AVerMedia®

AVer™ DiGi SF1311H-C

H.264 Cube Network Camera

User's Manual

Nov. 2010

FCC NOTICE (Class B)

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Federal Communications Commission Statement

NOTE- This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by tuning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television technician for help.

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WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.

For AC adaptor to avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.

[Notice]

The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Table of Contents

Overview

This user's guide explains how to operate this camera from a computer. Please read this manual carefully before you operate the device.

Introduction

The SF1311H-C IP camera transmits high-quality H.264 video through via network for remote monitoring. The live video can be viewed remotely and managed from any computer connected to the network.
This user's guide provides instructions on how to use SF1311H-C.
Please make sure to get all necessary information and equipment on hand before beginning the installation.

Features

- Easy installation with setup wizard
- UPnP device discovery and NAT router transversal for easy installation
- H.264, MPEG4 and JPEG triple compression simultaneously
- Mega-pixel resolution up to 1280x1024
- Up to 11-profile encoder simultaneously
- Mega-pixel or VGA mode selectable
- UDP / TCP / HTTP protocols selectable
- Supports video/audio multi-casting
- IEEE 802.11n wireless LAN (WLAN model)
- WEP/WPA/WPA2-PSK wireless security (WLAN model)
- 3GPP for 3G mobile remote application
- 30 fps for VGA mode
- 15 fps for Mega-pixel mode
- Digital zoom
- Built-in 6 high-light LEDs for night mode or low Lux. environment
- Built-in microphone
- Audio line out
- Two-way audio
- Intelligent motion detection up to 10 zones
- Image transmission via FTP or e-mai
- DDNS and PPPoE
- Multi-channel control software for surveillance application
- On-line firmware upgrade
- IEEE 802.3af PoE support (wired model only)

Minimum System Requirements

- Microsoft Internet Explorer 6.0
- Microsoft Media Player 11.0
- VGA Monitor resolution 1024 x 768
- Pentium-4 2.0 GHz
- Memory Size: 512MB
- Windows XP/Windows Vista/Windows 7

Package Contents

User can find the following items in the package:

Item	Descriptions
	1. SF1311H-C
	2. Stand with screws
	3. WLAN Antenna (for wireless model only)
	4. Power Adaptor(12V DC)
	5. CD (User's Manual included)
	6. Quick Guide

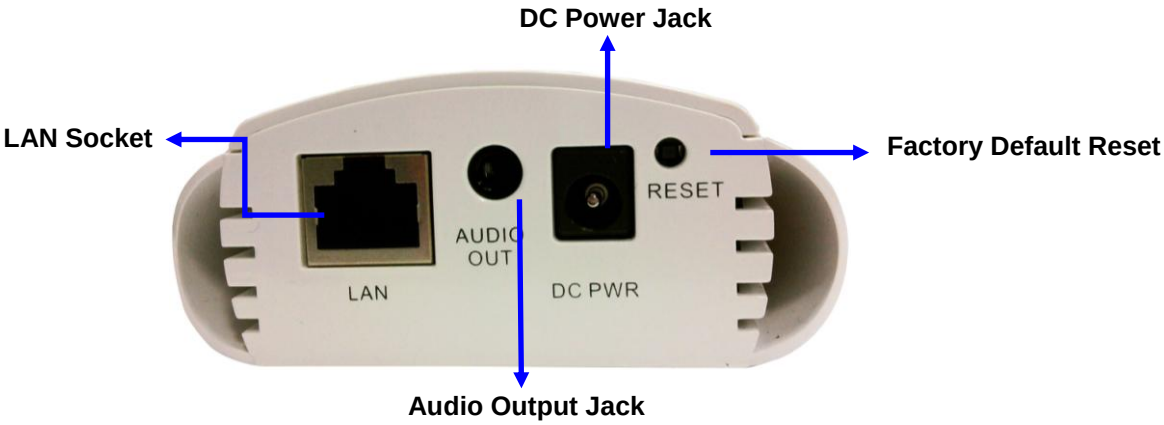
** If any of the above items are missing, please contact your dealer immediately.
[Note] Using the incorrect power adaptor will cause damage and void the warranty for this product.

Hardware Introduction

Front View

- **MicroSD Slot:** User can insert a MicroSD card into this slot for event recording to avoid the network disconnection risk.
- **Microphone:** A built-in microphone which is hidden in the pinhole located on the front panel.
- **Network Accessing LED:** To indicate the network type of the camera. The green LED means under wired Ethernet mode (LAN) and orange LED means under wireless mode (WLAN).
- **White-light LEDs:** 6pcs Infra-Red type LEDs. Use in low-lux environment to provide extra light source for image sensor.
- **Antenna Connector** (For wireless model only)**:** A SMA type connector for antenna.

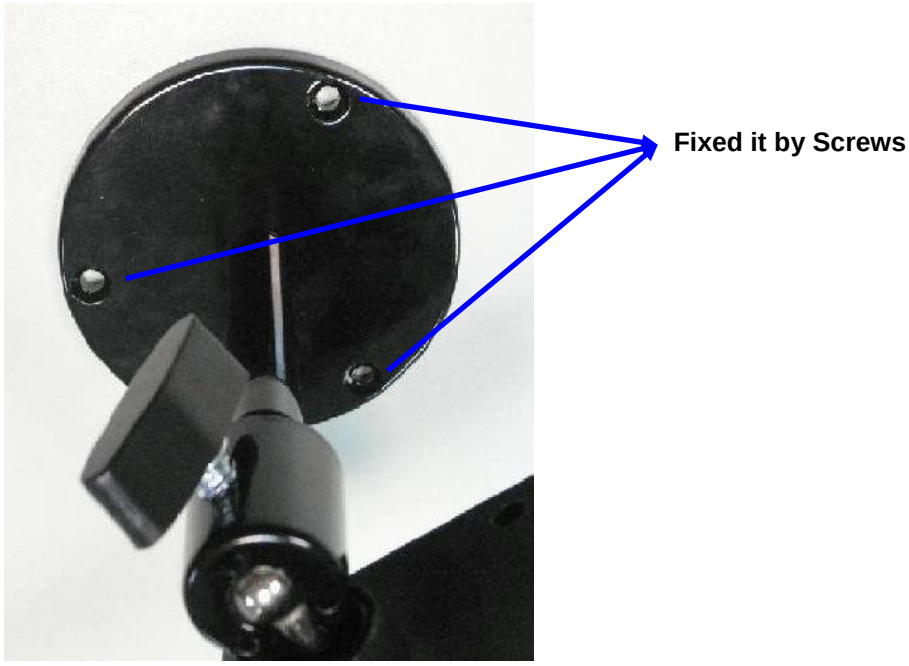
Rear View



- **LAN Socket:** Please use Category 5 cable to connect the IP Camera to a 100Mbps Fast Ethernet network switch or hub.
- **Audio Output Jack:** Audio-out Jack allows this device to output audio or alerting sound.
- **DC Power Jack:** Connect to the power adaptor that included in the package (12VDC).
- **Factory Default Reset:** This button is hidden in the pinhole. It is used to restore the factory default settings.

Hardware Installation

1. Attach the Camera with the stand included in the package.
2. Place the Camera on the table or fix it on the ceiling or wall. Use three screws to fix the SF1311H-C onto the ceiling or wall or on the table directly.



3. Plug an Ethernet cable to the camera. Connect an Ethernet cable to SF1311H-C and link to network.
4. Connect the power adaptor to the camera.

Once you have well installed the SF1311H-C and powered it on, the network accessing LED will light on. It means the system is booting up successfully.

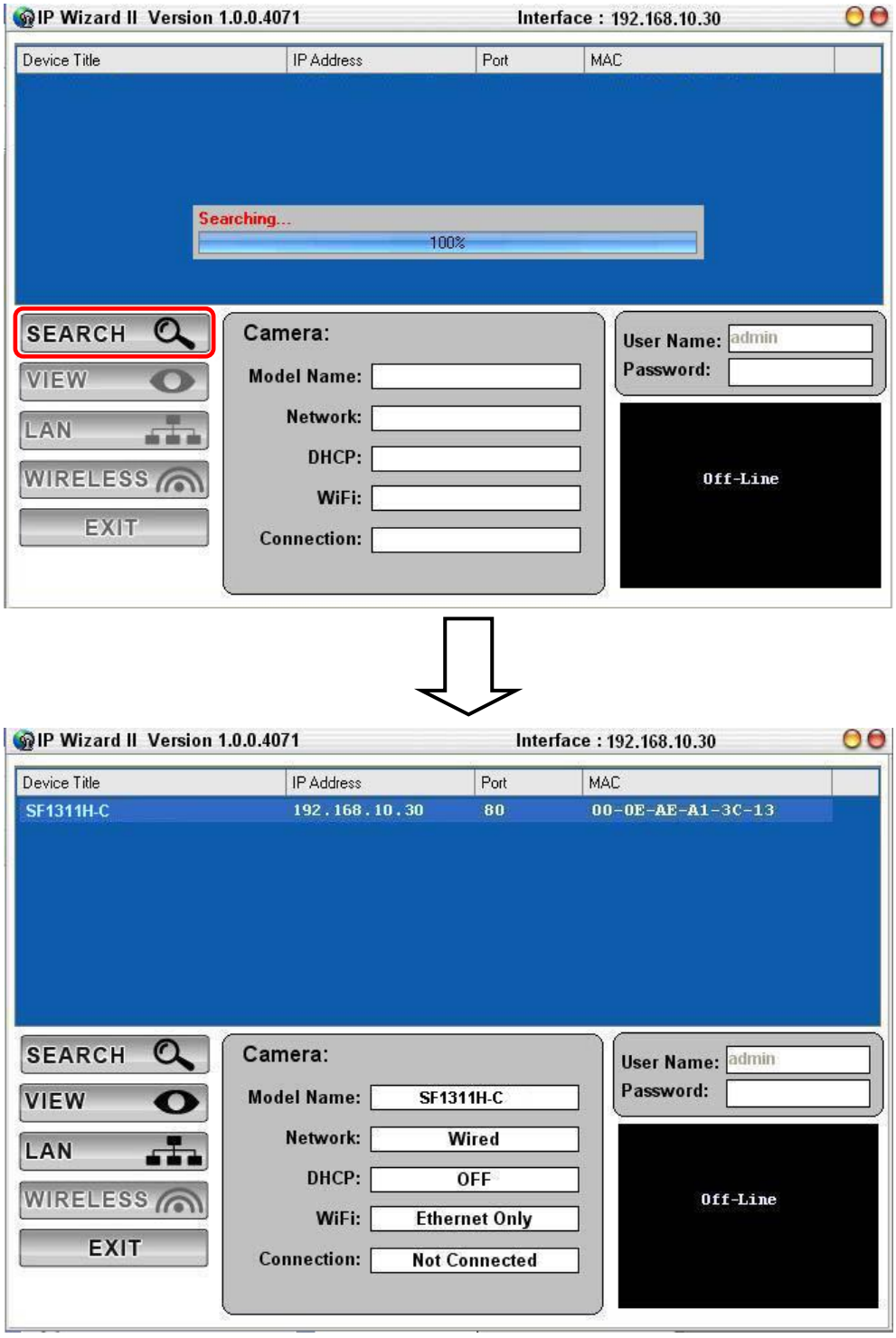
Preparation

Search and Set up by IPWizard II

When you installed the camera on a LAN environment, you have two ways to search your cameras — IPWizard II or UPnP™ discovery. Here is the way to execute IPWizard II to discover camera's IP address and set up related parameter of the camera.

Search

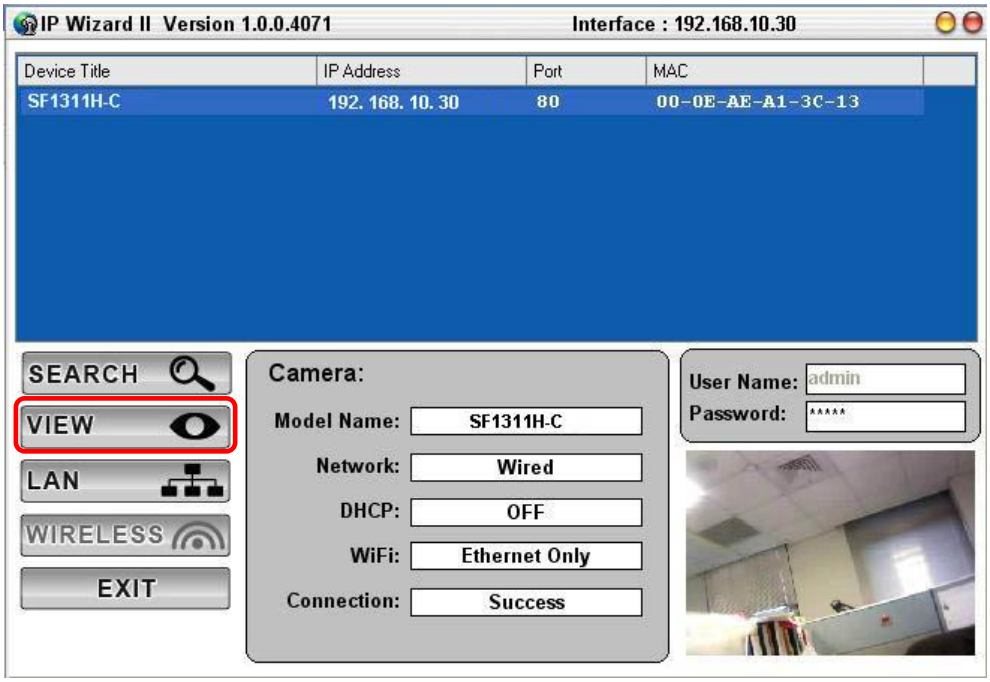
After launched the IPWizard II, a searching window will pop up. IPWizard II is starting to search Network Cameras on the LAN. The existed devices will be listed as below.



[Note] The factory default IP address is **192.168.10.30**.

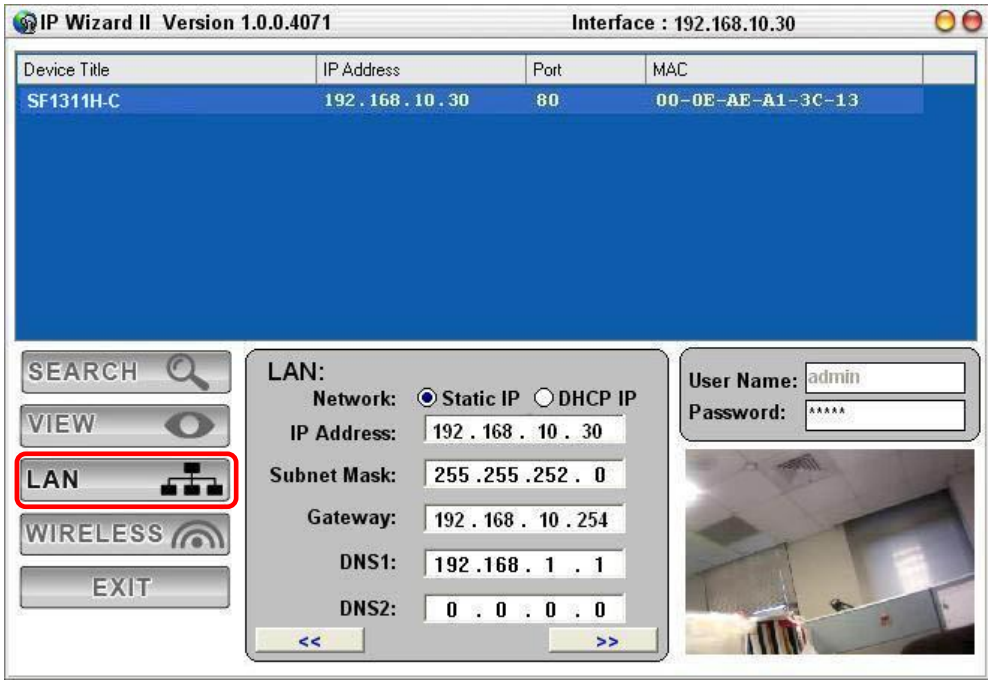
View

If IPWizard II finds network devices, **View** button will be available. Please select the device you want to view and click the **View** button. Then you could see the video from camera directly. Furthermore you could double click the left button of mouse to link to the network device by browser.

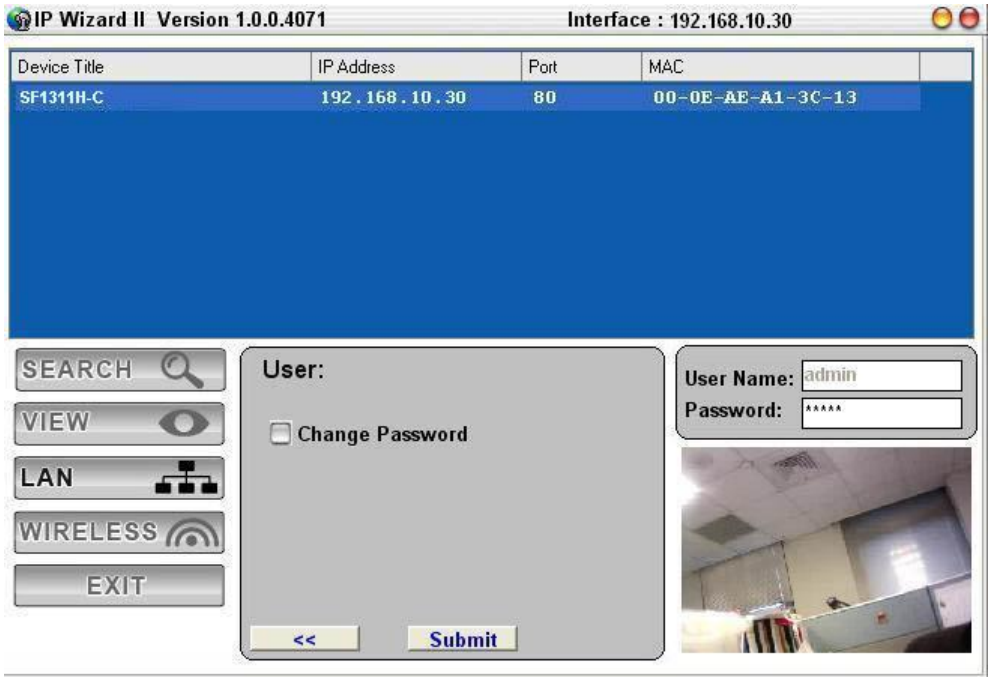


LAN

In case you want to change the IP related parameters of wired interface, please select the device you want to configure and click the **LAN** button. Relative settings will be carried out as below.



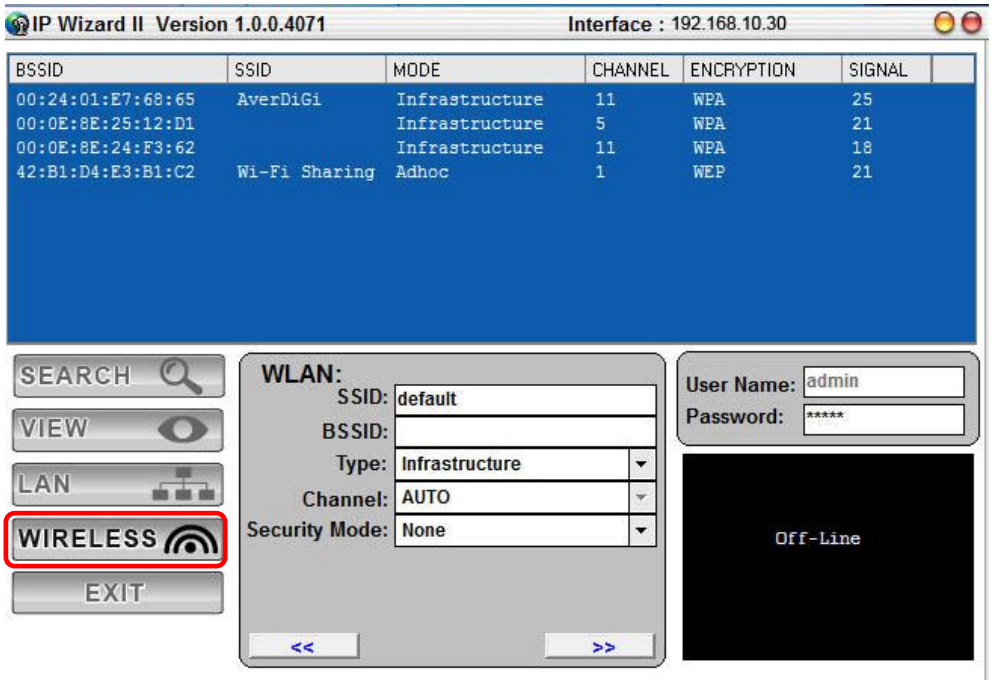
You could modify the relative settings of the selected device. Click "<<" button will quit the LAN setting procedure and click ">>" button will move to next page as below.



In case, you do not want to change username and/or password, then just click **Submit** button to perform your setting accordingly. Click "<<" button will go back to previous page. If you like to change username and/or password of the device, just click the check button. Then, the related fields will show up as below.

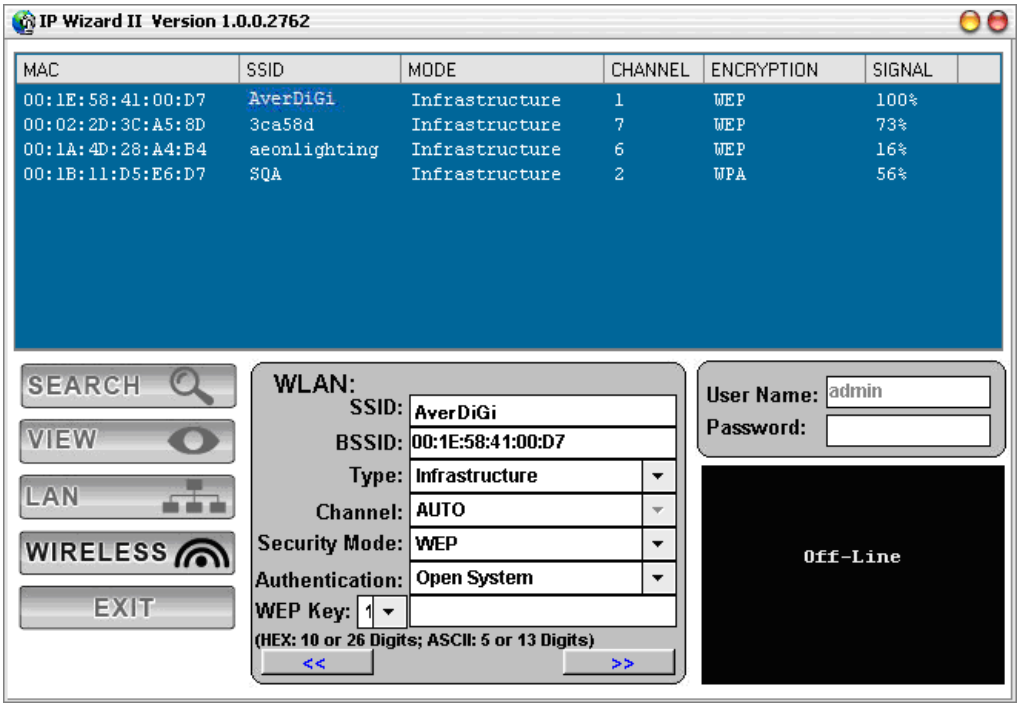
After keying in new username and password, click **Submit** button to perform your setting accordingly. Click "<<" button will go back to previous page.

Wireless (For wireless model only)



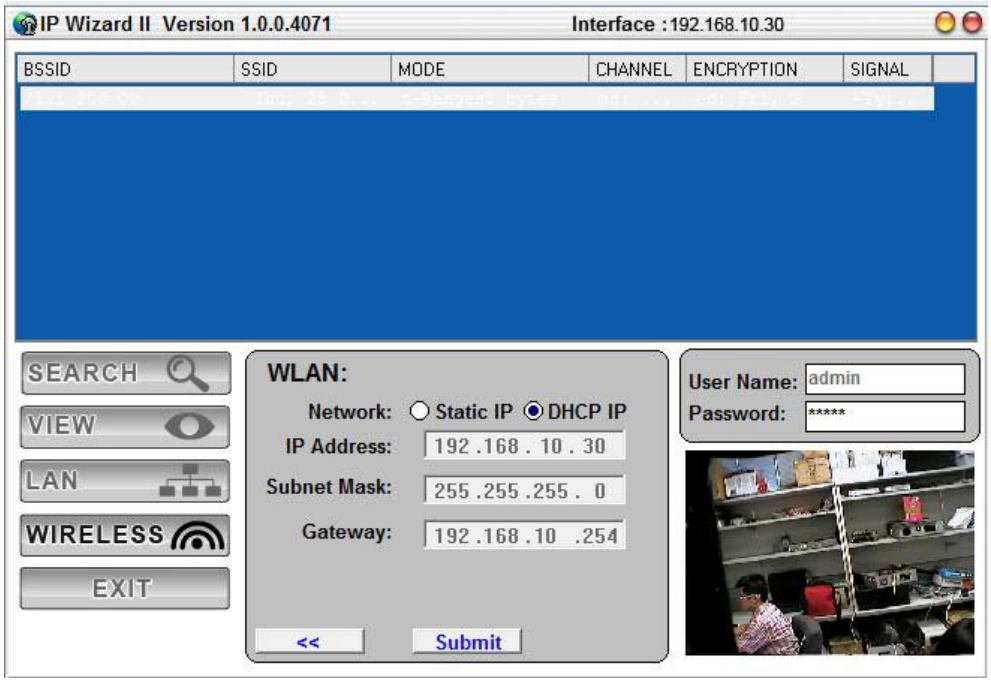
In case you want to change the wireless related parameters, please select the device you want to configure and click the **WIRELESS** button. The wireless settings will be carried out as above.

Click SSID to select your wireless AP or router and type WEP / WPA key.

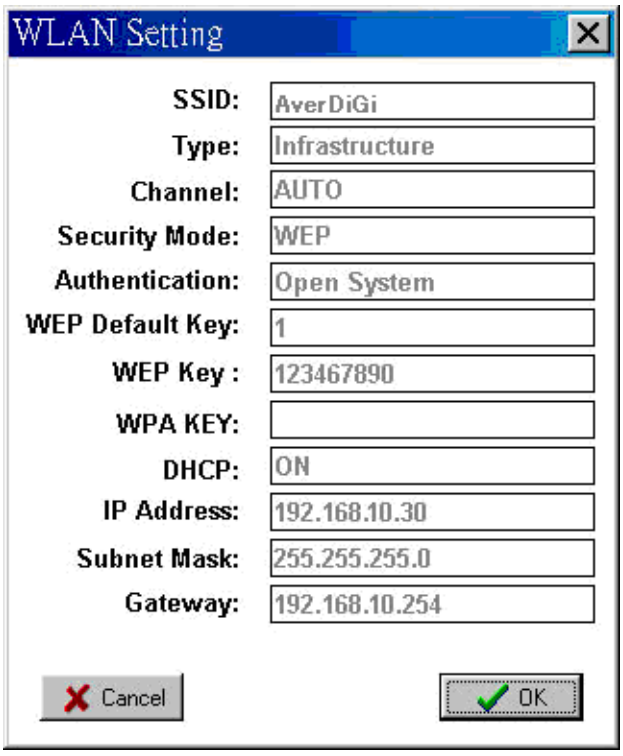


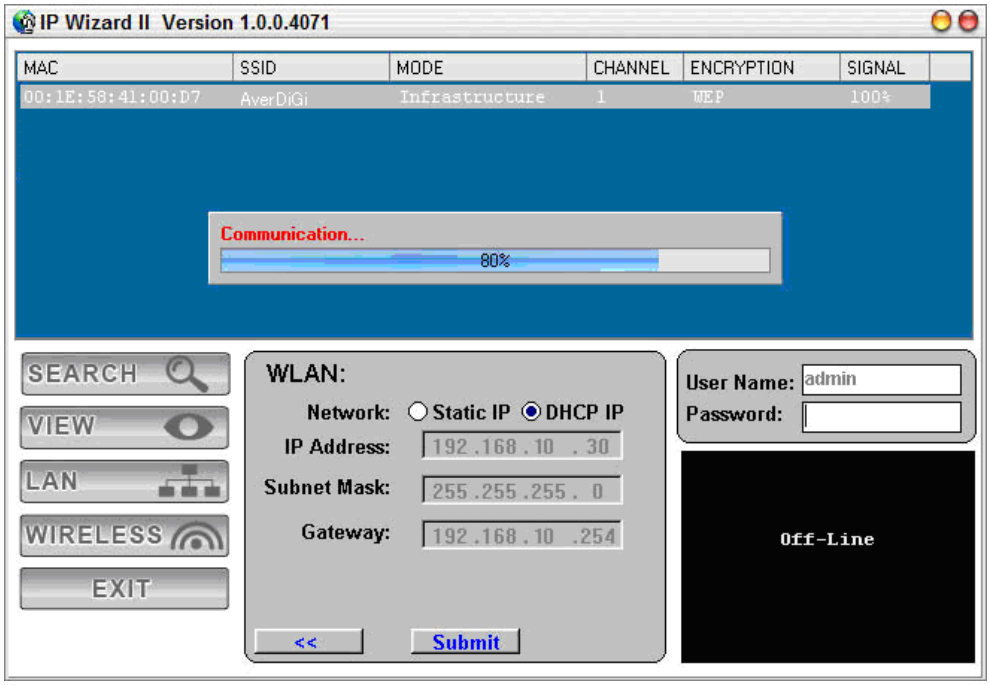
Click **>>** to go next step.

Double check the wireless setting and click the submit button.

