



User Manual

BULLET IP CAMERA

V1.0_20191126

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	
<p>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.</p>		

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THE TRADEMARKS MENTIONED IN THE MANUAL ARE LEGALLY REGISTERED TO THEIR RESPECTIVE COMPANIES.



Table of Contents

1. PREFACE	1	PPPoE & DDNS	40
2. PRODUCT SPECIFICATIONS	1	PPPoE Setting	40
3. PRODUCT INSTALLATION	4	Send mail after PPPoE dialed	40
I. Monitor Settings	4	DDNS Setting	41
II. Hardware Installation	5	State	41
Connector Instruction	6	Server Settings	42
3-Axis Bracket	6	Mail Setting	42
Installing Micro SD Card	2	FTP Setting	43
Wireless Antenna (Optional)	2	Samba (Network Storage)	43
PoE (Power Over Ethernet)	3	Google Drive Setting (Optional)	44
III. IP Assignment	4	Dropbox Setting (Optional)	48
IV. Install Active Control	8	III. A/V Settings	49
For users using IE 6.0 or above	8	Image Setting	50
Another Method	10	Camera	50
For Non-IE Web Browser Users	11	Privacy Mask	50
4. LIVE VIDEO	15	Image Setting	51
I. Full Screen Mode	16	Video Setting	53
II. Live Video Panel	16	Video Setting	53
III. Submenu	17	Streaming Settings	56
5. CAMERA CONFIGURATION	19	Snapshot Setting	57
I. System	19	IV. Event List	58
System Information	20	Event Setting	59
Server Information	20	Motion Detection	59
OSD Setting	21	Motion Detection Operation	59
Time Setting	22	Object Motion Operation	61
EasyLink (Optional)	22	Record File	63
User Management	24	Record Time Setting	63
Anonymous User Login	24	Network IP Check	64
Universal Password	24	Schedule	64
Add User	24	Schedule	64
User List	24	Snapshot & Record	64
Default Account	25	Log List	65
System Update	26	SD Card	66
Firmware Upgrade	26	Playback	66
Reboot System	26	Record	68
Factory Default	26	SD Management	70
Setting Management	26	SD Card Files	70
II. Network	27	Copy to PC	71
IP Settings	28	6. NETWORK CONFIGURATION	73
IP Assignment	28	Configuration I	73
IPv6 Assignment	28	Configuration II	73
Port Assignment	29	Configuration III	74
UPnP	29	7. FACTORY DEFAULT	75
RTSP Setting	31	8. UNIVERSAL PASSWORD	76
Multicast Setting	32	9. PACKAGE CONTENTS	79
ONVIF	32	10. MICRO SD CARD COMPATIBILITY (OPTIONAL)	80
Bonjour	33		
LLTD	33		
Advanced	34		
Https (Hypertext Transfer Protocol Secure)	34		
SNMP	37		
Access List (Optional)	38		

1. Preface

This is a **1 / 3" Megapixel CMOS Sensor** 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:

- 4 Megapixel IR Bullet IP Camera
- H.264+/ H.264/ M-JPEG Compression
- ROI Function
- Smart Stream
- Digital Noise Reduction
- Power over Ethernet
- Wide Dynamic Range
- Day & Night Manual Switch Time Control
- IR LED Built-in 30M
- IR Cut Filter Mechanism
- Micro SD Card Backup (Optional)
- IP66
- Cable Management
- Support iPhone/Android/Mac
- SDK for Software Integration
- Free Bundle 36 Ch Recording Software

Hardware		
CPU	Multimedia SoC	
RAM	512MB	
Flash	32MB	
Image Sensor	1 / 3" Megapixel CMOS Sensor	
Sensitivity	Color: 0.08 Lux (AGC ON) B/W: 0.03 Lux (AGC ON)	
Lens Type	2.8 mm @ F1.8 3.6 mm @ 2.0	
View Angle	98.72°(H), 58.11°(V)	
ICR	IR cut Filter Mechanism	
I/O	N/A	
Power over Ethernet	Yes	
Video Output	N/A	
Audio	N/A	
Power Consumption	DC 12V Max: 4.5 W PoE Max: 6.5 W	
Operating Temperature *IR ON: 50°C	-20°C ~ 60°C [*IR OFF]	
Wide Dynamic Range	90dB	
S/N Ratio	60dB	
Dimensions	68mm (Ø) x 102mm (H)	
Weight	550g	
IR LEDs		
LEDs	6 hi-power	
IR Distance	30 meter	
Network		
Ethernet	10/ 100 Base-T	
Network Protocol	IPv6, IPv4, HTTP, HTTPS, SNMP, SSL, TLS , DNS , ICMP, IGMP, ARP, SNTP, QoS/DSCP, CoS, 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	
Wireless (Optional)		
	Wireless	802.11b/g/n
	Security	WEP,WPA-PSK,WPA2-PSK
Power consumption	DC 12V Max: 5.5W	
System		
Video Resolution[16:9]	2592x1520@25fps, 1920x1080@30fps, 1280x720@30fps, 640x360@30fps	

Video Adjust	Brightness, Contrast, Hue, Saturation, Sharpness, AGC, Night Mode, WDR, Flip, Mirror, Noise Reduction, Day&Night Adjustable,LDC
Features	ROI, Smart Stream, Motion Detection, Privacy Mask, Anti Fog, Tampering Detection, Corridor Mode, Push Video , P2P(Optional)
Quadruple 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
Triggered Action	Mail, FTP, Save to SD card, DO, SAMBA
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 (Optional)	
Recording Trigger	Motion Detection, IP check, Network break down (wire only),Schedule, DI
Video Format	AVI, JPEG
Video Playback	Yes
Delete Files	Yes
Remote Browsing Requirement	
OS	Windows 10 , Microsoft IE 11.0 or above
Hardware Suggested	Intel Dual Core 2.8G,RAM, 4GB, Graphic card: 128MB
Mobile Support	iOS 8 or above, Android 4.0.4 or above.

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

3. Product Installation

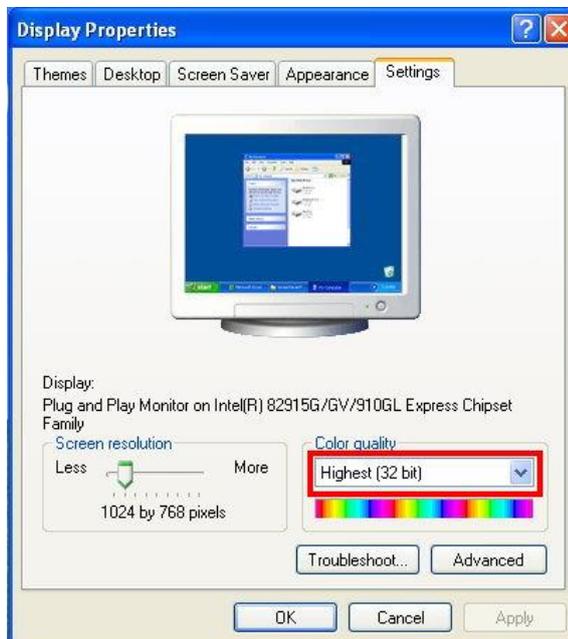
1. Monitor Settings

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

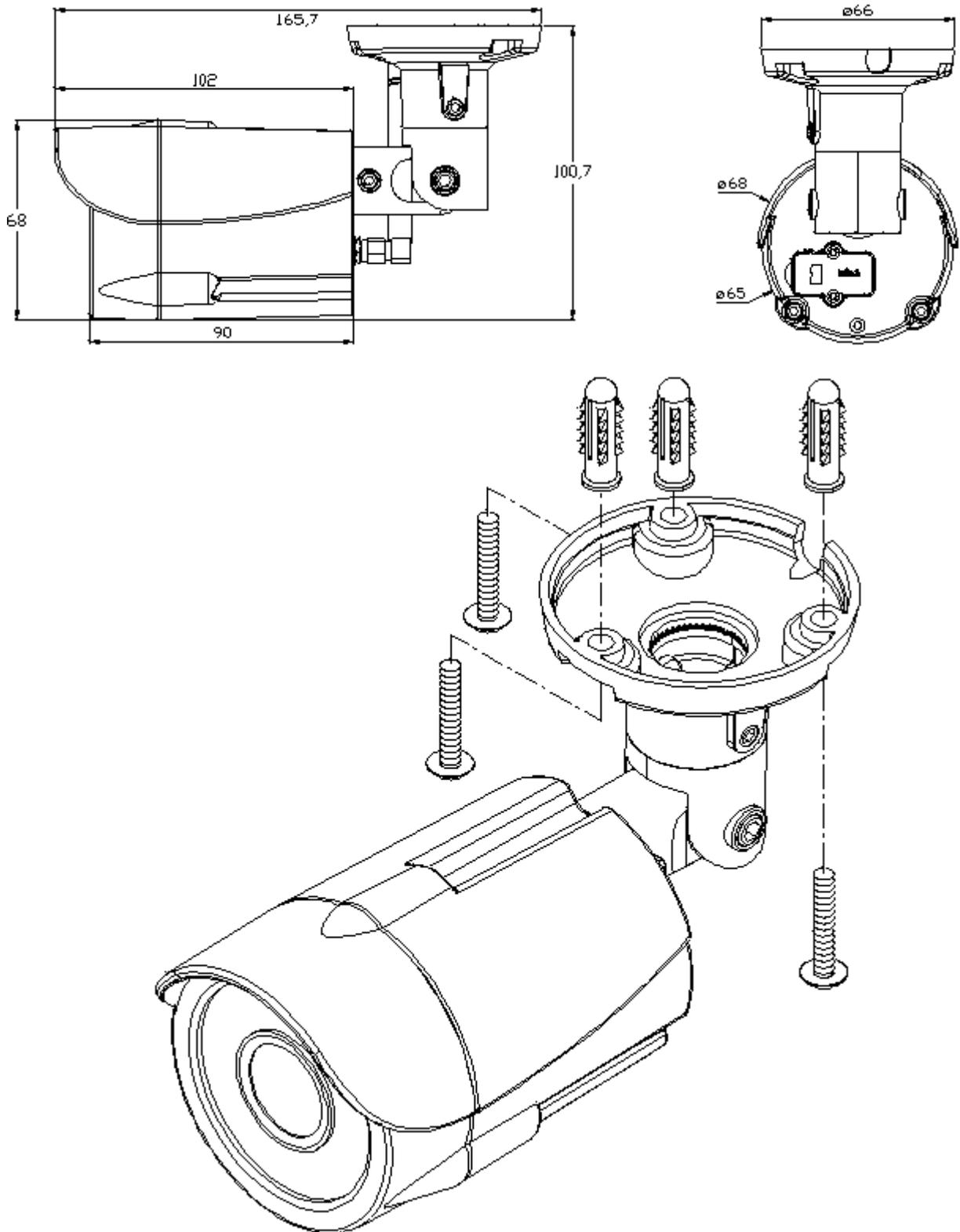
- a. Right-Click on the desktop. Select **Properties**



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

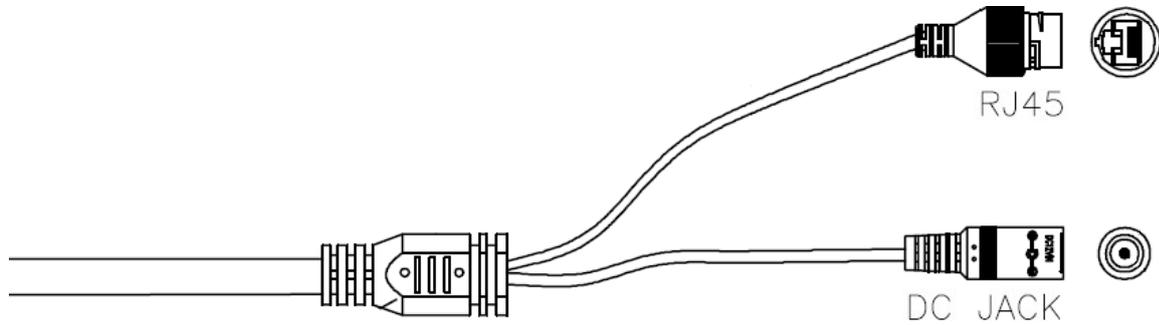


II. Hardware Installation



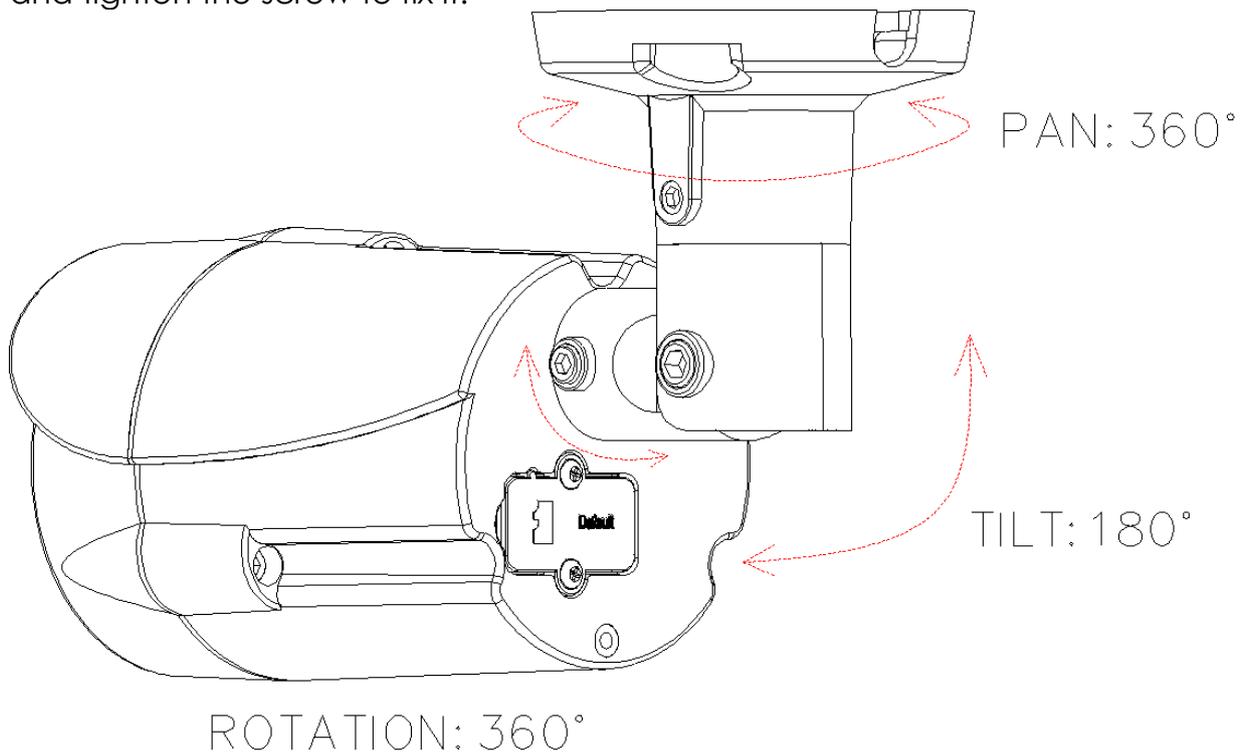
Connector Instruction

Set up configurations based on the network environment.



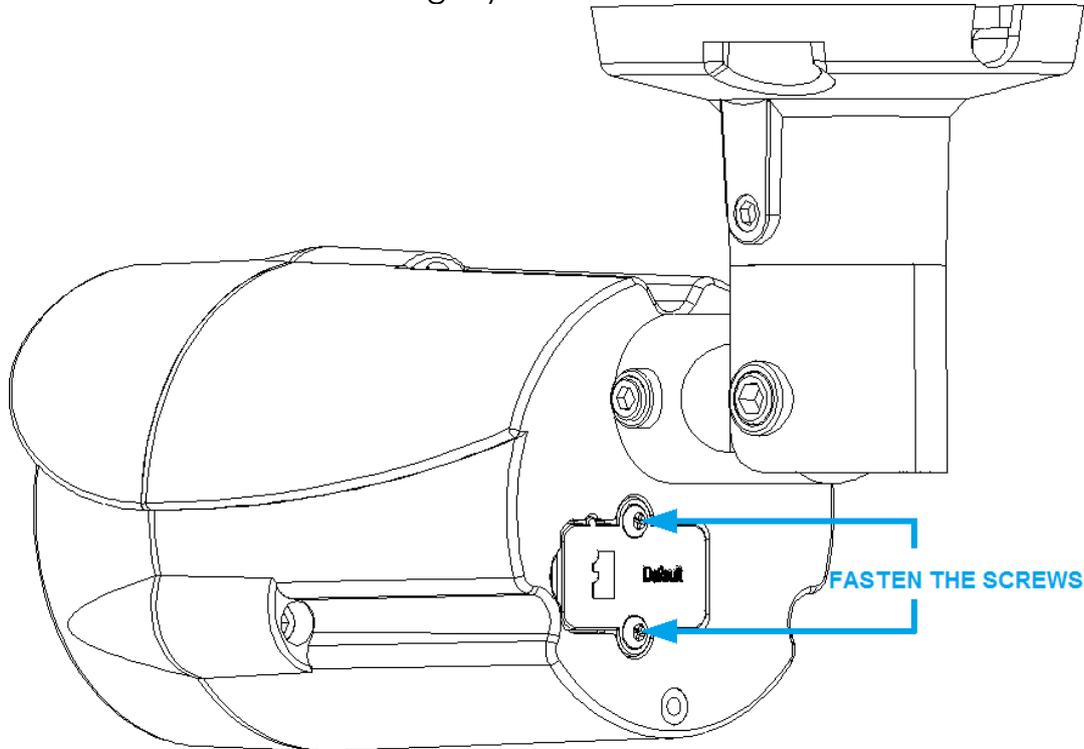
3-Axis Bracket

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



Installing Micro SD Card

For the 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)

Screw the Wireless Antenna unto the IP Camera as shown in the following procedures. **(Do not bend or try to straighten the antenna bar.)**

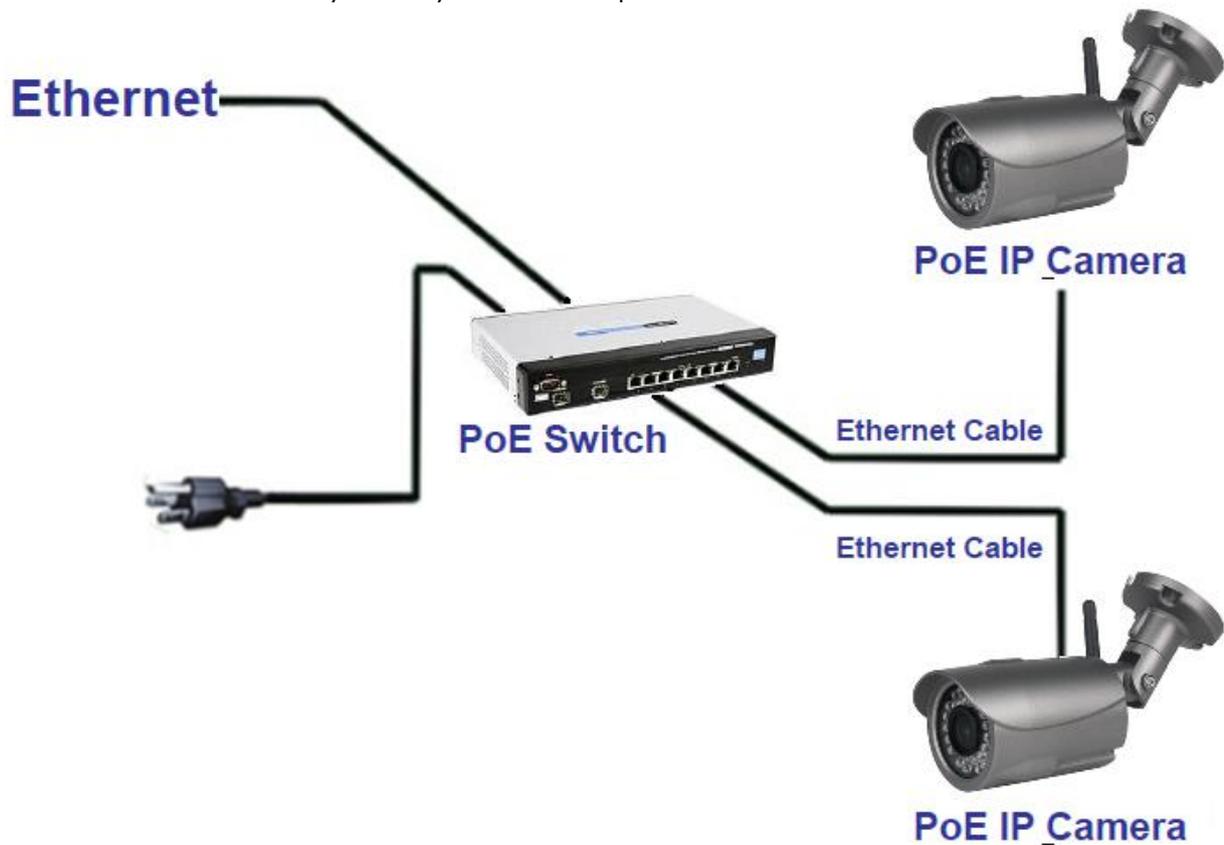
- a. Plug the Antenna into the connector while holding the Antenna bar.
- b. Turn the lock nut to the right until it is totally locked.



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**.



