

MJPEG/MPEG-4 **VS7100**

# VIDEO SERVER

## *User's Manual*



Product name:	Video Server (VS7100)
Release Date:	2009/07/10
Manual Revision:	2.3
Web site:	<a href="http://www.vivotek.com">www.vivotek.com</a>
Email:	<a href="mailto:technical@vivotek.com">technical@vivotek.com</a> <a href="mailto:sales@vivotek.com">sales@vivotek.com</a>
Made in Taiwan.	©Copyright 2000-2009. All rights reserved

## Before You Use This Product

The use of surveillance devices may be prohibited by law in your country. The Video Server is not only a high-performance web-ready Video Server but also can be part of a flexible surveillance system. It is the user's responsibility to ensure that the operation of such devices is legal before installing this unit for its intended use.

It is important to first verify that all contents received are complete according to the list in the "Package Contents" chapter. Take notice of the warnings in "Quick installation guide" before the Video Server is installed, then carefully read and follow the instructions in the "Installation" chapter to avoid damages due to faulty assembly and installation. This also ensures the product is used properly as intended.

The Video Server is a network device and its use should be straightforward for those who have basic network knowledge. The "Troubleshooting" chapter in the Appendix provides remedies to the most common errors in set up and configuration. You should consult this chapter first if you run into a system error.

The Video Server is designed for various applications including video sharing, general security/surveillance, etc. The "How to Use" chapter suggests ways to best utilize the Video Server and ensure proper operations. For the creative and professional developers, the "URL Commands of The Video Server " chapter serves to be a helpful reference to customize existing homepages or integrating with the current web server.

For paragraphs preceded by  the reader should use caution to understand completely the warnings. Ignoring the warnings may result in serious hazards or injuries.

# Table of Contents

Before You Use This Product.....	2
Package Contents.....	6
Installation.....	7
Hardware installation.....	7
Software installation.....	9
Initial Access to the Video Server.....	10
Check Network Settings.....	10
Add Password to prevent Unauthorized Access.....	10
How to Use.....	11
Authentication.....	11
Installing plug-in.....	12
Primary user's capability.....	13
Main Screen with Camera View.....	13
Digital Zoom.....	15
MP4 Recording.....	16
Snapshot.....	16
Language.....	17
Client settings.....	17
Digital output.....	19
Administrator's capability.....	19
Fine-tuning for Best Performance.....	19
Create accounts for new users.....	22
Build a security application.....	23
Firmware upgrade.....	24
Definitions in Configuration.....	25
System parameters.....	26
Security settings.....	27
Network settings.....	29
Network type.....	29
HTTP.....	30
Two way audio.....	31
FTP.....	31

RTSP Streaming .....	31
DDNS .....	34
Access List .....	35
Audio and Video.....	36
Video Settings.....	36
Audio settings.....	37
Image Settings .....	39
Privacy Mask.....	40
Motion detection .....	41
Camera control .....	44
Preset position .....	47
Custom command .....	49
Homepage layout.....	51
Application.....	52
Event.....	53
Server .....	55
Media .....	56
Recording .....	58
System log.....	60
Viewing system parameters.....	61
Maintenance.....	62
Appendix.....	64
A. Troubleshooting .....	64
Status LED .....	64
Reset and restore .....	64
B. URL commands of the Video Server .....	65
Overview.....	65
Style Convention .....	65
General CGI URL Syntax and Parameters .....	66
Security Level .....	67
Get Server Parameter Values.....	67
Set Server Parameter Values.....	68
Available parameters on the server .....	70
Drive the Digital Output.....	97

Query Status of the Digital Input .....	98
Query Status of the Digital Output .....	99
Capture Single Snapshot .....	100
Account Management .....	101
System Logs .....	102
Upgrade Firmware .....	102
Camera Control (capability.ptzenabled=1) .....	103
Recall (capability.ptzenabled=1) .....	104
Preset Locations (capability.ptzenabled=1) .....	105
System Information .....	105
IP Filtering .....	106
UART HTTP Tunnel Channel (capability.nuart>0) .....	107
Event/Control HTTP Tunnel Channel .....	108
Get SDP of Streams .....	109
Open the Network Stream .....	109
Senddata (capability.nuart>0) .....	110
D. Technical specifications .....	112

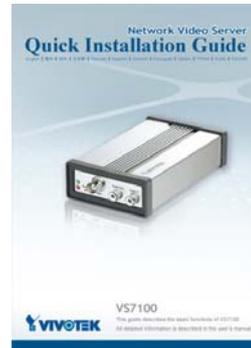
# Package Contents

VS7100



Quick installation guide

Power adapter



I/O Connector



Warranty card

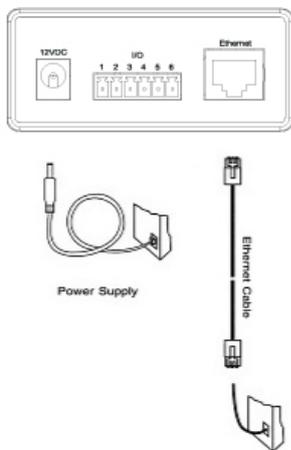


Software CD

# Installation

In this manual, "User" refers to whoever has access to the Video Server, and "Administrator" refers to the person who can configure the Video Server and grant user access to the camera.

## Hardware installation



Please verify that your product package contains all the accessories listed in the foregoing Package Contents. Depending on the user's application, an Ethernet cable may be needed. The Ethernet cable should meet the specs of UTP Category 5 and not exceed 100 meters in length.

If you would like to fix the Video Server on the rack, the screw type M3\*5mm is suggested to use for fix.

**⚠** Connect the power adapter jack to the Video Server before plugging in to the power socket. This will reduce the risk of accidental electric shock.

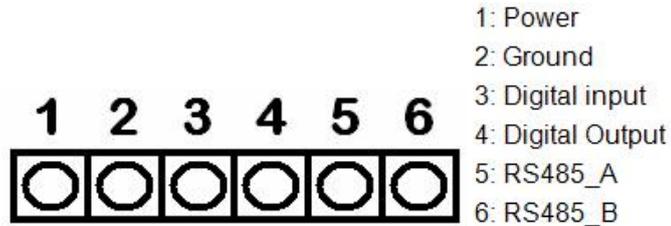
Upon powering up, the green LED will blink twice and then the red LED will be steady lighted. While executing startup scripts, both the LEDs will be lighted. After setting up network, the LED will blink green every second and the red-color is always on.

The Video Server will first detect Ethernet. Operating in ether network mode, the LED will blink green-color as heartbeat to indicate alive.

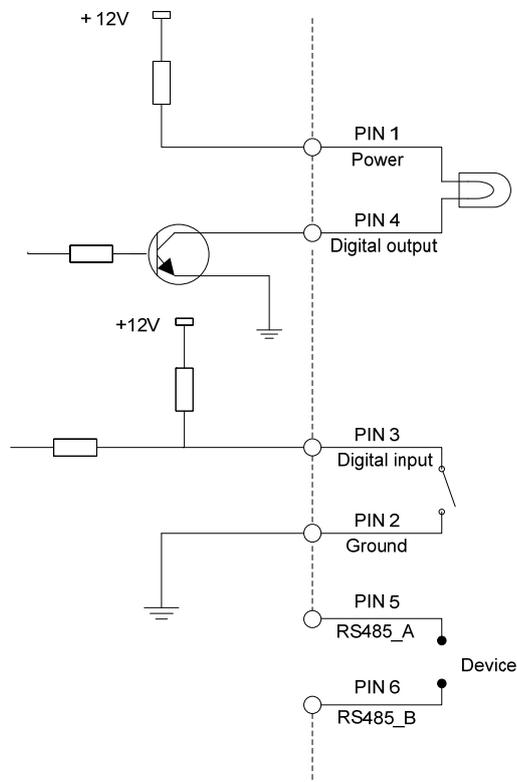
### To install in Ethernet

Make sure the Ethernet is firmly connected to a switch hub. After attaching the Ethernet cable plug in the power adapter. If the LED turns out to blink green-color, go to next paragraph "Software installation".

This Video Server provides a general I/O terminal block with one digital input and one digital output device control. The pin definition is as below.



Pin	Name	Specification	Remarks
1	Power	12VDC $\pm$ 5%, max. 1.5A	Max. rating 2A
2	Ground		
3	Digital input	OPEN/Short-to-GND, isolation 2kV	Internal pull-up
4	Digital output	Max. 40VDC, max. 400mA, isolation 2kV	
5	RS485_A	100 $\Omega$ termination	
6	RS485_B	100 $\Omega$ termination	



## Software installation

At the end of the hardware installation, users can use Installation Wizard program included in the product CDROM to find the location of the Video Server. There may be many Video Servers in the local network. Users can differentiate the Video Server with the MAC. The MAC is printed on the labels on the back of the Video Server body. Please refer to the user's manual of Installation Wizard 2 for detail.

**Once installation is complete, the Administrator should proceed to the next section "Initial access to the Video Server" for necessary checks and configurations.**

## Initial Access to the Video Server

### Check Network Settings

The Video Server can be connected either before or immediately after software installation onto the Local Area Network. The Administrator should complete the network settings on the configuration page, including the correct subnet mask and IP address of gateway and DNS. Ask your network administrator or Internet service provider for the detail information. By default the Video Server requires the Administrator to run installation every time it reboots. If the network settings are to remain unchanged, disable the Install option. Refer to "Network settings" on the System Configuration page for details. If any setting is entered incorrectly and cannot proceed to setting up the Video Server, restore the factory settings following the steps in the "Troubleshooting" chapter of the Appendix.

### Add Password to prevent Unauthorized Access

The default Administrator's password is blank and the Video Server initially will not ask for any password. The Administrator should immediately implement a new password as a matter of prudent security practice. Once the Administrator's password is saved, the Video Server will ask for the user's name and password before each access. The Administrator can set up a maximum of twenty (20) user accounts. Each user can access the Video Server except to perform system configuration. Some critical functions are exclusive for the Administrator, such as system configuration, user administration, and software upgrades. The user name for the Administrator is permanently assigned as "root". Once the password is changed, the browser will display an authentication window to ask for the new password.

**Once the password is set, there is no provision to recover the Administrator's password. The only option is to restore to the original factory default settings.**

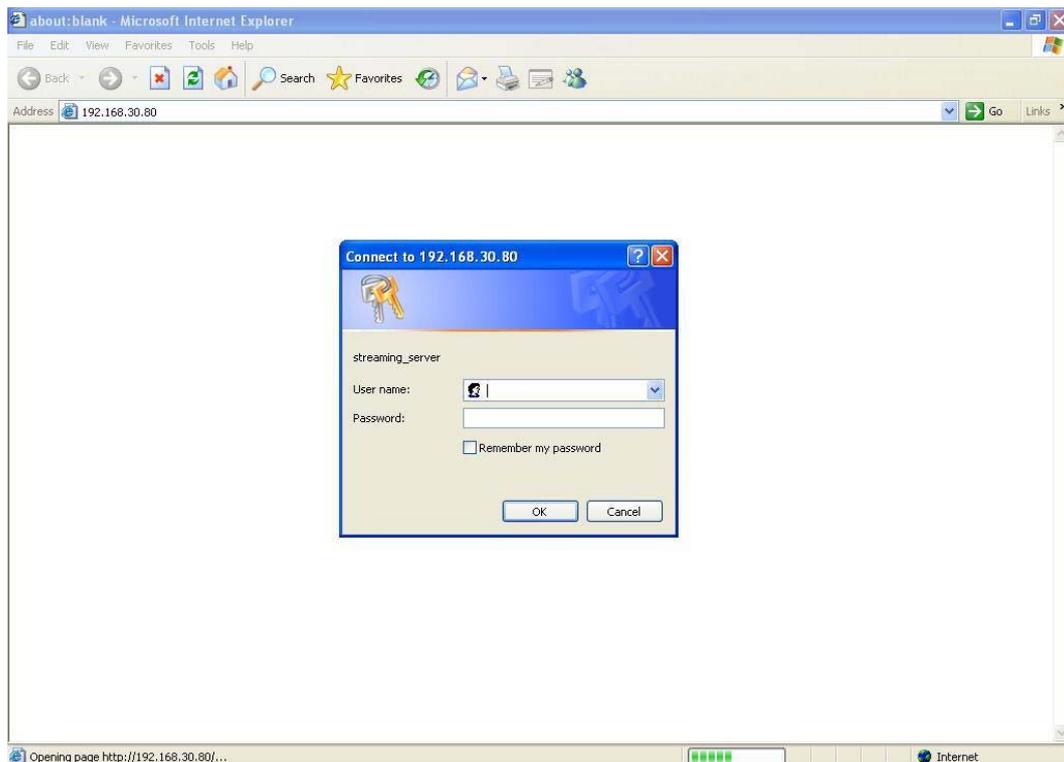
## How to Use

A PC with Windows operating system can use the Internet Explorer to connect to the Video Server. A plug-in will be installed into the IE when it is connected for the first time. A PC with Linux operating system can connect to the Video Server using a browser like Firefox. It needs to install QuickTime first to view streaming.

## Authentication

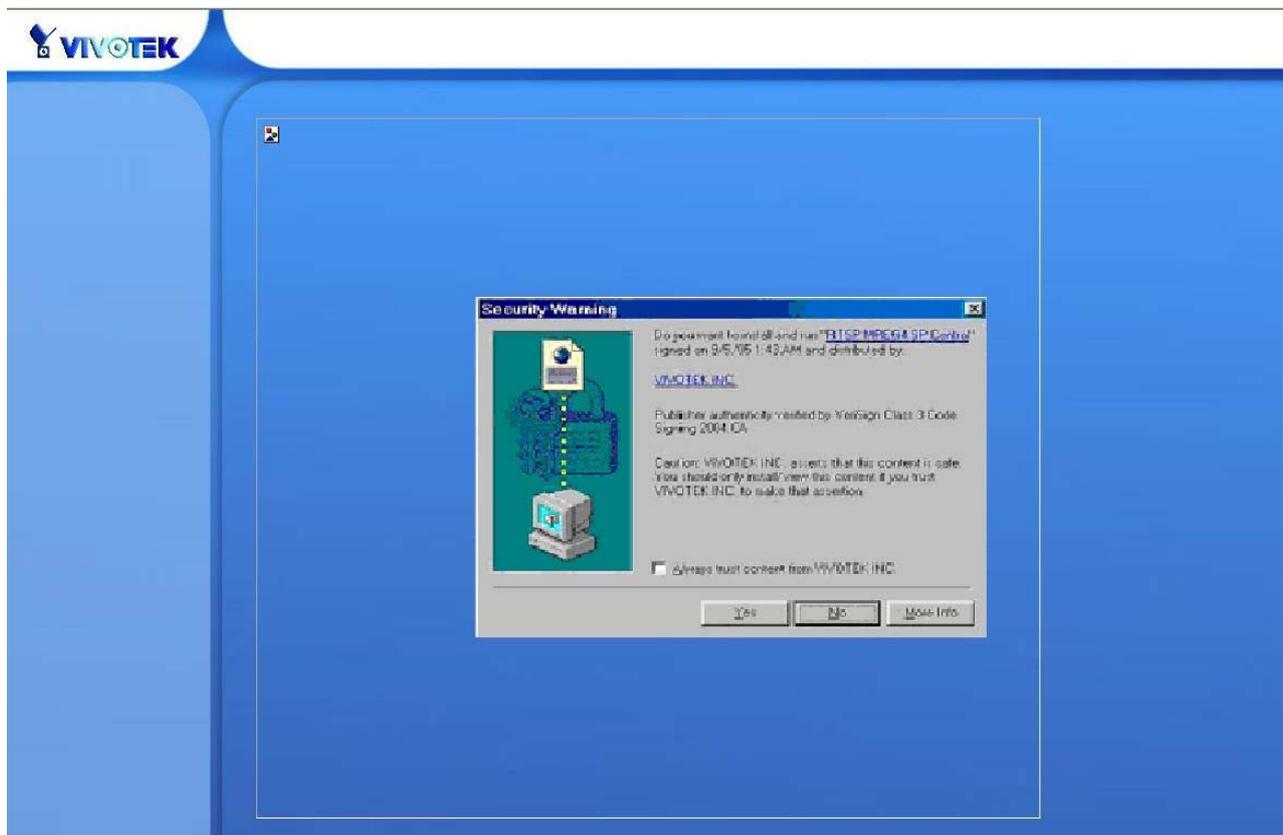
After opening the Web browser and typing in the URL of the Video Server, a dialogue window pops up to request a username and password. Upon successful authentication, the following figure is displayed.

The foreground is the login window and the background shows the message if authentication fails. The user may check the option box to save the password for future convenience. This option is not available to the Administrator for obvious reason.



## Installing plug-in

For the initial access to the Video Server in Windows, the web browser may prompt for permission to install a new plug-in for the Video Server when the Internet Explorer. Permission request depends on the Internet security settings of the user's PC or notebook. If the highest security level is set, the computer may prohibit any installation and execution attempt. This plug-in has been registered for certificate and is used to display the video in the browser. Users may click on  to proceed. If the web browser does not allow the user to continue to install, check the Internet security option and lower the security levels or contact your IT or networking supervisor for help.

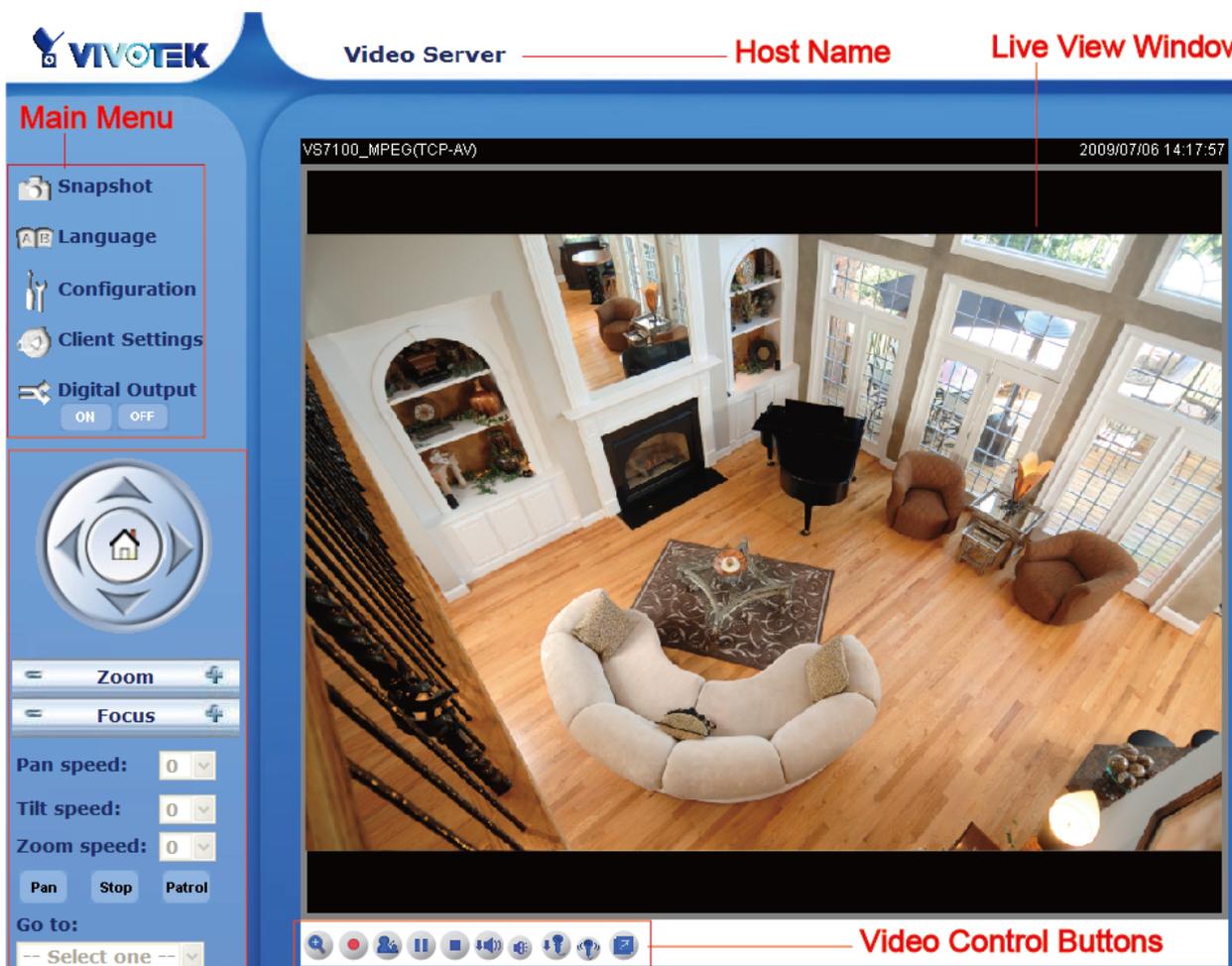


## Primary user's capability

### Main Screen with Camera View

Basic functions are displayed in the homepage of Video Server. Click on the configuration link which on the left of the image window to access the configuration page.

