DOME
IP CAMERA SERIES

OPERATION GUIDE

Please read instructions thoroughly before operation and retain it for future reference.

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

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This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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

(1) This device mat not cause harmful interference, and

(2) This device must accept any interference received, including interference that may cause undesired operation.

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We are pleased to provide our modifications to the Linux Kernel, as well as a few new commands, and some tools to get you into the code. To get the codes, please write to marketing@avtech.com.tw.

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1. OVERVIEW

1.1 Product Features

- Easy **network setup** with your **iOS / Android OS**
- **ONVIF** standard supported to simplify system integration
- **POE (Power-over-Ethernet)** support to eliminate the use of power cables and reduce installation costs
- IR LEDs built-in for **night surveillance**
- **External alarm I/O device** connection
- **Line in** / **out** jacks available for audio transmission
- **DWDR** to increase image recognizability in overexposure and dark areas.
- **Remote Surveillance**
  -- Full compatibility with **iOS & Android OS**, and **Internet Explorer** on Windows operating system

1.2 Package Content

➢ **Standard Package**

☐ Camera and its case ☐ Quick Guide

➢ **Optional Accessories**

☐ Screws & wall plugs ☐ Waterproof kit

☐ Wrench

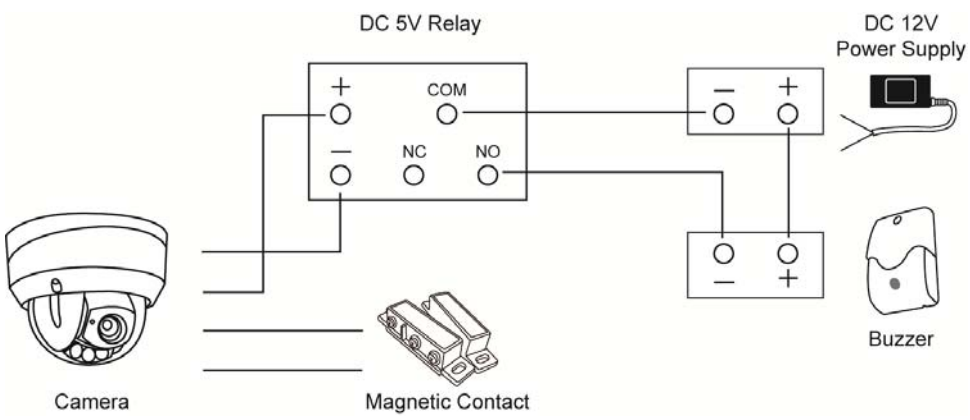
1.3 Cable Overview

Cable	Description
Power cable	Connect to DC12V power supply. **Note:** The power adapter is optional.
RJ45 network cable	Connect it to the supplied RJ45 cable extender adapter for cable extension, and prepare another RJ45 network cable with suitable length for your connection.
GND	Ground wire, used for reset default or external device connection.
Alarm-in	Reserved for connecting to an external alarm device. For details, please refer the user manual of your alarm device.
Alarm-out	Reserved for connecting to an external alarm device. For details, please refer the user manual of your alarm device.
RESET	Remove the insulating coating of this wire, and twist it with a ground wire together to reset default. This will reset all parameters, including the IP address to factory default settings. **Note:** Disconnect power before twisting these two wires together, and connect to power again for reset default.
Line in (Blue)	Support microphone connection.
Line out (Green)	Support speaker connection.

1.4 External Alarm Connection

This camera supports external I/O device connection for easy connection.

Below shows you how to connect an external device to this camera.



2. CAMERA ACCESS WITH INTERNET EXPLORER

This network camera can be accessed via Microsoft Internet Explorer and iOS / Android mobile devices with our self-developed program “EagleEyes” installed depending on different using situations.

Before using the camera, make sure you have configured the network settings, and the network connection is fine.

For network configurations, please refer to:

- “**ADVANCED NETWORK SETUP**” downloadable from www.surveillance-download.com/user/m3636.swf.

2.1 Camera Login

Step1: Open your web browser, and key in http://*ipaddress*:*portnum* in the URL address box.

For example, for the IP address 60.121.46.236 and port No. 888, please key in ”http://60.121.46.236:888” into the URL address box, and press “Enter”.

Step2: In the login page, key in the user name and password, and enter the security code from the image below if any. Then, click “LOGIN”.

Step3: The wizard is then started.

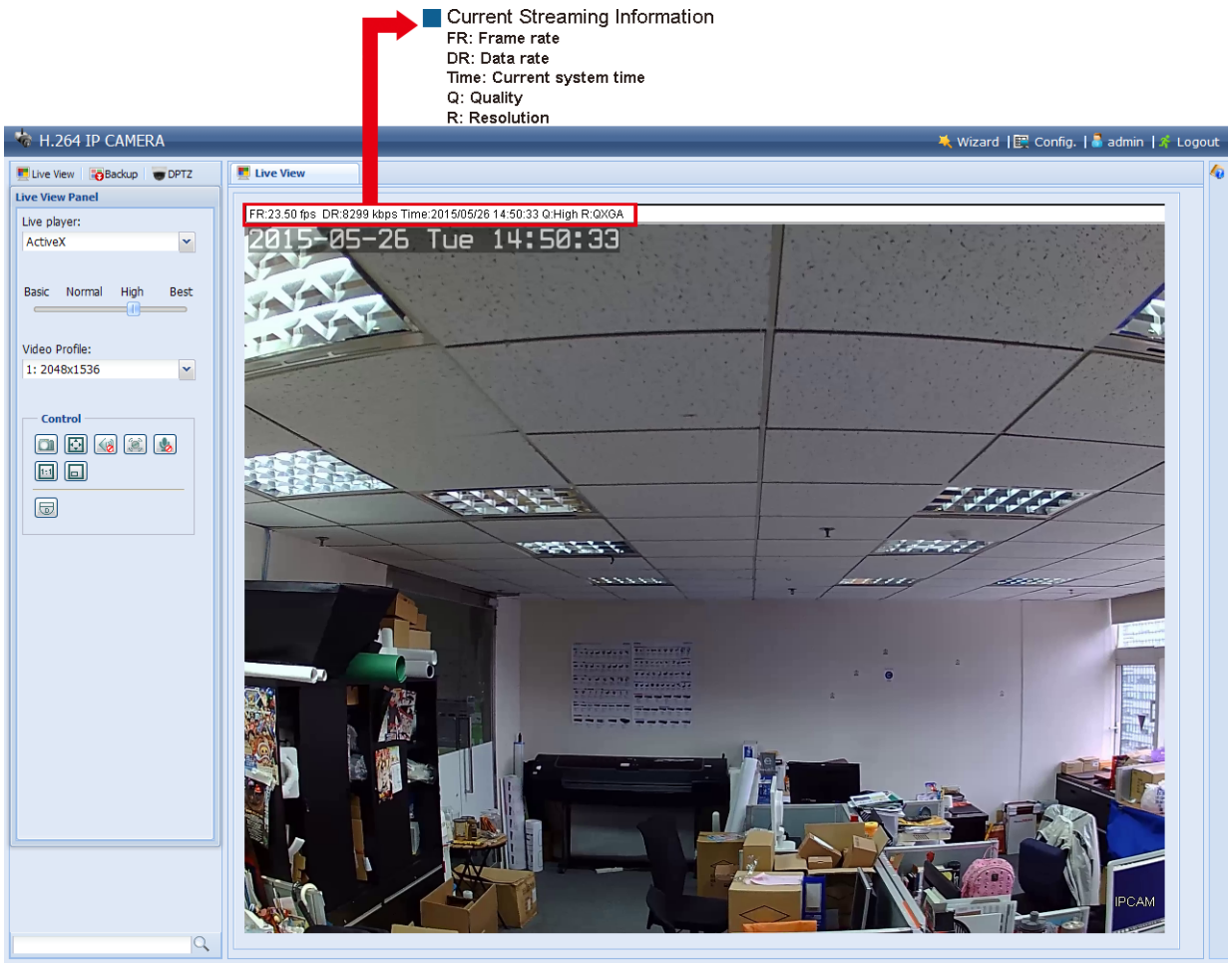
- To skip the wizard and directly access the camera live view, click “Close”.
- To directly access the camera live view without starting the wizard for the login next time, check “Do not start wizard at login”.

Note: If you’re prompted to install “VLC player”, “Software” and “H264 Streaming Viewer”, please agree to proceed the installation.

Step5: When the login is successful, the live view is shown.

2.2 Control Panel Overview

Note: The buttons available depend on the device you have and the user level used to log in.

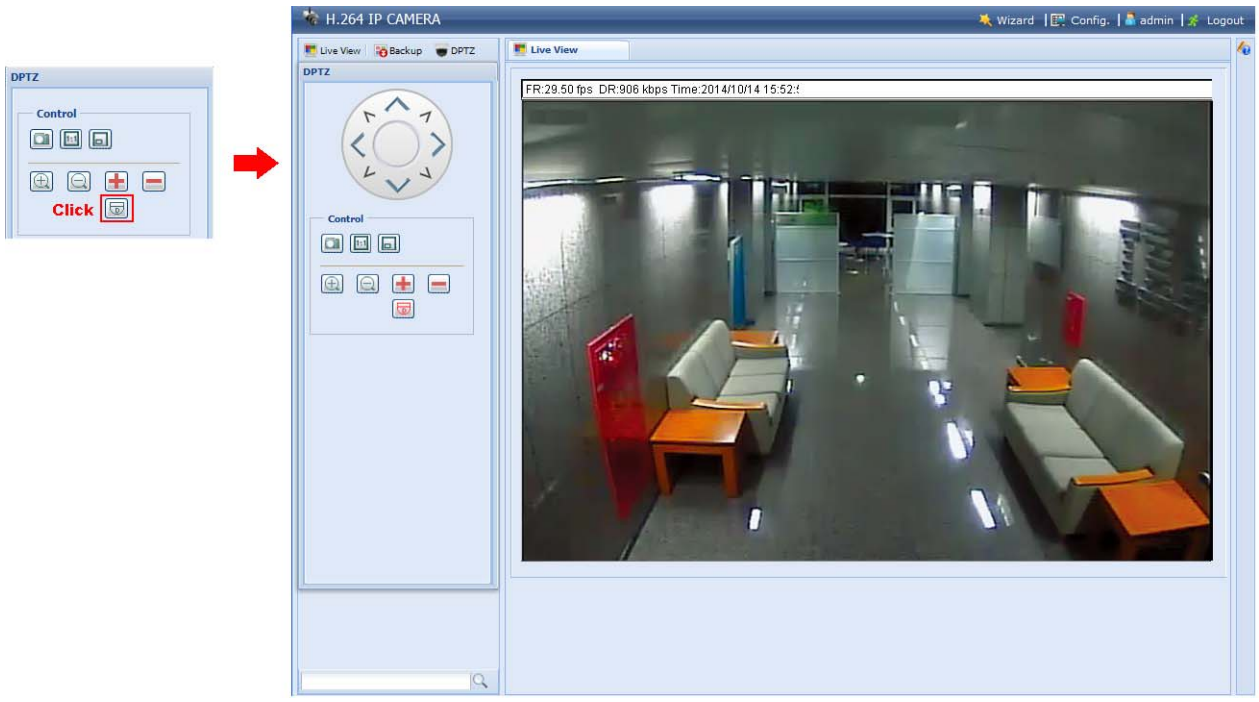


Function	Icon	User Level	Description
Live		Supervisor / Power User / Normal User / Guest	Switch to the live view page.
Backup		Supervisor / Power User	Enter the event record list for video playback. For details, please refer to “2.4 Event Record Search & Playback’ at page 5.
DPTZ		Supervisor / Power User / Normal User	Switch to the DPTZ configuration page. For details, please refer to “2.3 Digital PTZ (DPTZ) Operations” at page 4.
Config.		Supervisor / Power User	Switch to the system configuration page, and the functions available for “Supervisor” and “Power User” are different. For details, please refer to “3.1 System configuration menu” at page 7.
Live player	--	Supervisor / Power User / Normal User / Guest	Select the image player from the drop-down list: ■ ActiveX ■ QuickTime QuickTime is Apple Inc.’s multimedia software. You need to have QuickTime installed in your operating system before selecting “QuickTime”. When it is selected, you will be promoted to enter the user name and password to access the camera. ■ VLC
Quality	--	Supervisor / Power User / Normal User	Click & drag the slider to select the video quality: BASIC / NORMAL / HIGH / BEST.
Video Profile	--	Supervisor / Power User / Normal User	Select the pre-defined video set from the drop list. The video set could be configured in “Config” -> “Camera” -> “Video”.
Snapshot		Supervisor / Power User / Normal User	Click to take a snapshot of the current view on a new window. Right click on the picture and re-save it to the location you want.
Live View Size:		Supervisor / Power User / Normal User	
Full Screen			Click to display the image in full screen. To exit the full screen mode, press “Esc” on your keyboard. *This icon appears only when the selected resolution is 640 x 480 or above.*
Double size			The QVGA resolution is resized to fit into the current live view size. *This icon appears only when the selected resolution is 320 x 240.*
Normal Size			The current live view size is the same as the selected resolution. *This icon appears only when the selected resolution is 1280 x 720 or above.*
Fit to screen			The selected resolution is resized to fit into the current live view size. *This icon appears only when the selected resolution is 1280 x 720 or above.*
No Scale			Click and hold the movable square on the left bottom corner of the live view to move *This icon appears only when the selected resolution is 1280 x 720 or above.*
Audio On / Off		Supervisor / Power User / Normal User	Click to switch the audio-in on / off.
Alarm Out		Supervisor / Power User / Normal User	Click to force your alarm-out device to work. For example, when your alarm device is a buzzer, click this button and your buzzer will start to sound even if there’s no alarm event.
Microphone		Supervisor	Click to switch the audio-out on / off.
DPTZ		Supervisor / Power User / Normal User	Click to enable the zoom-in / out function. To move the image in the zoom-in mode, simply click on where you want to see in the live view. *For vari-focal models only.*
Zoom-in / out		Supervisor / Power User / Normal User	Click to zoom in / out the current image. *This function is available only when DPTZ is enabled.*
Max. Zoom-in / out		Supervisor / Power User / Normal User	Click to zoom in the image to the largest / zoom out the image to its original size. *This function is available only when DPTZ is enabled.*

2.3 Digital PTZ (DPTZ) Operations

This camera has PTZ capability, i.e. digital PTZ (hereafter called “DPTZ”), for wide area monitoring.

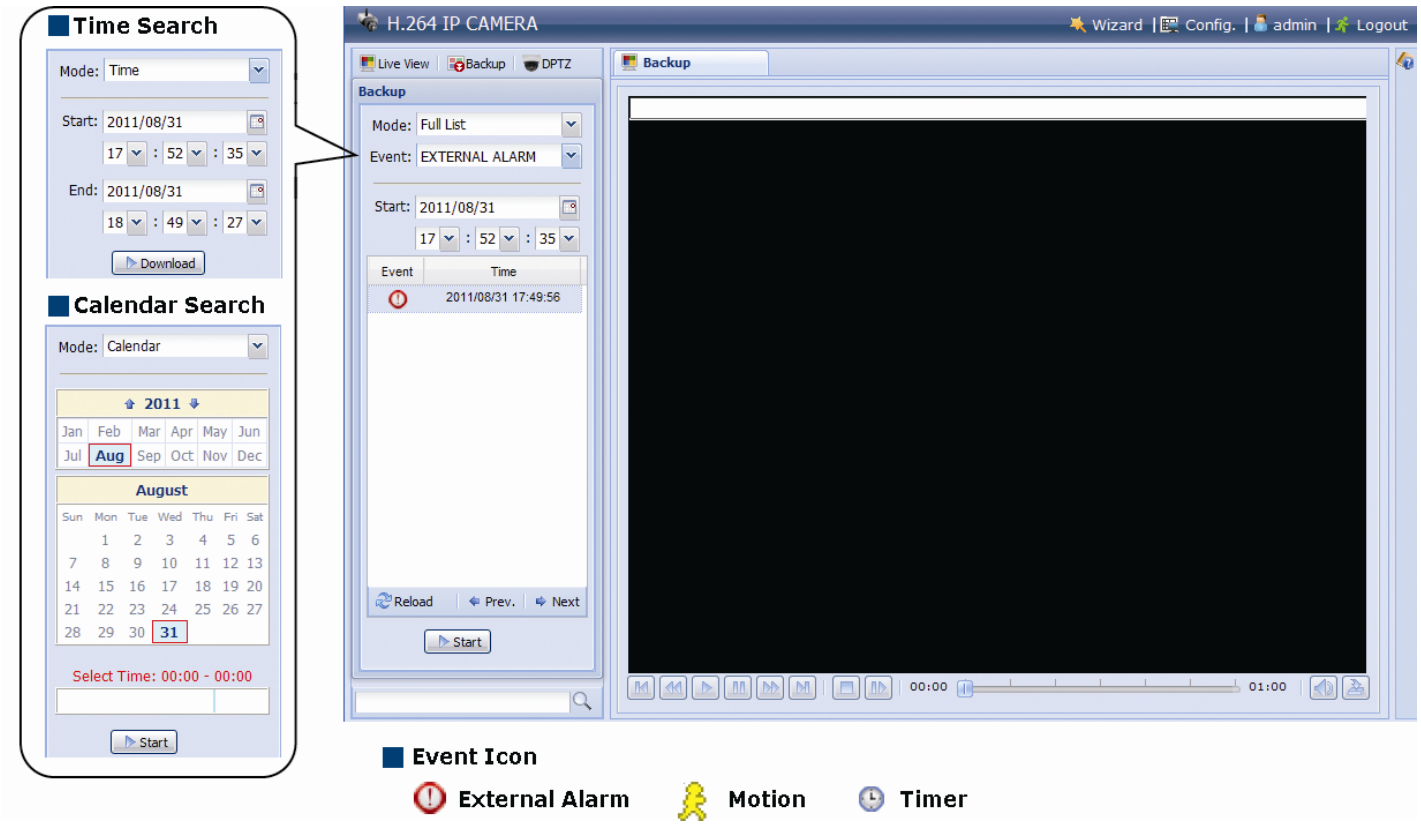
STEP1: Click “DPTZ” to show the DPTZ control panel.