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

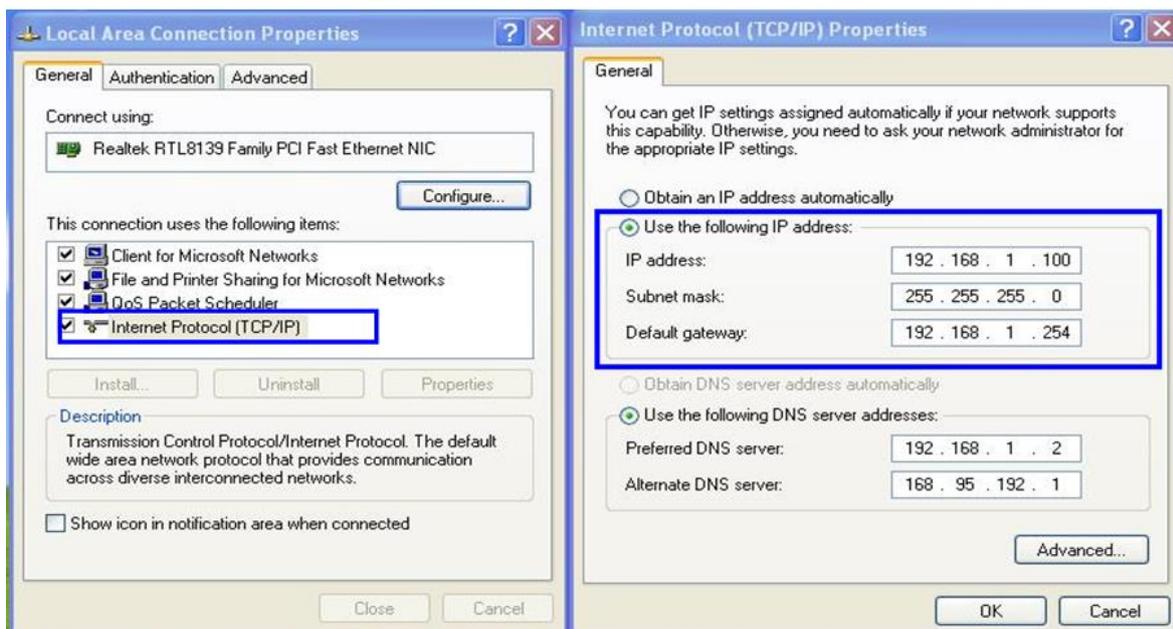
PC IP address: 192.168.1.100

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.

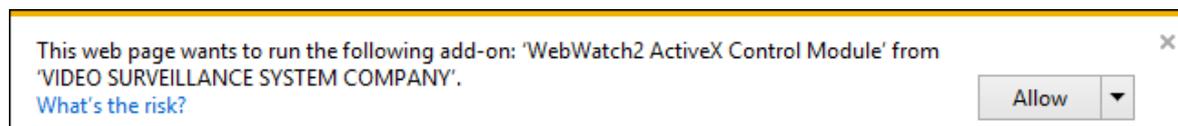


IV. Install Active Control

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**'



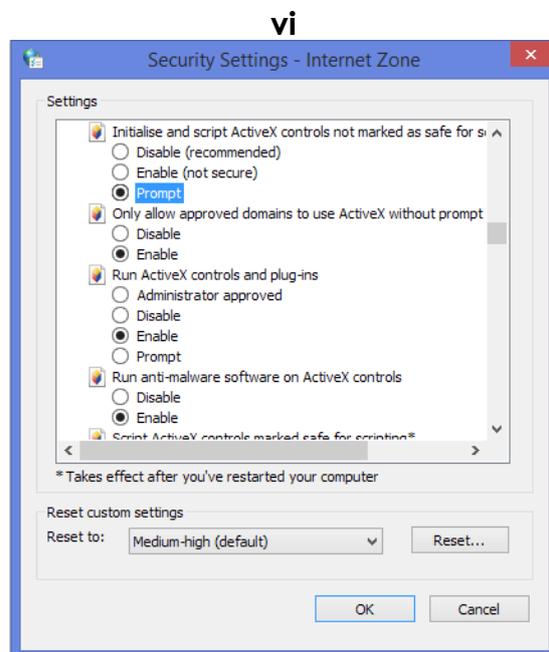
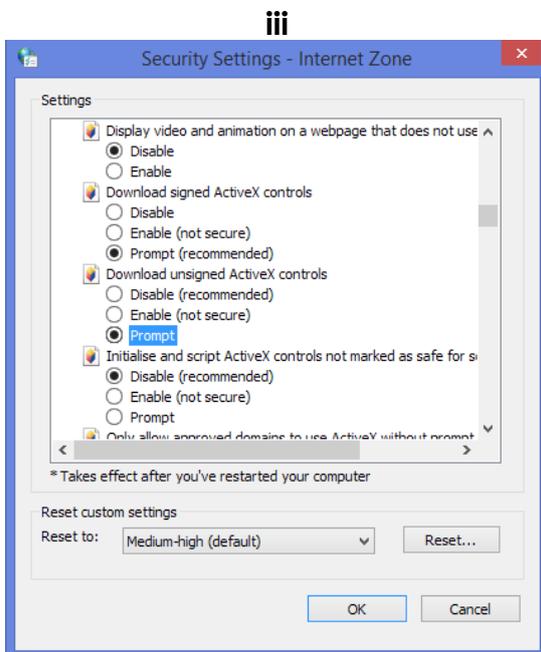
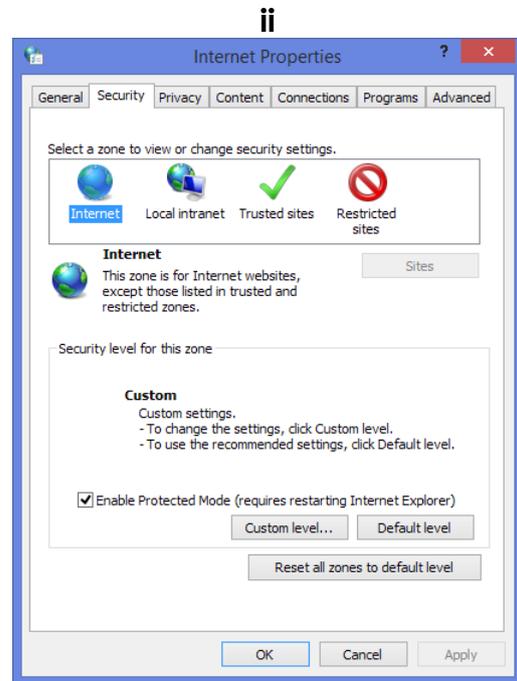
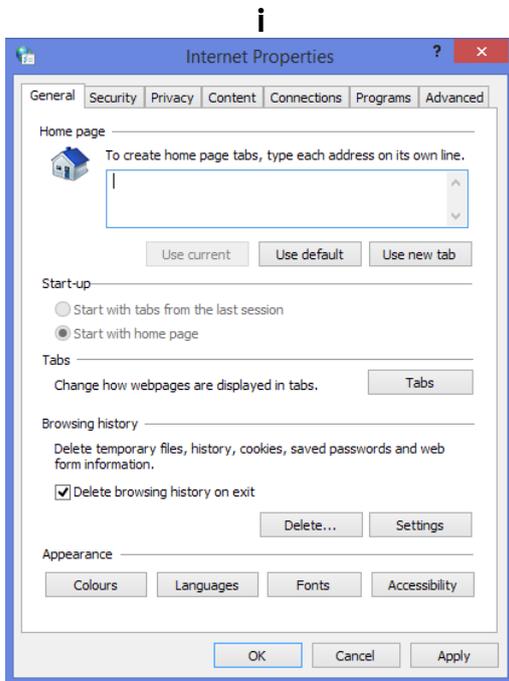
The ActiveX component should then be completed and user will be able to view the live video screen.

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

Follow the steps below:

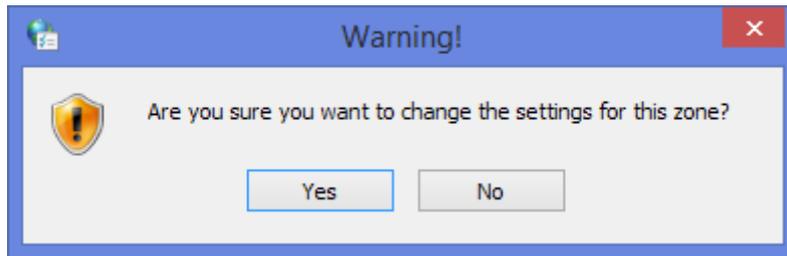
- 1) Go to **Start-Up Menu**  on the lower left corner of the **Windows**
 - 2) Select **Control Panel** 
 - 3) Double-click on  **Internet Options**.
 - 4) You will then enter the page of **Internet Properties** settings.
 - 5) Starting from **Internet Properties**, proceeding steps as below:
 - Security → 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).



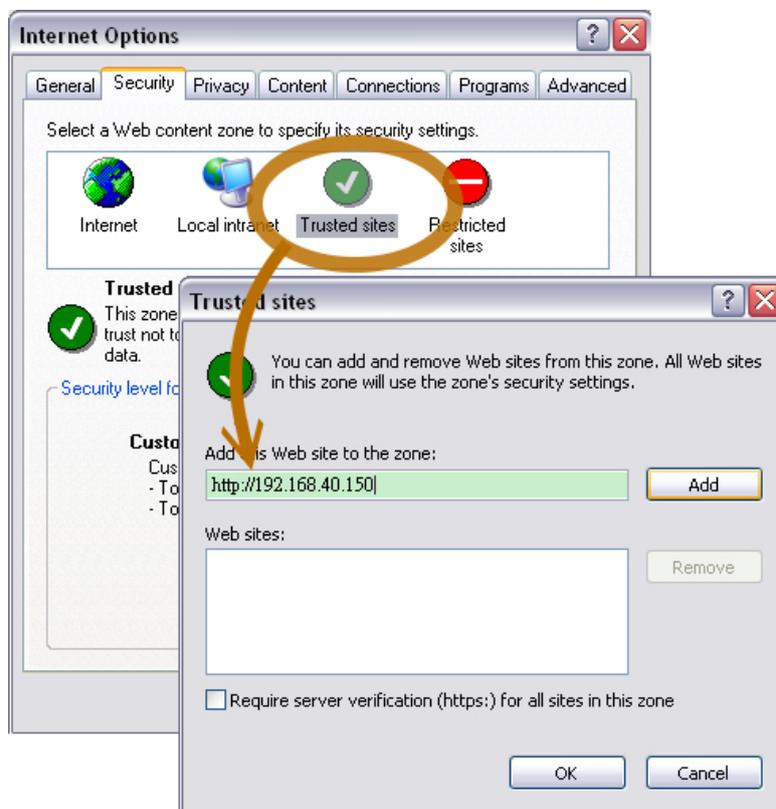
v

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**.

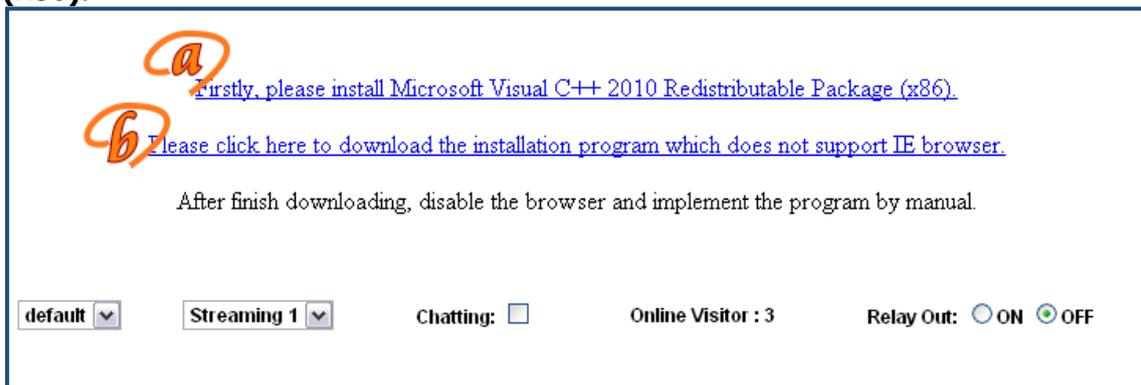


In the site list you can key in one single IP address or a LAN address. For example, if you add **192.168.21.***, all the IP address under **21.*** on the LAN will be regarded as trusted sites.

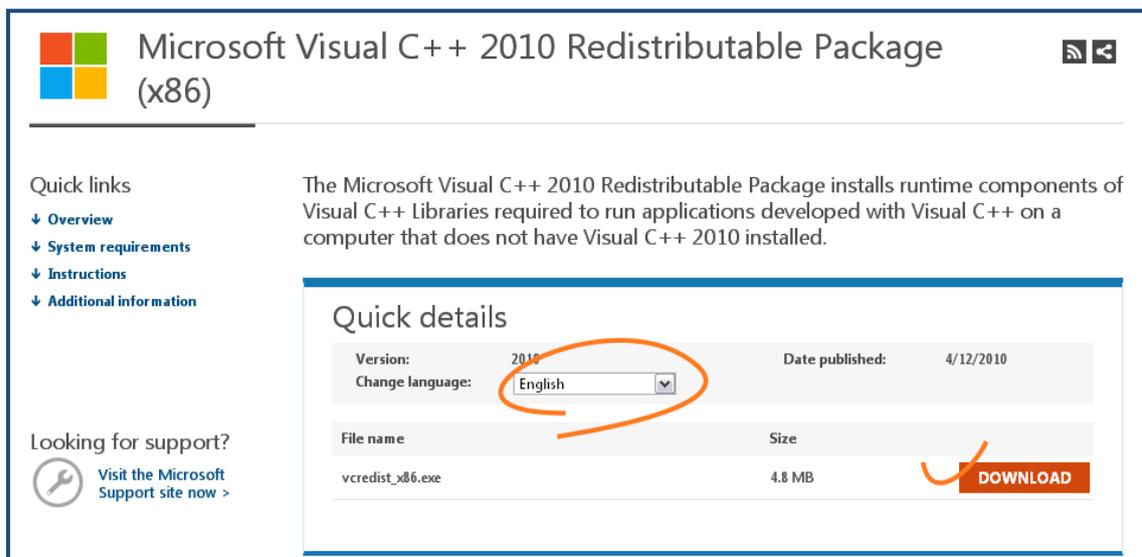
For Non-IE Web Browser Users

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.)

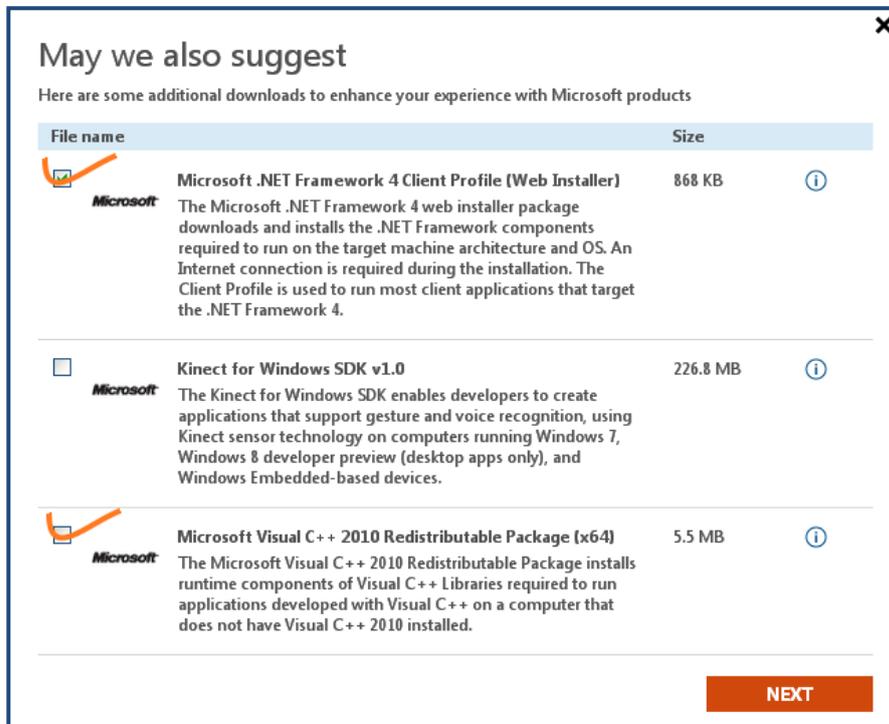
- i. You may see the prompt message as the picture below. Click the **a** link: **Firstly, please install Microsoft Visual C++ 2010 Redistributable Package (x86).**



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.

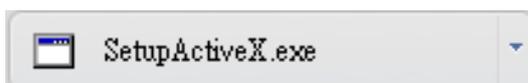


Click **Next** to download both **Microsoft .NET Framework 4 Client Profile (Web Installer)** and **Microsoft Visual C++ 2010 Redistributable Package (x64)**.

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.



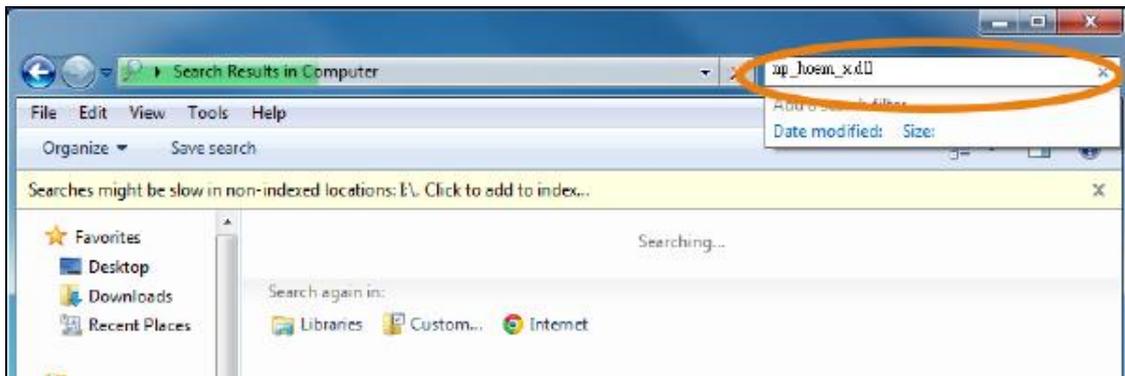
- ii. Then, click the second link **Please click here to download the installation program which does not support IE browser** to download Setup ActiveX.



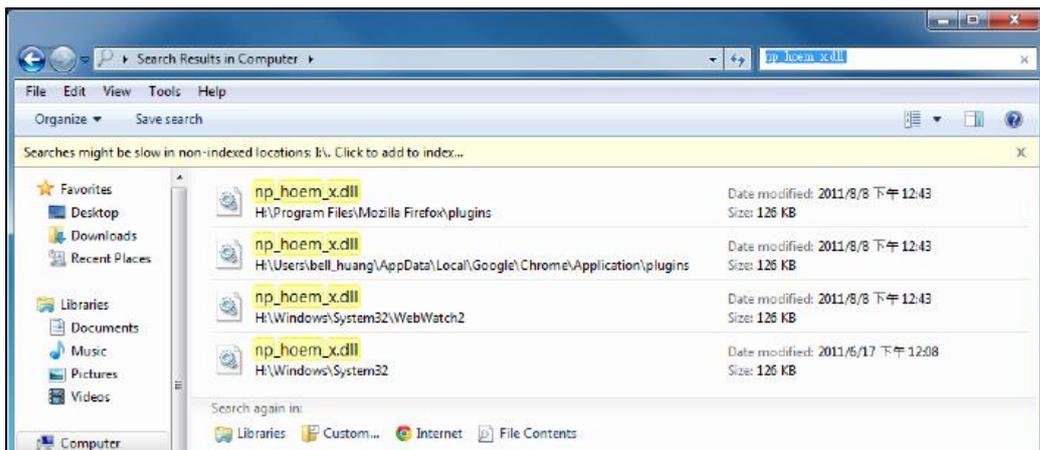
After finishing downloading, execute the files to install **ActiveX**. Then restart the browser.

- 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**.

a) [Firstly, please install Microsoft Visual C++ 2010 Redistributable Package \(x86\).](#)

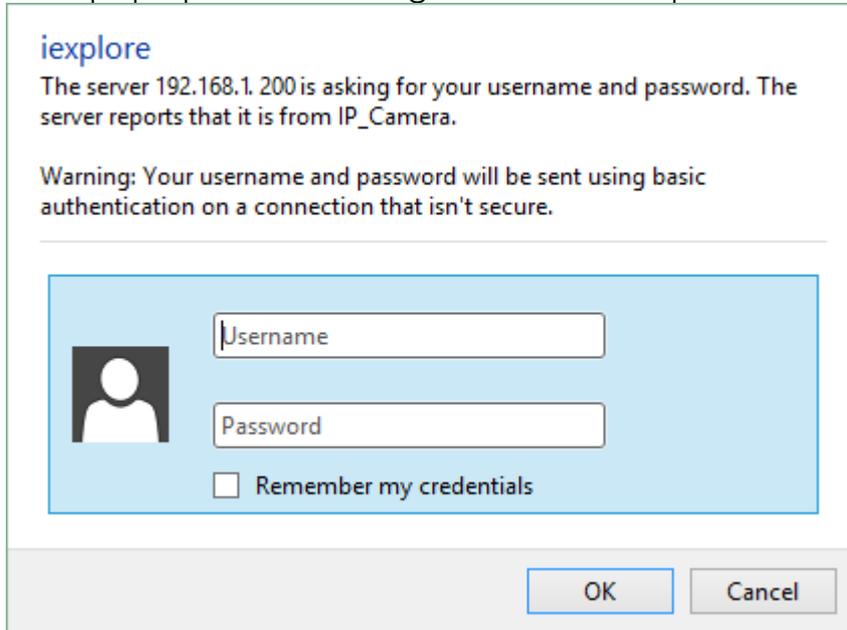
b) [Please click here to download the installation program which does not support IE browser.](#)

After finish downloading, disable the browser and implement the program by manual.

