

GV-VMS

User's Manual V17.4.8





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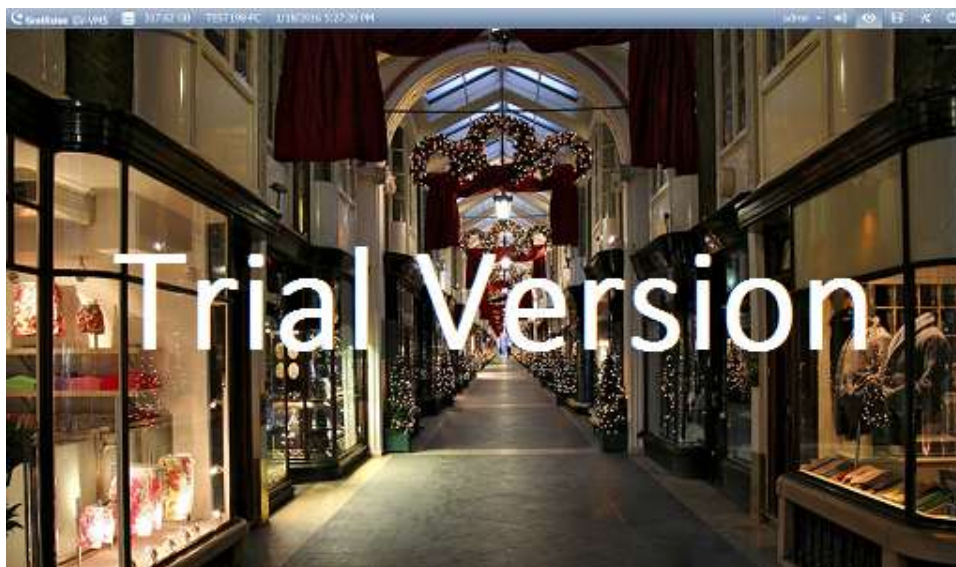
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GV-VMS Trial Version

GV-VMS is a comprehensive video management system that records up to 64 channels of GeoVision and/or third-party IP devices. GeoVision offers a **60-day trial** period that allows you to connect to **16 channels of third-party IP devices** without license. A “Trial Version” watermark will appear on the live view and recorded files for the 16 channels of third-party IP devices.



Note:

1. If you insert a dongle for third-party IP devices, the dongle license will override the trial version and the 16 trial channels will no longer be supported.
 2. You cannot remotely access the trial channels using remote applications such as GV-Control Center, etc.
-

Once the trial period expires, you will need to purchase a dongle or software license to connect to third-party IP devices. See *License* in Chapter 1 for details.

Login Credential Limitation

Special characters '@' and ':' are not supported to be used as the login username and/or password of GV-VMS.

V17.4.6 New Features

For the following V17.4.6 features, refer to related sections and page numbers.

- **Image Orientation by Software** function for GV-VMS to perform image orientation from the connected IP cameras (2.2.1 *Configuring Video Settings*, page 71).
- **Download application** option for enabling the specified account's access to downloading applications on the Web browser. To configure an account's access permission, see 1.7.2 *Configuring Account Settings*, page 40; for details on Download Center of the WebCam Server, see 7.8 *Download Center*, page 246.
- **Background repair** function for the database and AVI files (5.4 *Repairing Damaged File Paths*, page 193).
- Support for notifications, alerts, and computer alarms upon abnormal disk events.
 - To invoke computer alarms or to enable e-mail notifications upon abnormal disk events on GV-VMS, see Step 6, 1.3.3 *Setting up the Video Storage Location* (1.3.3 *Setting up the Video Storage Location*, page 19).
 - To activate text message display on GV-VSM (Vital Sign Monitor) and GV-Center V2 upon abnormal disk events, see [GV-CMS Series User's Manual](#).
- **Export file quality** options for selecting the backup file quality (9.11.3.1 *Advanced Settings for Local Backup*, page 331~332).
- **Display Sub Stream Priority** option for playing recorded videos in sub stream in priority to reduce the CPU loading. To access the option, select **ViewLog > Toolbar > Setup**; see No.3, 4.1.1 *ViewLog Window*.
- **Filter** option for displaying different event types in different colors on the playback timeline. (4.1.1 *ViewLog Window*, page 166).

GPU Decoding

GPU (Graphics Processing Unit) decoding can lower the CPU loading and increase the total frame rate supported by a GV-VMS. GPU decoding can be performed by an onboard GPU, external GPU, or both, under the following specifications.

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.

External GPU: GPU decoding is only supported when using NVIDIA graphics cards with compute capability 3.0 or above and memory 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. NVIDIA GeForce GTX 1060 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 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](#)

Software Specifications

GPU decoding is only supported under the following operating system, resolution, and codec.

		2nd Gen	3rd ~ 4th Gen	6th Gen	7th Gen	8th ~ 14th Gen
OS	64-Bit	Windows 8 / 8.1 / 10 / Server 2012 R2 / Server 2016 / Server 2019 / Server 2022			Windows 10 Server 2016 / Server 2019 / Server 2022	Windows 10 / 11 Server 2016 / Server 2019 / Server 2022
Resolution		1 MP / 2 MP	1 MP / 2 MP / 3 MP / 4 MP / 5 MP / 8 MP / 12 MP			
Codec		H.264			H.264 / H.265	
Note: Make sure your PC meets the system requirements before installing or upgrading to Windows 11. See Microsoft's website for details.						

Multi-Channel Playback

Multi-channel playback in ViewLog has been enhanced to improve the smoothness of the video by producing higher frame rate. However, playing back multiple channels at high resolution can increase the CPU loading especially if GV-VMS is processing other tasks simultaneously. As a result of the high CPU loading, dropped frames may sometimes occur in recorded video when playing back multiple megapixel channels. To avoid the problem, **it is recommended to play back megapixel video in single view.**

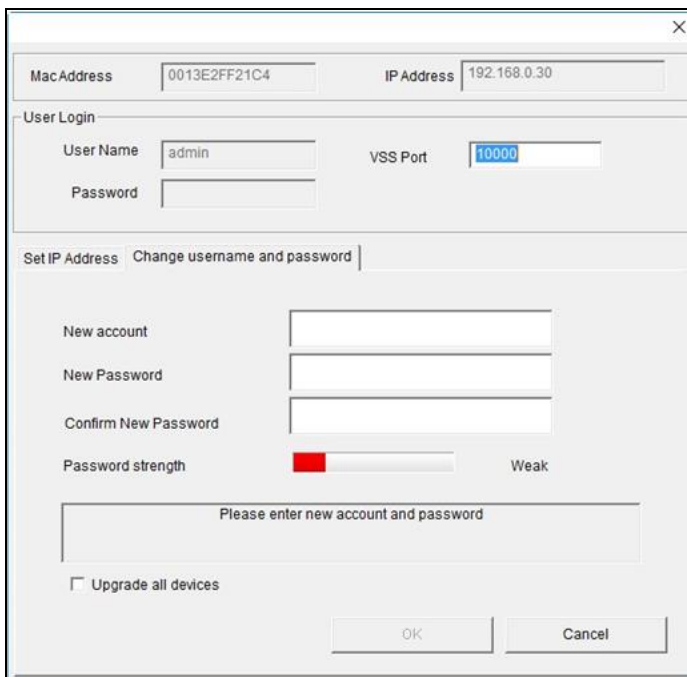
GDPR Practice

For details on how GeoVision Inc. is committed to helping users become GDPR (General Data Protection Regulation) compliant, visit the [GDPR Consent Request](#).

Creating Camera's Login Credentials

To connect to GV-VMS after purchasing a new GV-IP camera or factory resetting an existing GV-IP camera, you must first create a login username and password for the camera.

1. Download and install GV-IP Device Utility from our [website](#).
2. On the GV-IP Device Utility window, click **Search**  to search for your camera.
3. Double-click your camera in the list. This dialog box appears.



The screenshot shows a dialog box titled "GV-IP Device Utility" with a close button (X) in the top right corner. The dialog is divided into several sections:

- MacAddress:** 0013E2FF21C4
- IP Address:** 192.168.0.30
- User Login:**
 - User Name:** admin
 - Password:** (empty field)
 - VSS Port:** 10000
- Set IP Address:** Change username and password (selected tab)
- New account:** (empty text field)
- New Password:** (empty text field)
- Confirm New Password:** (empty text field)
- Password strength:** A progress bar showing a red segment, with the label "Weak" to its right.
- Please enter new account and password:** (empty text field)
- Upgrade all devices:** An unchecked checkbox.
- Buttons:** OK and Cancel buttons at the bottom right.

4. Click the **Change Username and Password** tab to create a username and password.
5. Optionally click **Upgrade all devices** to use the same username and password across all devices of the same model.

Multi-Sensor Cameras

The GV-RMS32810, GV-TMS8800, and GV-TMEB5800 multi-sensor cameras each occupy four, two, or two channels of GV-VMS when connected.

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Configuring Main System

1.1 Installing GV-VMS

1.1.1 License

GV-VMS supports connection of up to 64 IP channels, with connecting 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, 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 3 rd party IP devices (60 days).
	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.

IMPORTANT: The licensing comes in two forms: *GV-USB dongle* and [software license](#). The two are incompatible. If a GV-USB dongle is inserted on the computer with the system, remove it before applying software licensing.

Note:

1. 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.
2. For details on upgrading **GV-USB Dongle**, see *Chapter 8 Dongle Upgrade* in [GV-VMS Quick Start Guide](#).

Note for GV-VMS V17.4.5:

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.

1.1.2 Minimum System Requirements

	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	To obtain the maximum frame rate possible, see <i>GPU Decoding Specifications</i> at the beginning of the manual.	

Note:

1. To use the fisheye dewarping function, the graphic card must support DirectX 10.1 or above.
2. H.265 decoding requires 6th Generation Intel Desktop Processor (Skylake) or above, which comes with onboard GPU.
3. The system requirements are determined in round-the-clock recording settings with live view only, while remote connections and video analysis features being disabled.
4. To save system logs using Microsoft SQL Server, Microsoft SQL Server 2014 Express or later is required.

1.1.3 Options

For the following optional devices of GV-VMS, contact your dealer for more information.

Optional Devices	Description
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 V2	GV-Joystick V2 allows you to easily control PTZ cameras. It can be either plugged into 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 with keyboard and function keys. 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-NET I/O Card V3.2	GV-NET/I/O 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.

1.1.4 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
Note: The network requirements may vary depending on the bit rate of the streams.					

1.1.5 Installing GV-VMS

Before You Start

For optimal performance, please refer to the following recommendations before installing GV-VMS:

- It is highly recommended to use separate hard disks; one for installing Windows OS and GV-VMS software, while the other for storing recorded files and system logs.
- When formatting the hard disks, select NTFS as the file system.
- When GV-VMS is running, it is not recommended to perform disk defragmentation at the same time.
- 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 of recording frame rates that you can assign to a single hard disk when single-stream (Main or Sub stream) recording is applied, as listed below:

Frame rate limit in a single hard disk with single-stream recording applied

Video Resolution	H.264		H.265	
	Frame Rate (fps)	Bit Rate (Mbit/s)	Frame Rate (fps)	Bit Rate (Mbit/s)
1.3 MP (1280 x 1024)	660	5.05	N/A	N/A
2 MP (1920 x 1080)	660	7.01	N/A	N/A
3 MP (2048 x 1536)	440	10.48	660	5.35
4 MP (2048 x 1944)	330	11.65	550	7.74
5 MP (2560 x 1920)	220	16.48	660	6.73
8 MP (3840 x 2120)	550	14.13	N/A	N/A
12 MP (4000 x 3000)	330	14.47	N/A	N/A
Note: The data above was determined using the bitrate listed above, hard disks with 7200 RPM at least and average R/W speed above 110 MB/s, and with single-stream recording (Main or Sub stream) recording is applied.				

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

Installing GV-VMS

1. Download GV-VMS by selecting **Primary Applications** from the drop-down list and clicking **Download**  of GV-VMS on [GeoVision's website](#).
2. If you are using a USB dongle, insert the dongle to your computer. See *1.1.1 Dongle* for connections requiring dongle license(s).
3. To install USB driver, select **Drivers, FW, Patch** from the drop-down list, and click **Download** icon  of **GV-Series Card Driver / USB Devices Driver**.
 - To verify the driver is installed correctly, go to Windows Device Manager and expand **DVR-Devices**. You should see **GV-Series USB Protector**.



Figure 1-1

1.2 Getting Started

When you run GV-VMS for the first time, the system will prompt you for a Supervisor ID and Password.

1. Type the desired **ID**, **Password** and a **Hint** to remind you of the password.
2. Optionally set up the following functions
 - **E-Mail List:** Enter e-mail addresses used to receive the password when forgotten.
 - **Auto Login:** Allows auto login as the current user every time when the system is launched.
 - **Allow removing password System:** It is recommended to select this option allowing removal of the password database once you forget passwords. For details, see the same option in *Account and Password* later in this chapter.
 - : Click to open the onscreen keyboard to enter the login information.
3. Click **OK**. The main screen of GV-VMS and a dialog box appears.
4. To choose how to save your system database, select **Microsoft Office Access Database** or **Microsoft SQL Server** and fill out the required fields.
5. Upon first-time starting of GV-VMS, you are prompted with the **Automatic Setup** dialog box to assist you in quickly adding IP devices to GV-VMS.

1.2.1 Main Screen



Figure 1-2

Name	Description
Login ID	Click to manage accounts and passwords for accessing GV-VMS.
Audio	Click to control the volume of your PC.
Home	Shows the live view of connected cameras.
ViewLog	Shows a timeline of recorded events for playback.
Toolbar	Brings up these options when Home is selected:
	• Monitor: Start / Stop monitoring, I/O monitoring and schedule monitoring
	• Network: Enable Webcam Server and connection to other GeoVision software.
	• Tools: Show / hide volume indicator and set up Object Index.
	• Configure: Set up camera, recording, system, schedule, video processing and I/O devices.
	• Content List: Access live view layout, camera and I/O device lists and panorama view.

Brings up these options when **ViewLog** is selected:

- **Display Play Panel:** Display or hide the ViewLog timeline. This function is grayed out when the **Pinned** button is selected in the bottom-right corner.
 - **Tools:** Manage event search, system log, event backup and event export.
 - **Configure:** Apply video effects and text overlay during playback.
 - **Content List:** Manage playback layout and access camera list.
-

Exit Click to minimize or exit GV-VMS.

1.2.2 Adding Cameras

To add cameras to GV-VMS, click **Home**  > **Toolbar**  > **Configure**  > **Camera Install**. When the camera list is empty, the Automatic Setup dialog box automatically pops up.

Click **Automatic Setup** to search for IP cameras on the LAN. Then select / deselect the desired cameras listed and click **Apply**.

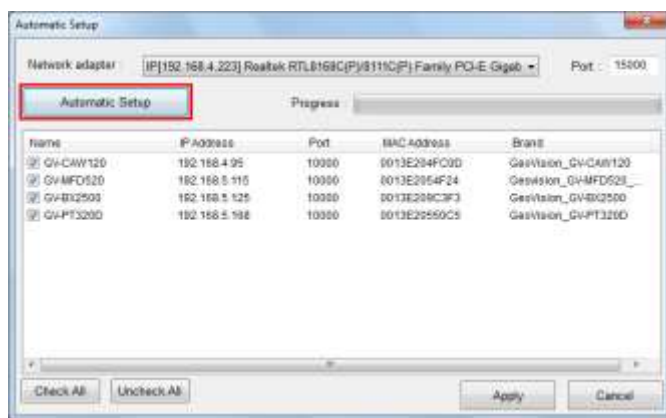


Figure 1-3

Note:

1. The default login ID and password of connected cameras is **admin / admin**. To specify a login credential, double-click the camera. If you select **Apply All**, the login info will be applied to all selected cameras.
 2. When cameras are added for the first time, they are automatically assigned to the live view grid.
-

To manually add cameras, see *Adding IP Cameras* in Chapter 2.

1.2.3 Accessing Live View

After adding cameras, you can access camera live view by dragging the camera in the Content List to the live view grid.

Click **Home**  > **Toolbar**  > **Content List** . Then click **Camera** in the content list to see the list of cameras added, and drag the desired cameras to the live view grid.

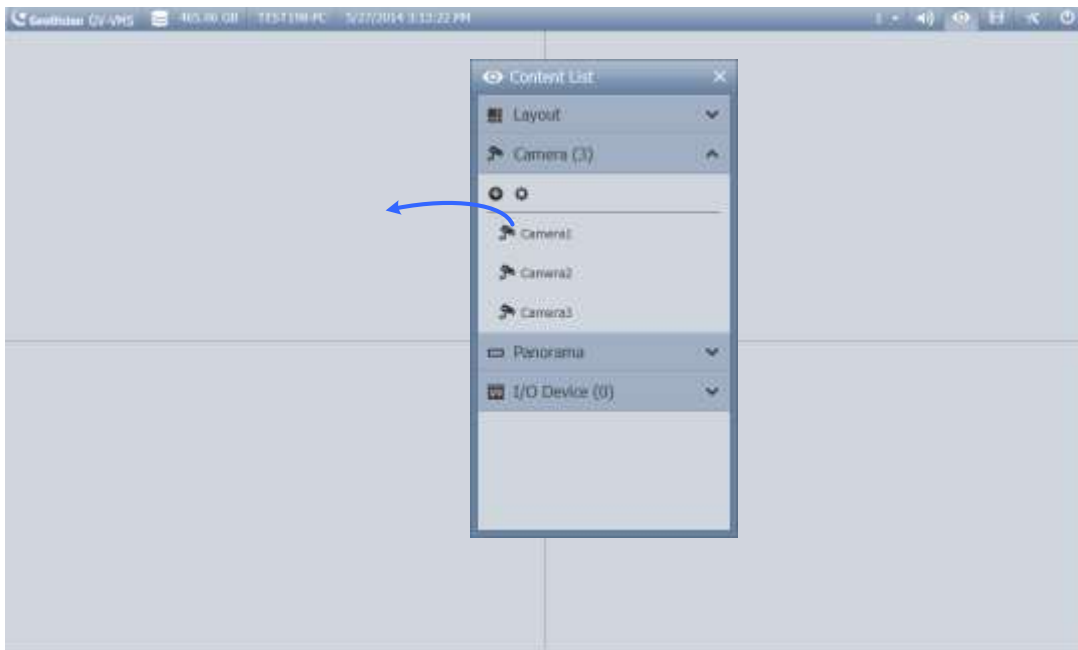


Figure 1-4

See *Live View and Layouts* later in this chapter for details.

1.2.4 Enabling Recording

To start recording, click **Home**  > **Toolbar**  > **Monitor**  > **Start All Monitoring**. Alternatively, select the cameras you want to start monitoring.

By default, every camera records with the following settings:

Default Recording Settings	
Recording Mode	Motion Detection
Resolution / Codec	The camera's current resolution / codec will be used.

- To change **recording mode**, see *Recording Settings* later in this chapter.
- To change **resolution** and **codec**, see *Configuring Video Setting* in Chapter 2.

1.2.5 Playing Back Video

Instant Playback

You can instantly play back the recorded video of a single camera from the camera live view by clicking the **Instant Playback** button.



Figure 1-5

ViewLog

For comprehensive playback functions, click **ViewLog**  on the top-right corner.

For details, see *Video Playback* in Chapter 4.

1.3 Recording Settings

To configure the recording setting of the cameras, click **Home**  > **Toolbar**  > **Configure**  > **System Configure** > **Record Setting**. The Recording Setting dialog allows you to configure the following settings:

1.3.1 *Setting up Global Recording Settings for All Cameras*

1.3.2 *Setting up Recording Settings for Individual Cameras*

1.3.4 *Setting up Motion Detection*

By default, the system has the following recording storage settings.

Default Data Storage Settings		
Storage Location	Recorded Files	D:\Record\<camxx or audxx folder>.
	Event Database Files	C:\GV-VMS\CameraDBs\
	Storyline Files	C:\GV-VMS\StoryLine\
Recycle Function		Enabled with recycling threshold set to 32 G.

Note: A storage folder is created automatically upon assigning the camera ID. For example, camera of ID 1 will be saved in the folder D:\Record\Cam01.

1.3.1 Setting up Global Recording Settings for All Cameras

You can configure global recording settings to be applied to all cameras, such as maximum length of each video clip, recycling function and the actions to take upon recording errors.

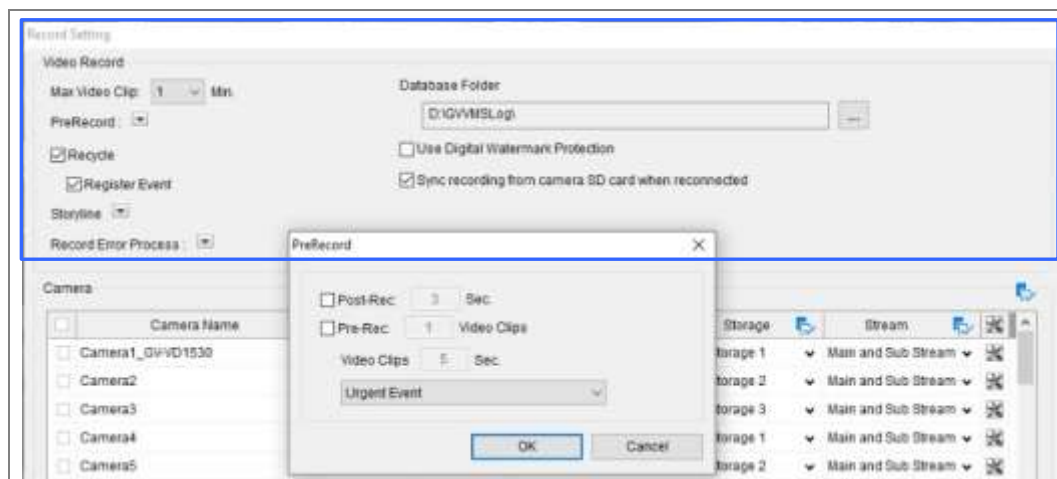


Figure 1-6

[Video Record]

- **Max Video Clip:** Specifies the maximum time length of each recorded file (from 1 to 5 minutes), i.e. if you select **5 Min**, a 30-minute event will be chopped into six 5-minute event files.
- **Post-Rec:** Keeps on recording for a set period of time after an event stops. Click the button next to Pre-Record to access.
- **Pre-Rec:** Records video for a set period of time before an event starts. Specify the number of video clips to pre-record and specify the number of seconds per video clip. For example, if you specify **3 video clips** and **5 seconds**, 15 seconds of video, 3 files of 5 seconds each, before each motion or input event will be recorded. Click the button next to PreRecord to access.

To set the frame rate for pre-recording, you can select **Urgent Event** or **General Event**. The frame rate for General Event and Urgent Event can be defined in the camera's Record Setting dialog box (Figure 1-7). Normally, you would set a higher frame rate for Urgent Events (Ex: full frame) and a lower frame rate for General Events (Ex: key frame only).

- **Recycle:** When selected, the oldest recordings will be deleted when the system requires storage space for new files. If not selected, the system will stop recording when disk space is full. Select **Register Event** if you want to recycle Register Events from the System Log.

- **Sync recording from camera SD card when reconnected:** When a camera is reconnected to GV-VMS after a disconnection, the function retrieves and restores recorded files from its SD card. After enabling the function, click the checkboxes next to Camera Name to select which cameras you want it to apply to. ViewLog's Timeline displays recordings that have been synced from SD cards in yellow.

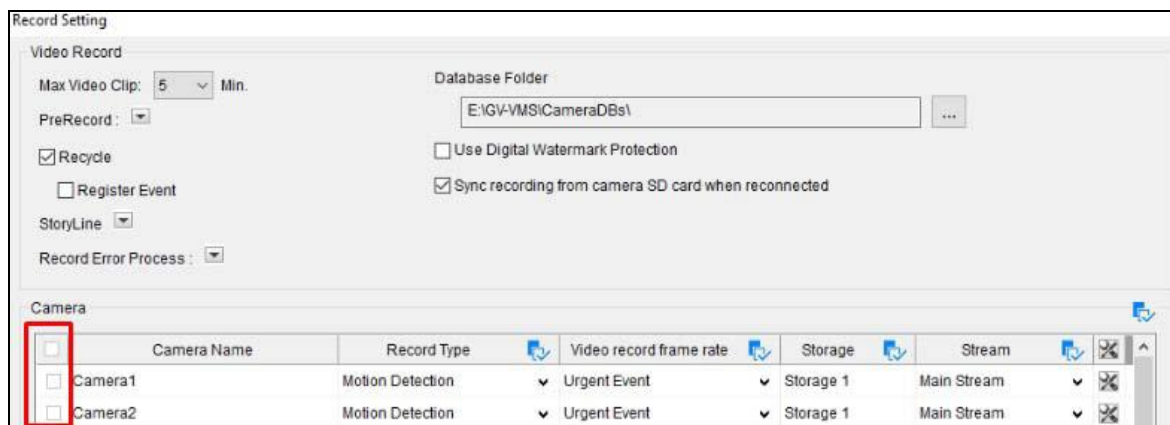


Figure 1-7

Note: To sync a camera's recordings back to GV-VMS, it is required to enable related settings on both GV-VMS and a compatible camera. For details on compatible cameras and instructions, see the [technical notice](#).

[Record Error Process] Define which actions to take when a recording error occurs.

- **Invoke Alarm:** Activates computer alarm by playing the selected sound file.
- **Invoke to Send Alerts:** Sends e-mail notifications. For details, see *Setting up E-mail Notifications* later in this chapter.
- **Register Event:** Records errors to the System Log.
- **Output Module:** Triggers the selected output device. To configure output devices, see *Chapter 6 I/O Applications* to configure output devices.

[Storyline]

- **Keep Image Ratio:** Keeps the image ratio of the recorded storyline videos.
- **Resolution:** Specifies the resolution of the recorded storyline videos.

- **Path:** The default storage path for Storyline is at C:\GV-VMS\Storyline\. Click  to specify a new storage path.

Note: To record a storyline, see *Storyline* later in this chapter.

[Database Folder]

The default storage path for Event Database (.db files) is at C:\GV-VMS\CameraDBs\. Click  to specify a new storage path. Note that the storage path of recorded videos is specified in the **Add Log Location** option. For details, see *Setting up the Video Storage Location* later in this chapter.

[Use Digital Watermark Protection] Watermarks all recordings. For details, see *Watermark Viewer* in Chapter 9.

1.3.2 Setting up Recording Settings for Individual Cameras

You can configure the recording mode and video storage location for the selected cameras only.

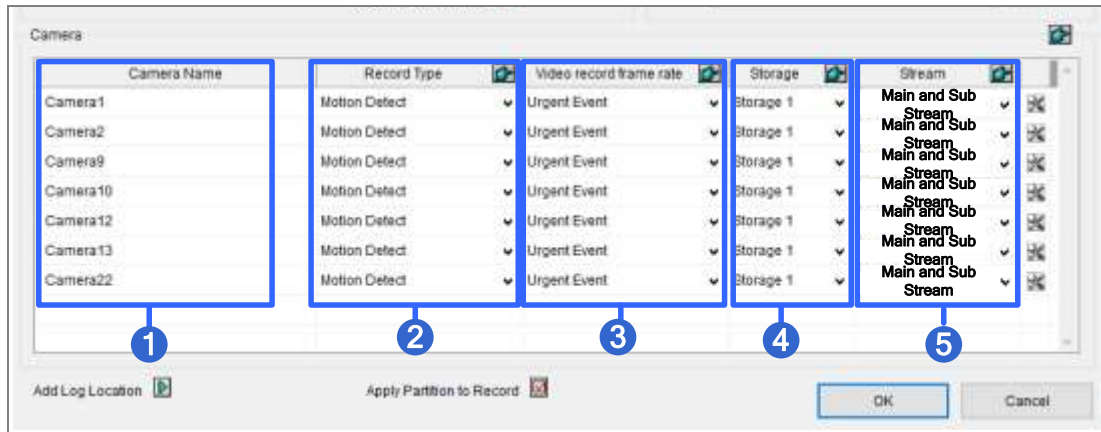


Figure 1-8

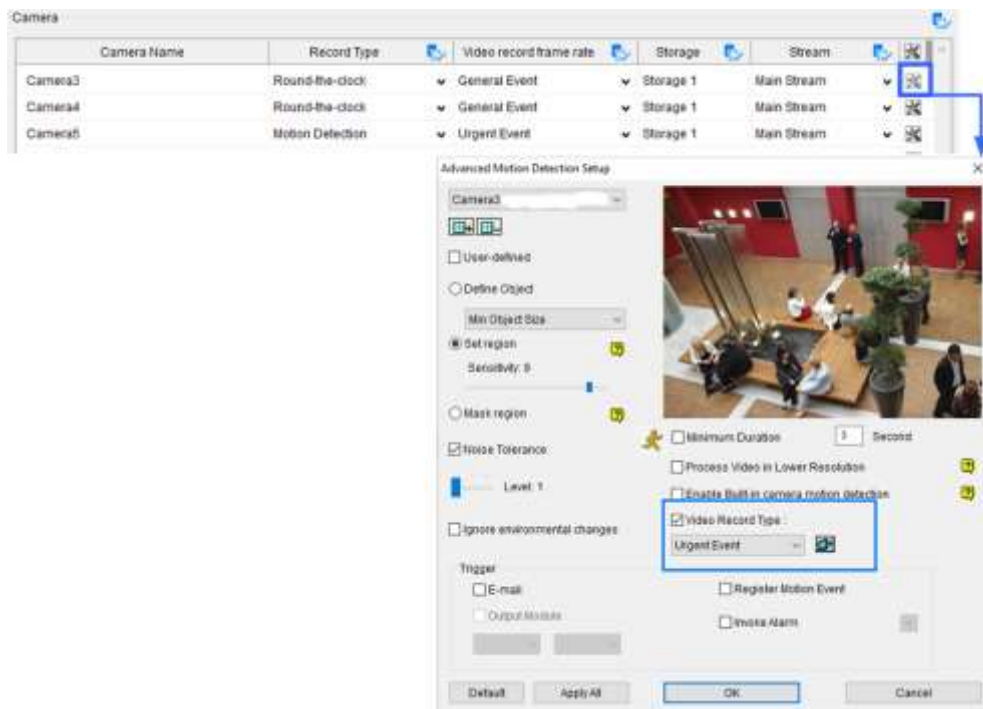
1. Select the camera you want to configure. Hold the Shift key to select multiple cameras if needed.
2. Under Record Type, select **Disable**, **Motion Detection** or **Round-the-Clock**.
3. You can set different recording frame rates. Select **Urgent Event** to record in full frame rate. Select **General Event** to record only the key frames.

The frame rate for General Event and Urgent Event can be defined in the camera's General Setting dialog box (Figure 2-13). Normally, you would set a higher frame rate for Urgent Events (e.g. full frame) and a lower frame rate for General Events (e.g. key frame only).

4. If there are more than one storage locations, select **Storage** to specify where to store the recordings. See *Setting up the Video Storage Location* later in this section.
5. Under **Stream**, select the stream(s) you want to record. By default, **Main and Sub Stream** is set to record both streams simultaneously. Select **Main Stream** to record high-resolution video images. Select **Sub Stream** to record lower-resolution video images.

Note:

1. Refer to *Configuring General Settings* in Chapter 2 for setting the frame rate for General Event and Urgent Event.
2. In Round-the-Clock mode, for motion recordings, the **Video Record Type** setting in the Advanced Motion Detection Setup dialog box has priority over the **Video record frame rate** setting in the Record Setting dialog box (Figure 1-8). For example, if you select **General Event** in the Record Setting dialog box, but select **Urgent Event** in the Advanced Motion Detection Setup dialog box, the motion events will be recorded in full frame rate as Urgent Event.



See *Setting up Motion Detection* later in this section for details.

3. **Main and Sub Stream** recording is not supported by fisheye cameras.

1.3.3 Setting up the Video Storage Location

Add Log Location

You can create a maximum of 24 storage groups with different storage locations. The default storage location is D:\Record\.

1. On the Recording Setting dialog box (Figure 1-6), click  next to **Add Log Location**. This dialog box appears.

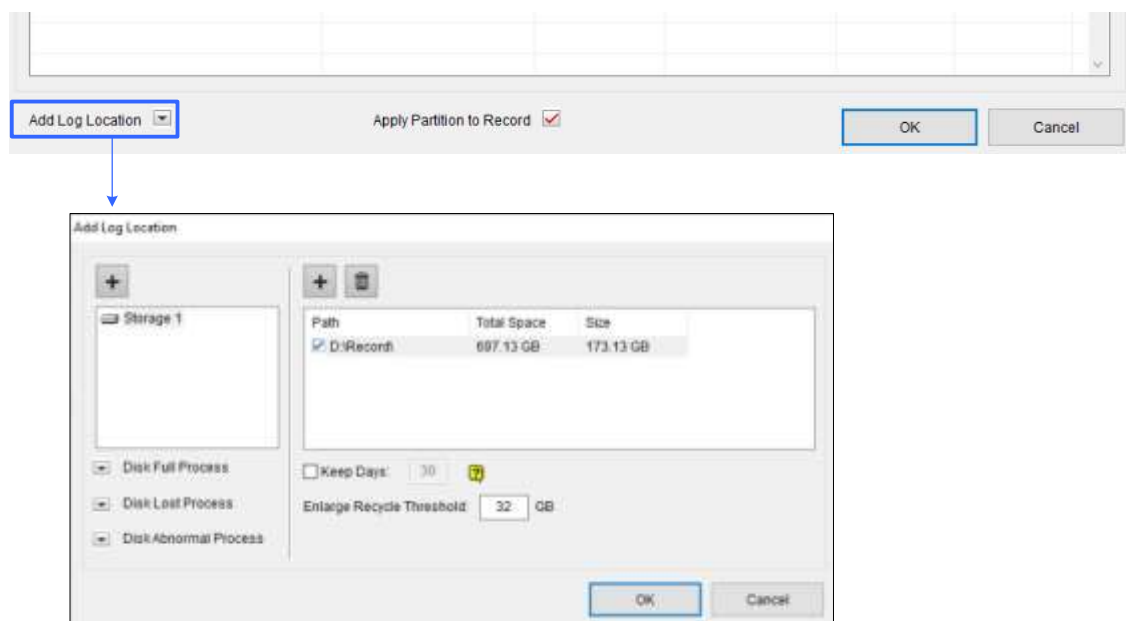


Figure 1-9

2. To add a new folder in the first storage group, click  above Path and select a folder. Only 1 folder can be assigned as storage folder per partition (e.g. only 1 folder in D drive).
3. To add a new storage group, click  in the top-left corner and repeat the step above to assign at least one folder to the storage group.
4. Select **Keep Days** and specify the number of days to keep the video files in storage.
5. In the **Enlarge Recycle Threshold** field, adjust the recycle threshold (minimum 5 GB; maximum 999 GB) if needed. Recycle threshold is the file size at which the recycling begins.
6. To specify the actions to take for different statuses of hard disks, click  next to **Disk Full Process / Disk Lost Process / Disk Abnormal Process**.
 - **Invoke Alarm:** Activates computer alarm by playing the selected sound file.

- **Invoke to Send Alerts:** Sends e-mail notifications. For details, see *Setting up E-mail Notifications* later in this chapter.
- **Register Event:** Records errors to the System Log. (Not available for **Disk Abnormal Process**).
- **Output Module:** Triggers the selected output device. To see how to set up I/O devices, refer to *Chapter 6 I/O Applications*. (Not available for **Disk Abnormal Process**).

7. Click **OK**.

Note: If the designated storage space is not big enough to keep all video files for the defined days, the **Recycle Threshold** setting will override the **Keep Days** setting.

Apply Partition to Record

GV-VMS can automate the configuration of recording paths for multiple camera channels. Each of your cameras will be equally distributed to the assigned recording paths after you have set up the storage locations.

1. On the Recording Setting dialog box, click **Apply Partition to Record**.
2. Select the desired recording paths (at least one) to store camera recordings and click **OK**.

1.3.4 Setting up Motion Detection

The motion detection settings will be applied to motion events in both Round-the-Clock mode and Motion mode. The following features are available to prevent false motion detection:

- **Object Size:** Set a minimum and maximum object size to only detect objects within the size range
- **Sensitivity:** Designate up to 10 levels of motion detection sensitivity for each outlined area
- **Mask Region:** Mask off unwanted areas for monitoring, such as cloud and tree movement
- **Noise Tolerance:** Ignore video noise when the lighting condition is poor or changed
- **Ignore environmental changes:** Ignore changes such as rain, snow and tree movement
- **Minimum Duration:** Set the minimum duration for which motions must persist for the system to issue a motion alarm

1. Open the Recording Setting dialog box (Figure 1-6), select a camera and click . This dialog box appears.

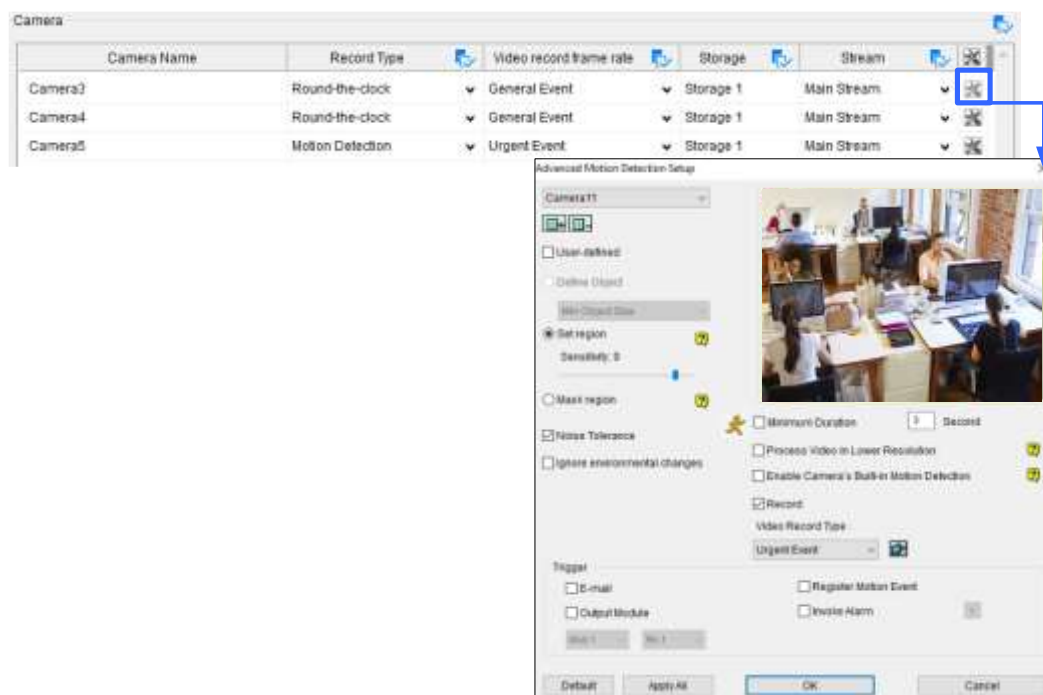


Figure 1-10

2. You can refine motion detection by setting either Object Size or Region Sensitivity.
 - **Define Object:** Limit motion detection to objects within a size range. Select **User-defined** and set the **Min. Object Size** and **Max. Object Size** in the respective drop-down lists.
 - **Set Region Sensitivity:** Set different detection sensitivities for different parts of the camera image. Uncheck **User-defined**, click the **Add/Cut Mask**   buttons to create several areas. To adjust the sensitivity level for individual area, right-click the detection area and move the slider. By default, the entire image is set to sensitivity level 9.
3. To ignore motion in specific areas of the image, click **Mask Region**, and drag areas on the image.
4. The following options are available to further reduce false alarm:
 - **Noise Tolerance:** Enable to ignore video noise.
 - **Ignore environmental changes:** Ignore environmental changes such as rain or snow. When this option is selected, objects moving steadily and repeatedly in the same direction for over 1.5 seconds are filtered out and ignored.
 - **Minimum Duration:** Set the minimum duration for which motions must persist for the system to issue a motion alarm. Set the minimum duration in seconds (up to 60).

5. You can reduce CPU loading by selecting **Process Video in Lower Resolution**. When this option is enabled, GV-VMS compresses live view into a lower resolution before GV-VMS detects if there is motion, which reduces CPU loading, but may affect accuracy.
6. The camera's built-in motion detection is enabled by default. To use GV-VSM software motion detection instead of the camera's, deselect **Enable Camera's Built-in Motion Detection**.

Note: The camera's built-in motion detection is enabled by default in GV-VMS V17.4 or later, with the exception of GV-QSD series, GV-QFER series, and cameras connected through ONVIF, which use software motion detection when connected.

7. To set the frame rate setting for motion events, click **Video record frame rate** and select **Urgent Event** or **General Event**. Normally, you would set a higher frame rate for Urgent Events (Ex: full frame) and select Urgent Event here for motion events. See *Configuring General Setting* in Chapter 2 to modify the frame rates of general and urgent events.
8. Under Event Trigger, select the actions to take when motion is detected.
 - **E-mail:** Send e-mail notifications. For details, see *Setting up E-mail Notifications* later in this chapter.
 - **Output Module:** See *Chapter 6 I/O Applications* for I/O device setup.
 - **Register Motion Event:** Register motion events to the System Log.
 - **Invoke Alarm:** Activate computer alarm by playing the selected sound file.
9. Click **OK** to save your settings.

Note:

1. You can only enable motion detection either by sensitivity or by object size at a time.
 2. By default, the entire camera view is set to a motion sensitivity level of 9 with **Noise Tolerance** and **Process Video in Lower Resolution** functions enabled.
-

1.4 Live View and Layouts

This section describes the functions on the camera live view and how to create new live view layouts.

1.4.1 Utilizing Live View Functions

Live View Icons

Place the mouse cursor on the camera live view to see the icons below.

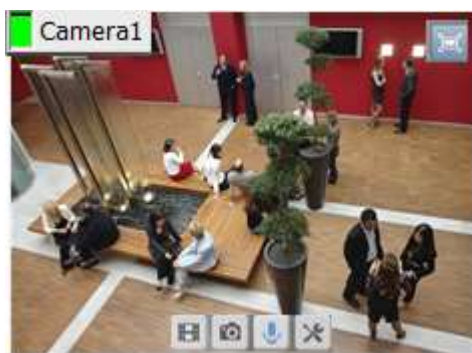


Figure 1-11

Icons	Functions
Instant Play 	Plays back the video recorded.
Snapshot 	Captures a snapshot of the current live view.
Talk Back Toggle / Push-to-Talk 	Talk to the surveillance site. For details, refer to [The behavior of the talk back button], <i>Configuring General Settings</i> later in this chapter.
Tools 	Includes the following options: ■ Monitor: Starts monitoring the camera. ■ Properties: ⊙ Show Caption: Shows camera name on live view. ⊙ Keep Image Ratio: Locks aspect ratio of the camera image. ■ Close: Removes the camera from the layout grid. The following options are available when related function is enabled or supported: ■ Set to Wave Out: Enables live view audio. (See <i>Configuring Audio Setting</i>, Chapter 2)

Tools 	■ PTZ Control: Enables PTZ functions. (See <i>PTZ Camera</i> later in this chapter) ■ Add to bookmark: Bookmarks a scene to watch later in ViewLog player. The function is only available when the channel is recording. ■ Storyline: Records a sequence of short video clips of a specific incident. (See <i>Storyline</i> later in this chapter)
Zoom 	Switches the live view to full screen. If there is a designated Zoom window, clicking the Zoom button will display the live view in the zoom window instead.
Volume Indicator 	Display an audio volume indicator on the top-left corner of the camera live view. Click Home  > Toolbar  > Tools  > Audio > Show Volume Indicator .
Note: When PTZ Control is enabled on a PTZ camera, double-clicking the live view will make the camera zoom in instead of switching to full screen.	

Functions on Live View and Content List

The live view screen can be controlled using the actions below.

Actions	Functions
Mouse scroll	Zooms in or out on the live view.
Double-click	Displays the live view in full screen.

In the Content List (**Home**  > **Toolbar**  > **Content List**), right-click a camera to access the following options, when enabled or supported:

- **Monitor:** Starts monitoring the camera. (See *Start Monitoring* later in this section)
- **Video Process:** Opens the Video Processing dialog box. (See *Chapter 3 Video Analysis*)
- **Set to Wave Out:** Enables live view audio. (See *Configuring Audio Setting*, Chapter 2)
- **Talk Back Toggle:** Talks to the surveillance site from the PC. (See *Configuring Audio Setting*, Chapter 2)
- **Focus View Setup:** Creates up to 7 closed-up views in a camera. (See *Setting up Focus View* later in this section)
- **PTZ Setup:** Enables PTZ functions. (See *PTZ Camera* later in this chapter)
- **Fisheye Settings:** Opens the Fisheye Settings dialog box. (See *Fisheye View*, Chapter 3)

Audio Broadcasting

When necessary, the GV-VMS operator can broadcast audio to multiple cameras simultaneously with the speaker function.

Note: This function is not supported by cameras connected through RTSP protocol.

1. Click **Home**  > **Toolbar**  > **Tools**  > **Audio Broadcast**. This window appears.

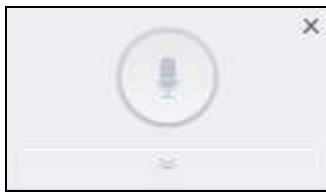


Figure 1-12

2. Click the **Down** arrow button to select the cameras you wish to broadcast audio to.
3. To start audio broadcasting, press and hold the **Push to Broadcast** button  while talking to the microphone connected to the computer of GV-VMS.

1.4.2 Arranging Live View Layouts

1. In the Content List, click **Layout**.



Figure 1-13

2. To add a layout, click **Add**  and click **Add Layout**. The Add New Layout dialog box appears.
3. Name the new layout and select one of the three available methods under Layout Setup to define a layout and click **OK**.
4. If you select **Customize** in the step above, the Customize Layout dialog box will appear.
 - a. Click **Reset** to specify a dimension for the grid if needed.

- b. Select multiple squares and click **Merge** to create a larger square.
- c. Click **OK** when you are done.

A message appears. Click **Yes** if you want to automatically assign the cameras to the new layout.

Tip: You can right-click a layout in the Content List to access other functions to arrange the layout.

1.4.3 Setting up Zoom Window

You can designate a Zoom Window to quickly see a close-up view of the camera image without changing the rest of the live view layout.

Note:

1. Up to two Zoom Windows can be created on each live view layout.
 2. When there are two Zoom Windows, GV-VMS will alternate between the first Zoom Window and the second Zoom Window each time you click the Zoom button of a camera.
-
1. In the Content List, select **Layout**, click **Windows** and drag **Zoom Window** to a live view grid.
 2. Move the mouse cursor to a camera live view and click **Zoom**  in the top-right corner. The camera live view is displayed in the Zoom Window.
 3. To remove the camera from the Zoom window, place the cursor on the live view, click **Tools**  and select **Close**. To change the live view grid back to a normal window, repeat this step again to close the Zoom Window.

1.4.4 Setting up Scan Window

You can assign multiple cameras to a Scan Window, and each camera will be shown in sequence for the Scan Interval specified.

Note: Up to four Scan Windows can be created on each live view layout.

1. In the Content List, select **Layout**, select **Windows**, and drag **Scan Window** to a live view grid.
2. Drag multiple cameras into the Scan Window.

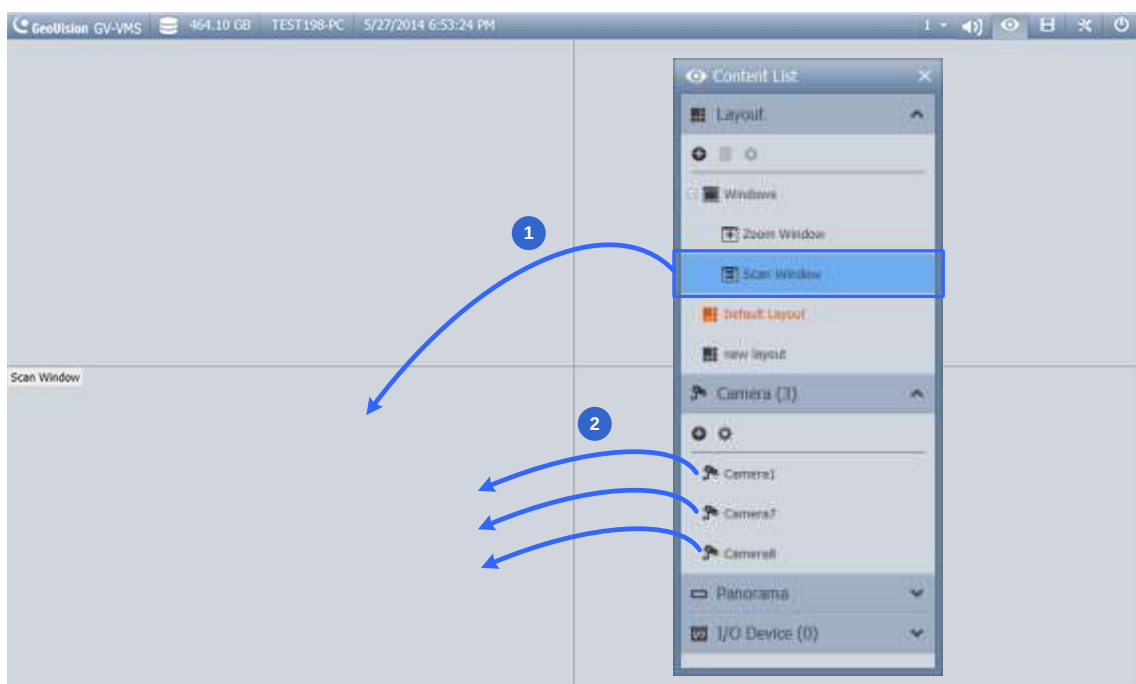


Figure 1-14

3. Move the cursor to the Scan Window, click **Tools** , and select **Properties**. This dialog box appears.

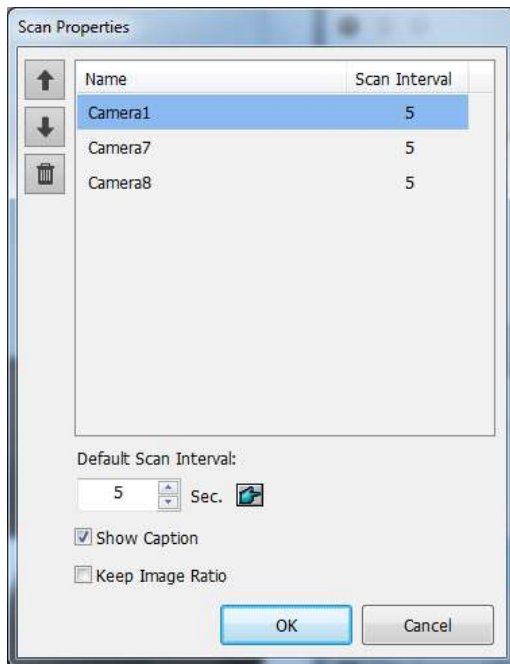


Figure 1-15

4. To adjust the order of a camera, select a camera and click the Up  and Down  arrows.
5. To specify how many seconds to show the live view of each camera, click and adjust the **Scan Interval** of each camera. Optionally click the **Finger**  to apply this Scan Interval to all cameras.
6. To show camera name on live view, select **Show Caption**.
7. To lock the original aspect ratio of the camera image, select **Keep Image Ratio**.
8. Click **OK**.

1.4.4.1 Creating a Camera Group

You can also add multiple cameras to a group and the created group can be dragged into a live view grid directly or Scan Window for display. At least 8 cameras are required in the camera list for this function to work.

1. Click **Camera** in the Content List, click **Add** , and click **Add Group**. Rename the group if necessary.
2. Drag the desired cameras from the camera list to the group created.
3. Drag the created group either into a live grid or Scan Window. For details on setting up Scan Window, see *Setting up Scan Window* earlier in this chapter.

1.4.5 Setting up Popup Window

You can designate a Popup Window to display live images of cameras, upon events, on a separate monitor. For this function to work, you must first create a live view layout on another monitor.

1. In the Content List, click **Layout > Add**  **> Add Layout** to create a new layout.
2. After clicking **OK**, select a desired monitor from the **Apply to...** list to activate the layout on the designated monitor.
3. In the Content List, click **Windows > Add**  **> Add camera popup window** to select the cameras to be displayed in the Popup Window.

Note: For details on configuring the Camera Popup Setting, see *Popping up Live View* later in this chapter.

4. Rename the Popup Window if necessary and drag the Popup Window from the Content List to the layout created in Step 3.

1.4.6 Setting up Focus View

You can create up to 7 close-up views per camera and place these created close-up views inside the live view grid.

1. In the Content List, right-click a camera and select **Focus View Setup**. This dialog box appears.

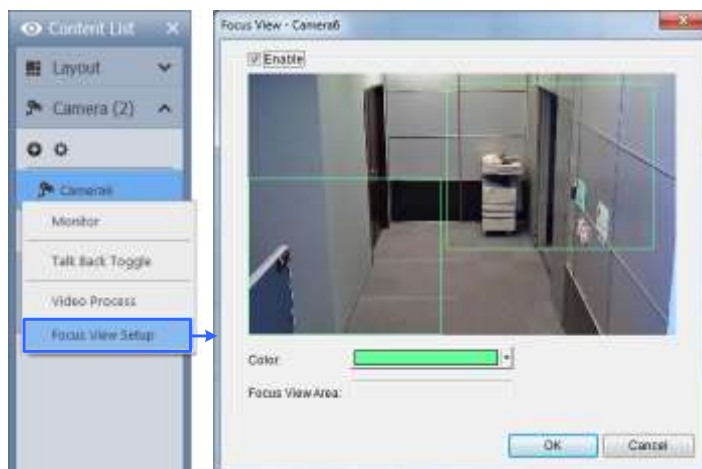


Figure 1-16

2. Click **Enable** and draw a box on the camera view to create a focus view. You can create multiple focus views if needed.
3. You can change the color of the box if needed.
4. Click **OK**. The created focus views are listed under the camera.
5. You can now drag the focus views to live view grids.

Note: This function is not supported for Fisheye Cameras and PTZ Cameras.

1.4.7 Automatic Switch among Different Live View Layouts

You can have different layouts automatically alternated at a specified interval.

1. Create and group several layout templates under the Content List (Figure 1-17).
2. Right-click the group to configure its **Scan Setting** to specify the scan interval.

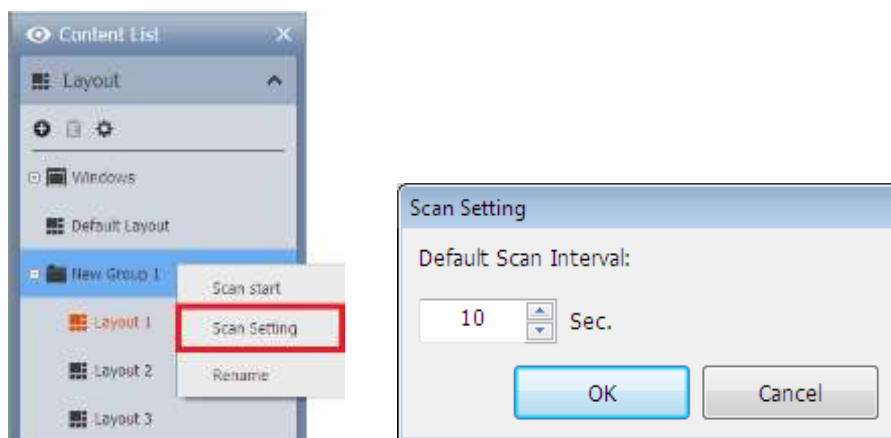


Figure 1-17

To start the automatic switch, right-click the group and select **Scan Start**. In the example above, Layout 1, Layout 2, and Layout 3 are automatically switched among each other every 10 seconds, with the currently displayed layout highlighted in orange.

1.5 Start Monitoring

After setting up the following functions, it is important to start monitoring in order for the functions to start: Recording, Video Analysis, Motion Event Trigger and Schedule.

To start monitoring, click **Home**  > **Toolbar**  > **Monitor**  and select one of the options:

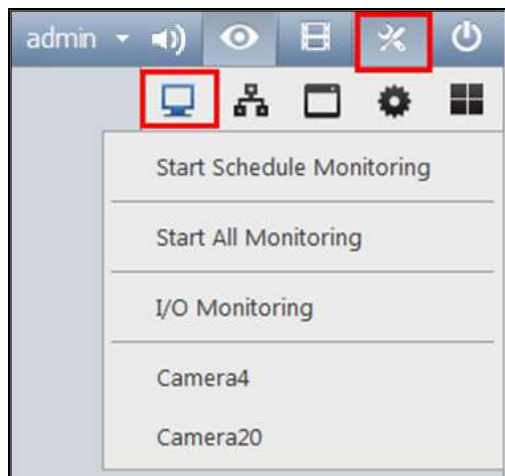


Figure 1-18

- **Start Schedule Monitoring:** If you want to start running a created schedule, select **Start Schedule Monitoring**. The schedule takes precedence over the current settings, and these functions will start and stop according to the schedule: Recording, Video Analysis, I/O, PTZ Auto Functions, Motion Event Trigger and Network Connections with Center V2 / Vital Sign Monitor. For details on creating a schedule, see *Schedule* later in this chapter.
- **Start All Monitoring:** Starts monitoring on all cameras to initiate recording and related functions.
- **I/O Monitoring:** Starts I/O monitoring to activate I/O functions. I/O Monitoring is only available after at least one I/O device is set up. For details on setting an I/O device on GV-VMS, see *Setting up I/O Devices* in Chapter 6.
- **Camera#:** Starts monitoring of selected cameras. You can also start monitoring individual cameras by right-clicking the camera in the Content List and select **Monitor**.

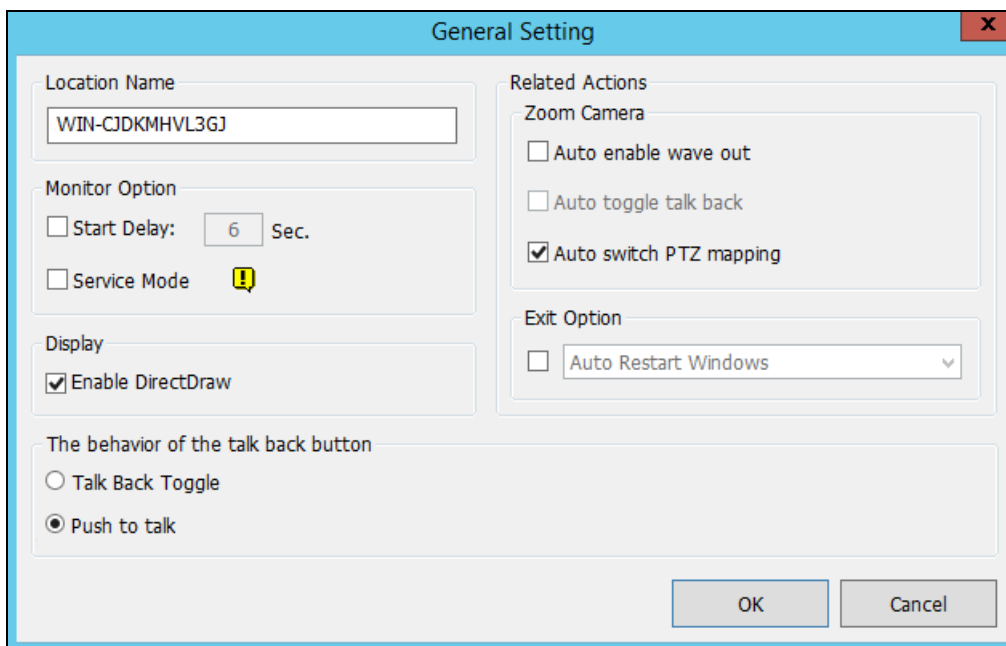
Note: Motion detection and I/O trigger will only be registered in the System Log if monitoring is started. You will also need to enable **Register Motion Event** in the Advanced Motion Detection Setup dialog box (Figure 1-10) and **Register Input Event** in the I/O Application Setting (Figure 6-10).

1.6 System Configuration

This section introduces system configurations of GV-VMS.

1.6.1 Configuring General Setting

Start configuring **General Setting** by clicking **Home**  > **Toolbar**  > **Configure**  > **System Configure** > **General Setting**. This dialog box appears.



The dialog box titled "General Setting" contains the following sections:

- Location Name:** A text field containing "WIN-CJDKMHVL3GJ".
- Monitor Option:**
 - ☐ Start Delay: 6 Sec.
 - ☐ Service Mode 
- Display:**
 - ☒ Enable DirectDraw
- Related Actions:**
 - ☐ Auto enable wave out
 - ☐ Auto toggle talk back
 - ☒ Auto switch PTZ mapping
- Exit Option:**
 - ☐ Auto Restart Windows (dropdown menu)
- The behavior of the talk back button:**
 - ☐ Talk Back Toggle
 - ☒ Push to talk

Buttons: OK, Cancel

Figure 1-20

[Location Name] The given name (maximum 14 characters) is displayed in the main screen as the name of the server.

[Monitor Option]

- **Start Delay:** Start recording x second(s) after **Start All Monitoring** or **Start I/O Monitoring** is selected.
- **Service Mode:** Under Service Mode, GV-VMS can start automatically after system startup and run in the background without logging into Windows.

[Display]

- **Enable DirectDraw Scale:** Applies DirectDraw Scale to enhance image quality if it is supported by your VGA card. For certain VGA cards, DirectDraw Scale can result in blurred images. To avoid the image problem and maintain DirectDraw Scale, change the image quality to **Standard** [Video Setting] of the camera (Figure 2-11).

Note: The **Enable Directdraw Scale** function can greatly enhance image quality. Enable if your VGA card supports DirectX9. To check the version of your DirectX, click Start and run **dxdiag**. Open the file and find the related information.

[The behavior of the talk back button]

- **Talk Back Toggle:** Users can click the  button to talk to the surveillance site and click the button again to stop talking on the live view.
- **Push to talk:** Users can click and hold the  button to talk to the surveillance site and release the button to stop talking on the live view.

[Zoom Camera]

- **Auto enable wave out:** Automatically enables Wave Out function of the camera in Zoom Window or in full screen. Note that the Wave Out function needs to be enabled in the Audio Setting page of the camera first.
- **Auto toggle talk back:** Automatically enables Toggle Talk Back function of the camera. Note that the Toggle Talk Back function needs to be enabled in the Audio Setting page of the camera first.
- **Auto switch PTZ mapping:** This function only applies to GV-Keyboard connected to GV-VMS. When selected, PTZ control from GV-Keyboard will be applied to the mapped PTZ camera. When not selected, GV-Keyboard can only control the first available PTZ camera.

[Exit Option]

- **Auto Restart Windows:** Restarts Windows OS after exiting GV-VMS.
- **Auto Shut down Windows:** Shuts down Windows OS after exiting GV-VMS.

1.6.2 Customizing Startup Settings

To configure GV-VMS to enable certain features upon startup, click **Home**  > **Toolbar**  > **Configure**  > **System Configure** > **Startup**. This dialog box appears.

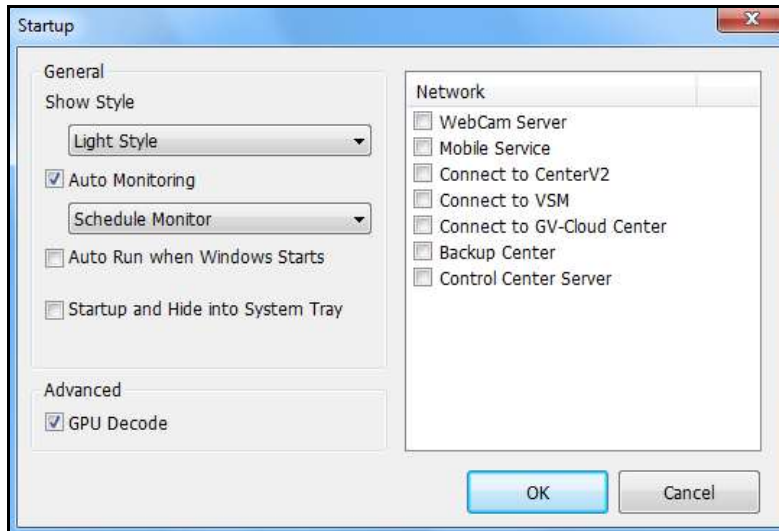


Figure 1-21

[General]

- **Show Style:** Change the color scheme of GV-VMS.
- **Auto Monitoring:** Select one of the following monitor control modes upon startup:
 - ⊙ **Monitor All:** Starts monitoring of all cameras and I/O (if available) upon system startup.
 - ⊙ **Schedule Monitor:** Starts monitoring of cameras by schedule. See *Schedule* later in this chapter.
 - ⊙ **I/O Monitor:** Starts monitoring of all I/O devices upon startup.
 - ⊙ **Camera Monitor:** Enables all cameras for monitoring.
- **Auto Run when Windows Starts:** Automatically runs GV-VMS after Windows starts. If you did not set an Auto Login account or an Auto Startup Login account, the Login dialog box will appear upon startup.
- **Startup and Hide into System Tray:** GV-VMS appears in the system tray when you launch Windows instead of displaying the system login window.



Note: **Startup and Hide into System Tray** and **Auto Startup Login** cannot function at the same time. When both are enabled, Auto Startup Login will not be applied. For details on Auto Startup Login, see *Setting up a Startup Auto Login User* later in this chapter.

[Advanced]

- **GPU Decode:** Enabled by default, GPU (Graphics Processing Unit) decoding lowers CPU loading and increases the total frame rate supported by GV-VMS. But if your PC does not meet the system requirements as listed in *GPU Decoding* at the beginning of the manual, you can disable this function to optimize system operations. After deselecting **GPU Decode**, restart GV-VMS for the change to take effect.

[Network]

- Automatically enables connection to the following application(s) upon startup: **WebCam Server**, **Mobile Service**, **Center V2**, **VSM**, **GV-Cloud Center**, **Backup Center**, **Control Center Server**

1.6.3 Customizing Display Position and Panel Resolution

You can customize the display settings of GV-VMS by clicking **Home**  > **Toolbar**  > **Configure**  > **System Configure** > **Set Position**. This dialog box appears. The right half is only available when multiple monitors are installed.

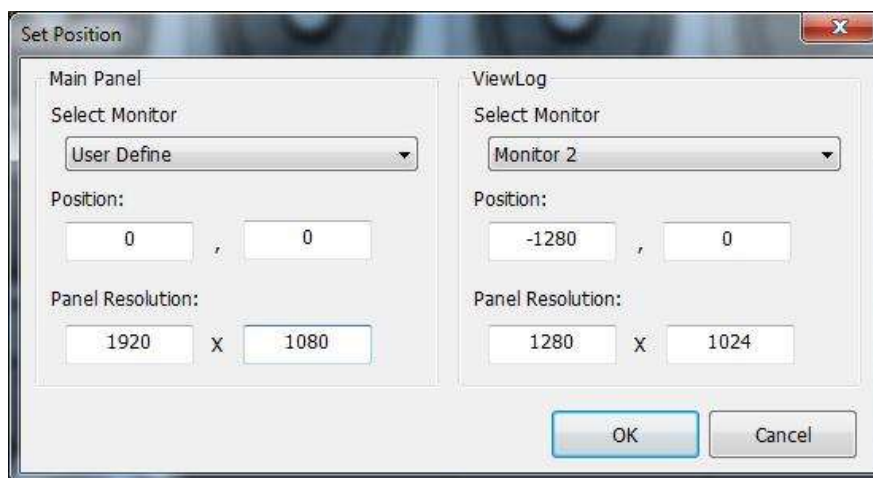


Figure 1-22

- **Select Monitor:** Select the monitor you want to configure from the drop-down list.

- **Position:** Offsets the position of the GV-VMS window relative to the upper-left corner of the screen. The default position is 0, 0. A position of 100, 60 will place the GV-VMS window 100 pixels to the right and 60 pixels below the upper-left corner. This function is only supported when the GV-VMS window does not take up the entire screen.

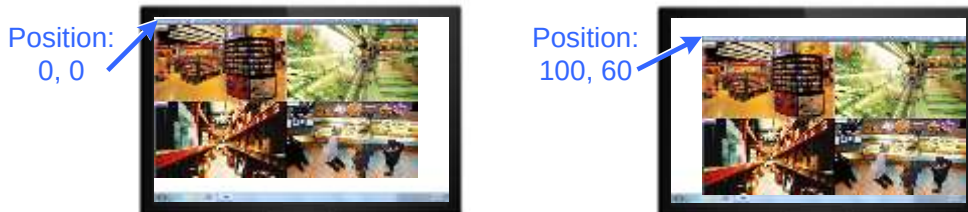


Figure 1-23

- **Panel Resolution:** Sets the Panel Resolution of GV-VMS.

1.6.4 Setting up E-mail Notifications

Events that can be used to trigger e-mail notifications include: Video Lost, Recording Error, Disk Full, Disk Lost, Disk Abnormal, Motion Detection, I/O Trigger, Intruder Event, Crowd Detection, Advanced Unattended Object, Advanced Scene Change Detection, Advanced Missing Object and Face Detection.

1. To receive e-mail notifications upon the occurrence of an event, click **Home**  > **Toolbar**  > **Configure**  > **System Configure** > **Send Alerts Approach Setup**. The Alert Approach dialog box appears.
2. To enable e-mail notifications, select **Send Email** > **Email Setup**. This dialog box appears.

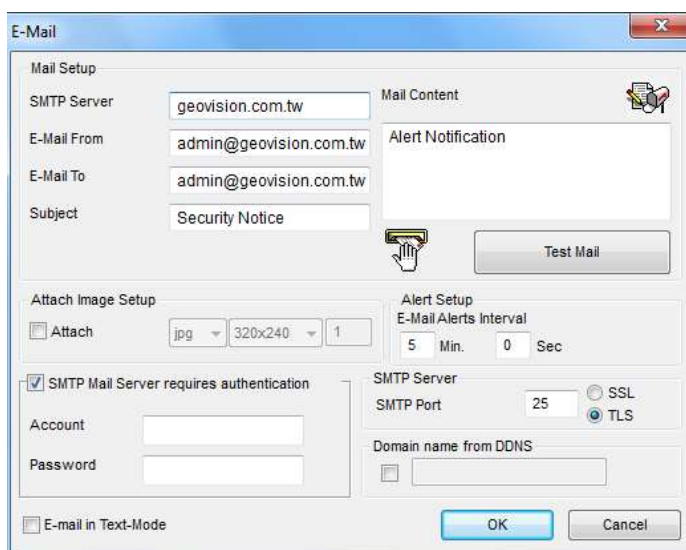


Figure 1-24

3. Under Mail Setup, type the host name of your outgoing mail server (SMTP), the sender's e-mail address, recipients' e-mail addresses and a subject for the e-mail notification. For multiple recipients, add a semicolon between each e-mail address.
4. Click the **Test Mail** button to send a test e-mail and see whether the setup is correct. If the e-mail fails to send, you may need to check the following settings:
 - **SMTP Mail Server requires authentication:** If the SMTP mail server needs authentication for login, select this option and type your account name and password.
 - **SMTP Server:** Keep the default port 25 which is common for most SMTP servers. However webmail providers such as Gmail, Yahoo, and Hotmail generally use different SMTP port. In this case, check your e-mail provider for the SMTP port number. Select **SSL** or **TLS** if your e-mail server requires the SSL/TLS authentication for connection.
5. Complete other optional settings as needed:
 - **Mail Content:** Type the e-mail content that will be included in all e-mail notifications.
 - **Attach Image Setup:** Select **Attach** to include up to 6 snapshots in the e-mail. The image format and size are selectable. Note the actual size can be either the main stream or the sub stream depending on the On Demand setting. For details, see the *On Demand Display* section later in this chapter.
 - **Email-Alerts Interval:** Specify the time interval (0-60 seconds) between e-mail alerts to prevent e-mails from being sent too frequently. The default interval is 5 minutes.
 - **Domain Name from DDNS:** This option generates URL links for remote video playback in the sent e-mails. For this function to work, enter the fixed IP address or domain name of GV-VMS and enable **WebCam Server**.
 - **E-mail in Text Mode:** When **WebCam Server** is enabled, your e-mail alert will be sent in HTML format. If you want to send the e-mail alert in pure text format, select this option.

Note: To enable WebCam Server, click **Home**  > **Toolbar**  > **Network**  > **WebCam Server**.

1.6.5 System Idle Protection

The System Idle Protection automatically log off and/or start monitoring after GV-VMS is idle for a set period of time.

1. Click **Home**  > **Toolbar**  > **Configure**  > **System Configure** > **System Idle Protection Setting**. This dialog box appears.

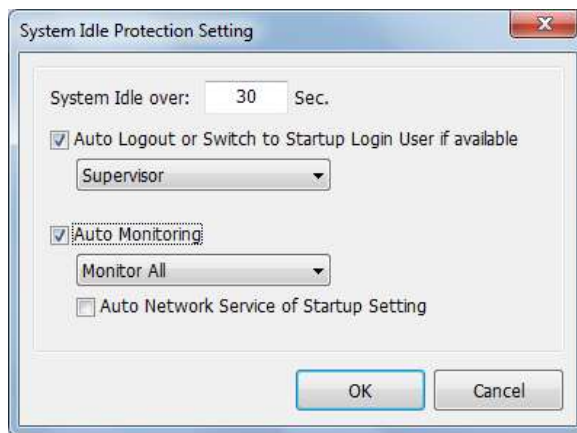


Figure 1-25

2. To automatically log out or switch to Startup Auto Login User, select **Auto Logout or Switch to Startup Login User if available** and select the type of account to log out from the drop-down list.
If you have set up a Startup Auto Login User, GV-VMS will switch to the Startup Login User instead of logging out. For details, see *Setting up a Startup Auto Login User* later in this chapter.
3. To automatically start monitoring, select **Auto Monitoring**, and use the drop-down list to select **Monitoring All**, **Schedule Monitoring**, **I/O Monitoring** or **Camera Monitoring**. When Monitoring All is selected, both I/O Monitoring and Camera Monitoring will be enabled.
 - Select **Auto Network Service of Startup Setting** to enable network connections to the applications predefined in Startup. See *Customizing Startup Settings* earlier in this chapter.
4. In the **System Idle Over** field, type an idle time between 10 and 14400 seconds.
5. Click **OK**.

Note: The feature can monitor keystrokes, mouse clicks and actions from IR Remote Control and GV-Keyboard.

1.6.6 Configuring Fast Key Lock

1. To enable/disable certain fast keys, click **Home**  > **Toolbar**  > **Configure**  > **System Configure** > **Fast Key Lock Setup**. The Fast Key Lock Setup dialog box appears.
2. Select one of the four tabs: General, ViewLog, PTZ Control and Network.
3. Clear the checkmark for the fast keys you want to disable. To restore the fast keys, select the checkbox again.
4. Click **OK** to apply your settings.

1.7 Account and Password

The password setup allows you to assign permission and rights to accounts. You can create up to **1,000** passwords. Only Supervisor-level accounts are pre-set with access to password settings. Click the account ID, click **Password Setup**, and select **Local Account Edit** to start.

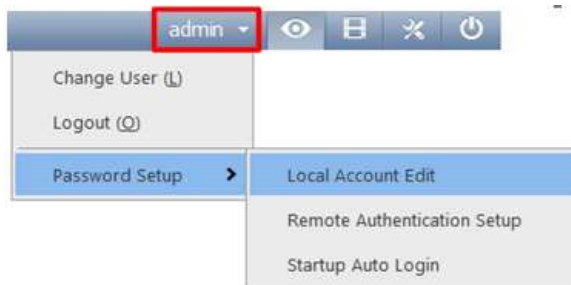


Figure 1-26

1.7.1 Creating an Account

To create a new account, click the **New** button at the lower-left hand corner of the Local Account Edit dialog box. You can create three types of accounts **Supervisor**, **Power User** and **User**.

- Supervisors have permissions over all system settings.
- Power Users have the same permissions as Supervisors, except that they cannot edit user accounts and delete the password system (described later).
- Users are restricted from all system settings and have limited access to certain functions.

If you want to enable the guest account, click **Guest** and deselect the **Disable Account** option. Guests will only be allowed to watch live view.

Note:

1. To increase security, your new password should be at least 8 characters long. It must contain three of the following character categories: uppercase letters (A-Z), lowercase letters (a-z), digits (0-9), or special characters (!^_.,+{}[]=).
2. When connected from GV-Control Center V3, the special character @ is not supported for the account ID and password of GV-VMS.

1.7.2 Configuring Account Settings

You may find these options to the right of the account list depending on the authorization level.

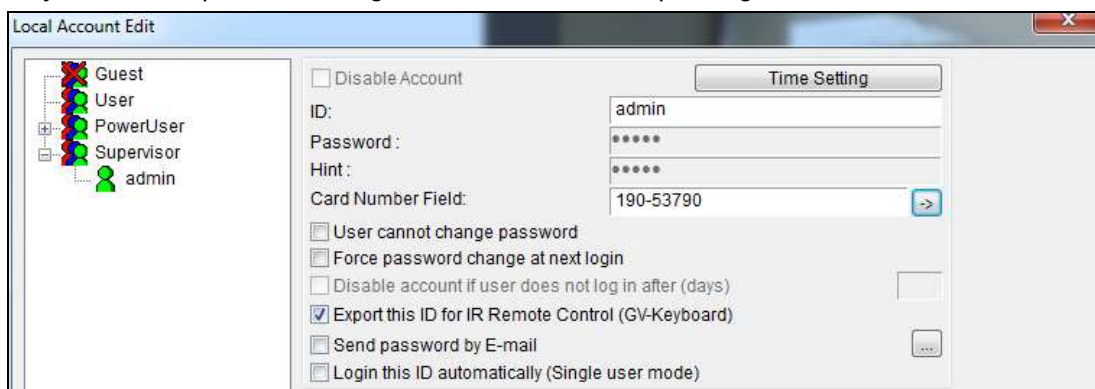


Figure 1-27

- **Disable Account:** Select if you want to disable this account.
- **Time Setting:** The account will expire and be disabled automatically after a set number of days. Click **Time Setting**, and select **Expire in (days)**. Specify the number between 1 and 9999. The number you set will count down automatically.
- **Card Number Field:** Users are allowed to automatically log into their accounts by inserting the card in GV-PCR310 Enrollment Reader. Manually type your card number in the field, or insert your card in GV-PCR310 Enrollment Reader and the card number will be shown in the field automatically. Click  to attach the card number to the user account.
- **User cannot change password:** The user is not allowed to change the set password.
- **Force password change at next login:** The user must change the password at next login.
- **Disable account if user does not login after xx day (s):** When the user does not log in the system after a set number of days, its account will be disabled automatically.
- **Export this ID for IR Remote Control:** Allows you to log into the system by using GV-Keyboard instead of using the general keyboard and mouse. For details see *GV-Keyboard User's Manual*.
- **Send password by Email:** Allows you to retrieve passwords through e-mails. To specify e-mails, click the [...] button. See *Changing or Retrieving Password at Login* later in this chapter.

- **Login this ID automatically (Single User Mode):** GV-VMS will automatically log into this account after you click **Login** at startup.

At the bottom of the page are global settings, which are applied to all accounts.

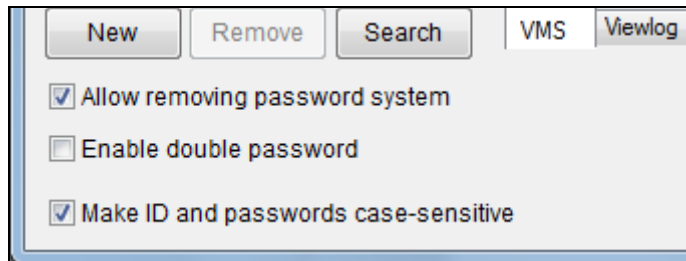


Figure 1-28

- **Allow removing password System:** Enables the password removal utility. The option is critical if you forget or are unable to retrieve any Supervisor password. With this option selected, you can run the password removal utility **PassUNINStall.exe** from the GV folder and remove the password database. Otherwise, you can only remove the password database by reinstalling Windows operating system.
- **Enable double password:** When selected, after starting ViewLog, you will need to type the passwords of any two supervisors to continue. At least 2 supervisor accounts are required.
- **Make ID and passwords case-sensitive:** Select to make all ID and passwords case-sensitive.

Note:

1. Before running the utility **PassUNINStall.exe**, you need to disable Service Mode on GV-VMS (Figure 1-21) and close GV-VMS. After running the utility, restart GV-VMS.
2. The loss of passwords can be solved in the following two ways:
 - Retrieving password through e-mails.
 - Removing password database by using the **PassUNINStall.exe** utility and rebuilding all accounts.

However, if both **Send Password by Email** and **Allow Removing Password System** options are not selected in advance, it is required to reinstall Windows operating system once you lose the passwords.

1.7.3 Changing or Retrieving Password at Login

You can change or retrieve passwords of GV-VMS through e-mail upon login.

Changing Password

1. In the Login dialog box, click **Change Password**. The Change Password dialog box appears.
2. Type the new password information, and click **OK** to save the changes.

Note: Only Supervisors can change the password.

Retrieving Password through E-mail

The password retrieval function works in the following ways after you click **Send Password** in the Login dialog box.

- If you are a supervisor but do not remember your ID, separate passwords will be sent to all supervisor e-mail accounts after you click the **Send Password** button.
- If you remember your ID but forgot your password, enter your ID and click **Send Password**. The password will be sent to your e-mail account.

1.7.4 Preventing Unauthorized System Termination

1. To restrict a non-supervisor account from exiting or restarting the system, click the account ID, click **Password Setup**, and select **Local Account Edit**. The Password Setup dialog box appears.
2. Select a user from the user list to display its properties.
3. Select the **VMS** tab at the bottom, and clear the **Exit System** option to restrict the user from quitting or restarting the system.

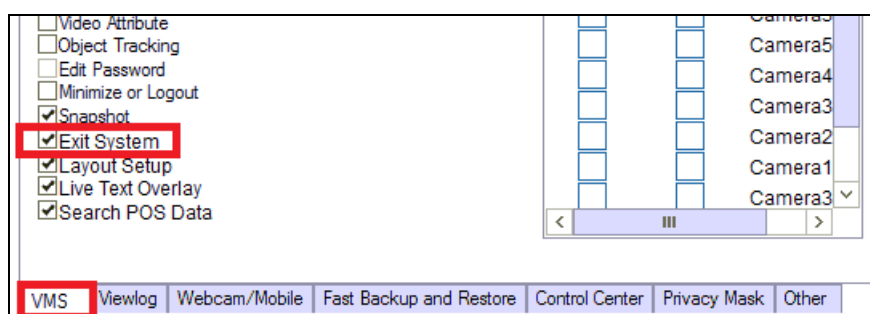


Figure 1-29

1.7.5 Setting up a Startup Auto Login User

The Startup Auto Login User is typically a user account with limited access rights. After system is started, GV-VMS will automatically log in with the Startup Auto Login User instead of showing the Login dialog box.

1. Create an account you want to use for Startup Auto Login. Refer to *Creating an Account* earlier in this section for instructions.
2. Click the account ID, click **Password Setup**, and select **Startup Auto Login**. Select **Startup Auto Login Setup**.
3. Type the ID and Password of the existing account you want to use.
4. Click **OK**.

If you have selected **Auto Logout or Switch to Startup Login User if available** in System Idle Protection Setting dialog box (Figure 1-25), GV-VMS will switch to the Auto Startup Login account after it is idle for the set period of time.

1.7.6 Setting up Limits on Playback Time

1. To restrict playback time of camera channels, on the Local Account Edit dialog box, select a account, click the **ViewLog** tab, and click the playback time column you wish to configure.

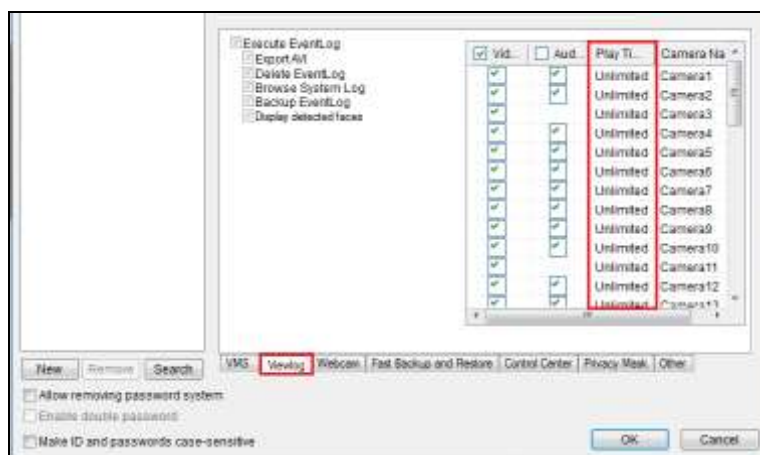


Figure 1-30

2. Select **Limited Playback Time** and specify a time limit. If you click , the time limit will be applied to other cameras.

1.8 Schedule

You can create schedules to enable and disable the following functions at specific times of a day and apply the schedule to a weekly, monthly plan or a specific date.

- Recording
- Alert upon motion detection
- PTZ object tracking
- PTZ Auto functions
- Video Processing
- I/O monitoring
- Network connections to Center V2, Vital Sign Monitor, WebCam Server, Mobile Service and GV-Edge Recording Manager.

Click **Home**  > **Toolbar**  > **Configure**  > **Schedule Edit**. This dialog box appears.

