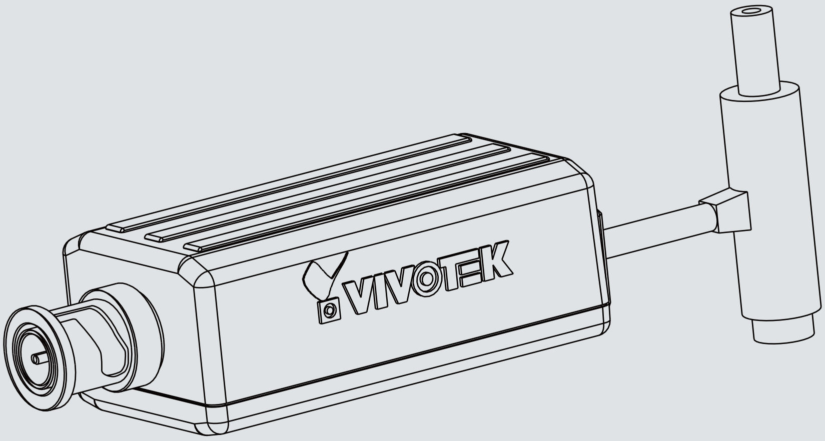
VIVOTEK

VS8100 Video Server

User's Manual

H.264 • Compact Size • Easy Installation



Rev. 1.0

Table of Contents

Revision History

1. Rev. 1.0: Initial release.

Package Contents

■ VS8100
■ Quick Installation Guide

Overview

VIVOTEK VS8100 is a small-sized H.264 1-CH video server that helps you migrate from analog to digital surveillance system with ease. Its power sharing with CCTV and tiny design make it ideal for front-end installation and surveillance applications such as home, offices, retail stores, banks, and city surveillance, where their power supply and IP network connections are already settled. VS8100 supports a variety types of analog cameras, including PTZ cameras with its Pan/Tilt/Zoom control through the built-in RS-485 port.

With the high-performance H.264 compression format, it drastically reduces the file sizes and conserves valuable bandwidth and storage space. Supporting simultaneous multiple streams, the video streams can be transmitted in either H.264 or MJPEG formats for versatile applications. The streams can also be individually configured with separate frame rates, resolution, and image quality so as to meet different platforms or bandwidth constraints.

Together with the ST7501 multi-lingual 32-channel recording software, users can set up an easy-to-use IP surveillance system with ease. VIVOTEK also provides the smart phone application iViewer, both for iPhone and Android phones, enable users to monitor live video off-site.

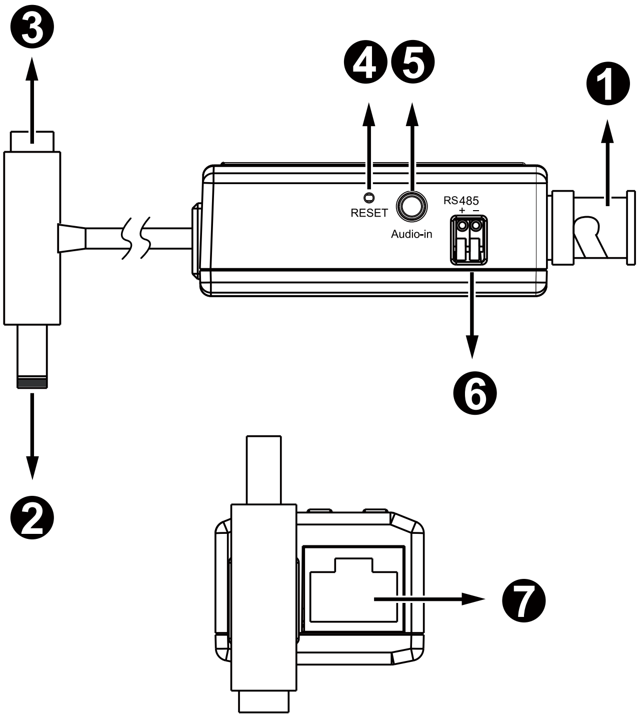
Read Before Use

The use of surveillance devices may be prohibited by law in your country. The video server is not only a high-performance web-ready camera but can also 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 note of the warnings in the Quick Installation Guide before the video server is installed; then carefully read and follow the instructions in the Installation chapter to avoid damage due to faulty assembly and installation. This also ensures the product is used properly as intended.

The video server is a network device and its use should be straightforward for those who have basic networking knowledge. It is designed for various applications including video sharing, general security/surveillance, etc. The Configuration chapter suggests ways to best utilize the video server and ensure proper operations. For creative and professional developers, the URL Commands of the video server section serves as a helpful reference to customizing existing homepages or integrating with the current web server.

Physical Description



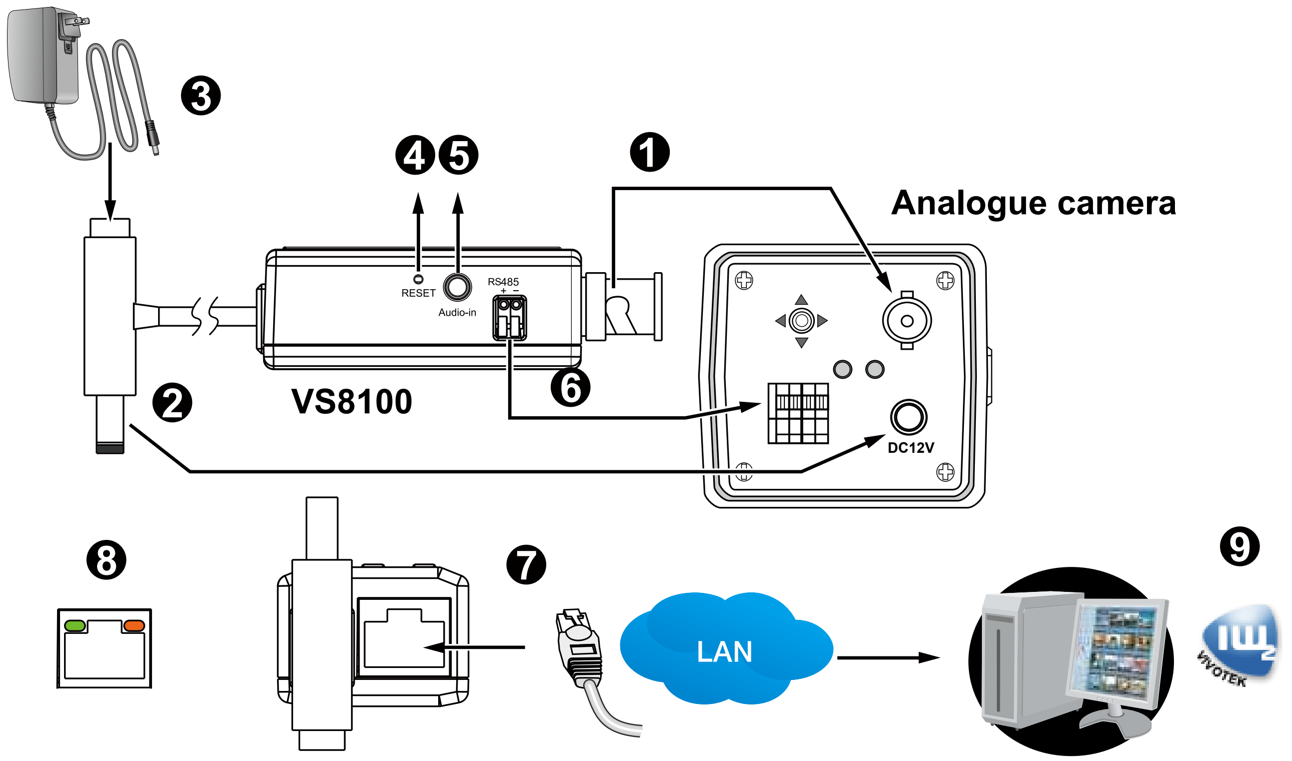
1	BNC input (male)
2	DC 12V output (to camera)
3	DC 12V input (to power source)
4	Reset button
5	Audio input phonejack
6	RS485
7	RJ-45 Ethernet connector

NOTE:

The video server consumes approximately 12V @ 0.15A = 1.8W power.

Installation

Please refer to the following illustration for the connection method.



1. Connect the BNC input connector to that on an analogue camera.
2. Connect the DC 12V output to the 12V input on the analogue camera.
3. Connect the DC 12V input to a 12V power source. Normally a 12V 1.5A power adapter will be sufficient.
4. The Reset button can be used to re-start the video server.

5. If the camera has an embedded microphone, connect a stereo jack to the Audio input.
6. If a camera is mounted on a PTZ scanner, you may connect the RS485 pins for PTZ control.
7. Connect an Ethernet cable to the RJ45 Ethernet port, and connect another end to an Ethernet switch.
8. See the table below for LED definitions.
9. Visit www.vivotek.com to download the IW2 utility program. Use the IW2 utility to locate and access your video server.

Status LED

Item	LED status	Description
1	Steady Orange	Powered on, and system booting
	Orange LED off	Power is off.
2	Steady Orange & Green blinking every 1 sec. (Green LED on for 1 sec., and off for another 1 sec.)	Network is working (heartbeat)
	Steady Orange & Green LED off	Network failed.
3	Orange blinks every 0.15 sec. + Green blinks every 1 sec. (Orange on for 0.15 sec. and off for 0.15 sec.) (Green on for 1 sec and off for 1 sec.)	Upgrading firmware
4	Orange blinks every 0.15 sec. + Green blinks every 0.15 sec. (LEDs on together on for 0.15 sec and off for 0.15 sec., and repeat the pattern)	Restoring defaults

Hardware Reset

The reset button is used to reset the system or restore the factory default settings. Sometimes resetting the system can return the video server to normal operation. If the system problems remain after reset, restore the factory settings and install again.

Reset: Press and release the recessed reset button using a straightened paper clip. Wait for the video server to reboot.

Network Deployment

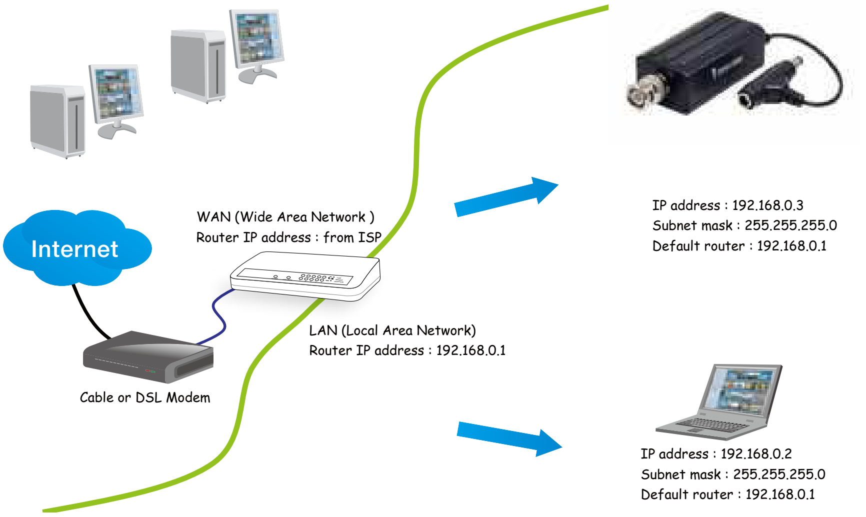
Setting up the Video Server over the Internet

There are several ways to set up the video server over the Internet. The first way is to set up the video server 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 video server over the Internet, make sure you have a router and follow the steps below.

1. Connect your video server behind a router, the Internet environment is illustrated below. Regarding how to obtain your IP address, please refer to Software Installation on page 12 for details.


Internet
WAN (Wide Area Network)
Router IP address : from ISP
LAN (Local Area Network)
Router IP address : 192.168.0.1
Cable or DSL Modem
IP address : 192.168.0.3
Subnet mask : 255.255.255.0
Default router : 192.168.0.1
IP address : 192.168.0.2
Subnet mask : 255.255.255.0
Default router : 192.168.0.1

2. In this case, if the Local Area Network (LAN) IP address of your Video server is 192.168.0.3, please forward the following ports for the Video server on the router.
   ■ Secondary HTTP port: 8080
   ■ RTSP port: 554
   ■ RTP port for audio: 5558
   ■ RTCP port for audio: 5559
   ■ RTP port for video: 5556
   ■ RTCP port for video: 5557

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 your router’s user’s manual.

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 Video server from the Internet. Please refer to Network Type on page 89 for details.

For example, your router and IP settings may look like this:

Device	IP Address: internal port	IP Address: External Port (Mapped port on the router)
Public IP of router	122.146.57.120	
LAN IP of router	192.168.2.1	
Camera 1	192.168.2.10:80	122.146.57.120:8000
Camera 2	192.168.2.11:80	122.146.57.120:8001
...	...	...

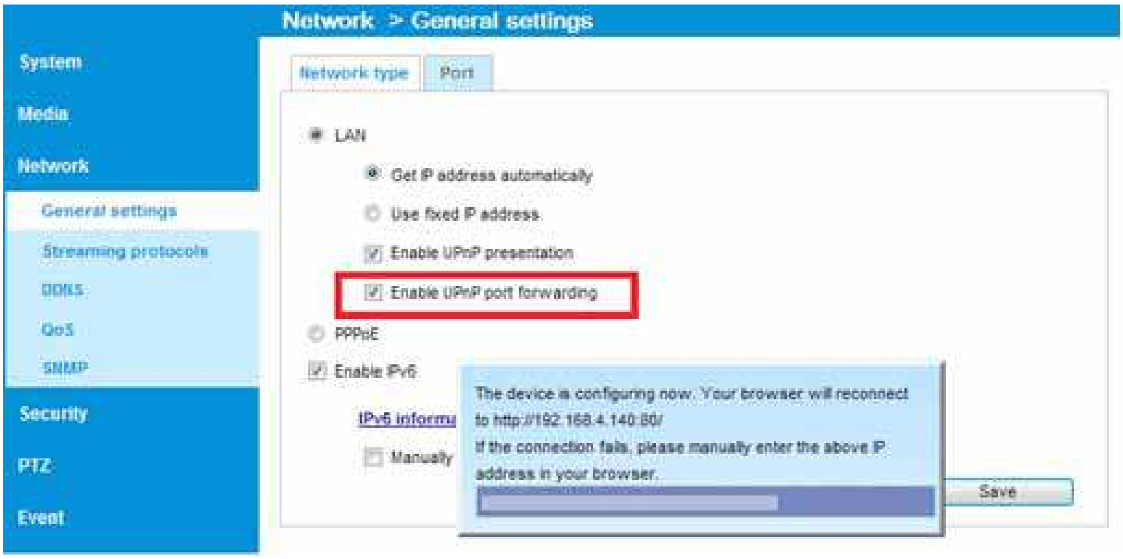
Configure the router, virtual server or firewall, so that the router can forward any data coming into a preconfigured port number to a network camera on the private network, and allow data from the camera to be transmitted to the outside of the network over the same path.

From	Forward to
122.146.57.120:8000	192.168.2.10:80
122.146.57.120:8001	192.168.2.11:80
...	...

When properly configured, you can access a camera behind the router using the HTTP request as follows: http://122.146.57.120:8000

If you change the port numbers on the Network configuration page, please open the ports accordingly on your router. For example, you can open a management session with your router to configure access through the router to the camera within your local network. Please consult your network administrator for router configuration if you have troubles with the configuration.

For more information with network configuration options (such as that of streaming ports), please refer to Configuration > Network Settings. VIVOTEK also provides the automatic port forwarding feature as an NAT traversal function with the precondition that your router must support the UPnP port forwarding feature.



● LAN

● Get IP address automatically

○ Use fixed IP address

☑ Enable UPnP presentation

☑ Enable UPnP port forwarding

○ PPPoE

☑ Enable IPv6

□ Manually

The device is configuring now. Your browser will reconnect to http://192.168.4.140:80/
If the connection fails, please manually enter the above IP address in your browser.

Internet connection with static IP

Choose this connection type if you are required to use a static IP for the Video server. Please refer to LAN on page 45 for details.

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

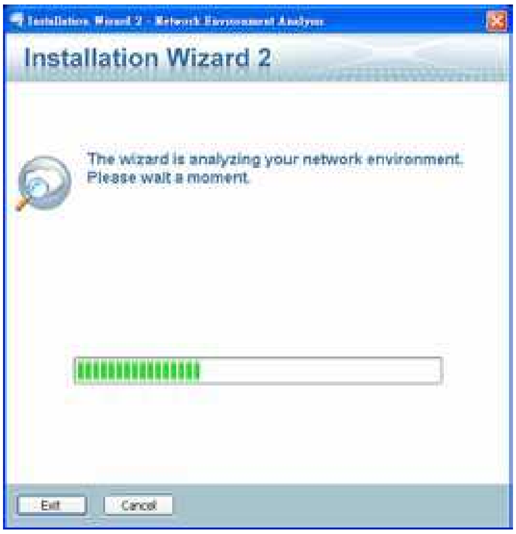
Choose this connection type if you are connected to the Internet via a DSL Line. Please refer to PPPoE on page 41 for details.

Software Installation

Download Installation Wizard 2 (IW2) from VIVOTEK's website. The utility helps you set up your video server on the LAN.

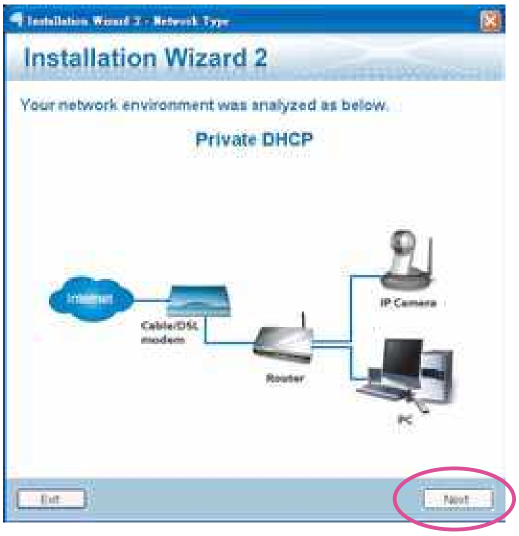
1. Install IW2. When done, double click the IW2 shortcut on your desktop to launch the program.

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


Installation Wizard 2 - Network Environment Analysis

Installation Wizard 2

The wizard is analyzing your network environment. Please wait a moment.


Installation Wizard 2 - Network Type

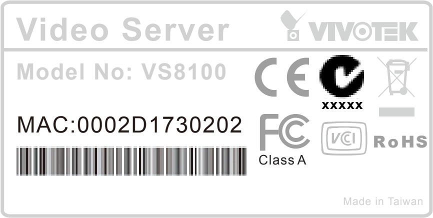
Installation Wizard 2

Your network environment was analyzed as below.

Private DHCP

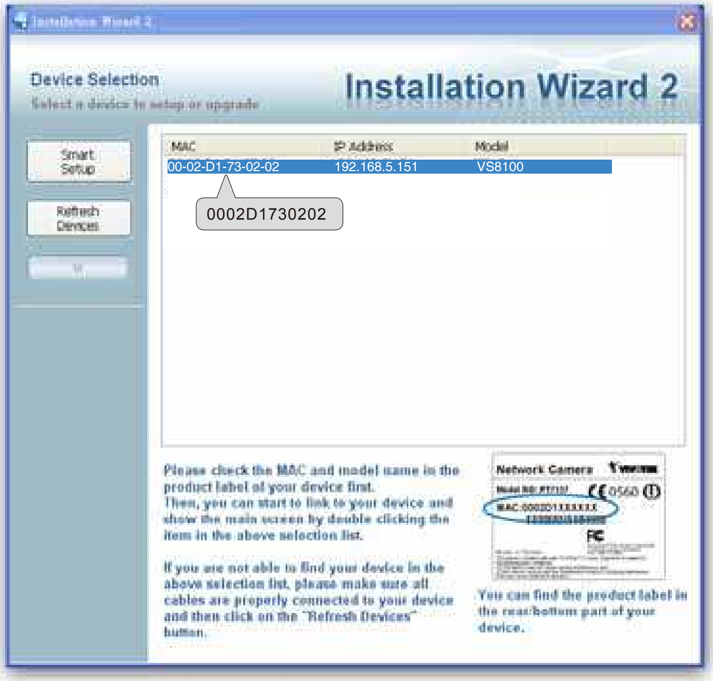
3. The program will search for all VIVOTEK network devices on the same LAN.

4. After a brief search, the main installer window will prompt. Double-click on the MAC and model name which matches the product label on your device to connect to the Network Camera via a web browser.


Video Server

Model No: VS8100

MAC:0002D1730202


Installation Wizard 2

Device Selection

Select a device to setup or upgrade

Installation Wizard 2

MAC	IP Address	Model
00-02-D1-73-02-02	192.168.5.151	VS8100

0002D1730202

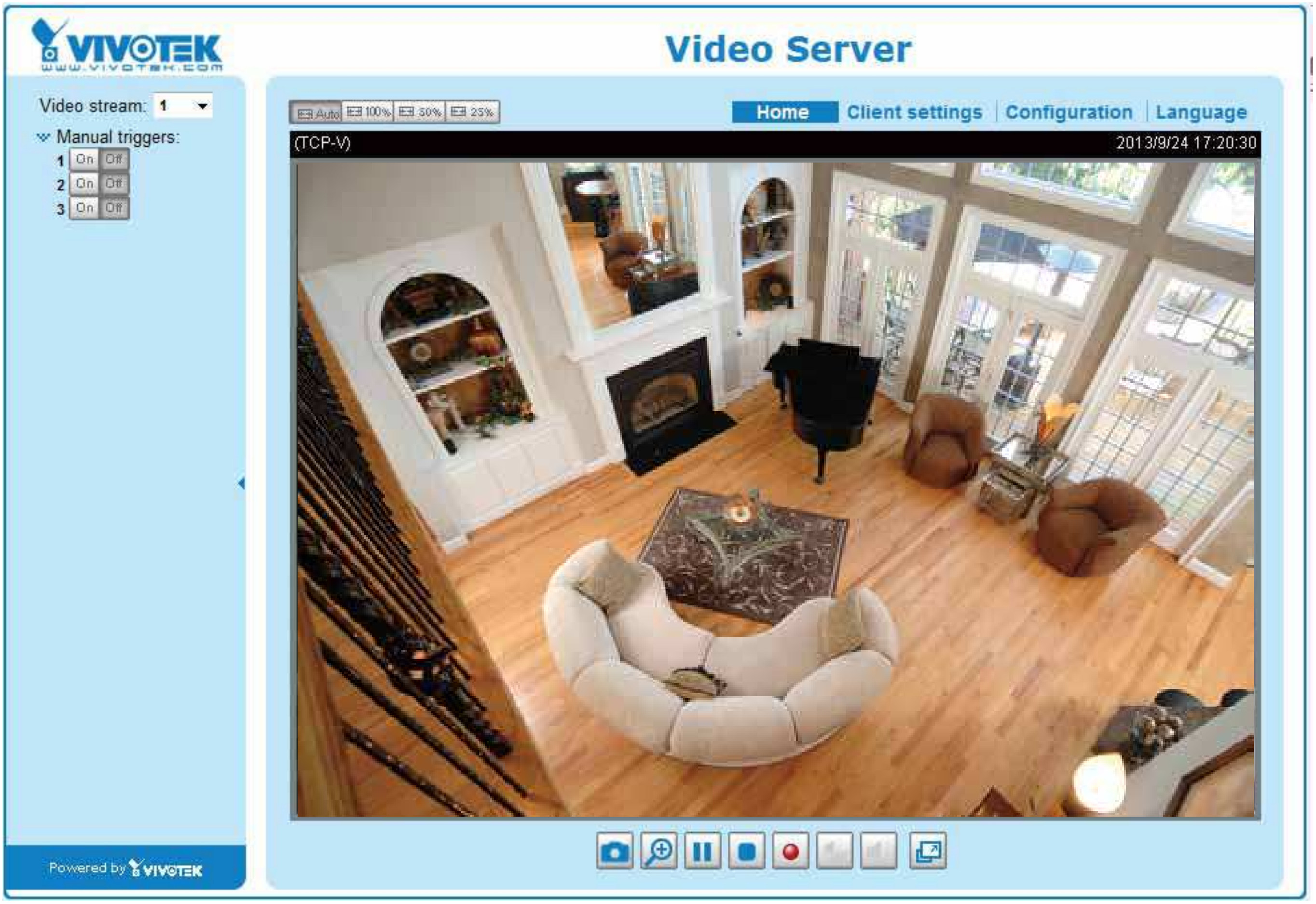
Please check the MAC and model name in the product label of your device first. Then, you can start to link to your device and show the main screen by double clicking the item in the above selection list.

If you are not able to find your device in the above selection list, please make sure all cables are properly connected to your device and then click on the "Refresh Devices" button.

You can find the product label in the rear/bottom part of your device.

Ready to Use

1. A browser session with the Video Server should prompt as shown below.
2. You should be able to see live video from your camera. You may also install the 32-channel recording software from VIVOTEK's website in a deployment consisting of multiple cameras. For its installation details, please refer to its related documents.



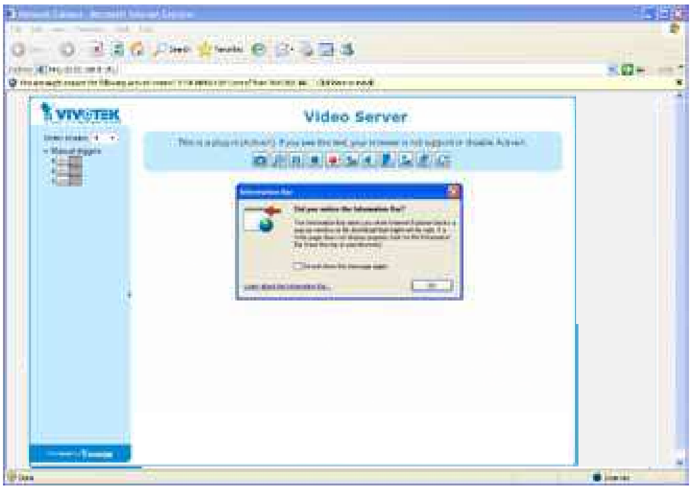
Video stream: 1

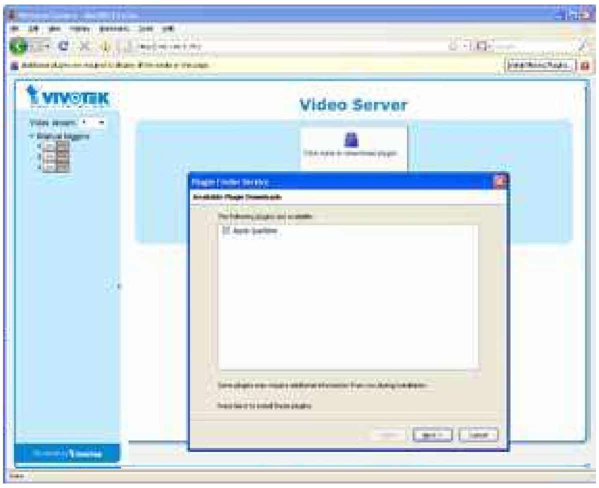
Accessing the Video Server

This chapter explains how to access the video server through web browsers, RTSP players, 3GPP-compatible mobile devices, and VIVOTEK recording software.

Using Web Browsers

Use Installation Wizard 2 (IW2) to access to the video servers on the LAN.
If your network environment is not a LAN, follow these steps to access the Netwotk Camera:
1. Launch your web browser (e.g., Microsoft® Internet Explorer or Mozilla Firefox).
2. Enter the IP address of the video server in the address field. Press **Enter**.
3. The live video will be displayed in your web browser.
4. If it is the first time installing the VIVOTEK video server, an information bar will pop up as shown below. Follow the instructions to install the required plug-ins on your computer.



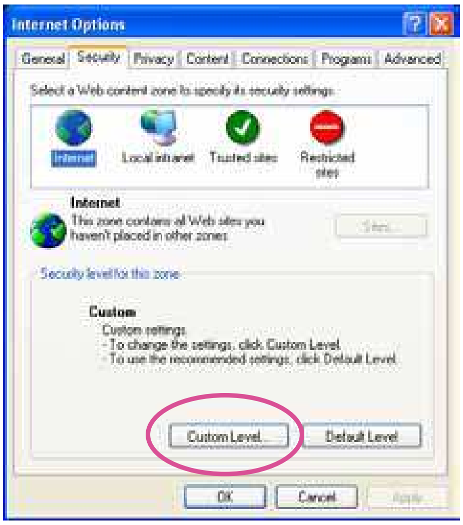


NOTE:

► *By default, the video server is not password-protected. To prevent unauthorized access, it is highly recommended to set a password for the video server. For more information about how to enable password protection, please refer to Security on page 82.*

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

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



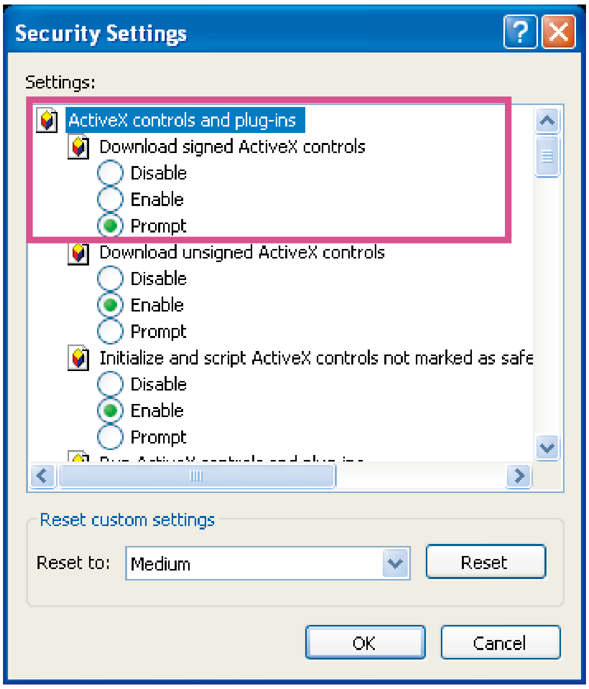
Select a Web content zone to specify its security settings.

Internet
This zone contains all Web sites you haven't placed in other zones.

Security level for this zone

Custom
Custom settings.
- To change the settings, click Custom Level.
- To use the recommended settings, click Default Level.

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



Security Settings

Settings:

ActiveX controls and plug-ins

Download signed ActiveX controls
○ Disable
○ Enable
● Prompt

Download unsigned ActiveX controls
○ Disable
● Enable
○ Prompt

Initialize and script ActiveX controls not marked as safe
○ Disable
● Enable
○ Prompt

Reset custom settings

Reset to: Medium

3. Refresh your web browser, then install the Active X® control. Follow the instructions to complete installation.

Using RTSP Players

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

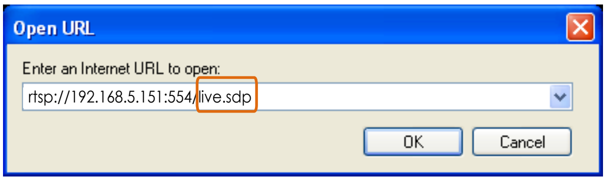
Quick Time Player

VLC Player

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

As most ISPs and players only allow RTSP streaming through port number 554, please set the RTSP port to 554. For more information, please refer to RTSP Streaming on page 53.

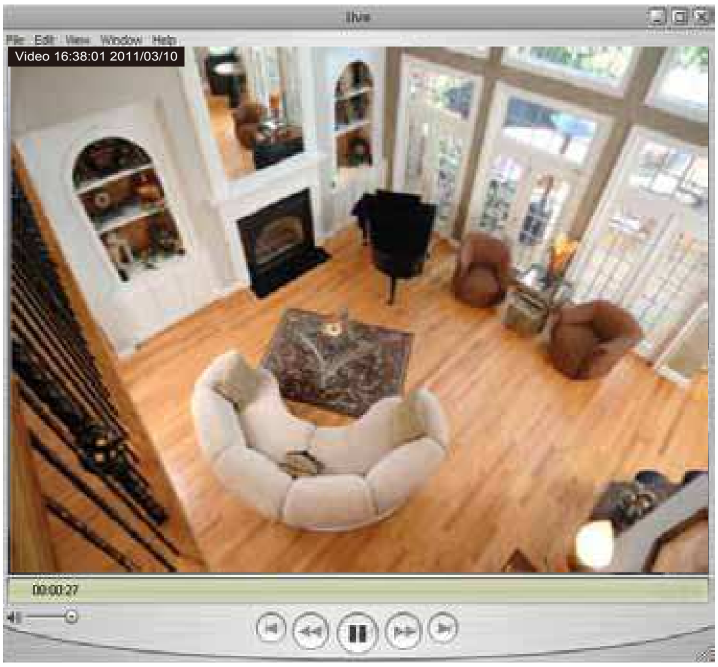
For example:



Enter an Internet URL to open: rtsp://192.168.5.151:554/live.sdp

4. The live video will be displayed in your player.

   For more information on how to configure the RTSP access name, please refer to RTSP Streaming on page 53 for details.



Using 3GPP-compatible Mobile Devices

To view the streaming media through 3GPP-compatible mobile devices, make sure the video server can be accessed over the Internet. For more information on how to set up the video server over the Internet, please refer to Setup the video server over the Internet on page 9.

To utilize this feature, please check the following settings on your video server:

1. Because most players on 3GPP mobile phones do not support RTSP authentication, make sure the authentication mode of RTSP streaming is set to disable.
   For more information, please refer to RTSP Streaming on page 53.

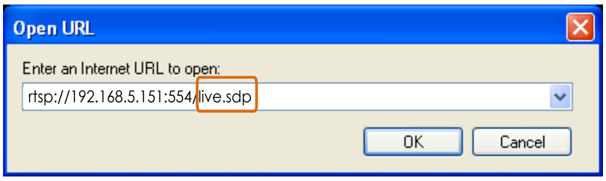
2. As the the bandwidth on 3G networks is limited, you will not be able to use a large video size. Please configure the video and audio streaming parameters as listed below.

Video Mode	H.264
Frame size	QCIF
Maximum frame rate	5 fps
Intra frame period	1S
Video quality (Constant bit rate)	40kbps
Audio type (G.711)	64kbps

3. As most ISPs and players only allow RTSP streaming through port number 554, please set the RTSP port to 554. For more information, please refer to RTSP Streaming on page 53.

4. Launch the player on the 3GPP-compatible mobile devices (e.g., VLC Player).

5. Type the following URL commands into the player.
   The address format is rtsp://<public ip address of your camera>:<rtsp port>/<RTSP streaming access name for stream 3>.
   For example:



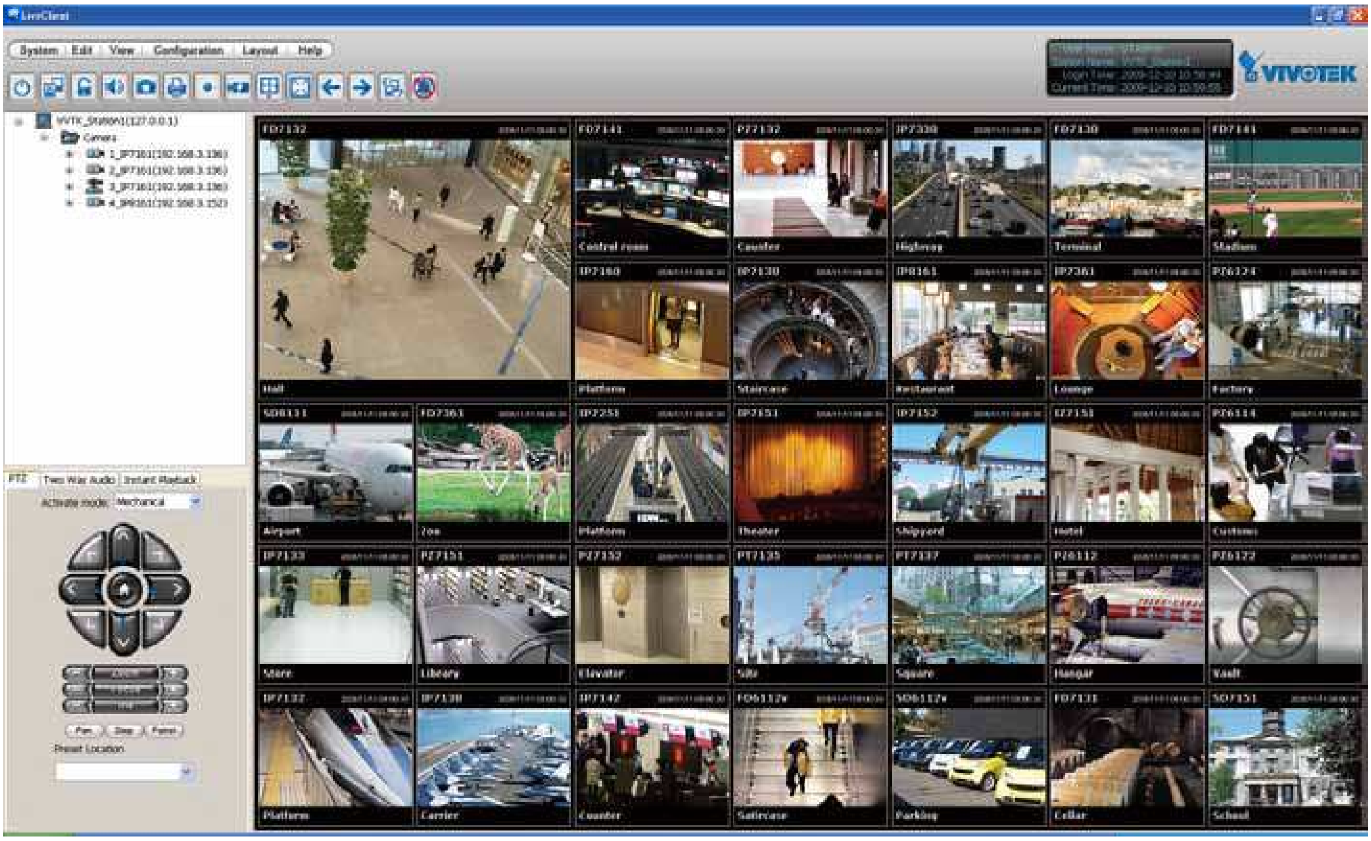
Open URL

Enter an Internet URL to open:

rtsp://192.168.5.151:554/live.sdp

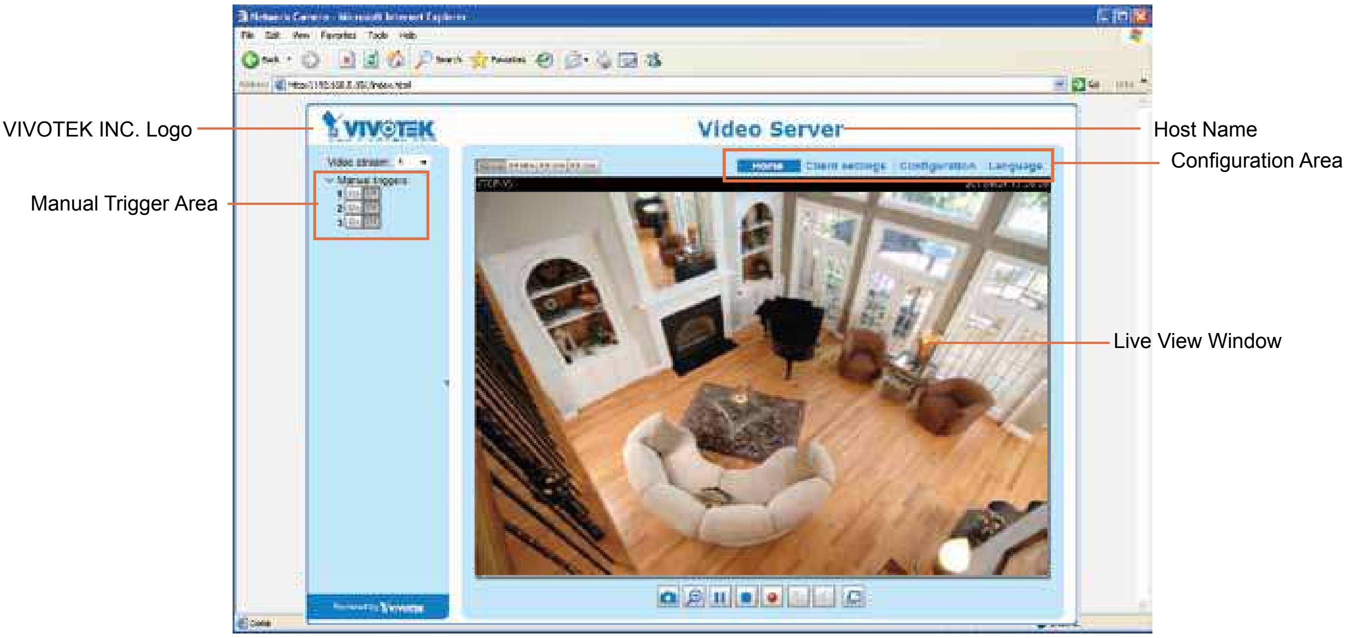
Using VIVOTEK Recording Software

The recording software, allowing simultaneous monitoring and video recording for multiple video servers. Please install the recording software; then launch the program to add the video server to the Channel list. For detailed information about how to use the recording software, please refer to the user’s manual of the software or download it from http://www.vivotek.com.



Main Page

This chapter explains the layout of the main page. It is composed of the following sections: VIVOTEK INC. Logo, Host Name, Camera Control Area, Configuration Area, Menu, and Live Video Window. The Manual Trigger and Digital Input/Digital Output control menus are expandable and collapsible, while the PTZ navigation panel is available only when a PTZ camera is attached.



VIVOTEK INC. Logo

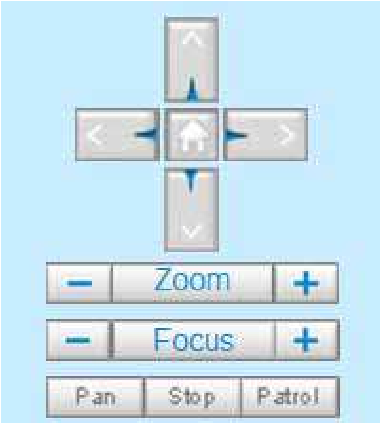
Click this logo to visit the VIVOTEK website.

Host Name

The host name can be customized to fit your needs. For more information, please refer to System settings on page 26.

Camera Control Area

Video Stream: VS8100 supports 1 channel for video live viewing. The channel allows you to view only one stream. For more information about video settings, please refer to page 40 for detailed information.



PTZ Control Area: The up/down/left/right/zoom/focus/pan buttons allow you to adjust the video in the viewing window to the spot you wish to watch. **Home** button allows you to resume the center of the screen. Click **Patrol** to move from one point to another; click it again to stop patroling. Click **Stop** to stop the pan movement. Please refer to **Configuration > PTZ** on page 75 for more information.

Pan/Tilt/Zoom Speed: In the drop-down list, the speed ranges from -5~5 (slow/fast).

Note that PTZ panel is only available when the Mechanical PTZ function is enabled.

Manual Trigger Area

Click to enable/disable an event trigger manually. Please configure an event setting on Application page before enable this function. A total of 4 event settings can be configured. For more information about event settings, please refer to page 81.
If you want to hide this item on the homepage, please go to the Homepage layout page to uncheck “show manual trigger button”. Please refer to page 27 for details.

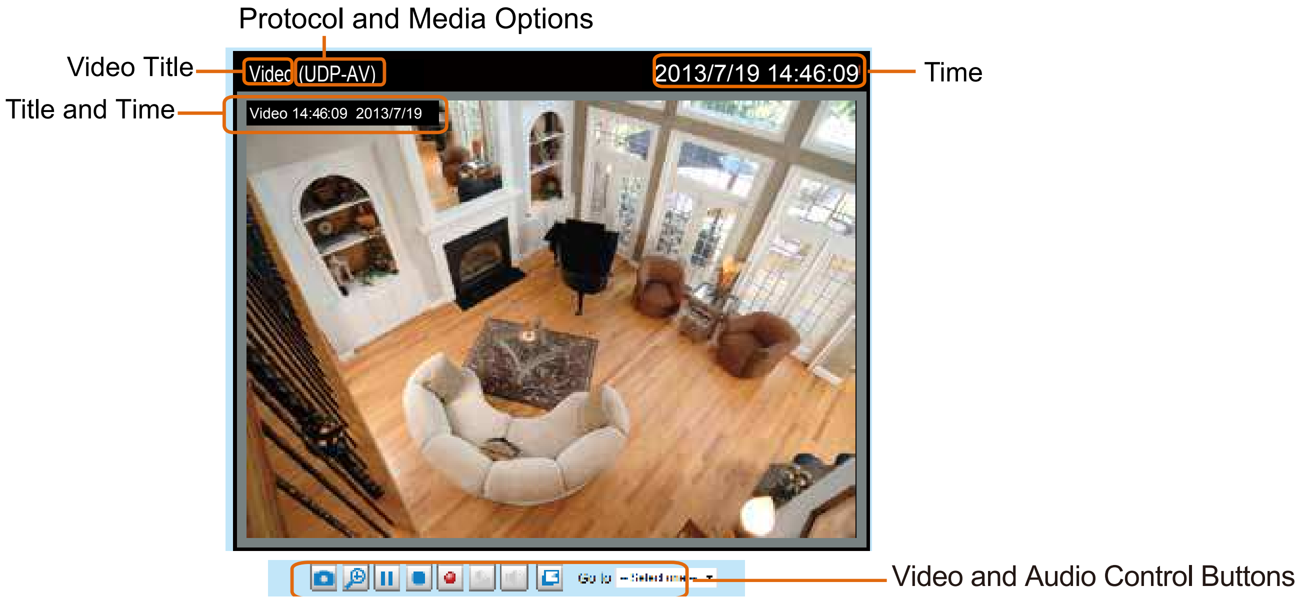
Configuration Area

Client Settings: Click this button to access the client setting page. For more information, please refer to Client Settings on page 22.

Configuration: Click this button to access the configuration page of the video server. It is suggested that a password be applied to the video server so that only the administrator can configure the video server. For more information, please refer to Configuration on page 25.

Language: Click this button to choose a language for the user interface. Language options are available in: English, Deutsch, Español, Français, Italiano, 日本語, Português, 簡体中文, and 繁體中文.

Live Video Window



Video Title: The video title can be configured. For more information, please refer to Video settings on page 40.

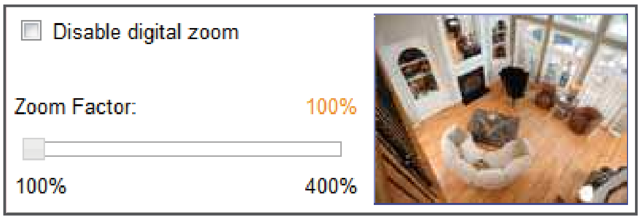
Protocol and Media Options: The transmission protocol and media options for video streaming. For further configuration, please refer to Client settings on page 22.

Time: Display the current time. For further configuration, please refer to Video settings on page 40.

Title and Time: The video title and time can be stamped on the streaming video. For further configuration, please refer to Video settings on page 40.
Video and Audio Control Buttons: Depending on the video server model and video server configuration, some buttons may not be available.

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.

Digital Zoom: Click and uncheck “Disable digital zoom” to enable the zoom operation. The navigation screen indicates the part of the image 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.



☐ Disable digital zoom

Zoom Factor: 100%

100% 400%

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

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

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 file name, please refer to MP4 saving options on page 23 for details.

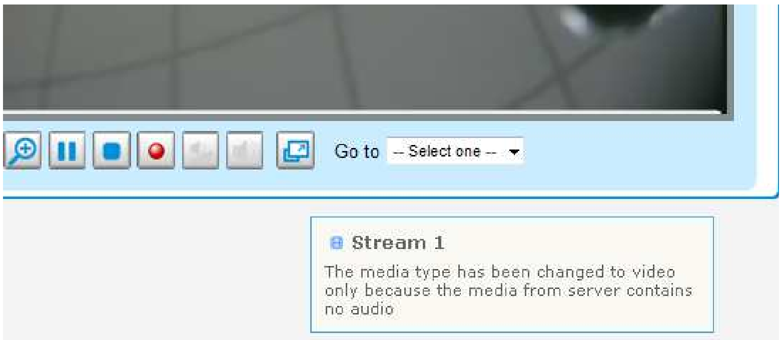
Volume: When the Mute function is not activated, move the slider bar to adjust the volume on the local computer.

Mute: Turn off the volume on the local computer. The button becomes the Audio On button after clicking the Mute button.

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

Go to: The drop-down menu enables you to locate and move to a preset location instantly on the viewing window.

If you mute the audio option onboard (in Media > Audio window), or you select an MJPEG video stream that contains no audio input, you will be prompted by the following message on an IE browser.

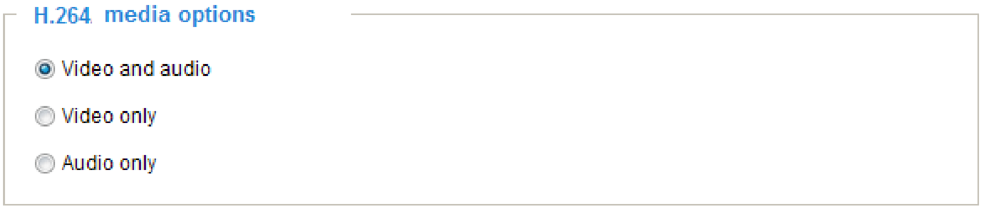


Stream 1
The media type has been changed to video only because the media from server contains no audio

Client settings

This chapter explains how to select the stream transmission mode and saving options on the local computer. When completed with the settings on this page, click **Save** on the page bottom to enable the settings.

H.264 media options



H.264 media options

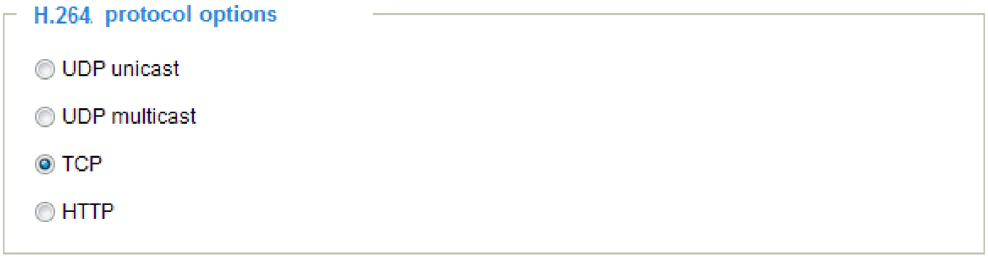
● Video and audio

○ Video only

○ Audio only

Select to stream video or audio data or both. This is enabled only when the video mode is set to H.264.

H.264 protocol options



H.264 protocol options

○ UDP unicast

○ UDP multicast

● TCP

○ HTTP

Depending on your network environment, there are four transmission modes of H.264:

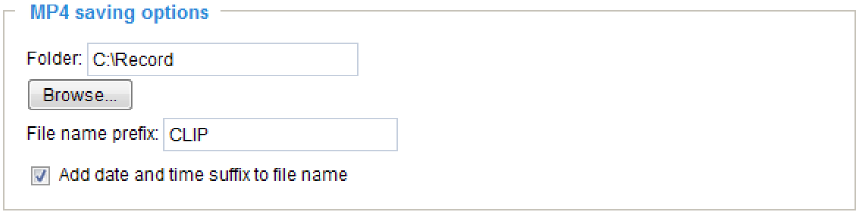
UDP unicast: This protocol allows for more real-time audio and video streams. However, network packets may be lost due to network burst traffic and images may be broken. Activate UDP connection when occasions require time-sensitive responses and the video quality is less important. Note that each unicast client connecting to the server takes up additional bandwidth and the video server 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 video server while serving multiple clients at the same time. Note that to utilize this feature, the video server must be configured to enable multicast streaming at the same time. For more information, please refer to RTSP Streaming on page 53.

TCP: This protocol guarantees the complete delivery of streaming data and thus provides better video quality. The downside of 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 without needing to open specific ports for streaming under some network environments. Users inside a firewall can utilize this protocol to allow streaming data through.

MP4 saving options



MP4 saving options

Folder: C:\Record

File name prefix: CLIP

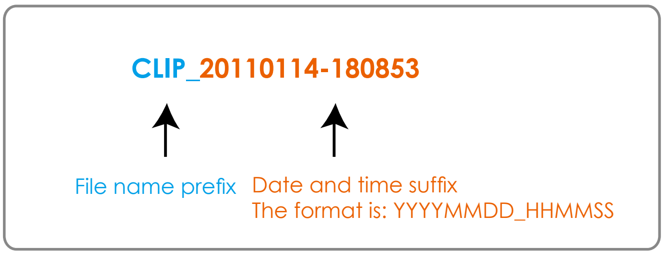
☑ Add date and time suffix to file name

Users can record 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.

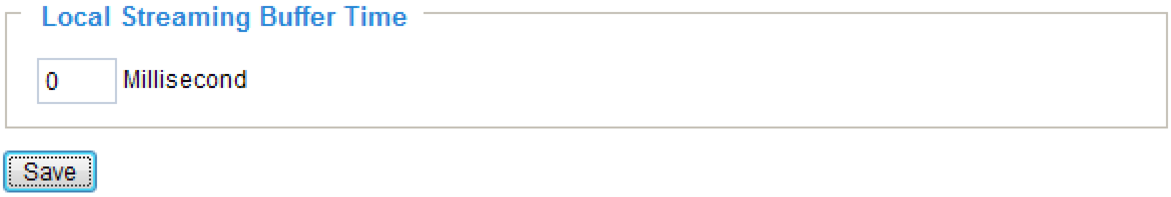
Folder: Specify a storage destination for the recorded video files.

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

Add date and time suffix to the file name: Select this option to append the date and time to the end of the file name.



Local Streaming Buffer Time

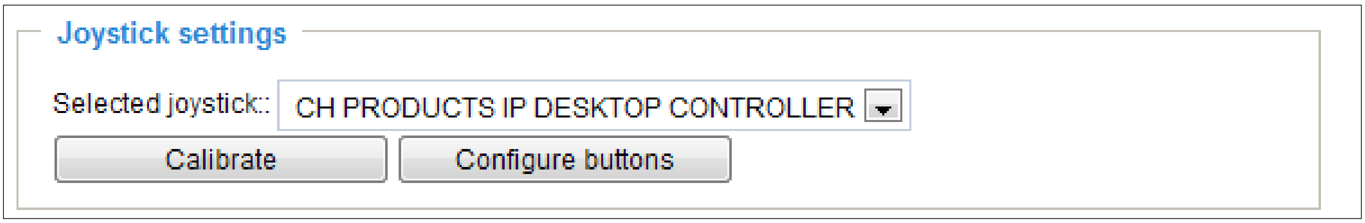


Local Streaming Buffer Time

0 Millisecond

Due to the unsteady bandwidth flow, the live streaming may lag and not be very smoothly. If you enable this option, the live streaming will be stored temporarily on your client PC's cache memory for a few seconds/milli-seconds before being played on the live viewing window. This will help you see the streaming more smoothly. If you enter 3,000 Millisecond, the streaming will delay for 3 seconds.

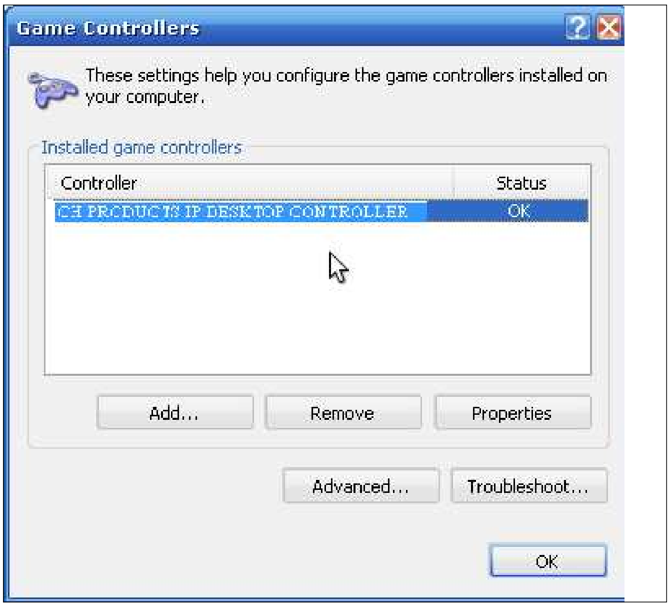
Joystick settings



Joystick settings

Selected joystick:: CH PRODUCTS IP DESKTOP CONTROLLER

Calibrate: Make sure a joystick is already attached to your COM port or USB port on your client computer. Click on the Calibrate button and the Windows Game Controller function will be started. If properly connected, your operating system should have already detected the joystick. Follow the onscreen instructions to calibrate your joystick.

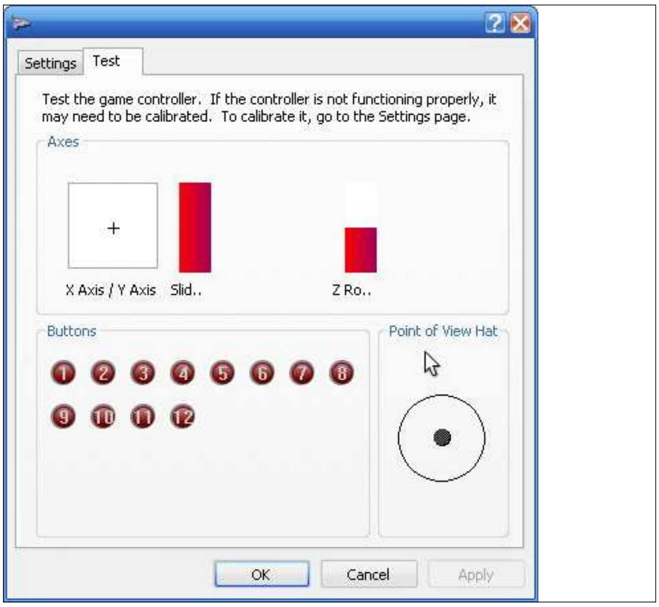


Game Controllers

These settings help you configure the game controllers installed on your computer.