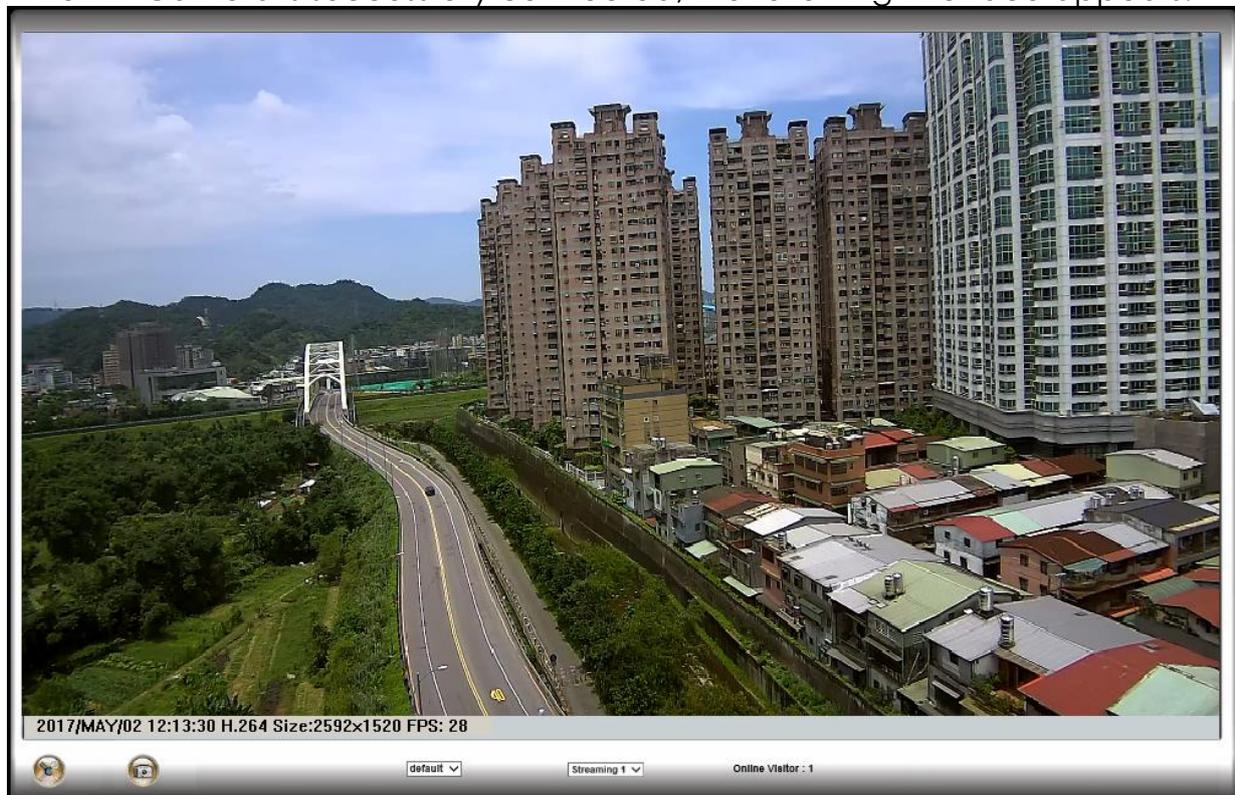
default ▾ Streaming 1 ▾ Chatting: Online Visitor : 3 Relay Out: ON OFF

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, the following interface appears.



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

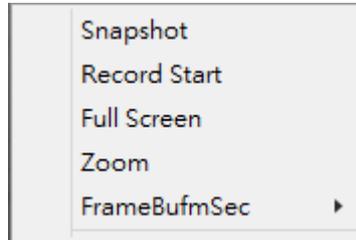
- Click  - Get into the administration page.
- Click  - A snapshot preview window will appear.
Choose  to save the current snapshot or choose  to discard it.
- **2015/APR/02 10:14:56 Size:2592x1944**
Show the system time, video resolution, and other information.
- - Adjust image size by its ratio of 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.


The dialog box titled "Streaming 2 Setting" contains three radio button options: "Basic Mode", "Advanced Mode", and "Close". The "Close" option is currently selected.
- **Online Visitor:** Shows how many people are connected to this device.

Note: **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.

III. Submenu

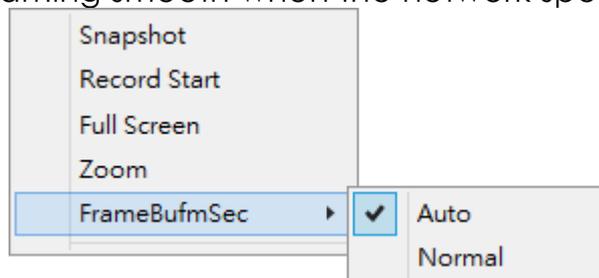
Right-Click the mouse on the live video screen, a pop-up menu will then appear as below.



- 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. **Full Screen**: Full-screen mode.
- iv. **Zoom**: Drag and drop the bar to adjust the zoom factors from the pop-up window.



- v. **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.

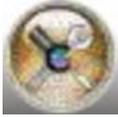


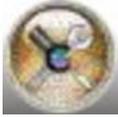
Select **Auto** to allow this function automatically help fix the streaming performance whenever the video happens to be lagging.

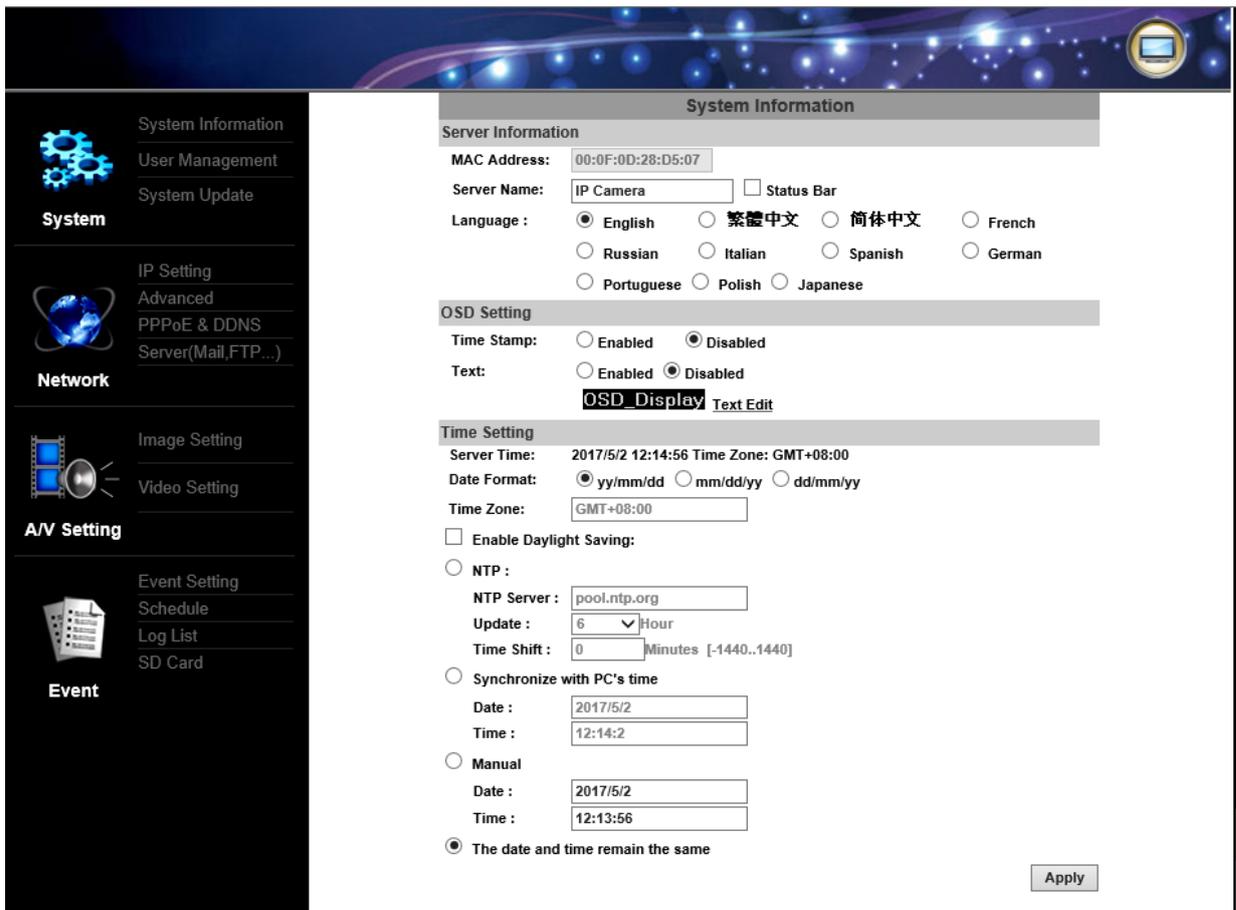
Select **Normal** to play the video data based on the current network streaming performance. (Note: the lagging of the video displayed will not be seen as a result of the actual video data)

5. Camera Configuration

1. System



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

The screenshot shows the 'System Information' configuration page. On the left is a navigation menu with categories: System, Network, A/V Setting, and Event. The main content area is titled 'System Information' and contains the following sections:

- Server Information:**
 - MAC Address: 00:0F:0D:28:D5:07
 - Server Name: IP Camera Status Bar
 - Language: English 繁體中文 简体中文 French Russian Italian Spanish German Portuguese Polish Japanese
- OSD Setting:**
 - Time Stamp: Enabled Disabled
 - Text: Enabled Disabled
 - OSD_Display** [Text Edit](#)
- Time Setting:**
 - Server Time: 2017/5/2 12:14:56 Time Zone: GMT+08:00
 - Date Format: yy/mm/dd mm/dd/yy dd/mm/yy
 - Time Zone: GMT+08:00
 - Enable Daylight Saving:
 - NTP :
 - NTP Server : pool.ntp.org
 - Update : 6 Hour
 - Time Shift : 0 Minutes [-1440..1440]
 - Synchronize with PC's time
 - Date : 2017/5/2
 - Time : 12:14:2
 - Manual
 - Date : 2017/5/2
 - Time : 12:13:56
 - The date and time remain the same

An 'Apply' button is located at the bottom right of the configuration area.

System Information

Server Information

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



Server Information

MAC Address: 00:0F:0D:27:4A:4B

Server Name: IP_Camera Status Bar

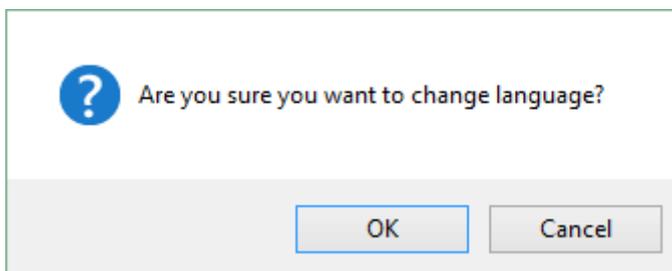
LED Indicator: ON OFF

Language : English 繁體中文 简体中文 French
 Russian Italian Spanish German
 Portuguese Polish Japanese

- **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](#). If you do not key in anything, no server name will be displayed at live video mode at the bottom.

2015/APR/02 10:14:56 Size:2592x1944

- **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.

OSD Setting

Time Stamp: Enabled Disabled

Text: Enabled Disabled

OSD_Display [Text Edit](#)

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

Text Edit



Text Edit

Text

Size ▼

Transparency ▼

[Upgrade](#)

Time Setting

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

Time Setting

Server Time: 2015/7/28 12:43:57 Time Zone: GMT+08:00

Date Format: yy/mm/dd mm/dd/yy dd/mm/yy

Time Zone:

Enable Daylight Saving:

DST Start:	Month	Day	Day of Week	Time
DST Start:	<input type="text" value="Mar"/>	<input type="text" value="2nd"/>	<input type="text" value="Sun"/>	<input type="text" value="12 am"/>
DST End:	<input type="text" value="Nov"/>	<input type="text" value="1st"/>	<input type="text" value="Sun"/>	<input type="text" value="12 am"/>

NTP :

NTP Server :

Update : Hour

Time Shift : Minutes [-1440..1440]

Synchronize with PC's time

Date :

Time :

Manual

Date :

Time :

The date and time remain the same

EasyLink (Optional)

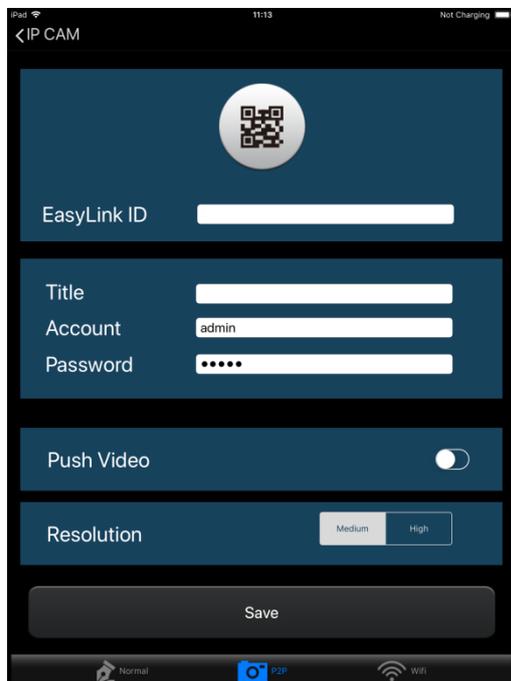
EasyLink

EasyLink ID:

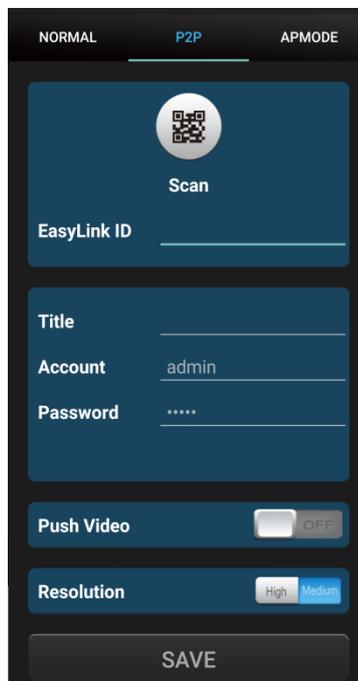
QR Code: 

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

User Management			
Anonymous User Login			
<input checked="" type="radio"/> YES <input type="radio"/> NO			
Universal Password (differs by IP Address)			
<input checked="" type="radio"/> YES <input type="radio"/> NO			
<input type="button" value="Setting"/>			
Add User			
Username: <input type="text"/>			
Password: <input type="password"/>			
Confirm: <input type="password"/>			
<input type="button" value="Add/Set"/>			
User List			
Username	User Group	Modify	Remove
admin	Administrator	Edit	-----
grace	Guest	Edit	Remove
Default Account			
<input type="checkbox"/> Show reminder message [Please change IP Cam default password]			

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

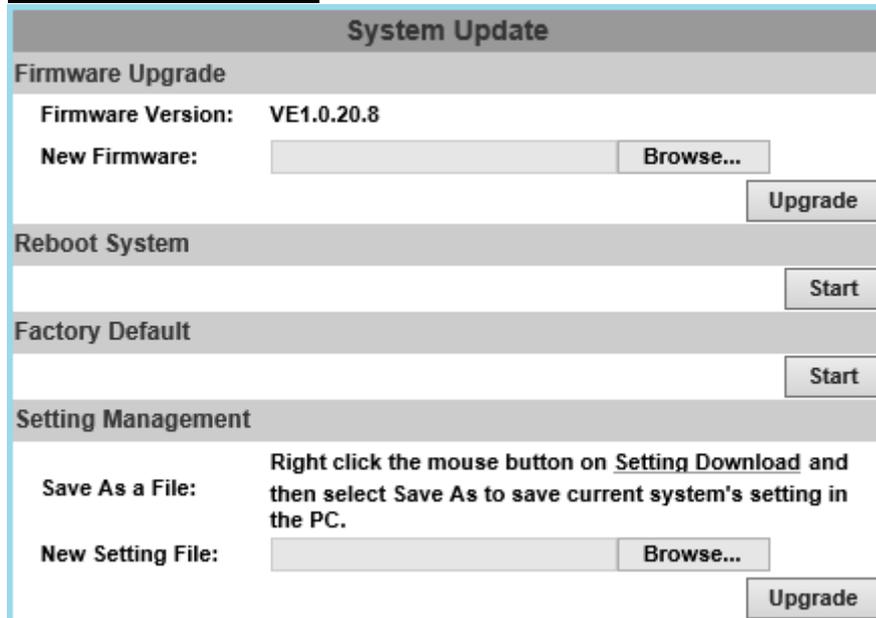
Type the user name and password, then click **Add/Set**. The guest user can only browse live video page and is not allowed to enter the configuration page.

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



The screenshot shows a web interface titled "System Update" with several sections:

- Firmware Upgrade:** Shows "Firmware Version: VE1.0.20.8". Below it is a "New Firmware:" field with a "Browse..." button and an "Upgrade" button.
- Reboot System:** A section with a "Start" button.
- Factory Default:** A section with a "Start" button.
- Setting Management:** Contains instructions: "Right click the mouse button on **Setting Download** and then select **Save As** to save current system's setting in the PC." Below this is a "New Setting File:" field with a "Browse..." button and an "Upgrade" button.

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

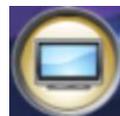
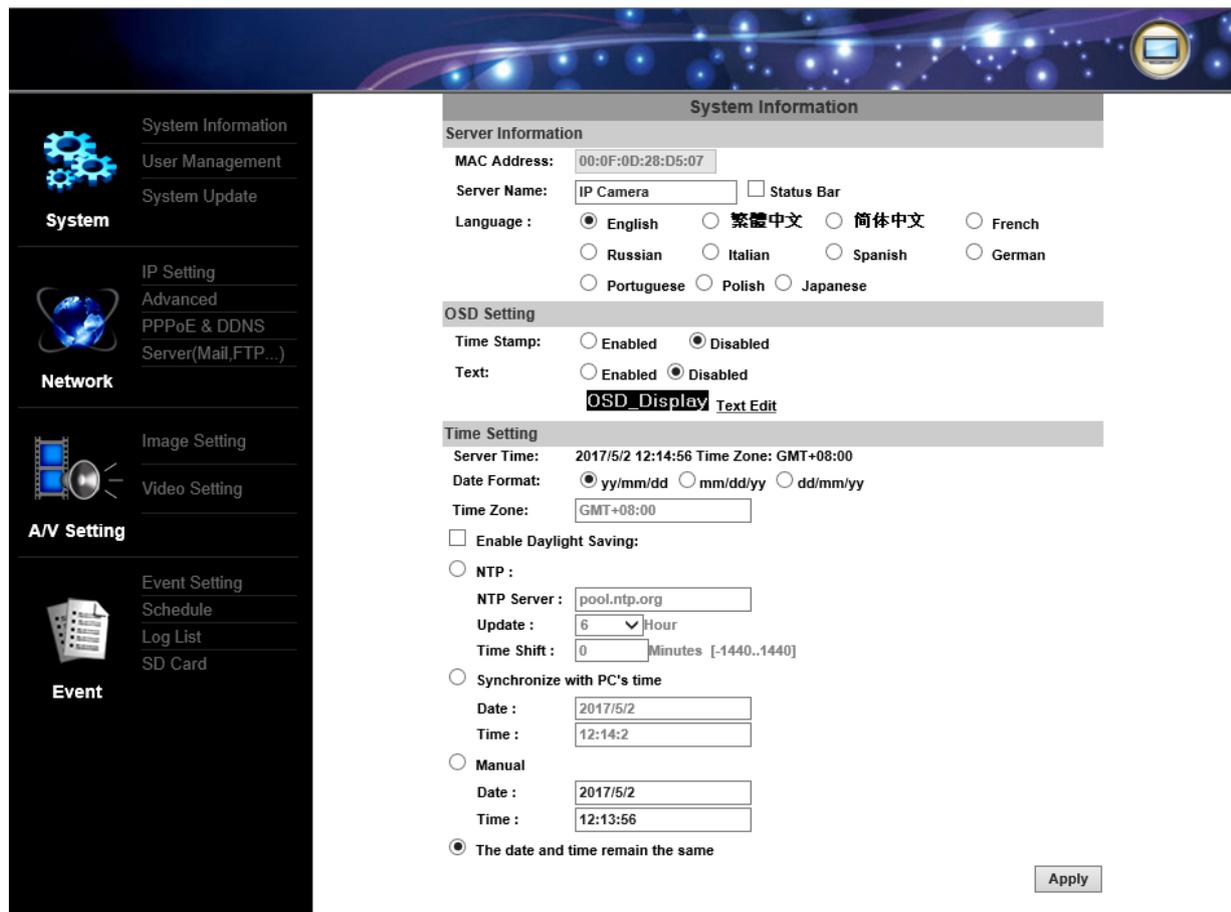
- **New Setting File**

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.

The screenshot displays the administration interface for an IP camera. The left sidebar contains a navigation menu with the following categories and items:

- System** (gear icon): System Information, User Management, System Update
- Network** (globe icon): IP Setting, Advanced, PPPoE & DDNS, Server(Mail,FTP...)
- A/V Setting** (camera icon): Image Setting, Video Setting
- Event** (document icon): Event Setting, Schedule, Log List, SD Card

The main content area is titled "System Information" and contains the following settings:

- Server Information**
 - MAC Address: 00:0F:0D:28:D5:07
 - Server Name: IP Camera Status Bar
 - Language:
 - English
 - 繁體中文
 - 简体中文
 - French
 - Russian
 - Italian
 - Spanish
 - German
 - Portuguese
 - Polish
 - Japanese
- OSD Setting**
 - Time Stamp: Enabled Disabled
 - Text: Enabled Disabled
 - OSD_Display [Text Edit](#)
- Time Setting**
 - Server Time: 2017/5/2 12:14:56 Time Zone: GMT+08:00
 - Date Format: yy/mm/dd mm/dd/yy dd/mm/yy
 - Time Zone: GMT+08:00
 - Enable Daylight Saving:
 - NTP :
 - NTP Server : pool.ntp.org
 - Update : 6 Hour
 - Time Shift : 0 Minutes [-1440..1440]
 - Synchronize with PC's time
 - Date : 2017/5/2
 - Time : 12:14:2
 - Manual
 - Date : 2017/5/2
 - Time : 12:13:56
 - The date and time remain the same

An "Apply" button is located at the bottom right of the settings area.

