LevelOne

User Manual

FCS-5041

Day/Night H.264

Megapixel PoE Outdoor

Network Camera

Ver 1.0

Product name:	Day/Night H.264 Megapixel PoE Outdoor Network Camera (FCS-5041)	
Release Date:	2010/01/21	
Manual Revision:	V1.x	Firmware 1.x.x.x
Web site:	www.level1.com	

Default Settings

IP Address	DHCP
Username	admin
Password	admin

General Public License

This product incorporates open source code into the software and therefore falls under the guidelines governed by the General Public License (GPL) agreement.

Adhering to the GPL requirements, the open source code and open source license for the source code are available for free download at http://global.level1.com.

If you would like a copy of the GPL or other open source code in this software on a physical CD medium, LevelOne (Digital Data Communications) offers to mail this CD to you upon request, for a price of US$9.99 plus the cost of shipping.

Table of Contents

Before You Use This Product

The use of surveillance devices may be prohibited by law in your country. 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.

Package Contents

- Camera
- Bracket
- CD Manual/utility
- QIG
- Power Adapter

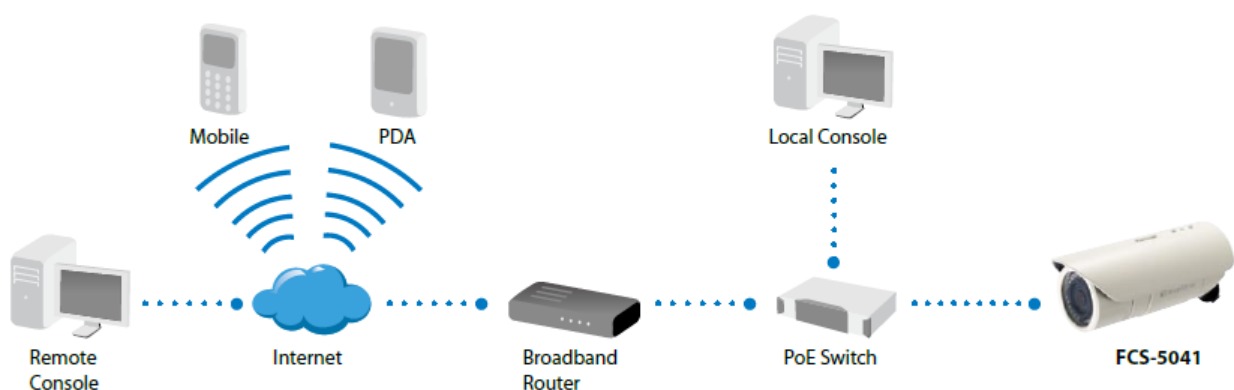# Megapixel Outdoor Bullet Network Camera Overview

Digital

The FCS-5041 is an outdoor bullet network camera. It adopts a megapixel sensor which allows the camera to deliver extremely clear and detailed images that CCTV cameras cannot offer.   To optimize use of the megapixel resolution, the FCS-5041 uses efficient H.264/ MJPEG/ MPEG-4 codec compression to deliver dual configurable video streams simultaneously at up to 30 fps. These features make this series the perfect outdoor camera for neighborhood, school campus, and parking lot surveillance.

The FCS-5041 has many user friendly features, such as the smart focus capability which allows users to configure settings for excellent image quality without difficult procedures. Support for Power over Ethernet enables the camera to use the same cable for power and data transmission, eliminating the need to install an external power supply.
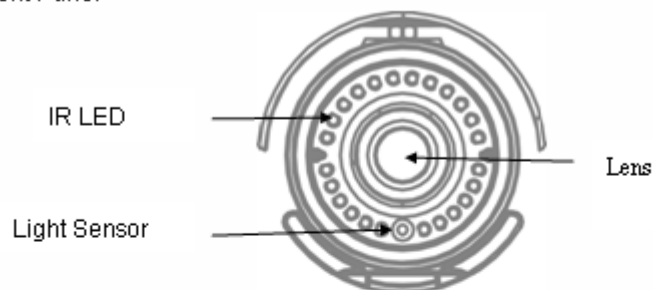
It provides a USB connector for option support WUA-5600 which is a 150Mbps N Wireless High Power Outdoor USB Adapter with 7dBi antenna. Installation will not be restricted by location or landforms. The FCS-5041+WUA-5600 high power wireless solution can be set within any wireless coverage.

With an IP67 certified outdoor enclosure, the FCS-5041 is not only weather proof, but also dust and rust resistant.   By utilizing a built-in industrial fan and heater, it can perform well in extreme environments.
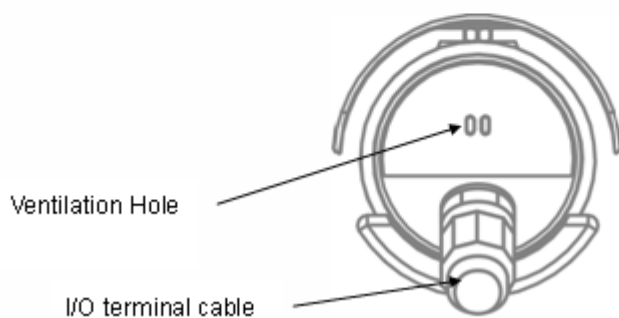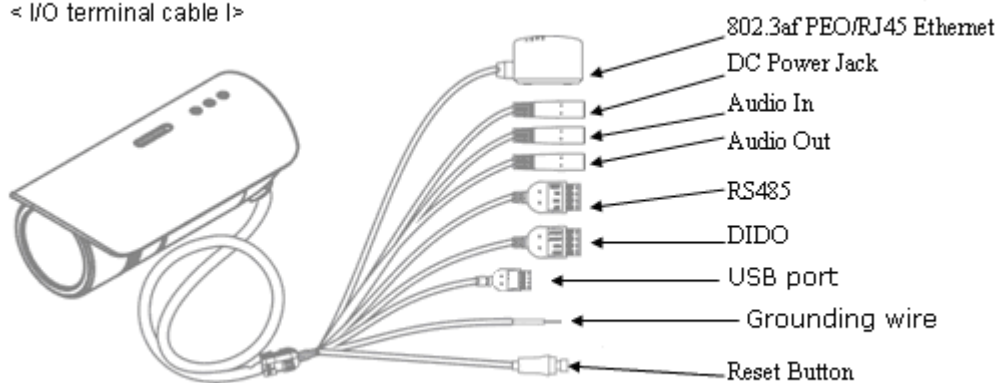
Device Appearance Description

<Front Panel>

IR LED

Light Sensor

Lens

<Rear Panel>

Ventilation Hole

I/O terminal cable

< I/O terminal cable I>

802.3af PEO/RJ45 Ethernet
DC Power Jack
Audio In
Audio Out
RS485
DIDO
USB port
Grounding wire
Reset Button

LED Behavior

| Function	LED Behavior	Description	Remark
Link	Blinking	Blinking while connecting to the network	Rear Left (Orange)
Link	Unlit	No connection	Rear Left (Orange)
Power	Continuous Illumination	Normal Operation	Rear Right (Green)
Power	Unlit	Power off	Rear Right (Green)

Extension I/O Terminal Block

The Network Camera provides an extension I/O terminal block which is used to connect the camera with external input/output devices. The pin definitions are listed as below.

Pin	Function
1	Power +4.5V
2	Digital Output
3	Digital Input
4	Ground

Pin	Function
1	RS485+
2	RS485-
3	AC24V
4	AC24V

DI/DO Diagram
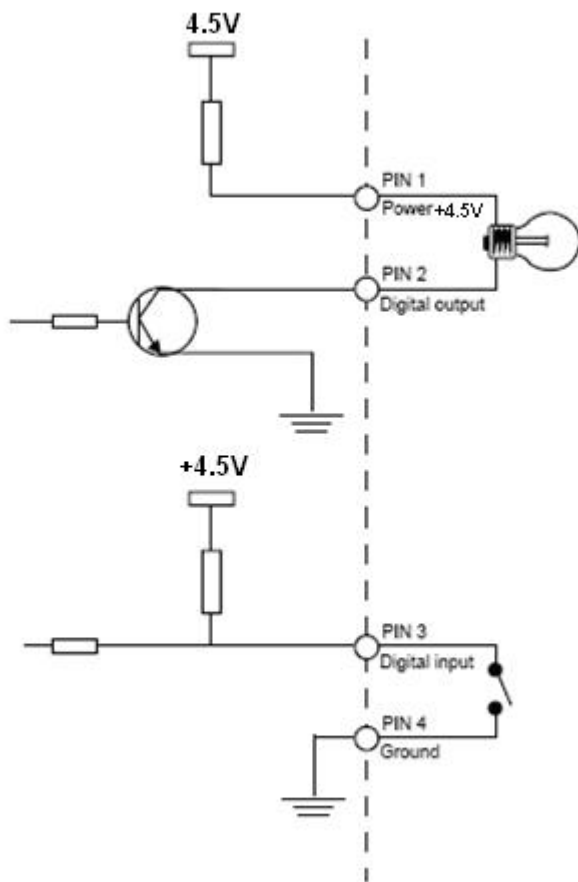
Hardware Reset

The Reset Button can be used to reboot the camera or restore it to factory default settings. If the camera experiences a problem, rebooting the camera may correct the problem.   If the problem remains, please restore the camera to factory default settings and reinstall the software.

To Reboot - Press and hold the Reset Button for one second using a paper clip or thin object.   Wait for the camera to reboot.

To Restore – Press and hold the Reset Button for ten seconds until the LED light turns off. When successful restored, the LED will be blue during normal operation.

⚠**Note -** By restoring the camera, all settings will be restored to the factory default settings.

USB port also support L1 Wifi Dongle (*) and SD/SDHC Pen-drive (*)

> 1) it supports L1 wireless outdoor USB dongle (WUA-5600)
>
> 2) it supports SD/SDHC Pen-drive (Maximum 32GB)
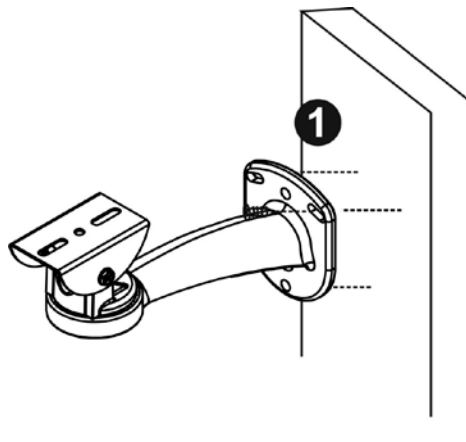
(***) There have to pass level1 compatible test first**

Installation

Hardware installation

WARNING: Do not mount the camera on a soft material. The camera may fall and be damaged.

1. Choose the location on the wall to place the camera.   Use the bracket as a guide and drill four holes into the wall. Hammer the supplied plastic anchors into the holes.