FUNCTION	ICON	DESCRIPTION
Moving panel	--	When is selected, the moving control panel will be shown to move the picture after zoom-in is performed.
Take snapshots		Click to take a snapshot of the current view on a new window. Right click on the picture and re-save it to the location you want.
Zoom in / out	/	Click once to enlarge the picture by 1X, and click once to restore the zoom ratio by 1X.
Max. zoom in / out	/	Click once to enlarge the picture to the max zoom ratio by 16X, and click once to restore the picture ratio to 1X.
Normal Size		The current live view size is the same as the selected resolution. *This icon appears only when the selected resolution is 1280 x 720 or above.*
Scale		Click and hold the movable square on the left bottom corner of the live view to move *This icon appears only when the selected resolution is larger than the current live view size.*

2.4 Event Record Search & Playback

Note: To save more recorded data, it's recommended to use this camera with a compatible NVR.



/	Previous / Next Hour	Click to jump to the next / previous time interval in an hour, for example, 11:00 ~ 12:00 or 14:00 ~ 15:00, and start playing the earliest event video clip recorded during this whole hour.
	Fast Forward	Increase the speed for fast forward. Click to get 2X, 4X, 8X & 16X speed forward eventually.
	Fast Rewind	Increase the speed for fast rewind. Click to get 2X, 4X, 8X & 16X speed rewind eventually.
	Play	Click to play the current video clip.
	Pause	Click to pause the video playback.
	Stop	Click to stop the video playback.
	Step	In the pause mode, click to get one frame forward.
	Audio	Click to mute the playback if necessary, and click again to restore.
	Download	Click to download the current video clip to the specified path in your PC. *The downloaded video can only be opened by our own video player. Please go to "General" → "Maintenance" to download the video player, or get the player from the CD supplied with the sales package.*

3. CAMERA CONFIGURATIONS

Users can further configure this network camera by accessing via Internet Explorer.

3.1 System configuration menu

Click “Config.” to enter the configuration page.

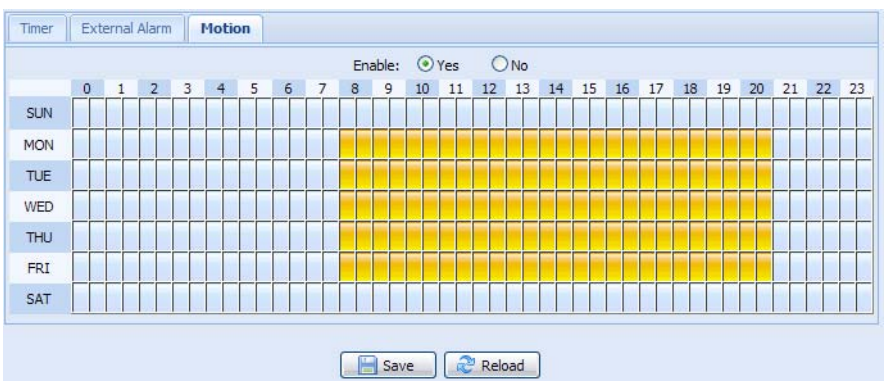
The functions are categorized into seven menus: Network, Camera, VA, Record, Storage, Trigger and General.

- For details about “Network”, please refer to “3.2 Network” at page 10.
- For details about “Camera”, please refer to “3.3 Camera” at page 16
- For details about “VA”, please refer to “3.4 VA” at page 21
- For details about “Record”, please refer to “3.5 Record” at page 21.
- For details about “Storage”, please refer to “3.5.2 Record Timer

To schedule alarm and motion recording, enable it, and select the day and time for recording.

Note: The timer must be enabled for the record function to work properly.

Note: The selected time will be yellow-colored.



- 3.6 Storage” at page 22.
- For details about “Trigger”, please refer to “3.7 Trigger” at page 22.
- For details about “General”, please refer to “3.8 General” at page 24.

Main Menu	Sub-Menu	Reference
Network	Network	Configure network settings.
	QoS	Limit the data flow for live streaming.
	DDNS	Enter DDNS information when the network type is PPPOE or DHCP.
	SNTP	Synchronize your camera time with the networked computer systems.
	FTP	Enter the FTP information for event notifications when “FTP” is chosen in “Trigger” → “Trigger”.
	Mail	Enter Email information for event notifications when “Email” is chosen in “Trigger” → “Trigger”.
	SMS	Enter text messaging information for SMS notifications when “SMS” is chosen in “Trigger” → “Trigger”.
	Filter	Choose to permit or block the IP address(es) which can access this camera.
	UPnP	**Suitable for Windows-based operating system.* Allow this camera to be detected among devices within the same network area for easy and quick usage.
	Bonjour	**Suitable for Apple Mac-based operating system.* Allow this camera to be detected among devices within the same network area for easy and quick usage.
	RTP	Set the parameters for video data transmission when you’re using multimedia other than web browsers and Video Viewer for remote access.
	SNMP	Configure SNMP to remotely manage network devices.
	IEEE 802.1X	The settings here enable the camera to access a network protected by 802.1X/EAPOL (Extensible Authentication Protocol Over LAN).
	Network Share	Assign a location in the LAN environment to save the snapshot of events when “Network Share” is chosen in “Trigger” → “Snapshot”.
	Network Failure Detection	Configure this camera to check the network connection of other device periodically, and send notifications via Email or FTP for disconnection events.
Camera	Camera	1. Rename the camera. 2. Change the place where the camera name is shown on the screen.

	Video	Adjust video-related settings in different video format.
	ROI	Select a specific area to reinforce the image quality of that area.
	Color	Adjust the color performance.
	Audio	Adjust the audio volume of the microphone and speaker.
	Advanced	Adjust the camera parameters if necessary.
	Privacy Mask	Cover certain areas on the camera image.
VA	TA	This function should be used with the mini-guard control switch for alarm system integration. For details, please check with your distributor or installer.
ONVIF	Event	This function is used to integrate the functions of event and alarm detection when this camera has to work with other ONVIF-compliant device.
Record	Record	Configure the record function.
	Record Timer	Schedule external alarm recording.
Storage	Memory	Check the current storage capacity and clear all recorded data when needed.

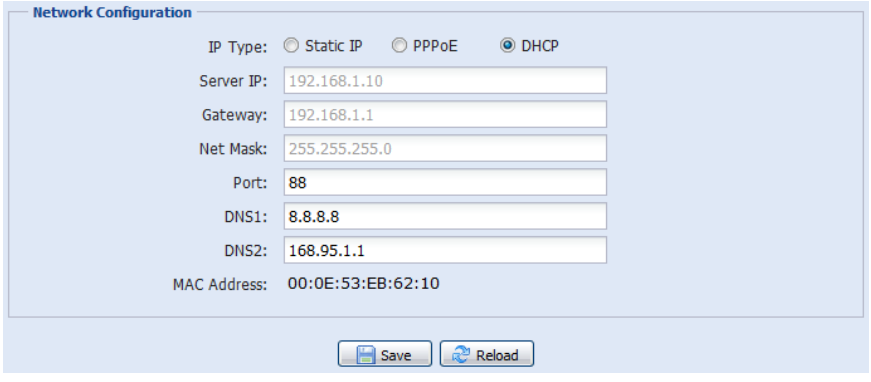
Main Menu	Sub-Menu	Reference
Trigger	Trigger	1. Enable / disable the motion detection. 2. Set the motion detection area. 3. Configure how the camera reacts for any event.
	Snapshot	Schedule the camera to take snapshots periodically or at a specific time, and send to E-Mail, FTP and / or Network Share for backup. Time-lapse recording could also be configured here.
General	General	1. Select the language of the web browser. 2. Check the MAC address of the camera. 3. Lock camera access after the specified time.
	Time	Set daylight saving time and the current time.
	Server Log	Check the system event logs.
	Online	Check the current online user(s).
	Account	1. Create a new user account with different access privilege. 2. Modify or delete an existing user account.
	Google Maps	Allow you to know where the network camera is.
	Maintenance	1. Check the current firmware version and upgrade your camera. 2. Copy system configurations. 3. Reboot the camera. 4. Download the video player to play the recorded data.

3.2 Network

3.2.1 Network

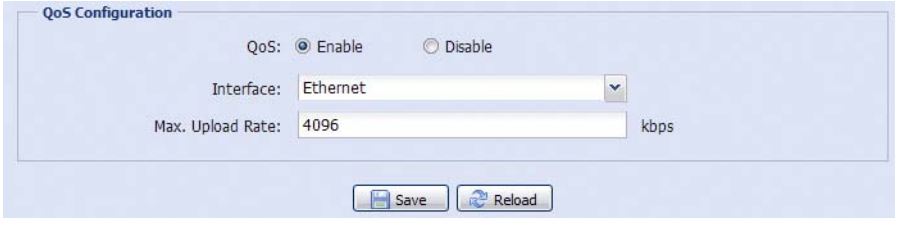
You can set the network configuration of the network camera depending on your network type.

For details, please refer to “Advanced Network Setup” from www.surveillance-download.com/user/m3636.swf.



3.2.2 QoS

QoS, Quality of Service, is the ability to control the data flow for real-time streaming. This function is important if your network bandwidth is insufficient and you have other devices to share the network bandwidth.
Check “QoS Enable”, and set the max. upload rate from 256 to 10240 kbps.



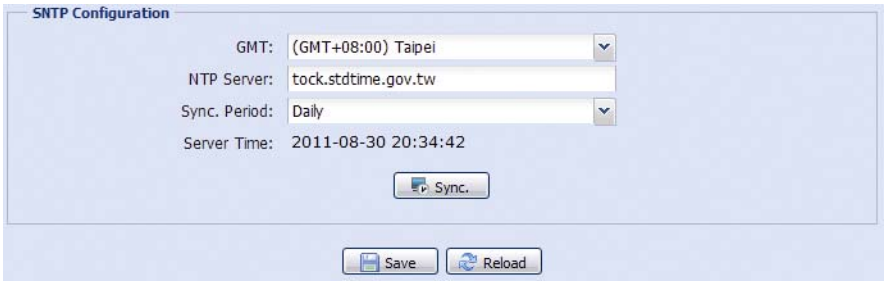
3.2.3 DDNS

Select “On” when the selected network type in “Network” is “PPPOE” or “DHCP”.

For details, please refer to “Advanced Network Setup” from www.surveillance-download.com/user/m3636.swf.

3.2.4 SNTP

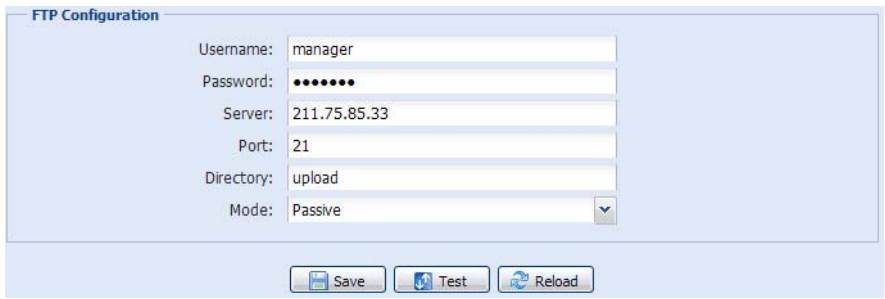
SNTP (Simple Network Time Protocol) is used to synchronize your camera time with the networked computer..



Function	Description
GMT	Once users choose the time zone, the network camera will adjust the local area time of the system automatically.
NTP Server	Simply use the default SNTP server (For example, tock.stdtime.gov.tw) or change to another server with which users are familiar.
Sync. Period	Select “Daily” to synchronize the camera time with the network time every day or “None” to turn off this function.
Sync	Click and the network camera will synchronize the time with the network time.

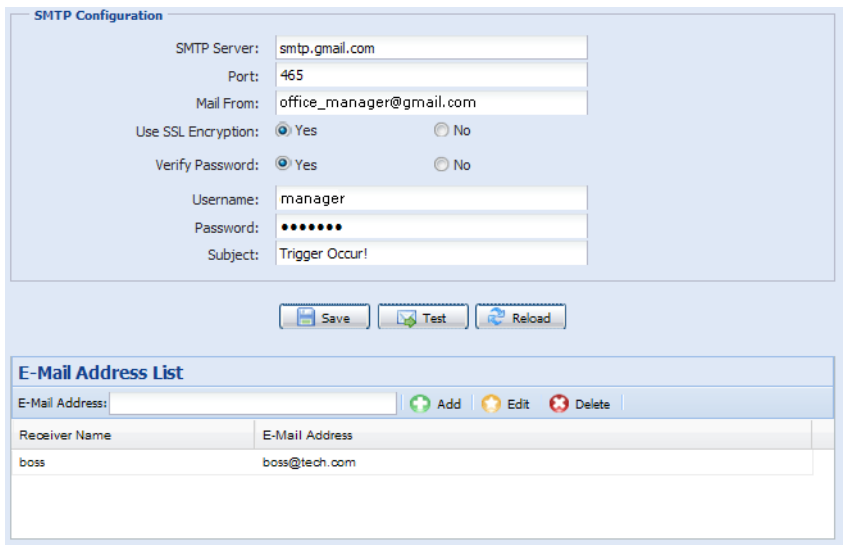
3.2.5 FTP

Enter the detailed FTP information and click “Save” to confirm. The information you set here will be applied when “FTP” is selected in “Trigger” → “Trigger”.



3.2.6 MAIL

Enter the detailed e-mail information and click “Save” to confirm. The information you set here will be applied when “Email” is selected in “Trigger” → “Trigger”.

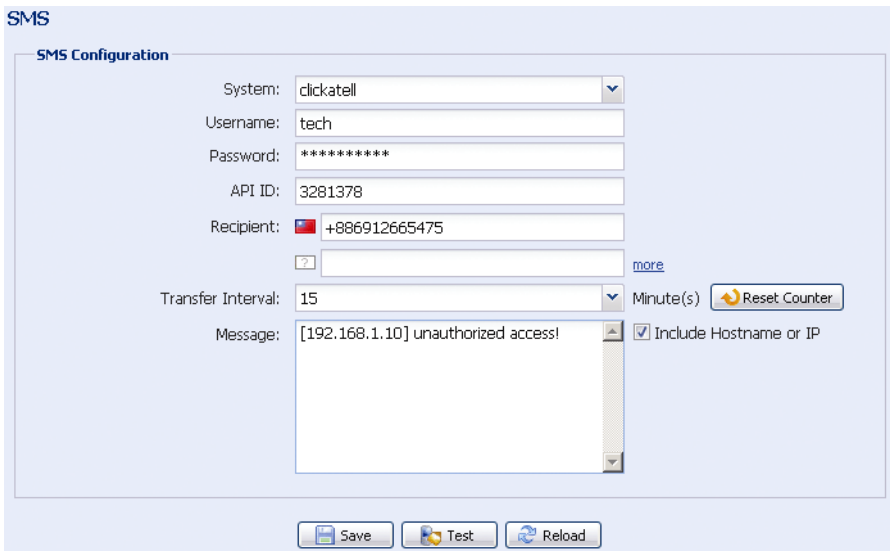


Function	Description
SMTP Server	Enter the SMTP server address provided from your e-mail system supplier.
Port	Enter the port number provided from your e-mail system supplier. If this column is left blank, the e-mail server will use port 25 to send e-mails.
Mail From	Enter the name of the sender.
SSL Encryption	Select “Yes” if your e-mail server is using SSL encryption to protect your e-mail content from unauthorized access.
Verify Password	Some mail servers are required to verify the password. Please enter the “user name” and “password”.
Subject	Enter the subject for the E-Mail.
E-Mail Address List	Add the e-mail address(s) of the assigned recipient(s).
Test	When all information is entered, click “Test Mail” to try if the receipt.