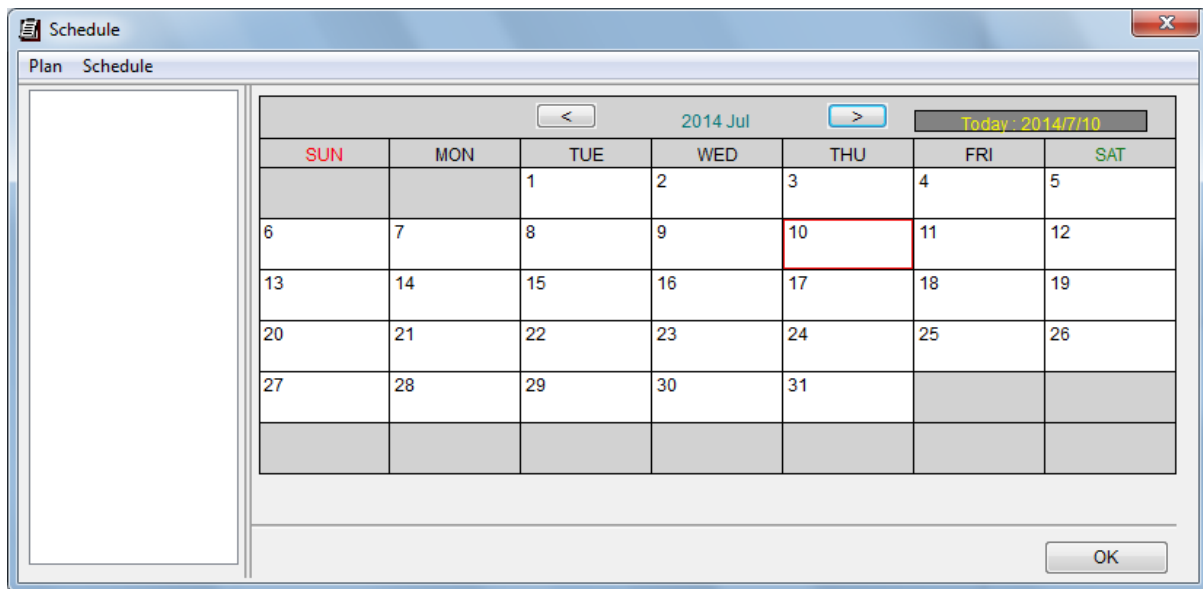


Figure 1-31

1.8.1 Creating a Schedule with Setup Wizard

The Setup Wizard is an easy way to create new schedule.

1. In the Schedule dialog box, click **Schedule** and select **Setup Wizard**.
2. Specify when to apply the schedule plan and click **Next**.
 - **Weekly:** Applies the schedule plan to the selected days each week.
 - **Special Day:** Applies the schedule plan to a specific date.
 - **Monthly:** Applies the schedule plan to a specific day each month.

Note: You can apply the schedule plan to additional days or modify the time settings later. After the schedule plan is created, refer to Step 3 in *Creating a Schedule Manually* later in this section.

3. Type a name for the schedule plan. If you have existing schedule plans, you can select **Use current plan** and apply the selected plan to different days.

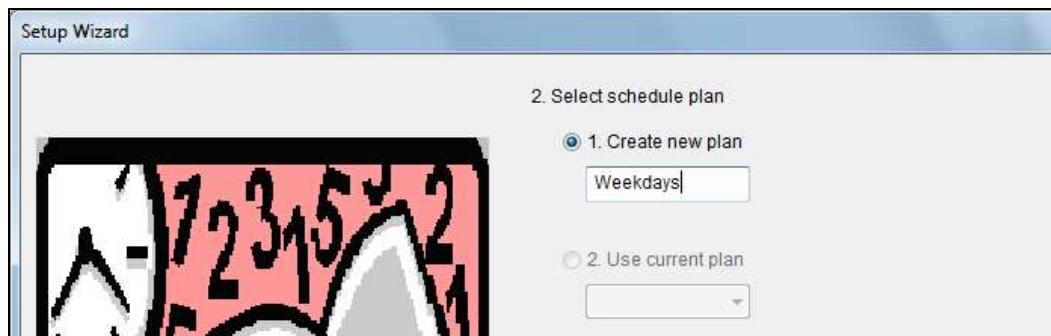


Figure 1-32

4. Click **Next**. This dialog box appears.

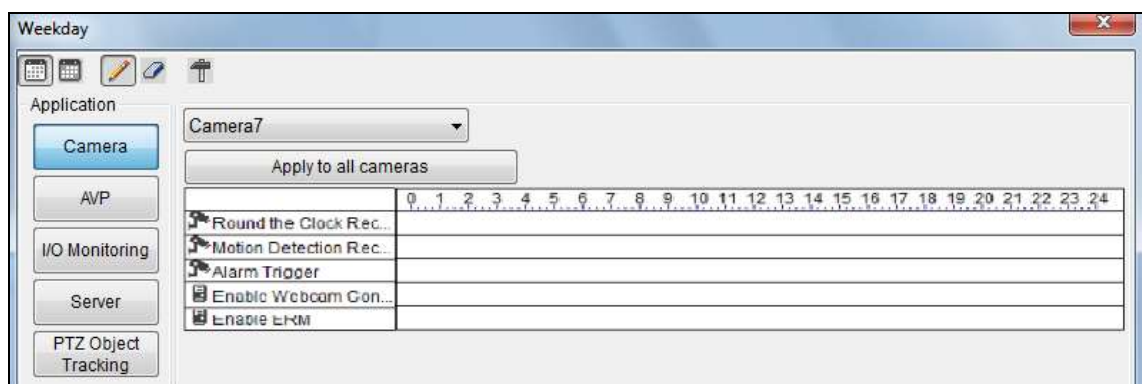


Figure 1-33

5. When the **Include** button  is selected, you will start with an empty timeline. Click the **Add** button  and drag across the timeline when you want the function to be enabled. Use the **Erase** button  when you want to disable the function.
6. You can also click the **Exclude** button  and start with everything disabled. The **Add** button  is now used for disabling the function instead and the **Erase** button  is now used for enabling the function.
7. Four categories are available on the left.
 - **Camera:**
 - ⊙ **Round-the-Clock Recording:** When highlighting the timeline, you can choose to apply the frame rate settings for **General Event** or **Urgent Event**. The settings here will override the settings in Record Setting once schedule monitoring is started. For information on General Event and Urgent Event, refer to *Configuring General Setting*, Chapter 2.
 - ⊙ **Motion Detection Recording:** When highlighting the timeline, you can apply different motion sensitivity levels. If you select **User Define**, the sensitivity level selected in Advanced Motion Detection Setup (Figure 1-10) will be used.
 - ⊙ **Alarm Trigger:** The Event Trigger methods selected in Advanced Motion Detection Setup (Figure 1-10) will be triggered upon motion during the highlighted times.
 - ⊙ **PTZ:** When highlighting the timeline, you can select a PTZ Auto function to be enabled during that time. At least one PTZ camera is required.
 - ⊙ **Enable Webcam Connection:** Grants streaming access for WebCam Server for the camera channel within the time periods highlighted.
 - ⊙ **Enable ERM Server:** Grants streaming access for Edge Recording Manager for the camera channel within the time periods highlighted.
 - **AVP:** During the enabled times, the selected video processing functions will be enabled even if the cameras are not recording.
 - **I/O Monitoring:** Enables I/O Monitoring.
 - **Server:** Enables network connections to Center V2, Vital Sign Monitor, WebCam Server, Mobile Service and/or ERM Service.
8. To apply the Camera and AVP schedules to selected cameras, use the camera drop-down list above the timeline or click the **Advanced Setting** button .

- Click **OK**. The schedule plan created appears on the days you specified.

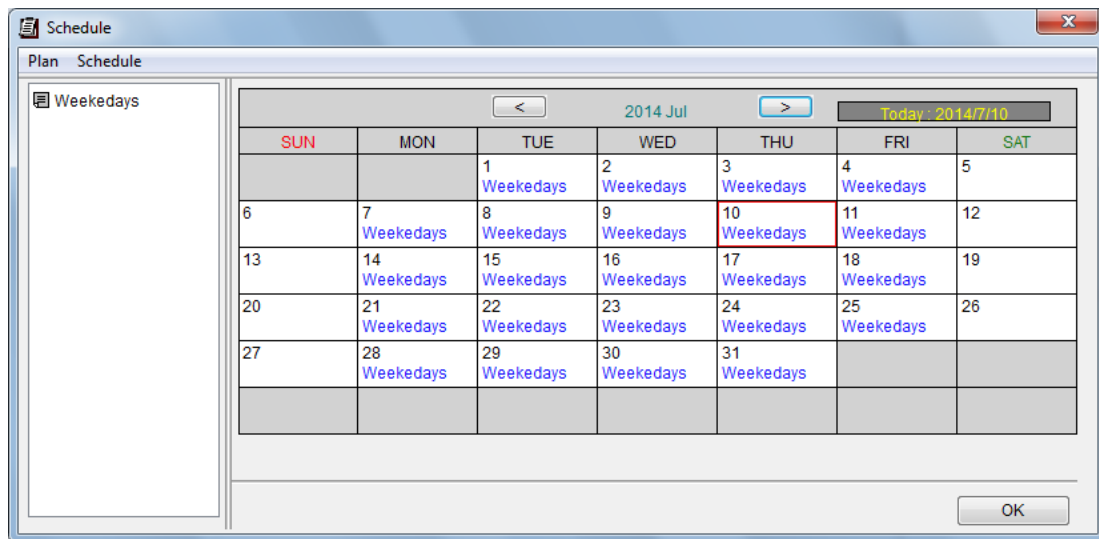


Figure 1-34

Tip:

- You can drag the created plan on the left of the Schedule dialog box to the calendar on the right and the plan will be applied to the date.
- To edit the schedule timeline, simply double-click the plan in the calendar.

1.8.2 Creating a Schedule Manually

- In the Schedule dialog box, click **Plan** and click **Add**.
- Type a name for the plan and click **OK**.
- Click **Schedule** and select an option below:
 - **Edit Special Day:** Applies the schedule plan to a specific date each year. Select a **Date** and a **Plan** and click the **Add** button.
 - **Edit Weekly:** Applies the schedule plan to the selected days each week.
 - **Edit Monthly:** Applies the schedule plan to a specific date each month. Select a **Day** of the month and a **Plan**, and click the **Add** button.
- Double-click the Plan to edit the schedule timeline. Refer to *Creating a Schedule with Setup Wizard* earlier in this section for details.

1.8.3 Exporting and Importing Schedule Settings

Schedule settings can be exported into an .xml file, and imported back later or to another GV-VMS.

1. In the Schedule dialog box, click **Schedule** and click **Export** or **Import**. A dialog box appears.
2. Specify the path to save the .xml file. Or, specify where the exported .xml file has been stored.
3. Click **OK**.

1.9 System Log

The System Log provides historical information that can help you track events, system problems and object counting data.

1.9.1 Setting up System Log

In the System Log Setting, you can specify which events to record, the interval time to write the event into the system, and the number of days to keep the logs for. Click **ViewLog**  > **Toolbar**  > **Configure**  > **System Log Setting**. This dialog box appears.

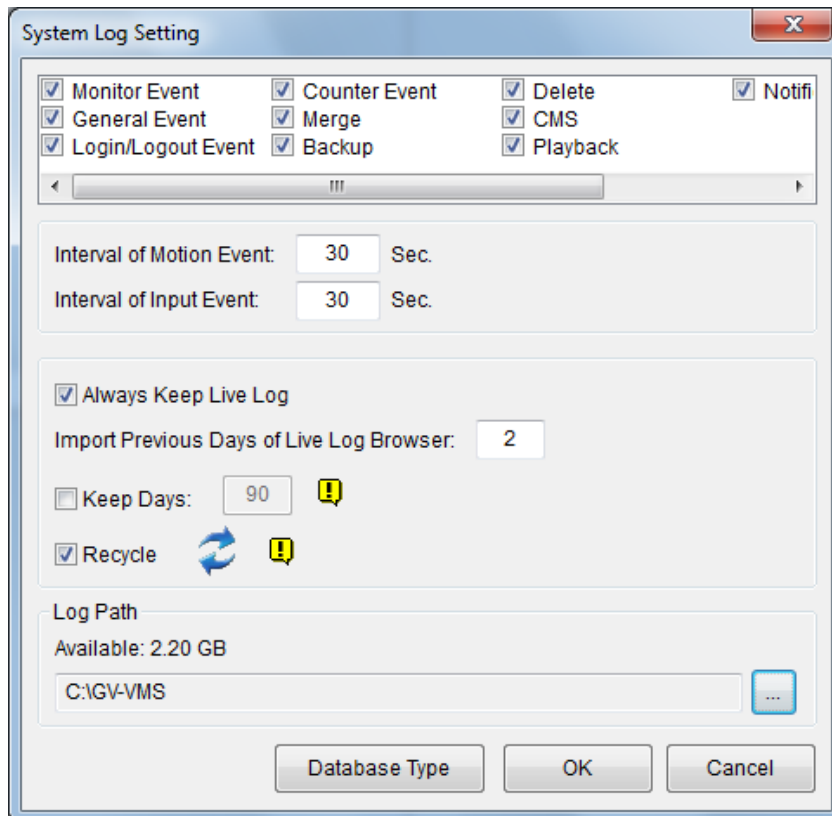


Figure 1-35

Select the types of event to register in the System Log:

- **Monitor Event:** Registers motion-triggered and I/O-triggered events. For this feature to work, you must enable the **Register Motion Event** option in Figure 1-10 or the **Register Input Event** option in Figure 6-10.
- **General Event:** Registers system startup/exit, network server start/stop, and monitoring start/stop.
- **Login/Logout Event:** Registers login/logout activities of local users to GV-VMS and WebCam Server.
- **Counter Event:** Registers counting results.
- **Merge:** Registers the merging of recorded videos.
- **Backup:** Registers the backup of recorded videos.
- **Delete:** Registers the deletion of recorded videos through remote connection.
- **CMS:** Registers the events of central monitoring services.
- **Playback:** Registers playback of recorded videos.
- **Notification:** Registers e-mail notifications.

The following settings are also available:

- **Interval of Motion Event:** Specify the log interval between motion-triggered events, which prevents the system to record events too frequently when motion triggers are intensive.
- **Interval of Input Event:** Specify the log interval between input-triggered events, which prevents the system to record events too frequently when input triggers are intensive.
- **Always Keep Live Log:** Display the latest logs in the System Log tables (see *Viewing System Log* later in this chapter). When not selected, the logs of the time selected in the ViewLog timeline will be displayed if available.
- **Import Previous Days of Live Log Browser:** Specify how many days of data to be loaded into the System Log.
- **Keep Days:** Set the number of days to keep the logs.
- **Recycle:** Enable the system to delete old log files to make space for newer files when the space of assigned Log Path is below 500 MB.
- **Log Path:** Specify a storage path for the logs. By default, it is at :\\GV folder\\. The available free space of the storage path will be displayed.
- **Database Type:** Select **Microsoft Office Access Database** or **Microsoft SQL Server** as a database, and fill out the required connection information.

1.9.2 Viewing System Log

To view the System Log, click **ViewLog**  > **Toolbar**  > **Tools**  > **System Log**. The following options are available: Monitor Table, CMS Table, and Advanced.

Monitor Table

Local events on GV-VMS are displayed.

Monitor Table

Monitor

System

Login

Counter

Merge

Backup

Delete

Notification

I/O

Playback

Time	Device	Information	Event	Note
12/3/2014 11:58:41	Camera1		Motion	
12/3/2014 11:59:26	Camera1		Motion	
12/3/2014 11:59:45	Camera4		Camera Connecti...	
12/3/2014 11:59:46	Camera4		Camera Connecti...	
12/3/2014 12:00:05	Camera1		Motion	
12/3/2014 12:00:49	Camera1		Motion	
12/3/2014 12:01:21	Camera1		Motion	

Figure 1-36

[Monitor] Shows events related to camera connection and motion. Double-clicking an event will allow you to view the related video (if available) in ViewLog.

[System] Shows system startup/exit, network server start/stop, monitoring start/stop, and other setting changes.

[Login] Shows whom and when has logged in and out of GV-VMS and WebCam server.

[Counter] Shows the information and results of GV-VMS's counter functions.

[Merge] Shows the merging events of recorded videos.

[Backup] Shows the backup events of recorded videos.

[Delete] Shows the deletion of recorded videos through remote connection.

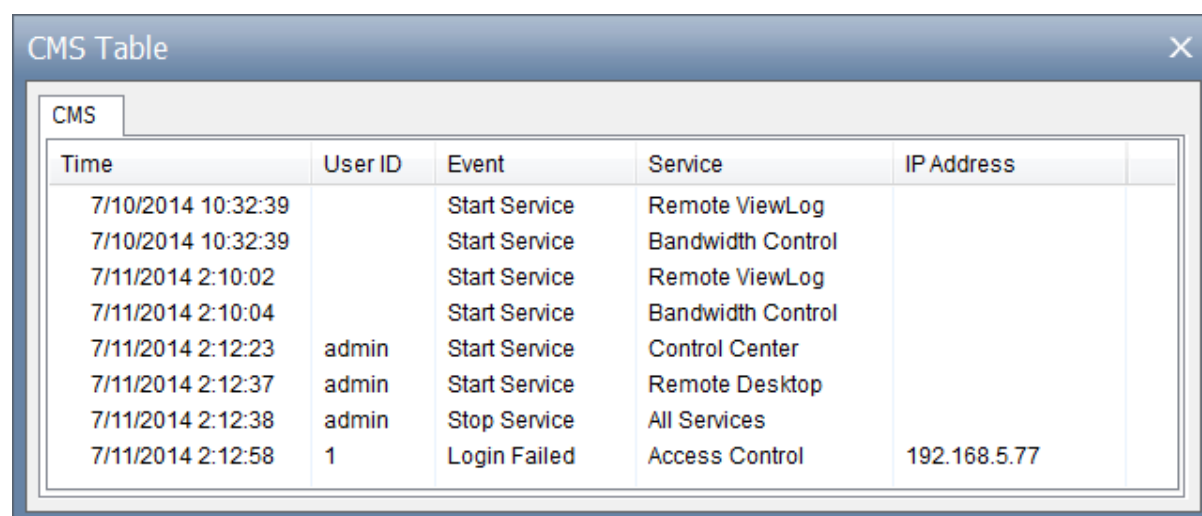
[Notification] Shows e-mail notifications.

[I/O] Shows the events related to I/O trigger.

[Playback] Shows the playback of recorded videos.

CMS Table

CMS Table shows the connection status, login activities and service start related to CMS.



The screenshot shows a window titled "CMS Table" with a close button (X) in the top right corner. Inside the window, there is a tab labeled "CMS" and a table with the following data:

Time	User ID	Event	Service	IP Address
7/10/2014 10:32:39		Start Service	Remote ViewLog	
7/10/2014 10:32:39		Start Service	Bandwidth Control	
7/11/2014 2:10:02		Start Service	Remote ViewLog	
7/11/2014 2:10:04		Start Service	Bandwidth Control	
7/11/2014 2:12:23	admin	Start Service	Control Center	
7/11/2014 2:12:37	admin	Start Service	Remote Desktop	
7/11/2014 2:12:38	admin	Stop Service	All Services	
7/11/2014 2:12:58	1	Login Failed	Access Control	192.168.5.77

Figure 1-37

Advanced Log Browser

See *Advanced Log Browser* in Chapter 4.

1.10 Other Functions

1.10.1 Popping up Live View

To pop up live view upon events, click **Home**  > **Toolbar**  > **Configure**  > **Camera Popup Setting**. This dialog box appears.

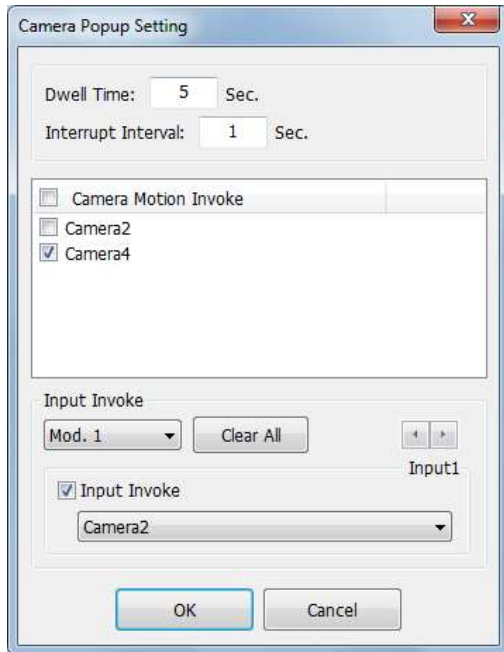


Figure 1-38

- **Dwell Time:** Specify the amount of time a popup live video to remain in the foreground.
- **Interrupt Interval:** Specify the interval between live video popups. This feature is useful when several cameras are activated for a popup alert at the same time.
- **Camera Motion Invoke:** Select the camera to enable auto popup upon motion detection. Monitoring of the camera is required.
- **Input Invoke:** Select an input module using the drop-down list and select the input number using the arrow buttons. Select **Input Invoke** and assign a camera to the input device. Whenever the input is triggered, the live video of the assigned camera will pop up. I/O monitoring is required.

Note: You can use the **Mask Region** function in the Advanced Motion Detection Setup dialog box (Figure 1-10) to mask off certain areas of the camera image that you don't want to detect motion.

1.10.2 Adjusting to Daylight Saving Time

GV-VMS can automatically adjust to Daylight Saving Time (DST). If you are in a time zone that uses DST, make sure DST is enabled. In Windows' Control Panel, go to **Date and Time**, click **Change Time Zone**, and make sure **Automatically adjust clock for Daylight Saving Time** is selected.

In the System Log, DST events are labeled with clock icons 🕒 in the **Time** column.

Monitor Table

SystemLoginCounterMergeBackupDeleteNotificationI/OPlayback

Time	Device	Information	Event	Note
 11/1/2015 1:06:48	Camera 14		Motion	
 11/1/2015 1:06:50	Camera 14		Motion	
 11/1/2015 1:06:58	Camera 14		Motion	

Figure 1-39

In ViewLog, click the **Camera Date Viewer** and click **Search Event in DST**.

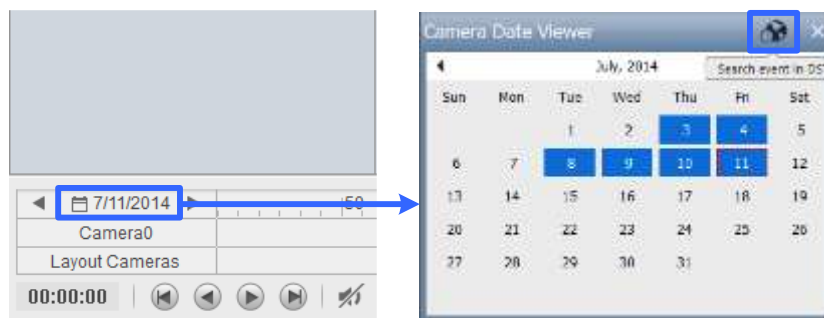


Figure 1-40

Note: Videos recorded during DST periods start with “GvDST”, e.g. GvDST20140722.avi, to differentiate from regular video files that start with “Event”, e.g. Event20081022.avi.

1.10.3 Setting up Network Failure Detection

The Network Failure Detection function triggers an output device when the network connection between GV-VMS and the specified network host has failed.

1. Click **Home**  > **Toolbar**  > **Network**  > **Network Failure Detection**. This dialog box appears.

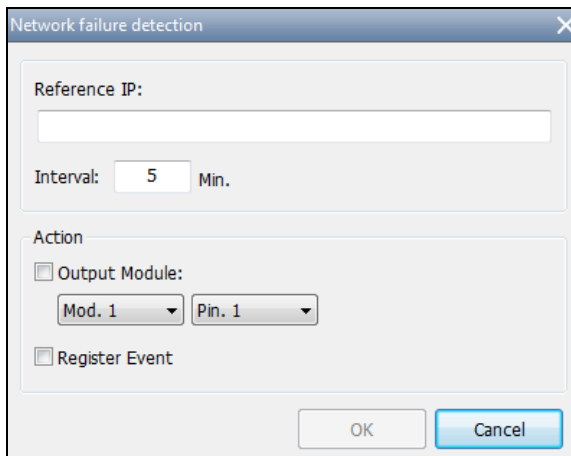


Figure 1-41

2. Under **IP Address**, type the IP address or domain name of the remote host.
3. Next to **Interval**, type the time interval between each ping in minutes ranging from 1 to 999. If the interval is 5 minutes, GV-VMS will ping the network host every 5 minutes to check if the connection is still active.
4. Under Action, enable **Output Module** and select the output module and pin number.
5. Enable **Register Event** to record errors to the System Log.
6. Click **OK**.

The selected output device will be triggered when the network host does not respond to GV-VMS's ping message.

1.11 PTZ Camera

With the PTZ control panel, you can control PTZ functions, e.g. pan, tilt, zoom, focus and preset points.

1. Move the cursor to the camera live view of a connected PTZ camera and click **Tools** .

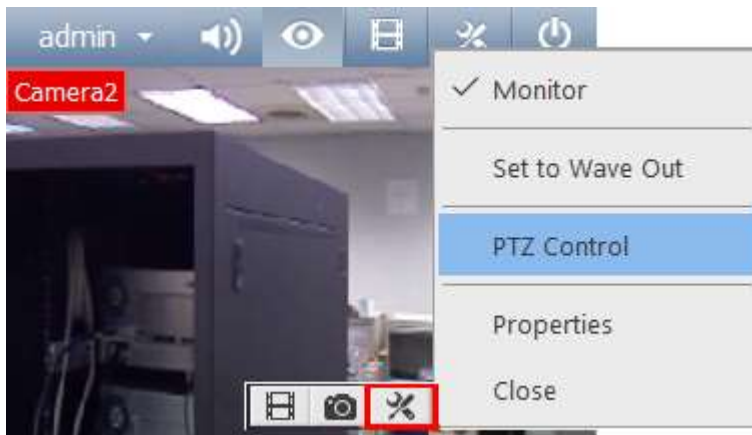


Figure 1-42

2. Click **PTZ Control** to enable PTZ function.
3. You can control GV-IP Speed Domes using the following actions:
 - **Double-Click:** The camera will center on the spot you clicked.
 - **Drag:** You can select Random Move or Center Move after right-clicking the live view.
 - ⊙ **Random Move:** Drag a line on the live view and the camera will move toward the direction you dragged.
 - ⊙ **Center Move:** Drag a box on the live view and the camera will zoom in on the area you dragged.

Tip: Alternatively, you can disable the PTZ functions of a PTZ camera by right-clicking it on the IP Device Setup page and selecting the **Disable PTZ Operation** option.



1.11.1 Accessing PTZ Control Panel and Auto Functions

After PTZ Control is enabled, move the cursor to the live view to see the PTZ control panel. Note that the PTZ control panel is hidden when live view resolution is less than 240 x 180.

Note: From GV-VMS V16.10.3, ONVIF PTZ cameras no longer supports Iris Open / Close function on the PTZ control panel.



Figure 1-43

In the PTZ control panel, click **Home**  to access the advanced PTZ functions below. The options available may differ depending on the model of your PTZ camera.

- **Home:** Returns the camera to Home position.
- **Iris Open / Close:** Adjusts the camera iris. The iris Control buttons are only available for GV-IP Speed Dome.
- **Auto Focus:** Adjusts the camera focus according to the subject.
- **Auto Iris:** Adjusts the iris opening according to amount of light in the environment.
- **Auto Go:** Allows you to enable Cruise, AutoPan, Auto Tracking, Sequence and Tour functions. You can click **Stop Auto Go** to stop the Auto function you have enabled.
- **Auto Set:** Allows you to set up AutoPan and Cruise functions. See the section below for details.
- **Preset Go:** Moves the PTZ to a preset point by clicking the preset number.
- **Preset Set:** Allows you to configure up to 256 PTZ preset points. Move the camera to the position where you want set a preset point and then select a preset point number here.

Auto Pan

The PTZ camera will continuously move between two horizontal positions. You can configure up to 8 sets of Auto Pan mode.

1. Move the camera to the start position of the AutoPan.
2. To mark the start position, click the **Home** button  in the PTZ Control Panel, select **Auto Set**, and select **Start AutoPan1**.
3. Move the camera to the end position of the AutoPan. Any movement in the vertical direction will not be included in the AutoPan.
4. To mark the end position, click the **Home** button , select **Auto Set**, and select **End AutoPan1**.
5. To create another Auto Pan mode, repeat the steps above using a different Auto Pan number.

To enable the AutoPan, click the **Home** button , select **Auto Go**, and select the AutoPan number created. To stop the AutoPan, simply click a Pan/Tilt button in the PTZ Control Panel to interrupt the AutoPan, or you can click the **Home** button , select **Auto Go**, and select **Stop Auto Go Function**.

Cruise

You can set up a route consisting of different directions, angles, and zooms for the PTZ camera to follow. Up to 4 Cruises can be created.

1. Move the camera to the start position of the Cruise.
2. To mark the start position, click the **Home** button  in the PTZ Control Panel, select **Auto Set**, and select **Set Cruise 1**.
3. Move the camera according to how you want the camera to move during the Cruise. The camera positions, zooms, and speed of the movement will all be recorded for the Cruise. .
4. When you are finished with setting up the Cruise, click the **Home** button , select **Auto Set**, and select **Set Cruise Stop**.
5. To set up another Cruise route, repeat the steps above and select a different Cruise number.

To enable the Cruise route, click the **Home** button , select **Auto Go**, and select the Cruise number created. To stop the Cruise route, simply click a Pan/Tilt button in the PTZ Control Panel to interrupt the Cruise function, or you can click the **Home** button , select **Auto Go**, and select **Stop Auto Go Function**.

1.11.2 Setting up Idle Protection and Advanced Functions

In the Content List, right-click the PTZ camera and select **PTZ Setup**. This dialog box appears.

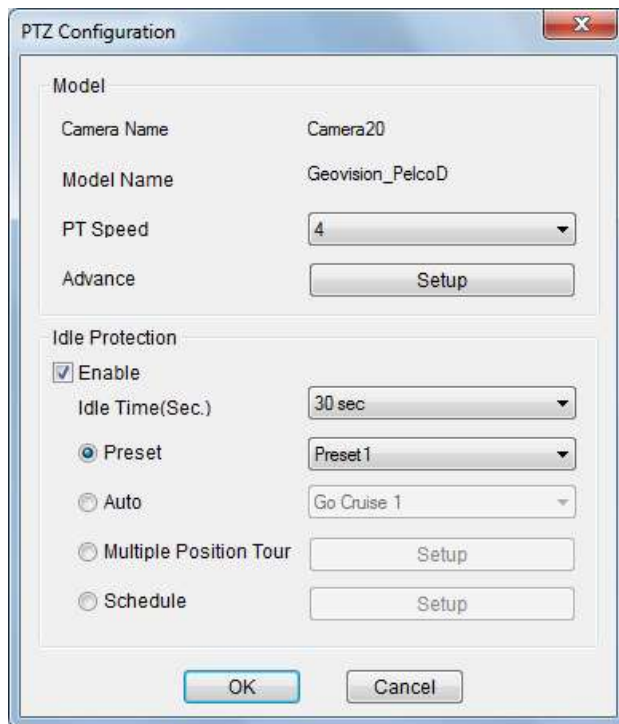


Figure 1-44

- **PT Speed:** Adjusts the speed of pan and tilt movements.
- **Advanced:** Click **Setup** to access advanced functions, such as image attributes, sequence, tour and Home position. Consult the manual of the connected PTZ model for details.

[Idle Protection]

When the PTZ camera remains stationary for a certain period of time, the PTZ can automatically move to a Preset Point, enable an Auto function, begin a Multi Position Tour or start the PTZ schedule.

1. Click **Enable**.
2. Set the **Idle Time**. The PTZ camera will follow the action selected in the next step after the idle time exceeds the specified Idle Time.
3. Select **Preset**, **Auto**, **Multi Position Tour** or **Schedule** as protection mode. See *Setting up Multi Position Tour* below.
4. Click **OK**.

Setting up Multi Position Tour

You can create a PTZ tour with up to 64 preset points. Note the number of preset points depends on your PTZ capacity.

1. Select **Multi Position Tour** in the PTZ Configuration dialog box, and click the **Setup** button. This dialog box appears.

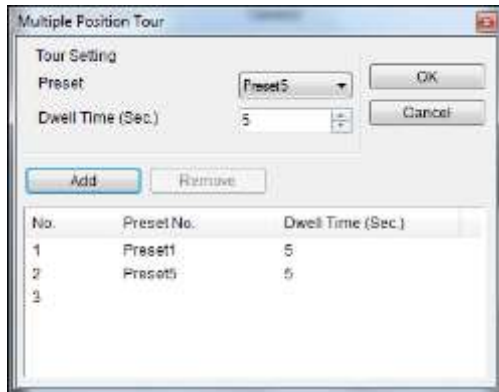


Figure 1-45

2. Select a **Preset** as a starting point.
3. Set the **Dwell Time** that the PTZ will remain at each preset point.
4. Click **Add** and repeat Steps 2-3 to build more points in the tour.

1.12 QView

If there are multiple monitors connected, you can use the QView feature to display full-screen live view of a camera on a separate monitor.

1. Click **Home** > **Toolbar** > **Configure** > **System Configure** > **Set Position**. This dialog box appears.

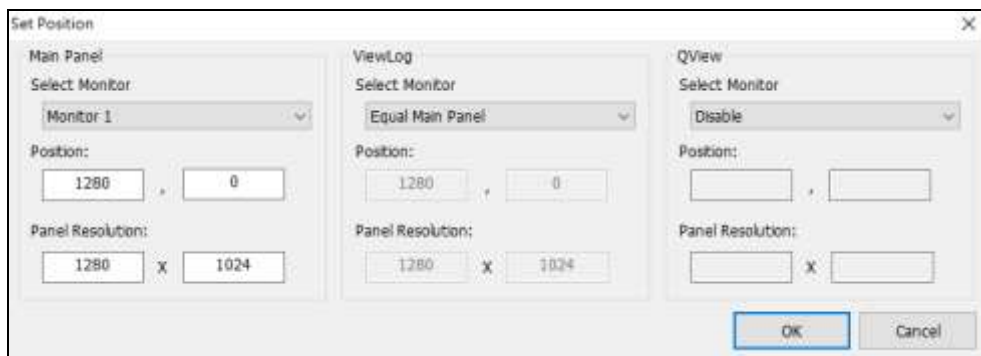


Figure 1-46

2. In the QView section, select a desired monitor from the **Select Monitor** drop-down list to open a full-monitor display and click **OK**.
3. Double-click a camera view on the live view grid. The camera view is now displayed in full screen on the designated monitor.
4. To switch another live view to a full-monitor display, simply double-click another camera view.

To record short video clips on a full-monitor display, see *Creating a Storyline in QView* later in this chapter.

1.13 Storyline

With the Storyline feature, you can combine camera images from multiple channels into a sequence of short video clips of a specific incident, such as gambling fraud, shoplifting and other fraudulent activities. The recorded videos can be saved and played back later using a media player. This feature is available in live view, video playback and QView display.

1.13.1 Creating a Storyline in Live View

First, drag the Zoom Window to a live view grid. Any camera views on the Zoom Window will be recorded as a storyline.

1. Set up the screen division with the camera channels of interest.
2. In the Content List, select **Layout**, click **Windows** and drag **Zoom Window** to a live view grid.
3. To display a live view on the Zoom Window for recording, click the **Zoom** button  in the top-right corner of a camera view.
4. On the Zoom Window, click the **Tools** icon  > **Storyline** to start recording. The orange label indicates that the recording is in progress.



Figure 1-47

5. To record from another camera view, click the **Zoom** button of that camera view.
6. When you finish, deselect **Storyline** to stop recording. The Edit Description dialog box appears.
7. Type a name or description for the video clip and click **OK**.

Note:

1. The recording duration is limited to 30 minutes per storyline.
2. The resolution of storyline can be set to 1280 x 1024 (default) or 1920 x 1080. To change the resolution, select **Toolbar > Configure > System Configure > Record Setting** and click the down button next to **Storyline**.

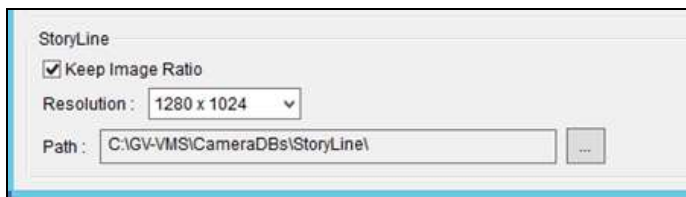


Figure 1-48

1.13.2 Creating a Storyline in Video Playback

The procedures of creating a storyline with playback videos are similar to those for the live view.

1. Click **ViewLog**  > **Toolbar**  > **Content List**  and drag **Zoom Window** onto a playback grid.
2. To display a video on the Zoom Window, click the **Zoom** button  on the top right of a playback video.
3. On the Zoom Window, click the **Tools** icon  > **Storyline** to start recording.
4. To record another video, click the **Zoom** button of that playback video.

1.13.3 Creating a Storyline in QView

1. Follow the instructions in QView earlier in this chapter to set up a full-monitor display.
2. On the designated monitor, click **Tools**  > **Storyline** to start recording.
3. To record the live video from another camera, simply double-click another camera view.

1.13.4 Accessing a Storyline

After creating the storyline, select **ViewLog**  > **Toolbar**  > **Tools**  > **Story Line**. Your storyline will be listed in the window below.

[illegible]

Figure 1-49

Right-click a storyline on the list to access more features, such as playback, changing the file path and editing the description. You can also use the **Filter** button  to search for the desired storylines.

1.14 GV-VR360 Dewarped View

GV-VMS provides two dewarped modes for [GV-VR360](#) under Content List (**Home**  > **Toolbar**  > **Content List** ).



Figure 1-50

- **GV-VR360:** The undewarped image of GV-VR360.
- **VR 360 V1:** A dewarped mode of GV-VR360 that allows manual control to view all angles of the image. Click and hold on the image to adjust the angle of view and click  to zoom in.
- **VR 360 V2:** A dewarped mode of GV-VR360 that automatically pans around the image 360° endlessly. Click  or  to adjust the speed of the auto pan and click  to zoom in.



Figure 1-51

Note:

1. To view the dewarped image of GV-VR360 on GV-VMS, the graphic card must support DirectX 10.1 or above.
 2. Up to 2 GV-VR360 can be connected to a GV-VMS with a total frame rate of 24 fps.
-

Chapter 2

IP Camera Setup 65

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IP Camera Setup

2.1 Adding IP Cameras

There are several ways to connect IP devices to GV-VMS, and the procedures may vary depending on the device. To access the IP Device Setup, click **Home**  > **Toolbar**  > **Configure**  > **Camera Install**.

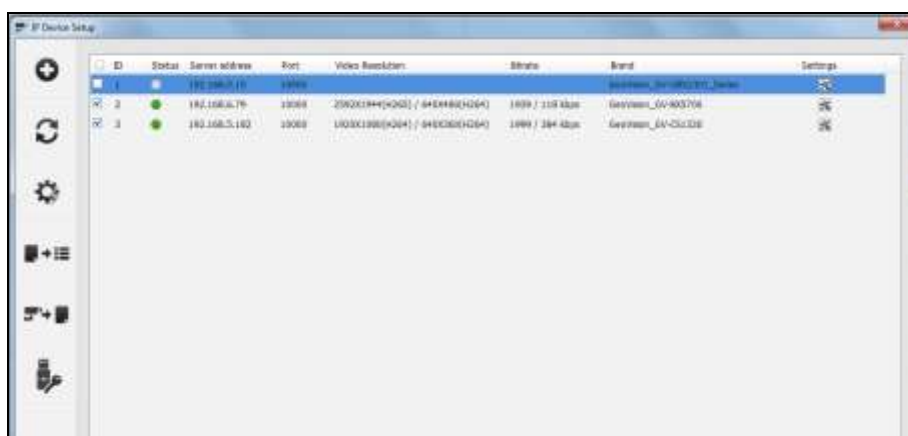


Figure 2-1

- To manually set up an IP device, click **Add Camera** .
- To detect for IP devices on the LAN, click **Scan Camera** .
- To detect for and automatically add multiple IP devices on the LAN, click **Automatic Setup** .
- To import IP devices from GV-IP Device Utility, click **Import Camera** .
- To map IP devices through GV-IP Device Utility, click **IP Device Utility** .
- To license GV-VMS Pro and third-party cameras using software license, click **GeoVision License Activation Tool** , and see the [technical notice](#) for instructions.

For details on Automatic Setup, see *Adding Cameras* in Chapter 1. For other methods, see the sections below.

Third-Party IP Devices

Aside from GV-IP devices, GV-VMS also supports third-party IP devices, through ONVIF, RTSP and/or PSIA.

In the event of unbalancing to detect a third-party device through Scan Camera or Automatic Setup, the device can be added through **Manual Setup**. See *Connection through RTSP, ONVIF & PSIA* later in this chapter.

2.1.1 Adding Cameras Manually

1. To manually add IP devices, click **Add Camera**  in the IP Device Setup (Figure 2-1).
2. Type the IP address, username and password of the IP device. Modify the default HTTP port **80** if necessary.
3. Select a camera brand and model name from the **Brand** and **Device** drop-down lists, respectively. This dialog box appears.

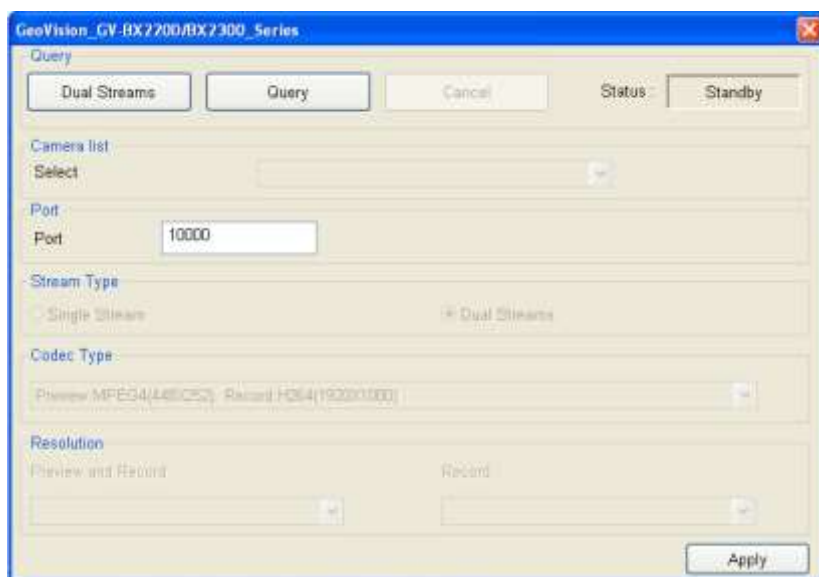


Figure 2-2

4. Configure the options listed below, which may vary between camera brands.
 - **Dual Streams:** GV-IP Cameras are set to dual streams by default. Select this option to apply the dual-streaming settings (lower resolution for live view and higher resolution for recording) if the camera supports dual streams.
 - **Query:** Detect and apply the current codec and resolution setting on the camera. This function may not be available for some third-party cameras.
 - **Camera list:** Select a camera number.

- **Port:** Modify the video streaming port of 10000 if necessary.
 - **Stream Type:** You may have the option of **Single Stream** or **Dual Streams** depending on camera models.
 - **Codec Type:** You may have different codec options depending on camera models. If the selected camera supports dual streaming, the live view codec and recording codec can be set differently.
 - **Resolution:** You may select the different resolutions for live view and recording.
5. Click **Apply** to add the IP camera to the IP Device List.
 6. To connect the added camera, select the checkbox beside the **ID** column. The **Status** icon turns green upon successful connection, with the video resolution and bit rate being displayed in the correspondent columns.

☐	ID	Status	Server address	Port	Video Resolution	Bitrate	Brand	Setting
☒	1		192.168.3.151	10000	1920x1080(H-264) / 448x252(H-264)	6902 / 51 kbps	GeoVision_GV-BX5200/BX5300_Series	
☒	2		192.168.6.15	10000	1920x1080(H-264) / 448x252(H-264)	6854 / 137 kbps	GeoVision_GV-BX2200/BX2300_Series	
☒	3		192.168.7.101	10000			GeoVision_GV-BL1500	

Figure 2-3

7. To change the number of the camera, click the device's ID and select a desired number. Note this function is only available for disconnected cameras.

Note: The indication of status icons is as below.

	Connected	The camera is connected.
	Connecting	GV-VMS is trying to connect to the camera.
	Connection Failed	Unable to connect to the camera. Place the cursor on the red icon to see the error message.
	Inactive Camera	The camera is inactive. Select the checkbox to connect to the camera.
	Started Monitoring	The camera is under monitoring.
	Pre-Rec Enabled	Pre-recording is enabled.

Tips: You can access the camera's own configuration interface by right-clicking the IP camera and selecting **Remote Camera Setting**.

2.1.2 Scanning for Cameras

1. To detect for IP devices on the LAN, click **Scan Camera**  in the IP Device Setup (Figure 2-1). The Scan Camera dialog box appears.
2. Click **Start Scan**. The IP devices detected are displayed.
3. Double-click the IP device you wish to connect to, type its username and password and click **OK**. Figure 2-2 appears.
4. Click **Apply**. The IP camera is added to the IP Device List and automatically enabled for connection.

2.1.3 Mapping GV-IP Cameras using GV-IP Device Utility

GV-IP Device Utility detects all available IP devices within the LAN and allows users to map detected cameras to the specified channels. Users can then export the device list and import it into GV-VMS. In addition, GV-IP Device Utility also lets users to quickly set IP addresses, upgrade firmware, export/import device settings for and reboot IP devices.

Click **IP Device Utility**  in the IP Device Setup (Figure 2-1). All the available IP cameras on the LAN are detected and listed in the window.

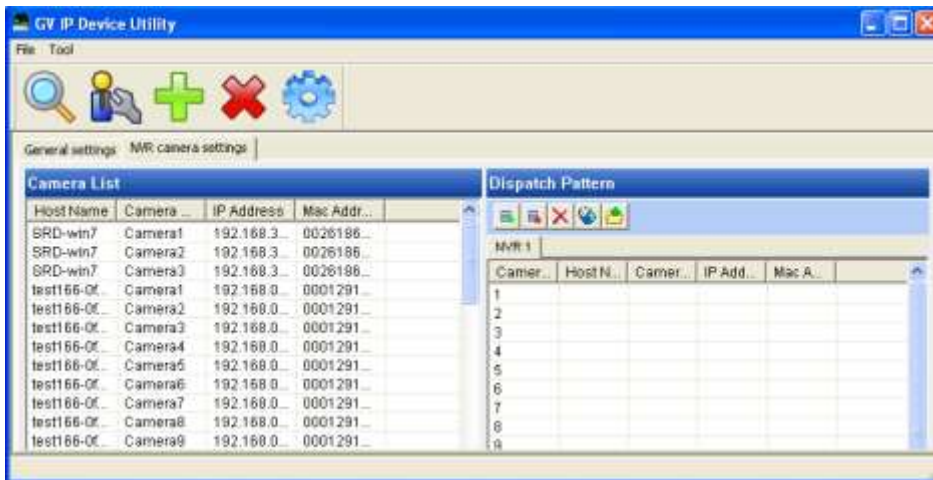


Figure 2-4

To map IP cameras to the channels of GV-VMS, see 7. *Assigning Camera Channels for GV-DVR / NVR / VMS* in [GV-IP Device Utility Guide](#).

2.1.4 Adding Cameras of Mobile Devices using GV-Live Streaming

Only supported by GV-VMS V17.4 or later, GV-Live Streaming is a paid mobile app that allows the camera of your Android / iOS mobile device to connect and stream live view to GV-VMS via GV-Relay. For details, see [GV-Live Streaming Installation Guide](#).

2.2 Configuring Individual IP Cameras

To configure the IP camera settings such as video, audio and other general settings, click the **Setup** button  of the connected camera on the IP Device List.



Figure 2-5

2.2.1 Configuring Video Settings

You can configure video settings such as frame rate, codec type and resolution of the camera.

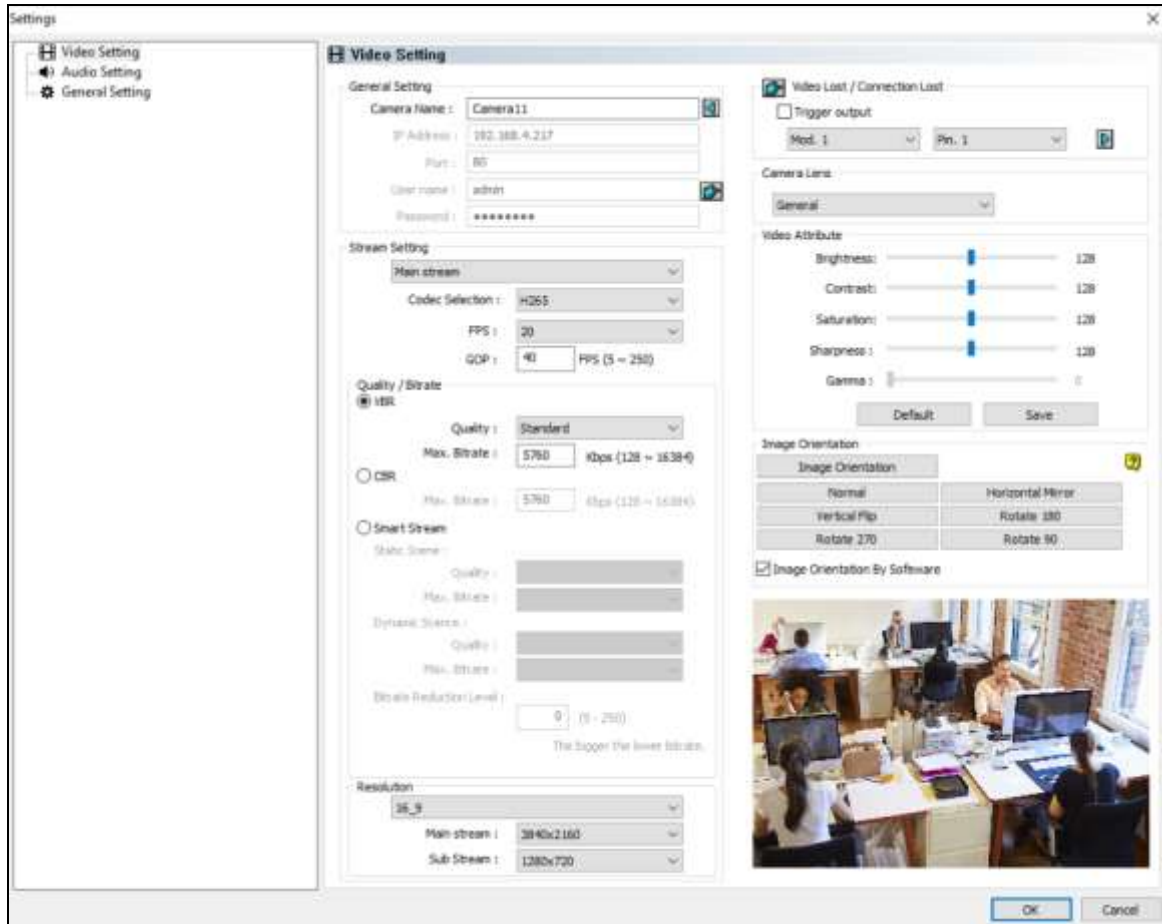


Figure 2-6

[Stream Setting] Select a stream from the drop-down list. Settings for Main Stream will be used for recording. Live view can use either Main Stream or Sub Stream depending on the On Demand settings. For details, see *On Demand Display* later in this chapter.

- **Codec Selection:** Set the codec to **MJPEG**, **H.264**, or **H.265**.
- **FPS:** Set the number of frames per second.
- **GOP:** Set the number of seconds between each key frame. For example, when the FPS is set to 30, a GOP of 0.5 means there will be 1 key frame among every 15 frames.
- **Quality and Bitrate:** When using the H.264 / H.265 codec, you can select between **VBR** and **CBR**.
 - **VBR (Variable Bitrate):** The quality of the video stream is kept as constant as possible at the cost of a varying bitrate. Set the image quality to one of the 5 standards: **Standard**, **Fair**, **Good**, **Great** and **Excellent**. Set a **Max. Bitrate** if needed, or select **Auto** if you do not want to enable this function.

- ⊙ **CBR (Constant Bitrate):** CBR is used to achieve a set bitrate by varying the quality of the H.264 / H.265 stream. Select one of the bitrates from the drop-down list.

■ **Smart Streaming:**

- ⊙ **Static Scene:** Set the image quality to one of the 5 standards: **Standard, Fair, Good, Great** and **Excellent**. Set a **Max. Bitrate** if needed.
- ⊙ **Dynamic Scene:** Set the image quality to one of the 5 standards: **Standard, Fair, Good, Great** and **Excellent**. Set a **Max. Bitrate** if needed.
- ⊙ **Bitrate Reduction Level:** The bigger the value the more bitrates can be reduced in static scenes, thus saving the recording size.

■ **Resolution** Change the display ratio and resolution.

[Video Lost / Connection Lost]

- **Trigger Output:** Trigger the specified output module upon video lost or connection lost until the output device is manually turned off. To configure the output device, see *I/O Device Setup* in Chapter 6.
- ⊙ **Right-Arrow button:** Set the counting time between 0 and 1000 seconds to delay the activation of the specified output module.

[Camera Lens] Select **Wide Angle** if you want to correct warping toward the edge of the camera image. For details, see *Wide Angle Lens Dewarping* in Chapter 3.

If you are using third-party fisheye cameras, select **IMV1 Panorama** for cameras installed with an ImmerVision IMV1 Panorama Lens, and select **Fisheye** for other third-party fisheye cameras. For details, see *Setting up a Third-Party Fisheye Camera* in Chapter 3.

[Video Attribute] Adjust video characteristics, such as brightness, contrast, saturation, sharpness and gamma.

[Image Orientation] Adjust the image orientation by selecting **Normal, Horizontal Mirror, Vertical Flip, Rotate 180, Rotate 90** and **Rotate 270 (Corridor format)**. Check **Image Orientation by Software** for GV-VMS to perform the function; otherwise, it's performed by the IP camera.

Note:

1. Changes made to the Video Setting page will change the settings on the IP camera.
2. When the image orientation is performed by the IP camera, the options for **Rotate 90** and **Rotate 270 (Corridor format)** are only available for GV-IP Cameras that support the function.
3. When over 32 channels are connected, the sub stream frame rate will be automatically set to 15 and GOP set to 30.

2.2.2 Configuring Audio Settings

On the Audio Setting page, you can adjust audio devices and listen to live sound.

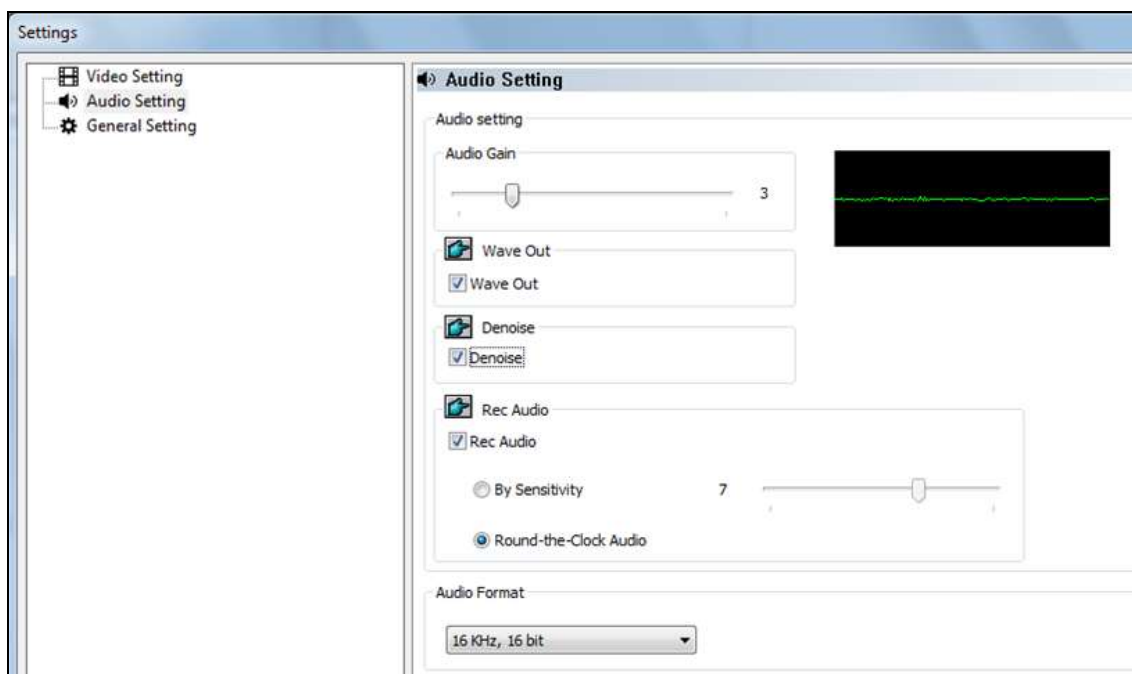


Figure 2-7

- **Audio Gain:** Increase or decrease the gain of the microphone.
- **Wave Out:** Select to listen to the audio around the camera.
- **Denoise:** Select to reduce audio noise.
- **Rec Audio:** Select **Rec Audio** to record the audio around the camera.
 - ⊙ **By sensitivity:** Audio recording is activated when the volume reaches the sensitivity level indicated.
 - ⊙ **Round-the-Clock Audio:** Audio recording is continuously enabled.
- **Audio Format:** Select an audio format from the drop-down list. The default is **16 KHz, 16 bit**.

2.2.3 Configuring General Settings

You can configure the general settings, such as for video recording.

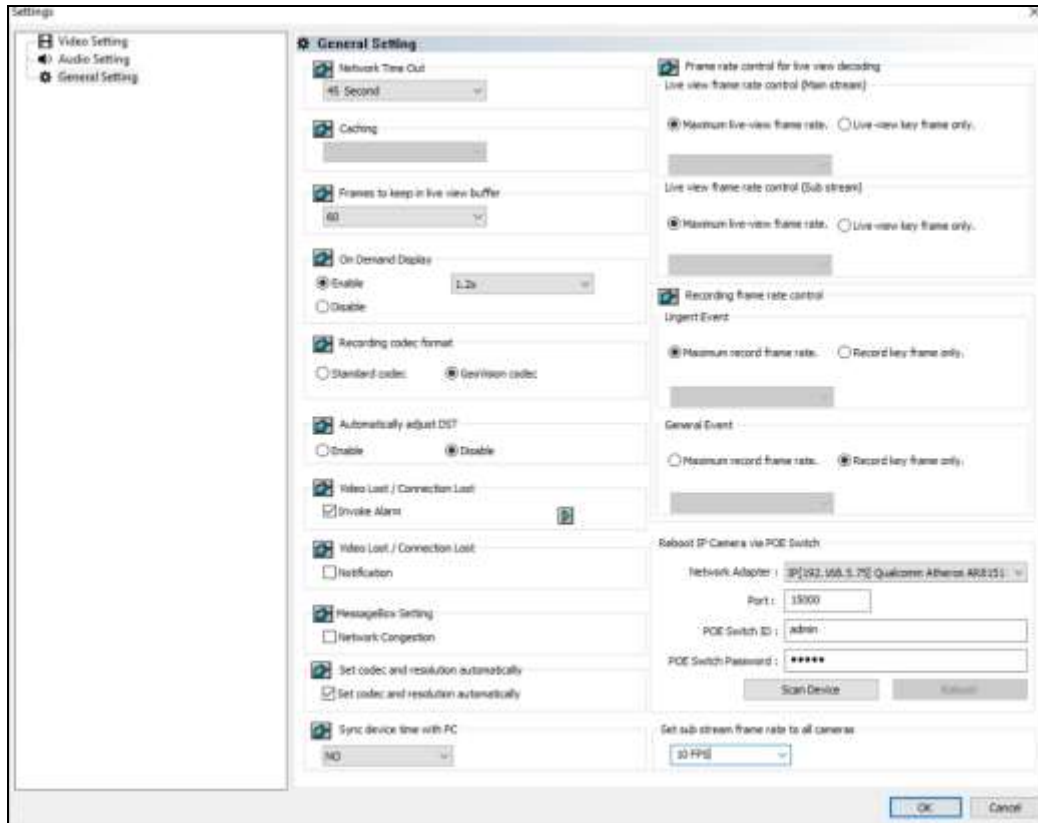


Figure 2-8

- **Network Time Out:** When network disconnection exceeds the specified time period, the status icon on the IP Device List (Figure 2-1) becomes yellow.
- **Live View Decode Postpone Time (Caching):** Specify the number of milliseconds to postpone live view decoding. When the network connection with the IP device is unstable or when the time length between frames is not evenly distributed, postponing the live view decoding will make the video smoother. Note this function is only available for configuration when the camera is disconnected.
- **Frames to Keep in Live View Buffer:** Specify the number of frames to keep in the live view buffer. When CPU performance is insufficient, you can reduce the number of frames kept in buffer to achieve a real-time appearance by dropping frames. This setting does not affect the frame rate of the recorded videos.
- **On Demand Display:** Enable automatic adjustment of live view resolution. For details, see *On Demand Display* later in this chapter.
- **Recording Codec Format:** Specify whether to record in standard or GeoVision codec.

- **Automatically Adjust DST:** When enabled, the time on the GV-IP Device Web interface will be synchronized with the time of GV-VMS when DST period starts or ends on GV-VMS.
- **Video Lost / Connection Lost (Invoke Alarm):** Enable if you want to trigger an alarm sound upon connection lost. Click the Arrow button to select a sound.
- **Video Lost / Connection Lost (Notification):** Enable if you want to send an e-mail notification upon connection lost. See *Setting up E-mail Notifications* in Chapter 1 to set up the e-mail server.
- **Message Box Setting:** When enabled, the Network Congestion message will pop up under such a condition.
- **Set Codec and Resolution Automatically:** If enabled, GV-VMS will resume the configured codec and resolution when it detects the changes made by the camera.
- **Sync device time with PC:** Disabled by default, GV-VMS's system time will be synced to the camera once connected and to be re-synced after the specified time period.
- **Live View Decode Frame Control (Main / Sub Stream):** Set the live view frame rate for main stream and sub stream.
 - ⊙ When using **MJPEG**, every frame is a key frame, so the options of **Max. frame** and **Key only** are grayed out.
 - ⊙ When using **H.264 / H.265**, only one key frame is transmitted per the specified number of frames, so you can select **Key only** to decode key frames only and omit all intermediate frames or **Max. frame** to include all frames.
- **Recording Frame Rate Control:** Set the recording frame rate for **Urgent Event** and **General Event**. This function allows you to set different recording frame rates for motion, non-motion and other alarm events. See *Setting up Recording Settings for Individual Cameras* in Chapter 1.
 - ⊙ When using **MJPEG**, every frame is a key frame, so the options of **Max. frame** and **Key only** are grayed out. You can specify the recording frame rate for **Urgent Event** and **General Event** respectively.
 - ⊙ When using **H.264 / H.265**, only one key frame is transmitted per the specified number of frames. You can select **Max. frame** for **Urgent event** and select **Key only** for **General event**.
- **POE Switch Reboots IP Camera:** Restart a specified camera via its connected GV-POE Switch with the functionality of Web management. Type the ID and PW of the switch to start rebooting.
- **Set sub stream frame rate to all cameras:** When connected to over 32 channels, GV-VMS automatically adjusts the sub stream frame rate of all cameras to 15 fps. Select from the drop-down list to manually adjust the sub stream frame rate for all cameras at once.

2.3 Connection through RTSP, ONVIF & PSIA

To add IP devices compliant with RTSP, ONVIF or PSIA to GV-VMS, follow the steps below.

1. To add through the abovementioned protocols, click **Home**  > **Toolbar**  > **Configure**  > **Camera Install**.
2. Click **Add Camera**  to manually add an IP camera. The dialog box appears.
3. Type the IP address, username and password of the IP camera. Modify the default HTTP port if necessary.
4. Select **Protocol** from the **Brand** drop-down list.
5. Select the protocol that is supported by your IP camera from the **Device** drop-down list.

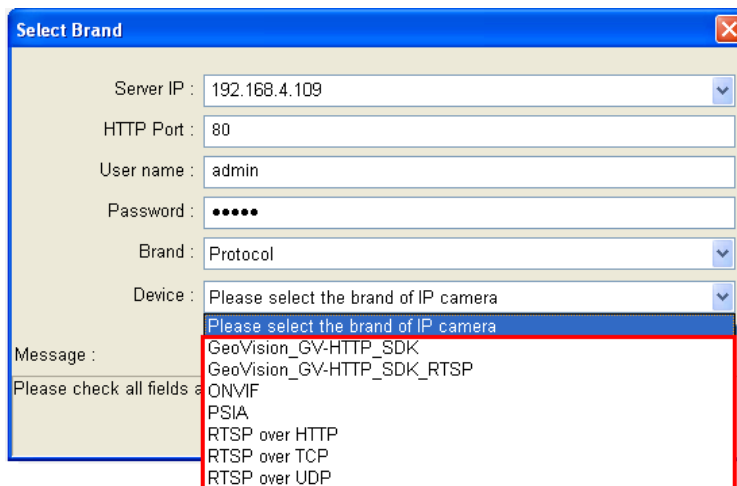


Figure 2-9

- **GV_HTTP_SDK:** For SDK users only. The RTSP protocol uses a HTTP port for data streaming from the IP camera.
- **GV_HTTP_SDK_RTSP:** For SDK users only. The RTSP protocol uses a HTTP port for data streaming from the IP camera.
- **ONVIF:** This option is for connecting the camera using ONVIF standards.
- **PSIA:** This option is for connecting the camera using PSIA standards.
- **RTSP over HTTP:** The RTSP protocol uses a HTTP port for data streaming from the IP camera.
- **RTSP over TCP:** The RTSP protocol uses a TCP port for data streaming from the IP camera.
- **RTSP over UDP:** The RTSP protocol uses an UDP port for data streaming from the IP camera.

6. If you select **ONVIF**, this dialog box appears after the system confirms that the camera is ONVIF compatible. Click **Dual Stream** to enable the second stream if needed, and click the **Setting** button  next to Stream1 and Stream 2 to adjust the following information.

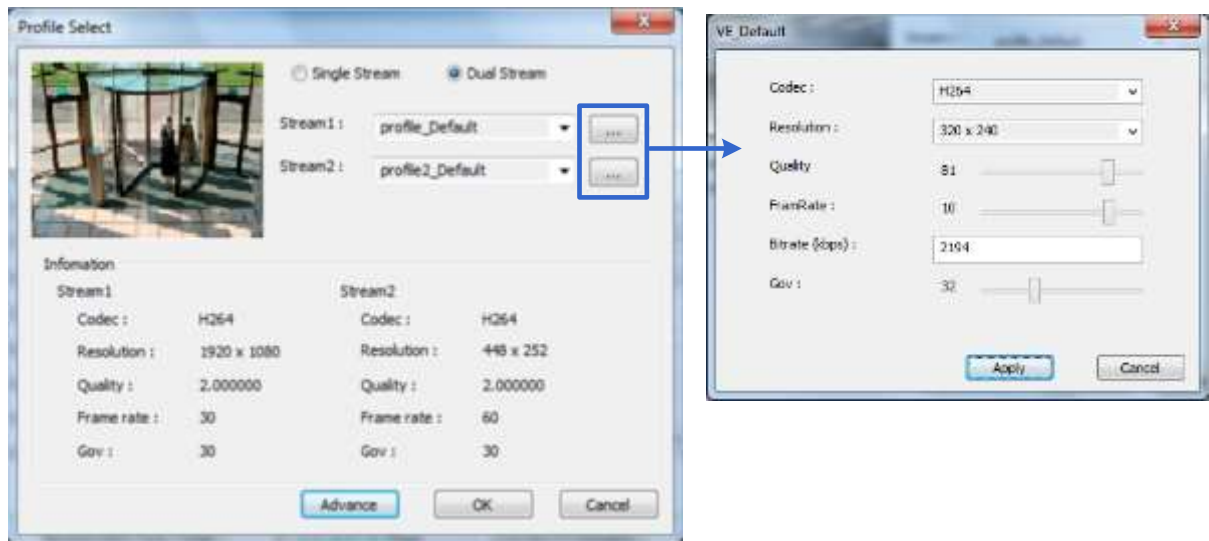


Figure 2-10

- **Codec:** Select H.264 or JPEG.
 - **Resolution:** Set a resolution.
 - **Quality:** Adjust the image quality. The range of image quality varies for different brands.
 - **Frame Rate:** Set a maximum frame rate. The range of frame rate varies for different brands.
 - **Bitrate:** The current bit rate setting of the IP device will be displayed. You can adjust the bit rate limit within the device's supported bit rate range if needed.
 - **GOV:** Set the number of frames between each key frame. For example, a GOV of 10 means there will be 1 key frame every 10 frames.
7. If you select **PSIA**, a dialog box appears after the system confirms that the camera is PSIA compatible. Click **Apply**.
 8. If you select **RTSP**, select **Dual Streams** to enable the Sub Stream if needed and type the RTSP link address.
For the RTSP command, consult the documentation of your IP camera. For instance:
 - For an AXIS IP camera, type RTSP://<IP of the IP camera>/<codec>/media.amp
 - For a HIKVISION IP camera, type RTSP://username:password@<IP of the IP Camera>
 9. Click **OK** to add the IP camera to the IP Device List.

2.4 On Demand Display

For cameras that support dual streaming with different resolutions, you can select the **On Demand Display** option to enable automatic adjustment of live view resolution. This option produces good image quality without causing high CPU usage.

You will need to set a value of **X times the resolution of the sub stream** as the threshold. When the camera image on the screen is bigger than the threshold, the system will switch to the higher resolution streaming, usually the main stream. Such adjustment is enabled when using the view modes that require higher quality images, such as single view or PIP / PAP mode. The system will switch to the lower resolution streaming to reduce CPU usage when watching live view in view modes where higher resolution does not make a difference, such as highly divided divisions.

1. Make sure the IP camera has been added to GV-VMS and you have selected **Dual Stream** during setup. For details, see *Adding IP Cameras* earlier in this chapter.
2. In the IP Device Setup (Figure 2-1), click the **Setup** button  of the desired connected camera within the IP Device List and select **General Setting**.
3. In the On Demand Display field, click **Enable** and select a value. When the camera image on the screen is **X times** bigger than the resolution of sub stream, the system will switch to the higher resolution streaming.

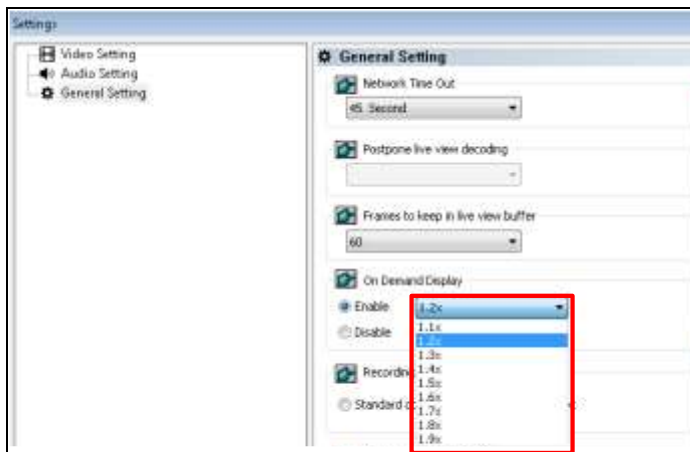


Figure 2-11

Note:

1. The **On Demand Display** function is not supported for **Privacy Mask**.
 2. The **On Demand Display** function is not supported by GV-Fisheye cameras
-

Application Example

The resolution of sub stream is 640 x 480, and a value of **1.2 times the resolution of the sub stream** has been selected for the On Demand Display function.

- **Higher Resolution Streaming**

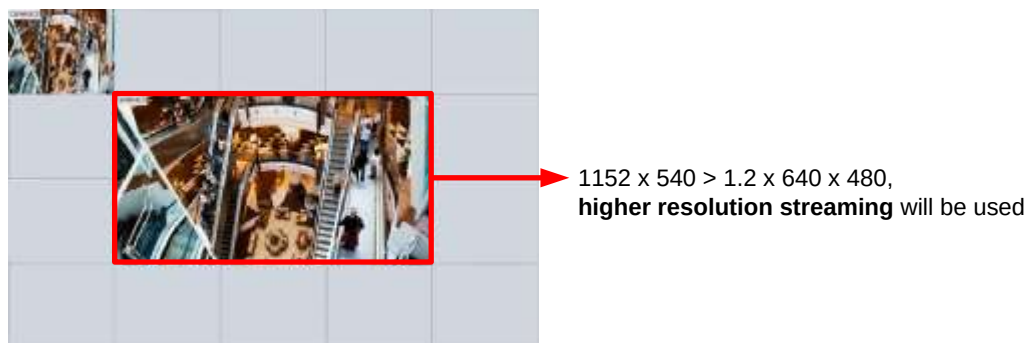


Figure 2-12

The camera image in the middle has a resolution of 1152 x 540, so the higher resolution streaming will be used, because 1152 x 540 is bigger than 1.2 x 640 x 480.

- **Lower Resolution Streaming**



Figure 2-13

After switching to 9-channel screen division, the resolution for each channel is 640 x 360, which is smaller than 1.2 x 640 x 480, so the lower resolution streaming will be used.

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Video Analysis

3.1 Object Counting and Intrusion Alarm

Object Counting provides bi-directional counting of objects under the surveillance area. It can count any moving objects (such as vehicles), people or animals. Intrusion alarm can be set to send notifications when an object moves into the defined region.

Note: It is not recommended to apply the counter function to Fisheye cameras.

3.1.1 Object Counting

You can select up to 16 cameras to set up Object Counting.

1. Click **Home**  > **Toolbar**  > **Configure**  > **Video process**. The Setup dialog box appears.
2. From the Video Analysis drop-down list, select **Counter/Intrusion Alarm Setting**, select the desired cameras and click **Setting**. This page appears.

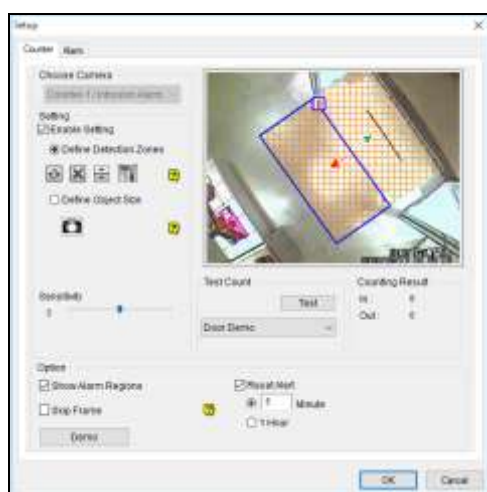


Figure 3-1

3. Select a desired camera under **Choose Camera** and select **Enable Setting** to define the counter.

■ **Define Detection Zones:** Select this option to define the detection zones.

- a. On the live view, draw at least two boxes to mark the in and out detection zones.

Each detection zone is numbered. Use these buttons to edit the detection zones:

Name	Button	Function
Reverse		Flips the detection zone.
Switch		Switches to another detection zone.
Delete		Deletes the detection zone.
Direction		Configures the in and out directions. See Step 3-b.

- b. Click the  button to define the in and out criteria. This dialog box appears.

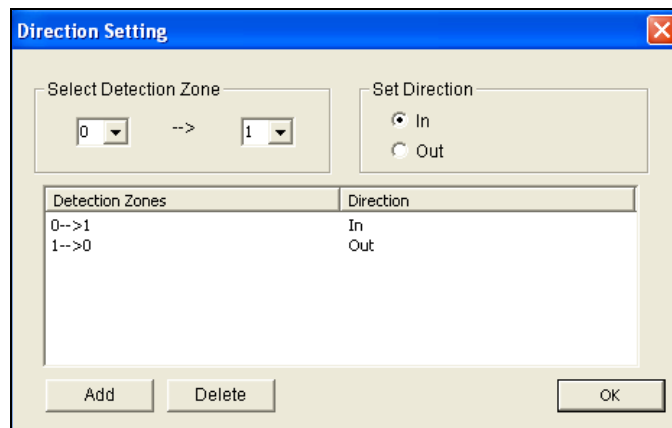


Figure 3-2

- c. Select In/Out under **Set Direction** and define the direction in **Select Detection Zone**.
- d. Click **Add**. The setting is added and appears in the table below.
- e. Click **OK**. The directions are added and indicated by arrows on the live view.

■ **Define Object Size:** Select this option and click to pause the live view.

Outline a size matching that of targeted objects on the live view. Click  to resume.

4. To test your counting settings, select **Live** from the Test Count drop-down list and click the **Test** button to start testing. The number in **Counting Result** should change as objects move through the detection zone. Optionally use the **Sensitivity** slider to adjust detection sensitivity as needed.
5. Click **OK** to apply the settings.
6. Start monitoring to begin counting. The counted objects, people or animals are indicated on the live view with yellow boxes.

More options in the Counter dialog box:

- **Show Alarm Regions:** Displays the detection zones on the preview image.
- **Skip Frame:** Skips frames to lower the CPU loading, where the system only counts objects every three frames. This option may reduce the accuracy of counting result.
- **Reset Alert:** Specify a time interval, between 1 and 1440 minutes, to reset the recorded counting result in the System Log.

Note:

1. Draw the detection zones as closely as possible to avoid omission of counting when target objects show up in the unmarked area and move only through one of the two boundaries.



Figure 3-3

2. To include counting results in the recorded files, see *Setting up Text Overlay* later in this chapter.
 3. To view the logs for counter events, click **View Log, Toolbar, Tools, System Log, Monitor Table** and click the **Counter** tab.
 4. Optionally create a schedule for counter to be enabled only at the time periods specified. For details, see *Creating Schedules* in Chapter 1.
-

3.1.2 Intrusion Alarm

Up to 16 cameras can be set up for Intrusion Alarm.

1. To set Intrusion Alarm for object(s) entering a defined region Click **Home**  > **Toolbar** > **Configure**  > **Video process**. The Setup dialog box appears.
2. Select **Counter/Intrusion Alarm Setting** in Video Analysis, select the desired camera, click **Setting** and click the **Alarm** tab. This dialog box appears.

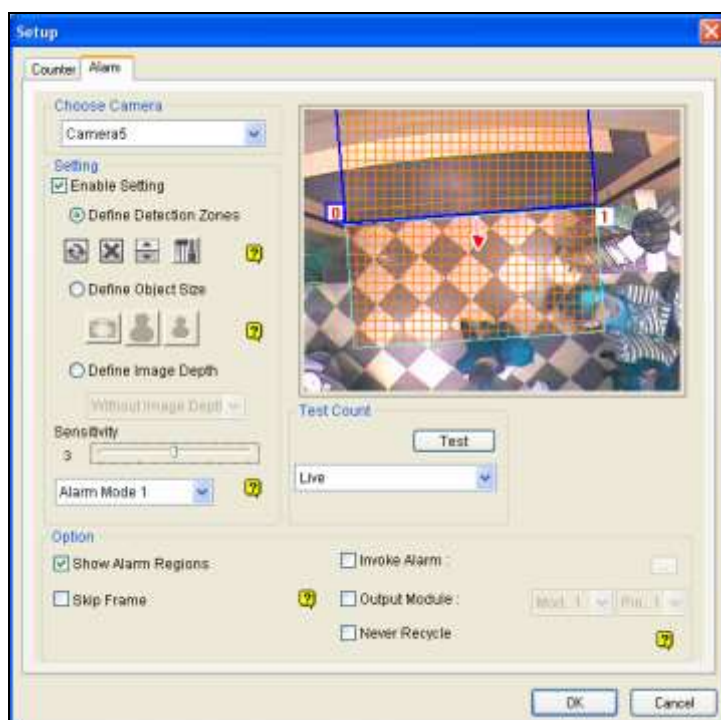


Figure 3-4

3. Select a desired camera under **Choose Camera** and select **Enable Setting** to define the intrusion alarm.
 - **Define Detection Zones:** Select this option to define the detection zones.
 - a. On the live view, draw at least two boxes to mark the in and out detection zones. Each detection zone is numbered. Use these buttons to edit the detection zones:

Name	Button	Function
Reverse		Flips the detection zone.
Switch		Switches to another detection zone.
Delete		Deletes the detection zone.
Direction		Configures the in and out directions. See Step 3-b.

- b. Click the  button to define the alarm criteria. This dialog box appears.

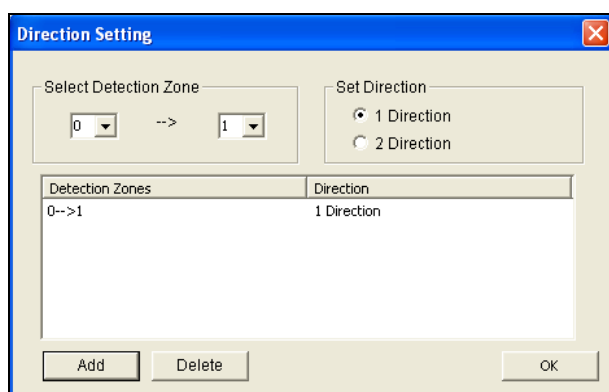


Figure 3-5

- c. Select 1 Direction or 2 Direction under **Set Direction** and define the direction in **Select Detection Zone**.
- d. Click **Add**. The setting is added and appears in the table below.
- e. Click **OK**. The directions are indicated by arrows on the live view.

- **Define Object Size:** Select this option and click  to pause the live view.

Outline a size matching that of targeted objects on the live view. Click  to resume.

- **Define Image Depth:** When the object moves toward or away from the camera along a path, for example, a hallway, it appears larger when it is closer to the camera and vice versa. Rather than using a fixed object size, you can define a maximum and minimum object size according to the object's proximity to the camera.

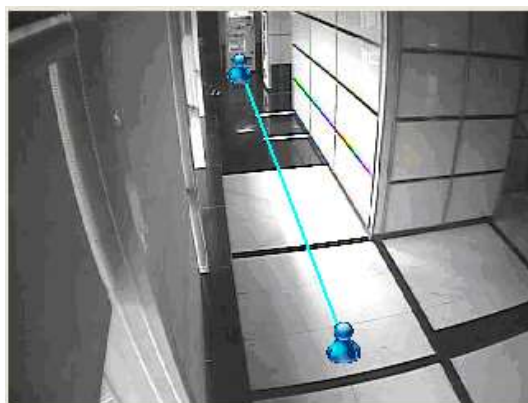


Figure 3-6

- a. Select **Define Image Depth** and select **With Image Depth** using the drop-down list. A line  appears.

- b. Drag and place the line along the path where the objects will be moving. The larger icon indicates the point closer to the camera.
 - c. Select **Define Object Size**. Click the larger icon  and click  to pause the live view. Use the mouse to outline the maximum size of objects on the live view.
 - d. Click the smaller icon  and repeat the step above to define the minimum size of objects when they are further from the camera.
4. In the Setting section, there are two kinds of alarm modes:
 - **Alarm Mode 1:** The alarm sets off when the target object moves through the first detection zone and touches the second detection zone in the defined direction.
 - **Alarm Mode 2:** The alarm sets off when the target object moves through the first detection zone and its center moves through the second detection zone in the defined direction.
5. To set up alarm devices, configure any or both of the following options.
 - **Invoke Alarm:** Enable the computer alarm when an object enters the defined region. Click the button next to the option to assign a .wav sound file.
 - **Output Module:** Enable an installed output device when an object enters the defined region. Assign the output module and pin number.
6. To test your alarm settings, select **Live** from the Test Count drop-down list and click **Test**. When intrusion objects are detected, the configured computer alarm or output device will be activated. Optionally adjust the **Sensitivity** slider as needed.
7. Click **OK** to apply the setting.
8. Enable monitoring to start intrusion detection. The detected intruding objects are indicated on the live view with red boxes.

When an intrusion event occurs, the configured computer alarm or output device will be activated, and the event will be recorded as Intruder in the System Log for later retrieval

More options in the Alarm dialog box:

- **Show Alarm Regions** and **Skip Frame:** See the same options in *Object Counting* above.
- **Never Recycle:** Alarm-triggered events will never be recycled if selected.

Note:

1. Draw the detection zones as closely as possible to avoid omission of intrusion events when target objects show up in the unmarked area and only move through one of the two boundaries.

**Figure 3-7**

2. To view the logs for intrusion events, click **View Log**, **Toolbar**, **Tools**, **System Log**, **Monitor Table** and click the **Monitor** tab.
3. Optionally create a schedule for intrusion alarm to be enabled only at the time periods specified. See *Creating Schedules* in Chapter 1.

3.2 Object Index

The Object Index feature allows you to view the very first frame of a *continuous* movement in a video stream. With Object Index Live Viewer, you may view the most recent 50 frames captured. When accessing Object Index in ViewLog, you can easily locate and play back events by selecting and specifying the desired camera channels and time periods.

3.2.1 Setting up Object Index

You can select up to 16 cameras for which their Object Index is kept.

1. Click **Home**  > **Toolbar**  > **Configure**  > **Video process**. The Setup dialog box appears.

2. From the Video Analysis drop-down list, select **Object Index**, select the desired cameras and click **Setting**. This dialog box appears.

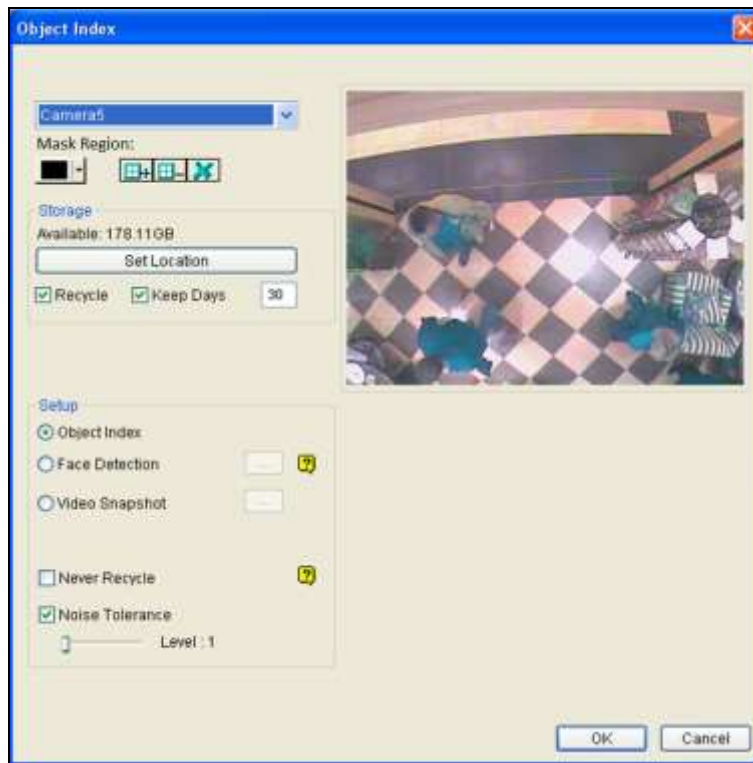


Figure 3-8

4. Select one camera from the drop-down list and configure the following.
 - **Mask Region:** Use the mouse to outline a mask area where motion will be ignored.
 - **Set Location:** Click the button to assign a path to save the log files and image snapshots.
 - **Keep Days:** Specify the number of days the log files will be kept for, from 1 to 999 days.
 - **Recycle:** Select to recycle the oldest log files when the remaining disk space is less than 500 MB. When both Keep Days and Recycle are selected, the system reacts to whichever condition that is first met.
 - **Never Recycle:** Log files and image snapshots will not be recycled when selected.
 - **Noise Tolerance:** Use the slider to adjust the tolerance level. The higher the level, the more tolerant the system is to video noise.
5. Click **OK** to apply the settings.
6. Enable monitoring to start the function.