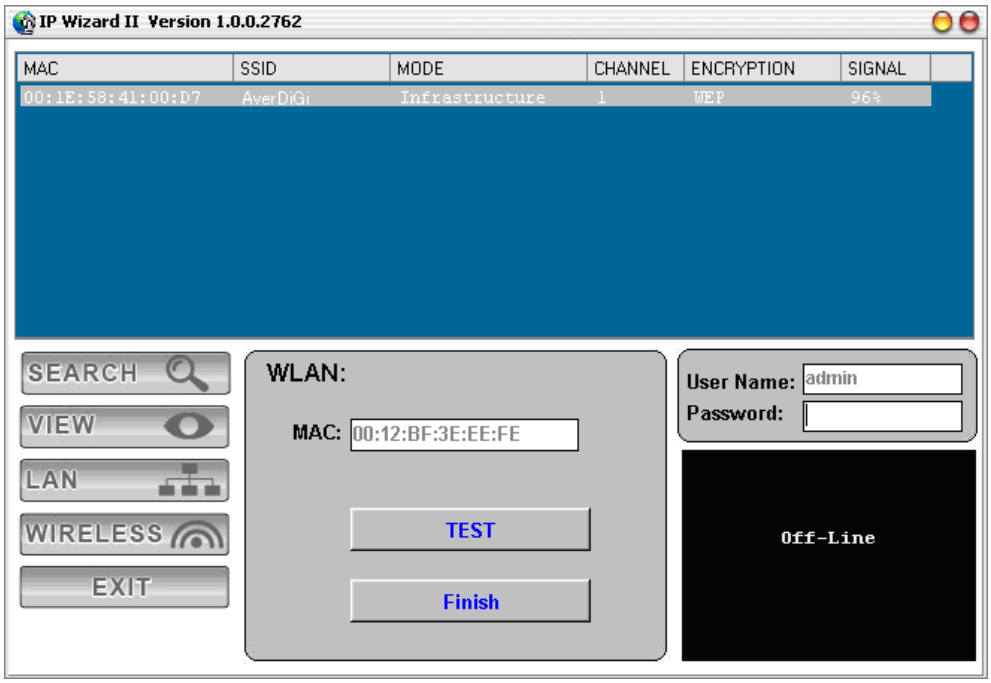


Click **OK** to confirm these parameters, then IPWizard II will start to configure this camera with specified information.





Once this step finished, IPWizard II will ask you to unplug the Ethernet cable and press **TEST** to check the wireless settings or press **Finish** to complete the wireless setting procedure.

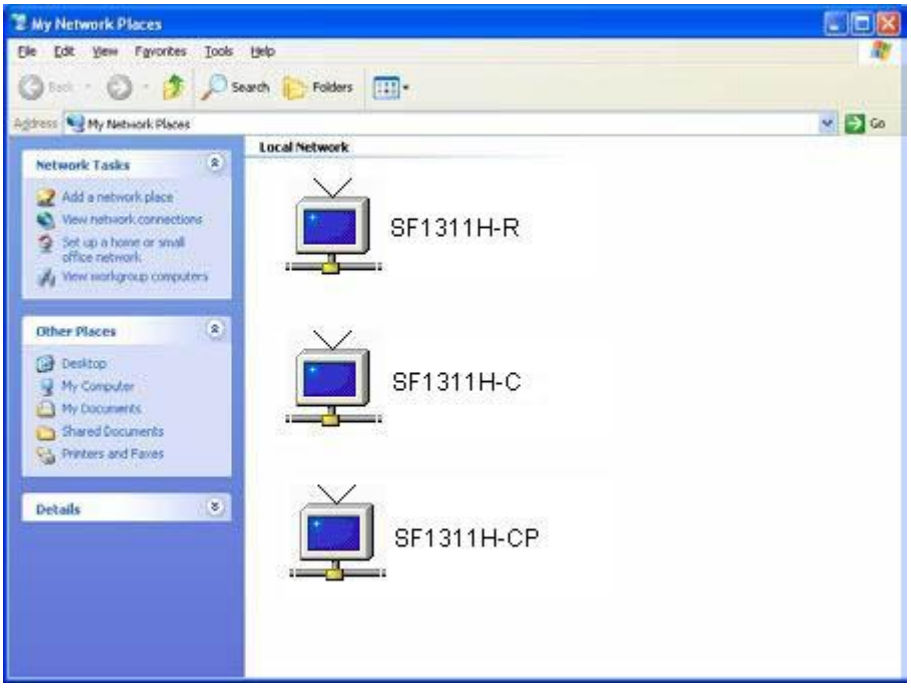


Using UPnP of Windows® XP or Vista

UPnP™ is short for Universal Plug and Play, which is a networking architecture that provides compatibility among networking equipment, software, and peripherals. This device is an UPnP enabled device. If the operating system, Windows XP or Vista, of your PC is UPnP enabled, the Network Camera will be very easy to be found.
Please refer to Appendix J to enable UPnP settings only if your operating system of PC is running Windows XP.

[Note] Windows 2000 does not support UPnP feature.

To discover your device, go to your Desktop and click **My Network Places**.



Click the targeted **Device.** Then Internet Explorer will connect to this Network Camera automatically.

Install the Device behind a NAT Router

Once installed, the device is accessible to your LAN. To access the device from the Internet you must configure your broadband router to allow incoming data traffic to the device. If the device is installed on the LAN with a router, then it may get a dynamic IP address from the DHCP server. However, if the device wants to be accessed from the WAN, its IP address needs to be setup as fixed IP, also the port forwarding or Virtual Server function of router needs to be setup.

If your NAT router supports UPnP feature, just enable the NAT-traversal feature, then it can be very easy to achieve NAT traversal automatically.

3 steps to install the device with an UPnP router on your network:
(1) Enable UPnP option of your NAT router
(2) Enable UPnP NAT traversal option of the Network Camera (default)
(3) Enter Setting/Network/UPnP/External IP Address stream(ext:http://192.168.121.80:32768) on your web browser

(1) Enable UPnP option of your NAT router
To use UPnP IGD function (NAT traversal), you need to make sure the UPnP function is enabled in your router. Most new home routers should support this function. Some of routers are default enable and others are not. Please check user's manual of your NAT router for detail.

(2) Enable UPnP NAT traversal option of the Network Camera
Refer to **Setting ➔ Network ➔ UPnP** page for detail NAT traversal setting. Note that this option is default enabled.

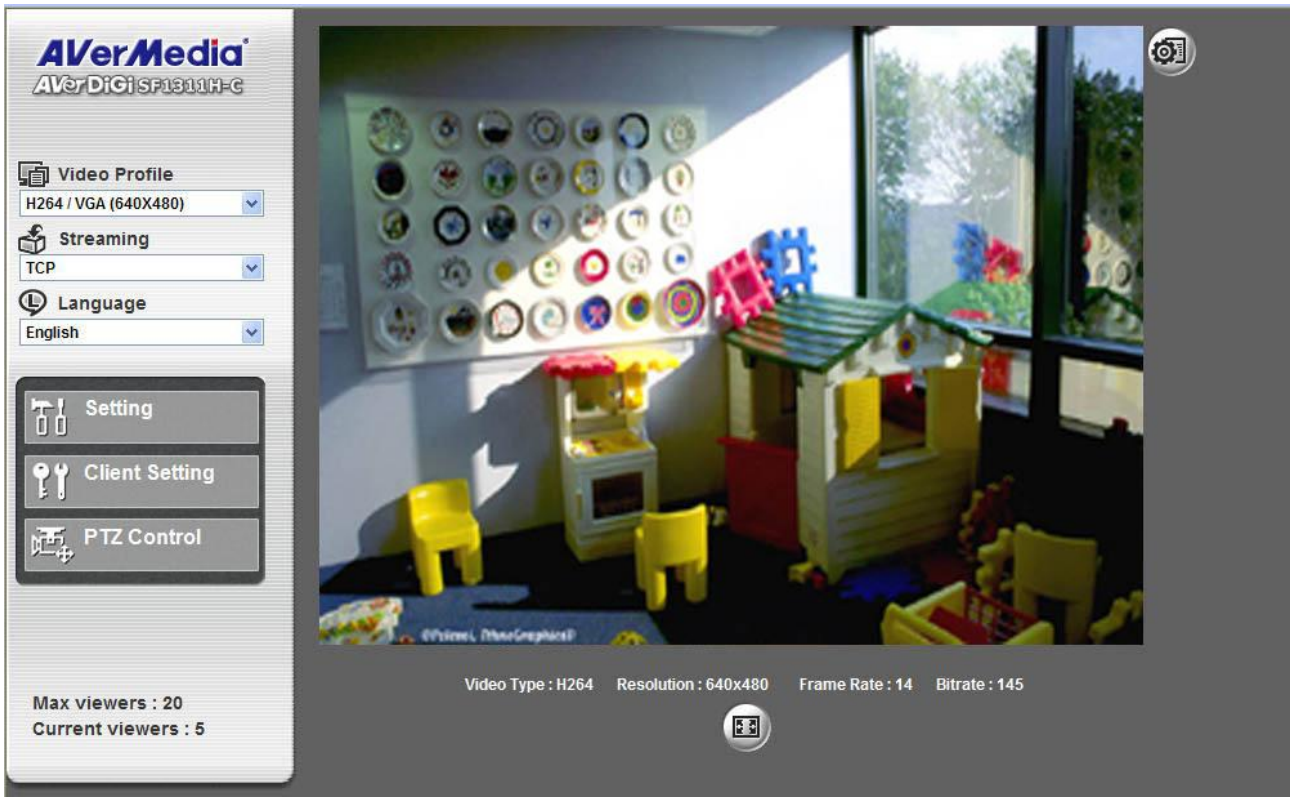
(3) Typing IP camera IP address on web browser
Refer to Setting/Network/UPnP/External IP Address(ex. :http://192.168.121.80:32768), than enter stream on your web browser

Using Browser to Access the Device for the First Time

1. Start the web browser on the computer and type the IP address of the Network Camera (Default IP address is **192.168.10.30**) you want to monitor.
2. The Login Window of the Camera is prompted:

3. Type in your login name and password under “USERNAME” and “PASSWORD” textbox.
   For the first time use (default value), input the
   - ✓ User Name: **admin**
   - ✓ Password: **admin**

   Click “**OK**” button to start the main menu.
4. According to your browser’s security setting, the IE webpage may pop-up the “Security Warning” window. If so, select “**Yes**” to install and run the ActiveX control into your PC. Otherwise, the system will load the ActiveX silently.
5. After the ActiveX control was installed, the first image will be displayed.



Logging as an User

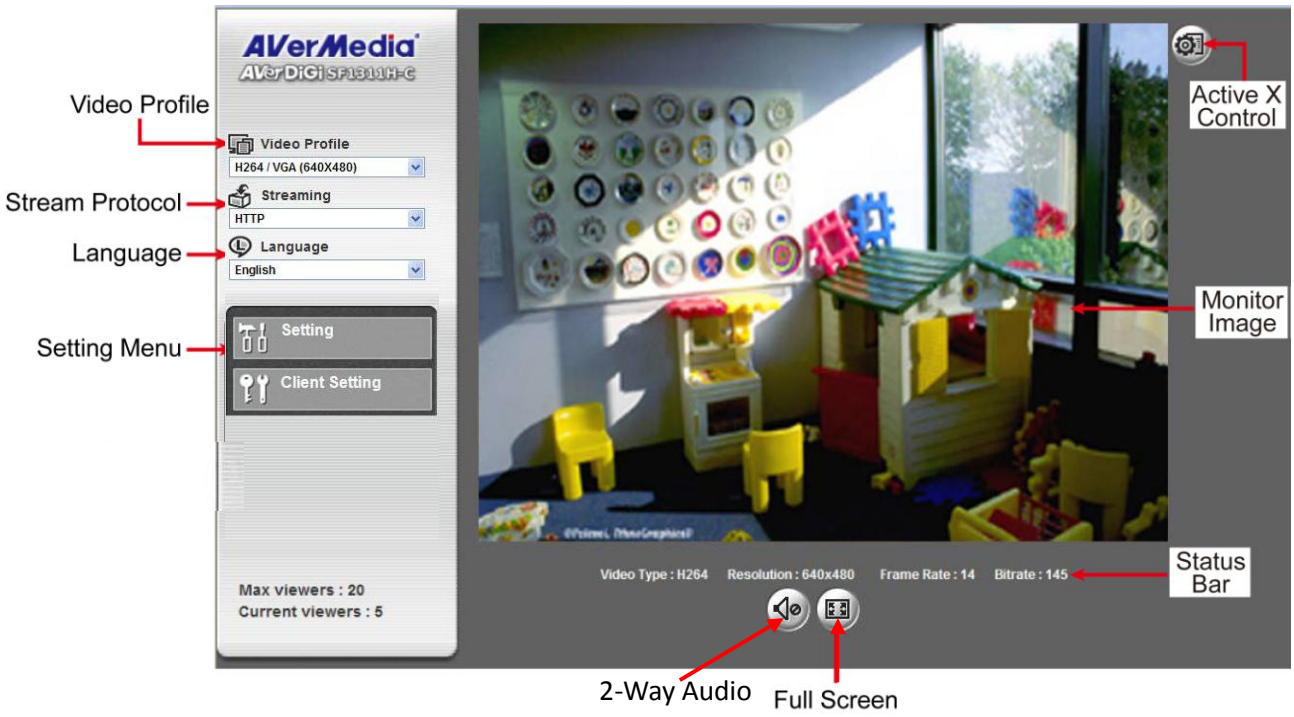
If you log in as an ordinary User, “Setting” function will be disabled.

Logging as an Administrator

If you log in as an Administrator, all the settings will be enabled.

Operating the Network Camera

Start-up screen will be as follow no matter an ordinary users or an administrator.



Video Profile

The Network Camera support multi-profile for MEPG-4, M-JPEG and H.264 simultaneously. User can chose the proper and/or preferred profile here.

Streaming Protocol

User can select proper streaming protocol according to networking environment.

Language

The device could provide multiple languages to meet customer's requirement.

Setting

Configuring the IP camera related parameters. Please refer to Administrating the Device section.

2-Way Audio

SF1311H-Z10 supports 2-way audio function. User can enable or disable this function by clicking the 2-way audio icon.

Full Screen

Switch to the full screen display mode.

Status Bar

Shows the information of connected device such as encoder format, image resolution, frame per second, and bit rate.

Monitor Image

The image shot by the Network Camera is shown here. The date and time are displayed at the top of the

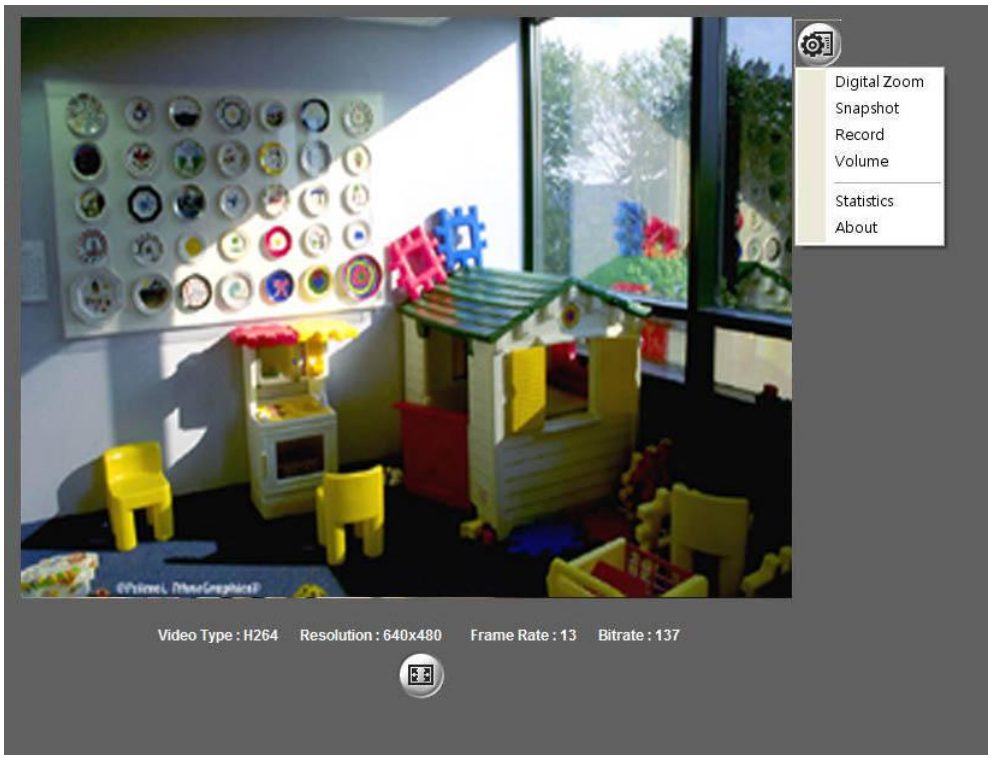
window.

ActiveX Control

The plug-in ActiveX control supports a lot of functions by clicking the left mouse button. Note that this feature only supports on the ActiveX control within Microsoft® Internet Explorer.

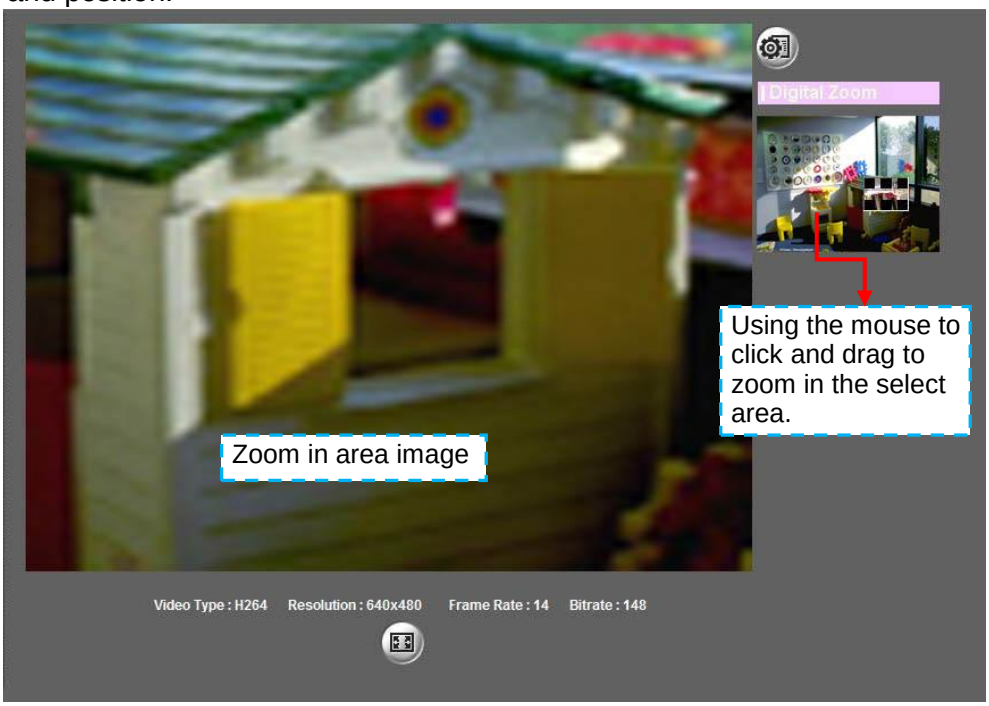
Click on the ActiveX control icon to show the function menu. All features are applied to your PC **NOT** the IP camera. This menu provides features that are unique to the ActiveX control. These features include:

- Digital Zoom
- Snapshot
- Record
- Volume
- Statistics
- About



Digital Zoom

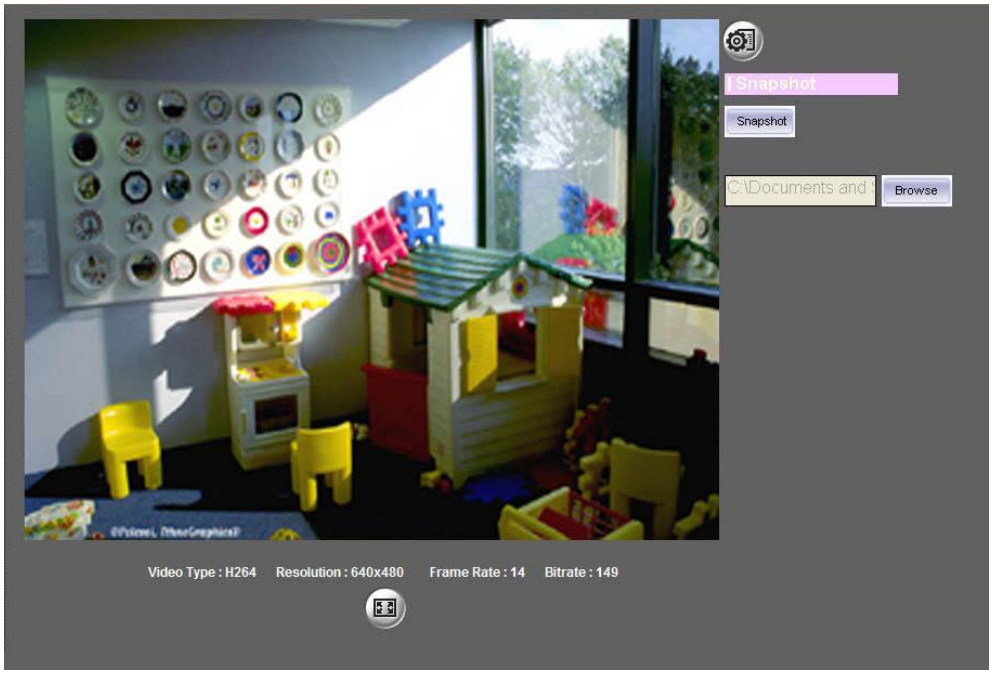
Click **Digital Zoom** to active this function as below. User can drag or scale the box over the video to adjust zoom ratio and position.



Snapshot

Click **Snapshot** to activate this function. Press **Snapshot** button to take a picture. The image file is saved as JPEG format into your local PC. Press **Browse** and select the path to save file. Press **OK** to continue.

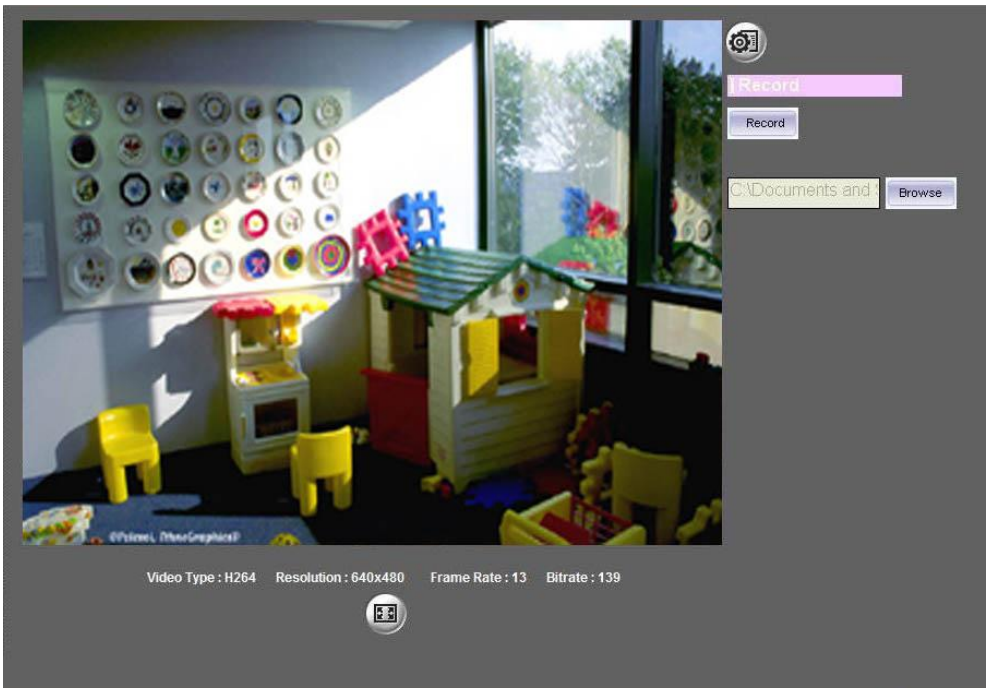
User could use image editing software to retrieve the saved pictures.



Record

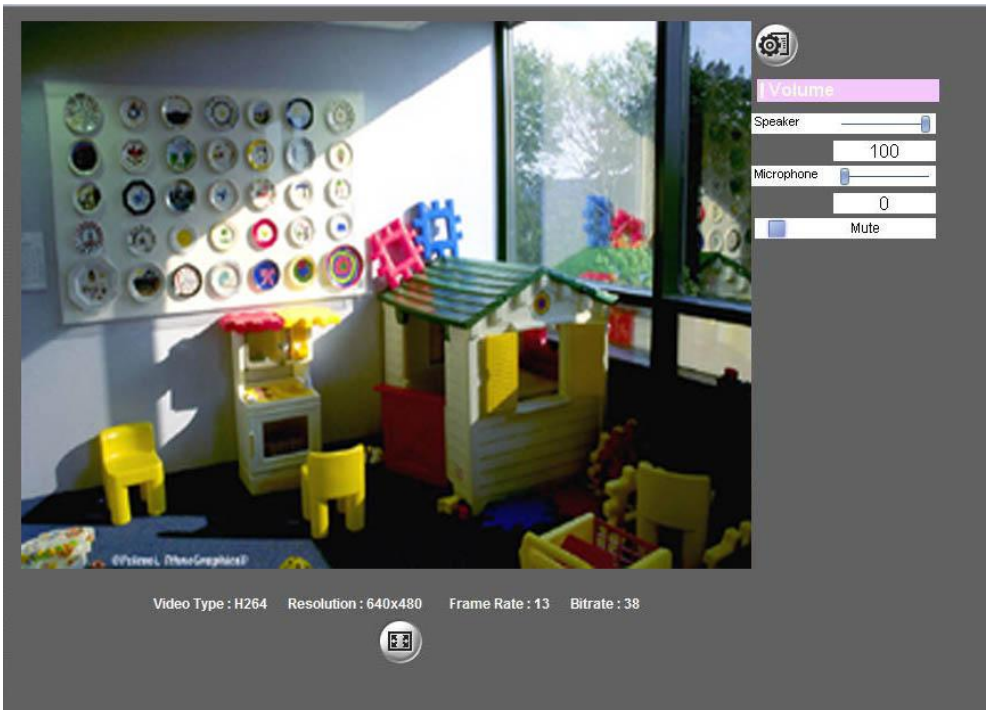
Click **Record** to activate this function. Press **Record** button to start recording. The video file is saved as **ASF** format into your local PC. While you want to stop it, press **Stop**. Press **Browser**, and select the path to save file. Press **OK** to continue.

The ASF files can be display by the standard Windows Media Player; it is required the DixectX 9.0 or ffdshow to be installed.



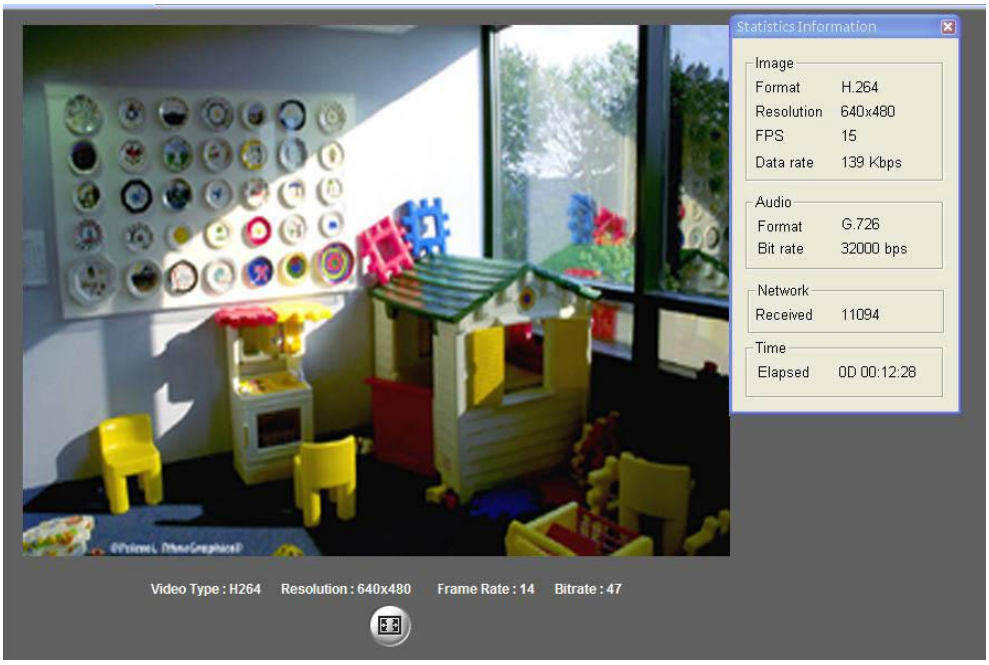
Volume

Click **Volume** to activate this function. There are two control bars for speaker and microphone volume respectively. Scroll these control bars to adjust the audio attribute. Click **Mute** to disable audio output.



