GeoVision inc
The Vision of Security

GV-CS1320 Camera Access Controller

User's Manual

Before attempting to connect or operate this product, please read these instructions carefully and save this manual for future use.

CS1320V11-A

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Contents

Naming and Definition

GV-System (GV-DVR/NVR)	GeoVision Analog and Digital Video Recording Software. The GV-System also refers to **Multicam System**, **GV-NVR System**, **GV-Hybrid DVR System** and **GV-DVR System** at the same time.
GV-VMS	GeoVision Video Management System for IP cameras.

Optional Device

Optional devices can expand the capabilities and versatilities of your GV-CS1320. Consult your sales representative for more information.

GV-Reader 1352 V2	GV-Reader 1352 V2 is a card reader that uses a 13.56 MHz frequency. It has both Wiegand and RS-485 outputs that can be connected to any standard access control panel.
GV-RK1352	GV-RK1352 is a card reader with keypad that uses a 13.56 MHz frequency. The reader has both Wiegand and RS-485 outputs that can be connected to any standard access control panel.
GV-R1352	GV-R1352 is a card reader that uses a 13.56 MHz frequency. The reader has both Wiegand and RS-485 outputs that can be connected to any standard access control panel.
GV-DFR1352	GV-DFR1352 is a card reader that uses a 13.56 MHz frequency. The reader has both Wiegand and RS-485 outputs that can be connected to any standard access control panel.
GV-CR420	GV-CR420 is a card reader with a built-in 4MP wide angle IP camera. The card reader recognizes identification cards and transmits live view through network connection.
GV-GF Fingerprint Readers	GV-CS1320 is compatible with GV-GF1921 / 1922. The reader supports three operation modes: Fingerprint Only, Fingerprint + Card and Card Only. In Fingerprint Only mode, the fingerprints are enrolled through GV-ASManager. In Fingerprint + Card mode, the fingerprint templates are stored on the user card. In Card Only mode, the users only need to swipe the card to be granted access. Readers with optical and capacitance sensors are available.
Push Button Switch	The push button switch can be integrated with access control system, allowing door exit by momentarily activating or deactivating the electric locking device. Both American standard and European standard push buttons are available.
GV-IB25 / 65 / 85 Infrared Button	The GV-IB25 / 65 / 85 Infrared Button detects infrared movement within 3 to 12 cm and allows you to open the door with a wave of hand.
Electric Lock	Three types of electric locks are available: electromagnetic lock, electric bolt and electric strike.
GV-AS ID Card & GV-AS ID Tag	GV-AS ID Cards and GV-AS ID Tags are ideal for business and residential environment, where access control is important for security reasons. 13.56 MHz cards and tags are available.
Power Adapter	Contact your sales representative for the countries and areas supported.

Installation Considerations

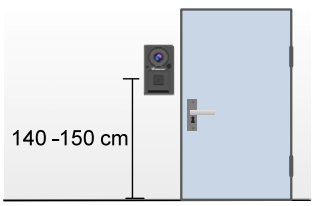
To make sure the finger and face of the cardholder can be detected, follow the instructions below to set up GV-CS1320.

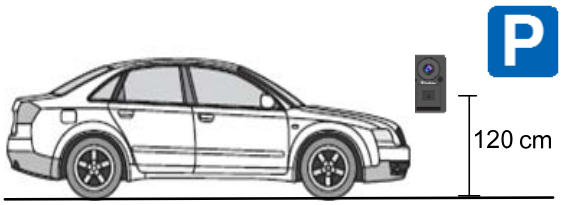
Bell Button Recognition:

- The bell button (touch pad) cannot be activated with gloves on.

Installation Height:

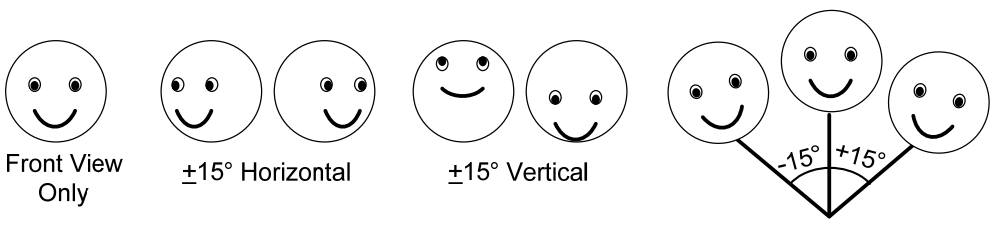
- When placed at a building gate, GV-CS1320 should be about 1.4-1.5 meters above the ground.
- When placed at a parking lot gate, GV-CS1320 should be about 1.2 meters above the ground to match the height of vehicles.





Face Detection Limitations

- GV-CS1320 cannot detect the face of cardholders wearing facial masks or sunglasses.
- GV-CS1320 is designed to detect front-view faces only. If the face is slightly tilted horizontally or vertically, the tilt angle cannot exceed 15° degree.



Lighting Conditions

- Avoid placing GV-CS1320 where the light source is directly behind the subject.
- Prevent light from directly falling onto the GV-CS1320's camera lens.

Chapter 1 Introduction

GV-CS1320 is an access controller with a built-in 2 MP camera and 13.56 MHz reader.

GV-CS1320 recognizes identification cards and grants access to up to 40,000 users accordingly. With the integration of the wide angle camera, the Card and Face Mode enables GV-CS1320 to perform face detection together with card verification before access can be granted.

Visitors requesting entry permits can also use the bell button (touch pad) to be granted access. When GV-CS1320 is connected to GV-ASManager over the network, GV-ASNotify will generate a notification message whenever the bell button (touch pad) is activated. The operator can use GV-ASNotify to watch live view and communicate with the surveillance site via the microphone and speaker functions.

The all-in-one solution eliminates the need of installing and maintaining a separate camera in addition to the card reader and a door entry system.

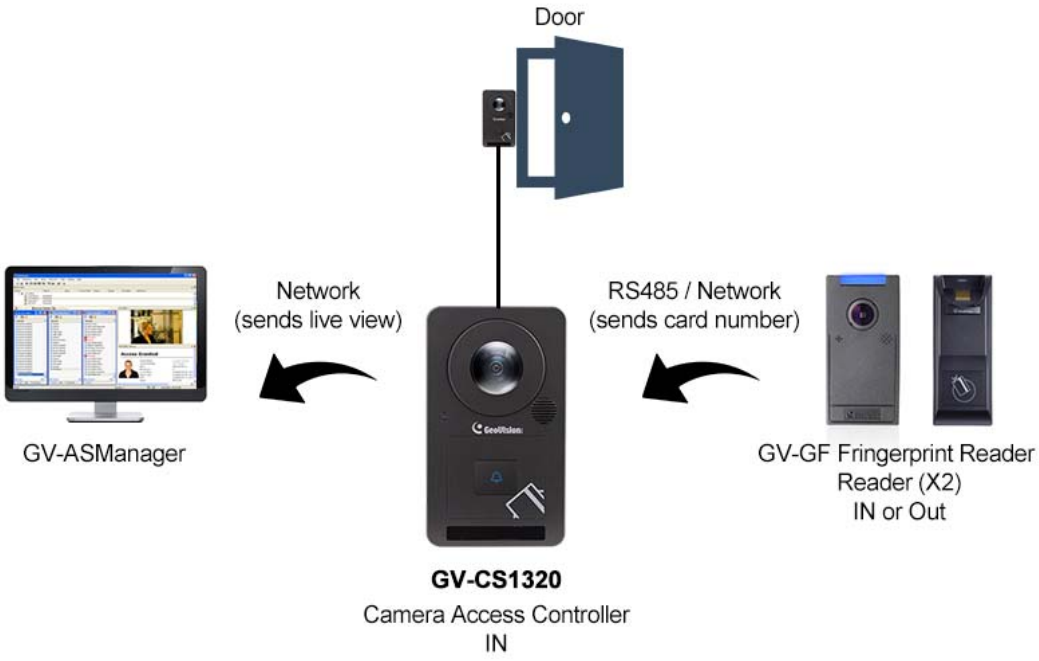

Door
Network
(sends live view)
RS485 / Network
(sends card number)
GV-ASManager
GV-GF Fringerprint Reader
Reader (X2)
IN or Out
GV-CS1320
Camera Access Controller
IN

Figure 1-1

1.1 Key Features

Camera

- 2 MP progressive scan super low lux CMOS
- Minimum illumination at 0.02 lux
- Dual streams from H.264 and MJPEG
- Up to 15 fps at 1920 x 1080
- Day and night function (with removable IR-cut filter)
- Built-in IR with effective distance up to 3 m (9.84 ft)
- Ingress protection (IP66)
- 12V DC, 2.5A / PoE+ (IEEE 802.3at)
- Built-in microphone and speaker
- Wide Dynamic Range (WDR)
- Built-in micro SD card slot
- Provides 180° panorama view
- ONVIF (Profile S, C) conformant

Reader

- Built-in 13.56 MHz Reader (Mifare DESFire, Mifare Plus and Mifare Classic)
- Access by card plus face detection
- RS-485 and network interface for connecting up to 2 readers

Access Control

- Enabling different access control modes according to the Authentication Schedule: Card only mode (default), Card and Face Mode
- 1 door (one-way and two-way control)
- Bell Button (touch pad) for talk mode
- Receiving live view and capturing snapshots when card is presented
- Anti-passback (APB) support
- 2 inputs, dry contact (Door Sensor / Exit Button)
- 1 relay outputs (30V DC, 0.5A)

1.2 Packing List

- GV-CS1320

- Mounting Plate

- Standard Screw x 2

- Plastic Screw Anchor x 2

- Security Screw

- Torx Wrench

- Silica Gel Bag
- Software DVD
- Micro SD Card 2 GB
- Warranty Card

1.3 System Requirements

To access the functions and settings of GV-CS1320 on the Web interface, ensure your PC has good network connection and use one of the following web browsers:

- Internet Explorer 9 x or later
- Microsoft Edge
- Google Chrome
- Firefox

Note: For users of non-IE browsers, download **GV-Web Viewer** to access full functioning user interface. See *3.1 Accessing Your Surveillance Images.*

Compatible Software Version

GV-CS1320 Firmware Version	GV-System	GV-VMS	GV-ASManager
V1.0 – V1.10	V8.6.2.0 + Patch	V15.10	V4.3.5.0 or later

1.4 Physical Description

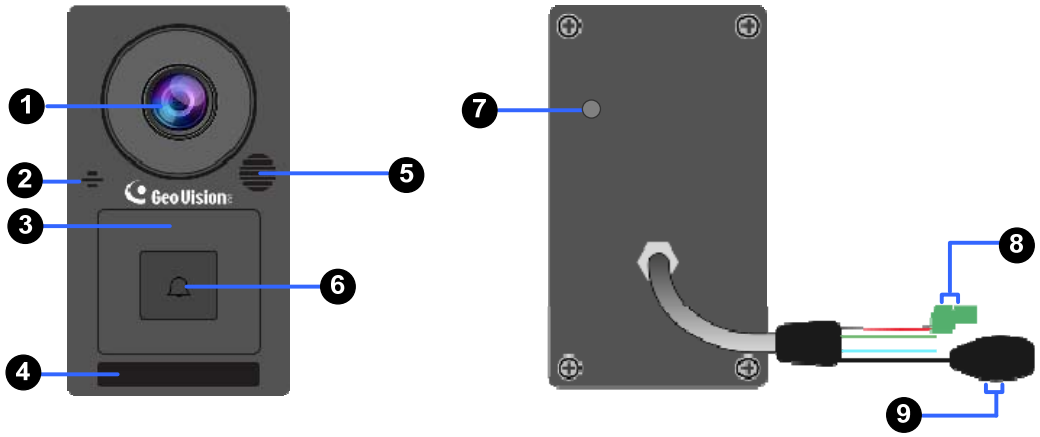


Figure 1-2

No.	Name	Function
1	Lens	Receives image.
2	Microphone	Receives sound from GV-CS1320.
3	Card Reader	Reads ID cards or ID tags.
4	IR LEDs	Automatically illuminates for night time use.
5	Speaker	Talks to the surveillance area from the local computer.
6	Bell Button (touch pad)	Touch to activate the talk mode.
7	Default Button	Resets all configurations to default factory settings. See *5.3 Restoring to Factory Default Settings.*
8	Power Cable	Connects to power supply. See *1.6.5 Connecting the Power*.
9	Ethernet Port	Connects to network and power supply. See *1.6.4 Connecting GV-CS1320 to PC*.

1.5 Installation

1.5.1 Wire Definition

The wire assignment of the GV-CS1320 cable data are illustrated below.

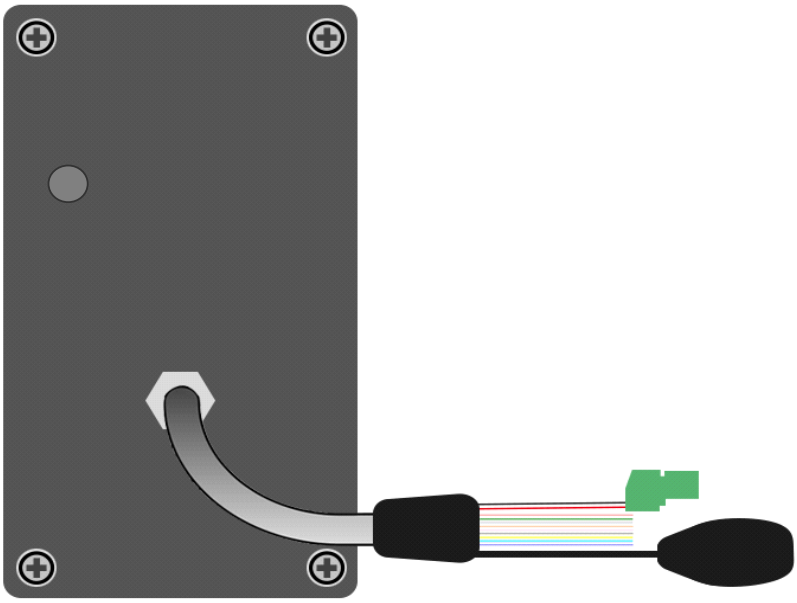


Figure 1-3

Wire	Definition
RJ-45	Ethernet
Red	12V DC
Black	GND
Yellow	Sensor IN1
Brown	IN COM
Light Red	Button IN2
Blue	RS-485 +
Light Blue	RS-485 -
Gray	Door NO
Purple	Door COM
Orange	Door NC

1.5.2 Installing GV-CS1320

After the location of GV-CS1320 is decided, follow the steps below to install the camera access controller.

Note: You will need to prepare a single gang power box for wall mount installation.

1. Attach the single gang power box to the wall.
2. Place the mounting plate on the single gang power box and secure with the 2 standard screws provided.

Figure 1-4

3. Place GV-CS1320 on the mounting plate together with the single gang power box and thread the cables through the holes.

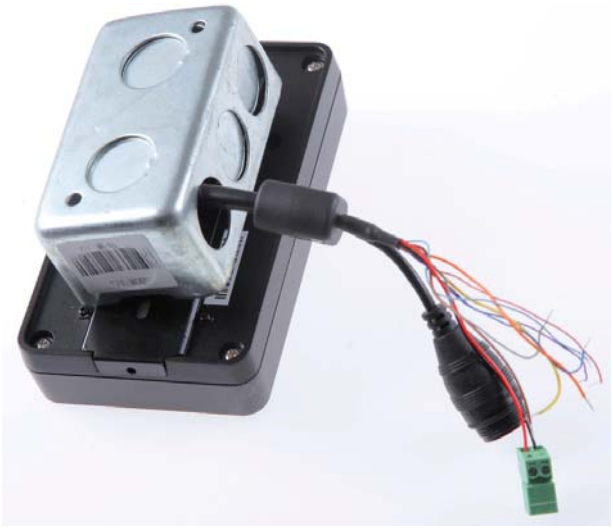


Figure 1-5

4. Secure the supplied security screw on the bottom with the mounting plate.

Figure 1-6

1.5.3 Replacing the Silica Gel Bag

If you opened the compartment cover at the back of your GV-CS1320 to change a new Micro SD card, you must follow the steps below to replace the original silica gel bag with a new one.

1. Open the compartment cover at the back of your GV-CS1320 with a screwdriver.

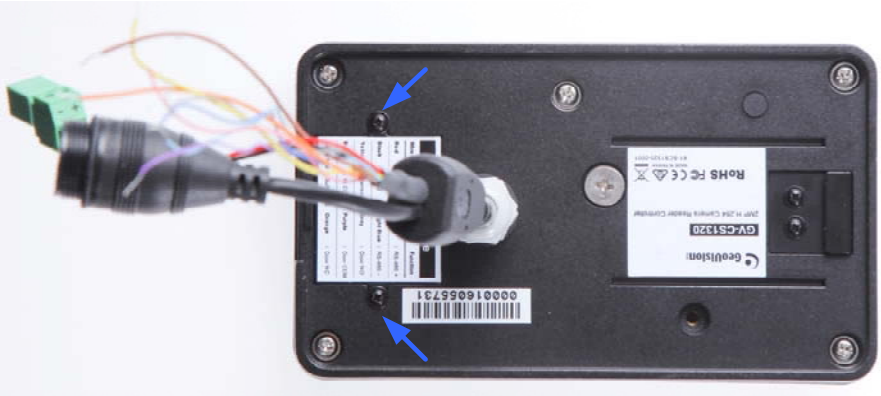


Figure 1-7

2. To replace the silica gel bag, remove the silica gel bag and place a one to the camera.

Figure 1-8

3. Fasten the compartment cover.

Important:

1. The silica gel loses its effectiveness when the dry camera access controller is opened. To prevent the lens from fogging up, replace the silica gel bag every time when you open the camera access controller and conceal the gel bag in the camera access controller within two minutes of exposing to the open air.
2. For each newly replaced silica gel bag, allow it to absorb moisture for at least 30 minutes before operating the camera.

1.6 Connecting GV-CS1320

1.6.1 Connecting RS485 Readers

GV-CS1320 can establish RS-485 connection with up to **2 GV-Readers**. Connect the RS-485 wires from the GV-CS1320 to the reader. The 12V DC and GND wires of the GV-CS1320 can be used to power the readers, but you will need to set up a separate power source if the total power consumption (including output devices) exceeds 12V.

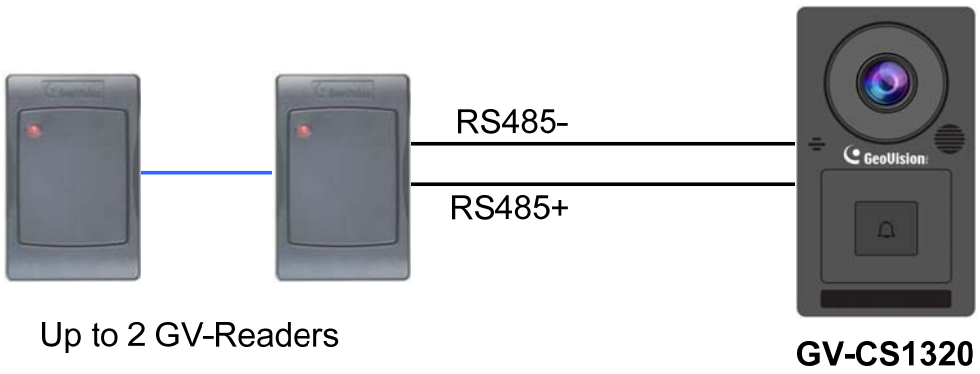


Figure 1-9

The table below shows the wire assignments of RS485 connection on GV-CS1320.

Wire color	Definition
Red	12V DC
Black	GND
Blue	RS-485 +
Light Blue	RS-485 -

1.6.2 Connecting Network Readers

GV-CS1320 supports network connection with GV-CR420 and GV-GF1921 / 1922.

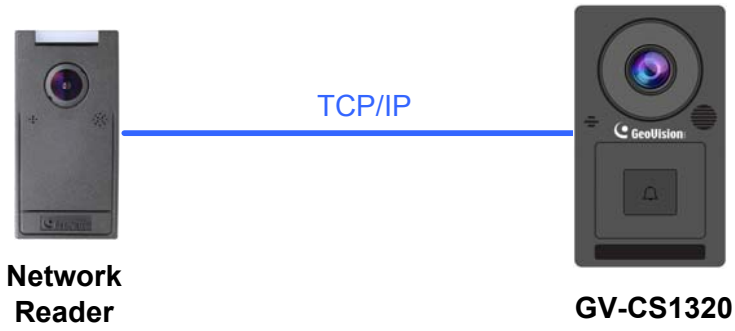


Figure 1-10

1.6.3 Connecting Input Devices

GV-CS1320 supports 2 types of inputs:

1. Sensor inputs, e.g. door status sensor
2. Button inputs, e.g. door opener and exit button

All inputs are **dry contact** and can be configured as normally open (NO) or normally closed (NC) through the GV-CS1320 Web interface. The default value is **NO**. To change the input status, see *4.2.1.4 Input Setting*

The table below shows the wire assignments of input connectors on GV-CS1320.

Wire color	Definition
Yellow	Sensor IN1
Light Red	Button IN2
Brown	IN COM

1.6.4 Connecting Output Devices

GV-CS1320 supports 1 type of output: Door outputs, e.g. electronic lock.

The table below shows the wire assignments of output connectors on GV-CS1320.

Wire color	Definition
Purple	Door COM
Orange	Door NC
Gray	Door NO

Check if your output device meets the following absolute maximum ratings before connecting it to the Door outputs.

Breakdown Voltage	250V AC, 220V DC
Continuous Load Current	1A (30V DC), 0.3A (125V AC)
Note: Absolute Maximum Ratings are those values beyond which damage to GV-CS1320 circuit board may occur. Continuous operation of GV-CS1320 at the absolute rating level may affect GV-CS1320's reliability.	

To connect an output device:

The example below illustrates the connection of a locking device to GV-CS1320. Connect the (+) point on the locking device to the Door COM wire on GV-CS1320, connect the two (-) points of the locking device and the external power supply together, and connect the (+) point on the external power supply to the Door NO or Door NC wire on GV-CS1320 based on the state of the locking device.

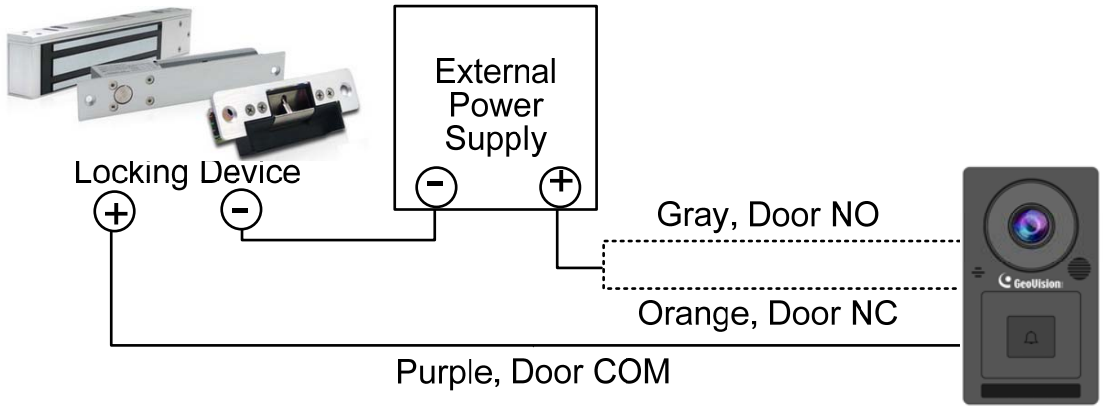


Figure 1-11

1.6.5 Connecting GV-CS1320 to PC

Connecting GV-CS1320 to a computer enables you to access its Web interface and connect it to GV-ASManager if the computer is installed with GV-ASManager. The computer running GV-ASManager software can be used to monitor the access information and alarm messages from GV-CS1320. The communication link between the computer and GV-CS1320 requires a network connection.

The figure below illustrates the network connection between GV-CS1320 and the computer.

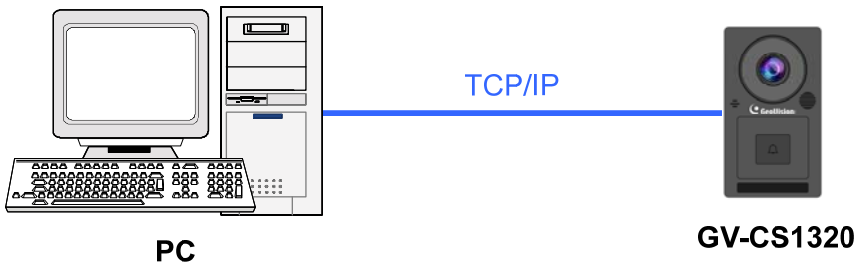


Figure 1-12

When GV-CS1320 is connected to GV-ASManager, GV-ASNotify will generate a notification message and snapshot whenever the bell button (touch pad) on GV-CS1320 is activated. You can use GV-ASNotify to watch live view and communicate with the surveillance site with the microphone and speaker functions of GV-ASNotify. For details, see Chapter 15, *GV-ASNotify* in the *GV-ASManager User's Manual*.