Note: Optionally create a schedule for object index to be enabled only at the time periods specified. For details, see *Creating Schedules* in Chapter 1.

3.2.2 Viewing Object Index

Once set, you can start to view the most recent frames captured, up to 50 frames, through Object Index.

1. Start camera monitoring. The detected face or objects are indicated on the live view.
2. Click **Home**  > **Toolbar**  > **Tools**  > **Live Object Index**. The Live Viewer window appears and displays the most recent 50 frames recorded.
3. Click the lock icon and select **Lock** to pause the real-time updating of Object Index.

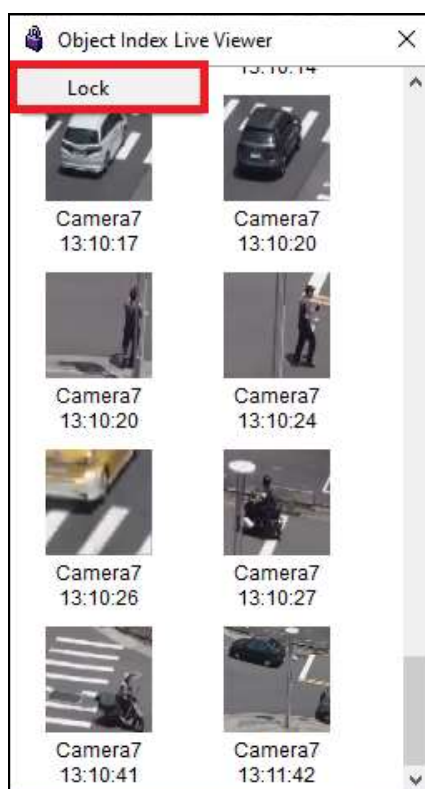


Figure 3-9

4. With the camera name and recorded time shown below each frame image, double-click an image to play back its recording. The recording will be displayed in ViewLog, where you can play it back using the Timeline.

Note: To display the corresponding recording, make sure the layout in ViewLog includes the camera channel selected.

3.2.3 Searching Object Index

In ViewLog, you can locate, and instantly play back, the frames of the desired cameras within a specified time.

1. Click **ViewLog**  > **Toolbar**  > **Tools**  > **Object Index**.
2. Select the desired camera channels at the top and click **Refresh** to display all the event frames of the channels selected, including the ones most recently recorded.

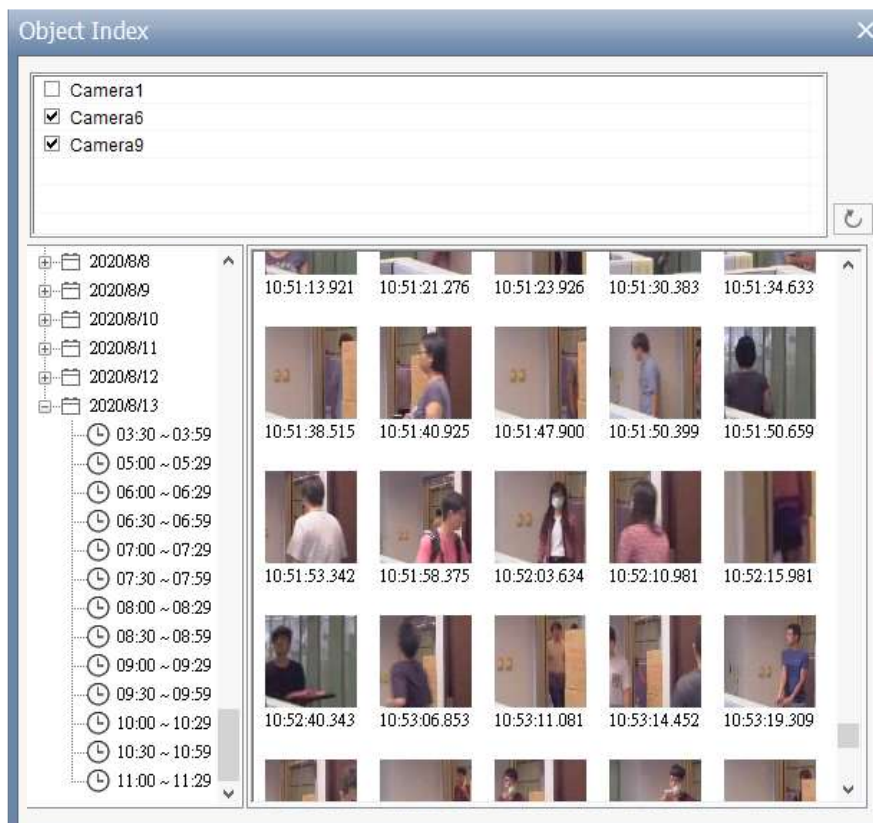


Figure 3-10

3. Select the desired date and time to display the event frames during that time period.
4. Double-click the frame you want to play back. The recording will be displayed in ViewLog, where you can play back using the Timeline.

Note: To display the corresponding recording, make sure the layout in ViewLog includes the camera channel selected.

3.3 Automatic Video Snapshots

The Video Snapshot allows the system to take up to 30 snapshots per second as monitoring starts. This function allows you to keep the surveillance records as still JPEG images instead of AVI videos when storage space is limited.

Note: After you start monitoring, the system will start taking video snapshots whether there is motion or not.

3.3.1 Setting up Video Snapshots

You can select up to 16 cameras to take video snapshots.

1. Click **Home**  > **Toolbar**  > **Configure**  > **Video process**. The Setup dialog box appears.
2. From the Video Analysis drop-down list, select **Object Index**, select the desired cameras and click **Setting**. The Object Index dialog box appears.

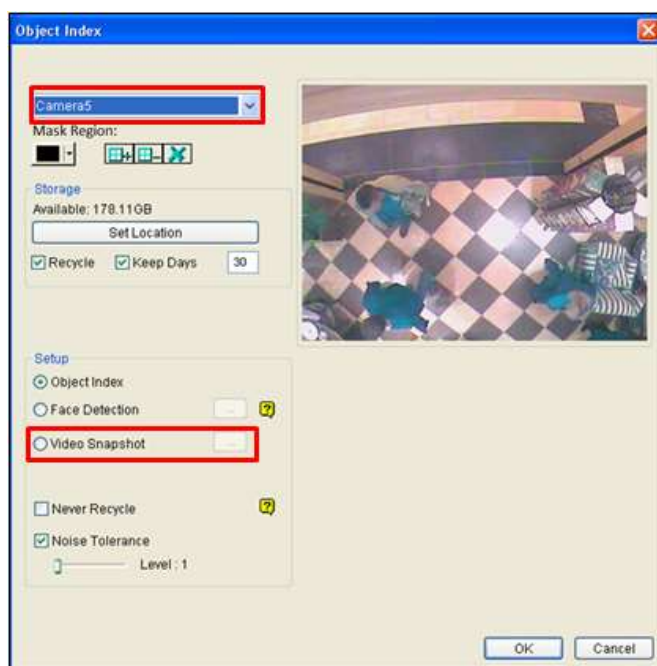


Figure 3-11

3. Select one camera from the drop-down list.
 - A. Optionally configure the Storage settings. See Step 4, *Setting up Object Index* earlier in this Chapter.
 - B. Select **Video Snapshot**.

C. Click [...] after Video Snapshot for further setup.

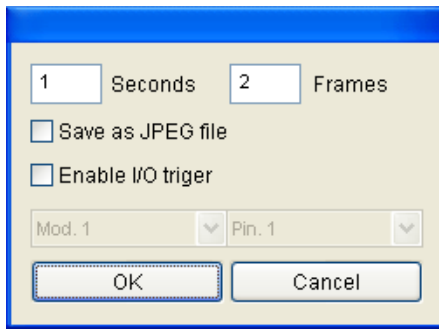


Figure 3-12

4. Specifies the frequency of automatic video snapshot. By default, the system will take 2 frames every second when the monitoring starts.
 - **Save as JPEG file:** Saves the images in JPEG format. Otherwise, you can only access the snapshots using the ViewLog player.
 - **Enable I/O Trigger:** Takes snapshots only when the assigned input device is triggered.
5. To configure another camera, select a different camera on Step 3.
6. Click **OK** to apply the settings.
7. Start monitoring to take snapshots.

Note:

1. For details on other settings of the Object Index dialog box, see Step 4, *Setting up Object Index* earlier in this chapter.
 2. Optionally create a schedule for video snapshot function to be enabled only at the time periods specified. For details, see *Creating Schedules* in Chapter 1.
-

3.3.2 Searching Video Snapshots

1. To locate video snapshots of desired cameras, click **ViewLog**  > **Toolbar**  > **Tools**  > **Object Index**. A window similar to that of Object Index appears (Figure 3-10).
2. Select a desired camera channel and click **Refresh** to display all its event frames, including the ones most recently recorded.
3. Select the desired date and time to display all the video snapshots captured, along with their event frames, during that time period.

Note: When **Save as JPEG file** is enabled (Figure 3-12), you can also view the video snapshots from the directory specified by **Set Location** (Figure 3-11).

3.4 Face Detection

The Face Detection enables the system to detect and record human faces, including individual faces when a group of people enter the scene. This feature captures human faces only, ignoring other body parts, objects or background views.

3.4.1 Setting up Face Detection

Up to 16 cameras can be configured for this application.

1. Click **Home**  > **Toolbar**  > **Configure**  > **Video process**. The Setup dialog box appears.
2. From the Video Analysis drop-down list, select **Object Index**, select the desired cameras, and then click **Setting**. The Object Index dialog box appears.

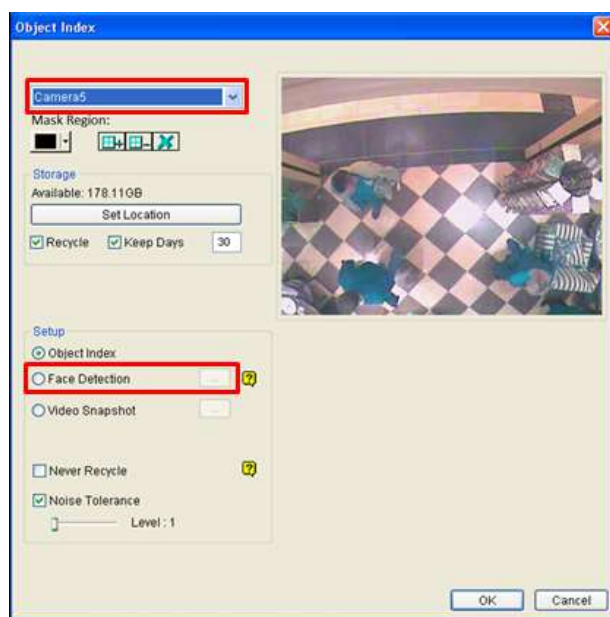


Figure 3-13

3. Select one camera from the drop-down list.
 - A. Optionally configure the Mask Region, Storage and Noise Tolerance settings. For details, see Step 4, *Setting up Object Index* earlier in this chapter.
 - B. Select **Face Detection**.
 - C. Click [...] after Face Detection to adjust the sensitivity. The higher the value, the more sensitive face detection is.
4. To configure another camera, select a different camera on Step 3
5. Click **OK**.

6. Start monitoring.

Note:

1. For details on other settings of the Object Index dialog box, see Step 4, *Setting up Object Index* earlier in this chapter.
 2. Optionally create a schedule for face detection to be enabled only at the time periods specified. For details, see *Creating Schedules* in Chapter 1.
-

3.4.2 Searching Face Detection Snapshots

1. Click **Home**  > **Toolbar**  > **Tools**  > **Live Object Index** to display the Live Viewer window.



Figure 3-14

2. Double-click a desired frame to instantly play back its recorded file.

Note: Consider the following when installing the camera for face detection:

- Face contour must be clearly seen
 - Only faces tilting within the range of 15° vertically and 30° ~ 45° horizontally can be detected.
 - The face to be detected must cover least 1/10 of the screen.
-

3.5 Face Count

The Face Count function allows you to count the number of faces that appear in the image. You can also select to invoke a computer alarm or trigger an output device when a face is detected or when no face is detected.

The number of faces counted is saved to GV-Web Report which can analyze counting data from multiple GV-VMS systems. For details, see *GV-Web Report User's Manual*.

Note:

1. Up to 16 cameras can be configured for this function.
 2. The Face Count results are only available on GV-Web Report V2.2.6.0 or later.
-

3.5.1 Installing the Camera

1. Install the camera inside an entrance pointing outward. The Face Count function is designed to detect front-view faces only, and the area of the detected face must take up 10% to 50% of the live image.



Figure 3-15

2. Avoid installing the camera where it is subjected to direct sunlight or reflections. The lighting of the entrance where you set the camera should be sufficient but not too bright or dark. Light should be distributed evenly across faces without too much light coming from one side. Sharp shadow edges in the camera view may affect the accuracy of face count.

3.5.2 Setting up Face Count

1. Click **Home**  > **Toolbar**  > **Configure**  > **Video process**. The Setup dialog box appears.
2. From the Video Analysis drop-down list, select **Face Count**, select the desired cameras and click **Setting**. This dialog box appears.



Figure 3-16

3. Under **Camera Selection**, select a camera from the drop-down list to be configured.
4. The following configurations are available:

[Definition]

- **Mask Region:** Use the mouse to outline a mask area where motion will be ignored.
- **Detected Face Size:** You can adjust the **Minimum Face Size** and the **Maximum Face Size** to instruct the system to only detect faces within that size range. Pause the live image by clicking  before configuring.

[Setting]

- **Detection Type**
 - ⊙ **Face Count:** Counts the number of faces. The counting results are only available on GV-Web Report. To connect to GV-Web Report, see the **Saves counting results to GV-Web Report** option below.
 - ⊙ **Face Detected Alert:** Detects faces to invoke a computer alarm or triggers an output device.

- ⊙ **No Face Detected Alert:** Invokes a computer alarm or triggers an output device when no face is detected after the number of seconds specified in the **Detection Interval**.
- **Reset at:** Type a counting reset time between 0 and 23. For example, if you type 23, the number of faces counted will become zero at 23 o'clock daily.
- **Sensitivity:** Adjust the detection sensitivity by moving the slider. The higher the value the more sensitive the system is to motion. The default value is 3.
- **Detection Interval:**
 - ⊙ When **Face Detected Alert** and **Enable Upon Input Trigger** are both selected, the **Detection Interval** slider specifies the number of seconds you want the system to detect faces when the input device is triggered.
 - ⊙ When **No Face Detected Alert** is selected, the system will attempt to detect the faces for the duration specified for **Detection Interval**.

[Option]

- **Enable upon input trigger:** The system will begin detecting only when the input device is triggered. Assign an input module and pin number for the device.
 - **Saves counting results to GV-Web Report:** Saves the face counting results to GV-Web Report. Type the **Domain Name or IP Address**, **Port**, **User Name**, and **Password** of GV-Web Report. After settings, click the **Test** button to see if the connection succeeds.
 - **Invoke Alarm:** Activates the computer sound alarm when faces are detected under **Face Detected Alert** or when no face is detected under **No Face Detected Alert**. Click the [...] button to designate a sound file for the computer alarm.
 - **Output Module:** Activates the output device when faces are detected under **Face Detected Alert** or when no face is detected under **No Face Detected Alert**. Assign an output module and pin number for the device.
 - **Never Recycle:** Prevents recorded events from being recycled when the recycle threshold is reached.
5. Click the **Test** button to see if the settings have been configured according to your preference. If you have set a detection interval, the test will only run for the number of seconds you specified.
 6. Click **OK** to apply the settings.
 7. Start monitoring to run the application. The detected (counted) faces are indicated on the live view with green boxes.

Note:

1. Events triggered under **Face Detected Alert** or **No Face Detected Alert** will be recorded to the System Log for later retrieval. In the System Log, the events are recorded as **Face Count** under the **Monitor** tab (ViewLog > Toolbar > Tools > System Log).
 2. The **Face Count** results will only be saved when **Saves counting results to GV-Web Report** is selected and GV-Web Report is connected.
 3. The counter function is not recommended to be applied in fisheye cameras.
 4. Optionally create a schedule for face count to be enabled only at the time periods specified. For details, see *Creating Schedules* in Chapter 1.
-

3.6 Face Recognition

Face Recognition integrates the facial recognition abilities of GV-Face Recognition Camera for the system to distinguish detected human faces. Based on the camera's Face Database, this feature displays the names of the recognized persons on the live view, while recording the recognition events during video recording. Additionally, the recognition events recorded can at the same time be used to trigger e-mail alerts and/or output and computer alarms based on the rules defined.

Note: GV-Face Recognition Cameras include GV-VD8700 and GV-FD8700-FR and this feature only supported by GV-VMS V17.1 or later.

3.6.1 Enrolling Face Data

Prior to using Face Recognition, it is required to create the necessary recognition data via Face Enrollment — adding photos of the persons to be recognized into the Face Database of GV-Face Recognition Camera.

- Enroll faces by adding portrait photos directly into the camera's database, see the steps below.
- Synchronize face data from other connected camera, see *Synchronizing Face Database* later in this section.

IMPORTANT:

1. GV-VMS directly accesses and manages the Face Database of GV-Face Recognition Camera, thus all changes made are done directly to the camera's database.
 2. Photos used as recognition data can be pictures of the persons previously taken or snapshots of the persons captured by connected cameras.
 3. All photos used for Face Enroll must meet the criteria as specified in No. 3 under Face Recognition FAQ of the [FAQ](#).
-

1. Click **Home**  > **Toolbar**  > **Configure**  > **Video process**. The Setup dialog box appears.
2. From the Video Analysis drop-down list, select **IPCVA**, select the desired cameras and click **Setting**.

3. Select the desired channel from the drop-down list at the top, select **Face Recognition** >  > **Face Enroll**.

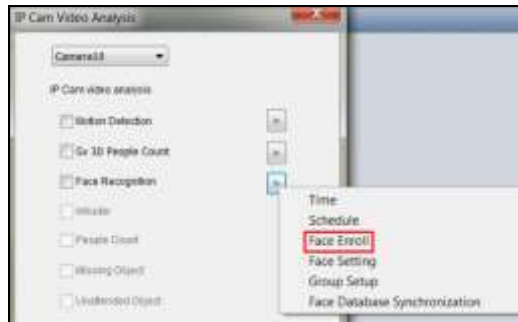


Figure 3-17

4. Click **Add** to define a new Face ID. Alternatively, select or **Search** for an existing ID from the **Enrolled Face** list.

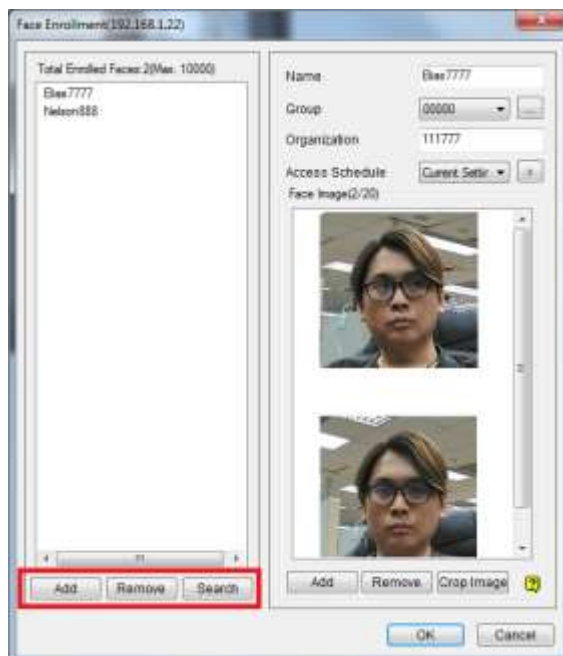


Figure 3-18

5. Click **Add**, on the bottom the right side, to add photos and/or snapshots for the Face ID selected from your local PC. Optionally crop the image added by selecting it and click **Crop Image**.
6. You can also configure the following options for the Face ID selected:
 - **Name:** Type a desired name for the Face ID.
 - **Group:** Select from a list of ten groups in which the Face ID shall be categorized under. Click the  button to modify the group name. This setting can be used to trigger e-mail alerts and/or output alarms when persons from a specified Group is recognized at the surveillance site. See *Configuring Face Setting* later in this chapter.
 - **Organization:** Type a desired organization name for the Face ID.

- **Access Schedule:** Select a predefined schedule in which the Face ID is allowed access or select **Current Setting** and click  to define an exclusive schedule for the person. To set a schedule, refer to *Defining Access Schedule* later in this chapter for details.

7. Click **OK** to save.

Note: All changes made here take immediate effect on the Face Database of the selected camera.

3.6.2 Synchronizing Face Database

To synchronize the face databases of two or more cameras, follow Steps 1 to 3 in *Enrolling Face Data* earlier in this chapter and select **Face Database Synchronization**. The following window appears.

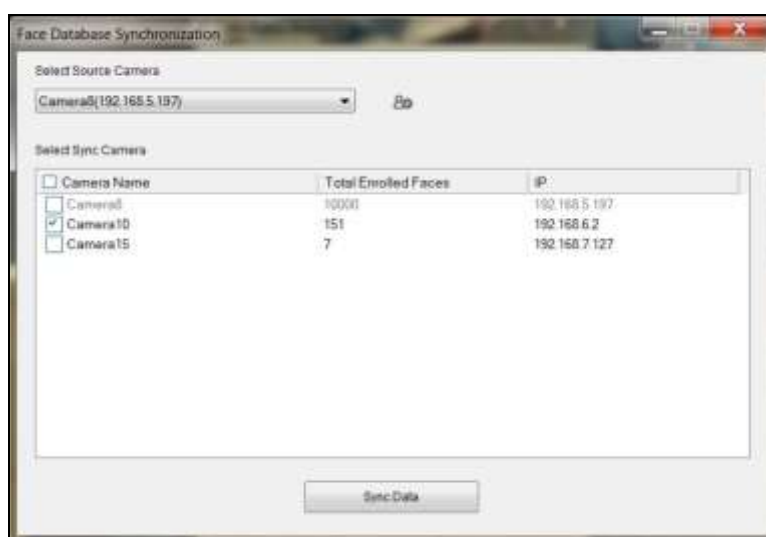


Figure 3-19

- **Select Source Camera:** Select the camera you want to synchronize from.
- **Select Sync Camera:** Select the cameras that you want to be synchronized.
- **Sync Data:** Click to start synchronizing.

3.6.3 Starting Face Recognition

Monitoring of the camera must be enabled for Face Recognition to work.

1. Make sure **Face Recognition** is enabled. Refer to Steps 1 to 3 in *Enrolling Face Data* earlier in this chapter.

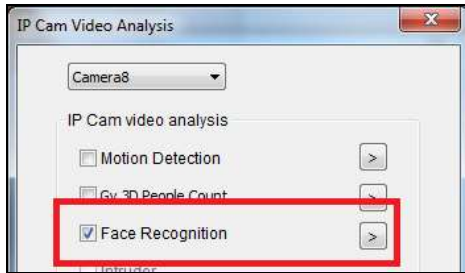


Figure 3-20

2. Start monitoring of the camera channel (**Home**  > **Toolbar**  > **Monitor**  > select **Channel**).

3.6.4 Viewing and Searching for Face Recognition Events

When Face Recognition is enabled, all recognition events, along with recognition snapshots, recognition time, and schedule alerts, when applicable, are recorded in an event log during video recording. To view **Face Recognition** in recorded videos, click **ViewLog**  > **Toolbar**  > **Tools**  > **Face Recognition**. This window appears.

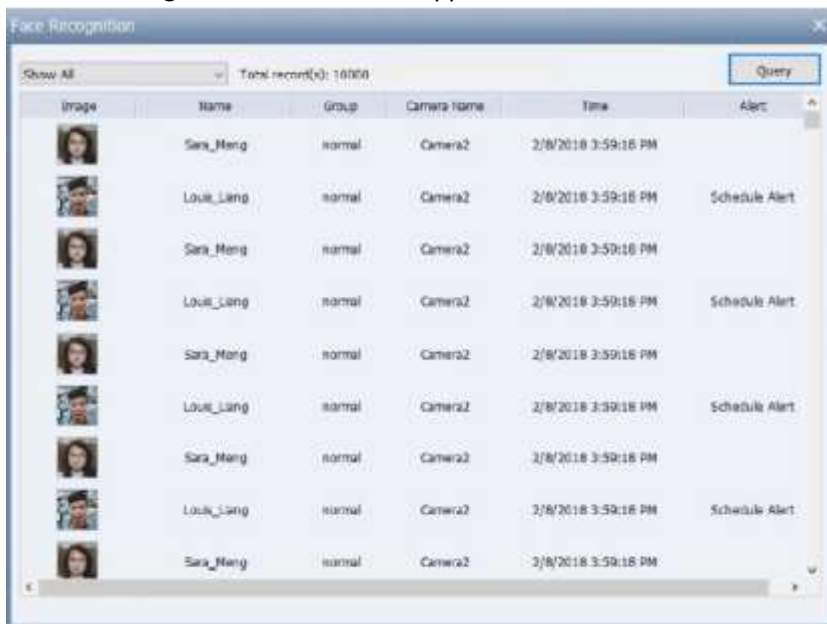


Figure 3-21

- **Show All:** Select **Show All**, **Show Identified Persons Only** or **Show Unknown Persons Only** to filter the recognition events displayed.
- **Event Image:** Display the captured Snapshot of the recognition event. Double-click the Snapshot to see the recording of the recognition event in ViewLog.
- **Name:** Display the Name of the individual recognized. Written as “Unknown” if unrecognizable.
- **Group:** Display the Group the recognized person is categorized under in the Face Database.
- **Camera Name:** Display the Channel in which the recognition event was recorded.
- **Time:** Display the Time of the recognition event.
- **Alert:** Record Schedule Alerts when the recognition event recorded is outside of the person’s (Face ID) allowed access schedule.
- **Query:** Click to access the Query window, where you can filter and search for recognition events in selected camera channels.

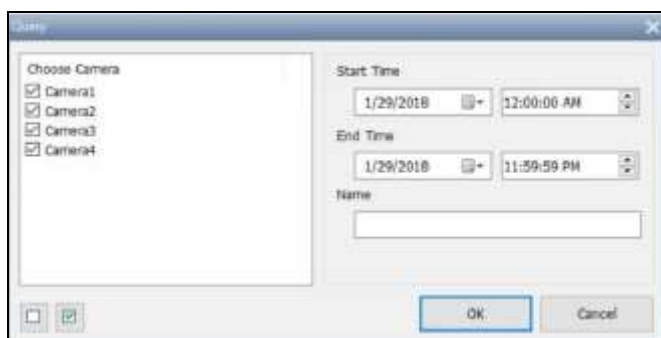


Figure 3-22

Note: The Name search in Query functions as a keyword search and is case-sensitive.

3.6.5 Defining Access Schedule

Access Schedules are used to specify the time periods in which specific persons (Face ID) are allowed or denied access of from Monday to Sunday. Whenever a person is recognized outside of his/her allowed schedule, a schedule alert is recorded, which can be used to trigger e-mail alerts and/or output alarms.

The Access schedule can be set in five steps:

- **Step 1 Setting up 24-hour Schedules**
Define the minutes and hours a person is allowed / denied access of in a day.
- **Step 2 Setting up Weekly Schedules**
Define the days a person is allowed / denied access of in a week.
- **Step 3 Assigning Access Schedules**
Assign the defined schedules to the desired persons in Face Enrollment.
- **Step 4 Setting up Schedule Alerts to Trigger E-mails / Alarms**
Select Schedule Alerts as the parameter to trigger e-mail alerts and output alarms in Face Setting. See *Configuring Face Setting* later in this chapter.
- **Step 5 Starting Camera Monitoring**
Start monitoring of the camera channels and enable Face Recognition to activate access monitoring as defined by the Access Schedules.

3.6.5.1 Step 1: Setting up 24-hour Schedules

Before creating weekly schedules, you need to first define a number of desired 24-hour schedules that can be used to prepare the weekly schedules. Follow Steps 1 to 3 in *Enrolling Face Data* earlier in this chapter and select **Time**. In this window, up to 254 24-hour schedules can be defined, with two default schedules for “Full Access” and “Deny Access.”

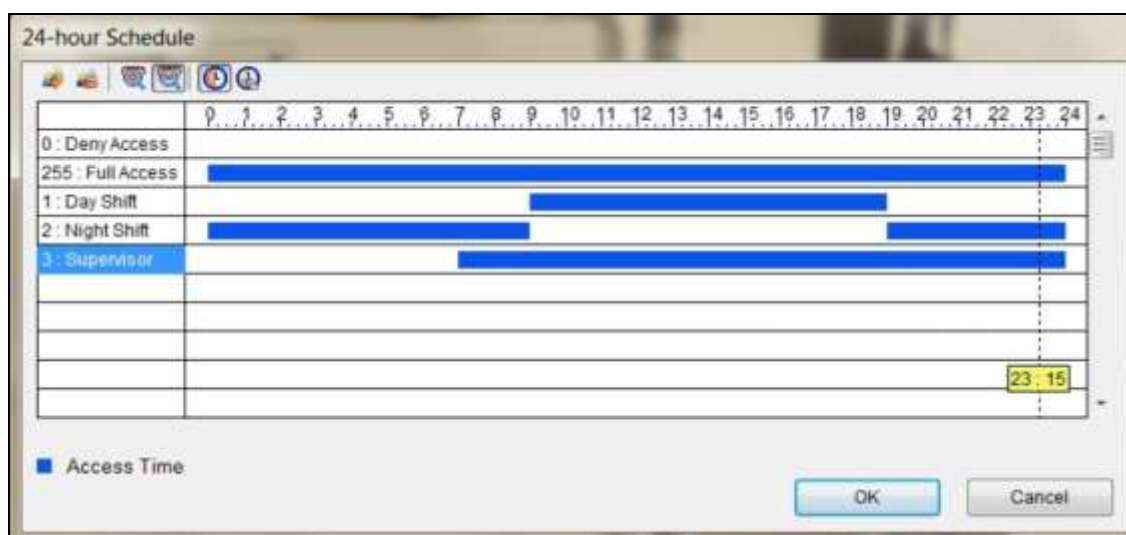


Figure 3-23

1. Click the **Add** button . An ID number ascending from the lowest existing ID will be automatically generated. Type a desired name for the new schedule, e.g. **Day Shift** and click **OK**.
2. Click the **Add Access Time** button . Then drag the mouse on the timeline to specify the time periods of allowed access, e.g. **from 09:00 to 19:00**.
3. Repeat Steps 1 to 3 to create multiple schedules if needed, e.g. for **Night Shift from 00:00 to 09:00 and 19:00 to 24:00** and for **Supervisor from 07:00 to 24:00**.
4. To remove time periods of allowed access, click the **Delete Access Time** button . Then drag the mouse over the periods that you want to remove.
5. Click **OK** to save the changes.

3.6.5.2 Step 2: Setting up Weekly Schedules

Once the desired 24-hour schedules are set, follow Steps 1 to 3 in *Enrolling Face Data* earlier in this chapter and select **Schedule**. In this window, up to 254 weekly schedules can be defined, with two default schedules for “Full Access” and “Deny Access.”

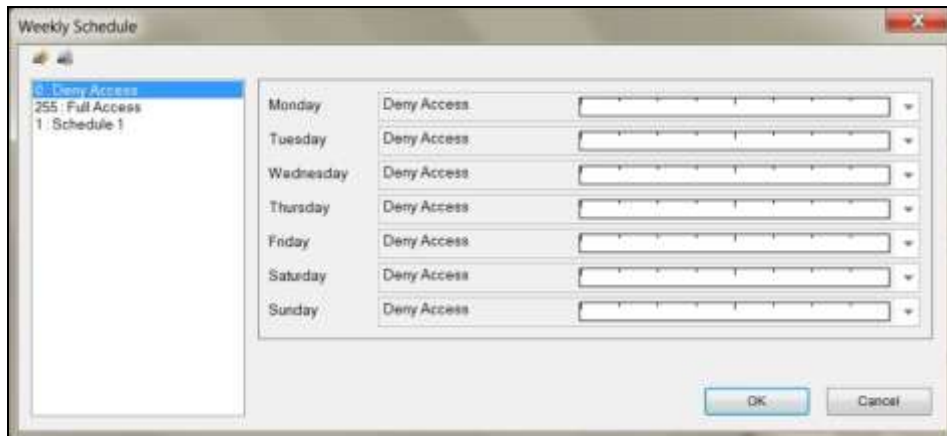


Figure 3-24

1. Click the **Add** button . An ID number ascending from the lowest existing ID will be automatically generated. Type a desired name for the new schedule, e.g. **Rotation** and click **OK**.
2. Select the desired schedules for **Monday** to **Sunday**, predefined from *Step 1* earlier in this section, in each of the respective drop-down lists, as exemplified below.

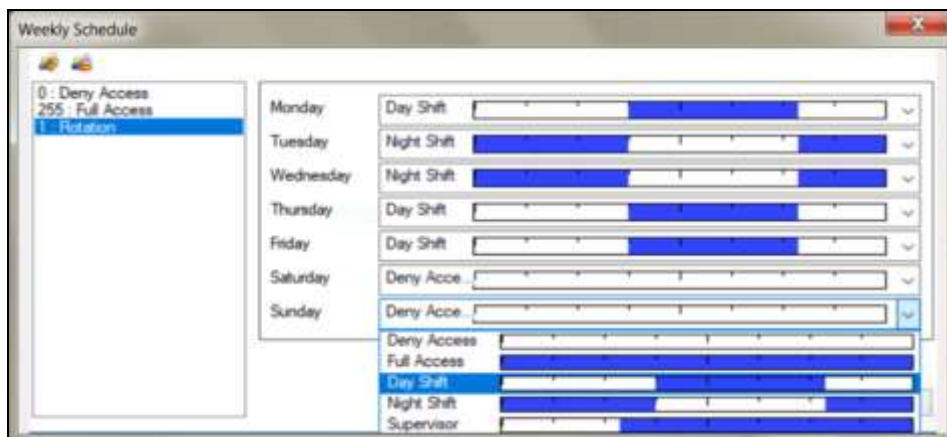


Figure 3-25

3. Repeat Steps 1 to 3 to create multiple schedules if needed, e.g. for **Daytime-only** and **Weekend-only** access.
4. To delete schedules, select the schedule to be deleted and click the **Remove** button .
5. Click **OK** to save the changes.

3.6.5.3 Step 3: Assigning Access Schedules

Once the weekly schedules are set, follow Steps 1 to 4 in *Enrolling Face Data* earlier in this chapter, select or **Search** for a desired Face ID and select a schedule in the **Access Schedule** drop-down list.

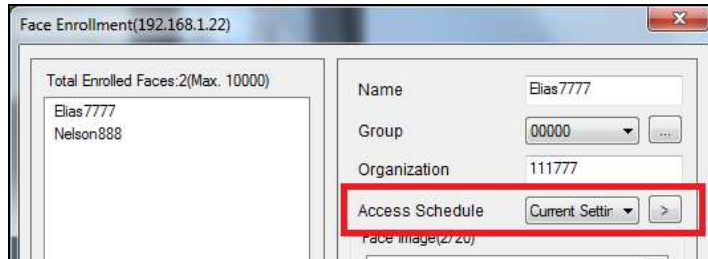


Figure 3-26

Once the Access Schedules are assigned, turn on monitoring of the camera channel and enable Face Recognition, see *Recording Recognition Events* later in this chapter, to start access monitoring based on the schedules.

3.6.6 Configuring Recognition Alerts and Recognition

Database

In this section, you can use Schedule Alerts, Unknown Alerts or the Recognition Events of a specified Group, e.g. blacklist, to send e-mail notifications and/or trigger output alarms, and also configure the database of face recognition events, including storage path of the snapshots and log files of recognition events.

Note: For Face Setting to work, make sure Face Recognition is enabled, see *Starting Face Recognition* later in this chapter.

To configure Face Setting, follow Steps 1 to 3 in *Enrolling Face Data* earlier in this chapter and select **Face Setting**. This window appears.

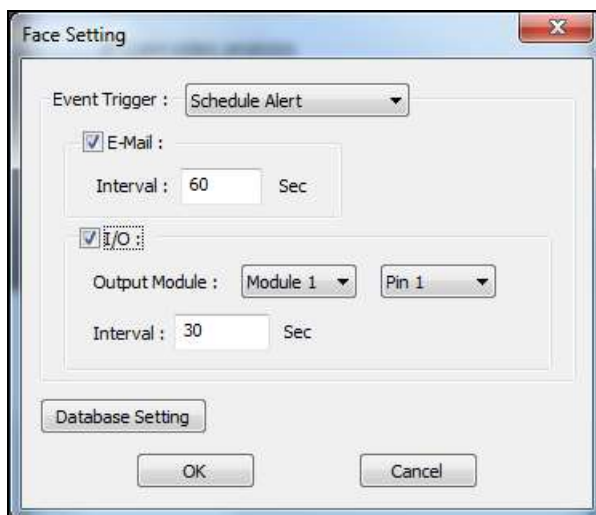


Figure 3-27

- **Event Trigger:** Select Schedule Alert or the Group of Face ID that e-mail notifications, or I/O should be triggered for. For details on using Schedule Alerts, refer to *Defining Access Schedule* earlier in this chapter. A GV-I/O Box needs to be connected to GV-VMS for the I/O function to work.
 - ⊙ For **E-Mail**, Set the minimum time **Interval** allowed, from 0 to 3600 seconds, in between each e-mail notification.
 - ⊙ For **I/O**, select the desired **Output Module** and **Pin** number.
- **Database Setting:** Click to configure the Database Settings as below:

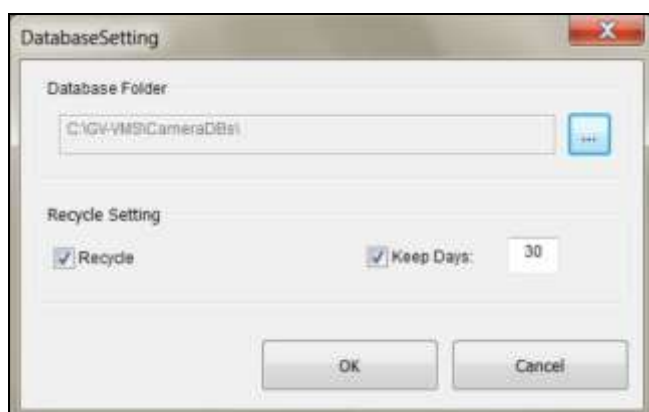


Figure 3-28

- ① **Database Folder:** Click the Browse button  to modify the save path for the snapshots and log files of recorded Recognition Events.
- ① **Recycle:** Enable to recycle the data in the Database Folder.
- ① **Keep Days:** Type the desired number of days that data in the Database Folder should be kept for, from 1 to 999.

Note: Make sure the e-mail and I/O functions are configured properly before use. For details, see *Setting up E-mail Notifications* and *Setting up I/O Devices* in Chapter 1 and 6, respectively.

3.6.7 Tracking Recognized Faces

Tracking of recognized faces can be displayed on the E-Map when there are multiple cameras with synchronized Face Databases.

To display Face Tracking, refer to the following for the related settings:

- **Step 1 Synchronizing Face Database**
To synchronize Face Databases, see *Synchronizing Face Database* earlier in this chapter.
- **Step 2 Creating E-Map(s)**
To create E-Map(s) and add the camera, see *Creating an E-Map* in Chapter 8.
- **Step 3 Enabling Face Recognition**
To enable Face Recognition, see *Starting Face Recognition* earlier in this chapter.
- **Step 4 Turning on Monitoring**

Once all the related settings are set, turn on monitoring and you will see arrows indicating the movements of recognized persons on the E-Map.

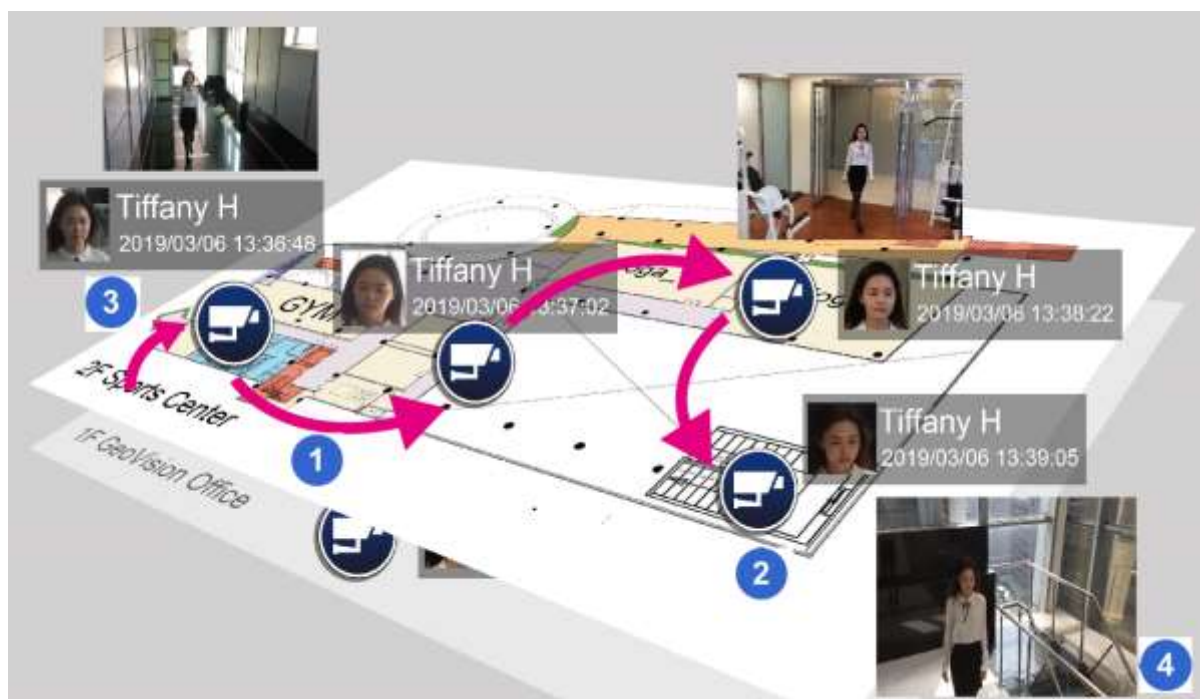


Figure 3-29

No.	Name	Description
1	Face Tracking	Display the direction of movement of the individual recognized.
2	Latest Recognition Site	The end point of the Face Tracking arrow indicates the surveillance site (camera channel) where the recognized individual was last seen.
3	Previous Recognition Site	The initial point of the Face Tracking arrow indicates the surveillance site (camera channel) where the recognized individual was previously seen.
4	Recognition Event	Display a live image of the Recognition Event.

Adjusting the Display Mode on E-Map

To adjust the display mode of the recognition events on E-Map(s), click **Tools**  and select **Face Recognition** for the following options:



Figure 3-30

- **Show face and path:** Selected by default, display both Face Tracking and the Recognition Events on the E-Map.
- **Show face only:** Display only the Recognition Events on the E-Map.
- **Hide face:** Do not display any Recognition Events and Face Tracking on the E-Map.

Configuring Face Tracking

For an increased accuracy, you can modify the interval setting of **Face Tracking** based on your surveillance needs.

1. In Content List of Live view, click **Configure**  > **General Setting**. This window appears.

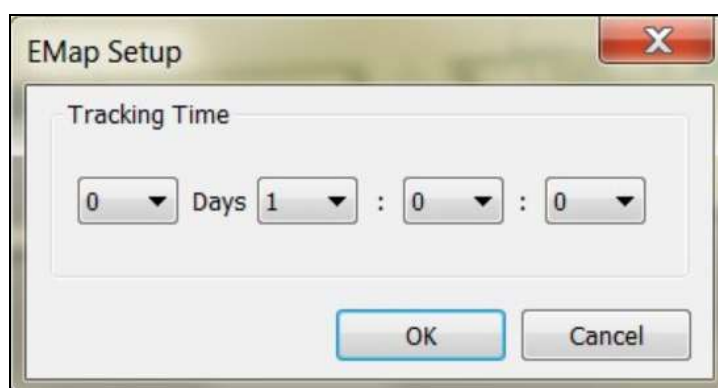


Figure 3-31

2. Under **Tracking Time**, select the days (0~31), hours (0~23), minutes (0~59) and seconds (0~59) to define the time interval in which Face Tracking is effective for. Face Tracking will not be displayed for any subsequent Recognition Events occurring beyond the set Tracking Time.
3. Click **OK** to save the changes.

3.7 Privacy Mask Protection

The Privacy Mask can block out sensitive areas from view, covering the areas with black boxes in both live view and recorded clips. This feature is ideal for locations with displays, keyboard sequences (e.g. passwords), and for anywhere else you don't want sensitive information visible.

You can also choose to retrieve the block-out areas during playback. The retrievable areas will be protected by password.

Note: No motion will be detected in the areas set up with Privacy Mask. To have Privacy Mask and motion detection functions together, you need to use built-in motion detection function of the camera instead (Home > Toolbar > Configure > Video Process > IPCVA > Setting > Motion Detection), as well as enabling motion detection on the camera.

3.7.1 Setting up a Privacy Mask

1. Click **Home**  > **Toolbar**  > **Configure**  > **Video process**. The Setup dialog box appears.
2. From the Video Analysis drop-down list, select **Privacy Mask Setup**, select the desired cameras, and then click **Setting**. This dialog box appears.



Figure 3-32

3. Select a camera from the drop-down list.
4. Select Un-recoverable and/or Recoverable.
 - **Un-recoverable:** The block-out area(s) will not be retrievable in the recorded clips.
 - **Recoverable:** The block-out area(s) will be retrievable with password protection.

5. Drag on the area(s) where you want to block out on the image. You will be prompted to click **Add** to save the setting. The Un-recoverable region is marked in black, while the recoverable region is shown in red.
6. Click **OK** to apply the settings.

Note: Optionally create a schedule for Privacy Mask to be enabled only at the time periods specified. For details, see *Creating Schedules* in Chapter 1.

3.7.2 Granting Access Privileges to Recoverable Areas

By default, only a Supervisor account is granted access to see the block-out areas on recorded videos. To grant access rights to Power Users and Users, follow the steps below.

1. Click the login user button **admin** on the main screen, select **Password Setup > Local Account Edit**. The Local Account Edit dialog box appears.
2. Select one account, click the **Privacy Mask** tab, select **Restore Recoverable Video** and select the camera to grant the privilege.

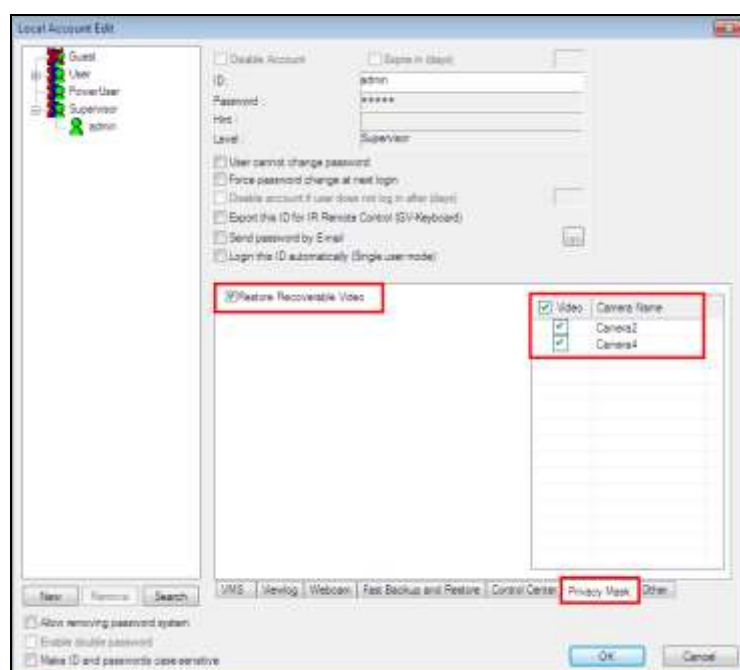


Figure 3-33

Note: If you open the event files (*.avi) directly from local disks, the valid ID and password are also required to access the block-out areas. For details on retrieving the block-out areas in the exported files, see *Merging and Exporting Video* in Chapter 4.

3.8 Panorama View

A panorama view joins multiple camera images together and allows you to monitor a large area in one view. The cameras selected for the panorama view will keep the recording in original format. Up to 4 sets of panorama views can be created. There are two ways to create a panorama view:

- Stitch camera images together by overlapping and matching reference points
- Use the Easy Mode to place camera images next to each other with no overlapping

In Content List of Live view, select **Panorama > Configure** . The Panorama View Setup dialog box appears.

Note: This function is not available for V17.4.6 or later.

3.8.1 The Main Window

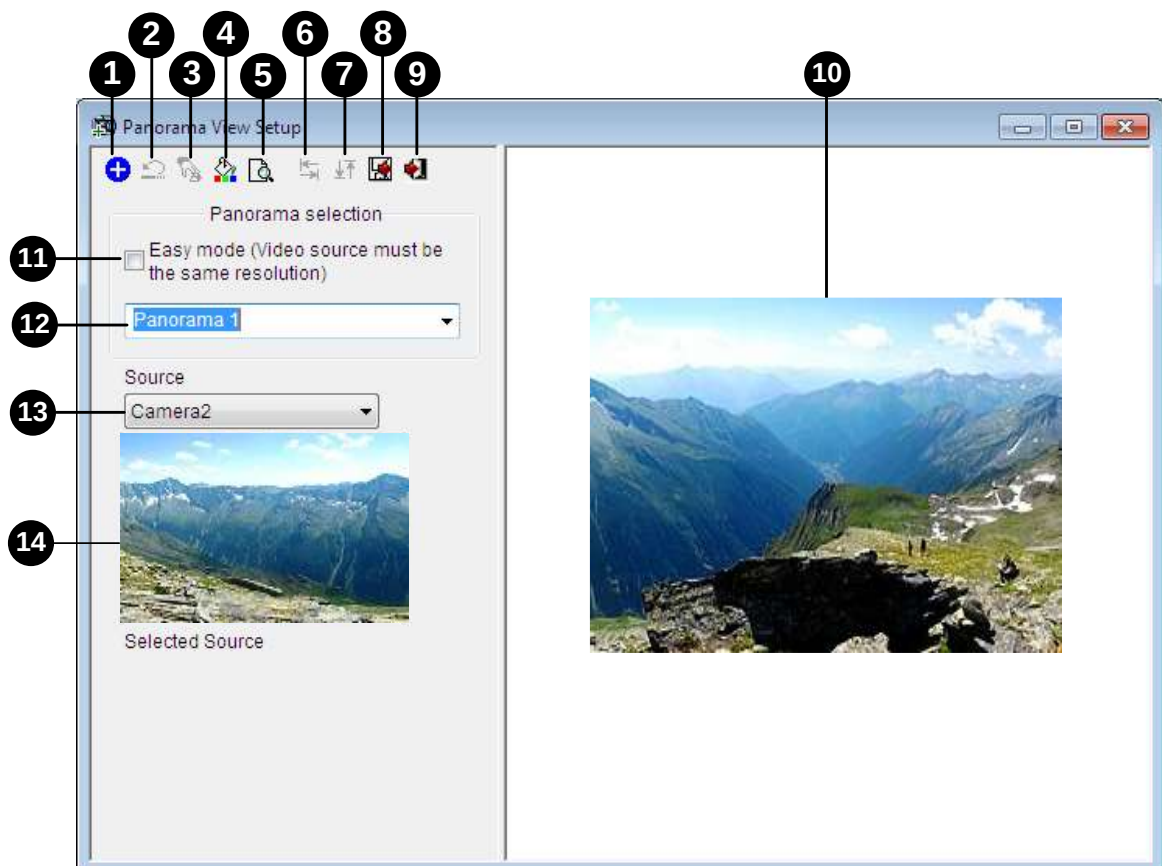


Figure 3-34

The controls on the Panorama View Setup dialog box:

No.	Name	Description
1	Add	Adds an image for automatic splicing.
2	Undo	Cancels the settings.
3	Manual Setting	Manually splices the images together.
4	Blending	Makes the spliced images seamless.
5	Demo	Displays the setup procedure.
6	Left / Right	Place the selected image to the left or right of the previous image.
7	Top / Bottom	Place the selected image on the top or bottom of the previous image.
8	Save Before Exit	Saves the created panorama view and closes the dialog box.
9	Exit	Closes the dialog box.
10	Preview Window	Displays the selected source image or the spliced images.
11	Easy Mode	Places camera views next to each other with no overlaps.
12	Panorama Selection	Selects the panorama set for the images to be spliced together. Clicks again to rename the panorama set.
13	Source	Selects the source image to be spliced.
14	Selected Source	Displays the selected image.

3.8.2 Stitching a Panorama View with Overlapping Areas

To stitch images from different cameras together, follow these steps:

1. Select one panorama set (No. 12, Figure 3-34) from the drop-down list. If you want to rename the selected panorama set, type the name in the field.
2. Select one camera from the Source drop-down list and click **Add**. The image will be the reference image on which other images will be sliced.

3. Select another camera from the Source drop-down list (No. 13, Figure 3-34) and click **Manual Setting** (No.3, Figure 3-34). This dialog box appears.

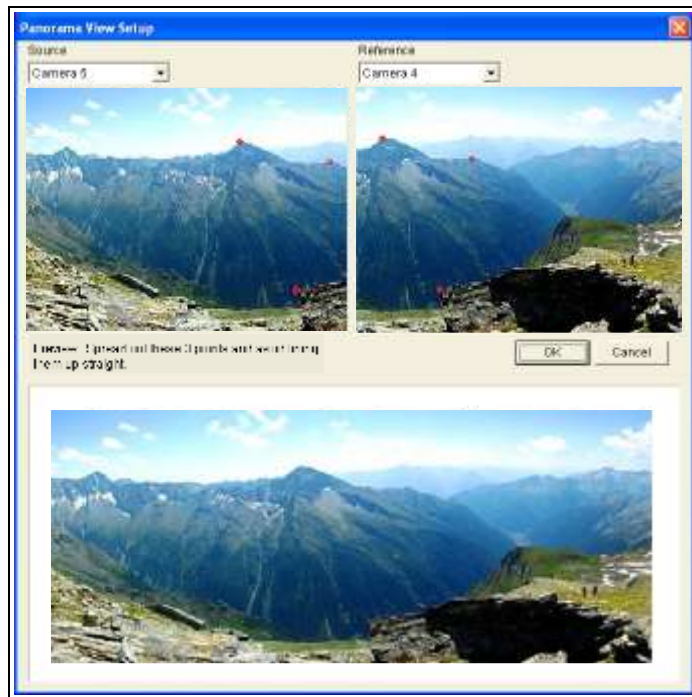


Figure 3-35

4. From the Source drop-down list, select one camera as the Source image to be stitched with the Reference image.
5. To stitch the two images together, click on a significant point in the Reference image and then look for the same point in the Source image. A dialog box of point selection will prompt you to confirm. You need to set up 3 points for stitching.

Note: For the best result, position the points in the overlapping areas on both images. Avoid placing the points in a cluster or lining them up straight.

6. The resulting image is displayed in the Preview window. If satisfied with the result, click **OK** to exit the setup dialog box. If not, re-enter the 3 points for stitching.
7. If you want to stitch a third image or more, click **Manual Setting** and repeat Steps 3 to 5 multiple times.
8. When you finish stitching images, click the **Save Before Exit** button (No.6, Figure 3-34) to save the created panorama view before exiting the Panorama View Setup dialog box.

Note: The resolution of the images to be stitched will be reduced to 320 x 240. A panorama view has a resolution limit of 1920 x 1080. Once the limit is reached, you cannot stitch more images to the created panorama view.

9. This panorama view is saved to the Panorama category in the Content List.

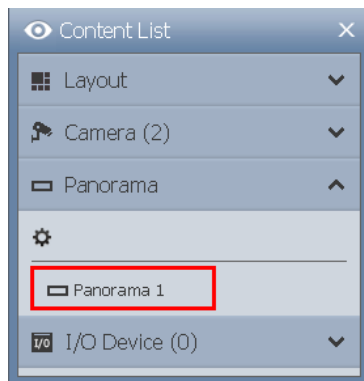


Figure 3-36

10. Drag the created panorama view to the live view grid for display.

3.8.3 Easy Mode with No Overlapping Area

When you have multiple camera views covering areas right next to each other with no overlaps, the Easy Mode allows you to simply place camera views together.

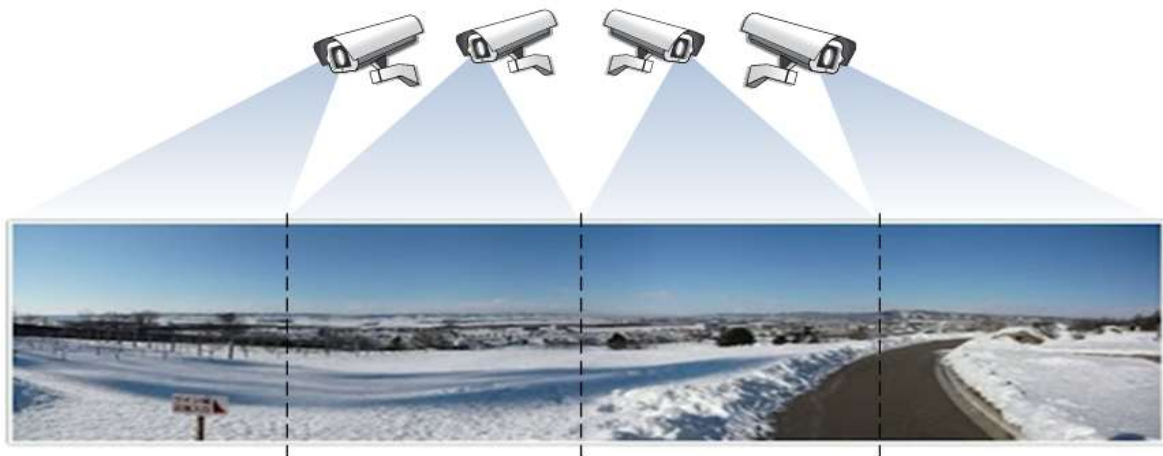


Figure 3-37

1. Select **Easy Mode (Video source must be of the same resolution)** (No. 11, Figure 3-34).

2. Use the **Source** drop-down list (No. 13, Figure 3-34) to select the first camera view to be placed in the panorama and click the **Add**  button. The first camera view is added to the Preview Window.

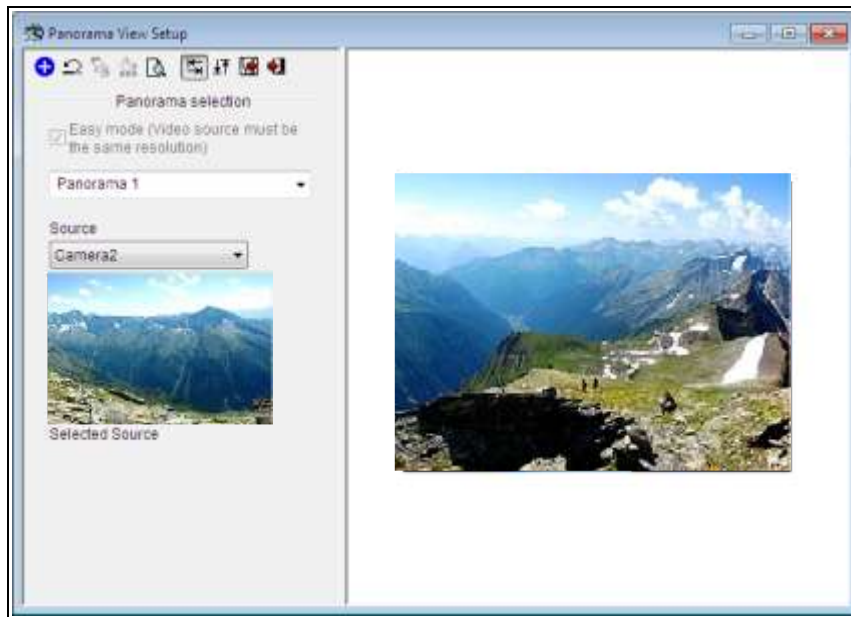


Figure 3-38

3. To add a second camera view, select the camera from the **Source** drop-down list.
4. To place the camera view on the left or right of the first camera view, click the  icon and select to place the second view on the **Left** or **Right** of the first view.

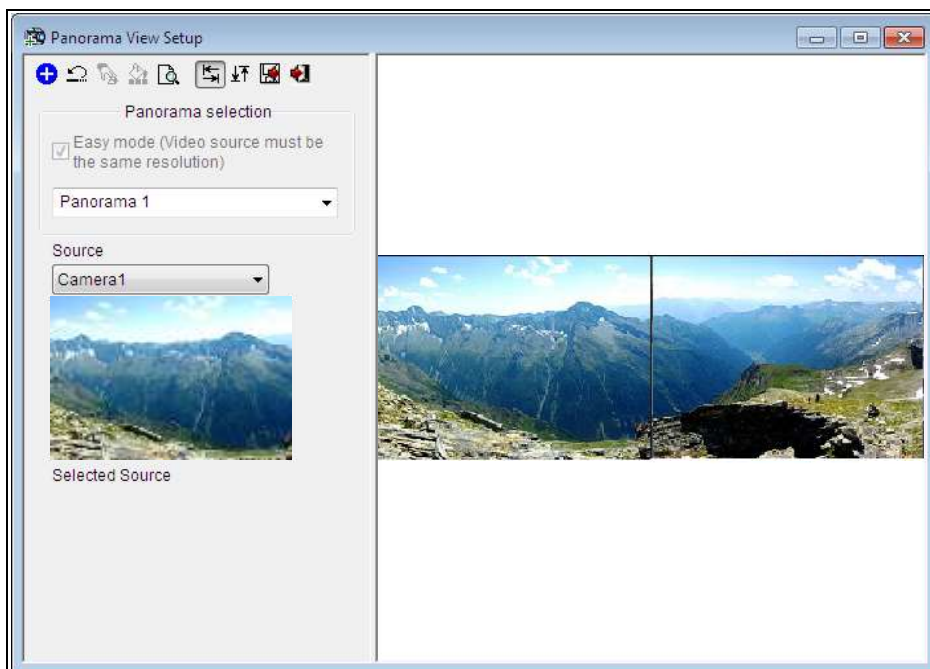


Figure 3-39

5. To place the camera view above or below the first camera view, click the  icon and select to place the second view on the **Top** or **Bottom** of the first view.
6. Repeat the steps for any additional cameras.

Note: You will only be able to add additional cameras next to the last camera view added. For example, when adding a third camera, you can only use the direction buttons   in relation to the second camera. You will not be able to go back and select the first camera.

7. When you finish stitching images, click the **Save Before Exit** button  before exiting.
8. This panorama view is saved to the Panorama category in the Content List (Figure 3-36).
9. Drag the created panorama view to the live view grid for display.

3.8.4 Accessing a Panorama View

Drag the configured panorama from the Content List (Figure 3-36) to the live view. The panorama view is displayed on the main screen.



Figure 3-40

Right-click the panorama view to have these options:

- **Snapshot:** Save the current panorama view as an image file.
- **Zoom:** Put the cursor on the live view and scroll your mouse to zoom the live view.

3.9 Video Defogging

Smoky environments and bad weather, such as rain, snow or fog, all affect image quality and reduce scene visibility. This feature helps to enhance image quality for live viewing.

Note:

1. This function takes high CPU and memory usage. Make sure at least 1 GB of RAM is installed on your system.
 2. **Defogging** is not supported when **Heat Map** is enabled.
-

1. Click **Home**  > **Toolbar**  > **Configure**  > **Video process**. The Setup dialog box appears.
2. From the Video Analysis drop-down list, select **Defog**, select the desired cameras, and click **Setting**. This dialog box appears.

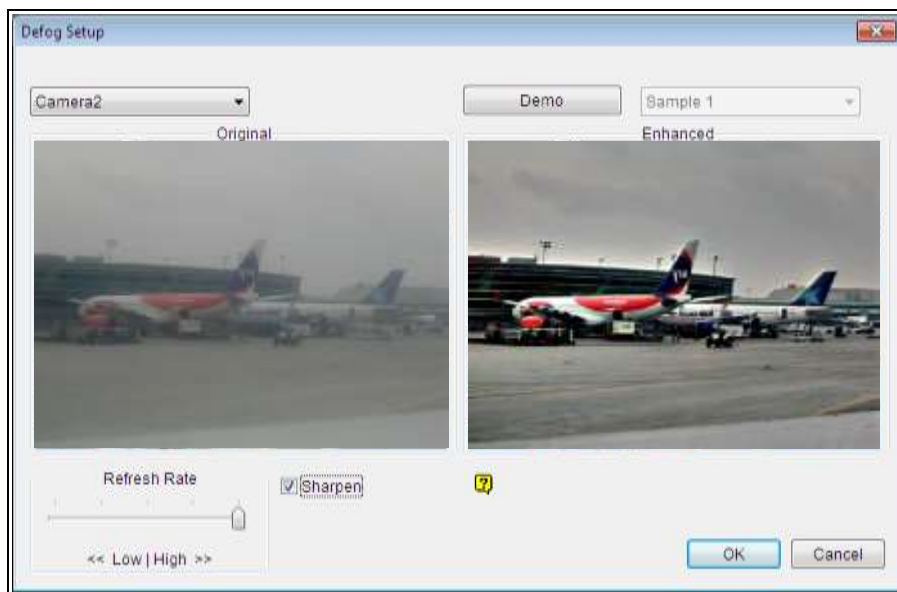


Figure 3-41

3. Use the drop-down list to select a camera.
4. When the image enhancement is enabled, the system load will increase. Adjust the **Refresh rate** by moving the slider bar to optimize system performance.
5. If you want to view the demonstration of this function, click the **Demo** button.

Note:

1. This function only applies to live view and does not affect the recorded video. To apply defogging to recorded videos during playback, on **ViewLog**, right-click the desired image > **Effects** >
-

Defog.

2. For better image quality, it is recommended to change the streaming to single stream before you enable the video analysis effect. This effect does not support On Demand Display for automatic adjustment of live video resolution in single-channel division.
1. Optionally create a schedule for video defogging to be enabled only at the time periods specified. For details, see *Creating Schedules* in Chapter 1.

3.10 Video Stabilization

Images from a shaky camera are jittery or blurry. This feature helps to reduce camera shake, leaving you with clear and steady images.

Note:

1. This function takes high CPU and memory usage. Make sure at least 1 GB of RAM is installed on your system
2. **Stabilization** is not supported when **Heat Map** is enabled.

1. Click **Home**  > **Toolbar**  > **Configure**  > **Video process**. The Setup dialog box appears.
2. From the Video Analysis drop-down list, select **Stabilizer**, select the desired cameras, and click **Setting**. This dialog box appears.



Figure 3-42

3. Use the drop-down list to select one camera. The enhanced view is shown on the right.
4. When the image enhancement is enabled, the system load will increase. Adjust the **Refresh rate** by moving the slider to optimize system performance.

5. If you want to view the demonstration of this function, click the **Demo** button.

Note:

3. This function only applies to live view and does not affect the recorded video. To apply stabilization to recorded videos during playback, on **ViewLog**, right-click the desired image > **Effects** > **Stabilizer**.
 4. For better image quality, it is recommended to change the streaming to single stream before you enable video stabilization. This effect does not support On Demand Display for automatic adjustment of live video resolution in single-channel division.
 5. Optionally create a schedule for stabilization to be enabled only at the time periods specified. For details, see *Creating Schedules* in Chapter 1.
-

3.11 Wide Angle Lens Dewarping

Camera images can sometimes appear curved toward the edges of the view. This feature helps correct distortion towards the edge of the camera view.

1. Click **Home**  > **Toolbar**  > **Configure**  > **Camera Install**. The IP Device Setup dialog box appears.

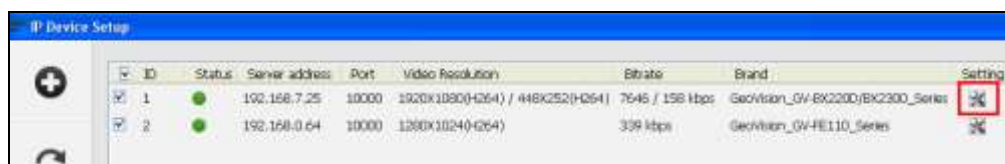


Figure 3-43

- Click **Settings** . This dialog box appears.



Figure 3-44

- Use the **Camera Lens** drop-down list to select **Wide Angle**
- Click the  button. This dialog box appears.



Figure 3-45

- Move the slider to adjust the degree of warping. The adjusted view is shown on the right.
- Click **OK**. The dewarping is immediately applied on the live view.

Note:

- This function only applies to live view and does not affect the recorded video. To apply stabilization to recorded videos during playback, on **ViewLog**, right-click the desire image > **Effects > Wide angle lens dewarping**.
 - If dual-stream IP channels are applied, for better image quality, it is recommended to change the streaming to single stream before you enable wide angle lens dewarping. This effect does not support On Demand Display for automatic adjustment of live video resolution in single-channel division.
-

3.12 Crowd Detection

Crowd detection is used to generate an alert when a crowd of people gathers in a specified area and exceeds the defined time threshold.

Note: Up to 16 cameras can be configured for this application.

1. Click **Home**  > **Toolbar**  > **Configure**  > **Video process**. The Setup dialog box appears.
2. From the Video Analysis drop-down list, select **Crowd Detection**, select the desired cameras, and then click **Setting**. This dialog box appears.

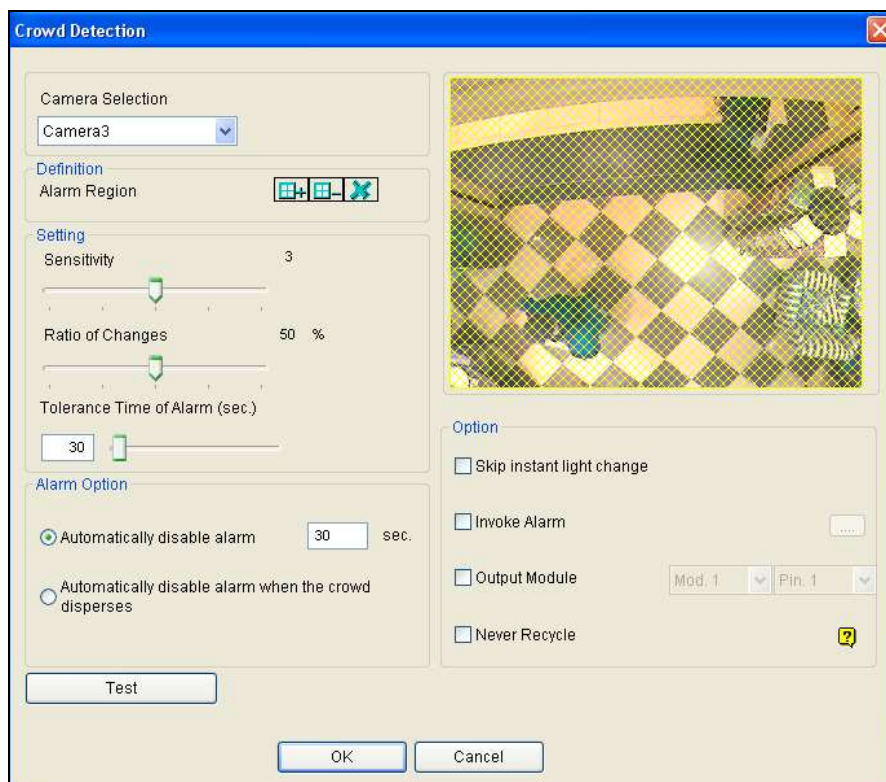


Figure 3-46

3. Select a camera from the Camera Selection drop-down list.
4. By default the whole camera view is set to be the alarm region. Click the  button to clear the default setting. Click the  button to freely draw the alarm region. To cancel the previously drawn area, click the  button.
5. To adjust the Crowd Detection sensitivity, move the **Sensitivity** slider. The higher the sensitivity value, the more sensitive the system is to detecting crowds.

6. To define the minimum ratio of change (in the alarm region) for the alarm to be activated, move the **Ratio of Changes** slider to set a value. The smaller the ratio of changes, the more sensitive the system is to the changes in the camera view.
7. To define the minimum time that a crowd needs to stay for the alarm to be activated. Use the **Tolerance Time of Alarm** slider to specify a value or type a number in the blank.
8. Optionally configure the following settings:
 - **Automatically disable alarm:** Triggered alarms are automatically disabled after the specified time (seconds). The default setting is **30** seconds.
 - **Automatically disable alarm when the crowd disperses:** Triggered alarms are immediately disabled when no crowds are detected.
 - **Skip Instant Light Change:** Ignores sudden illumination changes to minimize false alarms. For example, light switches can cause illumination changes suddenly. With the option selected, the system will ignore significant illumination changes without triggering the alarm and continue monitoring. See the **Note** below for possible risk.
 - **Invoke Alarm:** Enables the computer alarm when an assemblage is detected. Click the [...] button next to the option to assign a .wav sound file.
 - **Output Module:** Activates the output device when a crowd is detected. Select this option and use the drop-down list to assign an installed output module and a pin number.
 - **Never Recycle:** Prevents the system from recycling the event files of crowd detection when the recycle threshold is reached.
9. You can click **Test** to test your settings. When an assemblage is detected in the camera view, a flashing box will appear on its location for warning. If an assemblage cannot be detected, decrease **Ratio of Changes** to increase the system sensitivity for detection.
10. Click **OK** to apply the settings.
11. Start monitoring to run the application. The detected crowd is indicated on the live view with blinking red and green boxes.

When a crowd of people gathers in the alarm region for the specified time, its location will be highlighted on live view, the selected alarm or output will be activated, and the event will be recorded as **Crowd Detection** in the System Log for later retrieval.

Note:

1. For the **Skip Instant Light Change** option:
 - When the option is selected, you may be subject to the risk that the system will not generate an alert whenever the lens of the camera is covered by malice.
 - This option is not recommended for infrared cameras.
2. Optionally create a schedule for crowd detection to be enabled only at the time periods specified. For details, see *Creating Schedules* in Chapter 1.

To manually stop all triggered alerts, click the **Tools** button  on the triggered channel, select **Reset Alert** and select **Crowd Detection**.

- **Reset Alert:** Disables and resets the triggered alert. After the alert is reset if the crowd remains gathering over the specified tolerance time, the system will still detect it as a crowd gathering and keep generating alert.

3.13 Advanced Scene Change Detection

The Advanced Scene Change Detection detects any changes of scene, viewing angle or focus clearness made by malice in both indoor and outdoor environments.

Note: Up to 16 cameras can be configured for this application.

1. Click **Home**  > **Toolbar**  > **Configure**  > **Video process**. The Setup dialog box appears.
2. From the Video Analysis drop-down list, select **Advanced Scene Change Detection**, select the desired cameras, and then click **Setting**. This dialog box appears.

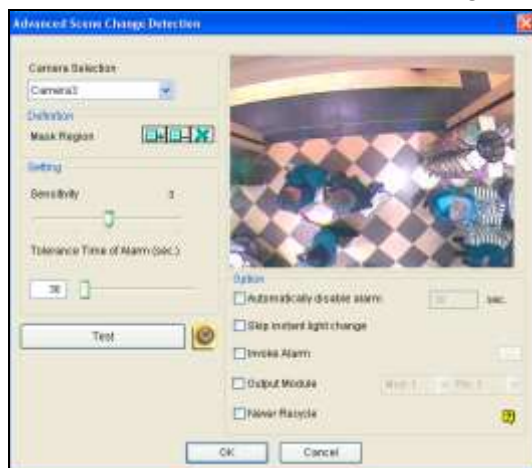


Figure 3-47

3. Select a camera from the Camera Selection drop-down list, and configure these settings:
 - **Mask Region:** If necessary, mask off the area on the camera view where any scene change will be ignored.
 - **Sensitivity:** Adjusts detection sensitivity. The higher the value, the more sensitive the system is for changes in the camera view.
 - **Tolerance Time of Alarm:** Sets the duration of scene change before an alarm condition is activated. Move the slider or type a value (in second) in the blank.
 - **Automatically Disable Alarm:** Stops all types of triggered alerts, including sound alarm, flashing boxes and output module after the specified duration. Disabling the alerts will not disable alert settings and the detection in progress.
 - **Skip Instant Light Change:** Ignores sudden illumination changes to minimize false alarms. For example, light switches can cause illumination changes suddenly. With the option selected, the system will ignore significant illumination changes without triggering the alarm and continue monitoring. See the **Note** below for possible risk.
 - **Invoke Alarm:** Enables the computer alarm when the scene change is detected. Click the [...] button next to the option to assign a .wav sound file.
 - **Output Module:** Activates the output device when the scene change is detected. Select this option and use the drop-down list to assign an installed output module and a pin number.
 - **Never Recycle:** Prevents the system from recycling the event files of scene change when the recycle threshold is reached.
4. You can click **Test** to test your settings. If the scene change cannot be detected, increase **Sensitivity** value to increase system sensitivity to changes in the camera view.
5. Click **OK** to apply the settings.
6. Start monitoring to run the application.

When a scene change is detected in the camera view for the specified time, its location will be highlighted in live video, the selected alarm or output will be activated, and the event will be recorded as **Advanced Scene Change** in the System Log for later retrieval.

Note:

1. For the **Skip Instant Light Change** option:
 - When the option is selected, you may be subject to the risk that the system will not generate an alert whenever the lens of the camera is covered by malice.
 - This option is not recommended for infrared cameras.
-

2. To create schedules for Advanced Scene Change, see *Creating Schedules*, Chapter 1.

To manually stop all triggered alerts, click the **Tools** button  on the triggered channel, select **Reset Alert** and select **Advanced Scene Change Detection**.

- **Reset Alert:** Disables and resets the triggered alert. After the alert is reset, if the scene change remains over the specified tolerance time, the system will still detect it as a scene change and keep generating alert.

3.14 Advanced Unattended Object Detection

The Advanced Unattended Object Detection can generate an alert when any unattended object stays within the camera view. This function can be applied to both the indoor and outdoor environments.

Note: Up to 16 cameras can be configured for this application.

1. Click **Home**  > **Toolbar**  > **Configure**  > **Video process**. The Setup dialog box appears.
2. From the Video Analysis drop-down list, select **Advanced Unattended Object Detection**, select the desired cameras, and click **Setting**. This dialog box appears.

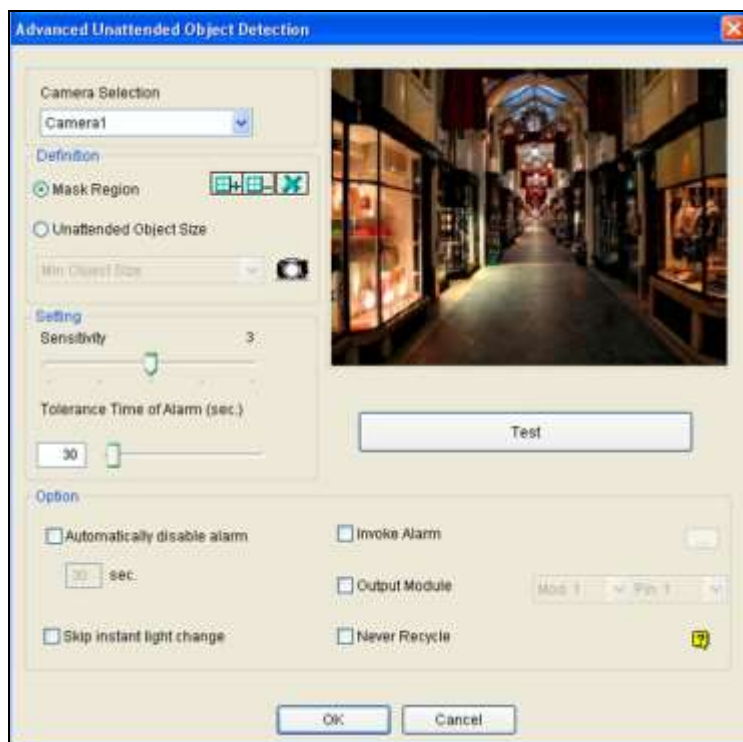


Figure 3-48

3. Select a camera from the Camera Selection drop-down list.
4. If necessary, use the **Mask Region** function to mask off the area on the camera view where motion will be ignored.
5. Select **Unattended Object Size**, and click the Camera icon to pause live images.
6. Outline **Min Object Size** on the camera view, and select **Max Object Size** from the drop-down list and outline the maximum object size on the camera view.
7. To adjust the detection sensitivity, move the **Sensitivity** slider. The higher the value, the more sensitive the system is for changes in the camera view.
8. To adjust the minimum time required for the alarm to be activated, adjust the **Tolerance Time of Alarm** slider or specify a value in the blank.
9. Optionally configure these settings:
 - **Automatically Disable Alarm:** Stops all types of triggered alerts, including computer alarm, flashing boxes and output module after the specified duration. Disabling the alerts will not disable alert settings and the detection in progress.
 - **Skip Instant Light Change:** Ignores sudden illumination changes and avoids false alarms. For example, light switches can cause illumination changes suddenly. With the option selected, the system will ignore significant illumination changes without triggering the alarm and continue monitoring. See the **Note** in *Crowd Detection* earlier in this chapter for possible risk.
 - **Invoke Alarm:** Enables the computer alarm when an unattended object is detected. Click the [...] button next to the option to assign a .wav sound file.
 - **Output Module:** Enables the output device when an unattended object is detected. Select this option and use the drop-down list to assign an installed output module and a pin number.
 - **Never Recycle:** With the option selected, the event files of unattended object detection will not be recycled when the recycle threshold is reached.
10. You can click **Test** to test your settings. When an object is left unattended in the camera view, a flashing box will appear on its location for warning. If the unattended object cannot be detected, increase **Sensitivity** value to increase system sensitivity to changes in the camera view.
11. Click **OK** to apply the settings
12. Start monitoring to run the application. The detected crowd is indicated on the live view with blinking red and green boxes.

When any unattended object is detected in the camera view for the specified time, its location will be highlighted on live view, the selected alarm or output will be activated, and the event will be recorded as **Advanced Unattended Object Detection** in the System Log for later retrieval.

To manually stop all triggered alerts, click the **Tools** button  on the triggered channel, select **Reset Alert** and select **Advanced Unattended Object Detection**.

- **Reset Alert:** Disables and resets the triggered alert. After the alert is reset if the object remains unattended over the specified tolerance time, the system will still detect it as an unattended object and keep generating alert.

Note: Optionally create a schedule for Advanced Unattended Object Detection to be enabled only at the time periods specified. For details, see *Creating Schedules* in Chapter 1.

3.15 Advanced Missing Object Detection

The Advanced Missing Object Detection can generate an alert when any object disappears from the camera view. This function can be applied to both indoor and outdoor environments.

Note: Up to 16 cameras can be configured for this application.

1. Click **Home**  > **Toolbar**  > **Configure**  > **Video process**. The Setup dialog box appears.
2. From the Video Analysis drop-down list, select **Advanced Missing Object Detection**, select the desired cameras, and then click **Setting**. This dialog box appears.

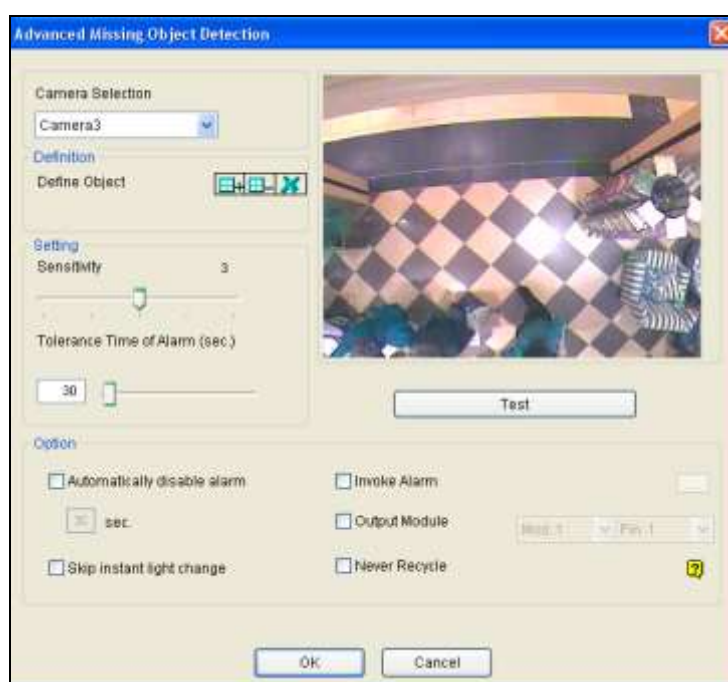


Figure 3-49

3. Select a camera from the Camera Selection drop-down list.
4. Click the  button to outline the regions on the objects you want to detect. To cancel a previously drawn area, click the  button and outline the area. To remove all previously drawn areas, click the  button.
5. To adjust detection sensitivity, move the **Sensitivity** slider. The higher the value, the more sensitive the system is for changes in the camera view.
6. To change the minimum duration required for the alarm to be activated, move the **Tolerance Time of Alarm** slider or specify a value (in seconds) in the blank.

7. In the Options section, configure these settings:
 - **Automatically Disable Alarm:** Stops all types of triggered alerts, including sound alarm, flashing boxes and output module after the specified duration. Disabling the alerts will not disable alert settings and the detection in progress.
 - **Skip Instant Light Change:** Ignores sudden illumination changes to avoid false alarms. For example, light switches can cause illumination changes suddenly. With the option selected, the system will ignore significant illumination changes and continue monitoring. See the **Note** in *Crowd Detection* earlier in this chapter.
 - **Invoke Alarm:** Enables the computer alarm when an object is detected to be missing. Click the [...] button next to the option to assign a .wav sound file.
 - **Output Module:** Enables the output device when an object is detected to be missing. Select this option and use the drop-down list to assign an installed output module and a pin number.
 - **Never Recycle:** With the option selected, the event files of missing object detection will not be recycled when the recycle threshold is reached.
8. You can click **Test** to test your settings. When the defined object is missing, a flashing box will appear on its location for warning. If the missing object cannot be detected, increase **Sensitivity** value to increase system sensitivity to changes in the camera view.
9. Click **OK** to apply the settings.
10. Start monitoring to run the application. The detected crowd is indicated on the live view with blinking red and green boxes.

