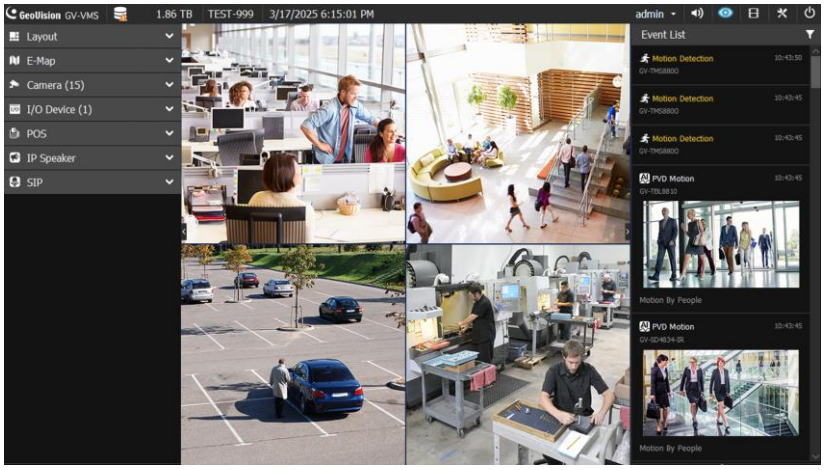
GV-VMS V20



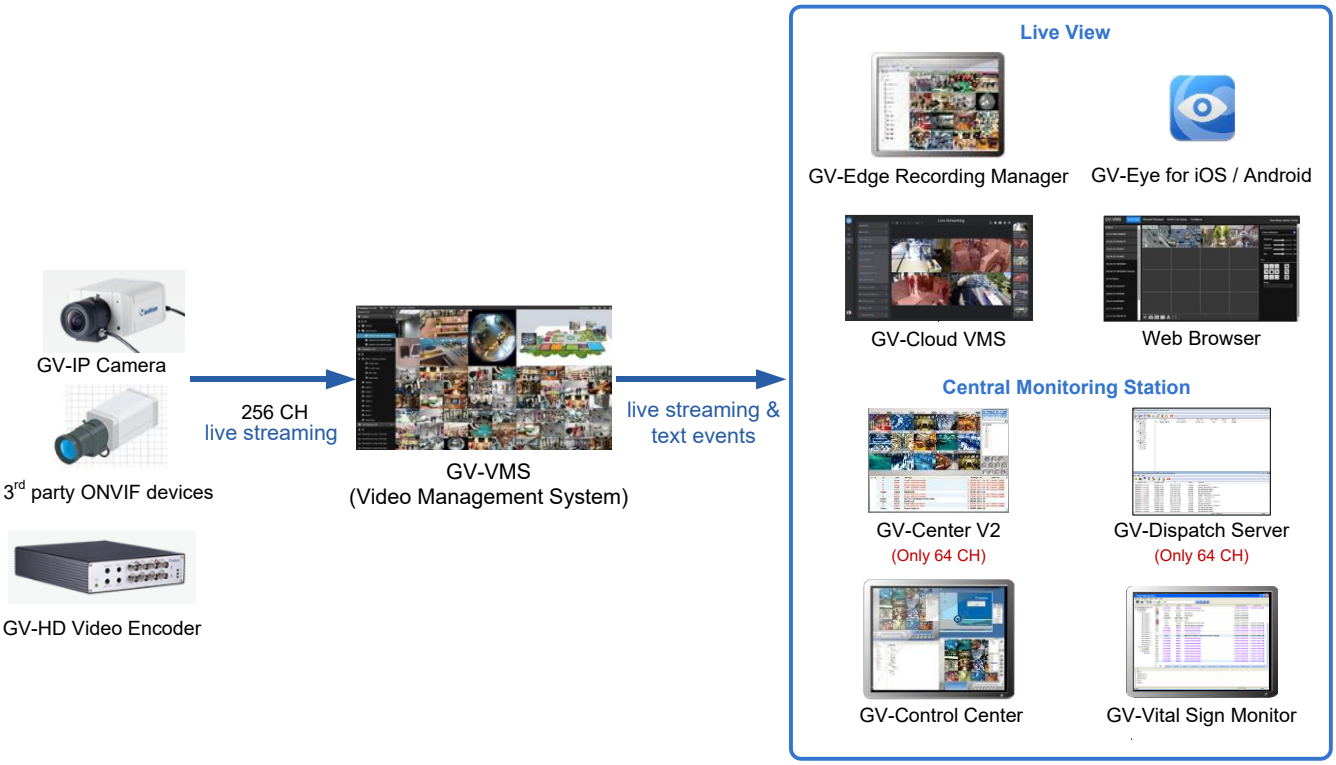
Introduction

GV-VMS V20 is a full-featured, AI-powered software series for professional video surveillance. It combines AI analytics, flexible monitoring, and seamless integration. Key features include:

- **Unified Interface**
  Access live view and playback from a single, streamlined UI.
- **Integrated AI Capabilities**
  Support built-in facial recognition for local enrollment and matching, plus integration with AI-powered IP cameras.
- **Advanced Search Tools**
  Include AI Query and Smart PVD Motion Search for fast and accurate event retrieval.
- **Remote Configuration**
  Set up AI and motion detection features remotely on GV-IP cameras.

GV-VMS V20 is a comprehensive video management system that records from GeoVision and 3rd-party IP devices. Its intuitive drag-and-drop interface allows easy customization of live view and playback layouts. With built-in video analytics, it enhances monitoring and reduces manual effort. Users can remotely access live view and recordings using GV-Cloud VMS, GV-Edge Recording Manager, the GV-Eye mobile app, or Web browsers. Compatible with GeoVision central monitoring systems and 3rd-party ONVIF cameras, it offers a versatile surveillance solution.

GV-VMS V20 supports a connection of up to 256 IP channels, with up to 64 GV-IP device channels available for free. Licenses are required for additional channels. Separate licenses are required for 3rd-party IP devices and HD DVRs. The AI License is required for full AI functionality.



Features

Distinctive Features on GV-VMS V20 Series

GV-VMS V20 series includes not only all of the capabilities of a video management system, but also the following:

- Live View and Playback on one UI
- Event List for real-time monitoring of general, system, AI, and PVD events
- Built-in face recognition engine for face enrollment and recognition on the local GV-VMS
- AI Query for filtering AI and PVD events by cameras, time range, face recognition, event types, and person/vehicle attributes
- AI event setup remotely on GV-VMS for AI-capable GV-IP cameras
- Motion detection setup remotely on GV-VMS for GV-IP cameras
- Smart PVD Motion Search to search for people and vehicle motion on recorded videos by defining regions of interest
- GV-IP Speaker supported for AI event-triggered, motion-triggered, and scheduled audio playback
- Mask-compatible recognition in the built-in face recognition engine (Local FR)
- Absence Event Detection for no person or vehicle detected over a defined period
- Push notifications via GV-Eye, Telegram, and LINE
- Multi-Factor Authentication (MFA) for user login
- OAuth authentication integration for e-mail services
- SIP two-way video call
- POS transaction integration with GV-Cloud VMS for search and video playback with POS text overlay

Monitoring

- Up to 256 channels
- GPU decoding for H.264 and H.265
- Customizable layout with drag-and-drop support
- Multi-monitor display for live view and playback
- Support for over 500 GeoVision and 3rd-party IP camera models
- Support for ONVIF cameras, PSIA, and RTSP protocols
- Smart dual stream for monitoring and recording
- Smart streaming for GV-IP cameras
- 3D E-Map event popup
- System log for fast access to recent event data
- On-demand display for automatically adjusting live view resolution
- Fisheye dewarping for GeoVision and 3rd-party fisheye cameras