Here is the layout in IE when it is MPEG-4 streaming.



The screenshot displays the VIVOTEK Video Server interface. At the top, it shows "Video Server" and "Host Name". The main area is a "Live View Window" showing a high-angle view of a living room with a fireplace, a piano, and a large sofa. The interface includes a "Main Menu" on the left with options like Snapshot, Language, Configuration, Client Settings, and Digital Output. Below the menu are camera control buttons for Zoom, Focus, Pan speed, Tilt speed, and Zoom speed. At the bottom, there are "Video Control Buttons" and "Custom Commands for PTZ Camera" (up/down).

**Main Menu**

- Snapshot
- Language
- Configuration
- Client Settings
- Digital Output  
ON OFF

**Video Server** ————— **Host Name** **Live View Window**

VS7100\_MPEG(TCP-AV) 2009/07/06 14:17:57

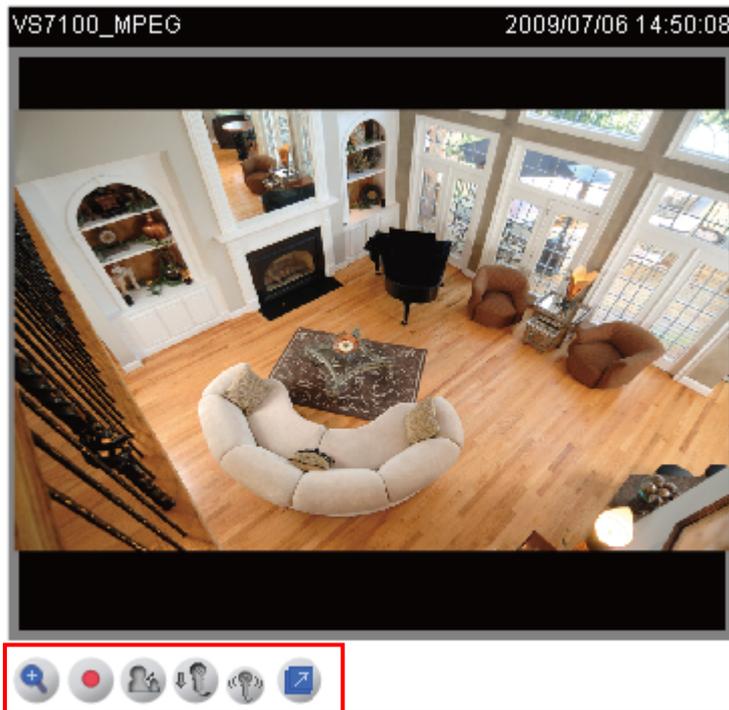
**Video Control Buttons**

**Custom Commands for PTZ Camera**

**Camera Control Buttons**

Users can control the motorized camera in pan and tilt direction as well as zoom and focus. The home button can return the camera to the center position if the camera supports this command. Besides the near and far control in focus, a "Focus" button is provided for setting auto focus mode. To move the motorized camera more precisely, speed control of pan and tilt allows users to fine tune the aiming position.

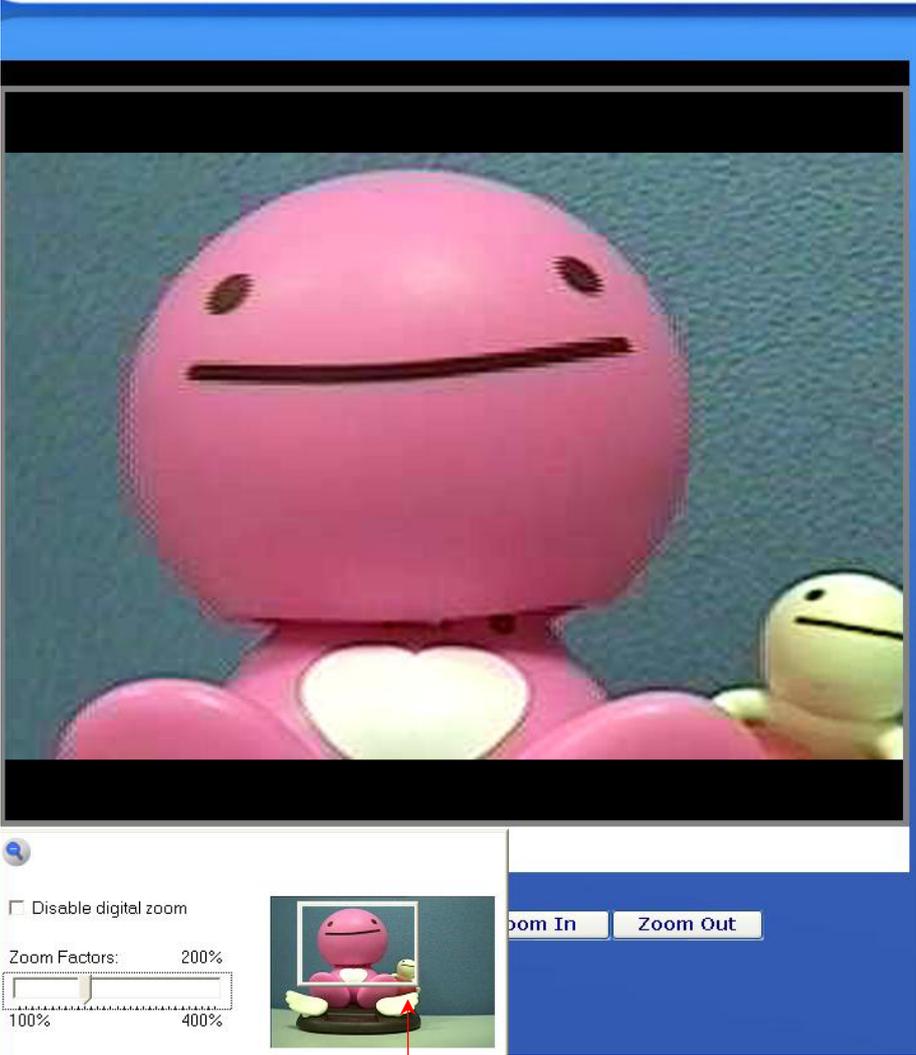
The plugin function will be a little different when it is in Motion JPEG streaming.



## Digital Zoom

Click on the magnifier icon under the camera view then the digital zoom control panel will be shown. Uncheck "Disable digital zoom" and use the slider control to change the zoom factors.

**Video Server**



**Digital zoom switch** →  Disable digital zoom

**Slider control to change the zoom factors** → Zoom Factors: 200%  
100% 400%

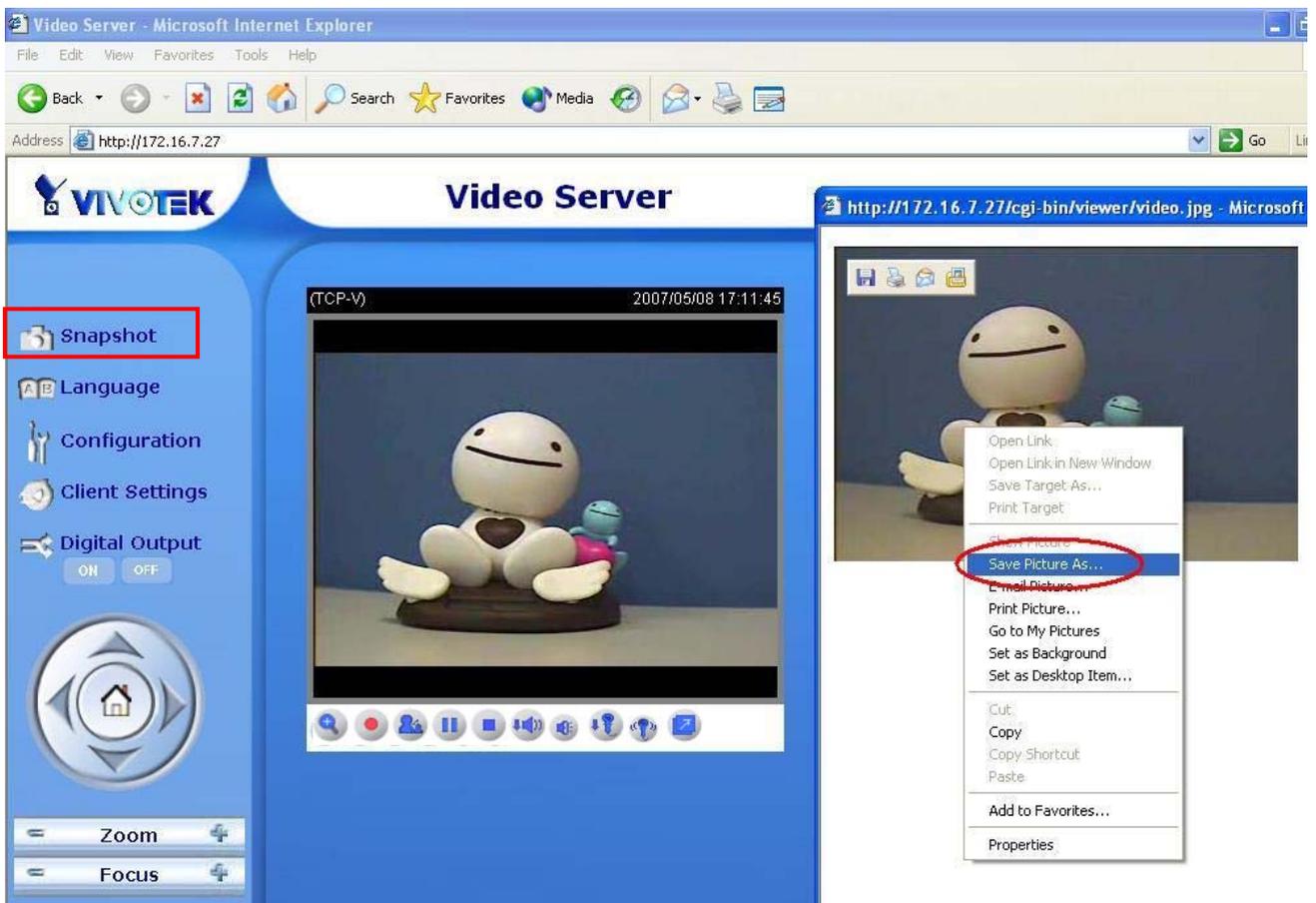
**Select zoom-in area by resize this sliding window**

## MP4 Recording

Click on the red circle button  on the plugin to start MP4 recording. You can set the related options in client setting page.

## Snapshot

Click on “**Snapshot**”, web browser will pop up a new window to show the snapshot. Users can point at the snapshot and click the right button of mouse to save it.



## Language

Click on the language, all supported languages are shown in the drop-down list. The user can choose the different display language. Supports multi-languages interfaces up to nine languages, including English, German, Spanish, French, Italian, Japanese, Portuguese, Simplified Chinese, and Traditional Chinese.

## Client settings

**>Client Settings**

**Stream Options**

Stream 1  
 Stream 2

**MPEG-4 Media Options**

Video and Audio  
 Video Only  
 Audio Only

Enable deinterlace

**MPEG-4 Protocol Options**

UDP Unicast  
 UDP Multicast  
 TCP  
 HTTP

**MP4 Saving Options**

Folder:

File name prefix:

Add date and time suffix to file name

There are four settings for the client side in IE. The first one is “**Stream Options**” for users to determine which stream to be streaming. This product supports dual-stream. Therefore, there are two streams to choose. The second one is “**Media Options**”. for users to determine which media to be streaming under MPEG-4 mode; and you can check the “Enable Deinterlace” to improve image quality in the high resolution, it may increase the system loading. The third one is “**Protocol Options**” which allows choices on connection protocol between client and server. There are four protocols choices to optimize your usage – UDP unicast, UDP multicast, TCP and HTTP.

The **UDP unicast** protocol allows for more real-time audio and video streams. However, some packets may be lost due to network burst traffic and images may be obscured. The **UDP multicast** protocol allows to save the bandwidth of server while serving multiple clients at the same time.

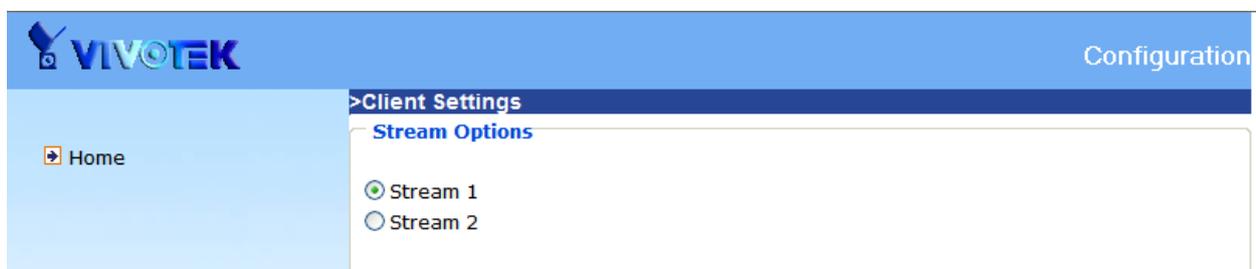
The **TCP** protocol allows for less packet loss and produces a more accurate video display. The downside with this protocol is that the real-time effect is worse than that with the UDP protocol.

The **HTTP** protocol allows the same quality as TCP protocol and the user don’t need to open specific port to streaming under some network environment.

If no special need is required, UDP unicast protocol is recommended. Generally speaking, the client’s choice will be in the order of UDP multicast → UDP unicast → TCP → HTTP. After the Video Server is connected successfully, “Protocol Option” will indicate the selected protocol. The selected protocol will be recorded in the user’s PC and will be used for the next connection. If the network environment is changed, or the user wants to let the web browser to detect again, manually select the UDP protocol, save, and return HOME to re-connect.

The fourth one is “**Save Options**”. User can specify the recording folder, file name prefix and suffix here.

There is only one setting “**Stream Options**” for the client side in Firefox. User can choose to view stream1 and stream2.



<url> http://<Video Server>/clientset.html

<Video Server> is the domain name or the original IP address of the Video Server.

## **Digital output**

Click on “**ON**”, the digital output of the Video Server will be triggered. Or, Clicking on “**OFF**” can let the digital output turn into normal state.

## **Administrator’s capability**

### **Fine-tuning for Best Performance**

Best performance generally equates to the fastest image refresh rate with the best video quality, and at the lowest network bandwidth as possible. The four factors, “Maximum frame rate”, “Intra frame period”, “Constant bit rate”, and “Fix quality” for MPEG-4 mode and “Maximum frame rate” and “Video quality” for JPEG mode on the Audio and Video Configuration page, are correlative to allow for achieving the best performance possible.

## >Audio and video

**Video settings**

Video title:

Color:  ▼

Video orientation:  Flip  Mirror

Modulation:  ▼

Overlay title and time stamp on video and snapshot.

Video quality settings for stream 1

Frame mode

Mode:  ▼

Frame size:  ▼

Maximum frame rate:  ▼

Intra frame period:  ▼

Video quality

Constant bit rate:  ▼

Fixed quality:  ▼

Video quality settings for stream 2

Frame mode

Mode:  ▼

Frame size:  ▼

Maximum frame rate:  ▼

Intra frame period:  ▼

Video quality

Constant bit rate:  ▼

Fixed quality:  ▼

**Audio Settings**

Mute

Input gain:  ▼

Audio type:  AAC  GSM-AMR

AAC bit rate:  ▼

GSM-AMR bit rate:  ▼

### ***For Viewing by Mobile Phone***

Most 3GPP cell phone supports media streaming with MPEG4 video and GSM-AMR audio. Due to the limitation of the bandwidth for 3GPP, only QCIF (176x120 NTSC, 176x144 PAL) video solution will be supported for cell phone viewing. Please set related video settings first as mentioned when viewing by mobile phone.

### ***For Best Real-time Video Images***

To achieve good real-time visual effect, the network bandwidth should be large enough to allow a transmission rate of greater than 20 image frames per second. If the broadband network is over 1 Mbps, set the "Fix bit rate" to 1000Kbps or 1200Kbps, or set "Fix quality" at the highest quality. The maximum frame rate is 30. If your network bandwidth is more than 512Kbps, you can fix the bit rate according to your bandwidth and set the maximum frame rate to 30 fps. If the images vary dramatically in your environment, you may want to slow the maximum frame rate down to 20 fps in order to lower the rate of data transmission. This allows for better video quality and the human eyes cannot readily detect the differences between those of 20, 25, or 30 frames per second. If your network bandwidth is below 512 Kbps, set the "Fix bit rate" according to your bandwidth and try to get the best performance by fine-tuning with the "Maximum frame rate". In a slow network, greater frame rate results in blur images. Video quality performance will vary somewhat due to the number of users viewing on the network; even when the parameters have initially been finely tuned. Performance will also suffer due to poor connectivity because of the network's burst constraint.

### ***Only Quality Images Will Do***

To have the best video quality, you should set "Fix quality" at "Detailed" or "Excellent" and adjust the "Maximum frame rate" to match your network's bandwidth. If your network is slow and you receive "broken" pictures, go to the TCP or HTTP protocol in "Protocol Options" and choose a more appropriate mode of transmission. The images may suffer a time delay due to a slower connection. The delay will also increase with added number of users.

### ***Somewhere Between Real-time and Clear Images***

If you have a broadband network, set "Fix quality" at "Normal" or better, rather than setting "Constant bit rate". You can also fix the bandwidth according to your actual network speed and adjust the frame rate. Start from 30 fps down for best results but not below 15 fps. If the image qualities are not improved, select a lower bandwidth setting.

