User Manual

OUTDOOR BULLET IP CAMERA

V1.0_20190801

ip Solutions

WARNING

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE.

DO NOT INSERT ANY METALLIC OBJECT THROUGH VENTILATION GRILLS.

CAUTION

CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION : TO REDUCE THE RISK OF ELECTRIC SHOCK.

DO NOT REMOVE COVER (OR BACK).

NO USER-SERVICEABLE PARTS INSIDE.

REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

COPYRIGHT

Contents

1. Preface

This is a **1 / 2.9" Megapixel CMOS Sensor** Outdoor IP camera with a built-in web server. The user can view real-time video via IE browser. It supports **H.264+**, **H.264** and **M-JPEG** video compression, providing smooth and high video quality. The video can be stored in Micro SD card and playback remotely.

With a user friendly interface, it is an easy-to-use IP camera for security applications.

2. Product Specifications

Main Features:

- 2 Megapixel IR Bullet IP Camera
- H.264+/ H.264/ M-JPEG Compression
- Sony Starvis Sensor
- Face Detection / Tracking / Capture
- Liveness Detection
- Facial attribute recognition
- Face Recognition with built-in database for 20,000 faces
- True Wide Dynamic Range 130dB
- Group management
- Face Snapshot & Event management
- ROI Function
- Smart Stream
- Digital Noise Reduction
- Power over Ethernet

- Wide Temperature Range
- IR LED Built-in 40M
- IR Cut Filter Mechanism
- Micro SD Card Backup
- 2-way Audio
- IP66, IP68, IK10
- Cable Management
- Support iPhone/Android/Mac
- SDK for Software Integration including Face Detection & Capture
- Free Bundle 36 Ch Recording Software

Hardware	
CPU	Multimedia SoC
VPU	Camera system using Intel® Movidius™ Myriad™ VPU
RAM	256MB
Flash	128MB
Image Sensor	1 / 2.8" Megapixel CMOS Sensor
Sensitivity	Color : 0.005 Lux (AGC ON) B / W : 0.001 Lux (AGC ON)
Lens Type	6-22mm 3.6X Bulid-in Zoom Lens @ F1.6
View Angle	8~44°(H), 6.5~24 °(V)
ICR	IR cut Filter Mechanism
I/O	1 DI/ 1 DO
RS-485	Yes
Video Output	Yes
Audio	G.711(64K) and G.726(32K,24K) audio compression Input : 3.5mm phone jack Output: 3.5mm phone jack, Support 2-way.
Power over Ethernet	Yes
Power Consumption	DC 12V Max: 7.8 W PoE Max: 8.8 W
Operating Temperature	-20°C ~ 60°C [*IR OFF], IR ON: 50°C
Wide Dynamic Range	130dB

S/N Ratio	50dB
Dimensions	77.4mm (∅) x 125.5mm (H)
Weight	1100g
IR LEDs	
LEDs	5x High Power LEDs, 850nM
IR Distance	40M
Network	
Ethernet	10/ 100 Base-T
Network Protocol	IPv6, IPv4, HTTP, HTTPS, SNMP, SSL, TLS , DNS , ICMP, IGMP, ARP, SNTP, QoS/DSCP, IEEE 802.1X, RTSP/RTP/RTCP, TCP/IP, UDP, SMTP, FTP, PPPoE, DHCP, DDNS, NTP, UPnP, SAMBA, Bonjour, Google drive, Drop box, Onvif profile S
Artificial Intelligence Feature	
Face Detection/Tracking/Capture	
Detection Time Required	55ms/Frame
Detection Frame Rate	20-25FPS
Maximum Faces Number	16
Minimum Face Size	60*60 pixels
Face Orientation Angle	Yaw Angle [-60°~+60°] Pitch Angle [-30°~+30°] Roll Angle [-45°~+45°]
Accuracy Rate	98.6% ~ 99.5%
False Alarm Rate	0.5%
Repeated capture rate	<10%
Liveness Detection	
Liveness Detection Time Required	165ms/Frame
Detection Frame Rate	10FPS
Accuracy Rate	97.2%
False Alarm Rate	1 %
Facial Attribute Identification	
Attribute Identification Time Required	55ms/Frame

Detection Frame Rate	20-25FPS
Minimum Face Size	80*80 pixels
Face Orientation Angle	Yaw Angle [-30°~+30°] Pitch Angle [-30°~+30°] Roll Angle [-30°~+30°]
Accuracy Rate	Age: ±5; gender: 98%; expression accuracy: 90%; others: over 95%
False Alarm Scenarios	Overexposure, Low lighting, Serious backlighting scenarios, Exaggerated expression
Attribute Types	
Gender	Male, female
Age	0-99
Glasses	No glasses, wearing glasses and sunglasses
Mask	Yes, no
Ethnicity	Black, white, yellow
Beard	Yes, no
Expression	Angry, calm, disgust, happy, sad, scared, surprised, confused, squint, scream
Face Recognition	
Time for facial feature extraction	70ms/Frame
Time for face identification	10ms/image in a library of 10000 faces
Identification speed	15 FPS
Minimum Face Size	80*80 pixels
Face Orientation Angle	Yaw Angle [-30°~+30°] Pitch Angle [-30°~+30°] Roll Angle [-30°~+30°]
Accuracy of facial identification	Library of 2000 faces: >97%@1% FPR Library of 10000 faces: >94%@1% FPR
Face Database	20,000 Faces
False Alarm Scenarios	Overexposure, Low lighting, Serious backlighting scenarios, Exaggerated expression
System	
Video Resolution[16:9]	1920x1080@30fps, 1280x720@30fps, 640x480@30fps, 320x240@30fps

Video Adjust	Brightness, Contrast, Hue, Saturation, Sharpness, AGC, Night Mode, True-WDR, Flip, Mirror, Noise Reduction, Day&Night Adjustable
Features	ROI, Smart Stream, Motion Detection, Privacy Mask, Anti Fog, Tampering Detection, Corridor Mode, Push Video , P2P(Optional), Face recognition, Face Detection & Capture, Face attribute recognition, Face tracking
Triple Streaming	Yes
Image Snapshot	Yes
Full Screen Monitoring	Yes
Privacy Mask	Yes, 3 different areas
Compression Format	H.264+/ H.264/ M-JPEG
Video Bitrates Adjust	CBR, VBR
Motion Detection	Yes, 3 different areas
Face Detection	Yes, triggered by face detected, ROI
Triggered Action	Mail, FTP, Save to SD card, DO, SAMBA , Dropbox , Google Drive
Security	Password protection, IP address filtering, HTTPS encrypted data transmission, 802.1X port-based authentication for network protection, QoS/DSCP
Firmware Upgrade	HTTP mode, can be upgraded remotely
Simultaneous Connection	Up to 10
Micro SD Card Management	
Recording Trigger	Face Detection, Face Attribute Recognition, Face Recognition, Face Group, Motion Detection, IP check, Network break down (wire only),Schedule, DI
Video Format	AVI , JPEG
Video Playback	Yes
Delete Files	Yes
Web Browsing Requirement	
OS	Windows 7, 8 , 10 ,XP, Microsoft IE 6.0 or above
Mobile Support	iOS 8 or above, Android 4.4.2 or above.
Hardware Suggested	Intel Dual Core 2.8G, RAM: 4GB, Graphic card: 128MB

***SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTIFICATION.**

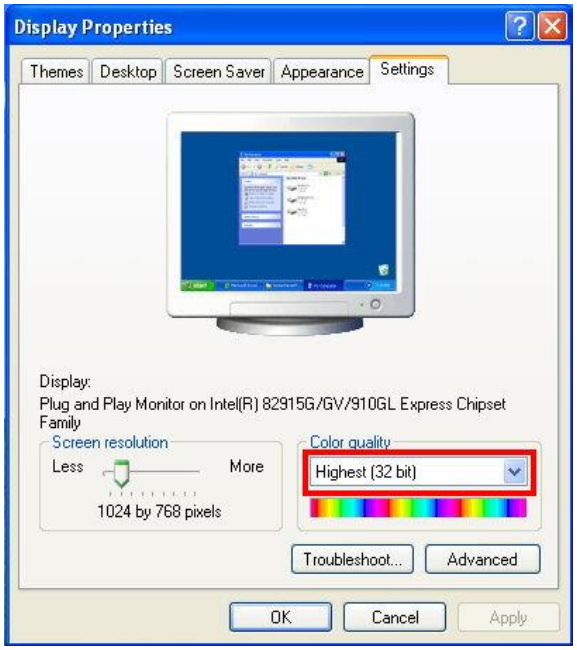
3. Product Installation

I. Monitor Settings

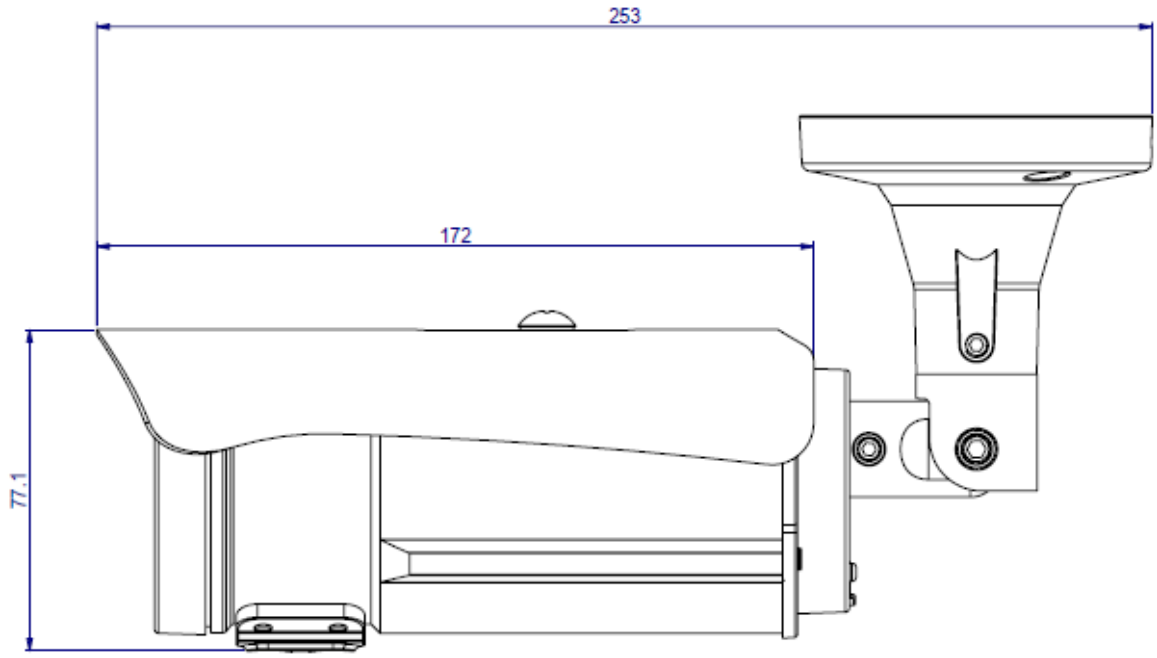
Caution: This setting only applies to Windows 7 system users.

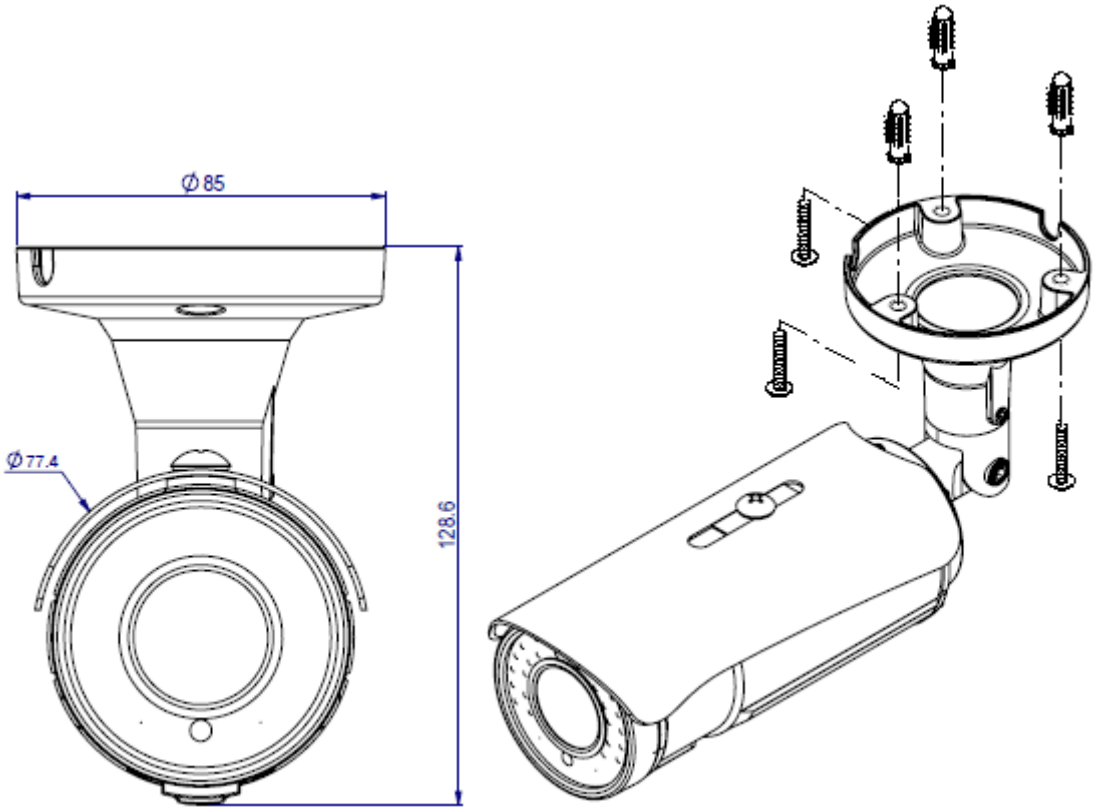
a. Right-Click on the desktop. Select **Properties**

b. Change color quality to highest (**32bit**).



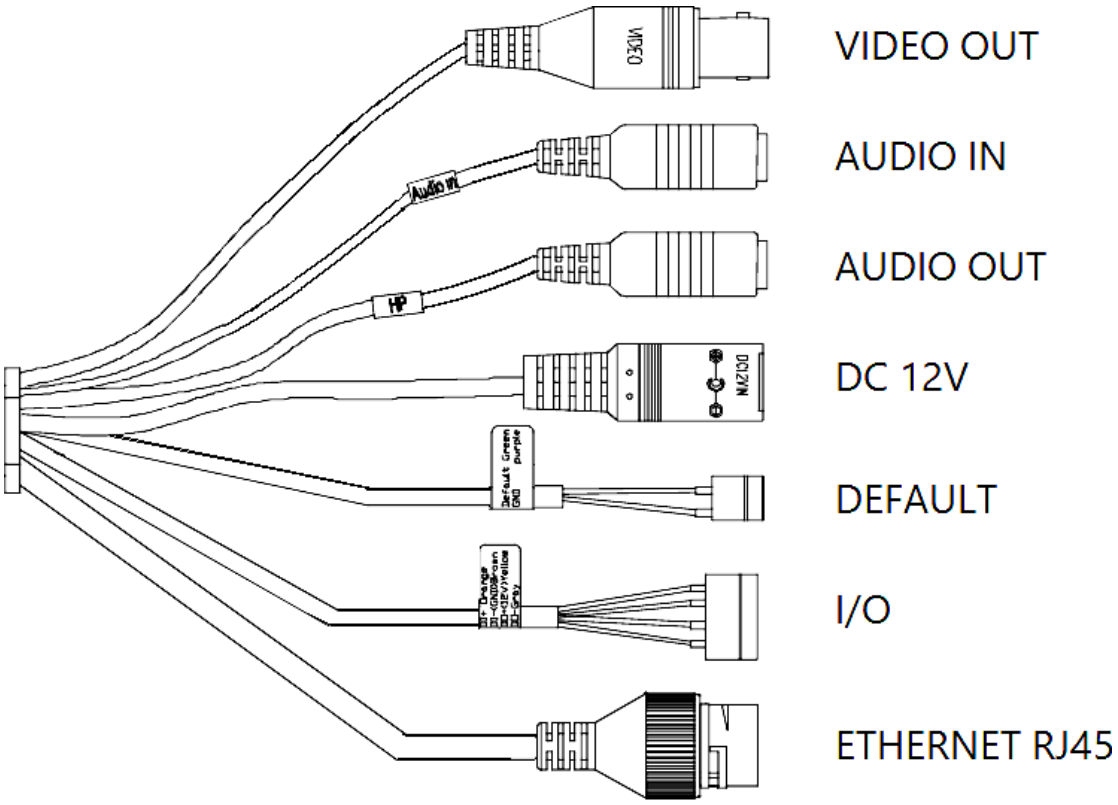
II. Hardware Installation





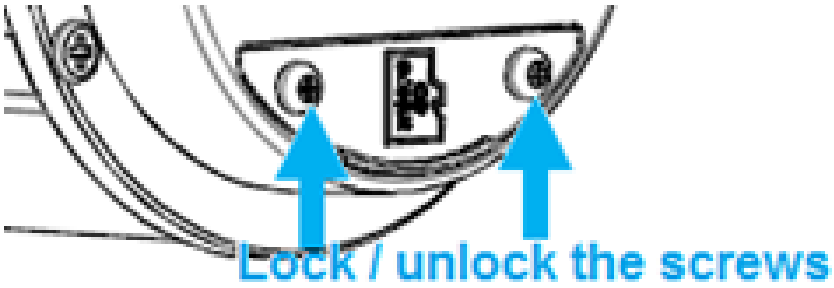
Connector Instruction

Set up configurations based on the network environment. For I/O setting, please refer to I/O Configuration chapter for more.



Installing the Micro SD Card

For waterproof purpose, when you install a Micro SD card, please turn and lock the screws on the lid tightly and make sure it is sealed.



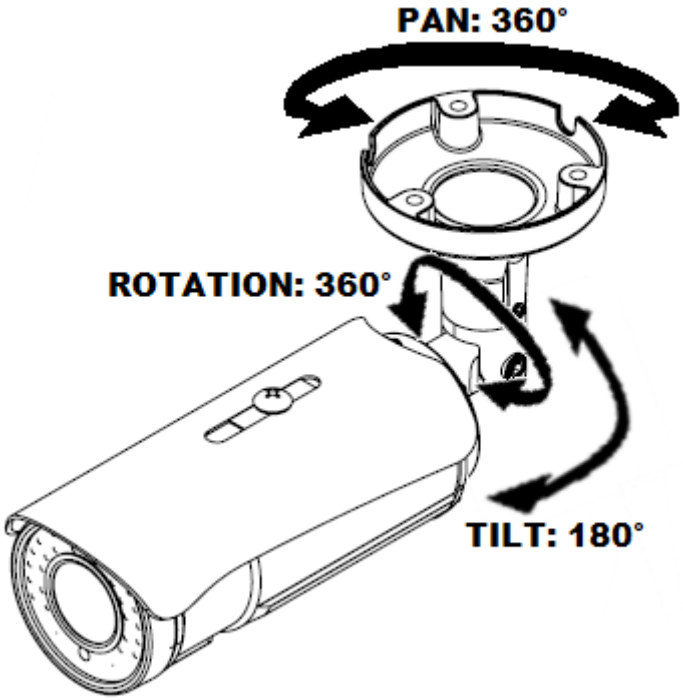
Wireless Antenna (Optional)

(Pictures based on another camera model)

- Plug the Antenna into the connector while holding the Antenna bar.
- Turn the lock nut to the right until it is totally locked. Do not bend or try to straight the antenna bar.

3-Axis Bracket

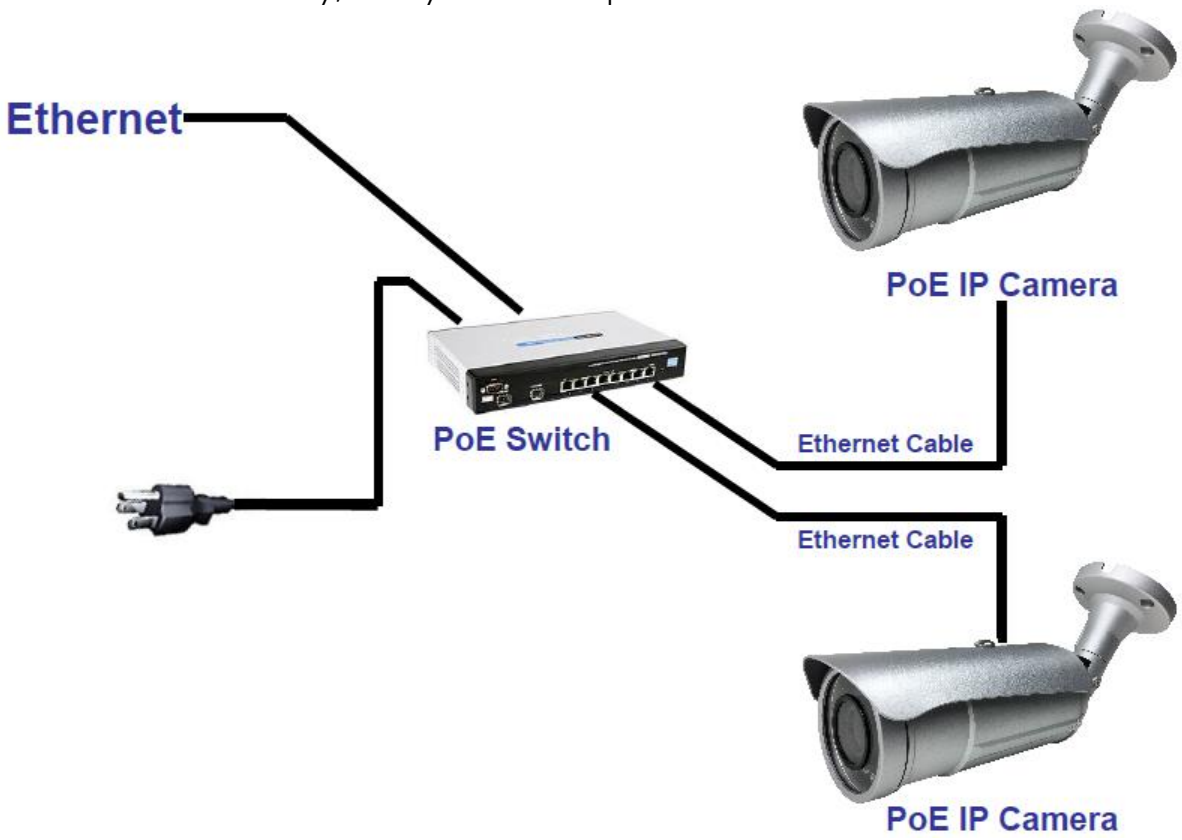
Use the 3-Axis bracket to adjust the camera to appropriate angle, then turn and tighten the screw to fix it.



PoE (Power Over Ethernet)

802.3af, 15.4W PoE Switch is recommended (Optional)

Power over Ethernet (PoE) is a technology that integrates power into a standard LAN infrastructure. It allows providing power to a network device, such as an IP phone or a network camera, using the same cable for network connection. It eliminates the need for power outlets at the camera locations and enables easier application of uninterruptible power supplies (UPS) to ensure 24 hours a day, 7 days a week operation.



III. IP Assignment

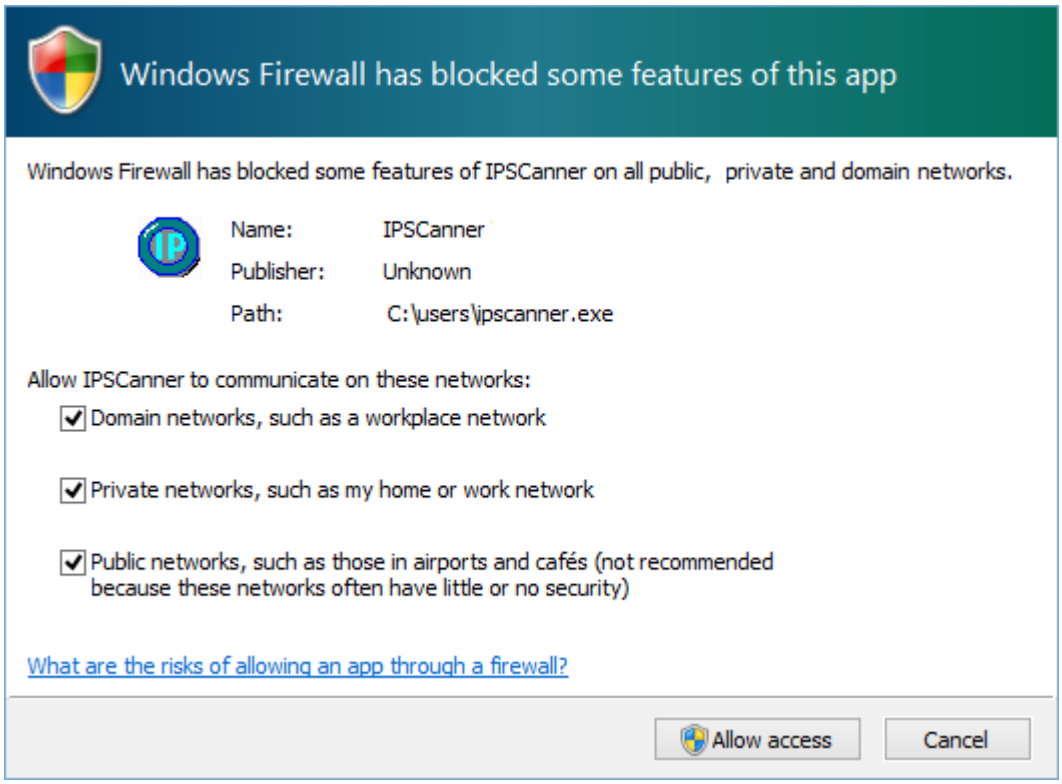
i. Open the software **IP Scanner** to assign the IP address of the IP Camera. Find it in **Applications** folder from the CD attached of the product package.

ii. Execute the English version of **IP Scanner**: **IPScannerENG**

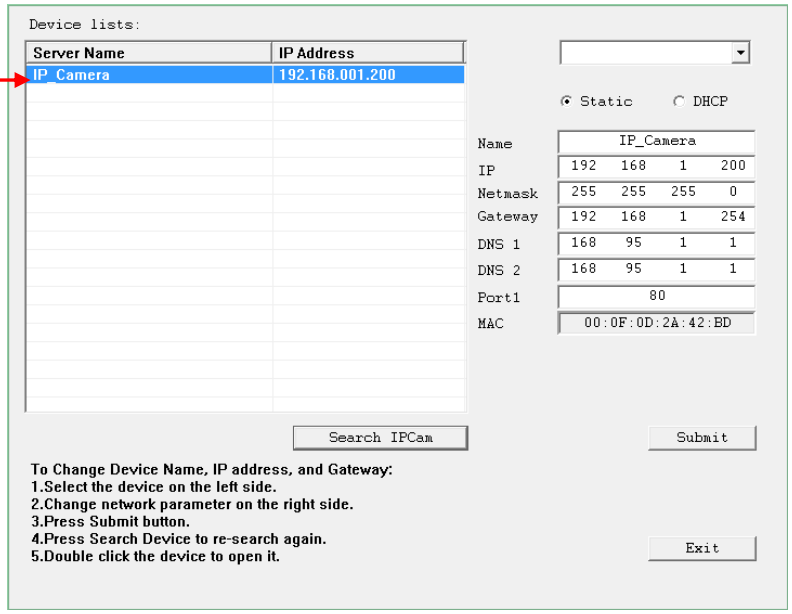
iii. There are 3 kinds of IP configuration.

- Fixed IP (Public IP or Virtual IP)
- DHCP (Dynamic IP)
- Dial-up (PPPoE)

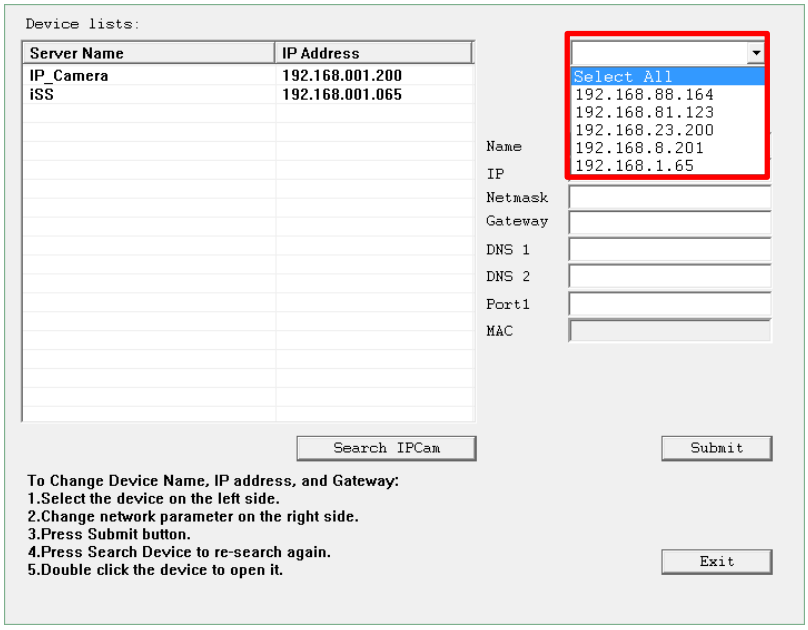
iv. For Windows XP SP2 or above, a Windows Security Alert may pop up. Choose the network type based on your surveillance environment, and click on **Allow access**.



v. **IP Scanner** will search for all the IP Cameras connected on the LAN. The user can click **Search IPCam** to search again.



vi. Click one of the IP Cameras listed on the left side. The network configuration of this IP camera will be shown on the right side once you highlight the device with your mouse. You can change the **name** of the IP Camera to your preference (e.g.: Office, warehouse). Change the parameters and click **Submit**.



You can select different network cards that you are currently connected to from the drop-down menu at the top right corner. You can also select the online device from a specific network card in **Device lists**, or choose **Select All** to include all network card devices in **Device lists**.

vii. Please make sure the subnet of the PC IP address and the IP Camera IP address are the same.

The same Subnet

IP Camera IP address: 192.168.1.200

PC IP address: 192.168.1.100

Different Subnets

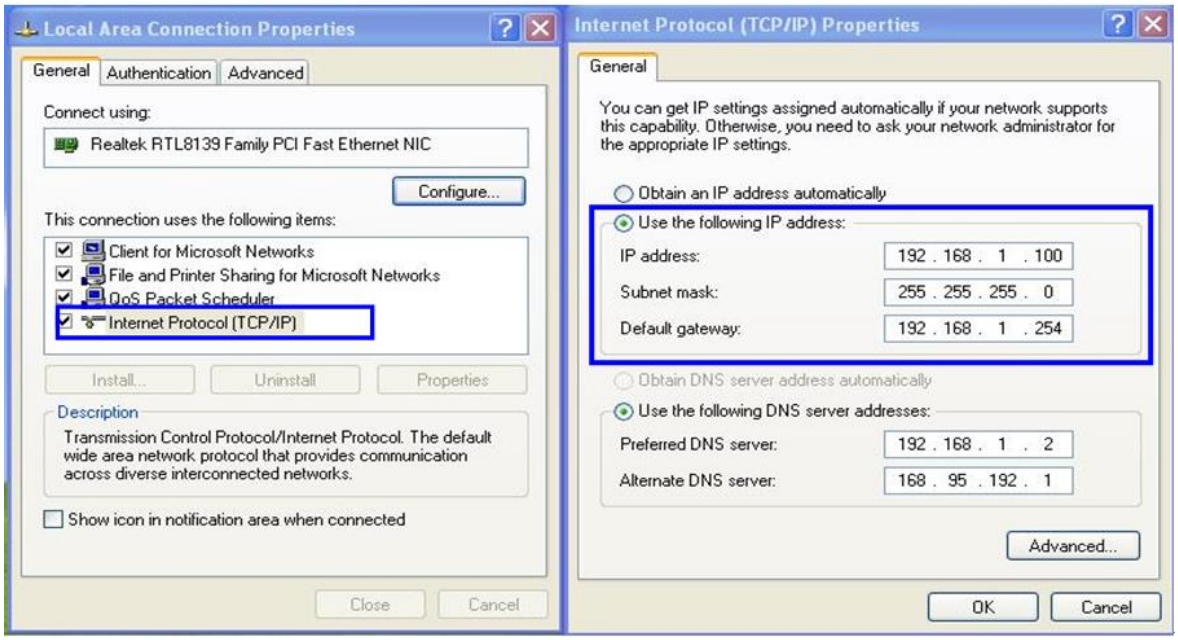
IP Camera IP address: 192.168.2.200

PC IP address: 192.168.1.100

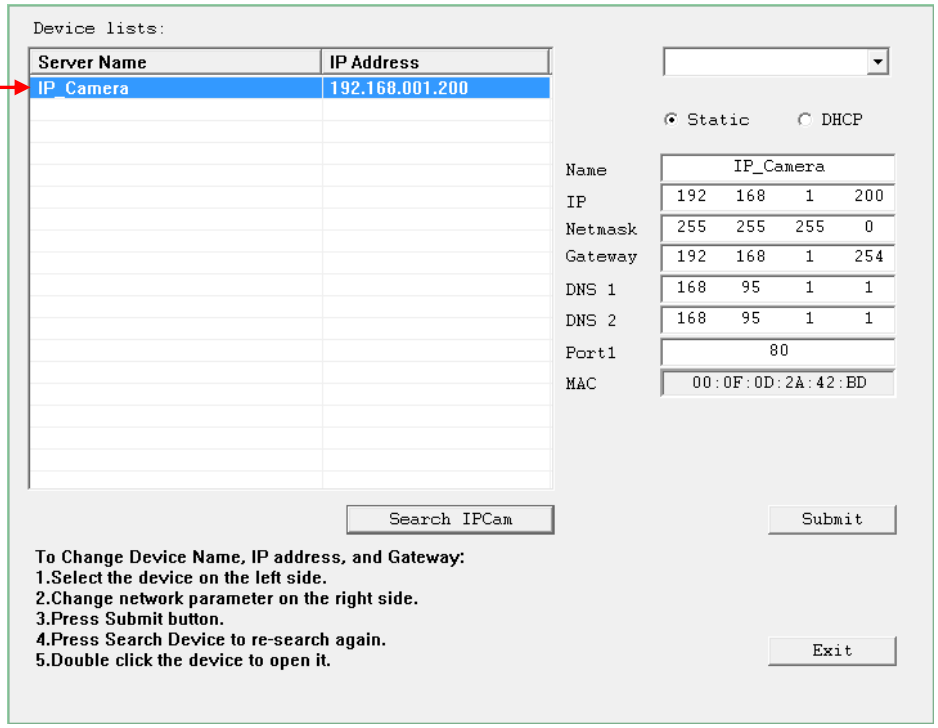
To Change the PC IP address

Control Panel→Network Connections→Local Area Connection Properties→Internet Protocol (TCP/IP) →Properties

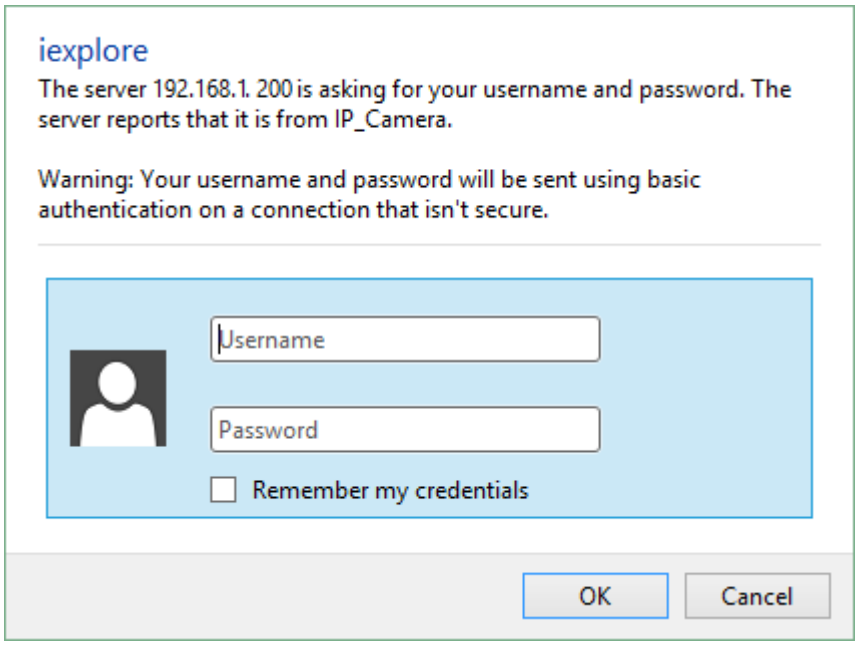
Make sure your IP Camera and PC are in the same Subnet. If not, change the IP Camera subnet or the PC IP subnet accordingly below.



viii. To quickly access remote monitoring, left-click the mouse twice on the selected IP Camera listed under **Device list** of **IP Scanner**.



ix. A default network browser of the camera control interface will open. Enter **admin** for both Username and Password to gain access.

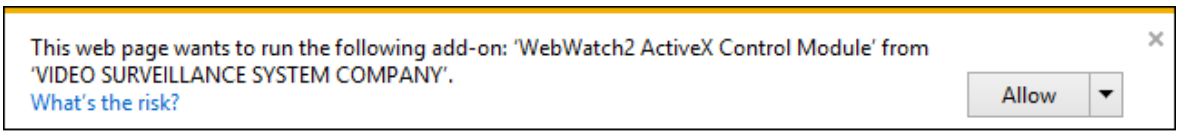


IV. Install Active Control

For users using IE 6.0 or above

When viewing the camera video for the first time via IE, the browser will ask you to install the **ActiveX** component.

Choose '**Allow**'



The ActiveX component should then be completed and user will be able to view the live video screen.

If the installation fails, please check the security settings in the IE browser.

Follow the steps below:

1) Go to **Start-Up Menu**  on the lower left corner of the **Windows**

2) Select **Control Panel** 

3) Double-click on 

.

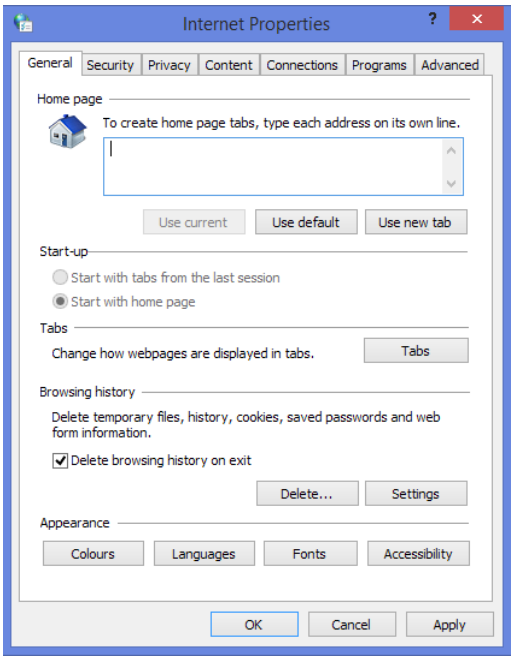
4) You will then enter the page of **Internet Properties** settings.

5) Starting from **Internet Properties**, proceeding steps as below:

- Security → Custom Level → Security Settings → Download unsigned ActiveX controls → Enable or Prompt (recommended).

- Security → Custom Level → Security Settings → Initialize and script ActiveX controls not marked as safe → Enable or Prompt (recommended).

i



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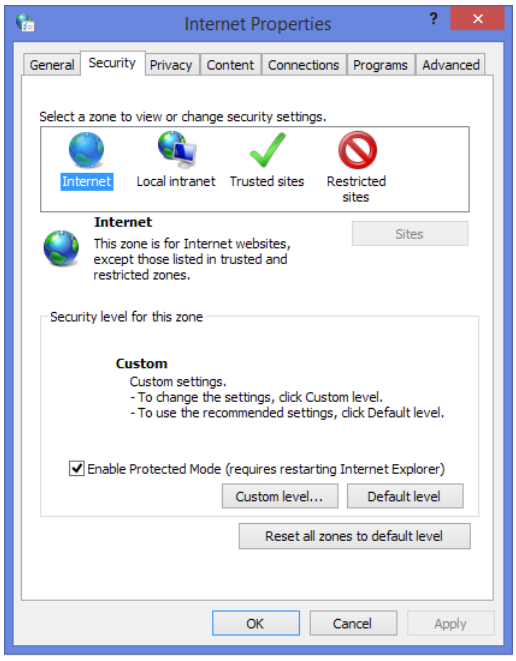
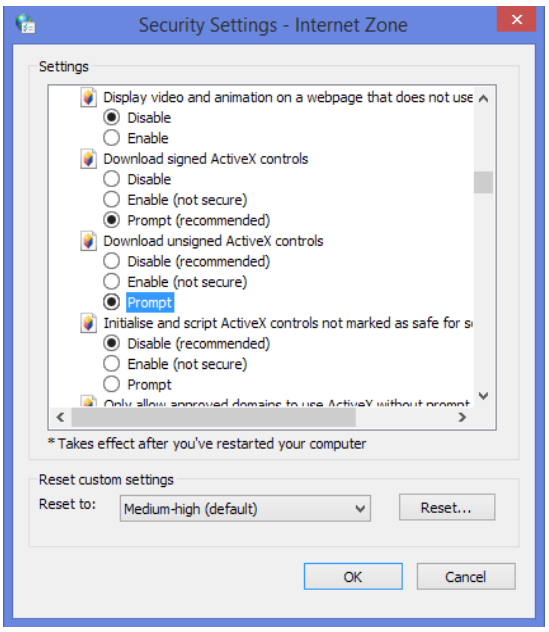
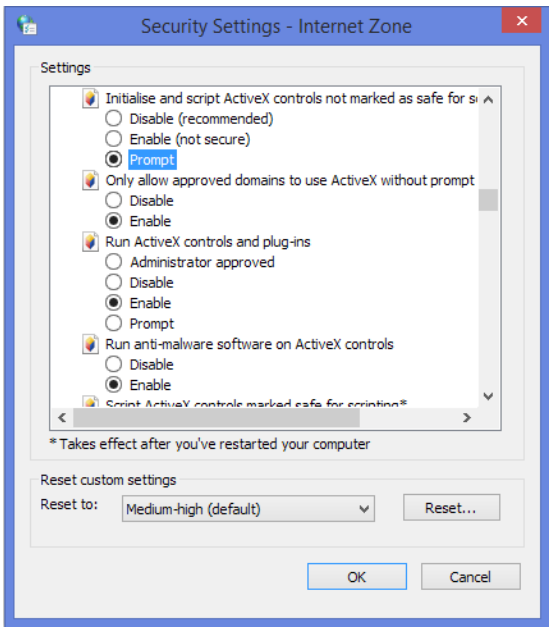


iii

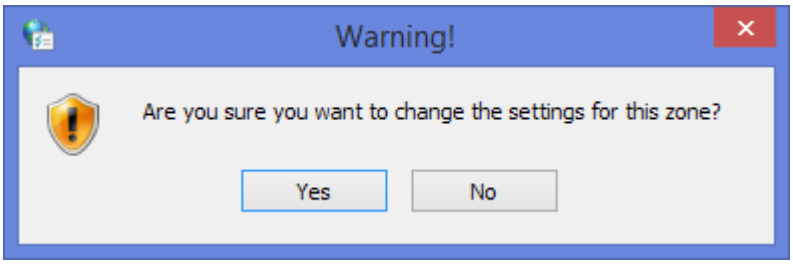


vi



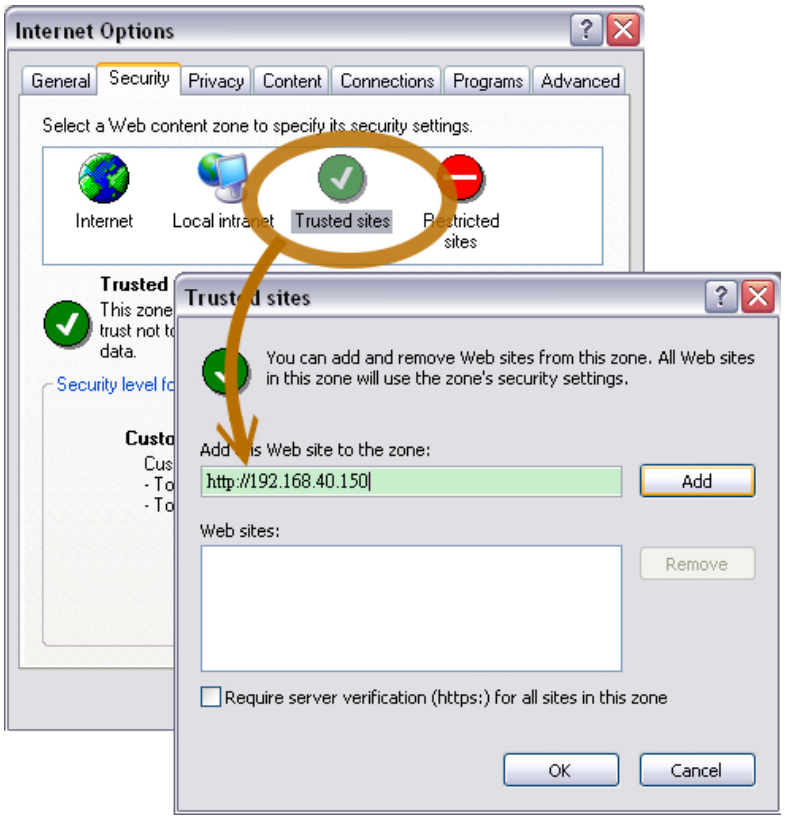
v

When popup the following dialogue box, click **Yes**.



Another Method

Go to: IE→Tools → Internet Options… → Security Tab → Trusted sites → Add the IP address and click **OK**.

