# 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 GV-Remote ViewLog program. Compatibility with GV-CMS (GeoVision Central Monitoring Station) and support for a wide selection of third-party ONVIF cameras make GV-VMS a versatile and effective surveillance solution.

GV-VMS   *July 10, 2025*
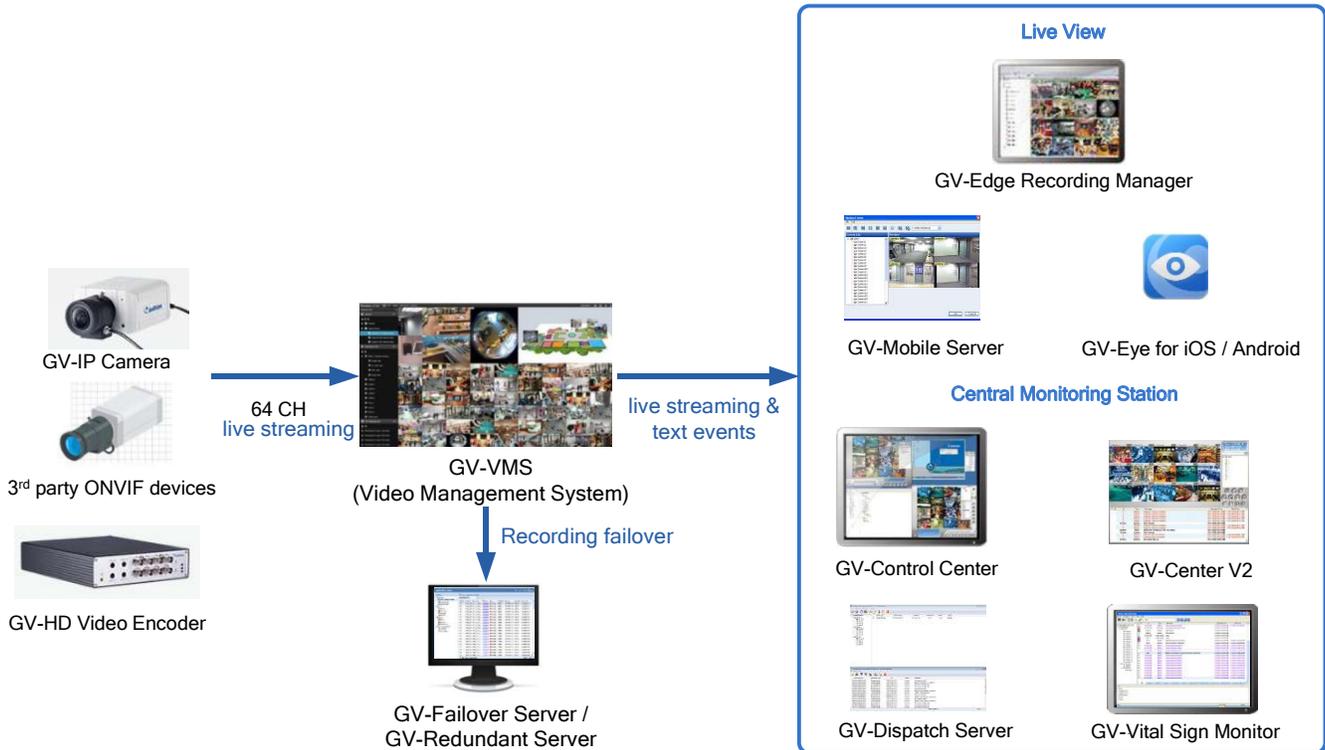
Features

Monitoring

- Up to 64 channels in VMS and CMS applications
- H.264, H.265 GPU decoding
- Software license management
- 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 QView display that enables the projection of a live view onto another monitor
- Support for Microsoft SQL and Access data types
- Support for over 500 GeoVision and 3rd party IP camera models
- Auto search for IP cameras within the LAN
- Support for resolution from CIF to megapixels
- Smart dual stream for monitoring and recording
- Support for smart streaming of GV-IP cameras
- Panel resolution up to 4K
- Noise Tolerance for motion detection
- 3D E-map
- System log
- Support for up to 1,000 accounts for login
- Multi-level passwords protection and password expiration management
- Automatic login with GV-PCR310 Enrollment Reader
- I/O devices control
- PTZ control panel and PTZ auto functions
- System idle protection
- Live view buffer and frame rate control
- Live Object Index to show the objects or faces captured
- On-demand display of adjusting live view resolution automatically
- Fisheye dewarping for GeoVision and 3rd party fisheye cameras
- Support for GV-Live Streaming for streaming from Android / iOS mobile device cameras
- Support for ONVIF cameras, 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
- Storyline recording
- Timeline search
- Object search
- Thumbnail browse to quickly search for specific frames within video footage
- Instant playback
- Bookmarking video events
- 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 automatically assigning storages to multiple camera channels
- 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

Notifications

- E-mail notifications with video images attached upon alert conditions
- Camera popup upon motion or I/O trigger
- Computer alarms upon recording errors, input, motion and other alert conditions
- Video lost detection and notifications

Video Analytics

- Object Index
- Privacy Mask
- Defog
- Stabilizer
- Intrusion Alarm
- Counter
- Crowd Detection
- Advanced Unattended Object
- Advanced Scene Change
- Advanced Missing Object
- Face Count
- Face Detection by Software
- Heat Map

Utilities

- Dynamic DNS
- Digital watermark
- Windows lockup
- Fast backup and restore (FBR)
- Bandwidth Control program
- Point of Sale (POS) integration
- Local backup and remote backup with GV-Backup Center
- Report Generator

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 popup 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
