Video Door Internet Enabling Kit (P/N CM2001)

User's Guide

1308233 REV. A

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1.0 Introduction

1.1 Overview of the CM2001

The Legrand CM2001 Video Door Internet Enabling Kit (see ***Figure 1***), when used with the Legrand Selective Call Intercom system, provides local or remote network access to images from the SCI Video Door Unit camera. These images (still or compressed video) may be recorded and/or sent via email to a remote user. The trigger to start recording can be configured as a simple doorbell button push on the SCI VDU.

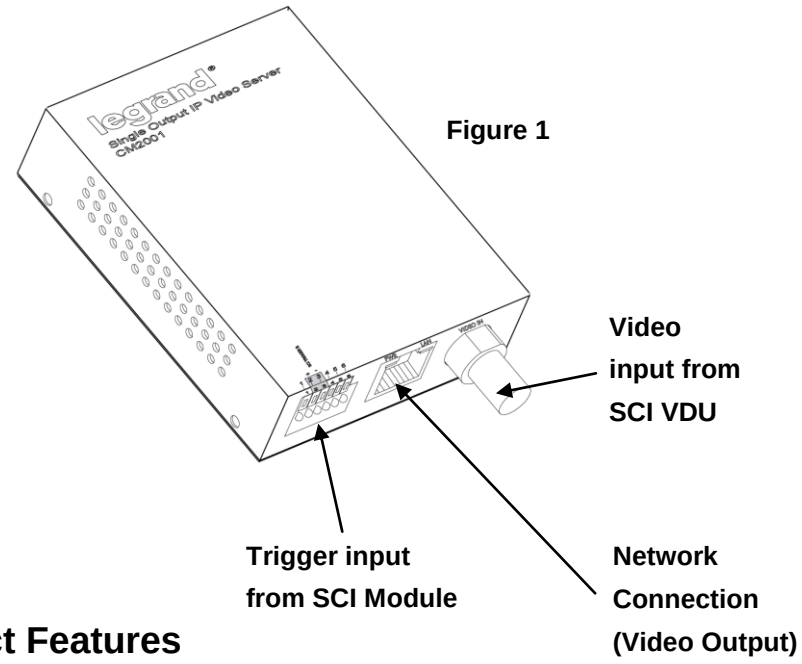

Figure 1

1.2 Product Features

- H.264 / MPEG-4 / M-JPEG Video Compression
- 30 fps video frame rate in all resolutions (4CIF(D1), CIF, QCIF)
- Auto MDI/MDI-X supported (IEEE 802.3 10Base-T / IEEE 802.3u 100Base-T) on network port
- IPv4, IPv6, TCP/IP, UDP, HTTP, HTTPS, SMTP, FTP, NTP, DNS, DDNS, DHCP, ARP, Bonjour, UPnP, RTSP, RTP, RTCP, IGMP, PPPoE, 3GPP, ICMP, and Samba protocols supported
- Supports up to 20 simultaneous users
- Image file upload via FTP, Samba to NAS, micro SD card or email, HTTP and TCP
- DHCP or Static IP operation

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1.3 Hardware Interface

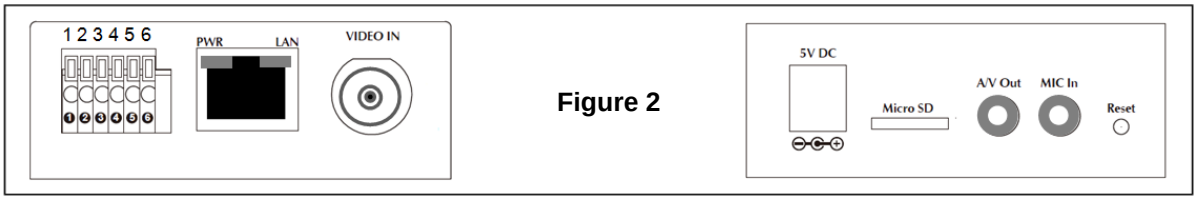

Figure 2

Connection	Designation	Status	Description
Trigger Input	**1**	N/A	12VDC 50mA max (not used with SCI)
	2	N/A	Digital Signal Input, (to SCI B+)
	3	N/A	Ground, (to SCI B-)
	4	N/A	Digital Signal Output, (not used with SCI)
	5	N/A	RS485 data + (not used with SCI)
	6	N/A	RS485 data - (not used with SCI)
RJ45 Jack	**PWR** (Orange LED)	On	DC power is available
	LAN (Green LED)	Flashing	Ethernet data usage
BNC	**Video In**	N/A	Analog Camera Input Jack

Connection	Designation	Status	Description
CM2001 Power Input	**5VDC**	N/A	Use only provided AC/DC Adapter
SD Card Slot	**Micro SD**	N/A	Micro SD card used for image storage (recording))
Audio and Video Output	**A/V Out**	N/A	Use supplied A/V cable (Yellow for Video Out / White for Audio Out)
Microphone Input	**Mic In**	N/A	Connection for External Microphone Input
Recessed Button	**Reset**	N/A	Use paper clip to depress button for 5 seconds to restore factory defaults

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2.0 Physical Installation

2.1 Overview

The CM2001 may be physically installed in two different ways. There are keyhole slots on the rear of the case which may be used for mounting to a flat surface with screws. The other more typical way is to attach the CM2001 to an AC1025 bracket with two machine screws (all available separately), for mounting in an On-Q style enclosure. This method provides easy access to the hardware interface areas on each end (see ***Figure 3***).

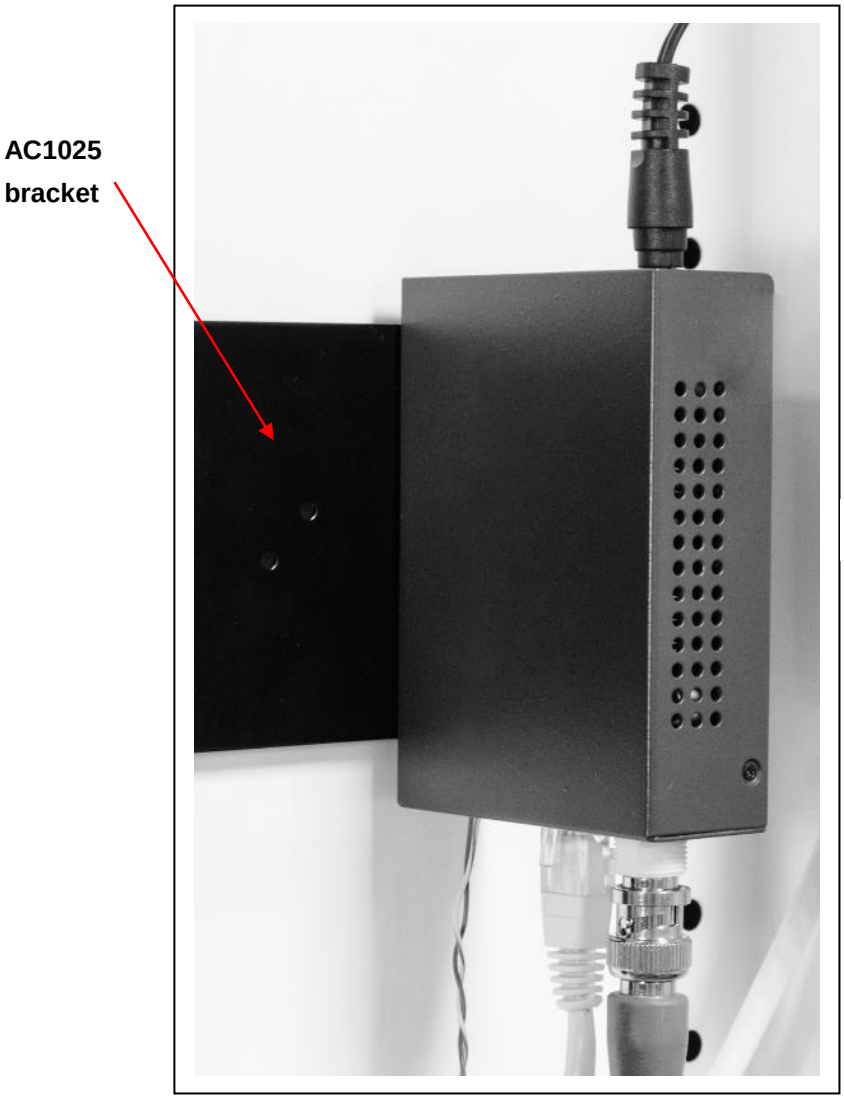

Figure 3

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2.2 Installation Drawing (see *Figure 4*)

Regardless of the mounting method, once mounted, connect the supplied cable from the RCA video output jack on the lower right corner of the SCI Module to the BNC video input jack on the CM2001. If you want a doorbell button press on the SCI Video Door Unit to trigger an event, like recording images, or sending an email alert, then also connect the supplied two-wire 22 gauge jumper from pin #2 on the CM2001 to the B+ connection on the rear of the SCI Module and pin #3 on the CM2001 to the B- connection on the rear of the SCI Module. Also connect a Cat 5e jumper from the RJ45 jack on the CM2001 to an open port on your router, or router attached Gigabit Switch. Once all the interface connections are made, you can connect the supplied power supply to the CM2001 and plug it into an available AC outlet.

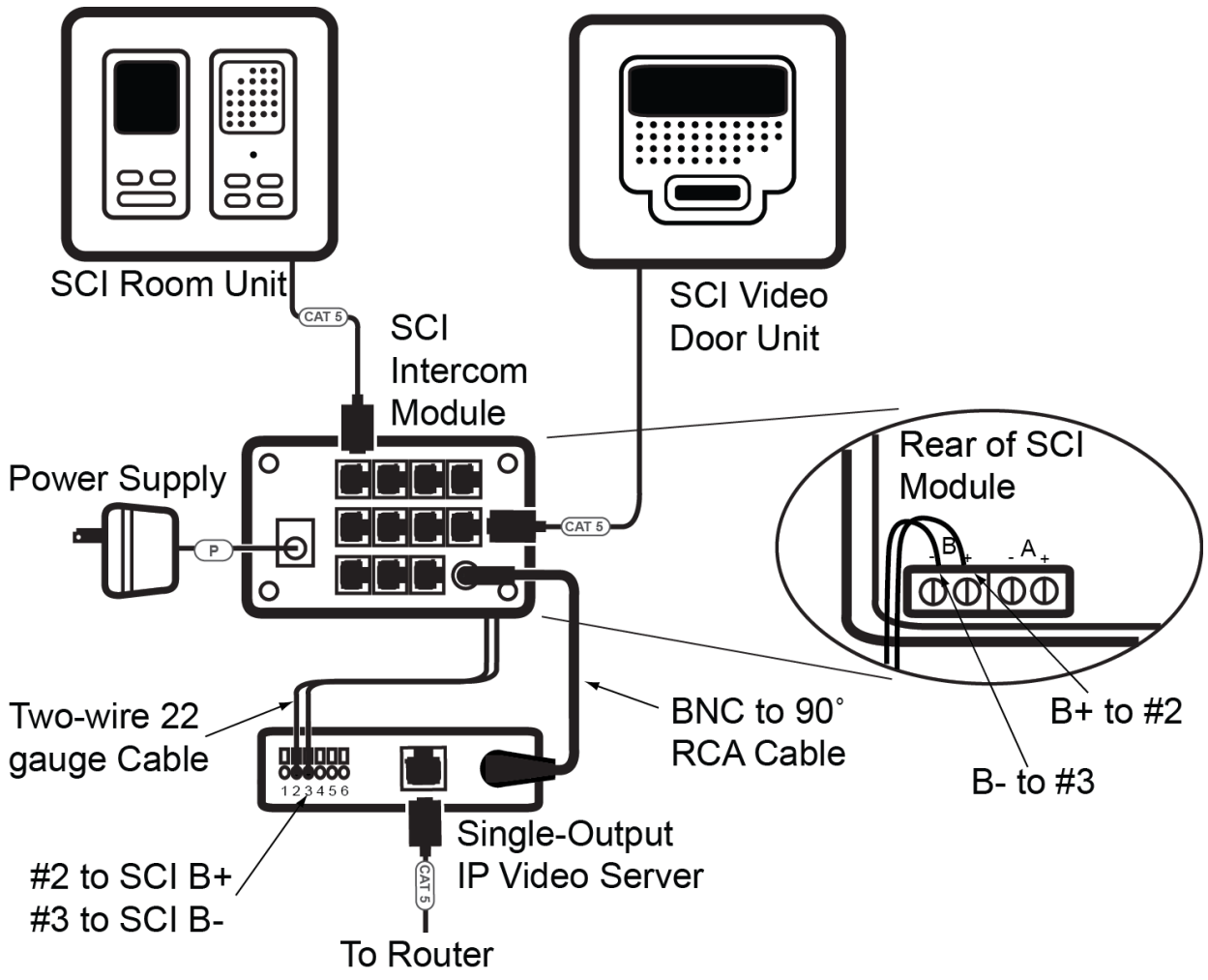

Figure 4

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3.0 PC/Web Configuration

The video images from the SCI Video Door Unit are available on a PC (or web enabled device such as a Smartphone) connected to the same subnetwork as the CM2001. This works best on a PC with UPnP enabled (Windows XP or newer) and may require you to “turn UPnP on” from the Network Control screen on the PC. This will enable you to see an icon on your Network screen labeled CM2001-xxx (the xxx are the last three digits of this CM2001’s MAC address).

NOTE: The CM2001 is set for DHCP by default, meaning that it will look for and receive its IP address from the router to which it is attached. If you power it on without a network connection, it will use a default IP address of 192.168.0.20, and if your PC is on another IP subnet, it may not see the CM2001 or show its icon on your Network device screen. However, if you simply plug a Cat 5e jumper between the CM2001 and the router to which your PC is attached, the CM2001 will use the IP address provided by the router. You may have to refresh your PC Network device screen to see the CM2001 icon.

Once you see the CM2001-xxx icon (see ***Figure 5***), double click it.

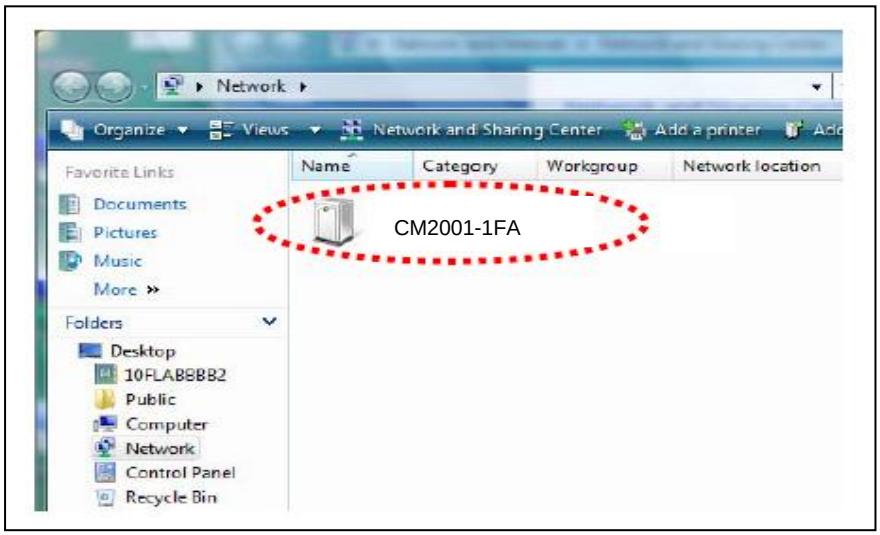

Figure 5

NOTE: If you are connecting with a Smartphone you will need to type in the IP address of the CM2001 (ie. http//192.168.40.3). If you don’t know what the CM2001’s address is, you may need to logon to the router and look at its client list.

If this is the first time you are accessing the CM2001, you will get a pop up screen asking for the user name and password – type in “admin” and “admin”. You can bookmark this action once logged on to avoid this step in the future. You may also get a request to “Run” ActiveX control, and you should do so.

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If you are using a PC, you now should see the SCI Video Door Unit image with a control section to the left (see ***Figure 6***).

