

GV-QFER12700

User's Manual



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

QFER-UM-A



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Note: No memory card slot or local storage function for Argentina.

GeoVision, Inc.
9F, No. 246, Sec. 1, Neihu Rd.,
Neihu District, Taipei, Taiwan
Tel: +886-2-8797-8377
Fax: +886-2-8797-8335
<http://www.geovision.com.tw>

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Preface

Welcome to the *GV-QFER12700 User's Manual*.

This *Manual* provides an overview of GV-QFER12700 and its accessories. The instructions herein will guide you through the installation and use of GV-QFER12700.

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Regulatory Notices



FCC Notice

This equipment has been tested and found to comply with the limits of a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

Class A

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the users will be required to correct the interference at their own expense.



CE Notice

This is a Class A product. In a domestic environment, this product may cause radio interference in which case the users may be required to take adequate measures.



RoHS Compliance

The Restriction of Hazardous Substances (RoHS) Directive is to forbid the use of hazardous materials for production. To meet the RoHS Directive requirements, this product is made to be RoHS compliant.



WEEE Compliance

This product is subject to the Waste Electrical and Electronic Equipment (WEEE) Directive and made compliant with the WEEE requirements.

Note for Connecting to GV-VMS / DVR / NVR

The GV-IP Speed Dome is designed to work with and record on GV-VMS / DVR / NVR, a video management system.

Once the camera is connected to the GV-VMS / DVR / NVR, the resolution set on the GV-VMS / DVR / NVR will override the resolution set on the camera's Web interface. You can only change the resolution settings through the Web interface when the connection to the GV-VMS / DVR / NVR is interrupted.

Note for Recording

1. By default, the images are recorded to the memory card inserted in the GV-IP Seed Dome.
2. Mind the following when using a memory card for recording:
 - Recorded data on the memory card can be damaged or lost if the data are accessed while the camera is under physical shock, power interruption, memory card detachment or when the memory card reaches the end of its lifespan. No guarantee is provided for such causes.
 - The stored data can be lost if the memory card is not accessed for a long period of time. Back up your data periodically if you seldom access the memory card.
 - Memory cards are expendable and their durability varies according to the conditions of the installed site and how they are used. Back up your data regularly and replace the memory card annually.
 - To avoid power outage, it is highly recommended to apply a battery backup (UPS).
 - For better performance, it is highly recommended to use Micro-SD card or SD card of MLC NAND flash, Class 10.
 - Replace the memory card when its read/write speed is lower than 6 MB/s or when the memory card is frequently undetected by the camera.

Optional Devices

Optional devices can expand the capabilities and versatility of your GV-IP Speed Dome. Contact your dealer for more information.

Device	Description
GV-Mount Accessories	The GV-Mount Accessories provide a comprehensive lineup of accessories for installing the GV-QFER12700 on the ceiling or wall. For details, refer to <i>Appendix C: In-Ceiling Mount Installation</i> .
GV-PoE Power Adapter	GV-PoE Adapter is designed to provide power to the IP device through a single Ethernet cable. Adopting the PoE adapter enables you to mount an IP device anywhere in a building where power outlets are not available.
GV-PoE Switch	The GV-POE Switch is designed to provide power along with network connection for IP devices. The GV-POE Switch is available in various models with different types and numbers of ports.
Power Adapter	Contact our sales representatives for the countries and areas supported.

1. Overview

GV-QFER12700 is a high performance surveillance solution features 360° wide coverage without blind spots. The fisheye camera supports up to 12 Megapixels resolution streaming and maintains at 20 fps that allows the video stream can be viewed smoothly. Moreover, the fisheye camera supports various view mode (digital PTZ, panoramic view, etc.) which allows users to choose based on their own preference. GV-QFER12700 is suitable to apply in wide open space environments like office rooms, hotel lobby, apartment front door, etc.

In addition, the embedded edge dewarping engine enables the camera to dewarp images by the camera itself rather than consuming resources from the backend devices. The camera also includes IR LED module and Smart Picture/Quality/Noise Reduction features that improves the image quality in low light environment.

2. Main Tabs

There are six setting tabs, including <Home>, <System>, <Streaming>, <Camera>, <PTZ> and <Logout> on the Home Page.

Home

Users can monitor the live video of the targeted area.

System Setting

The administrator can set system time, root password, network related settings, etc. Further details will be interpreted in chapter *System*.

Streaming Setting

The administrator can configure video format, video compression, video OCX protocol, video frame rate and audio compression in this page.

Image Setting

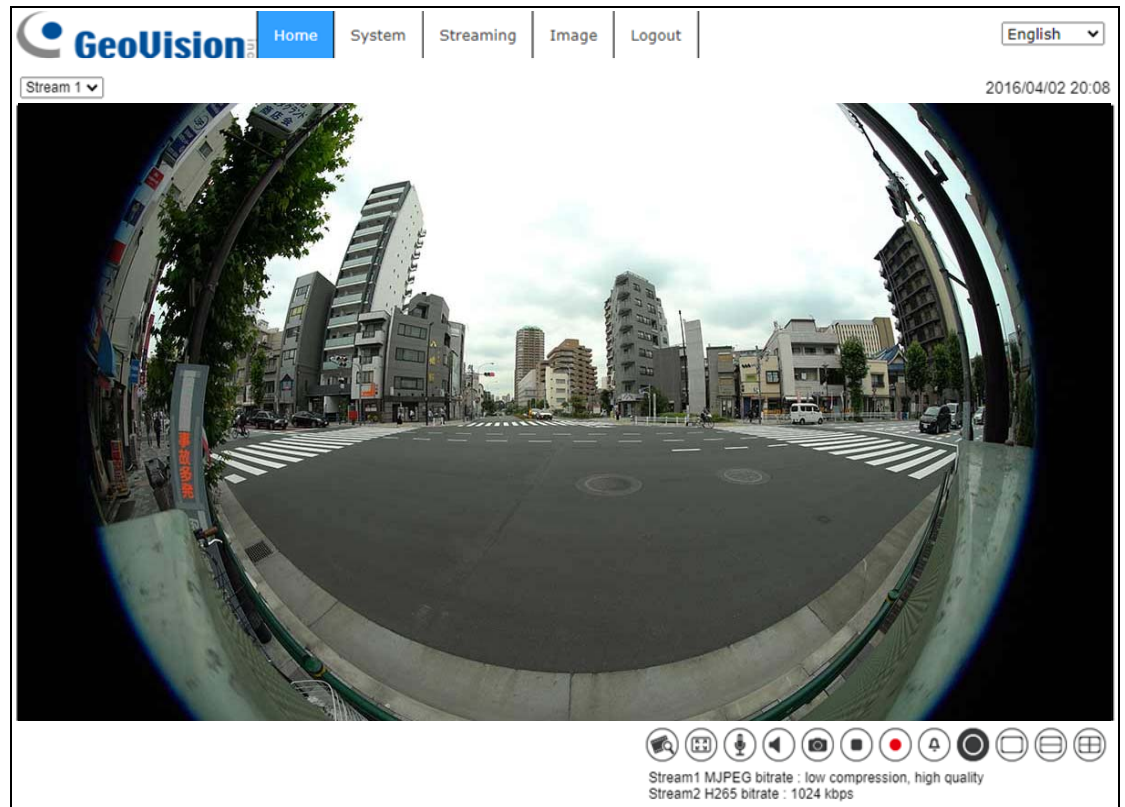
This setting page is only available for the administrator and user accounts that have been granted the privilege of camera control. The administrator and users can adjust various camera parameters including Exposure, White Balance, Picture Adjustment, IR Function, Digital Zoom, WDR, etc.

Logout

Click the tab to re-login the camera with another username and password.

2.1 Home Page

Click the tab <Home> to access the <Home> Page. There are several function buttons on this page. See the detailed information of each item below.



Multiple Languages Support

Multiple languages are supported, including Czech, English, French, German, Hungarian, Italian, Japanese, Portuguese, Russian, Spanish, Traditional Chinese, and Simplified Chinese for the viewer window interface.

Display Stream Selection

According to the streaming setting, users can choose the one stream to display from the drop-down list.

Camera Info

Double click the live view pane, and the camera info window will pop up. Users can instantaneously check the basic information of the camera, such as IP address, network status, video format, etc.

Video Quality 

Click to show/hide bitrate and compression of each stream.

Full Screen 

Image display size can be adjusted to full screen. Alternatively, right click the Live Video Pane and select <Fullscreen> to go full screen.

To exit full screen mode, users can (1) tap <Esc> on the keyboard; (2) double click the Live Video Pane; (3) right click the Live Video Pane and select <Normal view>.

Talk   (On / Off)

Talk function allows the local site talks to the remote site. Click the button to switch it to On / Off. Users must select the suitable transmission mode under this path: Streaming> Audio to enable this function.



NOTE: This function is only available for user accounts that have been granted this privilege by the administrator. Please refer to Security: Add user> Talk/Listen for further details.

Listen   (On / Off)

Click the <Listen> button to mute / activate the audio. Users must select the suitable transmission mode under <Streaming> Audio to enable this function.



NOTE: This function is only available for user accounts that have been granted this privilege by the administrator. Please refer to Security: Add user> Talk/Listen for further details.



Snapshot 

Click the button and the JPEG snapshots will automatically be saved in the appointed place: **C:\ProgramData\Geovision**. To change the storage location, please refer to section File Location of the next chapter for further details.



NOTE: With Windows 7 operating system or above, to implement the Snapshot function, users must run IE as administrator. To run IE as administrator, right click the IE browser icon and select “Run As Administrator” to launch IE.

Live View Pause / Restart  (Pause / Restart)

Click <> to disable video streaming, the live video will be displayed as black.
Press <> to show the live video.

Record  (On / Off)

Click the <Record> button and the Live View through the web browsing will be directly recorded to the specific location on the local hard drive, which could be configured in the <File Location> page. The default storage location for the web recording is: **C:\ProgramData\GeoVision**. Please refer to section File Location of the next chapter for further details.




NOTE: With Windows 7 operating system or above, to implement the Web Recording function, users must run IE as administrator. To run IE as administrator, right click the IE browser icon and select “Run As Administrator” to launch IE.

Manual Trigger  (On / Off)

Click the <Manual Trigger > button to turn on and off the manual trigger. Please refer to section Manual Trigger of the next chapter for further details.

Pan/Tilt Control 

Users can implement pan/tilt control by moving the cursor to the live video pane, then left click and drag the pointer  in any direction.

Optical Zoom Control 

In Full Screen display mode, users can implement zoom in / out by scrolling up/down the mouse wheel.

2.2 System

Under the tab <System>, the categories are shown as the configure page below.

The screenshot displays the GeoVision System configuration interface. The top navigation bar includes 'Home', 'System', 'Streaming', 'Image', and 'Logout', with 'System' currently selected. A language dropdown menu is set to 'English'. On the left, a vertical menu lists various system categories: System, Security, Network, DDNS, Mail, FTP, HTTP, Events, Storage Management, Recording, Schedule, File Location, View Information, Factory Default, Software Version, Software Upgrade, and Maintenance. The main configuration area is titled 'System' and contains the following settings:

- Time zone :** GMT+00:00 Gambia, Liberia, Morocco, England
- Enable daylight saving time:**
- Time offset:** 01:00:00
- Start date:** Jan 1st Sun
- End date:** Jan 1st Sun
- Start time:** 00:00:00
- End time:** 00:00:00
- Time format:** yyyy/mm/dd
- Sync with computer time:**
- PC date:** 2021/05/12
- PC time:** 14:37:59
- Manual:**
- Date:** 2016/04/01
- Time:** 00:00:00
- Sync with NTP server:**
- NTP server:** 0.0.0.0
- Update interval:** Every hour

A 'Save' button is located at the bottom of the configuration area.



NOTE: The <System> configuration page is only accessible by the administrator.

2.2.1 System

The System setting can be found under the path: **System > System**.

Time Zone

Select the time zone from the drop-down menu according to the location of the camera.

Enable Daylight Saving Time

To enable DST, please check the item and then specify the time offset and the DST duration. The format for time offset is [hh:mm:ss]; for instance, if the amount of time offset is one hour, please enter “01:00:00” into the field.

Time format

Choose a time format (yyyy/mm/dd or dd/mm/yyyy) from the drop-down menu. The format of the date and time displayed above the live video window will be changed according to the selected format.

Sync with Computer Time

Select the item, and video date and time display will synchronize with the PC's.



NOTE: Users **MUST** click the <Save> button to confirm the setting. Otherwise, the time will not be synced.

Manual

The administrator can set video date and time manually. Entry format should be identical with the examples shown next to the enter fields.

Sync with NTP Server

Network Time Protocol (NTP) is an alternate way to synchronize the camera's clock with a NTP server. Please specify the server that is wished to synchronize in the entry field. Then select an update interval from the drop-down menu. For further information about NTP, please see the web site: www.ntp.org.



NOTE: The synchronization will be done every time the camera boots up.

Click the <Save> button to confirm the setting.

2.2.2 Security

The Security setting can be found under this path: **System> Security**.

Click the <Security> category, there will be a drop-down menu with tabs including <User>, <HTTPS>, <IP Filter>, and <IEEE 802.1X>.

2.2.2.1 User

The User setting can be found under this path: **System> Security> User**.

Admin Password

This item is for the administrator to reset password. Enter the new password in <Admin password> and <Confirm password>. The maximum length is 14 characters. The input characters / numbers will be displayed as dots for security purposes. Click the <Save> button to confirm the changes. After the changes are confirmed, the web browser will ask the administrator to re-login to the camera with the new password.



NOTE: The following characters are valid: A-Z, a-z, 0-9, !#\$%&'-.@^_~.

Add User

This item is for the administrator to add new users. Enter the new user's name in <User name> and the password in <User password>. Username can be up to 16 characters, and the maximum length of the password is 14 characters. Tick the boxes below to give privileges for functions, including “**Camera control**”, “**Talk**” and “**Listen**”. Click the <Add> button to add the new user. The name of the new added user will be displayed in the <User name> drop-down list under <Manage User>. There is a maximum of twenty user accounts.

- **I/O access**

This item supports fundamental functions that enable users to view the live video when accessing to the camera.