- Video recording, e-mail notifications and output device trigger upon input trigger
- PTZ camera moved to a preset location upon input trigger
- Latch Trigger feature

Remote Monitoring Software

- Built-in WebCam Server
- GV-Mobile Server
- GV-Edge Recording Manager (Windows / Mac) *
- GV-Eye for iOS and Android

IT Technology

- RSA Network Security
- Authentication Server: centralized password and account management to multiple GV-VMS systems with support for Windows Active Directory

Integration with Central Monitoring System

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

Multi-Monitor Solution

- GV-IP Decoder Box Optimal
- GV-IP Decoder Box Ultra
- GV-IP Display 116

Distinctive Features on GV-VMS V18 Series

GV-VMS V18 series includes not only all of capabilities of a video management system, but also the following:

- Face Detection with AI-capable GV IP cameras
- Face Recognition with GV-Face Recognition Camera (GV-VD8700) and software (GV-AI FR)
- Face Search by face snapshots, photos, age, gender, name, face group and alert type
- AI analytics events with AI-capable GV IP cameras
- AI event alerts via I/O devices, computer alarms and e-mails
- PVD motion detection for identifying people and vehicle motion from moving objects (up to 64 CH, GV-AI Accelerator Module required)
- Smart Motion Search to search for motion on recorded videos by defining regions of interest
- Face blurring for faces detected
- SIP 2-way audio communication for dial-out
- Display of POS transactions only (no live view) on any of screen divisions

License

● **GV-VMS V17 (Free 32 GV Channels)**

GV-VMS V17 series supports connection of up to 64 IP channels, and up to 32 channels of GeoVision IP Devices are for free. If you need to connect more than 32 channels of GeoVision IP Devices or connect with third-party IP devices, additional licenses are 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** or **HD DVR** license required, in increments of 1 ch
	64 ch	2 licenses required: • **GV-VMS Pro** license, 32 ch per license. • **3rd-Party** or **HD DVR** license, in increments of 1 ch.

Note:
1. The licensing comes in two forms: *GV-USB dongle* and *software license*. The two are incompatible. If a GV-USB dongle has been inserted on the computer with the system, please remove it before using software licensing.
2. GV-USB dongle comes in internal and external dongles. Internal dongle is recommended for the Hardware Watchdog function, which restarts the PC when Windows crashes or freezes.
3. 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.

Note for GV-VMS V17.4.5 or later:
1. The **HD DVR** license is only supported by GV-VMS V17.4.5 or later.
2. The **HD DVR** license is required for connecting UA-XVR and UA-XVL series (only **analog** channels supported)
3. The **3rd-Party** license is required for connecting UA-IP cameras.