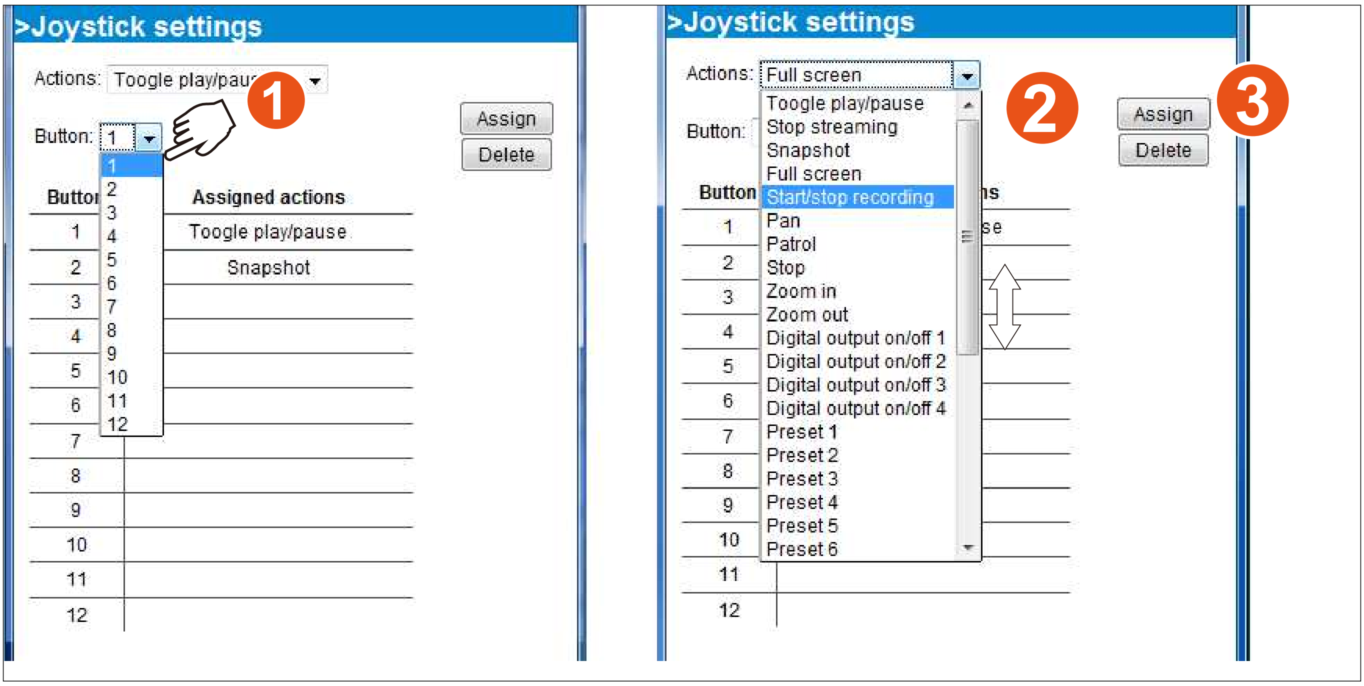
Installed game controllers

Controller	Status
CH PRODUCTS IP DESKTOP CONTROLLER	OK



Test the game controller. If the controller is not functioning properly, it may need to be calibrated. To calibrate it, go to the Settings page.

Configure buttons: You can define individual joystick buttons using this function. Click to open a configuration window and assign functions to joystick buttons using the following steps: 1. Select a button uing the pull-down menu. 2. Select an Action to be toggled by the button. 3. Click on the Assign button, and then repeat the process to define other buttons.



>Joystick settings

Actions: Toogle play/pau

Button: 1

Button	Assigned actions
1	Toogle play/pause
2	Snapshot
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	

>Joystick settings

Actions: Full screen

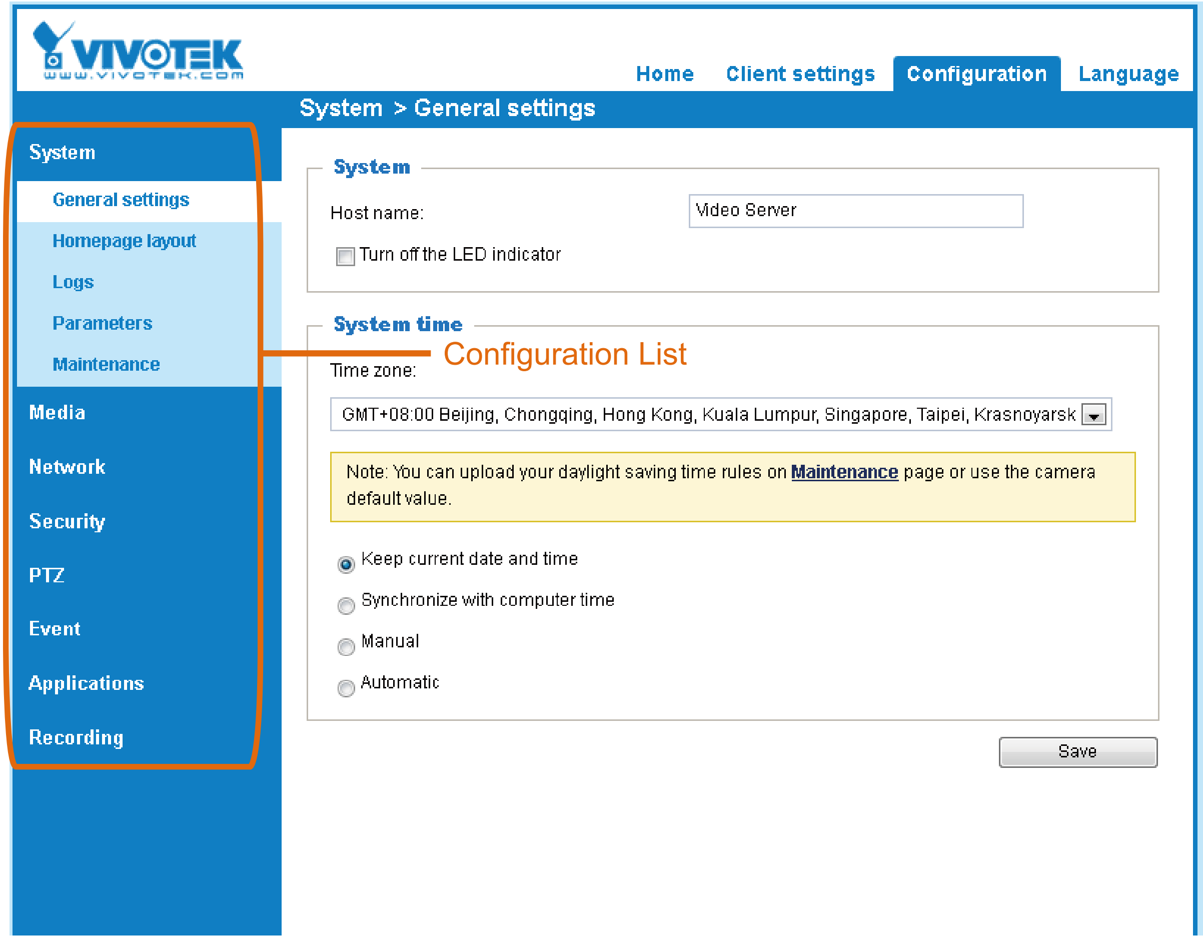
Configuration

Click **Configuration** on the main page to enter the camera setting pages. Note that only Administrators can access the configuration page.

VIVOTEK offers an easy-to-use user interface that helps you set up your video server with minimal effort.

In order to simplify the user interface, the detailed information will be hidden unless you click on the function item. When you click on the first sub-item, the detailed information for the first sub-item will be displayed; when you click on the second sub-item, the detailed information for the second sub-item will be displayed and that of the first sub-item will be hidden.

The following is the main configuration page:



System

Host name: Video Server

□ Turn off the LED indicator

System time

Time zone: GMT+08:00 Beijing, Chongqing, Hong Kong, Kuala Lumpur, Singapore, Taipei, Krasnoyarsk

Note: You can upload your daylight saving time rules on Maintenance page or use the camera default value.

● Keep current date and time

○ Synchronize with computer time

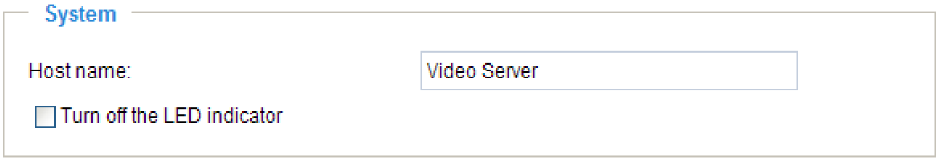
○ Manual

○ Automatic

System

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

System



System

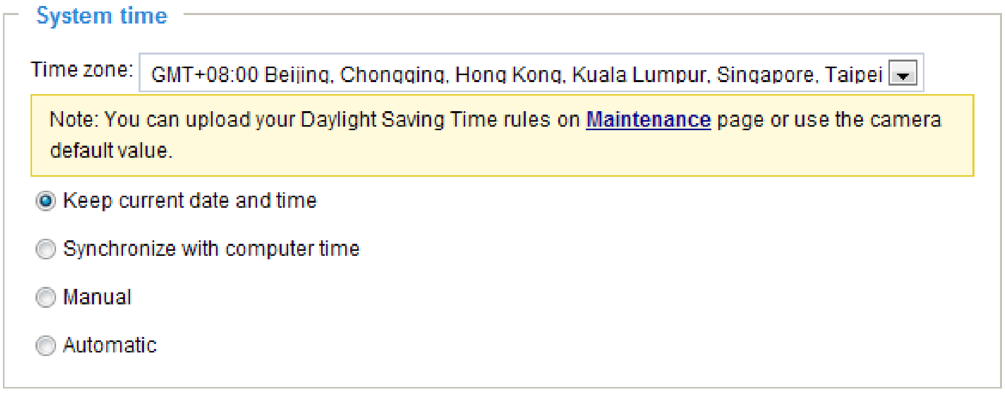
Host name: Video Server

□ Turn off the LED indicator

Host name: Enter a desired name for the video server. The text will be displayed at the top of the main page.

Turn off the LED indicators: If you do not want to let others know that the video server is in operation, you can select this option to turn off the LED indicators.

System time



System time

Time zone: GMT+08:00 Beijing, Chongqing, Hong Kong, Kuala Lumpur, Singapore, Taipei

Note: You can upload your Daylight Saving Time rules on Maintenance page or use the camera default value.

● Keep current date and time

○ Synchronize with computer time

○ Manual

○ Automatic

Time zone : Select the appropriate time zone from the list. If you want to upload Daylight Savings Time rules on the Maintenance page, please refer to Upload / Export daylight saving time configuration file on page 34 for details.

Keep current date and time: Select this option to preserve the current date and time of the Video server. The video server'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 video server 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 which synchronizes 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 video server to the default time servers.

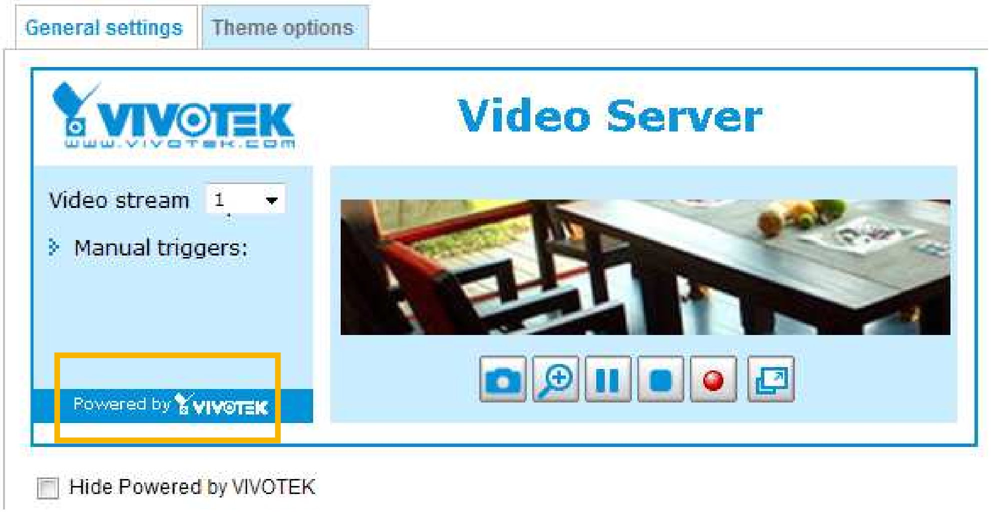
Update interval: Select to update the time using the NTP server on an hourly, daily, weekly, or monthly basis.

System > Homepage layout

This section explains how to set up your own customized homepage layout.

General settings

This column shows the settings of your hompage layout. You can manually select the background and font colors in Theme Options (the second tab on this page). The settings will be displayed automatically in this Preview field. The following shows the homepage using the default settings:



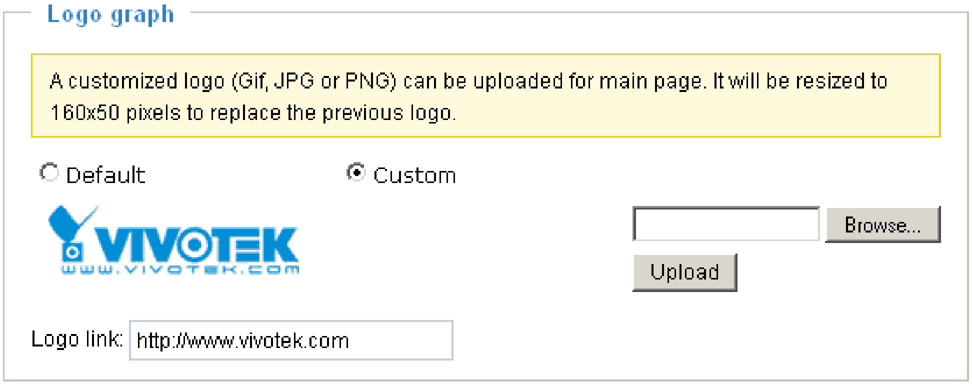
Video stream 1

□ Hide Powered by VIVOTEK

■ Hide Powered by VIVOTEK: If you check this item, it will be removed from the homepage.

Logo graph

Here you can change the logo that is placed at the top of your homepage.



A customized logo (Gif, JPG or PNG) can be uploaded for main page. It will be resized to 160x50 pixels to replace the previous logo.

○ Default ● Custom

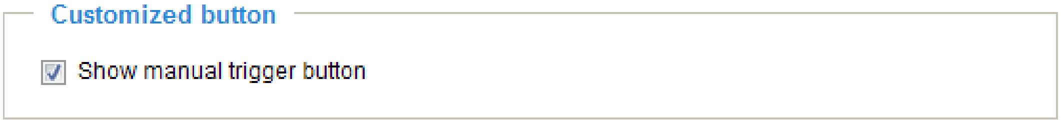
Logo link: http://www.vivotek.com

Follow the steps below to upload a new logo:

1. Click **Custom** and the Browse field will appear.
2. Select a logo from your files.
3. Click **Upload** to replace the existing logo with a new one.
4. Enter a website link if necessary.
5. Click **Save** to enable the settings.

Customized button

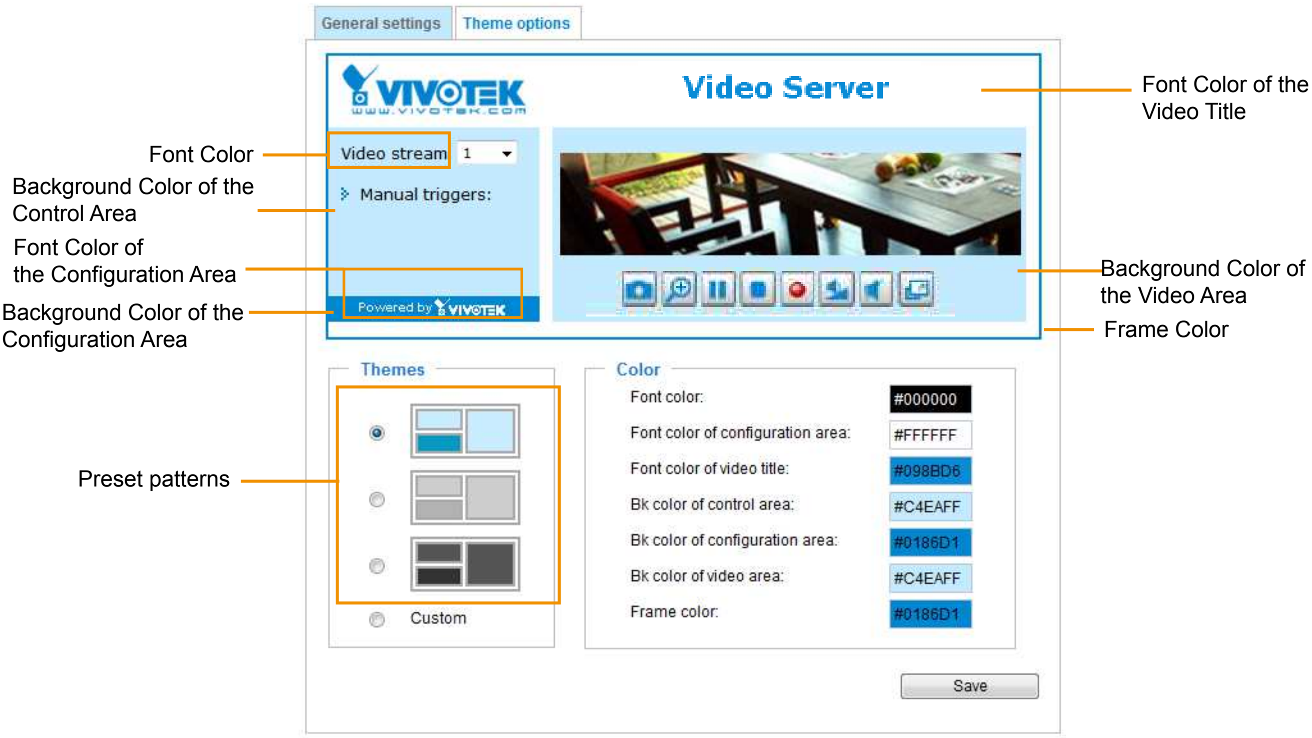
If you want to hide manual trigger buttons on the homepage, please uncheck this item. This item is checked by default.



☑ Show manual trigger button

Theme Options

Here you can change the color of your homepage layout. There are three types of preset patterns for you to choose from. The new layout will simultaneously appear in the **Preview** filed. Click **Save** to enable the settings.


General settings
Theme options
Video Server
Video stream
1
Manual triggers:
Powered by VIVOTEK
Font Color of the Video Title
Font Color
Background Color of the Control Area
Font Color of the Configuration Area
Background Color of the Configuration Area
Background Color of the Video Area
Frame Color
Preset patterns

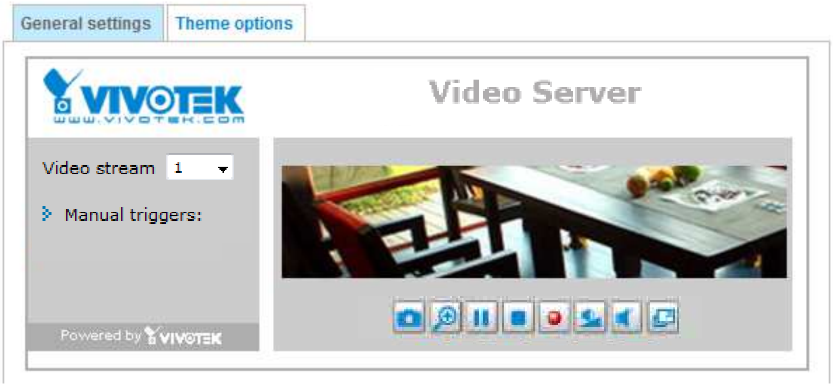
Themes

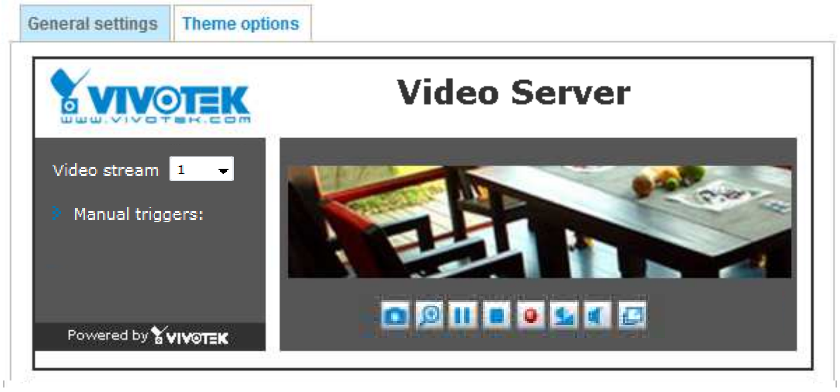
● (preset pattern 1)
○ (preset pattern 2)
○ (preset pattern 3)
○ Custom

Color

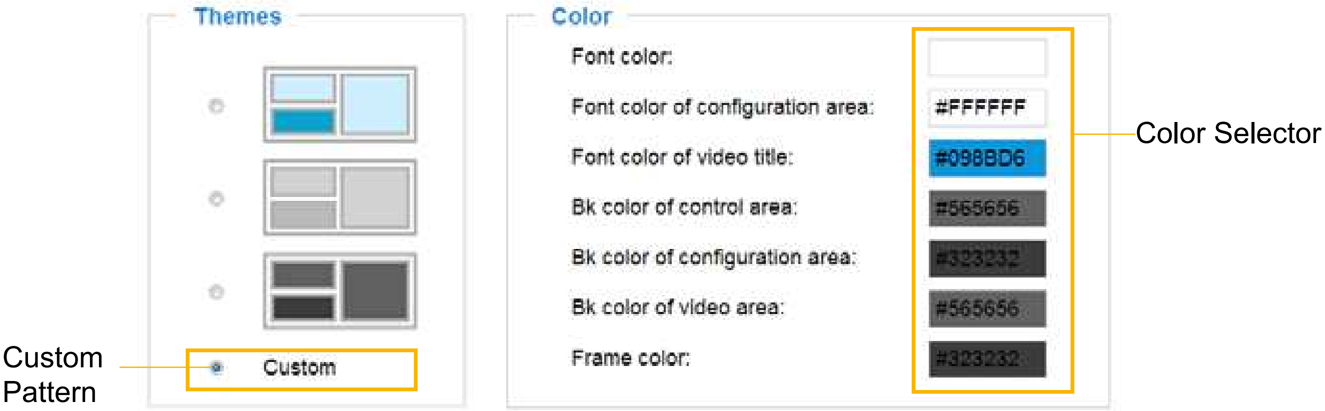
Font color:	#000000
Font color of configuration area:	#FFFFFF
Font color of video title:	#098BD6
Bk color of control area:	#C4EAFF
Bk color of configuration area:	#0186D1
Bk color of video area:	#C4EAFF
Frame color:	#0186D1

Save





■ Follow the steps below to set up the customed homepage:
1. Click **Custom** on the left column.
2. Click the field where you want to change the color on the right column.



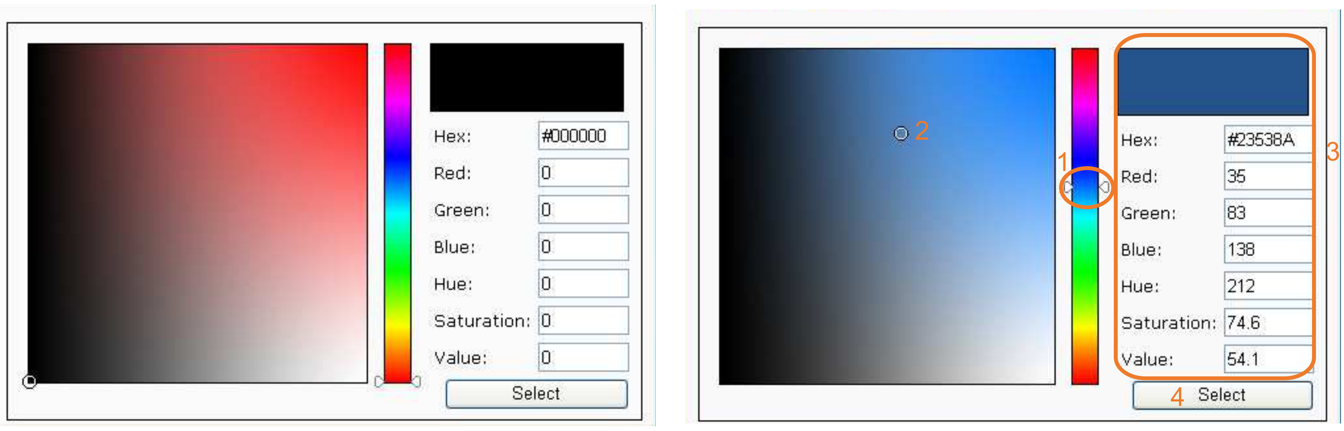
○
○
○
● Custom

Font color:
Font color of configuration area: #FFFFFF
Font color of video title: #098BD6
Bk color of control area: #565656
Bk color of configuration area: #323232
Bk color of video area: #565656
Frame color: #323232

Color Selector

Custom Pattern

3. The palette window will pop up as shown below.



Hex: #000000
Red: 0
Green: 0
Blue: 0
Hue: 0
Saturation: 0
Value: 0

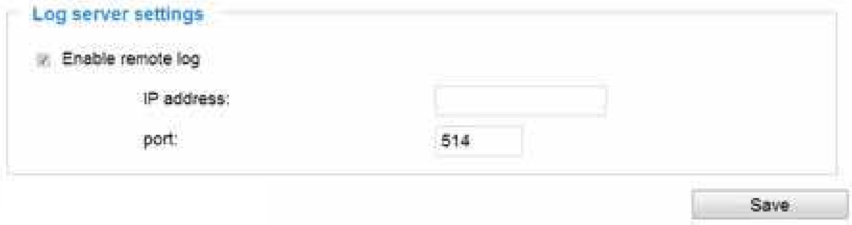
Hex: #23538A
Red: 35
Green: 83
Blue: 138
Hue: 212
Saturation: 74.6
Value: 54.1

4. Drag the slider bar and click on the left square to select a desired color.
5. The selected color will be displayed in the corresponding fields and in the **Preview** column.
6. Click **Save** to enable the settings.

System > Logs

This section explains how to configure the Network Camera to send the system log to a remote server as backup.

Log server settings



Log server settings

☑ Enable remote log

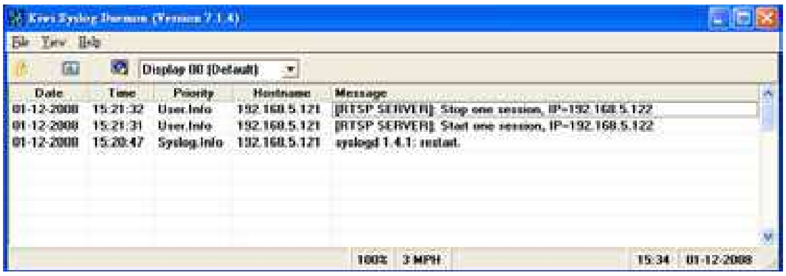
IP address:

port: 514

Follow the steps below to set up the remote log:

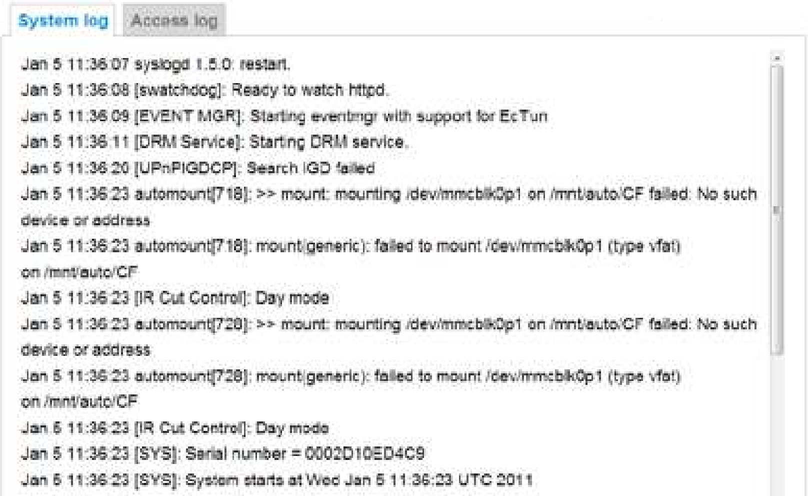
1. Select **Enable remote log**.
2. In the IP address text box, enter the IP address of the remote server.
2. In the port text box, enter the port number of the remote server.
3. When completed, click **Save** to enable the setting.

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/.



Date	Time	Priority	Hostname	Message
01-12-2008	15:21:32	User.Info	192.168.5.121	[RTSP SERVER]: Stop one session, IP=192.168.5.122
01-12-2008	15:21:31	User.Info	192.168.5.121	[RTSP SERVER]: Start one session, IP=192.168.5.122
01-12-2008	15:20:47	Syslog.Info	192.168.5.121	syslogd 1.4.1: restart.

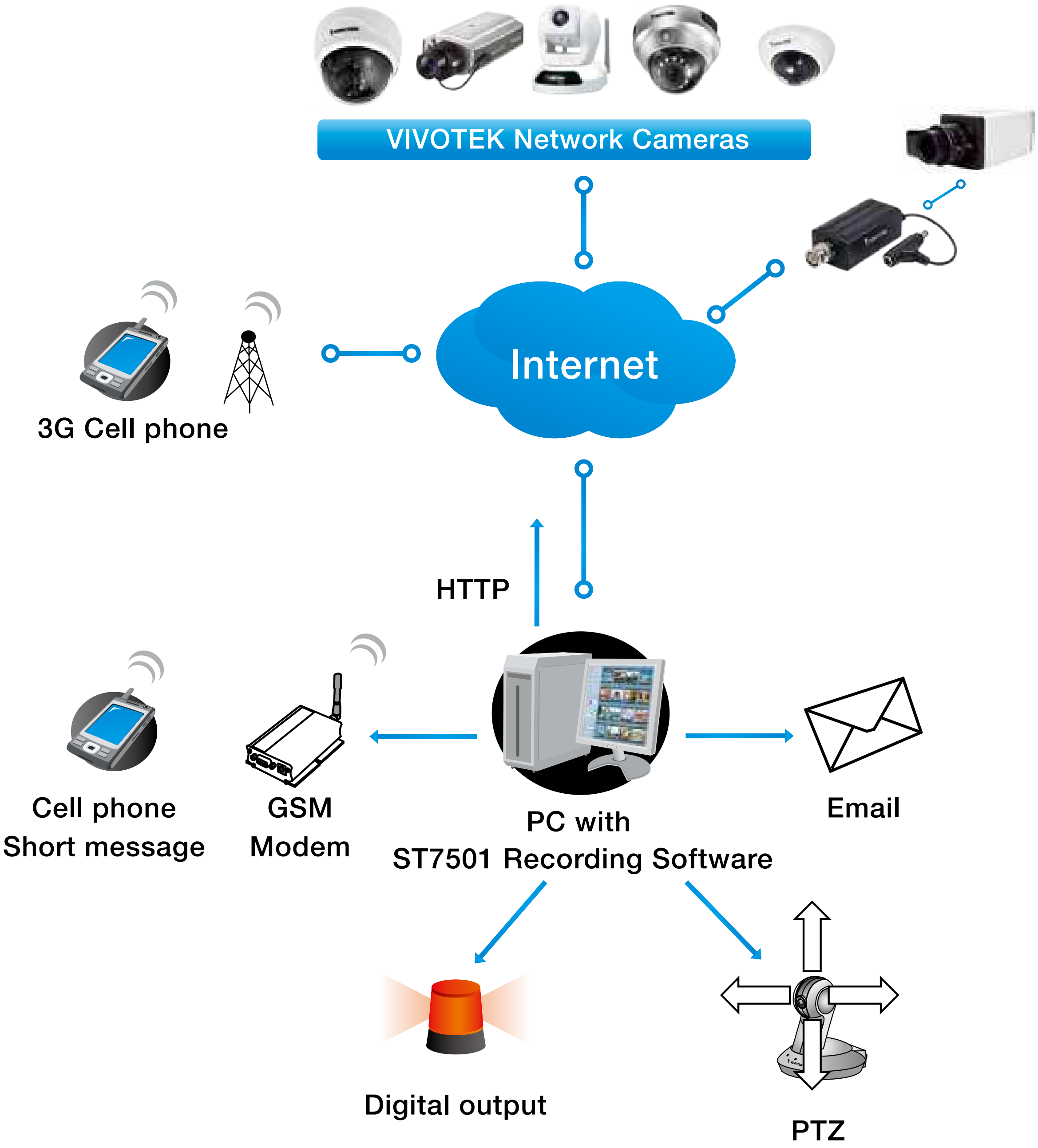
System log



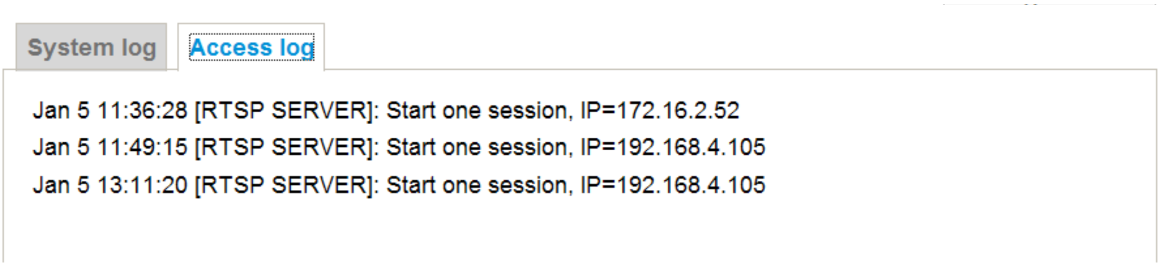
```
Jan 5 11:36:07 syslogd 1.5.0: restart.
Jan 5 11:36:08 [swatchdog]: Ready to watch httpd.
Jan 5 11:36:09 [EVENT MGR]: Starting eventmgr with support for EcTun
Jan 5 11:36:11 [DRM Service]: Starting DRM service.
Jan 5 11:36:20 [UPnPIGDCP]: Search IGD failed
Jan 5 11:36:23 automount[718]: >> mount: mounting /dev/mmcblk0p1 on /mnt/auto/CF failed: No such
device or address
Jan 5 11:36:23 automount[718]: mount(generic): failed to mount /dev/mmcblk0p1 (type vfat)
on /mnt/auto/CF
Jan 5 11:36:23 [IR Cut Control]: Day mode
Jan 5 11:36:23 automount[728]: >> mount: mounting /dev/mmcblk0p1 on /mnt/auto/CF failed: No such
device or address
Jan 5 11:36:23 automount[728]: mount(generic): failed to mount /dev/mmcblk0p1 (type vfat)
on /mnt/auto/CF
Jan 5 11:36:23 [IR Cut Control]: Day mode
Jan 5 11:36:23 [SYS]: Serial number = 0002D10ED4C9
Jan 5 11:36:23 [SYS]: System starts at Wed Jan 5 11:36:23 UTC 2011
```

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

You can install the included ST7501 recording software, which provides an Event Management function group for delivering event messages via emails, GSM short messages, onscreen event panel, or to trigger an alarm, etc. For more information, refer to the ST7501 User Manual.



Access log

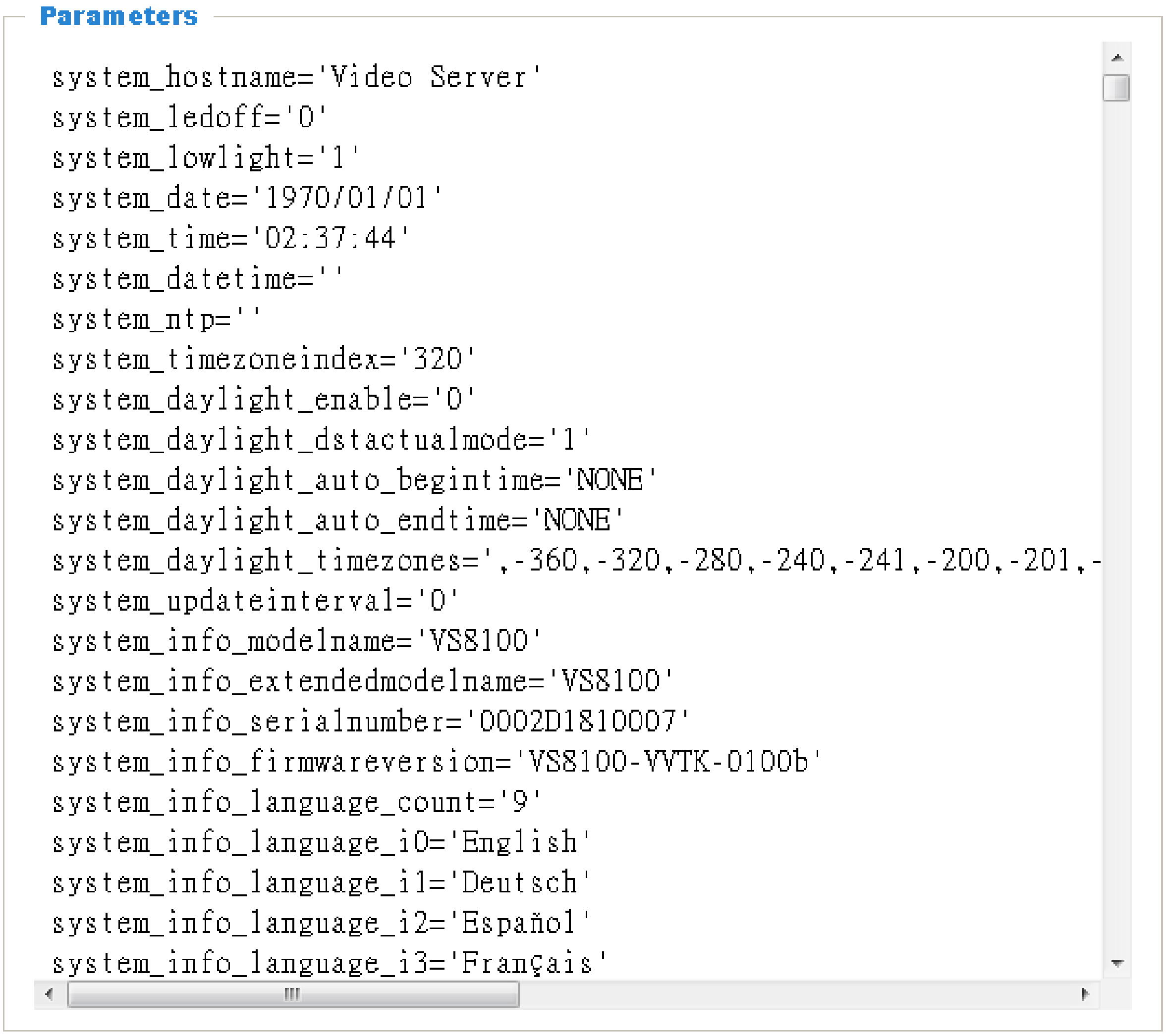


```
Jan 5 11:36:28 [RTSP SERVER]: Start one session, IP=172.16.2.52
Jan 5 11:49:15 [RTSP SERVER]: Start one session, IP=192.168.4.105
Jan 5 13:11:20 [RTSP SERVER]: Start one session, IP=192.168.4.105
```

Access log displays the access time and IP address of all viewers (including operators and administrators) in a chronological order. The access log is stored in the Network Camera's buffer area and will be overwritten when reaching a certain limit.

System > Parameters

The View Parameters page lists the entire system's parameters. If you need technical assistance, please provide the information listed on this page.

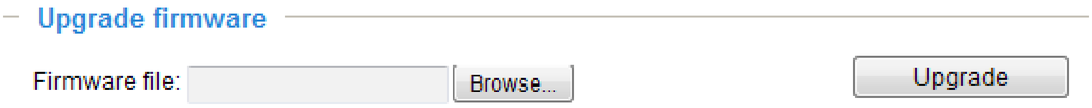


```
system_hostname='Video Server'
system_ledoff='0'
system_lowlight='1'
system_date='1970/01/01'
system_time='02:37:44'
system_datetime=''
system_ntp=''
system_timezoneindex='320'
system_daylight_enable='0'
system_daylight_dstactualmode='1'
system_daylight_auto_begintime='NONE'
system_daylight_auto_endtime='NONE'
system_daylight_timezones=',-360,-320,-280,-240,-241,-200,-201,-
system_updateinterval='0'
system_info_modelname='VS8100'
system_info_extendedmodelname='VS8100'
system_info_serialnumber='0002D1810007'
system_info_firmwareversion='VS8100-VVTK-0100b'
system_info_language_count='9'
system_info_language_i0='English'
system_info_language_i1='Deutsch'
system_info_language_i2='Español'
system_info_language_i3='Français'
```

System > Maintenance

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

General settings > Upgrade firmware



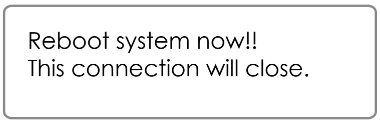
This feature allows you to upgrade the firmware of your Network Camera. It takes a few minutes to complete the process.

Note: Do not power off the Network Camera during the upgrade!

Follow the steps below to upgrade the firmware:
1. Download the latest firmware file from the VIVOTEK website. The file is in .pkg file format.
2. Click **Browse…** and locate the firmware file.
3. Click **Upgrade**. The Network Camera starts to upgrade and will reboot automatically when the upgrade completes.

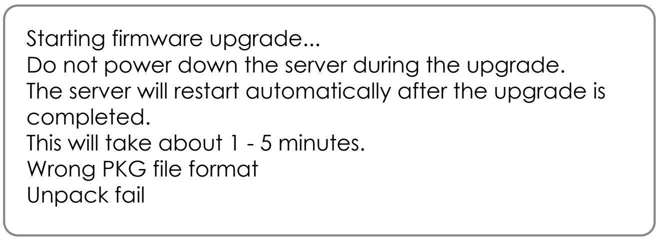
If the upgrade is successful, you will see “Reboot system now!! This connection will close”. After that, re-access the Network Camera.

The following message is displayed when the upgrade has succeeded.



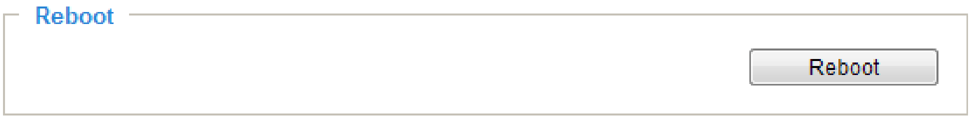
Reboot system now!!
This connection will close.

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

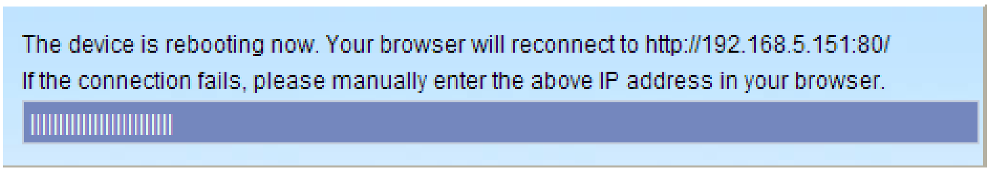


Starting firmware upgrade...
Do not power down the server during the upgrade.
The server will restart automatically after the upgrade is completed.
This will take about 1 - 5 minutes.
Wrong PKG file format
Unpack fail

General settings > Reboot



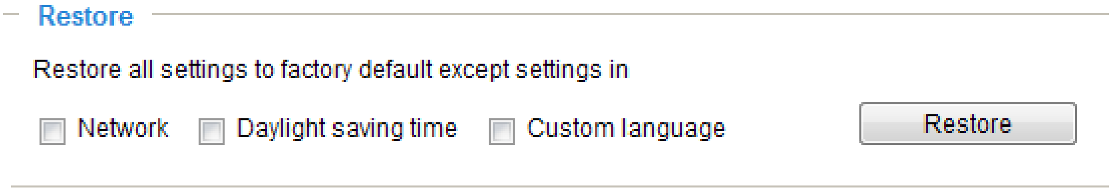
This feature allows you to reboot the Network Camera, which takes about one minute to complete. When completed, the live video page will be displayed in your browser. The following message will be displayed during the reboot process.



The device is rebooting now. Your browser will reconnect to http://192.168.5.151:80/
If the connection fails, please manually enter the above IP address in your browser.

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

General settings > Restore



Restore

Restore all settings to factory default except settings in

□ Network □ Daylight saving time □ Custom language

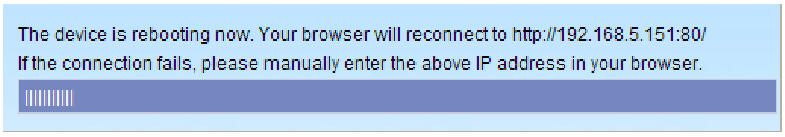
This feature allows you to restore the Network Camera to factory default settings.

Network: Select this option to retain the Network Type settings (please refer to Network Type on page 45).

Daylight Saving Time: Select this option to retain the Daylight Saving Time settings (please refer to Import/Export files below on this page).

Custom Language: Select this option to retain the Custom Language settings.

If none of the options is selected, all settings will be restored to factory default. The following message is displayed during the restoring process.

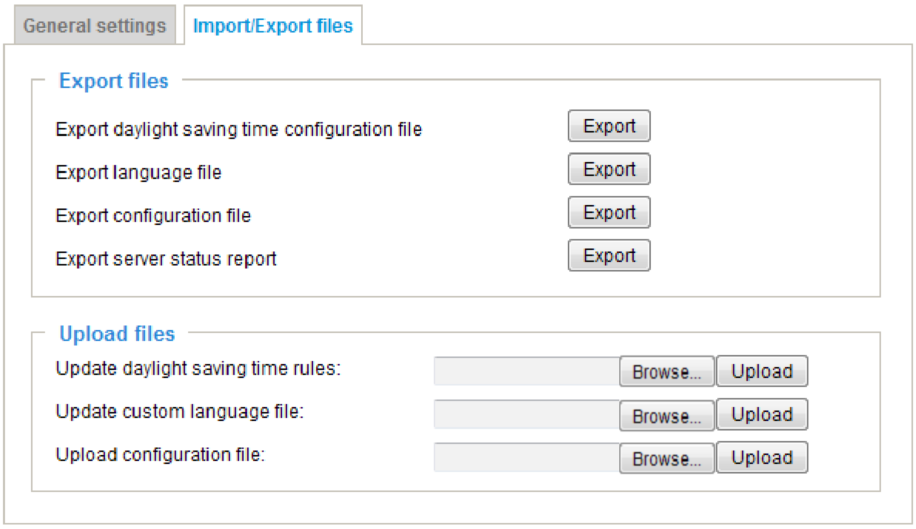


The device is rebooting now. Your browser will reconnect to http://192.168.5.151:80/

If the connection fails, please manually enter the above IP address in your browser.

Import/Export files

This feature allows you to Export / Update daylight saving time rules, custom language file, configuration file, and server status report.



Export files

Export daylight saving time configuration file

Export language file

Export configuration file

Export server status report

Upload files

Update daylight saving time rules:

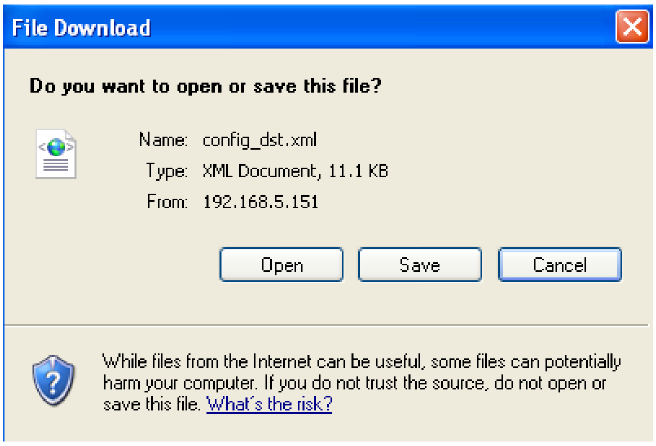
Update custom language file:

Upload configuration file:

Export daylight saving time configuration file: Click to set the start and end time of DST (Daylight Saving).

Follow the steps below to export:

1. In the Export files column, click **Export** to export the daylight saving time configuration file from the Network Camera.
2. A file download dialog will pop up as shown below. Click **Open** to review the XML file or click **Save** to store the file for editing.



File Download

Do you want to open or save this file?

Name: config_dst.xml

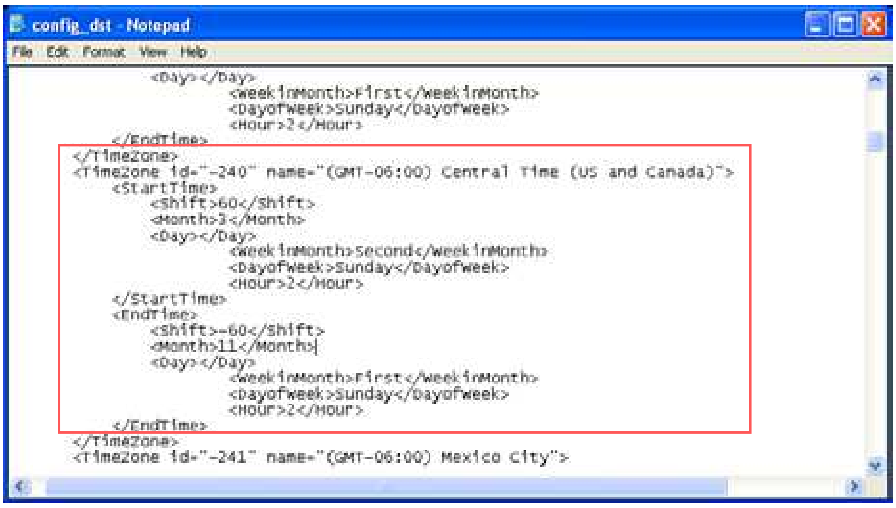
Type: XML Document, 11.1 KB

From: 192.168.5.151

While files from the Internet can be useful, some files can potentially harm your computer. If you do not trust the source, do not open or save this file. What's the risk?

3. Open the file with Microsoft® Notepad and locate your time zone; set the start and end time of DST. When completed, save the file.

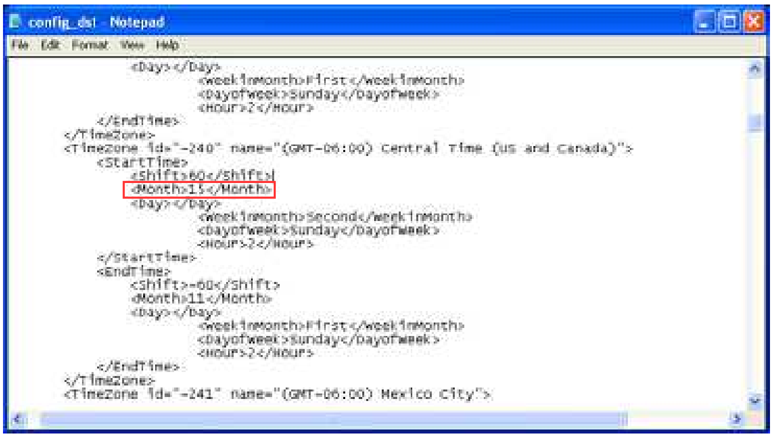
   In the example below, DST begins each year at 2:00 a.m. on the second Sunday in March and ends at 2:00 a.m. on the first Sunday in November.



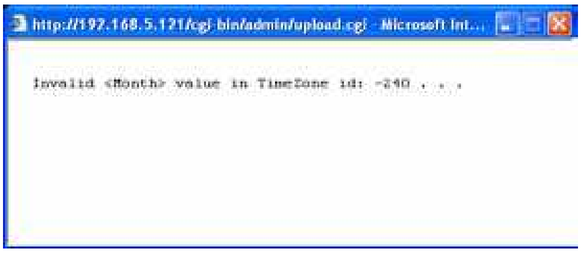
```
            <Day></Day>
                <weekInMonth>First</weekInMonth>
                <DayofWeek>Sunday</DayofWeek>
                <Hour>2</Hour>
        </EndTime>
    </TimeZone>
    <TimeZone id="-240" name="(GMT-06:00) Central Time (US and Canada)">
        <StartTime>
            <Shift>60</Shift>
            <Month>3</Month>
            <Day></Day>
                <weekInMonth>Second</weekInMonth>
                <DayofWeek>Sunday</DayofWeek>
                <Hour>2</Hour>
        </StartTime>
        <EndTime>
            <Shift>-60</Shift>
            <Month>11</Month>
            <Day></Day>
                <weekInMonth>First</weekInMonth>
                <DayofWeek>Sunday</DayofWeek>
                <Hour>2</Hour>
        </EndTime>
    </TimeZone>
    <TimeZone id="-241" name="(GMT-06:00) Mexico City">
```

Update daylight saving time rules: Click **Browse…** and specify the XML file to update.

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



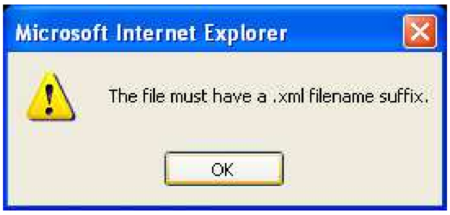
```
            <Day></Day>
                <weekInMonth>First</weekInMonth>
                <DayofWeek>Sunday</DayofWeek>
                <Hour>2</Hour>
        </EndTime>
    </TimeZone>
    <TimeZone id="-240" name="(GMT-06:00) Central Time (US and Canada)">
        <StartTime>
            <Shift>60</Shift>
            <Month>15</Month>
            <Day></Day>
                <weekInMonth>Second</weekInMonth>
                <DayofWeek>Sunday</DayofWeek>
                <Hour>2</Hour>
        </StartTime>
        <EndTime>
            <Shift>-60</Shift>
            <Month>11</Month>
            <Day></Day>
                <weekInMonth>First</weekInMonth>
                <DayofWeek>Sunday</DayofWeek>
                <Hour>2</Hour>
        </EndTime>
    </TimeZone>
    <TimeZone id="-241" name="(GMT-06:00) Mexico City">
```



http://192.168.5.121/cgi-bin/admin/upload.cgi - Microsoft Int...

```
Invalid <Month> value in TimeZone id: -240 . . .
```

The following message is displayed when attempting to upload an incorrect file format.



The file must have a .xml filename suffix.

Export language file: Click to export language strings. VIVOTEK provides nine languages: English, Deutsch, Español, Français, Italiano, 日本語, Português, 簡体中文, and 繁體中文.

Update custom language file: Click **Browse…** and specify your own custom language file to upload.

Export configuration file: Click to export all parameters for the device and user-defined scripts.

Update configuration file: Click **Browse…** to update a configuration file. Please note that the model and firmware version of the device should be the same as the configuration file. If you have set up a fixed IP or other special settings for your device, it is not suggested to update a configuration file.

Export server staus report: Click to export the current server status report, such as time, logs, parameters, process status, memory status, file system status, network status, kernel message ... and so on.

Tips:

- If a firmware upgrade is accidentally disrupted, say, by a power outage, you still have a last resort method to restore normal operation. See the following for how to bring the camera back to work:

  Applicable scenario:

  (1) Power disconnected during firmware upgrade.
  (2) Unknown reason causing abnormal LED status, and a Restore cannot recover normal working condition.

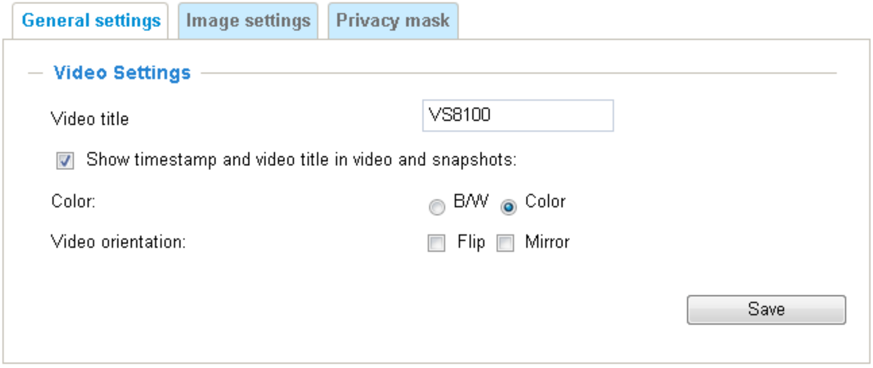
  You can use the following methods to activate the camera with its backup firmware:

  (1) Press and hold down the reset button for at least one minute.
  (2) Power on the camera until the Red LED blinks rapidly.
  (3) After boot up, the firmware should return to the previous version before the camera hanged. (The procedure should take 5 to 10 minutes, longer than the normal boot-up process). When tthis process is completed, the LED status should return to normal.

Media > Image

This section explains how to configure the image settings of the Network Camera. It is composed of the following four columns: General settings, Image settings, Exposure, and Privacy mask.

General settings



Video Settings

Video title: VS8100

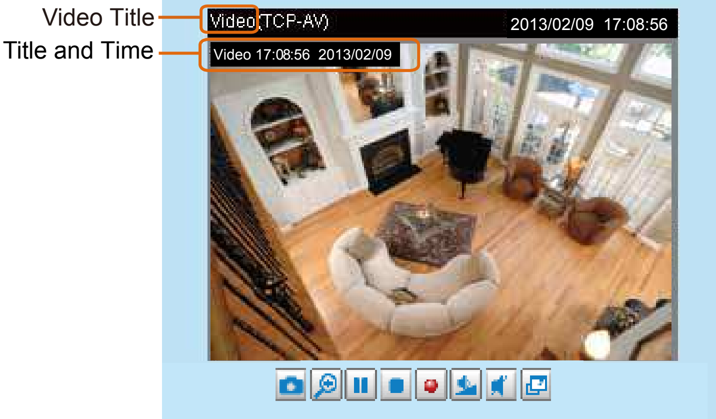
☑ Show timestamp and video title in video and snapshots:

Color: ○ B/W ● Color

Video orientation: □ Flip □ Mirror

Video title

Show_timestamp_and video_title_in_video_and_snapshots: Enter a name that will be displayed on the title bar of the live video as the picture shown below.

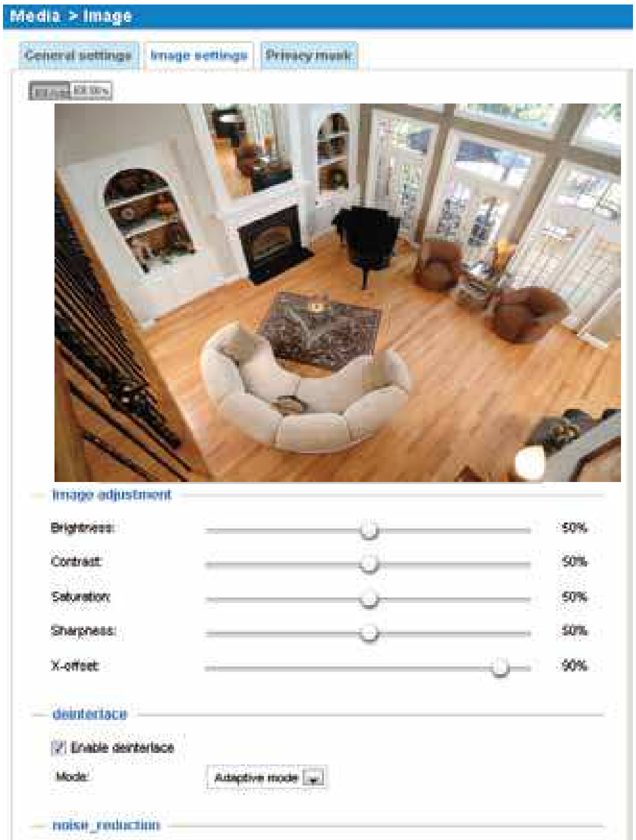


Color: Select to display color or black/white video streams.

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 (e.g., on the ceiling) to correct the image orientation. Please note that if you have preset locations, those locations will be cleared after flip/mirror setting.