- **Camera control**

This item allows the appointed user to change camera parameters on the <Camera> and <PTZ> setting page.

- **Talk/Listen**

This item allows the appointed user in the local site (PC site) to communicate with, for instance, the administrator in the remote site.

Manage User

- **Delete user**

Pull down the <User name> drop-down list and select the username that is wished to be deleted. Click the <Delete> button to remove the selected name.

- **Edit user**

Pull down the <User name> drop-down list and select the username. Click the <Edit> button and a popup window will appear. In the appeared window, enter the new user password and reset the privileges. Click the <Save> button to confirm the changes. Then click the <Close> button to complete the editing.

HTTP Authentication Setting

This setting allows secured connections between the IP camera and web browser by enforcing access controls to web resources. When users approach to the web browser, it'll ask for username and password, which protects the camera settings or live streaming information from snooping. There are two security models available: Basic and Digest. Refer to the descriptions below for more details.

- **Basic**

This mode can only provide basic protection for the connection security. There will still be risks for the password being intercepted.

- **Digest**

Digest mode is a safer option for protection. The password is sent in an encrypted format to prevent it from being stolen.



NOTE: Users **MUST** click the <Save> button to apply the setting.

Streaming Authentication Setting

This setting provides security against unauthorized users from getting streaming via Real Time Streaming Protocol (RTSP). If the setting is enabled, users will be requested to enter user name and password before viewing the live streams. There are three security modes available: Disable, Basic and Digest. Refer to the descriptions below for more details.

- **Disable**
If disable mode is selected, there will be no security provided to against unauthorized access. Users will not be asked to input user name and password for authentication.
- **Basic**
This mode can only provide basic protection for the live streams. There will still be risks for the password being intercepted.
- **Digest**
Digest mode is a safer option for protection. The password is sent in an encrypted format to prevent it from being stolen.



NOTE: Users **MUST** click the <Save> button to apply the setting.

Enable Account Lockout Function

This setting provides extra security against unauthorized users who intend to log in by guessing the username or password. If the setting is enabled, login will not be allowed for the set duration once the maximum login failure is reached.

- **Threshold**
Set the maximum number of login failure.
- **Duration**
Set the duration for account lockout.



NOTE: Users **MUST** click the <Save> button to apply the setting.

2.2.2.2 HTTPS

The HTTPS setting can be found under this path: **System> Security> HTTPS**.

<HTTPS> allows secure connections between the camera and the web browser using <Secure Socket Layer (SSL)> or <Transport Layer Security (TLS)>, which ensure camera settings or Username / Password info from snooping. It is required to install a self-signed certificate or a CA-signed certificate for implementing HTTPS.

To use HTTPS on the camera, an HTTPS certificate must be installed. The HTTPS certificate can be obtained by either creating and sending a certificate request to a Certificate Authority (CA) or creating a self-signed HTTPS certificate, as described below.

Create Self-signed Certificate

Before a CA-issued certificate is obtained, users can create and install a self-signed certificate first.

Click the <Create> button under “Create self-signed certificate” and provide the requested information to install a self-signed certificate for the camera. Please refer to the last part of this section *Provide the Certificate Information* for more details.



NOTE: The self-signed certificate does not provide the same high level of security as when using a CA-issued certificate.

Install Signed Certificate

Click the <Create Certificate Request> button to create and submit a certificate request in order to obtain a signed certificate from CA.

Provide the request information in the create dialog. Please refer to the following section *Provide the Certificate Information* for more details.

When the request is complete, the subject of the Created Request will be shown in the field. Click the <Properties> button below the Subject field, copy the PEM-formatted request and send it to the selected CA.

When the signed certificate is returned, install it by uploading the signed certificate.

Provide the Certificate Information

To create a Self-signed HTTPS Certificate or a Certificate Request to CA, please enter the information as requested.

	Create Self Signed Certificate	Create Certificate Request
Country	V	V
State or Province	V	V
Locality	V	V
Organization	V	V
Organizational Unit	V	V
Common Name	V	V
Valid Days	V	-

- **Country**
Enter a two-letter combination code to indicate the country the certificate will be used in. For instance, type in “US” to indicate United States.

- **State or province**
Enter the local administrative region.

- **Locality**
Enter other geographical information.

- **Organization**
Enter the name of the organization to which the entity identified in “Common Name” belongs.

- **Organization Unit**
Enter the name of the organizational unit to which the entity identified in “Common Name” belongs.

- **Common Name**
Indicate the name of the person or other entity that the certificate identifies (often used to identify the website).

- **Valid days**
Enter the period in days (1 to 9999) to indicate the valid period of certificate.

Click the <OK> button to save the Certificate Information after completing the setting.

2.2.2.3 IP Filter

The IP Filter setting can be found under this path: **System> Security> IP Filter**.

With IP Filter, users can allow or deny specific IP addresses from accessing the camera.

- **Enable IP Filter**

Check the box to enable the IP Filter function. Once enabled, the listed IP addresses (IPv4) in the <Filtered IP Addresses> list box will be allowed / denied to access the camera.

Select <Allow> or <Deny> from the drop-down list and click the <Apply> button to determine the IP filter behavior.

- **Add IP Address**

Input IP address at the blank space below the <Filtered IP Address> list and click the <Add> button. The newly-added address will be shown in the list. Up to 256 IP address entries can be specified.

In addition, to filter a group of IP addresses, enter an address at the blank space followed with a slash and a number ranging from 1 to 31, e.g. 192.168.2.81/30. The number after the slash can define how many IP addresses will be filtered. For details, please refer to the following example.

- **Example: Filtering a group of consecutive IP addresses**
The steps below show what will be filtered when 192.168.2.81/30 is entered.

Step 1: Convert 192.168.2.81 to binary numbers. The binary numbers are 11000000.10101000.00000010.01010001. Users can refer to *Appendix B: IP Addresses from Decimal to Binary* for converting the IP addresses to binary numbers. The number “30” after the slash is referring to the first 30 digits of the binary numbers.

Step 2: Convert a few IP addresses before and after 192.168.2.81 to binary numbers. Then compare their first 30 digits with the binary numbers of 192.168.2.81.

- a. Convert 192.168.2.80 to binary numbers. The binary numbers are 11000000.10101000.00000010.01010000. The first 30 digits are the same with the binary numbers of 192.168.2.81, thus 192.168.2.80 will be filtered.

- b. Convert 192.168.2.79 to binary numbers. The binary numbers are 11000000.10101000.00000010.01001111. The first 30 digits are different with the binary numbers of 192.168.2.81, thus 192.168.2.79 will not be filtered. This also means the IP addresses before 192.168.2.79 will not be filtered. Therefore, users can stop converting the IP addresses before 192.168.2.79 to binary numbers.

- c. Repeat the same procedure in “a” with the IP addresses after 192.168.2.81. Stop when the situation occurs in “b” happened. Namely, the 30th digit of the binary numbers of IP address 192.168.2.84 is different, and will not be filtered.

As a result, the IP addresses 192.168.2.80 to 192.168.2.83 will be filtered when entering 192.168.2.81/30. The following table clearly shows the 30th digit of the binary numbers of IP addresses 192.168.79 and 192.168.84 are different from the others. Therefore, these two IP addresses will not be filtered.

IP Addresses	Binary Numbers
192.168.2.79	11000000.10101000.00000010.01001 <u>1</u> 11
192.168.2.80	11000000.10101000.00000010.01010000
192.168.2.81	11000000.10101000.00000010.01010001
192.168.2.82	11000000.10101000.00000010.01010010
192.168.2.83	11000000.10101000.00000010.01010011
192.168.2.84	11000000.10101000.00000010.01010 <u>1</u> 00

- **Delete IP Address**

To remove an IP address from the <Filtered IP Address> list, please select the address and click the <Delete> button.

2.2.2.4 IEEE 802.1X

The IEEE 802.1X setting can be found under this path: **System> Security> IEEE 802.1X.**

The camera is allowed to access a network protected by 802.1X/EAPOL (Extensible Authentication Protocol over LAN).

Users need to contact with the network administrator for gaining certificates, user IDs and passwords.

CA Certificate

The CA certificate is created by the Certification Authority for the purpose of validating itself. Upload the certificate for checking the server's identity.

Client Certificate / Private Key

Upload the Client Certificate and Private Key for authenticating the camera itself.

Settings

- **Identity**
Enter the user identity associated with the certificate. Up to 16 characters can be used.

- **Private Key Password**
Enter the password (maximum 16 characters) for user identity.

Enable IEEE 802.1X

Check the box to enable IEEE 802.1X.

Click the <Save> button to save the IEEE 802.1X/EAP- TLS setting.

2.2.3 Network

The Network setting can be found under this path: **System> Network**.

Click the <Network> category, there will be a drop-down menu with tabs including <Basic>, <QoS>, <SNMP>, and <UPnP>.

2.2.3.1 Basic

The Basic setting can be found under this path: **System> Network> Basic**.

This setting page is for setting a new IP address for the camera, configuring other network-related parameters and activating IPv6 address (if the network supports it).

General

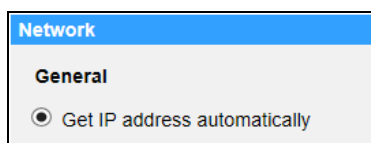
This setting menu is for configuring a new IP address for the camera. To setup an IP address, please find out the network type first. Contact the network provider for it. Then refer to the network type and follow the instructions to setup the IP address.



NOTE: If the network type is Point-to-Point Protocol over Ethernet (PPPoE), please obtain the PPPoE username and password from the network provider.

- **Get IP address automatically**

Select Get IP address automatically and click the <Save> button to confirm the new setting.



A note for camera system restart will appear. Click the <OK> button and the camera system will be restarted. The camera will be assigned with a new IP address.

- **Use fixed IP address**

Select the item and insert the new IP address, e.g. 192.168.7.123. Note that the inserted IP address should be in the same LAN as the PC's IP address. Then go to the Default gateway (explained later) blank and change the setting, e.g. 192.168.7.254. Click the <Save> button to confirm the new setting. A note for system restart will appear, click the <OK> button and the system will restart. Wait for 15 seconds. The camera's IP address in the URL bar will be changed, and users have to login again.

- IP address

This is necessary for network identification.

- Subnet mask

It is used to determine if the destination is in the same subnet. The default value is "255.255.255.0".

- Default gateway

This is the gateway used to forward frames to destinations in different subnet. Invalid gateway setting will fail the transmission to destinations in different subnet.

- Primary DNS

Primary DNS is the primary domain name server that translates hostnames into IP addresses.

- Secondary DNS

Secondary DNS is a secondary domain name server that backs up the primary DNS.

- **Use PPPoE**

For the PPPoE users, enter the PPPoE username and password into the enter fields, and click the <Save> button to complete the setting.

Advanced

The following introduces the camera's Web Server port, RTSP port, MJPEG over HTTP port, and HTTPS port.

- **Web Server port**

The default web server port is 80. With the default web server port '80', users can simply input the IP address of the camera in the URL bar of a web browser to connect the camera. When the web server port is changed to any number other than 80, users have to enter the camera's IP address followed by a colon and the port number. For instance, a camera whose IP address as 192.168.0.100 and web server port as 8080 can be connected by entering "http://192.168.0.100:8080" in the URL bar.

- **RTSP port**

The default setting of RTSP Port is 554; the RTSP Port should be set as 554 or from the range 1024 to 65535.

- **MJPEG over HTTP port**

The default setting of MJPEG over HTTP Port is 8008; the MJPEG over HTTP Port should be set as 8008 or from the range 1024 to 65535.

- **HTTPS port**

The default setting of HTTPS Port is 443; the HTTPS Port should be set as 443 or from the range 1024 to 65535.



NOTE: Please make sure the port numbers set above are not the same with each other; otherwise, network conflict may occur.

IPv6 Address Configuration

If the network supports IPv6, users can check the box beside <Enable IPv6> and click the <Save> button. An IPv6 address will appear beside <Address>, and users can use it to connect to the camera.

2.2.3.2 QoS

The QoS (Quality of Service) setting can be found under this path: **System> Network> QoS**.

QoS allows providing differentiated service levels for different types of traffic packets, which guarantees delivery of priority services especially when network congestion occurs. Adapting the Differentiated Services (DiffServ) model, traffic flows are classified and marked with DSCP (DiffServ Codepoint) values, and thus receive the corresponding forwarding treatment from DiffServ capable routers.

DSCP Settings

The DSCP value range is from 0 to 63. The default DSCP value is 0, which means DSCP is disabled. The camera uses the following QoS Classes: Video, Audio and Management.

- **Video DSCP**
The class consists of applications such as MJPEG over HTTP, RTP/RTSP and RTSP/HTTP.
- **Audio DSCP**
This setting is only available for the cameras that support audio.
- **Management DSCP**
The class consists of HTTP traffic: Web browsing.



NOTE: To enable this function, please make sure the switches / routers in the network support QoS.

2.2.3.3 SNMP

The SNMP (Simple Network Management Protocol) setting can be found under this path: **System> Network> SNMP**.

With Simple Network Management Protocol (SNMP) support, the camera can be monitored and managed remotely by the network management system.

SNMP v1 / v2

- **Enable SNMP v1 / v2**
Select the version of SNMP to use by checking the box.
- **Read Community**
Specify the community name that has read-only access to all supported SNMP objects. The default value is “public”.
- **Write Community**
Specify the community name that has read / write access to all supported SNMP objects (except read-only objects). The default value is “private”.

SNMP v3

SNMP v3 supports an enhanced security system that provides protection against unauthorized users and ensures the privacy of the messages. Users will be requested to enter security name, authentication password and encryption password while setting the camera connections in the network management system. With SNMP v3, the messages sent between the cameras and the network management system will be encrypted to ensure privacy.

- **Enable SNMP v3**
Enable SNMP v3 by checking the box.
- **Security Name**
The maximum length of the security name is 32 characters.



NOTE: The valid characters are A-Z, a-z, 0-9 and !#\$%&'-.@^_~.

- **Authentication Type**
There are two authentication types available: MD5 and SHA. Select <SHA> for a higher security level.

- **Authentication Password**

The authentication password must be 8 characters or more. The input characters / numbers will be displayed as dots for security purposes.