3.2.7 SMS

Note: Before using this function, you need to apply an account and get an API ID from the mobile messaging company, such as Clickatell and EVERY8D. For details, please refer to "APPENDIX 4 API ID APPLICATION FOR SMS MESSAGING" at page 36.

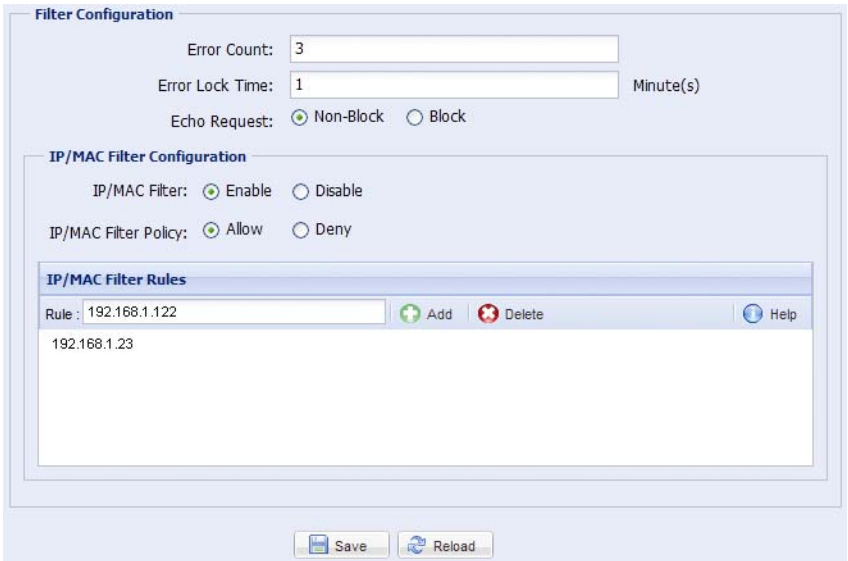
Enter the detailed information needed for text messaging, and click "Save" to confirm. The information you set here will be applied when "SMS" is selected in "General" → "Trigger".



Function	Description
System	The text messaging service provider is Clickatell.
User name / Password	Enter the account user name and password you created in Clickatell.
API ID	Enter the API ID you applied from Clickatell.
Recipient	Click "Add" to enter the phone number, including the country code, to receive the text message. Five sets of phone numbers are allowed.
Transfer Interval	Set the interval time in minutes between two-message sending. The options are 0, 15, 30 & 60.
Reset Counter	Click to restart the text messaging, and the SMS will be sent after the specified time interval since you click this button.
Message	Enter the text content (up to 70 characters) you want to send with the text message.
Test	To know whether your SMS setting is correct, click this button to immediately send a SMS to your phone. Note: This testing is not free and you will be charged for SMS sending base on your local rate.

3.2.8 Filter

Choose to permit or block the IP address(es) which can access this camera, and click “Save” to confirm.



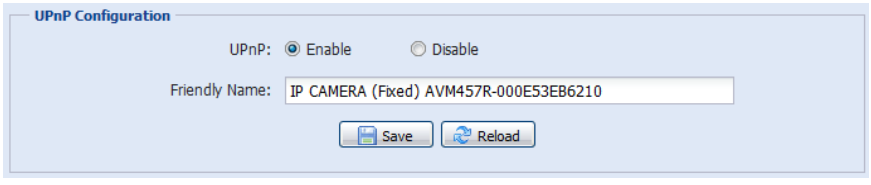
Function	Description
■ **Filter Configuration**	
Error Count	Set the maximum count for login failure. When the maximum count is reached, the IP address trying to access the network camera will be locked.
Error Lock Time	Set the lock time in minutes when the maximum count of error login for an IP address is reached.
Echo Request	Select “Non-Block” to allow other users to use the ping command to detect the IP address of your network camera, or “Block” to deny the ping command request.
■ **IP/MAC Filter Configuration**	
IP/MAC Filter	Choose to enable or disable the filter function.
IP/MAC Filter Policy	If “Enable” is selected, choose whether you want to permit (Allow) or block (Deny) the IP address list below.
■ **IP/MAC Filter Rules**	
Rule	• To add an item to the IP address list, key in the IP address in “Rule”, and click “Add”. • To remove an existing item in the IP address list, click the item you want to remove, and click “Delete”.

3.2.9 UPnP / Bonjour

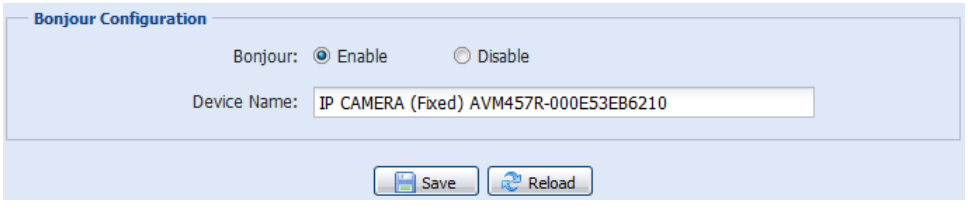
“UPnP” stands for “Universal Plug and Play”, which allows devices to connect seamlessly in the home and corporate environments and simplify installation of computer components, and is only suitable for Microsoft Windows-based operating system.

“Bonjour” functions the same as “UPnP”, but it’s only suitable for Apple Mac-based operating system.

➢ **UPnP**



➢ **Bonjour**



Check “Enable” to allow the network camera to be detected among devices within the same network area, and set the identification name of the camera in “Friendly name”.

When this function is activated, the other PC within the same domain as this camera will be able to search this camera in:

➢ “Network Neighbor” with the identification name set in “Friendly name” for Windows-based PC, or

➢ “  ” (finder) or “Bookmark” with the identification name set in “Device Name” for Mac-based PC.

Double-click it to quickly open the web browser for camera access.

Port Mapping (Available only in UPnP)

This function can eliminate the need to additionally access the router for port forwarding.

For details, please refer to “Advanced Network Setup” from www.surveillance-download.com/user/m3636.swf.

Note: Before using this function, make sure your router supports UPnP, and this function is enabled. If not, please access your router additionally for port forwarding.

When “Port Mapping” is set to “Enable”, the system will automatically assign an IP address or port number for you if no IP address or port number is entered.

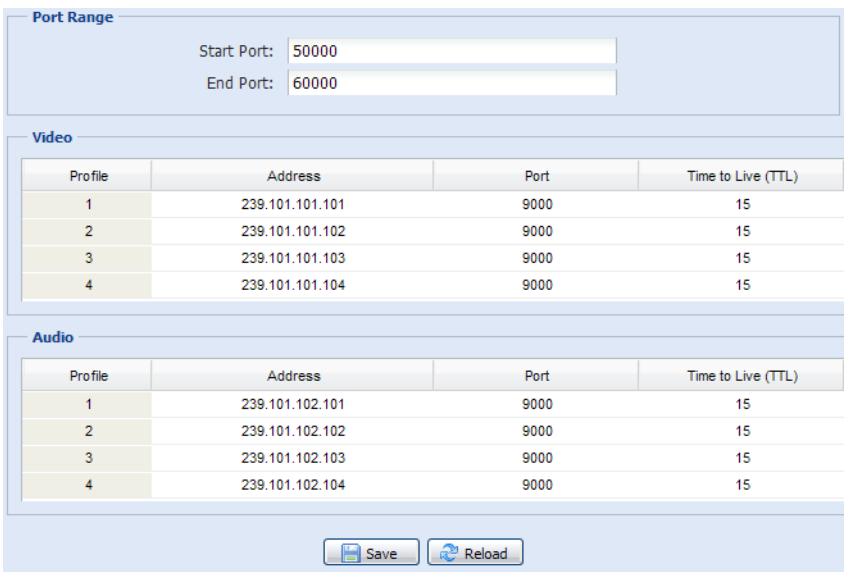
Note: When the configurations are saved successfully, you’ll see a message indicating the IP address and port number assigned to this network camera.

3.2.10 RTP

The Real-time Transport Protocol (RTP) is an Internet protocol standard to manage the real-time transmission of multimedia, such as VLC player.

The media player you want to use for remote access must support RTP transmission for this function to work normally.

Note: When you’re about to end the remote access, please press the stop button on your media player first, and then close the program. This is to ensure the server receives the stop command, and also help to protect the server from redundant data transmission.



Function	Description
■ **Port Range** The port range used by RTP is limited, and preserving 100 ports between the start port and end port is necessary.	
Start Port	The range of the start port is 1024 ~ 65434.
End Port	The range of the end port is 1124 ~ 65534.
■ **Video**	
Address and port for video transmission	Set a specific address and port for multicast of profile 1 ~ 4. The range of the address is limited between 224.0.0.1 ~ 239.255.255.255. The port for multicast must be an even number.
■ **Audio**	
Address and port for audio transmission	Set a specific address and port for multicast of audio. The range of the address is limited between 224.0.0.1 ~ 239.255.255.255. The port for multicast must be an even number.

3.2.11 SNMP

SNMP, Simple Network Management Protocol, is used to facilitate the exchange of management information between network-attached devices, and network administrators could use it to monitor those devices.

The SNMP consists of three basic components:

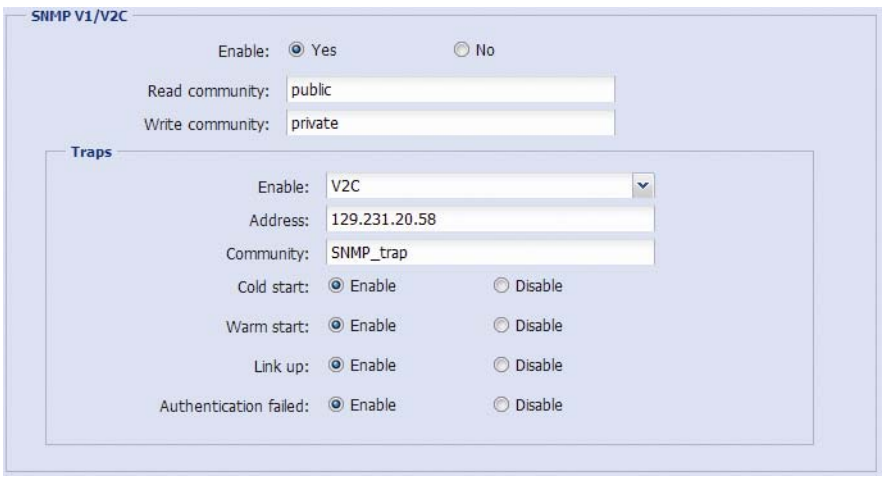
- ***Network-management systems (NMSs)*** to monitor and control the managed devices.
- ***Managed devices*** as network nodes to save all network and management information, such as routers, access servers, switches, bridges, hubs, etc.
- ***Agents*** as network management software modules on managed devices to provide the status of managed devices to NMSs.

Note: Before configuring SNMP settings, make sure your NMS is enabled first.

Enable SNMP V1 / V2C

Select “Yes” to enable this function, and enter the names of “Read community” and “Write community” based on your NMS configurations.

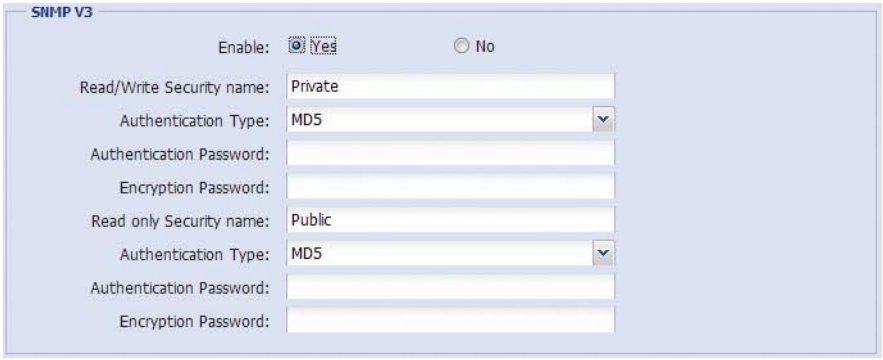
To enable “Traps” to notify the management station of important events, choose “V1” or “V2C” in “Enable”, enter the address and community name, and select the event type(s) needed.



Enable SNMP V3

SNMP V3 has a higher security level than SNMP V1 / V2C to allow configuring the authentication password and encryption password.

Choose “Read/Write Security name” or “Read only Security name” based on your NMS settings, and enter the community name. Then, select the authentication type from “MD5” or “SHA”, and enter the password for authentication and encryption. The password length is from 8 to 31 characters.



3.2.12 IEEE 802.1X

The settings here enable the camera to access a network protected by 802.1X/EAPOL (Extensible Authentication Protocol Over LAN).

Note: For authentication to work properly, it's important to synchronize the time in the camera with an NTP server.

Before using this function, make sure:

- The switch and RADIUS server you have in the LAN environment supports IEEE 802.1X, and IEEE 802.1X settings are enabled.
- You’ve applied a digital certificate from a Certificate Authority which can be validated by a RADIUS server, and the identity and password used.

Then, follow the steps below:

Step1: Connect this camera to a PC or laptop directly, and go to its login page to log in.

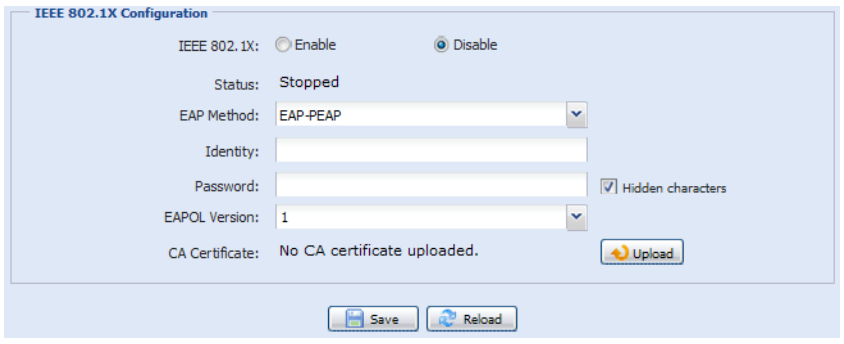
Note: To know how to connect the camera to a PC or laptop directly, please check “4 Modem / Hub + Modem” in “ADVANCED NETWORK SETUP”.

Step2: Log into the camera, and go to “Config” → “Network” → “IEEE 802.1X”. Enable this function, and select the EAP method you want to use.

Note: This camera supports “EAP-PEAP”, “EAP-TLS” and “EAP-TTLS”.

Step3: Enter the identity and password you get from the Certificate Authority, and select the EAPOL version used in your switch.

Step4: Upload the certificate(s) issued by the Certificate Authority, and save.



Step5: Disconnect the camera from your PC or laptop, and connect it to the switch in the LAN environment you want to use IEEE 802.1x, and the camera will start the authentication later.

3.2.13 Network Share

This function is used to assign a location in the LAN environment to save the snapshot of events.

Note: This function is available only for Windows operating systems.

The information you set here will be applied when “Network Share” is selected in “Trigger” → “Snapshot” → “Storage Mode”.

To use this function, make sure:

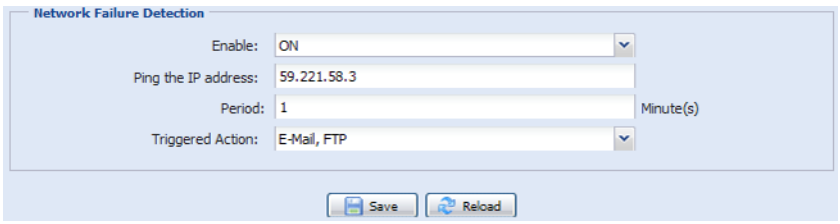
- A PC is installed in the same LAN environment as this camera, and you know the IP address of the PC.
- A PC account is created as “Administrator” with a user name and password.
- A folder in the PC is opened as shared to the user account you assigned.

Note: Please check “APPENDIX 7 PREREQUISITES FOR NETWORK SHARE” at page 41 for more details.

Enable this function, and enter the address of the PC, the folder being shared, and the user name and password to access the PC. If the information is all correct, you'll see a check in the “Status” column, and you’re ready to go to “Trigger” → “Snapshot” for further configurations.

3.2.14 Network Failure Detection

Configure this camera to check the network connection of other device periodically, and send notifications via Email or FTP for disconnection events.

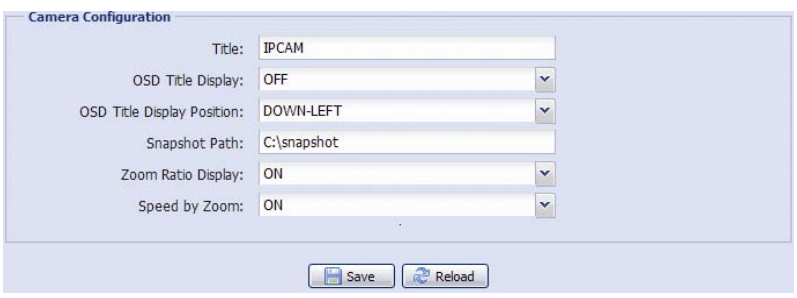


3.3 Camera

3.3.1 Camera

In this menu, you can set the camera title, OSD display, and location to save snapshots.