Image settings

On this page, you can tune the White balance and Image adjustment.



Media > Image

image adjustment

Brightness: 50%

Contrast: 50%

Saturation: 50%

Sharpness: 50%

X-offset: 90%

deinterlace

☑ Enable deinterlace

Mode: Adaptive mode

noise_reduction

Image Adjustment

- Brightness: Adjust the image brightness level, which ranges from 0% to 100%.

- Contrast: Adjust the image contrast level, which ranges from 0% to 100%.

- Saturation: Adjust the image saturation level, which ranges from 0% to 100%.

- Sharpness: Adjust the image sharpness level, which ranges from 0% to 100%.

- X-offset: Adjust the image to the proper position horizontally.

- Enable deinterlace: Check to enable deinterlace, and choose **Adaptive mode** or **Blend mode** in the drop-down list. Adaptive mode provides the best image quality, while Blend mode provides better image quality (than not using the deinterlace function at all).

- Enable noise reduction: Check to enable noise reduction in order to reduce noises and flickers in image. This applies to the onboard 3D Noise Reduction feature. Use the pull-down menu to adjust the reduction strength. Note that applying this function to the video channel will consume system computing power.

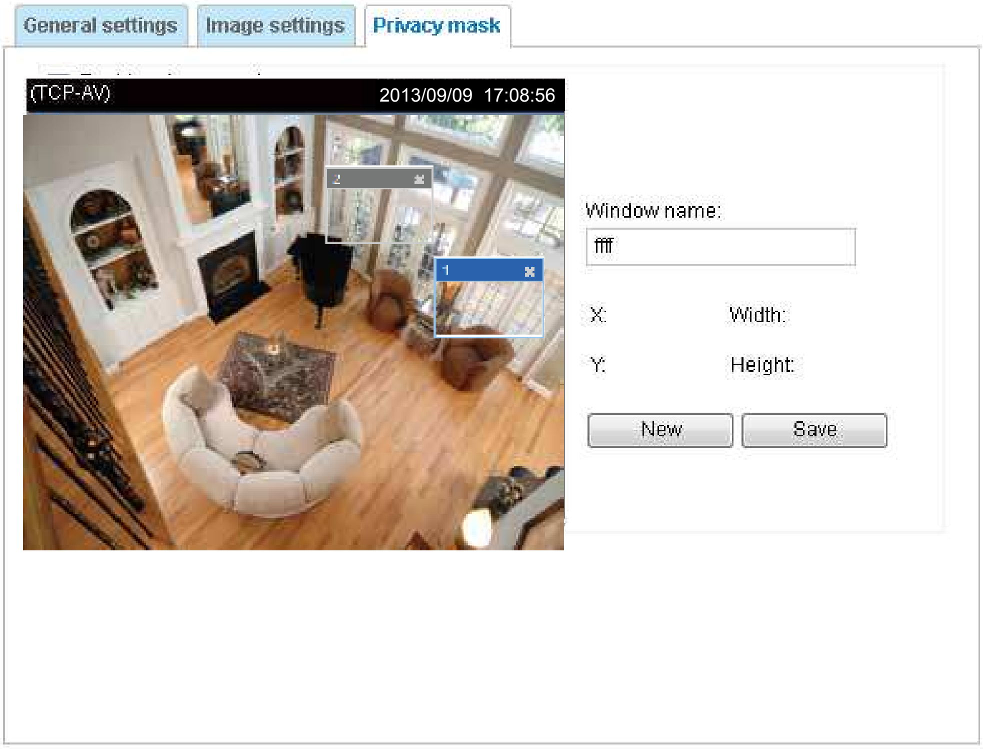
  3D Noise Reduction is mostly applied in low-light conditions. When enabled in a low-light condition with fast moving objects, trails of after-images may occur. You may then select a lower strength level or disable the function.

- Restore: Click to restore the default setting.

- Save: When finished with the setting, click **Save** to enable the settings.

Privacy mask

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



fff

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

1. Click **New** to add a new window.
2. You can use the mouse cursor 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 setting.
4. Click on the **Enable privacy mask** checkbox to enable this function.

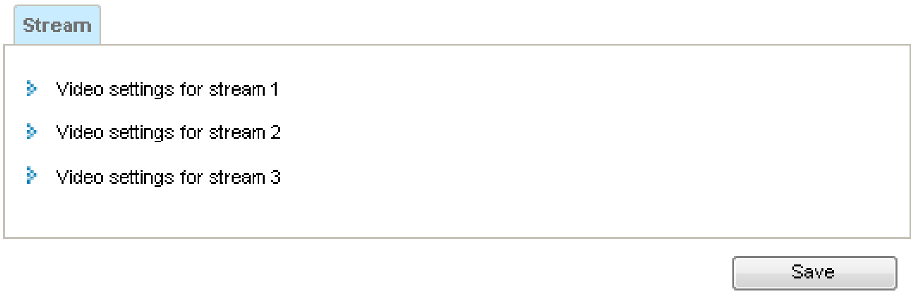
NOTE:

► *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 corner of the window.*

Media > Video

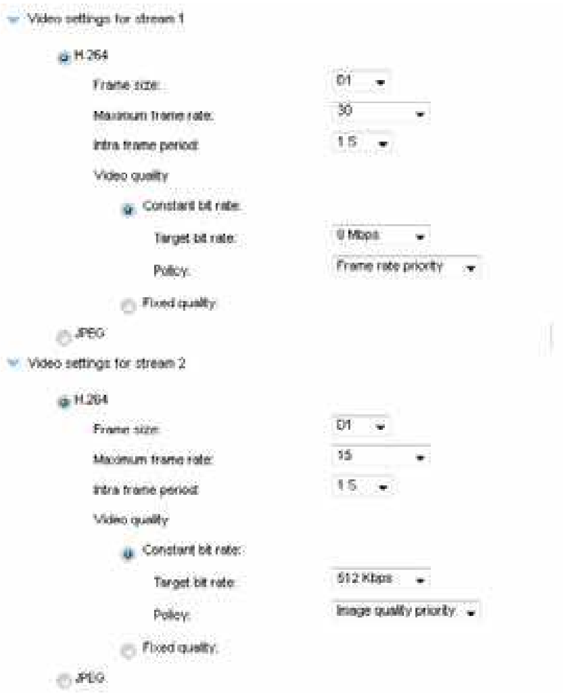
Stream settings



- Video settings for stream 1
- Video settings for stream 2
- Video settings for stream 3

This Network Camera supports multiple streams with frame sizes ranging QCIF (176x144) to D1 (704x480 NTSC pixels).

Click the stream item to display the detailed information. The maximum frame size will follow your settings in the above Viewing Window sections.



Video settings for stream 1

● H.264

Frame size:	D1
Maximum frame rate:	30
Intra frame period:	1 S

Video quality

● Constant bit rate:

Target bit rate:	6 Mbps
Policy:	Frame rate priority

○ Fixed quality:

○ JPEG

Video settings for stream 2

● H.264

Frame size:	D1
Maximum frame rate:	15
Intra frame period:	1 S

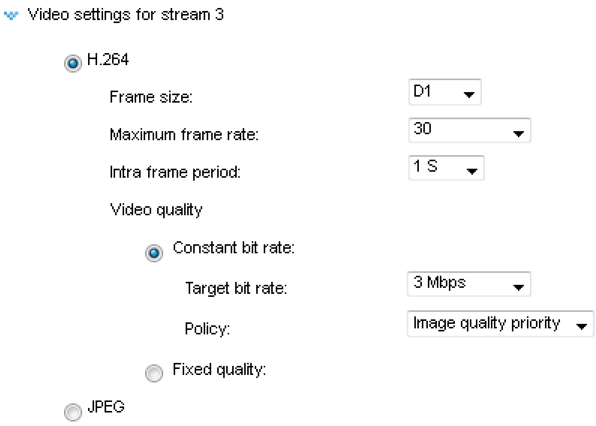
Video quality

● Constant bit rate:

Target bit rate:	512 Kbps
Policy:	Image quality priority

○ Fixed quality:

○ JPEG



Video settings for stream 3

● H.264

Frame size:	D1
Maximum frame rate:	30
Intra frame period:	1 S

Video quality

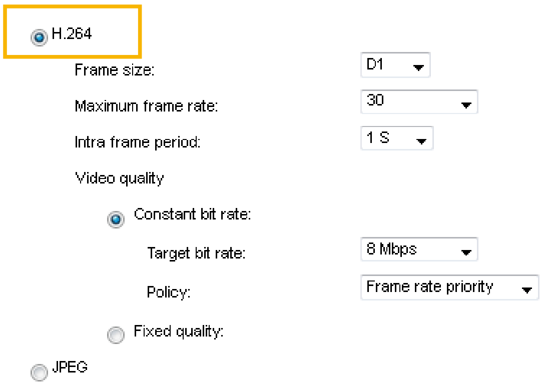
● Constant bit rate:

Target bit rate:	3 Mbps
Policy:	Image quality priority

○ Fixed quality:

○ JPEG

This Network Camera provides real-time H.264 and MJPEG compression standards (Dual Codec) for real-time viewing. If the **H.264** mode is selected, the video is streamed via RTSP protocol. There are several parameters through which you can adjust the video performance:



● H.264

Frame size: D1

Maximum frame rate: 30

Intra frame period: 1 S

Video quality

● Constant bit rate:

Target bit rate: 8 Mbps

Policy: Frame rate priority

○ Fixed quality:

○ JPEG

■ Frame size

You can set up different video resolutions for different viewing devices. For example, set a smaller frame size and lower bit rate for remote viewing on mobile phones and a larger video size and a higher bit rate for live viewing on web browsers. Note that a larger frame size takes up more bandwidth.

■ Maximum frame rate

This limits the maximum refresh frame rate per second. Set the frame rate higher for smoother video quality and for recognizing moving objects in the field of view.

If the power line frequency is set to 50Hz, the frame rates are selectable at 1fps, 2fps, 3fps, 5fps, 8fps, 10fps, 12fps, 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, 12fps, 15fps, 20fps, 25fps, and 30fps. You can also select **Customize** and manually enter a value.

The frame rate will decrease if you select a higher resolution.

■ Intra frame period

Determine how often for firmware 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

- Constant bit rate: A complex scene generally produces a larger file size, meaning that higher bandwidth will be needed for data transmission. The bandwidth utilization is configurable to match 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, 4Mbps, 6Mbps, and 8Mbps. You can also select **Customize** and manually enter a value.

  - Target bit rate: select a bit rate from the pull-down menu. The bit rate ranges from 20kbps to a maximum of 40Mbps. The bit rate then becomes the Average or Upper bound bit rate number. The Network Camera will strive to deliver video streams around or within the bit rate limitation you impose.

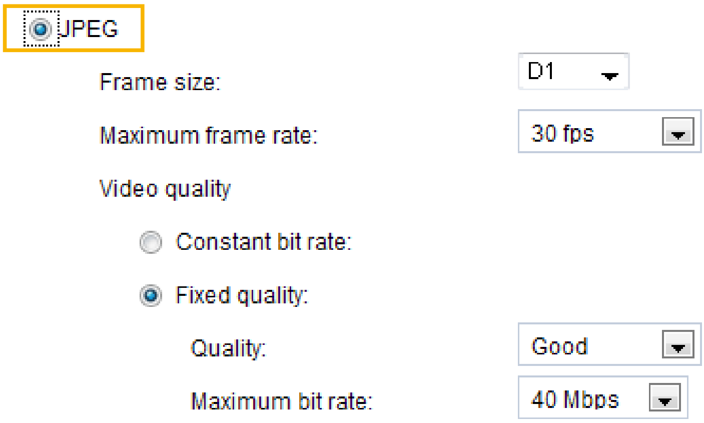
  - Policy: If Frame Rate Priority is selected, the Network Camera will try to maintain the frame rate per second performance, while the image quality will be compromised. If Image quality priority is selected, the Network Camera may drop some video frames in order to maintain image quality.

- Fixed quality: 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. You can also select **Customize** and manually enter a value.

  - Maximum bit rate: With the guaranteed image quality, you might still want to place a bit rate limitation to control the size of video streams for bandwidth and storage concerns. The configurable bit rate starts from 1Mbps to 40Mbps. This can ensure bandwidth is not exhausted when extra-high bit rate is accidentally produced, e.g., lots of noises in a video taken by the night time.

  You may also manually enter a bit rate number by selecting the **Customized** option.

If **JPEG** mode is selected, the Network Camera sends consecutive 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:



● JPEG

Frame size: D1

Maximum frame rate: 30 fps

Video quality

○ Constant bit rate:

● Fixed quality:

Quality: Good

Maximum bit rate: 40 Mbps

■ Frame size
You can set up different video resolution for different viewing devices. For example, set a smaller frame size and lower bit rate for remote viewing on mobile phones and a larger video size and a higher bit rate for live viewing on web browsers. Note that a larger frame size takes up more bandwidth.

■ 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, 12fps, 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, 12fps, 15fps, 20fps, 25fps, and 30fps. You can also select **Customize** and manually enter a value. The frame rate will decrease if you select a higher resolution.

■ Video quality
Refer to the previous page setting an average or upper bound threshold for controlling the bandwidth consumed for transmitting motion jpegs. The configuration method is identical to that for H.264.

For Constant Bit Rate and other settings, refer to the previous page for details.

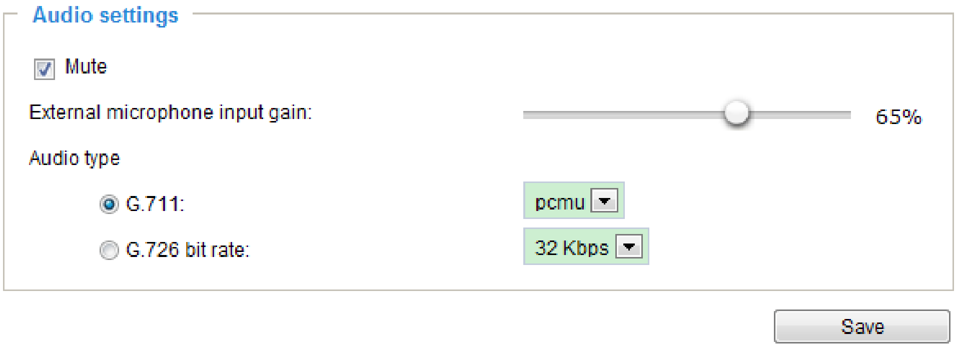
NOTE:

► *Video quality and fixed quality refers to the **compression rate**, so a lower value will produce higher quality.*

► *Converting high-quality video may significantly increase the CPU loading, and you may encounter streaming disconnection or video loss while capturing a complicated scene. In the event of occurance, we suggest you customize a lower video resolution or reduce the frame rate to obtain smooth video.*

Media > Audio

Audio Settings



Audio settings

☑ Mute

External microphone input gain: 65%

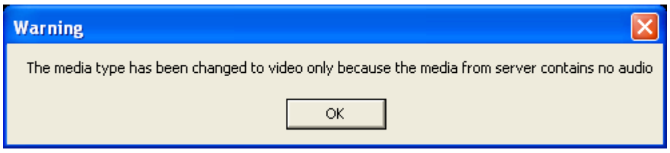
Audio type

● G.711: pcmu

○ G.726 bit rate: 32 Kbps

Save

Mute: Select this option to disable audio transmission from the Network Camera to all clients. Note that if muted, 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:



Warning

The media type has been changed to video only because the media from server contains no audio

OK

External microphone input gain: Select the gain of the internal audio input according to ambient conditions. Adjust the gain from 100% (most sensitive) to 0% (least sensitive).

Audio type: .

- G.711 provides good sound quality and requires about 64Kbps. Select the operation mode as pcmu (μ-Law) or pcma (A-Law) mode.

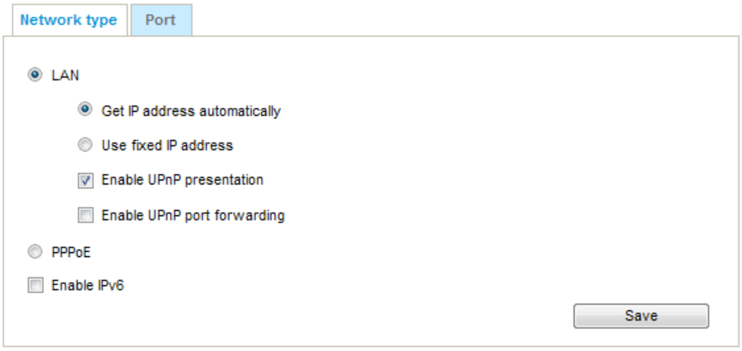
- G.726 is a speech codec standard covering voice transmission at rates of 16, 24, 32, and 40kbit/s.

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

Network > General settings

This section explains how to configure a wired network connection for the Network Camera.

Network Type



Network type | Port

● LAN

● Get IP address automatically

○ Use fixed IP address

☑ Enable UPnP presentation

□ Enable UPnP port forwarding

○ PPPoE

□ Enable IPv6

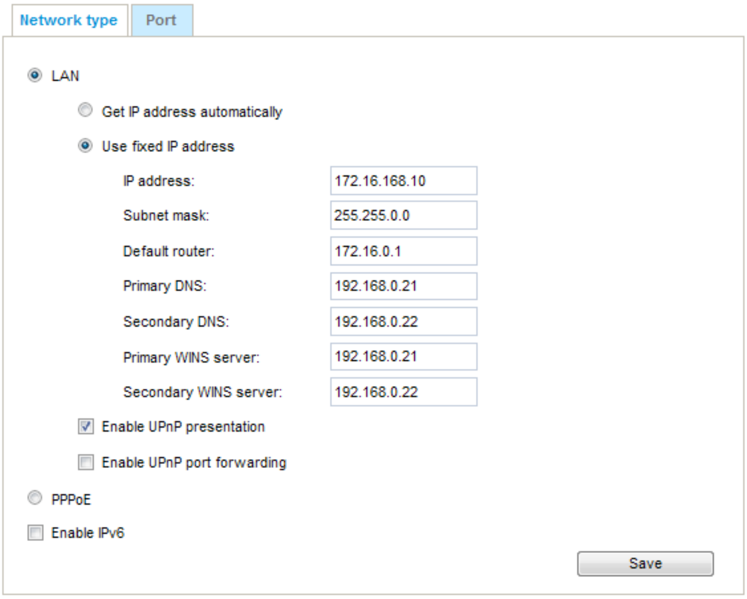
Save

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. The default setting for the Network Type is LAN. Please rememer to click on the **Save** button when you complete the Network setting.

Get IP address automatically: Select this option to obtain an available dynamic IP address assigned by the 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.



Network type | Port

● LAN

○ Get IP address automatically

● Use fixed IP address

IP address: 172.16.168.10

Subnet mask: 255.255.0.0

Default router: 172.16.0.1

Primary DNS: 192.168.0.21

Secondary DNS: 192.168.0.22

Primary WINS server: 192.168.0.21

Secondary WINS server: 192.168.0.22

☑ Enable UPnP presentation

□ Enable UPnP port forwarding

○ PPPoE

□ Enable IPv6

Save

1. You can make use of VIVOTEK Installation Wizard 2 on the software CD to easily set up the Network Camera on LAN. Please refer to Software Installation on page 12 for details.
2. Enter the Static IP, Subnet mask, Default router, and Primary DNS provided by your ISP or network administrator.

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 disable the transmission to destinations across different subnets.

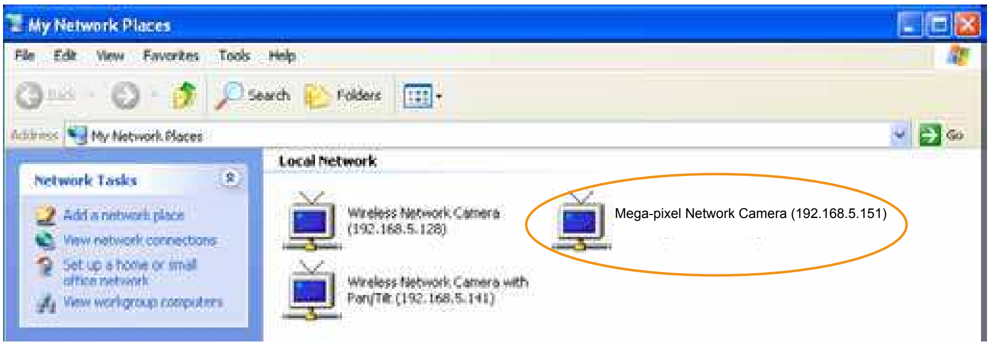
Primary DNS: The primary domain name server that translates hostnames into IP addresses.

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

Primary WINS server: The primary WINS server that maintains the database of computer names and IP addresses.

Secondary WINS server: The secondary WINS server that maintains the database of computer names and IP addresses.

Enable UPnP presentation: Select this option to enable UPnP™ presentation for your Network Camera so that whenever a Network Camera is presented to the LAN, the shortcuts to connected Network Cameras will be listed in My Network Places. You can click the shortcut to link to the web browser. Currently, UPnP™ is supported by Windows XP or later. Note that to utilize this feature, please make sure the UPnP™ component is installed on your computer.


My Network Places
File Edit View Favorites Tools Help
Back
Search
Folders
Address
My Network Places
Go
Network Tasks
Add a network place
View network connections
Set up a home or small office network
View workgroup computers
Local Network
Wireless Network Camera (192.168.5.128)
Mega-pixel Network Camera (192.168.5.151)
Wireless Network Camera with Pan/Tilt (192.168.5.141)

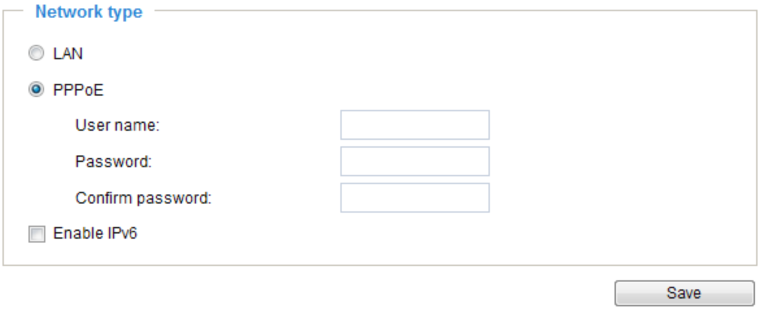
Enable UPnP port forwarding: To access the Network Camera from the Internet, select this option to allow the Network Camera to open ports automatically on the router so that video streams can be sent out from a LAN. To utilize of this feature, make sure that your router supports UPnP™ and it is activated.

PPPoE (Point-to-point over Ethernet)

Select this option to configure your Network Camera to make it accessible from anywhere as long as there is 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 on the LAN.
2. Go to Configuration > Event > Event settings > Add server (please refer to Add server on page 84) to add a new email or FTP server.
3. Go to Configuration > Event > Event settings > Add media (please refer to Add media on page 89). Select System log so that you will receive the 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 > General settings > Network type. Select PPPoE and enter the user name and password provided by your ISP. Click **Save** to enable the setting.



Network type

○ LAN

● PPPoE

User name:

Password:

Confirm password:

□ Enable IPv6

Save

5. The Network Camera will reboot.
6. Disconnect the power to the Network Camera; remove it from the LAN environment.

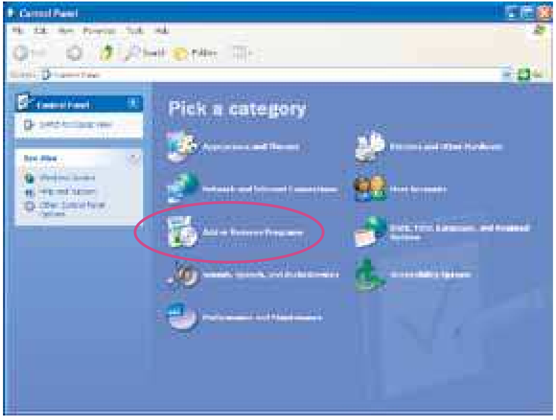
NOTE:

► *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.*

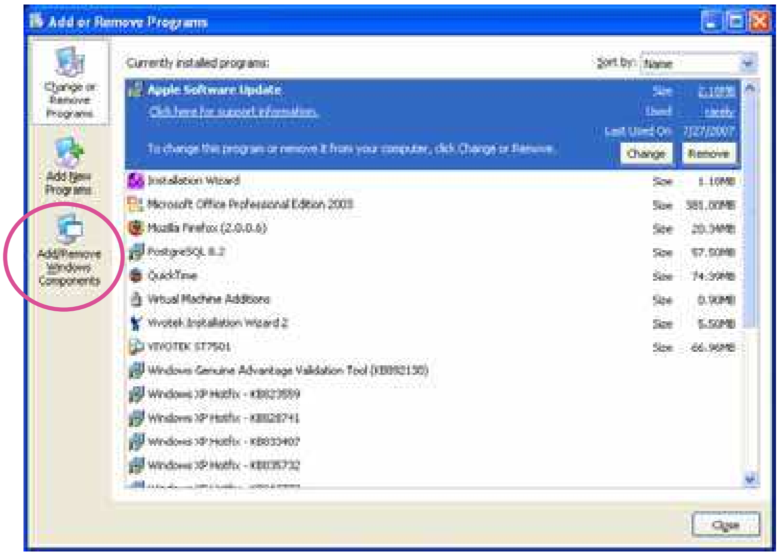
► *If UPnP™ is not supported by your router, you will see the following message:*
Error: Router does not support UPnP port forwarding.

► *Steps to enable the UPnP™ user interface on your computer:*
Note that you must log on to the computer as a system administrator to install the UPnP™ components.

*1. Go to Start, click **Control Panel**, then click **Add or Remove Programs**.*



*2. In the Add or Remove Programs dialog box, click **Add/Remove Windows Components**.*

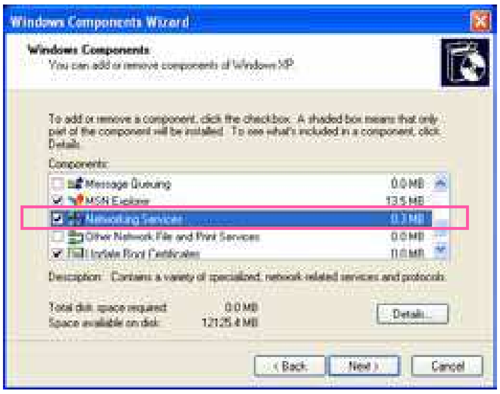


Currently installed programs:

Apple Software Update — Size 2.10MB — Used rarely — Last Used On 7/27/2007
Click here for support information.
To change this program or remove it from your computer, click Change or Remove.

Installation Wizard	Size	1.10MB
Microsoft Office Professional Edition 2003	Size	381.00MB
Mozilla Firefox (2.0.0.6)	Size	20.34MB
PostgreSQL 8.2	Size	57.50MB
QuickTime	Size	74.39MB
Virtual Machine Additions	Size	0.90MB
Vivotek Installation Wizard 2	Size	5.50MB
VIVOTEK ST7501	Size	66.96MB
Windows Genuine Advantage Validation Tool (KB892130)		
Windows XP Hotfix - KB823559		
Windows XP Hotfix - KB828741		
Windows XP Hotfix - KB833407		
Windows XP Hotfix - KB835732		

*3. In the Windows Components Wizard dialog box, select **Networking Services** and click **Details**.*



Windows Components
You can add or remove components of Windows XP

To add or remove a component, click the checkbox. A shaded box means that only part of the component will be installed. To see what's included in a component, click Details.

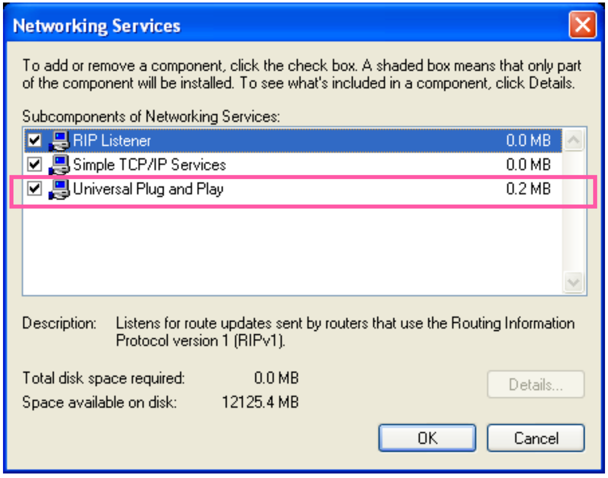
Components:

□	Message Queuing	0.0 MB
☑	MSN Explorer	13.5 MB
☑	Networking Services	0.3 MB
□	Other Network File and Print Services	0.0 MB
☑	Update Root Certificates	0.0 MB

Description: Contains a variety of specialized, network-related services and protocols.

Total disk space required: 0.0 MB
Space available on disk: 12125.4 MB

4. In the Networking Services dialog box, select ***Universal Plug and Play*** *and click* ***OK****.*



Networking Services

To add or remove a component, click the check box. A shaded box means that only part of the component will be installed. To see what's included in a component, click Details.

Subcomponents of Networking Services:

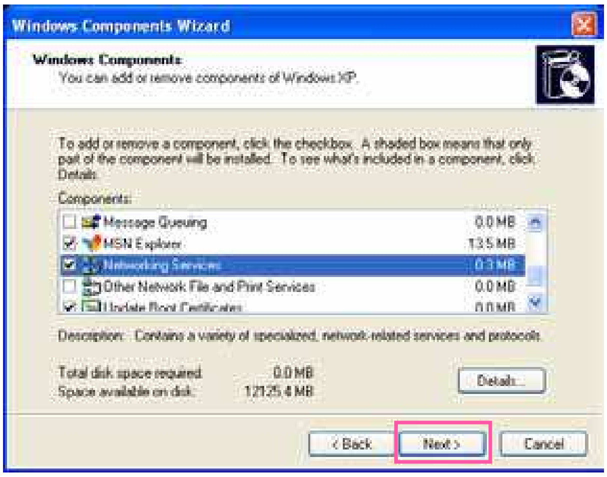
☑	RIP Listener	0.0 MB
☑	Simple TCP/IP Services	0.0 MB
☑	Universal Plug and Play	0.2 MB

Description: Listens for route updates sent by routers that use the Routing Information Protocol version 1 (RIPv1).

Total disk space required: 0.0 MB

Space available on disk: 12125.4 MB

5. Click ***Next*** *in the following window.*



Windows Components Wizard

Windows Components

You can add or remove components of Windows XP.

To add or remove a component, click the checkbox. A shaded box means that only part of the component will be installed. To see what's included in a component, click Details.

Components:

☐	Message Queuing	0.0 MB
☑	MSN Explorer	13.5 MB
☑	Networking Services	0.3 MB
☐	Other Network File and Print Services	0.0 MB
☑	Update Root Certificates	0.0 MB

Description: Contains a variety of specialized, network-related services and protocols.

Total disk space required: 0.0 MB

Space available on disk: 12125.4 MB

6. Click ***Finish****. UPnP^{TM} is enabled.*

► *How does UPnP^{TM} work?*
UPnP^{TM} networking technology provides automatic IP configuration and dynamic discovery of devices added to a network. Services and capabilities offered by networked devices, such as printing and file sharing, are available among each other without the need for cumbersome network configuration. In the case of Network Cameras, you will see Network Camera shortcuts under My Network Places.

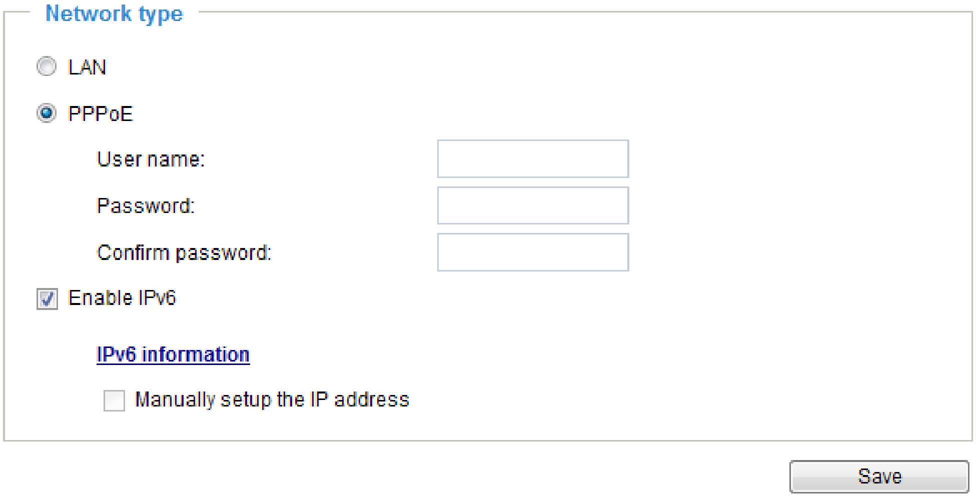
► *Enabling UPnP port forwarding allows the Network Camera to open a secondary HTTP port on the router-not HTTP port-meaning that you have to add the secondary HTTP port number to the Network Camera's public address in order to access the Network Camera from the Internet. For example, when the HTTP port 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.*

From the Internet	In LAN
http://203.67.124.123:8080	http://192.168.4.160 or http://192.168.4.160:8080

► *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 33 for details. After the Network Camera is reset to factory default, it will be accessible on the LAN.*

Enable IPv6

Select the Enable IPv6 checkbox and click **Save** to enable IPv6 settings.
Please note that this only works if your network environment and hardware equipment support IPv6. The browser should be Microsoft® Internet Explorer 7 or 8, Mozilla Firefox 13.0 or above.



Network type

○ LAN

● PPPoE

User name:

Password:

Confirm password:

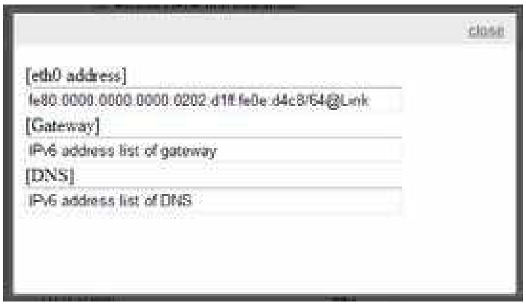
☑ Enable IPv6

IPv6 information

□ Manually setup the IP address

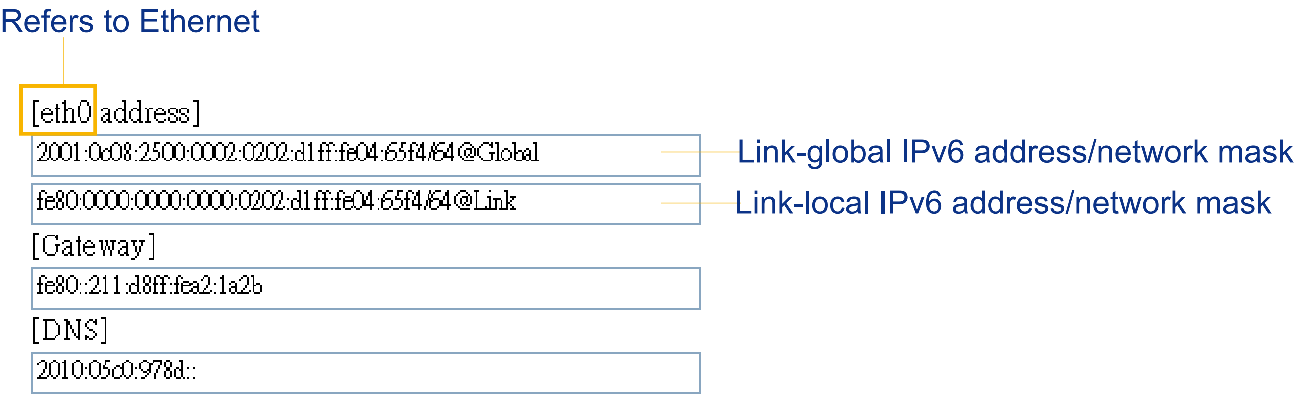
When IPv6 is enabled, by default, the network camera will listen to router advertisements and be assigned with a link-local IPv6 address accordingly.

IPv6 Information: Click this button to obtain the IPv6 information as shown below.



[eth0 address]
fe80:0000:0000:0000:0202:d1ff:fe0e:d4c8/64@Link
[Gateway]
IPv6 address list of gateway
[DNS]
IPv6 address list of DNS

If your IPv6 settings are successful, the IPv6 address list will be listed in the pop-up window. The IPv6 address will be displayed as follows:



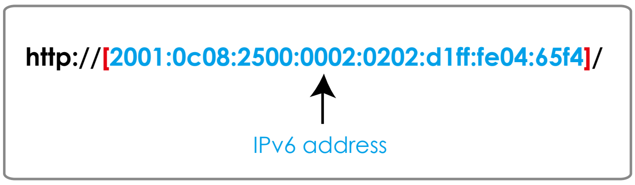
Refers to Ethernet

[eth0 address]
2001:0c08:2500:0002:0202:d1ff:fe04:65f4/64@Global
fe80:0000:0000:0000:0202:d1ff:fe04:65f4/64@Link
[Gateway]
fe80::211:d8ff:fea2:1a2b
[DNS]
2010:05c0:978d::

Link-global IPv6 address/network mask

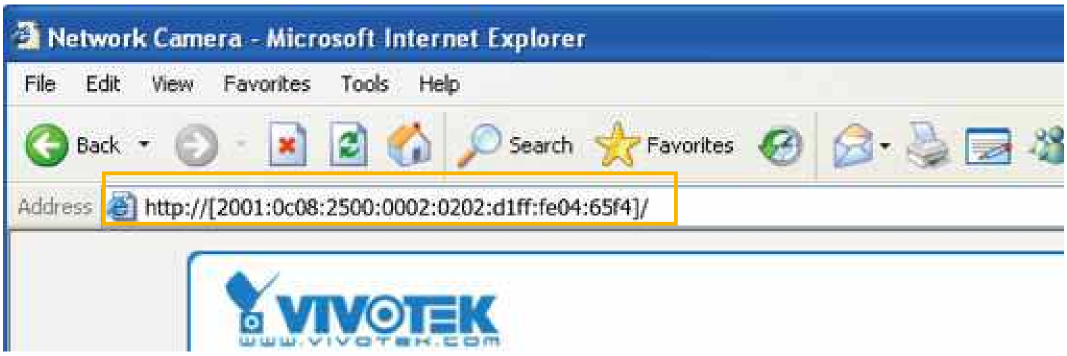
Link-local IPv6 address/network mask

Please follow the steps below to link to an IPv6 address:
1. Open your web browser.
2. Enter the link-global or link-local IPv6 address in the address bar of your web browser.
3. The format should be:



http://[2001:0c08:2500:0002:0202:d1ff:fe04:65f4]/

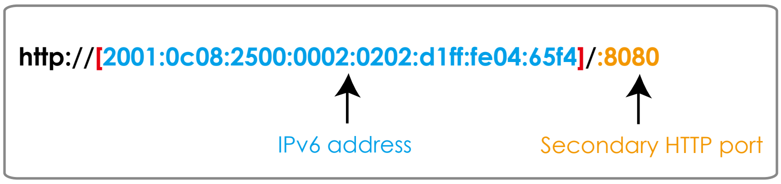
4. Press **Enter** on the keyboard or click **Refresh** button to refresh the webpage.
For example:



http://[2001:0c08:2500:0002:0202:d1ff:fe04:65f4]/

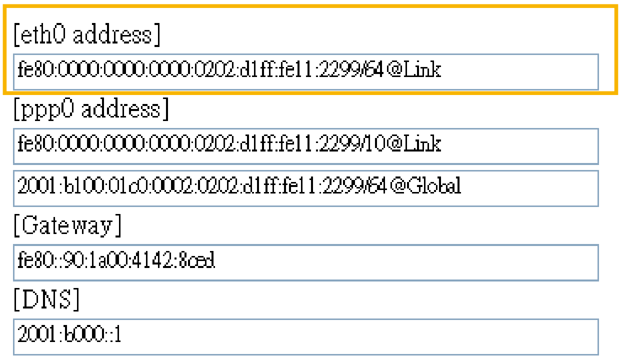
NOTE:

► *If you have a Secondary HTTP port (the default value is 8080), you can also link to the webpage using the following address format: (Please refer to* ***HTTP*** *streaming on page 52 for detailed information.)*



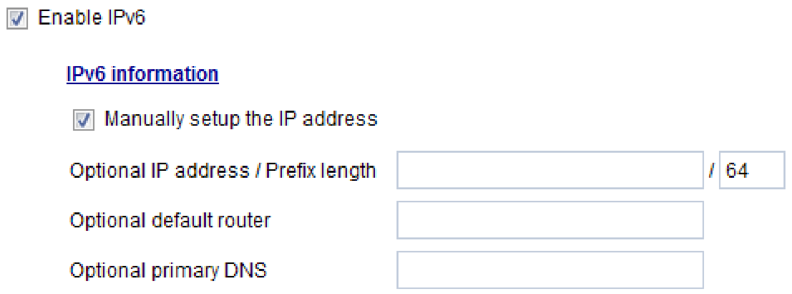
http://[2001:0c08:2500:0002:0202:d1ff:fe04:65f4]/:8080

► *If you choose PPPoE as the Network Type, the [PPP0 address] will be displayed in the IPv6 information column as shown below.*



[eth0 address]
fe80:0000:0000:0000:0202:d1ff:fe11:2299/64@Link
[ppp0 address]
fe80:0000:0000:0000:0202:d1ff:fe11:2299/10@Link
2001:b100:01c0:0002:0202:d1ff:fe11:2299/64@Global
[Gateway]
fe80::90:1a00:4142:8ced
[DNS]
2001:b000::1

Manually setup the IP address: Select this option to manually configure IPv6 settings if your network environment does not have DHCPv6 server and router advertisements-enabled routers. If you check this item, the following blanks will be displayed for you to enter the corresponding information:



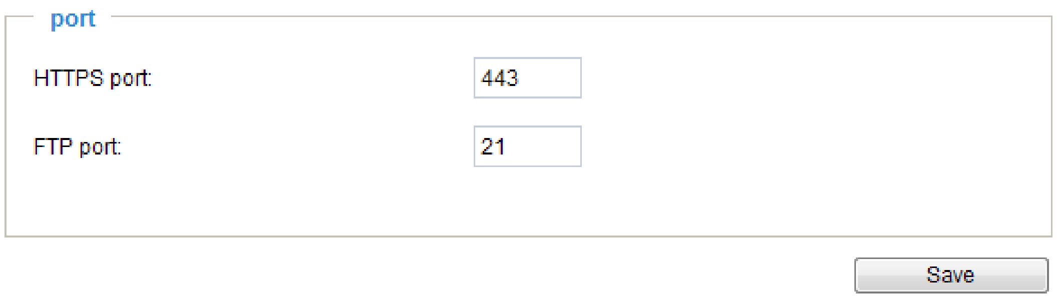
☑ Enable IPv6

IPv6 information

☑ Manually setup the IP address

Optional IP address / Prefix length		/ 64
Optional default router		
Optional primary DNS		

Port



port

HTTPS port:	443
FTP port:	21

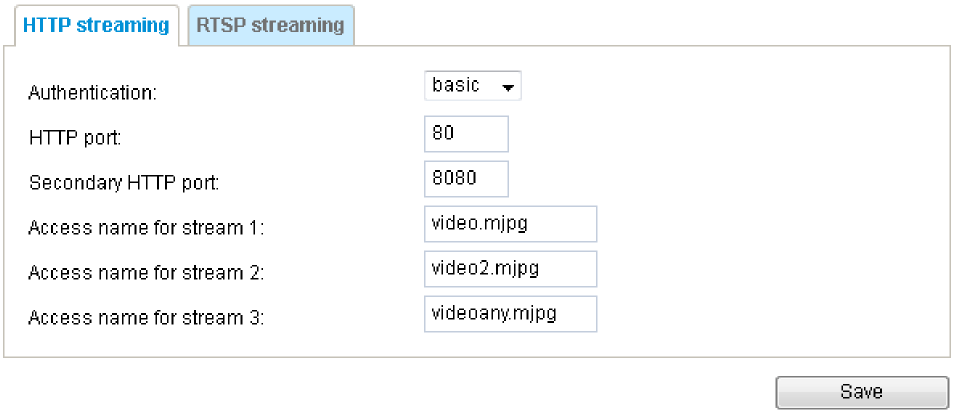
HTTPS port: By default, the HTTPS port is set to 443. It can also be assigned to another port number between 1025 and 65535.

FTP port: The FTP server allows the user to save recorded video clips. You can utilize VIVOTEK's Installation Wizard 2 to upgrade the firmware via FTP server. By default, the FTP port is set to 21. It also can be assigned to another port number between 1025 and 65535.

Network > Streaming protocols

HTTP streaming

To utilize HTTP authentication, make sure that your have set a password for the Network Camera first; please refer to Security > User account on page 62 for details.



Authentication: basic

HTTP port: 80

Secondary HTTP port: 8080

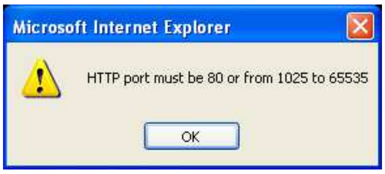
Access name for stream 1: video.mjpg

Access name for stream 2: video2.mjpg

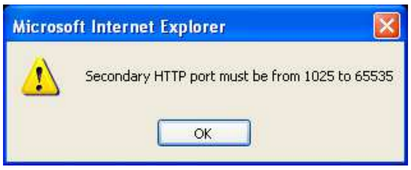
Access name for stream 3: videoany.mjpg

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 and there can be potential risks of being intercepted. If **digest** authentication is selected, user credentials are encrypted using MD5 algorithm and thus provide better protection against unauthorized accesses.

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



HTTP port must be 80 or from 1025 to 65535



Secondary HTTP port must be from 1025 to 65535

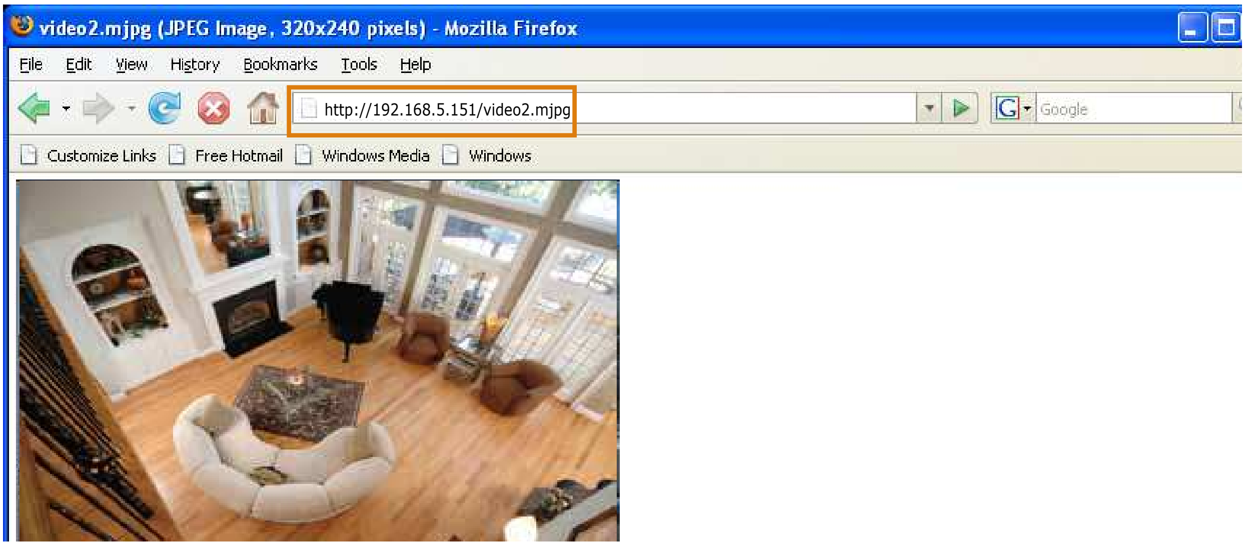
To access the Network Camera on the LAN, both the HTTP port and secondary HTTP port can be used to access the Network Camera. For example, when the HTTP port is set to 80 and the secondary HTTP port is set to 8080, refer to the list below for the Network Camera's IP address.

On the LAN
http://192.168.4.160 or http://192.168.4.160:8080

Access name for stream 1 ~ 3: This Network camera supports multiple streams simultaneously. The access name is used to identify different video streams. Users can click **Media > Video > Stream settings** to set up the video quality of linked streams. For more information about how to set up the video quality, please refer to Stream settings on page 40.

When using **Mozilla Firefox** to access the Network Camera and the video mode is set to JPEG, users will receive video comprised of continuous JPEG images. This technology, known as "server push", allows the Network Camera to feed live pictures to Mozilla Firefox.

URL command -- http://<ip address>:<http port>/<access name for stream 1~3>
For example, when the Access name for stream 2 is set to video2.mjpg:
1. Launch Mozilla Firefox or Netscape.
2. Type the above URL command in the address bar. Press **Enter**.
3. The JPEG images will be displayed in your web browser.

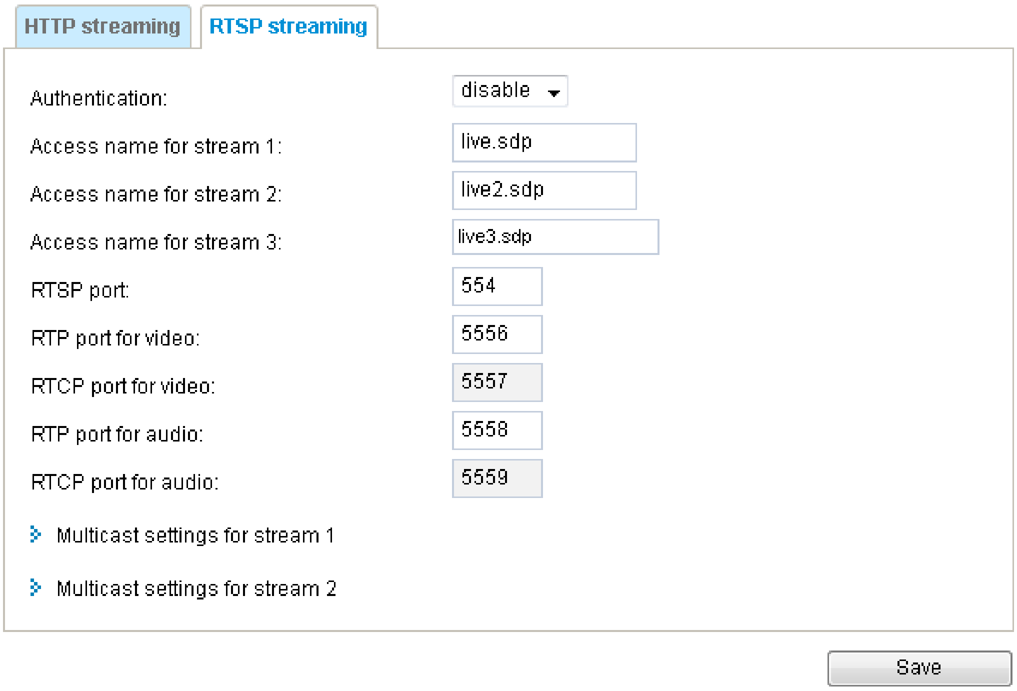

video2.mjpg (JPEG Image, 320x240 pixels) - Mozilla Firefox
File Edit View History Bookmarks Tools Help
http://192.168.5.151/video2.mjpg
Google
Customize Links
Free Hotmail
Windows Media
Windows

NOTE:

► *Microsoft® Internet Explorer does not support server push technology; therefore, you will not be able to access a video stream using http://<ip address>:<http port>/<access name for stream 1~3> .*

RTSP Streaming

To utilize RTSP streaming authentication, make sure that you have set a password for controlling the access to video stream first. Please refer to Security > User account on page 62 for details.



Authentication:	disable
Access name for stream 1:	live.sdp
Access name for stream 2:	live2.sdp
Access name for stream 3:	live3.sdp
RTSP port:	554
RTP port for video:	5556
RTCP port for video:	5557
RTP port for audio:	5558
RTCP port for audio:	5559

Multicast settings for stream 1

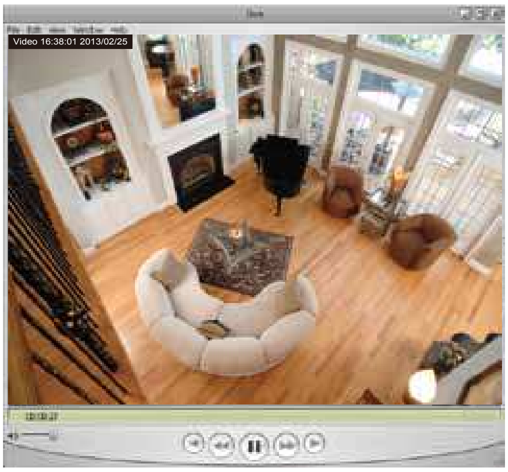
Multicast settings for stream 2

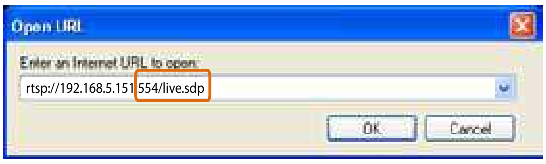
Authentication: Depending on your network security requirements, the Network Camera provides three types of security settings for streaming via RTSP protocol: disable, basic, and digest.
If **basic** authentication is selected, the password is sent in plain text format, but there can be potential risks 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 below:

	Quick Time player	VLC
Disable	O	O
Basic	O	O
Digest	O	X

Access name for stream 1 ~ 3: This Network camera supports multiple streams simultaneously. 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 H.264 and use the following RTSP URL command to request transmission of the streaming data.
rtsp://<ip address>:<rtsp port>/<access name for stream 1 to 3>
For example, when the access name for stream 1 is set to live.sdp:

1. Launch an RTSP player.
2. Choose File > Open URL. A URL dialog box will pop up.
3. Type the above URL command in the text box.
4. The live video will be displayed in your player as shown below.





Enter an Internet URL to open:
rtsp://192.168.5.151:554/live.sdp

RTSP port /RTP port for video and RTCP port for video

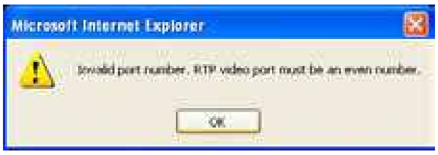
- RTSP (Real-Time Streaming Protocol) controls the delivery of streaming media. By default, the port number is set to 554.

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

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

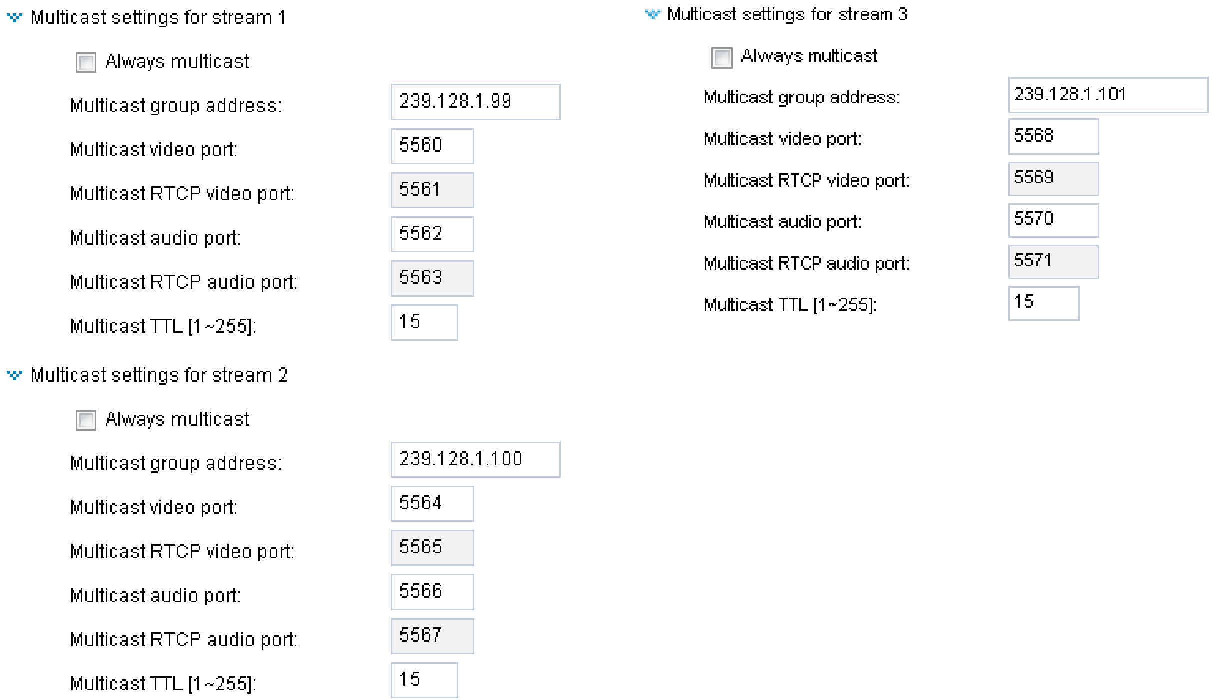
The ports can be changed to values between 1025 and 65535. The RTP port must be an even number and the RTCP port is the RTP port number plus one, and thus is always an odd number. When the RTP port changes, the RTCP port will change accordingly.

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



Invalid port number. RTP video port must be an even number.

Multicast settings for stream 1 ~ 3: Click the items to display the detailed configuration information. Select the Always multicast option to enable multicast for stream 1 ~ 3.



Multicast settings for stream 1

□ Always multicast

Multicast group address:	239.128.1.99
Multicast video port:	5560
Multicast RTCP video port:	5561
Multicast audio port:	5562
Multicast RTCP audio port:	5563
Multicast TTL [1~255]:	15

Multicast settings for stream 2

□ Always multicast

Multicast group address:	239.128.1.100
Multicast video port:	5564
Multicast RTCP video port:	5565
Multicast audio port:	5566
Multicast RTCP audio port:	5567
Multicast TTL [1~255]:	15

Multicast settings for stream 3

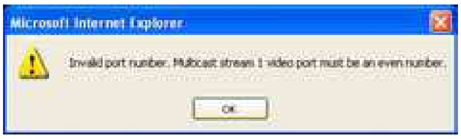
□ Always multicast

Multicast group address:	239.128.1.101
Multicast video port:	5568
Multicast RTCP video port:	5569
Multicast audio port:	5570
Multicast RTCP audio port:	5571
Multicast TTL [1~255]:	15

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 ports can be changed to values 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 is always 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 will be displayed:



Microsoft Internet Explorer

Invalid port number. Multicast stream 1 video port must be an even number.

