GeoVision inc
The Vision of Security

GV-Recording Server

User's Manual V1.2.0.0

RSV12-A-EN

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Preface

Welcome to the *GV-Recording Server User's Manual*.

This Manual is designed for the following version:

Product	Version
GV-Recording Server	V1.2.0.0

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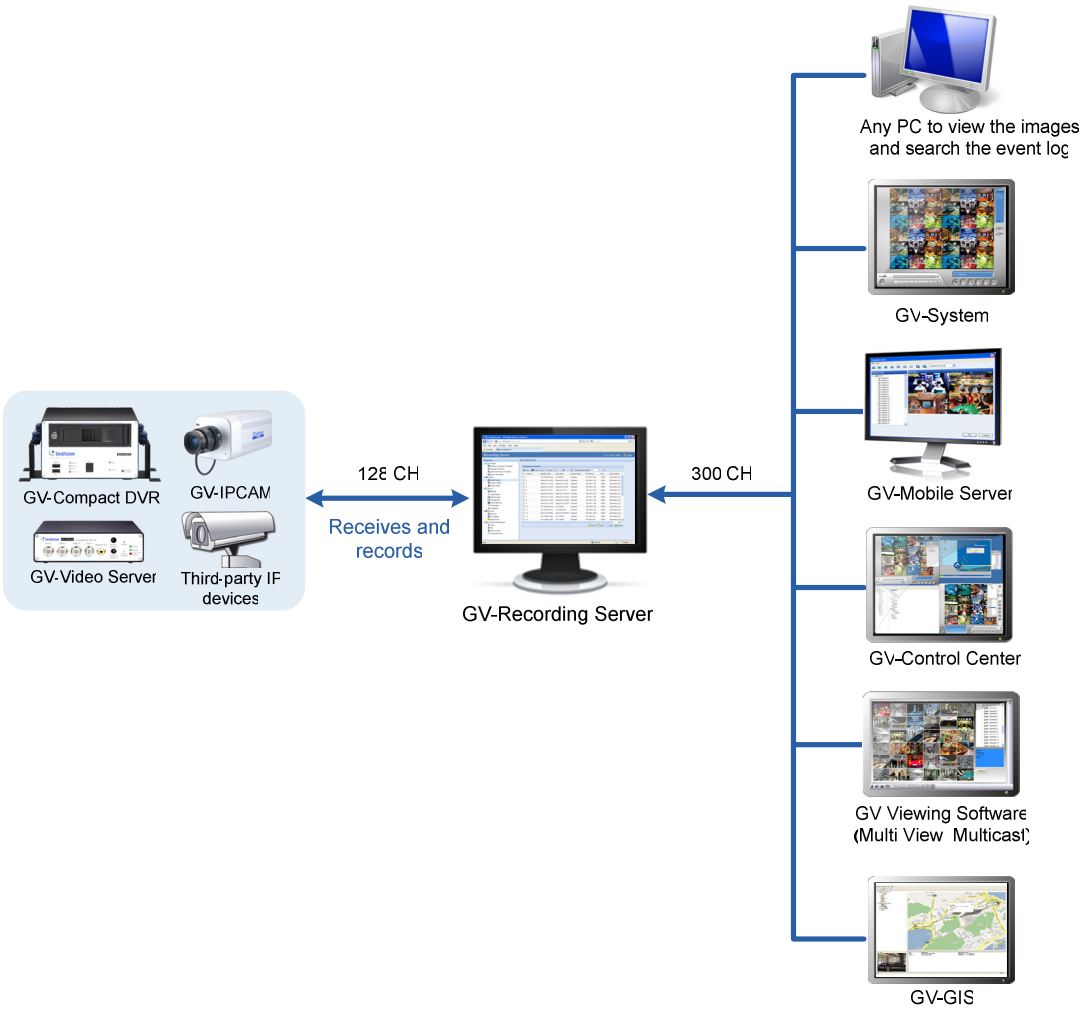
Naming and Definition

GV-Video Gateway	GeoVision video streaming server capable of receiving up to 128 channels from various IP video devices and distributing up to 300 channels to clients.
GV-System	GeoVision Analog and Digital Video Recording Software. The GV-System also refers to **Multicam System**, **GV-NVR System** and **GV-Hybrid DVR System** at the same time.
GV-GIS	GeoVision Geographic Information System. It is designed for vehicle tracking and location verification.
GV-Control Center	GeoVision Central Monitoring Station.
Remote ViewLog	Geovision viewing software that allows you to play back recorded files.
Multi View	Geovision viewing software. A multi-channel viewer that allows you to view up to 36 channels through network.

Chapter 1 Introduction

The GV-Recording Server is a video streaming server designed for large-scale video surveillance deployments. It can receive and record up to 128 channels from various IP video devices. Through an intuitive Web interface, each IP camera can be configured to record video continuously, upon motion detection, upon I/O trigger or according to a schedule.

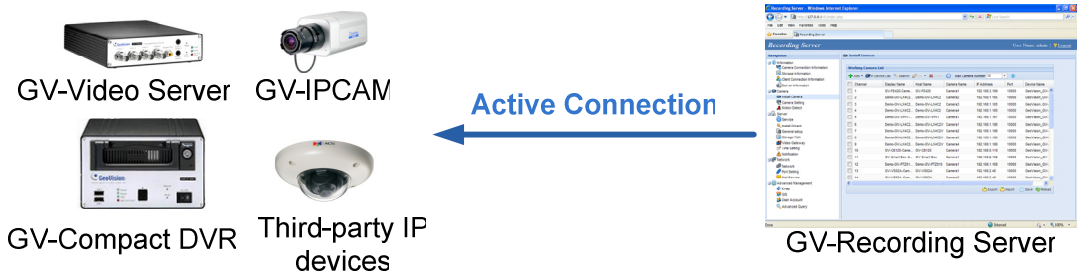
In addition, it can simultaneously distribute up to 300 channels to its clients which include GV-System (DVR/NVR system), GV-GIS (geographic information system), GV-Mobile Server, GV-Control Center (central monitoring system), and Multi View (viewing software). Using the GV-Recording Server, the desired frame rates can be reached while the CPU loading and the bandwidth usage of IP video devices are significantly reduced.

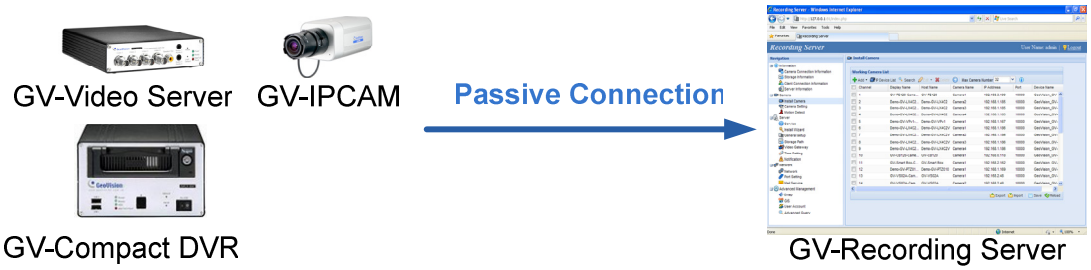


Note: The arrows in the diagram indicate the direction of the connections.

Figure 1-1

In some areas or countries, you may like to install 3G wireless Internet module (e.g. GPRS/UMTS) on the GV-Video Server or GV-Compact DVR but have the problem to obtain a public IP address from ISP. The **Passive** connection method of GV-Recording Server can solve the public IP issue by accepting the connection request from the GV-Video Server or GV-Compact DVR, and then distribute the video streaming to clients.





Features

- Video gateway between IP devices and receiving clients (GV-System, GV-Control Center, GV-GIS, GV-Mobile Server, and Multi View)
- Simultaneously receiving and recording up to 128 IP channels
- Video distribution for clients up to 300 IP channels
- Different recording policies to set each channel to record continuously, upon motion detection, upon I/O trigger or by schedule (recording upon I/O trigger are only for GV-IP devices)
- Video playback using Remote ViewLog
- Web interface to remotely configure and monitor GV-Recording Server using Internet Explorer, Firefox, Google Chrome and Safari
- Support for third-party IP video devices (Sony, Axis, VIVOTEK, Panasonic, HikVision, Arecont Vision)
- Support for ONVIF, PSIA and RTSP protocols
- Passive and active connection methods with IP video devices (Passive connection only supported by GV-IP devices)
- Solution for Mobile DVR (GV-Video Server, GV-Compact DVR) to obtain a public IP address
- Bandwidth monitoring
- Two-way audio communication (only for GV-IP devices through active connection)

For the supported third-party IP video devices, see *Appendix C. Supported Third-Party IP Devices*.

1.1 System Requirements

The following is system requirements to run the GV-Recording Server.

1.1.1 Minimum System Requirements

Servers meeting the following minimum system requirements have the capacity to receive up to 128 channels and transmit up to 300 channels with the image settings of 1280 x 1024 resolution, 30 fps and H.264 / MPEG4 codec for each channel.

OS	64-bit Windows 7 / Server 2008 R2
CPU	Core i5 2500, 3.3 GHz
Memory	6 GB Dual Channels (without recording) 8 GB Dual Channels (with recording) 16 GB Dual Channels (with motion recording for 3rd party IP devices)
Hard Disk	1 GB (for installation)
Browser	• Internet Explorer 8.0.7600.16385 • Internet Explorer 9.00.7930.16406 • Firefox 3.6.13 • Google Chrome 9.0.597.94 • Safari 5.33.19.4
LAN	Gigabit Ethernet X 1
Software	.Net Framework 3.5
Hardware	• GV-Video Gateway: Internal or external GV-USB Dongle • GV-Recording Server: Internal GV-USB Dongle

Note:

1. Memory required varies depending on the number of channels and resolution of videos received.
2. The 1 GB hard disk requirement is for installation of GV-Recording Server only. To see hard disk requirements for recording, please see *1.1.3 Recommended Hard Disk Requirements* for more detail.
3. In order to receive 128 channels and transmit up to 300 channels with the image settings of 1280 x 1024 resolution, 30 fps and JPEG codec for each channel, Gigabit Ethernet x 6 is required.
4. For users of Firefox, Google Chrome and Safari, you can only access single live view by using Quick Time player, and you cannot play back recorded files.
5. To see how to install the internal GV-USB Dongle, refer to *Appendix D. Install the Internal USB Dongle*.

1.1.2 Optimal System Requirements

Servers meeting the optimal system requirements have the capacity to perform one of the following:

- Receive up to 128 channels and transmit up to 300 channels with the image settings of 1280 x 1024 resolution, 30 fps and JPEG codec for each channel. OR
- Receive up to 128 channels and transmit up to 128 channels with the image settings of 1920 x 1080 resolution, 30 fps and JPEG codec for each channel. OR
- Receive up to 128 channels and transmit up to 128 channels with the image settings of 2048 x 1536 resolution, 20 fps and JPEG codec for each channel. OR
- Receive up to 128 channels and transmit up to 300 channels with the image settings of 1280 x 1024 or 1920 x 1080 resolution, 30 fps and H.264/MPEG4 codec for each channel. OR
- Receive up to 128 channels and transmit up to 300 channels with the image settings of 2048 x 1536 resolution, 20 fps and H.264 codec for each channel.

OS	64-bit Windows 7 / Server 2008 R2
CPU	Core i7 2600, 3.4 GHz
Memory	6 GB Dual Channels (without recording) 8 GB Dual Channels (with recording) 16 GB Dual Channels (with motion recording for 3rd party IP devices)
Hard Disk	1 GB (for installation)
Browser	• Internet Explorer 8.0.7600.16385 • Internet Explorer 9.00.7930.16406 • Firefox 3.6.13 • Google Chrome 9.0.597.94 • Safari 5.33.19.4
LAN	Gigabit Ethernet X 6
Software	.Net Framework 3.5
Hardware	• GV-Video Gateway: Internal or external GV-USB Dongle • GV-Recording Server: Internal GV-USB Dongle

Note:

1. Memory required varies depending on the number of channels and resolution of videos received.
2. The 1 GB hard disk requirement is for installation of GV-Recording Server only. To see hard disk requirements for recording, please see *1.1.3 Recommended Hard Disk Requirements* for more details.
3. For users of Firefox, Google Chrome and Safari, you can only access single live view by using Quick Time player, and you cannot play back recorded files.
4. To see how to install the internal GV-USB Dongle, refer to *Appendix D. Install the Internal USB Dongle*.

1.1.3 Recommended Hard Disk Requirements

The maximum channels per hard disk for motion recording and the recommended hard disk requirements for 24 hours of round-the-clock recording are listed as below.

Res.	FPS	Codec	Motion	Round-the-Clock		
			Max. channel per HDD	Max. channel per HDD and required HDD size	Required HDD size (recording 128 ch, 24 hr)	Recommended HDD requirements
1.3 M	30 fps	H.264 / MPEG4	10 ch	32 ch / 2.5 TB	10 TB	3 TB 7200RPM HDD x 4 (SATA3)
		JPEG		8 ch / 2.7 TB	43.2 TB	3 TB 7200RPM HDD x 16 (SATA3)
2.0 M	30 fps	H.264	7 ch	21 ch / 2.2 TB	13.5 TB	3 TB 7200RPM HDD x 7 (SATA3)
		JPEG		5 ch / 2.5 TB	64 TB	3 TB 7200RPM HDD x 26 (SATA3)
3.0 M	20 fps	H.264	10 ch	32 ch / 3 TB	12 TB	3 TB 7200RPM HDD x 4 (SATA3)
		JPEG		4 ch / 2 TB	64 TB	3 TB 7200RPM HDD x 32 (SATA3)

Note: The number of hard drive required varies depending on the write speed of the hard drive and the hard disk size required varies depending on the recorded file size. The recommended hard disk requirement is just for your reference.

1.1.4 Network Requirements

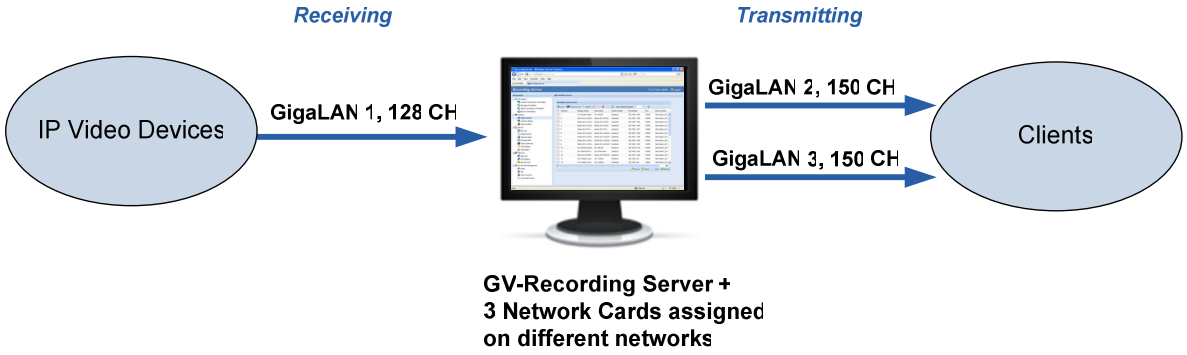
The server's transmitting capacity varies depending on the number of Gigabit connections. The numbers of Gigabit network cards required to receive 128 channels and transmit 300 channels are listed below according to the resolution of the source video.

Resolution	FPS	Codec	Gigabit Network Cards Required	
			Receiving 128 ch	Transmitting 300 ch
1.3 MP	30 fps	H.264	Gigabit network card x 1 (up to 128 ch per card)	Gigabit network card x 2 (up to 150 ch per card)
2.0 MP	30 fps	H.264	Gigabit network card x 2 (up to 64 ch per card)	Gigabit network card x 4 (up to 75 ch per card)
3.0 MP	20 fps	H.264	Gigabit network card x 1 (up to 128 ch per card)	Gigabit network card x 2 (up to 150 ch per card)

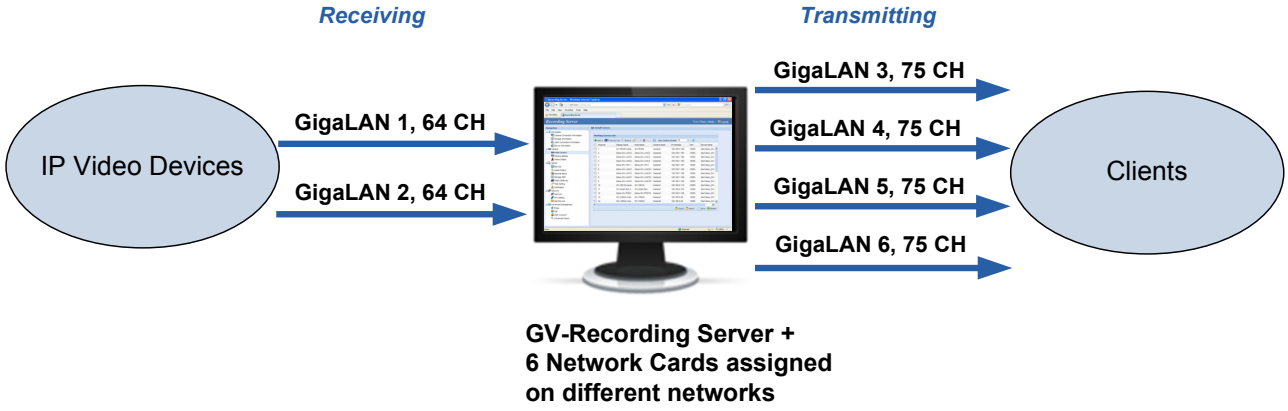
Note: The data above was determined with a bit rate of 5.2 Mbps for 1.3 MP resolution, 7.5 Mbps for 2 MP resolution and 6.8 Mbps for 3 MP resolution. The network requirements may vary depending on the bit rate of the streams.

The deployment of Gigabit connections for transmitting and receiving is suggested as illustrated below. Ensure to run every Gigabit connection on a different network in order to reduce the lag on any network connection.

1 MP / 3 MP Source Video



2 MP Source Video



Note: To avoid network bottleneck, each network card must be assigned a different IP address and subnet mask. Refer to *Appendix E. How to Avoid Network Bottleneck* for more details.

1.1.5 GV-USB Dongle

It is required to insert the GV-USB Dongle to the server, so that the GV-Recording Server software can be enabled. The GV-USB Dongle supports connection with up to 128 IP channels. You can select a dongle with GV-Video Gateway functions only or a GV-Recording Server dongle to access all functions.

GV-Video Gateway dongle supports both third-party IP devices and GV-IP devices, and comes in two types, internal and external dongles. For GV-Recording Server, you can select an internal dongle to enable GV-IP video devices only or a dongle to include both third-party IP devices and GV-IP devices.

GV-Video Gateway Only (without recording functions): Internal or external USB dongle

- **Third-party IP devices (Includes GV-IP video devices):** 128 IP channels.

GV-Recording Server (full functions available): Internal USB dongle

- **GV-IP video devices only:** 32, 36, 40, 44, 48, 52, 56, 60, 64, 68, 72, 76, 80, 84, 88, 92, 96, 100, 104, 108, 112, 116, 120, 124, 128 IP channels.
- **Third-party IP devices (Includes GV-IP video devices):** 32, 36, 40, 44, 48, 52, 56, 60, 64, 68, 72, 76, 80, 84, 88, 92, 96, 100, 104, 108, 112, 116, 120, 124, 128 IP channels.

Note: The internal type of USB dongle can provide the Hardware Watchdog function to the GV-Recording Server by restarting the computer when Windows crashes. To see how to install the internal GV-USB Dongle, refer to *Appendix D. Install the Internal USB Dongle*.

1.1.6 Compatible Versions of GeoVision Applications

The GV-Recording Server is only compatible with the following version:

- **GV-System, GV-Control Center, Multi View, Multicast:** version 8.5.6 or later.
- **GV-GIS:** version 3.0 or later.
- **GV-Mobile Server:** version 1.3 or later

Chapter 2 Installation

2.1 Installing the GV-Recording Server

It is recommended to install the GV-Recording Server on a dedicated computer or server. Before installing the GV-Recording Server, you need to plug the **GV-USB Dongle** to the computer, and then install the **dongle driver**. Follow the steps below to install the driver and the GV-Recording Server.

1. Insert Software DVD to the computer. It runs automatically and a window appears.
2. To install USB driver, select **Install or Remove GeoVision GV-Series Driver** and click **Install GeoVision USB Devices Driver** to start.
3. To install GV-Recording Server, select **Install GeoVision GV-Recording Server** and then select **GeoVision GV-Recording Server**.

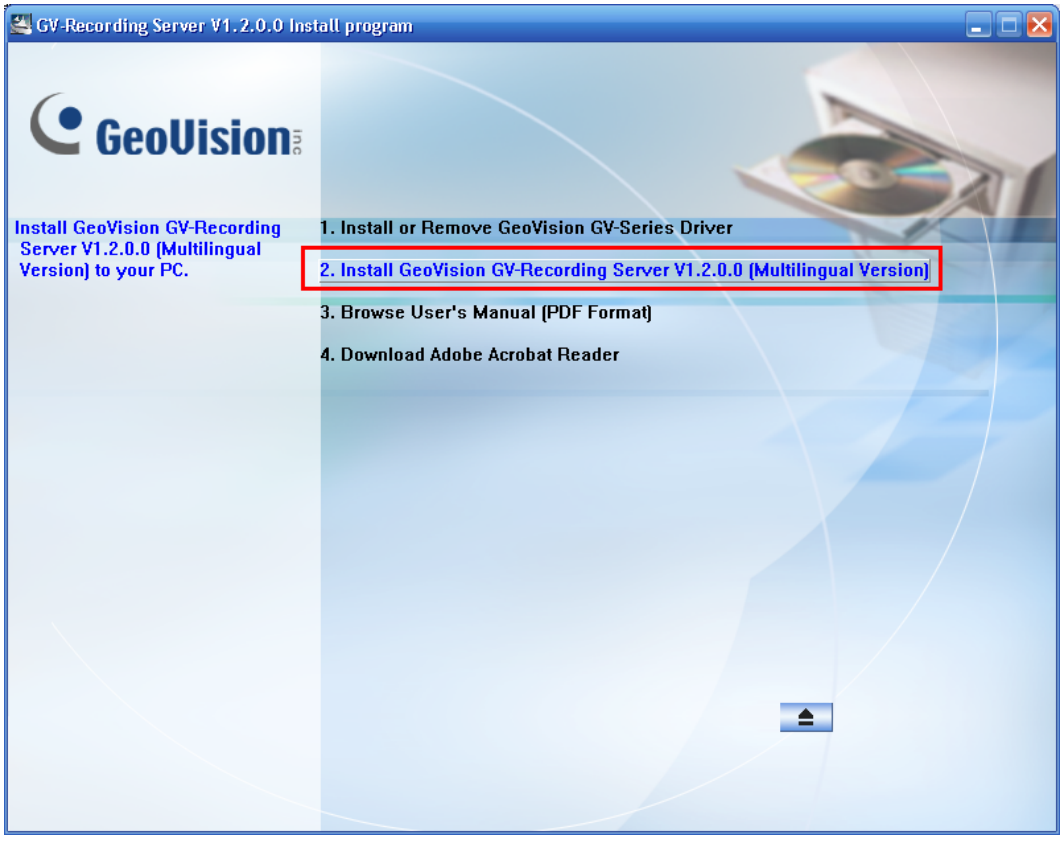


Figure 2-1

2.2 Starting the GV-Recording Server

After installing GV-Recording Server, the GV-Recording Server icon

will appear in the system tray. Follow the steps below to access the Web interface of GV-Recording Server.

1. Right-click the GV-Recording Server icon, select **Login**, and type the login name and password. The default login name and password for the administrator account are **admin**.
2. The default HTTP port is 80 and the command port is 20000. To customize the port number, right-click the GV-Recording Server icon and select **Configure**. This dialog box appears.

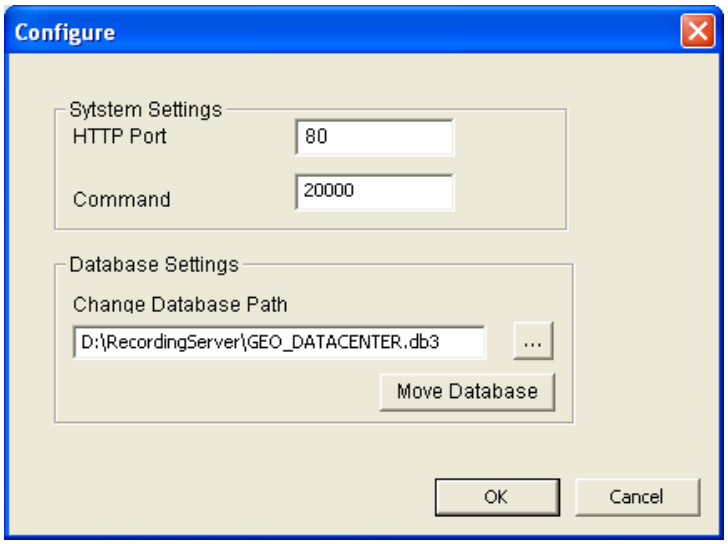


Figure 2-2

3. Customize the port number if needed and click **OK**.
4. Right-click the GV-Recording Server icon and select **Start Service**.

5. After the GV-Recording Server icon turns green, right-click the icon again and select **Access Web Interface**. You can also access the Web interface from a remote computer by typing the IP address of GV-Recording Server in the Internet browser. The Web interface login page appears.

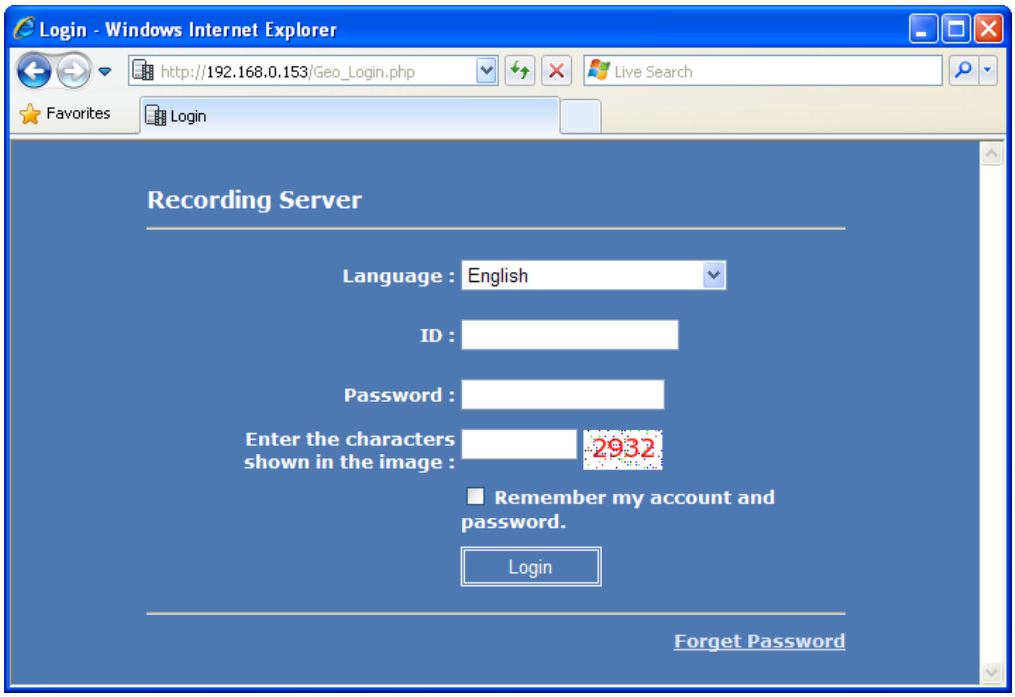


Figure 2-3

6. Type the **ID** and **Password**. The default login name and password for the Administrator are **admin**.
7. Type the verification number shown in the image.
8. Click **Login**. The GV-Recording Server Web interface is now displayed.

To access the Web interface from a remote computer, start the Internet browser and type the IP address or the domain name of the GV-Recording Server in the Location/Address field. If the default HTTP port has been changed, type a colon and the port number after the IP address, for example, **Http://192.168.3.199:81/**. After the login page appears, follow steps 6 to 8 to log in the Web interface.