Note: The actual functions shown depend on the model you have.

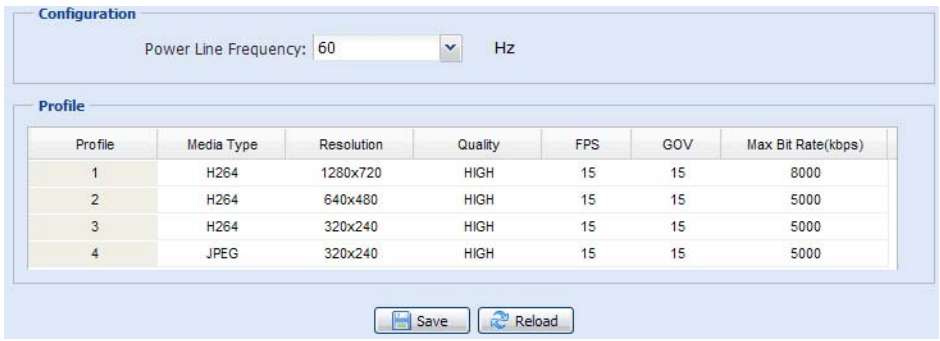


3.3.2 Video

You can adjust the power line frequency of your camera (60Hz or 50Hz) to suit your environment if needed, or adjust video-related settings in different video format.

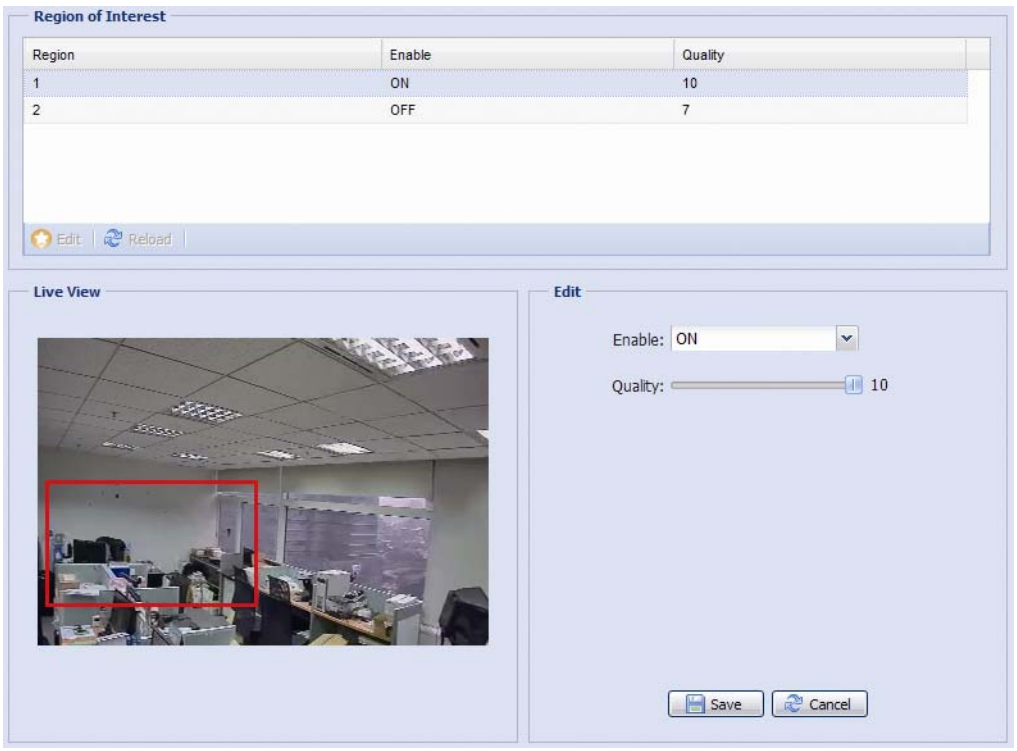
- “Quality” is related to image clearness.
- “FPS” is related to the fluency of the video. The more the FPS, the more fluent the video.
- “Max Bit Rate” is the maximum limitation of data transmission in the selected image format and resolution.

Note: QQVGA is for mobile surveillance only.



3.3.3 ROI

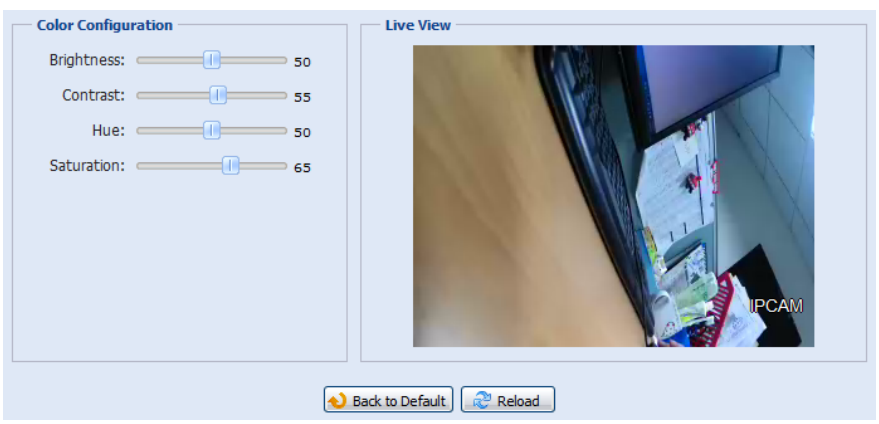
ROI, Region of Interest, is used to reinforce the image quality of the selected area(s). Users could specify two areas in the camera view.



3.3.4 Color

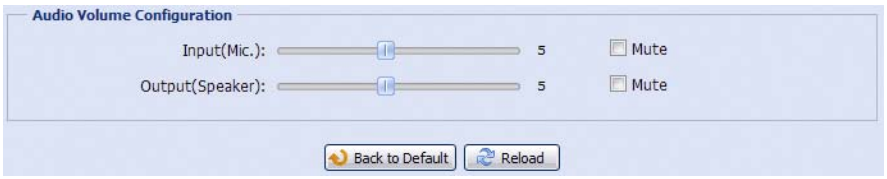
Adjust the color performance from Brightness, Contract, Saturation, and Hue. Click and drag the slider to preview the color change on the right side of this page and adjust the image color.

To restore the default values, click “Back to Default”.



3.3.5 Audio

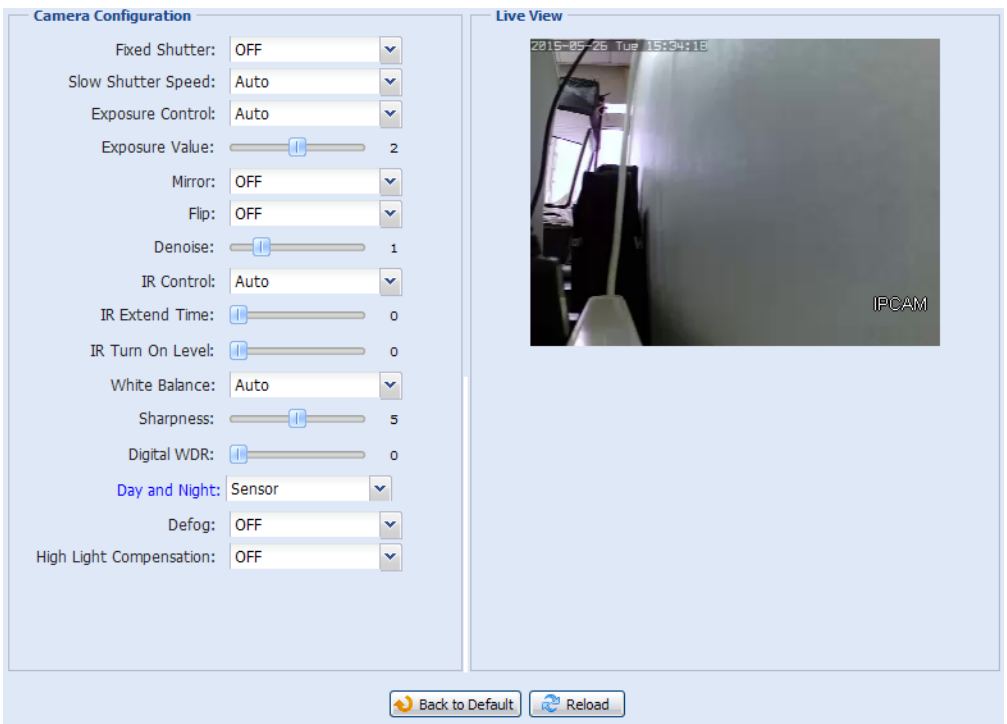
Drag the slider to adjust the volume of the microphone and speaker.



3.3.6 Advanced

Adjust the camera parameters if necessary.

Note: The functions available depend on the model number used.

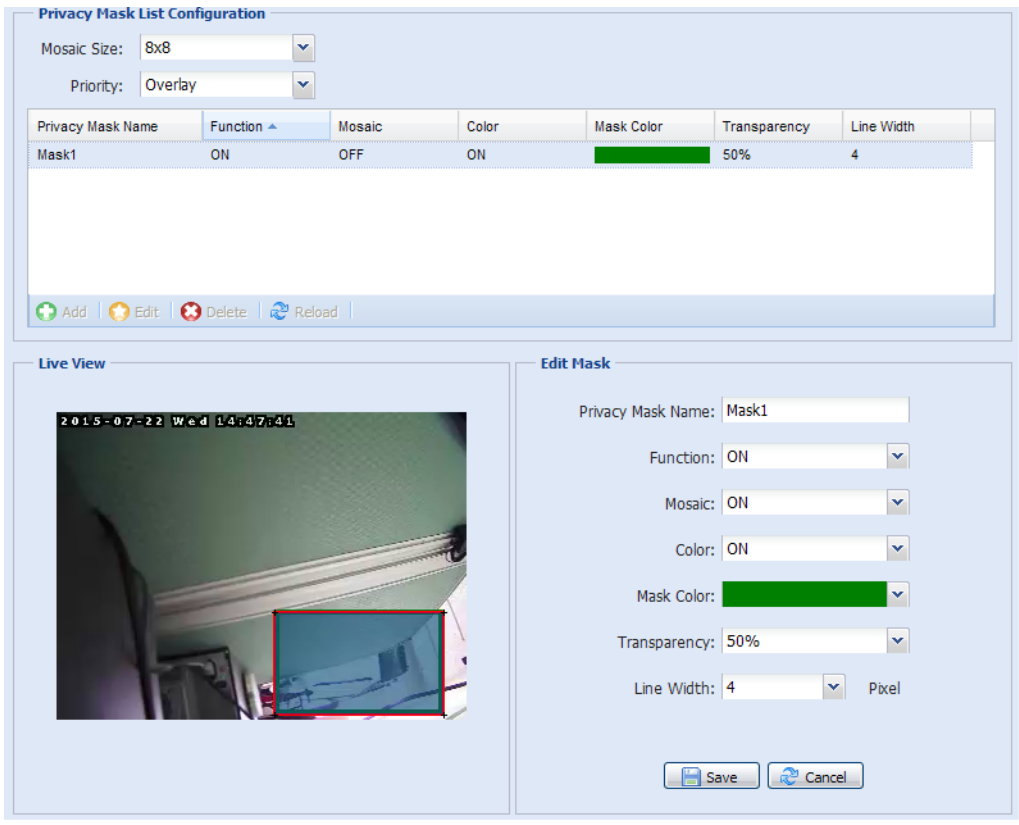


Item	Description
Fixed Shutter	Shutter Speed is a function that can adjust the duration of the electronic shutter to produce optimum image quality. Select the shutter speed suitable for your environment.
Slow Shutter Speed	Select the slow shutter speed suitable for your environment: 1/15, 1/6, or Auto. A slower shutter speed in dark conditions will help to produce a brighter image, but will produce fewer frames per second, which may cause images to get blurry during motion.
Exposure Control	This function is used to synchronize the shutter time to the fluorescent light to suppress image flickering.
Exposure Value	Drag the slider to adjust the exposure level from 0 ~ 4. The higher the value, the more light to let into the camera.
Mirror	Select “ON” to rotate the images horizontally based on your installation situation when necessary.
Flip	Select “ON” to rotate the image 180° when necessary.
Denoise	Click and drag the slider to adjust the level from 0 ~ 10 to decrease the noise shown in the dark environment. The higher the value, the higher the denoise level. 0 means off.
IR Control	Select “Auto” to automatically enable IR LEDs at night or in the dark environment, or “OFF” to disable this function.
IR Extend Time	Set the delay time from 1 ~ 60 in second after which the day and night switch is made, or select 0 to disable this function. This is used for the environment where the light condition may change suddenly and usually last for a short time, for example, the entrance of a parking lot. It may cause the day & night mode switching constantly and damage the camera. With this function, the camera will delay the mode switch at night since the light change is temporary and unnecessary to pay attention.
IR Turn On Level	Select the level for IR light to activate. 0 means off.
White Balance	Process the current image to retain color balance over a color temperature range.
Sharpness	Sharpness enhances the clarity of image detail by adjusting the aperture and sharpening the edges in the pictures. Hold and drag the slider to adjust the level of sharpness. The higher the value, the sharper the image.
Digital WDR	Digital WDR is used to simulate the effect of WDR when users need to increase image recognizability in overexposure and dark areas. 0 means off.

Item	Description
Day and Night	This function is used to configure the day and night mode: ● Day - Always stay in the day mode (color). ● Night - Always stay in the night mode (B/W). ● Time – Select this option, and click “Day and Night” in blue to enable and set a schedule to enable day and night mode. The selected time (yellow) will be in the day mode, and the unselected time will be in the night mode. ● Sensor – Use the built-in light sensor for day and night detection. ● Digital Input N.O. – (Used with Alarm In) Normally stay in the day mode, and switch to the night mode when the alarm is triggered. ● Digital Input N.C. – (Used with Alarm In) Normally stay in the night mode, and switch to the day mode the when alarm in triggered.
Defog	Select ”ON” or ”Auto” to enable the defog function in poor weather conditions such as fog, smog or smoke. The captured image can be improved.
High Light Compensation	It’s used to suppress strong backlight for clearer images. Select “ON” or “Auto”, and a gray mask will be covered on the source of the strong light.

3.3.7 Privacy Mask

You can cover certain areas on the camera image with privacy masks.

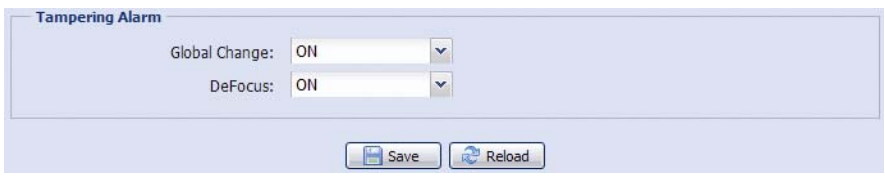


Item	Description
Mosaic Size	Choose the mosaic size of the privacy mask when “Mosaic” is set to “ON”. The options are: 8x8, 32x32, and 64x64.
Privacy Mask Name	Name your privacy mask.
Function	Select “On” to enable the privacy mask function.
Mosaic	Select “ON” to have the mosaic effect.
Color	Select “ON” to color the privacy mask.
Mask Color	Select the color for the privacy mask.
Transparency	Select the transparency for your privacy mask. The options are: 0%, 25%, 50%, and 100%.
Line Width	Choose the line width from 0, 2, 4 and 6 when the transparency is not set to 0%.

3.4 VA

3.4.1 TA

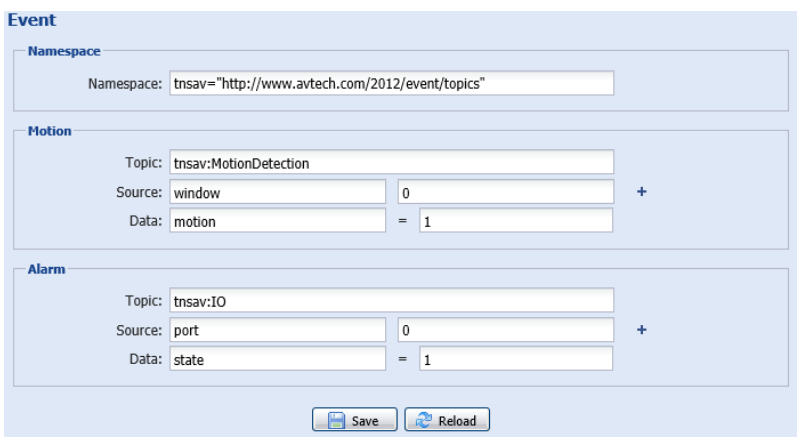
TA, tampering alarm, should be used with the mini-guard control switch for alarm system integration. For more details, please check with your distributor or installer.