## Create accounts for new users

> Security

**Root Password**

Note: Leaving the root password field empty means the camera will not be protected by password.

Root Password:

Confirm root password:

Save 1

**Add User**

User name:

User password:

User type:

Administrator  
 Operator  
 Viewer

Add 2

**Manage User**

User name:

User password:

User type:

Administrator  
 Operator  
 Viewer

Save Delete 3

### ***Protect Video Server by passwords***

The Video Server is shipped without any password by default. That means everyone can access the Video Server including the configuration as long as the IP address is known. It is necessary to assign a password if the Video Server is intended to be accessed by others. Type a new password twice in ① to enable protection. This password is used to identify the administrator. Then add an account with user name, password and authentication for your friends in ②. You can edit or delete users from ③.

## Build a security application

The Administrator can use the built-in motion detection to monitor any movement to perform many useful security applications. To upload the snapshots, users can choose either email, FTP, HTTP, or Network storage according to user's needs. All servers setting are in Server section on Application page. Refer to the definition section for detail configuration.

1. Click on "**Configuration**" on homepage,
2. Click on "**Motion detection**" at the left column,
3. Check "Enable motion detection",
4. Click on new to have a new window to monitor video,
5. Type in a name to identify the new window,
6. Use the mouse to click, hold, and drag the window corner to resize or the title bar to move,
7. Fine-tune using the "Sensitivity" and "Percentage" fields to best suit the camera's environment. Higher "Sensitivity" detects the slighter motion. Higher "Percentage" discriminates smaller objects,
8. Clicking on "Save" enables the activity display. Green means the motion in the window is under the watermark set by Administrator and red means it is over the watermark,
9. Click on "**Application**" at the left column,
10. Add a server in server section. VS7100 provides four server types, Email, FTP, HTTP, and Network storage.
11. Add a media with snapshot type in media section. And Set the number of pre-event and post-event images to be uploaded
12. Add an event in event section
  - Enter one event name and enable this event.
  - Check the weekdays as you need and give the time interval to monitor the motion detection every day,
  - Select the Trigger on Motion detection and Check the window name set in step 5
  - Set the appropriate delay time to avoid continuous false alarms following the

original event

- Check the server name set in Step 10 and select the media name set in Step 11.

13. Click on save to validate.

## Firmware upgrade

Click on "Maintenance" at the left column. This feature allows you to upgrade the firmware of your Video Server. It takes a few minutes to complete the process.

**Note: Do not power off the Video Server 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 specify the firmware file.
3. Click **Upgrade**. The Video Server starts to upgrade and will reboot automatically when the upgrade completes.



If power fails during the writing process of Flash memory, the program in the memory of the Video Server may be destroyed permanently. If the Video Server cannot restart properly, ask your dealer for technical service.

# Definitions in Configuration

Only the Administrator can access system configuration. Each category in the left column will be explained in the following pages. The bold texts are the specific phrases on the Option pages. The Administrator may type the URL below the figure to directly enter the frame page of configuration. If the Administrator also wants to set certain options through the URL, read the reference appendix for details.

**>System**

**System**

Host name:

Turn off the LED indicator

**System Time**

Enable Daylight Saving Time  
*Note: You can upload your Daylight Saving Time rules on [Maintenance](#) page or use the camera default value.*

Time zone:

Keep current date and time

Synchronize with computer time  
Computer date:   
Computer time:

Manual  
Date:[yyyy/mm/dd]   
Time:[hh:mm:ss]

Automatic  
NTP server:   
Updating interval:

**DI and DO**

Digital input: The active state is  ; the current state detected is Normal  
Digital output: The active state is  ; the current state detected is Normal

<url> http://<Video Server>/setup/system.html

<Video Server> is the domain name or original IP address of the Video Server.

## System parameters

**"Host name"** The text displays the title at the top of the main page.

**"Turn off the LED indicator"** Check this option to shut off the LED on the front. It can prevent the Video Server's operation being noticed.

**"Time zone"** Adjust the time with that of the time-servers for local settings.

**"Keep current date and time"** Click on this to reserve the current date and time of the Video Server. An internal real-time clock maintains the date and time even when the power of the system is turned off.

**"Sync with computer time"** Synchronizes 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"** Adjust the date and time according to what is entered by the Administrator. Notice the format in the related fields while doing the entry.

**"Automatic"** Synchronize with the NTP server over the Internet whenever the Video Server starts up. It will fail if the assigned time-server cannot be reached.

**"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 hourly, daily, weekly, or monthly update with the time on the NTP server.

**"Digital input"** Select High or Low to define normal status of the digital input. The current status is shown, too.

**"Digital output"** Select Grounded or Open to define normal status of the digital output. The current status is shown, too.

Remember to click on  to immediately validate the changes. Otherwise, the correct time will not be synchronized.

## Security settings

**“Root password”** Change the Administrator’s password by typing in the new password identically in both text boxes. The typed entries will be displayed as asterisks for security purposes. After pressing , the web browser will ask the Administrator for the new password for access.

**“Add user”** Type the new user’s name and password and press  to insert the new entry (“user” this name is reserved for maintenance). The new user will be displayed in the user name list. There is a maximum of twenty user accounts. There are three kinds of authentication: Administrator, Operator and Viewer. Administrator can fully control the camera operation. Operator’s access right can modify most of camera’s parameters except some privilege and network options. Viewer can view, listen and talk to camera; control dido, ptz of camera. Video Server can provide twenty accounts for your valuable customers or friends.

**“Manage user”** Pull down the user list to find the user’s name and press  to delete the selected user. Or edit the password or authentication of the selected user and press  to take effect.

>Security

**Root Password**

Note: Leaving the root password field empty means the camera will not be protected by password.

Root Password:

Confirm root password:

Save

**Add User**

User name:

User password:

User type:

- Administrator  
 Operator  
 Viewer

Add

**Manage User**

User name:

User password:

User type:

- Administrator  
 Operator  
 Viewer

Save

Delete

<url> <http://<Video Server>/setup/security.html>

<Video Server> is the domain name or original IP address of the Video Server.

## Network settings

Any changes made on the Network type section will restart the system in order to validate the changes. Make sure every field is entered correctly before clicking on .

### Network type

#### **"LAN" & "PPPoE"**

The default type is LAN. Select PPPoE if using ADSL

#### **"Get IP address automatically" & "Use fixed IP address"**

The default status is **"Get IP address automatically"**. This can be tedious having to perform software installation whenever the Video Server starts. Therefore, once the network settings, especially the IP address, have been entered correctly, select **"Use fixed IP address"** then the Video Server will skip installation at the next boot. The Video Server can automatically restart and operate normally after a power outage. Users can run IP installer to check the IP address assigned to the Video Server if the IP address is forgotten or using the UPnP function provided by the Video Server (MS Windows XP provides UPnP function at **My Network Place**). **"IP address"** This is necessary for network identification.

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

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

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

**"Secondary DNS"** Secondary domain name server that backups the Primary DNS.

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

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

**“Enable UPnP presentation”** Enable the UPnP Video Server short cut

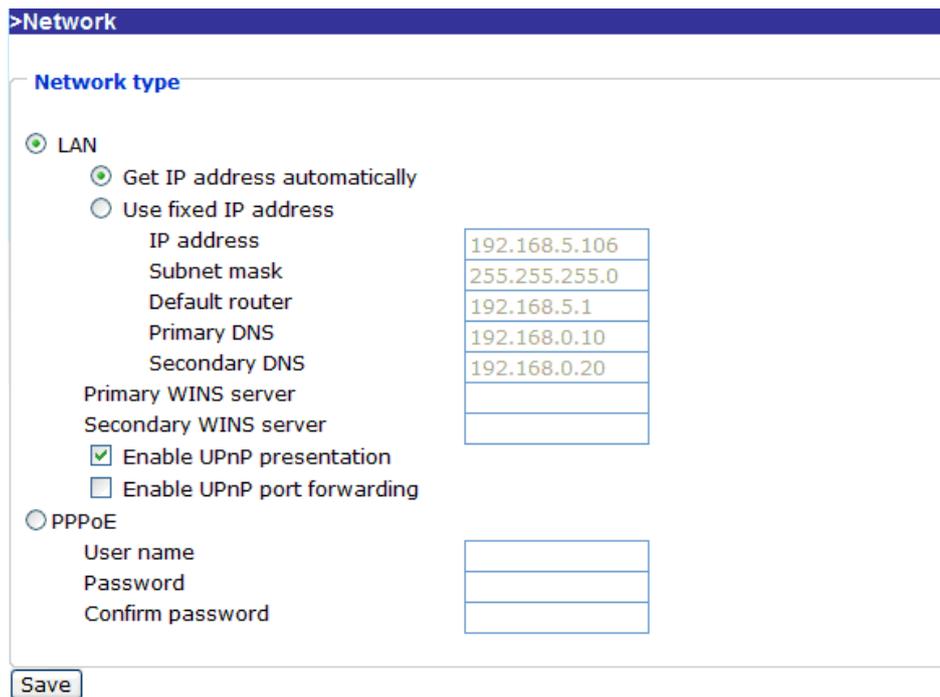
**“Enable UPnP port forwarding”** Enable UPnP port forwarding

**“PPPoE”** If using the PPPoE interface, fill the following settings from ISP

**“User name”** The login name of PPPoE account

**“Password”** The password of PPPoE account

**“Confirm password”** Input password again for confirmation



The screenshot shows a web-based configuration interface for network settings. The title bar is labeled ">Network". Under the heading "Network type", there are two main options: "LAN" (selected with a radio button) and "PPPoE" (unselected). Under "LAN", there are two sub-options: "Get IP address automatically" (selected) and "Use fixed IP address" (unselected). The "Use fixed IP address" section includes several input fields: "IP address" (192.168.5.106), "Subnet mask" (255.255.255.0), "Default router" (192.168.5.1), "Primary DNS" (192.168.0.10), and "Secondary DNS" (192.168.0.20). Below these are fields for "Primary WINS server" and "Secondary WINS server". There are also checkboxes for "Enable UPnP presentation" (checked) and "Enable UPnP port forwarding" (unchecked). The "PPPoE" section includes fields for "User name", "Password", and "Confirm password". A "Save" button is located at the bottom left of the configuration area.

## HTTP

**“Authentication”** It supports basic and digest modes.

**“Http port”** This can be other than the default Port 80. Once the port is changed, the users must be notified the change for the connection to be successful. For instance, when the Administrator changes the HTTP port of the Video Server whose IP address is 192.168.0.100 from 80 to 8888, the users must type in the web browser “http://192.168.0.100:8888” instead of “http://192.168.0.100”.

**“Secondary Http port”** It support alternate port to access HTTP server.

**“Access name for stream 1”** This is the access URL of stream 1 for making connection from client software when its codec type is JPEG.

**“Access name for stream 2”** This is the access URL of stream 2 for making connection from client software when its codec type is JPEG.

Using `http://<ip address>:<http port>/<access name>` to make connection.

## Two way audio

**“Two way audio port”** This can be other than the default port 5060. The user can change this value from 1025 to 65535. After the changed, the external Two-Way audio client program must change the server port of connection accordingly.

## FTP

**“FTP port”** This can be other than the default port 21. The user can change this value from 1025 to 65535. After the changed, the external FTP client program must change the server port of connection accordingly.

HTTP	
Authentication:	basic ▾
HTTP port	80
Secondary HTTP port	8080
Access name for stream 1	video.mjpg
Access name for stream 2	video2.mjpg

Two way audio	
Two way audio port	5060

FTP	
FTP port	21

## RTSP Streaming

**“Authentication”** It supports disable, basic and digest modes.

**“Access name for stream 1”** This is the access URL of stream 1 for making connection from client software when the codec type is MPEG-4.

**“Access name for stream 2”** This is the access URL of stream 2 for making connection from client software when the codec type is MPEG-4.

Using `rtsp://<ip address>/<access name>` to make connection

**“RTSP port”** This can be other than the default Port 554

**“RTP port for video”** The video channel port for RTP. It must be even number.

**“RTCP port for video”** The video channel port for RTCP. It must be the port number of video RTP plus 1.

**“RTP port for audio”** The audio channel port for RTP. It must be even number.

**“RTCP port for audio”** The video channel port for RTCP. It must be the port number of video RTP plus 1.

User can modify Multicast setting for stream1 and stream2.

**“Always multicast”** Select it to enable multicast always.

**“Multicast group address”** It is used by sources and the receivers to send and receive content.

**“Multicast video port”** The video channel port for multicast. It must be even number.

**“Multicast RTCP video port”** The video channel port for multicast RTCP. It must be the port number of multicast video port plus 1.

**“Multicast audio port”** The audio channel port for multicast. It must be even number.

**“Multicast RTCP audio port”** The audio channel port for multicast RTCP. It must be the port number of multicast audio port plus 1.

**“Multicast TTL”** It specifies the number of routers (hops) that multicast traffic is permitted to pass through before expiring on the network.

**RTSP Streaming**

Authentication:	disable ▾
Access name for stream 1	live.sdp
Access name for stream 2	live2.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	
<input type="checkbox"/> 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	
<input type="checkbox"/> 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

<url> <http://<Video Server>/setup/network.html>

<Video Server> is the domain name or original IP address of the Video Server.

## DDNS

**“Enable DDNS”** This option turns on the DDNS function.

**“Provider”** The provider list contains four hosts that provide DDNS services. Please connect to the service provider’s website to make sure the service charges.

**“Host Name”** If the User wants to use DDNS service, this field must be filled. Please input the hostname that is registered in the DDNS server.

**“Username/E-mail”** The Username or E-mail field is necessary for logging in the DDNS server or notify the User of the new IP address. Note: when this field is input as “Username” the following field must be input as “Password”.

**“Password/Key”** Please input the password or key to get the DDNS service.

**“Save”** Click on this button to save current settings for the DDNS service and UPnP function.



The screenshot shows the VIVOTEK Configuration page for DDNS. The left sidebar contains a menu with options: Home, System, Security, Network, DDNS, Access list, Audio and video, Motion detection, Camera control, Homepage layout, Application, Recording, System log, View parameters, and Maintenance. The main content area is titled "DDNS" and "DDNS: Dynamic domain name service". It includes a checkbox for "Enable DDNS", a "Provider" dropdown menu set to "Dyndns.org(Dynamic)", and three input fields for "Host name", "User name", and "Password". A "Save" button is located at the bottom left of the form.

<url> <http://<Video Server>/setup/ddns.html>

<Video Server> is the domain name or original IP address of the Video Server.

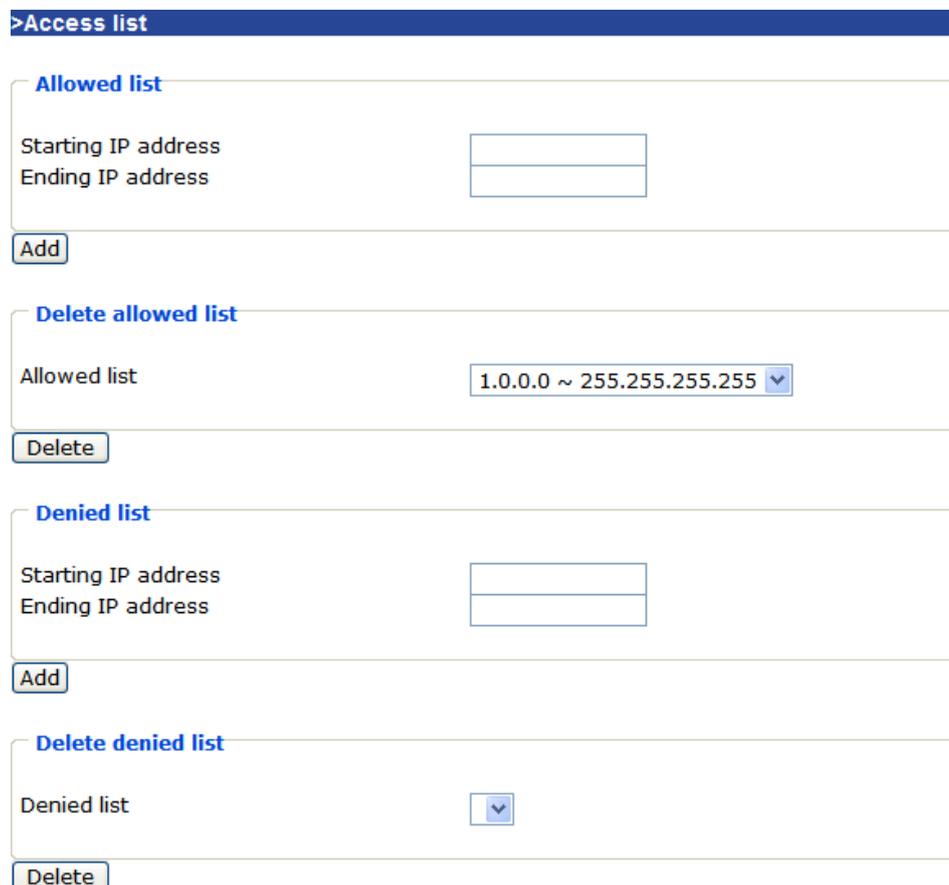
## Access List

The access list is to control the access permission of clients by checking the client IP address.

There are two lists for permission control: **Allow List** and **Deny List**. Only those clients whose IP address is in the **Allow List** and not in the **Deny List** can connect to the Video Server for receiving the audio/video streaming.

Both **Allow List** and **Deny List** consist of a list of IP ranges. If you want to add a new IP address range, type the **Start IP Address** and **End IP Address** in the text boxes and click on the **Add** button. If you want to remove an existing IP address range, just select from the pull-down menu and click on the **Delete** button.

Both the Allow List and Deny List can have 10 entries.



The screenshot shows a web interface titled ">Access list" with a blue header. It contains four main sections:

- Allowed list:** A form with two input fields for "Starting IP address" and "Ending IP address", and an "Add" button below.
- Delete allowed list:** A form with a dropdown menu labeled "Allowed list" showing "1.0.0.0 ~ 255.255.255.255" and a "Delete" button below.
- Denied list:** A form with two input fields for "Starting IP address" and "Ending IP address", and an "Add" button below.
- Delete denied list:** A form with a dropdown menu labeled "Denied list" and a "Delete" button below.

<url> <http://<Video Server>/setup/accesslist.html>

<Video Server> is the domain name or original IP address of the Video Server.

## Audio and Video

This product supports dual-stream. It provides two settings for video streams, but only one setting for audio.

### Video Settings

**“Video title”** The text string can be displayed on video

**“Color”** Select either for color or monochrome video display.

**“Video orientation”** Check **“Flip”** to vertically rotate the video and **“Mirror”** to horizontally rotate the video. Check options both if the camera is installed upside down.

**“Modulation”** Select the video input modulation types, NTSC, PAL, and Auto. After Change the modulation type, please reboot the video server to make the change take effect.

**“Overlay title and time stamp on video and snapshot”** Check it the title is shown on video and snapshot.

There are different video quality settings for stream1 and stream2:

**“Frame mode”** When frame mode is checked, VS7100 converts interlaced pictures to progressive pictures.

**“Mode”** It can be MPEG-4 or JPEG. If MPEG-4 is selected, it is streamed in RTSP protocol. If JPEG is selected, it is streamed in server push mode.