● **GV-VMS V18 (for AI Integration)**

GV-VMS V18.1 or later is a paid software for AI integration that supports connection of up to 64 IP channels, and can connect up to 32 channels of GeoVision IP devices upon initial purchase. If you need to connect more than 32 channels of GeoVision IP devices or connect with third-party IP devices, additional licenses are required.

Supported Devices	Channels	License
GV-IP Devices Only	32 ch	Initial license required
	64 ch	2 licenses required: • **GV-VMS V18.1 or later** initial license • **GV-VMS Pro** license, 32 ch per license
GV + 3rd-Party IP Devices	4 ch	**Trial Version:** 4 channels of 3rd-Party IP devices (a license key required)
	32 ch	2 licenses required: • **GV-VMS V18.1 or later** initial license • **3rd-Party** or **HD DVR** license, in increments of 1 ch
	64 ch	3 licenses required: • **GV-VMS V18.1 or later** initial license • **GV-VMS Pro** license, 32 ch per license • **3rd-Party** or **HD DVR** license, in increments of 1 ch

Note:
1. The licensing comes in two forms: *GV-USB dongle* and *software license*. The two are incompatible. If a GV-USB dongle has been inserted on the computer with the system, please remove it before using software licensing.
2. GV-USB dongle comes in internal and external dongles. Internal dongle is recommended for the Hardware Watchdog function, which restarts the PC when Windows crashes or freezes.
3. GeoVision offers a 30-day trial period that allows you to connect to 4 channels of third-party IP devices with a license key required. Please contact our sales representatives for the applicable license key of the trial version.
4. GV-Center V2 / GV-Vital Sign Monitor V18.4.0 or later does not support AI and PVD events from GV-VMS.

Note for GV-VMS V18.3.1 or later:
1. The **HD DVR** license is only supported by GV-VMS V18.3.1 or later.
2. The **HD DVR** license is required for connecting UA-XVR and UA-XVL series (only **analog** channels supported)
3. The **3rd-Party** license is required for connecting UA-IP cameras.

Minimum System Requirements

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

● **GV-VMS V17**

CPU	GV-VMS (Up to 32 Channels)	GV-VMS Pro (Up to 64 Channels)
OS	64-bit Windows 8 / 8.1 / 10 / 11 / Server 2012 R2 / Server 2016 / Server 2019 / Server 2022	
CPU	4th Generation i5-4670, 3.4 GHz	4th Generation i7-4770, 3.4 GHz
Memory	8 GB RAM	16 GB RAM
Processor Graphics	Please see *GPU Decoding* specifications below.	

Note:
1. To use the fisheye dewarping function, the graphic card must support DirectX 10.1 or above.
2. The system requirements are determined in round-the-clock recording mode with live view only, while remote connections and video analysis features being disabled.
3. H.265 decoding requires 6th Generation Intel Desktop Processor (Skylake) or above, which comes with onboard GPU.

● **GV-VMS V18**

CPU	GV-VMS (Up to 32 Channels)	GV-VMS Pro (Up to 64 Channels)
OS	64-bit Windows 10 / 11 / Server 2016 / Server 2019 / Server 2022	
CPU	4th Generation i5-4670, 3.4 GHz	4th Generation i7-4770, 3.4 GHz
Memory	8 GB RAM	16 GB RAM
Processor Graphics	Please see *GPU Decoding* specifications below.	

Note:
1. To use the fisheye dewarping function, the graphic card must support DirectX 10.1 or above.
2. H.265 decoding and searching of face recognition events by face images require 6th Generation Intel Desktop Processor (Skylake) or above, which comes with onboard GPU.
3. PVD motion detection requires 11th Generation Intel Desktop Processor or above, which comes with onboard GPU.
4. To expand PVD motion detection channels, ensure your PC has GV-AI Accelerator Module installed and meets the following system requirements. Without the GV-AI Accelerator Module, only up to 16 PVD channels are supported.
   a. For PVD motion detection of up to **48** channels: PC RAM of at least 16 GB and 11th Generation Intel Desktop Processor or above.
   b. For PVD motion detection of up to **64** channels: PC RAM of at least 32 GB and 13th Generation Intel Desktop Processor or above.
5. Only one unit of GV-AI Accelerator Module is supported.
6. The system requirements are determined in round-the-clock recording settings with live view only, while remote connections and video analysis being disabled.