Video Analytics

- 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
- People and Vehicle Detection (PVD) (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 mosaic in both live view and playback
- Advanced Scene Change Detection

Smart Recording & Playback

- Continuous (round-the-clock), motion triggered, alarm-triggered, and scheduled recording
- Adjustable recording quality and frame rate for each camera
- Pre-motion/IO and post-motion/IO recording
- Storyline recording
- Smart search with event filtering timeline and thumbnail browsing
- Bookmarking video events
- AVI repair utility

Video Merging & Export

- Merge function for seamless exports
- Exporting videos in .exe format, playable with any 3rd-party players
- Exporting videos of multiple channels in a single .avi video

Alerts & 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 alerts

Integration & Compatibility

- I/O device control with visual automation
- PTZ control with presets and auto functions
- SIP 2-way audio communication for dial-out
- IP speaker integration for real-time deterrence
- Point of Sale (POS) integration
- Multi-Monitor Solution with GV-IP Decoder Box Optimal, GV-IP Decoder Box Ultra, and GV-IP Decoder Box Mini

Security & IT Features

- Multi-level password protection and password expiration management
- RSA Network Security
- Authentication Server for centralized account management to multiple GV-VMS systems, with Windows Active Directory support
- Digital Watermark
- System Idle Protection

Utilities

- Software License Management
- Dynamic DNS
- Fast backup and restore (FBR)
- Local and remote backup with GV-Backup Center
- Report Generator

Central Monitoring Integration

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

Remote Access & Management

- Built-in WebCam Server (for browser-based access)
- GV-Cloud VMS
- GV-Edge Recording Manager (Windows / Mac)
- GV-Eye for iOS and Android
- GV-Live Streaming for streaming from Android / iOS mobile device cameras
- GV-Remote E-Map with live popup images upon input trigger

License

GV-VMS V20 supports a connection of up to 256 IP channels, with up to 64 GV-IP device channels available for free. Licenses are required for additional channels. Separate licenses are required for 3rd-party IP devices and HD DVRs. The AI License is required for full AI functionality, including PVD events and built-in face recognition (Local FR). AI camera events do not require the AI License.

<table>
<tr><th>Supported Devices</th><th>Channels</th><th>License Requirements</th></tr>
<tr><td rowspan="2">GV-IP Devices Only</td><td>≤ 64 ch</td><td>No license required.
Optional:
⊙ AI License</td></tr>
<tr><td>65 – 256 ch</td><td>License required:
● GV-VMS Pro License required, in increments of 32 ch.
GV-VMS Pro License
<table><tr><th>Levels</th><th>Total Channels</th><th>Additional Channels (Beyond free 64 ch)</th></tr><tr><td>#1</td><td>96 ch</td><td>32 ch</td></tr><tr><td>#2</td><td>128 ch</td><td>64 ch</td></tr><tr><td>#3</td><td>160 ch</td><td>96 ch</td></tr><tr><td>#4</td><td>192 ch</td><td>128 ch</td></tr><tr><td>#5</td><td>224 ch</td><td>160 ch</td></tr><tr><td>#6</td><td>256 ch</td><td>192 ch</td></tr></table>Optional:
⊙ AI License</td></tr>
<tr><td rowspan="2">GV-IP Devices +
3rd-Party IP Devices</td><td>≤ 64 ch</td><td>Licenses required:
● 3rd-Party License for 3rd-party and UA-IP cameras, in increments of 1 ch.
● HD DVR License for GV-C Series IP cameras, GT-Y Series IP cameras (AI event integration not supported), and HD DVRs (GV-TXVL, UA-XVR, and UA-XVL series), in increments of 1 ch.
Optional:
⊙ AI License</td></tr>
<tr><td>65 – 256 ch</td><td>Licenses required:
● GV-VMS Pro License required, in increments of 32 ch.
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● HD DVR License for GV-C Series IP cameras, GT-Y Series IP cameras (AI event integration not supported), and HD DVRs (GV-TXVL, UA-XVR, and UA-XVL series), in increments of 1 ch.
Optional:
⊙ AI License</td></tr>
</table>