**“Frame Size”** Both MPEG-4 and JPEG have three options, including **“QCIF (176x120 NTSC and 176x144 PAL)”**, **“CIF (352x240 NTSC and 352x288 PAL)”**, and **“4CIF (704x480 NTSC and 704x576 PAL)”**.

**“Max frame rate”** User can select the maximal refresh frame rate. VS7100 now supports up to 30 fps.

There are two dependent parameters provided in MPEG-4 mode for video performance adjustment.

**“Intra frame period”** The interval of intra frame.

**“Video quality”** VS7100 allows users to adjust the video quality for speed or smoothness. The performance is also a subject to the network bandwidth and the

number of users. Choose **“Constant bit rate”** if the user wants to fix the bandwidth utilization regardless of the video quality, choose **“Fixed quality”** and select the desired bandwidth from **“Medium”** to **“Excellent”**. **“Medium”** quality means the picture has the quickest refresh rate but the worst image quality and **“Excellent”** quality means the picture has the slowest refresh rate but the best image quality. The video quality may be poor due to the sending of maximal frame rate within the limited bandwidth when images are moving rapidly. Consequently, to ensure detailed video quality (quantization rate) regardless of the network, it will utilize more bandwidth to send the maximal frames when images change drastically.

In JPEG mode, user can only set **“Video quality”** to adjust the video performance.

## Audio settings

**“Mute”** To turn off audio.

**“Input gain”** Modify the gain of the audio input.

**“Audio type”** Select audio codec **“AAC”** or **“GSM-AMR”** and the corresponding bit rate.

>Audio and video

**Video settings**

Video title:

Color:  ▼

Video orientation:  Flip  Mirror

Modulation:  ▼

Overlay title and time stamp on video and snapshot.

Video quality settings for stream 1

Frame mode

Mode:  ▼

Frame size:  ▼

Maximum frame rate:  ▼

Intra frame period:  ▼

Video quality

Constant bit rate:  ▼

Fixed quality:  ▼

Video quality settings for stream 2

Frame mode

Mode:  ▼

Frame size:  ▼

Maximum frame rate:  ▼

Intra frame period:  ▼

Video quality

Constant bit rate:  ▼

Fixed quality:  ▼

**Audio Settings**

Mute

Input gain:  ▼

Audio type:  AAC  GSM-AMR

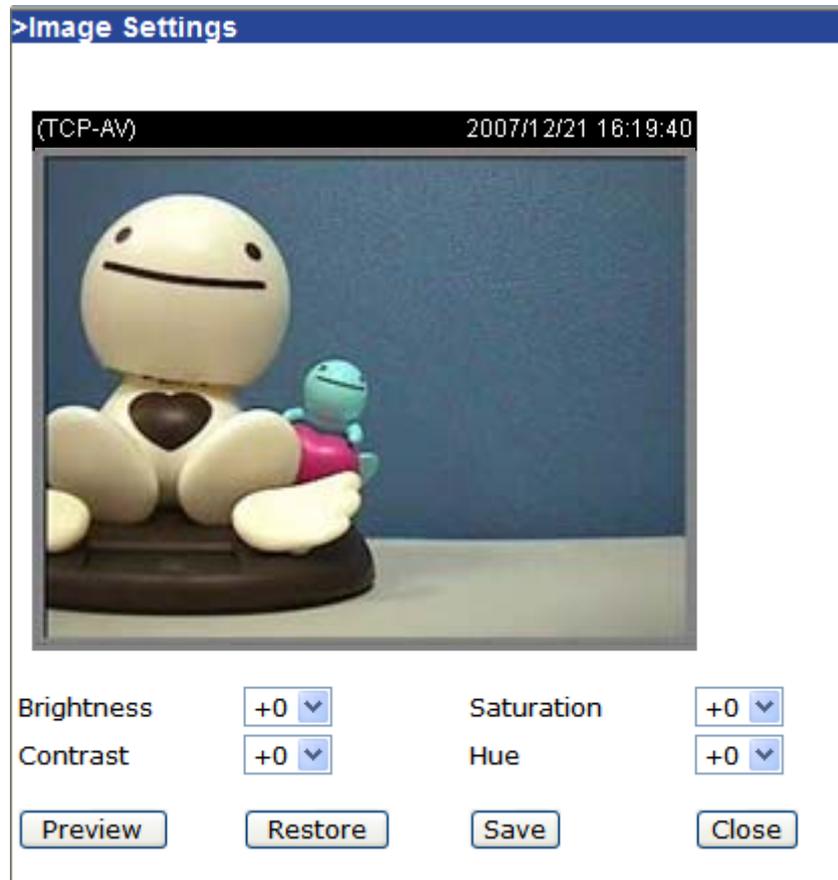
AAC bit rate:  ▼

GSM-AMR bit rate:  ▼

<url> <http://<Video Server>/setup/audiovideo.html>

<Video Server> is the domain name or original IP address of the Video Server.

## Image Settings



**Image settings** Click on this button to pop up another window to tune **“Brightness”**, **“Contrast”**, **“Saturation”** and **“Hue”** for video compensation. Each field has eleven levels ranged from -5 to +5. In **“Brightness”** and **“Contrast”** fields the value 0 indicates auto tuning. The user may press **Preview** to fine-tune the image. When the image is O.K., press **Save** to set the image settings. **Restore** Click on this to recall the original settings without incorporating the changes.

<url> <http://<Video Server>/setup/image.html>

<Video Server> is the domain name or original IP address of the Video Server.

## Privacy Mask



 Click on the button to pop up another window to set privacy mask window.

**"Enable privacy mask"** Check this option to turn on privacy mask.

 Click on this button to add a new window. At most five windows can exist simultaneously. Use the mouse to click, hold, and drag the window frame to resize or the title bar to move. Clicking on the 'x' at the upper right-hand corner of the window to delete the window. Remember to save in order to validate the changes. The base of window axis is eight. You can see the X, Y, width and height of the window.

**"Window Name"** Enter a name for the window. The text will show at the top of the window.

 Click on this button to save the related window settings.

<url> <http://<Video Server>/setup/privacy.html>

<Video Server> is the domain name or original IP address of the Video Server.

## Motion detection

**"Enable motion detection"** Check this option to turn on motion detection.

**New** Click on this button to add a new window. At most three windows can exist simultaneously. Use the mouse to click, hold, and drag the window frame to resize or the title bar to move. Clicking on the 'x' at the upper right-hand corner of the window to delete the window. Remember to save in order to validate the changes.

**Save** Click on this button to save the related window settings. A graphic bar will rise or fall depending on the image variation. A green bar means the image variation is under monitoring level and a red bar means the image variation is over monitoring level. When the bar goes red, the detected window will also be outlined in red. Going back to the homepage, the monitored window is hidden but the red frame shows when motion is detected.

**"Window Name"** Enter a name for the window. The text will show at the top of the window.

**"Sensitivity"** This sets the endurable difference between two sequential images.

**"Percentage"** This sets the space ratio of moving objects in the monitoring window. Higher sensitivity and small percentage will allow easier motion detection.

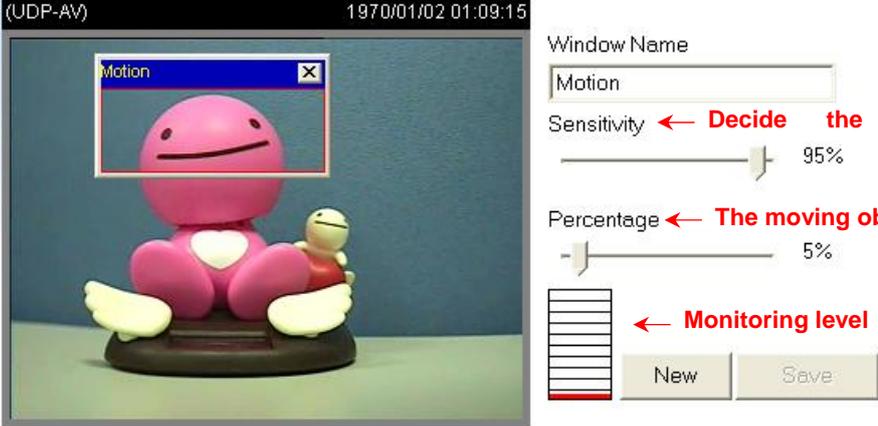
Remember to right click **Save** to save motion detection settings.

**VIVOTEK** Configuration

**> Motion detection**

Enable motion detection

(UDP-AV) 1970/01/02 01:09:15



Window Name  
Motion

Sensitivity ← **Decide the motion** 95%

Percentage ← **The moving object size** 5%

← **Monitoring level**

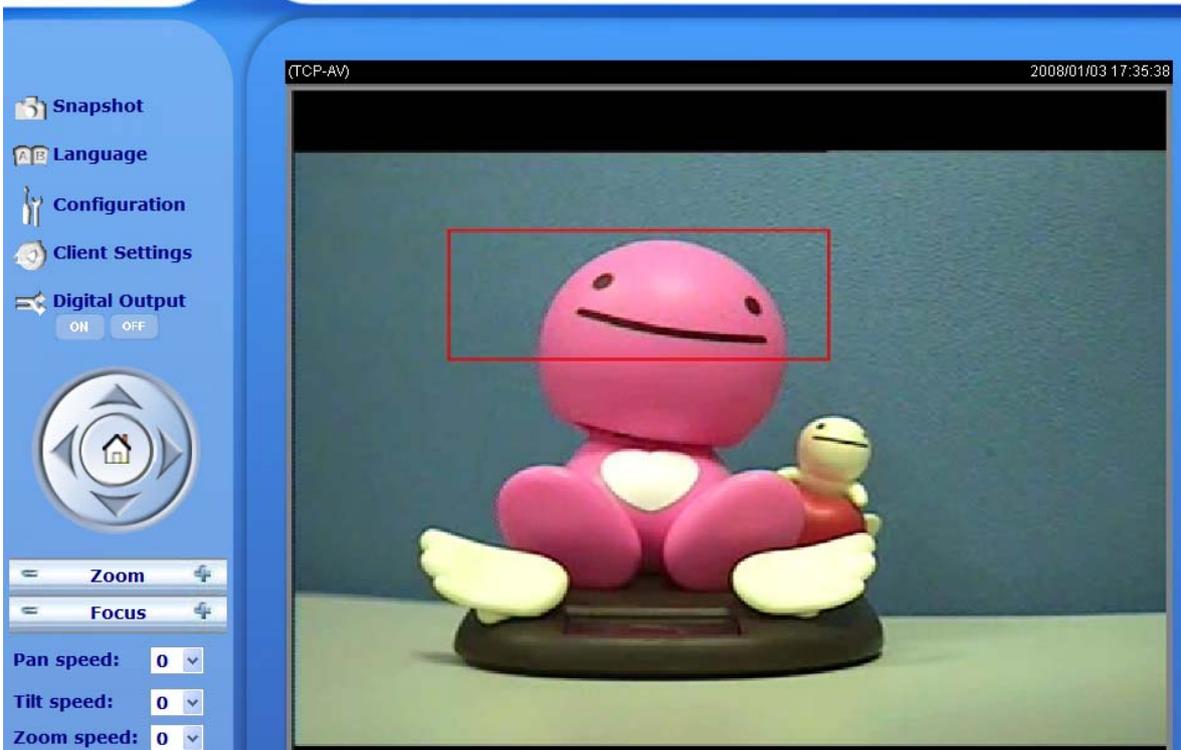
New Save

- Home
- System
- Security
- Network
- DDNS
- Access list
- Audio and video
- Motion detection
- Camera control
- Homepage layout
- Application
- Recording
- System log
- View parameters
- Maintenance

Version: 0100a

**VIVOTEK** Video Server

(TCP-AV) 2008/01/03 17:35:38



Snapshot

Language

Configuration

Client Settings

Digital Output  
ON OFF

Zoom

Focus

Pan speed: 0

Tilt speed: 0

Zoom speed: 0

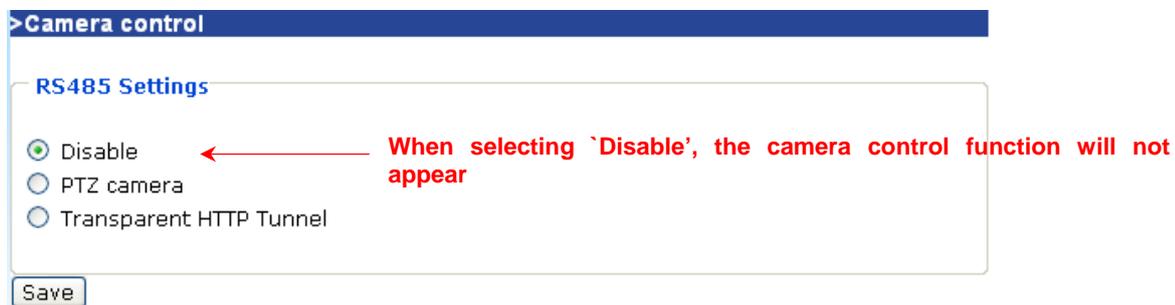
The monitoring window has been outlined in red when object is moving. Notice that if the pre-defined motion detection area is under privacy mask block, the monitoring window won't be triggered anymore.

<url> <http://<Video Server>/setup/motion.html>

<Video Server> is the domain name or original IP address of the Video Server.

## Camera control

In camera control page, if user configures “**RS485 Settings**” as “**Disable**”, it means the camera is fixed or doesn’t support Pan/Tilt/Zoom features. If user selects “**RS485 Settings**” as “**PTZ camera**” or “**Transparent HTTP Tunnel**”, the camera control setting functions will be enabled and the control panel will appear on permitted users’ main page. Users can configure their PTZ camera driver and control their camera in pan and tilt direction as well as zoom and focus. Please refer to the section “**Main Screen with Camera View**” for the layout in IE when pan, tilt, zoom, and focus functions are enabled.



>Camera control

**RS485 Settings**

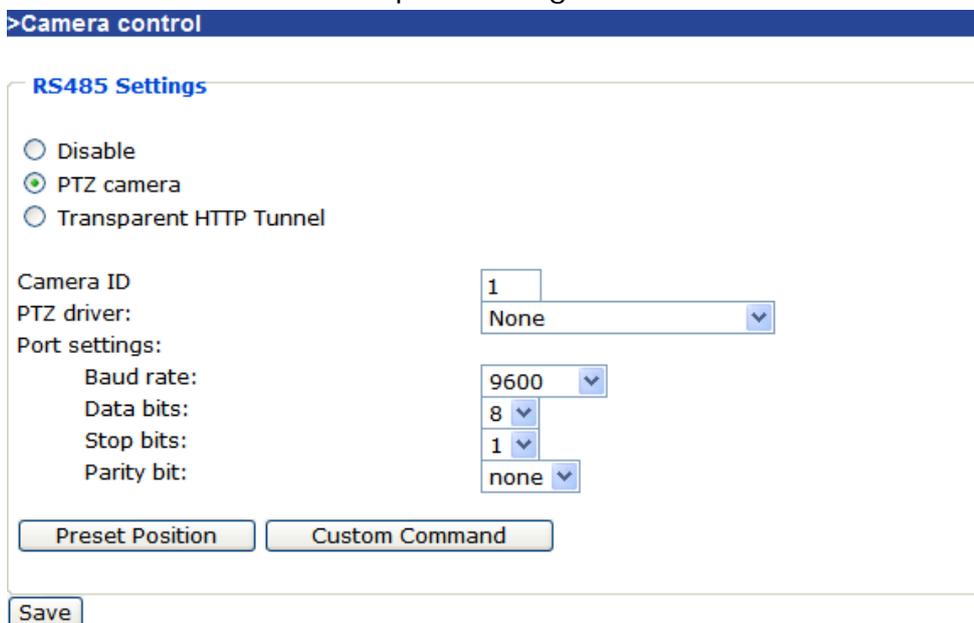
Disable   ← When selecting `Disable`, the camera control function will not appear

PTZ camera

Transparent HTTP Tunnel

Save

The figure below is the layout when “**PTZ camera**” is checked. Users can configure the camera driver and RS485 port settings.



>Camera control

**RS485 Settings**

Disable

PTZ camera

Transparent HTTP Tunnel

Camera ID:

PTZ driver:

Port settings:

Baud rate:

Data bits:

Stop bits:

Parity bit:

Save

If “**Transparent HTTP Tunnel**” is checked, users can only configure the RS485 port settings. Transparent HTTP Tunnel is enabled when user wants the video server to forward UART commands generated by user. The UART commands will be sent through HTTP tunnel established between user and video server and transmitted to the device connected to video server.

>Camera control

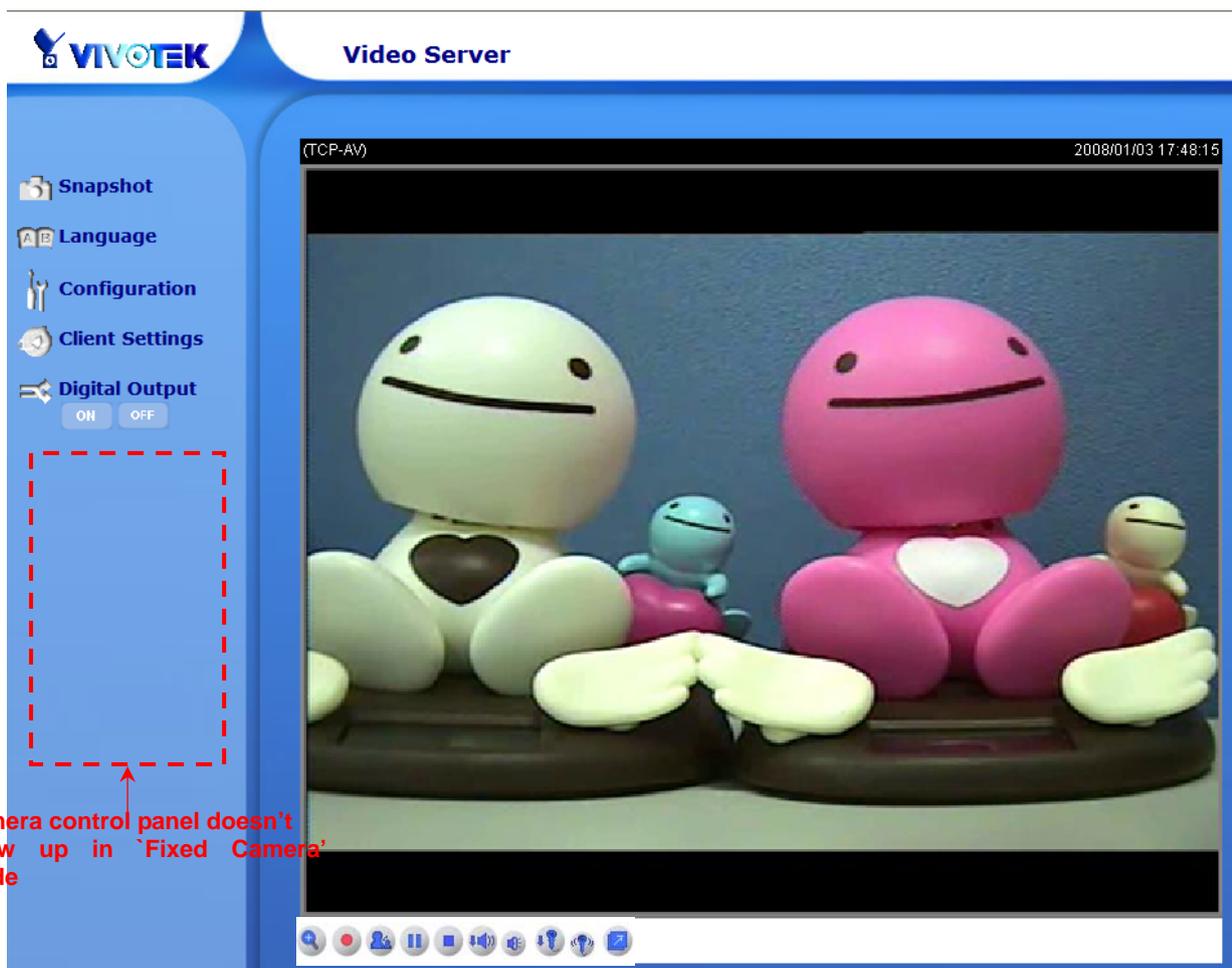
**RS485 Settings**

- Disable
- PTZ camera
- Transparent HTTP Tunnel

Port settings:

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

Save



If there is any PTZ camera attached, users should select the “**RS485 Settings**” as “**PTZ camera**” or “**Transparent HTTP Tunnel**”. Users have to configure the camera id, PTZ driver, and ports settings correctly. The ID is specific to the camera and necessary for multiple camera control. Please refer to the PTZ camera’s user manual for ID settings. The VS7100 Video Server has three built-in PTZ camera drivers, including DynaDome/SmartDOME, Lilin PIH-7x00, and Pelco D protocol. For user’s convenience, users can upload their alternative PTZ driver to the Video Server. Please refer to the maintenance page for more information about how to upload your PTZ driver file. Note that VS7100 Video Server can support multiple protocols to PTZ cameras. If there are PTZ camera functions can’t work, please see your PTZ camera’s user manual to check if your camera supports these functions.