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.

IP Setting	
IP Assignment	
<input type="radio"/> DHCP	
<input checked="" type="radio"/> Static	
IP Address:	<input type="text" value="192.168.1.200"/>
Subnet Mask:	<input type="text" value="255.255.255.0"/>
Gateway:	<input type="text" value="192.168.1.254"/>
DNS 0:	<input type="text" value="168.95.1.1"/>
DNS 1:	<input type="text" value="168.95.192.1"/>

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

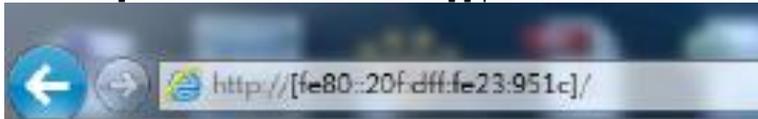
IPv6 Assignment

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

IPv6 Assignment	
<input checked="" type="checkbox"/> IPv6 Enabled:	
<input checked="" type="checkbox"/> Manually setup the IPv6 address:	
IPv6 Address/Prefix:	<input type="text" value="::"/> / <input type="text" value="64"/>
IPv6 Gateway:	<input type="text" value="::"/>
IPv6 DNS:	<input type="text" value="::"/>
DHCPv6:	<input type="radio"/> Enabled <input checked="" type="radio"/> Disabled
IPv6 Address:	fe80::20f:dff:fe00:284d

- **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.

Port Assignment	
Web Page Port:	<input type="text" value="80"/>
HTTPS Port:	<input type="text" value="443"/> HTTPS Setting

- **Web Page Port:** Setup the web page connecting port and video transmitting port (Default: 80)
- **HTTPs Port:** Setup the https port (Default: 443)

UPnP

UPnP	
UPnP:	<input checked="" type="radio"/> Enabled <input type="radio"/> Disabled
UPnP Port Forwarding:	<input type="radio"/> Enabled <input checked="" type="radio"/> Disabled
External Web Port:	<input type="text" value="80"/>
External HTTPS Port:	<input type="text" value="443"/>
External RTSP Port:	<input type="text" value="554"/>

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.

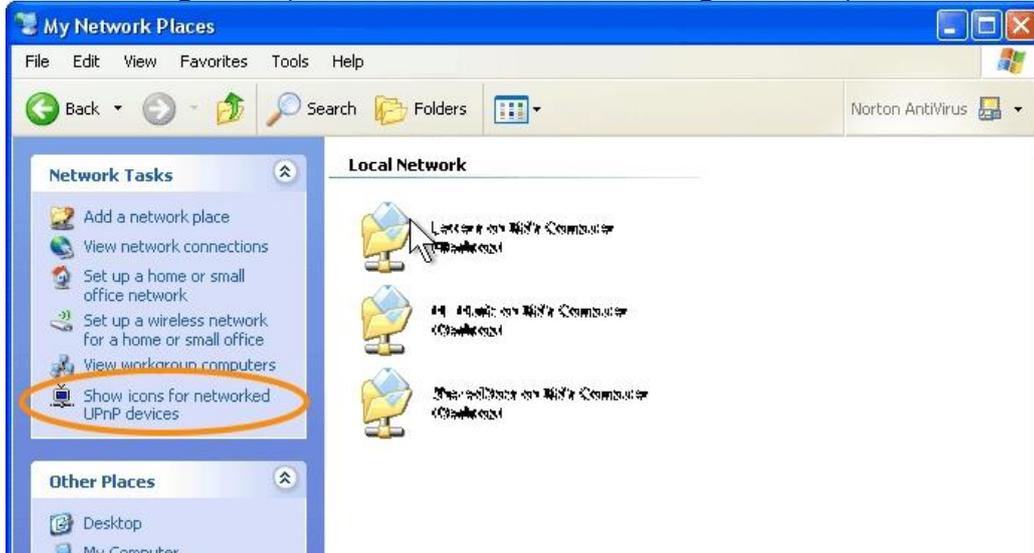
Note: UPnP must be enabled on your computer.
Please follow the procedure to activate UPnP:

<Approach 1>

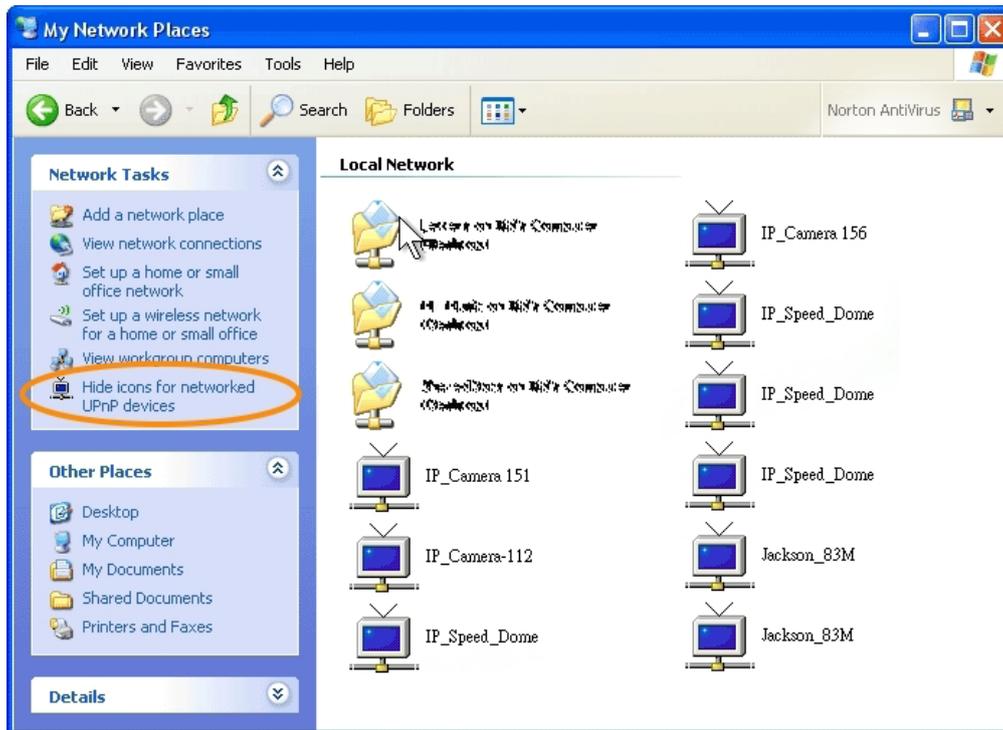
- i. open the **Control Panel** from the **Start Menu**
- ii. Select **Add/Remove Programs**
- iii. Select **Add/Remove Windows Components** and open **Networking Services** section
- iv. Click **Details** and select **UPnP** to setup the service.
- v. The IP device icon will be added to **My Network 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

RTSP Setting	
RTSP Server:	<input checked="" type="radio"/> Enabled <input type="radio"/> Disabled
RTSP Authentication:	Disable ▾
RTSP Port :	554
RTP Start Port:	5000 [1024..9997]
RTP End port:	9000 [1027..10000]

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 Setting (Based on the RTSP Server)		
Streaming 1:		
IP Address:	<input type="text" value="234.5.6.78"/>	[224.3.1.0 ~ 239.255.255.255]
Port:	<input type="text" value="6000"/>	[1 ~ 65535]
TTL:	<input type="text" value="15"/>	[1 ~ 255]
Streaming 2:		
IP Address:	<input type="text" value="234.5.6.79"/>	[224.3.1.0 ~ 239.255.255.255]
Port:	<input type="text" value="6001"/>	[1 ~ 65535]
TTL:	<input type="text" value="15"/>	[1 ~ 255]

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

ONVIF	
ONVIF:	<input checked="" type="radio"/> v2.10/v1.02 <input type="radio"/> v1.01 <input type="radio"/> Disabled
Security:	<input type="radio"/> Enabled <input checked="" type="radio"/> Disabled
RTSP Keepalive:	<input checked="" type="radio"/> Enabled <input type="radio"/> Disabled

Choose your ONVIF version and settings.

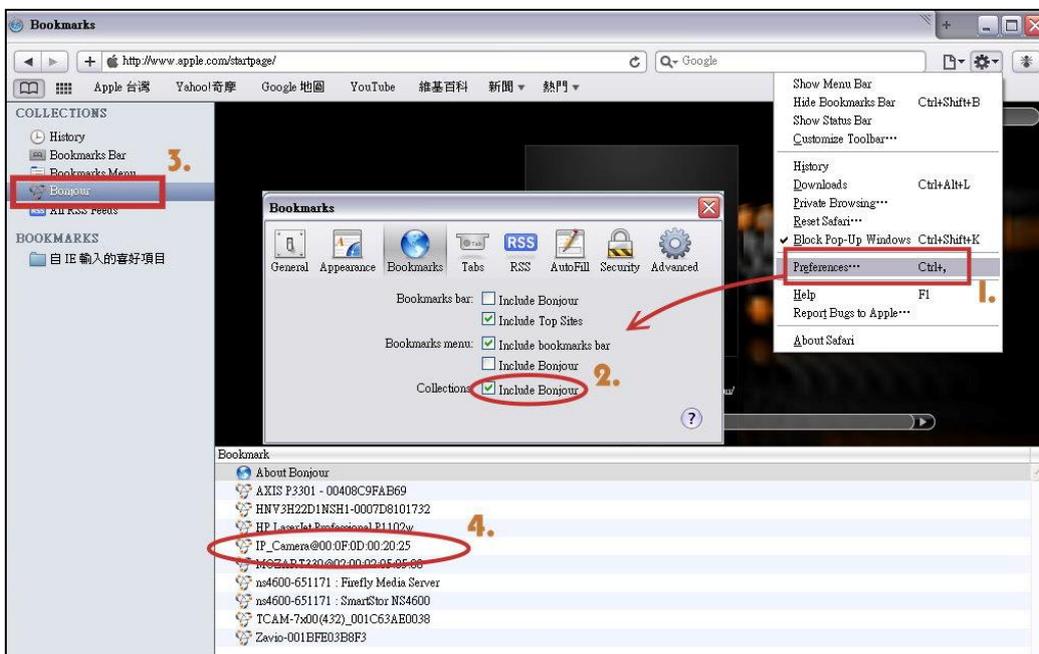
- **ONVIF:** Under ONVIF connection, the video will be transmitted by RTSP. Be sure to enable the RTSP server in IP setting, otherwise the IP Camera will not be able to receive the video via ONVIF.
- **Security:** By selecting **Disable**, the username and password are not required for accessing the 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

Bonjour	
Bonjour:	<input type="radio"/> Enabled <input checked="" type="radio"/> Disabled
Bonjour Name:	<input type="text" value="IP_Camera"/> @00:0F:0D:00:28:4D

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.

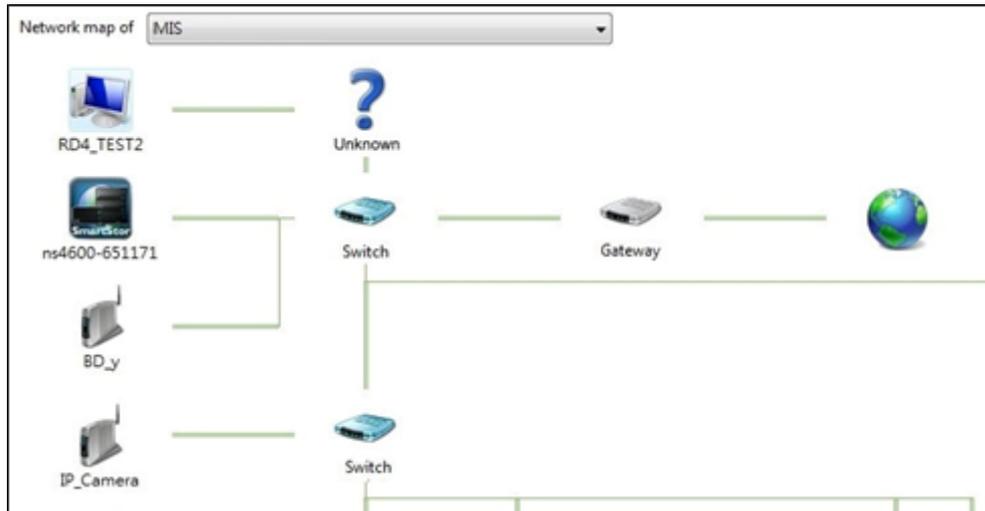
Click the icon to connect to the IP camera. The Bonjour function on Safari browser doesn't support HTTPS protocol. If on the camera you select **https**, the camera will appear on Safari's bookmarks but it cannot be accessed. Take as a reference the following image:



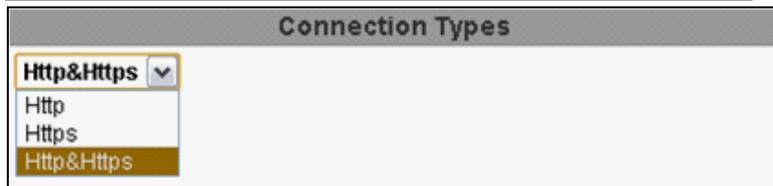
LLTD

LLTD (Link Layer Topology Discovery)	
LLTD:	<input checked="" type="radio"/> Enabled <input type="radio"/> Disabled

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)

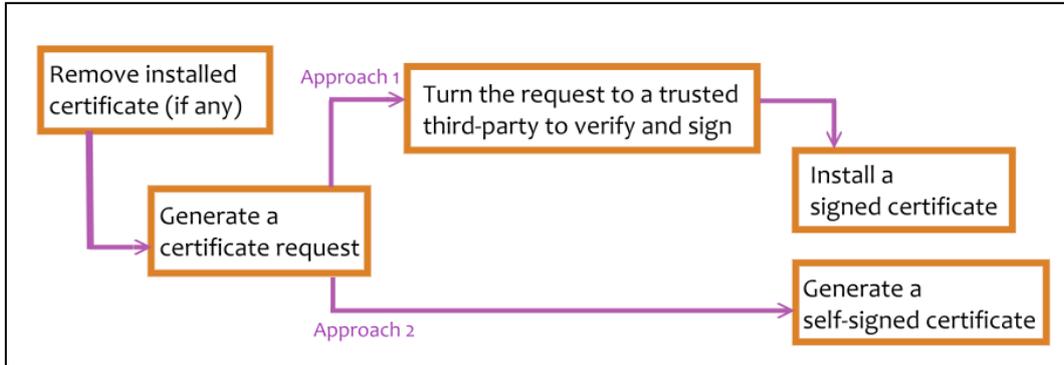


When the users access cameras via Https protocol, the transmitted information will be encrypted, increasing the security level.
Select the connection type:

- **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.

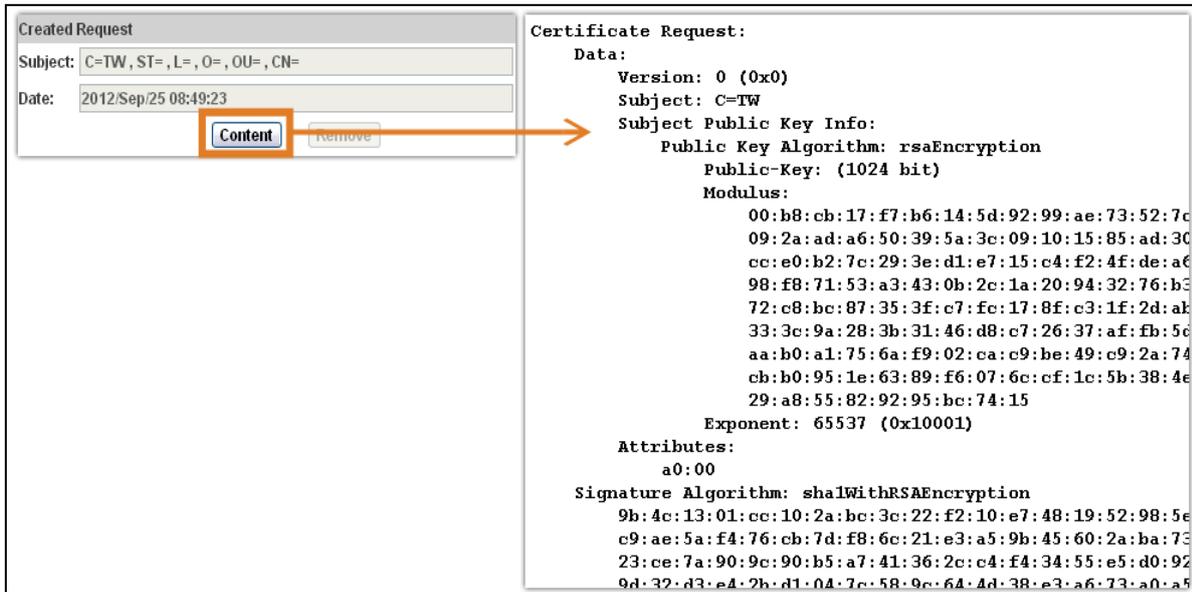
The Https protocol has a verifying mechanism. When the user access a website via Https, the browser will check the certificate of that domain and verify its trustness and security. Certificate generation process:



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.



Install Signed Certificate

Signed Certificate: Browse...

Apply

Create Self-Signed Certificate

Country:

State or province:

Locality:

Organization:

Organizational Unit:

Common Name:

Validity: Days

Apply

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

Installed Certificate	
Subject:	C=AC , ST= , L= , O= , OU= , CN=name
Date:	Oct 4 08:35:29 2012 GMT
	<input type="button" value="Content"/> <input type="button" value="Remove"/>

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:



The site's security certificate is not trusted!

You attempted to reach **60.251.82.60**, but the server presented a certificate issued by an entity that is not trusted by your computer's operating system. This may mean that the server has generated its own security credentials, which Google Chrome cannot rely on for identity information, or an attacker may be trying to intercept your communications.

You should not proceed, **especially** if you have never seen this warning before for this site.

[▶ Help me understand](#)

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)

SNMP	
SNMP Setting	
<input type="checkbox"/> SNMPv1	<input checked="" type="checkbox"/> SNMPv2c
Write Community:	<input type="text" value="write"/>
Read Community:	<input type="text" value="public"/>

- 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.

SNMPv3

Write Security Name:

Authentication Type: MD5 SHA

Authentication Password:

Encryption Type: DES AES

Encryption Password:

Read Security Name:

Authentication Type: MD5 SHA

Authentication Password:

Encryption Type: DES AES

Encryption Password:

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

SNMPv1/v2c Trap

Trap Address:

Trap Community:

Trap Event:

- Cold Start
- Setting Changed
- Network Disconnected
- V3 Authentication Failed
- SDCard Insert/Remove

- **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 (Optional)

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

IP FILTER

IP ADDRESS FILTER Setting

Enable ip address filter

IPv4 Setting:

allow deny

single ▼ address:

single

single

range

IPv4 List:

No.	IP Address	Filter	Action
1			<input type="button" value="remove"/>
2			<input type="button" value="remove"/>
3			<input type="button" value="remove"/>
4			<input type="button" value="remove"/>
5			<input type="button" value="remove"/>
6			<input type="button" value="remove"/>
7			<input type="button" value="remove"/>
8			<input type="button" value="remove"/>
9			<input type="button" value="remove"/>
10			<input type="button" value="remove"/>

Allow admin ip address always access this device

Admin ip address:

PPPoE & DDNS

PPPoE & DDNS	
PPPoE Setting	
<input type="radio"/> Enabled	<input checked="" type="radio"/> Disabled
Username:	<input type="text"/>
Password:	<input type="text"/>
Send mail after PPPoE dialed	
<input type="checkbox"/> Enabled	
Subject:	<input type="text" value="PPPoE From IP Camera"/>
DDNS Setting	
<input type="radio"/> Enabled	<input checked="" type="radio"/> Disabled
Provider:	<input type="text" value="dyndns.org"/> ▼
Hostname:	<input type="text"/>
Username:	<input type="text"/>
Password:	<input type="text"/>
Schedule Update:	<input type="text" value="30"/> Minutes
State	
<input type="text" value="Idle"/>	
Note:	
1. Schedule Update: Depends on the input time of Schedule Update, it will update DDNS's web site automatically. The time range is from 5 to 5000 minutes. *0: It will not update.	
2. dyndns.org & 3322.org: Update once per day is recommended (1440 minutes per day). If updated too frequently, it will be blocked.	
<input type="button" value="Apply"/>	

PPPoE Setting

PPPoE Setting	
<input type="radio"/> Enabled	<input checked="" type="radio"/> Disabled
Username:	<input type="text"/>
Password:	<input type="text"/>

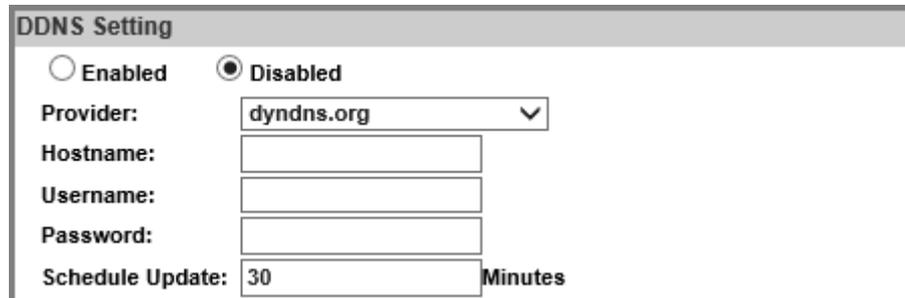
Select **Enabled** to use PPPoE. Key-in the Username and password for ADSL connection.

