PLANET
Networking & Communication

User's Manual

2 Mega-pixel 35M IR Outdoor Box PoE IP Camera

► **ICA-HM351**

www.PLANET.com.tw

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Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of 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 turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

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

FCC Caution

To assure continued compliance, use only shielded interface cables when connecting to computer or peripheral devices. Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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 Communication Commission (FCC) Radiation Exposure Statement

This equipment complies with FCC radiation exposure set forth for an uncontrolled environment. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna shall not be less than 20 cm (8 inches) during normal operation.

Safety

This equipment is designed with the utmost care for the safety of those who install and use it. However, special attention must be paid to the dangers of electric shock and static electricity

when working with electrical equipment. All guidelines of this and of the computer manufacture must therefore be allowed at all times to ensure the safe use of the equipment.

CE Mark Warning

This is a Class B product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

WEEE Regulation

To avoid the potential effects on the environment and human health as a result of the presence of hazardous substances in electrical and electronic equipment, end users of electrical and electronic equipment should understand the meaning of the crossed-out wheeled bin symbol. Do not dispose of WEEE as unsorted municipal waste and have to collect such WEEE separately.

Revision

User's Manual of PLANET 2 Mega-pixel 35M IR Outdoor Box PoE IP Camera
Model: ICA-HM351
Rev: 2.00 (January, 2015)
Part No. EM-ICA-HM351_v2.0

Table of Contents

Chapter 1. Product Introduction

1.1 Package Contents

The package should contain the following:

- IP Camera Unit x 1
- Power Adapter x 2
- Camera Wall-mount Kit x 1
- 6P Terminal block x 1
- User's Manual CD-ROM x 1
- Quick Installation Guide x 1

Note	
	1. If any of the above items are missing, please contact your dealer immediately. 2. Using the power supply that is not the one included in Internet Camera packet will cause damage and void the warranty for this product.

1.2 Overview

High Resolution Surveillance in Day and Night

PLANET ICA-HM351 Network Camera with IR Illuminator is a high-resolution camera for the roun d-the-clock surveillance over IP networks. It supports H.264 and JPEG compression formats and delivers excellent picture quality in Full HD resolutions at 30 frames per second (fps). Incorporating the new CMOS image sensor, which is specially designed for surveillance applications, the ICA-HM351 provides high quality images under all lighting conditions. Its IP65 and -30 to 60 degrees C operating temperature features help to protect the camera body against rain and dust, thus ensuring operation under extreme weather conditions, which make it an ideal solution for outdoor applications, e.g. surveillance of buildings, roads, parking areas, garages, railway stations and airports.

Day & Night Functionality

To adapt to constantly changing lighting conditions, the ICA-HM351 comes with a removable IR-cut filter and built-in low IR illuminators, which enable the camera to provide color video when there is sufficient light, and black/white video in dark conditions. The ICA-HM351 is able to maintain clear images 24 hours a day.

Exceptional Image quality

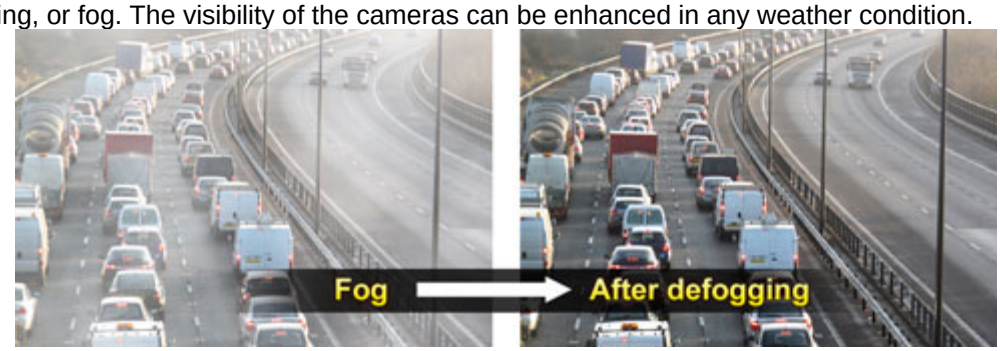
Together with powerful image processing attributes like Wide Dynamic Range and 3D Digital Noise Reduction (3DNR) technology, the ICA-HM351 is able to filter the intense backlight surrounding a subject and remove noises from video signal. It brings an extremely clear and exquisite picture quality even under any challenging lighting conditions.

Camera Tampering and Audio Detection

Provided with three individually configurable motion detection zones, the ICA-HM351 can record video or trigger alarms and alerts when motion is detected in a designated area. Also, its built-in microphone enables the system to record the sound that is within the camera's surveillance range. The system will trigger the audio detection alarm when sounds like screams, glass breaking, etc. are detected.

Defog Video Enhancement for Better Video Quality

Defog can be used to restore clear image in poor weather conditions such as sandstorm, raining, or fog. The visibility of the cameras can be enhanced in any weather condition.



Advanced Event Management

To enhance surveillance flexibility and event management capabilities, the ICA-HM351 supports a number of advanced features including auto-iris to avoid overexposure, and AV out to perform the two-way audio function.

Flexible Installation and Power Functionality

The ICA-HM351, incorporating IEEE 802.3af Power over Ethernet standard, is able to be powered via the network cable from a PoE power sourcing equipment such as PoE switch and PoE injector. It thus eliminates the need for extra power cables and reduces installation costs while increases the deployment flexibility. The ICA-HM351 is ONVIF compliant and therefore interoperable with other manufacturers' products. It also includes 64-CH central management software for ease of maintenance and remote monitoring. The ICA-HM351 is indisputably the top choice for reliable and high performance surveillance.

1.3 Features

➢ Camera

- 1/2.7" 2 mega-pixel progressive scan CMOS sensor
- 0.5 lux minimum illumination at F1.2
- Built-in 86 IR illuminators, effective up to 35 meters
- Removable IR-cut filter for Day & Night function

➢ Video / Audio

- H.264 and M-JPEG video compression simultaneously
- Simultaneous multi-stream support
- H.264 high profile, main profile and baseline
- Max. resolution 1080p at 30fps
- 3DNR to improve picture quality at low lux
- WDR Enhancement for enhancing visibility under extremely bright or dark environments
- Two-way audio support with enhanced audio quality
- Tamper and audio detection for unauthorized changes

➢ Network and Configuration

- Compliant with IEEE 802.3af PoE interface for flexible deployment
- Auto MDI/MDI-X supported
- Supports both IPv6 and IPv4
- Built-in Samba client for NAS
- RTSP / UPnP / HTTP / HTTPS protocols selectable

➢ Easy Installation & Management

- ONVIF compliant for interoperability
- IP65 outdoor classifications for rigorous environment
- RS485 interface for P/T scanner control
- Built-in fan and heater with fully automatic intelligent control
- Industrial design with -30 to 60 degrees C operating temperature

- Intelligent motion / tampering / audio detection alarm triggers
- Digital Input/Output for integration with sensors and alarms
- Cam Viewer 3 central management software supported

1.4 Product Specifications

Model	ICA-HM351
Camera	
Image device	1/2.7" 2 mega-pixel progressive scan CMOS sensor
Lens	3.6mm, fixed lens Mechanical IR-cut filter **Angle of view:** Horizontal: 74 degrees Vertical: 57 degrees
Min Illumination	0.5 Lux (Color) @ F1.2 0.1 Lux (B/W)
IR Illuminations	IR LED x 86, 850nm Built-in IR illuminators, effective up to 35 meters *The IR distance is based on the environment
Effective Pixels	1920 x 1080 pixels
Image	
Video Compression	H.264 / M-JPEG
Video Resolution	1080p / 720p / 640 x 360 / 320 x 180
Frame Rate	Up to 30fps for all resolutions
Image Setting	AE, AWB 3D noise reduction WDR Color, hue, brightness, sharpness, contrast Mirror/Flip 90^{o} rotation De-fog Anti-false color Lens distortion correction 10 privacy masks Text, time and date overlay Overlay image on video
Streaming	Simultaneous multi-profile streaming Streaming over UDP, TCP, HTTP, or HTTPS M-JPEG streaming over HTTP (server push) Controllable frame rate and bandwidth Constant and variable bit rate (H.264) AOI ROI
Audio	
Audio Streaming	Two-way audio
Audio Compression	RTSP: G.711 64kbps, G.726 32kbps
Microphone	External microphone input
Audio Output	Adjustable audio output gain
Network and Configuration	
Standard	IEEE 802.3 10BASE-T IEEE 802.3u 100BASE-TX

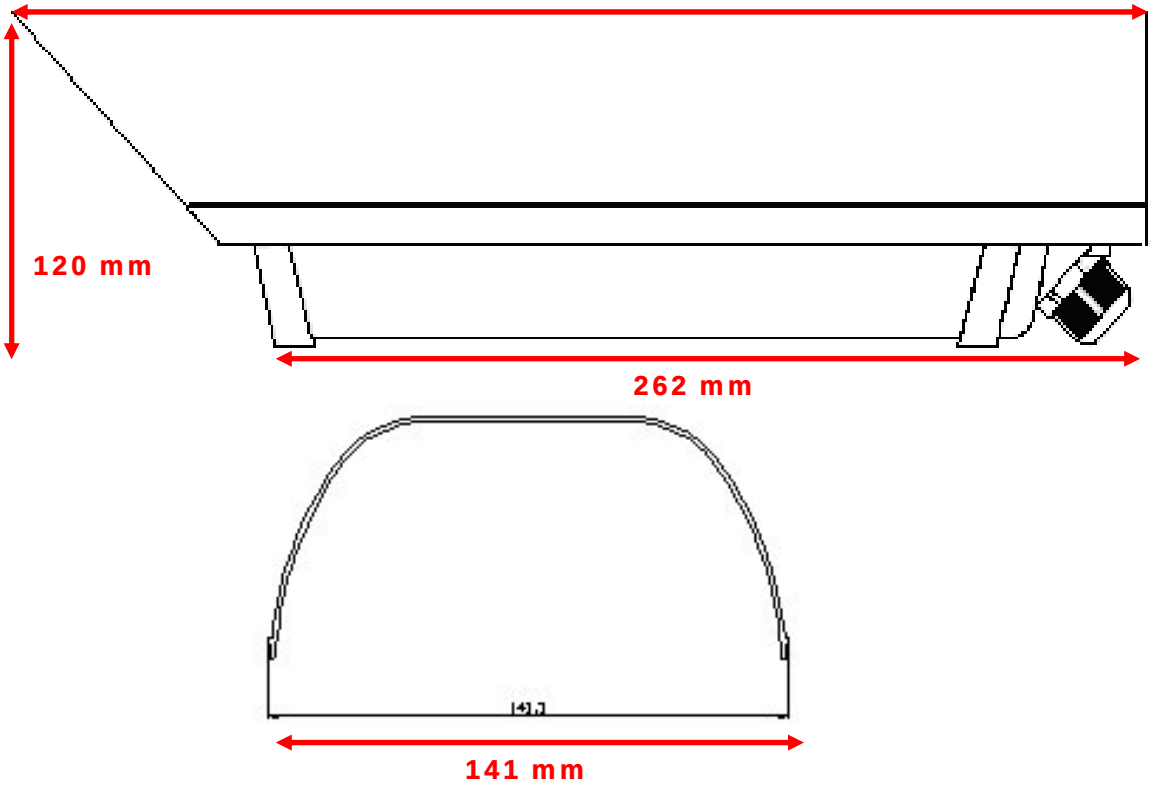
Protocol	IPv4, IPv6, TCP, UDP, HTTP, HTTPS, SMTP, FTP, NTP, DNS, DDNS, DHCP, DIPS, ARP, Bonjour, UPnP, RTSP, RTP, RTCP, IGMP, PPPoE, Samba, ICMP, SNMP, QoS
Security	Password protection, IP address filtering, HTTPS encrypted data transmission, user access log
Users	8 clients on-line monitoring at the same time
System Integration	
Application Programming Interface	Open API for software integration ONVIF Compliant
Alarm Triggering	Intelligent Motion / Tampering / Audio Detection / Network Disconnect and External Input
Alarm Events	File upload via FTP, Samba to NAS, and email Notification via email, HTTP, and TCP External output activation Audio alerting output
Video Buffer	Pre- and post-alarm buffering
General	
Power Requirement	12V DC, 1A IEEE 802.3af Class 3
Fan / Heater Control Temperature	Heater: On: 15 / Off: 25 degrees C Fan: On: 37 / Off: 25 degrees C
Power Consumption	9W max.
Operating Temperature	-30 ~ 60 degrees C
Operating Humidity	5 ~ 95% (non-condensing)
Protection Class	IP65 classification with weatherproof feature
Weight	1335g
Dimensions (W x D x H)	141 x 310 x 120 mm
Emission	CE, FCC
Connectors	10/100 Mbps Ethernet, RJ45 DC power jack Terminal block for 1 alarm input and 1 output RS-485 interface for pan/tilt scanners control External mic input Audio out Composited video out (Max. resolution: D1 720 x 480 pixel)) Factory default reset button

Chapter 2. Hardware Interface

2.1 Physical Descriptions

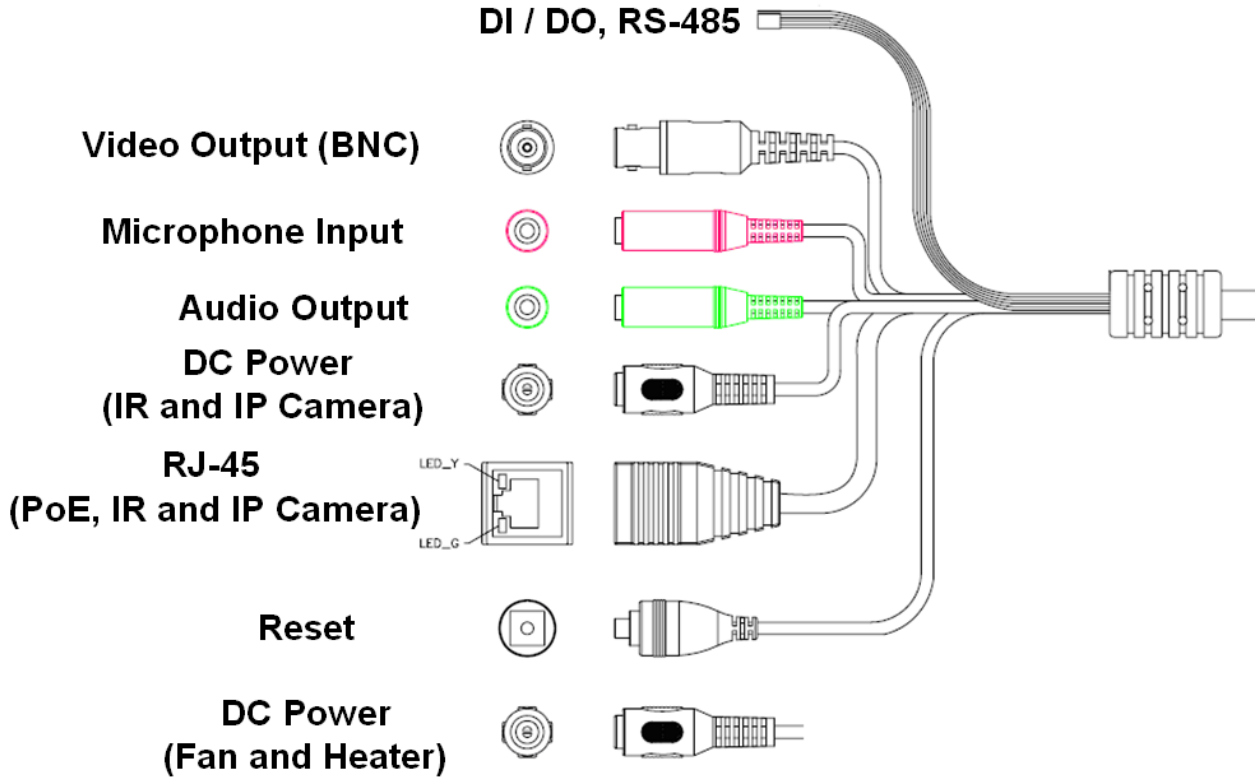
2.1.1 Identification of ICA-HM351 Physical Details

Real Panel



Item	Description
Lens	Keep the lens clean for an excellent video quality.
IR LED	Emits infrared light to provide light source in dark places
Light Sensor	Detects the illumination level or the place where this IP camera is installed, and switches IR LEDs on when it's required. Note: When IR LEDs are switched on, this IP camera will switch to black and white video mode to enhance video quality. Do not cover light sensor or this IP camera will work in black and white mode only.

