



User's manual

Version 0.2

Table of Contents

<i>Overview</i>	3
<i>Package Contents</i>	4
<i>Connections</i>	5
Hardware description	5
<i>Hardware Installation</i>	6
Install the IP Finder program.....	8
Bonjour program	14
C2.mylevel1.com(Free DDNS service)	15
<i>Initial Access to the Network Camera</i>	16
Playback	20
<i>Client Setting</i>	21
<i>Definitions in Configuration</i>	23
<i>System</i>	23
<i>Security</i>	25
<i>Network</i>	27
<i>DDNS</i>	29
<i>Access list</i>	31
<i>Video</i>	33
<i>ROI(Region of Interest)</i>	38
<i>Defog</i>	39
<i>Video record</i>	40
<i>Stream</i>	42
<i>Camera control</i>	44
<i>Application</i>	47
<i>Servers</i>	50
<i>Storage</i>	52
<i>Syslog</i>	53
<i>Status and Parameters</i>	54
<i>Maintenance</i>	55
<i>Appendix</i>	57
A. Troubleshooting & Frequently Asked Questions	57
B. Technical specifications	62

H.264 Pan/Tilt Night Vision IP Camera

Overview

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

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

The Network Camera is accessible via the LAN or Internet connection. Connect your Network Camera directly to a computer network or DSL modem, and with a standard Web browser you get instant, on demand video streams. Within minutes you can set up the Network Camera to capture a video sequence to a PC. Live video image can be uploaded to a website for the world to see or made available only to select users on the network.

The Network Camera is a network device and its use should be straightforward for those who have basic network knowledge.

The Network Camera is designed for various applications including video sharing, general security/surveillance, etc. The "How to Use" chapter suggests ways to best utilize the Network Camera and ensure proper operations.

Minimum System Requirement

H.264 Pan/Tilt Night vision IP Camera	
Network Environment	
LAN	10/100M/1000M Ethernet
Monitoring System Recommended for Internet Explorer	
System Hardware	Basic requirements - CPU: Intel® Celeron® Dual-Core @ 2.70GHz or above - Memory Size: 2 GB or above Recommended - VGA card resolution: 1024 x 768 or above
System Requirement for Viewer & Recorder Application	
Support OS	XP, Windows 7, Windows 8
System Hardware	1-4 cameras surveillance application - CPU: Intel® Celeron® Dual-Core @ 2.70GHz or above - Memory Size: 2 GB or above - VGA card resolution: 1024 x 768 or above

Package Contents

If any of the above items are missing, please contact your dealer immediately.

Network Camera (Wired or PoE)



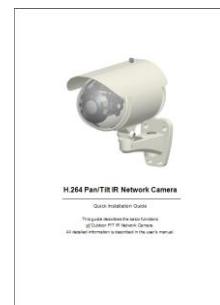
Software CD



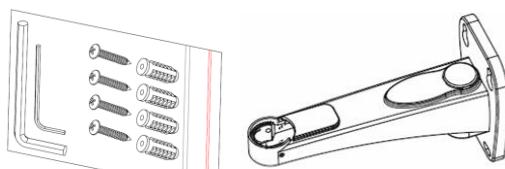
Power adapter



Quick installation guide



Wrench/Screws/Wall Mount Bracket



RJ45 Female/General DI Block/
Moisture Absorber

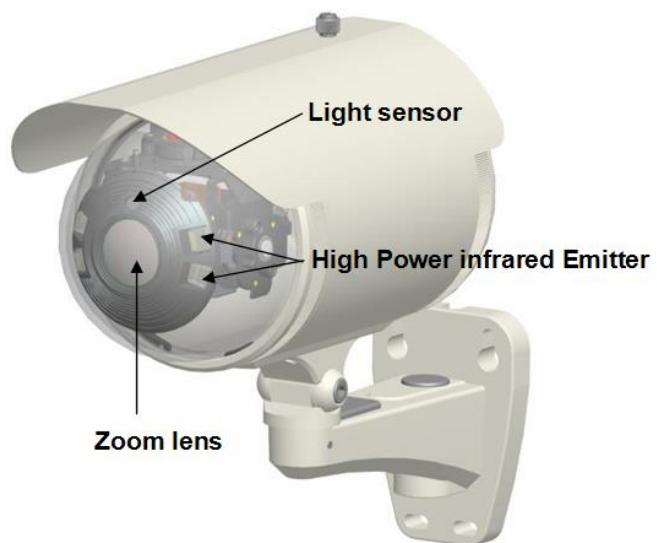


Note: Using a power supply with a different voltage than the one included with the Network Camera will cause damage and void the warranty for this product.

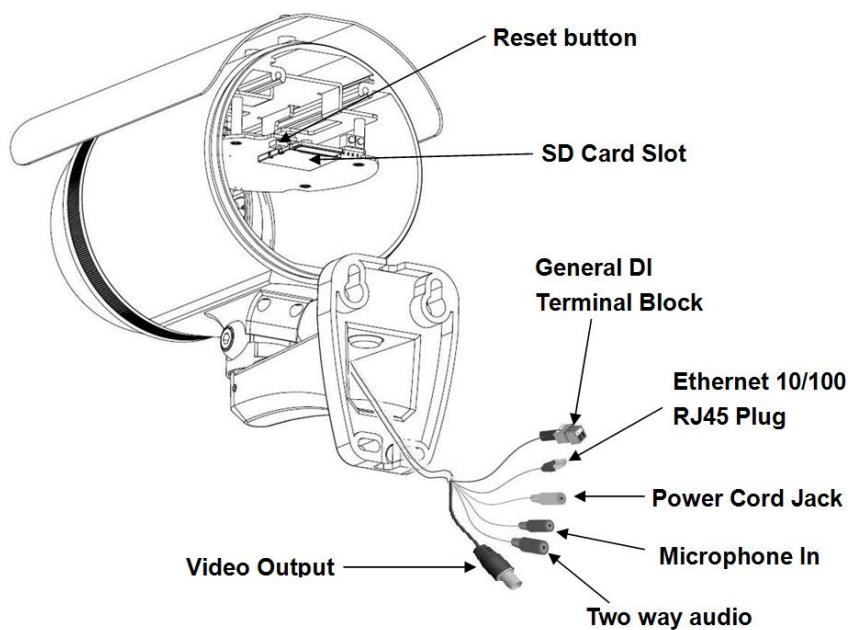
Connections

Hardware description

- Plan view panel



- Inner View



Hardware Installation

1. Attach the Network Camera with the included stand

2. Place the Camera fix it onto ceiling or wall

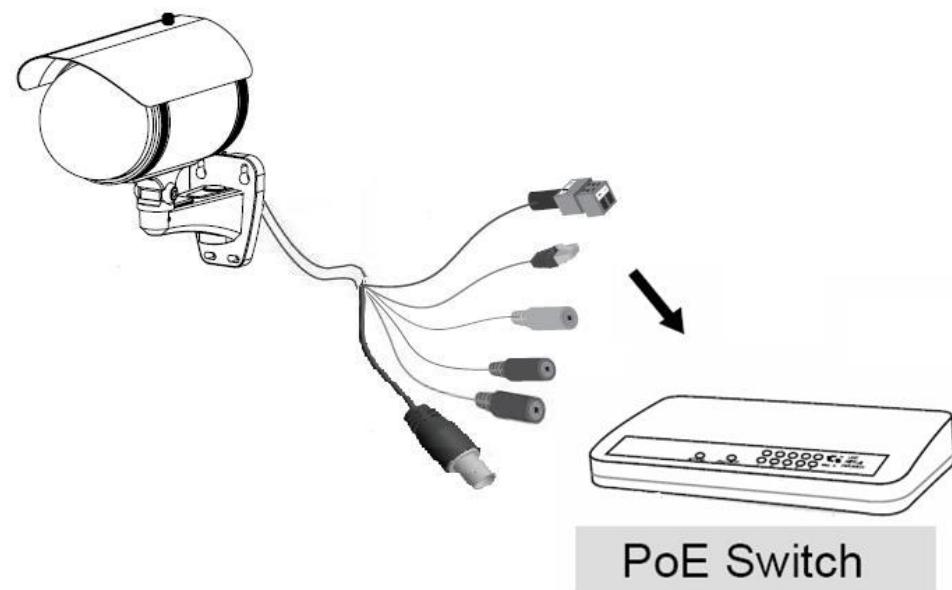
Use screws to fix the Network Camera onto the ceiling or wall.



3. Power over Ethernet (PoE)

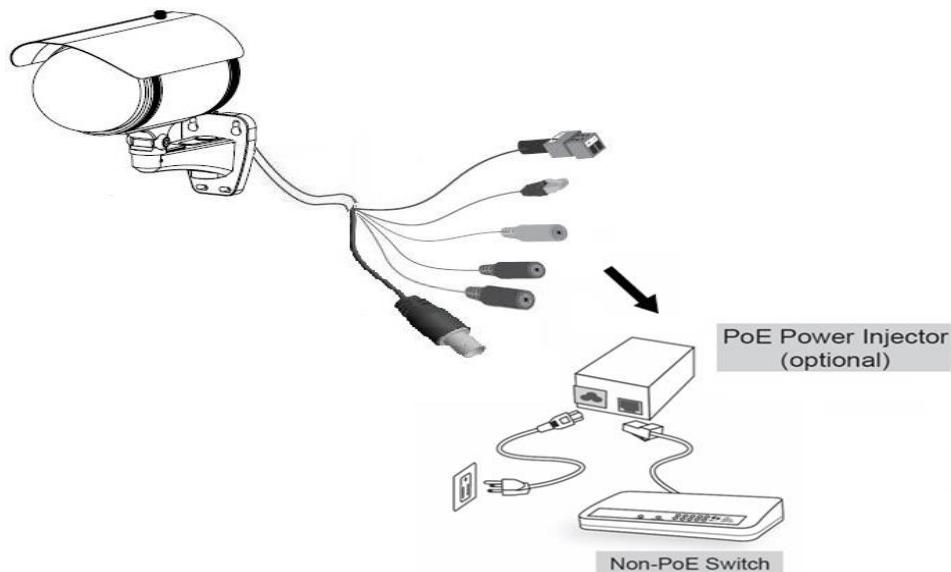
● Using a PoE-enabled switch

The Network Camera is PoE-compliant, allowing transmission of power and data via a single Ethernet cable. Follow the below illustration to connect the Network Camera to a PoE-enabled switch via Ethernet cable.



- **Using a non-PoE switch**

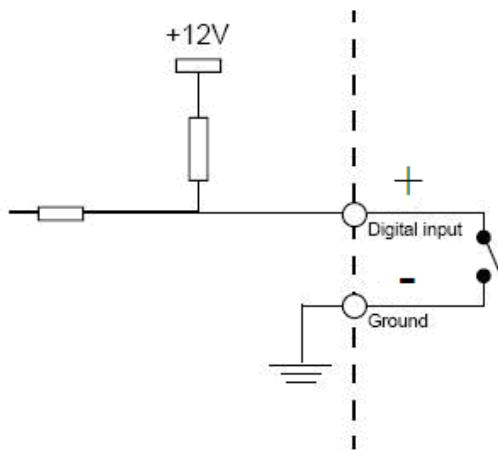
Use a PoE power injector (optional) to connect between the Network Camera and a non-PoE switch



4.General I/O Terminal Block

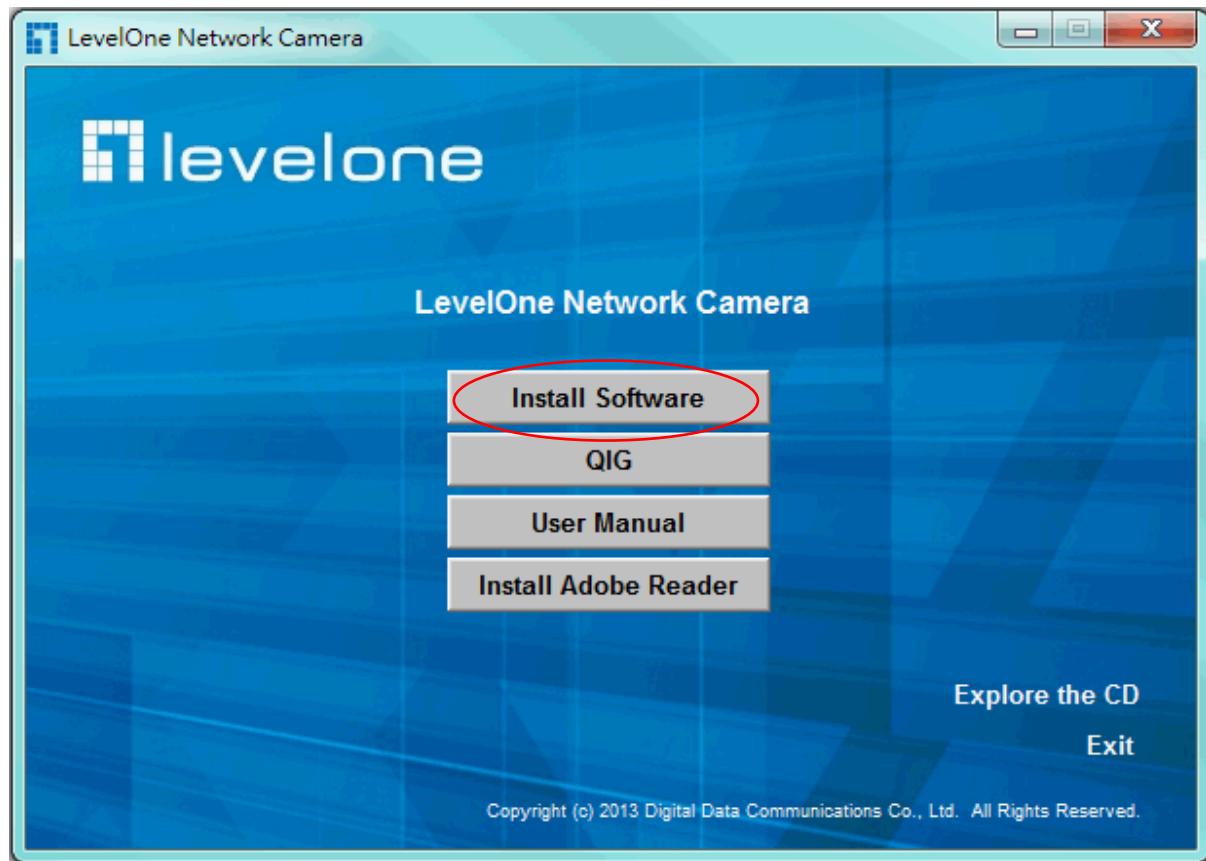
This Network Camera provides a general I/O terminal block which is used to connect external input devices. The pin definitions are described below.