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

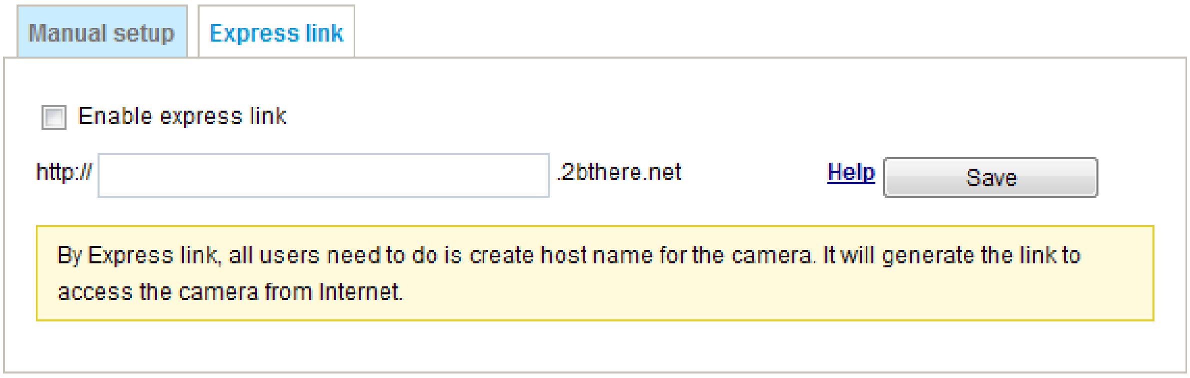
Initial TTL	Scope
0	Restricted to the same host
1	Restricted to the same subnetwork
32	Restricted to the same site
64	Restricted to the same region
128	Restricted to the same continent
255	Unrestricted in scope

Network > DDNS

This section explains how to configure the 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.

Express link

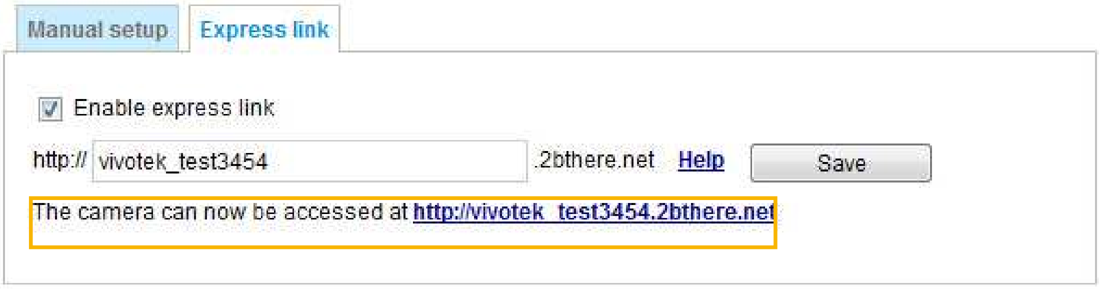
Express Link is a free service provided by VIVOTEK server, which allows users to register a domain name for a network device. One URL can only be mapped to one MAC address. This service will examine if the host name is valid and automatically open a port on your router. If using DDNS, the user has to manually configure UPnP port forwarding. Express Link is more convenient and easier to set up.



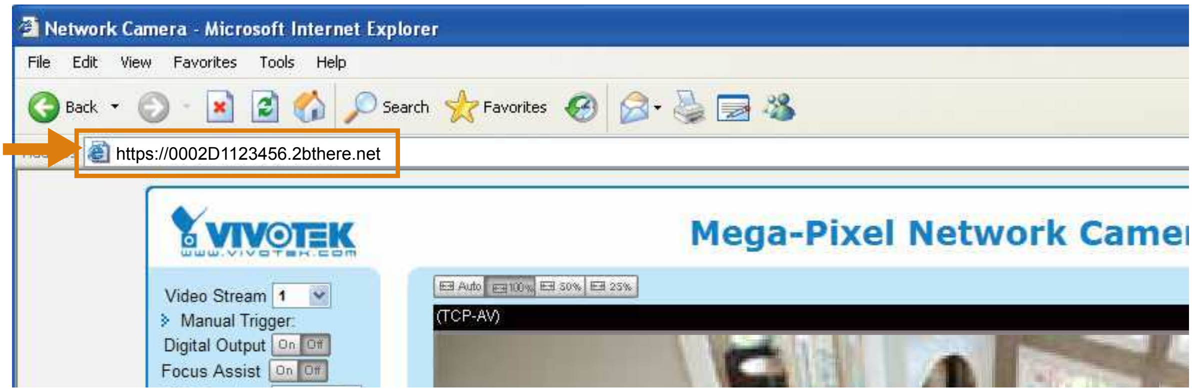
By Express link, all users need to do is create host name for the camera. It will generate the link to access the camera from Internet.

Please follow the steps below to enable Express Link:

1. Make sure that your router supports UPnP port forwarding and it is activated.
2. Check **Enable express link**.
3. Enter a host name for the network device and click **Save**. If the host name has been used by another device, a warning message will show up. If the host name is valid, it will display a message as shown below.

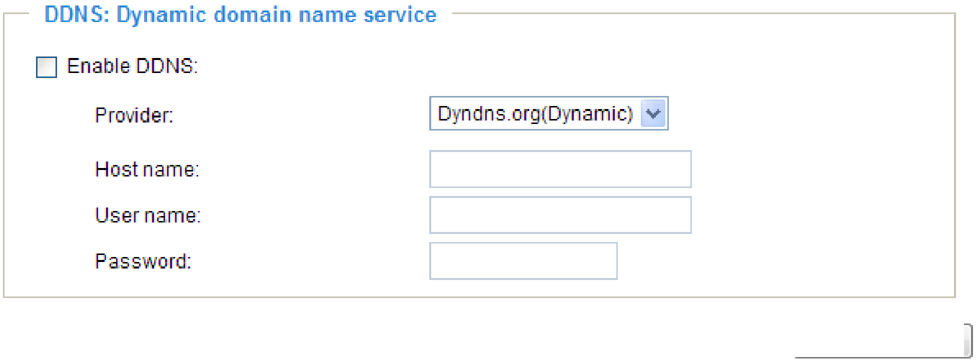


The camera can now be accessed at http://vivotek_test3454.2bthere.net



Manual setup

DDNS: Dynamic domain name service



DDNS: Dynamic domain name service

□ Enable DDNS:

Provider: Dyndns.org(Dynamic)

Host name:

User name:

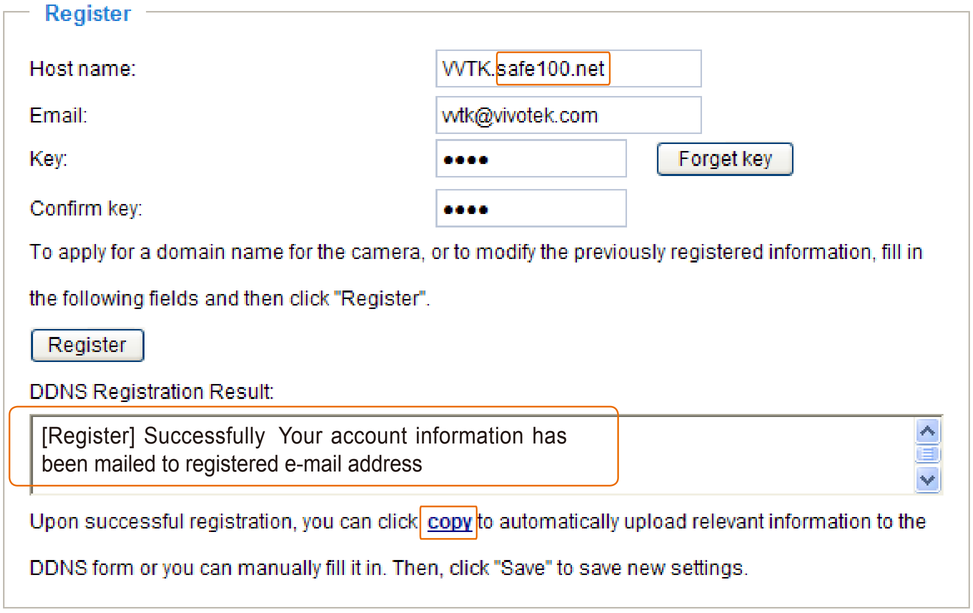
Password:

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

Provider: Select a DDNS provider from the provider drop-down list.
VIVOTEK offers **Safe100.net**, a free dynamic domain name service, to VIVOTEK customers. It is recommended that you register **Safe100.net** to access VIVOTEK's Network Cameras 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 before utilizing this function, please apply for a dynamic domain account first.

■ Safe100.net

1. In the DDNS column, select **Safe100.net** from the drop-down list. Click **I accept** after reviewing the terms of the Service Agreement.
2. In the Register column, fill in the Host name (xxxx.safe100.net), Email, Key, and Confirm Key, and click **Register**. After a host name has been successfully created, a success message will be displayed in the DDNS Registration Result column.



Register

Host name: VVTK.safe100.net

Email: vvtk@vivotek.com

Key: ●●●●

Confirm key: ●●●●

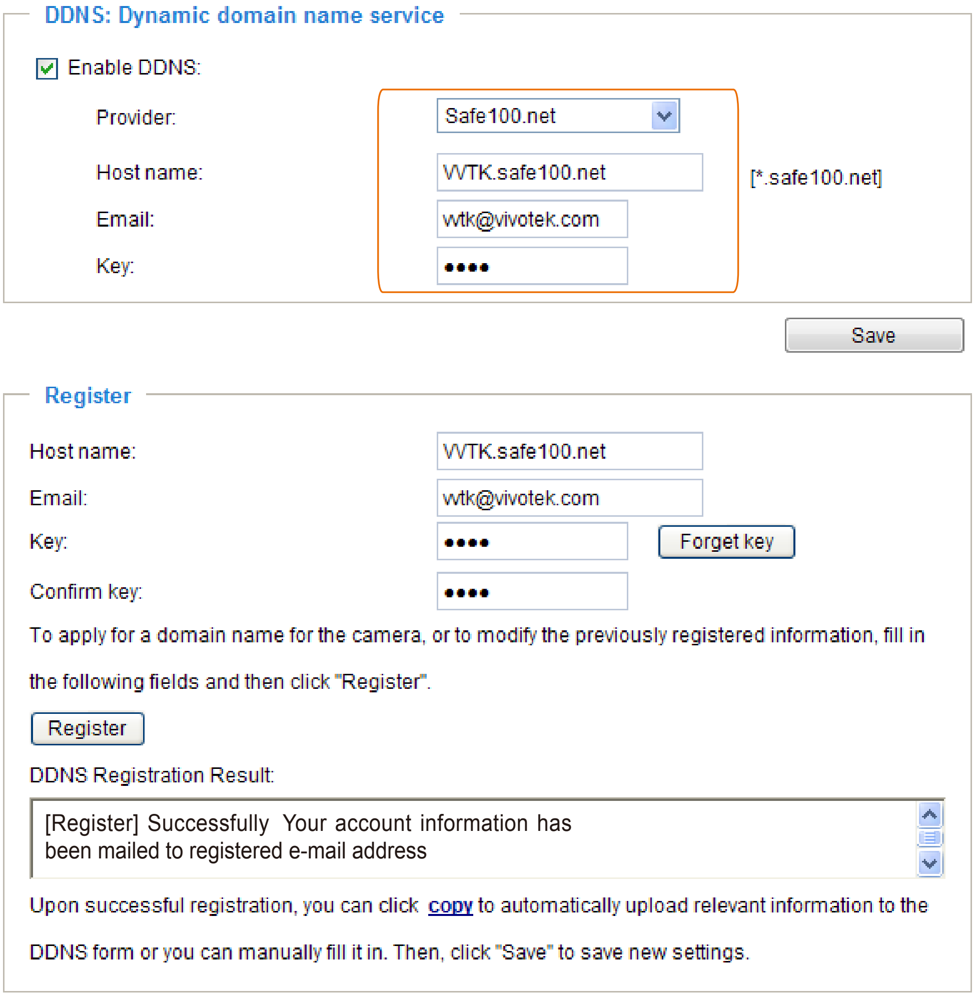
To apply for a domain name for the camera, or to modify the previously registered information, fill in the following fields and then click "Register".

DDNS Registration Result:

[Register] Successfully Your account information has been mailed to registered e-mail address

Upon successful registration, you can click copy to automatically upload relevant information to the DDNS form or you can manually fill it in. Then, click "Save" to save new settings.

3. Click **Copy** and all the registered information will automatically be uploaded to the corresponding fields in the DDNS column at the top of the page as seen in the picture.



DDNS: Dynamic domain name service

☑ Enable DDNS:

Provider:	Safe100.net
Host name:	VVTK.safe100.net [*.safe100.net]
Email:	vvtk@vivotek.com
Key:	••••

Save

Register

Host name:	VVTK.safe100.net
Email:	vvtk@vivotek.com
Key:	•••• Forget key
Confirm key:	••••

To apply for a domain name for the camera, or to modify the previously registered information, fill in the following fields and then click "Register".

Register

DDNS Registration Result:

[Register] Successfully Your account information has been mailed to registered e-mail address

Upon successful registration, you can click copy to automatically upload relevant information to the DDNS form or you can manually fill it in. Then, click "Save" to save new settings.

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

■ CustomSafe100

VIVOTEK offers documents to establish a 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 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 success message in the DDNS Registration Result column.
3. Click **Copy** and all for the registered information will be uploaded to the corresponding fields in the DDNS column.
4. Select Enable DDNS and click **Save** to enable the setting.

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

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

■ Dyndns.org(Dynamic) / Dyndns.org(Custom): visit http://www.dyndns.com/

■ dyn-interfree.it: visit http://dyn-interfree.it/

Network > QoS (Quality of Service)

Quality of Service refers to a resource reservation control mechanism, which guarantees a certain quality to different services on the network. Quality of service guarantees are important if the network capacity is insufficient, especially for real-time streaming multimedia applications. Quality can be defined as, for instance, a maintained level of bit rate, low latency, no packet dropping, etc.

The following are the main benefits of a QoS-aware network:

- The ability to prioritize traffic and guarantee a certain level of performance to the data flow.
- The ability to control the amount of bandwidth each application may use, and thus provide higher reliability and stability on the network.

Requirements for QoS

To utilize QoS in a network environment, the following requirements must be met:

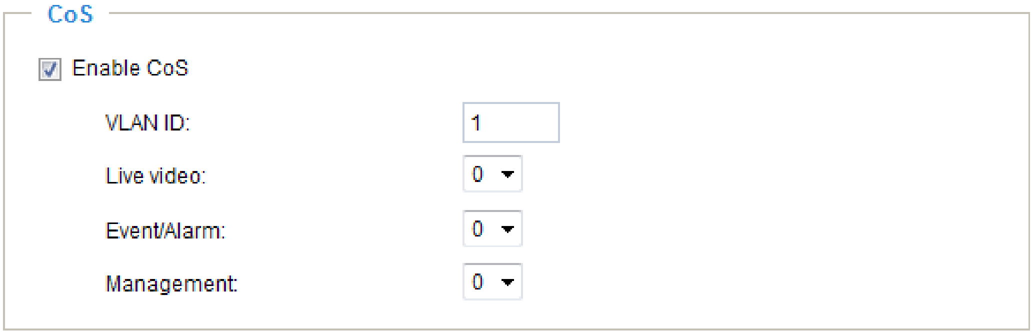
- All network switches and routers in the network must include support for QoS.
- The network video devices used in the network must be QoS-enabled.

QoS models

CoS (the VLAN 802.1p model)

IEEE802.1p defines a QoS model at OSI Layer 2 (Data Link Layer), which is called CoS, Class of Service. It adds a 3-bit value to the VLAN MAC header, which indicates the frame priority level from 0 (lowest) to 7 (highest). The priority is set up on the network switches, which then use different queuing disciplines to forward the packets.

Below is the setting column for CoS. Enter the **VLAN ID** of your switch (0~4095) and choose the priority for each application (0~7).



CoS

☑ Enable CoS

VLAN ID:	1
Live video:	0
Event/Alarm:	0
Management:	0

If you assign Video the highest level, the switch will handle video packets first.

NOTE:

► *A VLAN Switch (802.1p) is required. Web browsing may fail if the CoS setting is incorrect.*

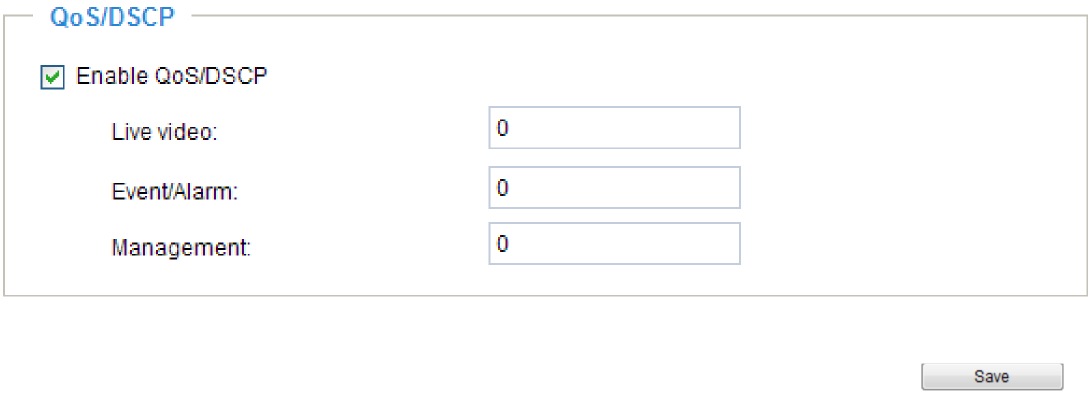
► *The Class of Service technologies do not guarantee a level of service in terms of bandwidth and delivery time; they offer a "best-effort." Users can think of CoS as "coarsely-grained" traffic control and QoS as "finely-grained" traffic control.*

► *Although CoS is simple to manage, it lacks scalability and does not offer end-to-end guarantees since it is based on L2 protocol.*

QoS/DSCP (the DiffServ model)

DSCP-ECN defines QoS at Layer 3 (Network Layer). The Differentiated Services (DiffServ) model is based on packet marking and router queuing disciplines. The marking is done by adding a field to the IP header, called the DSCP (Differentiated Services Codepoint). This is a 6-bit field that provides 64 different class IDs. It gives an indication of how a given packet is to be forwarded, known as the Per Hop Behavior (PHB). The PHB describes a particular service level in terms of bandwidth, queueing theory, and dropping (discarding the packet) decisions. Routers at each network node classify packets according to their DSCP value and give them a particular forwarding treatment; for example, how much bandwidth to reserve for it.

Below are the setting options of DSCP (DiffServ Codepoint). Specify the DSCP value for each application (0~63).



QoS/DSCP

☑ Enable QoS/DSCP

Live video: 0

Event/Alarm: 0

Management: 0

Network > SNMP (Simple Network Management Protocol)

This section explains how to use the SNMP on the network camera. The Simple Network Management Protocol is an application layer protocol that facilitates the exchange of management information between network devices. It helps network administrators to remotely manage network devices and find, solve network problems with ease.

■ The SNMP consists of the following three key components:

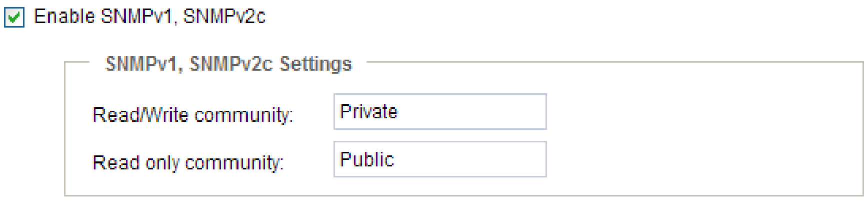
1. Manager: Network-management station (NMS), a server which executes applications that monitor and control managed devices.
2. Agent: A network-management software module on a managed device which transfers the status of managed devices to the NMS.
3. Managed device: A network node on a managed network. For example: routers, switches, bridges, hubs, computer hosts, printers, IP telephones, network cameras, web server, and database.

Before configuring SNMP settings on the this page, please enable your NMS first.

SNMP Configuration

Enable SNMPv1, SNMPv2c

Select this option and enter the names of Read/Write community and Read Only community according to your NMS settings.



☑ Enable SNMPv1, SNMPv2c

SNMPv1, SNMPv2c Settings

Read/Write community:	Private
Read only community:	Public

Enable SNMPv3

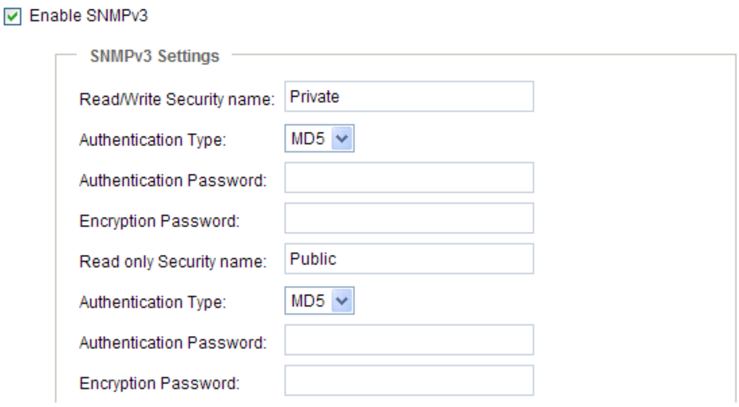
This option contains cryptographic security, a higher security level, which allows you to set the Authentication password and the Encryption password.

■ Security name: According to your NMS settings, choose Read/Write or Read Only and enter the community name.

■ Authentication type: Select MD5 or SHA as the authentication method.

■ Authentication password: Enter the password for authentication (at least 8 characters).

■ Encryption password: Enter a password for encryption (at least 8 characters).



☑ Enable SNMPv3

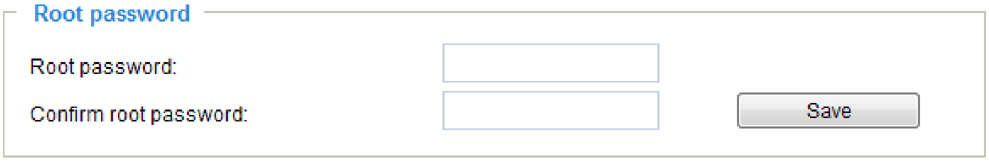
SNMPv3 Settings

Read/Write Security name:	Private
Authentication Type:	MD5
Authentication Password:	
Encryption Password:	
Read only Security name:	Public
Authentication Type:	MD5
Authentication Password:	
Encryption Password:	

Security > User accounts

This section explains how to enable password protection and create multiple accounts.

Root Password



Root password

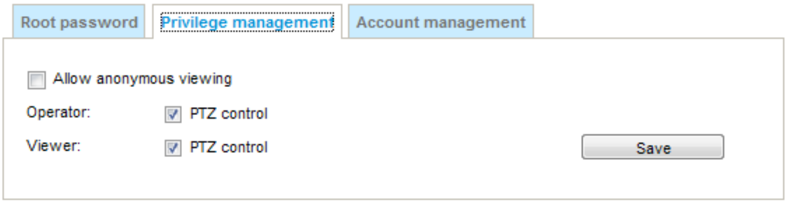
Root password:

Confirm root password:

The administrator account name is “root”, which is permanent and can not be deleted. If you want to add more accounts in the Manage User column, please apply the password for the “root” account first.

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

Privilege Management



□ Allow anonymous viewing

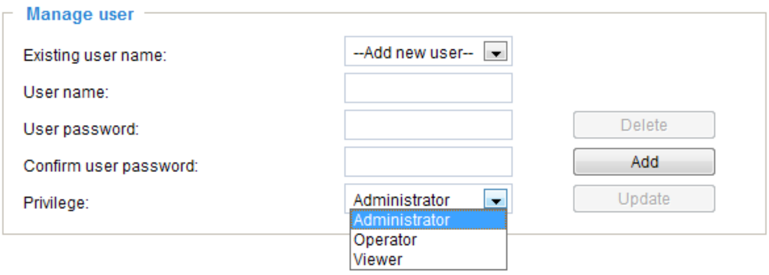
Operator: ☑ PTZ control

Viewer: ☑ PTZ control

PTZ control: You can modify the management privilege for operators or viewers. Select or deselect the checkboxes, then click **Save** to enable the settings. If you give Viewers the privilege, Operators will also have the ability to control the Network Camera through the main page. (Please refer to Configuration on page 25).

Allow anonymous viewing: If you check this item, any client can access the live stream without entering a User ID and Password.

Account Management



Manage user

Existing user name: --Add new user--

User name:

User password:

Confirm user password:

Privilege: Administrator

Administrators can create up to 20 user accounts.
1. Input the new user’s name and password.
2. Select the privilege level for the new user account. Click **Add** to enable the setting.

Access rights are sorted by user privilege (Administrator, Operator, and Viewer). Only administrators can access the Configuration page. Although operators cannot access the Configuration page, they can use the URL Commands to get and set the value of parameters. For more information, please refer to URL Commands of the Network Camera on page 103. Viewers can only access the main page for live viewing.

Here you also can change a user’s access rights or delete user accounts.
1. Select an existing account to modify.
2. Make necessary changes and click **Update** or **Delete** to enable the setting.

Security > HTTPS (Hypertext Transfer Protocol over SSL)

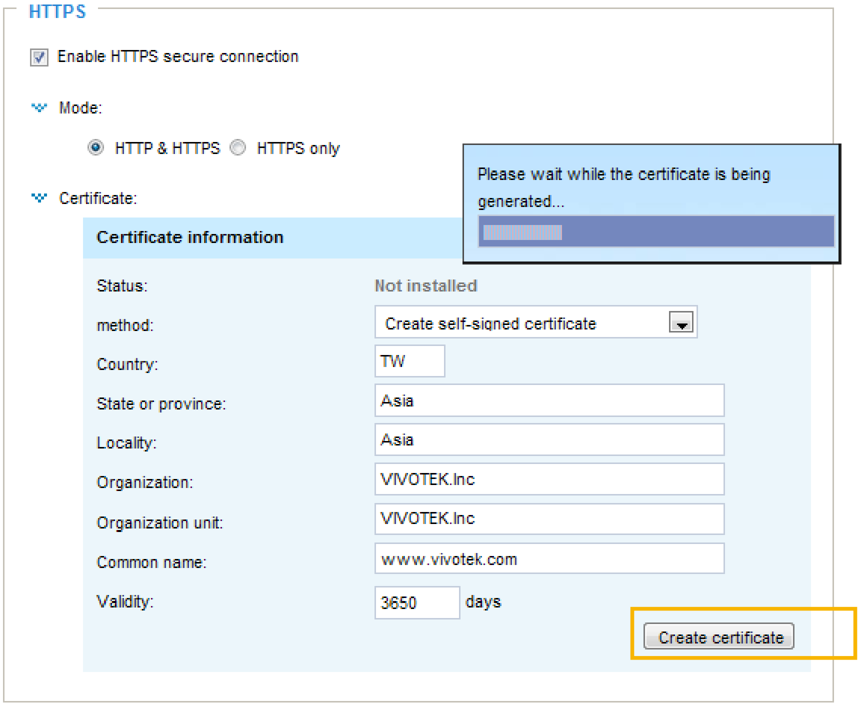
This section explains how to enable authentication and encrypted communication over SSL (Secure Socket Layer). It helps protect streaming data transmission over the Internet on higher security level.

Create and Install Certificate Method

Before using HTTPS for communication with the Network Camera, a **Certificate** must be created first. There are three ways to create and install a certificate:

Create self-signed certificate

1. Select this option from a pull-down menu.
2. In the first column, select **Enable HTTPS secure connection**, then select a connection option: “HTTP & HTTPS” or “HTTPS only”.
3. Click **Create certificate** to generate a certificate.



HTTPS

☑ Enable HTTPS secure connection

Mode:

● HTTP & HTTPS ○ HTTPS only

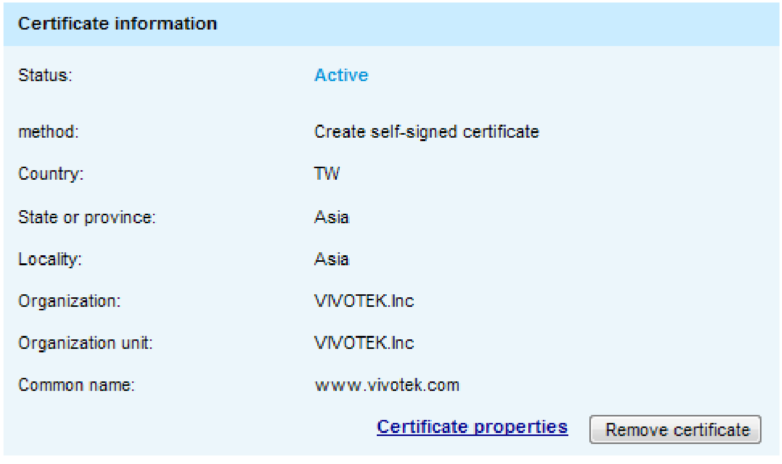
Certificate:

Please wait while the certificate is being generated...

Certificate information

Status:	Not installed
method:	Create self-signed certificate
Country:	TW
State or province:	Asia
Locality:	Asia
Organization:	VIVOTEK.Inc
Organization unit:	VIVOTEK.Inc
Common name:	www.vivotek.com
Validity:	3650 days

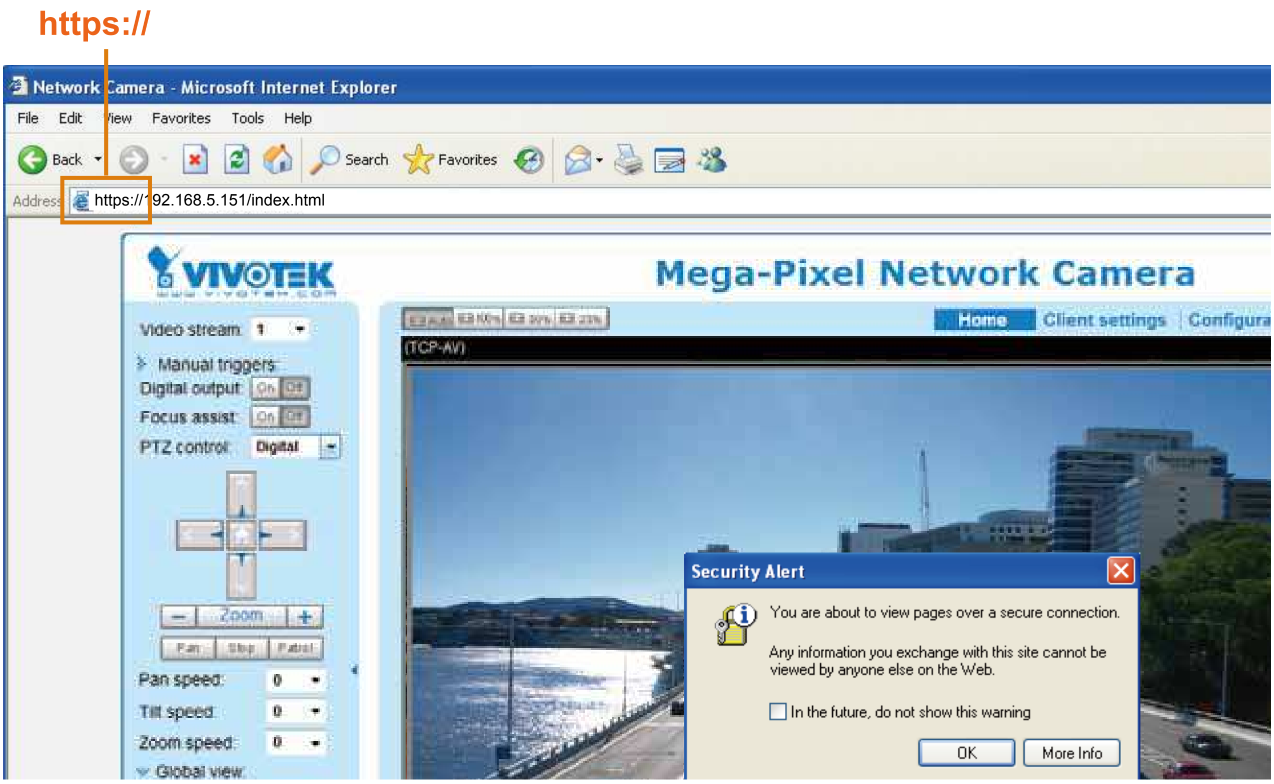
4. The Certificate Information will automatically be displayed as shown below. You can click **Certificate properties** to view detailed information about the certificate.



Certificate information

Status:	Active
method:	Create self-signed certificate
Country:	TW
State or province:	Asia
Locality:	Asia
Organization:	VIVOTEK.Inc
Organization unit:	VIVOTEK.Inc
Common name:	www.vivotek.com

5. Click **Save** to preserve your configuration, and your current session with the camera will change to the encrypted connection.
6. If your web session does not automatically change to an encrypted HTTPS session, click **Home** to return to the main page. Change the URL address from "http://" to "https://" in the address bar and press **Enter** on your keyboard. Some Security Alert dialogs will pop up. Click **OK** or **Yes** to enable HTTPS.



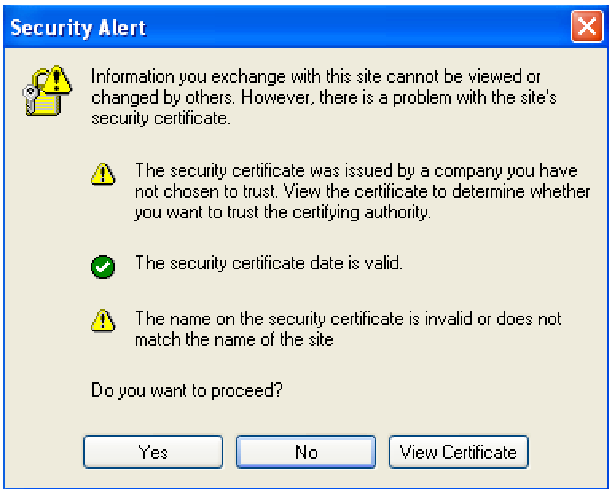
Security Alert

You are about to view pages over a secure connection.

Any information you exchange with this site cannot be viewed by anyone else on the Web.

□ In the future, do not show this warning

OK More Info



Security Alert

Information you exchange with this site cannot be viewed or changed by others. However, there is a problem with the site's security certificate.

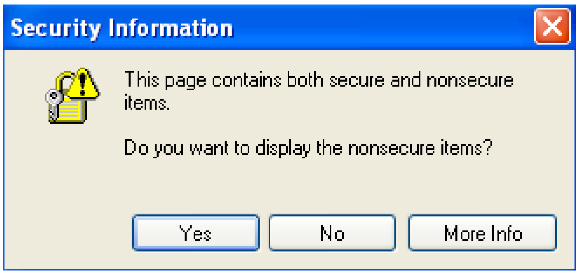
⚠ The security certificate was issued by a company you have not chosen to trust. View the certificate to determine whether you want to trust the certifying authority.

✓ The security certificate date is valid.

⚠ The name on the security certificate is invalid or does not match the name of the site

Do you want to proceed?

Yes No View Certificate



Security Information

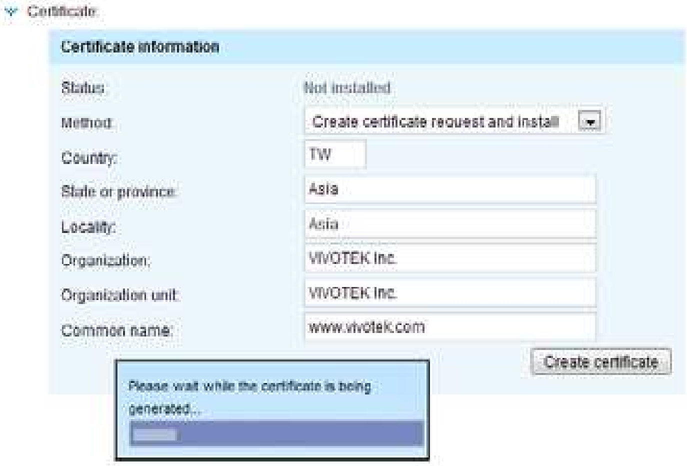
This page contains both secure and nonsecure items.

Do you want to display the nonsecure items?

Yes No More Info

Create certificate request and install

1. Select the option from the **Method** pull-down menu.
2. Click **Create certificate** to proceed.
3. The following information will show up in a pop-up window after clicking **Create**. Then click **Save** to generate the certificate request.



Certificate

Certificate information

Status: Not installed

Method: Create certificate request and install

Country: TW

State or province: Asia

Locality: Asia

Organization: VIVOTEK Inc.

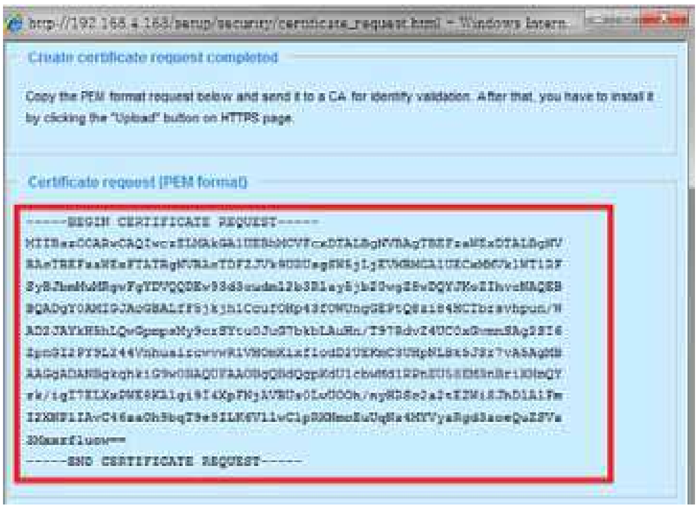
Organization unit: VIVOTEK Inc.

Common name: www.vivotek.com

Create certificate

Please wait while the certificate is being generated...

4. The Certificate request window will prompt.



http://192.168.5.163/setup/security/certificate_request.html - Windows Intern...

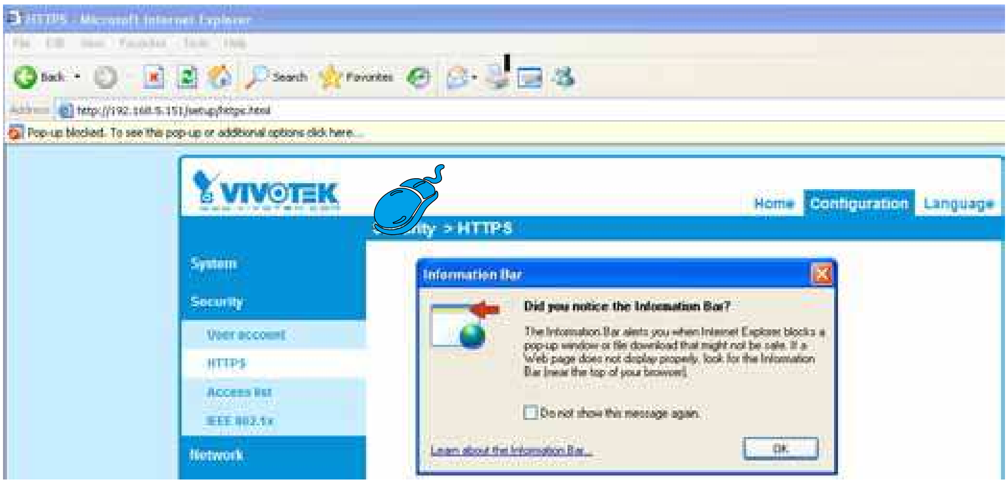
Create certificate request completed

Copy the PEM format request below and send it to a CA for identify validation. After that, you have to install it by clicking the "Upload" button on HTTPS page.

Certificate request (PEM format)

```
-----BEGIN CERTIFICATE REQUEST-----
MIIBszCCARwCAQIwczELMAkGA1UEBhMCVFcxDTALBgNVBAgTBEFzaWExDTALBgNV
BAcTBEFzaWExFTATBgNVBAoTDFZJVk9URUsgSW5jLjEVMBMGA1UECwwMVklWT1RF
SyBJbmMuMRgwFgYDVQQDEw93d3cudml2b3Rlay5jb20wgZ8wDQYJKoZIhvcNAQEB
BQADgY0AMIGJAoGBALfF5jkjh1CcufOHp43fOWUngGE9tQ8si84NCIbzavhpun/W
AD2JAYkRShLQwGpmpsMy9czSYtu0JuG7bkbLAuRn/T9T8dvZ4UC0xGmmnSAg2SI6
Zpn0I2PY9L244VnhuaizcwvwR1VHOmKlzflodD2UEKmC3UHpNLBkbJ9z7vA5AgMB
AAGgADANBgkqhkiG9w0BAQUFAAOBgQBdQqpKdU1cbW6d1RPnZU58EM8nBr1K0mQY
rk/igI7ELXuDWE6K1gi9I4XpFNjAVBUs0LuUOOh/nyNDSe2a2rZZMi8JhD1A1Fm
IZXNF1IAvC46aaOh5bqT9e9ILK6V1lvClpRXHmcZuUqHa4HYVyaRgd3aceQuZ5Va
ZHaxrf1uow==
-----END CERTIFICATE REQUEST-----
```

If you see the following Information bar, click **OK** and click on the Information bar at the top of the page to allow pop-ups.



HTTPS - Microsoft Internet Explorer

Address http://192.168.5.151/setup/https.html

Pop-up blocked. To see this pop-up or additional options click here...

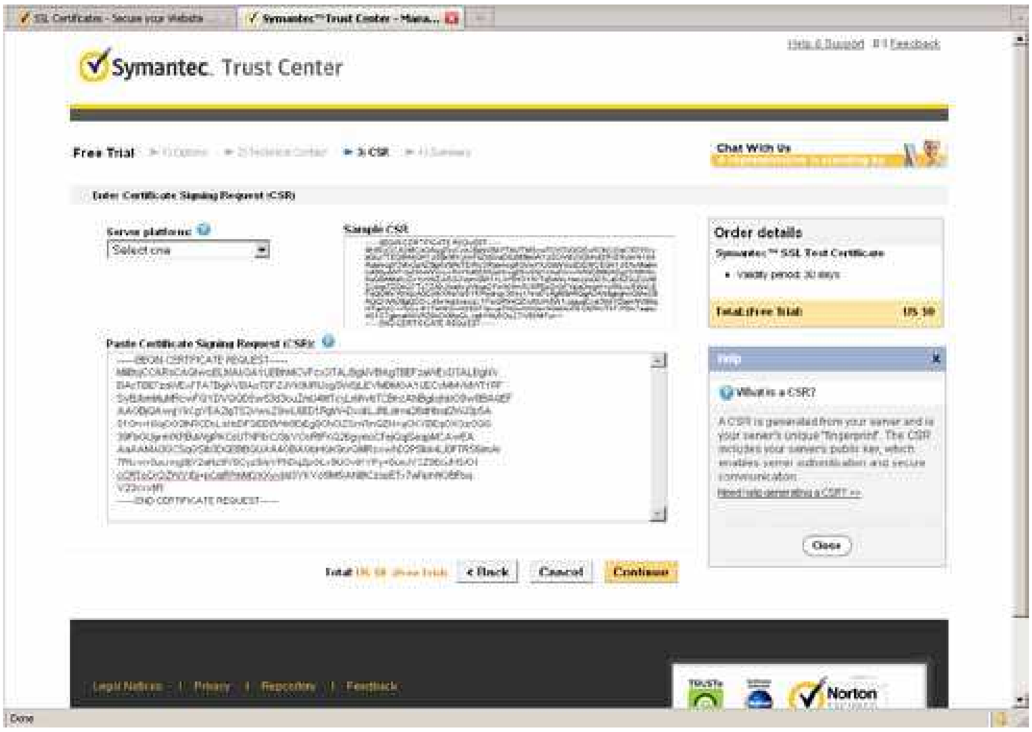
Information Bar

Did you notice the Information Bar?

The Information Bar alerts you when Internet Explorer blocks a pop-up window or file download that might not be safe. If a Web page does not display properly, look for the Information Bar (near the top of your browser).

□ Do not show this message again.

5. Look for a trusted certificate authority, such as Symantec's VeriSign Authentication Services, that issues digital certificates. Sign in and purchase the SSL certification service. Copy the certificate request from your request prompt and paste it in the CA's signing request window. Proceed with the rest of the process as CA's instructions on their webpage.



Symantec. Trust Center
Help & Support
Feedback
Free Trial
3) CSR
Chat With Us
Enter Certificate Signing Request (CSR)
Sample CSR
Paste Certificate Signing Request (CSR):
Help
What is a CSR?
Need help generating a CSR? >>
Close
< Back
Cancel
Continue
Legal Notices | Privacy | Repository | Feedback
Norton
Done

Server platform: Select one

Order details

Symantec™ SSL Test Certificate

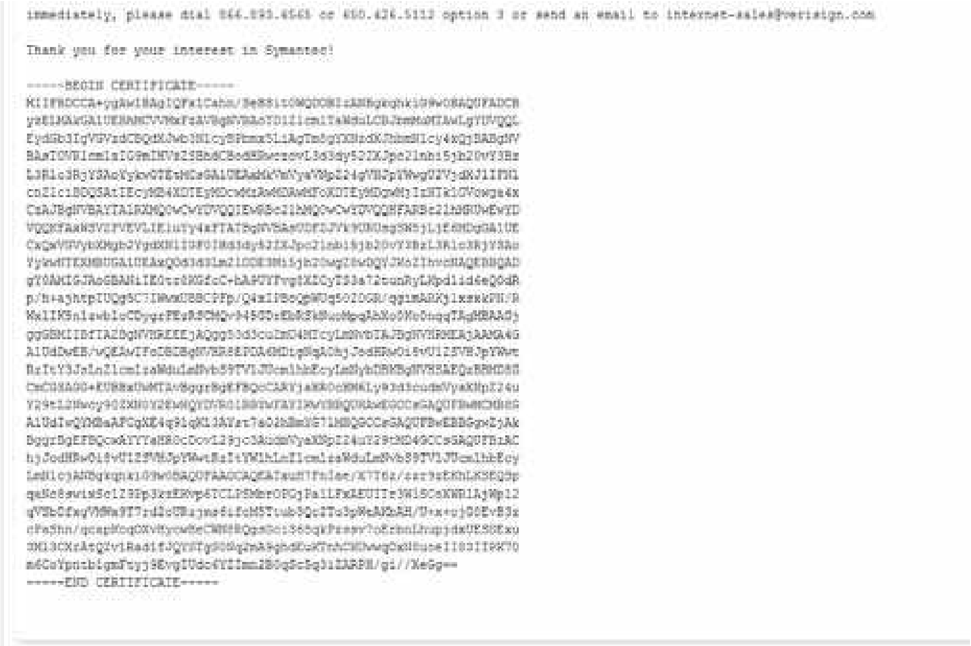
- Validity period: 30 days

Total (Free Trial) US $0

A CSR is generated from your server and is your server's unique "fingerprint". The CSR includes your server's public key, which enables server authentication and secure communication.

```
-----BEGIN CERTIFICATE REQUEST-----
[illegible]
-----END CERTIFICATE REQUEST-----
```

6. Once completed, your SSL certificate should be delivered to you via an email or other means. Copy the contents of the certificate in the email and paste it in a text/HTML/hex editor/converter, such as IDM Computer Solutions' UltraEdit.

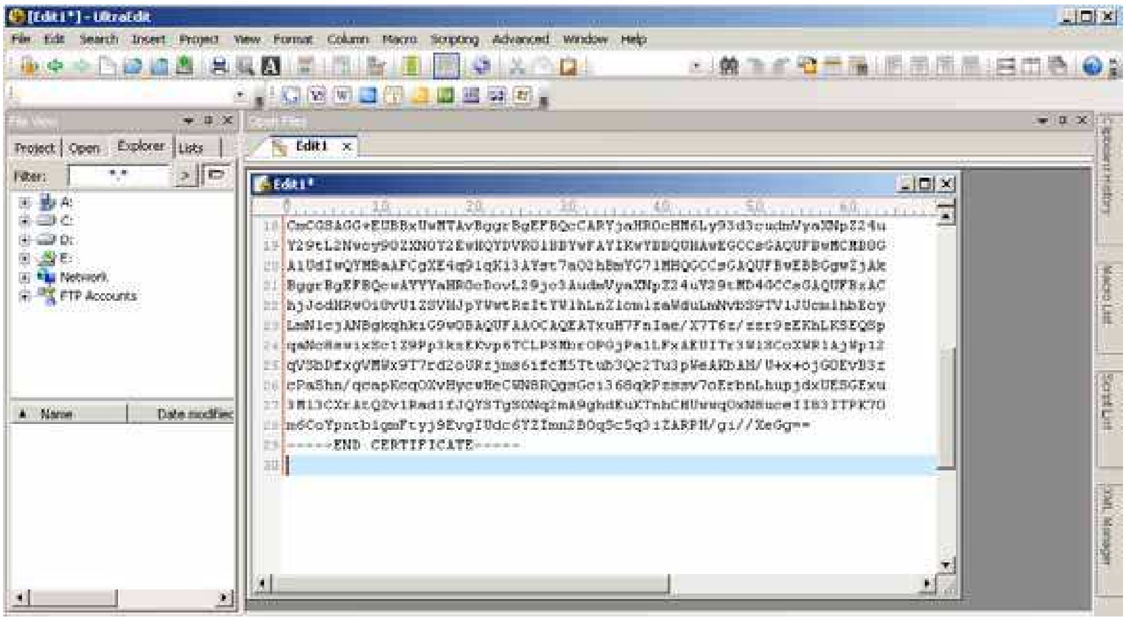


```
immediately, please dial 866.893.6565 or 650.426.5112 option 3 or send an email to internet-sales@verisign.com

Thank you for your interest in Symantec!

-----BEGIN CERTIFICATE-----
[illegible]
-----END CERTIFICATE-----
```

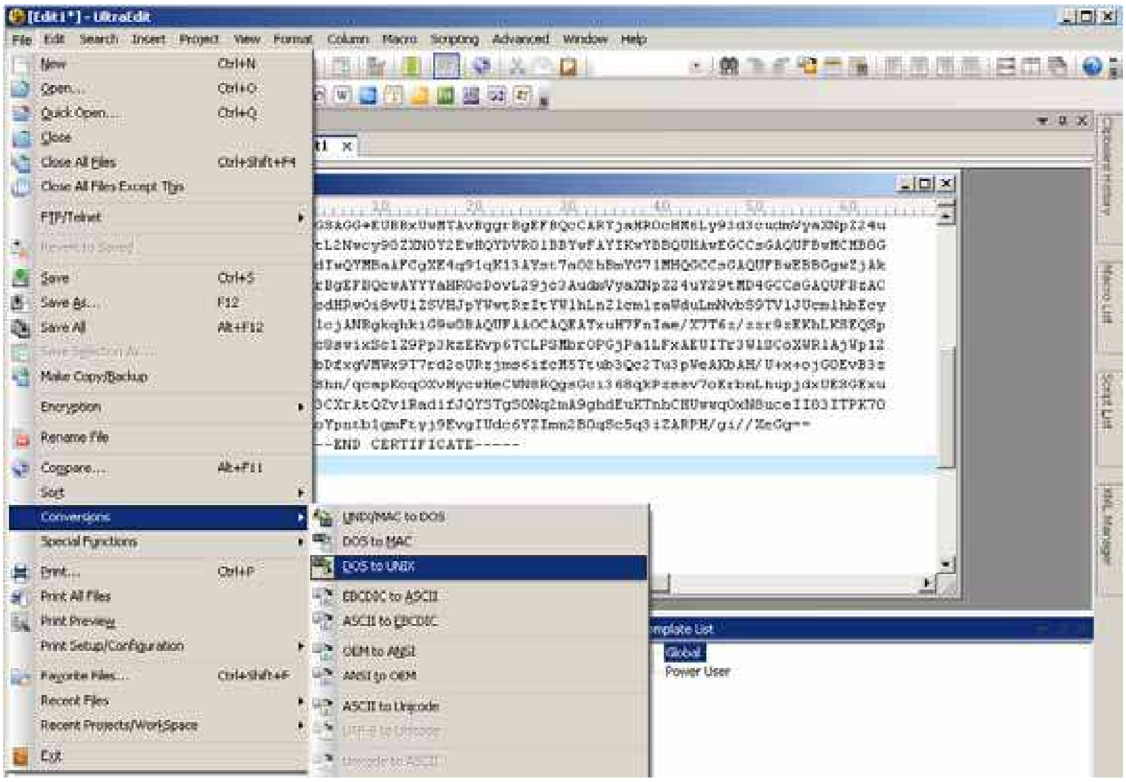
7. Open a new edit, paste the certificate contents, and press ENTER at the end of the contents to add an empty line.



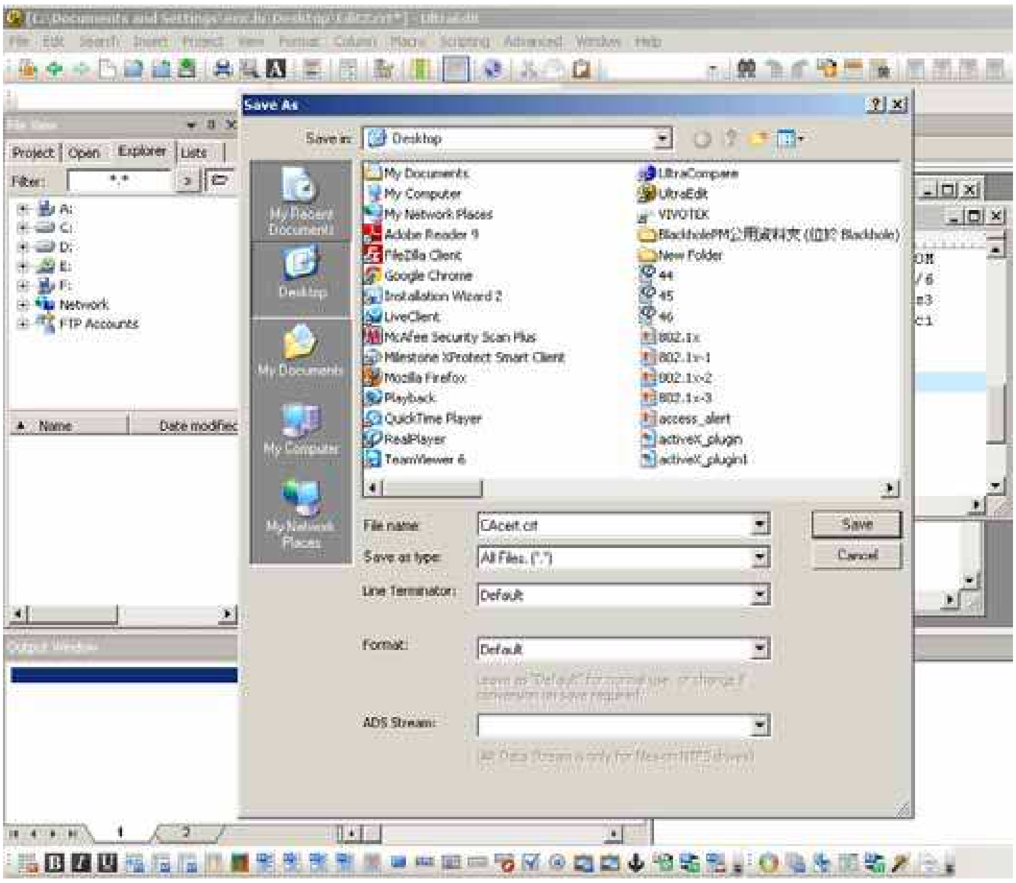
```
CmCGBAGG+EUBBxUwMTAvBggrBgEFBQcCARYjaHR0cHM6Ly93d3cudmVyaXNpZ24u
Y29tL2Nwcy90ZXN0Y2EwHQYDVR0lBBYwFAYIKwYBBQUHAwEGCCsGAQUFBwMCMB8G
A1UdIwQYMBaAFCgXE4q91qK13AYst7aO2hBmYG71MHQGCCsGAQUFBwEBBGgwZjAk
BggrBgEFBQcwAYYYaHR0cDovL29jc3AudmVyaXNpZ24uY29tMD4GCCsGAQUFBzAC
hjJodHRwOi8vU1ZSVHJpYWwtRzItYWlhLnZlcmlzaWduLmNvbS9TVlJUcmlhbEcy
LmNlcjANBgkqhkiG9w0BAQUFAAOCAQEATxuH7FnIae/X7T6z/zzr9zEKhLKSEQSp
qaNc8swixSc1Z9Pp3kzEKvp6TCLPSMbrOPGjPa1LFxAEUITr3W1SCoXWR1AjWp12
qVSbDfxgVMWx9T7rd2oURzjms6ifcM5Ttub3Qc2Tu3pWeAKbAH/U+x+ojG0EvB3z
cPaShn/qcapKcqOXvHycwHeCWN8RQgsGc1368qkPzmsv7oErbnLhupjdxUESGExu
3M13CXrAtQ2v1Rad1fJQYSTgS0Nq2mA9ghdEuKTnbCHUwwqOxNSuceII83ITPK70
m6CoYpntb1gmFtyj9EvgIUdc6YZImn2BOg5c5q3iZARPH/gi//XeGg==
-----END CERTIFICATE-----

```

8. Convert file format from DOS to UNIX. Open **File** menu > **Conversions** > **DOS to Unix**.



9. Save the edit using the ".crt" extension, using a file name like "CAcert.crt."



Save As

Save in: Desktop

File name: CAcert.crt

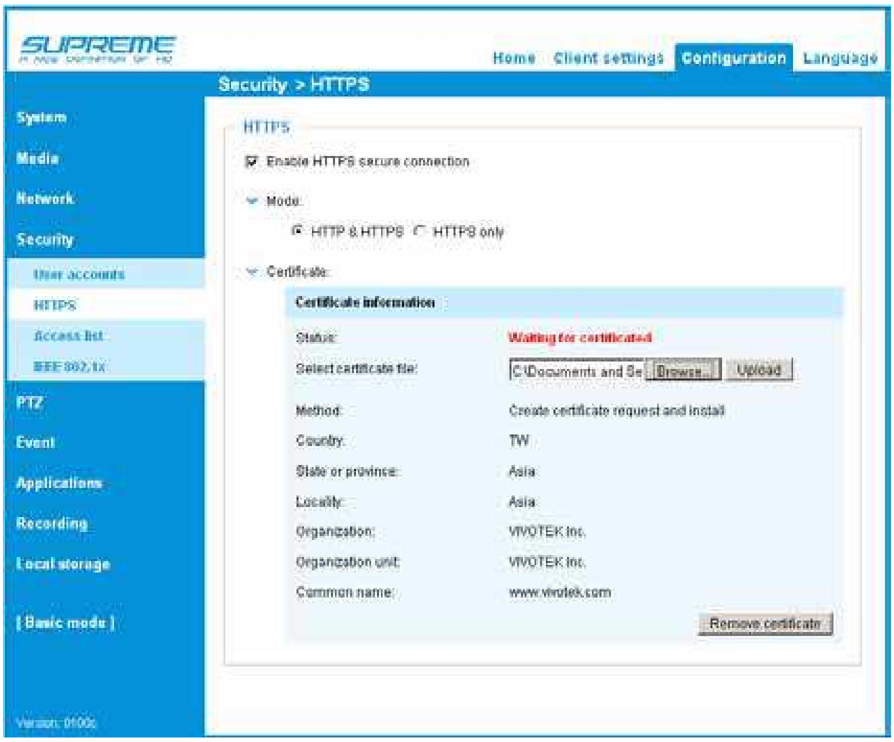
Save as type: All Files (*.*)

Line Terminator: Default

Format: Default

ADS Stream:

10. Return to the original firmware session, use the **Browse** button to locate the crt certificate file, and click **Upload** to enable the certification.



