

Megapixel Network Camera
User Manual
Quality Service Group

Product name: Network Camera

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NOTE - (*) The features that are available for this product are optional. They are not supported by the economy model.

Package Contents

Please check to make sure the product package contains all of the accessories listed below.

- ◆ IP Camera
- ◆ Product CD
- ◆ Camera Stand
- ◆ White Flat RJ-45 cable(1.5m)
- ◆ Warranty Card
- ◆ Power Adapter

Installation

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 or higher

Adobe Reader:

Adobe Reader 8.0 or higher

Audio:

The audio function will not work if a sound card is not installed in the PC. Audio may be interrupted depending on network traffic.

Software Installation

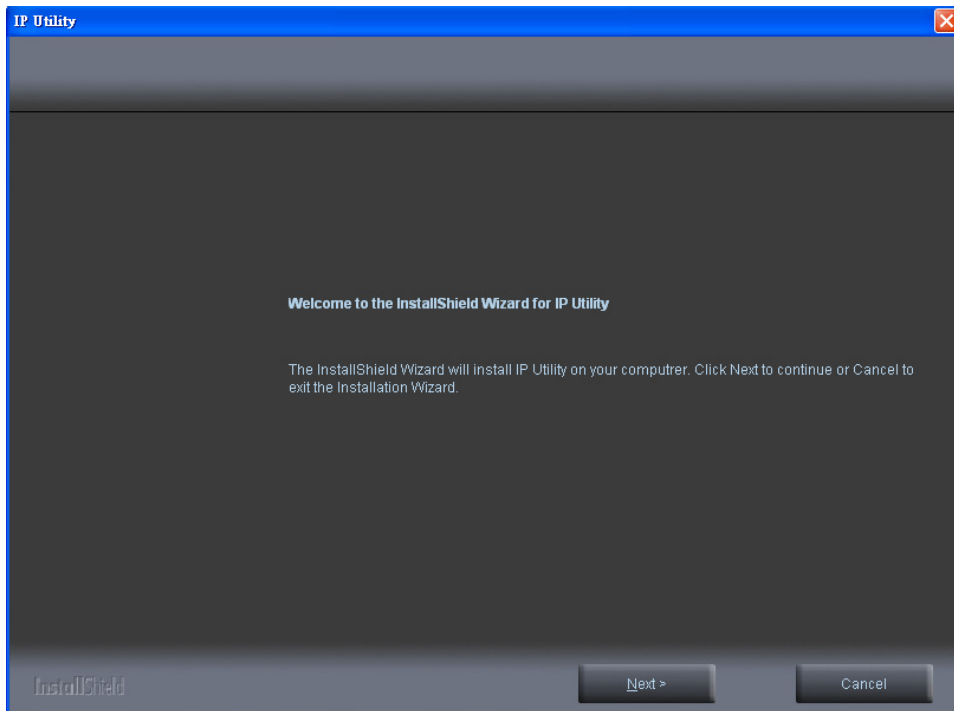
In this manual, "User" refers to whoever has access to the Network Camera, and "Administrator" refers to the person who can configure the camera and grant user access to the camera.

After checking the hardware connection, run the Installation Wizard program included on the product's CDROM to automatically search the intranet for the camera. There may be many cameras on the local network. Differentiate the cameras using the serial number which is printed on the labels on the carton and on the bottom of the camera.

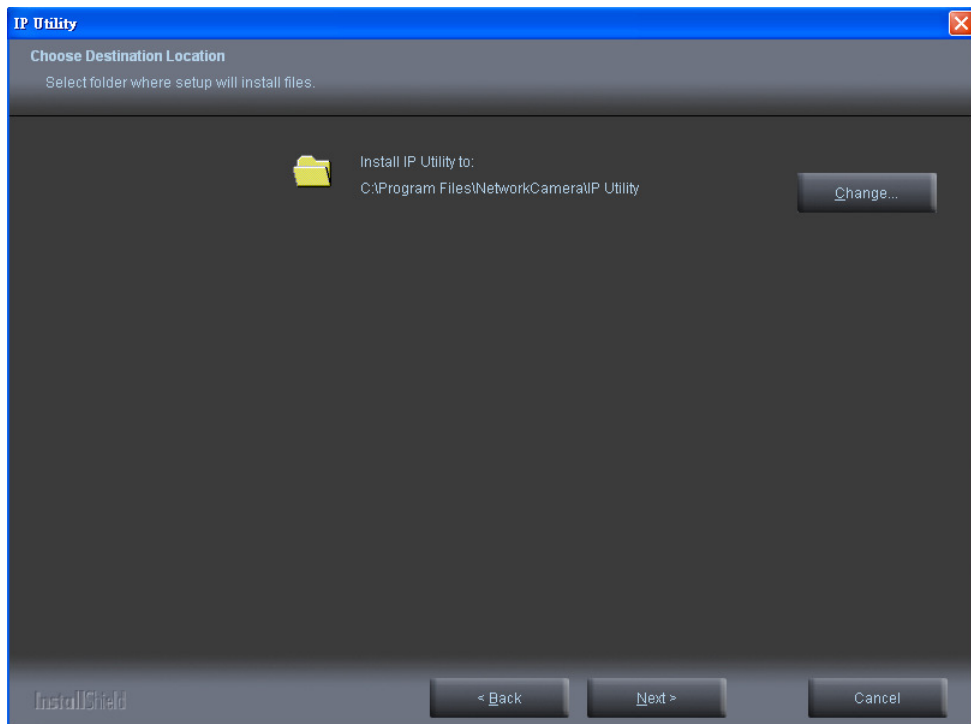
1. Insert the Installation CD into the CD-ROM driver. Run the Auto-Run Tool directly from the CD-ROM to start the installation. When installing the Network Camera Toolkit for the first time, select a desired language for the interface. The available languages are listed in the scroll box. Click <Install IP Utility> or <Install PC-NVR> to install. If installing the PC-NVR program, please refer to the PC-NVR user manual. If installing the IP Utility, follow the steps to install the IP Utility wizard on the desired computer.