Figure 1-13

Note:

1. GV-CS1320 is only compatible with GV-ASManager V4.3.5.0 or later.
2. While GV-CS1320 is performing a power reset, duplicate messages may be displayed in the System Event Log on GV-ASManager.

1.6.6 Connecting the Power

You can choose to supply power using a power adapter or using a Power over Ethernet (PoE) adapter.

- When using a Power Adaptor, connect 12V and GND wires to a 12V, 3A power adapter and then connect the power adapter to a power source.

The table below shows the pin assignments of the power connectors on GV-CS1320.

Wire color	GV-CS1320 Definition
Red	12V DC
Black	GND

- When using PoE adapter, power will be provided to the device through the Ethernet cable.

Note:

1. Power should only be applied to the unit when all connections are completed and tested.
2. GV-CS1320 produces an output voltage of 12V. You will need to connect an external power supply if the total power consumption exceeds 12V after readers and output devices are connected.

1.7 LED Status and Beeper

Normally, the LED on GV-CS1320 is blue during standby mode and the LED flashes green when a card is granted access. The LED status and beeper under different conditions are listed below

Condition	LED	Beeper
Ready	Blue (Connected to GV-ASManager) Purple (Disconnected from GV-ASManager)	N/A
Access Denied	Displays red LED momentarily	Two short beeps
Access Granted	Displays green LED momentarily	One long beep
Bell button (touch pad) activated Bell button (touch pad) ignored	Flashes blue momentarily Returns to blue/purple LED	One short beep Three short beeps after 30 seconds
Talk mode enabled	Constant yellow	N/A

Chapter 2 Getting Started

This chapter provides basic information to get GV-CS1320 on the network.

Follow the steps below to get GV-CS1320 working on the network:

1. Use a standard network cable to connect the camera access controller to your network.
2. Connect power using one of the methods:
   - Using the power adapter, connect to power. For details, see *1.6.5 Connecting the Power*.
   - Use the Power over Ethernet (PoE) function. The power will be provided over the network cable.
3. You can now access the Web interface of GV-CS1320.
   - If GV-CS1320 is installed in a LAN with the DHCP server, use GV-IP Device Utility to look up its dynamic IP address. See *2.1 Checking the Dynamic IP Address*.
   - If GV-CS1320 is installed in a LAN without the DHCP server, the default IP address 192.168.0.10 will be applied. You also can assign a different static IP. See *2.2 Assigning an IP Address*.

Note: By default, GV-CS1320 has the IP address **192.168.0.10**, and ID and password **admin**.

Once GV-CS1320 is properly installed, the following important features can be configured using the browser-based configuration page and are discussed in the following sections in this manual:

- **Date and time adjustment:** see *4.5.1 Date and Time Settings*.
- **Login and privileged passwords:** see *4.5.2 User Account*.
- **Network gateway:** see *4.4 Network*.
- **Camera image adjustment:** see *3.2.2 The Control Panel of the Live View Window*.
- **Video format, resolution and frame rate:** see *4.1.1 Video Settings*.

2.1 Checking the Dynamic IP Address

Follow the steps below to look up the IP address and access the Web interface.

Note: The PC installed with GV-IP Device Utility must be under the same LAN with GV-CS1320.

1. Install the GV-IP Device Utility program included on the Software DVD.
2. On the GV-IP Utility window, click the button to search for the IP devices connected in the same LAN. Click the **Name** or **Mac Address** column to sort.

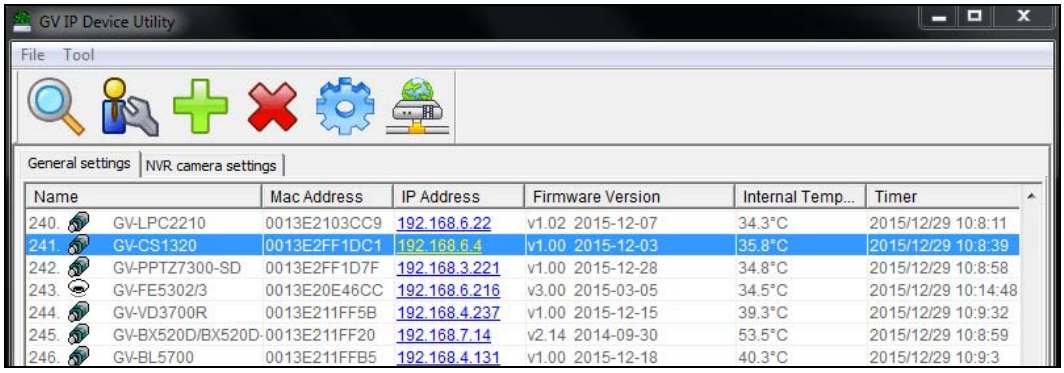


Figure 2-1

3. Find GV-CS1320 with its MAC address, click on its IP address and select **Web Page**.

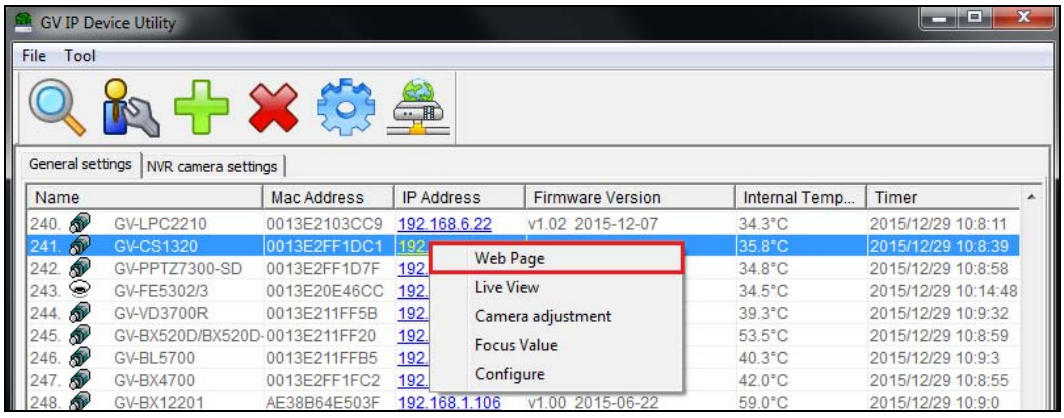


Figure 2-2

4. The login page appears.

Figure 2-3

5. Type the default ID and password **admin** and click **Apply** to login.

2.2 Assigning an IP Address

Follow the steps below to assign a new IP address.

Note:

1. GV-CS1320 has a default IP address of 192.168.0.10. The computer used to set the IP address must be under the same network assigned to the unit.
2. If your router supports the DHCP server, GV-CS1320 will obtain a dynamic IP address from the DHCP server each time it connects to the LAN, instead of using 192.168.0.10.

1. Open your web browser, and type the default IP address http://192.168.0.10
2. In both Login and Password fields, type the default value **admin**. Click **Apply**.
3. In the left menu, select **Network** and then **LAN** to begin the network settings.

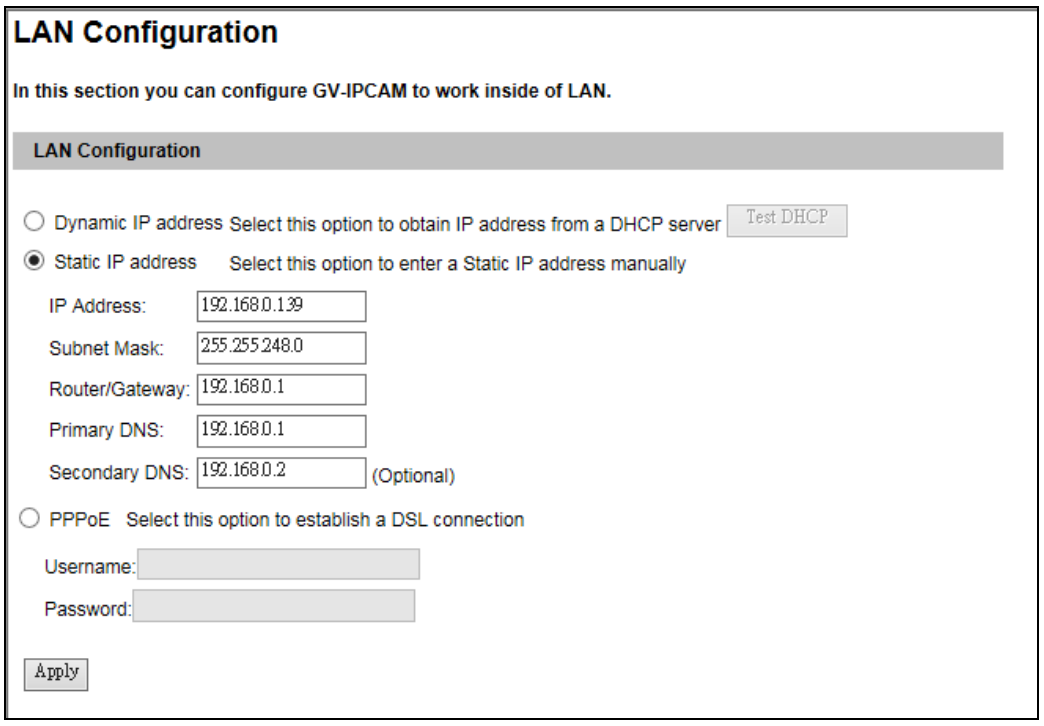


Figure 2-4

4. Select **Static IP address**. Type the IP Address, Subnet Mask, Router/Gateway, Primary DNS and Secondary DNS.
5. Click **Apply**. GV-CS1320 is now accessible by entering the assigned IP address on the web browser.

Important:

- If **Dynamic IP Address** or **PPPoE** is enabled, you need to know which IP address GV-CS1320 will get from the DHCP server or ISP to log in. If your GV-CS1320 in installed in a LAN, use the GV-IP Device Utility to look up its current dynamic address. See *2.1 Checking the Dynamic IP Address*.
  If your GV-CS1320 uses a public dynamic IP address, via PPPoE, use the Dynamic DNS service to obtain a domain name linked to the camera access controller's changing IP address first. For details on Dynamic DNS Server settings, see *4.4.3 Advanced TCP/IP.*
- If **Dynamic IP Address** and **PPPoE** is enabled and you cannot access the unit, you may have to reset it to the factory default settings and then perform the network settings again.

  To restore the factory settings, see *5.3 Restoring to Factory Default Settings*.

Chapter 3 Accessing the Camera Access Controller

Two types of user levels are allowed to log in GV-CS1320: Administrator and Guest. The Administrator has full access to all system configurations while the Guest can only access the live view and network status.

3.1 Accessing Your Surveillance Images

Once installed, GV-CS1320 is accessible on a network. Follow these steps to access your surveillance images:

1. Start the Internet Explorer browser.
2. Type the IP address or domain name of GV-CS1320 in the **Location / Address** field of your browser.

Figure 3-1

3. Enter the login name and password: **admin**.

4. The live web page, similar to the image in *Figure 3-3*, is now displayed on your browser.

   - For Mozilla Firefox, Google Chrome or Microsoft Edge, click **Run** to execute GV-Web Viewer when prompted by your web browser, type in the IP address of GV-CS1320, and click **Connect** to access the full functioning user interface.

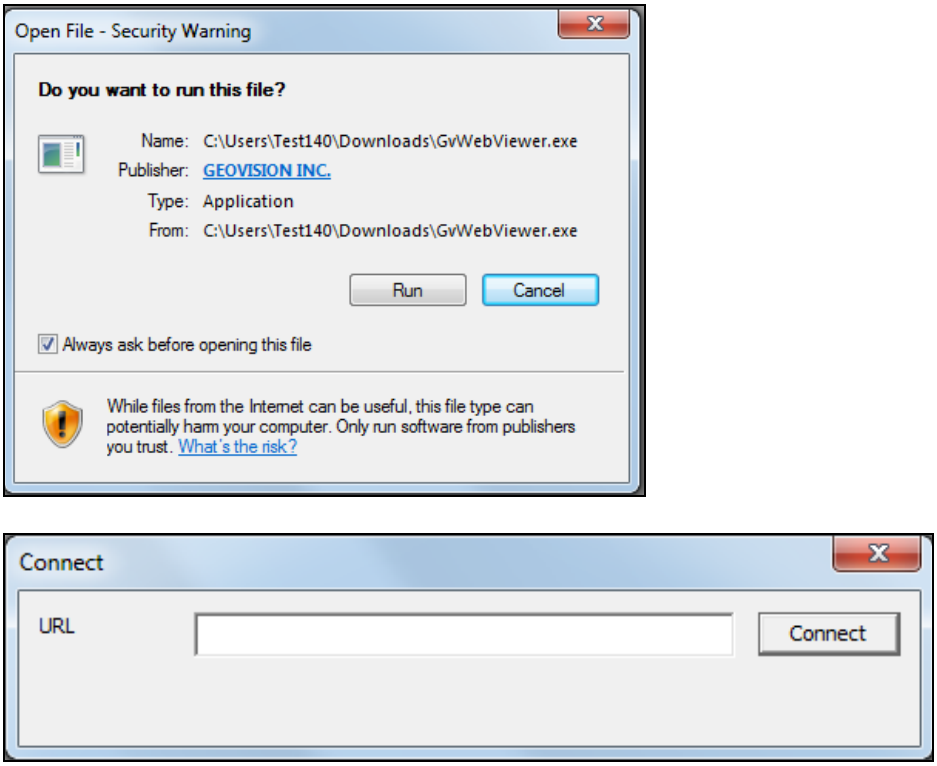


Figure 3-2

Note: 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.

3.2 Functions Featured on the Main Page

This section introduces the features of the **Live View** window on the main page.

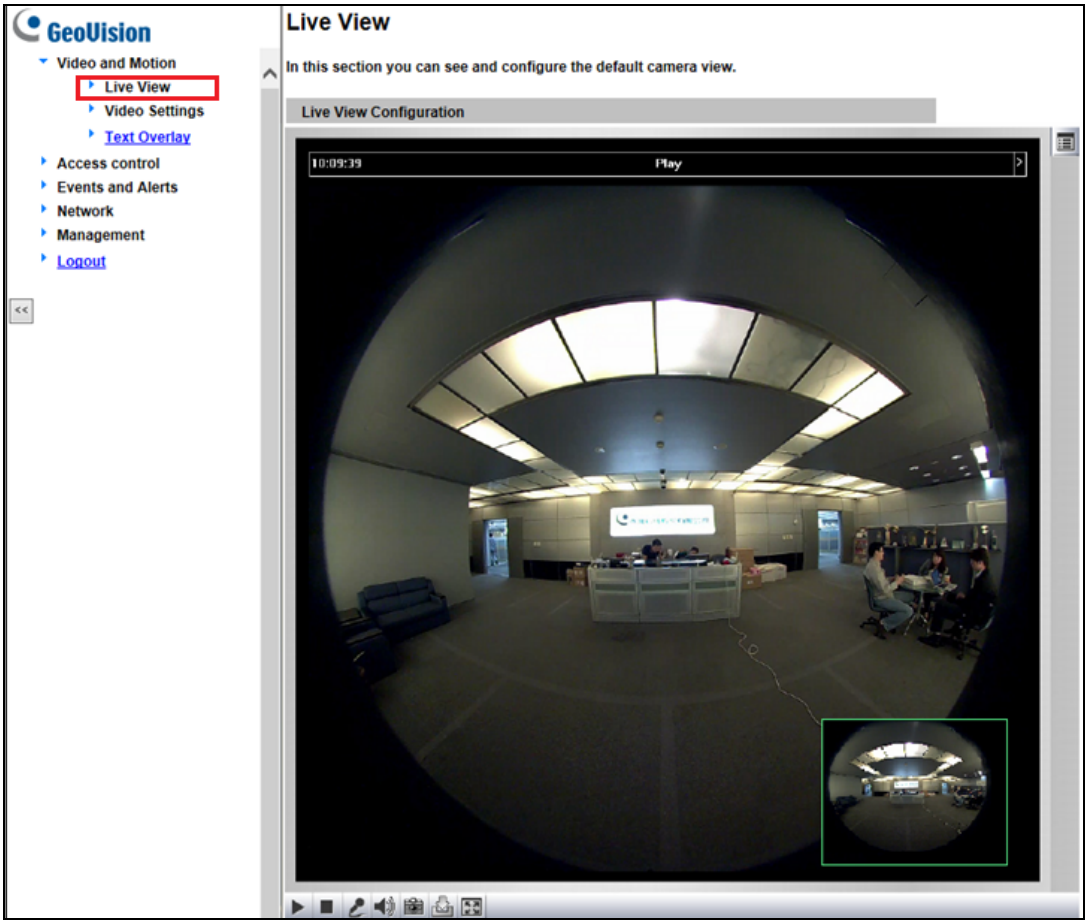


Figure 3-3

3.2.1 The Live View Window

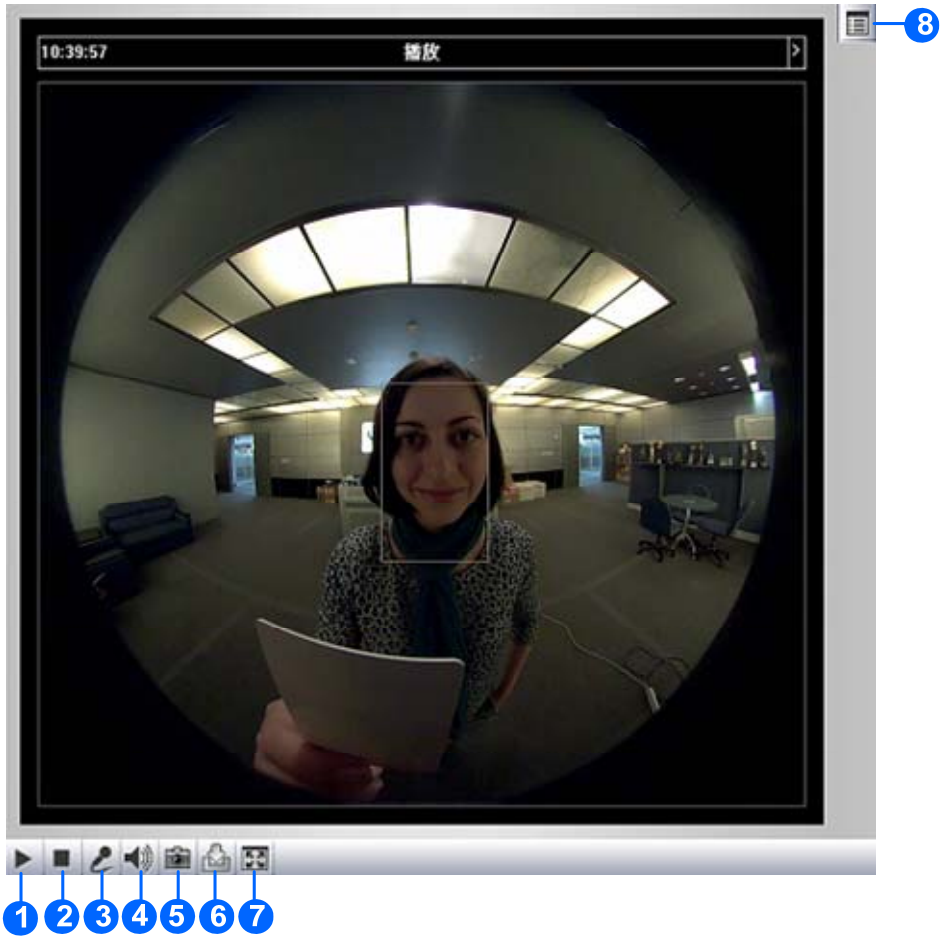


Figure 3-4

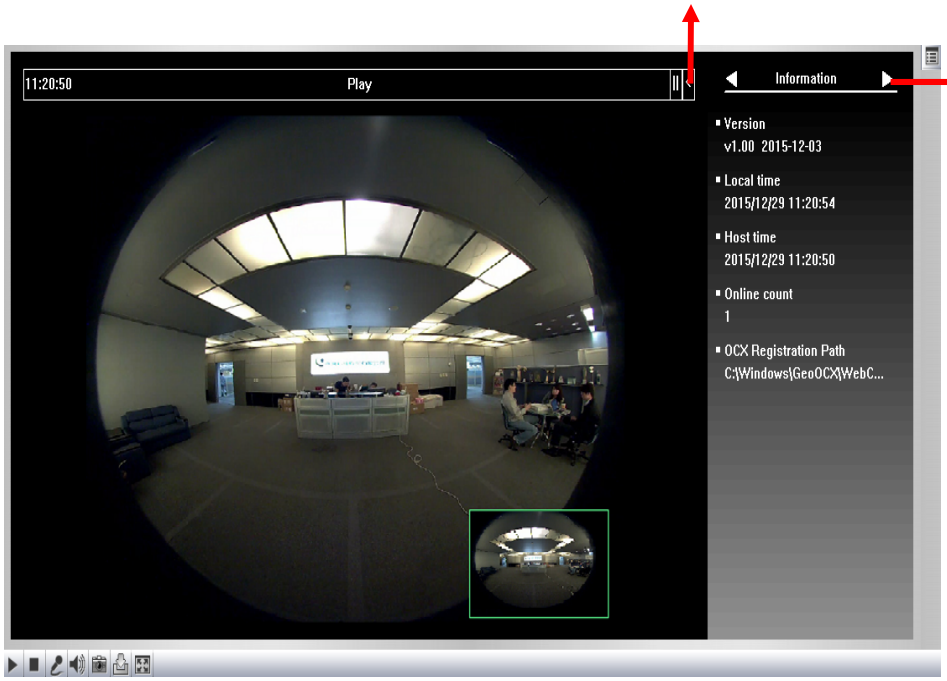
No.	Name	Function
1	Play	Plays live video.
2	Stop	Stops playing video.
3	Microphone	Talks to the surveillance area from the local computer.
4	Speaker	Listens to the audio around GV-CS1320.
5	Snapshot	Takes a snapshot of live video. --- See *3.2.3 Snapshot of a Live Video*.
6	File Save	Records live video to the local computer. --- See *3.2.4 Video Recording*.
7	Full Screen	Switches to full screen view. Right-click the image to have these options: **Snapshot**, **Digital PTZ**, **Wide Angle Lens Dewarping**, **Wide Angle Setting**, **PIP** and **PAP**.

		--- See *3.2.5 Digital PTZ* --- See *3.2.6 Wide Angle Lens Dewarping* --- See *3.2.7 Picture-in-Picture and Picture-and-Picture View*
8	Show System Menu	Brings up these functions: **Alarm Notify**, **Video and Audio Configuration**, **Remote Config**, **Show Camera Name** and **Image Enhance**. --- See *3.2.8 Alarm Notification* --- See *3.2.9 Video and Audio Configuration* --- See *3.2.10 Remote Configuration* --- See *3.2.11 Camera Name Display* --- See *3.2.12 Image Enhancement* respectively.

3.2.2 The Control Panel of the Live View Window

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.

Click the arrow button to display the control panel.



Click the right and left arrow buttons to change the page of the control panel.

Figure 3-5

Tip: The administrator can also use the GV-IP Device Utility and click the GV-CS1320's IP address to access the live view and adjust camera image settings.

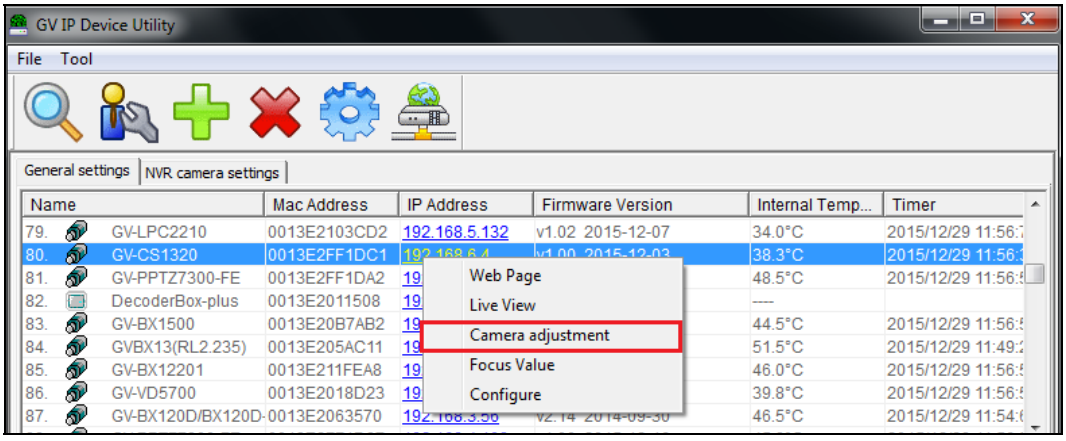


Figure 3-6

[Information] Displays the version of GV-CS1320, local time of the local computer, host time of GV-CS1320, and the number of users logging in to GV-CS1320.