IMPORTANT:

1. If you previously purchased the **GV-VMS V18 Platform License**, you can access all functions supported by the **AI License** after upgrading to GV-VMS V20.
2. If you previously purchased a **GV-VMS Pro License** for GV-VMS V17/V18, you will receive an additional 32 channels after upgrading to GV-VMS V20, increasing the total to **96 channels**.
3. If you previously purchased a **3rd-Party License** or **HD DVR License** for GV-VMS V17/V18, it remains valid in GV-VMS V20.
4. If two licensing dongles are used simultaneously, the total channel count is calculated as:
   "64 CH" + "the Additional Channels for each selected GV-VMS Pro License level".
   For example, for Level #1 and Level #3:
   - 64 CH + (32 CH + 96 CH) = 192 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 is available in internal and external models. The internal dongle is recommended for the Hardware Watchdog function, which restarts the PC when Windows is unresponsive.
3. When connecting HD DVRs using the **HD DVR License**, only **analog** channels are supported.
4. The Web Window function (for accessing web pages in the live view layout) requires a **GV-VMS Pro License**, an **AI License**, or a **GV-VMS V18 Platform License**.

Minimum System Requirements

Below are the minimum PC requirements for connecting GV-VMS with 64 and 256 channels of GeoVision and 3rd-party IP cameras (dual streams).

	GV-VMS (Up to 64 Channels)	GV-VMS Pro (Up to 256 Channels)
OS	64-bit Windows 10 / 11 / Server 2016 / Server 2019 / Server 2022 / Server 2025	
CPU	11th Generation i7-11700, 2.5 GHz	14th Generation i7-14700K, 3.4 GHz
Memory	16 GB RAM	32 GB RAM
OS HDD	SSD, ≥150 GB free space	
Processor Graphics	Please see *GPU Decoding* specifications below.	

Note:

1. The following default sub stream settings are applied during initial setup based on the number of connected channels:
   a. If 1 to 32 channels are connected, all sub streams are set to 15 fps with a GOP of 30.
   b. If more than 32 channels are connected, all sub streams are set to 7 fps with a GOP of 14.
   These values help define the minimum system requirements and can be adjusted afterward.
2. When the number of connected channels exceeds 64, the databases (including the AI event database) must be stored on an SSD to achieve optimal access performance and system responsiveness.
3. To use the fisheye dewarping function, the graphics card must support DirectX 10.1 or above.
4. H.265 decoding and searching of face recognition events by face images require 6th Generation Intel Desktop Processor or above, which comes with onboard GPU.
5. Built-in face recognition (Local FR) requires 9th Generation Intel Desktop Processor or above, which comes with onboard GPU.
6. PVD motion detection requires 11th Generation Intel Desktop Processor or above, which comes with onboard GPU.
7. 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.
8. Only one unit of GV-AI Accelerator Module is supported.
9. The system requirements are determined in round-the-clock recording settings with live view only, while remote connections and video analysis are disabled.

Specifications

Video Input	Up to 256 channels
Audio Input	Up to 256 channels
Video Playback	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
Monitor Resolution	Up to 4K
Networking	LAN, WAN, Internet
Backup Device	HDD, NAS, GV-Storage System
Language	Bulgarian / Chinese Simplified / Chinese Traditional / Czech / Danish / English / French / German / Greek / Hebrew / Hungarian / Italian / Japanese / Persian / Polish / Portuguese / Russian / Serbian / Slovakian / Slovenian / Spanish / Turkish / Ukrainian
Software Supported	GV-Control Center (V4.2.1 or later, patch files required) GV-Center V2 (V18.4.1 or later): only for the first 64 channels GV-Dispatch Server (V18.2.0A or later): only for the first 64 channels GV-Vital Sign Monitor (V18.4.1 or later) GV-Edge Recording Manager for Windows (V2.3.1 or later) GV-Eye for iOS / Android (V3.4.1 or later) GV-Cloud VMS GV-Backup Center (V1.2.1 or later, patch files required) GV-Authentication Server * Only the AI versions of GV-Center V2 and GV-Dispatch Server support AI and PVD events from GV-VMS. * In GV-VMS V20 environments, GV-Authentication Server provides channel management for the first 64 channels per system. For channels beyond the first 64 (channels 65–256), use GV-Enterprise to manage user access permissions.