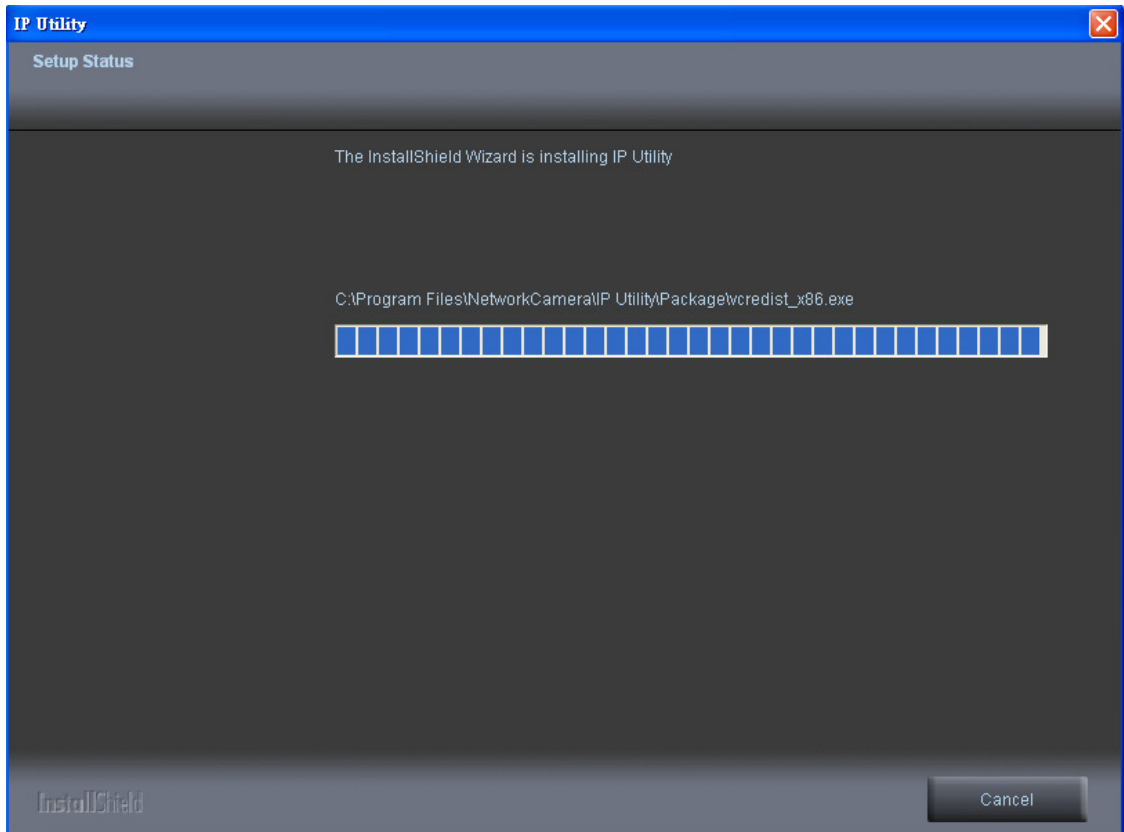


2. In the Install Shield Wizard dialog box, click <Next> to continue.

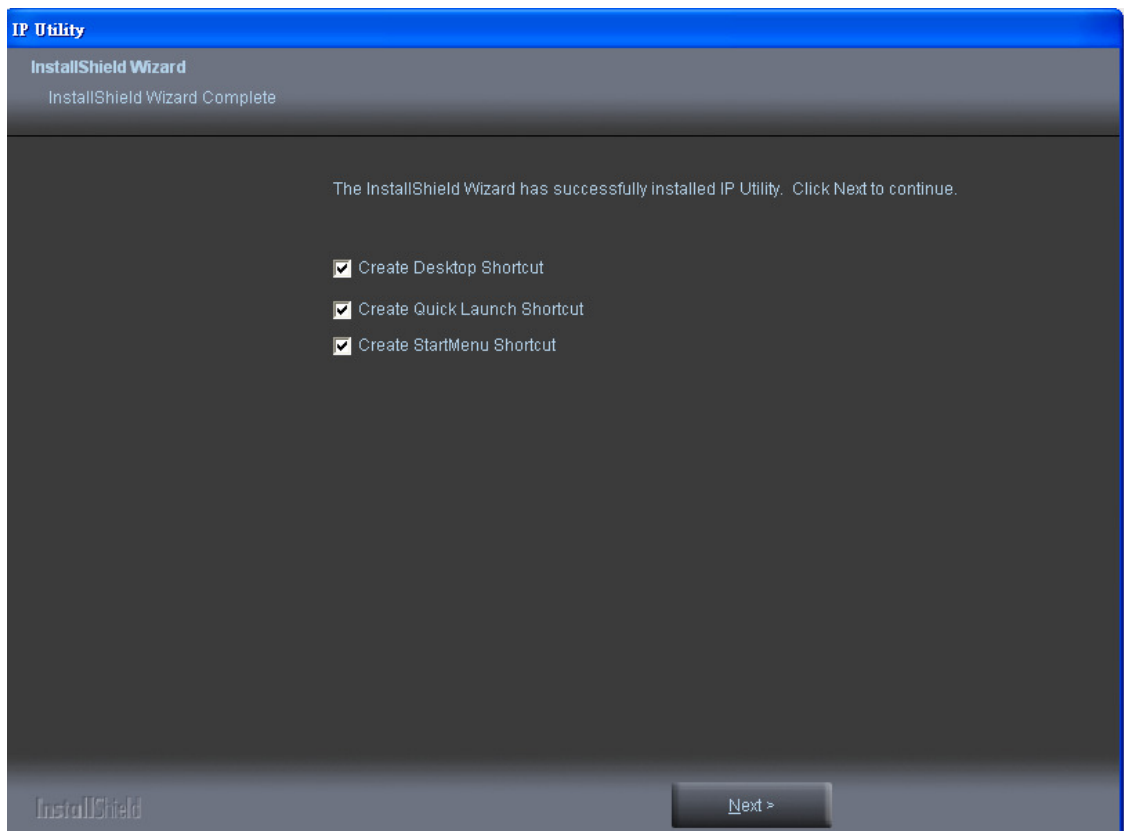


3. Click <Change> to change the folder where installation and program files will be stored. Click <Next> to continue.

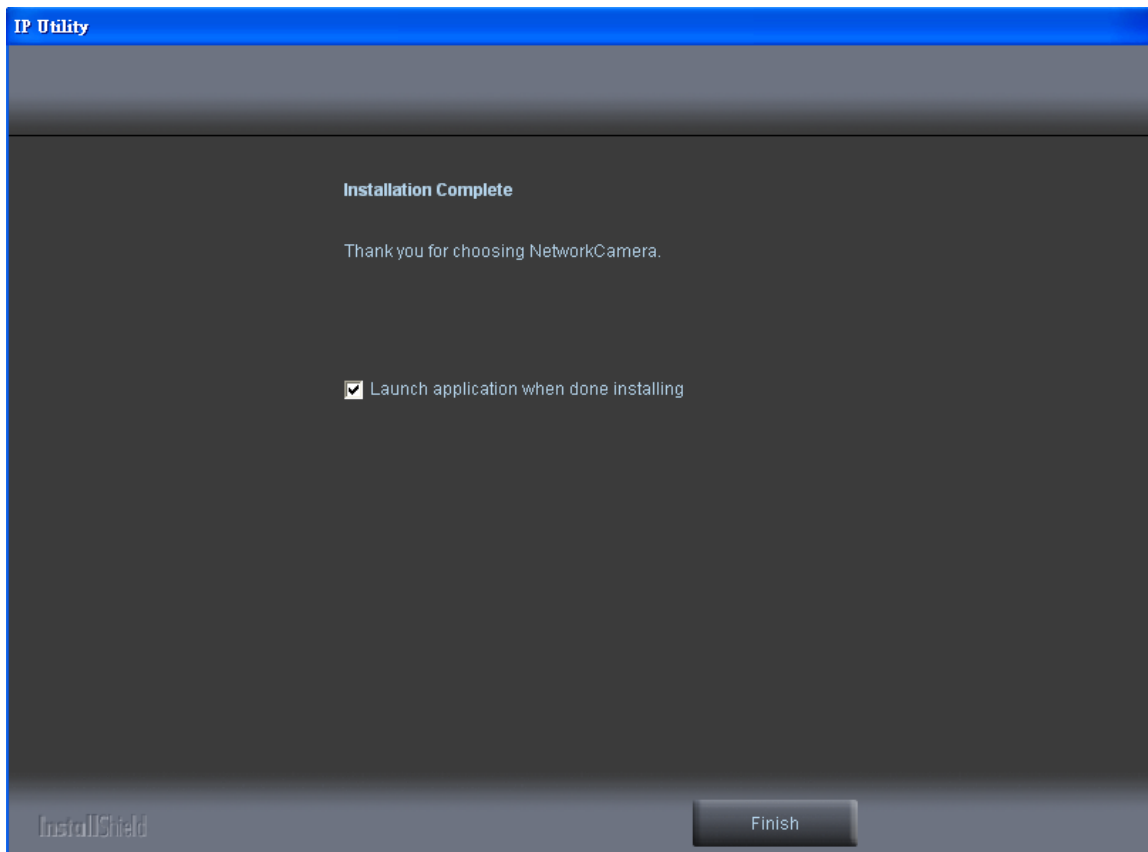




4. Select to create shortcuts. Click <Next> to continue.



5. Click to launch the application, and click **<Finish>** to complete the installation.



IP Utility

To launch the IP Utility, an IP Utility icon was installed on the desktop. Double click on the icon to open. The program can also be found in C:\Program Files\NetworkCamera\IP Utility unless the program was saved to a preferred directory.

1. Click <**Start**> to continue. The program will automatically search for the camera on the intranet.

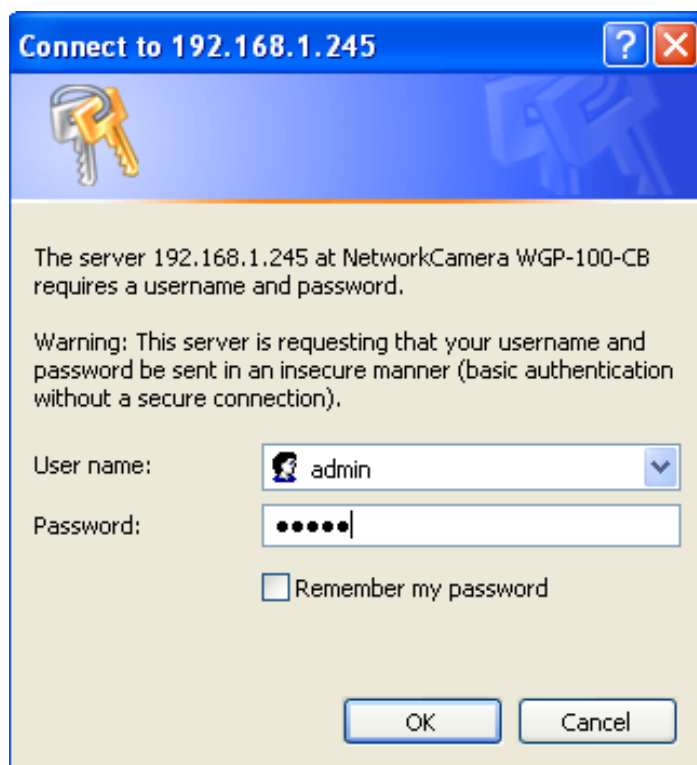


2. There may be many cameras on the local network. Differentiate the cameras by using their UPnP name. Double click on the camera from the survey list to connect.





Authentication

To access the camera's live view, open a web browser and enter the IP address of the camera. A dialog window will pop requesting a username and password. The default username and password for the Administrator are assigned as "admin/admin". For non administrator accounts, users can choose to remember the password for future convenience. However, It is not recommended that this feature be used when viewing the camera from a public computer.