2. Place the Network Camera on the bracket and use two screws to secure it to the bracket.
3. The user needs the four screws which are included in the product package and a screwdriver.   Mount the bracket on the wall and position the four screw slots over the plastic anchors. Insert the screws into the holes and use the screwdriver to tighten the screws clockwise until they are secure.
4. Adjust the angle of the bracket so that the camera is facing the desired surveillance area.
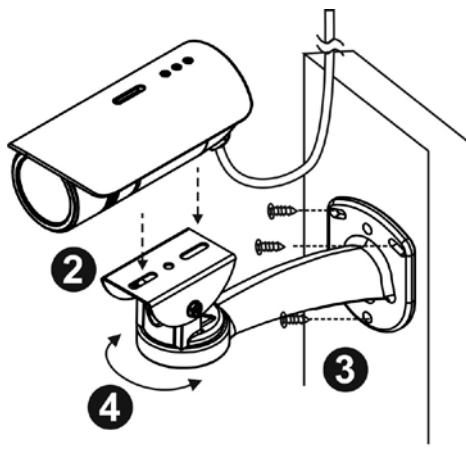
System Requirements

Operating System:

Microsoft Windows XP Home Edition SP2

Microsoft Windows XP Professional SP2

Computer:

IBM PC/AT Compatible

CPU:

Pentium 3GHz or faster

Memory:

1024 MB or more

Monitor:

1024 x 768 pixels or more, 24-bit True color or better

Network Interface:

10/100Mbps Network interface card must be installed

Web Browser:

Microsoft Internet Explorer 6.0 SP2

CD-ROM Drive:

It is necessary to read the operating instructions in the provided CD-ROM.

Adobe Reader:

It is necessary to read the operating instructions in the provided CD-ROM.

> Audio function will not be working if a sound card is uninstalled on PC. Audio may be interrupted depending on the network environment.

Camera Connection

Basic Connection (Without PoE)


```
1: Power+12V
2: Digital output
3: Digital input
4: Ground
5: RS485+
6: RS485-
```
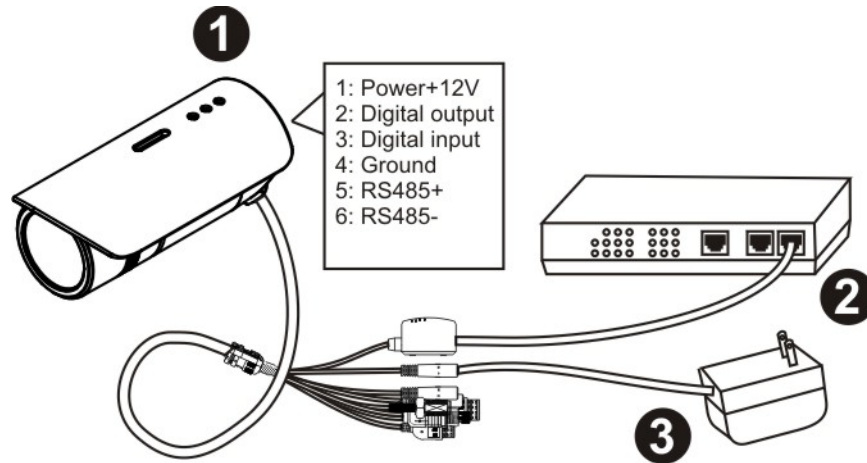
1. To attach external devices, such as sensors and alarms, connect them to the extension I/O terminal block.
2. Connect the camera to a switch using an Ethernet cable.
3. Connect the supplied power cable to the camera and plug it into a power outlet.
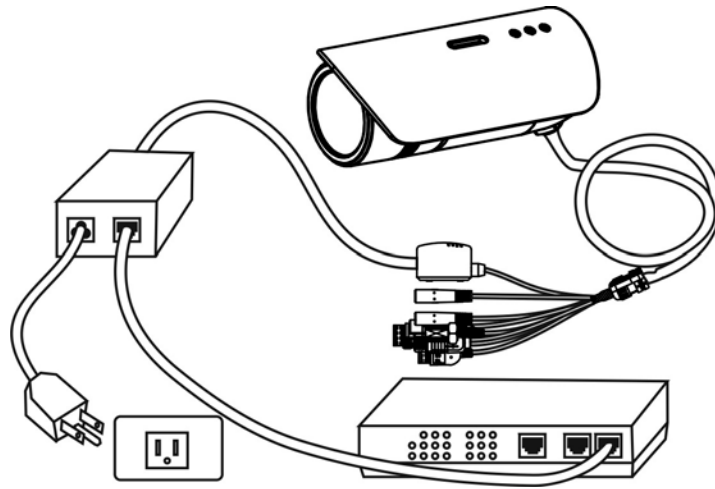
Power over Ethernet (PoE) Connection

The FCS-5041 is PoE compliant, so there are two options for connecting the camera to a power and Ethernet source. The camera can either be connected to a PoE-enabled switch or a non-PoE switch.

A. If using a PoE-enabled switch:
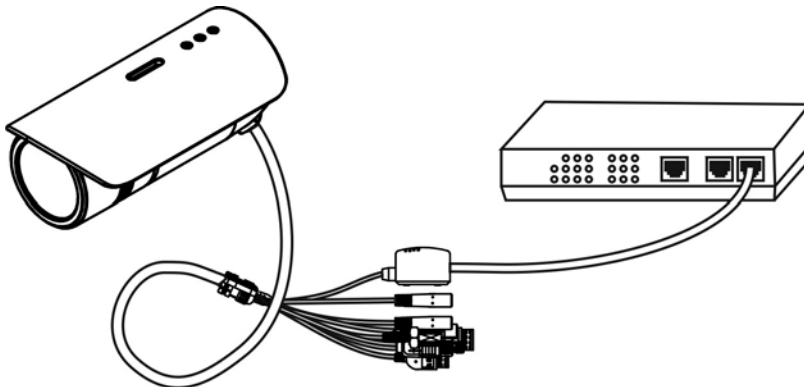
1. Use a single Ethernet cable to connect the camera to the PoE-enabled switch.

B. If using a non-PoE switch:

1. Use a standard RJ-45 cable to connect the camera to a PoE Injector.
2. Use a standard RJ-45 cable to connect the PoE Injector to the non-PoE switch.
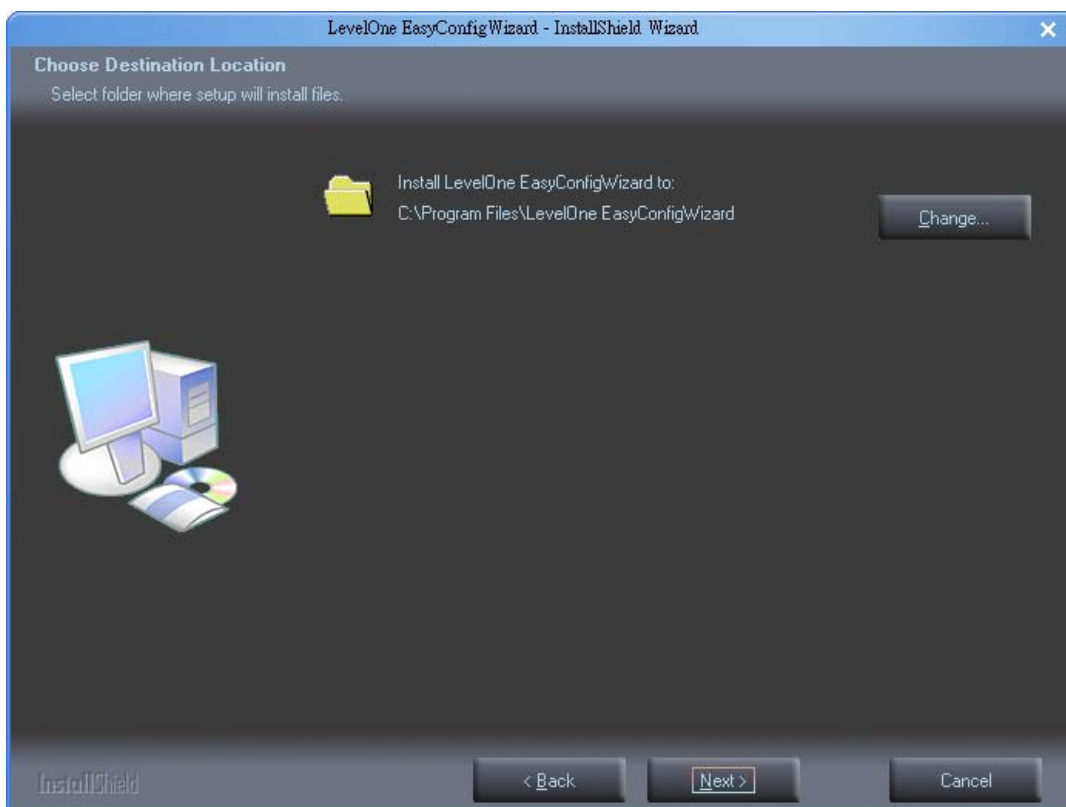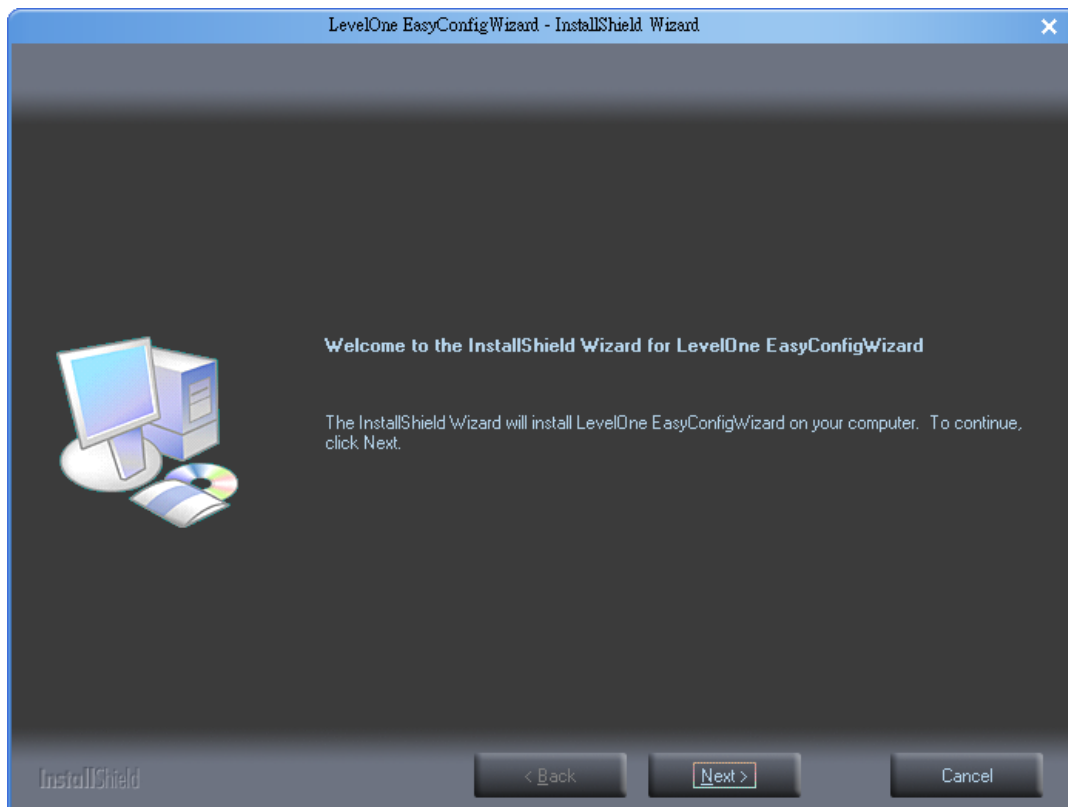3. Use a standard power cable to connect the PoE Injector to a power outlet.
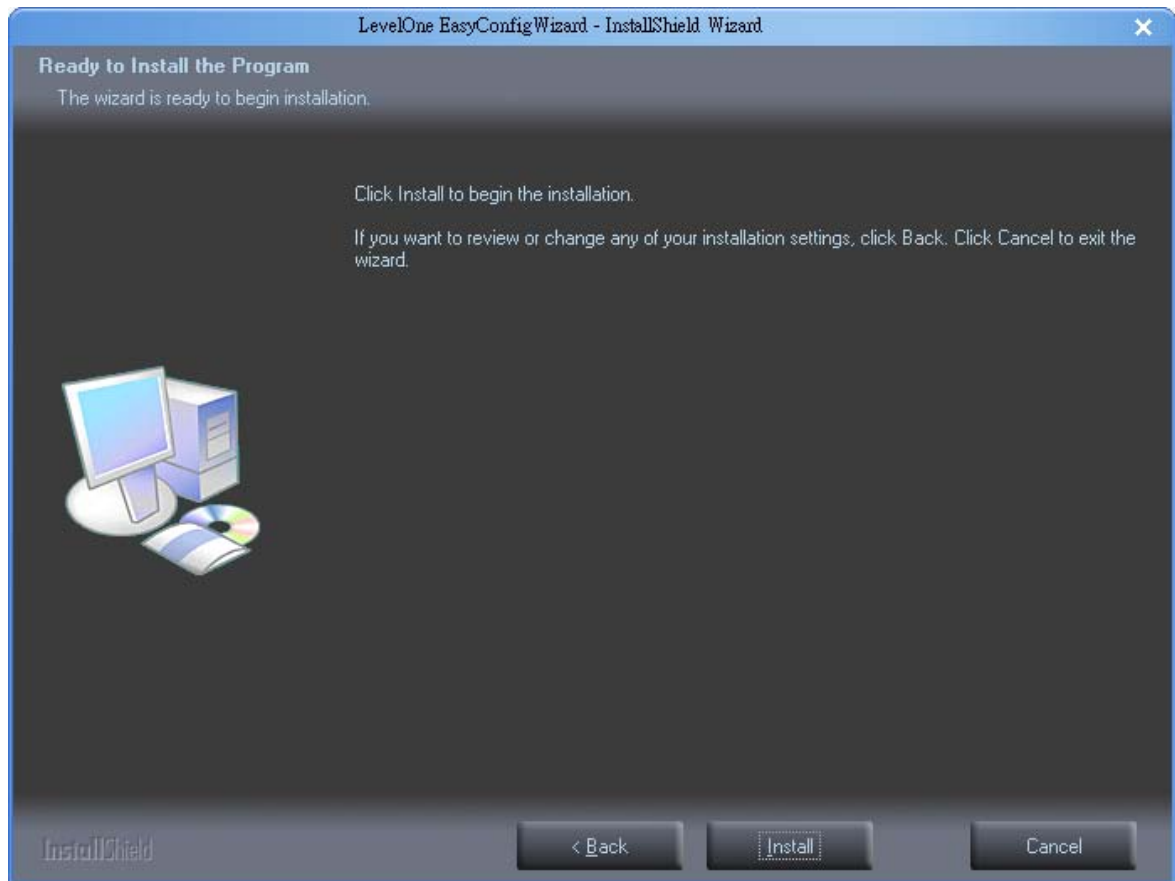
Software Installation

