Max. 64 ch / card

MJPEG	1.3 MP	32.36	1920	3	Max. 22 ch / card
	2 MP	44.96	1920	4	Max. 16 ch / card
	3 MP	38.73	1280	4	Max. 18 ch / card
	4 MP	40.35	960	4	Max. 17 ch / card
	5 MP	30.48	640	3	Max. 22 ch / card
	8 MP	58.52	1600	6	Max. 12 ch / card
	12 MP	65.98	960	6	Max. 11 ch / card

Frame rate limit in a single hard disk

Since the size of transmitted data from IP cameras may be quite large and reach beyond the transfer rate of a hard disk, you should note the total recording frame rates that you can assign to a single hard disk, as listed below.

Frame Rate Limit in a Single Hard Disk						
Video resolution	H.264		H.265		MJPEG	
	Frame Rate	Bit Rate	Frame Rate	Bit Rate	Frame Rate	Bit Rate
12 MP	330 fps	14.47 Mbit/s	N/A	N/A	56 fps	65.98 Mbit/s
8 MP	660 fps	14.13 Mbit/s	N/A	N/A	96 fps	58.52 Mbit/s
5 MP	220 fps	8.5 Mbit/s	660 fps	6.73 Mbit/s	80 fps	30.4 Mbit/s
4 MP	330 fps	10.4 Mbit/s	550 fps	7.74 Mbit/s	105 fps	40.53 Mbit/s
3 MP	440 fps	9.83 Mbit/s	660 fps	5.35 Mbit/s	140 fps	38.67 Mbit/s
2 MP	660 fps	12.59 Mbit/s	N/A	N/A	210 fps	44.93 Mbit/s
1.3 MP	660 fps	6.16 Mbit/s	N/A	N/A	300 fps	32.26 Mbit/s

Note: The data above was determined using the bit rate listed above and hard disks with average R/W speed above 110 MB/s.

The frame rate limit is based on the resolution of video sources. The higher video resolutions, the lower frame rates you can assign to a single hard disk. In other words, the higher frame rates you wish to record, the more hard disks you need to install. For the information of recording frame rates, you may consult the user's manual of the IP camera that you wish to connect to.

Total frame rate and number of channels supported

Refer to the documents below to see the total frame rate and number of channels supported by GV-VMS when connected to different IP devices.

- IP Device Integration Notes (H.264 CPU/GPU Decoding, based on GV-VMS V15.10.1.0)
- IP Device Integration Notes (H.265 GPU Decoding, based on GV-VMS V15.11.0.0)
- GV-Fisheye Camera Integration Notes

Specifications

Video Input	Up to 64 channels
Audio Input	Up to 64 channels
Video Codec	MJPEG, H.264, H.265
Audio Codec	16 kHz / 16-bit, 32 kHz / 16-bit
Video Resolution	From CIF to megapixels
Networking	LAN, WAN, Internet, Modem Dial-up, Modem-to-Modem, ISDN
Backup Device	HDD, NAS, CD-R / R-W, DVD+R / +RW, DVD+R (DL), ZIP, JAZ, Blu-ray, GV-Storage System
Language	Bulgarian / Czech / Danish / English / French / German / Greek / Hebrew / Hungarian / Italian / Japanese / Persian / Polish / Portuguese / Russian / Serbian / Simplified Chinese / Slovakian / Slovenian / Spanish / Traditional Chinese / Turkish

Note: All specifications are subject to change without notice.

Options

Optional Devices	Description
Internal USB Dongle	The USB dongle can provide the Hardware Watchdog function to the GV-VMS by restarting the computer when Windows crashes. You need to connect the dongle internally on the motherboard.
GV-HUB V2	An easy way for serial port extension, this hub can add 4 RS-232 / RS-485 serial ports through the GV-VMS's USB port.
GV-COM V3	GV-COM V3 can add 1 RS-485 port to your computer through a USB connector.
GV-IO Box (4 Ports V1.2)	GV-IO Box 4 Ports V1.2 provides 4 inputs and 4 relay outputs. It supports both DC and AC output voltages, and provides a USB port for PC connection.
GV-IO Box (8 Ports)	GV-IO Box 8 Ports provides 8 inputs and 8 relay outputs, and supports both DC and AC output voltages. You can connect the unit to the PC either by using its USB port or through network by using its Ethernet module.
GV-IO Box (16 Ports)	GV-IO Box 16 Ports provides 16 inputs and 16 relay outputs, and supports both DC and AC output voltages. You can connect the unit to the PC either by using its USB port or through network by using its Ethernet module.
GV-Joystick V2	GV-Joystick V2 allows you to easily control PTZ cameras. It can be either plugged into the GV-VMS for independent use or connected to GV-Keyboard.
GV-Keyboard V3	GV-Keyboard V3 is used to program and operate GV-VMS and PTZ cameras. Through RS-485 configuration, it can control up to 36 GV-VMS. In addition, you can connect PTZ cameras directly to the keyboard for PTZ control.
GV-IR Remote Control	GV-IR Remote Control allows you to control GV-VMS at the maximum operation distance of 7 m (22.97 ft).
GV-NET I/O Card V3.2	GV-NET/IO card V3.2 provides 4 inputs and 4 relay outputs. It supports both DC and AC output voltages and provides a USB port as well.