Send mail after PPPoE dialed

Send mail after PPPoE dialed	
<input type="checkbox"/> Enabled	
Subject:	<input type="text" value="PPPoE From IP Camera"/>

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

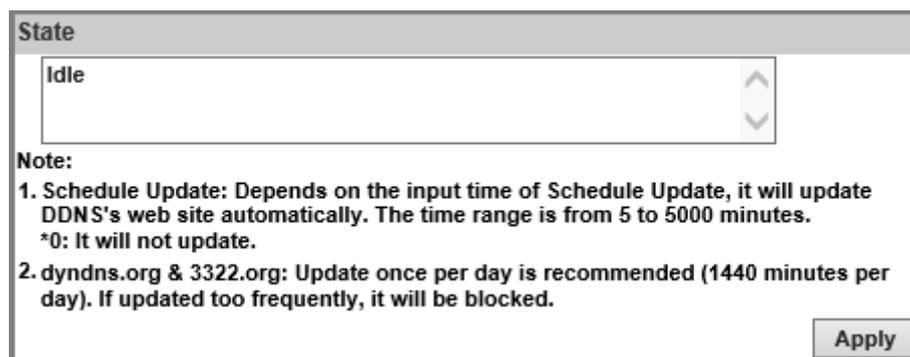
DDNS Setting



The screenshot shows the 'DDNS Setting' window. It has two radio buttons: 'Enabled' (unselected) and 'Disabled' (selected). Below are several input fields: 'Provider' is a dropdown menu showing 'dyndns.org'; 'Hostname', 'Username', and 'Password' are empty text boxes; 'Schedule Update' is a text box containing '30' followed by the label 'Minutes'.

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



The screenshot shows the 'State' window. It features a dropdown menu with 'Idle' selected. Below the menu is a 'Note' section with two numbered items: '1. Schedule Update: Depends on the input time of Schedule Update, it will update DDNS's web site automatically. The time range is from 5 to 5000 minutes. *0: It will not update.' and '2. dyndns.org & 3322.org: Update once per day is recommended (1440 minutes per day). If updated too frequently, it will be blocked.' An 'Apply' button is located at the bottom right.

(1) **Updating:** Information update

(2) **Idle:** Stop service

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

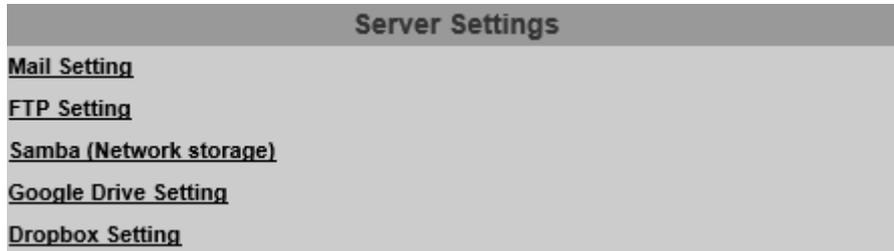
(4) **Update Failed, the name is already registered:** The user name has already been used. Please change it.

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

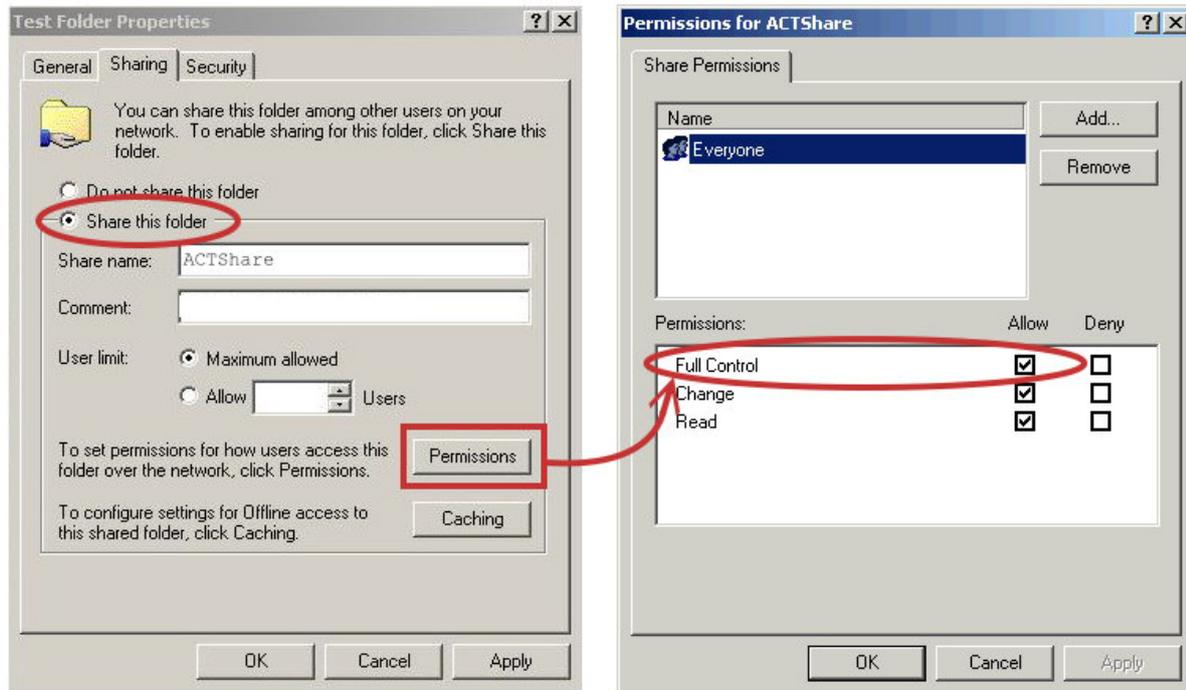
(6) **Update Failed, please check the account information you provided:** The server, user name, and password may be wrong.

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.

Server Settings

Mail Setting

Login Method:	Account ▼	
Mail Server:	<input style="width: 90%;" type="text"/>	
Username:	<input style="width: 90%;" type="text"/>	
Password:	<input style="width: 90%;" type="text"/>	
Sender's Mail:	<input style="width: 90%;" type="text"/>	
Receiver's Mail:	<input style="width: 90%;" type="text"/>	
Bcc Mail:	<input style="width: 90%;" type="text"/>	
Mail Port:	25	(Default 25)
<input checked="" type="checkbox"/> TLS Secure Connect:		

FTP Setting

Samba (Network storage)

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.

Server Settings

Mail Setting

FTP Setting

FTP Server:	<input style="width: 90%;" type="text"/>	
Username:	<input style="width: 90%;" type="text"/>	
Password:	<input style="width: 90%;" type="text"/>	
Port:	21	
Path:	<input style="width: 90%;" type="text" value="/"/>	
Mode:	PORT ▼	
Create the folder:	Yes ▼ (ex:Path/20100115/121032m.avi)	

Samba (Network storage)

Google Drive Setting

Dropbox Setting

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.

Server Settings

Mail Setting

FTP Setting

Samba (Network storage)

Location: (ex:\\Nas_ip\folder)

Workgroup:

Username:

Password:

Create the folder: Yes No (ex:Path/20100115/121032m.avi)

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

Google Drive Setting (Optional)

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

Server Settings

Mail Setting

FTP Setting

Samba (Network storage)

Google Drive Setting

Authorize

Authentication Code:

Registration: **Not Registered.**

Free Space:

User Account:

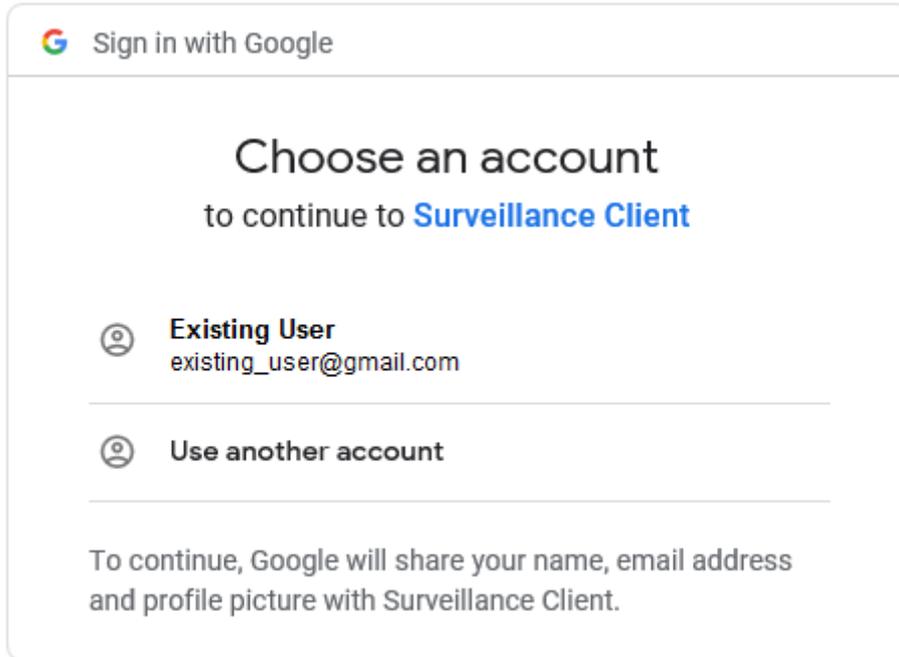
Main Folder Name:

Dropbox Setting

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.



Sign in with Google

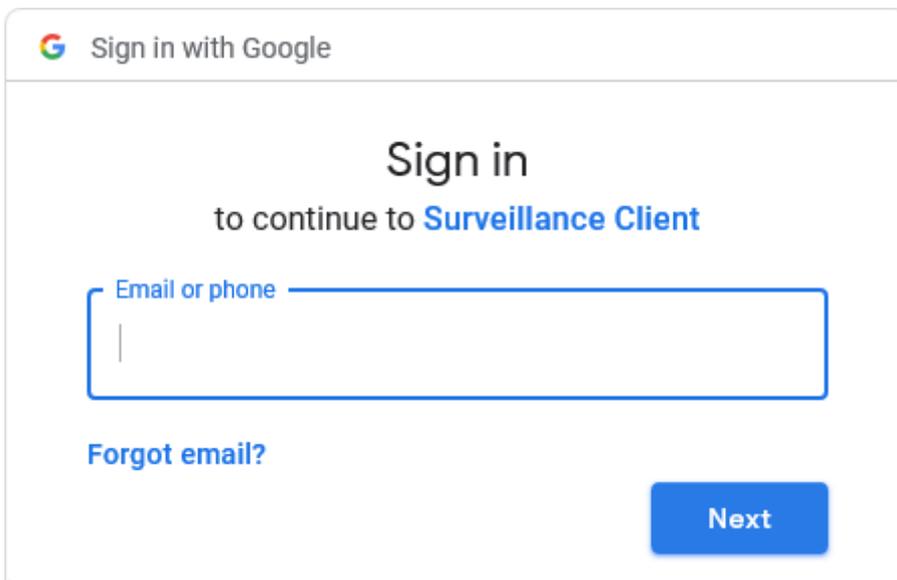
Choose an account to continue to Surveillance Client

 **Existing User**
existing_user@gmail.com

 **Use another account**

To continue, Google will share your name, email address and profile picture with Surveillance Client.

- 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.



Sign in with Google

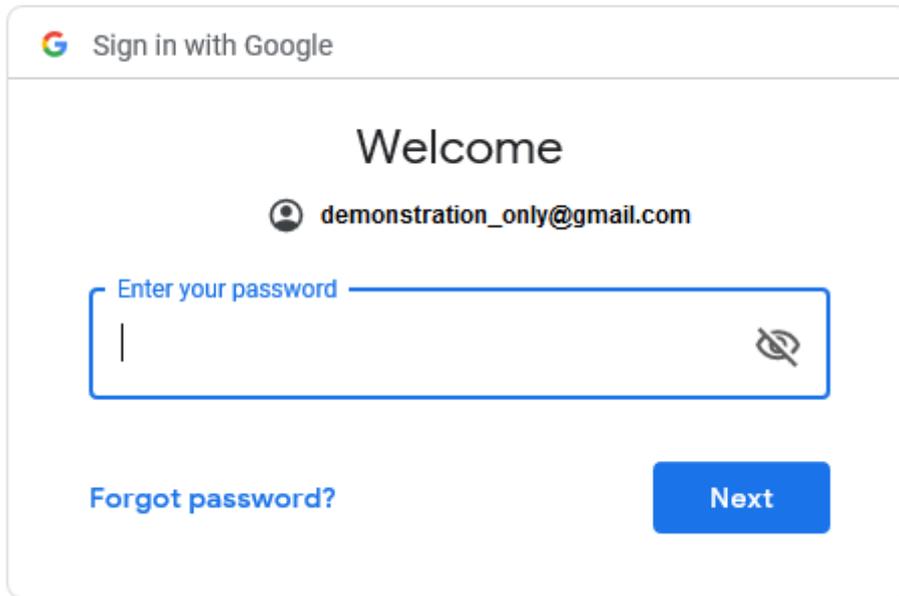
Sign in to continue to Surveillance Client

Email or phone

[Forgot email?](#)

Next

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



Sign in with Google

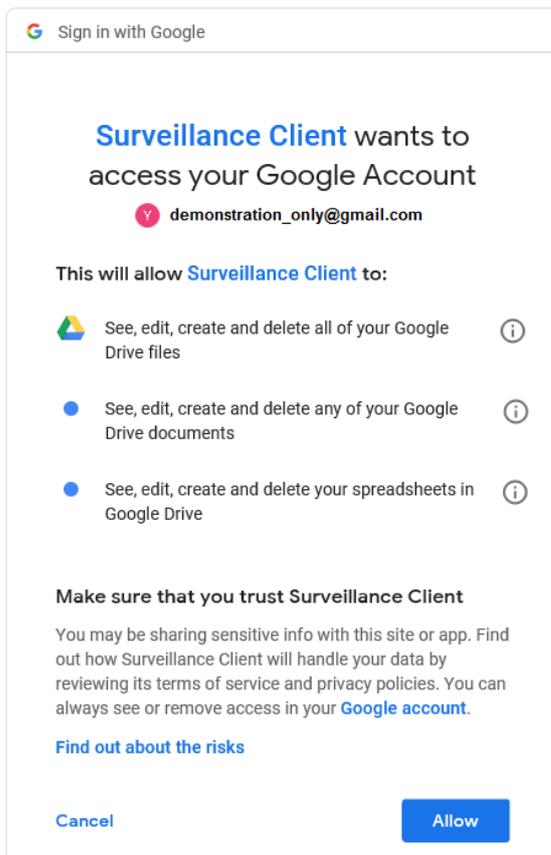
Welcome

 demonstration_only@gmail.com

Enter your password

[Forgot password?](#)

iv. Click **Allow**.



Sign in with Google

Surveillance Client wants to access your Google Account

 demonstration_only@gmail.com

This will allow **Surveillance Client** to:

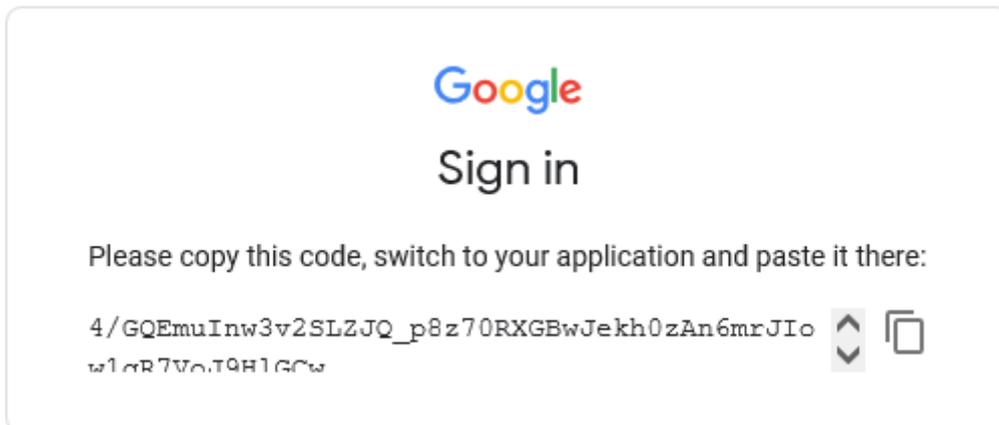
-  See, edit, create and delete all of your Google Drive files 
-  See, edit, create and delete any of your Google Drive documents 
-  See, edit, create and delete your spreadsheets in Google Drive 

Make sure that you trust Surveillance Client

You may be sharing sensitive info with this site or app. Find out how Surveillance Client will handle your data by reviewing its terms of service and privacy policies. You can always see or remove access in your [Google account](#).

[Find out about the risks](#)

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



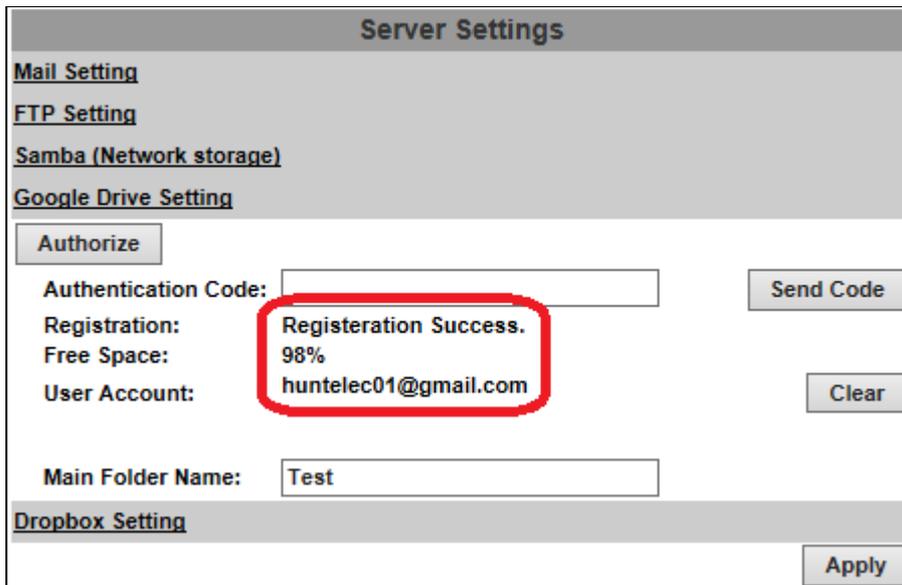
- vi. Paste the **Authentication Code** acquired from Google server in the required field, input the **Main Folder Name** of your preference and click **Send Code**.



- 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.



Server Settings

Mail Setting

FTP Setting

Samba (Network storage)

Google Drive Setting

Authorize

Authentication Code: Send Code

Registration: **Registration Success.**

Free Space: 98%

User Account: **huntelec01@gmail.com** Clear

Main Folder Name:

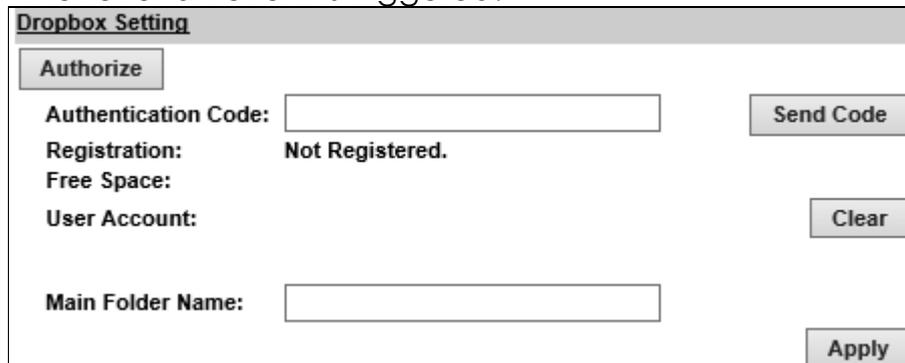
Dropbox Setting

Apply

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

Dropbox Setting (Optional)

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



Dropbox Setting

Authorize

Authentication Code: Send Code

Registration: **Not Registered.**

Free Space:

User Account: Clear

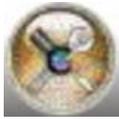
Main Folder Name:

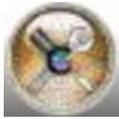
Apply

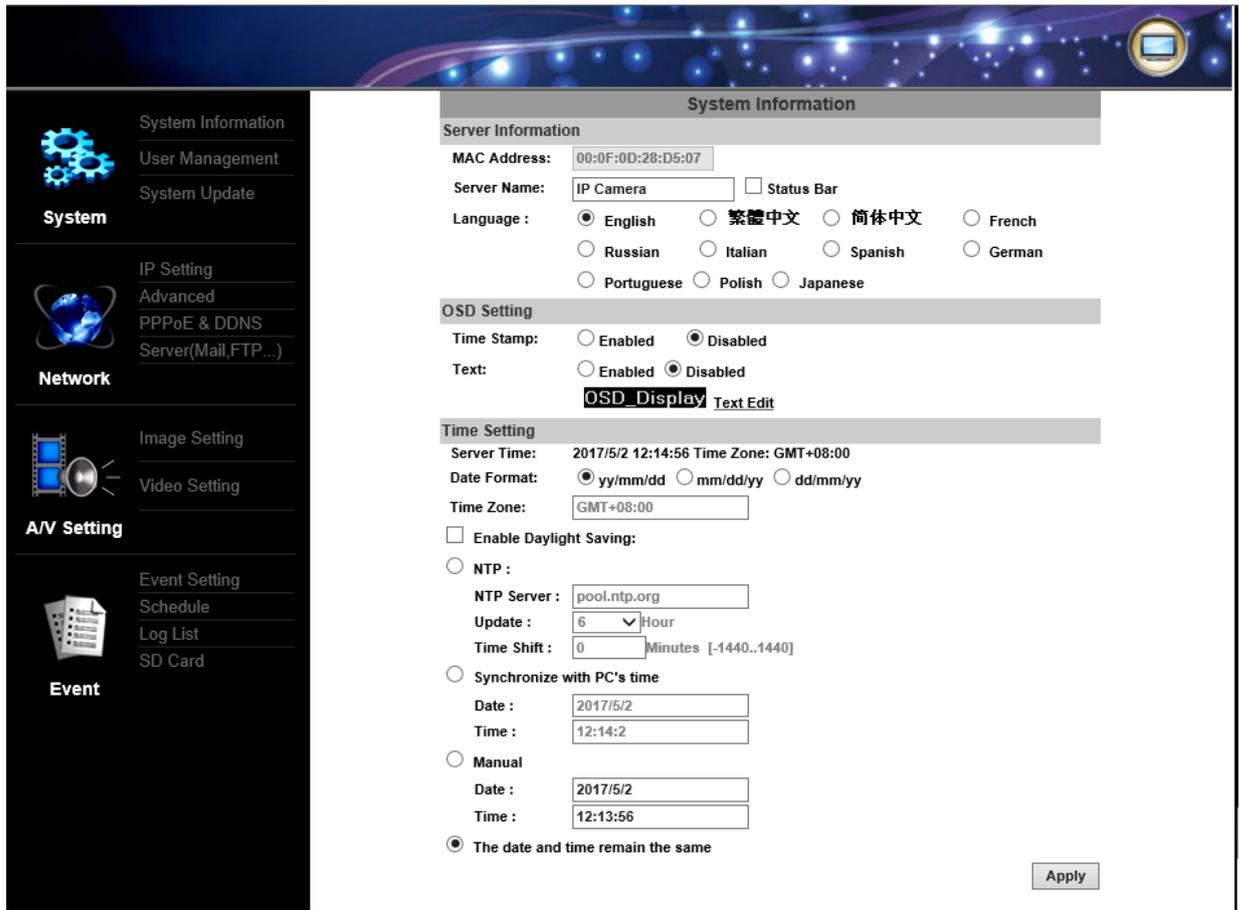
You will have to sign in to [Dropbox](#) network first. If you do not own an account, you will need to register one for free. If you have already created a Dropbox account, click **Authorize** to start the operation.