2.1.2 I/O Control Instruction



Description of I/O cabling:

Interface	Description
DC Power	The input power is 12V DC, 1A. Note: ONLY use the power adapter supplied in the package. Otherwise, the product may be damaged.
RJ45 (LAN Socket, PoE)	Connecting to PC or Hub/Switch For connection to 10BASE-T Ethernet or 100BASE-TX or Fast Ethernet cabling, this Ethernet port built auto-negotiation protocol can detect or negotiate the transmission speed of the network automatically. Please use CAT-5 cable to connect the Network Camera to a 100Mbps Fast Ethernet network switch or hub. **LAN LED (green color)** This LED will be flashing while network accessing via Ethernet. **Power LED (orange color)** This LED is used to indicate whether DC power is on or not. In addition, this LED will be flashing while the wireless accessing of the Camera. Note: ONLY use one power source, either from DC or from 802.3af Power over Ethernet.
Audio Output (Green, Line Out)	Connect a loud speaker to the IP camera. This is for voice alert and two-way audio.
Microphone Input (Pink, Audio In)	Connect a microphone to the IP camera.

Reset (Factory Default)	This button is used to restore all the factory default settings.
DI/DO	The 6 pin terminal block includes 1 input ports and 1 output ports, and RS-485 D+ and D-.
Video Output (BNC)	The Network Camera also provides composite video output. The video output function is only for easy installation to check view angle and focus. The output is not a Mega-pixel resolution. Furthermore, the video output is off by default. To turn on video, please refer to Setting\Camera\Picture chapter.

Terminal block for I/O connectors:

Name	Cable Color	Function
12V DC	1	12V DC, 50mA (maximum)
DI	2	Digital signal input
GND	3	GND
DO	4	Digital signal output
485+	5	RS485 data +
485-	6	RS485 data -

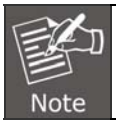
2.2 Hardware Installation

1. Attach the Camera with the included stand

2. Place the Camera on the ceiling or fix it onto wall
Use three screws to fix the Network Camera onto the ceiling or wall.

3. Plug an Ethernet cable into the Camera
Connect an Ethernet cable to the LAN socket located on the Network Camera's bottom and attach it to the network.

4. Connect the external power supply to Camera
Connect the attached power adapter to the DC power jack of the IP Camera.



Use the power adapter, 12VDC, included in the package and connect it to wall outlet for AC power.

5. Done
Once you have installed the IP Camera well and powered it on, the network accessing type LED will turn on. It means the system is booting up successfully. Furthermore, if you have a proper network connection, and access to the IP Camera, the LED will flash green under wired mode or orange under wireless mode.

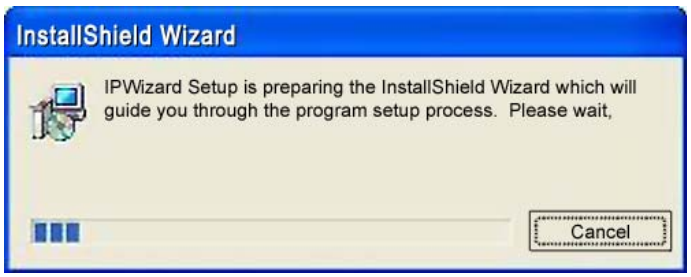
2.3 Initial Utility Installation

This chapter shows how to quickly set up your IP camera. The camera is with the default settings. However to help you find the networked camera quickly, the windows utility PLANET IP Wizard II can search the cameras in the network that can help you to configure some basic settings before you start advanced management and monitoring.

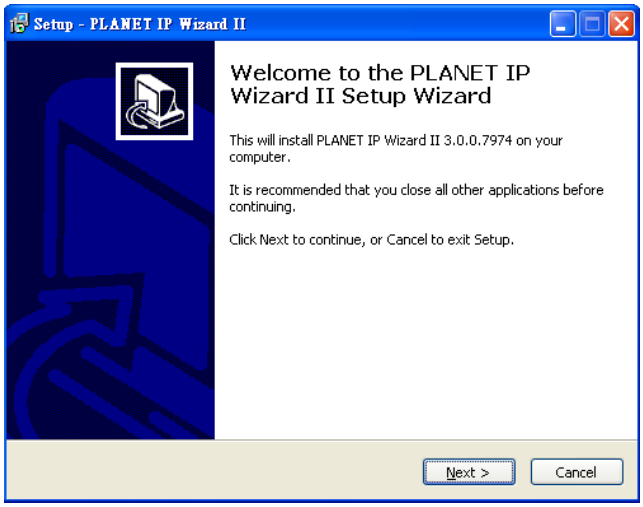
1. Insert the bundled CD into the CD-ROM drive to launch the auto-run program. Once completed, a welcome menu screen will appear.

2. Click the “IP Wizard II” hyperlink and a dialog box will appear as shown below:

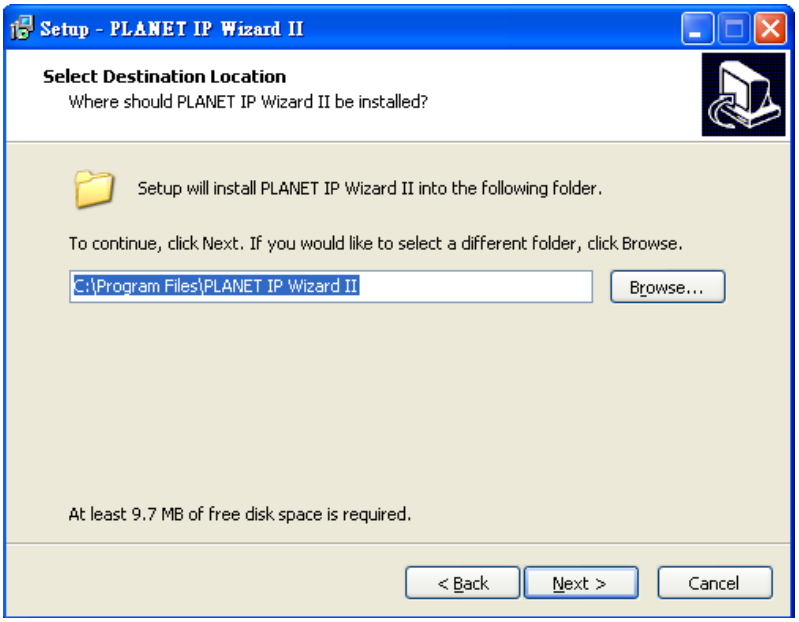
> **Note**
> If the welcome screen does not appear, click “Start” at the taskbar. Then, select “Run” and type “D:\Utility\IPWizard II\setup.exe”, assuming D is your CD-ROM drive.



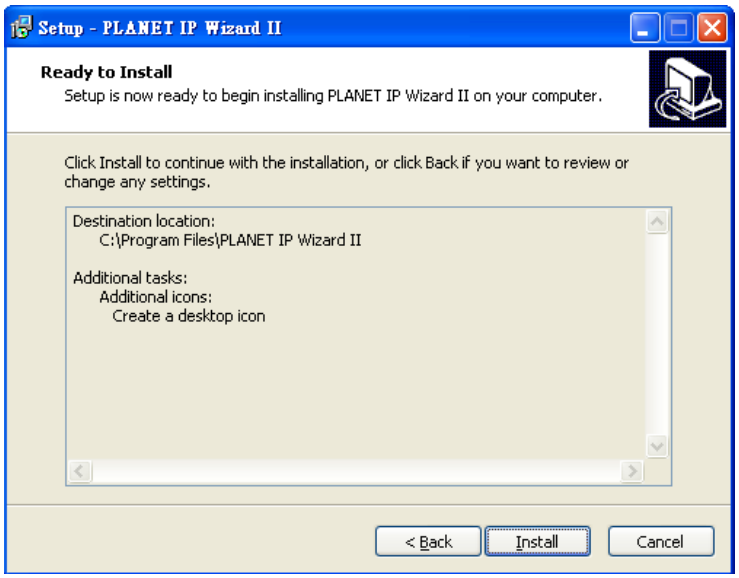
3. The “Welcome to the Install Shield Wizard for PLANET IP Wizard II” prompt will display on the screen and click “**Next**” to continue.



4. Please click “**Next**” to install with original settings, or you may click “**Change…**” button to modify the install folder and then press “Next” to continue.



5. Please click "**Install**" to start the installation.



6. Please click "**Finish**" to complete the installation and launch program immediately.

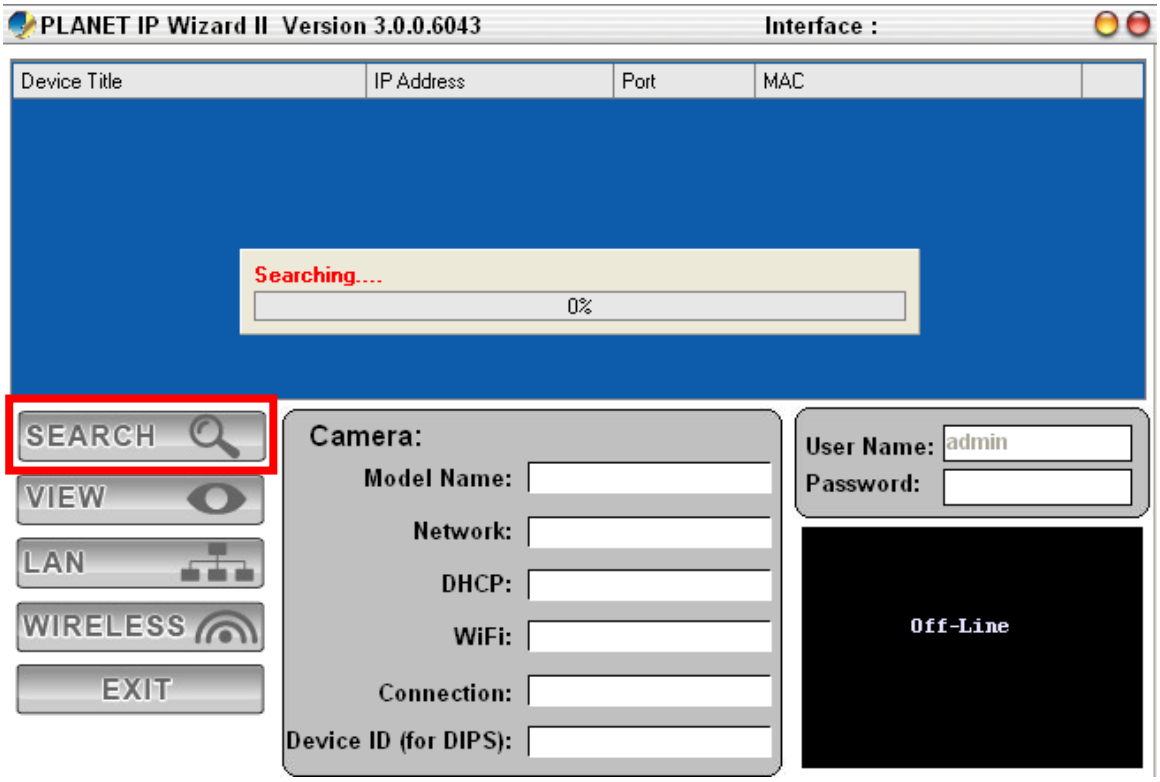
2.4 Preparation

When you install the Internet camera in a LAN environment, you may execute PLANET IP Wizard II to discover camera's IP address and set up related parameters in the camera.

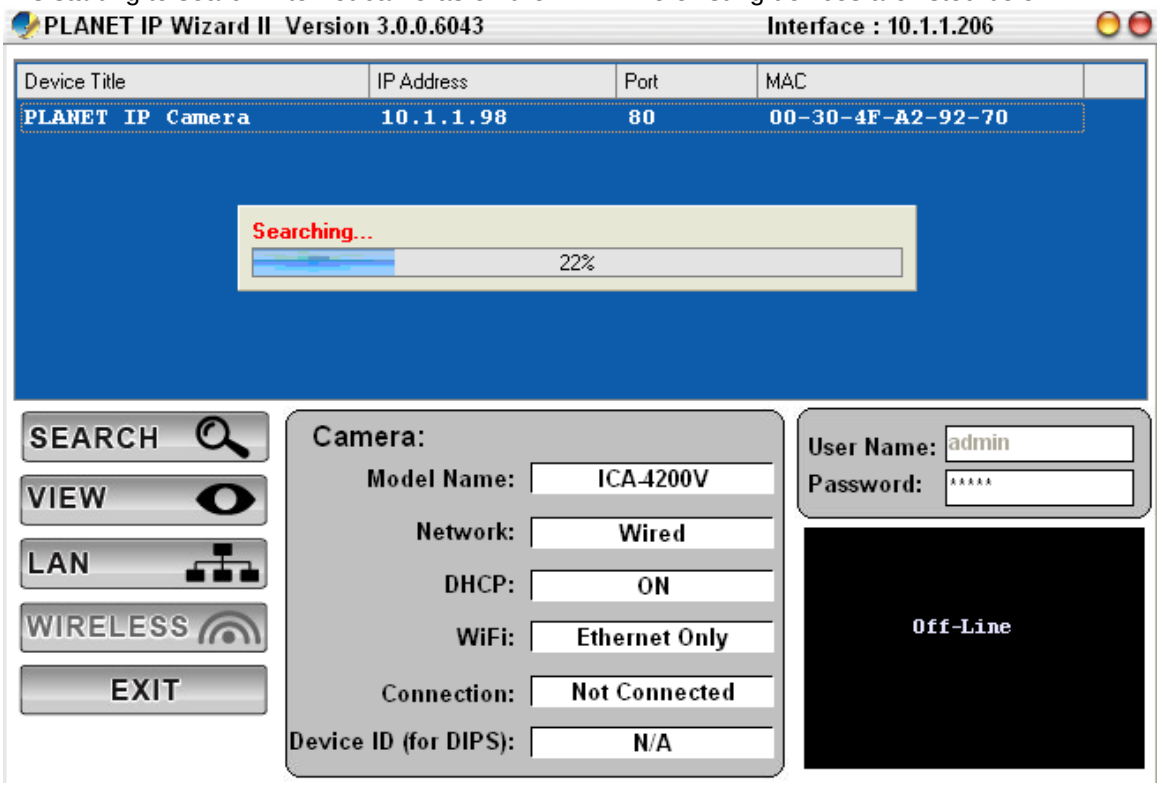
2.4.1 Search and View by PLANET IP Wizard II

When you install the Internet Camera in a LAN environment, you have two easy ways to search your cameras either by PLANET IP Wizard II or UPnP discovery. Here is the way to execute PLANET IP Wizard II to discover camera's IP address and set up related parameter in a camera.

Search

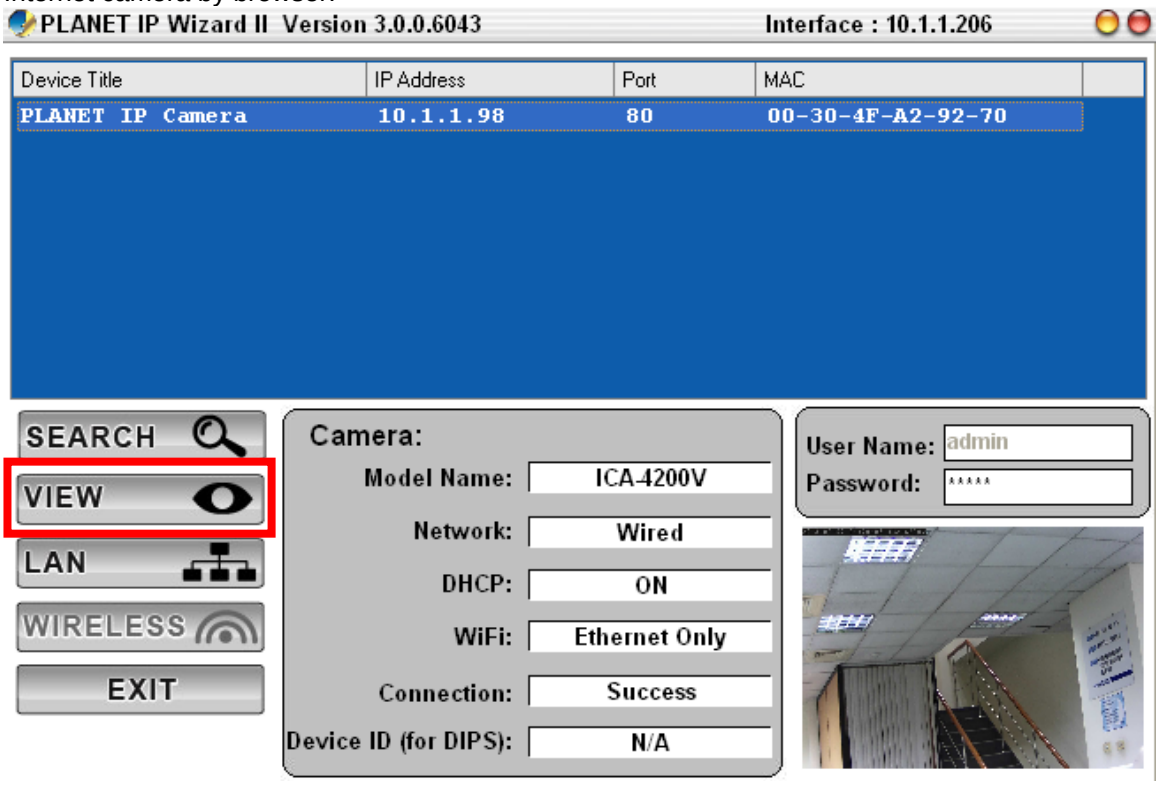


When launching the Planet IP Wizard II, the “searching” window will pop up. Planet IP Wizard II is starting to search Internet cameras on the LAN. The existing devices are listed below.