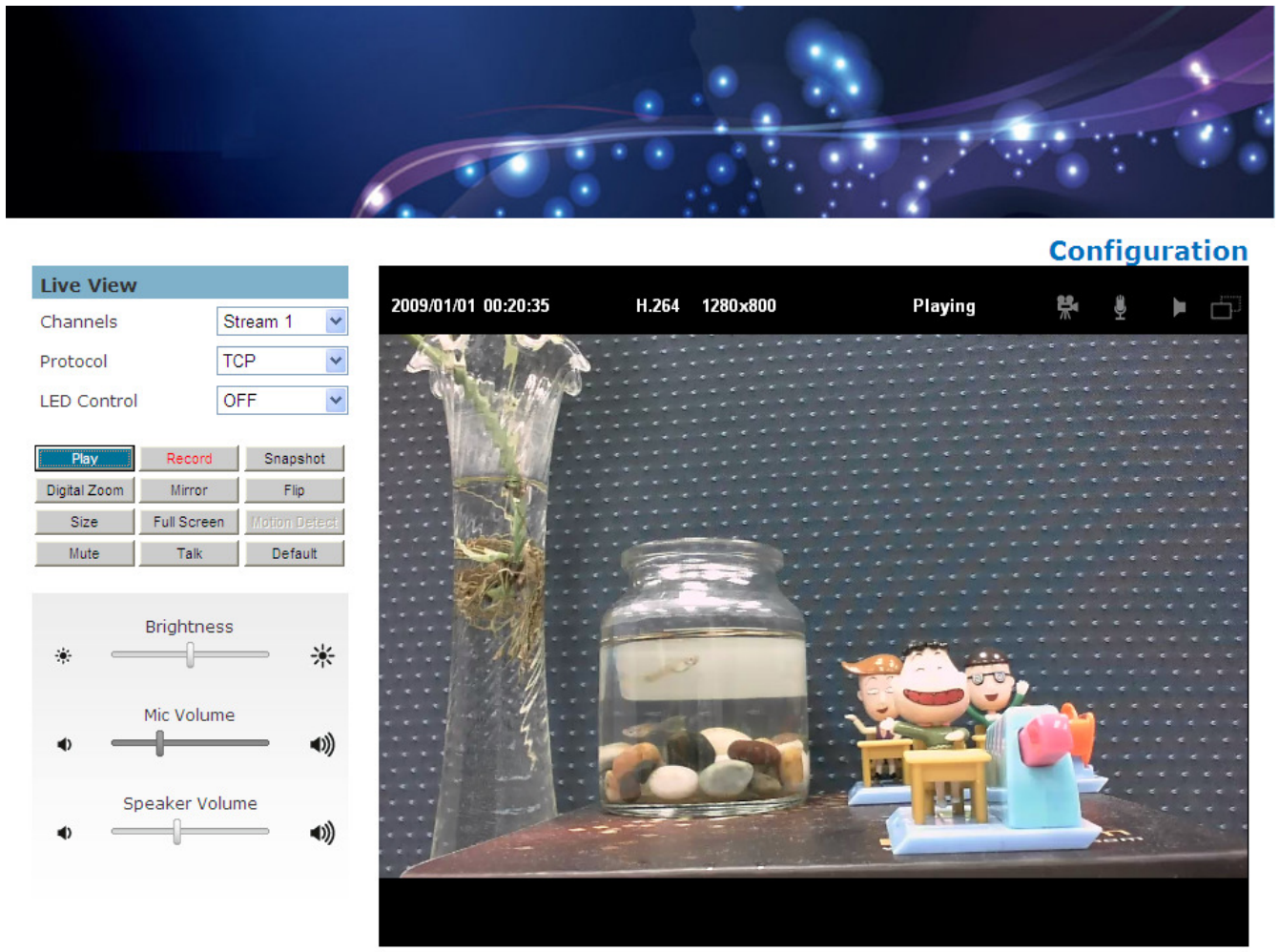
Installing the Plug-In

For initial access to the camera in Windows, the web browser may ask the administrator for permission to install a new plug-in for 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 attempt to install or run the program. This plug-in has been certified and is used to display the video in the browser. Click on  to proceed. If the web browser does not allow the administrator to continue the installation, check the Internet security options and lower the security levels or contact the network supervisor or IT for help.

- (1)  **NOTE** – After upgrading firmware of the camera, if an error occurred or the plug-in fails to install. Please refer to the following steps: Remove the “NetworkCamera Media Control Embedded” via the path “Control Table”->”Add/Remove program”.
- (2) Restart the computer.
- (3) Connect to the camera
- (4) Install the permission again.



Live View



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

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 traffic and images may be broken. Activate UDP connection time - sensitive responses are more important than video quality.

(*) **LED Control** – Use the drop-down menu to adjust the brightness of the camera's LED.



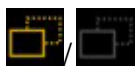
Recording on/off - Displays the status of recording video



MIC on/off - Displays the status of the MIC volume



Speaker on/off - Displays the status of the Speaker volume



MD on/off - Displays the status of Motion Detection

Play or Stop - Play or stop the video.

Record - Record video to a computer.

Snapshot - Capture and save still images.

Digital Zoom - Enable the digital zoom operation.

Mirror - Horizontally reflect the display of the live video.

Flip - Vertically reflect the display of the live video.

Size - View the object in real size. Click again to switch back to normal mode.

Full Screen - Switch to full screen mode. Press the “Esc” key to return to normal mode.

Motion Detection - Enable the motion detection alert function.

Mute – Turn off the sound.

Talk – Communicate through the camera using the computer MIC.

Default – Reset to default.

- **Brightness** - Drag the slider bar to adjust the image brightness.
- **Mic volume** - Drag the slider bar to adjust the microphone volume.
- **Speaker volume** - The built-in speaker will play sound from an audio clip from the computer microphone when it is enabled.

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




NOTE

1. The <Control Panel> functions have no effect on the recorded video. Whatever changes are made to the <Control Panel> **will not** be applied to the recorded video.
2. The LED is not for continuous use and has an estimated life span of 30,000 hours.
3. The LED cannot be replaced.

Configuration

Click <**Configuration**> on the top right corner of the main page to make changes to the camera settings. Please refer to Appendix A “Comparison datasheet for different product series” for further comparison.

 **NOTE** - Only Administrators can access the Configuration page.

Camera/Video/Audio

Camera

Camera Settings



Brightness - Drag the slider bar to adjust the image brightness level from -5 to +5.

Contrast - Drag the slider bar to adjust the image contrast level from -5 to +5.

Sharpness - Drag the slider bar to adjust the image sharpness level from -5 to +5.

Saturation - Drag the slider bar to adjust the image saturation level from -5 to +5.

Exposure Control	Mirror and Flip	Color Effect
<input type="radio"/> Sport	<input type="checkbox"/> Mirror	<input checked="" type="radio"/> Color
<input type="radio"/> Normal	<input type="checkbox"/> Flip	<input type="radio"/> Black & White
<input type="radio"/> Night Vision	Flicker Free	
<input checked="" type="radio"/> User Defined	<input type="radio"/> Outdoor Mode	
<input type="checkbox"/> AGC <input type="text" value="1X"/>	<input type="radio"/> Indoor Mode - 50Hz	
<input type="checkbox"/> Shutter Speed <input type="text" value="Normal"/>	<input checked="" type="radio"/> Indoor Mode - 60Hz	
<input type="checkbox"/> AE Lock		
<input type="button" value="Apply"/> <input type="button" value="Cancel"/>		

Exposure Control

Sport – Select this option when monitoring rapidly moving objects.

Normal – Select this option for normal monitoring conditions.

Night Vision – Select this option when monitoring at night or in low light conditions.

User Defined – Select this option to define the exposure manually.

AGC (Auto Gain Control) - The AGC can be set from 1X to 5X. Set the Gain Rate higher for better video illumination. 5X provides the best video illumination.

Shutter Speed

Fast – For high activity exposure.

Normal – For normal exposure.

Slow – For night vision exposure.

AE Lock (Auto Exposure) - The camera will automatically adjust the exposure to changes in ambient light.



NOTE – A higher gain rate may cause fast moving images to judder or blur.

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.

Flicker-Free – Eliminate the problem of flicker.

Click the Radio button to select outdoor or indoor mode based on the conditions.

Color Effect - Select to display color or black and white video streams.

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

Video

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

Stream	
Stream 1:	<input checked="" type="checkbox"/>
Video Codec	H.264
Video Resolution	1280x800(WXGA)
Frame Rate	15 fps
<input type="radio"/> Quality	1500Kbps
<input checked="" type="radio"/> Bitrate	
Quick settings	For Mobile Streaming
Stream 2 :	<input checked="" type="checkbox"/>
Video Codec	MJPEG
Video Resolution	1280x800(WXGA)
Frame Rate	15 fps
<input checked="" type="radio"/> Quality	3
<input type="radio"/> Bitrate	
HTTP Transport	<input checked="" type="checkbox"/>
Quick settings	For Mobile Streaming


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 or 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 bitrate - Choose either “quality” or “bitrate” to control the video quality with H.264 or MPEG4. Only “quality” can be chosen when MJPEG is selected. Set the bitrate higher for better video quality.

 **NOTE** - a higher bitrate will use up more network bandwidth. The video quality can be set between Level 1 to Level 6, with Level 6 producing the best image quality.

Quick Settings: For Mobile Streaming – Click to adjust the video codec to MPEG4 with 320x192 (QVGA) resolutions for the video that can be viewed in mobile phone.

HTTP Transport – If MJPEG is used for Video Codec, users can enable HTTP Transport protocol for video communication.

 **NOTE** – HTTP Transport is for non-IE browser users only.

Video Overlay

Video Overlay	
Timestamp	<input type="checkbox"/> Left-Top ▼
Text	<input type="checkbox"/> Left-Top ▼ <input type="text"/>


Timestamp

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

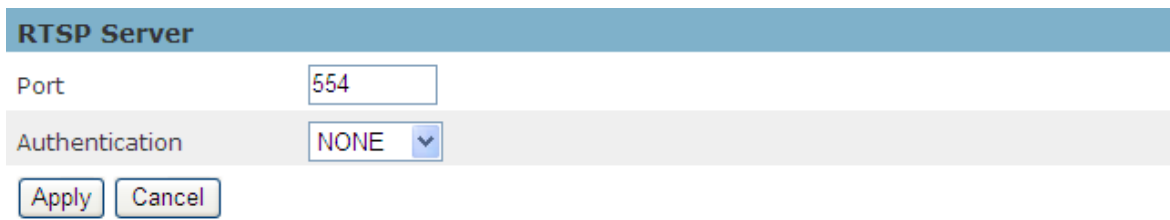
Text

To make a note about the camera, check to enable and select the display position from the drop-down menu. Enter a video description in the text box.

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

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

RTSP Server



RTSP Server

Port

Authentication

To utilize RTSP authentication, the user must first set a password for the camera. RTSP (Real-Time Streaming Protocol) controls the delivery of streaming media. By default the port number is set to 554.