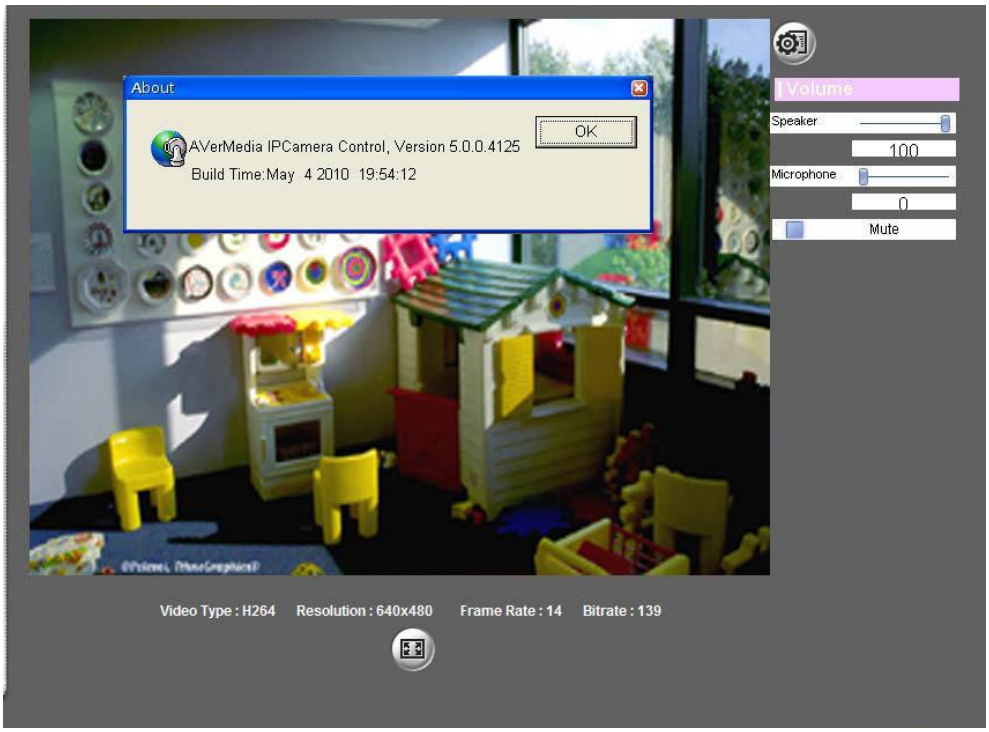
Statistics

Click **Statistics** to activate this function. A window will be pop-up to show the statistics information of the streaming status. **Note** this is the information between the device and your local PC.



About

Click **About** to show this ActiveX information.



Administrating the Device

System Setting

This function is only available for user logged into Network Camera as administrator.

Click on each menu name to display its setting page.

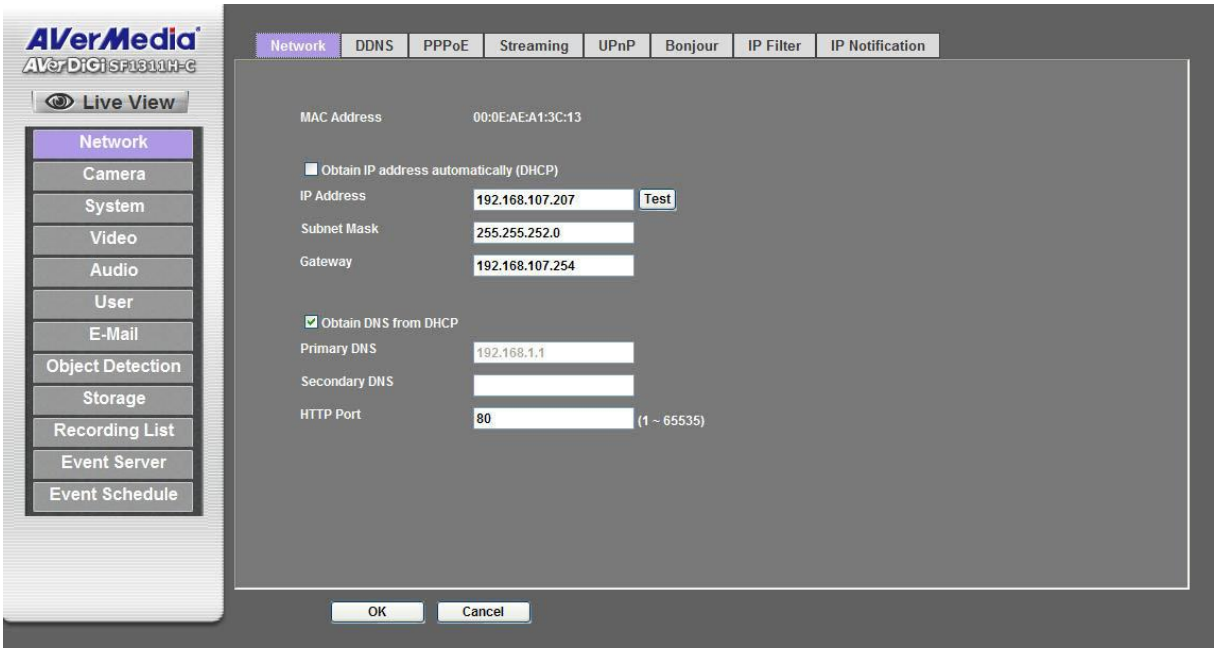
Item	Function
Network	Configure network settings such as DHCP, DDNS, 3GPP, PPPoE and UPnP
Camera	Adjust camera parameters, day & night, position, and set camera tour
System	Configure system information, date & time, maintenance, and view system log file.
Video	Configure bit rate and frame rate of video profiles
Audio	Configure audio parameters
User	Setup user name, password and login privilege
E-Mail	Setup E-Mail configuration
Object Detection	Setup object detection
Event Server	Setup FTP/TCP/HTTP/Samba server for event
Event Schedule	Configure the schedule while event triggered

Network: Configure Network Settings

Use this menu to configure the network to connect the device and the clients.

Network

This section provides the menu for connecting the device through Ethernet cable. Click "**OK**" to save and enable the setting.

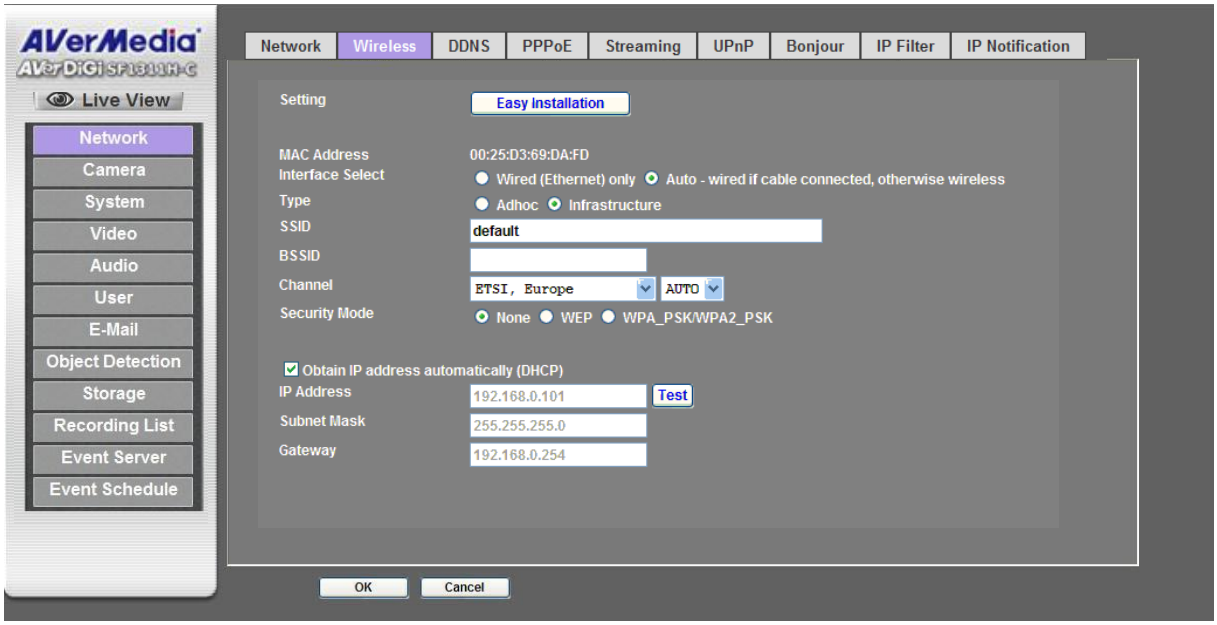


- **MAC address:** Displays the Ethernet MAC address of the device. The MAC address is read only not changeable.
- **Obtain IP address automatically (DHCP):** DHCP: Stands for Dynamic Host Configuration Protocol. Enable this checked box when a DHCP server is installed on the network to issue IP address assignment. With this setting, the IP address is assigned automatically. If this device cannot get an IP address within limited tries, the default IP address is **192.168.10.30**.
- **IP Address, Subnet mask, and Gateway:** If you do not select **Obtain an IP address automatically**, then you need to enter these network parameters manually.
- **Obtain DNS from DHCP:** DNS stands for Domain Name System. Enable this checked box when a DHCP server is installed on the network and provide DNS service.
- **Primary DNS and Secondary DNS:** If you do not select **Obtain DNS from DHCP**, then you need to enter these parameters manually.
- **HTTP Port:** The device supports two HTTP ports. The first one is default port 80 and this port is fixed. This port is very useful for Intranet usage. The second HTTP port is changeable. Users could assign the second port number of http protocol, and the WAN users should follow the port number to login. If the http port is assigned as 8080 (not assigned as 80), users have to add the port number in back of IP address. For example: http://192.168.10.30:8080. Therefore, the user can access the device by either http://xx.xx.xx.xx or http://xx.xx.xx.xx:xxxx to access the device. If multiple devices are installed on the LAN and also required to be accessed from the WAN, then the **HTTP Port** can be assigned as the virtual server port mapping to support multiple devices.

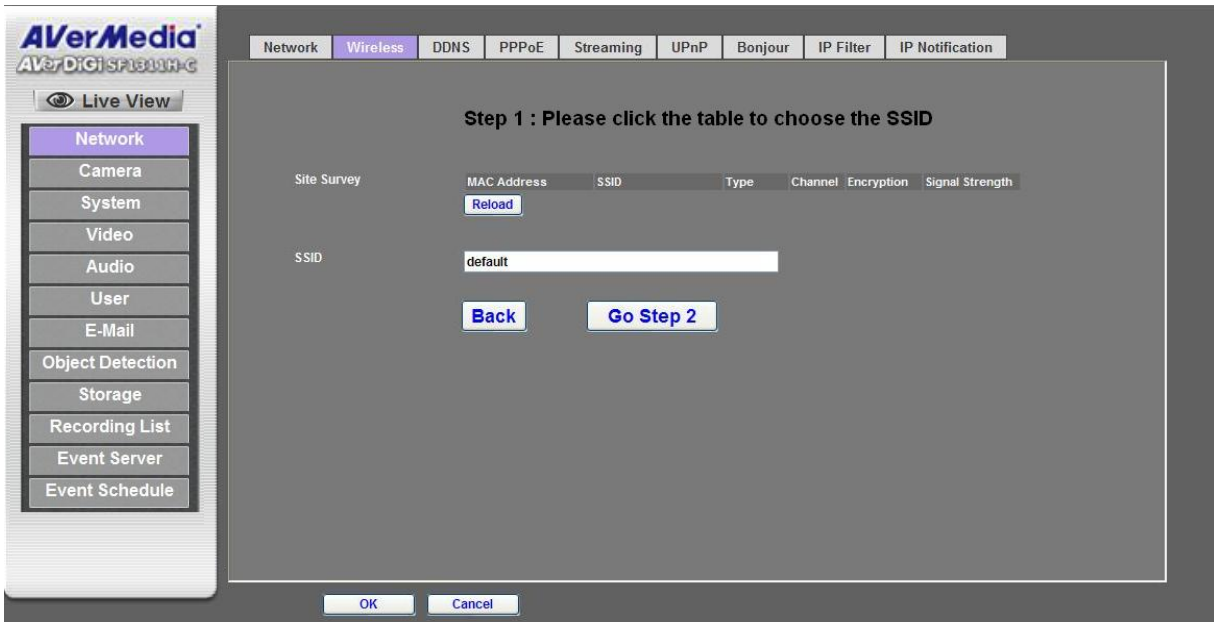
Wireless

(For Wireless Model Only)

If your device is a wireless model, you could assign the related parameters into wireless setting. Please use the wired connection while making these setting.



- **Setting (Easy Installation):**
  - **Step 1:** Select SSID of wireless router or access point (AP).



- **Step 2:** Enter the security key of WEP or WPA. Then click "**Submit**" button to activate wireless setting.

If user wants to configure wireless settings manually, please return to wireless page and follow the steps as below:

- **MAC Address:** Shows the MAC address of the WLAN card. (Only the administrator can change it.)
- **Interface Select:** Choose wired or wireless mode.
- **Type:** Select the **Infrastructure** as the wireless mode. If your network is using a network connection directly between the devices without wireless AP, and then, select the **Ad-Hoc** as the wireless mode.
- **SSID:** the ID assigned to the wireless AP (Access Point). The camera system will auto-detect and display the SSID of wireless AP.
- **Channel:** Select the current wireless channel.
- **Security Mode:** Support three kind of security modes:
  - None
  - WEP
  - WAP_PASK/WPA2_PSK
- **Obtain IP address automatically (DHCP):** Checked the box if you want a DHCP Server to automatically assign the camera an IP address.
- **IP Address, Subnet Mask, and Gateway:** If you don't want to use DHCP function, then you need to enter these network parameters manually.

Click **OK** to save and enable the setting.

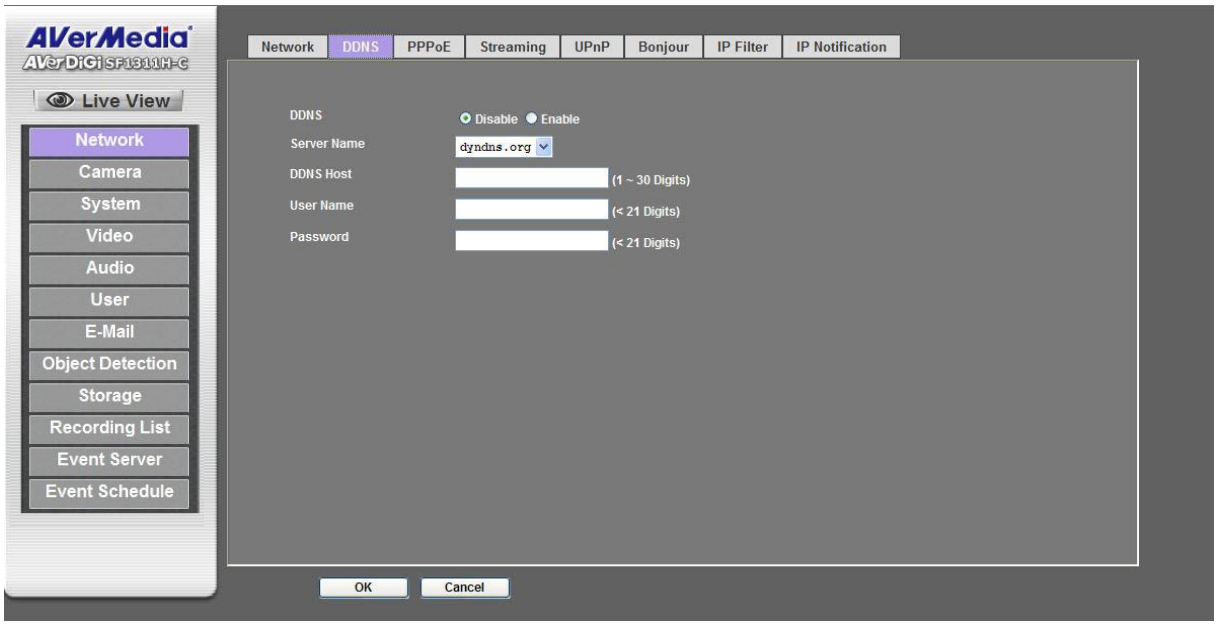
Note: To enable WLAN function, user must set these related parameters correctly at first. Then power OFF the Camera and remove Ethernet cable from the Camera, and power ON the device again to enable the WLAN function.

DDNS service

DDNS stands for Dynamic Domain Name Server. Your Internet Service Provider (ISP) provides you at least one IP address which you use to connect to the Internet. The address you get may be static, meaning it never changes, or dynamic, it would be changed periodically. One of the possible solutions for the dynamic IP address problem comes in the form of a dynamic DNS service.

DDNS provides users the same hostname when their IP address is variable. There are several excellent DDNS services available on the Internet. One such service you can use is www.DynDNS.org. You'll need to register with the service and set up the domain name of your choice to begin using it. Please refer to the home page of the service for detailed instructions or refer to Appendix G for more information.

If your device is connected to xDSL directly, you might need this feature. However, if your device is behind a NAT router, you will not need to enable this feature. Most of the XDSL users will use dynamic IP addresses. If users want to set up a web or a FTP server, then the Dynamic Domain Name Server is necessary.



- **DDNS:** To enable or disable the DDNS service.
- **Server Name:** Choose the DDNS server.
- **DDNS Host:** The domain name is applied of this device.
- **User Name:** Enter the user name to log in DDNS.
- **Password:** Enter the password to log in DDNS.

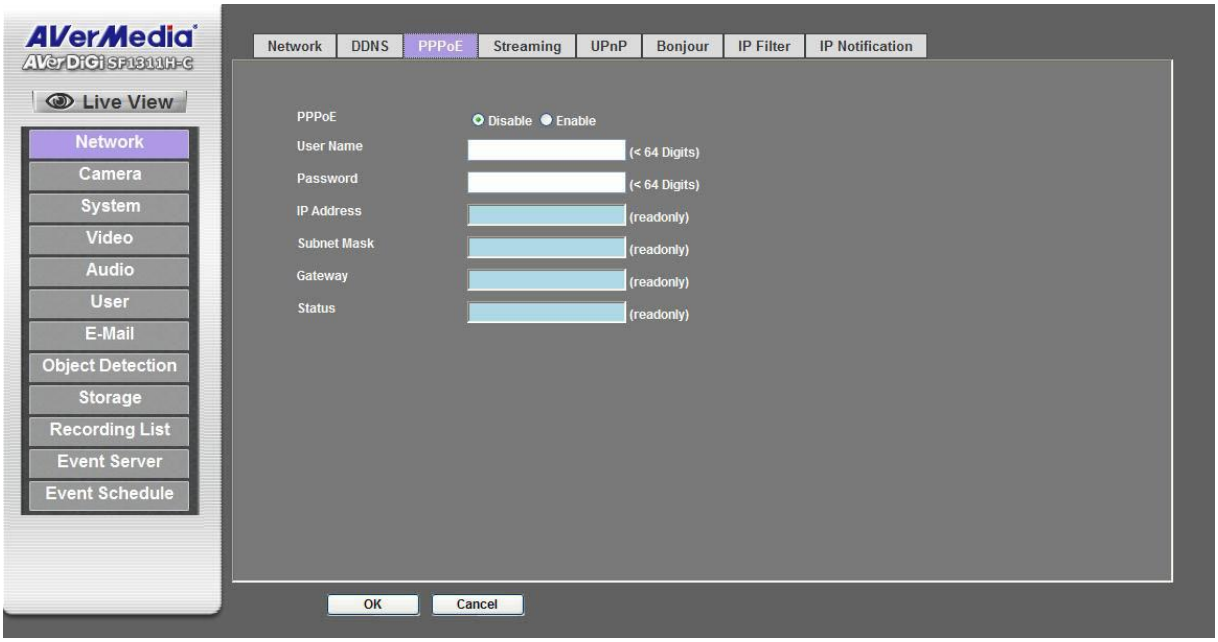
PPPoE

It allows your device with xDSL or cable connects with broadband network directly, then your device can dial up and get a dynamic IP address.

The device can directly connect to the xDSL, however, it should be setup on a LAN environment to program the PPPoE information first, and then connect to the xDSL modem. Power on again, then the device will dial on to the ISP connect to the WAN through the xDSL modem.

The procedures are:

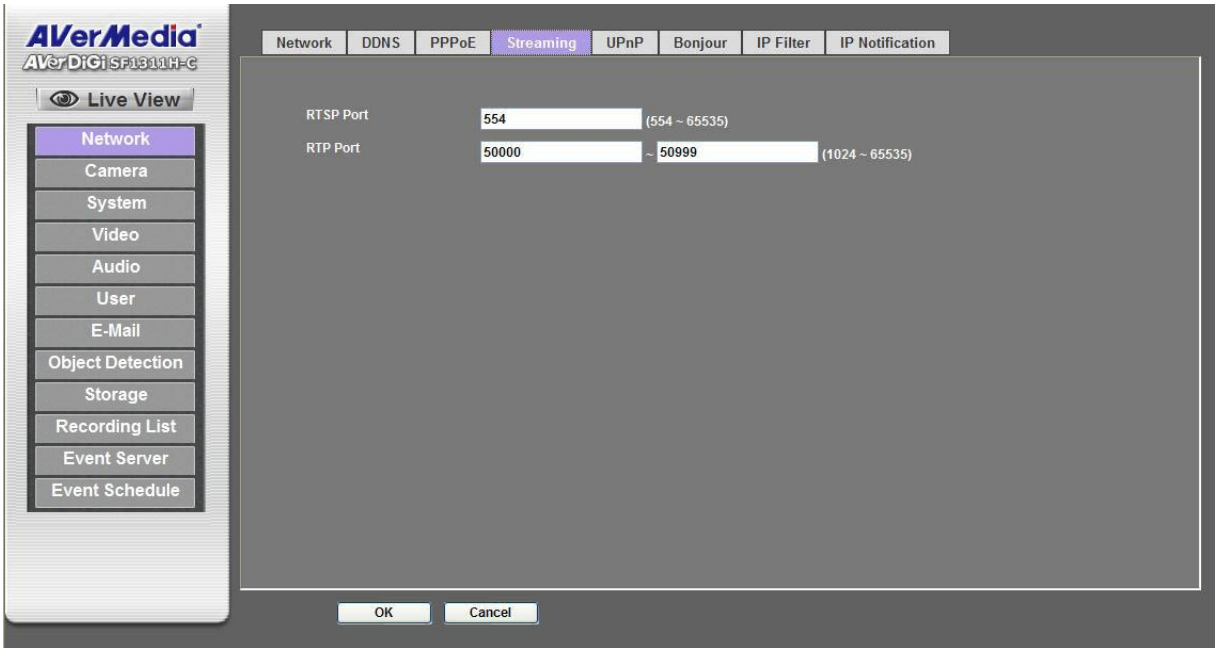
- Connect to a LAN by DHCP or Fixed IP
- Access the device, enter **Setting ➔ Network ➔ PPPoE** as below:



- **PPPoE:** To enable or disable the PPPoE service.
- **User name:** Type the user name for the PPPoE service which is provided by the ISP.
- **Password:** Type the password for the PPPoE service which is provided by the ISP.
- **IP address, Subnet mask, and Gateway (read only):** The IP information got from PPPoE server site.
- **Status:** The status of PPPoE connection.

Streaming

RTSP is a streaming control protocol and a starting point for negotiating transports such as RTP, multicast and unicast, and for negotiating codecs. RTSP can be considered as a "remote control" for controlling the media stream delivered by a media server. RTSP servers typically use RTP as the protocol for the actual transport of audio/video data.

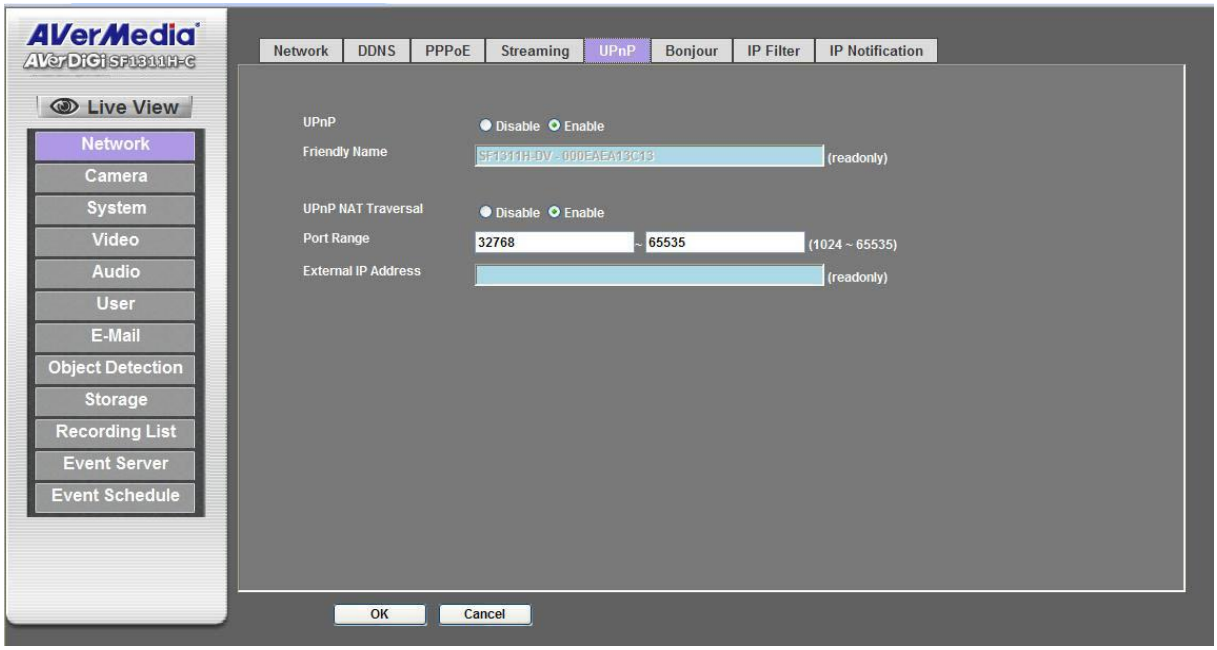


- **RTSP Port:** Choose the RTSP port. The RTSP protocol allows a connecting client to start a video stream. Enter the RTSP port number to use. The default value is 554.
- **RTP Port:** Specify the range of transmission port number of video stream. The default range is 50000 to 50999. User can specify a number between 1024 and 65535.

UPnP

UPnP is short for Universal Plug and Play, which is a networking architecture that provides compatibility among networking equipment, software, and peripherals. This device is an UPnP enabled Video Server. If your operating system is UPnP enabled, the device will automatically be detected and a new icon will be added to “My Network Places.” If you do not want to use the UPnP functionality, it can be disabled.

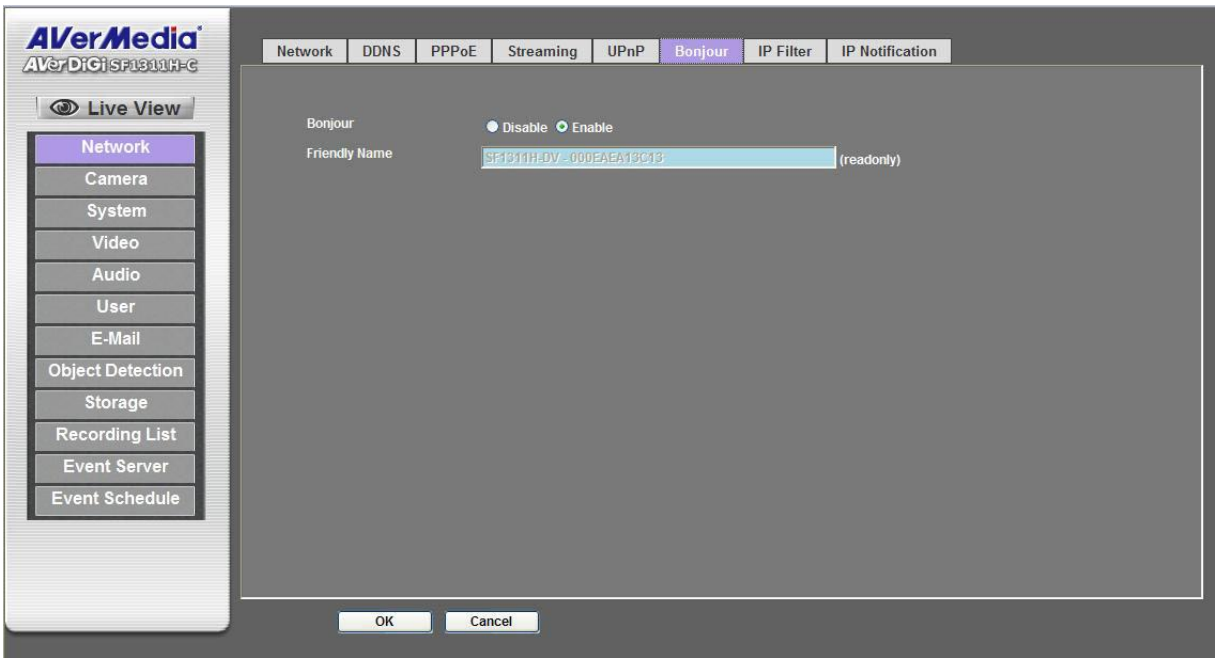
In addition, this device also provides UPnP IGD function for NAT traversal easily. Use NAT traversal when your device is located on an intranet (LAN) and you wish to make it available from the other (WAN) side of a NAT router. With NAT traversal properly configured, all HTTP traffic to an external HTTP port in the NAT router will be forwarded to the device.



- **UPnP:** To enable or disable the UPnP service.
- **Friendly Name:** Shows the friendly name of this device.
- **UPnP NAT Traversal:** When enabled, the device will attempt to configure port mapping in a NAT router on your network, using UPnP™. **Note** that UPnP™ must be enabled in the NAT router first.
- **Port Range:** The port range which will be opened in NAT router.
- **External IP address:** Show the IP address and port for WAN access through Internet. If NAT traversal is configured successfully, user can use this IP address and port to access this device. The external IP address is not shown in case NAT traversal function is failed.

Bonjour Setting

It can support both Safari and Firefox.



- **Bonjour:** To enable or disable the bonjour function.
- **Friendly Name:** It will be detected automatically.