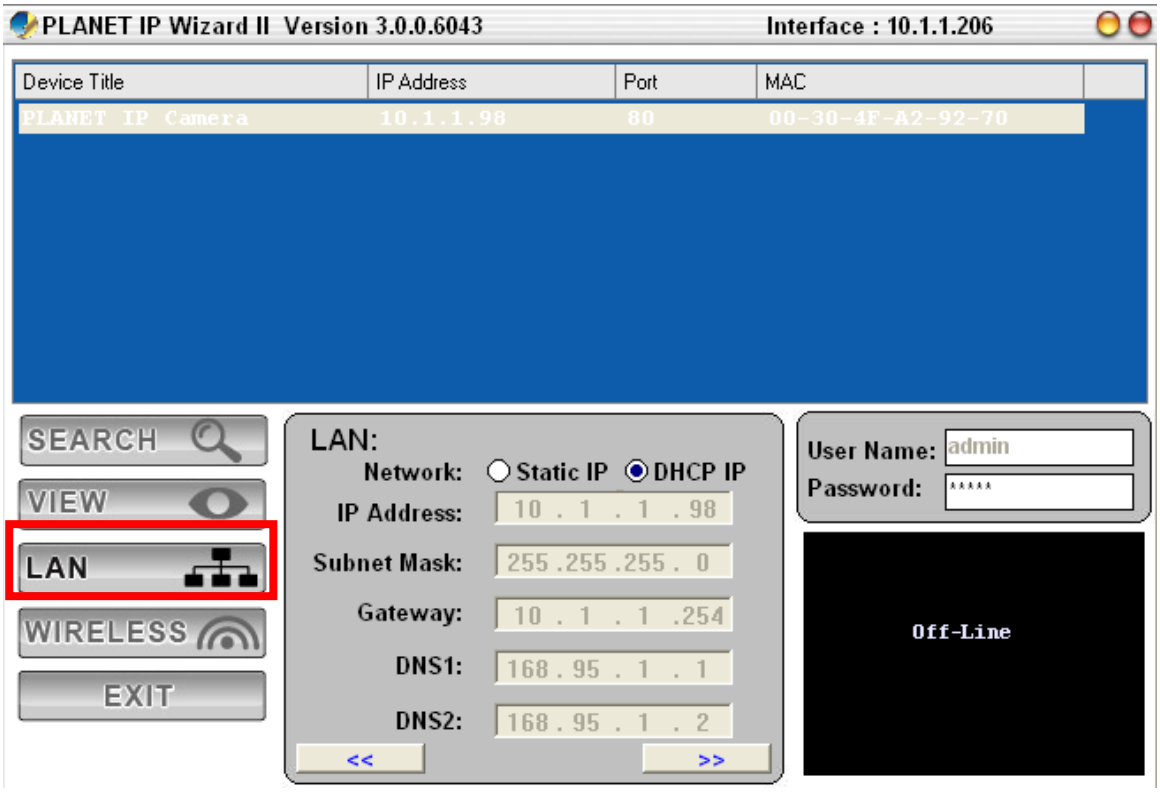
View

If Planet IP Wizard II finds Internet camera, the View button will be available. Please select the camera you want to view and click the View button. Then you can see the video from the camera directly. Furthermore you can double-click the left button of the mouse to link to the Internet camera by browser.



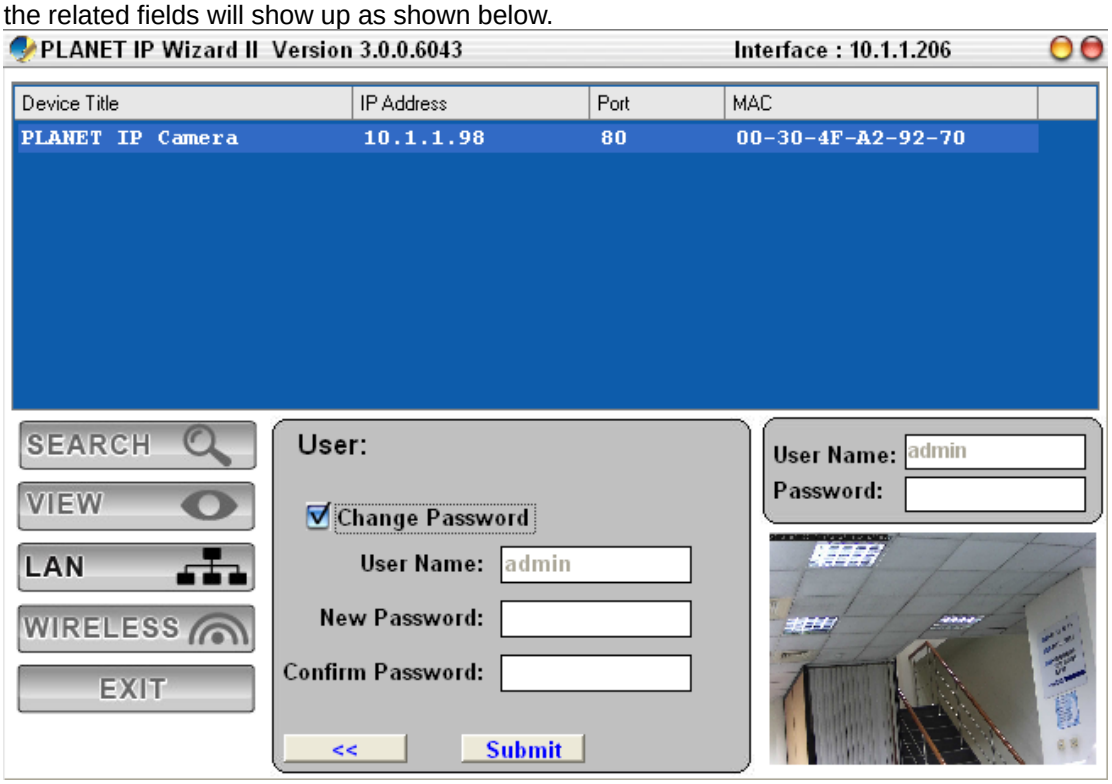
2.4.2 Configuring Network by PLANET IP Wizard II

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



In case, you do not want to change username and/or password, then just click the **"Submit"** button to perform your setting accordingly. Click the **"<<"** button to go back to the 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 shown below.



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

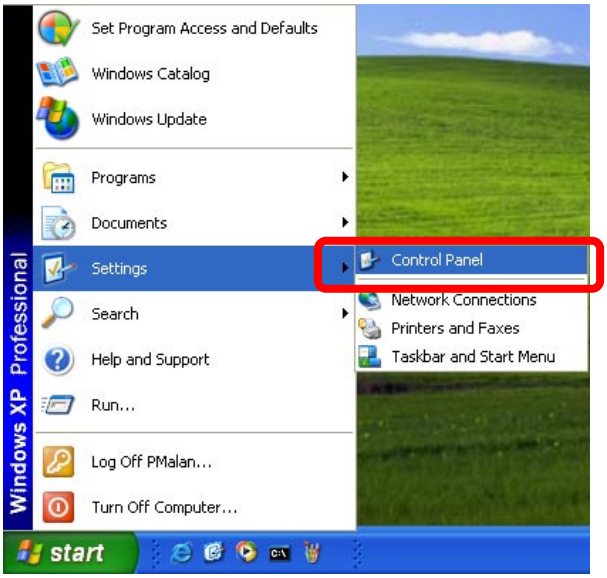
2.5 Using UPnP of Windows XP or 7

2.5.1 Windows XP

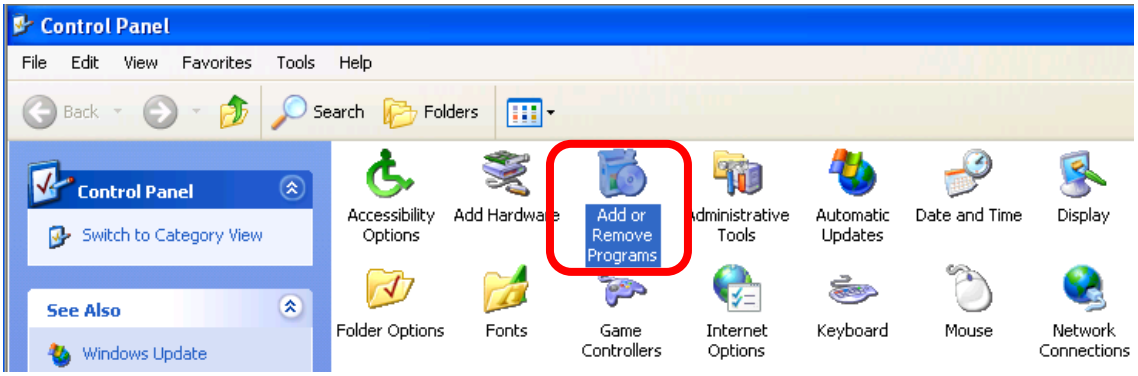
UPnP™ is short for Universal Plug and Play, which is a networking architecture that provides compatibility among networking equipment, software, and peripherals. This device is an UPnP enabled device. If the operating system, Windows XP, of your PC is UPnP enabled, the device will be very easy to configure. Use the following steps to enable UPnP settings only if your operating system of PC is running Windows XP.

Note	Please note that MS Windows 2000 does not support UPnP feature.

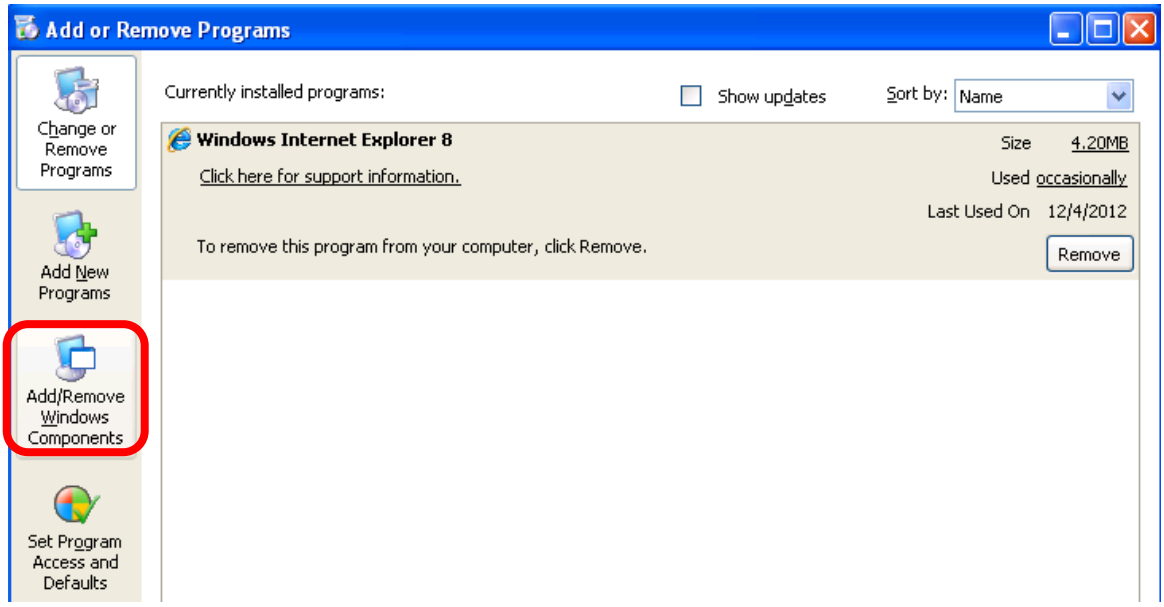
Go to **Start > Settings**, and Click **Control Panel**.



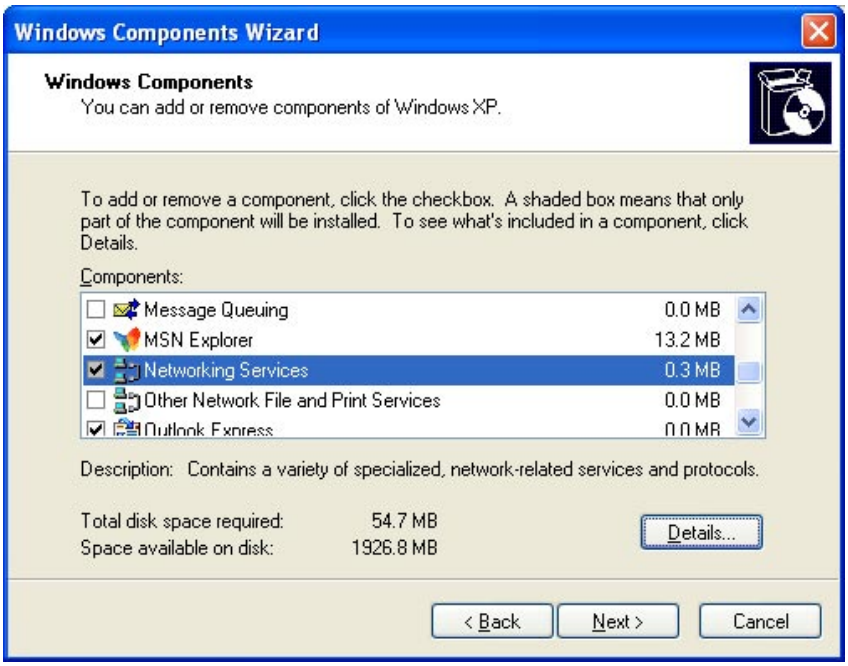
The "**Control Panel**" will display on the screen and double-click "**Add or Remove Programs**" to continue.



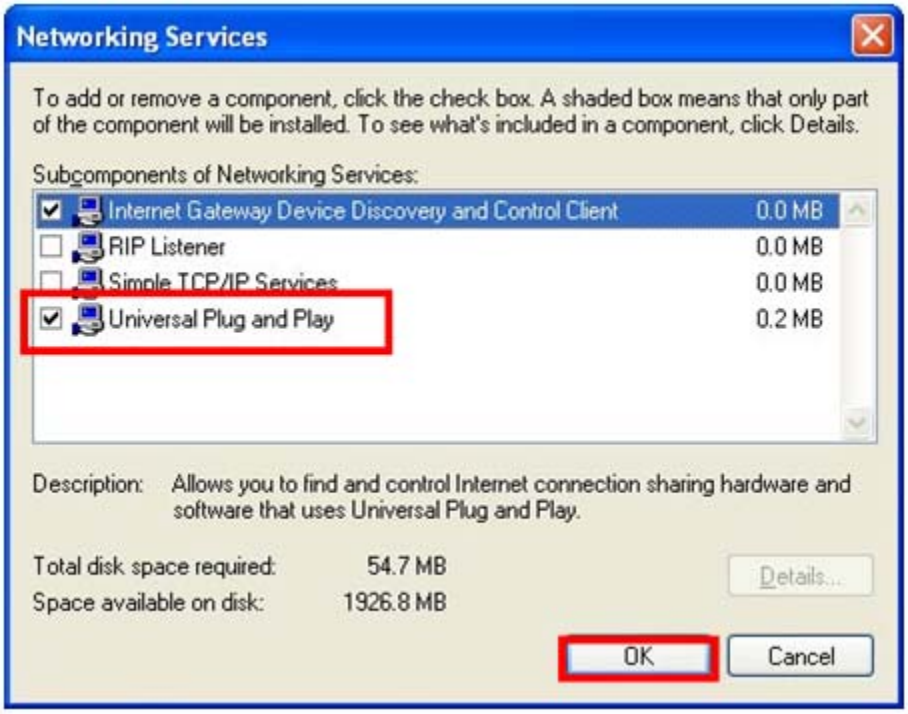
The “Add or Remove Programs” will display on the screen and click **Add/Remove Widows Components** to continue.