Pin	Name
+	Digital input +
-	Digital input -



Install the IP Finder program

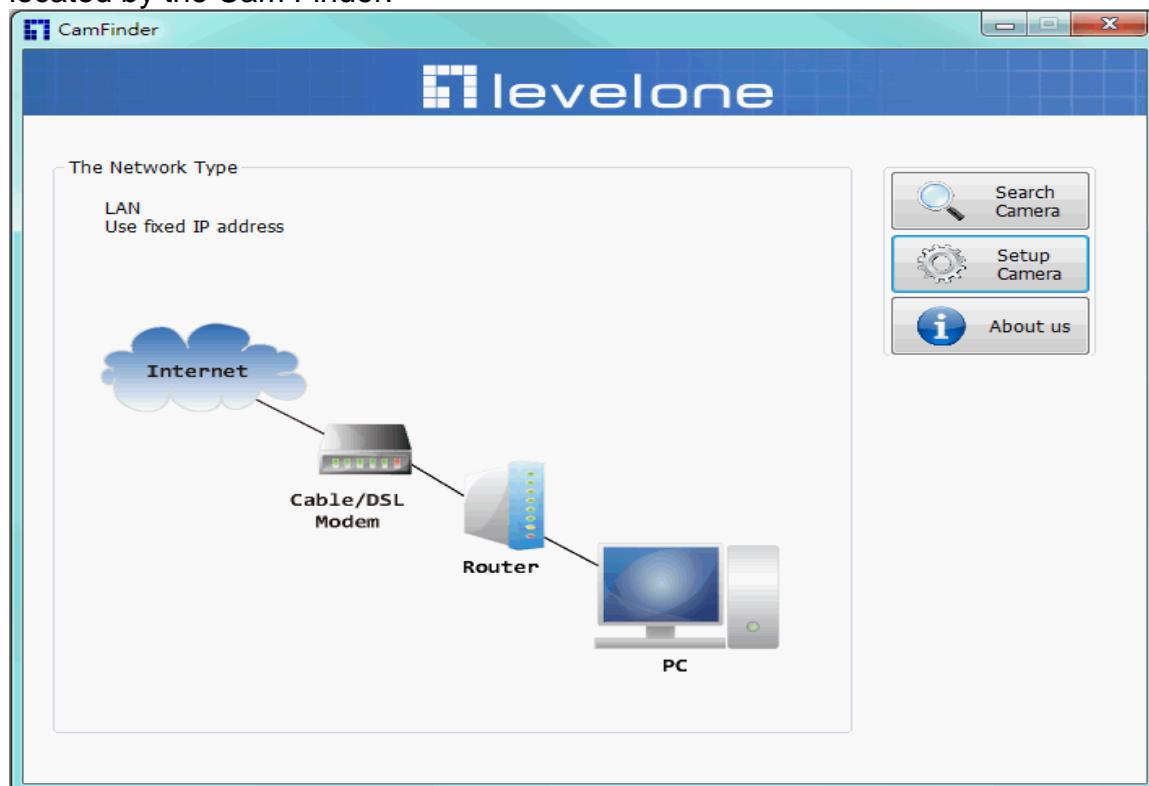
When you installed your Network camera on your LAN environment, you may install “IP Finder” to discover Network camera’s IP address. The Administrator must place the product software CD into the CD-ROM drive of the PC running in Microsoft Windows. An auto-run program will pop up (If the program is not on auto-run, go to the root directory of the software CD and click on “autorun.exe”).



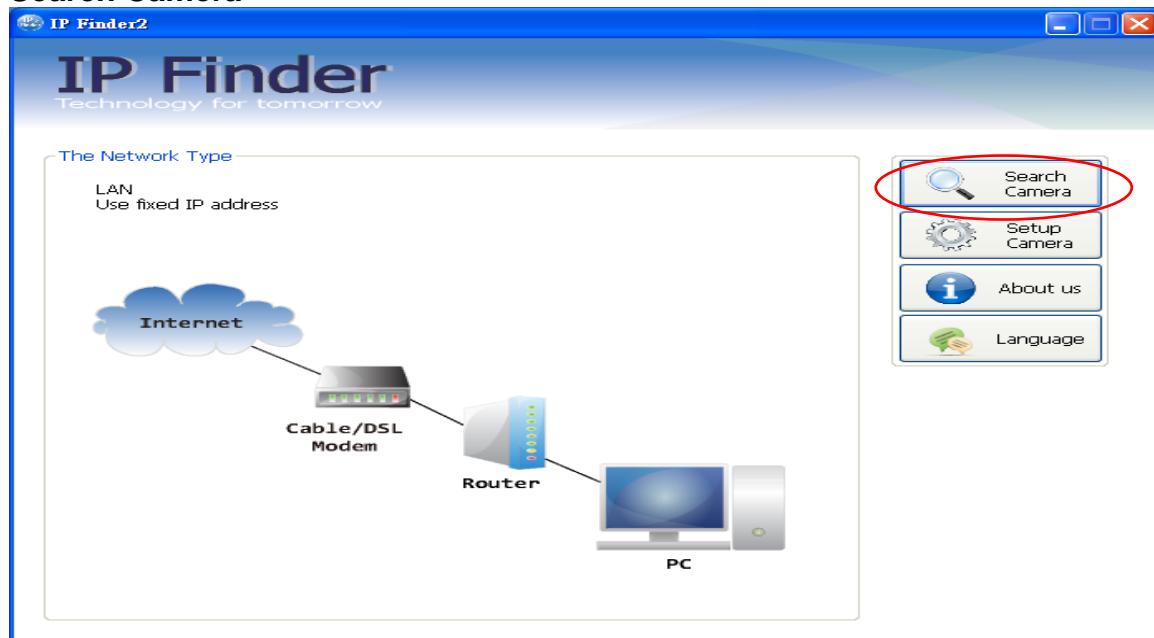
Click on “Software Utility” item, after the window contents changed, click on “Install Cam Finder” to run “Cam Finder” program.



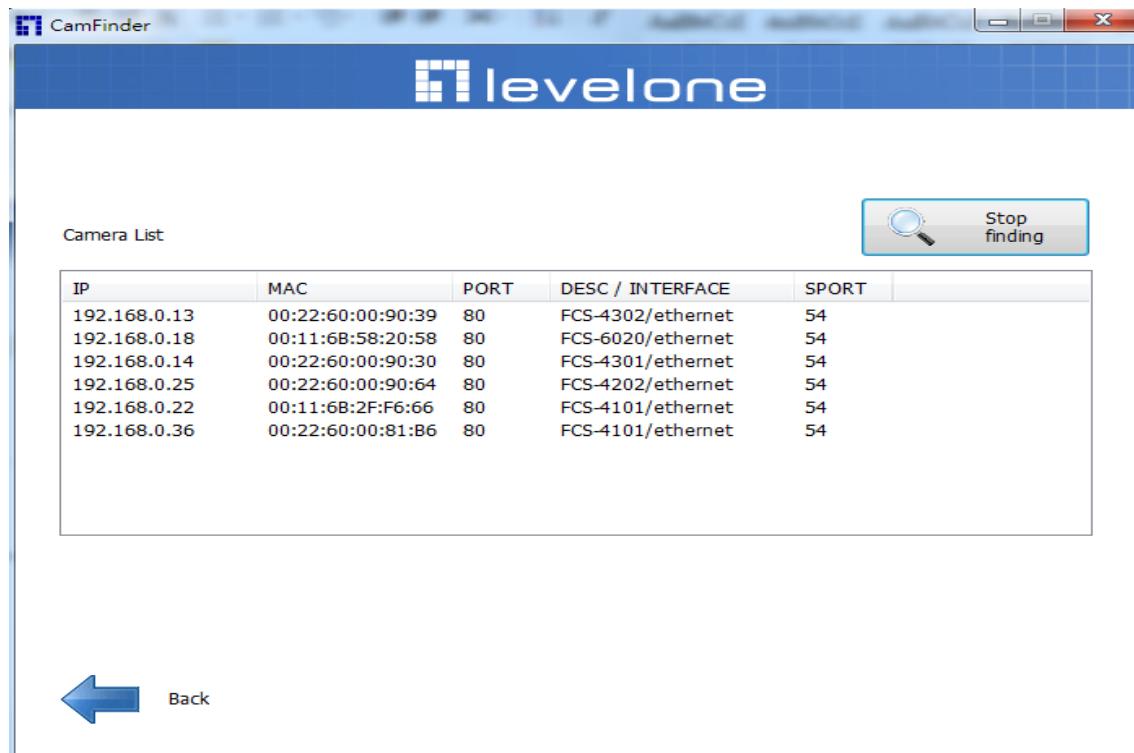
"Cam Finder" is used to search the IP address of Network Cameras or Video servers on a LAN. After searching, Video Servers or Network Cameras will be located by the Cam Finder.



Search Camera



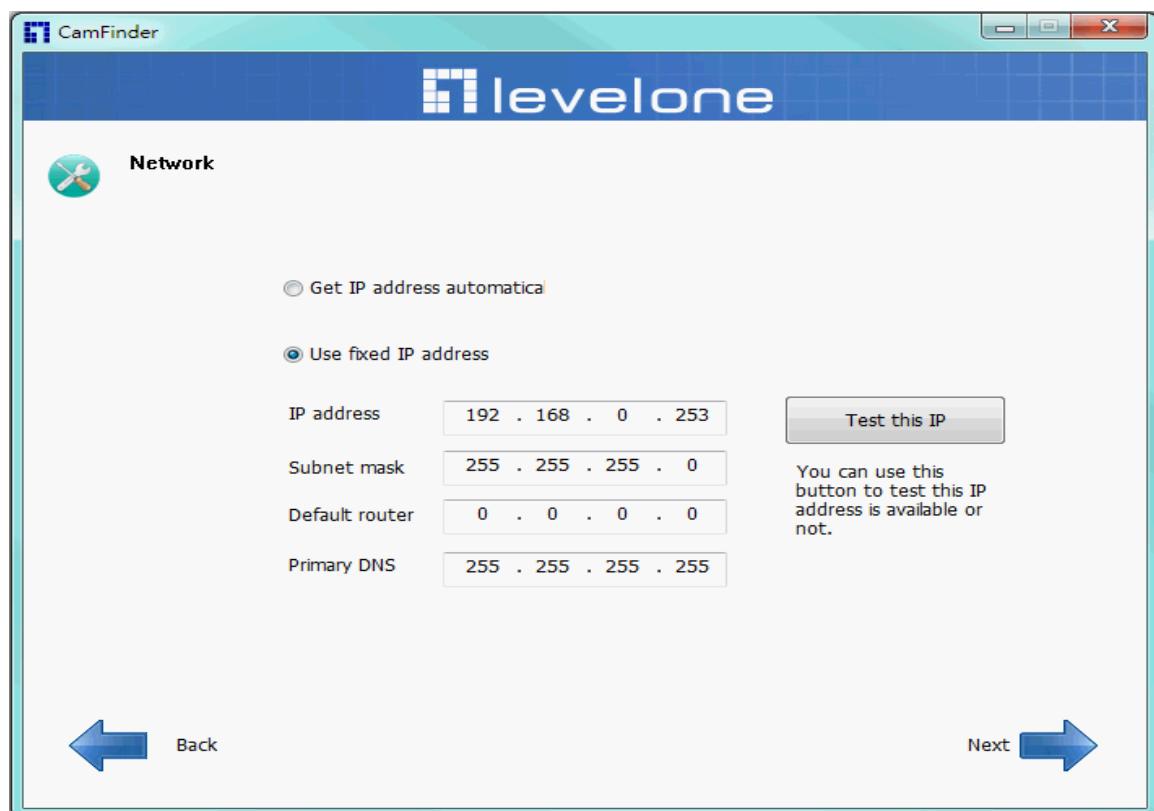
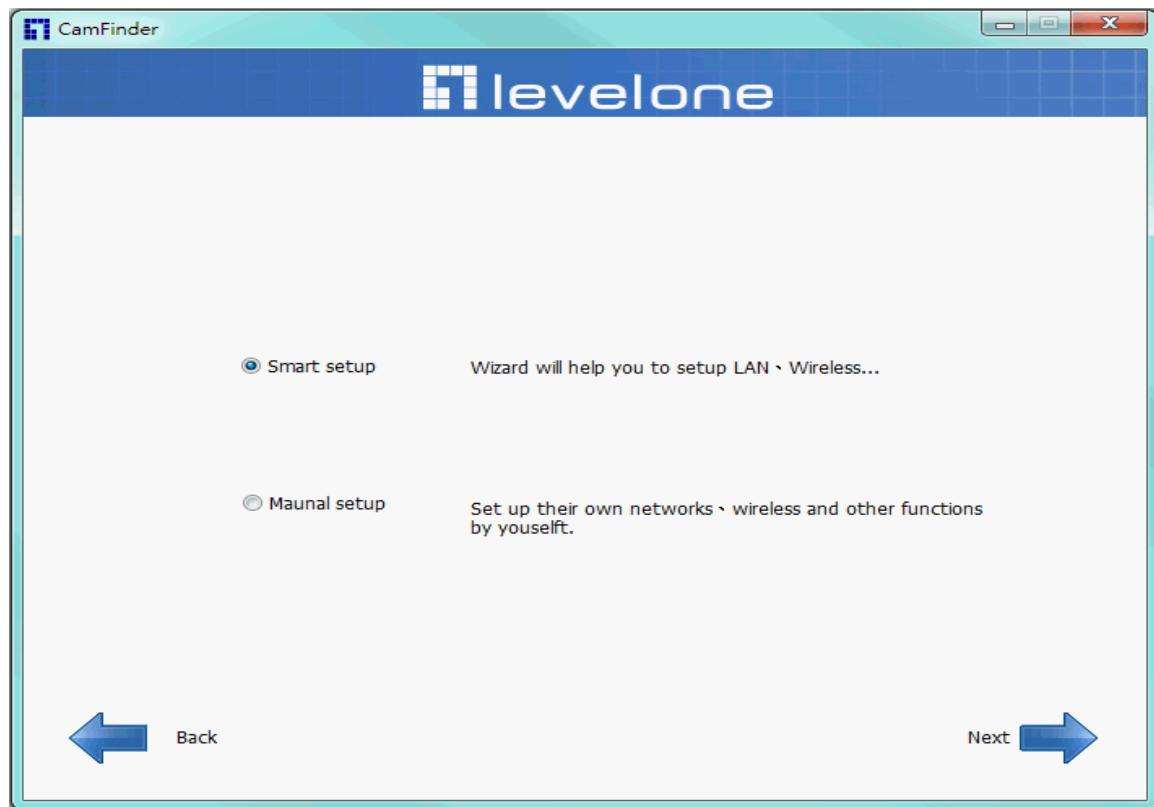
Click search Camera button, The program will search for all family network devices on the same LAN. After searching, the main installer window will pop up. Click on the MAC and model name which matches the product label on your device to connect to the Network Camera via Internet Explorer.