When any object, which you have outlined the regions for, disappears from the camera view for the specified time, its location will be highlighted in live view, the selected alarm or output will be activated, and the event will be recorded as **Advanced Missing Object Detection** in the System Log for later retrieval.

To manually stop all triggered alerts, click the **Tools** button  on the triggered channel, select **Reset Alert** and select **Advanced Missing Object Detection**.

- **Reset Alert:** Disables and resets the triggered alert. After the alert is reset if the object remains missing over the specified tolerance time, the system will still detect it as a missing object and keep generating alert.

Note: Optionally create a schedule for Advanced Missing Object Detection to be enabled only at the time periods specified. For details, see *Creating Schedules* in Chapter 1.

3.16 Text Overlay

You can align camera name, time stamp and triggered input name to different positions for each channel.

1. Click **Home**  > **Toolbar**  > **Configure**  > **Video process**. The Setup dialog box appears.
2. From the Video Analysis drop-down list, select **Text Overlay Setting**, select the desired cameras, and click **Setting**. This dialog box appears.

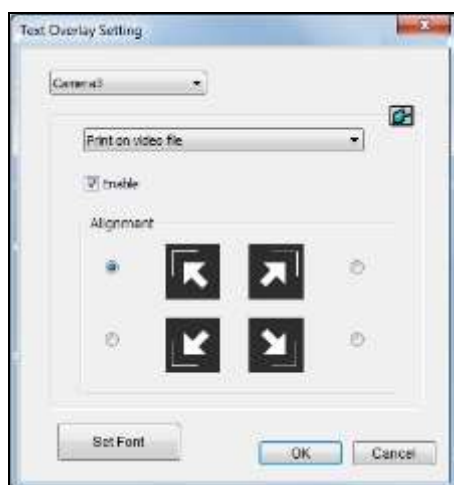


Figure 3-50

3. Select a camera from the drop-down list.
4. In the Options section, configure these settings:
 - **Print on video file:** Displays camera ID, location name, date and time on recorded videos.
 - **Print on screen (Only for IO alarm):** Displays the name of triggered input device on the camera screen. For this function to work, it is required to map a camera to an input device, see *Other I/O Application Functions* in Chapter 6.
 - **Embed Counting Results into Recorded Video:** Displays counter results to recorded videos. For details on establishing a counter alarm, see *Object Counting* later in this chapter.
 - **Print ASManager Text on Screen:** Displays GV-ASManager data such as the license plate number on the live view and recorded videos. For this function work, it is required to enable the text overlay setting in GV-ASManager. See 5.6 *Using Text Overlay*, Chapter 5, in *GV-ASManager User's Manual*.

Note: Text overlay is not supported when standard format codec is enabled. To change this setting, select **Home**  > **Toolbar**  > **Configure**  > **Camera Install** > **Settings**  of the camera > **General Setting** and locate the Recording codec format field.

- **Alignment:** Select how you want the camera information to be aligned on a camera screen.
- **Set Font:** Click to configure the font, font size, font style and related settings.

3.17 Fisheye View

A fisheye camera allows you to cover all angles of a location with just one camera. The circular fisheye view can be dewarped into the following four view modes, and you can drag PTZ views to different angles.

Note: To use the fisheye dewarping function, the graphic card supporting DirectX 10.1 or above is required.



Quad view: 4 PTZ views



360 degree: 2 PTZ view & 1 360° view



Dual 180 degree: 2 180° views



Single view: 1 PTZ view

Figure 3-51

3.17.1 Setting up Fisheye View

1. To display the dewarped view, from the Content List, drag the fisheye camera (circular source image) or one of the dewarped views to the live view grid.
2. To change the dewarped settings, right-click the fisheye camera from the Content List > **Fisheye Settings**. The Fisheye Setting window appears.

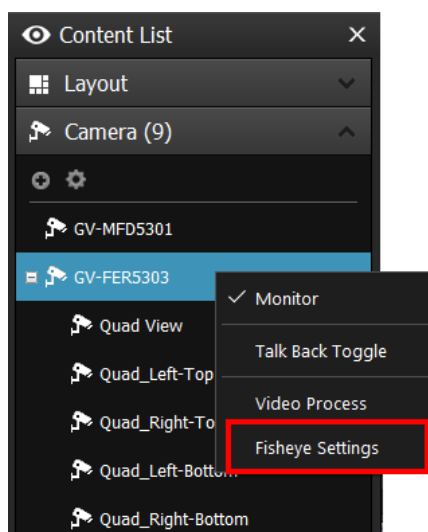


Figure 3-52

3. Right-click on the Fisheye Settings window > **Fisheye Option** to access the following settings:
 - **Camera Mode:** You can choose among four view modes.
 - ⊙ **Quad view:** Composed of four PTZ views.
 - ⊙ **360 degree:** Composed of two PTZ views and one 360° panoramic view.
 - ⊙ **Dual 180 degree:** Composed of two 180° views.
 - ⊙ **Single view:** Composed of one PTZ view. This view mode supports the advanced Picture-in-Picture (PIP) function, which allows you to have a close-up dewarped view without missing the entire view of surveillance site.
 - **Camera Position:** Select **Ceiling**, **Wall** or **Ground** according to installation scenarios.
 - **Adjust Auto Pan Speed At Top-Left Channel:** Select low, medium, or high speed to enable Auto Pan for the PTZ view at the rotation speed of your choice. This option is only available in **Quad view**, **360 degree** and **Single view**.
 - **Zoom:** Select **Zoom In** or **Zoom Out** and then click on the image.
 - **Show Source Video At Top-Right Channel:** Display the circular source image in the top-right quadrant when **Quad view** is selected.

- **360 Object Tracking:** Only available in **360 degree** view. Track and highlight detected motion in live view. For details, see *Object Tracking* later in this chapter.
 - ⊙ **Disable automatic zoom adjustment during 360 Object Tracking:** Enabled by default. When disabled, the zoom ratio will be kept at constant as configured.
- **Disable PIP:** Disables the PIP function in Single View mode.
- **Guard Tour Setting:** Only available in **Single View** mode. Enable to set up a virtual PTZ tour using the defined preset points on live view. For details, see *Virtual PTZ Tour* later in this chapter.
- **Settings:**



Figure 3-53

- ⊙ **Wide View:** Increases the height of the 180 degree view when camera position is set to wall mount.



Wide View Disabled



Wide View Enabled

Figure 3-54

- ⊙ **Frame Rate Control:** Limits the frame rate of the fisheye live view to the number specified here. Select **Apply All** to apply the frame rate control to other fisheye views.
4. Drag the dewarped fisheye views from the Content List to live view grids for display. You can drag and drop PTZ view or 180 degree view to adjust the viewing angle.

3.17.2 Setting up a Third-Party Fisheye Camera

You can also enable dewarping for 3rd party fisheye cameras and access fisheye related functions.

1. Make sure you have connected the fisheye camera to GV-VMS. The camera should appear in the Content List.
2. Select the camera lens type to dewarp the image.
 - A. Click **Home**  > **Toolbar**  > **Configure**  > **Camera Install**. The IP Device Setup dialog box appears. Then click the Settings button  of the desired camera.
 - B. For the camera installed with an ImmerVision IMV1 Panorama Lens, select **IMV1 Panomorph** using the Camera Lens drop-down list.
 - C. For other third-party fisheye cameras, select **Fisheye** using the Camera Lens drop-down list.

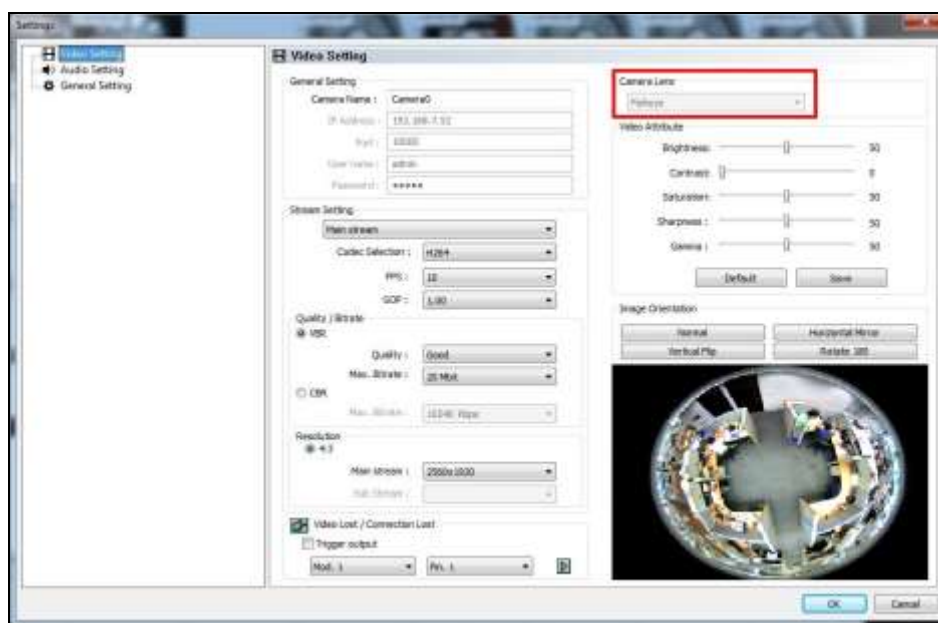


Figure 3-55

3. From the Content List, drag the fisheye camera (circular source image) or one of the dewarped fisheye images (e.g. Quad View) to the live view grid.
4. To access fisheye related functions, follow Step 2 to 4, *Setting up Fisheye View* earlier in this chapter.

5. To adjust the image alignment for optimal results, follow Steps 2 and 3, *Setting up a Fisheye View* earlier in this chapter and select **Image Alignment**. In the dialog box, align the dotted circle with the outer edge of the camera image, and then align it with the inner edge of the image frame.



Figure 3-56

Note:

1. For GV-Fisheye Cameras, the image alignment function is only available on its Web interface.
 2. Regardless of the view mode selected here, the hemispherical fisheye source image will be recorded. When playing back fisheye events in ViewLog, GV-VMS can convert the source image to different view modes according to your preference. To play back the events in fisheye view mode, select **ViewLog**  > **Toolbar**  > **Content List**  and select a dewarped view of the camera.
-

3.17.3 Object Tracking

You can set up object tracking in fisheye view to track a moving object. The function is only available when the view mode is set to **360 degree**. When motion is detected in the fisheye view, the top-right channel will start tracking the moving object, which is highlighted in the 360-degree view at the bottom.



Figure 3-57

1. Set the fisheye view to **360 degree** by following Step 1 - 3 in 3.17.1 *Setting up Fisheye View* and selecting **Camera Mode > 360 degree**.
2. On the Fisheye Settings window, right-click the fisheye view > **Fisheye Option > 360 Object Tracking > Advanced Settings**. This dialog box appears.

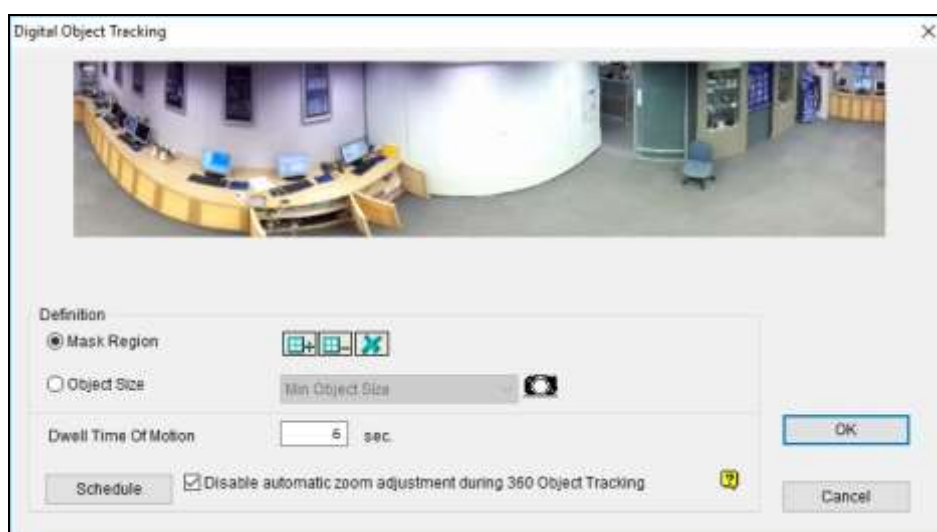


Figure 3-58

- **Mask Region:** Use the mouse to outline a mask region where motion is ignored.
 - **Object Size:** Click the  button to pause the live view and then use the mouse to outline the maximum and minimum size of the target object.
 - **Dwell Time of Motion:** When the target object stops moving, the highlighted region and the top-right channel will remain fixed for the number of seconds specified. Any new motion detected during the dwell time is ignored to prevent the camera view from frequently jumping from one region to another.
 - **Schedule:** Click **Schedule** to set up the times to start object tracking.
3. To enable object tracking, on the Fisheye Settings window, right-click the fisheye view > **Fisheye** Option > **360 Object Tracking** > **Tracking**.

3.17.4 Virtual PTZ Tour

You can set up a virtual PTZ tour to monitor important spots of your surveillance site. Before you start, make sure your fisheye camera has been set to **Single View** mode.

1. Set the fisheye view to **Single view** by following Step 1 - 3 in 3.17.1 *Setting up Fisheye View* and selecting **Camera Mode > Single view**.
2. Right-click the fisheye camera on the Content List > **Fisheye Settings**. The Fisheye Settings window appears.
3. Right-click the fisheye view on the window > **Fisheye Option > Guard Tour Setting**. The Guard Tour Setting dialog box appears along with the Fisheye Settings window.
4. On the Fisheye Settings window, move the live view to a desired starting point for the PTZ tour by clicking on the inset window at the bottom right.

5. Enable the settings, type a name for the current view and click **Add**. This view point (preset point) appears under Preset ID.

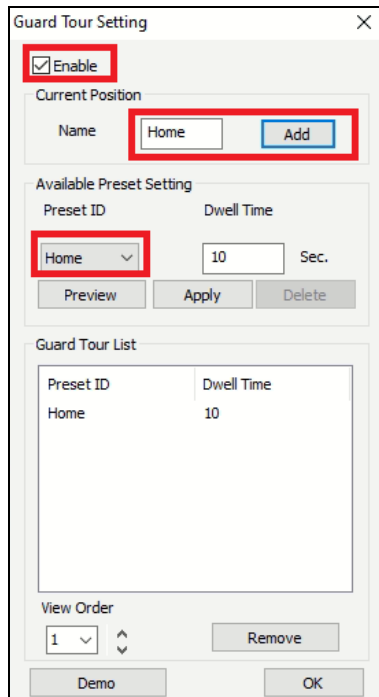


Figure 3-59

6. Specify the duration for the live view to stay on this preset point (dwell time). The default is **10** seconds.
7. Optionally click **Preview** to see a preview of the preset point.
8. Click **Apply**. This preset point is added to Guard Tour Setup.
9. To add more preset points, repeat the steps above.
10. To change the order of the preset points, use the **View Order** drop-down list to move a preset point up or down the list.
11. Optionally, click **Demo** to watch a preview of the PTZ tour.
12. Select **OK** to start the PTZ tour. To stop the PTZ tour, disable the function on the Guard Tour Setting.

3.18 Video Analysis by Camera

You can choose to process video analysis on the camera instead of on the GV-VMS system.

Currently only GV-BX2600 supports full video analysis functions running on the camera, including Motion Detection, Intruder, People Count, Missing Object, Unattended Object, Loitering, and Tampering Alarm functions. For all other camera models, only Motion Detection and GV-3D People Counter are supported to process on the camera.

Note:

1. You can only choose either the camera or GV-VMS software to process video analysis.
 2. The video analysis by camera function does not support GV AI-capable IP cameras (48xx, 58xx and 88xx series).
-

To access the feature, follow the steps:

1. Click **Home**  > **Toolbar**  > **Configure**  > **Video Process**.
2. In the Setup dialog box, select **IPCVA**, select the camera(s), and select **Setting**.
3. Select which video analysis to process on the camera.

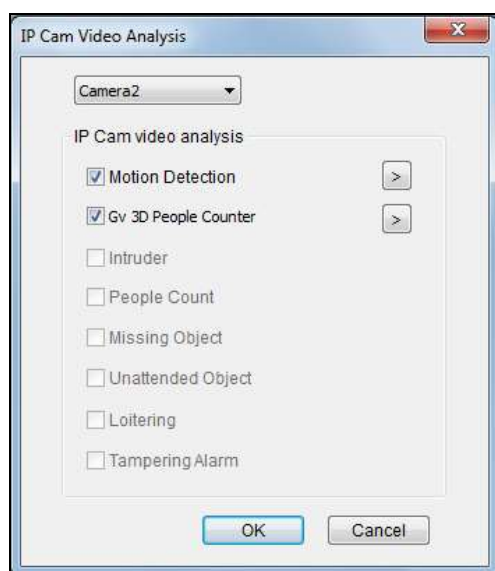


Figure 3-60

4. For motion detection option, click on the **arrow**  button to activate the following functions:
 - A. Adjust the level of sensitivity by moving the slider to the desired value, with 1 being the least sensitive and 10 being the most sensitive.

- B. Select the area of motion detection by drawing an area on the live view. You may draw 8 areas in maximum.

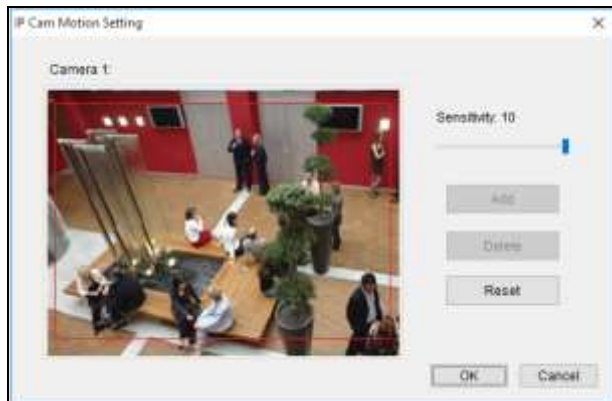


Figure 3-61

All video analysis events detected on the camera will be recorded in the System Log. For example, if you set up the People Count function on GV-BX2600, the following analysis results appear:

Monitor Table					
Monitor	System	Login	Counter	Merge	Backup
Start Time	End Time	Device	In	Out	
6/15/2015 10:50:12	6/15/2015 15:40:01	Camera1	155	271	
6/15/2015 20:37:22	6/15/2015 20:38:34	Camera1	23	12	
6/16/2015 16:10:34	6/16/2015 16:16:03	Camera1	67	0	

Figure 3-62

5. For the function of GV-3D People Counter, select  right beside GV-3D People Counter.
- A. Type the IP address, ID and Password of GV-3D People Counter. Select **Test** to see if GV-3D People Counter is properly connected. Select **OK** to establish connection.



Figure 3-63

- B. On the live view of the camera, select **Tools**  and **Monitor**. You will see the number of people going pass the detection area of the camera.



Figure 3-64

3.19 Heat Map

With the Heat Map feature, you can see the level of motion intensity in a region, which is represented by different shades of colors. The visualized traffic data will inform you where people go through and stay often. This feature is available in both live view and video playback.

Note: **Stabilization** and **Defogging** are not supported when **Heat Map** is enabled.

3.19.1 Enabling Heat Map

1. Click **Home**  > **Toolbar**  > **Configure**  > **Video process**. The Setup dialog box appears.
2. From the Video Analysis drop-down list, select **Heat Map**, select the desired cameras, and click **Setting**. The Heat Map Settings dialog box appears.
3. Select a camera from the Camera drop-down list.

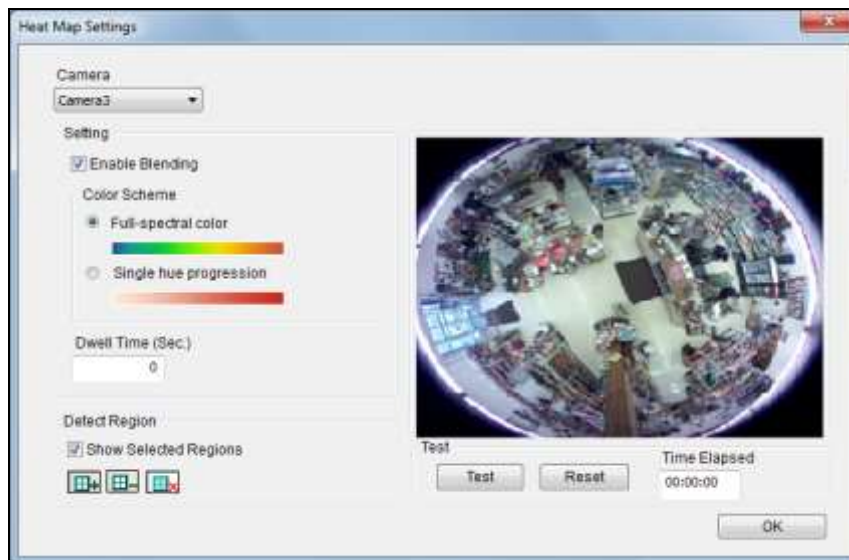


Figure 3-65

4. If you want to enable heat map on the live view, select **Enable Blending**.

Note: If **Enable Blending** is unselected, heat map will not be displayed on live view, but heat map analysis can still be accessed through video playback.

5. To specify a certain area for Heat Map analysis, click the plus sign , and draw an area on the live view. To exclude a selected area from analysis, click the minus sign , draw and crop the area. To clear the whole selected area, click the X sign .

Note: To draw a shape, click on the live view and draw a line, move the cursor to a different place and click again. To complete the drawing, connect the end of two lines.

6. You can select from two color modes:

- **Full-spectral color:** The redder the hue, the higher the motion intensity; the bluer the hue, the less motion intensity.
- **Single hue progression:** The darker the hue, the higher the motion intensity; the lighter the hue, the less motion intensity.



Figure 3-66: Full-spectral color mode



Figure 3-67: Single hue progression mode

7. Type the number of seconds under **Dwell Sec** to determine the number of seconds a motion remains at an area before the Heat Map analysis starts.
8. To preview the effects, click the **Test** button. To clear all the preview results, click the **Reset** button. **Time Elapsed** shows how much time has passed since your testing has started.
9. Click **OK** and start monitoring.
10. To clear the heat map results on the live view, click the **Tools** button  on the channel window with heat map analysis, click **Reset Alert**, and click **Heat Map**.



Figure 3-68

3.19.2 Accessing the Heat Map in Recordings

You can freely define a period of time and apply the heat map analysis in recordings.

1. On the ViewLog player, right-click the desired image and select **Heat Map**. This dialogue box appears.

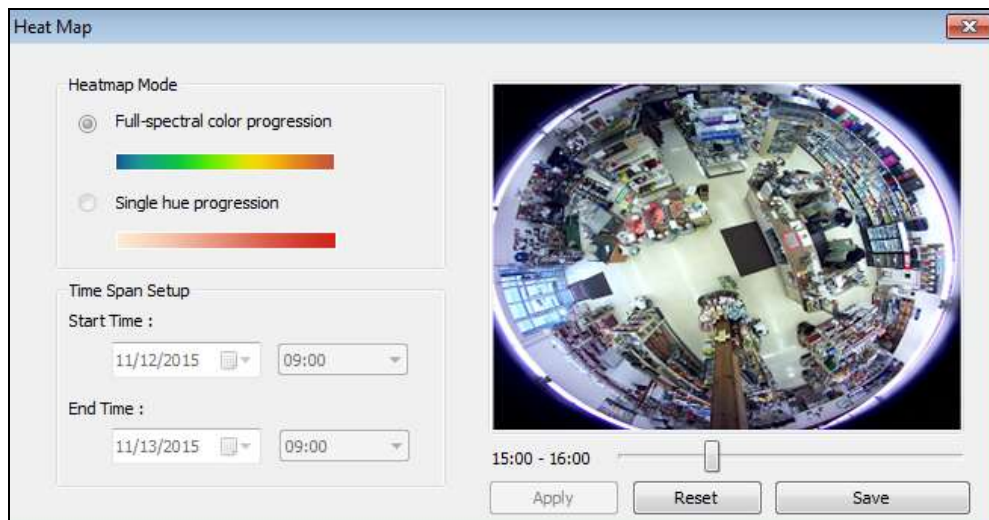


Figure 3-69

2. Select the color mode for the Heat Map analysis under **Color Scheme**.
3. Select the Start Time and End Time under **Time Span Setup**. You may move the slider under the image to see the heat map analysis of each hour.
4. Click **Apply** to see the preview. To clear all the preview results, click the **Reset** button.
5. Click **Save** to save an image of the Heat Map analysis.

Note: The time interval for the Time Span Setup must be less than 24 hours.

3.20 Event Alert through E-mail Notifications

You can choose to be notified of specific types of alert events through e-mail notifications. To fully activate the function, see *1.6.4 Setting up E-mail Notifications* to set up the e-mail server and be sure that the settings of each type of events are configured in advance.

1. Click **Home**  > **Toolbar**  > **Configure**  > **Video Process**.
2. Click the arrow button  next to Send Event Alerts. This dialog box appears.

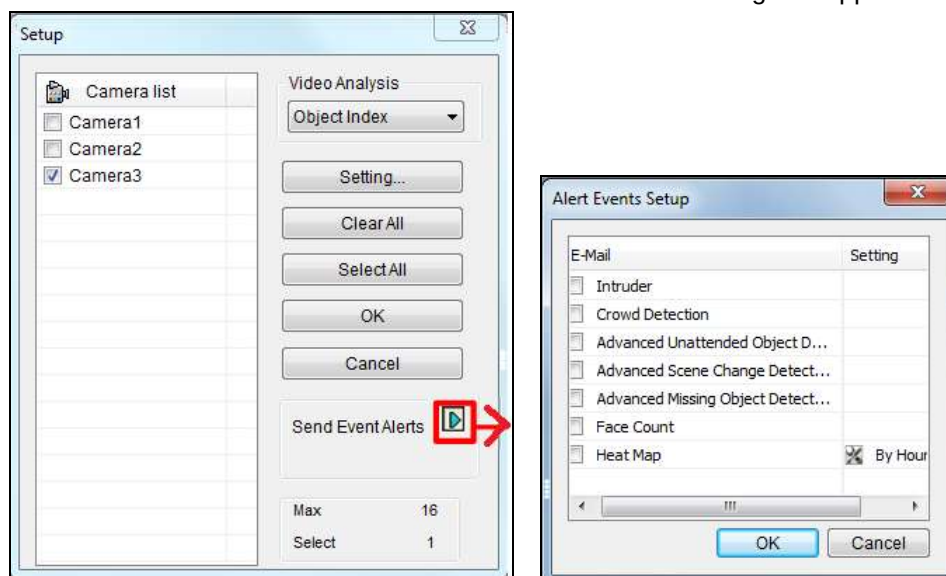


Figure 3-70

3. Select types of events for e-mail notifications.
4. Click **OK** to apply the settings.

3.21 PTZ Object Tracking

By combining a PTZ and a stationary camera, you can automatically track and zoom on a single moving object on live view. You can also use only one PTZ camera for object tracking.

3.21.1 Dual-Camera Tracking

To automatically track an object, you need one PTZ camera set for tracking and one stationary camera set for a fixed view. Install the PTZ camera and the stationary camera in close proximity of each other so the focus and the camera view of both resemble each other.

Note: The Dual-Camera Tracking function is only supported by GV-PTZ010D, GV-SD220 Series, GV-SD2723-IR / SD2733-IR / SD2300 / SD2301 / SD2411 / SD4825-IR / SD4834-IR, GV-QSD5730-Indoor / Outdoor / QSD5731-IR.

1. Click **Home**  > **Toolbar**  > **Configure**  > **Object Tracking Setup**. The Object Tracking Config dialog box appears.
2. Select a **PTZ Camera** from the left drop-down list and a **Fixed Camera** from the right drop-down list.
3. Select **Enable Tracking** and start the settings.

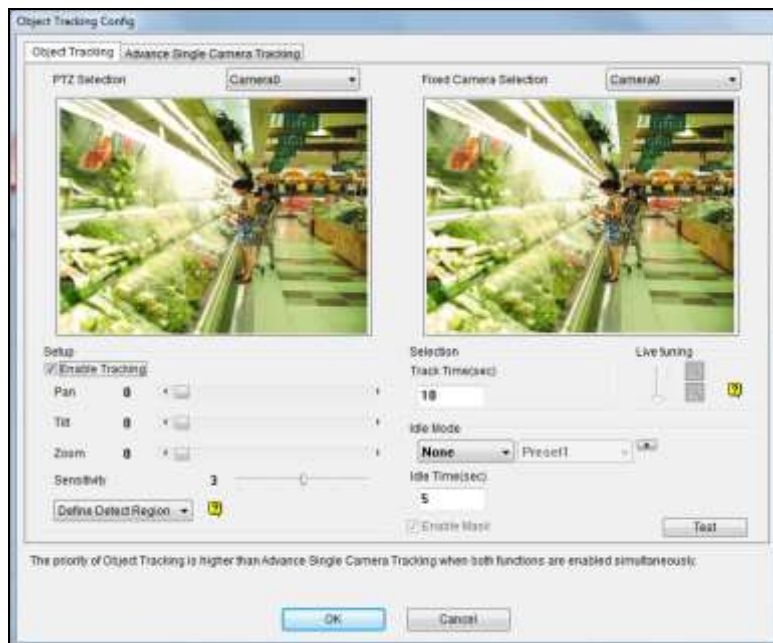


Figure 3-71

4. Use the **Pan**, **Tilt** and **Zoom** sliders to adjust the current PTZ camera view.
5. Specify **Tracking Duration** in seconds for every tracking movement.
6. Specify **Idle Mode** and **Idle Time**. When the PTZ camera remains stationary for a specified time, the camera can automatically move to a Home position, a Preset Point, or start an Auto setting.
7. Select **Define Detection Region** from the drop-down menu. Outline an area on the right (Fixed Camera) image. You are prompted to confirm **Detect Region**.

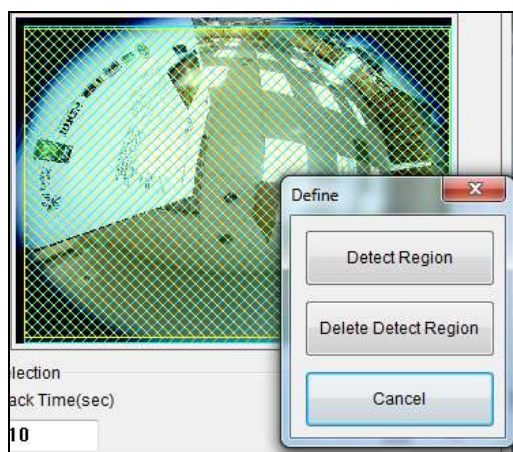


Figure 3-72

8. Select **Define Object Size** from the drop-down menu. Outline the max and min object sizes for tracking targets separately on the right (Fixed Camera) image. Every time when finishing the outlining, you will be prompted to confirm **Maximum Object Size** or **Minimum Object Size**.

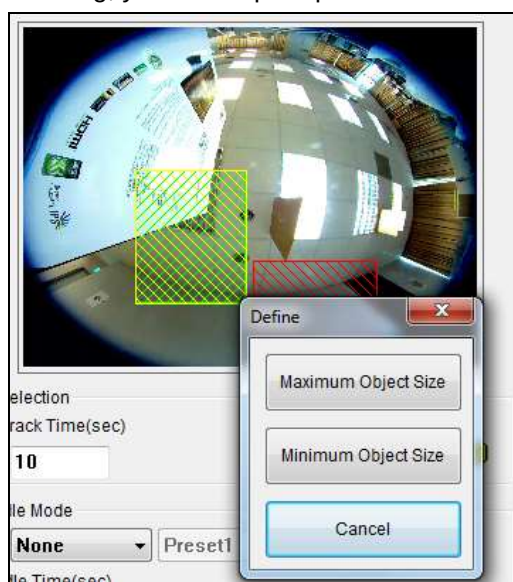


Figure 3-73

9. Click **Test** and move an object through the camera view to see if its movement is tracked or not. There are two major settings you have to observe in the test. 1) Tracking: Observe if the target shown in the defined detection region is being tracked with a highlighted mask, and magnified automatically in the left (PTZ) image. If not, increase the sensitivity degree. 2) Zooming: Observe if the target is magnified in the left (PTZ) image clearly. If not, use the **Live Tuning** buttons to adjust the level of zooming.
10. Click **OK** to apply the settings.
11. To start object tracking, click **Toolbar** , select **Tools**  and select **Object Tracking Start**.

Tip: You can interrupt the PTZ tracking and take over the camera control by using PTZ Control Panel, PC's keyboard and GV accessories such as GV-Keybord, GV-IR Remote Control, and GV-Joystick. When the controlling device or panel is inactive for over 5 seconds, the PTZ camera will go back for tracking.

Note: When multiple objects are moving at the same time, the camera will track the object with the largest area.

3.21.2 Single Camera Tracking

The Advanced Single Camera Tracking can track a moving object using only one PTZ camera. When an object moves within the view of camera, the PTZ camera will follow its movement. When the object is out of view, the PTZ camera can be set to return to a designated position.

Note: The Single Camera Tracking function is only supported by GV-PTZ010D, GV-SD200, GV-SD220 Series, GV-SD2722-IR / SD2723-IR / SD2733-IR / SD2300 / SD2301 / SD2411.

1. Click Home  > Toolbar  > Configure  > Object Tracking Setup > Advanced Single Camera Tracking tab. This dialog box appears.

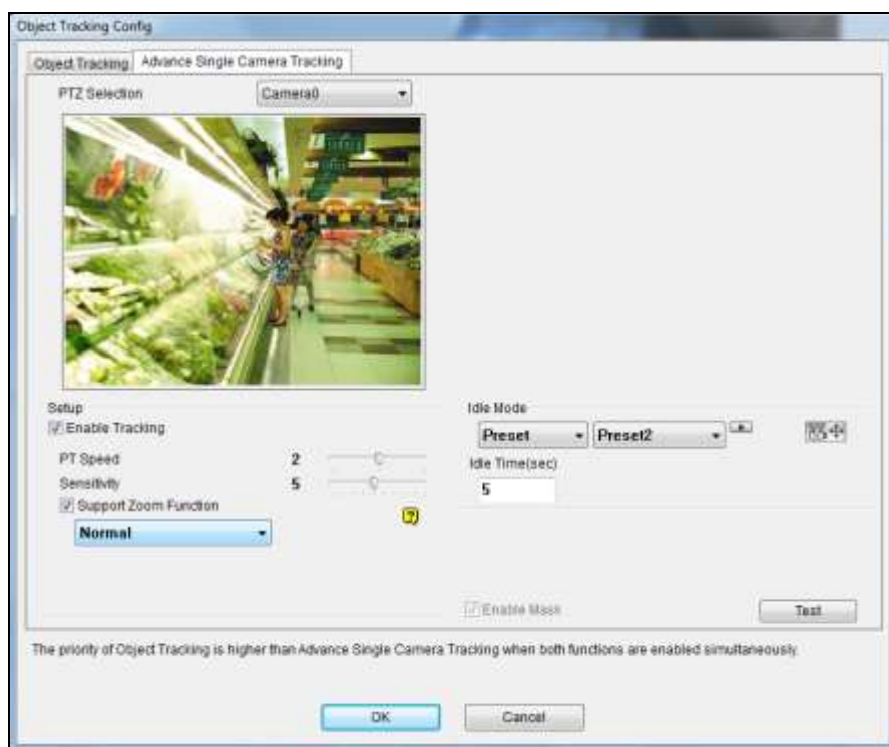


Figure 3-74

2. Select the camera from the **PTZ Selection** drop-down list.
3. Select **Enable Tracking** to start the following settings.
4. Select **Support Zoom Function** to be able to zoom in and out. Select **Normal** and the camera will zoom in once on the moving object. Select **Deep Zooming** and the camera will zoom in three times on the moving object.
5. Click the  button to adjust the direction and zoom level of the camera.

6. To set the camera to return to its home position or a preset position when no motion is detected for a certain time period, specify **Idle Mode** and **Idle Time** in seconds. Click the  button to preview the designated position. Note that your camera will need to support home position and preset position.
7. To outline an area where motion will be ignored, draw an area on the camera view and select **Set Mask** on the dialog box that pops up. To remove the mask, draw an area bigger than the mask, and click **Remove Mask**.
8. Click **Test** and move an object through the camera view to see if its movement is tracked or not. If not, move the **Sensitivity** slider to increase the sensitivity of motion detection. If the tracking speed is not fast enough, move the **PTZ Speed** slider to adjust the speed of PTZ movement. If you have set up a mask, you can select **Enable Mask** to display the masked area during the test.
9. Click **OK** to apply the settings.
10. To start object tracking, click **Toolbar**  > **Tools**  > **Object Tracking Start**.

Tip: You can interrupt the PTZ camera tracking and take over the camera control by using PTZ Control Panel, PC's keyboard and GV accessories such as GV-Keyboards, GV-IR Remote Control, and GV-Joystick. When the controlling device or panel is inactive for over 5 seconds, the PTZ camera will go back for tracking.

Note: When multiple objects are moving at the same time, the camera will track the object with the largest area.

3.22 Panoramic PTZ Object Tracking

With a single GV-Panoramic PTZ Camera (GV-PPTZ) or a pair of GV-Speed Dome Camera and GV-Fisheye Camera, you can track moving objects on live view. The fisheye camera allows you to monitor all angles of a location, while the speed dome can instantly point toward an area with just one click on the fisheye live view. In addition to that, you can also set up object tracking on fisheye live view to track a moving object automatically. When motion is detected in the fisheye, the speed dome will start tracking the moving object in the 360 degree view, and the moving object will be highlighted.

To use a pair of GV-Speed Dome Camera and GV-Fisheye Camera for the object tracking, it is required to pair up the speed dome and fisheye camera first. Right-click on either camera on the IP Device Setup page, click **Select PPTZ Camera**, and then click the camera you are pairing to. The speed dome will be grouped under the fisheye camera in the Content List.

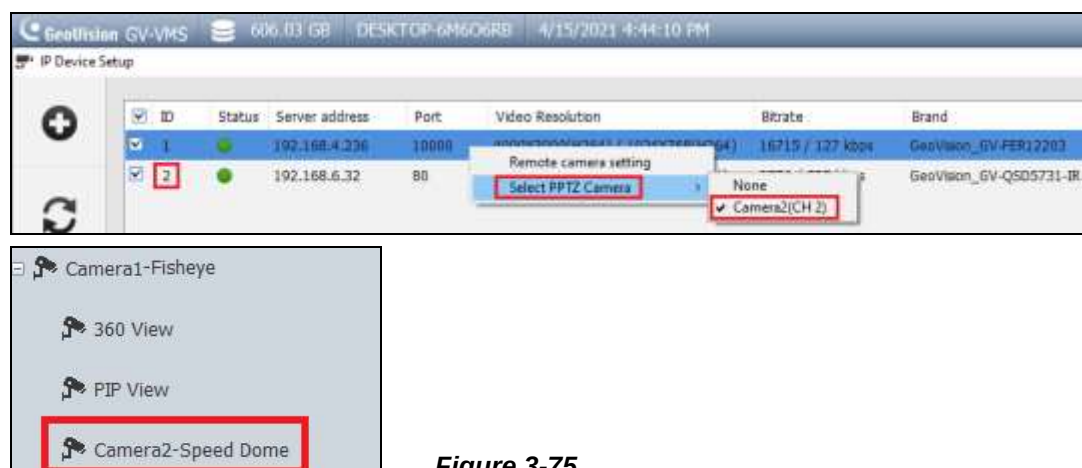


Figure 3-75

Note:

1. To use a pair of GV-Speed Dome Camera and GV-Fisheye Camera for object tracking, install the cameras in proximity of each other so the focus and the camera view of both resemble each other.
2. The function is supported by GeoVision speed domes and fisheye cameras only. Refer to our website for supported models: [speed domes](#) and [fisheye cameras](#).

3.22.1 Accessing the Live View

To access the live view, drag both the fisheye camera and speed dome channels in the Content List to the live view grid. Click on the fisheye live view, and the speed dome will turn toward the selected location.

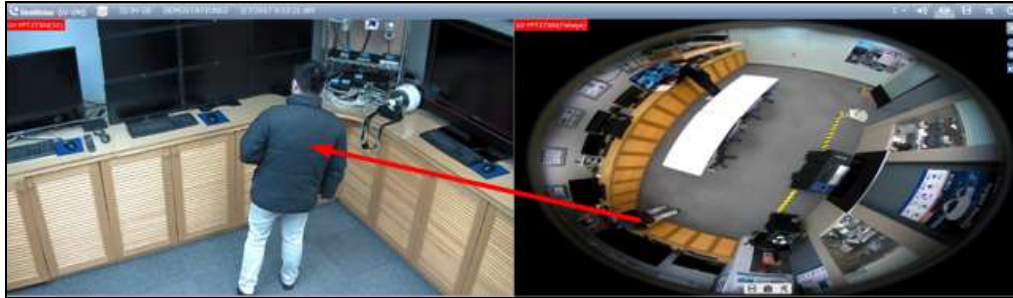


Figure 3-76

3.22.2 Automatic Object Tracking

The PPTZ Automatic Object Tracking function only works in a 3-division live view. Follow the steps to create the 3-division live view and to enable the PPTZ Object Tracking in the 360 View.



Figure 3-77

1. Click **Home**, select **Toolbar**, and select **Content List**.
2. Under **Layout**, click **Add** , and select **Add Layout**.

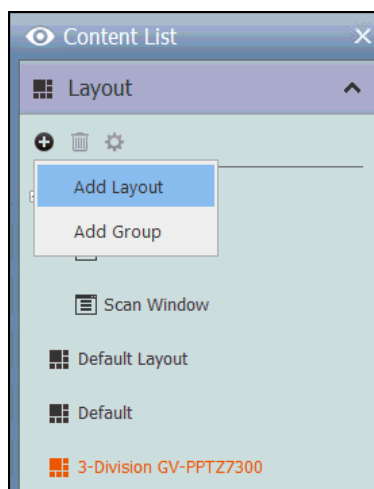


Figure 3-78

3. Type the name of the layout under **Name**, select **Customize**, and click **OK**.

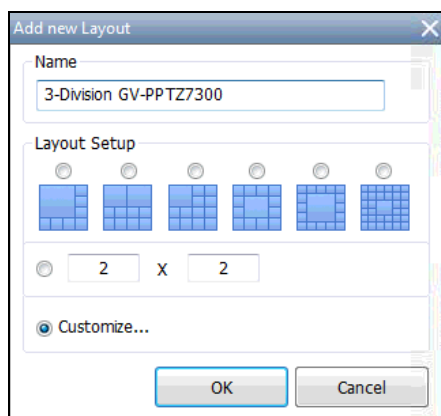


Figure 3-79

4. Click **Reset**  to create a 2 x 2 live view grid, and click **OK**.

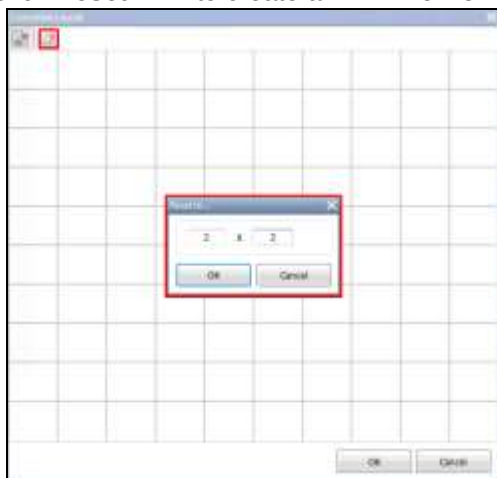


Figure 3-80

5. Select the 2 grids at the bottom, click **Merge** , and click **OK** to merge the grids.

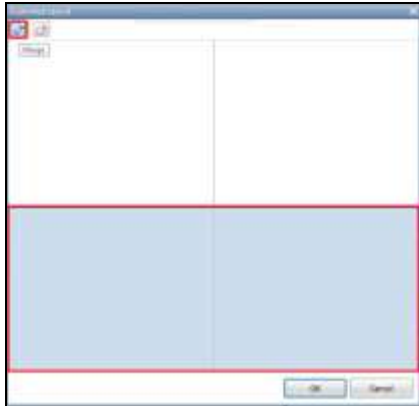


Figure 3-81

6. When the message “Do you want to assign the cameras to this layout automatically” appears, click **No** to assign the camera channels manually instead.
7. Drag **360 View**, **SD View**, **FE View** (for GV-PPPZ camera) or **360 View**, **PIP View**, **Speed Dome camera** (for the paired fisheye and speed dome cameras) to the live view grid.

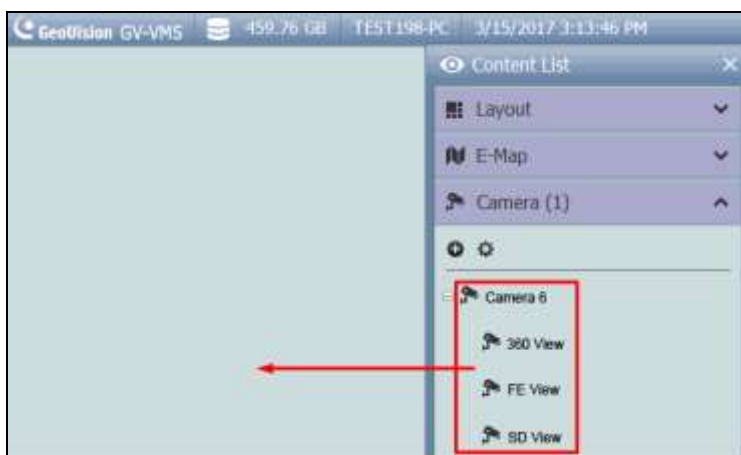


Figure 3-86

After creating the 3-division live view, go through the steps below to enable the object tracking options.

8. On the Content List, right-click the GV-PPTZ camera or the paired GV-Fisheye camera, and select **PPTZ Setup**. The Fisheye Settings dialog box appears.

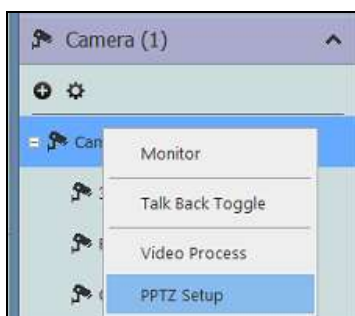


Figure 3-82

9. Right-click on the Fisheye Settings dialog box and select **Fisheye Option > Camera Mode > 360 View**.

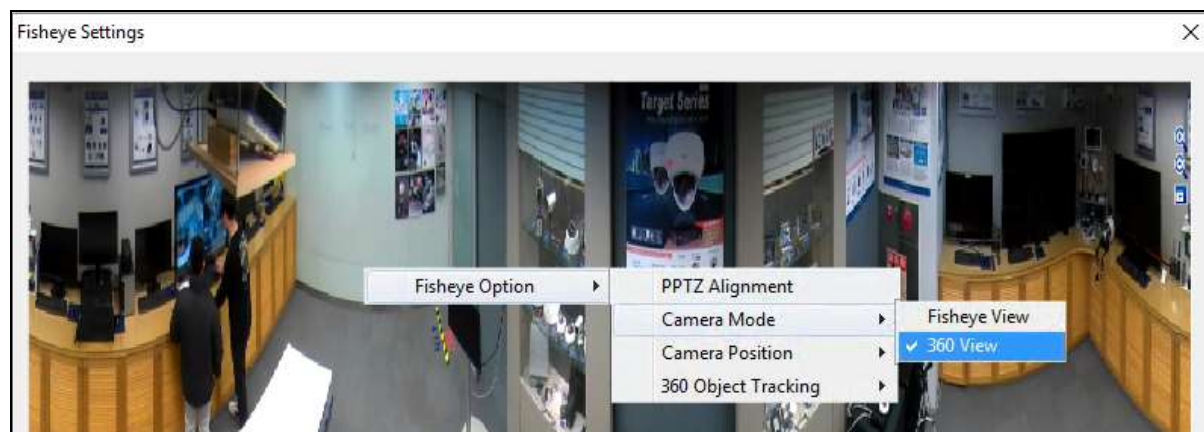


Figure 3-83

10. Select **360 Object Tracking > Advanced Settings** to customize the object tracking. For details, see *Object Tracking, Fisheye View* earlier in this chapter.
11. Select **360 Object Tracking > Tracking** to enable the object tracking.

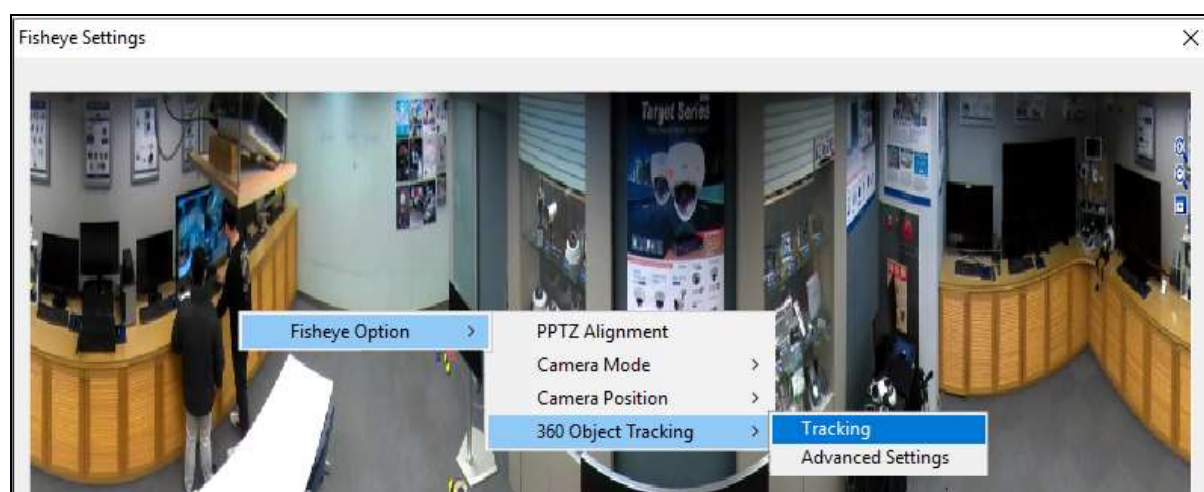


Figure 3-84

3.23 Specifications

Feature		Notes
Panorama View		1 GB of RAM required at minimum 4 sets of panorama view for live view monitoring
Defogging		35 MB of RAM required per channel at minimum - Maximum of 64 channels
Stabilizer		34 MB of RAM required per channel at minimum - Maximum of 4 channels
Crowd Detection		Maximum of 16 channels
Advanced Scene Change Detection / Advanced Unattended Object Detection / Advanced Missing Object Detection		Maximum of 16 channels
Object Counting		7 fps and 6 MB of RAM required per channel at minimum - Maximum of 32 channels
Privacy Mask		31 MB of RAM required per channel at minimum - Maximum of 250 detection boxes - The overall size of detection boxes cannot exceed 102400 bytes.
Face Count		Maximum of 16 channels
Object Index / Object Monitor / Face Detection		7 fps and 16 MB of RAM required per channel at minimum - Maximum of 16 channels
Detection Box Color	Object Counting	Yellow
	Intrusion Alarm	Red
	Object Index	Blue
	Face Count	Green
	Crowd Detection	Blinking red and green
	Advanced Missing Object	Blinking red and green
	Advanced Unattended Object	Blinking red and green

Specifications are subject to change without notice.

Note: To use two or more of the following functions simultaneously, at least 2 GB of RAM is required: Advanced Video Analysis, Video Analysis, IP Camera and Pre-Record by Memory.

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Video Playback

Recorded videos can be played back using the following various software applications offered by GV-VMS. Below summarizes their main characteristic to help you decide which application to use under a given situation.

Application	Description
ViewLog	A full-function player to play back video, search for a video event, merge and export video and more. See <i>Playing Back on ViewLog</i> in this chapter.
Object Search	A more convenient tool to search video files recorded on motion or alarm. See <i>Object Search</i> in this chapter.
Remote ViewLog Service	A program to retrieve files from a remote GV-VMS and it supports most functions provided by the ViewLog player. See <i>Remote ViewLog Service</i> in this chapter.
WebCam Server	A server that remotely accesses live view and play back recordings on your Web browser without installing additional software. See <i>Remote Viewing</i> in Chapter 7.
Single Player	A player that plays back the backup recorded files with simple and easy playback functions. See <i>Single Player</i> in this chapter.

4.1 Playing Back on ViewLog

The ViewLog is a video player that plays back recorded videos without affecting the recording in process. To launch the ViewLog:

1. Select **ViewLog**  > **Toolbar**  > **Content List** . The Content List appears.
2. Select **Add**  > **Import from Live** to import current live views to the playback screen. For details on configuring the ViewLog layout, follow Step 2 to 5 of *Arranging Live View Layouts* in Chapter 1.

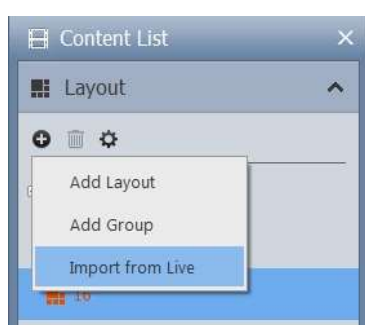


Figure 4-1

3. Optionally drag and drop more cameras from the Content List to the playback screen.
4. On the timeline, click the arrows or click on the date to select a date from a pop-up calendar.

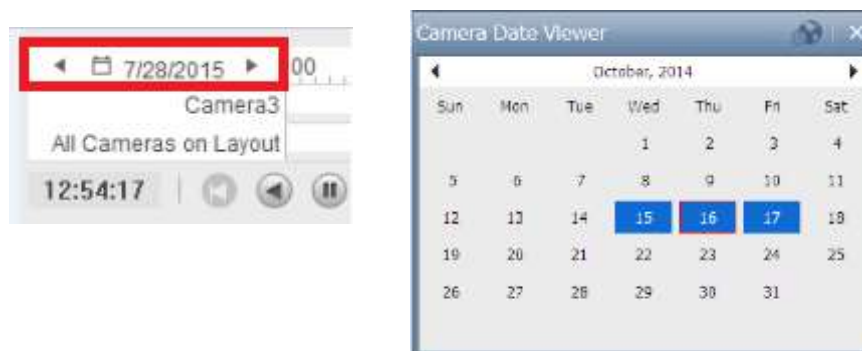


Figure 4-2

5. Click **Play**  to start playing back. For details, see *ViewLog Control Panel* later in this chapter.

4.1.1 ViewLog Window

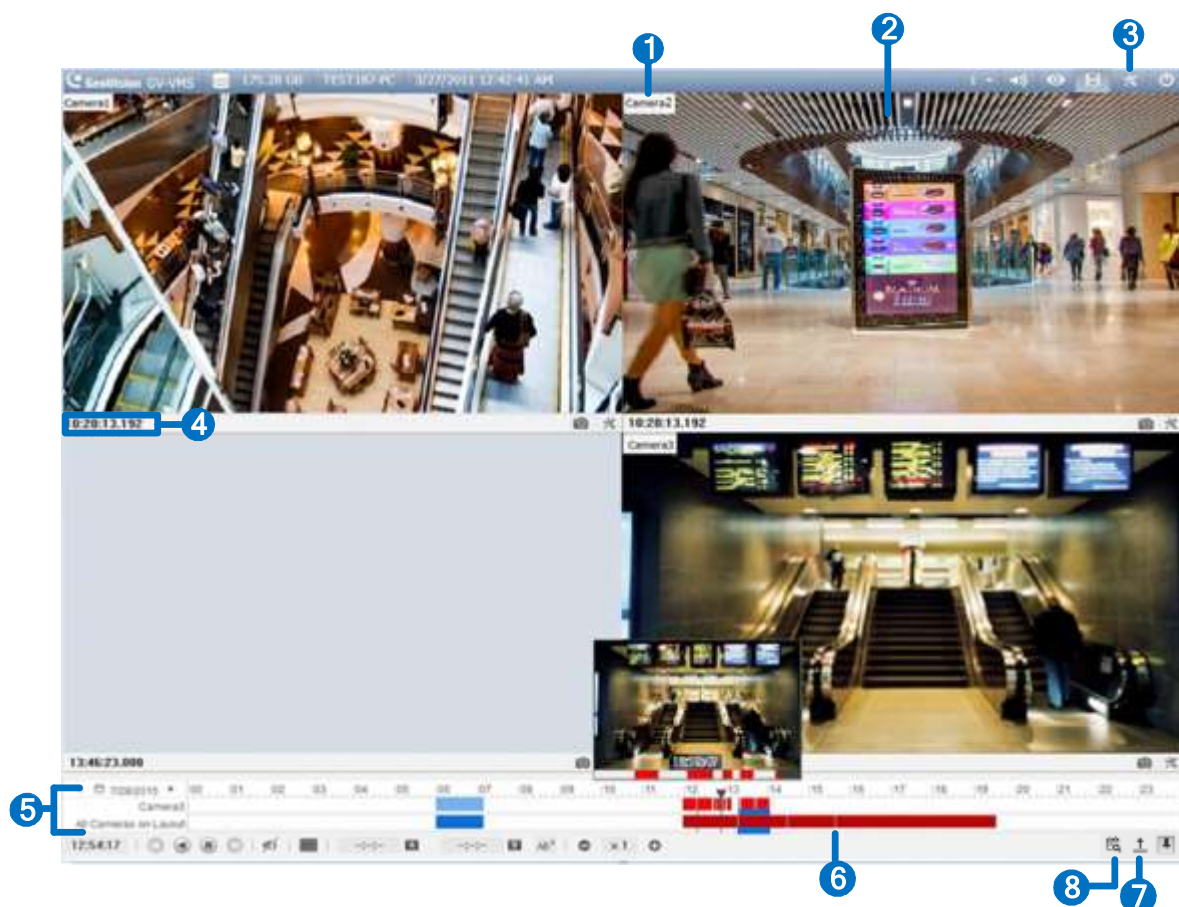


Figure 4-3

No.	Name	Description
1	Camera Name	Indicates the camera name.
2	Camera View	Displays the playback video.
3	Toolbar	Accesses the player's various settings. From Setup (Toolbar > Configure), you can enable/disable text overlay and audio timeline during the playback, as well as configuring the size of the Preview window (see <i>ViewLog Control Panel</i> later in this chapter).
4	Recorded Time	Indicates the time of recording.
5	Recording Timeline	Indicates the recording date and reflects video recordings. For details, see <i>ViewLog Control Panel</i> later in this chapter.
6	Playback Panel	Contains typical playback control buttons. For details, see <i>ViewLog Control Panel</i> later in this chapter.
7	Display All Database	Displays the recording timelines of all camera channels.

8 Filter

Select from the Filter pop-up window to display different event types in different colors on the timeline.

4.1.2 ViewLog Control Panel

Preview Window

Move the cursor on the timeline to see a preview of recording. Click on the timeline to pause all channels at the selected time. To change the size of the preview, click **Toolbar**  > **Configure** > **Setup**.

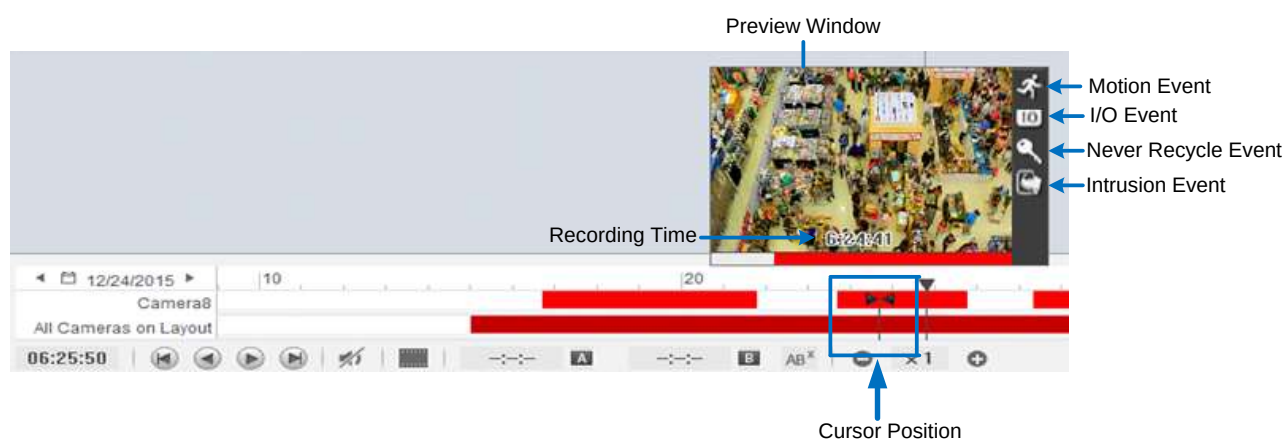


Figure 4-4

Timeline

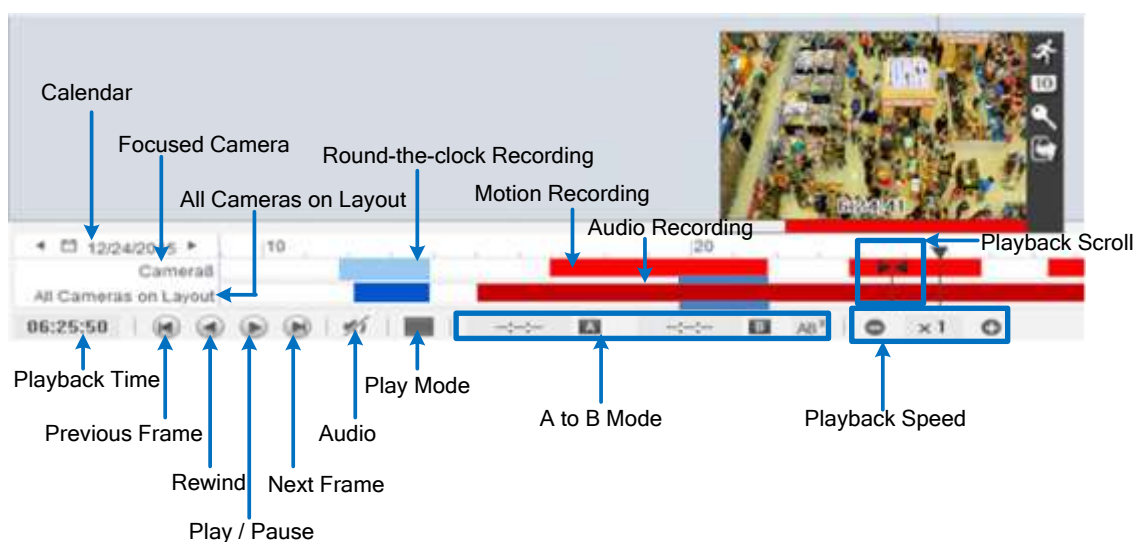


Figure 4-5

Colors in the timeline:

- **Red:** Motion / Intrusion / IO event recordings
- **Blue:** Round-the-clock recordings

- **Orange:** Audio recordings
- **Yellow:** Recordings retrieved from the SD cards of cameras when reconnecting after a temporary disconnection
- **Green:** Never recycle event recordings

Note: Round-the-Clock events are shown as blue, except the following conditions:

1. If **Register Motion Event** or **Intrusion** is enabled, the timeline interval of the triggered event becomes red.
 2. If **Webcam Service** is enabled, the timeline interval becomes red when users log onto GV-VMS remotely (such as using mobile applications).
-

Tip:

1. Right-click and drag on the timeline to have a quick access to various functions.
2. Click **Display All Database**  to access the timelines of all camera channels.

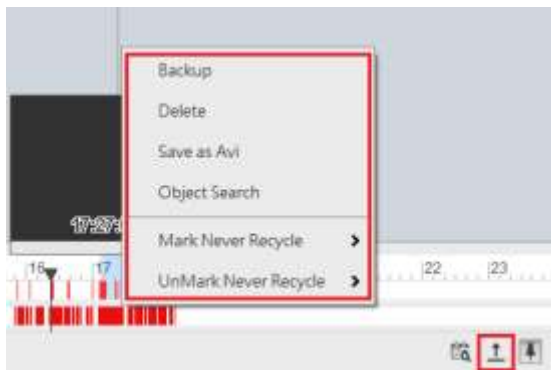


Figure 4-6

Playback Mode Option

By default, the ViewLog is set to play back video in the Real Time mode. To change playback modes, click  on the ViewLog Control Panel.

- **Frame by Frame (without audio):** Plays back video frame by frame without audio; however, playback can be delayed depending on the bandwidth and computer performance.
- **Real Time:** Plays back video on real time. Despite saving rendering time, this method drops frames.

A to B Playback Mode

When playing back videos, you can set a start frame and an end frame for auto-playing:

1. To set the start frame, click **A** and double-click a time on the timeline.
2. To set the end frame, click **B** and double-click a time on the timeline.
3. The start time and end time are displayed besides A and B as illustrated below.



Figure 4-6

4. Click  to play back from frame A to B repeatedly.
5. To cancel this playback mode, click **AB^x**

Changing the Displayed Date on the Recording Timeline

You can directly drag the timeline to search and view recordings of a previous or next day with recorded events.

1. Scroll the mouse wheel forth to enlarge the timeline. The default display of the timeline is 24 hours.
2. Click and drag the timeline back and forth. The timeline jumps between the recording days.



Figure 4-7

4.1.3 Adjusting the Camera View

To adjust the image quality for the recorded videos, right-click on the camera view or click **Tools**  to access these settings:

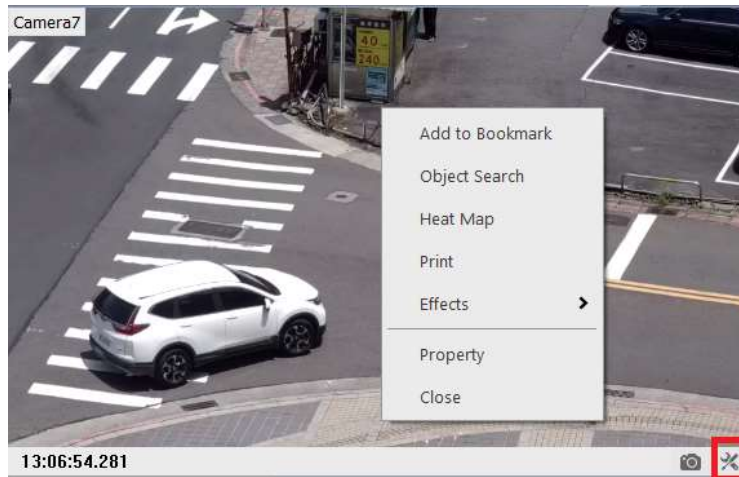


Figure 4-8

- **Print:** Prints the current image from the camera view. For details, see *Printing Images* later in this chapter.
- **Effects:** Click to apply image effects.
 - ⊙ To take a snapshot of the current playback image, select **Copy** and then open a WORD or Paint file to paste and save the image.
 - ⊙ To undo the last enabled effect, click **Undo To Prev Action**. To restore to its original video settings, click **Undo All Effects**.
- **Property:**
 - ⊙ **Show Caption:** Enabled by default. Shows the camera name.
 - ⊙ **Keep Image Ratio:** Change the camera view to its original ratio.

4.1.4 Bookmarking Video Events in ViewLog

You can bookmark desired recordings on the ViewLog player.

1. Right-click a camera view and select **Add to Bookmark**.
2. To access all the bookmarks, click **Toolbar**  > **Tools**  > **Bookmark**. Double-click any bookmark to move to the corresponding position on the timeline with Playback Scroll.

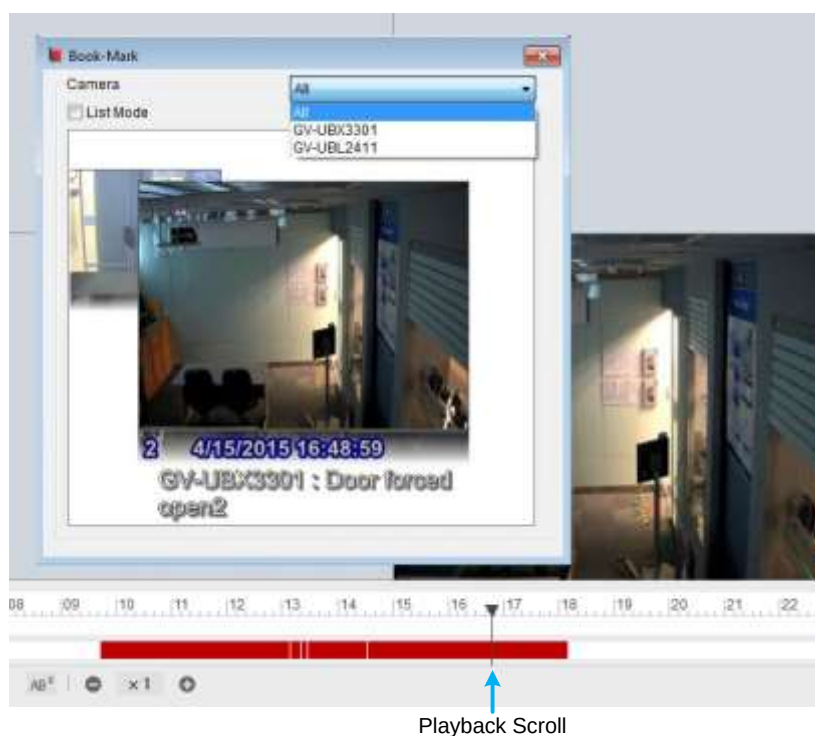


Figure 4-9

3. You can select **List Mode** to present all the bookmarks in a list.

Note: The bookmarked video events will be marked as Never Recycle in the ViewLog.

4.1.5 Merging and Exporting Video

You can merge several videos into a single AVI or EXE file and export it to the local computer.

Note: The maximum size of the exported file is 2 GB. Any file exceeding 2 GB will be split into another file. A maximum of 16 channels are supported for merging and exporting multiple videos.

1. Click **ViewLog**  > **Toolbar**  > **Tools**  > **Save as Avi**. This dialog box appears.

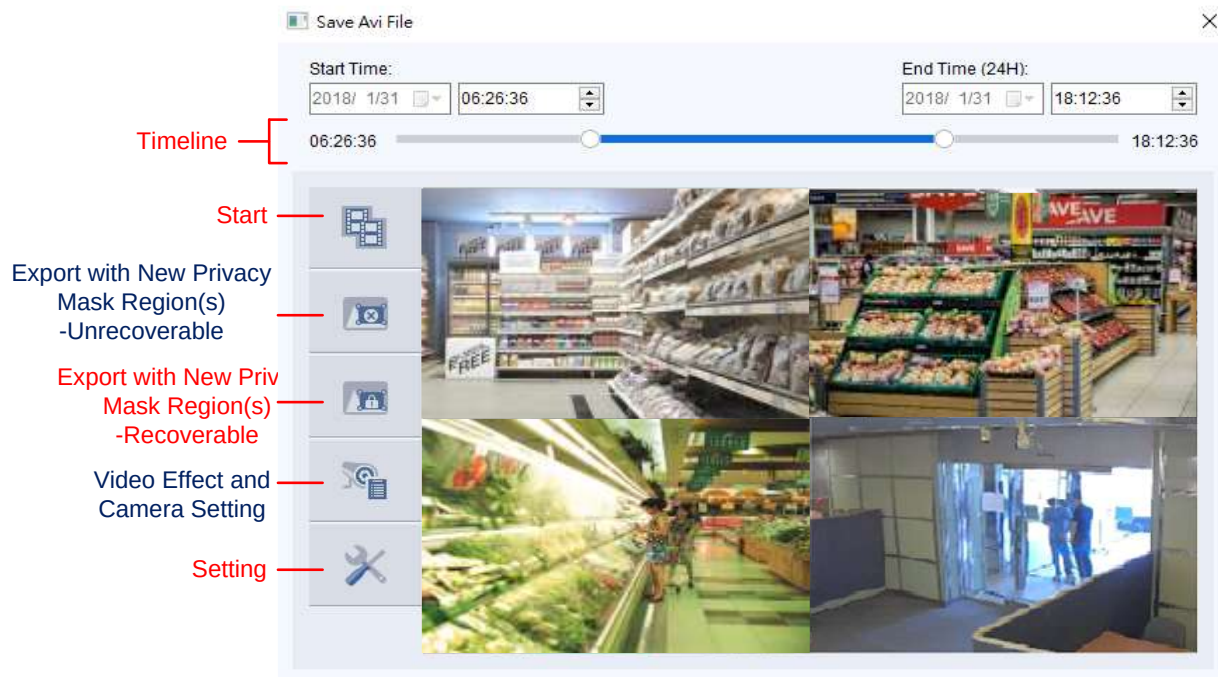


Figure 4-10

2. Click **Video Effect and Camera Setting** to select the camera channel(s) you wish to export.
3. Drag the timeline to define a starting and ending time of the video(s) to be exported.

4. To configure the saving path and format of the exported video, click **Setting** . This dialog box appears.

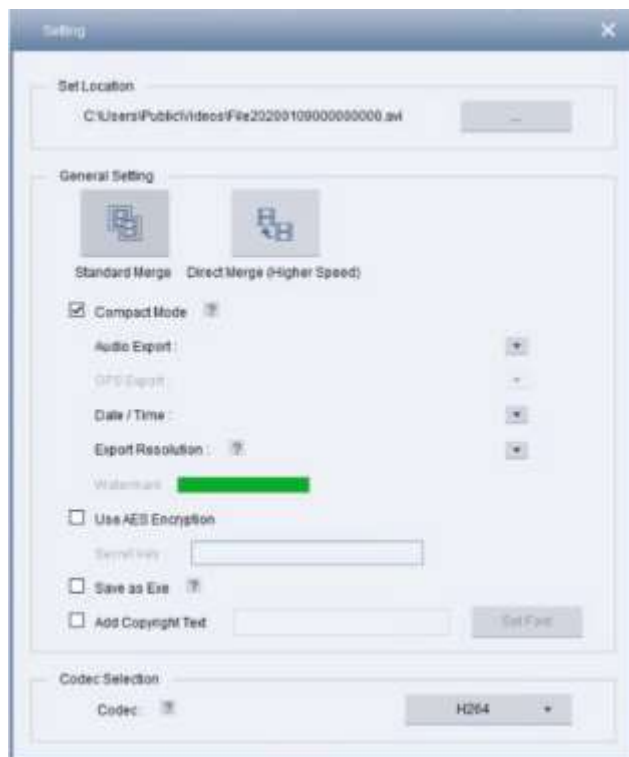


Figure 4-11

[Set Location] Click [...] to assign a saving path.

[General Setting]

- **Standard Merge:** Save a full-length video, containing the images of a single camera or multiple cameras within the ViewLog, with recorded and non-recorded periods. A blank blue screen will be displayed during the non-recorded periods. By default, **Compact Mode** is selected to merge only the periods with recorded images.
- **Direct Merge (Higher Speed):** Only available when exporting the videos of one channel. It speeds up the video merging process and saves the video files in the codec in which it was originally recorded. By default, **Compact Mode** is selected to save compact video files by only exporting the key frames.

Note: When using **Direct Merge (Higher Speed)**, the conversion time is significantly reduced, but you will not be able to customize the following settings: codec selection, privacy mask recoverability and digital watermark.

- **Audio Export:** Select **Denoise** to remove audio noises from the video, or select **Channel** for audio exporting.
- **Date / Time:** Select whether to show date and / or time stamps. You can also select the stamp position, font type and size and text color on the images.
- **Export Resolution:** Select a resolution for the exported video.
- **Watermark:** Only available when the watermark is applied to the recorded video. Select to include the watermark in the exported video.
- **Use AES Encryption:** Select and type a 16-digit **Secret Key**, containing only letters and numbers, to add additional security protection for the exported video.
- **Add Copyright Text:** Select to stamp user-defined copyright texts to the recording being exported.
 - ⊙ **Set Font:** Click to set the font type and size as well as the position of the copyright text on the recording image.
- **Save as Exe:** Select to save files in EXE format to auto-play the files with any third-party player. Enable this feature to play back video at the computer without installing GeoVision codec.

[Codec Selection]

- **Geo H264:** A codec created by GeoVision which provides better image quality, higher frame rates and smaller file size than other standard codecs. When selected, the GeoVision codec must be installed on the computer playing the exported video. Otherwise export the files in EXE format to play the video at any computer.
- **WMV9, H.264 or MPEG4:** The standard code allows users to play the video with Windows Media Player or other third-party video players without using GeoVision codec. When selected, the Privacy Mask you created in **Save as AVI** will be disabled.

5. Click the **Start** icon  to start exporting.

Note: Audio is not supported for videos exported in MPEG4 codec.

To optionally include other features in the exported video, refer to the following:

Configuring Privacy Mask

To configure the Privacy Mask settings for the exported files, click **Setting**  and change the Codec to **Geo H264** first.



Figure 4-12

-  **Unrecoverable privacy mask:** The block-out area(s) marked in black will not be retrievable in the exported files.
-  **Recoverable privacy mask:** The block-out area(s) marked in red can be retrievable with the administrator's ID and password.

To set up the block-out area(s), click and drag on the image and select **Add** or **Delete**.

Combining Special Effects

To combine special effects to the exported video, click the **Video Effect + Camera Setting** icon  and select the desired effects for each of the cameras selected.

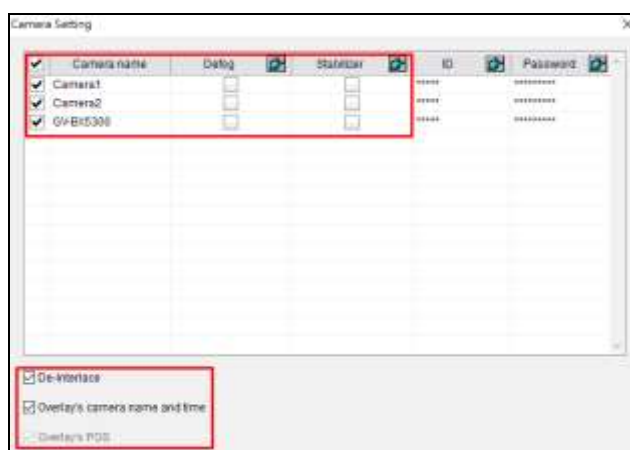


Figure 4-13

Retaining Recoverable Block-out Areas

For recorded videos with Privacy Mask settings, by default, you can see the recoverable block-out area(s) created in Main System when logging in with the administrator account. To retain the block-out area(s) before exporting recorded videos, type a random ID and password in the fields or leave the fields blank. For details on Privacy Mask, see *Privacy Mask Protection* in Chapter 3.

[illegible]

Figure 4-14

Note: Only the administrator can set up the ID and password to retrieve or retain the recoverable block-out area(s). To grant access right to Power Users and Users, see *Granting Access Privileges to Recoverable Areas* in Chapter 3.

4.1.6 Saving Images

You can take a snapshot and save the current camera view as an image file while the recorded video is being played back.

1. Click  from a camera channel on the ViewLog. The Save As dialog box appears.

[Stamp Text on the Image] Select to add text(s) to the image. Selecting **Transparent Text** will create the stamps in transparent text.

[The image] Click on the image at the bottom to preview the stamp text. Click on the image again to close the preview window.

2. Name the file, select a file format and assign the location to save the image file.

4.1.7 Printing Images

1. Right-click a camera channel on the ViewLog and select **Print**. This dialog box appears.



Figure 4-15

[Image Ratio and Position] Adds a template or changes the size of the image and its position on the page.

[Text Stamp and Position] Adds texts to the printed image. To include a note below the image, select **Print note** and type a note in the blank space below, up to 64 characters.

2. Click **OK** to save the settings or **Print** to print out the page.

4.1.8 Adjusting Distorted Views

When viewing videos on the ViewLog player, images may be curved near the corners. Correct this distortion using the Wide Angle Lens Dewarping feature.

1. Click **ViewLog**  > **Toolbar**  > **Configure**  > **Effect** > **Wide Angle Lens Dewarping**.
2. Select the cameras to apply Wide Angle Lens Dewarping.
3. To adjust the degree of adjustment, click the  button. This dialog box appears.

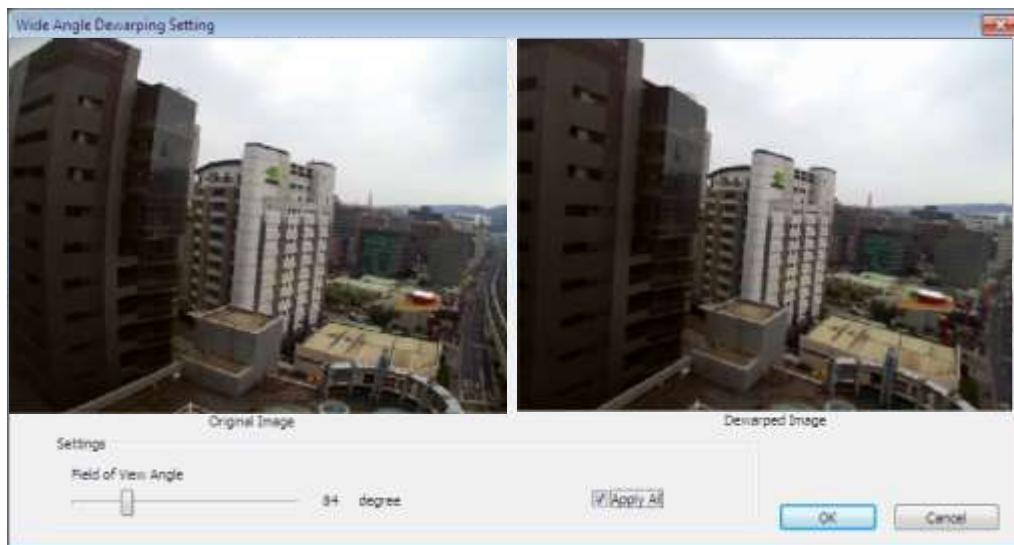


Figure 4-16

4. Move the slider to adjust the degree of warping. The adjusted view is shown on the right.
5. Select **Apply All** to apply the setting to all the cameras selected.
6. Click **OK**. The cameras are immediately dewarped.

4.2 Object Search

Object Search allows you to define the regions of interest on recorded videos to search for missing objects, unattended objects and motion events, as well as counting the number of objects entering and leaving the defined regions.

1. Select **ViewLog** , click the desired channel and select **Toolbar**  > **Tools**  > **Object Search**. This window appears.

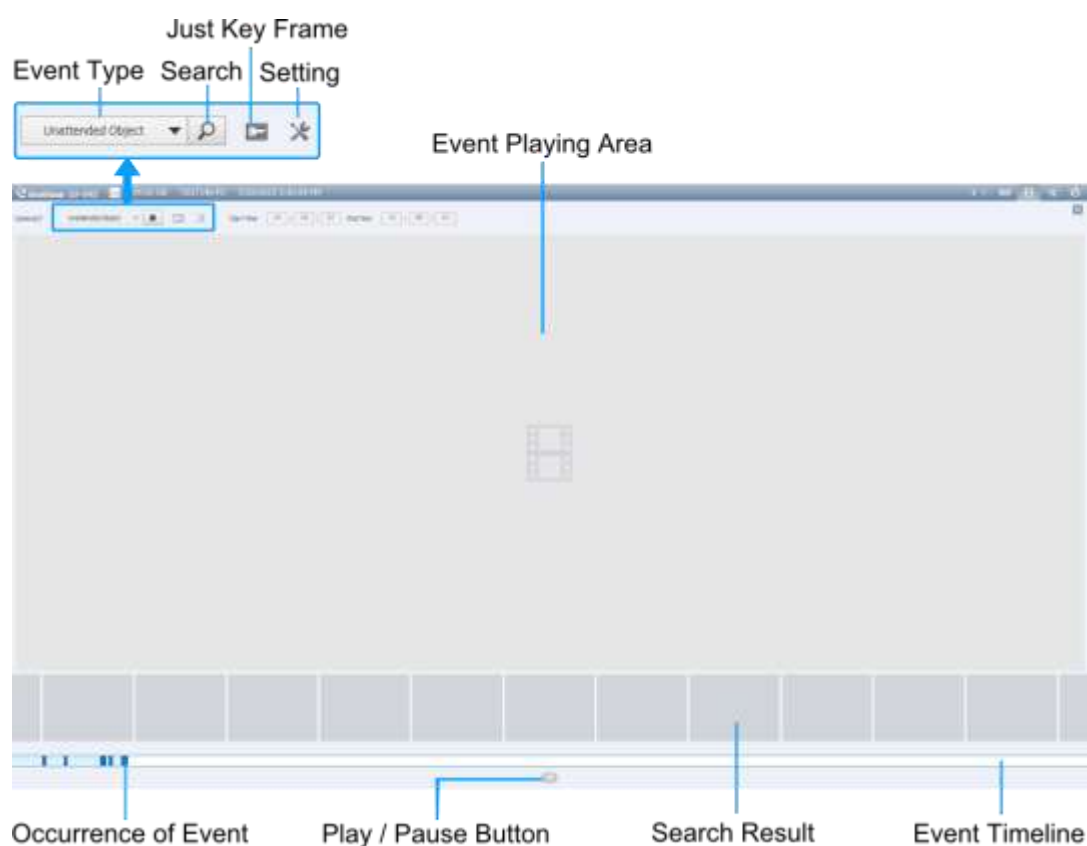


Figure 4-17

2. Define a time range for search. And click the **Play** button to display images of the defined time range.
3. Select an event type from the drop-down list .
4. Click **Setting** .

5. Click on the image to add detection regions or define object sizes. You can also adjust the sensitivity level of the added detection regions.



Figure 4-18

6. Click **Just Key Frame**  to search only key frames if necessary.
7. Click **Search** . The search results are shown in blue on the timeline.
8. Double-click a frame or click the **Play** button to view the event.