## Preset position

>Camera control

**RS485 Settings**

Disable  
 PTZ camera  
 Transparent HTTP Tunnel

Camera ID:

PTZ driver: DynaDome/SmartDOME ▼

Port settings:

Baud rate:  ▼

Data bits:  ▼

Stop bits:  ▼

Parity bit:  ▼

Preset Position

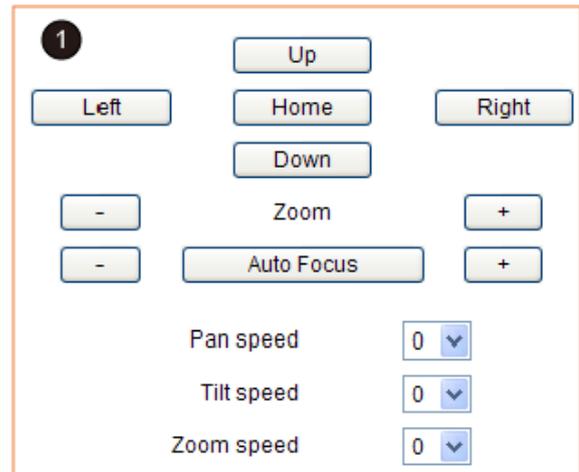
### Preset positions

If you select DynaDome/SmartDOME, Lilin PIH-7x00, or Pelco D 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. Adjust the shooting area to the desired position using the buttons on the right side of the window.
2. Enter a name for the preset position, which allows for up to forty characters. Click **Add** to enable the settings. The preset positions will be displayed under the Preset Location list on the left-hand side.
3. To add additional preset positions, please repeat steps 1~2.
4. To remove a preset position from the list, select it from the drop-down list and click **Delete**.

5. The preset positions will also displayed on the main page.
6. Click **Save** to enable the settings.



Patrol selection:



## Patrol Settings

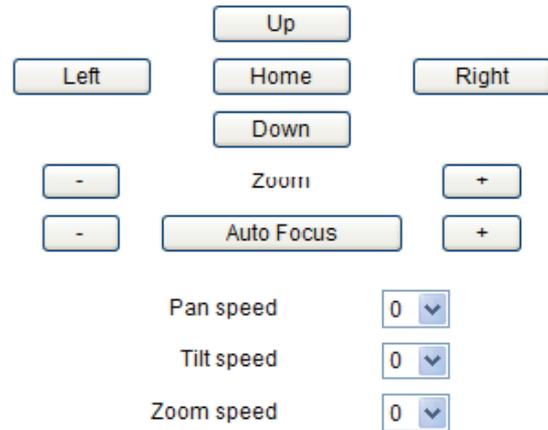
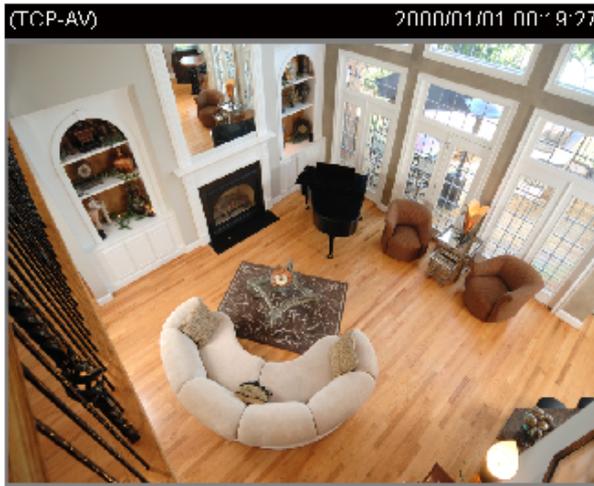
You can select some preset positions for the Network Camera to patrol.

Please follow the steps below to set up a patrol schedule:

1. Click a preset location on the list and click **Select**.
2. The selected preset location will be displayed on the **Source** list.
3. Set the **Dwelling time** for the preset location during auto patrol. You can also manually enter a value in the blank and click **Update**.
4. Repeat step 1 and 3 to select additional preset locations.
5. If you want to delete a selected location, select it from the Source list and click

## Remove.

6. Select a location and click **Up** or **Down** to rearrange the patrol order.
7. Click **Save** to enable the settings.



Patrol selection:

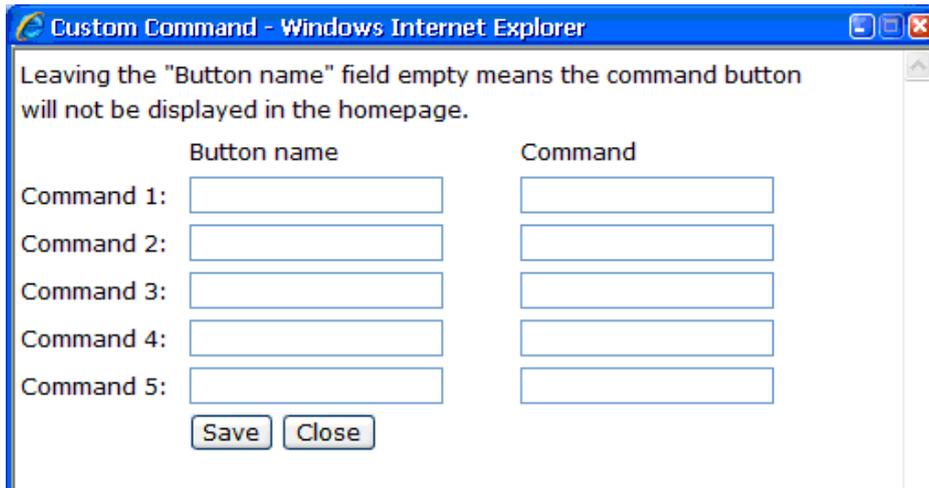
Preset locations		Selected locations	
up		Source	Dwelling time (sec):
right		right	10
down		left	10
left			
<input type="button" value="Select"/>		<input type="button" value="Remove"/> <input type="button" value="Up"/> <input type="button" value="Down"/>	<input type="text" value="10"/> <input type="button" value="Update"/>

Preset position name:

Preset Position:

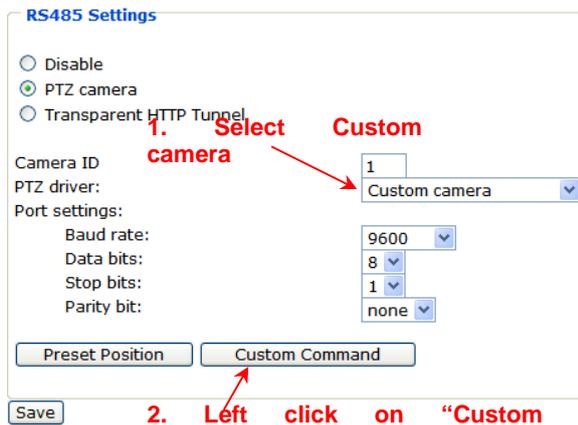
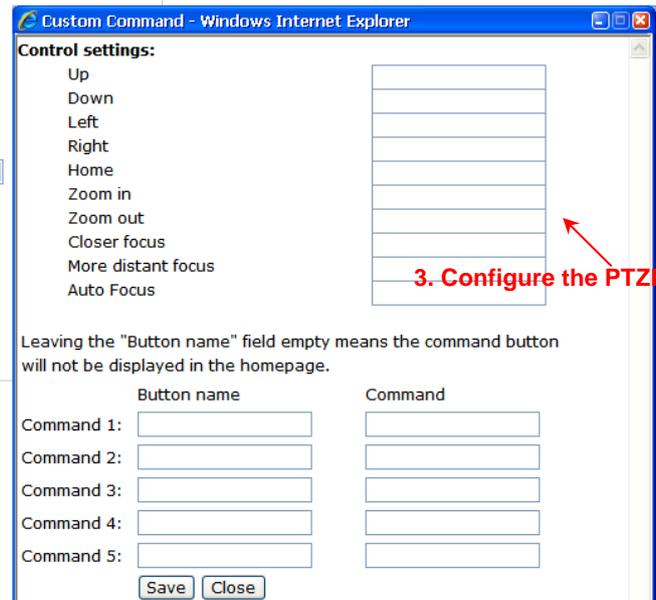
## Custom command

VS7100 Video Server provides five more custom commands other than general pan, tilt, zoom and preset functions. Users can click on **“Custom command”** and refer to the instruction manual of the attached device to setup frequently used functions.



Please note that if "Custom camera" is selected as PTZ driver, user must configure the custom pan, tilt, zoom, and focus functions via "Custom Command" page.

>Camera control

## Homepage layout

Users can easily give their VS7100 Video Server a different presence of homepage. The **"Logo graph"** is for the system logo at the upper-left corner. Users can decide to make this logo graph be blank or they can use their own logo graph by fill in their logo graph URL. Users can also give their Video Server logo a **"Logo link"** to connect to another web site while clicked. The **"Background graph"** is similar to **"Logo graph"**. Default images of the system can be customized but limited by memory size. Images from external resources can be larger and more beautiful but will need more time to load. If the background is skipped, the background color will fill the browser window. In **"Font color"** and **"Background color"** selection lists, users can chose from sixteen colors as they like to dress their homepage. The **"Web page display mode"** provides users to select between Image mode that has better visual effect and text mode that has less download time.

>Homepage layout

**Homepage layout**

Logo graph:  
 Blank  Default  
 URL:

Logo link:  
 Blank  Default  
 URL:

Background graph:  
 Blank  Default  
 URL:

Font color:  
 ▼

Background color:  
 ▼

Web page display mode:  
 Image mode  Text mode

**VIVOTEK**

## Application

There are three sections in application page. They are **“Event”**, **“Server”** and **“Media”**. Click  to pop a window to add a new item of Event, Server or Media. Click  to delete the selected item from Event, Server or Media. Click on the item name to pop a window to edit it.

There can be at most three events. There can be at most five servers and five media configurations.

User can know the event name, status, weekly and time schedule and trigger type in event section. The server name, type and address/location are shown in server section. The current media free space, media name and type are shown in media section. After adding a new media, the value of free space will be updated. User cannot add media which size is larger than free space.

Suggest to set server and media first before setting event. The servers and medias selected in event list are not modified or deleted. Please remove them first from the event if you want to delete or modify them. Recommend that using different media in different event to make use all medias be produced and received correctly. If using the same media in different events and the events trigger almost simultaneously, the servers in the second triggered event will not receive any media; there would be only notifications.

>Application

**Event Settings**

Name	Status	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Time	Trigger
<a href="#">Event1</a>	ON	V	V	V	V	V	V	V	00:00~24:00	di

**Server Settings**

Name	Type	Address/Location
<a href="#">Server1</a>	ftp	ftp.vivotek.com

**Media Settings**

Available memory space: 3550KB

Name	Type
<a href="#">Media1</a>	snapshot
<a href="#">Media2</a>	videoclip
<a href="#">Media3</a>	systemlog

<url> http://<Video Server>/setup/application.html

<Video Server> is the domain name or original IP address of the Video Server.

## Event

**“Event name”** The unique name for event

**“Enable this event”** Check it to enable this event.

**“Priority”** The event with higher priority will be executed first.

**“Delay next event after  seconds before detecting next event [For motion detection and digital input] ”** The delay to check next event. It is used in motion detection and digital input trigger type.

VS7100 Video Server supports five trigger types.

**“Video motion detection”** Select the windows which need to be monitored.

**“Periodically”** The event is triggered in specified intervals. The unit of trigger interval is minute.

**“Digital input”** To monitor digital input

**“System boot”** The event is triggered when the system bootup.

**“Video loss”** The event is triggered when Video Server loses video signal in the condition of from having video signal to no video signal.

The weekly and time schedules are provided.

“Sun” ~ “Sat” Select the days of the week to perform the event.

“Time” show “Always” or input the time interval.

There are three types of action are supported.

“Trigger DO” Check it to trigger digital output for specific seconds when event is triggered.

“PTZ camera patrol” Check it to do the PTZ camera patrol and send the snapshot to selected server during dwelling time when event is triggered.

“Server name” Check it to send the selected media when event is triggered.

**>Event Settings**

**Event name:**

Enable this event

Priority:

Detect next event after  seconds before detecting next event [For motion detection and digital input]

---

**Trigger**

Video motion detection  
 Detect motion in window  
 Note: Please configure **Motion detection** first

Periodically  
 Trigger every other  minutes

Digital input

System boot

Video loss

---

**Event Schedule**

Sun  Mon  Tue  Wed  Thu  Fri  Sat

**Time**

Always

From  to  [hh:mm]

---

**Action**

Trigger digital output for  seconds

PTZ camera patrol  
 During dwelling time, send snapshot to server:  Server1

Server1  
 Attached media:

## Server

**“Server name”** The unique name for server

There are four kinds of servers supported. They are email server, FTP server, HTTP server and network storage.

Here is setting for email server.

**“Sender email address”** The email address of the sender

**“Recipient email address”** The email address of the recipient

**“Server address”** The domain name or IP address of the external email server.

**“User name”** This granted user name on the external email server.

**“Password”** This granted password on the external email server.

Here is setting for FTP server.

**“Server address”** The domain name or IP address of the external FTP server.

**“Server port”** This can be other than the default port 21. The user can change this value from 1025 to 65535.

**“User name”** This granted user name on the external FTP server.

**“Password”** This granted password on the external FTP server.

**“FTP folder name”** Granted folder on the external FTP server. The string must conform to that of the external FTP server. Some FTP servers cannot accept preceding slash symbol before the path without virtual path mapping. Refer to the instructions for the external FTP server for details. The folder privilege must be open for upload.

**“Passive Mode”** Check it to enable passive mode in transmission.

Here is setting for HTTP server.

**“URL”** The URL to upload the media.

**“User name”** This granted user name on the external HTTP server.

**“Password”** This granted password on the external HTTP server.

Here is setting for network storage. Only one network storage is supported.

**“Network storage location”** The path to upload the media

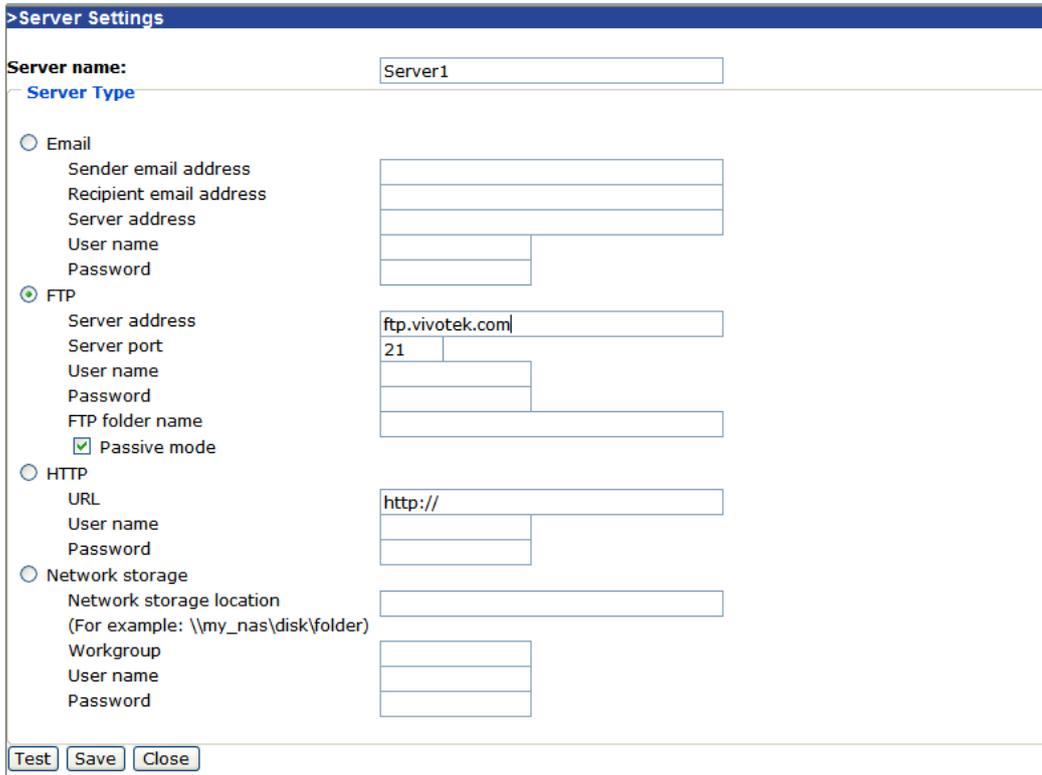
**“Workgroup”** The workgroup for network storage.

**“User name”** This granted user name on the network storage.

**“Password”** This granted password on the network storage.

After input the setting of server, user can click on  to test whether the setting is

correct. The testing result will be shown in a pop-up window.



## Media

**“Media name”** The unique name for media

There are three kinds of media. They are snapshot, video clip and system log.

Here is setting for snapshot.