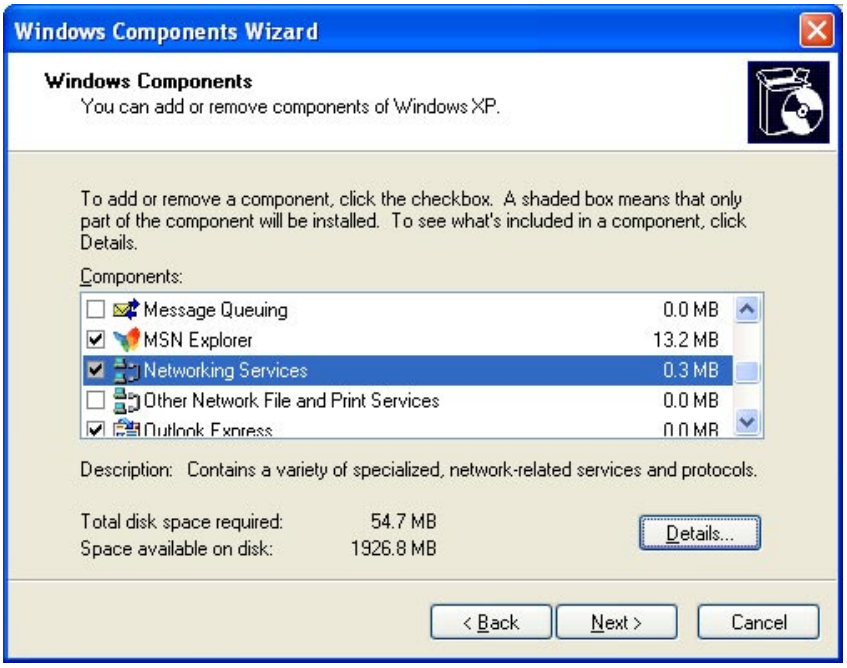
The following screen will appear, select “**Networking Services**” and click “**Details**” to continue.



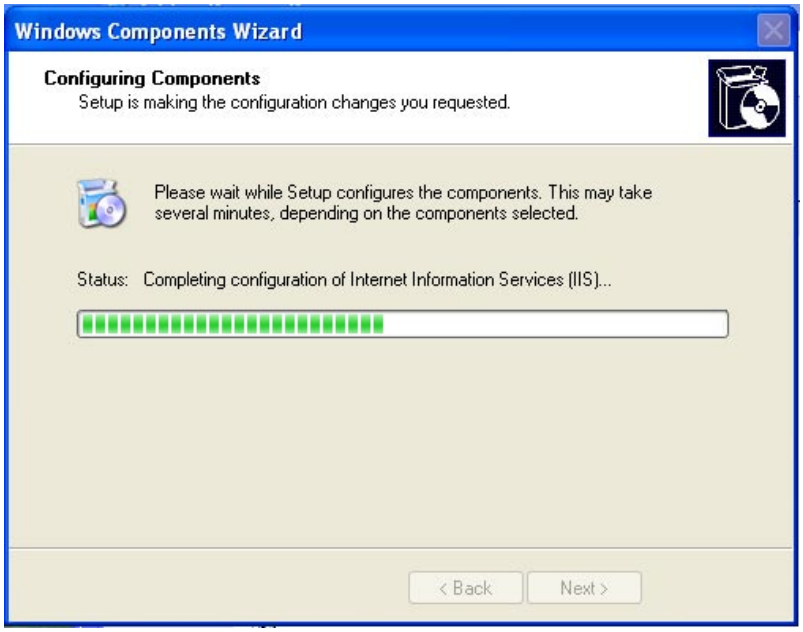
The “Networking Services” will display on the screen; select “**Universal Plug and Play**” and click “**OK**” to continue.



Please click “**Next**” to continue.

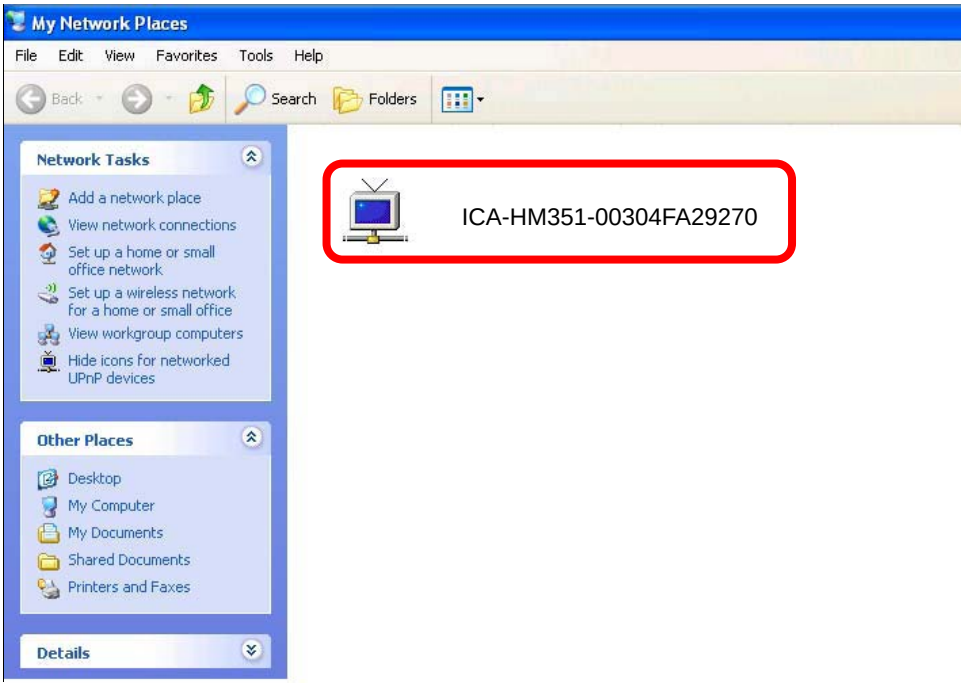


The program will start installing the UPnP automatically. You will see the pop-up screen below. Please wait while Setup configures the components.



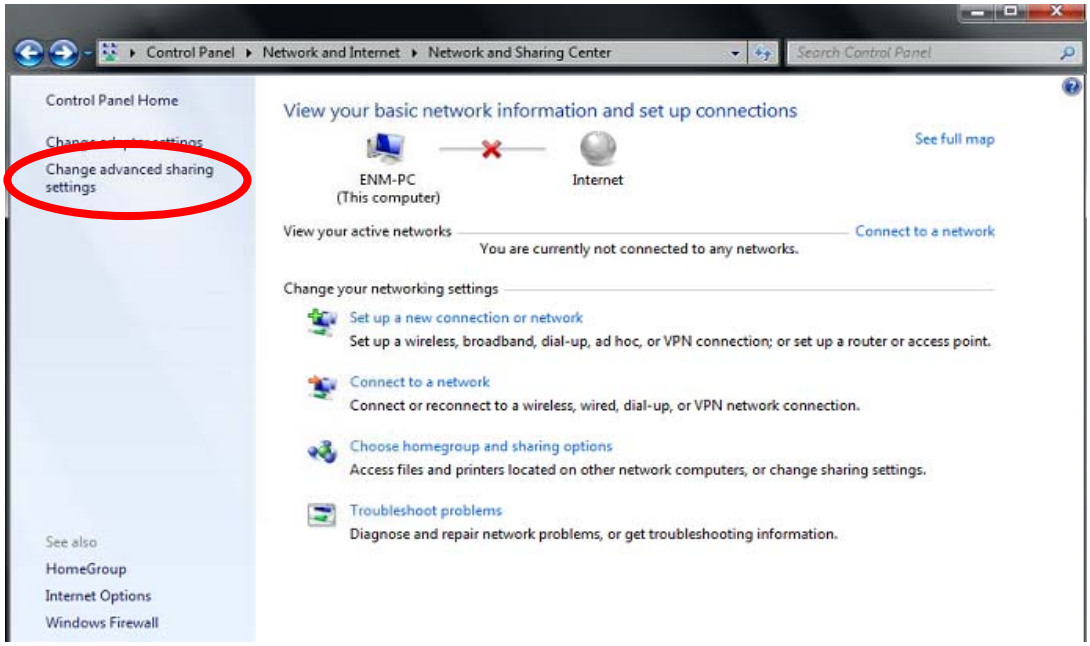
Please click "**Finish**" to complete the UPnP installation

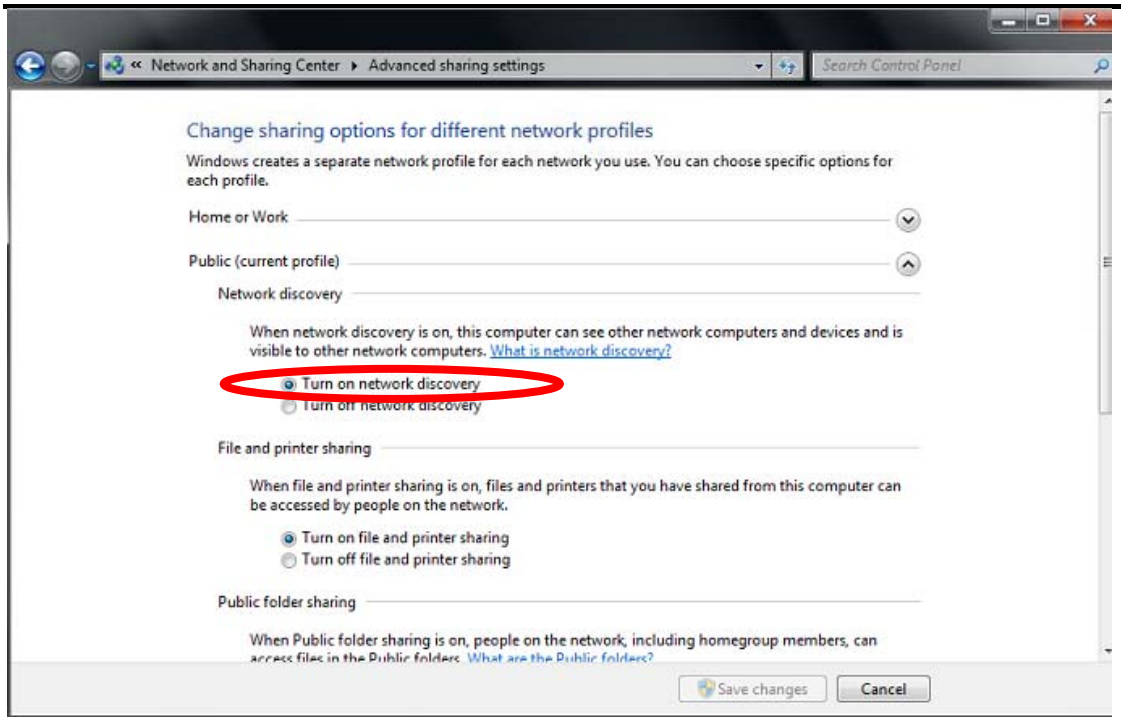
Double-click "**My Network Places**" on the desktop, the "My Network Places" will display on the screen and double-click the UPnP icon with Internet Camera to view your device in an Internet browser.

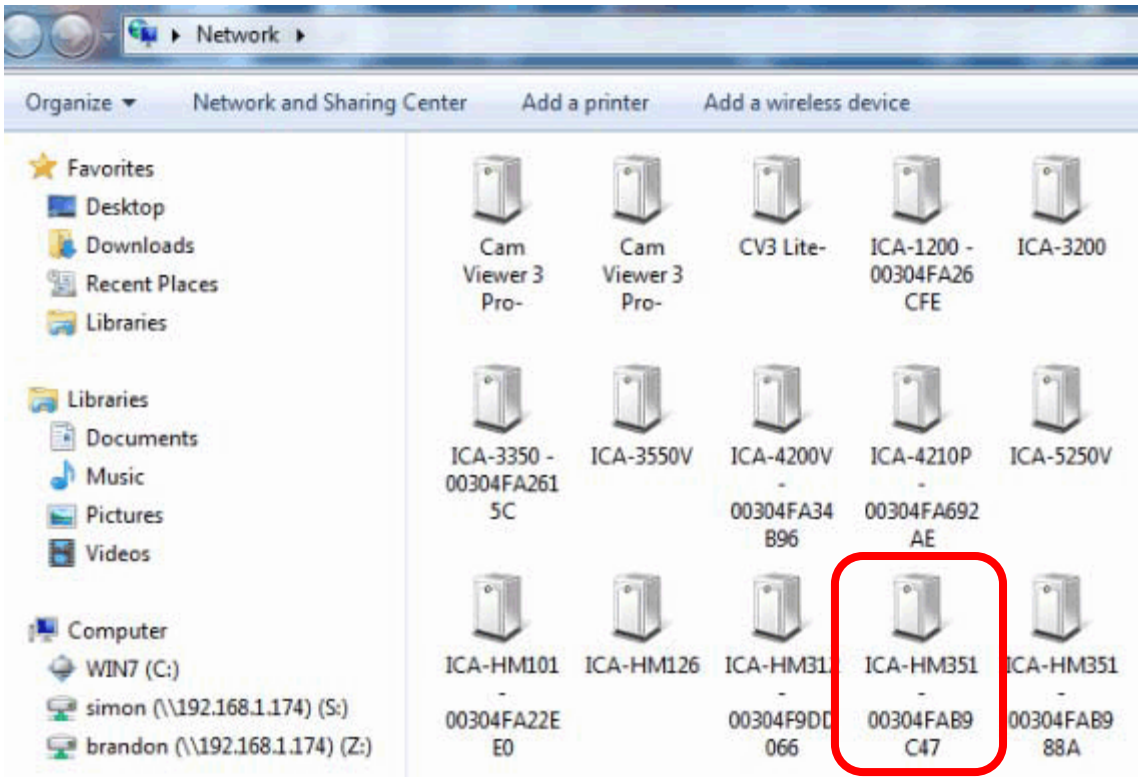


2.5.2 Windows 7

Go to **Start > Control Panel > Network and Internet > Network and Sharing Center**, if network discovery is off; click the arrow button to expand the section.
Click Turn on network discovery, and then click Apply. If you are prompted for an administrator password or confirmation, type the password or provide confirmation.







2.6 Setting Up ActiveX to use the Internet Camera

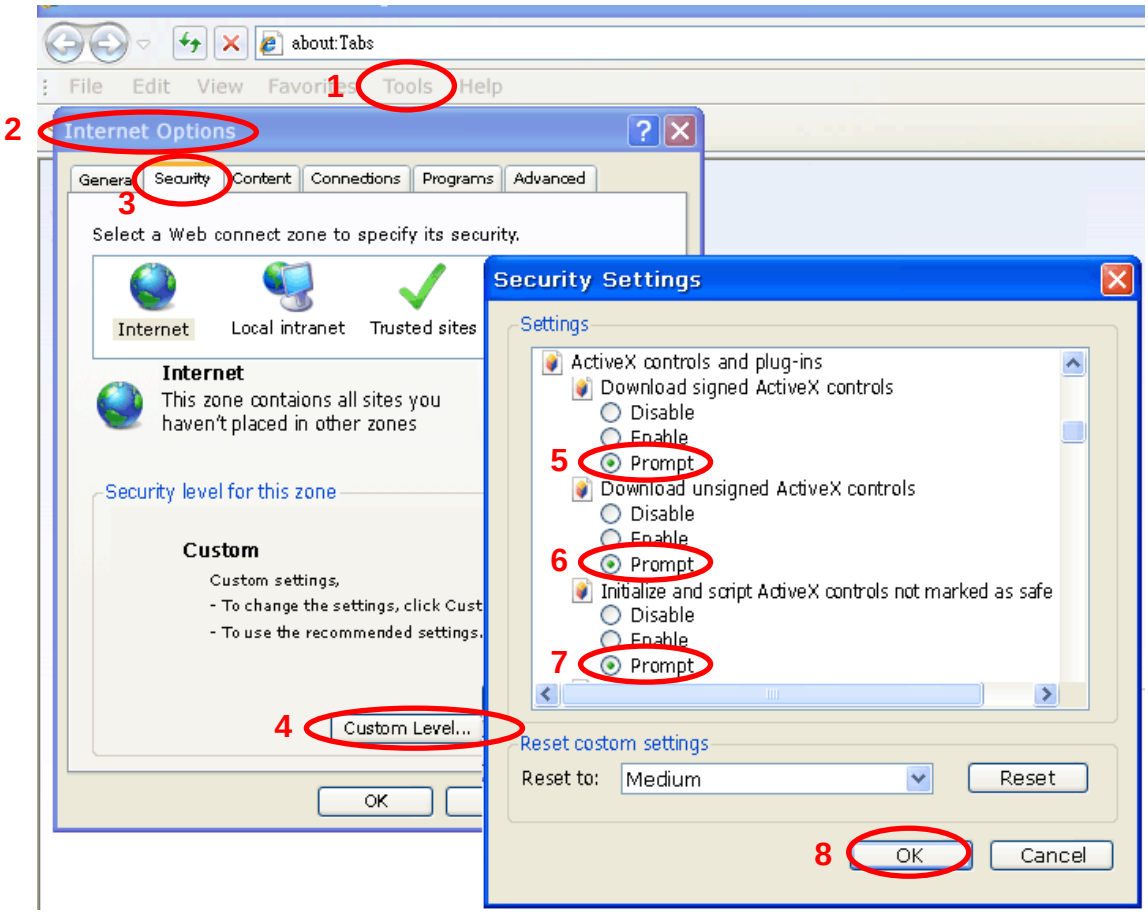
The Internet Camera web pages communicate with the Internet camera using an ActiveX control. The ActiveX control must be downloaded from the Internet camera and installed on your PC. Your Internet Explorer security settings must allow for the web page to work correctly. To use the Internet camera, user must set up this IE browser as follows:

2.6.1 Internet Explorer 6 for Windows XP

From your IE browser ➔ "Tools" ➔ "Internet Options…" ➔ "Security" ➔"Custom Level…", please set up your "Settings" as follows:

Set the first 3 items

- *Download the signed ActiveX controls*
- *Download the unsigned ActiveX controls*
- *Initialize and script the ActiveX controls not marked as safe to Prompt*



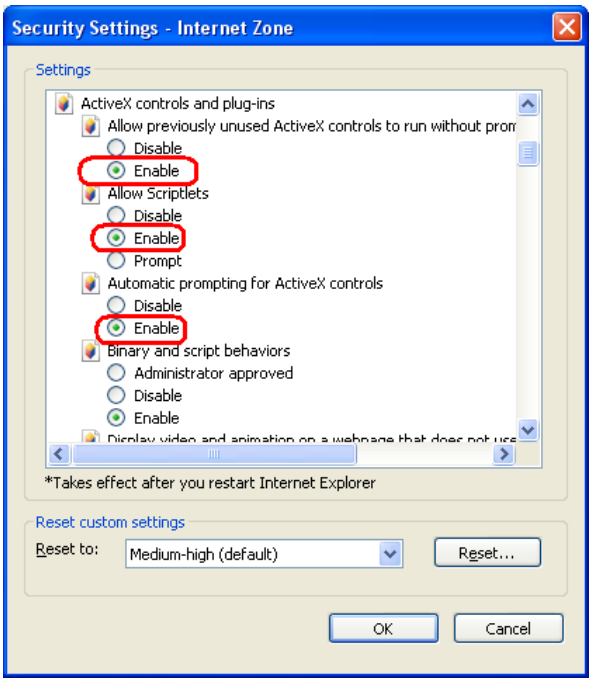
By now, you have finished your entire PC configuration for Internet camera.

2.6.2 Internet Explorer 7 for Windows XP

From your IE browser ➔ "Tools" ➔ "Internet Options…" ➔ "Security" ➔"Custom Level…", please set up your "Settings" as follows:

Set the first 3 items

- *Allow previously unused ActiveX control to run…*
- *Allows Scriptlets*
- *Automatic prompting for ActiveX controls*

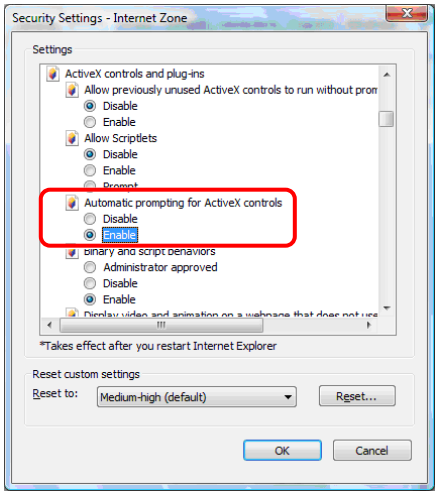


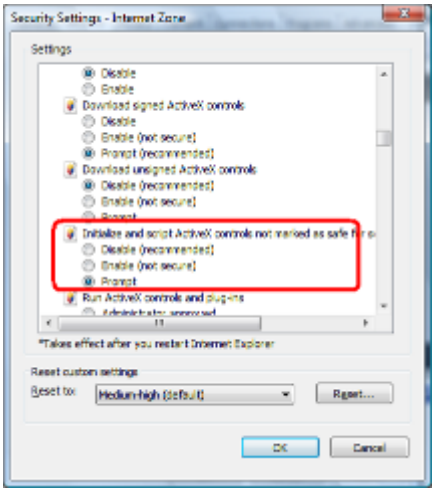
By now, you have finished your entire PC configuration for Internet camera.

2.6.3 Internet Explorer 7 for Windows Vista

From your IE browser ➔ "Tools" ➔ "Internet Options…" ➔ "Security" ➔ "Internet" ➔ "Custom Level…", please set up your "Settings" as follows:

- *Enable "Automatic prompting for ActiveX controls"*
- *Prompt "Initialize and script active controls not marked…."*

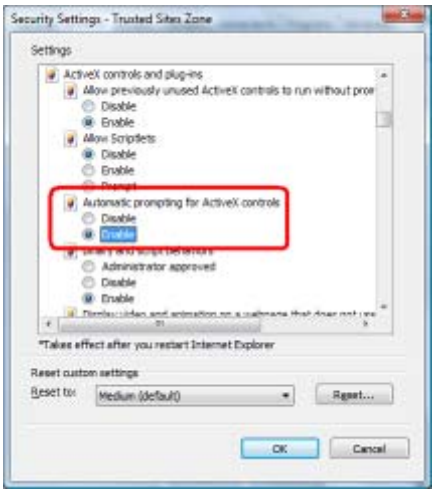


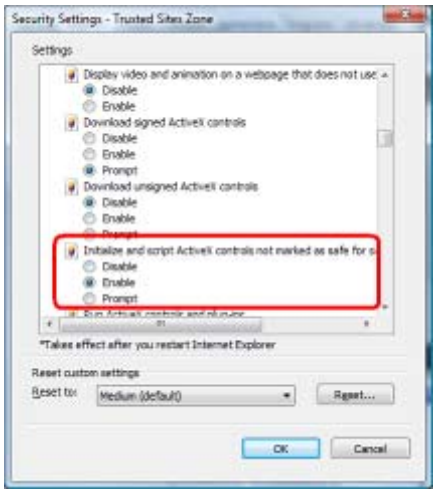


From your IE browser ➔ "Tools" ➔ "Internet Options…" ➔ "Security" ➔ "Trusted Sites" ➔"Custom Level…", please set up your "Settings" as follows:

- *Enable "Automatic prompting for ActiveX controls"*

• *Prompt "Initialize and script active controls not marked…."*





By now, you have finished your entire PC configuration for Internet camera.

Chapter 3. Web-based Management

This chapter provides setup details of the Internet camera's Web-based Interface.

3.1 Introduction

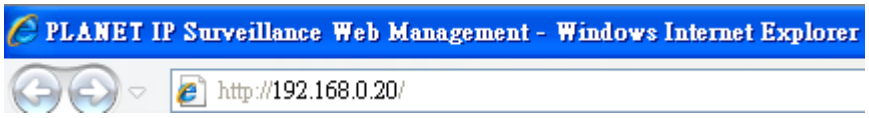
The Internet camera can be configured with your Web browser. Before configuring, please make sure your PC is under the same IP segment with Internet camera.

3.2 Connecting to Internet Camera

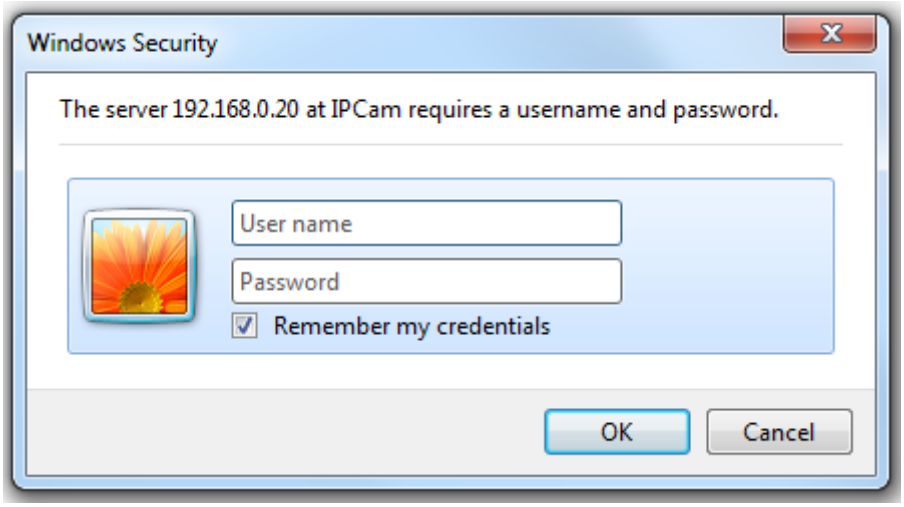
A. Use the following procedure to establish a connection from your PC to the Internet camera.

B. Once connected; you can add the camera to your browser's Favorites or Bookmarks.

Start the web browser on the computer and type the IP address of the camera.
The Default IP: "http://192.168.0.20"



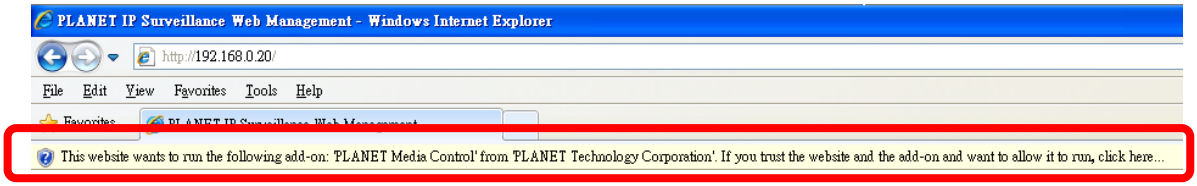
The login window of Internet camera will appear,
Default login **username and password** are both **admin.**



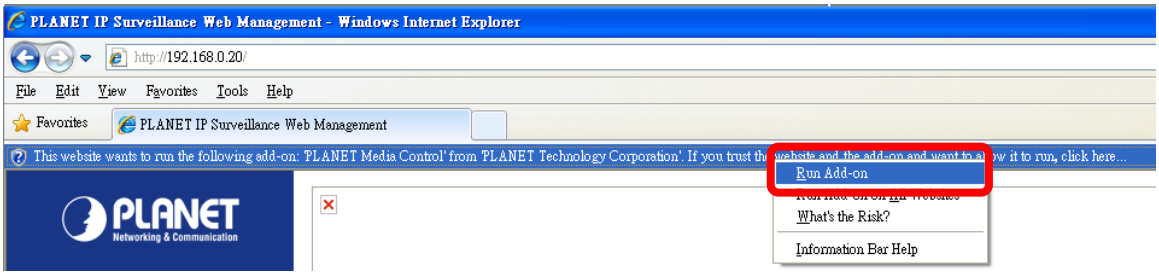
Note

If the user name and password have been changed with PLANET IP Wizard II, please enter the new user name and password here.

After logging on, you should see the following messages at the top of Internet Explorer:



Click on the message, and click **Run Add-on**



When you see this message, click **Run** to install the required ActiveX control

After the ActiveX control has been installed and run, the first image will be displayed.

You should be able to see the images captured from the Internet camera on the web page now. For advanced functions, please refer to instructions given in the following chapters.

If you log in the camera as an ordinary user, setting function will be not available. If you log in the camera as the administrator, you can perform all the settings provided within the device.

3.3 Live View

Start-up screen will be as follows whether you are an ordinary user or an administrator.

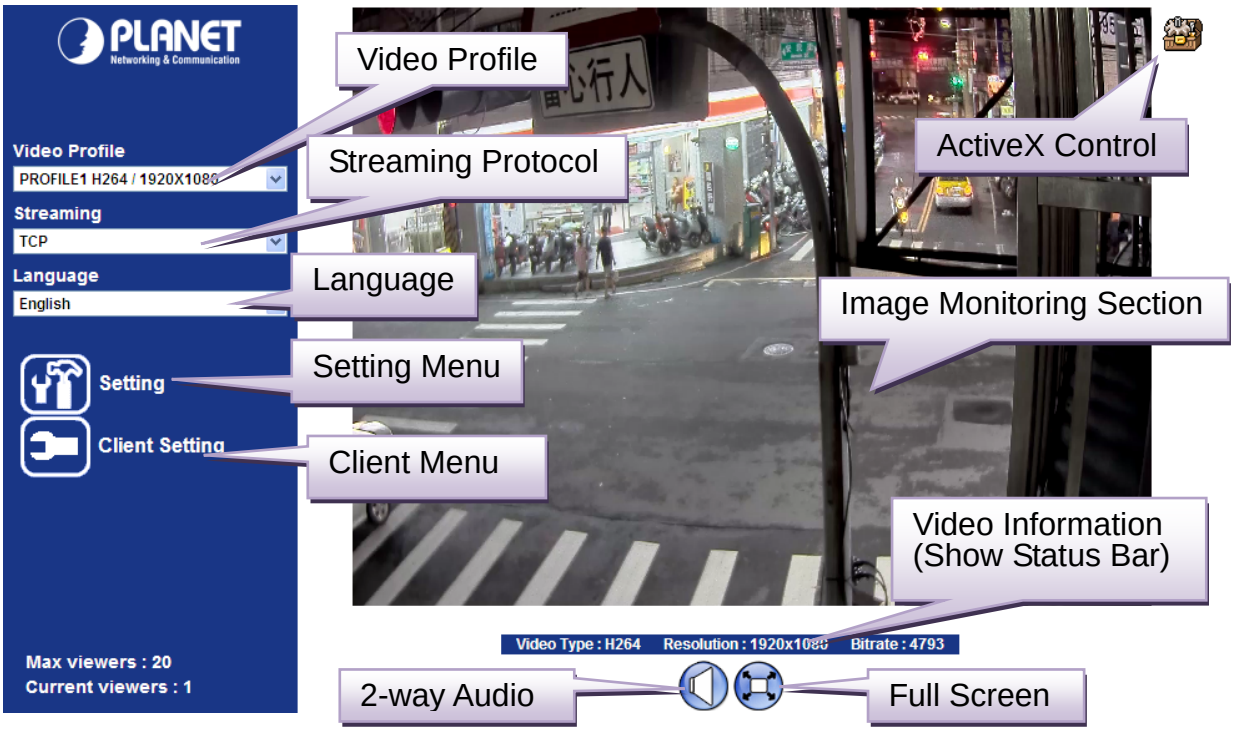


Image Monitoring Section	The image shot by the camera is shown here. The date and time are displayed at the top of the window.
Video Profile	The camera supports multi-profile for simultaneous H264 and M-JPEG compressions. User can choose a proper and/or preferred profile here.
Full Screen	Click this button to display the image in full-screen mode (uses every available space to display the image captured by this camera).
2-way Audio	The Internet camera supports 2-way audio function. User can choose to enable or disable this function by toggling the icon below  : Disable audio uploading function.  : Enable audio uploading function.
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.
Setting Menu	This function is in a detailed setting for the camera that is only available for user logged into camera as administrator.
Streaming Protocol	User can select proper streaming protocol according to networking environment.
Language	The device can provide multiple languages to meet customer's requirements.
Client Setting:	Click this button to display the client extra control panel for 2-way audio and full screen.

Video Information	Display video information including video format, resolution, frame rate and bit rate.

3.4 ActiveX Control

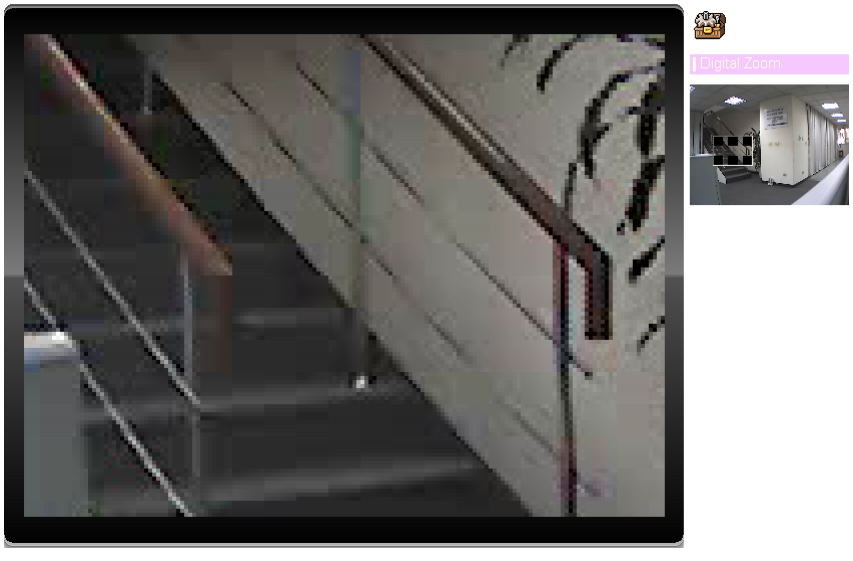
The plug-in ActiveX control supports a lot of functions by clicking the left mouse button. Note that this feature only supports on the ActiveX control within Microsoft® Internet Explorer.