NOTE: The valid characters are A-Z, a-z, 0-9 and !#\$%&'-.@^_~.

- **Encryption Type**

There are two encryption types available: DES and AES. Select <AES> for a higher security level.

- **Encryption Password**

The minimum length of the encryption password is 8 characters and the maximum length is 512 characters. The input characters / numbers will be displayed as dots for security purposes. The encryption password can also be left blank. However, the messages will not be encrypted to protect privacy.



NOTE: The valid characters are A-Z, a-z, 0-9 and !#\$%&'-.@^_~.

Traps for SNMP v1 / v2 / v3

Traps are used by the camera to send messages to a management system for important events or status changes.

- **Enable Traps**

Check the box to activate trap reporting.

- **Trap address**

Enter the IP address of the management server.

- **Trap community**

Enter the community to use when sending a trap message to the management system.

Trap Option

- **Warm Start**

A Warm Start SNMP trap signifies that the SNMP device, i.e. IP camera, performs software reload.

Click the <Save> button when complete.

2.2.3.4 UPnP

The UPnP setting can be found under this path: **System> Network> UPnP**.

UPnP Setting

- **Enable UPnP**

When the UPnP is enabled, whenever the camera is presented to the LAN, the icon of the connected cameras will appear in My Network Places to allow for direct access.



NOTE: To enable this function, please make sure UPnP component is installed on the computer. Please refer to Appendix A: Install UPnP Components for UPnP component installation procedure.

- **Enable UPnP port forwarding**

When the UPnP port forwarding is enabled, the camera is allowed to open the web server port on the router automatically.



NOTE: To enable this function, please make sure that the router supports UPnP and it is activated.

- **Friendly name**

Set a name for the camera for identity.

Click the <Save> button when finished.

2.2.4 DDNS

The DDNS setting can be found under this path: **System> DDNS**.

Dynamic Domain Name System (DDNS) allows a host name to be constantly synchronized with a dynamic IP address. In other words, it allows those using a dynamic IP address to be associated to a static domain name so others can connect to it by name.

Enable DDNS

Check the item to enable DDNS.

Provider

Select one DDNS host from the provider list.

Host name

Enter the registered domain name in the field.

Username/E-Mail

Enter the username or E-mail required by the DDNS provider for authentication.

Password/Key

Enter the password or key required by the DDNS provider for authentication.

2.2.5 Mail

The Mail setting can be found under this path: **System> Mail**.

The administrator can send an E-mail via Simple Mail Transfer Protocol (SMTP) when an alarm is triggered. SMTP is a protocol for sending E-mail messages between servers. SMTP is a relatively simple, text-based protocol, where one or more recipients of a message are specified and the message text is transferred.

Two sets of SMTP can be configured. Each set includes SMTP Server, Account Name, Password and E-mail Address settings. For SMTP server, contact the network service provider for more specific information.

2.2.6 FTP

The FTP setting can be found under this path: **System> FTP**.

The administrator can set the camera to send the alarm messages to a specific File Transfer Protocol (FTP) site when an alarm is triggered. Users can assign alarm message to up to two FTP sites. Enter the FTP details, which include server, server port, username, password and remote folder, in the fields.

Click the <Save> button when finished.

2.2.7 HTTP

The HTTP setting can be found under this path: **System> HTTP**.

An HTTP Notification server can listen for the notification messages from the cameras by triggered events. Enter the HTTP details, which include server name (for instance, <http://192.168.0.1/admin.php>), username, and password in the fields. <Alarm> triggered and <Motion Detection> notifications can be sent to the specified HTTP server.

Click the <Save> button when finished.



Please refer to **Events> Application> Send HTTP notification for HTTP Notification settings**.

2.2.8 Events (Alarm Settings)

The Events setting can be found under this path: **System> Events**.

Click the <Events> category, there will be a drop-down menu with tabs including <Application>, <Motion Detection>, <Network Failure Detection>, <Periodical Event>, <Manual Trigger>, and <Audio Detection>.

2.2.8.1 I/O Application

The I/O Application setting can be found under this path: **System> Events> I/O Application**.

The camera equips four alarm inputs and two relay outputs for cooperating with the alarm system to catch events' images. Please refer to the *GV-IP Speed Dome Quick Start Guide* for I/O pin definitions to connect the alarm devices.

Alarm Switch

Select an alarm pin which is to be configured from the drop-down menu. The default setting for the Alarm Switch function is <Off>. Enable the function by selecting <On>. Users can also activate the function according to the schedule previously set in the <Schedule> setting page. Select <By schedule> and click the <Please select...> button to choose the desired schedule from the drop-down menu.

Alarm Type

Select an alarm type, <Normal close> or <Normal open>, that corresponds with the alarm application.

Triggered Action (Multi-option)

The administrator can specify alarm actions that will take at an alarm occurrence. All options are listed as follows.

- **Enable Alarm Output 1/2**
Select these items to enable alarm relay outputs.
- **Send Message by FTP/E-Mail**
The administrator can select whether to send an alarm message by FTP and/or E-mail when an alarm is triggered.

- **Upload Image by FTP**

Select this item and the administrator can assign an FTP site and configure various parameters. When the alarm is triggered, event images will be uploaded to the appointed FTP site. Note that to implement this function, one of the streaming **MUST** be set as **MJPEG**; otherwise, this function will be grayed out and cannot be accessed.

<Pre-trigger buffer> function allows users to check what caused the trigger. The <Pre-trigger buffer> frame rate could be pre-determined. On the other hand, <Post-trigger buffer> is for users to upload certain amount of images after the alarm input is triggered.



NOTE: <Pre-trigger buffer> generally ranges from 1 to 20 frames. However, the range will change accordingly if the frame rate of MJPEG on **Streaming> Video Configuration** is 6 or smaller.

Check the box <Continue image upload> to upload the triggered images during certain time or keep uploading until the trigger is off. Select <Upload for sec> and enter the duration in the blank. The images of the duration will be uploaded to FTP when the alarm input is triggered. The setting range is from 1 sec. to 99999 sec. Select <Upload while the trigger is active> to make the images keep being uploaded to FTP during the trigger active until the alarm is released. Set the Image frequency as the upload frame rate. The setting range is from 1 to 15 frames per second.



NOTE: Make sure the FTP configuration has been completed. Refer to section *FTP* for further details.

- **Upload Image by E-Mail**

Select this item and the administrator can assign an E-mail address and configure various parameters. When the alarm is triggered, event images will be sent to the appointed E-mail address. Note that to implement this function, one of the streaming **MUST** be set as **MJPEG**; otherwise, this function will be grayed out and cannot be accessed.

<Pre-trigger buffer> function allows users to check what caused the trigger. The <Pre-trigger buffer> frame rate could be pre-determined. On the other hand, <Post-trigger buffer> is for users to upload certain amount of images after alarm input is triggered.



NOTE: <Pre-trigger buffer> generally ranges from 1 to 20 frames. However, the range will change accordingly if the frame rate of MJPEG on **Streaming> Video Configuration** is 6 or smaller.

Check the box <Continue image upload> to upload the triggered images during certain time or keep uploading until the trigger is off. Select <Upload for sec> and enter the duration in the blank. The images of the duration will be uploaded and sent via E-mail when the alarm input is triggered. The setting range is from 1 sec. to 99999 sec. Select <Upload while the trigger is active> to make images keep being uploaded via E-mail during the trigger active until the alarm is released. Set the Image frequency as the upload frame rate. The setting range is from 1 to 15 frames per second.



NOTE: Make sure SMTP configuration has been completed. Please refer to section *Mail* for further details.

- **Send HTTP Notification**

Check this item, select the destination HTTP address, and specify the parameters for event notifications by <Alarm> triggered. When an alarm is triggered, the notification can be sent to the specified HTTP server.

For instance, if the custom parameter is set as “action=1&group=2”, and the HTTP server name is “http://192.168.0.1/admin.php”, the notification will be sent to HTTP server as “http://192.168.0.1/admin.php?action=1&group=2” when alarm is triggered.

- **Record Video Clip**

Check this item and select a video recording storage type, <SD Card> or <NAS> (Network-Attached Storage). The alarm-triggered recording will be saved into the SD card or the NAS.

Pre-trigger buffer recording function allows users to check what happened to cause the trigger. The pre-trigger buffer time range is from 1 sec. to 3 sec. Select <Upload for sec> to set the recording duration after alarm is triggered. The setting range is from 1 sec. to 99999 sec. Select <Upload while the trigger is active> to record the triggered video until the trigger is off.



NOTE: Please make sure the local recording (with SD card) or the remote recording (with NAS) is activated so that this function can be implemented. Refer to section *Recording* for further details.

- **PTZ Function**

Assign a camera function: Preset, Sequence, Autopan or Cruise, and specify a Function Line for the camera to perform when an alarm is triggered.



NOTE: Please refer to the sections *Preset*, *Cruise*, *Autopan*, and *Sequence* for details of Preset Point / Cruise Line / Autopan Path / Sequence Line setups.

If the selected function is <Preset>, it is required to enter its dwell time (1 sec. to 256 sec.) in the corresponding field. When the alarm is triggered, the camera will go to the selected Preset Point and stay there for a user-defined period of time. As for other function modes, the camera will keep executing the specified function; to stop the performance, simply change the camera's status.



NOTE: The dwell time is only adjustable when <Preset> is selected. When the dwell time is up, the camera will go back to its trigger position and recheck the alarm pin status.

File Name

Enter a file name in the File name field, e.g. image.jpg. The uploaded image's file name format can be set in this section. Please select the one that meets the requirements.

- **Add date/time suffix**

File name: imageYYMMDD_HHNNSS_XX.jpg

Y: Year, M: Month, D: Day

H: Hour, N: Minute, S: Second

X: Sequence Number

- **Add sequence number suffix (no maximum value)**

File name: imageXXXXXXXX.jpg

X: Sequence Number

- **Add sequence number suffix up to # and then start over**

File Name: imageXX.jpg

X: Sequence Number

The file name suffix will end at the number being set. For example, if the setting is up to "10", the file name will start from 00, end at 10, and then start all over again.

- **Overwrite**

The original image in the FTP site will be overwritten by the new uploaded file with a static filename.

Save

Click the <Save> button to save the settings.

2.2.8.2 Motion Detection

The Motion Detection setting can be found under this path: **System> Events> Motion Detection.**

Motion Detection function allows the camera to detect suspicious motion and trigger alarms by comparing sampling pixels in the detection area of two consecutive live images. When motion volume in the detected area reaches / exceeds the determined sensitivity threshold value, the alarm will be triggered.

The function supports up to 4 sets of Motion Detection Settings. Settings can be chosen from the Motion Detection drop-down menu.

Motion Detection

By default, Motion Detection function for each Motion Detection Setting is <Off>. Select <On> to enable Motion Detection. Users can also activate the function according to the schedule previously set in the <Schedule> setting page. Select <By schedule> and click the <Please select...> button to choose the desired schedule from the drop-down menu.

Motion Region Setup (Motion Region Paint)

The camera divides the detection area into 1200 (40x30) detection grids; users can draw the motion detection region using the paintbrush.

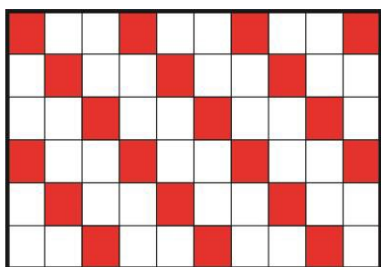
Check the box <Enable brush> and select the brush size, 1x1, 3x3 or 5x5. Then, left click and drag the mouse cursor to draw the preferred detection region. To erase the drawn detection region, left click and drag the mouse cursor on the colored grids.

Motion Detection Setting

Users could adjust various parameters of Motion Detection in this section.

- **Sampling pixel interval [1-10]:**

This item is used to examine the differences between two frames. Users can configure the interval of sampling pixel. The default value is 1. For instance, if users set the interval as 3, IP camera system will take one sampling pixel from every 3 pixels of each row and each column in detection area (refer to the figure below). The alarm will be triggered when differences are detected.



- **Detection level [1-100]:**

Users can configure detection level for each sampling pixel. Detection level is how much the camera can accept the differences between two sampling pixels. The smaller the value is, the more minor motions it detects. The default level is 10.

- **Sensitivity level [1-100]:**

The default level is 80, which means if 20% or more sampling pixels are detected differently, system will detect motion. The bigger the value, the more sensitive it is. Meanwhile, when the value is bigger, the red horizontal line in the motion indication window will be lower accordingly.

- **Time interval (sec) [0-7200]:**

The value is the interval between each detected motion. The default interval is 10.

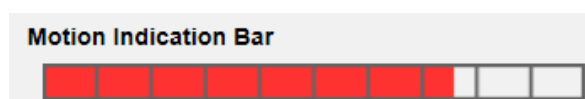
Motion Indication Bar

When Motion Detection function is activated and the motion is detected, the signals will be displayed on the motion indication bar. The motion indication bar will go green or red when there is any motion occurrence in the detection region.

Green suggests the occurring motion is detected and does not exceed the threshold of detection level and sensitivity level. No alarms will be triggered.



Red suggests the ongoing motion exceeds the threshold of detection level and sensitivity level. The alarm will be triggered.



Triggered Action (Multi-option)

The administrator can specify alarm actions that will take when motion is detected. All options are listed as follows.

- **Enable Alarm Output 1/2 (high/low)**
Check the item and select the predefined type of alarm output to enable alarm relay output when motion is detected.
- **Send Alarm Message by FTP/E-Mail**
The administrator can select whether to send an alarm message by FTP and/or E-mail when motion is detected.
- **Upload Image by FTP**
Select this item and the administrator can assign an FTP site and configure various parameters. When motion is detected, event images will be uploaded to the appointed FTP site. Note that to implement this function, one of the streaming **MUST** be set as **MJPEG**; otherwise, this function will be grayed out and cannot be accessed.

<Pre-trigger buffer> function allows users to check what caused the trigger. The <Pre-trigger buffer> frame rate could be pre-determined. On the other hand, <Post-trigger buffer> is for users to upload certain amount of images after motion event occurs.



NOTE: <Pre-trigger buffer> generally ranges from 1 to 20 frames. However, the range will change accordingly if the frame rate of MJPEG on **Streaming> Video Configuration** is 6 or smaller.