In this manual, "User" refers to whoever has access to the Network Camera, and "Administrator" refers to the person who can configure the Network Camera and grant user access to the camera.

After hardware connection checking, the users can run the Installation Wizard program included in the product CDROM to automatically search for the Network Camera in the Intranet. There may be many Network Cameras in the local network. Users can differentiate the Network Cameras with the serial number. **The serial number is printed on the labels on the carton and the bottom of the Network Camera body.**

1. Insert the Installation CD into the CD-ROM driver.　Click install and shows the welcome screen. Follow the steps to install the Installation wizard on user's computer.

LevelOne EasyConfigWizard - InstallShield Wizard ✕

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Welcome to the InstallShield Wizard for LevelOne EasyConfigWizard

The InstallShield Wizard will install LevelOne EasyConfigWizard on your computer. To continue, click Next.

InstallShield   < Back   Next >   Cancel

LevelOne EasyConfigWizard - InstallShield Wizard ✕

Choose Destination Location
Select folder where setup will install files.

Install LevelOne EasyConfigWizard to:
C:\Program Files\LevelOne EasyConfigWizard   Change...

InstallShield   < Back   Next >   Cancel

15

EasyConfigWizard

2. Do not check the box if user would like to check the hardware installation settings. Otherwise click "Skip the hardware installation" to skip the hardware connection checking, the program will automatically search for the Network Camera in the Intranet.

   Click "Start" to continue.
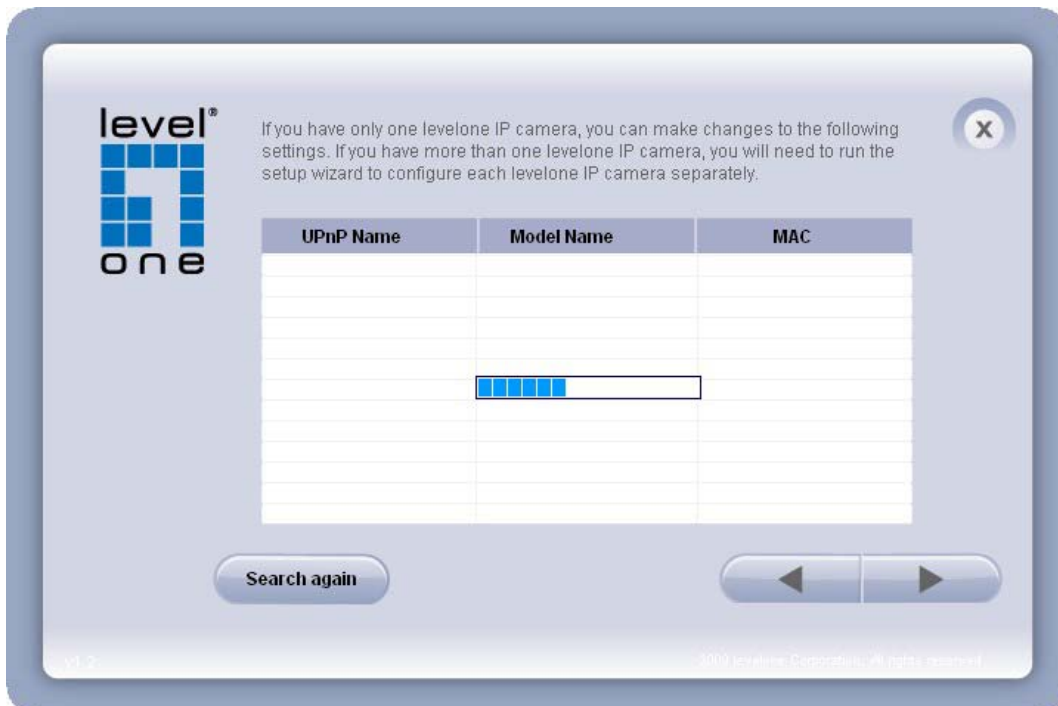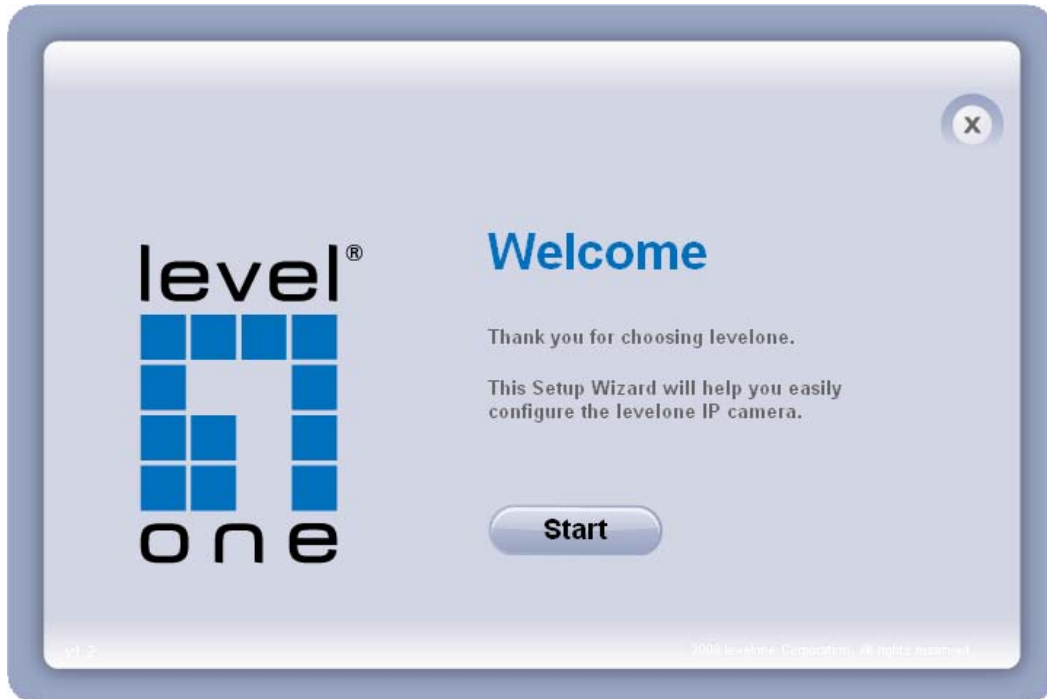
3. Select the Network Camera from the survey list and enter the user name and password. The user name and password are assigned as "**admin/admin**".
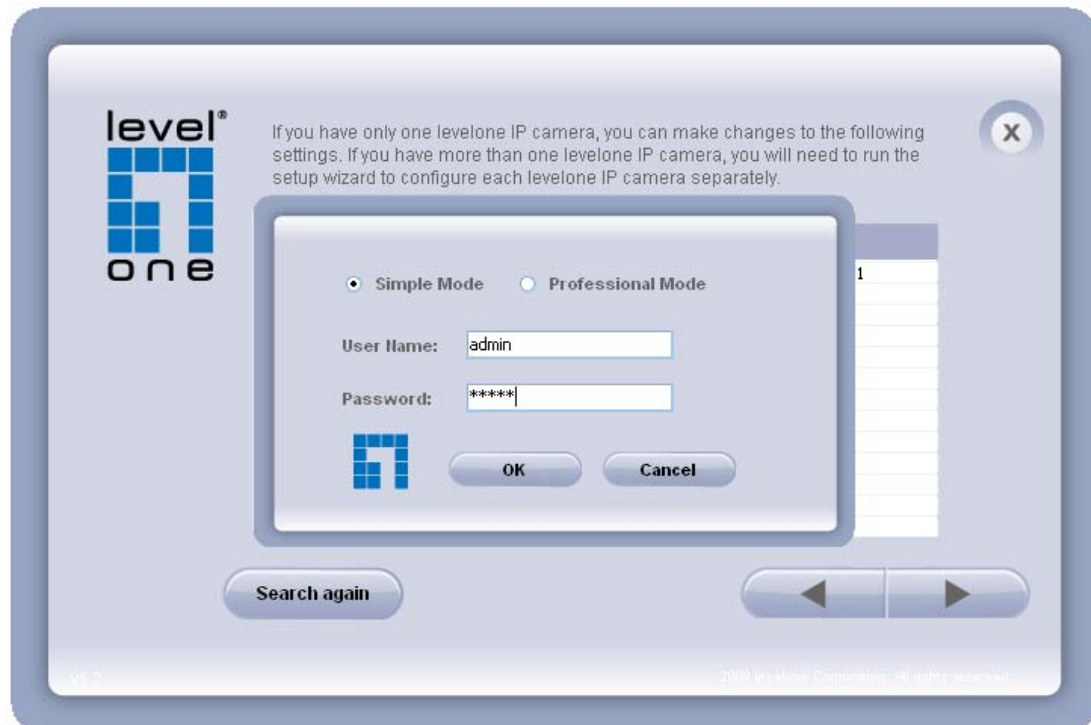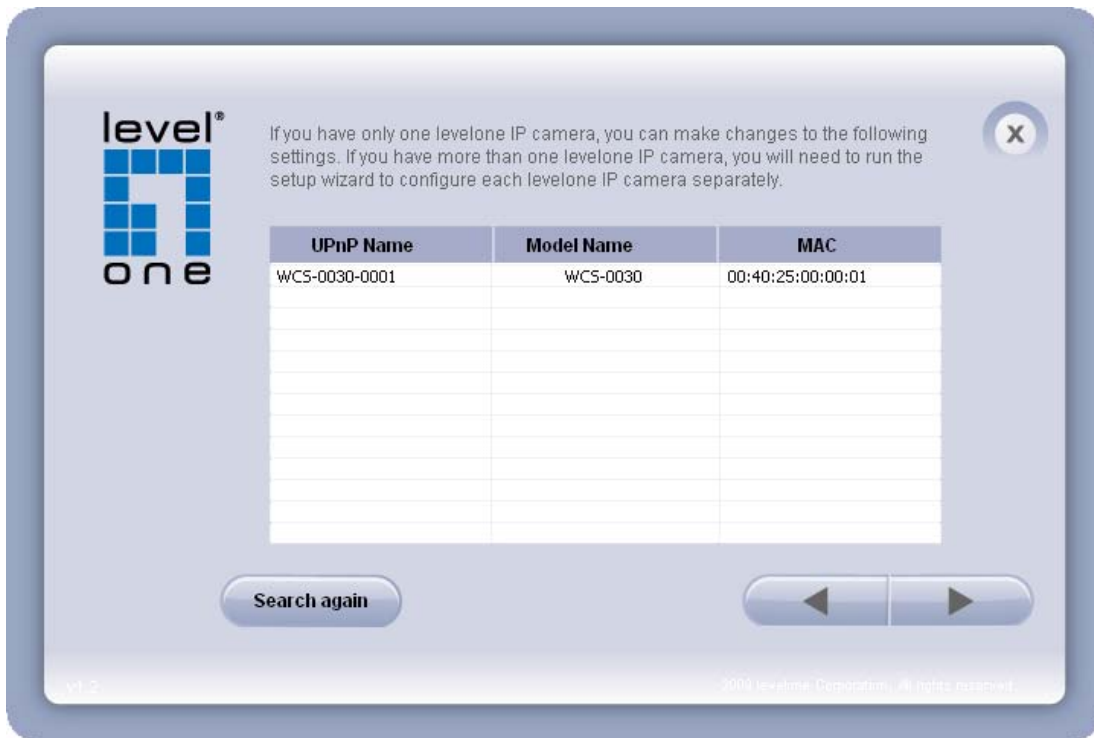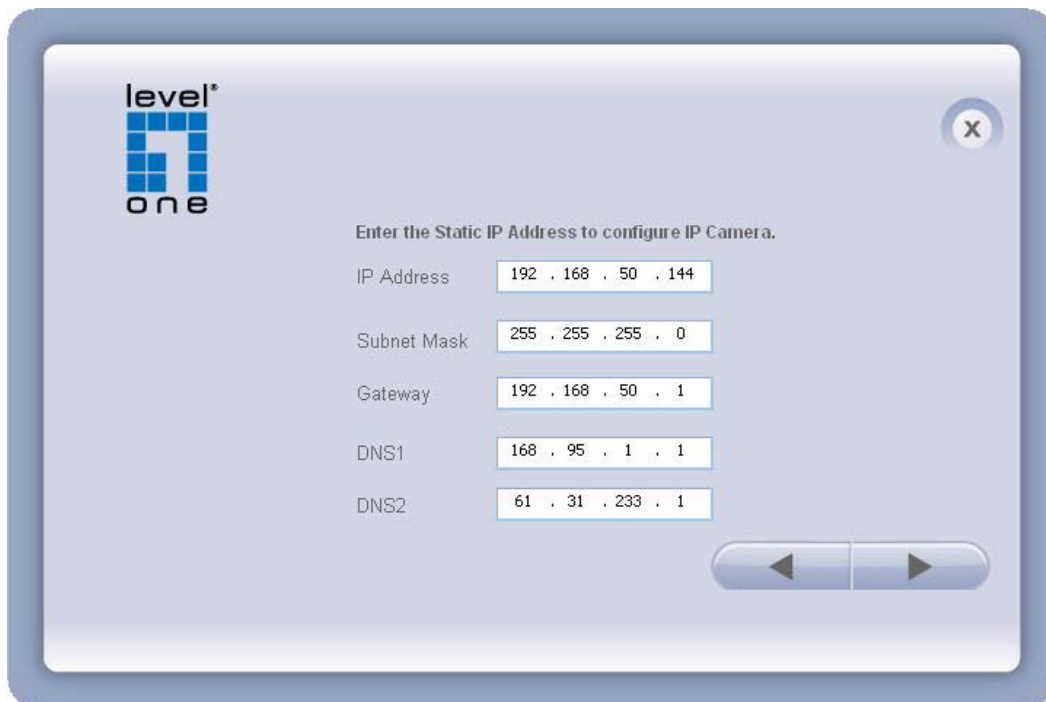
4. Setting the Network Camera IP address