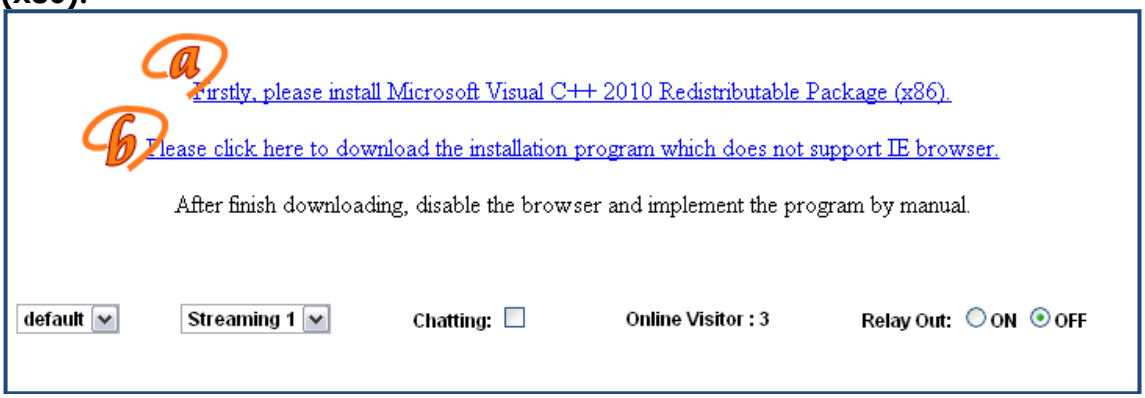


In the site list you can key in one single IP address or a LAN address. For example, if you add **192.168.21.***, all the IP address under **21.*** on the LAN will be regarded as trusted sites.

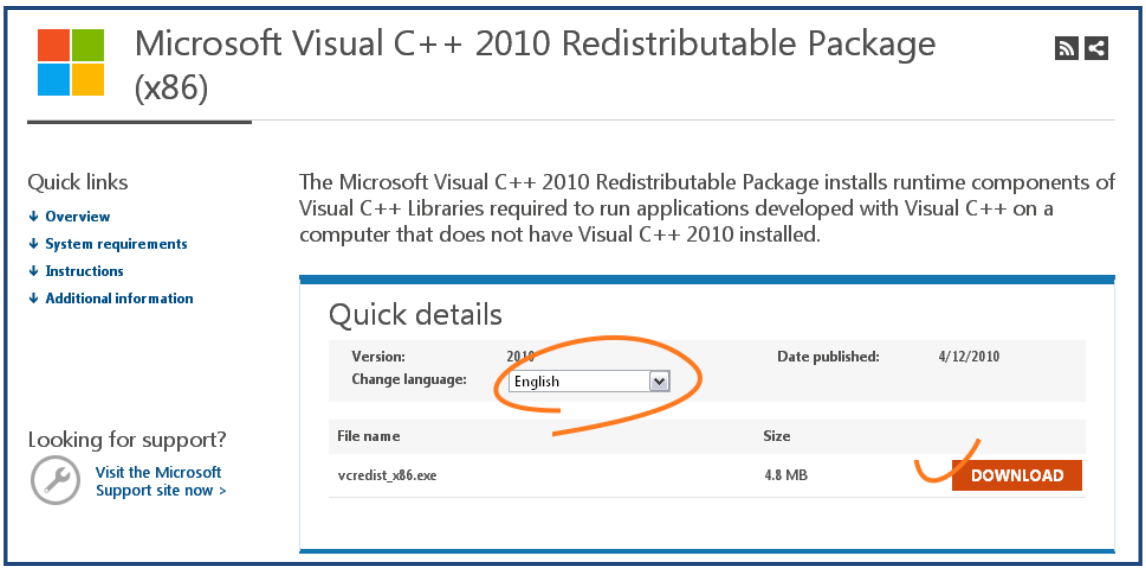
For Non-IE Web Browser Users

If you use Firefox or Google chrome to access the IP camera but fails to watch the live video, please follow the steps to install necessary tools: (The following pictures are based on chrome.)

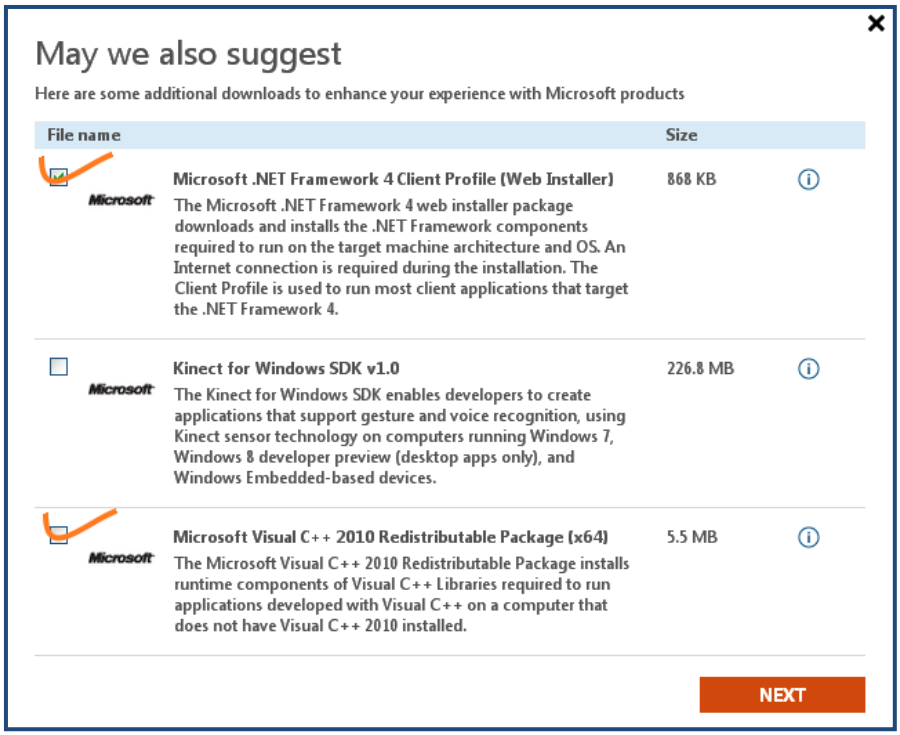
i. You may see the prompt message as the picture below. Click the a link: **Firstly, please install Microsoft Visual C++ 2010 Redistributable Package (x86).**



The link will conduct you to the Microsoft official site where you can download the tools. Please select the language and click **download**.



Tick the first and the third file in the pop-up window as the picture below.



Click **Next** to download both **Microsoft .NET Framework 4 Client Profile (Web Installer)** and **Microsoft Visual C++ 2010 Redistributable Package (x64)**.

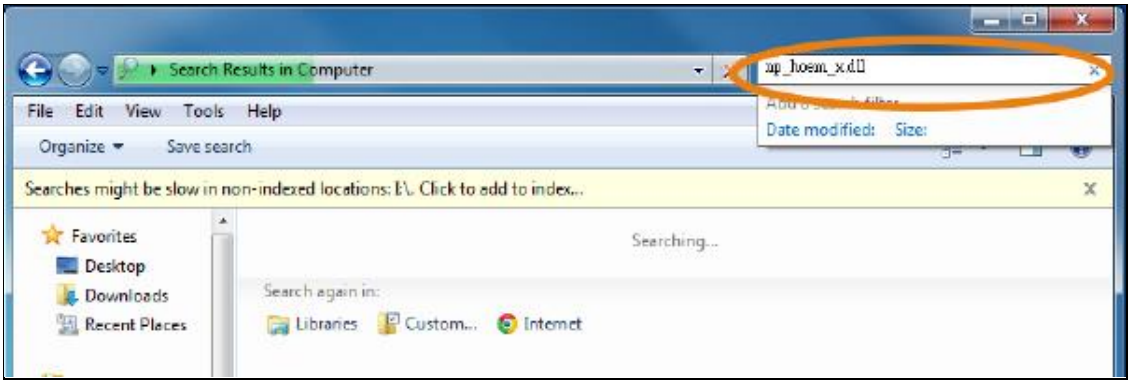
After finishing downloading, execute the two files respectively to install them. The windows may ask you to reboot the PC when the installation is finished.

ii. Then, click the second link **Please click here to download the installation program which does not support IE browser** to download Setup ActiveX.

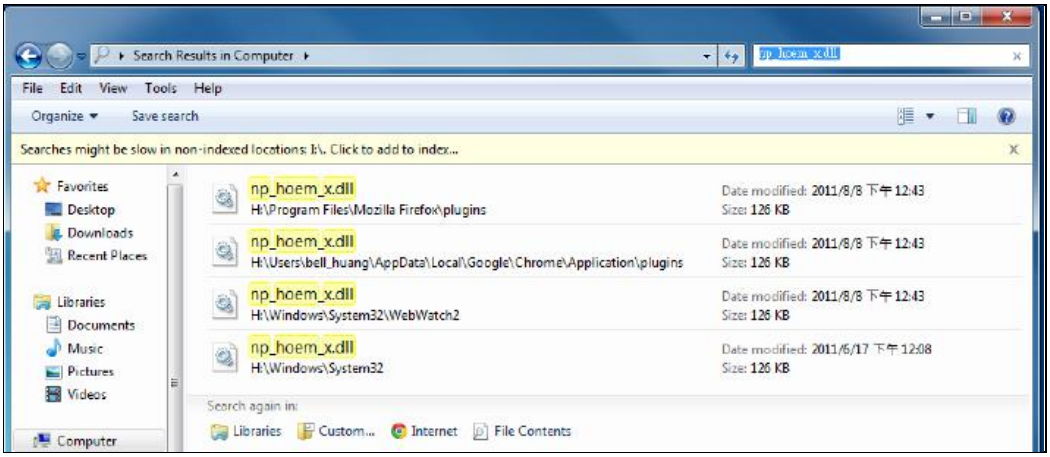
After finishing downloading, execute the files to install **ActiveX**. Then restart the browser.

iii. If you execute the steps above but still cannot see live video normally, please try the following solution:

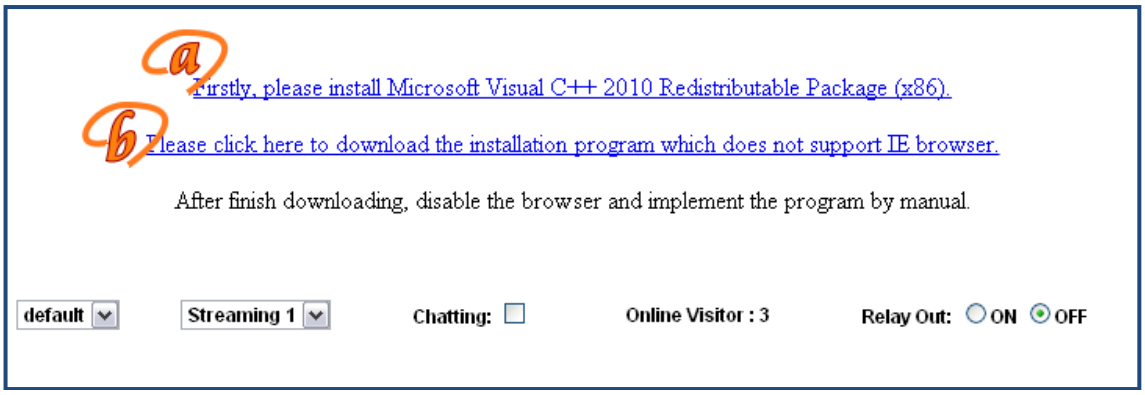
Search for the file **np_hoem_x.dll** in your system disk. For Windows XP users, please go to **Start** → **Search** → Search for **All files and folders** and key-in **np_hoem_x.dll**. For Windows 7 users, please use the search bar on the top-right of the Windows Explorer.



Delete all the files named **np_hoem_x.dll**. They're the **ActiveX** control tools installed in your computer, but the old version of **ActiveX** might not be compatible with the new version of the browser. Therefore, they need to be deleted in order to install the latest **ActiveX** control.

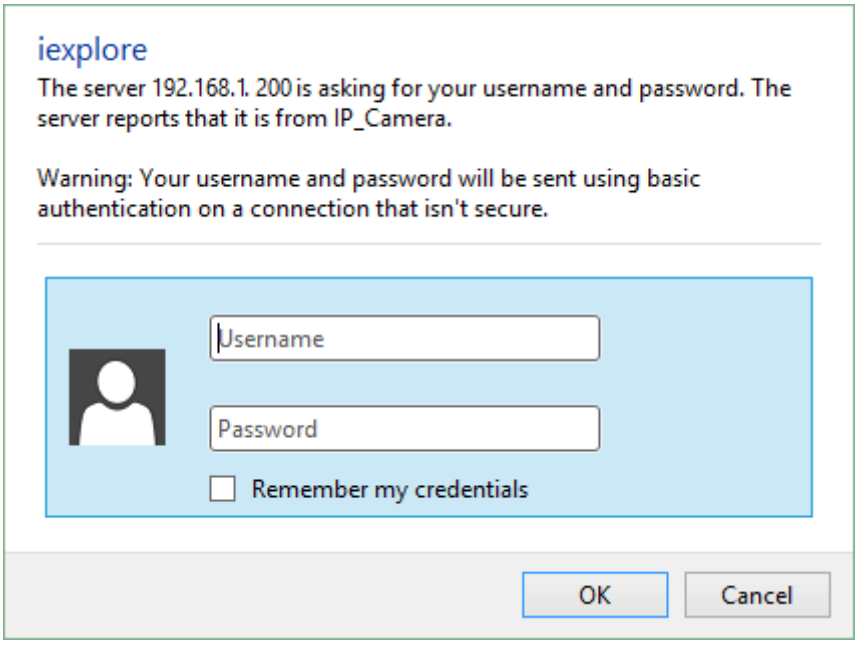


Start your web browser, and repeat the **step i: Download the installation program which does not support IE browser** to download and install **ActiveX**.



4. Live Video

Start an IE browser, input IP address of the IP camera in the address field. A dialogue box will pop up as below. Log in username & password using **admin**.



When IP Camera is successfully connected it shows the following interface.

Please change default password is a sign which flickers on the live view screen as a reminder, to suggest the user to change the default password. You may configure the login settings in **System** to secure your account privacy.

I. Full Screen Mode

Double-clicking on the video screen will enter the full screen mode. Press "Esc" on your computer keyboard or double-click the video screen again for returning to normal screen mode.

II. Live Video Panel

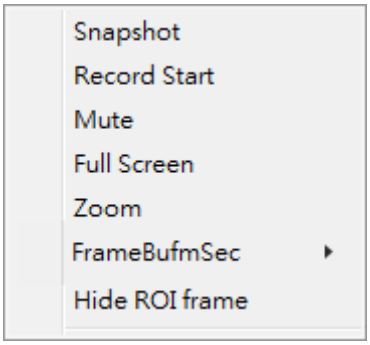
- Click  - Get into the administration page.
- Click  - A snapshot preview window will appear. Choose  to save the current snapshot or choose  to discard it.
- Show the system time, video resolution, and other information.
-  - Adjust image size by its ratio of 1/2x(default), 1x, and 2x.
-  - Select the video streaming source: If the streaming 2 is set closed in Video Setting, this function will not be displayed.

- Tick on **Chatting** checkbox to enable two-way audio. You may adjust settings from Audio Setting.
- **Online Visitor:** Shows how many people are connected to this device.
- Click on   icons to adjust Zoom In / Zoom Out.

- **Focus:** Click on  icons to adjust focus.
- **Auto Focus:** Click on  icon to automatically adjust focus.
- Home: Click to view without adjustments through Focus & Zoom.
- **Speed:** Set the zoom speed.
- Control the external output device or DO (digital output) connected to this camera.

III. Submenu

Right-Click the mouse on the live video screen, a pop-up menu will then appear as below.



i. **Snapshot:** Save a JPEG picture

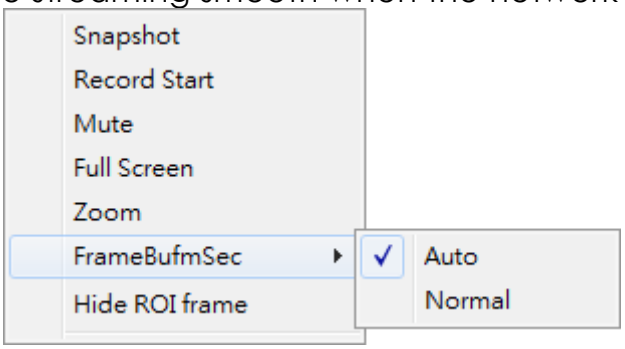
ii. **Record Start:** Record the video to the local PC. The video format is AVI and you will be asked to set up the directory for the video file. To stop recording, right-click again. Select "Record Stop".

iii. **Mute:** Click to turn off the audio. Click again to turn it on.

iv. **Full Screen:** Full-screen mode.

v. **Zoom:** Select "zoom" within the pop-up dialogue box and then drag and drop the bar to adjust the zoom factors.

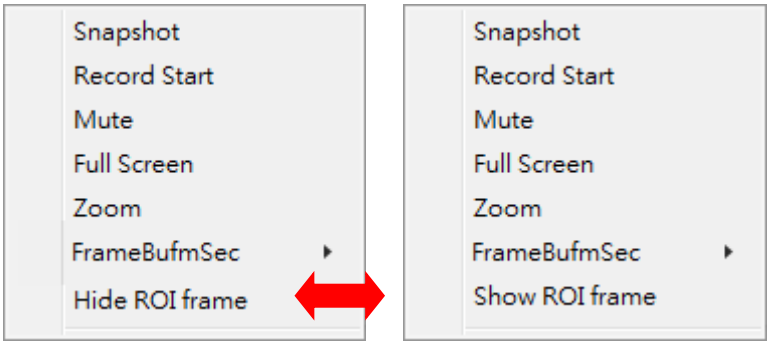
vi. **Frame Buffm Sec:** This function aims to build a temporary buffer to accumulate several video frames in a LAN network environment. It can make video streaming smooth when the network speed is slow.



Select **Auto** to allow this function automatically help fix the streaming performance whenever the video happens to be lagging.

Select **Normal** to play the video data based on the current network streaming performance. (Note: the lagging of the video displayed will not be seen as a result of the actual video data)

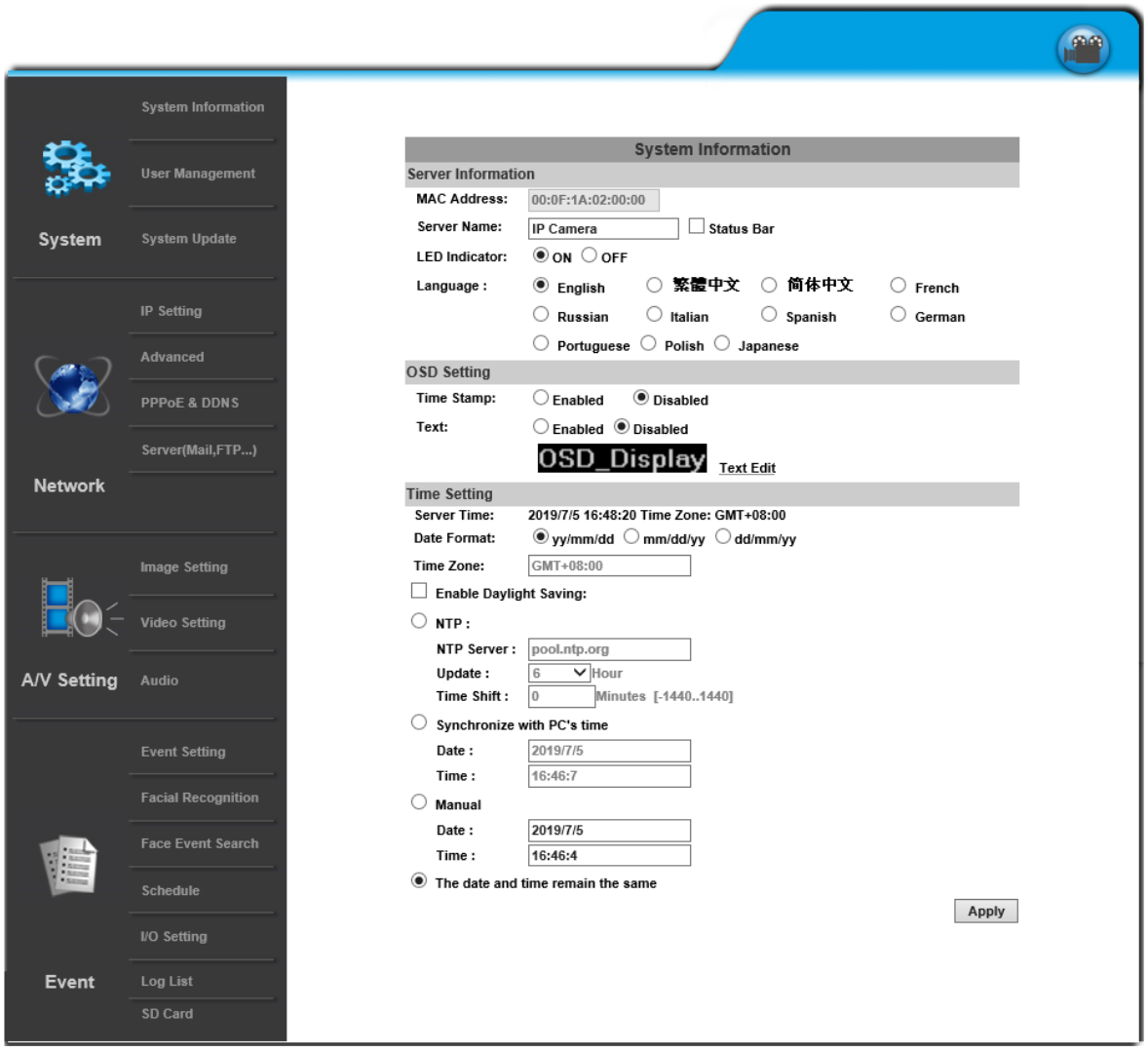
vii. **Hide / Show ROI frame:** Once the ROI frame has been set up from **AV Settings**, there will be frames in colors appearing on the live view. Choose to hide to make the frames invisible, or choose show to keep the frames.



5. Camera Configuration

I. System

Click  to get into the administration page. Click  to go back to the live video page.

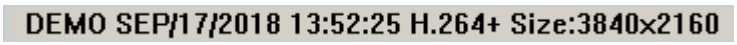


System Information

Server Information

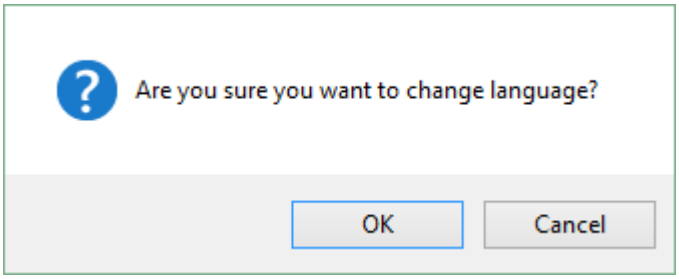
Set up the camera name, language, and the camera time.

- **Server Name:** This is the Camera name. This name will be shown on the IP Scanner. Tick the checkbox of **Status Bar** to display the **Server Name** in live video. For example, if you key in DEMO, it will be displayed at live video mode at the bottom.

- **LED Indicator:** Turn on/off the LED indicator on the camera.

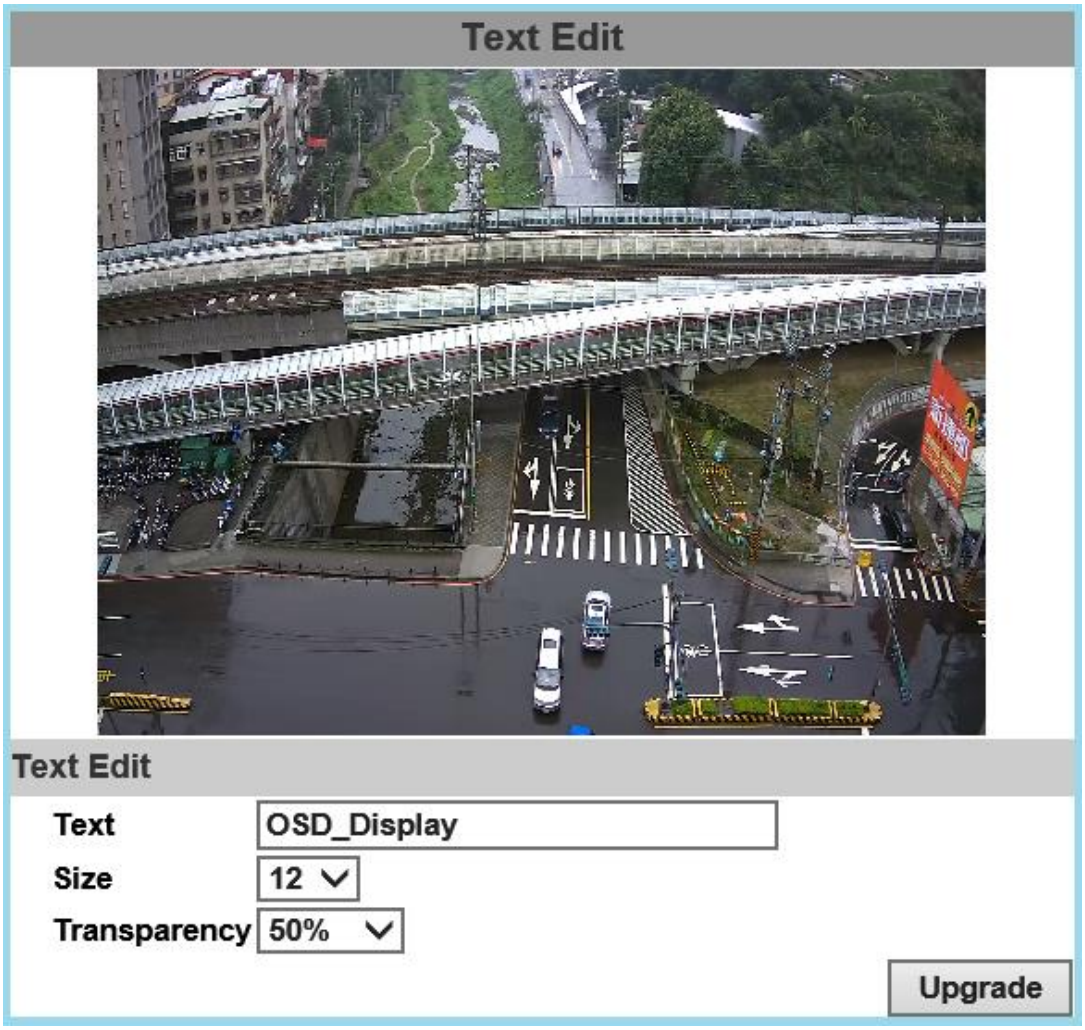
- **Language:** English and other languages can be selected. When a language preference is selected, the following dialogue box will pop up to confirm the change.

OSD Setting

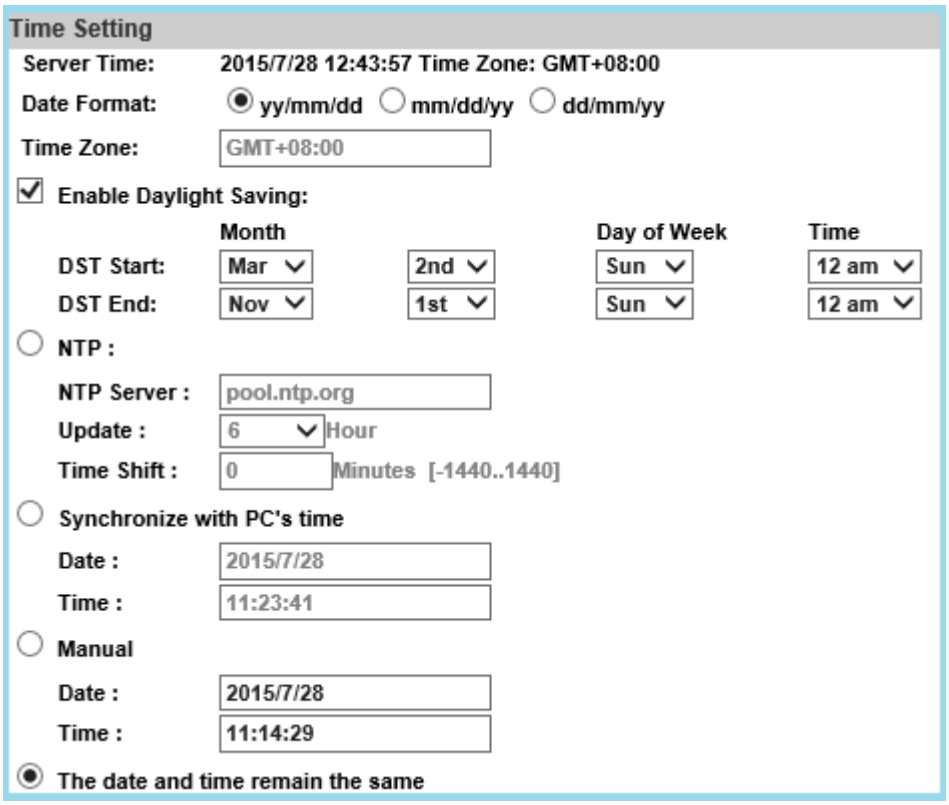
You can adjust the **Position** for the **Enabled** option of **Time Stamp** or **Text** which will be displayed on live video screen.

Click **Text Edit** for editing the OSD content, including Text size and transparency. Click the Upgrade button to apply the settings.



Time Setting

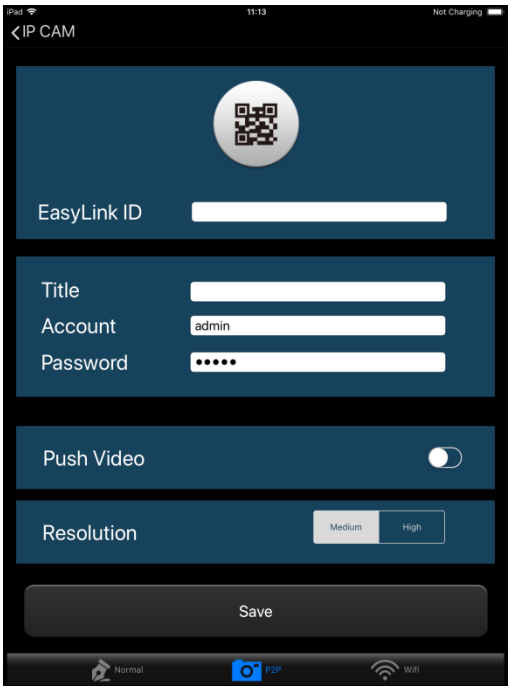
Select between **NTP**, **Synchronize with PC's time**, **Manual**, **The date and time remain the same** for setting the server time.



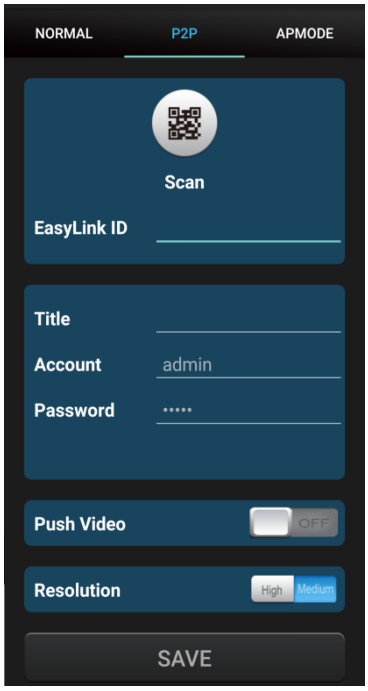
EasyLink (Optional)

Install **IP Motion App** on your mobile phone to access **EasyLink** operation which allows user to watch IP camera live view on self-owned mobile phones. Once the installation is done, either enter the **EasyLink ID** from the IP camera web browser, or simply scan the **QR Code** to help you log in to your IP camera through **IP Motion App** and watch the live view.

For iOS



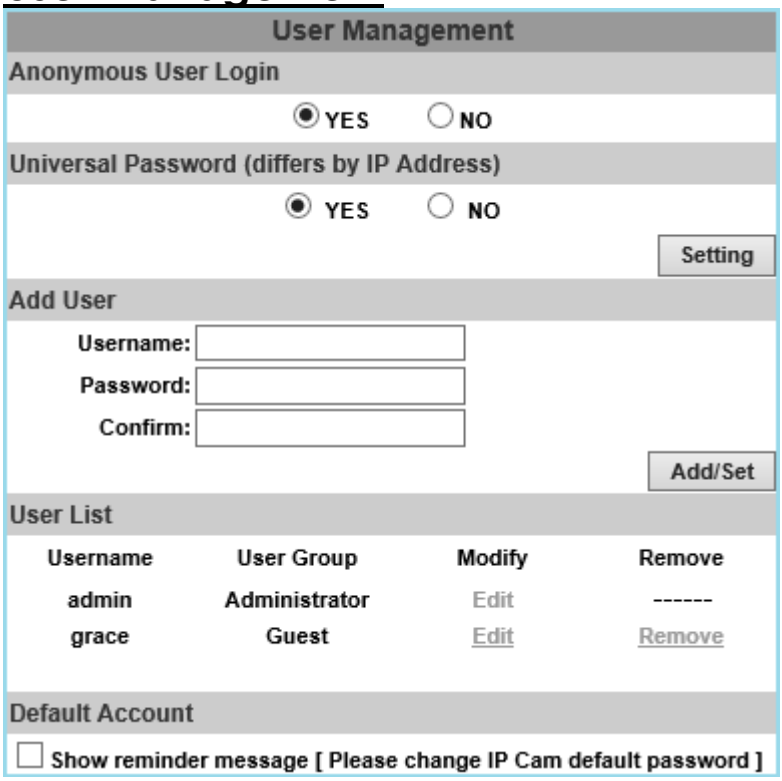
For Android



Read more about operating **IP Motion App** from the user's manual document inside the folder User Manual_Mobile Phone APP which comes as part of the CD contents.

Note: Your smartphone must be equipped with a camera and featured with a QR code scanner application.

User Management



Anonymous User Login

Select **Yes** for allowing access to watch live video of the IP camera without having to enter username and password. Yet when entering the configuration page of the IP camera, the system will do otherwise. Select **No** for requiring a username and login to access the camera.

Universal Password

Select **Yes** for allowing login to this IP camera by universal password. Please refer to **Universal Password** chapter for more explanations. Select **No** for disabling universal password.

Add User

The IP Camera supports 2 different users: **Administrator** and **Guest**. **Administrator** can operate everything. **Guest** has the right to access **Live view**, Time sync, location setting, playback viewing and check playlist.

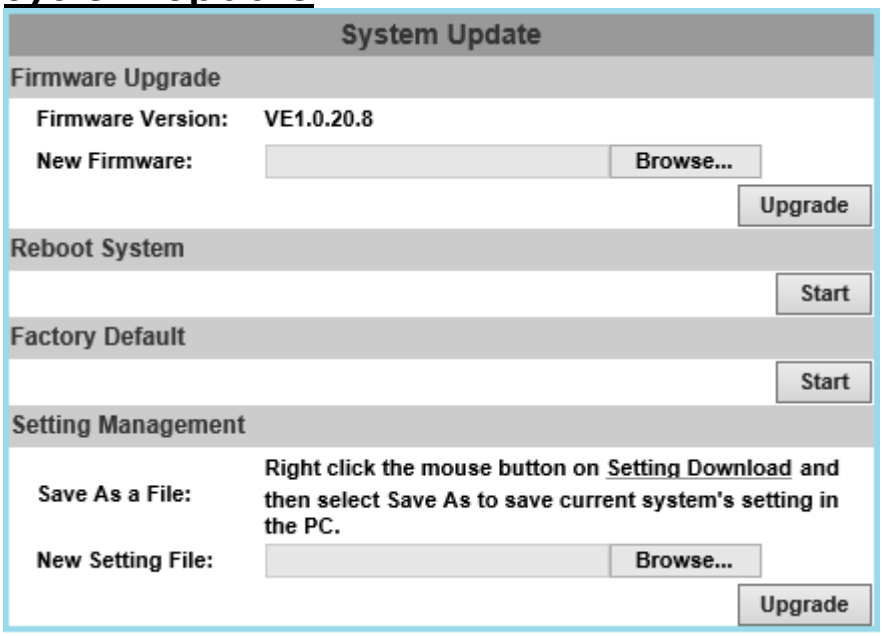
User List

Type the user name and password, then click **Add/Set**. The guest user can only browse live video page and is not allowed to enter the configuration page. Click **Edit** or **Remove** in the user list to modify them. The system will ask you to input the password in the pop-up window before you edit the user information.

Default Account

Please change default password is a sign which appears on the live view screen as a reminder, suggesting the user to change the default password. Click the checkbox to enable/disable the reminder message.

System Update



Firmware Upgrade

To update the firmware online, click **Browse…** to select the firmware, and then click **Upgrade** to proceed.

Reboot System

Restart the IP camera.

Factory Default

Delete all the settings of this IP camera.

Setting Management

The user can download the current settings to PC, or upgrade from previous saved settings.

- **Setting Download**

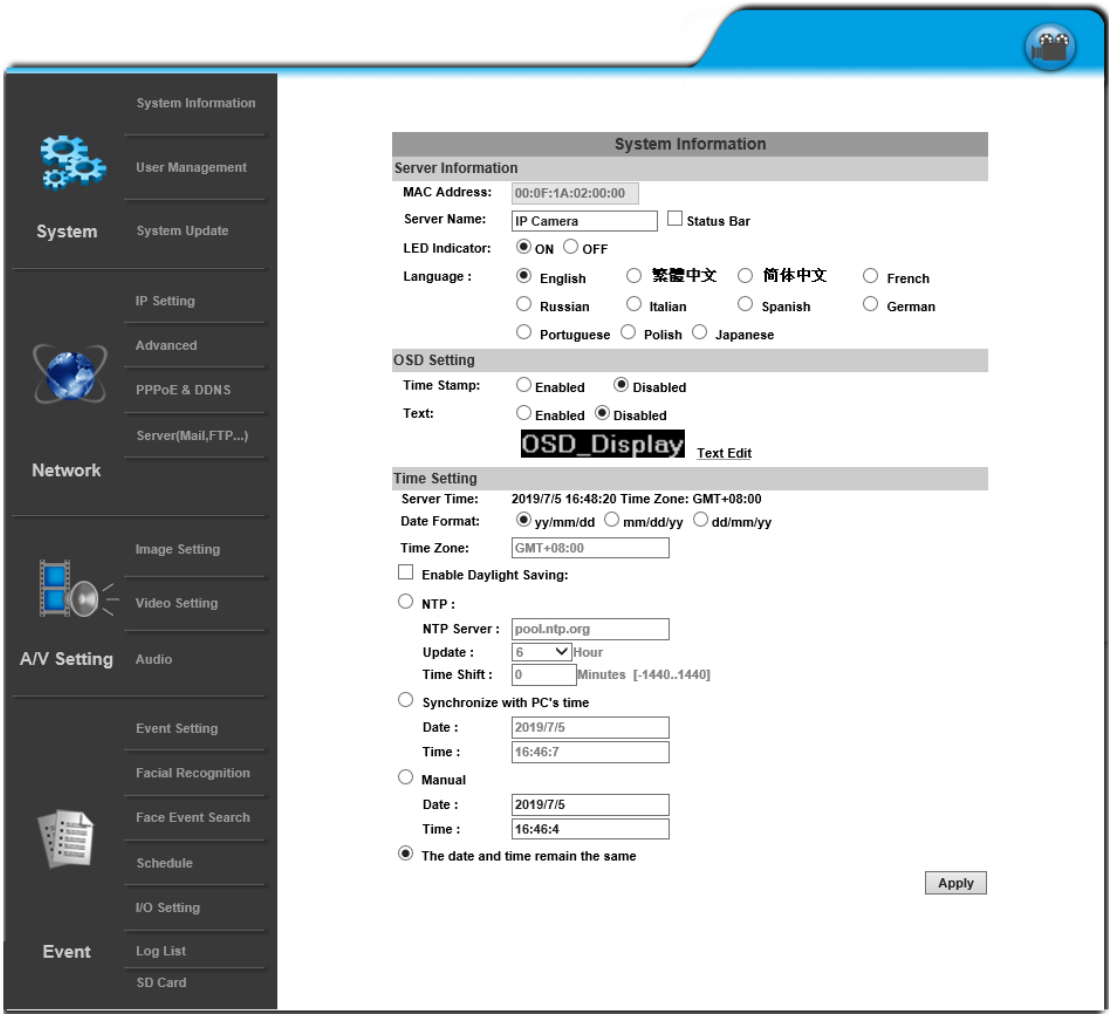
  Right-click the mouse button on **Setting Download** → Select **Save AS…** to save current IP Camera settings in PC → Select saving directory → Save

- **New Setting File**

  To upgrade new settings, click **Browse** to search previous settings from a pop-up window, then click **Open** → **Upgrade** → Settings update confirm. Finally, click **index.html**. to returning to main page.

II. Network

Click  to get into the administration page. Click  to go back to the live video page.

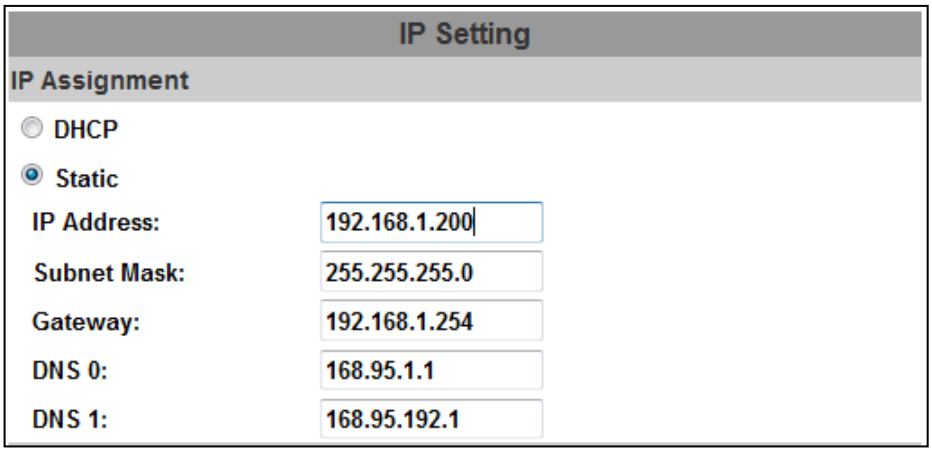


Enter the Network by clicking on titles from IP Setting, Advanced, PPPoE & DDNS and Server Settings.

IP Settings

IP Assignment

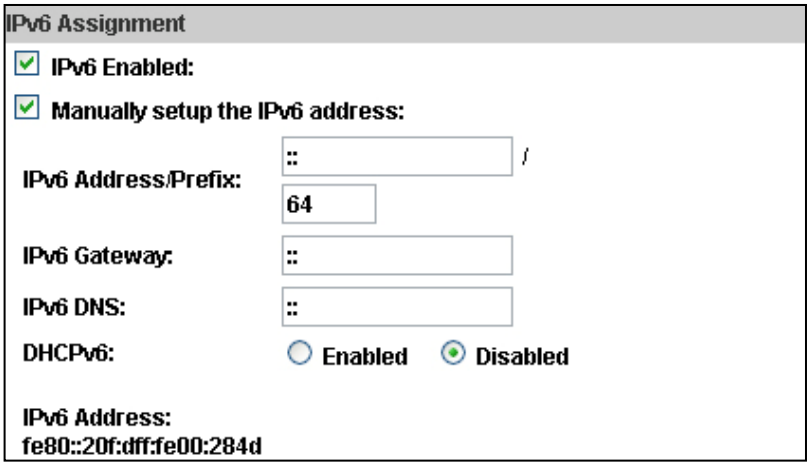
The IP Camera supports DHCP and static IP.



- **DHCP**: The IP Camera will get all the network parameters automatically.
- **Static IP**: Type-in the IP address subnet mask, gateway, and DNS.

IPv6 Assignment

By enabling DHCPv6 you can configure the following IPv6 address settings:

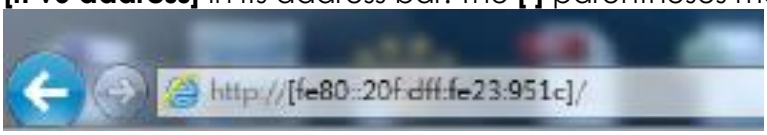


- **Manually setup the IPv6 address**: Key-in the Address, Gateway, and DNS.

- **DHCPv6**: If you have a DHCPv6 server, enable it to assign the IPv6 automatically. The assigned IP address will be displayed alongside.

- **Automatically generated IPv6 Address**: Indicates a virtual IPv6 address generated automatically by the IP camera. This virtual IPv6 address cannot be used on WAN.

- Use IPv6 address to access the IP camera. Open a web browser and input **[IPv6 address]** in its address bar. The **[ ]** parentheses mark is necessary.



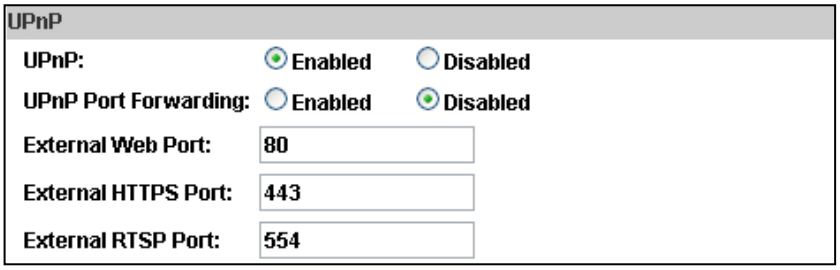
Port Assignment

The user might need to assign a different port to avoid conflicts when setting up the IP.

- **Web Page Port**: Setup the web page connecting port and video transmitting port (Default: 80)

- **HTTPs Port**: Setup the https port(Default: 443)

UPnP



This IP camera supports UPnP, if this service is enabled on your computer, the camera will automatically be detected and a new icon will be added to **My Network Places**.

- **UPnP Port Forwarding**: Enable UPnP Port Forwarding for accessing the IP Camera from the Internet; this option allows the IP Camera to open ports on the router automatically so that video streams can be sent out from a LAN. There are three external ports for being set: **Web Port**, **Http Port** and

RTSP port. To utilize of this feature, make sure that your router supports **UPnP** and is activated.