Authentication - Depending on the network security requirements, the 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.

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

Audio Configuration

The administrator can set up two separate streams for the 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.

Audio Configuration	
Stream 1	<input type="checkbox"/> Audio Codec G.711
Stream 2	<input type="checkbox"/> Audio Codec G.711

Advanced Settings	
Camera MIC	MIC Type Built-in MIC
Camera Speaker	<input checked="" type="checkbox"/> Volume 50%
Echo Cancellation	<input type="checkbox"/>

Advanced Settings(*)

Camera MIC (*) - The Network Camera supports two way audio communication so that operators can transmit and receive audio simultaneously. By using the Network Camera's built-in microphone and an external speaker, users can communicate with people who are within range of the Network Camera.

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

Echo Cancellation (*) - Enable to avoid echo.

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

Multicast

Multicast

Stream 1

Enable

Multicast Address Port

Stream 2

Enable

Multicast Address Port

Multicast sends a video stream to the multicast group address and allows multiple clients to access 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 “Enable” to enable Multicast stream 1 or Multicast stream 2. The default value for the multicast address and port are 234.1.2.3 and 10000. Use different port numbers for different streams. It is recommended to use the default values.



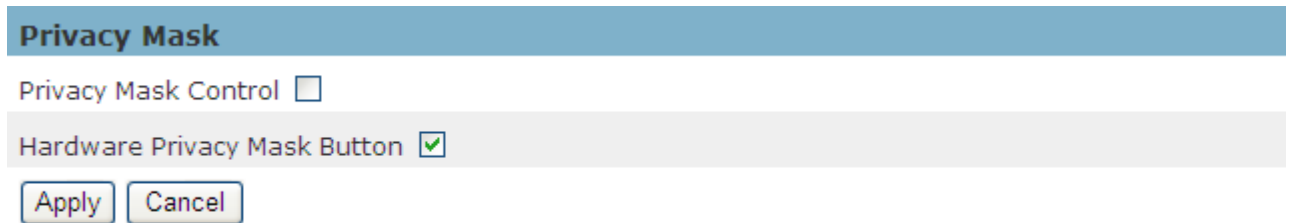
NOTE - Using the IP address of the Network Camera enables access to the video.

Example: `rtsp://192.168.1.1/channel1` (Not supported by [IE](#), [Windows media player](#). It is recommended to use: [VLC media player](#))

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

Privacy Mask Control(*)

The Cube camera is equipped with a privacy feature which allows users to mask the camera's live view. A black screen will be displayed in the place of the live view window. This application is particularly useful when the camera is being used for home surveillance. With the privacy button, users can have privacy while they are going about their daily life.



The screenshot shows a settings window titled "Privacy Mask". It contains two toggle options: "Privacy Mask Control" which is currently disabled (checkbox is empty), and "Hardware Privacy Mask Button" which is currently enabled (checkbox has a green checkmark). At the bottom of the window are two buttons: "Apply" and "Cancel".

Privacy Mask Control(*) – Enable the Privacy Mask control to remotely mask the camera's live view.

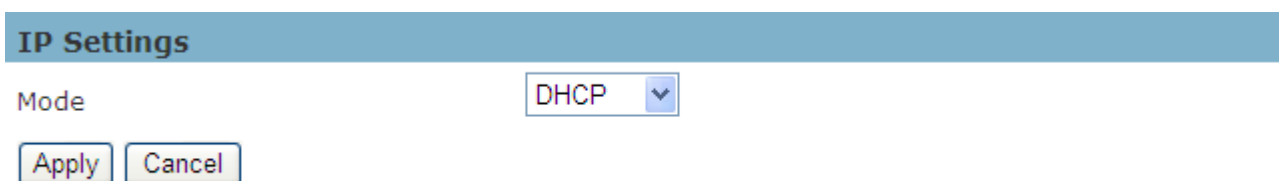
Hardware Privacy Mask Button(*) *) – Click to enable the privacy mask button on the camera. If this feature is not enabled, the user will not be able to use the privacy mask button.

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

Network

IP Settings

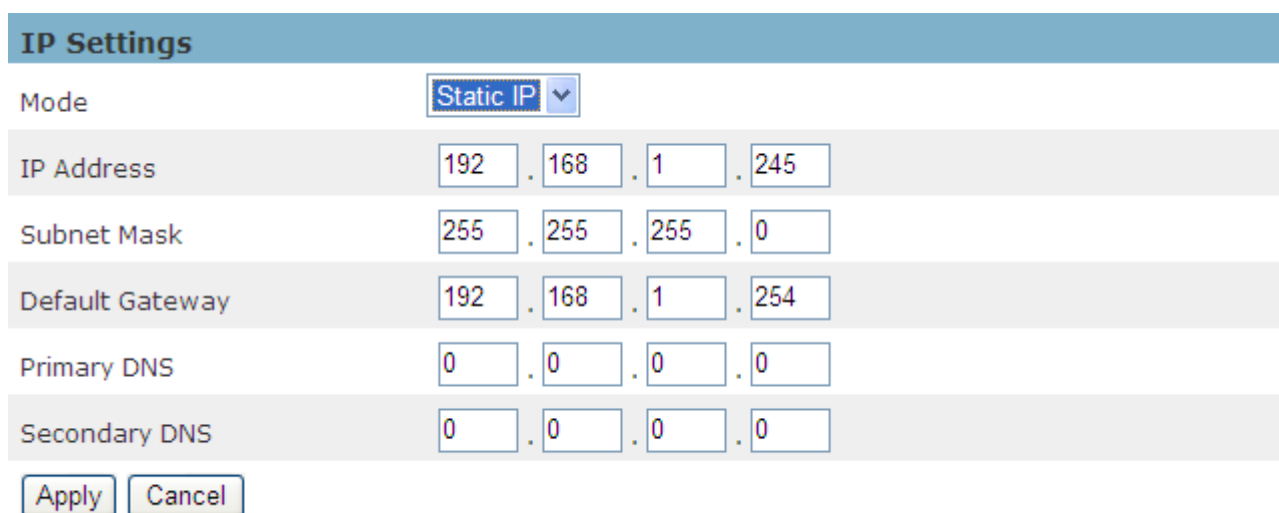
This section explains how to configure a wired network connection for the camera. There are several ways to setup the camera over the Internet: (1) obtain an available dynamic IP address assigned by a DHCP server, (2) use a static IP address, or (3) use PPPoE (Point-to-point over Ethernet). Select the desired setup mode from the IP settings drop-down menu.



The screenshot shows the 'IP Settings' configuration page. At the top, there is a blue header with the text 'IP Settings'. Below the header, the 'Mode' is set to 'DHCP' in a dropdown menu. At the bottom of the form, there are two buttons: 'Apply' and 'Cancel'.

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.

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




The screenshot shows the 'IP Settings' configuration page with 'Mode' set to 'Static IP'. The form includes several input fields for network configuration: IP Address (192, 168, 1, 245), Subnet Mask (255, 255, 255, 0), Default Gateway (192, 168, 1, 254), Primary DNS (0, 0, 0, 0), and Secondary DNS (0, 0, 0, 0). At the bottom, there are 'Apply' and 'Cancel' buttons.

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

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

IP Settings

Mode	PPPoE ▼
Username	<input type="text"/>
Password	<input type="password"/>
<input type="button" value="Apply"/> <input type="button" value="Cancel"/>	

3. **PPPoE** (Point-to-point over Ethernet): Use this mode if connecting to the Internet through a DSL Line.  **NOTE** – This feature 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 **Cancel** 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 to enable this function and enter an UPnP name that the camera will appear as on the intranet.

UPnP	
<input checked="" type="checkbox"/> UPnP Name	<input type="text" value="WGP-100-CB-570d"/>
<input type="button" value="Apply"/> <input type="button" value="Cancel"/>	

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

DDNS (dynamic domain name service)

DDNS links a domain name to an IP address, allowing users to easily access their camera even with a changing IP address. The network cameras are compatible with two DDNS service providers (1) DynDNS, and (2) TZO.  **NOTE** - Before utilizing this function, please apply for a dynamic domain account from a DDNS provider.

DDNS	
Enable	<input type="checkbox"/>
Username	<input type="text"/>
Password	<input type="password"/>
Hostname	<input type="text"/>
TZO	
Enable	<input type="checkbox"/>
Email Address	<input type="text"/>
TZO Password	<input type="password"/>
Domain Name	<input type="text"/>
<input type="button" value="Apply"/>	<input type="button" value="Cancel"/>

DynDNS – Enable the DynDNS to give the camera a fixed host and domain name. Refer to the DynDNS website (www.dyndns.com) to apply for a dynamic domain account. When an account has been created, enter the username, password and hostname.