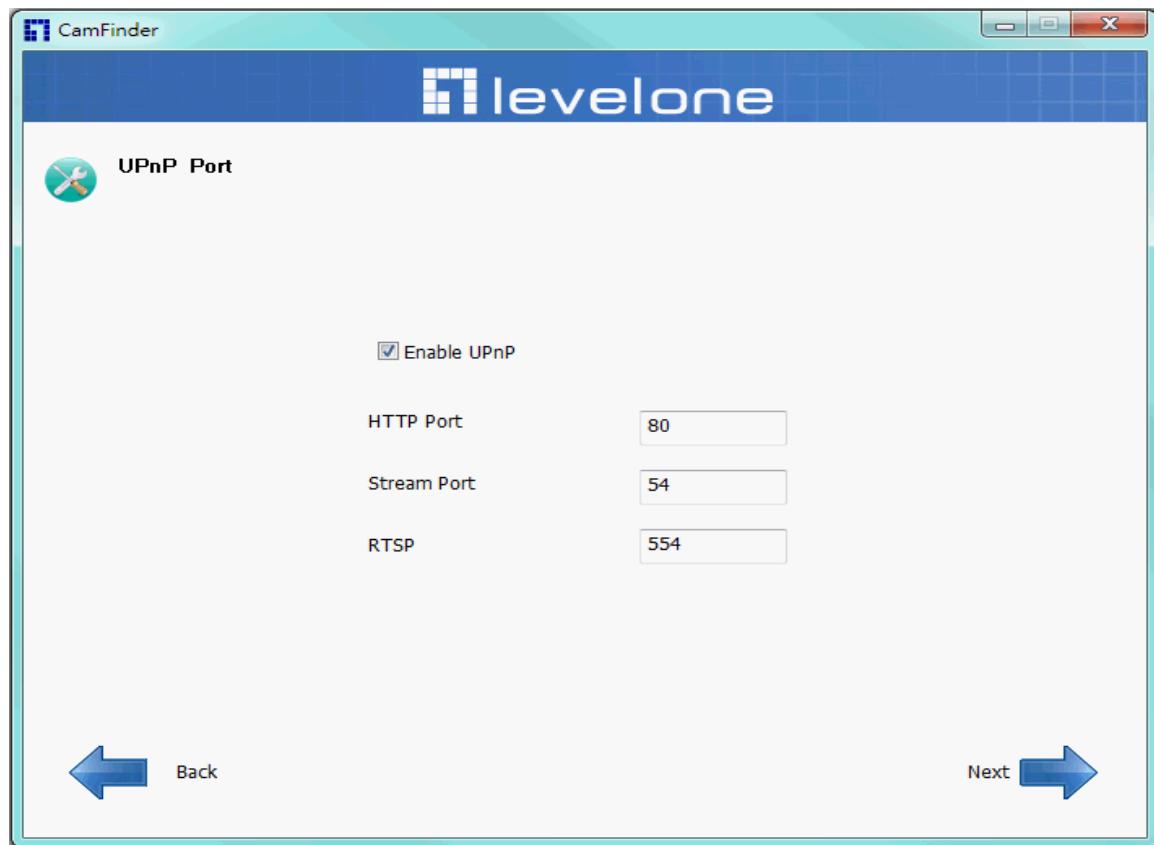


Setup Camera

Auto Install Wizard will be started and that it can auto guide through the installation process. Press the “**Next**” button execute next process. For more information, please refer to the Network section on page 33.

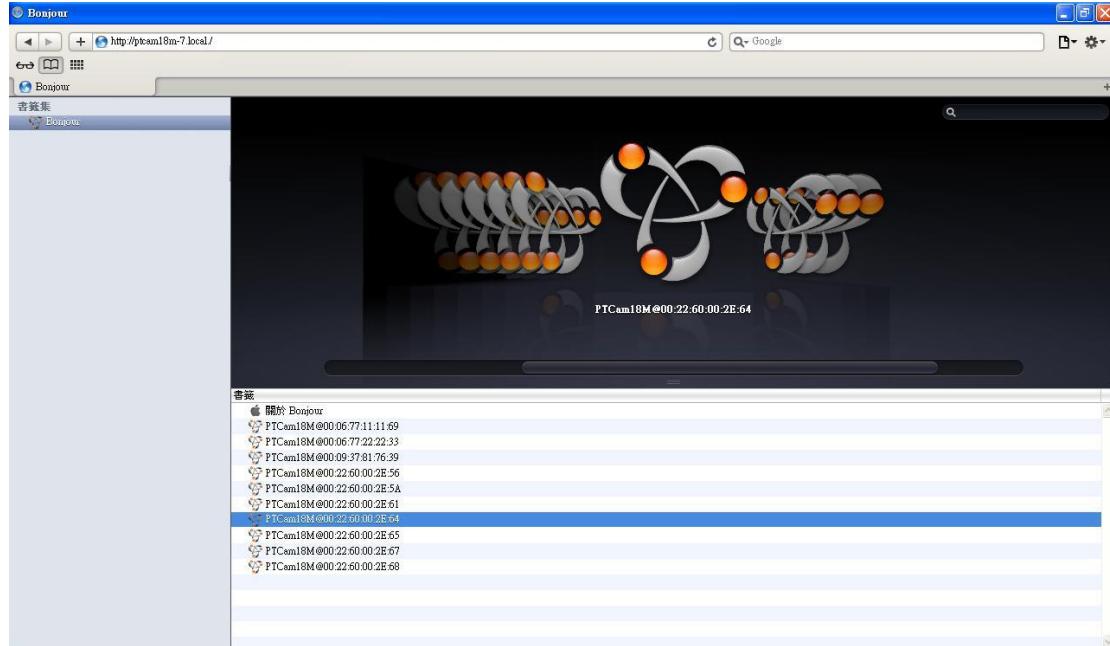






Bonjour program

Safari browser supports Bonjour search program the will search for all family network devices on the same LAN.



C2.mylevel1.com(Free DDNS service)

1. When you want to connect the network camera over Internet, you can use the service “**C2.mylevel1.com**”. The “ip-discovery.com” is a free DDNS server for this camera. Make sure that the router must start UPnP and DHCP server functions. You can get the domain name which you wish very easily after registration. In Network page—DDNS settings of this camera, you just input the host name you want and your e-mail address, and click “Register”, then you can have the hostname for this camera not longer than 20 seconds if the DDNS registration result is OK. Then you can connect to this ip camera by

*<http://XXX.c2.mylevel1.com:@@@@>

*XXX: the host name you type

*@@@: The HTTP port (get it automatically by c2.mylevel1 server)

DDNS setting

Please input the C2.mylevel1.com DDNS parameters

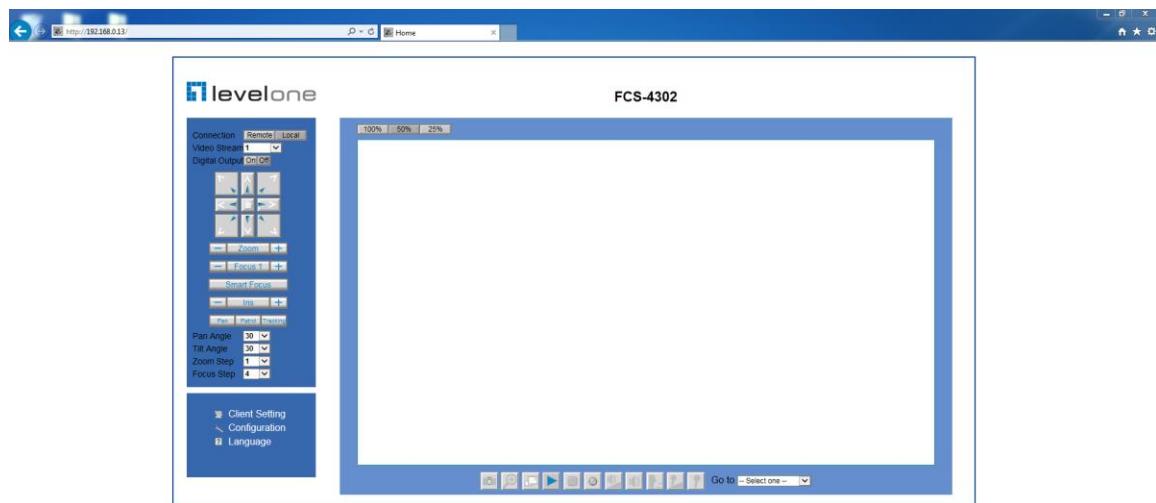
Host name	<input type="text"/> .C2.mylevel1.com
E-mail	<input type="text"/>
The following port numbers is needed to set up at your router's mapping table by yourself. Change the port values if needed. Make sure the values must be the same as that set up at your router's mapping table.	
HTTP port	<input type="text"/> 80
HTTPS port	<input type="text"/> 443
RTSP port	<input type="text"/> 554
Video RTP port	<input type="text"/> 54
Video RTCP port	<input type="text"/> 55
Audio RTP port	<input type="text"/> 56
Audio RTCP port	<input type="text"/> 57

Register

Cancel **Prev** **Next** **Finish**

User password: Default the password is last six number of the MAC. To change “root” password at “Security configuration” can change the user password, This “User password” is entered in the ip-discovery.com Password.

Note: You must set the ports between your router and camera manually if the registration is failed.

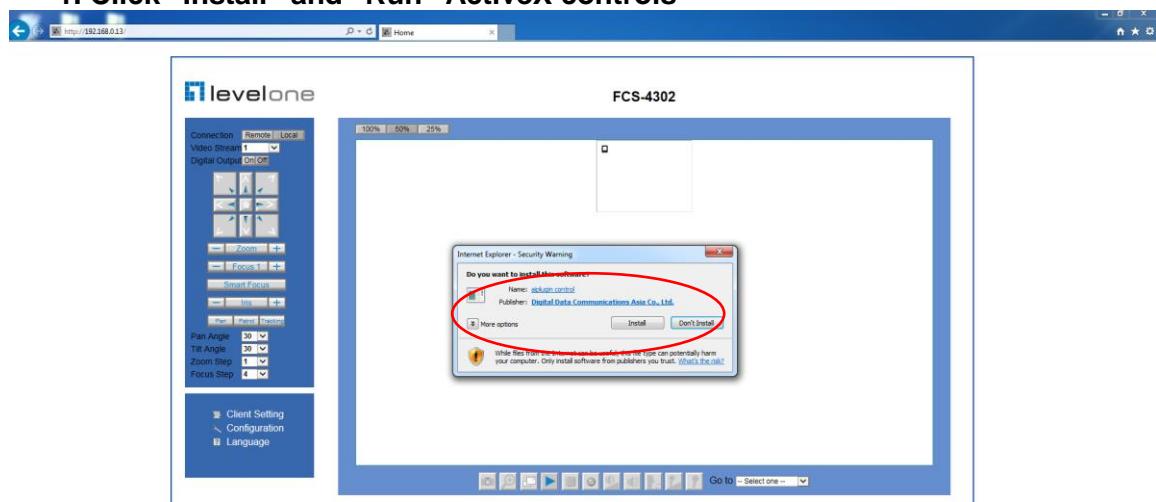


This website wants to install the following add-on: aplugin control from Digital Data Communications Asia Co., Ltd. What's the risk?