**“Source”** The source of stream, stream1 or stream2.

**“Send pre-event images”** The number of pre-event images

**“Send post-event images”** The number of post-event images

**“File Name Prefix”** The prefix name will be added on the file name of the snapshot images.

**“Add date and time suffix to file name”** Check it to add timing information as file name suffix.

Here is setting for video clip

**“Source”** The source of stream, stream1 or stream2.

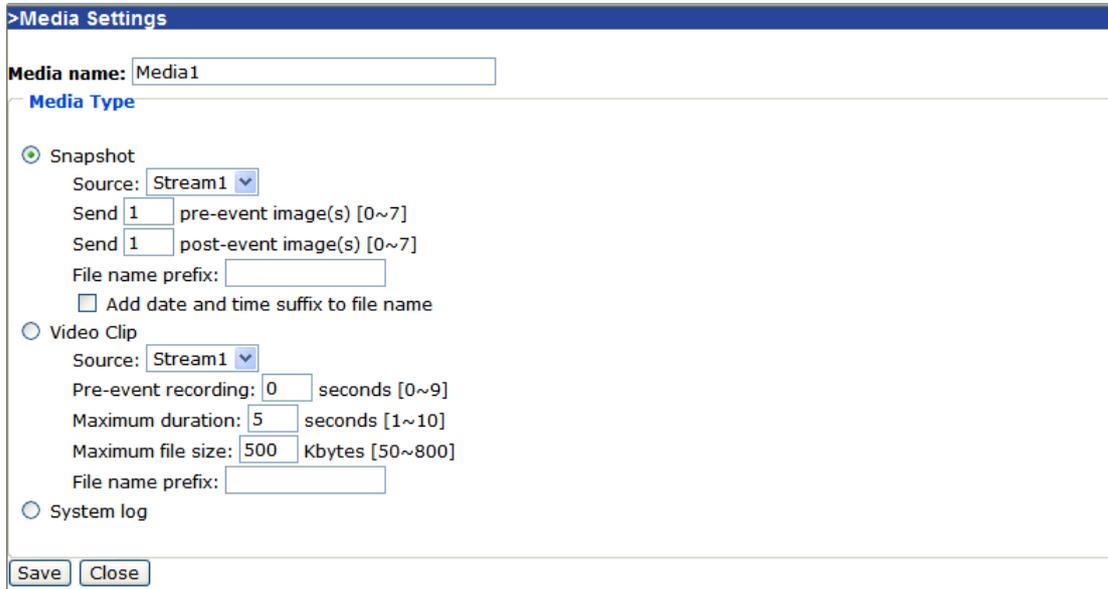
**“Pre-event recording”** The interval of pre-event recording in seconds

There are two limitations for video clip file.

**“Maximum duration”** The maximal recording file duration in seconds

**“Maximum file size”** The maximal file size would be generated.

**“File name prefix”** The prefix name will be added on the file name of the video clip.



>Media Settings

Media name: Media1

Media Type

Snapshot

Source: Stream1

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

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

File name prefix:

Add date and time suffix to file name

Video Clip

Source: Stream1

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

Maximum duration: 5 seconds [1~10]

Maximum file size: 500 Kbytes [50~800]

File name prefix:

System log

Save Close

## Recording

The Video Server supports recording on network storage. The operation of editing recording item is the same as the one in application page. User can know the recording name, status, weekly and time schedule, stream source and destination of recording. There can be at most two recording entries. To do recording on network storage, please add network storage server in application page first.



The screenshot shows the VIVOTEK Configuration interface. On the left is a navigation menu with options like Home, System, Security, Network, DDNS, Access list, Audio and video, Motion detection, Camera control, Homepage layout, Application, Recording, System log, View parameters, and Maintenance. The main content area is titled 'Recording' and contains a table for 'Recording entry'.

Name	Status	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Time	Source	Destination
<a href="#">Rec 1</a>	OFF	V	V	V	V	V	V	V	00:00~24:00	stream1	<a href="#">Network Storage</a>

Below the table are buttons for 'Add', 'Rec 1' (with a dropdown arrow), and 'Delete'.

<url> http://<Video Server>/setup/recording.html

<Video Server> is the domain name or original IP address of the Video Server.

**“Recording name”** The unique name for recording entry.

**“Enable this recording”** Check it to enable this event.

**“Priority”** The recording with higher priority will be executed first.

**“Source”** The source of stream, stream1 or stream2.

The weekly and time schedules are provided.

**“Sun” ~ “Sat”** Select the days of the week to perform the event.

**“Time”** shows **“Always”** or input the time interval.

**“Destination”** Network storage server user added. Please go to Configuration > Application > Server Settings to set a Network Storage Server.

**“Capacity”** The total size for cycle recording in Kbytes.

**“File name prefix”** The prefix name will be added on the file name of the 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 cyclic recording to prevent malfunction.

**>Recording**

**Recording name:**

Enable this recording

Priority:

Source:

**Recording Schedule**

Sun  Mon  Tue  Wed  Thu  Fri  Sat

**Time**

Always

From  to  [hh:mm]

**Destination**

Capacity:

Entire free space

Limit recording size in  Mbytes

File name prefix:

Enable cyclic recording

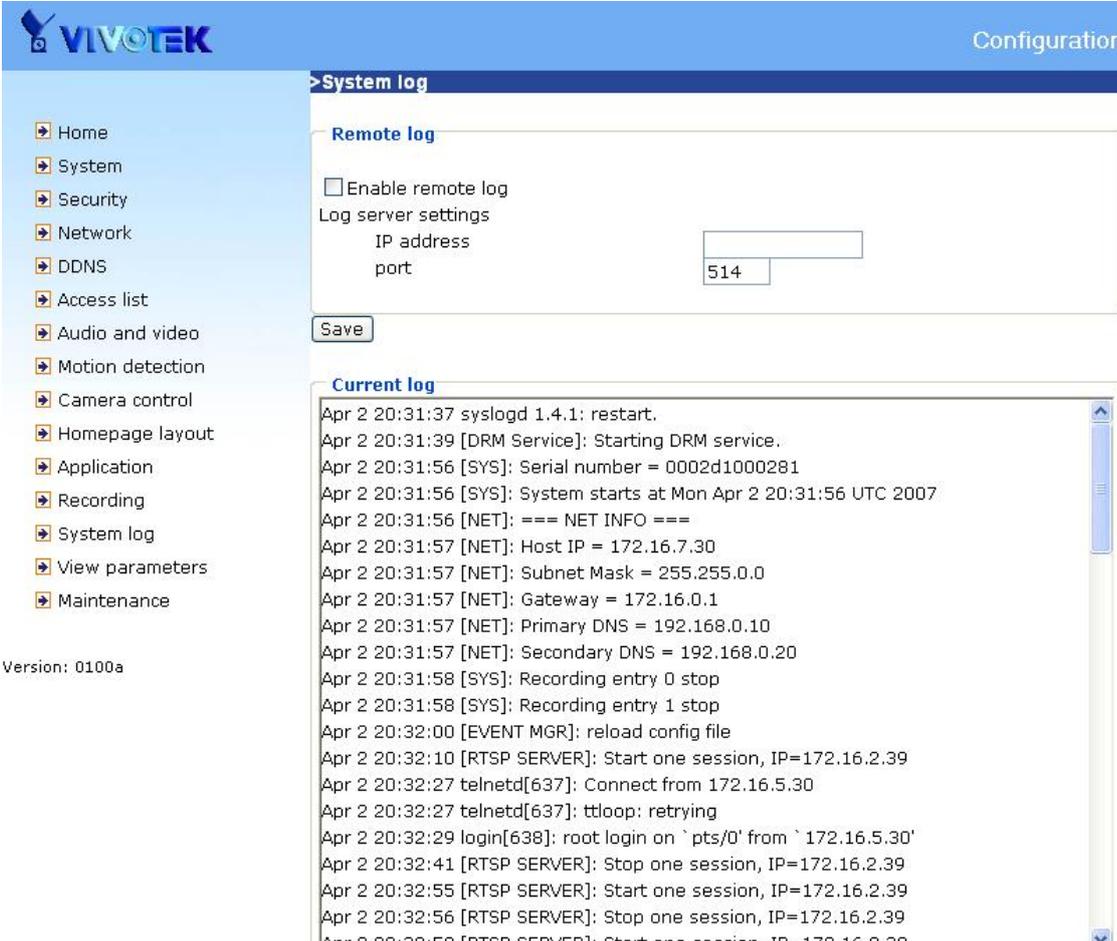
Reserved amount:  Mbytes

## System log

The Video Server supports log the system messages on remote server. The protocol is compliant to RFC 3164. If you have external Linux server with syslogd service, use “-r” option to turn on the facility for receiving log from remote machine. Or you can use some software on Windows which is compliant to RFC 3164.

Check “**Enable remote log**” and input the “**IP address**” and “**port**” number of the log server to enable the remote log facility.

In the “**Current log**”, it displays the current system log file. The content of the log provides useful information about configuration and connection after system boot- up.



The screenshot shows the VIVOTEK Configuration interface. On the left is a navigation menu with options: Home, System, Security, Network, DDNS, Access list, Audio and video, Motion detection, Camera control, Homepage layout, Application, Recording, System log, View parameters, and Maintenance. The main content area is titled '>System log' and contains two sections: 'Remote log' and 'Current log'. The 'Remote log' section has an unchecked checkbox for 'Enable remote log' and 'Log server settings' with input fields for 'IP address' and 'port' (containing '514'). A 'Save' button is below. The 'Current log' section is a scrollable text area showing system boot logs, including messages from syslogd, DRM Service, SYS, NET, and RTSP SERVER.

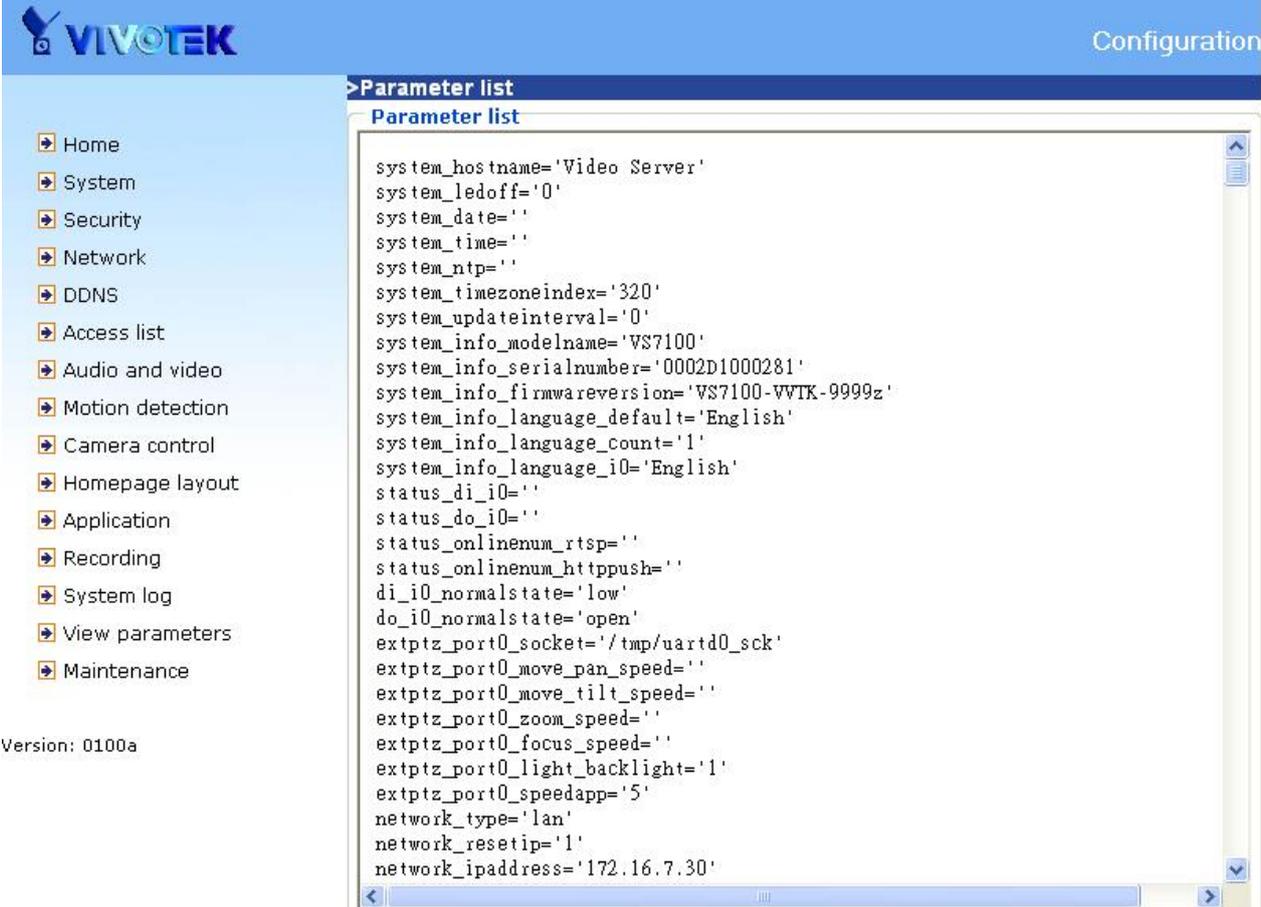
Version: 0100a

<url> <http://<Video Server>/setup/syslog.html>

<Video Server> is the domain name or original IP address of the Video Server.

## Viewing system parameters

Click on this link on the configuration page to view the entire system's parameter set.



```
system_hostname='Video Server'
system_ledoff='0'
system_date=''
system_time=''
system_ntp=''
system_timezoneindex='320'
system_updateinterval='0'
system_info_modelname='VS7100'
system_info_serialnumber='0002D1000281'
system_info_firmwareversion='VS7100-VVTK-9999z'
system_info_language_default='English'
system_info_language_count='1'
system_info_language_i0='English'
status_di_i0=''
status_do_i0=''
status_onlinenum_rtsp=''
status_onlinenum_httppush=''
di_i0_normalstate='low'
do_i0_normalstate='open'
extptz_port0_socket='/tmp/uartd0_sck'
extptz_port0_move_pan_speed=''
extptz_port0_move_tilt_speed=''
extptz_port0_zoom_speed=''
extptz_port0_focus_speed=''
extptz_port0_light_backlight='1'
extptz_port0_speedapp='5'
network_type='lan'
network_resetip='1'
network_ipaddress='172.16.7.30'
```

Version: 0100a

<url> <http://<Video Server>/setup/parafile.html>

<Video Server> is the domain name or original IP address of the Video Server.

## Maintenance

**“Reboot”** Click the reboot button to restart the system.

**“Restore”** Click it to restore all setting to factory default except setting in “Network type” in network page.

**“Factory default”** Click on Factory default button to restore the factory default settings. Any changes made so far will be lost and the system will be reset to the initial factory settings. The system will restart and require the installer program to set up the network again.

**“Upload daylight saving time rule”** Click Browse... and specify the XML file to upload.

### >Maintenance

#### Reboot

Reboot the device

Reboot

#### Restore

Restore all settings to factory default values, except settings in the "Network" page.

Restore

#### Factory default

Restore all settings to factory default.

Default

#### Upload

Update daylight saving time rules

Upload

**“Export Daylight Saving Time Configuration File”** Export file to set the start and end time of DST.

**“Upgrade firmware”** Select the firmware file and click upgrade button.

**“PTZ driver upload”** Select the PTZ driver file and click upload button. The uploaded PTZ driver will show up as “User uploaded driver” in the PTZ driver list in Camera control page.

**Export Daylight Saving Time Configuration File**

Get Daylight Saving Time Configuration File.

**Upgrade firmware**

Select firmware file

**PTZ driver upload**

Select PTZ driver file

<url> <http://<Video Server>/setup/maintain.html>

<Video Server> is the domain name or original IP address of the Video Server.

# Appendix

## A. Troubleshooting

### Status LED

The following table lists the LED patterns in general.

Condition	LED color
Loading system after power on	Blink green twice and steady red
During booting procedure	Steady green and red
After network is setup (system up)	Blink green every second and steady red
During the upgrade firmware process	Fast blink green and blink green every second

### Reset and restore

There is a button in the front of the Video Server. It is used to reset the system or restore the factory default settings. Sometimes resetting the system sets the system back to normal state. If the system problems remain after reset, restore the factory settings and install again.



**RESET:** Click on the "RESET" button once will reboot the system and the software installation may be necessary if the IP address is not fixed. This procedure is the same as removing the power and attaching it again.

**RESTORE:**

1. Press on the button firmly.
2. Wait for self-diagnostic to run.
3. Free the button fast blink green and red.



Restoring the factory defaults will erase any previous settings.

## B. URL commands of the Video Server

### Overview

For some customers who already have their own web site or web control application, a Network Camera/Video server can be easily integrated through URLs. This document provides the supersets of URL commands V2 for VIVOTEK 7000 series products.

This section specifies the external HTTP-based application programming interface. The HTTP-based camera interface provides the functionality to request a single image, to control camera functions (PTZ, output relay etc.), and to get and set internal parameter values. The image and CGI-requests are handled by the built-in Web server.

### Style Convention

In URL syntax and in descriptions of CGI parameters, a text within angle brackets denotes a content that is to be replaced with either a value or a string. When replacing the text string, the angle brackets shall 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, which is replaced with the string myserver in the URL syntax example, also below.

URL syntax is written with the word "**Syntax:**" written in bold face followed by a box with the reference syntax as seen below. The name of the server is written as <servername>. This 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.

Special notes will be marked in **RED**.