Security > HTTPS

HTTPS

☑ Enable HTTPS secure connection

Mode:

● HTTP & HTTPS ○ HTTPS only

Certificate:

Certificate information

Status: Waiting for certificated

Select certificate file: C:\Documents and Se [Browse...] [Upload]

Method: Create certificate request and install

Country: TW

State or province: Asia

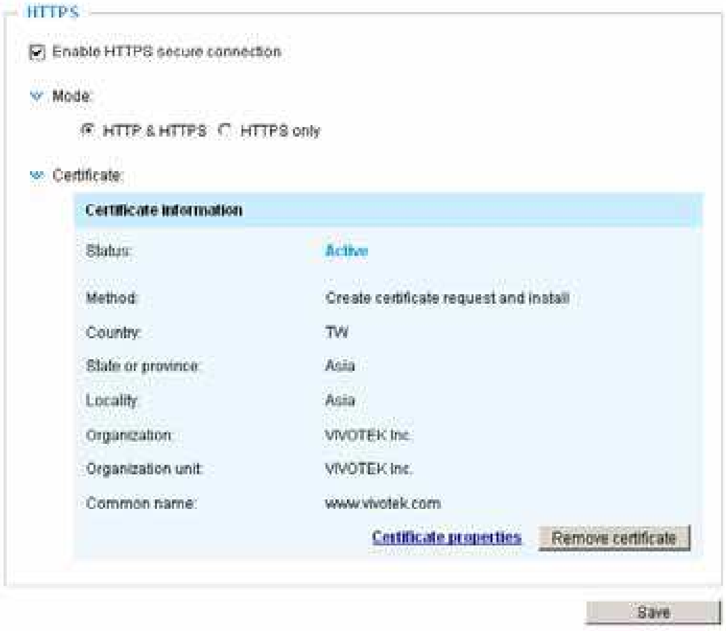
Locality: Asia

Organization: VIVOTEK Inc.

Organization unit: VIVOTEK Inc.

Common name: www.vivotek.com

11. When the certifice file is successfully loaded, its status will be stated as **Active**. Note that a certificate must have been created and installed before you can click on the “**Save**" button for the configuration to take effect.



HTTPS

☑ Enable HTTPS secure connection

Mode:

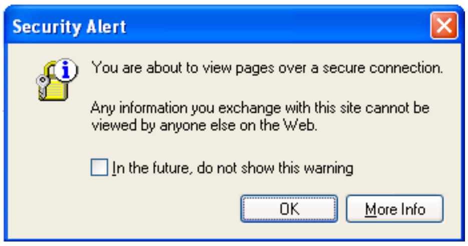
● HTTP & HTTPS ○ HTTPS only

Certificate:

Certificate information

Status:	Active
Method:	Create certificate request and install
Country:	TW
State or province:	Asia
Locality:	Asia
Organization:	VIVOTEK Inc.
Organization unit:	VIVOTEK Inc.
Common name:	www.vivotek.com

12.To begin an encrypted HTTPS session, click **Home** to return to the main page. Change the URL address from “http://” to “https://“ in the address bar and press **Enter** on your keyboard. Some Security Alert dialogs will pop up. Click **OK** or **Yes** to enable HTTPS.

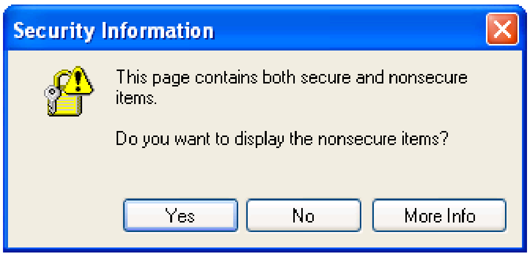


Security Alert

You are about to view pages over a secure connection.

Any information you exchange with this site cannot be viewed by anyone else on the Web.

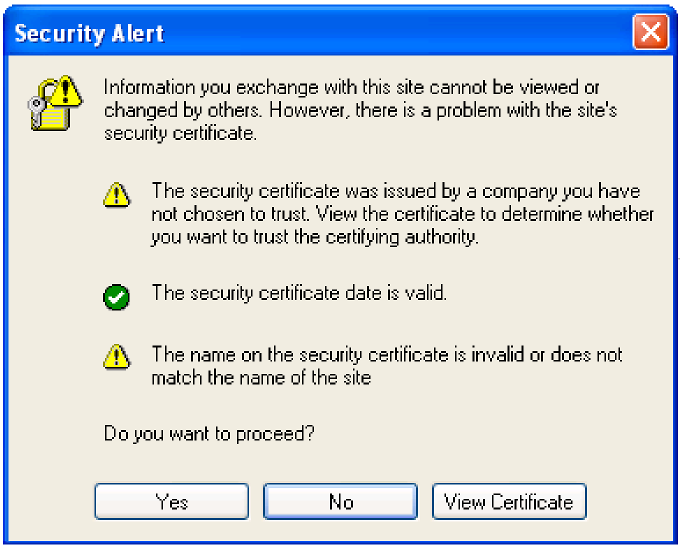
□ In the future, do not show this warning



Security Information

This page contains both secure and nonsecure items.

Do you want to display the nonsecure items?



Security Alert

Information you exchange with this site cannot be viewed or changed by others. However, there is a problem with the site's security certificate.

⚠ The security certificate was issued by a company you have not chosen to trust. View the certificate to determine whether you want to trust the certifying authority.

✓ The security certificate date is valid.

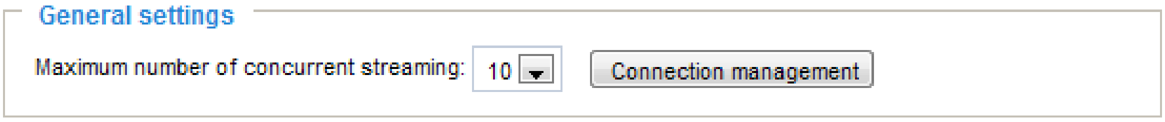
⚠ The name on the security certificate is invalid or does not match the name of the site

Do you want to proceed?

Security > Access List

This section explains how to control access permission by verifying the client PCs' IP addresses.

General Settings

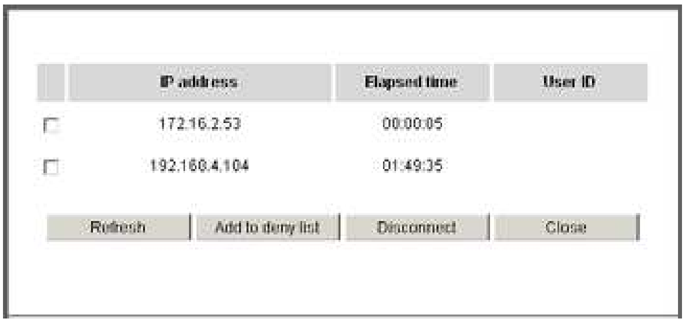


General settings

Maximum number of concurrent streaming: 10

Maximum number of concurrent streaming connection(s) limited to: Simultaneous live viewing for 1~10 clients (including stream 1 to stream 3). The default value is 10. If you modify the value and click **Save**, all current connections will be disconnected and automatically attempt to re-link (IE Explorer or Quick Time Player).

View Information: Click this button to display the connection status window showing a list of the current connections. For example:



	IP address	Elapsed time	User ID
□	172.16.2.53	00:00:05	
□	192.168.4.104	01:49:35	

Note that only consoles that are currently displaying live streaming will be listed in the View Information list.

■ IP address: Current connections to the Network Camera.

■ Elapsed time: How much time the client has been at the webpage.

■ User ID: If the administrator has set a password for the webpage, the clients have to enter a user name and password to access the live video. The user name will be displayed in the User ID column. If the administrator allows clients to link to the webpage without a user name and password, the User ID column will be empty.

There are some situations that allow clients access to the live video without a user name and password:

1. The administrator does not set up a root password. For more information about how to set up a root password and manage user accounts, please refer to Security > User account on page 62.
2. The administrator has set up a root password, but set **RTSP Authentication** to "disable". For more information about **RTSP Authentication**, please refer to RTSP Streaming on page 53.
3. The administrator has set up a root password, but allows anonymous viewing. For more information about **Allow Anonymous Viewing,** please refer to page 62.

- Refresh: Click this button to refresh all current connections.

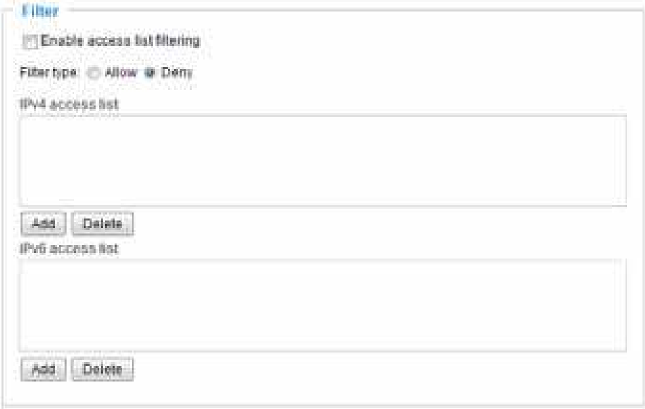
- Add to deny list: You can select entries from the Connection Status list and add them to the Deny List to deny access. Please note that those checked connections will only be disconnected temporarily and will automatically try to re-link again (IE Explore or Quick Time Player). If you want to enable the denied list, please check **Enable access list filtering** and click **Save** in the first column.

- Disconnect: If you want to break off the current connections, please select them and click this button. Please note that those checked connections will only be disconnected temporarily and will automatically try to re-link again (IE Explore or Quick Time Player).

Filter

Enable access list filtering: Check this item and click **Save** if you want to enable the access list filtering function.

Filter type: Select **Allow** or **Deny** as the filter type. If you choose **Allow Type**, only those clients whose IP addresses are on the Access List below can access the Network Camera, and the others cannot. On the contrary, if you choose **Deny Type**, those clients whose IP addresses are on the Access List below will not be allowed to access the Network Camera, and the others can.



Filter

□ Enable access list filtering

Filter type ○ Allow ● Deny

IPv4 access list

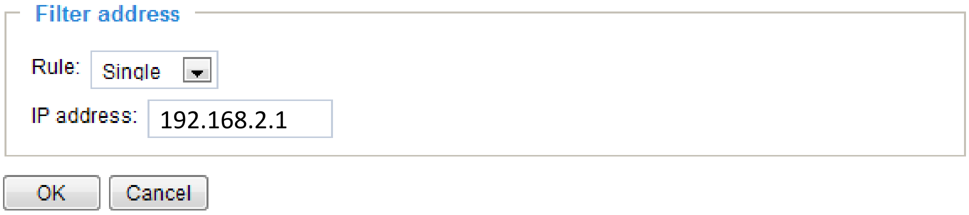
IPv6 access list

Then you can **Add** a rule to the following Access List. Please note that the IPv6 access list column will not be displayed unless you enable IPv6 on the Network page. For more information about **IPv6 Settings**, please refer to Network > General settings on page 49 for detailed information.

There are three types of rules:

Single: This rule allows the user to add an IP address to the Allowed/Denied list.

For example:



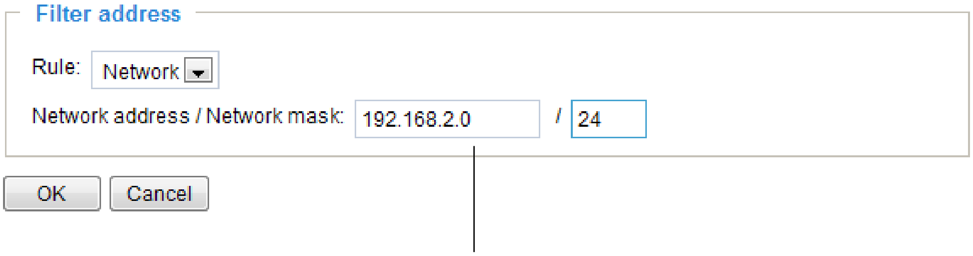
Filter address

Rule: Single

IP address: 192.168.2.1

Network: This rule allows the user to assign a network address and corresponding subnet mask to the Allow/Deny List. The address and network mask are written in CIDR format.

For example:



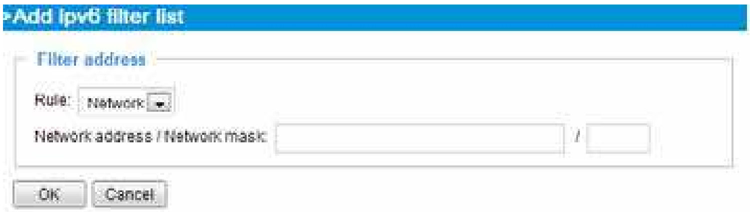
Filter address

Rule: Network

Network address / Network mask: 192.168.2.0 / 24

IP address range 192.168.2.x will be bolcked.

If IPv6 filter is preferred, you will be prompted by the following window. Enter the IPv6 address and the two-digit prefix length to specify the range of IP addresses in your configuration.



Add ipv6 filter list

Filter address

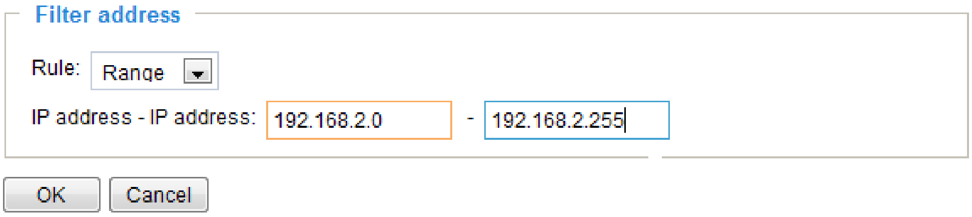
Rule: Network

Network address / Network mask: /

Range: This rule allows the user to assign a range of IP addresses to the Allow/Deny List.

Note: This rule only applies to IPv4 addresses.

For example:



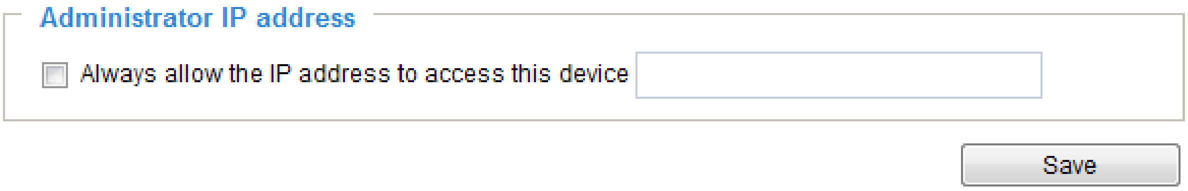
Filter address

Rule: Range

IP address - IP address: 192.168.2.0 - 192.168.2.255

Administrator IP address

Always allow the IP address to access this device: You can check this item and add the Administrator's IP address in this field to make sure the Administrator can always connect to the device.



Administrator IP address

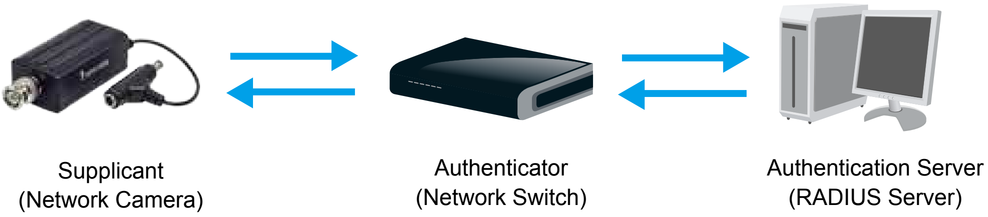
□ Always allow the IP address to access this device

Security > IEEE 802.1X

Enable this function if your network environment uses IEEE 802.1x, which is a port-based network access control. The network devices, intermediary switch/access point/hub, and RADIUS server must support and enable 802.1x settings.

The 802.1x standard is designed to enhance the security of local area networks, which provides authentication to network devices (clients) attached to a network port (wired or wireless). If all certificates between client and server are verified, a point-to-point connection will be enabled; if authentication fails, access on that port will be prohibited. 802.1x utilizes an existing protocol, the Extensible Authentication Protocol (EAP), to facilitate communication.

■ The components of a protected network with 802.1x authentication:



1. Supplicant: A client end user (camera), which requests authentication.
2. Authenticator (an access point or a switch): A "go between" which restricts unauthorized end users from communicating with the authentication server.
3. Authentication server (usually a RADIUS server): Checks the client certificate and decides whether to accept the end user's access request.

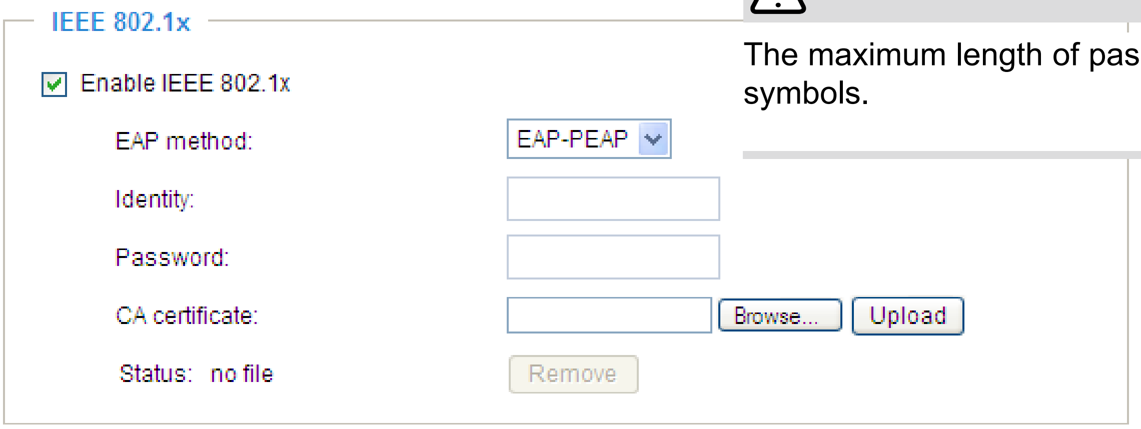
■ VIVOTEK Network Cameras support two types of EAP methods to perform authentication: **EAP-PEAP** and **EAP-TLS**.

Please follow the steps below to enable 802.1x settings:

1. Before connecting the Network Camera to the protected network with 802.1x, please apply a digital certificate from a Certificate Authority (i.e., your network administrator) which can be validated by a RADIUS server.
2. Connect the Network Camera to a PC or notebook outside of the protected LAN. Open the configuration page of the Network Camera as shown below. Select **EAP-PEAP** or **EAP-TLS** as the EAP method. In the following blanks, enter your ID and password issued by the CA, then upload related certificate(s).

⚠ **IMPORTANT**

The maximum length of password is 200 symbols.



IEEE 802.1x

☑ Enable IEEE 802.1x

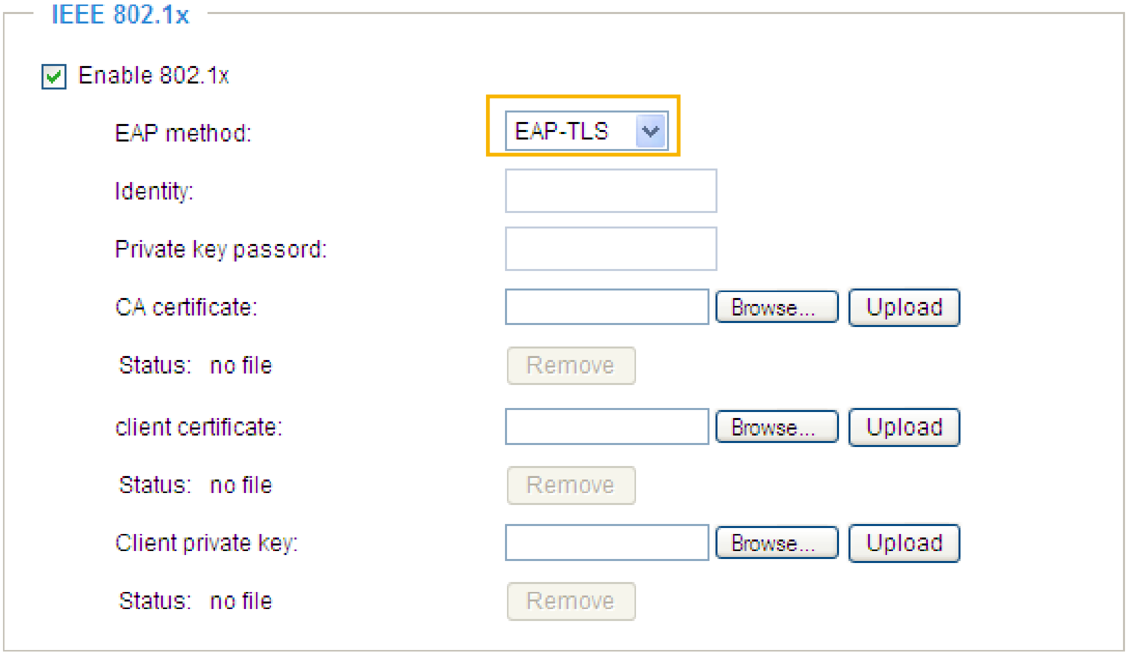
EAP method: EAP-PEAP

Identity:

Password:

CA certificate:

Status: no file



IEEE 802.1x

☑ Enable 802.1x

EAP method: EAP-TLS

Identity:

Private key passord:

CA certificate:

Status: no file

client certificate:

Status: no file

Client private key:

Status: no file

3. When all settings are complete, move the Network Camera to the protected LAN by connecting it to an 802.1x enabled switch. The devices will then start the authentication automatically.

NOTE:

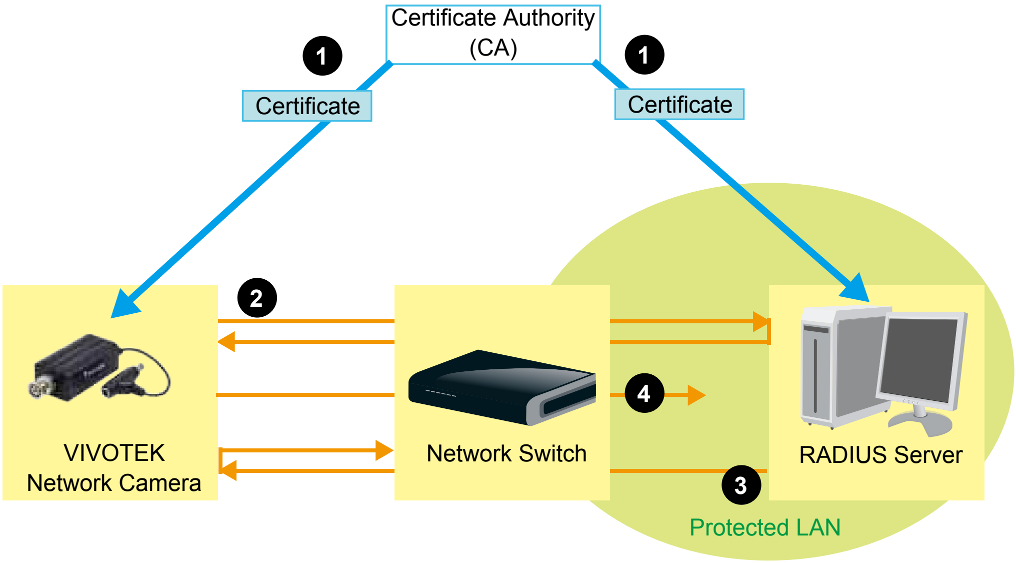
► *The authentication process for 802.1x:*

1. The Certificate Authority (CA) provides the required signed certificates to the Network Camera (the supplicant) and the RADIUS Server (the authentication server).

2. A Network Camera requests access to the protected LAN using 802.1X via a switch (the authenticator). The client offers its identity and client certificate, which is then forwarded by the switch to the RADIUS Server, which uses an algorithm to authenticate the Network Camera and returns an acceptance or rejection back to the switch.

3. The switch also forwards the RADIUS Server's certificate to the Network Camera.

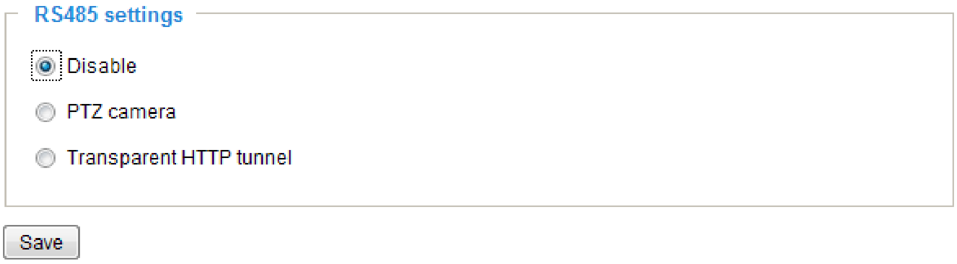
4. Assuming all certificates are validated, the switch then changes the Network Camera's state to authorized and is allowed access to the protected network via a pre-configured port.



PTZ > PTZ settings

This section explains how to control the Network Camera's Pan/Tilt/Zoom operation by connecting to a PTZ driver or scanner via RS485 interface. Before configuration, connect the video server to a PTZ camera or PTZ scanner via RS485 interface.

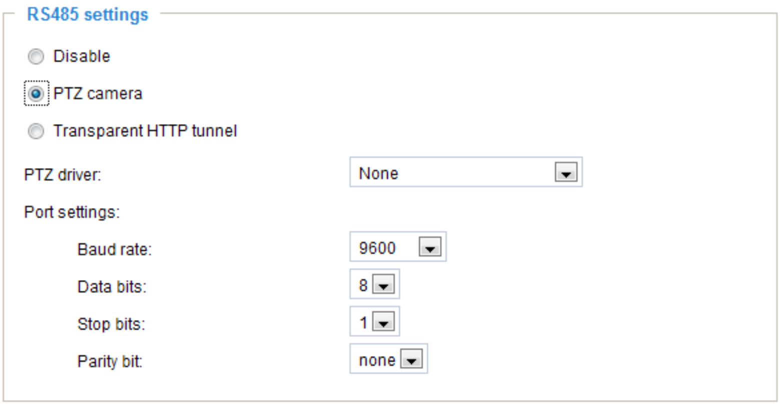
RS485 settings


RS485 settings

● Disable
○ PTZ camera
○ Transparent HTTP tunnel

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 camera or PTZ scanner via RS485 interface first. Then you can configure the PTZ driver and RS485 port with the following settings.

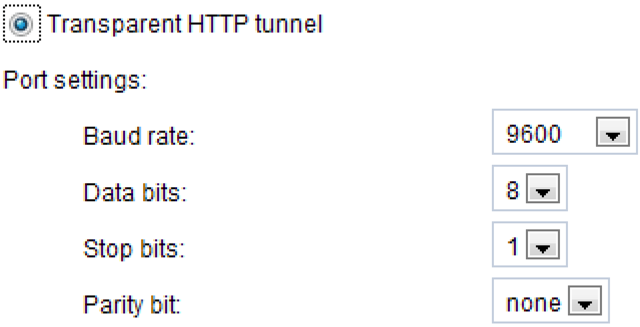

RS485 settings

○ Disable
● PTZ camera
○ Transparent HTTP tunnel

PTZ driver: None
Port settings:
Baud rate: 9600
Data bits: 8
Stop bits: 1
Parity bit: none

VIVOTEK provides several PTZ drivers: DynaDome/SmartDOME, Lilin PIH-7x00, Pelco D, Pelco P, and Samsung Scc643 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 main page. Please refer to the illustration on page 80.

Transparent HTTP Tunnel: If you want to use your own RS-485 device, you can use UART commands to build a Transparent HTTP Tunnel. The UART commands will be sent through HTTP tunnel established between the RS-485 device and the linked camera. For detailed application notes, please refer to URL Commands on page 103 or the FAQ pages on VIVOTEK's website.


● Transparent HTTP tunnel

Port settings:
Baud rate: 9600
Data bits: 8
Stop bits: 1
Parity bit: none

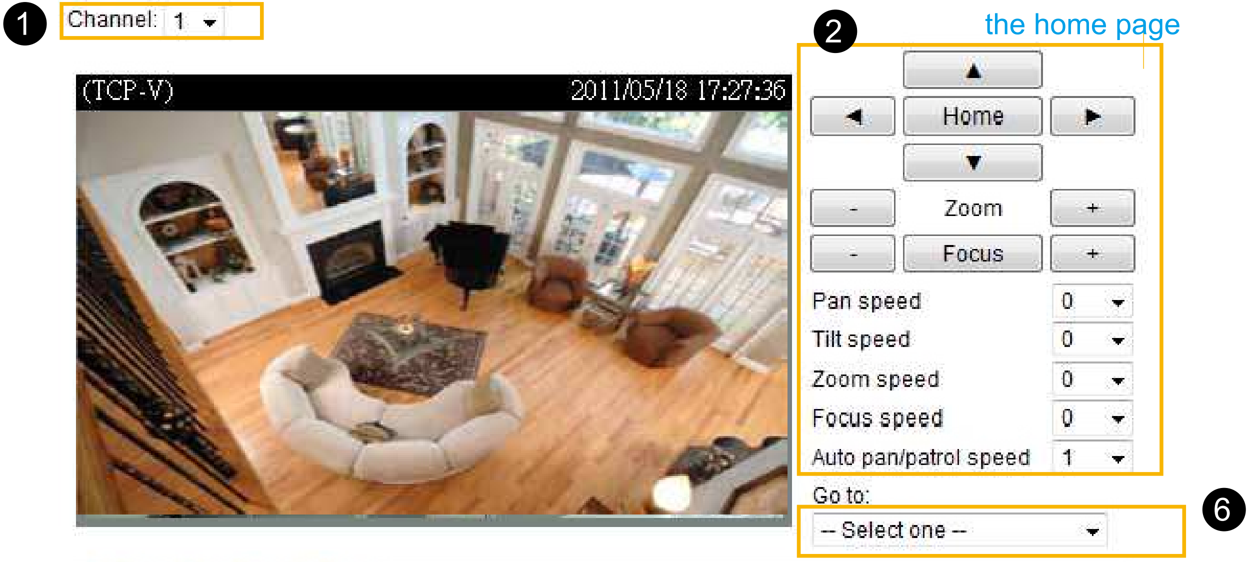
Preset positions

If you select DynaDome/SmartDOME, Lilin PIH-7x00, or Pelco D, Pelco P protocol, Samsung scc643 protocol protocol as the PTZ driver and click the **Save** button, the **Preset Position** button will be enabled. Click **Preset Position** to open the settings page. You can also select preset positions for the camera to patrol. A total of 20 preset positions can be configured.

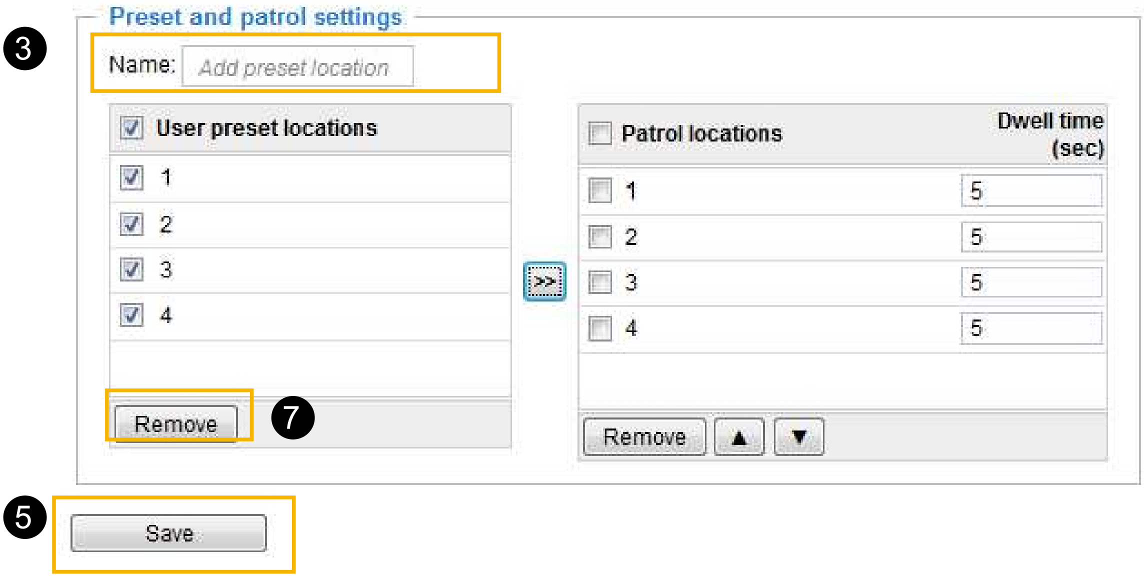
Please follow the steps below to preset a position:

1. Select **Channel** in the drop-down list.
2. Adjust the shooting area to the desired position by using the buttons on the right. The default **Home** position is set as the center position.
3. Enter a name for the preset position, which allows up to forty characters. Click **Add** to enable the settings. The preset positions will be displayed under **User preset locations**.
4. To add additional preset positions, please repeat steps 1~2.
5. Select the preset positions and click on **Save** to enable the settings.
6. The positions saved will show up in **Go to** drop down list on the Home page. See next page
7. To remove a preset position from the list, select it and click **Remove**.

Functions are the same as the Control Panel on the home page



Pan speed 0
Tilt speed 0
Zoom speed 0
Focus speed 0
Auto pan/patrol speed 1
Go to: -- Select one --



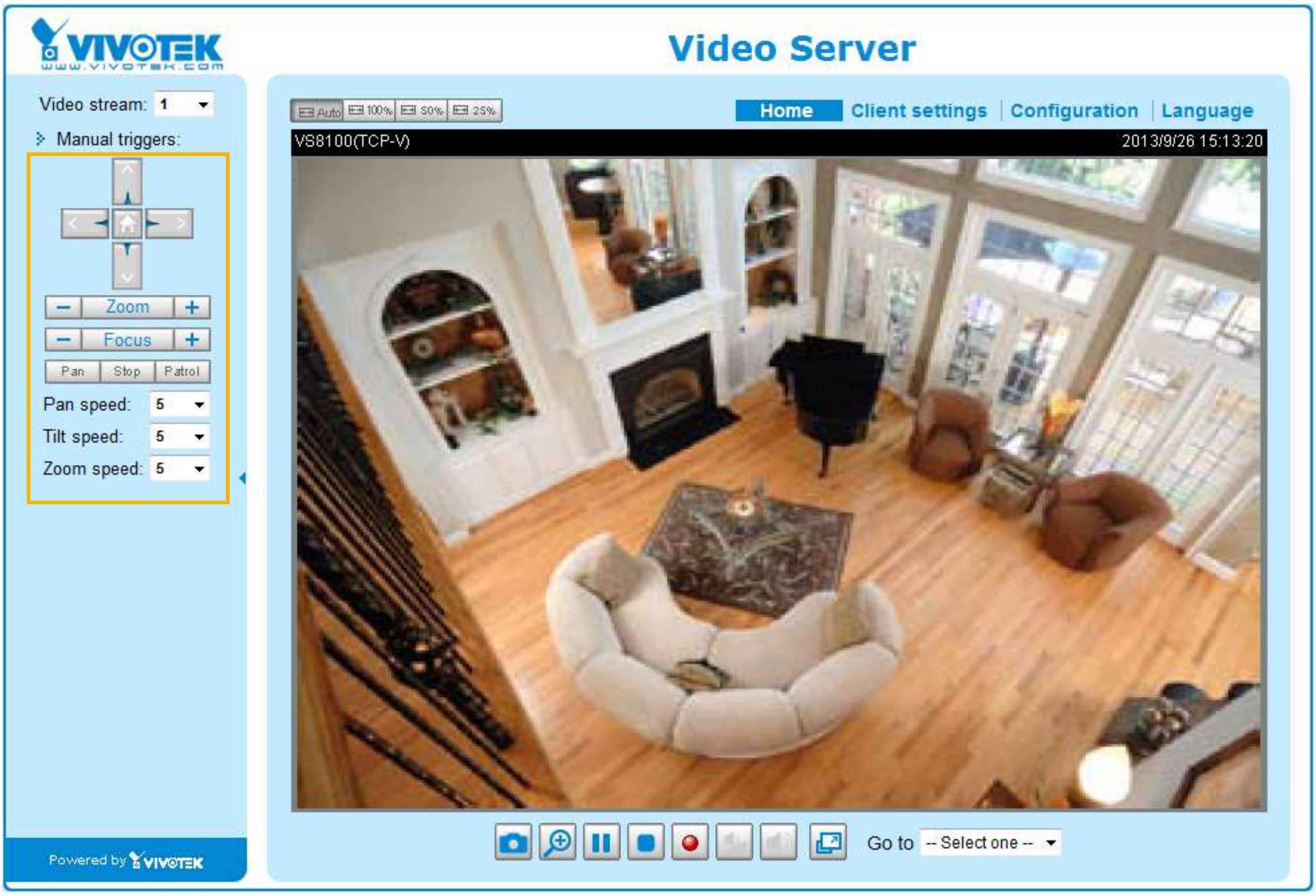
Name: Add preset location

☑ User preset locations
☑ 1
☑ 2
☑ 3
☑ 4

□ Patrol locations	Dwell time (sec)
□ 1	5
□ 2	5
□ 3	5
□ 4	5

■ The Camera Control Panel and Preset positions will be displayed on the home page:

■ Click Go to: Select one from the drop-down list, and the Network Camera will move to the selected preset position.



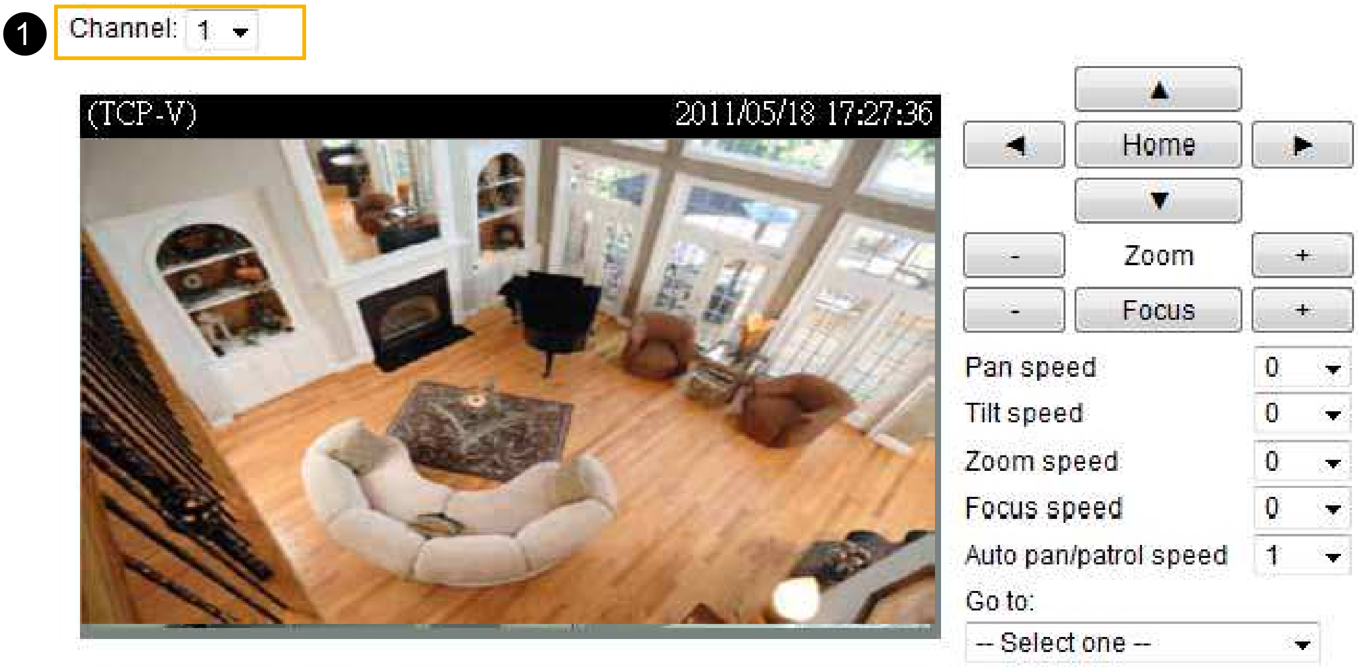
Camera ID settings

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 main page.

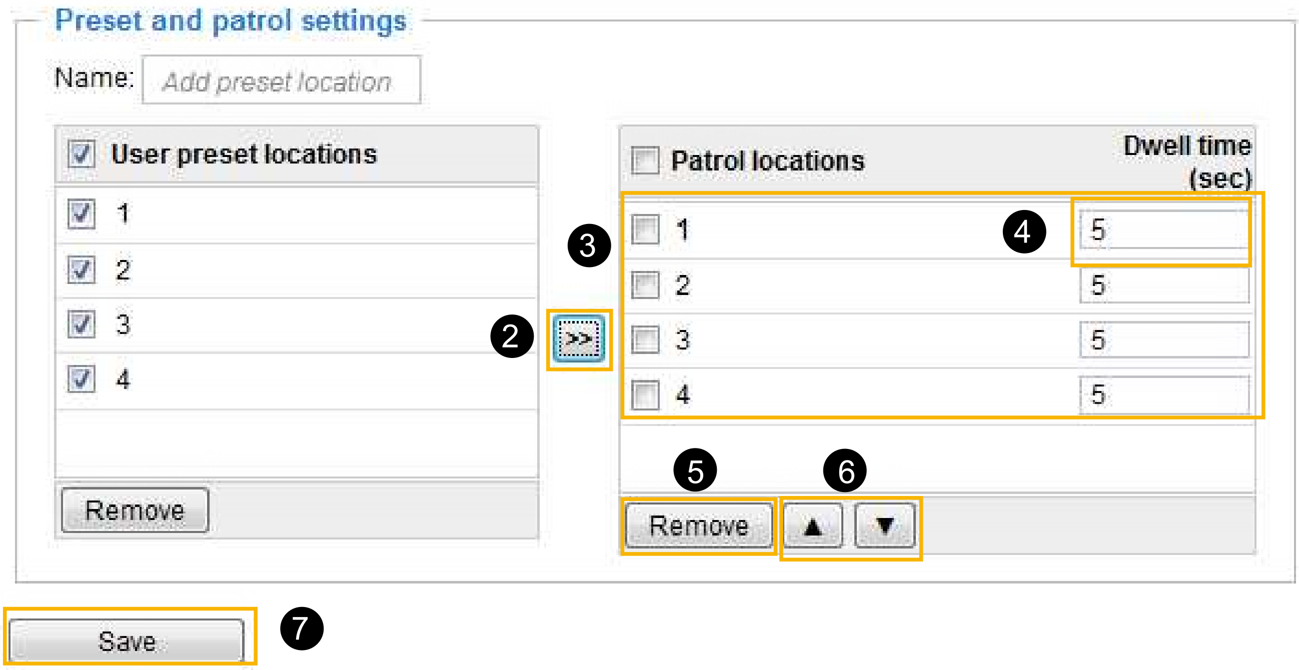
Patrol settings

You can select some preset positions for the Network Camera to patrol.
Please follow the steps below to set up a patrol schedule:

1. Select **Channel** in the drop-down list.
2. Select the preset locations on the list, and click >> .
3. The selected preset locations will be displayed on the **Patrol locations** list.
4. Set the **Dwelling time** for the preset location during auto patrol.
5. If you want to delete a preset location from the Patrol locations list, select it and click **Remove**.
6. Select a location and click ▲ ▼ to rearrange the patrol order.
7. Select patrol locations you want to save in the list and click **Save** to enable the patrol settings.
8. To implement the patrol schedule, please go to homepage and click on **Patrol** button.



Pan speed: 0
Tilt speed: 0
Zoom speed: 0
Focus speed: 0
Auto pan/patrol speed: 1
Go to: -- Select one --

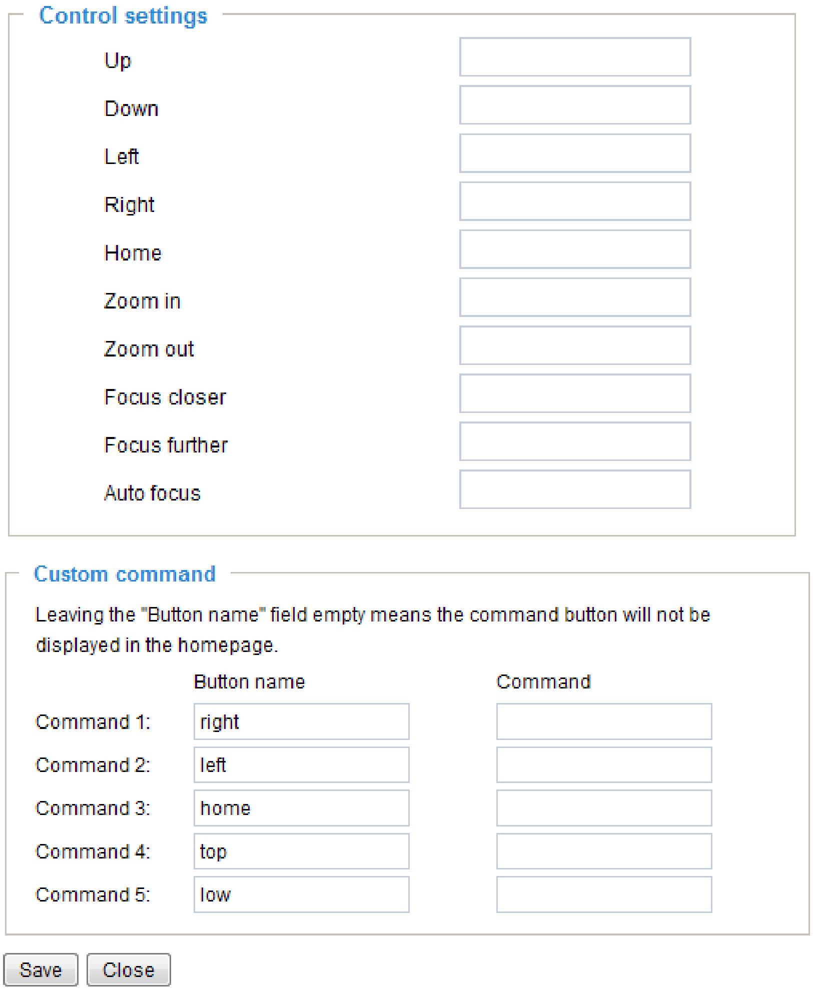


☑ User preset locations
☑ 1
☑ 2
☑ 3
☑ 4

□ Patrol locations	Dwell time (sec)
□ 1	5
□ 2	5
□ 3	5
□ 4	5

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.



Control settings

Up	
Down	
Left	
Right	
Home	
Zoom in	
Zoom out	
Focus closer	
Focus further	
Auto focus	

Custom command

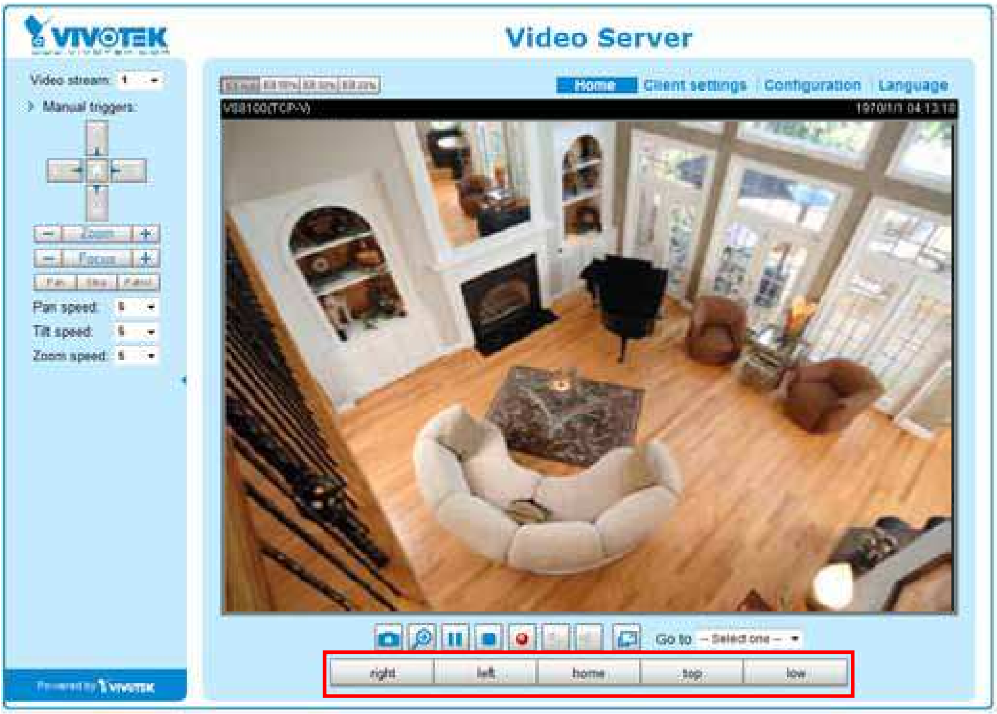
Leaving the "Button name" field empty means the command button will not be displayed in the homepage.

	Button name	Command
Command 1:	right	
Command 2:	left	
Command 3:	home	
Command 4:	top	
Command 5:	low	

NOTE:

- ► *If you select DynaDome/ SmartDOME, Lilin PIH-7x00, or Pelco D protocol as the PTZ driver, the Control Settings column will not be displayed.*
- ► *For all PTZ drivers, a total of five additional command buttons can be configured.*

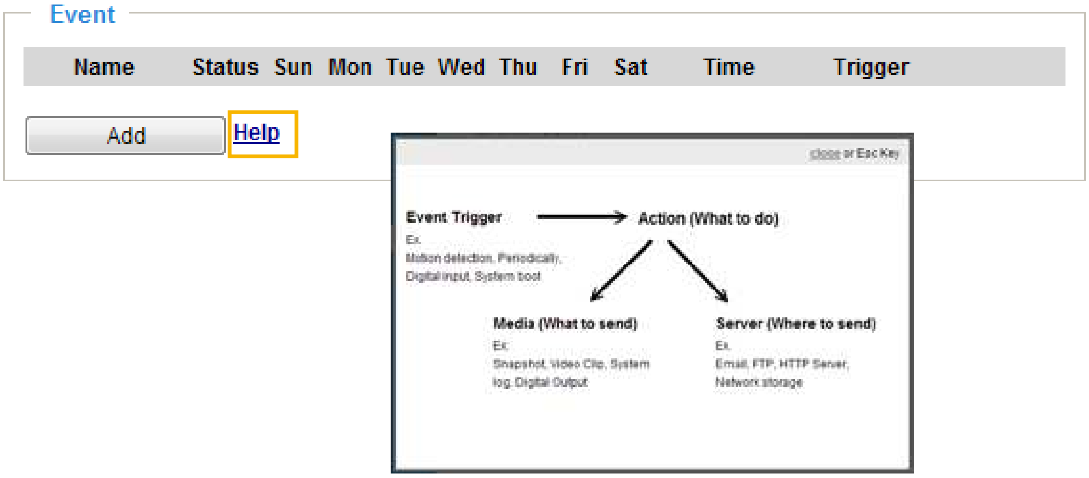
► *The command buttons will be displayed on the main page:*



Event > Event settings

Advanced Mode

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. Click on **Help**, there is an illustration shown in the pop-up window explaining that 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.



Event

Name	Status	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Time	Trigger

Add Help

close or Esc Key

Event Trigger → Action (What to do)

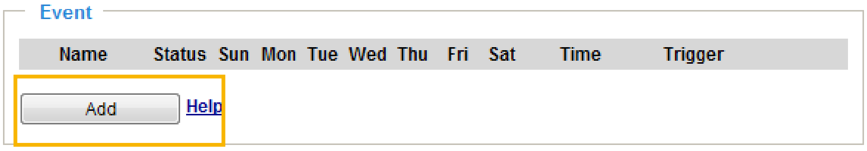
Ex.
Motion detection, Periodically,
Digital input, System boot

Media (What to send)
Ex.
Snapshot, Video Clip, System
log, Digital Output

Server (Where to send)
Ex.
Email, FTP, HTTP Server,
Network storage

Event

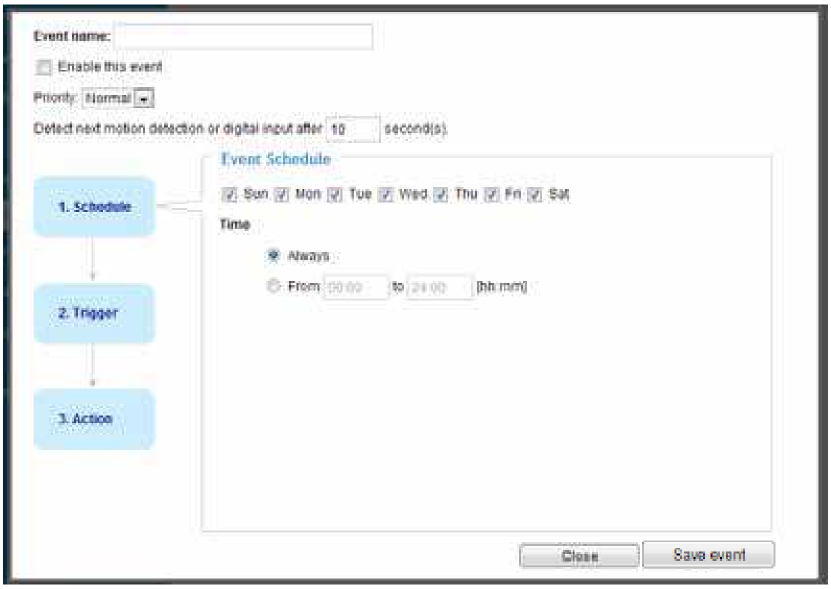
To configure an event with reactive measures such as recording video or snapshots, it is necessary to configure the server and media settings so that the Network Camera will know what action to take (such as which server to send the media files to) when a trigger is activated. An event is an action initiated by a user-defined trigger source. In the **Event** column, click **Add** to open the event settings window. Here you can arrange three elements -- Schedule, Trigger, and Action to set an event. A total of 3 event settings can be configured.



Event

Name	Status	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Time	Trigger

Add Help



Event name:

□ Enable this event

Priority: Normal

Detect next motion detection or digital input after 10 second(s)

Event Schedule

☑ Sun ☑ Mon ☑ Tue ☑ Wed ☑ Thu ☑ Fri ☑ Sat

Time

● Always

○ From 00:00 to 24:00 [hh:mm]

Close Save event

■ 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. This can prevent event-related actions to take place too frequently.

1. Schedule

Specify the period of them during which the event trigger will take effect. Please select the days of the week and the time in a day (in 24-hr time format) for the event triggering schedule. For example, you may prefer an event to be triggered only during the off-office hours.

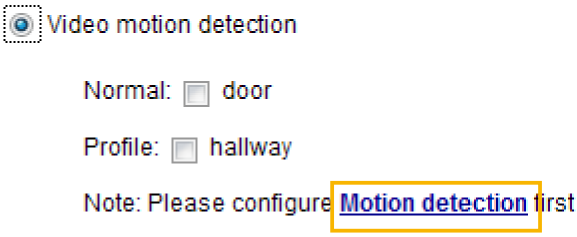
2. Trigger

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 on the next page. Select the item to display the detailed configuration options.

■ 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 94 for details.



● Video motion detection

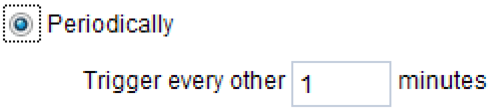
Normal: □ door

Profile: □ hallway

Note: Please configure Motion detection first

■ Periodically

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



● Periodically

Trigger every other 1 minutes

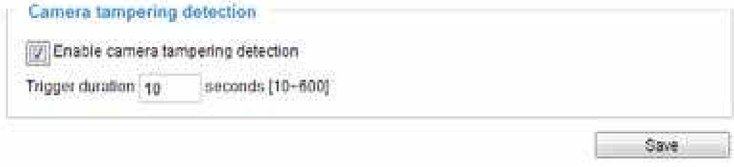
■ System boot

This option triggers the Network Camera when the power to the Network Camera is disconnected and re-connected.

■ Recording notify

This option allows the Network Camera to trigger when the recording disk is full or when recording starts to overwrite older data.

- Camera tampering detection
  This option allows the Network Camera to trigger when the camera detects that is is being tampered with. To enable this function, you need to configure the Tampering Detection option first. Please refer to page 97 for detailed information.

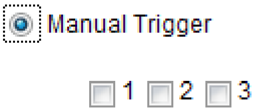


Camera tampering detection

☑ Enable camera tampering detection

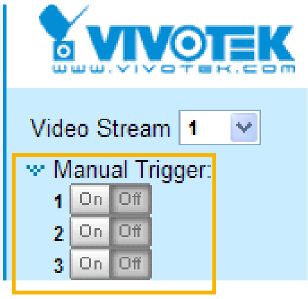
Trigger duration 10 seconds [10~600]

- Manual Trigger
  This option allows users to enable event triggers manually by clicking the on/off button on the homepage. Please configure 1 to 3 associated events before using this function.



● Manual Trigger

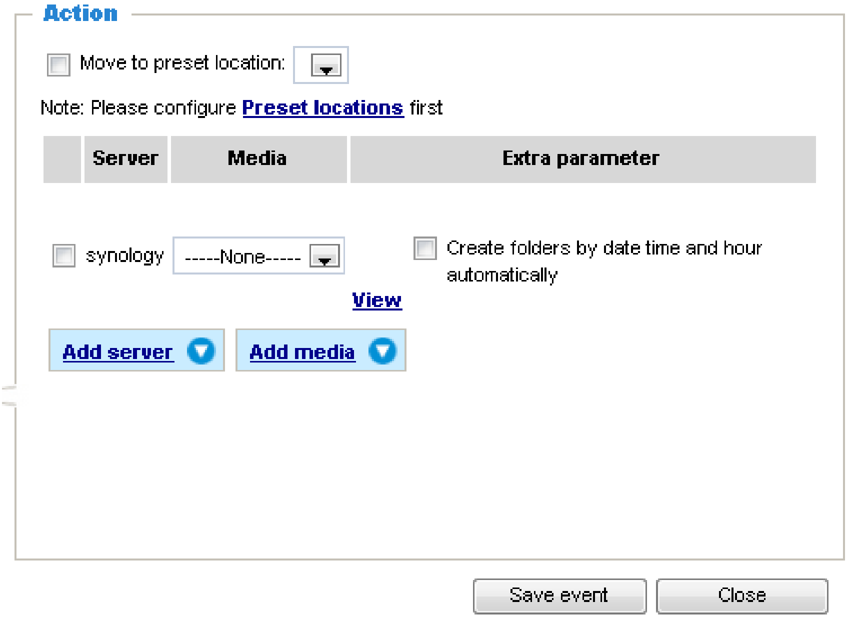
□ 1 □ 2 □ 3



- Video loss: triggers an event when video transaction is discontinued.
- Video restore: triggers an event when video transaction is re-established.