Note:

1. To enable the updating of images in Microsoft Internet Explorer, you must set your browser to allow ActiveX Controls and perform a one-time installation of GeoVision's ActiveX component onto your computer.
2. If the GV-Recording Server is installed behind a firewall or router, you may need to open these default ports: HTTP port 80, server connection port (Active connection port) 11000 and Passive connection port 50000, remote playback (Remote ViewLog) port 5552.
3. The Command port is used for running the recording server. By default, 11 ports are reserved, ranging from 20000 to 200010, for the program use. If other program is using the default ports, you may need to change the Command port value.

The GV-Recording Server icon in the system tray also allows you to change the database storage path, back up settings and restore settings.

1. To change the location of the database path, right-click the GV-Recording Server icon to select **Configure**, select a new location and click **Move Database**.
2. To back up settings, right-click the GV-Recording Server icon and select **Backup Settings**. Select to back up **Basic**, **Host List**, **E-Map** and/or **Password** settings and click **OK**.
3. To restore settings, right-click the GV-Recording Server icon and select **Restore Settings**. Select the backed up file and click **OK** to begin restoring settings.

Note: You can only access the **Configure** and **Restore Settings** button when GV-Recording Server service is stopped. To stop service, you will be required to log in using the Administrator account.

Chapter 3 Getting Started

When logging in the GV-Recording Server for the first time, the Install Wizard will be prompted to help you add IP video devices, assign storage path to store recorded files and start connections.

Note: To start the Install Wizard manually, click **Install Wizard** under the Server section in the left menu.

To add IP video devices:

1. When the Install Wizard is launched, the GV-Recording Server automatically detects available IP video devices under LAN. This dialog box appears.

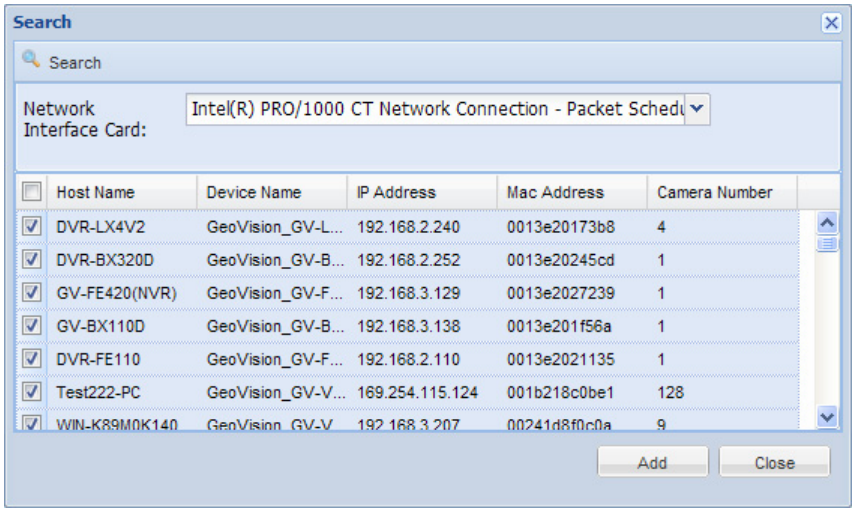


Figure 3-1

2. If you have multiple network interface cards, use the drop-down list to select one and click **Search**.
3. Select the IP video devices you want to establish active connection with.

4. Click **Add** and map the device to a channel. The Working Camera List appears.

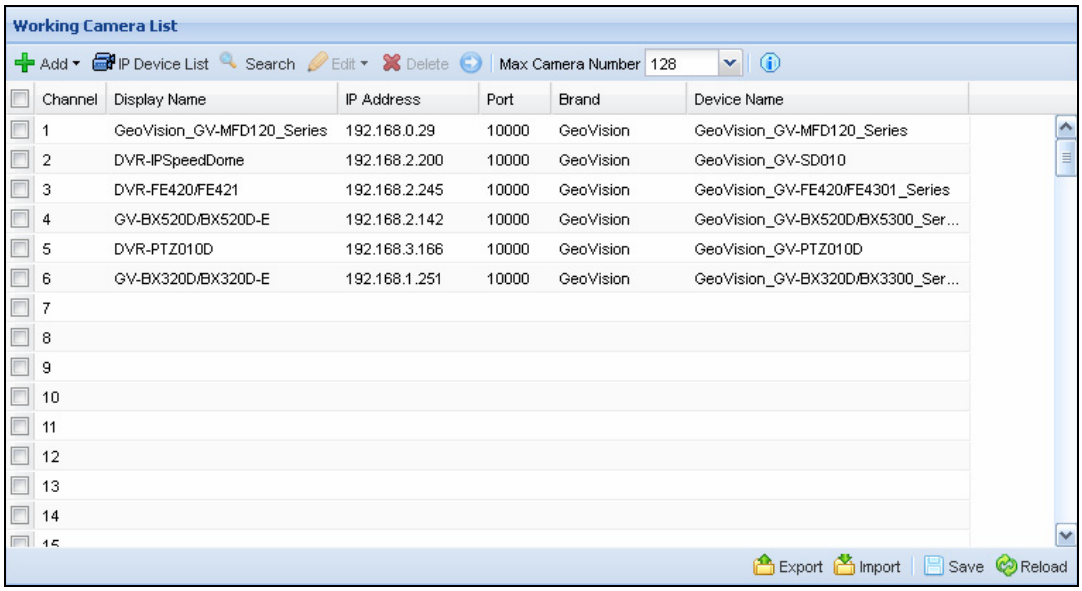


Figure 3-2

5. The GV-Recording Server will try to connect to the devices using **admin** as the default ID and password. To connect with other ID and password, select the camera, click the **Edit** button Edit and select **Host Setting**. In the dialog box, select **Change ID and Password**, type a new ID and password and click **OK**.
6. Click **Save** and click **Next Page**.

To assign storage paths:

1. In the Storage Path page, click the **Add** button to add a new storage folder in a different disk drive, or select an existing storage folder.

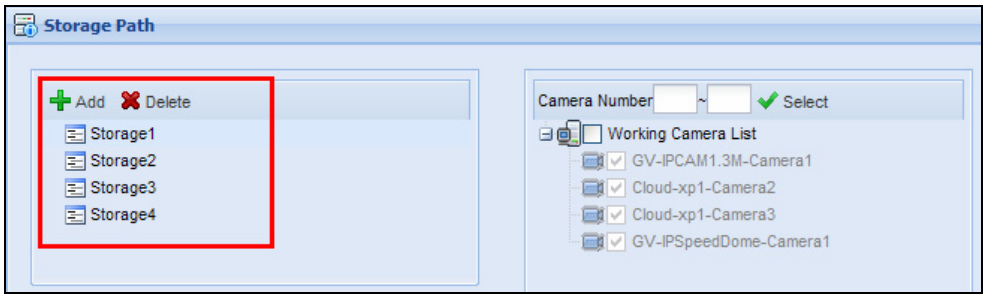


Figure 3-3

2. Use the default storage path, or click the **Add** button to select a new storage path.

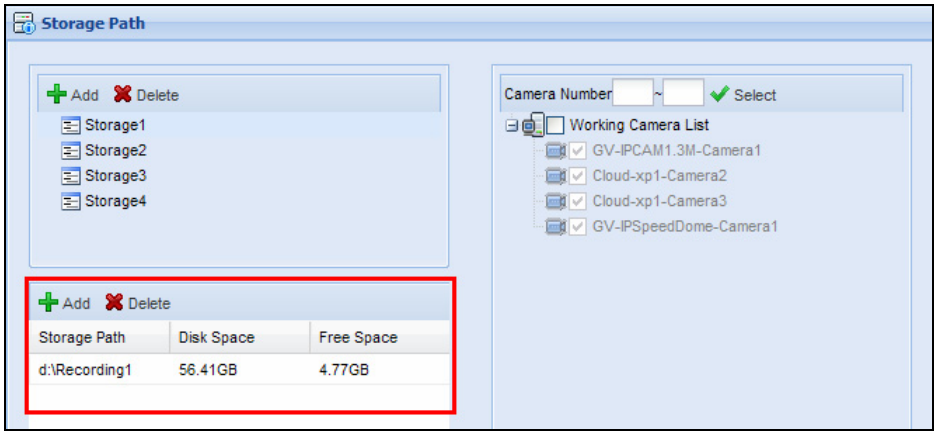


Figure 3-4

3. In the Working Camera List section, type a range of camera number and click the **Select** button. You can also select the **Working Camera List** checkbox to select cameras individually. Videos of the cameras selected will be recorded to the storage path indicated.
4. To specify a recycle threshold, select **Recycle** and type a minimum free space. When the remaining free space falls below the threshold, the oldest files will be overwritten.

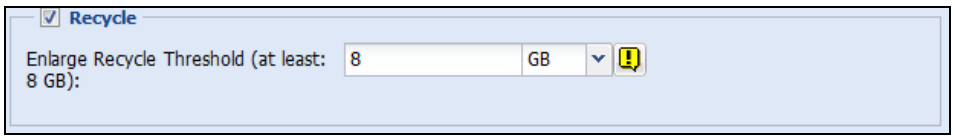


Figure 3-5

5. Click **Save** and click **Next Page** at the lower-right corner of the page.

Note: When multiple hard disks are added to a storage group, recycling of the oldest files will begin when the remaining free space of all hard disks in the storage group fall below the recycle threshold.

To starting service:

1. In the Service page, to be able to receive and record IP channels, select **Start** for Recording Server.
2. To enable the Video Gateway to transmit video to clients, select **Start** for Video Gateway.

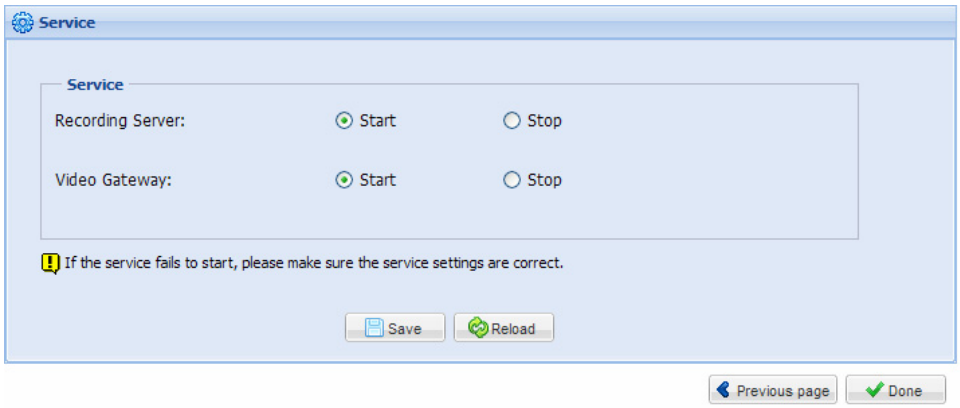


Figure 3-6

3. Click **Save** and click **Done**. The Camera Connection Information page appears and shows the connection status of the camera added.

Note:

1. The default recording policy is round-the-clock recording.
2. When the USB Dongle for GV-Video Gateway is inserted, the Recording Server option and recording functions will not be available.

After adding camera, you can refer to *5.2.2 Camera Setting* to see how to start or stop recording individual cameras. In addition, you can customize camera settings such as setting video attributes, recording policy and recording schedule.

Chapter 4 Active and Passive Mode

The GV-Recording Server is a proxy server on a network that can receive and record up to 128 IP video channels as well as transmit up to 300 IP video channels to clients simultaneously. There are two ways to establish connection with IP video devices, **active connection** where GV-Recording Server initiates the connection and **passive connection** where the GV-IP video device initiates the connection.

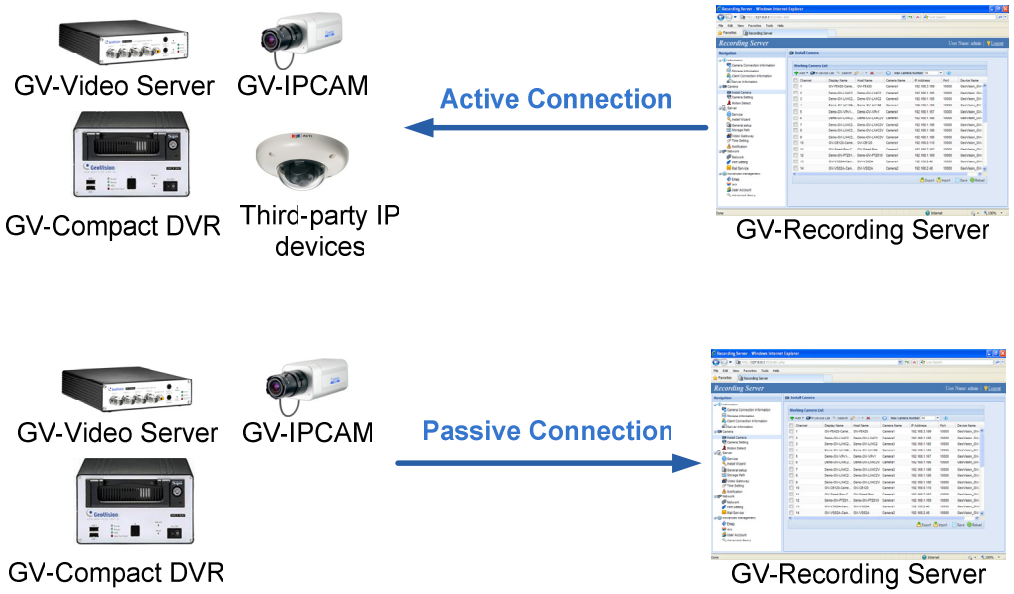


Figure 4-1

Note: Passive connection is only supported for GV-IP devices.

4.1 Active Connection

There are multiple ways to actively connect to IP video devices from GV-Recording Server. You can refer to *Chapter 3 Getting Started* and simply follow the steps in Installation Wizard to actively add IP video devices. For other ways to actively add IP video devices or to customize camera settings, refer to *5.2.1 Install Camera* and *5.2.2 Camera Setting*.

4.2 Passive Connection

To create passive connection, the GV-Recording Server must be configured to allow connections from GV-IP video devices. Passive connection to GV-Recording Server is only supported for GV-IP devices.

To allow passive connection on GV-Recording Server:

1. In left menu, select **General Setup**.
2. Select **Allow Geo IP Device Login**. The default ID and Password to log onto the GV-Recording Server is **admin**, and the default port value is **50000**. If you change the ID and Password, they must match the same settings configured on the GV-IP device (See Figure 4-3).

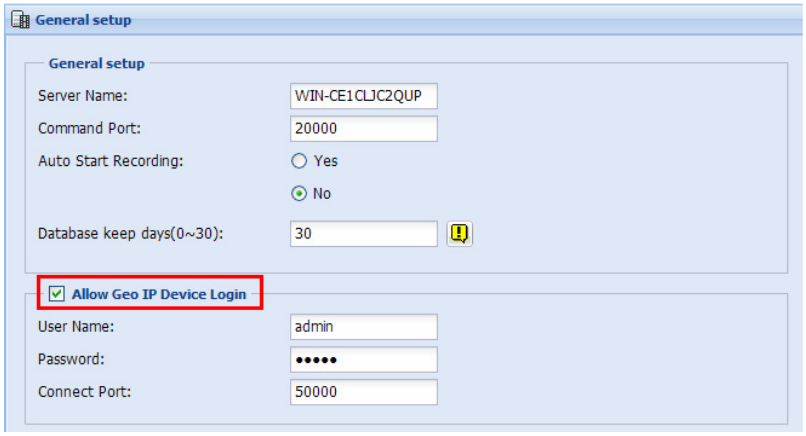


Figure 4-2

3. Click **Save**.

To access GV-Recording Server on GV-IP devices:

The GV-IP device must also be configured to access the GV-Recording Server.

1. Access the **Video Gateway / Recording Server** setting page on the Web interface of the GV-IP device.

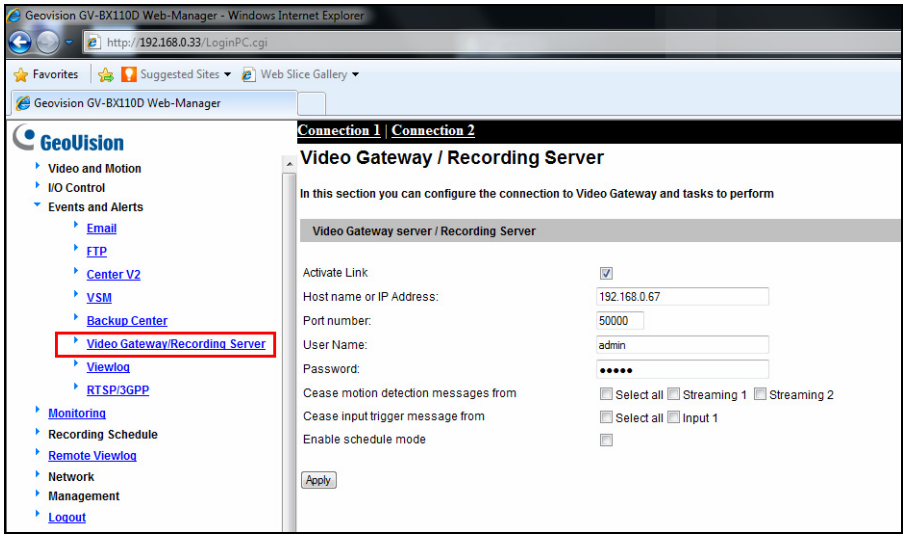


Figure 4-3

2. Select **Activate Link**.
3. Type IP address or domain name of the GV-Recording Server.
4. Keep default port number as 50000. Otherwise modify the port number to match the connect port specified in General Setup page on the GV-Recording Server (See Figure 4-2).
5. Type **User Name** and **Password** to log onto the GV-Recording Server. These user name and password must match the settings configured on the GV-Recording Server. The default values for both login username and password are **admin**.
6. Click **Apply** to start connection. When the connection is established, the following message will be displayed at the bottom of the Web interface.

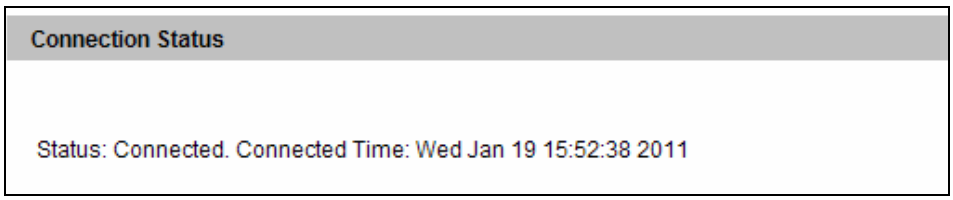


Figure 4-4

To start passive connection on GV-Recording Server:

1. On the GV-Recording Server, select **Install Camera** in the left menu. This dialog box appears.

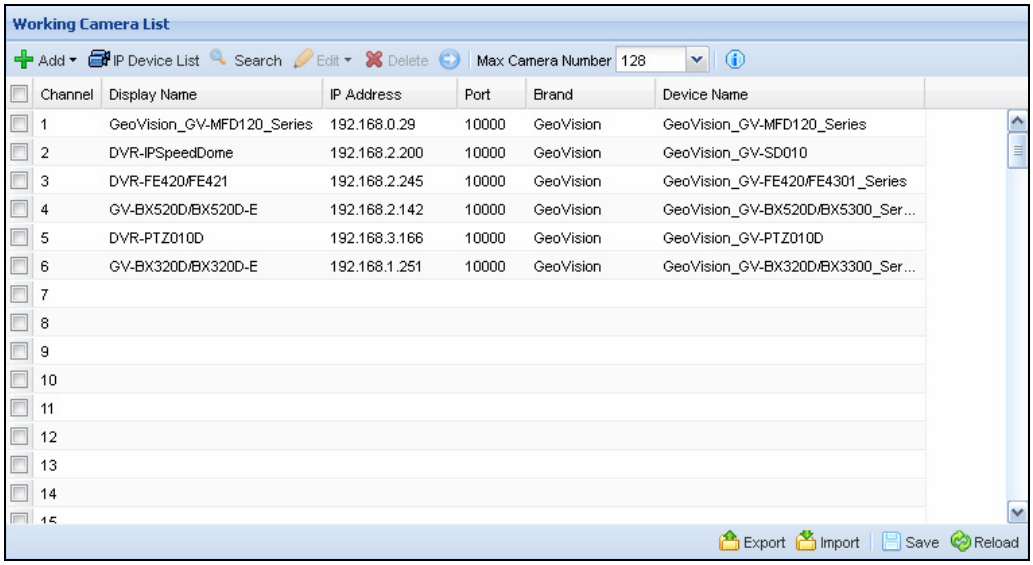


Figure 4-5

2. Click the **IP Device List** button on the Working Camera List. The passive connection is listed as **Passive Mode** under the **Connection Type**.

Figure 4-6

3. Click **Add** and select a channel. The IP device will be added to the Working Camera List.
4. Click **Save**.
5. In the left menu, click **Service** and select **Start** to enable the Recording Server and Video Gateway services.
6. Click **Save** to start services.

Chapter 5 Administrator Mode

The Administrator has access to all configurations in GV-Recording Server. On the left side of the Web interface, five categories of configurations are listed in a tree menu: **Information**, **Camera**, **Server**, **Network** and **Advanced Management**.

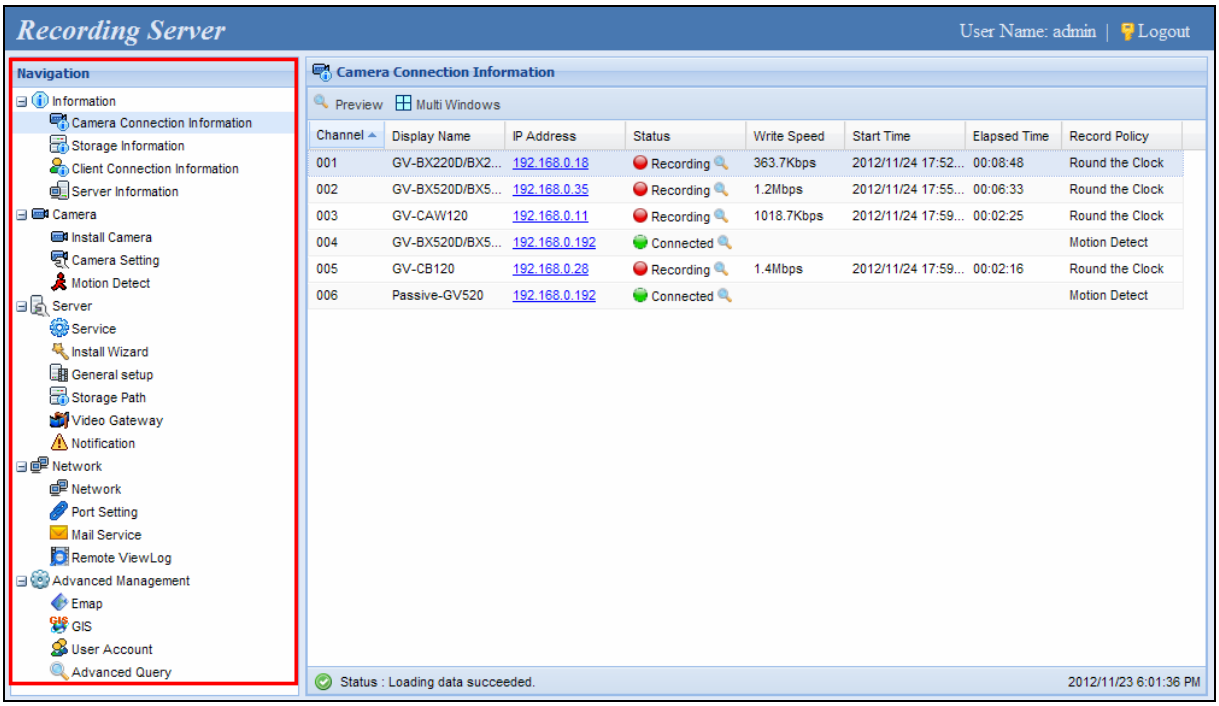


Figure 5-1

List of Menu Options

Find the topic of interest by referring to the sections below.

5.1 Information	5.1.1 Camera Connection Information 5.1.2 Storage Information 5.1.3 Client Connection Information 5.1.4 Server Information
5.2 Camera	5.2.1 Install Camera 5.2.2 Camera Setting 5.2.3 Motion Detect
5.3 Server	5.3.1 Service 5.3.2 Install Wizard 5.3.3 General Setup 5.3.4 Storage Path 5.3.5 Video Gateway 5.3.6 Notification
5.4 Network	5.4.1 Network 5.4.2 Port Setting 5.4.3 Mail Service 5.4.4 Remote ViewLog
5.5 Advanced Management	5.5.1 Emap 5.5.2 GIS 5.5.3 User Account 5.5.4 Advanced Query

5.1 Information

This section introduces how to look up camera connection information, storage information, client connection information and server information.

5.1.1 Camera Connection Information

The Camera Connection Information page shows the connection status of all the IP cameras added to the Working Camera List and allows you to watch the live video of the connected camera.

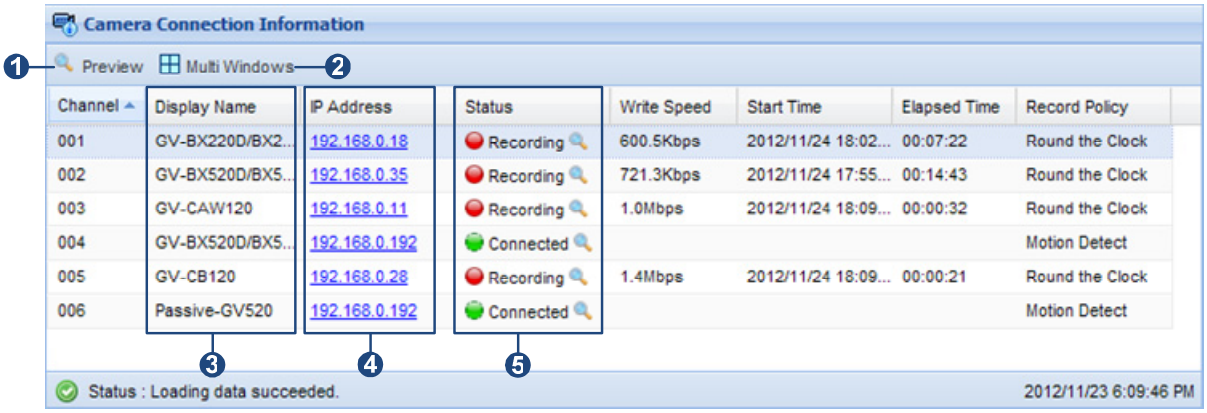


Figure 5-2

The controls in the window:

No.	Name	Description
1	Preview	Shows the live view of the selected camera.
2	Multi Windows	Shows the live view of multiple cameras in the list.
3	Display Name	The device will be identified by the display name when accessed by clients.
4	IP Address	Click to access the Web interface of the camera.
5	Status	Recording: The camera is recording. Click to access the live view. Connected: The camera is connected. Click to access the live view. Connecting: Connecting to the camera. Connect Failed: Unable to connect to the camera. Disconnect: Service has been stopped. VIDEO LOST: Unable to obtain video from the device. Login failed: Incorrect ID or password. Recording Failure: Unable to record video.

To watch the live view:

1. To watch the live view of an individual camera, select a connected camera and click the **Preview** button or the icon. The live view, video codec, resolution and the frame rate of the camera are displayed.