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

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

[Alarm Notify] Displays the captured images upon sensor triggers. For this function to work, you must configure the Alarm Notify settings first. See *3.2.8 Alarm Notification*.

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

Figure 3-7

- **Brightness**: Adjusts the brightness of the image.
- **Contrast**: Adjusts the relative differences between one pixel and the next.
- **Saturation**: Adjusts the saturation of the image.
- **Sharpness**: Adjusts the sharpness of the image
- **Gamma**: Adjusts the relative proportions of bright and dark areas
- **White balance**: GV-CS1320 automatically adjusts the color to be closest to the image you are viewing. You can choose one of the four presets: **Auto**, **Outdoor**, **Indoor**, and **Fluorescent**. You can also choose **Manual** to adjust the white balance manually.
- **Flicker less**: GV-CS1320 automatically matches the frequency of your camera access controller's image to the frequency of indoor light sources, e.g. fluorescent lighting. You can also select 50 Hz or 60 Hz manually. If these don't match, faint light and dark bars may appear in your images. Check the power utility to determine which frequency is used.
- **Image Orientation**: Changes the image orientation on the Live View window.
- **Slowest Shutter Speed**: Shutter speed controls the amount of the lights enters the image sensor and directly impacts the quality of image presentation. A slow shutter speed allows higher light exposure that creates a brighter overall image by blurring moving objects and bringing out background details, and a faster shutter speed lowers color and image clarity in order to capture motions.
- **D/N:** Select **Auto** for automatic switch between day mode and night mode depending on the amount of light detected. Select **Black and white** to switch the camera access controller to night mode. Select **Color** to switch the camera access controller to day mode. The value 10 is the most light-sensitive. Select **Trigger by Input** for the externally installed infrared illuminator to turn on under low light and turn off under sufficient light.
- **Denoise**: Reduces image noise especially under low-light conditions. The higher the denoise value, the stronger the effect.
- **Wide Dynamic Range**: adjusts and generates clear live view when the scene contains very bright and very dark areas at the same time. Select **Auto (Strong)** to bring out details in the darks areas of the scene, select **Auto (Weak)** to bring out less detail in the dark area and at the same time keep the bright areas from overexposure, or select **Auto (Normal)** for a balanced effect. Select **Close** to disable the function.
- **Defog**: Select **Auto** to automatically enhance the visibility of images. Select **Close** to disable the function.
- **Super Low Lux**: Select **Auto** for GV-CS1320 to automatically enhance the live view under insufficient light. Select **Close** to disable the function. The default setting is Auto.

- **Metering**: Controls the camera access controller's exposure. Select **Normal** for GV-CS1320 to adjust exposure based on the full live view. Select **Regional Metering** for GV-CS1320 to adjust exposure of specified zones. Draw directly on the live view and a block marked with "AE (automatic exposure)" appears. You can establish up to 4 zones. To remove the block, right-click the block and select **Delete**.

3.2.3 Snapshot of a Live Video

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

1. Click the **Snapshot** button (No. 5, Figure 3-4). 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.

3.2.4 Video Recording

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

1. Click the **File Save** button (No. 6, Figure 3-4). 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 3-4).

3.2.5 Digital PTZ

The Digital PTZ (DPTZ) function of GV-CS1320 allows you to simulate the PTZ movement on the screen.

1. Right-click on the live view to display a drop-down list.
2. Select **Digital PTZ**. The PTZ control panel appears.

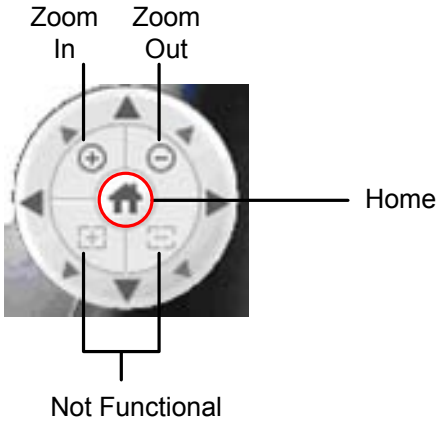


Figure 3-8

3. To change the direction, click the **Arrow** buttons.
4. To zoom in / out, click the corresponding buttons or use the mouse scroll. To bring the live view back to its default image, click **Home**.

3.2.6 Wide Angle Lens Dewarping

Use the Wide Angle Lens Dewarping function to reduce the warping of live view.

1. Right-click on the live view to display a drop-down list.
2. Select **Wide Angle Setting**. The Wide Angle Dewarping Setting window appears.

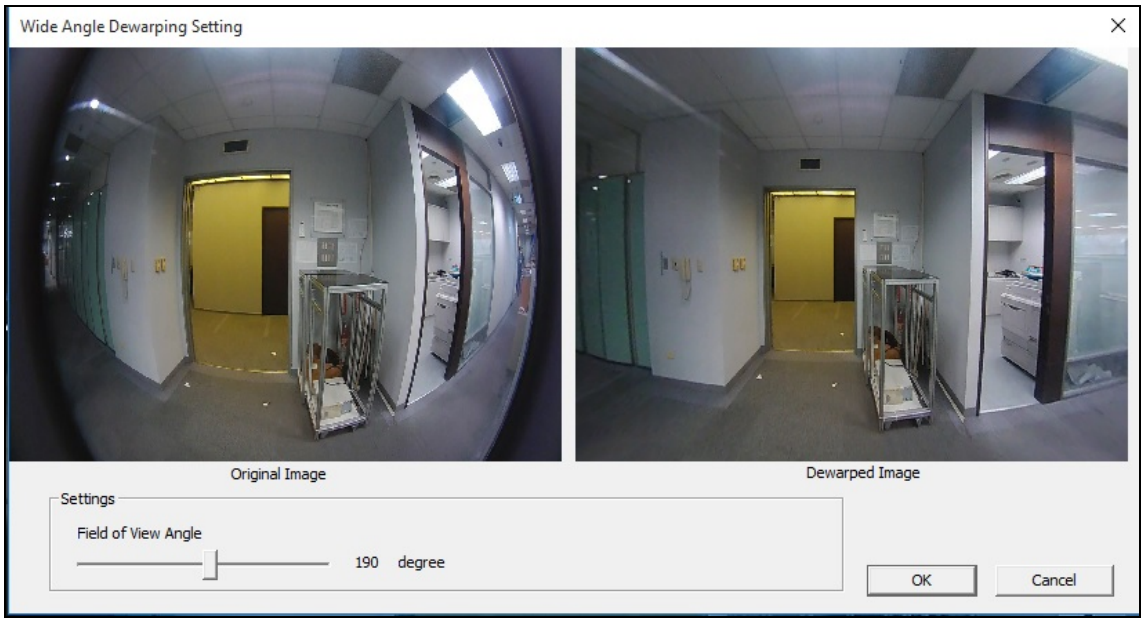


Figure 3-9

3. Slide the slider at the bottom to correct the degree of warping. The adjusted view is shown on the right. Click **OK** to close this window.
4. To enable this configuration, right-click on the live view, select **Wide Angle Lens Dewarping**.

3.2.7 Picture-in-Picture and Picture-and-Picture View

Two types of close-up views are available to provide clear and detailed images of the surveillance area: **Picture-in-Picture (PIP)** and **Picture-and Picture (PAP)**. After entering the live view window, the image is displayed in PIP mode by default.

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.

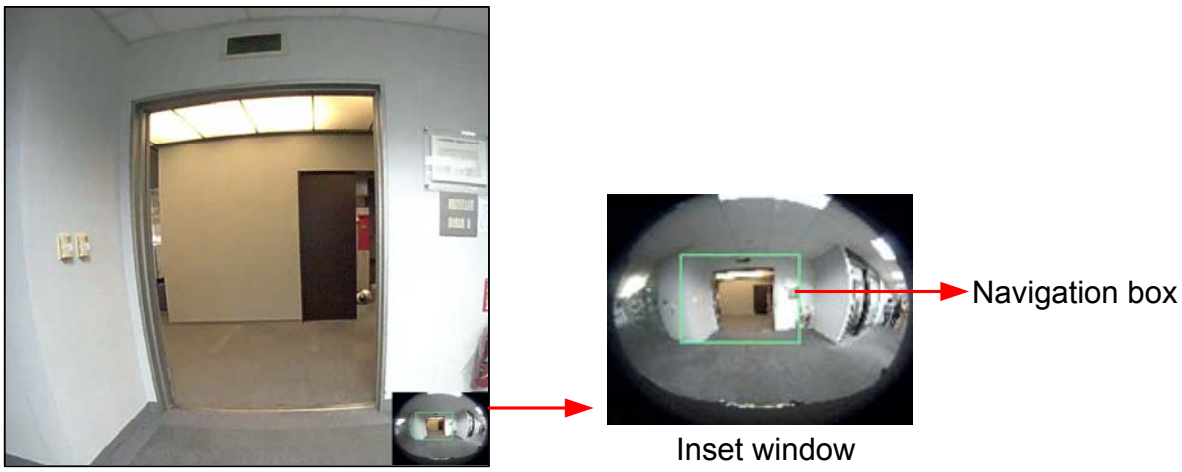


Figure 3-10

1. Right-click the live view and select **PIP**. An inset window appears.
2. Click the inset 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 3-11

1. Right-click the live view and select **PAP**. Three inset windows appear 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.

3.2.8 Alarm Notification

Note the I/O Alarm notification and motion detection are not supported by GV-CS1320.

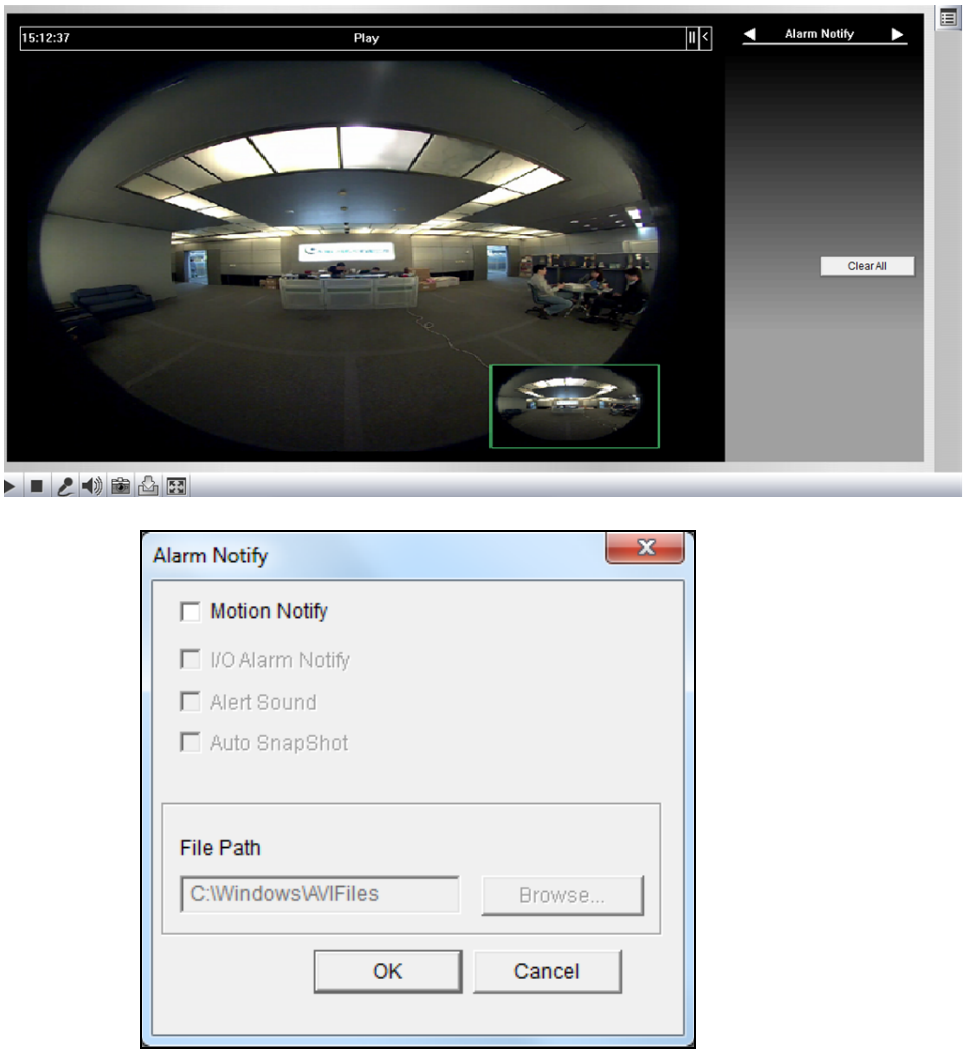


Figure 3-12

3.2.9 Video and Audio Configuration

You can enable the microphone and speaker for two-way audio communication and set the number of frames to keep for live view buffer. Click the **Show System Menu** button (No. 9, Figure 3-4), and select **Video and Audio Configuration**.

- **Camera:** Sets the number of frames to keep in live view buffer. Keeping more frames for live view buffer can ensure a smooth live view, but the live view will be delayed for the number of frames specified.

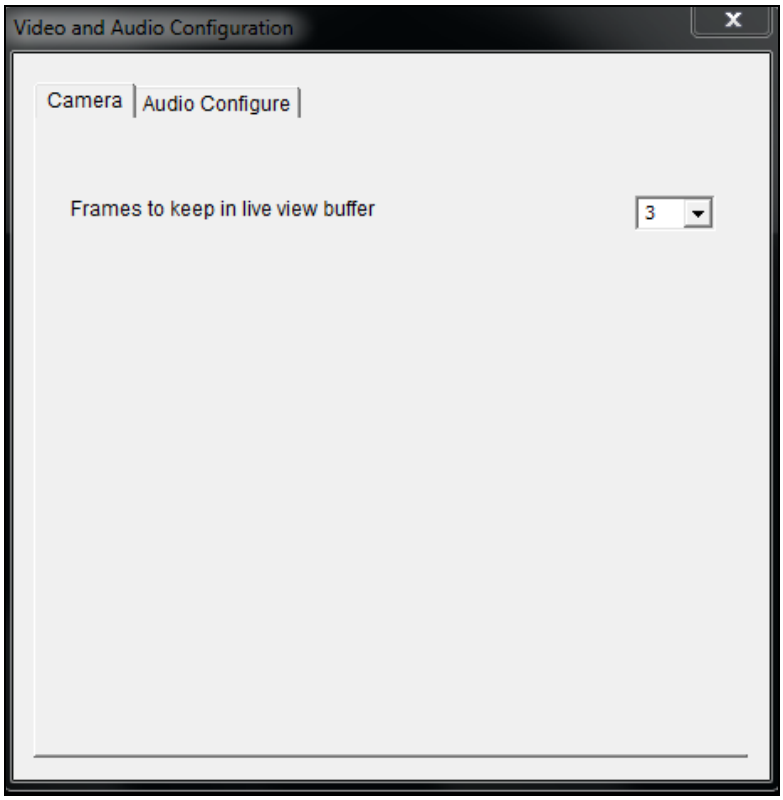


Figure 3-13

- **Audio Configure:** You can enable the microphone and speaker and adjust the audio volume.

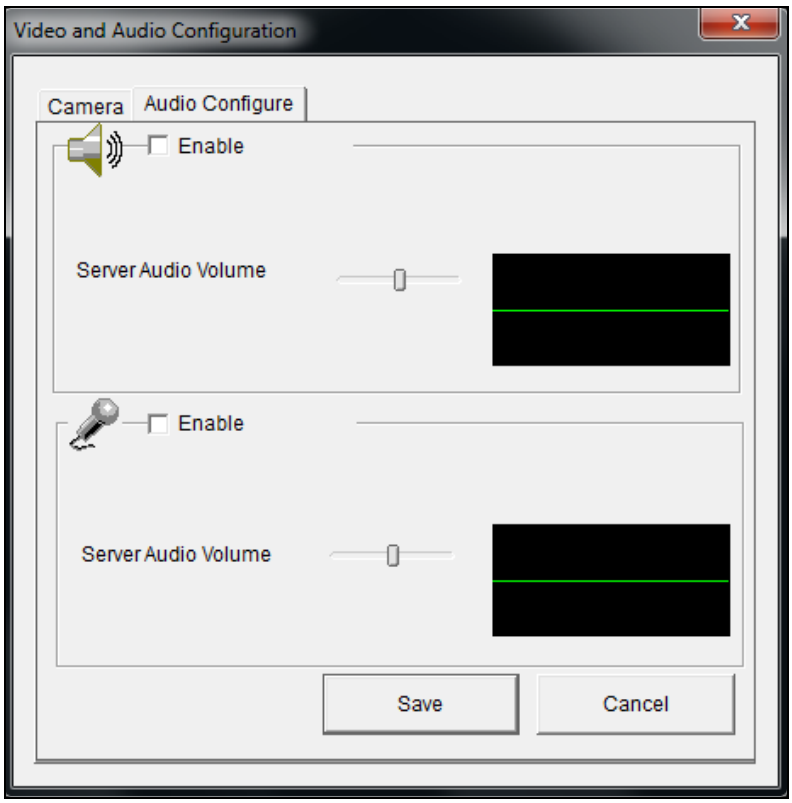


Figure 3-14

3.2.10 Remote Configuration

You can upgrade firmware over the network. Click the **Show System Menu** button (No. 9, Figure 3-4), and select **Remote Config**. The Remote Config dialog box will appear.

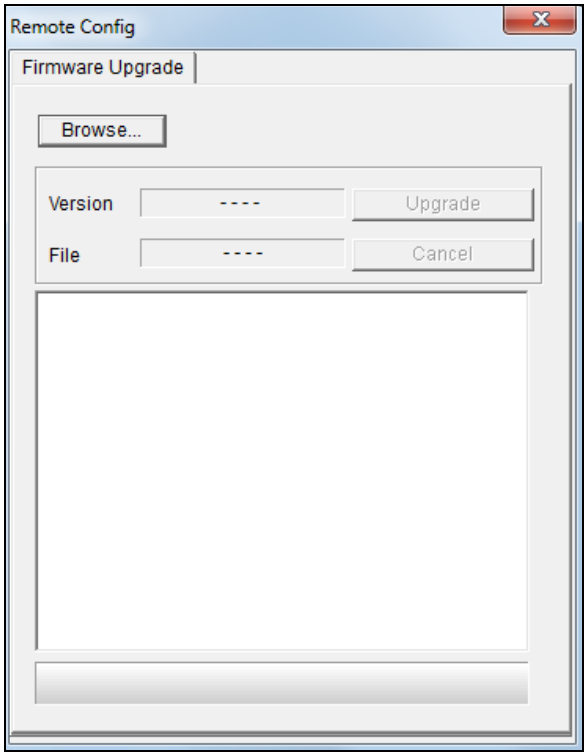


Figure 3-15

[Firmware Upgrade] In this tab, you can upgrade the firmware over the network.

3.2.11 Camera Name Display

To display the camera access controller's name on the image, click the **Show System Menu** button (No. 9, Figure 3-4), and select **Show Camera Name**.

3.2.12 Image Enhancement

To enhance the image quality of live video, click the **Show System Menu** button (No. 9, Figure 3-4), and select **Image Enhance**. This dialog box appears.

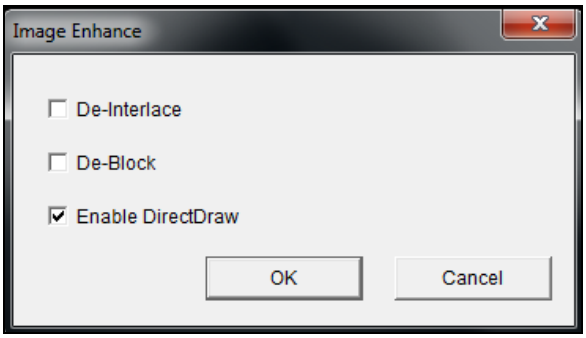


Figure 3-16

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

Chapter 4 Administrator Mode

The Administrator can access system configuration of GV-CS1320 through the network. The following configuration categories are available: **Video**, **Access Control**, **Events and Alerts**, **Monitoring**, **Network** and **Management**.

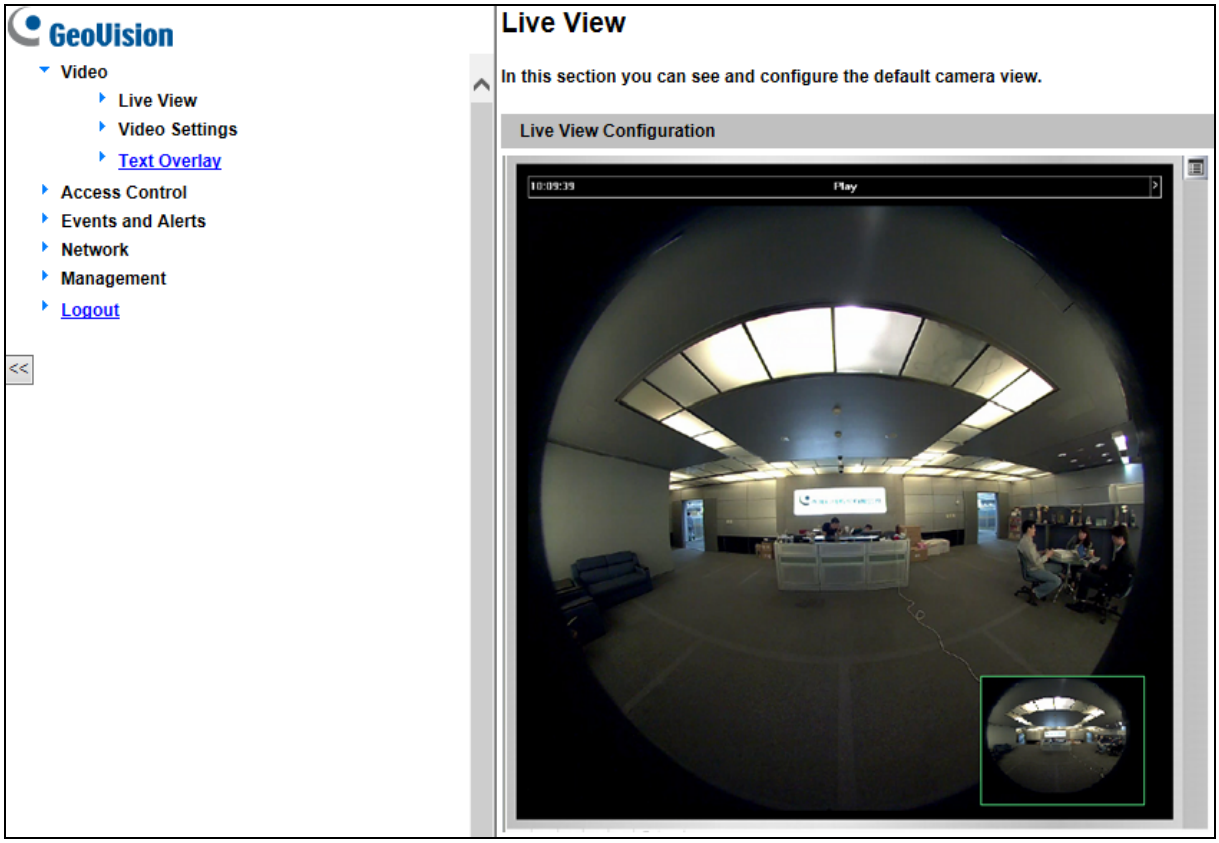


Figure 4-1

List of Menu Options

Find the topic of interest by referring to the section number prefixed to each option.

4.1 Video	4.1.1 Video Settings 4.1.2 Text Overlay
4.2 Access Control	4.2.1 Basic Setting 4.2.2 Extended Device
4.3 Events and Alerts	4.3.1 Email 4.3.2 RTSP/ONVIF
4.4 Network	4.4.1 Status 4.4.2 LAN 4.4.3 Advanced TCP/IP 4.4.4 IP Filtering 4.4.5 SNMP Setting
4.5 Management	4.5.1 Date and Time Settings 4.5.2 User Account 4.5.3 Log Information 4.5.4 Tools 4.5.5 Language

4.1 Video

GV-CS1320 supports dual streams, Streaming 1 and Streaming 2, which allow separate codec and resolutions settings for a single video transmission. In a bandwidth-limited network, such as mobile phone surveillance, this dual-stream feature allows you to view live video in lower resolution (Streaming 2), and record in highest resolution (Streaming 1) at the same time.