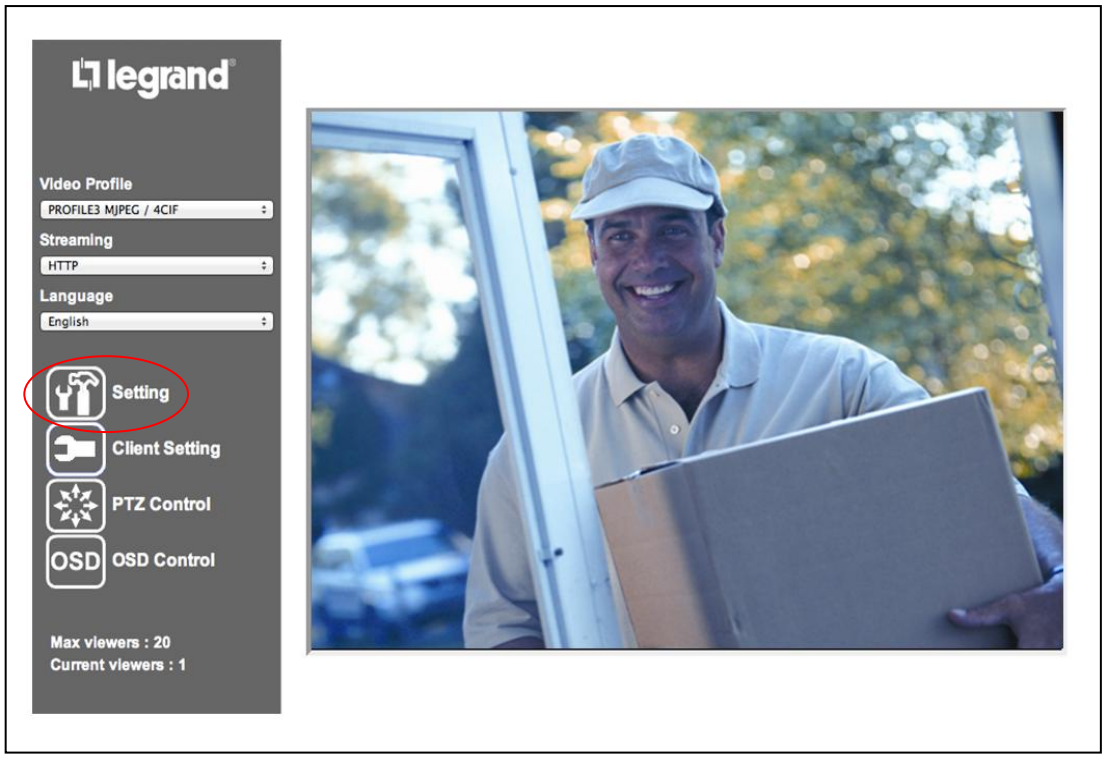

Figure 6

If you are using a Smartphone, you'll see the SCI Video Door Unit image with icons underneath (see ***Figure 7***). In either case, making the "Setting" selection (circled in red) will take you to the screen shown in ***Figure 8***. On the smart phone, pressing the "Original Web" button will take you to a screen as shown in ***Figure 6*** above.

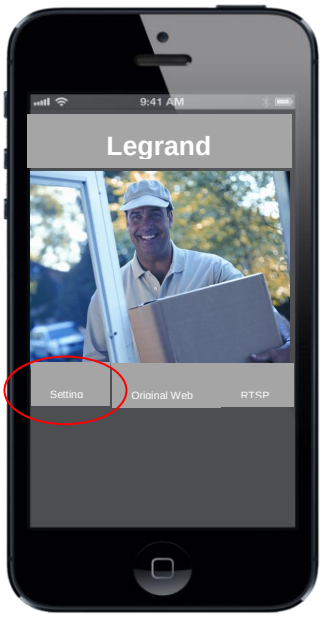

Figure 7

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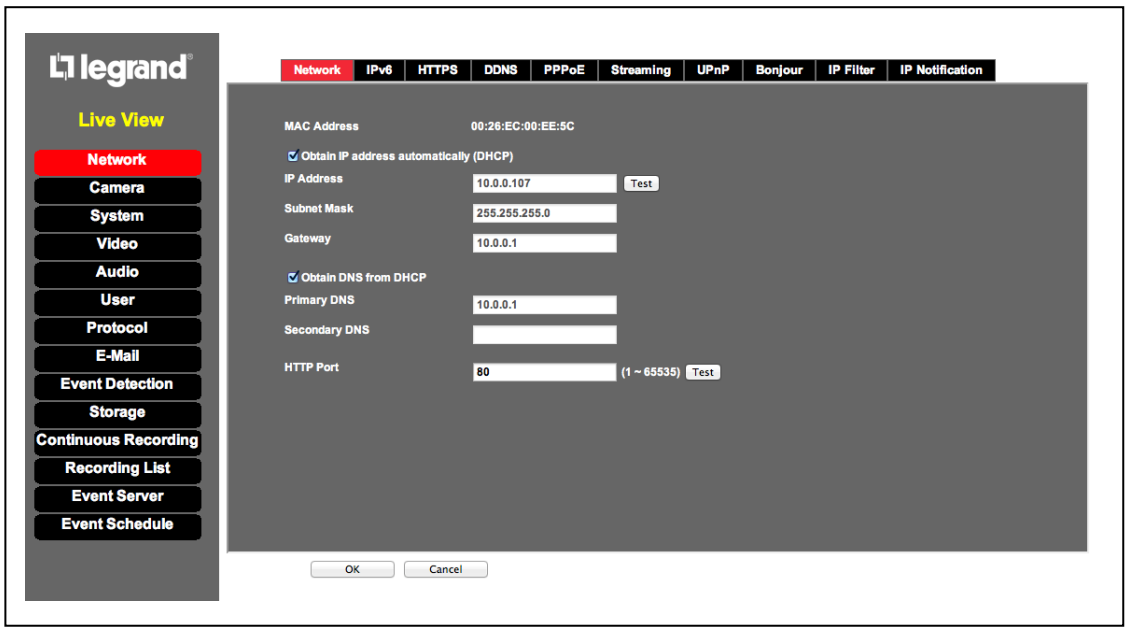

Figure 8

The “Setting” selection takes you to the configuration area, where you can configure specific settings for each of the items shown on the left of the screen (Network, Camera, System, etc.). When you select one of those items (Network is shown selected), you are shown a screen with one or more selections across the top. For each of these, you are able to make changes and then click on OK at the bottom of the screen to make your new changes active.

Notice that to return to the main screen that shows the camera image, after making configuration changes, just click on Live View on the upper left of the screen.

The following section goes into detail for each of the possible “Setting” selections.

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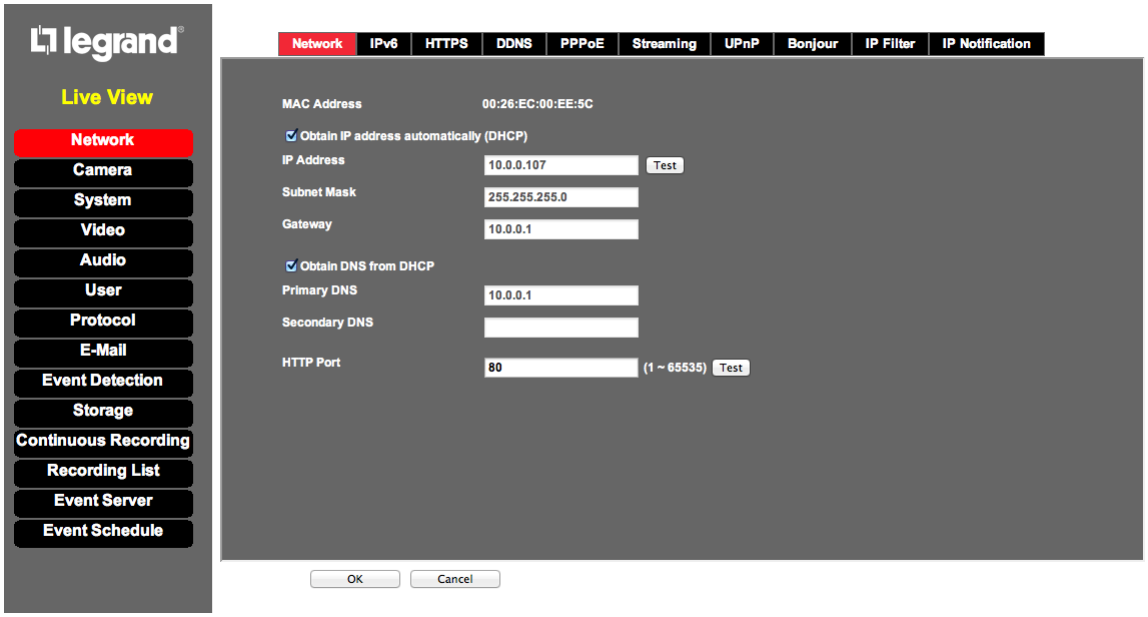
4.0 Configuration & Operation

4.1. Network Configuration

4.1.1 Network

This screen provides access to the parameters used for making a network connection.



MAC address	Displays the MAC address of the device. Note that user cannot change it.
Obtain an IP address automatically (DHCP)	Check this box when a DHCP server is installed on the network to issue IP addresses. With this setting, the IP address is assigned automatically. If the CM2001 cannot get an IP address within limited tries, it will be assigned a default IP address of 192.168.0.20. If you do not check “Obtain an IP address automatically”, then you need to enter the network parameters manually.
IP Address	This address is a unique number that identifies a computer or device on the WAN or LAN. These numbers are usually shown in groups separated by periods, for example: 192.168.0.200

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Subnet Mask	Subnets allow network traffic between hosts to be separated based on the network's configuration. In IP networking, traffic takes the form of packets. IP subnets advance network security and performance to some level by organizing hosts into logical groups. Subnet masks contain four bytes and usually appear in the same "dotted decimal" format as the IP Address. For example, a very common subnet mask in its binary form is 11111111 . 11111111 . 11111111 . 00000000, and is usually shown in its more readable form as 255.255.255.0.
Gateway	A gateway is a piece of software or hardware that passes information between networks, such as a router. You'll see this term most often when you either log onto an Internet site or when you send email between different servers.
Obtain DNS from DHCP	Check this box when the DHCP server is installed on the network and provides DNS service.
Primary DNS	When you send email or point a browser at an Internet domain such as xxxxx.com, the domain name system translates the name into an IP address. The term refers to two things: the conventions for naming hosts and the way the names are control across the Internet.
Secondary DNS	The same function as Primary DNS, but not normally required for a home network.
HTTP Port	The CM2001 supports two HTTP ports. The first one is default port 80 and this port is fixed. Port 80 is very useful for Intranet usage. The second HTTP port is configurable. Local users could assign the second port number, and any WAN users would need to add that port number to the back of IP address to login. For example: http://192.168.0.20:8080. Therefore, the user can access the CM2001 by either http://xx.xx.xx.xx/, or http://xx.xx.xx.xx:xxxx/ . If multiple devices are installed on the LAN and also required to be accessed from the WAN, then the **HTTP Port** can be assigned as the virtual server port mapping to support multiple devices.
NOTE	*When Network configuration is finished, click "OK" to save and enable the setting.*

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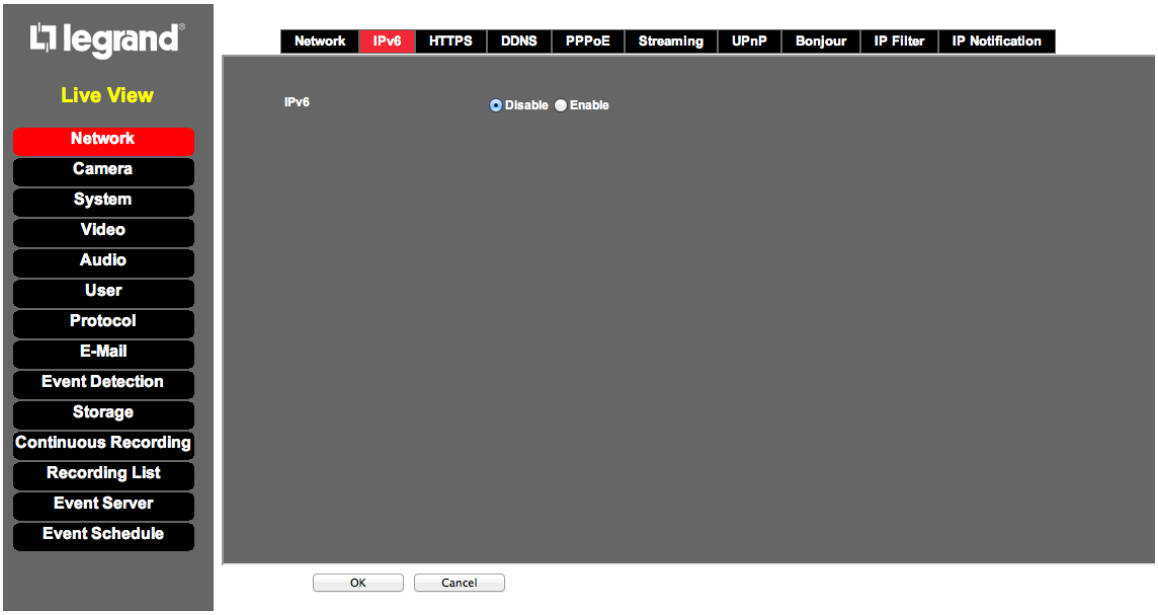
4.1.2. IPv6

Internet Protocol version 6 (IPv6) is called the “IP Next Generation” (IPng), which is designed to fix the shortcomings of IPv4, such as data security and maximum number of user addresses. It is backward compatible and thus expected to slowly replace IPv4, with the two existing side by side for many years.



IPv6	Click on enable or disable (the default) and OK if a change was made.

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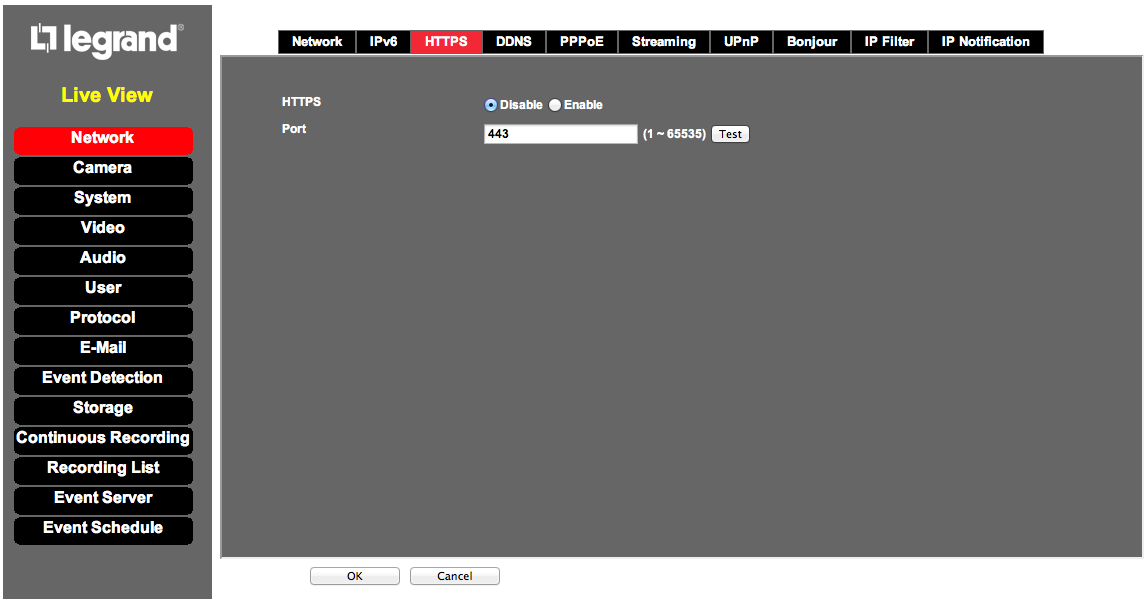
4.1.3. HTTPS

HTTPS: Stands for Hypertext Transfer Protocol Secure and is a combination of the Hypertext Transfer Protocol with the SSL/TLS protocol to provide encrypted communication and secure identification of a network web servers. HTTPS connections are often used for sensitive transactions in corporate information systems. The main idea of HTTPS is to create a secure channel over an insecure network. This ensures reasonable protection from eavesdroppers and man-in-the-middle attacks, provided that adequate cipher suites are used and that the server certificate is verified and trusted.



HTTPS	Check enable or disable. Note that the HTTPS function of the CM2001 is not only encrypted for the web content but also audio/video data.
Port	Choose the HTTPS port. The default value is 443.

4.1.4. DDNS Server

Stands for Dynamic Domain Name Server

The CM2001 supports DDNS, and if your device is connected to xDSL directly, you might need this feature. However, if your device is behind a NAT router, you will not need to enable this feature. DDNS allows the CM2001 to remember names rather than an IP addresses. The name of the domain is like the name of a person, and the IP address is like his phone number. On the Internet we have IP numbers for each host (computer, server, router, and so on), and we replace these IP numbers with more easily remembered domain names. In an xDSL environment, most of the users will use dynamic IP addresses. If users want to set up a web or a FTP server, then the Dynamic Domain Name Server is necessary. For more DDNS configuration, please consult your dealer.