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

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

HTTP/HTTPS

HTTP/HTTPS

HTTP	
Enable	<input checked="" type="checkbox"/>
Port	<input type="text" value="80"/>

HTTPS	
Enable	<input type="checkbox"/>
Port	<input type="text" value="443"/>

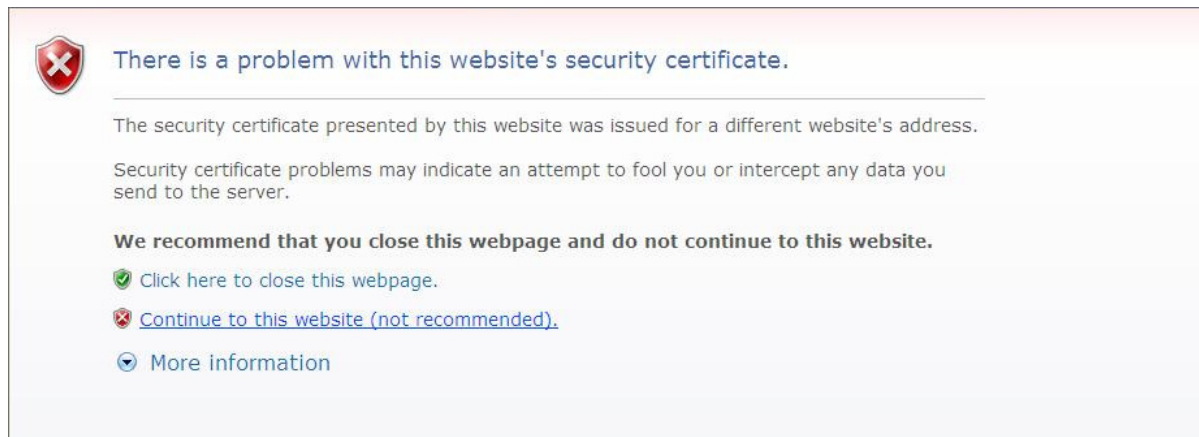
HTTP – (HyperText Transfer Protocol) - This protocol allows for TCP protocol quality without having to open specific ports for streaming. Users inside a firewall can utilize this protocol to allow data to stream through..

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.

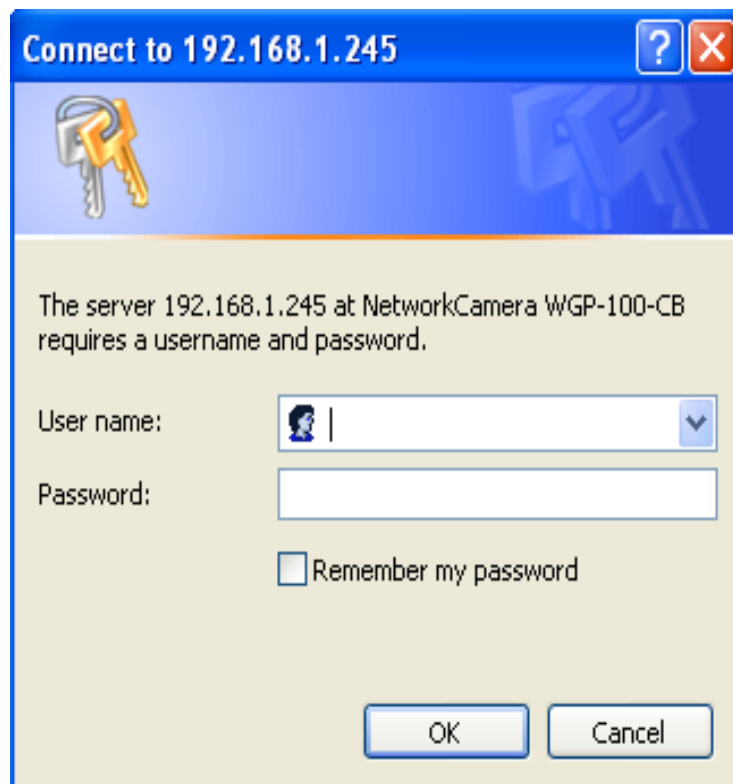
Click "Enable" to enable and **Apply** to apply settings or **Cancel** to cancel changes.

To enable HTTPS, users have to create and install a certificate.

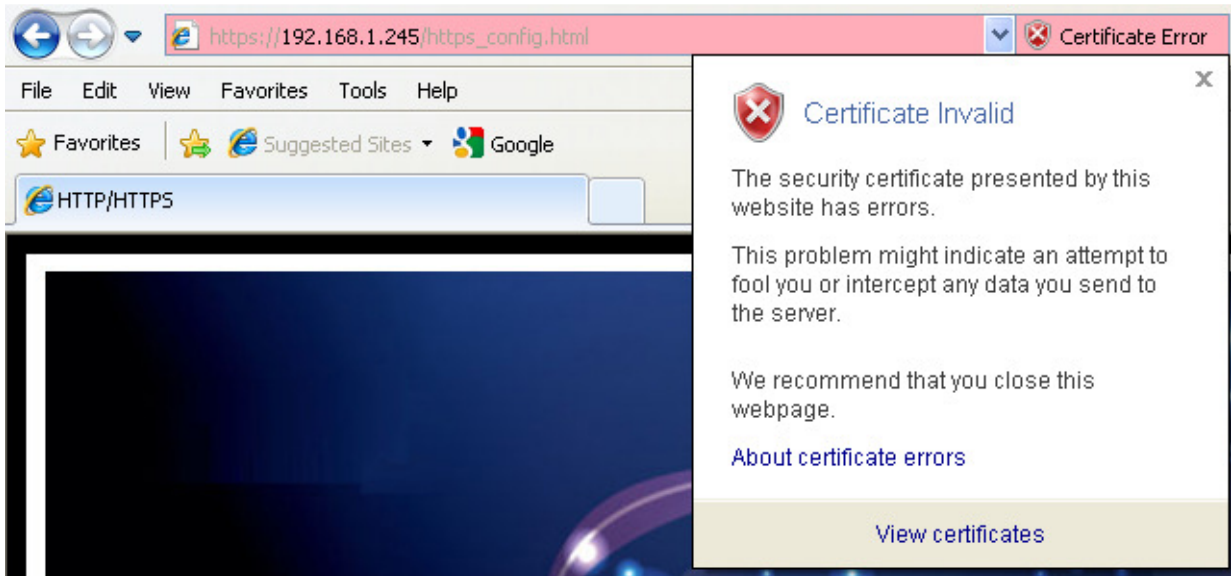
1. Click "Continue to this website" to install.



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.

Wireless (*)

These settings control how a Network Camera interacts with a wireless network. Users can identify the wireless network and enable wireless encryption.

 **NOTE** – This function is only available for Wi-Fi models.


Basic Settings(*)



Network Name	Mode	Security	Channel	Signal Strength	Action
HSPA_ROUTER_Test	11b/g/n	WPA2PSK/AES	1	47%	Select
Test_WillChen	11b/g	WPA-PSK/WPA2-PSK	1	73%	Select
	11b/g/n	WPA-PSK/WPA2-PSK	1	63%	Select
Test-Ginnie_WRT110	11b/g/n	WPA1PSKWPA2PSK/AES	1	57%	Select
Test_Dudu 2.4G	11b/g/n	NONE	1	94%	Select
TestFAE123456	11b/g/n	NONE	1	100%	Select

Network Name (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.

Wireless devices have a default SSID set by the factory. NetworkCamera wireless products use **NetworkCamera** as the default name. It is recommended that users rename their SSID to something unique in order to distinguish their wireless device from surrounding wireless networks.

 **NOTE** - Be careful when including personal information when naming the SSID as it can

be viewed by anyone browsing for wireless networks.

Security - 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 that the highest level of encryption supported by the network equipment be enabled.

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

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

WEP- Wired Equivalent Privacy (WEP) is a basic encryption method that transmits network broadcast messages using radio signals. It is not as secure as WPA.

The screenshot shows a network configuration window with the following fields and controls:

- Network Name (SSID):** A text input field containing "NetworkCamera".
- Security:** A dropdown menu currently set to "WEP".
- TX Key:** A dropdown menu currently set to "1".
- WEP Encryption:** A dropdown menu currently set to "40/64 bits (10 hex digits)".
- Key 1, Key 2, Key 3, Key 4:** Four empty text input fields for entering WEP keys.
- Authentication:** A dropdown menu currently set to "Open System".
- Buttons:** "Apply" and "Cancel" buttons at the bottom left, and a "Site survey" button at the top right.

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 Shared Key authentication, the sender and recipient use a WEP key for authentication. With Auto authentication, the sender and the recipient do not use a WEP key for authentication.

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

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

Network Name (SSID)	<input type="text" value="NetworkCamera"/>	<input type="button" value="Site survey"/>
Security	<input type="button" value="WPA-Personal"/>	<input type="button" value="v"/>
Encryption	<input type="button" value="TKIP"/>	<input type="button" value="v"/>
Shared Key	<input type="text"/>	(8 to 63 characters)
<input type="button" value="Apply"/> <input type="button" value="Cancel"/>		

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.

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

WPA2-Persona I - WiFi Protected Access (WPA2-Personal)

Network Name (SSID)	<input type="text" value="NetworkCamera"/>	<input type="button" value="Site survey"/>
Security	<input type="text" value="WPA2-Personal"/>	
Encryption	<input type="text" value="AES"/>	
Shared Key	<input type="text"/>	(8 to 63 characters)
	<input type="button" value="Apply"/>	<input type="button" value="Cancel"/>

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.

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



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.

Advanced Settings(*)

Advanced Settings

Action Enable Disabled

Network Mode

Radio Band

WMM (802.1e QoS)

Action – Click to enable or disable the function.

Network Mode - From the drop-down menu, select the wireless standard running on the network.

- If there are Wireless-B, Wireless-G and Wireless-N (2.4GHz) devices on the network, use the default setting, **BGN-Mixed**.
- If there are Wireless-B and Wireless-G devices on the network, select **BG-Mixed**.
- If there are only Wireless-B devices on the network, select **Wireless-B Only**.
- If there are only Wireless-G devices on the network, select **Wireless-G Only**.
- If there are only Wireless-N (2.4GHz) devices on the network, select **Wireless-N Only**.

Radio Band - The settings are available for the Auto-20/40MHz channel and Standard-20 MHz channel.

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 on the network must support Wireless WMM. The default setting is **Enable**. To disable this feature, select **Disable**.

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

Wi-Fi Protected Setup(*)

Wi-Fi Protected Setup

Enter the PIN number **45891649** into the AP device's WPS interface.