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**.

III. A/V Settings



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

The screenshot shows the administration interface for an IP camera. On the left is a navigation menu with categories: System (System Information, User Management, System Update), Network (IP Setting, Advanced, PPPoE & DDNS, Server(Mail,FTP...)), A/V Setting (Image Setting, Video Setting), and Event (Event Setting, Schedule, Log List, SD Card). The main content area is titled 'System Information' and contains the following settings:

- Server Information**
 - MAC Address: 00:0F:0D:28:D5:07
 - Server Name: IP Camera Status Bar
 - Language: English 繁體中文 简体中文 French Russian Italian Spanish German Portuguese Polish Japanese
- OSD Setting**
 - Time Stamp: Enabled Disabled
 - Text: Enabled Disabled
 - OSD_Display** [Text Edit](#)
- Time Setting**
 - Server Time: 2017/5/2 12:14:56 Time Zone: GMT+08:00
 - Date Format: yy/mm/dd mm/dd/yy dd/mm/yy
 - Time Zone: GMT+08:00
 - Enable Daylight Saving:
 - NTP :
 - NTP Server : pool.ntp.org
 - Update : 6 Hour
 - Time Shift : 0 Minutes [-1440..1440]
 - Synchronize with PC's time
 - Date : 2017/5/2
 - Time : 12:14:2
 - Manual
 - Date : 2017/5/2
 - Time : 12:13:56
 - The date and time remain the same

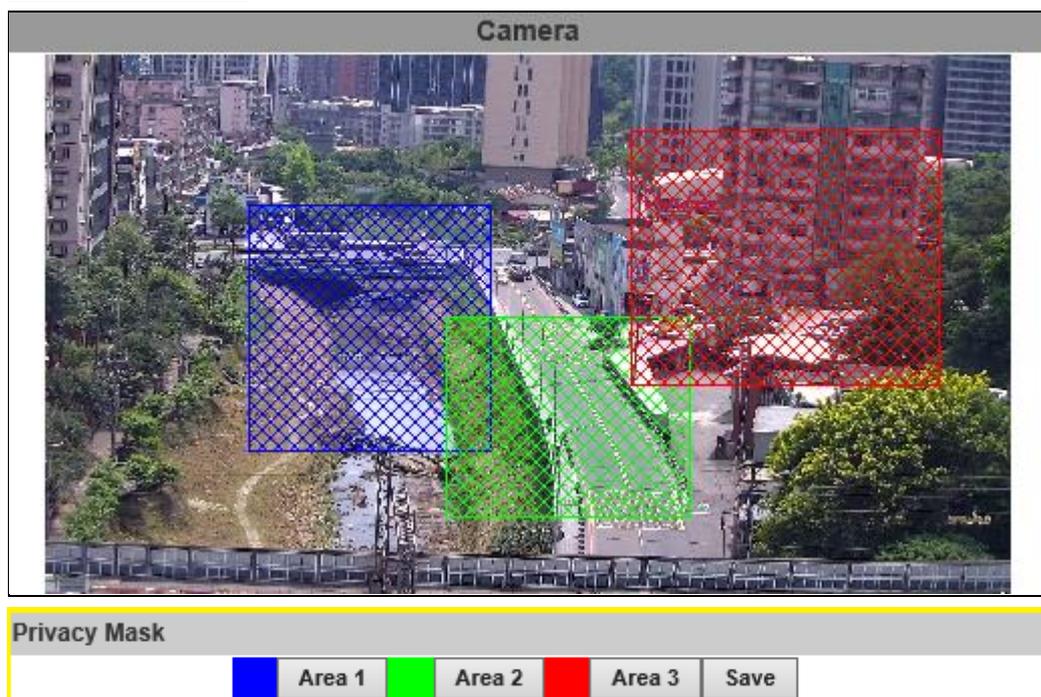
An 'Apply' button is located at the bottom right of the settings area.

Image Setting

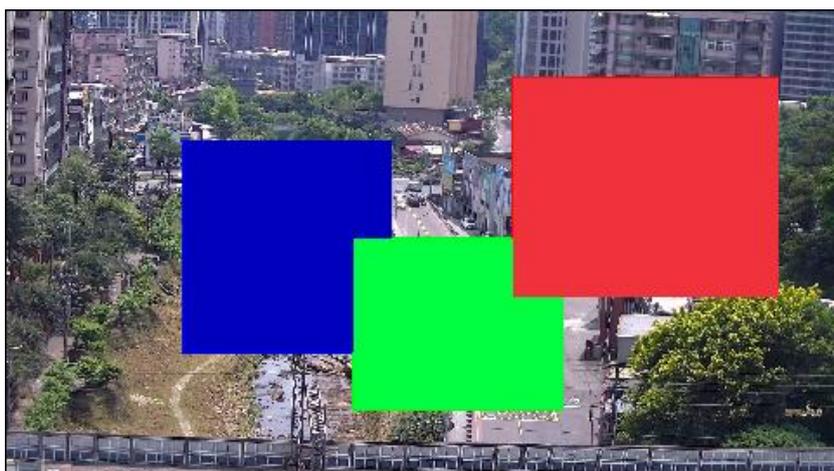
Camera

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 to discard the masked area previously set.

Image Setting

Activate these settings to adjust the image quality and observation outcome.

Image Setting	
Brightness:	0 ▾
Contrast:	0 ▾
Hue:	0 ▾
Saturation:	0 ▾
Sharpness:	0 ▾
AGC:	16x ▾
Shutter Time:	Outdoor ▾
D-WDR:	1 (Low) ▾
Lens Distortion Correction:	On ▾
Video Orientation:	<input type="checkbox"/> Flip <input type="checkbox"/> Mirror
White Balance:	Auto ▾
Denoise:	3D: On ▾
<input type="button" value="Default"/>	

- **Brightness / Contrast / Hue / Saturation / Sharpness:** Different values are adjusted here.
- **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.
- **D-WDR:** It enables the camera to reduce the contrast in the view to avoid dark zones as a result of over & under exposure.
- **Lens Distortion Correction:** Straight the curves in the borders of the image caused by the lens angles. The available values are: OFF, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10.
- **Video Orientation:** Flip or mirror the image.
- **White Balance:** Select **AUTO** to let camera continuously adjust its color balance according to any change of color temperatures and lightings. Switch to **Manual** adjust color balance with Red Gain & Blue Gain values by your own judgement.

- **Denoise 3D**: Filter the noise and blur from the image and show a clearer view. You can set the values for **3D** filters.
- **Default**: Click on button to restore the default settings.

Video Setting

Video Setting

Video Setting	
Video System:	PAL ▾
Corridor Mode:	none ▾

- **Video System:** Choose from **NTSC** or **PAL** for video signal.
- **Corridor Mode:** 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
90 degrees		
270 degrees		

<p>0 degrees</p>		
------------------	---	--

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
<p>0 degrees</p>		

<p>90 degrees</p>	 A black, bullet-style security camera mounted on a wall. The camera is angled downwards and to the right, showing a 90-degree field of view.	 A photograph showing the 90-degree field of view of the camera. It captures a hallway with a brown door on the right, a glass partition on the left, and a carpeted floor.
<p>270 degrees</p>	 A black, bullet-style security camera mounted on a wall. The camera is angled downwards and to the left, showing a 270-degree field of view.	 A photograph showing the 270-degree field of view of the camera. It captures a hallway with a brown door on the left, a glass partition on the right, and a carpeted floor.

Streaming Settings

1) Basic Mode

Resolution range varies depending on different modes.

Streaming 1 Setting	
<input checked="" type="radio"/> Basic Mode	<input type="radio"/> Advanced Mode
Resolution:	1280x720 ▾
Profile:	Main ▾
Quality:	Standard ▾
Video Frame Rate:	30 FPS ▾
Video Format:	H.264 ▾
RTSP Path:	<input type="text"/> ex:rtsp://IP_Address/ Audio:G.711

- **Resolution:** Choose a set for the camera resolution from **2592x1520@25fps**, **1920x1080@30fps**, **1280x720@30fps**, **640x360@30fps**
- **Profile:** Chose from Main or Baseline based on bandwidth consumption of the recorded video to be replayed for different applications.
- **Quality:** Levels vary. 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 or M-JPEG
- **RTSP Path:** Offers the RTSP output connecting path.

2) Advanced Mode

Resolution range varies depending on different modes.

Streaming 1 Setting	
<input type="radio"/> Basic Mode	<input checked="" type="radio"/> Advanced Mode
Resolution:	1280x720 ▾
Profile:	Main ▾
Bitrate Control Mode:	<input checked="" type="radio"/> CBR <input type="radio"/> CVBR
Video Quantitative:	7 ▾
Video Bitrate:	1Mbps ▾
Video Frame Rate:	30 FPS ▾
GOP Size:	1/2 X FPS ▾ GOP = 15
Video Format:	H.264 ▾
RTSP Path:	<input type="text"/> ex:rtsp://IP_Address/ Audio:G.711

- **Resolution:** Choose the resolution of the video image from **2592x1520@25fps, 1920x1080@30fps, 1280x720@30fps, 640x360@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 or M-JPEG
- **RTSP Path:** Offers the RTSP output connecting path.

Snapshot Setting

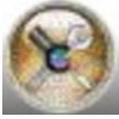
Select the image quality from 1(Low) ~10(High).

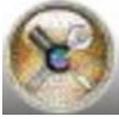


The screenshot shows a dialog box titled "Snapshot Setting". Inside the dialog, there is a label "Quality:" followed by a dropdown menu. The dropdown menu is currently set to the value "8".

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

IV. Event List



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




The screenshot displays the IP Camera administration web interface. On the left is a navigation menu with categories: System (System Information, User Management, System Update), Network (IP Setting, Advanced, PPPoE & DDNS, Server(Mail,FTP...)), A/V Setting (Image Setting, Video Setting), and Event (Event Setting, Schedule, Log List, SD Card). The main content area is titled 'System Information' and contains several configuration sections:

- Server Information:**
 - MAC Address: 00:0F:0D:28:D5:07
 - Server Name: IP Camera Status Bar
 - Language: English 繁體中文 简体中文 French Russian Italian Spanish German Portuguese Polish Japanese
- OSD Setting:**
 - Time Stamp: Enabled Disabled
 - Text: Enabled Disabled
 - OSD_Display** [Text Edit](#)
- Time Setting:**
 - Server Time: 2017/5/2 12:14:56 Time Zone: GMT+08:00
 - Date Format: yy/mm/dd mm/dd/yy dd/mm/yy
 - Time Zone: GMT+08:00
 - Enable Daylight Saving:
 - NTP :
 - NTP Server : pool.ntp.org
 - Update : 6 Hour
 - Time Shift : 0 Minutes [-1440..1440]
 - Synchronize with PC's time
 - Date : 2017/5/2
 - Time : 12:14:2
 - Manual
 - Date : 2017/5/2
 - Time : 12:13:56
 - The date and time remain the same

An 'Apply' button is located at the bottom right of the configuration area.

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.

Motion Detection Operation



Motion Detection

Motion Detection

Area Setting:

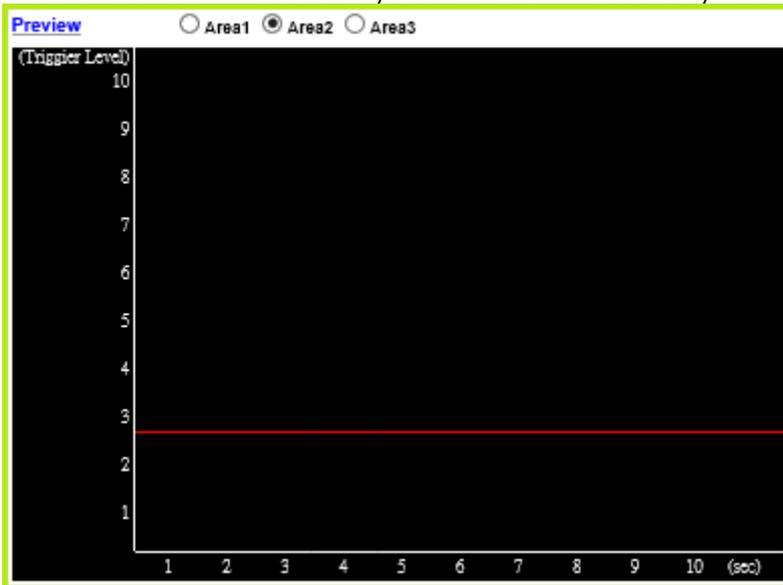
Sensitivity:

Activate motion time:

[Preview](#)

- **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.
- **Activate motion time:** Assign the duration defined as motion activity.
- **Preview:** Click [Preview](#) to open the analytical graph which reveals the Trigger Level of the motion activity in each motion area you have made.



<input checked="" type="checkbox"/> Area 1:	<input type="checkbox"/> E-mail	<input type="checkbox"/> FTP	<input type="checkbox"/> Save to SD card	<input type="checkbox"/> Samba	<input type="checkbox"/> Google Drive	<input type="checkbox"/> Dropbox
<input type="checkbox"/> Area 2:	<input type="checkbox"/> E-mail	<input type="checkbox"/> FTP	<input checked="" type="checkbox"/> Save to SD card	<input type="checkbox"/> Samba	<input type="checkbox"/> Google Drive	<input type="checkbox"/> Dropbox
<input checked="" type="checkbox"/> Area 3:	<input checked="" type="checkbox"/> E-mail	<input type="checkbox"/> FTP	<input type="checkbox"/> Save to SD card	<input checked="" type="checkbox"/> Samba	<input type="checkbox"/> Google Drive	<input type="checkbox"/> Dropbox
Log :	<input type="checkbox"/> E-mail	<input checked="" type="checkbox"/> FTP	<input checked="" type="checkbox"/> Samba			

- **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.

Object Motion Operation

Object Motion ▼

Motion Detection



Basic Mode **Advanced Mode**

Area Setting: Rectangle ▼ Area

Stay Sec: (0~30)

Object WxH: (5~100) Setting

Area:
 E-mail
 FTP
 Save to SD card
 Samba
 Google Drive
 Dropbox

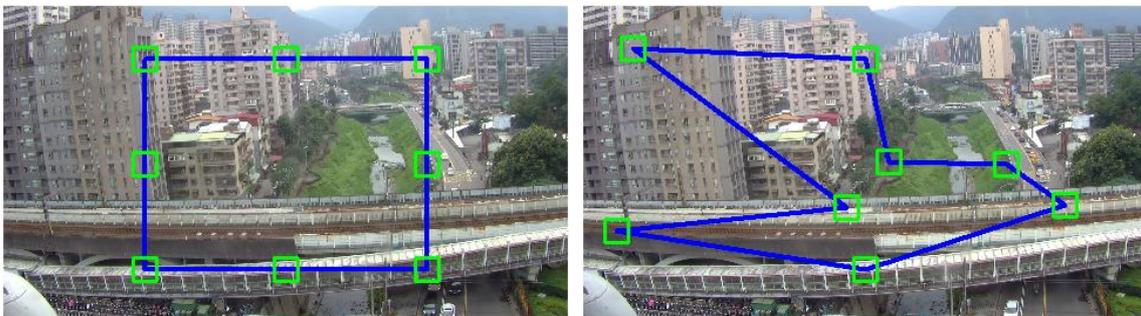
Subject:

Interval: 10 sec ▼ a period of time between every two motions detected.

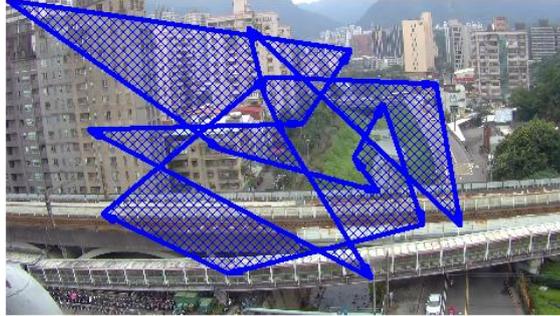
Based on the schedule

- **Area Setting:** Before clicking on Area icon, select from **Rectangle** or **Polygon** to apply the method of zoning the area on the preview screen with your mouse. Click the icon again to discard the motion area you have made.

Rectangle: Move the green points around to define the motion area.



Polygon: Draw the motion area with 19 continuous lines in any directions.



- **Stay Sec:** Assign the duration defined as motion activity.
- **Object WxH:** Assign the width & height (ranged from **5~100**) as triggering conditions for any element which happens to be inside the motion area. For example, input **50** and **80** in the fields, and then click **Setting** to generate a frame, which initiates from top-left corner of the preview screen as demonstrated below. Only objects **bigger than the frame** that causes movement within the motion area will be identified as a motion trigger event.



- **Area:** The camera will also send video or snapshot to specific **E-mail** addresses, trigger the output device, or save recorded data to **FTP/ Micro SD card/ Samba / Google Drive / Dropbox**. You can set up those paths from **Network** operations.

Subject:	<input type="text" value="IP Camera Warning!"/>
Interval:	<input type="text" value="10 sec"/> a period of time between every two motions detected.
<input checked="" type="checkbox"/>	Based on the <u>schedule</u>
Schedule Profile:	<input type="text" value="Profile1"/>

- **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.

Record File

Record File	
File Format:	AVI File(with Record Time Setting)

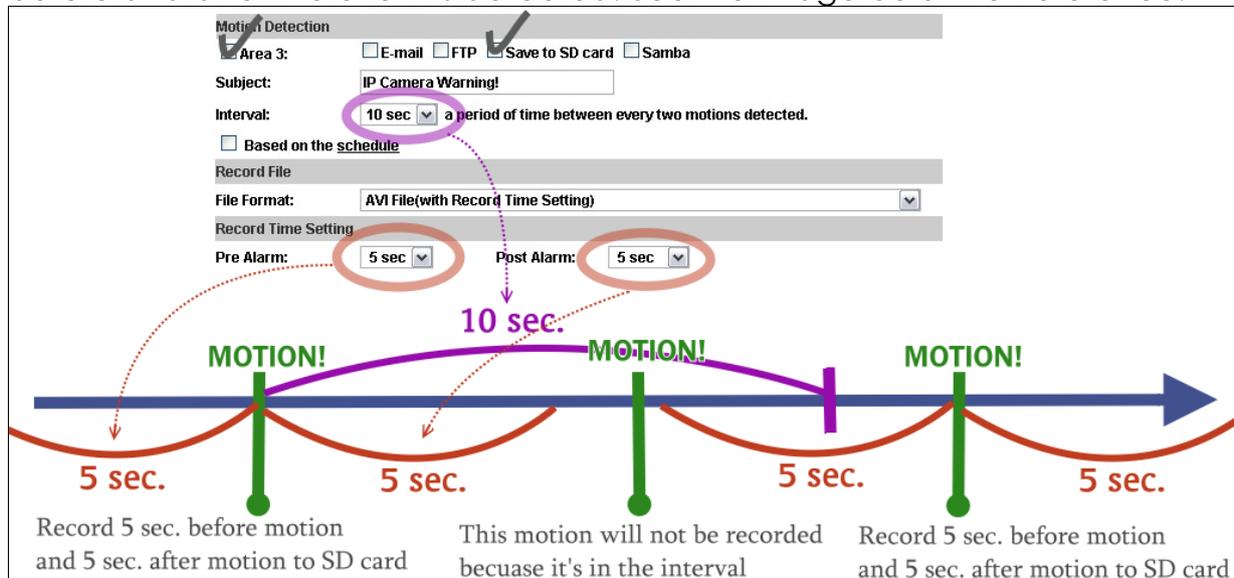
When an event occurs, the camera will record a video clip or take snapshot, and then send to mail/ FTP/ Samba. Select the file format to be saved.

- **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

Record Time Setting			
Pre Alarm:	5 sec	Post Alarm:	5 sec

When an event occurs, the IP camera will record a video clip or take a snapshot, and then send it via mail/ FTP/ Samba. Select the recording time before and after the event is detected. See the image below for reference.