Note: *UPnP must be enabled on your computer.*
Please follow the procedure to activate UPnP:

<Approach 1>

i. open the **Control Panel** from the **Start Menu**

ii. Select **Add/Remove Programs**

iii. Select **Add/Remove Windows Components** and open **Networking Services** section

iv. Click **Details** and select **UPnP** to setup the service.

v. The IP device icon will be added to **My Network Places.**

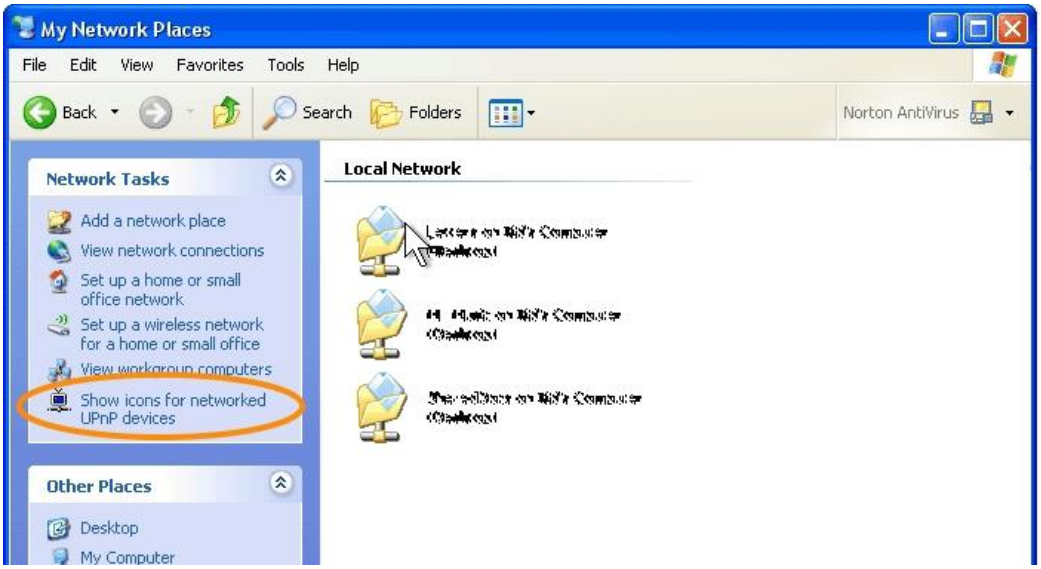
vi. The user may double click the IP device icon to access IE browser

<Approach 2>

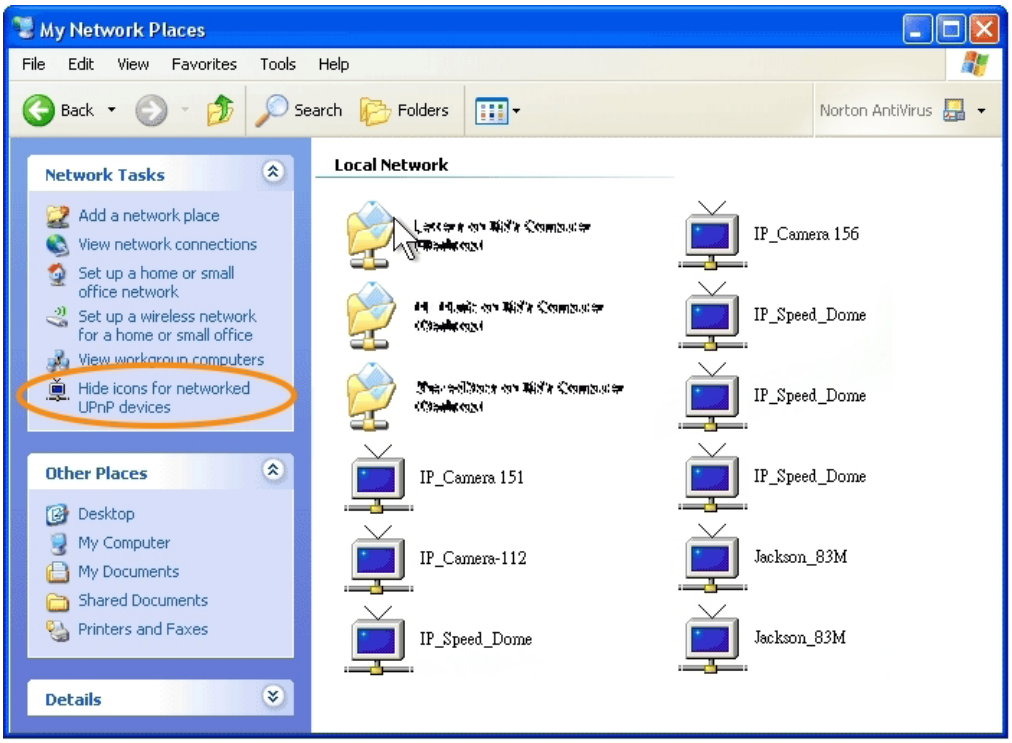
i. Open My **Network Space**

ii. Click **Show icons for networked UPnP devices** in the tasks column on the left of the page.

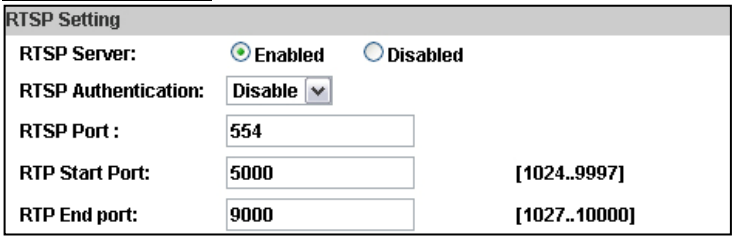
iii. Windows might ask your confirmation for enabling the components. Click **Yes**.



iv. Now the IP device is displayed under the LAN. Double-click the icon to access the camera via web browser. To disable the UPnP, click **Hide icons for networked UPnP devices** in the tasks column.



RTSP Setting



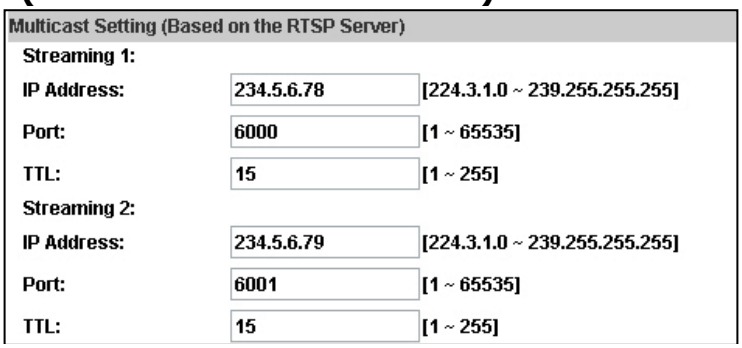
If you have a media player that supports RTSP protocol, you can use it to receive video streaming from the IP camera. The RTSP address can be set for two streaming transmissions respectively.

- **RTSP Server**: Choose **Enabled** or **Disabled.**
  Disable means everyone who knows your camera IP Address can link to your camera via RTSP. No username and password are required. Under **Basic** and **Digest** authentication mode, the camera asks for a username and password before allows access. The password is transmitted as a clear text under basic mode, which provides a lower level of security than under **digest** mode. Make sure your media player supports the authentication schemes.

- **RTSP Port**: Setup port for RTSP transmitting (Default: 554)

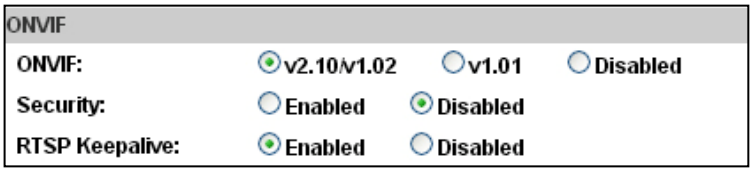
- **RTP Start and End Port**: In RTSP mode, you can use TCP and UDP for connecting. TCP connection uses RTSP Port (554). UDP connection uses RTP Start & End Port.

Multicast Setting (Based on the RTSP Server)



Multicast is a bandwidth conservation technology. This function allows several users to share the same packet sent from the IP camera.
For using Multicast, appoint here an IP Address and port. TTL means the life time of packet, the larger the value is, the more users can receive the packet.
For using Multicast, be sure to enable the function **Force Multicast RTP via RTSP** in your media player. Then key in the RTSP path of your camera: **rtsp ://(IP address)/** to receive the multicast.

ONVIF



Choose your ONVIF version and settings.

- **ONVIF**: Under ONVIF connection, the video will be transmitted by RTSP. Be sure to enable the RTSP server in IP setting, otherwise the IP Camera will not be able to receive the video via ONVIF.

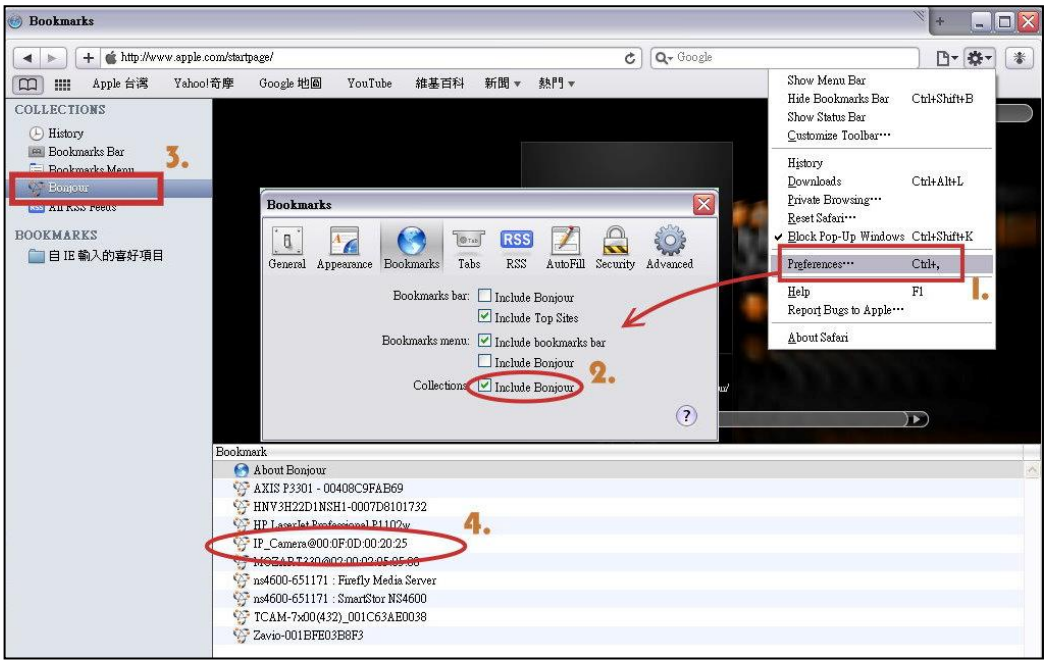
- **Security**: By selecting **Disable**, the username and password are not required for accessing the camera via ONVIF. By selecting **Enable** the username and password are necessary.

- **RTSP Keepalive**: When the function is enabled, the camera checks once in a while if the user who is connected to the camera via ONVIF is still connected. If the connection has been broken the camera will stop transmitting video to the user.

Bonjour

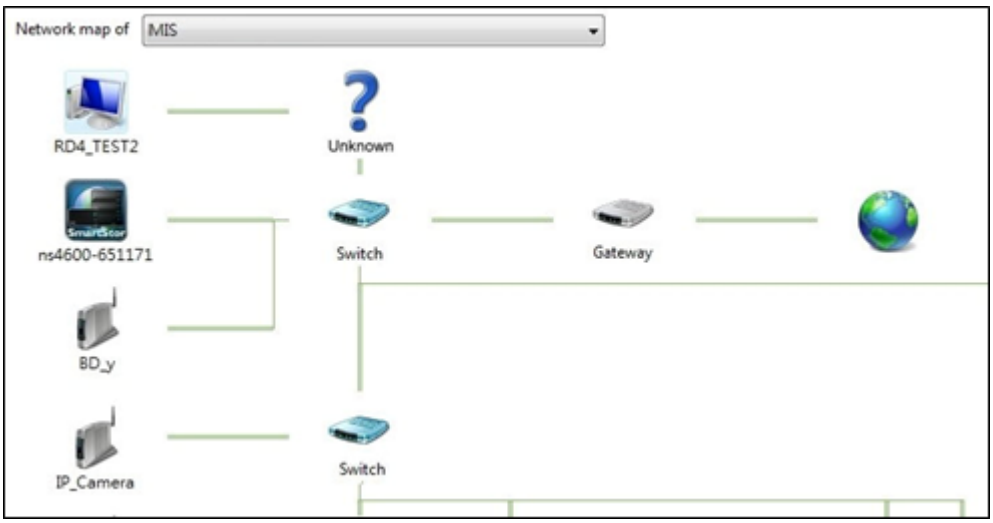
This function allows Apple systems to connect to this IP camera. On **Bonjour Name** key-in the name here. The web browser **Safari** also has a Bonjour function. Tick **Include Bonjour** in the bookmark setting, for the IP camera to appear under the bonjour category.

Click the icon to connect to the IP camera. The Bonjour function on Safari browser doesn't support HTTPS protocol. If on the camera you select **https**, the camera will appear on Safari's bookmarks but it cannot be accessed. Take as a reference the following image:



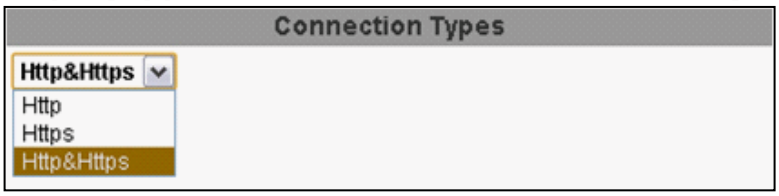
LLTD

If your PC supports LLTD, enable this function for allowing checking the connection status, properties, and device location (IP address) in the network map. If the computer is running Windows Vista or Windows 7, you can find LLTD through the path: Control Panel → Network and Internet → Network and Sharing Center → Click **See full map**.



Advanced

Https (Hypertext Transfer Protocol Secure)

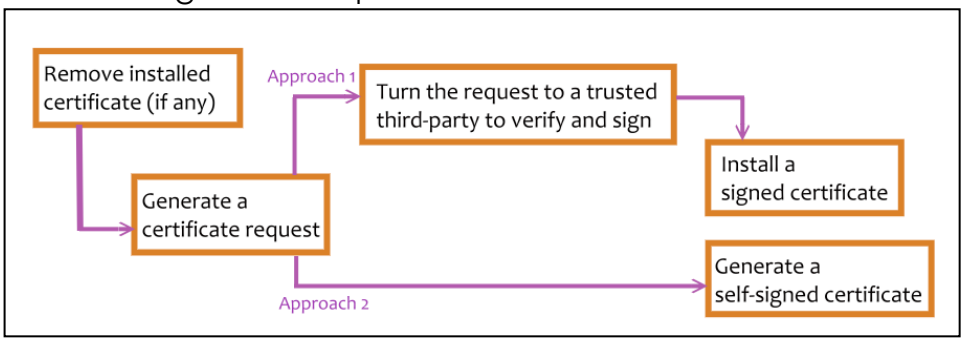


When the users access cameras via Https protocol, the transmitted information will be encrypted, increasing the security level.
Select the connection type:

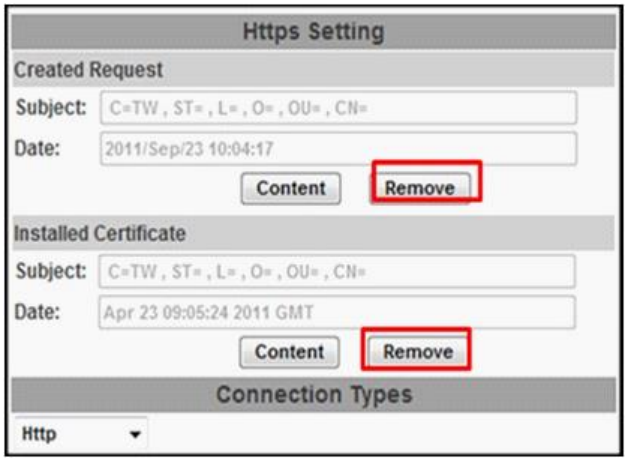
- **Http:** the user can access the camera via the Http path but cannot access it via the Https path.
- **Https:** the user can access the camera via the Https path but cannot access it via the Http path.
- **Http & Https:** Both the Http and Https path can be used to access the camera. When you change the connection type settings, it may cause connection error or disconnection error if you switch the protocol directly. Therefore, **Http & Https** mode is necessary.

If you want to change from Http to Https, please switch to **Http & Https** mode first, and then switch to **Https** mode and vice versa.

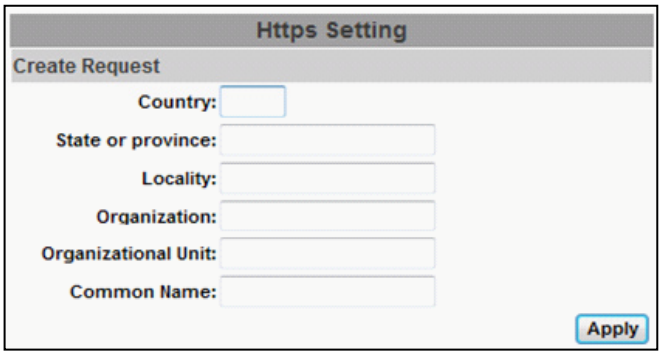
The Https protocol has a verifying mechanism. When the user access a website via Https, the browser will check the certificate of that domain and verify its trustiness and security.
Certificate generation process:



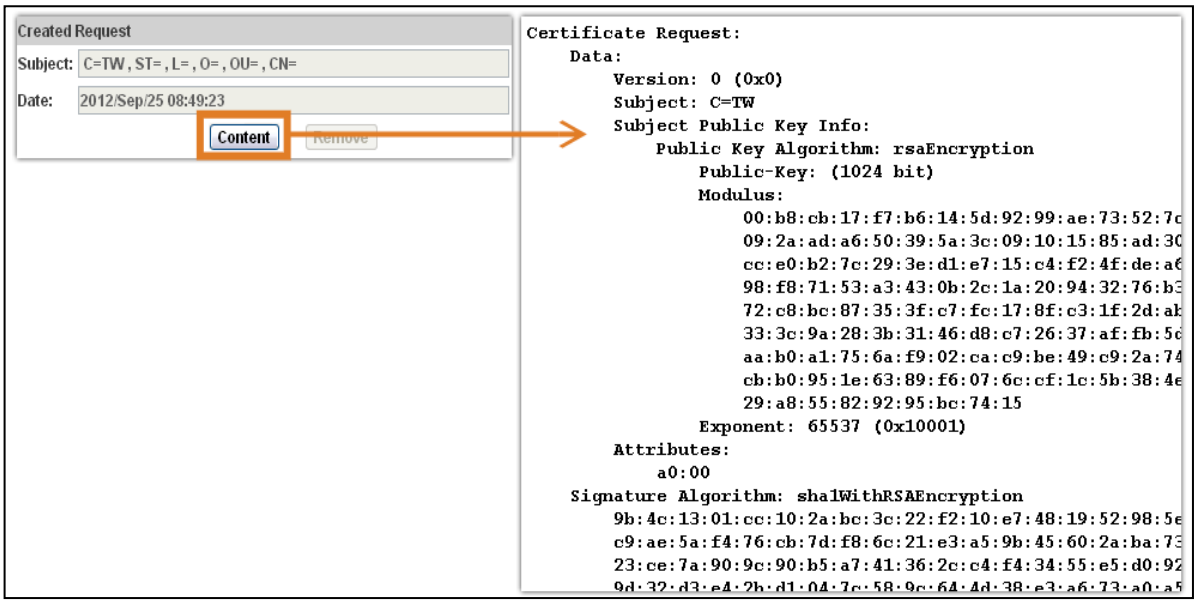
Remove the existing certificate: Before you generate a new certificate, please remove the installed one. Select the **Http** connection type and click **Remove**. If a dialog box pops up to ask you to confirm, click **Yes**.



- **Created Request:** Fill-in the following form and click **apply**.



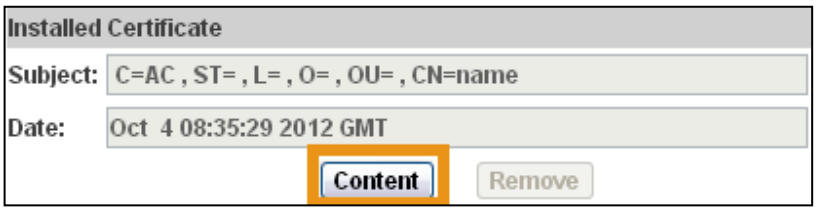
After generating a certificate request, if you choose to turn it & verify it by a trusted third-party, click **Content** and copy all the request content.



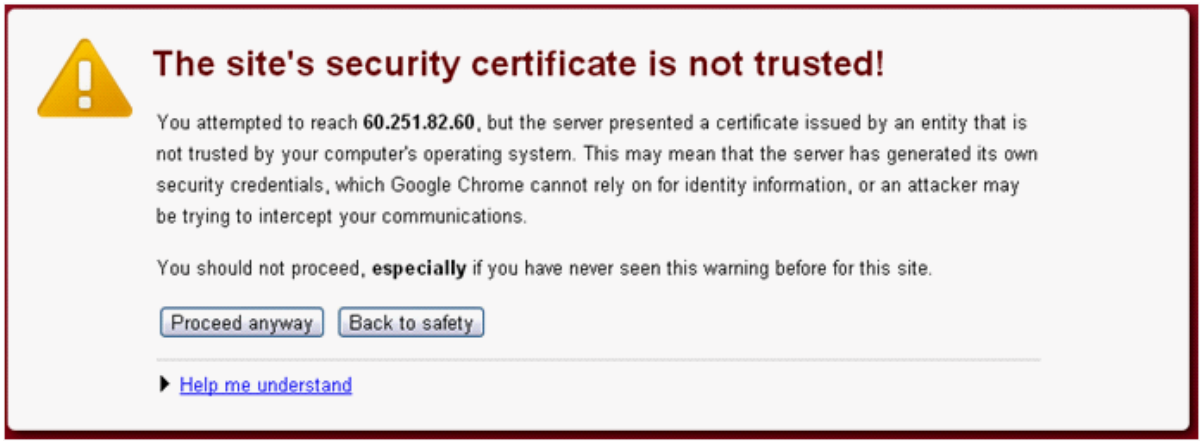
According to the certificate source, there are two ways to install the certificate: If you had sent the certificate request for signing and receiving a signed certificate, click **browse** and find the certificate file in your computer. Click **Apply** to install it.

If you choose to generate a self-signed certificate, fill-in the following forms and set the validity day, click **Apply** to finish installed it.

After finishing the installation, click on **Content** to call out and check the certificate content.

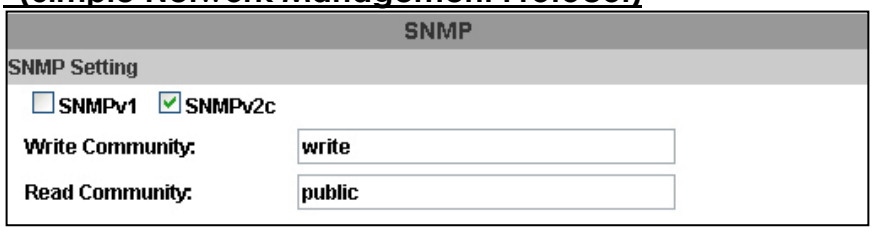


To use Https to access the camera, open your browser, and key-in **https:// (IP address)/** in the address bar. Now your data will be transmitted via encrypted communications. The browser will check your certificate status. It might show the following warning message:



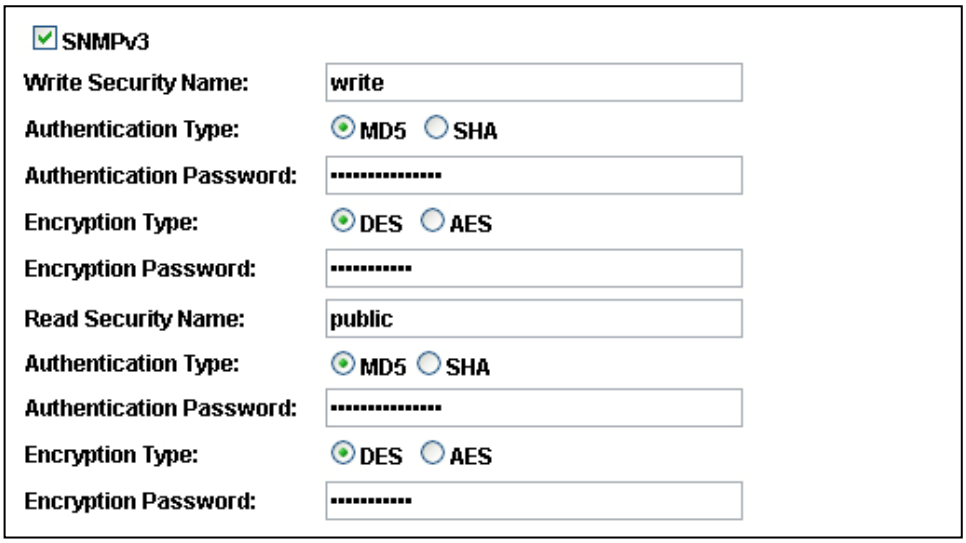
Meaning that certificate is self-signed or signed by a distrusted institution. Click **Proceed anyway** for continuing to the camera page.

SNMP
(Simple Network Management Protocol)

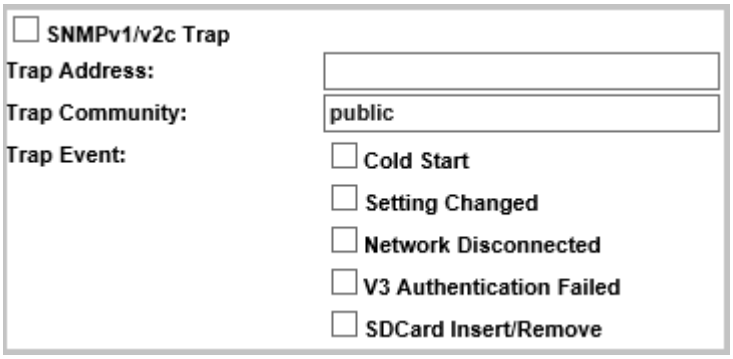


- SNMPv1 or SNMPv2: write the name of both Write Community and Read Community.

- **SNMPv3:** Set the Security Name, Authentication Type, Authentication Password, Encryption Type, Encryption Password of Write mode and Read mode.



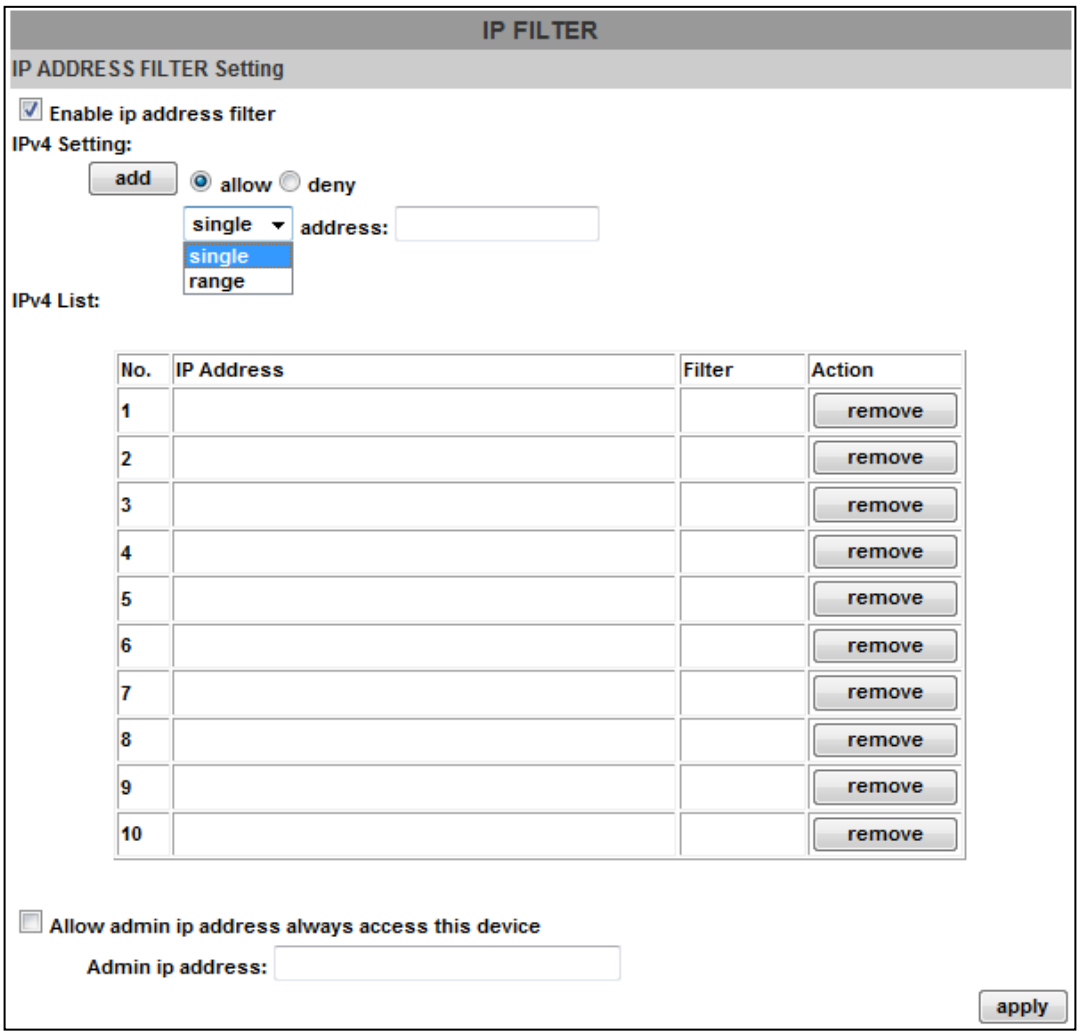
Enable **SNMPv1/SNMPv2 Trap** for detecting the Trap server. Please set what event needs to be detected.



- **Cold Start**: The camera starts up or reboots.
- **Settings Changed**: The SNMP settings have been changed.
- **Network Disconnected**: The network connection was broken down (The camera will send trap messages after the network is connected again).
- **V3 Authentication Failed**: A SNMPv3 user account tries to get authentication but failed. (Due to incorrect password or community)
- **SD Card Insert / Remove:** A Micro SD card is inserted or removed.

Access List

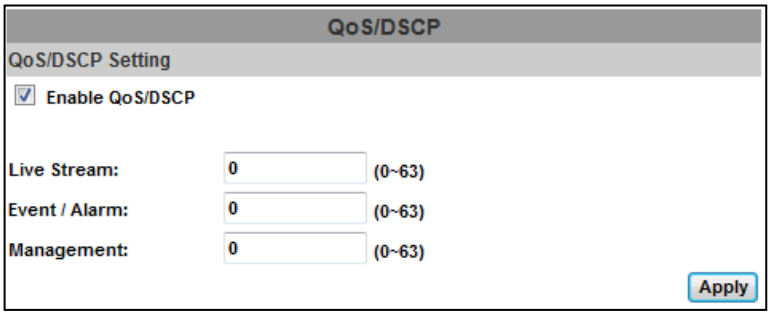
Enable IP address filter to allow/reject some IP address a network access. There are two options: **single** and **range**.



QoS/DSCP

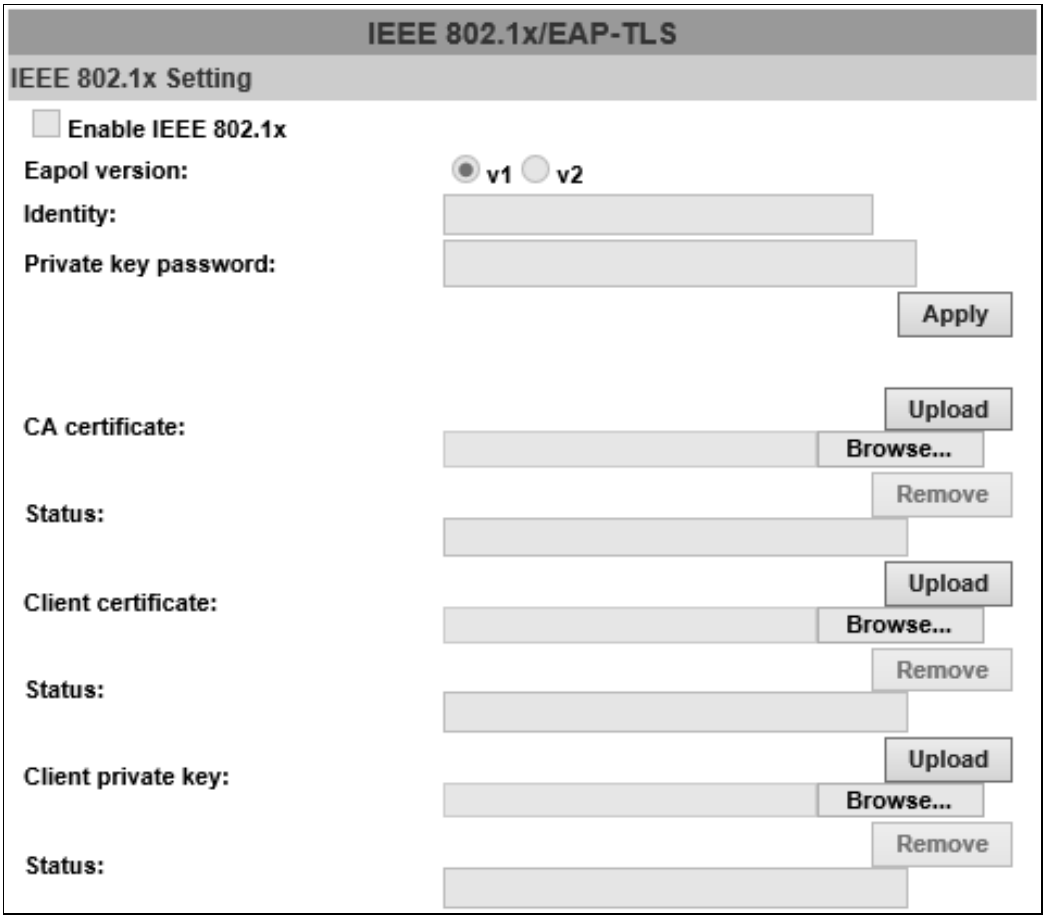
(Quality of Server/Differentiated Services Code-point)

DSCP specifies a simple mechanism for classifying and managing network traffic; and provide QoS on IP networks. DSCP is a 6-bit in the IP header for packet classification purpose. Please define it for **Live Stream**, **Event / Alarm and Management**.

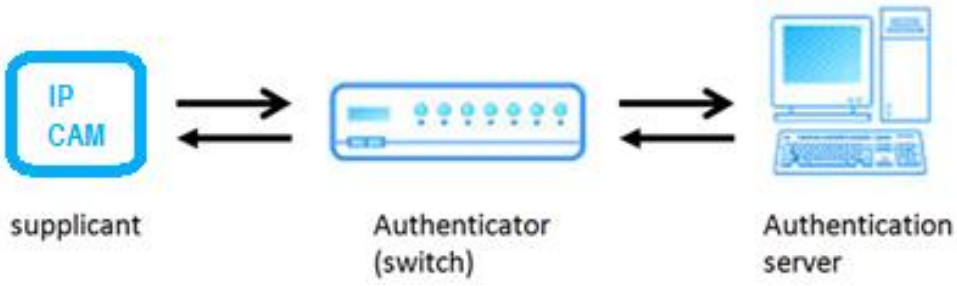


IEEE 802.1x

It is an IEEE standard for port-based Network Access Control. It provides an authentication mechanism to a device on LAN/WLAN.

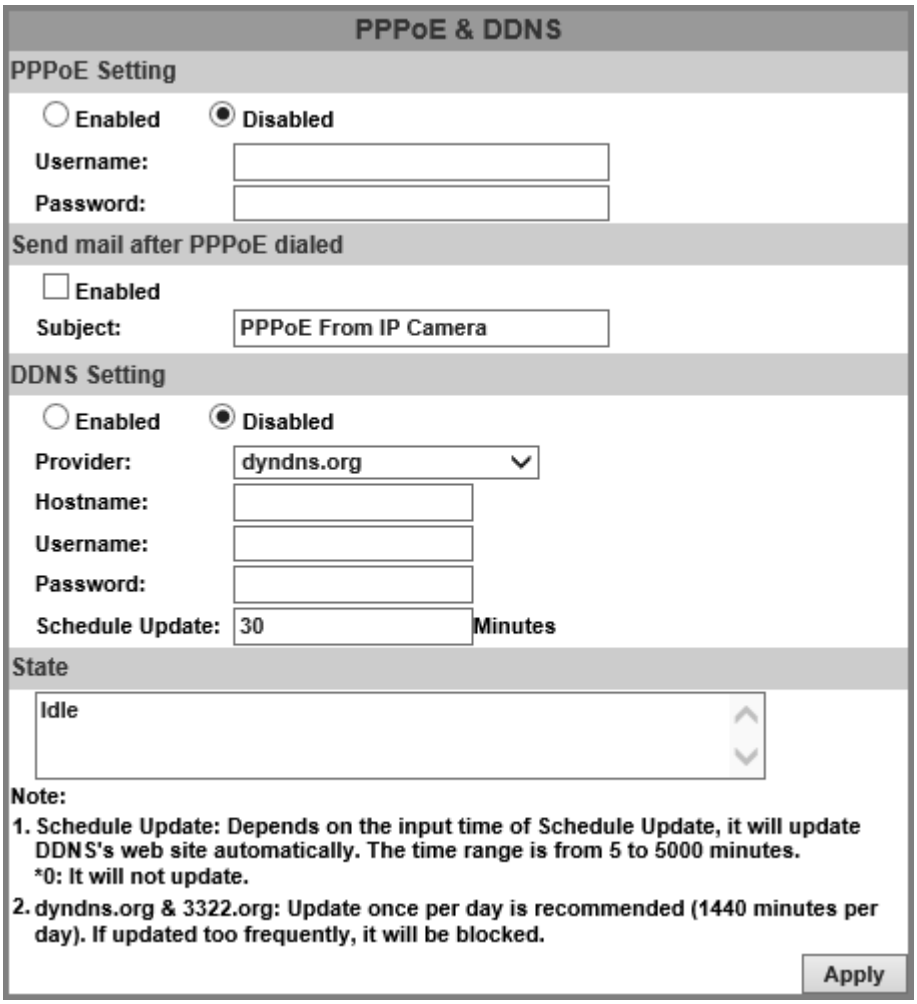


The EAPOL protocol supports service identification and optional point to point encryption over the local LAN segment.

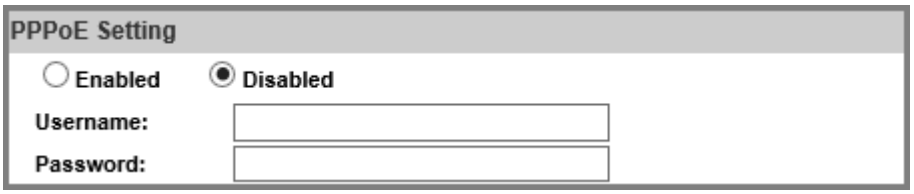


Please check what version supports the authenticator and authentication server. This camera supports EAP-TLS method. Enter the ID, password issued by the CA, then upload related certificates.

PPPoE & DDNS



PPPoE Setting

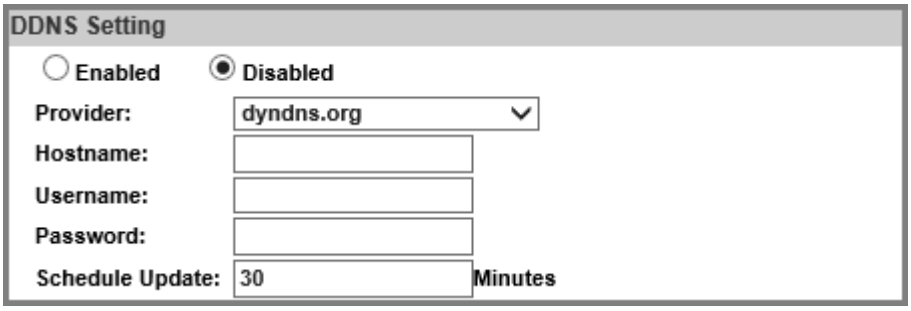


Select **Enabled** to use PPPoE. Key-in the the Username and password for ADSL connection.

Send mail after PPPoE dialed

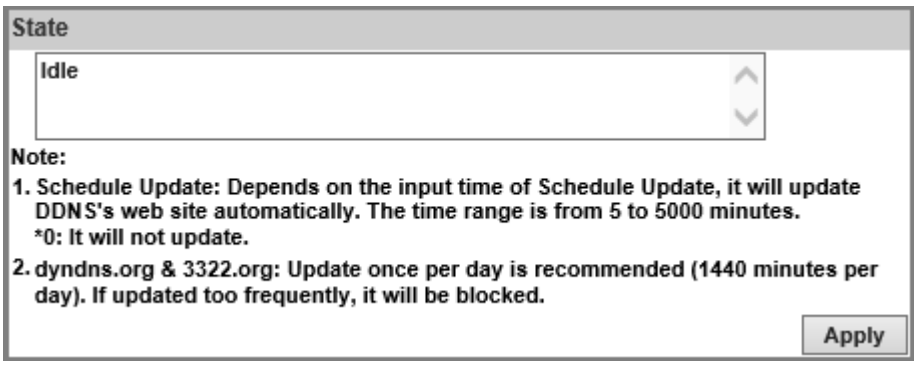
When connected to the internet, the camera will send a mail to a specific mail account.

DDNS Setting



camddns as an example: Enable this service→Input username→IP schedule update→Default: 5 minutes→Click **Apply**
Check results from the message presented inside the **State** field.

State



(1) Updating: Information update

(2) Idle: Stop service

(3) DDNS registration successful, can now log by http://<username>.ddns.camddns.com: Register successfully.

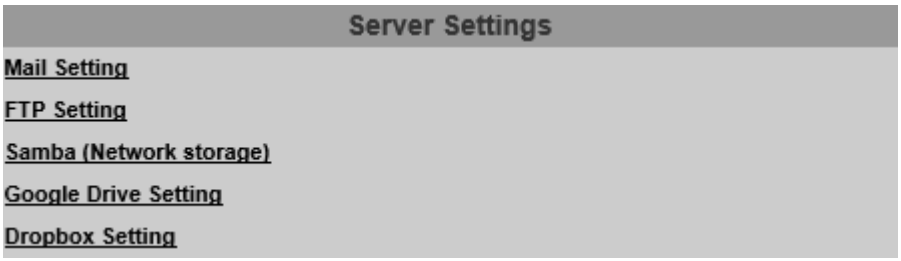
(4) Update Failed, the name is already registered: The user name has already been used. Please change it.

(5) Update Failed; please check your internet connection: Network connection failed.

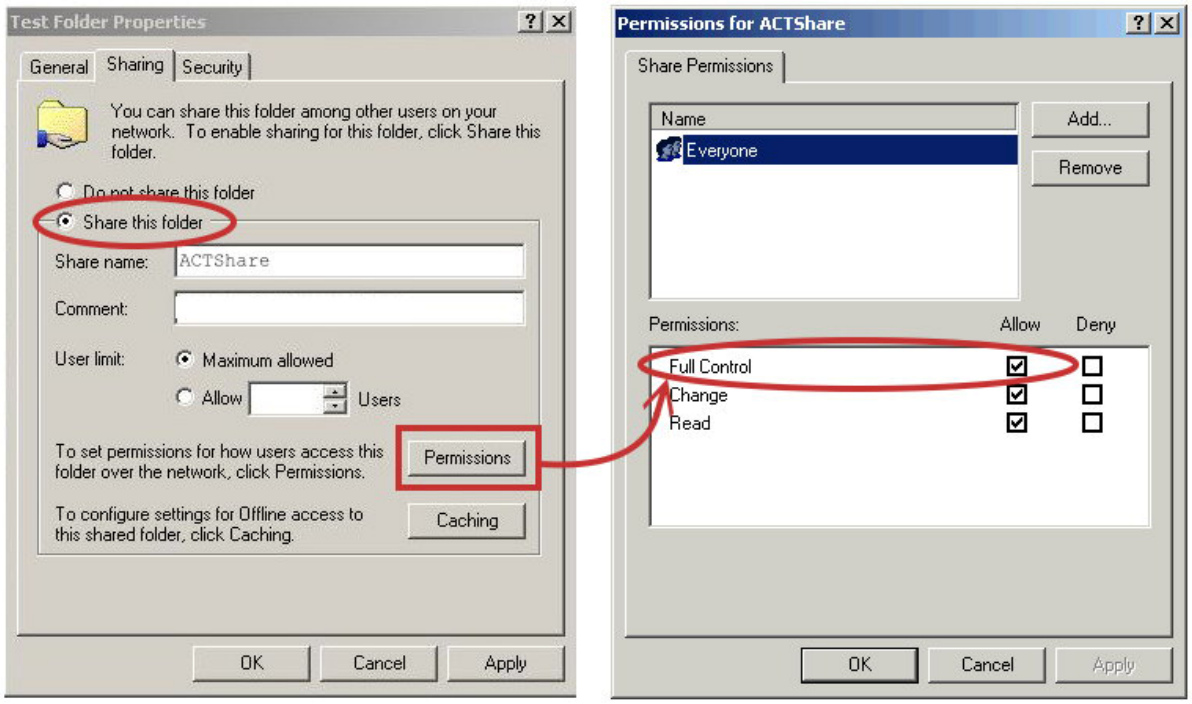
(6) Update Failed, please check the account information you provided: The server, user name, and password may be wrong.

Server Settings

There are several server types available. Select the item to display detailed configuration options. You can configure either one or all of them.