Check the box <Continue image upload> to upload the triggered images during certain time or keep uploading until the trigger is off. Select <Upload for sec> and enter the duration in the blank. The images of the duration will be uploaded to FTP when the motion event occurs. The setting range is from 1 sec. to 99999 sec. Select <Upload during the trigger active> to make the images keep being uploaded to FTP during the trigger active until the event stops. Set the Image frequency as the upload frame rate. The setting range is from 1 to 15 frames per second.



NOTE: Make sure FTP configuration has been completed. Refer to section *FTP* for further details.

- **Upload Image by E-Mail**

Select this item and the administrator can assign an E-mail address and configure various parameters. When motion is detected, event images will be sent to the appointed E-mail address. Note that to implement this function, one of the streaming **MUST** be set as **MJPEG**; otherwise, this function will be grayed out and cannot be accessed.

<Pre-trigger buffer> function allows users to check what caused the trigger. The <Pre-trigger buffer> frame rate could be pre-determined. On the other hand, <Post-trigger buffer> is for users to upload certain amount of images after the motion event occurs.



NOTE: <Pre-trigger buffer> generally ranges from 1 to 20 frames. However, the range will change accordingly if the frame rate of MJPEG on **Streaming> Video Configuration** is 6 or smaller.

Check the box <Continue image upload> to upload the triggered images during certain time or keep uploading until the trigger is off. Select <Upload for sec> and enter the duration in the blank. The images of the duration will be uploaded via E-mail when the motion event occurs. The setting range is from 1 sec. to 99999 sec. Select <Upload during the trigger active> to make images keep being uploaded via E-mail during the trigger active until the event stops. Set the Image frequency

as the upload frame rate. The setting range is from 1 to 15 frames per second.



NOTE: Make sure SMTP configuration has been completed. Refer to section *Mail* for further details.

- **Send HTTP Notification**

Check this item, select the destination HTTP address, and specify the parameters for event notifications by <Motion Detection> triggered. When an alarm is triggered, the notification can be sent to the specified HTTP server.

For instance, if the custom parameter is set as “action=1&group=2”, and the HTTP server name is “http://192.168.0.1/admin.php”, the notification will be sent to HTTP server as “http://192.168.0.1/admin.php? action=1&group=2” when alarm is triggered.

- **Record Video Clip**

Check this item and select a video recording storage type, <SD Card> or <NAS> (Network-Attached Storage). The Motion Detection recording will be stored in SD card or the NAS when motion is detected.

Pre-trigger buffer recording function allows users to check what happened to cause the trigger. The pre-trigger buffer time range is from 1 sec. to 3 sec. Select <Upload for sec> to set the recording duration after motion is triggered. The setting range is from 1 sec. to 99999 sec. Select <Upload during the trigger active> to record the triggered video until the trigger is off.



NOTE: Please make sure the local recording (with SD card) or the remote recording (with NAS) is activated so that this function can be implemented. Refer to section *Recording* for further details.

File Name

Enter a file name in the blank, e.g. image.jpg. The uploaded image's file name format can be set in this section. Please select the one that meets the requirements.

- **Add date/time suffix**

File name: imageYYMMDD_HHNNSS_XX.jpg

Y: Year, M: Month, D: Day

H: Hour, N: Minute, S: Second

X: Sequence Number

- **Add sequence number suffix (no maximum value)**

File name: imageXXXXXXXX.jpg

X: Sequence Number

- **Add sequence number suffix up to # and then start over**

File Name: imageXX.jpg

X: Sequence Number

The file name suffix will end at the number being set. For example, if the setting is up to "10", the file name will start from 00, end at 10, and then start all over again.

- **Overwrite**

The original image in the FTPsite will be overwritten by the new uploaded file with a static filename.

Save

Click the <Save> button to save the settings.

2.2.8.3 Network Failure Detection

The Network Failure Detection setting can be found under this path: **System> Events> Network Failure Detection**.

Network Failure Detection allows the camera to ping another IP device (e.g. NVR, VSS, Video Server, etc.) within the network periodically and generates some actions in case of network failure occurs, for instance, a Video Server is somehow disconnected.

Being capable of implementing local recording (through SD card) or remote recording (via NAS) when network failure happens, the camera can be a backup recording device for the surveillance system.

Detection Switch

The default setting for the Detection Switch function is <Off>. Enable the function by selecting <On>. Users can also activate the function according to the schedule time that is previously set in the <Schedule> setting page. Select <By schedule> and click the <Please select...> button to choose the desired schedule from the drop-down menu.

Detection Type

Input the IP device address and the period of ping time to ping. The camera will ping the IP device every *N* minute(s). If it fails up to **three times**, the alarm will be triggered automatically. The ping time setting range is from 1 to 99 minutes.

Triggered Action (Multi-option)

The administrator can specify alarm actions that will take when network failure is detected. All options are listed as follows.

- **Enable Alarm Output 1 /2**
Select the item to enable alarm relay output.
- **Send Alarm Message by FTP/E-Mail**
The administrator can select whether to send an alarm message by FTP and/or E-mail when an alarm is triggered.
- **Record Video Clip**
Check the item and select a video recording storage type, <SD Card> or <NAS> (Network-Attached Storage). The alarm-triggered recording will be saved into the SD card.

Pre-trigger buffer recording function allows users to check what happened to cause the trigger. The pre-trigger buffer time range is from 1 sec. to 3 sec. Select <Upload for sec> to set the recording duration after alarm is triggered. The setting range is from 1 sec. to 99999 sec. Select <Upload during the trigger active> to record the triggered video until the trigger is off.



NOTE: Please make sure the local recording (with SD card) or the remote recording (with NAS) is activated so that this function can be implemented. Refer to section *Recording* for further details.

Save

Click the <Save> button to save all the settings mentioned above.

2.2.8.4 Tampering

The Tampering setting can be found under this path: **System> Events> Tampering**.

Tampering Alarm function helps the IP camera against tampering, such as deliberate redirection, blocking, paint spray, and lens cover, etc., through video analysis and reaction to such events by sending out notifications or uploading snapshots to the specified destination(s).

Detection of camera tampering is achieved by measuring the differences between the older frames of video (which are stored in buffers) and more recent frames.

Tampering Alarm

The default setting for the Tampering Alarm function is <Off>. Enable the function by selecting <On>. Users can also activate the function according to the schedule previously set in the <Schedule> setting page. Select <By schedule> and click <Please select...> to choose the desired schedule from the drop-down menu.

Tampering Duration

Minimum Tampering Duration is the time for video analysis to determine whether camera tampering has occurred. Minimum Duration could also be interpreted as defining the Tampering threshold; longer duration represents higher threshold. Settable Tampering Duration time range is from 10 to 3600 sec. The Default value is 20 sec.

Triggered Action

The administrator can specify alarm actions that will take when tampering is detected. All options are listed as follows.

- **Enable Alarm Output (high/low)**
Check the item and select the predefined type of alarm output to enable alarm output when tampering is detected.
- **Send Message by FTP/E-Mail**
The administrator can select whether to send an alarm message by FTP and/or E-mail when tampering is detected.
- **Upload Image by FTP**
Select this item and the administrator can assign an FTP site and configure various parameters. When tampering is detected, event images will be uploaded to the appointed FTP site. Note that to implement this function, one of the streaming **MUST** be set as **MJPEG**; otherwise, this function will be grayed out and cannot be accessed.

<Pre-trigger buffer> function allows users to check what caused the trigger. The <Pre-trigger buffer> frame rate could be pre-determined. On the other hand, <Post-trigger buffer> is for users to upload certain amount of images after tampering is triggered.



NOTE: <Pre-trigger buffer> generally ranges from 1 to 20 frames. However, the range will change accordingly if the frame rate of MJPEG on **Streaming> Video Configuration** is 6 or smaller.

Check the box <Continue image upload> to upload the triggered images during certain time or keep uploading until the trigger is off. Select <Upload for __ sec> and enter the duration in the blank. The images of the duration will be uploaded to FTP when tampering is triggered. The setting range is from 1 to 99999 sec. Select <Upload during the trigger active> to make the images keep being upload to FTP during the trigger active until the tampering stops. Set the Image frequency as the upload frame rate. The setting range is from 1 to 15 frames.



NOTE: Make sure FTP configuration has been completed. Refer to section [FTP](#) for further details.

- **Upload Image by E-Mail**

Select this item and the administrator can assign an E-mail address and configure various parameters. When tampering is detected, event images will be sent to the appointed E-mail address. Note that to implement this function, one of the streaming **MUST** be set as **MJPEG**; otherwise, this function will be grayed out and cannot be accessed.

<Pre-trigger buffer> function allows users to check what caused the trigger. The <Pre-trigger buffer> frame rate could be pre-determined. On the other hand, <Post-trigger buffer> is for users to upload certain amount of images after tampering occurs.



NOTE: Normally the setting range of the <Pre-trigger buffer> is 1 to 20 frames. However, the setting range will change accordingly if the frame rate of MJPEG on the <Video Configuration> setting page is 6 or smaller.

Check the box <Continue image upload> to upload the triggered images during certain time or keep uploading until the trigger is off. Select <Upload for __ sec> and enter the duration in the blank. The images of the duration will be uploading by E-mail when tampering is triggered. The setting range is from 1 to 99999 sec. Select <Upload during the trigger active> to make the images keep being upload to E-mail during the trigger active until tampering stops. Set the Image frequency as the upload frame rate. The setting range is from 1 to 20 frames.



NOTE: Make sure SMTP configuration has been completed. Refer to section [Mail](#) for further details.

- **Send HTTP Notification**

Check this item, select the destination HTTP address, and specify the parameters for HTTP notifications. When the Tampering Alarm is triggered, the HTTP notifications can be sent to the specified HTTP server.

For instance, if the custom parameter is set as “action=1&group=2”, and the HTTP server name is “http://192.168.0.1/admin.php”, the notification will be sent to HTTP server as “http://192.168.0.1/admin.php? action=1&group=2” when alarm is triggered.

- **Record Video Clip**

Check this item and select a video recording storage type, <SD Card> or <NAS> (Network-Attached Storage). The alarm-triggered recording will be stored into microSD/SD card or the NAS.

<Pre-trigger buffer> recording function allows users to check what caused the trigger. The pre-trigger buffer time range is from 1 to 3 sec. Select <Upload for __ sec> to set the recording duration after tampering occurs. The setting range is from 1 to 99999 sec. Select <Upload during the trigger active> to record the triggered video until the trigger is off.



NOTE: Please make sure the local recording (with microSD/SD card) or the remote recording (with NAS) is activated so that this function can be implemented. Refer to section [Recording](#) for further details.

File Name

Enter a file name in the blank, e.g. image.jpg. The uploaded image’s file name format can be set in this section. Please select the one that meets the requirements.

- **Add date/time suffix**

File name: imageYYMMDD_HHNNSS_XX.jpg

Y: Year, M: Month, D: Day

H: Hour, N: Minute, S: Second

X: Sequence Number

- **Add sequence number suffix (no maximum value)**

File name: imageXXXXXXXX.jpg

X: Sequence Number

- **Add sequence number suffix up to # and then start over**

File Name: imageXX.jpg

X: Sequence Number

The file name suffix will end at the number being set. For example, if the setting is up to “10”, the file name will start from 00, end at 10, and then start all over again.

- **Overwrite**

The original image in the FTP site will be overwritten by the new uploaded file with a static filename.

Save

Click on <Save> to save all the settings mentioned above.

2.2.8.5 Periodical Event

The Periodical Event setting can be found under this path: **System> Events> Periodical Event**.

With Periodical Event setting, users can set the camera to upload images periodically to an FTP site or an E-mail address. For example, if the time interval is set to 60 seconds, the camera will upload images to the FTP site or the E-mail address every 60 seconds. The images to be uploaded are the images before and after the triggered moment. Users can define how many images to be uploaded in the <Triggered Action> section of this setting page.

Periodical Event

The default setting for the Periodical Event function is <Off>. Enable the function by selecting <On>.

Time Interval

The default value of the time interval is 60 seconds. The setting range of the time interval is from 60 to 3600 seconds.

Triggered Action

- **Upload Image by FTP**

Select this item and the administrator can assign an FTP site and configure various parameters. Images will be uploaded to the appointed FTP site periodically. Note that to implement this function, one of the streaming **MUST** be set as **MJPEG**; otherwise, this function will be grayed out and cannot be accessed.

The <Pre-trigger buffer> function can define how many images to be uploaded before the triggered moment. The <Post-trigger buffer> function can define how many images to be uploaded after the triggered moment.



NOTE: <Pre-trigger buffer> generally ranges from 1 to 20 frames. However, the range will change accordingly if the frame rate of MJPEG on **Streaming> Video Configuration** is 6 or smaller.



NOTE: Make sure FTP configuration has been completed. Refer to section *FTP* of this chapter for further details.

- **Upload Image by E-Mail**

Select this item and the administrator can assign an E-mail address and configure various parameters. Images will be uploaded to the appointed E-mail address periodically. Note that to implement this function, one of the streaming **MUST** be set as **MJPEG**; otherwise, this function will be grayed out and cannot be accessed.

The <Pre-trigger buffer> function can define how many images to be uploaded before the triggered moment. The <Post-trigger buffer> function can define how many images to be uploaded after the triggered moment.



NOTE: <Pre-trigger buffer> generally ranges from 1 to 20 frames. However, the range will change accordingly if the frame rate of MJPEG on **Streaming> Video Configuration** is 6 or smaller.



NOTE: Make sure SMTP configuration has been completed. Refer to section *Mail* of this chapter for further details.

File Name

Enter a file name in the blank, e.g. image.jpg. The uploaded image's file name format can be set in this section. Please select the one that meets the requirements.

- **Add date/time suffix**

File name: imageYYMMDD_HHNNSS_XX.jpg

Y: Year, M: Month, D: Day

H: Hour, N: Minute, S: Second

X: Sequence Number

- **Add sequence number suffix (no maximum value)**

File name: imageXXXXXXXXX.jpg

X: Sequence Number

- **Add sequence number suffix up to # and then start over**

File Name: imageXX.jpg

X: Sequence Number

The file name suffix will end at the number being set. For example, if the setting is up to “10”, the file name will start from 00, end at 10, and then start all over again.