PIN Mode Enter the AP's SSID

Click Register to begin WPS.

Wi-Fi Protected Setup Status Not Configured

Use this method if the client device has a Wi-Fi Protected Setup PIN number.

1. Enter the network name from the device in the field.
2. Click <Register> to start WPS.

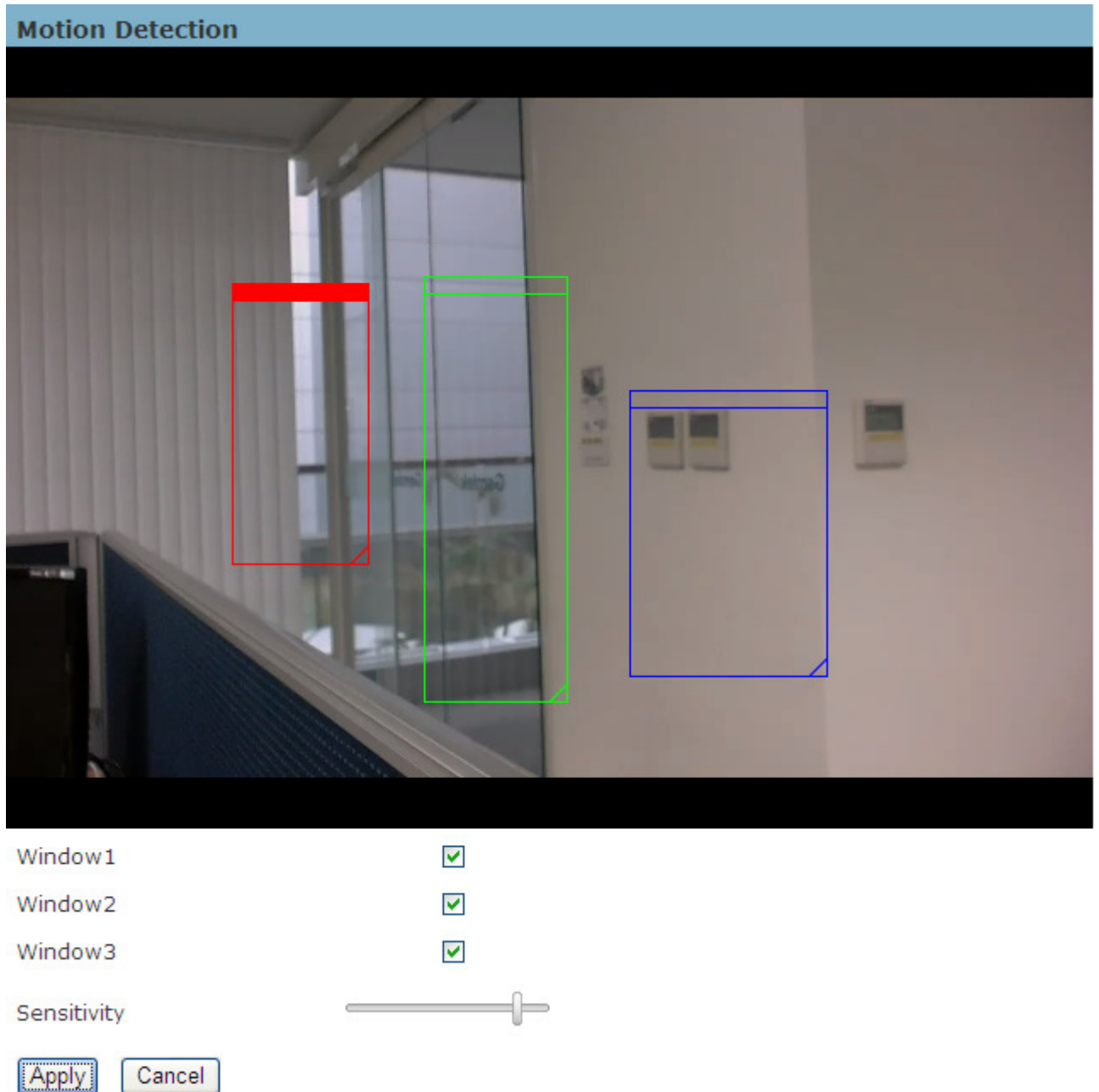
Click **Apply** to apply settings or **Cancel** to cancel changes.

Event

Motion Detection

Motion can be detected by measuring changes in the speed or vector of an object or objects in the monitored area. This section explains how to configure the Network Camera to enable motion detection.

Motion Detection



The interface displays a camera feed of an office interior with three detection windows overlaid: a red window on the left, a green window in the center, and a blue window on the right. Below the feed, the configuration settings are as follows:

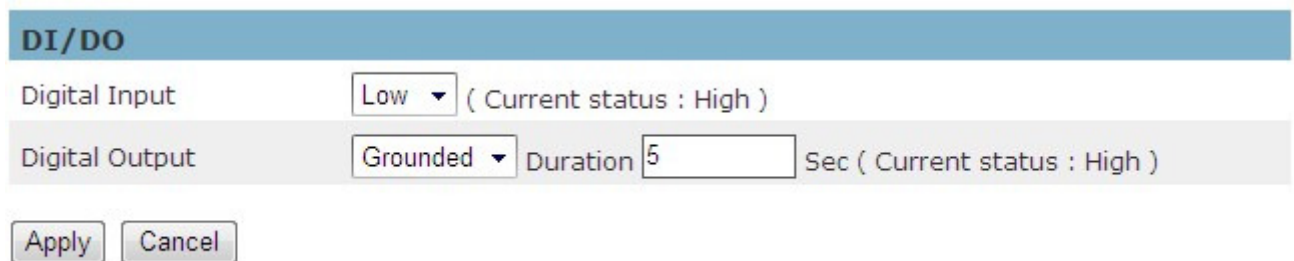
Window1	<input checked="" type="checkbox"/>
Window2	<input checked="" type="checkbox"/>
Window3	<input checked="" type="checkbox"/>
Sensitivity	<input type="range"/>

Use this setting to enable and define the motion detection windows. The user can define up to three areas on the live view window for motion detection.

1. Select <Window1>, <Window2>, or <Window3> 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. Users can use this feature as a trigger source to send photos or videos to a remote server via email or FTP.

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

DI/DO(*)



DI/DO

Digital Input (Current status : High)

Digital Output Duration Sec (Current status : High)

The photo above shows how to modify the digital input and digital output. If the current status is set to high, when an event occurs, the digital output will send a notification to the user depending on the notification settings.

PIR (*)

PIR Settings	
Enable	<input type="checkbox"/> 50 %
LED Control	
LED Control	<input checked="" type="radio"/> Keep active during event
	<input type="radio"/> Keep active for <input type="text" value="0"/> Sec
Light	Activate <input type="text" value="On"/>
	Inactivate <input type="text" value="OFF"/>
<input type="button" value="Apply"/> <input type="button" value="Cancel"/>	

PIR Settings - The PIR (Passive InfraRed) sensor measures infrared light radiating from objects in its field of view. This can be used to detect a moving object, such as a person, in dimly lit areas.

Enable and adjust the sensitivity of the PIR Sensor from the drop down menu. The sensitivity can be set from 10 - 100%; with the default sensitivity set at 50%. Higher sensitivity levels will increase the range of the PIR Sensor. When the sensitivity level is set to 100%, the PIR sensor will be able to detect moving objects within six meters.

LED Control

LED Control - select "Keep active during event" or "Keep active for" a specific amount of time when an event occurs.

Light - The LED on the front of the camera can be set to flash at a configurable interval when an event is triggered. From the Activate drop down menu, select a percentage level for the LED to brighten to. When the LED reaches the selected percentage, it can be configured to fade off or to turn off immediately. Select the option from the Inactive menu.

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

Notifications

Notifications are the reactions that occur in response to particular events. Users can set their notifications up so that when motion is detected, the Network Camera sends buffered images to an FTP server, Samba, SMTP, HTTP or an audio clip can be played. In this page, you can specify which notification messages will be sent when a trigger is activated.

Notification Settings

- FTP Notification
- Samba Notification
- SMTP Notification
- HTTP Notification
- SD card notification : There is no SD card mounted. Reload [here](#).
- Play Audio Clip : There is no available audio clip. Configure one [here](#).

Event Schedule

Scheduled Event Always Recurrence Pattern

Time Start : ~ Duration Minutes

Date Sun Mon Tue Wed Thu Fri Sat

Notification Settings

When an event is triggered, you can specify what kind of action will be performed. You can attach a video clip or snapshot to your email address, FTP site, and samba or use URL to send HTTP requests as the notification.



NOTE - Refer to the Audio Clip section for more details about the “Play Audio Clip.”

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

FTP Settings

File Transfer Protocol (FTP) is used as an application component to automatically transfer files for a programa internal functions. Select “Primary FTP Server” from the Server Selection drop down menu to send media files to a FTP server when an event is triggered. Enter the FTP IP address or hostname. By default, the FTP port server is set to 21. Enter the account name and password to configure the settings. There are two choices of media types available; video clip and Snapshot.

FTP	
Server Selection	Primary FTP Server <input type="button" value="v"/>
FTP Address	IP Address <input type="button" value="v"/> 0 . 0 . 0 . 0
FTP Port	21
Account Name	<input type="text"/>
Account Password	<input type="text"/>
Attachment	<input type="radio"/> Video Clip <input checked="" type="radio"/> Snapshot
<input type="button" value="Apply"/> <input type="button" value="Test"/> <input type="button" value="Cancel"/>	

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

SMTP Settings

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. Multiple recipients should be separated by commas.

My name - The title shown in the email.

Subject - Enter the subject of the email.

Attachment - There are two choices of media types available; video Clip and Snapshot.

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 menu.

