Outdoor IP Bullet Camera

ZN-BT3312

USER'S MANUAL

Table of Contents

Overview

GANZ's outdoor day/night network camera ZN-BT3312 is equipped with a wide dynamic range CMOS sensor to cope with any challenging lighting conditions.
Designed for outdoor 24-hour surveillance, ZN-BT3312 features the basics of day and night and vandal-proof functions that users can easily build up a cost-effective IP surveillance system without additional accessories. With a removable IR-cut filter and built-in IR illuminators, up to 15m, it can automatically remove the filter and turn on the IR illuminators during the nighttime to accept IR illumination for low light sensitivity. Meanwhile, the IP66-rated integrated housing shields this camera from dust and water, allowing it to be applied in harsh weather conditions of outdoor environments.
ZN-BT3312 with WDR (Wide dynamic range) feature can be very helpful to cope with very challenging lighting conditions. It is capable of capturing both of the dark part and bright part and combining the differences into a scene to generate a highly realistic image as the original scene. Because it preserves as much information in the video as possible, ZN-BT3312 helps provide video quality closer to the capabilities of the human eye. Consequently, it is largely applied in highly contrast environments such as lobby entrances, parking lots, ATM, loading areas and much more.
Incorporating numbers of advanced features including simultaneous dual streams, 802.3af compliant PoE, two-way audio by SIP protocol, RS-485 interface for scanners or pan/tilts driver connection, and HTTPS encrypted data transmission, GANZ ZN-BT3312 allows users to boost your robust IP surveillance system by reproducing clear images in proper color in extreme high-contrast environments for your indoor/outdoor security and monitoring applications.

Read Before Use

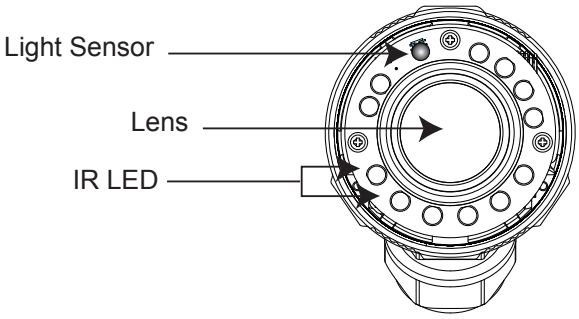
The use of surveillance devices may be prohibited by law in your country. The Network Camera is not only a high-performance web-ready camera but also can be part of a flexible surveillance system. It is the user's responsibility to ensure that the operation of such devices is legal before installing this unit for its intended use.
It is important to first verify that all contents received are complete according to the Package contents listed below. Take notice of the warnings in Quick Installation Guide before the Network Camera is installed; then carefully read and follow the instructions in the Installation chapter to avoid damages due to faulty assembly and installation. This also ensures the product is used properly as intended.
The Network Camera is a network device and its use should be straightforward for those who have basic network knowledge. It is designed for various applications including video sharing, general security/surveillance, etc. The Configuration chapter suggests ways to best utilize the Network Camera and ensure proper operations. For the creative and professional developers, the URL Commands of the Network Camera section serves to be a helpful reference to customize existing homepages or integrating with the current web server.

Package Contents

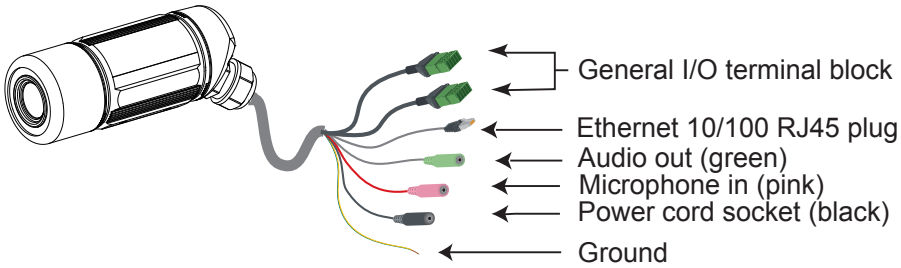
- ZN-BT3312
- Sun Shield
- Screws / RJ45 Female/Female Coupler
- Camera Stand
- Power Adapter
- Silica Gel
- Spanner
- Quick Installation Guide
- Warranty Card
- Software CD

Physical Description

Front Panel

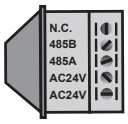


Connectors

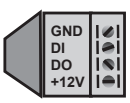


General I/O Terminal Block

This Network Camera provides a general I/O terminal block which is used to connect external input / output devices. The pin definitions are described below.



N.C.: No Connector
485B: RS485-
485A: RS485+
AC24V: Power in AC 24V
AC24V: Power in AC 24V

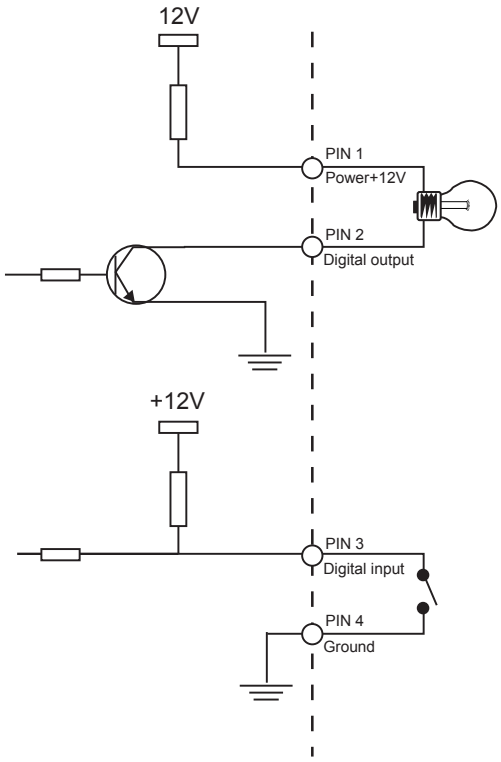


GND: Ground
DI : Digital Input
DO : Digital Output
+12V : Power, 12V DC

Pin	Name	Specification
N.C.	No Connector	
485B	RS485-	3.3V
485A	RS485+	3.3V
AC24V	Power in AC 24V	AC 24V ± 5%
AC24V	Power in AC 24V	AC 24V ± 5%
GND	Ground	
DI	Digital Iutput	OPEN/Short-to-GND, isolation 2kV
DO	Digital Output	Max. 40VDC, max. 400mA, isolation 2kV
+12V	Power +12V	12VDC ± 10%, max. 0.4A

DI/DO Diagram

Refer to the following illustration for connection method.

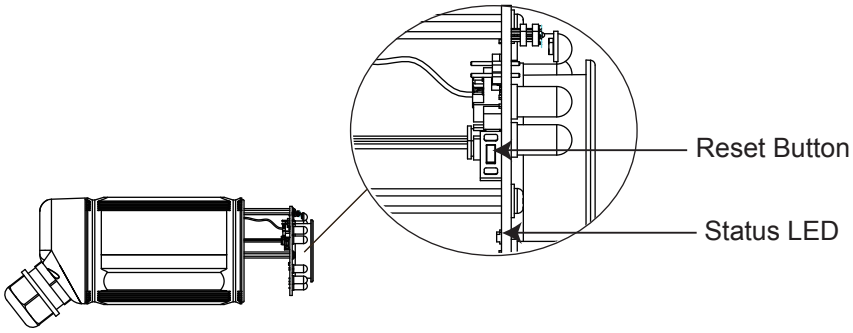


Status LED

The LED indicates the status of the Network Camera.

Status LED	Description
Blinking red (two short, one long)	1. Power is being supplied to the Network Camera 2. Restore, or reboot the Network Camera

Hardware Reset



There is a reset button on the inner side of the Network Camera. It is used to reboot the Network Camera or restore the Network Camera to factory default. Sometimes rebooting the Network Camera could set the Network Camera back to normal state. If the problems remain after rebooted, restore the Network Camera to factory default and install again.

Reboot: Press and release the reset button. The status LED will blinks two short one long in red.

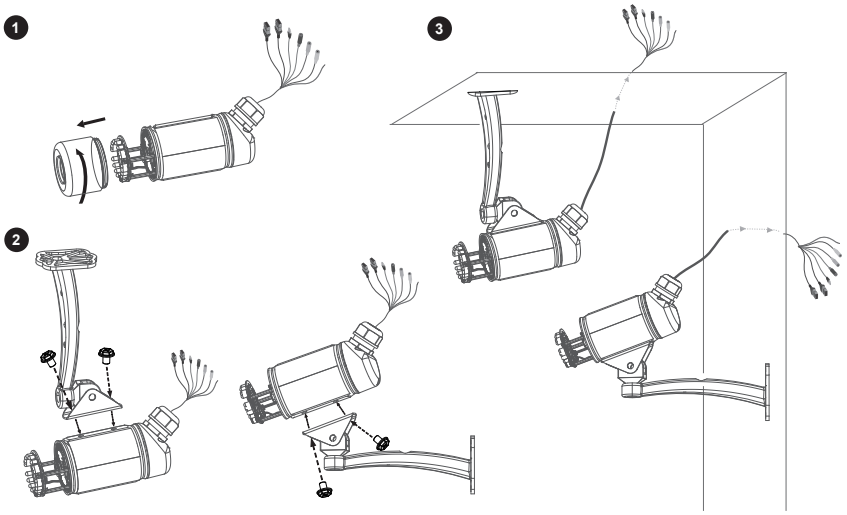
Restore: Press the reset button continuously for over 5 seconds until the status LED blinks two short one long in red. Note that all settings will be restored to factory default.

Installation

Hardware Installation

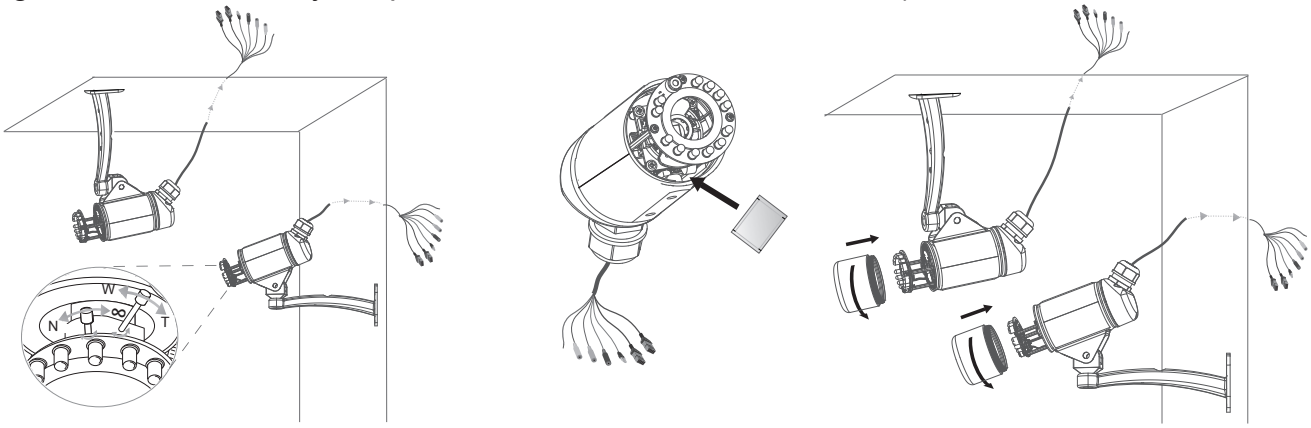
Follow the steps below to install the Network Camera:

1. Open the lens cover.
2. Secure the Network Camera to the wall/ceiling by the supplied camera stand.



3. Feed power to the Network Camera and connect it to the Internet. For more information, please refer to Network deployment on page 8 for details.

4. Install the “GANZ Installation Tool“ to assign an IP address to the Network Camera. For more information, please refer to Software installation on page 11 for details.
5. Access to the Network Camera from the Internet. For more information, please refer to Accessing the Network Camera on page 12 for details.
6. Unscrew the zoom controller to adjust the zoom factor. Upon completion, tighten the zoom controller. Unscrew the focus controller to adjust the focus range. Upon completion, tighten the focus controller.
7. Tear down the aluminum foil vacuum bag and take out the silica gel. Attach the silica gel to the inner side of the Network Camera, then tighten the lens cover. (Please replace the silica gel with a new one if you open the back cover after installation.)



Note

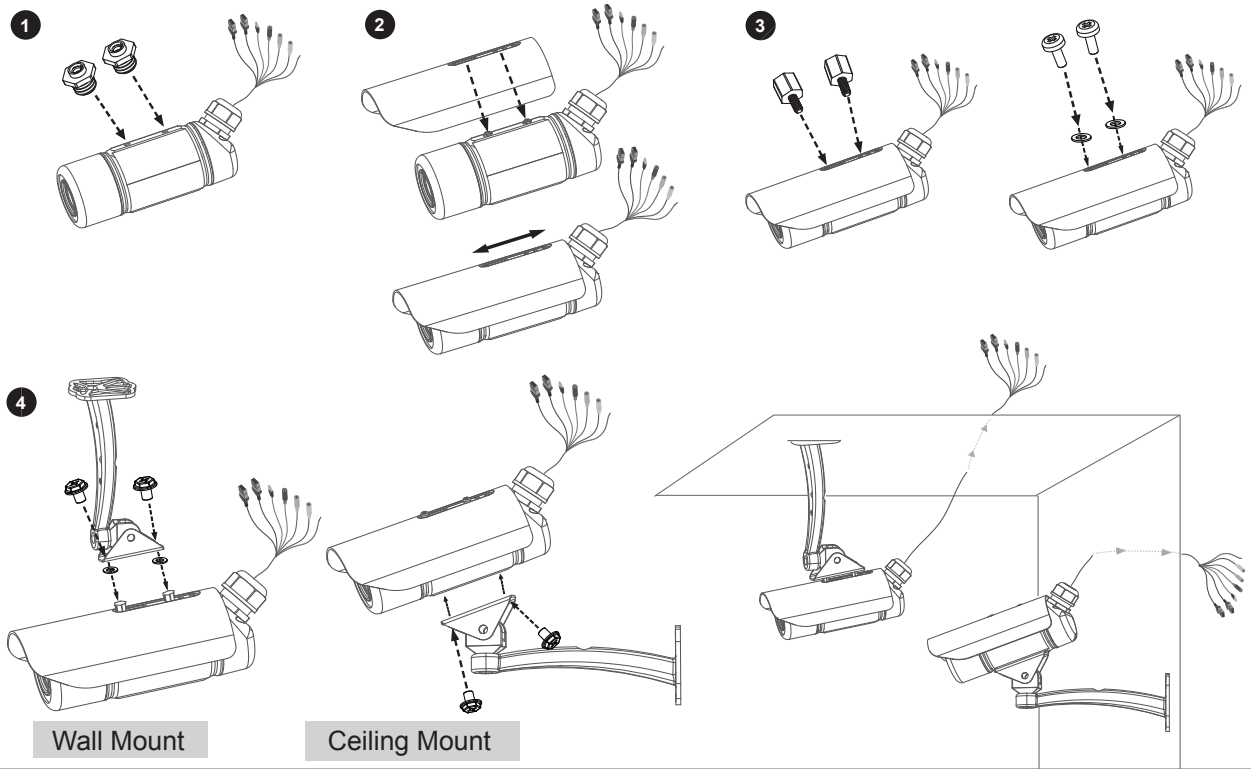
If you want to use the supplied sun shield for outdoor environments, please follow the steps below to install:

1. Tighten the supplied two screws.

2. Attach the supplied sun shield to the Network Camera and slide it to the desired position.

3. Fix the sun shield with the supplied two screws. (Please use different screws for ceiling mount.)

4. Secure the Network Camera to the wall/ceiling by the supplied camera stand.

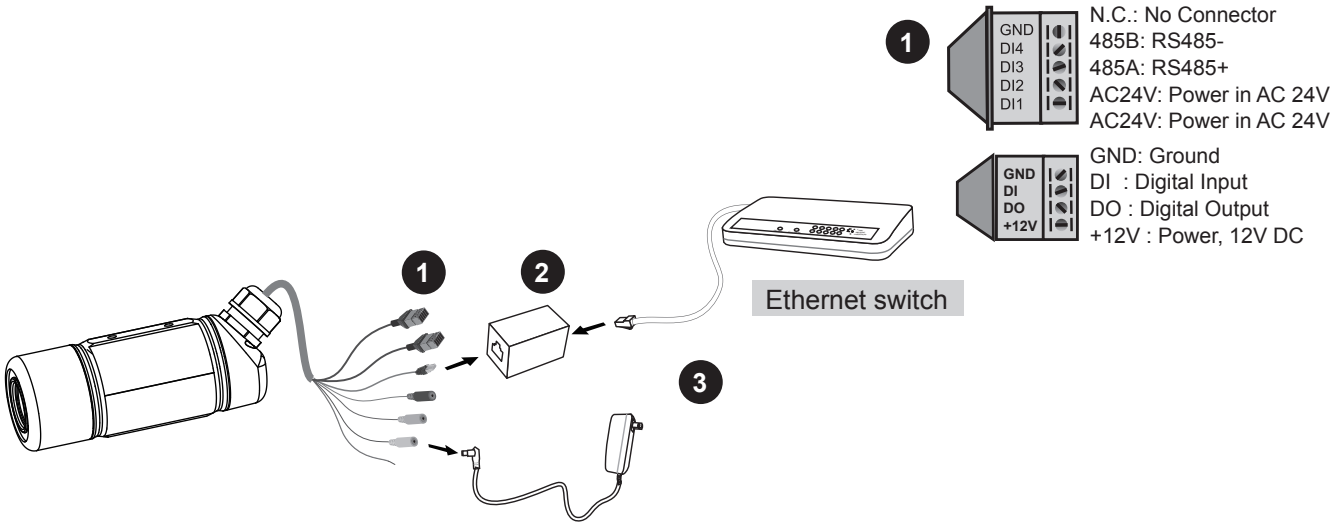


Network Deployment

Setup the Network Camera over the Internet

This section explains how to configure the Network Camera to Internet connection.

1. If you have external devices such as sensors and alarms, connect them to the general I/O terminal block.
2. Use the supplied RJ45 female/female coupler to connect the Network Camera to a switch.
   Use Category 5 Cross Cable when Network Camera is directly connected to PC.
3. Connect the power cable from the Network Camera to a power outlet.

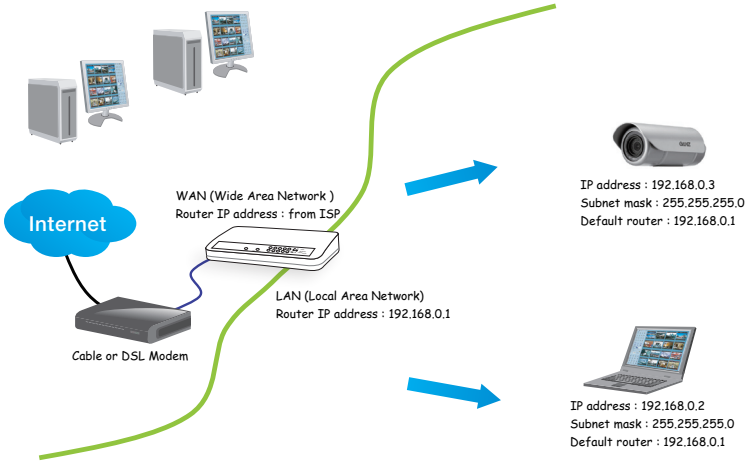


There are several ways to setup the Network Camera over the Internet. The first way is to setup the Network Camera behind a router. The second way is to utilize a static IP. The third way is to use PPPoE.