- **Overwrite**

The original image in the FTP site will be overwritten by the new uploaded file with a static filename.

Save

Click the <Save> button to save all the settings mentioned above.

2.2.8.6 Manual Trigger

The Manual Trigger setting can be found under this path: **System> Events> Manual Trigger**.

With Manual Trigger setting, the current image(s) or video can be uploaded to the appointed destination, such as an FTP site or an E-mail address. The administrator can specify the triggered actions that will take when the users switch the Manual Trigger button to ON. All options are listed as follows.

Manual Trigger

The default setting for the Manual Trigger function is <Off>. Enable the function by selecting <On>. After the Manual Trigger function is enabled, click the Manual Trigger button on the Home page to start uploading data. Click again to stop uploading.

Triggered Action (Multi-option)

The administrator can specify alarm actions that will take at an alarm occurrence. All options are listed as follows.

- **Enable Alarm Output 1/2**
Select these items to enable alarm relay outputs.

- **Send Message by FTP/E-Mail**
The administrator can select whether to send an alarm message by FTP and/or E-mail when an alarm is triggered.

- **Upload Image by FTP**
Select this item and the administrator can assign an FTP site and configure various parameters. When the alarm is triggered, event images will be uploaded to the appointed FTP site. Note that to implement this function, one of the streaming **MUST** be set as **MJPEG**; otherwise, this function will be grayed out and cannot be accessed.

<Pre-trigger buffer> function allows users to check what happened to cause the trigger. The <Pre-trigger buffer> frame rate could be pre-determined. On the other hand, <Post-trigger buffer> is for users to upload certain amount of images after the alarm input is triggered.



NOTE: <Pre-trigger buffer> generally ranges from 1 to 20 frames. However, the range will change accordingly if the frame rate of MJPEG on **Streaming> Video Configuration** is 6 or smaller.

Check the box <Continue image upload> to upload the triggered images during certain time or keep uploading until the trigger is off. Select <Upload for sec> and enter the duration in the blank. The images of the duration will be uploaded to FTP when the alarm input is triggered. The setting range is from 1 sec. to 99999 sec. Select <Upload during the trigger active> to make the images keep being uploaded to FTP during the trigger active until the alarm is released. Set the Image frequency as the upload frame rate. The setting range is from 1 to 15 frames per second.



NOTE: Make sure the FTP configuration has been completed. Refer to section *FTP* for further details.

- **Upload Image by E-Mail**

Select this item and the administrator can assign an E-mail address and configure various parameters. When the alarm is triggered, event images will be sent to the appointed E-mail address. Note that to implement this function, one of the streaming **MUST** be set as **MJPEG**; otherwise, this function will be grayed out and cannot be accessed.

<Pre-trigger buffer> function allows users to check what happened to cause the trigger. The <Pre-trigger buffer> frame rate could be pre-determined. On the other hand, <Post-trigger buffer> is for users to upload certain amount of images after alarm input is triggered.



NOTE: <Pre-trigger buffer> generally ranges from 1 to 20 frames. However, the range will change accordingly if the frame rate of MJPEG on **Streaming> Video Configuration** 6 or smaller.

Check the box <Continue image upload> to upload the triggered images during certain time or keep uploading until the trigger is off. Select <Upload for sec> and enter the duration in the blank. The images of the duration will be uploaded via E-mail when the alarm input is triggered. The setting range is from 1 sec. to 99999 sec. Select <Upload> during the <trigger active> to make the images keep being uploaded via E-mail during the trigger active until the alarm is released. Set the Image frequency as the upload frame rate. The setting range is from 1 to 15 frames per second.



NOTE: Make sure SMTP configuration has been completed. Please refer to section *Mail* for further details.

- **PTZ Function**

Assign a camera function: Preset, Sequence, Autopan or Cruise, and specify a Preset Point / Sequence Line / Autopan Path / Cruise Line for the camera to perform at an alarm occurrence.



NOTE: Please refer to the sections through Preset Programming to Sequence Line Programming for details of Preset Point / Cruise Line / Autopan Path / Sequence Line setups.

If the selected function is <Preset>, it is required to enter its dwell time (1 sec. to 256 sec.) in the corresponding field. When the alarm is triggered, the camera will go to the selected Preset Point and stay there for a user-defined period of time. As for other function modes, the camera will keep executing the specified function; to stop the performance, simply change the camera's status.



NOTE: The dwell time is only adjustable when <Preset> is selected. When the dwell time is up, the camera will go back to its trigger position and recheck the alarm pin status.

- **Send HTTP notification**

Check this item, select the destination HTTP address, and specify the parameters for event notifications by <Alarm> triggered. When an alarm is triggered, the notification can be sent to the specified HTTP server.

For instance, if the custom parameter is set as “action=1&group=2”, and the HTTP server name is “http://192.168.0.1/admin.php”, the notification will be sent to HTTP server as “http://192.168.0.1/admin.php?action=1&group=2” when alarm is triggered.

- **Record Video Clip**

Check the item and select a video recording storage type, <SD Card> or <NAS> (Network-Attached Storage). The alarm-triggered recording will be saved into the SD card or the NAS.

Pre-trigger buffer recording function allows users to check what happened to cause the trigger. The pre-trigger buffer time range is from 1 sec. to 3 sec. Select <Upload for sec> to set the recording duration after alarm is triggered. The setting range is from 1 sec. to 99999 sec. Select <Upload during the trigger active> to record the triggered video until the trigger is off.



NOTE: Please make sure the local recording (with SD / SDHC card) or the remote recording (with NAS) is activated so that this function can be implemented. Refer to section *Recording* for further details.

File Name

Enter a file name in the File name field, e.g. image.jpg. The uploaded image's file name format can be set in this section. Please select the one that meets the requirements.

- **Add date/time suffix**
 File name: imageYYMMDD_HHNNSS_XX.jpg Y:
 Year, M: Month, D: Day
 H: Hour, N: Minute, S: Second X:
 Sequence Number

- **Add sequence number suffix (no maximum value)**
 File name: imageXXXXXXXX.jpg X:
 Sequence Number

- **Add sequence number suffix up to # and then start over**
 File Name: imageXX.jpg X:
 Sequence Number

The file name suffix will end at the number being set. For example, if the setting is up to "10", the file name will start from 00, end at 10, and then start all over again.

- **Overwrite**
 The original image in the FTP site will be overwritten by the new uploaded file with a static filename.

Save

Click the <Save> button to save all the settings mentioned above.

2.2.8.7 Audio Detection

The Audio Detection setting can be found under this path: **System> Events> Audio Detection**.

Audio Detection function allows the camera to detect audio and trigger alarms when audio volume in the detected area reaches / exceeds the determined sensitivity threshold value.



NOTE: Audio Detection function is only available for models equipped with Audio I/O function.

Audio Detection

In Audio Detection Setting, the default setting for the Audio Detection function is <Off>. Enable the function by selecting <On>.

Audio Detection Setting

Users could adjust various parameters of Audio Detection in this section.

- **Detection level [1-100]:**
The item is to set detection level for each sampling volume; the smaller the value, the more sensitive it is. The default level is 10.
- **Time interval (sec) [0-7200]:**
The value is the interval between each detected audio. The default interval is 10.

Triggered Action (Multi-option)

The administrator can specify alarm actions that will take when audio is detected. All options are listed as follows.

- **Enable Alarm Output 1/2**
Select these items to enable alarm relay outputs.
- **Send Alarm Message by FTP/E-Mail**
The administrator can select whether to send an alarm message by FTP and/or E-mail when audio is detected.

- **Upload Image by FTP**

Select this item and the administrator can assign an FTP site and configure various parameters. When audio is detected, event images will be uploaded to the appointed FTP site. Note that to implement this function, one of the streaming **MUST** be set as **MJPEG**; otherwise, this function will be grayed out and cannot be accessed.

<Pre-trigger buffer> function allows users to check what happened to cause the trigger. The <Pre-trigger buffer> frame rate could be pre-determined. On the other hand, <Post-trigger buffer> is for users to upload certain amount of images after audio event occurs.



NOTE: <Pre-trigger buffer> generally ranges from 1 to 20 frames. However, the range will change accordingly if the frame rate of MJPEG on **Streaming> Video Configuration 6** or smaller.

Check the box <Continue image upload> to upload the triggered images during certain time or keep uploading until the trigger is off. Select <Upload for sec> and enter the duration in the blank. The images of the duration will be uploaded to FTP when the audio event occurs. The setting range is from 1 sec. to 99999 sec. Select <Upload during the trigger active> to make the images keep being uploaded to FTP during the trigger active until the event stops. Set the Image frequency as the upload frame rate. The setting range is from 1 to 15 frames per second.



NOTE: Make sure FTP configuration has been completed. Refer to section *FTP* for further details.

- **Upload Image by E-Mail**

Select this item and the administrator can assign an E-mail address and configure various parameters. When audio is detected, event images will be sent to the appointed E-mail address. Note that to implement this function, one of the streaming **MUST** be set as **MJPEG**; otherwise, this function will be grayed out and cannot be accessed.

<Pre-trigger buffer> function allows users to check what happened to cause the trigger. The <Pre-trigger buffer> frame rate could be pre-determined. On the other hand, <Post-trigger buffer> is for users to upload certain amount of images after the audio event occurs.



NOTE: <Pre-trigger buffer> generally ranges from 1 to 20 frames. However, the range will change accordingly if the frame rate of MJPEG on **Streaming> Video Configuration 6** or smaller.

Check the box <Continue image upload> to upload the triggered images during certain time or keep uploading until the trigger is off. Select <Upload for sec> and enter the duration in the blank. The images of the duration will be uploaded via E-mail when the audio event occurs. The setting range is from 1 sec to 99999 sec. Select <Upload during the trigger active> to make the images keep being uploaded via E-mail during the trigger active until the event stops. Set the Image frequency as the upload frame rate. The setting range is from 1 frame to 15 frames per second.



NOTE: Make sure SMTP configuration has been completed. Refer to section *Mail* for further details.

- **Send HTTP Notification**

Check this item, select the destination HTTP address, and specify the parameters for event notifications by <Audio Detection> triggered. When an alarm is triggered, the notification can be sent to the specified HTTP server.

For instance, if the custom parameter is set as “action=1&group=2”, and the HTTP server name is “http://192.168.0.1/admin.php”, the notification will be sent to HTTP server as “http://192.168.0.1/admin.php?action=1&group=2” when alarm is triggered.

- **Record Video Clip**

Check this item and select a video recording storage type, <SD Card> or <NAS> (Network-Attached Storage). The Audio Detection recording will be stored in SD card or the NAS when audio is detected.

Pre-trigger buffer recording function allows users to check what happened to cause the trigger. The pre-trigger buffer time range is from 1 sec. to 3 sec. Select <Upload for sec> to set the recording duration after audio is triggered. The setting range is from 1 sec to 99999 sec. Select <Upload during the trigger active> to record the triggered video until the trigger is off.



NOTE: Please make sure the local recording (with SD card) or the remote recording (with NAS) is activated so that this function can be implemented. Refer to section *Recording* for further details.

File Name

Enter a file name in the blank, e.g. image.jpg. The uploaded image's file name format can be set in this section. Please select the one that meets the requirements.

- **Add date/time suffix**

File name: imageYYMMDD_HHNNSS_XX.jpg

Y: Year, M: Month, D: Day

H: Hour, N: Minute, S: Second

X: Sequence Number

- **Add sequence number suffix (no maximum value)**

File name: imageXXXXXXXX.jpg

X: Sequence Number

- **Add sequence number suffix up to # and then start over**

File Name: imageXX.jpg

X: Sequence Number

The file name suffix will end at the number being set. For example, if the setting is up to "10", the file name will start from 00, end at 10, and then start all over again.

- **Overwrite**

The original image in the FTP site will be overwritten by the new uploaded file with a static filename.

Save

Please click the <Save> button to save all the Audio Detection settings mentioned above.

2.2.9 Storage Management

The Storage Management setting can be found under this path: **System> Storage Management**.

Click the <Storage Management> category, there will be a drop-down menu with tabs including <SD Card> and <Network Share>.

2.2.9.1 SD Card

The SD Card setting can be found under this path: **System> Storage Management> SD Card**.

Users can implement local recording to the SD card up to 128GB. This page shows the capacity information of the SD card and a recording list with all the recording files saved on the memory card. Users can also format the SD card and implement automatic recording cleanup through the setting page.

To implement SD card recording, please go to the <Recording> page (refer to section *Recording*) for activation.



NOTE: Please format the SD card when using it for the first time.

Formatting will also be required when a memory card is being used on one camera and later transferred to another camera with different software platform.



NOTE: It is not recommended to record with the SD card for 24/7 continuously, as it may not be able to support long term continuous data read/write. Please contact the manufacturer of the SD card for information regarding the reliability and the life expectancy.

Device Information

When users insert the SD card, the card information such as the memory capacity and status will be shown at the <Device Information> section.

Recording Source

Select a video stream to set as the recording source. The default format of the video stream is <H.264-1>. Select a preferred stream from the drop-down list and click the <Save> button to apply the setting.

Device Setting

Click the <Format> button to format the memory card. Two filesystems are provided, <vfat (default)> and <ext4 (recommended)>. It is recommended to select <ext4> as the filesystem of the memory card for steady and better performances.

Disk Cleanup Setting

Check <Enable automatic disk cleanup> and specify time <1~999 day(s) or 1~142 week(s)> and storage limits <1~99% full> to configure disk cleanup settings. Click the <Save> button to save the settings.

Recording List

Each video file on the SD card will be listed in the Recording list. The maximum file size is 60 MB/per file.

When the recording mode is set as <Always> (consecutive recording) and the SD card recording is also allowed to be enabled by events triggered, once events occur, the system will immediately implement events recording to the memory card. After the recording of the events are finished, the camera will return to the regular recording mode.

- **Remove**

To remove a file, select the file first, and then click the <Remove> button.

- **Sort**

Click the <Sort> button, and the files in the Recording list will be listed in name and date order.

The capital letter A / M / N / R / V / U in the very beginning of name denotes the sort of the recording as below.