On the ActiveX control icon, click the left mouse button and then a menu pop-up. This menu provides features that are unique to the ActiveX control. These features include:

- Digital Zoom,
- Snapshot,
- Record,
- Volume,
- About

3.4.1 Digital Zoom

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



3.4.2 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. Select **Browser**, the pop-up window to select the save path and file name prefix, and select **OK** to continue.

If you like to retrieve the saved image, select the file to display the saved image by

using any of the graph editing tools.

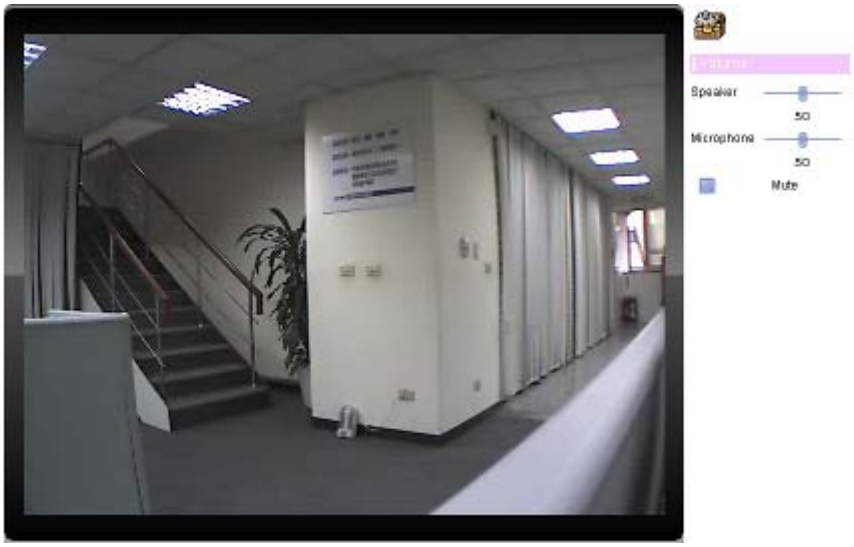
3.4.3 Record

Click **Record** to activate this function. Press **Record** button to start recording. The video file is saved as ASF format onto your local PC. If you want to stop it, press **Stop** to stop recording. Select **Browser**, the pop-up window to select the save path and file name prefix, and select **OK** to continue.

After recording is stopped, list the files. This file is named as Video_yyyymmddhhmmss.asf . The ASF files can be displayed by the standard Windows Media Player, but it needs the DixectX 9.0 or later version to be installed.

3.4.4 Volume

Click Volume to activate this function. These have two control bars for speaker and microphone volume. Scroll this control bar to adjust the audio attribute. Check the volume mute to mute the speaker output.



3.4.5 About

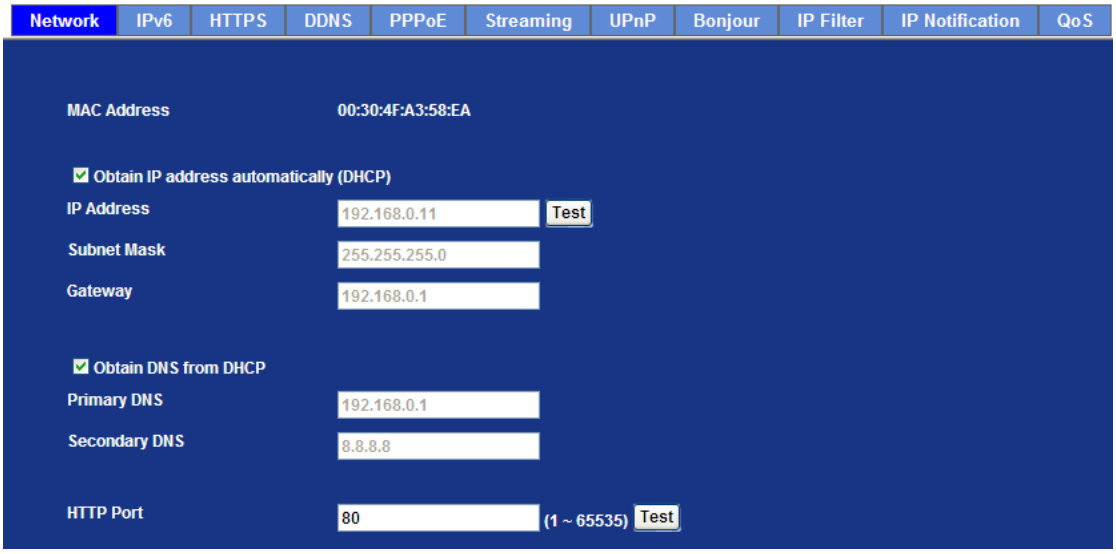
Click "**About"** to show the ActiveX information

3.5 Network Configuration

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

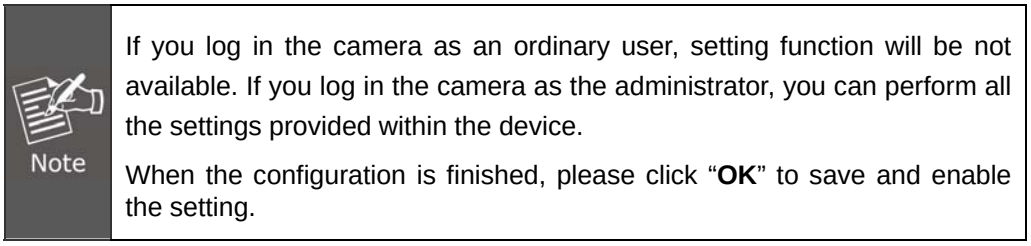
3.5.1 Network

This section provides the menu of connecting the device through Ethernet cable.



MAC Address	Display the Ethernet MAC address of the device. Note that user cannot change it.
Obtain an IP address automatically (DHCP)	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 device will assign a default IP address for 192.168.0.20. If you do not select “Obtain an IP address automatically”, then you need to enter these network parameters by yourself.
IP Address	This address is a unique numbers that identifies a computer or device on the WAN or LAN. These numbers are usually shown in groups separated by periods, for example: 192.168.0.200
Subnet Mask	Subnets allow network traffic between hosts to be separated based on the network's configuration. In IP networking, traffic takes the form of packets. IP subnets advance network security and performance to some level by organizing hosts into logical groups. Subnet masks contain four bytes and usually appear in the same "dotted decimal" data. For example, a very common subnet mask in its binary demonstration 11111111 11111111 11111111 00000000 will usually be shown in the corresponding, more readable form as 255.255.255.0.
Gateway	A gateway is a piece of software or hardware that passes information between networks. You'll see this term most often when you either log in to an Internet site or when you're transient email between different servers.

Obtain DNS from DHCP	Enable this checked box when a DHCP server is installed on the network and provide DNS service.
Primary DNS	When you send email or position a browser to an Internet domain such as xxxxx.com, the domain name system translates the names into IP addresses. The term refers to two things: the conventions for naming hosts and the way the names are control across the Internet.
Secondary DNS	The same function as DNS1. It is optional.
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 not assigned as 80, users have to add the port number in the back of IP address. For example: http://192.168.0.20:8080. 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.

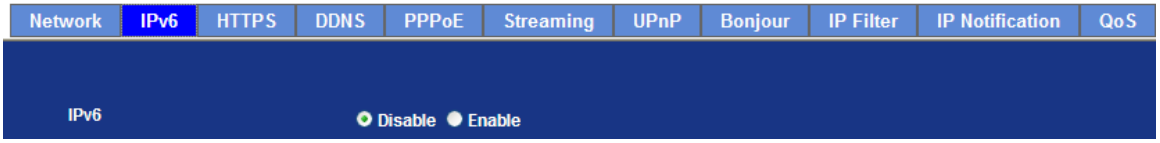


If you log in the camera as an ordinary user, setting function will be not available. If you log in the camera as the administrator, you can perform all the settings provided within the device.

When the configuration is finished, please click "**OK**" to save and enable the setting.

3.5.2 IPv6

Internet Protocol version 6 (IPv6) is called the "IP Next Generation" (IPng), which is designed to fix the shortcomings of IPv4, such as data security and maximum number of user addresses. It is backward compatible and thus expected to slowly replace IPv4.

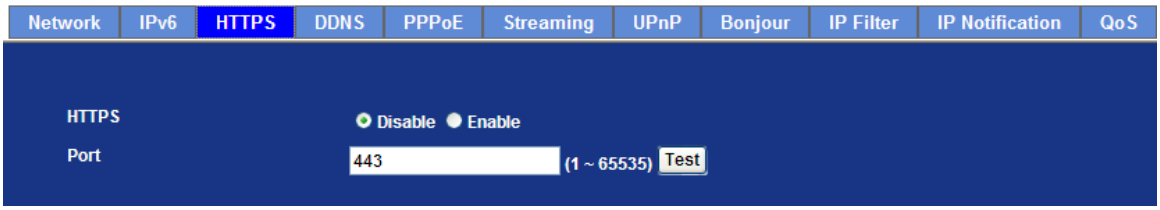


IPv6	To enable or disable the IPv6 function here.

3.5.3 HTTPS

HTTPS stands for Hypertext Transfer Protocol Secure

HTTPS is a combination of the Hypertext Transfer Protocol with the SSL/TLS protocol to provide encrypted communication and secure identification of a network web server. HTTPS connections are often used for sensitive transactions in corporate information systems. The main idea of HTTPS is to create a secure channel over an insecure network. This ensures reasonable protection from eavesdroppers and man-in-the-middle attacks, provided that adequate cipher suites are used and that the server certificate is verified and trusted.



HTTPS	To enable or disable the HTTPS service here. Note that the HTTPS function of this device not only encrypts the web content but also audio/video data.
Port	Choose the HTTPS port. The default value is 443.

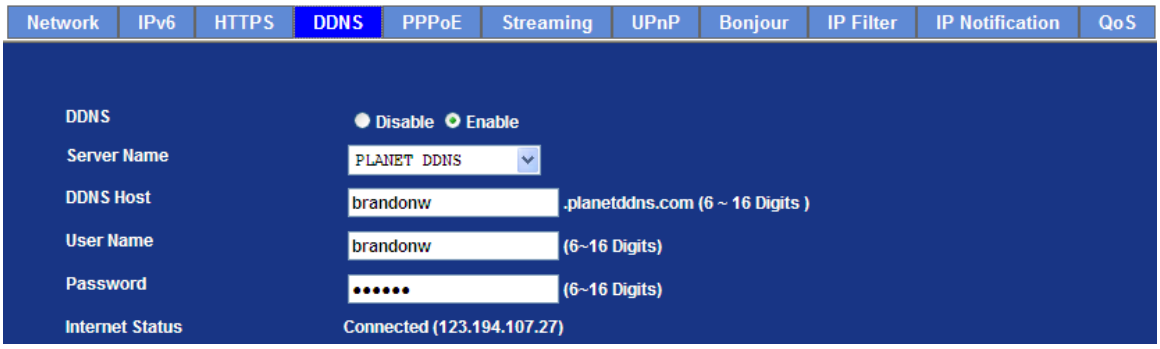
3.5.4 DDNS server

DDNS stands for Dynamic Domain Name Server

The device supports DDNS 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. Because DDNS allows the device to use an easier way to remember naming format rather than an IP address. The name of the domain is like the name of a person, and the IP address is like his phone number. On the Internet we have IP numbers for each host (computer, server, router, and so on), and we replace these IP numbers to easily remember names, which are organized into the domain name. As to xDSL environment, most of the users will use dynamic IP addresses. If users want to set up a web or an FTP server, then the Dynamic Domain Name Server is necessary. For more DDNS configuration, please consult your dealer.

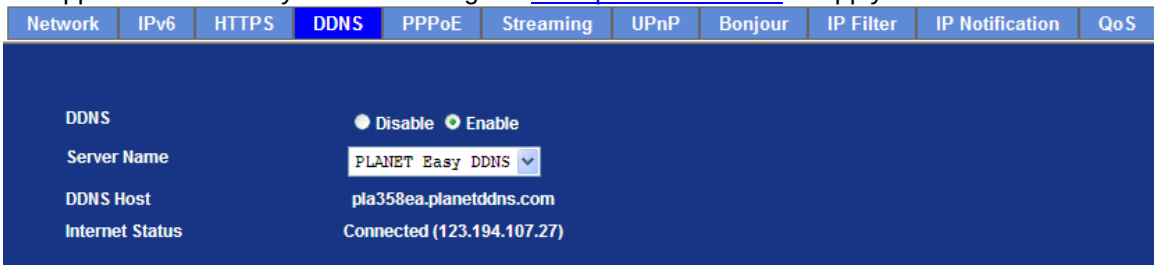
Your Internet Service Provider (ISP) provides with you at least one IP address which is used to connect to the Internet. The address you get may be static, meaning it never changes, or dynamic, meaning it's likely to change periodically. Just how often it changes, depending on your ISP. A dynamic IP address complicates remote access since you may not know what your current WAN IP address is when you want to access your network over the Internet. The solution to the dynamic IP address problem comes in the form of a dynamic DNS service.

The Internet uses DNS servers to look up domain names and translates them into IP addresses. Domain names are just easy to remember aliases for IP addresses. A dynamic DNS service is unique because it provides a means of updating your IP address so that your listing will remain current when your IP address changes. There are several excellent DDNS services available on the Internet and best of all they're free to use. 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 E for more information.



DDNS	To enable or disable the DDNS service here.
Server Name	Choose the built-in DDNS server.
DDNS Host	The domain name is applied for this device.
User Name	The user name is used to log into DDNS.
Password	The password is used to log into DDNS.

This model comes with Planet easy DDNS. When this function is enabled, DDNS hostname will appear automatically. User doesn't go to www.planetddns.com to apply for a new account.



3.5.5 PPPoE

PPPoE stands for Point to Point Protocol over Ethernet

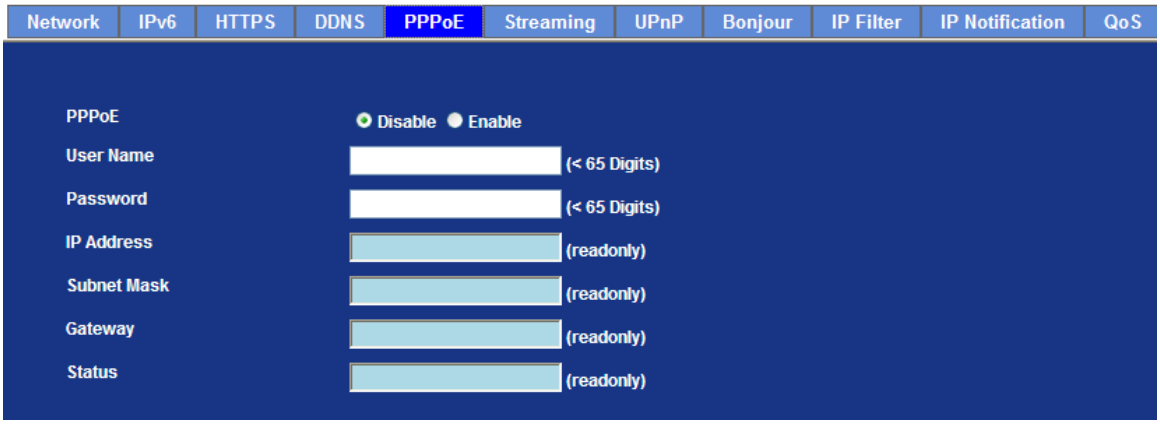
A standard builds on Ethernet and Point-to-Point network protocol. It allows Internet camera to connect to Internet with xDSL or cable connection; it can dial up your ISP and get a dynamic IP address. For more PPPoE and Internet configuration, please consult your ISP.

It can directly connect to the xDSL; however, it should be set up in a LAN environment to program the PPPoE information first, and then connect to the xDSL modem. Power it on again to enable device dial on to the ISP for connecting to the WAN through the xDSL modem.