Syntax:

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

Description of returned data is written with "**Return:**" in bold face followed by the returned data shown in a box. All data is returned as HTTP formatted, i.e., starting with the string HTTP and line 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
```

## General CGI URL Syntax and Parameters

CGI parameters are written in lower-case and as one word without any underscores or other separators. 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
```

## 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.

## 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>]* or *<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
```

## 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>...][&update=<value>][&return=<return page>]

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

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

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

PARAMETER	VALUE	DESCRIPTION
<b>&lt;group&gt;_&lt;name&gt;</b>	value to assigned	Assign <i>&lt;value&gt;</i> to the parameter <i>&lt;group&gt;_&lt;name&gt;</i> .
<b>update</b>	<boolean>	Set to 1 to update all fields (no need to update parameter in each group).
<b>return</b>	<return page>	Redirect to the page <i>&lt;return page&gt;</i> after the parameter is assigned. The <i>&lt;return page&gt;</i> 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) or a VIVOTEK server script executable (.vspx) file. 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](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

Content-Length: 33\r\n

\r\n

network.ipaddress=192.168.0.123\r\n

## Available parameters on the server

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.

Group: **system**

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
hostname	string[40]	1/6	Host name of server (Network Camera, Wireless Network Camera, Video Server, Wireless Video Server).
ledoff	<boolean>	6/6	Turn on (0) or turn off (1) all led indicators.
date	<yyyy/mm/dd>, keep, auto	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,	6/6	Current time of the system. Set to 'keep' to keep time unchanged. Set to 'auto' to use NTP

	auto		to synchronize time.
datetime	<MMDDhhmmYYYY.ss>	6/6	Another current time format of the system.
ntp	<domain name>, <ip address>, <blank>	6/6	NTP server. *Do not use "skip to invoke default server" for default value.
timezoneindex	-489 ~ 529	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
formertimezonein	-489 ~ 529	6/6	Record the last time zone for time jump when

dex			changing time zones.
daylight_enable	<boolean>	6/6	Enable <b>automatic</b> daylight saving time in time zone.
daylight_dstactual mode	<boolean>	6/7	Check if current time is under daylight saving time. (Used internally)
daylight_auto_beg intime	string[19]	6/7	Display the current daylight saving start time. (product dependent)
daylight_auto_end time	string[19]	6/7	Display the current daylight saving end time. (product dependent)
updateinterval	0, 3600, 86400, 604800, 2592000	6/6	0 to Disable automatic time adjustment, otherwise, it indicates the seconds between NTP automatic update intervals.
restore	0, <positive integer>	7/6	Restore the system parameters to default values after <value> seconds.
reset	0, <positive integer>	7/6	Restart the server after <value> seconds if <value> is non-negative.
restoreexceptnet	<Any value>	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>	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.
--	--	--	---

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

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
modelName	string[40]	0/7	Internal model name of the server (eg. IP7139)
serialnumber	<mac address>	0/7	12 characters MAC address (without hyphens).
firmwareversion	string[40]	0/7	Firmware version, including model, company, and version number in the format: <MODEL-BRAND-VERSION>
language_count	<integer>	0/7	Number of webpage languages available on the server.
language_i<0~(count-1)>	string[16]	0/7	Available language lists.

Group: **status**

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
videoactualmodulation	ntsc, pal	4/7	The actual modulation type (videoin.type=0).
di_i<0~(ndi-1)>	<boolean>	1/7	0 => Inactive, normal 1 => Active, triggered
do_i<0~(ndo-1)>	<boolean>	1/7	0 => Inactive, normal 1 => Active, triggered
onlinenum_rtsp	integer	6/7	Current number of RTSP connections.
onlinenum_httppush	integer	6/7	Current number of HTTP push server connections.

Group: **di\_i<0~(ndi-1)>** (*capability.ndi > 0*)

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
------	-------	-----------------------	-------------

normalstate	high, low	1/1	Indicates open circuit or closed circuit (inactive status)
-------------	--------------	-----	--

Group: **do\_i<0~(ndo-1)>** (*capability.ndo > 0*)

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
normalstate	open, grounded	1/1	Indicate open circuit or closed circuit (inactive status)

Group: security

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
user_i0_name	string[64]	6/7	User name of root
user_j<1~20>_name	string[64]	6/7	User name
user_i0_pass	password[64]	6/6	Root password
user_j<1~20>_pass	password[64]	7/6	User password
user_i0_privilege	viewer, operator, admin	6/7	Root privilege
user_j<1~20>_privilege	viewer, operator, admin	6/6	User privilege

Group: **network**

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
type	lan, pppoe	6/6	Network connection type.
resetip	<boolean>	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>	6/6	IP address of server.
subnet	<ip address>	6/6	Subnet mask.

router	<ip address>	6/6	Default gateway.
dns1	<ip address>	6/6	Primary DNS server.
dns2	<ip address>	6/6	Secondary DNS server.
wins1	<ip address>	6/6	Primary WINS server.
wins2	<ip address>	6/6	Secondary WINS server.

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

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

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

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
port	80, 1025 ~ 65535	6/6	HTTP port.
alternateport	1025~65535	6/6	Alternate HTTP port.
authmode	basic, digest	1/6	HTTP authentication mode.
s0_accessname	string[32]	1/6	HTTP server push access name for stream 1. (capability.protocol.spush_mjpeg =1 and video.stream.count>0)
s1_accessname	string[32]	1/6	HTTP server push access name for stream 2. (capability.protocol.spush_mjpeg =1 and video.stream.count>1)
anonymousviewing	<boolean>	1/6	Enable anonymous streaming viewing.

Subgroup of **network**: **rtsp**

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
port	554, 1025 ~ 65535	1/6	RTSP port. (capability.protocol.rtsp=1)
anonymousviewing	<boolean>	1/6	Enable anonymous streaming viewing.
authmode	disable, basic,	1/6	RTSP authentication mode. (capability.protocol.rtsp=1)

	digest		
s0_accessname	string[32]	1/6	RTSP access name for stream1. (capability.protocol.rtsp=1 and video.stream.count>0)
s1_accessname	string[32]	1/6	RTSP access name for stream2. (capability.protocol.rtsp=1 and video.stream.count>1)
s0_audiotrack	<integer>	6/6	The current audio track for stream1. -1 => audio mute
s1_audiotrack	<integer>	6/6	The current audio track for stream2. -1 => audio mute

Subgroup of **network\_rtsp\_s<0~(n-1)>**: **multicast**, n is stream count

(capability.protocol.rtp.multicast=1)

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
alwaysmulticast	<boolean>	4/4	Enable always multicast.
ipaddress	<ip address>	4/4	Multicast IP address.
videoport	1025 ~ 65535	4/4	Multicast video port.
audioport	1025 ~ 65535	4/4	Multicast audio port.
ttl	1 ~ 255	4/4	Multicast time to live value.

Subgroup of **network**: **sip**

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
port	1025 ~ 65535	1/6	SIP port. (capability.protocol.sip=1)

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

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

			(capability.protocol.rtp_unicast=1)
--	--	--	-------------------------------------

 Subgroup of **network**: **pppoe**

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

 Group: **ipfilter**

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
allow_i<0~9>_start	1.0.0.0 ~ 255.255.255.255	6/6	Allowed starting IPv4 address for connection.
allow_i<0~9>_end	1.0.0.0 ~ 255.255.255.255	6/6	Allowed ending IPv4 address for connection.
deny_i<0~9>_start	1.0.0.0 ~ 255.255.255.255	6/6	Denied starting IPv4 address for connection.
deny_i<0~9>_end	1.0.0.0 ~ 255.255.255.255	6/6	Denied ending IPv4 address for connection.

 Group: **videoin**

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
modulation	ntsc, pal, auto	4/4	Set video input modulation type. (videoin.type=0) (product dependent)

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

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
startpixeloffset	0~16	4/4	The horizontal offset for video frame capturing
color	0, 1	4/4	0 => monochrome 1 => color
flip	<boolean>	4/4	Flip the image.

mirror	<boolean>	4/4	Mirror the image.
ptzstatus	<integer>	1/7	<p>A 32-bit integer, each bit can be set separately as follows:</p> <p>Bit 0 =&gt; Support camera control function; 0(not support), 1(support)</p> <p>Bit 1 =&gt; <b>Built-in</b> or <b>external</b> camera; 0 (external), 1(built-in)</p> <p>Bit 2 =&gt; Support <b>pan</b> operation; 0(not support), 1(support)</p> <p>Bit 3 =&gt; Support <b>tilt</b> operation; 0(not support), 1(support)</p> <p>Bit 4 =&gt; Support <b>zoom</b> operation; 0(not support), 1(support)</p> <p>Bit 5 =&gt; Support <b>focus</b> operation; 0(not support), 1(support)</p> <p>Bit 6 =&gt; Support iris operation; 0(not support), 1(support)</p> <p>Bit 7 =&gt; External or built-in PT; 0(built-in), 1(external)</p> <p>Bit 8 =&gt; Invalidate bit 1 ~ 7; 0(bit 1 ~ 7 are valid), 1(bit 1 ~ 7 are invalid)</p> <p>Bit 9 =&gt; Reserved bit; Invalidate lens_pan, Lens_tilt, lens_zoon, lens_focus, len_iris. 0(fields are valid), 1(fields are invalid)</p>
text	string[16]	1/4	Enclose caption.
imprinttimestamp	<boolean>	4/4	Overlay time stamp on video.
s<0~(m-1)>_codectype	mpeg4, mjpeg	1/4	Video codec type.
s<0~(m-1)>_resolution	QCIF, CIF, 4CIF	1/4	Video resolution in pixels.
s<0~(m-1)>_field2frame	<boolean>	4/4	Field to frame on server side. (product dependent)

s<0~(m-1)>_mpeg4_in traperiod	250, 500, 1000, 2000, 3000, 4000	4/4	Intra frame period in milliseconds.
s<0~(m-1)>_mpeg4_ra tecontrolmode	cbr, vbr	4/4	cbr, constant bitrate vbr, fix quality
s<0~(m-1)>_mpeg4_q uant	0, 1~5	4/4	Quality of video when choosing vbr in "ratecontrolmode". 0 is the customized manual input setting. 1 = worst quality, 5 = best quality.
s<0~(m-1)>_mpeg4_bi trate	"20000,3000 0,40000,500 00,64000,12 8000,256000 ,384000,512 000,768000, 1000000,120 0000,150000 0,2000000,3 000000,400 0000"	4/4	Set bit rate in bps when choosing cbr in "ratecontrolmode".
s<0~(m-1)>_mpeg4_m axframe	"1,2,3,5,8,10 ,15,20,25,30 " 30 (only for NTSC or 60Hz CMOS)	1/4	Set maximum frame rate in fps (for MPEG-4).
s<0~(m-1)>_mpeg4_q uant	0 ~ 5	4/4	Quality of JPEG video. 0 is the customized manual input setting. 1 = worst quality, 5 = best quality.
s<0~(m-1)>_mpeg4_m axframe	"1,2,3,5,8,10 ,15,20,25,30 " 30 (only for NTSC or	1/4	Set maximum frame rate in fps (for JPEG).

	60Hz CMOS)		
s<0~(m-1)>_forcei	1	7/6	Force I frame.

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

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
mute	0, 1	4/4	Enable audio mute.
gain	0~31	4/4	Gain of input.
s<0~(m-1)>_codectype	aac4, gamr	4/4	Set audio codec type for input.
s<0~(m-1)>_aac4_bitrate	16000, 32000, 48000, 64000, 96000, 128000	4/4	Set AAC4 bitrate in bps.
s<0~(m-1)>_gamr_bitrate	4750, 5150, 5900, 6700, 7400, 7950, 10200, 12200	4/4	Set AMR bitrate in bps.

Group: **image\_c<0~(n-1)>** for n channel products

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
brightness	-5 ~ 5	4/4	Adjust brightness of image according to mode settings.
saturation	-5 ~ 5	4/4	Adjust saturation of image according to mode settings.
contrast	-5 ~ 5	4/4	Adjust contrast of image according to mode settings.
hue	-5 ~ 5	4/4	Adjust hue of image according to mode settings.

Group: **imagepreview\_c<0~(n-1)>** for n channel products

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
brightness	-5 ~ 5	4/4	Preview of brightness adjustment of image according to mode settings.
saturation	-5 ~ 5	4/4	Preview of saturation adjustment of image according to mode settings.
contrast	-5 ~ 5	4/4	Preview of contrast adjustment of image according to mode settings.
hue	-5 ~ 5	4/4	Preview of hue adjustment of image according to mode settings.

Group: **motion\_c<0~(n-1)>** for m profile and n channel product

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
enable	<boolean>	4/4	Enable motion detection.
win_i<0~2>_enable	<boolean>	4/4	Enable motion window 1~3.
win_i<0~2>_name	string[14]	4/4	Name of motion window 1~3.
win_i<0~2>_left	0 ~ 320	4/4	Left coordinate of window position.
win_i<0~2>_top	0 ~ 240	4/4	Top coordinate of window position.
win_i<0~2>_width	0 ~ 320	4/4	Width of motion detection window.
win_i<0~2>_height	0 ~ 240	4/4	Height of motion detection window.
win_i<0~2>_objsize	0 ~ 100	4/4	Percent of motion detection window.
win_i<0~2>_sensitivity	0 ~ 100	4/4	Sensitivity of motion detection window.

Group: **ddns**

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
enable	<boolean>	6/6	Enable or disable the dynamic DNS.
provider	Safe100, DyndnsDynamic, DyndnsCustom, TZO, DHS,	6/6	Safe100 => safe100.net DyndnsDynamic => dyndns.org (dynamic) DyndnsCustom => dyndns.org (custom) TZO => tzo.com DHS => dhs.org

	DynInterfree, CustomSafe100		DynInterfree =>dyn-interfree.it CustomSafe100 => Custom server using safe100 method
<provider>_hostname	string[128]	6/6	Your dynamic hostname.
<provider>_usernameemail	string[64]	6/6	Your user or email to login to the DDNS service provider
<provider>_passwordkey	string[64]	6/6	Your password or key to login to the DDNS service provider.
<provider>_servername	string[128]	6/6	The server name for safe100. (This field only exists if the provider is customsaf100)

Group: upnppresentation

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

Group: upnpportforwarding

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

Group: **syslog**

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
enableremotelog	<boolean>	6/6	Enable remote log.
serverip	<IP address>	6/6	Log server IP address.
serverport	514, 1025~65535	6/6	Server port used for log.
level	0~7	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
--	--	--	---

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

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
panspeed	-5 ~ 5	1/4	Pan speed
tiltspeed	-5 ~ 5	1/4	Tilt speed
zoomspeed	-5 ~ 5	1/4	Zoom speed
focusspeed	-5 ~ 5	1/4	Auto focus speed
preset_i<0~(npreset-1)>_name	string[40]	1/4	Name of the preset location.
uart	0 ~ (m-1), m is UART count	1/4	Select corresponding uart ( <b>capability.nuart&gt;0</b> ).
cameraid	0~255	1/4	Camera ID controlling external PTZ camera.
isptz	0 ~ 2	1/7	0: disable PTZ commands. 1: enable PTZ commands with PTZ driver. 2: enable PTZ commands with UART tunnel.
disablemdonptz	<boolean>	1/4	Disable motion detection on PTZ operation.
patrolseq	string[64]	1/4	(For external device) The indexes of patrol points, separated by ","
patroldwelling	string[128]	1/4	(For external device) The dwelling time of each patrol point, separated by ","

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

NAME	VALUE	SECURITY	DESCRIPTION
------	-------	----------	-------------

		(get/set)	
ptzdrivers_i<0~19, 126, 127>_name	string[40]	1/4	Name of the PTZ driver. 126: for user upload.ptz driver 127: for Custom Camera
ptzdrivers_i<0~19, 126, 127>_location	string[128]	1/4	Full path of the PTZ driver. 126: for user upload.ptz driver 127: for Custom Camera
enablehttpunnel	<boolean>	4/4	Enable HTTP tunnel channel to control UART.

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

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
baudrate	110,300,600,120 0,2400,4800,960 0,19200,38400,5 7600,115200	4/4	Set baud rate of COM port.
databit	5,6,7,8	4/4	Data bits in a character frame.
paritybit	none, odd, even	4/4	For error checking.
stopbit	1,2	4/4	1 2-1.5 , data bit is 5 2-2
uartmode	rs485, rs232	4/4	RS485 or RS232.
uartreset	<boolean>	4/4	Set this flag to true to apply change in UART configuration.
customdrvcmd_i<0~9>	string[128]	1/4	PTZ command for custom camera.
speedlink_i<0~4>_name	string[40]	1/4	Additional PTZ command name.
speedlink_i<0~4>_cmd	string[128]	1/4	Additional PTZ command list.

ptzdriver	0~19, 126 (upload) 127 (custom), 128 (no driver)	4/4	The PTZ driver is used by this COM port.
-----------	---	-----	--

Group: **layout** (product dependent) ([VS7100](#), [EM7100](#))

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
layouttype	1, 2	1/4	Layout type of main page: 1: image mode 2: text mode
fontcolor	0 ~ 15	1/4	Font color of main page.
backgroundcolor	0 ~ 15	1/4	Background color of the main page.
logotype	1 ~ 3	1/4	Source type of logo: 1: default 2: blank 3: user defined
backgroundtype	1 ~ 3	1/4	Source type of background: 1: default 2: blank 3: user defined
logolinktype	1 ~ 3	1/4	Type of logo link: 1: default 2: blank 3: user defined
logosource	string[128]	1/4	URL logo
backgroundsource	string[128]	1/4	URL background
logolink	string[128]	1/4	URL link for the logo
videolinkname	string[40]	1/4	Customized video name in text mode

Group: **privacymask\_c<0~(n-1)>** for n channel product

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
enable	<boolean>	4/4	Enable privacy mask.

win_i<0~4>_enable	<boolean>	4/4	Enable privacy mask window.
win_i<0~4>_name	string[40]	4/4	Name of the privacy mask window.
win_i<0~4>_left	0 ~ 320	4/4	Left coordinate of window position.
win_i<0~4>_top	0 ~ 240	4/4	Top coordinate of window position.
win_i<0~4>_width	0 ~ 320	4/4	Width of privacy mask window.
win_i<0~4>_height	0 ~ 240	4/4	Height of privacy mask window.

Group: **privacymask3d\_c<0~(n-1)>** for n channel product

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
enable	<boolean>	4/4	Enable the 3D privacy mask

Group: capability

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
api_httpversion	0200a	0/7	The HTTP API version.
Bootuptime	<positive integer>	0/7	Server bootup time.
Nir	0, <positive integer>	0/7	Number of IR interfaces.
ndi	0, <positive integer>	0/7	Number of digital inputs.
ndo	0, <positive integer>	0/7	Number of digital outputs.
naudioin	0, <positive integer>	0/7	Number of audio inputs.
naudioout	0, <positive integer>	0/7	Number of audio outputs.
nvideoin	<positive integer>	0/7	Number of video inputs.
nmediastream	<positive integer>	0/7	Number of media stream per channels.
nvideosetting	<positive integer>	0/7	Number of video settings per channel.
naudiosetting	<positive integer>	0/7	Number of audio settings per channel.
nuart	0, <positive integer>	0/7	Number of UART interfaces.

ptzenabled	<positive integer>	0/7	<p>An 32-bit integer, each bit can be set separately as follows:</p> <p>Bit 0 =&gt; Support camera control function; 0(not support), 1(support)</p> <p>Bit 1 =&gt; Built-in or external camera; 0(external), 1(built-in)</p> <p>Bit 2 =&gt; Support pan operation, 0(not support), 1(support)</p> <p>Bit 3 =&gt; Support tilt operation; 0(not support), 1(support)</p> <p>Bit 4 =&gt; Support zoom operation; 0(not support), 1(support)</p> <p>Bit 5 =&gt; Support focus operation; 0(not support), 1(support)</p> <p>Bit 6 =&gt; Support iris operation; 0(not support), 1(support)</p> <p>Bit 7 =&gt; External or built-in PT; 0(built-in), 1(external)</p> <p>Bit 8 =&gt; Invalidate bit 1 ~ 7; 0(bit 1 ~ 7 are valid), 1(bit 1 ~ 7 are invalid)</p> <p>Bit 9 =&gt; Reserved bit; Invalidate lens_pan, Lens_tilt, lens_zoon, lens_focus, len_iris. 0(fields are valid), 1(fields are invalid)</p>
npreset	<positive integer>	0/7	Number of preset locations.
protocol_https	< boolean >	0/7	Indicate whether to support HTTP over SSL.
protocol_rtsp	< boolean >	0/7	Indicate whether to support RTSP.
protocol_sip	<boolean>	0/7	Indicate whether to support SIP.
protocol_maxconnection	<positive integer>	0/7	The maximum allowed simultaneous connections.
protocol_rtp_multicast_scalable	<boolean>	0/7	Indicate whether to support scalable multicast.

protocol_rtp_multicast_backchannel	<boolean>	0/7	Indicate whether to support backchannel multicast.
protocol_rtp_tcp	<boolean>	0/7	Indicate whether to support RTP over TCP.
protocol_rtp_http	<boolean>	0/7	Indicate whether to support RTP over HTTP.
protocol_spush_mjpeg	<boolean>	0/7	Indicate whether to support server push MJPEG.
protocol_snmp	<boolean>	0/7	Indicate whether to support SNMP.
videoin_type	0, 1, 2	0/7	0 => Interlaced CCD 1 => Progressive CCD 2 => CMOS
videoin_resolution	<a list of available resolution separated by commas>	0/7	Available resolutions list.
videoin_maxframerate	<a list of available maximum frame rate separated by commas>	0/7	Available maximum frame list.
videoin_codec	<a list of available codec types separated by commas>	0/7	Available codec list.
videoout_codec	<a list of the available codec types separated by commas>	0/7	Available codec list.
audio_aec	<boolean>	0/7	Indicate whether to support acoustic echo cancellation.
audio_extmic	<boolean>	0/7	Indicate whether to support external microphone input.
audio_linein	<boolean>	0/7	Indicate whether to support external line input.
audio_lineout	<boolean>	0/7	Indicate whether to support line output.
audio_headphoneout	<boolean>	0/7	Indicate whether to support headphone output.

audioin_codec	<a list of the available codec types separated by commas)	0/7	Available codec list.
audioout_codec	<a list of the available codec types separated by commas)	0/7	Available codec list.
uart_httptunnel	<boolean>	0/7	Indicate whether to support HTTP tunnel for UART transfer.
transmission_mode	Tx, Rx, Both	0/7	Indicate transmission mode of the machine: TX = server, Rx = receiver box, Both = DVR.
network_wire	<boolean>	0/7	Indicate whether to support Ethernet.
network_wireless	<boolean>	0/7	Indicate whether to support wireless.
wireless_s802dot11b	<boolean>	0/7	Indicate whether to support wireless 802.11b+.
wireless_s802dot11g	<boolean>	0/7	Indicate whether to support wireless 802.11g.
wireless_encrypt_wep	<boolean>	0/7	Indicate whether to support wireless WEP.
wireless_encrypt_wpa	<boolean>	0/7	Indicate whether to support wireless WPA.
wireless_encrypt_wpa2	<boolean>	0/7	Indicate whether to support wireless WPA2.
derivative_brand	<boolean>	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>	0/7	Indicate whether to support HTTP tunnel for event/control transfer.

Group: **event\_i<0~2>**

PARAMETER	VALUE	SECURITY (get/set)	DESCRIPTION
name	string[40]	6/6	Identification of this entry.

enable	0, 1	6/6	Enable or disable this event.
priority	0, 1, 2	6/6	Indicate the priority of this event: "0" = low priority "1" = normal priority "2" = high priority
delay	1-999	6/6	Delay in seconds before detecting the next event.
trigger	boot, di, motion, seq, visignal, recnotify,	6/6	Indicate the trigger condition: "boot" = System boot "di" = Digital input "motion" = Video motion detection "seq" = Periodic condition "visignal" = Video input signal loss. "recnotify" = Recording notification.
triggerstatus	String[40]	6/6	The status for event trigger
di	<integer>	6/6	Indicate which DI detects. This field is required when trigger condition is "di". One bit represents one digital input. The LSB indicates DI 0.
mdwin	<integer>	6/6	Indicate which motion detection windows detect. This field is required when trigger condition is "md". One bit represents one window. The LSB indicates the 1 <sup>st</sup> window. For example, to detect the 1 <sup>st</sup> and 3 <sup>rd</sup> windows, set mdwin as 5.
inter	1-999	6/6	Interval of snapshots in minutes. This field is used when trigger condition is "seq".

weekday	0~127	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	6/6	Begin time of the weekly schedule.
endtime	hh:mm	6/6	End time of the weekly schedule. (00:00 ~ 24:00 sets schedule as always on)
action_do_i<0~(ndo-1)>_enable	0, 1	6/6	Enable or disable trigger digital output.
action_do_i<0~(ndo-1)>_duration	1~999	6/6	Duration of the digital output trigger in seconds.
action_cf_enable	0, 1	6/6	Enable media write on CF.
action_cf_folder	string[128]	6/6	Path to store media.
action_cf_media	NULL, 0~4	6/6	Index of the attached media.
action_server_i<0~4>_enable	0, 1	6/6	Enable or disable this server action. The default value is 0.
action_server_i<0~4>_media	NULL, 0~1	6/6	Index of the attached media.
action_server_i<0~4>_datefolder	<boolean>	6/6	Enable this to create folders by date, time, and hour automatically.
action_patrol_enable	<Boolean>	6/6	Enable/disable ptz patrol when event triggered.

action_patrol_server	0~31	6/6	<p>Indicate the snapshots will be sent to which server .</p> <p>One bit represents one application server (server_i0~i4).</p> <p>bit0 (LSB) = server_i0.</p> <p>bit1 = server_i1.</p> <p>bit2 = server_i2.</p> <p>bit3 = server_i3.</p> <p>bit4 = server_i4.</p> <p>For example, enable server_i0, server_i2, and server_i4 as notification servers; the notifyserver value is 21.</p>
----------------------	------	-----	--

Group: **server\_i<0~4>**

PARAMETER	VALUE	SECURITY (get/set)	DESCRIPTION
name	string[40]	6/6	Identification of this entry
type	email, ftp, http, ns	6/6	Indicate the server type: "email" = email server "ftp" = FTP server "http" = HTTP server "ns" = network storage
http_url	string[128]	6/6	URL of the HTTP server to upload.
http_username	string[64]	6/6	Username to log in to the server.
http_passwd	string[64]	6/6	Password of the user.
ftp_address	string[128]	6/6	FTP server address.
ftp_username	string[64]	6/6	Username to log in to the server.
ftp_passwd	string[64]	6/6	Password of the user.
ftp_port	0~65535	6/6	Port to connect to the server.
ftp_location	string[128]	6/6	Location to upload or store the media.
ftp_passive	0, 1	6/6	Enable or disable passive mode. 0 = disable passive mode 1 = enable passive mode
email_address	string[128]	6/6	Email server address.
email_username	string[64]	6/6	Username to log in to the server.

email_passwd	string[64]	6/6	Password of the user.
email_senderemail	string[128]	6/6	Email address of the sender.
email_recipientemail	string[128]	6/6	Email address of the recipient.
ns_location	string[128]	6/6	Location to upload or store the media.
ns_username	string[64]	6/6	Username to log in to the server.
ns_passwd	string[64]	6/6	Password of the user.
ns_workgroup	string[64]	6/6	Workgroup for network storage.

Group: **media\_i<0~4>** (media\_freespace is used internally.)

PARAMETER	VALUE	SECURITY (get/set)	DESCRIPTION
name	string[40]	6/6	Identification of this entry
type	snapshot, systemlog, videoclip	6/6	Media type to send to the server or store on the server.
snapshot_source	0, 1	6/6	Indicate the source of media stream. 0 means the first stream. 1 means the second stream.
snapshot_prefix	string[16]	6/6	Indicate the prefix of the filename.
snapshot_datesuffix	0, 1	6/6	Add date and time suffix to filename: 1 = Add date and time suffix. 0 = Do not add.
snapshot_preevent	0 ~ 7	6/6	Indicates the number of pre-event images.
snapshot_postevent	0 ~ 7	6/6	The number of post-event images.
videoclip_source	0, 1	6/6	Indicate the source of media stream. 0 means the first stream. 1 means the second stream.
videoclip_prefix	string[16]	6/6	Indicate the prefix of the filename.
videoclip_preevent	0 ~ 9	6/6	Indicates the time for pre-event recording in seconds.
videoclip_maxduration	1 ~ 10	6/6	Maximum duration of one video clip in seconds.
videoclip_maxsize	50 ~ 1500	6/6	Maximum size of one video clip file in Kbytes.

Group: **recording\_i<0~1>**

PARAMETER	VALUE	SECURITY (get/set)	DESCRIPTION
name	string[40]	6/6	Identification of this entry.
enable	0, 1	6/6	Enable or disable this recording.
priority	0, 1, 2	6/6	Indicate the priority of this recording: "0" indicates low priority. "1" indicates normal priority. "2" indicates high priority.
source	0, 1	6/6	Indicate the source of media stream. 0 means the first stream. 1 means the second stream.
limitsize	0,1	6/6	0: Entire free space mechanism 1: Limit recording size mechanism
cyclic	0,1	6/6	0: Disable cyclic recording 1: Enable cyclic recording
notify	0,1	6/6	0: Disable recording notification 1: Enable recording notification
notifyserver	0~31	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	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	6/6	Start time of the weekly schedule.
endtime	hh:mm	6/6	End time of the weekly schedule. (00:00~24:00 indicates schedule always on)
prefix	string[16]	6/6	Indicate the prefix of the filename.
cyclesize	16~	6/6	The maximum size for cycle recording in Kbytes when choosing to limit recording size.
reserveamount	15~	6/6	The reserved amount in Mbytes when choosing cyclic recording mechanism.
dest	cf, 0~4	6/6	The destination to store the recorded data. "cf" means CF card. "0~4" means the index of the network storage.
cffolder	string[128]	6/6	Folder name.

## Drive the Digital Output

**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>][&return = <return page>]
```