Initial Access to the Network Camera

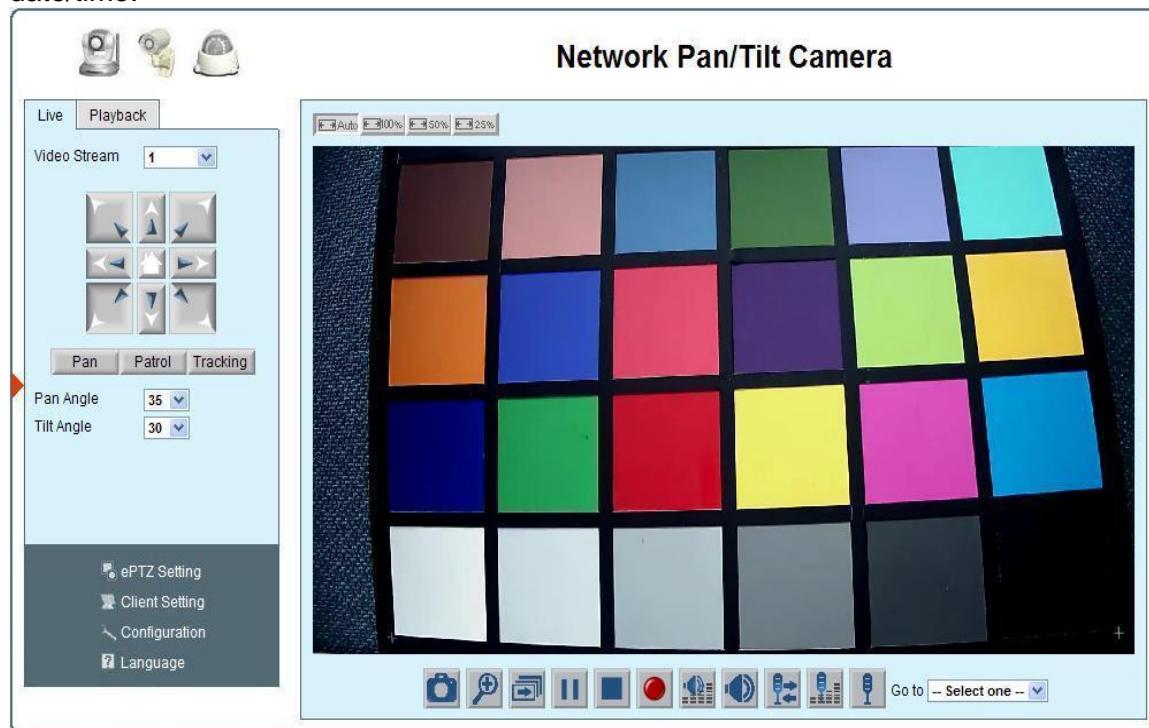
- (1) For the initial access to the Network Camera in Windows, the web browser may prompt for permission to install a new plug-in for the Network Camera. This plug-in has been registered for certificate and is used to display the video in the browser. Users may click on to proceed.

1. Click “Install” and “Run” ActiveX controls



Camera view:

On the top of image shows the connecting type of the Network Camera and the current date/time.



View capabilities:

1. Click this button to capture and save still images. The captured images will be displayed in pop-up window. Right-click the image and choose Save Picture As to save it in JPEG format.
2. The button selection lets you open a digital zoom, and to control the window to enlarge a specified area in the camera view.
3. Click this button to switch to full screen mode. Press the "Esc" key to switch back to normal mode.
4. Click on this button freeze the video, and playing when you click again.
5. Click on this button stop video output.
6. Use this function ; you can record video in your PC by browser directly. The files format will be in MP4. **Note: Due to the UAC (User Access Control) function in Windows Vista or Windows 7, the IE browser would need to be run under the "Administrator" privilege.**
7. Click on this button adjust the audio volume & Latency.
8. Click on this button switch Mute On/Off.



9. Click on this button to adjust the Function “2-way audio” to be Enable/Disable. Enable this function, request insert an external speaker. The server can play sound from the client and receive sound from the environment and send to client.



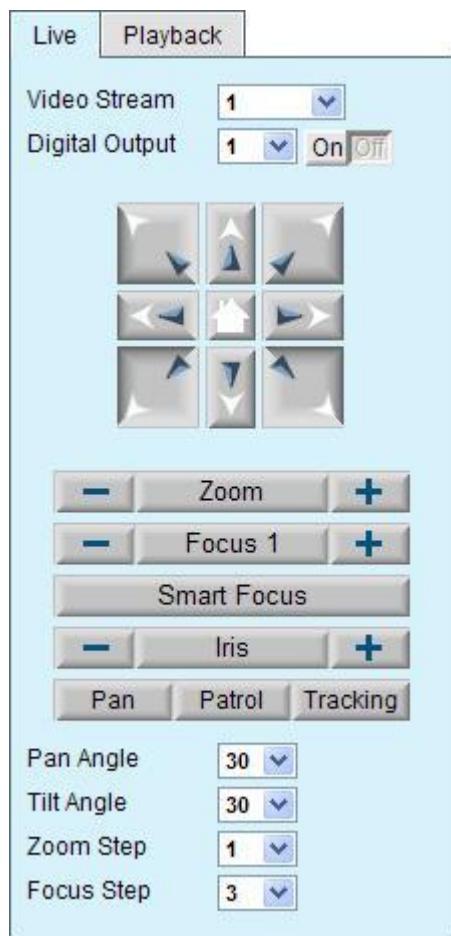
10. Click on this button to adjust the Microphone volume.



11. Click on this button switch Microphone Mute On/Off.

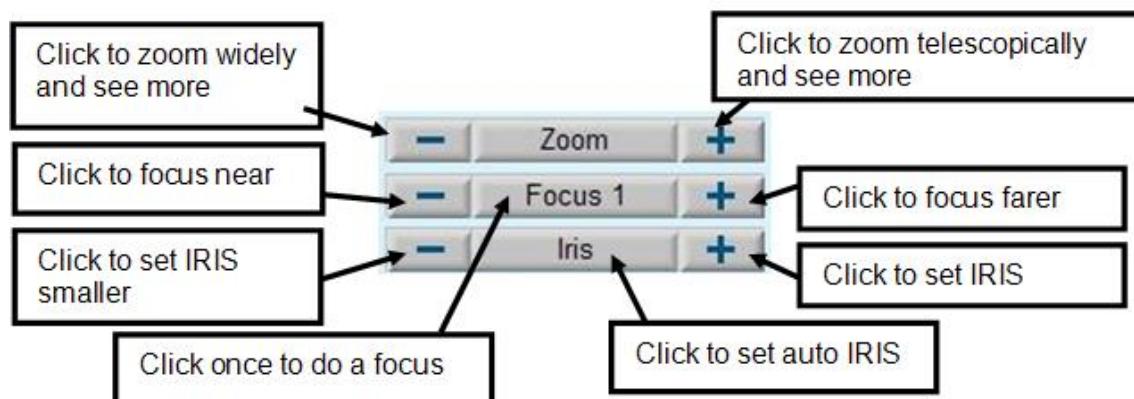
12. “Go to” Once the Administrator has determined the preset positions; the User can aim the camera using this control.

Pan/Tilt & connection control buttons:



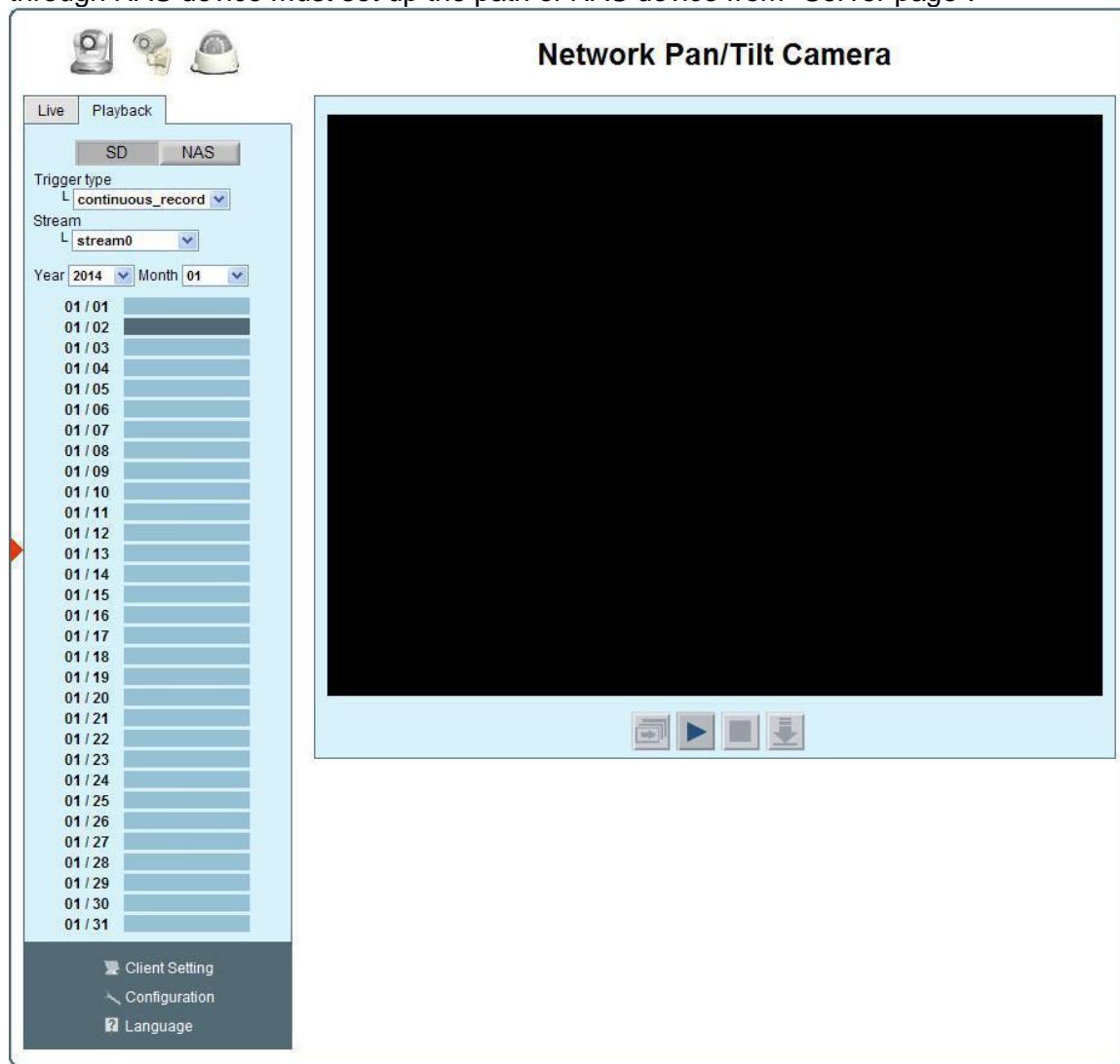
1. **“Video Stream”** User can choose stream1 or stream2 & picture.
2. **“The direction buttons are”** “Left”, “Right”, “Up”, “Down”, “Cross Angles”, and “Home”. Camera returns to center when click “Home” button
3. **“Pan Angle”** User can choose the angles when the camera moves left and right each time.
4. **“Tilt Angle”** User can choose the angles when the camera moves up and down each time.
- 5 **“Focus”** There are two different Focus modes, Focus1 and Focus2, press two seconds on the Focus icon to switch the mode. Focus1 is autofocus mode, the camera will do focus after Pan/Tilt moving, Zoom in/out, any large video difference...and so on. Focus2 mode, the camera will do focus after Zoom in/out.
- 6 **“Smart Focus”** Smart Focus function, use mouse and left key to pull a area, and then the camera will focus to this area.
- 7 **“Iris”** Adjust the iris size
- 8 **“Pan”** The camera will move from right side to left side continuously when click the button.
- 9 **“Patrol”** The button directs the camera to patrol among the preset positions in the patrol list, which can be modified on the **“Camera control page”**. The cycle of patrol is from 1 to 50.
- 10 **“Video Tracking”** is able to track dynamic objects within screen video.

11 “3D Auto location” Press the left key of the mouse, and pull and choose a certain area in the picture in diagonal direction, can enlarge this area, and put this area in the middle position of picture of controlling.



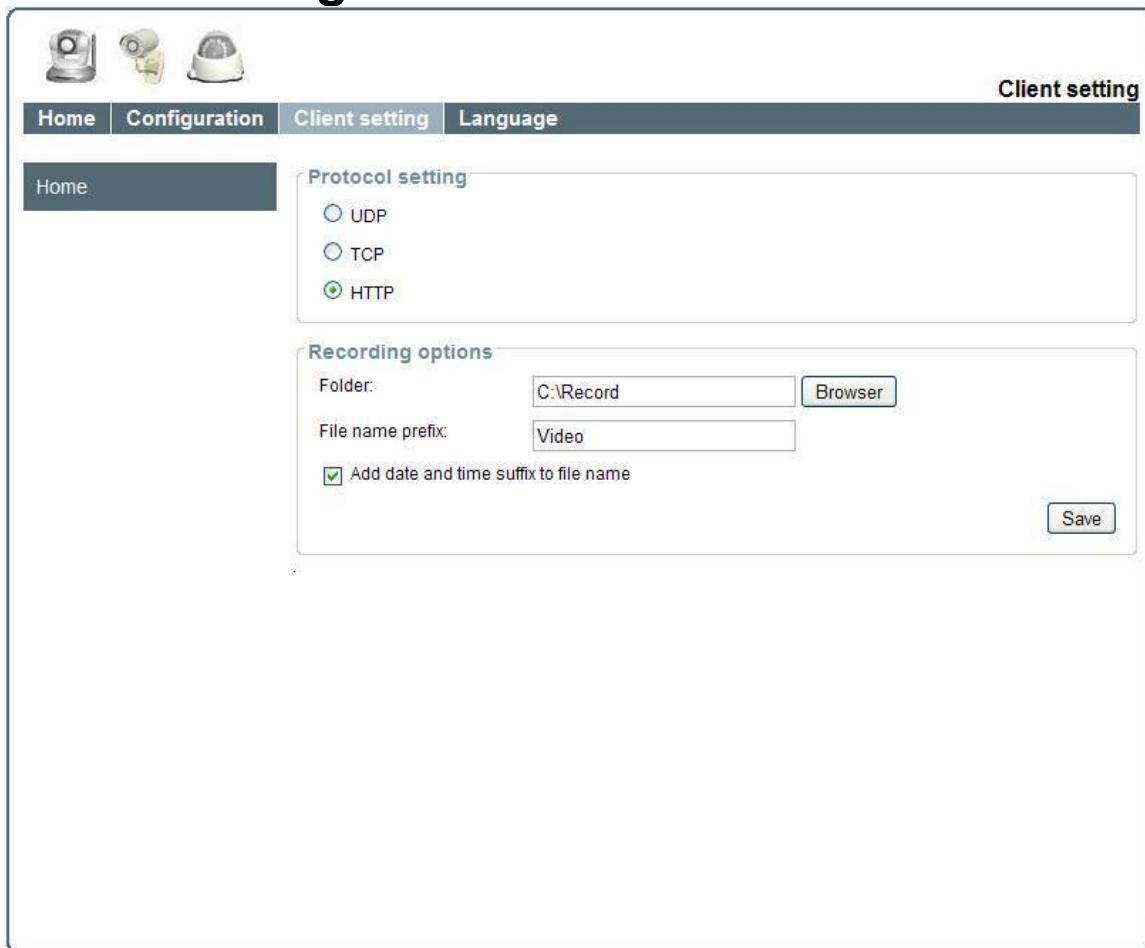
Playback

Playback function: Support the image playback through SD Card、NAS device, capable of further choice “Trigger type”、“Stream”、“Date/Time”. Use the playback function through NAS device must set up the path of NAS device from “Server page”.