3. Action

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



Action

□ Move to preset location:

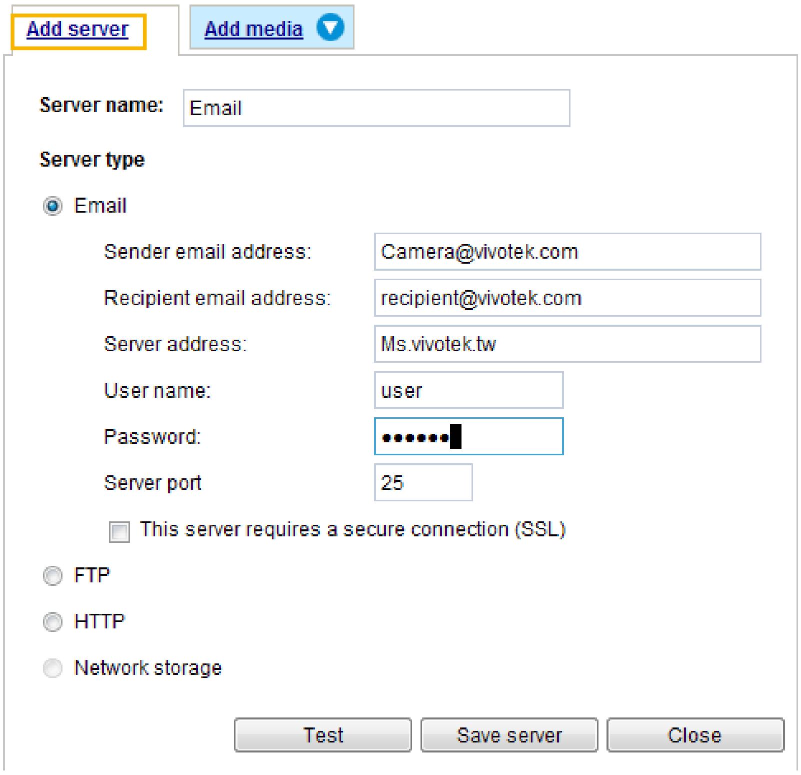
Note: Please configure Preset locations first

	Server	Media	Extra parameter
□	synology	-----None----- View	□ Create folders by date time and hour automatically

Add server

It is necessary to configure the server and media settings so that the Network Camera will know what action to take (such as which server to send the media files to) when a trigger is activated. Click **Add server** to open the server setting window. You can specify where the notification messages are sent to when a trigger is activated. A total of 5 server settings can be configured.

There are four choices of server types available: Email, FTP, HTTP, and Network storage. Select the item to display the detailed configuration options. You can configure either one or all of them.



Server name: Email

Server type

● Email

Sender email address: Camera@vivotek.com

Recipient email address: recipient@vivotek.com

Server address: Ms.vivotek.tw

User name: user

Password: ••••••

Server port 25

□ This server requires a secure connection (SSL)

○ FTP

○ HTTP

○ Network storage

Server type - Email
Select to send the media files via email when a trigger is activated.

■ Server name: Enter a name for the server setting.

■ 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.

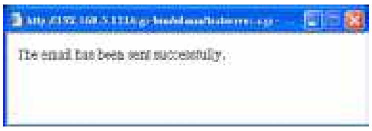
■ User name: Enter the user name of the email account if necessary.

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

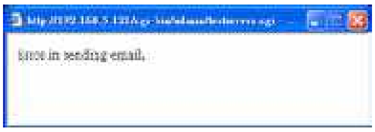
■ Server port: The default mail server port is set to 25. You can also manually set another port.

If your SMTP server requires a secure connection (SSL), select **This server requires a secure connection (SSL).**

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.



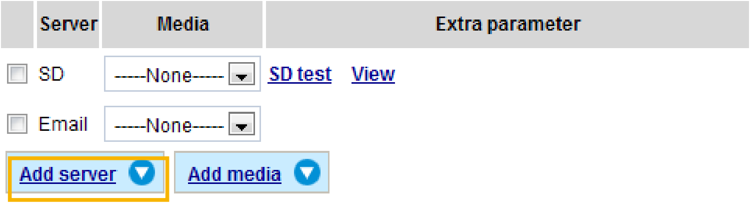
The email has been sent successfully.



Error in sending email.

Click **Save server** to enable the settings.

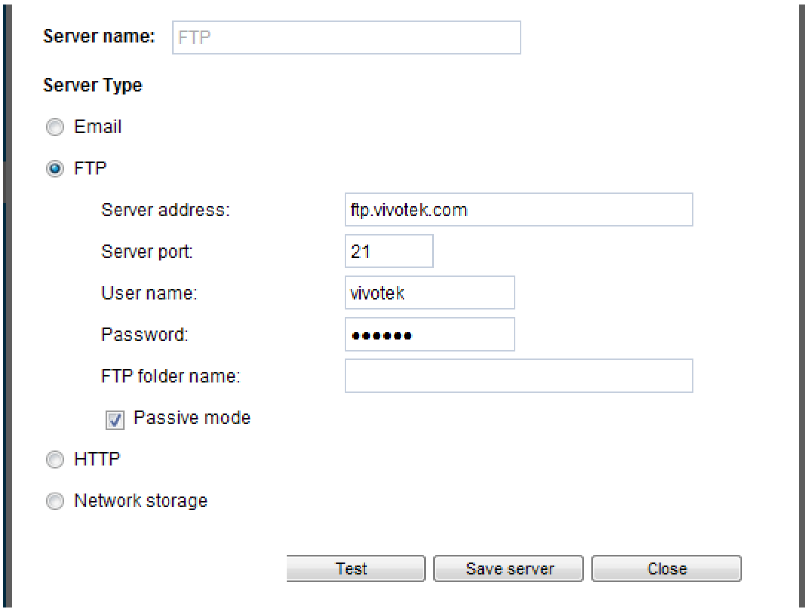
Note that after you configure the first event server, the new event server will automatically display on the Server list. If you wish to add other server options, click **Add server**.



	Server	Media	Extra parameter
□	SD	-----None-----	SD test View
□	Email	-----None-----	

Server type - FTP

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



Server name: FTP

Server Type

○ Email

● FTP

Server address: ftp.vivotek.com

Server port: 21

User name: vivotek

Password: ●●●●●●

FTP folder name:

☑ Passive mode

○ HTTP

○ Network storage

- Server name: Enter a name for the server setting.

- 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.

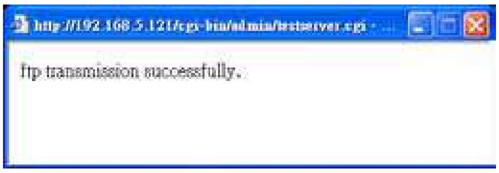
- Password: Enter the password of the FTP account.

- FTP folder name

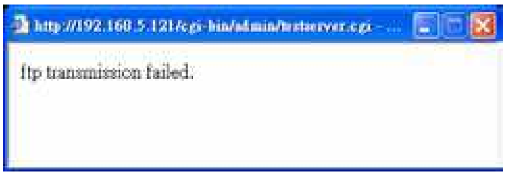
  Enter the folder where the media files will be placed. If the folder name does not exist, the Network Camera will automatically create one on the FTP server.

- 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. The firmware default has the Passive mode checkbox selected.

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://192.168.5.121/cgi-bin/admin/testserver.cgi - ...

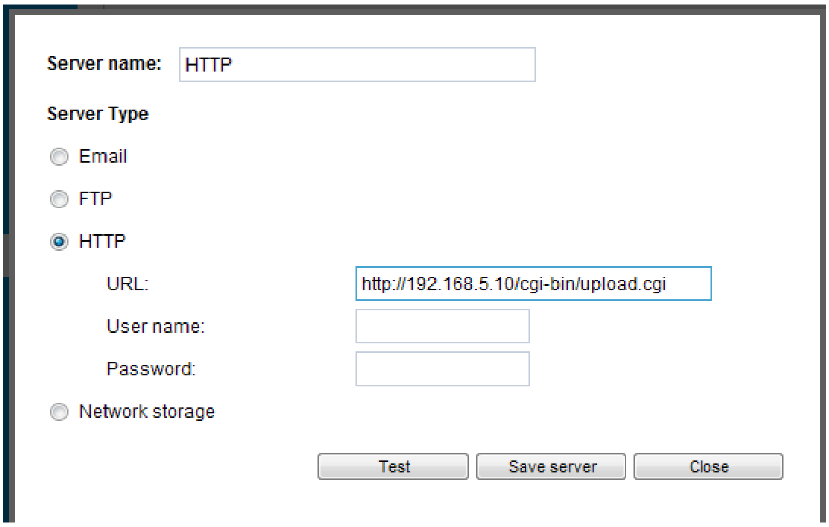
ftp transmission successfully.


http://192.168.5.121/cgi-bin/admin/testserver.cgi - ...

ftp transmission failed.

Click **Save server** to enable the settings.

Server type - HTTP
Select to send the media files to an HTTP server when a trigger is activated.


Server name: HTTP

Server Type

○ Email

○ FTP

● HTTP

URL: http://192.168.5.10/cgi-bin/upload.cgi

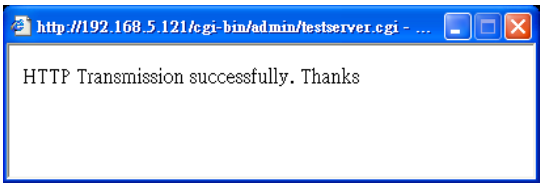
User name:

Password:

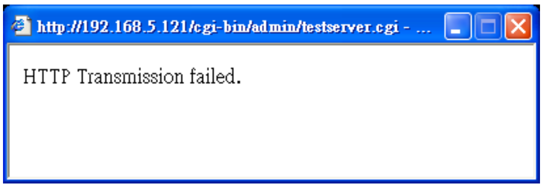
○ Network storage

- Server name: Enter a name for the server setting.
- 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 shown below. If successful, you will receive a test.txt file on the HTTP server.


http://192.168.5.121/cgi-bin/admin/testserver.cgi - ...

HTTP Transmission successfully. Thanks

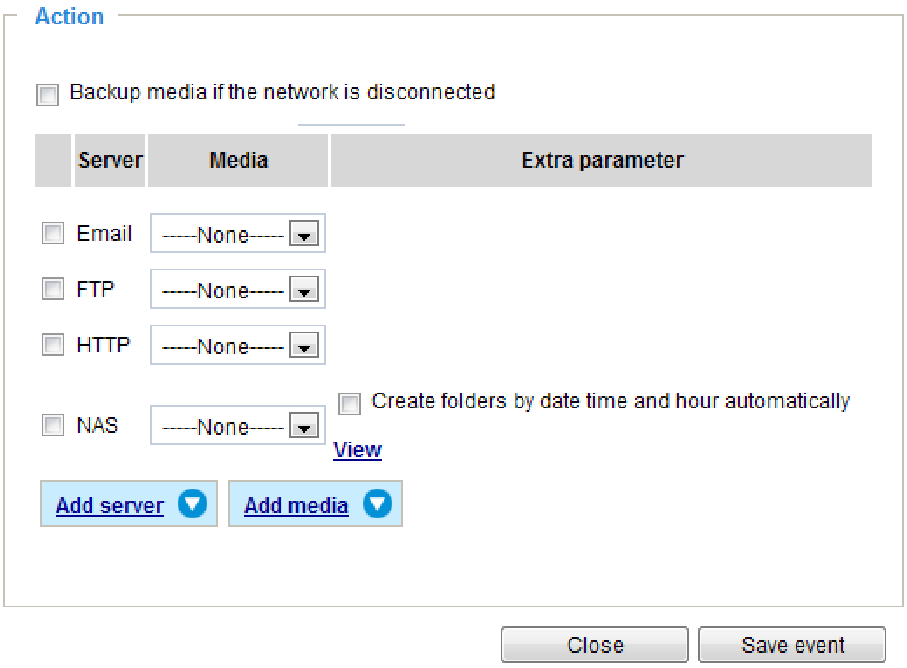

http://192.168.5.121/cgi-bin/admin/testserver.cgi - ...

HTTP Transmission failed.

Click **Save server** to enable the settings.

Network storage:
Select to send the media files to a networked storage when a trigger is activated. Please refer to **NAS server** on page 100 for details. Note that only one NAS server can be configured.

Click **Save server** to enable the settings.



Action

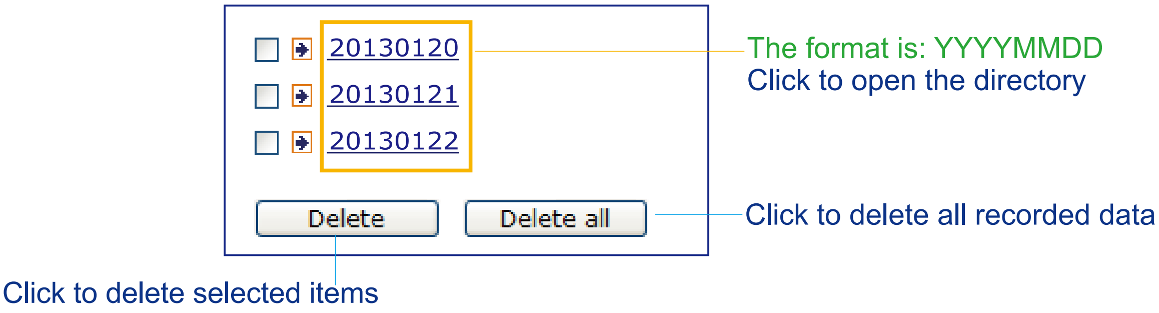
□ Backup media if the network is disconnected

	Server	Media	Extra parameter
□	Email	-----None-----	
□	FTP	-----None-----	
□	HTTP	-----None-----	
□	NAS	-----None-----	□ Create folders by date time and hour automatically View

■ View: Click this button to open a file list window. This function is only for Networked Storage. If you click the View button, a storage share's page will prompt so that you can manage the recorded files on it. A file directory window will prompt for you to view recorded data on Networked storage. For detailed illustration, please refer to the next page.

■ Create folders by date, time, and hour automatically: If you select this item, the system will automatically create folders by the date when video footages are stored onto the networked storage.

The following is an example of a file destination with video clips:



□ 20130120
□ 20130121
□ 20130122

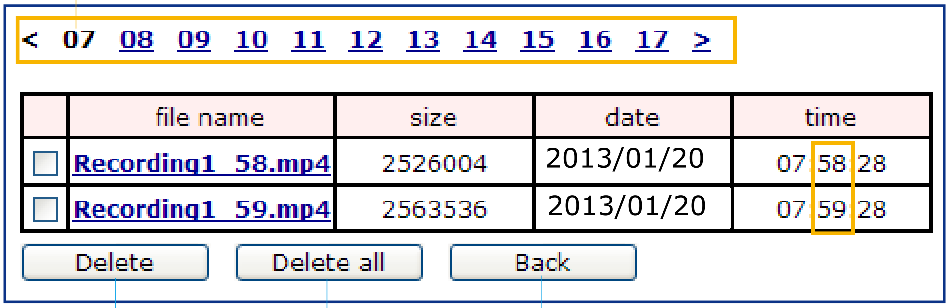
The format is: YYYYMMDD
Click to open the directory

Click to delete all recorded data

Click to delete selected items

Click **20130120** to open the directory:

The format is: HH (24r)
Click to open the file list for that hour

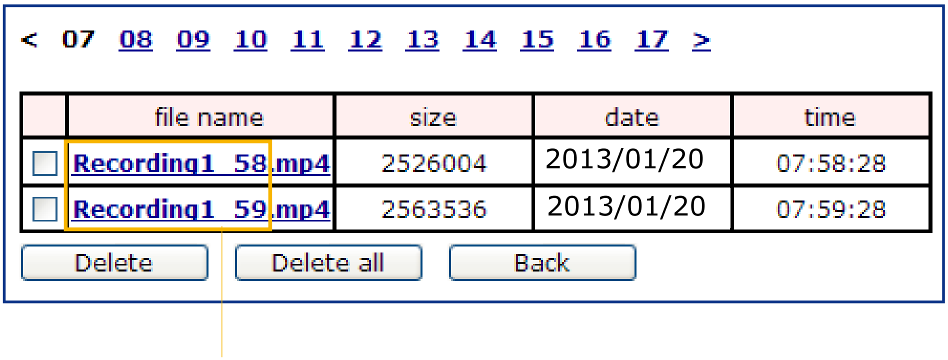


	file name	size	date	time
□	Recording1_58.mp4	2526004	2013/01/20	07:58:28
□	Recording1_59.mp4	2563536	2013/01/20	07:59:28

Click to delete selected items

Click to go back to the previous level of the directory

Click to delete all recorded data

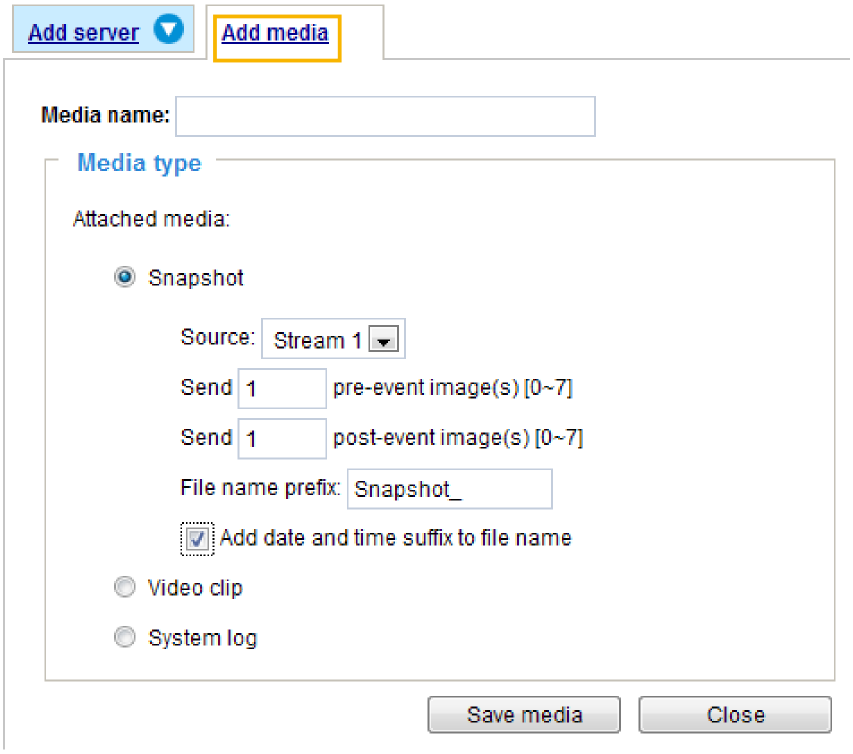


	file name	size	date	time
□	Recording1_58.mp4	2526004	2013/01/20	07:58:28
□	Recording1_59.mp4	2563536	2013/01/20	07:59:28

The format is: File name prefix + Minute (mm)
You can set up the file name prefix on Add media page. Please refer to next page for detailed information.

Add media

Click **Add media** to open the media setting window. 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. There are three choices of media types available: Snapshot, Video Clip, and System log. Select the item to display the detailed configuration options. You can configure either one or all of them.



Add server | Add media

Media name:

Media type

Attached media:

● Snapshot

Source: Stream 1

Send 1 pre-event image(s) [0~7]

Send 1 post-event image(s) [0~7]

File name prefix: Snapshot_

☑ Add date and time suffix to file name

○ Video clip

○ System log

Save media | Close

Media type - Snapshot

Select to send snapshots when a trigger is activated.

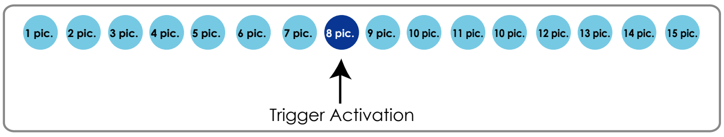
■ Media name: Enter a name for the media setting.

■ Source: Select to take snapshots from any of the video streams.

■ Send □ pre-event images
The Network Camera has a buffer to temporarily hold data for a short period of time. Enter a number to decide how many images to capture before a trigger is activated. Up to 7 images can be generated.

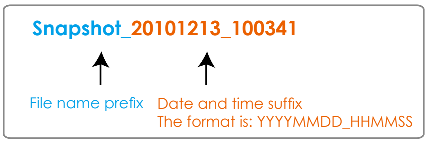
■ Send □ post-event images
Enter a number to decide how many images to capture after a trigger is activated. Up to 7 images can be generated.

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



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

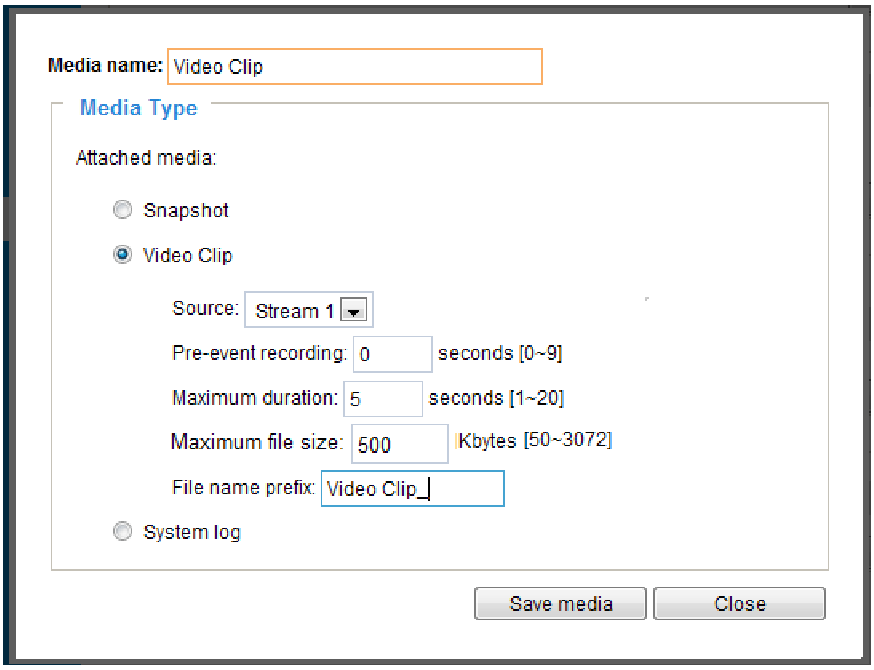
■ Add date and time suffix to the file name
Select this option to add a date/time suffix to the file name.
For example:



Click **Save media** to enable the settings.

Note that after you set up the first media server, a new column for media server will automatically display on the Media list. If you wish to add more media options, click **Add media**.

Media type - Video clip
Select to send video clips when a trigger is activated.



Media name: Video Clip

Media Type

Attached media:

○ Snapshot

● Video Clip

Source: Stream 1

Pre-event recording: 0 seconds [0~9]

Maximum duration: 5 seconds [1~20]

Maximum file size: 500 Kbytes [50~3072]

File name prefix: Video Clip_

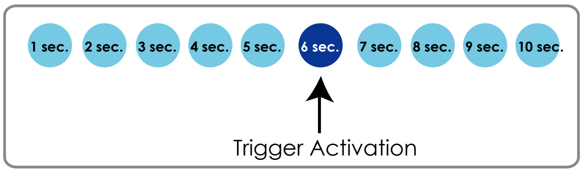
○ System log

■ Media name: Enter a name for the media setting.

■ Source: Select a video stream as the source of video clip.

■ Pre-event recording
The Network Camera has a buffer to temporarily hold 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. The duration can be up to 10 seconds.
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.



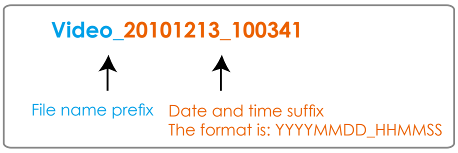
- Maximum file size

  Specify the maximum file size allowed. Some users may need to stitch the video clips together when searching and packing up forensic evidence.

- File name prefix

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

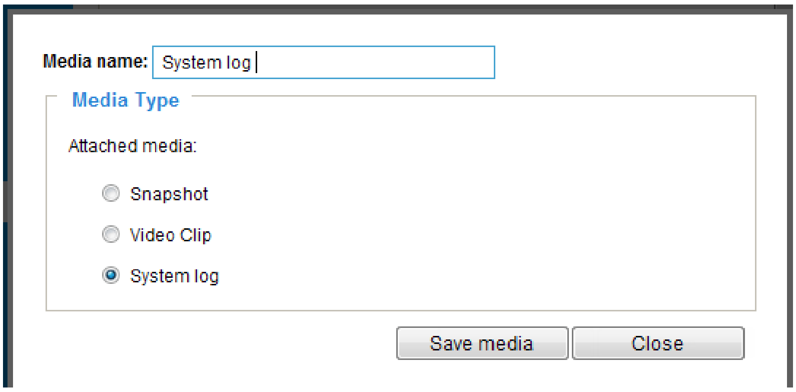
  For example:



Click **Save media** to enable the settings.

Media type - System log

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



Media name: System log

Media Type

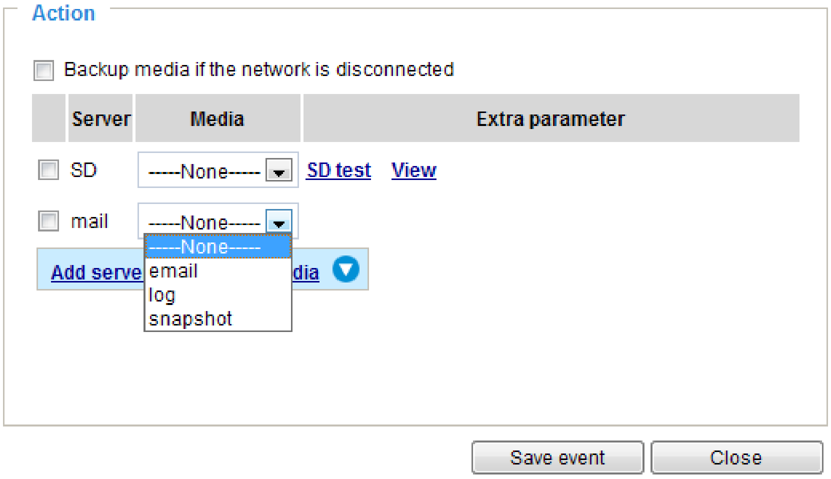
Attached media:

○ Snapshot

○ Video Clip

● System log

Click **Save media** to enable the settings, then click **Close** to exit the page.



Action

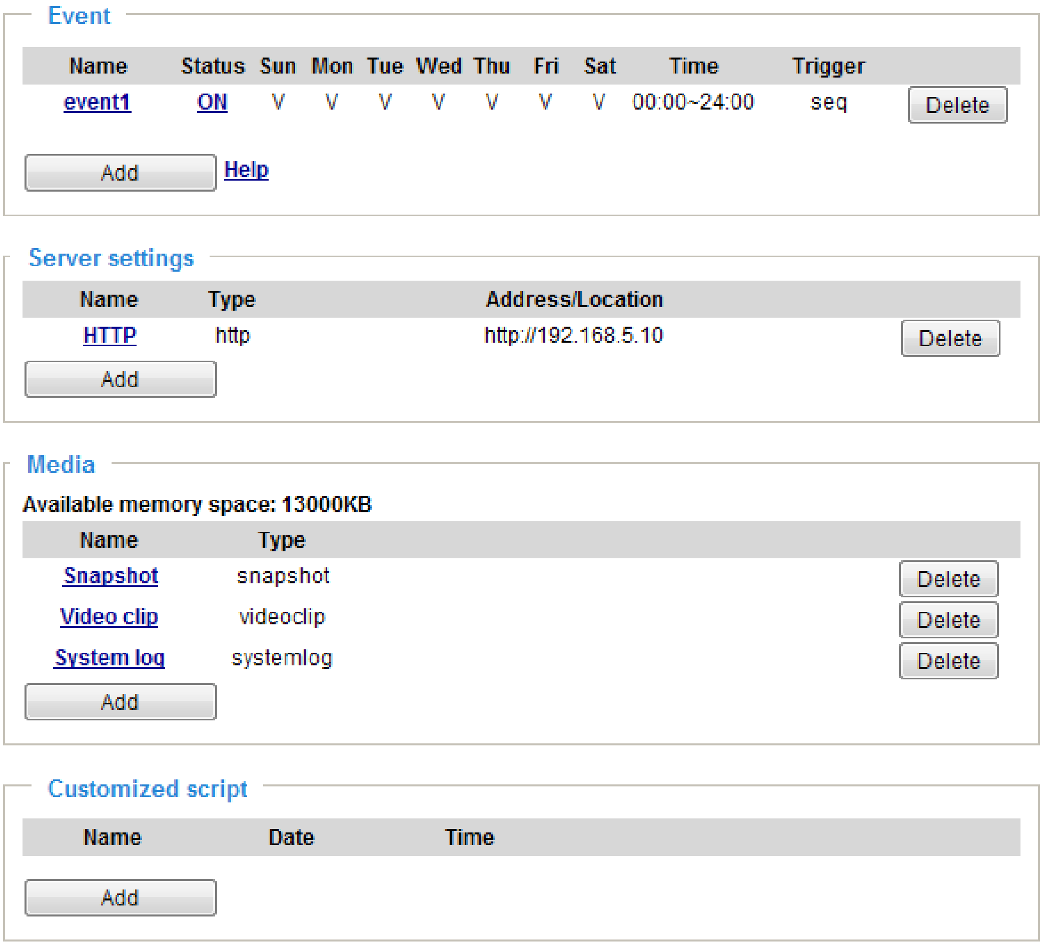
□ Backup media if the network is disconnected

	Server	Media	Extra parameter
□	SD	-----None-----	SD test View
□	mail	-----None-----	

In the Event settings column, the Servers and Medias you configured will be listed; please make sure the Event -> Status is indicated as **ON**, in order to enable the event triggering action.

When completed, click the **Save event** button to enable the settings and click **Close** to exit Event Settings page. The new Event / Server settings / Media will appear in the event drop-down list on the Event setting page.

Please see the example of the Event setting page below:



Event

Name	Status	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Time	Trigger	
event1	ON	V	V	V	V	V	V	V	00:00~24:00	seq	Delete

Server settings

Name	Type	Address/Location	
HTTP	http	http://192.168.5.10	Delete

Media

Available memory space: 13000KB

Name	Type	
Snapshot	snapshot	Delete
Video clip	videoclip	Delete
System log	systemlog	Delete

Customized script

Name	Date	Time

When the Event Status is **ON**, the event configuration above is triggered by motion detection, the Network Camera will automatically send snapshots via e-mail.

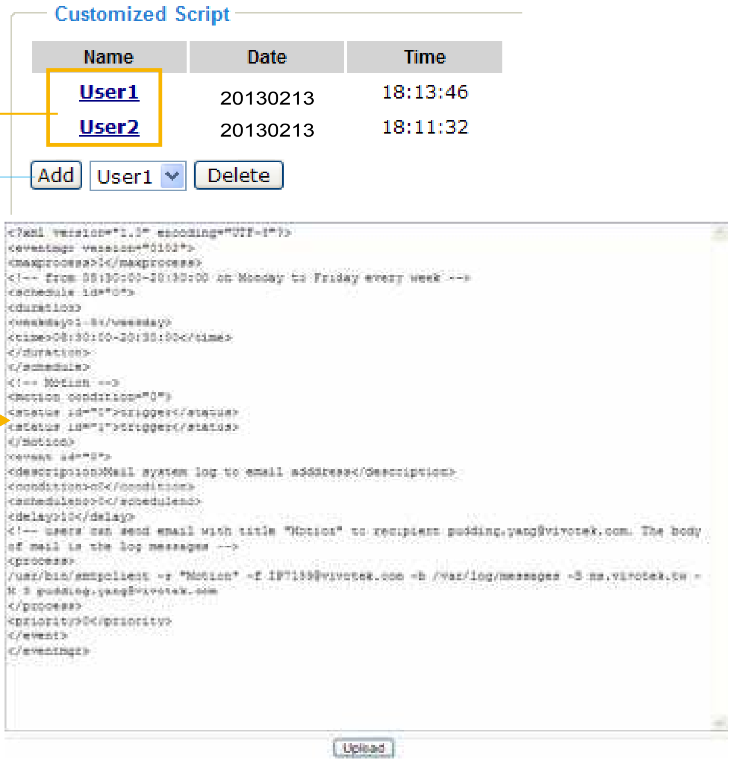
If you want to stop the event trigger, you can click on the **ON** button to turn it to **OFF** status or click the **Delete** button to remove the event setting.

To remove a server setting from the list, select a server name from the drop-down list and click **Delete**. Note that you can only delete a server setting when it is not applied in an existing setting.

To remove a media setting from the list, select a media name from the drop-down list and click **Delete**. Note that you can only delete a media setting when it is not applied in an existing setting.

Customized Script

This function allows you to upload a sample script (.xml file) to the webpage, which will save your time on configuring the settings. Please note that there is a limited number of customized scripts you can upload; if the current amount of customized scripts has reached the limit, an alert message will prompt. If you need more information, please contact VIVOTEK technical support.



Name	Date	Time
User1	20130213	18:13:46
User2	20130213	18:11:32

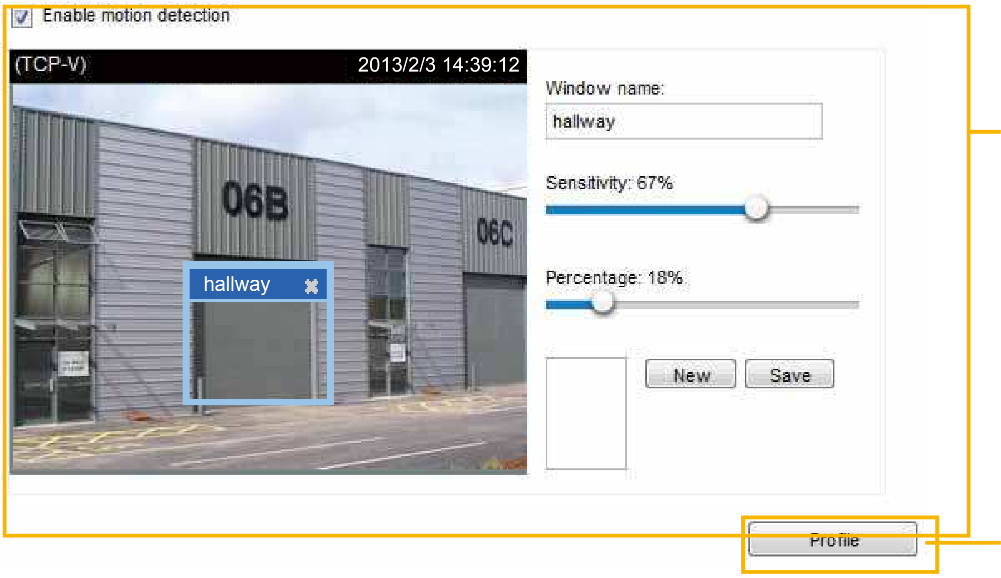
```
<?xml version="1.0" encoding="UTF-8"?>
<eventmgr version="0102">
<maxprocess>1</maxprocess>
<!-- from 08:30:00-20:30:00 on Monday to Friday every week -->
<schedule id="0">
<duration>
<weekday>1-5</weekday>
<time>08:30:00-20:30:00</time>
</duration>
</schedule>
<!-- Motion -->
<motion condition="0">
<status id="0">trigger</status>
<status id="1">trigger</status>
</motion>
<event id="0">
<description>Mail system log to email address</description>
<condition>c0</condition>
<scheduleno>0</scheduleno>
<delay>10</delay>
<!-- users can send email with title "Motion" to recipient pudding.yang@vivotek.com. The body
of mail is the log messages -->
<process>
/usr/bin/smtpclient -s "Motion" -f IP7139@vivotek.com -b /var/log/messages -S ms.vivotek.tw -
M 3 pudding.yang@vivotek.com
</process>
<priority>0</priority>
</event>
</eventmgr>
```

Click to upload a file

Click to modify the script online

Applications > 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.



☑ Enable motion detection

(TCP-V) 2013/2/3 14:39:12

Window name: hallway

Sensitivity: 67%

Percentage: 18%

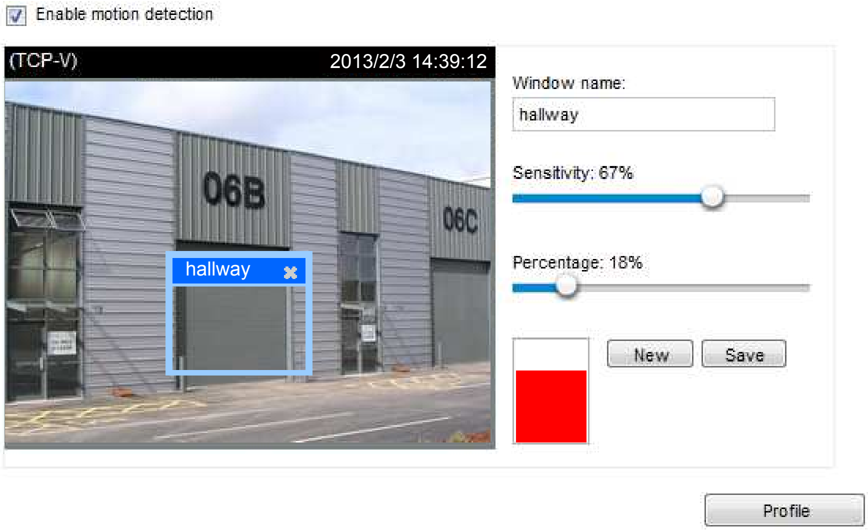
Motion Detection Setting 1:
For normal situations

Motion Detection Setting 2:
For special situations

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 it to a preferred location, and let cursor stay on the edge of the window until it changes into the resize cursor.
   - ■ To delete a window, click X on the upper 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:



☑ Enable motion detection

(TCP-V) 2013/2/3 14:39:12

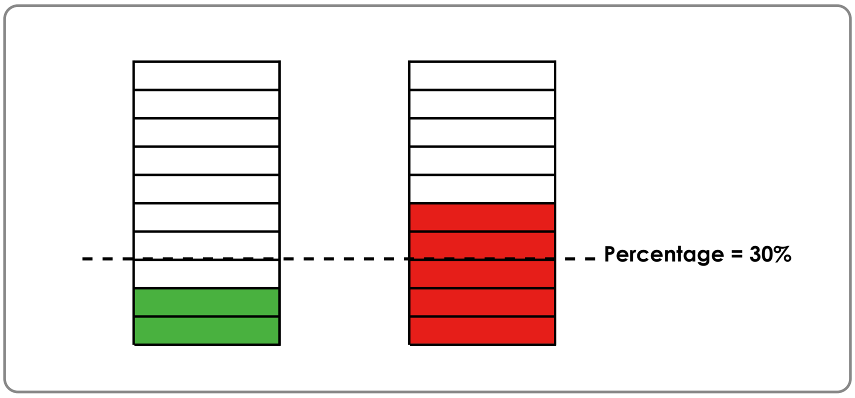
Window name: hallway

Sensitivity: 67%

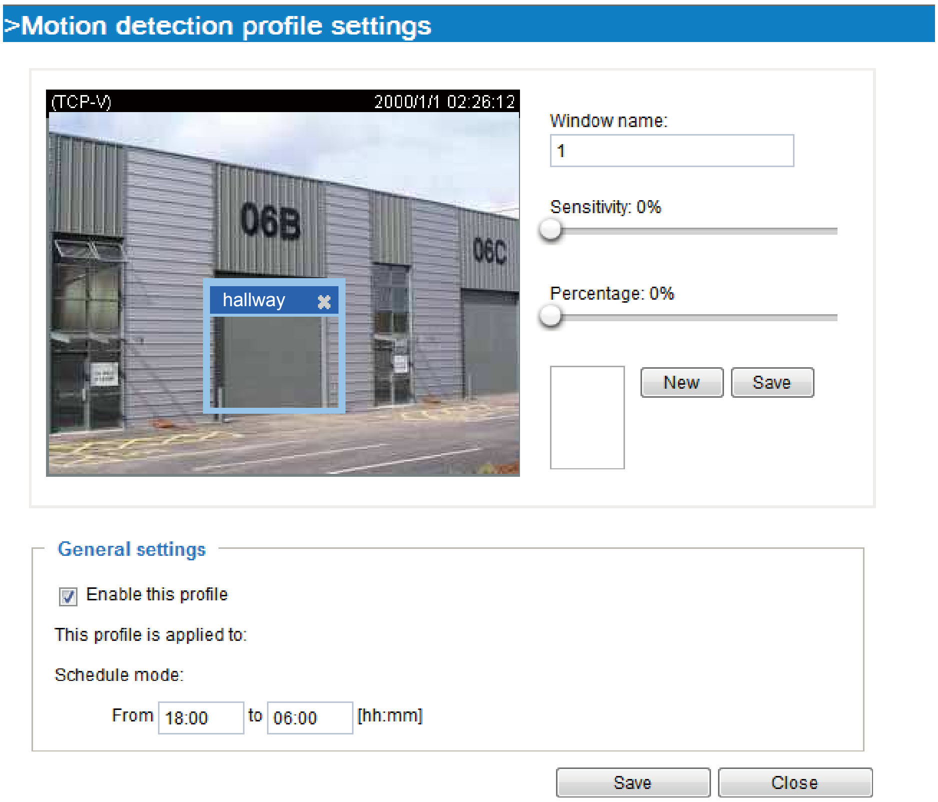
Percentage: 18%

The Percentage Indicator will rise or fall depending on the variation between sequential images. When motions are detected by the Network Camera and are considered to exceed the preset threshold, the red bar rises. Meanwhile, the motion detection window will be outlined in red for 2 or 3 seconds. Photos or videos can be captured instantly and configured to be sent to a remote server (via an Email or FTP server). For more information on how to configure an event setting, please refer to Event settings on page 81.

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 preset threshold.



If you want to configure other motion detection settings for day/night/schedule mode (e.g., for a different lighting condition), please click on **Profile** to open the Motion Detection Profile Settings page as shown below. Another three motion detection windows can be configured on this page.



>Motion detection profile settings

Window name: 1

Sensitivity: 0%

Percentage: 0%

General settings

☑ Enable this profile

This profile is applied to:

Schedule mode:

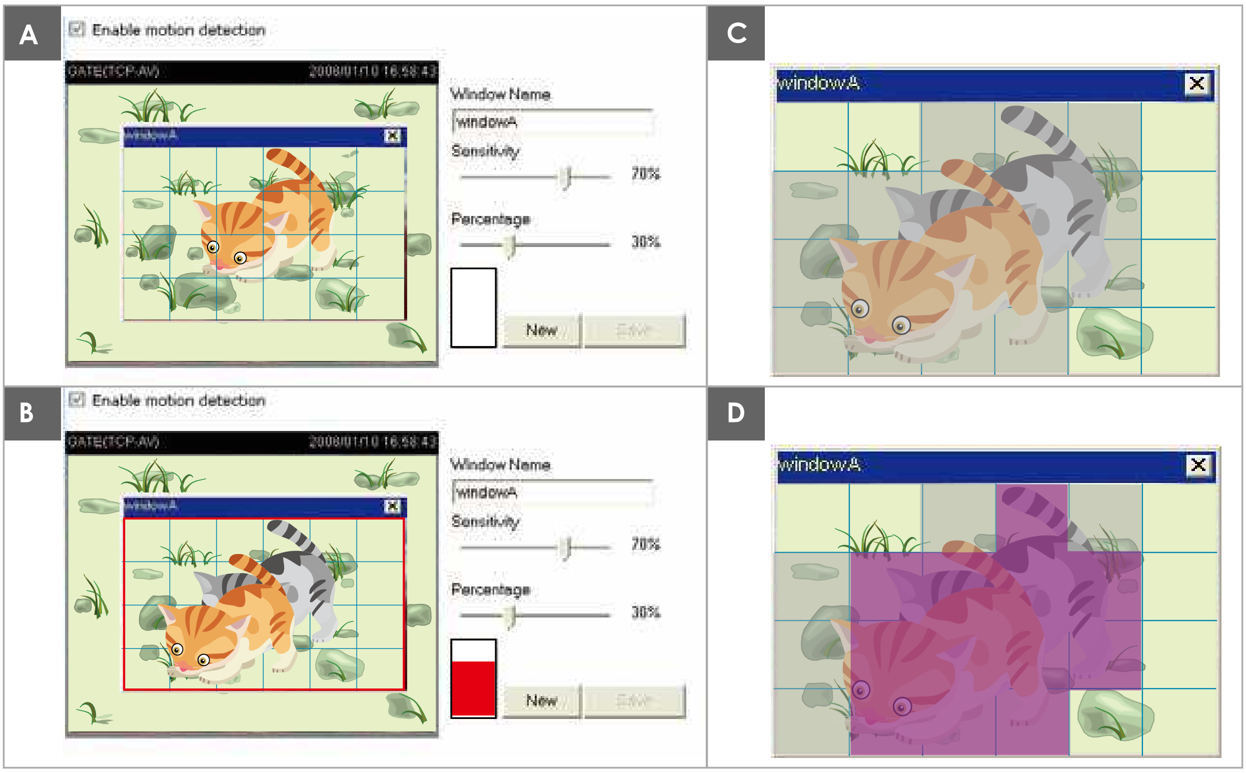
From 18:00 to 06:00 [hh:mm]

Please follow the steps beolw to set up a profile:
1. Create a new motion detection window.
2. Check **Enable this profile**.
3. Select the applicable period of time for the Schedule mode. Please manually enter a range of time.
4. Click **Save** to enable the settings and click **Close** to exit the page.

This motion detection window will also be displayed on the Event Settings page. You can go to **Event > Event settings > Trigger** to select it as a trigger source. Please refer to page 82 for detailed information.

NOTE:

► *How does motion detection work?*



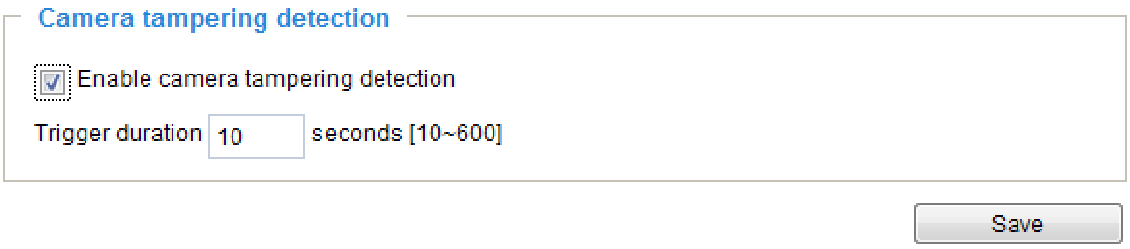
There are two motion detection parameters: Sensitivity and Percentage. In the illustration above, frame A and frame B are two sequential images. Pixel differences between the two frames are detected and highlighted in gray (frame C) and will be compared with the sensitivity setting. Sensitivity is a 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.

Applications > Tampering detection

This section explains how to set up camera tamper detection. With tamper detection, the camera is capable of detecting incidents such as **redirection**, **blocking or defocusing**, or even **spray paint**.



Camera tampering detection

☑ Enable camera tampering detection

Trigger duration 10 seconds [10~600]

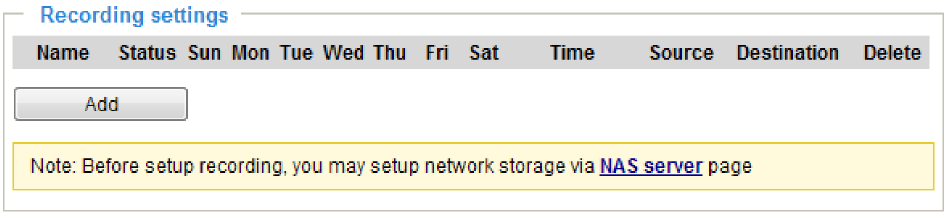
Please follow the steps below to set up the camera tamper detection function:

1. Check **Enable camera tampering detection**.
2. Enter the tamper trigger duration. (10 sec. ~ 10 min.) The tamper alarm will be triggered only when the tampering factor (the difference between current frame and pre-saved background) exceeds the trigger threshold.
3. Set up the event source as Camera Tampering Detection on **Event > Event settings > Trigger.** Please refer to page 82 for detailed information.

Recording > Recording settings Advanced Mode

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

Recording Settings



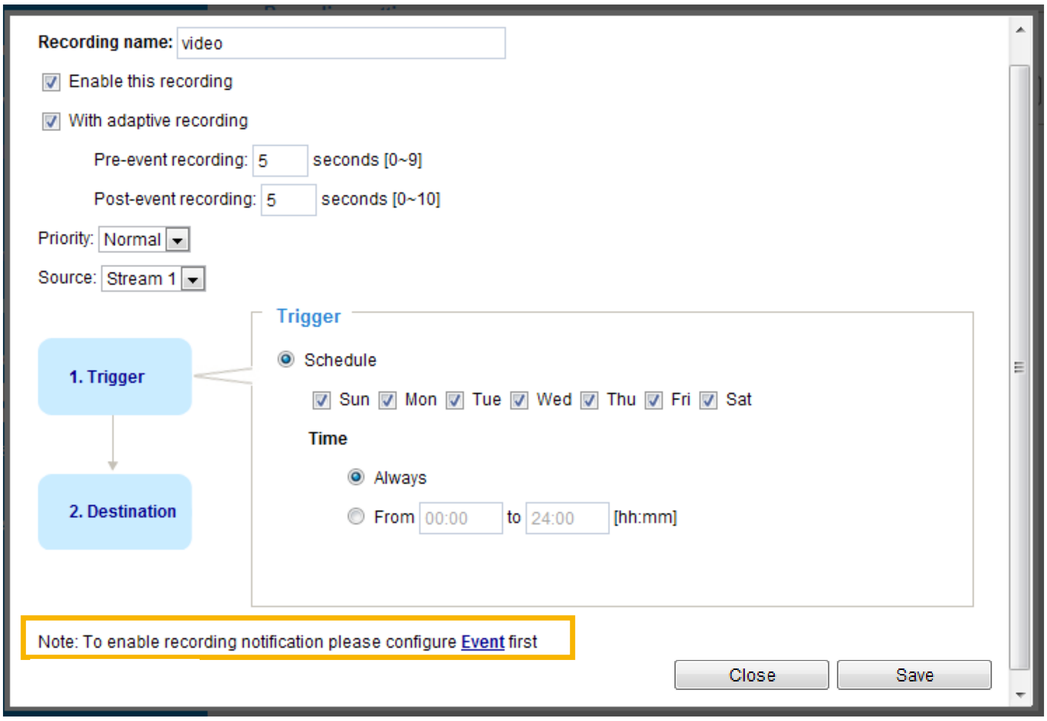
Recording settings

Name	Status	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Time	Source	Destination	Delete

Note: Before setup recording, you may setup network storage via NAS server page

Recording Settings

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



Recording name: video

☑ Enable this recording

☑ With adaptive recording

Pre-event recording: 5 seconds [0~9]

Post-event recording: 5 seconds [0~10]

Priority: Normal

Source: Stream 1

Trigger

● Schedule

☑ Sun ☑ Mon ☑ Tue ☑ Wed ☑ Thu ☑ Fri ☑ Sat

Time

● Always

○ From 00:00 to 24:00 [hh:mm]

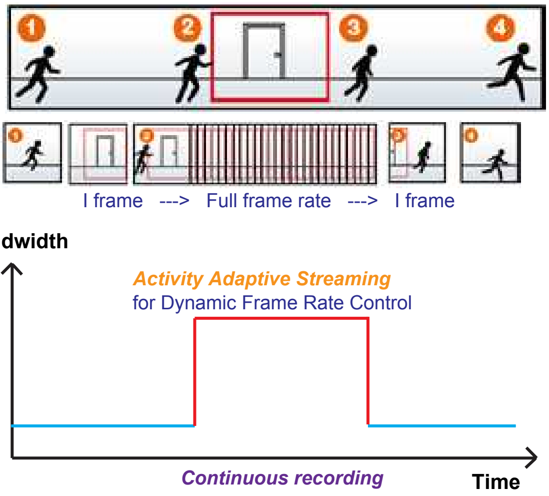
Note: To enable recording notification please configure Event first

■ Recording name: Enter a name for the recording setting.

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

■ With adaptive recording:
Select this option will activate the frame rate control according to alarm trigger.
The frame control means that when there is a triggered alarm, the frame rate will raise up to the value you've configured on the Video quality page. Please refer to page 40 for more information.

If you enable adaptive recording on a camera, only when an event is triggered on Camera A will the server record the full frame rate streaming data; otherwise, it will only request the I frame data during normal monitoring, thus effectively saves bandwidths and storage space.


1
2
3
4
I frame ---> Full frame rate ---> I frame
Bandwidth
Activity Adaptive Streaming
for Dynamic Frame Rate Control
Continuous recording
Time

NOTE:

- ► *To enable adaptive recording, please make sure you've set up the trigger source such as Motion Detection, DI Device, or Manual Trigger.*
- ► *When there is no alarm trigger:*
  - JPEG mode: record 1 frame per second.
  - H.264 mode: record the I frame only.
- ► *When the I frame period is >1s on Video settings page, firmware will force decrease the I frame period to 1s when adaptive recording is enabled.*

The alarm trigger includes: motion detection and DI detection. Please refer to Event Settings on page 81.

■ Pre-event recording and post-event recording
The Network Camera has a buffer that temporarily holds data for a period of time. Therefore, when an event occurs, the camera can restrieve image frames taken several seconds ago. Enter a number to define the duration of recording before and after a trigger is activated.

■ Priority: Select the relative importance of this recording (High, Normal, or Low). Recording with a higher priority setting will be processed first.

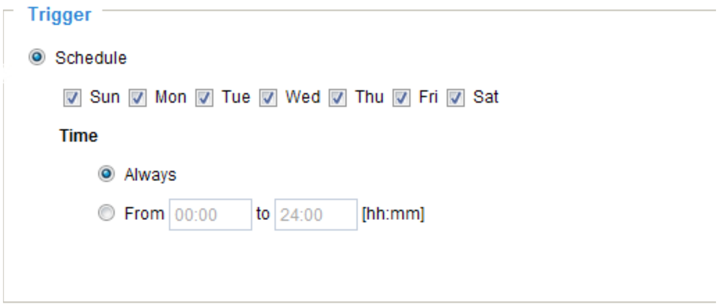
■ Source: Select a video stream as the recording source.

NOTE:

► *To enable recording notification please configure* ***Event settings*** *first . Please refer to page 81.*

Please follow the steps below to set up the recording.

1. Trigger
Select a trigger source.


Trigger

● Schedule

☑ Sun ☑ Mon ☑ Tue ☑ Wed ☑ Thu ☑ Fri ☑ Sat

Time

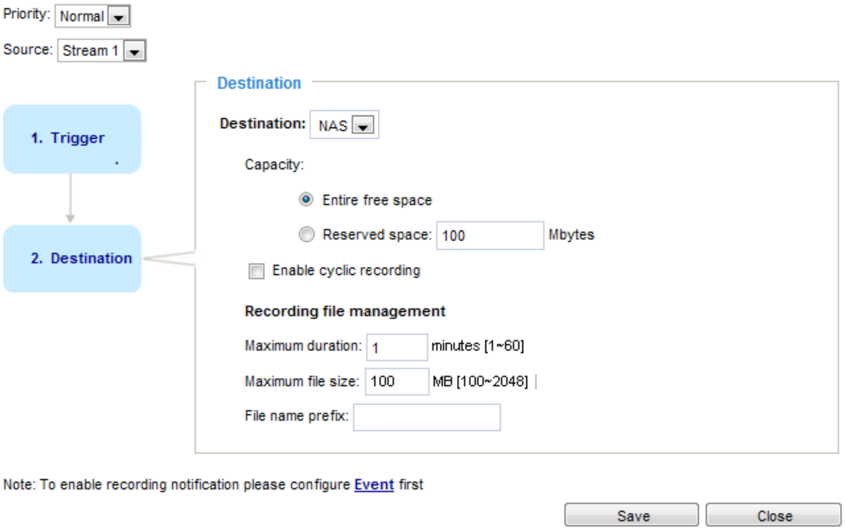
● Always

○ From 00:00 to 24:00 [hh:mm]

■ Schedule: The server will start to record files on the local storage or network storage (NAS).

2. Destination

You can select a networked storage (NAS) for the recorded video files. If you have not configured a NAS server, see details in the following.



Priority: Normal

Source: Stream 1

Destination

Destination: NAS

Capacity:

● Entire free space

○ Reserved space: 100 Mbytes

□ Enable cyclic recording

Recording file management

Maximum duration: 1 minutes [1~60]

Maximum file size: 100 MB [100~2048]

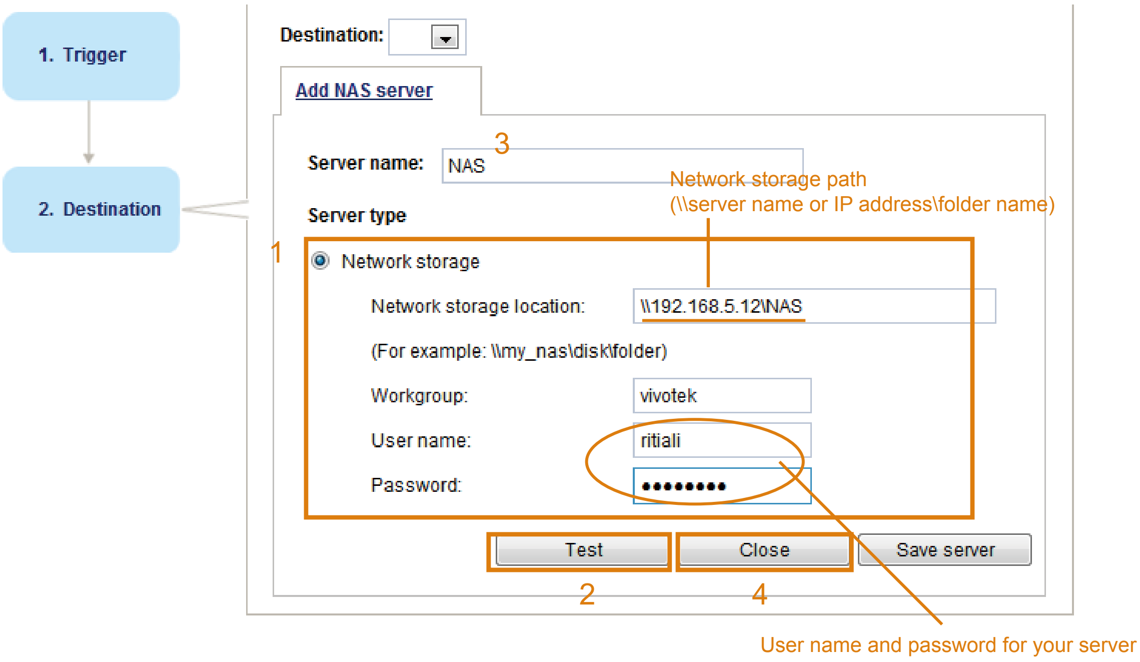
File name prefix:

Note: To enable recording notification please configure Event first

NAS server

Click **Add NAS server** to open the server setting window and follow the steps below to set up:

1. Fill in the information for your server.
   For example:



Server name: NAS

Server type

● Network storage

Network storage location: \\192.168.5.12\NAS

(For example: \\my_nas\disk\folder)

Workgroup: vivotek

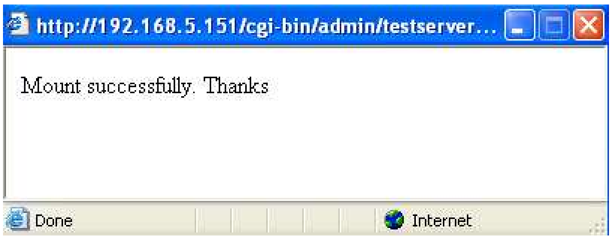
User name: ritiali

Password: ••••••••

Network storage path
(\\server name or IP address\folder name)

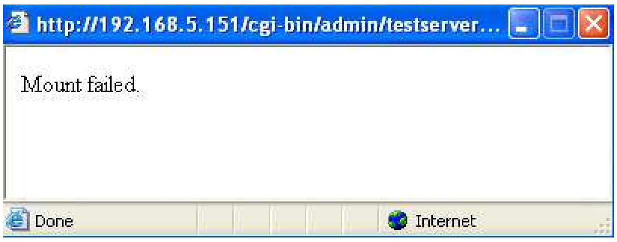
User name and password for your server

2. Click **Test** to check the setting. The result will be shown in the pop-up window.



http://192.168.5.151/cgi-bin/admin/testserver...