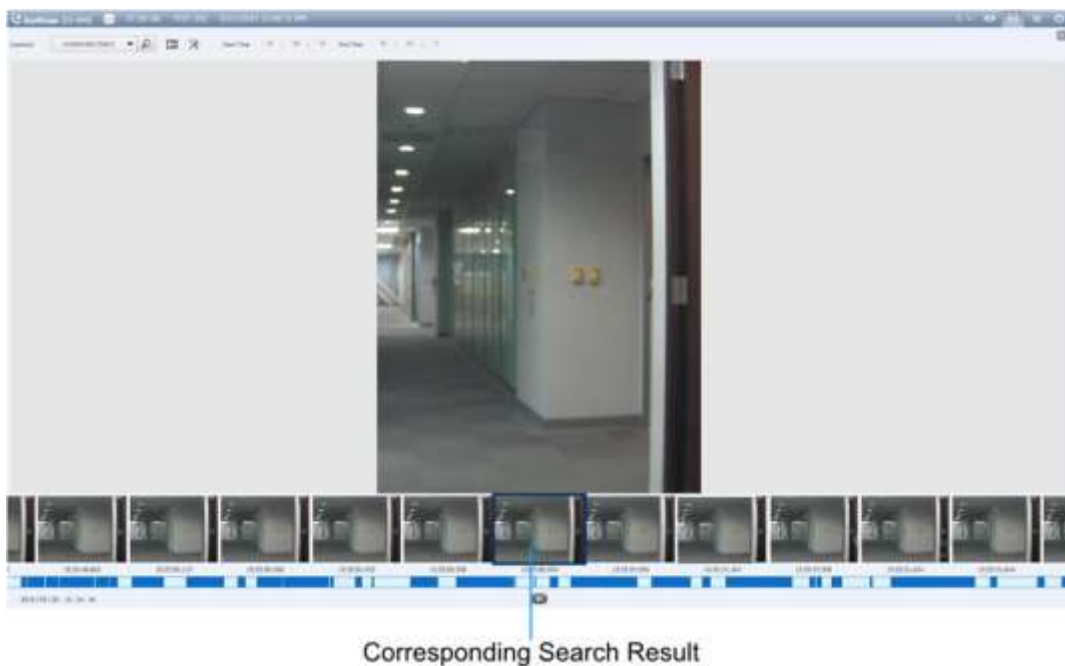


Figure 4-19

4.3 Advanced Log Browser

With the Advanced Log Browser, you can search for log data of events, system activities, user activities, Object Counting events and more. For live system logs, see *System Log* in Chapter 1.

1. Click **ViewLog**  > **Toolbar**  > **Tools**  > **System Log** > **Advanced**. The Open Database dialog box appears.
2. Specify a time range and click **OK**. All events within the specified range are displayed on the Advanced Log Browser.

Controls on the Advanced Log Browser

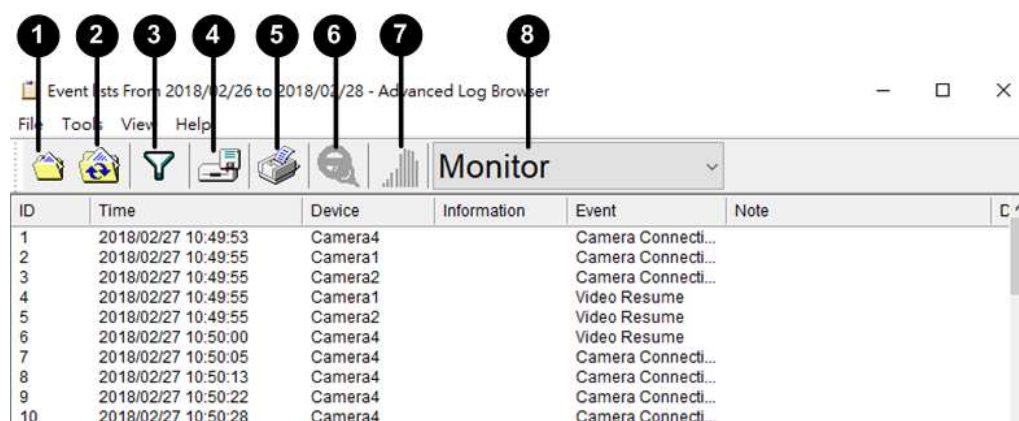


Figure 4-20

No.	Name	Description
1	Open	Opens an event log.
2	Reload	Select Reload All Table or Reload Current Table to refresh loaded data.
3	Filter	Defines the search criteria. See <i>Filter Settings</i> later in this chapter.
4	Backup	Select All Tables to back up all log data, or selects Current Table to back up the current log table you are at. By default, audio and video are enabled for backup.
5	Print	Prints the current log table.
6	Filtering / Cancel Filtering	Only available when filtering starts. Click to cancel the filtering. After the filtering is complete, this icon appears dimmed.
7	Counter Table	Only available when selecting Counter as the Log Type. Click to display the sums of the In and Out counting numbers of cameras with counting function.
8	Log Type	Select to display log of the following type: monitor, login, system, counter, merge, delete, backup, I/O, notifications, playback, CMS, and POS.

4.3.1 Filter Settings

You can define filter criteria to search for the desired log data. You can also import pre-defined filter settings for the log search, or save current filter settings for future use.

1. On the toolbar, click the desired log type, click the **Filter** button (No. 3, Figure 4-20) > **Default Filter**. This dialog box appears.

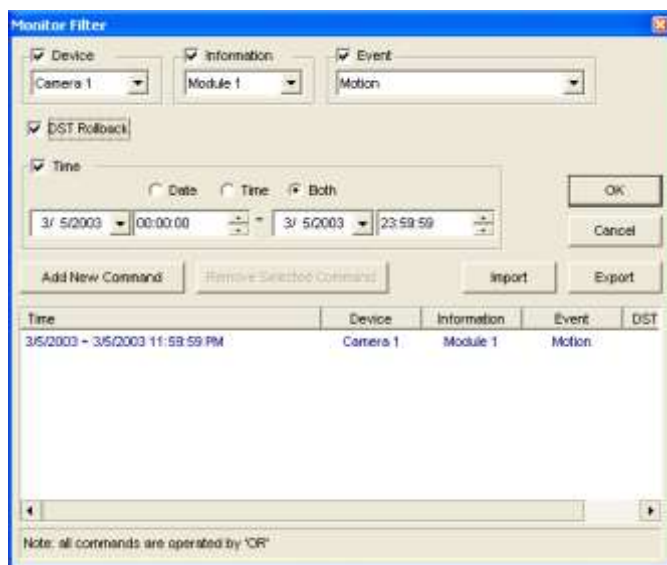


Figure 4-21

2. Define the filter criteria, such as a specific camera, an event and a time range.
3. To search for the log data recorded during Daylight Saving Time, select **DST Rollback**.
4. To add more filter criteria, click **Add New Command** and repeat Step 2.
5. Optionally click **Export** to save the current settings to another location, or click **Import** to apply other filter settings.
6. Click **OK** to display the filter results.

Tip: Next time when you want to use the same exported settings, click the **Filter** button > **Favorites**, and select the name of the export file.

Note: The default Export path is :**IGV folder\Syslog_Favorites\Monitor**. If you change the saving path, the name of the export file will not be listed in the **Favorites** option.

4.4 Remote ViewLog Service

You can retrieve the files from a remote GV-VMS through the network using the Remote ViewLog Service.

GV-Remote ViewLog V2:

- supports most of the functions provided by the ViewLog, such as Backup, Save as AVI, Object Search, Database Files Backup, described earlier in the chapter.
- is capable of disabling camera connections under heavy network load
- can back up recordings from a remote GV-VMS

Note: GV-Remote ViewLog V2 has enhanced user interfaces compared to previous GV-Remote ViewLog. Currently, not all the features in GV-Remote ViewLog are available on GV-Remote ViewLog V2.

4.4.1 Retrieving Recorded Videos from GV-VMS

1. On GV-VMS, click **Home**  > **Toolbar**  > **Network**  > **Control Center Server** > **Remote ViewLog Service** to allow remote access.
2. Download **GV-Remote ViewLog V2** to a PC from [GeoVision's website](#).
3. Run **GV-Remote ViewLog V2** and create a Remote ViewLog account. After creating an account, the Add New Host dialog box appears.
4. In the Host Type, select **DVR / NVR / VMS**.
5. Type the **Name** (for reference), **IP Address**, **Account** and **Password** of GV-VMS. Only modify the default port 5552 if necessary.
6. Click **OK**.

For details, see [GV-Remote ViewLog V2 Guide](#).

4.4.2 Retrieving Images of Object Index

The images of Object Index include the **Object Index**, **Face Detection** and **Video Snapshot**. With the Remote ViewLog Service, you can retrieve all the Object Index images from a GV-VMS through the network.

1. On the toolbar, select **Tools**  > **Search Object Index**.
2. On the Object Index Search window, select the desired camera and file date for playback.
3. Click the **Refresh** button  to refresh the date and time.
4. To play images with the ViewLog player, double-click the desired frame on Object Index List.

4.4.3 Recording Backup

Using the Remote ViewLog Service, you can back up files from remote GV-VMS. When the file transfer is interrupted by a network error, you can even resume backup.

1. To back up the recordings, on the toolbar, select **Tools**  > **Backup**.
2. When the backup is interrupted, this message will appear: *There are x file(s) couldn't be backup. Do you want to keep a log file and backup them later?*
3. Click **Yes**. You will be prompted to save the partial backup file as *.lv format.
4. To resume backup, click the **Resume** button at the bottom of the Backup dialog box and locate the partial backup file to continue.

For details, see *Backing Up Recorded Files* in Chapter 5.

4.4.4 Exporting and Importing Host List

You can export and import the host list to and from another GV-Remote ViewLog. Click the **Tools** button under Camera List to access these functions.

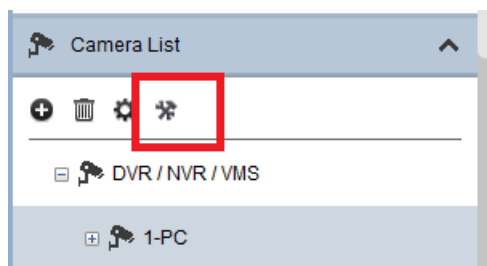


Figure 4-22

4.4.5 Displaying Sub Stream

To reduce network latency when playing back multiple channels, you can choose to display the sub stream of smaller image size from the connected hosts if the dual-stream recordings are available. To do so, on the toolbar, click **Display**  > **Display Dual Stream First**.

4.5 Single Player

When backing up recorded files, you can choose to include the ViewLog player or Single Player (see *Backing up Recorded Files* in Chapter 5). Compared to the ViewLog, the Single Player provides simpler and easier playback functions. To play back the recorded videos using the Single Player, open the backup folder and run **GVSinglePlayer.exe**.

4.5.1 The Single Player Window

Click **Files > Open File** to select the file you wish to play back. To play back multiple recorded files together in up to 16 screen divisions, click **Files > Open Folder** to select the folder that collects several camera recordings.

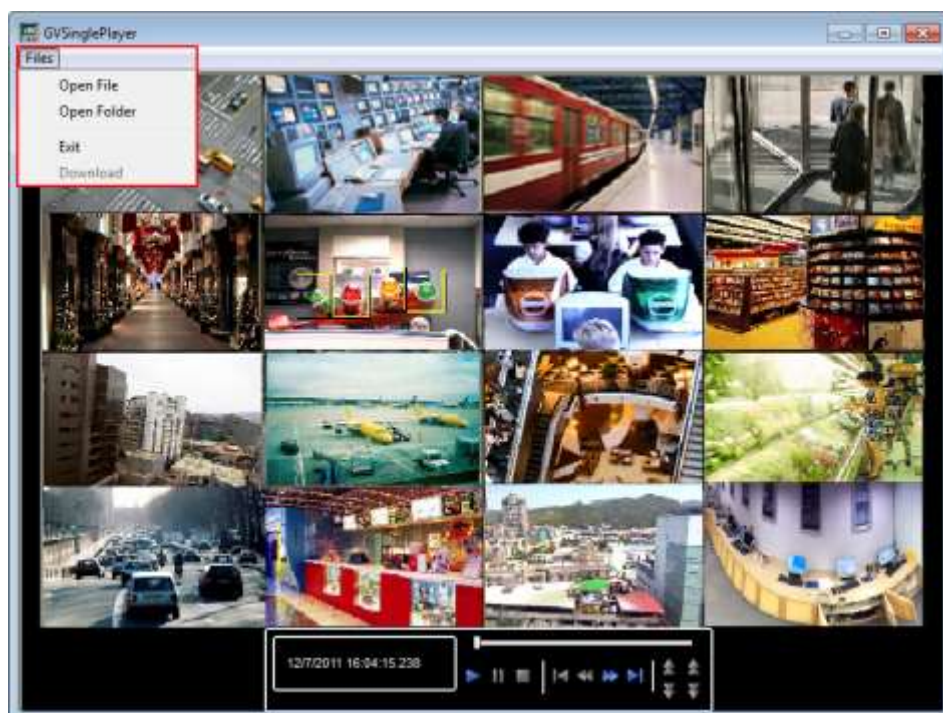


Figure 4-23

4.6 Specifications

Feature	Notes
Support for Defogging	Yes (64 channels)
Support for Stabilizer	Yes (64 channels)
Support for PIP View	Yes
Support for PAP View	Yes
Support for Panorama View	Yes (4 sets of Panorama View)
Videos Exported as .AVI Files	Yes
Object Search	Yes
Support for Fisheye View	Yes

Chapter 5

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Backup, Deletion and Repair

This chapter explains how to back up and delete video/audio files on the hard disk. Video files can be copied to external storage media, such as CD-R, DVD, MO, or ZIP drives.

5.1 Backing up Log Data

Using the System Log, you can back up all log data or filtered data based on criteria.

1. Click **ViewLog**  > **Toolbar**  > **Tools**  > **System Log > Advanced**. The Open Database dialog box appears.
2. Specify a time range and click **OK**. Events recorded during the specified range are displayed on the Advanced Log Browser window.
3. Click **Backup**  on the toolbar. The Customer Database Export dialog box appears.
[Table Option] Select **All Tables** to back up all log data or **Current Table** for the log table you are currently at.
[Export with Video/Audio data] Backs up video/audio attachments with log data.
4. Click **OK**. The Backup dialog box (Figure 5-1) appears.
5. In the Media section, select the method and destination to back up the log files and click **OK** to back up.

Note:

1. To back up the filtered data, use the **Filter** function to define search criteria first. See *Filter Settings, Advanced Log Browser* in Chapter 4.
 2. To open the backup data, run **EZSysLog.exe** from the backup file.
-

5.2 Backing up Recorded Files

1. Click **ViewLog**  > **Toolbar**  > **Tools**  > **Backup**. This dialog box appears.

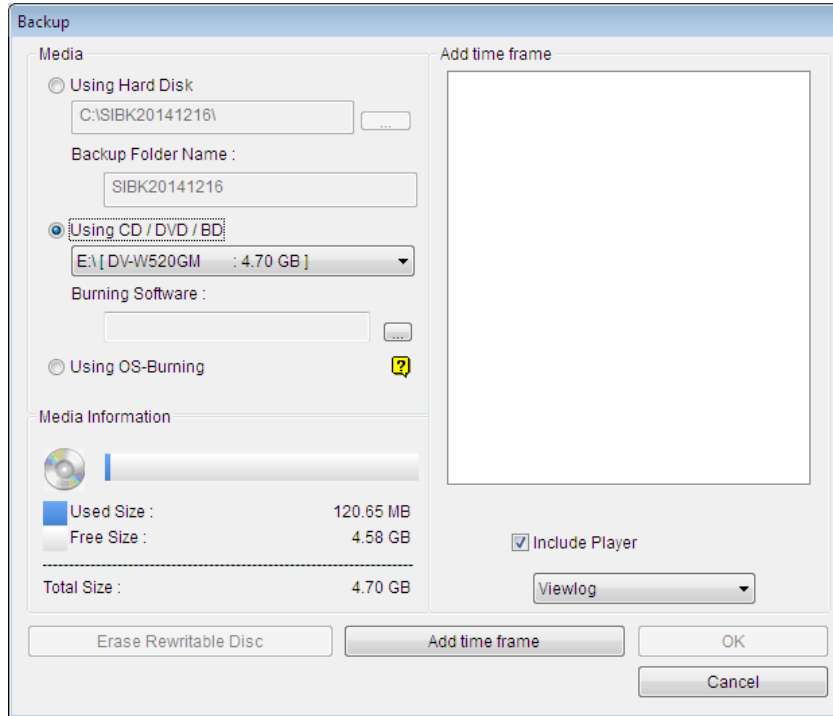


Figure 5-1

2. Select a destination media to back up files.

[Media]

- **Using Hard Disk:** Click the [...] button to select the desired hard disk.
- **Backup Folder Name:** Type a desired name for the backup folder.
- **Using CD/DVD/BD:** Click to back up files to the CD or DVD media using the third-party software.
 - Click the [...] button to assign the desired burning software (.exe file). After clicking **OK** on the Backup dialog box (Figure 5-1), the system will ask you to paste the backup files to the CDR-Writer program, and call up the assigned burning software for you to paste and backup files.
 - If Nero software of version 6.6.0.14 or later is installed, you can directly burn the files onto CD/DVD without assigning the burning software and pasting the backup files to the CDR-Writer program.
 - If Nero software of version 7.0 or later is installed, you can directly burn the files to blu-ray disc.

- **Using OS-Burning:** It burns files using the inbuilt software of the operation system onto the DVD, CD or blu-ray disc. Note that your hard disk needs at least 1 GB buffer space.

[Media Information] Indicates free and used space on CD/DVD media or the local disk.

3. Click the **Add Time Frame** button to define a time period and which files to back up.

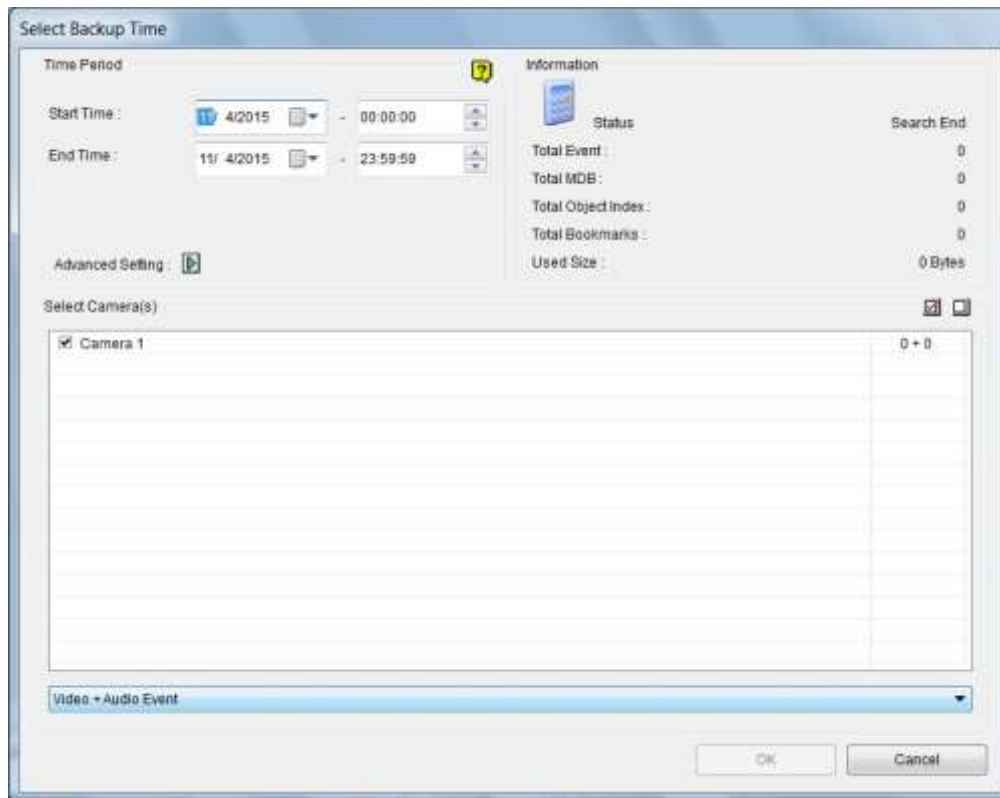


Figure 5-2

[Time Period] Specify the time periods for backup.

[Information] Indicates the number of backup files and their total size. (Total MDB refers to the System Log files.)

[Advanced Setting]: Click  to choose which files to back up:

- **Database Files:** Backs up the System Log files.
- **Object Index Files:** Backs up the Object Index files.
- **Never-Recycle Events only:** Only backs up the never-recycle events.
- **Unmark these events to be recycled after the backup is complete:** After the backup is complete, the never-recycle events will be unmarked for recycling.
- **Include daylight saving rollback events:** Backs up the events recorded during Daylight Saving Time.
- **Bookmarked files:** Backs up the bookmarked files.

[Select Camera(s)] Select the camera(s) for backup. The number of video and audio files of each camera is indicated respectively, e.g. "Camera 1 1+0" means Camera 1 has 1 video file and 0 audio file.

■ **Video + Audio drop-down list:** Select the types of video events for backup.

4. Click **OK** to add the schedule. You can repeat step 3 to create up to 10 periods of time.
5. To include the player to the backup files, select **Include Player** at the right bottom of the Backup dialog box and select **ViewLog** or **Single Player**. By default, **ViewLog** is selected. If no player is selected, you can only play the backup files at the computer installed with GeoVision codec.
6. Click **OK** on the Backup dialog box to start the backup.

Note:

1. If you are unable to record a CD, make sure the CD recording is enabled in your CD burner: open **My Computer**, right-click the CD Drive icon, click **Properties**, click the **Recording** tab, and check **Enable CD recording on this drive**.
 2. For details on the ViewLog player and Single Player, see *Chapter 4 Video Playback*.
-

5.3 Deleting Recorded Files

1. To delete files using the ViewLog, click **ViewLog**  > **Toolbar**  > **Tools**  > **Delete**. This dialog box appears.

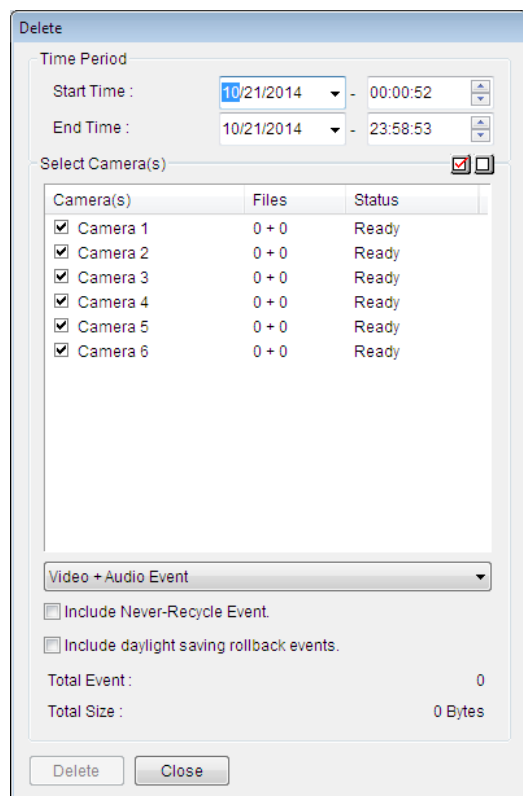


Figure 5-3

2. Define the time period for file deletion.
3. Uncheck the cameras, which you don't want to delete the files of.
4. Use the drop-down list to select the types of events to be deleted, e.g. video, audio or both together.
5. To delete the never-recycle events, select **Include Never-Recycle Event**.
6. To delete the events recorded during Daylight Saving Time, select **Include Day Light Saving Time Rollback Event**.
7. Click the **Delete** button.

Note:

1. To view the history of file deletion, click **ViewLog**  > **Toolbar**  > **Tools**  > **System Log** > **Monitor Table**, and click the **Delete** tab.
 2. To view the storage path and total file size of a camera, right-click the camera and select **Event View** on the Delete dialog box.
-

5.4 Repairing Damaged File Paths

Use the Delete function (see *Deleting Recorded Files* earlier in this chapter) to correctly delete video and audio files. If you move or delete video files using Windows Explorer or Windows File Manager, GV-VMS will not be able to detect this change. But as long as these files are still stored in the hard drives and are detectable by Windows operating system, you can use the Utility to restore these misplaced and missing recorded files back to their default paths. This Utility comes with the installation of Main System. Follow these steps to repair the paths.

1. Go to **Windows Start > All Programs > GV-VMS folder > Repair Database Utility**.
2. When the Select Camera for Repair Database dialog box appears, select the cameras that require database repair and click **OK**. This dialog box appears.

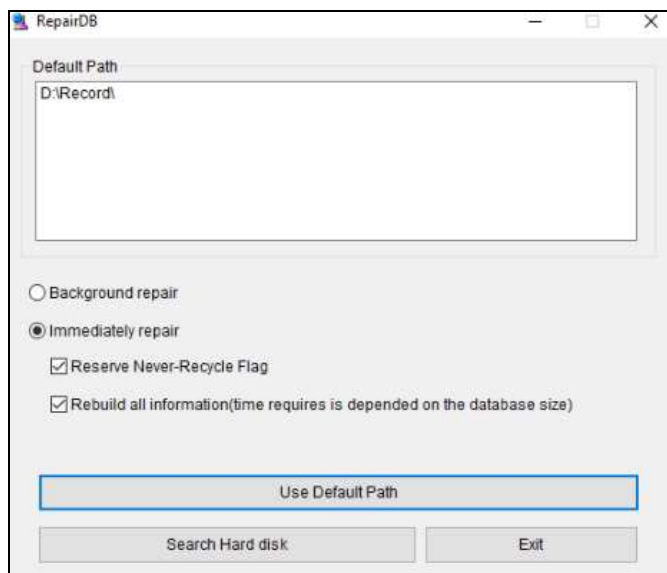


Figure 5-4

3. Select **Background repair** for a quick scan of the files needing repairs. This function allows the utility to repair the files after the scan is completed while GV-VMS continues its operation. Select **Immediately repair** to thoroughly repair your recorded files while GV-VMS is closed.
4. If your recorded files exist only in the predefined recording path, click the **Use Default Path** button to rebuild the file path in the predefined recording hard drive only.

5. For **Immediately repair** only: If your recorded files scatter across different hard drives, click the **Search Hard Disk** button to allow more time to rebuild these file paths in the hard drives connected to GV-VMS.
6. Click **OK**.

Note:

1. The repair and the search function will not apply to the files that have been renamed manually.
 2. Use this Utility to repair your database if any of the following scenarios occurs in the ViewLog:
 - a. A question mark appears right before a video file in the Video Event list.
 - b. When you select a file and click the **Playback** button, no video is displayed.
-

5.5 Repairing Damaged Video Files

If the computer has been shut down improperly, e.g. due to power failure, use this function to repair damaged video files.

Tip: When a computer has been shut down improperly, the first thing you do before starting GV-VMS is to run **Repair Database Utility**. After running the Utility, go to the ViewLog and check video events. You should be able to play all video files at this step. However, if you see a question mark after clicking on a file, the problem may be that its recording process was interrupted. To repair the file, run the **AVI Repair Utility** and follow the steps below.

1. Double-click **AVIRepairAPI.exe** in the GV folder. This dialog box appears.

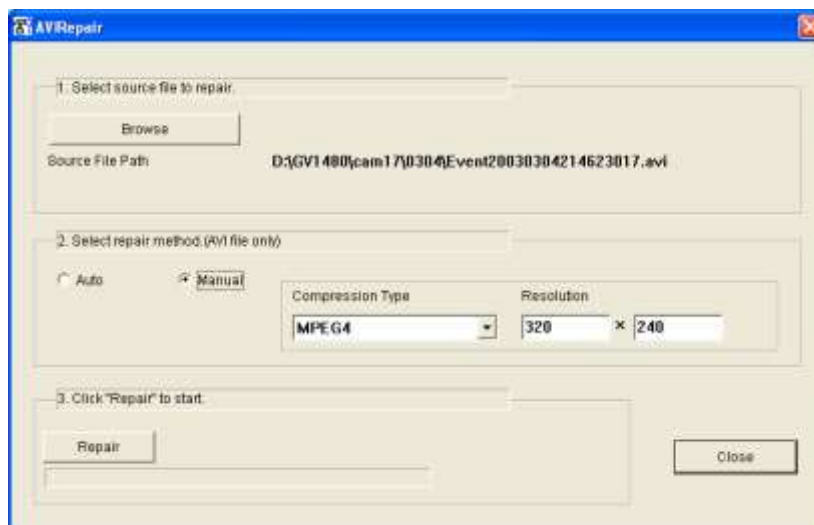


Figure 5-5

2. Click the **Browse** button to find the damaged video file.

3. If you know the codec and resolution of the file, select **Manual**, select **Compression Type** and type **Resolution**. Alternatively, select **Auto** but it takes longer time to repair with this selection.
4. Click the **Repair** button to start.
5. You may see the distorted image or **No Image** on view screen if an incorrect codec and resolution were chosen. Click **No** for the next combination until a complete image appears.

Distorted Image

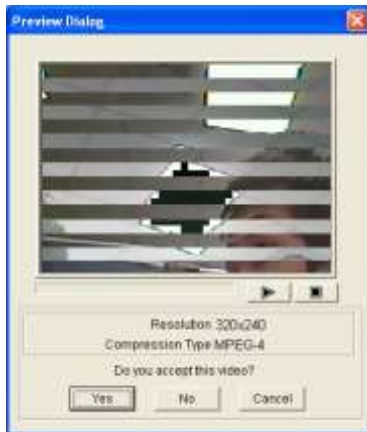


Figure 5-6

No Image



Figure 5-7

Complete Image



Figure 5-8

6. When a complete image is displayed, click the arrow button to preview the file.
7. Click **Yes** to start the repair.
8. Click **Yes** to overwrite or **No** to save this file to another path. Note if you choose **No** at this step, remember to run **Repair Database Utility** again after exiting this program.

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I/O Applications

This chapter discusses how you can set up and control the I/O devices connected to GV-VMS. I/O applications include these features:

- Record videos, send e-mail notifications and trigger outputs upon input trigger
- Move the PTZ camera to a preset location on input trigger
- Support access control systems of Momentary and Maintained modes
- Visual automation to intuitively trigger an output by clicking on the camera view

6.1 Setting up I/O Devices

To connect the I/O device to the computer of GV-VMS, you may need additional devices: GV-Net, GV-Net Card, GV-NET/IO Card or GV-I/O Box. For details, visit [GeoVision website](#).

To set up I/O devices on GV-VMS, click **Home**  > **Toolbar**  > **Configure**  > **Accessories** (if available) > **I/O Device** (if available) > **I/O Device Setup**. This dialog box appears.

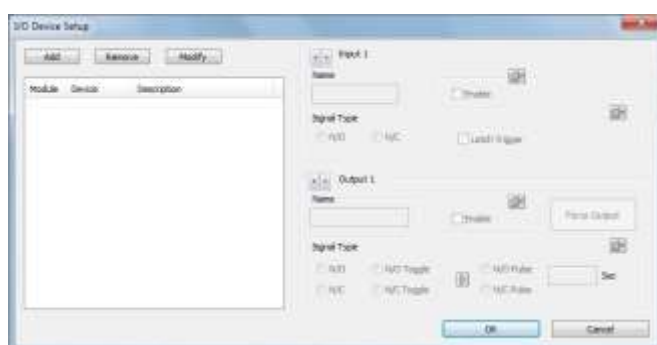


Figure 6-1

Note: The **Accessories** option only appears when GV-Keyboard or GV-Joystick has been set up on GV-VMS. The **I/O Device** option only appears after at least one I/O device has been added.

6.1.1 Adding I/O Devices

To add an I/O device to GV-VMS, click the **Add** button in I/O Device Setup dialog box.



Figure 6-2

There are three ways to add an I/O device:

- **I/O Box (USB):** Select if GV-VMS is connected to the GV-I/O Box through USB connection.
 1. Select the type of **Device** connected.
 2. Select the **COM port** used to connect the device.
 3. Assign an **Addr.** number to the device. Start by setting the first device to 1, and then assign a different address for every new device added.

- **IP Device:** GV-VMS can remotely control the I/O devices connected to GV-IP Devices through network connection. Select the GV-IP Device with I/O devices installed and click the  button.

- **I/O Box (IP):** GV-VMS can remotely control the I/O devices connected to GV-I/O Boxes through network connection.
 1. Click the **Search** button to search for available devices under LAN or click the **Add** button to manually type the connection information of the device.
 2. Select the device and click the  button. Type the **User Name** and **Password** if needed.

6.1.2 Setting up Input and Output Devices

After adding the I/O device, enable the input and output device. For GV-I/O Boxes connected through USB, you can configure the signal type on GV-VMS. For GV-IP Devices and GV-I/O Boxes connected through a network, you will have to configure the signal type on the device's Web interface.

[Input X] Click the **Arrow** buttons to select the input device and click **Enable**.

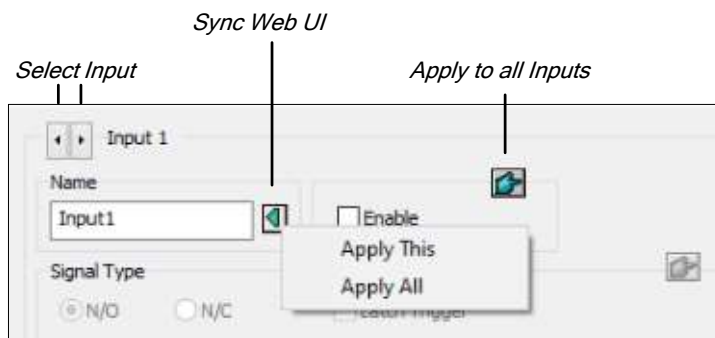


Figure 6-3

- **Name:** Name each input pin. Click the left Arrow button and select **Apply This** to sync the name of the specified input pin with that on the I/O device's Web interface. Optionally select **Apply All** to sync all names of the input pins with the ones on the I/O device's Web interface.
- **Signal Type:** Select a signal type for your input device: NO (normally open), NC (normally close) or Latch Trigger. For details on Latch Trigger, see *Latch Trigger* later in this chapter.

[Output X] Click the **Arrow** buttons to select the output device and click **Enable**.

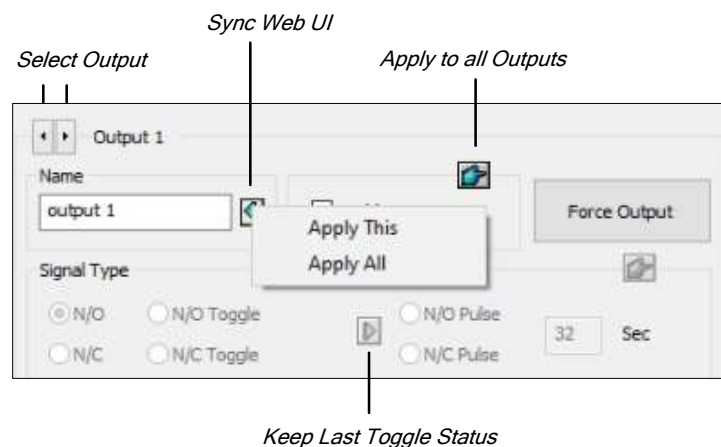


Figure 6-4

- **Name:** Name each output pin. Click the left Arrow button and select **Apply This** to sync the name of the specified output pin with that on the I/O device's Web interface. Optionally select **Apply All** to sync all names of the output pins with the ones on the I/O device's Web interface.
- **Force Output:** Click to test signal to the selected device.
- **Signal Type:** Select a signal type: N/O (Normal Open), N/O Toggle, N/O Pulse, N/C (Normal Closed), N/C Toggle, and N/C Pulse. For **Toggle** output type, the output continues to be triggered until a new input trigger ends the output. For **Pulse** output type, the output is triggered for the amount of time you specify in Sec field.
- **Keep Last Toggle Status:** See *Keeping Last Toggle Status* later in this chapter.

Note:

1. PTZ camera and I/O devices cannot be assigned to the same port at the same time.
2. To sync all input / output pin names with those on I/O device's Web interface, right-click the I/O device on the list and select **Module Pin Name Sync with Web UI**.



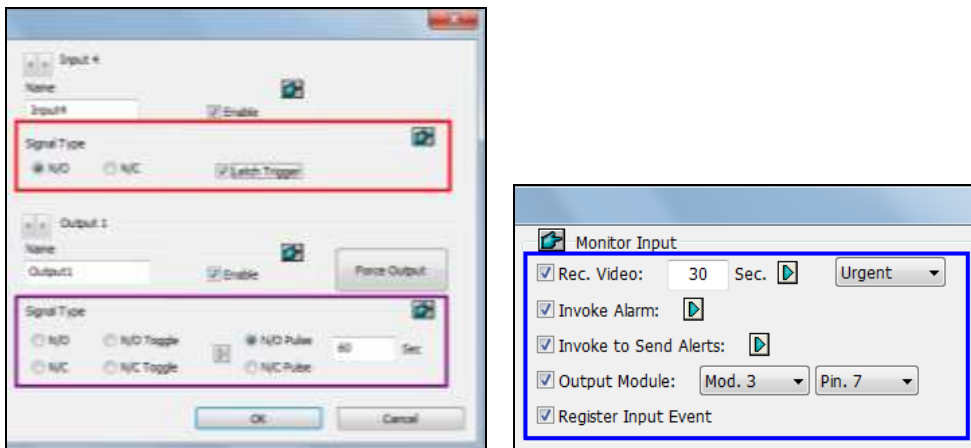
Figure 6-5

6.1.3 Latch Trigger

Instead of constant output alarm in N/O and N/C during the input trigger, the Latch Trigger option provides a momentary output trigger.

Setting up Latch Trigger

In the I/O Device dialog box (Figure 6-1), select **Latch Trigger**.



I/O Device Setup

I/O Application Setting

Figure 6-6

Application Example

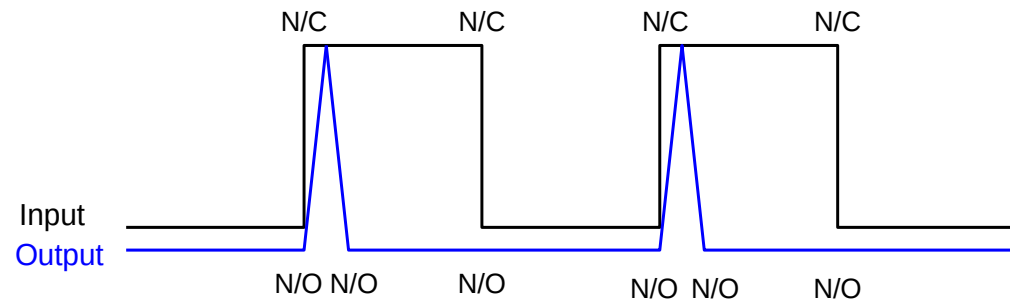
In the above scenario, Input 4 is set to N/O and Latch Trigger. When Input 4 is triggered:

- The camera starts recording for 30 seconds using the frame rate settings for Urgent Event and stops itself when the next input triggers (see the Rec Video option in the blue box).
- Computer Alarm sounds once (see the Invoke Alarm option).
- The output (Module 3, Pin 7) is triggered simultaneously based on the Latch Trigger mode (see the illustrations below).

The following illustrations can help you understand different output signals (see purple square in the above dialog box) working with the Latch Trigger option.

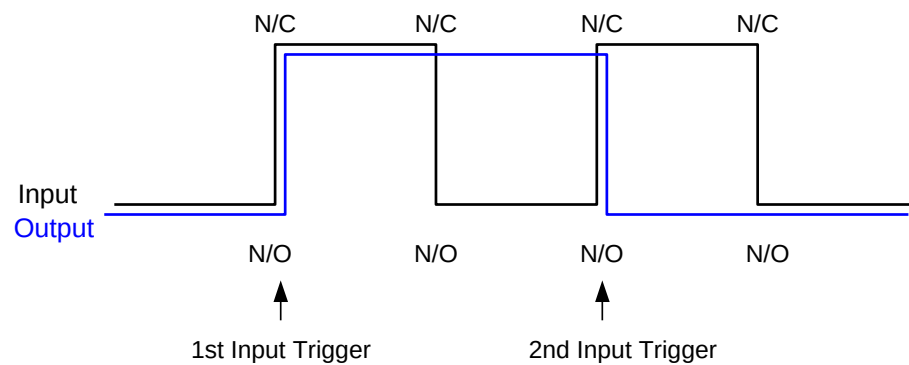
1. N/O (Normal Open) + Latch Trigger

Once the input triggers the output, the output will be triggered for a short moment and then turn off itself.



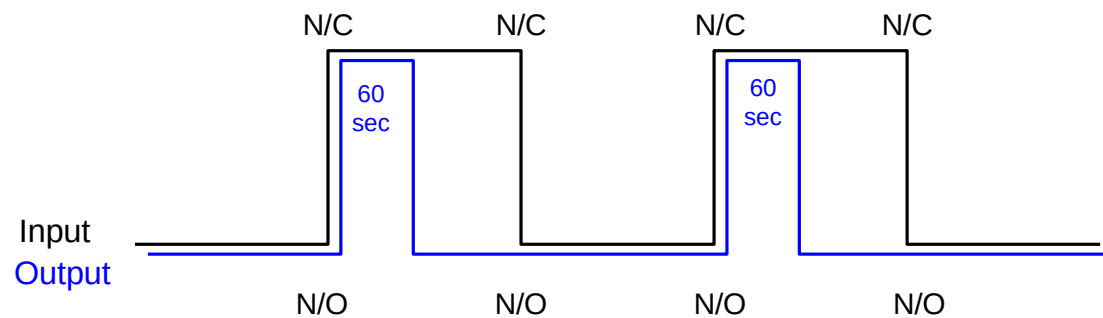
2. N/O Toggle + Latch Trigger

Once the input triggers the output, the output will keep triggering until a new input trigger.



3. N/O Pulse + Latch Trigger

Suppose you set the Pulse time to 60 seconds. Once the input triggers the output, the output will remain ON for 60 seconds before turning off itself.



6.1.4 Keeping Last Toggle Status

This feature can memorize the current output state when the monitoring is stopped or the system is restarted. For example, if the output device is a light, the triggered light will remain ON when you stop monitoring.

Setting up “Keep Last Toggle Status”

In the I/O Device dialog box (Figure 6-1), select **N/O Toggle** or **N/C Toggle**, and click the **Arrow** button on the right to select **Keep Last Toggle Status**.

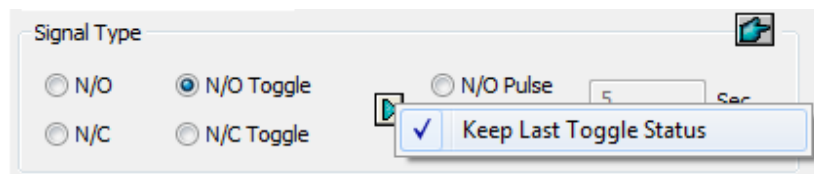


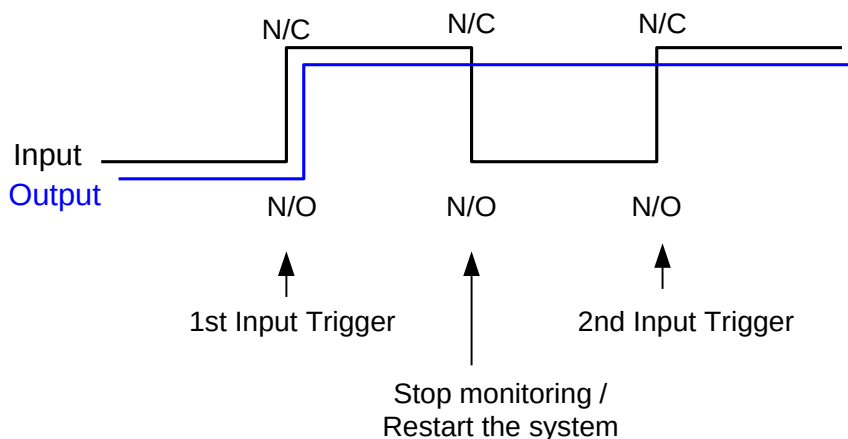
Figure 6-7

Application Example

The following two illustrations explain how the input works with the output set to **Keep Last Toggle Status**.

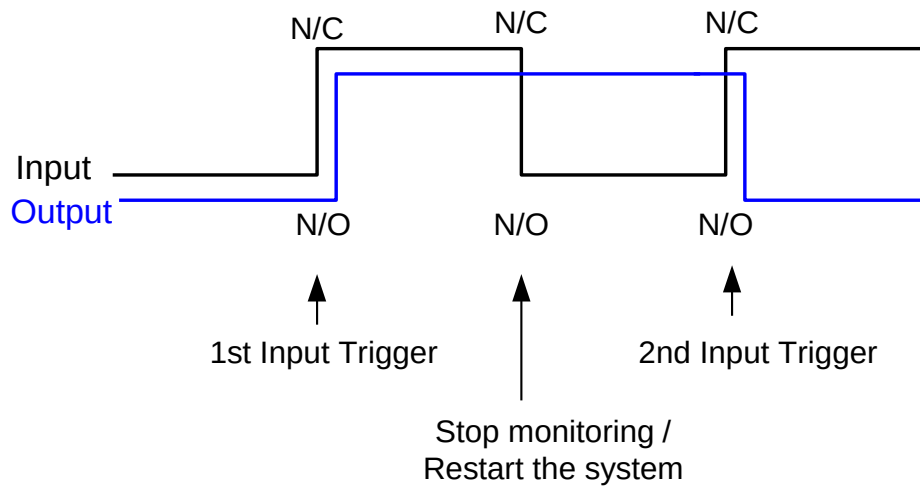
1. Input (N/O) + Output (N/O Toggle + Keep Last Toggle Status)

The triggered output remains ON even when you stop monitoring or restart the system.



2. Input (N/O + Latch Trigger) + Output (N/O Toggle + Keep Last Toggle Status)

When “Latch Trigger” works with “Keep Last Toggle Status”, the output only has a momentary trigger but also needs to remain ON even when you stop monitoring or restart the system. Therefore under the two conditions, the output turns off when a new input triggers.



6.1.5 Setting up PLC I/O devices

1. To connect a PLC I/O device to GV-VMS, click **Home**  > **Toolbar**  > **Configure**  > **Accessories** > **PLC Device Setup**. This window appears.

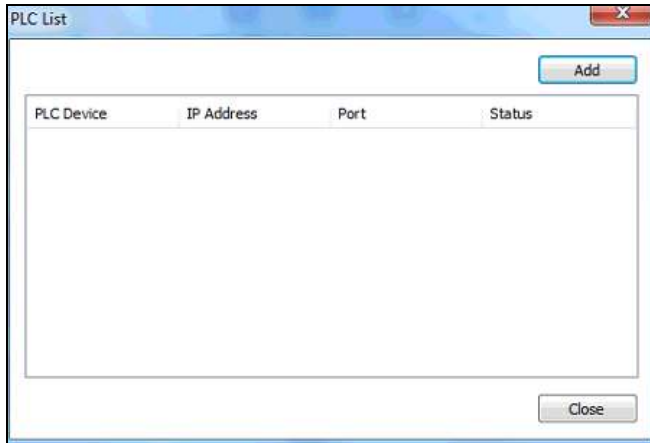


Figure 6-8

2. Click the **Add** button to type the name, **IP Address**, **Port**, **Password**, **M-Pin Range** and select the **Connection Type** of the PLC Device. The M-Pin Range supports up to 999999 pins
3. To bind the M-pins, click **Home**  > **Toolbar**  > **Configure**  > **Accessories**, and select **I/O Device Setup**. When the I/O Device Setup dialog box appears, select the PLC device, click the **Add** button and select **PLC I/O**.

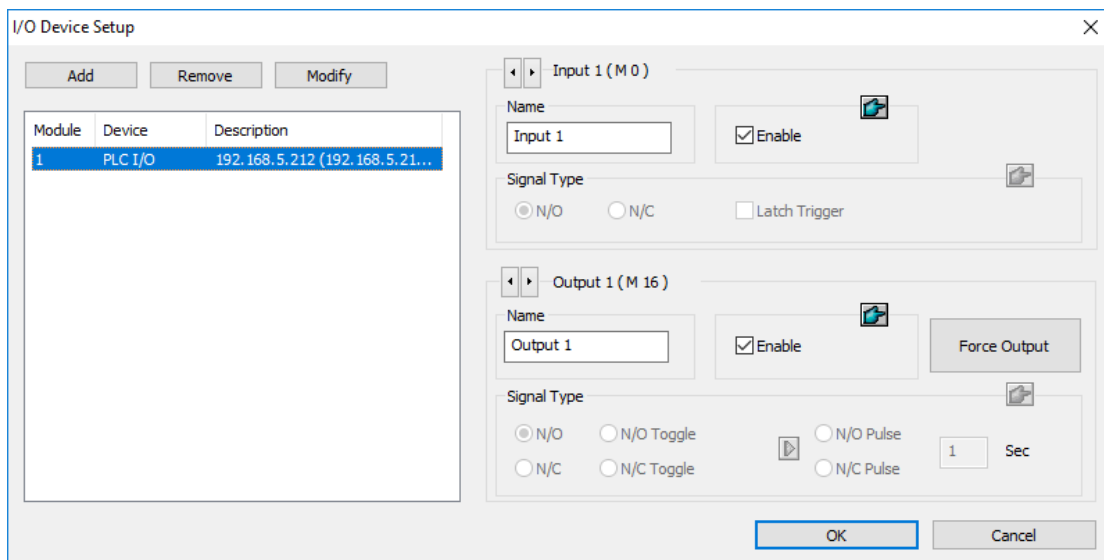


Figure 6-9

4. In the PLC I/O Module Configuration Dialog, drag the pins on the left-hand side to the I/O module on the right-hand side.

Note: Every Input/Output module can only support up to 16 pins. To use other pins, add more I/O modules.

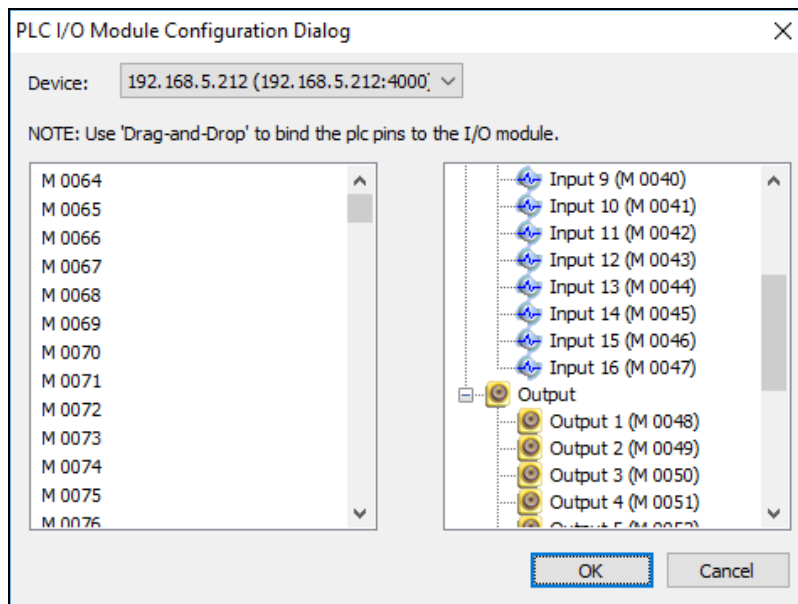


Figure 6-10

6.2 Advanced I/O Applications

After adding I/O devices to GV-VMS, you can configure advanced I/O applications, such as setting alarm notifications, defining a PTZ camera movement upon input trigger, setting momentary or maintained mode, and deactivating alarm and alert settings.

Click **Home**  > **Toolbar**  > **Configure**  > **Accessories** (if available) > **I/O Device** (if available) > **I/O Application Setting**. This dialog box appears.

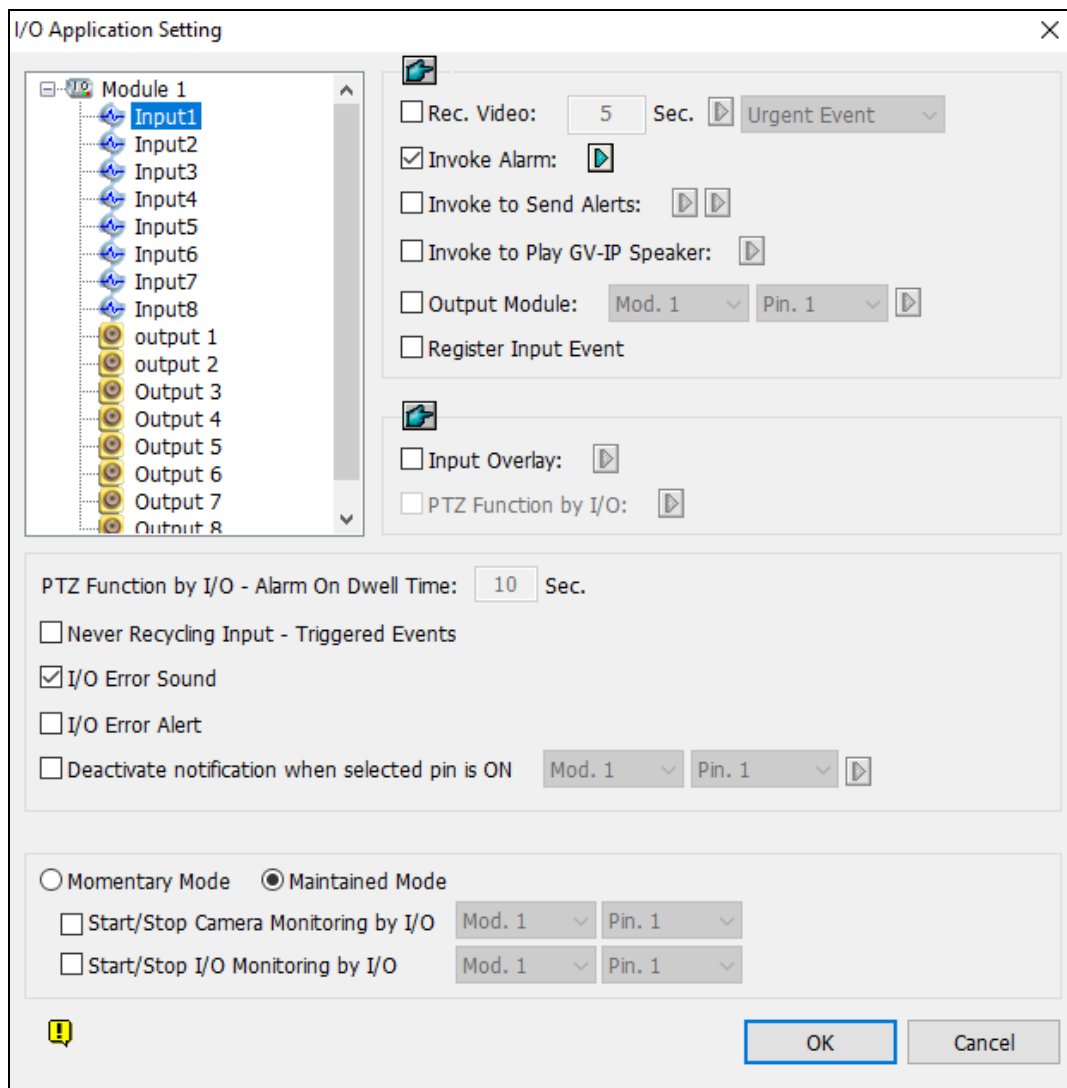


Figure 6-11

Note: The **Accessories** option only appears when GV-Keyboard or GV-Joystick has been set up on GV-VMS. The **I/O Device** option only appears after at least one I/O device has been added.

6.2.1 Setting up Actions upon Input Trigger

You can set up the actions to be performed after an input device is triggered. Select an input on the left, and then click the Finger button  to apply the same settings to all inputs.

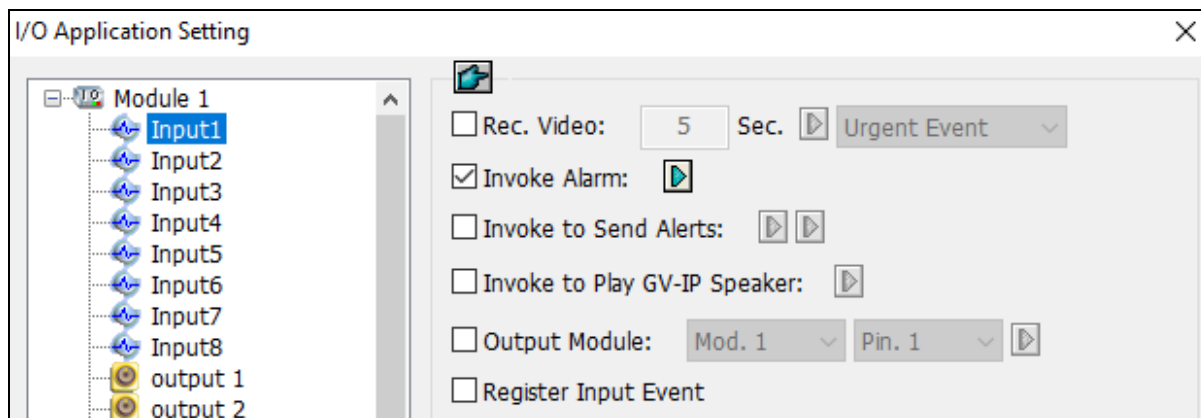


Figure 6-12

[Monitor Input]

- **Rec Video:** Records one or multiple videos upon input trigger. Specify the recording duration and click the **Arrow** button to select which camera to record when an input is triggered. Use the drop-down list to select whether to use the frame rate settings for Urgent Event or General Event. For details on setting up Urgent and General Event, see *Configuring General Setting* in Chapter 2.
- **Invoke Alarm:** Activates a computer alarm when an input is triggered. You can select the alarm sound from the drop-down list.
- **Invoke to Send Alerts:** Sends e-mail notifications when an input is triggered. Click the first **Arrow** button to select the associated camera channel for video to be sent. Click the second **Arrow** button to specify the recipient's e-mail address. To attach video to the e-mail, it is required to enable **Attach Image Setup** in the email setup. See *Setting up E-Mail Notifications* in Chapter 1.
- **Invoke to Play GV-IP Speaker:** Activates the connected GV-IP Speaker to play audio files when an input is triggered. You can assign a different audio file and play mode for each input pin.
- **Output Module:** Triggers the specified output module when an input is activated. Use the drop-down lists to select the output module and pin number.
- **Register Input Event:** Registers the I/O trigger events into System Log. Each event is labeled with ID, time, device name (camera or I/O input), corresponding module of the device, and event for later retrieval. For details on System Log, see *System Log* in Chapter 1.

Tip: You can also select one output device to set up the Invoke to Send Alerts function for sending e-mail notifications upon output trigger.

6.2.2 Moving PTZ Camera to Preset Points upon Input Trigger

This feature allows you to move the PTZ camera to preset points when an input is triggered. Select an input number to be set up.

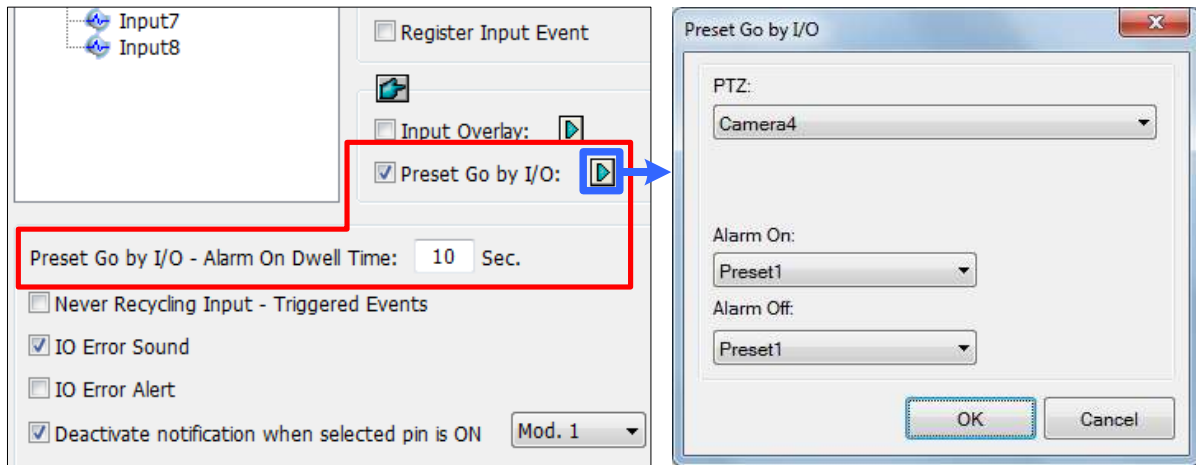
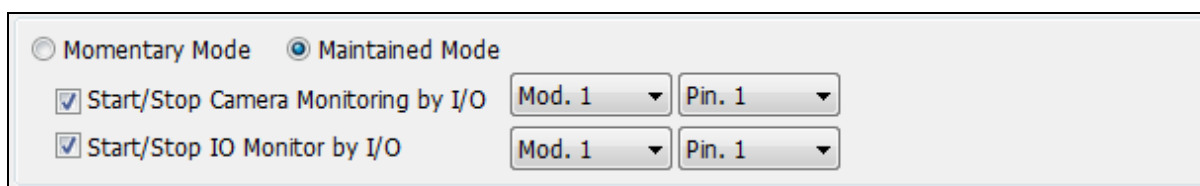


Figure 6-13

- **Preset Go by I/O:** Enable the option and click the **Arrow** button to select your PTZ camera from the drop-down list.
- **Alarm On:** Moves the PTZ camera to a preset point when the input is triggered.
- **Alarm Off:** Moves the PTZ camera to a preset point when the triggered input is off.
- **Preset Go by I/O - Alarm On Dwell Time:** Specify the amount of time the PTZ camera stays at “Alarm On” preset point, before returning to the “Alarm Off” preset point.

Note: Depending on the capability of the PTZ camera, up to 256 PTZ preset points (ranging from 1 to 256) and addresses (ranging from 0 to 255) can be programmed.

6.2.3 Setting up Momentary and Maintained Modes



The screenshot shows a configuration window with two radio buttons at the top: 'Momentary Mode' (unselected) and 'Maintained Mode' (selected). Below these are two checked checkboxes. The first checkbox is 'Start/Stop Camera Monitoring by I/O', followed by two dropdown menus both set to 'Mod. 1' and 'Pin. 1'. The second checkbox is 'Start/Stop IO Monitor by I/O', also followed by two dropdown menus both set to 'Mod. 1' and 'Pin. 1'.

Figure 6-14

[Momentary Mode] Push button switches that are normally open and stay closed as long as the button is pressed. Momentary switches allow turn-on or turn-off from multiple locations.

For example, certain premises have a designated entry/exit door. When the staff enters the entry door, the system starts monitoring. When the staff leaves from the exit door, the system stops monitoring.

[Maintained Mode] Push-on/push off button switches that stay open until thrown, and then stay closed until thrown again. Maintained switches are convenient for only one switch location.

For example, in the business hour when the door is opened, the system stops monitoring; in the non-business hour when the door is closed, the system starts monitoring.

6.2.4 Deactivating Alarm and Alert upon Input Trigger

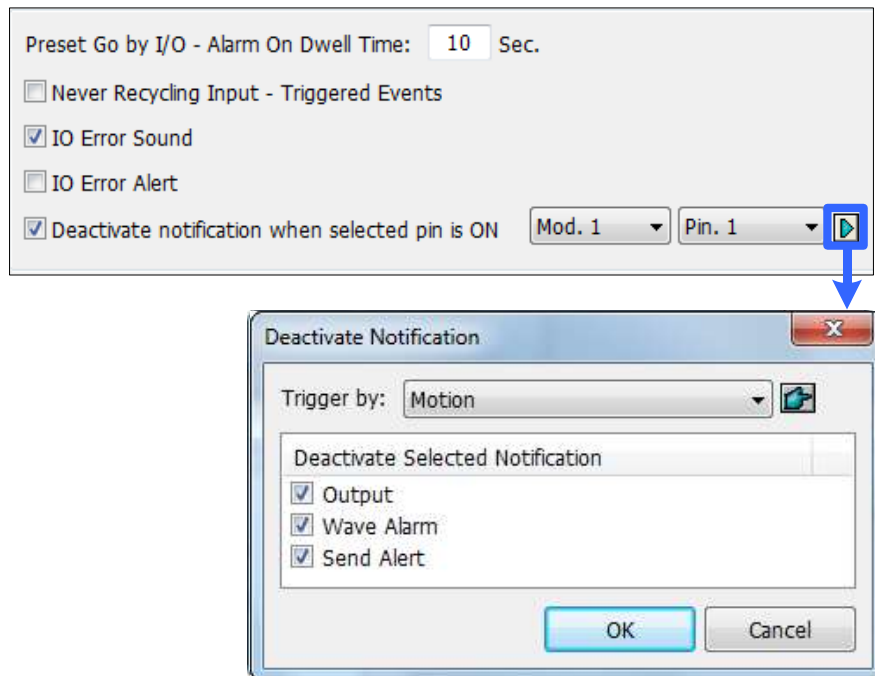


Figure 6-15

[Deactivate notification when selected pin is ON] When an assigned input module is activated, all designated alarms and alerts will be disabled. Assign an installed input module and a pin number for the application.

[Deactivate Notification] Click the **Arrow** button to select the alert to deactivate.

- **Triggered by:** Select an alert condition from the drop-down list for the application. For example, if you choose Motion, all designated alarms and alerts upon motion detection will be deactivated when the assigned input module is activated.
- **Deactivate Selected Notification:** Select the alarms and alerts you want to be deactivated, such as Output, Wave Alarm and/or Send Alert, when the assigned input module is activated.

6.2.5 Other I/O Application Functions

In the I/O Device Application dialog box, you can also set up Input Overlay on live view, alert for I/O errors, and whether to recycle input-triggered events. Select an Input number to be set up.

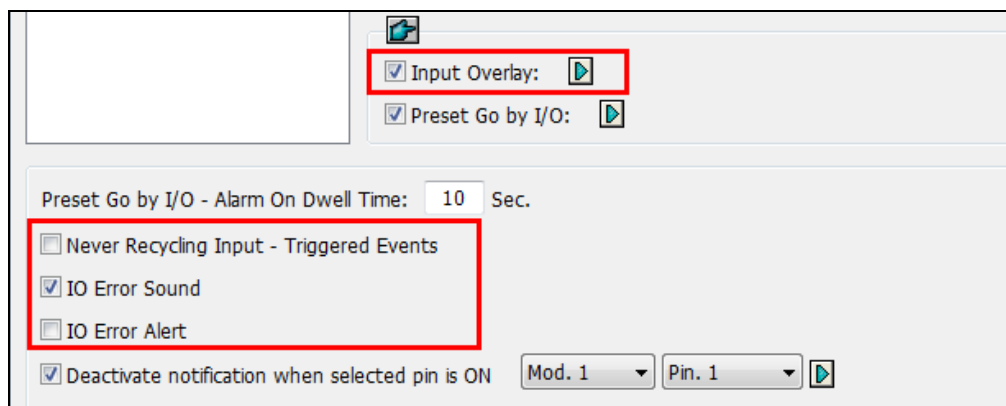


Figure 6-16

[Input Overlay] Select to overlay the name of an input device on live video for alert or save the name to video files upon the input trigger. Click the **Arrow** button to select the camera to overlay input name.

To overlay the name of a triggered input on live video, click **Home**  > **Toolbar** > **Configure**  > **Video Process**. In the dialog box that appears, select **Text Overlay** in the Video Analysis drop-down list, select the camera, and click **Setting**. Select **Print on screen (Only for I/O alarm)** and/or **Print on video file**. Up to 5 input names can be stamped on one camera channel when inputs are triggered.

[Never Recycling Input-Triggered Events] When selected, the files recorded upon input trigger won't be recycled by the system when disk space is full.

[IO Error Sound] When enabled, the computer alarm will sound when GV-VMS fails to detect the connected I/O device.

[IO Error Alert] When enabled, an e-mail notification will be sent when GV-VMS fails to detect the connected I/O device. For e-mail alerts, see *Setting up E-mail Notifications* in Chapter 1.

6.3 I/O Devices in Content List

When an I/O device is added to the system, the I/O device will appear in the Content List.

1. To display the Content List, click **Home**  > **Toolbar**  > **Content List** .
2. Click **I/O Device** to see the I/O devices added to GV-VMS. When an input or output is triggered, its icon will light up in the I/O Device list.

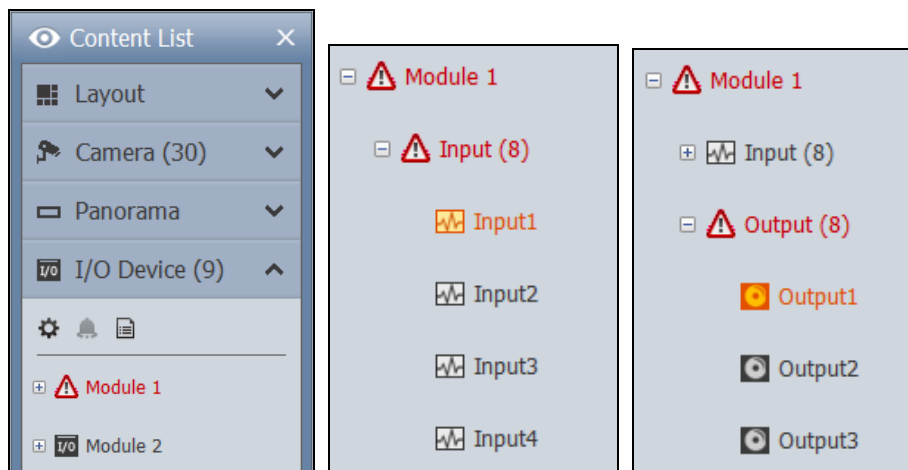


Figure 6-17

3. You can force the output device to be triggered by clicking its icon . Another way to trigger an output is to select an output and click the **Force Output** button .
4. To manually turn off a triggered output, right-click the triggered output in the list and click **Reset**.

6.4 Visual Automation

The Visual Automation helps you automate any electronic device by triggering the connected output. You can then intuitively click on the image of the electronic device, a light for example, to change its current state, e.g. turning the light on.

1. On the main screen, click **Home**  > **Toolbar**  > **Configure**  > **Accessories** (if available) > **I/O Device** (if available) > **Visual Automation Setting**. This dialog box appears.



Figure 6-18

2. Select a camera from the drop-down list, and select **Enable**.
3. Drag a region on the camera view. A dialog box appears.
4. Select the connected module and output device. Type a **Note** to help you identify the device.
5. To change the frame color of the set region, click the **Set Color** button.
6. To test the output trigger, click the region on the camera view drawn in Step 3.

On the main screen, move the cursor to the camera view with the Visual Automation settings, click **Tools**  > **I/O Automation**. Next, click the region you set to trigger the connected output device. You can right-click the camera view and select **Show all** to see all Visual Automation regions if needed.



Figure 6-19

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Remote Viewing

With a Web browser, you can remotely view live video, download and play back video files, as well as controlling PTZ cameras and I/O devices, through the WebCam Server.

The remote computer used to access live video must meet the following minimum requirements:

OS	64-bit	Windows 8 / 8.1 / 10 / 11 / Server 2012 R2 / Server 2016 / Server 2019
CPU		4 th Generation i5-4670, 3.4 GHz
Memory		8 GB RAM
Hard Disk		80 GB
Network		TCP/IP
Web Browser		IE 7.0 or later Chrome V38.0.2125.111 or later Firefox 30.0 or later Edge V20 or later
DirectX		9.0c

Note: Some remote functions may not be supported by non-IE browsers. However, users can download the **Web Viewer** from non-IE browsers to access the full functions of the WebCam Server.

7.1 Remote Viewing Using a Web Browser

GV-VMS has a built-in WebCam Server that allows you to remotely view and manage the camera images from GV-VMS using a Web browser. Different browsers have slightly different user interfaces.

Note:

1. For Internet connection, GV-VMS must have an IP address or domain name from ISP. If the IP address is dynamic, you may use the DDNS service to directly change IP addresses to GV-VMS. For the service, see *Dynamic DNS* in Chapter 9.
 2. Make sure the remote PC used to access GV-VMS meets the recommended system requirements mentioned above.
 3. If a router or firewall is installed with the GV-VMS system, ensure the following communication ports required by the WebCam Server are open: Command Port (4550), Data Port (5550), Audio Port (6550) and HTTP Port (80).
-

1. To enable the WebCam Server on GV-VMS, click **Home**  > **Toolbar**  > **Network**  > **WebCam Server**. The Server Setup dialog box appears. You can click **OK** to close the dialog box for now and modify the default configurations later.
2. On a remote computer, open a Web browser and type the IP address or domain name of GV-VMS. The Webcam Login dialog box appears.

Note: If the default HTTP port 80 has been changed, type a colon and the port number after the IP address, for example, **Http://192.168.3.199:81/**.

3. Type a user ID and password created on GV-VMS.

4. Click **Login**. When accessing the remote view for the first time, you may need to download and install different files for different browsers:
 - a. For **Internet Explorer**, download and install the plugin from the pop-up window.

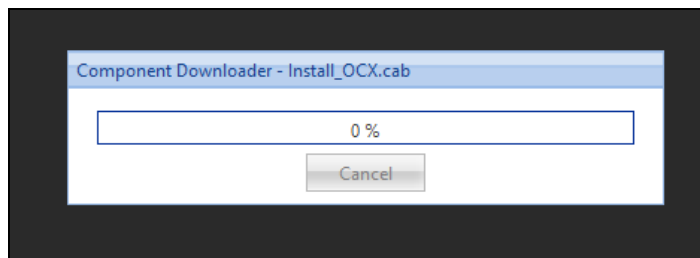


Figure 7-1

- b. For **Google Chrome**, **Microsoft Edge** or **Mozilla Firefox**, download and run **Web Viewer** from the link below the live view window. After the connection to GV-VMS is established using the Web Viewer, you can enjoy complete functions of the WebCam Server.

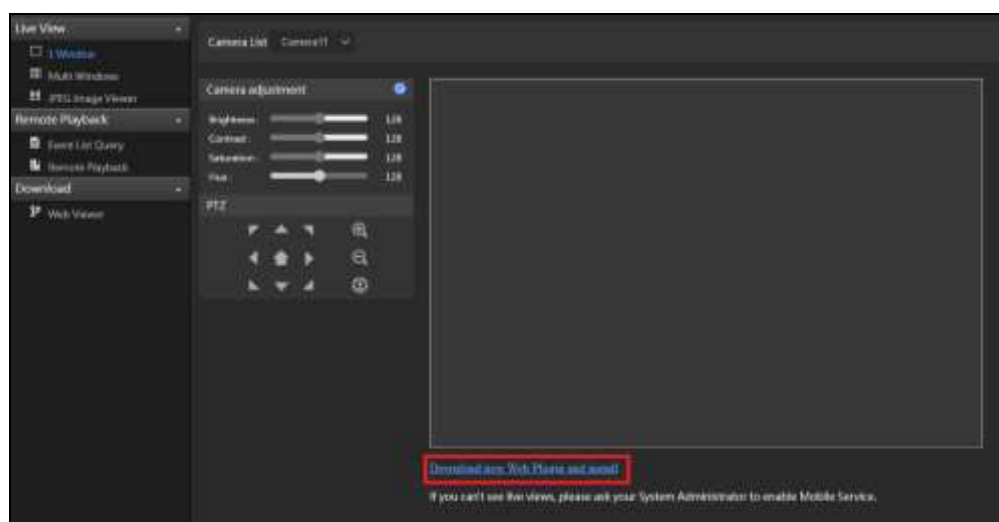


Figure 7-2

WebCam Server Features

Name	Description
Live View	Accesses different types of live view viewers. See <i>Single View Viewer</i> , <i>Multi-Window Viewer</i> and <i>JPEG Image Viewer</i> later in this chapter.
Remote Playback	Accesses remote playback options. See <i>Playing Back Events</i> later in this chapter.
Remote ViewLog	Accesses the Remote ViewLog. See <i>Remote ViewLog</i> later in this chapter.
Remote eMap	Accesses E-Maps remotely set up at GV-VMS. See <i>E-Map Application</i> in Chapter 8.
Download	Accesses the Download Center. This function offers optional viewing programs to be downloaded to the local PC. See <i>Download Center</i> later in this chapter.

7.2 WebCam Server Settings

To enable and configure the built-in WebCam Server, click **Home**  > **Toolbar**  > **Network**  > **WebCam Server**.

7.2.1 General Settings

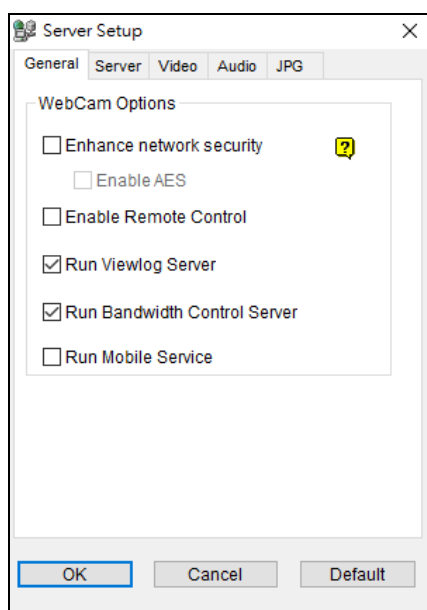


Figure 7-3

- **Enhance network security:** If enabled, a word verification step is required for each WebCam Server's login.
 - ⊙ **Enable AES:** Select to add an additional security protection for live streaming between GV-VMS and WebCam Server.
- **Enable Remote Control:** Select to remotely configure the I/O devices through the WebCam Server.
- **Run Viewlog Server:** Select to remotely play back video files through the WebCam Server.
- **Run Bandwidth Control Server:** Select to enable the **Bandwidth Control Server**. For details, see *Bandwidth Control Application* in Chapter 9.
- **Run Mobile Service:** Select to enable the mobile function to connect to GV-Eye and GV-Edge Recording Manager (MAC Version).

Note: When **Enhance network security** is enabled, JPEG/Mobile applications will be disabled.

7.2.2 Server Settings

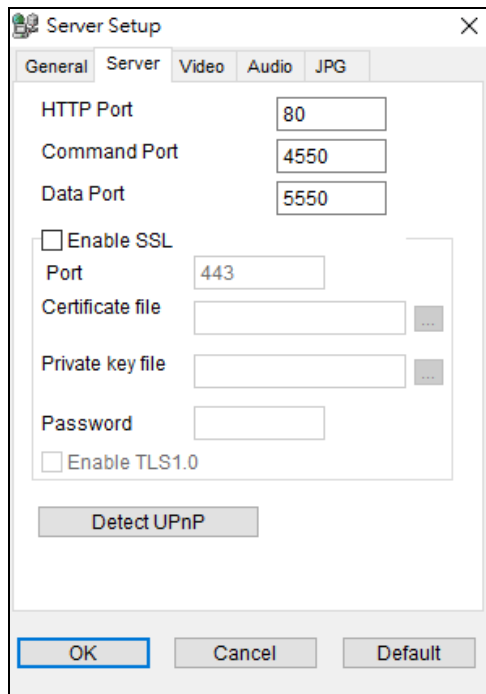


Figure 7-4

- **HTTP Port:** Used to access the Internet. By default, it is 80.
- **Command Port:** Used to access WebCam. By default, it is 4550.
- **Data Port:** Used to transfer data over the Internet. By default, it is 5550.
- **Enable SSL:** Enable the Secure Sockets Layer (SSL) protocol to ensure the security and privacy of Internet connection. To use your own generated Certificate and Private Key or ones verified by SSL authority, click the [...] buttons and select the files stored at your computer. Note that the system will enable both SSL 2.0 and SSL 3.0 as its default; to further enable TLS 1.0 protocol when using SSL protocol, select **Enable TLS 1.0**.
- **Detect UPnP:** For details, see *UPnP Settings* later in this chapter.

Note: If you want to enable SSL 3.0 on a computer running Windows Vista, it is required to upgrade your system to Service Pack 1 or Service Pack 2.

7.2.3 Video Settings

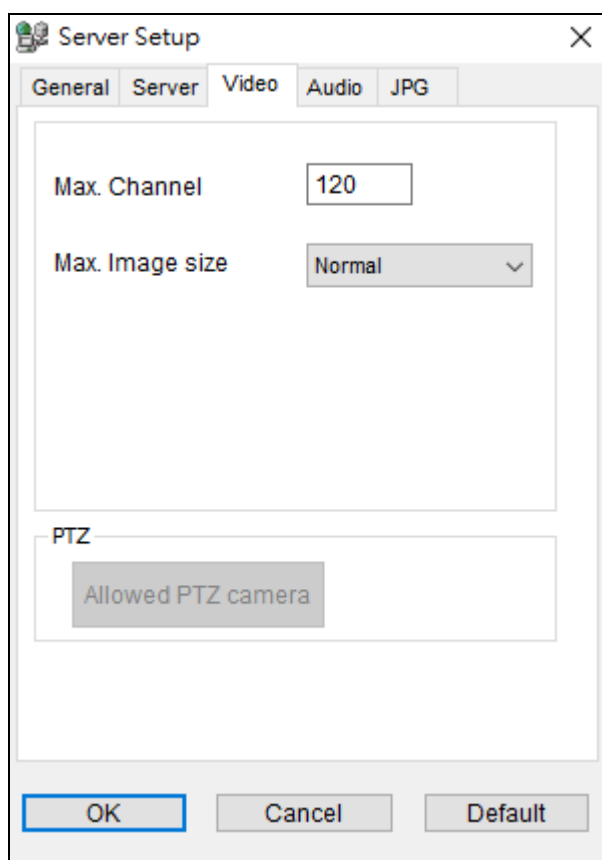


Figure 7-5

- **Max. Channel(s):** Specify the number of channels allowed to access the WebCam Server, with the upper limit of 200 channels.
- **Max. Image size:** Select a maximum resolution allowed for remote access. The default resolution on the WebCam is **Normal** (320 x 240). The other options are **Large** (640 x 480 or 704 x 480) and the **Actual Size** of that IP camera.
- **Allowed PTZ camera:** Controls PTZ cameras at a remote computer. Click the button and select the desired PTZ cameras to allow for remote access.

Note: To specify the time length allowed for a guest user to access the WebCam Server, click the account ID at the top of the main page, click **Password Setup**, and select **Local Account Edit**. In the WebCam tab, select the **Limit Connection Time** option and specify the time length. The time range is between 10 and 3600 seconds.

7.2.4 Audio Settings

Connecting Audio Devices

Through the WebCam Server, you can access live audio at a remote site and talk to the server site when necessary. Before using this feature, make sure all the necessary hardware are in place:

1. To record audio, check the connected IP camera has built-in audio function or an external microphone connected.
2. Check your sound card is already inside the computer. Connect a multimedia speaker to the audio output of your computer's sound card for receiving audio from the remote site.
3. Connect a desktop microphone to the input of the audio extension card (or cable line) for sending audio to the remote site.

Audio Setup

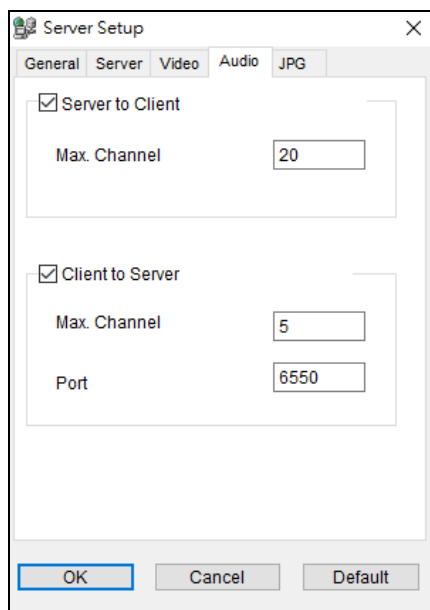


Figure 7-6

[Server to Client] Allows a remote computer to access live audio from GV-VMS.

- **Max. Channel(s):** Enter the maximum number of channels allowed to access live audio, with the upper limit of 40 channels.

[Client to Server] Allows a remote computer to speak to GV-VMS.

- **Max. Channel(s):** Enter the maximum number of channels allowed to speak to the server site, with the upper limit of 20 channels.
- **Port:** The default audio port is 6550.

7.2.5 JPG Settings

These settings allow you to send JPEG or GIF files over the Internet.

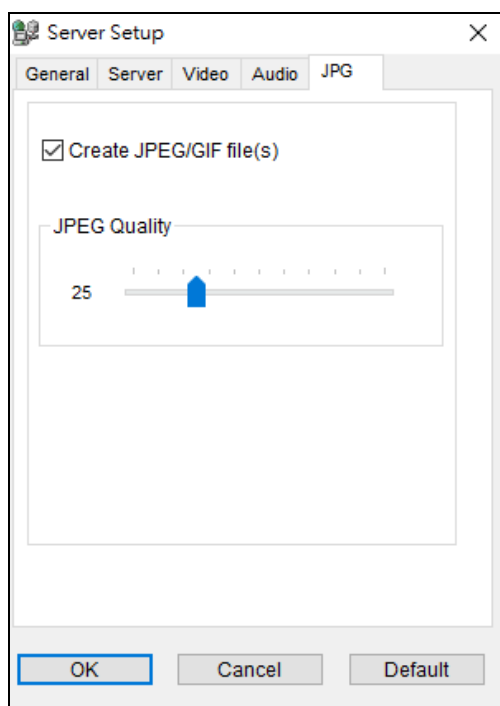


Figure 7-7

- **Create JPEG/GIF file(s):** You can access the JPEG images through the WebCam Server, and adjust the image quality. Bigger number results in better image quality and bigger image file size.

7.2.6 UPnP Settings

The WebCam Server supports UPnP technology (Universal Plug and Play) to allow automatic port configuration to your router. UPnP must be enabled both on your operating system and your router.

Enabling UPnP on the WebCam Server:

1. On the main screen, click **Home**  > **Toolbar**  > **Network**  > **WebCam Server**. The Server Setup dialog box appears.
2. Click the **Server** tab and click **Detect UPnP**. This dialog box appears.