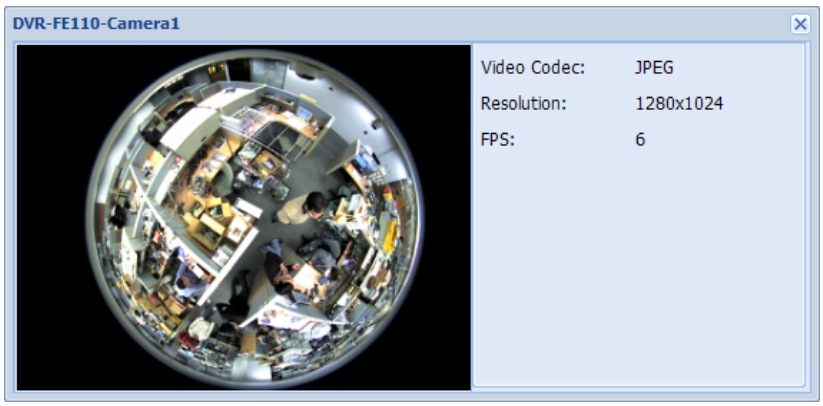


Figure 5-3

2. To watch the live view of multiple cameras, click the **Multi Windows** button. This window appears.

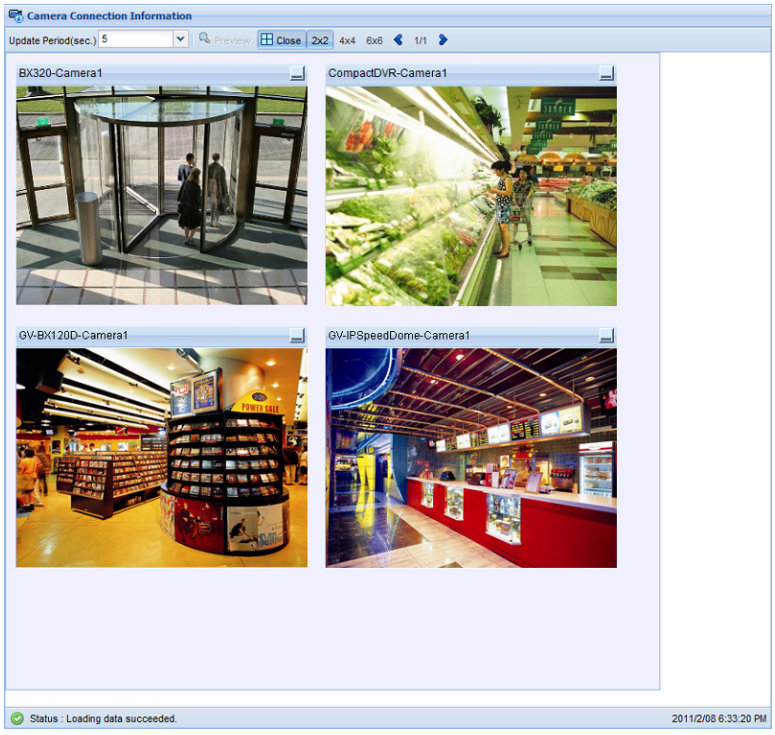


Figure 5-4

3. To specify the number of camera live view per page, click the **2x2**, **4x4** or **6x6** button.
4. Use the left and right arrows to see other pages.

5.1.2 Storage Information

The Storage Information page shows the storage paths designated to store recorded videos. For each storage path, you can see the disk's used size, free space, write speed and the time when the disk became full.

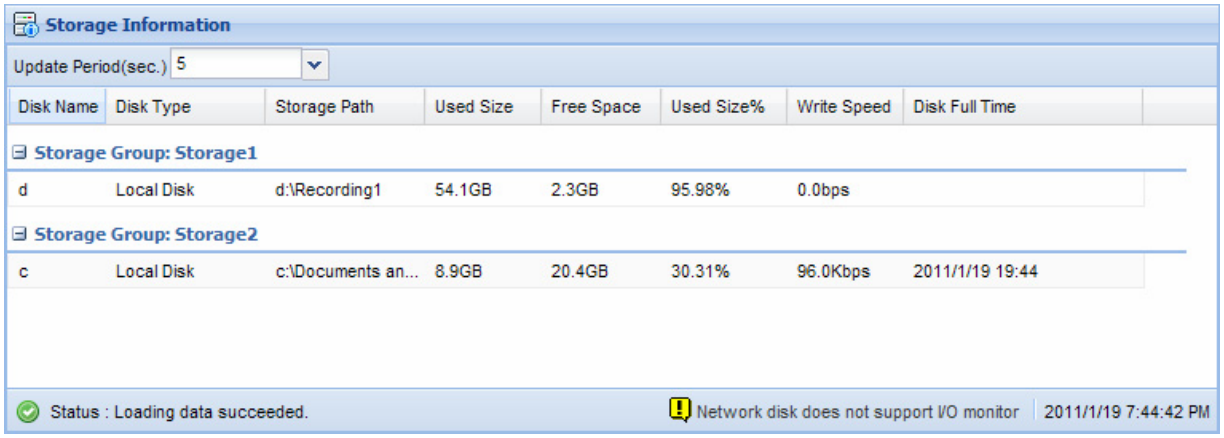


Figure 5-5

5.1.3 Client Connection Information

The Client Connection Information page shows the clients currently logged into the GV-Recording Server. The platform, IP address, camera number, stream number, bandwidth occupied, FPS and login time of each client are listed.

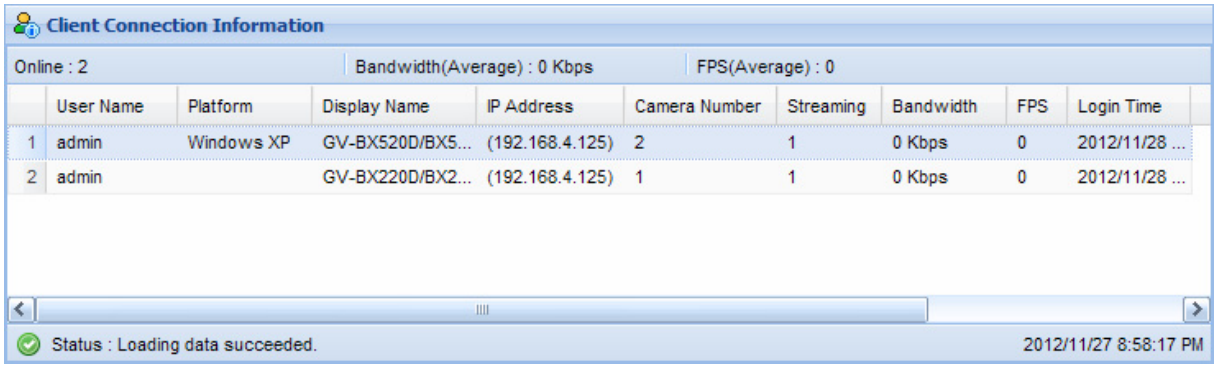


Figure 5-6

5.1.4 Server Information

The Server Information page shows server information such as version information, CPU loading, transfer speed of network interface card and service status.

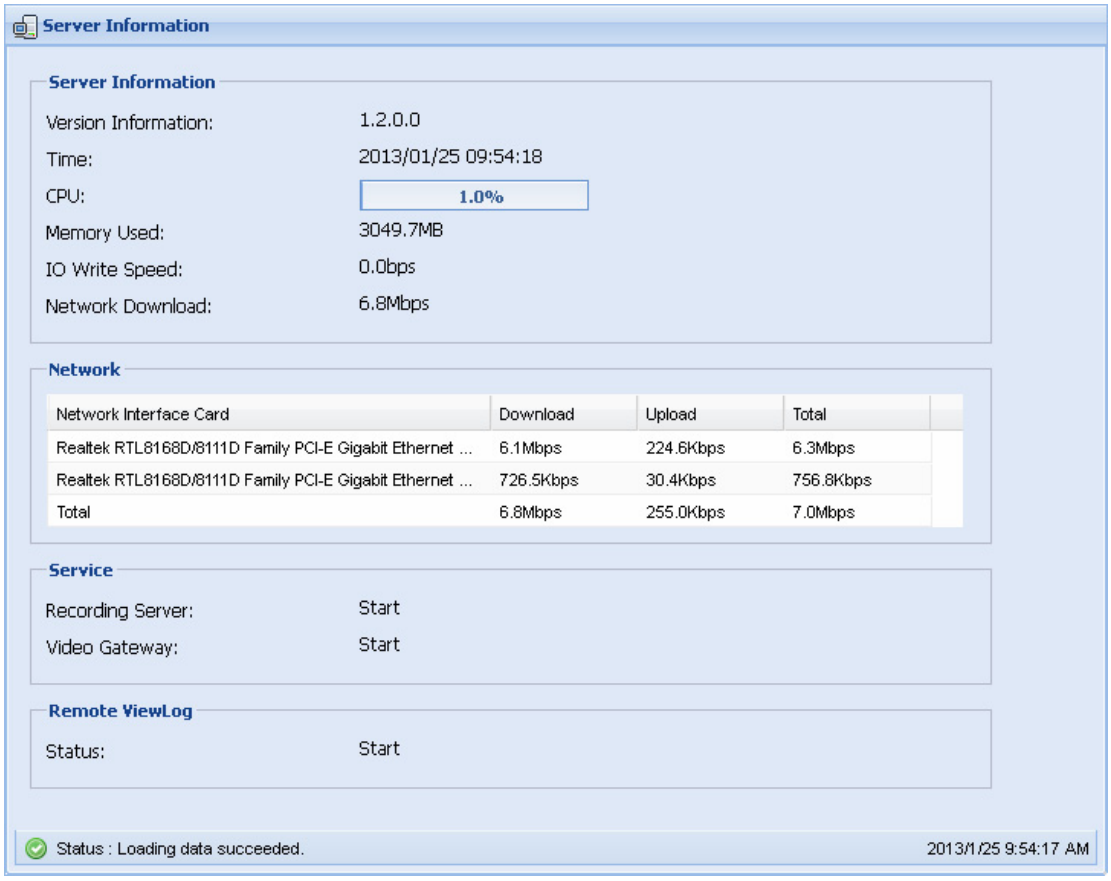


Figure 5-7

5.2 Camera

The Camera section allows you to add camera, configure camera settings and set up motion detection.

5.2.1 Install Camera

The Install Camera page helps you add IP devices to the Working Camera List.

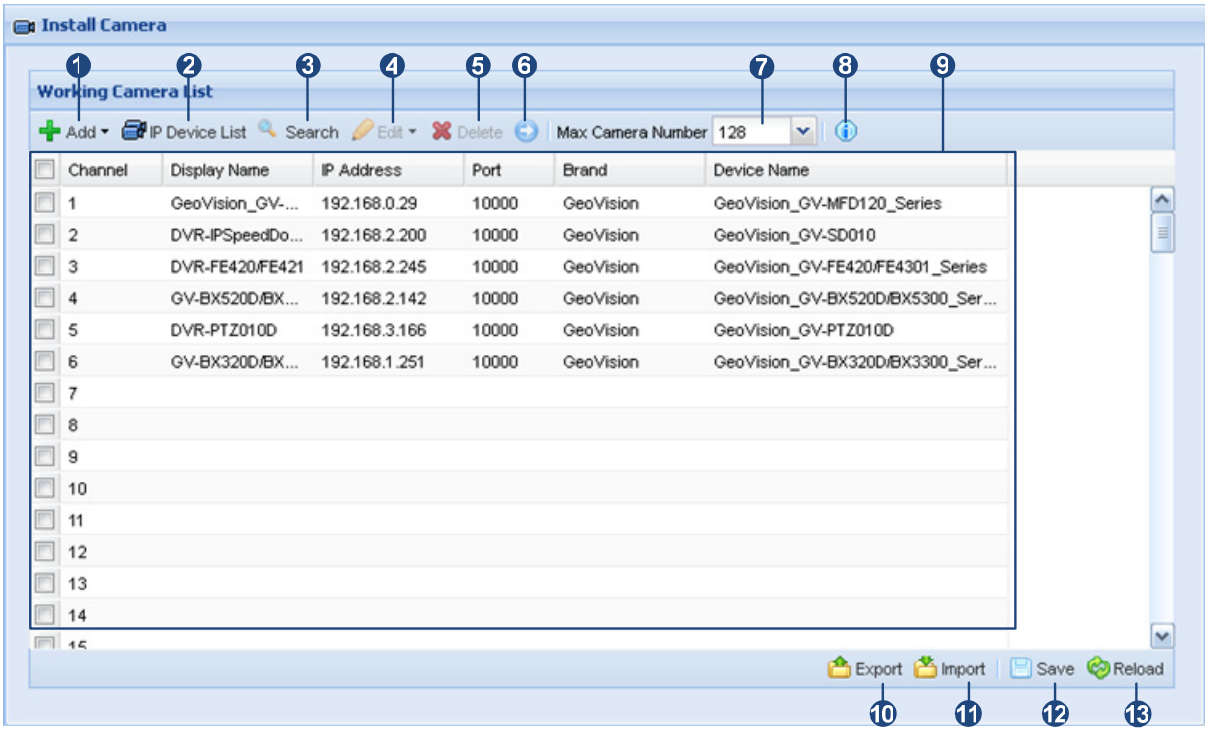


Figure 5-8

The controls in the window:

No.	Name	Description
1	Add	Add camera by manually typing the camera's connection information or by selecting from IP Device List.
2	IP Device List	Shows connection information of cameras that were and are being connected no matter through active or passive mode. You can select one or multiple cameras to add to Working Camera List or delete from IP Device List.
3	Search	Searches for available IP devices in the LAN.
4	Edit	Select a camera and click Edit to change host settings or camera display name.
5	Delete	Select one or multiple cameras and click Delete to delete from Working Camera List.

6	Move	Select a camera and click Move to move the camera to another channel.
7	Max Camera Number	Use the drop-down list to select the maximum number of camera to be displayed in a page.
8	Information	Shows the number of GV-IP Camera and third-party camera supported by the USB dongle inserted.
9	Working Camera List	Shows the cameras to be connected and recorded when the GV-Recording Server is enabled.
10	Export	Exports the camera connection information to an .hlt file.
11	Import	Locate a previously exported .hlt file and import the camera connection information.
12	Save	Saves the current settings.
13	Reload	Reloads the page.

There are three ways to add cameras to the Working Camera List:

To add cameras using the Search function:

1. Click the **Search** button.
2. In the dialog box, select a network interface card if you have more than one and click the **Search** button again. IP devices in the LAN will be detected.

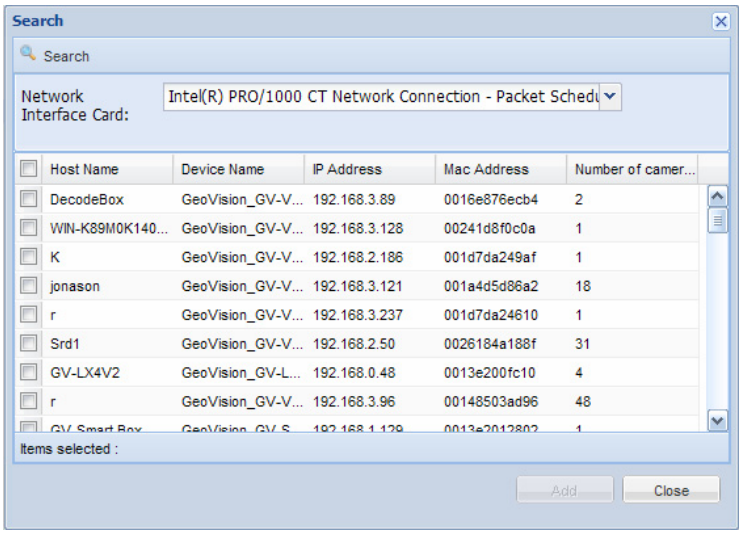


Figure 5-9

3. Select IP devices and click **Add** to add the cameras to the Working Camera List.

To add cameras using the IP Device List:

1. Click the **IP Device List**. The cameras that were and are being connected are all listed.
2. Select one or multiple cameras.
3. Click **Add**.

To add cameras by manually typing the camera's information:

1. Click the **Add** button and select **Add New Host**. This dialog box appears.

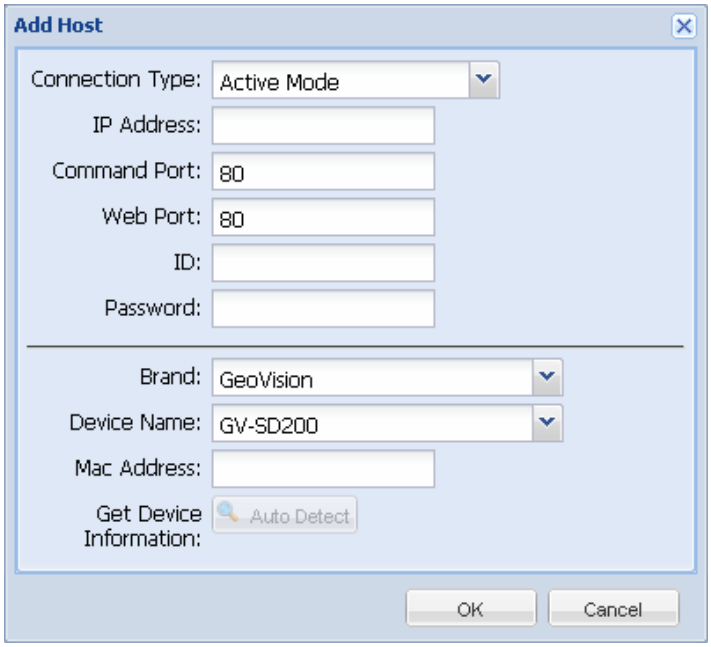


Figure 5-10

2. Select a **Connection Type** and type the **IP Address**, **ID** and **Password** of the IP device.
3. Change the default **Command Port** and **Web Port** if you wish.
4. Click **Auto Detect** to detect the camera's **Brand**, **Device Name** and **Mac Address**.
5. If the device information cannot be automatically detected, manually use the drop-down list to select the **Brand** and **Device Name** and type the **Mac Address** of the device.

6. If you want to use ONVIF, PSIA or RTSP protocol for connection, select **Protocol** from the **Brand** drop-down list and select the desired protocol from the Device Name drop-down list.

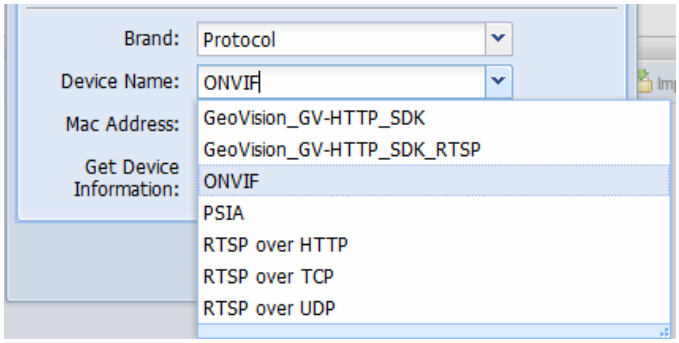


Figure 5-11

7. Click **OK**.

After adding the cameras through one of the methods above, a dialog box appears. Type a number and the cameras will be mapped to that channel and the channels after it. If the channels are already occupied, a message appears to ask if you want to replace existing cameras. Click **NO** to map the cameras to the next available channels instead.

Hint: When adding devices through the **Search** function, the ID and Password of the device will be set to **admin** by default. To change the ID and Password, select the camera and click the **Edit** button. Select **Host Setting** and select **Change ID and Password**. Type the correct ID and Password and click **OK**.

5.2.2 Camera Setting

In the Camera Setting page, you can customize the video settings, recording policy and recoding schedule of the camera. In the Working Camera List, double-click a camera or click the **Edit** button to access the camera's setting.

To start or stop recording from the camera, select or clear the selection under the **Recording** column.

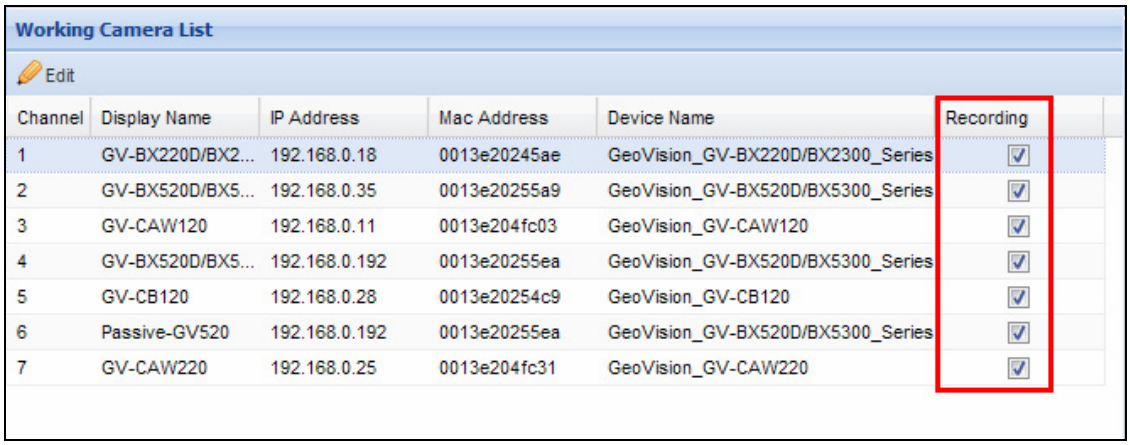


Figure 5-12

5.2.2.A Video Settings

Select the **Video** tab to access the camera's video attributes and audio settings.

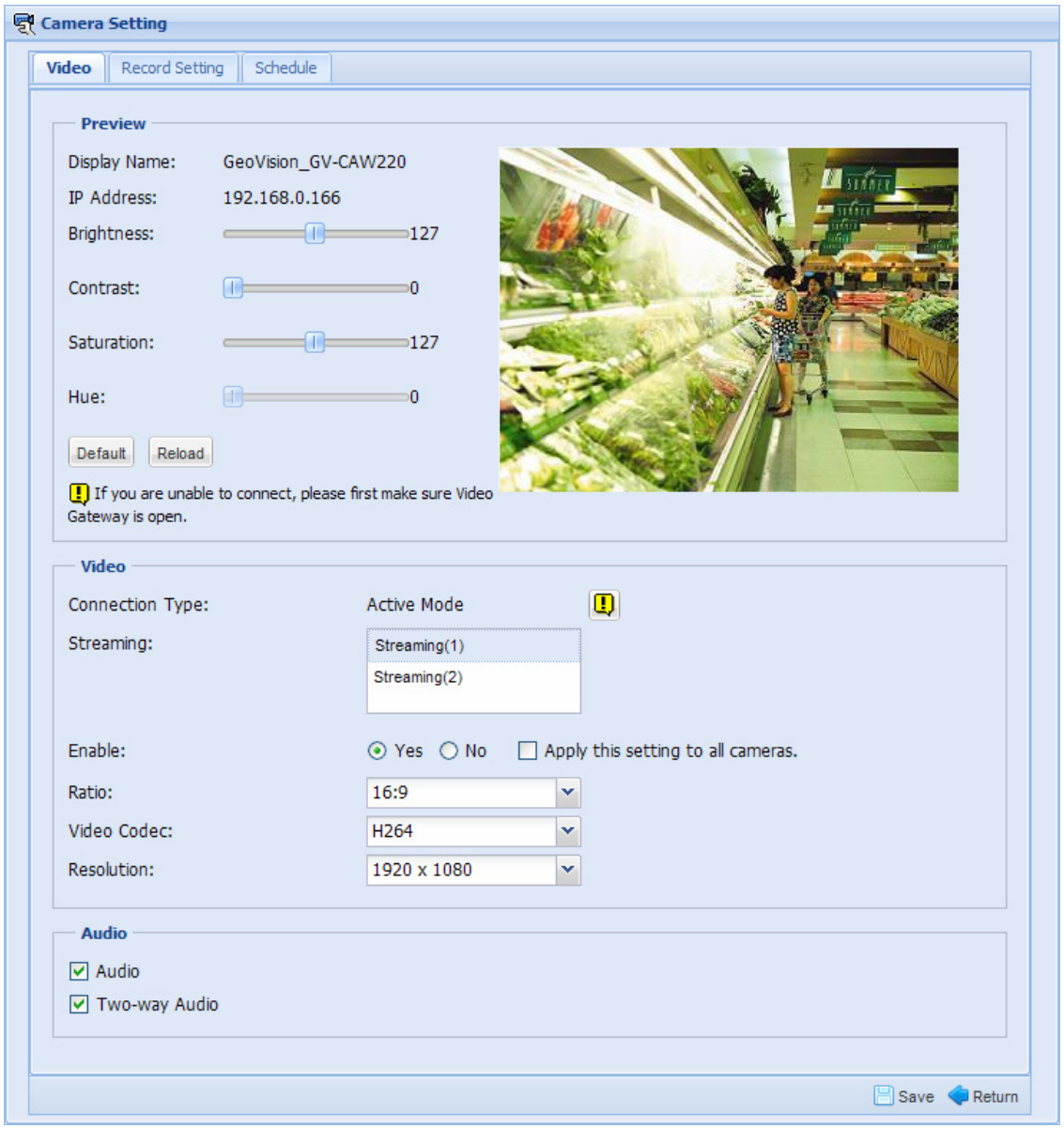


Figure 5-13

[Preview] Move the sliders to adjust the camera image's brightness, contrast, saturation and hue. Click the **Default** button to load the default settings of the camera's video attributes.

[Video]

- **Connection Type:** Shows whether the camera is connected through active mode or passive mode.
- **Streaming:** If the camera supports dual stream, you can select stream 1 or stream 2 to set up the ratio, video codec and resolution of the stream.
- **Enable:** You can choose to enable both streams or disable one of the streams.

- **Ratio:** Select a display ratio for the stream selected.
- **Video Codec:** Select a type of video compression method.
- **Resolution:** Select a resolution for live view and recorded video.

[Audio]

- **Audio:** Enables audio of live view.
- **Two-Way Audio:** Enables two-way audio for the camera.

Note:

1. Two-way audio is only supported for GV-IP devices connected through active mode.
2. The adjustment of video attributes may not be available for some IP video devices.

5.2.2.B Record Setting

Select the **Record Setting** tab to customize the general setup, recording policy and I/O device setting for each IP video device.

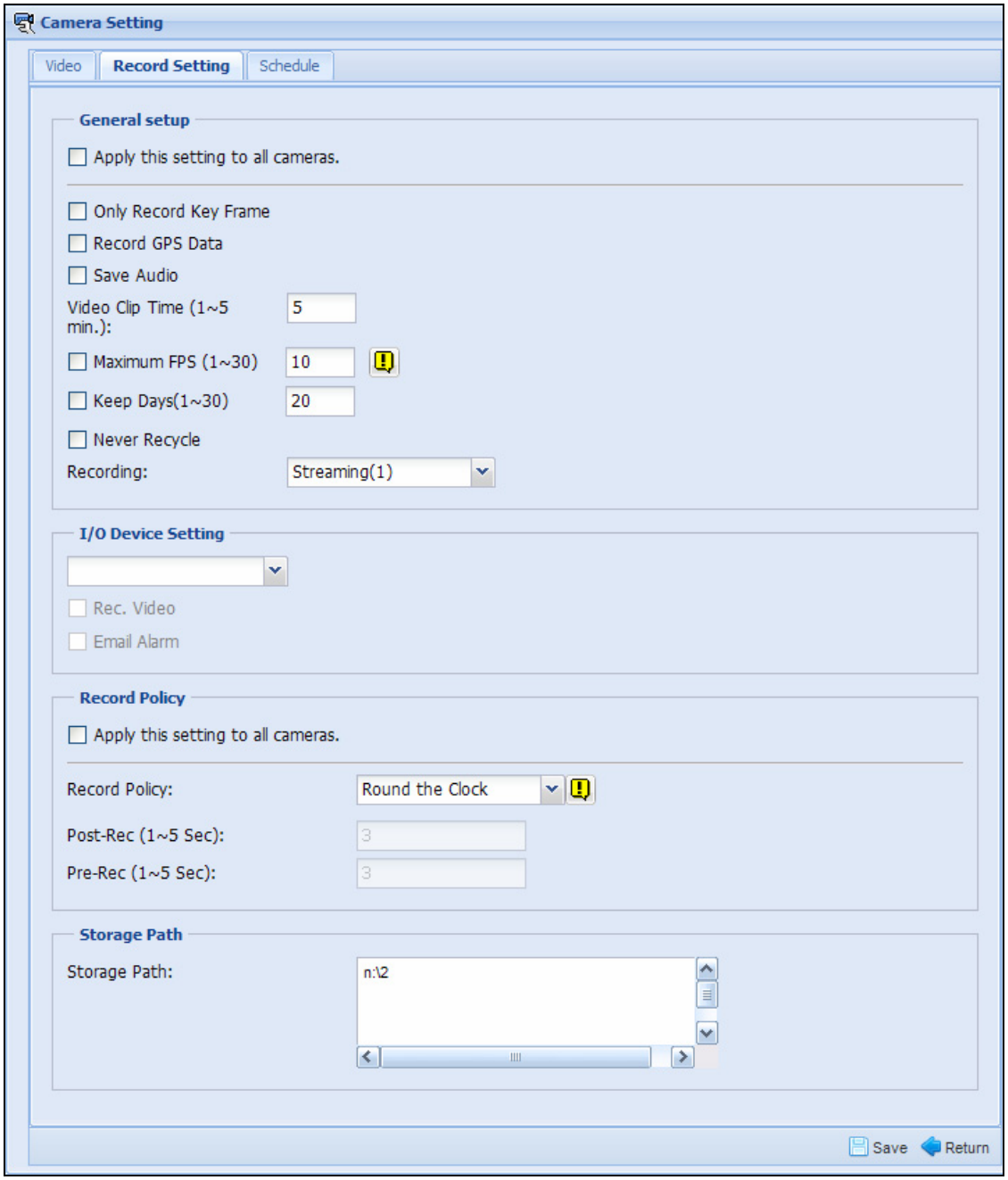


Figure 5-14

[General Setup]

- **Apply this setting to all cameras:** Apply settings in General Setup to all cameras.
- **Only Record Key Frame:** Select to record key frames only.
- **Record GPS Data:** Records the video with GPS data.
- **Save Audio:** Include sounds when recording videos.