Safari:

Open Safari Browser → Bookmark → Bonjour → Double click the desired IP Camera → Enter Username and Password → Finished

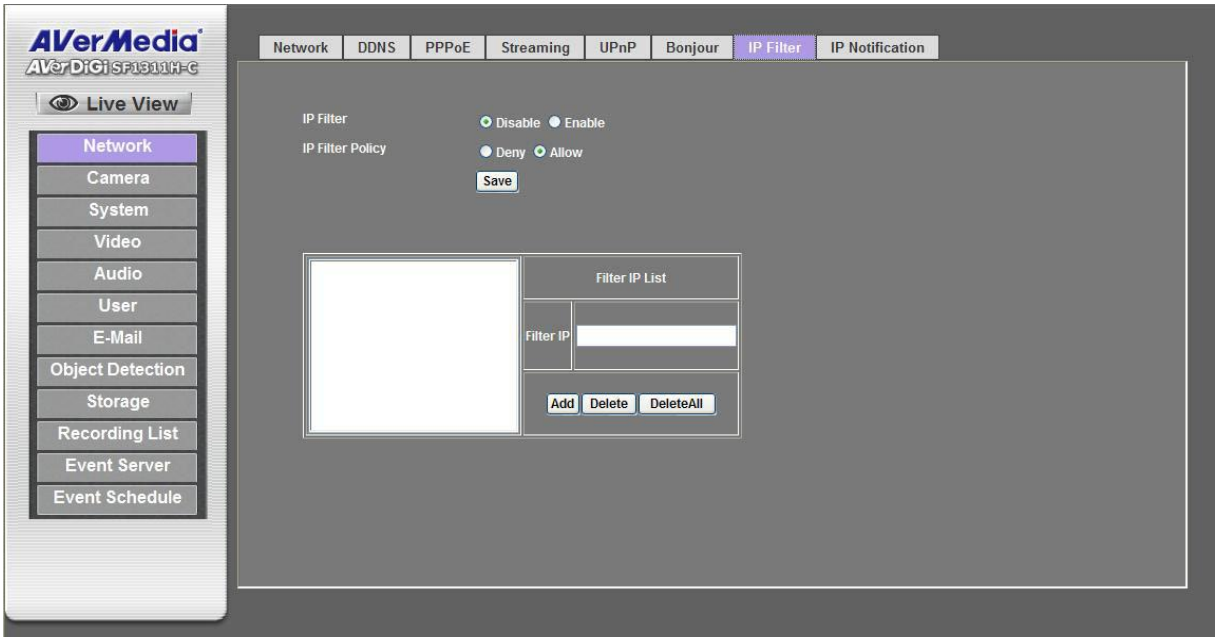
Firefox:

Open Firefox Browser → Tool → Bonjour Browser → Double click the desired IP Camera → Enter the "Host name" in the URL bar (Ex. http://SF1311H.local) → Enter Username and Password → Finished

[Note] Please install " BonjourFoxy " in your computer before using Bonjour Browser in Firefox.

IP Filter

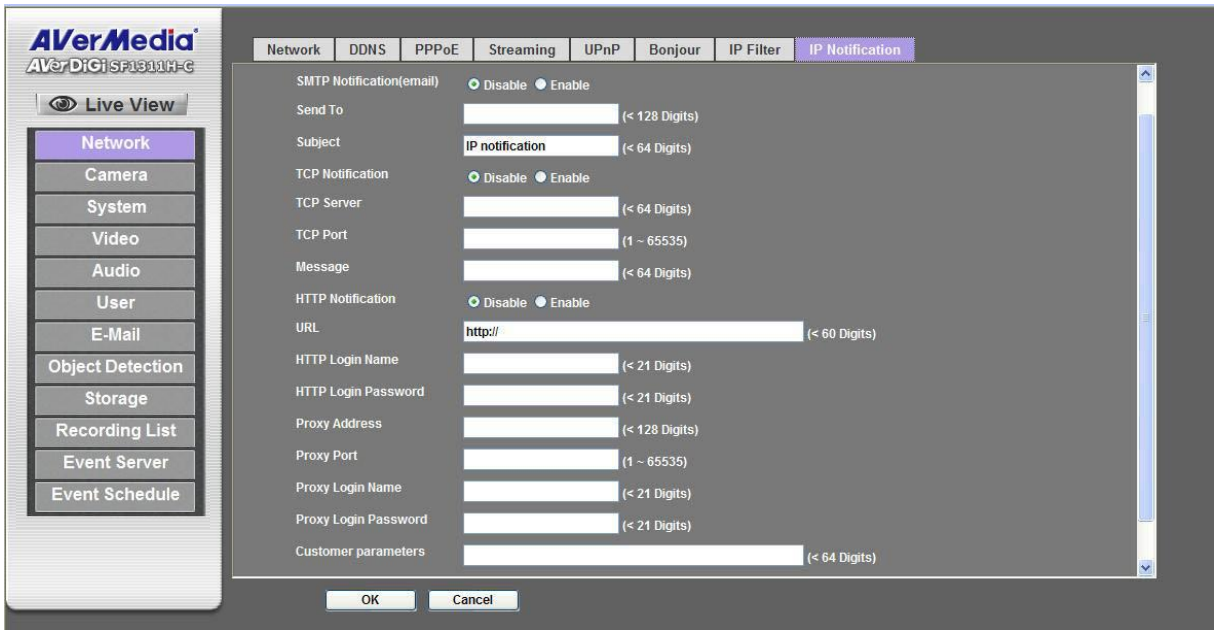
You can define which IP addresses are allowed.



- **IP Filter:** To enable or disable the IP filter function.
- **IP Filter Policy:** Choose the filter policy denying/allowing.

IP Notification

In case the IP address is changed, system is able to send out an email to alert someone if the function is enabled.



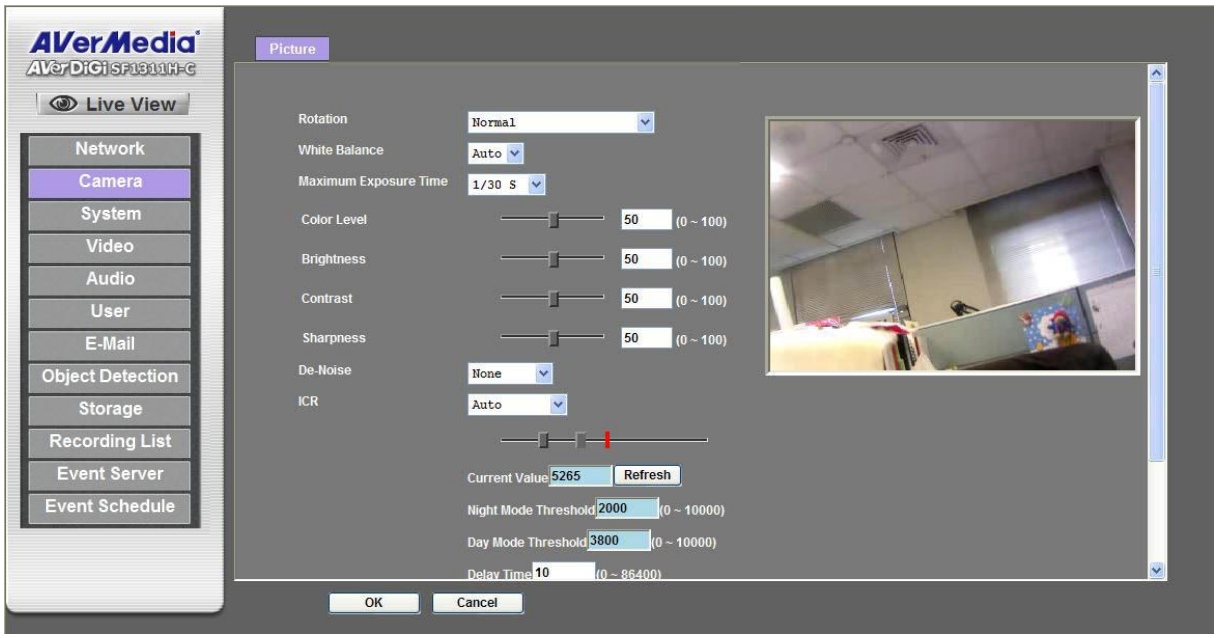
- **SMTP Notification (e-mail):** Please make sure to enable this function and then filled in "**Send to**" and "**Subject**".
  - ***Send To:*** Enter the receiver's e-mail address.
  - ***Subject:*** Enter the title of the E-mail.
- **TCP Notification:** Please make sure to enable this function and then filled in "**TCP server**", "**TCP Port**", and "**Message**".
  - ***TCP Server:*** Enter the server name or the IP address of the TCP server.
  - ***TCP Port:*** Set port number of TCP server.
  - ***Message:*** The message will be sent to FTP server.
- **HTTP Notification:** If enable this function, then the fields below need to be filled.
  - ***URL:*** Enter the server name or the IP address of the HTTP server.

- ***HTTP Login Name:*** Enter the user name for the HTTP server.
- ***HTTP Login Password:*** Enter the password for the HTTP server.
- ***Proxy Address:*** Enter the server name or the IP address of the HTTP Proxy.
- ***Proxy Port:*** Set port number of Proxy.
- ***Proxy Login Name:*** Enter the user name for the HTTP Proxy.
- ***Proxy Login Password:*** Enter the password for the HTTP Proxy.
- ***Custom parameter:*** User can set specific parameters to HTTP server.
- ***Message:*** The message will be sent to HTTP server.

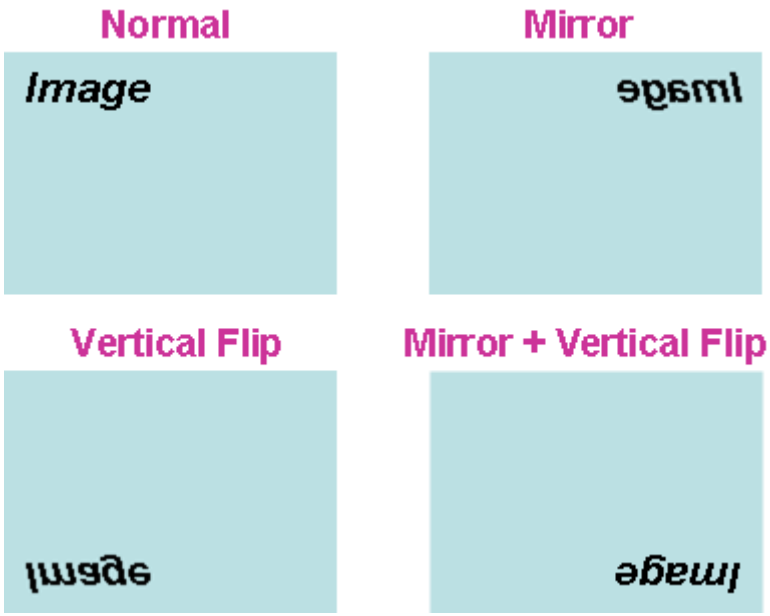
Camera: Adjust Camera Parameters

Use this menu to set the functions of the camera parameters of the device.

Picture



- **Rotation:** Turn the “Mirror” and “Vertical Flip” On or OFF. The image will be overturned as below.



- **White Balance:**
  - ***Auto:*** Adjust the white balance automatically.
  - ***Hold:*** Hold the white balance.
- **Maximum Exposure Control:**
  - ***Auto:*** Adjust the internal gain automatically.

- ***Hold:*** Hold the internal gain.

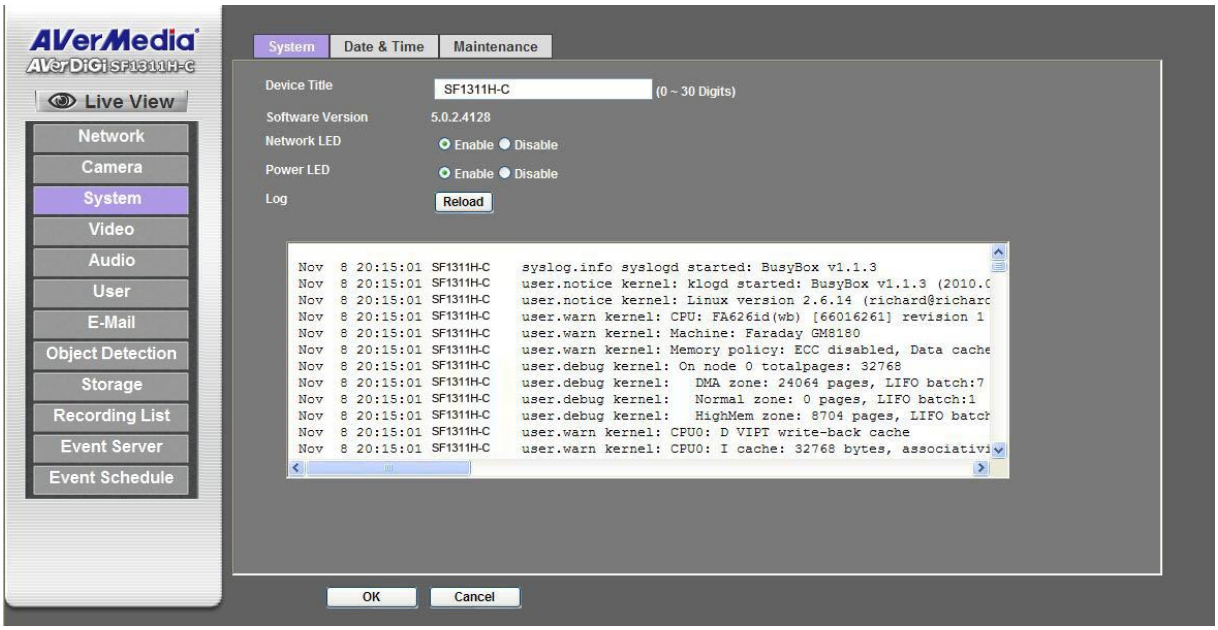
- **Color Level:** The larger value, the more colorful image.
- **Brightness:** The larger value, the brighter image.
- **Contrast:** The larger value, the more contrast image.
- **Sharpness:** The larger value, the sharper image.
- **De-Noise:** De-Noise can remove or lower unwanted noise and preserve fine details and edges.
- **ICR:** ICR stands for **IR Cut Filter Removable** that is to estimate the intensity of the light and switch the IP camera into the Day or Night mode. The function can set to automatically or setting estimate value manually.
  - ***Current Value:*** The current Intensity value of the light. The red mark on the scroll bar represents the current value of light's intensity.
  - ***Night Mode Threshold:*** Set a threshold value for IP camera to switch to Night mode. The darker gray mark on the scroll bar represents the Night Mode Threshold value.
  - ***Day Mode Threshold:*** Set a threshold value for IP camera to switch to Day mode. The lighter gray mark on scroll bar represents the Day Mode Threshold value.

    [Note] 1. When the Current Value is great than Day Mode Threshold value, the IP camera will switch to Day mode.
    2. When the Current Value is less than Night Mode Threshold value, the IP camera will switch to Night mode.
    3. When the Current Value is between Night and Day Mode Threshold value, the IP camera will stay in current mode.
  - ***Delay Time:*** A time gap period before mode switching.
- **Default Settings:** Set all value back to factory default values.

System: Configure and Maintain System

Use this menu to perform the principal settings of the device.

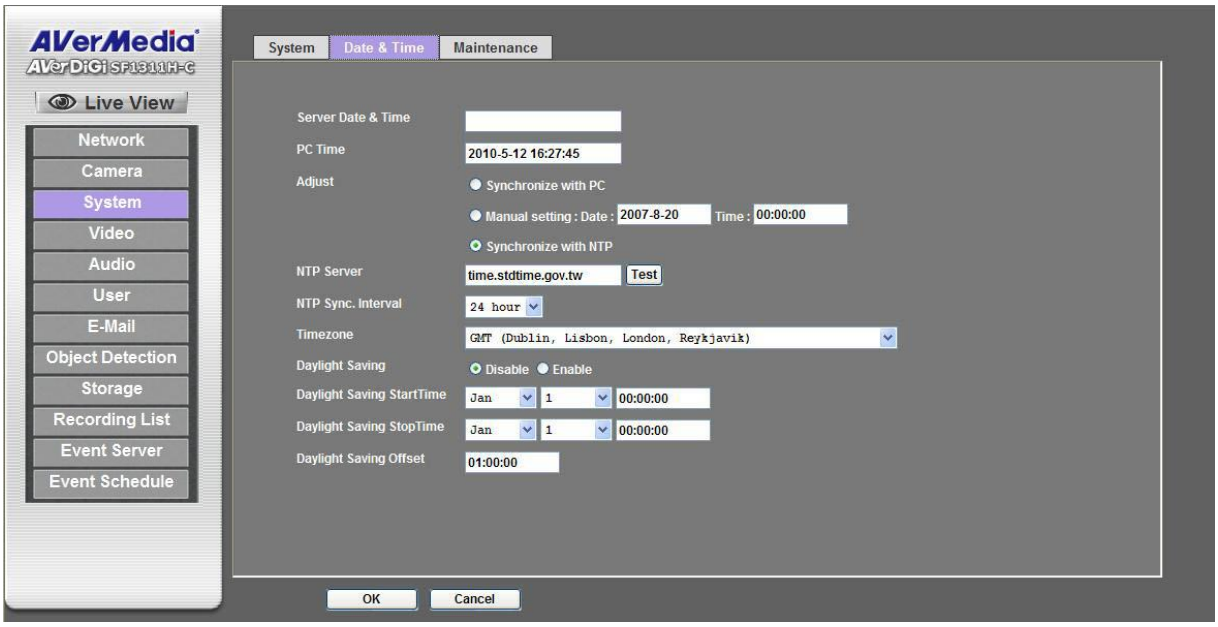
System



- **Device Title:** You can enter the name of this unit. The information will be shown on IPWizard II once the device is found.
- **Software Version:** This information shows the software version of the device.
- **Network LED:** To turn on or off Network LED.
- **Power LED:** To turn on or off Power LED.
- **Log:** User can check the system log information of the device, including the *Main Info*, *Appended Info*, *Operator IP*, *and so on …*
- **Reload:** User can refresh the log information of the device.

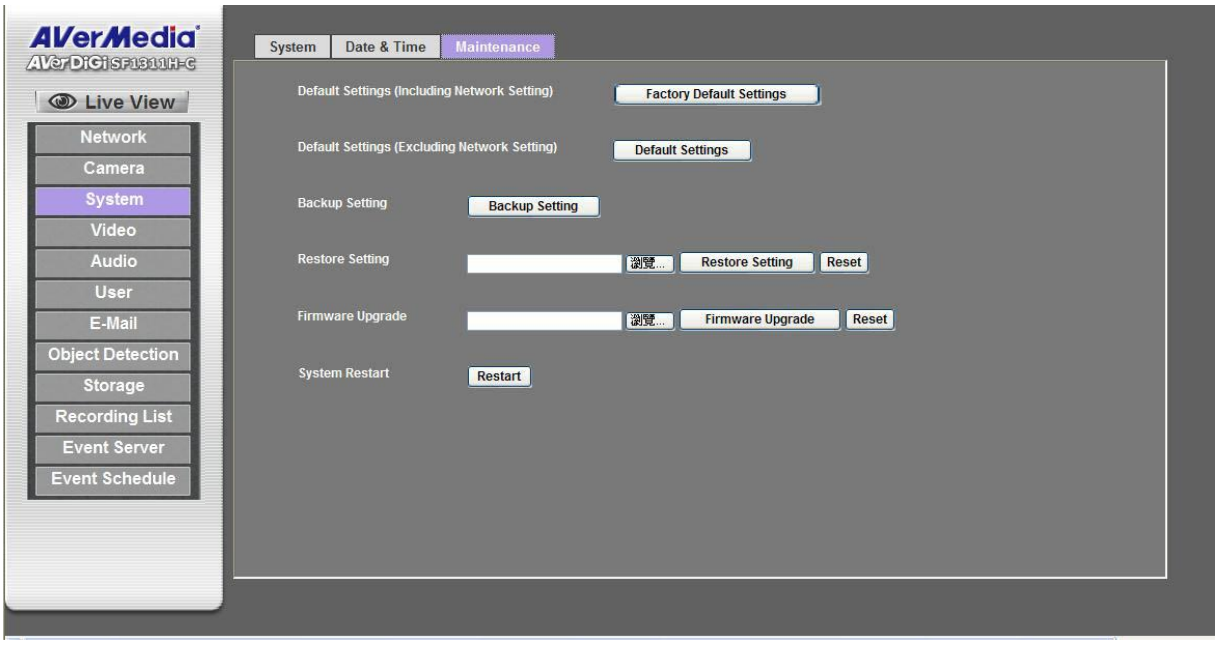
Date & Time

You can setup the device or make it synchronized with PC or remote NTP server. Also, you may select your time zone in order to synchronize time locally.



- **Server Date & Time:** Displays the date and time of the device.
- **PC Time:** Displays the date and time of the connected PC.
- **Adjust**
  - ***Synchronize with PC:*** Click this option to enable time synchronization with PC time.
  - ***Manual setting:*** Click this option to set time and date manually.
  - ***Synchronize with NTP:*** Click this option if you want to synchronize the device's date and time with NTP server (Network Time Protocol).
- **NTP Server:** Type the host name or IP address or domain name of the NTP server.
- **NTP Sync. Interval:** Select an interval between 1 and 23 hours at which you want to adjust the device's time referring to NTP server
- **Timezone:** Set the time difference from Greenwich Mean Time in the area where the device is installed.
- **Daylight Saving:** Disable or enable the daylight saving adjustment.
  - ***Daylight Saving StartTime:*** Set a beginning time for daylight saving.
  - ***Daylight Saving StopTime:*** Set an ended time for daylight saving.
  - ***Daylight Saving Offset:*** Set the time difference during daylight saving period.

Maintenance



- **Default Settings (Including the Network Setting):** Recall the device hard factory default settings. Note that click this button will reset all device's parameters to the factory settings (including the IP address).
- **Default Settings (Except the Network Setting):** The unit is restarted and current settings are reset to factory default values except the network setting.
- **Backup Setting:** This button will backup all of the current system parameters.
- **Restore Setting:** Click the "**Browse"** button to select the backed up files and then click the "**Restore Setting"** button. The settings will be restored to the previous saved configuration.
- **Firmware Upgrade:** The device supports new firmware upgrade (the software that controls the operation in the device). Please contact your dealer for the latest version if necessary.
- **System Restart:** The device is restarted without changing any of the network settings. It means the IP address of the device will not change after firmware upgrade.

Download the latest firmware file from our website or your dealer. Unzip this firmware file to binary file and store it into your PC. Then follow the steps as below carefully:

1. Close all other application programs which are not necessary for firmware update.
2. **Make sure that only you access this device while firmware updating.**
3. Disable Motion Detection function.
4. Click "**Browse**" button. Select the Firmware binary file.
   [Note] Please make sure that the Firmware only applies to this device, once update, it will be burned into FLASH ROM of system.
5. Once the firmware file was selected, click "**Firmware Upgrade**" button.
6. The upgrade progress information will be displayed. Once the uploading process completed, the device will reboot the system automatically.
7. Please wait for timer countdown, and then you can use IPWizard II to search the device again.

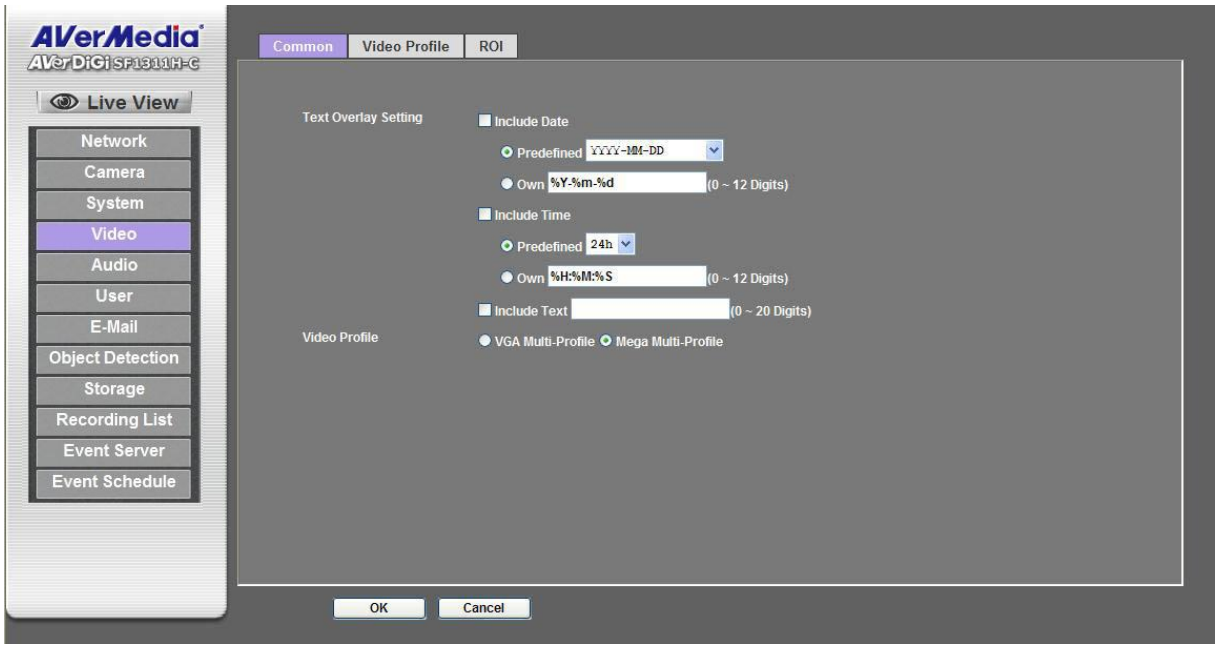
WARNING

- The download firmware procedure cannot be interrupted. If the power and/or network connection are broken during the download procedure, it might possibly cause serious damage to the device.
- Strongly suggest that **DO NOT** upgrade firmware via Wireless LAN due to high error rate possibly and don't allow any other clients to access this unit during updating procedure.
- Be aware that you should not power off during updating the firmware and wait for finish message.
- Furthermore, the firmware upgrade procedure is risky and do not try to upgrade new firmware if it's not necessary.

Video: Configure Profile

This device provides 2 modes of video profile. The first one is Mega Multi-Profile mode which supports video resolution up to Mega-pixel. However the maximum frame rate of this mode is up to 15fps only. The second one is VGA Multi-Profile mode which supports video resolution up to VGA but frame rate can be up to 30fps. User only can select either Mega Multi-Profile or VGA Multi-Profile mode to operate the camera. Changing video profile mode will reboot system.

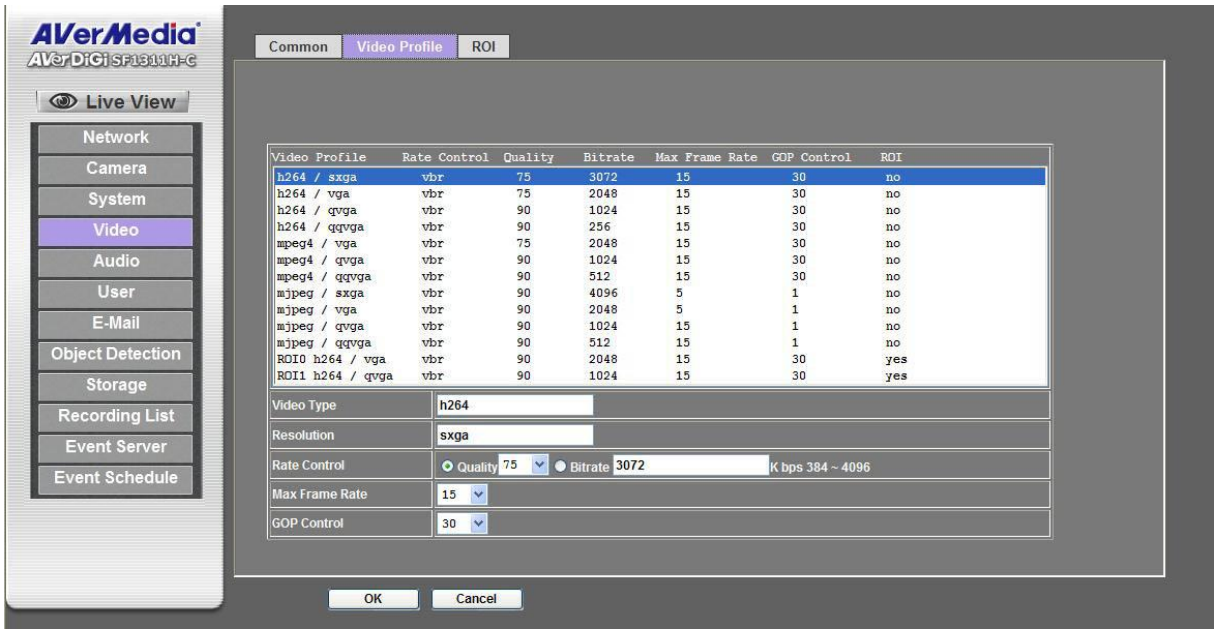
Common



- **Text Overlay Setting:** There are some important information can be embedded into image, including date, time, and text.
- **Video Profile:** User can only choose either VGA Multi-Profile or Mega Multi-Profile mode. VGA Multi-Profile mode can provide H.264, MPEG-4, and M-JPEG streams up to VGA resolution simultaneously. On the other hand, Mega Multi-Profile can provide H.264/Mega and JPEG/Mega two more streams simultaneously.

Video Profile

Select the video profile from list to configure.



✧ H264

- **Resolution:** There are four resolutions in this profile: SXGA(1280x1024), VGA(640x480), QVGA(320x240) and QQVGA(160x128).
- **Rate Control:** Defines the rate control method of this profile. There are two options: Constant Bit Rate (CBR) or Variable Bit Rate (VBR). For CBR, the video bit rate would be fixed. User can set the desired bit rate to match the limitation of bandwidth. For VBR, user could choose the quality level. The quality level is between 1 and 100. The higher value can reach the better quality but it will also need higher bandwidth.
- **Max Frame Rate:** Defines the targeted frame rate of this profile. For example, set the frame rate to 15 fps, then the image will be updated for 15 frames per second as possible. User need to set reasonable frame rate with video quality under the limited bandwidth.
- **GOP Control:** Defines the Intra/Inter-frame (I/P) ratio of this profile. For example, set the GOP to 30, then the video stream will have one Intra-frame(I-frame) every 30 frames.