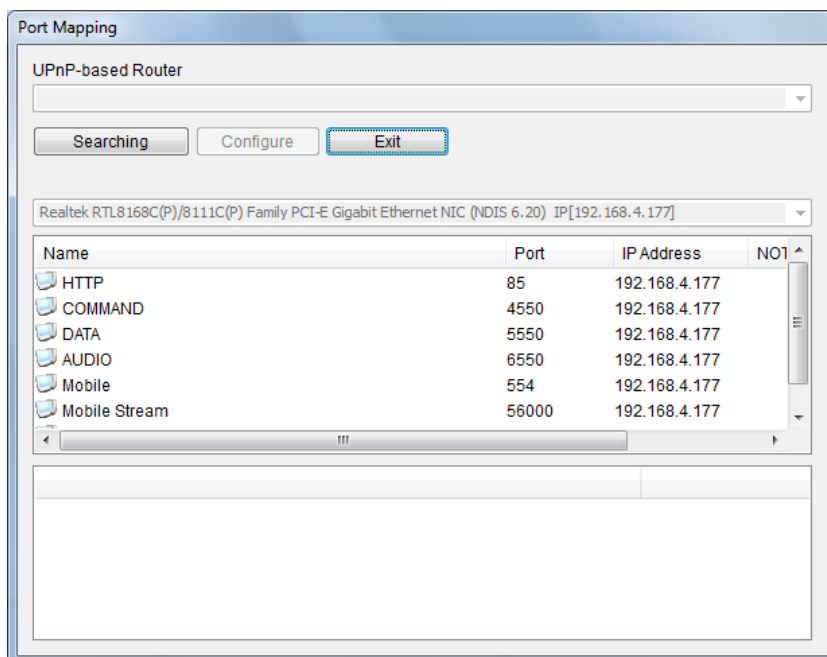


Figure 7-8

3. Click **Searching** to search the UPnP-enabled routers.
4. If your server is installed with multiple routers, select one from the UPnP Router drop-down list.
5. If you server is installed with multiple network adapters, select one from the drop-down list under the Searching button.
6. Click **Configure** to automatically configure the communication ports on the router.

Note: If you don't use the default ports, modify the related ports in the Server Setup dialog box (Figure 7-4) and then click **OK**. Re-open the dialog box and follow the above steps to configure your router.

7.2.7 Network Port Information

The Network Port Information is designed for users to view and manage all network ports of remote applications.

On the main screen, click **Home**  > **Toolbar**  > **Network**  > **Network Port Information**. This dialog box appears.

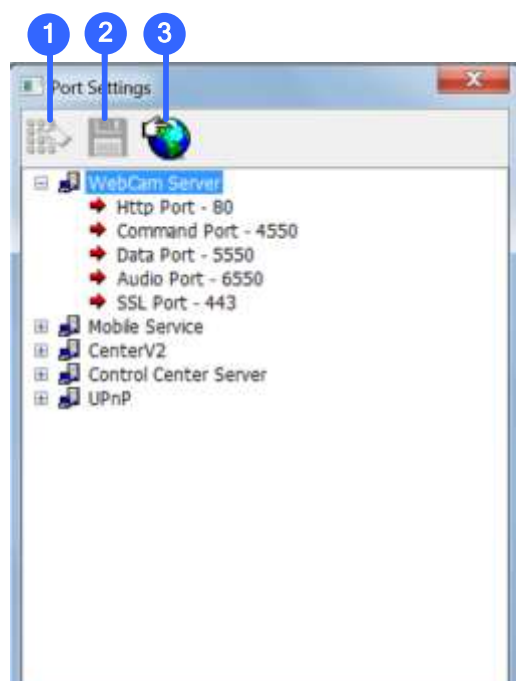


Figure 7-9

The controls on the Port Settings:

No.	Name	Description
1	Modify	Changes the port settings.
2	Save	Saves the port settings.
3	Port Mapping	Employs UPnP technology (Universal Plug and Play) to allow automatic port configuration to the router.

7.2.8 Mobile Service

Mobile Service allows remote connection and video streaming from GV-VMS by other applications, namely GV-Eye, GV-Edge Recording Manager – Mac version and the multicast of GV-Control Center. You can also add additional security protection for live streaming between GV-VMS and the connected application using AES Encryption.

For details on configuring multicast on GV-Control Center, see *Multicast Setting*, Chapter 9, in *GV-Control Center User's Manual*.

To add AES Encryption:

1. After connecting to GV-Edge Recording Manager / GV-Control Center / GV-Eye, on the main screen of GV-VMS, click **Home**  > **Toolbar**  > **Network**  > **Mobile Service**.
2. Select **Enable AES Encryption**.

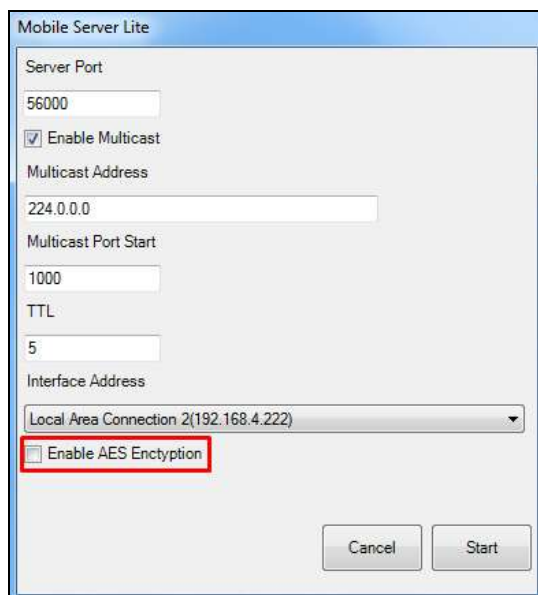


Figure 7-10

Note: The AES Encryption function is only compatible with

- GV-Edge Recording Manager V1.3.0.0 or later
 - GV-Control Center V3.5.0.0 or later
 - GV-Eye V2.5 or later
 - GV-VMS (WebCam Server) V17.1 or later
-

7.3 Single View Viewer

After logging into the WebCam Server successfully, you can see the single live view from GV-VMS.

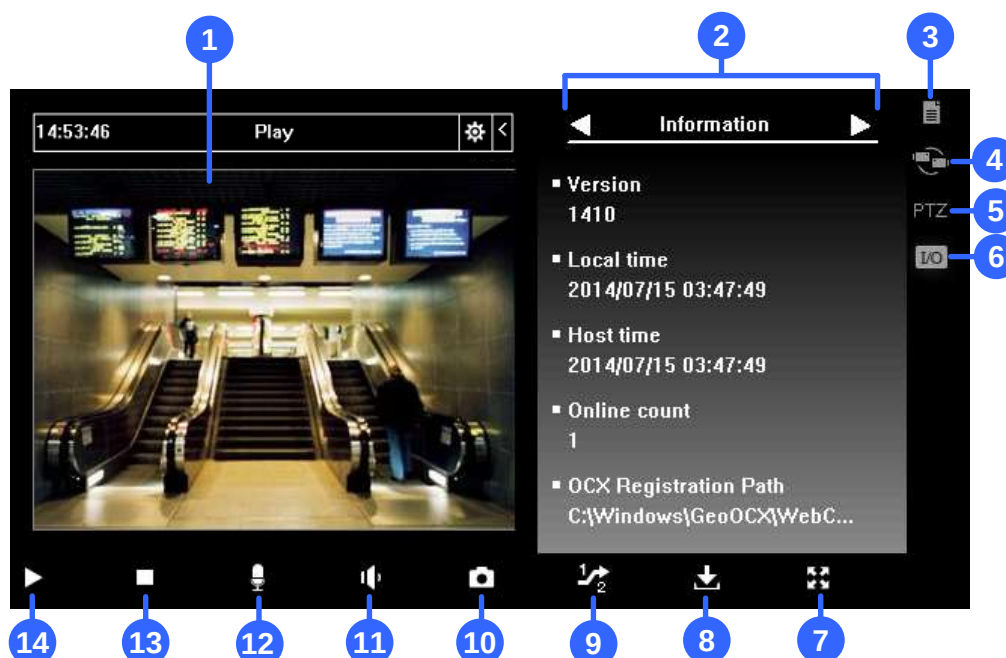


Figure 7-11

The controls in the Single View Viewer:

No.	Name	Description
1	Live Video	Right-clicking on live view allows you to instantly access some useful functions. The Resolution option can display a resolution indicator at the bottom right corner of the video.
2	Control Panel	See <i>Control Panel</i> later in this chapter.
3	Options	See <i>Alarm Notification</i> , <i>Video and Audio Configuration</i> , <i>Server List</i> , <i>Show Camera Name</i> and <i>Image Enhancement</i> later in this chapter.
4	Change Camera	Selects the desired camera for display.
5	PTZ Control	See <i>PTZ Control</i> and <i>Visual PTZ Control Panel</i> later in this chapter.
6	I/O Control	See <i>I/O Control</i> later in this chapter.
7	Full Screen	Switches to full screen view. The maximum video resolution configured on the WebCam Server will be applied. See <i>Video Settings</i> in <i>WebCam Server Settings</i> earlier in this chapter.
8	File Save	Saves video to a local computer in AVI format.

9	Change Quality	See <i>Adjusting Video Quality</i> later in this chapter.
10	Snapshot	Takes a snapshot of the displayed live view.
11	Speaker	See <i>Video and Audio Configuration</i> later in this chapter.
12	Microphone	See <i>Video and Audio Configuration</i> later in this chapter.
13	Stop	Terminates the connection to the remote GV-VMS.
14	Play	Connects to the remote GV-VMS.

Displaying Full-Screen Live View on Other Monitors

Using the IE browser, you can display up to 10 full-screen channels with multiple monitors installed. Right-click the live view and select a designated monitor to bring full-screen live view. The full-screen live view appears on the designated monitor immediately.

Note: The full-screen display closes at the designed monitor if its Web interface window is minimized.

7.3.1 Adjusting Video Quality

To adjust the live view quality to have megapixel resolution in the Single View Viewer:

1. Select **Actual Size** on GV-VMS. Click **Home**  > **Toolbar**  > **Network**  > **WebCam Server** > the **Video** tab > select **Actual Size** in the Max. Image Size option.

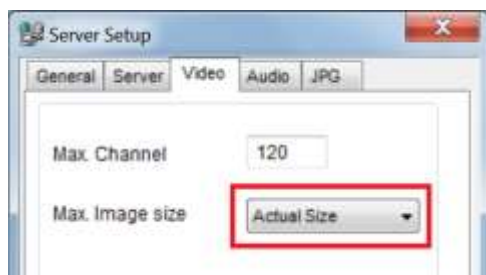


Figure 7-12

2. On the Single View, click the **Change Quality** button (No. 9, Figure 7-11). You will have the option of megapixel resolution now.

Note:

1. Streaming live view in Actual Size requires a lot of bandwidth. It is highly recommended to enable this function in a LAN environment.
 2. To have fisheye dewarping view, you must first follow the steps above to set fisheye camera to megapixel resolution. Next, right-click the camera view and select **Geo Fisheye**. For details on the fisheye settings, see *Fisheye View* in chapter 3.
-

7.3.2 Control Panel

A control panel can be opened next to the live view by clicking the **Menu** button and selecting any of the options. To change the pages of the control panel, use the right and left arrow buttons on the panel, or click the **Menu** button to directly make selection.

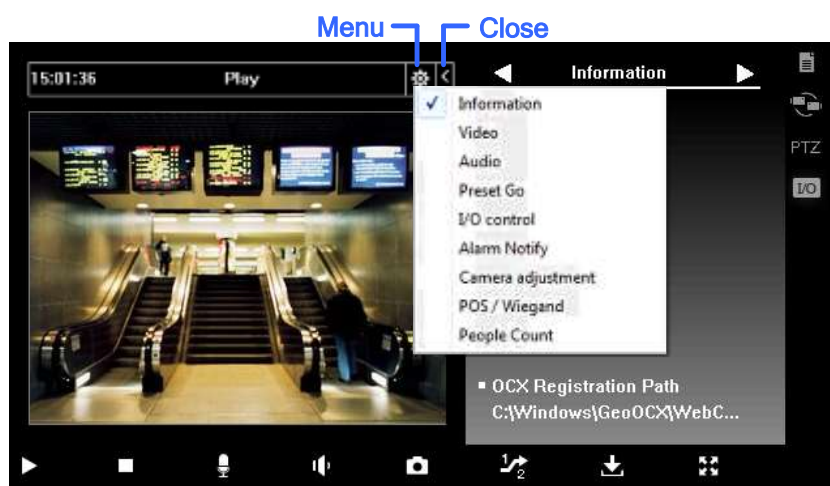


Figure 7-13

Name	Description
Information	Displays the current version, local time, host time and number of channels currently accessing WebCam.
Video	Displays the current video codec, resolution and data rate.
Audio	Displays audio data rates when the microphone and speaker devices are enabled.
Preset Go	Allows you to remotely move the PTZ to the preset points.
I/O Control	Provides a graphic display of the input and output devices from GV-VMS.
Alarm Notify	Displays the captured images by sensor triggers and/or motion detection. See <i>Alarm Notification</i> later.
Camera Adjustment	Remotely adjusts image quality by moving the slider to the desired values.
POS/Wiegand	Not functional.
People Count	Views the counts of Object Counting along with live view. Once the counts are logged into GV-VMS, In and Out counts will become zero and the system will start counting those numbers again.

7.3.3 Configuring Single View Viewer Options

To access the Single View Viewer options, click the **Option** button located on the right of the live view.

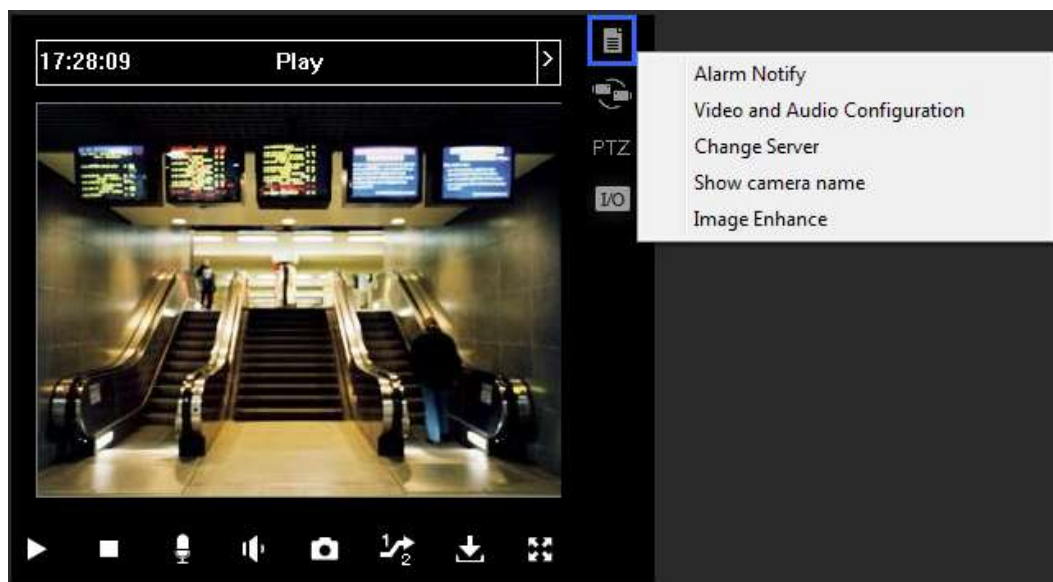


Figure 7-14

Alarm Notification

Up to four captured images can be shown in the control panel upon motion detection or input trigger.



Figure 7-15

1. Click the **Option** button, and select **Alarm Notify**. The Alarm Notify dialog box appears.
 - **Motion Notify:** The captured images are displayed in the control panel of the Single View upon motion detection.
 - **I/O Alarm Notify:** The captured images are displayed in the control panel of the Single View upon input-triggered detection.

- **Alert Sound:** Activates the computer noise alarm on motion and input-triggered detection.
 - **Auto Snapshot:** The program will take a snapshot every 5 seconds on motion and input-triggered detection.
 - **File Path:** Assigns a path to save the snapshots.
2. Click **OK** to apply the above settings.

Video and Audio Configuration

To change the video and audio configurations of the connected camera, click the **Option** button, and select **Video and Audio Configuration**.

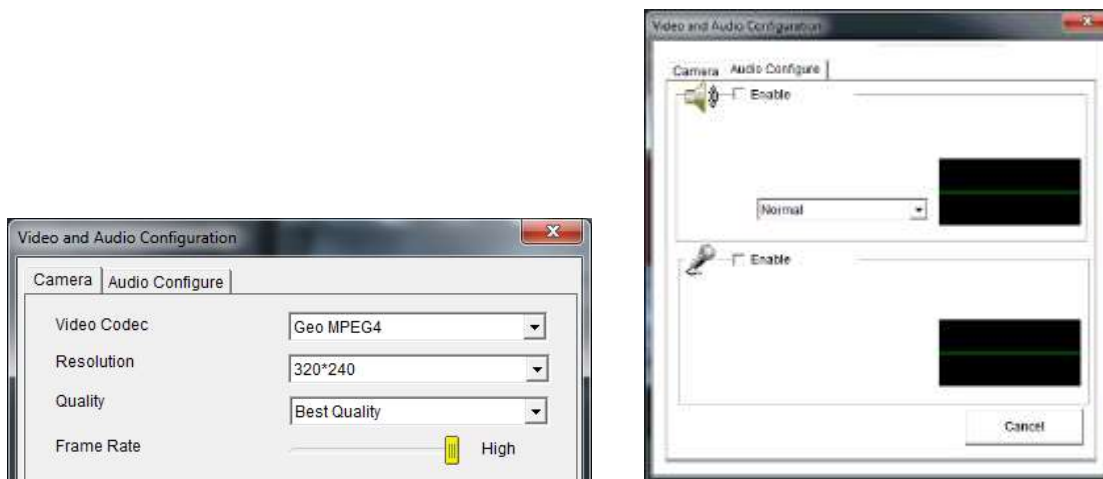


Figure 7-16

[Camera] Change the video codec, quality and frame rate. The resolution options depend on the maximum image size set on the connected GV-VMS. For details, see *Video Settings* in *WebCam Server Settings* earlier in this chapter.

[Audio Configure] Enable the microphone and speaker for two-way audio communication. Select **Speaker** to access live audio from the server site, and select **Microphone** to speak to the server site. Ensure the speaker and microphone are properly installed in the local computer, and the audio settings (Figure 7-6) are activated on the WebCam Server too. There are three options for audio quality:

- **Real Time:** Transmits simultaneously audio and video but may create sound interruption, depending on your network condition.
- **Smooth:** Has a smooth sound quality but without audio and video synchronization.
- **Normal:** The default value which has the audio and video effects between Real-Time and Smooth.

Server List

You can add the connection information of multiple GV-VMS systems to the WebCam Server for quick access later. Click the **Option** button > **Change Server** to display the following dialog box.

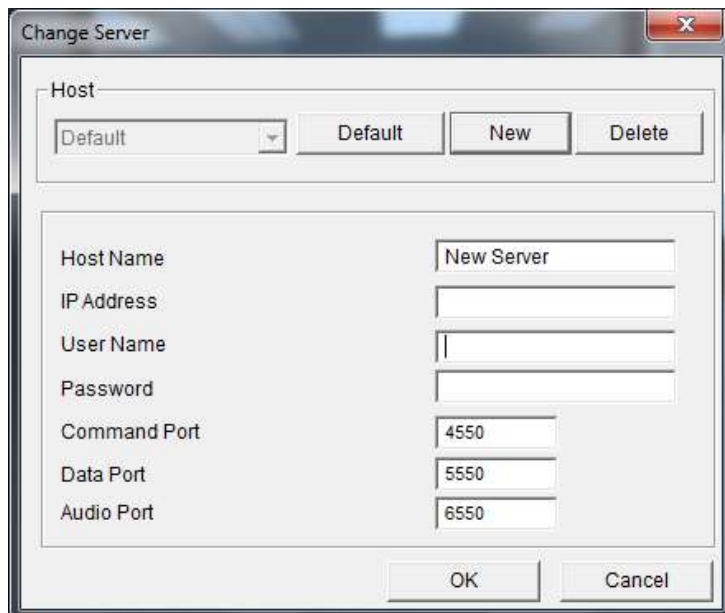


Figure 7-17

To add a GV-VMS system to the drop-down list, click the **New** button and type its connection information. Leave all port settings as defaults at **4550**, **5550**, and **6550** respectively unless otherwise necessary. Click the **OK** button. Then the created GV-VMS will appear in the Host drop-down list.

Show Camera Name

To show camera name on top-left corner of the live view, click the **Option** button and select **Show Camera Name**.

Image Enhancement

To enhance the image quality of live view, click the **Option** button and select **Image Enhance**.

- **De-Interlace:** Converts the interlaced video into non-interlaced video.
- **De-Block:** Removes the block-like artifacts from low-quality and highly compressed video.
- **Enable DirectDraw:** Enabled by default to enhance image quality. Some graphics cards might not support DirectDraw and can produce distorted frames. In this case, disable the DirectDraw function.

7.3.4 PTZ Control Panel

Click the **Camera Select** button to select one PTZ camera, and click the **PTZ Control** button (No. 7, Figure 7-14) to bring up the PTZ control panel.

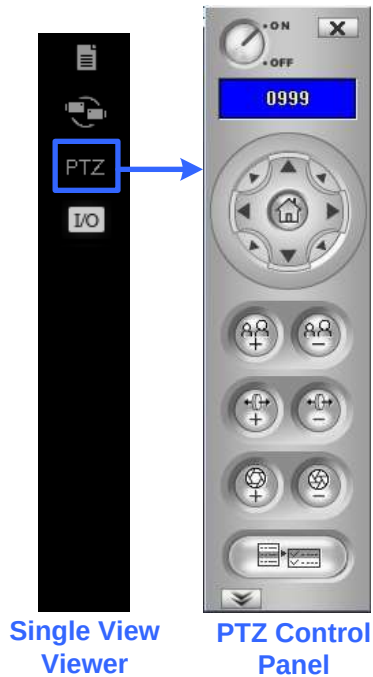


Figure 7-18

One PTZ camera can only be controlled by one user at a time. If several users are trying to control the same PTZ camera at the same time, the Single View viewer will give the priority to the first logon user and then to the next user in queue.

Each user will be given 60 seconds to control the PTZ camera. The Timer at the upper right corner informs the user of the remaining time of control or the total waiting time. The supervisor is given 666 seconds, which the highest priority to control the PTZ camera.

Click the  button to access additional PTZ functions. The functions available vary, depending on the PTZ models.

7.3.5 Visual PTZ Control

Other than the PTZ control panel, you can enable the Visual PTZ Control functions. Right-click the live view and select **Visual PTZ**. Next, click the green **PTZ** button on the top left corner of the PTZ control window to have these options:

- **Random Move:** You can move the camera view to any direction by clicking on a desired direction. When you place the mouse cursor on the live view, a circular PTZ control panel appears. See *PTZ Control Panel and Auto Functions* in Chapter 1 for details on the circular PTZ control panel.

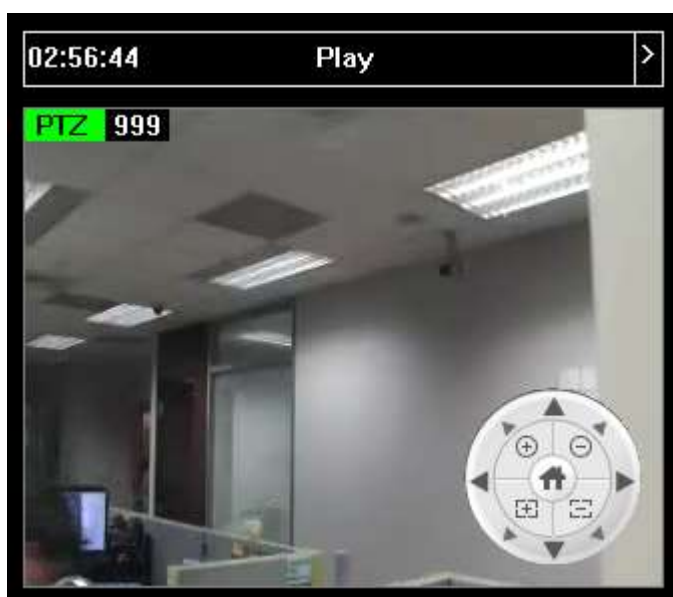


Figure 7-19

- **Center Move:** Only for GV-SD220, you can zoom in and out using the mouse scroll or by drawing a block directly on the live view.

7.3.6 I/O Control

The I/O control panel shows the I/O status and alarm event. Additionally, you can force output, as well as enable and disable I/O devices to the remote GV-VMS. Click the **I/O Control** button at the right of the live view to bring out the I/O control panel.

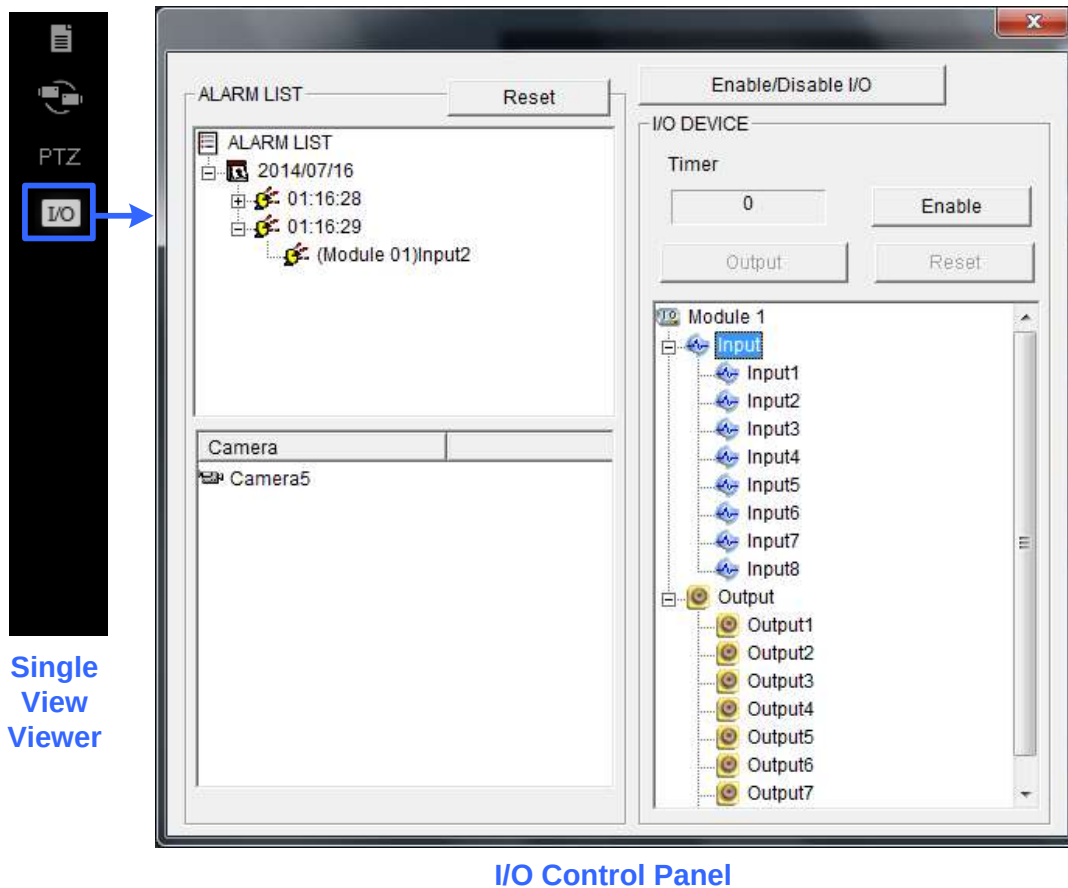


Figure 7-20

The alarm status shows the triggered inputs. Clicking the **Reset** button will clear the alarm list.

To force to trigger an output device, click the **Enable** button, highlight an output and then click the **Output** button. The Timer functions the same as in the PTZ control panel. Each user will be given 60 seconds of control time while the supervisor has 999 seconds. Clicking the **Stop** button will stop the operation and turn over the control privilege to the next user waiting online.

If you want to enable or disable I/O devices connected to the remote GV-VMS, click the **Enable/Disable I/O** button. Note that the **Enable Remote Control** option must be enabled beforehand in the WebCam Server Setup dialog box (Figure 7-3)

7.3.7 Visual Automation

If the Visual Automation function is enabled on GV-VMS, you can remotely trigger the connected output by simply clicking on a designated spot on the live view. For details on setting up Visual Automation, see *Visual Automation* in Chapter 6.

1. To access this feature, right-click the live view and select **Visual Automation**. A green I/O icon appears in the corner.
2. To see where the designated visual automation spots are located, right-click the live view again, select **Visual Automation** and select **Show All**.
3. Click the alert areas on the image to force the outputs to be triggered remotely.

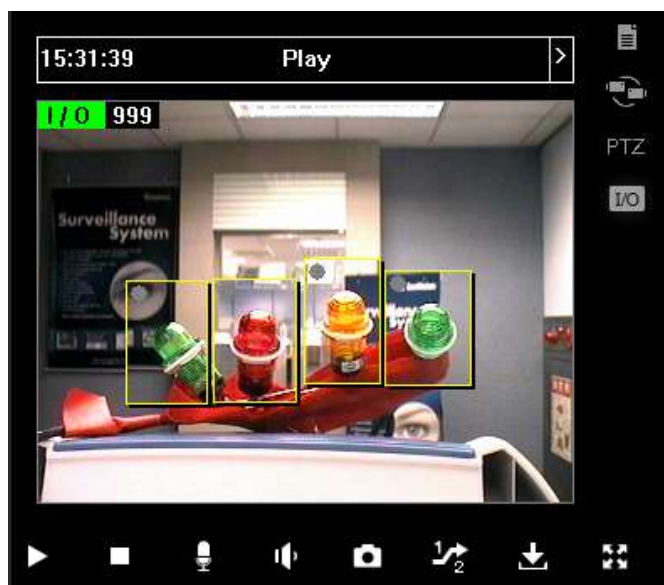


Figure 7-2

7.3.8 Picture-in-Picture View

With the Picture in Picture (PIP) view, you can crop the video to get a close-up view or zoom in on the video. This function is useful in providing clear and detailed images of the surveillance area.

1. Right-click on the screen and select **PIP**. An inset window of the camera view appears in the live view.



Figure 7-22

2. Move the navigation box around in the inset window to have a close-up view of the selected area. You can adjust the size of the navigation box if needed.
3. Drag the inset window to adjust its location on the live view if needed.
4. To exit the PIP view, click the camera name and click **PIP View** again.

7.3.9 Picture-and-Picture View

With the Picture and Picture (PAP) view, you can create a split video effect with multiple close-up views on the image. A total of 7 close-up views can be defined. This function is useful for megapixel resolution that provides clear and detailed images of the surveillance area.

1. Right-click on the live view and select **PAP**. A row of three inset windows appears on the bottom of the screen.
2. Draw a navigation box on the image, and this selected area is displayed in one inset window. Up to seven navigation boxes can be drawn on the image. You can adjust the size and the location of the navigation box if needed.



Figure 7-23

3. To exit the PAP view, right-click the live view and select **PAP** again.

7.4 Multi-Window Viewer

The Multi Windows displays up to 16 channels at a time and supports up to 64 channels.

To access the Multi Windows, click **Live View** on the left panel of the Webcam Viewer page, and select **Multi Windows**.

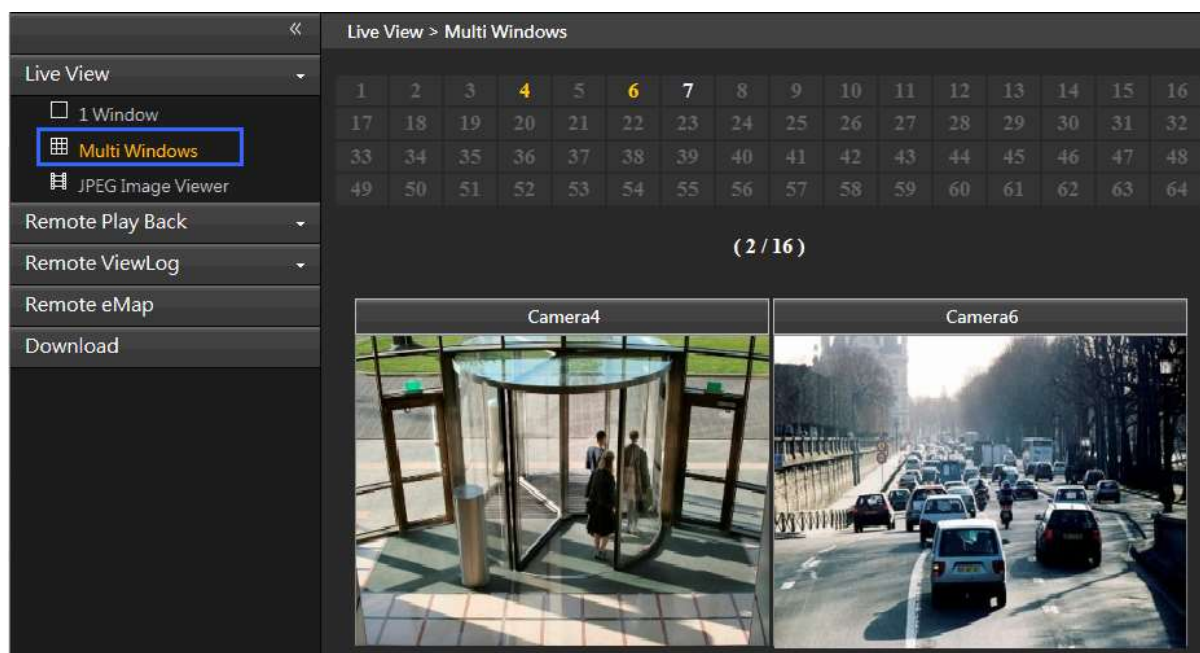


Figure 7-24

7.5 JPEG Image Viewer

JPEG Image Viewer is a cross-platform viewer, compatible with Mac OS and Microsoft IE browsers. Continuously receiving JPEG images from GV-VMS and limited to a single camera view, the viewer is an ideal tool for the users with limited Internet bandwidth.

Note: To enable the JPEG Image Viewer, Java needs to be installed on the local PC.

To enable the viewer:

1. Click **Home**  > **Toolbar**  > **Network**  > **WebCam Server**.
2. Disable **Enhance Network Security** under the General tab (Figure 7-3), and enable **Create JPEG/GIF File(s)** under the JPG tab (Figure 7-7).
3. Access GV-VMS using a Web browser.
4. On the left panel of Singe View page, click **Live View** and select **JPEG Image Viewer**. The JPEG Image Viewer appears.

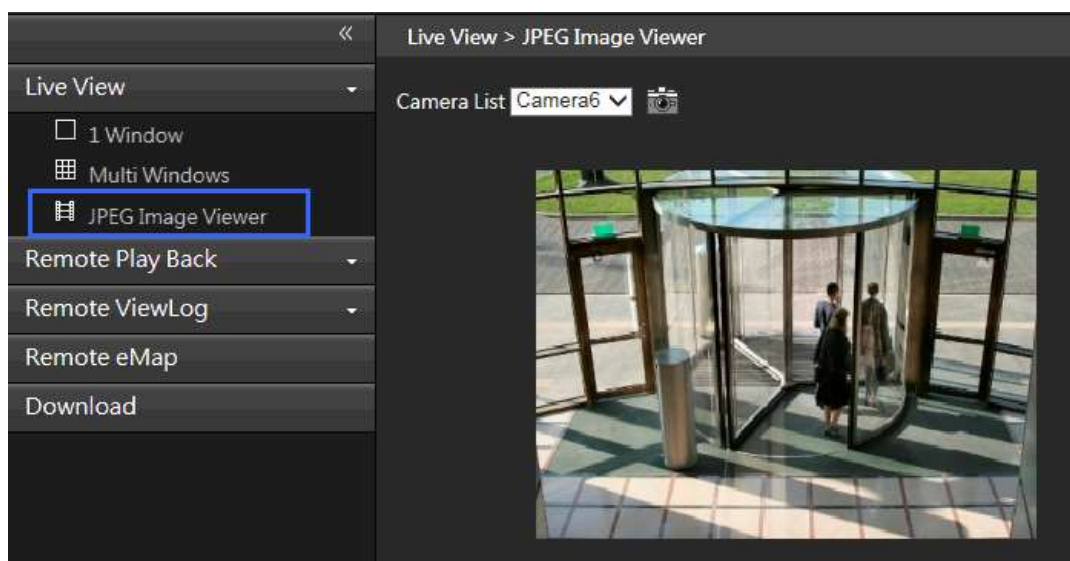


Figure 7-25

7.6 Playing Back Events

7.6.1 Event List Query

The Event List Query function on the WebCam Server allows you to remotely search for an event by defining event type and time. The search results can be displayed in text form or in a chart. You can also play back events instantly from the search results.

To allow remote access to GV-VMS and remotely play back events,

- Ensure the WebCam Server with the **Run ViewLog Server** function (Figure 7-3) is activated on GV-VMS.
1. On the left panel of the Single View page, click **Remote Play Back** and select **Event List Query**. The Query window appears.
 2. On the top, select one of the following search categories: **Monitor, System, Login, Counter, POS, Merge, Backup, Delete, Notification, I/O, Playback**, and **CMS**. Note that these categories are based on those of System Log in the Main System.
 3. Define the search criteria such as Event Type, Device, Information, Date and etc. The selection of search criteria may vary, depending on search categories.

- Click the **Query** button . The search results are displayed.

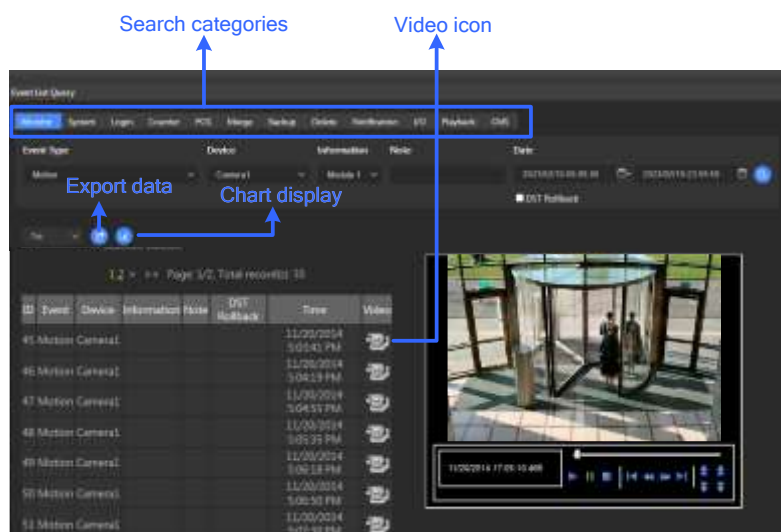


Figure 7-26

- To play back the attached video, click the **Video** icon. For more playback features, right-click on the video image.
- To graph the search results, click the **Chart** button .
- To export the search results, select one of the formats and click the **Export** button .

7.6.2 Remote Playback

With the Remote Playback (RPB) function on the WebCam Server, you can play back the recorded files of the connected GV-VMS.

- To allow remote access to GV-VMS, ensure the WebCam Server with the **Run ViewLog Server** function (Figure 7-3) is activated on GV-VMS.
- On the left panel of the Single View page, click **Remote Play Back** and select **Remote Play Back**. The Remote Play Back appears.
- Select the desired camera, date and time-segment file.
- Click the **Play** button to start.
- For additional playback features, right-click on the image to have the options of **Play Mode**, **Render** and **Tools**.

7.7 Remote ViewLog

Through the WebCam Server, you can remotely play back the recorded files by using the ViewLog player.

1. To allow remote access to GV-VMS, ensure the WebCam Server with the **Run ViewLog Server** function (Figure 7-3) is activated on GV-VMS.
2. On the left panel of the Single View page, click **Remote ViewLog**. Remote ViewLog will be installed on your PC if it is not already.

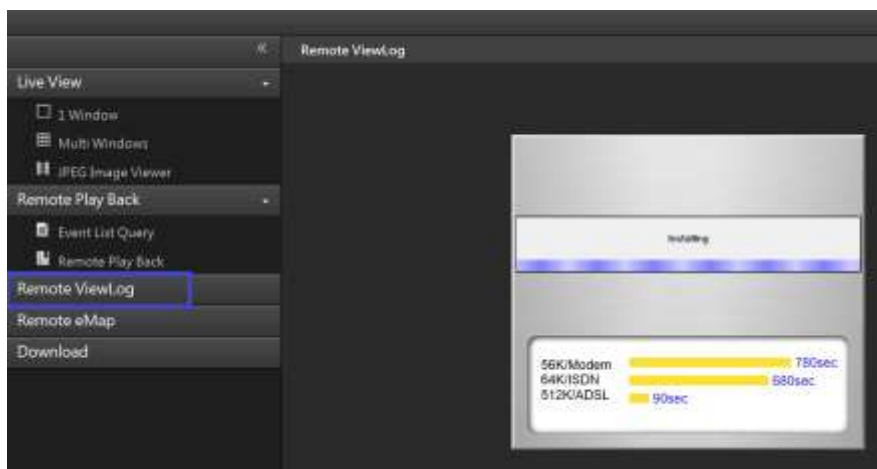


Figure 7-27

3. Execute GV-Remote ViewLog and create a Remote ViewLog account on the Add Remote Viewlog Account dialog box.
4. After creating an account, the Add New Host dialog box appears.
5. In the Host Type, select **DVR / NVR / VMS**. Type the **Location Name**, **IP Address**, **Account** and **Password** of GV-VMS. Only modify the default port 5552 if necessary.
6. Click **OK**. The events available will be listed in the Event List.

For details on ViewLog player functions, see Chapter 4.

7.8 Download Center

The Download Center allows you to download Remote ViewLog, Remote eMap and GV-Edge Recording Manager.

1. Click **Download** in the left panel of the Single View page. This page appears.

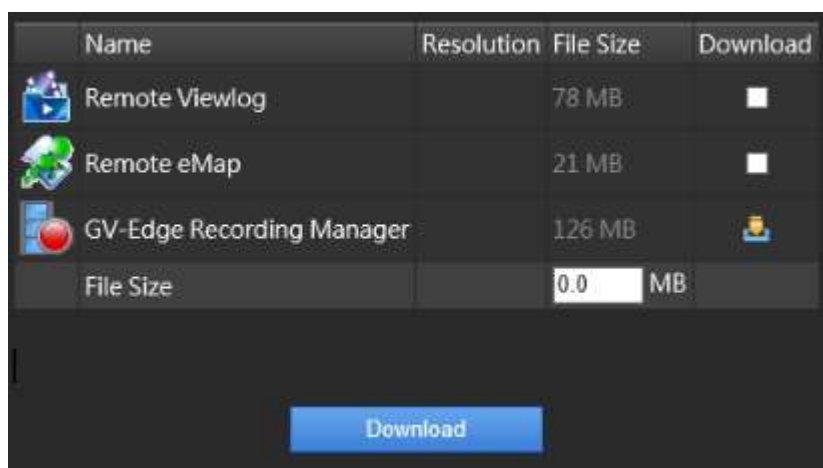


Figure 7-28

2. Check the desired programs. The **File Size** field will display the total file size of the selected programs.
3. Click **Download** and follow the on-screen instructions to install the programs. When the installation is complete, the message *"Install Complete"* will be displayed.

7.9 GV-Edge Recording Manager

GV-Edge Recording Manager is designed for remote live viewing and playback of GeoVision IP devices and software. GV-Edge Recording Manager brings live view and allows remote control of GV-IP Camera, GV-Video Server and GV-SNVR, as well as GV-DVR / NVR / VMS and GV-Recording Server, together under one management interface.

For details on GV-Edge Recording Manager, visit our website:

- [GV-Edge Recording Manager \(Windows Version\)](#)
- [GV-Edge Recording Manager \(MAC Version\)](#)
- **GV-Edge Recording Manager (Windows Version):** Make sure that **Control Center Service** and **Remote ViewLog Service** are enabled on GV-VMS.
- **GV-Edge Recording Manager (MAC Version):** Make sure that **Webcam Server** and **Mobile Service** are enabled on GV-VMS.

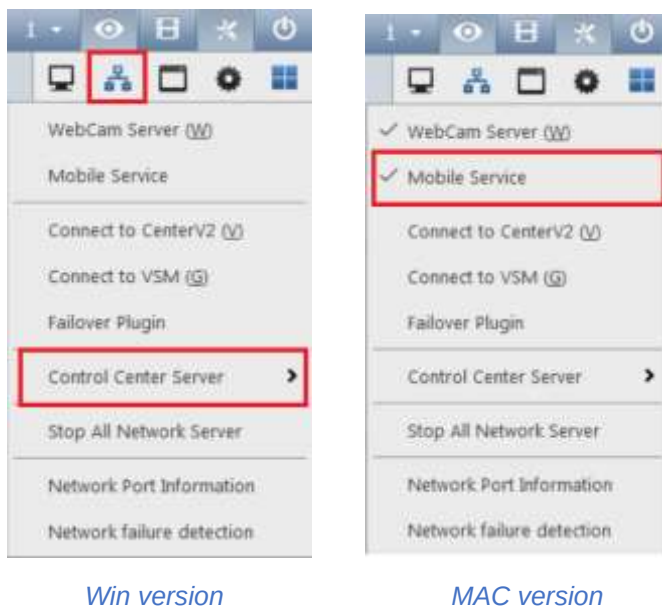


Figure 7-29

Note:

1. **Mobile Service** has the same function as **Run Mobile Service** (WebCam Server > General Tab).
 2. To add additional security protection of the live streaming between GV-VMS and GV-Edge Recording Manager through AES encryption, see *Mobile Service* earlier in this chapter.
-

7.10 Mobile Phone Applications

With a smartphone, you can access live view and play back recordings from GV-VMS using GV-Eye mobile app. GV-Eye can be downloaded from App Store or Android Market.

For details, see [GV-Eye Installation Guide](#)

7.11 Web Browsers on Smartphones

Using the browser on your smartphone, you can watch live view, control PTZ live views, and play back recordings from GV-VMS. By connecting to the WebCam Server, no extra application is required.

Note:

1. Make sure the Mobile Service is enabled on the WebCam Server.
 2. Live view control is only available for supported PTZ cameras.
-

In the following steps, we use the Android smartphone as an example to log onto GV-VMS:

1. Open the browser on your Android device and type the IP address of GV-VMS to log on.



Figure 7-30

2. Click **Login**. The cameras on GV-VMS appear.

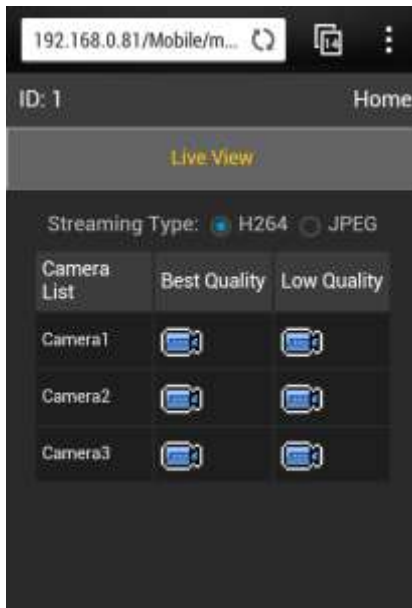


Figure 7-31

3. To watch live view, keep **H.264** as **Streaming Type**, and tap a **video** icon . Stream 1 will be displayed when Best Quality is selected and Stream 2 will be displayed when Low Quality is selected.
4. To access the PTZ functions, tap **JPEG** as **Streaming Type**. This page appears. You can control the live view with the direction arrows, zoom in/out and home position buttons.

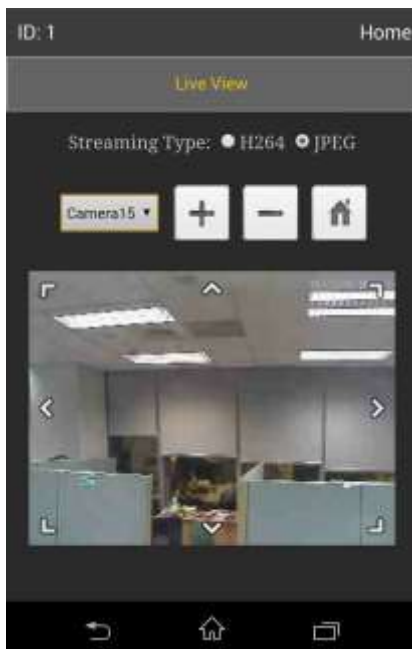


Figure 7-32

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E-Map Application

The E-Map displays the monitoring area on an electronic map, by which the operator can easily locate the cameras, sensors and alarms triggered by motion or I/O devices.

The application is available through two programs: **E-Map Editor** which comes with the installation of GV-VMS, and **E-Map Server** applicable on a designed server.

8.1 The E-Map Editor

The E-Map Editor allows you to import a floor plan in BMP, GIF or JPEG formats, and use the icons of cameras and I/O devices to customize a map.

8.1.1 The E-Map Editor Window

The E-Map Editor comes with the installation of GV-VMS. Click the Windows **Start** menu, find **Programs**, select **GV folder** and click **E-Map Editor**. The E-Map Editor window appears.

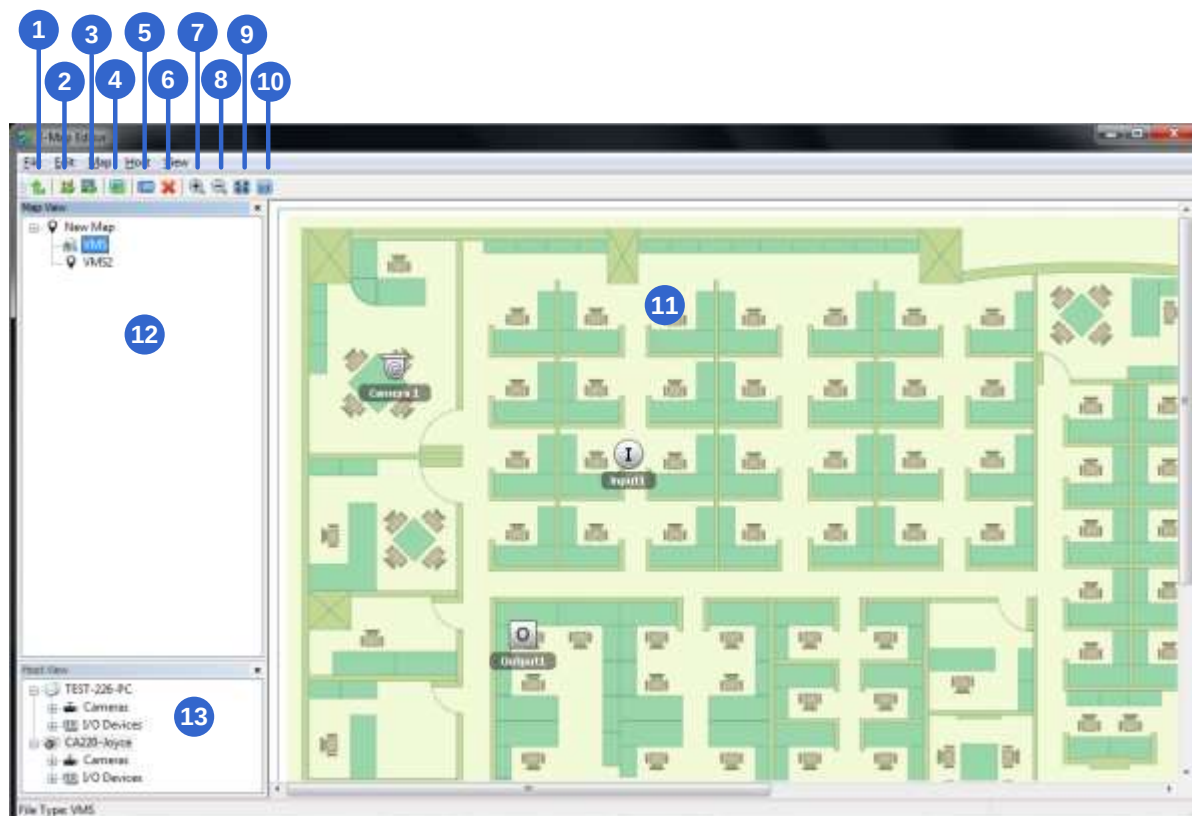


Figure 8-1

The controls in the E-Map Editor window:

No.	Name	Description
1	Up	Returns to the previous E-Map file.
2	Add Map	Adds an E-Map file.
3	Add Host	Adds a host folder in the Host View.
4	Load Map	Imports a floor map.
5	Rename	Renames an E-Map file and/or folder.
6	Delete	Deletes an E-Map file and/or folder.

No.	Name	Description
7 & 8	Zoom In / Out	Enlarges / Diminishes the Map View.
9	Fit to Screen	Adjusts the Map View to fit the current size of the window.
10	Actual Size	Displays the actual size of the imported graphic file.
11	Floor Plan	The view of imported graphic file.
12	Map View	Tree view of E-Map files.
13	Host View	Tree view of hosts

8.1.2 Creating E-Map

- To create an E-Map, click **Add Map**  on the toolbar. A New Map file is created in Map View and the Floor Plan window separately.

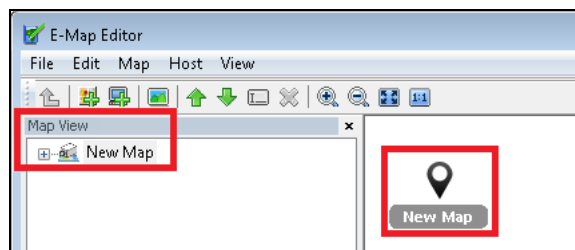


Figure 8-2

- Click the **New Map** file in Map View, and click the **Load Map** button (No. 4, Figure 8-1) to import a graphic file. The file opens in the Floor Plan window.
- Drag and drop the icons from Host View (No. 13, Figure 8-1) onto the map in the Floor Plan window.
- To change the orientation of the default camera icon, right-click the camera from the Host View, and select an orientation.
- To change the camera / IO icon to your own, right-click the camera / IO from the Host View, and add your own icon.

Note: Make sure the icon file is of 32 x 32 pixels or smaller.

Define the condition that the icon appears by selecting **No Event** or **Event** and select the icon orientation using the drop-down list. You can set different icons for an event and no-event situation. In this example, the icon of IPCam.jpg appears on the map when no event occurs and when an event occurs, the icon changes to the default one.

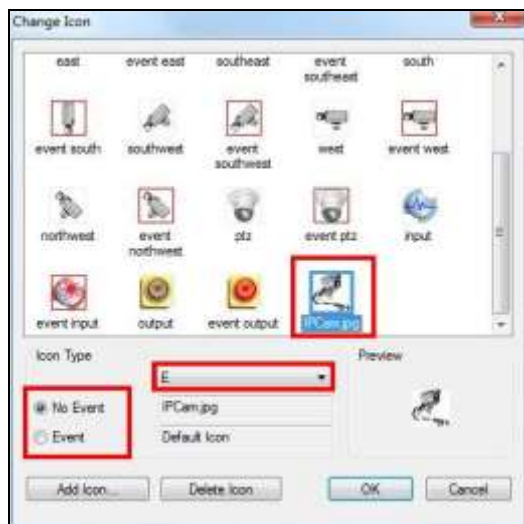


Figure 8-3

- Click **File** in the window menu and select **Save to AI Guard** to save the file to the GV-AI Guard folder, or select **Save to File** to save the file to a desired path.

Advanced Settings

Optionally, you can have the following settings on your created E-Map.

Note: The changes in the orientation of camera icons will not be reflected on the 3D E-Map.

A. View Zone

The View Zone function illustrates the monitored area of each camera on the E-Map.

- In the E-Map Editor window, click to highlight a camera icon, and select **Edit View Zone**. A fan-shaped view zone appears.

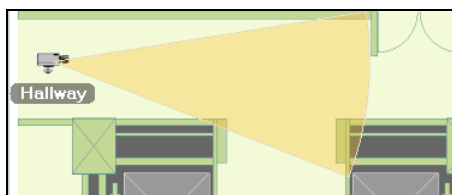


Figure 8-4

- Move the mouse to adjust the size and direction of the view zone.

3. Right-click the map and select **Finish** to finalize the zone.
4. You can also adjust the property of the view zone from the Property menu.

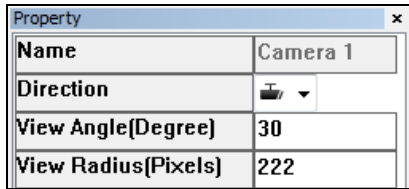


Figure 8-5

B. Polygonal Map

The Polygonal Map function helps you quickly locate a triggered device. Draw an area on the map and it will flash when any device within the area is triggered.

1. In the E-Map Editor window, click to highlight a map, and select **Edit Polygonal Map** or **Edit Polygonal IO**.
2. Click on the map to start drawing a polygonal shape, indicated by a yellow dotted line.

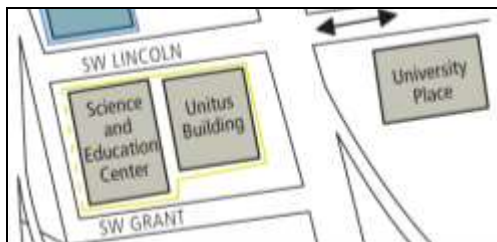


Figure 8-6

3. After closing the shape, right-click the map and select **Finish**.

The enclosed area will be colored in blue. When a device placed within the polygonal map is triggered, the blue area will flash in blue and red.

The enclosed area is colored in blue. When any device within the area is triggered, it will flash red.

8.1.3 Creating E-Map for a Remote Host

Aside from for the local host (GV-VMS), E-Maps can also be created for remote host(s). Through the Remote E-Map function, these E-Maps can be accessed and monitored through a Web browser. For how to remotely access E-Maps, see *Accessing E-Maps of Multiple Hosts* later in this chapter.

Note: The supported hosts for E-Map include GV-DVR / NVR / VMS, GV-IP Devices, GV-Video Server and GV-Compact DVR.

1. Click **Add Host**  on the toolbar and select the type of host. A new host is added in Host View.
2. Right-click the created host and select **Host Settings**. This dialog box appears, which varies depending on the host.

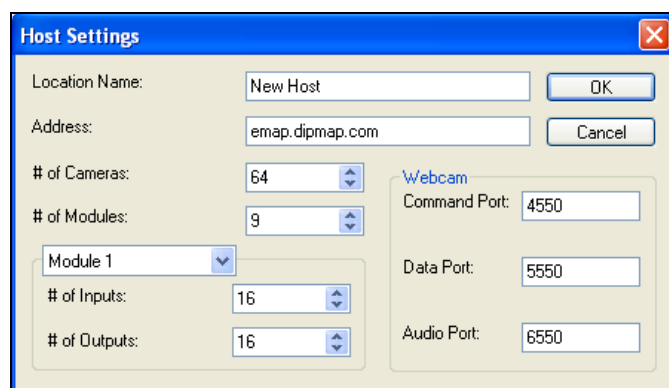


Figure 8-9

3. Type the necessary information, such as IP address and the number of cameras, and click **OK**.
4. Follow the instructions in *Creating an E-Map* earlier in this chapter to create an E-Map for the remote host.

8.2 Starting E-Map

After an E-Map is created, you can start the E-Map on GV-VMS and monitor through the E-Map. When any camera and/or I/O device on it is triggered, the corresponding icon will blink as an alert.

1. On the **Content List** of GV-VMS, expand the **E-Map** folder and drag the created E-Map to the live view grid. The E-Map is displayed.

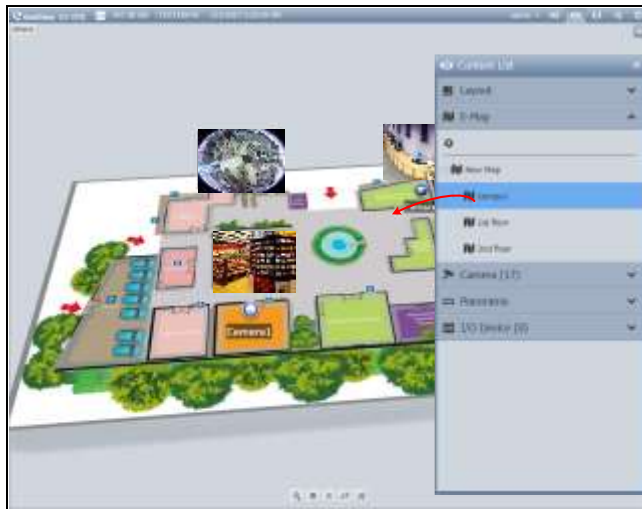


Figure 8-10

2. When any camera or I/O device on the E-Map is triggered, its corresponding icon will blink red. Hover the cursor over the icon to see a live image of the event or click the icon to see the full view.

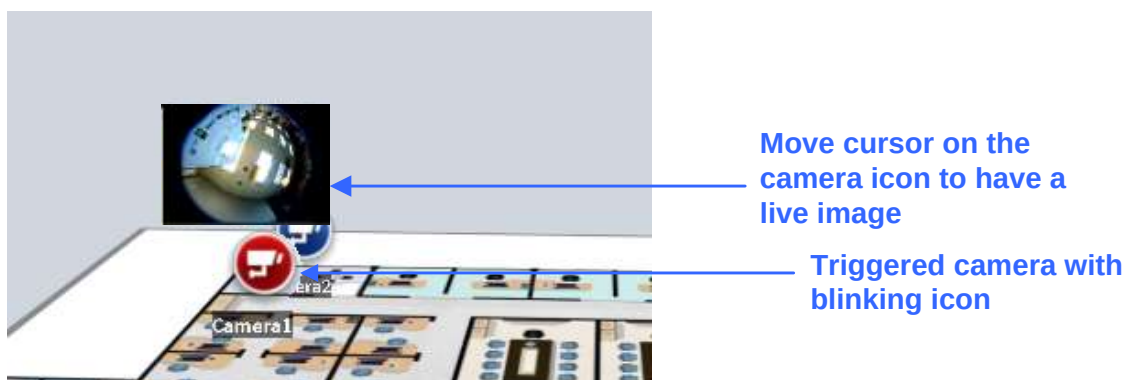


Figure 8-11

Note: If you have created the E-Maps for multiple hosts, you can also see these map files in the Content List. However, these map files won't function on GV-VMS but only work on Remote WebCam through a Web browser. See *Accessing E-Maps of Multiple Hosts* later in this chapter.

8.2.1 Setting up Popup Map

When multiple E-Maps are being monitored simultaneously, the popup function can be enabled for monitoring convenience. Once any camera or I/O device is triggered, its corresponding E-Map will pop up, replacing the current E-Map.

1. In the Content List, click the **Configure** button under E-Map.



Figure 8-12

2. Select the desired cameras and input devices for the application, and specify **Interrupt Interval** for the duration between event triggers. Any event trigger will be ignored by the system during the interval to avoid frequent map popup.
3. At the bottom of the E-Map grid, click **E-Map Auto Pop-up**  to enable the function.

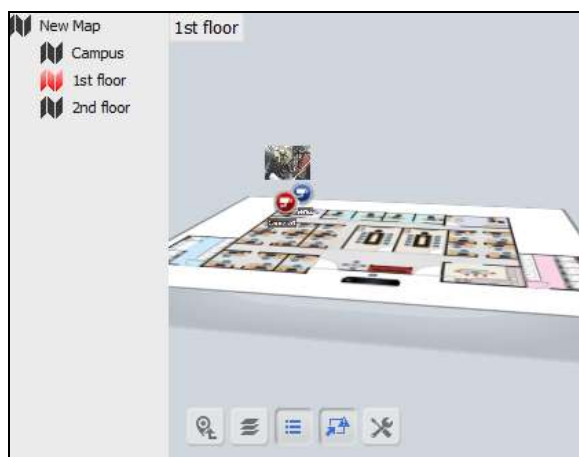


Figure 8-13

8.3 3D E-Map Display

Note the 3D E-Map function are only applicable to GV-VMS V16.10.3.0 or later.

8.3.1 3D E-Map Display

The E-Map can display the monitoring area in 3D view, meaning you can zoom in and out with the mouse wheel, and rotate the view as you wish.

1. Create an E-Map by following the instructions in *Creating an E-Map* earlier in this chapter. To build multiple layers of maps, create another subfolder under the E-Map folder, as illustrated below.

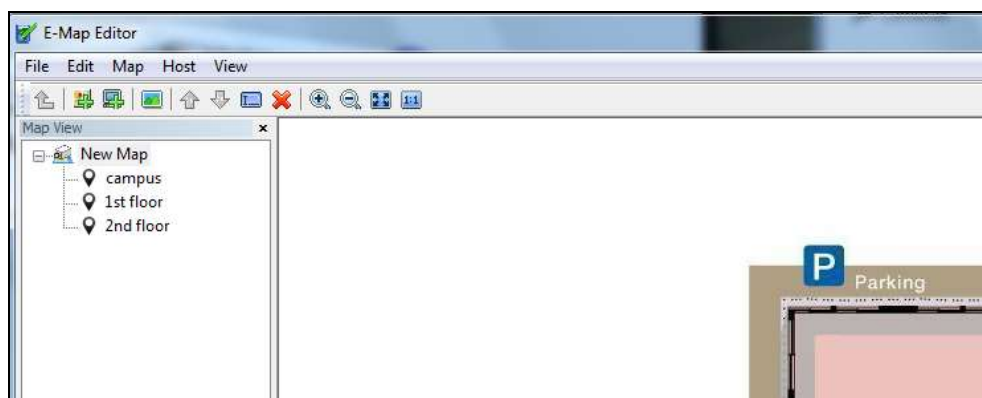


Figure 8-14

2. After creating an E-Map, click **Home > Toolbar > Content List** on GV-VMS.
3. Expand the **E-Map** folder and drag the created E-Map to the live view grid
4. To zoom in / out of the monitoring area, simply scroll the mouse wheel up or down.
5. To adjust the angle of view, click and hold on the E-Map and move in any direction as desired.
6. To move up or down the building view (No 2, Figure 8-15), right-click on the E-Map and scroll the wheel.

8.3.2 Utilizing 3D E-Map Icons

The 3D E-Map display comes with a set of icons for settings and control. Place the mouse cursor on the E-Map to see the icons below.



Figure 8-15

No	Icons	Functions
1	Move Up 	Move to the main folder of the current E-Map.
2	Building View 	Switch the floor plan to 3D view mode of the building.
3	Map List 	Display the E-Map list.
4	E-Map Auto Popup 	Enable this function to automatically pop up the related map whenever any device on it is triggered. See <i>Setting up Popup Map</i> earlier in this chapter.

5	Tools 	Includes the following options: ■ Auto Rotate: Automatically rotates the E-Map anticlockwise. ■ Icon Options: ➤ Always Show Live Video: When selected, the received camera live view will always be displayed on the E-Map. ➤ Show Device Name: Display the device name on the E-Map. This option is enabled by default. ➤ Large Icons: Change to large icons of cameras. By default, the large icons are used. ➤ Small Icons: Enable this option if you want to use small icons. ■ Properties: Show the E-Map name on the upper-left corner and change the font size of the E-Map name. ■ Close: Remove the E-Map display.

8.4 Remotely Accessing E-Map

You can remotely access and view E-Maps with a Web browser.

1. To remotely access E-Maps through a Web browser, click **Home**  > **Toolbar**  > **Network**  > **WebCam Server** on GV-VMS. The Server Setup dialog box appears.
2. Click **OK** to start the WebCam Server.
3. Open the Web browser and type the address of GV-VMS. Once the connection is established, the Single View page appears.
4. On the left panel, click **Remote E-Map**. The Login dialog box appears.
5. Type the login info of GV-VMS and click . The Remote E-Map window is displayed.

8.4.1 The Remote E-Map Window

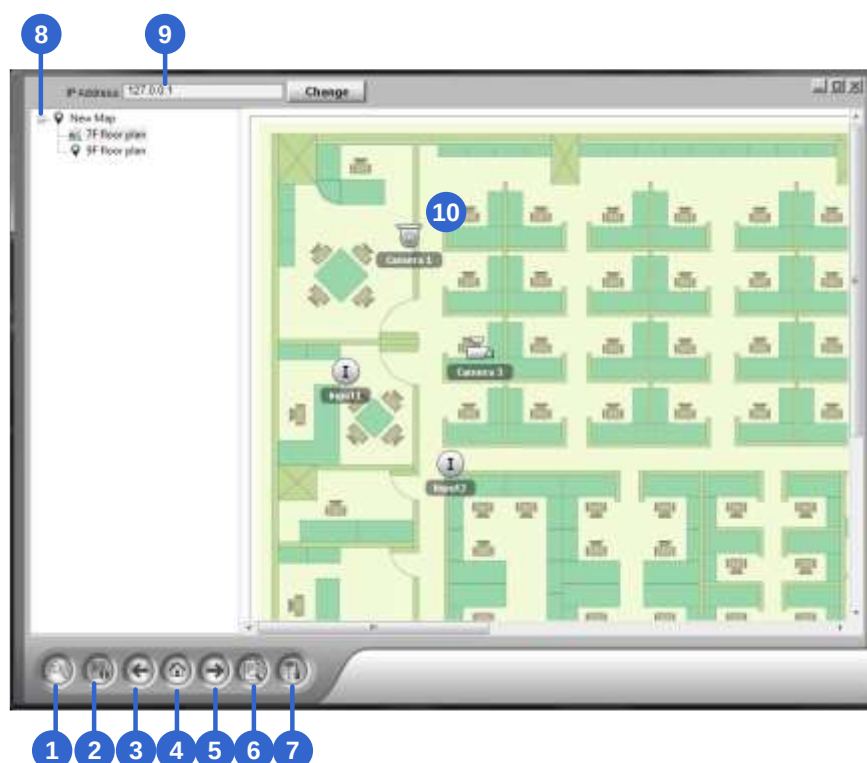


Figure 8-16

The controls in the window:

No.	Name	Description
1	Login	Logs up to 500 hosts.
2	Host Information	Views the information of incoming events upon motion detected and I/O devices triggered.
3	Previous	Goes to the last selected E-Map file.
4	Home	Goes back to the top of the tree view.
5	Next	Goes to the next E-Map file.
6	ViewLog	Accesses the Remote ViewLog function. For details, see <i>Remote ViewLog Service</i> in Chapter 4.
7	Configure	Configures the advanced settings.
8	Tree List	Displays all created E-Map files and folders.
9	IP Address	Displays the IP Address of the connected host.
		When events occur, the corresponding icons will blink red.
10	Camera / Input / Output Icon	Camera icon: Move the cursor over the icon to view a live image. Click the icon to open a control panel for the camera. Output Icon: Click the icon to manually trigger the output device. .

Note: By default, E-Maps opened with Remote E-Map are displayed in 3D. To display the E-Maps in 2D view, click the **Configure** button (No. 7, Figure 8-16) and select **Disable 3D eMap**.

The controls in the Camera Icon

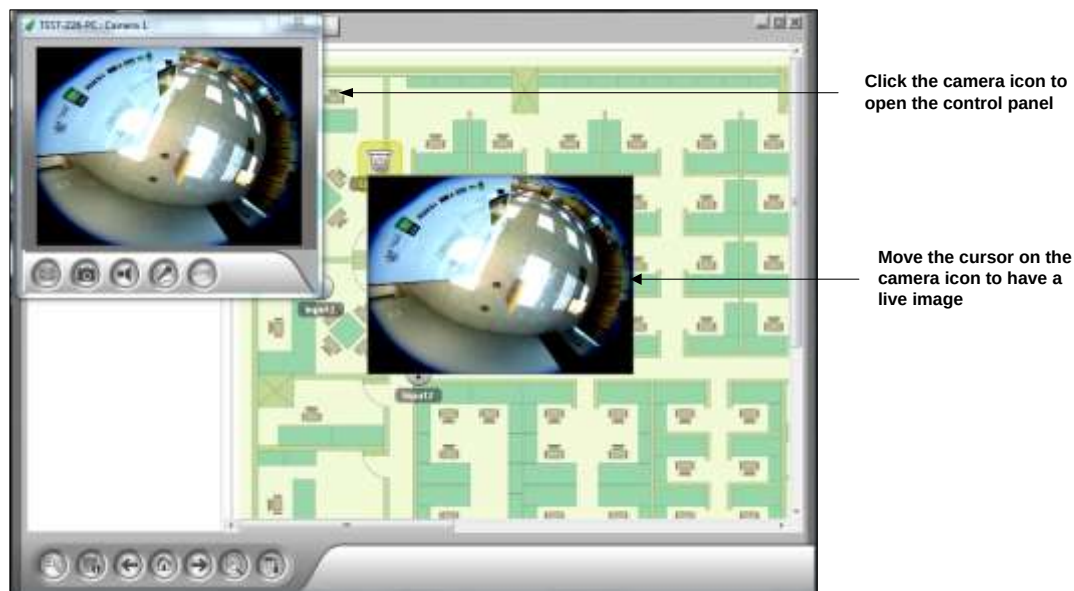


Figure 8-17

8.4.2 Accessing E-Maps of Multiple Hosts

If you have created E-Maps for multiple hosts, you can monitor these E-Maps remotely through a Web browser. Up to 500 hosts can be accessed at a time.

1. To start, click **Login**  on the Remote E-Map window. The Login window appears.

2. Select a host on the right panel and click **Login**. You are prompted for the required login info.

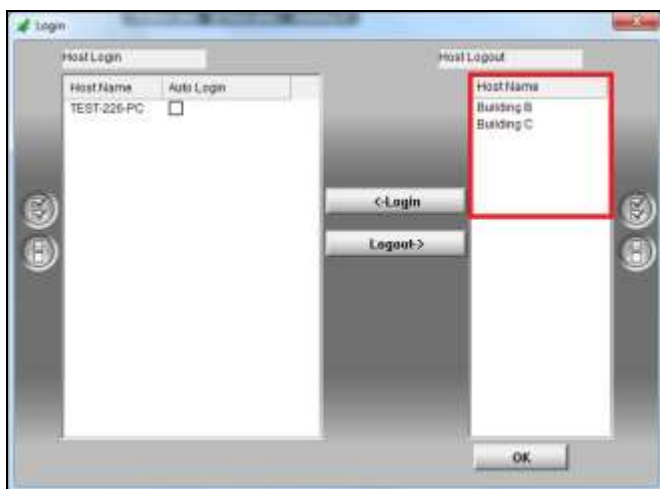


Figure 8-18

3. Click **OK** to return to the Remote E-Map window. Now you can select the corresponding E-Map for the new host for monitoring.

8.4.3 Configuring the Remote E-Map

Click **Configure**  on the Remote E-Map window. The Configure window appears.

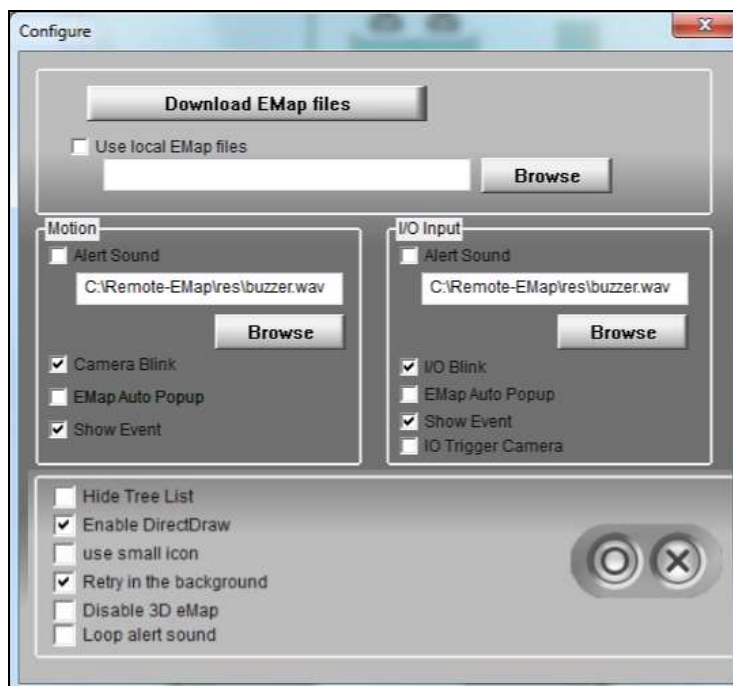


Figure 8-19

[Download E-Map files] Download E-Map files from the local server to the client PC. This option can reduce network loading if you wish to view the E-Maps of multiple hosts.

- **Use local E-Map files:** After downloading E-Map files to the client PC, you can select and use these E-Map files for connection.

[Motion] / [I/O Input]

- **Alert Sound:** Assign a .wav file to alert the operator when cameras or I/O devices are triggered.
- **Camera Blink, I/O Blink:** When cameras or I/O devices are triggered, their icons on the E-Map flash. Deselect this option to stop the icons from blinking.
- **E-Map Auto Popup:** When cameras or I/O devices are triggered, the related map will pop up on the screen instantly when the Remote-E-Map window is minimized.
- **Show Event:** Display motion or I/O triggered events on the Host Information window.
- **I/O Trigger Camera:** When input devices are triggered, the related camera views will pop up. To enable this function, you must map input devices to cameras on GV-VMS first. See *Popping up Live View* in Chapter 1.
- **Hide Tree List:** Check to hide the tree list.
- **Enable DirectDraw:** By default, DirectDraw is enabled to speed up graphics rendering. Some VGA cards might not support DirectDraw and can produce distorted frames. In this case, disable the option.
- **Use Small Icon:** Enable for devices to be displayed by smaller icons.
- **Retry in the Background:** When the Remote E-Map is disconnected from GV-VMS, a warning message will pop up every 30 seconds. Select to hide the message and retry the connection in the background.
- **Disable 3D eMap:** E-Maps on Remote E-Map are displayed in 3D by default. Select to view the E-Maps in 2D view.
- **Loop alert sound:** When **Alert Sound** is enabled, the assigned .wav file will be played repeatedly until it is turned off by the operator.

8.4.4 Viewing Event List and Playing Back Videos

You can see a list of triggered events on the Host Information window and play back the desired video(s).

1. Click **Host Information**  on the Remote E-Map window. The Host Information window appears.

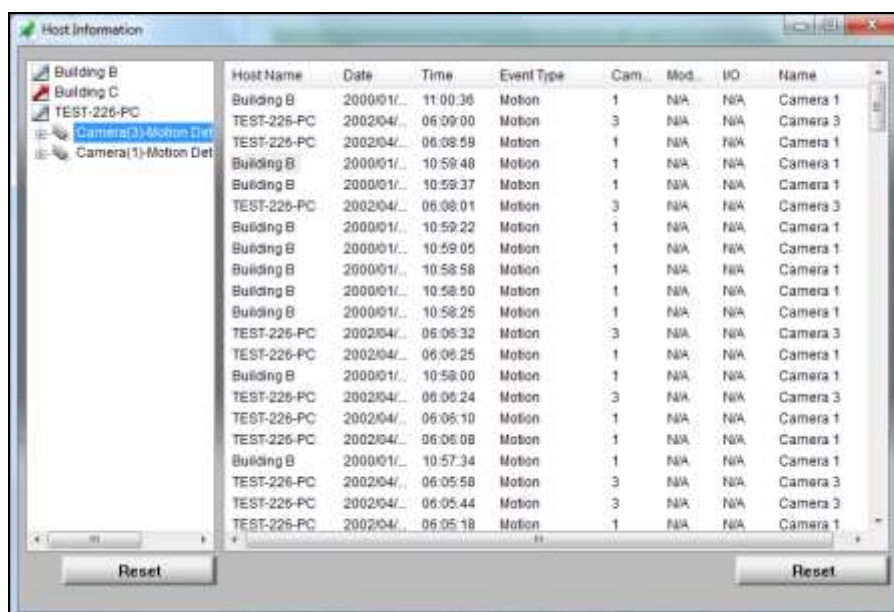


Figure 8-20

2. For event playback, double-click any motion event on the left panel. The player appears.
3. Optionally right-click the image to access the advance functions of the player.

8.5 E-Map Server

The E-Map Server is an independent program designed to create E-Maps for different hosts. With the E-Map Server, you can monitor different sites on electronic maps through any computer accessible to the network.

8.5.1 Installing E-Map Server

You can install GV-E-Map Server from the [GeoVision Website](#).

8.5.2 The E-Map Server Window

Go to **Windows Start**, find **Programs**, select **eMapServer** and click **E-Map Server**. This window appears.

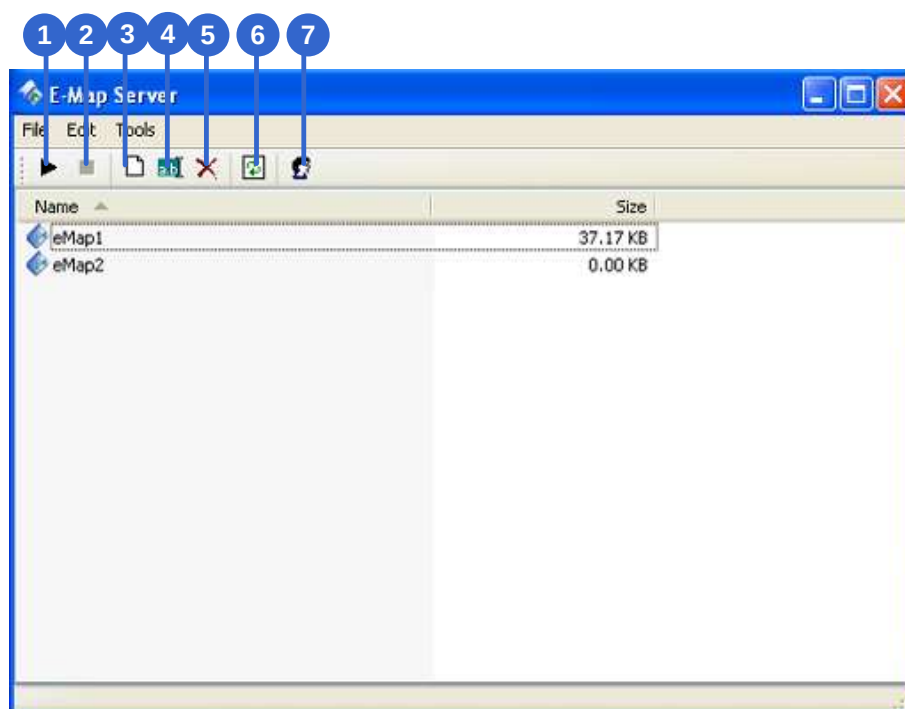


Figure 8-21

No.	Name	Description
1	Start Service	Starts the E-Map Server.
2	Stop Service	Stops the E-Map Server.
3	New	Creates a new E-Map file.
4	Rename	Renames the E-Map file.
5	Delete	Deletes the E-Map file.
6	Refresh	Refreshes the E-Map Server window.
7	Accounts	Creates user accounts of the E-Map Server.

8.5.3 Setting up E-Map Server

Before starting the E-Map Server, you must create E-Map files and user accounts.

- To create E-Map(s), click **New** (No. 3, Figure 8-21). See *Creating an E-Map* earlier in this chapter.
- To create a user account for the server, click **Accounts** (No. 7, Figure 8-21).

8.5.4 Connecting to E-Map Server

With E-Map Server, you can monitor different sites on electronic maps through any computer accessible to the network.

1. Open the Web browser and type the IP address of the E-Map Server.
2. Type the login info of the E-Map Server. You are prompted to select an E-Map (.emp) file.
3. Click **OK**. The Remote E-Map window appears (Figure 8-16).
4. Click **Login**  to log into the desired host(s). For details, see *Accessing E-Maps of Multiple Hosts* earlier in this chapter.

Note: To log into GV-VMS, make sure the WebCam Server is enabled. See *Remotely Accessing E-Map* earlier in this chapter.

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Useful Utilities

GV-VMS supports some advanced utilities to enhance the system performance in a security network.

9.1 Dynamic DNS

GV-Dynamic DNS provides domain name registration, making your dynamic IP address point to your GV-VMS server. The GV-Dynamic DNS will update the server's IP address to DNS Server every 10 minutes. Even if your server's IP address changes, you can still locate it by using the registered domain name.

Note: GV-Dynamic DNS uploads IP addresses over the Internet through ports 80 and 81. If your GV-VMS server is connected behind a router or firewall, make sure ports 80 and 81 are enabled. GV-Dynamic DNS will only upload global IP addresses. If your GV-VMS server is using virtual IP, NAT port mapping should be done first.

IMPORTANT: The DDNS service simplifies the process of trying to connecting an IP video device to the network. However, GeoVision does not and cannot warrant that the DDNS service will be uninterrupted or error free. Please read Terms of Service carefully before using the service. Besides GeoVision, you can also obtain the free DDNS service from these providers: DynDNS.org and No-IP.com.

9.1.1 Running Dynamic DNS

GV-Dynamic DNS Service is included in the installation of GV-VMS. Go to **Windows Start > Programs > GV-VMS > DNS Client V2**. The DNSClient V2 dialog box appears.

9.1.2 Registering Domain Name with DDNS

1. Click **Register** on the DNSClient V2 dialog box. The registration page appears.



Figure 9-1

2. Type a username and password and the Word Verification code. The password must be at least 6 characters.
3. Click the **Send** button. The following message appears.

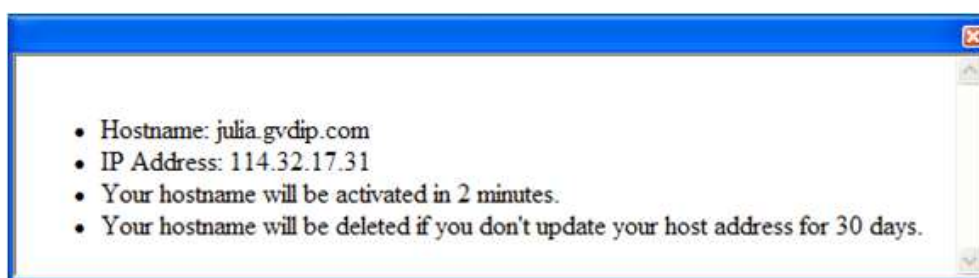


Figure 9-2

- **Hostname:** Made by registered username and “gvdip.com”. In this example, the hostname is “http://julia.gvdip.com”. This will be the domain name used to log into your server.
- **IP Address:** Your server’s current IP address. This IP address is updated every 10 minutes.

Note: The domain name .gvdip(xx).com may vary with xx from 01 to 99.

9.1.3 Starting Dynamic DNS

After registering a domain name with GV-Dynamic DNS, enable the DDNS function on your server. Run **DDNS Client V2** (Figure 9-1) and be sure GeoVision software is also enabled at the background.