- **Video Clip Time (1~5min.):** Specify the maximum time length of each recorded file. For example, if you set the Video Clip Time to be 5 minutes, a 20-minute video will be divided into four 5-minute clips.
- **Maximum FPS (1~30):** Limit the frame rate per second to the number specified. This option only applies to JPEG.
- **Keep Days (1~30):** Specify the number of days to keep the recorded files.
- **Never Recycle:** Select to never recycle videos recorded by this camera.
- **Recording:** If the camera supports dual stream, you can select to use stream 1 or stream 2 for recording. The other stream will be used for preview.

[I/O Device Setting] Use the drop-down list to select an input device. When the selected input device is triggered, recording will start or e-mail alarm will be sent if the options are selected.

- **Rec. Video:** Start recording upon input trigger for the Video Clip Time length specified above.
- **E-mail Alarm:** The administrator can receive an e-mail alert after input trigger. To use this function, you must also set up the mail server. See *5.4.3 Mail Service*.

[Recording Policy] In the Record Policy section, use the **Record Policy** drop-down list to select one of the following record policies.

- **Round-the-Clock:** Records continuously.
- **Motion Detect:** Starts recording upon motion detection.
- **I/O Trigger:** Starts recording upon input device triggered.
- **Schedule:** Records according to the schedule specified.

Note:

1. Recording upon I/O trigger is only supported on GV-IP devices.
2. After a camera is added to the Working Camera List, the default recording policy is Round-the-Clock.

To customize the recording policy:

1. The **Post-Rec** and **Pre-Rec** options are available when Motion Detect, I/O Trigger or Schedule is selected.
   If **Motion Detect** or **I/O Trigger** is selected, type a time period between 1 and 5 seconds

in the **Post-Rec** field to continue recording for the number of seconds specified after the motion detection or I/O trigger event. Use the **Pre-Rec** field to specify the number of seconds to start recording before motion is detected or before I/O device is triggered.

2. If **Schedule** is selected, refer to *5.2.2.C Schedule* to see how to set up a recording schedule.
3. If **I/O Trigger** is selected, you need to set up the related settings in the **I/O Device Setting** above.
4. To apply the settings to all cameras in the Working Camera List, select **Apply this setting to all cameras**.
5. Click **Save**.

[Storage Path] Shows the designated storage path for videos recorded from the camera. To see how to assign storage path, refer to *Setting Storage Path* section in *Chapter 3 Getting Started* for details.

5.2.2.C Schedule

In the **Schedule** tab, you can create a recording schedule by setting different recording policies during different time periods. First create a daily recording schedule and then assign the daily schedule to a date or a day of the week in the calendar.

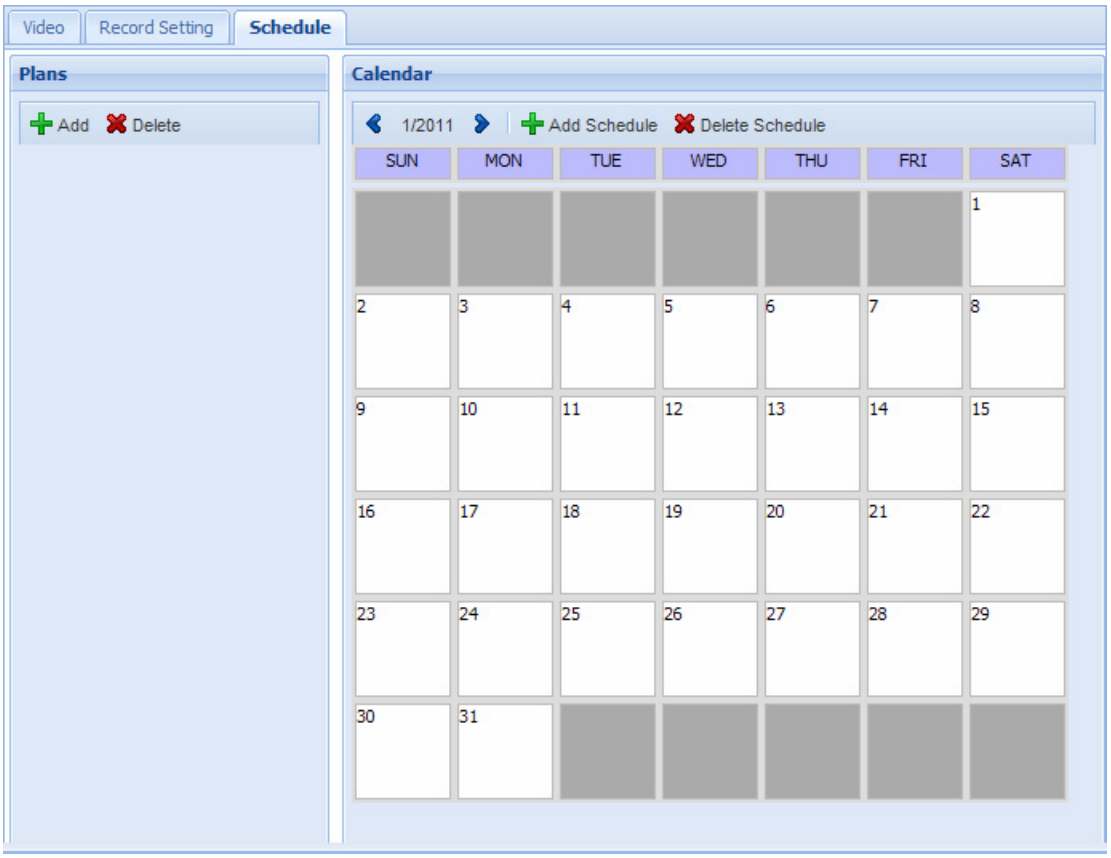


Figure 5-15

1. In the Plans section, click the **Add** button Add and type a name for the schedule plan. The schedule plan appears in the Plans list.
2. Double-click the schedule plan. This dialog box appears.

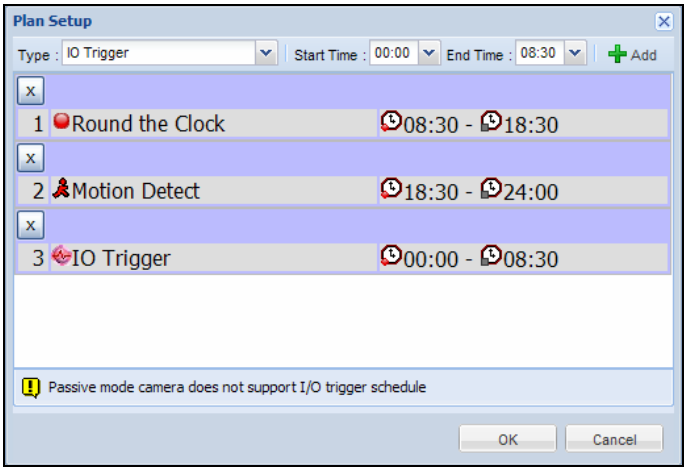


Figure 5-16

3. Use the **Type** drop-down list to select whether to record video round-the-clock, upon motion detection or upon I/O trigger.
4. Select a **Start Time** and an **End Time** to apply the recording policy specified above.
5. Click the **Add** button.
6. Repeat steps 3 to 5 to set different recording policies during other time periods. Click **OK**.
7. Under Calendar, click **Add Schedule**. This dialog box appears.

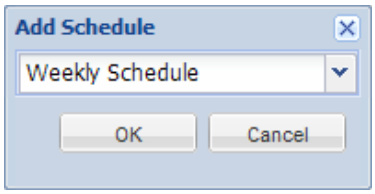


Figure 5-17

8. To apply the schedule plan created above to a particular day of the week continuously, select **Weekly Schedule**. In the dialog box that appears, select a schedule plan and select a day of the week to apply.

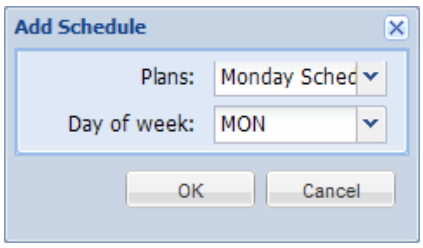


Figure 5-18

9. To apply the schedule plan to a particular day only, select **Special Day Schedule**. In the dialog box that appears, select a schedule plan and select a date to apply.

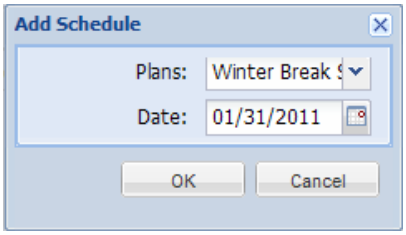


Figure 5-19

10. Click **Save**.

5.2.3 Motion Detection

Set up motion detection to generate a notification or to begin recording whenever movement occurs in the video image. You can set up to 8 areas with different sensitivity values for motion detection.

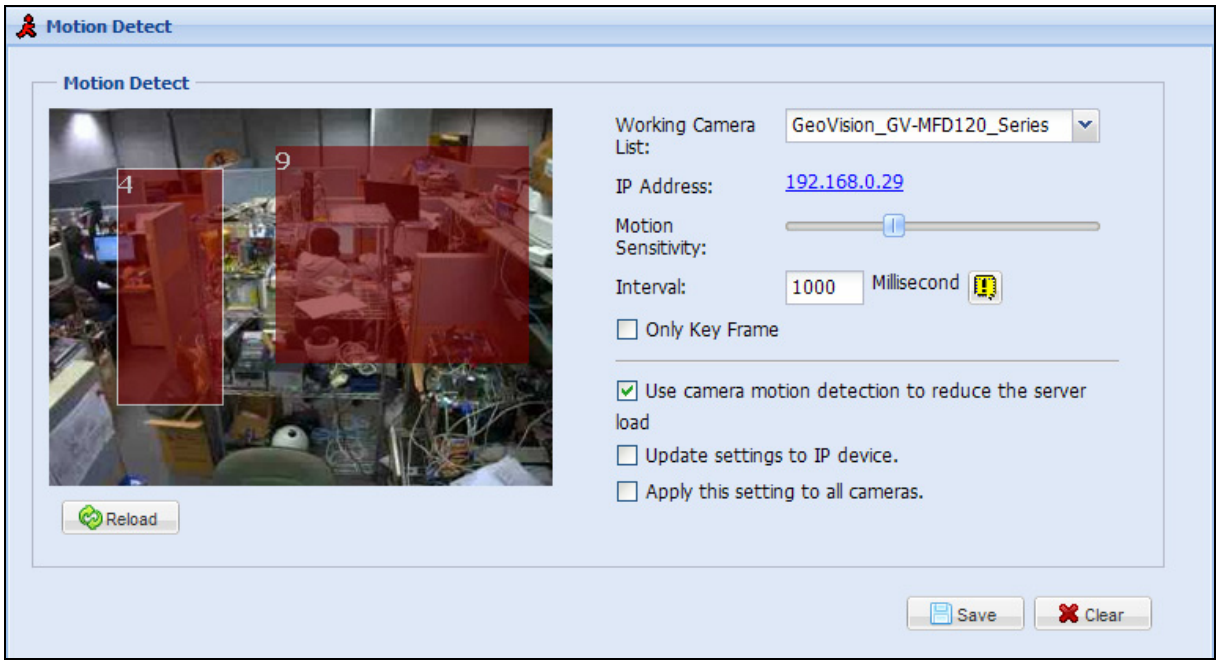


Figure 5-20

1. In the Working Camera List, select a camera.
2. The default sensitivity value is 8 for the entire area. To define a different sensitivity value, right-click the camera view and click **Delete**.
3. Select the sensitivity by moving the slider. The higher the value, the more sensitive the camera is to motion.
4. Drag an area on the image. Click **Add** when you are prompted to confirm the setting.
5. To create several areas with different sensitivity values, repeat steps 3 and 4.
6. Set a time **Interval** in milliseconds to specify the frequency of motion detection. A smaller interval will make motion detection more precise.
7. To detect motion from only key frames, select **Only Key Frame**.
8. To reduce server loading by using the motion detection function on the camera, select **Use camera motion detection to reduce the server load**.
9. To overwrite the motion detection settings set on the Web interface of the camera with the settings on GV-Recording Server, select **Update settings to IP device**.
10. Click **Save**.

You can now set up e-mail notifications to be sent or to start recording upon motion detection. Refer to *5.3.6 Notification* and *5.2.2 Camera Setting* to see how to set up notifications and record policy.

Suggested Time Interval for Motion Detection

The number of channels GV-Recording Server can receive and transmit may vary depending on the frequency of motion detection you set. When the time interval between each motion detection is small, motion detection is more sensitive, but more CPU resource is required.

Below is the suggested time interval for motion detection and the number of channels supported at that time interval.

Resolution	Time Interval for Motion Detection	Receiving	Transmitting
1.0 M (1280 x 1024)	500 milliseconds	128 ch	240 ch
2.0 M (1920 x 1080)		90 ch	180 ch
3.0 M (2048 x 1536)	250 milliseconds	55 ch	111 ch
5.0 M (2560 x 1920)		45 ch	90 ch

5.3 Server

In the Server section, you can start services, configure general setup, specify storage path, modify Video Gateway ports, and set up e-mail notifications.

5.3.1 Service

The Recording Server service must be started to record videos from connected IP devices and the Video Gateway service must be started to receive and stream videos.

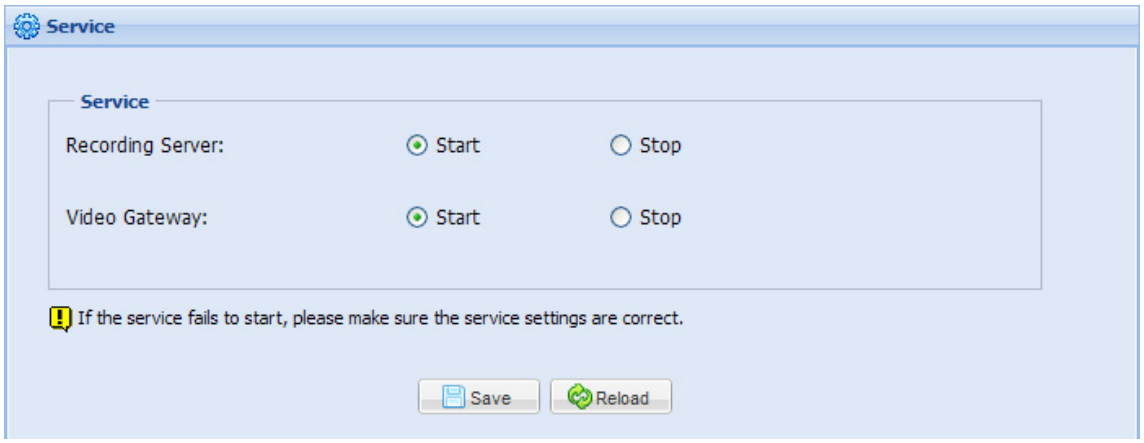


Figure 5-21

5.3.2 Install Wizard

When logging in GV-Recording Server for the first time, the Install Wizard will be prompted to help you add IP video devices, assign storage path to store recorded videos and start connections. Refer to *Chapter 3 Getting Started* for details.

5.3.3 General Setup

In the General Setup page, you can configure the command port of GV-Recording Server and configure system log settings to allow passive connection from GV-IP Devices.

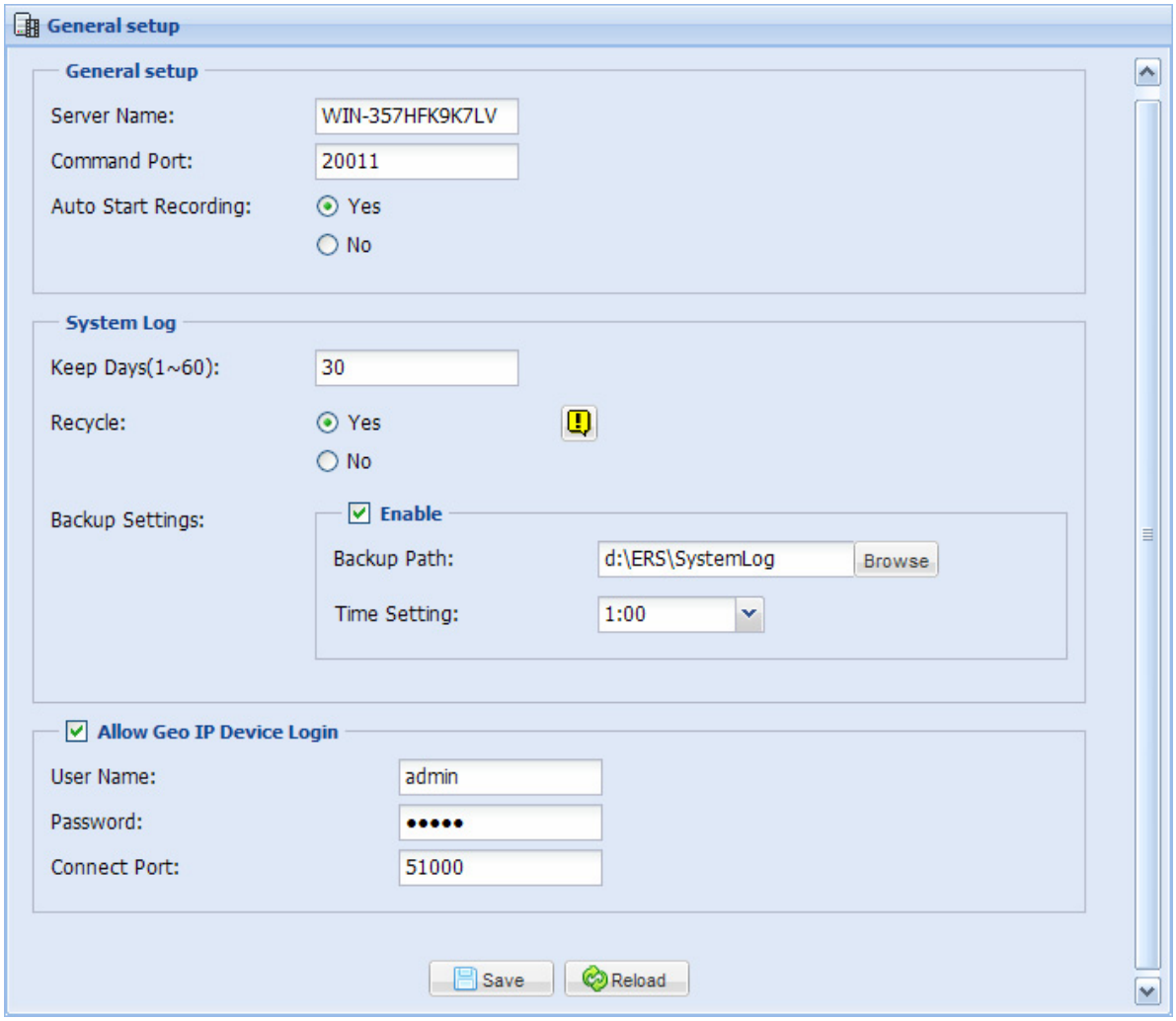


Figure 5-22

[General Setup]

- **Server Name:** Type a name to identify the GV-Recording Server. The default value is the computer's name.
- **Command Port:** The default command port is 20000. The command port is used for running the recording server program. By default, 9 ports are reserved ranging from 20000 to 20009. If other program is using the default ports, you may need to change the command port value.
- **Auto Start Recording:** Automatically start recording video once the GV-Recording Server program is activated.

[System Log]

- **Keep days (1~60):** Specify the number of days to keep system log before deleting.
- **Recycle:** Enables recycling of system log.
- **Backup Settings:** Select to assign a storage path and time to back up system log. The default path is :\ERS\SystemLog.

[Allow Geo IP Device Login] Select this option to allow GV-IP devices to connect to GV-Recording Server. Type a user name, password and connect port for the IP device to connect. Refer to *4.2 Passive Connection* for more details.

5.3.4 Storage Path

In the Storage Path page, you can set a storage path for each camera to store recorded videos and specify the file size threshold for recycling recorded video. Refer to the *Setting Storage Path* section in *Chapter 3 Getting Started* for details.

5.3.5 Video Gateway

The Video Gateway page allows you to configure the connection settings for TCP/IP port, Multicast streaming and RTSP protocol.

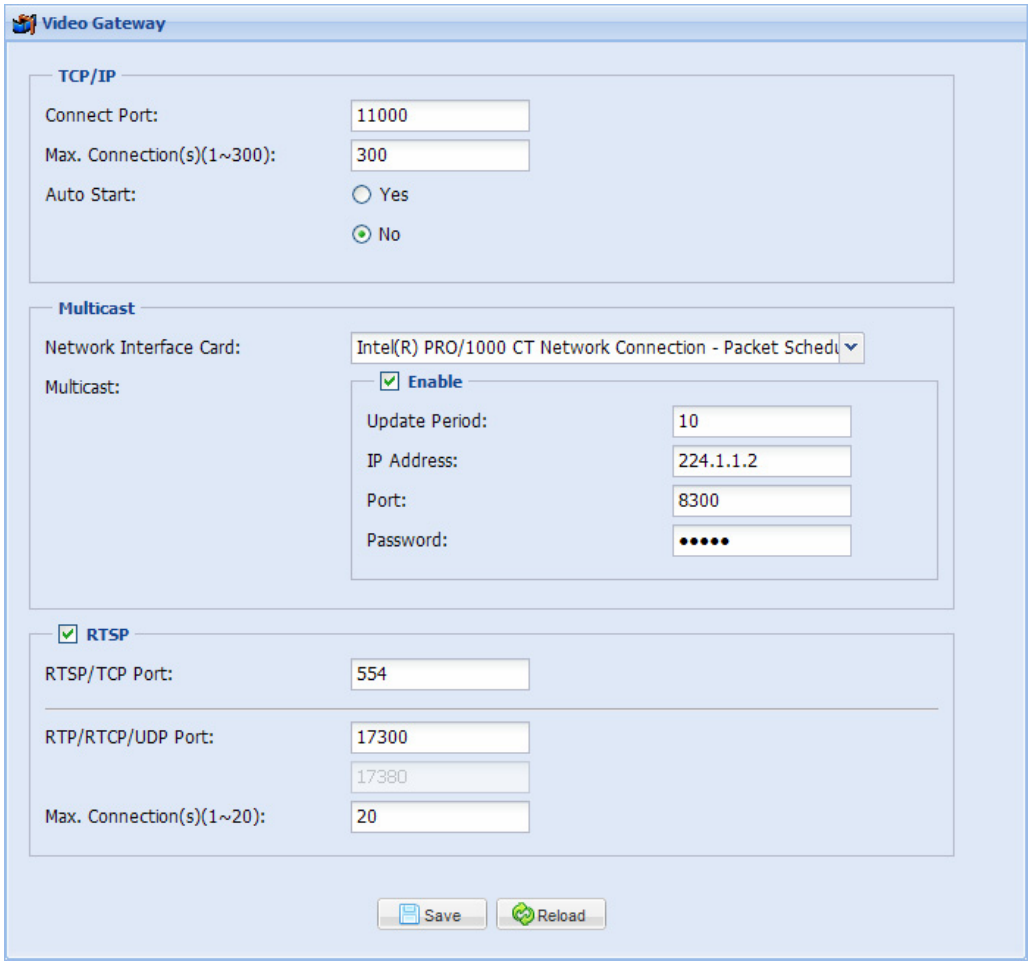


Figure 5-23

[TCP/IP]

- **Connect Port:** The default TCP/IP port is 11000.
- **Max. Connection(s)(1~300):** Specify the maximum number of channels transmitted to clients. The default value is 300 channels.

- **Auto Start:** Automatically starts connections with IP devices after GV-Recording Server is started.

[Multicast] The multicast provides a mechanism for sending a single video and audio stream to a group of hosts.

- **Network Interface Card:** Select a Network Card to run multicast on a different network. Since the multicast can take a lot of bandwidth when enabled, separating it from the main network is advised whenever possible.
- **Multicast:** Select this option to enable the multicast settings and send video and audio streams to the multicast group.
  - **Update Period:** Specify the time length in second between each update of multicast streams.
  - **IP Address:** Type the IP address used for multicasting. Only the hosts with the same multicast IP can receive the multicast streams. The default IP address is 224.1.1.2.
  - **Port:** Type the port number used for multicasting. The default port number is 8300.
  - **Password:** Select this option and type a password to secure multicast streams. The hosts in the multicast group will need to enter the password before accessing video and audio streams.

To see how to connect to GV-Recording Server using Multicast, see *7.3 Connecting with Multicast*.

[RTSP] You can connect to IP devices through RTSP protocol if the protocol is supported by the IP device.

- **RTSP/TCP Port:** The default port number is 554.
- **RTP/RTCP/UDP Port:** The default port range is 17300 to 17380.
- **Max. Connection(s)(1~20):** Specify the maximum number of RTSP connections. The default value is 20 channels.

Note: Only VLC media player and QuickTime Player are supported for streaming H.264 video via RTSP protocol.

For more details on how to connect to IP devices through RTSP, see *Appendix B. RTSP Protocol Support*.

5.3.6 Notification

You can receive e-mail notification for the following conditions:

- Active connection lost
- USB protection key removed
- Passive connection lost
- Recycling of recorded video
- Start keep days operation
- Motion detection
- Disk full
- Disk error
- Disk Removed
- Recording Failure

To receive e-mail alerts, select the type of condition and select **Send E-mail Alerts**. For Disk Full, Disk Error, Disk Removed and Recording Failure, you can set a minimum time **interval** in minutes between e-mail alerts. If the mail server has not been set up, click the **E-Mail** button to go to the Mail Service page.