Internet connection via a router

Before setting up the Network Camera over the Internet, make sure you have a router and follow the steps below.

1. Connect your Network Camera behind a router, the Internet environment is illustrated as below. About how to get your IP address, please refer to Software installation on page 11 for details.



2. In this case, if the Local Area Network (LAN) IP address of your Network Camera is 192.168.0.3, please forward the following ports for the Network Camera on the router.

- HTTP port
- RTSP port
- RTP port for audio
- RTCP port for audio
- RTP port for video
- RTCP port for video

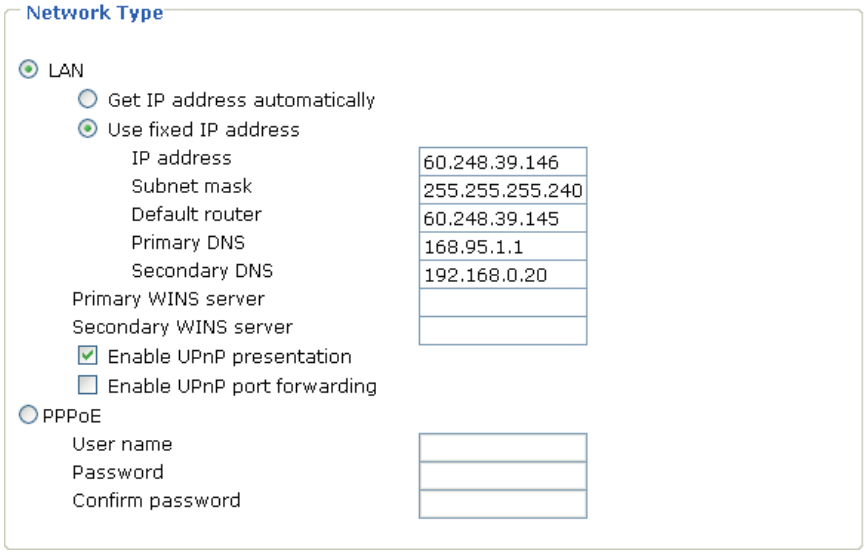
If you have changed the port numbers on the Network page, please open the ports accordingly on your router. For information on how to forward ports on the router, please refer to the user's manual of your router.

3. Find out the public IP address of your router provided by your ISP (Internet Service Provider). Use the public IP and the secondary HTTP port to access the Network Camera from the Internet. Please refer to Network Type on page 26 for details.

Internet connection with static IP

Choose this connection type if you are required to use a static IP for the Network Camera and follow the steps below.

1. Set up the Network Camera on the LAN. Please refer to Software Installation on page 11 for details.
2. Go to Configuration > Network > Network Type. Select LAN > Use fixed IP address.
3. Enter the static IP, Subnet mask, Default router, Primary DNS provided by your ISP.



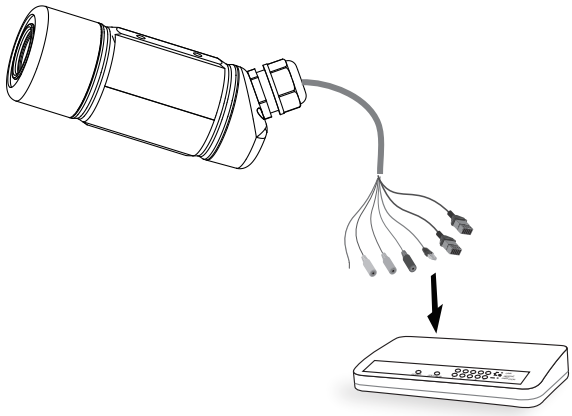
Internet connection via PPPoE (Point-to-Point over Ethernet)

Choose this connection type if you are connected to the Internet via a DSL Line. Please refer to PPPoE on page 27 for details.

Set up the Network Camera through Power over Ethernet (PoE)

When using a PoE-enabled switch

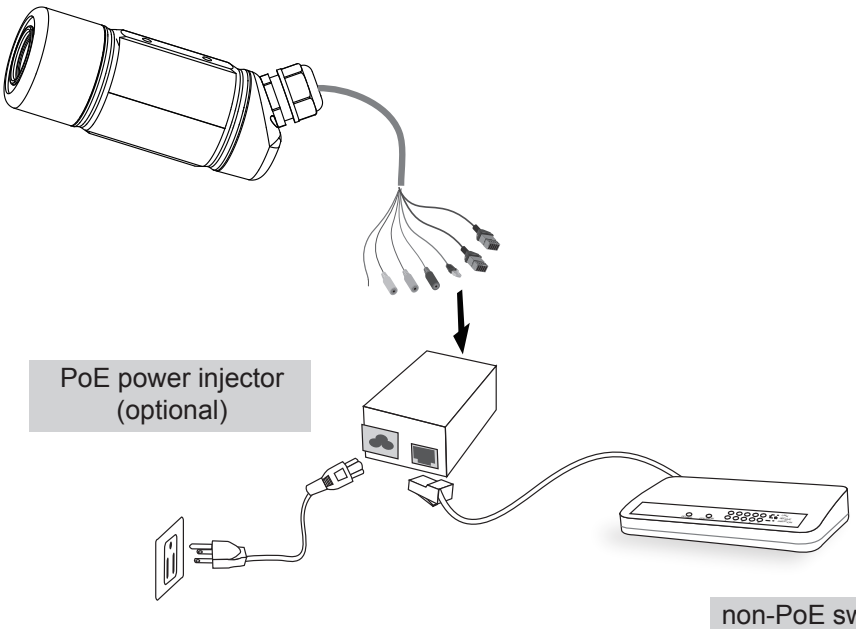
The Network Camera is PoE-compliant, allowing transmission of power and data via avsingle Ethernet cable. Follow the below illustration to connect the Network Camera to a PoE-enabled switch via Ethernet cable.



PoE switch

When using a non-PoE switch

If your switch/router does not support PoE, use a PoE power injector (optional) to connect between the Network Camera and a non-PoE switch.



PoE power injector (optional)

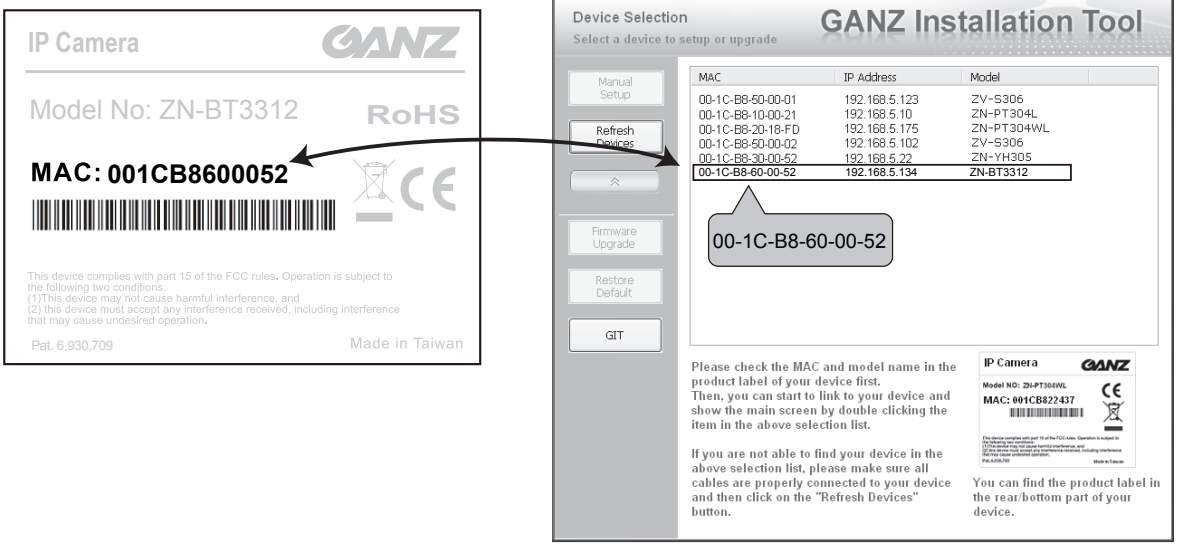
non-PoE switch

Software Installation

1. Install the “GANZ Installation Tool” from the Software Utility directory on the software CD.

2. The program will conduct an analysis of your network environment.
   After your network environment is analyzed, please click **Next** to continue the program.

3. From the “GANZ Installation Tool” window, click on the MAC that matches the one labeled on the side of the camera lens or S/N number on the label of carton to connect the Internet Explorer to the Network Camera.



Accessing the Network Camera

This chapter explains how to access the Network Camera through web browsers or RTSP players.

Using Web Browsers

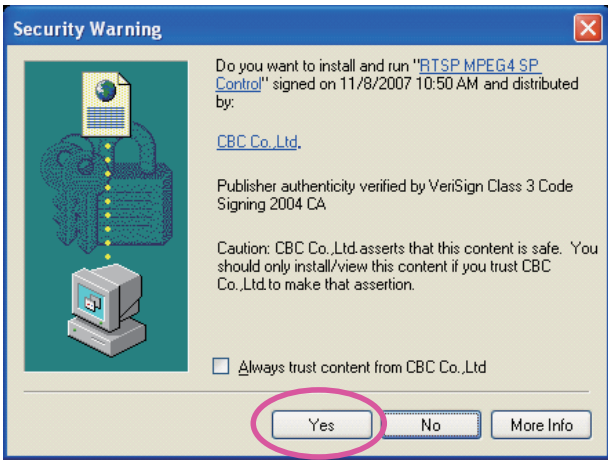
1. Launch your web browser (ex. Microsoft® Internet Explorer, Mozilla Firefox or Netscape).
2. Enter the IP address of the Network Camera in the address field. Press **Enter**.
3. The live video will be displayed in your web browser.

NOTE

► *For Mozilla Firefox or Netscape users, your browser will use Quick Time to stream the live video.*

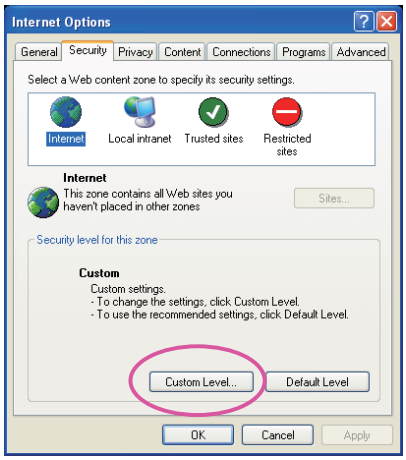
► *By default, the Network Camera is not password-protected. To prevent unauthorized accesses, it is highly recommended to set a password for the Network Camera.*
For more information about how to enable password protection, please refer to Security on page 22.

► *If you see a warning message at initial access, click **Yes** to install an ActiveX® control on your computer.*

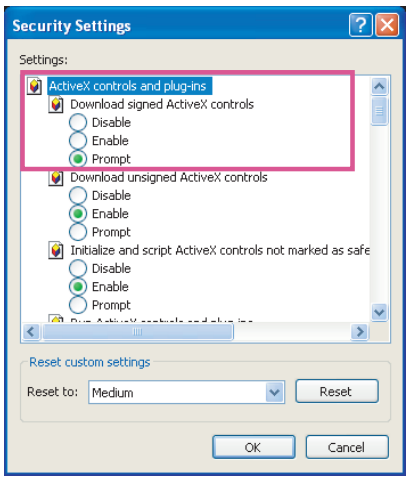


► *If you see a dialog box indicating that your security settings prohibit running ActiveX® Controls, please enable your ActiveX® Controls for your browser.*

1. Choose Tools > Internet Options > Security > Custom Level.



*2. Look for Download signed ActiveX® controls; select Enable or Prompt. Click **OK**.*



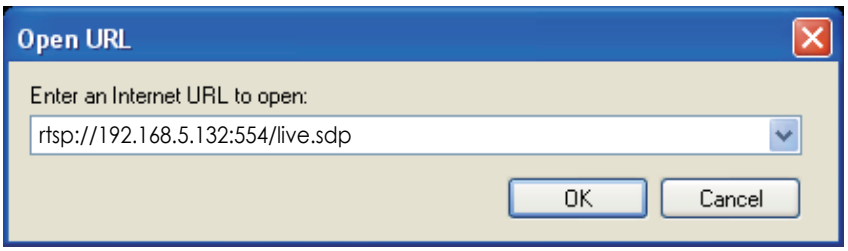
Using RTSP Players

To view the MPEG-4 streaming media using RTSP players, you can use one of the following players that support RTSP streaming.

- Quick Time Player
- Real Player

1. Launch a RTSP player.
2. Choose File > Open URL. An URL dialog box will pop up.
3. Type the URL command in the text box.
   The format is rtsp://<ip address>:<rtsp port>/<access name for stream1 or stream2>

   For example:



4. The live video will be displayed in your player.
   For more information on how to configure RTSP access name, please refer to RTSP Streaming on page 30 for details.

Main Page

This chapter explains the layout of the main page. It is composed of the following four sections: GANZ Logo, Menu, Host Name, and Live Video Window.

GANZ Logo

Click this logo to visit GANZ website.

Menu

Snapshot: Click this button to capture and save still images. The captured images will be displayed in a pop-up window. Right-click the image and choose **Save Picture As** to save it in JPEG (*.jpg) or BMP (*.bmp) format.

Configuration: Click this button to access the configuration page of Network Camera. It is suggested that a password is applied to the Network Camera so that only the administrator can configure the Network Camera. For more information, please refer to Configuration on page 20.

Client Settings: Click this button to access the client setting page. For more information, please refer to Client Settings on page 18.

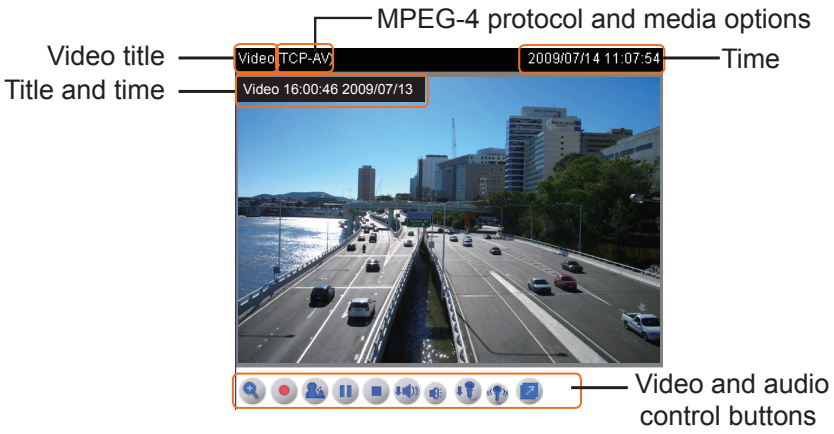
Digital Output: Click this button to turn on or off the digital output device.

Host Name

The host name can be customized to fit your needs. For more information, please refer to System on page 20.

Live Video Window

The following window is displayed when the video mode is set to MPEG-4:



Video title: The video title can be configured. For more information, please refer to Video Settings on page 35.

Time: Display the current time. For more information, please refer to Video Settings on page 35.

Title and time: Video title and time can be stamped on the streaming video. For more information, please refer to Video Settings on page 35.

MPEG-4 protocol and media options: The transmission protocol and media options for MPEG-4 video streaming. For more information, please refer to Client Settings on page 18.

Video and audio control buttons: Depending on the Network Camera model and Network Camera configuration, some buttons may not be available.

Digital zoom edit: Deselect Disable digital zoom to enable the zoom operation. The navigation screen indicates which part of the image is being magnified. To control the zoom level, drag the slider bar. To move to a different area you want to magnify, drag the navigation screen.

Start MP4 recording: Click this button to record video clips in MP4 file format to your computer. Press the Stop MP4 recording button to end recording. When you quit the web browser, video recording stops accordingly. To specify the storage destination and the file name, please refer to MP4 Saving Options on page 19 for details.

Talk: Click this button to talk to people around the Network Camera. Audio will come out from the external speaker connected to the Network Camera.

Pause: Pause the transmission of streaming media. The button becomes Resume button after clicking the Pause button.

Resume: Resume the transmission of streaming media. The button becomes Pause button after clicking the Resume button.

Stop: Stop the transmission of streaming media. Click the Resume button to continue transmission.

Volume: When the mute function is not activated, move the slider bar to adjust the volume at local computer.

Mute: Turn off the volume at local computer.

Mic volume: When the mute function is not activated, move the slider bar to adjust the microphone volume at local computer.

Mute: Turn off the microphone volume at local computer.

Full screen: Click this button to switch to full screen mode. Press the “Esc” key to switch back to normal mode.

The following window is displayed when the video mode is set to MJPEG:

Video title: The video title can be configured. For more information, please refer to Video Settings on page 35.

Time: Display the current time. For more information, please refer to Video Settings on page 35.

Title and time: Video title and time can be stamped on the streaming video. For more information, please refer to Video Settings on page 35.

Video control buttons: Depending on the Network Camera model and Network Camera configuration, some buttons may not be available.

Digital zoom edit: Deselect Disable digital zoom to enable the zoom operation. The navigation screen indicates which part of the image is being magnified. To control the zoom level, drag the slider bar. To move to a different area you want to magnify, drag the navigation screen.

Start MP4 recording: Click this button to record video clips in MP4 file format to your computer. Press the Stop MP4 recording button to end recording. When you exit the web browser, video recording stops accordingly. To specify the storage destination and the file name, please refer to MP4 Saving Options on page 19 for details.

Talk: Click this button to talk to people around the Network Camera. Audio will come out from the external speaker connected to the Network Camera.

Mic volume: When the mute function is not activated, move the slider bar to adjust the microphone volume at local computer.

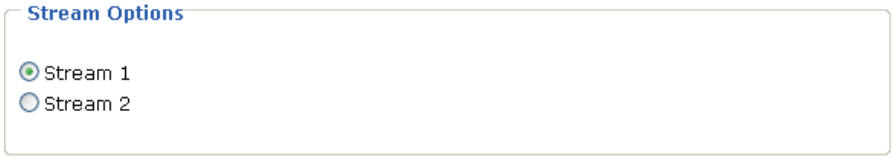
Mute: Turn off the microphone volume at local computer.

Full screen: Click this button to switch to full screen mode. Press the “Esc” key to switch back to normal mode.

Client Settings

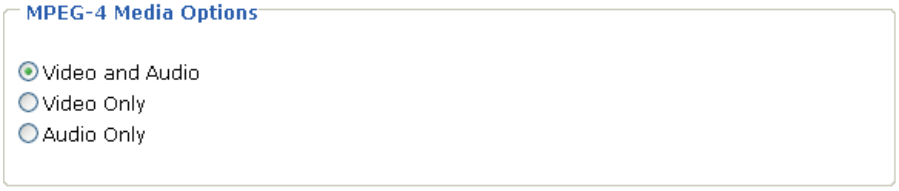
This chapter explains how to select the streaming source, transmission mode and saving options at local computer. It is composed of the following four sections: Stream Options, MPEG-4 Media Options, MPEG-4 Protocol Options and MP4 Saving Options. When completed with the settings on this page, click **Save** on the page bottom to enable the settings.