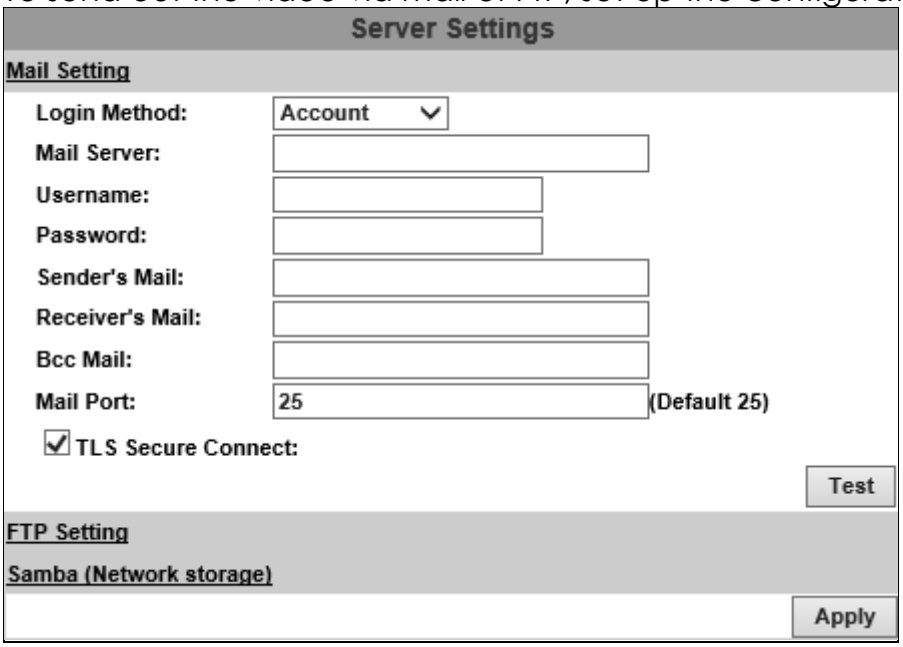
Click **Apply** to save settings at the bottom of **Server Settings**, then click **Test** icon to test the server connection. A message box will tell you **OK!** if it works, and a test document will be created in the location.



If the testing fails, check the sharing setting of your location folder. The folder properties must be **shared** and the permissions must be **Full Control**.

Mail Setting

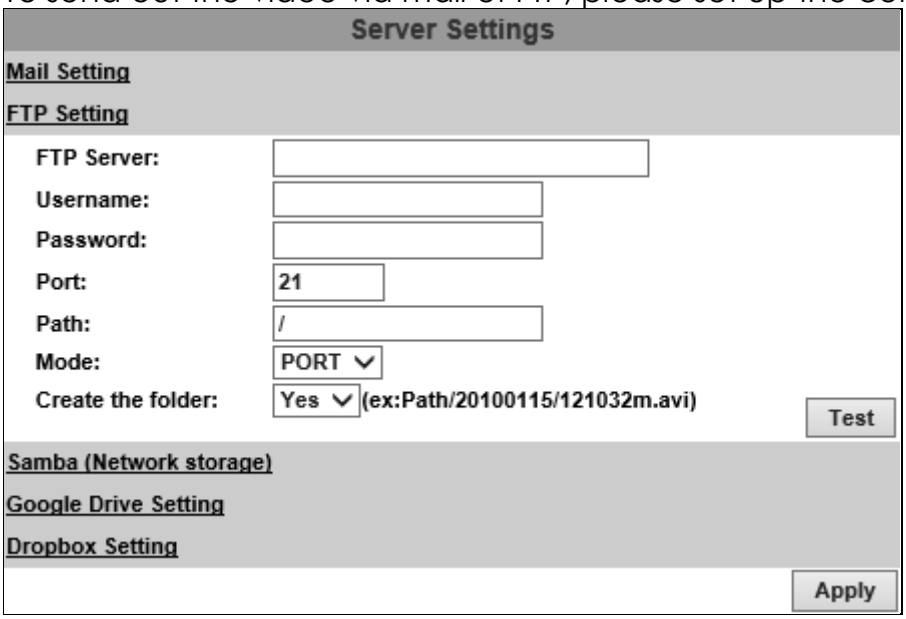
To send out the video via mail of FTP, set up the configuration first.



Click **Apply** to confirm settings at the bottom of **Server Settings**, then click **Test** icon to test the server connection.

FTP Setting

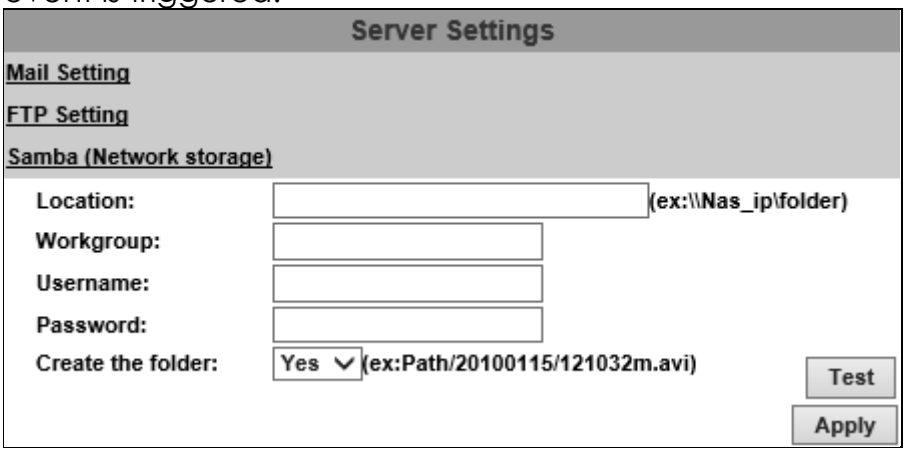
To send out the video via mail of FTP, please set up the configuration.



Click **Apply** to confirm settings at the bottom of **Server Settings**, then click **Test** icon to test the server connection.

Samba (Network Storage)

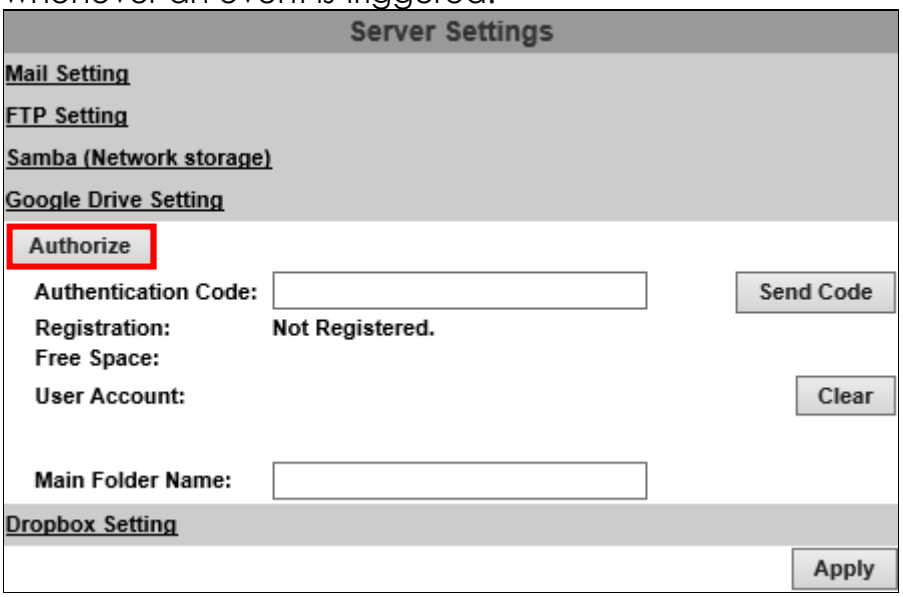
Select this option to send the media files via a neighbor network when an event is triggered.



Click **Apply** to confirm settings at the bottom of **Server Settings**, then click **Test** icon to test the server connection.

Google Drive Setting

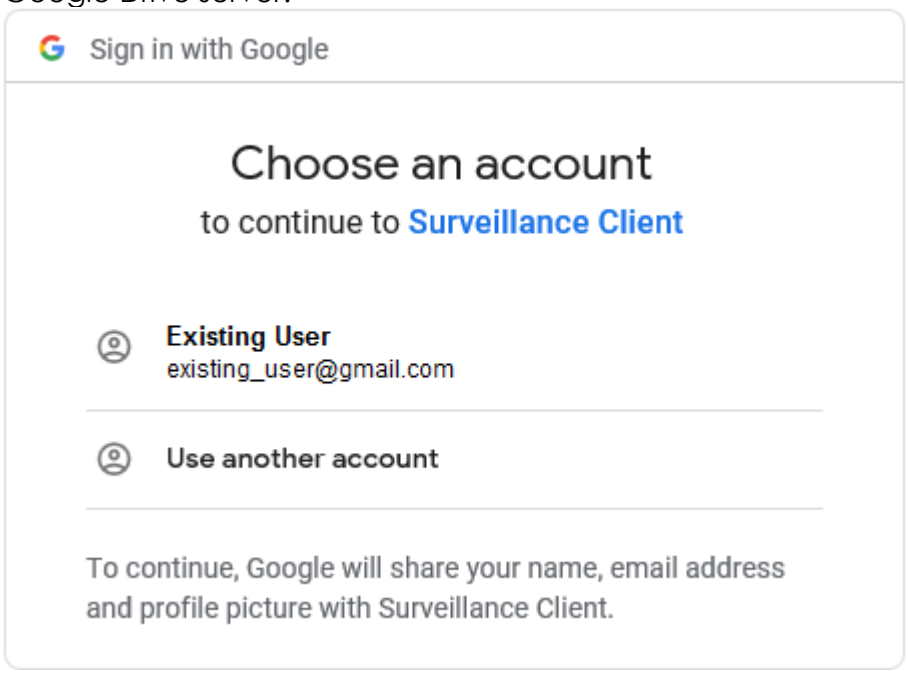
Select this option to send the media files unto the cloud server Google Drive whenever an event is triggered.



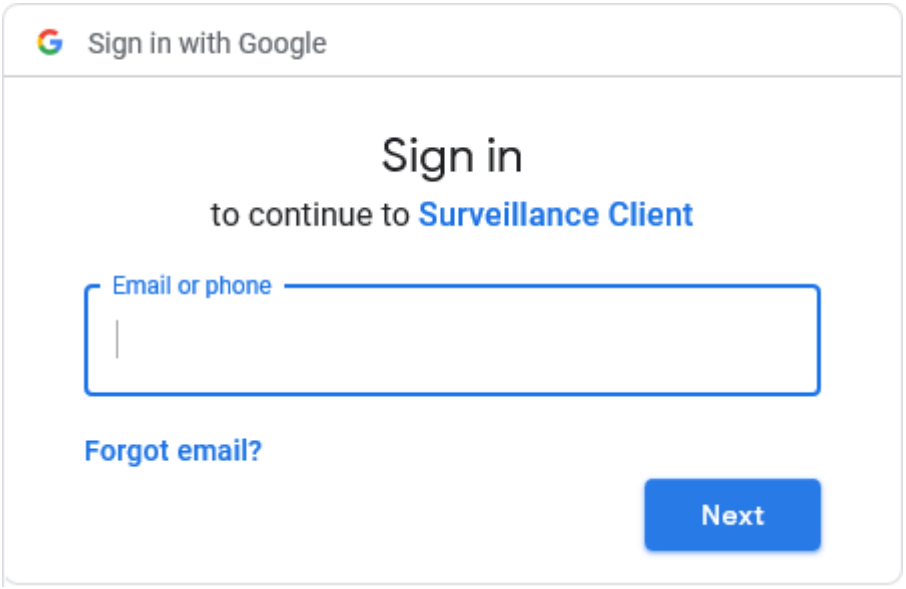
You will have to sign in to the **Google Drive** network before you start the operation. If you have not yet been a Google user, the online registration will be required, and you will need to sign in first as a Google account user.

Below are the steps:

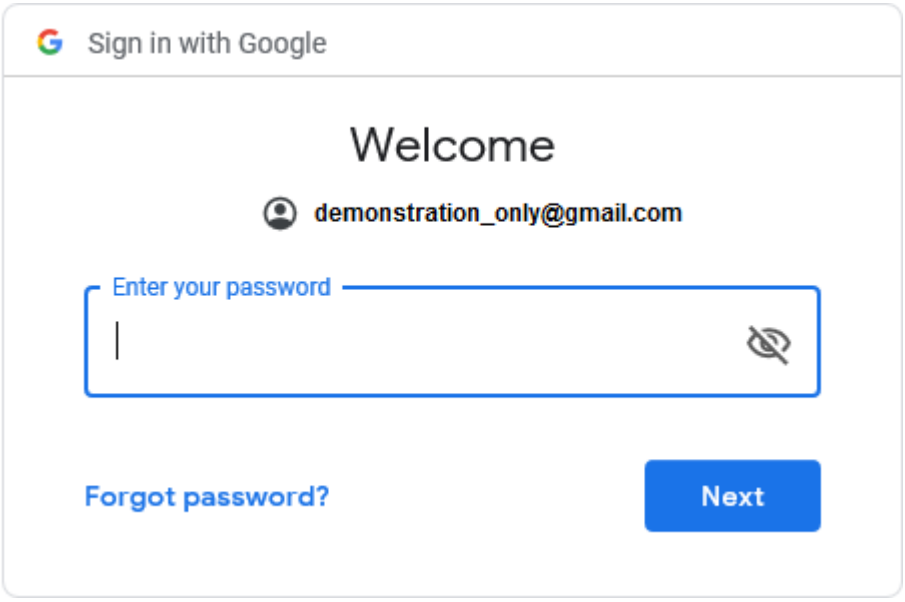
i. Click **Authorize** to begin the online-registration operation. A window will pop up and require you to sign in for a Surveillance Client account directed by Google Drive server.



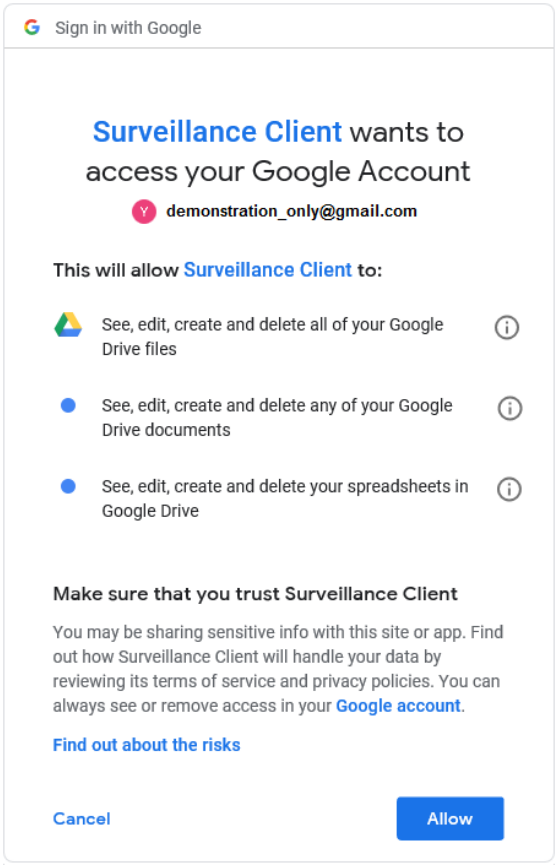
ii. Choose **Existing User** to continue the operation if you have already owned a Google Drive account. Otherwise, you may choose **Use another account** and sign in as another Google account user.



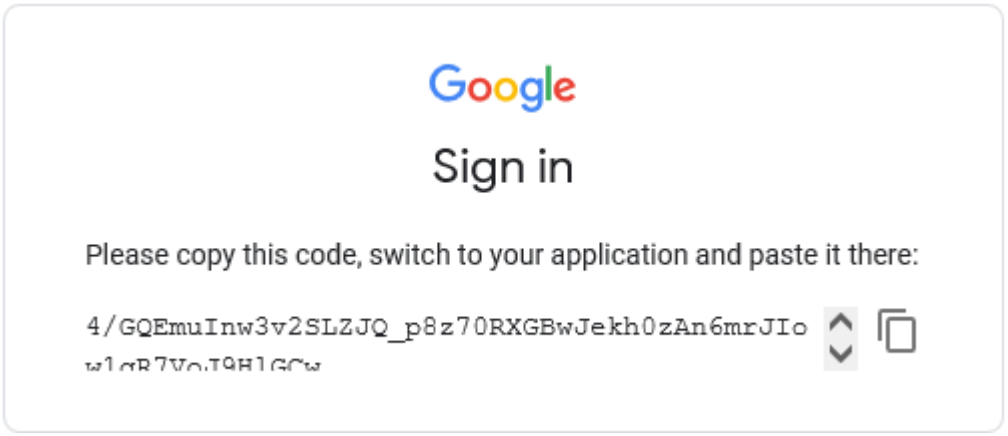
iii. Enter the password and click **Next**.



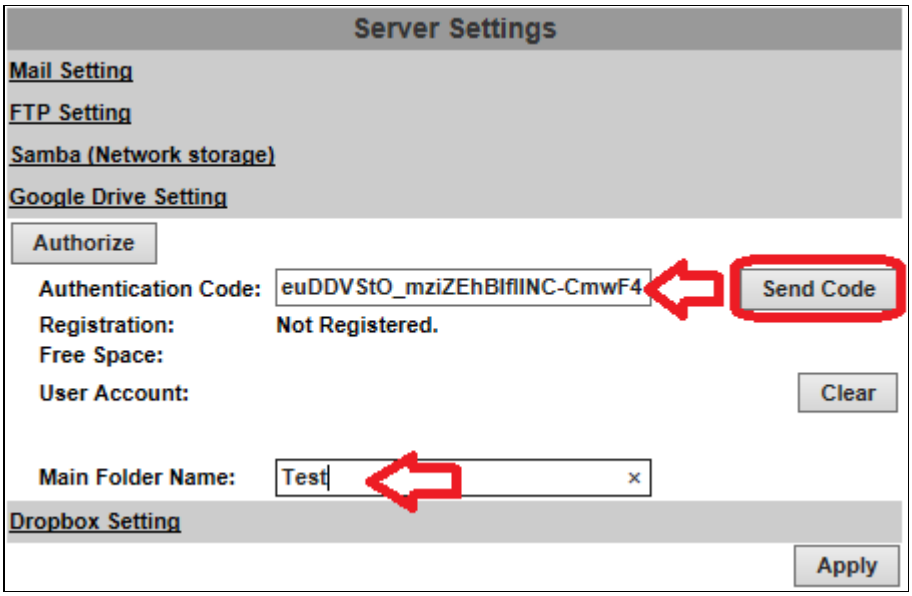
iv. Click **Allow**.



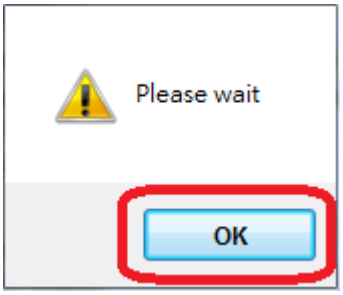
v. **Authentication Code** will be generated by Google server.



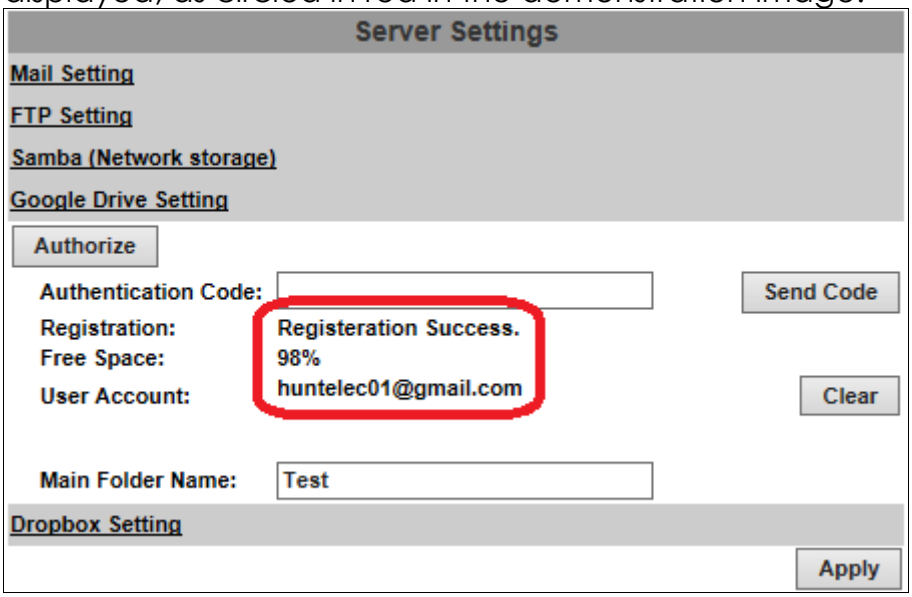
vi. Paste the **Authentication Code** acquired from Google server in the required field, input the **Main Folder Name** of your preference and click **Send Code**.



vii. Please wait for around 15 seconds before clicking OK.



viii. If the application is successful, you will be able to see a list of status displayed, as circled in red in the demonstration image.



Click **Apply** to confirm settings at the bottom of **Server Settings**. Click **Clear** to delete the current account registered for this server.

Dropbox Setting

Select this option to send the media files unto the cloud server Dropbox whenever an event is triggered.

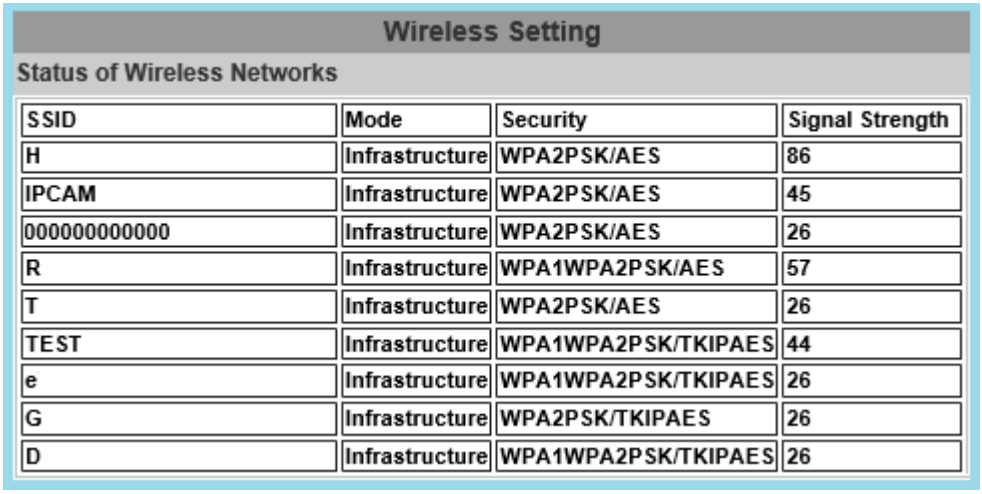
You will have to sign in to **Dropbox** network first. If you do not own an account, you will need to register one for free. If you have already created a Dropbox account, click **Authorize** to start the operation.

A window from the Dropbox server will open to ask you for signing-in.
Enter **Authentication Code** in the required field and click **Send Code**. Click **Clear** to delete the current account registered for this server.
Click **Apply** to confirm settings at the bottom of **Server Settings**.

Wireless Setting

(Optional, support 802.11 b/g/n)

For setting up the IP camera via wireless network, first, use the Ethernet cable to connect the camera.



Wireless Setting

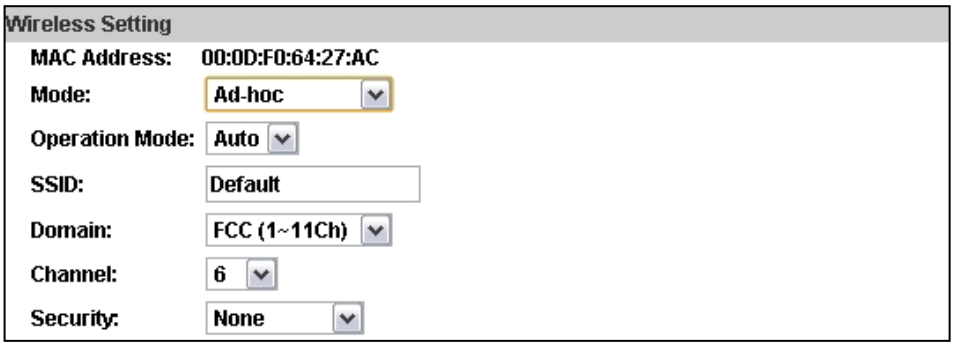
Status of Wireless Networks

SSID	Mode	Security	Signal Strength
H	Infrastructure	WPA2PSK/AES	86
IPCAM	Infrastructure	WPA2PSK/AES	45
000000000000	Infrastructure	WPA2PSK/AES	26
R	Infrastructure	WPA1WPA2PSK/AES	57
T	Infrastructure	WPA2PSK/AES	26
TEST	Infrastructure	WPA1WPA2PSK/TKIPAES	44
e	Infrastructure	WPA1WPA2PSK/TKIPAES	26
G	Infrastructure	WPA2PSK/TKIPAES	26
D	Infrastructure	WPA1WPA2PSK/TKIPAES	26

After finishing & saving the wireless settings, remove the Ethernet cable.
Note: The IP address is the same under both wireless and wired network. If the Ethernet cable is plugged in the camera, the IP camera will use it to link to the Internet instead of the wireless router.

Status of Networks in Wireless Setting

The camera scans and shows the SSID, Mode, Security, and Signal strength of the wireless network.

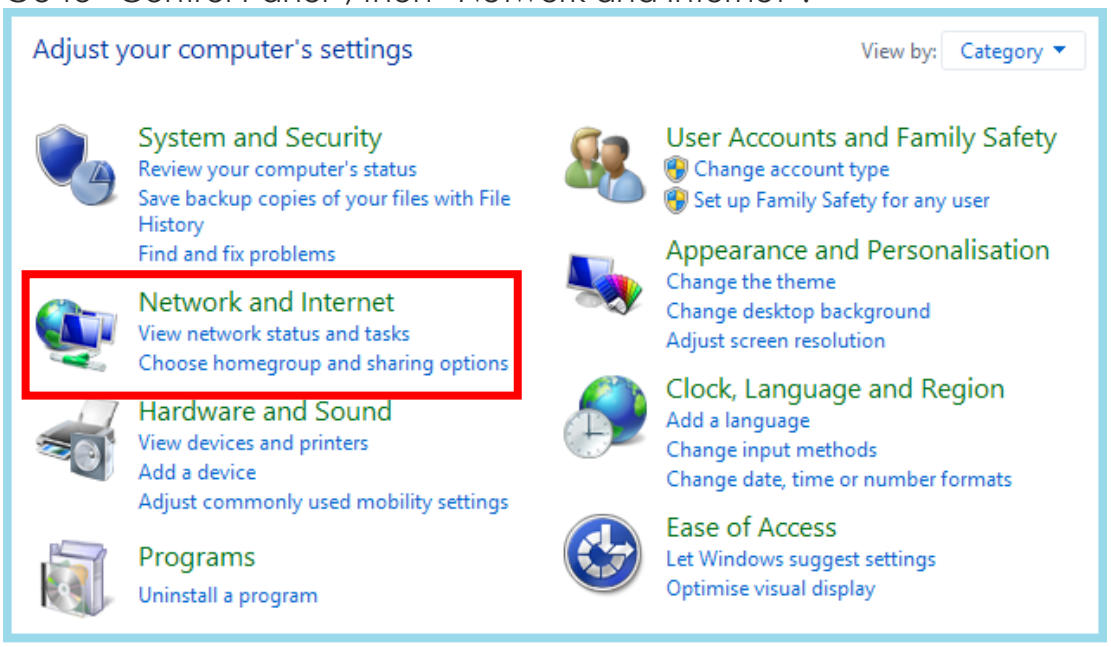


Mode: Infrastructure mode is used to link to the wireless router.
Ad-hoc mode is used to link to the PC directly.
Domain and **Channel** options appear only in the Ad-hoc mode.

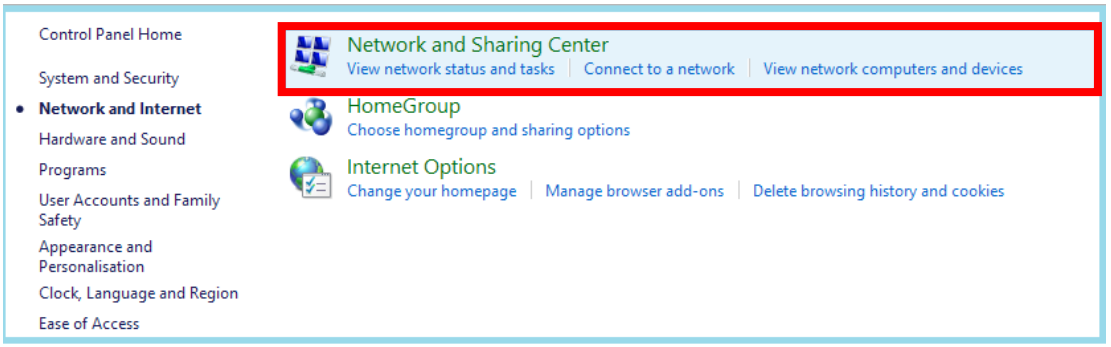
Ad-hoc is a short term derived from **wireless ad hoc network**, known as **WANET**. This type of network is only established temporarily, and does not rely on a pre-existing network through a router or Wireless Access Point.

Connecting to an ad-hoc Wi-Fi network

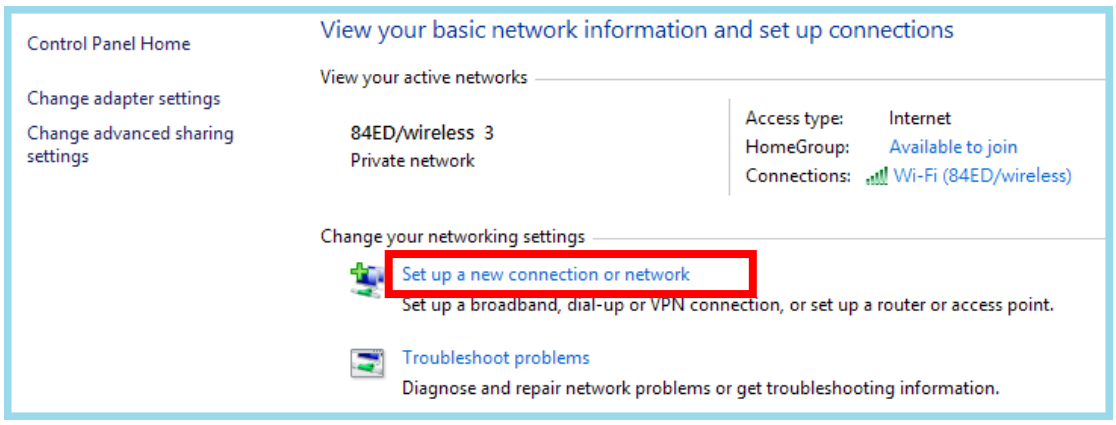
To make the Ad-hoc mode available, follow the steps below.
This demonstration is done manually and specifically applied to Windows 8.1 since Windows 8.1 no longer shows Ad-hoc network in the Wi-Fi list. The following example is based on another type of IP camera.
Go to "Control Panel", then "Network and Internet".



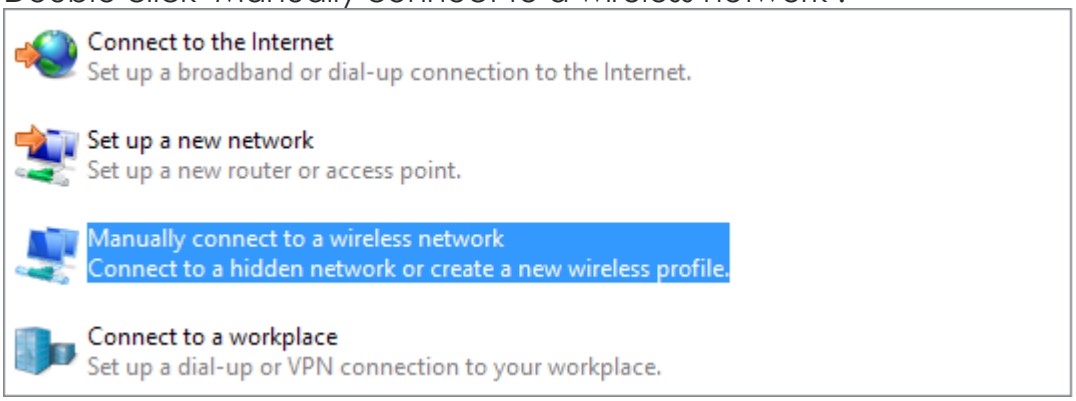
Click "Network and Sharing Center".



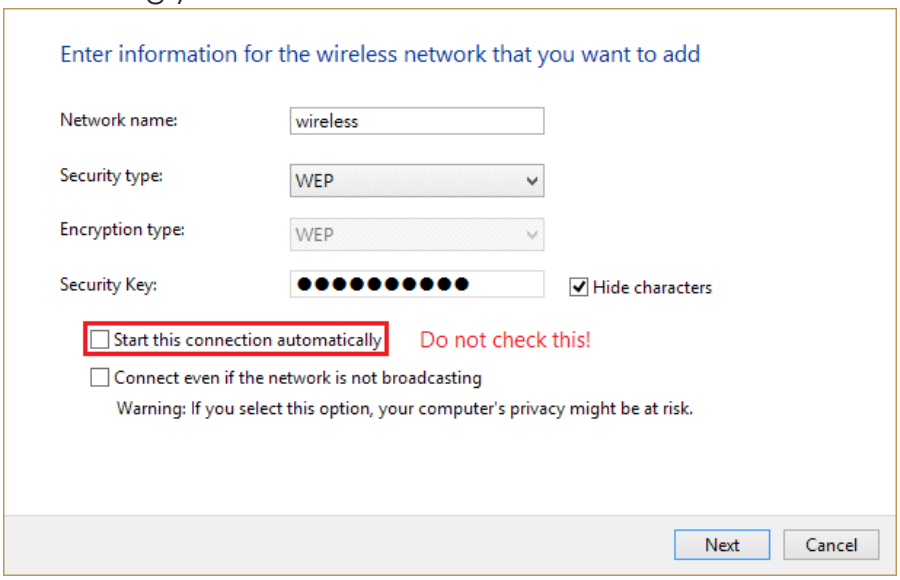
Click "Set up a new connection or network".



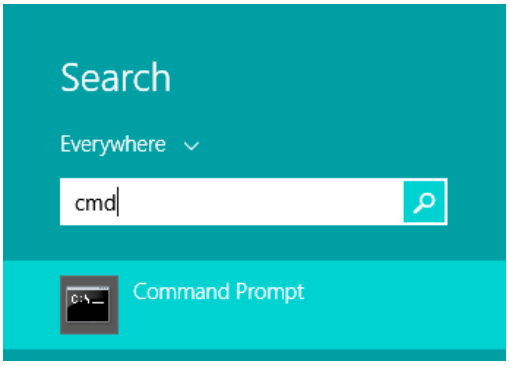
Double click "Manually connect to a wireless network".



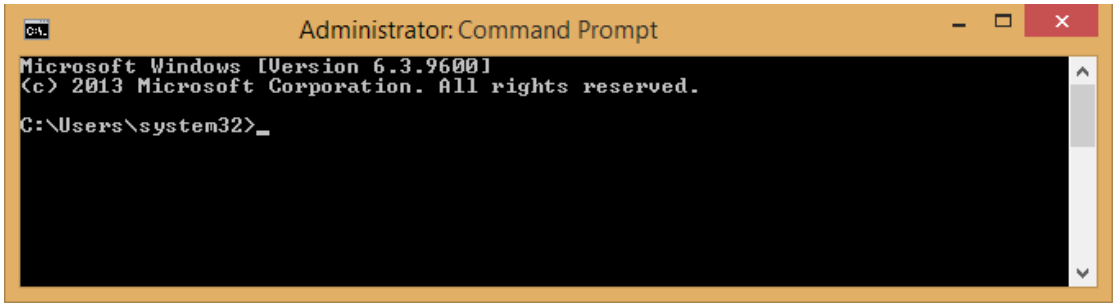
Enter the SSID of the ad-hoc network (as shown by "netsh wlan show networks") into the "Network name" field. Configure security settings accordingly.



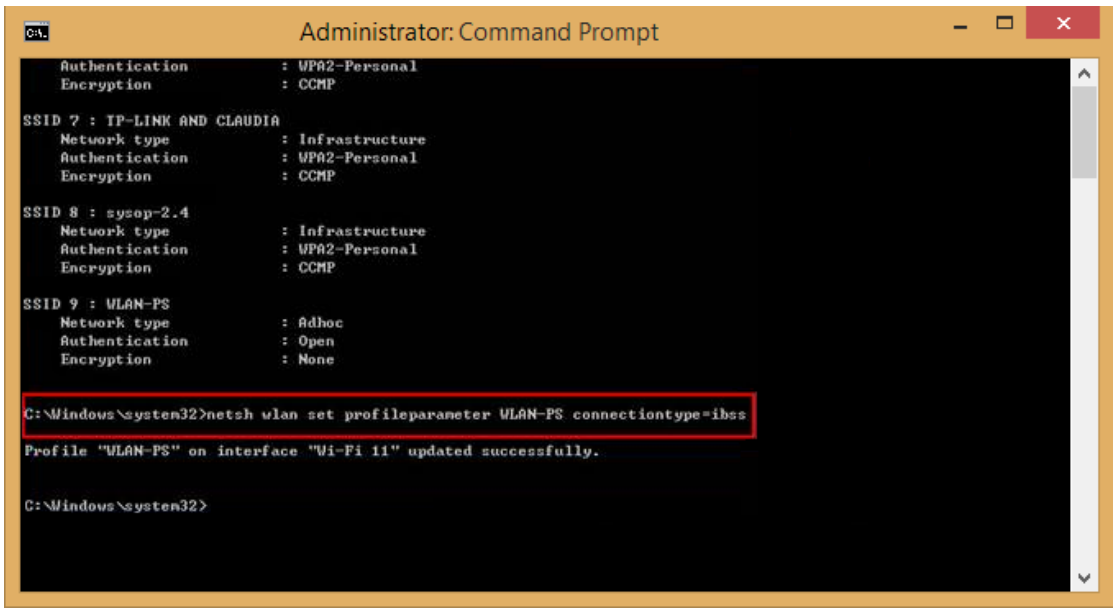
Make sure that "Start this connection automatically" is unchecked, click "Next", then "Close"
Open the search window (Windows key+Q) and search for “cmd”



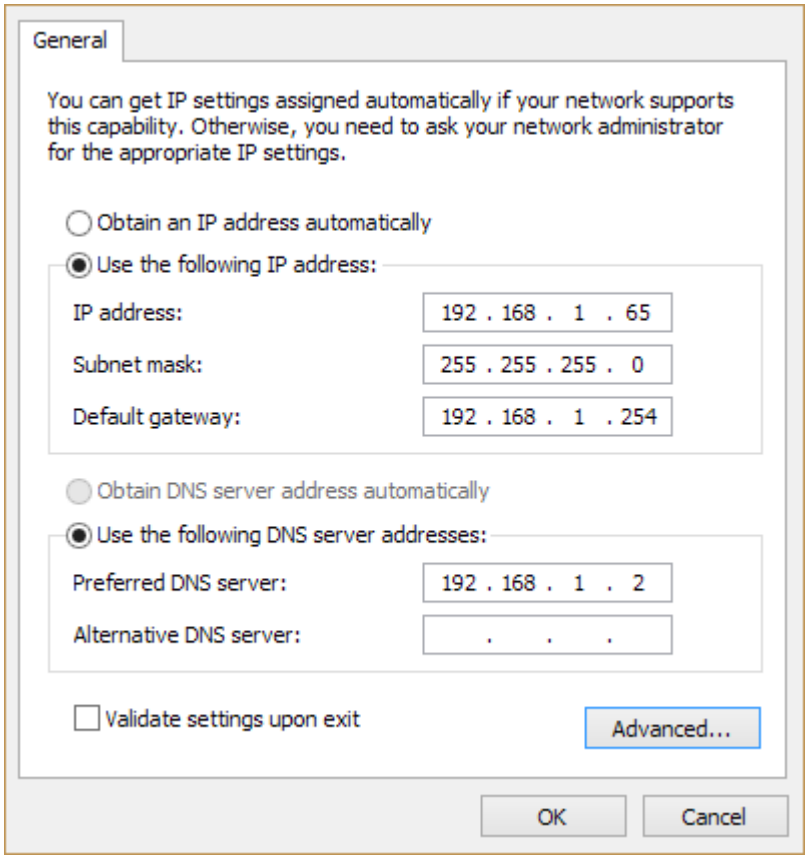
Run the command to open up a new window.



Enter the messages below.
(1) > netsh wlan set profileparameter <ssid> connectiontype=ibss
(2) > netsh wlan connect <ssid>

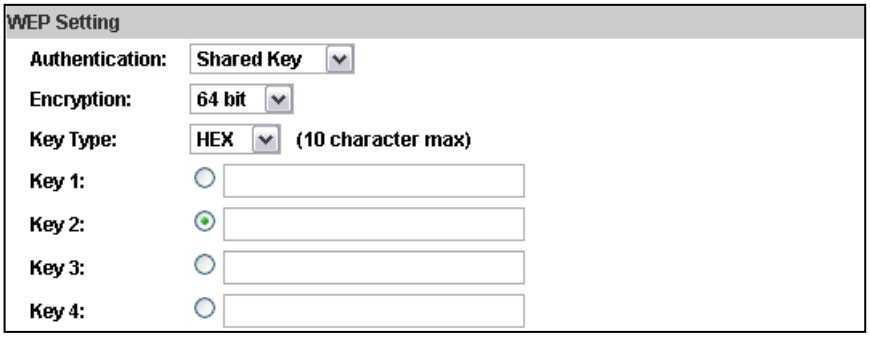


Now **Ad-hoc** mode is available after the IP settings completion.



- **SSID:** The ID of the wireless network service.
- **Domain:** The wireless network standards are different in each region. Please select the wireless standard of you location. FCC is the American standard. ETSI is the European standard. JP is the Japanese standard.
- **Channel:** Assign a channel for the camera in order to avoid interference.
- **Security:** Select WEP, WPA-PSK, or WPA2-PSK according to your wireless router settings.

WEP Setting



- **Authentication: Open System** or **Shared Key**, according to your wireless router.

- **Encryption:** The option determines the length of the key password. In **HEX** type, 10 characters are allowed if you select 64 bit; 26 characters are allowed if you select 128bit; In **ASCII** type, 5 characters are allowed if you select 64 bit; 13 characters are allowed if you select 128bit.

- **Key Type:** In **HEX** type, the key password can only be hexadecimal numbers. In ASCII type, the key password can be any letter and number. (Capital and lowercase letters are regarded as different.)

- **Key 1~4:** Key in the key password according to your wireless router setting. The length and type must be consistent with the settings above.

WPA-PSK/ WPA2-PSK Setting

- **Encryption: TKIP** or **AES**, according to your wireless router.

- **Pre-Shared Key:** Key-in the key password according to your wireless router settings. Any letters and numbers are allowed. (Capital and lowercase letters are regarded as different.)

III. A/V Settings

Click  to get into the administration page. Click  to go back to the live video page.