Initial	Recording Type	Initial	Recording Type
A	Alarm	R	Regular Recording
M	Motion	V	Manual Trigger
N	Network Failure	U	Audio Detection

- **Download**

To open / download a video clip, select the file first, and then click the <download> button below the Recording list field. The selected file window will pop up. Click the AVI file to directly play the video in the player or download it to a specified location.

2.2.9.2 Network Share (NAS)

The Network Share setting can be found under this path: **System> Storage Management> Network Share**.

Users can store the recording videos to a network share folder, or NAS (Network-Attached Storage). A NAS device is used for data storage and data sharing via network. This page displays the capacity information of the network device and a recording list with all the recording files saved on the network device. Users can also format the NAS and implement automatic recording cleanup through the setting page.

Device information

When a NAS is successfully installed, the device information such as the memory capacity and status will be shown at the <Device Information> section.

Storage setting

The administrator can set the camera to send the alarm messages to a specific NAS site when an alarm is triggered. Enter the network device details, which include host (the IP of the NAS), share (the folder name of the NAS), user name, and password, in the fields.

Click the <Save> button when finished.

Storage Tools

Click the <Format> button to format the NAS.

Recording Source

Select a video stream to set as the recording source. The default format of the video stream is <Stream 1>. Select a preferred stream from the drop-down list and click the <Save> button to apply the setting.

Disk cleanup setting

Check <Enable automatic disk cleanup> and specify the time <1~99 day(s) or 1~142 week(s)> and storage limits <1~99% full> to configure disk cleanup settings. Click the <Save> button to confirm the settings.

Recording List

Each video file on the Network Share will be listed in the Recording list. The maximum file size is 60 MB/per file.

When the recording mode is set as <Always> (consecutive recording) and the NAS recording is also allowed to be enabled by events triggered, once events occur, the system will immediately implement events recording to the memory card. After the recording of the events are finished, the camera will return to the regular recording mode.

- **Remove**

To remove a file, select the file first, and then click the <Remove> button.

- **Sort**

Click the <Sort> button, and the files in the Recording list will be listed in name and date order.

The capital letter A / M / N / R / V / U in the very beginning of name denotes the sort of the recording as below.

Initial	Recording Type	Initial	Recording Type
A	Alarm	R	Regular Recording
M	Motion	V	Manual Trigger
N	Network Failure	U	Audio Detection

- **Download**

To open / download a video clip, select the file first, and then click the <download> button below the Recording list field. The selected file window will pop up. Click the AVI file to directly play the video in the player or download it to a specified location.

2.2.10 Recording

The Recording setting can be found under this path: **System> Recording**.

In the <Recording> setting page, users can specify the recording schedule that fits the present surveillance requirement.

The screenshot shows the 'Recording' configuration page. It has a blue header with the title 'Recording'. Below the header, there are two sections: 'Recording Storage' and 'Recording Schedule'. In 'Recording Storage', 'SD Card' is selected with a radio button, and 'Network Share' is unselected. In 'Recording Schedule', 'Disable' is selected with a radio button, while 'RTC' and 'Only during time frame' are unselected. Below these sections is a table with three columns: 'Weekday', 'Start time', and 'Duration'. The table has 10 rows, numbered 1 to 10. Each row contains a series of dashes under 'Weekday', and dashes under 'Start time' and 'Duration'. Below the table, there are checkboxes for each day of the week: Sun, Mon, Tue, Wed, Thu, Fri, and Sat. At the bottom, there are two input fields: 'Start time : 00:00' and 'Duration : 00:00'. Finally, there are two buttons: 'Save' and 'Delete'.

Recording Storage

Select a recording storage type, <SD Card> or <Network Share>.

Enable Recording Schedule

Two types of schedule mode are offered: <Always> and <Only during time frame>. Users can select <Always> to activate SD Card or Network Share Recording all the time. Or, select a set of schedule from the time frame blank, check specific weekdays and setup the start time (hour:minute) and time period (hour:minute) to activate the recording at certain time frames. The setting range for the duration time is from 00:00 to 168:59. Click the <Save> button to save the setup.

To delete a schedule, select one from the list, and click the <Delete> button.

Disable Recording Schedule

Select <Disable> to terminate the recording function.

Click the <Save> button when finished.

2.2.11 Schedule

The Schedule setting can be found under this path: **System> Schedule**.

This function allows users to setup schedules for features including: <Alarm Switch>, <Motion Detection> and <Network Failure Detection>. The function supports up to 10 sets of time frames in the time frame list.

Schedule

Weekday	Start time	Duration
1	---	---
2	---	---
3	---	---
4	---	---
5	---	---
6	---	---
7	---	---
8	---	---
9	---	---
10	---	---

Sun Mon Tue Wed Thu Fri Sat

Day
 Night
 Time Start time : Duration :

Setting Schedules

- Step 1.** Select a time frame from the time frame list.
- Step 2.** Check the weekday boxes below to choose the specific weekdays.

Step 3. Select a time mode, Day, Night or Time. Under Time mode, specify the start time (hour:minute) and the time duration (hour:minute) to activate the schedule triggered features. The setting range for the time duration is from 00:00 to 168:59.

Step 4. Click the <Save> button to save the setup. Alternatively, click the <Delete> button to delete a chosen time frame.

Time Mode

- **Day**
The camera profile will be loaded when IR cut filter is on.
- **Night**
The camera profile will be loaded when IR cut filter is off.
- **Time**
This indicates the start time and the time duration for the schedule.



NOTE: Users **MUST** select <By schedule> under each feature setting page to enable the schedule function.

2.2.12 File Location (Snapshots and Web Recording)

The File Location setting can be found under this path: **System> File Location**.

Users can specify a storage location on the PC or in the hard drive for the snapshots and the live video recordings. The default setting is:

C:\ProgramData\Geovision. Once the setting is confirmed, click the <Save> button, and all the snapshots and the web recordings will be saved in the designate location.



NOTE: Make sure the selected file path contains valid characters such as letters and numbers.



NOTE: With Windows 7 operating system or above, to implement the Snapshot and Web Recording functions, users must run IE as administrator. To run IE as administrator, right click the IE browser icon and select “Run As Administrator” to launch IE.

2.2.13 View Information

The View Information function can be found under this path: **System> View Information**.

Click the category: <View Information>, there will be a drop-down menu with tabs including <Log File>, <User Information>, and <Parameters>.

2.2.13.1 Log File

The Log File function can be found under this path: **System> View Information> Log File**.

Click the tab to view the system log file. The camera keeps a record of the system's behavior and information related to the camera. These log data can be exported for future use. Click the <generate syslog> button and the Save File As dialog window will pop up. The default file name is named after the model name and the MAC address as "*Model Name-MAC-log.tgz*". Select the file destination and click the <Save> button to export the log data.



NOTE: "Save File As" dialog window may not show up immediately for the camera needs some time to process the log data.

2.2.13.2 User Information

The User Information function can be found under this path: **System> View Information> User Information**.

The administrator can view the login information and privileges of each added user (refer to section *Security*).

User: 1:1:0:1

1:1:0:1= I/O access: Camera control: Talk: Listen (refer to section *Security*)

"1" denotes this user is allowed to access the function; whereas "0" suggest no access for this user is allowed.

2.2.13.3 Parameters

The Parameters function can be found under this path: **System> View Information> Parameter**.

Click this item to view the parameter settings of the entire system, such as Camera Settings, Mask Information and Network Information.

2.2.13.4 Open Source Software Licenses

The Open Source Software Licenses function can be found under this path: **System> View Information> Open Source Software Licenses.**

2.2.14 Factory Default

The Factory Default setting can be found under this path: **System> Factory Default.**

Users can follow the instructions on this page to reset the camera to factory default settings if needed.

Full Restore

Click the <Full Restore> button to recall the factory default settings. The camera system will restart in 30 seconds. The IP address will be restored to default. After the camera system is restarted, reconnect the camera using the default IP address. The default IP address is **192.168.0.10**.

Partial Restore

Click the <Partial Restore> button to recall the factory default settings (excluding network settings/User settings). The camera system will restart in 30 seconds. Refresh the browser page after the camera system is restarted.



NOTE: The IP address will not be restored to default.

Reboot

Click the <Reboot> button and the camera system will restart without changing the current settings. Refresh the browser page after the camera system is restarted.

2.2.15 Software Version (Firmware Version)

The Software Version can be found under this path: **System> Software Version.**

The software version page displays the current software version, and the pan/tilt/zoom mcu version.

2.2.16 Software Upgrade (Firmware Upgrade)

The Software Upgrade setting can be found under this path: **System> Software Upgrade**.



NOTE: Make sure the upgrade software file is available before carrying out software upgrade.

The procedure of software upgrade is as below.

Step 1. Click the <Start> button in Windows and locate the upgrade file, for example, “ulmage_userland”.



NOTE: Do not change the name of the upgrade file, or the system will fail to find the file.

Step 2. Pick a file type from the drop-down list. In this case, select “ulmage+userland.img”.

Step 3. Click the <Upgrade> button. Then the system will prepare to start the software upgrade. Subsequently, an upgrade status bar will be displayed on the page to show the current upgrade process. After the upgrade process is finished, the viewer will return to the <Home> page.

If the prompt to reinstall the GV-CameraViewer appears, follow the steps below.

Step 1. Click the <Start> button in Windows and activate the <Control Panel>. In the appeared window, double click the <Add or Remove Programs> button. A window with the <Currently install programs> list will popup. In the list, select <Camera Viewer> and click the <Remove> button to uninstall the existing Viewer.

Step 2. Open a new web browser and re-login the camera. Users will be prompted to download the Camera Viewer. Once the Camera Viewer is downloaded and installed, the live video will be available.

2.2.17 Maintenance

The Maintenance setting can be found under this path: **System> Maintenance**.

Users can export configuration files to a specified location and retrieve data by uploading the configuration file to the camera.

Export Files

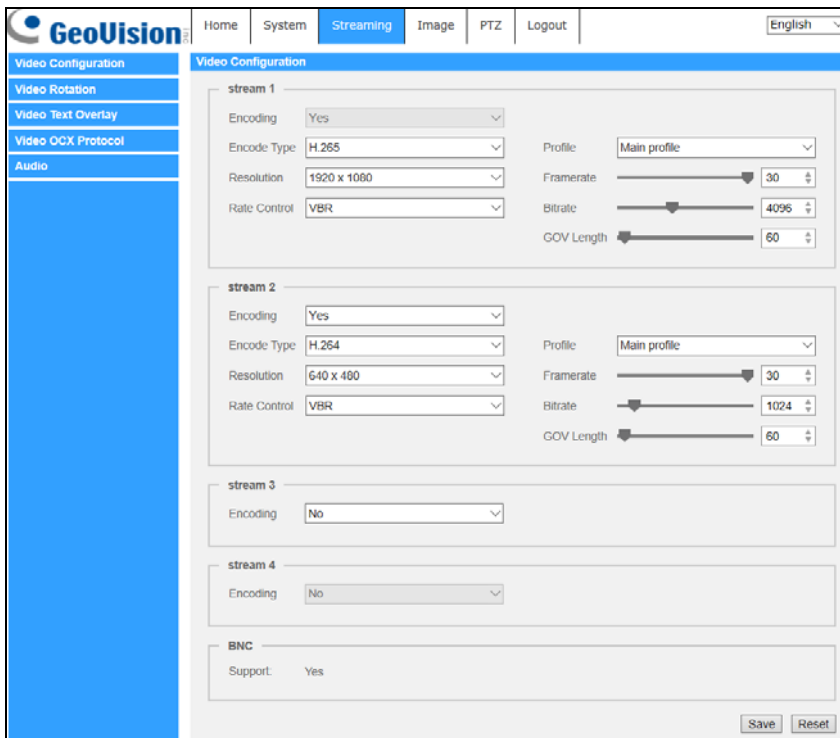
Users can save the system settings by exporting a configuration file (.bin) to a specified location for future use. Click the <Export> button, and the popup File Download window will come out. Click the <Save> button and specify a desired location for saving the configuration file.

Upload Files

To upload a configuration file to the camera, click the <Browse> button to select the configuration file and then click the <Upload> button for uploading.

2.3 Streaming

Under the tab <**Streaming**>, there are categories including: <Video Format>, <Video Compression>, <Video OCX Protocol>, <Video Frame Rate>, and <Audio>.



In the Streaming submenu, the administrator can configure specific video resolution, video compression mode, video protocol, audio transmission mode, etc. Further details of these settings will be specified in the following sections.



NOTE: Only administrator can access the <Streaming> setting page.

2.3.1 Video Configuration (Video Format & Resolution)

The Video Configuration setting can be found under this path: **Streaming> Video Configuration**.

Encoding

Select <Yes> from the drop-down menu to enable Stream 2~Stream 4 encoding. Or select <No> to disable the streaming encoding.

Encode Type

The available video resolution formats include H.265, H.264 and MJPEG. Users can select the preferred encode type from the drop-down menu.

Resolution

Video format and resolution combination will vary by user's configuration.

Rate Control

There are three kinds of H.265/H.264 bitrate modes provided: CBR (Constant Bit Rate), VBR (Variable Bit Rate) and LBR (Low Bit Rate).

- **CBR**
The sent-out video bitrate will be fixed and consistent to maintain the bandwidth.
- **VBR**
Video bitrate varies according to the activity of the monitoring environment to achieve better image quality.

- **LBR**

LBR keeps low bitrate and ensures superior image quality. To implement LBR control, setup the compression level and dynamic GOV for each streaming accordingly beforehand.

- Compression

Based on the current application area and streaming bitrate, select the most suitable compression level, high/mid/low.

Set <High>, and bitrate will vastly be reduced; however, image quality may be degraded at the same time.

Set <Low>, and bitrate will stably keep low while image quality remains high.

- Dynamic GOV

According to the amount of motion in the application area, the GOV length of the video will be adjusted dynamically to reduce more bitrate, especially for scenes with minor changes. The length of Dynamic GOV is from <GOV Length> to <Max. GOV> (4094).

Select <Enabled> and set <Max. GOV>. Then, click the <Save> button to activate the setting.

If there is small or zero activity in the scene, set <Max. GOV> larger, the GOV length will be longer, resulting in lower bitrate and bandwidth.