Stream Options



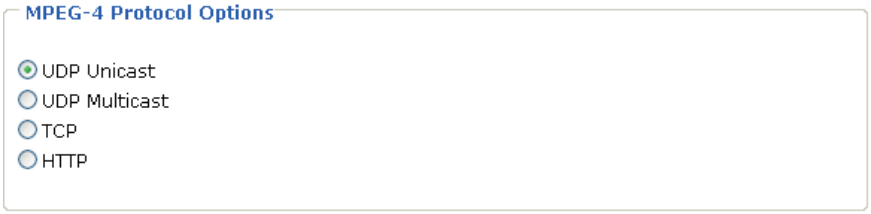
The Network Camera supports MPEG-4 and MJPEG dual streams. For more information, please refer to Video Settings on page 35.

MPEG-4 Media Options



Select to stream video or audio data. This works only when the video mode is set to MPEG-4.

MPEG-4 Protocol Options



Depending on your network environment, there are four transmission modes of MPEG-4 streaming:

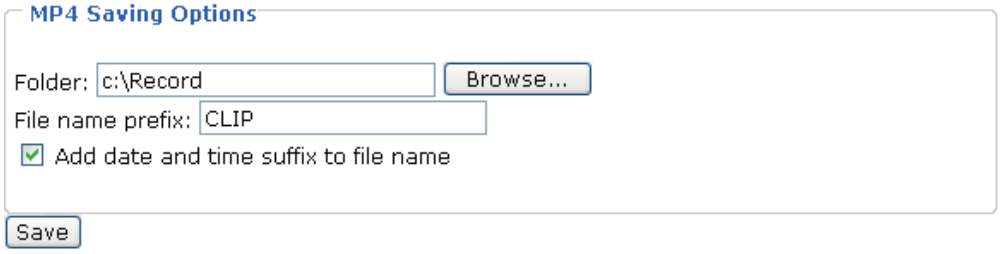
UDP unicast: This protocol allows for more real-time audio and video streams. However, network packets may be lost due to network burst traffic and images may be broken. Activate UDP connection when occasions require time-sensitive responses and the video quality is less important. Note that each unicast client connecting to the server takes up additional bandwidth and the Network Camera allows up to ten simultaneous accesses.

UDP multicast: This protocol allows multicast-enabled routers to forward network packets to all clients requesting streaming media. This helps to reduce the network transmission load of the Network Camera while serving multiple clients at the same time. Note that to utilize this feature, the Network Camera must be configured to enable multicast streaming at the same time. For more information, please refer to RTSP Streaming on page 30.

TCP: This protocol guarantees the complete delivery of streaming data and thus provides better video quality. Nevertheless, the downside with this protocol is that its real-time effect is not as good as that of the UDP protocol.

HTTP: This protocol allows the same quality as TCP protocol and you don't need to open specific port for streaming under some network environments. Users inside a firewall can utilize this protocol to allow streaming data to come through.

MP4 Saving Options

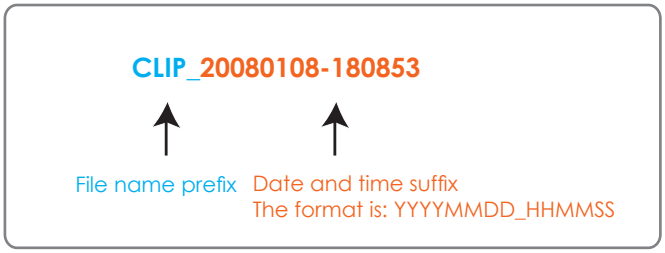


Users can record the live video as they are watching it by clicking Start MP4 Recording on the main page. Here, you can specify the storage destination and file name.

Folder: Specify a storage destination for the recorded video files.

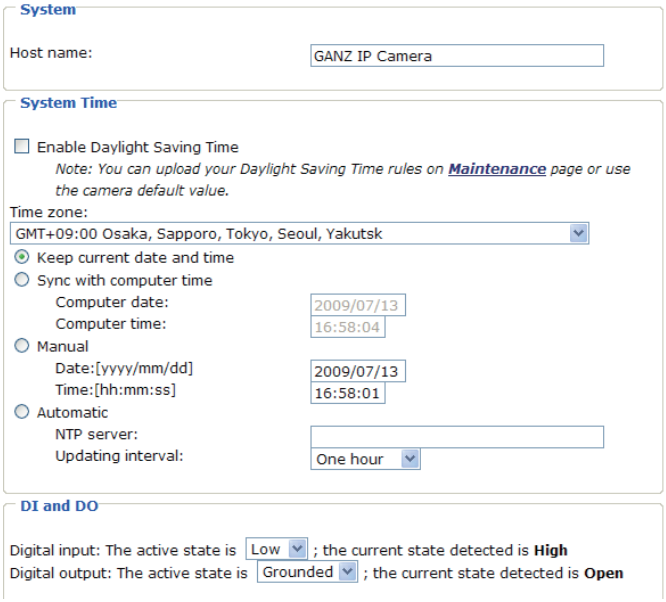
File name prefix: Enter the text that will be put in front of the video file name.

Add date and time suffix to the file name: Select this option to add date and time to the file name suffix.



Configuration

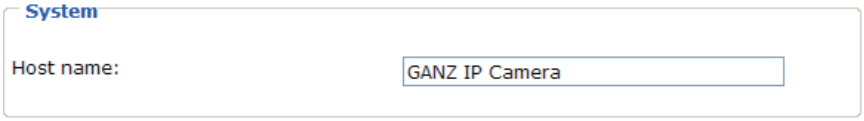
Only Administrators can access the system configuration page. Each category in the left menu will be explained in the following sections.



System

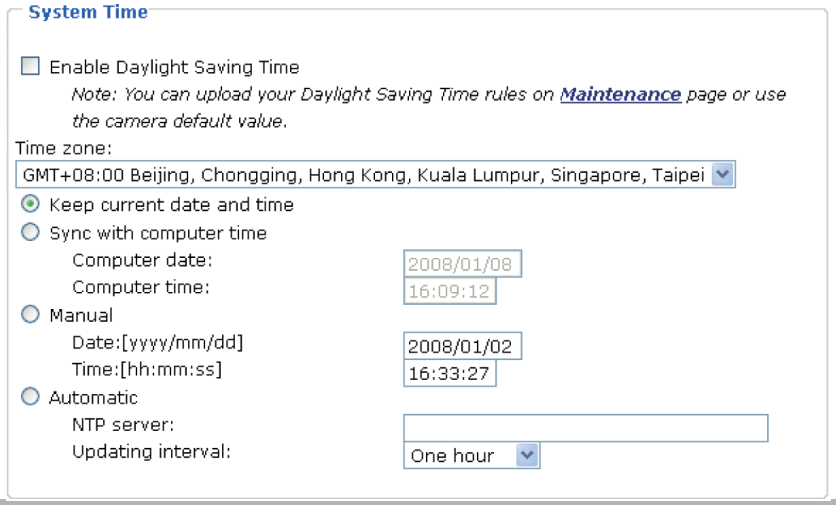
This section explains how to configure the basic settings for the Network Camera, such as the host name and system time. It is composed of the following three columns: System, System Time and DI and DO. When completed with the settings on this page, click **Save** on the page bottom to enable the settings.

System

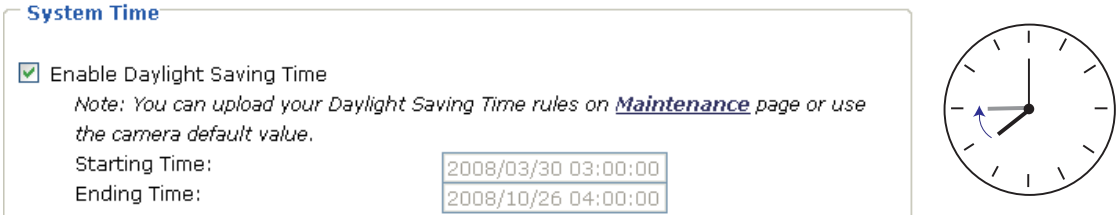


Host name: Set a desired name for the Network Camera. The text will be displayed at the top of the main page.

System Time



Enable Daylight Saving Time: Select this option to enable daylight saving time (DST). During DST, the system clock moves one hour ahead. Note that to utilize this feature, please set the time zone for your Network Camera first. Then, the starting time and ending time of the DST is displayed upon selecting this option. To manually configure the daylight saving time rules, please refer to Upload / Export Daylight Saving Time Configuration File on page 57 for details.



Time zone: According to your local time zone, select one from the drop-down list.

Keep current date and time: Select this option to reserve the current date and time of the Network Camera. The Network Camera's internal real-time clock maintains the date and time even when the power of the system is turned off.

Sync with computer time: Select this option to synchronize the date and time of the Network Camera with the local computer. The read-only date and time of the PC is displayed as updated.

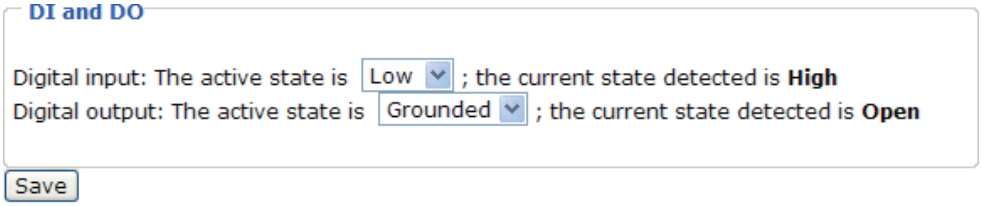
Manual: The administrator can enter the date and time manually. Note that the date and time format are [yyyy/mm/dd] and [hh:mm:ss].

Automatic: The Network Time Protocol is a protocol serves synchronize computer clocks by periodically querying an NTP Server.

NTP server: Assign the IP address or domain name of the time-server. Leaving the text box blank connects the Network Camera to the default time-servers.

Update interval: Select to update the time with the NTP server on hourly, daily, weekly, or monthly basis.

DI and DO



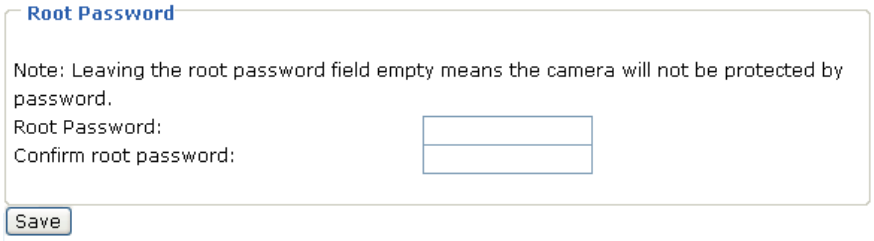
Digital input: Select **High** or **Low** to define normal status of the digital input. The Network Camera will report the current status.

Digital output: Select **Grounded** or **Open** to define normal status of the digital output. The Network Camera will show whether the trigger is activated or not.

Security

This section explains how to enable password protection and create multiple accounts. It is composed of the following three columns: Root Password, Add User, and Manage User.

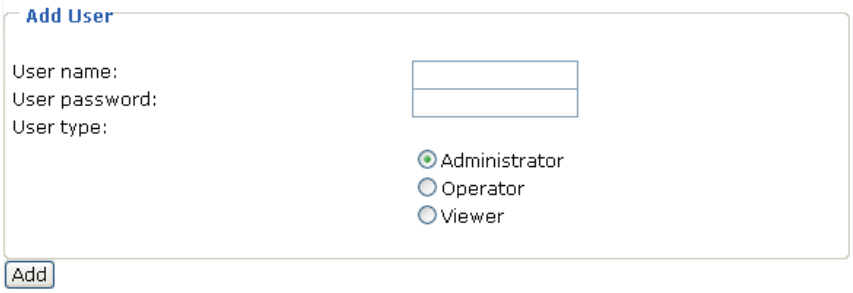
Root Password



The administrator account “root” is permanent and can not be deleted. Please note that if you want to add more accounts, you must apply a password for the “root” account first.

1. Type the password identically in both text boxes.
2. Click **Save** to enable password protection.
3. A window will be prompted for authentication; type the correct user’s name and password in related fields to access the Network Camera.

Add User

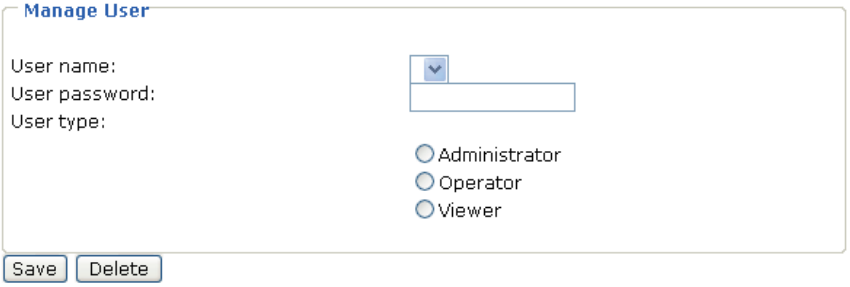


Administrators can add up to twenty user accounts.

1. Input the new user’s name and password.
2. Select the desired security level. Click **Add** to enable the settings.

Access rights are sorted by user types. There are three kinds of user types. Only administrators can access the Configuration page. Operators and viewers can not access the configuration page. Viewers can only access the main page.

Manage User



Here you can change user’s access rights or delete user accounts.

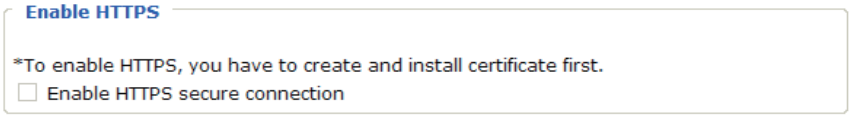
1. Pull down the user list to find an account.
2. Make necessary changes and then click **Save** or **Delete** to enable the settings.

HTTPS

This section explains how to enable authentication and encrypted communication over SSL.

Enable HTTPS

Select this option to turn on the HTTPS communication.

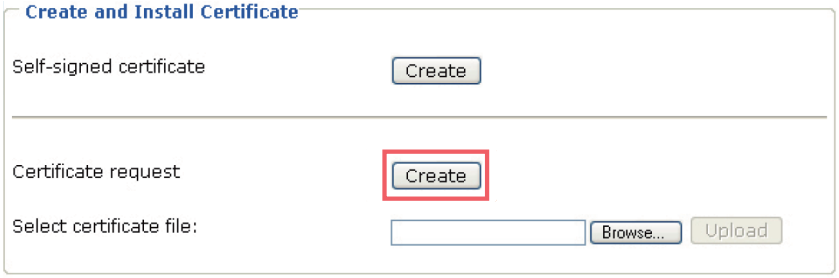


Create and Install Certificate

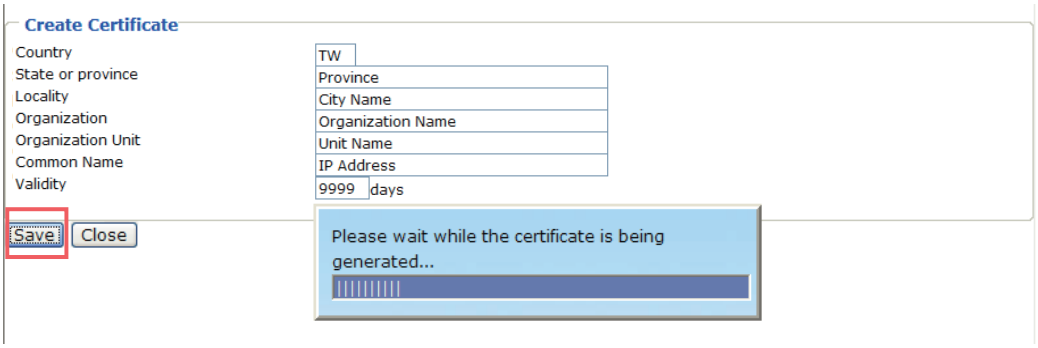
Select either to create a self-signed certificate or a signed certificate.

To create a certificate from a certificate authority

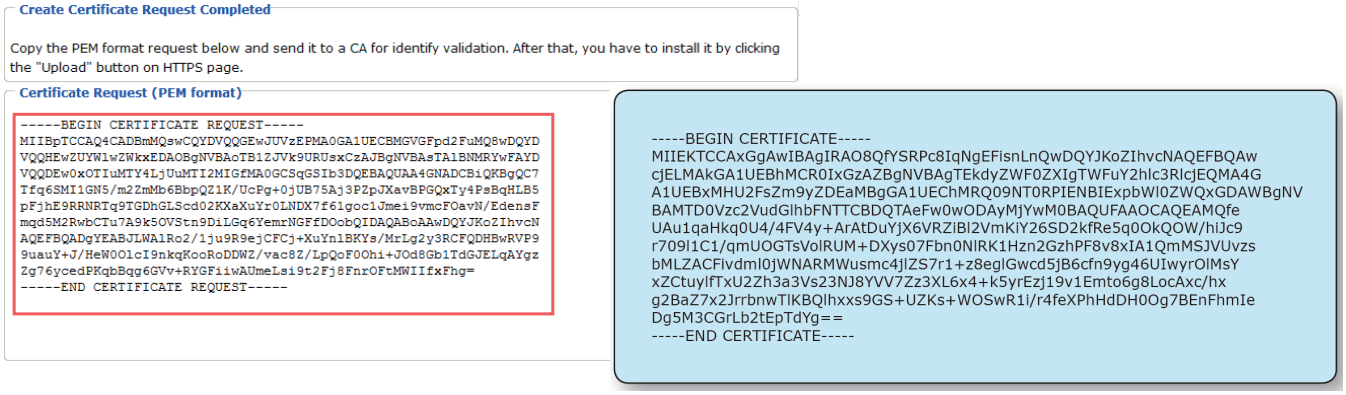
1. Click **Create** for Certificate request. The Create Certificate window will pop up.



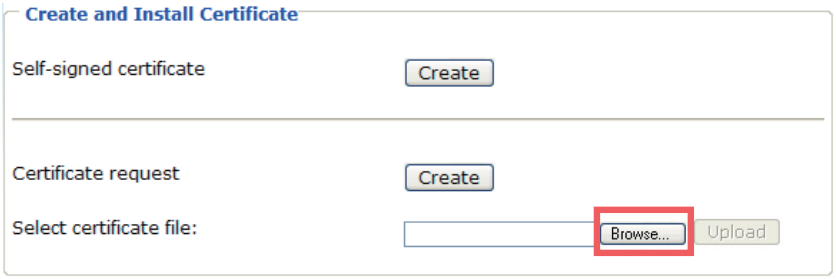
2. Fill in the information required for generating a Certificate Signing Request (CSR) and click **Save**.