   User can either select simple mode or professional mode for network camera IP setting. If simple mode is selected, the easy configuration program will set up the connection automatically. If professional mode is selected, the user will need to configure the IP manually, The DHCP setting is recommended. If user wants to set IP address manually, please refer to the product user manual.

5. Please make sure the internet connection is ready then start to do the internet discovery, otherwise click "Skip" to finish the setting.

    The default domain name is MAC address; you can also register with your own name on-line.

6. After finish setting, the connection successful or fail showed. If connection failed, user can either try again or quit the installation. User can either select "Run PC-NVR" or "Start Web GUI" to continue or click "X" on the top right of the screen to finish the installation.
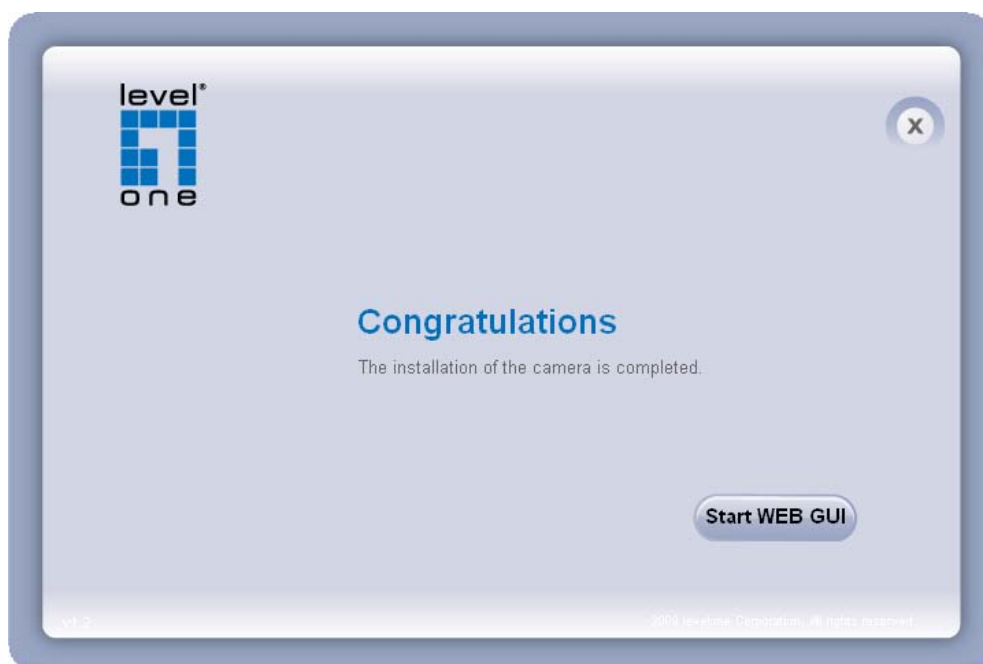
Once installation is completed, the Administrator should proceed to the next section "Access to the Network Camera" for necessary checks and configurations.

Access to the Network Camera

Check Network Settings

The Network Camera can be connected either before or immediately after software installation onto the Local Area Network. The Administrator should complete the network settings on the configuration page, including the correct subnet mask and IP address of gateway and DNS. Ask your network administrator or Internet service provider for the detail information.

Add Password to prevent Unauthorized Access

The Administrator should immediately implement a new password as a matter of prudent security practice. The user name and password for the Administrator are assigned as "**admin/admin**". Once the Administrator's password is saved, the Network Camera will ask for the user's name and password before each access. The Administrator can set up a maximum of ten (10) user accounts. Each user can access the Network Camera except to perform system configuration. Once the password is changed, the browser will display an authentication window to ask for the new password. **Once the password is set, there is no provision to recover the Administrator's password. The only option is to restore to the original factory default settings.**

The Administrator can set up a maximum of ten (10) user accounts. Users will be able to access the Network Camera, but will not be allowed to access system configurations.

Authentication

After opening the Web browser and typing in the URL of the Network Camera, a dialogue window pops up to request a username and password.   The user name and password for the Administrator are assigned as "**admin/admin**".

Installing plug-in

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 on the Internet Explorer. Permission request depends on the Internet security settings of the user's PC or notebook. If the highest security level is set, the computer may prohibit any installation and execution attempt. This plug-in has been registered for certificate and is used to display the video in the browser. Users may click on [Install] to proceed. If the web browser does not allow the user to continue to install, check the Internet security option and lower the security levels or contact your IT or networking supervisor for help.

⚠️**NOTE** – If an error occurred or the plug-in fails to install, it is because the version of the Electronic Signature is newly released and the VeriSign has not been submitted to Microsoft Windows update for validation.   Therefore, user default will not have its root certificate.   If IE discovers that there is no root certificate after the user's PC connects to the IPCam, it will automatically redirect to VeriSign Web site to download and install the latest root certificate to make the installation successfully.   If the user's computer is able to connect to IPCam but unable to access to the internet, then the installation will fail

because the computer will not be able to download the latest root certificate. This problem can be resolved if computer can be connected to both the internet and the IPCam at the same time and will not recur when Windows update patches become available.