3.5 EVENT

3.5.1 Event

This function is used to integrate the functions of event and alarm detection when this camera has to work with other ONVIF-compliant device.



3.5 Record

3.5.1 Record

- Enable or disable the alarm record function. When “Enable” is set to “No”, the alarm record function is disabled even if you enable it in other configuration pages.
- Select if the data should be overwritten when the memory storage is full.
- Enable or disable the audio record function.
- Select the video resolution for event recording.

Note: The higher resolution you choose, the more accuracy and higher image quality the recording will be, but the faster the memory storage is consumed and become full

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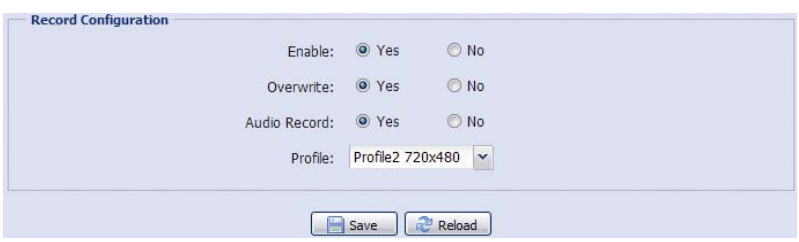
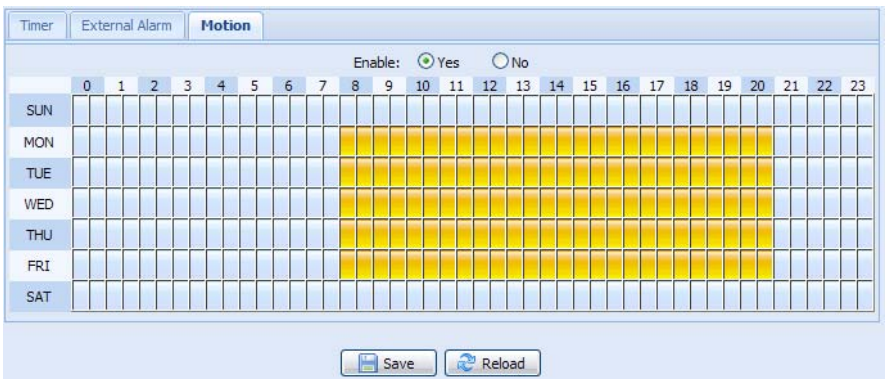


3.5.2 Record Timer

To schedule alarm and motion recording, enable it, and select the day and time for recording.

Note: The timer must be enabled for the record function to work properly.

Note: The selected time will be yellow-colored.



3.6 Storage

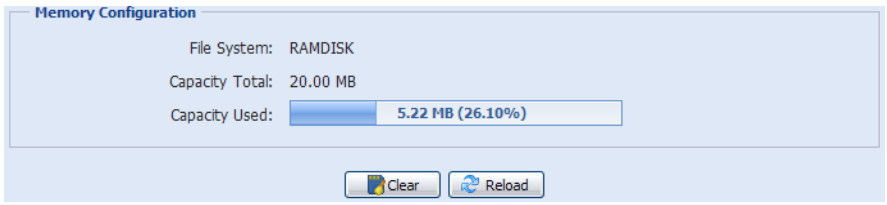
3.6.1 Memory

In “Memory”, you can check the remaining capacity for recording, or clear all recorded data saved if needed.

Note: The recorded data will be removed also when you reset or reboot this camera.

Note: To save more recorded data, it’s recommended to use this camera with the compatible NVR.

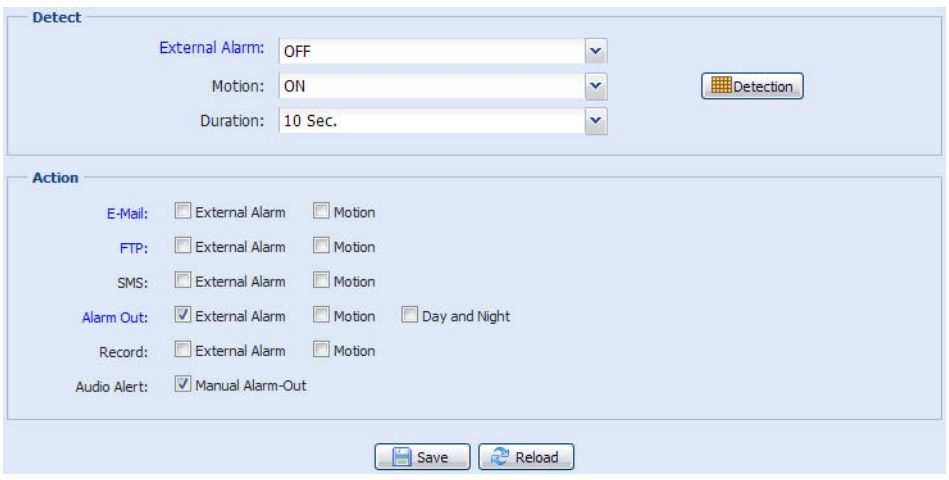
Note: To know the total recording time per recording resolution, please refer to “APPENDIX 6 RECORDING TIME TABLE” at page 40.



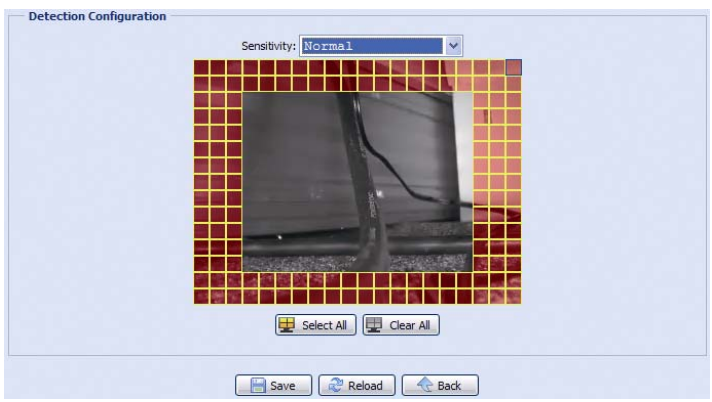
3.7 Trigger

3.7.1 Trigger

You can configure how this camera reacts when there’s an alarm or motion event.



◆ Detect

Item	Description
External Alarm	Enable or disable detection from external alarm-in device, and click the title “External Alarm” (in blue) to set “N.O.” or “N.C.” depending on the configuration of your alarm-in device.
Motion	Enable or disable motion detection. *Motion detection is not supported when the stream format is Motion JPEG.*
	When “Enable” is selected, click “Detection” to enter the motion detection area setting page as follows: 
	Sensitivity: Set the detection sensitivity from the drop-down list: High, Normal or Low.
	Area Setting: Set the motion detection area by selecting the area grids with your mouse. Pink grids represent the area that is not being detected while the transparent grids are the area under detection. You can set multiple areas under detection. Click “Clear All” to set the whole area undetected. Click “Select All” to set the whole area under detection.
Duration	Set the duration time for trigger recording (5 / 10 / 20 / 40 seconds).

◆ Action

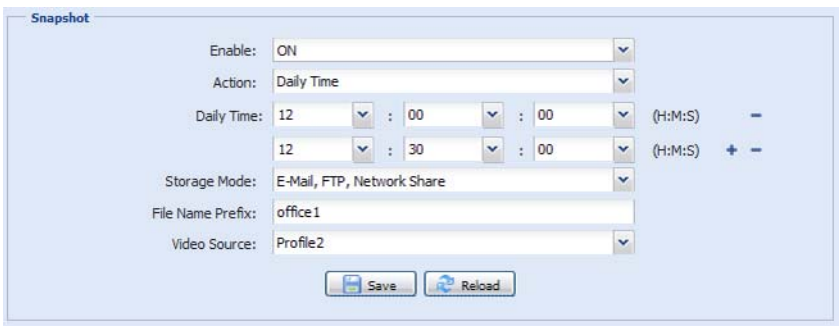
Here defines how the camera delivers alerts to you for any event.

Item	Description
E-Mail	Select the event type you want to receive E-mail notifications when it occurs. Then, click the title “E-Mail” (in blue) to configure the media type (H264 / JPEG / MPEG4), file format (AVC / AVI), and record time (1 ~ 5 seconds) for the event video clip. The camera will send the captured video clip to the E-mail address(s) you assigned in “Network” → “Mail” once the selected event type occurs.
FTP	Select the event type you want to receive FTP notifications when it occurs. Then, click the title “FTP” (in blue) to configure the media type (H264 / JPEG / MPEG4), file format (AVC / AVI), and record time (1 ~ 5 seconds) for the event video clip. The camera will upload the captured video clip to the FTP site you assigned in “Network” → “FTP” once the selected event type occurs.
SMS	Select the event type you want to receive a text message when it occurs. The camera will send a text message to the mobile phone number you assigned in “Network” → “SMS” once the selected event type occurs.
Alarm Out	Select the event type you want to trigger the alarm-out device to work when it occurs. Then, click the title “Alarm Out” (in blue) to configure the trigger rule (LOW / HIGH).
Record	Select the event type you want to enable event recording when it occurs.
Audio Alert	Select the event type you want to enable audio alert when it occurs.

3.7.2 Snapshot

Enable this function to schedule the camera to take snapshots periodically or at a specific time, and send the snapshots to E-Mail, FTP, and / or Network Share for backup.

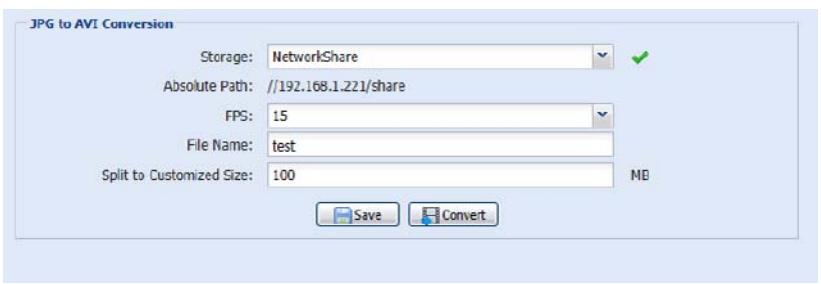
Note: Before using E-Mail, FTP and Network Share, make sure the related configurations are done in "Network" → "Mail", "Network" → "FTP", and "Network" → "Network Share".



Time-lapse Recording

This function allows users to create time-lapse recording by combining snapshots together.

Note: To use this function, make sure "Network Share" is configured well in "Network" → "Network Share". For details, please go to "3.2.13 Network Share" at page 17.



Step1: Configure when to take snapshots in "Snapshot", and choose "Network Share" as the storage mode.

Step2: In "JPG to AVI Conversion", choose how many images you want to see per second in "FPS", name the video file, and specify the file size.

Step3: Click "Convert" to start file conversion, and go to the path specified to store snapshots in "Network Share" to check the video file.

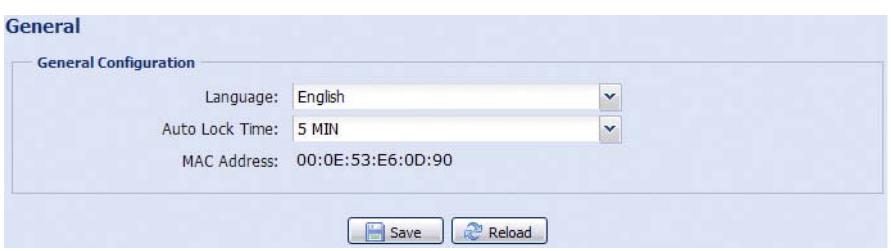
3.8 General

3.8.1 General

To change the language of UI interface, select from the drop-down list in "Language".

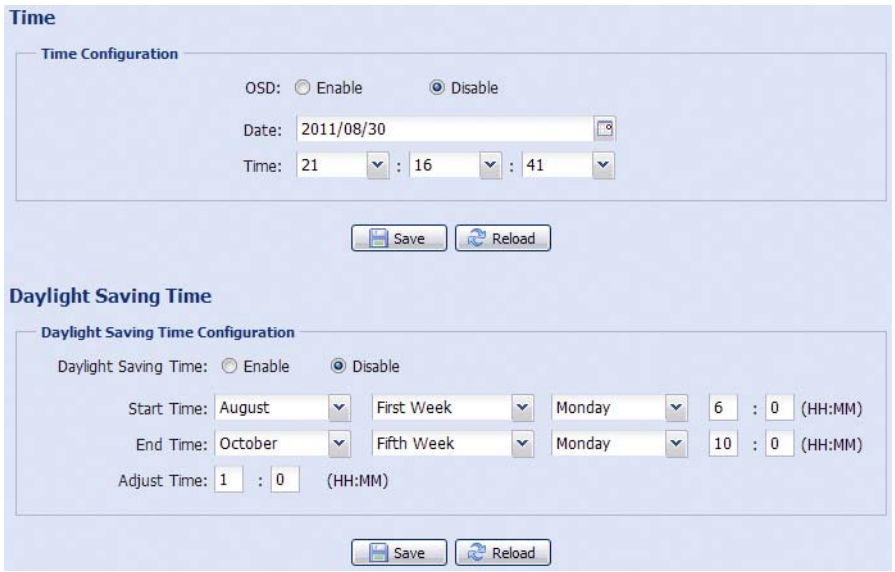
To lock camera access when it's not used after the specified time, select "5 MIN", "15 MIN" or "30 MIN" from the drop-down list of "Auto Lock Time", or select "NEVER" to disable this function.

Note: When the camera access is locked after the specified time, to resume camera access, please enter the password.



3.8.2 Time

Set daylight saving time and the current time, and click “Save” to confirm.

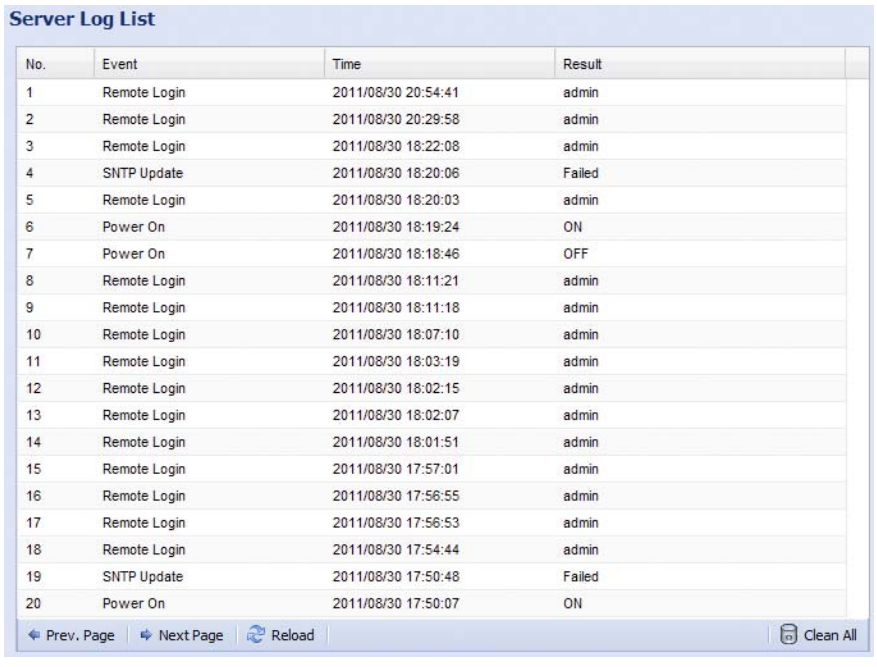


Function	Description
■ **Time Configuration**	
Date	Set the current date.
Time	Set the current time.
■ **Daylight Saving Time Configuration**	
Daylight Saving Time	Specify whether to use daylight saving time (Enable / Disable).
	If this function is enabled, set the time period (Start Time / End Time), and adjust the daylight saving time in hours (Adjust Time).

3.8.3 Server Log

To quickly search the system logs you want by event type, click “Prev. Page” or “Next Page” to find the logs you want, or check the event type(s) and click “Reload” to start searching.

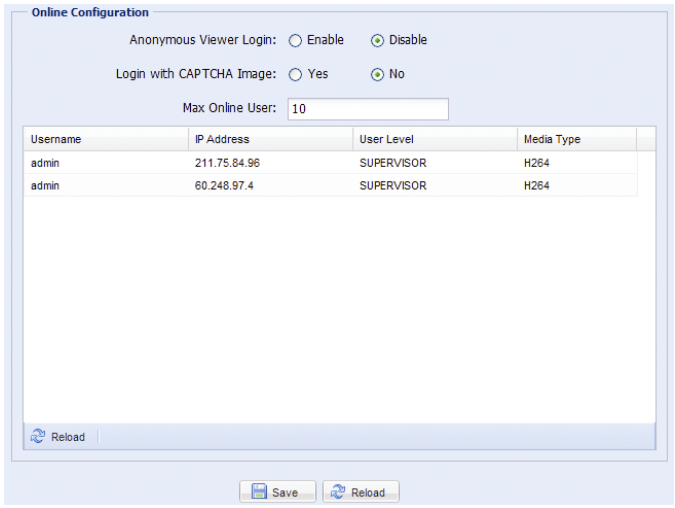
To clear all system event logs, click “Clear All”.