Comparison between Stream 1 and Stream 2:

<table>
<tr><th>Video Setting Options</th><th>Stream 1</th><th>Stream 2</th></tr>
<tr><td>Video Signal Type</td><td colspan="2">Different codec, resolutions and frame rates can be applied to Stream 1 and 2.</td></tr>
<tr><td>Watermark Setting</td><td rowspan="3">Yes</td><td rowspan="3">Not configurable. Settings in Stream 1 will be automatically applied to Stream 2.</td></tr>
<tr><td>Face Detection Setting</td></tr>
<tr><td>Special View Setting</td></tr>
</table>

4.1.1 Video Settings

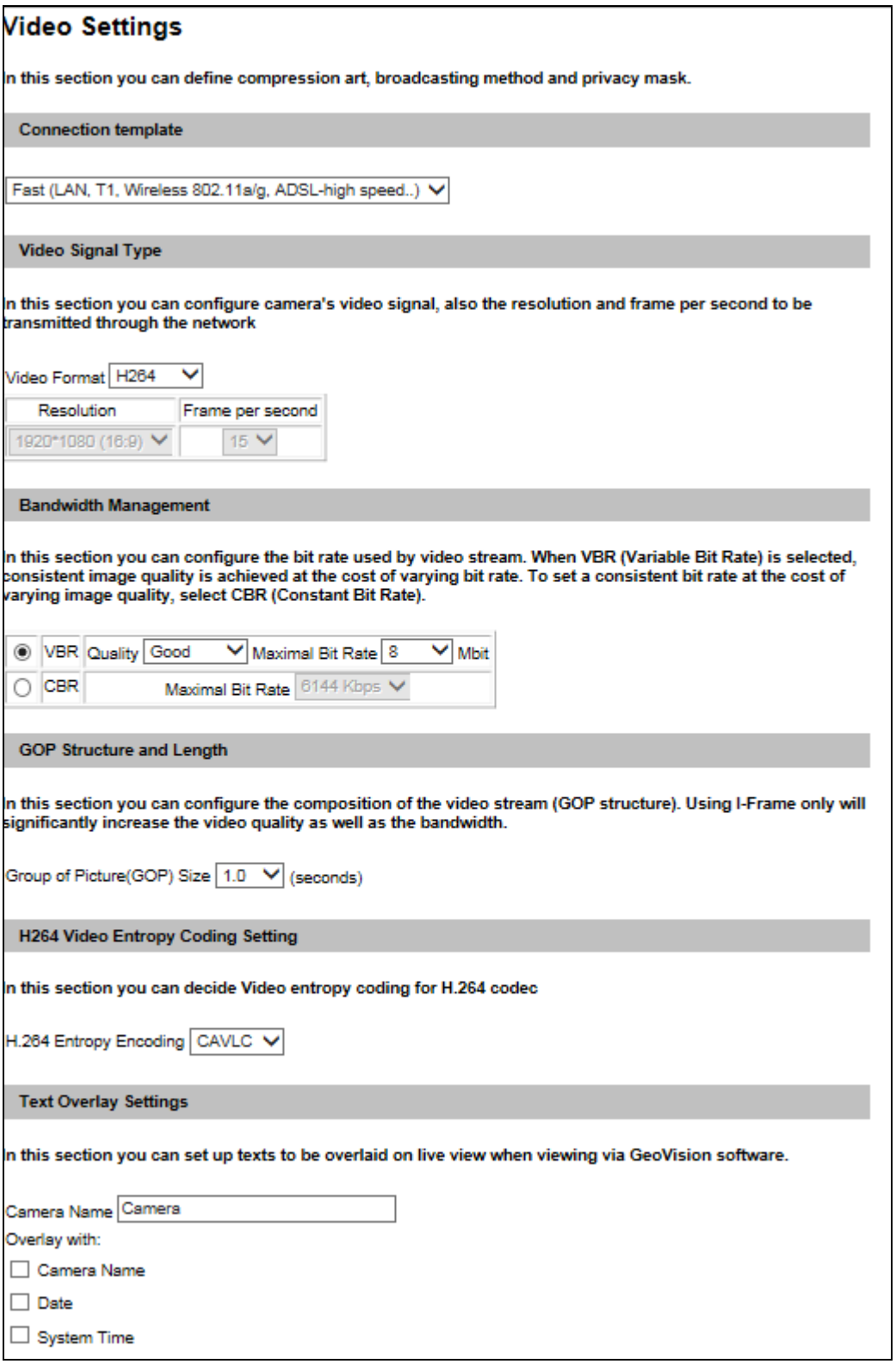


Figure 4-2a

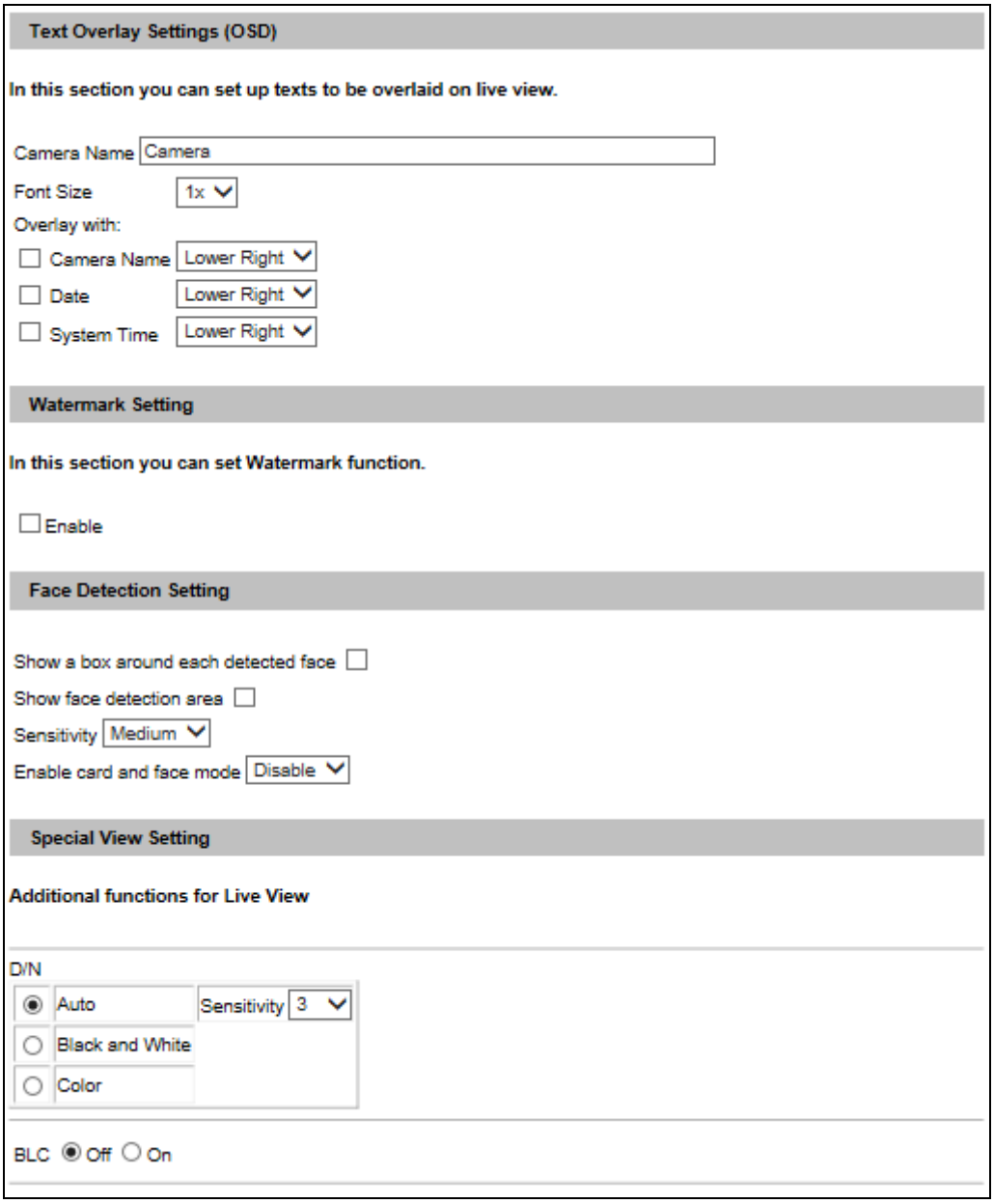


Figure 4-2b

[Connection Template] Select the type of your network connection. Unless you select **Customized**, this option will automatically bring up the recommended frame rate.

[Video Signal Type] Configure the codec type, signal format, resolution and frame rate. Select between **H.264** and **MJPEG** as the codec type.

The codec options, resolutions and maximum frame rates are listed as below:

Streams	Codec Options	Image Resolution	Maximum Frame Rate
Stream 1	H.264, MJPEG	1920 x 1080	15 fps
Stream 2	H.264, MJPEG	640 x 360	15 fps

[Bandwidth Management] When using the H.264 code, you can select constant bitrate or variable bitrate to control the bandwidth usage.

- **VBR (Variable Bitrate):** The quality of the video stream is kept as constant as possible at the cost of a varying bitrate. The bandwidth is used much more efficiently than a comparable CBR. You can set a limit to the bit rate by specifying a **Maximal Bit Rate**. Set the image quality to one of the 5 standards: **Standard, Fair, Good**, **Great**, and **Excellent.**
- **CBR (Constant Bitrate):** CBR is used to achieve a specific bitrate by varying the quality of the stream. Select a bitrate from the **Maximal Bit Rate** drop-down list.

[GOP Structure and Length] Set the maximum number of seconds between every key frame. This option is only available when H.264 is selected for codec.

[H.264 Video Entropy Coding Setting] By default, the entropy coding is set to CAVLC. To change it to **CABAC**, click and select from the drop-down list.

[Text Overlay Settings] Displays camera name, date, and/or time on the live view and recorded videos when viewing through GeoVision software.

- **Camera:** Type the camera name.
- **Overlay with:** Select one or more of the options below to be overlaid on the live view and recorded videos.
  - ⊙ **Camera Name**
  - ⊙ **Date**
  - ⊙ **System Time**

[Text Overlay Settings (OSD)] Displays camera name, date, and/or time on the live view and recorded videos when viewing through GeoVision software and third-party software through ONVIF and RTSP.

- **Camera Name:** Type the camera name.
- **Font Size:** Select the font size from 1x to 5x using the drop-down list.
- **Overlay with:** Select one or more of the options below to be overlaid on the live view and recorded videos. Use the drop-down list to select the display position.
  - ⊙ **Camera Name**
  - ⊙ **Date**
  - ⊙ **System Time**

[Watermark] Enable this option to watermark all recordings. The watermark allows you to verify whether the recorded video has been tampered with. See *5.4 Verifying Watermark*.

[Face Detection Setting]

- **Show a box around each detected face:** Select this option to draw a box around each detected face on the camera view.
- **Show face detection area:** Show the face detection area on the camera view to indicate the area where face detection is supported.
- **Sensitivity:** Select a sensitivity level for face detection.
- **Enable card and face mode:** Select this option to require a card to be presented and a face to be detected before access is granted. The LED Indicator will flash red if the camera reader controller fails to detect the face.

Note:

1. If face detection fails, the card will not be recognized by GV-CS1320.
2. When **Card and Face** mode is enabled, the cardholder should stand in front of GV-CS1320 for at least 5 seconds to allow face detection before presenting the card.
3. When **Night** mode is enabled, the built-in IR LEDs may be automatically switched off at the time of face detection for approximately 2 seconds whenever a card is swiped through GV-CS1320.

[Special View Setting]

- **D/N:** Sets the Day/Night mode of GV-CS1320.
  - ⊙ **Auto:** Select **Auto** for the GV-CS1320 to detect the amount of light present and automatically switch to monochrome in a poorly-lit scene. Use the drop-down list to adjust the sensitivity level of light sensor from 1 to 5. The higher the value, the more sensitive GV-CS1320 is to light.

⊙ **Black and White:** Select this option for the live view to be in monochrome.

⊙ **Color:** Select this option for the live view to be in color.

[BLC] Enable the backlight compensation to adjust the exposure when the subject is positioned in front of a bright light source.

4.1.2 Text Overlay

The Text Overlay allows you to overlay any text in any place on the camera view. Up to 16 text messages can be created on one camera view. The overlaid text will be saved in the recordings.

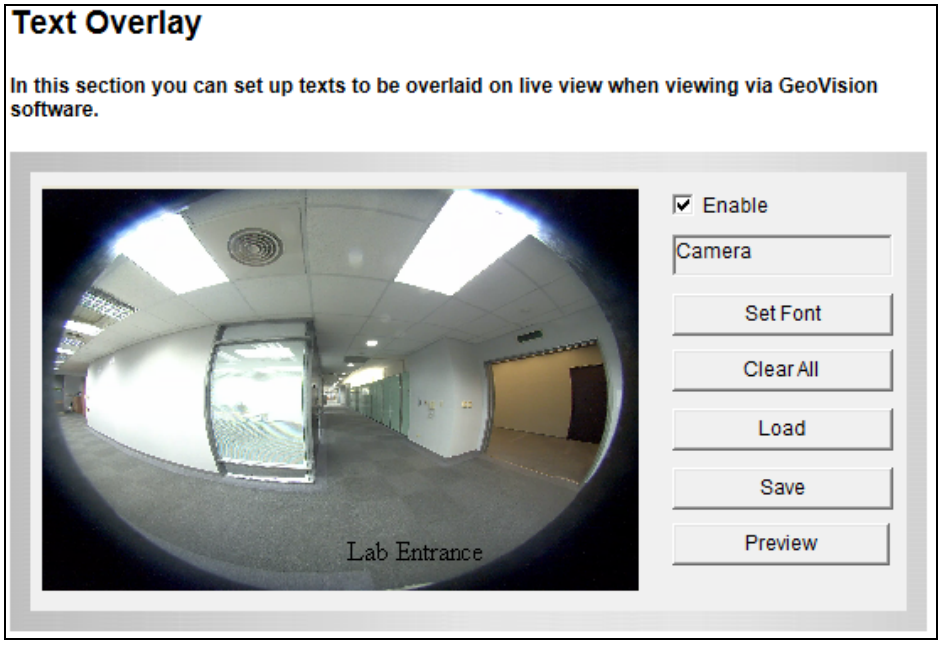


Figure 4-3

1. Select the **Enable** option.
2. Click **Set Font** to set up the font, font style and font size in a pop-up window.
3. Click any place on the image. This dialog box appears.

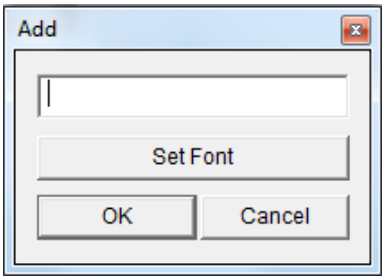


Figure 4-4

4. Type the desired text, and click **OK**. The text is overlaid on the image.
5. Drag the overlaid text to a desired place on the image.
6. Click **Set Font** to modify the font settings.
7. Click **Save** to apply the settings, or click **Load** (Undo) to revert to the last saved setting.
8. Click **Preview** to see how the text will appear on the image. Click **Close** to end the preview.

4.2 Access Control

Under Access Control, there are two sections, **Basic Setting** and **Extended Device**, you can choose from to configure the controller settings on the left menu of the Web interface.

4.2.1 Basic Setting

The Basic Setting section covers function setting, door parameter configuration, card setting, input and other settings.

Changes in some of the Basic Setting page will affect the options available on other pages. The diagram below shows the relationships between each Basic Setting page.

The Relationship Diagram between each Basic Setting Page

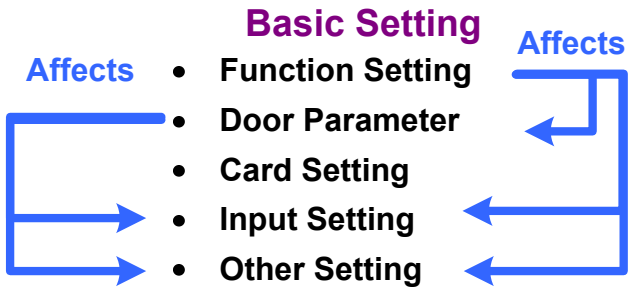


Figure 4-5

4.2.1.1 Function Setting

With the function setting, you can assign certain authentication methods for controlling a door/gate or an elevator.

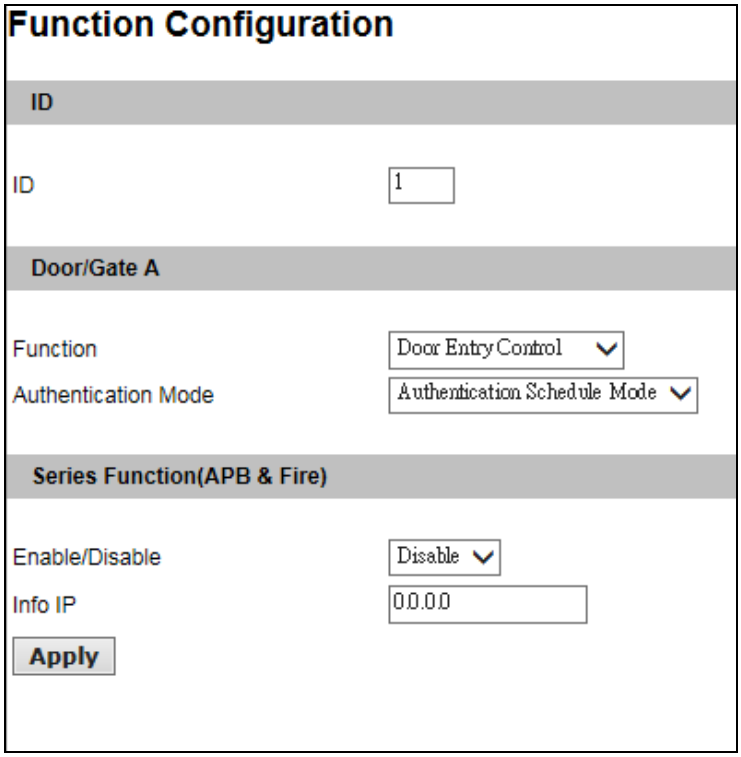


Figure 4-6

[ID] Enter the ID number for the controller. This ID is used by GV-ASManager to differentiate among multiple units of controllers. The ID number can only be between 1 and 1000.

[Door/Gate #] [Elevator] Select the function type and the authentication mode for the use of the Doors / Gates / Elevators.

- **Function:** Select the function for GV-CS1320 to be installed in a general door / parking place and an elevator for entry or exit access control.
  - ⊙ **Door Entry Control**
  - ⊙ **Parking Entry Control**
  - ⊙ **Door Exit Control**:
  - ⊙ **Parking Exit Control**
  - ⊙ **Elevator Control**
- **Authentication Mode:** Select the authentication mode for the Doors/Gates or Elevator.
  - ⊙ **Local Unlock Mode:** Remains open. The held-open state cannot be cleared through GV-ASManager.

- ⊙ **Local Lock Mode:** Remains locked. The locked state cannot be cleared through GV-ASManager.
- ⊙ **Fixed Card Mode:** Grants access after the card is presented or the passcode is entered, and ignores the authentication schedule of GV-ASManager.
- ⊙ **Fixed Card + PIN Mode:** Grants access after the user presents the card and enters the card's PIN code, and ignores the authentication schedule of GV-ASManager.
- ⊙ **Fixed Card/Common mode:** Grants access after the user presents the card or enters the door's password, and ignores the authentication schedule of GV-ASManager.
- ⊙ **Authentication Schedule Mode:** Follows the authentication schedule set on GV-ASManager.
- ⊙ **Local Lock Down:** Locks down the door. This mode overrides the Authentication Schedule and the door can only be opened by presenting the assigned access card.

[Series Function (APB & Fire)] This option lets you set the Anti-Passback function and fire sensor function across multiple door controllers. The Anti-Passback means that a card used on an entry door cannot access the same entry door again unless it has been used on a corresponding exit door.

- ■ **Enable/Disable:** Enables or disables the Anti-Passback function and fire sensor function.
- ■ **Info IP:** Enter the IP address of the next corresponding controller.

Note: GV-CS1320 does not support fire sensor inputs. However, the output of GV-CS1320 will be triggered when the fire sensors on one door of its associated controller is triggered.

4.2.1.2 Door Parameter

The content of the Parameter Configuration page change is based on your settings for **Door/Gate #** in the **Function Configuration** page (Figure 4-6).

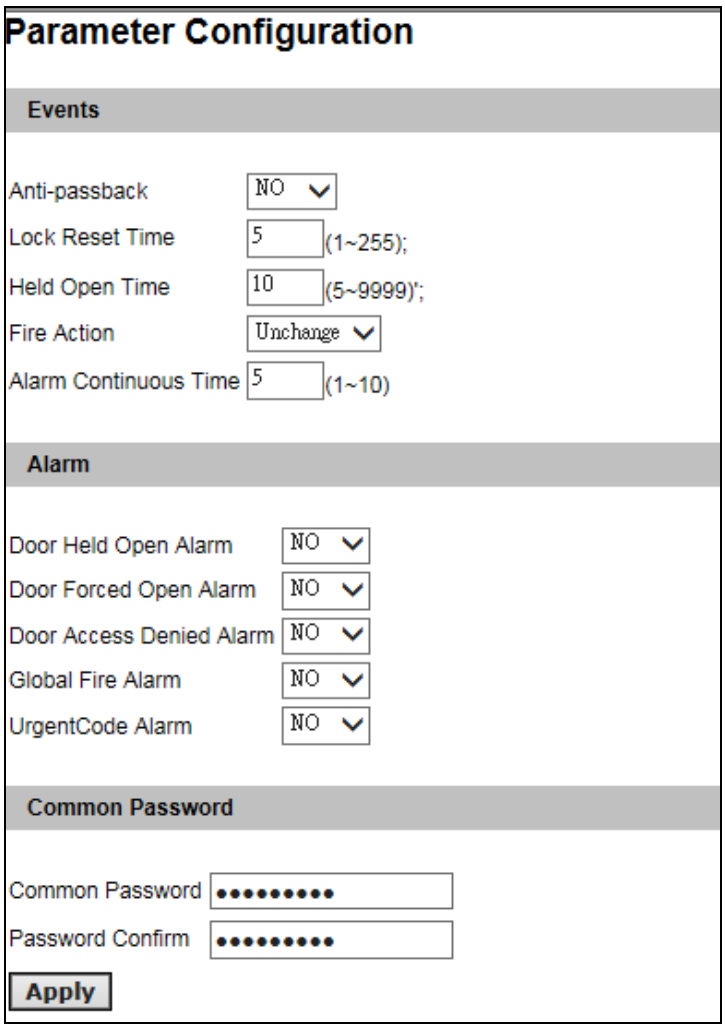


Figure 4-7

[Events]

Set the parameters for the events.

- When **Door Control** is selected in the **Function Configuration** page (Figure 4-6), these options become available:

Option	Description
Anti-Passback	Enables or disables the Anti-Passback function.
Lock Reset Time	Sets the time (1 to 255 sec.) that a door remains open after which the door will automatically be locked.
Held Open Time	Sets the time (5 to 9999 sec.) that a door can be held open before an alarm is generated.

Fire Action	Locks or unlocks the door when a fire condition occurs. Otherwise, remains the door's current state by selecting *Unchanged*.
Alarm Continuous Time	Sets the time (1 to 10 sec.) that the alarm will continuously go off before it ends.

- When **Parking Control** is selected in the **Function Configuration** page (Figure 4-6), these options become available:

Option	Description
Anti-Passback	See the same option above.
Relay On Time	Sets the time (1 to 255 sec.) that a gate remains open after which the gate will automatically be closed.
Held Open Time	See the same option above.
Fire Action	
Alarm Continuous Time	

- When **Elevator Control** is selected in the **Function Configuration** page (Figure 4-6), these options become available:

Option	Description
Relay on Time	See the same option above.
Fire Action	
Alarm Continuous Time	See the same option above.

Note: GV-CS1320 does not support fire sensor inputs. The **Fire Action** and **Global Fire Alarm** options must work with the Anti-Pass Back (APB).

[Alarm] Select **Yes** or **No** to enable or disable the alarm function. The default settings for all the alarms are set to **NO**.

- When **Door Control** is selected in the **Function Configuration** page (Figure 4-6), these options become available:

Option	Description
Door Held Open	This alarm activates whenever the door is held open over the set period of time.
Door Forced Open	This alarm activates whenever the door is opened by force.
Door Access Denied	This alarm activates whenever entry is denied due to using the wrong card or entering the wrong password.
Global Fire	This alarm activates whenever fire is detected.
Urgent Code	This alarm activates whenever an emergency arises at the door.