3. Here is an example of a CSR:



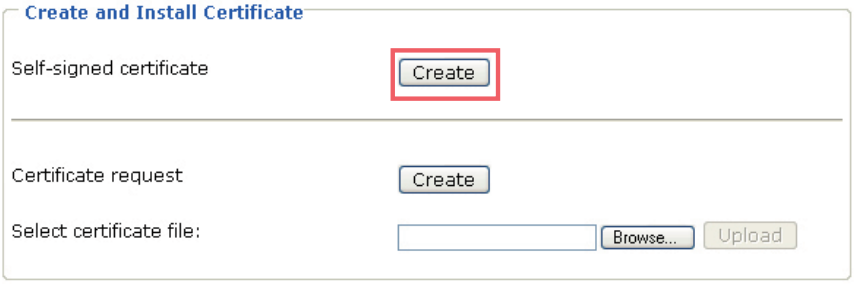
4. Look for a trusted certificate authority that issues digital certificates. Enroll the Network Camera. Wait for the certificate authority to issue a SSL certificate; then upload the issued certificate to the Network Camera.



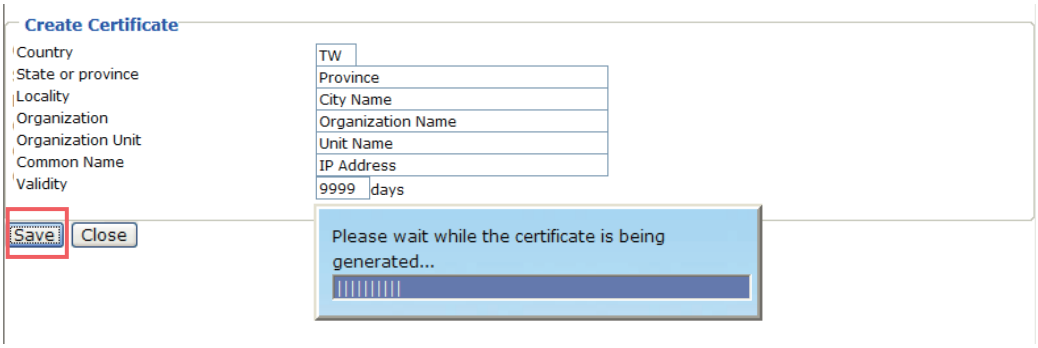
5. Browsing the Network Camera using HTTPS helps to protect streaming data over the Internet.

To create a self-signed certificate

1. Click **Create** for Create and Install Certificate. This pops up the Create Certificate window.



2. Fill in the information required for generating a Certificate Signing Request (CSR) and click **Save**.



3. Browsing the Network Camera using HTTPS helps to protect streaming data over the Internet.

https://xxx.xxx.x.xxx

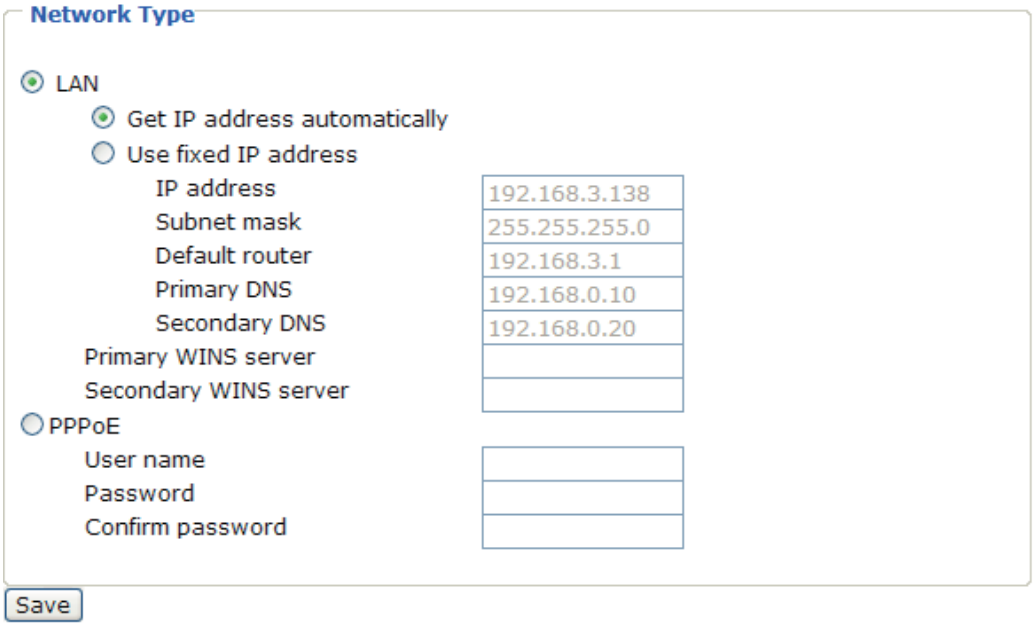
Certificate Information

Here display the certification information. Users may click **Property** for details. To remove the signed certificated, uncheck the Enable HTTPS secure connection and click **Remove**.

Network

This section explains how to configure wired network connection for the Network Camera. It is composed of the following five columns: Network Type, HTTP, HTTPS, Two way audio, FTP and RTSP Streaming. When completed with the settings on this page, click **Save** to enable the settings.

Network Type



LAN

Select this option when the Network Camera is deployed on a local area network (LAN) and is intended to be accessed by local computers.

Get IP address automatically: Select this option to obtain an available dynamic IP address assigned by a DHCP server each time the camera is connected to the LAN.

Use fixed IP address: Select this option to manually assign a static IP address to the Network Camera. Please refer to Internet connection with static IP on page 9 for details.

Subnet mask: This is used to determine if the destination is in the same subnet. The default value is "255.255.255.0".

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

Primary DNS: The primary domain name server that translates hostnames into IP addresses.

Secondary DNS: Secondary domain name server that backups the Primary DNS.

Primary WINS server: The primary WINS server that maintains the database of computer name and IP address.

Secondary WINS server: The secondary WINS server that maintains the database of computer name and IP address.

PPPoE (Point-to-point over Ethernet)

Select this option to configure your Network Camera to make it accessible from anywhere with an Internet connection. Note that to utilize this feature, it requires an account provided by your ISP.

Follow the steps below to acquire your Network Camera's public IP address.

1. Set up the Network Camera in a LAN.
2. Go to Configuration > Application > Server Settings (please refer to Server Settings on page 48) to add a new server -- email or FTP server.
3. Go to Configuration > Application > Media Settings (please refer to Media Settings on page 46). Select System log so that you will receive a list of system log in TXT file format which contains the Network Camera's public IP address in your email or on the FTP server.
4. Go to Configuration > Network > Network Type. Select PPPoE and enter the user name and password provided by your ISP. Click **Save** to enable the settings.
5. The Network Camera starts to reboot.
6. Disconnect the power source of the Network Camera; move it from the LAN environment to the Internet.

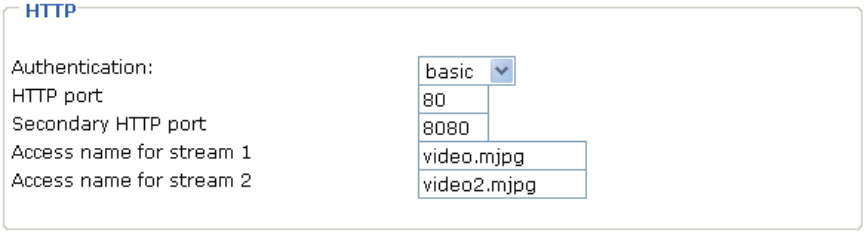
NOTE

► *If the default ports are already used by other devices connected to the same router, the Network Camera will select other ports for the Network Camera.*

► *If the PPPoE settings are incorrectly configured or the Internet access is not working, restore the Network Camera to factory default; please refer to Restore on page 56 for details. After the Network Camera is reset to factory default, it will be accessible on the LAN.*

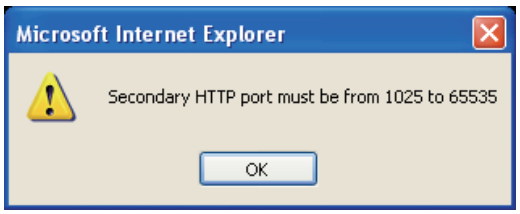
HTTP

To utilize HTTP authentication, make sure that your have set a password for the Network Camera first; please refer to Security on page 22 for details.



Authentication: Depending on your network security requirements, the Network Camera provides two types of security settings for an HTTP transaction: basic and digest.
If basic authentication is selected, the password is sent in plain text format, where there is a potential risk of being intercepted. If digest authentication is selected, user credentials are encrypted using MD5 algorithm and thus provide better protection against unauthorized access.

HTTP port / Secondary HTTP port: By default, the HTTP port is set to 80 and the secondary HTTP port is set to 8080. There can be assigned to another port number between 1025 and 65535. If the ports are incorrectly assigned, the following warning messages will be displayed:



To access the Network Camera on the LAN, both the HTTP port and secondary HTTP port can be used to access the Network Camera. For example, when the HTTP port is set to 80 and the secondary HTTP port is set to 8080, refer to the list below for the Network Camera's IP address.

LAN
http://192.168.4.160 or http://192.168.4.160:8080

Access name for stream 1 / Access name for stream 2: The access name is used to differentiate the streaming source.
When using Mozilla Firefox or Netscape to access the Network Camera, and the video mode is set to JPEG, users will receive continuous JPEG pictures. This technology, known as "server push", allows the Network Camera to feed live pictures to Mozilla Firefox and Netscape.
Use http://<ip address>:<http port>/<access name for stream1 or stream2> to make connection.

For example, when the access name for stream 1 is set to video.mjpg:
1. Launch Mozilla Firefox or Netscape.
2. Type the URL command in the address field. Press Enter.
3. The JPEG images will be displayed in your web browser.

NOTE

► *Microsoft® Internet Explorer does not support server push technology; therefore, using http://<ip address>:<http port>/<access name for stream1 or stream2> will fail to access the Network Camera.*

HTTPS

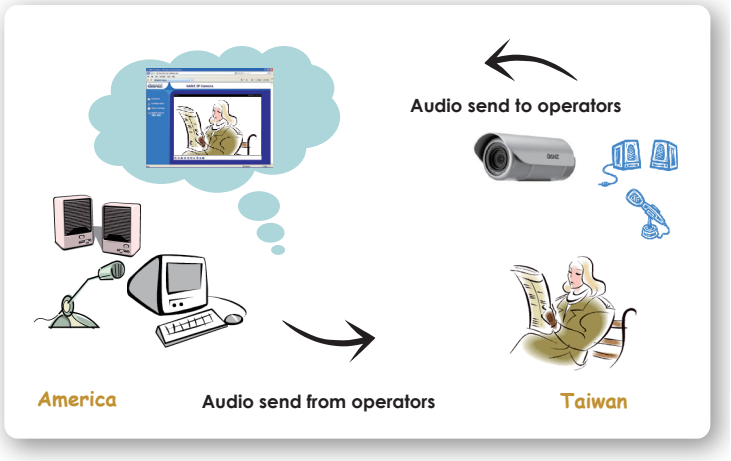
By default, the HTTPS port is set to 443. Also, it can be assigned with another port number between 1025 and 65535.

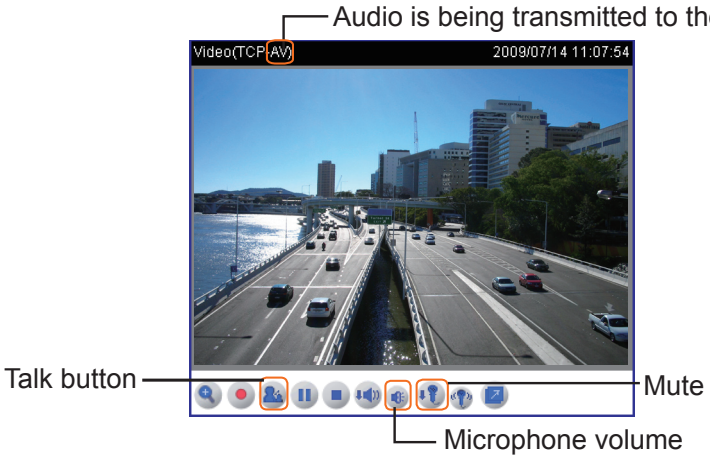
Two way audio

By default, the two way audio port is set to 5060. Also, it can be assigned with another port number between 1025 and 65535.

The Network Camera supports two way audio communication so that operators can transmit and receive audio simultaneously. By using the Network Camera's built-in microphone and an external speaker, you can communicate with people around the Network Camera.

Note that as JPEG only transmits a series of JPEG images to the client, to utilize this feature, make sure the video mode is set to "MPEG-4" and the media option is set to "Video and Audio".



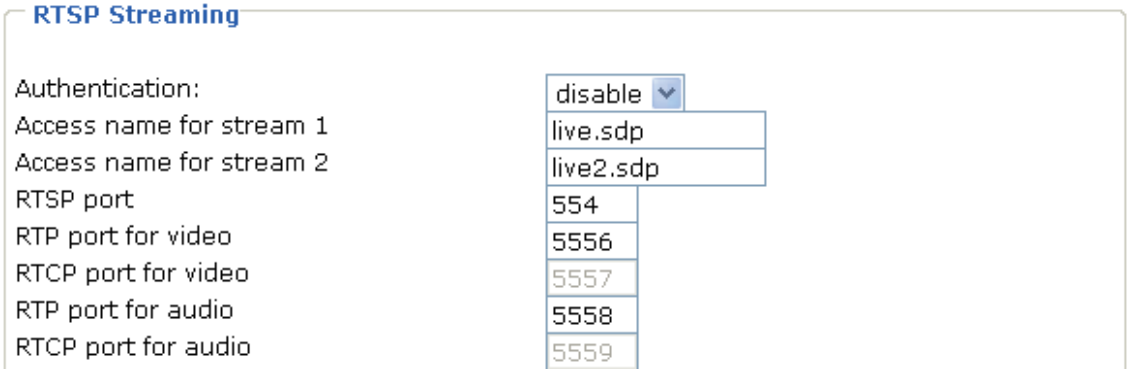


Click to enable audio transmission to the Network Camera; click to adjust the volume of microphone; click to turn off the audio. To stop talking, click again.

FTP

The FTP server allows the Network Camera to utilize GANZ Installation Tool to upgrade firmware via an FTP server. By default, the FTP port is set to 21. It also can be assigned to another port number between 1025 and 65535.

RTSP Streaming



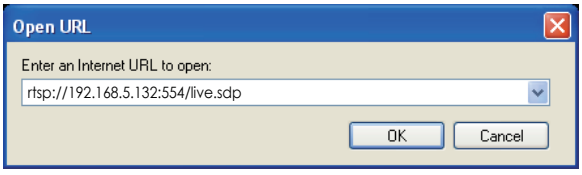
Authentication: Depending on your network security requirements, the Network Camera provides three types of security settings for streaming via RTSP protocol: disable, basic, and digest.
If basic authentication is selected, the password is sent in plain text format, but there can be potential risks of it being intercepted. If digest authentication is selected, user credentials are encrypted using MD5 algorithm, thus providing better protection against unauthorized access.

The availability of the RTSP streaming for the three authentication modes is listed in the following table:

	Quick Time player	Real Player
Disable	O	O
Basic	O	O
Digest	O	X

Access name for stream 1 / Access name for stream 2: The access name is used to differentiate the streaming source.
If you want to use an RTSP player to access the Network Camera, you have to set the video mode to MPEG-4 and use the following RTSP URL command to request transmission of the streaming data.

rtsp://<ip address>:<rtsp port>/<access name for stream1 or stream2>
For example, when the access name for stream 1 is set to live.sdp:
1. Launch an RTSP player.
2. Choose File > Open URL. An URL dialog box will pop up.
3. Type the URL command in the text box. For example:



4. The live video will be displayed in your player as shown below.

RTSP port /RTP port for video, audio/ RTCP port for video, audio

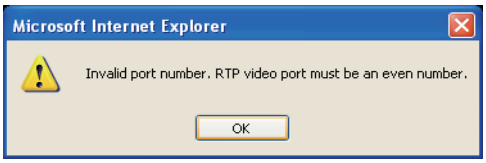
The RTSP (Real-Time Streaming Protocol) controls the delivery of streaming media. By default, the port number is set to 554.

The RTP (Real-time Transport Protocol) is used to deliver video and audio data to the clients. By default, the RTP port for video is set to 5556 and the RTP port for audio is set to 5558.

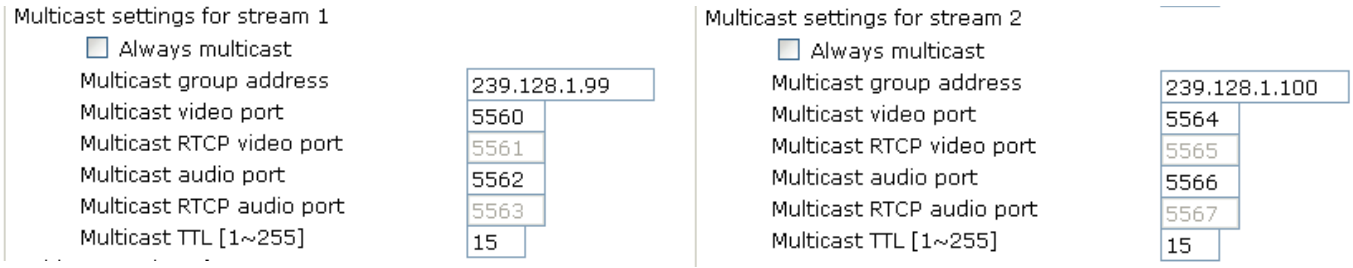
The RTCP (Real-time Transport Control Protocol) allows the Network Camera to transmit the data by monitoring Internet traffic volume. By default, the RTCP port for video is set to 5557 and the RTCP port for audio is set to 5559.

The five ports can be changed between 1025 and 65535. The RTP port must be an even number and the RTCP port is RTP port number plus one, and thus always be odd. When the RTP port changes, the RTCP port will change accordingly.

If the RTP ports are incorrectly assigned, the following warning message is displayed:



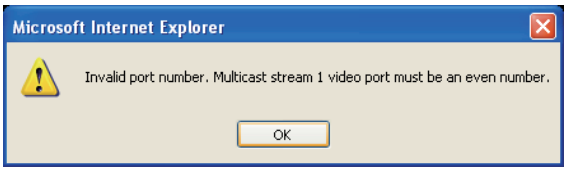
Multicast settings for stream 1 / Multicast settings for stream 2: Select the Always multicast option to enable multicast for stream 1 or stream 2.



Unicast video transmission delivers a stream through point-to-point transmission; multicast, on the other hand, sends a stream to the multicast group address and allows multiple clients to acquire the stream at the same time by requesting a copy from the multicast group address. Therefore, enabling multicast can effectively save Internet bandwith.

The five ports can be changed between 1025 and 65535. The multicast RTP port must be an even number and the multicast RTCP port number is the multicast RTP port number plus one, and thus it is always be odd. When the multicast RTP port changes, the multicast RTCP port will change accordingly.

If the multicast RTP video ports are incorrectly assigned, the following warning message is displayed:



Multicast TTL [1~255]:The multicast TTL (Time to live) is the value that tells the router the range a packet can be forwarded.