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

PARAMETER	VALUE	DESCRIPTION
<b>do&lt;num&gt;</b>	0, 1	0 – Inactive, normal state
		1 – Active, triggered state
<b>return</b>	<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.

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

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

## Query Status of the Digital Input

**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
```

## Query Status of the Digital Output

**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

## 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>]
```

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

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

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>
```

## 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 for 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.
--------	---------------	---

## System Logs

**Note:** This request requires 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
```

## 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.

## Camera Control (capability.ptzenabled=1)

**Note:** This request requires Viewer privileges.

**Method:** GET/POST

Syntax:

```
http://<servername>/cgi-bin/viewer/camctrl.cgi?[channel=<value>][&camid=<value>][&move=<value>]
>]
[&focus=<value>][&iris=<value>][&speedpan=<value>][&speedtilt=<value>][&speedzoom=<value>]
[&speedfocus=<value>][&auto=<value>][&zoom=<value>][&return=<return page>]
```

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.
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.
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.

## Recall (capability.ptzenabled= 1)

**Note:** This request requires Viewer privileges.

Method: GET

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.

## Preset Locations (capability.ptzenabled= 1)

**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.

## System Information

**Note:** This request requires Normal User privileges. (obsolete)

**Method:** GET/POST

Syntax:

```
http://<servername>/cgi-bin/sysinfo.cgi
```

Server will return the system information. In HTTP API version 2, the CapVersion will be 0200. All fields in the previous version (0100) are obsolete. Please use "getparam.cgi?capability" instead.

Return:

```

HTTP/1.0 200 OK\r\n
Content-Type: text/plain\r\n
Content-Length: <system information length>\r\n
\r\n
Model=<model name of server>\r\n
CapVersion=0200\r\n
  
```

PARAMETER(supported capability version)	VALUE	DESCRIPTION
Model	system.firmwareversion	Model name of the server. Ex: IP3133-VVTK-0100a
CapVersion	<i>MMmm, MM is major version from 00 ~ 99 mm is minor version from 00 ~ 99</i>  <i>ex: 0100</i>	Capability field version.

## 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.

## 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-vvtek-tunnelled
```

```
pragma: no-cache
```

```
cache-control: no-cache
```

```
-----
```

```
POST /cgi-bin/operator/uartchannel.cgi
```

```
x-sessioncookie: string[22]
```

```
content-type: application/x-vvtek-tunnelled
```

```
pragma : no-cache  
cache-control : no-cache  
content-length: 32767  
expires: Sun, 9 Jan 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.

PARAMETER	VALUE	DESCRIPTION
channel	0 ~ (n-1)	The channel number of UART.

## Event/Control HTTP Tunnel Channel

**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 Jan 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 notification and control. The event and control formats are described in another document.

## Get SDP of Streams

**Note:** This request requires Viewer access privileges.

**Method:** GET/POST

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.

## 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.

## 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

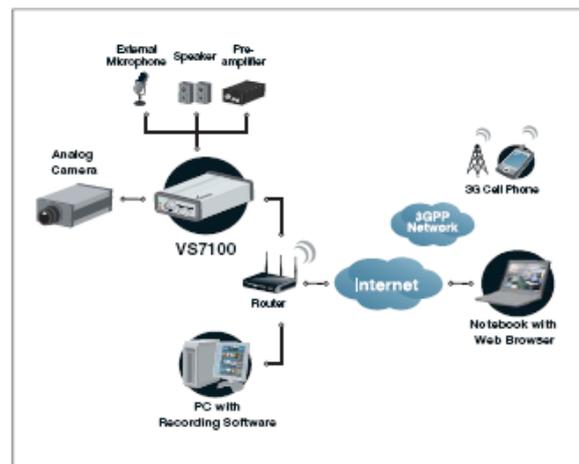
<hex decimal data>\r\n

Where hexadecimal data is digits from 0 ~ 9, A ~ F.

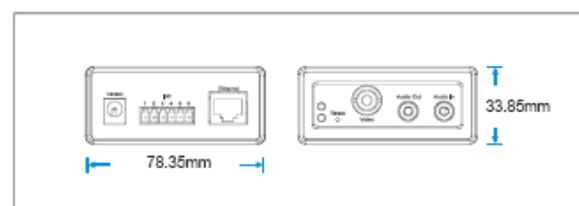
## D. Technical specifications

Specifications	
System	<ul style="list-style-type: none"> <li>CPU: VVTK-1000 SoC</li> <li>Flash: 8MB</li> <li>RAM: 64MB</li> <li>Embedded OS: Linux 2.4</li> </ul>
Video	<ul style="list-style-type: none"> <li>Compression: MJPEG &amp; MPEG-4</li> <li>Streaming:               <ul style="list-style-type: none"> <li>Simultaneously dual-streaming</li> <li>MPEG-4 streaming over UDP, TCP or HTTP</li> <li>MPEG-4 multicast streaming</li> <li>MJPEG streaming over HTTP</li> </ul> </li> <li>Supports 3GPP mobile surveillance</li> <li>Frame rates:               <ul style="list-style-type: none"> <li>MPEG-4:                   <ul style="list-style-type: none"> <li>Up to 30/25 fps at 176x112/176x144</li> <li>Up to 30/25 fps at 352x240/352x288</li> <li>Up to 17 fps at 704x480/704x576</li> </ul> </li> <li>MJPEG:                   <ul style="list-style-type: none"> <li>Up to 30/25 fps at 176x112/176x144</li> <li>Up to 30/25 fps at 352x240/352x288</li> <li>Up to 12 fps at 704x480/704x576</li> </ul> </li> </ul> </li> </ul>
Audio	<ul style="list-style-type: none"> <li>Compression:               <ul style="list-style-type: none"> <li>GSM-AMR speech compression, bit rate: 4.75 kbps – 12.2 kbps</li> <li>MPEG-4 AAC audio encoding, bit rate: 16 kbps – 128 kbps</li> </ul> </li> <li>Interface:               <ul style="list-style-type: none"> <li>Line level in/out: up to 1 Vrms</li> <li>Audio output</li> </ul> </li> <li>Supports two-way audio by SIP protocol</li> <li>Supports audio mute</li> </ul>
Pan/Tilt/Zoom	<ul style="list-style-type: none"> <li>PTZ Camera control through RS-485</li> <li>Supported devices and protocols:               <ul style="list-style-type: none"> <li>DynaDome/SmartDome</li> <li>Pelco D</li> <li>LiLin</li> </ul> </li> <li>Supports CGI command serial driver</li> </ul>
Networking	<ul style="list-style-type: none"> <li>10/100 Mbps Ethernet, RJ-45</li> <li>Protocols: IPv4, TCP/IP, HTTP, UPnP, RTSP /RTP/RTCP, IGMP, SMTP, FTP, DHCP, NTP, DNS, DDNS and PPPoE</li> </ul>
Alarm and Event Management	<ul style="list-style-type: none"> <li>Triple-window video for motion detection</li> <li>One D/I and one D/O for external sensor and alarm</li> <li>Event notification using HTTP, SMTP or FTP</li> </ul>
Security	<ul style="list-style-type: none"> <li>Multi-level user access with password protection</li> <li>IP address filtering</li> </ul>
Users	<ul style="list-style-type: none"> <li>Live viewing for up to 10 clients</li> </ul>
Dimension	<ul style="list-style-type: none"> <li>130 mm (D) x 78.35 mm (W) x 33.85 mm (H)</li> </ul>
Weight	<ul style="list-style-type: none"> <li>Net: 198 g</li> </ul>
LED indicator	<ul style="list-style-type: none"> <li>System activity and network link indicator</li> </ul>
Power	<ul style="list-style-type: none"> <li>12V DC</li> <li>Power consumption: Max. 4 W</li> </ul>
Approvals	<ul style="list-style-type: none"> <li>CE, LVD, FCC, VCCI</li> </ul>
Operating Environments	<ul style="list-style-type: none"> <li>Temperature: 0 – 50 °C (32 – 122 °F)</li> <li>Humidity: 20% – 80% RH</li> </ul>
Viewing System Requirements	<ul style="list-style-type: none"> <li>OS: Microsoft Windows 2000/XP/Vista</li> <li>Browser: Internet Explorer 6 or above</li> <li>Cell phone: 3GPP player</li> <li>Real Player: 10.5 or above</li> <li>Quick Time: 6.5 or above</li> </ul>
Installation, Management, and Maintenance	<ul style="list-style-type: none"> <li>Installation Wizard 2</li> <li>16-CH recording software</li> <li>Supports firmware upgrade</li> </ul>
Applications	<ul style="list-style-type: none"> <li>SDK available for application development and system integration</li> </ul>
Warranty	<ul style="list-style-type: none"> <li>24 months</li> </ul>

### System Overview



### External View



All specifications are subject to change without notice. Copyright © 2009 VIVOTEK INC. All rights reserved.

# Technology License Notice

## **AMR Technology**

This product includes AMR narrowband speech coding technology licensed by VoiceAge. Please refer to <http://www.voiceage.com/> for more details.

## **MPEG-4 AAC Technology**

This product includes MPEG-4 AAC audio coding technology licensed by Via Licensing. Please refer to <http://www.vialicensing.com/> for more details.

## **MPEG-4 Visual Technology**

This product includes one MPEG-4 encoder and one MPEG-4 decoder license. Installation of more than one decoder is prohibited. Please contact your reseller to purchase additional decoder licenses.

THIS PRODUCT IS LICENSED UNDER THE MPEG-4 VISUAL PATENT PORTFOLIO LICENSE FOR THE PERSONAL AND NON-COMMERCIAL USE OF A CONSUMER FOR (i) ENCODING VIDEO IN COMPLIANCE WITH THE MPEG-4 VISUAL STANDARD ("MPEG-4 VIDEO") AND/OR (ii) DECODING MPEG-4 VIDEO THAT WAS ENCODED BY A CONSUMER ENGAGED IN A PERSONAL AND NONCOMMERCIAL ACTIVITY AND/OR WAS OBTAINED FROM A VIDEO PROVIDER LICENSED BY MPEG LA TO PROVIDE MPEG-4 VIDEO. NO LICENSE IS GRANTED OR SHALL BE IMPLIED FOR ANY OTHER USE. ADDITIONAL INFORMATION INCLUDING THAT RELATING TO PROMOTIONAL, INTERNAL AND COMMERCIAL USES AND LICENSING MAY BE OBTAINED FROM MPEG LA, LLC. SEE [HTTP://WWW.MPEGLA.COM](http://www.mpegla.com).

# Electromagnetic Compatibility (EMC)

## FCC Statement

This device complies 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 B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a partial installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Shielded interface cables must be used in order to comply with emission limits.

## CE Mark Warning

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

## Liability

VIVOTEK Inc. cannot be held responsible for any technical or typographical errors and reserves the right to make changes to the product and manuals without prior notice. VIVOTEK Inc. makes no warranty of any kind with regard to the material contained within this document, including, but not limited to, the implied warranties of merchantability and fitness for any particular purpose.