[Common Password] When **Fixed Card/Common Mode** is selected as **Authentication Mode** in the **Function Configuration** page (Figure 4-6), you can gain access by using the card or entering this Common Password (door's password).

4.2.1.3 Card Setting

In the Card Setting page, you can select an identification type for your reader.

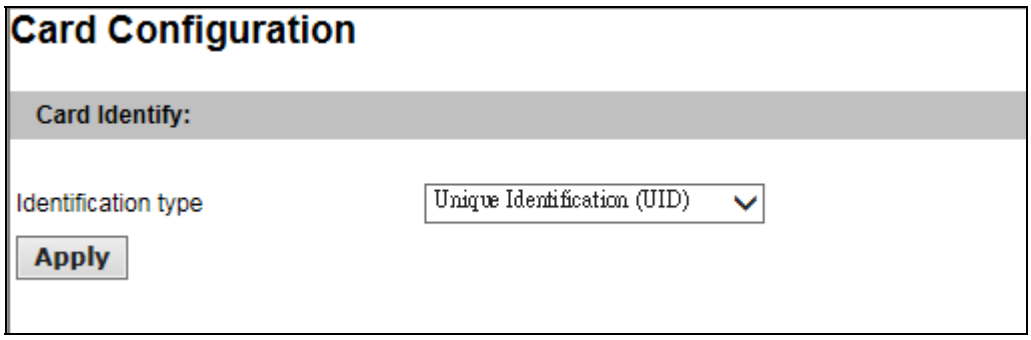


Figure 4-8

[Card Identify]

- **Identification type:** Set the built-in card reader of GV-CS1320 to read UID (unique identification) or GID (GeoVision identification) on GV-AS ID F Card / Key Fob.

To use **GeoVision Identification (GID)**, make sure there are two numbers on your GV-AS ID Cards / Key Fobs as shown below. If there is only one number on your GV-AS ID Cards / Key Fobs, GID is not supported and you must select **Unique Identification (UID)**.

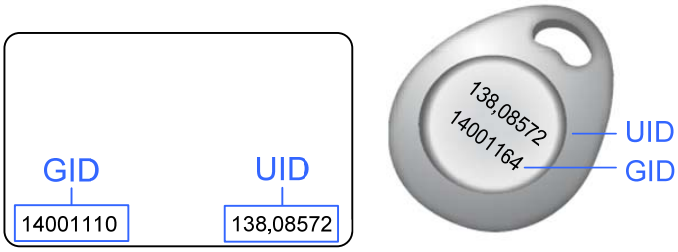


Figure 4-9

4.2.1.4 Input Setting

The Input Setting is used to define the input devices connected to GV-CS1320.

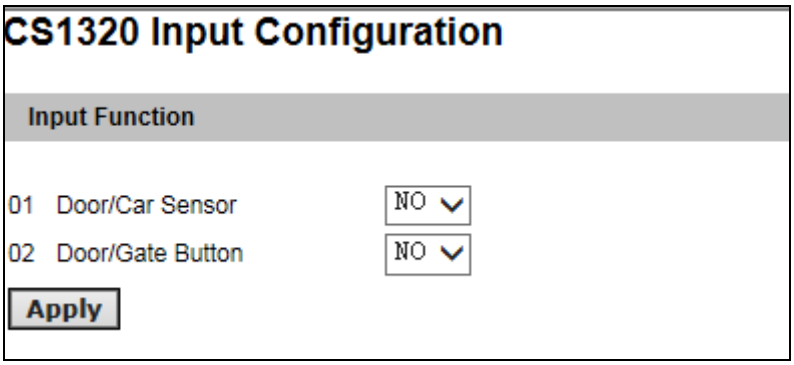


Figure 4-10

[Input Function]

Set the input contact types to be normally open or normally closed. The default settings for all the inputs are set to **NO**.

- Door/Car Sensor
- Door/Gate Button (touch pad)

4.2.1.5 Other Setting

Here you can specify the encryption code, device port and adjust the SD settings in your GV-CS1320.

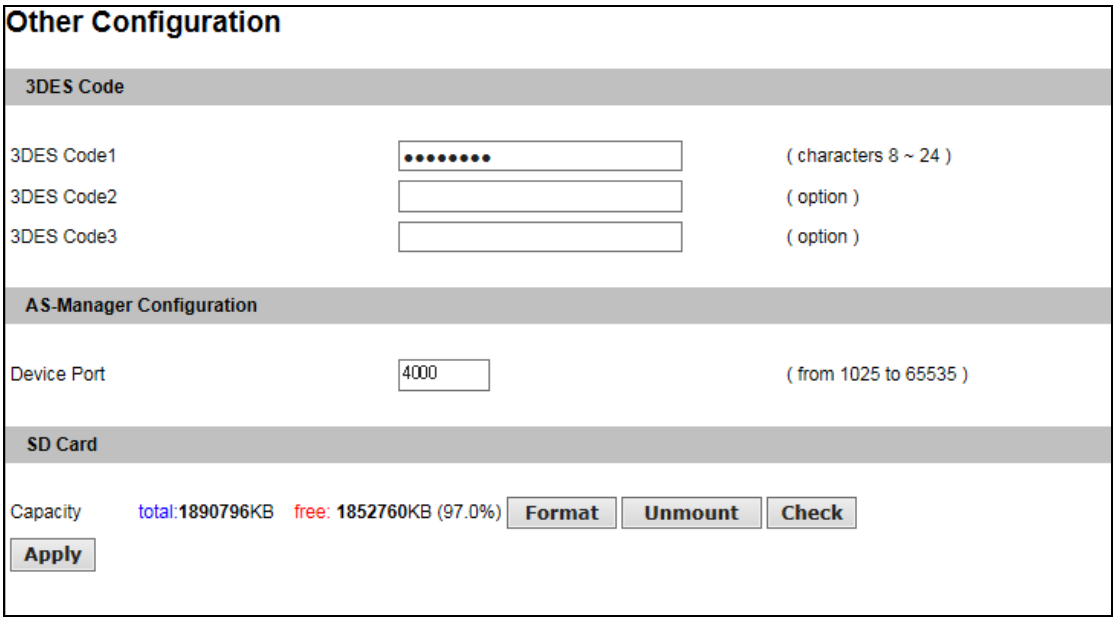


Figure 4-11

- **3DES Code 1-3:** Stands for Triple DES (Data Encryption Standard). Type up to three different keys for data encryption. The default 3DES Code1 is **12345678**.
- **Device Port:** Keep the default value **4000** or modify it to match that of GV-ASManager's.
- **SD Card:** Indicates the capacity of the SD card inserted and allows you to format the SD card. To safely remove the inserted SD card, click **Unmount**. To check and repair the SD card, click **Check**.

4.2.2 Extended Device

You can define the GV-Readers and GV-GF Fingerprint Readers connected to GV-CS1320 through RS-485 or network connection.

4.2.2.1 Extended Reader

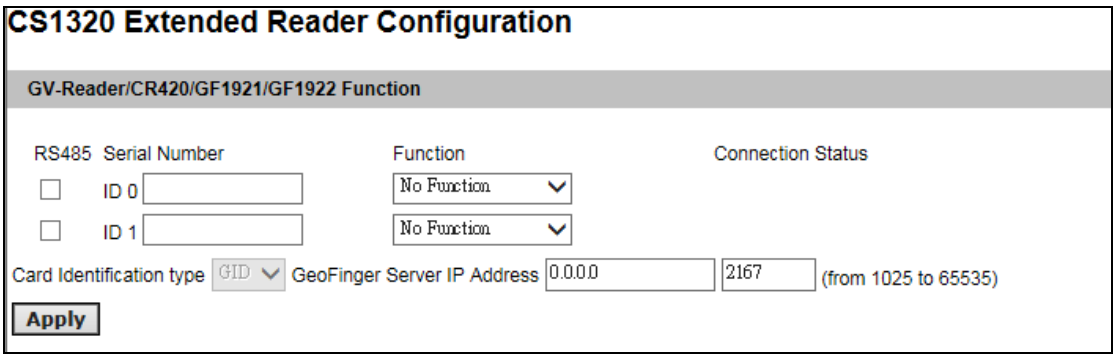


Figure 4-12

[GV-Reader / CR420 / GF1921 / 1922 Function] Define the readers connected to the controller, and then use the Function drop-down list to select the door option associated with the reader.

- **GV-RK1352 / R1352 / DFR1352:** Select the **RS-485** checkbox and type the **Serial Number** of the reader. Note that the ID number located next to the serial number field need to match the reader's ID number defined through the GV-RK1352 Config AP.
- **Reader 1352 V2:** Select the **RS-485** checkbox and leave the serial number field blank. Note that the ID number located next to the serial number field need to match the reader's ID number defined by the dip switches on the reader.
- **GV-GF1921 / GF1922:** Type the **MAC address** of the fingerprint reader and do not select the RS-485 checkbox.
- **GV-CR420:** Select the **RS-485** checkbox only if the GV-CR420 is connected to the controller through RS-485 connection. If the reader is using network connection, do not check the RS-485 box. Type the **MAC address** of GV-CR420 if you using the latest GV-CR420 firmware.

[Card Identification Type]

Select either UID (unique identification) or GID (GeoVision identification) for your reader.

[GeoFinger Server IP Address]

To allow GV-ASManager to receive data from the GV-GF1921 / 1922 defined on this page during remote fingerprint enrollment, type the IP address and port of the GV-ASManager's GeoFinger Server.

Note: To allow network connection, you must also enable network connection to the controller on the Web interface of the GV-CR420 or GV-GF1921 / 1922.

4.3 Events and Alerts

The Administrator can set up alert methods to receive e-mail notifications when the door is tampered with.

4.3.1 Email

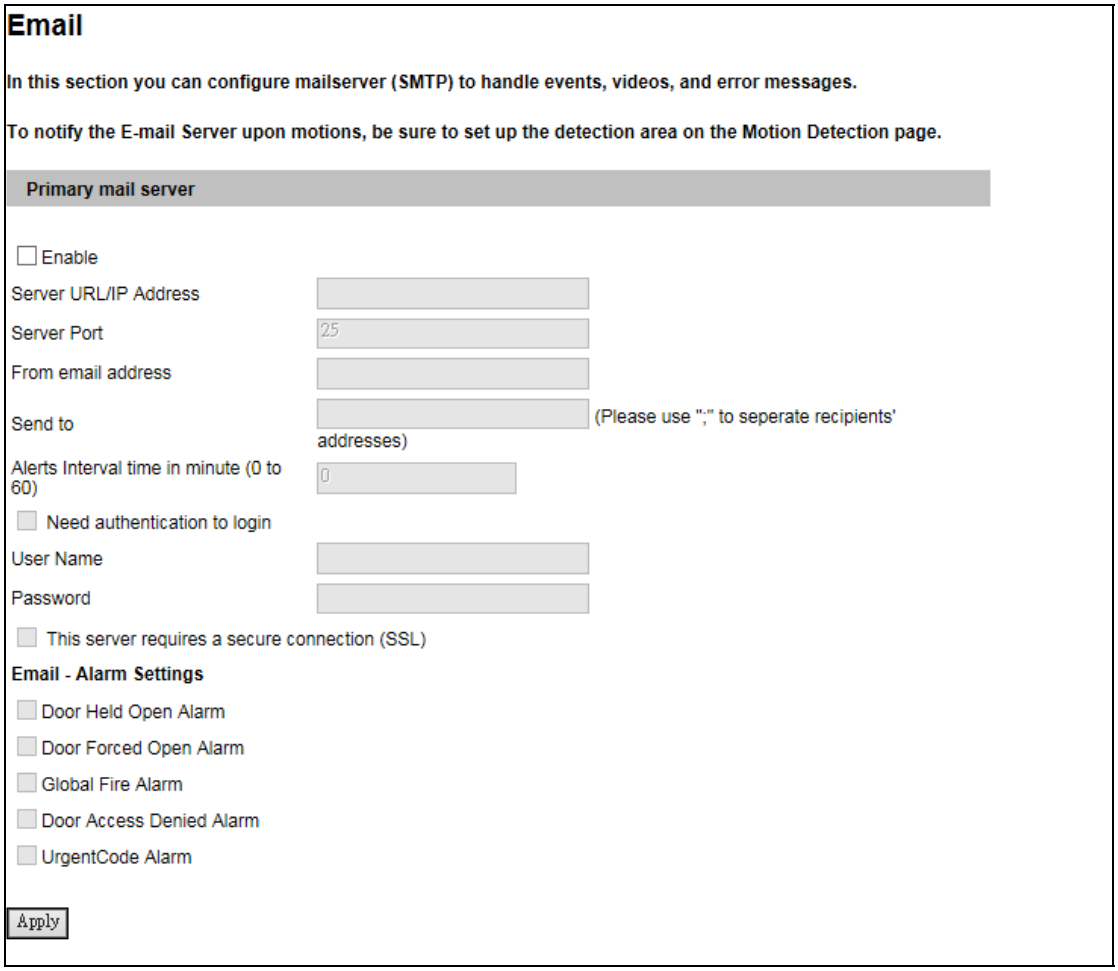


Figure 4-13

[Enable]

Select **Enable** to set up e-mail notifications.

- **Sever URL/IP Address:** Type the SMTP Server's URL address or IP address.
- **Server Port:** Type the SMTP Server's port number or keep the default value 25.
- **From email address:** Type the sender's e-mail address.
- **Send to:** Type the e-mail address(s) you want to send alerts to.

- **Alerts interval time in minute:** Specify the interval between e-mail alerts. The interval can be between 0 and 60 minutes. The option is useful for frequent event occurrence. Any event triggers during the interval period will be ignored.

[Need authentication to login]

If the SMTP Server needs authentication, select this option and type a valid **Username** and **Password** to log in the SMTP server.

[This server requires a secure connection]

If the SMTP Server needs a secure connection (SSL), select this option.

[Email-Alarm Settings]

You can choose to automatically send an e-mail alert under the following conditions:

Option	Description
Door Held Open	This alarm activates whenever the door is held open over the set period of time.
Door Forced Open	This alarm activates whenever the door is opened by force.
Door Access Denied	This alarm activates whenever entry is denied due to using the wrong card or entering the wrong password.
Global Fire	This alarm activates whenever fire is detected.
Urgent Code	This alarm activates whenever an emergency arises at the door.

4.3.2 RTSP/ONVIF

The RTSP enables video and audio streaming to your 3G-enabled mobile phone. You can configure the ONVIF settings for a third-party DVR and access controllers.

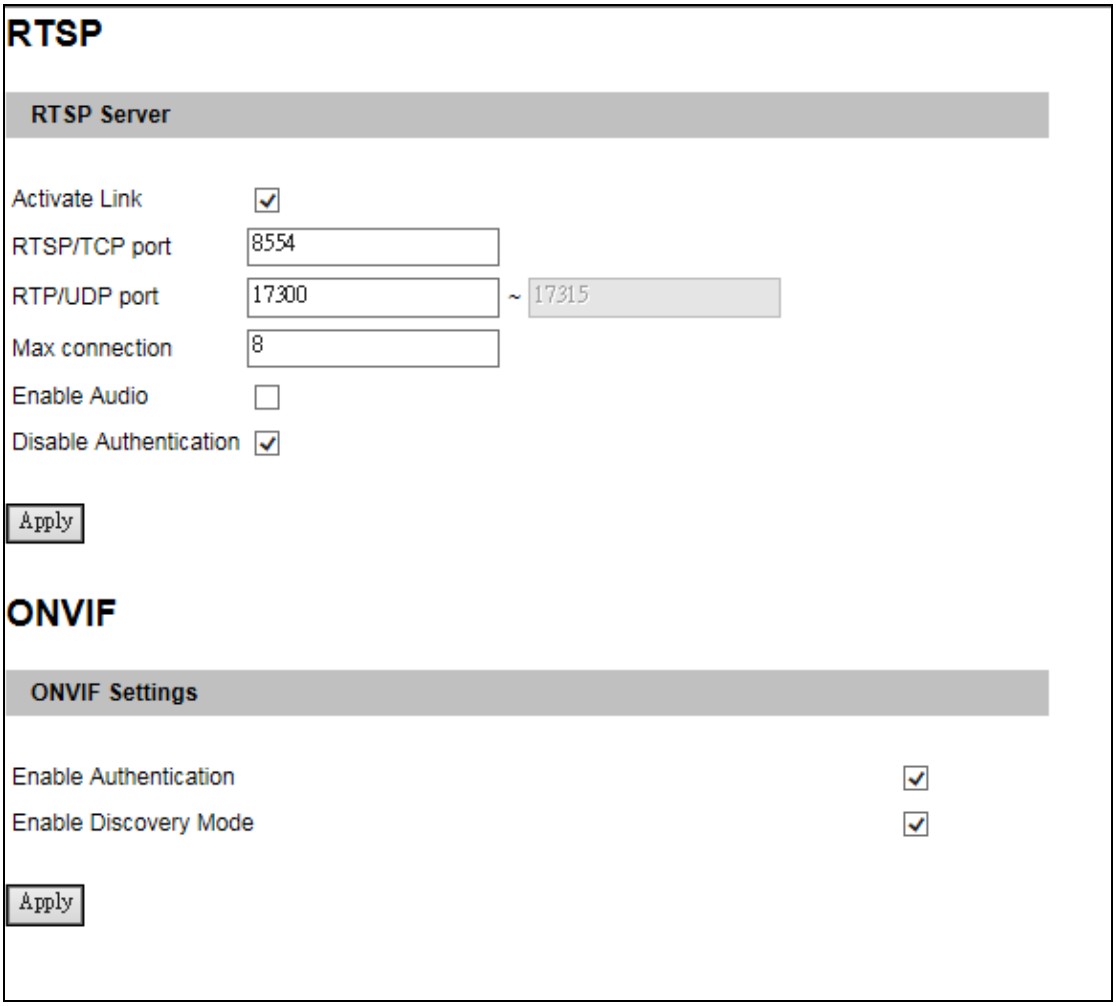


Figure 4-14

[RTSP]

- **Activate Link:** Enable the RTSP protocol.
- **RTSP/TCP Port:** Keep the default value 8554, or modify it if necessary.
- **RTP/UDP Port:** Keep the default range from 17300 to 17315, or modify it if necessary. The number of ports for use is limited to 20.
- **Max Connection:** Set the maximum number of connections to GV-CS1320. The maximum value is 8.
- **Enable Audio:** Turns the audio streaming on or off.

- **Disable Authentication:** By default, when accessing live view through the RTSP command, the ID and password of GV-CS1320 are required. Select this option to disable the authentication prompt.

[ONVIF]

- **Enable Authentication:** The ID and password of GV-CS1320 are required to access GV-CS1320 by a third-party DVR through ONVIF. This function is enabled by default.
- **Enable Discovery Mode:** Allows the third-party DVR to browse GV-CS1320. This function is enabled by default.

For details on the RTSP command, see *RTSP Protocol Support* in Appendix B.

4.4 Network

The Network section includes some basic but important network configurations that enable the GV-CS1320 to be connected to a TCP/IP network.

4.4.1 Status

You can access an overview of GV-CS1320's network status.

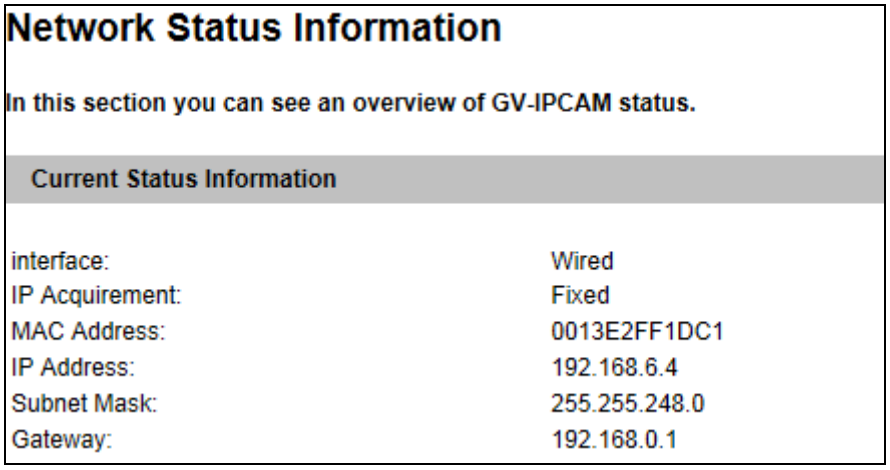


Figure 4-15

4.4.2 LAN

According to your network environment, select among DHCP, static IP and PPPoE.

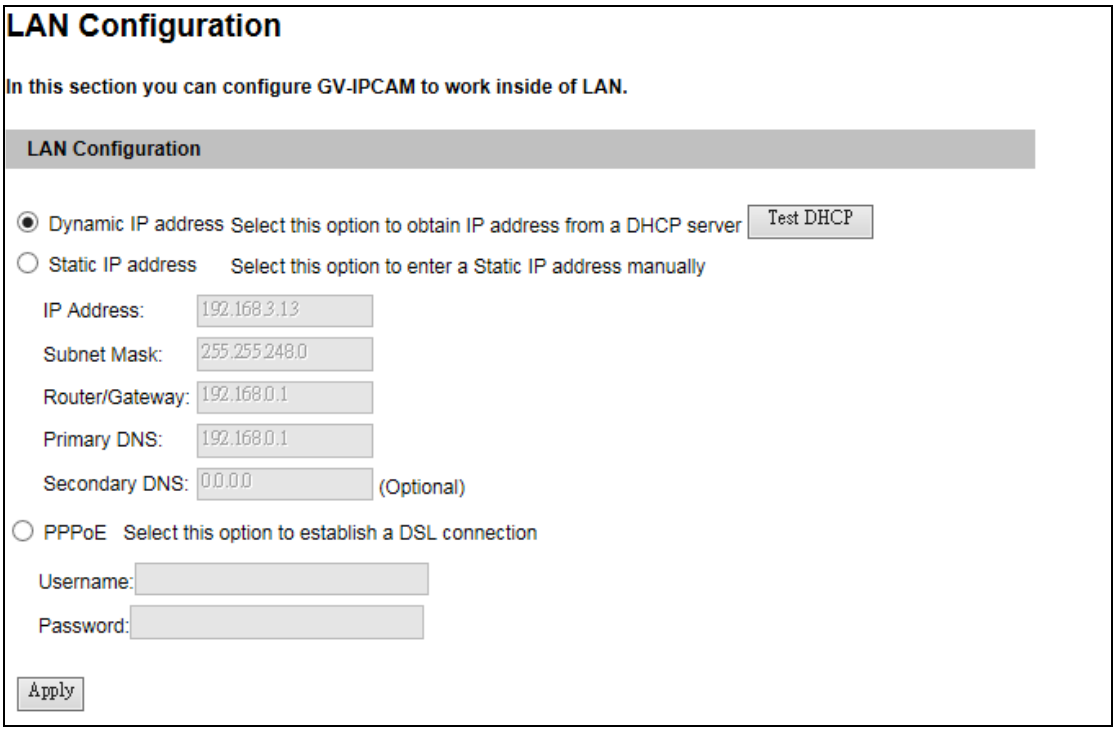


Figure 4-16

[LAN Configuration]

- **Dynamic IP address:** The network environment has a DHCP server which will automatically assign a dynamic IP address to GV-CS1320. Click the **Test DHCP** to see the currently assigned IP address or look up the address using GV-IP Device Utility.
- **Static IP address:** Assign a static IP or fixed IP to GV-CS1320. Type GV-CS1320's IP address, Subnet Mask, Router/Gateway, Primary DNS server and Secondary DNS server.

Parameters	Default
IP address	192.168.0.10
Subnet Mask	255.255.255.0
Router/Gateway	192.168.0.1
Primary DNS server	192.168.0.1
Secondary DNS server	192.168.0.2

- **PPPoE:** The network environment is xDSL connection. Type the Username and Password provided by ISP to establish the connection. If you use the xDSL connection with dynamic IP addresses, first use the DDNS function to obtain a domain name linking to GV-CS1320's changing IP address.

4.4.3 Advanced TCP/IP

This section introduces the advanced TCP/IP settings, including the DDNS Server, HTTPS port, streaming port, UPnP and QoS.