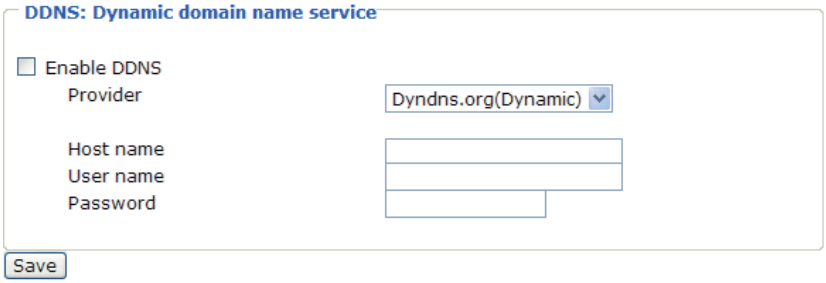
NOTE

► *To utilize the RTSP streaming authentication, make sure that your have set a password for the Network Camera first; please refer to Security on page 22 for details.*

DDNS

This section explains how to configure dynamic domain name service for the Network Camera. DDNS is a service that allows your Network Camera, especially when assigned with a dynamic IP address, to have a fixed host and domain name.

DDNS: Dynamic domain name service

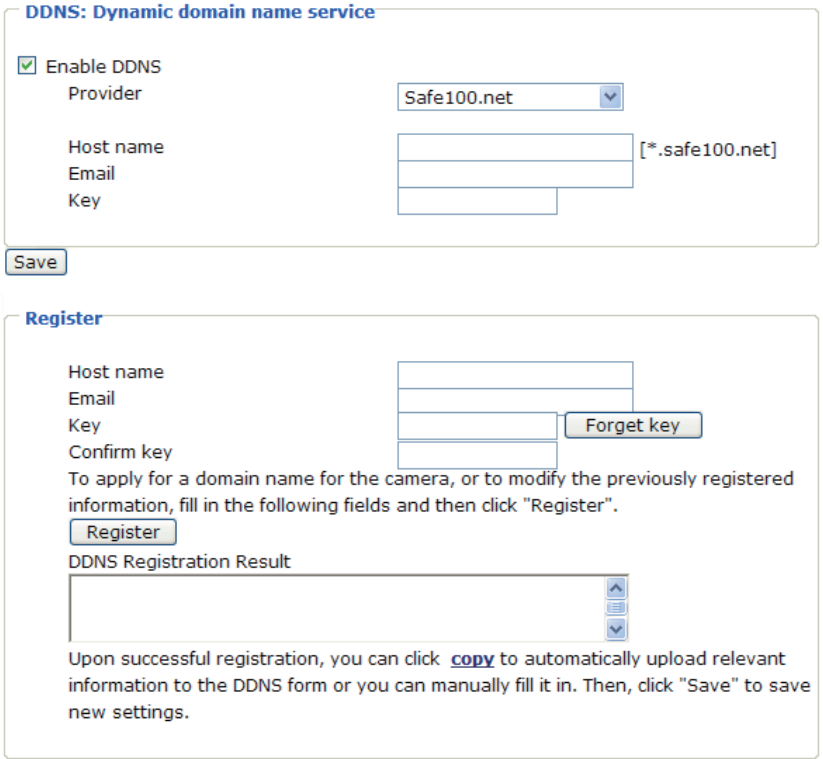


Enable DDNS: Select this option to enable the DDNS setting.

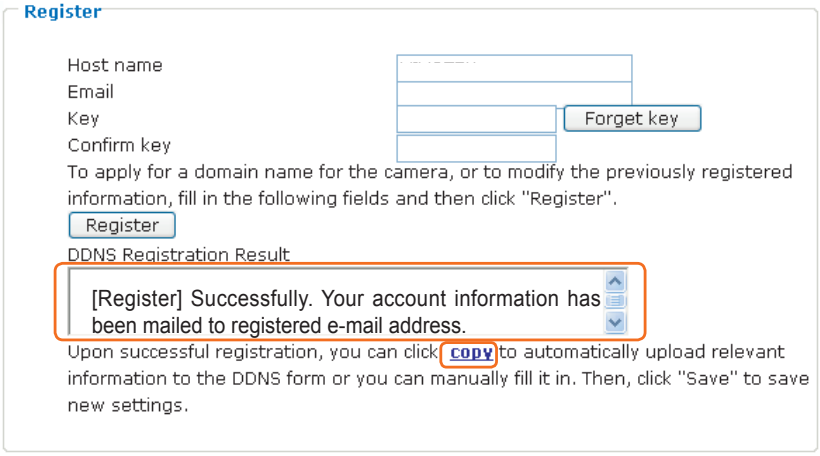
Provider: Select a DDNS provider of your choice from the Provider drop-down list.
GANZ offers safe100, a free dynamic domain name service to GANZ customers. It is recommended that you register with the safe100 to access the Network Camera from the Internet. Additionally, we offer other DDNS providers, such as Dyndns.org(Dynamic), Dyndns.org(Custom), TZO.com, DHS.org, CustomSafe100, dyn-interfree.it. Note that to utilize this feature, please apply a dynamic domain account first.

■ Safe100.net

1. In the DDNS column, select Safe100 from the Provider drop-down list. Click Agree when you agree with the terms of the Service Agreement.
2. In the Register column, fill in the Host name, Email, Key and Confirm Key and then click Register. After a host name has been successfully created, you will see a successful message in the DDNS Registration Result column, indicating that you have successfully applied a domain name on Safe100.net.



3. Click **Copy** and all the registered information will be uploaded to the corresponding fields in the DDNS column.



4. Select Enable DDNS and then click **Save** to enable the settings.

■ CustomSafe100

GANZ offers documents to establish CustomSafe100 DDNS server for distributors and system integrators. You can use CustomSafe100 to register a dynamic domain name if your distributor or system integrators offer such services.

1. In the DDNS column, select CustomSafe100 from the Provider drop-down list.
2. In the Register column, fill in the Host name, Email, Key and Confirm Key; then click Register. After a host name has been successfully created, you will see a successful message in the DDNS Registration Result column, indicating that you have successfully registered a domain name on CustomSafe100.
3. Click Copy and all the registered information will be uploaded to the corresponding fields in the DDNS column.
4. Select Enable DDNS and then click **Save** to enable the settings.

Forget key: Click this button if you forget the key of Safe100 or CustomSafe100. Your account information will be sent to your email address.

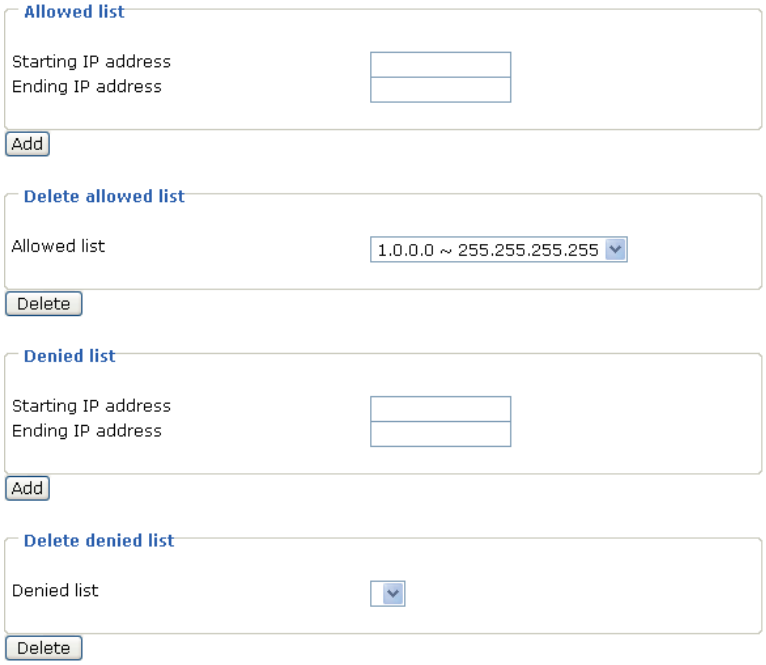
Refer to the following links to apply a dynamic domain account when selecting other DDNS providers:

■ Dyndns.org(Dynamic) / Dyndns.org(Custom): visit http://www.dyndns.com/
■ TZO.com: visit http://www.tzo.com/
■ DHS.org: visit http://www.dhs.org/
■ dyn-interfree.it: visit http://dyn-interfree.it/

Access List

This section explains how to control the access permission by checking the client PC's IP addresses. It is composed of the following four columns: Allowed list, Denied list, Delete allowed list, and Delete denied list.

Allowed list / Denied list

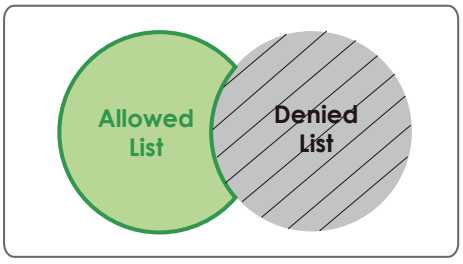


There are two lists for permission control: Allowed list and Denied list. Only those clients whose IP addresses are in the Allowed list and not in the Denied list can access the Network Camera.

1. In the Allowed list or Denied list column, type the starting IP address and ending IP address in the text boxes. A total of ten lists can be configured for both columns.
2. Click **Add** to enable the settings.

NOTE

► *For example, when the range of IP addresses on the allowed list is set from 1.1.1.0 to 192.255.255.255 and the range in the denied list is set from 1.1.1.0 to 170.255.255.255, only users' IPs between 171.0.0.0 and 192.255.255.255 can access the Network Camera.*



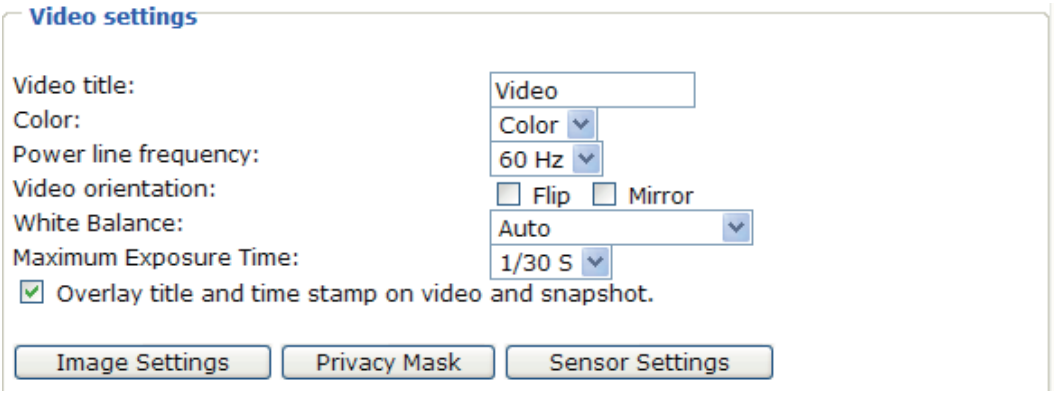
Delete allowed list / Delete denied list

1. In the Delete allowed list or Delete denied list, select a list from the drop-down list.
2. Click **Delete** to enable the settings.

Audio and Video

This section explains how to cofigure audio and video performances of the Network Camera. It is composed of the following two columns: Video Settings and Audio Settings.

Video Settings



Video title: Enter a name that will be displayed on the title bar of the live video.

Color: Select to display color or black/white video streams.

Power line frequency: Set the power line frequency in consistent with local utility settings to eliminate uncomfortable image flickering associated with fluorescent lights. Note that after the power line frequency is changed, it is required to disconnect and reconnect the power cord of the Network Camera in order for the new setting to take effect.

Video orientation: Flip--vertically reflect the display of the live video; Mirror--horizontally reflect the display of the live video. Select both options if the Network Camera is installed upside-down (ex. on the ceiling) to correct the image orientation.

White balance: Adjust the value for best color temperature.

■ Auto

The Network Camera automatically adjusts the color temperature of light in response to different light sources. The white balance setting defaults to Auto and works well in most situations.

■ Keep current value

Follow the steps below to manually set the white balance to compensate for the ambient lighting conditions.

1. Set the White balance to **Auto**.
2. Place a sheet of white paper in front of the lens; then allow the Network Camera to adjust the color temperature automatically.

Maximum Exposure Time: 1/30 S, 1/15 S, and 1/5 S.

Overlay title and time stamp on video: Select this option to place the video title and time on video streams.
Note that when the frame size is set to 176 x 144 as the right picture below, only time will be stamped on video streams.

Image Settings

Click **Image settings** to open the Image Settings page. On this page, you can tune Brightness, Saturation, Contrast, and Hue for video compensation.

■ Brightness: Adjust the image brightness level, which ranges from -5 to +5. The default value is set to 0.

■ Saturation: Adjust the image saturation level, which ranges from -5 to +5. The default value is set to 0.

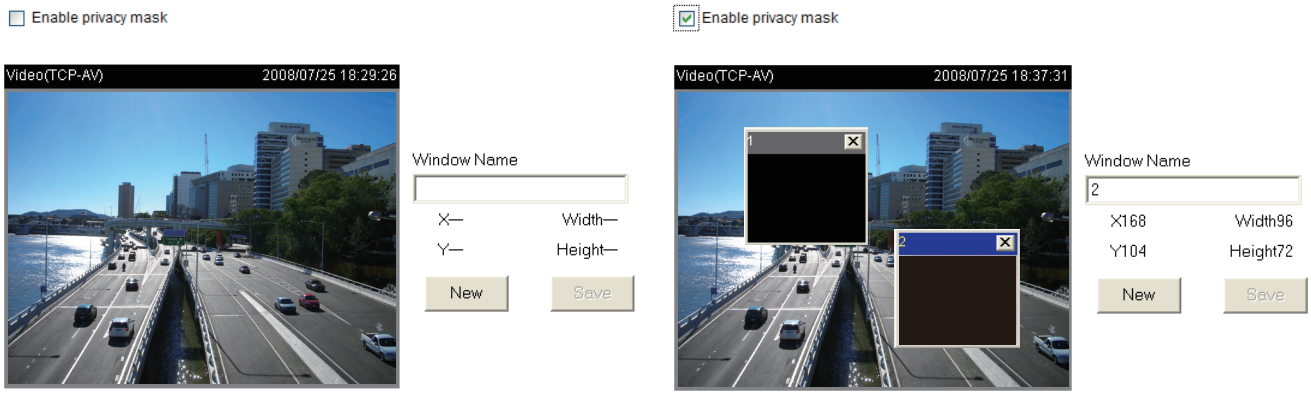
■ Contrast: Adjust the image contrast level, which ranges from -5 to +5. The default value is set to 0.

■ Sharpness: Adjust the image sharpness level, which ranges from -5 to +5. The default value is set to 0.

You can click **Preview** to fine-tune the image, or click **Restore** to recall the original settings without incorporating the changes. When completed with the settings on this page, click **Save** to enable the settings and click **Close** to exit the page.

Privacy mask

Click **Privacy Mask** to open the Privacy Mask page. On this page, you can block out some sensitive zones to address privacy concerns.



■ To set the privacy mask windows, follow the steps below:

1. Click **New** to add a new window.
2. Use the mouse to size and drag-drop the window, which is recommended to be at least twice the size of the object (height and width) you want to cover.
3. Enter a Window Name and click **Save** to enable the settings.
4. Select **Enable privacy mask** to enable this function.

NOTE

► *Up to 5 privacy mask windows can be set up on the same screen.*

► *If you want to delete the privacy mask window, please click the 'x' on the upper right-hand corner of the window.*

Sensor Settings

Click **Sensor Settings** to open the Sensor Settings page. On this page, you can set the exposure level, AGC (Auto Gain Control), auto iris, WDR (Wide Dynamic Range), night mode, and IR cut filter.

Exposure level: You can manually set up the Exposure level, which ranges from 1 to 8. The default value is 4.

AGC (Auto Gain Control): Automatic Gain Control, an electronic circuit which amplifies the video signal when the signal strength falls below a given value due to the lack of light. You can manually set up the AGC level (2X, 4X, or 8X). The default value is 4X.

Enable auto iris: Select it to enable the auto iris function.

Enable WDR (Wide Dynamic Range): Select it to enable the WDR function. This Network Camera with WDR feature can cope with very challenging lighting conditions. It is capable of capturing both of the dark part and bright part of a target and combining the differences into a scene to generate a highly realistic image as the human eyes can see. Note that if you select this function, Exposure level and AGC function will be disabled.

Switch to B/W in night mode: Select it to enable the Network Camera to automatically switch to B/W in night mode.

IR cut filter: With a removable IR-cut filter and built-in IR illuminators, up to 15m, this Network Camera can automatically remove the filter and turn on the IR illuminators during the nighttime to accept IR illumination for low light sensitivity.

■ Auto
The Network Camera automatically removes the filter by judging the level of ambient light.

■ Schedule mode
The Network Camera switches between day mode and night mode based on specified schedule. Enter the starting time and ending time for the day mode. Note that the time format is [hh:mm] and is expressed in 24-hour clock time. By default, the starting time and ending time of day mode are set to 07:00 and 18:00.

■ Day mode
In day mode, the Network Camera switches on the IR cut filter at all times to block the infrared light from reaching the sensor so that the colors will not be distorted.

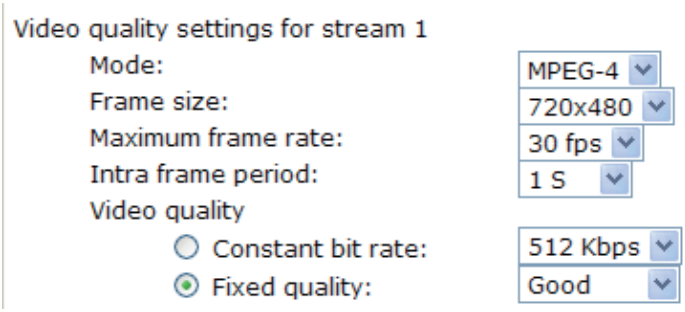
■ Night mode
In night mode, the Network Camera switches off (remove) the IR cut filter to allow the infrared light to pass through. This improves the sensitivity of the Network Camera in low-light conditions.

You can click **Preview** to fine-tune the image, or click **Restore** to recall the original settings without incorporating the changes. When completed with the settings on this page, click **Save** to enable the settings and click **Close** to exit the page.

Video quality settings for stream 1 / stream 2: You can set up two seperate streams for the Network Camera for different viewing devices. For example, set the Network Camera to a smaller frame size and a lower bit rate for remote viewing on mobile phones. Or, set the Network Camera to a larger video size and a higher bit rate for live viewing on web browsers.

■ Mode
This Network Camera offers two choices of video compression standards for real-time viewing: MPEG-4 and MJPEG.

If MPEG-4 is selected, it is streamed in RTSP protocol. There are four dependent parameters provided in MPEG-4 mode for video performance adjustment.



- Frame size
  Select the video size. Note that a larger frame size takes up more bandwidth. The frame sizes are selectable in the following resolutions: 176 x 144, 352 x 240, and 720 x 480.

- Maximum frame rate
  This limits the maximum refresh frame rate per second. Set the frame rate higher for a smoother video quality.

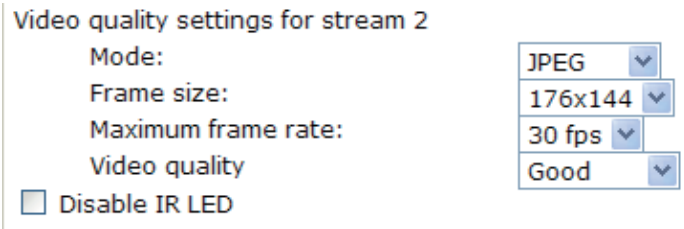
  If the power line frequency is set to 50Hz, the frame rates are selectable at 1fps, 2fps, 3fps, 5fps, 8fps, 10fps, 15fps, 20fps, and 25fps. If the power line frequency is set to 60Hz, the frame rates are selectable at 1fps, 2fps, 3fps, 5fps, 8fps, 10fps, 15fps, 20fps, 25fps, and 30fps.