Live View
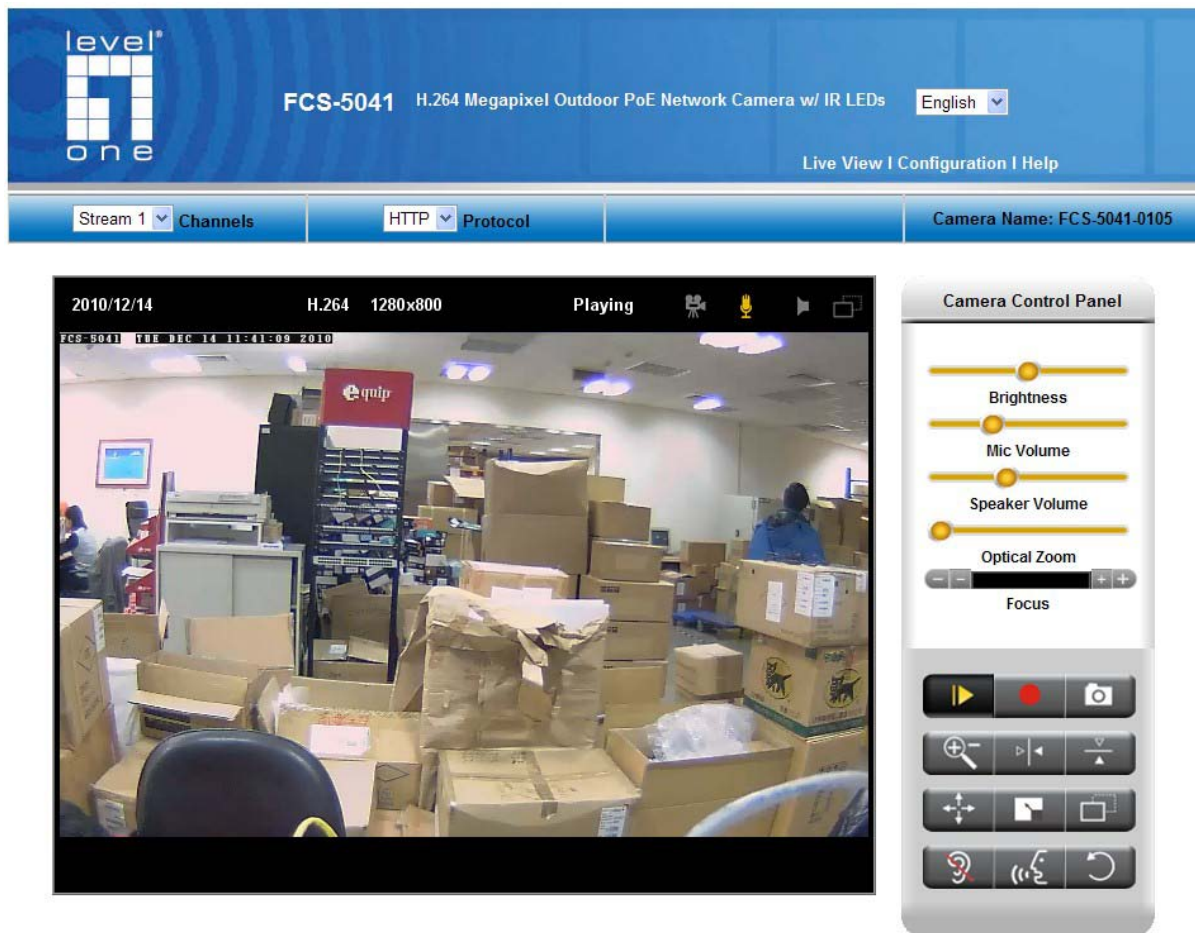
Live View is the default page that opens when accessing the Network Camera. Live video is displayed directly in the browser window.

- **Stream1/Stream2 Channels**

The network camera offers simultaneous dual stream for optimized quality and bandwidth. Go to Configuration → Camera/Video/Audio → Video to configure the codec compression and video resolution or refer to the Video configuration page.

- **HTTP/TCP/UDP protocol**

HTTP – This unicast method can be used to traverse firewalls.   Firewalls are commonly configured to allow the HTTP protocol, thus allowing RTP to be tunneled.

TCP - This protocol guarantees the complete delivery of streaming data and provides better video quality. The downside of using this protocol is that the quality of its real-time

effect is less than that of the UDP protocol.

UDP - This protocol allows for more real-time audio and video streams. However, network packets may be lost due to network burst traffic and images may be broken. Activate UDP connection time-sensitive responses are more important than video quality.

🎥/🎥 Recording on/off - shows the status of recording video

🎤/🎤 MIC on /off - shows the status of the MIC volume

🔊/🚩 Speaker on/off - shows the status of the Speaker
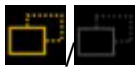
▢/▢ MD on/off - shows the status of Motion Detection

● **Brightness -** Drag the slider bar to adjust the image brightness level.
● **Mic volume** - Drag the slider bar to adjust the Mic volume.
● **Speaker volume -** The built-in speaker will play sound from an audio clip from the computer MIC when it is enabled.
● **Optical Zoom (*)** – Drag the slider bar to adjust the optical zoom, and the camera will automatically focus.

For more Audio settings, please refer to the Audio configuration page.

▷ Play or Stop - Click this button to play or stop the video.

● Recording - Click this button to record video to a computer.

📷 Snapshot - Click this button to capture and save still images.

🔍 Digital Zoom - Click this button to enable the zoom operation.
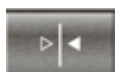
▷|◁ Mirror - Horizontally reflect the display of the live video.

▽△ Flip - Vertically reflect the display of the live video.

✛ Real Size - Click this button to view the object in real size. Press this button again to switch back to normal mode.

⬚ Full Screen - Click this button to switch to full screen mode. Press the "Esc" key to return to normal mode.
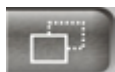
Motion Detection Alert - Click this button to enable the motion detection alert function.

Mute – Click to turn off the sound.

Talk – Click this button to communicate through the camera using the computer MIC.

Set Default – Click this button to reset to default settings.

⚠️**NOTE**

The <Camera Control Panel> function has no effect on the recorded video. Whatever changes made to the <Camera Control Panel> **will not** be applied to the recorded video.

⚠️ **NOTE - (*) These are optional features. Please refer to the Product List for the full list of optional features that are available for this product**

Configuration

Click **Configuration** on the main page to change the camera setting pages.

⚠ Note that only Administrators can access the Configuration page.

Camera/Video/Audio

Camera

Camera Setting

Camera Setting

Brightness: Drag the slider bar to adjust the image brightness level, which ranges from -5 to +5.

Contrast: Drag the slider bar to adjust the image contrast level, which ranges from -5 to +5.

Sharpness: Drag the slider bar to adjust the image sharpness level, which

ranges from -5 to +5.

Saturation: Drag the slider bar to adjust the image saturation level, which ranges from -5 to +5.

Night Vision

IR CUT: the Network Camera switches off the IR cut filter at all times for the sensor to accept the infrared light, thus helps improve low light sensitivity.

IR LED: The user can select this option to turn on/off the IR.

Auto: The Network Camera automatically removes the filter by judging the level of ambient light.

Shutter Speed – Only affected in low lighting conditions

Motion – enable this function to have normal motion, but slight blur image.

Low Noise – enable this function to have sharper image, but slight tardy motion.

Environment - User can look for a place that best suits your needs, either outdoor or indoor.

Flicker-Free - While flicker-free technology eliminates the problem of flicker, it can cause slight judder on fast moving images or blurring problems; fast scrolling text for example may blur.

⚠️ **NOTE -** The "Environment" setting adjusts the sampling rate of the camera sensor to achieve Flicker-free effect on the video.

The sampling rate, however, may not work best with the frame rate chosen in the "Video" setting.

For best recording experience, configure your IP camera to one of the following frame rates based on the Environment used:

Environment / Flicker-Free	Frame Rate
Outdoor	25, 10, 7, 5, 3, 2
Indoor (50/60 Hz)	20, 10, 7, 5, 3, 2

IRIS

Auto Iris lens - Select when the auto Iris lens is installed. Manual Iris lens is the default lens.

Mirror and Flip

Mirror - Enable to horizontally reflect the display of the live video.

Flip - Enable to vertically reflect the display of the live video.

Click **Apply** or **Reset** to take effect.

.**Video**

The Network Camera offers two separate streams for different viewing options.

Stream 1 & Stream 2

Video Codec - The Network Camera offers three choices of video codec standards for real-time viewing: H.264(*), MPEG-4 and MJPEG.

Video Resolution - Select from the drop-down menu to choose the best resolution recording settings.

Frame Rate - Select the frame rate from drop-down menu.   When H.264 or MJPEG is selected, the frame rate ranges from 1 to 30 fps.   When MPEG-4 is selected, the frame rate ranges from 1 to 15 fps. Set a higher frame rate for smoother video quality.

Video quality and bit rate - User can either choose "quality" or "bitrate" to control the video quality with video codec at H.264 or MPEG4. Only "quality" can be chosen when MJPEG video codec is selected.   Set the bitrate higher for a better video

quality. ⚠️ Note: a higher bitrate will use higher network bandwidth. The video quality can be set between Level 1 to Level 6, with Level 6 producing the best image quality.

HTTP Transport – Select MJPEG codec to enable to use HTTP protocol for video communication.

⚠️ **Note** – HTTP Transport is for non-IE browser used only.

Click **Apply** to apply settings or **Reset** to cancel changes.

⚠️ **NOTE -** For best recording experience, configure the Network Camera to one of the following frame rates based on the Flicker-Free setting:

Flicker-Free	Frame Rate
Outdoor	25, 10, 7, 5, 3, 2
Indoor (50/60 Hz)	25, 20, 10, 7, 5, 3, 2

⚠️ **NOTE - (*) These are optional features. Please refer to the Product List for the full list of optional features that are available for this product**

Video Overlay

Timestamp

To display the date and time on the screen during live view, check "Enabled" to enable the timestamp function and select the display position from the drop-down menu.

Text

To make a note about the Network Camera, check "Enabled" and select the display position from the drop-down menu.   User should then enter a video description in the text box.

Click **Apply** to apply settings or **Reset** to cancel changes.

⚠️ **NOTE -** The video overlay will only takes effect in stream 1.

RTSP Server

Stream	Video Overlay	RTSP Server	Save File Folder

RTSP Server	
Port	554
Authentication	DIGEST ▼

Apply   Reset

To utilize RTSP authentication, make sure that you have set a password for the Network Camera first.

RTSP (Real-Time Streaming Protocol) controls the delivery of streaming media. By default the port number is set to 554.

Authentication - Depending on your network security requirements, the Network Camera provides two types of security settings for streaming via RTSP protocol: NONE and DIGEST.

If DIGEST authentication is selected, user credentials are encrypted using MD5 algorithm, thus providing better protection against unauthorized access.

Save file folder

> **Recording folder path -** The destination for saving the recording video files. Click browse to specify the saving path.
>
> **Snapshot folder path -** The destination for saving the snapshot files. Click browse to specify the saving path and select the format from the drop-down menu.

Click **Apply** to apply settings or **Reset** to cancel changes.

Audio

The administrator can set up two separate streams for the Network Camera for different viewing devices. The administrator can enable or disable the audio function on either stream. If audio enable is selected, select the Audio codec from the drop-down menu.

Advanced

Camera Speaker – If the speaker is enabled, select the volume from the drop-down menu.

Echo cancellation Enabled: Enable to avoid an echo.

Click **Apply** or **Reset** to take effect.

Multicast

Multicast sends a video stream to the multicast group address and allows multiple clients to acquire the stream at the same time by requesting a copy from the multicast group address. Therefore, multicast can effectively save Internet bandwidth. The RTSP (Real-Time Streaming Protocol) controls the delivery of streaming media.

Click "Enabled" to enable Multicast stream 1 or Multicast stream 2. The default value for

multicast address and port are 234.1.2.3 and 10000. Use different port number for different streams. It is recommended to use the default values.