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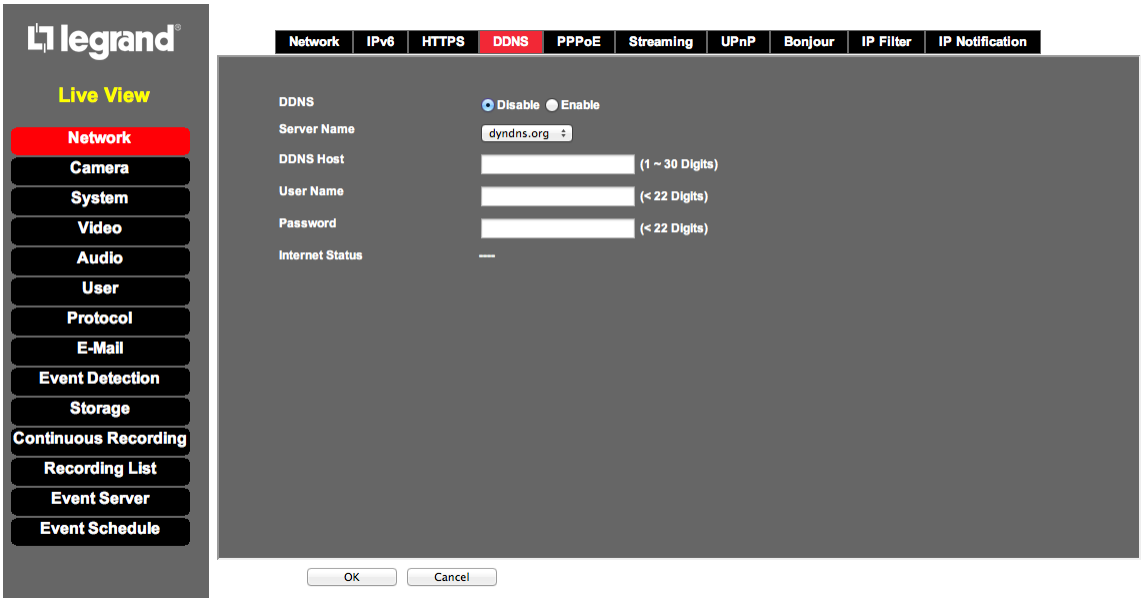
Your Internet Service Provider (ISP) will provide you at least one IP address which you can use to connect to the Internet. The address you get may be static, meaning it never changes, or dynamic, meaning it's likely to change periodically. Just how often it changes, depends on your ISP. A dynamic IP address complicates remote access since you may not know what your current WAN IP address is when you want to access your network over the Internet. The solution to the dynamic IP address problem comes in the form of a dynamic DNS service.

The Internet uses DNS servers to lookup domain names and translates them into IP addresses. Domain names are just easy to remember aliases for IP addresses. A dynamic DNS service is unique because it provides a means of updating your IP address so that your listing will remain current when your IP address changes. There are several excellent DDNS services available on the Internet and best of all they're free to use. One such service you can use is www.DynDNS.org. You'll need to register with the service and set up the domain name of your choice to begin using it. Please refer to the home page of the service for detailed instructions.



DDNS:	Check to enable or disable the DDNS service.
Server name:	Choose the DDNS service provider (like dyndns.org).
DDNS Host:	The domain name that was assigned by dyndns.org for this CM2001.
User Name:	The user name used to log into the DDNS account.
Password:	The password used to log into the DDNS account.

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4.1.5. PPPoE

PPPoE: Stands for Point to Point Protocol over Ethernet

A standard built on Ethernet using a Point-to-Point network protocol, PPPoE allows IP cameras to connect to the Internet over xDSL or cable service. The protocol dials up your ISP and gets a dynamic IP address. For more PPPoE and Internet configuration, please consult your ISP.

It can directly connect to the xDSL service, however, it should be setup first in a LAN environment to configure the PPPoE information, and then connected to the xDSL modem.

The procedures are

- Connect to a LAN via DHCP or Fixed IP
- Access the CM2001, enter **Setting ➔ Network ➔ PPPoE** as shown below

PPPoE:	Check to enable or disable the PPPoE service.
User Name:	Type the user name for the PPPoE service provided by the ISP.
Password:	Type the password for the PPPoE service provided by the ISP.
IP Address / Subnet Mask / Gateway:	Shows the IP information obtained from PPPoE server site.
Status:	Shows the Status of PPPoE connection.

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4.1.6. Streaming

RTSP is a Real Time Streaming control Protocol, and a starting point for negotiating transports such as RTP, multicast and Unicast, and for negotiating codecs. RTSP can be considered a "remote control" for controlling the media stream delivered by a media server. RTSP servers typically use RTP as the protocol for the actual transport of audio/video data.

RTSP Port:	Enter the RTSP port. The RTSP protocol allows a connecting client to start a video stream. The default value is 554.
RTP Port:	Specify the range of transmission port numbers of the video stream. The default range is 50000 to 50999. Users can specify a number between 1024 and 65535.

NOTE:

1. To use the 3GPP function, you will need more information or configuration to make this function work.
2. The CM2001 must be set in Multi-profile mode, not Mega-pixel mode. Otherwise this device cannot support a 3GPP stream.
3. To use the 3GPP function, it is strongly recommended to install the Networked Device with a public and fixed IP address without any firewall protection.
4. Port 554 is the default for RTSP service. However, sometimes service providers change this port number for some reason. If so, the user needs to change this port number accordingly.

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Dialing procedure:	1. Choose a verified player (PacketVideo, QuickTime or Real player currently) 2. Use the following URL to access: **rtsp://host/mpeg4/media.3gp** Where host is the host name or IP address of the camera.
Compatible 3G mobile phone:	Please contact your dealer to get the approved list of compatible 3G phone.

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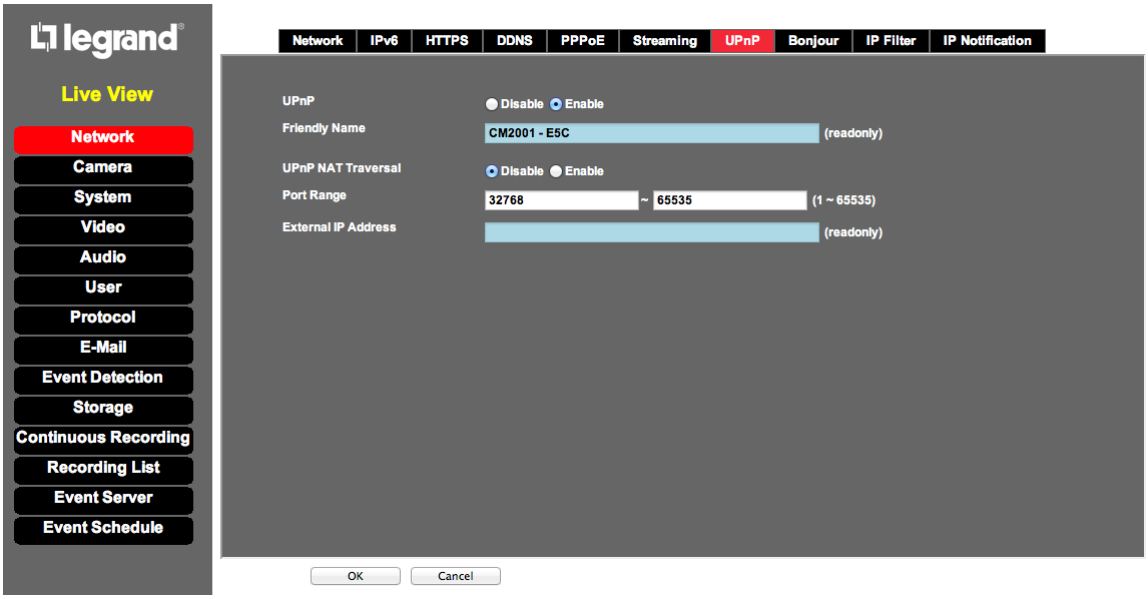
4.1.7. UPnP

UPnP is short for Universal Plug and Play, which is a networking architecture that provides compatibility among networking equipment, software, and peripherals. The CM2001 is a UPnP enabled Network Video Server. If your operating system is UPnP enabled, the CM2001 will automatically be detected and a new icon will be added to “My Network Places.” If you do not want to use the UPnP functionality, it can be disabled

In addition, the CM2001 also provides UPnP IGD function for easy NAT traversal. Use NAT traversal when your CM2001 is located on an intranet (LAN) and you wish to make it available from the other (WAN) side of a NAT router. With NAT traversal properly configured, all HTTP traffic to an external HTTP port in the NAT router will be forwarded to the CM2001.



UPnP:	Check to enable or disable the UPnP service.
Friendly Name:	Shows the UPnP friendly name of the CM2001.
UPnP NAT Traversal:	When enabled, the CM2001 will attempt to configure port mapping in an NAT router on your network, using UPnP™. Note that UPnP™ must be enabled in the NAT router first.
Port Range:	The port range open in the NAT router.
External IP address:	Shows the IP address and port for WAN access through Internet. If NAT traversal is configured successfully, the user can use this IP address and port to access the CM2001.

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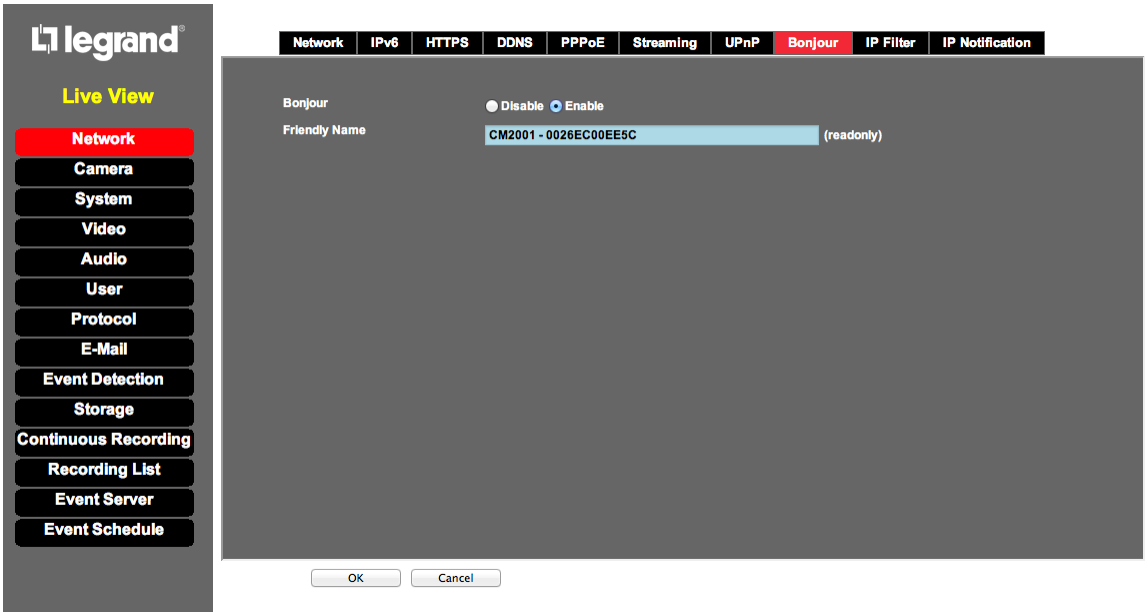
4.1.8. Bonjour

Bonjour service allows IP cameras to be discovered via the Apple Safari browser, once the option is enabled, the IP camera will show the Friendly Name in the Bonjour bookmarks menu of the Safari browser.



Bonjour	Check to enable or disable the Bonjour service.
Friendly Name	Shows the friendly name of this CM2001. Note that with the Bonjour service, the entire MAC address is shown, rather than the last three digits.

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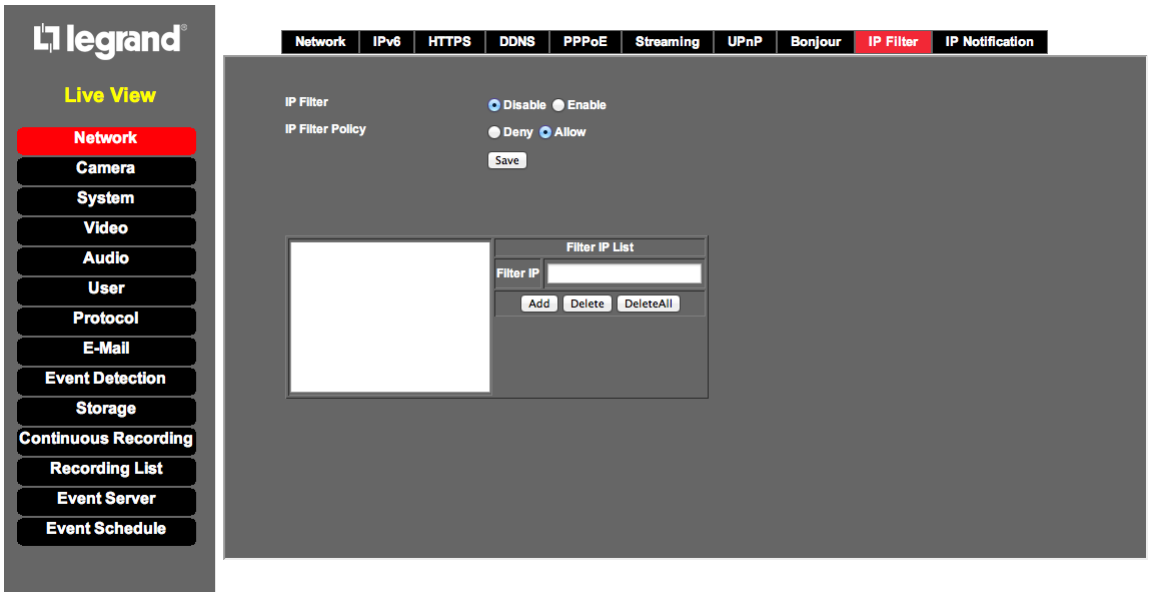
4.1.9. IP Filter

You can enter different user's IP addresses and designate which ones to allow or deny access to the CM2001.



IP Filter:	Check to enable or disable the IP filter function.
IP Filter Policy:	Choose the filter policy for creating a list of IP addresses to allow or deny access to the CM2001.

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4.1.10. IP Notification

In case the IP address is changed, the system is able to send out an email to alert someone of the changed when the function is enabled.

SMTP Notification (e-mail):	If enable this function, the "**Send to**" and "**Subject**" field need to be filled in.
Send To:	Type the receiver's e-mail address. This address is used as the notification destination email.
Subject:	Type the subject/title of the E-mail.
TCP Notification:	If you enable this function, the "**TCP Server**", "**TCP Port**", and "**Message**" fields need to be filled.
TCP Server:	Type the server name or the IP address of the TCP server.
TCP Port:	Set port number of TCP server.
Message:	Type the message to be sent to FTP server.
HTTP Notification:	If you enable this function, then the fields below need to be filled in.

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URL:	Type the server name or the IP address of the HTTP server.
HTTP Login name:	Type the user name for the HTTP server.
HTTP Login Password:	Type the password for the HTTP server.
Proxy Address:	Type the server name or the IP address of the HTTP Proxy.
Proxy Port:	Type the port number of Proxy.
Proxy Login name:	Type the user name for the HTTP Proxy.
Proxy Login Password:	Type the password for the HTTP Proxy.
Custom parameter:	The user can set specific parameters of the HTTP server.
Message:	Type the message to be sent to HTTP server.

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4.2. Adjust Camera Configuration

Use the “Camera” selection to adjust the image from the camera attached to the CM2001.

4.2.1. Picture

Color Level	Increase value to increase color saturation (N/A on smartphone).
Brightness:	Increase value to brighten camera image (N/A on smartphone).
Contrast:	Increase value to increase image contrast (N/A on smartphone).
Sharpness:	Increase value to sharpen image (N/A on smartphone).
Local Video Output:	Enable or disable the local video output. It’s useful for camera installation to check the camera view angle and focus. However, it will save power and heat if disabled. It is recommended to disable this function once the camera is installed.
3D De-Noise:	De-Noise can remove or lower unwanted noise and preserve fine details and edges.
Video Input Offset:	Use to adjust start point of captured video.
Default Settings:	Restore to factory image settings.

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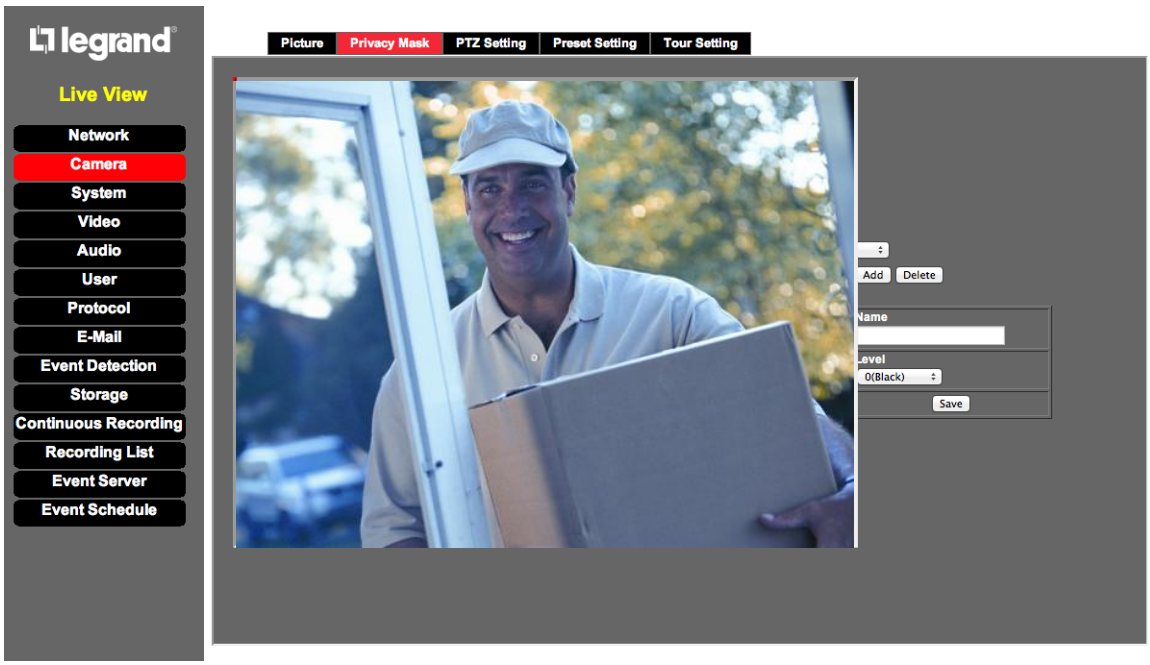
4.2.2. Privacy Mask

Use this page to specify privacy mask window 1 to window 8 and set the name and gray level for the selected window.