- Intra frame period
  Determine how often to plant an I frame. The shorter the duration, the more likely you will get better video quality, but at the cost of higher network bandwidth consumption. Select the intra frame period from the following durations: 1/4 second, 1/2 second, 1 second, 2 seconds, 3 seconds, and 4 seconds.

- Video quality
  A complex scene generally produces a larger file size, meaning that higher bandwidth will be needed for data transmission. Therefore, if **Constant bit rate** is selected, the bandwidth utilization is fixed at a selected level, resulting in mutable video quality performance. The bit rates are selectable at the following rates: 20Kbps, 30Kbps, 40Kbps, 50Kbps, 64Kbps, 128Kbps, 256Kbps, 512Kbps, 768Kbps, 1Mbps, 2Mbps, 3Mbps, and 4Mbps.

  On the other hand, if **Fixed quality** is selected, all frames are transmitted with the same quality; bandwidth utilization is therefore unpredictable. The video quality can be adjusted to the following settings: Medium, Standard, Good, Detailed, and Excellent.

If JPEG mode is selected, the Network Camera continuously sends JPEG images to the client, producing a moving effect similar to a filmstrip. Every single JPEG image transmitted guarantees the same image quality, which in turn comes at the expense of variable bandwidth usage. Because the media contents are a combination of JPEG images, no audio data is transmitted to the client. There are three parameters provided in MJPEG mode to control the video performance:



- Frame size
  Select the video size. Note that a larger frame size takes up more bandwidth. The frame sizes are selectable in the following resolutions: 176 x 144, 352 x 240, and 720 x 480.

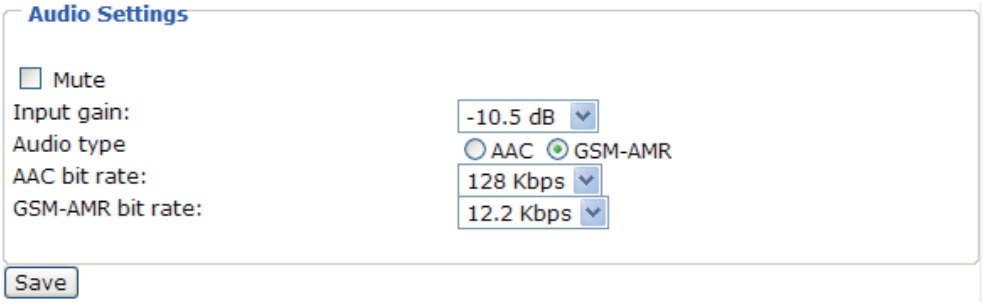
- Maximum frame rate
  This limits the maximum refresh frame rate per second. Set the frame rate higher for smoother video quality.

If the power line frequency is set to 50Hz, the frame rates are selectable at 1fps, 2fps, 3fps, 5fps, 8fps, 10fps, 15fps, 20fps, and 25fps. If the power line frequency is set to 60Hz, the frame rates are selectable at 1fps, 2fps, 3fps, 5fps, 8fps, 10fps, 15fps, 20fps, 25fps, and 30fps.

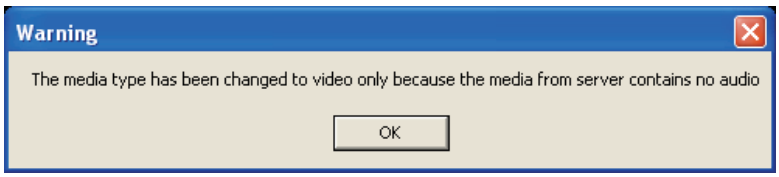
- Video quality
  The video qualities are selectable at the following settings: Medium, Standard, Good, Detailed, and Excellent.

Disable IR LED: If you don't want use the IR illuminators, you can select this option to turn it off.

Audio Settings



Mute: Select this option to disable audio transmission from the Network Camera to all clients. Note that if mute mode is turned on, no audio data will be transmitted even if audio transmission is enabled on the Client Settings page. In that case, the following message is displayed:



Input gain: Select the gain of the internal audio input according to ambient conditions. Adjust the gain from +12 db (most sensitive) ~ -33.5 db (least sensitive).

Audio type: Select audio codec AAC or GSM-AMR and the bit rate.

- AAC provides good sound quality at the cost of higher bandwidth consumption. The bit rates are selectable from: 16Kbps, 32Kbps, 48Kbps, 64Kbps, 96Kbps, and 128Kbps.

- GSM-ARM is designed to optimize speech quality and requires less bandwidth. The bit rates are selectable from: 4.75Kbps, 5.15Kbps, 5.90Kbps, 6.7Kbps, 7.4Kbps, 7.95Kbps, 10.2Kbps, and 12.2Kbps.

When completed with the settings on this page, click **Save** to enable the settings.

Motion Detection

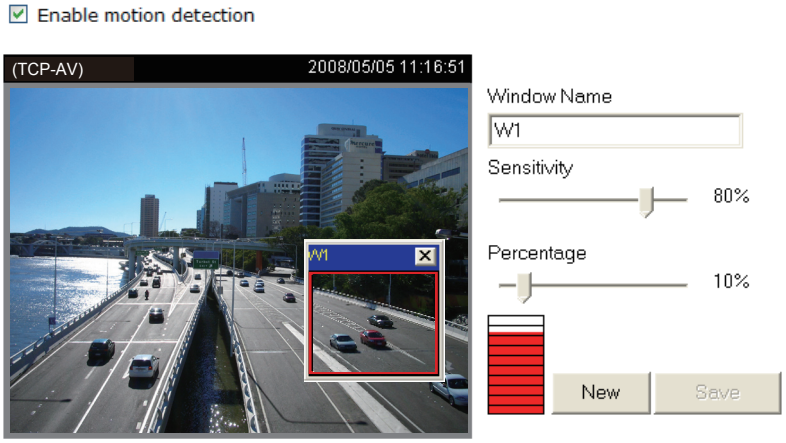
This section explains how to configure the Network Camera to enable motion detection. A total of three motion detection windows can be configured.

To enable motion detection, follow the steps below:

Follow the steps below to enable motion detection:

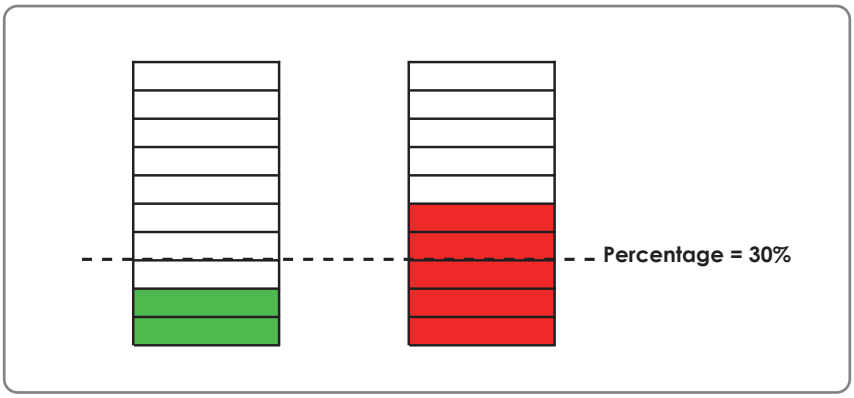
1. Click **New** to add a new motion detection window.
2. In the Window Name text box, enter a name for the motion detection window.
   - To move and resize the window, drag and drop your mouse on the window.
   - To delete window, click X on the top right corner of the window.
3. Define the sensitivity to moving objects and the space ratio of all alerted pixels by moving the Sensitivity and Percentage slider bar.
4. Click **Save** to enable the settings.
5. Select **Enable motion detection** to enable this function.

For example:



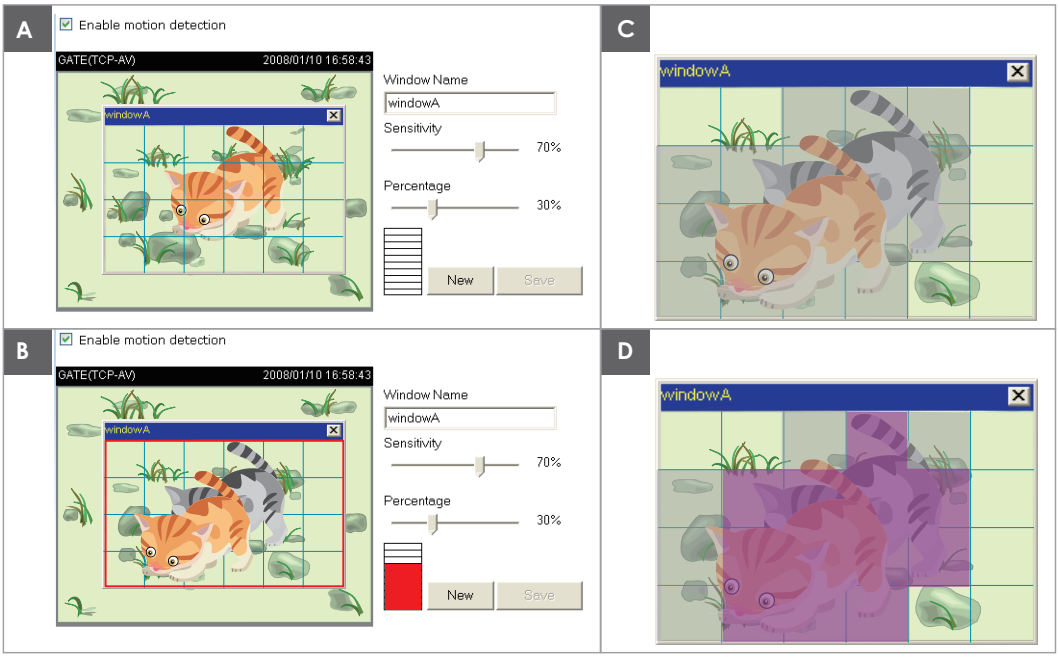
The Percentage Indicator will rise or fall depending on the variation between sequential images. When motions are detected by the Network Camera and are judged to exceed the defined threshold, the red bar rises. Meanwhile, the motion detection window will be outlined in red. Photos or videos can be captured instantly and configured to be sent to a remote server (Email, FTP) by utilizing this feature as a trigger source. For more information on how to plot an event, please refer to Application on page 46.

A green bar indicates that even though motions have been detected, the event has not been triggered because the image variations still fall under the defined threshold.



NOTE

► *How does motion detection work?*



There are two motion detection parameters: Sensitivity and Percentage. In the illustration above, frame A and frame B are two sequential images. Pixel differences between the two frames are detected and highlighted in gray (frame C) and will be compared with the sensitivity setting. Sensitivity is a value that expresses the sensitivity to moving objects. Higher sensitivity settings are expected to detect slight movements while smaller sensitivity settings will neglect them. When the sensitivity is set to 70%, the Network Camera defines the pixels in the purple areas as "alerted pixels" (frame D).

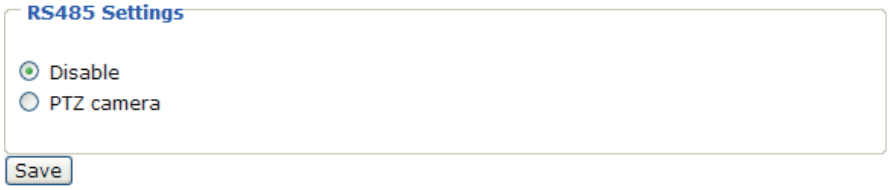
Percentage is a value that expresses the proportion of "alerted pixels" to all pixels in the motion detection window. In this case, 50% of pixels are identified as "alerted pixels". When the percentage is set to 30%, the motions are judged to exceed the defined threshold; therefore, the motion window will be outlined in red.

For applications that require a high level of security management, it is suggested to use higher sensitivity settings and smaller percentage values.

Camera Control

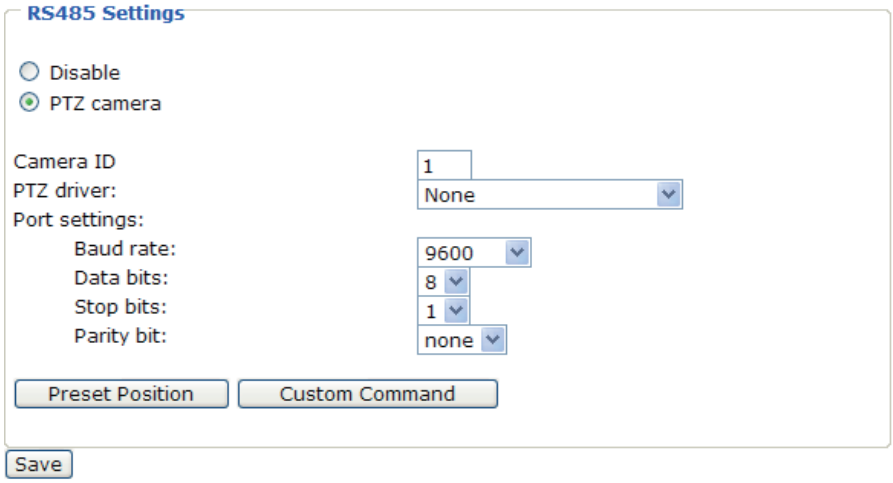
This section explains how to control the Network Camera's Pan/Tilt/Zoom operation by connecting with a PTZ driver or scanner via RS485 interface.

RS485 Settings



Disable: Select this option to disable this function.

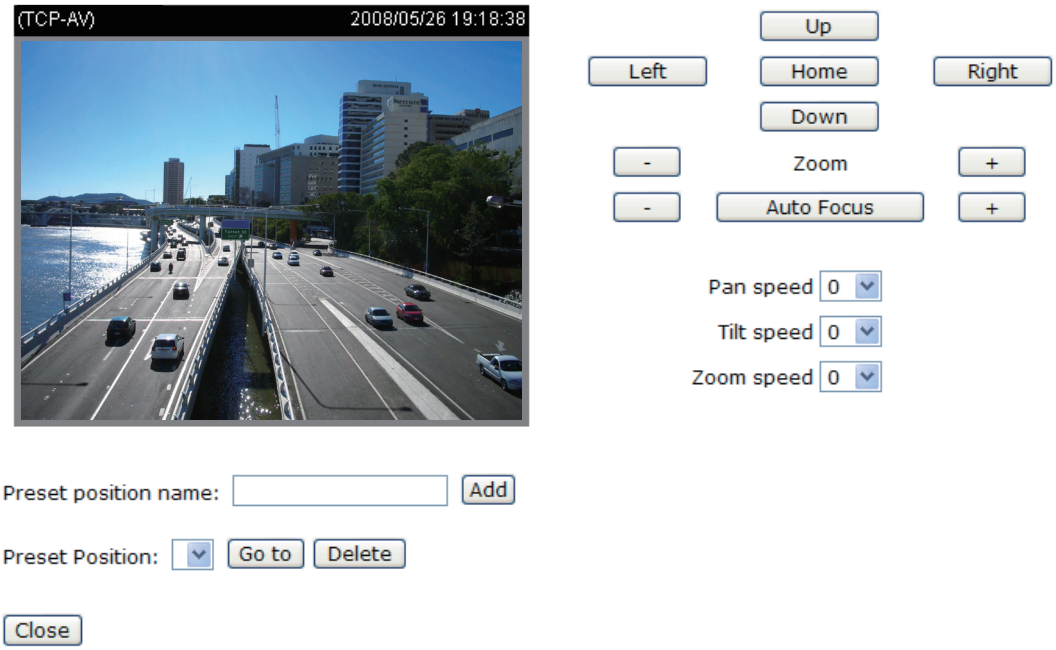
PTZ camera: Select this option to enable PTZ operation.
To utilize this feature, please connect the Network Camera to a PTZ driver or scanner via RS485 interface first. Then you can configure the PTZ driver and RS485 port with the following settings.



GANZ offers three PTZ drivers: DynaDome/SmartDOME, Lilin PIH-7x00, and Pelco D protocol. If none of the above PTZ drivers is supported by your PTZ scanner, please select **Custom camera** (scanner). Please refer to the user's manual of your PTZ scanner to determine the Camera ID, PTZ driver, and Port settings. The Camera ID is necessary to control multiple cameras. If you click **Save** to enable this function, the camera control panel will be displayed on the home page:

Preset Position

Click **Preset Position** to open the Preset Position page. You can also select preset positions for the camera to patrol. A total of 20 preset positions can be configured.

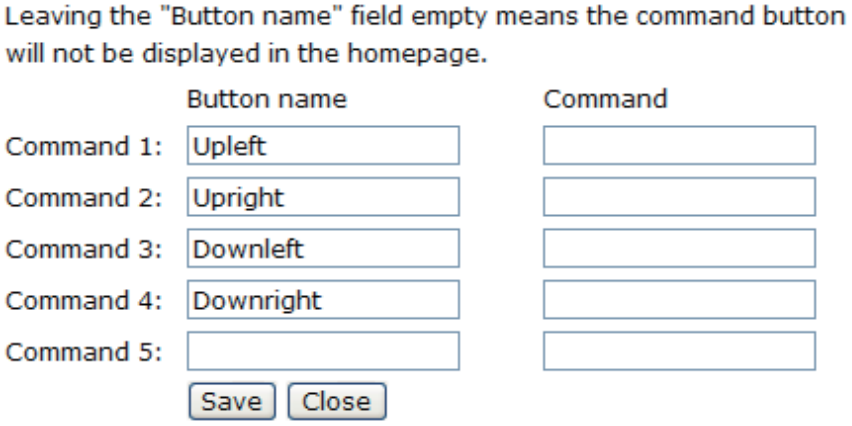


Please follow the steps below to set preset positions:

1. Adjust the Network Camera to a desired position with the buttons on the right side of the window.
2. Enter a name for the preset position. The preset position name allows up to forty characters. Click **Add** to enable the settings. The preset position name will appear in the Preset Positions drop-down list. To remove a preset position from the list, select a preset position name from the drop-down list and click **Delete**.
3. You can click “Go to” to aim at preset positions, which will also displayed on the home page.
4. Click **Save** to enable the settings.

Custom Command

If **Custom Camera (scanner)** is selected as the PTZ driver, the **Preset Position** and **PTZ Control Panel** on the main page will be disabled. You will need to configure command buttons to control the PTZ scanner. Click **Custom Command** to open the Custom Command page to set the commands in the Control Settings session. Please refer to your PTZ scanner user's manual to enter the commands in the following fields. Click **Save** to enable the settings and click **Close** to exit the page.



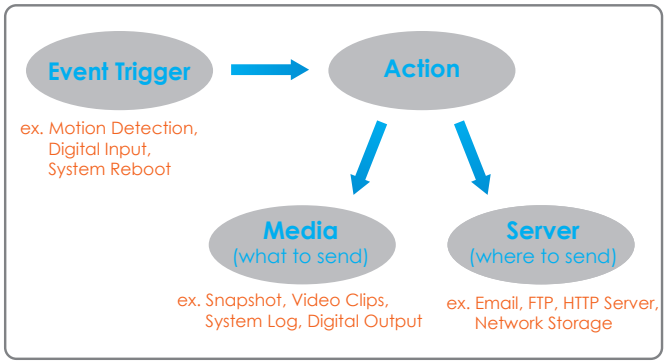
Click **Save** to enable the settings and click **Close** to exit the page.