⚠️ **NOTE** - Using the IP address of the camera enables access to the video.
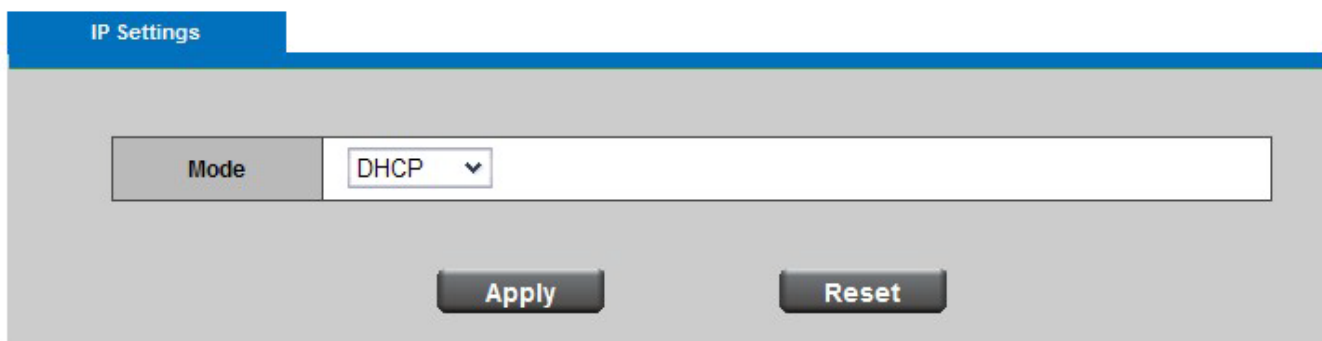
Example: rtsp://192.168.1.1/channel1

Click **Apply** to apply settings or **Reset** to cancel changes.

Network

IP Setting

This section explains how to configure wired network connection for the Network Camera. There are several ways to setup the Network Camera over the Internet. The first way is to obtain an available dynamic IP address assigned by a DHCP server. The second way is to utilize a static IP. The third way is to use PPPoE.

IP Settings
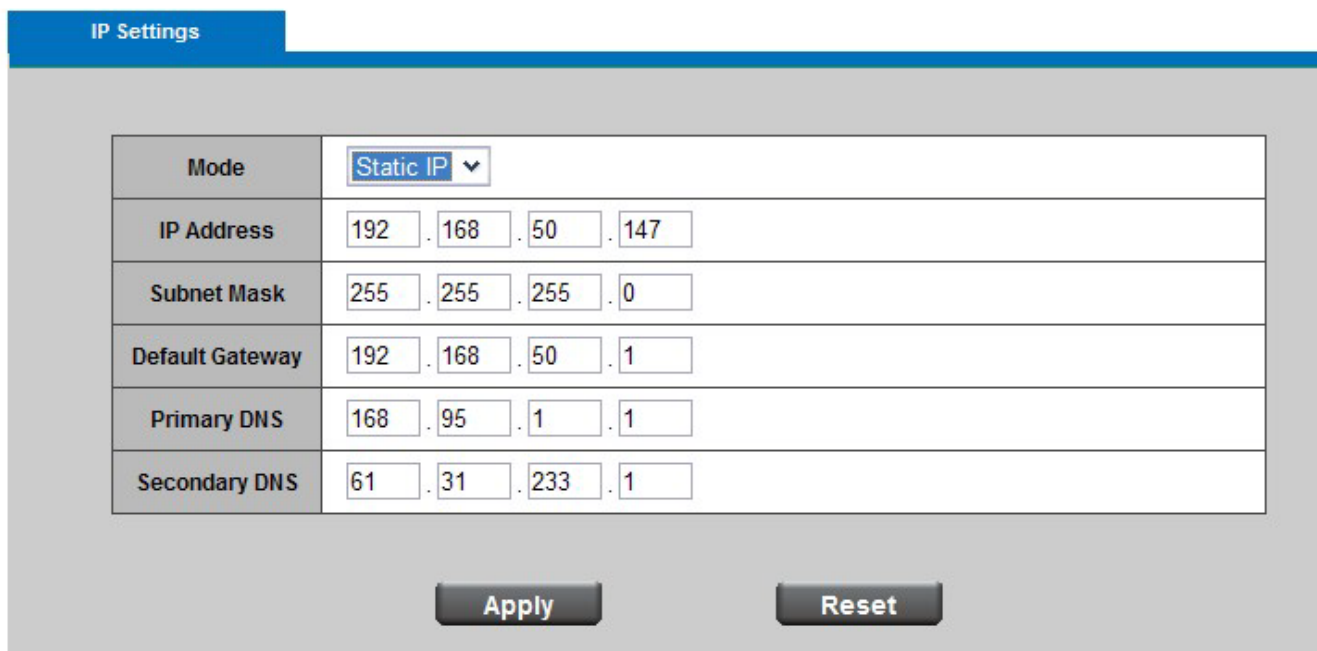
1. **DHCP –** If this option is selected, the camera will automatically obtain an available dynamic IP address from the DHCP server each time it connects to the LAN.

IP Settings

2. **Static IP -** Select this option to manually assign a static IP address to the Network Camera. Enter the static IP address, Subnet mask, Default Gateway, Primary and Secondary DNS provided by the ISP.

IP Settings

Mode	PPPOE ⌄
Username	
Password	

[Apply]   [Reset]

3. **PPPoE** (Point-to-point over Ethernet)**:** Use this mode if connecting to the Internet through a DSL Line. ⚠**Note**: To utilize this feature, it requires an account provided by an Internet Service Provider. Enter the user name and password provided by the ISP.

Click **Apply** to apply settings or **Reset** to cancel changes.

UPnP

Universal Plug and Play (UPnP) simplifies the process of adding a camera to a local area network.   Once connected to a LAN, the camera will automatically appear on the intranet. Click "Enable" to enable this function and enter an UPnP name which the camera will appear on the intranet.

UPnP	
Enabled	☑
UPnP Name	FCS-5041-0105

[Apply]   [Reset]

Click **Apply** to apply settings or **Reset** to cancel changes.

DDNS (dynamic domain name service)

DynDNS – Enable the DynDNS to allow the Network Camera to have a fixed host and domain name. Enter the username, password and hostname.

⚠️Note: Before utilizing this function; please apply for a dynamic domain account from a DDNS provider.

Click **Apply** to apply settings or **Reset** to cancel changes.

TZO

TZO is a DDNS provider which allows users to create a dynamic DNS. Refer to the TZO website (http://www.tzo.com/) to apply a dynamic domain account. When an account has been created, enter the e-mail address, password and domain name.

⚠️Note: Before utilizing this function; please apply for a dynamic domain account from a DDNS provider.

Click **Apply** to apply settings or **Reset** to cancel changes.

Easy Link

EasyLink™ enables network cameras to come with everything necessary to quickly add a surveillance camera to a home or small office network. To view what the camera is seeing, simply log on to level1dns.net, choose the device's domain name which was created by the user, and start viewing. There is no need to configure the router to open up ports or remember hard-to-memorize Internet addresses.

As a level1dns2.net-enabled device, the camera can be accessed anytime, anywhere by simply logging on to the level1dns2.net website and selecting the camera.

Check the option box to enable EasyLink™. Enter a domain name whose length must be between 5-32 characters.

For Refresh Time, select a desired amount of time from the drop-down menu and click <Update Now> to confirm the connection status.
Click **Apply** to apply settings or **Reset** to cancel changes.

Wireless

This section only available to configure when you plug in Level1 approved Wifi USB dongle. it is optional for wireless function
Here is an example for WUA-5600.

Wireless Configuration

Basic Settings	Advanced Settings	Wi-Fi Protected Setup

Network Name (SSID)	LevelOne	Site survey
Network Type	⦿ Infrastructure mode ◯ Ad-hoc mode	
Security	Disabled ▾	

Apply   Reset

Site Survey List
Click the Site Survey Button to update the list.

SSID –The Service Set Identifier (SSID) is the network name used to identify the wireless signal emitted from a wireless camera.　It is case-sensitive and can be up to 32 characters long.

⚠**Note** - Be careful when including personal information when naming the SSID as it is viewable by anyone browsing for wireless networks.

Site survey –Survey the local area for available wireless networks.　The user should select their Local Area Network (LAN) from the Site Survey List.

Network Type – You can select two wireless network types:
- The **Infrastructure** mode supports communications between a wireless network and a wire network using an access point.
- The **Ad hoc** mode supports peer to peer communications between two wireless network devices.

Security Type –Encryption protects data transmitted over a wireless network. Wi-Fi Protected Access (WPA-Personal/WPA2-personal) and Wired Equivalent Privacy (WEP) offer different levels of security for wireless communication. A network encrypted with WPA-Personal/WPA2-personal is more secure than a network encrypted with WEP because WPA-Personal/WPA2-personal uses dynamic key encryption. To protect the information as it passes through the airwaves, it is recommended to enable the highest level of encryption supported by the network equipment.

◉**WEP**- Wired Equivalent Privacy (WEP) is a basic encryption method which transmits

network broadcast messages using radio signals.　It is not as secure as WPA.

　Tx Key - Select a key from the drop-down menu.

　WEP Encryption - Select a level of WEP encryption, 64 bits 10 hex digits or 128 bits

26 hex digits. The default is 64 bits 10 hex digits.

Key 1-4 - Enter the WEP key(s) manually.

Authentication - The default is set to open system, which allows either Shared Key or Auto authentication to be used. With Open System authentication, the sender and the recipient do NOT use a WEP key for authentication. With Shared Key authentication, the sender and recipient use a WEP key for authentication.

◎**WPA-Personal** - WiFi Protected Access (WPA)-Personal

Encryption - Supports two encryption methods with dynamic encryption keys: Temporal Key Integrity Protocol (TKIP) and Advanced Encryption Standard (AES). Select the algorithm type from the drop down menu: TKIP or AES. The default is TKIP.

Shared Key - Enter the key shared between the Router and the server keys. Enter a password of 8-63 characters.

◎**WPA2-Personal**- WiFi Protected Access (WPA2-Personal)

Encryption - WPA2 supports AES encryption method with dynamic encryption keys.

Shared Key - Enter the key shared between the Router and the server keys. Enter a password of 8-63 characters.

⚠ **Note -** If using WPA or WPA2, each device in the wireless network must use the same WPA or WPA2 method and shared key, or else the network will not function properly.

Click **Apply** to apply settings or **Reset** cancel changes

Wireless Configuration

Basic Settings	**Advanced Settings**	**Wi-Fi Protected Setup**

Network Mode	BGN-Mixed
Radio Band	Auto-20/40MHz Channel
Country Region	EU
Enable WMM (802.1e QoS)	Disabled
TxPower	100

Apply **Reset**

Network mode –From this drop-down menu, the user can select the wireless standards running on their network.
If there are Wireless-B, Wireless-G and Wireless-N (2.4GHz) devices in the network,, select **BGN-Mixed**. If there are both Wireless-B, Wireless-G devices in the network, select **BG-Mixed**. If there are only Wireless-B devices, select **Wireless-B Only**. If there are only Wireless-G devices, select **Wireless-G Only**. If there are only Wireless-N (2.4GHz) devices, select **Wireless-N Only**.

Radio Band-

–The settings are available for the Auto-20/40MHz channel and Standard-20 MHz channel. The Auto-20/40MHz channel sets up a network using the 20/40MHz band, and the Standard-20 MHz channel sets up a network using the 20 MHz band.

Country Region- The item selected in this field determines the channels (frequencies) available. In some cases driver will select region based on regional settings of operating system – in those cases it's not possible to change this value.

Enable WMM- (802.1e QoS) - WMM is a wireless Quality of Service feature that improves quality for audio, video, and voice applications by prioritizing wireless traffic. To use this feature, the wireless client devices in the network must support Wireless WMM. The default setting is **Enabled.** To disable this feature, select **Disabled**.