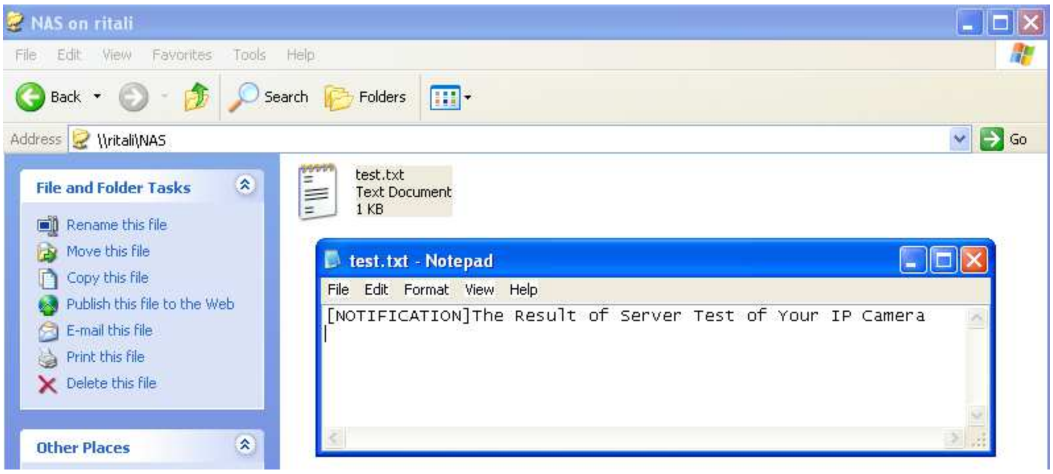
Mount successfully. Thanks



http://192.168.5.151/cgi-bin/admin/testserver...

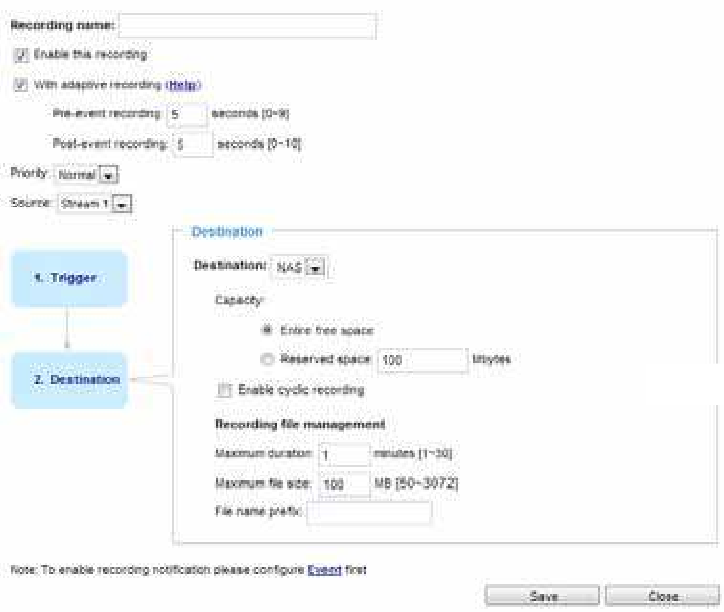
Mount failed.

If successful, you will receive a test.txt file on the network storage server.



```
[NOTIFICATION]The Result of Server Test of Your IP Camera
```

3. Enter a server name.
4. Click **Save** to complete the settings and click **Close** to exit the page.



Recording name:

☑ Enable this recording

☑ With adaptive recording (Help)

Pre-event recording: 5 seconds [0~9]

Post-event recording: 5 seconds [0~10]

Priority: Normal

Source: Stream 1

Destination

Destination: NAS

Capacity:

● Entire free space

○ Reserved space: 100 Mbytes

☐ Enable cyclic recording

Recording file management

Maximum duration: 1 minutes [1~30]

Maximum file size: 100 MB [50~3072]

File name prefix:

Note: To enable recording notification please configure Event first

■ Capacity: You can choose either the entire free space available or limit the reserved space. The recording size limit must be larger than the reserved amount for cyclic recording.

■ Enable cyclic recording: If you check this item, when the maximum capacity is reached, the oldest file will be overwritten by the latest one. The reserved amount is reserved for the transaction stage when the storage space is about to be full and new data arrives. The minimum for the Reserved space must be larger than 15 MegaBytes.

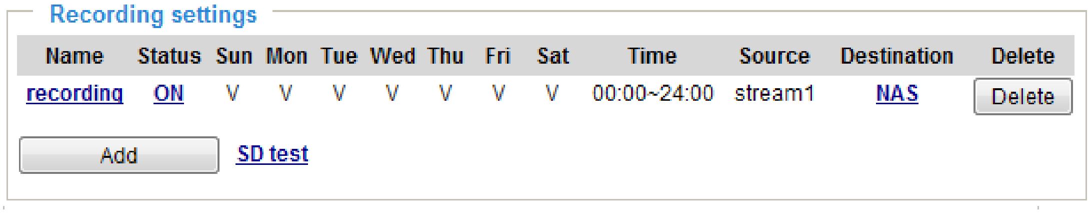
■ Recording file management: You can manually assign the Maximum duration and the Maximum file size for each recording footage. You may need to stitch individual files together under some circumstances. You may also designate a file name prefix by filling in the responsive text field.

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

f you want to enable recording notification, please click ***Event*** to configure event triggering settings. Please refer to **Event > Event settings** on page 81 for more details.

When completed, select **Enable this recording**. Click **Save** to enable the setting and click **Close** to exit this page. When the system begins recording, it will send the recorded files to the network storage. The new recording name will appear in the drop-down list on the recording page as shown below.

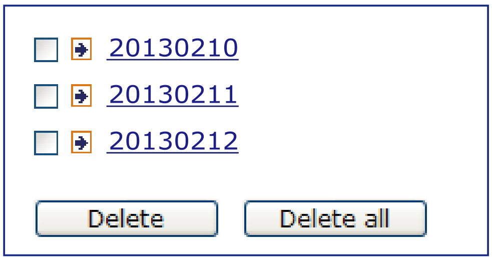
To remove a recording setting from the list, select a recording name from the drop-down list and click **Delete**.



Recording settings

Name	Status	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Time	Source	Destination	Delete
recording	ON	V	V	V	V	V	V	V	00:00~24:00	stream1	NAS	Delete

■ Click **recording (Name)**: Opens the Recording Settings page to modify.
■ Click **ON (Status)**: The Status will become **OFF** and stop recording.
■ Click **NAS (Destination)**: Opens the file list of recordings as shown below. For more information about folder naming rules, please refer to page 87 for details.



□ 20130210
□ 20130211
□ 20130212

Appendix

URL Commands for the Network Camera/Video Server

1. Overview

For some customers who already have their own web site or web control application, the Network Camera/Video Server can be easily integrated through URL syntax. This section specifies the external HTTP-based application programming interface. The HTTP-based camera interface provides the functionality to request a single image, control camera functions (PTZ, output relay etc.), and get and set internal parameter values. The image and CGI-requests are handled by the built-in Web server.

2. Style Convention

In URL syntax and in descriptions of CGI parameters, text within angle brackets denotes content that is to be replaced with either a value or a string. When replacing the text string, the angle brackets should also be replaced. An example of this is the description of the name for the server, denoted with <servername> in the URL syntax description below, that is replaced with the string myserver in the URL syntax example further down in the page.

URL syntax is denoted with the word "Syntax:" written in bold face followed by a box with the referenced syntax as shown below. For example, name of the server is written as <servername> and is intended to be replaced with the name of the actual server. This can either be a name, e.g., "mywebcam" or "thecam.adomain.net" or the associated IP number for the server, e.g., 192.168.0.220.

Syntax:

```
http://<servername>/cgi-bin/viewer/video.jpg
```

Description of returned data is written with "**Return:**" in bold face followed by the returned data in a box. All data is returned in HTTP format, i.e., each line is separated with a Carriage Return and Line Feed (CRLF) printed as \r\n.

Return:

```
HTTP/1.0 <HTTP code> <HTTP text>\r\n
```

URL syntax examples are written with "**Example:**" in bold face followed by a short description and a light grey box with the example.

Example: request a single snapshot image

```
http://mywebserver/cgi-bin/viewer/video.jpg
```

3. General CGI URL Syntax and Parameters

When the CGI request includes internal camera parameters, these parameters must be written exactly as they are named in the camera or video server. The CGIs are organized in functionally-related directories under the cgi-bin directory. The file extension .cgi is required.

Syntax:

```
http://<servername>/cgi-bin/<subdir>[/<subdir>...]/<cgi>.<ext>
[?<parameter>=<value>[&<parameter>=<value>...]]
```

Example: Set digital output #1 to active

```
http://mywebserver/cgi-bin/dido/setdo.cgi?do1=1
```

4. Security Level

SECURITY LEVEL	SUB-DIRECTORY	DESCRIPTION
0	anonymous	Unprotected.
1 [view]	anonymous, viewer, dido, camctrl	1. Can view, listen, talk to camera. 2. Can control DI/DO, PTZ of the camera.
4 [operator]	anonymous, viewer, dido, camctrl, operator	Operator access rights can modify most of the camera's parameters except some privileges and network options.
6 [admin]	anonymous, viewer, dido, camctrl, operator, admin	Administrator access rights can fully control the camera's operations.
7	N/A	Internal parameters. Unable to be changed by any external interfaces.

5. Get Server Parameter Values

Note: The access right depends on the URL directory.

Method: GET/POST

Syntax:

```
http://<servername>/cgi-bin/anonymous/getparam.cgi?[<parameter>]
[&<parameter>…]

http://<servername>/cgi-bin/viewer/getparam.cgi?[<parameter>]
[&<parameter>…]

http://<servername>/cgi-bin/operator/getparam.cgi?[<parameter>]
[&<parameter>…]

http://<servername>/cgi-bin/admin/getparam.cgi?[<parameter>]
[&<parameter>…]
```

Where the *<parameter>* should be *<group>*[_*<name>*]. If you do not specify any parameters, all the parameters on the server will be returned. If you specify only *<group>*, the parameters of the related group will be returned.

When querying parameter values, the current parameter values are returned.
A successful control request returns parameter pairs as follows:

Return:

```
HTTP/1.0 200 OK\r\n
Content-Type: text/html\r\n
Context-Length: <length>\r\n
\r\n
<parameter pair>
```

where <parameter pair> is
<parameter>=<value>\r\n
[<parameter pair>]

<length> is the actual length of content.

Example: Request IP address and its response

Request:

```
http://192.168.0.123/cgi-bin/admin/getparam.cgi?network_ipaddress
```

```
Response:
HTTP/1.0 200 OK\r\n
Content-Type: text/html\r\n
Context-Length: 33\r\n
\r\n
network_ipaddress=192.168.0.123\r\n
```

6. Set Server Parameter Values

Note: The access right depends on the URL directory.

Method: GET/POST

Syntax:

```
http://<servername>/cgi-bin/anonymous/setparam.cgi? <parameter>=<value>
[&<parameter>=<value>…][&return=<return page>]

http://<servername>/cgi-bin/viewer/setparam.cgi? <parameter>=<value>
[&<parameter>=<value>…][&return=<return page>]

http://<servername>/cgi-bin/operator/setparam.cgi? <parameter>=<value>
[&<parameter>=<value>…][&return=<return page>]

http://<servername>/cgi-bin/admin/setparam.cgi? <parameter>=<value>
[&<parameter>=<value>…][&return=<return page>]
```

PARAMETER	VALUE	DESCRIPTION
<group>_<name>	value to assigned	Assign *<value>* to the parameter *<group>*_*<name>*.
return	<return page>	Redirect to the page *<return page>* after the parameter is assigned. The *<return page>* can be a full URL path or relative path according to the current path. If you omit this parameter, it will redirect to an empty page. (Note: The return page can be a general HTML file (.htm, .html). It cannot be a CGI command or have any extra parameters. This parameter must be placed at the end of the parameter list

Return:

```
HTTP/1.0 200 OK\r\n
Content-Type: text/html\r\n
Context-Length: <length>\r\n
\r\n
<parameter pair>
```

where <parameter pair> is

<parameter>=<value>\r\n

[<parameter pair>]

Only the parameters that you set and are readable will be returned.

Example: Set the IP address of server to 192.168.0.123:

```
Request:
http://myserver/cgi-bin/admin/setparam.cgi?network_ipaddress=192.168.0.123

Response:
HTTP/1.0 200 OK\r\n
Content-Type: text/html\r\n
Context-Length: 33\r\n
\r\n
network_ipaddress=192.168.0.123\r\n
```

7. Available parameters on the server

This chapter defines all the parameters which can be configured or retrieved from VIVOTEK network camera or video server. The general format of description is listed in the table below

Valid values:

VALID VALUES	DESCRIPTION
string[<n>]	Text strings shorter than ‘n’ characters. The characters “,’, <,>,& are invalid.
string[n~m]	Text strings longer than `n’ characters and shorter than `m’ characters. The characters “,’, <,>,& are invalid.
password[<n>]	The same as string but displays ‘*’ instead.
integer	Any number between (-2^{31} – 1) and (2^{31} – 1).
positive integer	Any number between 0 and (2^{32} – 1).
<m> ~ <n>	Any number between ‘m’ and ‘n’.
domain name[<n>]	A string limited to a domain name shorter than ‘n’ characters (eg. www.ibm.com).
email address [<n>]	A string limited to an email address shorter than ‘n’ characters (eg. joe@www.ibm.com).
ip address	A string limited to an IP address (eg. 192.168.1.1).
mac address	A string limited to contain a MAC address without hyphens or colons.
boolean	A boolean value of 1 or 0 represents [Yes or No], [True or False], [Enable or Disable].
<value1>, <value2>, <value3>, …	Enumeration. Only given values are valid.
blank	A blank string.
everything inside <>	A description
integer primary key	SQLite data type. A 32-bit signed integer. The value is assigned a unique integer by the server.
text	SQLite data type. The value is a text string, stored using the database encoding (UTF-8, UTF-16BE or UTF-16-LE).
coordinate	x, y coordinate (eg. 0,0)
window size	window width and height (eg. 800x600)

NOTE: The camera should not be restarted when parameters are changed.

7.1 system

Group: **system**

NAME	VALUE	DEFAULT	SECURITY (get/set)	DESCRIPTION
hostname	string[64]	Video Server	1/6	Host name of server (Network Camera, Wireless Network Camera, Video Server, Wireless Video Server).
ledoff	<boolean>	0	6/6	Turn on (0) or turn off (1) all led indicators.
date	<YYYY/MM/DD>, keep, auto	<current date>	6/6	Current date of system. Set to 'keep' to keep date unchanged. Set to 'auto' to use NTP to synchronize date.
time	<hh:mm:ss>, keep, auto	<current time>	6/6	Current time of the system. Set to 'keep' to keep time unchanged. Set to 'auto' to use NTP to synchronize time.
datetime	<MMDDhhmmYYYY.ss>	<current time>	6/6	Another current time format of the system.
ntp	<domain name>, <ip address>, <blank>	<blank>	6/6	NTP server. *Do not use "skip to invoke default server" for default value.
timezoneindex	-489 ~ 529	320	6/6	Indicate timezone and area. -480: GMT-12:00 Eniwetok, Kwajalein -440: GMT-11:00 Midway Island, Samoa -400: GMT-10:00 Hawaii -360: GMT-09:00 Alaska -320: GMT-08:00 Las Vegas, San_Francisco, Vancouver -280: GMT-07:00 Mountain Time, Denver

				-281: GMT-07:00 Arizona -240: GMT-06:00 Central America, Central Time, Mexico City, Saskatchewan -200: GMT-05:00 Eastern Time, New York, Toronto -201: GMT-05:00 Bogota, Lima, Quito, Indiana -180: GMT-04:30 Caracas -160: GMT-04:00 Atlantic Time, Canada, La Paz, Santiago -140: GMT-03:30 Newfoundland -120: GMT-03:00 Brasilia, Buenos Aires, Georgetown, Greenland -80: GMT-02:00 Mid-Atlantic -40: GMT-01:00 Azores, Cape_Verde_IS. 0: GMT Casablanca, Greenwich Mean Time: Dublin, Edinburgh, Lisbon, London 40: GMT 01:00 Amsterdam, Berlin, Rome, Stockholm, Vienna, Madrid, Paris 41: GMT 01:00 Warsaw, Budapest, Bern 80: GMT 02:00 Athens, Helsinki, Istanbul, Riga 81: GMT 02:00 Cairo 82: GMT 02:00 Lebanon, Minsk 83: GMT 02:00 Israel 120: GMT 03:00 Baghdad, Kuwait, Riyadh, Moscow, St. Petersburg, Nairobi 121: GMT 03:00 Iraq 140: GMT 03:30 Tehran

				160: GMT 04:00 Abu Dhabi, Muscat, Baku, Tbilisi, Yerevan 180: GMT 04:30 Kabul 200: GMT 05:00 Ekaterinburg, Islamabad, Karachi, Tashkent 220: GMT 05:30 Calcutta, Chennai, Mumbai, New Delhi 230: GMT 05:45 Kathmandu 240: GMT 06:00 Almaty, Novosibirsk, Astana, Dhaka, Sri Jayawardenepura 260: GMT 06:30 Rangoon 280: GMT 07:00 Bangkok, Hanoi, Jakarta, Krasnoyarsk 320: GMT 08:00 Beijing, Chongging, Hong Kong, Kuala Lumpur, Singapore, Taipei 360: GMT 09:00 Osaka, Sapporo, Tokyo, Seoul, Yakutsk 380: GMT 09:30 Adelaide, Darwin 400: GMT 10:00 Brisbane, Canberra, Melbourne, Sydney, Guam, Vladivostok 440: GMT 11:00 Magadan, Solomon Is., New Caledonia 480: GMT 12:00 Aucklan, Wellington, Fiji, Kamchatka, Marshall Is. 520: GMT 13:00 Nuku'Alofa
daylight_enable	<boolean>	0	6/6	Enable automatic daylight saving time in time zone.
daylight_auto_begintime	string[19]	NONE	6/7	Display the current daylight saving start time.
daylight_auto_endtime	string[19]	NONE	6/7	Display the current daylight saving end time.

daylight_timezones	string	,-360,-320, -280,-240, -241,-200, -201,-160, -140,-120, -80,-40,0, 40,41,80, 81,82,83, 120,140, 380,400,480	6/6	List time zone index which support daylight saving time.
updateinterval	0, 3600, 86400, 604800, 2592000	0	6/6	0 to Disable automatic time adjustment, otherwise, it indicates the seconds between NTP automatic update intervals.
restore	0, <positive integer>	N/A	7/6	Restore the system parameters to default values after <value> seconds.
reset	0, <positive integer>	N/A	7/6	Restart the server after <value> seconds if <value> is non-negative.
restoreexceptnet	<Any value>	N/A	7/6	Restore the system parameters to default values except (ipaddress, subnet, router, dns1, dns2, pppoe). This command can cooperate with other "restoreexceptXYZ" commands. When cooperating with others, the system parameters will be restored to the default value except for a union of the combined results.
restoreexceptdst	<Any value>	N/A	7/6	Restore the system parameters to default values except all daylight saving time settings. This command can cooperate

				with other "restoreexceptXYZ" commands. When cooperating with others, the system parameters will be restored to default values except for a union of combined results.
restoreexceptlang	<Any Value>	N/A	7/6	Restore the system parameters to default values except the custom language file the user has uploaded. This command can cooperate with other "restoreexceptXYZ" commands. When cooperating with others, the system parameters will be restored to the default value except for a union of the combined results.

7.1.1 system.info

Subgroup of **system**: **info** (The fields in this group are unchangeable.)

NAME	VALUE	DEFAULT	SECURITY (get/set)	DESCRIPTION
modelname	string[40]	VS8100	0/7	Internal model name of the server (eg. IP7139)
extendedmodelname	string[40]	VS8100	0/7	ODM specific model name of server (eg. DCS-5610). If it is not an ODM model, this field will be equal to "modelname"
serialnumber	<mac address>	<product mac address>	0/7	12 characters MAC address (without hyphens).
firmwareversion	string[40]	<product dependent>	0/7	Firmware version, including model, company, and version number in the format: <MODEL-BRAND-VERSION>

language_count	<integer>	9	0/7	Number of webpage languages available on the server.
language_i<0~(count-1)>	string[16]	<product dependent>	0/7	Available language lists.
customlanguage_maxcount	<integer>	1	0/6	Maximum number of custom languages supported on the server.
customlanguage_count	<integer>	0	0/6	Number of custom languages which have been uploaded to the server.
customlanguage_i<0~(max count-1)>	string	N/A	0/6	Custom language name.

7.2 status

Group: **status**

NAME	VALUE	DEFAULT	SECURITY (get/set)	DESCRIPTION
onlinenum_rtsp	integer	0	6/7	Current number of RTSP connections.
onlinenum_httppush	integer	0	6/7	Current number of HTTP push server connections.
eth_i0	<string>	<blank>	1/7	Get network information from mii-tool.
vi_i<0~(nvi-1)>	<boolean>	0	1/7	Virtual input 0 => Inactive 1 => Active (capability.nvi > 0)
signal_c<0~(nvideoin-1)>	<Boolean>	0	1/7	0=> No signal. 1=> Signal detected.
videomode_c<0~(nvideoin-1)>	ntsc, pal	ntsc	1/7	Video modulation type

7.3 security

Group: **security**

NAME	VALUE	DEFAULT	SECURITY (get/set)	DESCRIPTION
privilege_camctrl	view, operator,	view	1/6	Indicate which privileges and

	admin			above can control PTZ (capability.ptzenabled > 0 or capability.eptz > 0)
user_i0_name	string[64]	root	6/7	User name of root
user_i<1~20>_name	string[64]	<blank>	6/7	User name
user_i0_pass	password[64]	<blank>	6/6	Root password
user_i<1~20>_pass	password[64]	<blank>	7/6	User password
user_i0_privilege	admin	admin	6/7	Root privilege
user_i<1~20>_ privilege	view, operator, admin	<blank>	6/6	User privilege

7.4 network

Group: **network**

NAME	VALUE	DEFAULT	SECURITY (get/set)	DESCRIPTION
preprocess	<positive integer>	NULL	6/6	An 32-bit integer, each bit can be set separately as follows: Bit 0 => HTTP service; Bit 1=> HTTPS service; Bit 2=> FTP service; Bit 3 => Two way audio and RTSP Streaming service; To stop service before changing its port settings. It's **recommended** to set this parameter when change a service port to the port occupied by another service currently. Otherwise, the service may fail. Stopped service will auto-start after changing port settings. Ex: Change HTTP port from 80 to 5556, and change RTP port for video from 5556 to 20480. Then, set preprocess=9 to stop both service first. "/cgi-bin/admin/setparam.cgi? network_preprocess=9&network_http_port=5556 & network_rtp_videoport=20480"
type	lan,	lan	6/6	Network connection type.

	pppoe			
resetip	<boolean>	1	6/6	1 => Get ipaddress, subnet, router, dns1, dns2 from DHCP server at next reboot. 0 => Use preset ipaddress, subnet, rounter, dns1, and dns2.
ipaddress	<ip address>	<product dependent>	6/6	IP address of server.
subnet	<ip address>	<blank>	6/6	Subnet mask.
router	<ip address>	<blank>	6/6	Default gateway.
dns1	<ip address>	<blank>	6/6	Primary DNS server.
dns2	<ip address>	<blank>	6/6	Secondary DNS server.
wins1	<ip address>	<blank>	6/6	Primary WINS server.
wins2	<ip address>	<blank>	6/6	Secondary WINS server.

7.4.1 802.1x

Subgroup of **network: ieee8021x** (capability.protocol.ieee8021x > 0)

NAME	VALUE	DEFAULT	SECURITY (get/set)	DESCRIPTION
enable	<boolean>	0	6/6	Enable/disable IEEE 802.1x
eapmethod	eap-peap, eap-tls	eap-peap	6/6	Selected EAP method
identity_peap	String[64]	<blank>	6/6	PEAP identity
identity_tls	String[64]	<blank>	6/6	TLS identity
password	String[254]	<blank>	6/6	Password for TLS
privatekeypassword	String[254]	<blank>	6/6	Password for PEAP
ca_exist	<boolean>	0	6/6	CA installed flag
ca_time	<integer>	0	6/7	CA installed time. Represented in EPOCH
ca_size	<integer>	0	6/7	CA file size (in bytes)
certificate_exist	<boolean>	0	6/6	Certificate installed flag (for TLS)

certificate_time	<integer>	0	6/7	Certificate installed time. Represented in EPOCH
certificate_size	<integer>	0	6/7	Certificate file size (in bytes)
privatekey_exist	<boolean>	0	6/6	Private key installed flag (for TLS)
privatekey_time	<integer>	0	6/7	Private key installed time. Represented in EPOCH
privatekey_size	<integer>	0	6/7	Private key file size (in bytes)

7.4.2 QOS

Subgroup of **network: qos_cos** (capability.protocol.qos.cos > 0)

NAME	VALUE	DEFAULT	SECURITY (get/set)	DESCRIPTION
enable	<boolean>	0	6/6	Enable/disable CoS (IEEE 802.1p)
vlanid	1~4095	1	6/6	VLAN ID
video	0~7	0	6/6	Video channel for CoS
audio	0~7	0	6/6	Audio channel for CoS (capability.naudio > 0)
eventalarm	0~7	0	6/6	Event/alarm channel for CoS
management	0~7	0	6/6	Management channel for CoS
eventtunnel	0~7	0	6/6	Event/Control channel for CoS

Subgroup of **network: qos_dscp** (capability.protocol.qos.dscp > 0)

NAME	VALUE	DEFAULT	SECURITY (get/set)	DESCRIPTION
enable	<boolean>	0	6/6	Enable/disable DSCP
video	0~63	0	6/6	Video channel for DSCP
audio	0~63	0	6/6	Audio channel for DSCP (capability.naudio > 0)
eventalarm	0~63	0	6/6	Event/alarm channel for DSCP
management	0~63	0	6/6	Management channel for DSCP
eventtunnel	0~63	0	6/6	Event/Control channel for DSCP

7.4.3 IPV6

Subgroup of **network**: **ipv6** (capability.protocol.ipv6 > 0)

NAME	VALUE	DEFAULT	SECURITY (get/set)	DESCRIPTION
enable	<boolean>	0	6/6	Enable IPv6.
addonipaddress	<ip address>	<blank>	6/6	IPv6 IP address.
addonprefixlen	0~128	64	6/6	IPv6 prefix length.
addonrouter	<ip address>	<blank>	6/6	IPv6 router address.
addondns	<ip address>	<blank>	6/6	IPv6 DNS address.
allowoptional	<boolean>	0	6/6	Allow manually setup of IP address setting.

7.4.4 FTP

Subgroup of **network**: **ftp**

NAME	VALUE	DEFAULT	SECURITY (get/set)	DESCRIPTION
port	21, 1025~65535	21	6/6	Local ftp server port.

7.4.5 HTTP

Subgroup of **network**: **http**

NAME	VALUE	DEFAULT	SECURITY (get/set)	DESCRIPTION
port	80, 1025 ~ 65535	80	1/6	HTTP port.
alternateport	1025~65535	8080	6/6	Alternate HTTP port.
authmode	basic, digest	basic	1/6	HTTP authentication mode.
s0_accessname	string[32]	video.mjpg	1/6	HTTP server push access name for stream 1. (capability.protocol.spush_mjpeg =1 and capability.nmediastream > 0)
s1_accessname	string[32]	video2.mjpg	1/6	HTTP server push access name for stream 2. (capability.protocol.spush_mjpeg

				=1 and capability.nmediastream > 1)
s2_accessname	string[32]	video3.mjpg	1/6	Http server push access name for stream 3 (capability.protocol.spush_mjpeg =1 and capability.nmediastream > 2)
anonymousviewing	<boolean>	0	1/6	Enable anoymous streaming viewing.

7.4.6 HTTPS port

Subgroup of **network**: **https_port** (capability.protocol.https > 0)

NAME	VALUE	DEFAULT	SECURITY (get/set)	DESCRIPTION
port	443, 1025 ~ 65535	443	1/6	HTTPS port.

7.4.7 RTSP

Subgroup of **network**: **rtsp** (capability.protocol.rtsp > 0)

NAME	VALUE	DEFAULT	SECURITY (get/set)	DESCRIPTION
port	554, 1025 ~ 65535	554	1/6	RTSP port. (capability.protocol.rtsp=1)
anonymousviewing	<boolean>	0	1/6	Enable anoymous streaming viewing.
authmode	disable, basic, digest	disable	1/6	RTSP authentication mode. (capability.protocol.rtsp=1)
s0_accessname	string[32]	live.sdp	1/6	RTSP access name for stream1. (capability.protocol.rtsp=1 and capability.nmediastream > 0)
s1_accessname	string[32]	live2.sdp	1/6	RTSP access name for stream2. (capability.protocol.rtsp=1 and capability.nmediastream > 1)
s2_accessname	string[32]	live3.sdp	1/6	RTSP access name for stream3 (capability.protocol.rtsp=1 and capability.nmediastream > 2)

7.4.7.1 RTSP multicast

Subgroup of **network_rtsp_s<0~(n-1)>**: **multicast,** n is stream count

(capability.protocol.rtp.multicast > 0)

NAME	VALUE	DEFAULT	SECURITY (get/set)	DESCRIPTION
alwaysmulticast	<boolean>	0	4/4	Enable always multicast.
ipaddress	<ip address>	For n=0, 239.128.1.99 For n=1, 239.128.1.100, and so on.	4/4	Multicast IP address.
videoport	1025 ~ 65535	5560+n*2	4/4	Multicast video port.
audioport	1025 ~ 65535	5562+n*2	4/4	Multicast audio port. (capability.naudio > 0)
ttl	1 ~ 255	15	4/4	Mutlicast time to live value.

7.4.8 RTP port

Subgroup of **network**: **rtp**

NAME	VALUE	DEFAULT	SECURITY (get/set)	DESCRIPTION
videoport	1025 ~ 65535	5556	6/6	Video channel port for RTP. (capability.protocol.rtp_unicast=1)
audioport	1025 ~ 65535	5558	6/6	Audio channel port for RTP. (capability.protocol.rtp_unicast=1)

7.4.9 PPPoE

Subgroup of **network**: **pppoe** (capability.protocol.pppoe > 0)

NAME	VALUE	DEFAULT	SECURITY (get/set)	DESCRIPTION
user	string[128]	<blank>	6/6	PPPoE account user name.
pass	password[64]	<blank>	6/6	PPPoE account password.

7.5 IP Filter

Group: **ipfilter**

NAME	VALUE	DEFAULT	SECURITY (get/set)	DESCRIPTION
enable	<boolean>	0	6/6	Enable access list filtering.
admin_enable	<boolean>	0	6/6	Enable administrator IP address.
admin_ip	String[44]	<blank>	6/6	Administrator IP address.
maxconnection	0~10	10	6/6	Maximum number of concurrent streaming connection(s).
type	0, 1	1	6/6	Ipfilter policy : 0 => allow 1 => deny
ipv4list_i<0~9>	Single address: <ip address> Network address: <ip address / network mask> Range address:<start ip address - end ip address>	<blank>	6/6	IPv4 address list.
ipv6list_i<0~9>	String[44]	<blank>	6/6	IPv6 address list.

7.6 video input

Group: **videoin**

NAME	VALUE	DEFAULT	SECURITY (get/set)	DESCRIPTION
color	0, 1	1	4/4	0 =>monochrome 1 => color
flip	<boolean>	0	4/4	Flip the image.
mirror	<boolean>	0	4/4	Mirror the image.
ptzstatus	<integer>	2	1/7	A 32-bit integer, each bit can be set separately as follows:

				Bit 0 => Support camera control function; 0(not support), 1(support) Bit 1 => Built-in or external camera; 0 (external), 1(built-in) Bit 2 => Support pan operation; 0(not support), 1(support) Bit 3 => Support tilt operation; 0(not support), 1(support) Bit 4 => Support zoom operation; 0(not support), 1(support) Bit 5 => Support focus operation; 0(not support), 1(support)
text	string[60]	<blank>	1/4	Enclose caption.
imprinttimestamp	<boolean>	0	4/4	Overlay time stamp on video.

7.6.1 video input setting per channel

Group: **videoin_c<0~(n-1)>** for n channel products, and m is stream number

NAME	VALUE	DEFAULT	SECURITY (get/set)	DESCRIPTION
color	0, 1	1	4/4	0 =>monochrome 1 => color
flip	<boolean>	0	4/4	Flip the image.
mirror	<boolean>	0	4/4	Mirror the image.
ptzstatus	<integer>	2	1/7	A 32-bit integer, each bit can be set separately as follows: Bit 0 => Support camera control function; 0(not support), 1(support) Bit 1 => **Built-in** or **external** camera; 0 (external), 1(built-in) Bit 2 => Support **pan** operation; 0(not support), 1(support) Bit 3 => Support **tilt** operation; 0(not support), 1(support) Bit 4 => Support **zoom**

				operation; 0(not support), 1(support) Bit 5 => Support **focus** operation; 0(not support), 1(support)
text	string[60]	<blank>	1/4	Enclose caption.
imprinttimestamp	<boolean>	0	4/4	Overlay time stamp on video.
s<0~(m-1)>_codectype	mjpeg, h264	h264	1/4	Video codec type. svc is only supported with stream 0.
s<0~(m-1)>_resolution	QCIF, CIF, 4CIF, D1	D1	1/4	Video resolution in pixels.
s<0~(m-1)>_ratiocorrect	<boolean>	0	1/4	Change resolution to fit 4:3 ratio. For PAL: D1/4CIF(720/704x576) -> (768x576) CIF(352x288)->(384x288) For NTSC: D1/4CIF(720/704x480) -> (640x480) CIF(352x240)->(320x240)
s<0~(m-1)>_h264_intraperiod	250, 500, 1000, 2000, 3000, 4000	1000	4/4	Intra frame period in milliseconds.
s<0~(m-1)>_h264_prioritypolicy	framerate, imagequality	framerate	4/4	The policy to apply when the target bit rate is not sufficient to satisfy current encoded conditions. “framerate” indicates frame rate first. “imagequality” indicates image quality first.
s<0~(m-1)>_h264_ratecontrolmode	cbr, vbr	cbr	4/4	cbr, constant bitrate vbr, fix quality

s<0~(m-1)>_h264_quant	1~5,99,100	3	4/4	Quality of video when choosing vbr in “ratecontrolmode”. Set the pre-defined quality level: 1: Median 2: Standard 3: Good 4: Detailed 5: Excellent 100: Use the quality level in "qpercent" 99: Use the quality level in "qvalue"
s<0~(m-1)>_h264_qpercent	1~100	50	4/4	Set quality by percentage. 1: Worst quality 100: Best quality (s<0~(m-1)>_h264_quant = 100)
s<0~(m-1)>_h264_qvalue	0~51	29	4/4	Manual video quality level input. (s<0~(m-1)>_h264_quant = 99)
s<0~(m-1)>_h264_bitrate	1000~40000000	3000000	4/4	Set bit rate in bps when choosing cbr in “ratecontrolmode”.
s<0~(m-1)>_h264_maxframe	1~25, 26~30 (only for NTSC or 60Hz CMOS)	25 => PAL CCD or 50Hz CMOS 30 => NTSC CCD or 60Hz CMOS	1/4	Set maximum frame rate in fps (for h264).
s<0~(m-1)>_h264_profile	0~2	1	1/4	Indicate H264 profiles 0: baseline 1: main profile 2: high profile
s<0~(m-1)>_mjpeg_priorit	framerate,	framerate	4/4	The policy to apply when

ypolicy	imagequality			the target bit rate is not sufficient to satisfy current encoded conditions. “framerate” indicates frame rate first. “imagequality” indicates image quality first.
s<0~(m-1)>_mjpeg_ratecontrolmode	cbr, vbr	vbr	4/4	cbr, constant bitrate vbr, fix quality
s<0~(m-1)>_mjpeg_quant	1~5,99,100	3	4/4	Quality of JPEG video. Set the pre-defined quality level: 1: Median 2: Standard 3: Good 4: Detailed 5: Excellent 100: Use the quality level in "qpercent" 99: Use the quality level in "qvalue"
s<0~(m-1)>_mjpeg_maxframe	1~25, 26~30 (only for NTSC or 60Hz CMOS)	25 => PAL CCD or 50Hz CMOS 30 => NTSC CCD or 60Hz CMOS	1/4	Set maximum frame rate in fps (for JPEG).
s<0~(m-1)>_mjpeg_qvalue	10~200	49	4/4	Manual video quality level input. (s<0~(m-1)>_mjpeg_quant = 0)
s<0~(m-1)>_mjpeg_qpercent	1~100	50	4/4	Set quality by percentage. 1: Worst quality 100: Best quality (s<0~(m-1)>_mjpeg_quant = 100)

s<0~(m-1)>_mjpeg_bitrate	1000~8000000	6000000	4/4	Set bit rate in bps when choosing cbr in "ratecontrolmode".
s<0~(m-1)>_forcei	1	N/A	7/6	Force I frame.

7.7 image setting per channel

Group: **image_c<0~(n-1)>** for n channel products

NAME	VALUE	DEFAULT	SECURITY (get/set)	DESCRIPTION
brightness	-5 ~ 5,100	100	4/4	Adjust brightness of image according to mode settings.
saturation	-5 ~ 5,100	100	4/4	Adjust saturation of image according to mode settings.
contrast	-5 ~ 5,100	100	4/4	Adjust contrast of image according to mode settings.
sharpness	-3 ~ 3,100	100	4/4	Adjust sharpness of image according to mode settings.
brightnesspercent	0 ~ 100	50	4/4	Adjust brightness of image by percentage. Darker 0 <-> 100 Brighter
saturationpercent	0 ~ 100	50	4/4	Adjust saturation of image by percentage. Less 0 <-> 100 More saturation
contrastpercent	0 ~ 100	50	4/4	Adjust contrast of image by percentage. Less 0 <-> 100 More contrast
sharpnesspercent	0~100	50	4/4	Adjust sharpness of image by percentage. Softer 0 <-> 100 Sharper
IBPE_nrenable	<boolean>	0	4/4	Enable noise reduction.
IBPE_nrstrength	0 ~ 100	5	4/4	Adjust noise reduction strength. 0 is minimum and 100 is maximum.
xoffset	0 ~ 100	13	4/4	Change start point of input image in horizontal.
deinterlace_enable	<boolean>	1	4/4	Enable de-interlace. This is enabled by default.
deinterlace_mode	adaptive,	adaptive	4/4	Adaptive: Detect moving area and

	blend			perform de-interlace on it. This mode leads to better image quality, but consumes more resource. Blend: Use blend method to perform de-interlace.

7.8 Audio input per channel

Group: **audioin_c<0~(n-1)>** for n channel products (capability.audioin>0)

NAME	VALUE	DEFAULT	SECURITY (get/set)	DESCRIPTION
source	linein	linein	4/4	linein => use external microphone input.
mute	0, 1	1	1/4	Enable audio mute. 0 => Audio is enabled 1 => Audio is muted
gain	0~100	65	4/4	Gain of input. (audioin_c<0~(n-1)>_source = linein)
s<0~(m-1)>_codectype	g711, g726	g711	4/4	Set audio codec type for input.
s<0~(m-1)>_g711_mode	pcmu, pcma	pcmu	4/4	Set G.711 mode.
s<0~(m-1)>_g726_bitrate	16000, 24000, 32000, 40000	32000	4/4	Set G.726 bitrate in bps.

7.9 Time Shift settings

Group: **timeshift**, c for n channel products, m is stream number (capability.timeshift > 0)

NAME	VALUE	DEFAULT	SECURITY (get/set)	DESCRIPTION
enable	<boolean>	0	4/4	Enable time shift streaming.
c<0~(n-1)>_s<0~(m-1)>_allow	<boolean>	0	4/4	Enable time shift streaming for specific stream.

7.10 Motion detection settings

Group: **motion_c<0~(n-1)>** for n channel product

NAME	VALUE	DEFAULT	SECURITY (get/set)	DESCRIPTION
enable	<boolean>	0	4/4	Enable motion detection.
win_i<0~2>_enable	<boolean>	0	4/4	Enable motion window 1~3.
win_i<0~2>_name	string[40]	<blank>	4/4	Name of motion window 1~3.
win_i<0~2>_left	0 ~ 320	0	4/4	Left coordinate of window position.
win_i<0~2>_top	0 ~ 240	0	4/4	Top coordinate of window position.
win_i<0~2>_width	0 ~ 320	0	4/4	Width of motion detection window.
win_i<0~2>_height	0 ~ 240	0	4/4	Height of motion detection window.
win_i<0~2>_objsize	0 ~ 100	0	4/4	Percent of motion detection window.
win_i<0~2>_sensitivity	0 ~ 100	0	4/4	Sensitivity of motion detection window.

Group: **motion_c<0~(n-1)>_profile** for m profile and n channel product (capability.nmotionprofile > 0)

NAME	VALUE	DEFAULT	SECURITY (get/set)	DESCRIPTION
i<0~(m-1)>_enable	<boolean>	0	4/4	Enable profile 1 ~ (m-1).
i<0~(m-1)>_policy	schedule	schedule	4/4	The mode which the

				profile is applied to.
i<0~(m-1)>_begintime	hh:mm	18:00	4/4	Begin time of schedule mode.
i<0~(m-1)>_endtime	hh:mm	06:00	4/4	End time of schedule mode.
i<0~(m-1)>_win_i<0~2>_enable	<boolean>	0	4/4	Enable motion window.
i<0~(m-1)>_win_i<0~2>_name	string[40]	<blank>	4/4	Name of motion window.
i<0~(m-1)>_win_i<0~2>_left	0 ~ 320	0	4/4	Left coordinate of window position.
i<0~(m-1)>_win_i<0~2>_top	0 ~ 240	0	4/4	Top coordinate of window position.
i<0~(m-1)>_win_i<0~2>_width	0 ~ 320	0	4/4	Width of motion detection window.
i<0~(m-1)>_win_i<0~2>_height	0 ~ 240	0	4/4	Height of motion detection window.
i<0~(m-1)>_win_i<0~2>_objsize	0 ~ 100	0	4/4	Percent of motion detection window.
i<0~(m-1)>_win_i<0~2>_sensitivity	0 ~ 100	0	4/4	Sensitivity of motion detection window.

7.11 Tampering detection settings

Group: **tampering_c<0~(n-1)>** for n channel product (capability.tampering > 0)

NAME	VALUE	DEFAULT	SECURITY (get/set)	DESCRIPTION
enable	<boolean>	0	4/4	Enable or disable tamper detection.
threshold	0 ~ 255	32	1/7	Threshold of tamper detection.
duration	10 ~ 600	10	4/4	If tampering value exceeds the 'threshold' for more than 'duration' second(s), then tamper detection is triggered.

7.12 DDNS

Group: **ddns** (capability.ddns > 0)

NAME	VALUE	DEFAULT	SECURITY (get/set)	DESCRIPTION
enable	<boolean>	0	6/6	Enable or disable the dynamic DNS.

provider	Safe100,
	DyndnsDynamic,
	DyndnsCustom,
	DynInterfree,
	CustomSafe100
		DyndnsDynamic	6/6	Safe100 => safe100.net
				DyndnsDynamic => dyndns.org (dynamic)
				DyndnsCustom => dyndns.org (custom)
				DynInterfree =>dyn-interfree.it
				CustomSafe100 =>
				Custom server using safe100 method

<provider>_hostname	string[128]	<blank>	6/6	Your DDNS hostname.
<provider>_usernameemail	string[64]	<blank>	6/6	Your user name or email to login to the DDNS service provider
<provider>_passwordkey	string[64]	<blank>	6/6	Your password or key to login to the DDNS service provider.
<provider>_servername	string[128]	<blank>	6/6	The server name for safe100. (This field only exists if the provider is customsafe100)

7.13 Express link

Group:expresslink

NAME	VALUE	DEFAULT	SECURITY (get/set)	DESCRIPTION
enable	<boolean>	0	6/6	Enable or disable express link.
state	onlycheck, onlyoffline, checkonline, badnetwork	badnetwork	6/6	“onlycheck” : You have to input the host name of your camera and press "Register" button to register it. “onlyoffline” : Express link is active, you can now connect to this camera at expresslink_url. “checkonline” : Express link is not

				active. "badnetwork" : Express Link is not supported under this network environment.
url	string[64]	<blank>	6/6	The URL to connect to this camera by express link.

7.14 UPnP presentation

Group: **upnppresentation**

NAME	VALUE	DEFAULT	SECURITY (get/set)	DESCRIPTION
enable	<boolean>	1	6/6	Enable or disable the UPnP presentation service.

7.15 UPnP port forwarding

Group: **upnpportforwarding**

NAME	VALUE	DEFAULT	SECURITY (get/set)	DESCRIPTION
enable	<boolean>	0	6/6	Enable or disable the UPnP port forwarding service.
upnpnatstatus	0~3	0	6/7	The status of UPnP port forwarding, used internally. 0 = OK, 1 = FAIL, 2 = no IGD router, 3 = no need for port forwarding

7.16 System log

Group: **syslog**

NAME	VALUE	DEFAULT	SECURITY (get/set)	DESCRIPTION
enableremotelog	<boolean>	0	6/6	Enable remote log.
serverip	<IP address>	<blank>	6/6	Log server IP address.
serverport	514, 1025~65535	514	6/6	Server port used for log.
level	0~7	6	6/6	Levels used to distinguish the importance of the information: 0: LOG_EMERG 1: LOG_ALERT 2: LOG_CRIT

				3: LOG_ERR 4: LOG_WARNING 5: LOG_NOTICE 6: LOG_INFO 7: LOG_DEBUG

7.17 camera PTZ control

Group: **camctrl** (capability.camctrl.httptunnel > 0)

NAME	VALUE	DEFAULT	SECURITY (get/set)	DESCRIPTION
enableptztunnel	<boolean>	0	1/4	Enable HTTP tunnel for camera control.

Group: **camctrl_c<0~(n-1)>** for n channel product (capability.ptzenabled)

NAME	VALUE	DEFAULT	SECURITY (get/set)	DESCRIPTION
panspeed	-5 ~ 5	0	1/4	Pan speed
tiltspeed	-5 ~ 5	0	1/4	Tilt speed
zoomspeed	-5 ~ 5	0	1/4	Zoom speed
focusspeed	-5 ~ 5	0	1/4	Auto focus speed
preset_i<0~(npreset-1)>_name	string[40]	<blank>	1/4	Name of the preset location.
preset_i<0~(npreset-1)>_ dwelling	0 ~ 999	0	1/4	The dwelling time of each preset location
uart	0 ~ (m-1), m is UART count	0	1/4	Select corresponding uart (capability.nuart>0).
cameraid	0~255	1	1/4	Camera ID controlling external PTZ camera.
isptz	0 ~ 2	0	1/4	0: disable PTZ commands. 1: enable PTZ commands with PTZ driver. 2: enable PTZ commands with UART tunnel.
disablemdonptz	<boolean>	0	1/4	Disable motion detection on PTZ operation.
patrolseq	string[120]	<blank>	1/4	(For external device) The indexes of patrol points,

				separated by “,”
patroldwelling	string[160]	<blank>	1/4	(For external device) The dwelling time of each patrol point, separated by “,”

7.18 UART control

Group: **uart** (capability.nuart > 0)

NAME	VALUE	DEFAULT	SECURITY (get/set)	DESCRIPTION
ptzdrivers_i<0~19, 127>_name	string[40]	<blank>	1/4	Name of the PTZ driver.
ptzdrivers_i<0~19, 127>_location	string[128]	<blank>	1/4	Full path of the PTZ driver.
enablehttptunnel	<boolean>	0	1/4	Enable HTTP tunnel channel to control UART.

Group: **uart_i<0~(n-1)>** n is uart port count (capability.nuart > 0)

NAME	VALUE	DEFAULT	SECURITY (get/set)	DESCRIPTION
baudrate	110,300,600,1200,2400,3600,4800,7200,9600,19200,38400,57600,115200	9600	4/4	Set baud rate of COM port.
databit	5,6,7,8	8	4/4	Data bits in a character frame.
paritybit	none, odd, even	none	4/4	For error checking.
stopbit	1,2	1	4/4	1 2-1.5 , data bit is 5 2-2
uartmode	rs485	rs485	4/4	UART transmission mode.
customdrvcmd_i<0~9>	string[128]	<blank>	1/4	PTZ command for custom camera.
speedlink_i<0~4>_name	string[40]	<blank>	1/4	Additional PTZ command name.
speedlink_i<0~4>_c	string[40]	<blank>	1/4	Additional PTZ command list.

md				
ptzdriver	0~19, 127 (custom), 128 (no driver)	128 (no driver)	1/4	The PTZ driver is used by this COM port.

7.19 SNMP

Group: **snmp** (capability.snmp > 0)

NAME	VALUE	DEFAULT	SECURITY (get/set)	DESCRIPTION
v2	0~1	0	6/6	SNMP v2 enabled. 0 for disable, 1 for enable
v3	0~1	0	6/6	SNMP v3 enabled. 0 for disable, 1 for enable
secnamerw	string[31]	Private	6/6	Read/write security name
secnamero	string[31]	Public	6/6	Read only security name
authpwrw	string[8~128]	<blank>	6/6	Read/write authentication password
authpwro	string[8~128]	<blank>	6/6	Read only authentication password
authtyperw	MD5,SHA	MD5	6/6	Read/write authentication type
authtypero	MD5,SHA	MD5	6/6	Read only authentication type
encryptpwrw	string[8~128]	<blank>	6/6	Read/write passwrd
encryptpwro	string[8~128]	<blank>	6/6	Read only password
encrypttyperw	DES	DES	6/6	Read/write encryption type
encrypttypero	DES	DES	6/6	Read only encryption type
rwcommunity	string[31]	Private	6/6	Read/write community
rocommunity	string[31]	Public	6/6	Ready only community

7.20 Layout configuration

Group: **layout** (New version)

NAME	VALUE	DEFAULT	SECURITY (get/set)	DESCRIPTION
logo_default	<boolean>	1	1/6	0 => Custom logo 1 => Default logo
logo_link	string[64]	http://www.vivotek.com	1/6	Hyperlink of the logo
logo_powerbyvvtk_hidden	<boolean>	0	1/6	0 => display the power by vivotek logo 1 => hide the power by vivotek logo
theme_option	1~4	1	1/6	1~3: One of the default themes. 4: Custom definition.
theme_color_font	string[7]	#ffffff	1/6	Font color
theme_color_configfont	string[7]	#ffffff	1/6	Font color of configuration area.
theme_color_titlefont	string[7]	#098bd6	1/6	Font color of video title.
theme_color_controlbackground	string[7]	#565656	1/6	Background color of control area.
theme_color_configbackground	string[7]	#323232	1/6	Background color of configuration area.
theme_color_videobackground	string[7]	#565656	1/6	Background color of video area.
theme_color_case	string[7]	#323232	1/6	Frame color
custombutton_manualtrigger_show	<boolean>	1	1/6	Show or hide manual trigger (VI) button in homepage 0 -> Hidden 1 -> Visible

7.21 Privacy mask

Group: **privacymask_c<0~(n-1)>** for n channel product

NAME	VALUE	DEFAULT	SECURITY (get/set)	DESCRIPTION
enable	<boolean>	0	4/4	Enable privacy mask.
win_i<0~4>_enable	<boolean>	0	4/4	Enable privacy mask window.
win_i<0~4>_name	string[40]	<blank>	4/4	Name of the privacy mask window.
win_i<0~4>_left	0 ~ 320	0	4/4	Left coordinate of window position.
win_i<0~4>_top	0 ~ 240	0	4/4	Top coordinate of window position.
win_i<0~4>_width	0 ~ 320	0	4/4	Width of privacy mask window.
win_i<0~4>_height	0 ~ 240	0	4/4	Height of privacy mask window.

7.22 Capability

Group: **capability**

NAME	VALUE	DEFAULT	SECURITY (get/set)	DESCRIPTION
api_httpversion	0300a	0300a	0/7	The HTTP API version.
bootuptime	<positive integer>	60	0/7	Server bootup time.
nir	0, <positive integer>	0	0/7	Number of IR interfaces. (Recommand to use ir for built-in IR and extir for external IR)
npir	0, <positive integer>	0	0/7	Number of PIRs.
ndi	0, <positive integer>	0	0/7	Number of digital inputs.
nvi	0, <positive integer>	3	0/7	Number of virtual inputs (manual trigger)
ndo	0, <positive integer>	0	0/7	Number of digital outputs.

naudioin	0, <positive integer>	1	0/7	Number of audio inputs.
naudioout	0, <positive integer>	0	0/7	Number of audio outputs.
nvideoin	<positive integer>	1	0/7	Number of video inputs.
nvideoinprofile	<positive integer>	0	0/7	Number of video input profiles.
nmediastream	<positive integer>	3	0/7	Number of media stream per channels.
naudiosetting	<positive integer>	1	0/7	Number of audio settings per channel.
nuart	0, <positive integer>	1	0/7	Number of UART interfaces.
nmotion	0, <positive integer>	3	0/7	Number of motion window.
nmotionprofile	0, <positive integer>	1	0/7	Number of motion profiles.

ptzenabled	0, <positive integer>	189	0/7	An 32-bit integer, each bit can be set separately as follows:
				Bit 0 => Support camera control function;
				0(not support), 1(support)
				Bit 1 => Built-in or external video source;
				0(external), 1(built-in)
				Bit 2 => Support pan operation, 0(not support), 1(support)
				Bit 3 => Support tilt operation;
				0(not support), 1(support)
				Bit 4 => Support zoom operation;
				0(not support), 1(support)
				Bit 5 => Support focus operation;
				0(not support), 1(support)
				Bit 6 => Support iris operation;
				0(not support), 1(support)

				Bit 7 => External or built-in PT; 0(built-in), 1(external) Bit 8 => Invalidate bit 1 ~ 7; 0(bit 1 ~ 7 are valid), 1(bit 1 ~ 7 are invalid) Bit 9 => Reserved bit; always 1. Examples: PT8133: 0b1111 SD8362: 0b111111 VS8102: 0b10111101
windowless	<boolean>	1	0/7	Indicate whether to support windowless plug-in.
eptz	0, <positive integer>	0	0/7	A 32-bit integer, each bit can be set separately as follows: Bit 0 => stream 1 supports ePTZ or not. Bit 1 => stream 2 supports ePTZ or not. The rest may be deduced by analogy
remotefocus	<boolean>	0	0/7	Indicate whether to support remote focus function.
npreset	0, <positive integer>	20	0/7	Number of preset locations.
protocol_https	< boolean >	1	0/7	Indicate whether to support HTTP over SSL.
protocol_rtsp	< boolean >	1	0/7	Indicate whether to support RTSP.
protocol_sip	<boolean>	0	0/7	Indicate whether to support SIP.
protocol_maxconnection	<positive integer>	10	0/7	The maximum allowed simultaneous connections.
protocol_maxgenconnection	<positive integer>	10	0/7	The maximum general streaming connections .
protocol_maxmegaconnection	<positive integer>	0	0/7	The maximum megapixel streaming connections.

protocol_rtp_multicast_ scalable	<boolean>	1	0/7	Indicate whether to support scalable multicast.
protocol_rtp_multicast_ backchannel	<boolean>	0	0/7	Indicate whether to support backchannel multicast.
protocol_rtp_tcp	<boolean>	1	0/7	Indicate whether to support RTP over TCP.
protocol_rtp_http	<boolean>	1	0/7	Indicate whether to support RTP over HTTP.
protocol_spush_mjpeg	<boolean>	1	0/7	Indicate whether to support server push MJPEG.
protocol_snmp	<boolean>	1	0/7	Indicate whether to support SNMP.
protocol_ipv6	<boolean>	1	0/7	Indicate whether to support IPv6.
protocol_pppoe	<boolean>	1	0/7	Indicate whether to support PPPoE.
protocol_ieee8021x	<boolean>	1	0/7	Indicate whether to support IEEE802.1x.
protocol_qos_cos	<boolean>	1	0/7	Indicate whether to support CoS.
protocol_qos_dscp	<boolean>	1	0/7	Indicate whether to support QoS/DSCP.
protocol_ddns	<boolean>	1	0/7	Indicate whether to support DDNS.
videoin_type	0, 1, 2	0	0/7	0 => Interlaced CCD 1 => Progressive CCD 2 => CMOS
videoin_resolution	<a list of available resolution separated by commas>	QCIF,CIF,4CIF,D1	0/7	Available resolutions list.
videoin_nresolution	< number of available resolution list>	4	0/7	Available resolutions list. (only for 5M series)
videoin_maxframerate	<a list of available maximum frame	30,30,30,30	0/7	Available maximum frame list.

	rate separated by commas>			
videoin_mjpeg_maxframerate	<a list of available maximum frame rate separated by commas>	30,30,30,30	0/7	Available maximum frame list.
videoin_h264_maxframerate	<a list of available maximum frame rate separated by commas>	30,30,30,30	0/7	Available maximum frame list.
videoin_streamcodec	< 1 ~ 15, 1~15, 1~15 (3 streams) >	6,6,6	0/7	Available stream codectype (Bit 0 -> mpeg4, Bit 1 -> mjpeg, Bit 2 -> h264, Bit 3 -> svc).
videoin_codec	mjpeg, h264	mjpeg, h264	0/7	Available codec list.
videoin_flexiblebitrate	<boolean>	1	0/7	Indicate whether to support flexible bitrate.
timeshift	<boolean>	1	0/7	Indicate whether to support time shift caching stream.
audio_aec	<boolean>	0	0/7	Indicate whether to support acoustic echo cancellation.
audio_mic	<boolean>	0	0/7	Indicate whether to support built-in microphone input.
audio_extmic	<boolean>	0	0/7	Indicate whether to support external microphone input.
audio_linein	<boolean>	1	0/7	Indicate whether to support external line input. (It will be replaced by audio_mic and audio_extmic.)
audio_lineout	<boolean>	0	0/7	Indicate whether to support line output.
audio_headphoneout	<boolean>	0	0/7	Indicate whether to support headphone output.
audioin_codec	g711,g726	g711,g726	0/7	Available codec list for audio input.

uart_httptunnel	<boolean>	1	0/7	Indicate whether to support HTTP tunnel for UART transfer.
camctrl_httptunnel	<boolean>	1	0/7	The attribute indicates whether sending camera control commands through HTTP tunnel is supported. 0: Not supported 1: Supported
camctrl_privilege	<boolean>	1	0/7	Indicate whether to support “Manage Privilege” of PTZ control in the Security page. 1: support both /cgi-bin/camctrl/camctrl.cgi and /cgi-bin/viewer/camctrl.cgi 0: support only /cgi-bin/viewer/camctrl.cgi
transmission_mode	Tx, Rx, Both	Tx	0/7	Indicate transmission mode of the machine: TX = server, Rx = receiver box, Both = DVR.
network_wire	<boolean>	1	0/7	Indicate whether to support Ethernet.
network_wireless	<boolean>	0	0/7	Indicate whether to support wireless.
wireless_s802dot11b	<boolean>	0	0/7	Indicate whether to support wireless 802.11b+.
wireless_s802dot11g	<boolean>	0	0/7	Indicate whether to support wireless 802.11g.
wireless_encrypt_wep	<boolean>	0	0/7	Indicate whether to support wireless WEP.
wireless_encrypt_wpa	<boolean>	0	0/7	Indicate whether to support wireless WPA.
wireless_encrypt_wpa2	<boolean>	0	0/7	Indicate whether to support wireless WPA2.
derivative_brand	<boolean>	1	0/7	Indicate whether to support the upgrade function for the derivative brand. For example, if the value is true, the VVTK

				product can be upgraded to VVXX. (TCVV<->TCXX is excepted)
evctrlchannel	<boolean>	1	0/7	Indicate whether to support HTTP tunnel for event/control transfer.
joystick	<boolean>	1	0/7	Indicate whether to support joystick control.
storage_dbenabled	<boolean>	0	0/7	Media files are indexed in database.
nanystream	0, <positive integer>	0	0/7	number of any media stream per channel
iva	<boolean>	0	0/7	Indicate whether to support Intelligent Video analysis
ir	<boolean>	0	0/7	Indicate whether to support built-in IR led.
extir	<boolean>	0	0/7	Indicate whether to support external IR led.
whitelight	<boolean>	0	0/7	Indicate whether to support white light led.
iris	<boolean>	0	0/7	Indicate whether to support iris control.
tampering	<boolean>	1	0/7	Indicate whether to support tampering detection.
temperature	<boolean>	0	0/7	Indicate whether to support temperature detection.
localstorage_manageable	<boolean>	0	0/7	Indicate whether manageable local storage is supported.
localstorage_seamless	<boolean>	0	0/7	Indicate whether seamless recording is supported.
localstorage_modnum	0, <positive integer>	0	0/7	The maximum MOD connection numbers.
adaptiverecording	<boolean>	1	0/7	Indicate whether to support adaptive recording.
adaptivestreaming	<boolean>	1	0/7	Indicate whether to support adaptive streaming.
supportsd	<boolean>	0	0/7	Indicate whether to support local storage.