►The command buttons will be displayed on the main page:

Application

This section explains how to configure the Network Camera to responds to particular situations (event). A typical application is that when a motion is detected, the Network Camera sends buffered images to an FTP server or e-mail address as notifications.

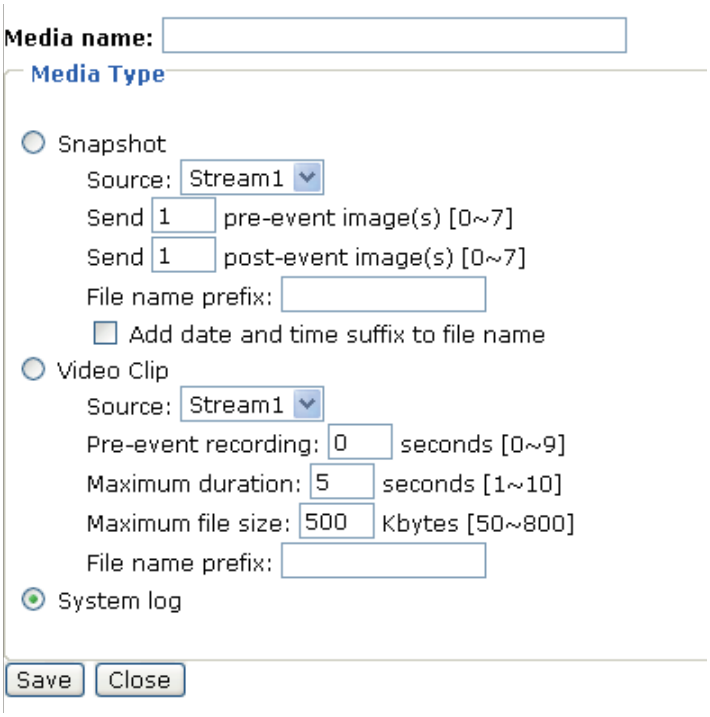
In the illustration on the right, an event can be triggered by many sources, such as motion detection or external digital input devices. When an event is triggered, you can specify what type of action that will be performed. You can configure the Network Camera to send snapshots or videos to your email address or FTP site.



To start plotting an event, it is suggested to configure server and media columns first so that the Network Camera will know what action shall be performed when a trigger is activated.

Media Settings

In Media Settings column, click **Add** to open the media setting page. On this page, you can specify the type of media that will be sent when a trigger is activated. A total of 5 media settings can be configured.



Media name: Enter a name for the media setting.

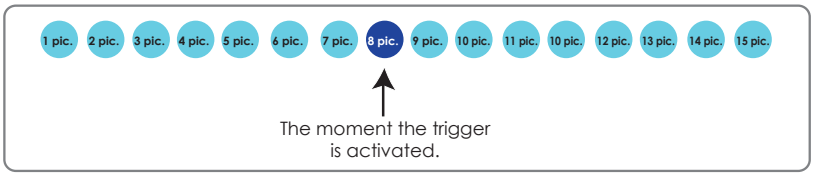
Media Type: There are three choices of media types available: Snapshot, Video Clip, and System log.

Snapshot: Select to send snapshots when a trigger is activated.

■ Source: Select to take snapshots from stream 1 or stream 2.

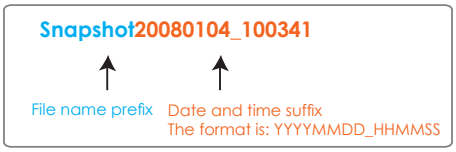
■ Send ☐ pre-event images
The Network Camera has a buffer area; it temporarily holds data up to a certain limit. Enter a number to decide how many images to capture before a trigger is activated. Up to 7 images can be generated.

■ Send ☐ post-event images
Enter a number to decide how many images to capture after a trigger is activated. Up to 7 images can be generated.

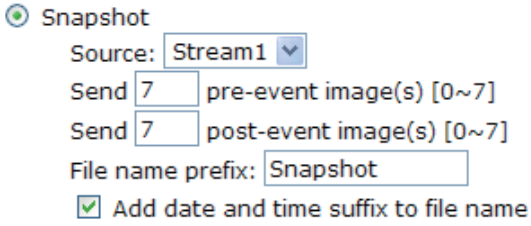


■ File name prefix
Enter the text that will be appended to the front of the file name.

■ Add date and time suffix to the file name
Select this option to add a date/time suffix to the file name.



For example, if both the Send pre-event images and Send post-event images are set to 7, a total of 15 images are generated after a trigger is activated.

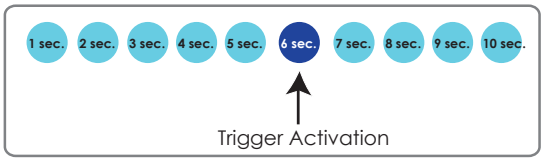


Video Clip: Select to send video clips when a trigger is activated.

■ Source: Select to record video clips from stream 1 or stream 2.

■ Pre-event recording
The Network Camera has a buffer area; it temporarily holds data up to a certain limit. Enter a number to decide the duration of recording before a trigger is activated. Up to 9 seconds can be set.

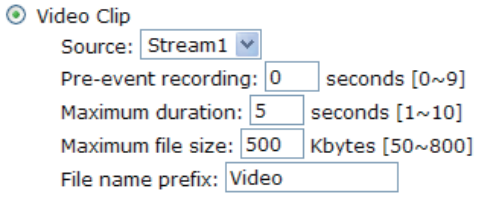
■ Maximum duration
Specify the maximum recording duration in seconds. Up to 10 seconds can be set.
For example, if pre-event recording is set to five seconds and the maximum duration is set to ten seconds, the Network Camera continues to record for another 4 seconds after a trigger is activated.



■ Maximum file size
Specify the maximum file size allowed.

■ File name prefix
Enter the text that will be appended to the front of the file name.

For example:

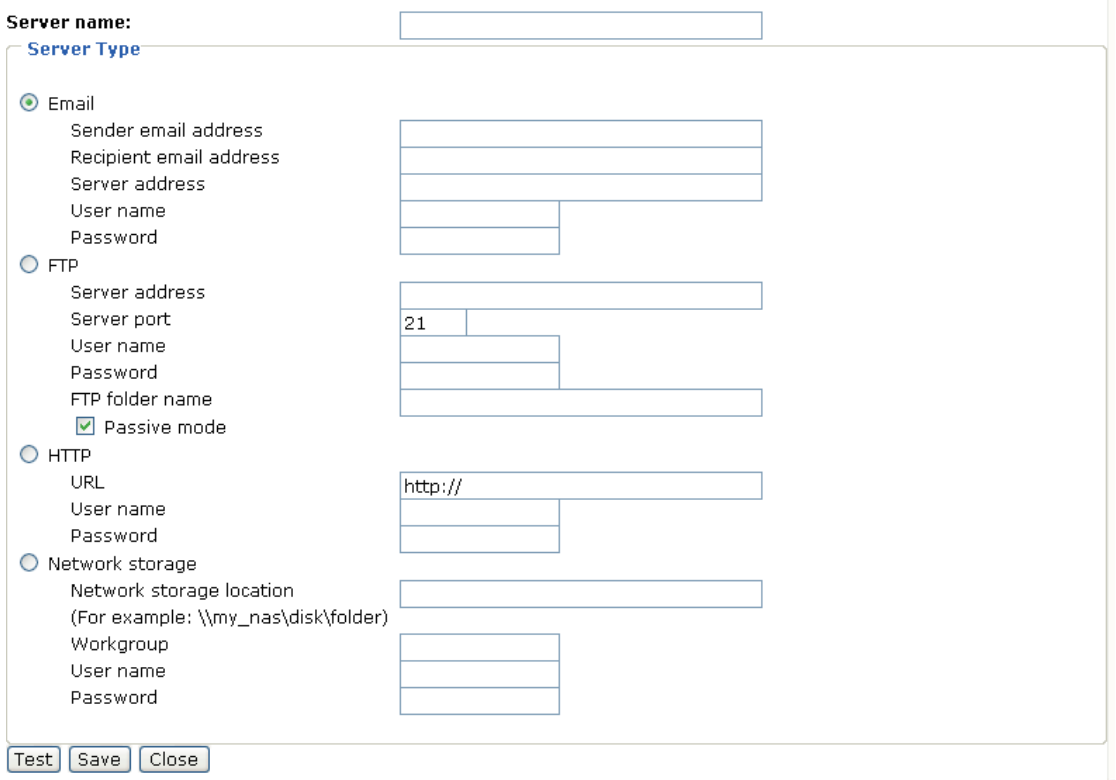


System log: Select to send a system log when a trigger is activated.

When completed, click **Save** to enable the settings then click **Close** to exit this page. The new media name will appear in the media drop-down list on the Application page as below. To remove a media setting from the list, select a media name from the drop-down list then click **Delete**. Note that only when the media setting is not being applied to an event setting can it be deleted.

Server Settings

In the Server column, click **Add** to open the server setting page. On this page, you can specify where the notification messages are sent when a trigger is activated. A total of 5 server settings can be configured.



Server name: Enter a name for the server setting.

Server Type: There are four choices of server types available: Email, FTP, HTTP, and Network storage.

Email: Select to send the media via email when a trigger is activated.

■ Sender email address: Enter the email address of the sender.

■ Recipient email address: Enter the email address of the recipient.

■ Server address: Enter the domain name or IP address of the email server.

■ User name: Enter the user name of the email account if necessary.

■ Password: Enter the password of the email account if necessary.

To verify if the email settings are correctly configured, click **Test**. The result will be shown in a pop-up window. If successful, you will also receive an email indicating the result.

FTP: Select to send the media files to an FTP server when a trigger is activated.

■ Server address: Enter the domain name or IP address of the FTP server.

■ Server port
By default, the FTP server port is set to 21. It can also be assigned to another port number between 1025 and 65535.

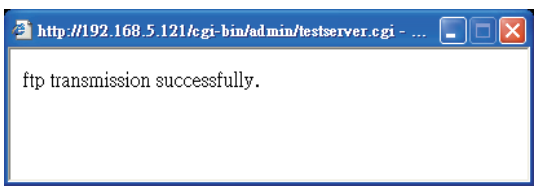
■ User name: Enter the login name of the FTP account.

■ Password: Enter the password of the FTP account.

■ Remote folder name
Enter the folder where the media file will be placed. If the folder name does not exist, the Network Camera will create one on the FTP server.

■ Passive mode
Most firewalls do not accept new connections initiated from external requests. If the FTP server supports passive mode, select this option to enable passive mode FTP and allow data transmission to pass through the firewall.

To verify if the FTP settings are correctly configured, click **Test**. The result will be shown in a pop-up window as shown below. If successful, you will also receive a test.txt file on the FTP server.



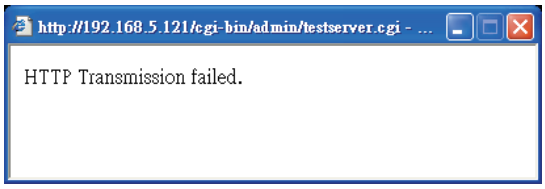
HTTP: Select to send the media files to an HTTP server when a trigger is activated.

■ URL: Enter the URL of the HTTP server.

■ User name: Enter the user name if necessary.

■ Password: Enter the password if necessary.

To verify if the HTTP settings are correctly configured, click **Test**. The result will be shown in a pop-up window as below. If successful, you will receive a test.txt file on the HTTP server.



Network storage: Select to send the media files to a network storage location when a trigger is activated.

■ Network storage location: Enter the path of the network storage.

■ Workgroup: Enter the workgroup for network storage.

■ User name: Enter the user name.

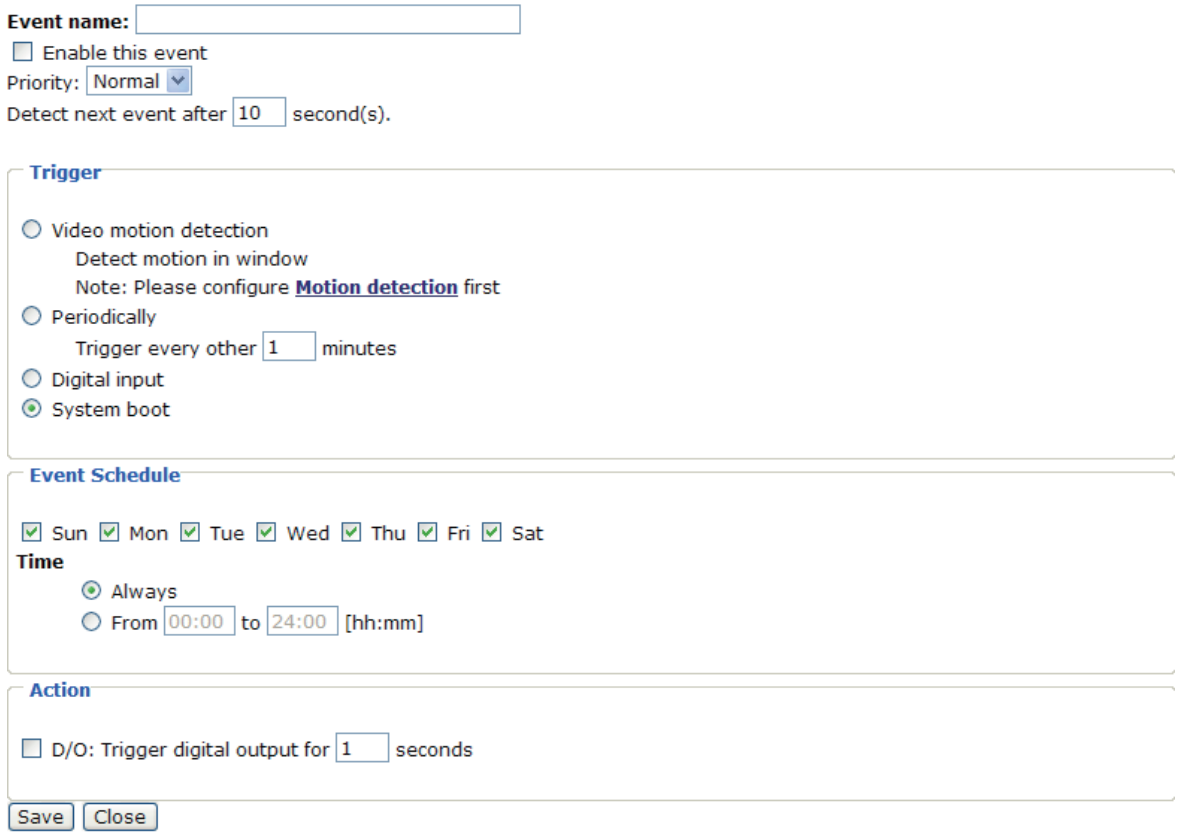
■ Password: Enter the password.

To verify if the network storage settings are correctly configured, click **Test**. The result will be shown in a pop-up window. If successful, you will receive a test.txt file on the network storage server.

When completed, click **Save** to enable the settings then click **Close** to exit this page. The new server name will be displayed on the list on the application page. To remove a server setting from the list, select a server name from the list and click **Delete**. Note that only when the server setting is not being applied to an event setting can it be deleted.

Event Settings

In the Event column, click **Add** to open the event setting page. On this page, you can arrange the three elements -- Trigger, Schedule, and Action to set an event. A total of 3 event settings can be configured.



Event name: Enter a name for the event setting.

Enable this event: Select this option to enable the event setting.

Priority: Select the relative importance of this event (High, Normal, or Low). Events with a higher priority setting will be executed first.

Detect next event after ☐ seconds: Enter the duration in seconds to pause motion detection after a motion is detected.

An event is an action initiated by a user-defined trigger source; it is the causal arrangement of the following three elements: Trigger, Event Schedule, and Action.

Trigger: This is the cause or stimulus which defines when to trigger the Network Camera. The trigger source can be configured to use the Network Camera's built-in motion detection mechanism or external digital input devices. There are several choices of trigger sources as shown below:

■ Video motion detection
This option makes use of the built-in motion detection mechanism as a trigger source. To enable this function, you need to configure a Motion Detection Window first. For more information, please refer to Motion detection on page 41 for details.

■ Periodically
This option allows the Network Camera to trigger periodically for every other defined minute. Up to 999 minutes are allowed.

■ Digital input
This option allows the Network Camera to use an external digital input device or sensor as a trigger source. Depending on your application, there are many choices of digital input devices on the market which helps to detect changes in temperature, vibration, sound, and light, etc.

■ System boot
This option triggers the Network Camera when the power to the Network Camera is disconnected.

Event Schedule: The effective period in which the event stays active. Specify the effective period for the event.

■ Select the days on weekly basis.

■ Select the time for recording in 24-hr time format.

Action: Define the actions to be performed by the Network Camera when a trigger is activated.

■ Trigger D/O for ☐ seconds
Select this option to turn on the external digital output device when a trigger is activated. Specify the length of the trigger interval in the text box.

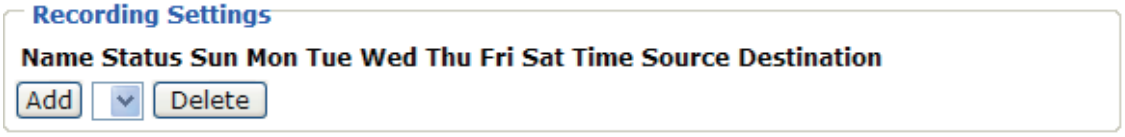
■ Server name / Media name
Select the server and media name to allow the Network Camera to send the media files to the server when a trigger is activated.

When completed, select Enable this event. Click **Save** to enable the settings and then click **Close** to exit this page. The new event name will appear in the event drop-down list on the Application page. To remove an event setting from the list, select an event name then click **Delete**.