TX Power – Set the signal transmit power to be used by the radio transmitter (%). Choose the appropriate value from the drop-down list.
Click Apply to apply settings or Reset cancel changes

Wireless Configuration

Basic Settings	**Advanced Settings**	**Wi-Fi Protected Setup**

PIN Mode	Enter PIN number **0** in your AP device Enter your AP's SSID [LevelOne]
Wi-Fi Protected-Status	Not Configured

Apply   **Reset**

PIN Code –8-digi numbers. It is required to enter PIN Code into Registrar using method.

Click Apply to apply settings or Reset cancel changes

HTTP/HTTPS

HTTP – (HyperText Transfer Protocol) - This protocol allows for TCP protocol quality without having to open specific ports for streaming. Users inside a firewall can utilize this protocol to allow streaming data through.

HTTPS - (Hypertext Transfer Protocol over SSL) - This protocol allows authentication and encrypted communication over SSL (Secure Socket Layer). It helps protect streaming data transmission over the Internet on a higher security level than HTTP.

Click "Enabled" to enable and **Apply** to apply settings or **Reset** to cancel changes.

.

To enable HTTPS, the user has to create and install a certificate.

　1.　Click "Continue to this website" to install.
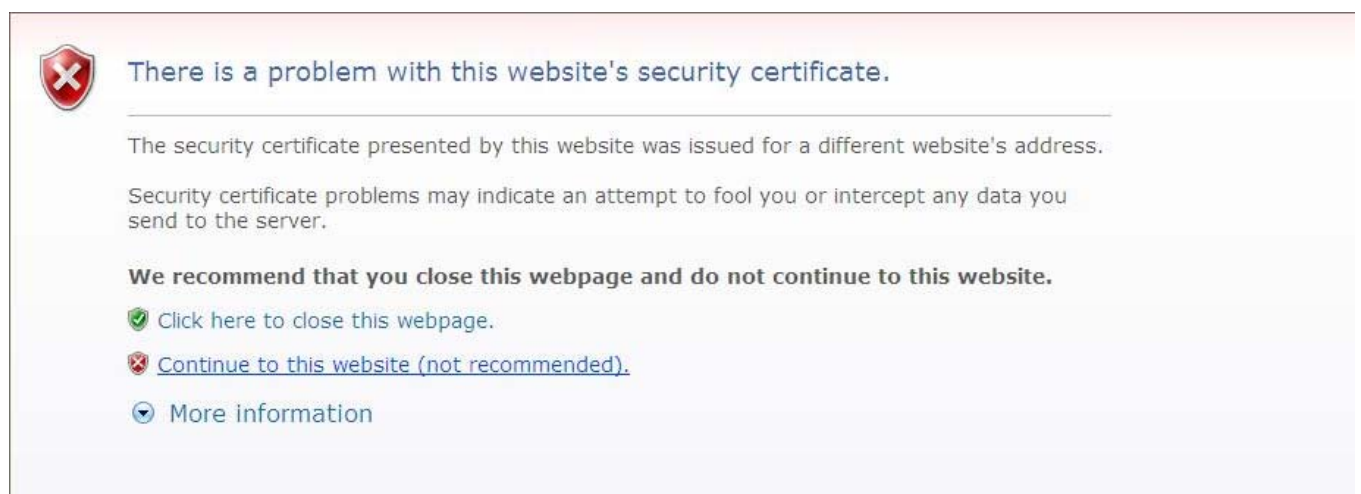
　2.　Enter the User name and Password of the camera

3. Click "Certificate Error" on the top right corner of the window to view the certificate.
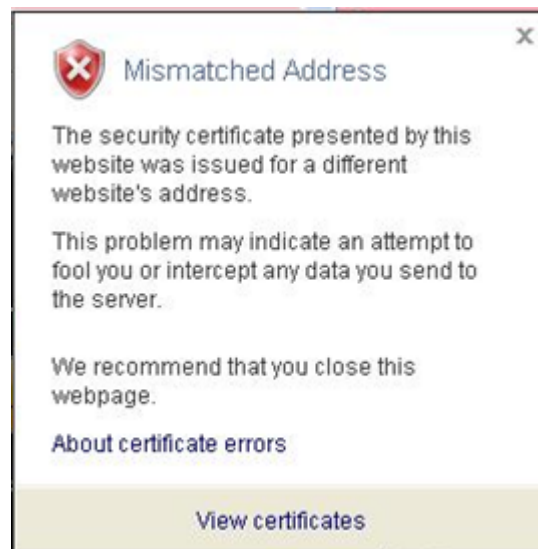
4. Click "Install Certificate" and follow the steps to finish the installation.

Event

Motion Detection

Motion can be detected by measuring changes in speed or vector of an object(s) in the field of view. This section explains how to configure the Network Camera to enable motion detection.
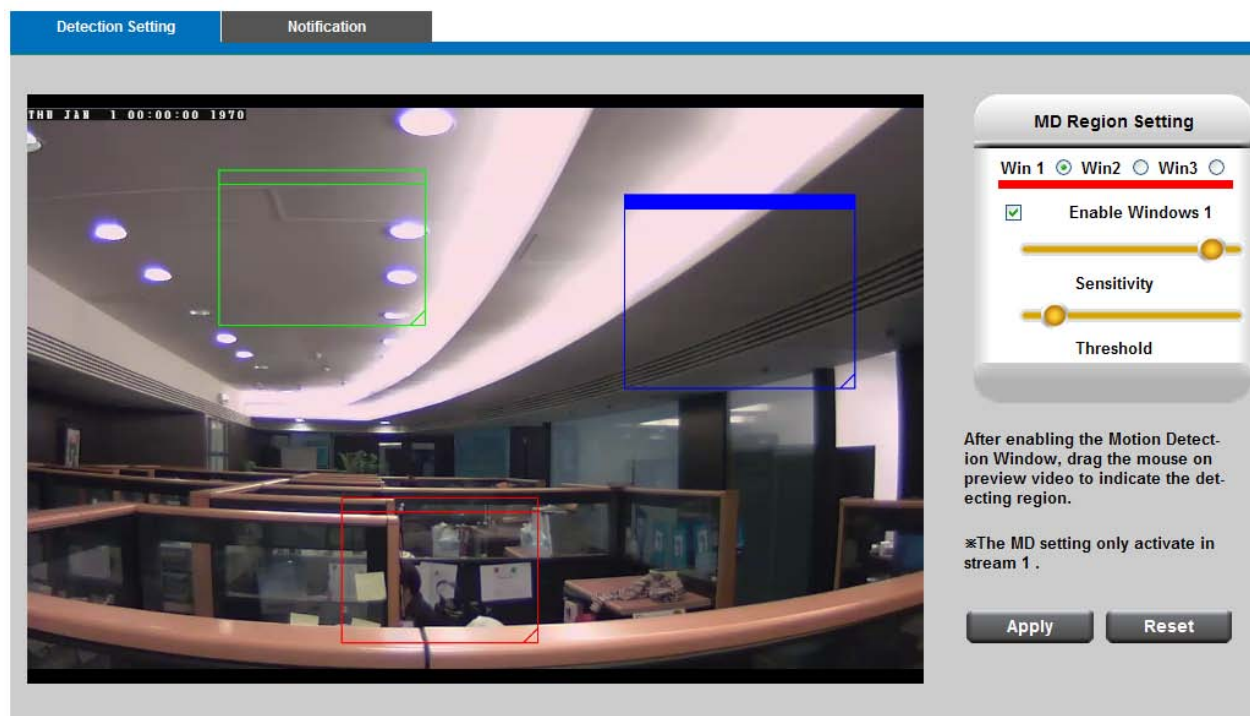
Detection Setting – Use this setting to enable and define the motion detection windows. The user can defined up to three areas on the live view window for motion detection.

1. Select <Win1>, <Win2>, or <Win3> to adjust the motion detection window.
2. Check the box to enable the window.
3. Use the mouse to resize or move the motion detection window.
4. Adjust the "Sensitivity" level. Lower sensitivity levels will result in more activity needed to trigger an event.
5. Adjust the "Threshold" to change the threshold level. The higher the threshold, the larger objects need to be to trigger an event.
6. The chart below the Live View window indicates the activity level of the Motion Detection window. When motion is detected by the network camera and exceeds the defined threshold, a red bar will appear. Users can use this feature as a trigger source to send photos or videos to a remote server via email or FTP.

7. Click **Apply** to apply settings or **Reset** to cancel changes.

Click **Apply** or **Reset** to take effect.

Notification setting

Use the tools in this section to specify what type of notification will be sent when an event occurs. The Network Camera can send buffered images to a FTP server, Samba, Email, or HTTP.

FTP - File Transfer Protocol (FTP) is often used as an application component to automatically transfer files for program internal functions. Select to send the media files to a FTP server when a trigger is activated. Enter the FTP IP address or hostname; by default, the FTP port server is set to 21, enter account name and password to configure the setting.

Click **Apply** or **Reset** to take effect.

SMTP - Select to send the media files via Email when a trigger is activated.

From - Enter the email address of the sender.

To - Enter the email address of the recipient. Many recipients are separated by commas.

My name - The title shown in the email.

Subject - Enter the subject of the email.

Attached - There are two choices of media types available: video streaming URL and video clip.

SMTP Server and port number - Enter the server host name and port number of the email server.

Authentication - Select the authentication type from the drop-down list.

Email Account - Enter the user name of the email account if necessary.

Email Password - Enter the password of the email account if necessary.

Click **Apply** or **Reset** to take effect.

Samba - Select to send the network file system media files via network neighborhood when a trigger is activated.

IP Address - Enter the IP address of the samba server.

User Name - Enter the user name of the samba server.

Password - Enter the password of the samba server.

Workgroup - Enter the workgroup of the samba server.

Share DIR - Enter the share DIR of the samba server.

Click **Apply** or **Reset** to take effect.

HTTP - Select to send the media files to a HTTP server when a trigger is activated.

FTP	SMTP	Samba	HTTP

URL	
Message	
User Name	
Password	

Apply   Reset

URL –Specify the URL to send HTTP requests.   The URL is normally written as:

http://ip_address/ notification.cgi?parameter

ip_address – type the IP address or host name of the HTTP host.

Parameter – type the notification parameter if necessary.

Example

URL - http://192.168.1.1/xxxx.cgi

Message - name1=value1&name2=vlaue2

Result - http://192.168.1.1/xxxx.cgi? name1=value1&name2=vlaue2

Ex:

https://192.168.1.1/notification.cgi?event=MD&camera=FCS-5041

Message - Enter the message notification that will be sent when an event is triggered.

Enter the user name and password if necessary.

Click **Apply** to apply settings or **Reset** to cancel changes.

DI/DO

| Digital Input | Low ⌄ (Current status: High) |
| Digital Output | Open ⌄ Duration 5 Sec (Current status: Low) |

Apply   Reset

Digital input - Select High or Low to define normal status of the digital input. The Network Camera will report the current status.

Digital output - Select Grounded or Open and enter the duration to define normal status of the digital output.