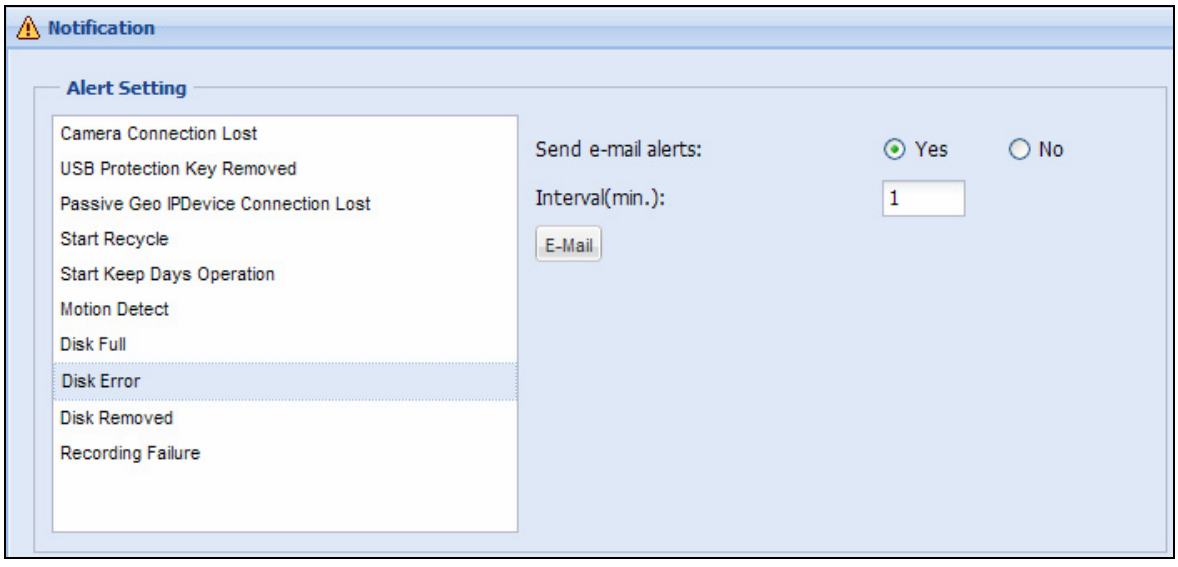


Figure 5-24

For details on the Mail Service settings, see *5.4.3 Mail Service*.

Note: You can also receive e-mail notification for I/O Trigger alert by enabling **E-mail Alarm** in the Recording Setting page (Camera Setting page < Recording Setting tab < E-mail Alarm). See *5.2.2.B Record Setting*.

5.4 Network

The Network section includes setting up basic network configurations, communication ports, mail service for e-mail notifications and Remote ViewLog for remote playback.

5.4.1 Network

In the Network page, you can configure basic network settings as well as set up SSL protocol and Dynamic DNS.

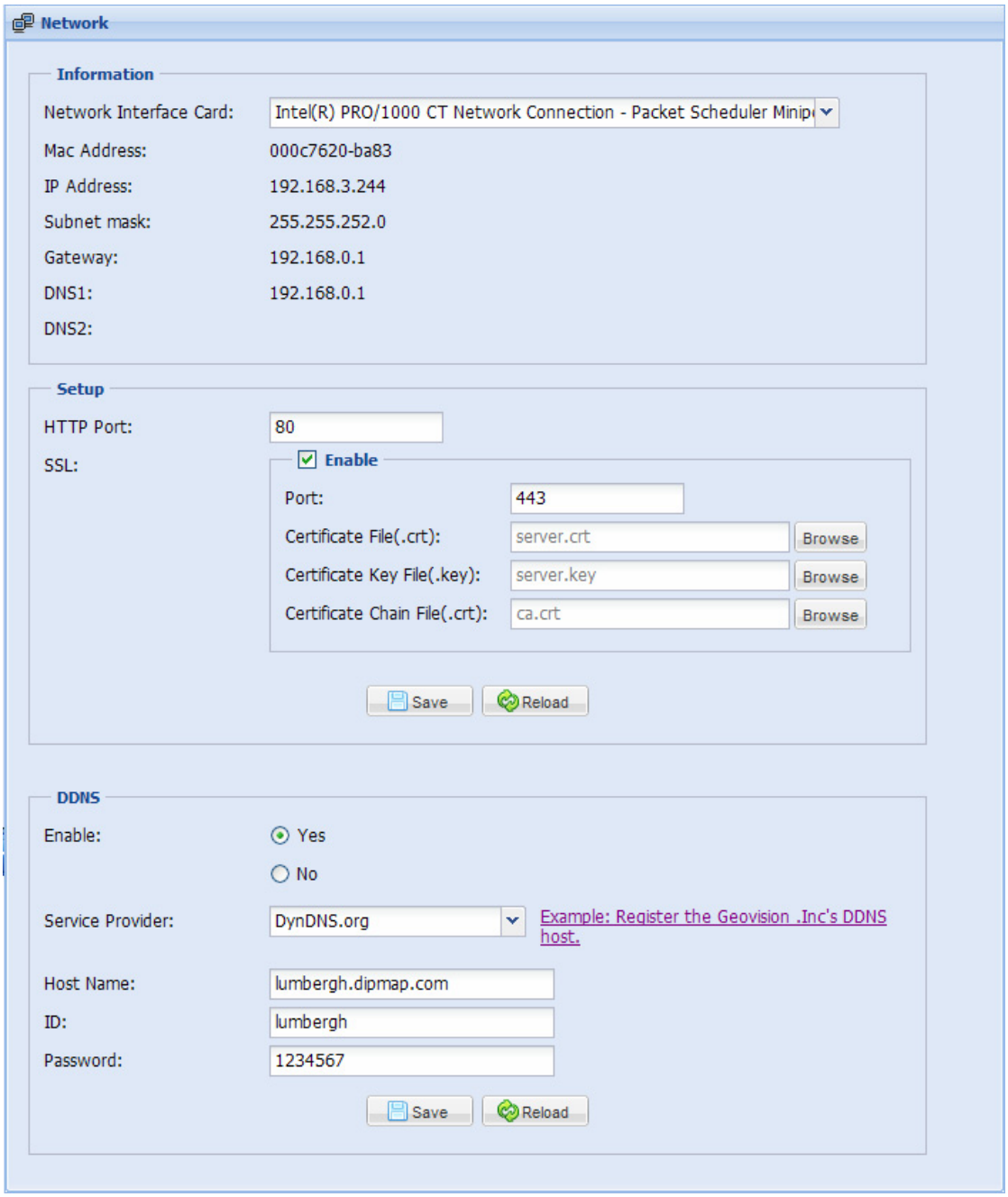


Figure 5-25

[Information]

- **Network Interface Card:** Select a Network Interface Card to connect to the Internet.

[Setup]

- **HTTP Port:** The default HTTP port is 80.
- **SSL:** Enable the Secure Sockets Layer (SSL) protocol for a more secure Internet connection. To use your own Certificate File, Certificate Key File and Certificate Chain File, click the **Browse** buttons and select the files stored at your computer. The encryption strength depends on your SSL certificate.

[DDNS] Dynamic DNS allows you to register a domain name to easily access your GV-Recording Server when using a dynamic IP address.

- **Enable:** Select to enable DDNS.
- **Service Provider:** Select a DDNS service provider. If you select GeoVision DDNS Server, click the link on the right for service registration.
- **Host Name:** Type the host name used to connect to the GV-Recording Server. The host name registered on GeoVision DDNS Server is created by adding ".dipmap.com" to the username.
- **ID:** Type the username used to enable the service from the DDNS.
- **Password:** Type the password used to enable the service from the DDNS.

5.4.2 Port Setting

You can see all communication ports used by the GV-Recording Server. If your server is installed with a router or firewall, make sure the related communication ports are open. To modify any port number, click the field and click **Save** after the modification.

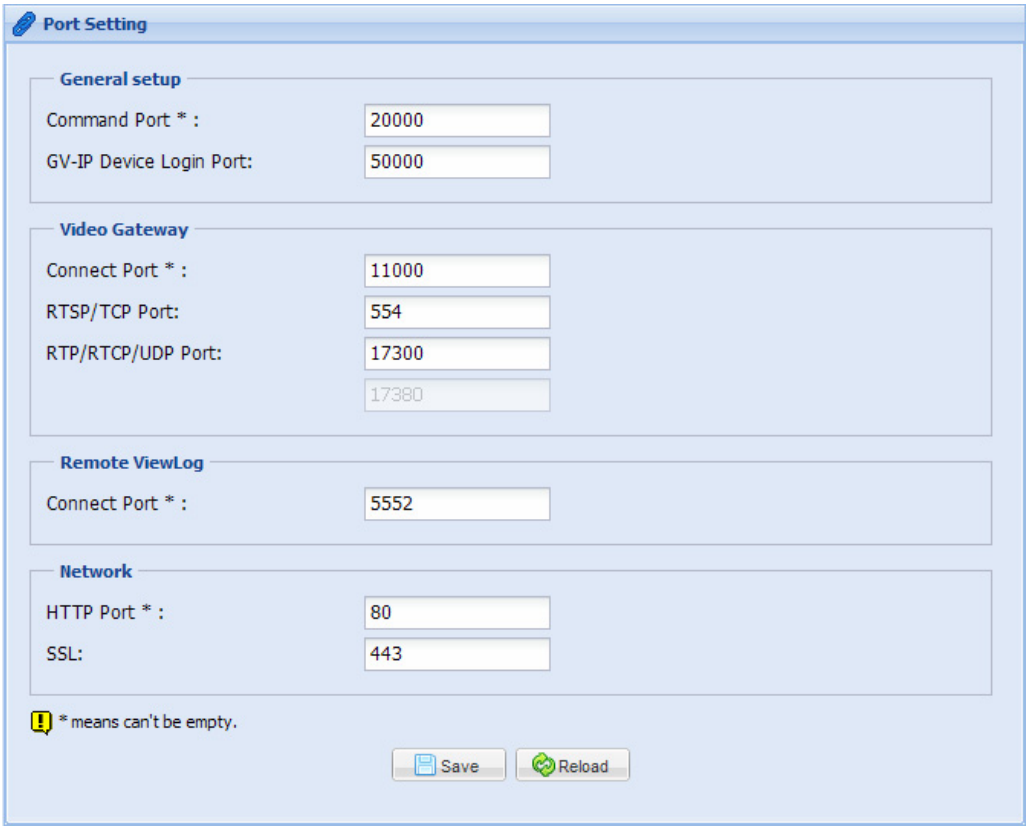


Figure 5-26

Note:

1. If the GV-Recording Server is installed behind a firewall or router, you may need to open these default ports: HTTP port 80, server connection port (Active connection port) 11000, Passive connection port 50000, remote playback (Remote ViewLog) port 5552.
2. The Command port is used for running the recording server. By default, 11 ports are reserved, ranging from 20000 to 200010, for the program use. If other program is using the default ports, you may need to change the Command port value.

5.4.3 Mail Service

When any of the following conditions occur, the administrator can receive alert by an e-mail:

- Active connection lost
- Passive connection lost
- USB protection key removed
- Recycling of recorded video
- Start keep days operation
- Motion detection
- Disk full
- Disk error
- Disk Removed
- Recording Failure

To send e-mail alerts, you have to configure the following mail server settings and specify the e-mail address to receive alert messages.

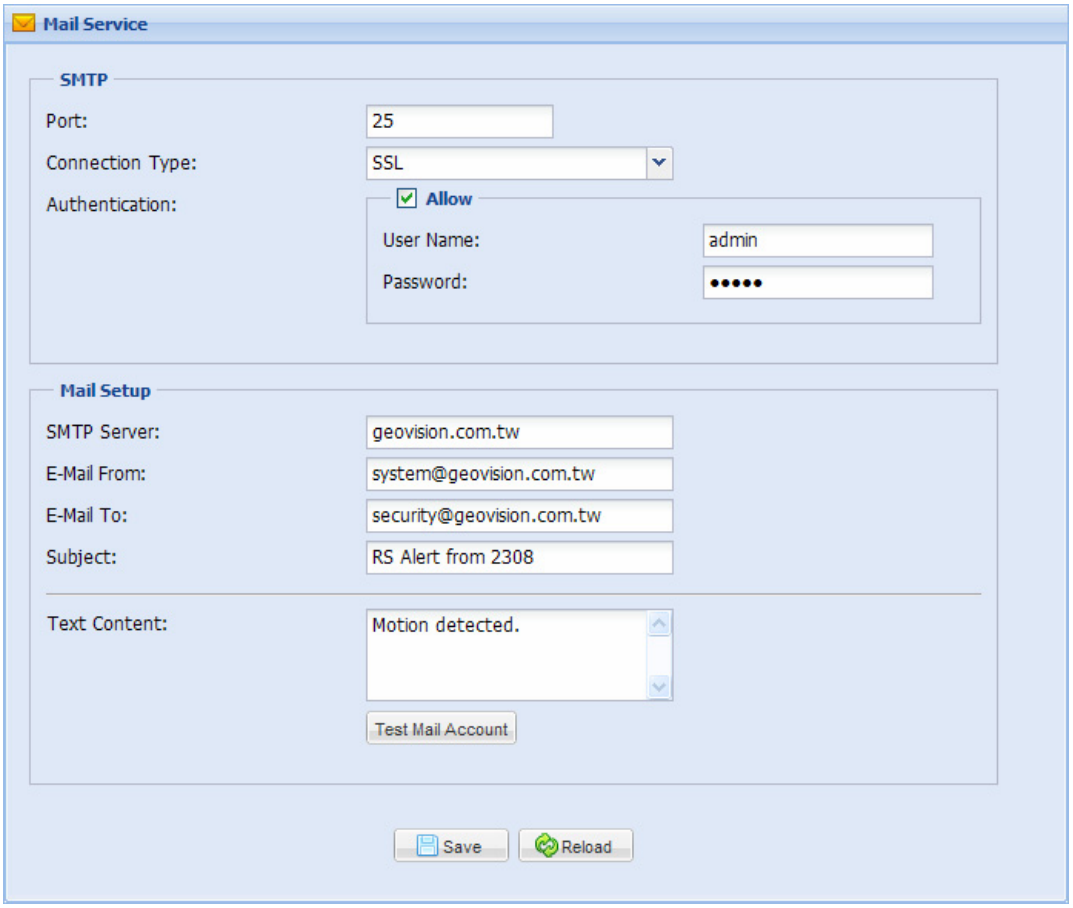


Figure 5-27

[SMTP Setting]

- **Port:** The default port for most SMTP servers is 25. However webmail Yahoo and Hotmail generally use different SMTP port. In this case, check your e-mail provider for the SMTP port number.
- **Connection Type:** For a more secure connection, use the drop-down list to select **SSL** or **TLS/STARTTLS**.
- **Authentication:** If your mail server needs login authentication, select **Allow** and type your login account name and password.

[Mail Setup]

- **SMTP Server:** Type your mail server's URL address or IP address.
- **E-Mail From:** Type the sender's e-mail address.
- **E-Mail To:** Type the recipient's e-mail address. For multiple recipients, add a semicolon between each e-mail address.
- **Subject:** Type a subject that comes with the alert message.
- **Text Content:** Type the content of the alert message.
- **Test Mail Account:** Click this button to send a test e-mail to the assigned account.

5.4.4 Remote ViewLog

Through the network, you can remotely retrieve the files recorded by GV-Recording Server and play back video. To see how to connect to GV-Recording Server using Remote ViewLog, see *7.4 Connecting with Remote ViewLog*.

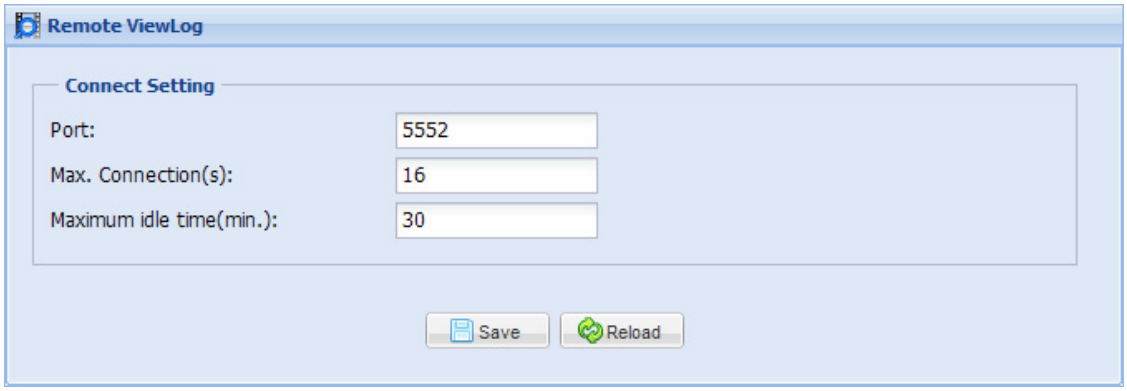


Figure 5-28

- **Port:** Keep the default port 5552 or modify to match the setting on Remote ViewLog.
- **Max. Connection (s):** Type a number to limit the maximum number of connections.
- **Maximum idle time (min.):** Users connecting from Remote ViewLog will be disconnected after being idle longer than the time period specified.

5.5 Advanced Management

The Advanced Management section allows you to set up E-map, connection to GV-GIS, user accounts and advanced query.

5.5.1 E-map

E-Map displays the area being monitored on Google Maps, which allows the operator to easily locate the IP video devices.

To set up E-Map:

1. Click **E-Map Editor** at the bottom of the E-map page. This window appears.

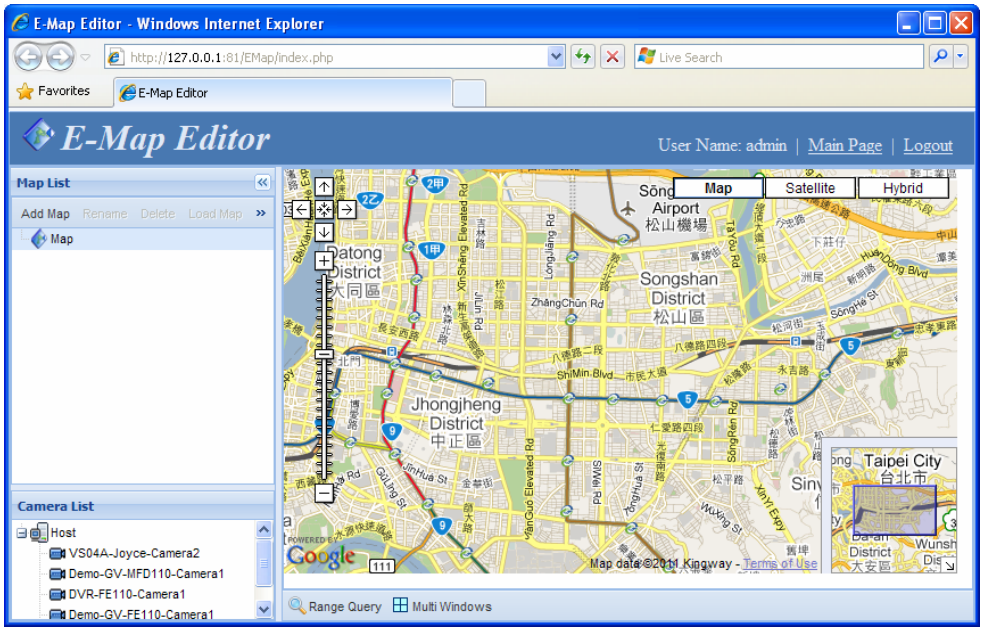


Figure 5-29

2. Drag the camera from the Camera List and drop in the Google map to indicate the location of the camera.

3. Right-click the camera icon and click **Live View** to see the live view of the camera.

Figure 5-30

4. Right-click the camera icon and click **Street View** to see the Google street view of the camera location.

Figure 5-31

5. To change the direction of the camera icon, right-click the icon and select a direction.
6. At the bottom of the page, you can click **Range Query** and a circular area will be highlighted on the map. You can adjust the location and size of the circle and click **Multi Windows** to see the live view of all cameras included in the circle.

7. To insert a floor plan on the Google map, click **Add Map** under Map List. This dialog box appears.

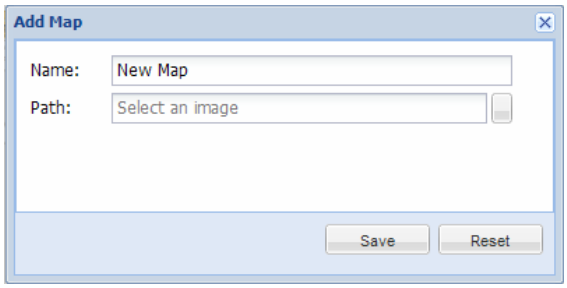


Figure 5-32

8. Type a name for the map and select the path of the graphic file. Click **Save**. A map icon will be created on the Google map.
9. Double-click the map icon and drag the cameras onto the map from the Camera List.

Note: To view Google street view, you need to install Adobe Flash Player version 10 or later. The Google street view may not be available in your location.

5.5.2 GIS

You can send the GPS data of connected IP video devices to the GV-GIS for location verification and vehicle tracking.

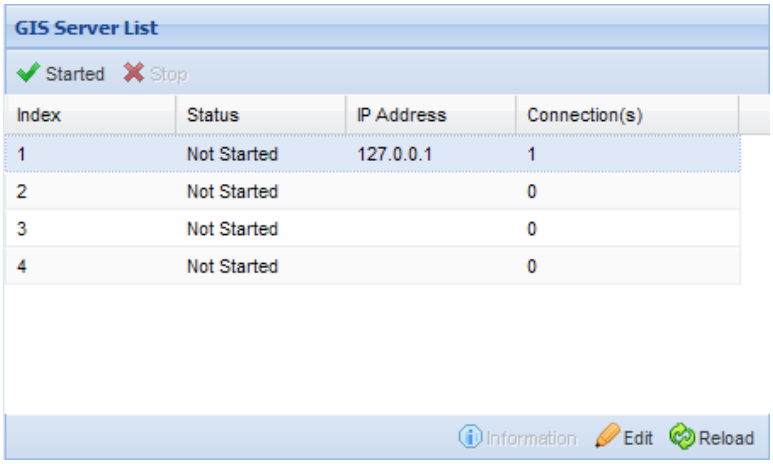


Figure 5-33

To connect with the GV-GIS, the **Mobile Host** accounts for each IP video device need to be created on the GV-GIS station in advance. You can send the GPS data to up to 4 GV-GIS stations simultaneously.

Note: The GV-Recording Server is only compatible with GV-GIS of version 3.0 or later.

---

1. Select a GV-GIS server and click the **Edit** button. This dialog box appears.

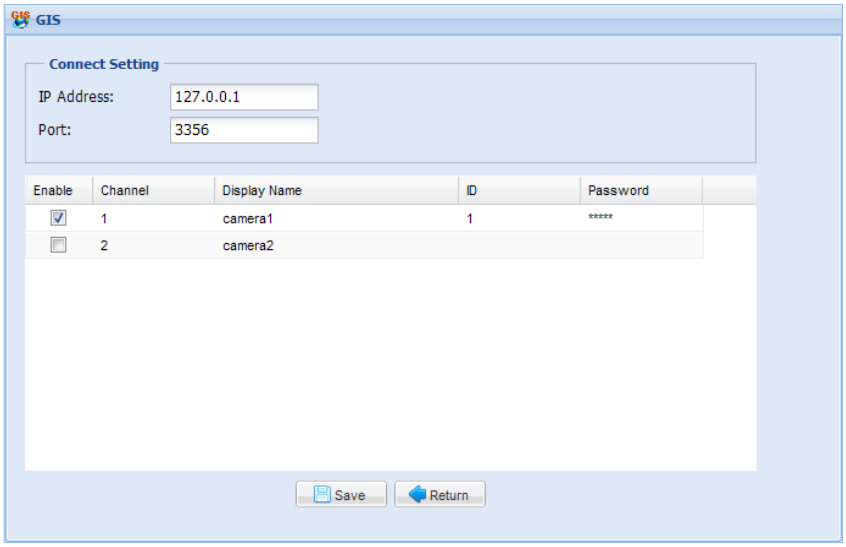


Figure 5-34

2. Type the **IP Address** of the GV-GIS. Keep the default port 3356 or modify to match the settings on GV-GIS.
3. Select the cameras.
4. Click on the fields under **ID** and **Password** to type the individual ID and Password created in GV-GIS for cameras.
5. Click **Save** and return to GIS Server List. The total number of to-be-connected IP cameras is displayed in the Connection (s) column in the GIS Server List.
6. Click the GV-GIS server and click the **Start** button.
7. After the GV-GIS server is started, you can click the **Information** button to see the connection status of the GV-GIS server.

5.5.3 User Account

You can create up to 1000 User and Supervisor accounts to access GV-Recording Server. The Supervisor accounts have full access to GV-Recording Server, and you can set up different level of access rights for the User accounts.

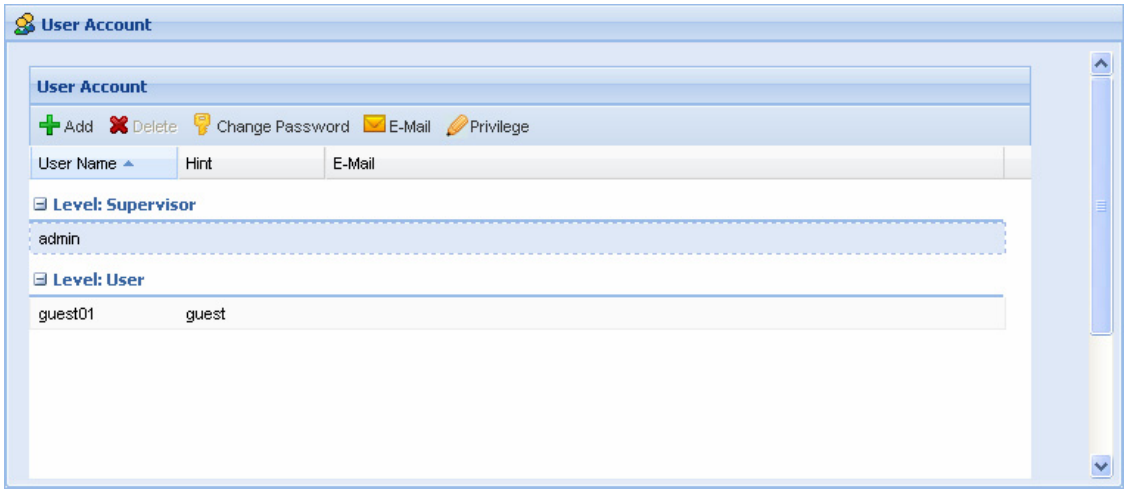


Figure 5-35

To create an account:

1. Click the **Add** button

. This dialog box appears.

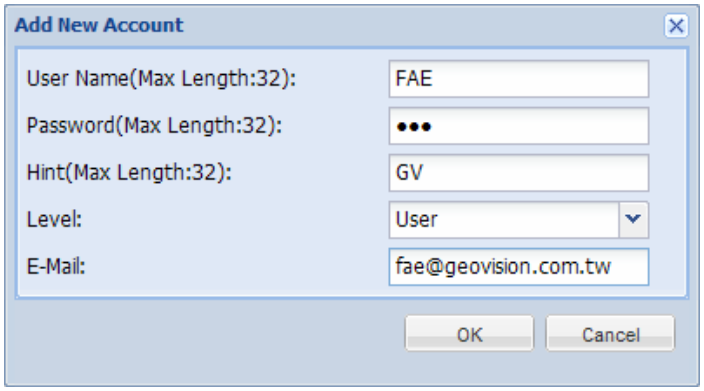


Figure 5-36

2. Type the **User Name**, **Password** and a password **Hint** for the account.
3. Use the **Level** drop-down list to select **Supervisor** or **User**.
4. Type an e-mail address for the account. When you forget the password, the password can be sent to your e-mail account using the Forget Password link in the login page.
5. Click **OK** to return to the User Account List. You can edit the account setting using the **Change Password** and **E-Mail** button.

To set access rights:

1. Select a user account and click the **Privilege** button . This dialog box appears.

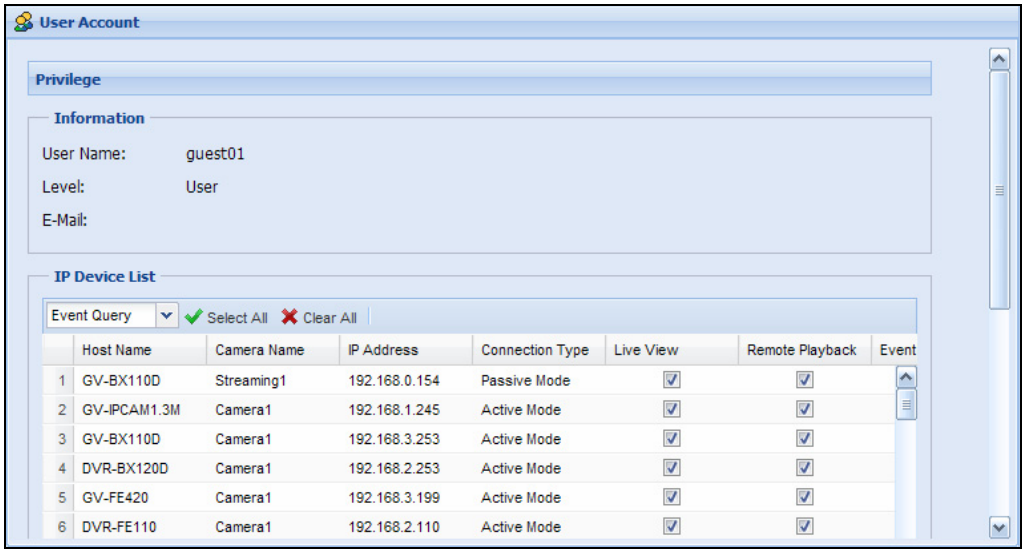


Figure 5-37

2. The cameras listed in the IP Device List are displayed. Select to allow the user to access the **Live View**, **Remote Playback** and **Event Query** of the camera.
3. You can **Select All** cameras or **Clear All** selected cameras for each function by using the drop-down list above the camera list.