✧ MPEG-4

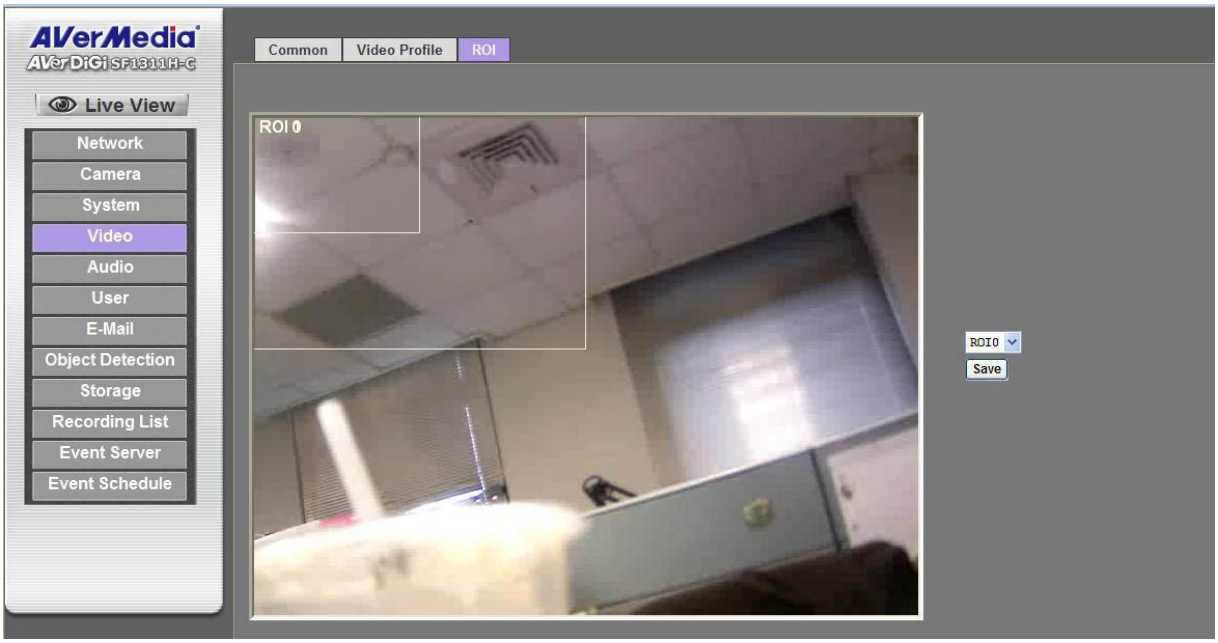
- **Resolution:** There are three resolutions in this profile: VGA(640x480), QVGA(320x240) and QQVGA(160*128).
- **Rate Control:** Defines the rate control method of this profile. There are two options: Constant Bit Rate (CBR) or Variable Bit Rate (VBR). For CBR, the video bit rate would be fixed. User can set the desired bit rate to match the limitation of bandwidth. For VBR, user could choose the quality level. The quality level is between 1 and 100. The higher value can reach the better quality but it will also need higher bandwidth.
- **Max Frame Rate:** Defines the targeted frame rate of this profile. For example, set the frame rate to 15 fps, then the image will be updated for 15 frames per second as possible. User need to set reasonable frame rate with video quality under the limited bandwidth.
- **GOP Control:** Defines the Intra/Inter-frame (I/P) ratio of this profile. For example, set the GOP to 30, then the video stream will have one Intra-frame(I-frame) every 30 frames.

✧ M-JPEG

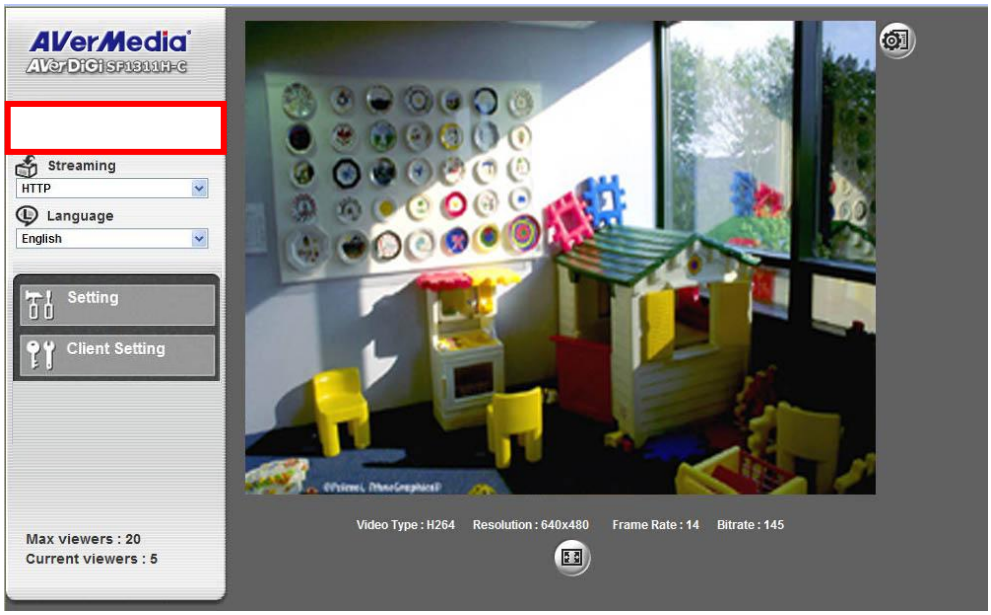
- **Resolution:** There are four resolutions in this profile: SXGA(1280x1024), VGA(640x480), QVGA(320x240) and QQVGA(160x128).
- **Rate Control:** The quality level is between 1 and 100. The higher value can reach the better quality but of course will consume higher bandwidth.
- **Max Frame Rate:** Defines the targeted frame rate of this profile. For example, set the frame rate to 15 fps, then the image will be updated for 15 frames per second as possible. User need to set reasonable max frame rate versus video quality under the limited bandwidth.

ROI

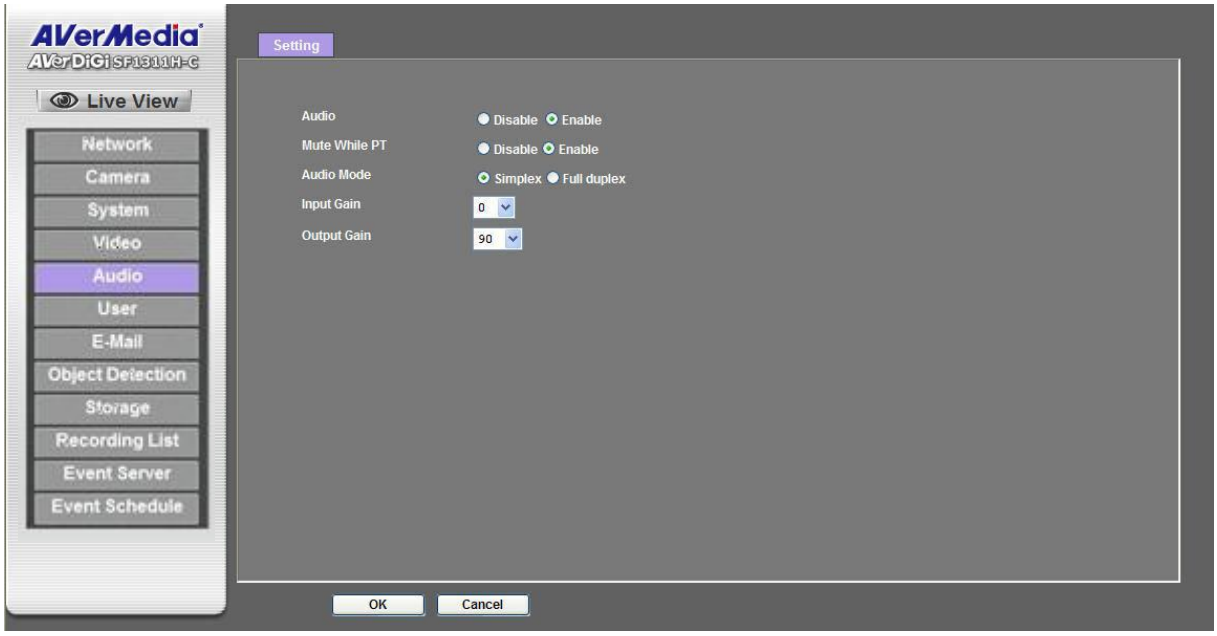
ROI stands for Region on Interest. There are 2 ROI settings can be set.



1. Select **ROI0** or **ROI1** from drop-down list.
2. Using mouse to drag the frame on screen to select the ROI area.
3. Click **Save** to save the setting.
4. The ROI setting can be selected to view from *Video Profile* in Live View Mode.



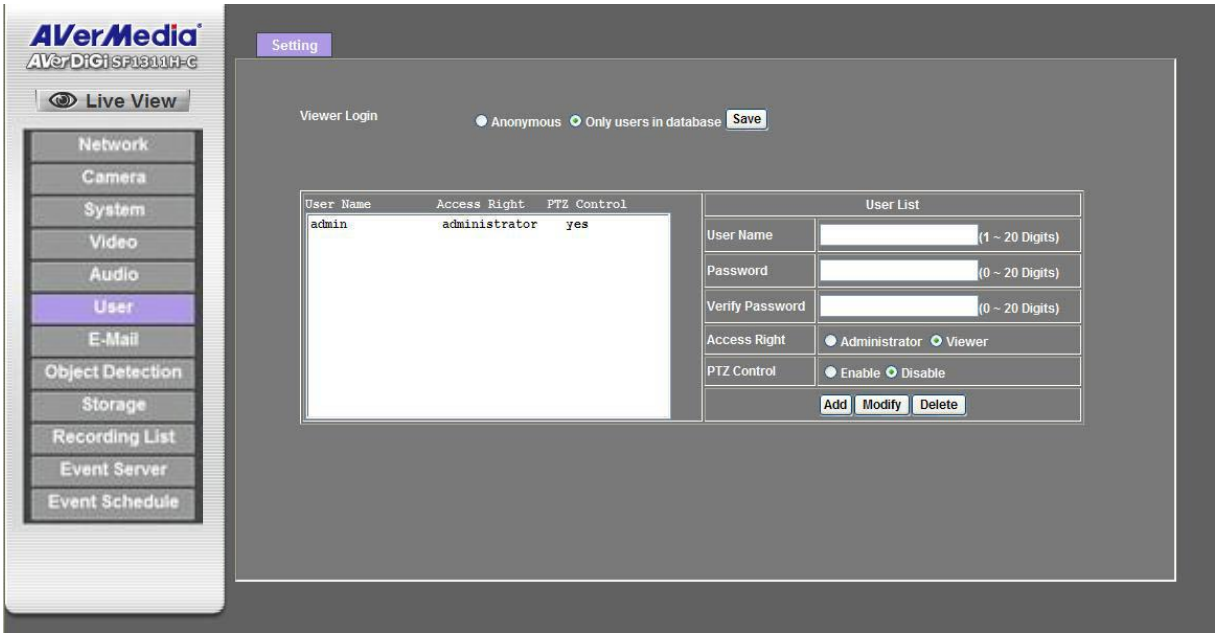
Audio: Audio Parameters



- **Audio:** To enable or disable audio function
- **Mute While PT:** To enable or disable audio while pan-tilt.
- **Audio Mode:** To select Simplex or Full duplex (2-way audio) mode
- **Input Gain:** To adjust gain of input audio
- **Output Gain:** To adjust gain of output audio

User: Manage User Name, Password and Login Privilege

Use this menu to add, modify, or delete the usernames and passwords of the Administrator and viewer.



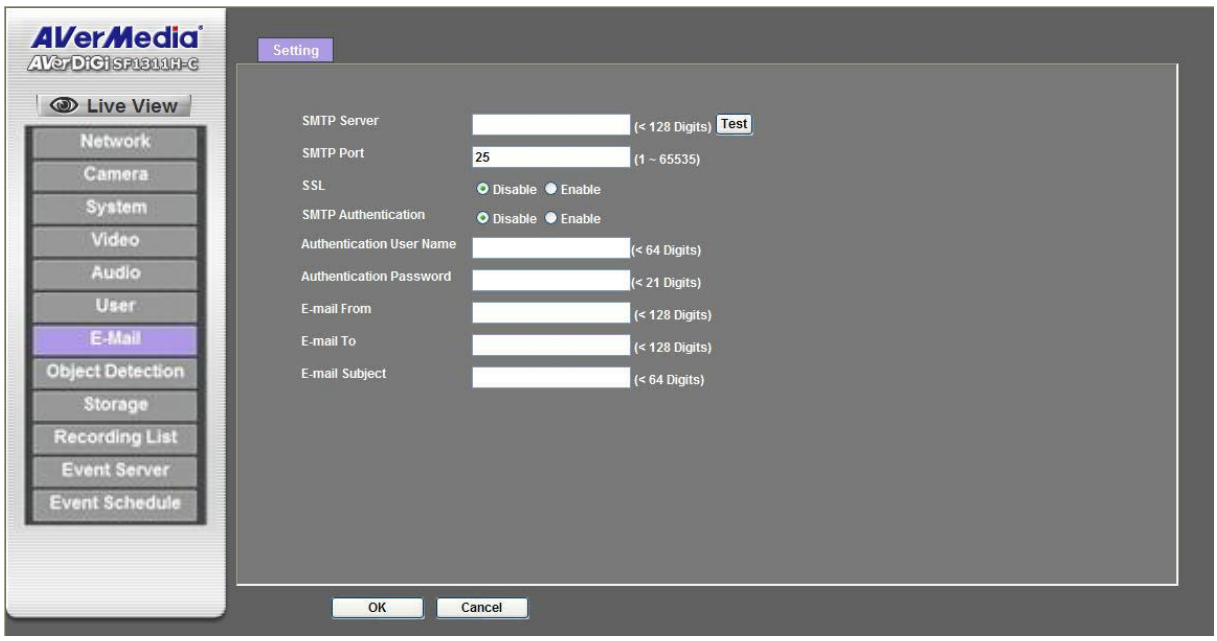
- **Viewer Login:** Select “Anonymous” to allow any one viewing the video once connected. Otherwise, only users in database can view the video after login.
- **Access Right:** Administrator can access every function in this device. However, viewers only can view the video and access limited function.
- **PTZ Control:** Enable/disable the PTZ control right of the user account.
- **Add, Modify, and Delete** button**:** Managing the user’s account of viewer user.

Add a User Account:

1. Select **Access Right** – Administrator or Viewer.
2. Enter **User Name**.
3. Enter **Password**.
4. Re-Enter password to confirm in **Verify Password** column.
5. Click **Add** button.
6. To modify existing account, select the account from account list and click **Modify** button.
7. To delete existing account, select the account from account list and click **Delete** button.

E-Mail: Setup E-Mail Configuration

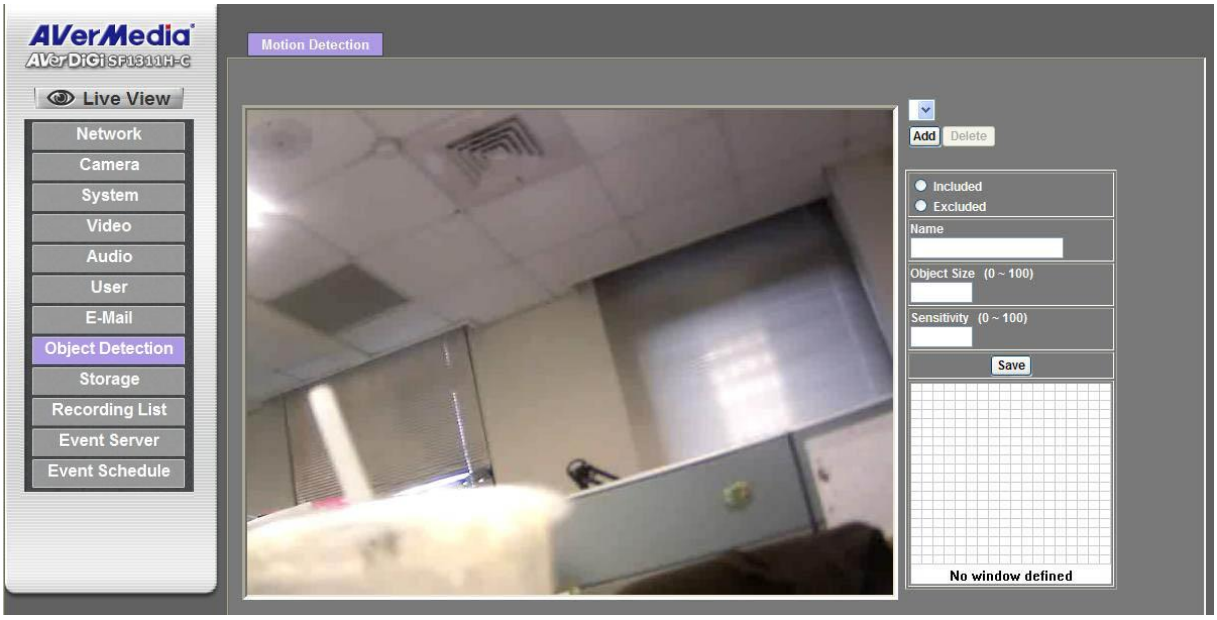
You may setup SMTP mail parameters for further operation of Event Schedule. That's, if users want to send the alarm message out, it will need to configure parameters here and also add at least one event schedule to enable event triggering.



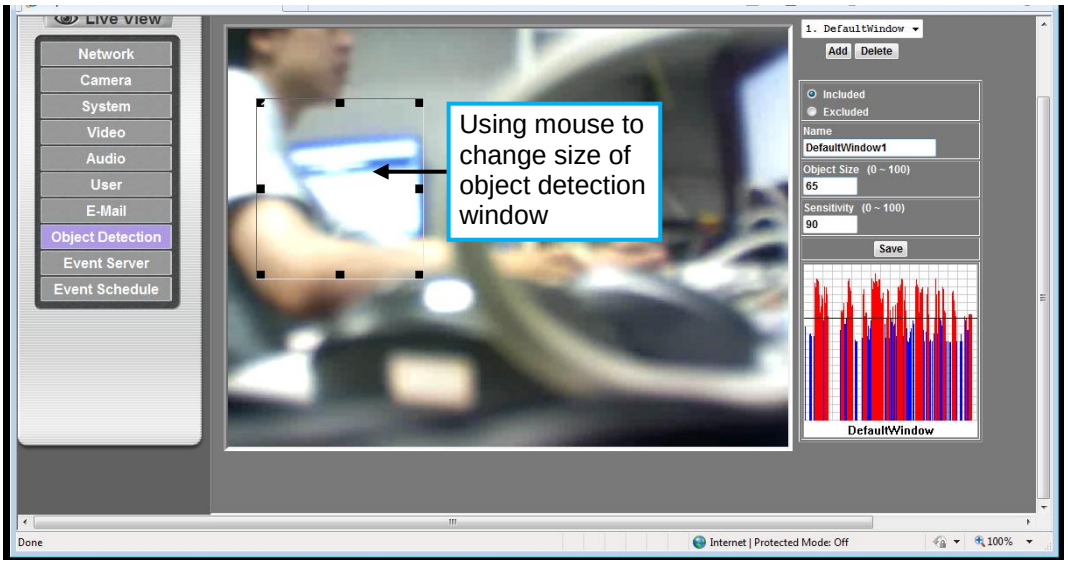
- **SMTP Server:** Enter SMTP server name or the IP address of the SMTP server.
- **Test:** Send a test mail to mail server to check the account that user has entered is available.
- **SMTP Port:** Set port number of SMTP service.
- **SMTP Authentication:** Select the authentication required when you send an e-mail.
  - ***Disable:*** Send e-mail without authentication.
  - ***Enable:*** Send e-mail with authentication.
- **Authentication User name:** Enter the user name for the SMTP server if **Authentication** is **Enable**.
- **Authentication Password:** Enter the password for the SMTP server if **Authentication** is **Enable**.
- **E-mail To:** Enter the receiver's e-mail address.
- **E-mail From:** Enter the sender's E-mail address. This address is used for reply e-mails.
- **E-mail Subject:** Enter the subject/title of the e-mail.

Object Detection: Setup Object Detection

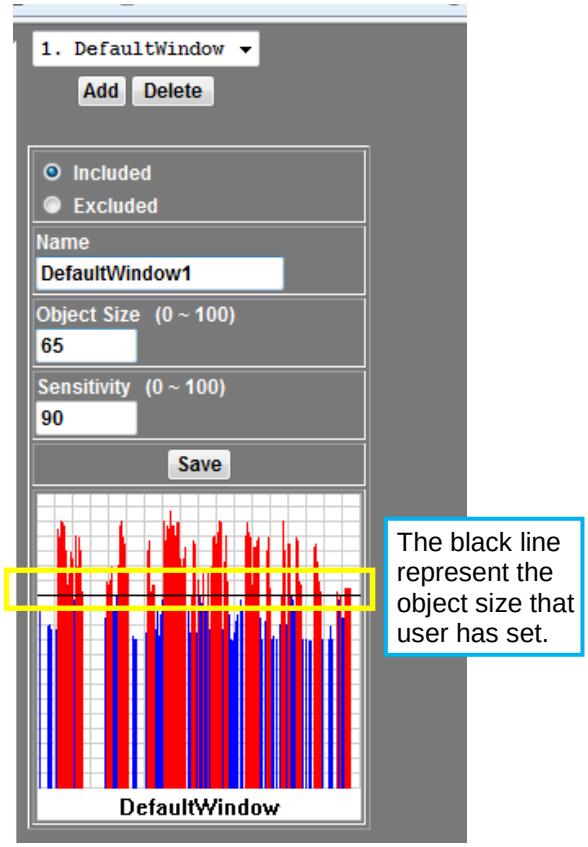
Use this menu to specify motion detection window 1 to window 10 and set the conditions of detection while observing a captured image.



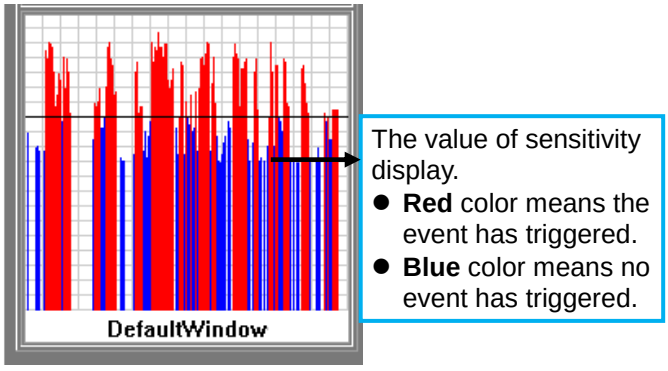
- **Add and Delete:** To add or delete the motion windows. User can specify up to 10 object detection windows (Included and Excluded) to monitor the video captured by IP camera. By dragging mouse on the image, you can change the position and size of the selected motion window accordingly.



- **Included or Excluded Window:** These windows can be specified as Included or Excluded type.
  - ***Included*** windows target specific areas within the whole video image.
  - ***Excluded*** windows define areas within an Include window that should be ignored (areas outside Include windows are automatically ignored).
- **Name:** Name of the specified motion window.
- **Object Size:** Defines the object size of motion detection. The bigger object size, the lower motion trigger frequency. In the other hand, the smaller object size will be easier to trigger the motion action. The black line in the window represents the object size value that user has set. Once, the value of sensitivity is over the black line, the motion event will be triggered.

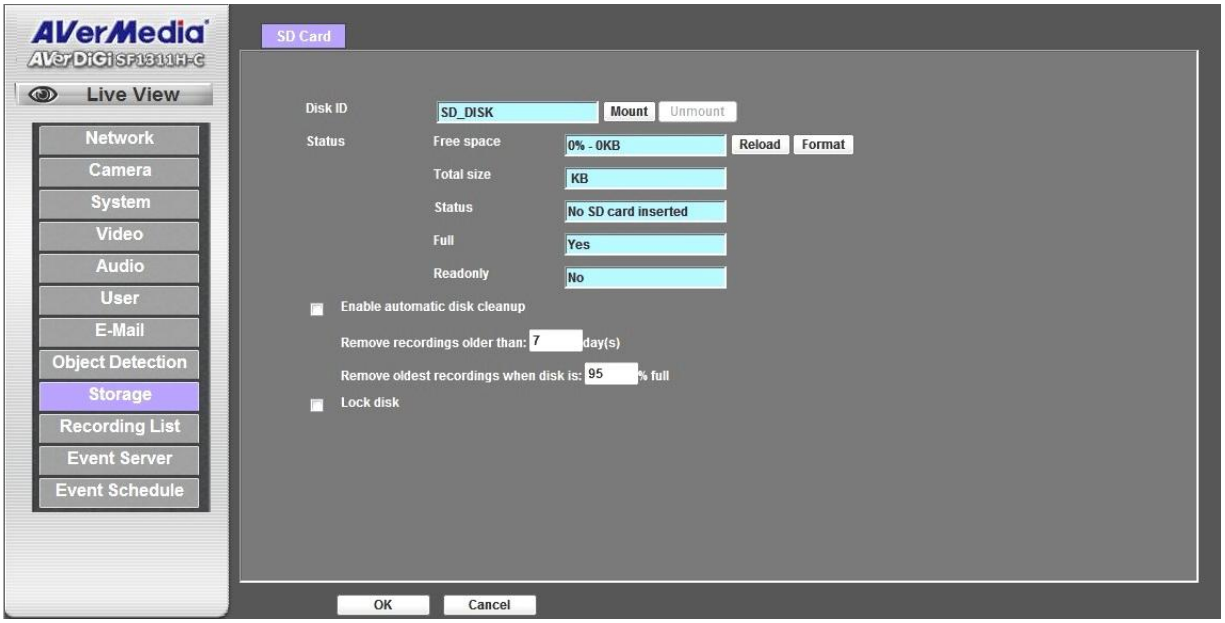


- **Sensitivity:** Defines the sensitivity value of motion detection. The higher value will be more sensitive. When the system has detected the sensitive value, the values will display in window (see below illustrate). If the value of sensitivity is over the black line (object size value), the motion event will be triggered. If the value of sensitivity is below the black line (object size value), the motion event will not be triggered.



Storage: Status and Configuration of MicroSD Card

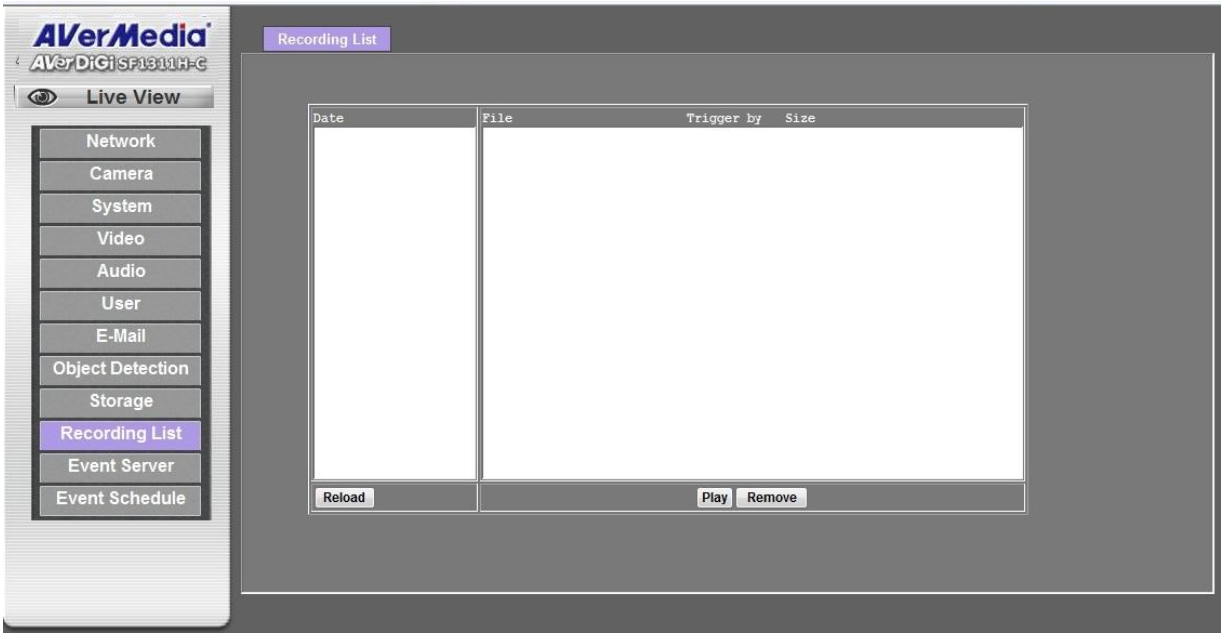
User may setup related parameters to manage the MicroSD card.



- **Enable automatic disk cleanup:** Delete old recorded files based on the conditions set by users. (by days or by left capacity)

Recording List: Files in MicroSD Card

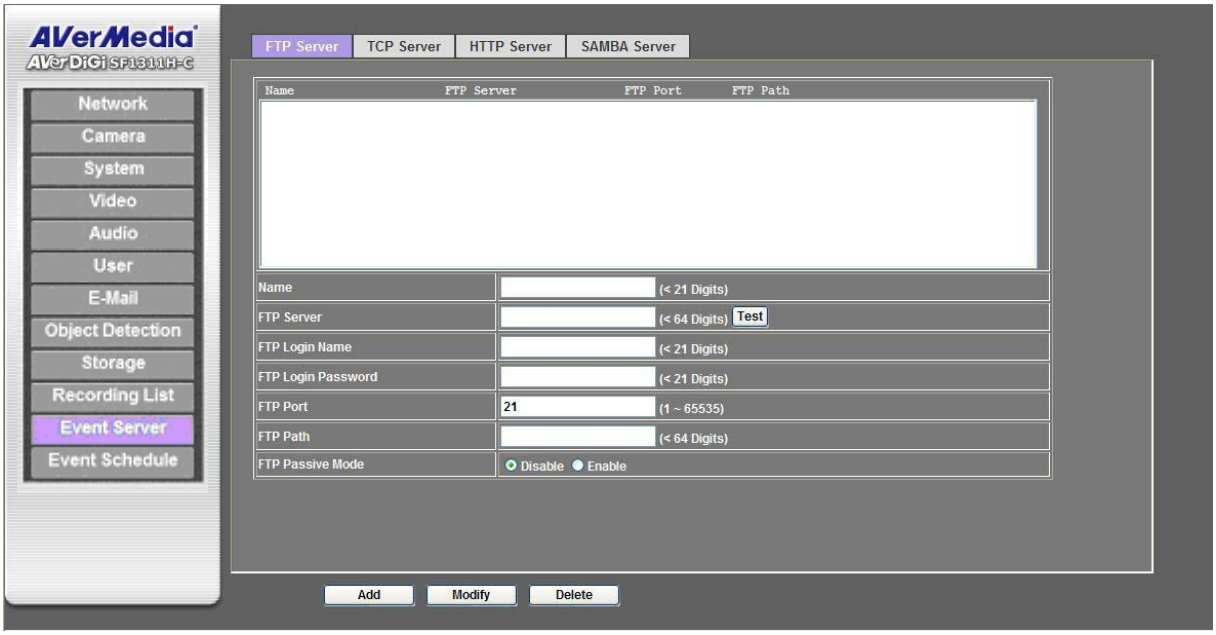
This page shows the information of recorded files. User could play or delete the selected files.