If there are constant dynamic changes in the scene, it is suggested just adjust <GOV Length> and disable <Dynamic GOV>.

Click the <Save> button to confirm the setting.

Profile

Users can set H.265/H.264 Profile to <High Profile> or <Main Profile> according to its compression needs. With the same bit rate, the higher the compression ratio, the better the image quality is. The default setting is <Main Profile>.



NOTE: Please make sure the higher compression ratio is supported by the system before setup.

Framerate

Video framerate is for setting the frames per second (fps) if necessary. The default setting of Stream 1 is 30 fps (NTSC) or 25 fps (PAL). The maximum framerate range of each stream will change according to the selected video resolution.



NOTE: Low framerate will decrease video smoothness.

Bitrate

The default H.265/H.264 bitrate for Stream 1 is 4096 kbit/s; for Stream 2 is 1024 kbit/s; for Stream 3/ Stream 4 is 2048 kbit/s. The setting range is from 64 to 10240 kbps, and the total bit rate should not exceed 26624 kbps.

GOV Length

Users can set the GOV length to determine the frame structure (I-frames and P-frames) in a video stream to save bandwidth. Less bandwidth is needed if the GOV length is set to a high value. However, the shorter the GOV length, the better the video quality is. The default setting for Stream 1/2/3/4 is 60. The setting range of the GOV length is from 1 to 4094.

Q (Quality) Factor (MJPEG Only)

The default setting of MJPEG Q factor is 35; the setting range is from 1 to 70.

Click the <Save> button to confirm the setting or click the <Reset> button to return to the previous settings.

2.3.2 Video Rotation

Rotate Function

Users can change video display type if necessary. Selectable video rotate types include Mirror video and 90/180/270 degree clockwise rotate. Refer to the following descriptions for the different video rotate type.

- **Mirror**
Select <yes> from the drop-down menu, and the image will be rotated horizontally.
- **Rotate Type**
Users can choose 0, 90, 180, or 270 degree from the drop-down menu to rotate the image.

Click the <Save> button to confirm the setting.

2.3.3 Video Text Overlay

Users can select the items to display data, including date / time / text string / subtitle / image on the live video pane.

Overlay Type

Users can select at most three items out of four options including date & time / text string / subtitle / image to display on the live video pane.

- **Include date & time**
Check the box to enable date & time display on the Live Video Pane. Users can choose to display date, time, or date & time from the drop-down menu, and decide the string align position (left / right).
- **Include text string**
Check the box to enable text string display on the Live Video Pane. Type the text to display in the entry field and decide the string align position (left / right). The maximum length of the text string is 25 alphanumeric characters.
- **Include subtitle**
Check the box to enable subtitle display on the Live Video Pane. Type the text to display in the entry field and decide the string align position (left / right). Users can set at most 5 subtitles, and the maximum length of each subtitle is 16 alphanumeric characters.
- **Include Image**
Check the box to enable image display on the Live Video Pane. Select an alignment position (left /right) for the image from the drop-down list.
(To upload an image for display, see Image Overlay Setting below)
- **Include azimuth**
Check the box to enable azimuth display on the Live Video Pane and set the azimuth alignment position. Azimuth shows the pan/tilt degree and the shooting position of the camera, such as NE 050/00 (“NE”: the shooting position of the camera; “050”: pan degree, “00”: tilt degree.)
- **Include Zoom Ratio**
Check the box to enable zoom ratio display on the Live Video Pane. Select an alignment position (left/right) for the ratio display from the drop-down list.

1 Overview

When any Overlay Type item is selected, a Video Text Overlay Window will show up. Move the mouse cursor to the center of the window, click and drag the window to change the display position. When it is done, click the <Set> button to confirm the Text Overlay setting.

Text Overlay Setting

Users can choose the Text Overlay Color (black, white, yellow, red, green, blue, cyan, or magenta) and Text Overlay Size (small, medium, or large) of the display date & time / text string / subtitle.

Click the <Set> button to confirm the setting.

Image Overlay Setting

Users can upload an image and set its transparency to display on the live video pane. The setting range of image transparency is from 0 to 255; the lower the value, the more transparent it is. Users must save the image as an 8-bit BMP file; the length should be the multiple of 32, and the width should be the multiple of 4. The maximum resolution of the image should not exceed 32768 pixels.

Click the <Set> button and the <Upload> button to confirm the setting.

2.3.4 Video ROI Encoding

The Video ROI Encoding setting can be found under this path: **Streaming> Video ROI Encoding**.

Video ROI Encoding is to set the compression of the selected zone within ROI for better performances; at most three zones can be set in the interested region. However, this function does **NOT** support MJPEG video format.

The following shows how to setup Video ROI Encoding. To implement this function, Video ROI must be setup beforehand.

- Select a video stream from <Video Stream>.
- Select <Enable> from <ROI Encoding> to implement ROI Encoding.
- Click on <Add>, click and drag the center of the window to move it to the desired location; click and drag the edge of the window outward / inward to resize the window.

Note that the total size of the three windows **CANNOT** be larger than the half size of the ROI. When exceeds, a warning window will pop up.

- Choose the quality of the setting zone from <Quality>.
The higher the value, the better the image quality (higher bitrate) of the setting zone will be. On the contrary, the lower the value, the lower the image quality (lower bitrate) of the selected area will be.
- Click on <Save> to apply the setting.

2.3.5 Video OCX Protocol

The Video OCX Protocol setting can be found under this path: **Streaming> Video OCX Protocol**.

In the <Video OCX protocol> setting page, the administrator can select RTP over UDP, RTP over RTSP(TCP), RTSP over HTTP or MJPEG over HTTP, for streaming media over the network. In the case of multicast networking, users can select the Multicast mode. Click the <Save> button to confirm the setting.

Video OCX protocol setting options include:

- **RTP over UDP / RTP over RTSP(TCP) / RTSP over HTTP / MJPEG over HTTP**
- **Multicast Mode**
Enter all required data, including <Multicast IP address>, <Multicast H.264-1 / H.264-2 / H.264-3 / H.264-4 Video Port>, <Multicast MJPEG Video Port>, <Multicast Audio Port> and <Multicast TTL> into each blank.

Click the <Save> button to confirm the setting.

2.3.6 Video Mask

The Video Mask setting can be found under this path: **Streaming> Video Mask**.

Active Mask Function

- **Add a Mask**

Check a Video Mask checkbox, and a red frame will come out in the Live Video pane. Use the mouse to drag and drop to adjust the mask's size and place it on the target zone. At most 5 video masks can be set.



NOTE: It is suggested to set the Video Mask slightly bigger than the object.

- **Cancel a Mask**

Un-check the Video Mask checkbox meant to be deleted; the mask will disappear from the Live Video pane instantly.

Mask Setting

- **Mask color**

The selections of Mask color include black, white, yellow, red, green, blue, cyan, and magenta. Click on <Save> to confirm the setting.

2.3.7 Audio (Audio Mode and Bit Rate Settings)

The Audio Mode setting can be found under this path: **Streaming> Audio**.

In this page, the administrator can adjust the sound transmission mode, the audio gain levels and the audio bit rate. Setting for enabling sound recording to the SD card is also available.

Transmission Mode

- **Full-duplex (Talk and Listen simultaneously)**
In the Full-duplex mode, the local and remote sites can communicate with each other simultaneously, i.e. both sites can speak and listen to the other side at the same time.
- **Half-duplex (Talk or Listen, not at the same time)**
In the Half-duplex mode, the local / remote site can only talk or listen to the other site at a time.
- **Simplex (Talk only)**
In the Talk only Simplex mode, the local / remote site can only talk to the other site.
- **Simplex (Listen only)**
In the Listen only Simplex mode, the local / remote site can only listen to the other site.
- **Disable**
Select the item to turn off the audio transmission function.

Server Gain Setting

Set the audio input / output gain levels for the sound amplification. The audio input gain value is adjustable from 1 to 10. The audio output gain value is adjustable from 1 to 6. To turn off the sound, set the audio gain to "Mute".

Bit Rate

By default, the Bit Rate is uLAW (64 kbps). Click the <Save> button to confirm the setting.

Recording to Storage

Select <Enable> from the drop-down menu to enable audio recording with videos into the SD card or the NAS.

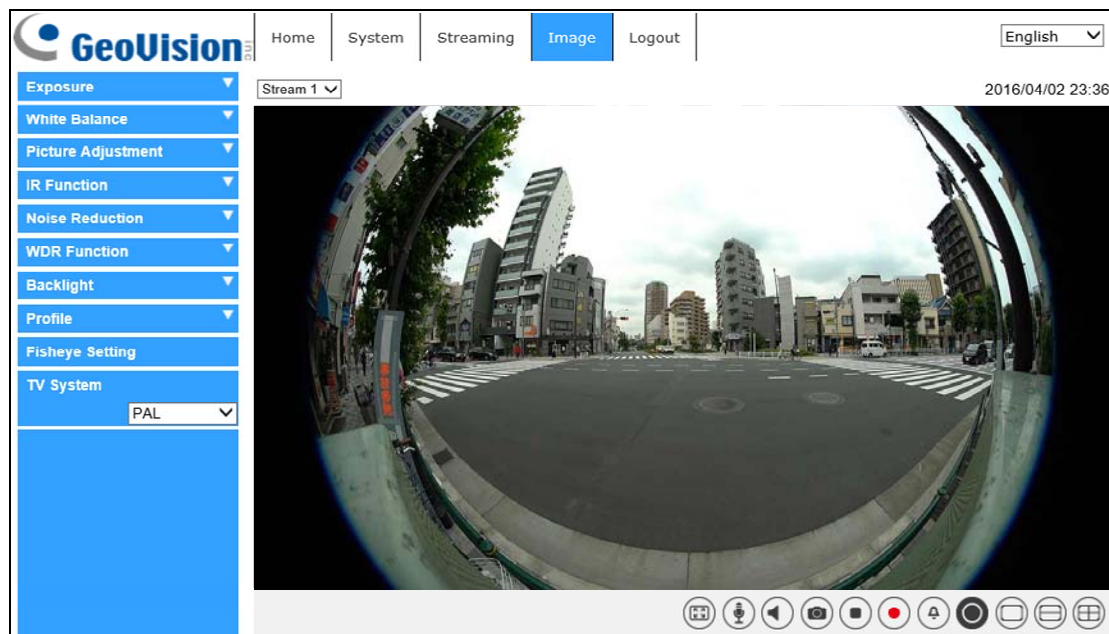


NOTE: If the chosen bit rate is not compatible with the player, there will only be noise instead of audio during playback.

Click the <Save> button to confirm the setting.

2.4 Image

Under the tab <Image>, there are categories including: <Exposure>, <White Balance>, <Picture Adjustment>, <IR Function>, <Noise Reduction>, <WDR Function>, <Image Stabilizer>, <Digital Zoom>, <Profile>, <Fisheye Setting>, and <TV System>.




2.4.1 Exposure

The Exposure setting can be found under this path: **Image> Exposure**.

In the <Image-Exposure> setting page, users can select either the <Full Auto> mode or adjust the parameter of the P-Iris Priority / Iris Priority / Shutter Priority mode for optimized video output in accordance with the operating environment.

Auto Mode

- **Window Setting**

Select <On> to enable the function for specifying a region of interest for exposure adjustment on the live view. Adjust the size of the area by dragging its corners or edges. Once done, click  to apply.

- **Max Gain**

This item is for users to set the maximum limit of gain. The Max Gain ranges from 0 to 45, or select <Off> to disable the function. The default setting is 45.



NOTE: Higher max gain may cause more image noises.

- **Auto Shutter Mode**

In this mode, the camera will automatically adjust the shutter speed and the iris size according to the light intensity. The minimum shutter speed can be set from 1/500 to 1 sec. (NTSC) or 1/425 to 1/1.5 sec. (PAL).

Manual Mode

In this mode, users can change the Shutter Speed, Iris Size, and Gain manually. The shutter speed range is from 1/10000 sec. to 1 sec. (NTSC) or from 1/10000 sec. to 1/1.5 sec. (PAL). The range of the iris size is from 0 to 10 (Full Open=10). The gain value range is from 1dB to 9dB, or users can select <Off> to disable the function.

2.4.2 White Balance

The White Balance setting can be found under this path: **Image> White Balance**.

A camera needs to find reference color temperature, which is a way of measuring the quality of a light source, for calculating all the other colors. The unit for measuring this ratio is in degree Kelvin (K). Users can select one of the White Balance Control modes according to the operating environment. The following table shows the color temperature of some light sources for reference.

Light Sources	Color Temperature in K
Cloudy Sky	6,000 to 8,000
Noon Sun and Clear Sky	6,500
Household Lighting	2,500 to 3,000
75-watt Bulb	2,820
Candle Flame	1,200 to 1,500

AWB.normal

The **AWB (Auto White Balance).normal** mode is suitable for environments with light source having color temperature in the range roughly from 2700K to 7800K.

AWB.wide

With **AWB (Auto White Balance).wide** function, the white balance in a scene will be automatically adjusted while temperature color is changing. The ATW Mode is suitable for environments with light source having color temperature in the range roughly from 2500K to 10000K.

AWB.all

The **AWB (Auto White Balance).all** mode is suitable for environments with light source having color temperature under 2500K or over 10000K.

One Push


With One Push function, white balance is adjusted and fixed according to the scene the camera sees at the moment. This function is suitable for light sources with any kind of color temperature and situations with minimal scene changes and continuous lighting. Follow the steps below to set the white balance.

Point the camera to the monitoring area.

Select <One Push> in the White Balance setting menu.

Click the <Trigger> button  to adjust the white balance.



NOTE: In this mode, the value of white balance will not change as the scene or the light source varies. Users might have to re-adjust the white balance by clicking the <Trigger> button  again when needed.

Manual Mode

In this mode, users can change the White Balance value manually via specifying R gain and B gain; the range of R/B gain is from 0 to 127.

The following image displays the general color shifts of the scene when different Rgain / Bgain combinations are applied.



Click to confirm the setting.

2.4.3 Picture Adjustment

The Picture Adjustment setting can be found under this path: **Image> Picture Adjustment**.

Brightness

The brightness level of the images is adjustable from -12 to +13.