3.8.4 Online

You can check the current online user(s) with respective online information. To refresh the list, click “Reload”.

- To allow anonymous login, select “Enable” in “Anonymous Viewer Login”.
- To disable image code verification at login, select “No” in “Login with CAPTCHA Image”.

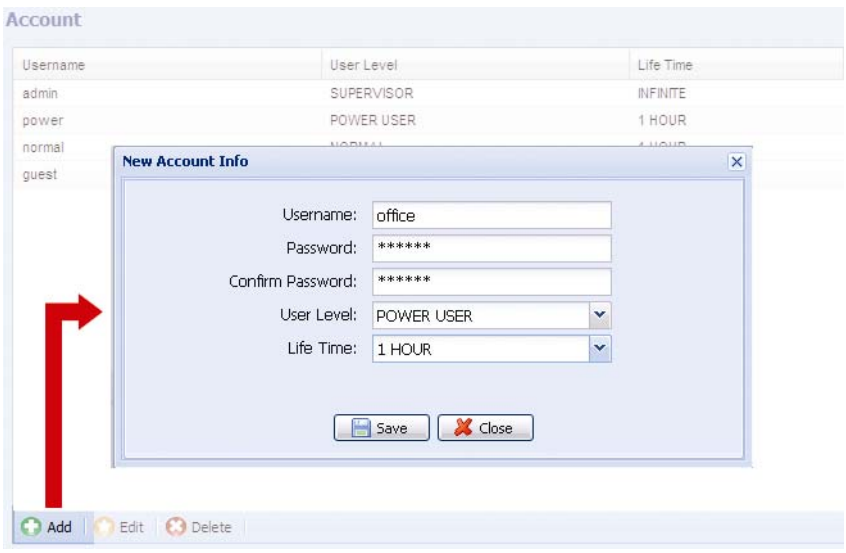


3.8.5 Account

You can create a new account with different user access privilege, or delete or modify an existing account setting.

How to create a new account

Step1: Click “New”, and fill in the following columns.



Column	Description
User Name	Set a user name that will be used for camera access. The user name allows up to 16 alphanumeric characters.
Password	Set the password that will be used for remote login. The password allows up to 16 alphanumeric characters.
Confirm Password	Enter the password again to confirm.
User Level	Set the security level of an account to give the permission to control different functions. There are four user levels: SUPERVISOR, POWER USER, NORMAL USER and GUEST.
Life Time	Select how long this account is allowed to stay online (1 MIN / 5 MIN / 10 MIN / 1 HOUR / 1 DAY / INFINITE)

Step2: Then, click “Save” to save your setting and create a new account.

How to modify or delete an existing account

Step1: Select the account you want to modify or delete.

Step2: To modify the account, click “Edit” to change the settings, and click “Save”.
To remove the account, click “Delete”.

Note: It’s not allowed to remove an account when there’s only one account in the account list.

3.8.6 Google Maps

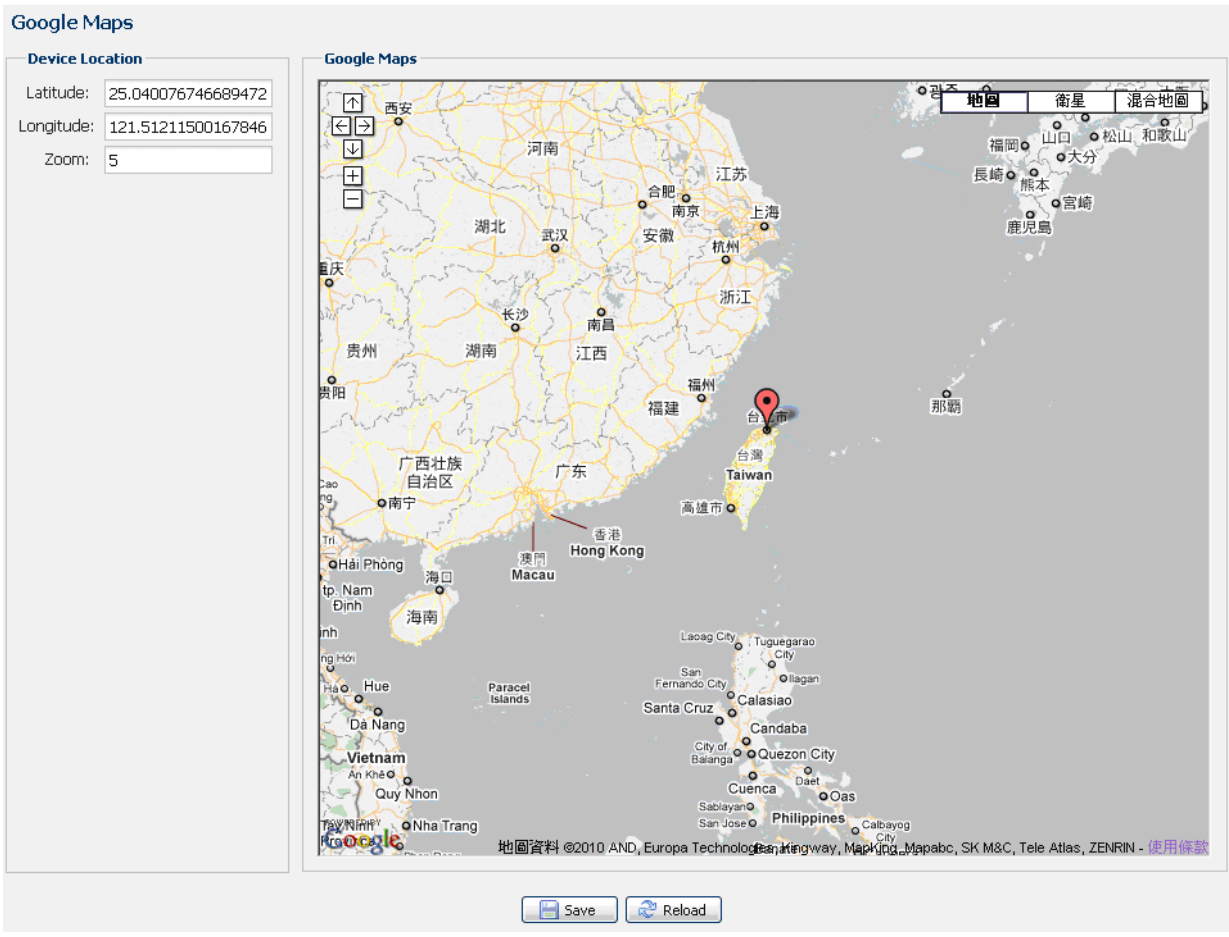
This function is used to let you know where the network camera is.

The system will prompt you to apply a Google Maps Key if your access is denied. Please follow the instructions below when you're denied:

Step1: Click "Sign up for a Google Maps key" to enter the application page.

Step2: Check the terms and conditions, and enter the IP address of the network camera. Then, click "Generate API Key".

Step3: Copy the generated API key, and click "Update Google Maps Key" on the web browser to paste it.



3.8.7 Maintenance

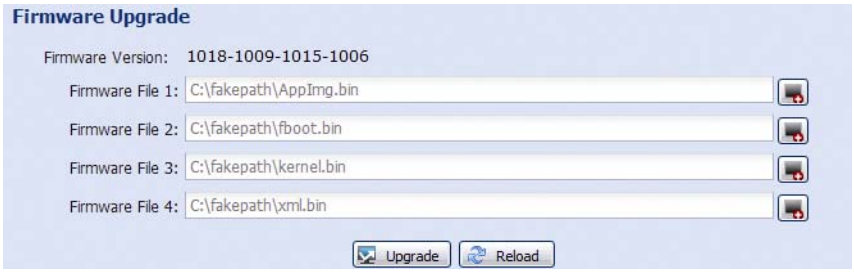
Firmware Upgrade

This function is used when users need to upgrade the camera for function scalability.

Note: Before using this function, make sure you have the correct upgrade files provided by your installer or distributor.

Note: The event videos saved in the camera will be removed after firmware upgrade. Make sure you've copied important events to your PC before firmware upgrade.

Step1: Select "  " to browse to where you save the upgrade files, and select them one by one until all files are selected (up to four files).



Step2: Select “Upgrade” to start system upgrading.

Note: You’ll be prompted to keep current configurations. It’s recommended to keep them, or all configurations will be restored to default values after upgrade.

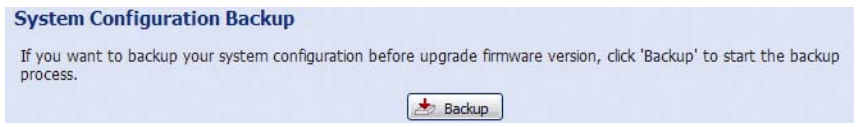
Note: It takes a few minutes to finish the upgrade process. Do not disconnect the power during firmware upgrade, or the upgrade may be failed. The camera will reboot after the upgrade.

System Configuration Backup

This function is used to copy your system configuration to a “System.bin” file.

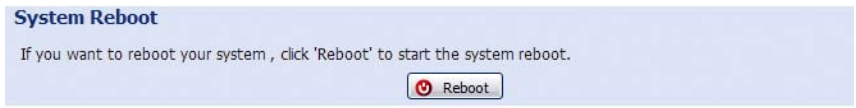
You may import the same system configuration to another camera, or restore your system configuration when the camera is reset to default values.

Select “System.bin” in “Firmware Upgrade”, and select “Upgrade” to import the system configuration.



System Reboot

Select “Reboot” to restart your camera if needed.

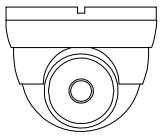


Player Download

To see the event video clips downloaded to your PC, you need to first install our own video player in your PC.

Select “Free Download” to download the video player, and double click the file to install it.

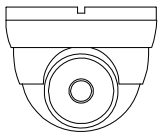
APPENDIX 1 PRODUCT SPECIFICATIONS



3MP

	Model 1
■ Network	
LAN Port	YES
LAN Speed	10/100 Based-T Ethernet
Supported Protocols	DDNS, PPPoE, DHCP, NTP, SNTP, TCP/IP, ICMP, SMTP, FTP, HTTP, RTP, RTSP, RTCP,IPv4, Bonjour, UPnP, DNS,UDP,IGMP, QoS, SNMP
ONVIF Compatible	YES (Profile S)
Security	(1) Multiple user access levels with password (2) IP address filtering (3) Digest authentication
Remote Access	(1) Internet Explorer on Windows operating system (2) 16CH Video Viewer on Windows & MAC operating system (3) EagleEyes on iOS & Android mobile devices
■ Video	
Video Compression	H.264 (Main Profile) / MJPEG
Resolution	2048x1536 / 1920 x 1080 / 1280 x 720 / 720 x 480 / 352 x 240
Frame Rate	30/25fps
Multiple Video Streaming	4 (H.264, MJPEG)
■ General	
Image Sensor	1/2.8” CMOS image sensor
Min Illumination	0.1 Lux / F1.4(Wide)~F2.8(Tele), 0 Lux (IR LED ON)
Electronic Shutter	1/10,000 ~ 1/7.5 (Slow shutter)
S/N Ratio	More than 48dB (AGC off)
Lens	f2.8 ~ 12mm / F1.4 ~ F2.8
Viewing Angle	Wide: 94° (Horizontal) / 69° (Vertical) / 120° (Diagonal) Tele: 29° (Horizontal) / 22° (Vertical) / 36° (Diagonal)
IR LED	24 Units
IR Effective Range	Up to 20 meters
IR Shift	YES
Smart Light Control	YES
White Balance	ATW
AGC	Auto
WDR	DWDR
Privacy Mask	YES
POE (Power-over-Ethernet)	YES (IEEE 802.3af)
External Alarm I/O	YES (1 input / 1 output)
Micro SD Card Slot	NO
IP Rating	IP66
Operating Temperature	-25℃ ~ 50℃
Operating Humidity	90% or less relative humidity
Power Source (±10%)	12V / 1A
Current consumption (±10%)	825mA Max.
Power Consumption (±10%)	PoE & PoN: 11.6W; DC Adapter: 9.9W
■ Audio	
Line in	YES
Line out	YES
■ Others	
Mobile Surveillance	iOS & Android
Push Video	NO
Event Notification	FTP / Email / SMS
Digital Pan / Tilt / Zoom	YES
Motion Detection	YES
RTC (real-time clock)	YES
Minimum Web Browsing Requirements	• Intel core i3 or higher, or equivalent AMD • 2GB RAM • AGP graphics card, Direct Draw, 32MB RAM • Windows 10, Windows 8, Windows 7, Windows Vista & Windows XP, DirectX 9.0 or later • Internet Explorer 7.x or later (Windows Edge not supported)

* The specifications are subject to change without notice. ** Dimensional tolerance: ± 5mm



2MP

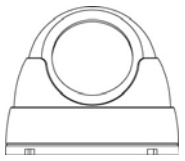
	Model 2	Model 3
■ Network		
LAN Port	YES	
LAN Speed	10/100 Based-T Ethernet	
Supported Protocols	DDNS, PPPoE, DHCP, NTP, SNTP, TCP/IP, ICMP, SMTP, FTP, HTTP, RTP, RTSP, RTCP,IPv4, Bonjour, UPnP, DNS,UDP,IGMP, QoS, SNMP	
ONVIF Compatible	YES (Profile S)	
Numbers of Online Users	10	
Security	(1) Multiple user access levels with password (2) IP address filtering (3) Digest authentication	
Remote Access	(1) Internet Explorer on Windows operating system (2) 24CH Video Viewer on Windows & MAC operating system (3) EagleEyes on iOS & Android mobile devices	
■ Video		
Video Compression	H.264 (Main Profile) / MJPEG	
Resolution	1920 x 1080 / 1280 x 720 / 720 x 480 / 352 x 240	
Frame Rate	30fps	
Multiple Video Streaming	4 (H.264, MJPEG)	
■ General		
Image Sensor	1/2.9” CMOS image sensor	
Min Illumination	0.1 Lux / F1.4(Wide)~F2.8(Tele), 0 Lux (IR LED ON)	
Electronic Shutter	1/10,000 ~ 1/7.5 (Slow shutter)	
S/N Ratio	More than 48dB (AGC off)	
Lens	f2.8 ~ 12mm / F1.4 ~ F2.8	
Viewing Angle	Wide: 103° (Horizontal) / 54° (Vertical) / 122° (Diagonal) Tele: 31° (Horizontal) / 17° (Vertical) / 36° (Diagonal)	
IR LED	4 Units	24 Units
IR Effective Range	Up to 40 meters	Up to 25 meters
IR Shift	YES	
Smart Light Control	YES	
White Balance	ATW	
AGC	Auto	
IRIS Mode	AES	
DWDR	YES	
POE	YES (IEEE 802.3af)	
Privacy Mask	YES	
External Alarm I/O	YES (1 input / 1 output)	
RAM	20MB	
Micro SD Card Slot	YES (up to 64GB)	
Operating Temperature	0℃ ~ 40℃	
Operating Humidity	90% or less relative humidity	
Power Source (±10%)	DC12V / 1A	
Current consumption (±10%)	260mA (IR LED OFF); 580mA (IR LED ON)	542mA
Power Consumption (±10%)	8.7 (PoE) ; 4.11W (PoN) ; 6.96W (DC Adapter)	7.5 (PoE) ; 7.5W (PoN) ; 6.5W (DC Adapter)
Net Weight (kg)	0.648	
■ Audio		
Microphone Built-in	YES	
Line in	YES (Mono)	
Line out	YES (Mono)	
■ Others		
Mobile Surveillance	iOS & Android mobile devices	
Event Notification	FTP / Email / SMS	
3-Axis	YES	
Digital Pan / Tilt / Zoom	YES	
Motion Detection	YES	
RTC (real-time clock)	YES	
Minimum Web Browsing Requirements	• Intel core i3 or higher, or equivalent AMD • 2GB RAM • AGP graphics card, Direct Draw, 32MB RAM • Windows 10, Windows 8, Windows 7, Windows Vista & Windows XP, DirectX 9.0 or later • Internet Explorer 7.x or later (Windows Edge not supported)	

* The specifications are subject to change without notice. ** Dimensional tolerance: ± 5mm