Event Server: Setup FTP/TCP/HTTP/SAMBA server

FTP Server

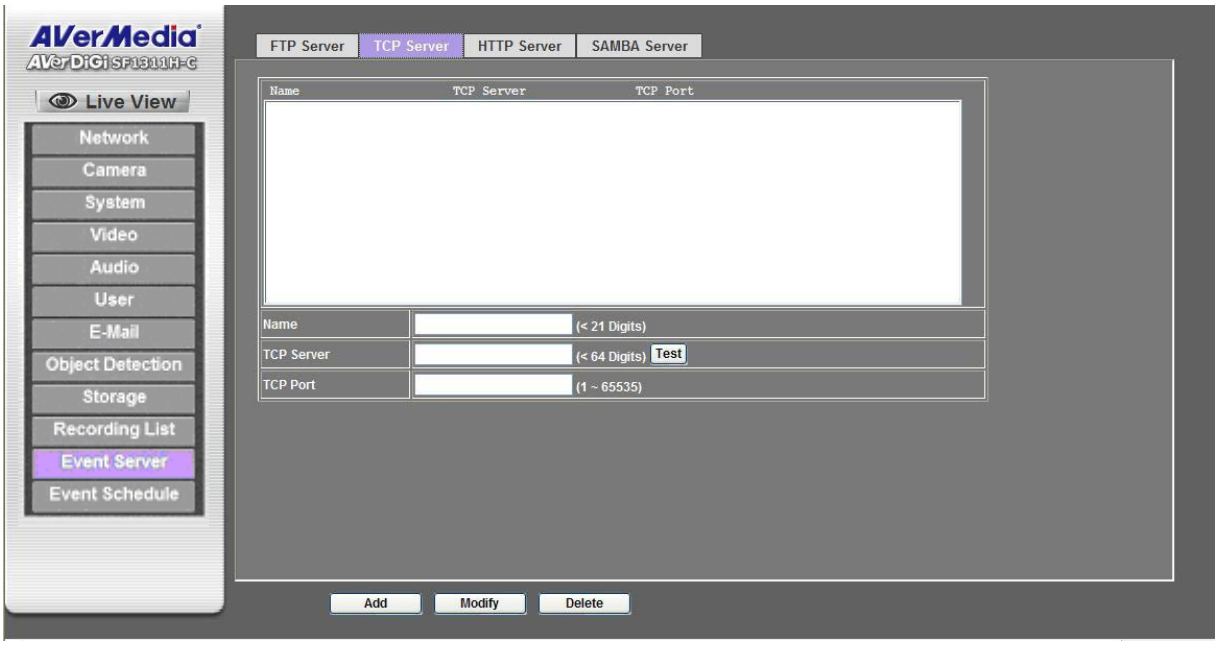
You may setup FTP parameters for further operation of Event Schedule. That's, if users want to send the alarm message or video file to an FTP server, it will need to configure parameters here and also add at least one event schedule to enable event triggering as SMTP.



- **Name:** User can specify multiple FTP paths as wish. Therefore, user needs to specify a name for each FTP setting.
- **FTP Server:** Enter the server name or the IP address of the FTP server.
- **Test:** Check the FTP server whether this account is available or not.
- **FTP Login name:** Enter the user name for the FTP server.
- **FTP Login Password:** Enter the password for the FTP server.
- **FTP Port:** Set port number of FTP service.
- **FTP Path:** Set working directory path of FTP server.
- **FTP Passive Mode:** Select passive or active mode connecting to FTP server.

TCP Server

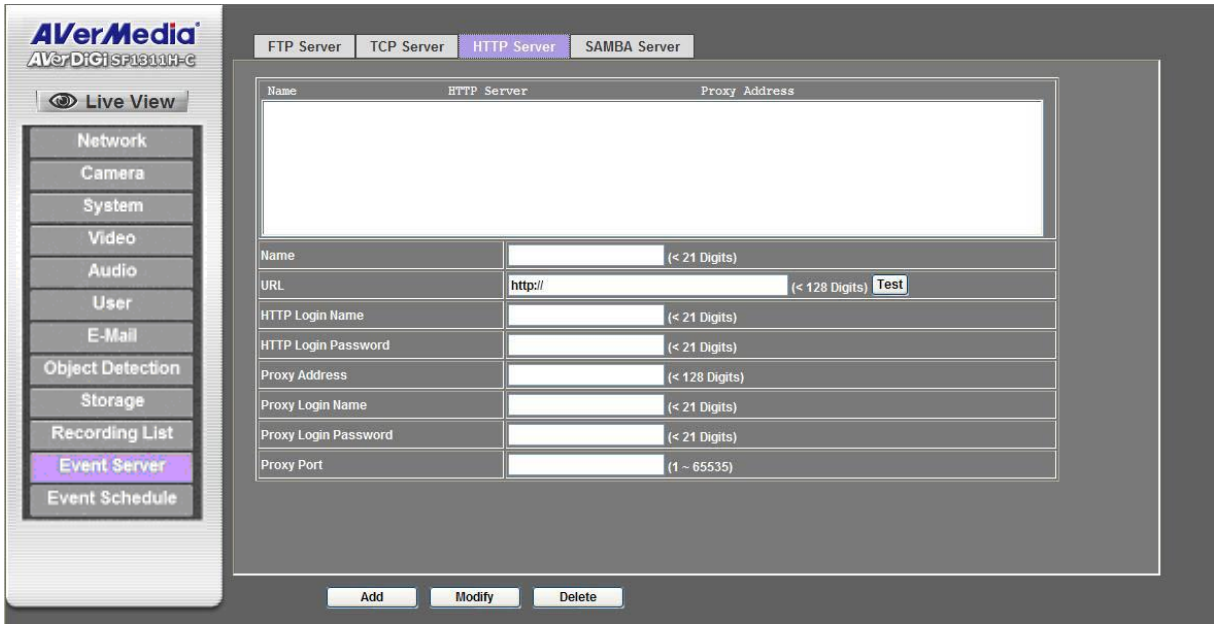
In addition to send video file to FTP server, the device also can send event message to specified TCP server.



- **Name:** User can specify multiple TCP servers as wish. Therefore, user needs to specify a name for each TCP server setting.
- **TCP Server:** Type the server name or the IP address of the TCP server.
- **TCP Port:** Set port number of TCP server.

HTTP Server

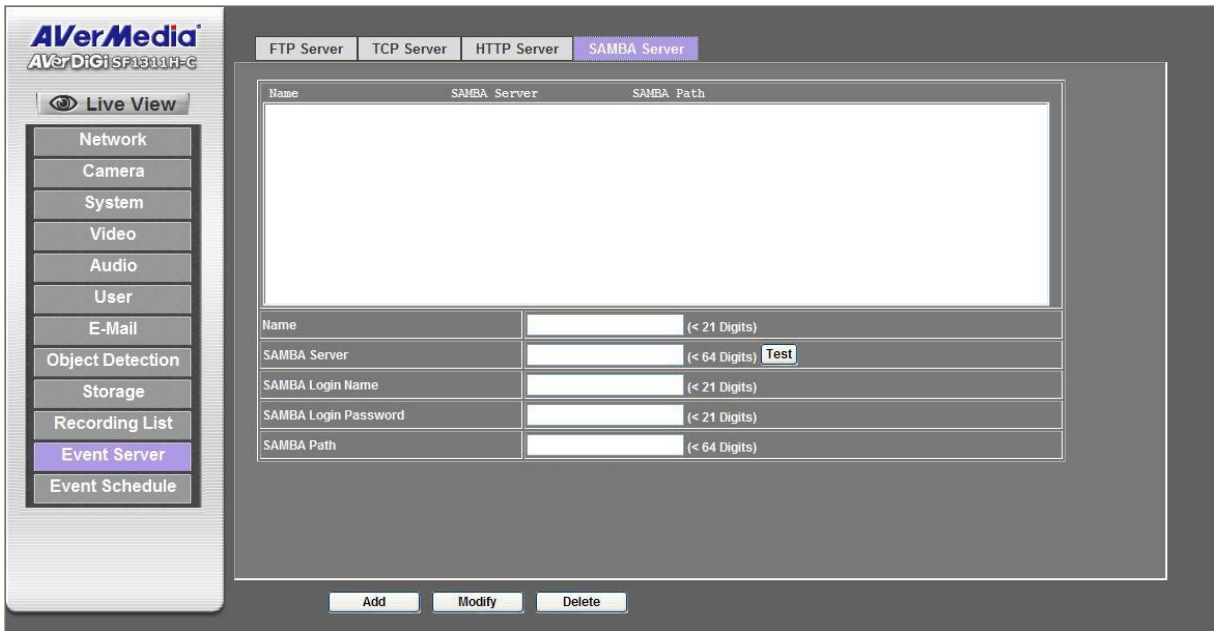
Send event message to specified HTTP server.



- **Name:** User can specify multiple HTTP servers. Needs to specify a name for each HTTP server setting.
- **URL:** Type the server name or the IP address of the HTTP server.
- **Test:** Check the HTTP server whether it is available or not.
- **HTTP Login Name:** Type the user name for the HTTP server.
- **HTTP Login Password:** Type the password for the HTTP server.
- **Proxy Address:** Type the server name or the IP address of the HTTP Proxy.
- **Proxy Login Name:** Type the user name for the HTTP Proxy.
- **Proxy Login Password:** Type the password for the HTTP Proxy.
- **Proxy Port:** Set port number of Proxy.

SAMBA Server

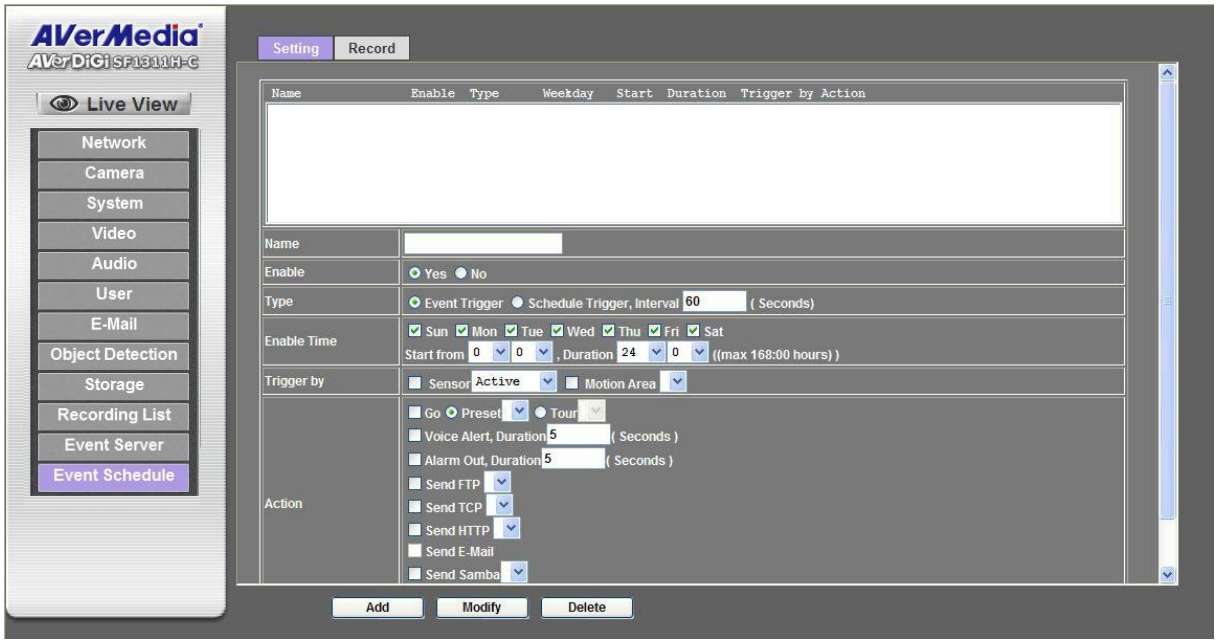
The device also can send video stream to specified SAMBA server.



- **Name:** User can specify multiple Samba servers as wish. Therefore, user needs to specify a name for each Samba server setting.
- **SAMBA Server:** Type the server name or the IP address of the SAMBA server.
- **Test:** Check the SAMBA server whether this account is available or not.
- **SAMBA Login Name:** Type the user name for the SAMBA server.
- **SAMBA Login Password:** Type the password for the SAMBA server.
- **SAMBA Path:** Set working directory path of SAMBA server.

Event Schedule: Configure the Event Schedule Setting

This menu is used to specify the schedule of Event or Schedule Trigger and activate the some actions provided by this device. Where the Schedule Trigger will be activated by user-define interval without event happened.



- **Name:** Name of the Event or Schedule.
- **Enable:** Enable or disable this Event or Schedule.
- **Type:** Event trigger or Schedule trigger.
- **Enable Time:** Define the feasible time slot.
- **Trigger by:** Select the sources to be triggered.
- **Action:** Define the actions once event triggered.

Example 1:

Send file to FTP server by always motion triggered:

1. Select event trigger
2. Enable time: start from 00:00 to 24:00 every day
3. Trigger by: Motion Area (Added in Object Detection page)
4. Action : Send FTP (Add in Event Server -> FTP Server page)

Example 2:

Send file to E-Mail server by motion triggered from Friday 18:00 to Saturday 06:00

1. Select event trigger.
2. Enable time: start from Friday 18:00 and keep work in 12 hours, so it will stop on Saturday 06:00.
3. Trigger by : Motion Area (Added in Object Detection page)
4. Action : Send e-mail (Add in E-Mail page)
   i. To email address: You need to input the receiver email address.
   ii. Subject: You could specify the email subject.
   iii. Message: You could specify the email content.

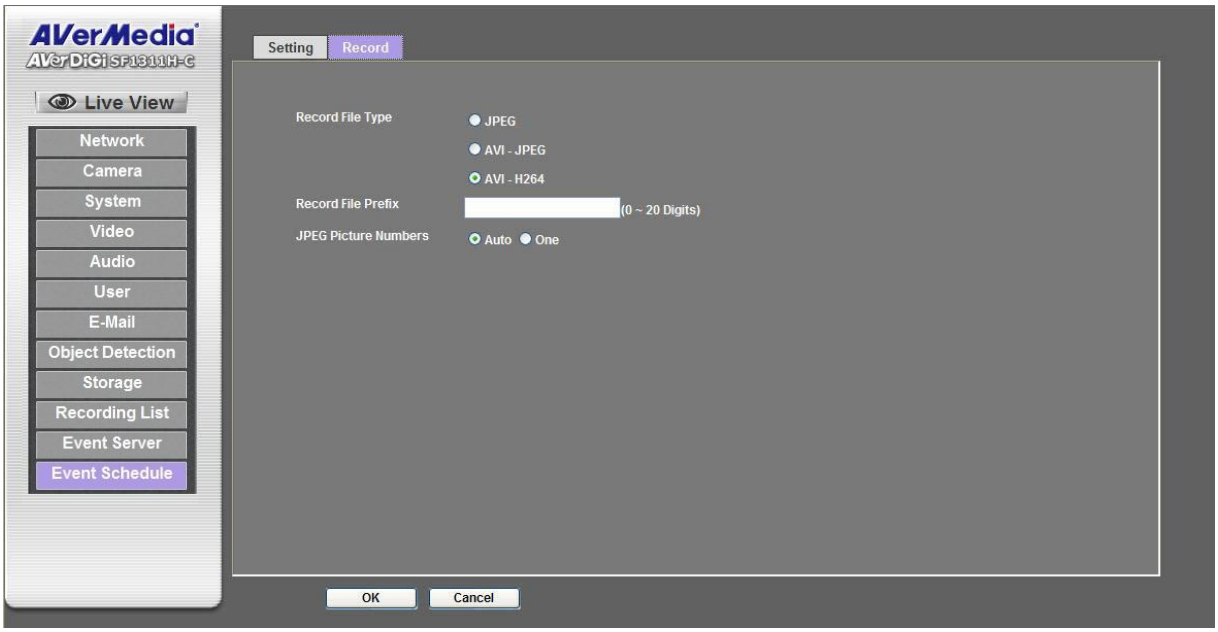
Example 3:

Enable Voice Alert every 10-minute during 18:00 to 24:00 from Monday to Friday.

1. Type: Schedule trigger and interval is 10-minute.
2. Enable time: Select Monday to Friday, and set start time from 18:00 and keep work in 6 hours.
3. Trigger by : You do not need to choose it, because this will be triggered every minute
4. Action : Voice Alert

Record

User can choose the type of record file for event or schedule application.



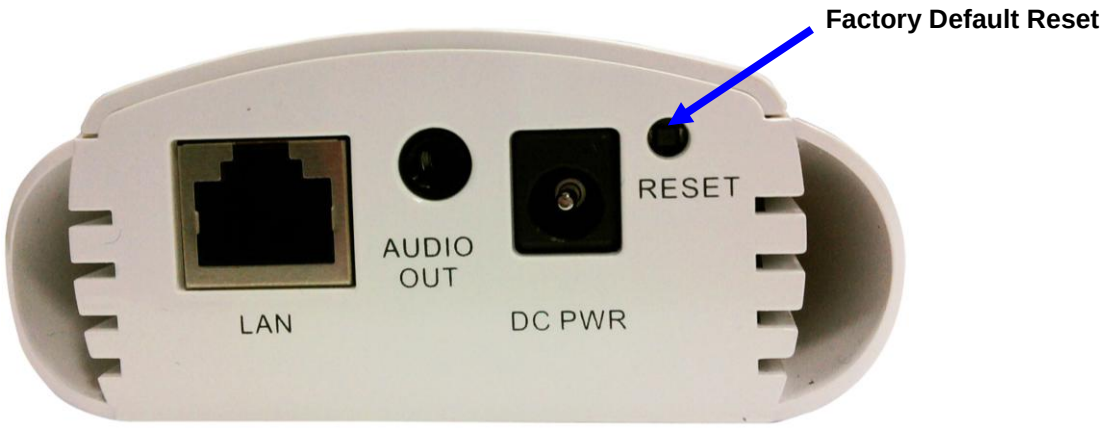
- **Record File Type:** Choose AVI or JPEG file format.
- **Record File Prefix:** Define the prefix of recorded filename.
- **JPEG Picture Numbers:** Define the picture numbers of JPEG to be sent out.

Appendix A: Restore Factory Default Settings

There is a button hidden in the pinhole near to the DC power connector. This button is used to restore the all factory default settings. Sometimes restarting the device will make the system back to a normal state. However, if the system still got problems after restart, user can restore the factory default settings and install it again.

Restore the device:

1. Insert the paper clip or other suitable tool to press and hold the button down continuously.
2. Hold it least 5 seconds and release the tool. Then the device has been restored to default settings and reboot again.



[Note] Restoring the factory default setting will lose the all previous settings included IP address forever. User needs to run the IPWizard II program to search the device and configure it to let the device work properly again.

Appendix B: Troubleshooting & FAQ

Question	Answer or Resolution
Features	
The video and audio codec is adopted in the device.	The device utilizes H.264, MPEG4 and JPEG triple compression to providing high quality images. Where H.264 and MPEG4 are standards for video compression and JPEG is a standard for image compression. The audio codec is defined as AMR for 3GPP and G.711/G.726 for RTSP streaming.
The maximum number of users accesses the device simultaneously.	The maximum number of users is limited to 20. However, it also depends on the total bandwidth accessed to this device from clients. The maximum data throughput of the device is around 20~25Mbps for UDP mode and 10Mbps for HTTP mode. Therefore, the actual number of connected clients is varying by streaming mode, settings of resolution, codec type, frame rate and bandwidth. Obviously, the performance of the each connected client will slow down when many users are logged on.
The device can be used outdoors or not.	The device is not weatherproof. It needs to be equipped with a weatherproof case for outdoors using. However, equipped with a weatherproof case might disable the audio function of the device.
Install this device	
Status LED does not light up.	■ Check and confirm that the DC power adaptor, included in packaged, is used. Secure the power connector and re-power it on again. ■ If the problem is not solved, the device might be faulty. Contact your dealer for further help.
The network cabling is required for the device.	The device uses Category 5 UTP cable allowing 10 and/or 100 Base-T networking.
The device will be installed and work if a firewall exists on the network.	If a firewall exists on the network, port 80 is open for ordinary data communication. The HTTP port and RTSP port need to be opened on the firewall or NAT router.
The username and password for the first time or after factory default reset	Username is **admin** and password is **admin** Note that it's all case sensitivity.
Forgot the username and password	Follow the steps below. 1. Restore the factory default setting by press pressing and holding down more than 5 seconds on the device. 2. Reconfigure the device.
Forgot the IP address of the device	Check IP address of device by using the IPWizard II program or by UPnP discovery.
IPWizard II program cannot find the device	■ Re-power the device if cannot find the unit within 1 minutes. ■ Do not connect device over a router. IPWizard II program cannot detect device over a router. ■ If IP address is not assigned to the PC which running IPWizard II program, then IPWizard II program cannot find device. Make sure that IP address is assigned to the PC properly. ■ Antivirus software on the PC might interfere with the setup program. Disable the firewall of the antivirus software during setting up this device. ■ Check the firewall setting of your PC or Notebook.
Internet Explorer does not seem to work well with the device	Make sure that your Internet Explorer is version 6.0 or later. If you are experiencing problems, try upgrading to the latest version of Microsoft's Internet Explorer from the Microsoft webpage.
IPWizard II program fails to save the network parameters	Network may have trouble. Confirm the parameters and connections of the device.

Question	Answer or Resolution
UPnP NAT Traversal	
Doesn't work with NAT router	Maybe NAT router does not support UPnP function. Please check user's manual of router and turn on UPnP function. Maybe UPnP function of NAT router is not compatible to the IP camera. Please contact your dealer to get the approval routers list.
Some IP cameras are working but others are failed	Maybe too many IP cameras have been installed on the LAN, and then NAT router is out of resource to support more cameras. You could turn off and on NAT router to clear out of date information inside router.
Access this device	
Cannot access the login page and other web pages of the Network Camera from Internet Explorer	■ Maybe the IP Address of the Network Camera is already being used by another device or computer. To confirm this possible problem, disconnect the Network Camera from the network first, and then run the PING utility to check it out. ■ Maybe due to the network cable. Try correcting your network cable and configuration. Test the network interface by connecting a local computer to the Network Camera via a crossover cable. ■ Make sure the Internet connection and setting is ok. ■ Make sure enter the IP address of Internet Explorer is correct. If the Network Camera has a dynamic address, it may have changed since you last checked it. ■ Network congestion may prevent the web page appearing quickly. Wait for a while. ■ The IP address and Subnet Mask of the PC and Network Camera must be in the same class of the private IP address on the LAN. ■ Make sure the http port used by the Network Camera, default=80, is forward to the Network Camera's private IP address. ■ The port number assigned in your Network Camera might not be available via Internet. Check your ISP for available port. ■ The proxy server may prevent you from connecting directly to the Network Camera, set up not to use the proxy server. ■ Confirm that Default Gateway address is correct. ■ The router needs Port Forwarding feature. Refer to your router's manual for details. ■ Packet Filtering of the router may prohibit access from an external network. Refer to your router's manual for details. ■ Access the Network Camera from the Internet with the global IP address of the router and port number of Network Camera. ■ Some routers reject the global IP address to access the Network Camera on the same LAN. Access with the private IP address and correct port number of Network Camera. ■ When you use DDNS, you need to set Default Gateway and DNS server address. ■ If it's not working after above procedure, reset Network Camera to default setting and installed it again. ■ If the problem is not solved, the Network Camera might be faulty. Contact your dealer for further help.

Question	Answer or Resolution
Access this device	
Image or video does not appear in the main page	■ The first time the PC connects to Network Camera, a pop-up **Security Warning window** will appear to download ActiveX Controls. When using Windows XP, or Vista, log on with an appropriate account that is authorized to install applications. ■ Network congestion may prevent the Image screen from appearing quickly. You may choose lower resolution to reduce the required bandwidth.
Check the device's ActiveX is installed on your computer	Go to C:\Windows\Downloaded Program Files and check to see if there is an entry for the file "**IPCamera Control"**. The status column should show "Installed". If the file is not listed, make sure your Security Settings in Internet Explorer are configured properly and then try reloading the device's home page. Most likely, the ActiveX control did not download and install correctly. Check your Internet Explorer security settings and then close and restart Internet Explorer. Try to browse and log in again.
Internet Explorer displays the following message: "Your current security settings prohibit downloading ActiveX controls"	Setup the IE security settings or configure the individual settings to allow downloading and scripting of ActiveX controls.
The device work locally but not externally	■ Might be caused from the firewall protection. Check the Internet firewall with your system or network administrator. The firewall may need to have some settings changed in order for the device to be accessible outside your LAN. ■ Make sure that the device isn't conflicting with any other web server running on your LAN. ■ Check the configuration of the router settings allow the device to be accessed outside your local LAN. ■ Check the bandwidth of Internet connection. If the Internet bandwidth is lower than target bit rate, the video streaming will not work correctly.
The unreadable characters are displayed.	Use the operating system of the selected language. Set the Encoding or the Character Set of the selected language on the Internet Explorer.
Frame rate is slower than the setting.	■ The traffic of the network and the object of the image affect the frame rate. The network congestion causes frame rate slower than the setting. ■ Check the bandwidth of Internet connection. If the Internet bandwidth is lower than target bit rate, the video streaming will not work correctly. ■ Ethernet switching hub can smooth the frame rate.
Blank screen or very slow video when audio is enabled	■ Your connection to the device does not have enough bandwidth to support a higher frame rate for the streamed image size. Try reducing the video streaming size to 160x120 or 320x240 and/or disabling audio. ■ Audio will consume 32 kbps. Disable audio to improve video. Your Internet connection may not have enough bandwidth to support streaming audio from the device.
Image Transfer on e-mail or FTP does not work	■ Default Gateway and DNS server address should be set up correctly. ■ If FTP does not work properly, ask your ISP or network administrator about the transferring mode of FTP server.
Access this device	
Pan/Tilt does not work. (including Click to Center and Preset Positioning)	■ Click **[Refresh]** on the Internet Explorer when the communication stops with the device. The image will refresh. ■ Other clients may be operating Pan/Tilt. ■ Pan/Tilt operation has reached the end of corner.
Pan/Tilt does not work smoothly	There may be a slight delay when you are using the Pan/Tilt feature in conjunction with streaming audio and video. If you find that there is a significant delay while panning or tilting the camera, try disabling the audio streaming and/or reducing the video streaming size.

Question	Answer or Resolution
Video quality of the device	
The focus on the Camera is bad	■ The lens is dirty or dust is attached. Fingerprints, dust, stain, etc. on the lens can degrade the image quality.
The color of the image is poor or strange	■ Adjust White Balance. ■ To insure the images you are viewing are the best they can be, set the Display property setting (color quality) to 16bit at least and 24 bit or higher if possible within your computer. ■ The configuration on the device image display is incorrect. You need to adjust the image related parameters such as brightness, contrast, hue and sharpness properly.
Image flickers	■ Wrong power line frequency makes images flicker. Make sure the 50 or 60Hz format of your device. ■ If the object is dark, the image will flicker. Make the condition around the Camera brighter.
Noisy images occur	The video images might be noisy if the device is located in a very low light environment. Make the condition around the camera brighter or turn the White-light LED on.
Miscellaneous	
Cannot play the recorded ASF file	Have installed Microsoft's DirectX 9.0 or later and use the Windows Media Player 11.0 or later to play the AVI filed recorded by the Device.

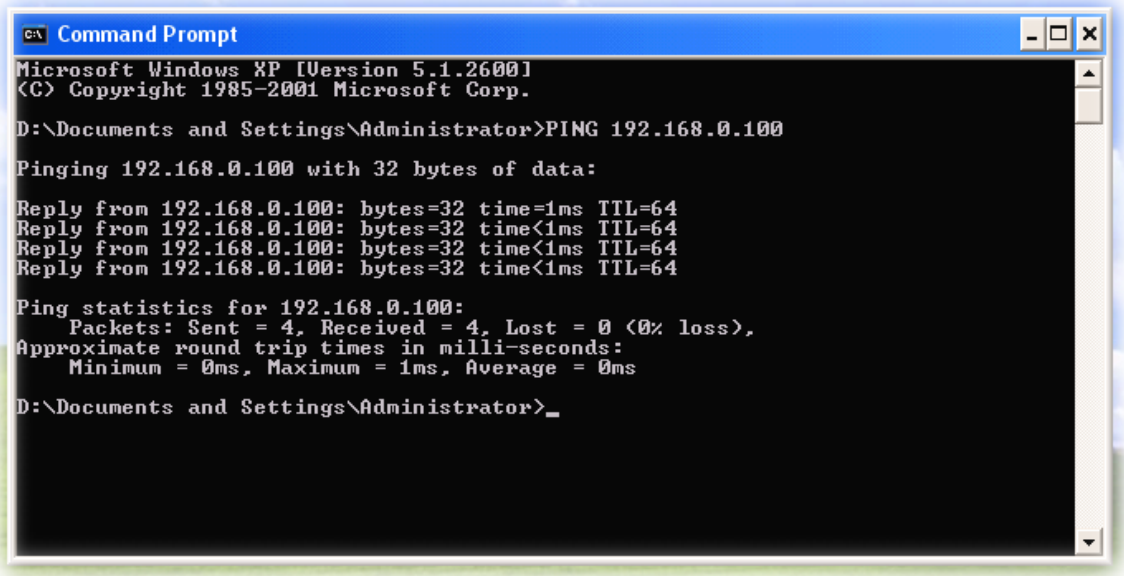
Appendix C: PING IP Address

The PING (stands for Packet Internet Groper) command is used to detect whether a specific IP address is accessible by sending a packet to the specific address and waiting for a reply. It's also a very useful tool to confirm Network Camera installed or if the IP address conflicts with any other devices over the network.