Network IP Check

Network IP Check

IP Check: Enabled Disabled

IP Address:

Interval:

Check failed: Connection failed four times. Reboot IP Camera.
 Save to SD card

(When Schedule Record Enable, it'll stop saving to SD card)
 (When IP check failed, first step will save to SD card, continuing other saving storage)

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 to update all the settings adjusted.

Schedule

Schedule

Schedule

All	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Mon.																								
Tue.																								
Wed.																								
Thu.																								
Fri.																								
Sat.																								
Sun.																								

With schedule setup.

Tick the grids on the calendar to manage the time of your schedule to automatically record video files, or take snapshots.

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.

Record

Save to SD card Disabled

Record Memory:

- **Snapshot:** After enabling the snapshot function; the user can select the storage position, interval time and reserved file name of the snapshot.

Snapshot

Enabled Disabled

Snapshot: E-mail FTP Save to SD card Samba

Interval: Second(s) [1..50000]

File Name:

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.

Restart IP Camera Automatically

Restart

Click to update all the settings adjusted.

Log List

Log List	
System Logs	Logs
Motion Detection Logs	Logs
All Logs	Logs

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.

All Log

<System> [2017/11/23 15:17:39] Language changed to Trad. Chinese.

<System> [2017/11/23 15:17:21] 220.135.138.67 login by admin.

<System> [2017/11/23 15:12:20] 220.135.138.67 login by admin.

<System> [2017/11/23 15:12:15] 220.135.138.67 login by Anonymous.

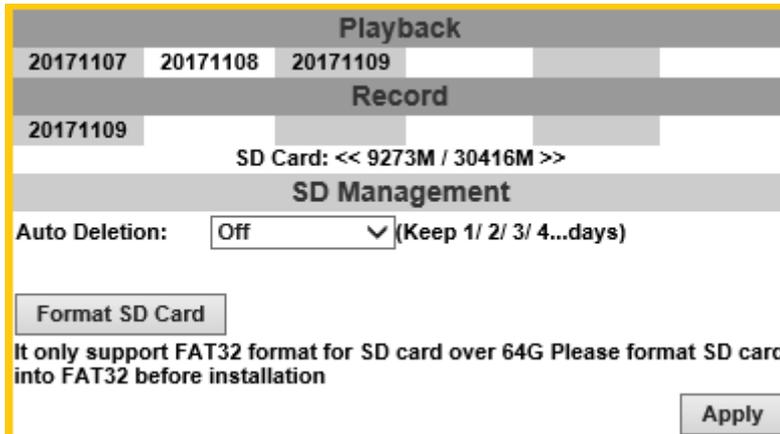
<System> [2017/11/23 15:12:15] 220.135.138.67 login by Anonymous.

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.



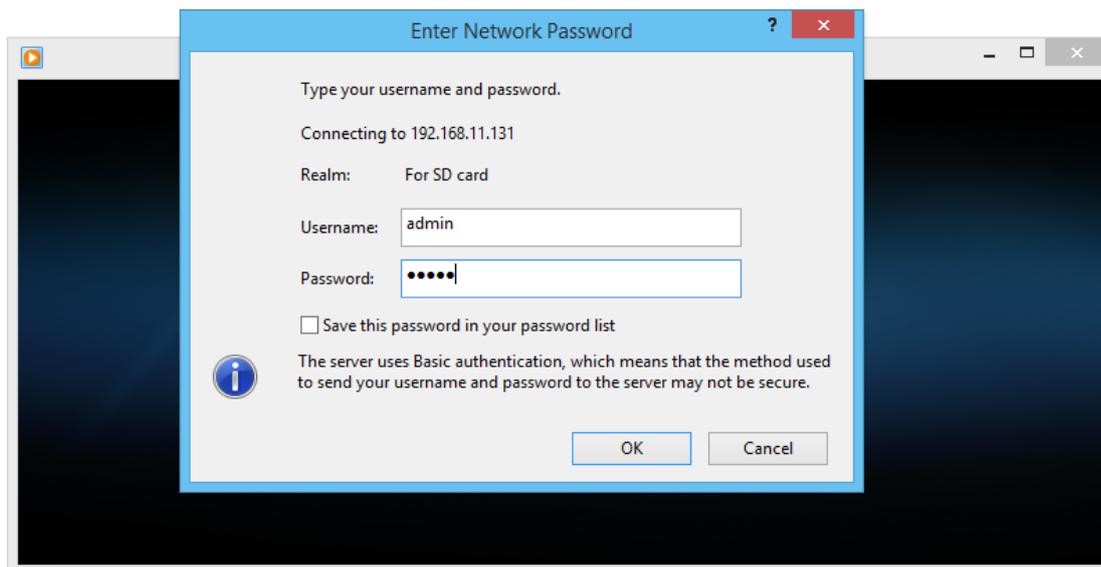
For example, if the date **2017/11/07** is clicked, all the events happened within that time frame will then appear in a list like the one below.

2017/11/07			Del
Time	Video	Event Type	<input type="checkbox"/>
21:46:01	214601m.avi	Motion Detection	<input type="checkbox"/>
21:46:24	214624m.avi	Motion Detection	<input type="checkbox"/>
21:47:14	214714m.avi	Motion Detection	<input type="checkbox"/>
21:55:15	215515m.avi	Motion Detection	<input type="checkbox"/>
21:55:27	215527m.avi	Motion Detection	<input type="checkbox"/>
21:56:13	215613m.avi	Motion Detection	<input type="checkbox"/>
21:56:24	215624m.avi	Motion Detection	<input type="checkbox"/>
21:56:55	215655i	IVS	<input type="checkbox"/>
21 o'clock	21 o'clock	Schedule Snapshot	<input type="checkbox"/>
22:02:45	220245i	IVS	<input type="checkbox"/>

Files link daily.

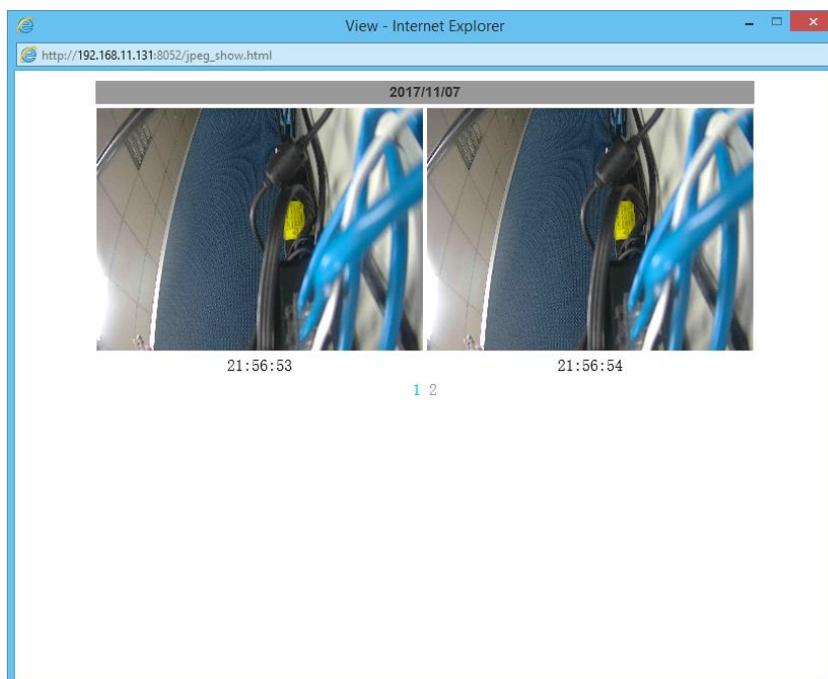
The enlisted files under **Video** category are files representing an event. There are 3 types of file formats, and each is different for its own **Event Type**. Notice how the file name formations under the **Video** category represent the time when a file is created.

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.

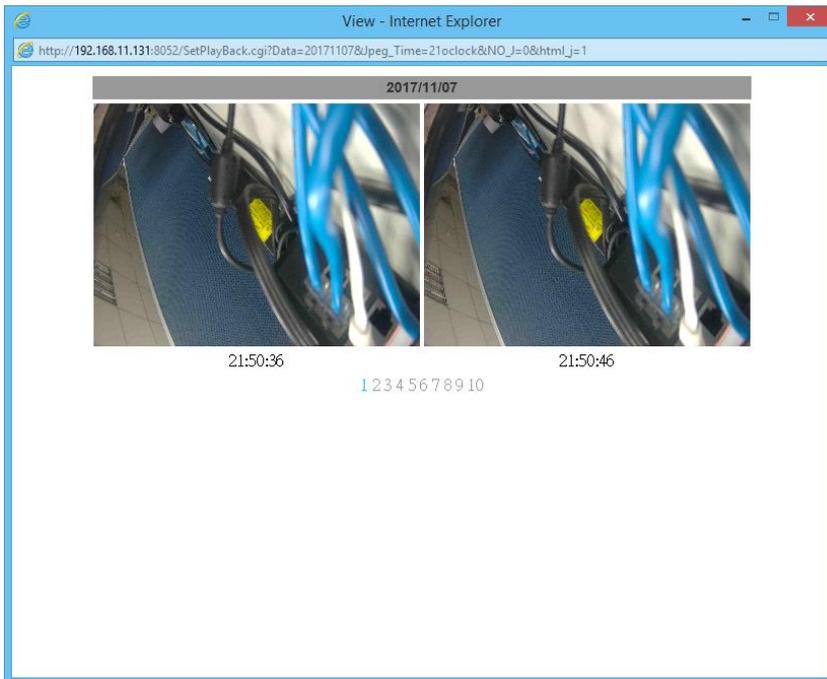


For **avi** files, you need Microsoft Media Player which is supposedly built-in in your PC. The default Username & Password for playing the video file are both **admin**.

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 by marking 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.

Schedule																								
All	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Mon.																								
Tue.																								
Wed.																								
Thu.																								
Fri.																								
Sat.																								
Sun.																								

With schedule setup.

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



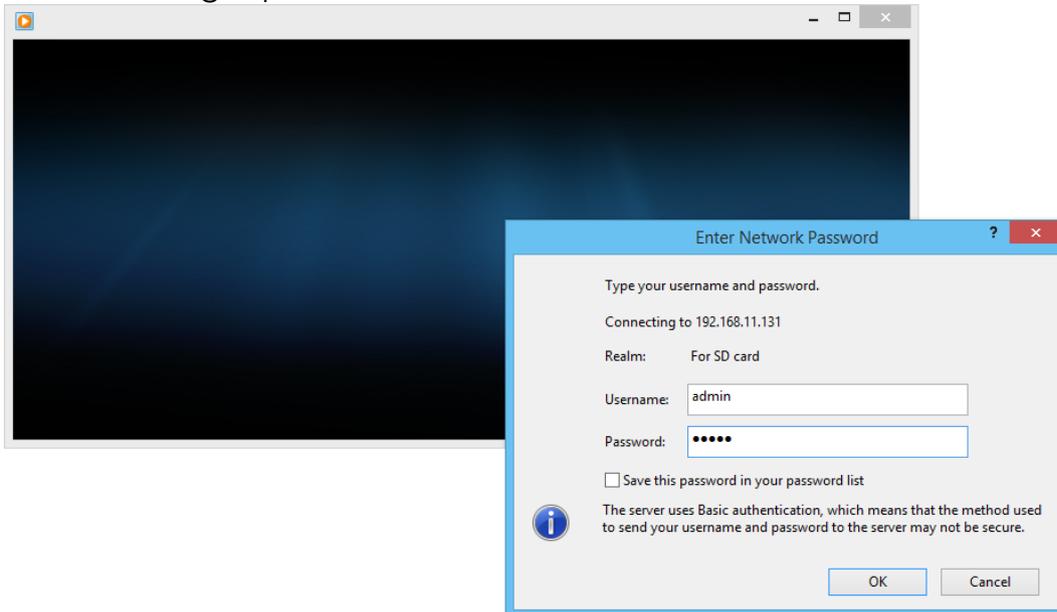
Click on **2017/11/09** to enter the next page where all files recorded on that date are enlisted.

2017/11/09				Del
Time	Video	Event Type		
03:00:00	030000r	Record	<input type="checkbox"/>	<input type="checkbox"/>
04:00:00	040000r	Record	<input type="checkbox"/>	<input type="checkbox"/>
05:00:00	050000r	Record	<input type="checkbox"/>	<input type="checkbox"/>
06:00:00	060000r	Record	<input type="checkbox"/>	<input type="checkbox"/>
07:00:00	070000r	Record	<input type="checkbox"/>	<input type="checkbox"/>
08:00:00	080000r	Record	<input type="checkbox"/>	<input type="checkbox"/>
09:00:00	090000r	Record	<input type="checkbox"/>	<input type="checkbox"/>
10:00:00	100000r	Record	<input type="checkbox"/>	<input type="checkbox"/>
11:00:00	110000r	Record	<input type="checkbox"/>	<input type="checkbox"/>
12:00:00	120000r	Record	<input type="checkbox"/>	<input type="checkbox"/>

12

Files link daily.

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.

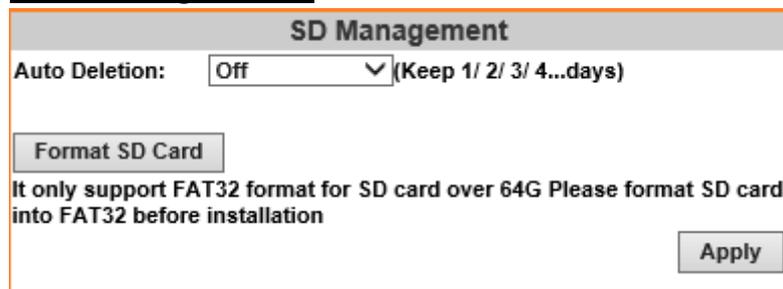


If the memory of the SD card is **over 128G**, **70%** of the memory will be used for scheduled recording, and **30%** will be used for event recording.

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

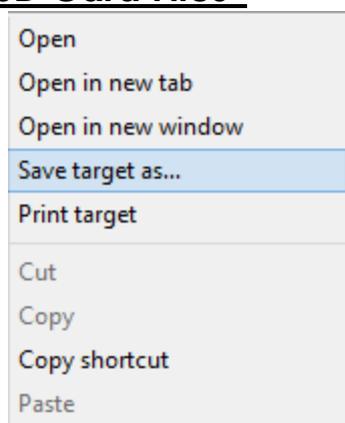
SD Management



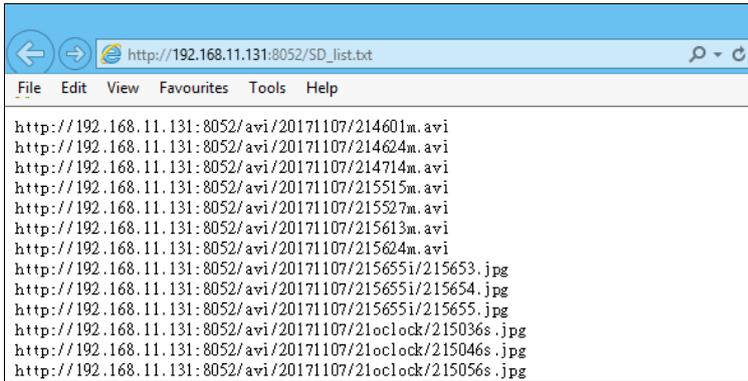
The screenshot shows the 'SD Management' window. At the top, it says 'SD Management'. Below that, there is a section for 'Auto Deletion' with a dropdown menu set to 'Off' and a note '(Keep 1/ 2/ 3/ 4...days)'. There is a 'Format SD Card' button. Below the button, it says 'It only support FAT32 format for SD card over 64G Please format SD card into FAT32 before installation'. At the bottom right, there is an 'Apply' button.

- **Auto Deletion:** Choosing "The 1st day" means the recording 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.

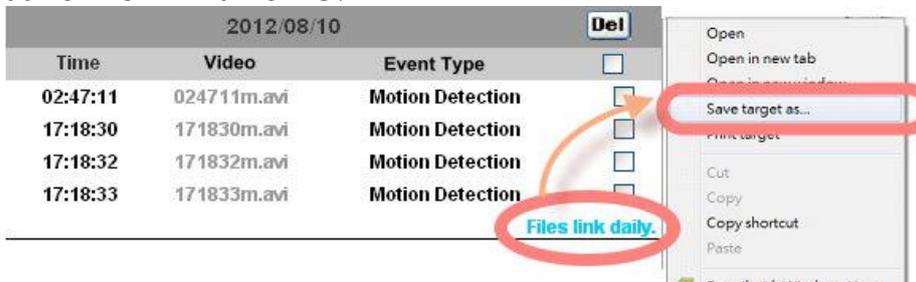


You may copy any of the protocol provided in the window and paste it on a web browser as a URL address to look at each file.

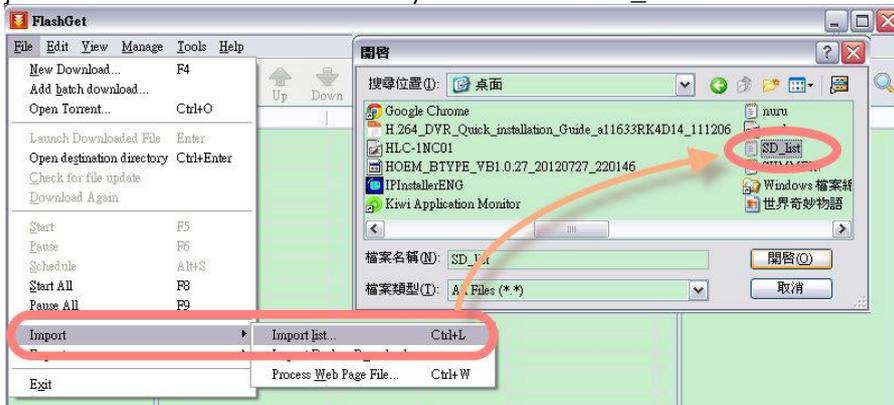
Copy to PC

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:

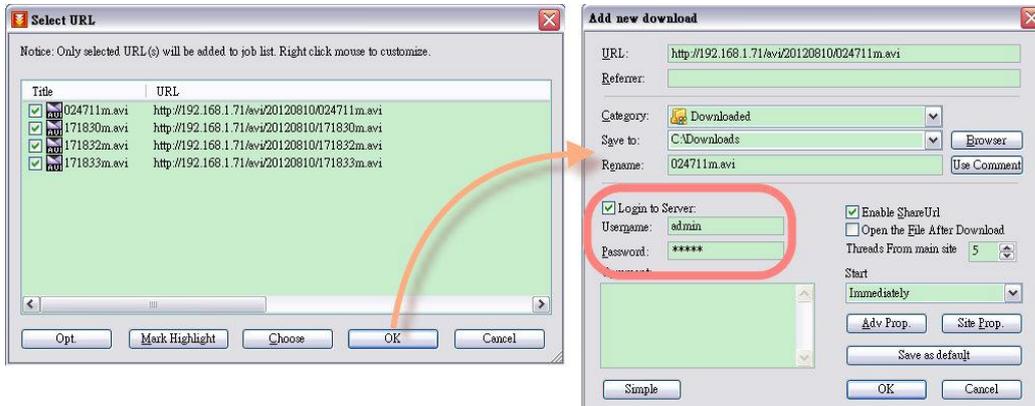
- i. Enter data list and right-click “ **Files link daily.**”, select “save target as...” then save the link list to PC.



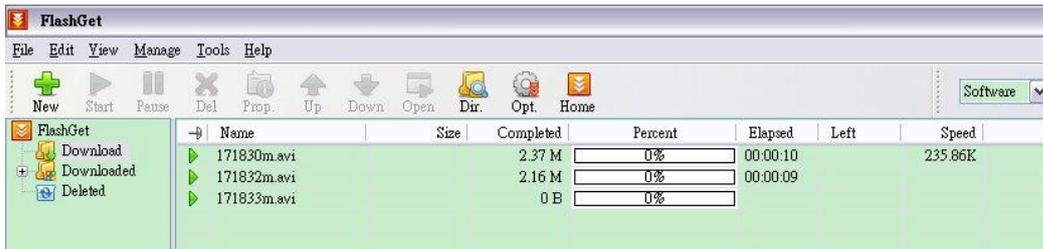
- ii. Open FlashGet, select "File"→"Import" → "Import list", and find the link list file you just saved. The file name may be called “SD_list”.



- 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.



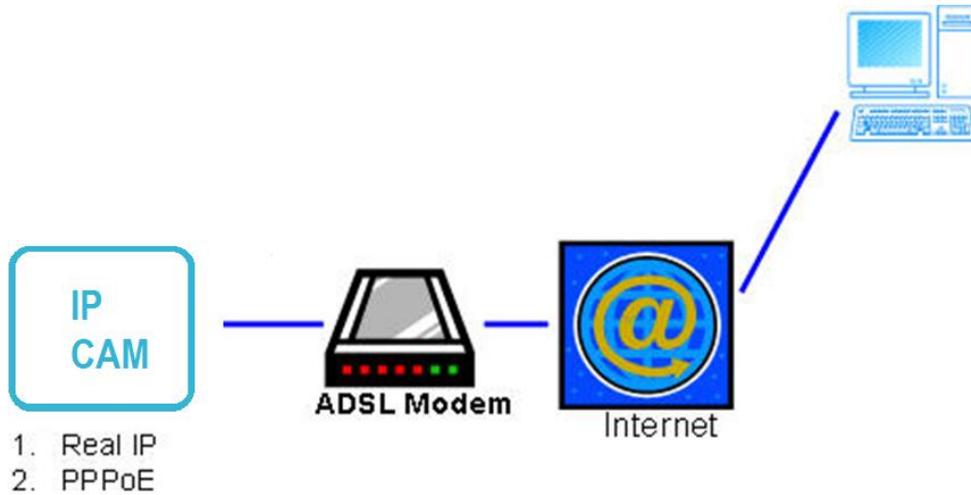
- iv. Click OK to start download.