Add and Delete	To add or delete the privacy mask windows, user can specify up to 7 windows to mask the video captured by this device. By dragging mouse on the image, you can change the position and size of the selected window accordingly.
Name	Name of the specified privacy window
Level	To define the gray level of mask block. The smaller value will be darker.

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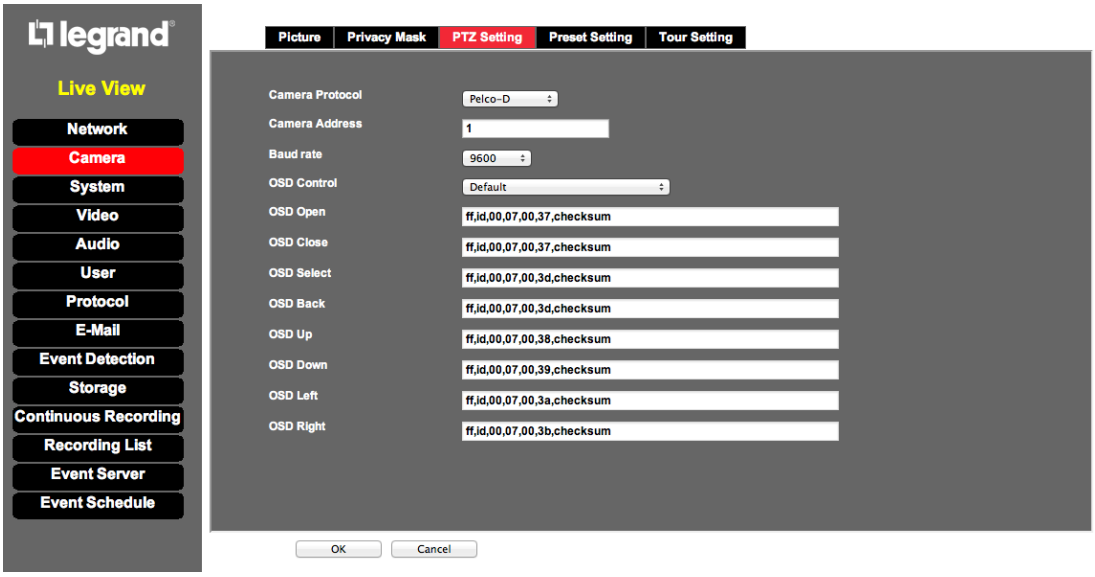
4.2.3. PTZ Setting (N/A with SCI Video Door Camera)

This page allows the user to modify the RS-485 interface according to the P/T scanner.



Camera Protocol	The CM2001 can connect to a PTZ camera or speed dome camera and controls them thru an RS-485 interface.
Camera Address	This is the camera ID set in PTZ camera or speed dome camera. **Note: Use default value or set the value properly for both sides.**
Baud rate	If you need to change this parameter, the user needs to check and set value properly for both, network module and P/T scanner.
OSD Control	Choose the corresponding model for OSD control
OSD Open	Control commands for Open function.
OSD Close	Control commands for Close function.
OSD Select	Control commands for Select function.
OSD Back	Control commands for Back function.
OSD Up	Control commands for Up function.

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OSD Down	Control commands for Down function.
OSD Left	Control commands for Left function.
OSD Right	Control commands for Right function.

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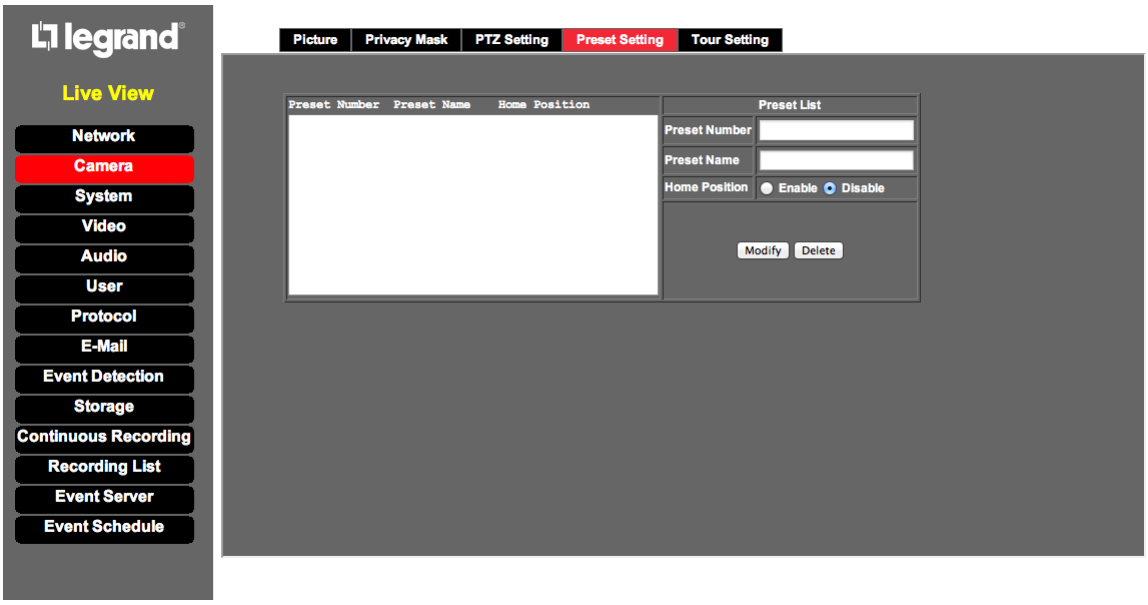
4.2.4. Preset Setting (N/A with SCI Video Door Camera)

This page provides the edit tool to modify or delete the “Preset Setting” item by item.



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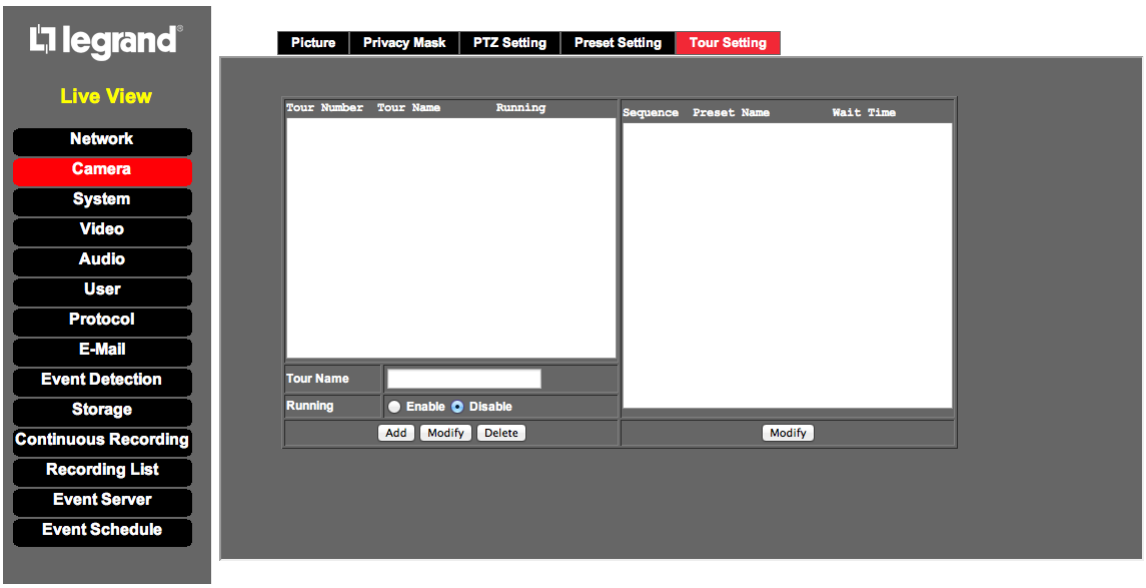
4.2.5. Tour Setting (N/A with SCI Video Door Camera)

Up to 64 positions can be preset, and the camera can be programming to move to the preset position sequentially.



Tour Name	The group name of the sequence of camera tour. The maximum number of camera tours is 16.
Running	Enable or disable this camera tour.
Preset	Set the sequence of the tour. Maximum 16 points can be assigned. The selected preset position is added in the Sequence list from 1 to 16.
Wait Time	Type a period of time during which the camera is to stay at each preset point, between 0 to 36000 seconds.
NOTE:	To use the camera tour function, the user must preset some camera positions first. The maximum number of preset points is 64.

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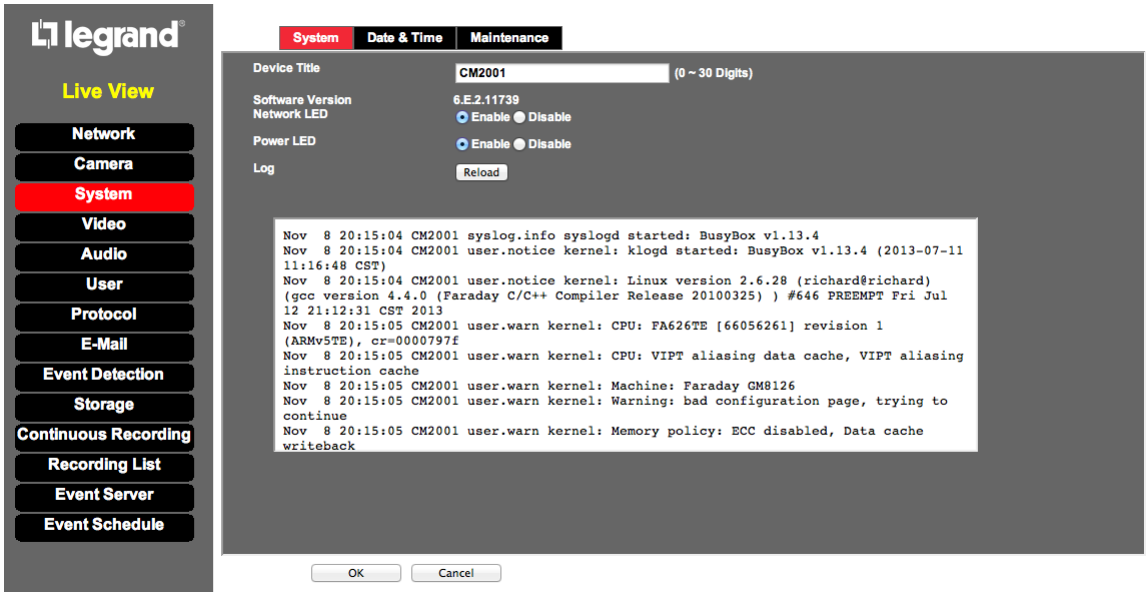
4.3. System Configuration

Use this selection to perform the principal settings of the CM2001.

4.3.1. System



Device Title:	You can enter the name of this unit here. It's very useful to identify the specific device from multiple units.
Software Version:	This information shows the software version of the CM2001.
Network LED:	Switch the LED light of an Internet camera (not SCI Video Door Camera) on or off, in case you don't want other people know the camera is transferring data.
Power LED:	Switch the LED light of an Internet camera (not SCI Video Door Camera) on or off.
Log:	User can check the system log information of the CM2001, including the Main Info, Appended Info, Operator IP, and so on …
Reload:	Click this button; user can refresh the log information of the CM2001.

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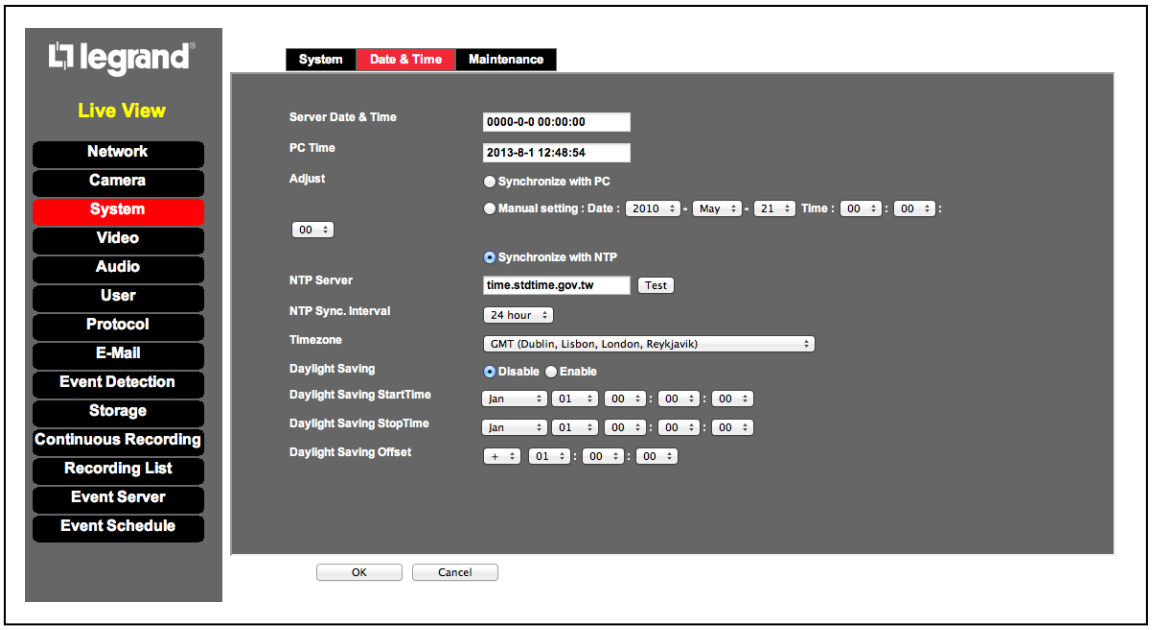
4.3.2. Date & Time

This page allows the user to set the time of CM2001, synchronize it with a PC or remote NTP server. You may also select the correct time zone of your country, and adjust for Daylight Savings time (if appropriate).



Server Date & Time:	Displays the date and time of the CM2001	
PC Time:	Displays the date and time of the connected PC	
Adjust:	**Synchronize with PC:**	Click this option to enable time synchronization with PC time
	Manual setting:	Click this option to set time and date manually
	Synchronize with NTP:	Click this option if you want to synchronize the CM2001's date and time with those of an NTP server (Network Time Protocol)
NTP server name:	Type the host name or IP address or domain name of the NTP server.	
NTP sync. Interval:	Select an interval between 1 and 23 hours at which you want to adjust the CM2001's time referring to NTP server	
Time zone:	Set the time difference from Greenwich Mean Time in the area where the CM2001 is installed.	

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Daylight saving:	Check this item to enable daylight saving adjustment.
Daylight Saving Start Time:	Sets up the date and time of daylight saving start time.
Daylight Saving Stop Time:	Sets up the date and time of daylight saving stop time.
Daylight Saving Offset:	Sets up the date of daylight saving offset.

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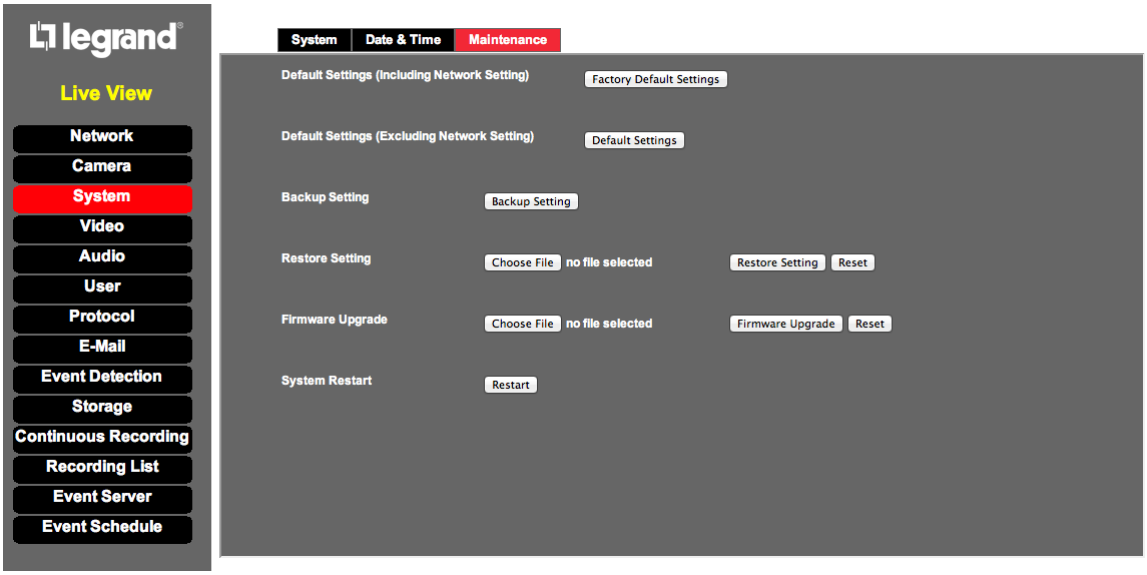
4.3.3. Maintenance



Default Settings (Including the Network Setting):	Reset the CM2001 to factory default settings. Note that clicking this button will reset all parameters to the factory settings (including the IP address).
Default Settings (Excluding the Network Setting):	The CM2001 is restarted and most current settings are reset to factory default values. This action will not reset the network setting.
Backup Setting:	To save a backup of all of the current parameters, click this button. It will then be possible to return to those settings, if settings are changed or there is unexpected behavior.
Restore Setting:	Click the “Browse” button to locate the saved backup file and then click the “Restore Setting” button. The settings will be restored to the previous configuration.
Firmware upgrade:	The CM2001 supports the ability to update to new firmware. 1. Close all other application programs which are not necessary for the firmware update. 2. Make sure that only you access this device at this moment 3. Disable Motion Detection function. 4. Select “**Firmware name**” 5. Select the Firmware binary file.