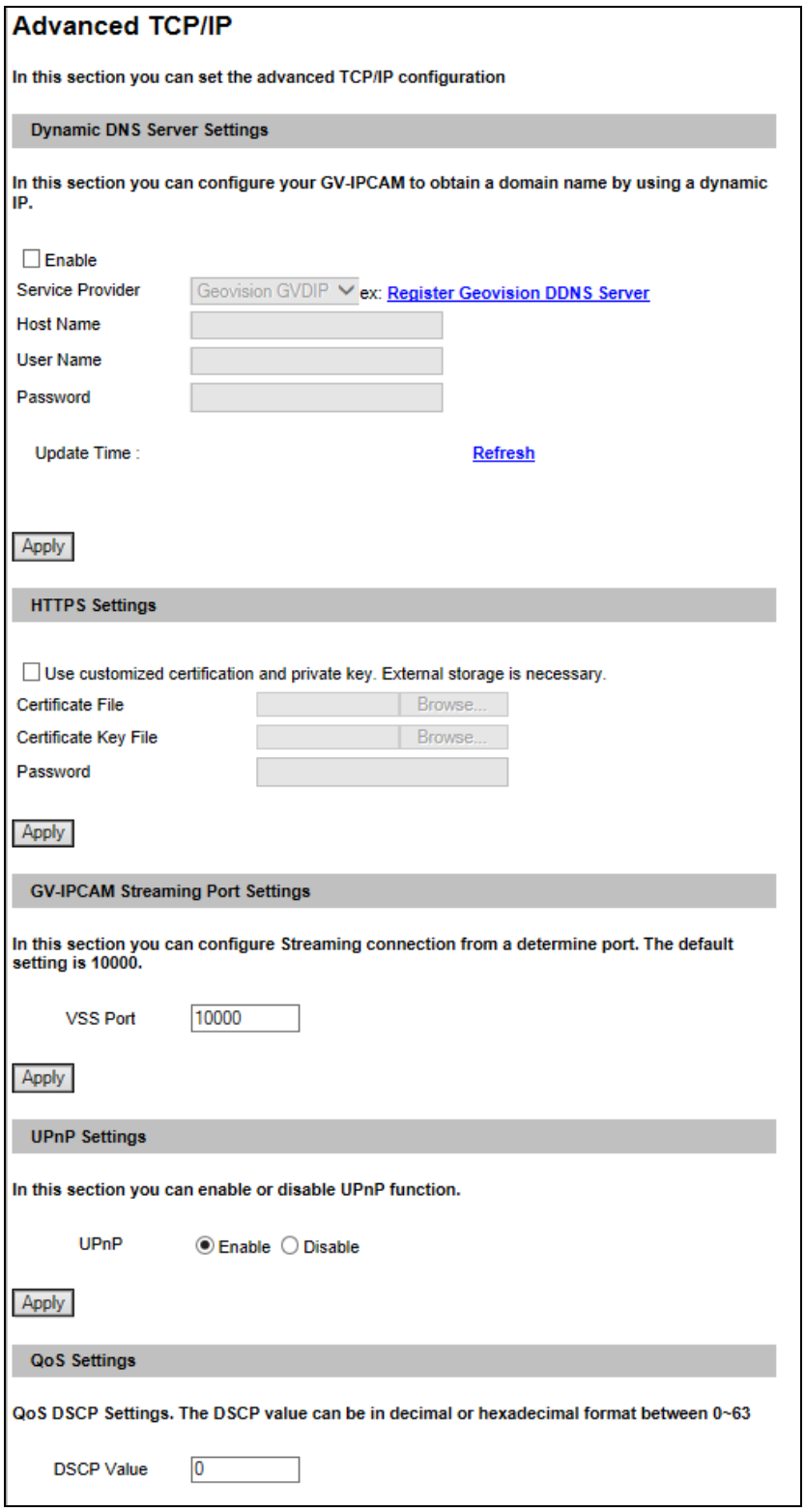


Figure 4-17

[Dynamic DNS Server Settings]

DDNS (Dynamic Domain Name System) provides a convenient way of accessing GV-CS1320 when using a dynamic IP. DDNS assigns a domain name to GV-CS1320, so that the Administrator does not need to go through the trouble of checking if the IP address assigned by DHCP Server or ISP (in xDSL connection) has changed.

Before enabling the following DDNS function, the Administrator should have applied for a Host Name from the DDNS service provider's website. There are 3 providers listed in GV-CS1320: GeoVision GVDIP, GeoVision DDNS Server and DynDNS.org.

To enable the DDNS function:

1. **Enable:** Enable the DDNS function.
2. **Service Provider:** Select the DDNS service provider you have registered with.
3. **Host Name:** Type the host name used to link to GV-CS1320. For users of GeoVision DDNS Server, it is unnecessary to fill the field because the system will detect the host name automatically.
4. **User Name:** Type the user name used to enable the service from the DDNS.
5. **Password:** Type the password used to enable the service from the DDNS.
6. Click **Apply**.

[HTTPS Settings]

By enabling the Hypertext Transfer Protocol Secure (HTTPS) settings, you can access GV-CS1320 through a secure protocol. You can use self-generated Certificate File and Certificate Key File or the ones verified by the SSL authority. Click **Browse** to locate the Certificate File and Certificate Key File and type the password if the .pem files are protected by password. Click **Apply**. The Web interface will be restarted and you will need to log in again.

Note: The .pem file format is supported by the Certificate File and Certificate Key File.

[GV-IPCAM Streaming Port Settings]

The VSS port enables your GV-CS1320 to be connected to the GV-System / GV-VMS and to send images to GV-ASManager. The default setting is **10000**.

[UPnP Settings]

UPnP (Universal Plug & Play) is a networking architecture that provides compatibility among networking equipment, software and peripherals of the 400+ vendors that are part of the Universal Plug and Play Forum. It means that they are listed in the network devices table for the operating system (such as Windows XP) supported by this function. Enabling this function, you can connect to GV-CS1320 directly by clicking on the camera listed in the network devices table.

[QoS Settings]

The Quality of Service (QoS) is a bandwidth control mechanism that guarantees delay-sensitive data flows such as voice and video streams and obtains a certain amount of bandwidth to keep the streaming smooth.

To apply QoS to the camera reader, all network routers must support QoS and QoS must be enabled on these devices. To enable the QoS on the camera, enter a Differentiated Services Code Point (DSCP) value. This value is a field in an IP packet that enables different levels of services for the network traffic. When the video stream from the camera reaches a router, the DSCP value will tell the router what service level to be applied, e.g. the bandwidth amount. This value ranges from 0 to 63 in decimal format. The default value is 0, meaning QoS is disabled.

Note: If you do not intend to connect GV-CS1320 to the network, disable this function to prevent automatic reboot.

4.4.4 IP Filtering

The Administrator can set IP filtering to restrict access to GV-CS1320.

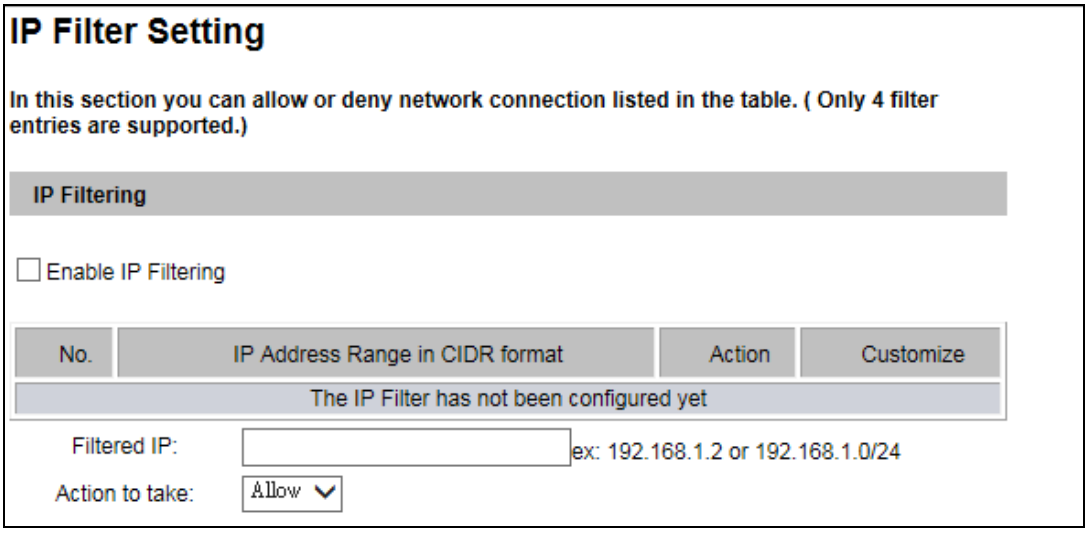


Figure 4-18

To enable the IP Filter function:

1. **Enable IP Filtering:** Enable the IP Filtering function.
2. **Filtered IP:** Type the IP address from which you want to restrict the access.
3. **Action to take:** Select the action of **Allow** or **Deny** to be taken by the IP address(es) you have specified.
4. Click **Apply**.

4.4.5 SNMP Setting

The Simple Network Management Protocol (SNMP) allows you to monitor the status of GV-CS1320 through SNMP network management software.

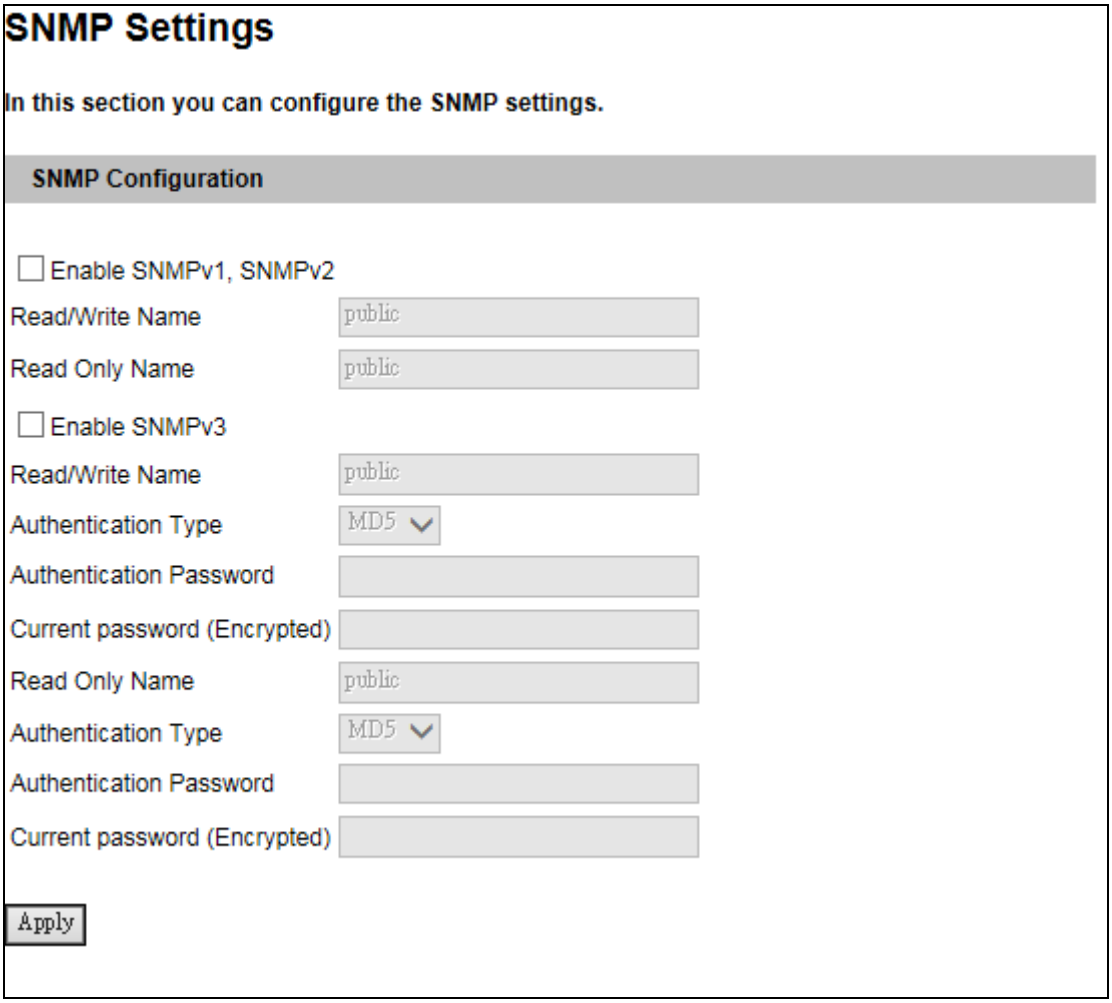


Figure 4-19

To set up the SNMP settings:

1. Select **Enable SNMPv1 SNMPv2c** to enable the function.
2. To enable access to **Read/Write Name**, type a community string. This will serve as a password to allow read and write access to GV-CS1320 from the SNMP software.
3. To enable **Read Only Name**, type a community string to allow read-only access to the camera from the SNMP software.
4. For a more secured connection, select **Enable SNMPv3** to enable SNMP version 3.
5. To enable access to **Read/Write Name**, type a community string.
6. Select an **Authentication Type** to be used for SNMP requests.

7. Type the **Authentication Password** and **Current Password (Encrypted)**. You will need to type these passwords in the SNMP software to be able to access GV-CS1320.
8. To enable access to **Read Only Name**, type a community string to allows read-only access to GV-CS1320, and set up the **Authentication Type**, **Authentication Password** and the **Current Password (Encrypted)**.
9. Click **Apply** to save the settings.

4.5 Management

The Management section includes the settings of data and time and user account. You can also view the firmware version and execute certain system operations.

4.5.1 Date and Time Settings

The date and time settings are used for date and time stamps on the image.

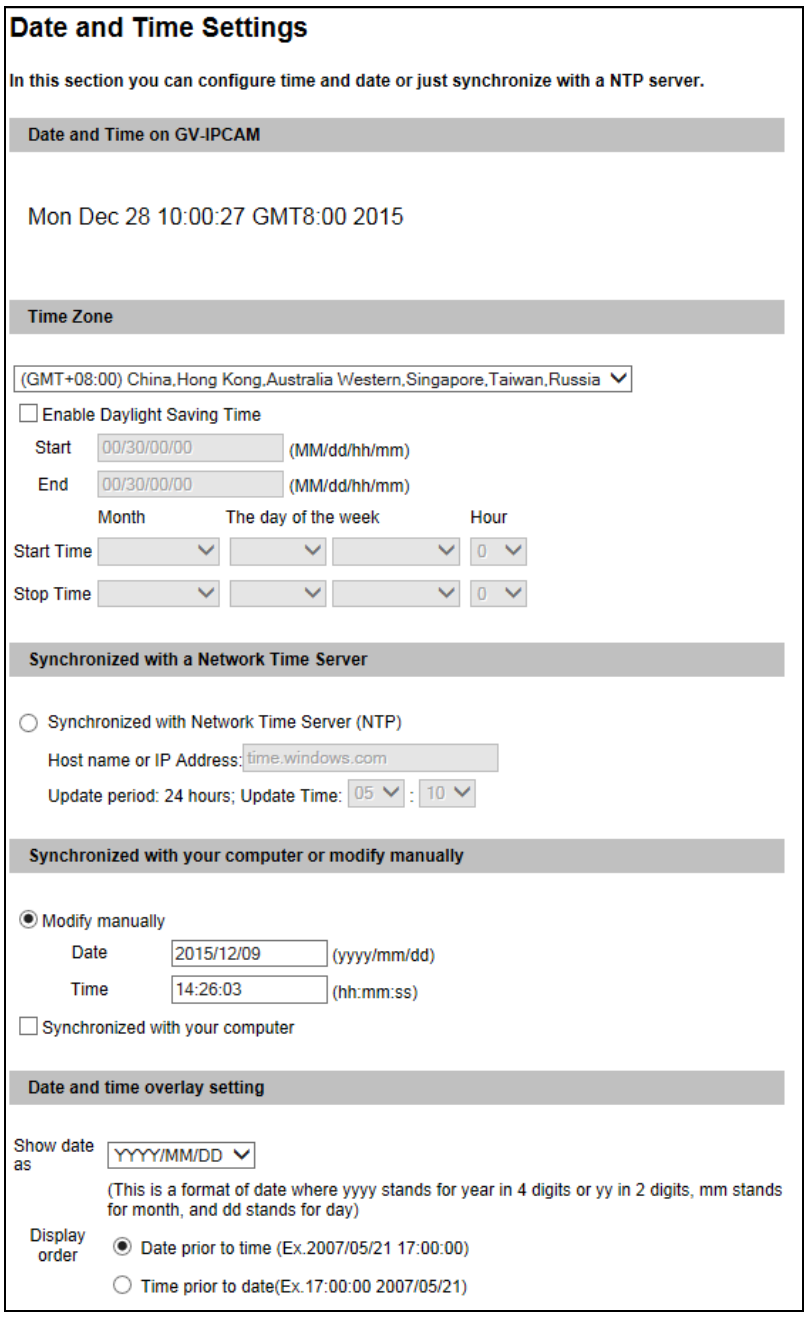


Figure 4-20

[Date & Time on GV-IPCAM] Displays the current date and time on GV-CS1320

[Time Zone] Sets the time zone for local settings. Select Enable Daylight Saving Tim to automatically adjust GV-CS1320 for daylight saving time. Select the Start and Stop time to enable the daylight saving function.

[Synchronized with a Network Time Server] By default, GV-CS1320 uses the timeserver of time.windows.com to automatically update its internal clock every 24 hours at the Update Time you specified. You can also change the host name or IP setting to the timeserver of interest.

[Synchronized with your computer or modify manually] Manually changes GV-CS1320's date and time or synchronize the camera access controller's date and time with those of the local computer.

[Date and time overlay setting] Select the display format of date and time stamps on the image. For this function to work, you must also enable the **Overlaid with date stamps** and **Overlaid with time stamps** options in Figure 4-2b.

4.5.2 User Account

You can change the Administrator's login name and password.

- The default Administrator login name and password are **admin**.
- To remain logged in after reboot, select **Disable auto logout after reboot**.

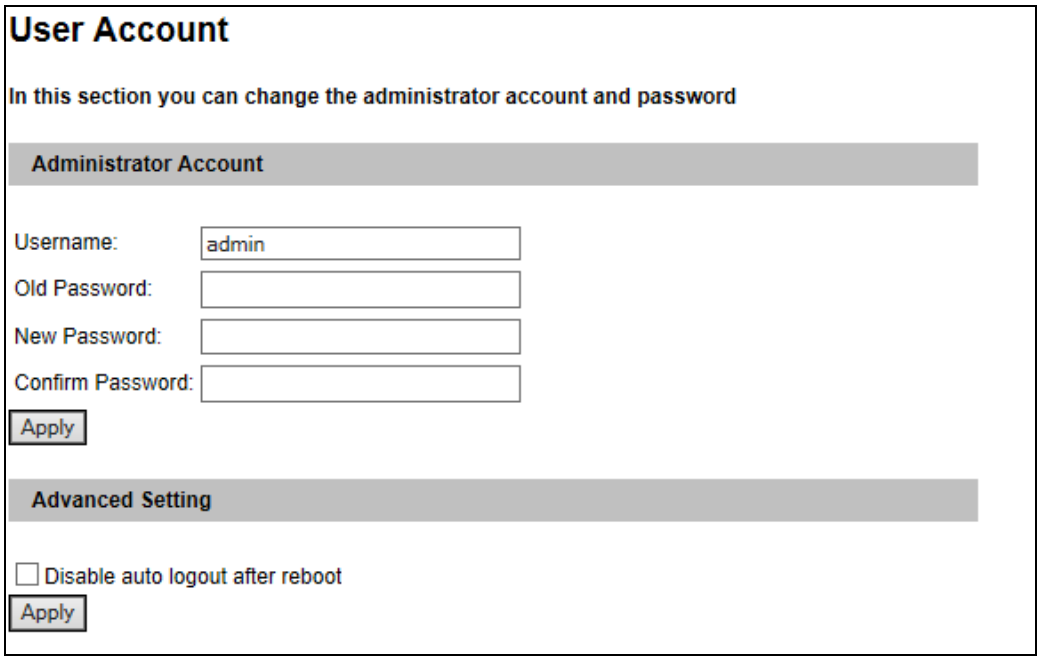


Figure 4-21

4.5.3 Log Information

The log information contains dump data that is used by service personnel for analyzing problems.

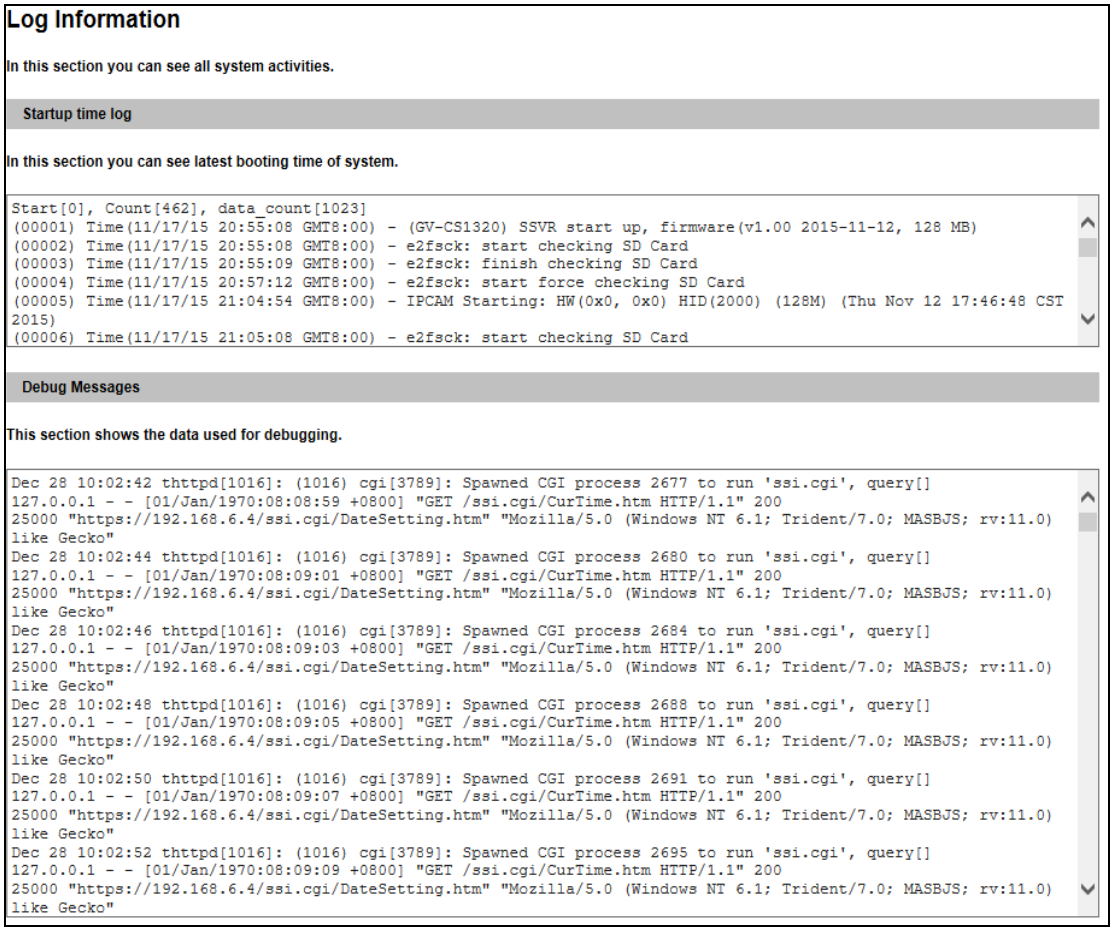


Figure 4-22

4.5.4 Tools

You can use additional tools to execute certain system operations and view the firmware version.