If you want to make sure the IP address of Network Camera, utilize the PING command as follows:

- Start a DOS window.
- Type ping x.x.x.x, where x.x.x.x is the IP address of the Network Camera.

The replies, as illustrated below, will provide an explanation to the problem.



If you want to detect any other devices conflicts with the IP address of Network Camera, also can utilize the PING command but you must disconnect the Network Camera from the network first.

Appendix D: Bandwidth Estimation

The frame rate of video transmitted from the device depends on connection bandwidth between client and server, video resolution, codec type, and quality setting of server. Here is a guideline to help you roughly estimate the bandwidth requirements for your device.

The required bandwidth depends on content of video source. The slow motion video will produce smaller bit rate generally and fast motion will produce higher bit rate vice versa. Actual results generated by the device may be varying.

Image Resolution	Average range of data sizes for JPEG mode	Average bit rate for MPEG4 mode	Average bit rate for H.264 mode
160 x 120 (QQVGA)	3 ~ 6k byte per frame	64kbps~256kbps @ 30fps	32kbps~192kbps @ 30fps
320 x 240 (QVGA)	8 ~ 20k byte per frame	256kbps~768kbps @ 30fps	192kbps~512kbps @ 30fps
640 x 480 (VGA)	20 ~ 50K byte per frame	512kbps~2048kbps @ 30fps	384kbps~1536kbps @ 30fps
1280x1024 (SXGA)	100 ~ 200k byte per frame	NA	512kbps~3076kbps @ 15fps

[Note] Audio streaming also takes bandwidth around 32kbps. Some xDSL/Cable modem upload speeds could not even reach up to 128 kbps. Thus, you may not be able to receive good quality video while also streaming audio on a 128 kbps or lower connection. Even though the upload speed is more than 128kbps, for optimal video performance, disabling audio streaming will get better video performance.

Appendix E: Specifications

Camera	
Image Device	1.3 Mega-pixel image sensor
Effective Pixels	1280 x 1024 pixels
Sensitivity	1.0V/lux-sec (550nm)
Signal to Noise	44dB
Lens	f:4.3mm / F:1.8
IP Module	
Video	
Video Encoder	H.264, MPEG4 and Motion JPEG simultaneously (Tri-encoders)
Video Profile	11 profiles simultaneously - H.264 SXGA/ VGA / QVGA / QQVGA - MPEG4 VGA / QVGA / QQVGA - M-JPEG SXGA/ VGA / QVGA / QQVGA
Frame Rate	Mega-pixel mode: Up to 15fps for all 11 profiles VGA mode: Up to 30fps for all 9 profiles
Image Setting	De-noise Brightness, sharpness, contrast, color Text, time and date overlay
Streaming	Simultaneously multi-profile streaming Streaming over UDP, TCP, or HTTP Multicast streaming M-JPEG streaming over HTTP Supports 3GPP mobile surveillance Controllable frame rate and bandwidth Constant and variable bit rate (MPEG4 / H.264)
Audio	
Audio Encoder	RTSP: G.711 64kbps, G.726 32kbps 3GPP: AMR
Audio Streaming	One-way or two-way
Microphone	Built-in microphone
Audio Output	Line level out
Network	
Supported Protocols	TCP, UDP, HTTP, SMTP, FTP, NTP, DNS, DDNS, DHCP, ARP, Bonjour, UPnP, RTSP, RTP, RTCP, PPPoE, 3GPP, ICMP, IGMP, SAMBA
Security	Password protection, IP address filtering, user access log
Users	20 simultaneous unicast users Unlimited users using multicast
Ethernet	10/100M auto negotiation
Wireless	IEEE 802.11n (for wireless model only)
PoE	802.3af (for PoE model only)
System Integration	
Application Programming Interface	Open API for software integration SDK
Alarm Triggers	Intelligent video motion detection and external input
Motion Detection	10-zone video motion detection
Alarm Events	File upload via FTP, SAMBA or email Notification via email, HTTP, and TCP External output activation Go to PTZ preset position Audio alerting output
Video Buffer	Pre- and post- alarm buffering
General	
RAM	128MB
ROM	8MB
Power Supply	12V DC external power adapter
PoE	IEEE 802.3af (for wired model only)

General	
Power Consumption	6W max (WLAN model) or 5W max (LAN/POE model)
Connectors	RJ-45 10BaseT/100BaseTX , DC jack Audio out Antenna (wireless model only)
Indication LED	Two-Color LED
Illumination LED	6 white-light LEDs
Operating Temperature	0°C to 40°C (32°F to 104°F)
Operating Humidity	20% ~ 80% (non-condensing)
Dimension	TBD
Viewing System	
OS	Windows® XP, Vista , Win7
Browser	IE 6.0 or latter / Firefox 2.0 or later
Cell Phone	With 3GPP player
Video Player	VLC, QuickTime, RealPlayer
Software	
Search & Installation	IPWizard II
Bundled NVR Program	SecuGuard 64CH Basic

Appendix F: Configure Port Forwarding Manually

The device can be used with a router. If the device wants to be accessed from the WAN, its IP address needs to be setup as fixed IP address, also the port forwarding or Virtual Server function of router needs to be setup. This device supports UPnP traversal function. Therefore, user could use this feature to configure port forwarding of NAT router first. However, if user needs to configure port forwarding manually, please follow the steps as below:

Manually installing the device with a router on your network is an easy 3–step procedure as following:

(1) Assign a local/fixed IP address to your device
(2) Access the Router with Your Web browser
(3) Open/Configure Virtual Server Ports of Your Router

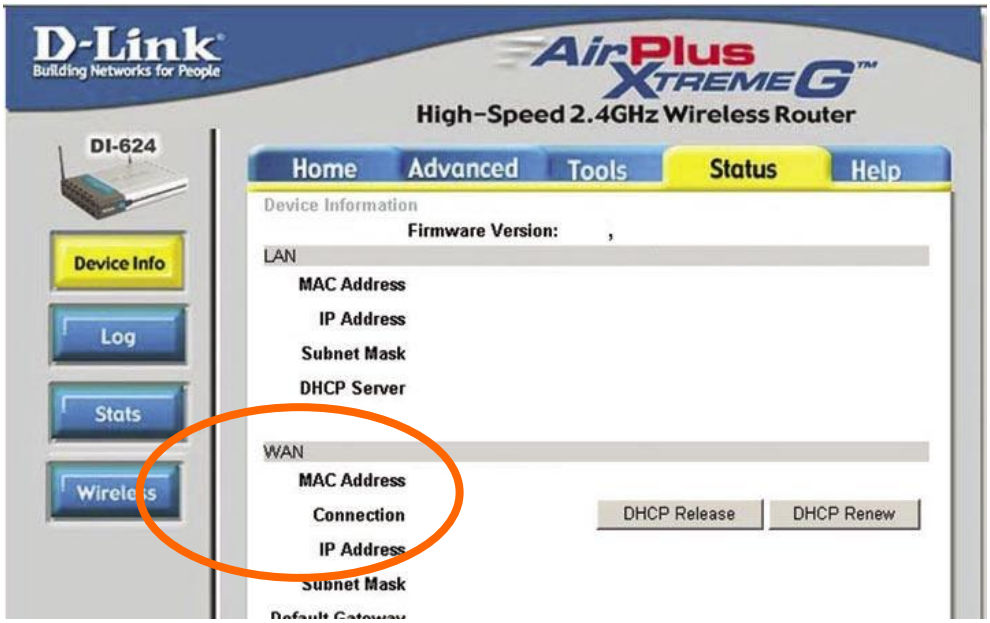
(1) Assign a local/fixed IP address to your device

The device must be assigned a local and fixed IP Address that allows it to be recognized by the router. Manually setup the device with a fixed IP address, for example, *192.168.10.30.*

(2) Access the Router with Your Web browser

The following steps generally apply to any router that you have on your network. The D-Link DI-624 is used as an example to clarify the configuration process. Configure the initial settings of the router by following the steps outlined in the router's **Quick Installation Guide**.

If you have cable or DSL service, you will most likely have a dynamically assigned WAN IP Address. 'Dynamic' means that your router's WAN IP address can change from time to time depending on your ISP. A dynamic WAN IP Address identifies your router on the public network and allows it to access the Internet. To find out what your router's WAN IP Address is, go to the **Status** screen on your router and locate the WAN information for your router. As shown on the following page the WAN IP Address will be listed. This will be the address that you will need to type in your web browser to view your camera over the Internet. Be sure to uncheck the **Reset IP address at next boot** button at the top of the screen after modifying the IP address. Failure to do so will reset the IP address when you restart your computer.



Your WAN IP Address will be listed here.

[Note] Because a dynamic WAN IP can change from time to time depending on your ISP, you may want to obtain a Static IP address from your ISP. A Static IP address is a fixed IP address that will not change over time and will be more convenient for you to use to access your camera from a remote location. If you could not get a Static IP address from your ISP, DDNS is a solution alternatively. Please refer to Appendix G for more

information.

(3) Open/set Virtual Server Ports to enable remote image viewing

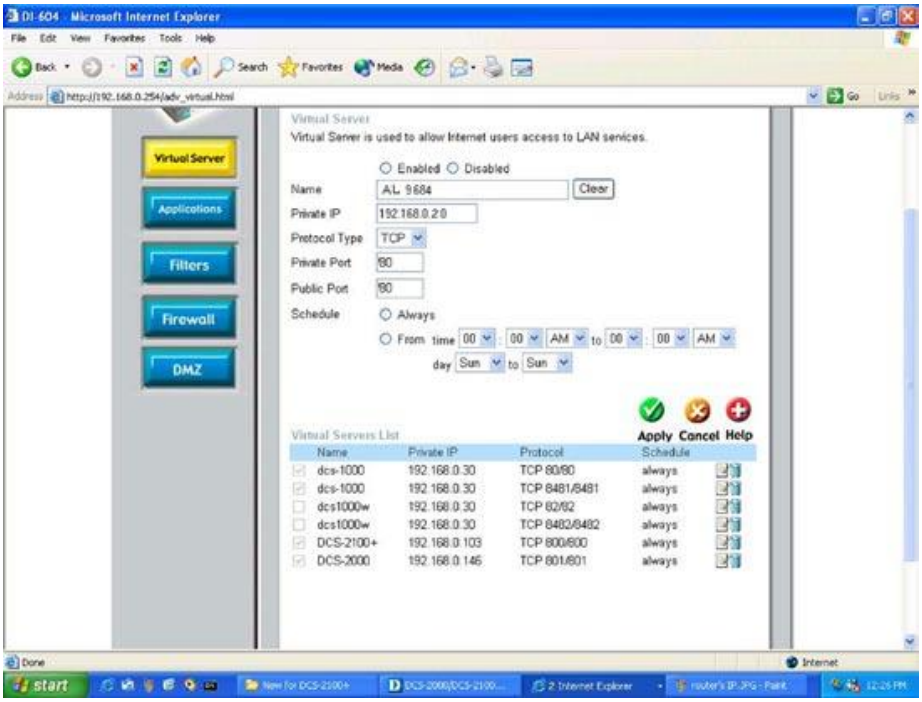
The firewall security features built into the router and most routers prevent users from accessing the video from the device over the Internet. The router connects to the Internet over a series of numbered ports. The ports normally used by the device are blocked from access over the Internet. Therefore, these ports need to be made accessible over the Internet. This is accomplished using the **Virtual Server** function on the router. The Virtual Server ports used by the camera must be opened through the router for remote access to your camera. Virtual Server is accessed by clicking on the **Advanced** tab of the router screen.

Follow these steps to configure your router's Virtual Server settings

- Click **Enabled**.
- Enter a unique name for each entry.
- Select **Both** under **Protocol Type** (**TCP** and **UDP**)
- Enter your camera's local IP Address (e.g., **192.168.10.30**, for example) in the **Private IP** field.
- If you are using the default camera port settings, enter **80** into the **Public** and **Private Port** section, click **Apply.**
- **Scheduling** should be set to **Always** so that the camera images can be accessed at any time.

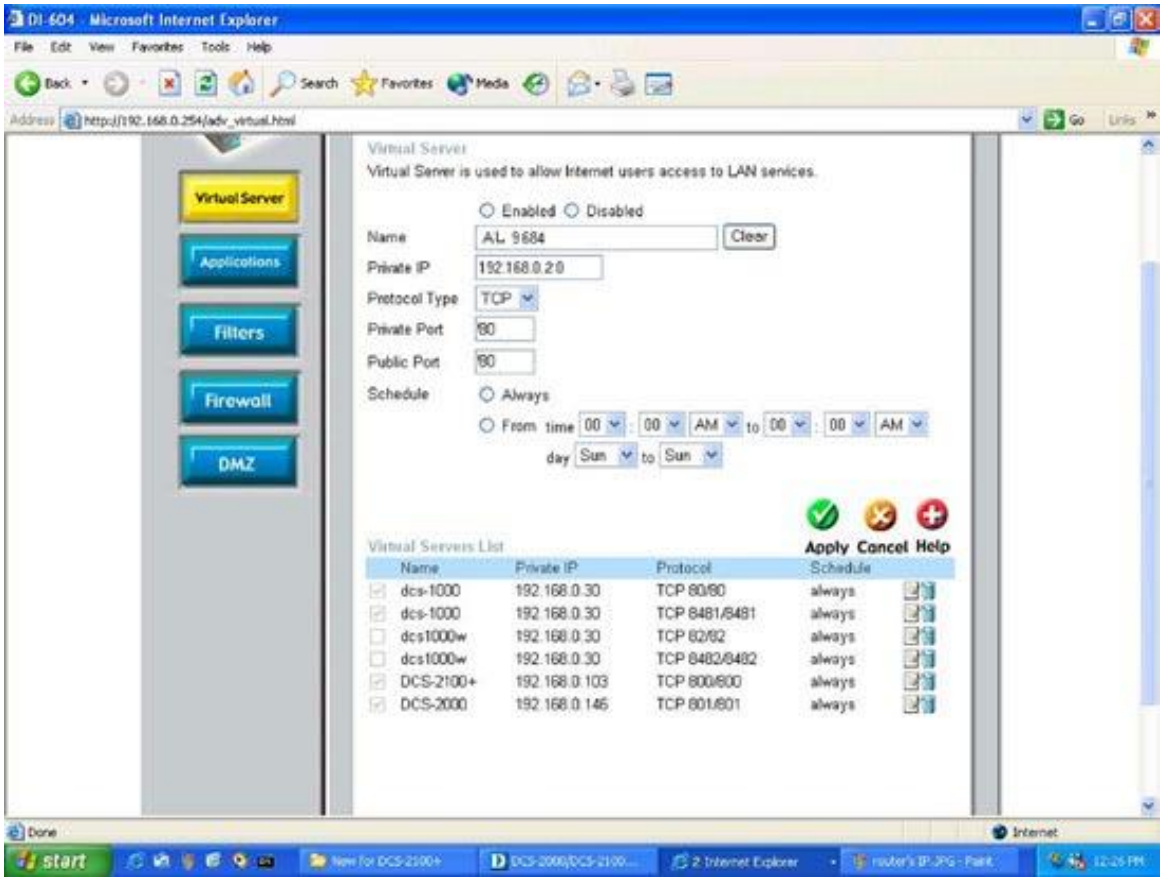
A check mark appearing before the entry name will indicate that the ports are enabled.

[IMPORTANT] Some ISPs block access to port 80. Be sure to check with your ISP so that you can open the appropriate ports accordingly. If your ISP does not pass traffic on port 80, you will need to change the port the camera uses from 80 to something else, such as 8080. Not all routers are the same, so refer to your user manual for specific instructions on how to open ports.



Enter valid ports in the **Virtual Server** section of your router. Please make sure to check the box on this line to enable settings. Then the device can be access from WAN by the router's WAN IP Address.

By now, you have finished your entire PC configuration for this device.



Enter valid ports in the **Virtual Server** section of your router. Please make sure to check the box on this line to enable settings. Then the device can be access from WAN by the router's WAN IP Address.

By now, you have finished your entire PC configuration for this device.

Appendix G: DDNS Application

1. Preface

If you have a Cable modem or xDSL, this is a great way to host your own Networked Device or other TCP/IP Service. Get your own domain like www.yourname.com, www.yourname.com.tw etc. (Note: This domain must be registered with Internic via registration authorities such as Network Solutions, DirectNIC, Register.com etc). Your domain name's dynamic IP address is automatically tracked by a DDNS server.

Host your own Networked Device and much more no matter what your computer's IP address may be and even if you have dialup, DSL or cable modem internet connection where your computer's IP address changes all the time!! DDNS service supports all top level domain names including but not limited to .com, .net, .org, .to, .uk etc.

2. Ethernet Network Environment

Normally, DDNS service is only necessary for the users that could only obtain dynamic IP addresses. As to the users that could obtain the static valid IP address, they do not usually have to apply the DDNS service. Before we decide if DDNS is necessary for the users, we have to check what kind of Ethernet network environment we have to install our Networked Device on.

(1) Environment of Fixed Valid IP Network

If users could obtain valid IP addresses, they could save the effort to apply DDNS service. Because the IP address in this environment is fixed, users could input the IP address or domain name of demo site directly in the IE browser.

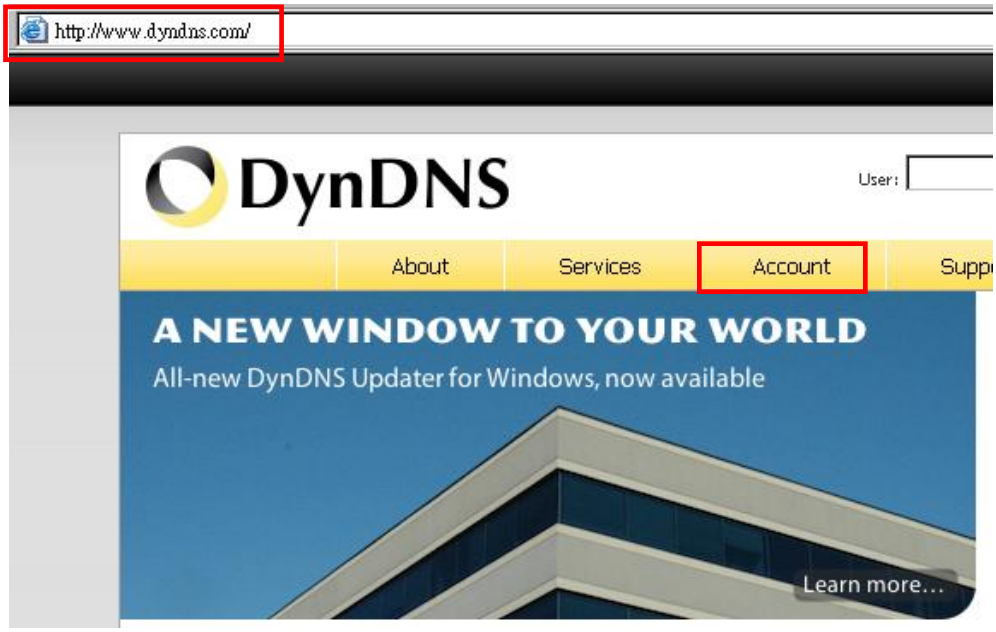
(2) Environment of Dynamic IP Network

If users is under an environment of dynamic IP network (Dial-up xDSL), they have to apply a domain name in advance. Then apply DDNS service. Finally setup the necessary information of DDNS and PPPoE of the Networked Device in order to let the outside administrator be able to access through internet.

3. Application Steps—DDNS & Domain Name

(1) Visit the following web site: http://www.dyndns.org/

(2) Click "**Account**"



(3) After the columns show up at the left side, click "**Create Account**".

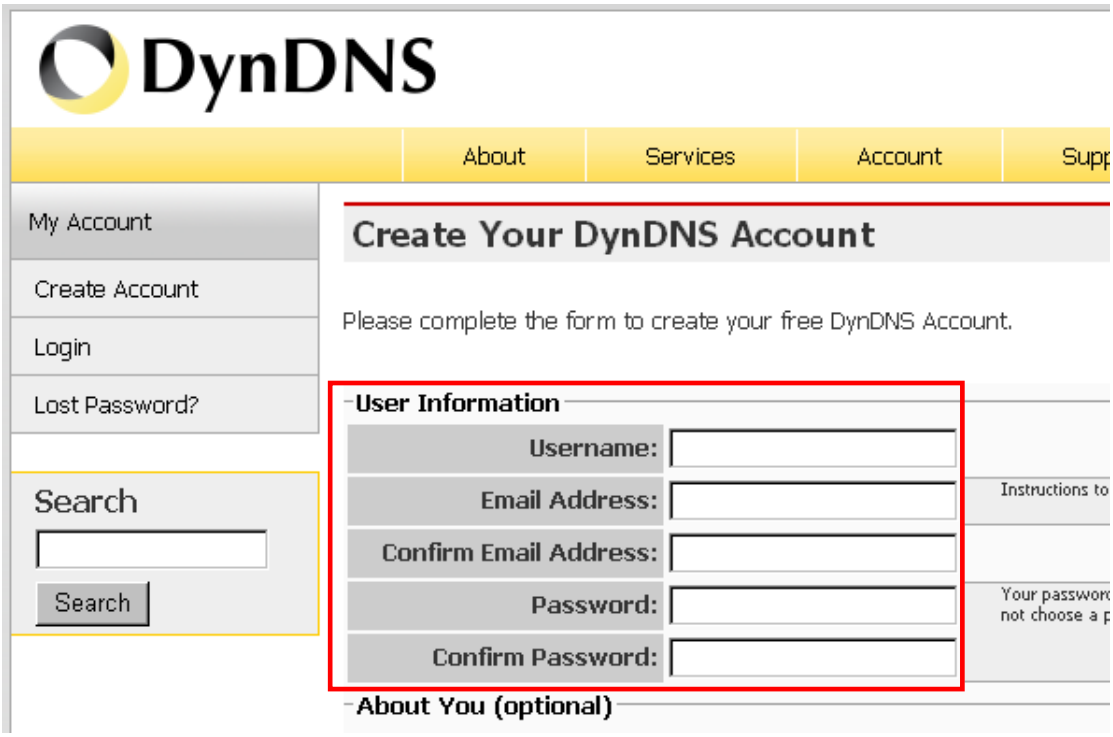
(4) Fill the application agreement and necessary information.

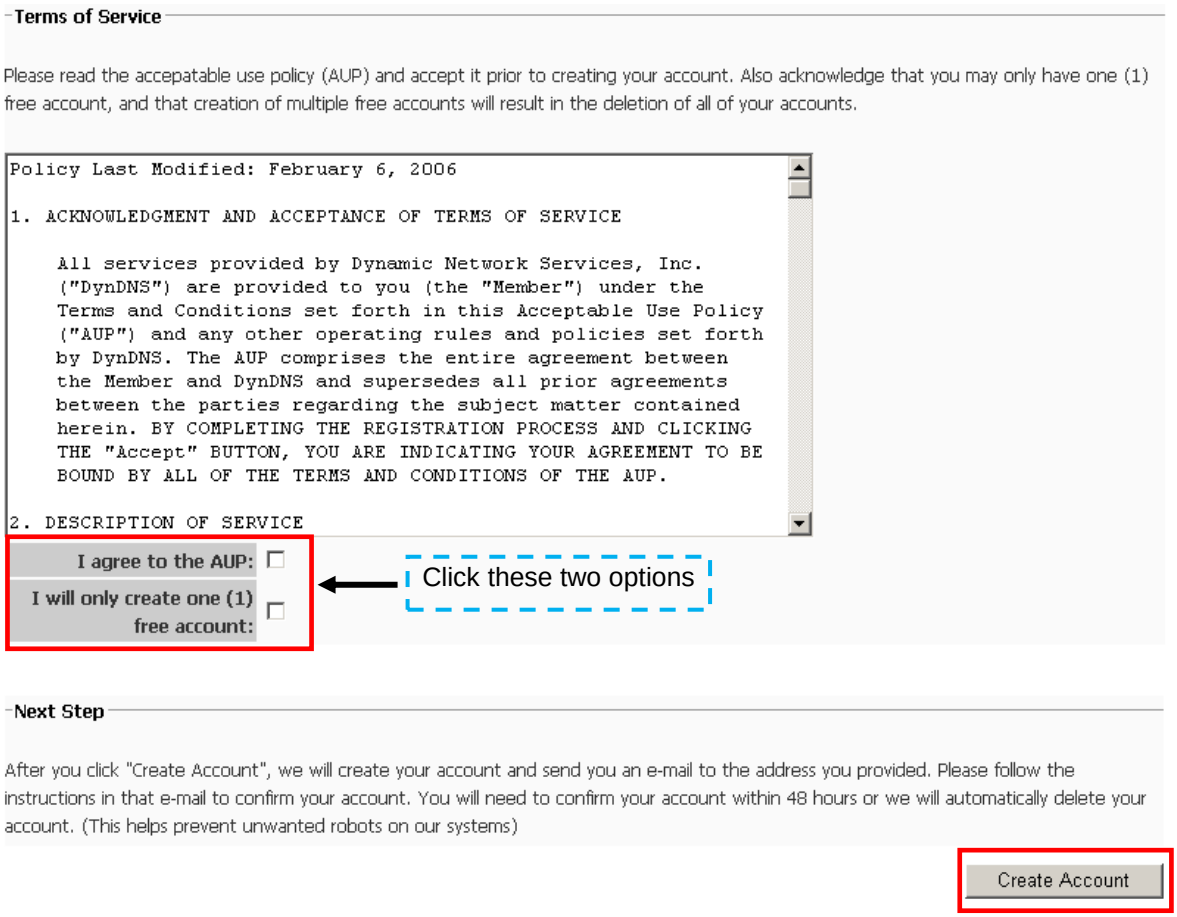
a. Username

b. E-mail address and confirmation

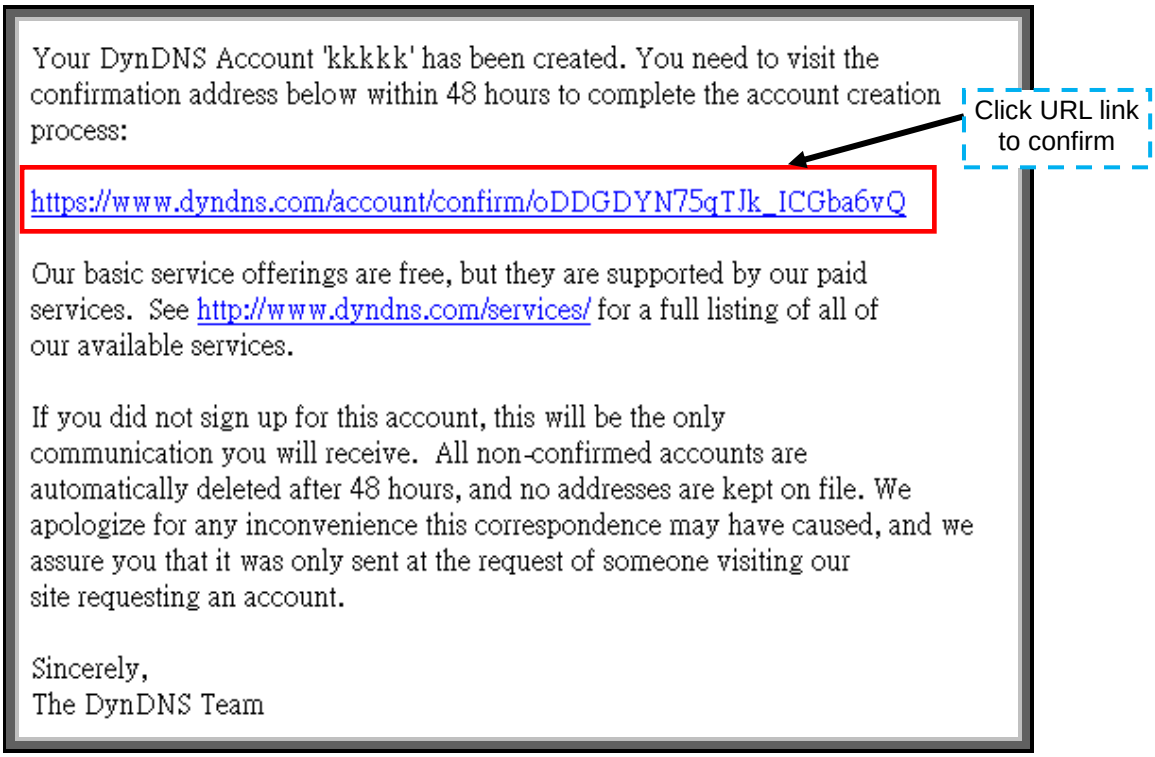
c. Password and confirmation

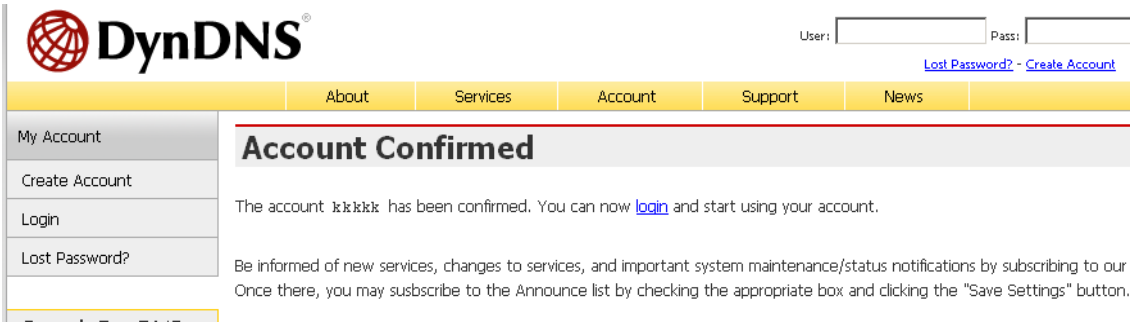
d. Submit all the input information and finish creating an account



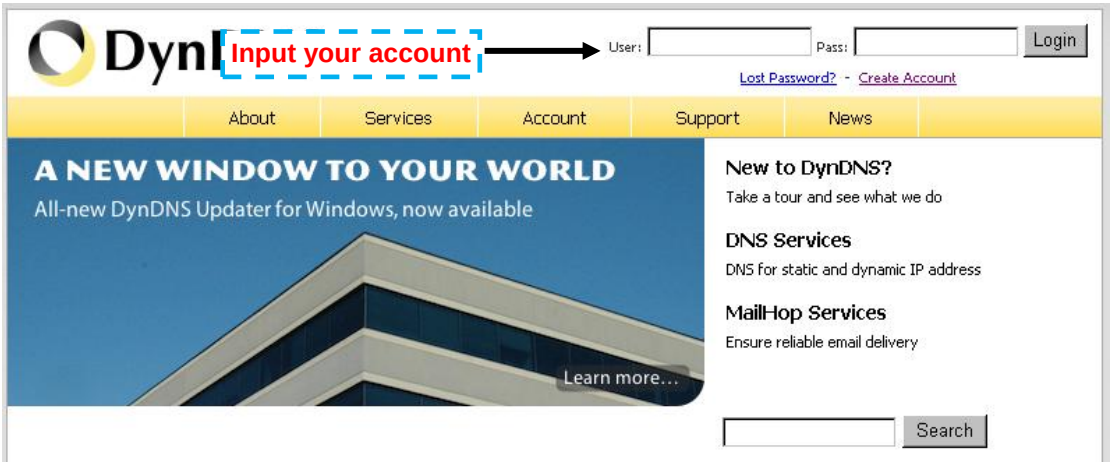


(5) Check your e-mail mailbox. There will be an e-mail with a title “Your DynDNS Account Information“. Click the hyperlink address to confirm the DDNS service that you just applied. Then DDNS you applied activated.