After typing the **Hostname** and **Password** used to enable the Dynamic DNS service, complete the following settings:

- **Obtain an IP address automatically:** The DDNS server will use any available IP address from the server or the router.
- **Use the following IP address:** If your server or router has more than one IP address, you can assign one IP address to connect between the DDNS server and GV-VMS. It is highly suggested to assign a fixed IP address instead of a dynamic IP address, which will not be accessible for the DDNS when the IP address is changed.
- **Run at startup:** Select to automatically run the DDNS service at Windows startup.
- **E-mail Setting:**
 - **Scheme:** Select a given situation to receive e-mail notifications.
 - **Sender:** Type the name, e-mail address, username and password of the sender.
 - **Receiver:** Type the recipient's e-mail address(es). For multiple recipients, add a semicolon between each e-mail address.
 - **Mail Server:** Type the host name or address of your mail server. Keep the default port 25 or modify if the mail server uses a different port. Select **SSL** if your e-mail server requires the SSL authentication for connection.
 - Click the **Test** button to send a test e-mail to confirm if the settings are correct.

Click **Save**. The connection information will be displayed.

Note: The DNS Client will not upload the IP address unless the compatible GeoVision software is running such as GV-VMS. If the IP address of your server is not updated for more than 30 days, your host name will be deleted automatically.

9.2 Watermark Viewer

GV-VMS can embed digital watermarks in video streams for authentication purposes. The watermarks are encrypted with digital signatures in video streams during the compression stage, ensuring that images are not edited or damaged after they are recorded. In addition, you can apply the **Watermark Proof**, a watermark-checking program included in the installation of GV-VMS, to further verify the authenticity of the recording.

Note: To run the **Watermark Proof** application in the backup file on your PC without GV-VMS, you must register the GeoVision Video Codec manually (go to the recorded files' location > GeoCodecReg folder > double-click **GeoCodecReg**).

9.2.1 Activating Watermark Protection

To enable the watermark protection, click **Home**  > **Toolbar**  > **Configure**  > **System Configure** > **Record Setting**. Select **Use Digital Watermark Protection** and click **OK**. GV-VMS will digitally sign videos during the recording.



Figure 9-3

9.2.2 Running Watermark Proof

1. Go to the GV-VMS folder and run **WMPProof.exe**. The Watermark Proof window appears.
2. Click **File** from the menu bar, select **Open**, locate the recorded file (.avi) and click **Open**. The selected file is listed on File List (No. 9, Figure 9-4). Alternatively, you can directly drag the file from the storage folder to the window.
 - If the recording is unmodified, a check mark will appear in the **Pass** column.
 - If the recording is modified or does not contain watermark during recording, a check mark will appear in the **Failed** column.
3. To play the recording, double-click the listed file on the window.

9.2.3 The Main Window

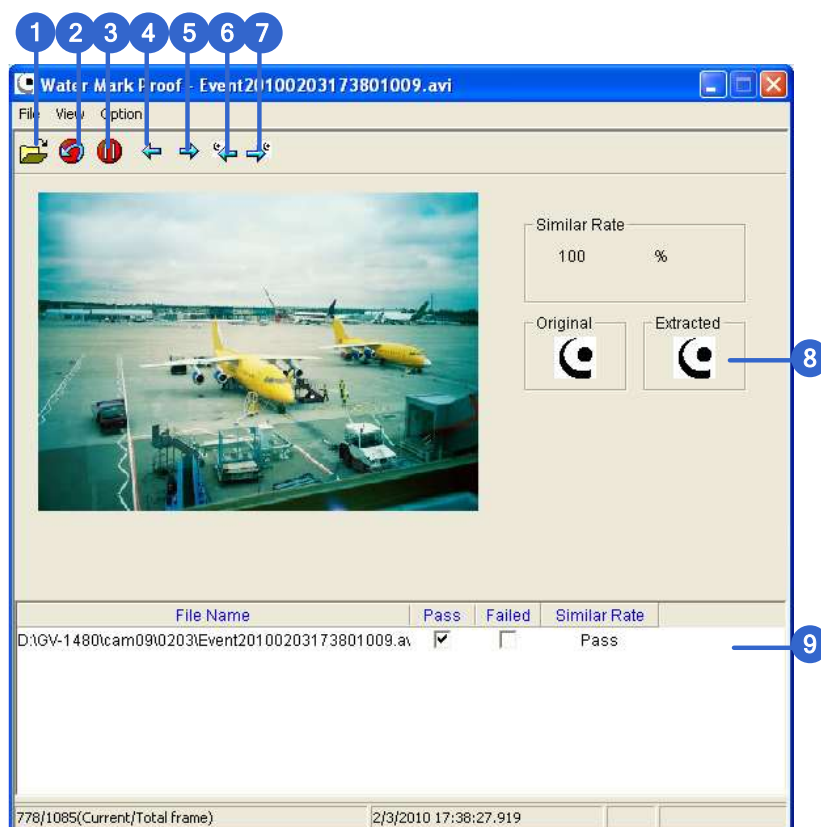


Figure 9-4

No.	Name	Description
1	Open File	Opens the recorded file.
2	First Frame	Goes to the first frame of the file.
3	Play	Plays the file.
4	Previous Frame	Goes to the previous frame of the file.
5	Next Frame	Goes to the next frame of the file.
6	Previous Watermark Frame	Goes to the previous frame that contains watermark.
7	Next Watermark Frame	Goes to the next frame that contains watermark.
8	Original vs. Extracted	The Extracted icon should be identical with the Original icon. If not, it indicates the recording has been tampered.
9	File List	Displays the proof results.

9.3 Windows Lockup

The GV-Desktop helps you secure your computer while away from your workstation. You may lock up the Windows desktop while launching a customized GV-Desktop. In the GV-Desktop, users are limited to run GV-VMS and selected programs.

9.3.1 The GV-Desktop Screen

The GV-Desktop is included in the installation of GV-VMS. Go to **Windows Start > Programs > GV-VMS > Key Lock Utility**. The GV-Desktop screen appears.

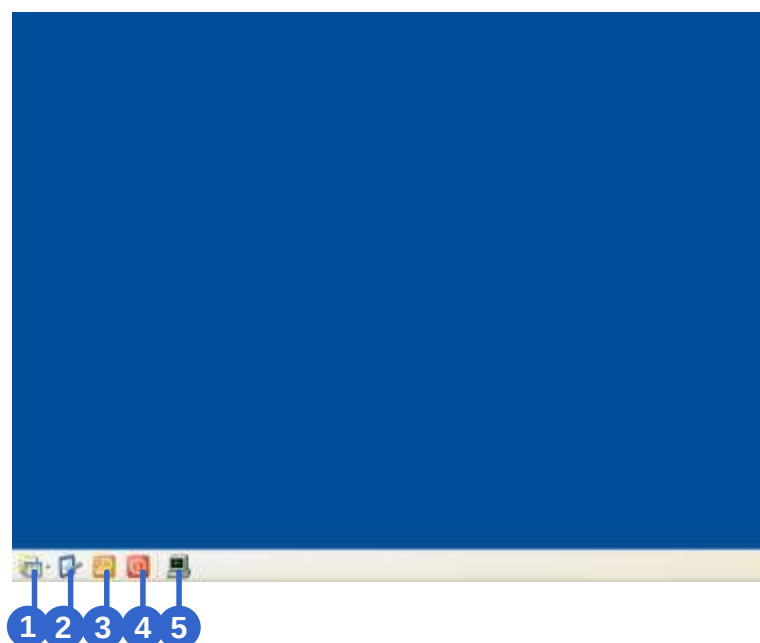


Figure 9-5

No.	Name	Description
1	Programs	Accesses programs.
2	Settings	Adds programs to the Programs menu.
3	Log Off	Logs off GV-Desktop.
4	Shut Down	Shuts down the computer.
5	Task Manager	Views the tasks currently running on your computer.

9.3.2 GV-Desktop Features

Programs

Click the **Programs** button (No.1, Figure 9-5) to see the program menu. The default programs are Video Management System (GV-VMS), Repair Database Utility, eMap Editor and Control Center Service. To add or remove new programs to the menu, see the *Settings* section later in this chapter. In the example below, Paint is a new program added to the menu.



Figure 9-6

Settings

Click the **Settings** button (No.2, Figure 9-5) and type the valid ID and password. This window appears.

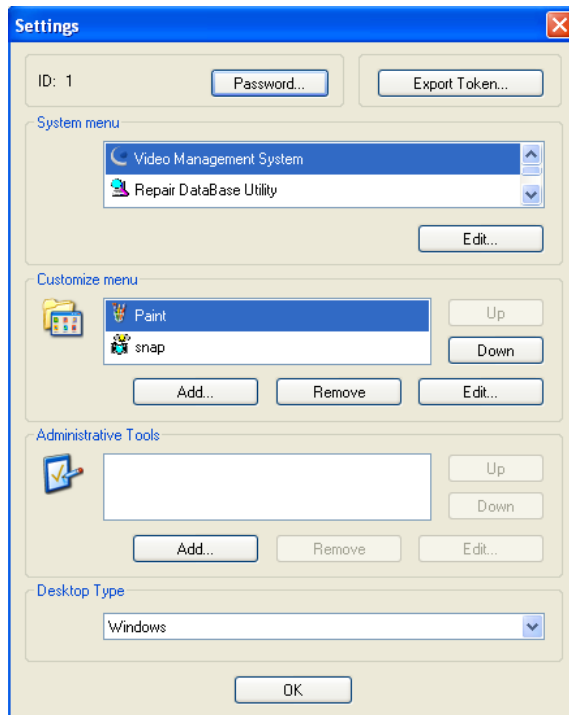


Figure 9-7

[Password] Change the password. For the **Allow Removing Password System** option, see *Account*

and Password in Chapter 1.

[Export Token] See *Token File for Save Mode* later in this chapter.

[System Menu] Select a desired program and click the **Edit** button to change its name.

[Customize Menu] Set up the Programs menu as desired. To add a program, click the **Add** button. In the Shortcut dialog box, type the program name, click the button next to the field to assign a path and click **OK**.

[Administrative Tools] Set up the Programs menu as instructed in *Customized Menu* option. To run the added programs configured in the Administrative Tools field, the administrative ID and Password are required.

[Desktop Type] Select Windows or GV-VMS from the drop-down menu. The selected desktop will launch the next time when you log into the computer.

Log Off

Click the **Log off** button (No.3, Figure 9-5) to log off GV-Desktop with a valid ID and password.

Shut Down

Click the **Shut Down** button (No. 4, Figure 9-5) to shut down your computer with a valid ID and password.

Task Manager

Click the **Task Manager** button (No. 5, Figure 9-5) to view the programs which are currently running on your computer. When you minimize a program, it will be hidden and under operation in the background. To bring the program back to desktop, double-click the program listed in Task Manager.

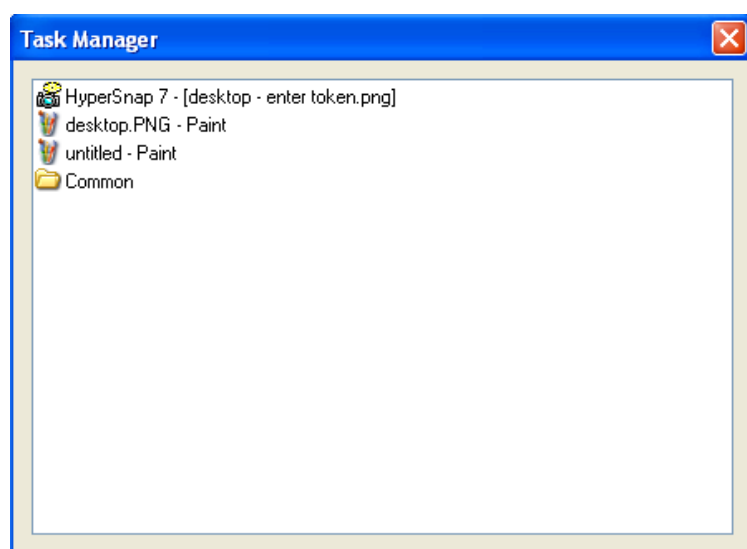


Figure 9-8

9.3.3 Token File for Safe Mode

This option in the Settings section lets you export a token file. In case you enter safe mode and are in the status of the GV-Desktop, this token file allows you to exit from the GV-Desktop and enter the Windows desktop. To export a token file, follow the steps below.

Exporting the Token File

1. Click the **Export Token** button (Figure 9-7). The Enter Token Code appears.
2. Type a code in the Token Code field and click **OK**.
3. In the Save As dialog box, locate a path, type a desired name in the File Name field and click **Save** to save the file.

Switching from GV-Desktop to Windows Desktop

1. Click the **Settings** button on the GV-Desktop. You will be prompted to locate the stored token file and type the configured token code.
2. When the Settings window (Figure 9-7) appears, select **Windows** in the Desktop Type field and exit from the window.
3. Click the **Log Off** button to log off the GV-Desktop and run the Windows desktop. You need to locate the stored token file and type the configured token code again.

9.4 Authentication Server

GV-Authentication Server is a password and account management system for multiple GV-VMS systems. Through the Authentication Server, the administrator can create the accounts with different access rights to a group of GV-VMS systems. Once any GV-VMS is connected to the Authentication Server, the previous password settings in local GV-VMS will be invalid. Local GV-VMS will submit to the full control of the Authentication Server.

Note:

1. In addition to GV-VMS / DVR / NVR where the Authentication Server acts as a password and account management system, the Authentication Server also supports E-Map Server, GV-Control Center, GV-Edge Recording Manager and GV-Eye app to allow users to access a specified group of GV-VMS / DVR / NVR hosts through an Authentication user account.
 2. GV-Eye V2.8.0 or later and GV-Edge Recording Manager V2.1.0 or later support multiple GV-Authentication Server connections at a time.
-

9.4.1 Installing the Server

You can install **GV-Authentication Server** from **Utilities** in [GeoVision Website](#).

9.4.2 The Main Window

Go to **Windows Start > Programs > AuthServer > AuthServer**. This window appears.

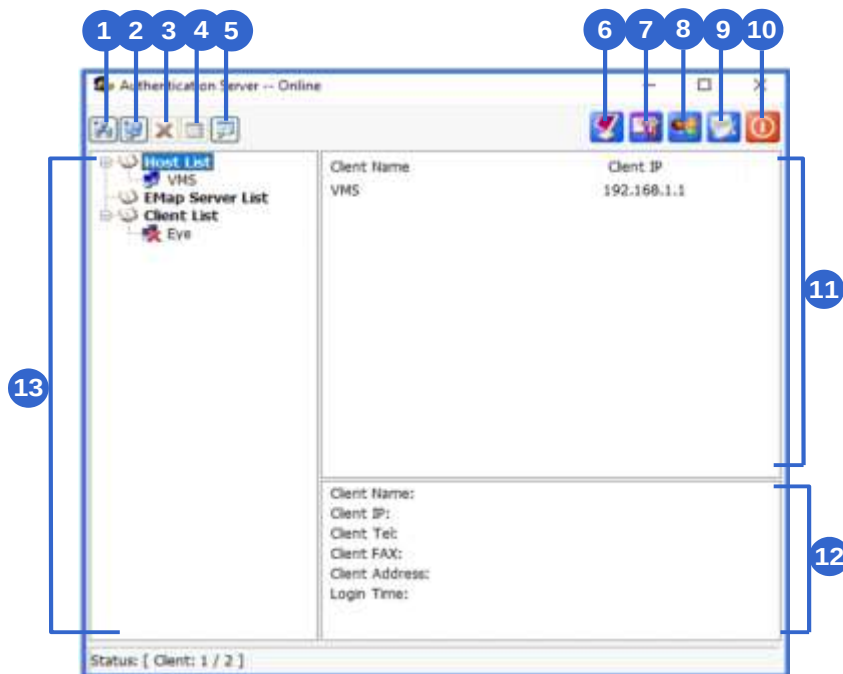


Figure 9-9

No.	Button	Description
1	Add An Area	Creates an Area group.
2	Add A Client	Creates a client account.
3	Delete An Area / Client	Deletes an existing group or client.
4	View/Edit A Client	Select a client from the Client List, and click to view / edit it.
5	Find A Client	Finds an existing client.
6	Start/Stop Service	Starts/Stops the Authentication Server.
7	Server Setup	Configures the Authentication Server.
8	Account Setup	Configures passwords and grants permissions to clients. Imports groups from Active Directory.
9	Log	Sets up the Authentication Server Log and opens the log browser.
10	Exit	Exits this window; Logs out Administrator; Changes Password, imports or exports account information.
11	Connected Client List	Lists the connected clients: GV-VMS / DVR / NVR, E-Map Server, GV-Control Center, GV-Edge Recording Manager and GV-Eye.
12	Client Information	Lists the information of the selected client.
13	Client List	Lists the created clients.

9.4.3 Creating Clients

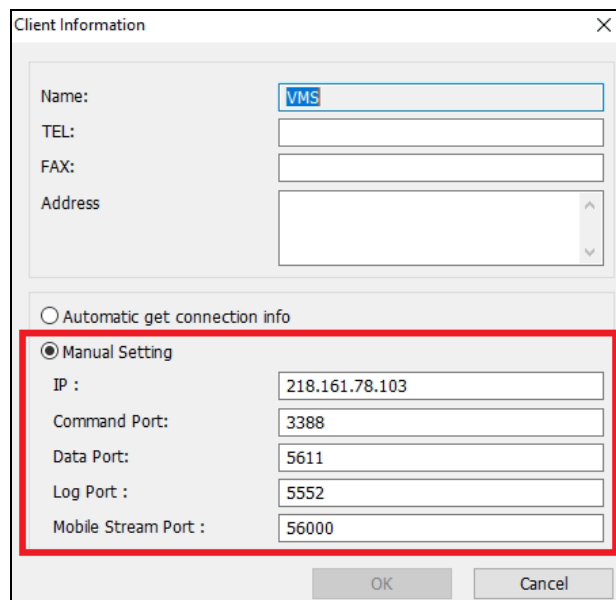
You must create and arrange the clients first which user credentials will be centrally managed by the Authentication Server. To create a list of GV-VMS clients, follow the steps below.

1. To create a GV-VMS client, highlight the **Host List** from the left pane and click the **Add A Client** button . The Client Information dialog box appears.



Figure 9-10

2. Type the client's information and select **Automatic get connection info**. The **Name** must match that of local GV-VMS.
3. Optionally select **Manual Setting** and type the IP address of the Authentication Server. Keep the default ports or modify them if necessary.



Client Information

Name:

TEL:

FAX:

Address:

☐ Automatic get connection info

☒ Manual Setting

IP :

Command Port:

Data Port:

Log Port :

Mobile Stream Port :

OK Cancel

Figure 9-11

4. Click **OK**.

Tip: To view the name of your GV-VMS server, select **Toolbar**  > **Configure > System Configure > General Setting**.



Figure 9-12

5. To create another client, repeat the steps above.
6. You can also arrange multiple clients under a group by highlighting a list and clicking the **Add An Area** button (No. 1, Figure 9-9). The created group appears under the selected List.

9.4.4 Creating User Accounts

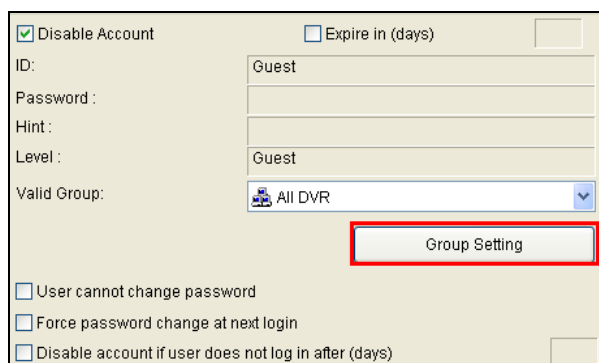
To create user accounts with different access rights and assign the user accounts to a group of GV-VMS clients, follow the steps below.

1. Click the **Account Setup** button (No.8, Figure 9-9) > **Password Setup**. The Password Setup dialog box appears.
2. Create a user account. Refer to *Account and Password* in Chapter 1.

Note: The Administrator has the authority of changing the passwords of any accounts.

3. To assign the created user to a group of GV-VMS clients:

A. Click the **Group Setting** button.



☒ Disable Account
 ☐ Expire in (days)

ID:

Password:

Hint:

Level:

Valid Group:

Group Setting

☐ User cannot change password
☐ Force password change at next login
☐ Disable account if user does not log in after (days)

Figure 9-13

B. In the Valid Group List window, click the **New Group** button.

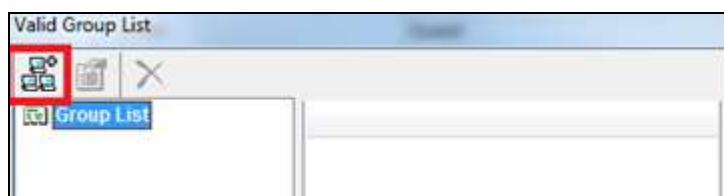
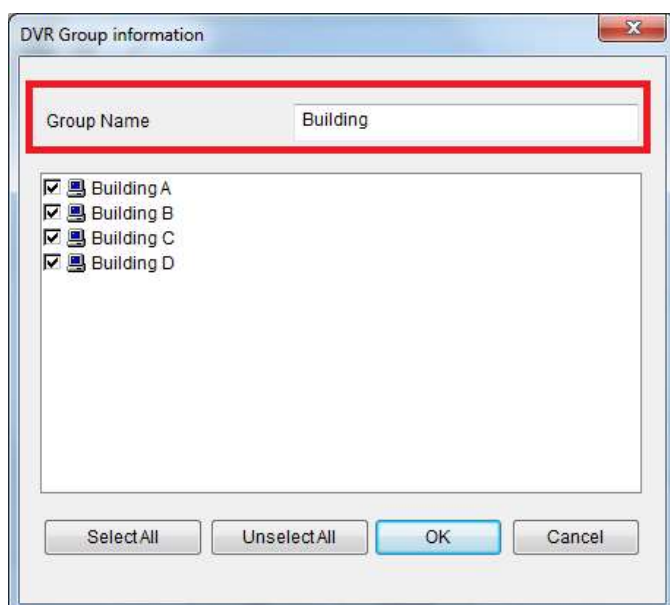


Figure 9-14

C. In the DVR Group Information window, name the group, select the GV-VMS clients to be added to the group. Click **OK**.



DVR Group information

Group Name:

☒ Building A
☒ Building B
☒ Building C
☒ Building D

Figure 9-15

D. Click **OK** again to return to the Password Setup window.

- E. Use the **Valid Group** drop-down list to select the created group. The user will be able to log in the assigned GV-VMS clients.

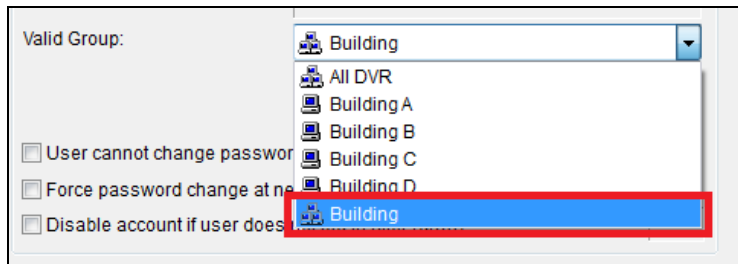


Figure 9-16

4. Optionally use the following functions to arrange the user and client accounts.
- A. Right-click a user account to have two options. The **Apply setting to** option will apply the same settings to a specific user account. The **Apply setting to group** option will apply the same settings to all user accounts under the same account level.

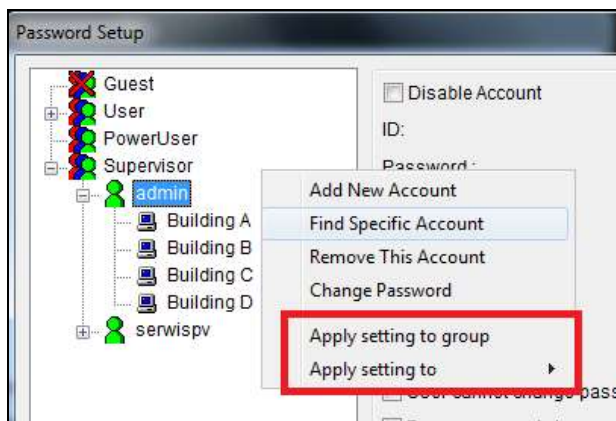


Figure 9-17

- B. Right-click a client account to have two options. The **Apply setting to other DVR(s)** option allows you to apply the same settings to all clients under the same user account. For this example, the settings of Building A client will be applied to all Building B, C and D clients. The **Copy** option allows you to copy and paste one client's settings and any client.

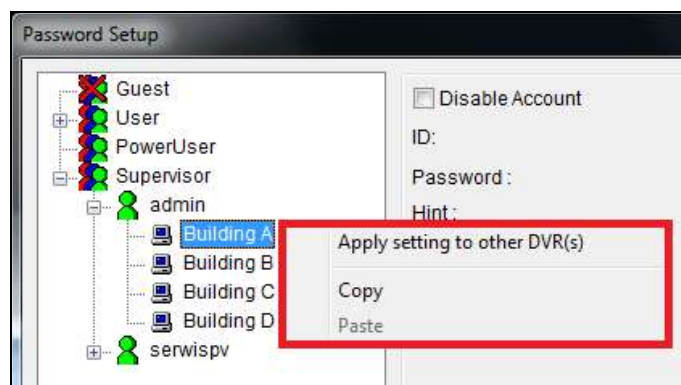


Figure 9-18

9.4.5 Importing Groups and Users from Active Directory

To create user accounts efficiently, you can import groups and users from Microsoft's Active Directory to Authentication Server. You will need to install Active Directory on Windows Server and set up users into groups before following the steps below.

Note: User accounts in Active Directory need to be grouped into Groups settings first as only groups can be imported into Authentication Server.

1. Run **Active Directory Domains and Trusts** in Windows Server by clicking the **Start** menu and opening **Administrative Tools**.
2. Right-click your local Active Directory system and select **Manage**. The Active Directive Users and Computers dialog box appears.

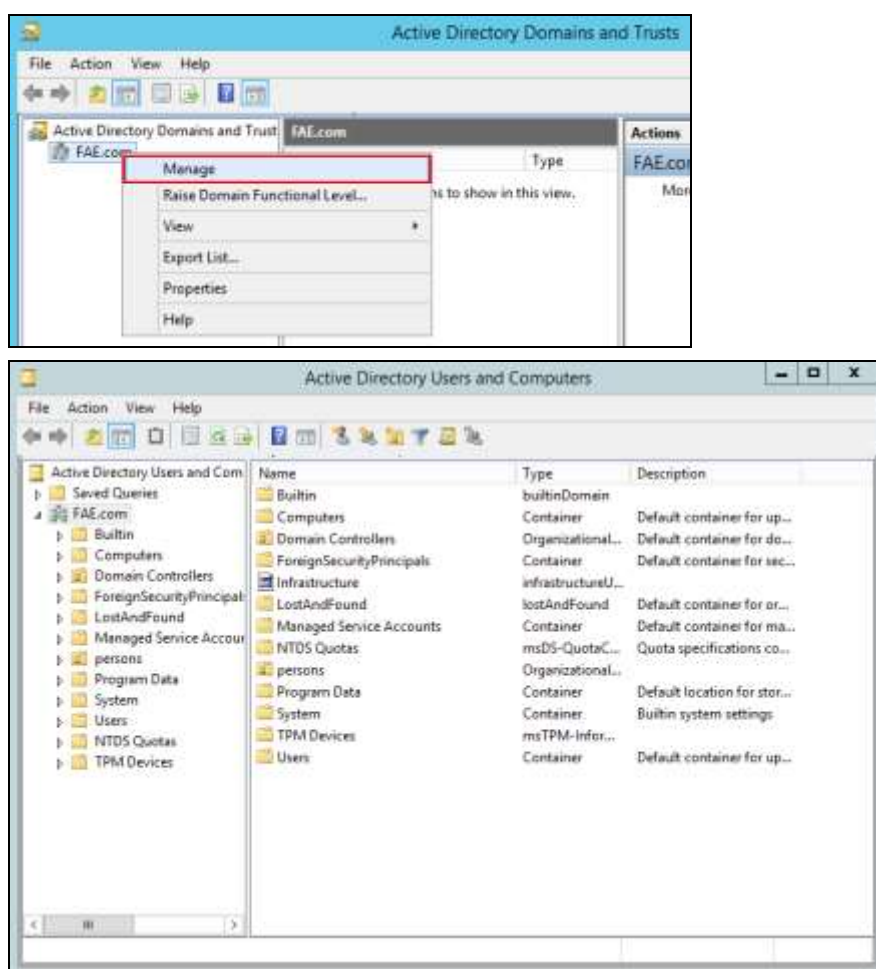


Figure 9-19

3. On the **View** menu, select **Advanced Features**.

Note: If you use Windows Server 2008 instead of Server 2012, skip this step.

4. Right-click the folder saved with the user accounts or groups and select **Properties**.

Tip: You can change the query parameters or show all items for each folder by clicking **View** and selecting **Filter Options**.

5. Select the **Attribute Editor** tab, double-click the attribute **distinguishedName** and copy the value like **OU=persons,DC=FAE,DC=com**. You will need to paste the value at *step 8, C* to assign the folder to import the user accounts or groups.
6. In the Authentication Server, click the **Account Setup** button (No.8, Figure 9-9) and select **Active Directory Setup**. This page appears.

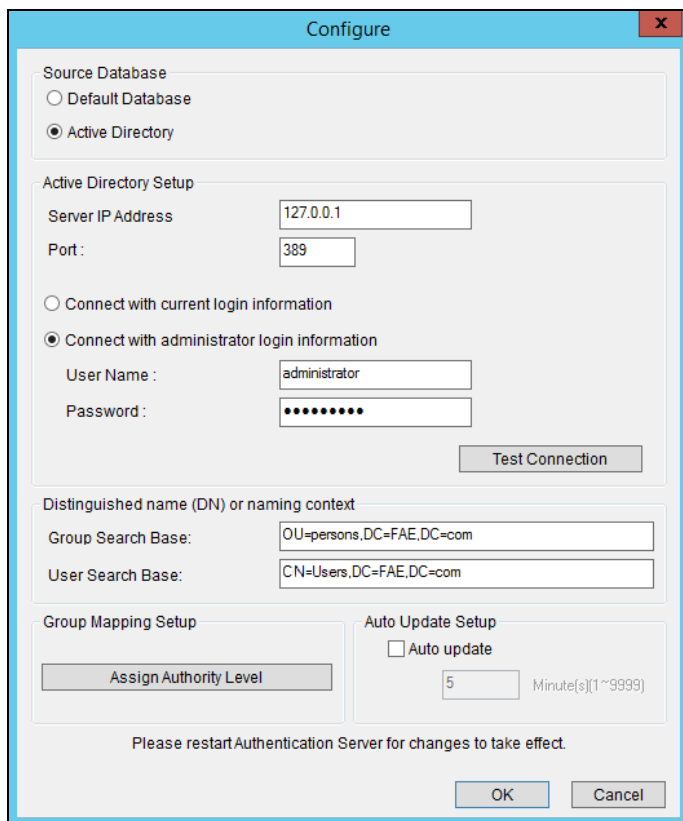


Figure 9-20

7. Under Source Database, select **Active Directory** to enable the function.
8. To connect to the server with Active Directory:
 - A. Type the **Server IP Address** and the **Port** number of the server.

- B. To log into the server using your current login information, select **Connect with the current login information**. To log into the server using the login information of its administrator, select **Connect with administrator login information** and type the user name and password.
 - C. Paste the value of distinguished name you copied at step 5 respectively to **Group / Users Search Base**.
 - D. Click **Test Connection** to see if you can connect to the server with Active Directory.
9. To assign groups in Active Directory to User, Power User or Supervisor authority levels:
- A. Click the **Assign Authority Level** button. This dialog box appears.

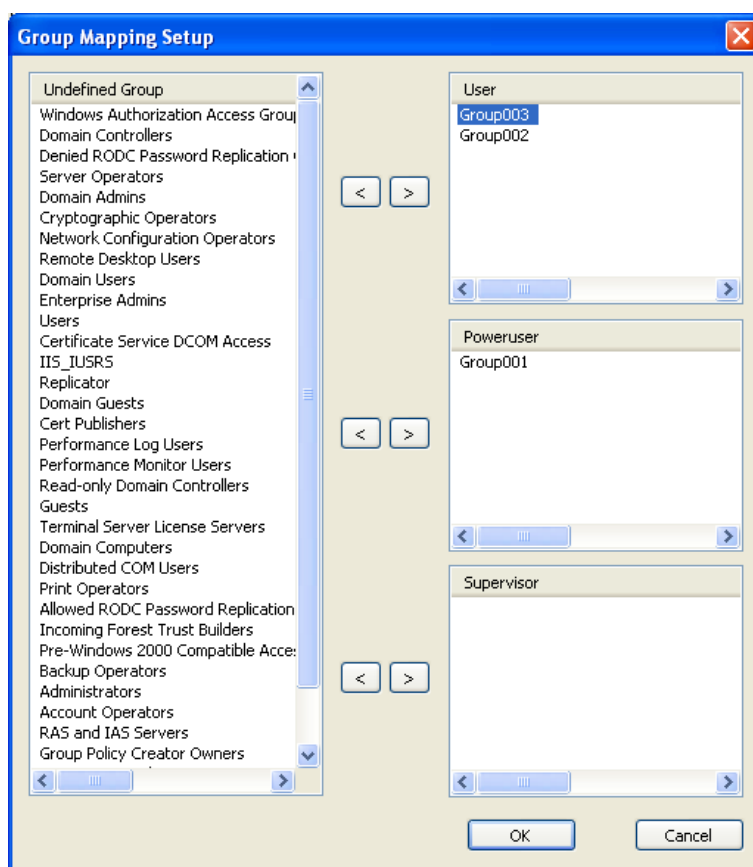


Figure 9-21

- B. Select the groups detected in Active Directory from the Undefined Group list and use the arrow buttons to assign the groups to User, Power User or Supervisor level.
 - C. Click **OK** to import the user data into the Password Setup window.
10. To automatically update changes to user data in Active Directory, click **Auto Update** and specify the update frequency in minutes.
11. Click **OK** and restart Authentication Server to apply the settings.

9.4.6 Starting the Server

To configure the server and start the service, follow the steps below.

1. Click the **Server Setup** button (No. 7, Figure 9-9). This dialog box appears.

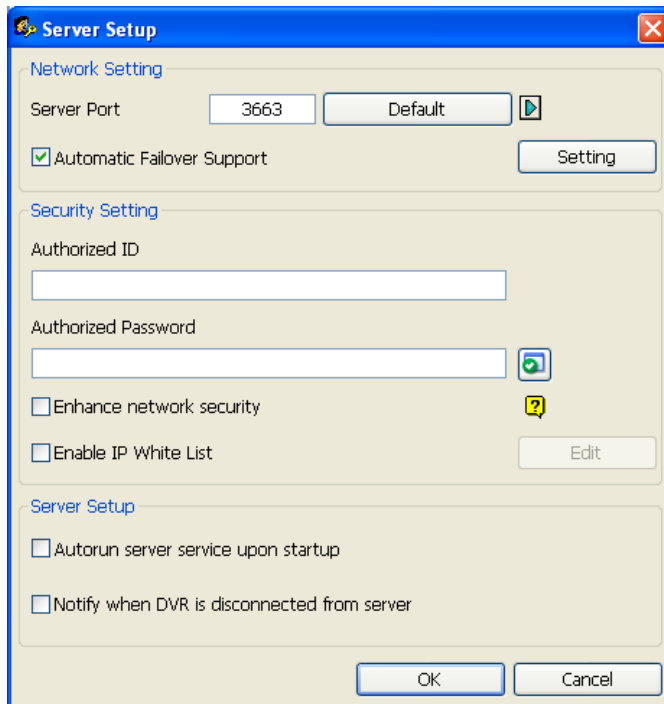


Figure 9-22

2. Under Security Setting, type the **Authorized ID** and **Authorized Password** which will be used for the client GV-VMS to log into the Authentication Server.
3. Click **OK** to apply the settings.
4. Click the **Start/Stop Service** button (No. 6, Figure 9-9) to start the services.

Optionally, you can configure the following settings before starting the Authentication Server:

[Network Setting]

- **Server Port:** The default port number is **3663**. To use UPnP for automatic port configuration to your router, click the **Arrow** button. For details, see *UPnP Settings* in Chapter 7.
- **Automatic Failover Support:** Select and click the **Setting** button to configure up to 2 Authentication Servers in case the primary Authentication Server fails. If fails, the second or the third server will take over the connection from clients and provide uninterrupted services. Note the settings of Authorized ID and Authorized Password on the failover server must match those of the primary server.

Tip: To set up the failover Authentication Server, you can export the current settings by using the **Export Account** and **Import Account** functions in the **Exit** button.

Note: Once the primary Authentication Server is ready to resume the services, close the failover Authentication Server so the connection from clients can move back to the primary.

[Security Setting]

- **Enhance network security:** Strengthen network security on Authentication Server.
- **Enable IP White List:** Click **Edit** to create a list of IP addresses only to establish connection with Authentication Server.

[Server Setting]

- **Auto run server service upon startup:** Starts the service automatically upon the startup of Authentication Server.
- **Notify when DVR is disconnected from server:** Notify the Authentication Server with a pop-up window when the GV-VMS is disconnected with the Authentication Server.

9.4.7 Connecting GV-VMS to the Server

To configure the GV-VMS in order to access the Authentication Server remotely through a network connection, follow the steps below.

1. On the main screen of GV-VMS, click **User** 1 > **Password Setup** > **Remote Authentication Setup**. The Setup Remote Authentication Server dialog box appears.

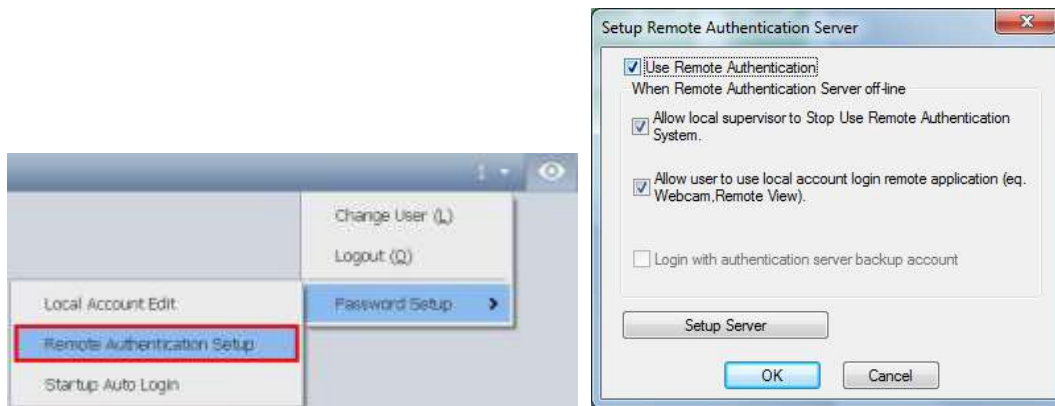


Figure 9-23

2. Select **Use Remote Authentication** and optionally select:

[When Remote Authentication Server Off-line]

- **Allow local supervisor to stop use Remote Authentication System:** Allow the local supervisor to stop the Authentication application when the connection fails with the Authentication Server. Note if the option is disabled and the connection fails with Authentication Server, the local supervisor will not be able to log into the GV-VMS, and the dialog box will not be accessible until the connection resumes.
- **Allow user to use local account login remote application:** Allow local users to access remote applications with their previous password and ID settings when the connection with the Authentication Server fails.
- **Login with authentication server backup account:** Keep using password settings created on the Authentication Server even though the connection with the server fails.

3. Click **Setup Server**. The Remote Authentication dialog box appears.
4. Type the IP address and port of the Authentication Server.
5. Type the **Authorized ID** and **Authorized Password** of the Authentication Server.
6. Click **OK** to start the connection. When the connection is established, the previous password settings in GV-VMS will be invalid.

7. Press **[L]** on the keyboard to call up the Login dialog box. The icon  indicates that the connection is established.



Figure 9-24

As long as the Authentication Server works, the Login dialog box will appear upon the starting of GV-VMS. Type the user account created on the Authentication Server to log into the GV-VMS.

Note: The disconnection icon  will appear on the Login dialog box (Figure 9-24) when one of the following situations occurs:

1. The login ID and Password do not match any of the user IDs and Passwords created on the Authentication Server.
 2. The client name does not match the location name of GV-VMS (Figure 9-12).
 3. The network connection encounters traffic problems.
-

9.4.8 Remote Access from Control Center and Remote E-Map

The Authentication Server supports E-Map Server, GV-Control Center, GV-Edge Recording Manager, and GV-Eye to allow users to access a specified group of GV-VMS hosts through an Authentication user account.

You must first set up remote authentication on E-Map Server and GV-Control Center. After the E-Map Server and GV-Control Center are connected to the Authentication Server, the user will be prompted to log in with the user ID and password you created on the Authentication Server. Once the user logs in, a list of GV-VMS hosts authorized to the user account will be displayed, and the user will be able to view the assigned cameras.

Setting up Authentication Server

You need to create and arrange client accounts of E-Map Server, GV-Control Center, GV-Edge Recording Manager, or GV-Eye under their separate lists on the Authentication Server window (Figure 9-9).

1. In the Client List field, click the **E-Map Server List** or **Client List**, and click the **Add A Client** button (No. 2, Figure 9-9). The Client Information dialog box appears.
2. Type the name and information of the desired software or mobile app to be connected. The name does not need to match the location name of the software or mobile app.
3. Click **OK** to add the client.

Accessing from E-Map Server

The E-Map Server can access the user account setting of the Authentication Server.

1. Run the **E-Map Server**. For details, see *E-Map Sever* in Chapter 8.

- In the E-Map Server window, click **Tools** on the menu bar, and select **Options**. This dialog box appears.

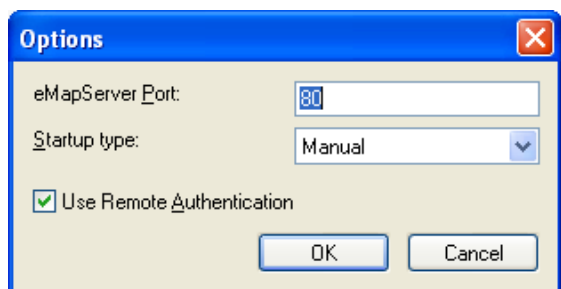


Figure 9-25

- Select **Use Remote Authentication**.
- To enable the Authentication Server service to start automatically at Windows startup, select **Automatic**. Keep the E-Map Server Port **80** as default or modify if necessary.
- Click **OK** to apply the settings.
- In the E-Map Server window, click **Tools** on the menu bar and select **Remote Authentication**. This dialog box appears.

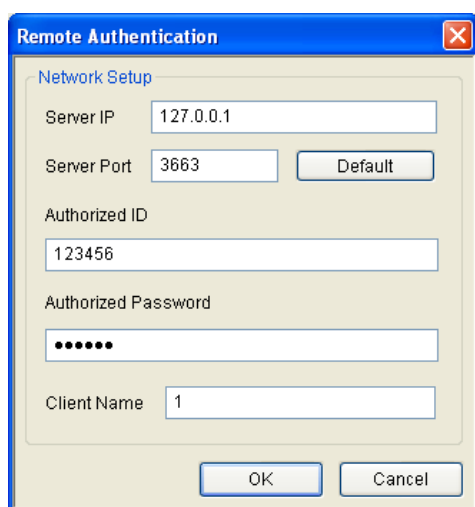


Figure 9-26

- Type the IP address, authorized ID and authorized password of the Authentication Server, as well as the E-Map Server's client name created on the Authentication Server, and then click **OK**.
- In the E-Map Server window, click **Tools** on the menu bar and select **Start Service** to start the E-Map Server.
- When you log into the E-Map Server, type the user ID and password created on the Authentication Server. A list of assigned GV-VMS clients to the user will be displayed.

Accessing from GV-Control Center

The GV-Control Center can access account settings of the Authentication Server.

Note: The Authentication Server only supports GV-Control Center V3.1.2.0 or earlier.

1. Run the **GV-Control Center**. For details, see *GV-Control Center User's Manual*.
2. On the Host List, right-click **Host List by ID** and select **Remote Authentication Setup**. A dialog box appears.
3. Type the IP address, authorized ID and authorized password of the Authentication Server, as well as Control Center's client name created on the Authentication Server, and then click **OK** to enable connecting to the Authentication Server.
4. To access the Authentication Server account settings, on the Host List, right-click **Host List by ID** and select **Get Host List by ID**. A dialog box prompts you for ID and password.
5. Type a user ID and password created on the Authentication Server, and click **OK**. A list of assigned GV-VMS hosts to the user will be displayed.

Accessing from GV-Edge Recording Manager / GV-Eye

For details, see *Chapter 8* in [GV-Edge Recording Manager User's Manual](#) or *Chapter 13* in [GV-Eye Installation Guide](#).

9.5 Fast Backup and Restore

With the Fast Backup and Restore (FBR) solution, you can change interface skin and customize features to suit personal preference, as well as backing up and restoring your configurations in GV-VMS.

9.5.1 Running the FBR Program

Go to **Windows Start > Programs > GV-VMS > Fast Backup & Restore Main System**. You will be prompted to enter a valid ID and Password of GV-VMS, and then this window will appear.

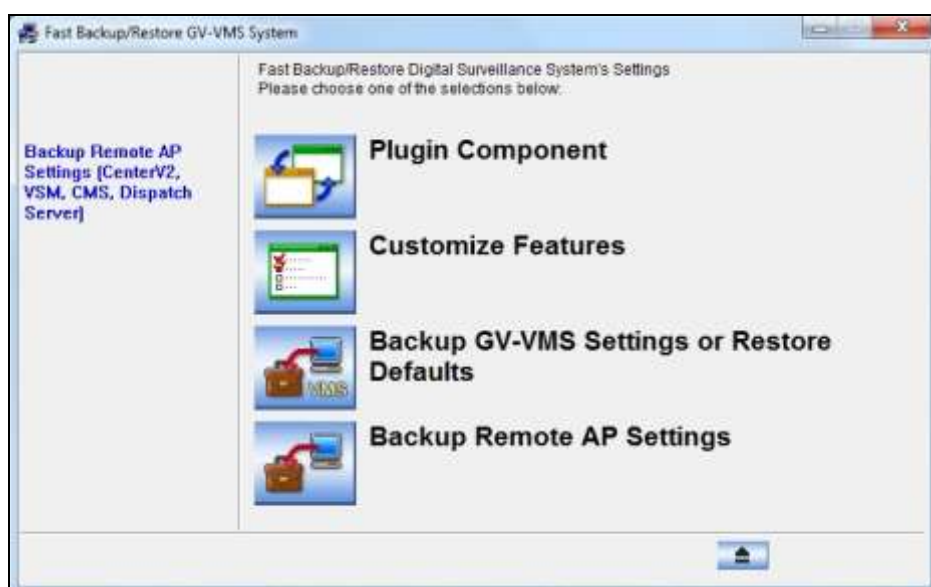


Figure 9-27

9.5.2 Plugin Component

You can add programs to your GV-VMS to expand the applications.

1. In the FBR window (Figure 9-27), click the **Plugin Component** icon. This dialog box appears.

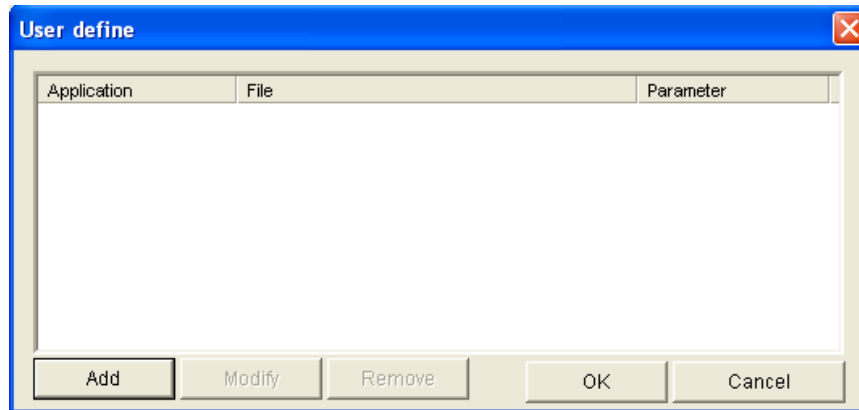


Figure 9-28

2. Click **Add**. The Add New Item dialog box appears.

Note: For some applications, type **/FBR** in the Parameter column if necessary.

3. Type the name of the desired application, locate its path and click **OK**.
4. To add more applications, repeat steps 1 to 3 and click **OK** in the User Define dialog box.
5. To access the added applications, run the GV-VMS, click **Home**  > **Toolbar**  > **Tools** , point to **Plugin** and select a desired application.

9.5.3 Customizing the Features

Not every feature may be of equal interest to you. You can specify which features are to be displayed at system startup.

1. In the FBR Window (Figure 9-27), click **Customize Features**. This dialog box appears.

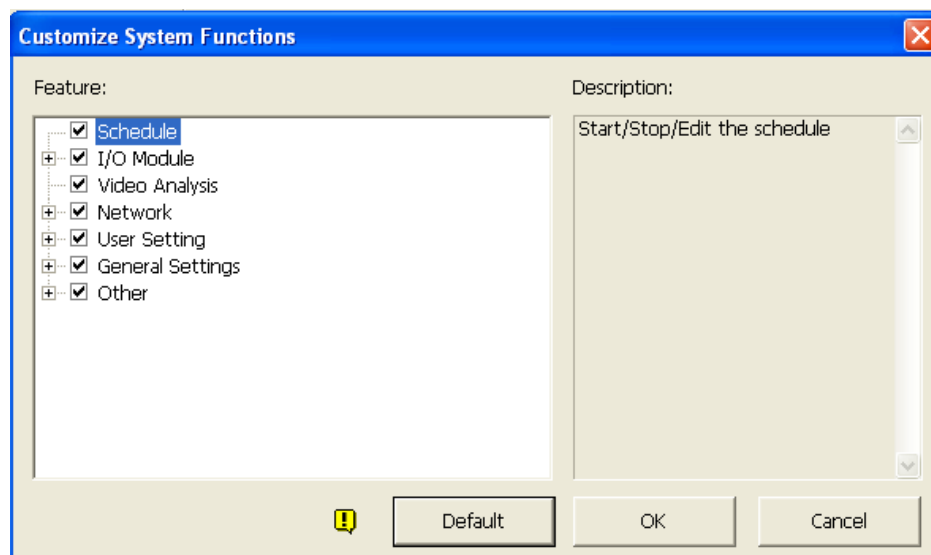


Figure 9-29

2. Expand the folder(s) and click the function(s) you want to disable in the GV-VMS.
3. Click **OK** to save the settings.
4. Restart GV-VMS for the settings to take effect.

9.5.4 Backing up and Restoring Settings

You can back up the configurations you made in the GV-VMS, and restore the backup data to the current system or import it to another GV-VMS.

Backing up the settings

1. In the FBR window (Figure 9-27), click the **Backup GV-VMS Settings or Restore Defaults** icon, and select **Backup Current System**.
2. Select which settings you want to back up and click the **Next Step** button .
3. In the Save As dialog box, select the destination to store the backup file. When the backup is complete, the “Successfully Backup GV-VMS System Settings” message will appear:

Restoring the System

You can restore the current system with the backup of configuration file. Also, you can copy this backup file to configure another system with the same settings as the current system.

1. Open the backup file (*.exe) you previously stored. A valid ID and password are required to display this window.

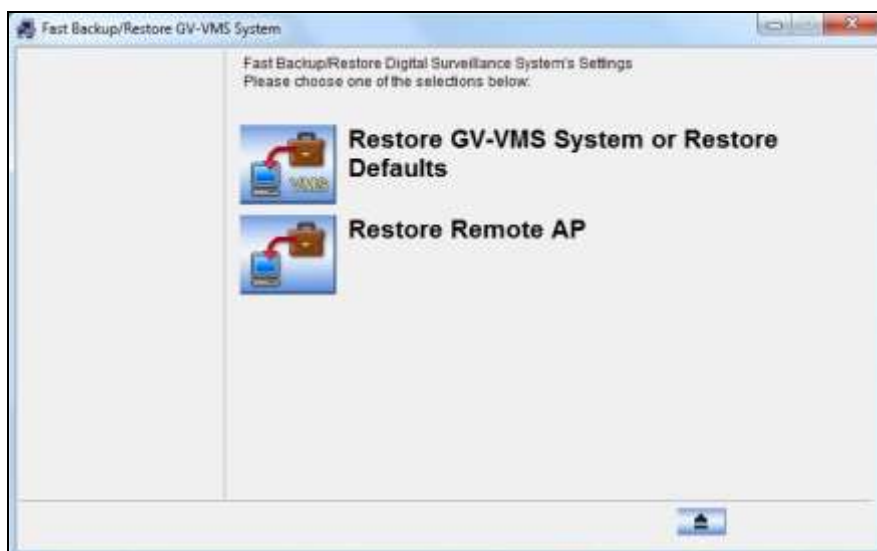


Figure 9-30

2. Click the **Restore GV-VMS System** icon and then select which backup settings you want to restore.

3. Click the **Next Step** button  to start restoring.
4. When the restoration is complete, the “Successfully Restore GV-VMS System Settings” message will appear.

Scheduling Configuration Backup

You can now set up a regular schedule with password protection to back up the GV-VMS configurations you made.

1. Go to **Windows Start > Programs > GV-VMS > Fast Backup & Restore Main System**. Type a valid ID and Password of GV-VMS as prompted.
2. Click **Backup GV-VMS Settings or Restore Defaults > Schedule Setup**.
3. Select **Active Schedule**.

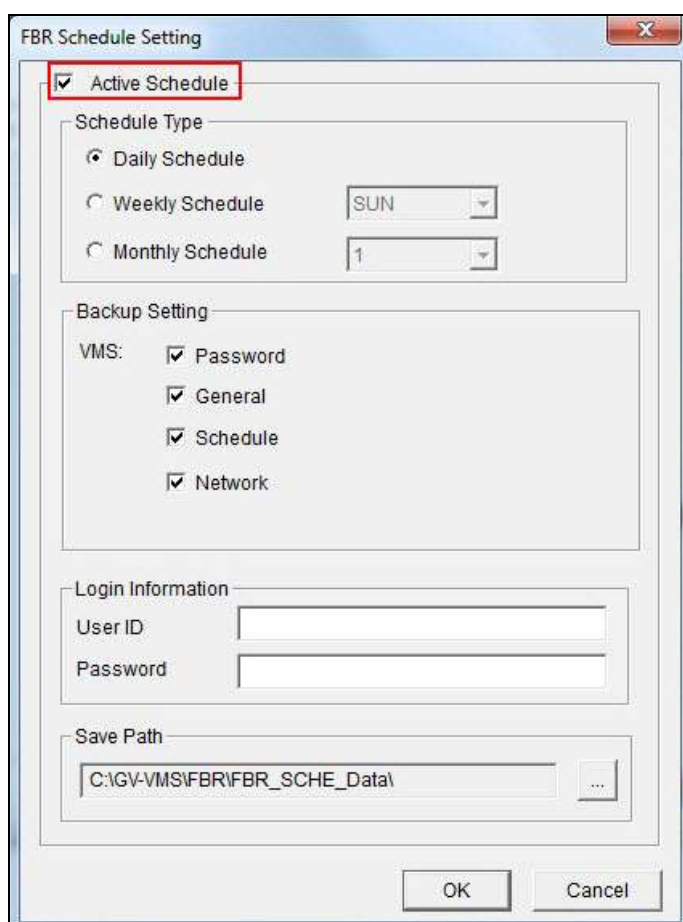


Figure 9-31

4. Select a desired schedule type.

5. Select desired options for backup.
 - **Password:** Back up all the user accounts and password settings of GV-VMS.
 - **General:** Back up all the settings of video analysis, IP devices, system configurations, Content List, E-Map, GV-Keyboard / GV-Joystick, and System Log.
 - **Schedule:** Back up the recording schedule configuration.
 - **Network:** Back up the network configuration of connection to VSM (Vital Sign Monitor) and to Center V2.
6. Type a user ID and password in the Login Information section. The ID and password must be identical with that of a user account created in GV-VMS. You will need to use this ID and password to restore the backup file.
7. Locate a path to save the backup contents.

Restoring Defaults

To restore the system default, click the **Backup GV-VMS Settings or Restore Defaults** icon (Figure 9-27), select **Restore Defaults** and follow the on-screen instructions to complete the process.

9.6 Bandwidth Control

The Bandwidth Control is an independent application that controls and monitors the network traffic of the WebCam Servers. It has the following features:

- Manage up to 5 GV-VMS systems
- Get bandwidth usages of every Webcam Server and every user
- Set bandwidth thresholds for specific users and IP addresses
- IP black and white list
- Kick unwanted users

9.6.1 Installing the Bandwidth Control

You can install **GV-Bandwidth Control Client Site** from **Utility** in [GeoVision Website](#).

9.6.2 The Main Window

After the installation is complete, double-click the **Bandwidth Remote Control** icon created on the desktop. The Bandwidth Control window appears.

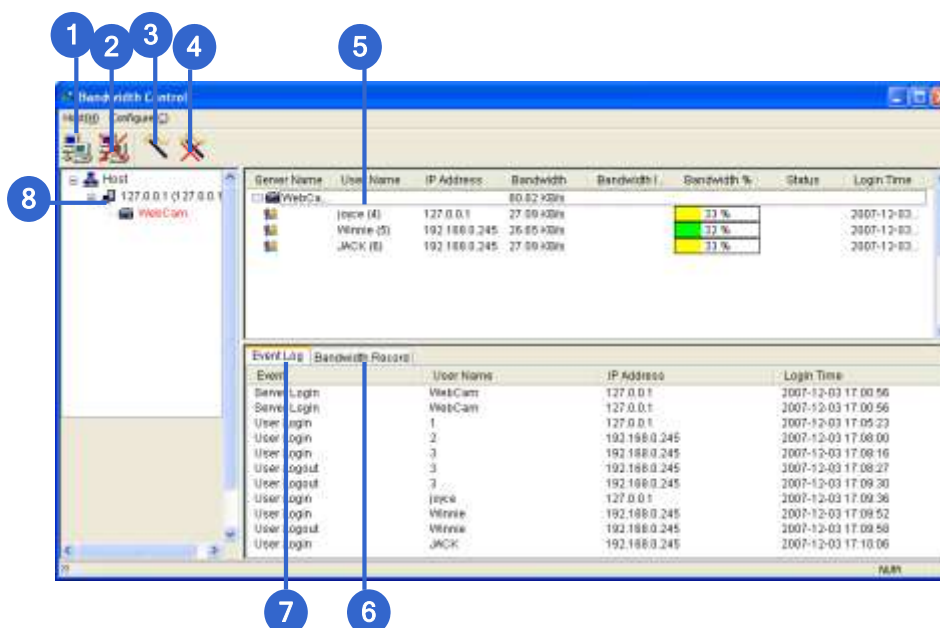


Figure 9-32

No.	Name	Description
1	Connection	Builds the connection to a WebCam Server.
2	Disconnect	Stops the connection to a WebCam Server.
3	Get Control	Obtains the right to remotely control a WebCam Server.
4	Give Up Control	Ceases controlling WebCam Servers and users.
5	User List	Displays the connected users and their status
6	Bandwidth Record	Displays the network traffic in graph display.
7	Event Log	Records activities of WebCam Servers and users.
8	Host List	Displays all WebCam Servers to be connected.

9.6.3 Allowing Remote Control

To allow the remote bandwidth control to the WebCam Server, follow the steps below.

1. On the main screen of GV-VMS, click **Home**  > **Toolbar**  > **Configure**  > **Network**  > **WebCam Server**. This dialog box appears.

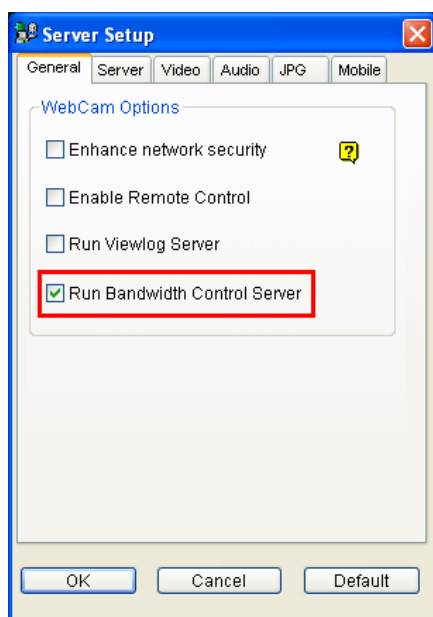


Figure 9-33

2. Under the **General** tab, select **Run Bandwidth Control server**. After this option is enabled, on the Control Center Server option list, the **Bandwidth Control Service** is marked with a check.

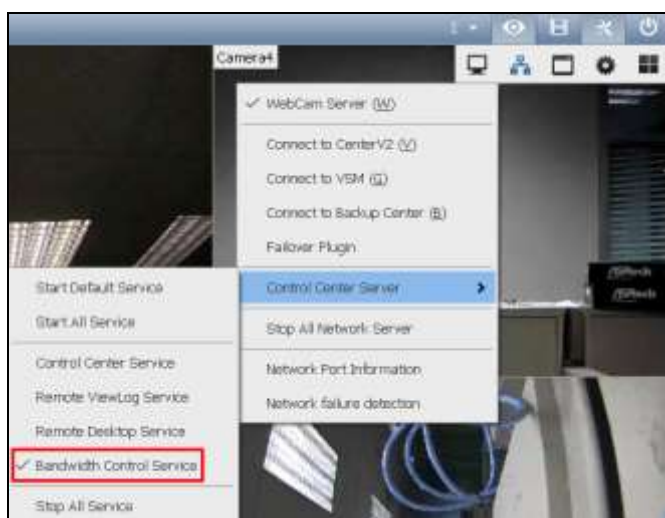


Figure 9-34

9.6.4 Connecting to WebCam Server

1. Click the **Connection** button (No. 1, Figure 9-32) on the toolbar. This dialog box appears.

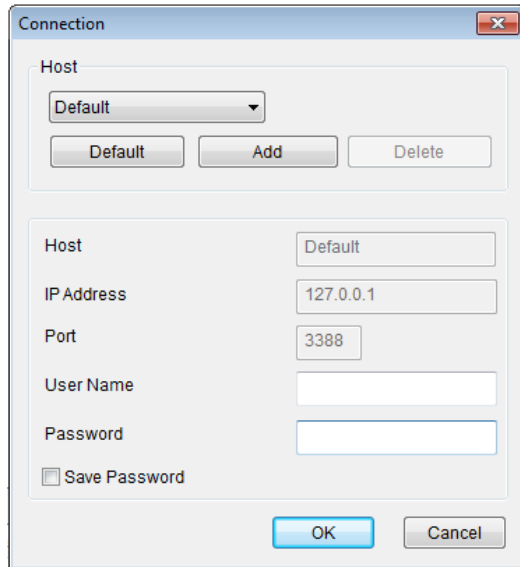


Figure 9-35

2. To add a WebCam Server to be connected to, click **Add**.
3. Type the host name, IP address, user name and password of the WebCam Server. Modify the port if necessary.
4. Click **OK**. After the connection is established, the WebCam Server shows up in the Host List.
5. You can add up to 10 WebCam Servers by repeating above steps.
6. To stop the connection, select the host and click the **Disconnect** button (No. 2, Figure 9-32). The host will be deleted from the host list.
7. Up to 5 users of the Bandwidth Control programs can connect to a single WebCam Server for network traffic monitoring. However, only one user has the access to bandwidth settings. When this user clicks the **Give Up Control** button (No. 4, Figure 9-32), the user no longer controls the WebCam Server. Whoever clicks the **Get Control** button (No. 3, Figure 9-32) first has access to bandwidth settings. For bandwidth settings, see *Controlling a Specific WebCam Server* later in this chapter.

9.6.5 Controlling a Specific WebCam Server

To disconnect a login user or set the bandwidth limit for a specific user, right-click the user to have the options below:

Server Na...	User Name	IP Address	Bandwidth	Bandwidt...	Bandwidt...	Status	Login Time
WebC...			736.00 B/s				
	Joyce (4)	192.1...			50 %		2021-04-1...
	Peter (5)	192.1...			50 %		2021-04-1...

Figure 9-36

- **Kick:** Disconnect the user from the WebCam Server.
- **Block IP:** Prohibit the user from connecting to the WebCam Server. To use the function, the **Enable IP Black List** option (Figure 9-39) must be selected first.
- **Bandwidth Setup:** Select **By Username** to specify a bandwidth limit for the user, or select **By IP** to limit the bandwidth used by the IP address. This setup dialog box will appear. In this example, an IP address is selected for bandwidth limit setup. Select **Bandwidth Setup**, specify a bandwidth limit and click **OK**.

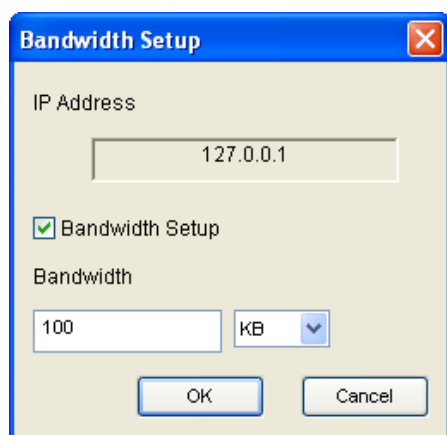


Figure 9-37

9.6.6 Setting up Bandwidth

You can manage the bandwidth of multiple hosts, allocated to a WebCam Server, by specifying certain users and IP addresses when your network is busy or heavily loaded.

1. Click **Configure** on the menu bar and select **Bandwidth Setup**.
2. In the Bandwidth Setup dialog box, select the desired WebCam Server and click **OK**. This dialog box appears.

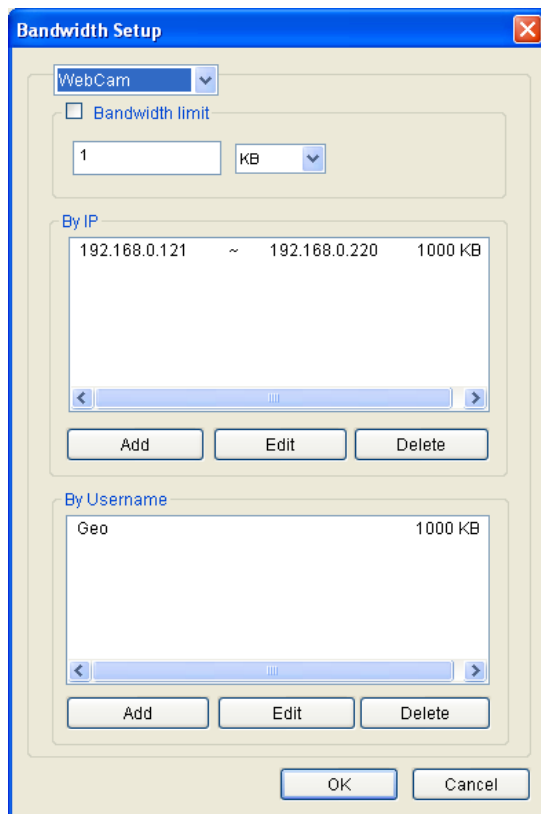


Figure 9-38

- **Bandwidth limit:** Select to define the total bandwidth that the WebCam Server will be allowed to use on your network.
- **By IP:** Click **Add** and specify an IP address or a range of IP addresses and its bandwidth limit.
- **By Username:** Click **Add** and specify the user name and its bandwidth limit.

Note: If you have already specified the total bandwidth to a WebCam Server, it is prioritized before the bandwidth limits set to user names and IP addresses.

9.6.7 Block List Setup

Two types of block lists are provided to restrict the access to a WebCam Server: permitting and denying a specified range of IP address to establish the connection. Note that only one type of block list can be used at a time.

1. Click **Configure** on the menu bar and select **IP White / Black List Setup**. A dialog box prompts for you to select a host.
2. In the IP White / Black List Setup dialog box, select the desired WebCam Server and click **OK**. This dialog box appears.

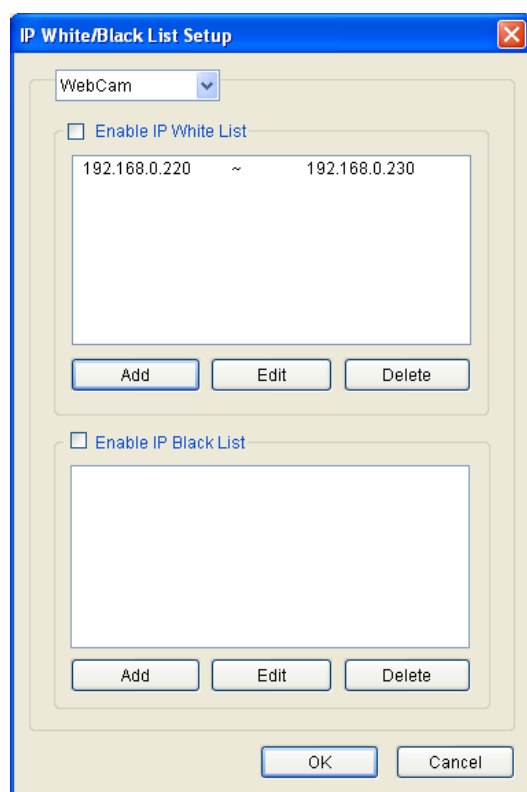


Figure 9-39

3. Select a desired type of block list and click **Add** to define the IP addresses.
 - **Enable IP White list:** Allow the defined range of IP addresses to establish the connection to the WebCam Server.
 - **Enable IP Black list:** Prohibit the defined range of IP addresses from establishing the connection to the WebCam Server.
4. Click **OK** to apply the settings.

9.6.8 General Setup

You can set up sound alarm for user log-in, or change the real-time graph display of network traffic. Click **Configure** on the menu bar and select **General Setup**. This dialog box appears.

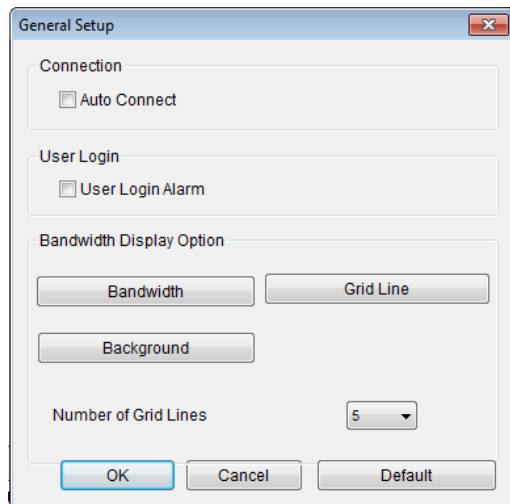


Figure 9-40

- **Auto Connect:** Enable the application to connect to previously connected hosts automatically next time the application restarts,
- **User Login Alarm:** Enable the computer alarm on when a user logs in.
- **Bandwidth Display Option:** Set the color of bandwidth save, grid lines of the graph and the background color of the graph.
- **Number of Grid Line:** Set the number of grid lines to be displayed on the graph.

You can click the Bandwidth Record tab in the Bandwidth Control window to view the network traffic in graph.

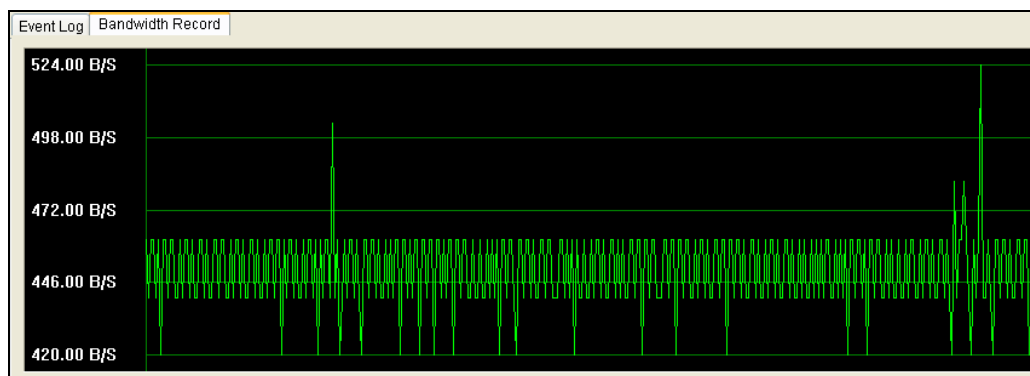


Figure 9-41

9.7 Language Setting

The user interface has been translated from English into 30 other languages. If you find the translation to be unsuitable and would like to correct it, use the **MultiLang Tool** to revise the translation. Next, you can apply the revised text to the applications and export a **MRevise.exe** file to make the same revision on another computer. You can also send the revision back to GeoVision to have the revision included in future software release.

9.7.1 Installing the MultiLang Tool

You can install **GV-MultiLang Tool** from **Utility** in [GeoVision Website](#).

9.7.2 Revising the Translated Text

Revising the Translated Text

1. After completing the installation, close all GeoVision applications, go to **Windows Start > programs > MultilingualConfig**. This dialog box appears.

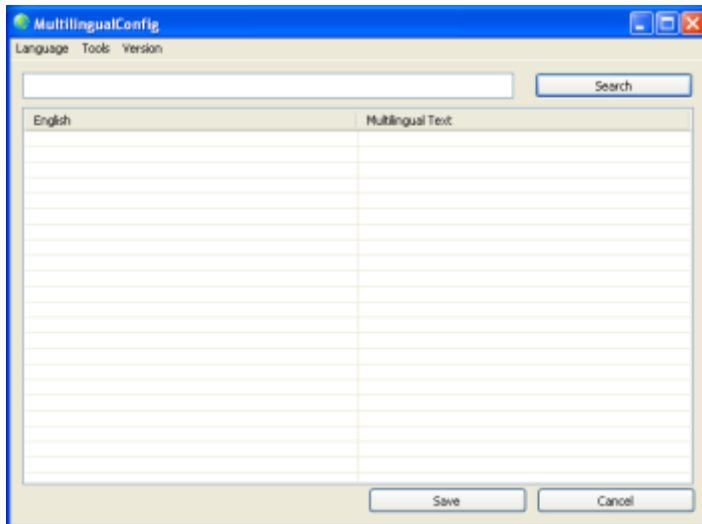


Figure 9-42

2. Click **Language** and select the language of the text you want to revise.
3. Click **Version** to select the version of the GV-VMS that you want to revise.
4. In the **Search** field, type all or part of the text in English or the target language and click **Search**. The results are displayed.

Note: The search is case sensitive.

5. Double-click the text you want to revise. This dialog box appears.

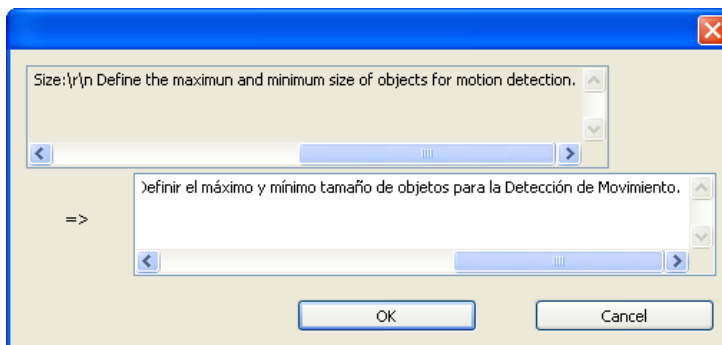


Figure 9-43

6. Revise the translated text and click **OK**.

Note:

1. It is recommended to revise an entire sentence at a time instead of simply searching a single word and replacing the word in all other strings.
 2. The text may contain symbols such as **%d** or **\n** that instruct the application to perform certain functions. Be careful not to change the symbols in the translated text.
 3. Before making any revision, click **Tools** and select **Revision Note** to read the revision instructions.
-

Applying the Revised Text

1. To apply the revised translation to the applications, click **Save**. This dialog box appears.

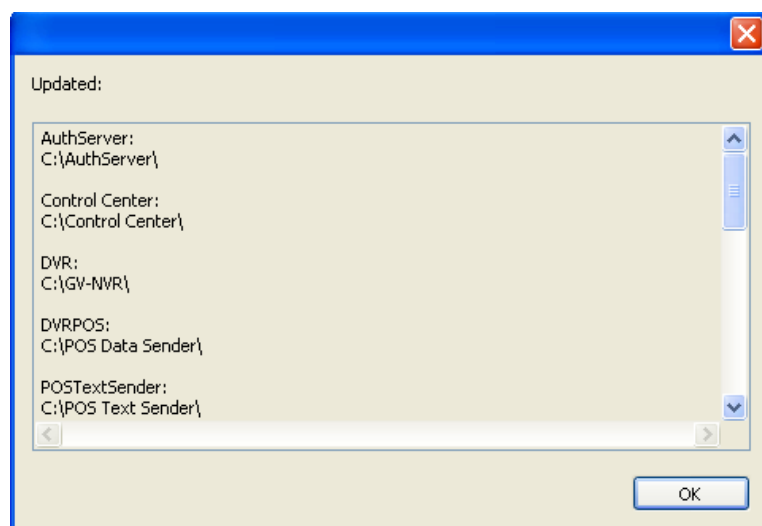


Figure 9-44

Note: The system will automatically locate the corresponding files on your computer and replace with the revised translation for the following applications: GV-VMS, Authentication Server, Bandwidth Control Client Site, Center V2, Dispatch Server, Fast Backup and Restore (FBR), GV-IP Device Utility, MCamCtrl Utility, Remote E-Map and Remote ViewLog.

2. Click **OK**. The message *“Do you want to apply the revised multilingual texts to another folder?”* appears. If the storage path for the application has been changed or if the associated application is not listed in the dialog box, click **Yes** and select the folder of the application.

Exporting the Revised Text

1. To export the revision as an executable file, click **Tools > Export > Export executable file**. You can copy the .exe file to another computer and apply the same translation revision by running the .exe file.
2. To report the translation revision back to GeoVision:
 - If your default mail client is Outlook, Outlook Express or Mozilla Thunderbird, click **Tools, Export** and **Send Report** to send the revision.
 - If your default mail client is not set up or supported, click **Tools, Export** and **Export text file**, and email the exported text file to gvlocalize@geovision.com.tw.
3. For the distributors to duplicate Software DVD with the translation revision,
 - Copy and paste all the contents of Software DVD to your computer.
 - Export the revised translation file and rename the file as **MRevise.exe**.
 - Move **MRevise.exe** to the location you saved the contents of Software DVD :**!Software\Translation Revision**.
 - Duplicate the Software DVD with the **MRevise.exe** file.
 - Test the Software DVD by clicking **10. Import Translation Revision** from the Install Program window to apply the translation revision.

9.7.3 Setting up the UI Language to English

The default user interface (UI) language of the following GeoVision software and applications is set according to the region detected. You can install the **Set Language** tool to set the UI language to English.

- GV-VMS
- GV-Fast Backup and Restore Multicam System
- ViewLog
- GV-Remote ViewLog
- GV-IP Device Utility
- GV-Center V2
- GV-Dispatch Server
- GV-Control Center
- GV-Remote E-Map

You can install **GV-Set Language** tool from **Utility** in [GeoVision Website](#).

1. In the Configure window, select **English** from the Language drop-down list.

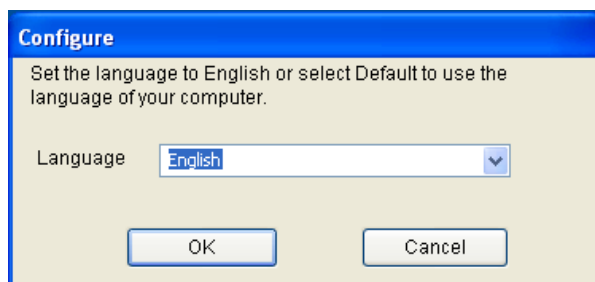


Figure 9-45

2. Click **OK** and restart your GeoVision software or application to enable the English UI.

9.8 GV-SD Card Sync Utility

GV-SD Card Sync Utility allows you to download videos from the Micro SD card inserted in the GV-IP Camera. When the connection between GV-IP Camera and GV-VMS is lost, recordings are automatically saved to the memory card inserted in the GV-IP Camera. To automatically synchronize and download recordings from the micro SD card to a local folder, install and execute the program on GV-VMS.

Note:

1. GV-SD Sync Card Utility is only supported by GV-IP Cam H.264 V1.11 or later, GV-IP Cam H.265 V1.00 or later, GV-BX2600 V1.00 or later, GV-PPTZ7300 V1.01 or later, and GV-SD2411 / BX12201 / FER12203 V1.01 or later.
 2. It is recommended to keep GV-SD Card Sync Utility running in the background to automatically synchronize and download videos.
 3. Besides the syncing SD card using GV-SD Card Sync Utility, GV-VMS also supports the **Sync recording from camera SD card when reconnected** function; see *1.3.1 Setting up Global Recording Settings for All Cameras*.
-

9.8.1 Installing GV-SD Card Sync Utility

You can install **GV-SD Card Sync Utility** from **Utility** in [GeoVision Website](#).

9.8.2 Setting up GV-SD Card Sync Utility

1. Run the **GV-SD Card Sync Utility**. The main window and the Setting window appear. The Setting window pops up automatically upon first execution. Otherwise, click the **Setting** button  on the main window.

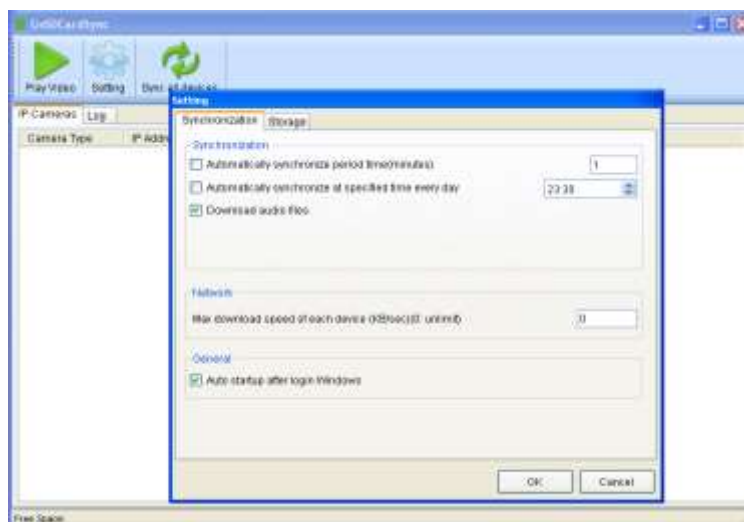


Figure 9-46

2. To configure synchronization, network and startup settings, select the **Synchronization** tab on the Setting window. This page appears.

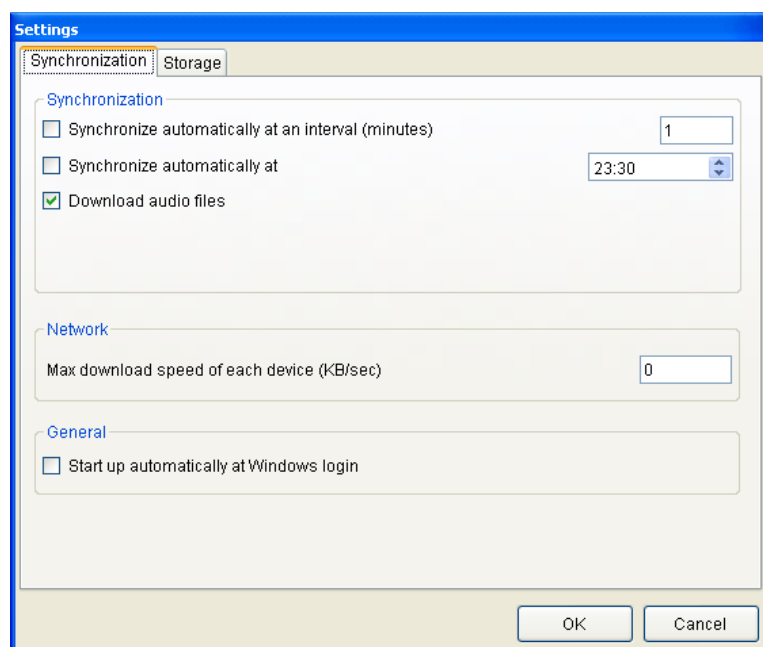


Figure 9-47

[Synchronization]

- **Synchronize automatically at an interval:** Automatically synchronize videos from micro SD cards to a local folder at the specified interval.
- **Synchronize automatically at:** Automatically synchronize videos from micro SD cards to a local folder at the specified time.
- **Download Audio Files:** Download audio files along with the video files. This option is enabled by default.

[Network]

- **Max. download speed of each device (Kb/sec):** To make sure the bandwidth is not completely taken up while downloading files from the memory card, specify a maximum download speed. If you do not want to set a bandwidth limit, type 0.

[General]

- **Start up automatically at Windows login:** Automatically launch GV-SD Card Sync Utility when Windows starts up.

3. To configure the storage and recycling settings, select the **Storage** tab on the Setting window. This page appears.

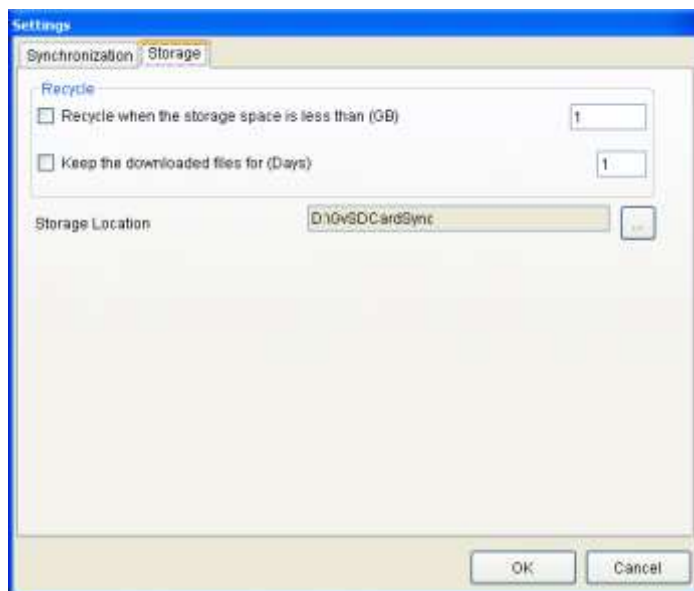


Figure 9-48

Note: By default, downloads are saved to :!GvSDCardSync and are not recycled automatically.