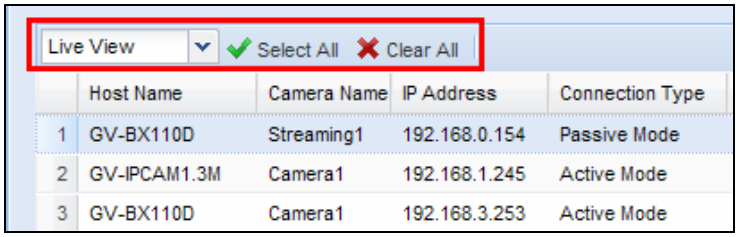


Figure 5-38

4. Click **Save**.

5.5.4 Advanced Query

Using Advanced Query, you can see the live view of the cameras in Working Camera List, as well as search for events to remotely play back recorded videos. In addition, you can query GV-Recording Server system logs and look up graphical charts of event analysis.

The Advanced Query interface is the same as the Web interface when logging in GV-Recording Server through client user account. For more details on Advanced Query, refer to *Chapter 6 User Mode*.

Chapter 6 User Mode

The GV-Recording Server administrator can create client user accounts with different access rights to its Web interface. Refer to *5.5.3 User Account* to see how to create user accounts for clients. After the client account is created, follow the steps below to access the Web interface in User Mode.

1. In the Location/Address field of Internet Explore, type the IP address or the domain name of the GV-Recording Server.

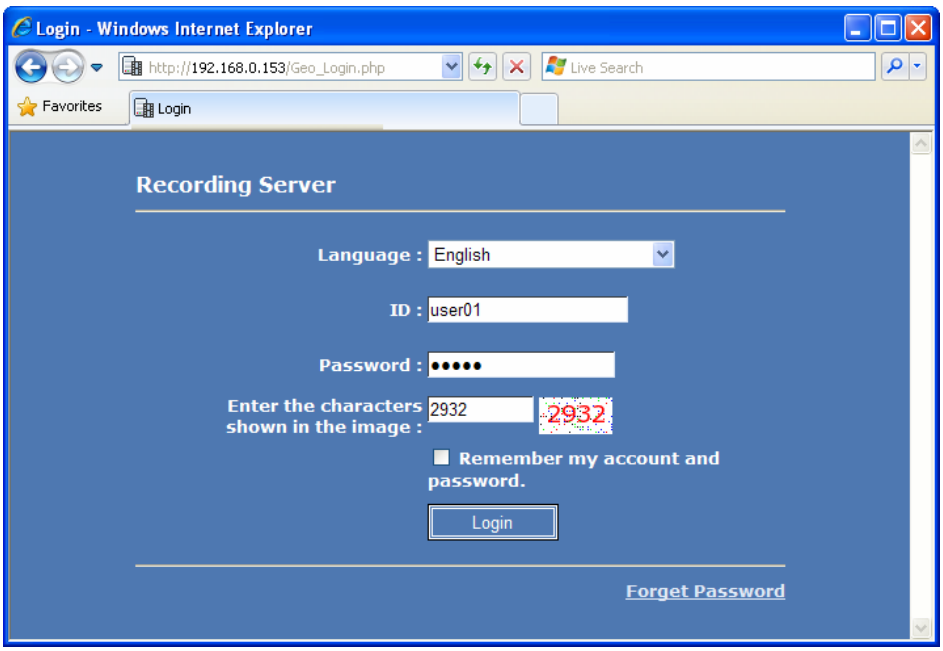


Figure 6-1

2. In the login page of the GV-Recording Server Web interface, type the **ID** and the **Password** of the client account.
3. Type the verification number shown in the image.
4. Click **Login**. The GV-Recording Server Web interface is now displayed.

Note: The GV-Recording Server supports several browsers to access its Web interface. However, if you are the user of Firefox, Google Chrome and Safari, you can only access single live view by using Quick Time player, and you cannot play back recorded files.

6.1 Single Live View

In the left menu, expand **Live View** and select **One Channel** to display the Single Live View. Use the Working Camera List drop-down list to select a camera.

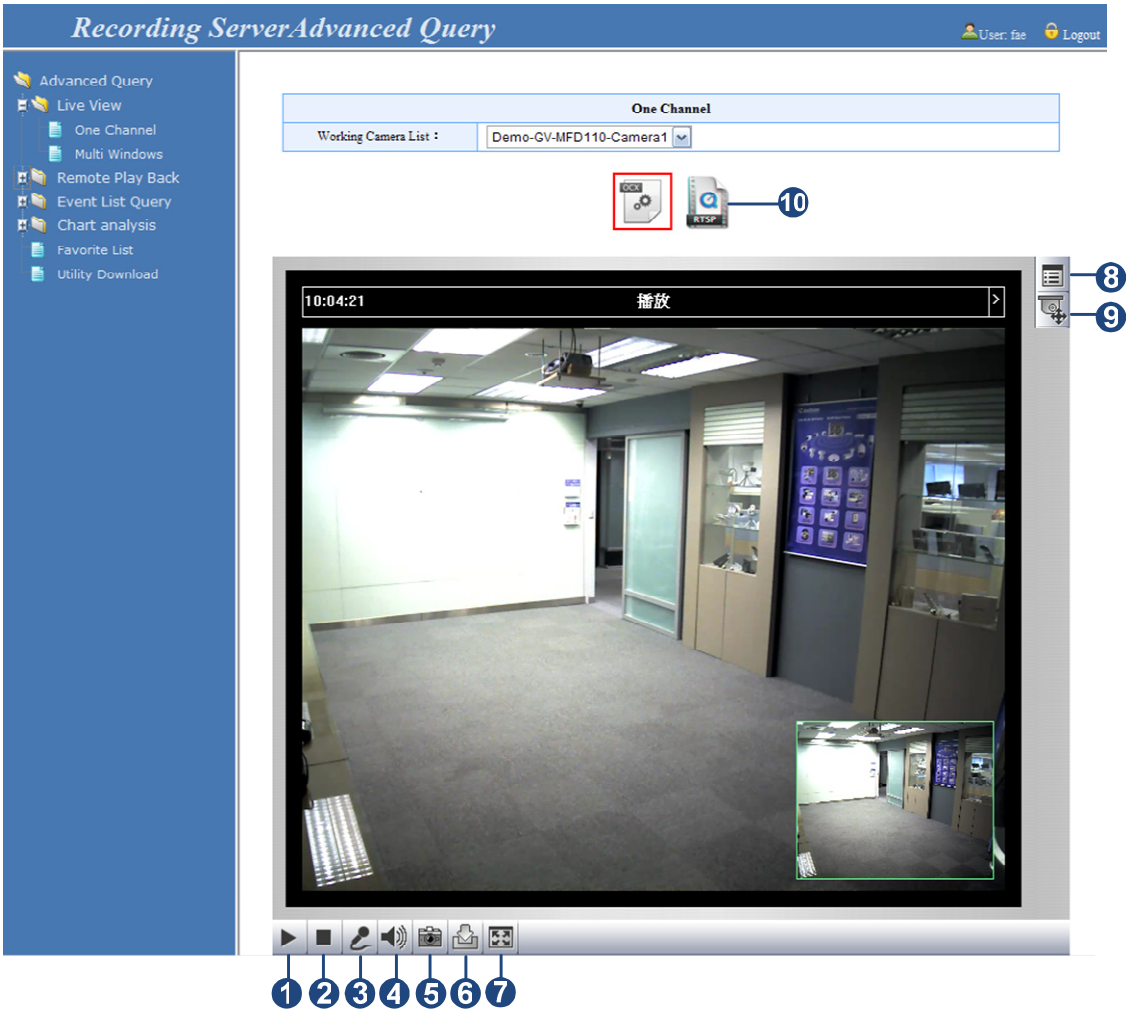


Figure 6-2

No.	Name	Description
1	Play	Plays live video.
2	Stop	Stops playing video.
3	Microphone	Talks to the surveillance area from the local computer.
4	Speaker	Listens to the audio around the camera.
5	Snapshot	Takes a snapshot of live video.
6	Download	Records live video to the local computer.
7	Full Screen	Switches to full screen view. Right-click the image to have these options: **Snapshot, Resolution, PIP, PAP, Geo Fisheye, IMV1 Panomorph, Google Maps, Zoom In** and **Zoom Out**.

8	Option	Select **Show Camera Name** to show camera name on image and select **Image Enhance** to access the **De-interlace**, **De-block** and **DirectDraw** functions.
9	PTZ Control	Starts the PTZ control Panel and the Virtual PTZ.
10	RTSP	Select RTSP to access live view using browsers other than Internet Explorer. You will need to install Quick Time first. Note that only single live view in H.264 codec is supported in this mode.

Note: Only Quick Time player is supported for single live view through Firefox, Google Chrome and Safari.

6.1.1 Control Panel

To open the control panel of the Live View window, click the arrow button on top of the viewer. You can access the following functions by using the left and right arrow buttons on the control panel.

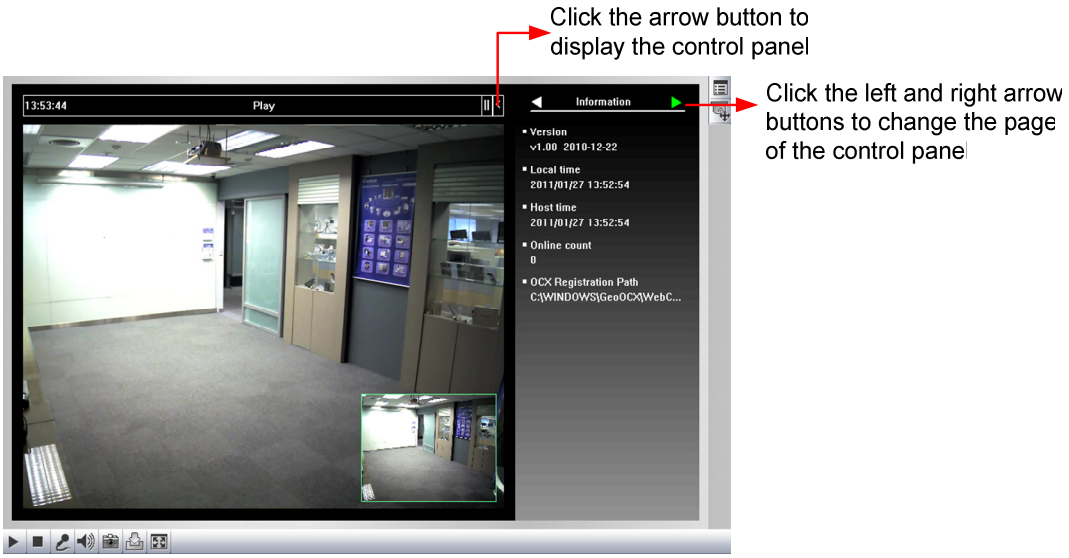


Figure 6-3

[Information] Displays the version of the camera, local time of the local computer, host time of the camera, and the number of users logging in to the camera.

[Video] Displays the current video codec, resolution and data.

[Audio] Displays the audio data rates when the microphone and speaker devices are enabled.

[GPS] For details see *6.1.8 GPS Maps Setting*.

[Camera Adjustment] Allows you to adjust the image quality.

6.1.2 Snapshot of a Live Video

To take a snapshot of live video, follow these steps:

1. Click the **Snapshot** button (No. 5, Figure 6-2). The Save As dialog box appears.
2. Specify **Save in**, type the **File name**, and select **JPEG** or **BMP** as **Save as Type**. You may also choose whether to display the name and date stamps on the image.
3. Click the **Save** button to save the image in the local computer.

6.1.3 Video Recording

You can record live images for a certain period of time to your local computer.

1. Click the **Download** button (No. 6, Figure 6-2). The Save As dialog box appears.
2. Specify **Save in**, type the **File name**, and move the **Time Period** scroll bar to specify the time length of the video clip from 1 to 5 minutes.
3. Click the **Save** button to start recording.
4. To stop recording, click the **Stop** button (No. 2, Figure 6-2).

6.1.4 Picture-in-Picture and Picture-and-Picture View

The full screen mode provides two types of close-up views: **Picture-in-Picture (PIP)** and **Picture-and Picture (PAP)**. The two views are useful in providing clear and detailed images of the surveillance area.

To access this feature:

- Click the **Full Screen** button (No. 7, Figure 6-2). Right-click the full screen to select **PIP** or **PAP**.
- Right-click the live view to select **PIP** or **PAP**.

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.

Figure 6-4

1. Select **PIP**. An inset window appears.
2. Click the insert window. A navigation box appears.
3. Move the navigation box around in the inset window to have a close-up view of the selected area.
4. To adjust the navigation box size, move the cursor to any of the box corners, and enlarge or diminish the box.
5. To exit the PIP view, right-click the image and click **PIP** again.

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.

Figure 6-5

1. Select **PAP**. A row of three inset windows appears at the bottom.
2. Draw a navigation box on the image, and this selected area is immediately reflected in one inset window. Up to seven navigation boxes can be drawn on the image.
3. To adjust a navigation box size, move the cursor to any of the box corners, and enlarge or diminish the box.
4. To move a navigation box to another area on the image, drag it to that area.
5. To change the frame color of the navigation box or hide the box, right-click the image, select **Mega Pixel Setting** and click one of these options:
   - **Display Focus Area of PAP Mode:** Displays or hides the navigation boxes on the image.
   - **Set Color of Focus Area:** Changes the color of the box frames.
6. To delete a navigation box, right-click the desired box, select **Focus Area of PAP Mode** and click **Delete**.
7. To exit the PAP view, right-click the image and click **PAP** again.

6.1.5 Video and Audio Configuration

You can enable the microphone and speaker for two-way audio communication, and adjust the audio volume. To access this feature, click the **Microphone** button (No. 3, Figure 6-2) or the **Speaker** button (No. 4, Figure 6-2).

Note:

1. To listen to the audio, the **Audio** function (Figure 5-11) must be enabled on the GV-Recording Server in advance.
2. The two-way audio communication only works for GV-IP device connected through active mode.

6.1.6 PTZ Control

To open the PTZ control panel, click the **PTZ Control** button (No. 8, Figure 6-2) and select **PTZ Control Panel**. Different PTZ devices have different functions, so the features included in the **Option** button may vary.

This feature is only available when the connected IP camera has the PTZ function.

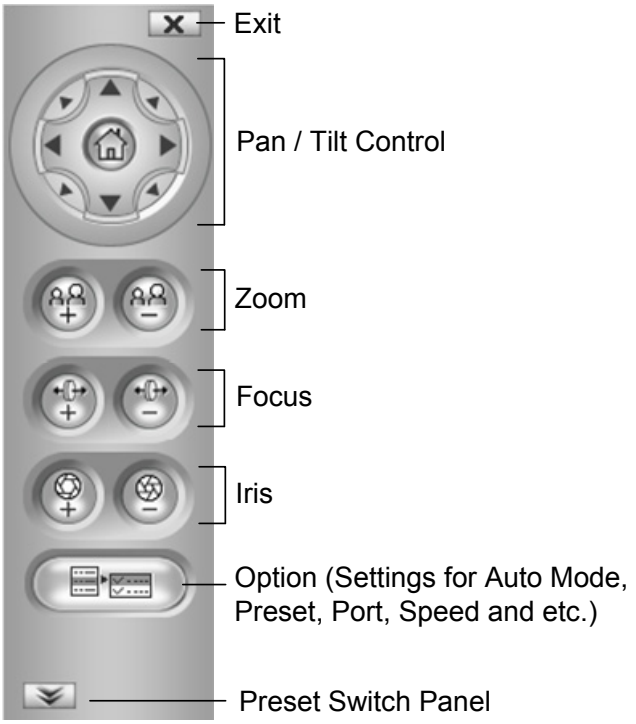


Figure 6-6

6.1.7 Visual PTZ

In additional to the PTZ control panel, you can display a visual PTZ control panel on the image. This feature is only available when the connected IP camera has the PTZ function.

Figure 6-7

- To access this feature, click the **PTZ Control** button (No. 8, Figure 6-2) and select **Visual PTZ**.
- To change the panel settings, click the green **PTZ** button on the top left corner. You will have these options:

  [PTZ Control Type]

  - **Fixed Direction Move:** In this mode, the dome view can only be moved to the eight directions (north, south, east, west, northeast, northwest, southeast and southwest). To move the camera view, click and hold on to the dotted red line further from the panel. The round panel appears when moving the mouse to the live view.
  - **Random Move:** In this mode, you can move the camera view to any direction. Click any place on the live view for the panel to appear, and right-click for the panel to hide. To move the camera view, click and hold on to a desired direction. Click further for the camera view to move faster.
  - **Center Move:** In this mode, you can zoom in and out using the mouse scroll or by drawing a block directly on the live view. The **Center Move** mode is only for GV-SD220.

[Configure]

- **Set Color:** Changes the color of the panel. Three kinds of colors are available: **Red**, **Green** and **Blue**.
- **Transparent Degree:** Adjusts the transparency level of the panel. Ten levels range from 10% (fully transparent) to 100% (fully opaque).

6.1.8 Camera Name Display

To display the camera name on the image, click the **Options** button (No. 8, Figure 6-2), and select **Show Camera Name**.

6.1.9 Image Enhancement

To enhance the image quality of live video, click the **Options** button (No. 8, Figure 6-2), and select **Image Enhance**. This dialog box appears.

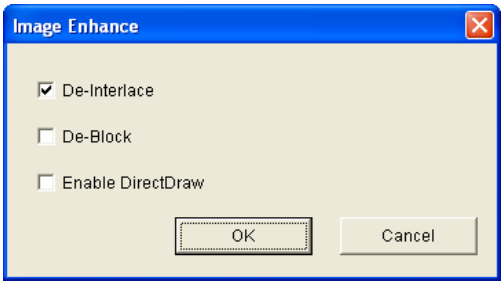


Figure 6-8

- **De-Interlace:** Coverts the interlaced video into non-interlaced video.
- **De-Block:** Removes the block-like artifacts from low-quality and highly compressed video.
- **Enable DirectDraw:** Activates the DirectDraw function.

6.1.10 GPS Tracking

The GPS page allows you to see the location of the connected IP video device on Google maps. The GPS location can only be displayed when the connected IP video device is installed with the GPS equipment and the GPS function is enabled on the device.

Figure 6-9

To track the location of the connected IP video device:

1. Click **Start** to activate GPS tracking. The longitude, latitude and host name of the connected IP video device will be displayed.
2. To save the location information to your local computer, select **Save message** and click **[…]** to assign the storage path.
3. Click **Open**. A dialog box appears.
4. Enter the **Google Maps API key**. Refer to *5.5.1 E-map* to see how to obtain a Google Maps API Key.

5. Click **OK**. A warning message appears.

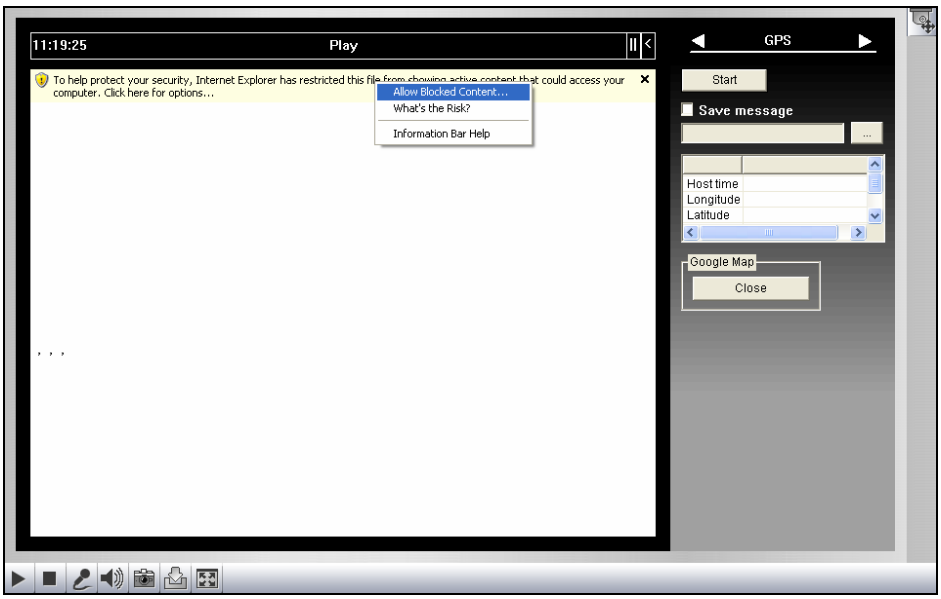


Figure 6-10

6. Right-click the warning message and select **Allow Blocked Content**. The map will be displayed. The icon indicates the location of the IP video device. At the upper right corner you have options to view different map formats, such as Satellite and Hybrid.

Figure 6-11

6.2 Multi-Channel Live View

In the left menu, expand **Live View** and select **Multi Windows** to display up to 16 channels of live images.

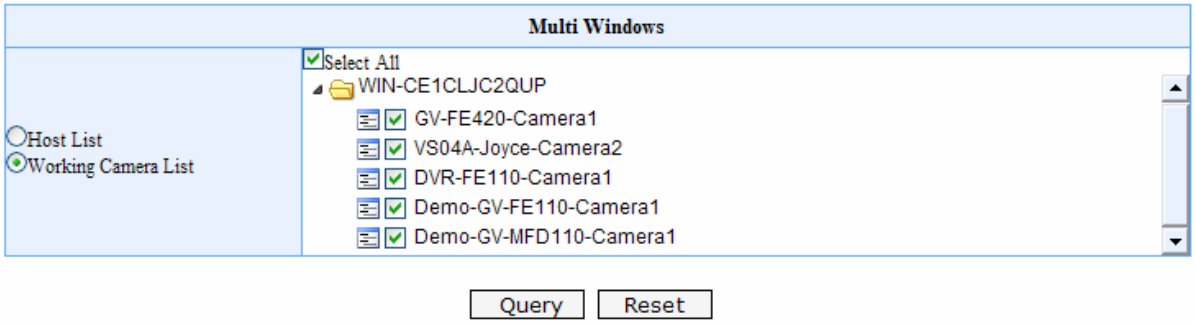


Figure 6-12

1. Select **Working Camera List** or **Host List** to list all connecting cameras or list cameras by IP video devices.
2. Double-click server name and select the cameras, or select **Select All**.
3. Click **Query** to access the live view.

Note: Only Internet Explorer browser is supported for multi-channel live view.

6.3 Emap Query

In the left menu, expand **Live View** and select **Emap Query** to see the cameras' locations on Google Maps and play the live images of the camera or the Google Street View of the location.

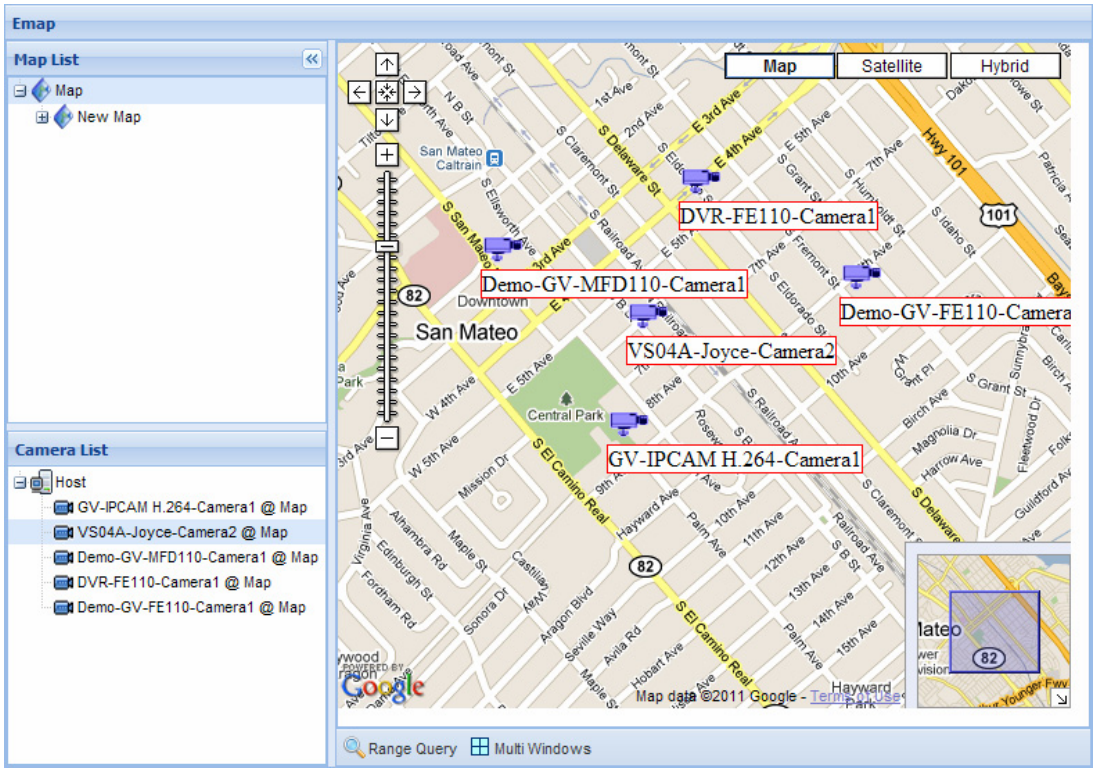


Figure 6-13

1. In the Camera List, double-click a camera to locate the camera on Google Maps.
2. Right-click the camera icon and click **Live View** to see the live view of the camera or click **Street View** to see the Google Street View of the camera location.
3. At the bottom of the page, you can click **Range Query** and a circular area will be highlighted on the map. You can adjust the location and size of the circle and click **Multi Windows** to see the live view of all cameras inside the circle.

Note: This page is only available when at least one camera is added to Emap.

6.4 Remote Playback

In the left menu, expand **Remote Playback** and select **Event List Query** to search for camera events during a time period and play back the recorded events.

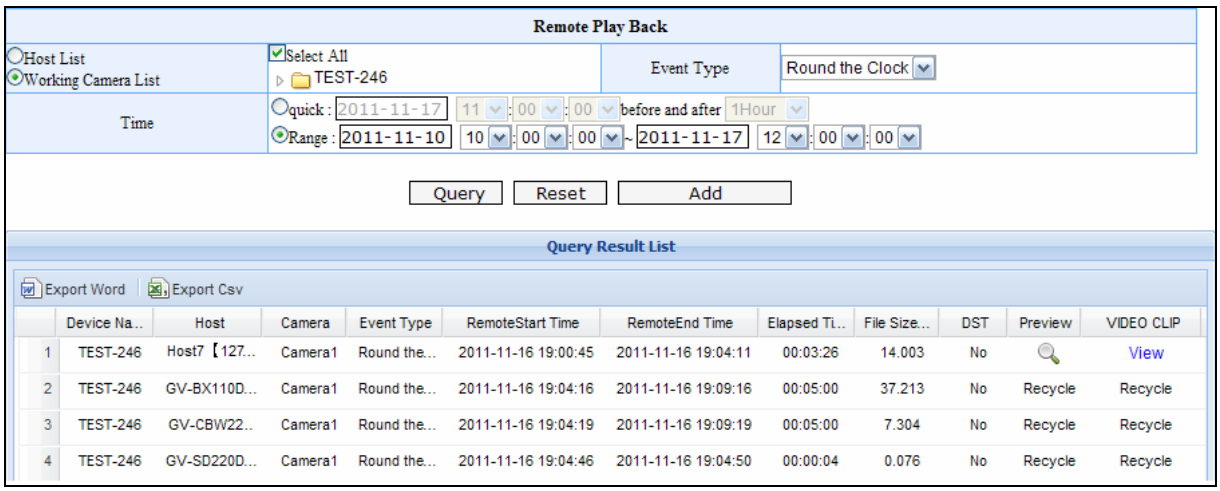


Figure 6-14

1. Select **Working Camera List** or **Host List** to list all connecting cameras or list cameras by IP video devices.
2. Double-click the server name and select the cameras, or select **Select All**.
3. Use the **Event Type** drop-down list to select the type of event to include in the search results.
4. In the **Time** section, select **Quick** to specify a time period before and after a time point or select **Range** to specify a time range directly.
5. Click **Query** to see the search results.
6. To preview a snapshot of the video, click the **Preview** button . To see the recorded video, click **View** under Video Clip.