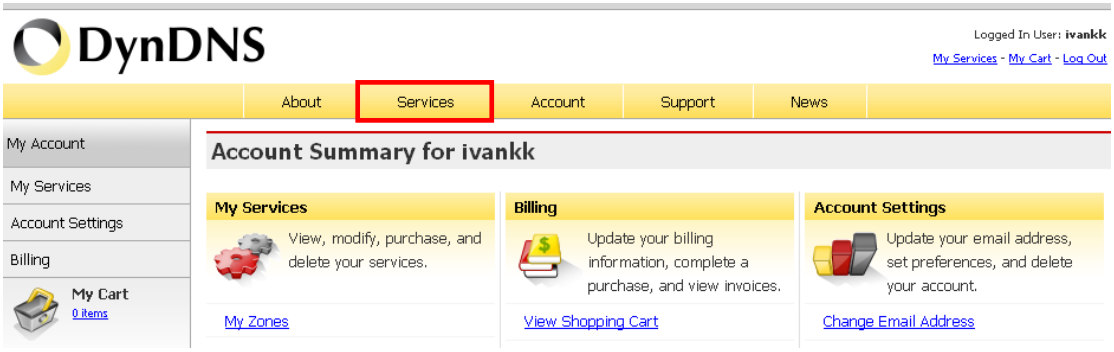


(6) Enter the web page http://www.dyndns.org/ again. Input your username and password that you just applied to login administration interface of DDNS server.

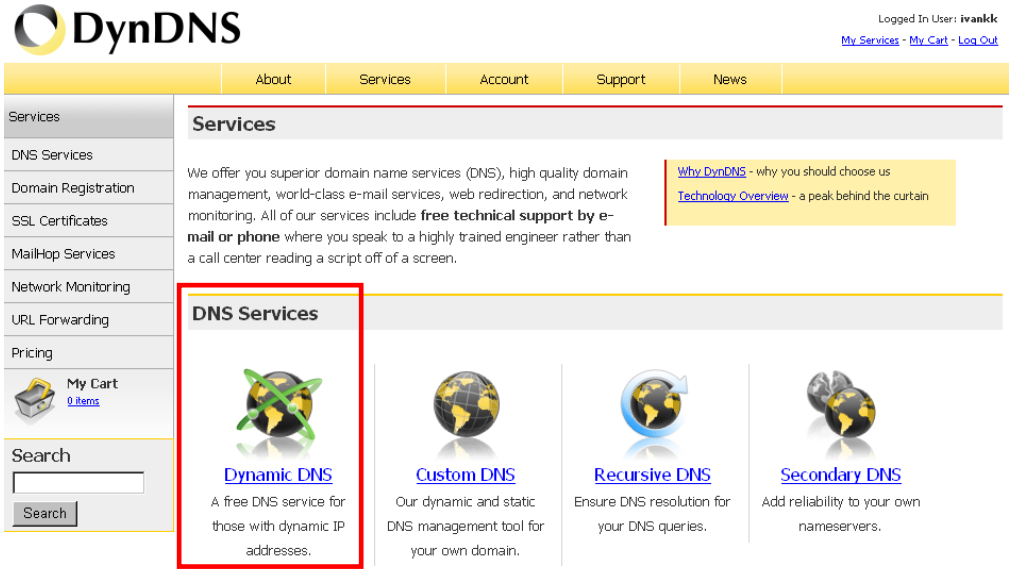


(7) If the correct username and password are input, you can see the following picture at the top-right of the login page.

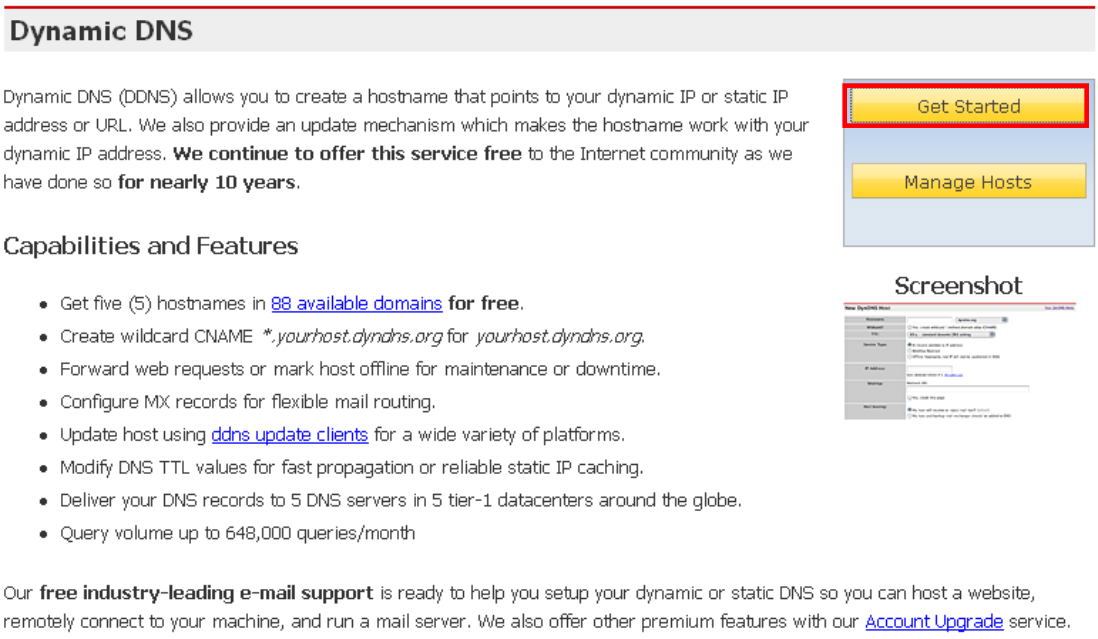
(8) Click the "**Services**".



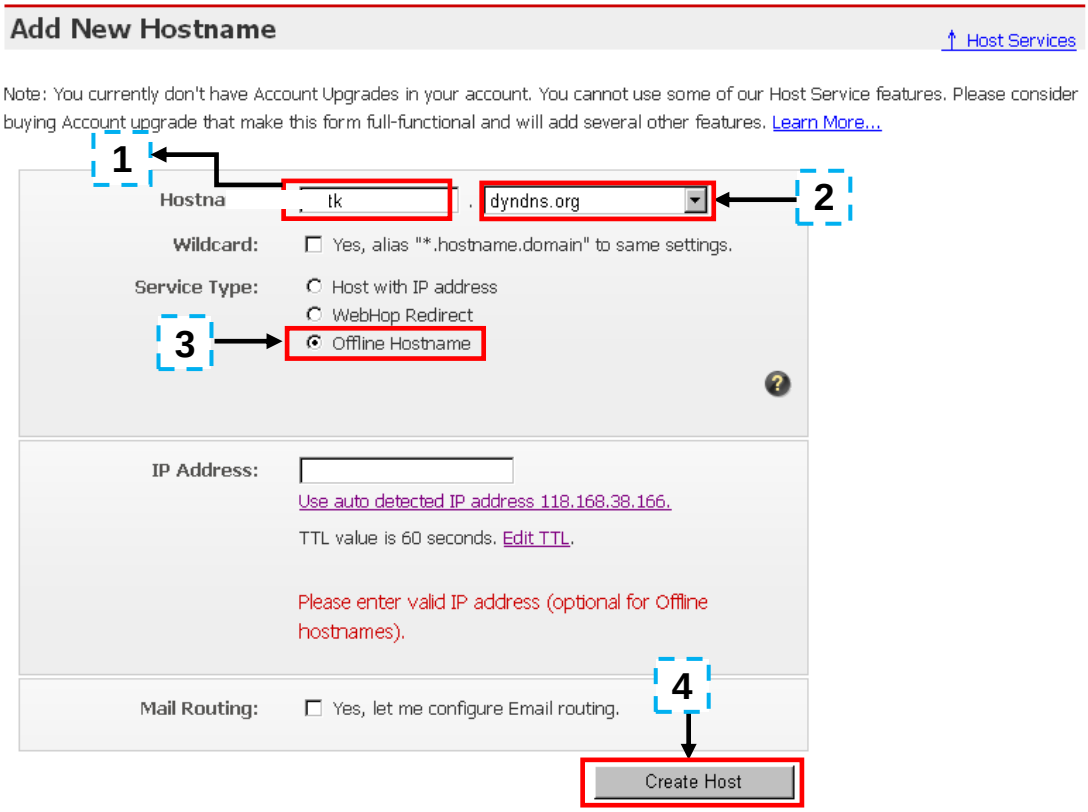
(9) Click the " **Dynamic DNS** ".



(10) Click the "**Get Started**".



(11) We could create a domain name without any charge at this step. First, we input the host name. (Pink No.1) Then we pick a domain that is easy to remember. (Pink No.2) The 3rd step is to click “Offline Hostname” from Service Type. (Pink No.3) Finally, click the “Create Host” to submit the domain name information and finish DDNS application. (Pink No.4)



4. Setup the DDNS and PPPoE of Networked Device

At last, users have to enter the web page of Networked Device and setup the necessary information of DDNS and PPPoE after the application of DDNS service. Please check the user manual to access the DDNS and PPPoE pages. After saving the modification, restart the device. Then the external users could browse the Networked Device by the input of their domain name.

Appendix H: Power Line Frequency

COUNTRY	VOLTAGE	FREQUENCY	COMMENTS
Argentina	220V	50 Hz	*Neutral and line wires are reversed from that used in Australia and elsewhere.
Australia	230V*	50 Hz	*Outlets typically controlled by adjacent switch.Though *nominal* voltage has been officially changed to 230V, 240V is within tolerances and commonly found.
Austria	230V	50 Hz	
Brazil	110/220V*	60 Hz	*127V found in states of Bahia, Paraná (including Curitiba), Rio de Janeiro, Sao Paulo and Minas Gerais (though 220V may be found in some hotels). Other areas are 220V only, with the exception of Fortaleza (240V).
Canada	120V	60 Hz	
China, People's Republic of	220V	50 Hz	
Finland	230V	50 Hz	
France	230V	50 Hz	
Germany	230V	50 Hz	
Hong Kong	220V*	50 Hz	
India	230V	50 Hz	
Italy	230V	50 Hz	
Japan	100V	50/60 Hz*	*Eastern Japan 50 Hz (Tokyo, Kawasaki, Sapporo, Yokohoma, and Sendai); Western Japan 60 Hz (Osaka, Kyoto, Nagoya, Hiroshima)
Malaysia	240V	50 Hz	
Netherlands	230V	50 Hz	
Portugal	230V	50 Hz	
Spain	230V	50 Hz	
Sweden	230V	50 Hz	
Switzerland	230V	50 Hz	
Taiwan	110V	60 Hz	
Thailand	220V	50 Hz	
United Kingdom	230V*	50 Hz	*Outlets typically controlled by adjacent switch. Though *nominal* voltage has been officially changed to 230V, 240V is within tolerances and commonly found.
United States of America	120V	60 Hz	

Appendix I: 3GPP

To use the 3GPP function, in addition to previous section, you might need more information or configuration to make this function work.

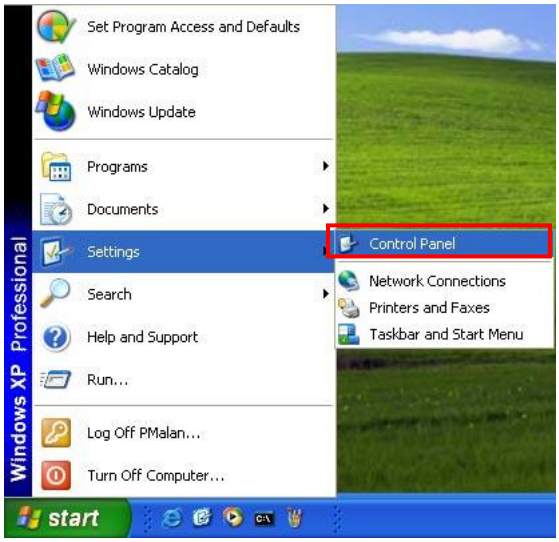
[Note] To use the 3GPP function, it strongly recommends installing the Networked Device with a public and fixed IP address without any firewall protection.

- **RTSP Port:** Port 554 is the default for RTSP service. However, sometimes, some service providers change this port number for some reasons. If so, user needs to change this port accordingly.
- **Dialing procedure:**
  1. Choose a verified player (PacketVideo or Realplayer currently)
  2. Use the following URL to access: rtsp://*host*/mpeg4/media.3gp
     Where *host* is the host name or IP address of the camera.
- **Compatible 3G mobile phone:** Please contact your dealer to get the approved list of compatible 3G phone.

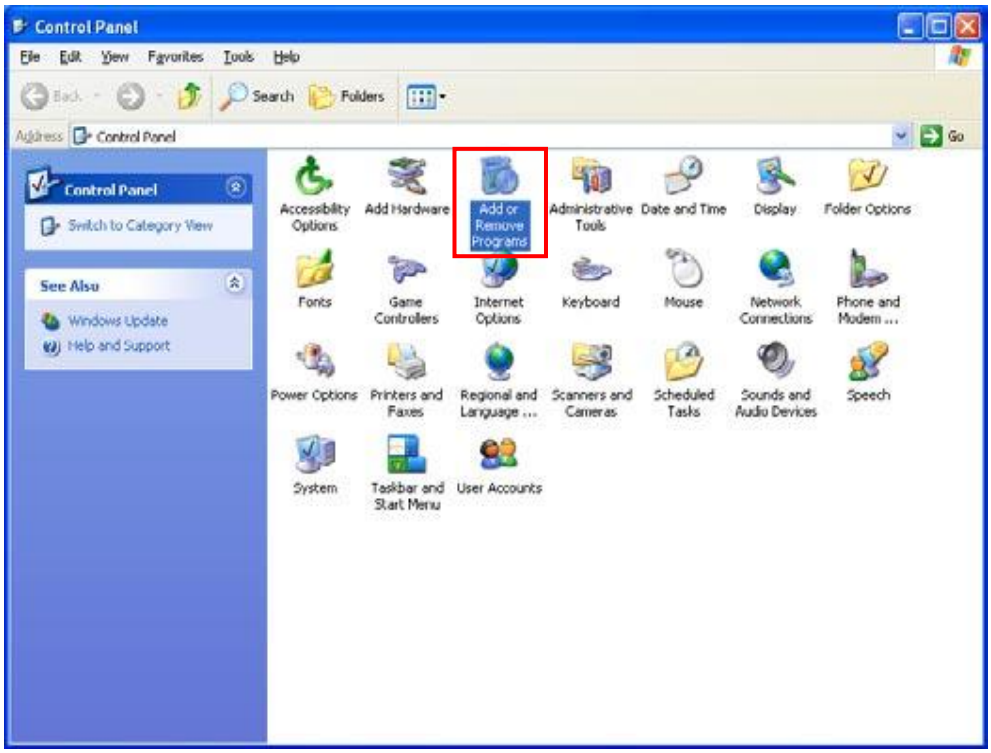
Appendix J: Enable UPnP of Windows XP

Use the following steps to enable UPnP settings only if your operating system of PC is running Windows XP.

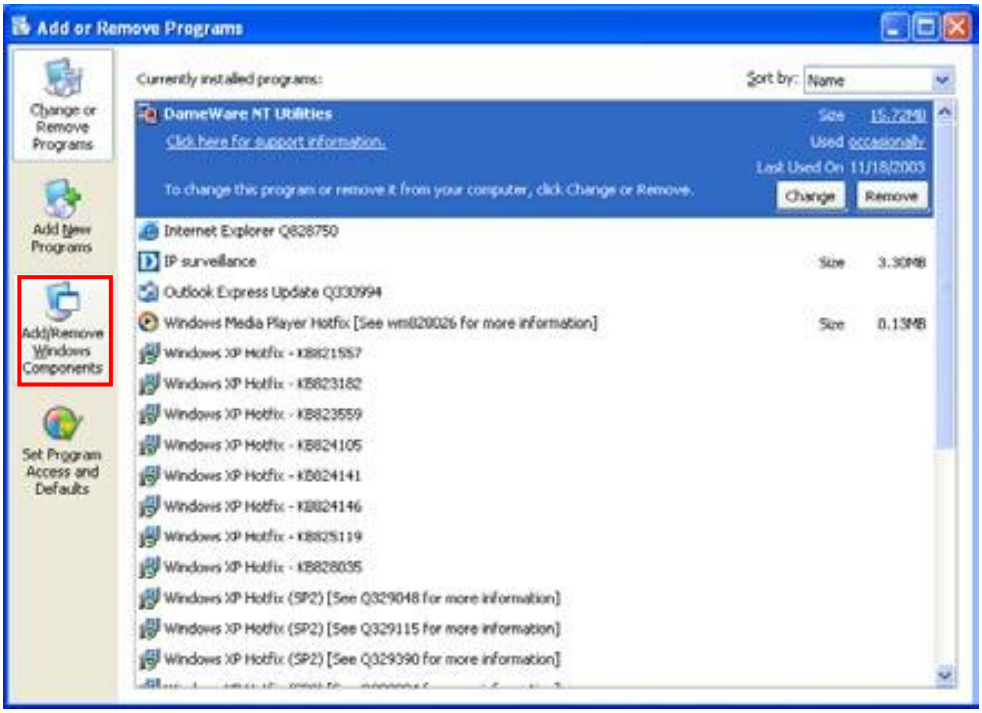
1. Go to **Start > Settings** > **Control Panel**



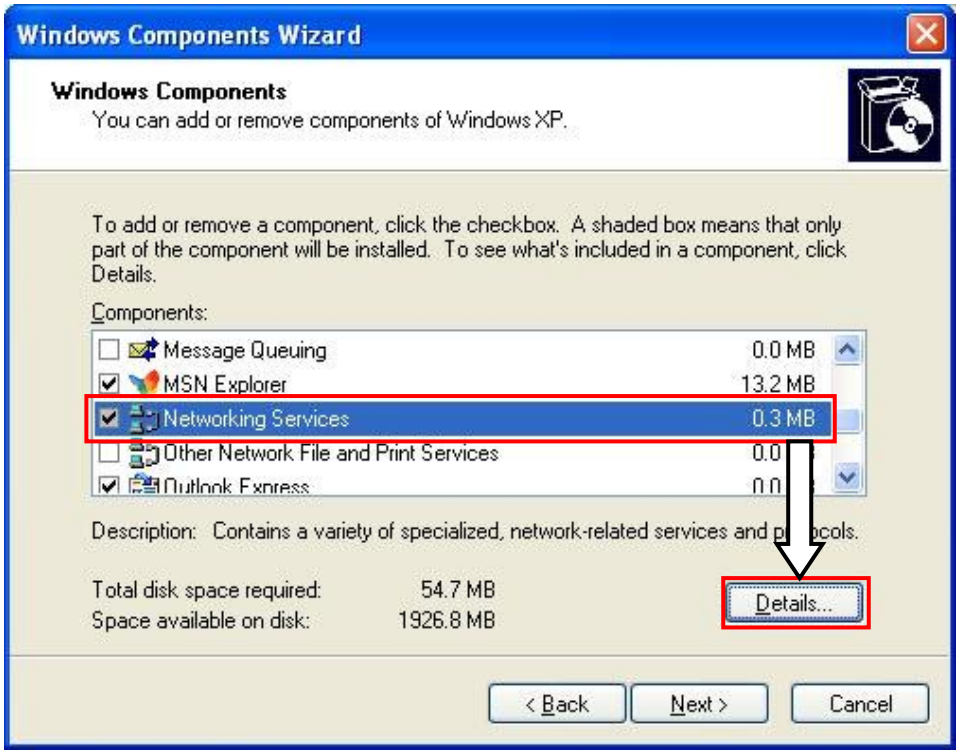
2. Click **Add or Remove Programs**



3. Click **Add/Remove Windows Components**

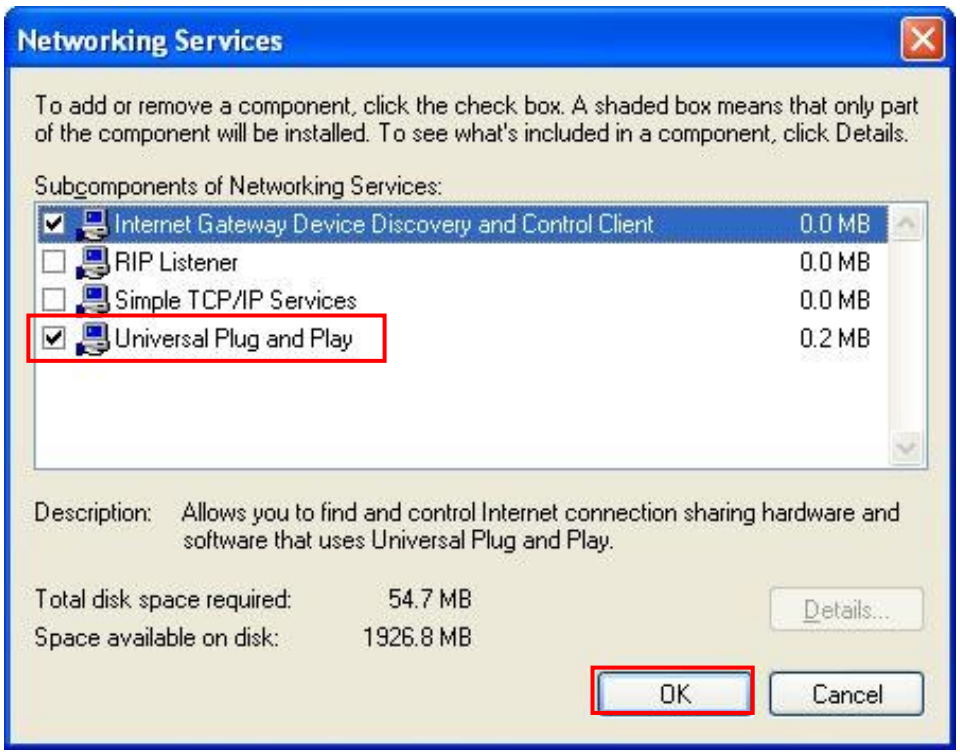


4. The following screen will appear:

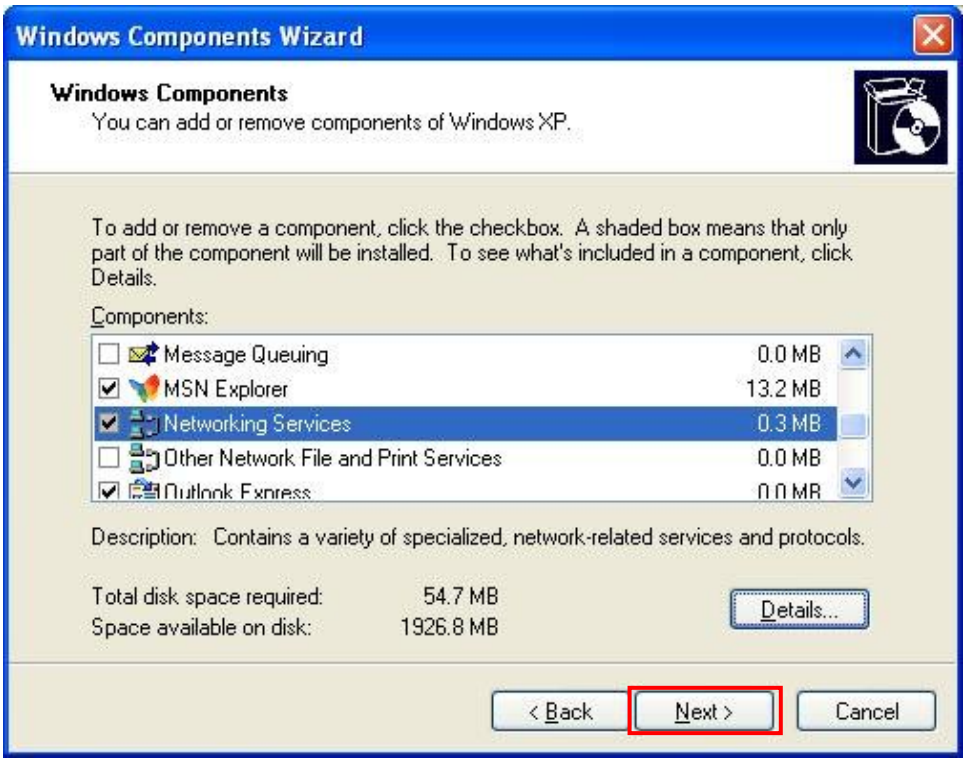


5. Select **Networking Services** and click **Details**.

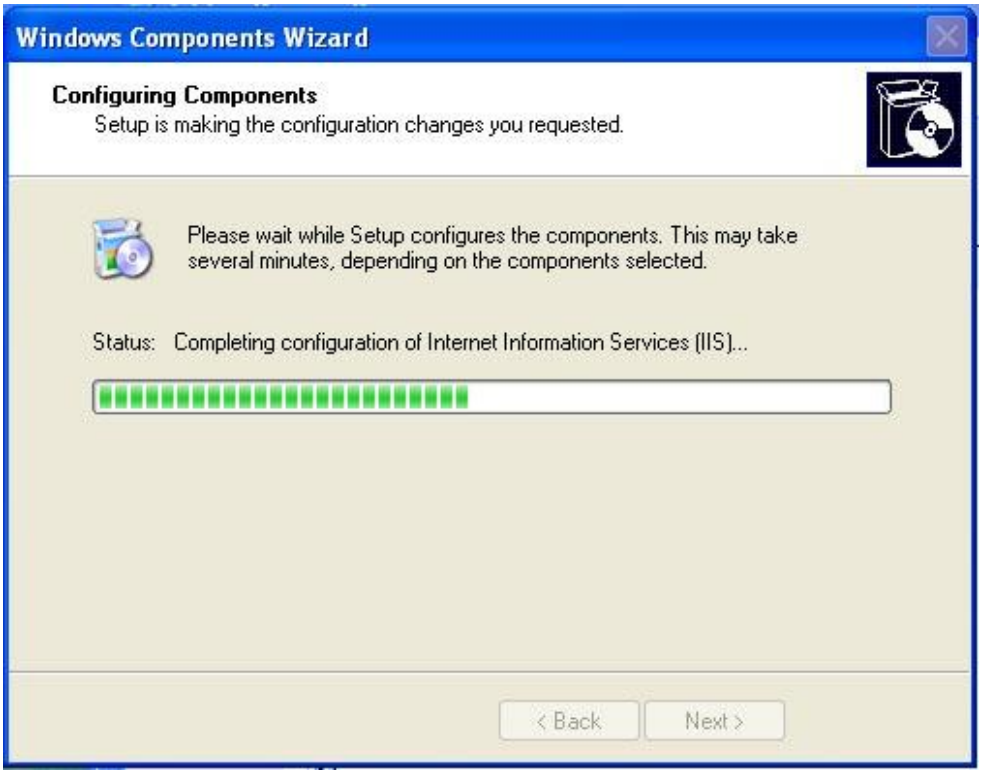
6. Select **Universal Plug and Play** and click **OK**.



7. Click **Next**.



8. Please wait while Setup configures the components.



9. Click **Finish**.