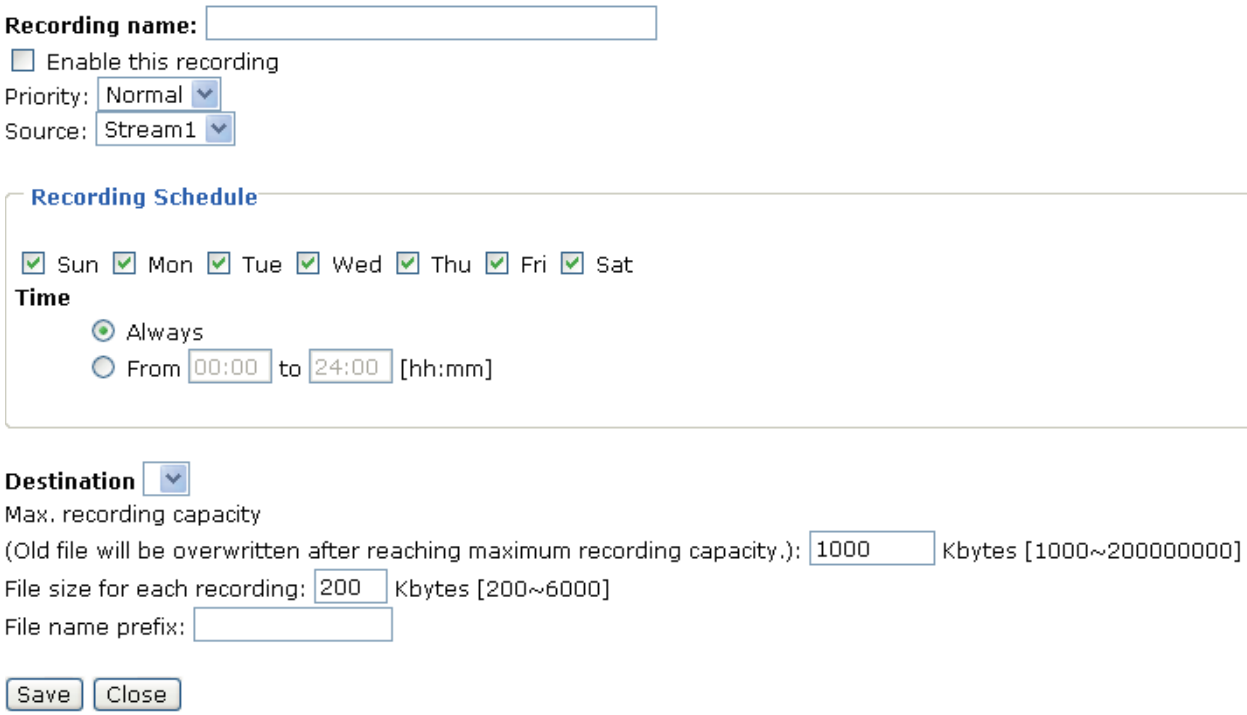
Recording

This section explains how to configure the recording settings for the Network Camera.

Recording Settings



Click **Add** to open the recording setting page. On this page, you can define the recording source, recording schedule and recording capacity. A total of 2 recording settings can be configured.



Recording name: Enter a name for the recording setting.

Enable this recording: Select this option to enable video recording.

Priority: Select the relative importance of this recording setting (High, Normal, and Low).

Source: Select the recording source (stream 1 or stream 2).

Recording Schedule: Specify the recording duration.

■ Select the days of the week.

■ Select the recording start and end times in 24-hr time format.

Destination: Specify a storage destination for the recorded video files. Note that the destination field is empty by default. Please go to Configuration > Application > Server Settings to set a Network storage server; please refer to Server Settings on page 48.

Max. recording capacity: Please note that when the maximum capacity is reached, the oldest file will be overwritten by the latest one.

File size for each recording: Specify the file size for each recording media.

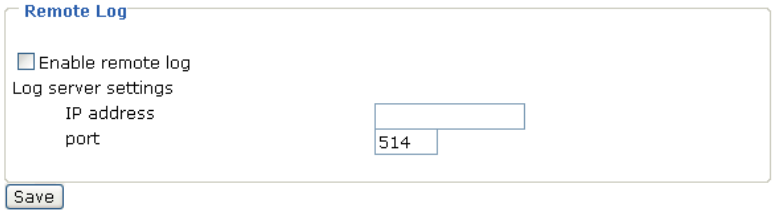
File name prefix: Enter the text that will be put in front of the file name.

When completed, select **Enable this recording**. Click **Save** to enable the settings and then click **Close** to exit this page. The new recording name will appear in the recording drop-down list on the recording page. To remove a recording setting from the list, select a recording name from the drop-down list then click **Delete**.

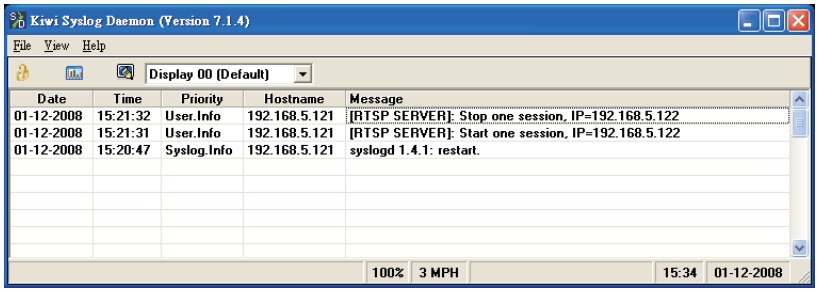
System Log

This section explains how to configure the Network Camera to send the system log to the remote server as backup. It is composed of the following two columns: Remote Log and Current Log.

Remote Log



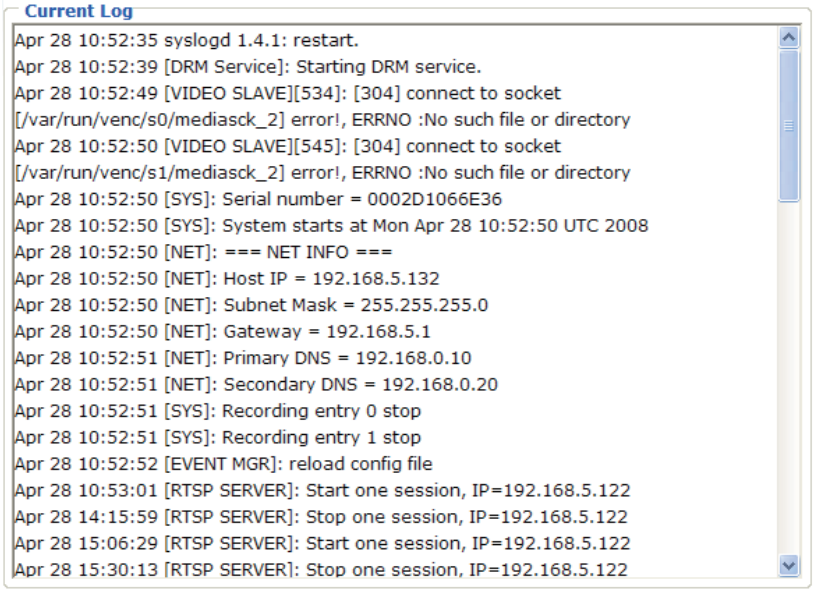
You can configure the Network Camera to send the system log file to a remote server as a log backup. Before utilizing this feature, it is suggested that the user install a log-recording tool to receive system log messages from the Network Camera. An example is Kiwi Syslog Daemon. Visit http://www.kiwisyslog.com/kiwi-syslog-daemon-overview/.



Follow the steps below to set up the remote log:

1. In the IP address text box, enter the IP address of the remote server.
2. In the port text box, enter the port number of the remote server.
3. When completed, select **Enable remote log** and click **Save** to enable the settings.

Current Log

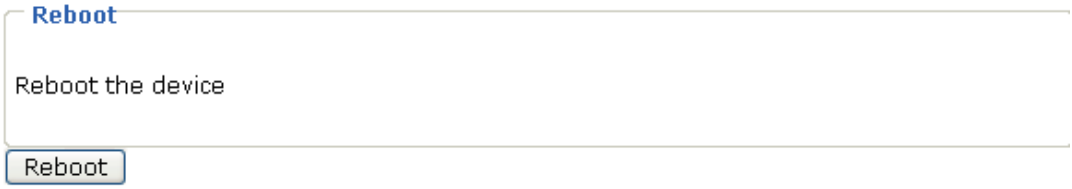


This column displays the system log in chronological order. The system log is stored in the Network Camera's buffer area and will be overwritten when reaching a certain limit.

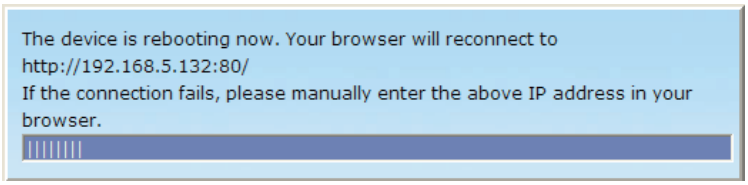
Maintenance

This chapter explains how to restore the Network Camera to factory default, upgrade firmware version, etc.

Reboot

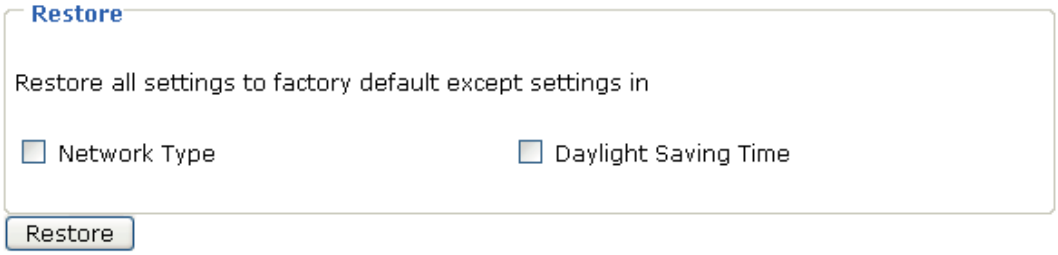


This feature allows you to reboot the Network Camera, which takes about one minute to complete. When completed, the live video page will be displayed in your browser. The following message will be displayed during the reboot process.



If the connection fails after rebooting, manually enter the IP address of the Network Camera in the address field to resume the connection.

Restore



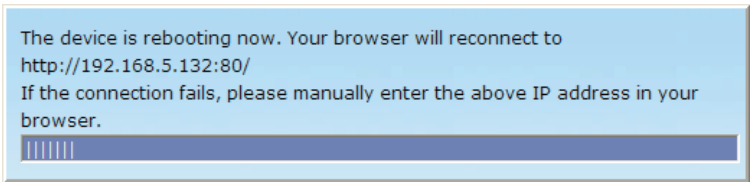
This feature allows you to restore the Network Camera to factory default settings.

Network Type: Select this option to retain the Network Type settings (please refer to Network Type on page 26).

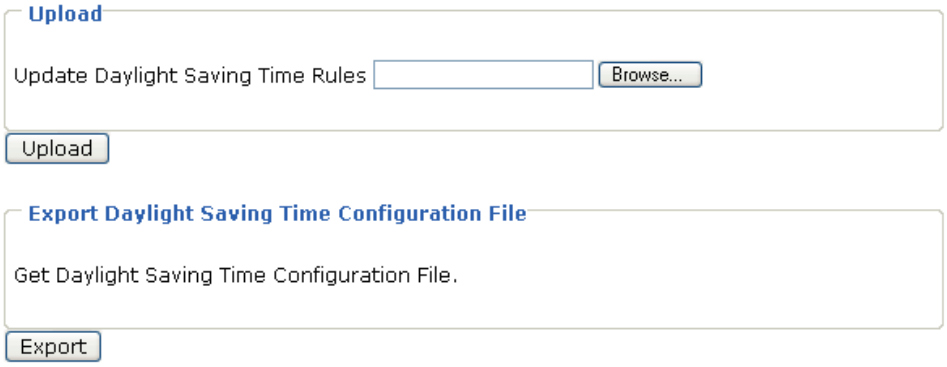
Daylight Saving Time: Select this option to retain the Daylight Saving Time settings (please refer to System on page 20)

If none of the options is selected, all settings will be restored to factory default.

The following message is displayed during the restoring process.

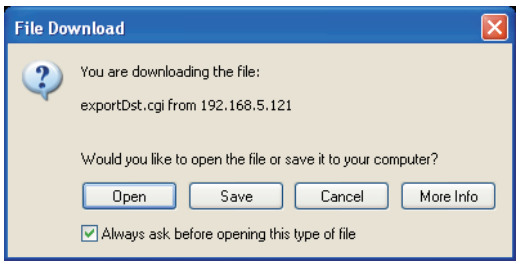


Upload / Export Daylight Saving Time Configuration File

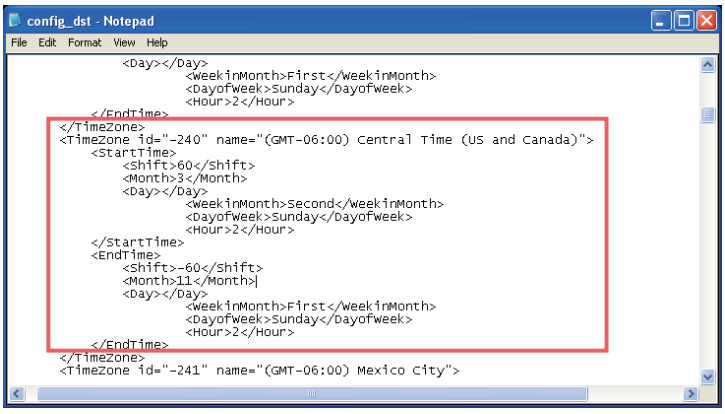


This feature allows you to set the starting time and ending time of DST.
Follow the steps below to set up:

1. In the Export Daylight Saving Time Configuration File Column, click **Export** to export an Extensible Markup Language (*.xml) file from the Network Camera.
2. Open the XML file using Microsoft® Notepad and locate your time zone; set the start time and end time of DST. When completed, save the file.

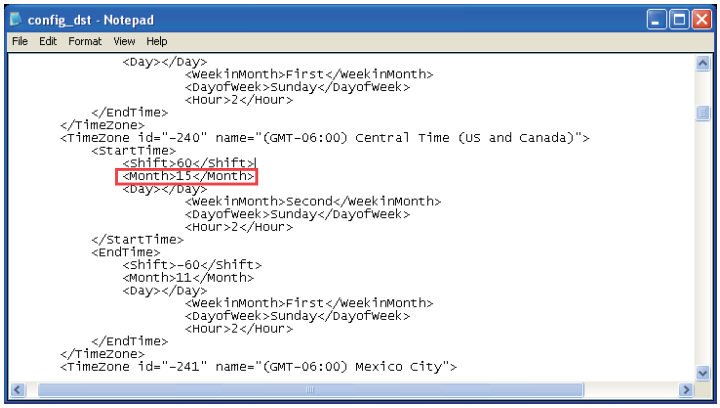


In the example below, DST begins each year at 2:00 a.m. on the second Sunday in March and ends at 2:00 a.m. on the first Sunday in November.

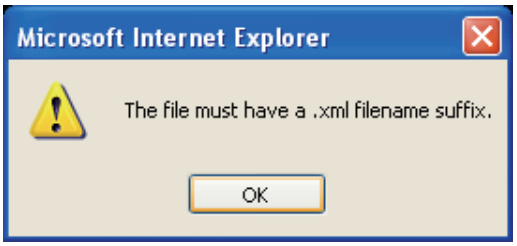


3. In the Upload Column, click **Browse…** and specify the XML file.

If the incorrect date and time are assigned, you will see the following warning message when uploading the file to the Network Camera.



4. Click **Upload**. To enable DST, see System Time on page 22.
The following message is displayed when attempting to upload an incorrect file format.

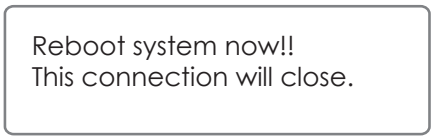


Upgrade Firmware

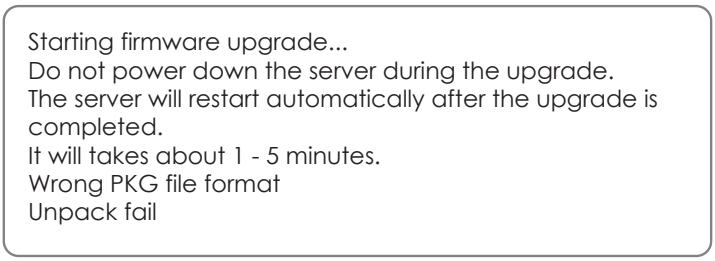
This feature allows you to upgrade the firmware of your Network Camera. It takes a few minutes to complete the process.
Note: Do not power off the Network Camera during the upgrade!

Follow the steps below to upgrade firmware:
1. Click **Browse…** and specify the firmware file.
2. Click **Upgrade**. The Network Camera starts to upgrade and will reboot automatically when the upgrade completes.

If the upgrade is successful, you will see “Reboot system now!! This connection will close”. After that, reaccess the Network Camera.
The following message is displayed when the upgrade has succeeded.



The following message is displayed when you have selected an incorrect firmware file.



Technical Specifications

System	· CPU: CBC-1000 SoC · Flash: 8MB · RAM: 64MB · Embedded OS: Linux 2.4
Lens	· Board lens, vari-focal, f = 3.3 ~ 12 mm, F1.4 (wide), F2.9 (tele), focus range: 50 cm to infinity · Removable IR-cut filter for day & night function
Angle of View	· 23.9° ~ 89.8° (horizontal) · 17.9° ~ 63.6° (vertical)
Shutter Time	· 1/5 sec. to 1/15000 sec.
Image Sensor	· 1/3.3" Wide Dynamic Range CMOS sensor in 720x480 resolution
Minimum Illumination	· 0.68 Lux / F1.4 · 0 Lux / F1.4 (IR LED on)
IR Illuminators	· Built-in IR illuminators, effective up to 15 meters
Video	· Compression: MJPEG & MPEG-4 · Streaming: Simultaneous dual streams MPEG-4 streaming over UDP, TCP or HTTP MPEG-4 multicast streaming MJPEG streaming over HTTP · Frame rates: MPEG-4: Up to 25 fps at 720x480 MJPEG: Up to 25 fps at 720x480
Image Settings	· Adjustable image size, quality and bit rate · Time stamp and text caption overlay · Flip & mirror · Configurable brightness, contrast, saturation, and hue · AGC, AWB, AEC (Automatic Exposure Control), WDR · Automatic or manual day/night mode · Supports privacy masks
Audio	· Compression: GSM-AMR speech encoding, bit rate: 4.75 kbps to 12.2 kbps MPEG-4 AAC audio encoding, bit rate: 16 kbps to 128 kbps · Interface: External microphone input Audio output · Supports two-way audio via SIP protocol · Supports audio mute
Networking	· 10/100 Mbps Ethernet, RJ-45 · Protocols: IPv4, TCP/IP, HTTP, UPnP, RTSP/RTP/RTCP, IGMP,SMTP, FTP, DHCP, NTP, DNS, DDNS and PPPoE
Alarm and Event Management	· Triple-window video motion detection · One D/I and one D/O for external sensor and alarm · Event notification using HTTP, SMTP or FTP · Local recording of MP4 file
Security	· Muilti-level user access with password protection · IP address filtering
Users	· Live viewing for up to 10 clients
Dimension	· Ø 70 mm x 182 mm
Weight	· Net: 969 g
LED Indicator	· System restore status indicator
Power	· 12V DC · 24V AC · Power consumption: Max. 6 W · 802.3af compliant Power-over-Ethernet
Housing	· Weather-proof IP66-rated housing
Approvals	· CE, LVD, FCC, VCCI, C-Tick
Operating Environments	· Temperature: -20 ~ 60 °C (-4 ~ 140 °F) · Humidity: 20% ~ 80% RH
Viewing System Requirements	· OS: Microsoft Windows 2000/XP/Vista · Browser: Internet Explorer 6.x or above · Cell phone: 3GPP player · Real Player: 10.5 or above · Quick Time: 6.5 or above
Installation, Management, and Maintenance	· RS-485 interface for scanners, pan/tilts · Installation Wizard 2 · 16-CH recording software · Supports firmware upgrade
Applications	· SDK available for application development and system integration

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Electromagnetic Compatibility (EMC)

FCC Statement

This device compiles with FCC Rules Part 15. Operation is subject to the following two conditions.

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for 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. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the installation 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 user will be required to correct the interference at his own expense.

CE Mark Warning CE

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

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