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Note: That you must make sure that the Firmware only applies to this CM2001, as once it is updated, it will be burned into FLASH ROM of system.

6. Once the firmware file was selected, select “Upgrade”.
7. The upgrade progress information will be displayed on the screen.
8. A message will be shown while the firmware is upgraded. Once the upgrading process completed, the CM2001 will reboot automatically.
9. Please wait for 80 seconds, and then you can access the CM2001 again.

Warning!!! The download firmware procedure cannot be interrupted. If the power and/or network connection are broken during the download procedure, it might possibly cause serious damage to the CM2001.

Please be aware that you should not turn off the power during updating the firmware and wait for finish message.

Furthermore, do not upgrade to new firmware if it’s not necessary.

System Restart:	The device is restarted without changing any of the settings.

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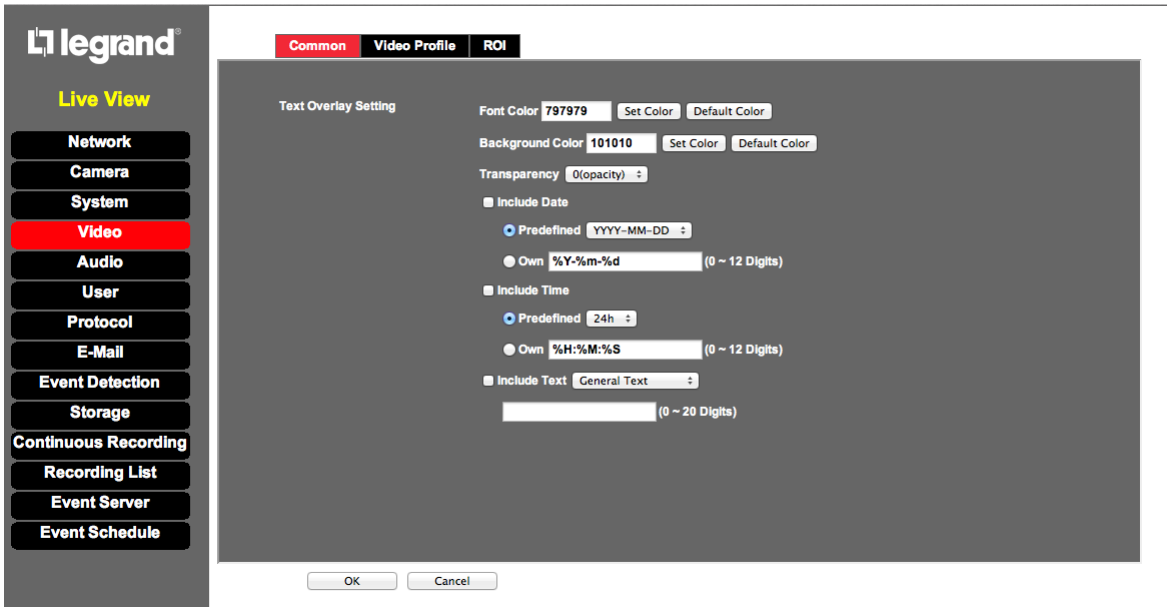
4.4. Video Configuration

The CM2001 provides the ability to overlay the camera image with information such as date, time and/or text.

4.4.1. Common



Text Overlay Setting:	There are some important information can be embedded into image, including date, time, and/or text.

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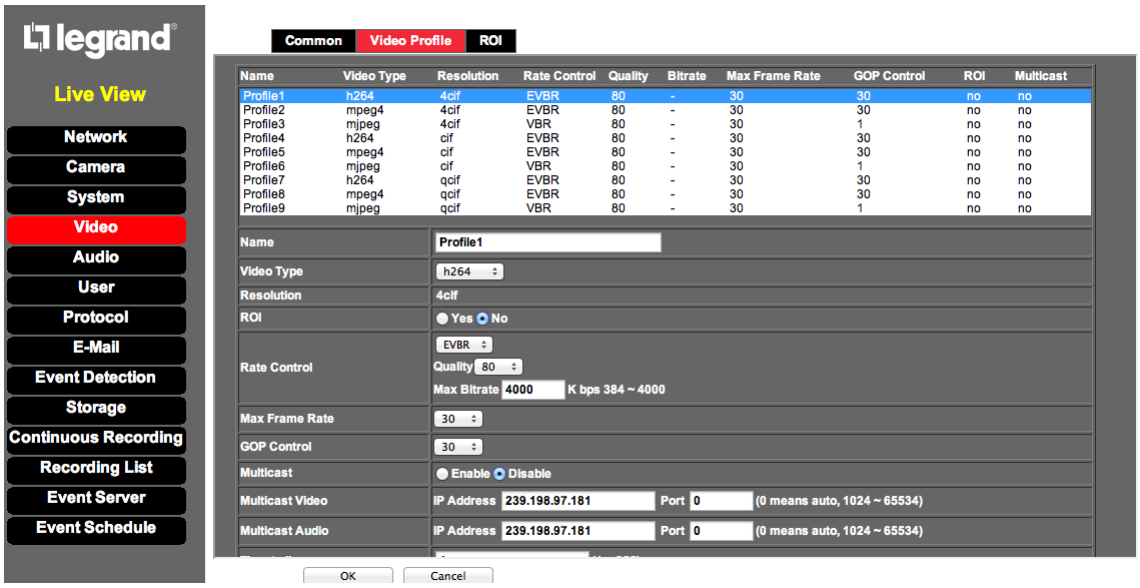
4.4.2. Video Profile

The CM2001 allows for the creation of individual user video profiles as shown below.



Name:	To assign a name to the selected profile.
Video Type:	There are three video types: H.264, MPEG4 and MJPEG.
Resolution:	There are three resolutions in each profile: 4CIF, CIF and QCIF.
Rate Control:	Defines the rate control method of this profile. There are two options: Constant Bit Rate (CBR) or Variable Bit Rate (VBR). For CBR, the video bit rate is between low to high bandwidth based on different resolutions. The user can set the desired bit rate to match the limitation of bandwidth. For VBR, the user should choose the quality level of the video rather than bit rate. The quality level is between 1 and 100. The higher value means better quality, but of course will consume higher bandwidth.
Max Frame Rate:	Defines the targeted frame rate of this profile. For example, set the frame rate to 15 fps, and the image will be updated for 15 frames per second. The user can set the desired max frame rate versus video quality when there is limited bandwidth.

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GOP Control:	Defines the Intra/Inter-frame (I/P) ratio of this profile. For example, set the GOP to 30, then the video stream will have one Intra-frame every 30 frames.
Multicast:	Enable or disable the multicast function.
Multicast Video:	IP address and port for multicast video streaming of the selected profile.
Time to live	Time to live (TTL) is a mechanism that limits the lifespan of data in a computer or network. Once the prescribed event count or timespan has elapsed, data is discarded. TTL prevents a data packet from circulating indefinitely.
Always Enable Multicast	Multicast streaming is always enabled or by request.

Warning!!!

To enable the multicast streaming, you shall make sure your Intranet does support multicast function. Otherwise, your Intranet may experience serious network storms.

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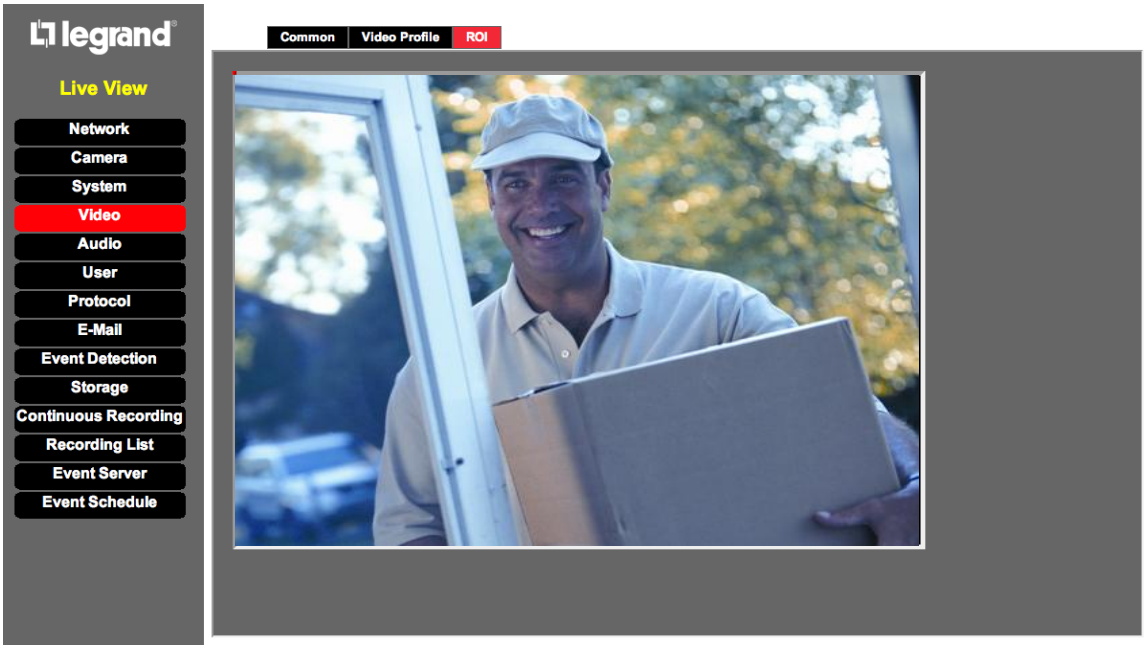
4.4.3. ROI

ROI means Region of Interest. Use this page to specify location of ROI windows. Only the maximum resolution profiles can be defined as ROI. In this model, the default ROI windows are profile 1 and 2.



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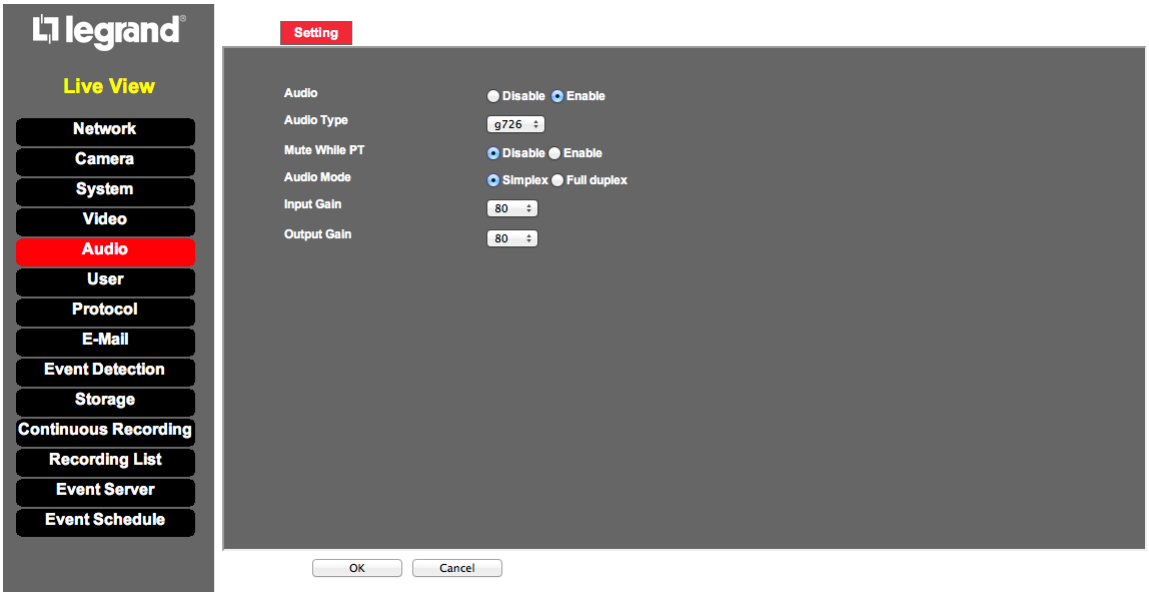
4.5. Audio Configuration



Audio	Click to enable or disable the audio function.
Audio type	Select either G711 or G726 for *audio* coding.
Audio Mode	Select either Simplex or Full duplex (2-way audio) mode.
Input Gain	Adjust the gain of input audio.
Output Gain	Adjust the gain of output audio.

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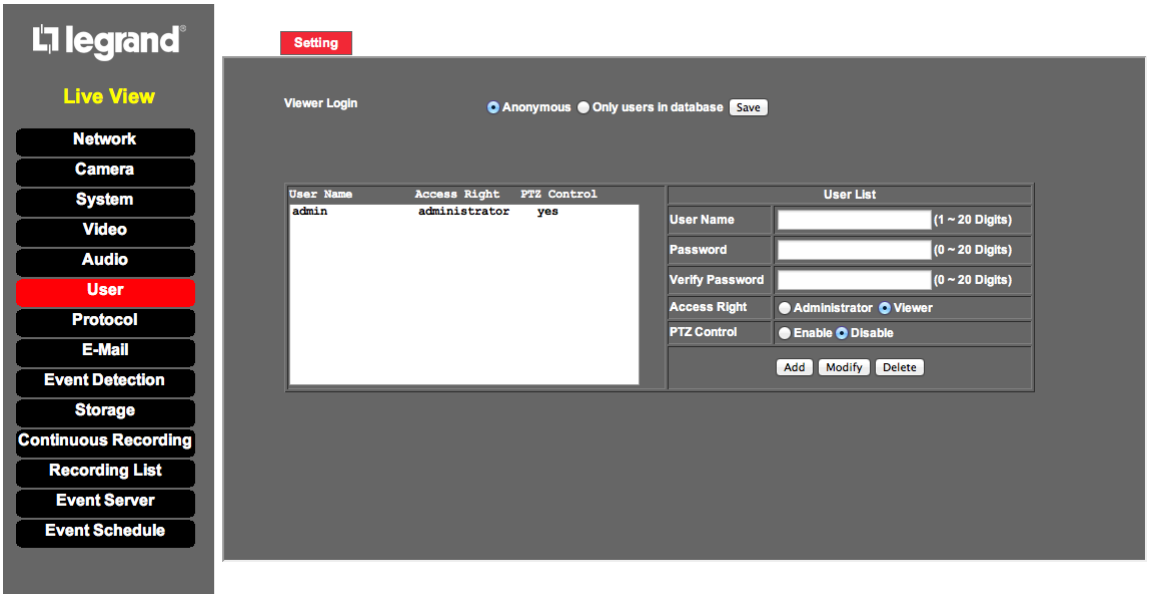
4.6. User Privilege Access Configuration

Use this page to set the user names and password of the Administrator and up to 10 users, and the associated access rights of each one.



Viewer Login:	Select “Anonymous” to allow any one viewing the video once connected. Otherwise, only users in the database can view the video after login.
Access Right:	The Administrator can access every function in the CM2001. However, Viewers can only view the video and access limited functions.
PTZ Control	Authorize this user to control PTZ function or not.
Add, modify and delete a User’s account:	Manage a specific user’s account.

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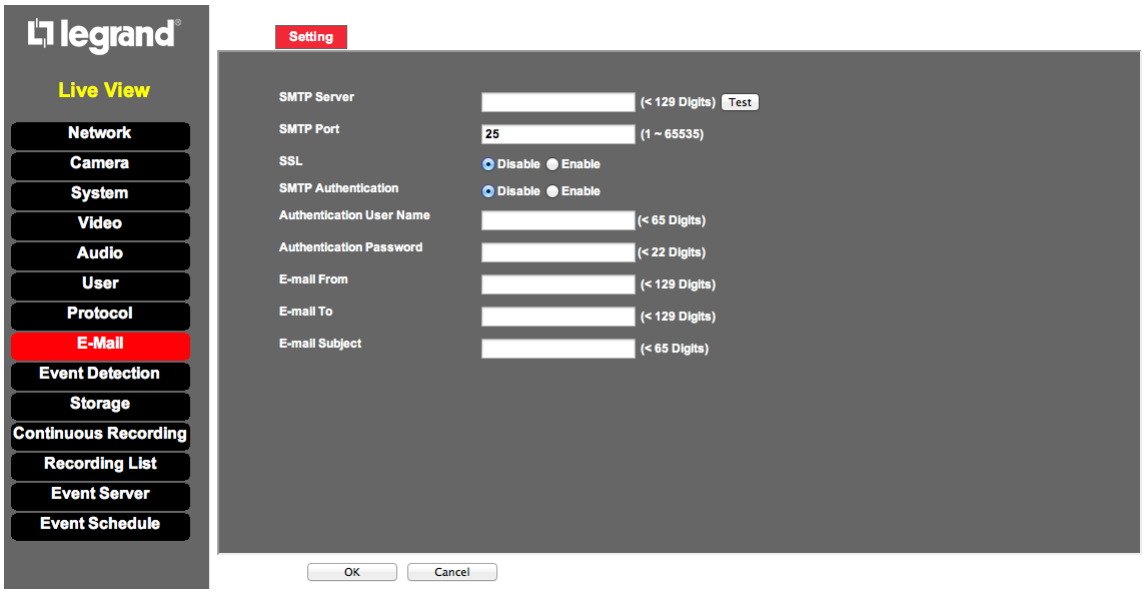
4.7. E-Mail Configuration

You may setup SMTP mail parameters as part of the operation of Event Schedules. If users want to send an alarm message out via email, it will need to be configured here and also added to at least one event schedule to enable event triggering.