You can click the **Add** button to save the search criteria to the **Favorite List** in the left menu for future use. You can also export the search results in word format and excel format by clicking **Export Word** or **Export Csv**.

Note:

1. Only Internet Explorer browser is supported for Remote Playback function.
2. When more than 10000 search results are found, browsing through the search results pages may take a long time.

6.5 Composite Information Query

Using the **Composite Information Query** under **Event List Query**, you can search for camera events during the time period specified, see the location of the camera on Emap, watch camera live view and play back recorded events.

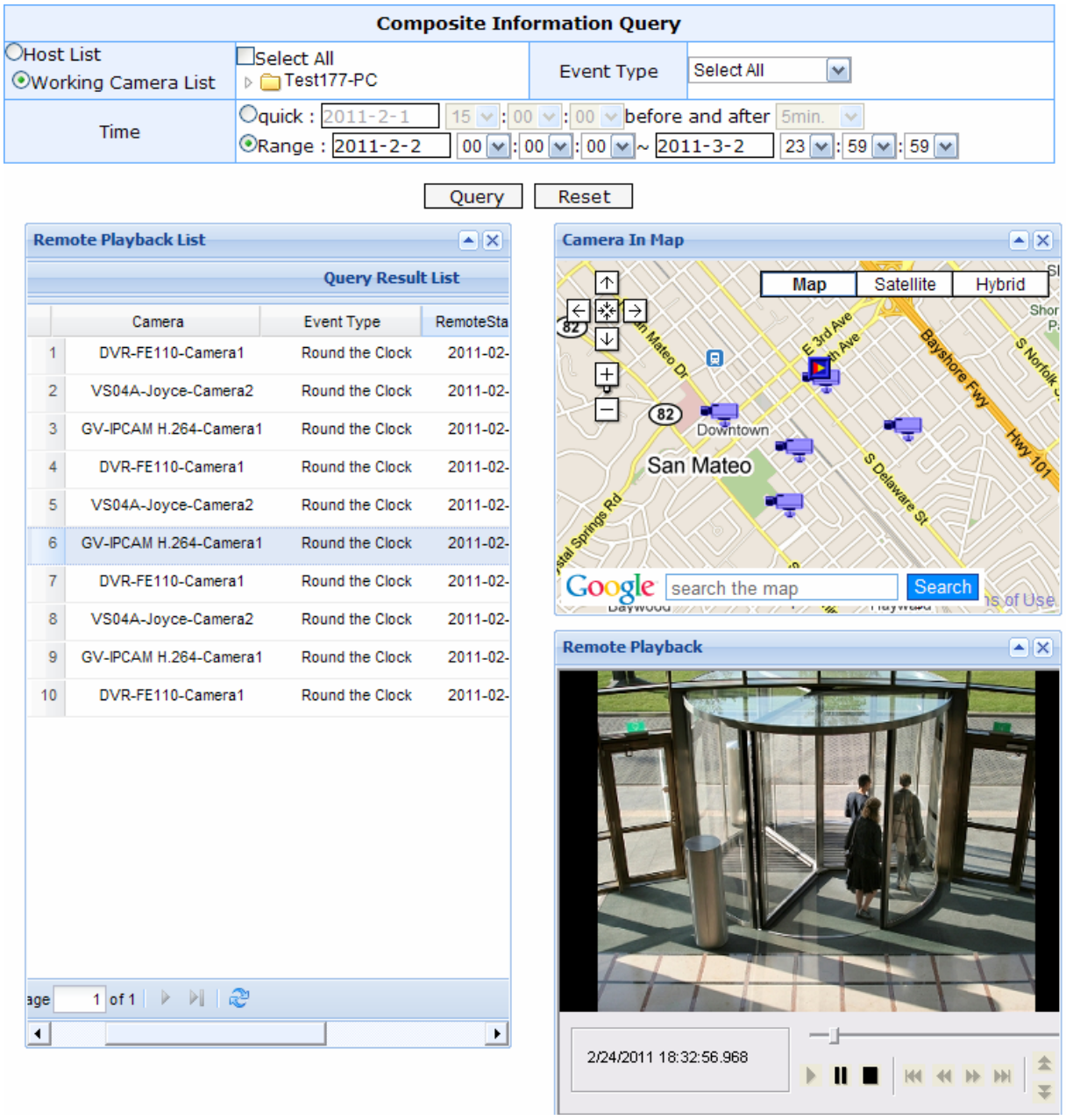


Figure 6-15

1. Select **Working Camera List** or **Host List** to list all connecting cameras or list cameras by IP video devices.
2. Double-click the server name and select the cameras, or select **Select All**.
3. Use the **Event Type** drop-down list to select the events to include in the search results.

4. In the **Time** section, select **Quick** to specify a time period before and after a time point or select **Range** to specify a time range directly.
5. Click **Query** to see the search results. To see the live view of a camera, select the camera and click the play button in the map.

Note:

1. This page is only available when at least one camera is added to Emap.
2. When more than 10000 search results are found, browsing through the search results pages may take a long time.

6.6 System Log Query

Using the System Log Query, you can search the system events of GV-Recording Server, such as camera connection, HTTP server activation, video recycling, and USB Protection Key status etc. To access this query, expand **Event List Query** and select **System Log Query**.

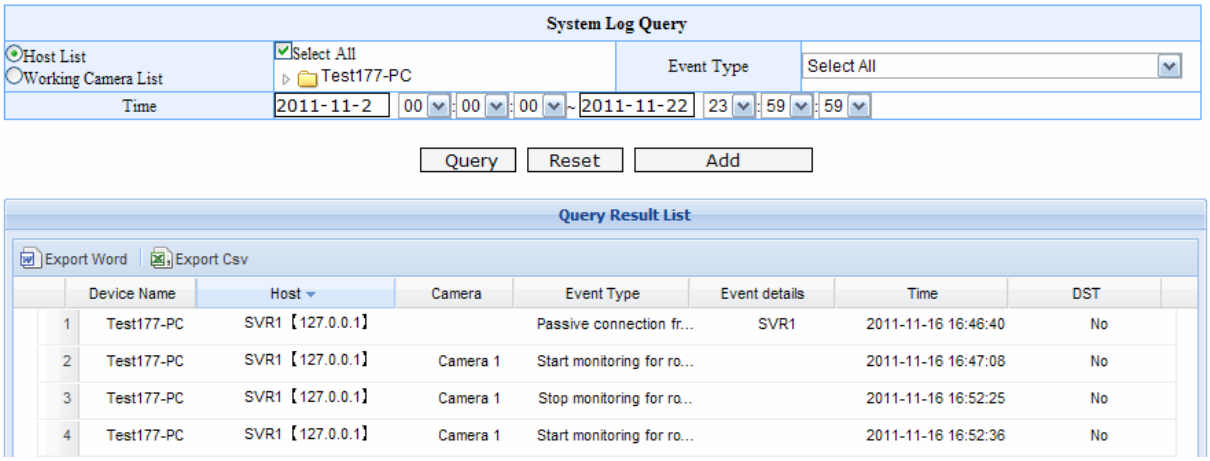


Figure 6-16

1. Select **Working Camera List** or **Host List** to list all connecting cameras or list cameras by IP video devices.
2. Double-click the server name and select the cameras, or select **Select All**.
3. Use the **Event Type** drop-down list to select the type of event to include in the search results.
4. In the **Time** section, select a period of time.
5. Click **Query** to see the search results.

You can click the **Add** button to save the search criteria to the **Favorite List** in the left menu for future use. You can also export the search results in word format and excel format by clicking **Export Word** or **Export Csv**.

6.7 Behavior Log Query

Using the Behavior Log Event Query, you can search the events of Supervisor's activities, such as adding a host, adding a user, modifying port, previewing video images and etc. To access this query, expand **Event List Query** and select **Behavior Log Query**.

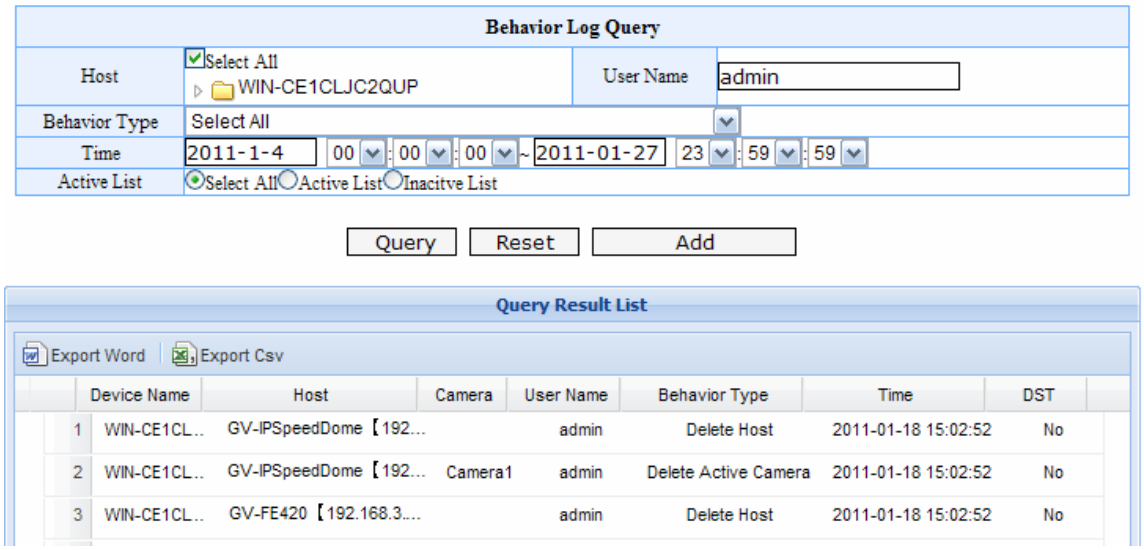


Figure 6-17

1. In the **Host** section, click the server name and select the cameras, or select **Select All**.
2. In the **User Name** section, type the Supervisor's or a client's name. You can also leave the field blank to search all users that have logged into and out the GV-Recording Server.
3. Click the server name and select the cameras, or select **Select All**.
4. Use the **Behavior Type** drop-down list to select the type of event to include in the search results.
5. In the **Time** section, select a period of time.
6. In the **Active List** section, select **Active List** to search the connecting hosts, **Inactive List** to search the disconnected hosts, or click **Select All**.
7. Click **Query** to see the search results.

You can click the **Add** button to save the search criteria to the **Favorite List** in the left menu for future use. You can also export the search results in word format and excel format by clicking **Export Word** or **Export Csv**.

6.8 Login / Logout Query

Using the Login and Logout Query, you can search the login and logout information of Supervisor and clients. To access this query, expand **Event List Query** in the left menu and select **Login/Logout Query**.

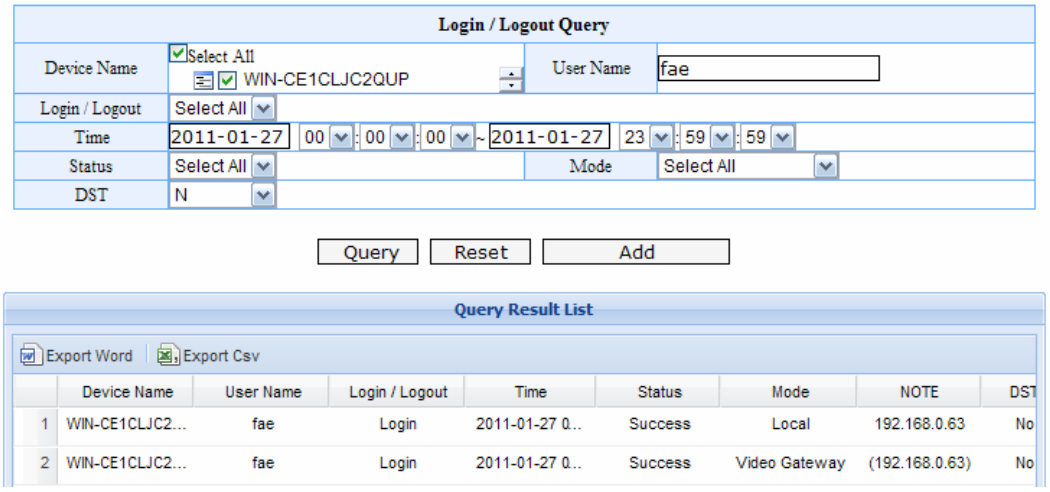


Figure 6-18

1. In the **Device Name** section, click the server name and select the cameras, or select **Select All**.
2. In the **User Name** section, type the Supervisor's or a client's name. You can also leave the field blank to search all users that have logged in and out the GV-Recording Server.
3. In the **Login/Logout** section, select one type of event or **Select All**.
4. In the **Time** section, select a period of time.
5. In the **Status** section, select login **Fail** or **Success**.
6. In the **Mode** section, select **Video Gateway**.
7. In the **DST** section, select **Select All** to search all events including DST (Daylight Saving Time) events, **Y** to only search DST events or **N** not to search DST events.
8. Click **Query** to see the search results.

You can click the **Add** button to save the search criteria to the Favorite List in the left menu for future use. You can also export the search results in word format and excel format by clicking **Export Word** or **Export Csv**.

6.9 Chart Analysis

Using the Chart Analysis, you can see the following types of data analysis presented in three types of graph: bar, pie and line graph.

- **System Analysis of Event Count:** Shows event counts of each type of system event.
- **Monitor Analysis of Event File Size:** Shows the total file size of events recorded under each recording policy.
- **Monitor Analysis of Event Count:** Shows event counts of events recorded under each recording policy.
- **Monitor Analysis of Time File Size:** Shows total file size of all videos recorded in a month, a day and an hour.

To search for System Analysis of Event Count, Monitor Analysis of Event File Size, or Monitor Analysis of Event Count, follow the steps below:

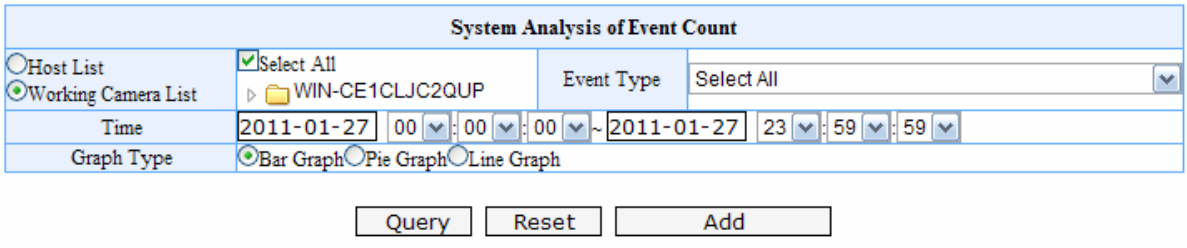


Figure 6-19

1. Select **Working Camera List** or **Host List** to list all connecting cameras or list cameras by IP video devices.
2. Click the server name and select the desired IP video devices, or select **Select All**.
3. In the **Event Type** section, select one type of event or **Select All**.
4. In the **Time** section, select a period of time.
5. Select a type of graph.
6. Click **Query** to display search results.

To search for Monitor Analysis of Time File Size, follow the steps below:

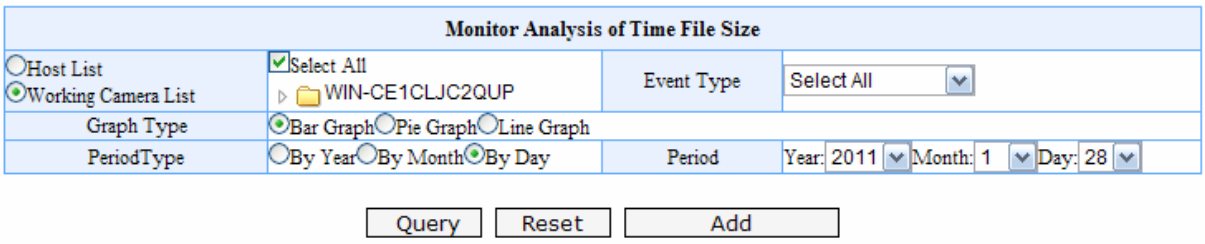


Figure 6-20

1. Select **Working Camera List** or **Host List** to list all connecting cameras or list cameras by IP video devices.
2. Click the server name and select the desired IP video devices, or select **Select All**.
3. In the **Event Type** section, select one type of event or **Select All**.
4. In the **Graph Type** section, select a type of graph.
5. In the **Period Type** section, select By Year to see the total file size of each month in a year, select By Month to see the daily file size in a month or select By Day to see the file size of each hour in a day.
6. In the **Period** section, select the year, month or date depending on the Period Type selected.
7. Click **Query** to display search results.

Chapter 7 Connections with Clients

The GV-Recording Server can simultaneously transmit up to 300 channels to clients. You can establish connection with GV-System, Multi View, Multicast, Remote ViewLog, GV-Control Center and GV-Mobile Server.

7.1 Connecting with GV-System

You need to configure the GV-System to access video streaming from the GV-Recording Server.

1. On the main screen, click the **Configure** button, select **System Configure**, select **Camera Install** and select **IP Camera Install**. This dialog box appears.

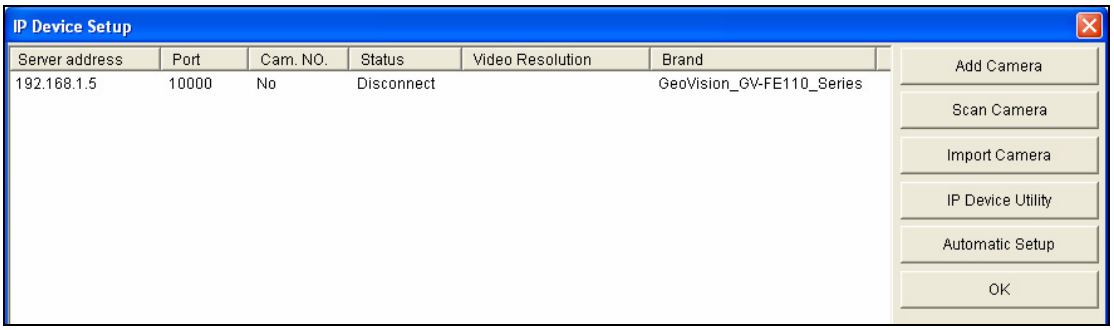


Figure 7-1

2. Click the **Add Camera** button. This dialog box appears.

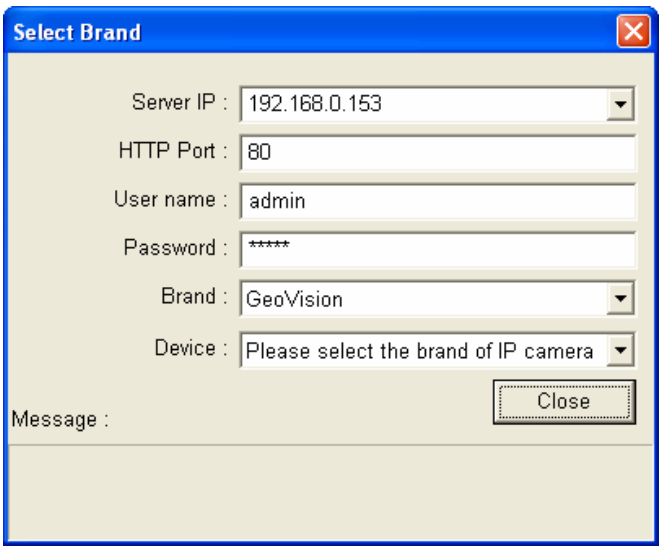


Figure 7-2

3. Type the IP address or domain name of the GV-Recording Server. Keep default HTTP port as 80 or change to match the HTTP port configured in GV-Recording Server. Type the client's username and password created on the GV-Recording Server. Select **GV-Video Gateway / GV-Recording Server** from the Device drop-down list. This dialog box appears.

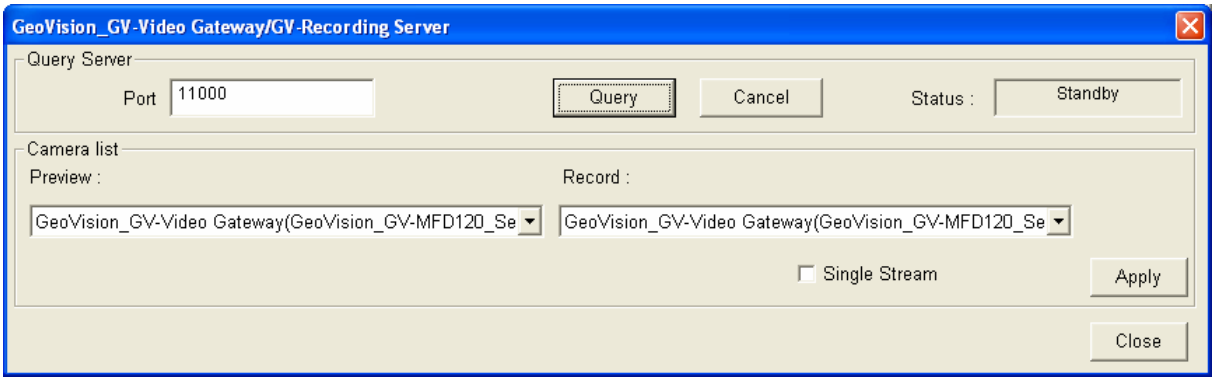


Figure 7-3

4. Keep the default communication port of GV-Recording Server as 11000, or modify the value to match the TCP/IP port on the GV-Recording Server (Figure 5-21). Click the **Query** button to attempt connection to the GV-Recording Server. When the connection is established, the camera options will be displayed in the Preview and Record drop-down lists.
5. Select one camera to be connected. The selections in the Preview and Record drop-down lists will be the same.
6. Click **Apply**. The IP camera is added to the list.
7. To add another IP camera from the GV-Recording Server, click the **Add** button and follow steps 2 to 6. The number of IP cameras you can add is depended on your GV-System's capacity.
8. Click the listed camera, and select **Display Position** to map the IP camera to any channel on the GV-System. After the mapping is completed, the Status column will display "Connected".

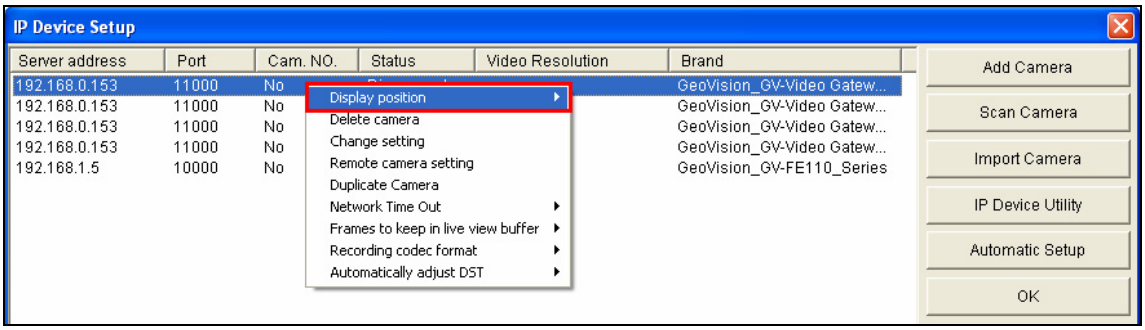


Figure 7-4

9. To listen to live audio from the IP camera, click the **Configure** button, select **A/V Setting**, select **Audio Settings** and select **Wave Out**.

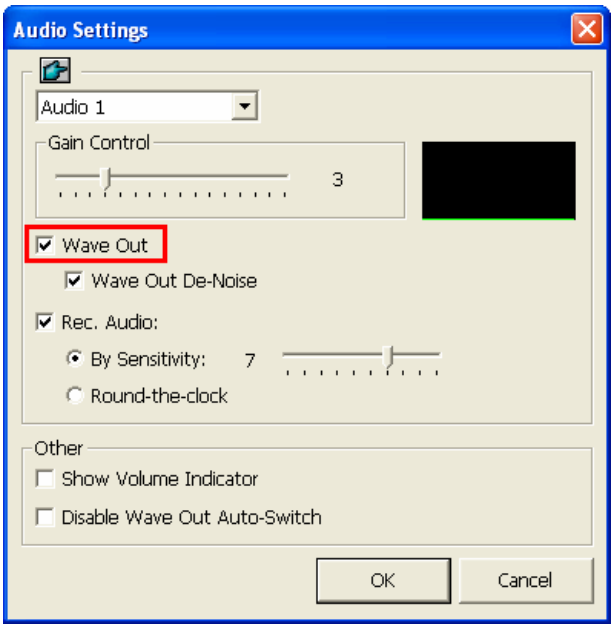


Figure 7-5

10. Click **OK** to exit all open dialog boxes. The IP camera from the GV-Recording Server is now displayed at specified channel.
11. To talk to the surveillance area of the IP camera, right-click its mapped channel, select **Camera x** and select **Talk Back Toggle**.

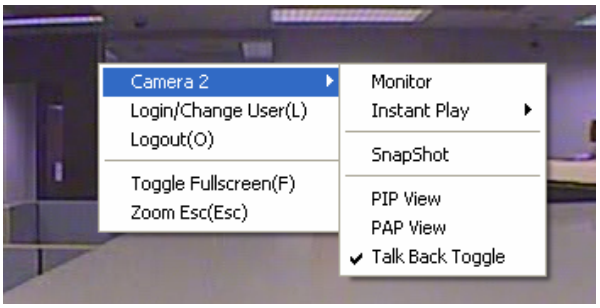


Figure 7-6

7.2 Connecting with Multi View

You can install MultiView from the Software DVD or download Multi View through the Web interface of GV-Recording Server. In the left menu, click **Advanced Query** and in the window that pops up, select **Utility Download**. Click the **Download** button of **DMMultiView** to download the program.

After installing the program, you need to log in the Multi View to access video streaming from the GV-Recording Server.

1. In the login dialog box, click the **Edit** button. This dialog box appears.

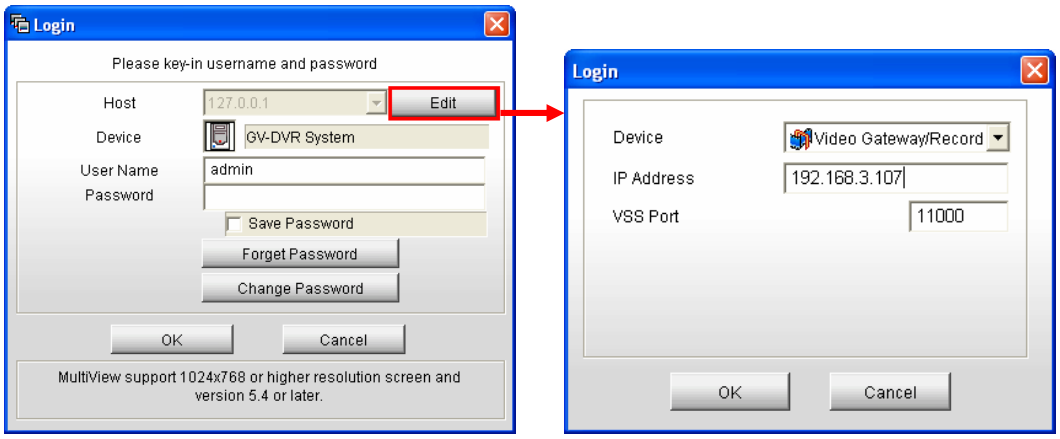


Figure 7-7

2. Select **Video Gateway / Recording Server** from the Device drop-down list.
3. Type IP address or domain name of the GV-Recording Server.
4. Keep the default VSS Port as 11000; otherwise modify it to match the TCP/IP port on the GV-Recording Server (Figure 5-21).
5. Click **OK** to return to the login page.