Sharpness

The sharpness level of the images is adjustable from +0 to +15. The edge of the objects is enhanced as the sharpness level increases.

Contrast

The contrast level of the images is adjustable from -6 to +19.

Saturation

The saturation level of the images is adjustable from -6 to +19.

Hue

The hue level of the images is adjustable from -12 to +13.

2.4.4 IR Function

The IR Function setting can be found under this path: **Image> IR Function**.



Day/Night Function

This item is for users to define the action of the IR cut filter and IR LED lights. Refer to the descriptions of each option below to select a suitable mode.

- **Auto Mode**
With this mode, the camera will decide the occasion to remove the IR cut filter.
- **Night Mode**
Use this mode when the environment light level is low. The IR cut filter will be removed to allow the camera to deliver clear images in black and white.
- **Day Mode**
Select this mode to turn on the IR cut filter. The IR cut filter can filter out the IR light and allows the camera to deliver high quality images in color.
- **Light Sensor Mode**
IR LED lights will be turned on / off depending on the light sensor.
- **Light On Mode**
In this mode, IR LED lights will always be on.
- **Light Off Mode**
In this mode, IR LED lights will always be off.
- **Smart Mode**
With Smart mode, the camera will decide the occasion to remove the IR cut filter. The Smart mode mechanism can judge whether the main light source is from IR illumination. If the main light source is from IR illumination, the IR cut filter will be kept opened (i.e. monochrome/night mode).

Day/Night Threshold

This item is for users to set when the camera should switch from day mode to night mode or vice versa. The camera will sense the surrounding brightness, and the threshold value stands for the level of the light. Once the camera detects the light level reaches the set threshold, the camera will automatically switch to Day/Night Mode. The range of the level is from 0 to 10, (darker = 0; brighter = 10).

- **Night Mode to Day Mode** 
The lower the value, the earlier the camera switches to Day mode. The default value is 7.
- **Day Mode to Night Mode** 
The higher the value, the earlier the camera switches to Night mode. The default value is 3.



NOTE: This function can only be applied under “Auto Mode”.

IR Light Compensation

With the IR Light Compensation function, the camera can prevent the center object close to the camera from being too bright when IR LED lights are turned on.

2.4.5 Noise Reduction

The Noise Reduction setting can be found under this path: **Image> Noise Reduction**.

The camera provides multiple <Noise Reduction> options for delivering optimized image quality especially in extra low-light conditions.

3DNR

With the 3D Noise Reduction function, the processor analyzes the differences between successive frames to adjust pixels and improve image quality. 3DNR generates better de-noising effects than 2DNR, but might create motion blur on moving objects in the field of view.

Different levels of 3DNR are provided, including Low, Mid and High. Higher level of 3DNR generates relatively enhanced noise reduction.

2DNR

With the 2D Noise Reduction function, the processor analyzes individual frames of video to eliminate environmental noise signal so that the highest quality image can be produced even in low light conditions

Select <On> to turn on 2DNR function; otherwise, select <Off> to turn off 2DNR function.

ColorNR

In a dark or insufficient light environment and the camera is under color mode, ColorNR (Color Noise Reduction) can eliminate color noise.

Three levels of ColorNR, including Low, Mid and High, are provided. The higher level of ColorNR generates relatively enhanced noise reduction.

2.4.6 WDR Function

The WDR setting can be found under this path: **Image> WDR Function**.

The Wide Dynamic Range (WDR) function is for solving high contrast or changing light issues so that enhances better video display.

WDR function is designed to solve contrast or changing light issues and to enhance the video display quality. Different level options for WDR function include Low, Mid and Hi. The higher the level, the wider the dynamic range is. Thus, the camera can catch a greater scale of brightness.

2.4.7 Backlight

The Backlight setting can be found under this path: **Image> Backlight**.

Select **On** to enable Backlight. This function is used to adjust the color intensity of scenes with strong light at the background.

2.4.8 Profile

The Profile setting can be found under this path: **Image> Profile**.


Camera Profile allows users to setup the desired image parameters for specific environments with different time schedules. Users can setup at most 10 sets of camera parameter configuration under the Camera tab. To enable this function, users must setup the schedules in advance. Refer to section *Schedule* for further details. Then, follow the steps below to setup a camera profile.

Camera Profile Setup

Step 1. In the “Camera” tab, setup the camera parameters, such as Exposure, White Balance, etc., excluding TV System.

Step 2. Click Profile and its setting menu will be displayed. Select a number from the Num drop-down list.

Step 3. Input a name for the profile in the Name field.

Step 4. Click the <Save> button  below the Name field. The camera configuration is saved and applied to the profile.


Step 5. Select a saved camera profile from the Num drop-down list.

Step 6. Tick the By schedule box. Check the desired schedule(s) from the Schedule drop-down list. Multiple schedules can be applied to one profile.

Step 7. Click the <Save> button  below <By schedule>.

Step 8. Follow the steps above to set the rest of the profiles.

Now, the camera will automatically switch profiles according to the schedule.

Alternatively, manually select a number from the Num drop-down list. Click the <Load> button , and the camera will apply the setting of the profile.



NOTE: If users wish to set the camera parameters to factory default setting, select <Normal> from the Num drop-down list. The camera will start loading the default values.

2.4.9 Fisheye Setting

The Fisheye setting can be found under this path: **Image> Fisheye Setting**.

At this setting page, users can choose a dewarping type for correcting the fisheye source images, and select the camera's installation method to view the dewarped images with the correct viewing modes.

Fisheye Dewarping Type







- **On-Edge Dewarping**

On-Edge Dewarping is a dewarping method that corrects fisheye source images only by the camera. Dewarping images by the camera can reduce network usage and image processing load of the backend device. It also allows the camera to record or take snapshots of the dewarped images.

- **Software Dewarping**

Software Dewarping is a dewarping method that corrects the fisheye source images by a backend device or a backend software with dewarping function. Dewarping by this method can correct high resolution images and deliver clear dewarped images.

The available Fisheye Image Adjustment buttons are different according to the dewarping type and installation method selected on the <Fisheye Setting> page. The following table shows the available buttons in different dewarping types and installation methods. The supported buttons are represented by “v”.

Dewarping Type/ Installation Method		Front End Correction		Back End Correction	
		Ceiling Mount	Wall Mount	Ceiling Mount	Wall Mount
Fisheye View		v	v	v	v
Single View		v	v	v	v
Dual 180 Degree		v	-	v	-
Quad View		v	-	v	-
180 Degree		-	v	-	v
360 Degree		-	v	-	v



Fisheye Setting

Step 1. In the left menu, select **Fisheye Setting**.

Step 2. Under **Fisheye Dewarping Type**, <Software Dewarping> is selected by default. Select <On-Edge Dewarping> if necessary.

Step 3. Under **Installation**, <Ceiling Mount> is selected by default. Select <Wall Mount> if the camera is mounted to the wall. Click **Save**.

Step 4. Only if <Software Dewarping> is selected under Fisheye Dewarping Type and <Wall Mount> under Installation, click the number <1> or <10> under Horizontal Calibration to rotate the image. Click **Save**.

Step 5. In the “Home” tab, click the button  or , the live view is displayed as set up in the Fisheye Setting.

2.4.10 TV System

Select the video format that matches the present TV system.

The following table shows the available video formats of the GV-IP Speed Dome Camera.

Video Format	
NTSC	30 fps
PAL	25 fps

2.5 Logout

Click the tab <Logout> on the top of the page, and the login window will pop up. This enables login with another username.

Appendix A: Install UPnP Components

Please follow the instructions below to install UPnP components on Windows Vista / Windows XP / Windows 7.

Step 1: In Windows, go to <Start>, click <Control Panel>, and then double click <Add or Remove Programs>.

Step 2: Click <Add/Remove Windows Components> in the <Add or Remove Programs> page.

Step 3: Select <Networking Services> from the Components list in Components Wizard window of the Windows, and then click <Details>.

Step 4: Select <UPnP User Interface> in the Networking Services' subcomponents list and then click <OK>.

Step 5: Click <Next> in the Windows Components Wizard window.

Step 6: Click <Finish> to complete installation.

Appendix B: IP Addresses from Decimal to Binary

Follow the example below to convert the IP addresses to binary numbers. Use the calculator on the computer for conversion. The calculator can be found under this path: **Start> All Programs> Accessories> Calculator**. For Windows XP and Windows Vista, click <View> on the calculator and click <Scientific>. For Windows 7 or above, click <View> on the calculator and click <Programmer>. Then follow the steps in the following example to convert the IP addresses.

The example below shows how to convert 192.168.2.81 to binary numbers.

Step 1: On the left of the calculator, select <Dec>. Then enter the first decimal number of the IP address, “192”. Select <Bin> and the number will be converted to binary number. Repeat the same procedure with the rest of decimal numbers. Remember to select <Dec> before entering the next decimal number. Otherwise a decimal number cannot be entered. The table below shows the binary number of each decimal number.

Decimal Numbers	Binary Numbers
192	11000000
168	10101000
2	10
81	1010001

Step 2: Each binary number should have eight digits. If a binary number does not have eight digits, please add 0 in front of it until it does. The binary number of each decimal number should be as follow.

Decimal Numbers	Binary Numbers
192	11000000
168	10101000
2	00000010
81	01010001

Step 3: Therefore, the binary numbers of IP address 192.168.2.81 is 11000000.10101000.00000010.01010001.

Appendix C: In-Ceiling Mount Installation

GV-QFER12700 can be installed to the ceiling with **GV-Mount919**. Follow the steps below to install the in-ceiling mount.



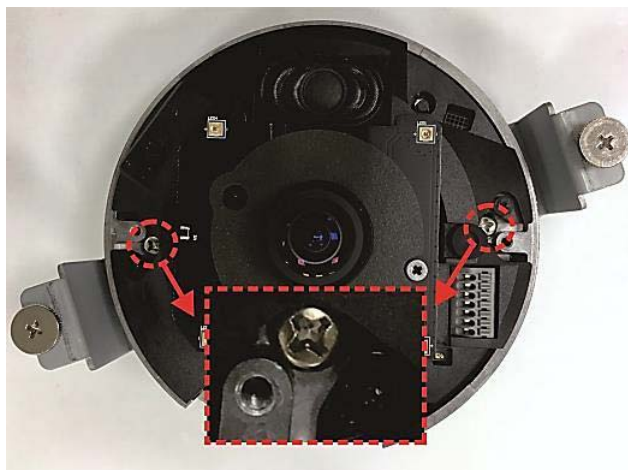
Packing List

- In-Ceiling Mount Bracket
- In-Ceiling Plate
- Template Paster
- M3x18 Mechanical Screw x 2
- In-Ceiling Cover
- Torx Wrench

1. Loosen the two screws on the dome cover with the supplied torx wrench, and remove the dome cover by pulling it apart from the camera.
2. Fit the camera into the In-Ceiling Plate, and align the two indicated holes on the camera to the two indicated holes on the In-Ceiling Plate.

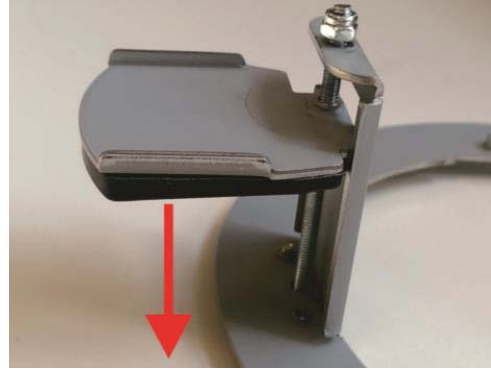
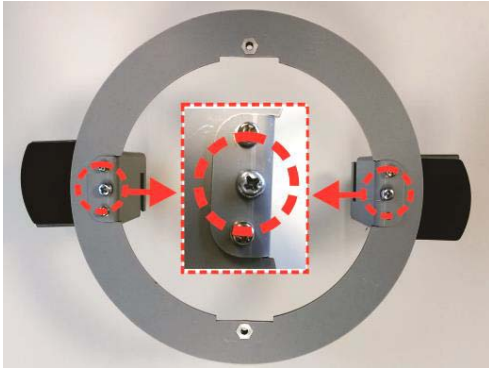


3. Fasten the two supplied M3x18 mechanical screws at the two aligned holes to fix the camera to the In-Ceiling Plate.

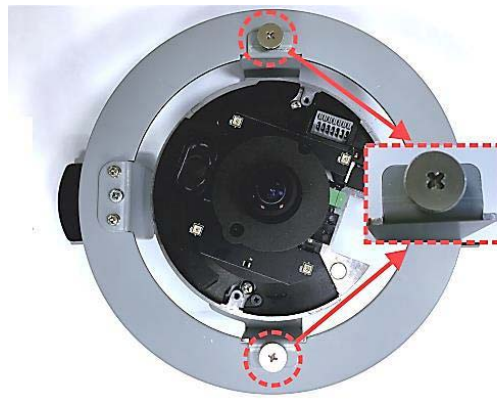
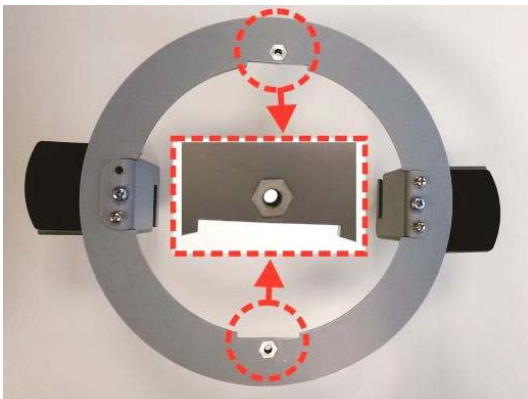


4. Place the template paster on the ceiling and cut out the circle part.
5. Place the In-Ceiling Mount Bracket into the ceiling with the flat side facing down.

6. Clamp the In-Ceiling Mount Bracket on the ceiling by tightening the two indicated screws.



7. Place the camera attached to the In-Ceiling Plate into the In-Ceiling Mount Bracket.
8. Align the two screws of the In-Ceiling Plate to the indicated holes of the In-Ceiling Plate, and tighten the screws.



9. Close and secure the dome cover. Connect the camera wires to the necessary wires.
10. Put on the In-Ceiling Cover to finish installation.