[Recycle]

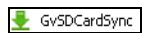
- **Recycle when the storage space is less than (GB):** Specify a minimum free space of your local storage for file recycling.
- **Keep the downloaded files for (Days):** Specify the number of days to keep the download files at the local hard drive.
-

[Storage Location]

To configure the storage path, click the button next to the location field and specify a storage location.

4. Click **OK** to save the configuration and exit the Setting window.

9.8.3 The Main Window

After installing GV-SD Card Sync Utility, point to **Start > Programs > GV-SDCardSync** > click  to launch the program. This window appears.

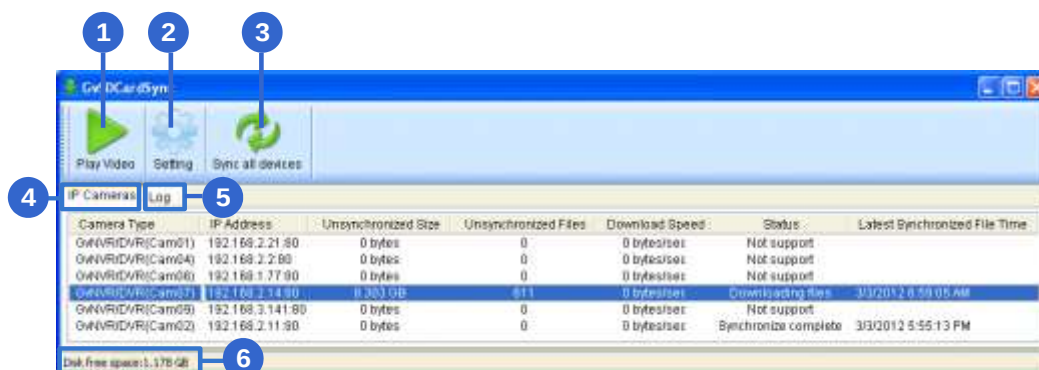


Figure 9-49

No.	Name	Description
1	Play Video	Plays downloaded recordings of the selected GV-IP Cameras using the ViewLog player. For details, see <i>Chapter 4 Video Playback</i> .
2	Setting	Configures settings of synchronization, network, storage location and recycling criteria. See <i>Running the GV-SD Card Sync Utility</i> earlier in this chapter.
3	Sync all devices	Manually synchronizes and downloads the recording files saved in GV-IP Camera.
4	IP Camera Tab	Shows information of GV-IP Camera connected to GV-VMS,.
5	Log Tab	Displays up to 100 event entries of GV-SD Card Sync Utility. Once the entries are full, recycling will start from the oldest file.
6	Storage Space	Shows the storage space of the designated hard drive.

Note:

1. The synchronization time is recorded according to the system time of GV-IP Camera.
2. The logs are deleted once GV-SD Card Sync Utility is re-activated.

9.9 Media Man Tools

The Media Man Tools program provides a hot-swap feature, allowing a non-stop recording. You can add and remove a hot-swap or portable hard drive to the GV-VMS system without interrupting its monitoring. When the new drive is added, it will be configured to the recording path automatically.

Additionally, you can back up the ViewLog player and database files to play back at any computer.

Note: The minimum disk capacity for the hot-swap feature is 32 GB.

9.9.1 The Media Man Tools Window

This program comes with the installation of GV-VMS. Click **Drive C** in My Computer, select the GV-VMS folder, and then select **Media Man Tools**. This window will appear.

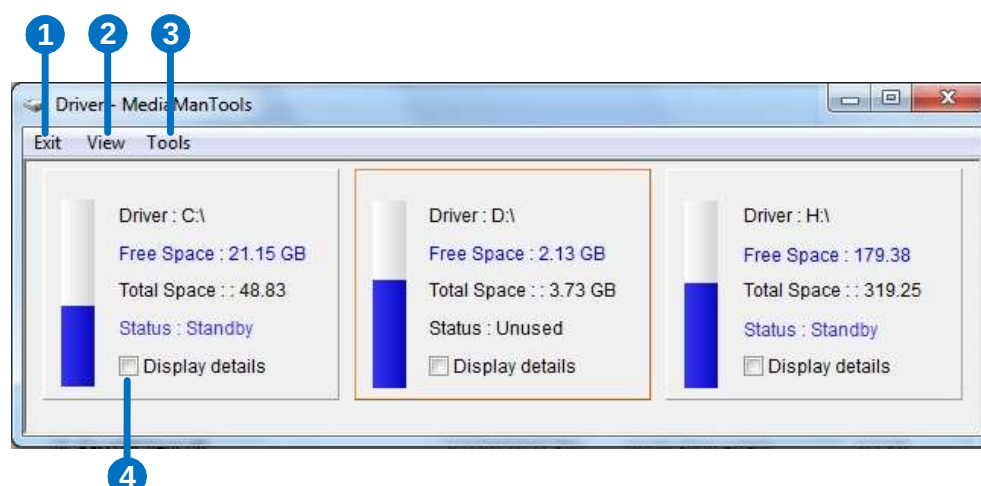


Figure 9-50

No.	Name	Description
1	Exit	Closes or minimizes the Media Man Tools window.
2	View	Refreshes the disk drive status shown in this window.
3	Tools	Sets up the LED panel and automatically logs in the Media Man Tools window.
4	Display Details	Select the option to view the status and information of the disk drives. For details, see <i>Viewing Disk Drive Status</i> later in this section.

9.9.2 Viewing Disk Drive Status

To view the detailed information of a drive, check **Display Details** (No. 4, Figure 9-50) in the desired drive section. The status window will appear.

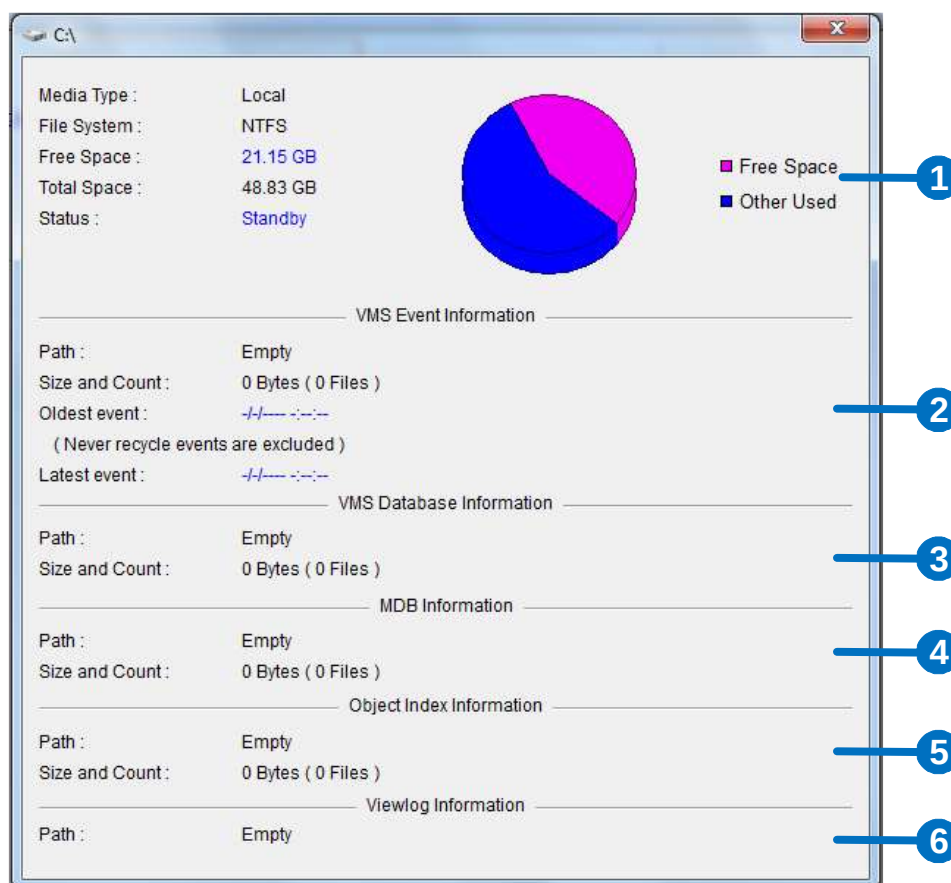


Figure 9-51

No.	Name	Description
1	Disk Properties	Indicates disk information. In "Media Type," two messages may appear: ● LAN: indicates a network hard drive is connected. ● Local: indicates a local hard drive is connected. In "Status", three messages may appear: ● Standby: indicates the hard drive already specified as the recording path. ● Unused: indicates the hard drive not specified as the recording path. ● Recording: indicates the files are being recorded to the disk.

No.	Name	Description
2	VMS Event Info	Indicates the path, size and number of recorded events; the dates of the oldest and latest events.
3	VMS Database Info	Indicates the path, size and number of the ViewLog Event List log files.
4	MDB Info	Indicates the path, size and number of System Log files.
5	Object Index Info	Indicates the path, size and number of Object Index files.
6	ViewLog Info	Indicates the location you have backed up the EZ ViewLog player.

Note: The VMS Event Info updates every minute. The MDB Info, VMS Database Info, Object Index Info and ViewLog Info update as data changes.

9.9.3 Adding a Disk Drive

1. Click **Drive C** in My Computer, select the GV-VMS folder, and select the **Media Man Tools**.
2. Insert a hot-swap hard drive or plug a portable hard drive to your computer. This dialog box appears.

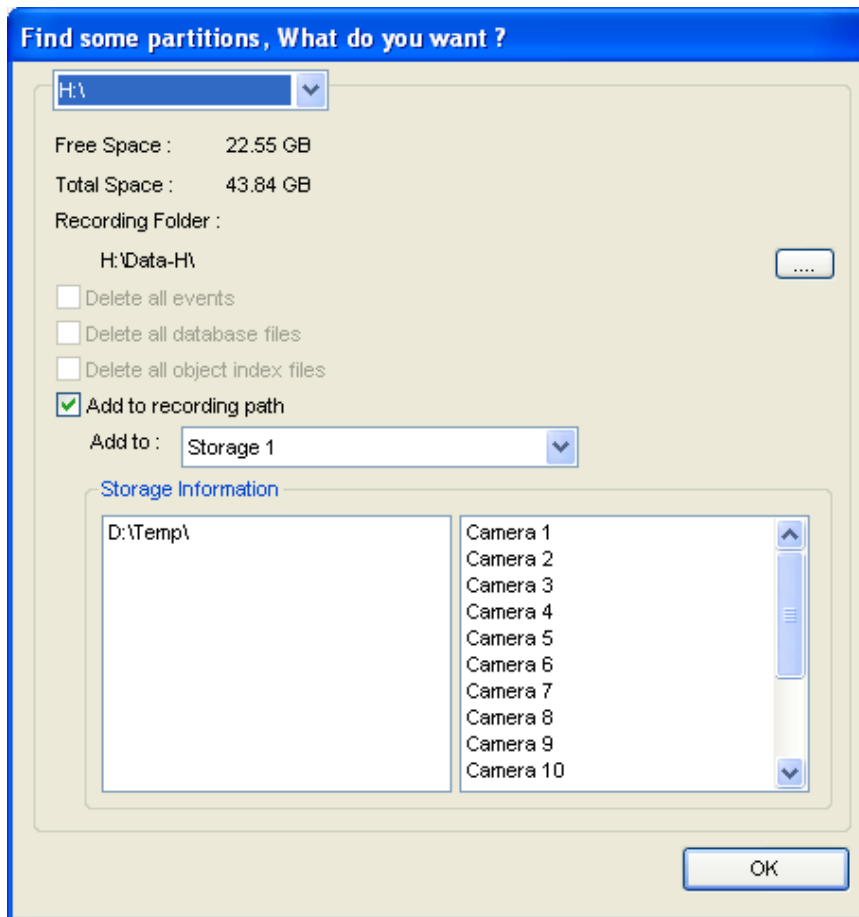


Figure 9-52

3. Select **Add to recording path** and select the storage group from the drop-down list.
4. If there are recording files saved on the hard drive, you may select the options of **Delete all events**, **Delete all database files** or **Delete all object index files**.
5. Click **OK** to automatically configure the hard drive to the recording path.

To verify the hard drive is added successfully, check if the “Status” of the drive displays *Standby* (see Figure 9-50).

Tip: To add a local drive to the recording path, right-click the desired drive on the Media Man Tools window (Figure 9-50) and select **Add for recording**.

9.9.4 Removing a Disk Drive

To remove a disk drive from the recording path, right-click the desired drive on the Media Man Tools window (Figure 9-50), and select **Remove from recording path**. This dialog box will appear. You can export related database files with the recordings on the hard drive. You can also export the ViewLog player which allows you to play back the recordings on any computer.

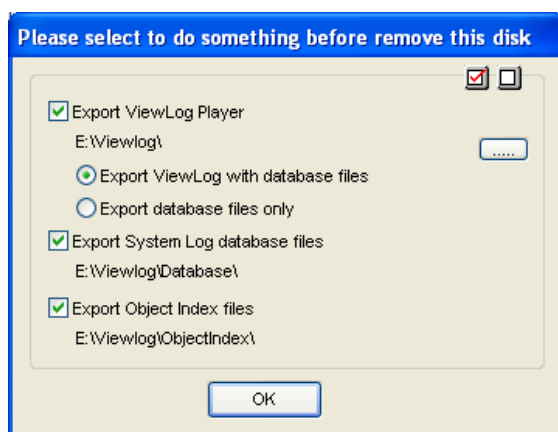


Figure 9-53

- **Export ViewLog Player:**
 - ⊙ **Export ViewLog with database files:** Exports the ViewLog player together with ViewLog Event List log files (.db files), related to the recordings on the hard drive.
 - ⊙ **Export database files only:** Exports ViewLog Event List log files (.db files) only if the ViewLog program already exists on the hard drive.
- **Export System Log database files:** Exports the system log files (.mdb files), related to the recordings on the hard drive.
- **Export Object Index files:** Exports the Object Index files, related to the recordings on the hard drive.
- **[...] button:** If you want to change the default folder “Viewlog” created on the hard drive, click the button.

Note: Removing the hard drive will affect ViewLog database. To restore these events, add the hard drive back to the system and run **Repair Database Utility**.

9.9.5 Logging in Automatically at Startup

To automatically log in and minimize the Media Man Tools window at Windows startup, follow these steps:

1. Click **Tools** on the menu bar, and select **Auto login at Windows startup**. A dialog box appears.
2. Type the ID and password of the GV-VMS for automatic login in the future.
3. If you want to minimize the Media Man Tools window to the system tray at startup, select **Auto minimize at startup**.
4. Click **OK**.

9.9.6 Setting up LED Panel

A LED panel on the screen provides a quick indication of the activity status of hard disk drives.



Figure 9-54

LED Color	Description
Gray	No HDD is assigned to this LED.
Green	A HDD is assigned to this LED.
Red	The HDD is full.
Flashing Green	GV-VMS is recording or the video / audio files are played back in ViewLog.
Flashing Red	The HDD is recycling.

1. Click **Tools** on the menu bar on the Media Man Tools window, and select **Setup LED Panel**. This dialog box appears.

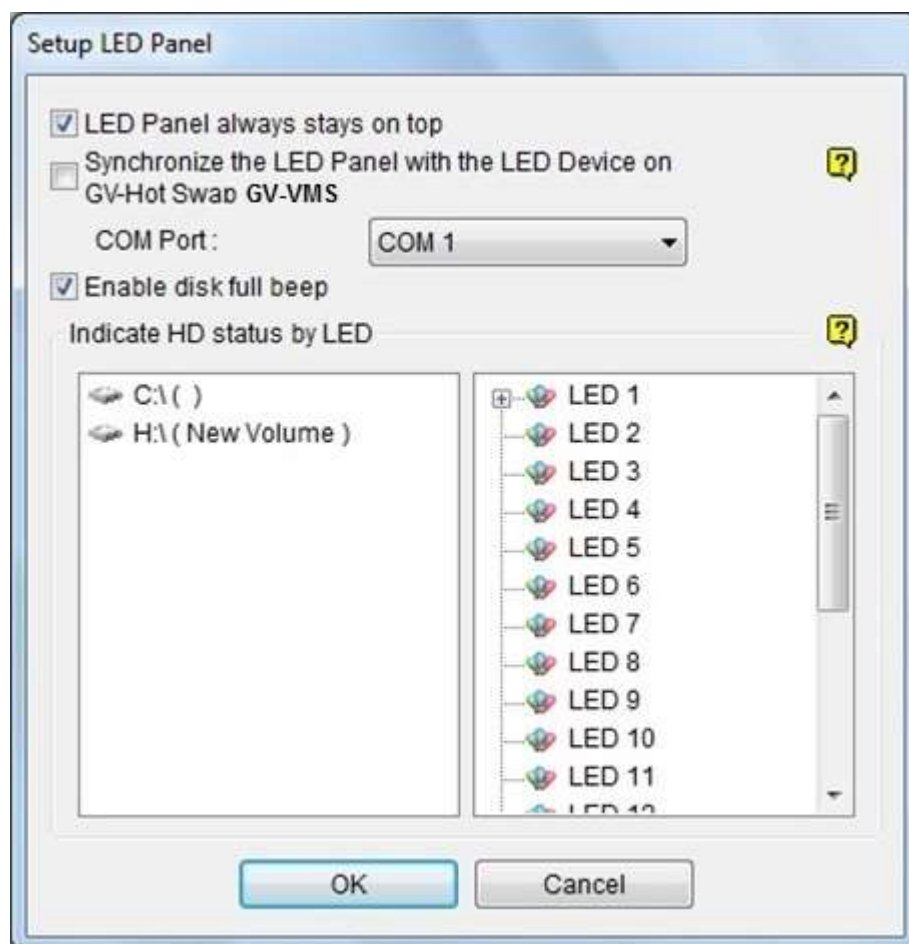


Figure 9-55

- **LED Panel always stays on top:** Makes the LED panel stay on top of other windows when the Media Man Tools window is minimized.
 - **Synchronize the LED Panel with the LED Device on GV-Hot Swap VMS:** For GV-Hot Swap VMS System only. If enabled, the LED device installed on the front panel of the GV-Hot Swap VMS System will synchronize with the LED panel on the screen.
 - **Enable disk full beep:** When the hard disk drive is full, the system makes the beeping sound. Note this function only works when the motherboard is equipped or installed with a PC speaker.
2. By default, only the hard disk drive that stores video and audio files will be assigned to LED. If you want to re-assign the hard disk drive or assign other drives to LEDs, freely move the hard disk drive to the desired LED on the tree.
 3. Click **OK** to apply the settings, and minimize the Media Man Tools window to display the LED panel on the screen.

4. If you want to return to the Media Man Tools window, right-click the LED panel and select **Switch to the setup window**.

Note:

1. Because the LEDs are designed to indicate the video and audio files are being written or read, it is not recommended to assign the HDDs that store log files to the LEDs.
 2. If the HDD that stores log files is assigned to a LED and its LED turns red, make sure the log files are not being written before you remove it. Otherwise, the log files might be lost during the removal. The default location for data storage is D:\Record\<camxx or audxx folder> for recorded files, D:\CameraDBs\ for event database files, and C:\GV-VMS\Database for system logs.
-

9.10 Alert Notifications through SNMP Protocol

You can send alert notifications to SNMP-compatible software by using the SNMP Trap Notification utility.

1. Click Windows' **Start** > **All Programs** > the **GV-VMS** folder > **SNMPTrapNotification.exe**. This dialog box appears.



Figure 9-56

2. Type the **IP address** of the software that will be receiving the alert notification, and modify the **Port** if needed.
3. To run SNMP Trap Notification upon system startup, select **Auto Run at Startup**.
4. Select **Send SNMP Trap** to enable the function.
5. Under Option, select the types of notifications you want to send to the software.
6. Click **Apply**.

9.11 Local and Remote Backup

GV-VMS can back up recorded files to any connected hard disk drives or GV-Backup Center over the Internet. A copy of recorded files will automatically be backed up to the assigned path or GV-Backup Center.

Note: You can only choose either **Local Backup** or **Remote Backup** (with GV-Backup Center). The two backup methods can not be applied at the same time.

9.11.1 Remote Backup

To back up with GV-Backup Center, see 3.3 *Connecting GV-DVR / NVR / VMS* in [GV-Backup Center User's Manual](#).

9.11.2 Local Backup

To connect to a hard disk drive, follow the steps below:

1. Click **Home**  > **Toolbar**  > **Network**  > **Backup Center**. The Backup Server dialog box appears.

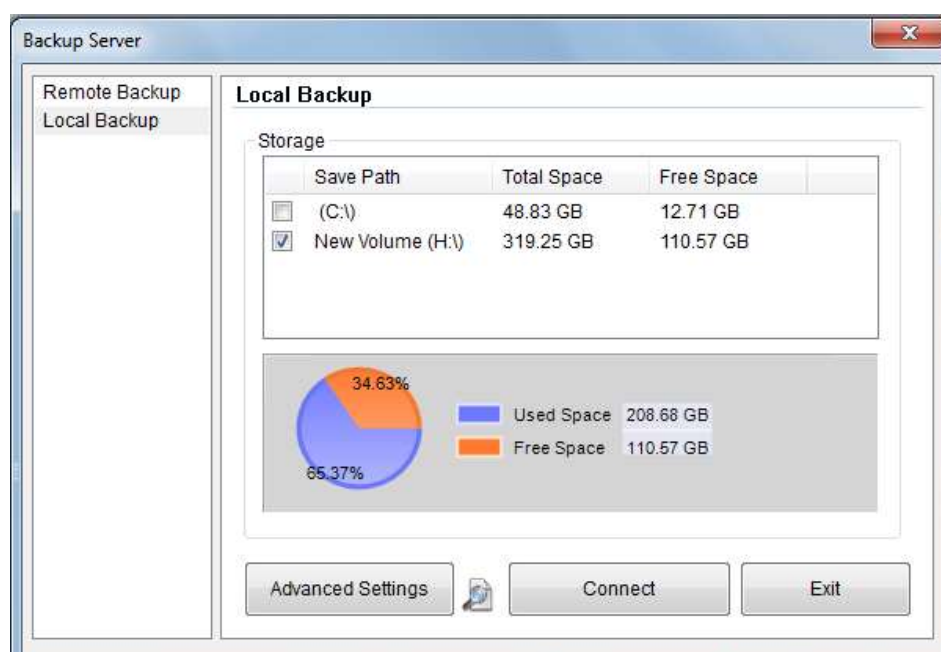


Figure 9-57

2. Select **Local Backup** in the left pane.
3. Specify in which hard drive you want to back up your files. If you assign multiple hard drives, when the first hard drive is full, the files will be backed up to the second hard drive.
4. For **Advanced Settings**, see the later section for details.
5. To configure file backup schedule and transfer time, see *File Transfer Setting for Local Backup* later in this chapter.
6. Select your desired storage path and select **Connect** to back up files.
7. On the Windows taskbar, right-click on the **Geo Backup Client** icon. Three options are available:



Figure 9-58

- **Status:** “Connected” indicates that Local Backup is successfully activated.
- **Backup Status:** indicates the status of file backup.
- **Playback:** open ViewLog player for playback.

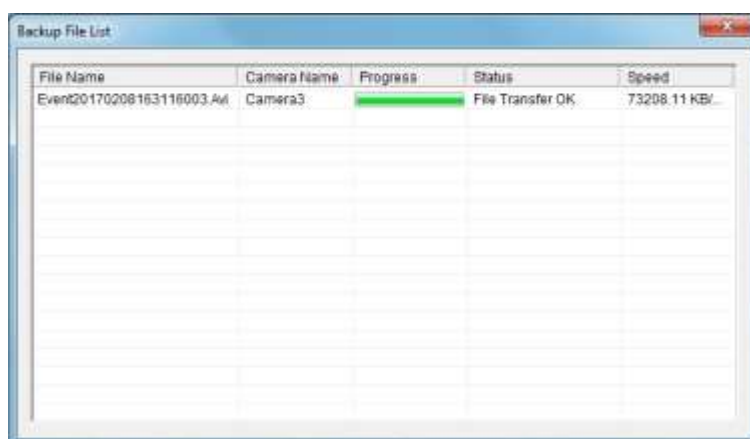


Figure 9-59

Note:

1. You can also click  on the first setting page of Local Backup to open ViewLog player.
2. Be sure to assign different Local Backup storage paths from those of GV-VMS.

9.11.3 Advanced Settings

9.11.3.1 Advanced Settings for Local Backup



Figure 9-60

- **Minimum Recycle Threshold:** Specify a minimum free space of your local storage for file recycling.
- **Keep Days:** Specify the number of days to keep the download files at the local hard drive.
- **Compact Video Files Before Backup:** Compact the recorded video files before backing up.
 - If the recorded video is compressed with H.265 or H.264 codec, it will be compacted into key frames only.
 - If the recorded video is compressed with MJPEG codec, you can use the **Reserved Frames (MJPEG)** option to specify the number of frames.
- **Limit Bandwidth xx KB/Sec:** Specify a bandwidth limit when uploading files.
- **Back up except the latest xx Day(s):** Specify to exclude the latest number of days during backup.
- **Export file quality:** Select the desired file quality from the following options:
 - ⊙ **Export original stream:** Export files in both main and sub stream.

- ⊙ **Export main stream:** Export files in main stream.
- ⊙ **Export main key stream:** Export files with only key frames in main stream.
- ⊙ **Export sub stream:** Export files in sub stream.
- ⊙ **Export sub key stream:** Export files with only key frames in sub stream.
- **Copy Viewlog to backup drives:** Copy the ViewLog player to the assigned backup drives.
- **Delete these source files after the backup is complete:** Delete the recorded files in GV-VMS after the files are successfully backed up.

9.11.3.2 File Transfer Settings for Local Backup

The File Transfer Setting allows you to specify the recordings to back up and transfer time.

In this setting dialog box, you can define the following backup rules:

- The day of recordings to be transferred.
- The time period of recordings to be transferred.
- The type of recordings to be transferred, including motion detection, I/O trigger or all types of events.
- The time to back up the files.

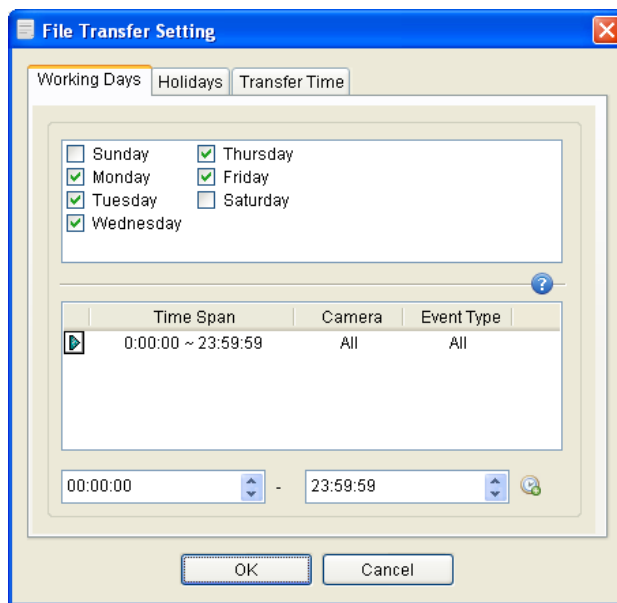


Figure 9-61

[Working Days] Define up to 10 backup rules to specify which recordings, including which type, which time period and on which working days they were recorded to be transferred to the assigned hard disk drive.

1. Select the day, including Monday to Sunday.
2. Click the arrow button before Time Span and select **Modify**.

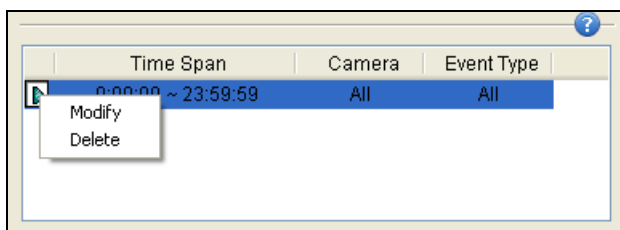


Figure 9-62

- In this dialog box, select the **Camera** that you want to back up its recordings, specify **Time Span** in which time period of recordings to be transferred, and select **Events** that you want to back up all event files, Motion or I/O trigger events only.

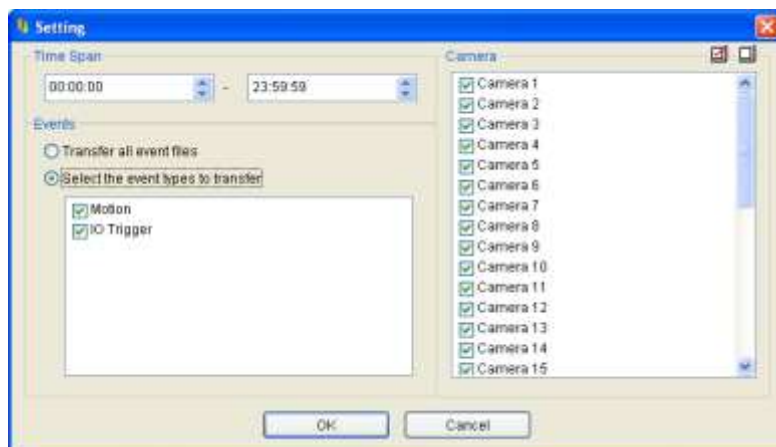


Figure 9-63

- Click **OK**. The backup settings are created.
- To define another backup rule, click the  button. A new Time Span is created.



Figure 9-64

- Click the arrow button, select **Modify** and follow the step 3 to define the backup rule.

[Holidays] Define up to 10 backup rules for non-working days, which include which non-working day, which camera and which type of recording to be transferred to the assigned hard disk drive. For how to set up a rule, see the instructions in the above **[Working Days]**.

[Transfer Time] Define the daily time, from 00:00 to 23:59:59, to back up the files from the hosts to the assigned hard disk drive.

9.12 Report Generator

Report Generator is a useful utility that allows users to generate daily and/or weekly reports, in MDB or HTML format, for the recording data of GV-VMS without requiring additional installation.

For details, see [Report Generator User's Guide](#).

9.13 GV-Cloud Center

You can search events of GV-VMS with the cloud-based service, GV-Cloud Center. Using **myGVcloud NotifyApp**, you can receive notifications, look up events, access live view and play back recordings from any iOS or Android mobile devices. Without installing any software, you can also log onto **GV-Cloud Center Portal** from a Web browser on any PC to access GV-Cloud Center for event search and playback. For details, see [GV-Cloud Center User's Manual](#).

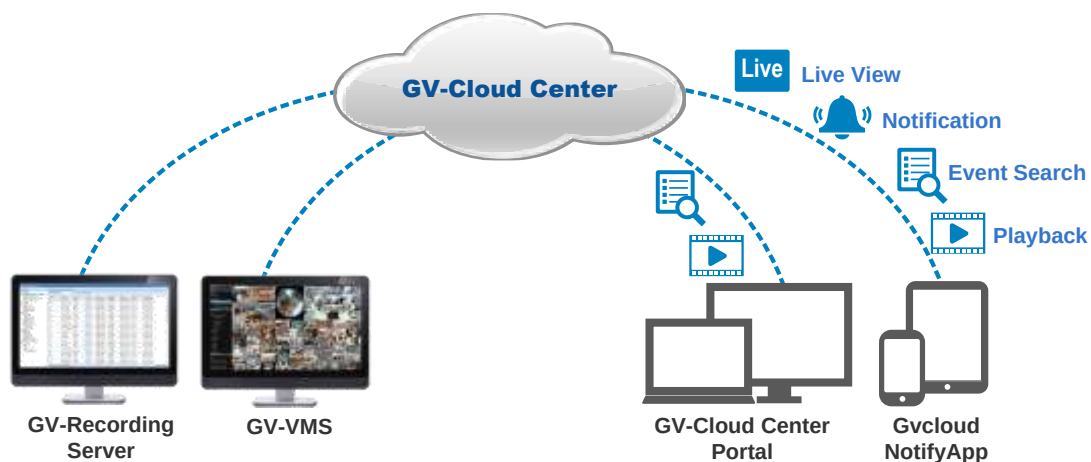


Figure 9-65

Note: This function is only supported by GV-VMS V16.10.3 ~ V17.4.7.

9.14 GV-Cloud VMS

To connect to GV-Cloud VMS, see *2.4 Connecting GV-VMS or GV-AI Guard* in [GV-Cloud VMS User's Manual](#) for detailed instructions.

Note: This function is only supported by GV-VMS V17.4.8 or later.

Chapter 10

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CHAPTER 10

Point-Of-Sale (POS) Application

A POS device can be integrated to GV-VMS with transaction data overlaid on video channels. Transaction alerts can be triggered to notify you of transaction events. Video searches can be performed based on a specific transaction item or a specified time period.

GeoVision provides three POS integration solutions to meet a variety of needs.

1. Direct POS Integration
2. GV-Data Capture Box Integration
3. Graphic Mode POS Integration

Please check the flowchart to find out which solution is suitable for you:

https://s3.amazonaws.com/geovision_downloads/TechNotice/POS/POSflowchart/posflow-2023.htm

.

10.1 Setting up Text Overlay

To change the text font and position of the transaction data on the live view and recorded files, click the **Text Setup** button on the POS Server Setup dialog box (**Home > Toolbar > Configure > System Configure > Accessories > POS Device Setup** > select one POS device on the list > click the **Modify** button).

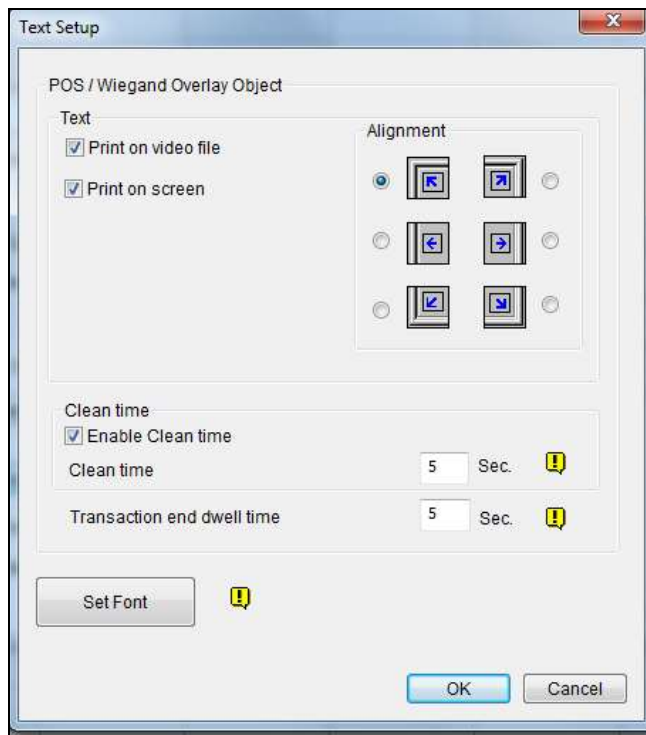


Figure 10-1

[Text]

- **Print on video file:** Displays POS data on the recorded video file.
- **Print on screen:** Displays POS data on the transaction scene.
- **Alignment:** Select the position of text overlay on the screen.

[Clean Time]

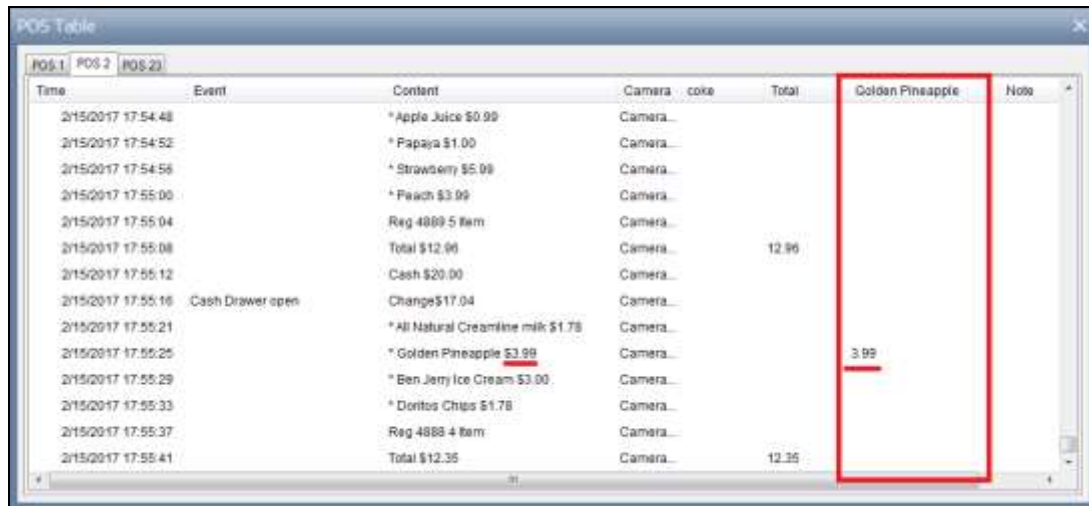
- **Clean time:** Specify the amount of time in seconds after which GV-VMS has not received the transaction data from the POS device, i.e. the cashier stops entering the transaction data. The already-displayed POS data will be hidden from the live view.
- **Transaction end dwell time:** Specify the amount of time in seconds that POS data stays on the live view before the next transaction.

[Set Font] Click the **Set Font** button to set up the font for POS data.

10.2 Filtering Transactions for a Product Item

POS Field Filter allows you to create an independent column for a transaction item in System Log. The feature filters the transactions, and highlight the price of the item under the created column.

For this example, the transaction item is “Golden Pineapple” which transaction data stands out in the System Log to attract your attention.



Time	Event	Content	Camera	coke	Total	Golden Pineapple	Note
2/15/2017 17:54:48		* Apple Juice \$0.99	Camera...				
2/15/2017 17:54:52		* Papaya \$1.00	Camera...				
2/15/2017 17:54:56		* Strawberry \$5.00	Camera...				
2/15/2017 17:55:00		* Peach \$3.99	Camera...				
2/15/2017 17:55:04		Reg 4889 5 Item	Camera...				
2/15/2017 17:55:08		Total \$12.96	Camera...		12.96		
2/15/2017 17:55:12		Cash \$20.00	Camera...				
2/15/2017 17:55:16	Cash Drawer open	Change \$17.04	Camera...				
2/15/2017 17:55:21		* All Natural Creamline milk \$1.78	Camera...				
2/15/2017 17:55:25		* Golden Pineapple \$3.99	Camera...			3.99	
2/15/2017 17:55:29		* Ben Jerry Ice Cream \$3.00	Camera...				
2/15/2017 17:55:33		* Doritos Chips \$1.78	Camera...				
2/15/2017 17:55:37		Reg 4888 4 Item	Camera...				
2/15/2017 17:55:41		Total \$12.35	Camera...		12.35		

Figure 10-2

To set up the function, follow the steps below:

1. On the POS Server Setup dialog box, select a POS device, and select **Capture Data Setting**. The POS Capture Data Setting dialog box appears.

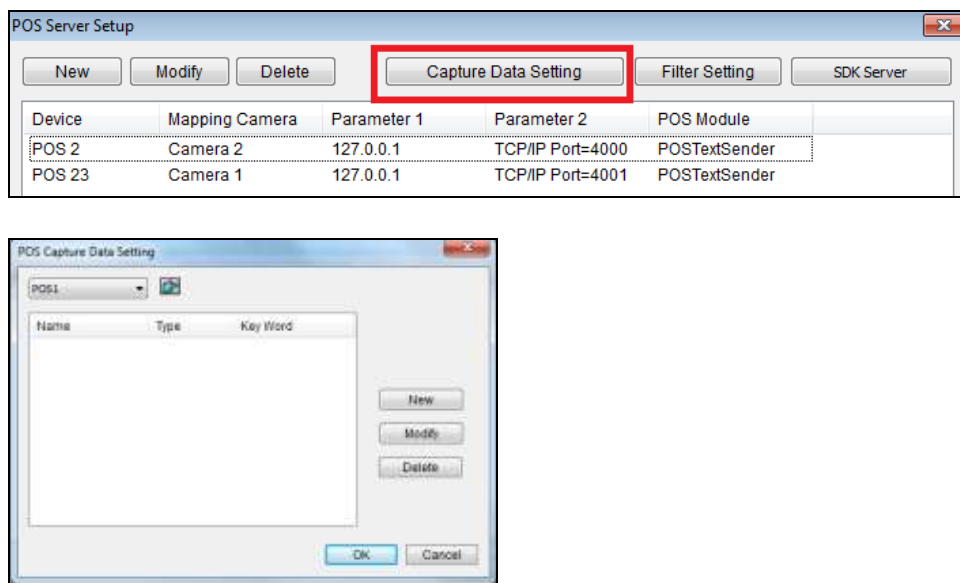


Figure 10-3

2. Select a POS device from the drop-down list for setup.
3. Click the **New** button and select **Caption Data**. This dialog box appears.

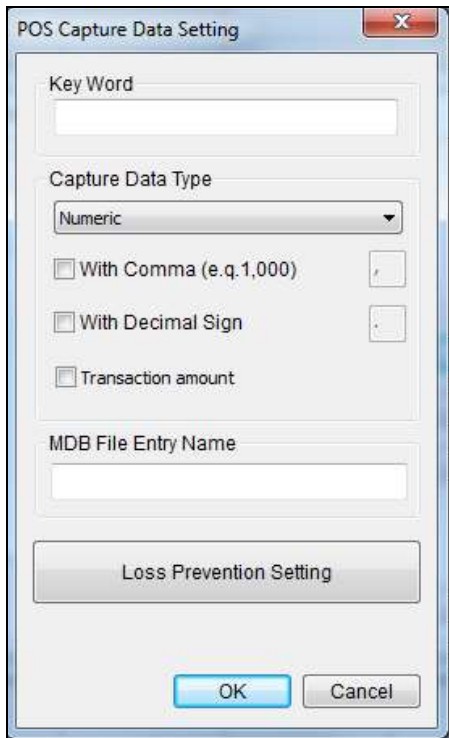


Figure 10-4

[Key Word] Type a keyword matching exactly a transaction item in the receipt. The field is case sensitive.

[Capture Data Type] Select the type of data followed by the specific transaction item: **Numeric**, **Currency** or **Text**. If the transaction item is followed by a price amount, select **Numeric** or **Currency**. If it is followed by alphabets, select **Text**. Any defined amount or text after the keyword will be brought out.

- **With Comma:** If there are commas in a price amount, e.g. \$1,000, select the option.
- **With Decimal Sign:** If there are decimal signs in a price amount, e.g. \$10.5, select the option.
- **With Space:** The option is only available when you select **Text**. If there is space among letters, select the option.

[MDB File Entry Name] Name the file to store the data.

4. Click **OK**.
5. Open the POS Table (**ViewLog > Toolbar > Tools > System Log**) to see the filtering results.

10.3 Triggering Transaction Alarms

When the abnormal transaction amount of an item occurs, this function can automatically activate the output device and send out E-Mail alerts. To set up this function, follow these steps:

1. Follow the steps in *Filtering Transactions for a Product Item* earlier in this chapter to define a transaction item first. Note that for this alarm function, a space between letters for the Keyword is not allowed.
2. Click the **Loss Prevention Setting** button. This dialog box appears.

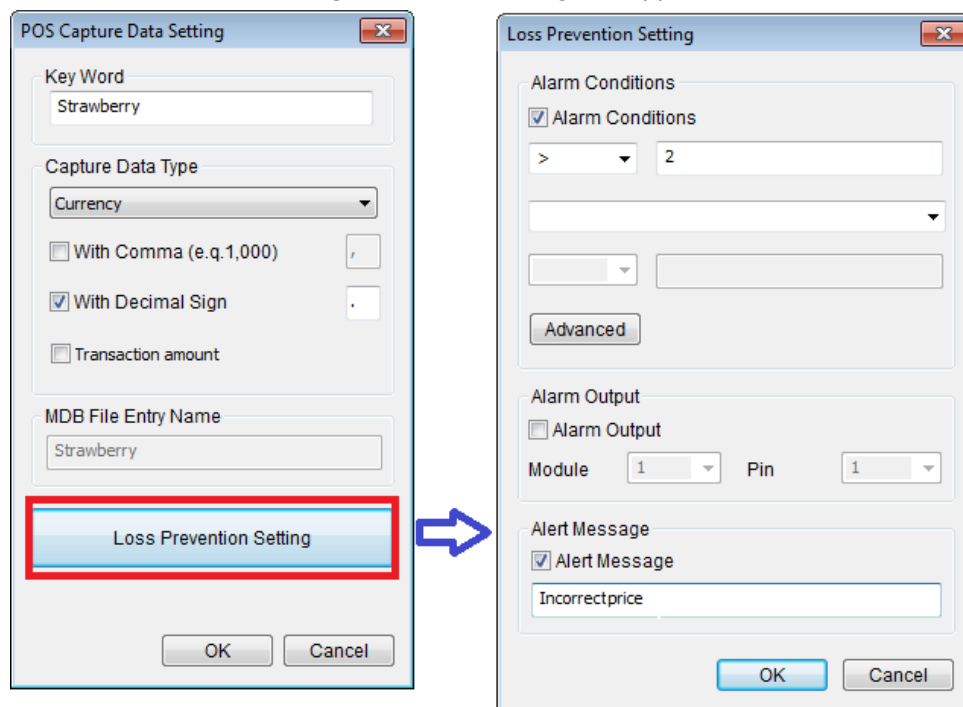


Figure 10-5

[Alarm Conditions] Define the price range for an alarm condition. For this example, when the price amount in a transaction is *great than* (>) than 2 dollars, the assigned alarm output and e-mail alert will be activated.

[Advanced button] See Step 3 below to define the alarm frequency.

[Alarm Output] Assign an installed output module. When the defined alarm condition is met, the output alarm will be triggered.

[Alert Message] Type an alert message (the space between letters is not allowed). When the defined alarm condition is met, the e-mail alert will be sent. To enable e-mail notification, see *Setting up Email Notification* in Chapter 1. And the alert message will also be noted in the System Log.

3. To eliminate false alarms, configure alarm frequency.

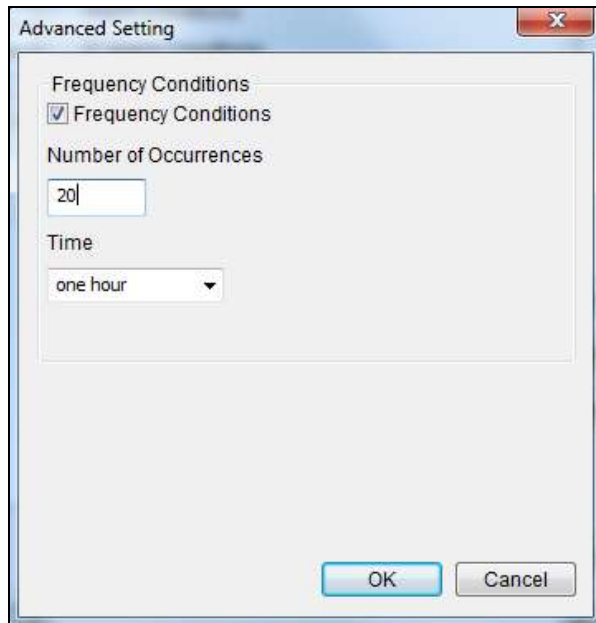


Figure 10-6

- **Frequency Condition:** Enable to set up the number of event occurrences within a time period to trigger the alarm.
 - **Number of Occurrences:** Specify the number of event occurrences.
 - **Time Frame:** Select one of the time periods: **one hour**, **12 hours**, **one day**, **one week** or **one month**.

4. Open the POS Table (**ViewLog > Toolbar > Tools > System Log**). The transactions met the defined alarm conditions will be marked with “unusual transaction” event in the System Log.



Time	Event	Content	Camera	cash	Golden Pl.	Total	Strawberry	Note
2/17/2017 17:10:57		Cash \$100.00	Camera...					
2/17/2017 17:11:01		Change \$87.53	Camera...					
2/17/2017 17:11:07		* Coke \$0.99	Camera...					
2/17/2017 17:11:11		* Apple Juice \$0.99	Camera...					
2/17/2017 17:11:15		* Papaya \$1.00	Camera...					
2/17/2017 17:11:19	Unusual transaction	* Strawberry \$5.99	Camera...				5.99	Incorrect price
2/17/2017 17:11:23		* Peach \$3.99	Camera...					
2/17/2017 17:11:27		Reg 4809 5 Item	Camera...					
2/17/2017 17:11:31		Total \$12.98	Camera...			12.98		

Figure 10-7

10.4 Mapping Codepage

This feature is to support the display of special characters and symbols. When transaction text incorrectly appears on the screen, a wrong character code may be used. To change a character code, follow the steps below.

Note: When you cannot find a proper “Script” in the **Set Font** option (Figure 10-1), you may use the Codepage feature to fix the display issue of transaction text.

1. In the Device dialog box, select **Use Codepage Mapping** and select a character code from the drop-down list.

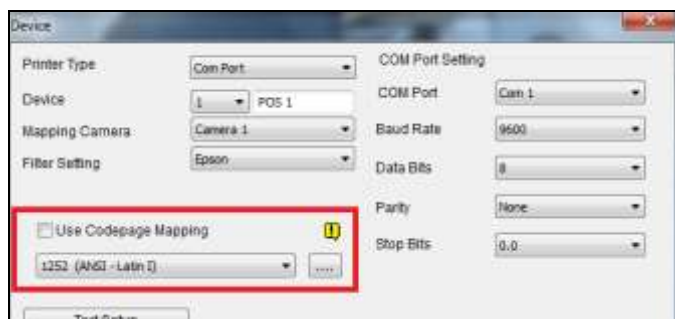


Figure 10-8

2. To verify the character code you selected, click the [...] button to preview its codepage.

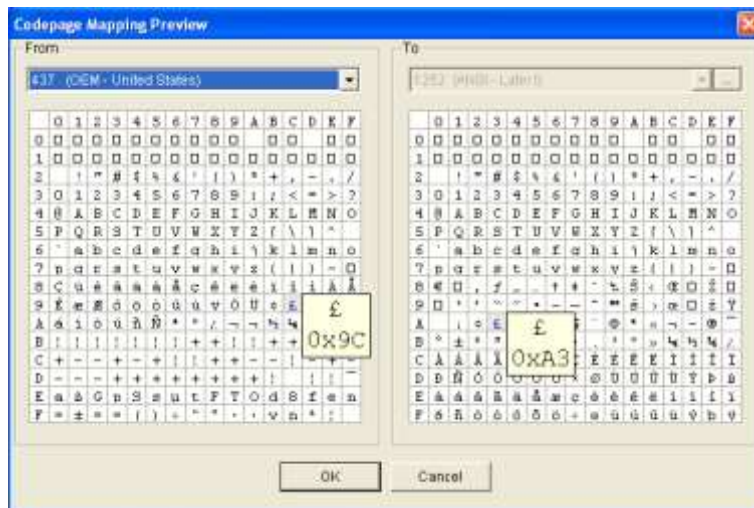


Figure 10-9

3. In the From field, select one symbol or character that are not displayed correctly. In this example, you can see its previous character code (From side: 0x9C) has been transferred to the default equivalent (To side: 0xA3).

10.5 Coloring Transactions of a Product Item

You can highlight a desired transaction item in any color. When the transaction item is identified, its text will have an outstanding color than others on the live view, and the alarm and e-mail alerts can be triggered at the same time. For example, if the liquor is prohibited for sale in the midnight, a seller can use this feature to prevent from any unintentional sale.

The identification will be recorded in the System Log for later retrieval as well. In this example, the transaction item “Strawberry” is colored red, “Golden Pineapple” is orange, and “Ice Cream” is pink whenever these transaction items appear.

POS Table							
POS 1		POS 2		POS 23			
Time	Event	Content	Camera	coke	Golden Pl...	Total	Note
2/16/2017 9:58:46		* Apple Juice \$0.99	Camera...				
2/16/2017 9:58:50		* Papaya \$1.00	Camera...				
2/16/2017 9:58:54		* Strawberry \$5.99	Camera...				
2/16/2017 9:58:56		* Peach \$3.99	Camera...				
2/16/2017 9:59:02		Reg 4889 5 Item	Camera...				
2/16/2017 9:59:06		Total \$12.96	Camera...			12.96	
2/16/2017 9:59:10		Cash \$20.00	Camera...				
2/16/2017 9:59:14	Cash Drawer o...	Change\$17.04	Camera...				
2/16/2017 9:59:19		* All Natural Creamline milk \$1.78	Camera...				
2/16/2017 9:59:23		* Golden Pineapple \$3.99	Camera...		3.99		
2/16/2017 9:59:27		* Ben Jerry Ice Cream \$3.00	Camera...				
2/16/2017 9:59:32		* Doritos Chips \$1.78	Camera...				
2/16/2017 9:59:36		Reg 4888 4 Item	Camera...				
2/16/2017 9:59:40		Total \$12.35	Camera...			12.35	
2/16/2017 9:59:44		Cash \$100.00	Camera...				

Figure 10-10

To configure the coloring feature, follow the steps below:

1. On the POS Server Setup dialog box, select **Capture Data Setting**. The POS Capture Data Setting dialog box appears.

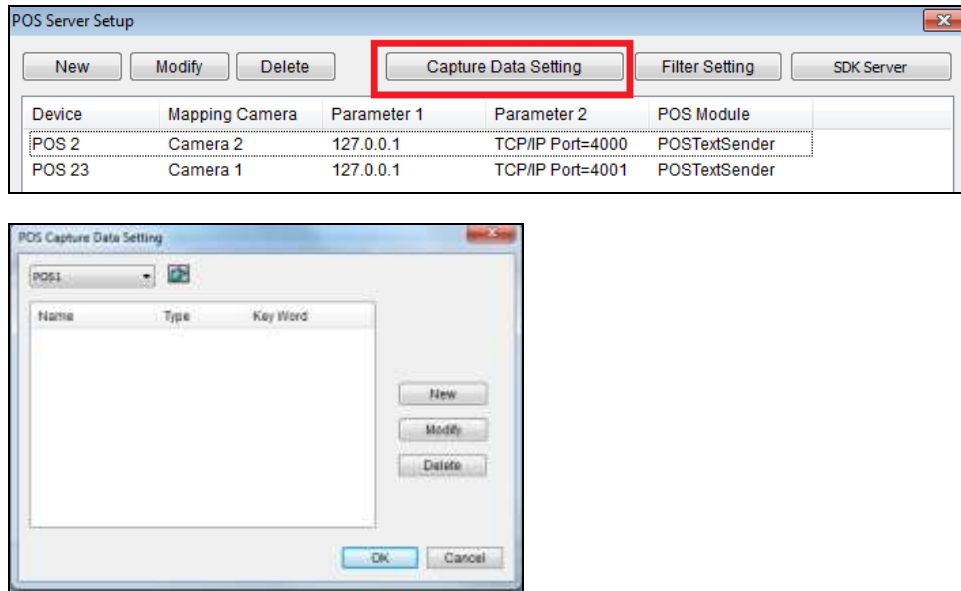


Figure 10-11

2. Click **New** and select **Color Keyword**. This dialog box appears.

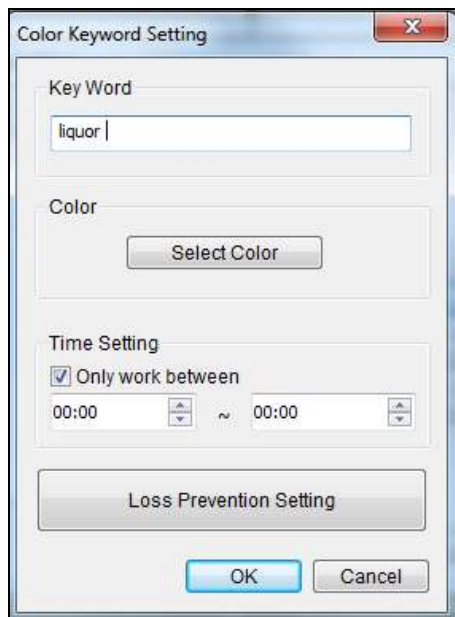


Figure 10-12

[Key Word] Type the keyword to be identified in the transactions. The field is case sensitive.

[Color] Select a color to show on the keyword.

[Only work between] Specify the time period of transactions to identify the keyword.

Note: You can set up to 32 keywords for identification.

3. To trigger an alarm when the keyword is detected during the transactions, click the **Loss Prevention Setting** button. This dialog box appears.

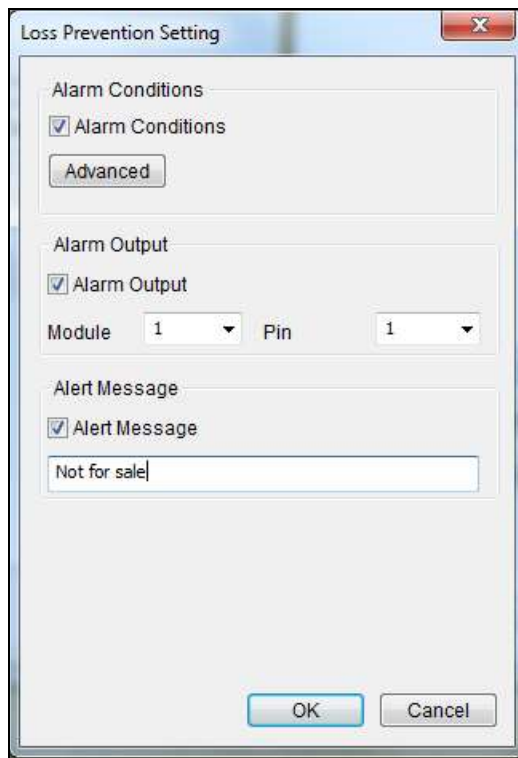


Figure 10-13

- **Alarm Conditions:** Enable the alarm when the defined text is detected. To configure alarm frequency, click the **Advanced** button. For details, see Step 3, *Triggering Transaction Alarms* earlier in this chapter.
 - **Alarm Output:** Assign an installed output module. When the defined alarm condition is met, the output alarm will be triggered.
 - **Alert Message:** Type an alert message. When the defined alarm condition is met, the e-mail alert will be sent. To enable e-mail notification, see *Setting up Email Notification* in Chapter 1.
4. Click **OK**.

When the keyword is identified in the transactions, the identification appears not only on the live view, but also are recorded in the System Log (**ViewLog > Toolbar > Tools > System Log > POS Table**).

10.6 Displaying Receipt Details of a Transaction

You can find out receipt details of a single transaction. You will know the amount of the transaction, as well as the total number and total amount of all transactions during a defined period of time.

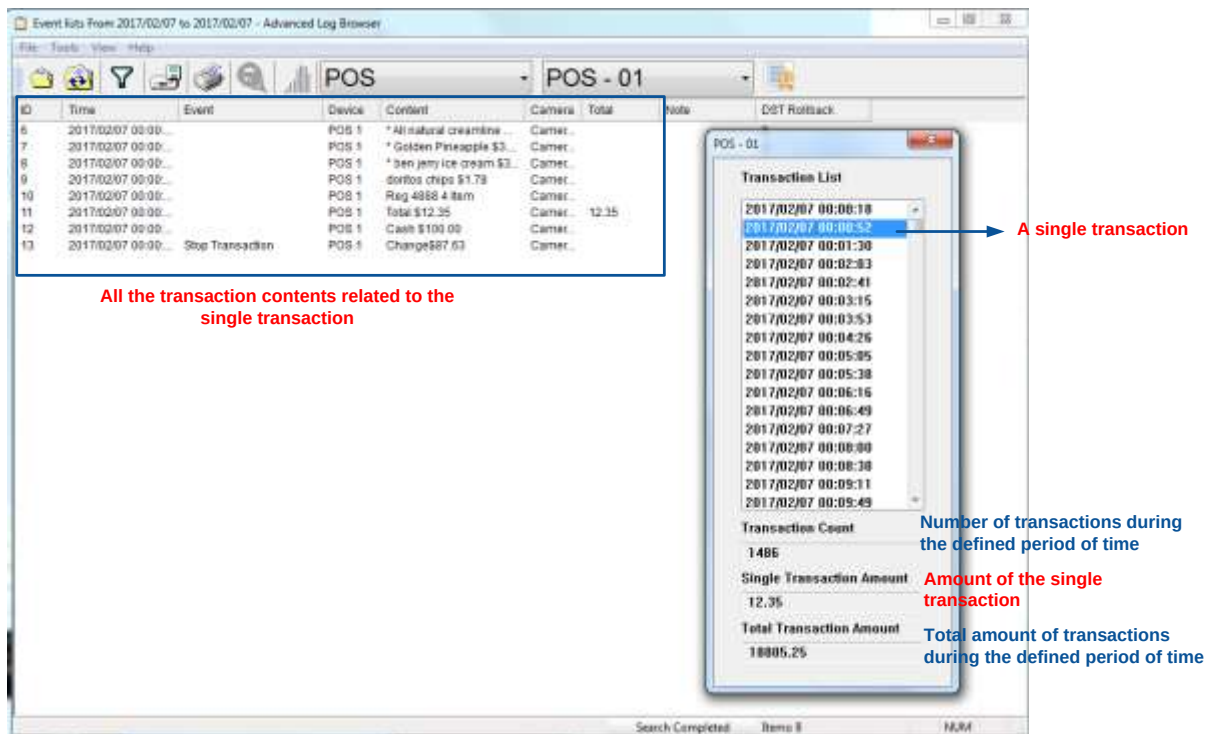


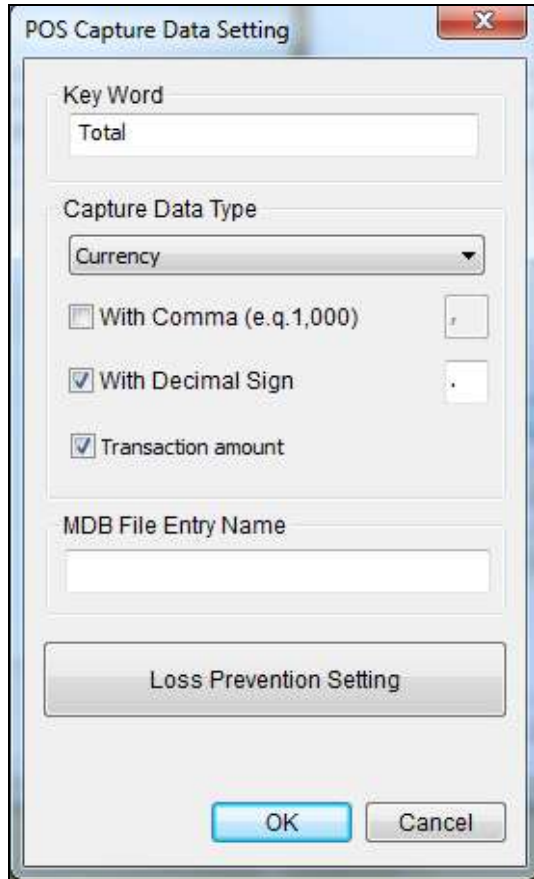
Figure 10-14

To have the feature, you need to define the format of how the amount of a transaction is shown and how a transaction ends on the receipt. Follow the 3 steps below to complete the settings:

- Step 1: Defining the Amount of a Transaction Shown on the Receipt
- Step 2: Define How a Transaction Ends on the Receipt
- Step 3: Displaying Receipt Details of a Transaction

Step1: Defining the Amount of a Transaction Shown on the Receipt

1. On the POS Server Setup dialog box, select a desired POS device, and select **Capture Data Setting**. The POS Capture Data Setting dialog box appears.
2. Click the **New** button. This dialog box appears.



The image shows a Windows-style dialog box titled "POS Capture Data Setting". It contains the following fields and controls:

- Key Word:** A text box containing the word "Total".
- Capture Data Type:** A dropdown menu currently set to "Currency".
- Formatting Options:**
 - ☐ With Comma (e.q. 1,000): A checkbox with a small "," icon to its right.
 - ☒ With Decimal Sign: A checkbox with a small "." icon to its right.
 - ☒ Transaction amount: A checked checkbox.
- MDB File Entry Name:** An empty text box.
- Buttons:** "OK" and "Cancel" buttons at the bottom right.
- Other:** A "Loss Prevention Setting" button is located above the OK/Cancel buttons.

Figure 10-15

3. Take the following receipt as an example.

* All Natural Creamline milk \$1.78
* Golden Pineapple \$3.99
* Ben Jerry Ice Cream \$3.00
* Doritos Chips \$1.78
Reg 4888 4 Item
Total \$12.35
Cash \$100.00
Change\$87.63

Figure 10-16

- a. Type the **keyword** related to the amount of a transaction. In this example, the keyword is “**Total**” which is a prefix in the amount and appears in every receipt. Note the field is case sensitive.
 - b. Under Capture Data Type, define if the total amount is attached with a currency symbol. In this example, select **Currency** because the currency symbol \$ is used.
 - c. Select **With Comma** if there are commas in the total amount. Select **With Decimal Sign** if there are decimal signs in the total amount. In this example of “Total \$12.35”, select **With Decimal Sign**.
4. Select **Transaction Amount**, and click **OK**.

Step 2: Defining How a Transaction Ends on the Receipt

5. On the POS Server Setup dialog box, select the specific POS device, and select **Filter Setting**. The Filter Setting dialog box appears.

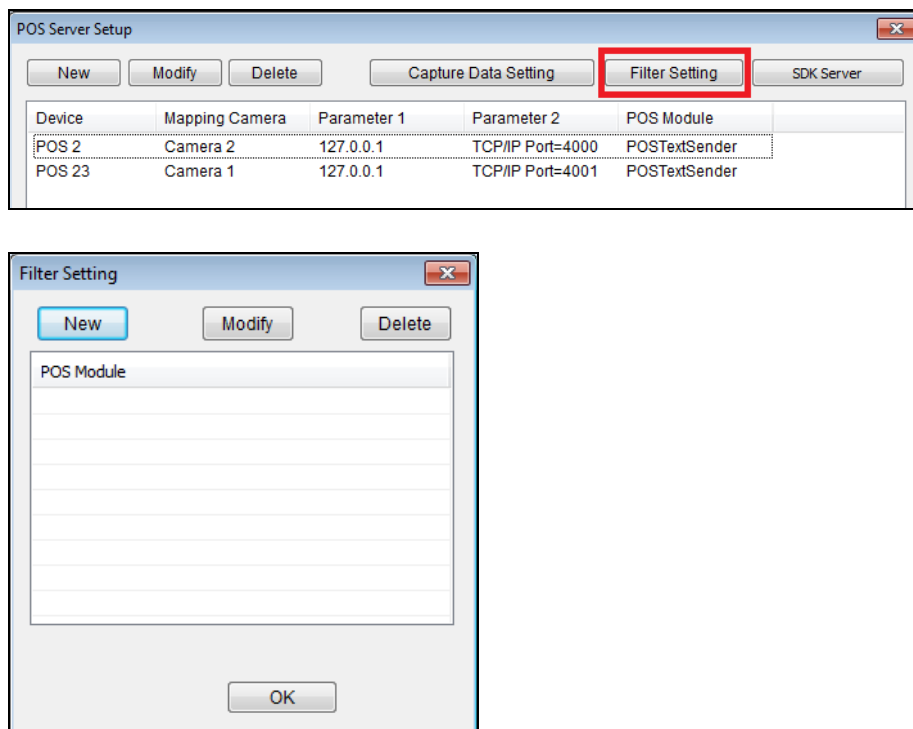
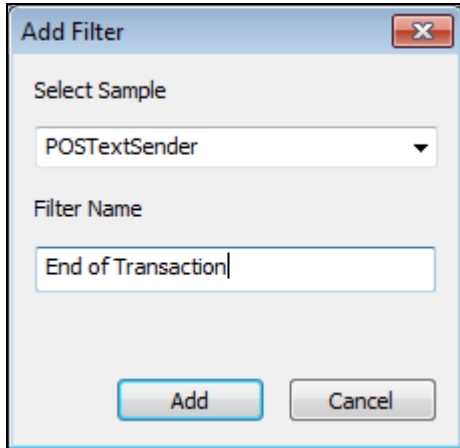


Figure 10-17

6. Click the **New** button. This dialog box appears.

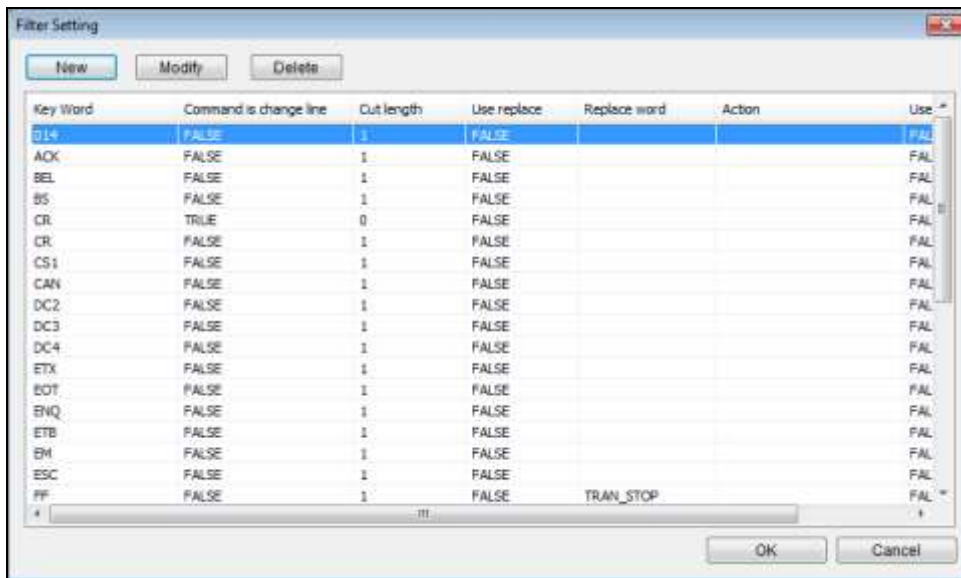


The 'Add Filter' dialog box contains the following elements:

- Select Sample:** A dropdown menu with 'POSTextSender' selected.
- Filter Name:** A text input field containing 'End of Transaction'.
- Buttons:** 'Add' and 'Cancel' buttons at the bottom.

Figure 10-18

- a. Under Select Sample, select the type of printer attached to the POS device, or the GeoVision program installed in the POS device.
 - b. Under Filter Name, name the filtering criteria. In this example, we will define how a transaction ends on a receipt, so naming it as “End of Transaction”.
7. Click the **Add** button. The Filter Name appears in the list.
 8. Select the created filter name and click the **Modify** button. This dialog box appears.



The 'Filter Setting' dialog box features a table with the following columns: Key Word, Command is change line, Cut length, Use replace, Replace word, Action, and Use. The table lists various control characters and their settings. The 'TRAN_STOP' action is visible in the last row.

Key Word	Command is change line	Cut length	Use replace	Replace word	Action	Use
D14	FALSE	1	FALSE			FAL
ACK	FALSE	1	FALSE			FAL
BEL	FALSE	1	FALSE			FAL
BS	FALSE	1	FALSE			FAL
CR	TRUE	0	FALSE			FAL
CR	FALSE	1	FALSE			FAL
CS1	FALSE	1	FALSE			FAL
CAN	FALSE	1	FALSE			FAL
DC2	FALSE	1	FALSE			FAL
DC3	FALSE	1	FALSE			FAL
DC4	FALSE	1	FALSE			FAL
ETX	FALSE	1	FALSE			FAL
EOF	FALSE	1	FALSE			FAL
ENQ	FALSE	1	FALSE			FAL
ETB	FALSE	1	FALSE			FAL
EM	FALSE	1	FALSE			FAL
ESC	FALSE	1	FALSE			FAL
FF	FALSE	1	FALSE	TRAN_STOP		FAL

Buttons: New, Modify, Delete, OK, Cancel.

Figure 10-19

9. Click the **New** button. This dialog box appears.

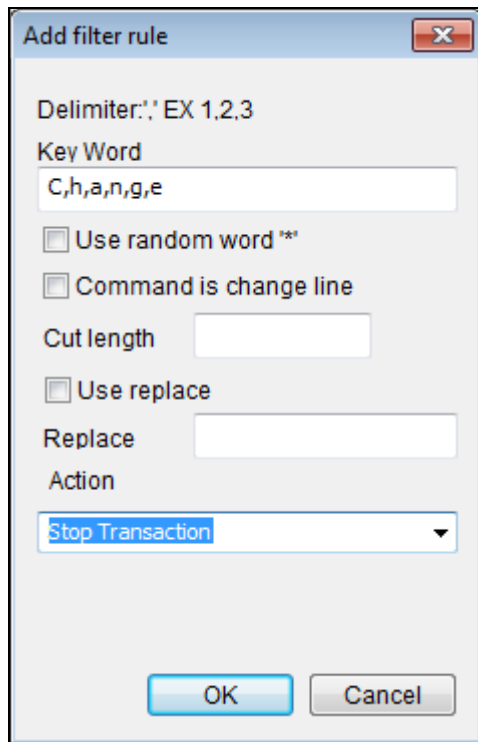


Figure 10-20

10. Type the **keyword** indicating the end of a transaction, and add comma (,) between every letter. In this example, the keyword is “Change” which appears at the end of every transaction, so type C,h,a,n,g,e.

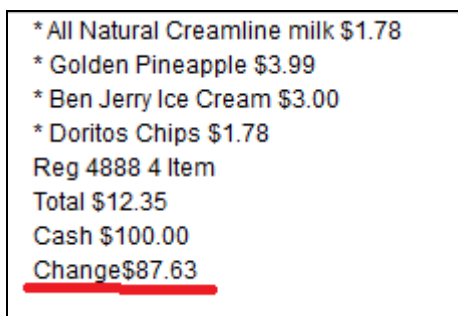


Figure 10-21

11. Under Action, select **Stop Transaction**.
12. Click **OK** several times to return to the POS Server Setup dialog box.

13. Select the POS device in the list applied for the filter setting, and click the **Modify** button. The Device dialog box appears.
14. Under Filter Setting, select the filter setting you set up for the end of a transaction. In this example, its "End of Transaction".

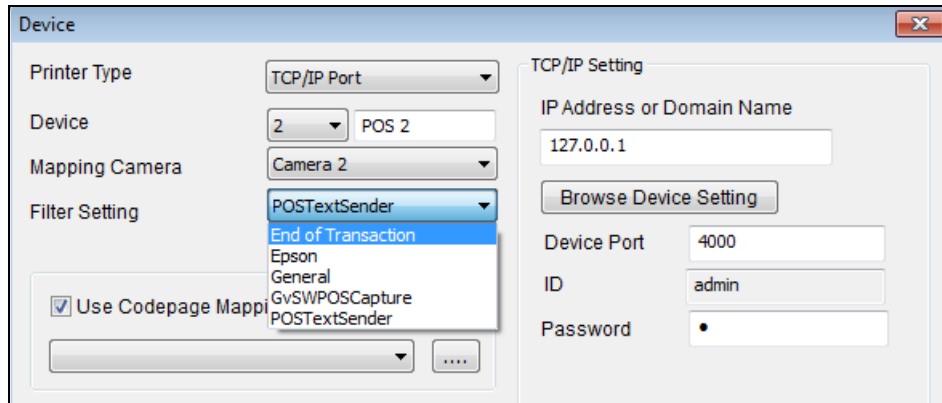


Figure 10-22

15. Click **OK**.

Step 3: Displaying Receipt Details of a Transaction

16. Select **ViewLog**  > **Toolbar**  > **Tools**  > **System Log > Advanced**. The Open Database dialog box appears.
17. Define a period of time to retrieve the POS data.
18. From the left side of toolbar, select **POS** data, select which **POS** device, and click  to have a list of transactions during the defined period of time.



Figure 10-23

19. When you click a transaction on the List, its related receipt content will be displayed.

10.7 Filtering Transactions by a Keyword

You can filter transactions by a keyword to have the following functions: to start a new line after the keyword, to remove unwanted text before the keyword, to replace a keyword with another, and/or to be noted as Event, such as Cash Drawer Open, in the System Log when the keyword appears.

For example, we define “Change” as the keyword, and specify it as “Cash Drawer Open” event. Whenever “Change” appears on the receipt, in the System Log, you will see not only the details of the transaction, but also an event “Cash Drawer Open” recorded.

Time	Event	Content	Camera	coke	Total	Golden Pl.	Note
2/15/2017 16:15:09		* Ben Jerry Ice Cream \$3.00	Camera				
2/15/2017 16:15:13		* Doritos Chips \$1.78	Camera				
2/15/2017 16:15:17		Reg 4888 4 Item	Camera				
2/15/2017 17:24:47		Cash \$100.00	Camera				
2/15/2017 17:24:51	Cash Drawer open	Change\$87.63	Camera				
2/15/2017 17:24:57		* Coca \$0.99	Camera				
2/15/2017 17:25:01		* Apple Juice \$0.99	Camera				
2/15/2017 17:25:05		* Papaya \$1.00	Camera				
2/15/2017 17:25:09		* Strawberry \$5.99	Camera				
2/15/2017 17:25:13		* Peach \$3.99	Camera				
2/15/2017 17:25:17		Reg 4889 5 Item	Camera				
2/15/2017 17:25:21		Total \$12.96	Camera		12.96		
2/15/2017 17:25:25		Cash \$20.00	Camera				
2/15/2017 17:25:29	Cash Drawer open	Change\$17.04	Camera				

Figure 10-24

To configure the function, follow the steps below:

1. To open the following dialog box, follow Step 5 to 8 in *Step 2: Defining How a Transaction Ends on the Receipt, 10.6 Displaying Receipt Details of a Transaction*.

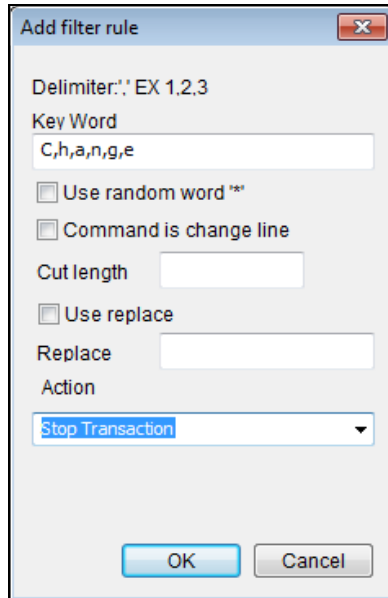


Figure 10-25

2. Type the **keyword** and add comma (,) between every letter. In this example, the keyword is “Change”, so type C,h,a,n,g,e.
3. If the keyword has a random prefix, select **Use Random Word**, and type the symbol (*) before the keyword, e.g. *,C,h,a,n,g,e.
4. If you want the text to start a new line whenever the keyword appears, select **Command is change line**.
5. If you want to remove garbled text before the keyword, type the number of characters you want to remove in **Cut Length**.
6. If you want to replace the keyword with another, select **Use Replace** and type a desired word.
7. You can define an event to show in the System Log: Alert, Cash Drawer Open, Cash Drawer Close, Start Transaction, Stop Transaction, or Valid Transaction.
8. Click **OK** several times to return to the POS Server Setup dialog box.

9. Select the POS device in the list applied for the filter setting, and click the **Modify** button. The Device dialog box appears.
10. Under Filter Setting, select the filter setting you set up before. In this example, it is Cash Drawer Open.

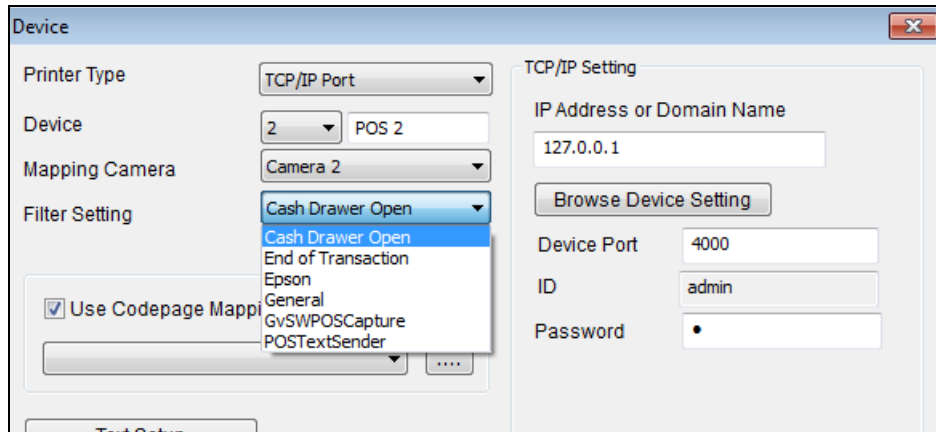


Figure 10-26

11. Click **OK**.
12. Open the System Log (**ViewLog > Toolbar > Tools > System Log > POS Table**) to view the filtering results.

10.8 Searching for POS Events

With the POS Search function, you can instantly search for and play back POS events from the ViewLog. To access this function, click **ViewLog**  > **Toolbar**  > **Tools**  > **POS Search**. This window appears.

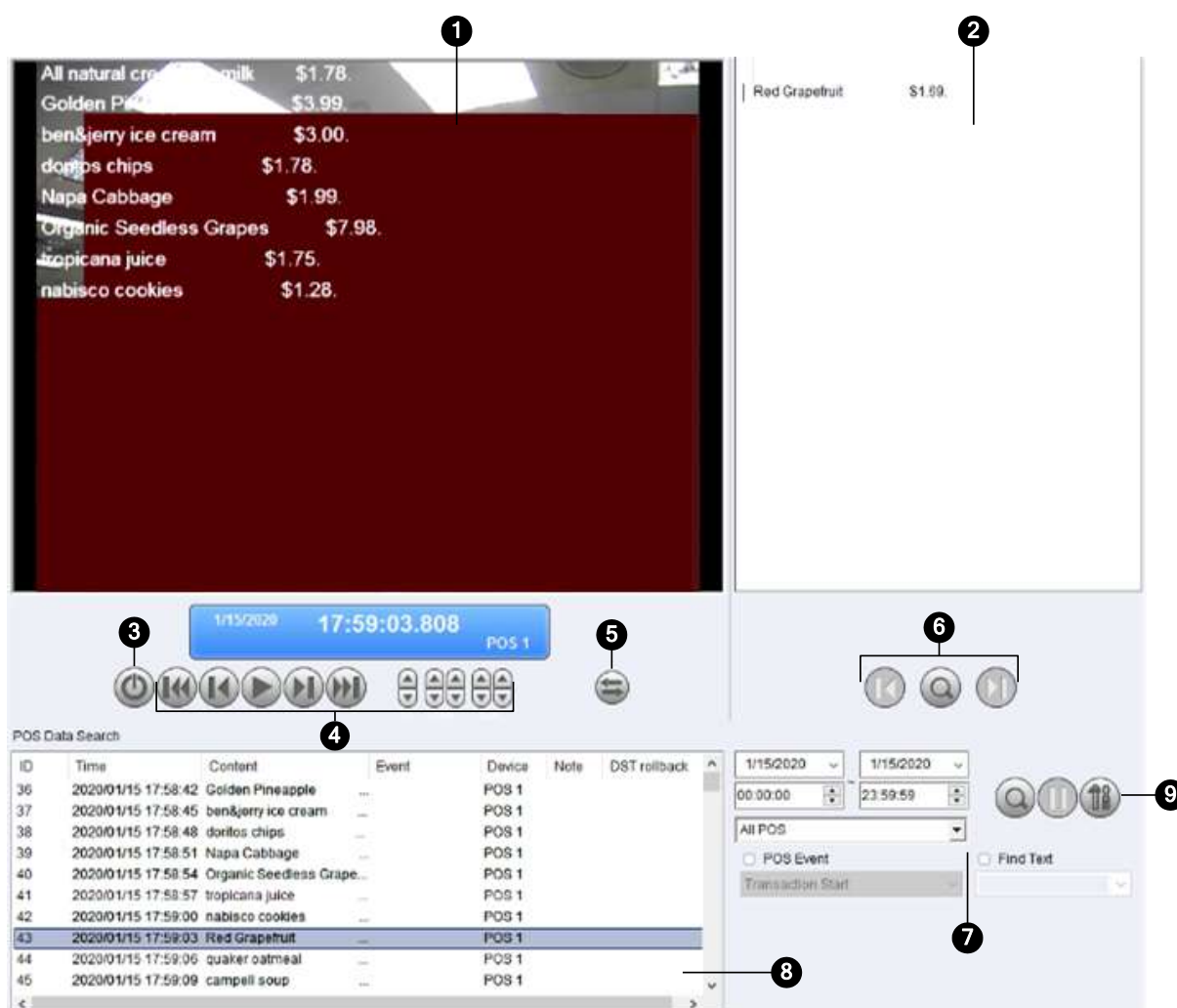


Figure 10-27

No.	Name	Description
1	Playback Window	Displays the recording of the POS event or content selected. Right-click on the window to have the options of Play Mode , Render and Tools
2	Transaction Window	Displays all POS transactions viewed while playing back on the Playback Window.
3	Exit	Click to close Quick Search screen
4	Playback Panel	Includes Play, Pause, Previous 10 frames, Next 10 frames and End buttons, as well as Time Period buttons to jump to 1 second, 10 seconds, 1 minute, 10 minutes and/or 1 hour later or earlier.

5	Expand / Shrink Dialog	Select Expand/Shrink Dialog to display the Transaction window or select Advanced Search to display the Advanced Search panel.
6	Find Condition	Click Find Condition  to search for specific keywords and/or a type of POS transaction event forward or backward, starting from a date and time set. Use the Find Previous  and Find Next  buttons to jump from one search result to another.
7	Advanced Search Panel	See 6.1.1 <i>Advanced Search Settings</i> later.
8	Search Results	Displays the search results by Advanced Search.
9	320<->640	Click to switch between 640 x 480 and 320 x 240 display.

Advanced Search Panel

To search for POS events with detailed criteria, click **Expand / Shrink Dialog**  on the POS Search window and select **Advanced Search**. The Advanced Search Panel appears.

1. Select the **Start / End Dates** and **Start / End Times** from the respective drop-down lists to specify the desired time period of your POS search.
2. Select the POS devices you want to search for in the **POS Device** drop-down list.
3. Optionally select **POS Event** to search for a type POS transaction event.
4. Optionally select **Find Text** to type a keyword you want to search for.
5. After the desired conditions are set, click **Search** . The search results will be displayed at the left of the panel.