1. Click this button to switch to full screen mode. Press the “Esc” key to switch back to normal mode.
2. Click on this button freeze the video, and playing when you click again.
3. Click on this button stop video output.
4. Click the button to download the current video.

Client Setting



1. **“Protocol setting”** Setting camera of protocol.
“**UDP**” Select use UDP protocol connect camera.
“**TCP**” Select use TCP protocol connect camera.
“**HTTP**” Select use HTTP protocol connect camera.
2. **“Recording options”** Users can record live video as they are watching by clicking start MP4 Recording on the main page. Here, you can specify the storage destination and file name.
“**Folder**” Specify the storage destination for the recorded video files.
“**File name prefix**” Enter the text that will be appended to the front of the video file name.
“**Add date and time suffix to file name**” Select this option to append the date and time to the end of the file name.

NOTE: Protocol Options which allows choices on connection protocol between client and server. There are three protocols choices to optimize your usage – UDP, TCP, HTTP. The UDP protocol allows for more real-time audio and video streams. However, some packets may be lost due to network burst traffic and images may be obscured. The HTTP protocol allows for less packet loss and produces a more accurate video

display. The downside with this protocol is that the real-time effect is worse than that with the UDP protocol.

The TCP guarantees the complete delivery of streaming data and thus provides better video quality. However, the real-time effect is not as good as that of the UDP protocol.

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

NOTE: Protocol Options which allows choices on connection protocol between client and server. There are three protocols choices to optimize your usage – UDP,TCP,HTTP.

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Definitions in Configuration

Please note that only the Administrator can access the system configuration.

Two types of user interfaces are available: [Advanced Mode] for professional users and [Basic Mode] for entry-level users.

Those functions that are displayed only in Advanced Mode are marked with **Advanced Mode**. If you want to set up the advanced functions, please click [Advanced Mode] on the bottom of the configuration list to quickly switch over.

System

The screenshot shows the Network Camera Configuration interface. The top navigation bar includes icons for Home, Configuration, Client setting, and Language, with 'System' selected. The left sidebar lists categories such as Home, System (which is currently selected), Security, Network, DDNS, Access list, Video, ROI, Defog, Video record, Stream, Camera control, Application, Servers, Storage, System log, Status and parameters, Maintenance, and a link to '[Basic mode]'. The main content area displays two configuration sections: 'General setting' (Host name: Network Pan/Tilt Camera, Turn on the LED indicator checked) and 'Time setting' (Time zone: (GMT+08:00) Beijing Chongqing, Hong Kong, Kuala Lumpur, Singapore, Taipei, Enable daylight saving time unchecked, Keep current time selected, Sync with PC, Manually set the time, Adjust by NTP server). Both sections have a 'Save' button. A red arrow points from the text 'Click to switch to Advanced mode' to the '[Basic mode]' link in the sidebar.

1. "General Setting"

(1) "Host name"

The text displays the title on the top of the main page.

(2) "LED indicator"

If you do not want others to know that the network camera is operating, you can select this option to turn off the LED indicators.

2. "Time Setting"

(1) "Time zone"

Choose a time zone from the down arrow.

(2) "Daylight saving"

For summertime; It will be one hour ahead.

(3) "Current Time"

Network camera set the current time.

(A) "Keep current date and time"

Click on this to keep the current date and time of the Network Camera. An internal real-time clock maintains the date and time even when the power of the system is turned off.

(B) "Sync with computer time"

Synchronize the date and time in the Network Camera according to the local computer.

(C) "Manual"

Adjust the date and time by the Administrator.

(D) "Adjust by NTP server"

Synchronize the time according NTP server over the Internet whenever the Network Camera is switched on. It fails if the assigned time-server cannot be found.

(a) "NTP server" Assign the IP address or domain name of the time-server.

Leaving the text box blank connects the Network Camera to the default time-servers.

(b) "Update interval" Select 0 ~ 23 hours update with the time on the NTP server.

Security

Root password

Enable the root account

Root password: * [REDACTED]

Confirm root password: * [REDACTED]

Manage privilege

Note: The first checkbox is for operator, and second checkbox is for viewer.

Lens control

Pan/tilt camera control

Browser plugin object control

Manage user

Add a new user

User name: *

Password: *

Confirm password: *

Privilege: Administrator

Delete a user

Update a existing user

Security setting

The administrator account name is “root”, which is permanent and can not be deleted. If you want to add more accounts in the Manage User column, please set a password for the “root” account first.

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

2. “Manage privilege” You can modify the manage privilege of operators or viewers. Check or uncheck the item, then click **finish** to enable the settings.

3. “Manage user”

- (1) **“Add a new user”** Administrators can add up to 20 user accounts.
 - (A) Input the new user’s name and password.

(B) Select the privilege level for the new user account. Click **Finish** to enable the setting.

(2) “Delete a user” Select an existing user name. Click **Finish** to enable the setting.

(3) “Update a existing user” Select an existing user name. Administrators can modify user's password and privilege. Click **Finish** to enable the setting.

Access rights are sorted by user privilege (Administrator, Operator, and Viewer). Only administrators can access the Configuration page. Operators cannot access the Configuration page but can use the URL Commands to get and set the value of parameters. Viewers access only the main page for live viewing.

Network

Any changes made on this page will restart the system in order to validate the changes.
Make sure every field is entered correctly before clicking on “**finish**”

The screenshot shows the Network configuration interface with the following sections:

- Network setting:**
 - LAN: Selected. Options: Get IP address automatically (selected), Use fixed IP address.
 - PPPoE: Unselected.
- Port parameters setting:**

HTTP port	* 80
HTTPS port	* 443
RTSP port	* 554
Video RTP port	* 6790
Video RTCP port	6791
Audio RTP port	6792
Audio RTCP port	6793
- UPnP setting:**
 - Enable UPnP presentation:
 - Enable UPnP port forwarding:
- Bonjour setting:**
 - Enable bonjour:
- RTSP stream access names setting:**

Access name for stream1 with audio/video	* live1.sdp
Access name for stream2 with audio/video	* live2.sdp

Save buttons are present in each section.

Network Setting

“LAN” & “PPPoE”

The default type is LAN. Select PPPoE if using ADSL

1. LAN

The default status is **Get IP address automatically**. This could be tedious to perform software installation whenever the Network Camera starts. Therefore, once the network is set, especially for the IP address should be entered correctly. Select **Use fixed IP address** then the Network Camera will skip installation. The Network Camera will automatically restart and operate normally after a power outage. You can run IP installer to check the IP address assigned to the Network Camera if the IP address is forgotten, or you can use the UPnP function provided by the Network Camera (**MS Windows XP provides UPnP function at My Network Place**).

(1) “Get IP address automatically”

(2) “Use fixed IP address”

- **“IP address”**: This is necessary for network identification.
- **“Subnet mask”**: This is used to determine if the destination is in the same subnet. The default value is “255.255.255.0”.
- **“Default router”**: This is a gateway used to forward frames to destinations in a different subnet. Invalid router setting will fail the transmission to destinations in different subnet.
- **“Primary DNS”**: The primary domain name server that translates hostnames into IP addresses.
- **“Secondary DNS”**: Secondary domain name server backups the Primary DNS.

2. PPPoE

If using the PPPoE interface, you should fill the following settings from ISP.

- (1) **“User name”**: The login name of PPPoE account
- (2) **“Password”**: The password of PPPoE account
- (3) **“Confirm password”**: Input password again for confirmation

Port parameters setting Advanced Mode

- **“Http Port”** This can be typed besides the default Port 80. Once the port is changed, the users must make sure the change for the connection is successful. For instance, when the Administrator changes the HTTP port of the Network Camera which IP address is 192.168.0.20 from 80 or 1025 to 65535, the users must type in the web browser “http://192.168.0.20:8080” instead of “http://192.168.0.20”.
- **“Https Port”** By default, the HTTPS port is set to 443. It can also be assigned to another port number between 1025 and 65535.
- **“RTSP Port”** RTSP port can be typed besides the default Port 554.
- **“Video RTP Port”** Video RTP port can be typed besides the default Port 6790.

RTSP stream access names setting Advanced Mode

The RTSP streaming currently supports video only, audio only, and audio/video. To use the audio/video stream, type the URL as "rtsp://61.30.125.43/liveN.sdp".

DDNS

The screenshot shows the Network Camera configuration interface with the 'Configuration' tab selected. On the left, a sidebar lists various settings under 'DDNS'. The main area displays two sections: 'ip-discovery.com setting' and 'DDNS setting'.

ip-discovery.com setting:

- Host name:
- E-mail:
- HTTP port: * 8081
- HTTPS port: * 4435
- RTSP port: * 3554
- Video RTP port: 16790
- Video RTCP port: 16791
- Audio RTP port: 16792
- Audio RTCP port: 16793

Register:

Has not been registered.

DDNS setting:

Provider:	Dyndns.org(Dynamic) <input type="button"/>
Host name:	<input type="text"/>
Account:	<input type="text"/>
Password:	<input type="text"/>
Confirm password:	<input type="text"/>

Save

DDNS setting

“3rd party DDNS” This is enable 3rd party DDNS.

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

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

“User name” The Username or E-mail field is necessary for logging in the DDNS

server or notify the User of the new IP address.

Note: when this field is input as “User name”, the following field must be input as “Password”.

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

“Save” Click on this button to save modify settings for the DDNS service.

Access list

The screenshot shows the 'Access List' configuration page. On the left, there is a sidebar with icons for Home, Configuration, Client setting, and Language. The main area has tabs for Home, Configuration, Client setting, and Language, with Configuration selected. The Configuration tab has sub-options: Home, System, Security, Network, DDNS, Access list, Video, ROI, Defog, Video record, Stream, Camera control, Application, Servers, Storage, System log, Status and parameters, Maintenance, and [Basic mode]. The 'Access list' tab is selected.

General Settings

- Filter type: Deny (selected)
- Enable access list filtering
- Always allow the IP address to access this device * [Input field]
- Save**

Filter setting

- Add address
 - Rule: Single (selected)
 - IP address: * [Input field]
- Delete address
 - Address list: [Input field]
- Save**

General Settings

“Filter type”: Provided to Allow or Deny mode.

“Always allow the IP address to access this device”: You can check this item and add the Administrator’s IP address in this field to make sure the Administrator can always connect to the device.

Filter setting

“Add a rule to configure an Allowed/Denied list”: Click “Save” to add a rule to Allowed/Denied list.

There are three types of rules for user to set up:

“Single” This rule allows the user to add an IP address to the Allowed/Denied list.
For example:

Filter setting

Add address

Rule	Single <input type="button" value="▼"/>
IP address	* <input type="text" value="192.168.20.12"/>

Delete address

Address list	<input type="text" value="192.168.20.12"/> <input type="button" value="▼"/>
--------------	---

“Network” This rule allows the user to assign a network address and corresponding subnet mask to the Allow/Deny List. The IP address is written in the CIDR format.
For example

Filter setting

Add address

Rule	Network <input type="button" value="▼"/>
Network address / Network mask	* <input type="text" value="192.168.20.12"/> / <input type="text" value="24"/>

Delete address

Address list	<input type="text" value="192.168.20.12/24"/> <input type="button" value="▼"/>
--------------	--

“Range” This rule allows the user to assign a range of IP addresses to the Allow/Deny List. This rule is only applied to IPv4.

For example:

Filter setting

Add address

Rule	Range <input type="button" value="▼"/>
IP address - IP address	* <input type="text" value="192.168.20.12"/> - <input type="text" value="192.168.20.20"/>

Delete address

Address list	<input type="text" value="192.168.20.12-192.168.20.20"/> <input type="button" value="▼"/>
--------------	---

Video

The screenshot displays the 'Video' configuration page of a network camera. The left sidebar lists navigation options such as Home, Configuration, Client setting, Language, and several sub-options under Video, including ROI, Defog, Video record, Stream, Application, Servers, Storage, System log, Status and parameters, Maintenance, and [Basic mode].

The main content area contains four configuration sections:

- General Settings:** Includes Color mode (Color or Monochrome), Environment (Indoor or Outdoor), Frequency (50Hz or 60Hz), Video orientation (Flip or Mirror), and Turn on low lux (checkbox). A 'Save' button is located at the bottom right.
- Video setting:** A large preview window showing a play button. To its right is a list of video enhancement options: Exposure, White Balance, Image Adjustment, Noise Reduction, Edge Enhancement, Lens Correction, and WDR. Each option has a checkbox next to it.
- Infrared led setting:** Offers two modes: Automatic (selected) and Manual. Under Automatic mode, Sensitivity is set to 3. A 'Save' button is located at the bottom right.
- Video output setting:** Contains a checkbox for Turn on video output and a dropdown menu for Video format (set to NTSC). A 'Save' button is located at the bottom right.

General Setting

1. **"Color mode"** Select use color or monochrome video display.
2. **"Environment"** The orientation of video
 - (1) **"indoor"** This option is usually selected when the Network Camera is placed in indoor environments.
 - (2) **"outdoor"** This option is usually selected when the Network Camera is placed in outdoor environments.
3. **"Frequency"** Select 50 Hz or 60Hz power line frequency.
※The fluorescent light will flash according to the power line frequency that depends on

local utility. Change the frequency setting to eliminate uncomfortable flash image when the light source is only fluorescent light.

4. “Video orientation” The orientation of video

(1) “Flip” Vertically rotate the video.

(2) “Mirror” Horizontally rotates the video.