System

System Log

Log - To send a system log to the network camera when a trigger is activated.
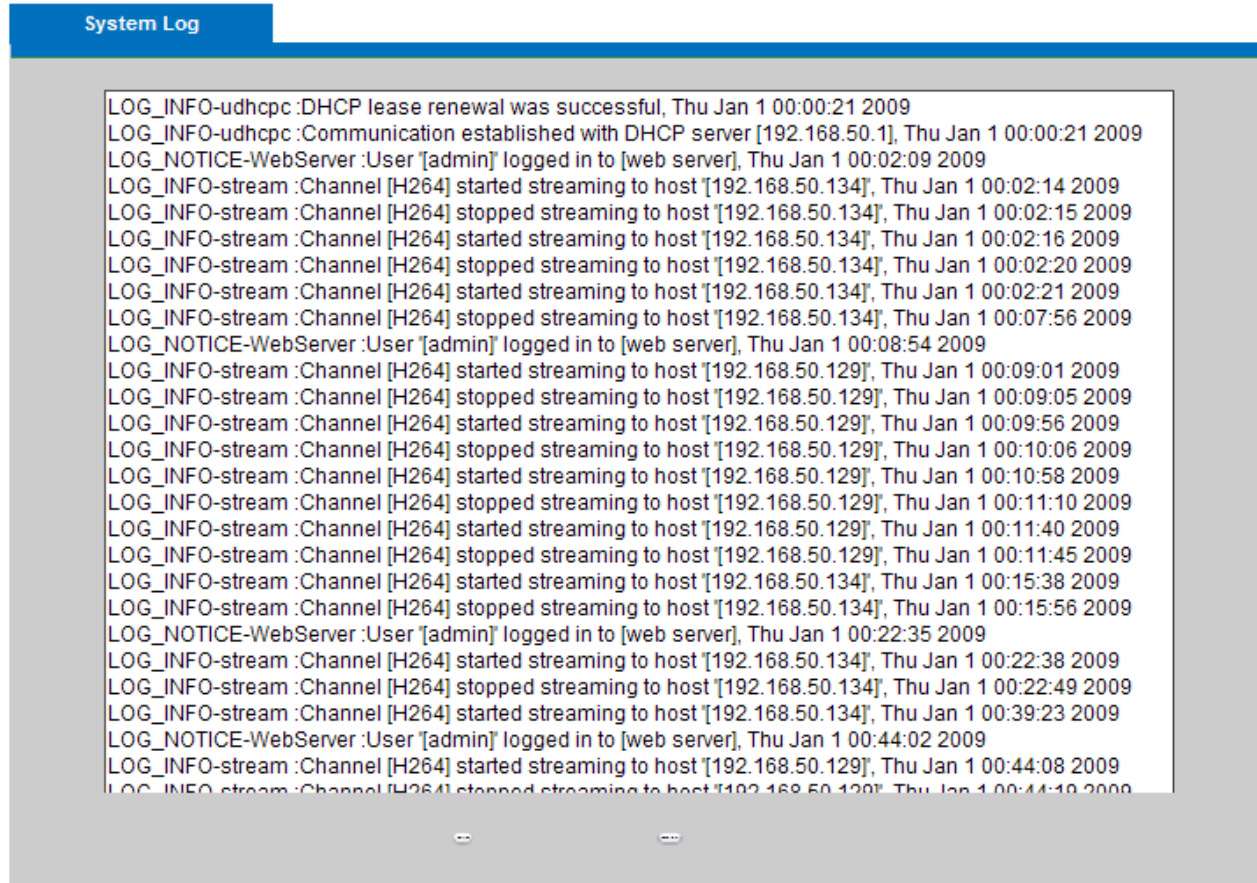
This page displays the system's log in chronological order. The system log is stored in the Network Camera's buffer area and will be overwritten when reaching a certain amount. Click **Retrieve** to retrieve the log, or click **Save to file** to save the file in the specify location.

Date & Time Settings

Manual - The user enters the date and time manually.

Clone from PC - Sync with computer time; click clone to synchronize the date and time of the Network Camera with the local computer. The read-only date and time of the PC is displayed as updated.

NTP - Select to update the time with the NTP server on hourly, daily, weekly, or monthly basis.

Time Zone - According to your local time zone, select one from the drop-down list.

NTP Server 1 and Server 2 - Enter the address of the NTP server.

Daylight Saving: Enable this option to retain the Daylight Saving Time changes automatically.

Click **Apply** or **Reset** to take effect.

Device Information

System Information – Displays the complete system information about the Network Camera.

Device Information

System Information	Network Settings	Video/Audio Settings

Lan MAC Address	00:11:6b:71:01:05
Firmware Version	v1.0.0.42
Firmware Release	01/04/2011 21:41
Product Name	FCS-5041
Model Number	5041
Company Name	Level One
Comments	H.264 Megapixel Outdoor PoE Network Camera w/ IR LEDs
UPnP Name	FCS-5041-0105

Network Settings – Displays the complete network setting information for the network camera.

Device Information

System Information	Network Settings	Video/Audio Settings

IP Setting Type	DHCP
IP Address	192.168.50.154
Subnet Mask	255.255.255.0
Default Gateway	192.168.50.1
Primary DNS	168.95.1.1
Secondary DNS	61.31.233.1
UPnP	Enabled
DynDNS	Disabled
TZO	Disabled

Video/Audio Settings – Displays the complete video/audio setting information for the network camera.

System Information	Network Settings	Video/Audio Settings

Stream 1	
Video Codec	H264
Video Resolution	1280x800(WXGA)
Video Frame Rate	25 fps
Video Bitrate	1500 Kbps
Audio Codec	N/A
Multicast IP	N/A
Stream 2	
Video Codec	MJPEG
Video Resolution	1280x800(WXGA)
Video Frame Rate	25 fps
Video Quality	Not Bad
Audio Codec	N/A
Multicast IP	N/A

Storage Management

The Storage Management can be configure when plug in a USB Pen-Drive, it can use to view all the recorded files on the USB pen-drive

Storage Management

Storage Management	Advanced Settings

Local Storage Information	
Total Capacity	0MB
Used Size	0MB
Available Size	0MB
Safely Remove Card	Reload

Storage Management				
☐	Filename ▲	Size	Time	Download

Click **Remove** to safely remove the USB Pen-Drive,.

Click **Reload** to refresh the list of recorded files.

Select a file and click **Delete** to delete the recorded file.

Click **Download** to download and view a recorded file.

Advanced Settings

Storage Management

Automatic Recycle – Enable to automatically overwrite older files when the available space remaining on the Micro-SD card is less than 100MB. If the Automatic Recycle function is disabled, there must be at least 50MB hard drive space available for the Network Camera to be able to record video files.

Offline Record – Enable to keep recording if the Network Camera is offline.

Click **Apply** to apply settings or **Reset** to cancel changes.

Maintenance

User Management

This section explains how to enable password protection and create multiple accounts.

Privilege Setting - Enter the new user's name and password.   Select the privilege for new user account. Click **Add** to take effect. The administrator account name is "admin", which is permanent and can not be deleted.
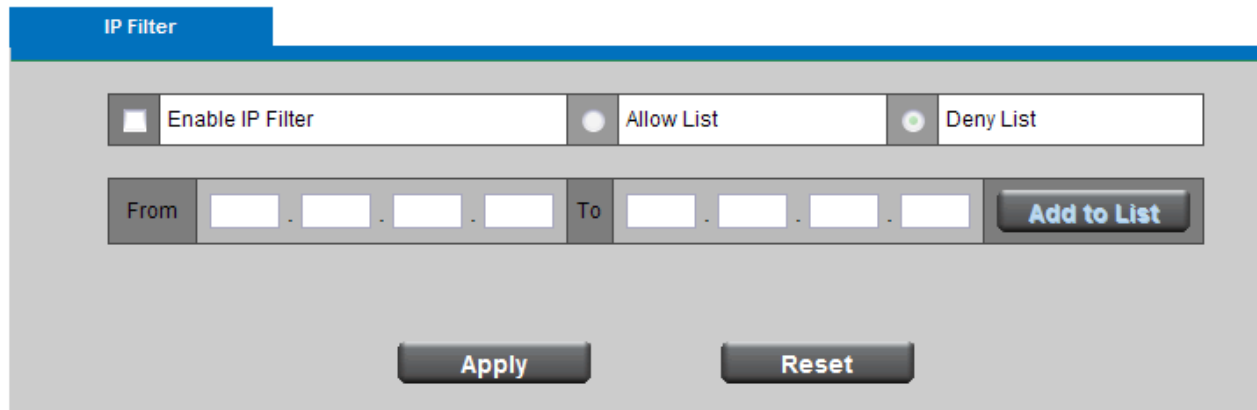
Access rights are sorted as following (Viewer, Administrator and Remote Viewer). Only administrators can access the Configuration page. Viewers can access the main page for live viewing only. The privilege of Remote Viewer is same as viewer except TCP protocol can only be selected for live viewing page.   Administrators can add up to 10 user accounts.   Administrator also can change user's access rights or delete user accounts. Select an existing account to modify and make necessary changes; then click **Update** or **Delete** to take effect.

Index	User Name	Password	Confirm Password	Privilege	Action		
1	admin	•••••	•••••	Administrator	Add	Delete	Update
2				Viewer	Add	Delete	Update
3				Viewer	Add	Delete	Update
4				Viewer	Add	Delete	Update
5				Viewer	Add	Delete	Update
6				Viewer	Add	Delete	Update
7				Viewer	Add	Delete	Update
8				Viewer	Add	Delete	Update
9				Viewer	Add	Delete	Update
10				Viewer	Add	Delete	Update

IP Filter

The IP Filter is used to filter the IP addresses which are able to access the network camera. Enable the IP Filter and select to allow or deny a range of IP addresses access to the server. Click **Add to list** to add the IP range to the IP filter list.

Click **Apply** or **Reset** to take effect.

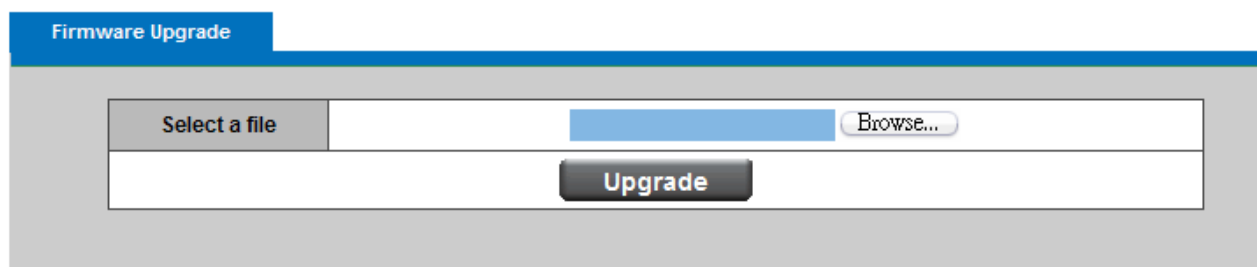**Firmware Upgrade**

This feature allows you to upgrade the firmware on your Network Camera. It takes about few minutes to complete the process.

⚠ **Note**: Do not power off the Network Camera during the upgrade.

> **Upgrade -** Click **Browse…** and specify the firmware file. Click **Upgrade**. The Network Camera starts to upgrade and will reboot automatically when the upgrade completes.

Configuration

This feature allows you to export/import the configuration files of the network camera.

> **Import/Export -** Click **export** to pop up a dialog to indicate the location and file to export. Click **browse** to indicate the location and file of the camera configuration and click **import** to import the configuration file back into the network camera.

Reset to default

Reset to default - Click **Reset** to restore the network camera to factory default setting.

Reboot

This feature allows you to reboot the Network Camera, which takes about one minute to complete. When completed, the live video page will be displayed in your browser. The following message will show during the rebooting process.