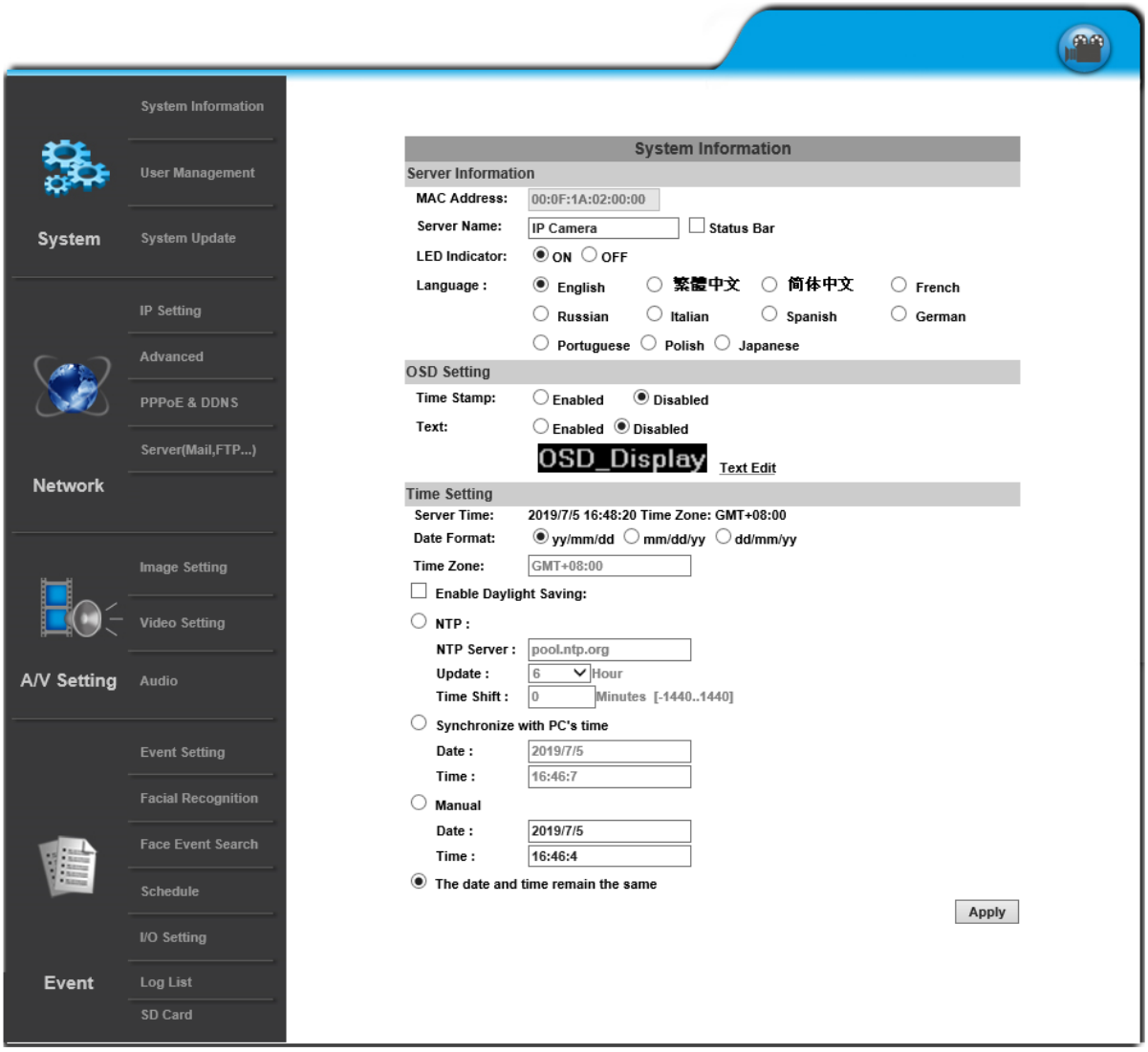
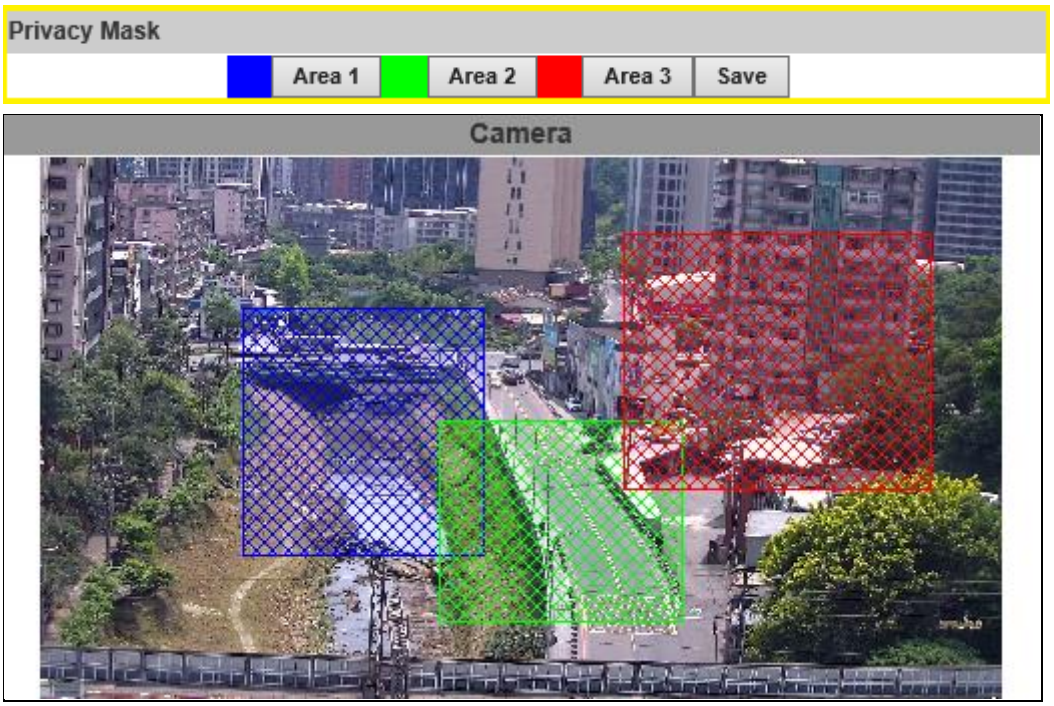


Image Setting

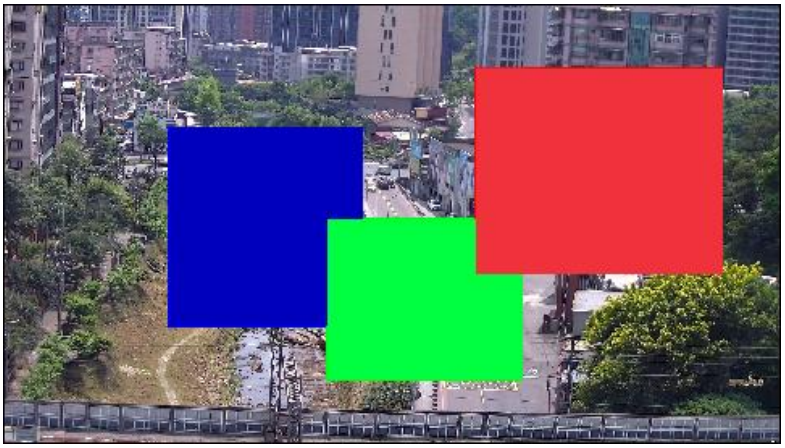
Camera

Previewing the result of the settings made in **Image Setting**.

Privacy Mask



An area on the monitoring screen can be masked as a block of particular color only in **live view** for security and privacy purposes, but will not be visible in the video recorded. You can create up to 3 privacy masks.



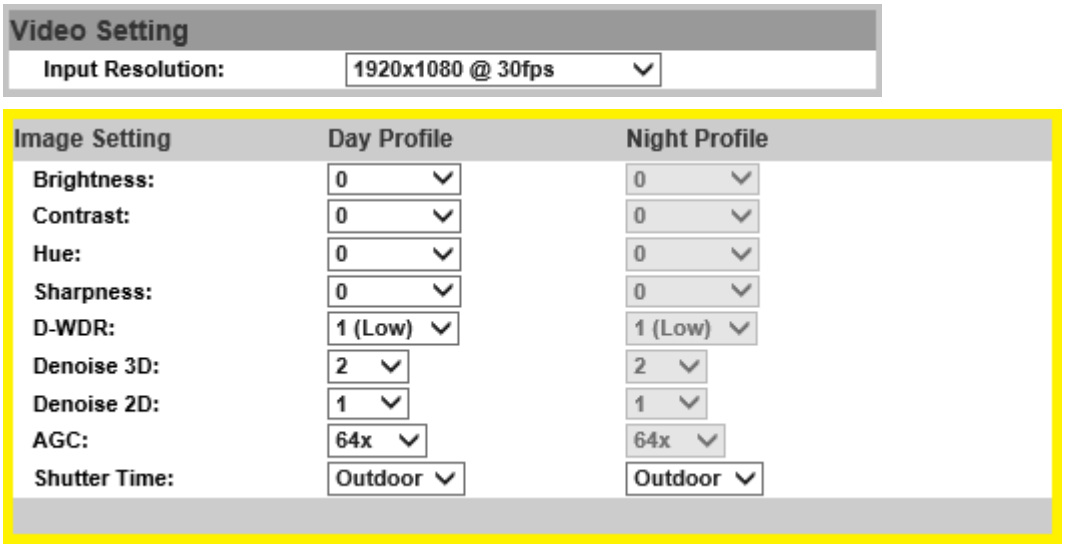
Click any **Area 1/2/3** button first, and then draw an area on the preview image screen with mouse.

Click **Save** to apply settings and create the mask.
Click **Area 1/2/3** button again, and click **Save** to discard the masked area previously set.

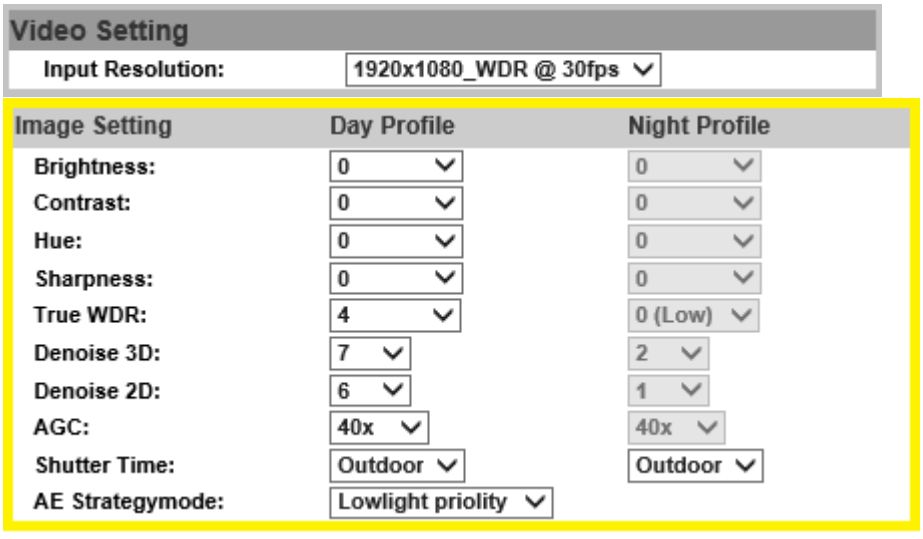
Image Setting

Settings can be adjusted under **Day Profile & Night Profile** drop-down lists. Activate these profile settings by enabling **Times Mode** from **Day & Night**, the configurations from **both Day & Night Profiles** will be automatically adjusted between daytime and nighttime.

There are two types of **Image Setting** to switch with depending on what **Input Resolution** from **Video Setting** you have applied to the camera.
Input Resolution without WDR feature:



Input Resolution with WDR feature:



- **Brightness / Contrast / Hue / Sharpness:** Different values are adjusted here.

- **D-WDR:** It enables the camera to reduce the contrast in the view to avoid dark zones as a result of over & under exposure.

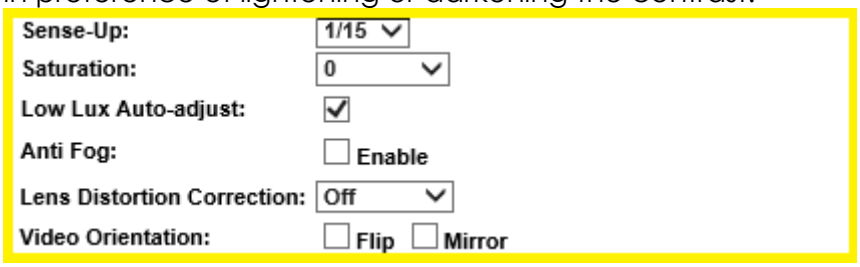
- **True-WDR:** It enables the camera to combine the over & under exposures to smooth out dark zones for best image quality.

- **Denoise 3D & 2D:** Filter the noise and blur from the image and show a clearer view. You can set the values for **3D & 2D** filters.

- **AGC:** The sensitivity of the camera can be adjusted according to its environmental lighting. Enable this function to get brighter images on low light, but the level of noise may also increase.

- **Shutter Time:** Choose the location of your camera or a fixed shutter time. The shorter the shutter time is the less light the camera receives and the image becomes darker. **Note:** When you select a number in **Shutter Time**, the shutter time will vary in a range and be controlled by camera automatically. The following table shows the shutter time options and corresponding range.

- **AE Strategymode:** Select **Lowlight Priority** or **Highlight Priority** to adjust the view in preference of lightening or darkening the contrast.



- **Sense-Up:** Increases the sensitivity of camera to get brighter image at night. The smaller value you select, the slower shutter speed becomes. So that the image will get brighter, and moving subjects might be blurred.

- **Saturation:** Adjust the saturation values here.

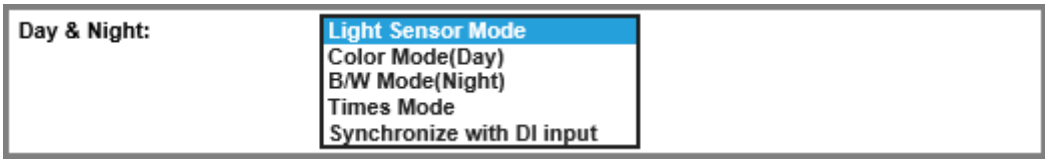
- **Low Lux Auto-adjust:** Click to enable the camera to adjust its low lux level automatically in different lighting environments.

- **Anti Fog:** Improve the image clarity on environments presenting high levels of fog or smoke.

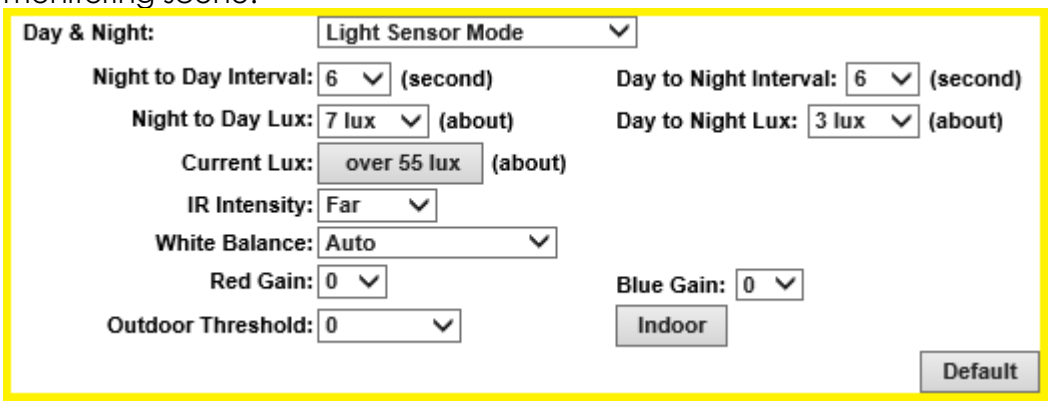
- **Lens Distortion Correction**: Straighten the curves in the borders of the image caused by the lens angles.

- **Video Orientation:** Flip or mirror the image.

- **Day & Night:** Select a mode from its drop-down menu and adjust the camera to detect the light level for different environments. Settings vary when modes are shifted. An extra sub-function may appear to be available after a setting is adjusted.



Light Sensor Mode: Automatically adjust itself depending on the light of the monitoring scene.



- **Night to Day Interval & Day to Night Interval:** Set up the duration of how long before the Day time shifts to Night time (or the other way around).

- **Day to Night Lux & Night to Day Lux:** Appoint desired lux values as a standard for switching Night to Day Interval & Day to Night Interval.

- **Current Lux:** Referenced to adjust the **Day to Night Lux** & **Night to Day Lux**.

- **IR Intensity:** Adjust the IR intensity level from Far, Middle or Near.

- **White Balance:** Apart from **AUTO**, which continuously adjusts image color balance according to any change of lightings in various scenes, the other 5 modes are designed for specific lighting conditions such as **Tungsten Lamp**, **Fluorescent Lamp**, **Sunlight**, **Cloudy**, and **Cloudy Days**.

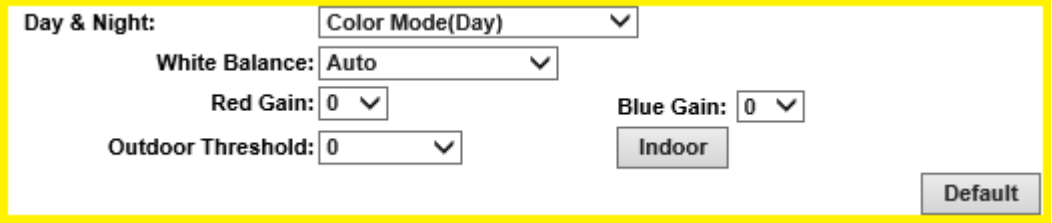
- **Red & Blue Gain:** Adjust levels in red & blue contrasts in the image. Be aware that when these levels are increased, the image quality will become sharper to a point that noise of the image will also be increased.

- **Outdoor Threshold:** Values applied for this feature will define how sensitive the motion detection is triggered for outdoor scenes. The lower the number, the less motion will be conditioned for triggering.

- **Indoor:** Click to enable operation for any indoor motion detections.

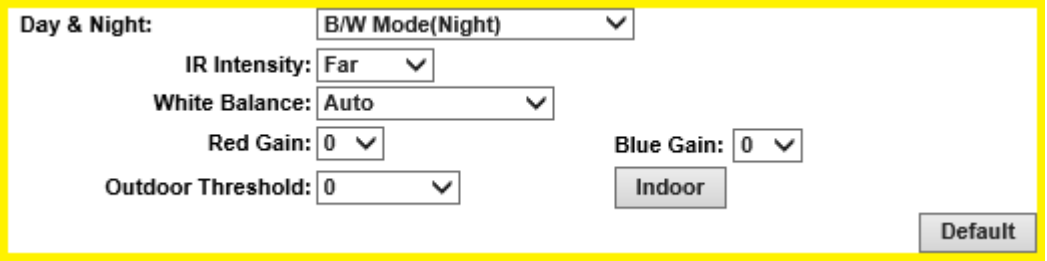
- **Default:** Click on Default button to restore the default settings.

Color Mode: Recommended to use for daytime.



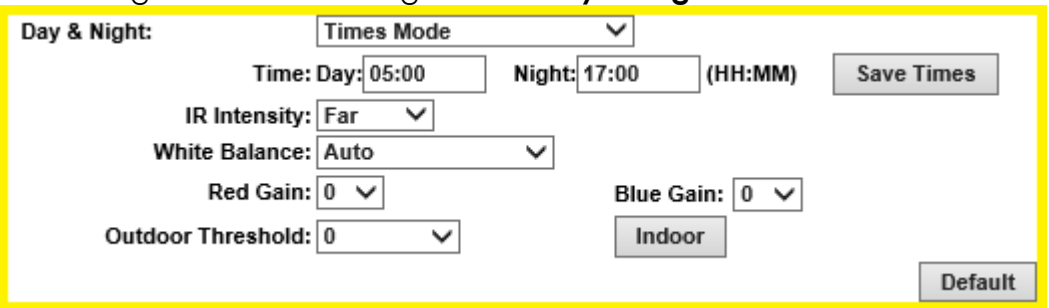
- Please refer to **Light Sensor Mode** for repeated functions.

B/W Mode: Recommended to use for nighttime.



- Please refer to **Light Sensor Mode** for repeated functions.

Times Mode: Set the values in **Brightness**, **Contrast**, **Sharpness**, and **Denoise(3D&2D)** for both **Day Profile** and **Night Profile** to be performed according to the **Time** arranged from **Day** to **Night**.



- **Time:** The user can define when the daytime (**Day**) starts by filling in the digits such as 05:00 or 12:35. (Hours range: 0~23, minutes range: 0~59) The example is as below:

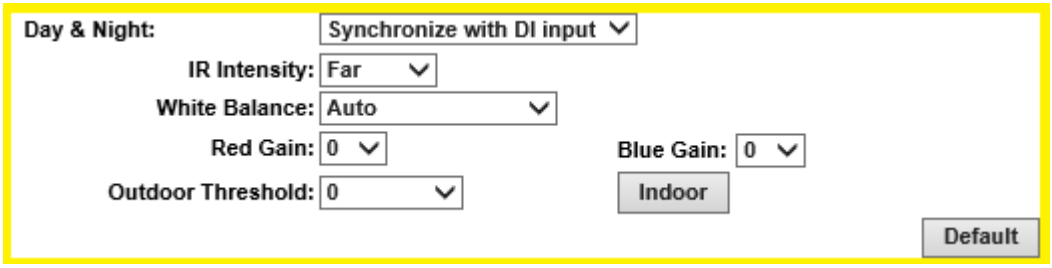
  Time: Day: 05:00 Night: 17:00 (HH:MM)

  If the time range is inaccurate, a window will pop up to remind you. Same way applies to filling the nighttime (**Night**).

  Click Save Times when settings are completed.

- Please refer to **Light Sensor Mode** for repeated functions.

Synchronize with DI input: Settings are adjusted according to the DI input functions.



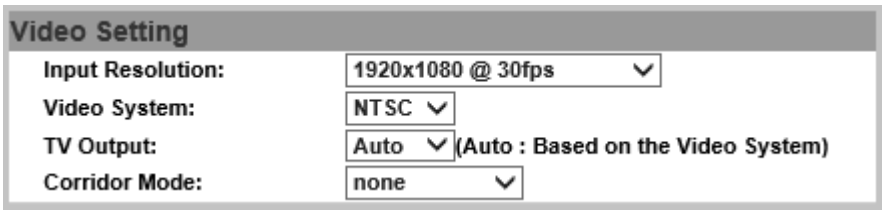
- Please refer to **Light Sensor Mode** for repeated functions.

Video Setting

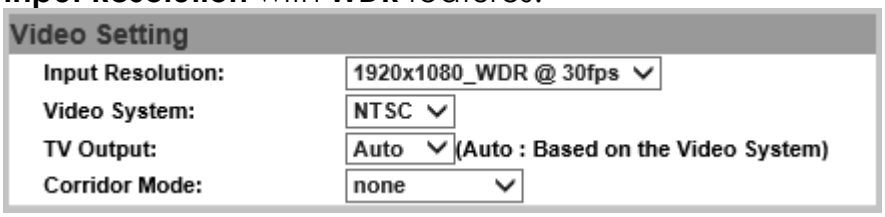
Video System

- **Input Resolution:** Click Apply to assign input resolution for captured video files. Features vary in FPS (frames-per-second) and will modify the options from **Image Setting**.

  Input Resolution without **WDR** features:



  Input Resolution with **WDR** features:

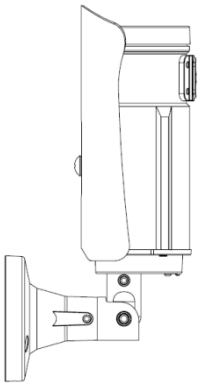
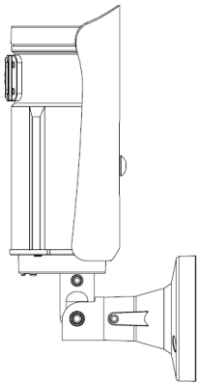


- **Video System:** Choose from **NTSC** or **PAL** for video signal.

- **TV Output:** Choose Auto or select between **NTSC** and **PAL** signal.

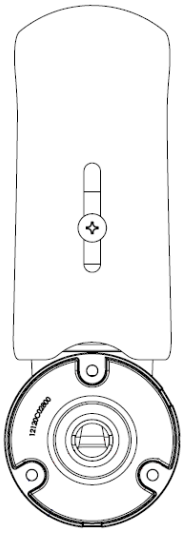
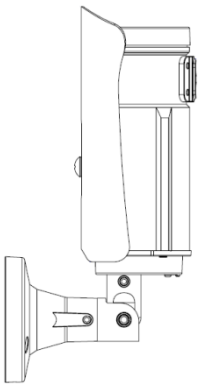
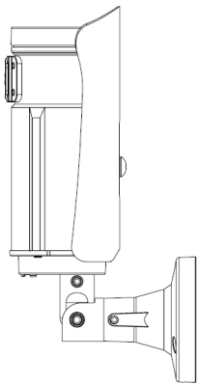
- **Corridor Mode:** 90 degrees, 270 degrees or none. If **Corridor Mode** is set as **none** the relation of the image and the camera would be as the following:

Corridor mode: None

Degrees	Position	Image
0 degrees		
90 degrees		
270 degrees		

If Corridor Mode is set as **90 degrees** or **270 degrees** the relation of the image and the camera would be as the following:

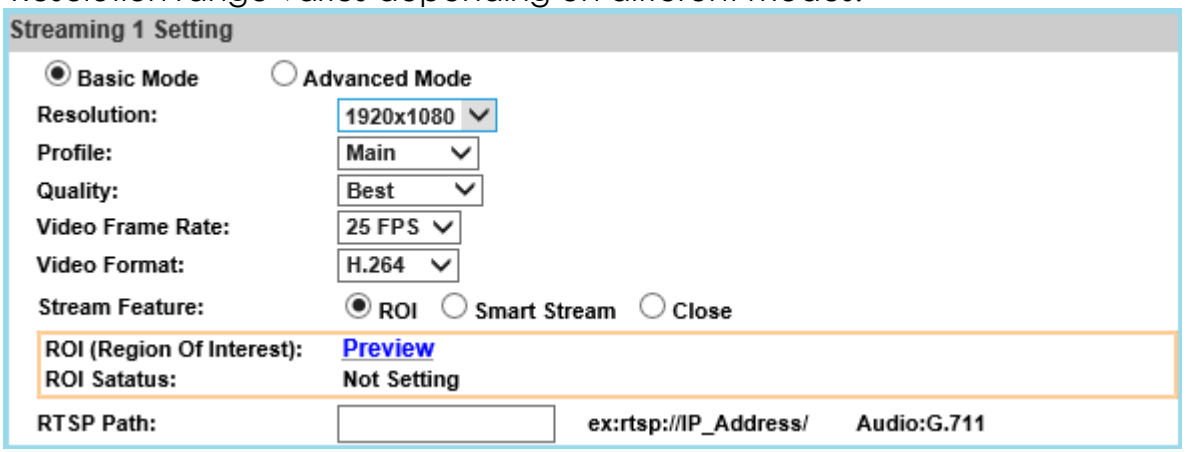
Corridor Mode: 90 or 270 degrees

Degrees	Position	Image
0 degrees		
		
90 degrees		
270 degrees		

Streaming Settings

1) Basic Mode

Resolution range varies depending on different modes.



- **Resolution**: Choose a set for the camera resolution from 1920x1080@30fps, 1280x720@30fps, 640x480@30fps, 320x240@30fps

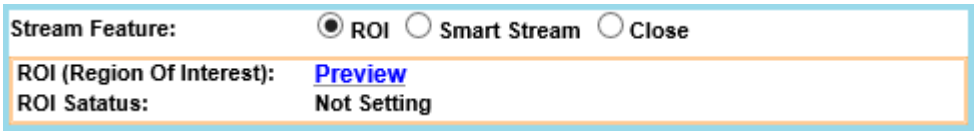
- **Profile**: Chose from Main or Baseline based on bandwidth consumption of the recorded video to be replayed for different applications.

- **Quality**: Levels vary from Best, High, Standard, Medium to Low. The higher the quality, the bigger the file size. Not ideal for internet transmission.

- **Video Frame Rate**: Adjust the video refreshing rate for each second.

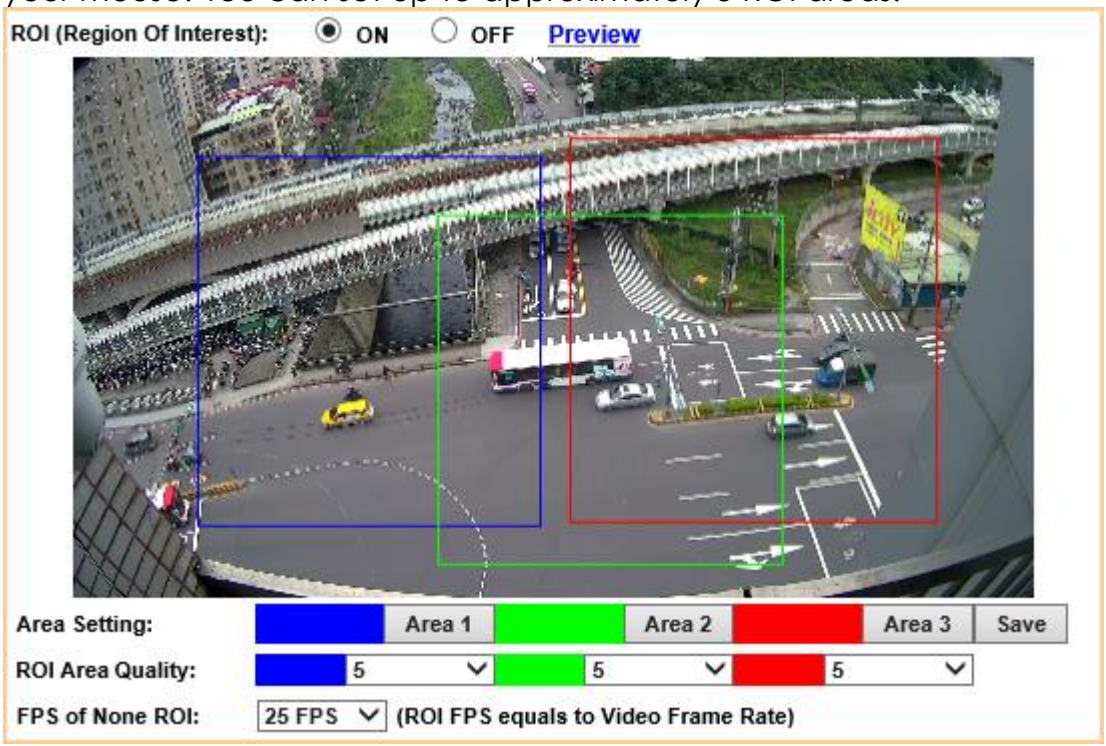
- **Video Format**: Select from H.264+, H.264 or JPEG

- **Stream Feature**: Select from the options for operating different features.
  Note: You MUST click Apply at the bottom after selecting the feature to enable either ROI or Smart Stream.



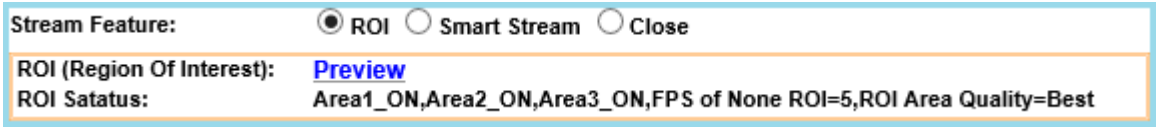
- **ROI (Region of Interest)**
  This function helps refine any specific part of the monitoring area which can be dragged out with the mouse at a time, improving efficiency in image observation and management in video compression rate.

Click **Preview** to enable ROI the function. Click on any of the colors in **Area Setting** to draw an ROI area on the preview screen by dragging your mouse. You can set up to approximately 3 ROI areas.

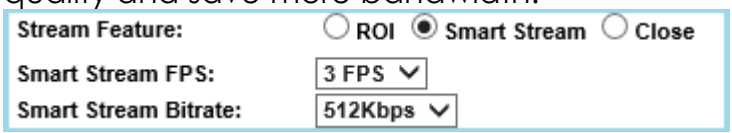


Adjust the **ROI Area Quality** and **FPS of None ROI** values of each area from each drop down list.

You can see the **ROI Status** once **ROI** is activated.



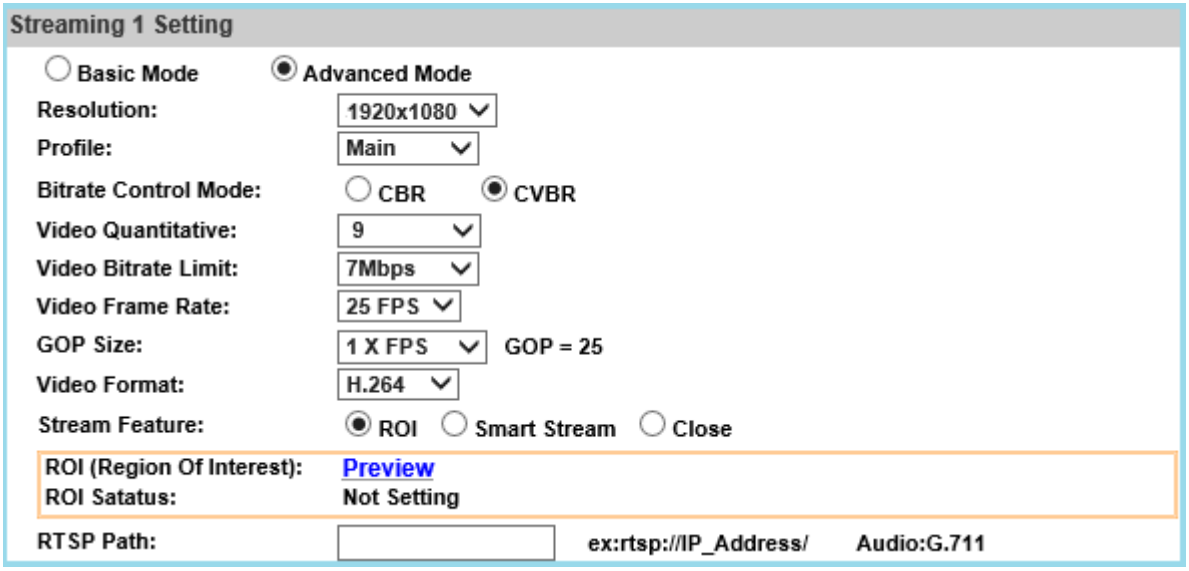
Smart Stream: Enable this mode, set the range of FPS and Bitrate to limit its stream capacity, in order to preserve a better performance of image quality and save more bandwidth.



- **RTSP Path:** Offers the RTSP output connecting path.

2) Advanced Mode

Resolution range varies depending on different modes.



- **Resolution**: Choose the resolution of the video image from 1920x1080@30fps, 1280x720@30fps, 640x480@30fps, 320x240@30fps

- **Profile**: Chose from Main or Baseline based on bandwidth consumption of the recorded video to be replayed for different applications.

- **Bitrate Control Mode**: There are **CBR**(Constant Bit Rate) and **CVBR**(Constrained Variable Bit Rate) modes.

  CBR: Video Bitrate Limit: (32Kbps~8Mbps)
  The higher the CBR is, the better the video quality is.

  CVBR: Video Quantitative: 1(Low) ~10(High)
  The higher the compression rate, the lower the picture quality is; vice versa.
  Avoid image breaking up or lagging by setting the bandwidth limit for CVBR streaming.

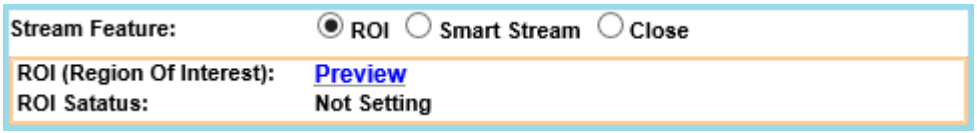
- **Video Frame Rate**: The video refreshing rate per second.

- **GOP Size**: It means "Group of Pictures". The higher the GOP is, the better the quality is.

- **Video Format**: Choose from H.264+, H.264 or JPEG

- **Stream Feature**: Select from the options for operating different features.

Note: You MUST click Apply at the bottom after selecting the feature to enable either ROI or Smart Stream.

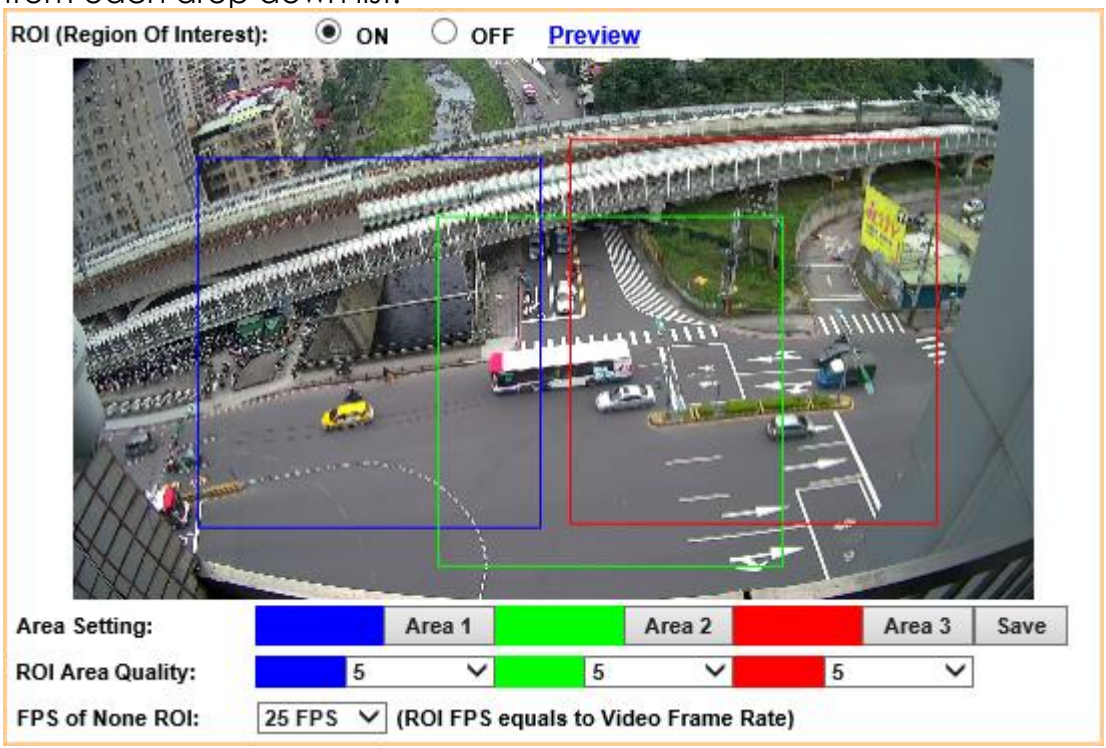


ROI (Region of Interest)

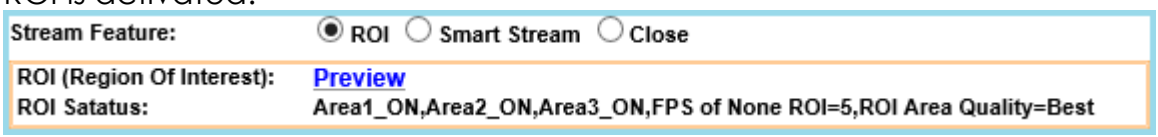
This function helps refine any specific part of the monitoring area which can be dragged out with the mouse at a time, improving efficiency in image observation and management in video compression rate.

Click **Preview** to enable ROI the function. Click on any of the colors in Area Setting to draw an ROI area on the preview screen by dragging your mouse. You can set up to approximately 3 ROI areas.

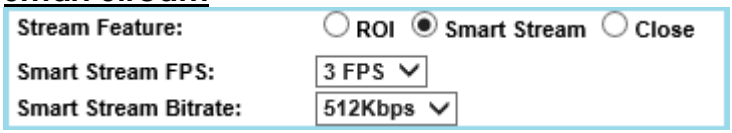
Adjust the ROI Area Quality and FPS of None ROI values of each area from each drop down list.



After the ROI is set in the Stream Feature, you can see the ROI Status once ROI is activated.



Smart Stream

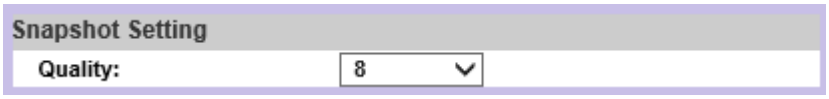


Enable this mode, set the range of FPS and Bitrate to limit its stream capacity, in order to preserve a better performance of image quality and save more bandwidth.

- **RTSP Path**: Offers the RTSP output connecting path.

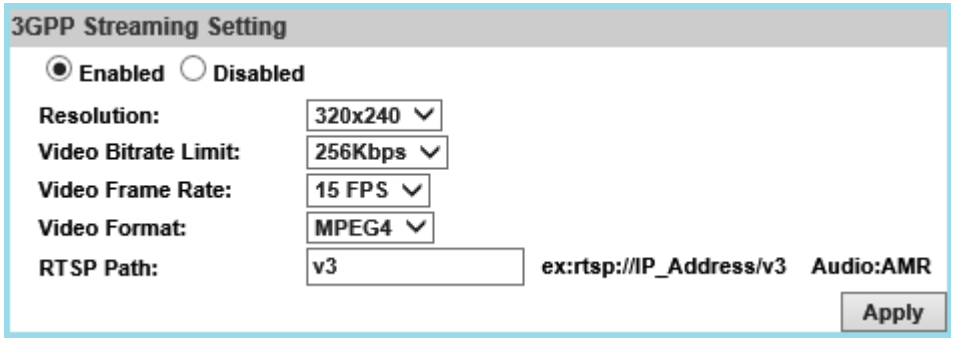
Snapshot Setting

Select the image quality from 1(Low) ~10(High).



3GPP Streaming Setting

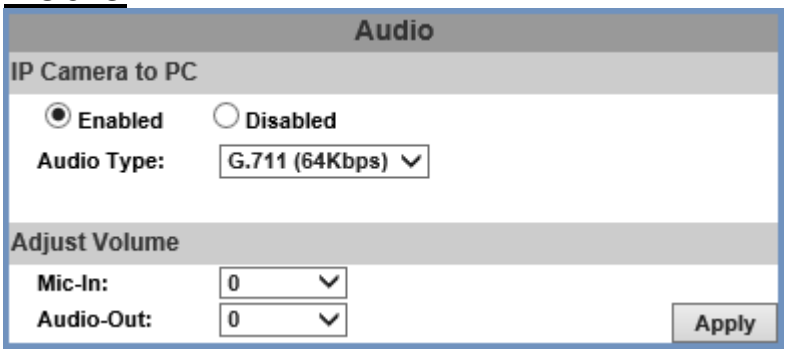
TV output will be shut down during this mode.



- **Resolution:** 640x480@15fps, 320x240@15fps
- **Video Bitrate:** The higher Video Bitrate, the better the video quality is.
- **Video Frame Rate:** The video refreshing rate per second.
- **Video Format:** H.264+, H.264
- **RTSP Path:** Offers the RTSP output connecting path.

Please click on the Apply button to keep the changes when all the settings are completed and confirmed.

Audio

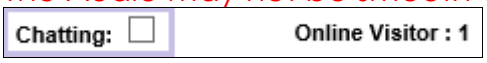


The user can send audio from the IP Camera built-in microphone to the remote PC and audio from remote PC to IP Camera's external speaker.

IP Camera to PC

Select **Enabled** to start and select the audio type. Tick **chatting** in the live browser to enable **PC to IP Camera** audio function.

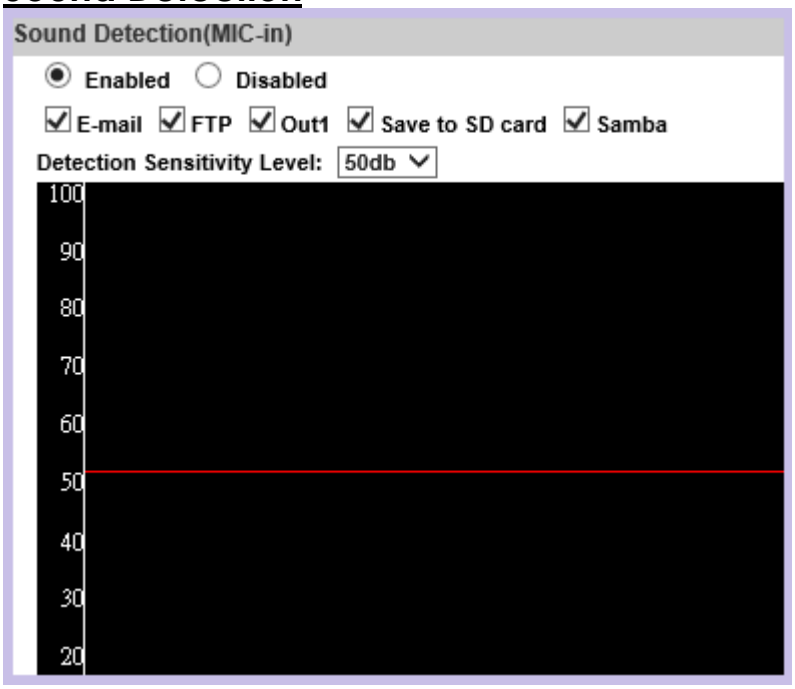
The Audio may not be smooth when the SD card is recording.



Adjust Volume

Select the volume of both **Mic-in** & **Audio-out**. Click on the **Apply** button to keep all the changes.

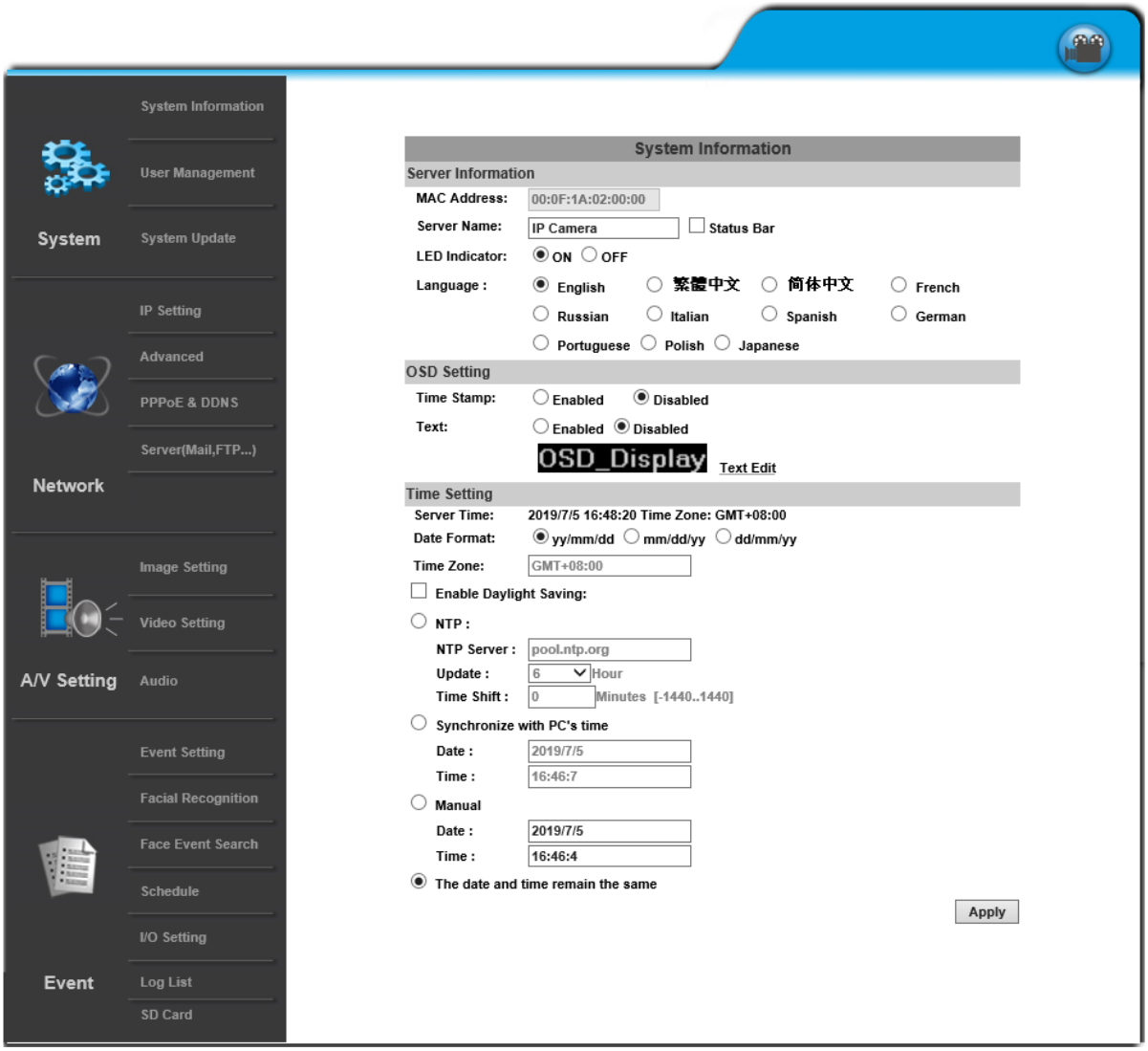
Sound Detection



Test the audio volume and sound quality first by selecting **Enabled**. Tick the output destination of the audio file recorded. Adjust the **Detection Sensitivity Leve**l from 40~90db to display the audio frequency level in the analytical graph below.