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

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

SMTP	
From	<input type="text"/>
To	<input type="text"/>
CC	<input type="text"/>
My Name	<input type="text"/>
Subject	<input type="text"/>
Attachment	<input type="radio"/> Video Clip <input checked="" type="radio"/> Snapshot
Server Selection	Primary Email Server <input type="button" value="v"/>
SMTP Server	<input type="text"/>
SMTP Port	<input type="text" value="25"/>
Authentication	LOGIN <input type="button" value="v"/>
Email Account	<input type="text"/>
Email Password	<input type="text"/>
<input type="button" value="Apply"/> <input type="button" value="Test"/> <input type="button" value="Cancel"/>	

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

Samba Settings

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

Server 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.

Shared Folder - Enter the shared folder of the Samba server.

Attachment - There are two choices of media types available; video Clip and Snapshot.

Samba	
Server Address	<input type="text" value="IP Address"/> . <input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/>
Username	<input type="text" value="guest"/>
Password	<input type="password" value="•••••"/>
WorkGroup	<input type="text"/>
Shared Folder	<input type="text"/>
Attachment	<input type="radio"/> Video Clip <input checked="" type="radio"/> Snapshot
<input type="button" value="Apply"/> <input type="button" value="Test"/> <input type="button" value="Cancel"/>	

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

HTTP Settings

Select this option to send the media files via an HTTP notification when an event is triggered.

HTTP	
URL	<input type="text"/>
Message	<input type="text"/>
Username	<input type="text"/>
Password	<input type="text"/>
<input type="button" value="Apply"/>	<input type="button" value="Cancel"/>

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=C1100>

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 **Cancel** to cancel changes.

Audio Clip(*)

Audio Clip List	
File Name	Control
Alarm.wav	<input type="button" value="Play"/> <input type="button" value="Stop"/> <input type="button" value="Delete"/>

Audio Recording Setting	
File Name	<input type="text"/>
Duration	<input type="text" value="5"/> <input type="button" value="v"/> sec
<input type="button" value="Record"/>	

Audio clips can be recording and played when an event occurs.

To record a new clip using the camera's microphone:

1. File Name - Enter a file name.
2. Duration - Enter the number of recording seconds.
3. Click **Record** to record the new audio clip.
4. The new audio clip will appear on the audio clip list.
5. Select an audio clip file from the Audio Clip List.
 - a. Play- Select to hear the audio clip
 - b. Stop- Select to stop playing the audio clip.
 - c. Delete- Select to delete an audio clip.

Video Clip(*)

Video Clip

Video Clip	
Pre-Alarm Buffer	<input type="text" value="5"/> Seconds (0-10)
Post-Alarm Buffer	<input type="text" value="5"/> Seconds (0-30)
Maximum Buffer Size	<input type="text" value="1024"/> Kbytes (128-1500)
<input type="button" value="Apply"/> <input type="button" value="Cancel"/>	

Video Clip can adjust the recording time and maximum buffer size before and after the event.

For example, if you set Pre-Alarm Buffer=5 seconds, the camera will record video 5 seconds before the motion was detected.

1. Pre-Alarm Buffer-The number of seconds recorded before detecting the event.
2. Post-Alarm Buffer-The number of seconds recorded after detecting the event.
3. Maximum Buffer Size-The Maximum Size used per recording.

SD card(*)

Scheduled Event(*)

Schedule						
Enable	Name	Event	Start	End	Date	Action
<input checked="" type="checkbox"/>	asdf	Record	16:00	10	Mon	<input type="button" value="Edit"/> <input type="button" value="Delete"/>
<input type="button" value="New"/>						

Click **New** to open the recording setting page.

On this page, you can define the recording schedule and recording capacity.

Schedule						
Enable	Name	Event	Start	End	Date	Action
Enable	<input type="checkbox"/>					
Name	<input type="text"/>					
Record	Record <input type="button" value="v"/>					
Time	Start <input type="text" value="00"/> : <input type="text" value="00"/> ~ Duration <input type="text"/> Minutes					
Date	Sun <input type="checkbox"/> Mon <input type="checkbox"/> Tue <input type="checkbox"/> Wed <input type="checkbox"/> Thu <input type="checkbox"/> Fri <input type="checkbox"/> Sat <input type="checkbox"/>					
<input type="button" value="Add"/> <input type="button" value="Cancel"/>						

Select **Enable**; the system begins recording and sends recorded files to the Network Storage.

Name - Enter a descriptive name for the recording setting.

Record - Select from the drop-down menu *for the recording event*

Time - Specify the recording duration.

- Select the recording time in a 24-hr time format.

- Select the days on a weekly basis.

When complete, Click Add to have the recording name appear on the recording list on the recording page. To **edit** a recording setting; click Edit to modify. Upon completion, click update to finish the modification. To remove a recording setting from the list, select a recording name from the list and click **Delete**. Click New to add more events.

Storage Management (*)

Storage Management is used to view all of the recorded files on the (Micro)-SD/SDHC card.

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

Local Storage Information

Total Capacity	972MB
Used Space	381MB
Available Space	590MB
Safely Remove Card	<input type="button" value="Reload"/> <input type="button" value="Remove"/>
Folder	IPCAM_0001 <input type="button" value="v"/>
Automatic Recycle	<input checked="" type="checkbox"/>
Offline Record	<input type="checkbox"/>
<input type="button" value="Apply"/> <input type="button" value="Cancel"/>	

Storage Management

<input type="checkbox"/>	File Name ▲	Size	Time	Download
<input checked="" type="checkbox"/>	20100830Mon1812_schedule.mp4	5,520KB	2010/08/30 Mon 18:14:01	<input type="button" value="Download"/>
<input type="checkbox"/>	20100830Mon1815_schedule.mp4	2,776KB	2010/08/30 Mon 18:16:00	<input type="button" value="Download"/>

Click **Remove** to safely remove the storage device.

Select a folder to list the recorded files.

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

Select a file and click **Download** to save the file in the desired folder.

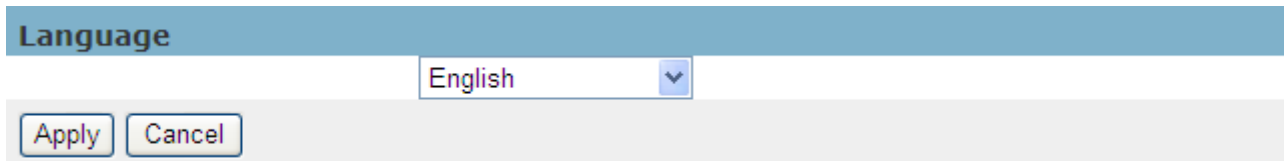
Automatic Recycle – Enable to automatically overwrite old files when the available space remaining on the (Micro)-SD/SDHC card is less than 100MB. If the Automatic Recycle function is disabled, there must be at least 50MB hard drive space available for the camera to be able to record video files.

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

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

Maintenance

Language



Select the desired language from the drop-down menu.

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

User Management

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

Privilege Settings - 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."

This is permanent and can not be deleted.

Access rights are divided as follows: (Administrator, Viewer and Remote Viewer).

Administrator - user has access to view and change the Configuration page. Users with administrative privileges can change other user's access rights and delete user accounts.

Click **Delete** or **Update** to delete or modify a user's account.

Viewer - user can only access the main page for live viewing.

Remote Viewer - user can only access the main page for live viewing using TCP protocol.

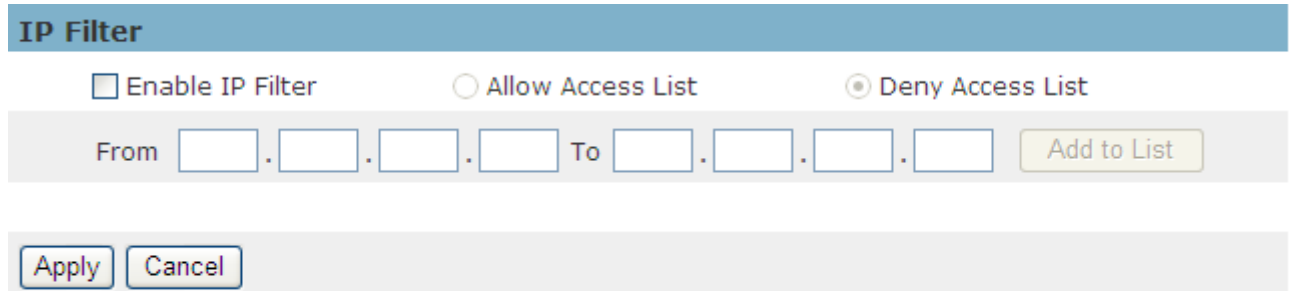
Administrators can add up to 10 user accounts.

Privilege Settings

Index	Username	Password	Confirm Password	Privilege	Action		
1	admin	●●●●●	●●●●●	Administrator ▼	Add	Delete	Update
2	<input type="text"/>	<input type="text"/>	<input type="text"/>	Viewer ▼	Add	Delete	Update
3	<input type="text"/>	<input type="text"/>	<input type="text"/>	Viewer ▼	Add	Delete	Update
4	<input type="text"/>	<input type="text"/>	<input type="text"/>	Viewer ▼	Add	Delete	Update
5	<input type="text"/>	<input type="text"/>	<input type="text"/>	Viewer ▼	Add	Delete	Update
6	<input type="text"/>	<input type="text"/>	<input type="text"/>	Viewer ▼	Add	Delete	Update
7	<input type="text"/>	<input type="text"/>	<input type="text"/>	Viewer ▼	Add	Delete	Update
8	<input type="text"/>	<input type="text"/>	<input type="text"/>	Viewer ▼	Add	Delete	Update
9	<input type="text"/>	<input type="text"/>	<input type="text"/>	Viewer ▼	Add	Delete	Update
10	<input type="text"/>	<input type="text"/>	<input type="text"/>	Viewer ▼	Add	Delete	Update

IP Filter

The IP Filter is used to filter the IP addresses that are able to access the network camera. Enable the IP Filter and select a range of IP addresses that are either allowed or denied access to the server. Click **Add to List** to add the IP range to the IP filter list.