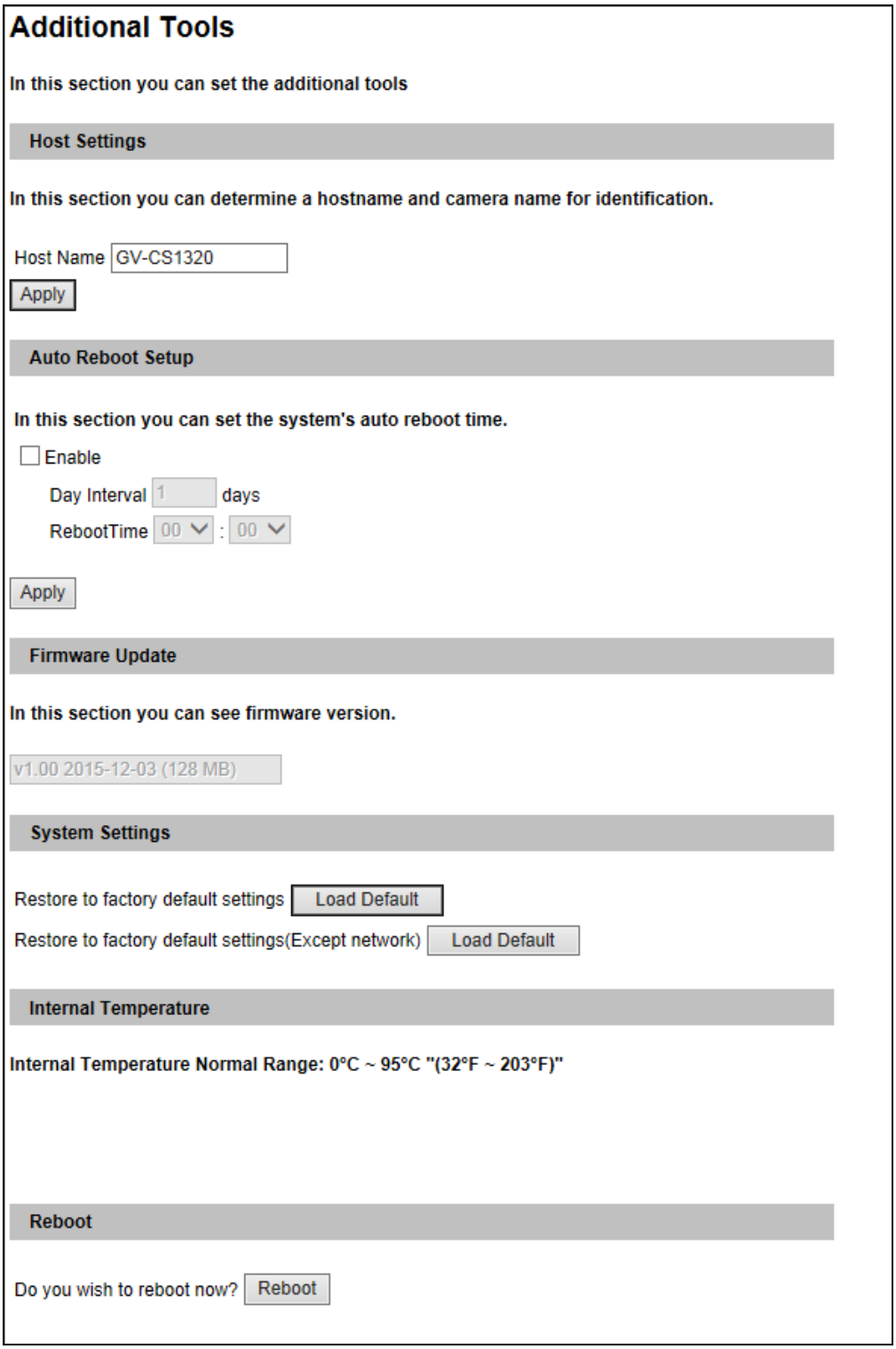


Figure 4-23

[Host Settings] Enter a descriptive name for GV-CS1320.

[Auto Reboot Setup] Select **Enable** to activate automatic reboot and specify the time for reboot in the sub fields.

- **Day Interval:** Type the day interval between each automatic reboot.
- **Reboot Time:** Use the drop-down lists to specify the time for automatic reboot.

[Firmware Update] Displays the firmware version of GV-CS1320.

[System Settings]

Clicking the first **Load Default** button will restore GV-CS1320 to factory default settings.

Clicking the second **Load Default** button will restore GV-CS1320 to factory default settings (Except network).

Note: After clicking the first default function, you will need to configure the camera access controller's network setting again.

[Internal Temperature] Displays the chipset temperature inside GV-CS1320.

[Reboot] Click the **Reboot** button will make GV-CS1320 perform the software reset.

4.5.5 Language

You can select the language for the Web interface.

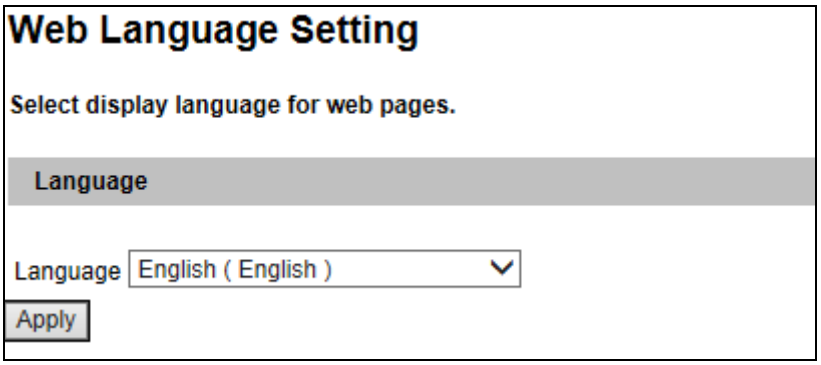


Figure 4-24

Use the **Language** drop-down list to select a language for the Web interface. By default, the language on the Web interface will be the same with the one used for the operating system.

Chapter 5 Advanced Applications

This chapter introduces more advanced applications.

5.1 Upgrading System Firmware

GeoVision periodically releases the updated firmware on the website. The new firmware can be simply loaded into GV-CS1320 using the Web interface or the **IP Device Utility** included on the Software DVD.

Important Notes before You Start

Before you start updating the firmware, please read these important notes:

1. If you use the IP Device Utility for firmware upgrade, the computer used to upgrade firmware must be under the same network of GV-CS1320.
2. Stop the connection to GV-DVR/NVR/VMS.
3. Stop all the remote connections, including RTSP.
4. While the firmware is being updated, the power supply and network connection must not be interrupted.

WARNING: The interruption of power supply during updating causes not only update failures but also damages to your camera access controller. In this case, please contact your sales representative and send your device back to GeoVision for repair.

---

5. Do not turn the power off for 10 minutes after the firmware is updated.
6. If firmware upgrade fails, you will need to restore the GV-CS1320 to the default settings. For details, see *5.3 Restoring to Factory Default Settings* in the User's Manual.

5.1.1 Using the Web Interface

1. In the Live View window, click the **Show System Menu** button (No. 8, Figure 3-4) and select **Remote Config**. This dialog box appears.

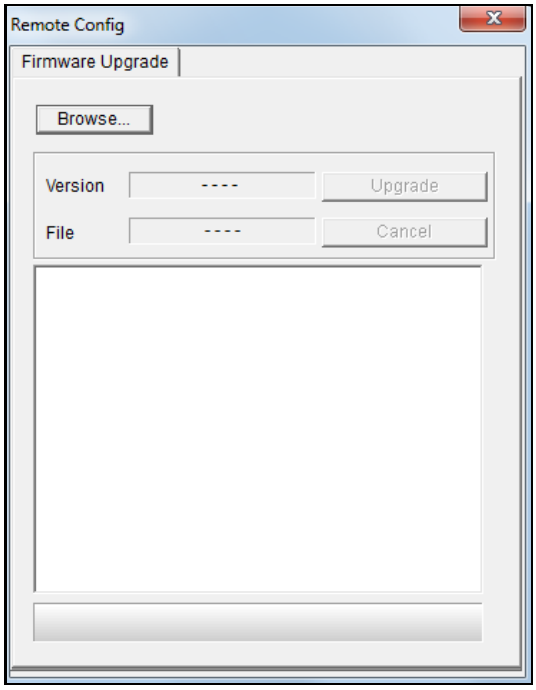


Figure 5-1

2. Click the **Browse** button to locate the firmware file (.img) saved at your local computer.
3. Click the **Upgrade** button to process the upgrade.

5.1.2 Using the IP Device Utility

The IP Device Utility provides a direct way to upgrade the firmware for multiple cameras and/or camera access controllers. Note the computer used to upgrade firmware must be under the same network of the camera / the camera access controller.

1. Insert the Software DVD, select **IP Device Utility**, and follow the onscreen instructions to install the program.
2. Double-click the **GV IP Device Utility** icon created on your desktop. This dialog box appears.

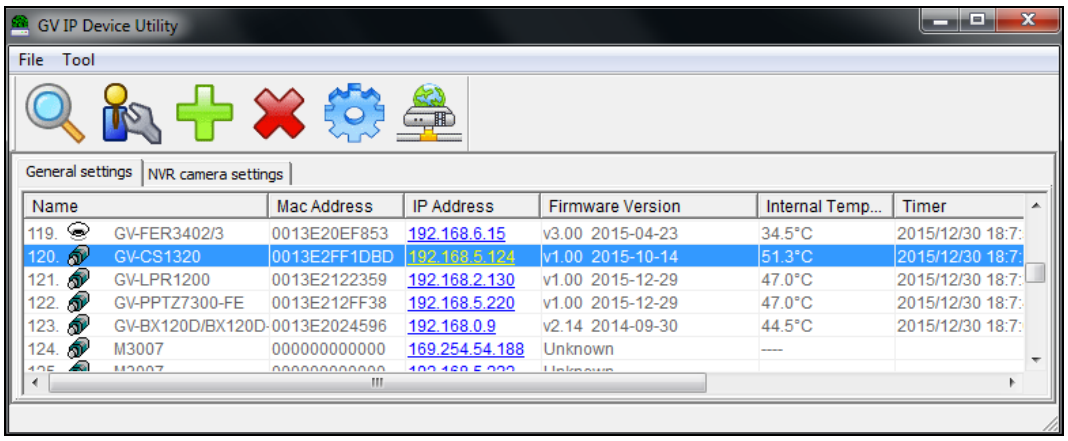


Figure 5-2

3. Click the **Search** button to locate the available cameras / camera access controllers on the same LAN or click the **New** button and type the IP address to locate the camera / the camera access controller over the Internet.

4. Double-click a camera / a camera access controller in the list. This dialog box appears.

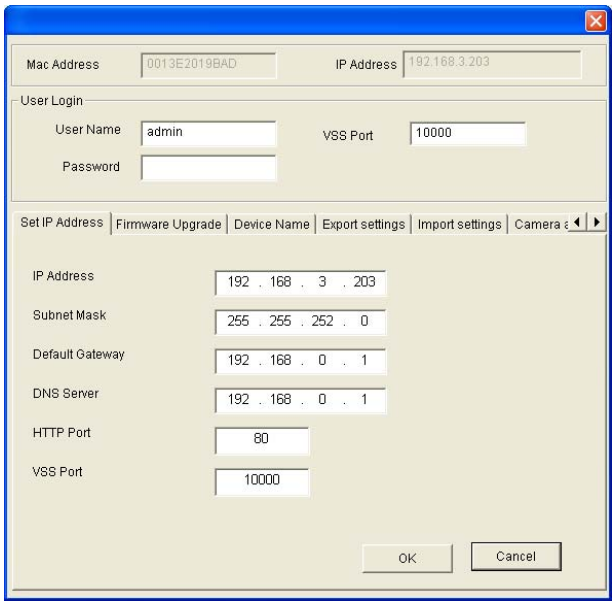


Figure 5-3

5. Click the **Firmware Upgrade** tab. This dialog box appears.

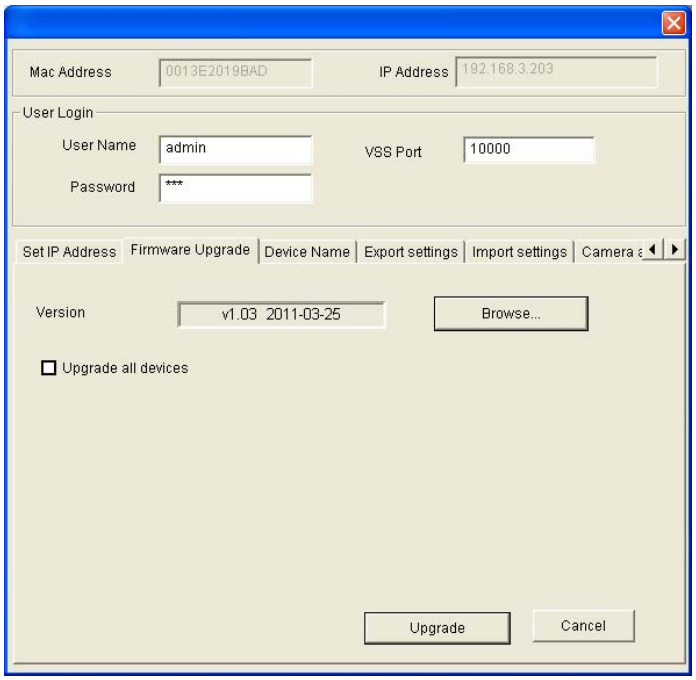


Figure 5-4

6. Click the **Browse** button to locate the firmware file (.img) saved at your local computer.
7. If you would like to upgrade all cameras / camera access controllers of the same model in the list, check **Upgrade all devices**.
8. Type **Password**, and click **Upgrade** to process the upgrade.

5.2 Backing Up and Restoring Settings

With the IP Device Utility included on the Software DVD, you can back up the configurations in GV-CS1320, and restore the backup data to the current unit or import it to another unit.

5.2.1 Backing Up the Settings

1. Run **IP Device Utility** and locate GV-CS1320. See Steps 1-3 in *5.1.2 Using the IP Device Utility.*
2. Double-click GV-CS1320 in the list. Figure 5-3 appears.
3. Click the **Export Settings** button. This dialog box appears.

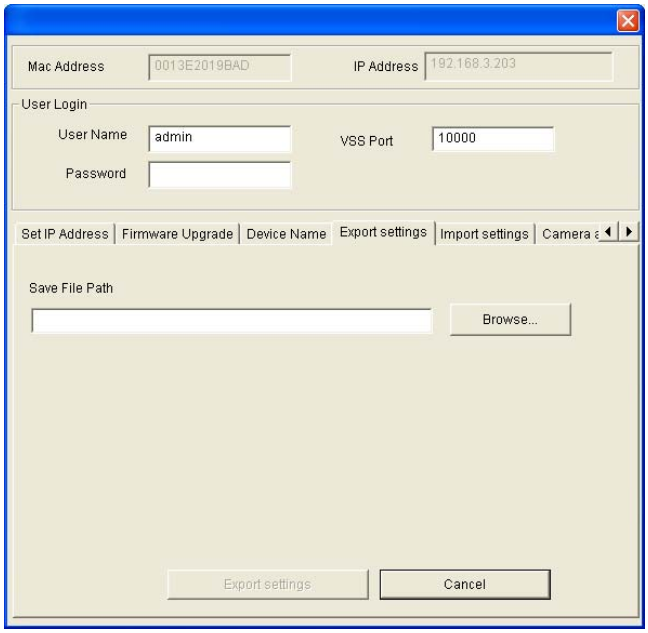


Figure 5-5

4. Click the **Browse** button to assign a file path.
5. Type the **Password**, and click **Export Settings** to save the backup file.

5.2.2 Restoring the Settings

1. In Figure 5-3, click the **Import Settings** tab. This dialog box appears.

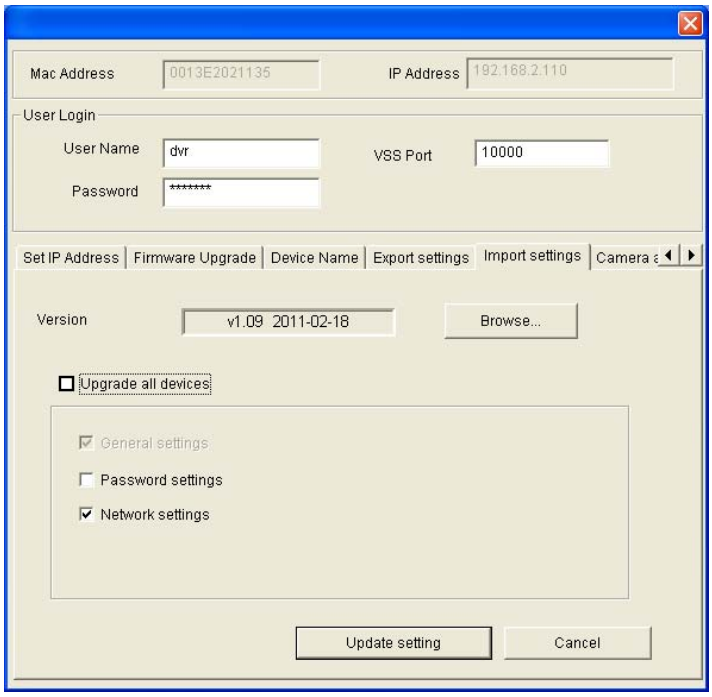


Figure 5-6

2. Click the **Browse** button to locate the exported file (.dat).
3. Select **Upgrade all devices** to apply the settings to all devices of the same model in the same LAN. To import password settings and/or network settings, select **Password Settings** and/or **Network settings**.
4. Click the **Update Settings** button to start restoring.

5.3 Restoring to Factory Default Settings

You can restore GV-CS1320 to factory default settings using the Web interface or directly on the camera.

To restore to default settings using the Web interface:

1. In the left menu, select **Management** and select **Tools**.
2. Under the **System Settings** section, click the **Load Default** button.

To restore to default settings directly on the camera access controller:

1. Unplug the power cable.
2. Use a pointy object such as the tip of a pen to hold down the **Load default** button (No. 7, Figure 1-3) while plugging the power cable.
3. Wait until the status LED blinks twice to release the **Load default** button. The process takes about 5 seconds.

5.4 Verifying Watermark

The watermark is an encrypted and digital signature embedded in the video stream during the compression stage, protecting the video from the moment of its creation. Watermarking ensures that an image is not edited or damaged after it is recorded. To enable the watermark function, see [Watermark], *4.1.1 Video Settings.*

The **Watermark Proof** is a watermark-checking program. It can verify the authenticity of the recording before you present it in court.

5.4.1 Accessing AVI Files

To verify watermark, first you have to access the recorded AVI files by one of these methods:

1. Use the **File Save** function on the Live View window (No. 6, Figure 3-4) to start recording on the local computer.

5.4.2 Running Watermark Proof

1. Install **Watermark Proof** from the Software DVD. After installation, a **WMProof** icon is created on your desktop.
2. Double-click the created icon. The Water Mark Proof window appears.
3. Click **File** from the menu bar and select **Open** and locate the recording (.avi). The selected recording is then listed on the window. Alternatively, you can drag the recording directly from the storage folder to the window.
4. If the recording is unmodified, a check will appear in the **Pass** column. On the contrary, if the recording is modified or does not contain watermark during recording, a check mark will appear in the **Failed** column. To review the recording, double-click the listed file on the window.

5.4.3 The Watermark Proof Window

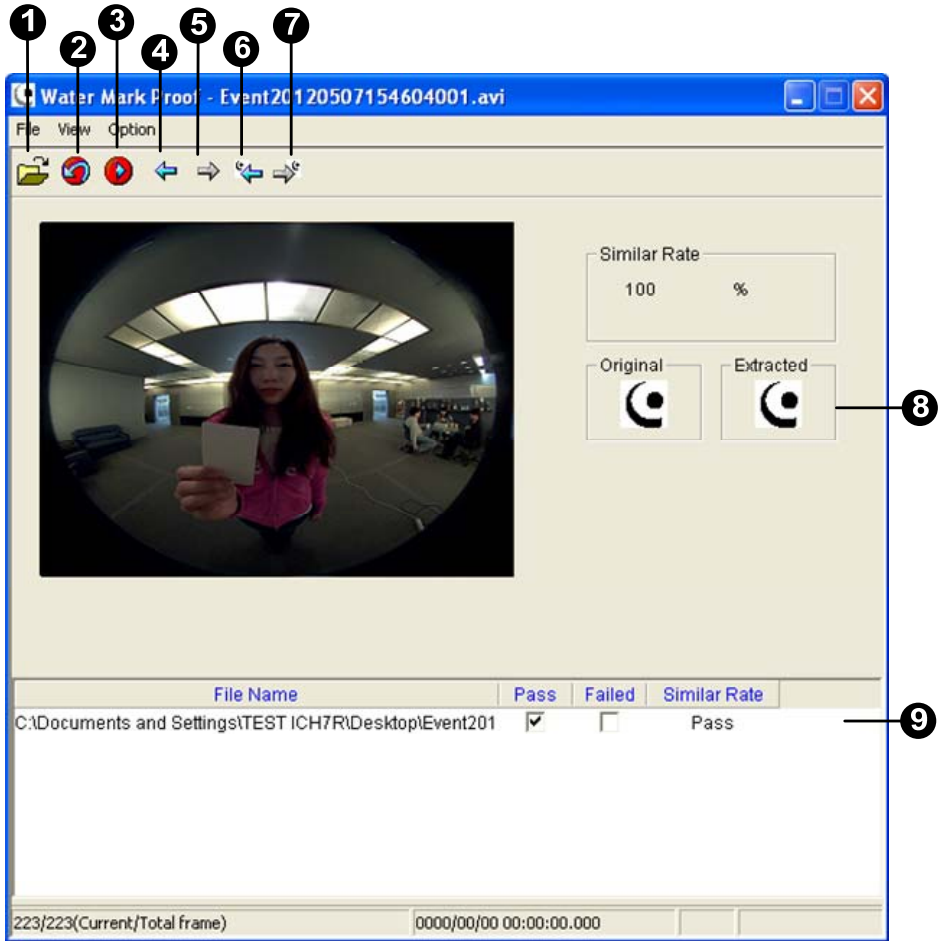


Figure 5-7

The controls in the window:

No.	Name	Description
1	Open File	Opens the recorded file.
2	First Frame	Goes to the first frame of the file.
3	Play	Plays the file.
4	Previous Frame	Goes to the previous frame of the file.
5	Next Frame	Goes to the next frame of the file.
6	Previous Watermarked Frame	Goes to the previous frame that contains watermark.
7	Next Watermarked Frame	Goes to the next frame that contains watermark.
8	Original vs. Extracted	The Extracted icon should be identical to the Original icon. If not, it indicates the recording has been tampered with.
9	File List	Displays the proof results.

Chapter 6 DVR Configurations

The GV-DVR/ NVR / VMS provide a complete video management, such as video viewing, recording, playback, alert settings and almost every feature of the system. The integration specifications are listed below:

1. GV-CS1320 is compatible with GV-System (GV-DVR/NVR) V8.6.2.0 with patch or later.
2. GV-CS1320 is compatible with GV-VMS V15.10.
3. The maximum number of streams supported by GV-CS1320 is **5**. When GV-CS1320 is connected to IE browser or any other applications, it takes up **1** stream. When GV-CS1320 is connected to GV-DVR / NVR / GV-VMS, it takes up **2** streams.

Maximum number of streams	5
Connection from one GV-DVR / NVR / VMS	Takes up 2 streams
Connection to one GV-ASManager	Takes up 2 streams
One connection to Web interface	Takes up 1 stream

Note:

1. The above maximum numbers of streams are based on the maximum resolution for the camera access controller and the codec H.264.
2. By default, GV-CS1320 is in dual streams and will take up 2 streams when connected to GV-System (GV-DVR/NVR) / GV-VMS.