IV. Event List

Click  to get into the administration page. Click  to go back to the live video page.



The IP Camera provides multiple event settings.

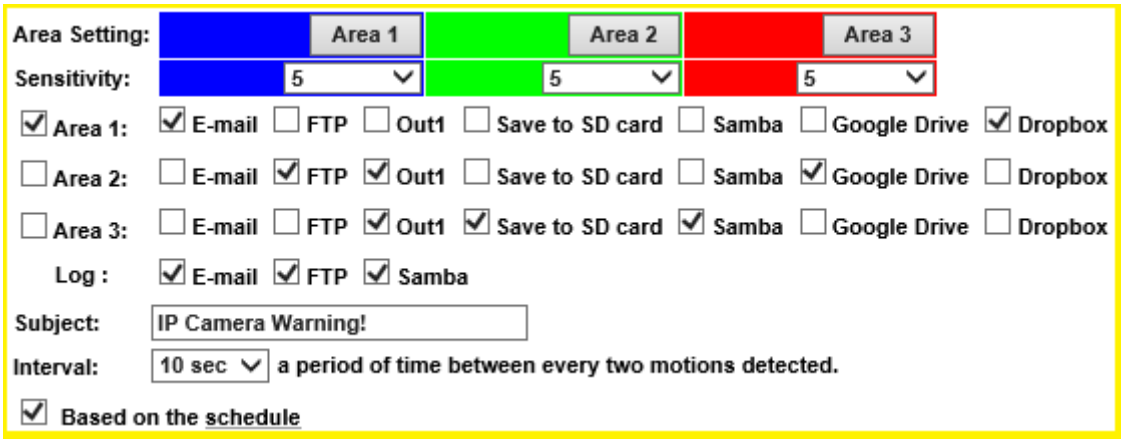
Event Setting

Please change default password is a sign which appears on the preview screen as a reminder, to suggest you change login settings in **System** to secure your account privacy.

Motion Detection

A motion detection operation allows user to define a certain area which detects anything moving or changing its position within. It helps user to target on details inside a smaller picture, and effectively identify various surroundings of the monitored environment.

Whenever a motion is detected inside the framed area, the word Motion will appear on live screen and the data of notification can be sent to assigned directory for remote user.



- **Area Setting:** Click any of the 

icons to start drawing 3 areas on the preview screen with your mouse in 3 different colors. Click any **Area** icon again to discard the motion area which has been made.

- **Sensitivity:** Adjust the level of the responsiveness defined as motion detection. The higher number assigned, the more sensitive, vice versa.

- **Area 1/2/3:** Data of events triggered within the motion area can be assigned by marking the checkboxes of the source and destination. For example, if you mark the **Save to SD card** checkbox from **Area 3**, the video or snapshot triggered in **Area 3** motion area will be saved to the **Micro SD card**.

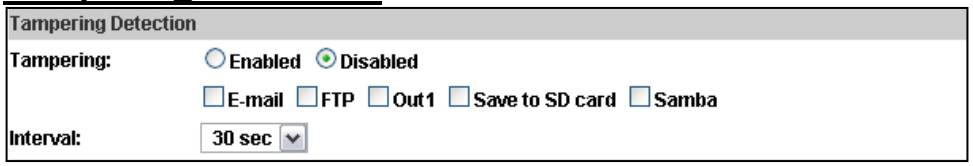
- **Log:** Popped up after **Save to SD card** checkbox is ticked by your mouse. Check **E-mail/ FTP/ Samba** checkboxes on the **Log** option to send the motion detection log to **E-mail/ FTP/ Samba** simultaneously.

- **Subject**: Type in the message you would receive when motion is detected. The default message is **"IP Camera Warning!**".

- **Interval**: For example, when selecting **10 sec**, once the motion is detected and the action is triggered, it cannot be triggered again within 10 seconds.

- **Based on the schedule**: Assign the timetable managed from **Schedule** to enable motion detection after the option checkbox is ticked.

Tampering Detection



When the camera view is covered, moved, hit by strong light, or out of focus, the tampering detection will be triggered, and send snapshot to mail/FTP/Samba/SD card, or trigger the external alarm. For example:

Before Tampering Detection

Tampering Triggered (Defocused)

Before Tampering Detection

Tampering Triggered (Lens Covered)

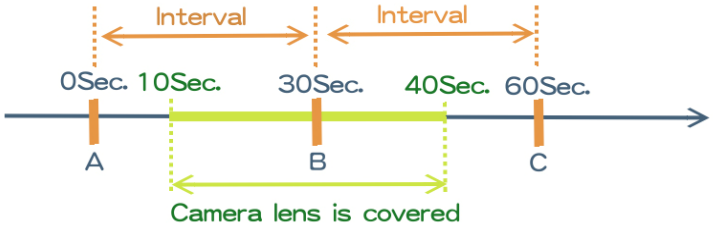
Before Tampering Detection

Tampering Triggered (Glare)

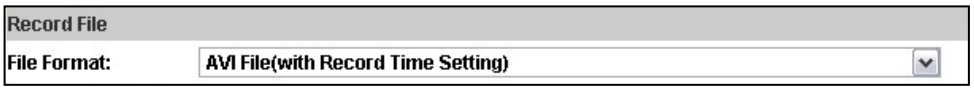
Before Tampering Detection

Tampering Triggered (Camera Moved)

- **Interval:** The tampering detecting interval. Take the diagram below as example. The interval is set for 30 second; the camera lens is covered during 10 - 40 sec. At time point B, the camera compares the view with time point A, and sends an alarm when it founds that the lens is covered. At time point C, the camera compares the view with time point B, and sends an alarm when it founds that the lens is uncovered.



Record File



When an event occurs, the camera will record a video clip or take snapshot, and then send to mail/ FTP/ Samba. Select the file format to be saved.

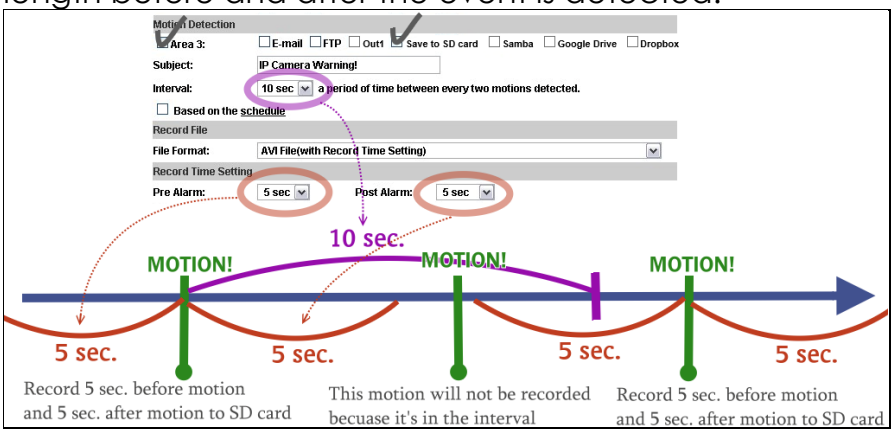
- **AVI File (with Record Time Setting):** Save AVI video file. The video length is according to the value set in Record Time Setting.

- **JPEG Files (with Record Time Setting)*Only Streaming 1 with JPEG file format.:** Only when selecting "JPEG" in streaming 1 video format of Video Setting, this option can be enabled. Select this option to save several JPEG picture files. The successive picture files cover a period of time according to the value set in Record Time Setting.

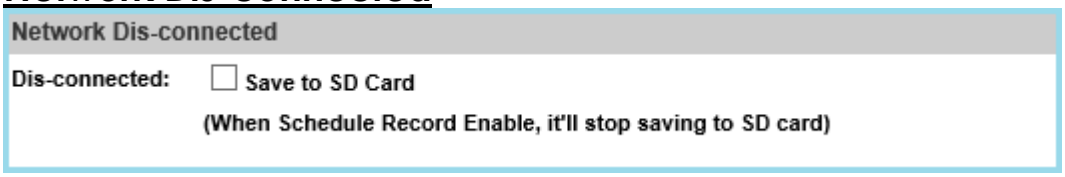
- **JPEG File (Single File with Interval Setting):** Save single JPEG picture file when the event occurs.

Record Time Setting

When an event occurs, the IP camera can record a video clip or take a snapshot, and then send it via mail/ FTP/ Samba. Select the video recording length before and after the event is detected.

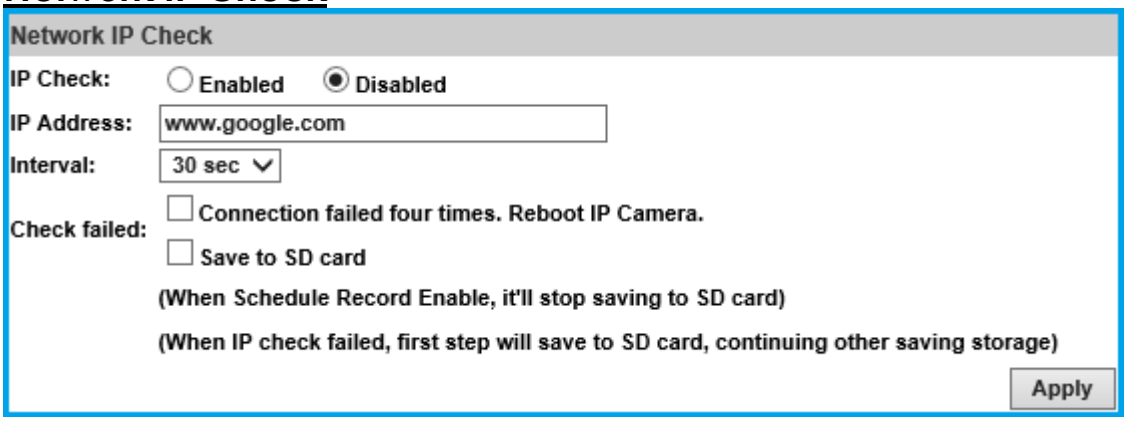


Network Dis-connected



The image will be recorded to the SD card after the IP Camera detects network disconnection once "**Save to SD card**" is ticked.

Network IP Check

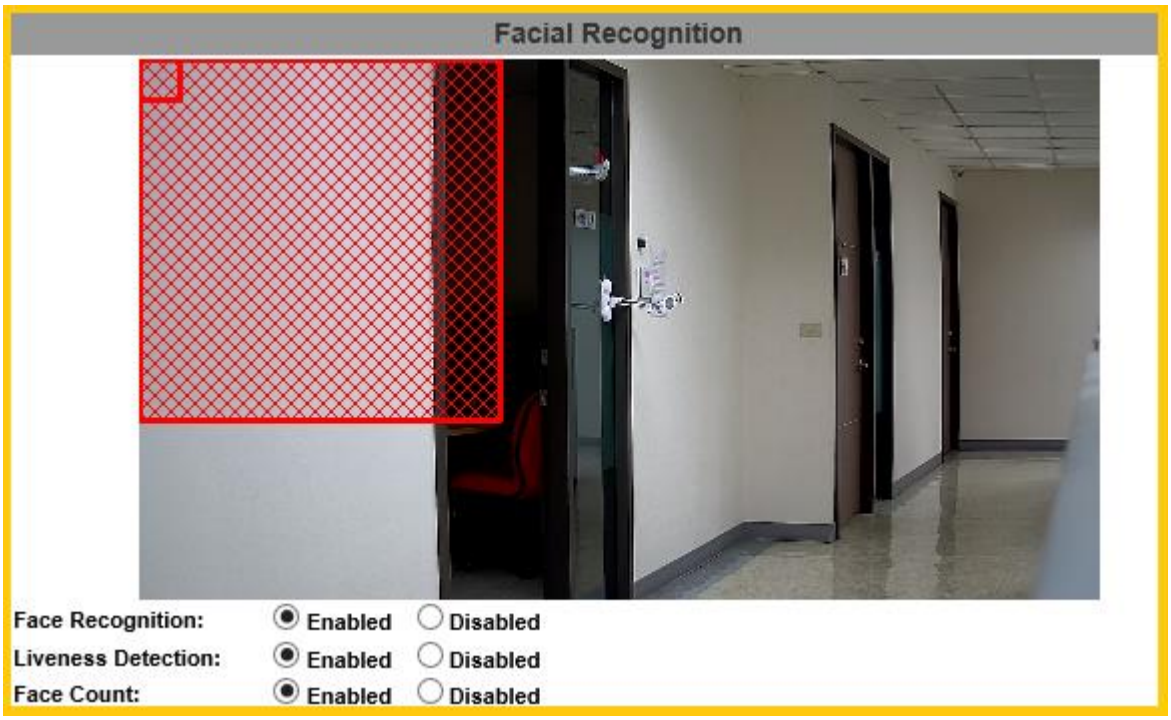


After enabling IP Check, the IP camera can check if the network server is connecting. If the checking fails for 4 times, the camera will reboot.

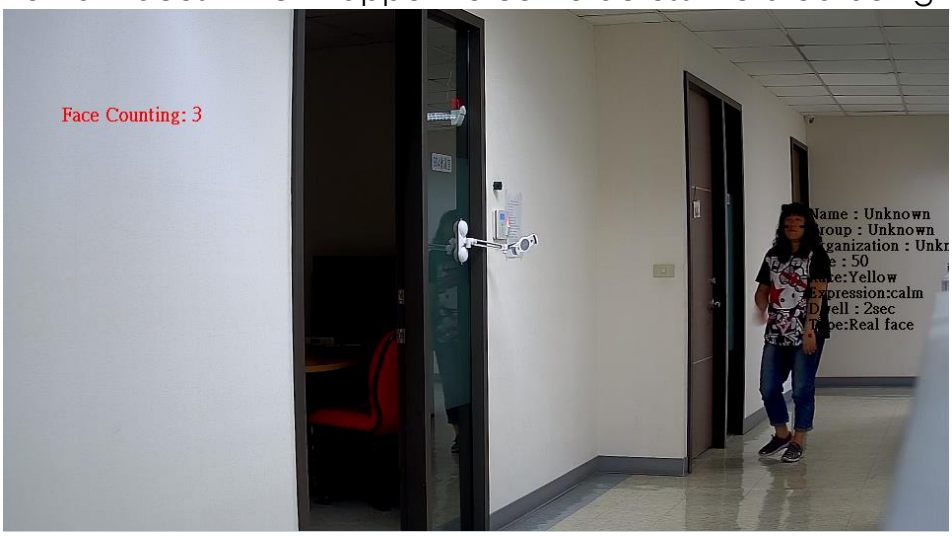
Click Apply to update all the settings adjusted.

Facial Recognition

Select **Enabled** to display and allow the **Face Recognition** & **Liveness Detection** & **Face Count** operations to work.



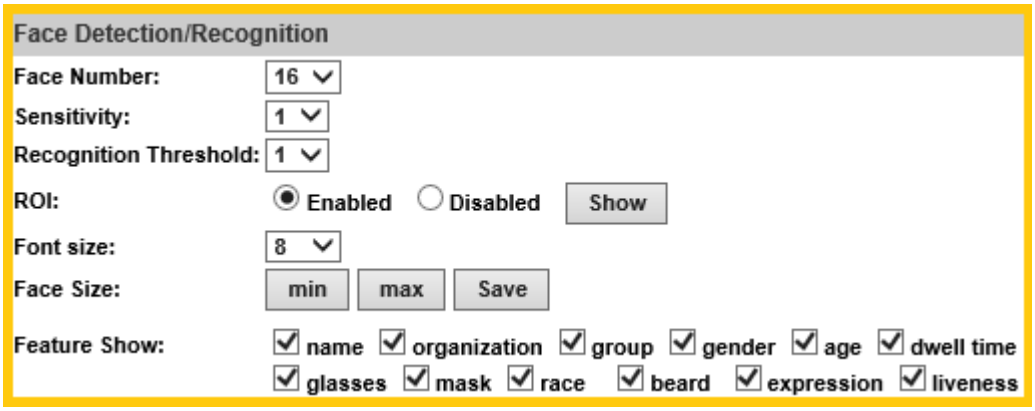
Face Recognition and **Liveness Detection** detect, define, and distinguish human faces which happen to come across the area being monitored.



To edit the category being displayed on live screen, please see **Face Detection/Recognition** & **Face Database Edit** for more reference.

Face Count operation calculates every human face detected and displays the number of total on live screen.

Face Detection/Recognition



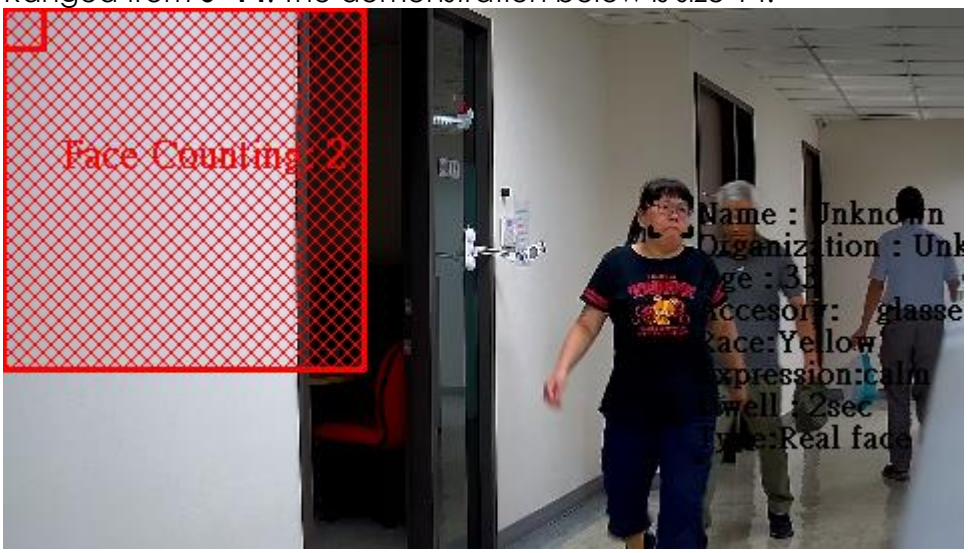
- **Face Number:** Click the drop-down list to select the number for detecting the recognized human faces. The maximum is up to 16.

- **Sensitivity:** Click the drop-down list to assign the sensitivity level for Face Detection. Increasing sensitivity level reduces false reports, and lowering sensitivity level increases false reports.

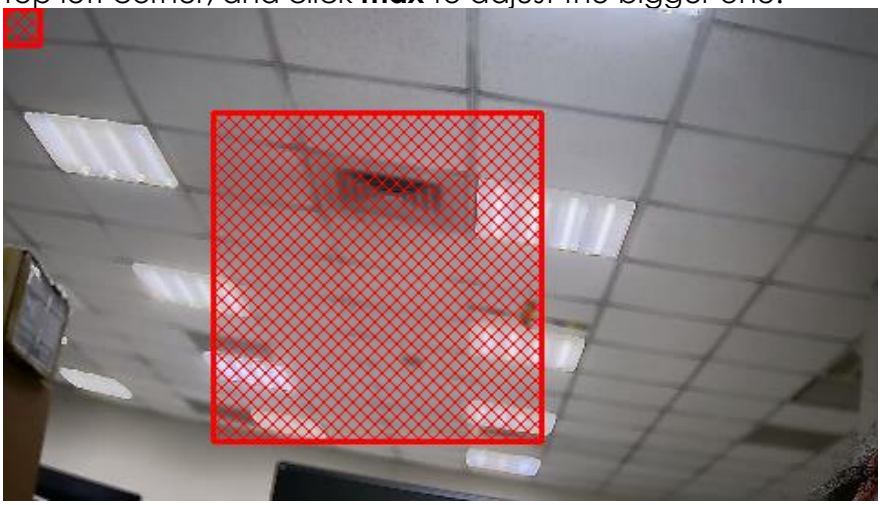
- **Recognition Threshold:** An integrated result of authentication, verification and identification is specified through appropriate threshold parameter. The higher threshold, the less critical of the recognition approval, vice versa. Even so, user can still reduce effort and time that may otherwise cost, and rely on common sense to review the search results assisted by applying this function.

- **ROI:** Click **Show** to activate **ROI** frame. It helps refine a specific portion of the monitored area which can be created by drawing on the screen with mouse. It enhances efficiency in observing & gathering face data. Mark **Enabled** to start.

- **Font Size:** Select the font size of the texts displayed in **Facial Recognition** screen. Ranged from **6~14**. The demonstration below is size 14.



- **Face Size:** There are two squares  you can adjust or move around on the **Facial Recognition** preview screen. Click **min** to adjust the smaller square on the top left corner, and click **max** to adjust the bigger one.



The squares are purposed as size references for the live video screen when it comes to defining the effective area of a human face. You can also reposition them anywhere on the screen to help you estimate the valid range between the lens and the human face. Click **Save** to apply the adjustment.

- **Feature Show:** Click each checkbox for the assigned information to be visibly displayed on live screen. The camera will start analysing the human face detected and display information such as **name**, **organization**, **group**, **gender**, **age**, **dwell time**, **glasses**, **mask**, **race**, **beard**, **expression** and **liveness**.

- **name, organization, group:** The human face detected will have its personal **Name**, **Organization** name, or **Group** name displayed based on its face profile which has been registered in the face profile database once the match is found.

- **gender, age, race:** The human face detected will have its **Gender, Age** or **Race** displayed based on its face structure and features.

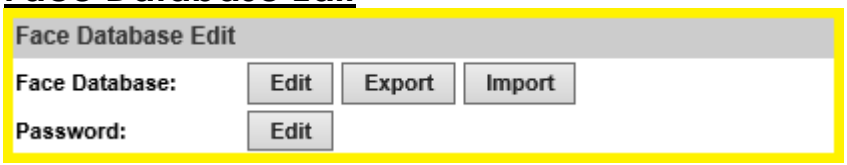
- **dwell time:** The human face detected will have its **dwell time** displayed in **sec**ond(s) based on how long the face stays on screen.

- **glasses, mask, beard:** The human face detected will have the word **Glasses** or **Mask** or **Beard** displayed if the person has glasses on.

- **expression:** The human face detected will have words displayed from **Angry, Calm, Disgust, Happy, Sad, Scared, Surprised, Confused, Squint**, or **Scream** displayed based on its facial expression and features.

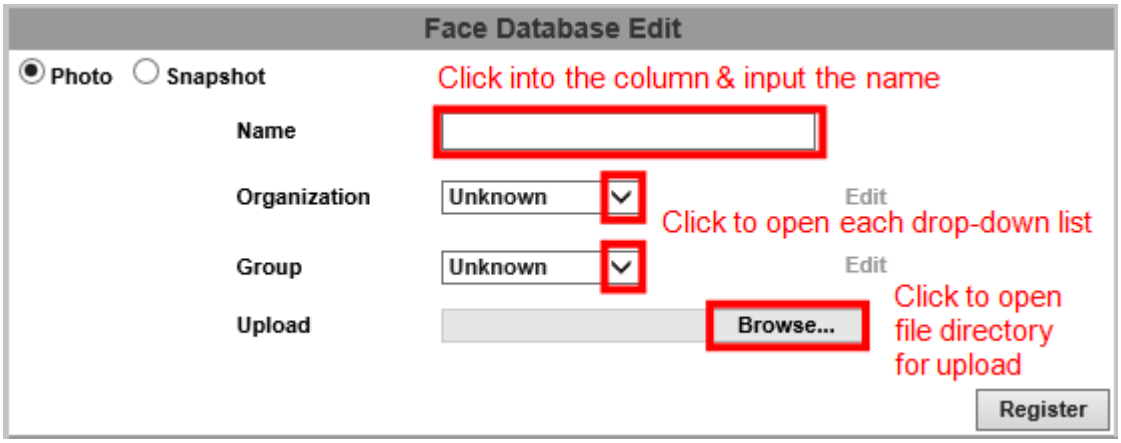
- **liveness:** The function will be available once the **Liveness Detection** from **Facial Recognition** menu is **enabled**. The system will analyse the human face in aspects of whether it is a face of a real person, a moving photograph, or just a life-like statue and display the identity subjected as **Type**.

Face Database Edit

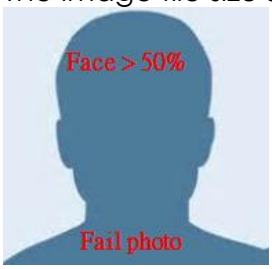


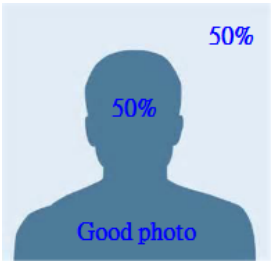
- **Face Database:** A face database allows user to collect and register face as data kept for extended management. Click **Edit** to open a **Face Database** window. You can either use an uploaded **Photo**, or take a **Snapshot** from live view to create a face profile.

✧ **Photo Registration:** To create a face profile using a real **Photo**, please follow these standards below.

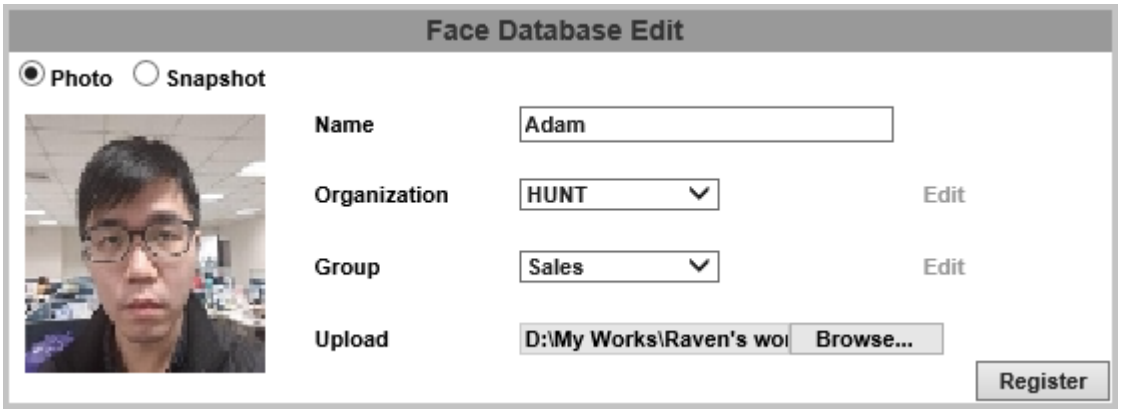


Keep the face in reasonable proportion as 50% face / 50% background.
Photo sizes range from 80x80 ~ 1280x720 pixel, 150x150 is recommended.
The image file size should not exceed 1mb.



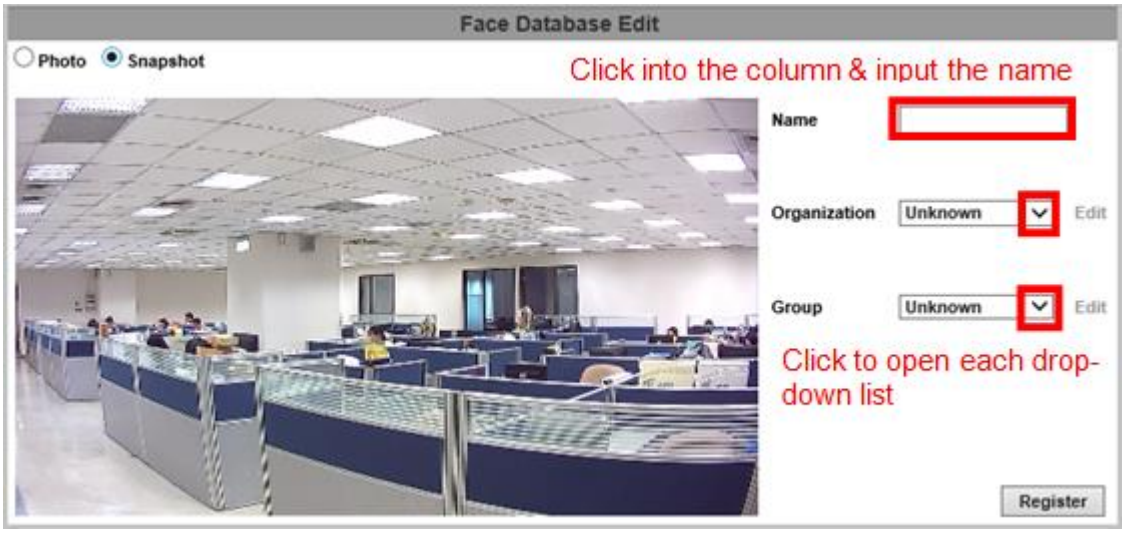


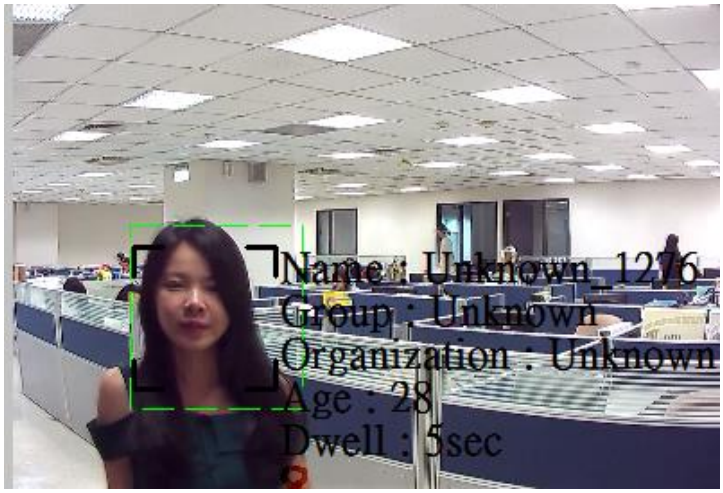
Once you have assigned the directory of where the face image file is kept, there will be a preview of your face image appearing on the left.



Click Register. A message window will then pop up. Click OK.
A confirmation message will pop up when the upload is complete.

✧ **Snapshot Registration:** To use a **Snapshot** to create a face profile, please follow these standards below.





- The person's face should be within the green frame for taking a clear shot.
- The person needs to be at where the black frame can detect the green frame.
- The black frame should not be smaller than the green frame.

- Once the face is detected and ready for snapshot, click Register to proceed.
- If the registration is successful, the same face detected will be displayed with all the information registered before.

- **Registration standard:** Phots and snapshots are required to be visibly clear and featured with the whole face from forehead to chin. Any coverage of the eyes, lips, or even overgrown facial hair will not be eligible for face data entry.

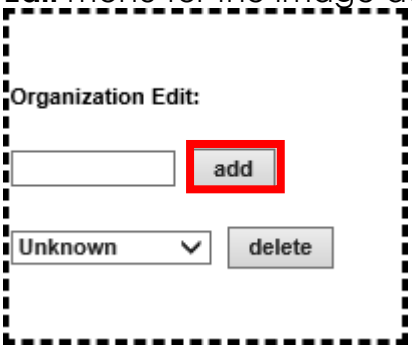


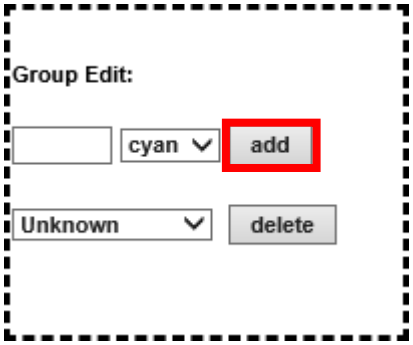
- **Camera placement:** To capture a human face properly, it is essential to have the camera placed at a proper position to aim at the subject being taken in.

View angle of camera: High-angle at 15°
Mounting height: 2~4.5M & Detection range: 2~10M
The light source for camera placement should be at least in 150 lux.

Avoid mounting the camera at places where the light behind the person is much brighter than the frontal light on the person.

- **Editing registered entries:** Click **Edit** to open **Organization Edi**t and **Group Edit** menu for the image data.

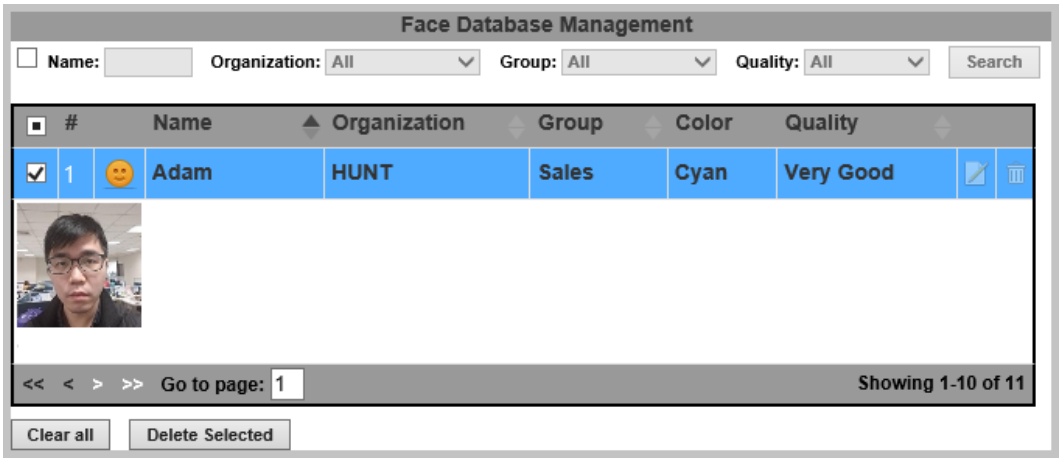




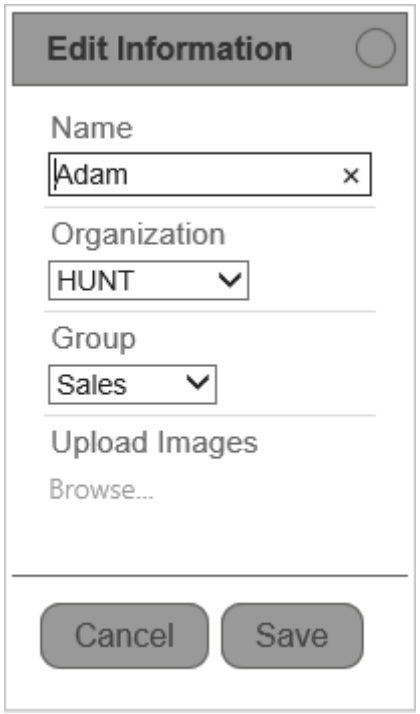
There are 10 colours in total to choose from.
Click add to create a new category for **Organization/Group** after you input the title names. Please also assign a display colour for your **Group**.

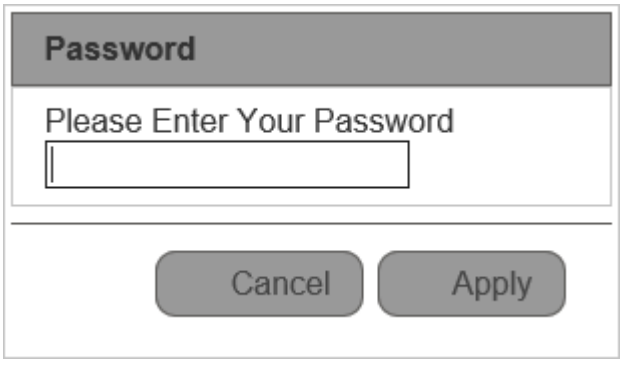
You can remove any existing category by clicking delete on its title of the drop-down list is selected.

Now your face profile has been created in the database.
Click anywhere on the list will have the face profile selected and highlighted.
Click to view the thumbnail of the face profile.



Click to open the edit window. Click to delete this face profile.

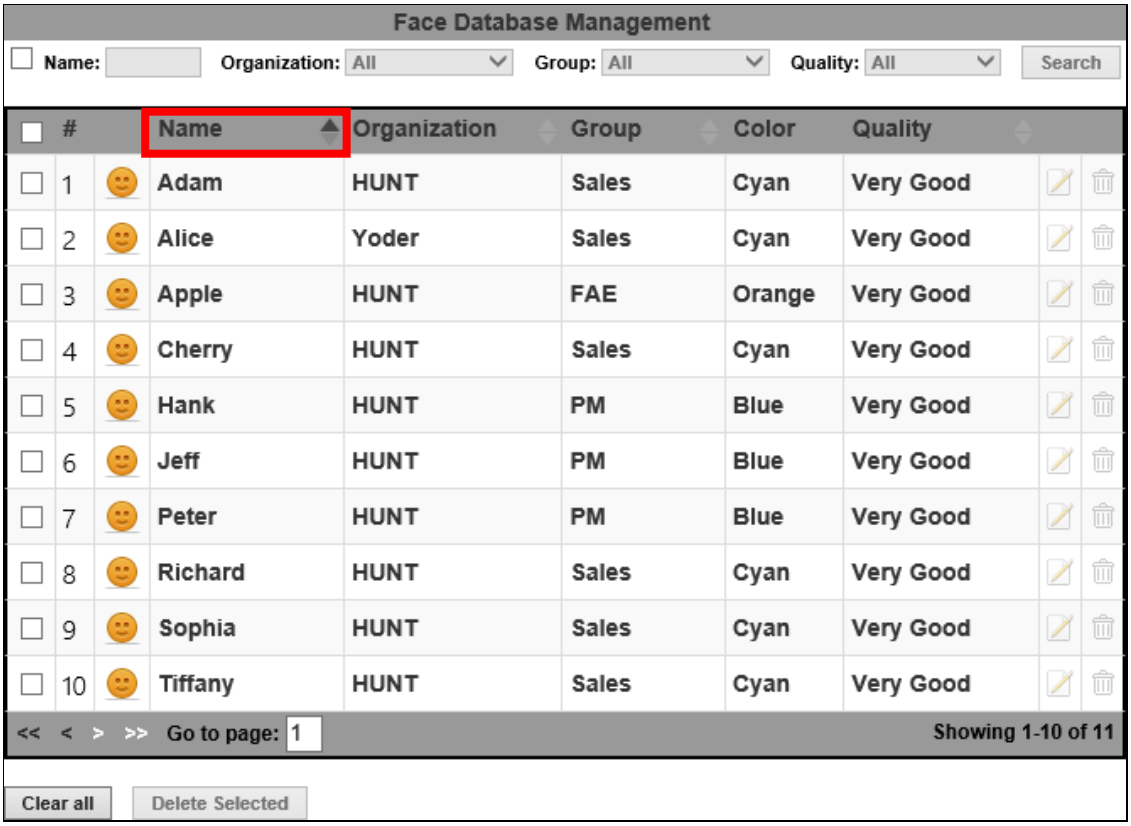




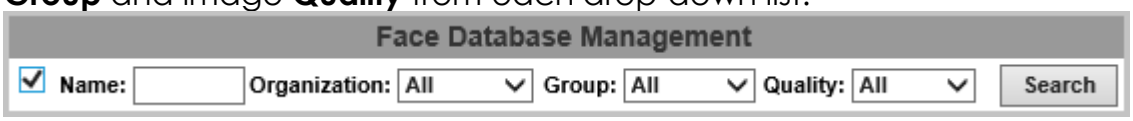
You will have to enter the Password to delete a face profile. See the later chapter **Password** to find out more.

You can always revise the face profile by going back to the **Face Database Edit** menu as below.
Click **Export** to back up the current face data in a particular directory. Or click **Import** to load the face data from a particular directory

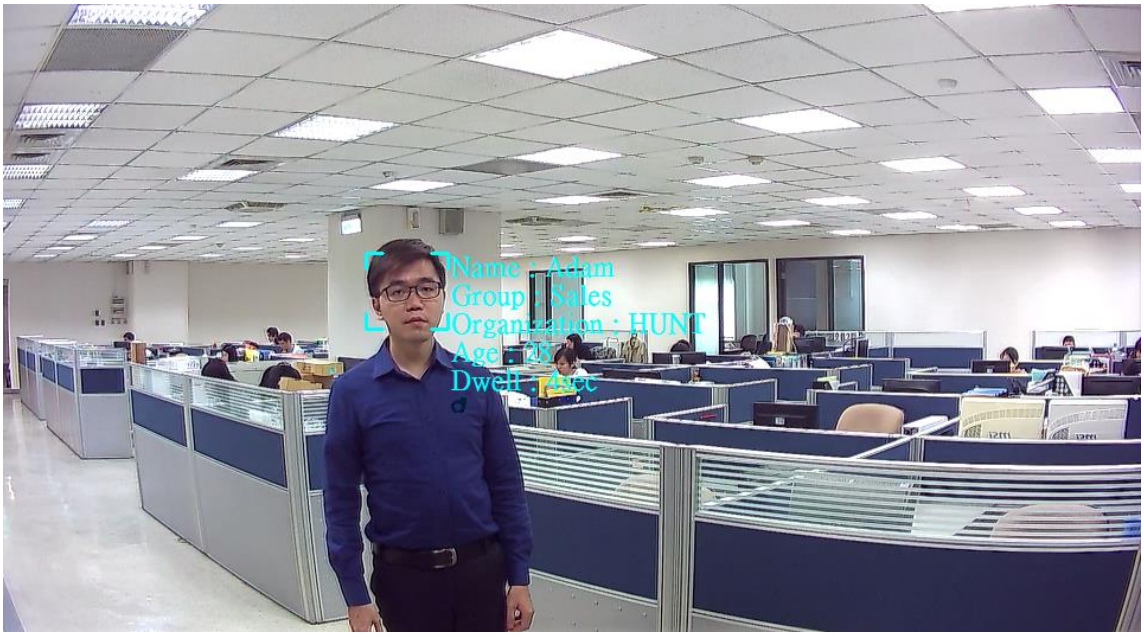
You can arrange the list in specific order by clicking on specific title. For example, clicking on **Name** will have the list rearranging people's names from A~Z.



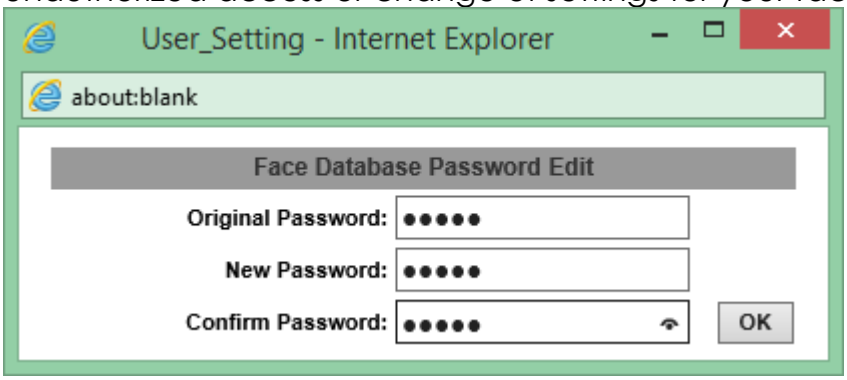
Enable **Search** operation by clicking on the checkbox on the very left of the top corner, and find the face profile by selecting any specific **Organization**, **Group** and image **Quality** from each drop-down list.



When the face profile has finally been set up successfully, the system will be able to identify this person according to his features whenever he appears within the face detecting range.
The **Name, Group, Organization, Age** of the person are displayed.
The **Dwell** time for how long the person stays on screen are also displayed.
The text color helps user quickly distinguish what group the person belongs to.



- **Password:** Secure your face database with password to forbid unauthorized access or change of settings for your face database.



Click **Edit** to open the window for setting up your password.
Enter the **Original Password** for setting up the first time registration.
Enter **New Password** to replace the **Original Password** setting.
Enter **Confirm Password** to keep the latest password setting.

Group Setting

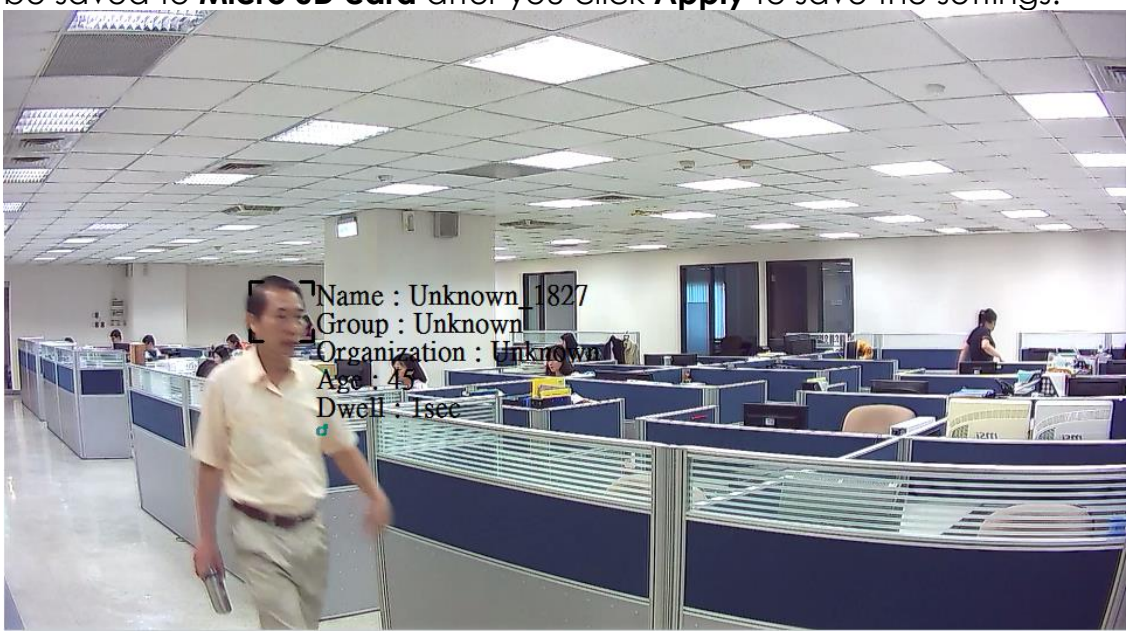
Click **Enabled** to begin. Select the **File Format** you wish to keep for notification, and select the **Event Interval** for every time a human face gets detected.