The procedures are:

- Connect to a LAN by DHCP or Fixed IP

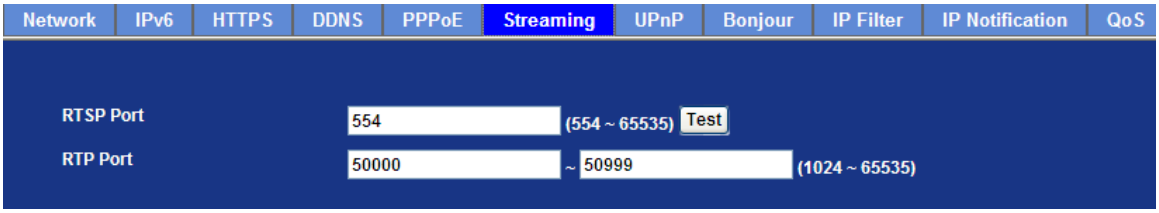
• Access the device by entering **Setting ➔ Network ➔ PPPoE** as shown below:



PPPoE	To enable or disable the PPPoE service here.
User Name	Type the user name for the PPPoE service which is provided by ISP.
Password	Type the password for the PPPoE service which is provided by ISP.
IP Address / Subnet Mask / Gateway	Shows the IP information got from PPPoE server site.
Status	Shows the Status of PPPoE connection.

3.5.6 Streaming

RTSP is a streaming control protocol, and a starting point for negotiating transports such as RTP, multicast and unicast, and for negotiating codes. RTSP can be considered 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.

Note

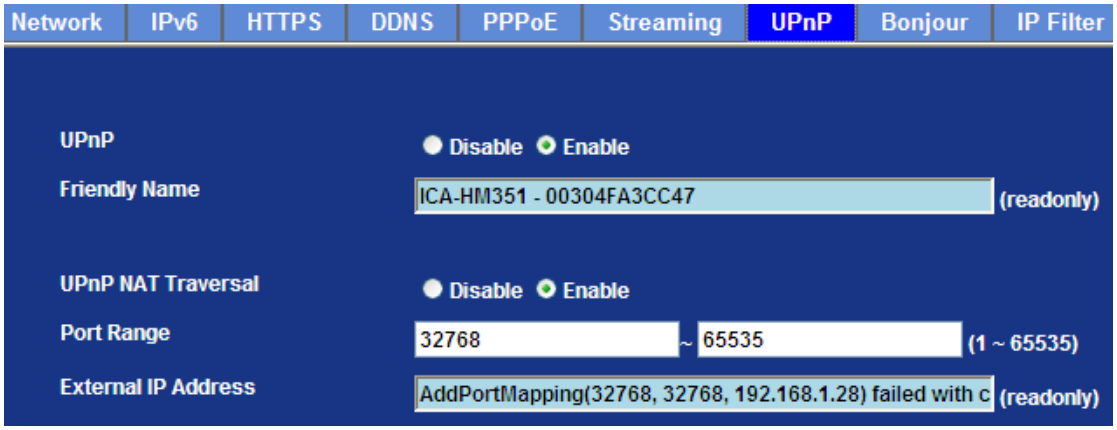
1. *To use the 3GPP function, in addition to previous section, you might need more information or configuration to make this function work.*
2. *The camera must be set as multi-profile mode, not mega-pixel mode.*

	Otherwise this device cannot serve 3GPP stream. 3. *To use the 3GPP function, it is strongly recommended to install the Networked Device with a public and fixed IP address without any firewall protection.* 4. *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, QuickTime or Real player) 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.

3.5.7 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 Internet camera. 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.

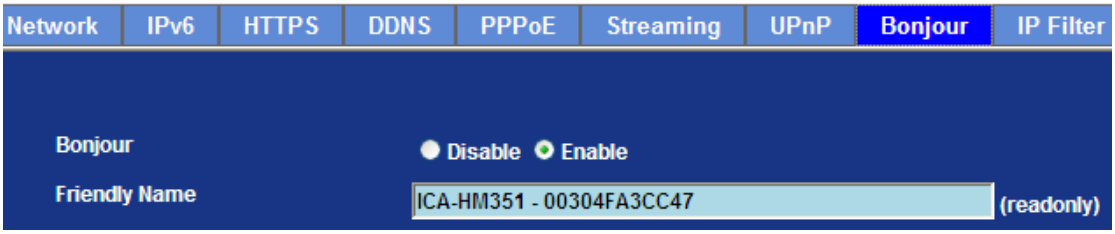


UPnP	To enable or disable the UPnP service here.
Friendly Name	Shows the friendly name of this device here.
UPnP NAT Traversal	When enabled, the device will attempt to configure port mapping in a NAT router on your network, using UPnP™. Note that UPnP™ must be enabled in the NAT router first.
Port Range	The port range will open in NAT router.
External IP Address	Shows 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.

3.5.8 Bonjour

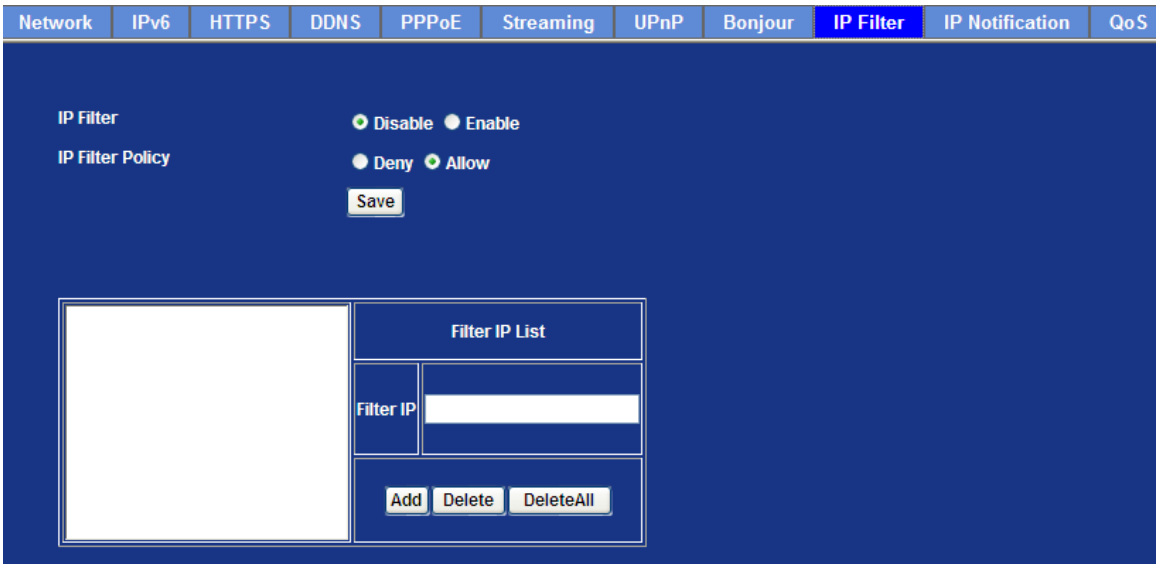
The Bonjour service allows IP camera to be discovered with Apple Safari browser applied. Once the option is enabled, the IP camera will show the Friendly Name in the Bonjour bookmarks menu of Safari browser.



Bonjour	To enable or disable the Bonjour service here.
Friendly Name	Shows the friendly name of this device here.

3.5.9 IP Filter

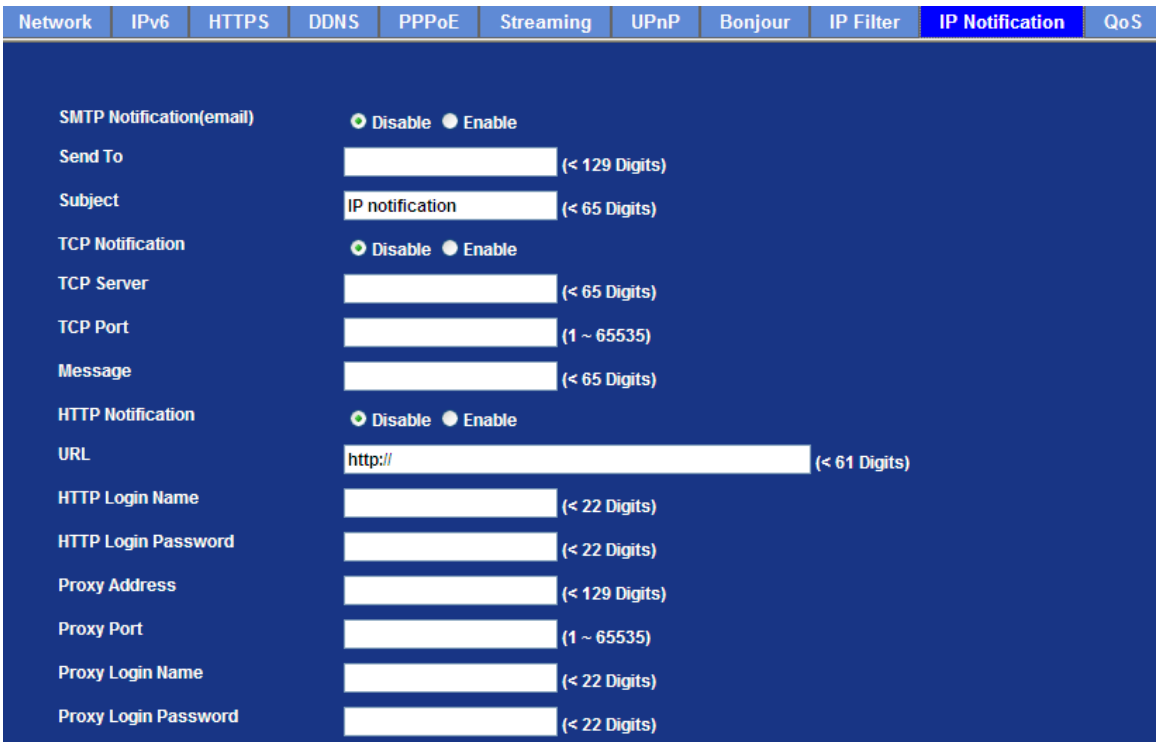
You can enter different user's IP addresses by entering allow or deny.



IP Filter	To enable or disable the IP filter function here.
IP Filter Policy	Choose the filter policy where deny or allow is.

3.5.10 IP Notification

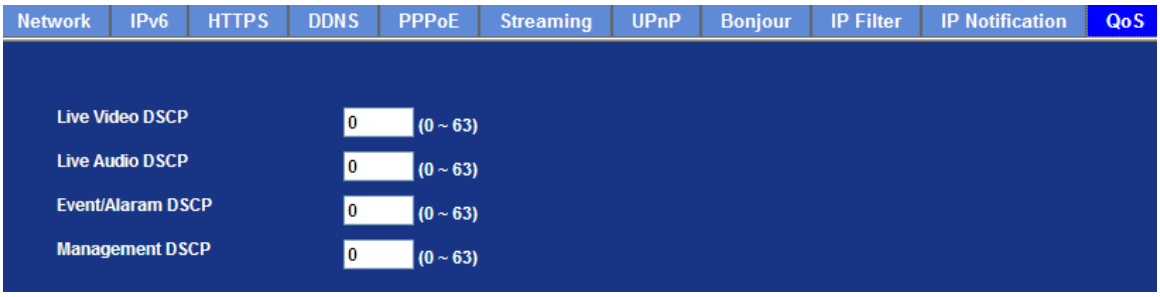
In case the IP address is changed, system is able to send out an email to alert someone if the function is enabled.



SMTP Notification (e-mail)	If this function is enabled, the "**Send to**" and "**Subject**" field need to be filled.
Send To	Type the receiver's e-mail address. This address is used for reply mail.
Subject	Type the subject/title of the E-mail.
TCP Notification	If this function is enabled, the "**TCP Server**", "**TCP Port**", and "**Message**" fields need to be filled.
TCP Server	Type 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 this function is enabled, the fields below need to be filled.
URL	Type the server name or the IP address of the HTTP server
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 Port	Set port number of Proxy.
Proxy Login Name	Type the user name for the HTTP Proxy.
Proxy Login Password	Type 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.

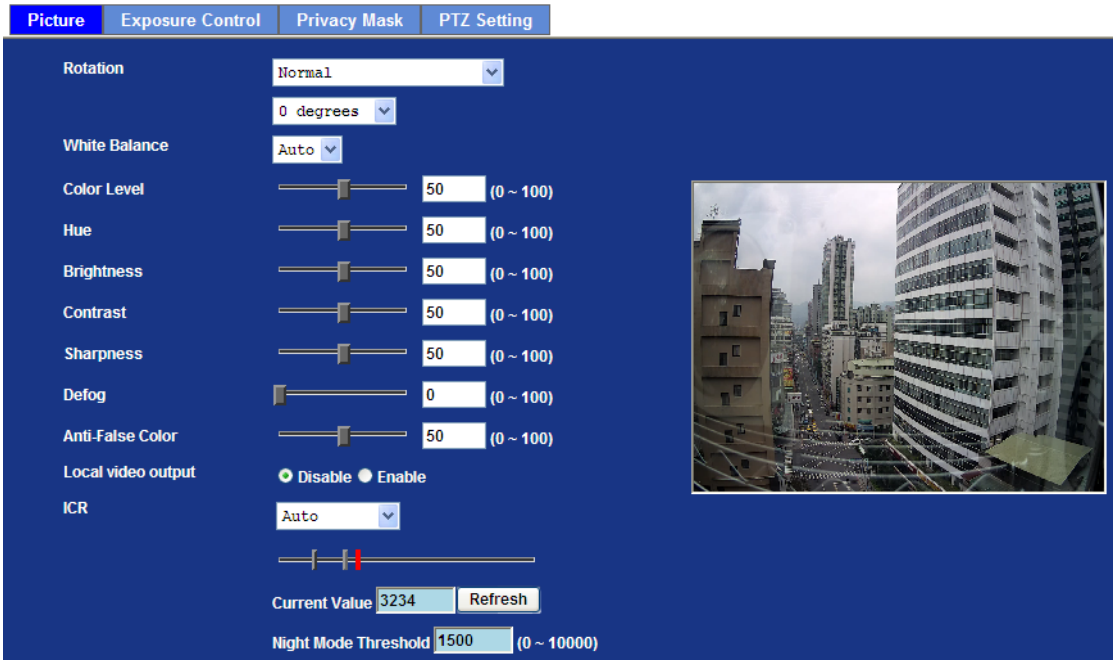
3.5.11 Qos



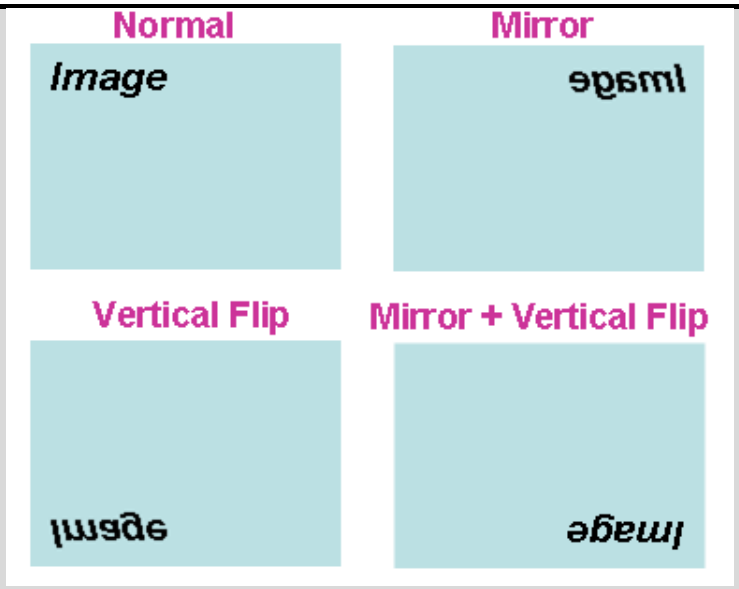
3.6 Camera Configuration

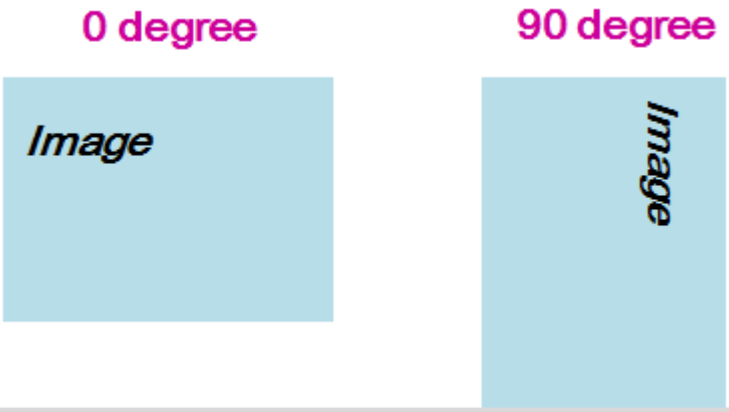
Use this menu to set the function of the camera of Internet camera.