Note: All specifications are subject to change without notice.

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 256 channels are listed below according to the resolution and codec of the source video.

Codec	Resolution	Bitrate Used (Mbps)	Frame Rate (fps)	Gigabit Network Cards Required	Max. Channels Supported per Network Card
H.265	2 MP	0.88	30	1	Max. 256 ch / card
	4 MP	2.27	30	1	Max. 256 ch / card
	5 MP	2.93	30	2	Max. 128 ch / card
	8 MP	3.88	20	2	Max. 128 ch / card
	12 MP	4.15	20	2	Max. 128 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 (H.265)				
Video Resolution	Bitrate (Mbps)	Max. Frame Rate / Channel (fps)	Max. Channels / Hard Disk	Total Frame Rate / Hard Disk (fps)
2 MP	0.88	30	32	960
4 MP	2.27	30	32	960
5 MP	2.93	30	32	960
8 MP	3.88	20	32	640
12 MP	4.15	20	32	640

Note:

1. The data above was determined using the listed bitrate, with enterprise-grade hard disks operating at 7200 RPM or higher and featuring an average read/write speed of over 200 MB/s to record 32 channels on a single hard disk.
2. If you upgraded from GV-VMS V17/V18, you can still use an enterprise-grade hard disk with 7200 RPM and an average read/write speed of over 110 MB/s to record 22 channels on a single hard disk.

The frame rate limit depends on the resolution of video sources. The higher the resolution, the lower the frame rate you can assign to a single hard disk. In other words, the higher the frame rate you wish to record, the more hard disks you will need. For detailed information on supported recording frame rates, see the user's manual of the IP camera that you plan to connect to.

Recommended Hard Disks

GeoVision software performance tests are conducted using **enterprise-grade 7200 RPM** HDDs with an average read/write speed of **200 MB/s**. If you are using HDDs with different specifications, we recommend conducting performance tests in your actual installation environment to ensure their read/write speed meets your application requirements.

GPU Decoding

A higher total frame rate can be achieved if your CPU comes with an onboard GPU or is connected to an external GPU for GPU decoding. GPU decoding is performed by the GPU connected to each display.

Onboard GPU: GPU decoding is only supported when using the following CPUs:

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
- Intel Core Ultra 5 / Ultra 7 / Ultra 9 Desktop Processors (Series 2)
- AMD processors with integrated graphics listed in this document

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
- Intel Core Ultra 5 / Ultra 7 / Ultra 9 Desktop Processors (Series 2)
- AMD processors with integrated graphics listed in this document

External GPU: GPU decoding is only supported when using:

1. 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
2. AMD graphics cards listed in this document.

Note: Multiple external NVIDIA or AMD graphics cards are supported for GPU decoding. NVIDIA cards support up to 8 MP resolution.

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 GPUs installed, the onboard GPU must be connected to a monitor for H.264 / H.265 GPU decoding.
2. For NVIDIA graphics cards, CUDA compute capability 5.0 or higher is required to ensure optimal performance.

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

Options

Optional Devices	Description
GV-AI Accelerator Module	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-Joystick V3	GV-Joystick V3 facilitates PTZ camera control. It can be either plugged into the GeoVision surveillance system for independent use or connected to GV-Keyboard to empower the operation.
GV-NET/IO 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.
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.