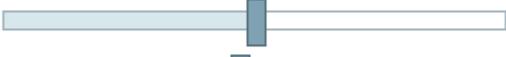
5. “Low lux mode” The video quality will be improved when the camera is in low lux environment.

Video Setting Advanced Mode

1. Exposure setting

Here it provides 3 mode: **Auto**, **BLC** and **HSBLC**. **Auto** and **HSBLC** modes are 2 default settings for general purpose and backlight scene, respectively.

▼ Exposure

Mode	<input style="width: 100px; height: 25px; border: 1px solid #ccc; border-radius: 5px; padding: 2px 10px;" type="button" value="Auto"/>
Target Luminance	36 
Offset	0 
AGC level	7 
Shutter Speed	1/ <input type="text" value="30"/> ~ 1/ <input type="text" value="50000"/>

“Target Luminance and Offset”

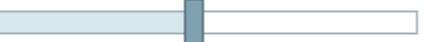
These two slide bar, **Target Luminance** and **Offset** represent the expected target value of the luminance of the weighting result of AE windows in the image and its tolerance as offset. For example, target luminance is set to 100 and target offset is set to 20 that means the average luminance of the AE window should be in the range from 80 to 120 (100 ± 10). When the actual luminance does not meet this range, the AE function will adjust shutter and gain to meet it as possible. In some extreme cases, it cannot reach the target because the environment is too bright or dark. When the environment is not consistent, e.g. with big moving objects, and the offset is too narrow, the AE will act more frequently that will cause the background of view inconsistent. The offset value is recommended to set 15~25% of target luminance.

“Shutter Speed”

There are 2 fields, minimal and maximal time, for the range of Shutter Speed. The precision of the parameter is 1/50000 sec., but it is **NOT** actual precision of the shutter speed of the sensor. The actual precision of the shutter speed depends on each sensor's specification. Here it will be rounded to approach sensor's effective exposure time. To avoid flickering or banding phenomenon under fluorescent light, the actual shutter speed will be locked at 1/120, 1/60, 1/30 if **Power Line Frequency** is 60Hz, or 1/100, 1/50, 1/25 if **Power Line Frequency** is 50Hz. The setting of **Power Line Frequency** is on the sub-tab Video and Audio. The exposure may not be stable if the maximum value and the minimum one are set to the same value without adjustable interval. Besides, the frame rate will drop down if the actual shutter speed is too slow to meet expected frame rate.

2. White Balance

White Balance

Mode	<input type="button" value="AWC"/>
Red Gain	118 
Blue Gain	130 
<input type="button" value="Preview"/> <input type="button" value="Cancel"/> <input type="button" value="Restore"/> <input type="button" value="Save"/>	

In the bottom of White Balance, there are 5 modes for practice: ATW, AWC, Indoor, Outdoor and Manual modes. Set the Red Gain and Blue Gain are active.

3. Image Adjustment

Image Adjustment

Brightness	0 
Saturation	140 
Contrast	0 

Brightness

The brightness can make the image brighter or darker. The neutral value is 0.

Saturation

The saturation can change white content in the image. The neutral value is 128.

Contrast

The contrast can adjust difference between dark and light. The neutral value is 0.

4. Noise Reduction

Noise Reduction

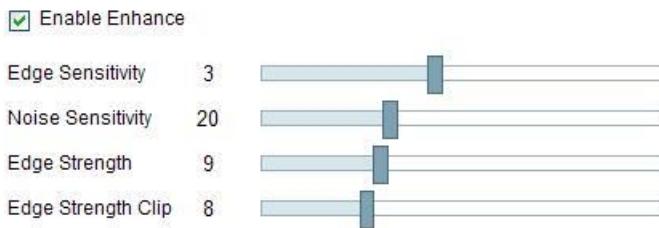
Pre-NR	<input type="checkbox"/> Enable
2D/3D-NR	<input checked="" type="checkbox"/> Enable
Mode	<input type="button" value="2D2Ref"/>
Normal Strength	135 
De-Impulse	<input type="checkbox"/> Enable

Check the box **Enable** to enable 3D de-noise. There are 5 modes: **2D**, **2D 1-ref**, **2D 2-ref**, **3D**, and **Blend**. The modes 2D, 2D 1-ref, 2D 2-ref have a Normal Strength slide bar for adjustment. The mode 3D has a Motion Adaptive option, Current Weight and Reference Strength slide bars. The mode Blend has all adjustable parameters. The difference between the modes 2D 1-ref and 2D 2-ref is one or two frames as temporal reference frames. When the scene with motion objects, the mode 3D and Blend may perform better without blur or ghost. When the Current Weight is higher and the

Reference Strength is lower, the motion blur of image is alleviated.

5. Edge Enhancement

Edge Enhancement

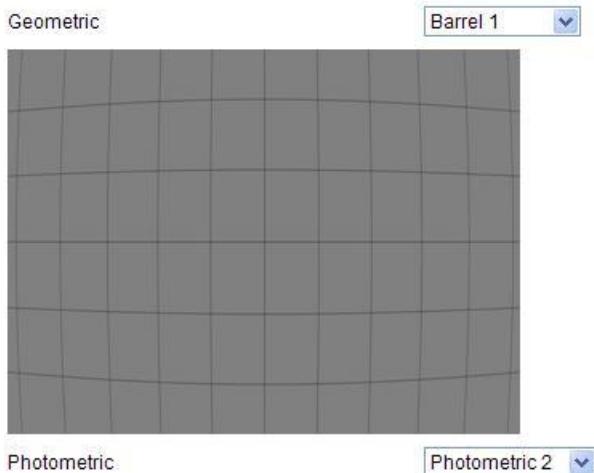


Check the box **Enable** to enable this function. There are 4 slide bars for adjustment. The **Edge Sensitivity** represents how textures are detected as edges. The higher **Noise Sensitivity** value makes noises to be filtered out, and avoid to amplify noises. The **Edge Strength** is a capability to enhance edges with a limitation by **Edge Strength Clip** to avoid over artificial edges.

6. Lens Correction

Geometric and Photometric lens corrections are supported.

Lens Correction



Geometric lens correction is used to correct lens distortion. The lens distortion includes barrel distortion and pincushion distortion if a lens is wide angle view or telescope, respectively.

There are 2 barrel and 2 pincushion options can be used for either wide angle view lens or telescope lens. Choose one of them and a reference image displayed below, then save it and apply.

Photometric lens correction can improve dark corners caused by lens, even sensor limitation.

Options Photometric 1 and Photometric 2 in pull-down menu are predefined, which can be applied directly. User Defined 1 and User Defined 2, which can be re-defined by user, are for specific cases according to lenses. When User Defined 1 or User Defined 2 are selected, an LSCRatio can be set. The value of LSC-ratio is between 0 and 100 (%). 0

means no correction, and 100 (%) means the lum. of corners are equal to the lum. of the center.

7.Wide Dynamic Range

Enable **Wide Dynamic Range** auto in different level to improve the exposure when both bright and dark areas simultaneously in the field of view of the camera. The default is off.

Infrared Led Setting

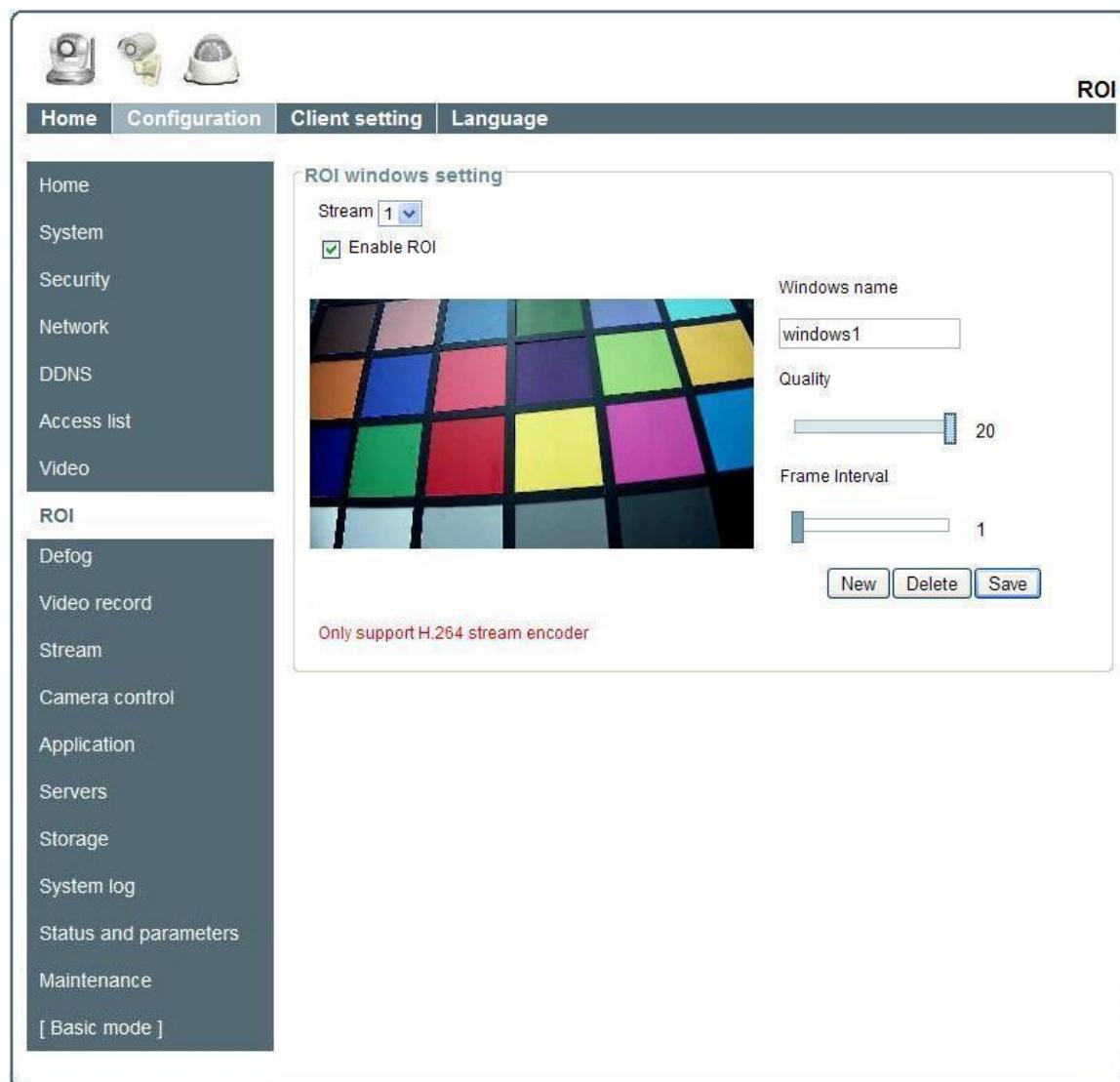
1. **“Infrared LED Control”** IR led for Day and Night (Option). User can turn on/off the built-in IR led. This function is very useful under low illumination environment.

- (1) **“Auto”** Select IR sensitivity from 0 to 4.
- (2) **“Manual”** Turn on/off the IR led manually.

Video output setting

“Turn on video output” Can switch between NTSC and PAL.

ROI(*Region of Interest*)



Note: Stream Select the streaming source. This option is only applied to H.264.

The function is that there are multiple regions (also called window) (up to 7 regions) on the encoding frame plane being selected for setting the quant value and frame-updating interval of the window.

Defog

The screenshot shows the 'Defog' configuration page of a network camera interface. At the top, there are three icons: a camera, a gear, and a bell. The top navigation bar includes 'Home', 'Configuration' (which is selected), 'Client setting', and 'Language'. The main content area has a title 'Defog setting' and a sub-section 'Defog'. Under 'Defog', there is a checkbox labeled 'Enable defog' which is checked. Below it is a preview image showing a colorful grid pattern with various colors like red, blue, green, yellow, and purple. To the right of the preview is a 'Gradation' section with a dropdown menu set to 'Off'. A 'Save' button is located at the bottom right of the preview area. On the left side, there is a sidebar with a dark background containing a list of options: Home, System, Security, Network, DDNS, Access list, Video, ROI, and a 'Defog' section which is expanded to show: Video record, Stream, Camera control, Application, Servers, Storage, System log, Status and parameters, Maintenance, and '[Basic mode]'.

Defog setting

Defog function allows visibility improvement through better image quality for foggy and smoggy circumstances.

Video record

NOTE: Before setting up this page, please set up the Network Storage on the Servers setting(add Server) page first.

Record setting

Click **Add** to open the recording setting window.

Record name Enter a server name.

Schedule mode

- (1) “Always” every day application.
- (2) “Week day” week day application.
- (3) “Selected day” selected day application.

Schedule information

(1) Enter the “**Start time**” and “**Stop time**” for day mode.

Note that the time format is [hh:mm] and is expressed in 24-hour clock time.

(2)“**Sun**”/“**Mon**”/“**Tue**”/“**Wed**”/“**Thu**”/“**Fri**”/“**Sat**” Select the days of the week to perform the application.

(3) “**Start day**” and “**Start time**” as the start timing the time. “**End day**” and “**End time**” as the end timing the time

Record parameters

(1)**Source**: Select a stream for the recording source.

(2)**The recording interval**: Select the recording time interval.

(3)**Record prefix file name**: You can setting the file name, and enable or disable to add the date and time on file name.

(4)**Destination**: You can select the SD card or network attached storage (NAS) for recording video files.

Note: Video record with the Application must be set to the same shared directory path. If you would like do detail recording settings or multi-channel recording, please install bundled 64CH recording software in CD.

Stream

Audio codec setting

- (1) **"Mute"** Select this option to disable audio transmission from the Network Camera to all clients.
- (2) **"Audio codec type"** There are two choices of audio codec types available: **"AMR"** , **"AAC"** and **"G.711"**.
- (3) **"Bit rate"**
 - **"AMR"** The bit rates are selectable at the following rates: 4750,5150,5900,6700,7400,7950,10200 and 12200.
 - **"AAC"** The bit rates are selectable at the following rates: 8Kbps,16Kbps, 24Kbps and 32Kbps.
 - **"G.711"** PCMU and PCMA.