SMTP Server	Type the SMTP server name or the IP address of the SMTP server.
Test	Send a test mail to mail server to check this account is available or not.
SMTP Port	Set port number of SMTP service.
SSL	Enable/disable SSL function.
SMTP Authentication	Select whether authentication is required when you send an e-mail. **Disable:** If no authentication is required when an e-mail is sent. **Enable:** If authentication is required when an e-mail is sent.
Authentication User Name	Type the user name for the SMTP server if Authentication is Enabled.
Authentication Password	Type the password for the SMTP server if Authentication is Enabled.

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E-mail From	Type the sender's E-mail address. This address is used for reply e-mails.
E-mail To	Type the receiver's e-mail address.
E-mail Subject	Type the subject/title of the e-mail.

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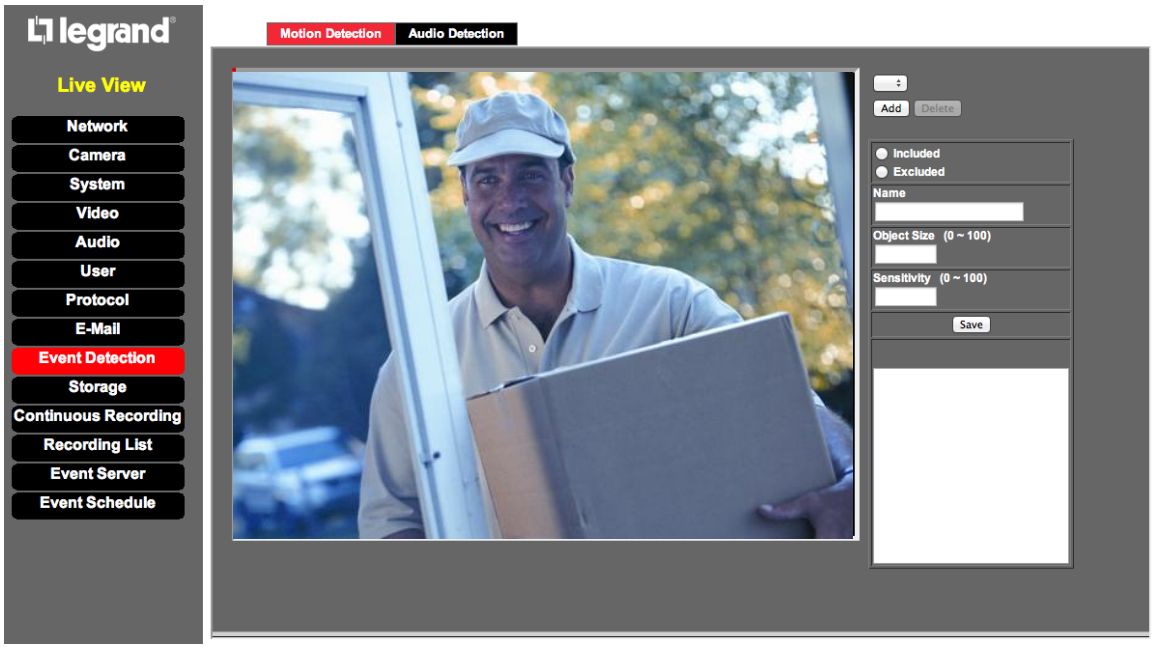
4.8. Object Detection

Use this menu to specify up to 10 motion detection windows and set the conditions for detection while observing a captured image.



Add and Del:	To add or delete motion windows. Users can specify up to 10 Included and/or Excluded windows to monitor the video captured by the CM2001. By dragging the mouse on the image, you can change the position and size of the selected motion window accordingly.
Included or Excluded Window:	The indicated window can be specified as Included or Excluded type. **Included:** The Window targets a specific area within the whole video image **Excluded:** The Window defines an area within an Included window that should be ignored (areas outside Included windows are automatically ignored)
Name:	Name of the specified motion window.
Object Size:	Defines the object size of motion detection. The higher object size will only trigger motion detection for larger objects. The lower object size will trigger motion detection even for small objects. Generally speaking, the smaller size will be easier to insure a triggered event.
Sensitivity	Defines the sensitivity value of motion detection. The higher value equals more sensitivity.

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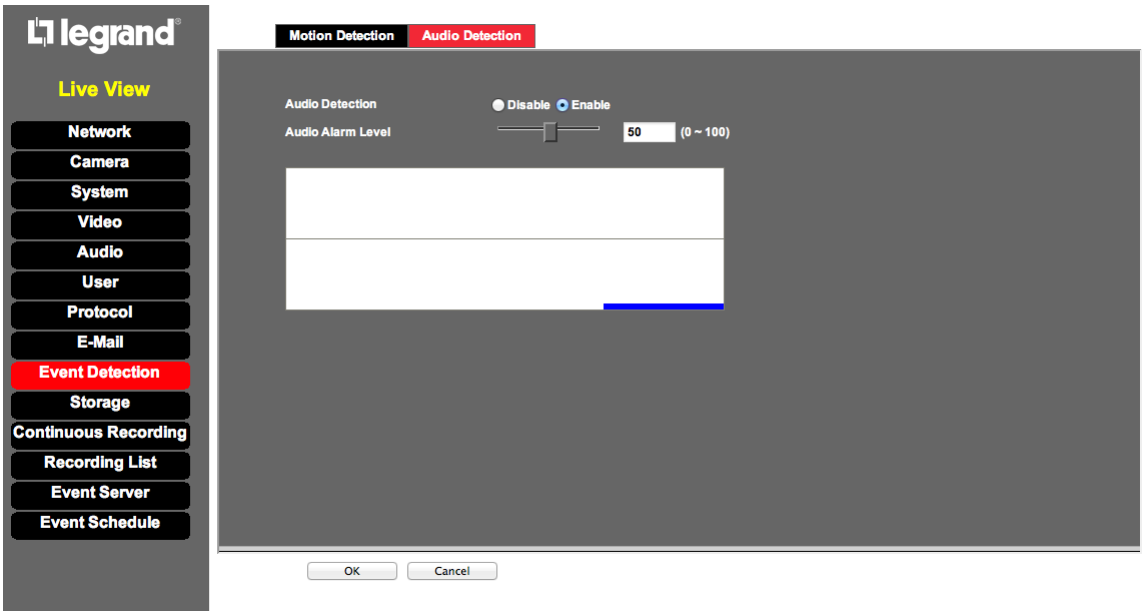
4.9. Audio Detection

Audio detection can be used as a complement to motion detection. Audio detection can react to events in areas too dark for motion detection functionality to work properly. In addition, it can be used to detect activity in areas outside of the camera's view.



Audio Alarm Level:	Defines the sensitivity value of audio detection. The lower value will equal more sensitivity.

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4.10. Storage Configuration

This page shows the status of the on-board SD card or attached Samba server and allows you to setup related parameters for management of the SD card or Samba server also.

4.10.1. SD Card

This page shows the status of the SD Card and allows you to setup related parameters to manage the SD Card.

Enable automatic disk cleanup	Delete old recorded files when conditions are reached as indicated below.
Remove recordings order than	Delete files older than xx days.
Remove oldest recordings when disk is	Delete the oldest files when SD card is xx% full.
Lock disk	Lock the SD card. Once the SD card is locked, files can't be deleted.

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4.10.2. SAMBA Server

This page shows the status of SAMBA server. You may setup related parameters to manage the remote SAMBA server.

Host	Type the SAMBA server domain name or the IP address of the SMTP server.
Share	Type the share folder of remote SAMBA server to which the camera will upload files.
User name	Type the user name of the remote SAMBA server.
Password	Type the password for the remote SAMBA server.

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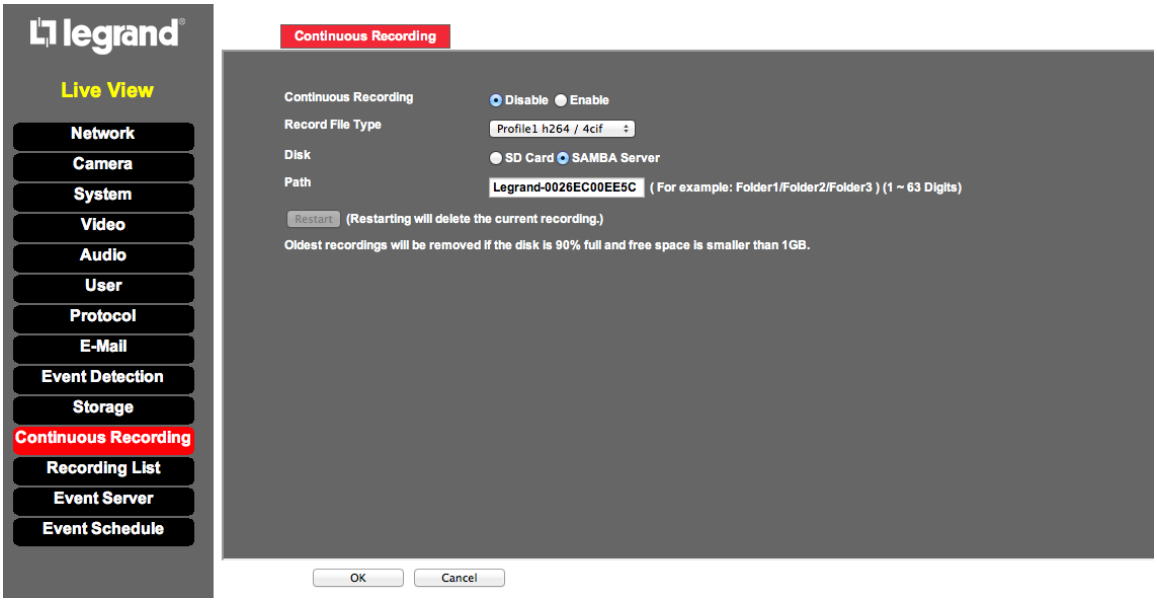
4.11. Continuous Recording

The camera can continuously record a video stream into files and save them to the SD card or remote SAMBA server.



Continuous Recording	Enable or disable this function.
Record File Type	Choose a video profile to record.
DISK	Save recorded files to SD card or remote SAMBA server.
Path	Define the folder path for the recorded files.
Restart	Be careful, clicking this button will delete all continuous files recorded in the SD card or the remote SAMBA server.

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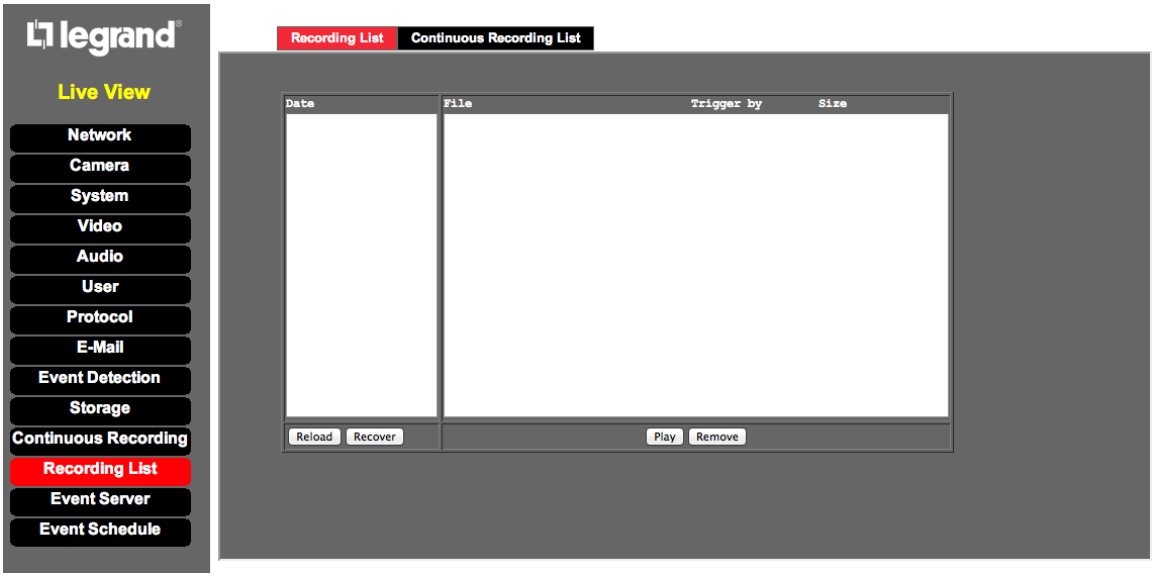
4.12. Recording List

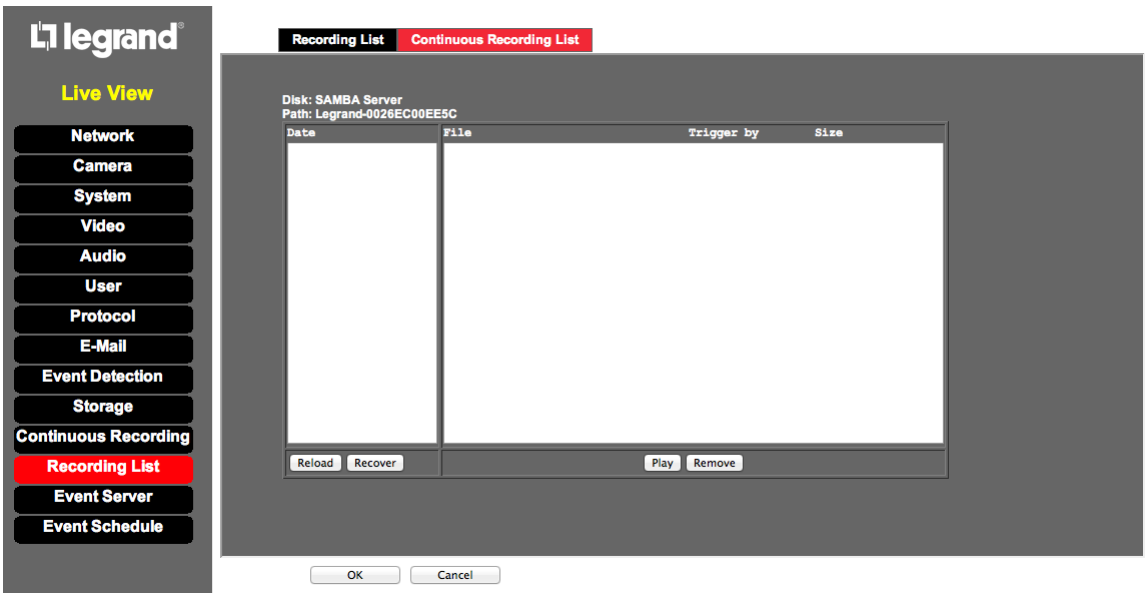
4.12.1. Recording List

This page shows only the event recording files which are stored on the SD card. The User may play or delete the selected file.



4.12.2. Continuous Recording List

This page shows only the continuous recording files which are stored on the SD card or remote SAMBA server. The User may play or delete the selected file.



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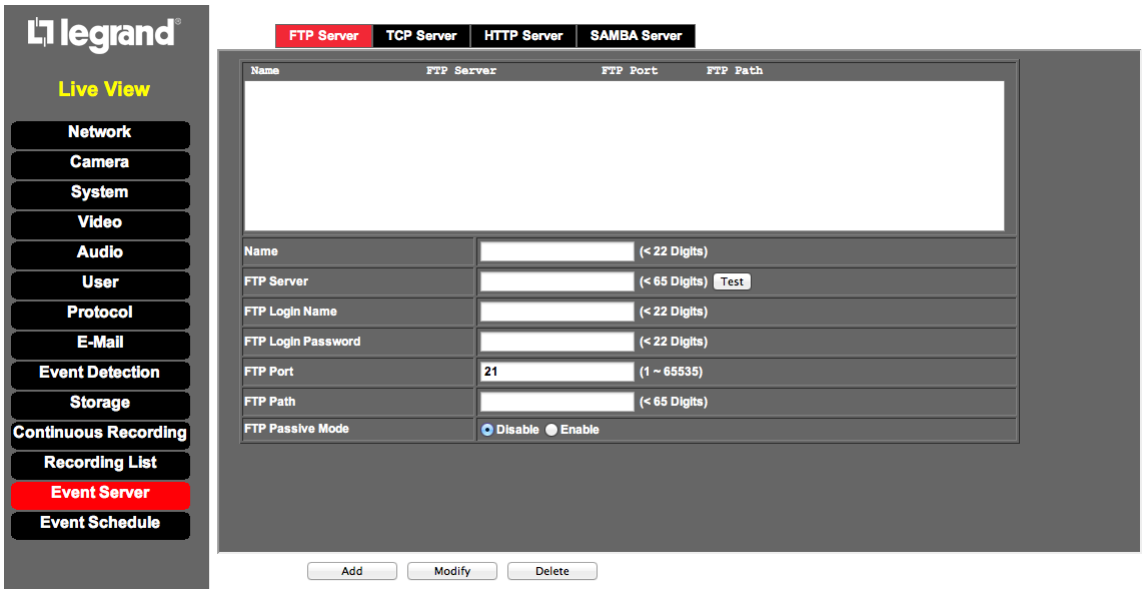
4.13. Event Server Configuration

4.13.1 FTP Server

On this page you may setup FTP parameters as associated with the Event Schedule. If users want to send an alarm message to an FTP server, it will need to be configured here and also add at least one event schedule to enable event triggering as FTP.