Group		Trigger Condition	Event Trigger
Unknown		☐ Male ☐ Female ☐ age 0 ~ 0 ☑ real face ☐ spoofed face ☐ yellow ☐ black ☐ white ☐ angry ☐ happy ☐ sad ☐ calm ☐ surprised ☐ glasses ☐ sunglasses ☐ bread ☐ mask	☐ E-mail ☐ FTP ☐ SD card ☐ Push Video ☐ Google Drive ☐ Dropbox ☐ Samba ☐ DO1
BlackList		☐ Male ☐ Female ☐ age 0 ~ 0 ☑ real face ☐ spoofed face ☐ yellow ☐ black ☐ white ☐ angry ☐ happy ☐ sad ☐ calm ☐ surprised ☐ glasses ☐ sunglasses ☐ bread ☐ mask	☐ E-mail ☐ FTP ☐ SD card ☐ Push Video ☐ Google Drive ☐ Dropbox ☐ Samba ☐ DO1
WhiteList		☐ Male ☐ Female ☐ age 0 ~ 0 ☑ real face ☐ spoofed face ☐ yellow ☐ black ☐ white ☐ angry ☐ happy ☐ sad ☐ calm ☐ surprised ☐ glasses ☐ sunglasses ☐ bread ☐ mask	☐ E-mail ☐ FTP ☐ SD card ☐ Push Video ☐ Google Drive ☐ Dropbox ☐ Samba ☐ DO1

Mark the checkboxes of **Trigger Condition** & **Event Trigge**r for where the notification is sent. You can make 10 variations of event groups, which are defined in 10 colors. In this case below, the unknown is an event **Group**, defined in black color.

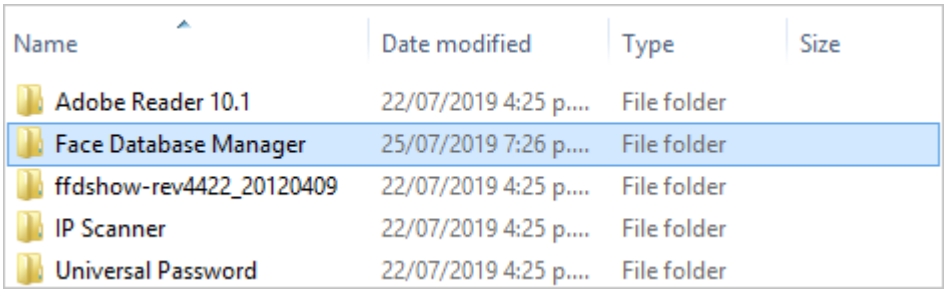
Group		Trigger Condition	Event Trigger
Unknown		☑ Male ☐ Female ☑ age 0 ~ 0 ☐ real face ☐ spoofed face ☐ yellow ☐ black ☐ white ☐ angry ☐ happy ☐ sad ☐ calm ☐ surprised ☐ glasses ☐ sunglasses ☐ bread ☐ mask	☐ E-mail ☐ FTP ☐ SD card ☐ Push Video ☐ Google Drive ☐ Dropbox ☐ Samba ☐ DO1

Now whenever the event is triggered, the video captured in AVI format will be saved to **Micro SD card** after you click **Apply** to save the settings.

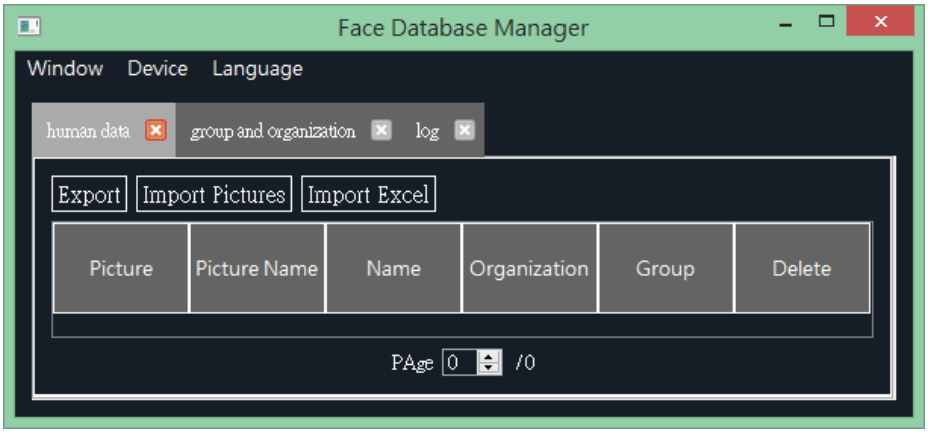


Face Database Manager

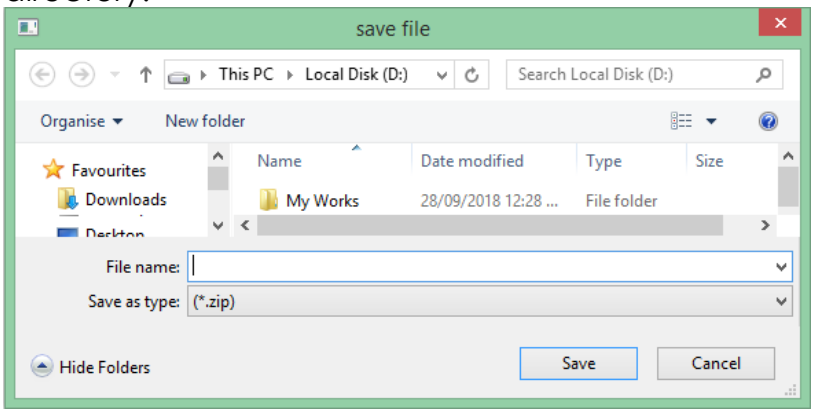
The software **Face Database Manager** can be found from the CD attached. It helps user manage face profiles as huge data. Such as importing face profile images through a group of photos and face profile entries in an excel document.



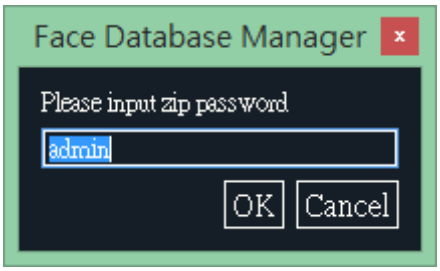
Human Data



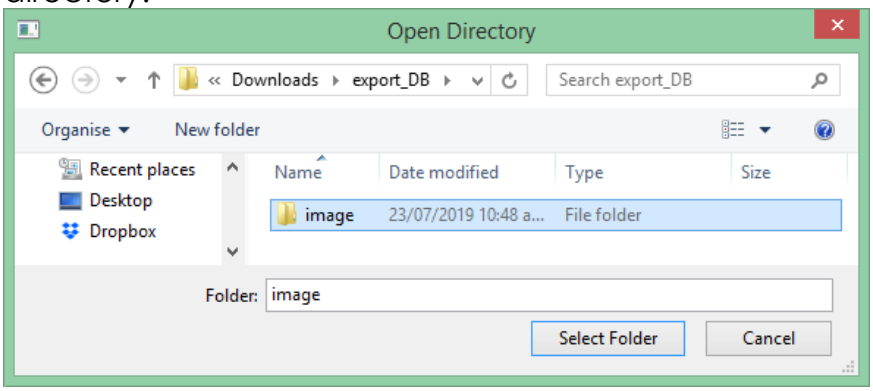
- **Export**: Click to save the existing data as zip file for backup. Choose a file directory.



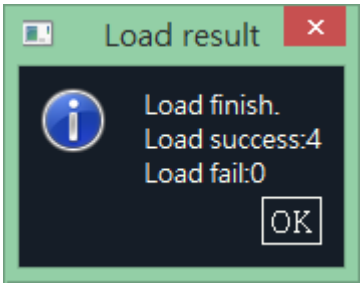
A window will pop up for a password request. Please keep the password as reference for the zip file.



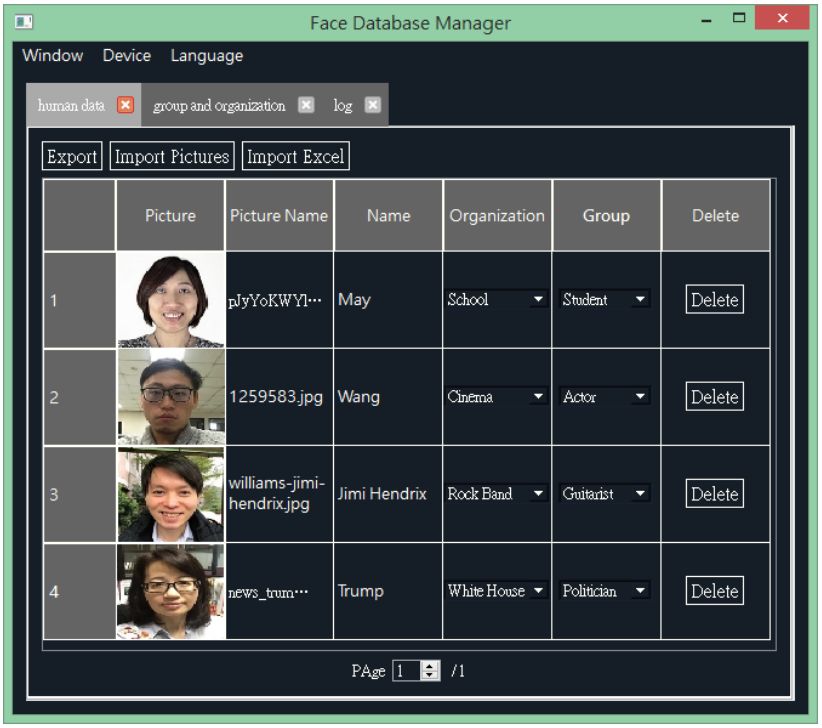
- **Import Pictures**: Click to load the the picture file from the assigned file directory.

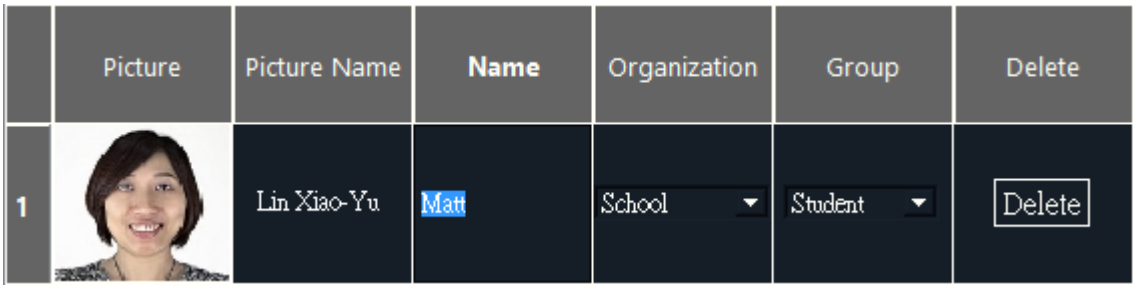


A notice of messages will also pop up as above.

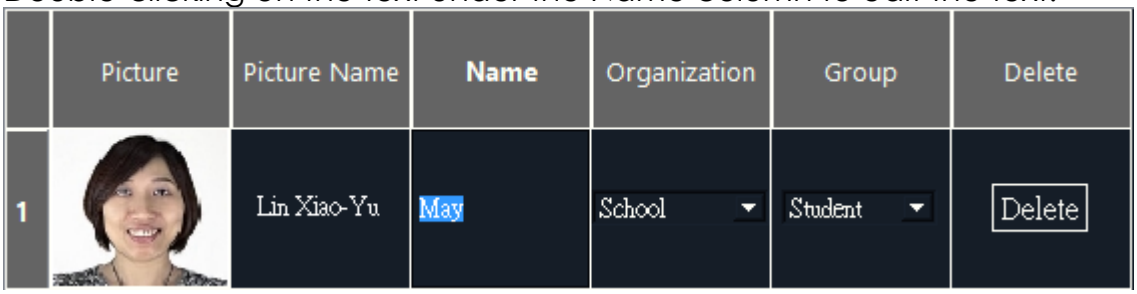


A whole folder of picture files will be transferred directly into the system as image data.

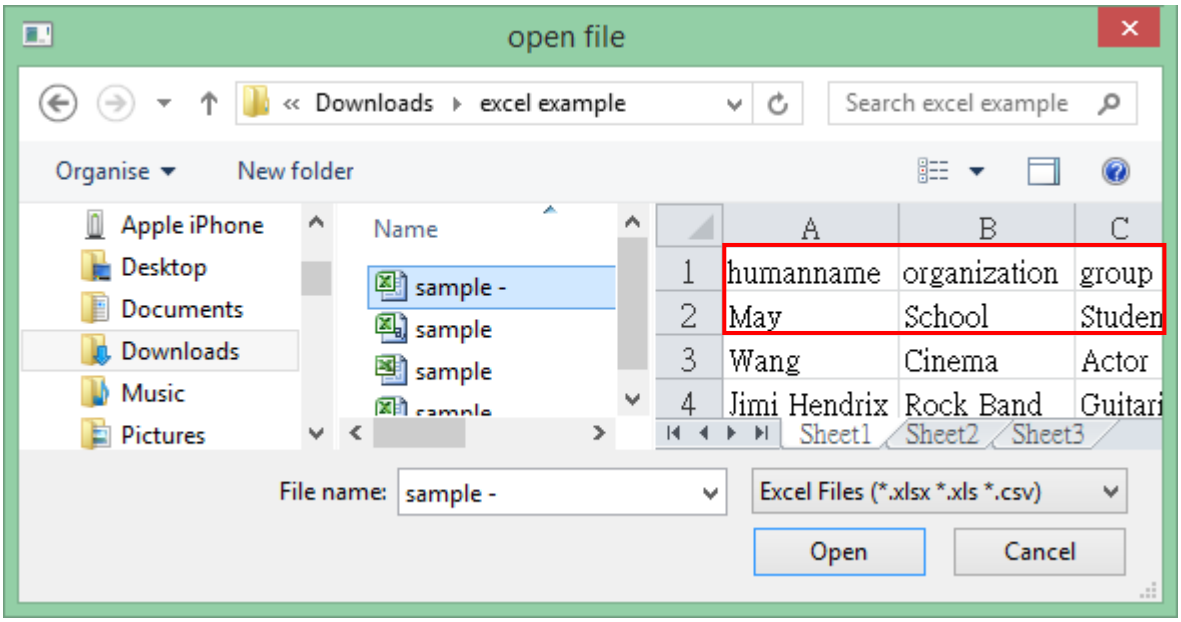




Double-clicking on the text under the Name column to edit the text.

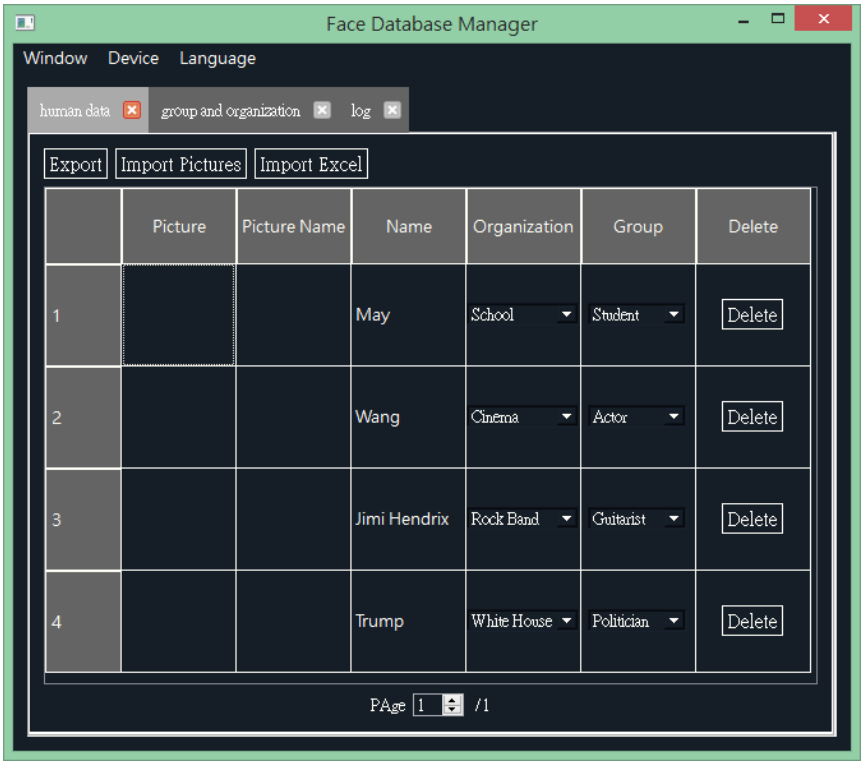


- **Import Excel:** Click to select the file directory where the excel file is imported from.You can import excel files in xlsx, xls, and csv formats.

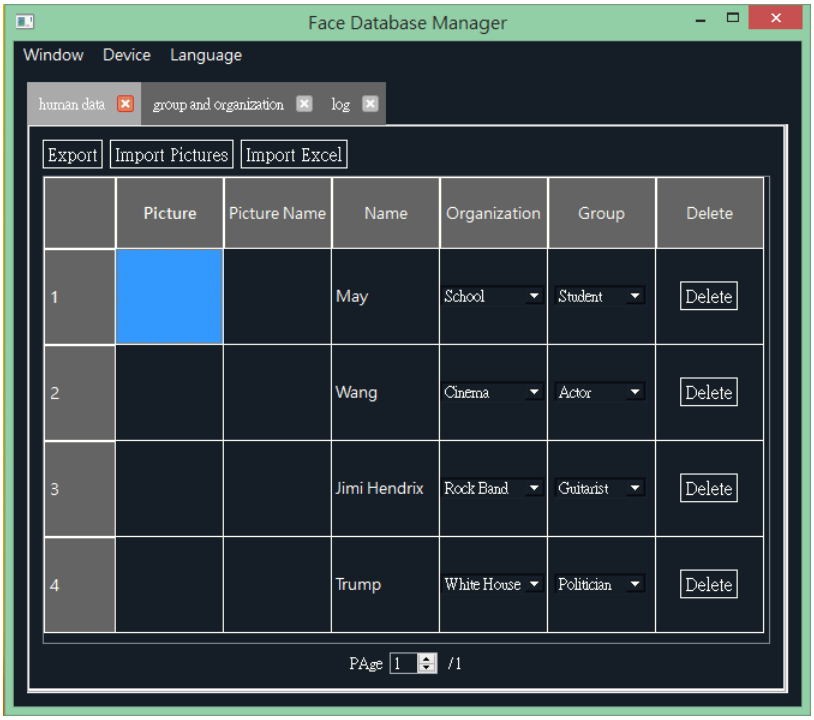


The 1st row of A, B, C columns must be keyed in with **humanname**, **organization** and **group** like the demonstration above in order for the Face Database Manager to import.

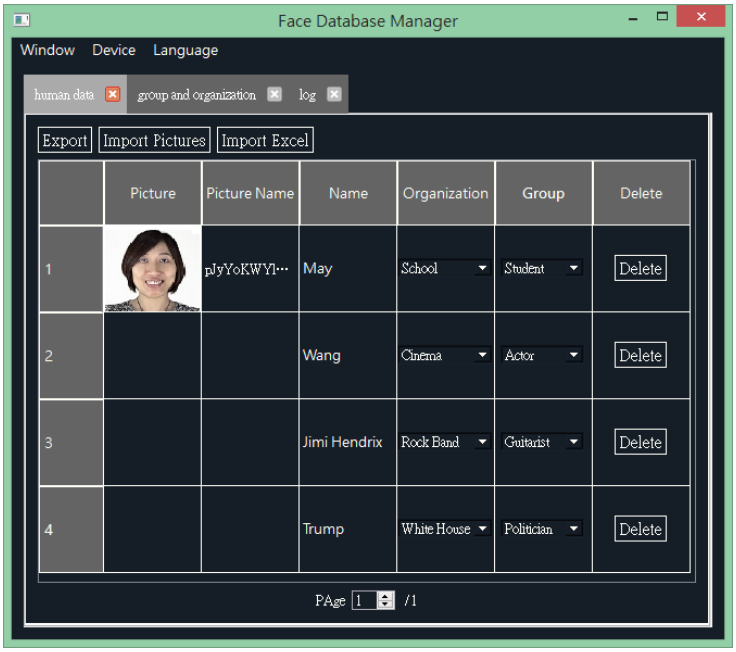
The excel content will be fully transferred into data of the system as below.



Double-click on a specific grid under the Picture column.



Select the image file from the path where the file is uploaded for the pop-up window. The highlighted grid will soon be modified with the image uploaded.

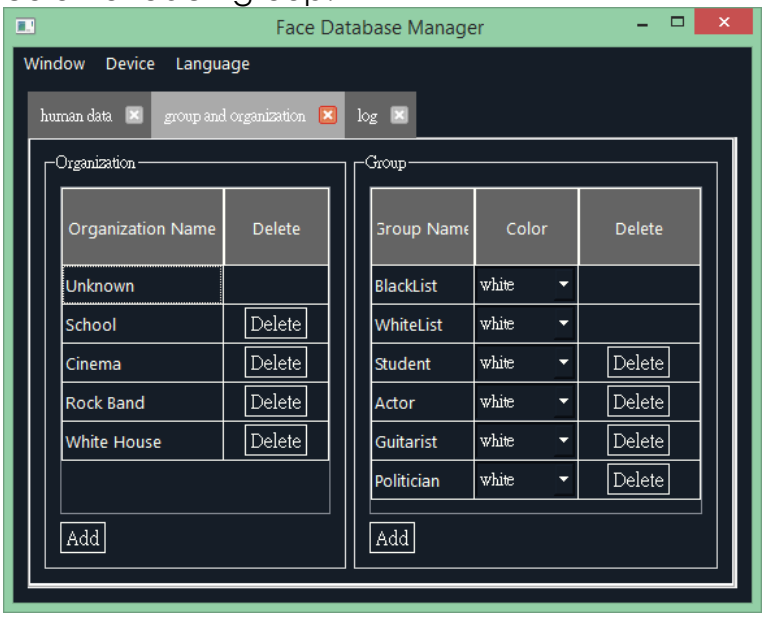


- **<u>Excel & Picture Intergration</u>:** To correctly assign images with face profiles, make all image files with actual names matching the face profiles from the excel document.

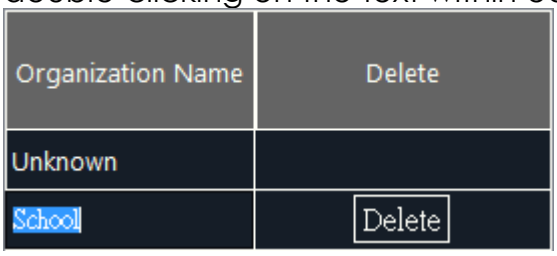
Once this document has been uploaded to create face profiles, when you then import the image files, each existing face profile will automatically be assigned with the image of the same name.

Group and Organization

Click Add and Delete icons to manage face database. Assign specific color for each group.



You may also edit the contents of Organization Name and Group Name by double-clicking on the text within each column.



Log

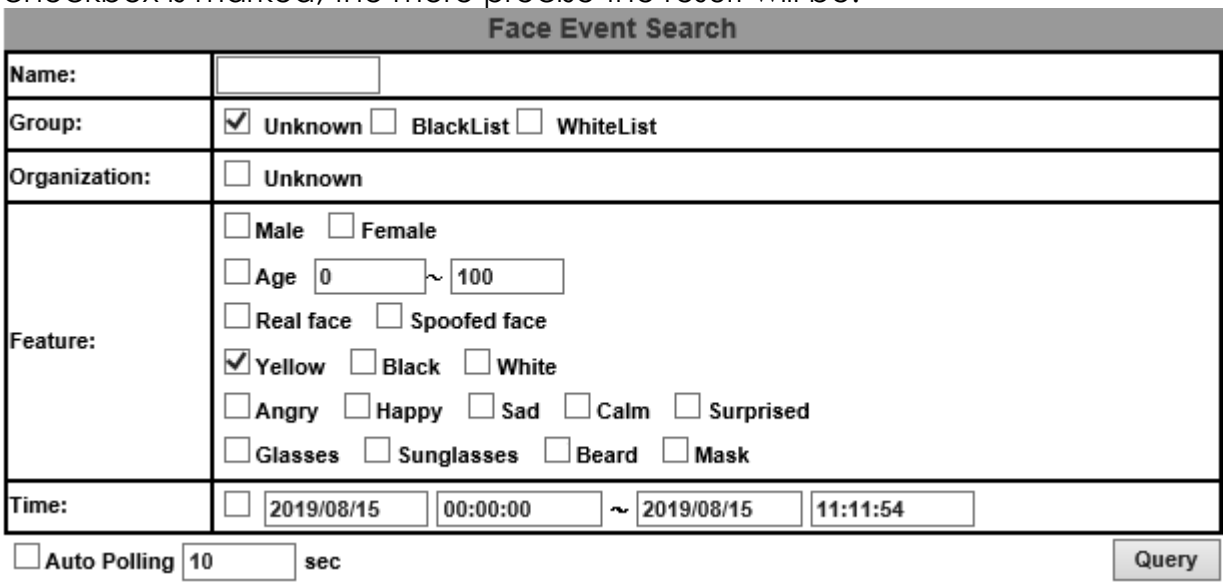
Shift to this page and view all the history of the face data operation.

	time	information
1	2019/07/25 13:45:06	Start load files.
2	2019/07/25 13:45:08	Load finish. Load success:4. Load fail:0.

Face Event Search

The face data recorded can be calculated and categorised in lists. Check the title you would like to aim for searching, and click **Query** to begin, or click **Auto Polling** for the category to be updated in assigned seconds.

The face data will be presented according to what checkbox you have marked. For example, if you would like to see all the face data detected for **Male** only, you will only see a list of male face data. Therefore, the more checkbox is marked, the more precise the result will be.



Results will vary according to the checkbox marked, and the face data collected. Such is the example displayed below.

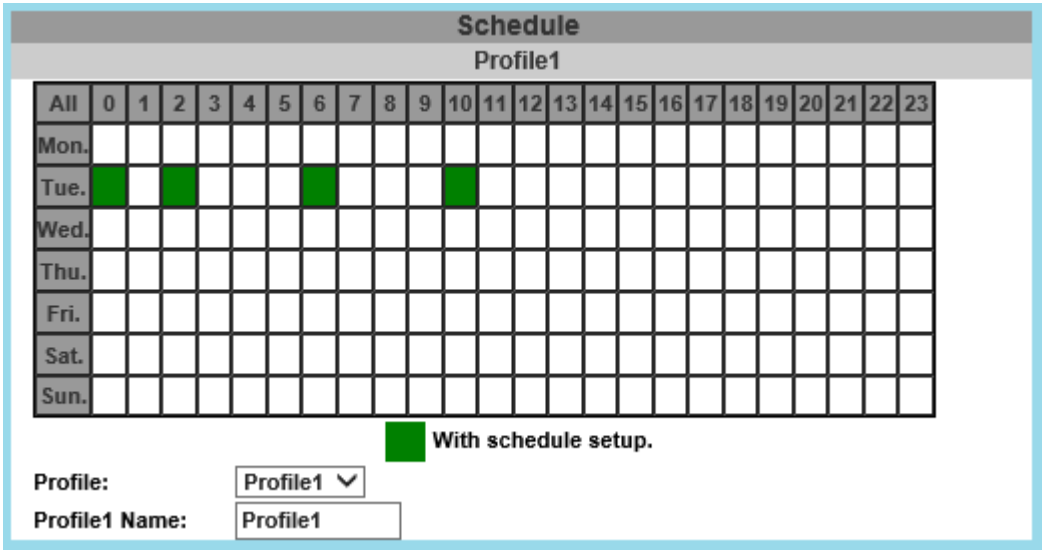
Timestamp	Name	Age	Gender	Group	Organization	Image
13/08/2019 09:32:24	Unknown	27	Male	Unknown	Unknown	
15/08/2019 11:07:41	Unknown	59	Male	Unknown	Unknown	
15/08/2019 11:07:54	Unknown	33	Female	Unknown	Unknown	

Click **First**, **Previous**, **Next**, **Last** to browse different pages of face data.

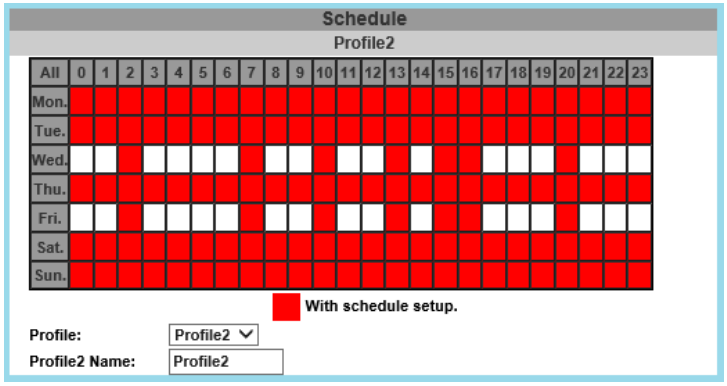
Schedule

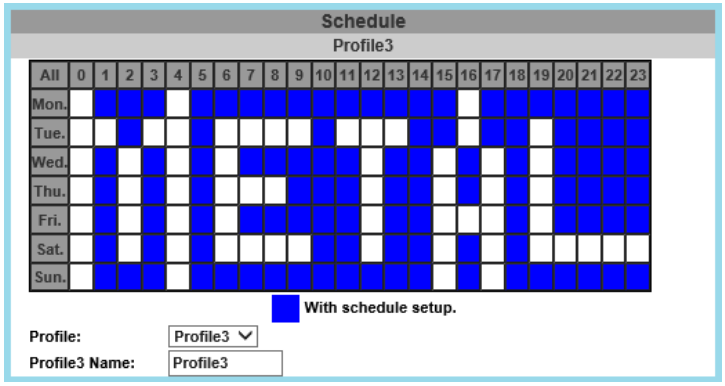
Schedule

Tick the grids on the calendar to manage your schedule time.



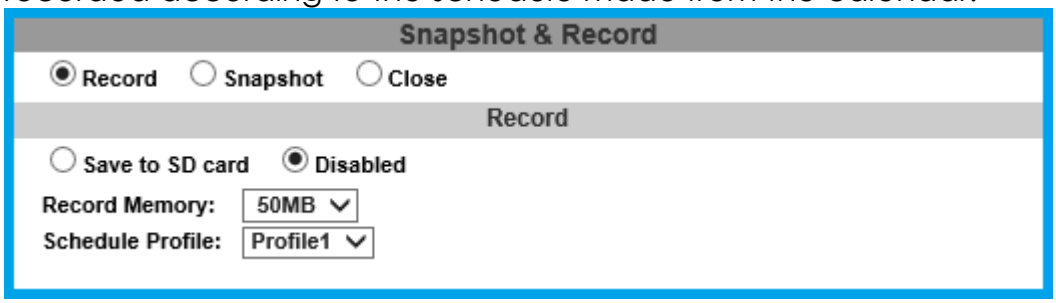
- **Profile:** Select a Profile from the drop down list.
- **Profile(1,2,3) Name:** Input & assign a profile name for each profile.





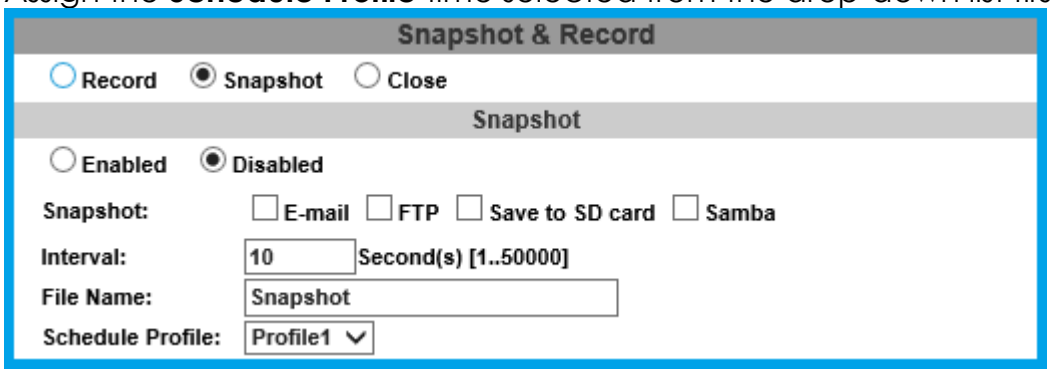
Snapshot & Record

- **Record:** After completing the **Schedule**, the camera data will be recorded according to the schedule made from the calendar.



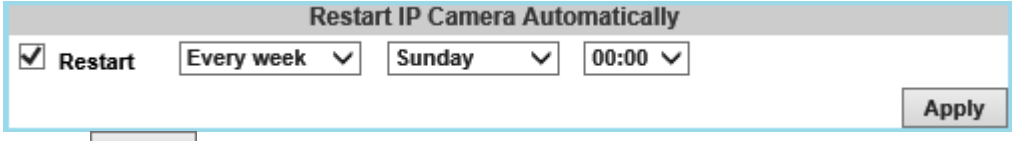
Beware that SD cards may fail for being recorded for a long period of time. You may set up how much you would like the SD card memory to be used in order to estimate the right time to swap a new one. Assign the **Schedule Profile** time selected from the drop-down list first.

- **Snapshot:** After enabling the snapshot function; the user can select the storage position, interval time and reserved file name of the snapshot. Assign the **Schedule Profile** time selected from the drop-down list first.



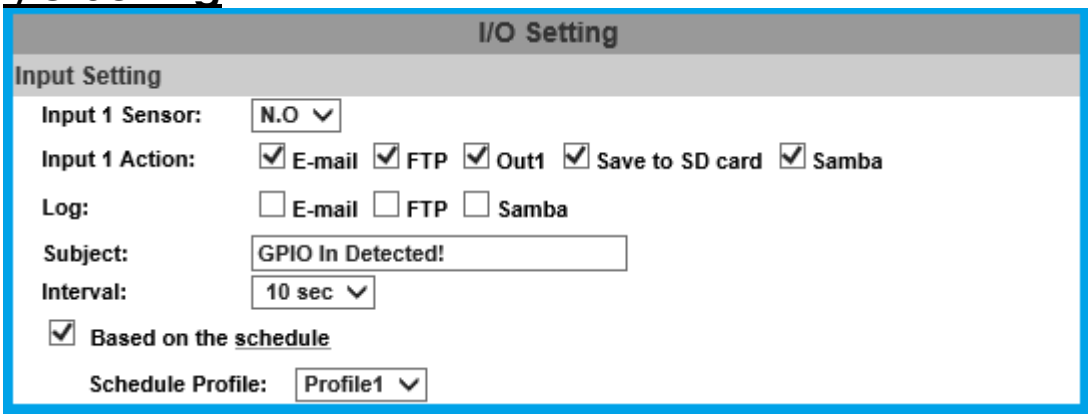
Interval: Users can set the interval between two snapshots.
File Name: Enter the file name of your snapshot file.

- **Restart IP Camera Automatically:** Set up the time for IP camera to restart automatically after ticking **Restart** to enable access.



Click  to update all the settings adjusted.

I/O Setting



Input Setting

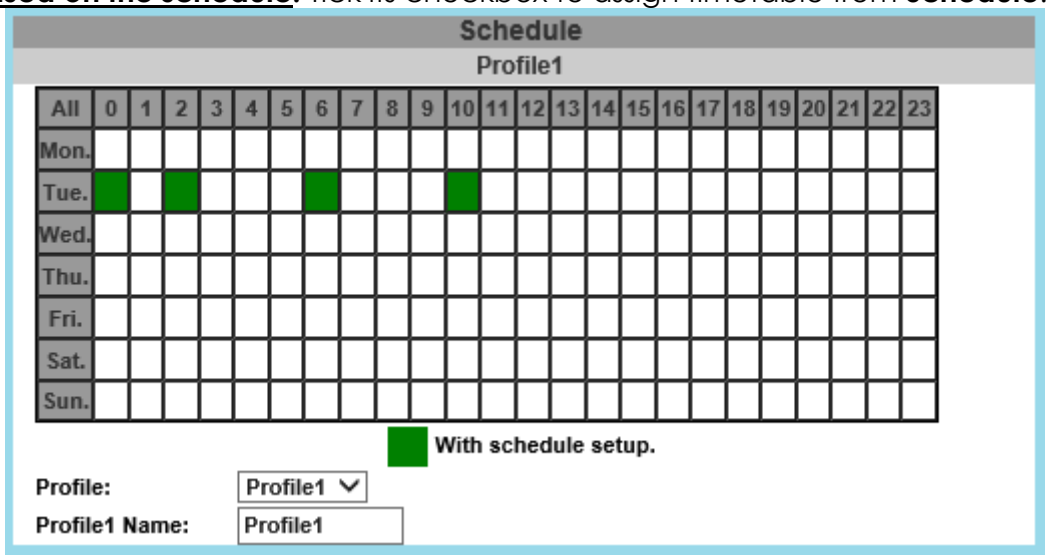
The IP camera supports both input and output operations. When the input condition is triggered, the relay will be also triggered & a notification will be sent depending what checkboxes are ticked.

- **Log:** Tick **Save to SD card** to enable the **Log** you would like to save data with.

- **Subject:** Input & edit the message you would receive for triggered alarm.

- **Interval:** For example, if you select "10 sec" here, once the motion is detected and action is triggered, it cannot be triggered again within 10 seconds.

- **Based on the schedule:** Tick its checkbox to assign timetable from **Schedule**.

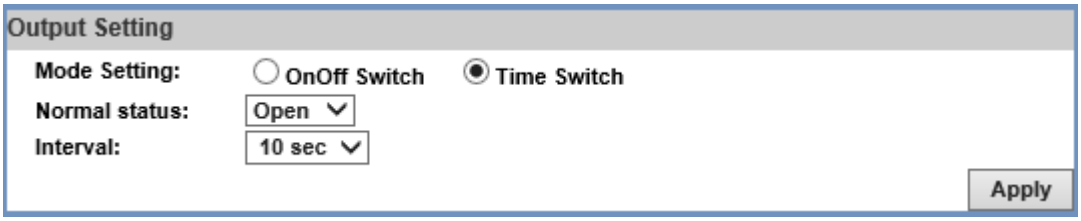


Once the option is activated, only during the selected schedule time the I/O is enabled. Assign the **Profile** timetable selected from the drop-down list first.

Take the schedule timetable above as an example, 1 o'clock on Tuesday has not been colored in the schedule table, no action will be triggered during that hour.

Output Setting

The output mode affects the DO or relay out duration.



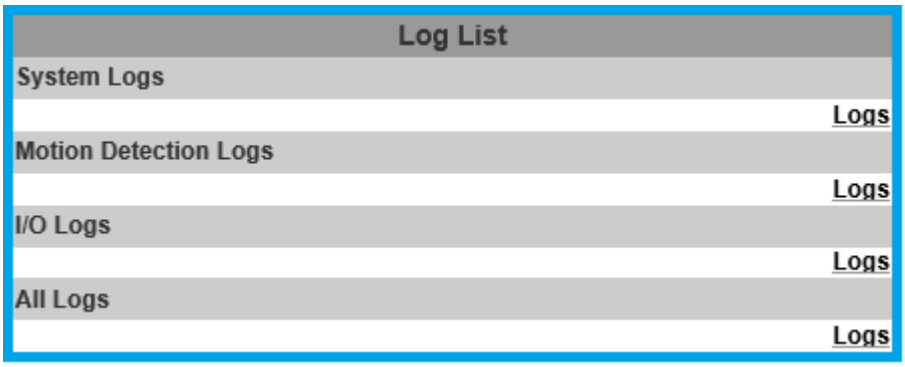
(i) **ON/Off Switch:** The camera triggers the external device and lasts for 10 seconds. Enable the **OnOff Switch** in **Output Setting** by clicking beside its title. You can turn off the alarm manually by clicking "off" at the right bottom of the live video page.

Select **Open** (N.O) or **Close** (N.C) for its sensor from **Normal Status**.

(ii) **Time Switch:** The camera triggers the external device and lasts for certain time according to the internal setting, and the user is not allowed to break off the alarm manually. Enable **Time Switch** by clicking beside the title, and then adjust the **Normal Status** & **Interval** to your desired level.

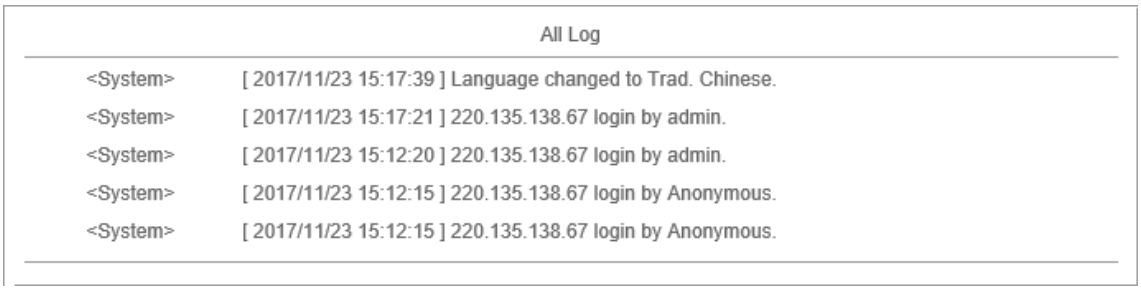
Click on the Apply button to keep all the changes.

Log List



The log keeps data for user to check through events which have occurred during the monitoring operation.

Click each **Logs** to open different log data.

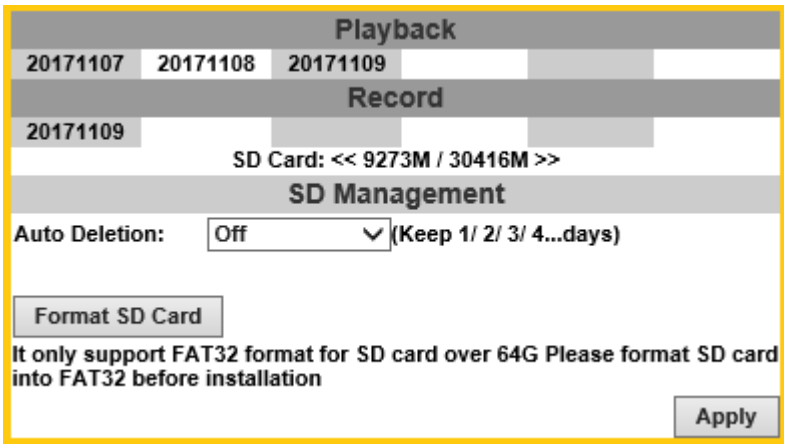


System Logs won't lose data due to power failure. Choose **All Logs** to list out all the events from **Motion Detection Logs** to **I/O Logs**.

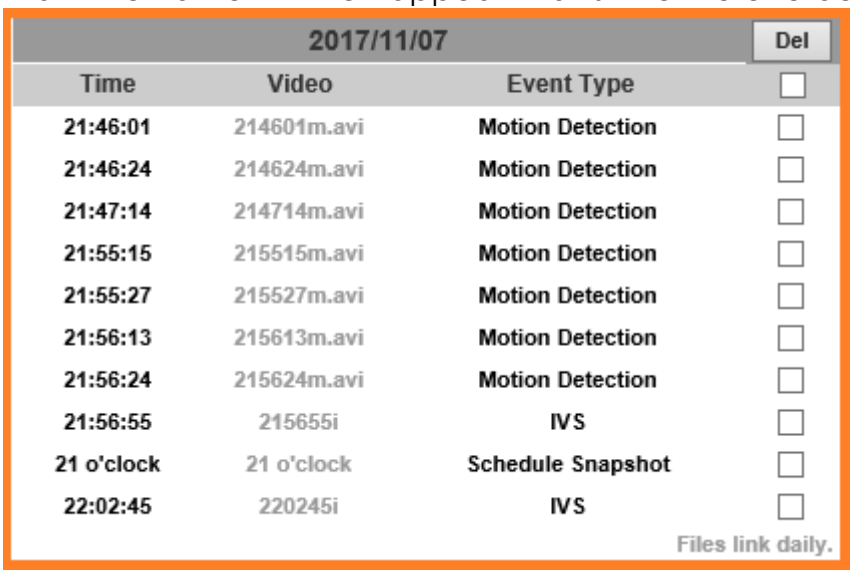
SD Card

Playback

Insert Micro SD card into the card slot thoroughly before starting this operation. Click the date under **Playback** title & a list of files will pop up.

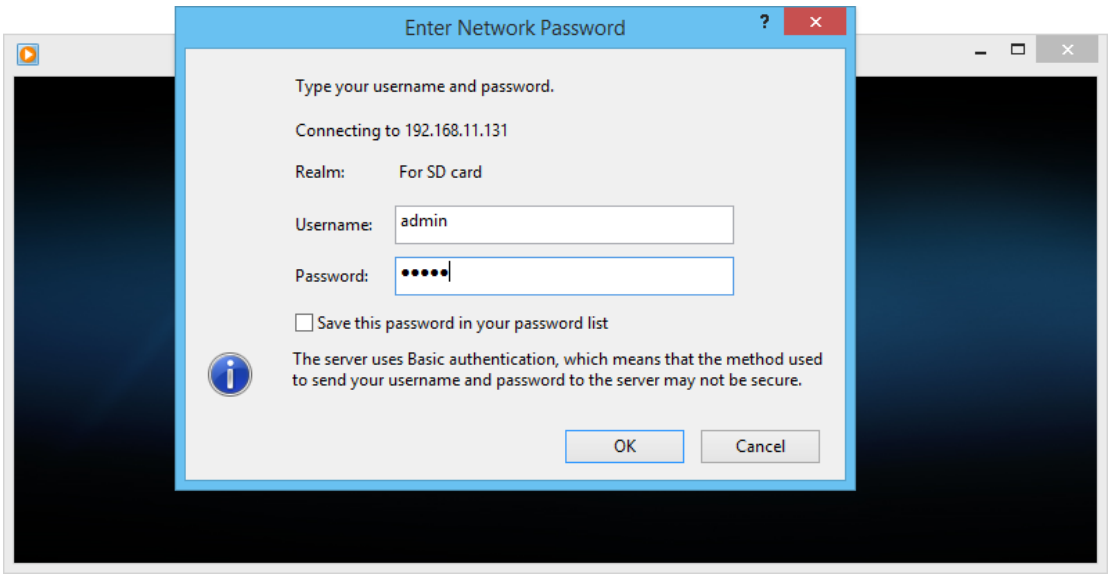


For example, if the date **2017/11/07** is clicked, all the events happened within that time frame will then appear in a list like the one below.