Video codec setting

- (1) **Select Stream**” The Network Camera supports “**Stream 1**”and “**Stream 2**”.
- (2) **Codec type**” The Network Camera supports three kind of video compression mode: “**H.264**” or “**MPEG4**” or “**MJPEG**”. User can choose one of these compression modes based on requirement or application
- (3) **Video size**” Click the down arrow to choose the quality of image
- (4) **Frame rate**” This limits the maximal refresh frame rate per second. Set the frame rate higher for a smoother video quality.
- (5) **Intra frame period**” Determine how often to plant an “I frame”. The shorter the duration, the more likely you will get a better video quality, but at the cost of higher network bandwidth consumption.
- (6) **Video Quality type**” Setting optimizes bandwidth utilization and video quality.
 - **Constant bit rate**” User can adjust the video quality from 20 Kbps to 12 Mbps.
 - **Fixed quality**” user can select from highest quality to get best quality according. The “Quality” are selectable at the following rates: From 1 to 20.

Snapshot and time display setting

Adjust the photo size specifications and choose whether to mark time on the video and photo.

Camera control

Camera control

Home Configuration Client setting Language

Camera setting

Zoom times display

Pan angle	50	Tilt angle	30
Zoom step	1	Focus step	3
Patrol cycle	30	Patrol speed	3
Auto pan speed	3		

Preset and patrol setting

Preset point name Add

<input type="checkbox"/> Preset points (3)	<input type="checkbox"/> Patrol list (2)
<input checked="" type="checkbox"/> a	<input type="checkbox"/> a
<input checked="" type="checkbox"/> b	<input type="checkbox"/> b
<input type="checkbox"/> c	>>

Home position and auto pan range setting

Home position

- Set default value as home position
- Set the current position as home position

Auto pan range

- Set default value as auto pan range
- Set the auto pan range manually

Camera control

The pan and tilt functions can be controlled with these buttons. The “**Left**” button controls the camera to the left; the “**Right**”, “**Up**”, and “**Down**” buttons control the camera accordingly.

- (1) “**UL**”, “**UR**”, “**LL**” and “**LR**” buttons control the camera to an oblique angle. And “**Home**” button controls the camera to the center.
- (2) “**Zoom times display**” The zoom indicator will be displayed on the screen when you zoom in/out as shown in the illustration above.
- (3) “**Pan angle**” This sets the range of the horizontal movement of the camera. The larger value is setting, the larger movement of “**Left**” or “**Right**” is performing by the camera.
- (4) “**Tilt angle**” This sets the range of the vertical movement of the camera. The larger value is setting, the larger movement of “**Up**” or “**Down**” is performing by the camera.
- (5) “**Zoom step**” Set steps of zoom move.
- (6) “**Focus step**” Set steps of focus move.
- (7) “**Patrol cycle**” It is the cycle of patrol function.
- (8) “**Patrol speed**” This defines the speed of auto patrol. The larger value is setting, the faster speed will run by the camera.
- (9) “**Auto pan speed**” This defines the speed of auto panning. The larger value is setting, the faster speed will run by the camera.

Preset and patrol setting

“Preset setting”

- (1) “**Preset point name**” Enter a name for the preset position. Click **Add** to enable the settings. The preset positions will be displayed under the Preset Location list on the left-hand side. The camera allows for 20 preset locations.
- (2) To remove a preset position, select its checkbox from the drop-down list and click **Remove**.

“Patrol setting”

- (1) Click to select one or multiple preset locations by checking their checkboxes.
- (2) Click the >> (Move) button to move them to the Patrol list.
- (3) Click to select a position, and manually enter a Dwelling time for the camera to stay during an auto patrol. The default value is 10 seconds.
- (4) If you want to delete a selected location, select it from the list and click **Remove**.
- (5) Select a location and click Up or Down to rearrange the patrolling order.
- (6) Click **Save** to enable the settings.

Home position and auto pan range setting

(1) “Home position”

- “**Set default value as home position**” Restore home position to original default's home by clicking on this button.
- “**Set the current position as home position**” Click on the button will set the current aimed position as home of the Network Camera. Each time the Network Camera reboots or finishes calibration, it will automatically aim to the defined home position

(2) “Auto pan range”

--“**Set default value as auto pan range**” Restore auto pan range to original default's auto pan range by clicking on this button.

--“**Set the auto pan range manually**” Click on the button will set the auto pan range of the Network Camera.

Application

The screenshot displays the 'Application' configuration page of a network camera. The left sidebar lists various settings: Home, System, Security, Network, DDNS, Access list, Video, ROI, Defog, Video record, Stream, Camera control, Application (Servers, Storage, System log, Status and parameters, Maintenance), and [Basic mode]. The main content area is titled 'Application setting'.

Application setting:

- Table:** Shows a single entry named 'test' with status 'ON', time 'Always', and trigger 'Periodically'.
- Buttons:** Add, Edit, Remove.
- Schedule name:** * test
- Enable this event:** checked
- Trigger mode:** Periodically
- Detect next event after:** * 5 second(s)
- Action:**

Server	Media
<input checked="" type="checkbox"/> SD	-- None -- -- None -- log Snapshot Record
<input type="checkbox"/> HTTP	-- None --
<input type="checkbox"/> Email	-- None --
<input type="checkbox"/> NAS	-- None --
<input type="checkbox"/> FTP	-- None --
- Save** button.

Media setting:

- Table:** Lists media types: log (System log), Snapshot (Snapshot), Record (Record), and Message (Message).
- Buttons:** Add, Edit, Remove.
- Note:** When video record is turned on, the application video record clip will be stop until the video record is off or not on preset schedule.

Motion windows setting:

- A large black rectangular window containing a white play button icon.

NOTE: Before setting up this page, please set up the Network Storage on the Servers setting(add Server) page first.

Application setting

(1) Click Add to open the Application setting window.

(2) Schedule name Enter a server name.

(3) Schedule mode

(a) "Always" Every day application.

(b) "Week day" Week day application.

(c) "Selected date" Selected day application.

Schedule information

-- Enter the "Start time" and "Stop time" for day mode.

Note that the time format is [hh:mm:ss] and is expressed in 24-hour clock time.

By default, the start and end time of day mode are set to 01:00:00 and 23:59:59.

-- "Sun"/"Mon"/"Tue"/"Wed"/"Thu"/"Fri"/"Sat" Select the days of the week to perform the application.

-- "Start day" and "Start time" as the start timing the time. "End day" and "End time" as the end timing the time.

(4) Trigger mode

(a) "Video motion detection" Enable/Disable video motion application

(b) "Periodically" This option allows the Network Camera to trigger periodically for every other defined minute.

(c) "Digital input" This option allows the Network Camera to use an external digital input device or sensor as a trigger source. Depending on your application, there are many choices of digital input devices on the market which helps to detect changes in temperature, vibration, sound, and light, etc.

(d) "Video Tracking" is able to track dynamic objects within screen video.

-- "Tracking level" 1 to 5 level the lowest the number the more sensitive.

Parameters

-- "Motion parameters"

Higher sensitivity and small threshold will allow easier motion detection.

-- "Period parameters" This option allows the Network Camera to trigger periodically for every other defined seconds. Up to 255 seconds are allowed.

-- "Digital input parameters"

Select the digital input type and set trigger time.

(5) Action

Selectable event Media and Server devices.

Media setting

(1) Click Add to open the Media setting window.

(2) "Media name" Enter a server name.

(3) There are four choices of media types available: "System log", "Snapshot", "Record(Motion Detection only)" and "Message".

Snapshot & Record file setting

-- You can setting the file name, and enable or disable to add the date and time on file name.

Motion windows setting

The Object size and Sensitivity can be adjusted in Motion Setup window. Sensitivity determines if a pixel will be taken as "moving" according to its Y value difference between previous and current frame, and Object size stands for the percentage of moving pixels over all pixels within the motion window. If the value of object detected is higher than the value set, IPCAM will detect "Motion". Please note that the lower the object size, the higher the sensitivity, and the easier this motion detection window would be triggered.

Servers

The screenshot shows the 'Servers set' configuration page. The left sidebar includes icons for Home, Configuration, Client setting, and Language, with 'Configuration' selected. The main menu on the left lists Home, System, Security, Network, DDNS, Access list, Video, ROI, Defog, Video record, Stream, Camera control, Application, Servers, Storage, System log, Status and parameters, Maintenance, and [Basic mode].

The 'Servers setting' table lists the following entries:

Name	Type	Address
email	E-mail	192.168.200.206
HTTP	HTTP	http://192.168.200.134
FTP	FTP	192.168.200.207
NAS	NAS	192.168.200.134
SD	SD card	

Below the table are buttons for Add, Edit, and Remove.

The detailed configuration form for the 'email' server includes the following fields:

- Server name: * email
- Type: E-mail (radio button selected)
- E-mail security mode: SSL (dropdown menu)
- Server address: * 192.168.200.206
- Server port: * 25
- User account: test
- User password: ****
- Sender email address: * test@gmail.com
- Recipient email address: * test@gmail.com
- E-mail subject: * Event from IP Cam..
- E-mail body: * This mail is sent from IP Cam... (text area with scroll bars)
- Upload options: Upload to FTP server, Upload to HTTP server, Store at NAS, SD card
- Save button

Server setting

Click the Add Server button on Event Settings page to open the Server Setting page. On this page, you can specify where the notification messages are sent when a trigger is activated. A total of 5 server settings can be configured. Server name: Enter a name for the server setting.

Server type

There are four choices of server types available: Email, FTP, HTTP, and Network storage. Select the item to display the detailed configuration options. You can configure

either one or all of them.

(1)"Email" Select to send the media files via email when a trigger is activated.

- **"Email security mode"** : If your SMTP server requires a secure connection (SSL or TLS), check This server requires a secure connection (SSL or TLS).
- **"Server address"** Enter the domain name or IP address of the email server.
- **"Server port"** The default mail server port is set to 25. You can also manually set another port.
- **"User name"** Enter the user name of the email account if necessary.
- **"Password"** Enter the password of the email account if necessary.
- **"Sender email address"**: Enter the email address of the sender.
- **"Recipient email address"**: Enter the email address of the recipient.

(2)"FTP"

- **"FTP Server address"** Enter the domain name or IP address of the FTP server.
- **"FTP Server port"** By default, the FTP server port is set to 21.
- **"User account"** Enter the login name of the FTP account.
- **"User password"** Enter the password of the FTP account.
- **"FTP folder name"** Enter the folder where the media file will be placed. If the folder name does not exist, the Network Camera will create one on the FTP.

(3)"HTTP "

- **"URL"** Enter the URL of the HTTP server.
- **"Http server port "** The default http server port is set to 80.
- **"User account"** Enter the user name if necessary.
- **"User password"** Enter the password if necessary.
- **"HTTP folder name"** Enter the folder where the media file will be placed.

(4)"NAS"

- **"Enable cyclic"** The cyclic recording function is enabled, during the transaction stage when a storage space is full and the incoming streaming data is about to overwrite the previously saved videos.
- **"NAS server address"** Enter IP address of the NAS server.
- **"NAS shared directory"** Enter the NAS shared directory path.
- **"Workgroup"** Enter the NAS workgroup parameter.
- **"User account"** Enter the login name of the NAS account.
- **"User password"** Enter the password of the NAS account.

Storage

The screenshot shows the 'Storage' configuration page of a network camera. The left sidebar lists various menu items under 'Home', 'System', 'Security', 'Network', 'DDNS', 'Access list', 'Video', 'ROI', 'Defog', 'Video record', 'Stream', 'Camera control', 'Application', 'Servers', 'Storage', 'System log', 'Status and parameters', 'Maintenance', and '[Basic mode]'. The 'Storage' tab is selected.

The main content area has two sections:

- NAS server setting**: Contains a checked checkbox for "SD Card NAS server", a "NAS host name" input field with "test" entered, a "Workgroup" input field with "test" entered, and a "Save" button.
- SD Card status**: Displays storage statistics: Total space: 7956616 KB, Used space: 69064 KB, and Free space: 7887552 KB. It also features a "Format" button.

NAS server setting Advanced Mode

- (1) **"NAS Host name"** Choose and input the NAS Host name of this camera.
- (2) **"Workgroup"** Input the name of Workgroup. You can see the NAS Host name you input in the same workgroup with your PC. Then you can connect to this device and download the files easily from SD card which is inserted to this camera.

SD Card Status

Here show the storage device information. This column shows the status and reserved space of your SD card. Please remember to format the SD card when using for the first time.

Syslog

System log

Remote log setting

- Enable remote syslog
- IP address: 192.168.200.134
- Port: 514

Save

Current log

```

Feb 3 11:48:08 PTxDome-3210MB syslogd 1.5.0: restart.
Feb 3 11:48:12 PTxDome-3210MB syslog: Network interface is eth0.
Feb 3 11:48:14 PTxDome-3210MB syslog: [VENC_MOTION] venc_motion thread pid: 1606
Feb 3 11:48:18 PTxDome-3210MB syslog: [VENC_Capture] Start VENC_Capture process with Pid : 1657
Feb 3 11:48:19 PTxDome-3210MB syslog: Use internal microphone
Feb 3 11:48:27 PTxDome-3210MB PclFinder: Start IP discovery: Local IP(192.168.200.176), Broadcast IP(255.255.255.49160)
Feb 3 11:48:27 PTxDome-3210MB PclFinder: Send first IP discovery info
Feb 3 11:48:27 PTxDome-3210MB PclFinder: [UPnP] Device info: 192.168.200.176:49152
Feb 3 11:48:30 PTxDome-3210MB PclFinder: [UPnP] Terminate
Feb 3 11:48:30 PTxDome-3210MB PclFinder: [UPnP] Stop UPnP device daemon.
Feb 3 11:48:30 PTxDome-3210MB PclFinder: Start IP discovery: Local IP(192.168.200.176), Broadcast IP(255.255.255.49160)
Feb 3 11:48:30 PTxDome-3210MB PclFinder: Send first IP discovery info
Feb 3 11:48:31 PTxDome-3210MB PclFinder: [UPnP] Device info: 192.168.200.176:49152
Feb 3 11:48:31 PTxDome-3210MB goahead: Connecting from 192.168.200.134 .