2MP

	Model 4
■ Network	
LAN Port	YES
LAN Speed	10/100 Based-T Ethernet
Supported Protocols	DDNS, PPPoE, DHCP, NTP, SNTP, TCP/IP, ICMP, SMTP, FTP, HTTP, RTP, RTSP, RTCP,IPv4, Bonjour, UPnP, DNS,UDP,IGMP, QoS, SNMP
ONVIF Compatible	YES (Profile S)
Numbers of Online Users	10
Security	(1) Multiple user access levels with password (2) IP address filtering (3) Digest authentication
Remote Access	(1) Internet Explorer on Windows operating system (2) 24CH Video Viewer on Windows & MAC operating system (3) EagleEyes on iOS & Android mobile devices
■ Video	
Video Compression	H.264 (Main Profile) / MJPEG
Resolution	1920 x 1080 / 1280 x 720 / 720 x 480 / 352 x 240
Frame Rate	30fps
Multiple Video Streaming	4 (H.264, MJPEG)
■ General	
Image Sensor	1/2.9” CMOS image sensor
Min Illumination	0.1 Lux / F1.5, 0 Lux (IR LED ON)
Electronic Shutter	1/10,000 ~ 1/7.5 (Slow shutter)
S/N Ratio	More than 48dB (AGC off)
Lens	f3.8mm / F1.5
Viewing Angle	73.2° (Horizontal) / 42.8° (Vertical) / 83.2° (Diagonal)
IR LED	1 Unit
IR Effective Range	Up to 10 meters
IR Shift	YES
Smart Light Control	YES
White Balance	ATW
AGC	Auto
IRIS Mode	AES
DWDR	YES
POE	YES (IEEE 802.3af)
Privacy Mask	YES
External Alarm I/O	YES (1 input / 1 output)
RAM	20MB
Micro SD Card Slot	YES (up to 64GB)
Operating Temperature	0℃ ~ 40℃
Operating Humidity	90% or less relative humidity
Power Source (±10%)	DC12V / 500mA
Current consumption (±10%)	202mA (IR LED OFF); 274mA (IR LED ON)
Power Consumption (±10%)	4.11 (PoE) ; 4.11W (PoN) ; 3.29W (DC Adapter)
Net Weight (kg)	0.75
■ Audio	
Microphone Built-in	YES
Line in	YES (Mono)
Line out	YES (Mono)
■ Others	
Mobile Surveillance	iOS & Android mobile devices
Event Notification	FTP / Email / SMS
3-Axis	YES
Digital Pan / Tilt / Zoom	YES
Motion Detection	YES
RTC (real-time clock)	YES
Minimum Web Browsing Requirements	• Intel core i3 or higher, or equivalent AMD • 2GB RAM • AGP graphics card, Direct Draw, 32MB RAM • Windows 10, Windows 8, Windows 7, Windows Vista & Windows XP, DirectX 9.0 or later • Internet Explorer 7.x or later (Windows Edge not supported)

* The specifications are subject to change without notice. ** Dimensional tolerance: ± 5mm



2MP

	Model 5
■ Network	
LAN Port	YES
LAN Speed	10/100 Based-T Ethernet
Supported Protocols	DDNS, PPPoE, DHCP, NTP, SNTP, TCP/IP, ICMP, SMTP, FTP, HTTP, RTP, RTSP, RTCP,IPv4, Bonjour, UPnP, DNS,UDP,IGMP, QoS, SNMP
ONVIF Compatible	YES (Profile S)
Numbers of Online Users	10
Security	(1) Multiple user access levels with password (2) IP address filtering (3) Digest authentication
Remote Access	(1) Internet Explorer on Windows operating system (2) CMS Lite, 24CH CMS software for Windows operating system (3) EagleEyes on iOS & Android mobile devices
■ Video	
Video Compression	H.264 (Main Profile) / MJPEG
Resolution	1920 x 1080 / 1280 x 720 / 720 x 480 / 352 x 240
Frame Rate	30/25fps
Multiple Video Streaming	4 (H.264, MJPEG)
■ General	
Image Sensor	1/2.7” CMOS image sensor
Min Illumination	0.1 Lux / F1.5, 0 Lux (IR LED ON)
Shutter Speed	1/2 to 1/10,000 sec
S/N Ratio	More than 48dB (AGC off)
Lens	f3.8mm / F1.5
Viewing Angle	77° (Horizontal) / 45° (Vertical) / 88° (Diagonal)
IR LED	12 Units
IR Effective Distance	Up to 10 meters
IR Shift	YES
White Balance	ATW
AGC	Auto
IRIS Mode	AES
Sharpness	YES
DWDR	YES
POE	YES (IEEE 802.3af)
External Alarm I/O	YES (1 input / 1 output)
RAM	20MB
Weather-proof	IP66
Operating Temperature	-25℃ ~ 50℃
Operating Humidity	90% or less relative humidity
Power Source (±10%)	12V / 1A
Current consumption (±10%)	235mA (IR OFF) / 357.5mA (IR ON)
Power Consumption (±10%)	5.375W (PoE & PoN) ; 4.29W (DC Adapter)
Net Weight (kg)	0.37
■ Others	
Mobile Surveillance	iOS & Android mobile devices
Motion Detection	YES
Event Notification	FTP / Email / SMS
3-Axis	YES
RTC (real-time clock)	YES
Digital Pan / Tilt / Zoom	YES
Minimum Web Browsing Requirements	• Intel core i3 or higher, or equivalent AMD • 2GB RAM • AGP graphics card, Direct Draw, 32MB RAM • Windows 10, Windows 8, Windows 7, Windows Vista & Windows XP, DirectX 9.0 or later • Internet Explorer 7.x or later (Windows Edge not supported)

* The specifications are subject to change without notice. ** Dimensional tolerance: ± 5mm

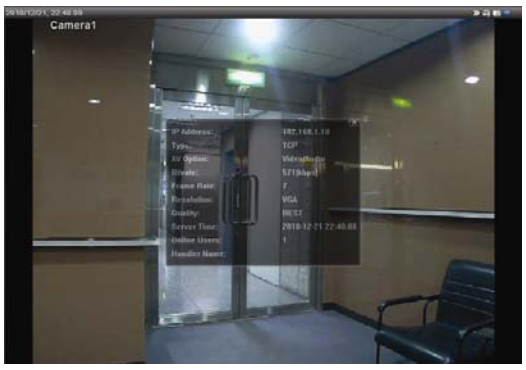
APPENDIX 2 BIT RATE TABLE FOR REFERENCE

The data below is for reference only.

The bit rates listed here may vary depending on the resolution, image quality & frame rate you choose, the complexity of your monitoring area, and how often the moving objects show in your monitoring area.

Testing Environment

- Place: Office Entrance
- Network translation: H.264
- Camera type: Megapixel camera



Static: No one coming in and out

Dynamic: One or two people coming in and out

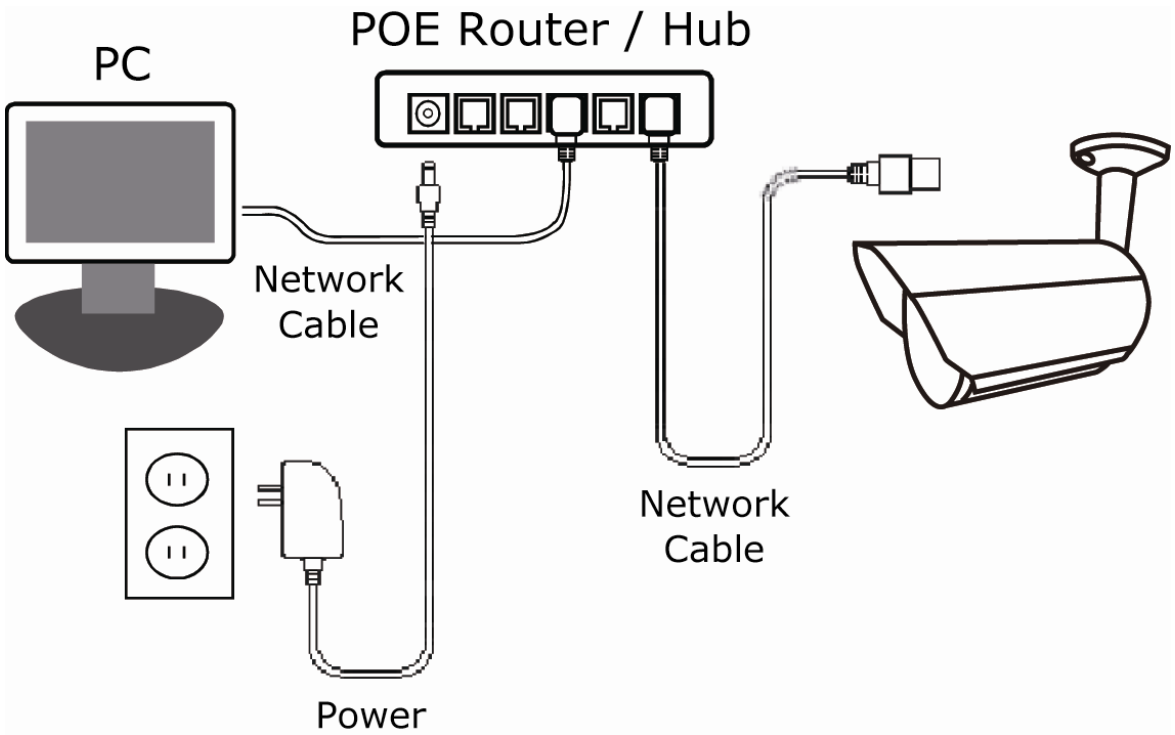
Resolution	Quality	Frame Rate	(Dynamic) kbps	(Static) kbps
SXGA	Best	FULL	3253	3216
	High		2375	2160
	Normal		1571	1266
	Basic		1465	873
VGA	Best		2010	1261
	High		1042	1034
	Normal		685	572
	Basic		457	350
QVGA	Best		646	366
	High		482	350
	Normal		302	286
	Basic		168	161
SXGA	Best	1/4	1163	1076
	High		989	715
	Normal		855	534
	Basic		719	443
VGA	Best		789	571
	High		451	447
	Normal		349	237
	Basic		217	165
QVGA	Best		269	147
	High		182	131
	Normal		164	113
	Basic		97	71

Resolution	Quality	Frame Rate	(Dynamic) kbps	(Static) kbps
SXGA	Best	1/15	581	374
	High		405	342
	Normal		487	248
	Basic		337	141
VGA	Best		358	79
	High		201	63
	Normal		180	28
	Basic		92	15
QVGA	Best		111	84
	High		99	68
	Normal		97	54
	Basic		58	42

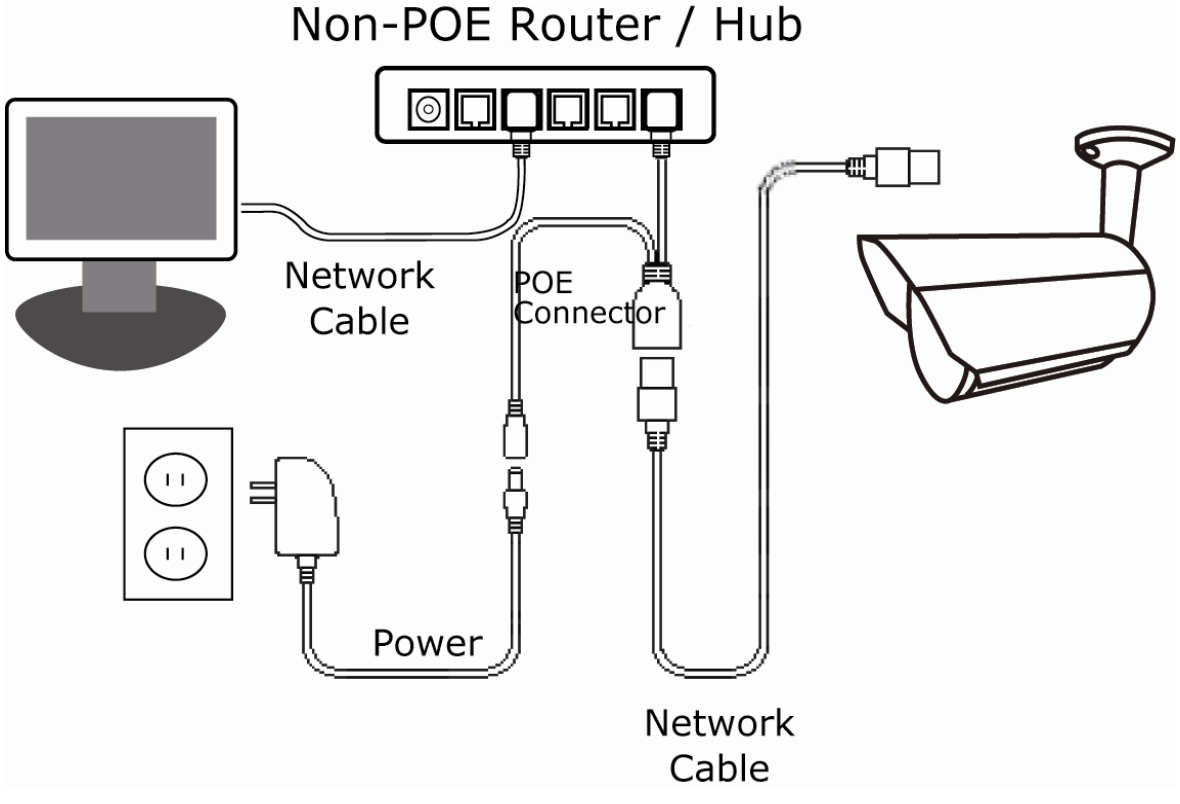
APPENDIX 3 POE CONNECTION

This device supports PoE (Power-over-Ethernet), developed by the IEEE802.3af or IEEE802.3at task force, and power can be supplied over the same network (Ethernet) cable as the one used to connect to Internet. No power cable is needed. Below shows two examples of POE application for reference.

- When your router / hub supports POE connection



- When your router / hub doesn't support POE connection (An optional POE connected required)



APPENDIX 4 API ID APPLICATION FOR SMS MESSAGING

To allow the camera automatically sending a text message when an event happens, you need to apply an API ID from a mobile messaging company first, such as Clickatell or EVERY8D.

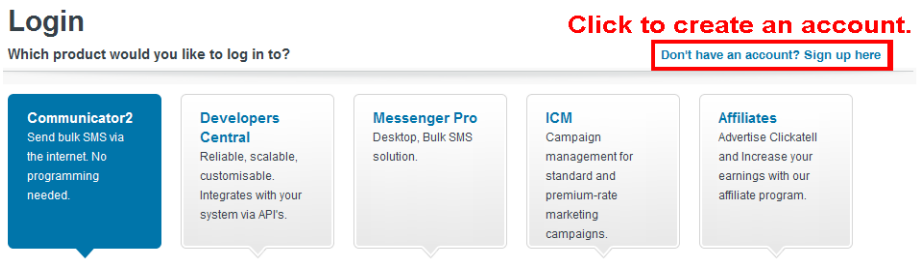
Below shows an example of how to get an API ID from Clickatell.

Note: The SMS messaging may not be totally free. Please check the charge policy of the messaging service you use.

Note: The instructions below are for reference only and may vary when Clickatell's official website is updated.

Please follow the steps below for application.

Step1: Go to http://www.clickatell.com/login.php. Sign up an account first.



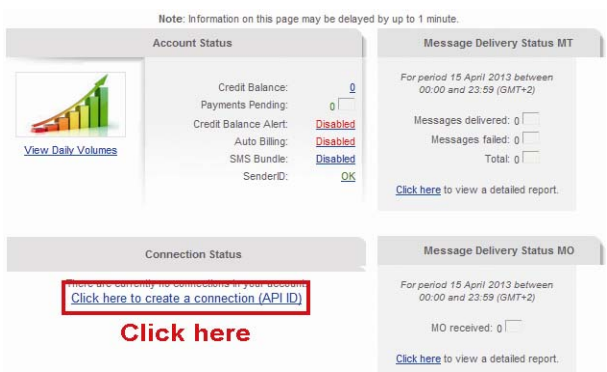
Step2: Select "Developers Central", select the location where you want to use this service, and fill in your information to create an account.

Step3: When the account is created, the system will automatically send an Email to your specified Email address with the user name, password, and client ID used to log into the service.

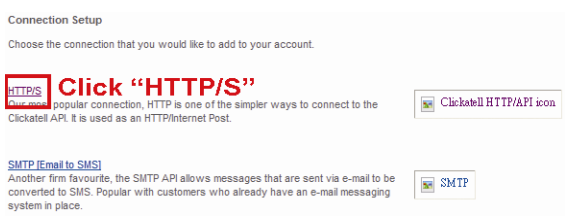
Step4: Click the link within the email to log in, and you will be prompted to validate your mobile phone number. Select "SEND ACTIVATION CODE". The system will send an activation code to that number for verification.

Check if you receive a text message from Clickatell, and enter the activation code.

Step4: In your account, find “Connection Status” and create a connection (API ID).



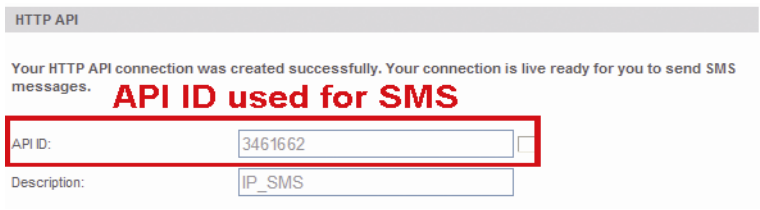
Step5: Select “HTTP/S”.