Name	The User can specify multiple FTP paths if desired. Therefore, the user needs to specify a name for each FTP server.
FTP Server	Type the server name or the IP address of the FTP server.
Test	Check whether this FTP server account is available.
FTP Login name	Type the user name for the FTP server.
FTP Login Password	Type the password for the FTP server.
FTP Port	Set the port number for the FTP service.
FTP Path	Type the working directory path to the FTP server.
FTP Passive Mode	Select passive or active mode when connecting to FTP server.

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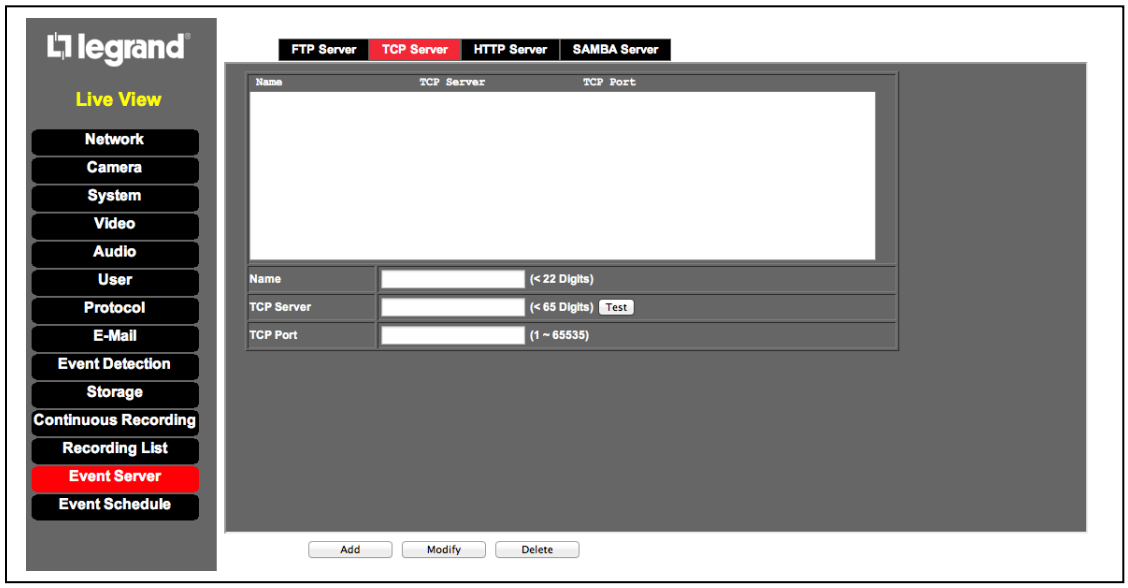
4.13.2. TCP Server

In addition to sending video files to an FTP server, the CM2001 can also send event messages to a specified TCP server.



Name	Users can specify multiple TCP servers if desired. Therefore, the user needs to specify a name for each TCP server setting.
TCP Server	Type the server name or the IP address of the TCP server.
TCP Port	Type the port number of TCP server.

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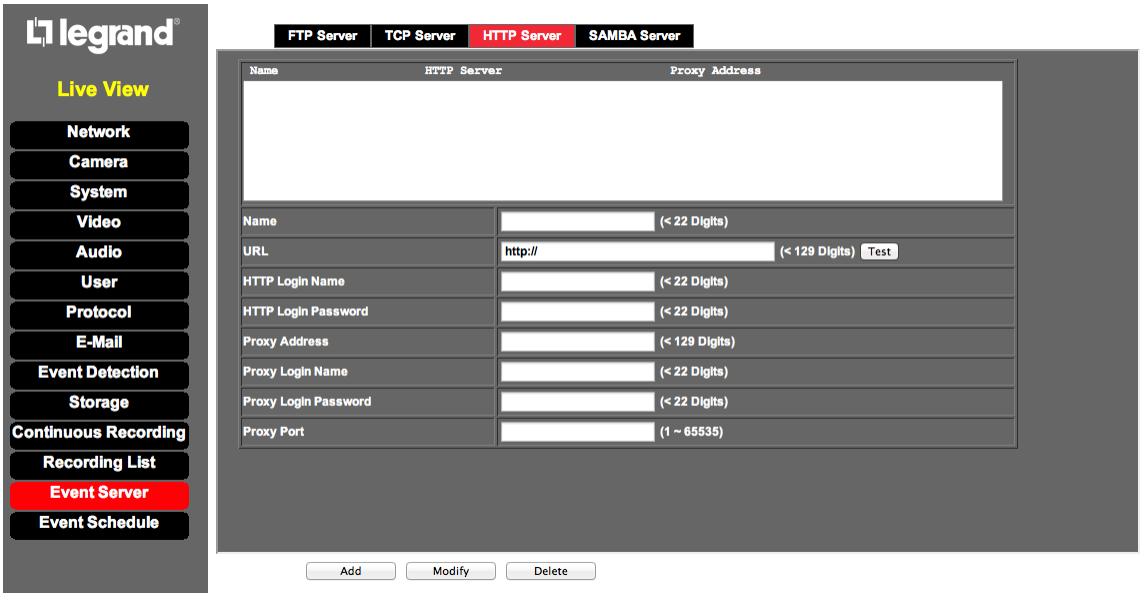
4.13.3. HTTP Server

The CM2001 can also send event messages to specified HTTP servers.



Name	Users can specify multiple HTTP servers if desired. Therefore, the user needs to specify a name for each HTTP server setting.
URL	Type the server name or the IP address of the HTTP server.
Test	Check whether the HTTP server is available.
HTTP Login name	Type the user name for the HTTP server.
HTTP Login Password	Type the password for the HTTP server.
Proxy Address	Type the server name or the IP address of the HTTP Proxy.
Proxy Login name	Type the user name for the HTTP Proxy.
Proxy Login Password	Type the password for the HTTP Proxy.
Proxy Port	Type the port number of the HTTP Proxy.

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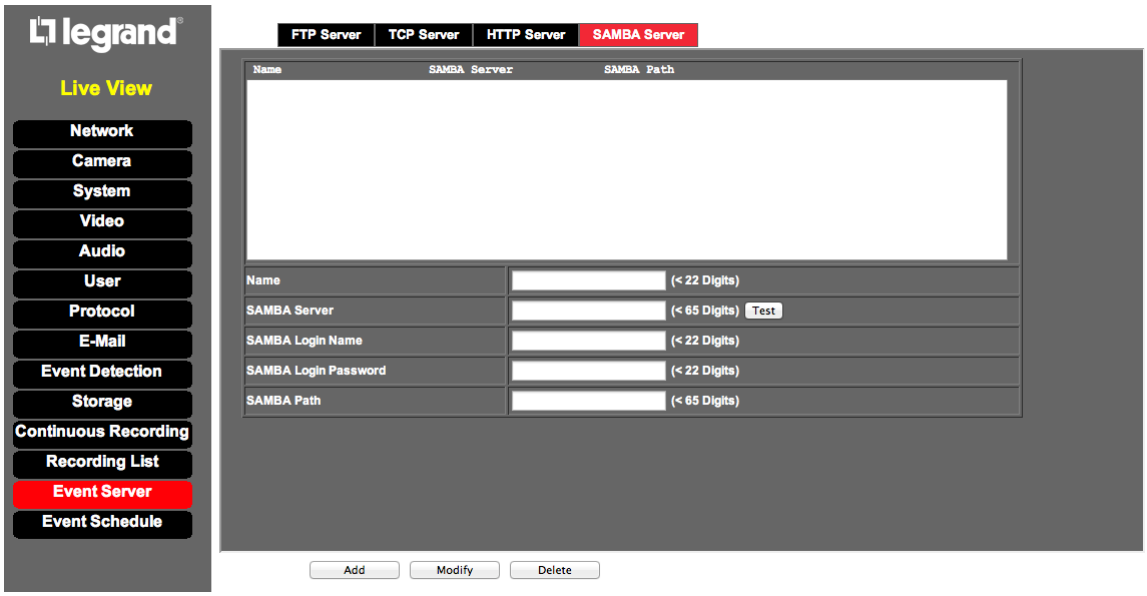
4.13.4. SAMBA Server

The CM2001 also can send a video stream to a specified SAMBA server. Most of the time, the SAMBA server will be a PC or NAS server.



Name	Users can specify multiple SAMBA servers if desired. Therefore, the user needs to specify a name for each SAMBA server setting.
SAMBA Server	Type the server name or the IP address of the SAMBA server.
Test	Check whether the SAMBA server account is available.
SAMBA Login name	Type the user name for the SAMBA server.
SAMBA Login Password	Type the password for the SAMBA server.
SAMBA Path	Type the working directory path to the SAMBA server.

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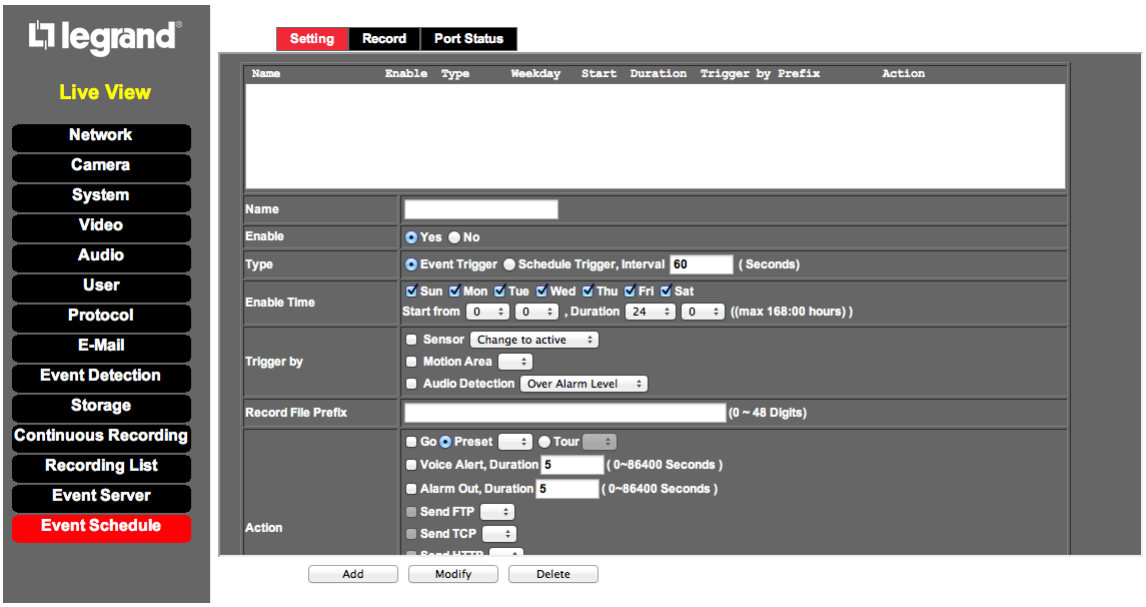
4.14. Event Schedule Configuration

4.14.1. Event Schedule Setting

This menu is used to specify the specifics of an Event Trigger or a Schedule Trigger and activate the actions provided by the CM2001. A Schedule Trigger will be activated for a user-defined interval.



Name	Name of the Event or Schedule.
Enable	Enable/disable this Event or Schedule.
Type	Schedule the start of an Event trigger or a Schedule trigger.
Enable Time	Define the feasible time slot.
Trigger by	Select the trigger sources associated with the event trigger.
Record File Prefix	Define the prefix of recorded filename
Action	Define the actions once the event is triggered.

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Example1.

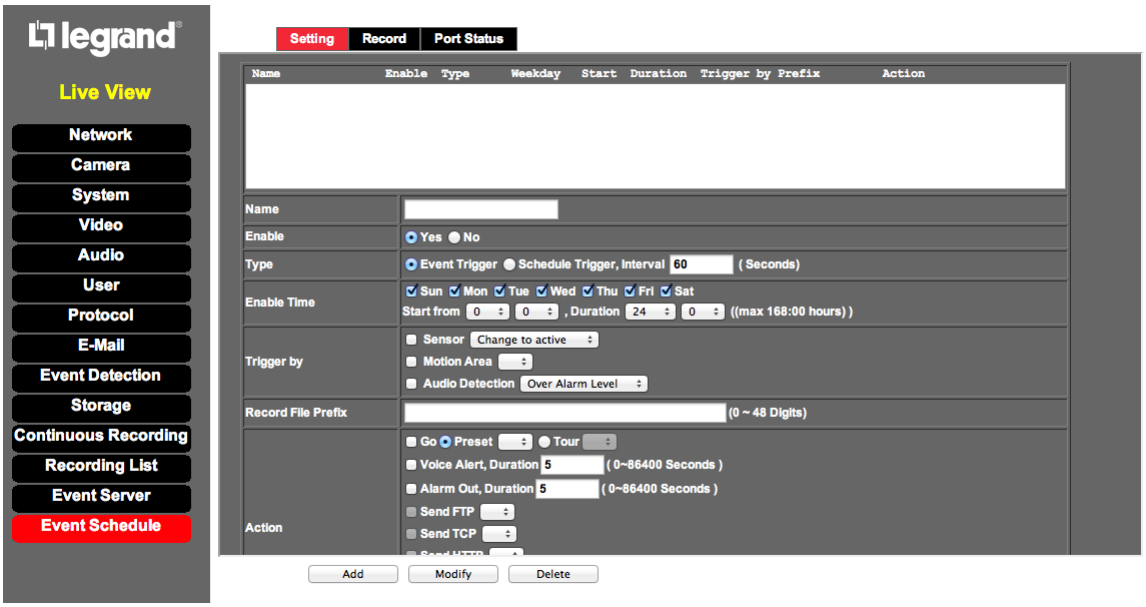
Send a file to an FTP server by motion triggered always:

Step 1 Select event trigger

Step 2 Enable time: start from 00:00 to 24:00 every day

Step 3 Trigger by: Motion Area (Added in Object Detection page)

Step 4 Action: Send FTP (Add in Event Server -> FTP Server page)



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Example2.

Send a file to an E-Mail server by motion triggered from Friday 18:00 to Saturday 06:00

Step 1 Select event trigger.

Step 2 Enable time: start from Friday 18:00 and a duration of 12 hours, so it will stop on Saturday 06:00.

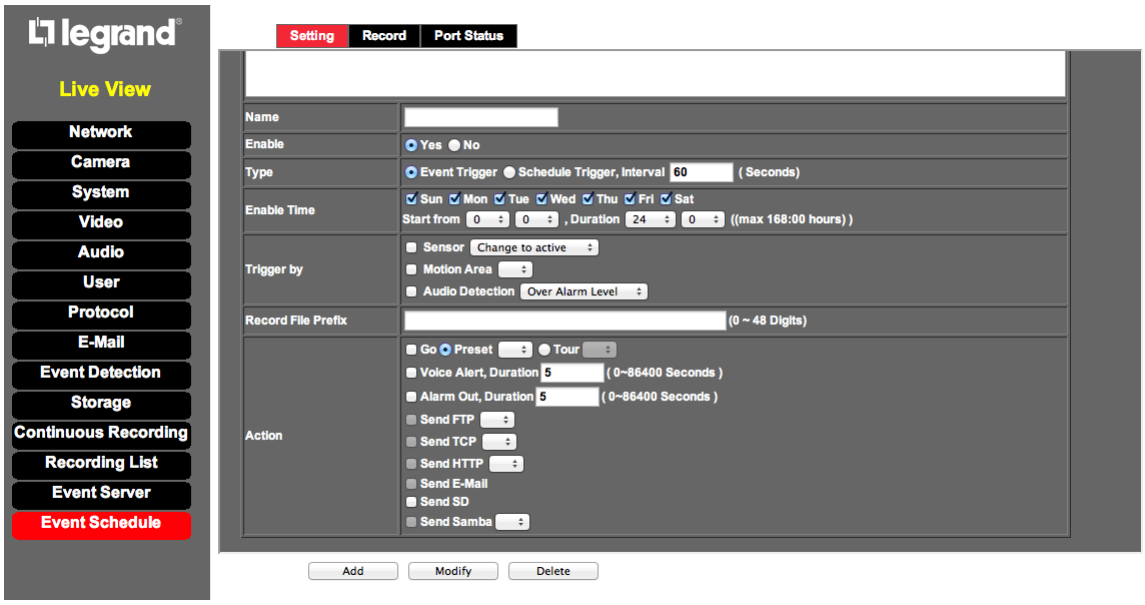
Step 3 Trigger by: Motion Area (Added in Object Detection page)

Step 4 Action: Send e-mail (Add in E-Mail page)

i. To email address: You need to input the receiver email address.

ii. Subject: You could specify the email subject.

iii. Message: You could specify the email content.