The screenshot shows the 'IP Filter' configuration panel. At the top, there is a blue header with the text 'IP Filter'. Below the header, there are three radio button options: 'Enable IP Filter' (unchecked), 'Allow Access List' (unchecked), and 'Deny Access List' (checked). Underneath these options, there is a row of input fields for IP addresses. It starts with 'From' followed by four empty boxes for the IP octets, then 'To' followed by another four empty boxes. To the right of these fields is a yellow button labeled 'Add to List'. At the bottom of the panel, there are two buttons: 'Apply' and 'Cancel'.

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

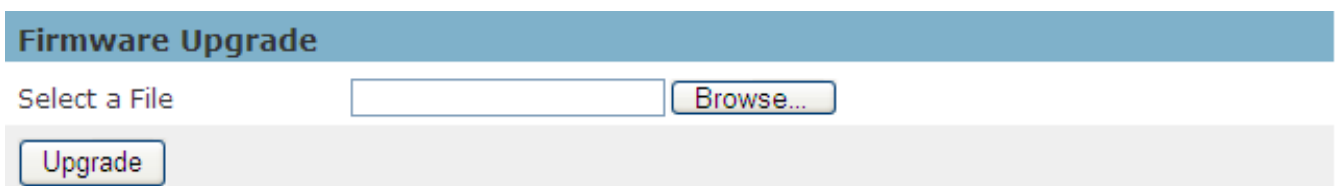
Firmware Upgrade

This feature allows the user to upgrade the camera firmware. It will take a few minutes to complete the process.



NOTE - Do not power off the camera or camera during the upgrade.

Upgrade - Click **Browse...** and specify the firmware file. Click **Upgrade**. The camera will begin upgrading and will reboot automatically when the upgrade is finished.



The screenshot shows the 'Firmware Upgrade' configuration panel. It has a blue header with the text 'Firmware Upgrade'. Below the header, there is a label 'Select a File' followed by an empty text input box and a button labeled 'Browse...'. At the bottom of the panel, there is a button labeled 'Upgrade'.

Configuration

This feature allows the user 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.

Import / Export

Export

Import Please select a file to import

Reset to Default

Reset to Default

Reset to Default

Press the Apply button to restore the network camera to factory default except settings in

Language settings

Date and Time settings

IP settings

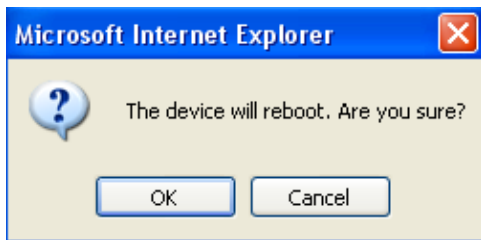
Click **Apply** to restore the network camera to factory default settings.

In addition, you can choose whether or not to reset the language, data and time, and IP settings.

Reboot

Reboot

This feature will reboot the camera. Click **Apply** to begin. A message will pop up asking “The device will reboot. Are you sure?” Click “OK” to continue. The camera will take about one minute to reboot.



System

System Log

Log – Set up the camera to record a system log when an event is triggered.

System Log

```
LOG_WARNING-Wireless :Wireless connection for SSID '[NetworkCamera]' is down, Thu Jan 1 00:00:08 2009
LOG_NOTICE-WebServer :User '[admin]' logged in to [web server], Thu Jan 1 00:06:49 2009
LOG_INFO-stream :Channel [1] started streaming to host '[192.168.1.10]', Thu Jan 1 00:06:52 2009
LOG_INFO-stream :Channel [1] stopped streaming to host '[192.168.1.10]', Thu Jan 1 00:07:00 2009
LOG_INFO-stream :Channel [1] started streaming to host '[192.168.1.10]', Thu Jan 1 00:54:21 2009
LOG_INFO-stream :Channel [1] stopped streaming to host '[192.168.1.10]', Thu Jan 1 00:59:35 2009
LOG_INFO-stream :Channel [1] started streaming to host '[192.168.1.10]', Thu Jan 1 00:59:42 2009
LOG_INFO-stream :Channel [1] stopped streaming to host '[192.168.1.10]', Thu Jan 1 01:03:28 2009
LOG_INFO-stream :Channel [1] started streaming to host '[192.168.1.10]', Thu Jan 1 01:03:47 2009
LOG_INFO-stream :Channel [1] stopped streaming to host '[192.168.1.10]', Thu Jan 1 01:03:50 2009
```

Retrieve Save to File

This page displays the system's log in chronological order. The system log is stored in the camera's buffer area and will be overwritten when the buffer area is full.

Click **Retrieve** to retrieve the log or click **Save to File** to save the system log.

Date and Time

Manual – Manually enter the date and time.

Clone from PC – The camera will sync with the time, and date of the computer used to modify the camera settings. Check “Clone” to utilize this option. The read-only date and time of the PC will be displayed.

NTP – (Network Time Protocol) - NTP is a protocol for synchronizing the clocks of a computer system. Select to update the time with a NTP server on an hourly, daily, weekly, or monthly basis.

Time Zone – Select the local time zone from drop-down menu.

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

Daylight Saving - Enable this option to automatically update for Daylight Savings Time.

Manual <input checked="" type="radio"/>						
Manual	Year	<input type="text" value="2009"/>	Month	<input type="text" value="1"/>	Day	<input type="text" value="1"/>
	Hour	<input type="text" value="0"/>	Minute	<input type="text" value="0"/>	Second	<input type="text" value="0"/>
	Year	<input type="text" value="2010"/>	Month	<input type="text" value="10"/>	Day	<input type="text" value="13"/>
	Hour	<input type="text" value="16"/>	Minute	<input type="text" value="4"/>	Second	<input type="text" value="32"/>
Clone from PC	<input type="checkbox"/>	Clone				
NTP <input type="radio"/>						
TimeZone	<input type="text" value="(GMT+8)HONG KONG"/>					
NTP Server 1	<input type="text" value="tick.stdtime.gov.tw"/>					
NTP Server 2	<input type="text" value="clock.stdtime.gov.tw"/>					
Daylight Saving	<input type="checkbox"/>	Enable				
<input type="button" value="Apply"/> <input type="button" value="Cancel"/>						

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

Save File Folder

Recording Folder Path

Path

Snapshot Folder Path

Path

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.

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

Device Information

System Information – Displays the complete system information of the camera.

System Information	
LAN MAC Address	00:11:6b:a0:57:0d
Wireless MAC Address	00:11:6b:a0:57:0e
Firmware Version	v1.0.0.17
Firmware Release Date	10/08/2010 17:36
UPnP Name	WGP-100-CB-570d

Network Settings – Displays the complete network settings information of the camera.

Network Settings

IP Setting Type	DHCP
IP Address	192.168.1.245
Subnet Mask	255.255.255.0
Default Gateway	192.168.1.254
Primary DNS	
Secondary DNS	
UPnP	Enabled
DynDNS	Disabled
TZO	Disabled

Video/Audio Settings – Displays the complete video/audio settings information of the camera.

Video/Audio Settings

Stream 1

Video Codec	H264
Video Resolution	1280x800(WXGA)
Video Frame Rate	15 fps
Video Quality	3
Audio Codec	N/A
Multicast IP	N/A

Stream 2

Video Codec	MJPEG
Video Resolution	1280x800(WXGA)
Video Frame Rate	15 fps
Video Quality	3
Audio Codec	N/A
Multicast IP	N/A

Appendix A. Comparison Datasheet For Different Product Series:

Series Type		Cube				Bulet			Fixed Box				Fixed Dome Vandal		Dome	Mini Dome		Video					
Type		P	E	P+W	E+W	P	E	P+W	E+W	P	E	P+W	E+W	P	E	P	E	P	E	P	E	P+W	E+W
Camera		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Video		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Audio	Configuration	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	X	0	0	0
	Advanced Settings	0	X	0	X	0	X	0	X	0	X	0	X	0	X	0	X	0	X	X	X	0	X
Multicast		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Privacy Mask Control	Software	0	0	0	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Hardware	0	X	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Network		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wireless	Basic	X	X	0	0	X	X	0	0	X	X	0	0	X	X	X	X	X	X	X	X	0	0
	Advanced	X	X	0	0	X	X	0	0	X	X	0	0	X	X	X	X	X	X	X	X	0	0
	Wi-Fi Protected	X	X	0	0	X	X	0	0	X	X	0	0	X	X	X	X	X	X	X	X	0	0
Event	Motion Detection	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	DI/DO	X	X	X	X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	PIR	0	X	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Notifications	FTP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SMTP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Samba	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	HTTP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SD card	0	X	0	X	0	X	0	X	0	X	0	X	0	X	0	X	0	X	0	0	0	0
	Audio Clip	0	X	0	X	0	X	0	X	0	X	0	X	0	X	0	X	0	X	0	X	0	X
SD card	Video Clip	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Scheduled Event	0	X	0	X	0	X	0	X	0	X	0	X	0	X	0	X	0	X	0	0	0	0
SD card	Storage Management	0	X	0	X	0	X	0	X	0	X	0	X	0	X	0	X	0	X	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maintenance		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Configuration		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
System		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

where P, E, W are

	P	E	W
Function	Professional	Economy	Wireless