7.23 Customized event script

Group: **event_customtaskfile_i**<0~2>

PARAMETER	VALUE	Default	SECURITY (get/set)	DESCRIPTION
name	string[40]	NULL	6/6	Custom script identification of this entry.
date	string[20]	NULL	6/6	Date of custom script.
time	string[20]	NULL	6/6	Time of custom script.

7.24 Event setting

Group: **event_i**<0~2>

PARAMETER	VALUE	Default	SECURITY (get/set)	DESCRIPTION
name	string[40]	NULL	6/6	Identification of this entry.
enable	0, 1	0	6/6	Enable or disable this event.
priority	0, 1, 2	1	6/6	Indicate the priority of this event: "0" = low priority "1" = normal priority "2" = high priority
delay	1~999	20	6/6	Delay in seconds before detecting the next event.
trigger	boot, di, motion, seq, visignal, virestore, recnotify tampering, vi,	Boot	6/6	Indicate the trigger condition: "boot" = System boot "di"= Digital input "motion" = Video motion detection "seq" = Periodic condition "visignal" = Video input signal loss. "virestore" = Video input signal restore. "recnotify" = Recording notification. "tampering" = Tamper detection. "vi"= Virtual input (Manual trigger)
triggerstatus	String[40]	trigger	6/6	The status for event trigger

vi	0 ~ 7	0	6/6	Indicate the source id of vi trigger. This field is required when trigger condition is “vi”. One bit represents one digital input. The LSB indicates VI 0.
visignal	0 ~ 1	0	6/6	Indicate the source of video input signal loss. Each bit represents one channel, and the LSB indicates channel 1.
virestore	0 ~ 1	0	6/6	Indicate the source of video input signal restore. Each bit represents one channel, and the LSB indicates channel 1.
mdwin	0 ~ 7	0	6/6	Indicate the source window id of motion detection. This field is required when trigger condition is “md”. One bit represents one window. The LSB indicates the 1st window. For example, to detect the 1st and 3rd windows, set mdwin as 5.
mdwin0	0 ~ 7	0	6/6	Similar to mdwin. The parameter takes effect when profile 1 of motion detection is enabled.
inter	1~999	1	6/6	Interval of snapshots in minutes. This field is used when trigger condition is “seq”.

weekday	0~127	127	6/6	Indicate which weekday is scheduled.
				One bit represents one weekday.
				bit0 (LSB) = Saturday
				bit1 = Friday
				bit2 = Thursday
				bit3 = Wednesday
				bit4 = Tuesday
				bit5 = Monday
				bit6 = Sunday
				For example, to detect events on Friday and Sunday, set weekday as 66.

begintime	hh:mm	00:00	6/6	Begin time of the weekly schedule.
endtime	hh:mm	24:00	6/6	End time of the weekly schedule. (00:00 ~ 24:00 sets schedule as always on)
action_server_i<0~4>_enable	0, 1	0	6/6	Enable or disable this server action.
action_server_i<0~4>_media	NULL, 0~4	NULL	6/6	Index of the attached media.
action_server_i<0~4>_datefolder	<boolean>	0	6/6	Enable this to create folders by date, time, and hour automatically.
action_goto_enable	<Boolean>	0	6/6	Enable/disable ptz goto preset position on event triggered.
action_goto_name	string[40]	<blank>	6/6	Specify the preset name that ptz goto on event triggered.

7.25 Server setting for event action

Group: **server_i**<0~4>

PARAMETER	VALUE	DEFAULT	SECURITY (get/set)	DESCRIPTION
name	string[40]	NULL	6/6	Identification of this entry
type	email, ftp, http, ns	email	6/6	Indicate the server type: "email" = email server "ftp" = FTP server "http" = HTTP server "ns" = network storage
http_url	string[128]	http://	6/6	URL of the HTTP server to upload.
http_username	string[64]	NULL	6/6	Username to log in to the server.
http_passwd	string[64]	NULL	6/6	Password of the user.
ftp_address	string[128]	NULL	6/6	FTP server address.
ftp_username	string[64]	NULL	6/6	Username to log in to the server.
ftp_passwd	string[64]	NULL	6/6	Password of the user.
ftp_port	0~65535	21	6/6	Port to connect to the server.
ftp_location	string[128]	NULL	6/6	Location to upload or store the media.
ftp_passive	0, 1	1	6/6	Enable or disable passive mode. 0 = disable passive mode 1 = enable passive mode
email_address	string[128]	NULL	6/6	Email server address.
email_sslmode	0, 1	0	6/6	Enable support SSL.
email_port	0~65535	25	6/6	Port to connect to the server.
email_username	string[64]	NULL	6/6	Username to log in to the server.
email_passwd	string[64]	NULL	6/6	Password of the user.
email_senderemail	string[128]	NULL	6/6	Email address of the sender.
email_recipientemail	string[640]	NULL	6/6	Email address of the recipient.
ns_location	string[128]	NULL	6/6	Location to upload or store the media.
ns_username	string[64]	NULL	6/6	Username to log in to the server.
ns_passwd	string[64]	NULL	6/6	Password of the user.
ns_workgroup	string[64]	NULL	6/6	Workgroup for network storage.

7.26 Media setting for event action

Group: **media_i<0~4>** (media_freespace is used internally.)

PARAMETER	VALUE	DEFAULT	SECURITY (get/set)	DESCRIPTION
name	string[40]	NULL	6/6	Identification of this entry
type	snapshot, systemlog, videoclip,	snapshot	6/6	Media type to send to the server or store on the server.
snapshot_source	0 ~ 2	0	6/6	Indicate the source of media stream. 0 means the first stream. 1 means the second stream and etc. 2 means the third stream and etc. 3 means the fourth stream and etc.
snapshot_prefix	string[16]	NULL	6/6	Indicate the prefix of the filename.
snapshot_datesuffix	0, 1	0	6/6	Add date and time suffix to filename: 1 = Add date and time suffix. 0 = Do not add.
snapshot_preevent	0 ~ 7	1	6/6	Indicates the number of pre-event images.
snapshot_postevent	0 ~ 7	1	6/6	The number of post-event images.
videoclip_source	0 ~ 2	0	6/6	Indicate the source of media stream. 0 means the first stream. 1 means the second stream and etc. 2 means the third stream and etc. 3 means the fourth stream and etc.
videoclip_prefix	string[16]	NULL	6/6	Indicate the prefix of the filename.
videoclip_preevent	0 ~ 9	0	6/6	Indicates the time for pre-event recording in seconds.
videoclip_maxduration	1 ~ 20	5	6/6	Maximum duration of one video clip in seconds.
videoclip_maxsize	50 ~ 4096	500	6/6	Maximum size of one video clip file in Kbytes.

7.27 Recording

Group: **recording_i**<0~1>

PARAMETER	VALUE	DEFAULT	SECURITY (get/set)	DESCRIPTION
name	string[40]	NULL	6/6	Identification of this entry.
enable	0, 1	0	6/6	Enable or disable this recording.
priority	0, 1, 2	1	6/6	Indicate the priority of this recording: “0” indicates low priority. “1” indicates normal priority. “2” indicates high priority.
source	0~2	0	6/6	Indicate the source of media stream. 0 means the first stream. 1 means the second stream and so on.
limitsize	0,1	0	6/6	0: Entire free space mechanism 1: Limit recording size mechanism
cyclic	0,1	0	6/6	0: Disable cyclic recording 1: Enable cyclic recording
notify	0,1	1	6/6	0: Disable recording notification 1: Enable recording notification

notifyserver	0~31	0	6/6	Indicate which notification server is scheduled.
				One bit represents one application server (server_i0~i4).
				bit0 (LSB) = server_i0.
				bit1 = server_i1.
				bit2 = server_i2.
				bit3 = server_i3.
				bit4 = server_i4.
				For example, enable server_i0, server_i2, and server_i4 as notification servers; the notifyserver value is 21.

weekday	0~127	127	6/6	Indicate which weekday is scheduled.
				One bit represents one weekday.
				bit0 (LSB) = Saturday
				bit1 = Friday
				bit2 = Thursday
				bit3 = Wednesday
				bit4 = Tuesday
				bit5 = Monday
				bit6 = Sunday
				For example, to detect events on Friday and Sunday, set weekday as 66.

begintime	hh:mm	00:00	6/6	Start time of the weekly schedule.
endtime	hh:mm	24:00	6/6	End time of the weekly schedule. (00:00~24:00 indicates schedule always on)
prefix	string[16]	NULL	6/6	Indicate the prefix of the filename.
cyclesize	100~	100	6/6	The maximum size for cycle recording in Kbytes when choosing to limit recording size.
reserveamount	0~	100	6/6	The reserved amount in Mbytes when choosing cyclic recording mechanism.
dest	NULL, 0 ~ 4	NULL	6/6	The destination to store the recorded data. "0 ~ 4" means the index of the network storage.
cffolder	string[128]	NULL	6/6	Folder name.
trigger	schedule	schedule	6/6	The event trigger type schedule: The event is triggered by schedule networkfail: The event is triggered by the failure of network connection.
adaptive_enable	0,1	0	6/6	Indicate whether the adaptive recording is enabled

adaptive_preevent	0~9	5	6/6	Indicate when is the adaptive recording started before the event trigger point (seconds)
adaptive_postevent	0~10	5	6/6	Indicate when is the adaptive recording stopped after the event trigger point (seconds)
maxsize	100~2048	100	6/6	Unit: Mega bytes. When this condition is reached, recording file is truncated.
maxduration	60~3600	60	6/6	Uuit: Minute When this condition is reached, recording file is truncated.

7.28 HTTPS

Group: **https** (capability.protocol.https > 0)

NAME	VALUE	DEFAULT	SECURITY (get/set)	DESCRIPTION
enable	<boolean>	0	6/6	To enable or disable secure HTTP.
policy	<Boolean>	0	6/6	If the value is 1, it will force HTTP connection redirect to HTTPS connection

method	auto,
	manual,
	install
		Auto	6/6	auto => Create self-signed certificate automatically.
				manual => Create self-signed certificate manually.
				install => Create certificate request and install.

status	-3 ~ 1	0	6/6	Specify the https status. -3 = Certificate not installed -2 = Invalid public key -1 = Waiting for certificate 0 = Not installed 1 = Active
countryname	string[2]	TW	6/6	Country name in the certificate information.
stateorprovincename	string[128]	Asia	6/6	State or province name in the certificate information.

localityname	string[128]	Asia	6/6	The locality name in the certificate information.
organizationname	string[64]	VIVOTEK Inc.	6/6	Organization name in the certificate information.
unit	string[32]	VIVOTEK Inc.	6/6	Organizational unit name in the certificate information.
commonname	string[64]	www.vivotek.com	6/6	Common name in the certificate information.
validdays	0 ~ 3650	3650	6/6	Valid period for the certification.

8. Useful Functions

8.1 Drive the Digital Output (capability.ndo > 0)

Note: This request requires Viewer privileges.

Method: GET/POST

Syntax:

```
http://<servername>/cgi-bin/dido/setdo.cgi?do1=<state>[&do2=<state>]
[&do3=<state>][&do4=<state>]
```

Where state is 0 or 1; “0” means inactive or normal state, while “1” means active or triggered state.

PARAMETER	VALUE	DESCRIPTION
do<num>	0, 1	0 – Inactive, normal state
		1 – Active, triggered state

Example: Drive the digital output 1 to triggered state and redirect to an empty page.

```
http://myserver/cgi-bin/dido/setdo.cgi?do1=1
```

8.2 Query Status of the Digital Input (capability.ndi > 0)

Note: This request requires Viewer privileges

Method: GET/POST

Syntax:

```
http://<servername>/cgi-bin/dido/getdi.cgi?[di0][&di1][&di2][&di3]
```

If no parameter is specified, all of the digital input statuses will be returned.

Return:

```
HTTP/1.0 200 OK\r\n
Content-Type: text/plain\r\n
Content-Length: <length>\r\n
\r\n
[di0=<state>]\r\n
[di1=<state>]\r\n
[di2=<state>]\r\n
[di3=<state>]\r\n
```

where *<state>* can be 0 or 1.

Example: Query the status of digital input 1 .

```
Request:
http://myserver/cgi-bin/dido/getdi.cgi?di1

Response:
HTTP/1.0 200 OK\r\n
Content-Type: text/plain\r\n
Content-Length: 7\r\n
\r\n
di1=1\r\n
```

8.3 Query Status of the Digital Output (capability.ndo > 0)

Note: This request requires Viewer privileges

Method: GET/POST

Syntax:

```
http://<servername>/cgi-bin/dido/getdo.cgi?[do0][&do1][&do2][&do3]
```

If no parameter is specified, all the digital output statuses will be returned.

Return:

```
HTTP/1.0 200 OK\r\n
Content-Type: text/plain\r\n
Content-Length: <length>\r\n
\r\n
[do0=<state>]\r\n
[do1=<state>]\r\n
[do2=<state>]\r\n
[do3=<state>]\r\n
```

where <*state*> can be 0 or 1.

Example: Query the status of digital output 1.

```
Request:
http://myserver/cgi-bin/dido/getdo.cgi?do1

Response:
HTTP/1.0 200 OK\r\n
Content-Type: text/plain\r\n
Content-Length: 7\r\n
```

```
\r\n
do1=1\r\n
```

8.4 Capture Single Snapshot

Note: This request requires Normal User privileges.
Method: GET/POST

Syntax:

```
http://<servername>/cgi-bin/viewer/video.jpg?[channel=<value>][&resolution=<value>]
[&quality=<value>][&streamid=<value>]
```

If the user requests a size larger than all stream settings on the server, this request will fail.

PARAMETER	VALUE	DEFAULT	DESCRIPTION
channel	0~(n-1)	0	The channel number of the video source.
resolution	<available resolution>	0	The resolution of the image.
quality	1~5	3	The quality of the image.
streamid	0~(m-1)	0	The stream number.

The server will return the most up-to-date snapshot of the selected channel and stream in JPEG format. The size and quality of the image will be set according to the video settings on the server.

Return:

```
HTTP/1.0 200 OK\r\n
Content-Type: image/jpeg\r\n
[Content-Length: <image size>\r\n]

<binary JPEG image data>
```

8.5 Account Management

Note: This request requires Administrator privileges.
Method: GET/POST

Syntax:

http://<*servername*>/cgi-bin/admin/editaccount.cgi?
method=<value>&username=<*name*>[&userpass=<*value*>][&privilege=<*value*>]
[&privilege=<value>][…][&return=<*return page*>]

PARAMETER	VALUE	DESCRIPTION
method	Add	Add an account to the server. When using this method, the "username" field is necessary. It will use the default value of other fields if not specified.
	Delete	Remove an account from the server. When using this method, the "username" field is necessary, and others are ignored.
	edit	Modify the account password and privilege. When using this method, the "username" field is necessary, and other fields are optional. If not specified, it will keep the original settings.
username	<name>	The name of the user to add, delete, or edit.
userpass	<value>	The password of the new user to add or that of the old user to modify. The default value is an empty string.
Privilege	<value>	The privilege of the user to add or to modify.
	viewer	Viewer privilege.
	operator	Operator privilege.
	admin	Administrator privilege.
Return	<return page>	Redirect to the page <*return page*> after the parameter is assigned. The <*return page*> can be a full URL path or relative path according to the current path. If you omit this parameter, it will redirect to an empty page.

8.6 System Logs

Note: This request require Administrator privileges.
Method: GET/POST

Syntax:

```
http://<servername>/cgi-bin/admin/syslog.cgi
```

Server will return the most up-to-date system log.

Return:

```
HTTP/1.0 200 OK\r\n
Content-Type: text/plain\r\n
Content-Length: <syslog length>\r\n
\r\n
<system log information>\r\n
```

8.7 Upgrade Firmware

Note: This request requires Administrator privileges.
Method: POST

Syntax:

```
http://<servername>/cgi-bin/admin/upgrade.cgi
```

Post data:

```
fimage=<file name>[&return=<return page>]\r\n
\r\n
<multipart encoded form data>
```

Server will accept the file named <file name> to upgrade the firmware and return with <return page> if indicated.

8.8 Camera Control (capability.ptzenabled)

Note: This request requires Viewer privileges.
Method: GET/POST

Syntax:

```
http://<servername>/cgi-bin/camctrl/camctrl.cgi?[channel=<value>][&camid=<value>]
[&move=<value>] – Move home, up, down, left, right
[&focus=<value>] – Focus operation
[&iris=<value>] – Iris operation
[&auto=<value>] – Auto pan, patrol
[&zoom=<value>] – Zoom in, out
[&zooming=<value>&zs=<value>] – Zoom without stopping, used for joystick
[&vx=<value>&vy=<value>&vs=<value>] – Shift without stopping, used for joystick
[&x=<value>&y=<value>&videosize=<value>&resolution=<value>&stretch=<value>] – Click on
image
(Move the center of image to the coordination (x,y) based on resolution or videosize.)
[ [&speedpan=<value>][&speedtilt=<value>][&speedzoom=<value>][&speedapp=<value>][&spee
dlink=<value>] ] – Set speeds
[&return=<return page>]
```

Example:

http://myserver/cgi-bin/camctrl/camctrl.cgi?channel=0&camid=1&move=right
http://myserver/cgi-bin/camctrl/camctrl.cgi?channel=0&camid=1&zoom=tele
http://myserver/cgi-bin/camctrl/camctrl.cgi?channel=0&camid=1&x=300&y=200&resolution=704x480&videosize=704x480&strech=1

PARAMETER	VALUE	DESCRIPTION
channel	<0~(n-1)>	Channel of video source.
camid	0,<positive integer>	Camera ID.
move	home	Move to camera to home position.
	up	Move camera up.
	down	Move camera down.
	left	Move camera left.
	right	Move camera right.
speedpan	-5 ~ 5	Set the pan speed.
speedtilt	-5 ~ 5	Set the tilt speed.

speedzoom	-5 ~ 5	Set the zoom speed.
speedfocus	-5 ~ 5	Set the focus speed.
speedapp	-5 ~ 5	Set the auto pan/patrol speed.
auto	pan	Auto pan.
	patrol	Auto patrol.
	stop	Stop camera.
zoom	wide	Zoom larger view with current speed.
	tele	Zoom further with current speed.
	stop	Stop zoom.
focus	auto	Auto focus.
	far	Focus on further distance.
	near	Focus on closer distance.
iris	auto	Let the Network Camera control iris size.
	open	Manually control the iris for bigger size.
	close	Manually control the iris for smaller size.
speedlink	0 ~ 4	Issue speed link command.
gaptime	0~32768	The gaptime between two consecutive ptz commands for device. (unit: ms)
return	<return page>	Redirect to the page *<return page>* after the parameter is assigned. The *<return page>* can be a full URL path or relative path according to the current path. If you omit this parameter, it will redirect to an empty page.

8.9 ePTZ Camera Control (capability.eptz > 0)

Note: This request requires camctrl privileges.

Method: GET/POST

Syntax:

```
http://<servername>/cgi-bin/camctrl/eCamCtrl.cgi?channel=<value>&stream=<value>
[&move=<value>] – Move home, up, down, left, right
[&auto=<value>] – Auto pan, patrol
[&zoom=<value>] – Zoom in, out
[&zooming=<value>&zs=<value>] – Zoom without stopping, used for joystick
[&vx=<value>&vy=<value>&vs=<value>] – Shift without stopping, used for joystick
```

[&x=<value>&y=<value>&videosize=<value>&resolution=<value>&stretch=<value>] – Click on image

(Move the center of image to the coordination (x,y) based on resolution or videosize.)

[[&speedpan=<value>][&speedtilt=<value>][&speedzoom=<value>][&speedapp=<value>]] – Set speeds

[&return=<return page>]

Example:

http://myserver/cgi-bin/camctrl/eCamCtrl.cgi?channel=0&stream=0&move=right
http://myserver/cgi-bin/camctrl/eCamCtrl.cgi?channel=0&stream=1&vx=2&vy=2&vz=2
http://myserver/cgi-bin/camctrl/eCamCtrl.cgi?channel=0&stream=1&x=100&y=100&videosize=640x480&resolution=640x480&stretch=0

PARAMETER	VALUE	DESCRIPTION
channel	<0~(n-1)>	Channel of video source.
stream	<0~(m-1)>	Stream.
move	home	Move to home ROI.
	up	Move up.
	down	Move down.
	left	Move left.
	right	Move right.
auto	pan	Auto pan.
	patrol	Auto patrol.
	stop	Stop auto pan/patrol.
zoom	wide	Zoom larger view with current speed.
	tele	Zoom further with current speed.
zooming	wide or tele	Zoom without stopping for larger view or further view with zs speed, used for joystick control.
zs	0 ~ 6	Set the speed of zooming, “0” means stop.
vx	<integer>	The direction of movement, used for joystick control.
vy	<integer>	
vs	0 ~ 7	Set the speed of movement, “0” means stop.
x	<integer>	x-coordinate clicked by user. It will be the x-coordinate of center after movement.
y	<integer>	y-coordinate clicked by user. It will be the y-coordinate of center after movement.

videosize	<window size>	The size of plug-in (ActiveX) window in web page
resolution	<window size>	The resolution of streaming.
stretch	<boolean>	0 indicates that it uses **resolution** (streaming size) as the range of the coordinate system. 1 indicates that it uses **videosize** (plug-in size) as the range of the coordinate system.
speedpan	-5 ~ 5	Set the pan speed.
speedtilt	-5 ~ 5	Set the tilt speed.
speedzoom	-5 ~ 5	Set the zoom speed.
speedapp	1 ~ 5	Set the auto pan/patrol speed.
return	<return page>	Redirect to the page *<return page>* after the parameter is assigned. The *<return page>* can be a full URL path or relative path according to the current path.

8.10 Recall (capability.ptzenabled)

Note: This request requires Viewer privileges.
Method: GET/POST

Syntax:

```
http://<servername>/cgi-bin/viewer/recall.cgi?
recall=<value>[&channel=<value>][&return=<return page>]
```

PARAMETER	VALUE	DESCRIPTION
recall	Text string less than 30 characters	One of the present positions to recall.
channel	<0~(n-1)>	Channel of the video source.
return	<return page>	Redirect to the page *<return page>* after the parameter is assigned. The *<return page>* can be a full URL path or relative path according to the current path. If you omit this parameter, it will redirect to an empty page.

8.11 ePTZ Recall (capability.eptz > 0)

Note: This request requires camctrl privileges.
Method: GET/POST

Syntax:

```
http://<servername>/cgi-bin/camctrl/eRecall.cgi?channel=<value>&stream=<value>&
recall=<value>[&return=<return page>]
```

PARAMETER	VALUE	DESCRIPTION
channel	<0~(n-1)>	Channel of the video source.
stream	<0~(m-1)>	Stream.
recall	Text string less than 40 characters	One of the present positions to recall.
return	<return page>	Redirect to the page <*return page*> after the parameter is assigned. The <*return page*> can be a full URL path or relative path according to the current path.

8.12 Preset Locations (capability.ptzenabled)

Note: This request requires Operator privileges.
Method: GET/POST

Syntax:

```
http://<servername>/cgi-bin/operator/preset.cgi?[channel=<value>]
[&addpos=<value>][&delpos=<value>][&return=<return page>]
```

PARAMETER	VALUE	DESCRIPTION
addpos	<Text string less than 30 characters>	Add one preset location to the preset list.
channel	<0~(n-1)>	Channel of the video source.
delpos	<Text string less than 30 characters>	Delete preset location from preset list.
return	<return page>	Redirect to the page <*return page*> after the parameter is assigned. The <*return page*> can be a full URL path or

		relative path according to the current path. If you omit this parameter, it will redirect to an empty page.

8.13 ePTZ Preset Locations (capability.eptz > 0)

Note: This request requires Operator privileges.

Method: GET/POST

Syntax:

```
http://<servername>/cgi-bin/operator/ePreset.cgi?channel=<value>&stream=<value>
[&addpos=<value>][&delpos=<value>][&return=<return page>]
```

PARAMETER	VALUE	DESCRIPTION
channel	<0~(n-1)>	Channel of the video source.
stream	<0~(m-1)>	Stream.
addpos	<Text string less than 40 characters>	Add one preset location to the preset list.
delpos	<Text string less than 40 characters>	Delete preset location from the preset list.
return	<return page>	Redirect to the page *<return page>* after the parameter is assigned. The *<return page>* can be a full URL path or relative path according to the current path.

8.14 IP Filtering

Note: This request requires Administrator access privileges.
Method: GET/POST

Syntax:

```
http://<servername>/cgi-bin/admin/ipfilter.cgi?
method=<value>&[start=<ipaddress>&end=<ipaddress>][&index=<value>]
[&return=<return page>]
```

PARAMETER	VALUE	DESCRIPTION
method	addallow	Add allowed IP address range to the server. Start and end parameters must be specified. If the index parameter is specified, it will try to add starting from the index position.
	adddeny	Add denied IP address range to the server. Start and end parameters must be specified. If the index parameter is specified, it will try to add starting from the index position.
	deleteallow	Remove allowed IP address range from server. If start and end parameters are specified, it will try to remove the matched IP address. If index is specified, it will try to remove the address from given index position. [start, end] parameters have higher priority then the [index] parameter.
	deletedeny	Remove denied IP address range from server. If start and end parameters are specified, it will try to remove the matched IP address. If index is specified, it will try to remove the address from given index position. [start, end] parameters have higher priority then the [index] parameter.
start	<ip address>	The starting IP address to add or to delete.
end	<ip address>	The ending IP address to add or to delete.
index	<value>	The start position to add or to delete.
return	<return page>	Redirect to the page *<return page>* after the parameter is assigned. The *<return page>* can be a full URL path or relative path according to the current path. If you omit this parameter, it will redirect to an empty page.

8.14.1 IP Filtering for ONVIF

Syntax:

```
http://<servername>/cgi-bin/admin/ipfilter.cgi?type[=<value>]
http://<servername>/cgi-bin/admin/ipfilter.cgi?method=add<v4/v6>&ip=<ipaddress>[&index=<value>][&return=<return page>]
http://<servername>/cgi-bin/admin/ipfilter.cgi?method=del<v4/v6>&index=<value>[&return=<return page>]
```

PARAMETER	VALUE	DESCRIPTION
type	NULL	Get IP filter type
	allow, deny	Set IP filter type
method	addv4	Add IPv4 address into access list.
	addv6	Add IPv6 address into access list.
	delv4	Delete IPv4 address from access list.
	delv6	Delete IPv6 address from access list.
ip	<IP address>	Single address: <IP address> Network address: <IP address / network mask> Range address:<start IP address - end IP address>
index	<value>	The start position to add or to delete.
return	<return page>	Redirect to the page *<return page>* after the parameter is assigned. The *<return page>* can be a full URL path or relative path according to the current path. If you omit this parameter, it will redirect to an empty page.

8.15 UART HTTP Tunnel Channel (capability.nuart > 0)

Note: This request requires Operator privileges.

Method: GET and POST

Syntax:

```
http://<servername>/cgi-bin/operator/uartchannel.cgi?[channel=<value>]
------------------------------------------------------------------------
GET /cgi-bin/operator/uartchannel.cgi?[channel=<value>]
x-sessioncookie: string[22]
accept: application/x-vvtk-tunnelled
pragma: no-cache
cache-control: no-cache
```

```
------------------------------------------------------------------------
POST /cgi-bin/operator/uartchannel.cgi
x-sessioncookie: string[22]
content-type: application/x-vvtk-tunnelled
pragma : no-cache
cache-control : no-cache
content-length: 32767
expires: Sun, 9 Jam 1972 00:00:00 GMT
```

User must use GET and POST to establish two channels for downstream and upstream. The x-sessioncookie in GET and POST should be the same to be recognized as a pair for one session. The contents of upstream should be base64 encoded to be able to pass through a proxy server.

This channel will help to transfer the raw data of UART over the network.
Please see UART tunnel spec for detail information

PARAMETER	VALUE	DESCRIPTION
channel	0 ~ (n-1)	The channel number of UART.

8.16 Event/Control HTTP Tunnel Channel (capability. evctrlchannel > 0)

Note: This request requires Administrator privileges.
Method: GET and POST

Syntax:

```
http://<servername>/cgi-bin/admin/ctrlevent.cgi
------------------------------------------------------------------------
GET /cgi-bin/admin/ctrlevent.cgi
x-sessioncookie: string[22]
accept: application/x-vvtk-tunnelled
pragma: no-cache
cache-control: no-cache


------------------------------------------------------------------------
POST /cgi-bin/admin/ ctrlevent.cgi
x-sessioncookie: string[22]
content-type: application/x-vvtk-tunnelled
pragma : no-cache
```

```
cache-control : no-cache
content-length: 32767
expires: Sun, 9 Jam 1972 00:00:00 GMT
```

User must use GET and POST to establish two channels for downstream and upstream. The x-sessioncookie in GET and POST should be the same to be recognized as a pair for one session. The contents of upstream should be base64 encoded to be able to pass through the proxy server.

This channel will help perform real-time event subscription and notification as well as camera control more efficiently. The event and control formats are described in another document.

See Event/control tunnel spec for detail information

8.17 Get SDP of Streams

Note: This request requires Viewer access privileges.
Method: GET

Syntax:

```
http://<servername>/<network_rtsp_s<0~m-1>_accessname>
```

"m" is the stream number.
"network_accessname_<0~(m-1)>" is the accessname for stream "1" to stream "m". Please refer to the "subgroup of network: rtsp" for setting the accessname of SDP.
You can get the SDP by HTTP GET.
When using scalable multicast, Get SDP file which contains the multicast information via HTTP.

8.18 Open the Network Stream

Note: This request requires Viewer access privileges.

Syntax:
For HTTP push server (MJPEG):

```
http://<servername>/<network_http_s<0~m-1>_accessname>
```

For RTSP (MP4), the user needs to input the URL below into an RTSP compatible player.

```
rtsp://<servername>/<network_rtsp_s<0~m-1>_accessname>
```

"m" is the stream number.
For details on streaming protocol, please refer to the "control signaling" and "data format" documents.

8.19 Senddata (capability.nuart > 0)

Note: This request requires Viewer privileges.
Method: GET/POST

Syntax:

```
http://<servername>/cgi-bin/viewer/senddata.cgi?
[com=<value>][&data=<value>][&flush=<value>] [&wait=<value>] [&read=<value>]
```

PARAMETER	VALUE	DESCRIPTION
com	1 ~ <max. com port number>	The target COM/RS485 port number.
data	<hex decimal data>[,<hex decimal data>]	The <hex decimal data> is a series of digits from 0 ~ 9, A ~ F. Each comma separates the commands by 200 milliseconds.
flush	yes,no	yes: Receive data buffer of the COM port will be cleared before read. no: Do not clear the receive data buffer.
wait	1 ~ 65535	Wait time in milliseconds before read data.
read	1 ~ 128	The data length in bytes to read. The read data will be in the return page.

Return:

```
HTTP/1.0 200 OK\r\n
Content-Type: text/plain\r\n
Content-Length: <system information length>\r\n
\r\n
<hex decimal data>\r\n
```

Where hexadecimal data is digits from 0 ~ 9, A ~ F.

8.20 Storage managements (capability.storage.dbenabled > 0)

Note: This request requires administrator privileges.
Method: GET and POST

Syntax:

```
http://<servername>/cgi-bin/admin/lsctrl.cgi?cmd=<cmd_type>[&<parameter>=<value>…]
```

The commands usage and their input arguments are as follows.

PARAMETER	VALUE	DESCRIPTION
cmd_type	<string>	Required. Command to be executed, including *search*, *insert*, *delete*, *update*, and *queryStatus*.

Command: **search**

PARAMETER	VALUE	DESCRIPTION
label	<integer primary key>	Optional. The integer primary key column will automatically be assigned a unique integer.
triggerType	<text>	Optional. Indicate the event trigger type. Please embrace your input value with single quotes. Ex. mediaType='motion' Support trigger types are product dependent.
mediaType	<text>	Optional. Indicate the file media type. Please embrace your input value with single quotes. Ex. mediaType='videoclip' Support trigger types are product dependent.
destPath	<text>	Optional. Indicate the file location in camera. Please embrace your input value with single quotes. Ex. destPath ='/mnt/auto/CF/NCMF/abc.mp4'
resolution	<text>	Optional. Indicate the media file resolution. Please embrace your input value with single quotes. Ex. resolution='800x600'
isLocked	<boolean>	Optional.

		Indicate if the file is locked or not. 0: file is not locked. 1: file is locked. A locked file would not be removed from UI or cyclic storage.
triggerTime	<text>	Optional. Indicate the event trigger time. (not the file created time) Format is "YYYY-MM-DD HH:MM:SS" Please embrace your input value with single quotes. Ex. triggerTime='2008-01-01 00:00:00' If you want to search for a time period, please apply "TO" operation. Ex. triggerTime='2008-01-01 00:00:00'+TO+'2008-01-01 23:59:59' is to search for records from the start of Jan 1st 2008 to the end of Jan 1st 2008.
limit	<positive integer>	Optional. Limit the maximum number of returned search records.
offset	<positive integer>	Optional. Specifies how many rows to skip at the beginning of the matched records. Note that the offset keyword is used after limit keyword.

To increase the flexibility of search command, you may use "OR" connectors for logical "OR" search operations. Moreover, to search for a specific time period, you can use "TO" connector.

Ex. To search records triggered by motion or di or sequential and also triggered between 2008-01-01 00:00:00 and 2008-01-01 23:59:59.

```
http://<servername>/cgi-bin/admin/lsctrl.cgi?cmd=search&triggerType='motion'+OR+'di'+OR+'seq'
&triggerTime='2008-01-01 00:00:00'+TO+'2008-01-01 23:59:59'
```

Command: **delete**

PARAMETER	VALUE	DESCRIPTION
label	<integer primary key>	Required. Identify the designated record. Ex. label=1

Ex. Delete records whose key numbers are 1, 4, and 8.

```
http://<servername>/cgi-bin/admin/lsctrl.cgi?cmd=delete&label=1&label=4&label=8
```

Command: **update**

PARAMETER	VALUE	DESCRIPTION
label	<integer primary key>	Required. Identify the designated record. Ex. label=1
isLocked	<boolean>	Required. Indicate if the file is locked or not.

Ex. Update records whose key numbers are 1 and 5 to be locked status.

```
http://<servername>/cgi-bin/admin/lsctrl.cgi?cmd=update&isLocked=1&label=1&label=5
```

Ex. Update records whose key numbers are 2 and 3 to be unlocked status.

```
http://<servername>/cgi-bin/admin/lsctrl.cgi?cmd=update&isLocked=0&label=2&label=3
```

8.20.1 Return Message

The returned results are always in XML format, except for storage status related elements that can be returned in javascript format. (i.e. status, totalSize, freeSize, and usedSize.)

The elements are listed as follows.

Group: **stormgr**

<table>
<tr><th>Element name</th><th>Type</th><th colspan="2">Description</th></tr>
<tr><td>counts</td><td><Positive Integer></td><td colspan="2">Total number of matched records.</td></tr>
<tr><td>limit</td><td><Positive Integer></td><td colspan="2">Limit the maximum number of returned search records.
Could be empty if not specified.</td></tr>
<tr><td>offset</td><td><Positive Integer></td><td colspan="2">Specifies how many rows to skip at the beginning of the matched records.
Could be empty if not specified.</td></tr>
<tr><td rowspan="8">statusCode</td><td rowspan="8"><Integer></td><td colspan="2">The reply status (see table below)</td></tr>
<tr><td>Value of return-code</td><td>Description</td></tr>
<tr><td>200</td><td>OK</td></tr>
<tr><td>400</td><td>Unrecognized Message Type/Content</td></tr>
<tr><td>500</td><td>Server executes command error.</td></tr>
<tr><td>501</td><td>Parse Input Message Failed.</td></tr>
<tr><td>502</td><td>Error Occurs When Searching Database.</td></tr>
<tr><td>503</td><td>Storage is Not Ready.</td></tr>
<tr><td>statusString</td><td>string</td><td colspan="2">Return string describing the reason that status code is not OK.</td></tr>
</table>

Subgroup of **stormgr: i<0~(n-1)>**: n is the total number of displayed records.

Element name	Type	Description
label	<Integer Primary Key>	A unique integer.
triggerType	<Text>	Indicate the event trigger type.
mediaType	<Text>	Indicate the file media type.
destPath	<Text>	Indicate the file location in camera.
resolution	<Text>	Indicate the media file resolution.
isLocked	<Boolean>	Indicate if the file is locked or not.
triggerTime	<Text>	Indicate the event trigger time. Format is "YYYY-MM-DD HH:MM:SS"
backup	<Boolean>	Indicate if the file is generated when network loss.

Subgroup of **stormgr_disk: i<0~(n-1)>**: n is the total number of storage devices.

Element name	Type	Description
name	string	Description of specified storage device.
status	ready, detached, error, and readonly	The storage device status. ready: storage is ready for access. detached: storage is not mounted. error: failed to open storage device. readonly: storage is write protected.
totalSize	<Positive Integer>	The overall storage size in kilobytes.
freeSize	<Positive Integer>	The available storage size in kilobytes.
usedSize	<Positive Integer>	The used storage size in kilobytes.
path	string	Location of database of storage sink

Ex. Returned results of search command

```
<?xml version="1.0" encoding="ISO-8859-1" ?>
<stormgr version="0.0.0.1">
  <counts>5</counts>
  <limit>2</limit>
  <offset>0</offset >
  <i0>
    <label>1</label>
    <triggerType>motion</triggerType>
    <mediaType>videoclip</mediaType>
    <destPath>/mnt/auto/NCMF/abc/abc.jpg</destPath>
    <resolution>800x600</resolution>
    <isLocked>0</isLocked>
    <triggerTime>2009-01-24 12:00:00</triggerTime>
    <backup>0</backup>
    </i0>
    <i1>
        <label>2</label>
        <triggerType>di</triggerType>
        <mediaType>snapshot</mediaType>
        <destPath>/mnt/auto/NCMF/123/123.jpg</destPath>
        <resolution>800x600</resolution>
        <isLocked>0</isLocked>
        <triggerTime>2009-01-24 12:01:00</triggerTime>
        <backup>0</backup>
    </i1>
</stormgr>
```

Ex. Local storage status in XML format.

```
<?xml version="1.0" encoding="ISO-8859-1" ?>
<stormgr version="0.0.0.1">
    <disk>
        <i0>
            <name>SDcard</name>
             <status>ready</status>
             <totalSize>7824444</totalSize>
             <freeSize>7824388</freeSize>
             <usedSize>56</usedSize>
        </i0>
    </disk>
</stormgr>
```

Ex. Local storage status in javascript format.

```
disk_i0_name='SDcard'
disk_i0_status='ready'
disk_i0_totalSize='7824444'
disk_i0_freeSize='7824388'
disk_i0_usedSize='56'
disk_i0_path=i0/NCMF/.db/.localStorage.db
```

Command: queryStatus

PARAMETER	VALUE	DESCRIPTION
retType	xml or javascript	Optional. Ex. retype=javascript The default return message is in XML format.

Ex. Query local storage status and call for javascript format return message.

```
http://<servername>/cgi-bin/admin/lsctrl.cgi?cmd=queryStatus&retType=javascript
```

There are two cgi commands for download and composing jpegs to avi format.
For download single selected file, you can use “/cgi-bin/admin/**downloadMedias.cgi**”. Just assign the request file path to this cgi.

Syntax:

```
http://<servername>/cgi-bin/admin/downloadMedias.cgi?<File_Path>
```

The <*File_Path*> is in queryststus return message.

Ex.

```
http://<servername>/cgi-bin/admin/downloadMedias.cgi?/mnt/auto/CF/NCMF/20090310/07/02.
mp4
```

For creating an AVI file by giving a list of JPEG files, you can use “/cgi-bin/admin/**jpegtoavi.cgi**”.

Syntax:

```
http://<servername>/cgi-bin/admin/jpegtoavi.cgi?<resolution>=<width>x<height>&<fps>=<num
>&<list>=<fileList>
```

PARAMETER	VALUE	DESCRIPTION
resolution	<width>x<height>	Resolution
fps	<positive integer>	Frame rate
list	<fileList>	The JPEG file list. The file path should be embraced by single quotation marks

Ex.

```
http:// <servername>/cgi-bin/admin/
jpegtoavi.cgi?resolution=800x600&fps=1&list=’/mnt/auto/CF/NCMF/video1650.jpg’, ’/mnt/auto/C
F/NCMF/video1651.jpg’, ’/mnt/auto/CF/NCMF/video1652.jpg’,
```

8.21 Virtual input (capability.nvi > 0)

Note: Change virtual input (manual trigger) status.
Method: GET/POST

Syntax:

```
http://<servername>/cgi-bin/admin/setvi.cgi?vi0=<value>[&vi1=<value>][&vi2=<value>]
[&return=<return page>]
```

PARAMETER	VALUE	DESCRIPTION
vi<num>	state[(duration)nstate] Where "state" is 0, 1. "0" means inactive or normal state while "1" means active or triggered state. Where "nstate" is next state after duration.	Ex: vi0=1 Setting virtual input 0 to trigger state
		Ex: vi0=0(200)1 Setting virtual input 0 to normal state, waiting 200 **milliseconds**, setting it to trigger state. Note that when the virtual input is waiting for next state, it cannot accept new requests.
return	*<return page>*	Redirect to the page *<return page>* after the request is completely assigned. The *<return page>* can be a full URL path or relative path according the current path. If you omit this parameter, it will redirect to an empty page.

Return Code	Description
200	The request is successfully executed.
400	The request cannot be assigned, ex. incorrect parameters. Examples: 1. setvi.cgi?vi0=0(10000)1(15000)0(20000)1 No multiple duration. 2. setvi.cgi?vi3=0 VI index is out of range. 3. setvi.cgi?vi=1 No VI index is specified.
503	The resource is unavailable, ex. Virtual input is waiting for next state.

	Examples: 1. setvi.cgi?vi0=0(15000)1 2. setvi.cgi?vi0=1 Request 2 will not be accepted during the execution time(15 seconds).

8.22 Open Timeshift Stream (capability.timeshift > 0, timeshift_enable=1, timeshift_c<n>_s<m>_allow=1)

Note: This request requires Viewer access privileges.

Syntax:

For HTTP push server (MJPEG):

```
http://<servername>/<network_http_s<m>_accessname>?maxsft=<value>[&tsmode=<value>&refti
me=<value>&forcechk&minsft=<value>]
```

For RTSP (MP4 and H264), the user needs to input the URL below into an RTSP compatible player.

```
rtsp://<servername>/<network_rtsp_s<m>_accessname>?maxsft=<value>[&tsmode=<value>&refti
me=<value>&forcechk&minsft=<value>]
```

"n" is the channel index.

"m" is the timeshift stream index.

For details on timeshift stream, please refer to the "TimeshiftCaching" documents.

PARAMETER	VALUE	DEFAULT	DESCRIPTION
maxsft	<positive integer>	0	Request cached stream at most how many seconds ago.
tsmode	normal, adaptive	normal	Streaming mode: normal => Full FPS all the time. adaptive => Default send only I-frame for MP4 and H.264, and send 1 FPS for MJPEG. If DI or motion window are triggered, the streaming is changed to send full FPS for 10 seconds. (*Note: this parameter also works on non-timeshift streams.)
reftime	mm:ss	The time camera receives the request.	Reference time for maxsft and minsft. (This provides more precise time control to eliminate the inaccuracy due to network latency.) Ex: Request the streaming from 12:20 rtsp://10.0.0.1/live.sdp?maxsft=10&reftime=12:30

forcechk	N/A	N/A	Check if the requested stream enables timeshift, feature and if minsft is achievable. If false, return “415 Unsupported Media Type”.
minsft	<positive integer>	0	How many seconds of cached stream client can accept at least. (Used by forcechk)

Return Code	Description
400 Bad Request	Request is rejected because some parameter values are illegal.
415 Unsupported Media Type	Returned, if forcechk appears, when minsft is not achievable or the timeshift feature of the target stream is not enabled.

8.23 Export Files

Note: This request requires Administrator privileges.
Method: GET

Syntax:
For daylight saving time configuration file:

```
http://<servername>/cgi-bin/admin/exportDst.cgi
```

For language file:

```
http://<servername>/cgi-bin/admin/export_language.cgi?currentlanguage=<value>
```

PARAMETER	VALUE	DESCRIPTION
currentlanguage	0~20	Available language lists. Please refer to: system_info_language_i0 ~ system_info_language_i19.

For setting backup file:

```
http://<servername>/cgi-bin/admin/export_backup.cgi?backup
```

8.24 Upload Files

Note: This request requires Administrator privileges.

Method: POST

Syntax:

For daylight saving time configuration file:

```
http://<servername>/cgi-bin/admin/upload_dst.cgi
```

Post data:

```
filename =<file name>\r\n
\r\n
<multipart encoded form data>
```

For language file:

```
http://<servername>/cgi-bin/admin/upload_lan.cgi
```

Post data:

```
filename =<file name>\r\n
\r\n
<multipart encoded form data>
```

For setting backup file:

```
http://<servername>/cgi-bin/admin/upload_backup.cgi
```

Post data:

```
filename =<file name>\r\n
\r\n
<multipart encoded form data>
```

Server will accept the file named <file name> to upload this one to camera.

8.25 Media on demand (capability.localstorage.modnum > 0)

Media on demand allows users to select and receive/watch/listen to metadata/video/audio contents on demand.

Note: This request requires Viewer access privileges.

Syntax:

```
rtsp://<servername>/mod.sdp?[&stime=<value>][&etime=<value>][&length =<value>][&loctime
=<value>][&file=<value>][&tsmode=<value>]
```

PARAMETER	VALUE	DEFAULT	DESCRIPTION
stime	<YYYYMMDD_HHMMSS.MMM>	N/A	Start time.
etime	<YYYYMMDD_HHMMSS.MMM>	N/A	End time.
length	<positive integer>	N/A	The length of media of interest. The unit is second.
loctime	<boolean>	0	Specify if start/end time is local time format. 1 for local time, 0 for UTC+0
file	<string>	N/A	The media file to be played.
tsmode	<positive integer>	N/A	Timeshift mode, the unit is second.

Ex.

stime	etime	length	file	Description
V	V	X	X	Play recordings between `stime` and `etime` `rtsp://10.10.1.2/mod.sdp?stime=20110312_040400.000&etime=2011_0312_040510.000`
V	X	V	X	Play recordings for `length` seconds which start from `stime` `rtsp://10.10.1.2/mod.sdp?stime=20110312_040400.000&length=120`
X	V	V	X	Play recordings for `length` seconds which ends at `etime` `rtsp://10.10.1.2/mod.sdp?etime=20110312_040400.000&length=120`
X	X	X	V	Play file `file` `rtsp://10.10.1.2/mod.sdp?filename=/mnt/link0/`

8.26 Start wireless connection

Note: This request requires Administrator privileges.

Syntax:

```
http://<servername>/cgi-bin/admin/connect_ap.cgi
```

This command is only used in pure wireless model (e.g., a model without Ethernet. Ex: IP8336W). This command triggers camera to start to connect to a Wi-Fi access point. Before use this command, please setup your wireless settings properly. Note that this command force your camera to switch to DHCP.

8.27 Site survey

Note: This request requires Administrator privileges.

Syntax:

```
http://<servername>/cgi-bin/admin/site_survey.cgi
```

This command is only used in pure wireless model (e.g., a model without Ethernet. Ex: IP8336W) who is using Realtek RTL8188CUS.
This command returns site survey results with the following fomat:

result = [["1st AP's SSID",1st AP's signal strength,"1st AP's encryption / algorithm"], ["2nd AP's SSID",2nd AP's signal strength,"2nd AP's encryption / algorithm"], ..., ["last AP's SSID",last AP's signal strength,"last AP's encryption / algorithm"]];

Ex:
result = [["cerio-gary",68,"WPA2 / AES"],["TP-LINK_710N",42,"None"],["Guest",26,"None"],["Vatics",10,"None"],["Vivotek",0,"None"],["CHT Wi-Fi Auto",0,"WPA2 / AES"],["dlink635",7,"WPA2 / AES"],["TL-WR720N",0,"WPA2 / AES"]];

8.28 Remote Camera Control (capability.remotecamctrl.master > 0)

Note: This request requires Viewer access privileges.

Method: GET/POST

Syntax:

```
http://<servername>/cgi-bin/camctrl/rCamCtrl.cgi?[channel=<value>]
[&x=<value>&y=<value>&r=<value>&videosize=<value>&resolution=<value>&stretch=<value>]
  – Click on image
[&camid=<value>]
[&return=<return page>]
```

Example:

http://myserver/cgi-bin/camctrl/rcamctrl.cgi?channel=0&x=300&y=200&r=100&resolution=1920x1920&videosize=1920x1920&strech=1&camid=0

PARAMETER	VALUE	DESCRIPTION
channel	<0~(n-1)>	Channel of video source.
x	<integer>	x-coordinate clicked by user. It will be the x-coordinate of client side camera after movement.
y	<integer>	y-coordinate clicked by user. It will be the y-coordinate of client side camera after movement.
r	<integer>	radius select by user. It will be the roi view area radius of client side camera after movement and zooming.
videosize	<window size>	The size of plug-in (ActiveX) window in web page
resolution	<window size>	The resolution of streaming.
stretch	<boolean>	0 indicates that it uses **resolution** (streaming size) as the range of the coordinate system. 1 indicates that it uses **videosize** (plug-in size) as the range of the coordinate system.
camid	0,<positive integer>	slave camera ID

return	<return page>	Redirect to the page *<return page>* after the parameter is assigned. The *<return page>* can be a full URL path or relative path according to the current path. If you omit this parameter, it will redirect to an empty page.

Return code: clickimg_return="$Error_code"

Error code	Code - Hexa	Code - Decimal	Description	SysLog message
CLICKIMG_SUCCESS	0x000000C8	200	Success to control auxiliary camera	
ERR_CONNECTION	0x000001F4	500	Controller camera connect to auxiliary camera fail.	PPTZ_Connection fail
ERR_UNSUPPORT_POS	0x000001F5	501	Controller camera can't get the correspond position from mapping table.	PPTZ_Unsupported position
ERR_MODULE_DISABLE	0x000001F6	502	Panoramic PTZ function is disable	PPTZ_Function is disabled
ERR_INVALID_CAM_ID	0x000001F7	503	Invalid auxiliary camera id.	PPTZ_Invalid auxiliary camera ID
ERR_INVALID_FORMAT	0x000001F8	504	Invalid CGI command, if you lost any one of the required parameter, it will cause fail.	PPTZ_Invalid cgi command format

8.29 Upload map file (capability.remotecamctrl.master > 0)

Note: This request requires Admin privileges.
Method: POST

Syntax:

```
http://<servername>/cgi-bin/admin/upload_map.cgi?camid=<value>
– Upload map file
```

Return code
- Upload fail:

```
upload_result=1
upload_msg=<value>
```

- Upload success:

```
upload_result=0
upload_msg=<value>
[ip=<value>] , not exist in map file: default ip = ""
[port=<value>] , not exist in map file: default port = 80
[username=<value>] , not exist in map file : default username = ""
[passwd=<value>] , not exist in map file : default passwd = ""
```

8.30 Export map file (capability.remotecamctrl.master > 0)

Note: This request requires Admin privileges.
Method: GET

Syntax:

```
http://<servername>/cgi-bin/admin/export_map.cgi?camid=<value>
– Export map file
```

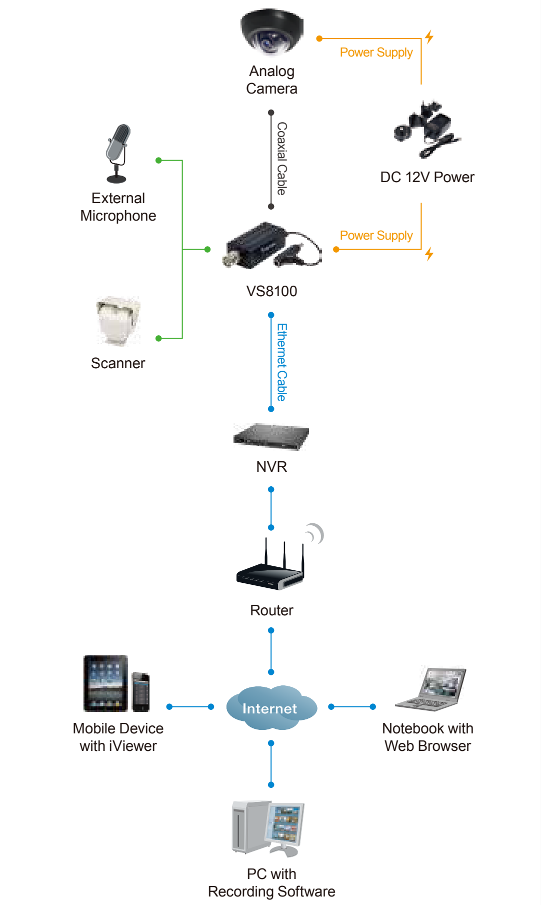
<End of document>

Technical Specifications

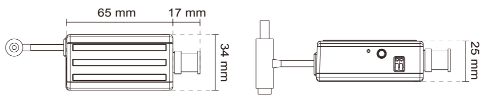
Technical Specifications

Model	VS8100
System Information	
CPU	Multimedia SoC (System-on-Chip)
Flash	16MB
RAM	128MB
Camera Control	
	PTZ camera control through RS-485 Supports CGI command serial driver
Video	
Compression	H.264 & MJPEG
Maximum Frame Rate	30 fps @ 720x480 25 fps @ 720x576 In both compression
Maximum Streams	3 simultaneous streams
Video Streaming	Adjustable resolution, quality and bitrate
Image Settings	Adjustable image size, quality and bit rate Time stamp, text overlay, flip & mirror Configurable brightness, contrast, saturation, sharpness Privacy masks Aspect ratio correction Deinterlace, 2D Noise Reduction
Audio	
Audio Capability	Line in
Compression	G.726, G.711
Interface	3.5mm Phone Jack
Network	
Users	Live viewing for up to 10 clients
Protocols	IPv4, IPv6, TCP/IP, HTTP, HTTPS, UPnP, RTSP/RTP/RTCP, IGMP, SMTP, FTP, DHCP, NTP, DNS, DDNS, PPPoE, CoS, QoS, SNMP, 802.1X
Interface	10Base-T/100 BaseTX Ethernet (RJ-45)
ONVIF	Supported
Intelligent Video	
Video Motion Detection	Triple-window video motion detection
Alarm and Event	
Alarm Triggers	Video motion detection, Video loss/restore detection, periodical trigger, manual trigger, recording notification, system boot, camera tampering detection
Alarm Events	Event notification using HTTP, SMTP, FTP and NAS server File upload via HTTP, SMTP, FTP and NAS server
General	
Connectors	RJ-45 for Network connection Male BNC for Analog video input RS-485 Terminal Block 3.5mm Phone Jack
Supported P/T/Z Protocol	DynaDome/SmartDome, Pelco D, Pelco P, Lilin, Samsung scc643 and customized
LED Indicator	System power and status indicator
Power Input	DC 12V
Power Consumption	Max. 5 W
Dimensions	25mm x 34mm x 65mm
Weight	Net: 64g
Casing	Plastic
Safety Certifications	CE, LVD, FCC Class A, VCCI, C-Tick
Operating Temperature	0°C ~ 50 °C (32°F ~ 122°F)
Warranty	24 months
System Requirements	
Operating System	Microsoft Windows XP/Vista/7/2000
Web Browser	Mozilla Firefox 7~10, Google Chrome, Safari (streaming only) Internet Explorer 7.x or 8.x or 9.x 32 bit
Other Players	VLC: 1.1.11 or above QuickTime: 7 or above
Included Accessories	
Others	Quick installation guide, Warranty card

System Overview



Dimensions



Compatible Accessories

Power Adapter

AA-221

DC 12V Power Adapter

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Ver 1.0

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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

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