```

You can configure the Network Camera to send the system log file to a remote server as a log backup. Before utilizing this feature, it is suggested that the user install a log-recording tool to receive system log messages from the Network Camera. An example is Kiwi Syslog Daemon.

Visit <http://www.kiwisyslog.com/kiwi-syslog-daemon-overview/>.

Remote log setting Advanced Mode

Follow the steps below to set up the remote log:

1. In the IP address text box, enter the IP address of the remote server.
2. In the port text box, enter the port number of the remote server.
3. When completed, select **Enable remote log** and click **Save** to enable the setting.

Status and Parameters

User can find a lot of information about the system such as “**Upnp port forwarding**”, “**Traversing NAT**”, “**Public IP**”, and so on. User also can get the number of current viewer of the Network Camera here.

Status and parameters

Status

- Upnp port forwarding
success
- Traversing NAT
failure
- Public ip
220.135.30.167:8081
- Current viewers
0

Parameters

```
[System parameters]
hostName="Network Pan/Tilt Camera";
enableLed=true;
timeZone=80;
supportAutoDST=false;
enableDST=false;
timeMethod=0;
ntpServer="time.stdtime.gov.tw";
updateInterval=1;
doActState=false;
doActState="high";
doCurState=true;
doCurState="low";
doState="false";
connection="false";
OFVersion="12.20.31.04";
doState=false;
connection=false;
nu_Fw=23;
```

```
[Network parameters]
networkType="lan";
enableDhcp=true;
enableUpnpPresentation=true;
enableUpnpPortForwarding=true;
ipAddr="192.168.0.99";
subnetMask="255.255.255.0";
defaultRouter="192.168.0.254";
```

Maintenance

The screenshot shows the maintenance interface of a network camera. On the left, there's a sidebar with various configuration options. The main panel has several sections: 'Reboot system', 'Restore system', 'Calibrate camera', 'Export/import file', and 'Upgrade firmware'. The 'Upgrade firmware' section is highlighted with a red box, showing a file input field, a browse button, and an upgrade button. Below this, the 'Firmware version' is displayed as '3.0.1.2'.

- “Reboot system”** The “**Reboot**” button will reboot the Network Camera. It's useful while the Network Camera got problem.
- “Restore system”** Click on “**Restore**” button on the configuration page to restore the factory default settings. Restore all settings to factory default except settings in “Network type ” and “Root Password”. The system will restart and require the installer program to set up the network again.
- “Calibrate Camera”**
 - “**Home position**” Recalibrate the home position to the default center to recover the tolerance caused by some external forces. Please note that there is no confirming message box after clicking on the “Calibrate” button, the Network Camera will calibrate immediately.
 - “**Focus position**” Recalibrate the autofocus position to the default range to recover the tolerance caused by some external forces. Please note that there is no confirming message box after clicking on the “Calibrate” button, the Network Camera will calibrate immediately.

4. “Export/Import file” Advanced Mode

- Export setting backup file: Click to export all parameters for the device and user-defined scripts.
- Upload setting backup file: Click Browse... to upload a setting backup file. Please note that the model and firmware version of the device should be the same as the setting backup file. If you have set up a fixed IP or other special settings for your device, it is not suggested to upload a settings backup file.

5. “Upgrade firmware”

- (1)The file is in .pck file format.
- (2)Click Browse... and specify the firmware file.
- (3)Click Upgrade. The Network Camera starts to upgrade and will reboot automatically when the upgrade completes. When upgrade firmware please wait for 210~360 seconds, and then you can connect to Network Camera again. The system will restart and require the installer program to set up the network again.

Warning: The upgrade firmware procedure cannot be interrupted. If the power and/or network connection are broken during the procedure, it might possibly cause serious damage to the Network Camera.

Appendix

A. Troubleshooting & Frequently Asked Questions

Q1: Status led does not light up.

A1: First, make sure that 「Configuration>System>Turn off the LED indicator」 is disabled. If it is, check the item, and the led should light up. Second, if red led does not light up, please check that the power adapter in the package is plugged correctly. And last, if green led does not light up; please check that category 5 UTP cable is plugged correctly. If the problem is still not solved, please contact your dealer for further help.

Q2: What kind of Ethernet cable is used by network camera?

A2: The network Camera uses Category 5 UTP cable allowing 10 and/or 100 Base-T networking.

Q3: The Network Camera will be installed and work if a firewall exists on the network?

A3: There are two way to set up the IP camera at Internet.

(1) By UPnP Port Forwarding

1. Select an IP router. It must support UPnP port forwarding and enable this function first!!

UPnP Settings

You can setup this item if you want to enable UPnP.

Enabled Disabled

2. Connect camera RJ45 cable to IP router and the router is also connected to Internet.
3. Plug power cord to camera.
4. Go to camera Network page. Enable UPnP port forwarding

UPnP setting

<input checked="" type="checkbox"/> Enable UPnP presentation
<input checked="" type="checkbox"/> Enable UPnP port forwarding

Save

5. Check camera status, we can see the ports had been successfully opened!

Status

Upnp port forwarding
success
Traversing NAT
success
Public ip
220.135.30.167:8081
Current viewers
0

6. Type IP address:8081 at browser. Then you can see camera through Internet.



(2) By Setting Port Forwarding Manually

1. Select a router. Set the port forwarding as following.

Virtual Server Lists					17 / 32 (Number / Total)
Name	Private IP	Protocol	Schedule		
<input type="checkbox"/> Virtual Server FTP	0.0.0.0	TCP 21/21	Always		
<input type="checkbox"/> Virtual Server HTTP	0.0.0.0	TCP 80/80	Always		
<input checked="" type="checkbox"/> PTCam	192.168.0.100	TCP 443/443	Always		
<input type="checkbox"/> Virtual Server DNS	0.0.0.0	UDP 53/53	Always		
<input type="checkbox"/> Virtual Server SMTP	0.0.0.0	TCP 25/25	Always		
<input type="checkbox"/> Virtual Server POP3	0.0.0.0	TCP 110/110	Always		
<input type="checkbox"/> Virtual Server Telnet	0.0.0.0	TCP 23/23	Always		
<input type="checkbox"/> IPSec	0.0.0.0	UDP 500/500	Always		
<input type="checkbox"/> PPTP	0.0.0.0	TCP 1723/1723	Always		
<input type="checkbox"/> NetMeeting	0.0.0.0	TCP 1720/1720	Always		
<input type="checkbox"/> DCS-1000	0.0.0.0	TCP 80/80	Always		
<input type="checkbox"/> DCS-2000	0.0.0.0	TCP 80/80	Always		
<input type="checkbox"/> DVC-1000	0.0.0.0	TCP 1720/1720	Always		
<input checked="" type="checkbox"/> PTCam	192.168.0.100	TCP 80/80	Always		
<input checked="" type="checkbox"/> PTCam	192.168.0.100	UDP 53/53	Always		
<input checked="" type="checkbox"/> PTCam	192.168.0.100	TCP 554/554	Always		
<input checked="" type="checkbox"/> 28067	192.168.0.102	TCP 28067/28067	Always		

PS. Port 80 is HTTP Port, port 53 is stream port, port 554 is RTSP port. and port

443 is HTTPS port.

2. Go to camera Network page. Disable UPnP port forwarding function.

UPnP setting

<input checked="" type="checkbox"/> Enable UPnP presentation
<input type="checkbox"/> Enable UPnP port forwarding

Save

Port parameters setting

HTTP port	* 80
HTTPS port	* 443
RTSP port	* 554
Video RTP port	* 6790
Video RTCP port	6791
Audio RTP port	6792
Audio RTCP port	6793

Save

3. Type IP address at browser. Then you can see camera through Internet.

**Note: The firewall software at PC may block the transfer of network camera.
Please remove or stop the kind software.**

Q4: How can I find the network camera in the local area network?

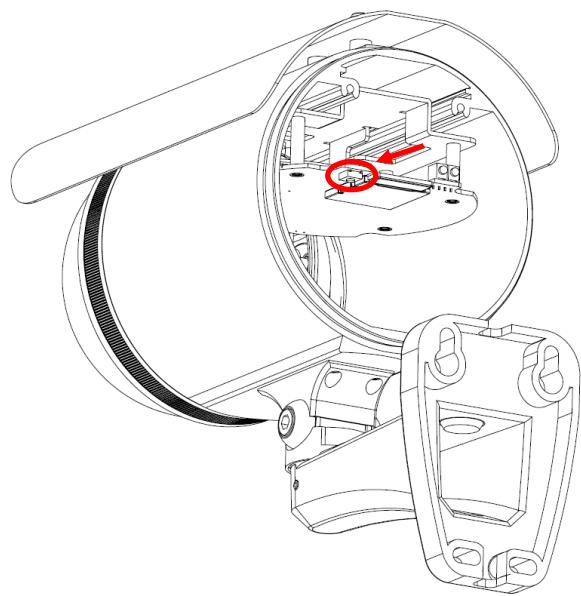
A4: By using the IP Finder2 program or using UPnP to find it.

Q5: IP Finder2 program cannot find Network Camera in the local area network at first time?

A5: Make sure the subnet of network camera is same as your PC. If the local area network supports DHCP, the camera is “Get IP address automatically” in the “Network” page default. If the local area network does not support DHCP, change your PC IP address to “192.168.0.xxx”.

Q6: How can I restore the network camera to default value?

A6: Use a gem clip to press on the inside button. Network camera begins to restore default value. You can also press the button “**Factory**” in “Maintenance” page to restore the default value.



Q7 Infrared led does not light up?

A7 Check 「Configuration>Audio and Video>Infrared LED Control」 is “Auto” or “Manual» Turn on”.

Q8 The network camera cannot focus accurately.

A8

- (1) The lens is dirty or dust is attached. Clean the lens with lens cleaner. And then adjust the camera focus manually.
- (2) The image may be out of focus. If the object is too near, move the object away from Network Camera.

Q9 The cover of network camera is warm. Is it normal?

A9 Network camera is a precision device. The internal material has the operational temperature, and it is normal when user touch the cover feels warm. It is recommended to put the network camera at aired place, and not put at any other device.

Q10 The process of upgrade firmware abort.

A10 Contact your dealer for further help.

Q11 Cannot access the login page and other web pages of Network Camera from Internet Explorer

A11

- May be due to the network cable. Try correcting your network cable and configuration. Test the network interface by connecting a local computer to the Network Camera via a crossover cable.
- Make sure the Internet connection and setting is ok.
- Make sure enter the IP address of Internet Explorer is correct. If Network Camera has

a dynamic address, it may have changed since you last checked it.

- Network congestion may prevent the web page appearing quickly. Wait for a while.
- The IP address and Subnet Mask of the PC and Network Camera must be in the same class of the private IP address on the LAN.
- Make sure the http port used by the Network Camera, default=80, is forward to the Network Camera's private IP address.
- The port number assigned in your Network Camera might not be available via Internet. Check your ISP for available port.
- The proxy server may prevent you from connecting directly to Network Camera, set up not to use the proxy server.
- Confirm that Default Gateway address is correct.
- The router needs Port Forwarding feature. Refer to your router's manual for details.
- Packet Filtering of the router may prohibit access from an external network. Refer to your router's manual for details.
- Access Network Camera from the Internet with the global IP address of the router and port number of Network Camera.
- Some routers reject the global IP address to access Network Camera on the same LAN. Access with the private IP address and correct port number of Network Camera.
- When you use DDNS, you need to set Default Gateway and DNS server address.
- If it's not working after above procedure, reset Network Camera to default setting and installed it again.
- Maybe the IP Address of the Network Camera is already being used by another device or computer.
- If the problem is not solved, the Network Camera might be faulty. Contact your dealer for further help.

B. Technical specifications

- System RAM: 4G bit DDR III ROM: 16MB Flash ROM	- Camera specification Type 1/2.8 Sony CMOS sensor IMX236, Resolution: 1920x1080
- Infrared Led High power IR Leds, 30~40 M visible Auto/Manual mode	- Lens 10X optical zoom lens, auto iris, auto focus $f = 4.9 \sim 49\text{mm}$, F1.8~3.0 Fov(D), $66.6^\circ \sim 7.2^\circ$
- Protocol TCP/IP, HTTP, UDP, SMTP, FTP, DDNS, UPnP, Telnet, NTP, PPPoE, RTSP, RTP, RTCP, DHCP and DNS	- Video Resolution Up to 30 frames at 1920*1080, 1280x1024 1280x800, 640x480, 320x240 and 176x144
- Physical 10 baseT or 100 baseT Fast Ethernet auto negotiation	- Audio G.711/AMR/AAC Support 2 way audio
- Algorithm supported H.264/MPEG4/MJPEG dual codec for streaming video JPEG for still image	- I/O Interface RJ-45 DI Audio in Audio out Video out DC Power SD(inside camera)
- Pan/Tilt angle Support multi - direction movement Pan: $150^\circ(-75^\circ \sim 75^\circ)$ Tilt: $95^\circ(-75^\circ \sim 20^\circ)$	- Power Input: 100-240VAC, 50/60Hz, 0.7A Output: 12VDC, 1.5A Consumption: Max 10W Support 802.3af compliant Power over Ethernet
- EMI & Safety CE, FCC	- Dimension Length : 210mm, Diameter : 115mm
- Operating Environment Temperature : $-20 \sim 50^\circ\text{C}$ Humidity: 85% RH	- Weight NET. 800g With bracket: 1000g

Notification of Compliance

Appendix C

Europe - EU Declaration of Conformity



For complete DoC please visit

<http://global.level1.com/downloads.php?action=init>

GPL License Agreement

GPL may be included in this product, to view the GPL license agreement goes to

<http://download.level1.com/level1/gpl/GPL.pdf>

For GNU General Public License (GPL) related information, please visit

<http://global.level1.com/downloads.php?action=init>