GV-DVR / NVR / VMS Connection

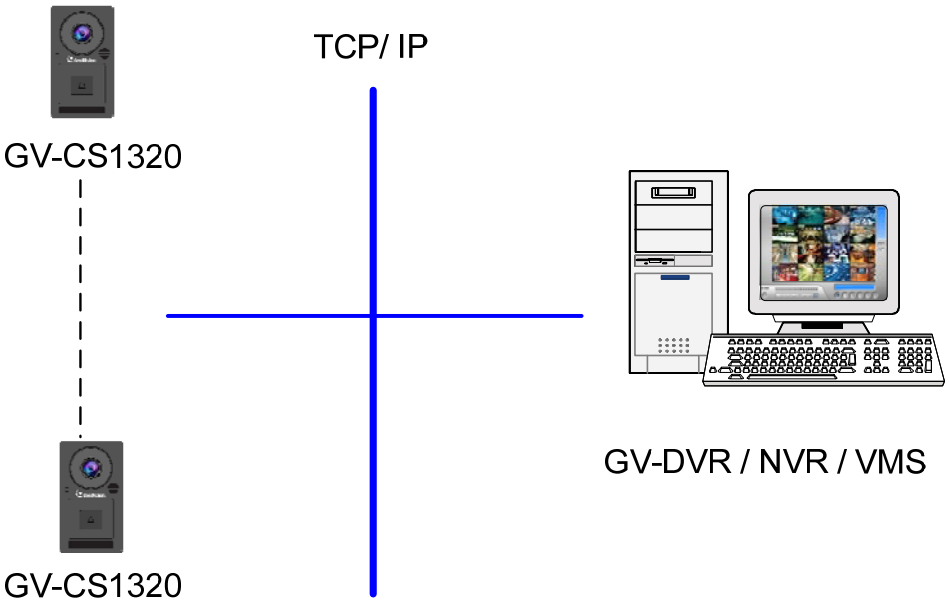


Figure 6-1

6.1 Setting up GV-CS1320 on GV-System

To set up GV-CS1320 and receive live view on the GV-System, follow these steps:

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

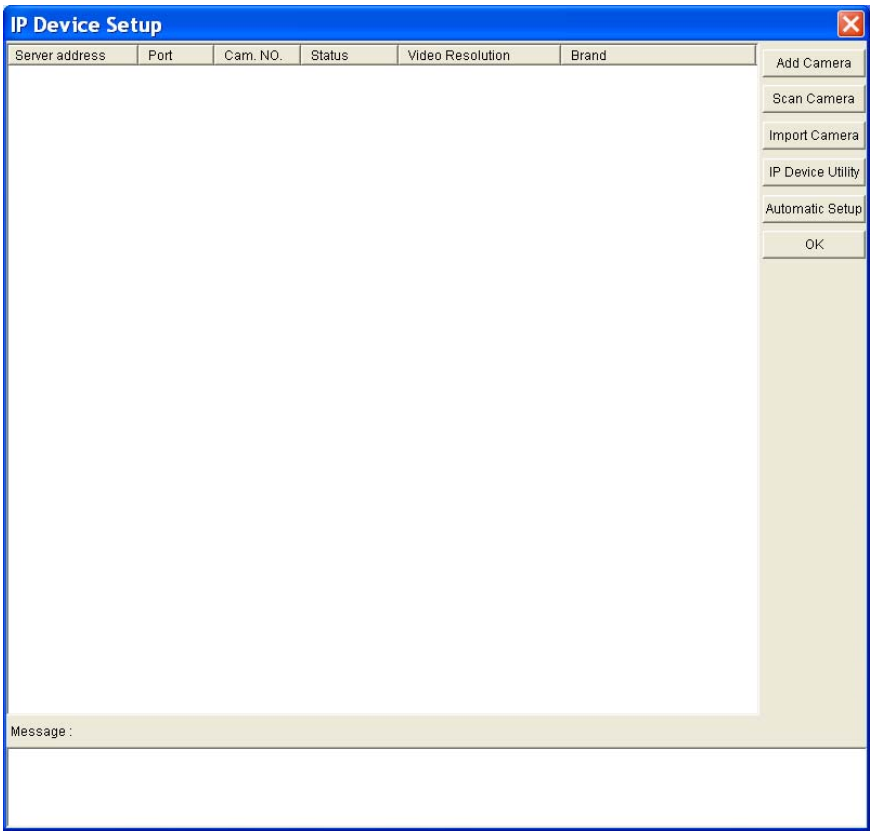


Figure 6-2

- To automatically set up GV-CS1320, click **Scan Camera** to detect any GV-IP devices on the LAN.
- To manually set up GV-CS1320, click **Add Camera**. Follow steps 2 to 7.

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

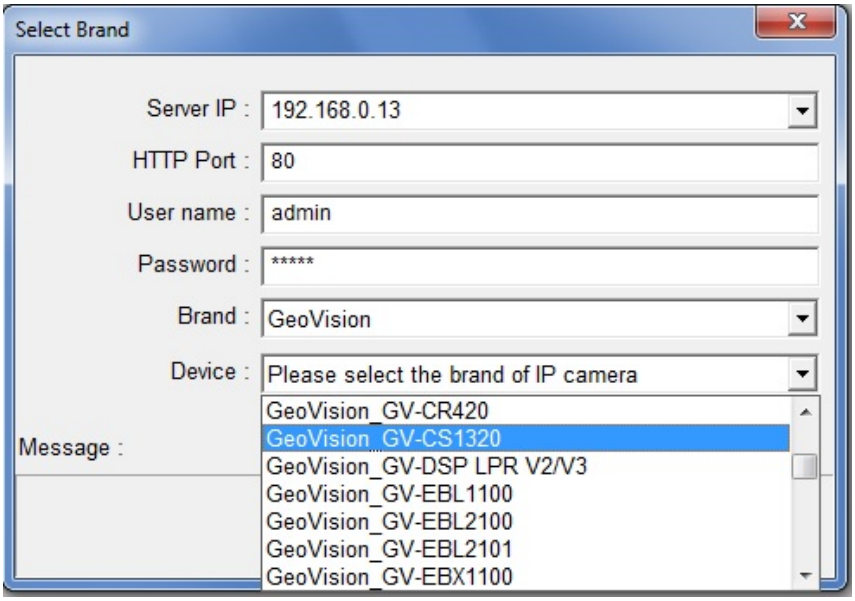


Figure 6-3

3. Type the IP address, username and password of GV-CS1320. Modify the default HTTP port if necessary. Select **GeoVision** from the **Brand** drop-down list and select the model from the **Device** drop-down list. This dialog box appears.

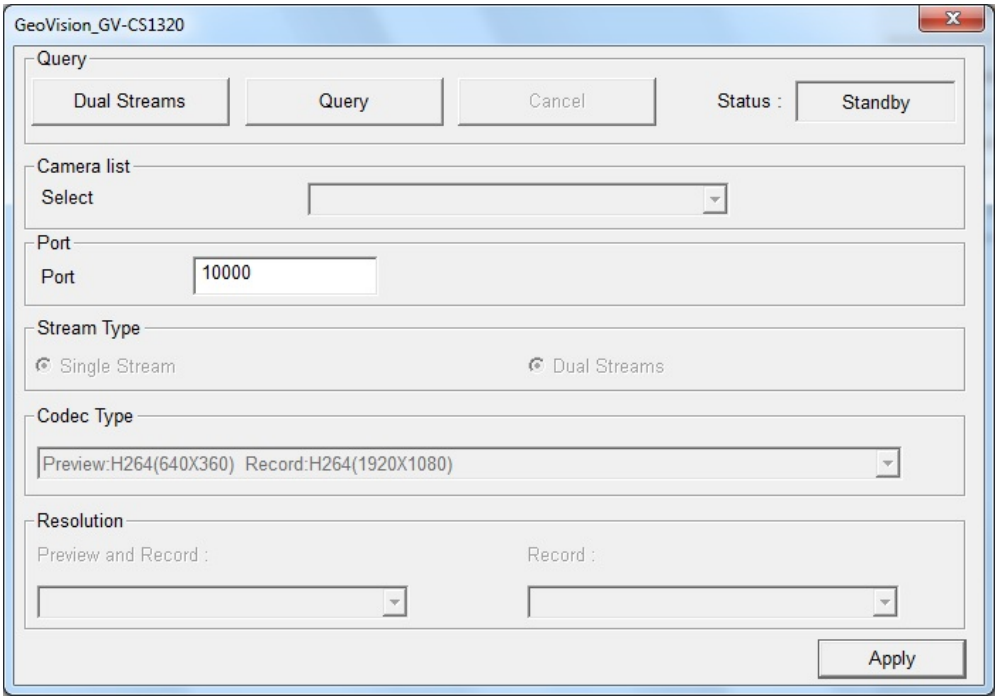


Figure 6-4

4. Click **Query** to acquire the information from GV-CS1320. The video streaming port should match the VSS port on GV-CS1320. The default port number is 10000.

5. Click **Apply**. GV-CS1320 is added to the connection list.

6. Click the listed camera access controller and select **Display position** to map the IP camera access controller to a channel on the GV-System.

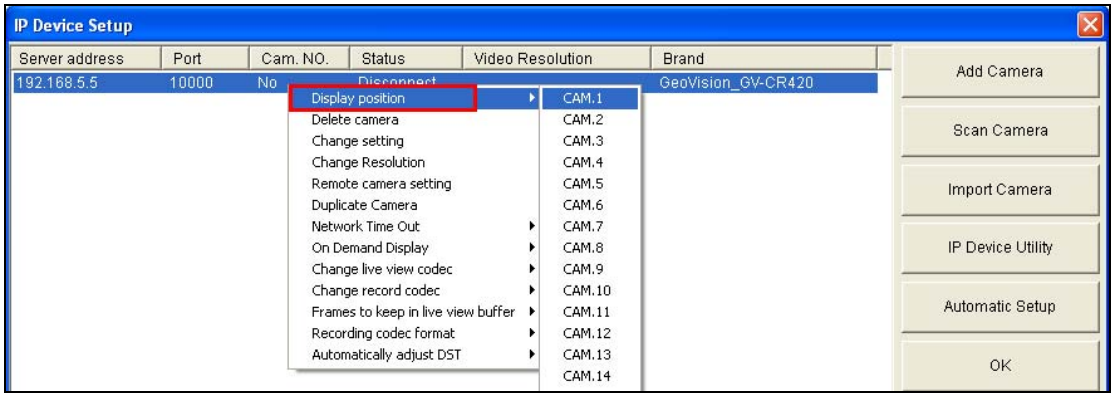


Figure 6-5

7. The Statue column should display “Connected”. Click **OK.**

6.1.1 Customizing the Basic Settings

After GV-CS1320 is connected and assigned with a display position, you can configure the GV-CS1320's settings such as frame rate, codec type and resolution. Right-click the desired camera access controller to see the following list of options:

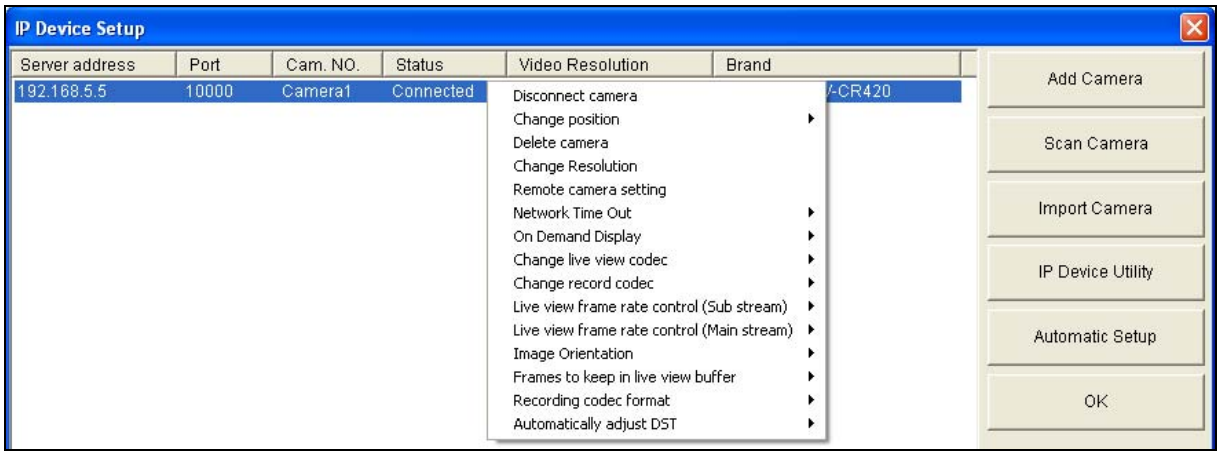


Figure 6-6

- **Remote Camera Setting:** Accesses the configuration interface of the connected device.
- **Network Time Out:** When network disconnection exceeds the specified time period, the camera status will be displayed as Connection Lost.
- **On Demand Display:** Enable automatic adjustment of live view resolution. Refer to the *On Demand Display* section in *DVR User's Manual* for more details.
- **Change live view codec:** Changes the code type of the live view.
- **Change record codec:** Change the codec type to record in.
- **Live view frame rate control (Sub stream):** Sets the live view of the sub stream to help reduce the CPU usage. If you have set the live view codec to be MJPEG, select the number of frames to allow in a second. If the live view codec selected is H.264, select one of the following options:
  - **Maximum Live-view Frame Rate:** View the video at the maximum frame rate possible.
  - **Live-view Key Frame only:** You can choose to view the key frames of the videos only instead of all frames on the live view. This option is related to the GOP setting of the IP camera. For example, if the GOP value is set to 30, there is only one key frame among 30 frames.
- **Live view frame rate control (Main stream):** Sets the live view frame rate of the main stream with higher resolution when On Demand function is enabled. Refer to the sub stream setting above to see the options available.

- **Image Orientation:** You can adjust the image orientation by selecting **Normal**, **Horizontal Mirror**, **Vertical Flip** or **Rotate 180°**.
- **Frames to keep in live view buffer:** Specifies the number of frames to keep in the live view buffer.
- **Recording Codec Format:** Specifies whether to record in standard or GeoVision type of MJPEG H.264 codec.
- **Automatically Adjust DST:** If enabled, the time on the GV-IP device Web interface will be synchronized with the time of the GV-System when DST period starts or ends on the GV-System.

6.2 Setting up GV-CS1320 on GV-VMS

Follow the steps below to manually connect your GV-CS1320 to GV-VMS.

1. To access the IP Device Setup page, click **Home**, select **Toolbar**, click **Configure** and select **Camera Install**.

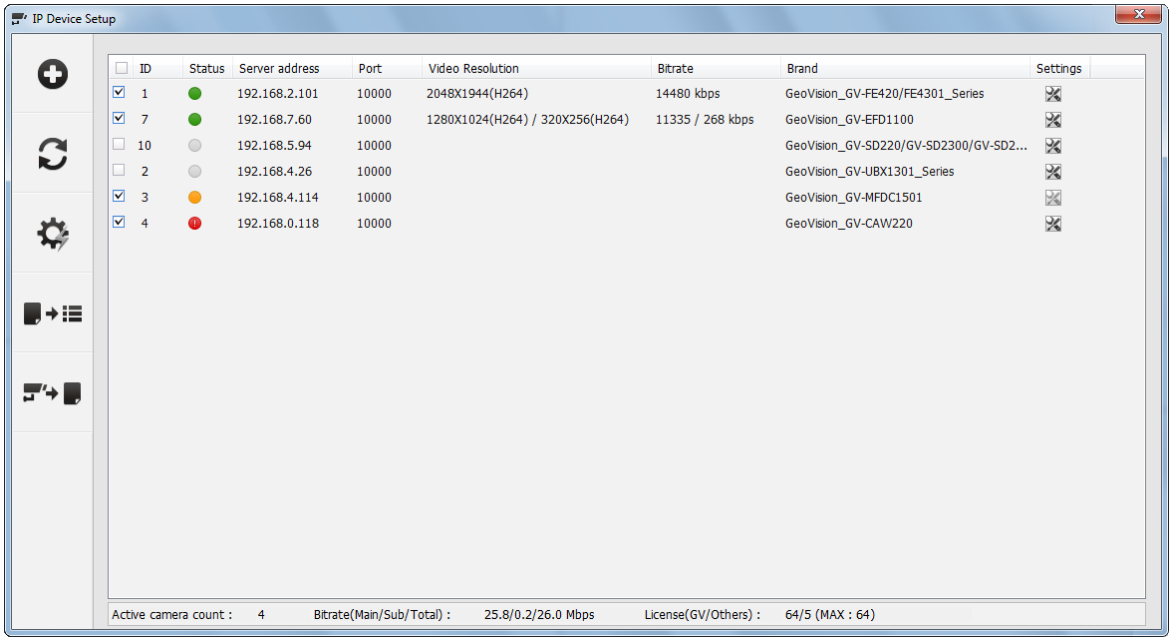


Figure 6-7

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

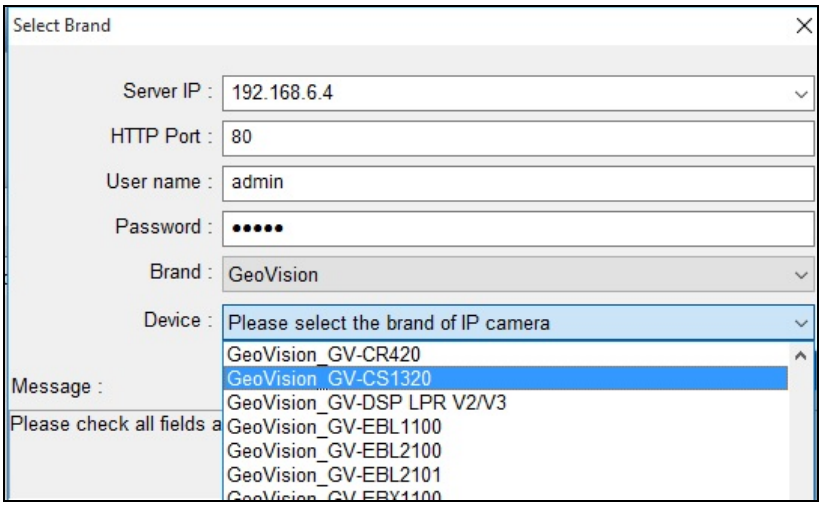


Figure 6-8

3. Type the IP address, username and password of the GV-CS1320. Modify the default HTTP port **80** if necessary.
4. Select GeoVision and model name from the **Brand** drop-down list and select the GV-CS1320 from the **Device** drop-down lists. This dialog box appears.

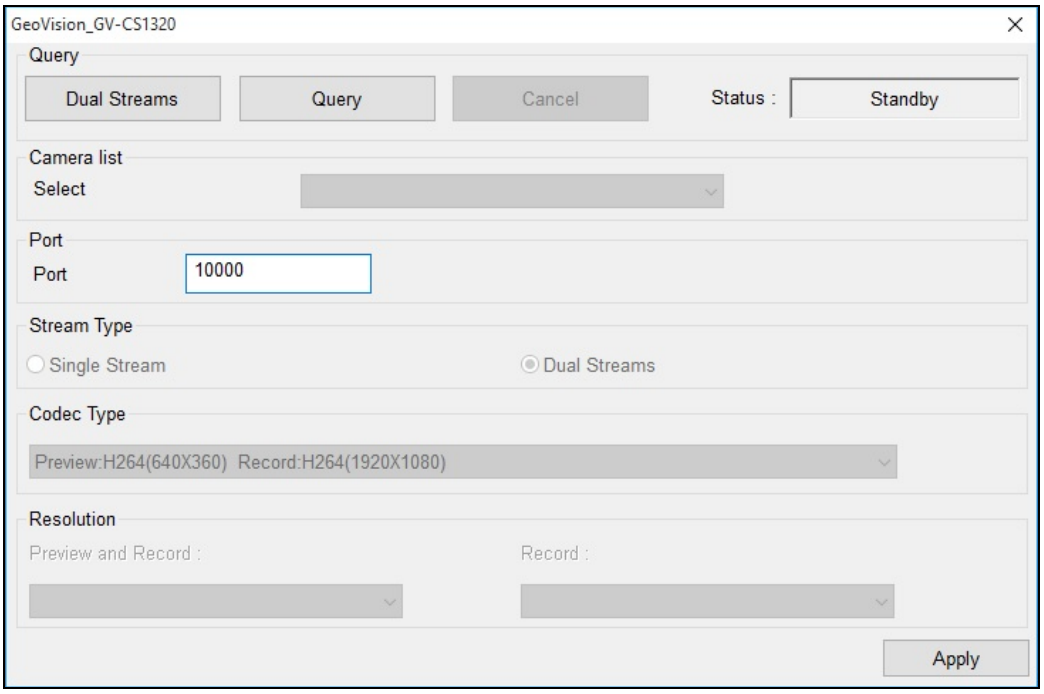


Figure 6-9

5. In the dialog box, configure the options.
   - **Dual Streams:** Select this option to apply the dual-streaming settings (lower resolution for live view and higher resolution for recording).
   - **Query:** Detect and apply the current codec and resolution setting on GV-CS1320.
   - **Port:** Modify the video streaming port number if necessary.
6. Click **Apply** to add the GV-CS1320 to the list.
7. To connect the added GV-CS1320, click the box besides the **ID** column. Upon successful connection, the **Status** icon shows green, with the video resolution and bit rate being displayed in the correspondent columns.

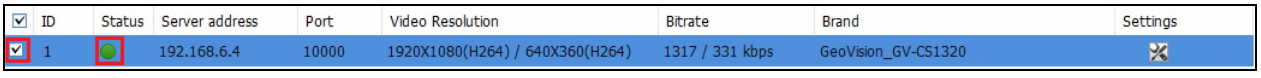


Figure 6-10

Chapter 7 Mobile Phone Connection

Using iPhone, iPod Touch, iPad or Android Smartphones, you can now remotely watch live view and take snapshots with GV-CS1320.

The latest information on GeoVision mobile applications is available at http://www.geovision.com.tw/english/5_4.asp Click the link and select the **GV-Access** application.

Specifications

Camera

Image Sensor		1/2.8" progressive scan super low lux CMOS
Picture Elements		1920 (H) x 1080 (V)
Minimum Illumination	**B/W**	0.02 Lux
Shutter Speed		Automatic, Manual (1/5 ~ 1/8000 sec)
White Balance		Automatic, Manual (2800K ~ 8500K)
S/N Ratio		52 dB

Optics Lens

Megapixel	Yes
Day / Night function	Yes (with removable IR-cut filter)
Lens Type	Fixed
Focal Length	1.7 mm
Maximum Aperture	F/2.5
Mount	M12
Image Format	1/2.8"
Horizontal FOV	180°
IR LED Quantity	2
Max. IR Distance	3 m (9.84 ft.)

Operation

Video Compression		H.264, MJPEG
Video Streaming		Dual Streams from H.264 and MJPEG
Video Resolution	**Stream 1**	1920 x 1080 (16.9)
	Stream 2	640 x 360 (16:9)

Frame Rate	15 fps at 1920 x 1080
Image Setting	Brightness, Contrast, Saturation, Sharpness, Gamma, White Balance, Image Orientation, Shutter Speed
Audio Compression	G.711, AAC (Optional)
* The frame rate and the performance may vary depending on the number of connections and data bitrates (different scenes).	

Network

Interface	10/100 Ethernet
Protocol	HTTP, HTTPS, TCP, UDP, SMTP, FTP, DHCP, NTP, UPnP, DynDNS, 3GPP/ISMA RTSP, PSIA, SNMP, QoS (DSCP) , ONVIF (Profile S) and (Profile C)

Mechanical

Local Storage		Micro SD card
Lens Mounting		M12
Connectors	**Power**	2-pin terminal block
	Ethernet	Ethernet (10/100 Base-T), RJ-45 Connector
	RS-485	RS-485 +, RS-485 –
	Audio	Built-in microphone and speaker

Reader

LED	Red, Green Yellow and Blue LED
Beeper	Buzzer

General

Operating Temperature	-20°C ~ 50 °C (-4 °F ~ 122 °F)
Humidity	10% to 90% (no condensation)
Power Source	12V DC, 2.5A / PoE (IEEE 802.3at)
Maximum Power Consumption	25.5 W
Regulatory	CE, FCC, RCM, RoHS compliant
Dimension	137 x 80 x 34.5 mm (5.4 x 3.15 x 1.36 in)
Weight	315 g (0.69 lb)

Web Interface

Installation Management	Web-based configuration
Maintenance	Firmware upgrade through Web Browser or Utility
Access from Web Browser	Camera live view, change video quality, bandwidth control, image snapshot, audio, picture in picture, picture and picture
Language	English / French / Portuguese / Russian / Spanish / Traditional Chinese

Application

Network Storage	GV-System (GV-DVR/NVR), GV-VMS
Mobile Phone Support	embedded 3GPP/ISAMA browser
Live Viewing	Browser (IE, Edge, Chrome, Firefox)
Access Control / LPR Management	GV-ASManager

Controller

CPU	32-bit RISC microprocessor
Number of User Cards	40,000 cards (networked mode)
Frequency	13.56 MHz for ISO14443A (Mifare DESFire, Mifare Plus and Mifare Classic)

Event Buffer	50,000 events and log data
RS-485 Interface	1 RS-485 interface for GV-Readers (max. 2 readers)
TCP/IP Interface	1 TCP/IP interface for GV-CR420 and GV-GF1921 / 1922 (max. 2 readers)
Communication Protocol	TCP/IP
Digital I/O	2 inputs, dry contact NO/NC
Supported ID Formats	1 relay outputs (30V DC, 0.5A)

All specifications are subject to change without notice.

Appendix

A. RTSP Protocol Support

The camera reader can support RTSP protocol for both video and audio streaming.

If you are using Quick Time player, use the following RTSP command:

rtsp://<IP of the camera reader>:8554/<CH No.>.sdp

For example, rtsp://192.168.3.111:8554/CH001.sdp

If you are using VLC player, use the following RTSP command:

rtsp://<ID>:<Password>@<IP of the camera reader>:8554/<CH No.>.sdp

For example, rtsp://admin:admin@192.168.3.111:8554/CH001.sdp

Note:

1. RTSP streaming is supported over HTTP, UDP and TCP.
2. The RTSP protocol must be enabled on the Web interface. See *4.3.8 RTSP*.
3. Only VLC and QuickTime players are supported for streaming video via RTSP protocol.

B. The CGI Command

You can use the CGI command to obtain a snapshot of the live view without logging in the Web interface or to access the User Account Web interface. For a camera reader with the following details:

IP address: 192.168.2.11
Username: admin
Password: admin
Desired stream: 1

Type the following into your web browser to **obtain a snapshot**:
http://192.168.2.11/PictureCatch.cgi?username=admin&password=admin&channel=1

Type the following into your web browser to **access the User Account Web interface**:
http://192.168.2.11/ConfigPage.cgi?username=admin&password=admin&page=UserSetting