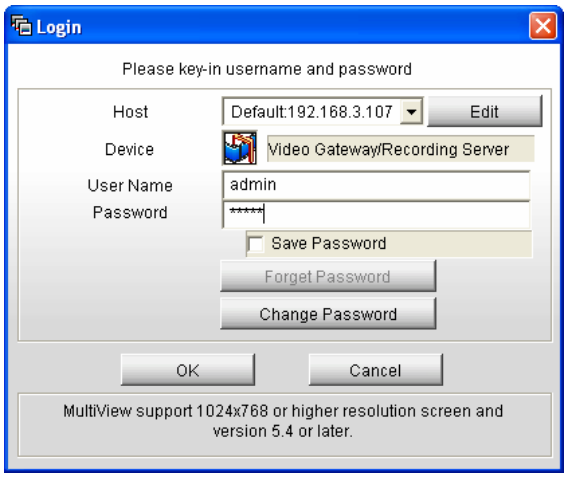


Figure 7-8

6. Type the client's username and password created on the GV-Recording Server.
7. Click **OK** to login.
8. The GV-Recording Server created on the Host list will be listed. Drag and drop its IP cameras to the desired channels on the Multi View.

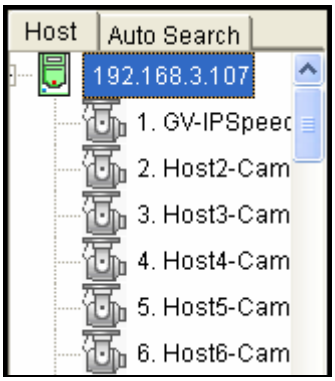


Figure 7-9

For details on the Multi View functions, see "Multi View Viewer", *Chapter 8 Remote Viewing*, *GV-DVR User's Manual* on the Software DVD.

7.3 Connecting with Multicast

The Multicast view allows you to receive video and audio streams from a multicast group. You will need to first enable the multicast function as described in *5.3.5 Video Gateway*.

You can install Multicast from the Software DVD or download it from the Web interface of GV-Recording Server. In the left menu, click **Advanced Query** and in the window that pops up, select **Utility Download**. Click the **Download** button of **GVMulticastSetup** to download the program. After downloading the program, open the zipped file and run the program.

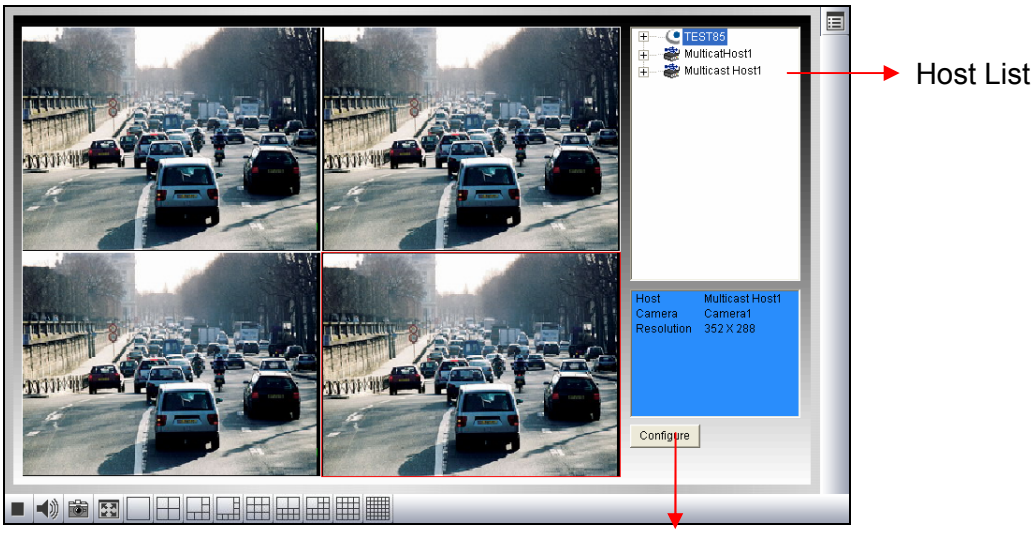


Figure 7-10

1. The host(s) in the multicast group is displayed automatically on the host list. If you cannot see any host displayed, click the **Configure** button, select **General Setup**, select **Multicast** and ensure the relevant IP address, port number and network card are correctly configured.
2. Expand the Host folder and drag the desired cameras to the screen for display. If the host has already set a password, you will be promoted to enter it at this step.
3. To receive audio broadcasting, first ensure a speaker is properly installed on the local computer. Then click the **Configure** button, select **General Setup**, select **Receive broadcast audio**, and ensure the broadcast IP address and port number are correctly configured.
4. To save the current settings of screen division and camera display for future use, click the **Configure** button, select **Video List Setup**, and select **Export**. You can also select **Import** to apply the pre-defined settings.

Note: Using Multicast, you can only connect to GV-Recording Server under LAN.

7.4 Connecting with Remote ViewLog

You can install Remote ViewLog from the Software DVD or download Remote ViewLog through the Web interface of GV-Recording Server. In the left menu, click **Advanced Query** and in the window that pops up, select **Utility Download**. Click the **Download** button of **Remote ViewLog** to download the program.

After installing the program, you need to configure the Remote ViewLog to access recorded files from the GV-Recording Server.

1. On the main screen, click the **Tools** button and select **Address Book**. This dialog box appears.

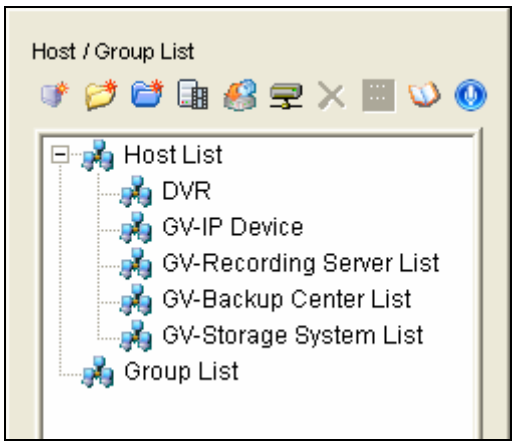


Figure 7-11

2. Click **Add GV-Recording Server** button . This dialog box appears.

Figure 7-12

3. Type the **IP address** of the GV-Recording Server. Use the default connection port 5552 or modify to match the settings on GV-Recording Server.
4. Type the **ID** and **Password** of a GV-Recording Server user account.
5. To add the GV-Recording Server to address book under a group, select a **Group Name** or type a new name.
6. Click **OK** and the GV-Recording Server is now added to the address book.

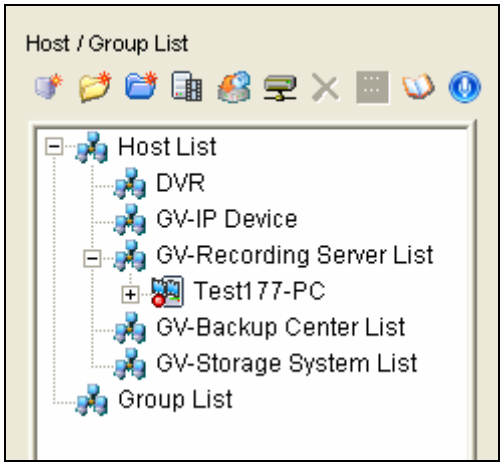


Figure 7-13

7. Select an IP video device listed under the GV-Recording Server and click the **Connect** button . The ViewLog video player appears and recorded events will be listed for playback.

For details on the playback functions, see *Chapter 4 Video Playback*, *GV-DVR User's Manual* on the Software DVD.

7.5 Connecting with the GV-Control Center

You need to configure the GV-Control Center to access video streaming from the GV-Recording Server.

Note: The GV-Recording Server is only compatible with the GV-Control Center of version 8.5.6.0 or later.

1. On the Host List, right-click **Recording Server List** and select **Add Recording Server**. The Host Settings dialog box appears.

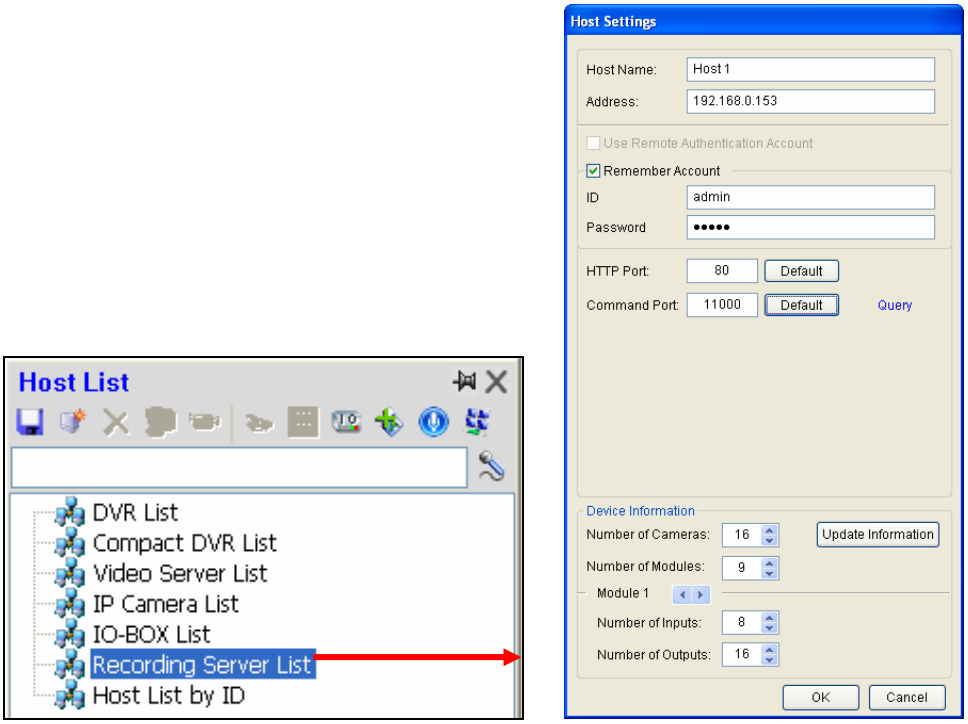


Figure 7-14

2. Name the host of GV-Recording Server.
3. Type the IP address or domain name of the GV-Recording Server.
4. Type the client's username and password created on the GV-Recording Server.
5. Keep the communication ports as default settings; otherwise modify them to match the HTTP (default value: 80) and TCP/IP (default value: 11000) ports on the GV-Recording Server (Figure 5-25).
6. Click the **Update Information** button to request the number of cameras from the GV-Recording Server. When the update is complete, the message "*Update system information successfully*" will appear.
7. Click **OK**. The host is created under the Recording Server List.

7.6 Connecting with the GV-Mobile Server

You need to configure the GV-Mobile Server to access video streaming from the GV-Recording Server.

Note: The GV-Recording Server is only compatible with GV-Mobile Server of version 1.3 or later.

1. Select a camera from the left menu and click the **Stream Source** tab. This window appears.

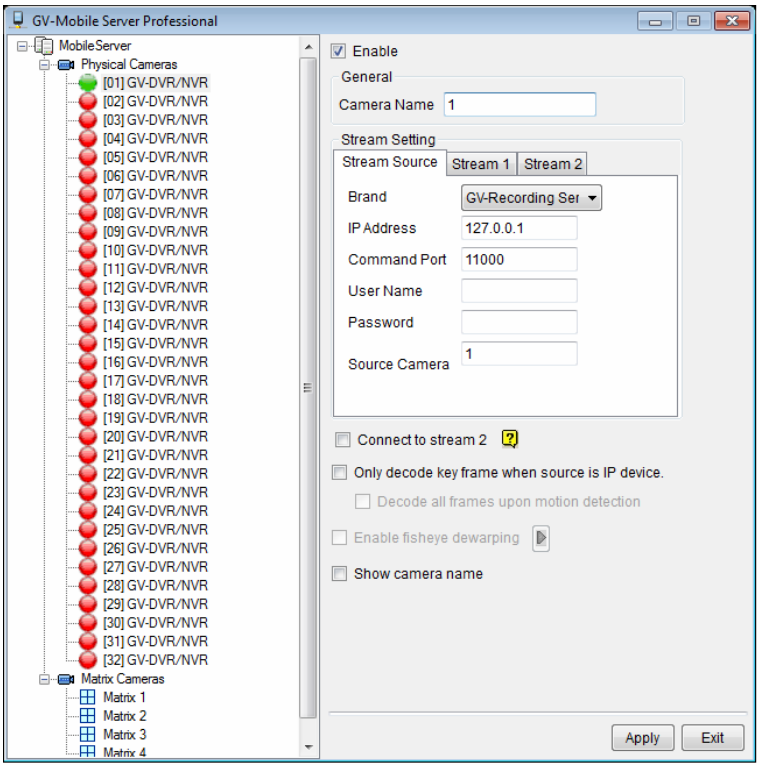


Figure 7-15

2. Type a name to describe the camera in the **Camera Name** field (Max. 31 characters).
3. Configure the connection settings.
   A. Select **GV-Recording Server** for **Brand**.
   B. Type the **Command Port**, **IP Address**, **User Name** and **Password** of the GV-Recording Server. The default command port for GV-Recording Server is **11000**.
   C. Type the camera number for live viewing in **Source Camera**. The default setting is 1.
4. If your GV-IP device supports dual streams, GV-Mobile Server connects to stream 1 by default. To connect to stream 2, select **Connect to stream 2**.

5. To decode key frames for IP source, select **Only decode key frame when source is IP device**. To decode all frames when a motion is detected and decode key frames when there is no motion, select **Decode all frames upon motion detection**.
6. If the camera is a fisheye camera, select **Enable fisheye dewarping**, and click to open the FisheyeConfig window. To configure dewarping settings, right-click the image in the window. .
7. To show the camera name specified in Step 2 on the live view, select **Show camera name**.
8. Click **Apply**.

Specifications

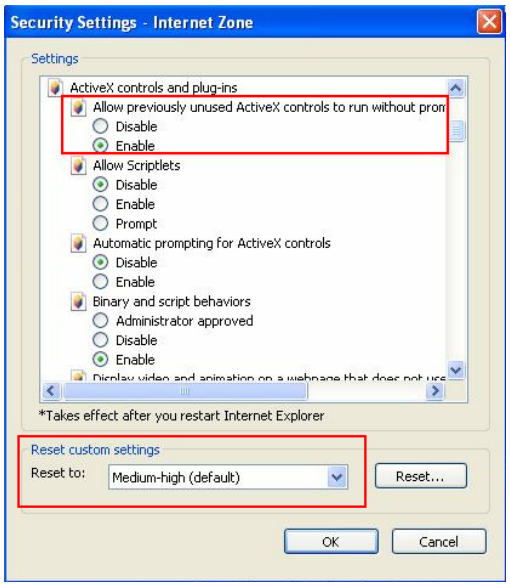
Number of IP Video Device Connections	128 channels
Number of Remote Client Connections	300 channels
Active Connections	Yes
Passive Connections	Yes (only for GV-IP devices)
3rd Party IP Cameras Support	Yes
Live Viewing	Single live view, multi-channel live view
Recording	Yes (up to 128 channels)
Protocol	HTTP, HTTPS, TCP, UDP, SMTP, UPnP, DynDNS, RTSP, PSIA, ONVIF
E-mail Notification	Yes (for Active connection lost, passive connection lost, USB protection key removed, recycling of recorded video, start keep days operation, motion detection, disk full, disk error, I/O trigger, disk removed, recording failure)
SMS Notification	No
2-Way Audio	Yes (only for GV-IP devices through active connection)
GPS support	Yes (only for GV-IP cameras)
Number of Accounts	Up to 1000 accounts
Mobile Phone Support	No
Bandwidth Control	No
IE Live View	Yes (up to 36 channels)
IE Event Query	Yes
IE I/O Control	No
Languages	Arabic / Bulgarian / Czech / Danish / Dutch / English / Finnish / French / German / Greek / Hebrew / Hungarian / Indonesian / Italian /Japanese / Lithuanian / Norwegian / Persian / Polish / Portuguese / Romanian / Russian / Serbian / Simplified Chinese / Slovakian / Slovenian / Spanish / Swedish / Thai / Traditional Chinese / Turkish

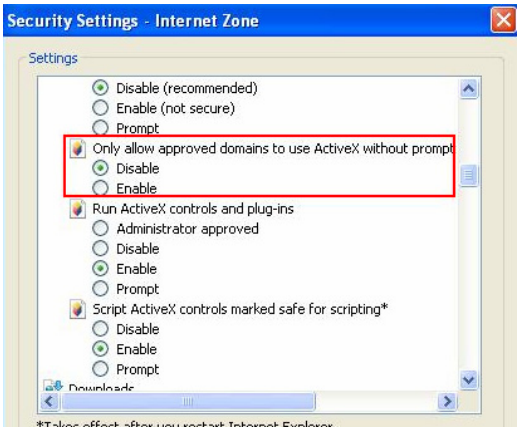
Appendix

A. Settings for Internet Explore 8

If you use Internet Explorer 8, it is required to complete the following setting.

1. Set the Security to **Medium-high (default)**.
2. Enable **Allow previously unused ActiveX controls to run without prompt**.
3. Disable **Only allow approved domains to use ActiveX without prompt**.





B. RTSP Protocol Support

The GV-Recording Server can support RTSP protocol for video streaming.

To connect using **TCP** port, use the following RTSP command. The default port is 554.

rtsp://<Recording Server IP>/<camNo.>_<streamNo.>

For example, rtsp://192.168.3.111/cam1_stream1

To connect using **UDP** port, use the following RTSP command. The default port range is 17300 to 17380.

rtsp://<Recording Server IP>:<port>/<camNo.>_<streamNo.>

For example, rtsp://192.168.3.111:17300/cam1_stream1

Note:

1. The RTSP server must be enabled on the Web interface. See Figure 5-21.
2. H.264 is the only codec supported by RTSP streaming.
3. Only VLC media player and QuickTime Player are supported for streaming H.264 video via RTSP protocol.

C. Supported IP Devices

The GV-Recording Server is compatible with GeoVision IP devices and the following third-party IP device brands. To see the supported models for each brand, refer to the Supported IP Camera List on GeoVision's website by clicking the links below.

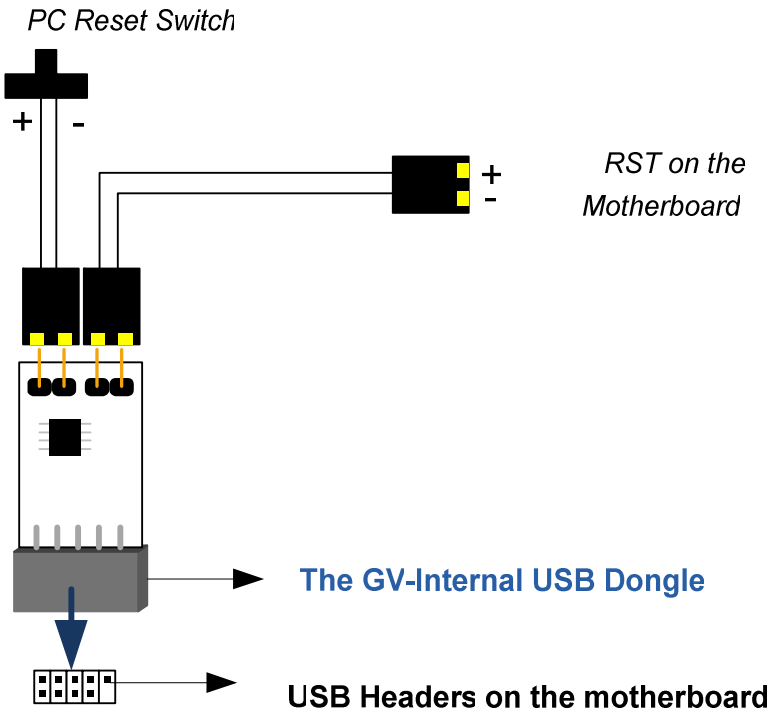
- **Arecont Vision:** http://www.geovision.com.tw/english/product/SupportIPCAM_Arecont.htm
- **AXIS:** http://www.geovision.com.tw/english/product/SupportIPCAM_AXIS.htm
- **HikVision:** http://www.geovision.com.tw/english/product/SupportIPCAM_hikvision.htm
- **GeoVision:** http://www.geovision.com.tw/english/product/SupportIPCAM_Geovision.asp
- **Panasonic:** http://www.geovision.com.tw/english/product/SupportIPCAM_Panasonic.htm
- **Sony:** http://www.geovision.com.tw/english/product/SupportIPCAM_SONY.htm
- **VIVOTEK:** http://www.geovision.com.tw/english/product/SupportIPCAM_VIVOTEK.htm

Note: GV-Recording Server V1.2 only supports IP devices with V8.5.6.0 or earlier versions listed under the GV S/W column in the support list.

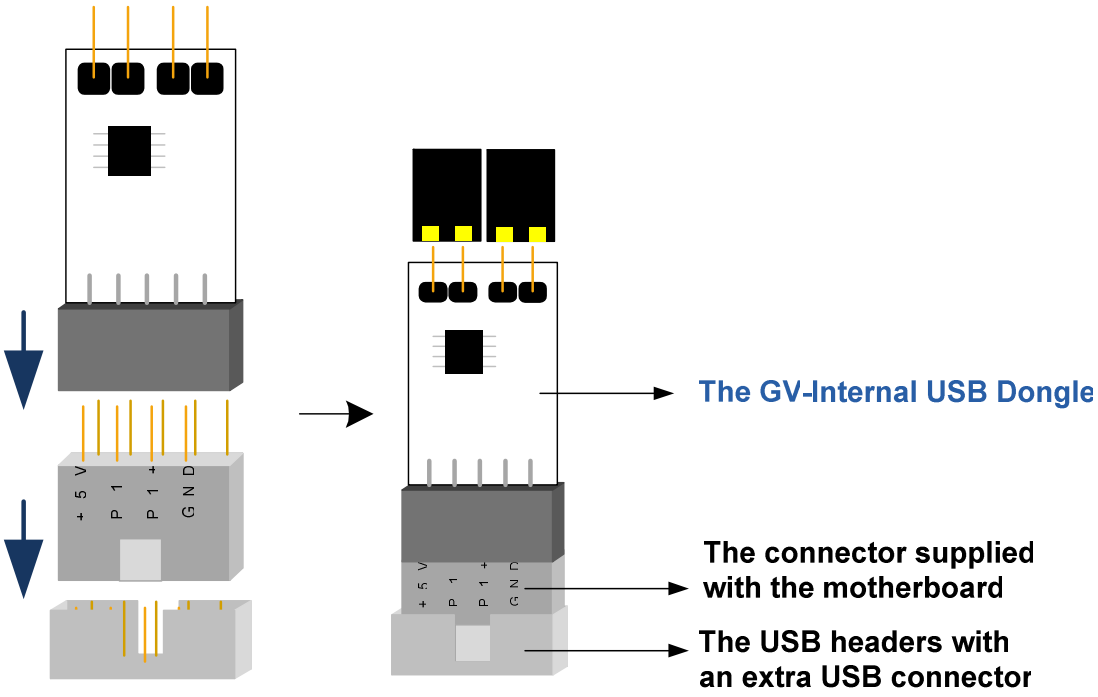
D. Installing the Internal USB Dongle

Follow the instructions below to install the internal USB dongle for the GV-Recording Server.

1. Turn off the computer, and open the case.
2. Connect the **GV-Internal USB Dongle** to the USB headers on the motherboard.
3. Remove the wire of the computer's reset switch from the motherboard, and connect it to the **GV-Internal USB Dongle**. Use the supplied Jumper Wire to connect the pins on the **GV-Internal USB Dongle** and the reset pins on the motherboard.



4. For some motherboards, the internal USB headers are integrated with an extra connector, making it unfit for the **GV-Internal USB Dongle** to plug in. In this case, it is required to use a connector supplied with the motherboard to connect the **GV-Internal USB Dongle** to the motherboard.

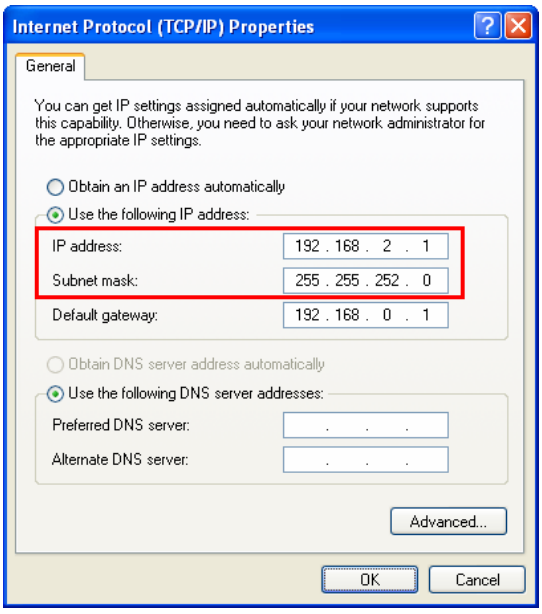


Note: Ensure not to remove the GV-Internal USB Dongle when the computer is powered on; otherwise it would cause the computer to restart or the GV-Internal USB Dongle to be damaged.

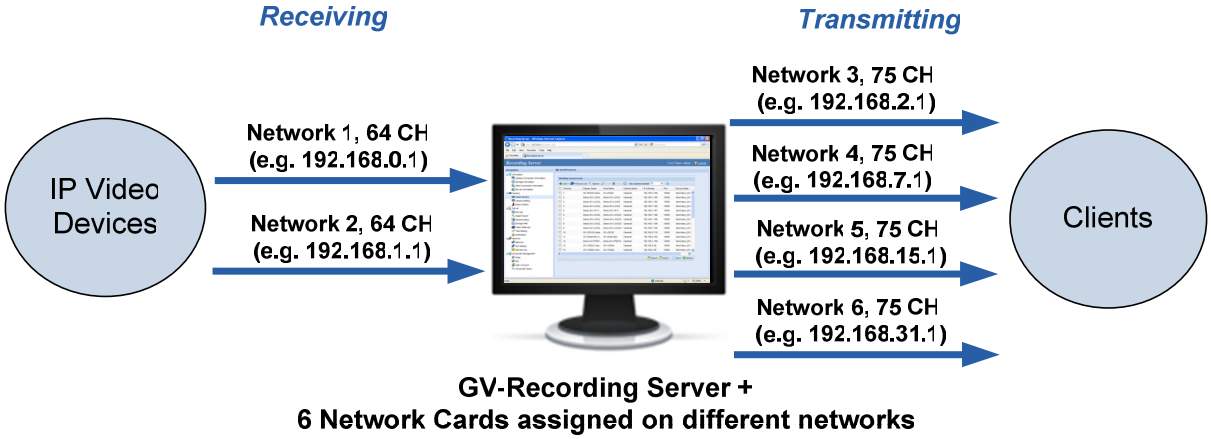
E. How to Avoid Network Bottleneck

To increase network bandwidth and avoid network bottleneck, you need to set up multiple networks and divide networks into different multiple subnets or segments. Next, organize IP channels received and clients transmitted into different networks.

1. To set up multiple networks on GV-Recording Server, you need to install multiple network cards. Each network card is assigned a different IP address and subnet mask.



2. Organize IP channels and clients into groups and then assign each group to different network cards using the IP addresses you have set up.



The GV-Recording Server can receive from up to 128 IP channels and transmit up to 300 channels. In the example above, the incoming 128 channels are divided among two network cards and the outgoing 300 channels are divided among four network cards to relieve network congestion.