- FlashGet is free software that can be downloaded from [FlashGet](#) official website. The example above is based on FlashGet ver.1.9.6.

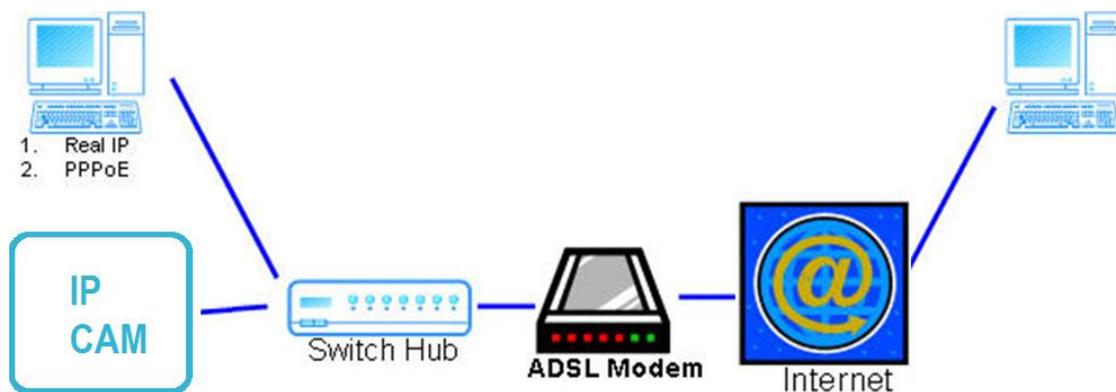
6. Network Configuration

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.

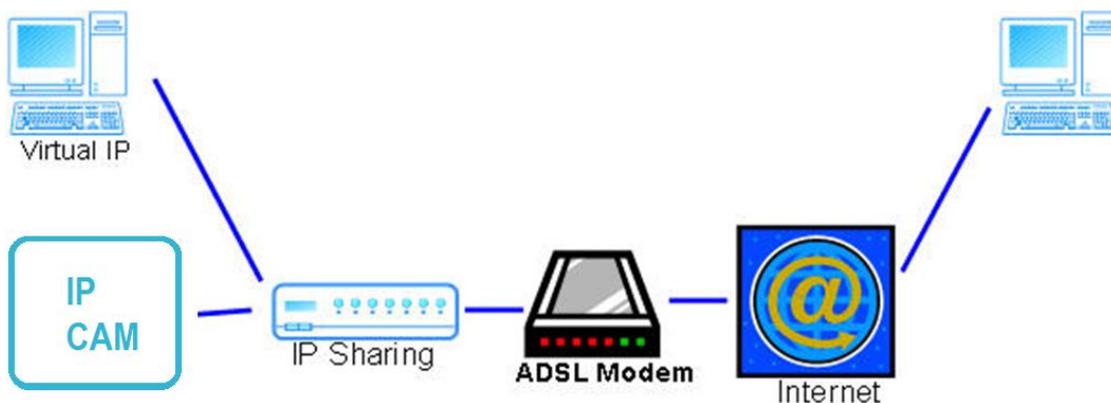
Configuration II



- 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

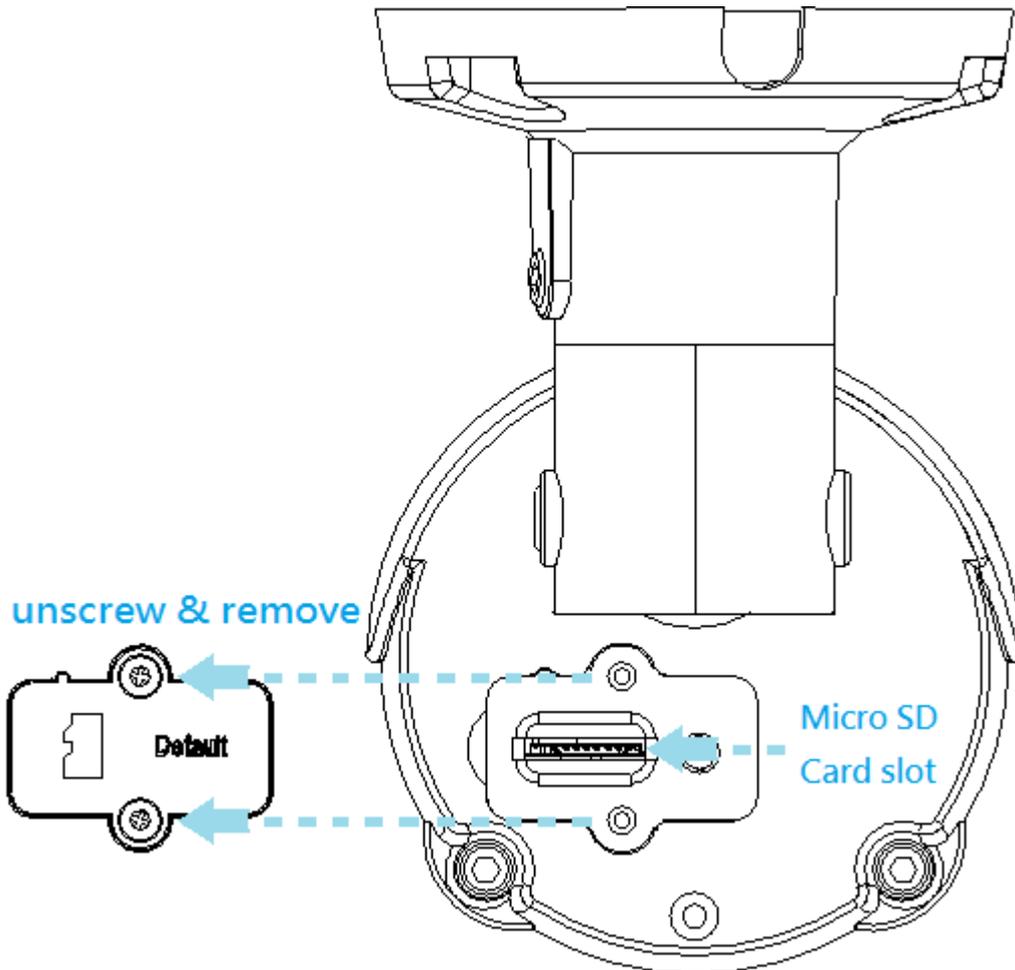


- Internet Access: ADSL or Cable Modem
- IP address: one real IP or one dynamic IP
- IP Camera and PC connect to the internet
- Device needed: IP sharing
- Use virtual IP, set up port forwarding in IP sharing

7. Factory Default

If you forget the password you have set up, follow the steps below to restore its default settings.

- Remove the power and Ethernet cable.
- Unscrew and remove the lid from covering the access to the default button. It is recommended that you use a small piece of copper wire to reach it inside the hole. Press and hold the button once it is reached.



- Connect the power back to the camera, and do not release the button for less than 30 seconds to reboot. Release the button when the camera finishes booting.
- Re-login the camera with the default IP (<http://192.168.1.200>), and username: admin, password: admin.

✧ You may also perform [Factory Default](#) when you operate the camera by remote. Please refer to [System](#) for more instructions.

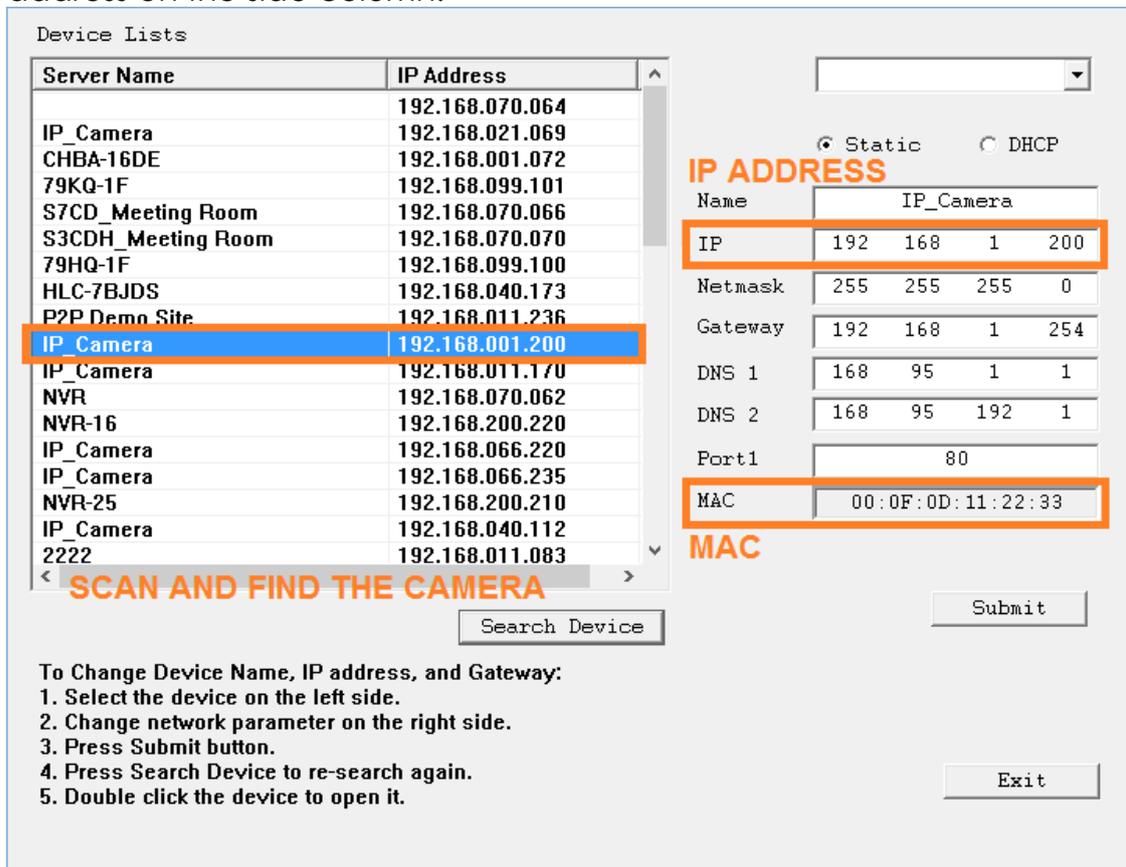
8. Universal Password

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](#).

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.



The screenshot shows the 'Device Lists' section with a table of scanned devices. The 'IP Camera' device with IP address 192.168.001.200 is selected. To the right, the configuration panel for this device is shown, including fields for IP address, Netmask, Gateway, DNS, and MAC address. The IP address field is set to 192.168.1.200 and the MAC address is 00:0F:0D:11:22:33. A 'Submit' button is visible at the bottom right of the configuration panel.

Server Name	IP Address
IP_Camera	192.168.070.064
CHBA-16DE	192.168.001.072
79KQ-1F	192.168.099.101
S7CD_Meeting Room	192.168.070.066
S3CDH_Meeting Room	192.168.070.070
79HQ-1F	192.168.099.100
HLC-7BJDS	192.168.040.173
P2P Demo Site	192.168.011.236
IP_Camera	192.168.001.200
IP_Camera	192.168.011.170
NVR	192.168.070.062
NVR-16	192.168.200.220
IP_Camera	192.168.066.220
IP_Camera	192.168.066.235
NVR-25	192.168.200.210
IP_Camera	192.168.040.112
2222	192.168.011.083

IP ADDRESS

Name: IP_Camera

IP: 192 168 1 200

Netmask: 255 255 255 0

Gateway: 192 168 1 254

DNS 1: 168 95 1 1

DNS 2: 168 95 192 1

Port1: 80

MAC

MAC: 00:0F:0D:11:22:33

SCAN AND FIND THE CAMERA

Search Device

Submit

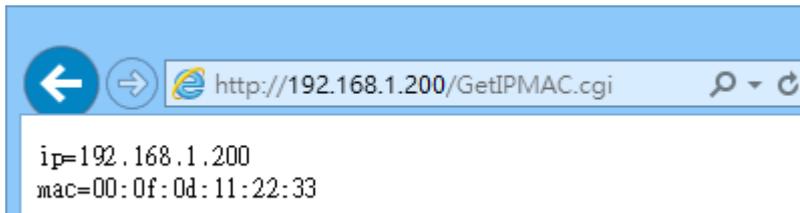
Exit

To Change Device Name, IP address, and Gateway:

1. Select the device on the left side.
2. Change network parameter on the right side.
3. Press Submit button.
4. Press Search Device to re-search again.
5. Double click the device to open it.

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.

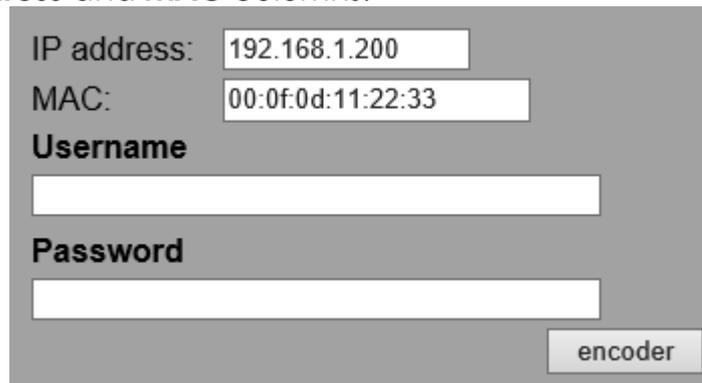
The IP address and MAC address will be displayed on the browser.



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.

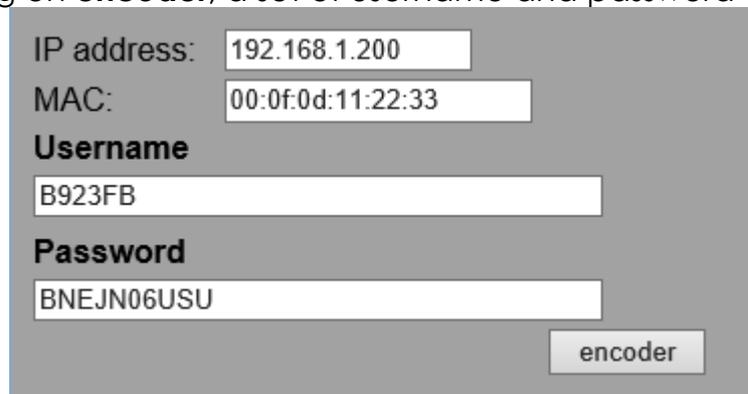


The camera IP address and MAC address will be displayed automatically in both **IP Address** and **MAC** columns.



A screenshot of the 'Universal Password_V1.1' web interface. It features a grey background with several input fields and a button. The 'IP address:' field contains '192.168.1.200'. The 'MAC:' field contains '00:0f:0d:11:22:33'. Below these are empty fields for 'Username' and 'Password'. At the bottom right is a button labeled 'encoder'.

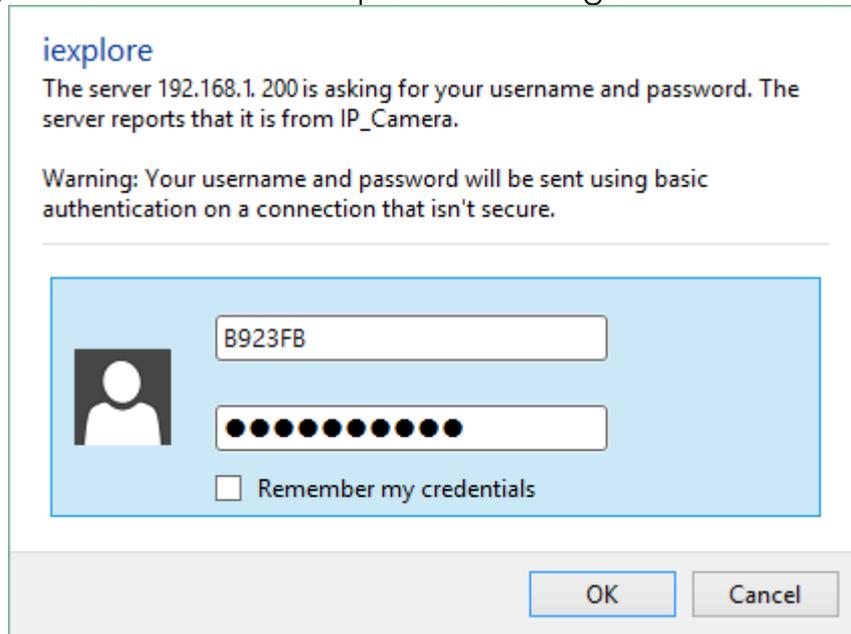
After clicking on **encoder**, a set of username and password will appear.



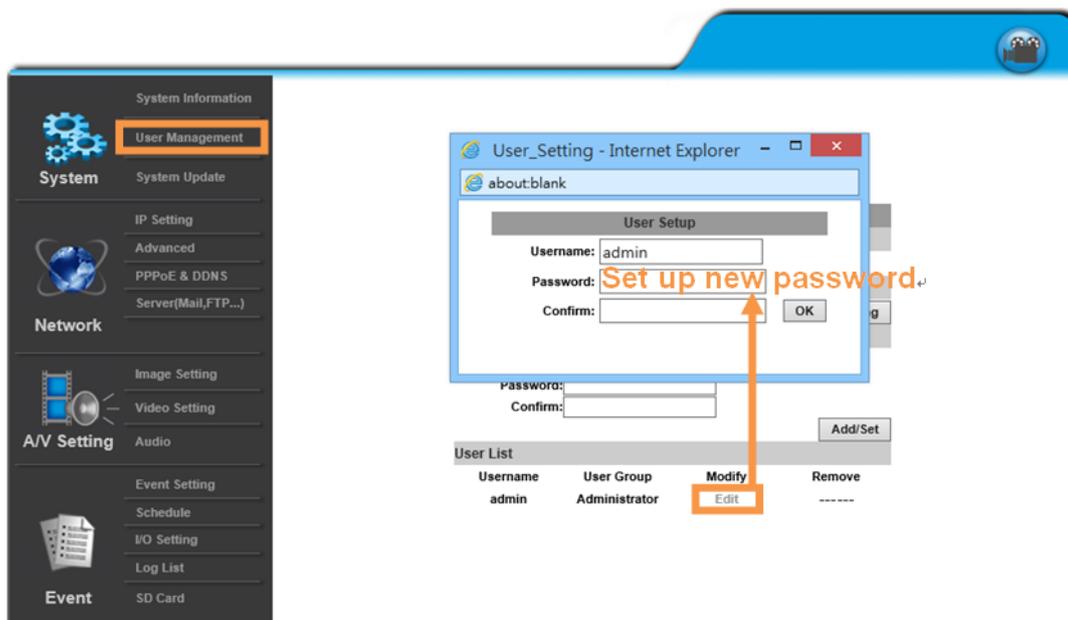
A screenshot of the 'Universal Password_V1.1' web interface after clicking the 'encoder' button. The 'IP address:' field still contains '192.168.1.200' and the 'MAC:' field contains '00:0f:0d:11:22:33'. The 'Username' field is now filled with 'B923FB' and the 'Password' field is filled with 'BNEJN06USU'. The 'encoder' button remains at the bottom right.

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.

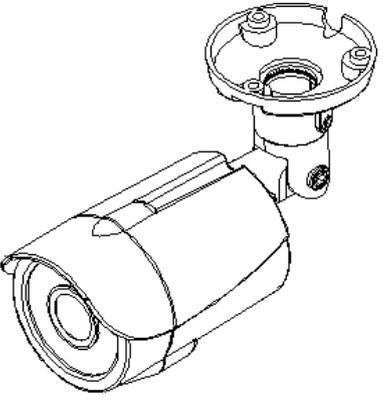
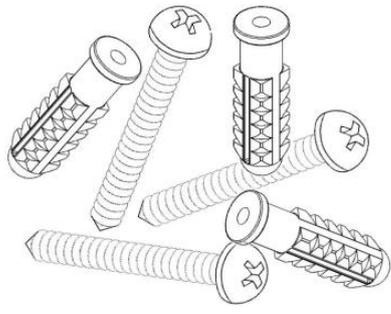
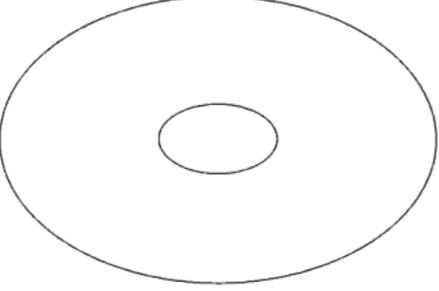
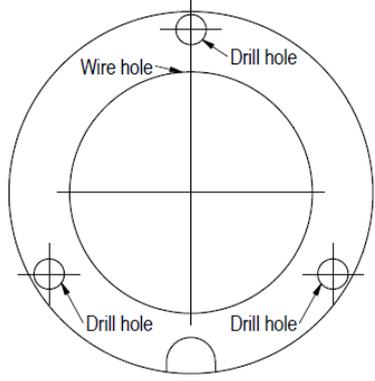
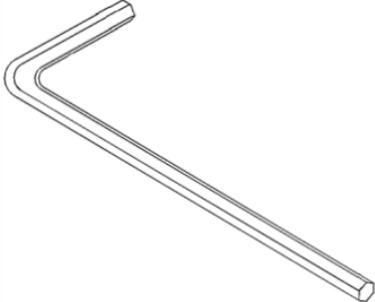
Use the generated username & password to log in the camera account.



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.



9. Package Contents

<p style="text-align: center;">IP Camera</p> 	<p style="text-align: center;">Screws Pack</p> 
<p style="text-align: center;">CD</p> 	<p style="text-align: center;">Hole Pattern Sticker</p> 
<p style="text-align: center;">Quick Installation Guide</p> 	<p style="text-align: center;">Hex Wrench</p> 

- The CD includes user manual and software tools

10. 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