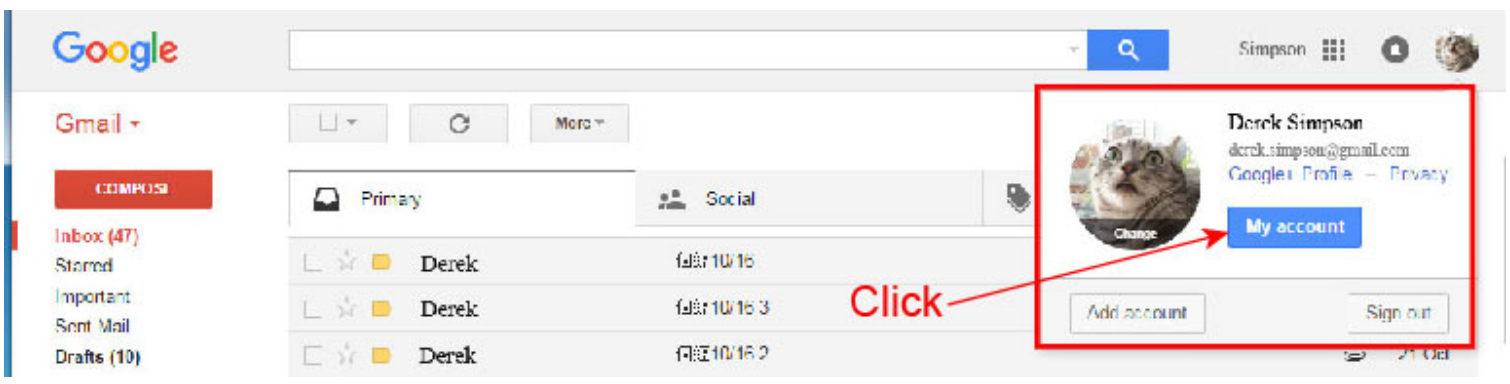
Give a meaning name for this connection, and click “Submit and Get API ID”.

Step5: An API ID will be generated as follows.

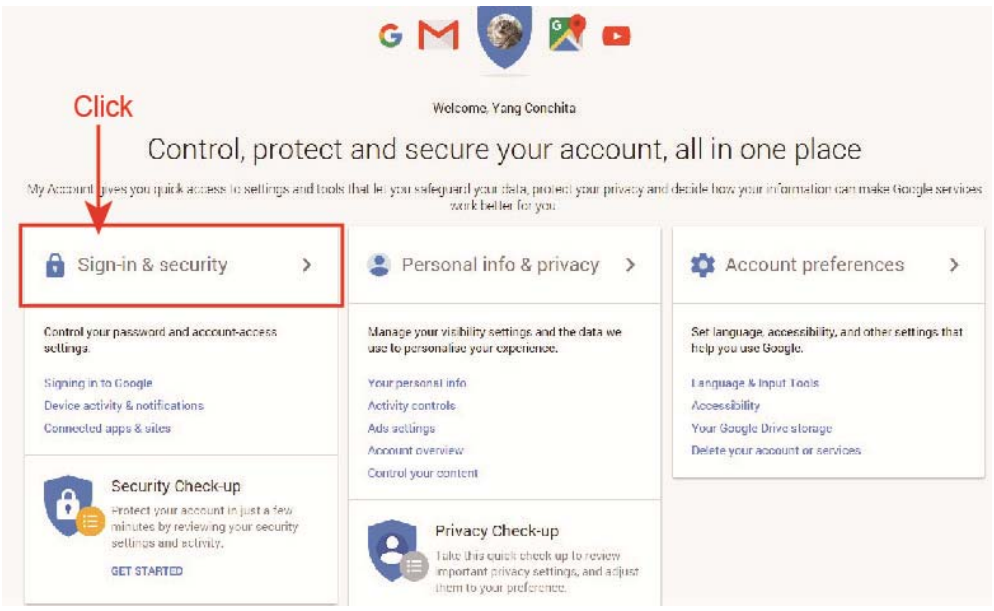
Note: Note down the API ID for SMS notification setting later.



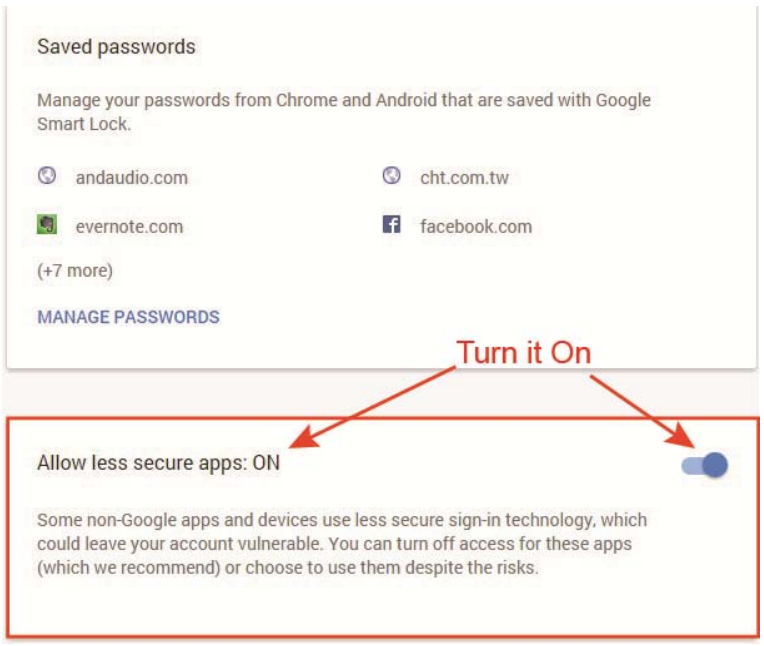
APPENDIX 5 Q&A

Q1:	I can connect to this camera in my house or office where it's installed with wireless network. But when I leave my house or office, I can't connect to it from my mobile phone (with 3G network), or other PC (connected to Internet). Why?
A1:	You didn't configure this camera to Internet, but only in LAN. Please click here to download and follow the steps in the advanced network setup guide to complete network configurations, or it's recommended for you to check with your local installer or reseller for this service because it's usually hard for a person who doesn't have network knowledge to set network configurations.
Q2:	My live images are not fluent. Why?
A2:	Image fluency could be affected by the local network upload bandwidth, router efficiency, client network download bandwidth, complexity of live view, and more. (Recommended) To have the best image fluency, select QVGA; to have the best image quality, select "HD1080P" or "SXVGA" based on the model you have; to have normal image fluency and quality, select "VGA".
Q3:	The live video keeps flickering. Why?
A3:	Please try adjusting the power line frequency to "60 Hz" or "50 Hz" for the camera. For iPhone users, access the camera, and select "  " on the top right corner to enter IPCAM Configuration page. Then, go to "Advance Setup" → "Camera" to change setting. For access from Internet Explorer, log into the camera, and select "Config." → "Camera" → "Video".
Q4:	I am sure the gmail information is right, but I still can't receive the email, why?
A4:	Please change a few settings in your Gmail account. Step1: Log in and click your email address on the upper right corner. Click "My account." 

Step2: Click “Sign-in & Security.”



Step3: Roll down to the bottom of the page and check the “Allow less secure apps.”



APPENDIX 6 RECORDING TIME TABLE

Below shows the estimated total recording time for each recording resolution.

The recording time per resolution is the average value collected from the both alarm trigger conditions indicated in “Testing Environment”, and is for reference only.

The time may vary depending on the resolution, image quality & frame rate you choose, the complexity of your monitoring area, and how often the moving objects show in your monitoring area.

Testing Environment

- Place: Office
- Monitoring area: 1.5 meters away from the camera
- Alarm trigger conditions:
  (1) One person walks by the monitoring area and leaves immediately.
  (2) Two persons walk by the monitoring area. One goes away immediately, and the other one stays a while and goes away.

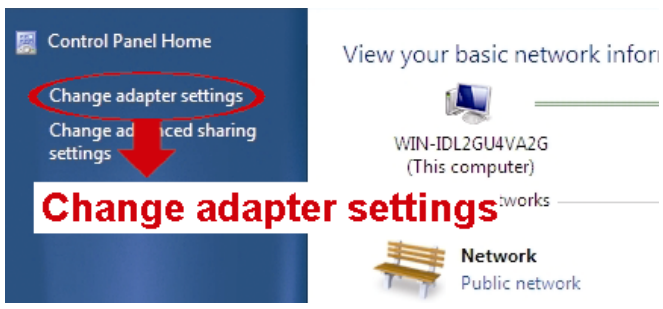
Recording Resolution	SXGA	VGA	QVGA
Recording time (second)	25	115	211

APPENDIX 7 PREREQUISITES FOR NETWORK SHARE

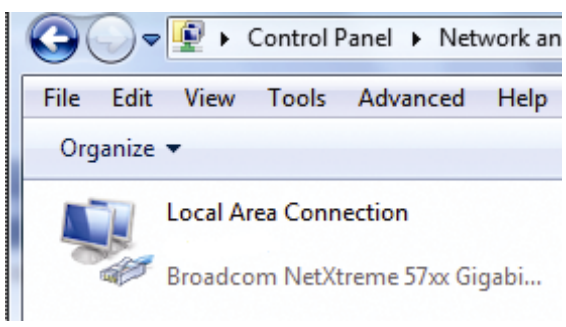
A7.1 Check PC IP Address

Note: The instructions below are taking Windows 7 and 8 for an example.

Step1: Go to "Network and Sharing Center", and select “Change adapter settings”.



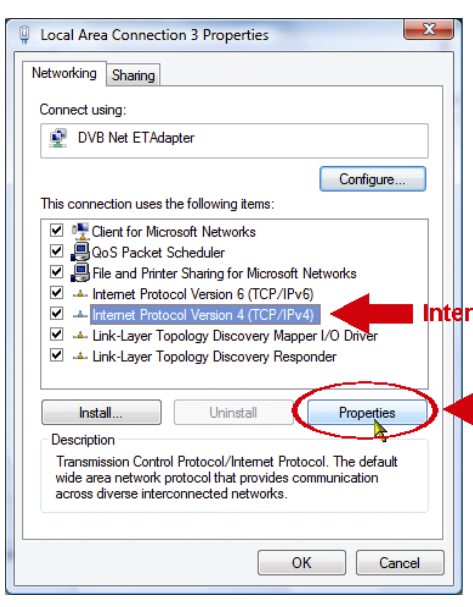
Step2: Right-click on “Local Area Connection”, and select “Properties”.

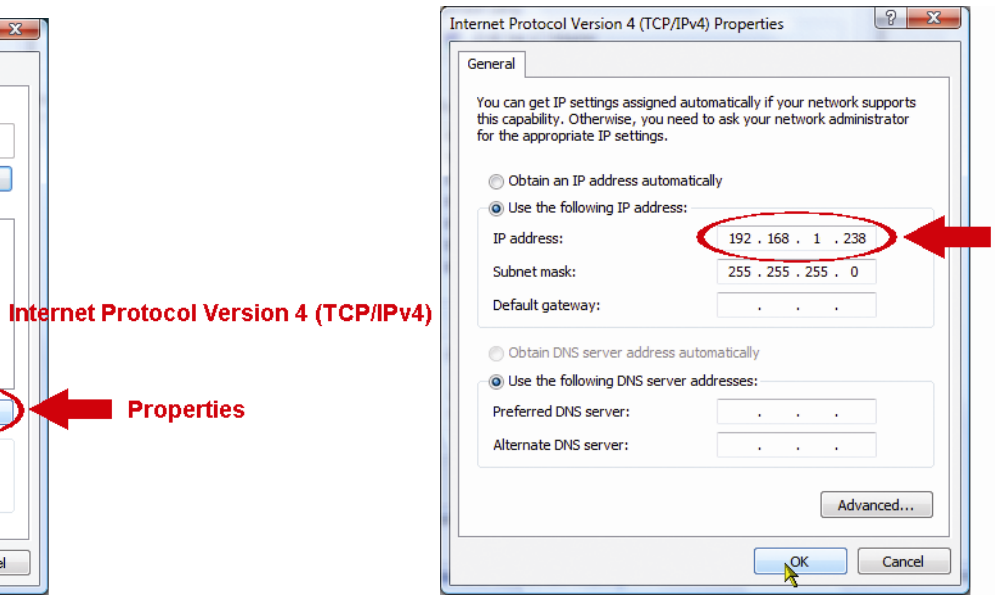


Note: If your local area connection is not enabled, please also enable it.

Step3: In the “Networking” tab, select “Internet Protocol Version 4 (TCP/IPv4)”, and select “Properties”.

Step4: In the “General” tab, note down the IP address in “Use the following IP address”.



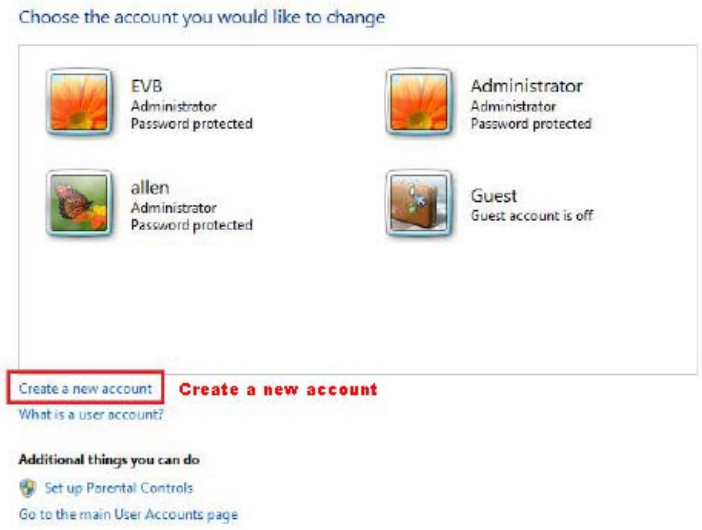


A7.2 Create "Administrator" Account

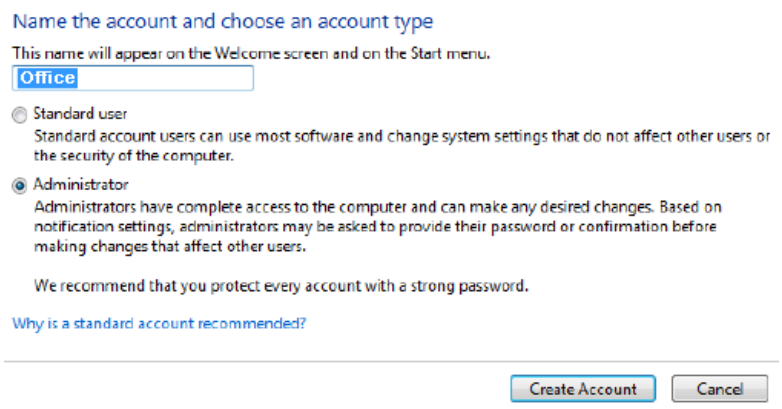
It’s recommended to create a new administrator account on the PC for “Network Share” to use, or user could use the existing administrator account.

Note: The instructions below are taking Windows 7 and 8 for an example.

Step1: Go to "User Accounts” → “Manage Accounts”, and select “Create a new account”.



Step2: Set a user name, and choose “Administrator” for this account. Then, click “Create Account”.



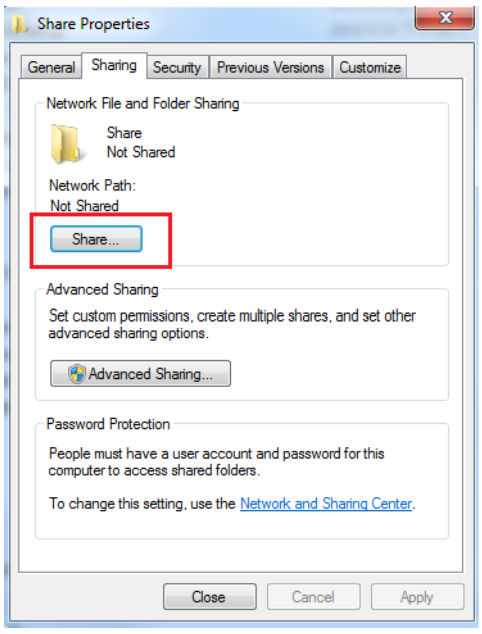
Step3: Set the password, and click “Create Account”.

A7.3 Share Folder

Note: The instructions below are taking Windows 7 and 8 for an example.

Step1: Right-click the folder you want to use to save snapshots for “Network Share”, and choose “Properties”.

Step2: In “Share Properties”, select the tab of “Sharing”, and choose “Share…”.



Step3: Choose the account you want to share with, and click “Share” to save.