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Example3.

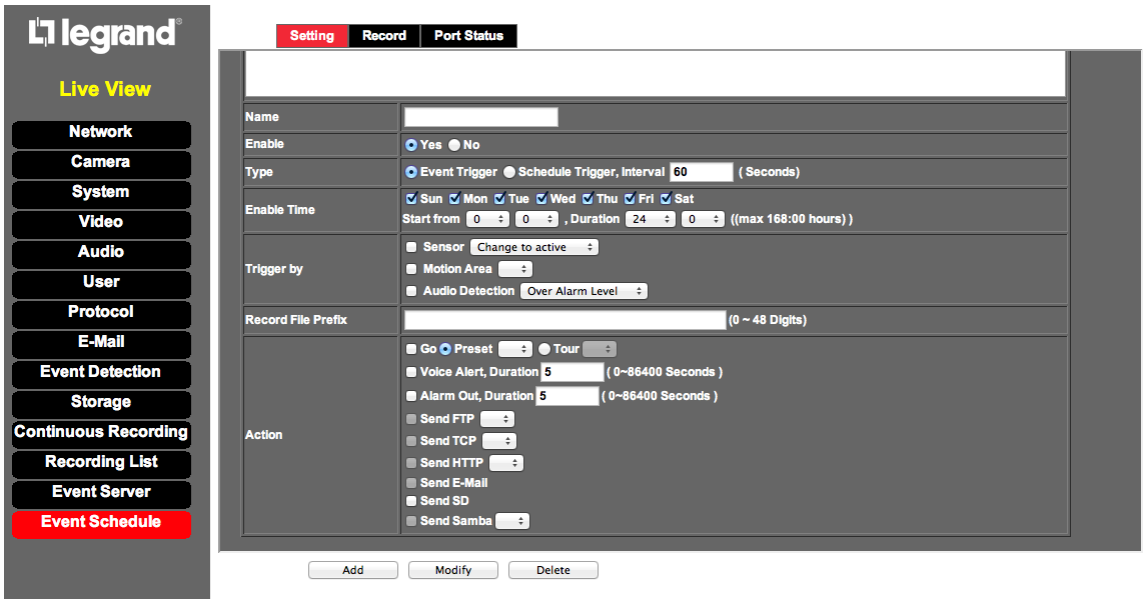
Enable Voice Alert every 10-minute during 18:00 to 24:00 from Monday to Friday.

Step 1 Type: Select schedule trigger and interval is 10-minute.

Step 2 Enable Time: Select Monday to Friday, and set start time from 18:00 and duration to 6 hours.

Step 3 Trigger by: You do not need to choose it, because this will be triggered every 10 minutes.

Step 4 Action: Voice Alert.



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4.14.2 Record Configuration

On this page the User can choose the type of record file for event or schedule trigger events.

Record File Type	Choose AVI or JPEG file format for record file.
Record File Prefix	Define the prefix of recorded filename.
Pre-Trigger Duration	Define the maximum duration of pre-trigger.
Best Effort Duration	Define the best effort duration of post-alarm.
Max File Size	Define the maximum buffer size of record file.

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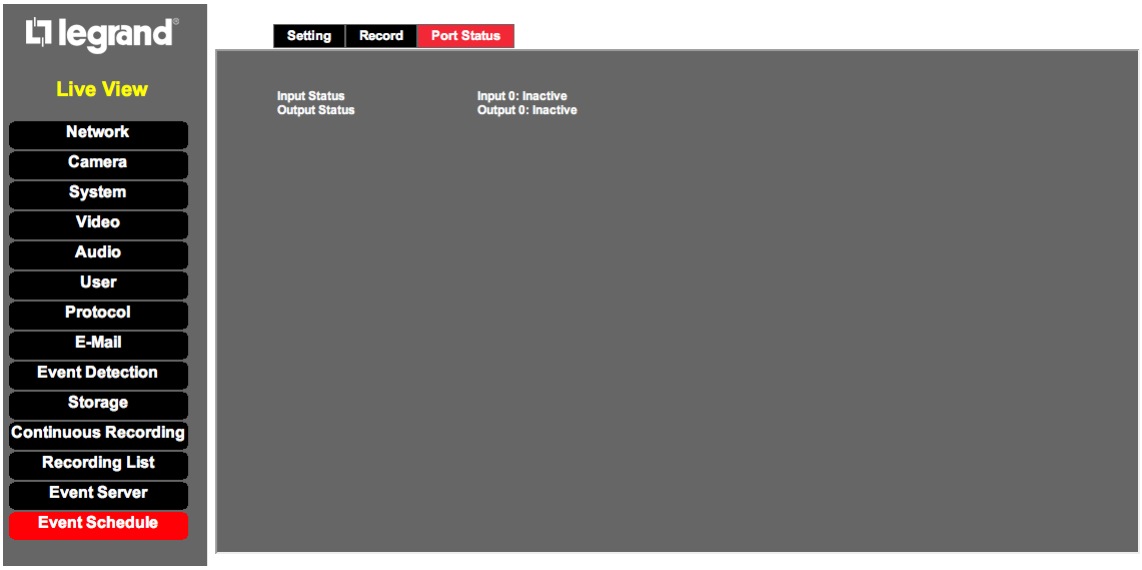
4.14.3 Port Status

On this page the User can check the status of the digital input and output port (DIDO).



Input Status	Show either inactive or active.
Output Status	Show either inactive or active.

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Appendix A. Troubleshooting & Frequently Asked Questions

Question	Answer or Resolution
Features	
What video and audio codec is used in the CM2001?	The CM2001 utilizes H.264, MPEG4 and JPEG triple compression to provide high quality images The audio codec is defined as G.711/G.726 for RTSP streaming.
What is the maximum number of users who can access the CM2001 simultaneously?	The maximum number of users is limited to 20. However, it also depends on the total bandwidth accessible. The maximum data throughput of the CM2001 is around 100~200Mbps for UDP mode and 50Mbps for HTTP mode. Therefore, the actual number of connected users varies by streaming mode, settings of resolution, codec type, frame rate and bandwidth. Obviously, the performance of the each connected user will slow down when many users are logged on.
Installation issues	
My Status LED does not light up.	• Check and confirm that the DC power adaptor, included in the package, is used. Secure the power connector and power it on again. • If the problem is not solved, the device might be faulty. Contact your dealer for further help.
What network cabling is required for the device?	The device uses Category 5 or better UTP cable allowing 10 Base-T, 100 Base-TX, or 1000 Base-T networking.
Will the CM2001 work if a firewall exists on the network.	If a firewall exists on the network, port 80 is open for ordinary data communication. The HTTP port and RTSP port may need to be opened on the firewall or NAT router.
What is the factory default username and password for first use or after factory default reset?	Username = **admin** and Password = **admin**. Note that it is case sensitive.
What do I do if I forgot the username and password?	Follow the steps below. **1.** Restore the factory default setting by pressing and holding more than 5 seconds on the reset button of the CM2001. **2.** Reconfigure the device.
What if I forgot the IP address of the CM2001?	Insure your PC has UPnP enabled and it should discover the device through UPnP discovery (power cycle if required).
Internet Explorer does not seem to work well with the device	Make sure that your Internet Explorer is version 8.0 or later. If you are experiencing problems, try upgrading to the latest version of Microsoft's Internet Explorer from the Microsoft webpage.
UPnP NAT Traversal	
Cannot work with NAT router	• Maybe NAT router does not support UPnP function. Please check user's manual of router and turn on UPnP function. • Maybe UPnP function of NAT router is not compatible to the IP camera. Please contact your dealer to get the approval routers list.
Some IP cameras are working but others do not	• Maybe too many IP cameras have been installed on the LAN, and then the NAT router is out of resources to support more cameras. You could turn off and on NAT router to clear out of date information inside router.

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Access the CM2001	
Cannot access the login page and other web pages of the Network Camera from Internet Explorer	• Maybe the IP Address of the Network Camera is already being used by another device or computer. To confirm this possible problem, disconnect the Network Camera from the network first, and then run the PING utility to check it out. • May be due to the network cable. Try correcting your network cable and configuration. Test the network interface by connecting a local computer to the Network Camera via a crossover cable. • Make sure the Internet connection and setting is ok. • Make sure the IP address in Internet Explorer is correct. If the Network Camera has a dynamic address, it may have changed since you last checked it. • Network congestion may prevent the web page appearing quickly. Wait for a while. The IP address and Subnet Mask of the PC and Network Camera must be in the same subnet of the private IP address on the LAN. • Make sure the http port used by the Network Camera, default=80, is forwarded to the Network Camera's private IP address. • The port number assigned in your Network Camera might not be available via Internet. Check your ISP for available port. • The proxy server may prevent you from connecting directly to the Network Camera, set up not to use the proxy server. • Confirm that Default Gateway address is correct. • The router needs Port Forwarding feature. Refer to your router's manual for details. • Packet Filtering of the router may prohibit access from an external network. Refer to your router's manual for details. • Access the Network Camera from the Internet with the global IP address of the router and port number of Network Camera. • Some routers reject the global IP address to access the Network Camera on the same LAN. Access with the private IP address and correct port number of Network Camera. • When you use DDNS, you need to set Default Gateway and DNS server address. • If it's not working after above procedure, reset Network Camera to default setting and installed it again. • If the problem is not solved, the Network Camera might be faulty. Contact your dealer for further help.
Image or video does not appear in the main page.	• The first time the PC connects to Network Camera, a pop-up **Security Warning window** will appear to download ActiveX Controls. When using Windows XP, or Vista, log on with an appropriate account that is authorized to install applications. • Network congestion may prevent the Image screen from appearing quickly. You may choose lower resolution to reduce the required bandwidth.
Check the device's ActiveX is installed on your computer	Go to C:\Windows\Downloaded Program Files and check to see if there is an entry for the file "**IPCamera Control"**. The status column should show "Installed". If the file is not listed, make sure your Security Settings in Internet Explorer are configured properly and then try reloading the device's home page. Most likely, the ActiveX control did not download and install correctly. Check your Internet Explorer security settings and then close and restart Internet Explorer. Try to browse and log in again.

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Internet Explorer displays the following message: "Your current security settings prohibit downloading ActiveX controls".	Setup the IE security settings or configure the individual settings to allow downloading and scripting of ActiveX controls.
The device works locally but not externally.	• Might be caused from the firewall protection. Check the Internet firewall with your system or network administrator. The firewall may need to have some settings changed in order for the device to be accessible outside your LAN. • Make sure that the device isn't conflicting with any other web server running on your LAN. • Check the configuration of the router settings allow the device to be accessed outside your local LAN. • Check the bandwidth of Internet connection. If the Internet bandwidth is lower than target bit rate, the video streaming will not work correctly.
Frame rate is slower than the setting.	• The traffic of the network and the object of the image affect the frame rate. The network congestion causes frame rate slower than the setting. • Check the bandwidth of Internet connection. If the Internet bandwidth is lower than target bit rate, the video streaming will not work correctly. • Ethernet switching hub can smooth the frame rate.
Blank screen or very slow video when audio is enabled.	• Your connection to the device does not have enough bandwidth to support a higher frame rate for the streamed image size. Try reducing the video streaming size to 160x120 or 320x240 and/or disabling audio. • Audio will consume 32 kbps. Disable audio to improve video. Your Internet connection may not have enough bandwidth to support streaming audio from the device.
Image Transfer on e-mail or FTP does not work.	• Default Gateway and DNS server address should be set up correctly. • If FTP does not work properly, ask your ISP or network administrator about the transferring mode of FTP server.
Video quality of the CM2001	
The Camera image seems out of focus.	• The lens is dirty or dust is attached. Fingerprints, dust, stain, etc. on the lens can degrade the image quality.
The color of the image is poor or strange.	• To insure the images you are viewing are the best they can be, set the Display property setting (color quality) to 16bit at least and 24 bit or higher if possible within your computer. •The configuration on the device image display is incorrect. You need to adjust the image related parameters such as brightness, contrast, hue and sharpness properly.
Image flickers.	• If the object is dark, the image will flicker. Make the condition around the Camera brighter.
Noisy images occur.	The video images might be noisy if the device is located in a very low light environment. Make the condition around the camera brighter or turn the IR LED on (if applicable).
Miscellaneous	
Cannot play the recorded ASF file	Have installed Microsoft's DirectX 9.0 or later and use the Windows Media Player 11.0 or later to play the AVI filed recorded by the Device.

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Appendix B. Bandwidth Estimation

The frame rate of video transmitted from the CM2001 depends on connection bandwidth between user and server, video resolution, codec type, and quality setting of server. Here is a guideline to help you roughly estimate the bandwidth requirements for your CM2001.

The required bandwidth depends on content of the video source. Slow motion video will produce a smaller bit rate generally and fast motion will produce higher bit rate. Actual results generated by the CM2001 may vary.

Image Resolution	Average range of data sizes for JPEG mode	Average bit rate for MPEG4 mode	Average bit rate for H.264 mode
QCIF	6 ~ 12k byte per frame	64kbps~256kbps @ 30fps	32kbps~192kbps @ 30fps
CIF	20 ~ 40k byte per frame	384kbps~1024kbps @ 30fps	256kbps~768kbps @ 30fps
4CIF(D1)	50 ~ 150K byte per frame	768kbps~4096kbps @ 30fps	512kbps~3076kbps @ 30fps

Note: Audio streaming also takes bandwidth around 32kbps. Some xDSL/Cable modem upload speeds cannot even reach speeds up to 128 kbps. Thus, you may not be able to receive good quality video while also streaming audio on a 128 kbps or lower connection. Even though the upload speed is more than 128kbps, for optimal video performance, disabling audio streaming will get you better video performance.

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Appendix C. Configure Port Forwarding Manually

The CM2001 can be used with a router. If the CM2001 wants to be accessed from the WAN, its IP address needs to be setup as a fixed IP address, also the port forwarding or Virtual Server function of router needs to be setup. The CM2001 supports UPnP traversal function. Therefore, the user could use this feature to configure port forwarding of the NAT router first. However, if the user needs to configure port forwarding manually, please follow the steps as listed below:

Manually installing the CM2001 with a router on your network is an easy 3–step procedure as follows:

1. Assign a local/fixed IP address to your CM2001
2. Access the Router with Your Web browser
3. Open/Configure Virtual Server Ports of Your Router

1. Assign a local/fixed IP address to your device

The CM2001 must be assigned a local and fixed IP Address that allows it to be recognized by the router. Manually setup the device with a fixed IP address, for example, *192.168.0.100*.

2. Access the Router with Your Web browser

The following steps generally apply to any router that you have on your network. Configure the initial settings of the router by following the steps outlined in the router's **Installation Guide**.
If you have cable or DSL service, you will most likely have a dynamically assigned WAN IP Address. 'Dynamic' means that your router's WAN IP address can change from time to time depending on your ISP. A dynamic WAN IP Address identifies your router on the public network and allows it to access the Internet. To find out what your router's WAN IP Address is, go to the **Status** screen on your router and locate the WAN information for your router. This will be the address that you will need to type in your web browser to view your camera over the Internet. Be sure to uncheck the **Reset IP address at next boot** button at the top of the screen (if applicable) after modifying the IP address. Failure to do so will reset the IP address when you restart your computer.

3. Open/set Virtual Server Ports to enable remote image viewing

The firewall security features built into the router and most routers prevent users from accessing the video from the CM2001 over the Internet. The router connects to the Internet over a series of numbered ports. The ports normally used by the CM2001 are blocked from access over the Internet. Therefore, these ports need to be made accessible over the Internet. This is accomplished using the **Virtual Server** function on the router. The Virtual Server ports used by the camera must be opened through the router for remote access to your camera.

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Follow these steps to configure your router's Virtual Server settings

- Click Virtual Server **Enabled**.
- Enter a unique name for each entry.
- Select **Both** under **Protocol Type** (**TCP** and **UDP**)
- Enter your camera's local IP Address (e.g., **192.168.0.100**, for example) in the **Private IP** field.
- If you are using the default camera port settings, enter **80** into the **Public** and **Private Port** section, click **Add**.

A check mark appearing before the entry name will indicate that the ports are enabled.

NOTE	Some ISPs block access to port 80. Be sure to check with your ISP so that you can open the appropriate ports accordingly. If your ISP does not pass traffic on port 80, you will need to change the port the camera uses from 80 to something else, such as 8080. Not all routers are the same, so refer to your user manual for specific instructions on how to open ports.

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Appendix D. Configure 3GPP Function

To use the 3GPP function, in addition to previous section, you might need more information or configuration to make this function work.

Note: that to use the 3GPP function, it is strongly recommended to install the Networked CM2001 with a public and fixed IP address without any firewall protection.

RTSP Port:
Port 554 is the default for RTSP service. However, sometimes, some service providers change this port number for some reasons. If so, the user needs to change this port accordingly.

Dialing procedure:

1. Choose a verified player (PacketVideo or Realplayer currently)

2. Use the following URL to access:
rtsp://*host*/mpeg4/media.3gp

Where *host* is the host name or IP address of the camera.

Compatible 3G mobile phone:
Please contact your dealer to get the approved list of compatible 3G phone.

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