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
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.

Optional Licenses

Optional Combinations	1. GV-VMS + GV-POS S/W Capture (with options of 4 serial POS and 32 network POS devices) 2. GV-VMS + GV-POS Text Sender (with options of 1, 2, 4, 8, 12 and 32 ports) 3. GV-VMS + GV-LPR Plugin

Minimum Network Requirements

The data transmitting capacity of GV-VMS depends on the number of Gigabit connections available. The number 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	2 MP	5.90	1920	1	Max. 64 ch / card
	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
	8 MP	9.83	1280	1	Max. 64 ch / card
	12 MP	9.85	1280	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, as listed below.

Frame Rate Limit in a Single Hard Disk				
Video resolution	H.264		H.265	
	Frame Rate (fps)	Bitrate (Mbit/s)	Frame Rate (fps)	Bitrate (Mbit/s)
1.3 MP	660	5.05	N/A	N/A
2 MP	660	7.01	660	5.90
3 MP	440	10.48	660	5.35
4 MP	330	11.65	550	7.74
5 MP	220	16.48	660	6.73
8 MP	550	14.13	440	9.83
12 MP	330	14.47	440	9.85

Note: The data above was determined using the bit rate listed above, hard disks with 7200 RPM at least and 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.

Recommended Hard Disks

For system efficiency, we recommend the **enterprise-level** hard disk drives with **7200 RPM** at least and average R/W speed above **110 MB/s**. Avoid using desktop-level hard disks which may affect system efficiency.

GPU Decoding

A higher total frame rate can be achieved if your CPU comes with onboard GPU or is connected to external GPU for GPU decoding.

Onboard GPU: GPU decoding is only supported when using the following Intel CPU:

For **H.264** Video Compression
- 2nd ~ 8th Generation Intel Core i3 / i5 / i7 Desktop Processors
- 9th ~ 14th Generation Intel Core i3 / i5 / i7 / i9 Desktop Processors

For **H.265** Video Compression
- 6th ~ 8th Generation Intel Core i3 / i5 / i7 Desktop Processors
- 9th ~ 14th Generation Intel Core i3 / i5 / i7 / i9 Desktop Processors

Note: To get the best performance of 12th Generation Intel Processor or later versions, make sure to upgrade your GV-VMS to V17.4.7 or later / V18.3.2 or later.

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

Note:
1. One external NVIDIA graphics card can be supported by GV-VMS17.1 or later to perform GPU decoding at free of charge.
2. GeForce GTX1060 is not supported.

Onboard GPU + external GPU: To have both the onboard and external GPU to perform GPU decoding, the GPUs must follow their respective specifications listed above.

Note:
1. If you have both onboard and external GPU installed, the onboard GPU must be connected to a monitor for H.264 / H.265 GPU decoding.
2. 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 section below.

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

Options

Optional Devices	Description
GV-AI Accelerator Module	Only for GV-VMS V18.3.2 or later. GV-AI Accelerator Module features the M.2 M key connector and is compatible with 11th Gen CPU or later versions. The module supports up to 64 PVD motion detection channels. See GV-AI Accelerator Module's datasheet for details.
GV-Data Capture V3.1	GV-Data Capture unit allows the integration of POS systems and the GeoVision surveillance system through cable or network connection.
GV-IO Box Series	GV-IO Box series provides 4 / 8 / 16 inputs and relay outputs, and supports both DC and AC output voltages, with optional support for Ethernet module and 4E additionally supporting PoE connection.
GV-IP Speaker	GV-IP Speaker plays audio received over the network, supporting both live speech to deter intruders and prerecorded messages for alerts and announcements.
GV-Joystick V2	GV-Joystick V2 facilitates PTZ camera control. It is compatible not only with GeoVision software, but also with any third-party software that supports the HID standard.
GV-Joystick V3	GV-Joystick V3 facilitates PTZ camera control. It is compatible not only with GeoVision software, but also with any third-party software that supports the HID standard.
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.