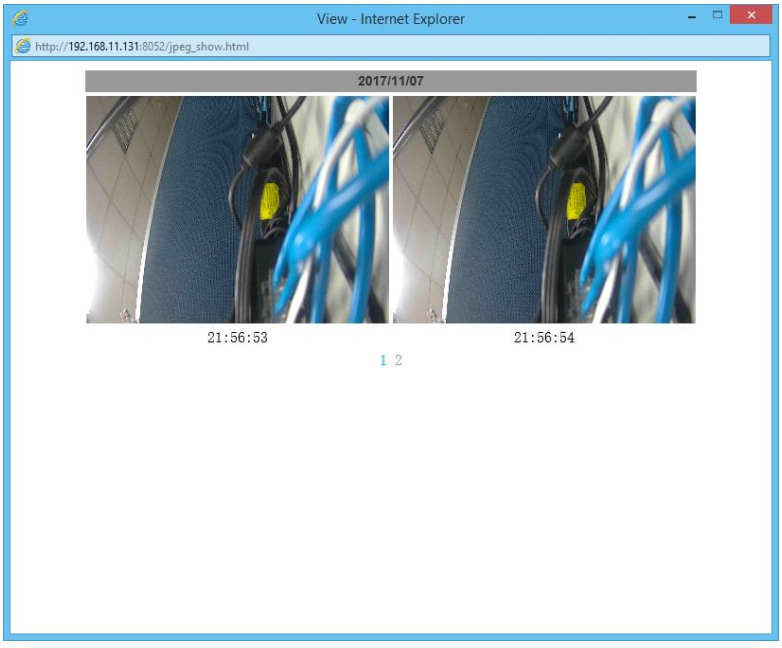
The enlisted files under **Video** category are files representing an event. There are 3 types of file formats, and each is different for its own **Event Type**. Notice how the file name formations under the **Video** category represent the time when a file is created.

For instance, the file name "**214601m.avi**" means the video is recorded at **21:46:01** today, **m** means **Motion Detection**, and **avi** represents the file format. Click on the file name to open the file.

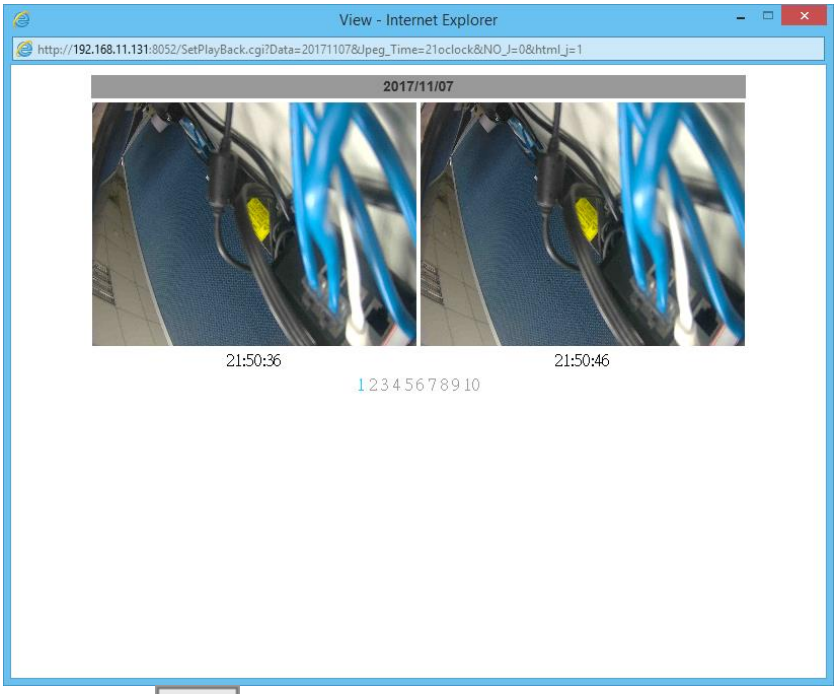


For **avi** files, you need Microsoft Media Player which is supposedly built-in in your PC. The default Username & Password for playing the video file are both **admin**.

Clicking on an **IVS** file (such as **215655i**) will bring out a pop-up window suggesting an **IVS** event captured as snapshots as the one below:



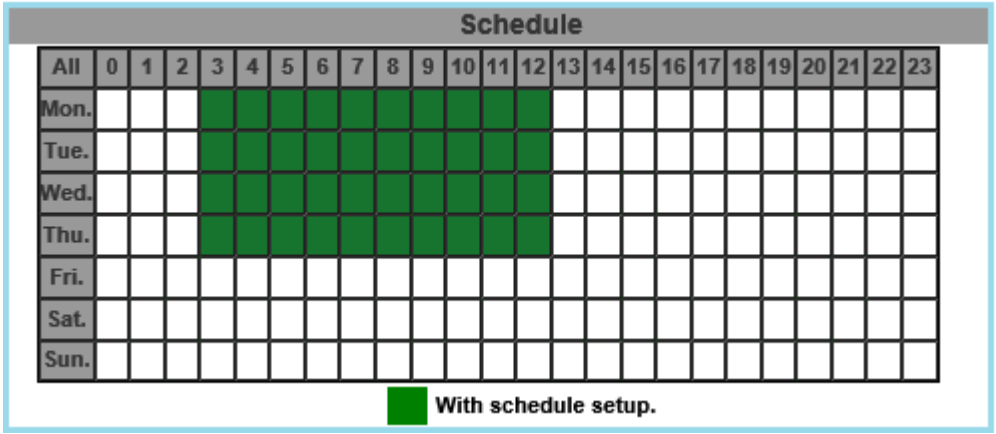
Clicking on any title that is labeled with "**time unit**" (such as **21 o'clock**) at the end will bring out a pop-up window indicating the snapshot taken as scheduled in **Schedule** mode and enabled in **Snapshot** mode.



Click the Del icon to delete any file bymarking on the checkbox under the **Del** category with a mouse click.

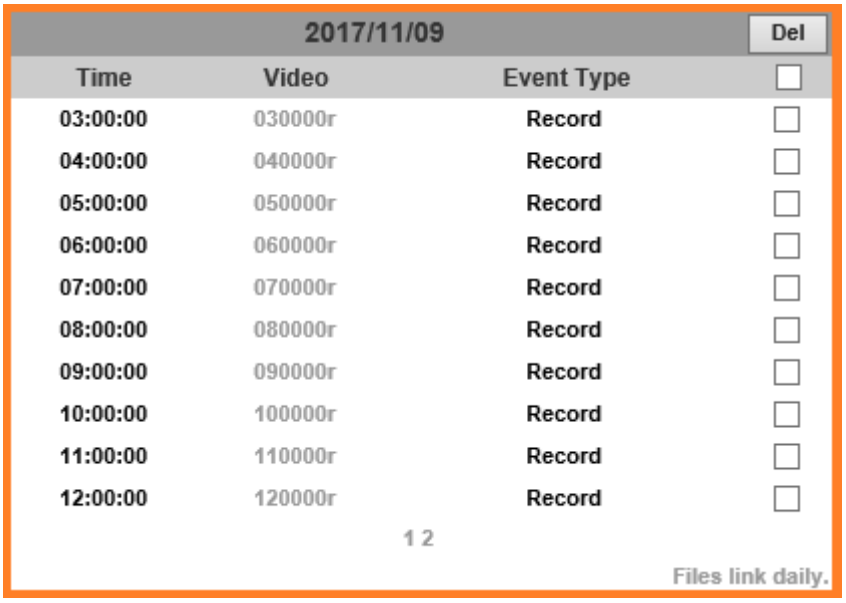
Record

The recording mode is enabled after **Record** is set in **Schedule** mode. Take the schedule calendar below for example, the grids coloured in green between 3~12 are scheduled to start recording from 3 o'clock to 12 o'clock from Monday to Thursday.

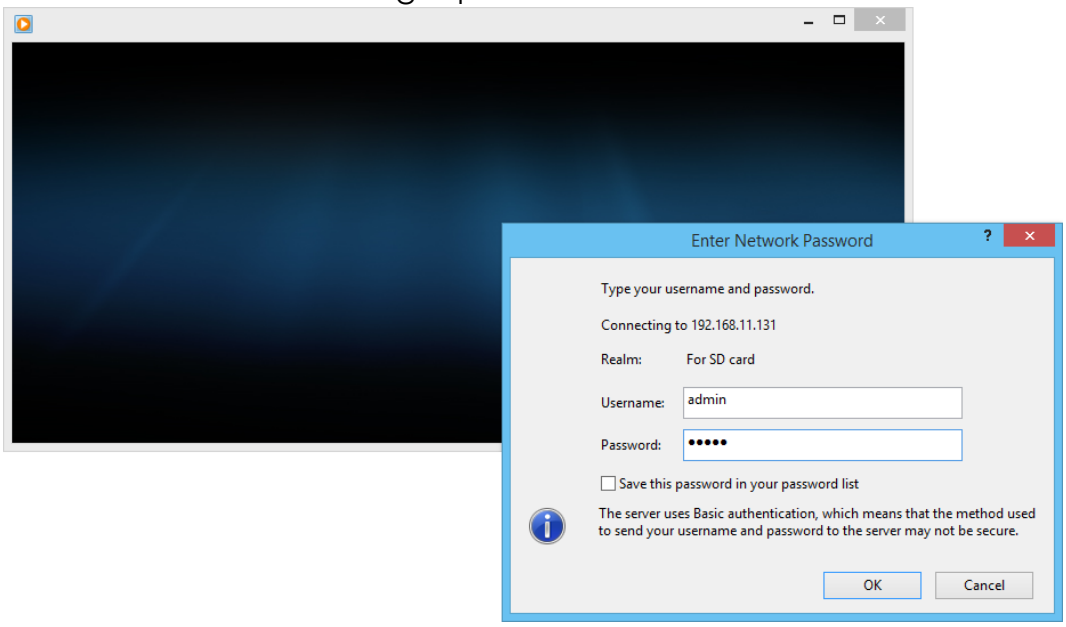


Once the recording mode is on, the video data recorded will be found and labelled as **2017/11/09**.

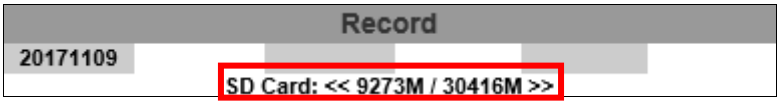
Click on **2017/11/09** to enter the next page where all files recorded on that date are enlisted.



Click on any video title to open Microsoft Media Player (supposedly already built-in in your PC) and play the video file. Key-in **admin** for both Username & Password to get permission to view the video.



The number at the bottom indicates the distributive law of the current SD Card memory which is divided and assigned to different types of recording purposes. The left side shows how much memory is still available, and the right side shows how much the total memory is.

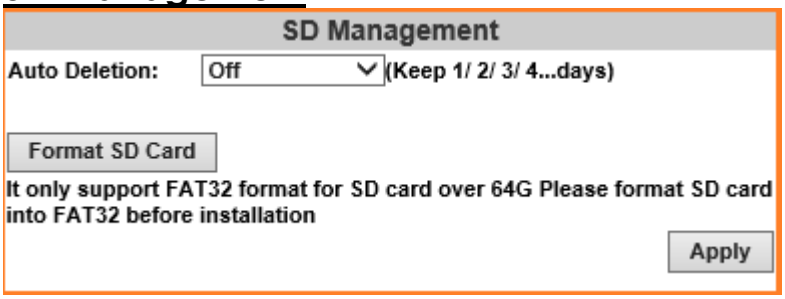


If the memory of the SD card is **over 128G**, **70%** of the memory will be used for scheduled recording, and **30%** will be used for event recording.

If the memory of the SD card is **below 128G**, **50%** of the memory will be used for scheduled recording, and **50%** will be used for event recording.

Click the Del icon to delete any file with its checkbox checked under the Del category.

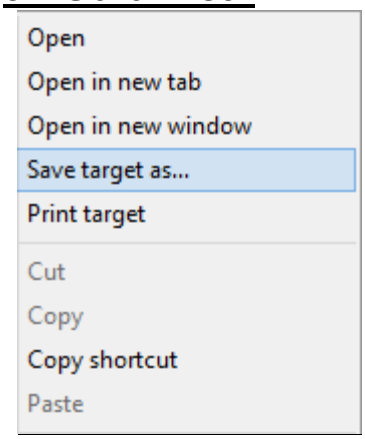
SD Management



- **Auto Deletion:** Choosing "The 1st day" means the recoding file will be kept for one day. Example: It is five o'clock now. Choose "The 1st day". The files will be kept from five o'clock yesterday to five o'clock today. The oldest file will be deleted if the Micro SD card is full. Note: The use of the SD card will slightly affect the operation of the IP Camera, such as affecting the frame rate of the video.

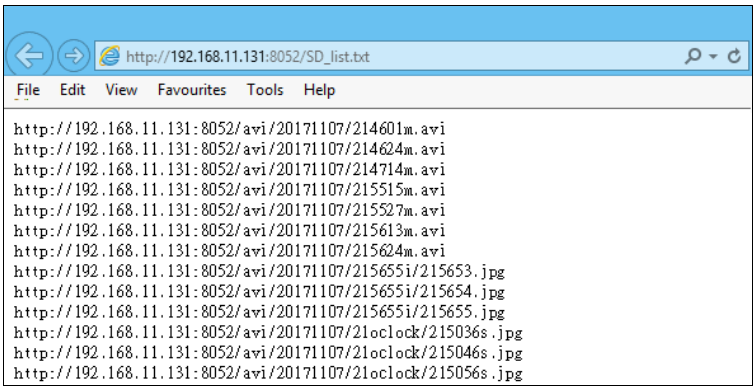
- **Format SD Card:** Click the icon to process the SD Card formatting into FAT32 format. Be cautious that since it only supports FAT format for SD Card over 64G, please format SD Card into FAT32 before installation.

SD Card Files



- **Downloading the Files:** For both **Playback** and **Record** mode, after entering a date data to see the **Video** and **Event Type,** right-click on a title under the **Video** list, and choose "**Save Target As…**" from its pop-up window to start downloading the file.

- **Linking the Files:** For both **Playback** and **Record** mode, find the Files link daily. link at the right corner of the bottom after entering a date data to see the **Video** and **Event Type**. Click on the link, a window will pop up.



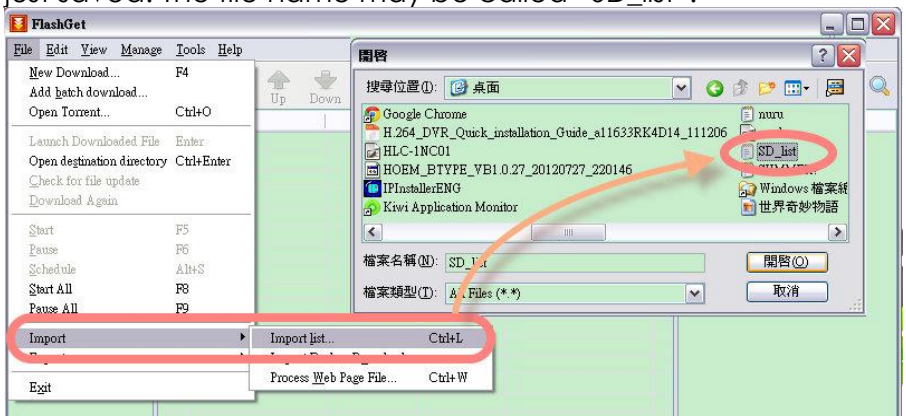
You may copy any of the protocol provided in the window and paste it on a web browser as a URL address to look at each file.

Copy to PC

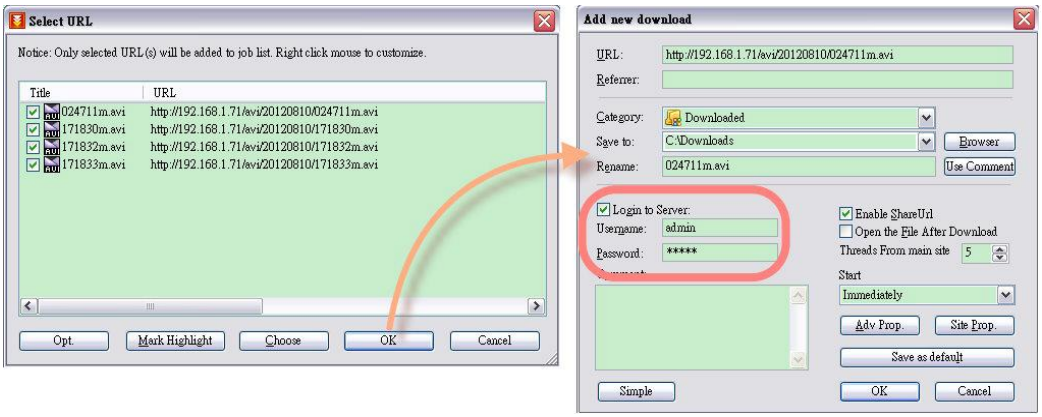
You can insert the Micro SD card to the PC and read the files directly, or use FlashGet instead to download the files from the IP camera. (In this way you do not need to pull out the Micro SD card from the camera.) To use FlashGet for downloading image and video data from the Micro SD card, please follow the steps:

i. Enter data list and right-click " **Files link daily.**", select "save target as…" then save the link list to PC.

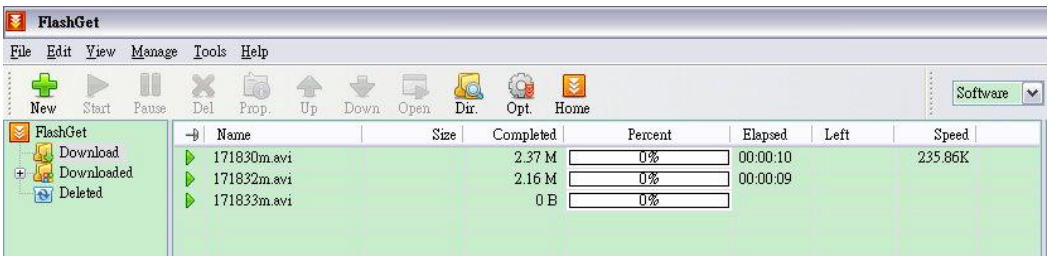
ii. Open FlashGet, select "File"→ "Import" → "Import list", and find the link list file you just saved. The file name may be called "SD_list".



iii. FlashGet will show you the link list, and you can tick the files you want to copy to your PC. Give the directory path in the new download window, and remember to enable "Login to Server": key in the IP Camera username and password.



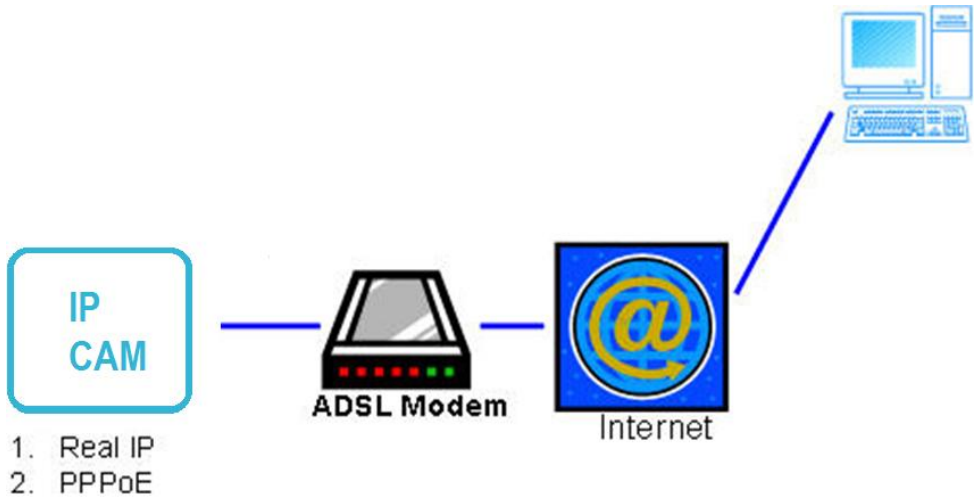
iv. Click OK to start download.



- FlashGet is free software that can be downloaded from **FlashGet** official website. The example above is based on FlashGet ver.1.9.6.

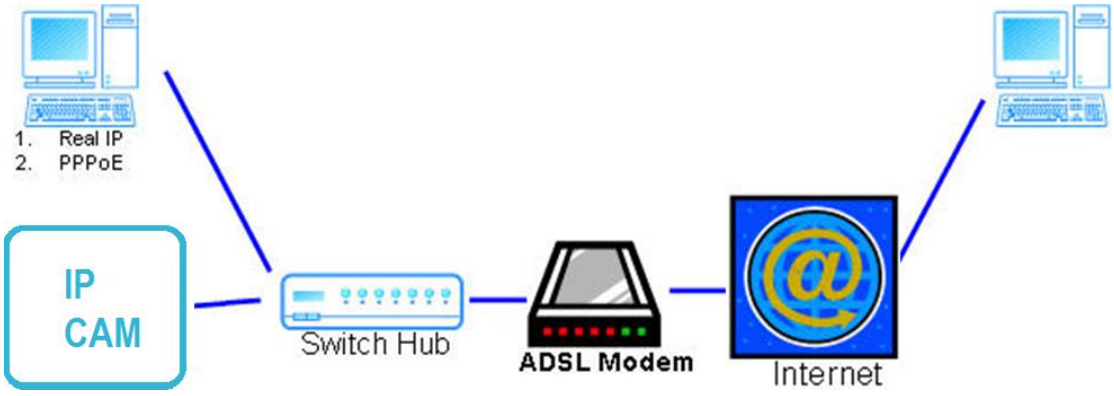
6. Network Configuration

Configuration I



- Internet Access: ADSL or Cable Modem
- IP address: One real IP or one dynamic IP
- Only the IP Camera is connected to the internet
- For fixed real IP, set up the IP into IP Camera. For dynamic IP, start PPPoE.

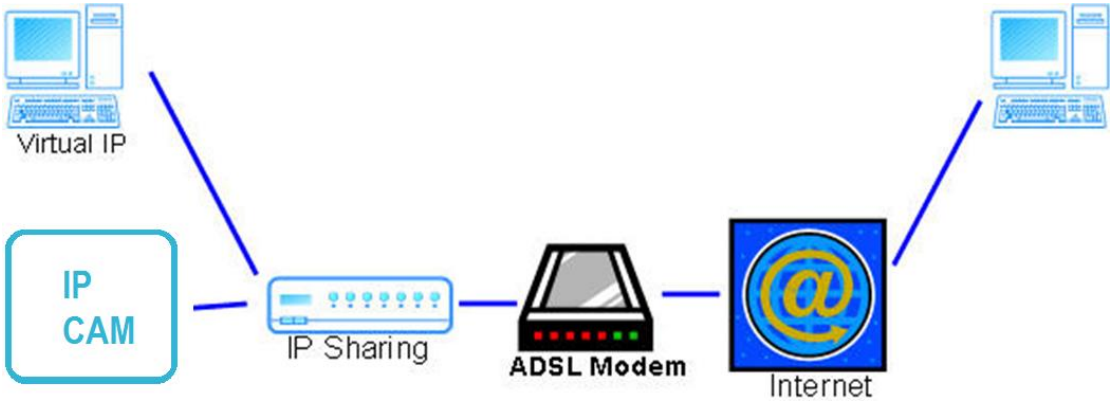
Configuration II



- Internet Access: ADSL or Cable Modem

- IP address: More than one real IP or one dynamic IP
- IP Camera and PC connect to the internet
- Device needed: Switch Hub.
- For fixed real IP, set up the IP into IP Camera and PC. For dynamic IP, start PPPoE.

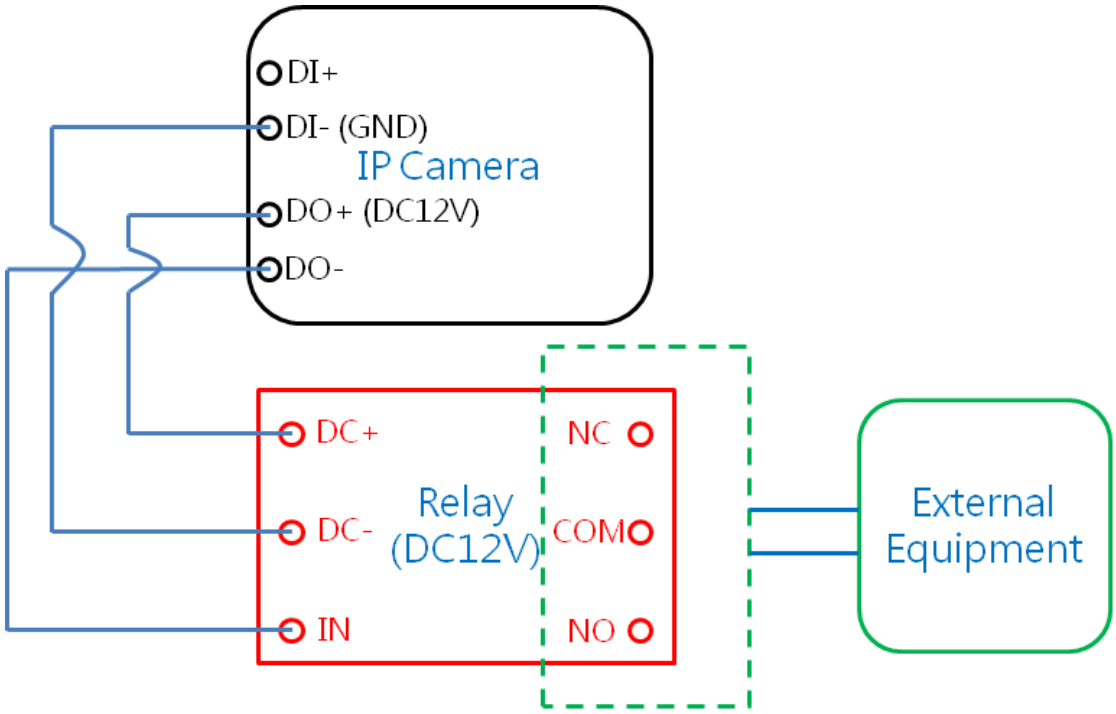
Configuration III



- Internet Access: ADSL or Cable Modem
- IP address: one real IP or one dynamic IP
- IP Camera and PC connect to the internet
- Device needed: IP sharing
- Use virtual IP, set up port forwarding in IP sharing

7. I/O Configuration

I. I/O Connection



a. Connect the GND & DO pin to the external relay (buzzer) device.

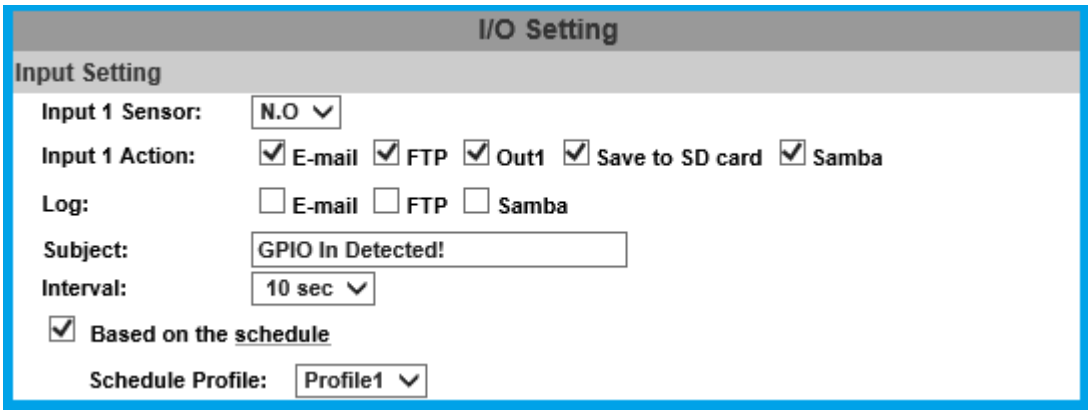
b. Connect the GND & DI pin to the external trigger device.

c. I/O PIN Definition

- ✧ GND (Ground): Initial state is LOW
- ✧ DO (Digital Output): Max. 50mA ,.DC 12V
- ✧ DI (Digital Input): Max. DC 6V

II. I/O Setup

Enter **I/O Setting** via internet browser & check **Out1** to enable I/O signal.



Input Setting

The IP Cam supports both input and output operations. When the input condition is triggered, the relay will be also triggered & a notification will be sent depending what checkboxes are ticked.

- **Log:** Tick **Save to SD card** checkbox to enable **Log** which you would like to save data with.

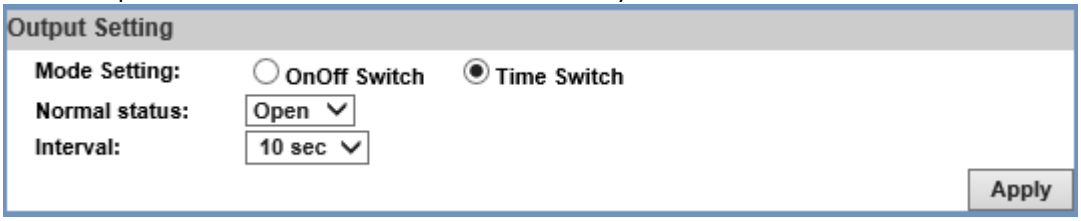
- **Subject:** Input or edit the message you would like to receive for triggered alarm.

- **Interval:** If you select "10 sec" here, once the motion is detected and action is triggered, it cannot be triggered again within 10 seconds.

- **Based on the schedule:** Tick its checkbox to assign the timetable from **Schedule** of the **Event** Menu. Please refer to **Schedule** from **Event List**.
  Click on the underlined **schedule** title to enter to the schedule setup menu.

Output Setting

The output mode affects the DO or relay out duration.



- **Mode Setting**

1) **ON/Off Switch**: The camera triggers the external device and lasts for 10 seconds. While in **Output Setting**, enable the **OnOff Switch** by clicking beside the title. You can turn off the alarm manually by clicking "off" at the right bottom of the live video page.

Select **Open** (N.O) or **Close** (N.C) for its sensor from **Normal Status**.

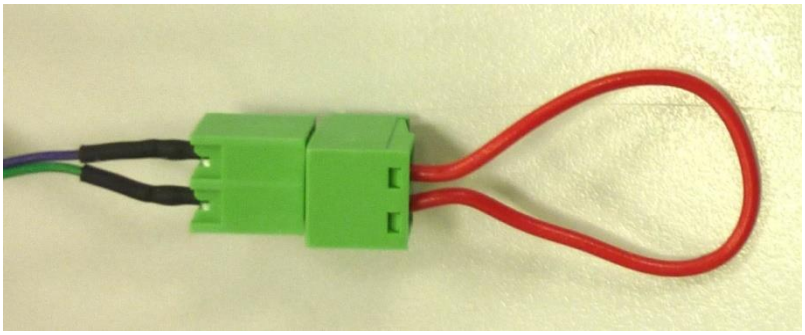
2) **Time Switch**: The camera triggers the external device and lasts for certain time according to the internal setting, and the user is not allowed to break off the alarm manually.
While in **Output Setting**, enable the **Time Switch** by clicking beside the title, and then adjust the **Normal Status** & **Interval** to your desired level.

Click on the Apply button to keep all the changes.

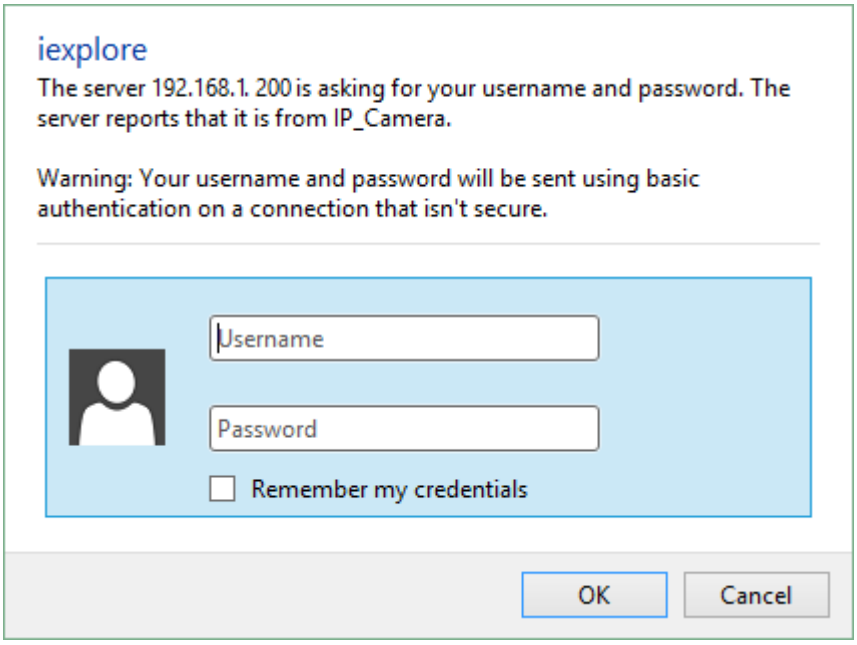
8. Factory Default

If you forget your password, please follow the steps below to restore its default settings.

- Remove the power and Ethernet cable.
- Join **GND** & **Default** ports inside the terminal block with an electronic wire.



- Connect the power for the camera to reboot for around 30 seconds.
- Remove the wire in the terminal block after rebooting completes.
- Open the internet browser using default IP (http://192.168.1.200)
- Input **admin** for both user name and password to log in.



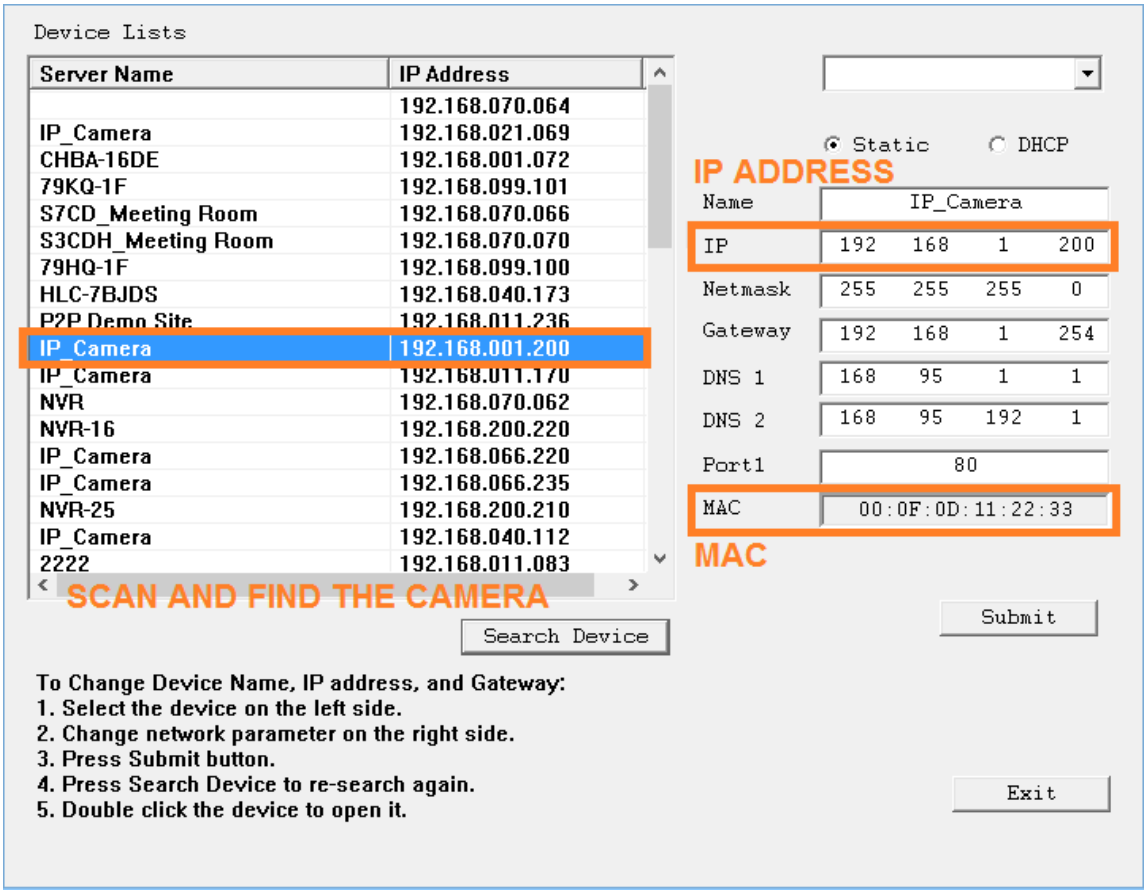
✧ You may also perform **Factory Default** through **System Update** when you operate the camera by remote. Please refer to **System** chapter for more instructions.

9. Universal Password

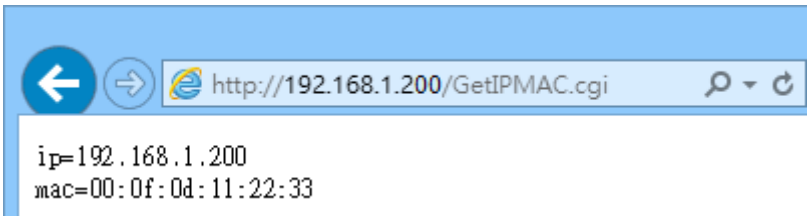
If you forgot the password of your IP camera, you can reset the camera to factory default, or follow the procedure below to generate a universal password.

Note: Universal password will be valid only when you enable the function in **User Management.**

i. First, you need to know the IP address and MAC address of your IP camera. You can use **IP Scanner** to scan the LAN, and see the IP address and MAC address on the side column.

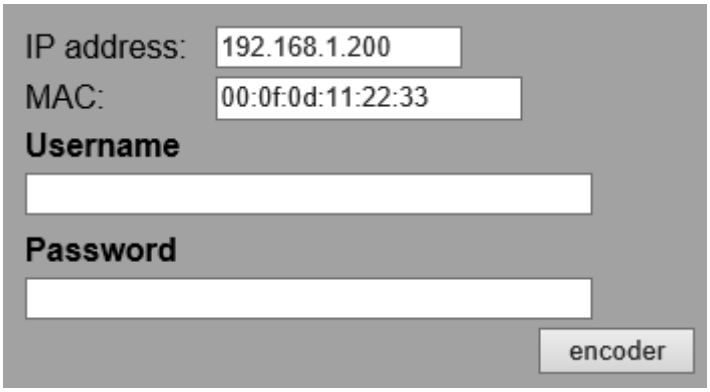


Or else, if you already know the IP address of camera: Open the web browser, key in **http:// (IP address) /GetIPMAC.cgi** and press enter.
The IP address and MAC address will be displayed on browser.



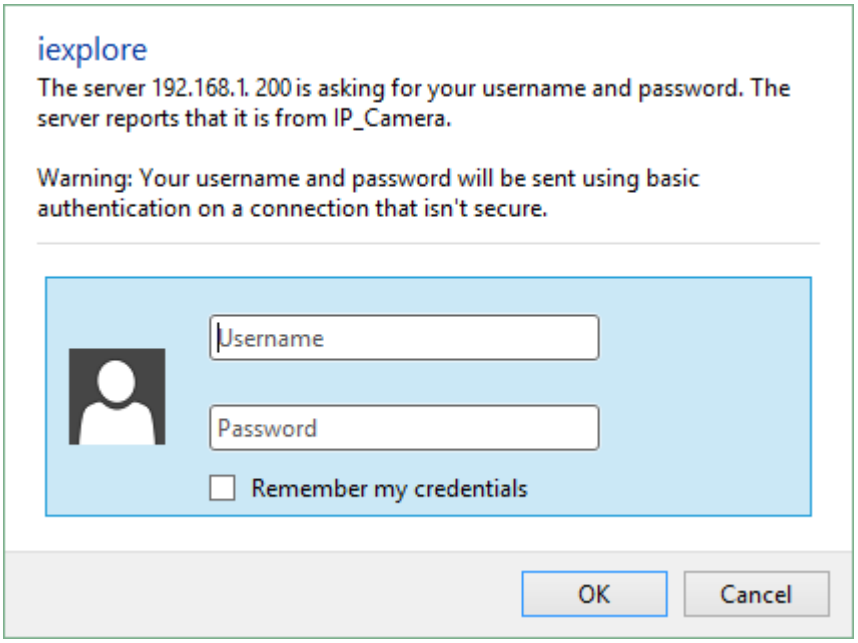
ii. Locate the .html file named **Universal Password_V1.1** in the Universal Password from the Applications folders in CD-ROM. Open it with a web browser.

iii. The camera IP address and MAC address will be displayed automatically in both **IP Address** and **MAC** columns.

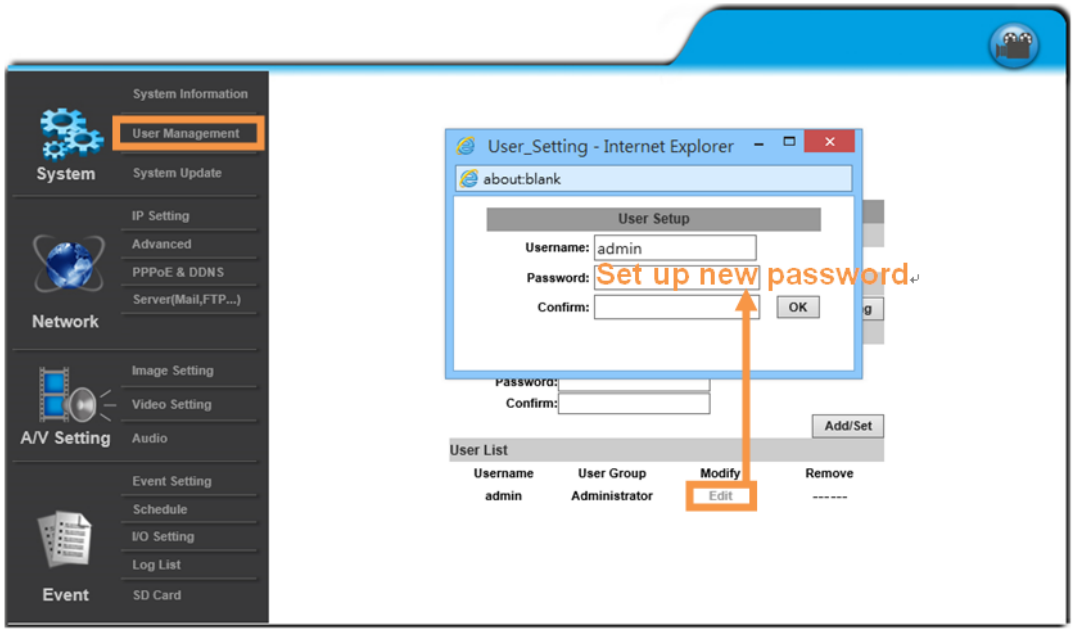


After clicking on **encoder**, a set of username and password will appear.
The universal username and password are generated from the IP address and MAC address you key-in, so if you change the camera IP address the universal password changes, too.

iv. Use the generated username & password to log in the camera account.



v. Now you can login as administrator. Turn to **User Management** page. The use of universal password does not affect the previous user setting, so the administrator account password does not change until you edit it. Please click **Edit** to give a new administrator password.



10. Package Contents

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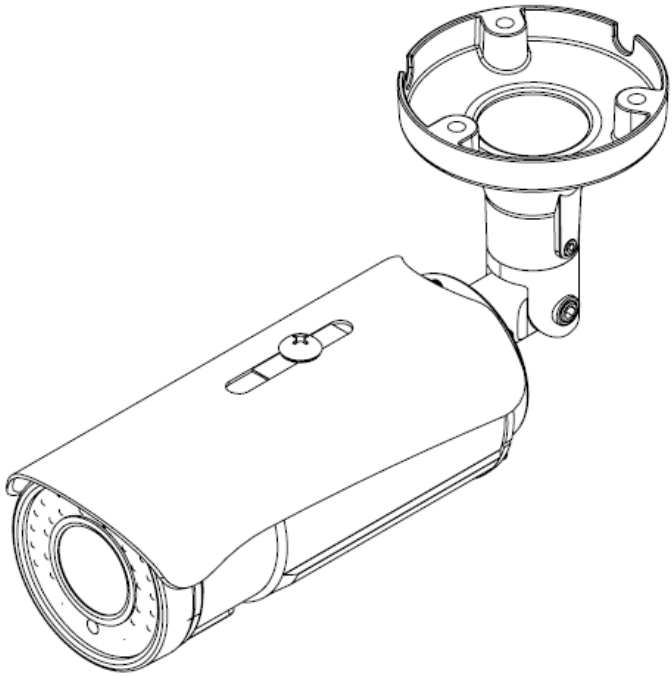
<tr><td colspan="2" rowspan="2">  </td><td> 
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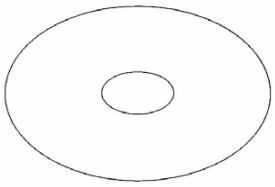
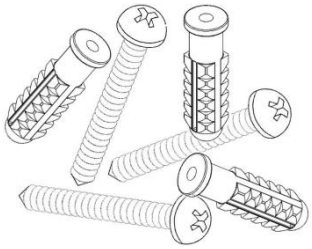
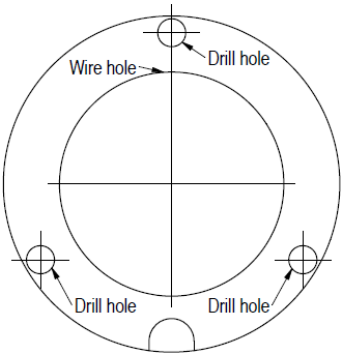
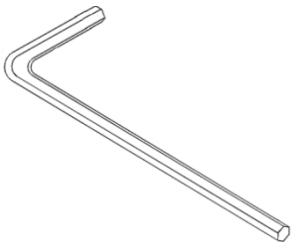
  </td></tr>
<tr><th>Screws Pack</th><th>Hole Pattern Sticker</th><th>Hex Wrench</th></tr>
<tr><td>  </td><td> 
</td><td>  </td></tr>
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- The CD includes user manual and software tools

11. Micro SD Card Compatibility (Optional)

The following are the recommended Micro SD Cards:

Transcend	SDHC class4 16GB
	SD class4 16GB
	SDHC class4 32GB
	SD class4 32GB
	SD class6 4GB
	SDHC class6 4GB
	SD class6 8GB
	SDHC class6 8GB
	SD class6 16GB
	SDHC class6 16GB
	SDHC class10 4GB
	SDHC class10 8GB
	SDHC class10 16GB
	SDHC class 10 Max. 64GB
SanDisk	SDHC class4 8GB
	SDHC class4 16GB
	SDHC class4 32GB
	SDHC class10 Max. 128GB