3.6.1 Picture



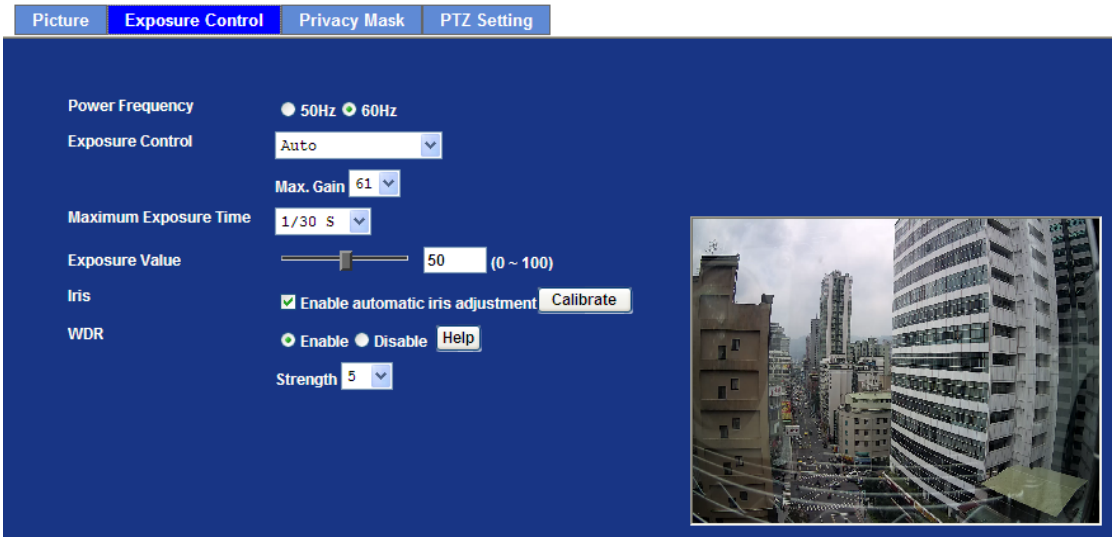
Rotation	Turn the “**Mirror**” and “**Vertical Flip**” on or off. The image will be overturned as shown below.



0 / 90 degrees	Select “0” or “90” degrees to rotate image as shown below. 
White Balance	Auto: will adjust the white balance automatically. Hold: will hold the white balance.
Color Level	Large value will be colorful.
Hue	Change the value by color tuning.
Brightness	Large value will brighten camera.
Contrast	Large value will contrast camera heavily.
Sharpness	Large value will sharpen camera.
Defog	Large value will try to de-fog image heavily.
Anti-False Color	Large value will try to lower the false color of image.
Local video output	Enable or disable video signal of BNC to a TV monitor. It’s very useful to check view angle or focus during camera installation. However, disabling this function will save power a lot. Suggest disabling it after camera is installed.

ICR	Use built-in photo sensor or manual to control ICR. In case user selects manual mode, there are 4 modes: Night (On), Day (Off), Auto or Schedule to control built-in IR LEDs. This function is very useful under low illumination environment, even at 0 lux. In case the Auto mode is selected, user needs to specify 3 parameters in advance: **Night Mode Threshold (0~10000)**: this value sets the threshold to turn on IR LED. It should be lower or equal to Day Mode Threshold. **Day Mode Threshold (0~10000)**: this value sets the threshold to turn off IR LED. It should be higher or equal to Night Mode Threshold. **Delay Time**: The delay time between LED On/Off switching. Note: The Current Value is the current luminance from the captured video. It's a useful reference to set LED On/Off Threshold.
LDC	LDC stands for Lens Distortion Correction. Adjust this value to correct barrel distortion correspondingly.
3D De-Noise	3D De-Noise can remove or lower unwanted noise and preserve fine details and edges.
Default Settings	Restore to factory image settings.

3.6.2 Exposure Control

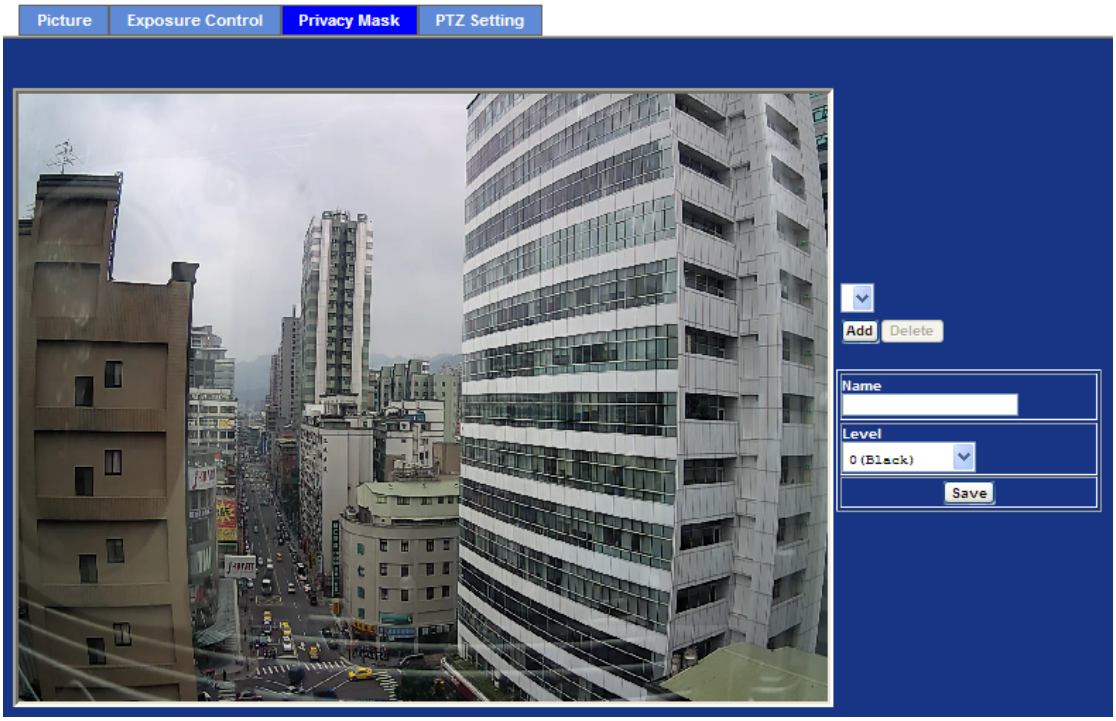


Power Frequency	Frequency of power line: 50 or 60Hz.
Exposure Control	**Auto-Indoor:** will adjust the image sensor exposure automatically under indoor environment. **Manual Exposure:** User can configure sensor exposure to fixed setting. **Auto:** will adjust the image sensor exposure automatically as possible.

Maximum Exposure Time	Set the Maximum Exposure Time. However, the real exposure time may be shorter if it is under good light condition.
Exposure Value	Exposure value is AE target value. This value is to adjust the integration, analog gain and digital gain to achieve the target brightness value (Exposure Value).
WDR	This function is to provide clear images even under backlight circumstances. The higher "Strength" level will adjust contrast compensation stronger.

3.6.3 Privacy Mask

Use this page to specify privacy mask window 1 to window 8 and set the name and gray level for selected window.



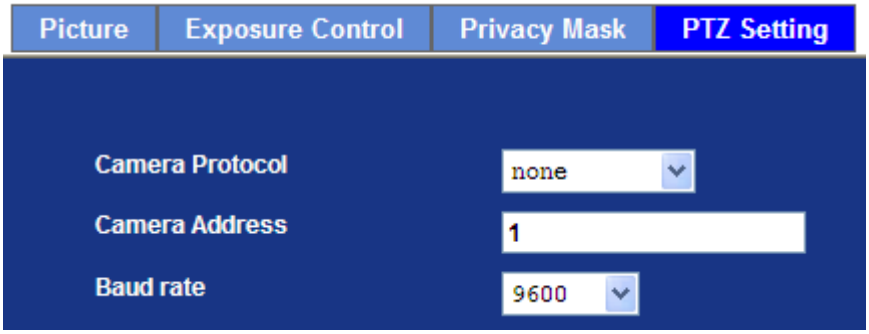
Add and Delete	To add or delete the privacy mask windows, user can specify up to 7 windows to mask the video captured by this device. By dragging mouse on the image, you can change the position and size of the selected window accordingly.
Name	Name of the specified privacy window
Level	To define the gray level of mask block. The smaller value will be darker.

Note

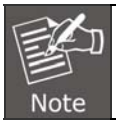
This function is not recommended for camera with PTZ/ePTZ functions.

3.6.4 PTZ Setting

This page allow user to modify the RS-485 interface according to the P/T scanner.



Camera Protocol	This device can connect to a PTZ camera or speed dome camera and controls them thru RS-485 interface.
Camera Address	This is the camera ID set in PTZ camera or speed dome camera. **Note** that please DO NOT changes the default value if unnecessary. If so, user needs to check and set value properly for both sides.
Baud rate	This is the communication speed between network module and P/T scanner.

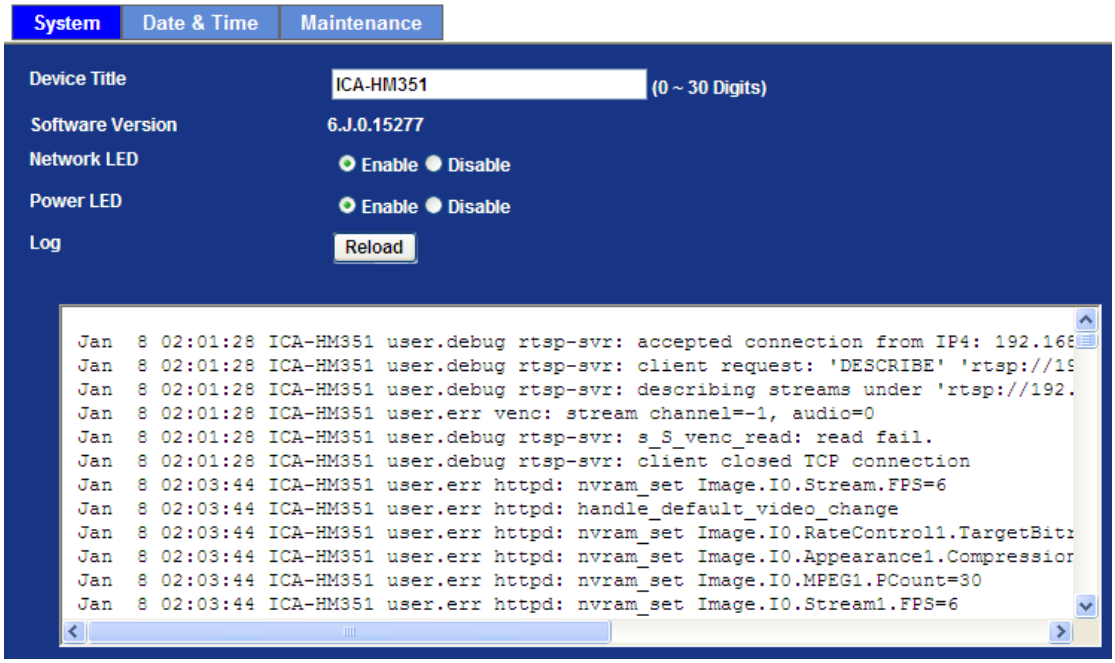


If need to change these parameters, user needs to check and set value properly for both, network module and P/T scanner.

3.7 System Configuration

Use this menu to perform the principal settings of Internet Camera.

3.7.1 System



Device Title	You can enter the name of this unit here. It's very useful to identify the specific device from multiple units.
Software version	This information shows the software version in the device.
Network LED	Switch the LED light of this Internet Camera on or off, so that Network LEDs will stop working; in case you don't want other people to know the camera is transferring data.
Power LED	Switch the LED light of this Internet Camera on or off.
Log	User can check the system log information of the device, including the Main Info, Appended Info, Operator IP, and so on.
Reload	Click this button; user can refresh the log information of the device.

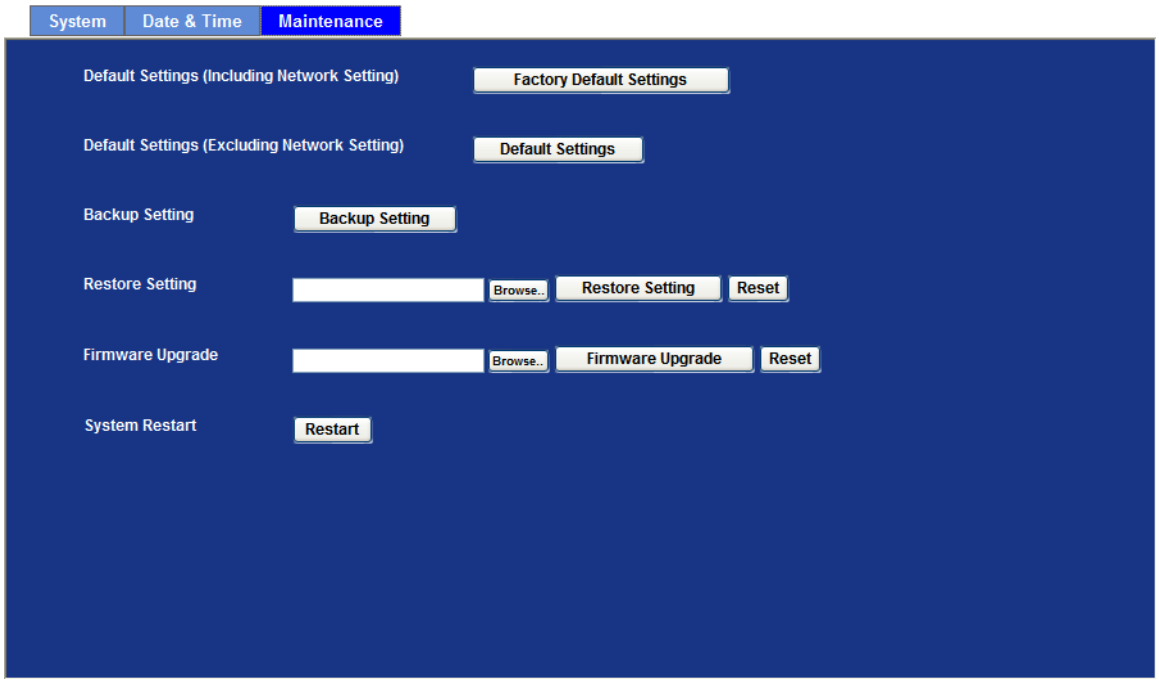
3.7.2 Date & Time

User can set up the time setting of Internet camera. Synchronize it with PC or remote NTP server. Also, you may select the correct time zone of your country.

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 those of time server

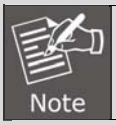
	called NTP server (Network Time Protocol).
NTP Server Name	Type the host name or IP address or domain name of the NTP server.
NTP Sync. Interval	Select an interval between 1 and 23 hours at which you want to adjust the device's time referring to NTP server.
Time Zone	Set the time difference from Greenwich Mean Time in the area where the device is installed.
Daylight Saving	Check this item to enable daylight saving adjustment.
Daylight Saving Start Time	Set up the date and time of daylight saving start time.
Daylight Saving Stop Time	Set up the date and time of daylight saving stop time.
Daylight Saving Offset	Set up the date of daylight saving offset.

3.7.3 Maintenance



Default Settings (Including the network setting)	Recall the device hard factory default settings. Note that click this button will reset all devices' parameters to the factory settings (including the IP address).
Default Settings (Except the network setting)	The unit is restarted and most current settings are reset to factory default values. This action will not reset the network setting.
Backup Setting	To take a backup of all of the parameters, click this button. If necessary, it will then be possible to return to the

	previous settings if settings are changed and there is unexpected behavior.
Restore Setting	Click the “Browse” button to locate the saved backup file and then click the “Restore Setting” button. The settings will be restored to the previous configuration.
Firmware Upgrade	The device supports new firmware upgrade. 1. Close all other application programs which are not necessary for firmware update. 2. Make sure that only you access this device at this moment 3. Disable Motion Detection function. 4. Select “**Firmware name**” 5. Select the Firmware binary file.



Make sure that the Firmware only applies to this device; once updated, it will be burned into FLASH ROM of system.

6. Once the firmware file is selected, select “Upgrade”.
7. The upgrade progress information will be displayed on the screen.
8. A message will be shown while the firmware is upgraded. Once the upgrading process is completed, the device will reboot the system automatically.
9. Please wait for 80 seconds, and then you can use PLANET IPWizard II to search the device again.

Warning!!! The downloading firmware procedure cannot be interrupted. If the power and/or network connection are/is broken during the download procedure, it might possibly cause serious damage to the device.

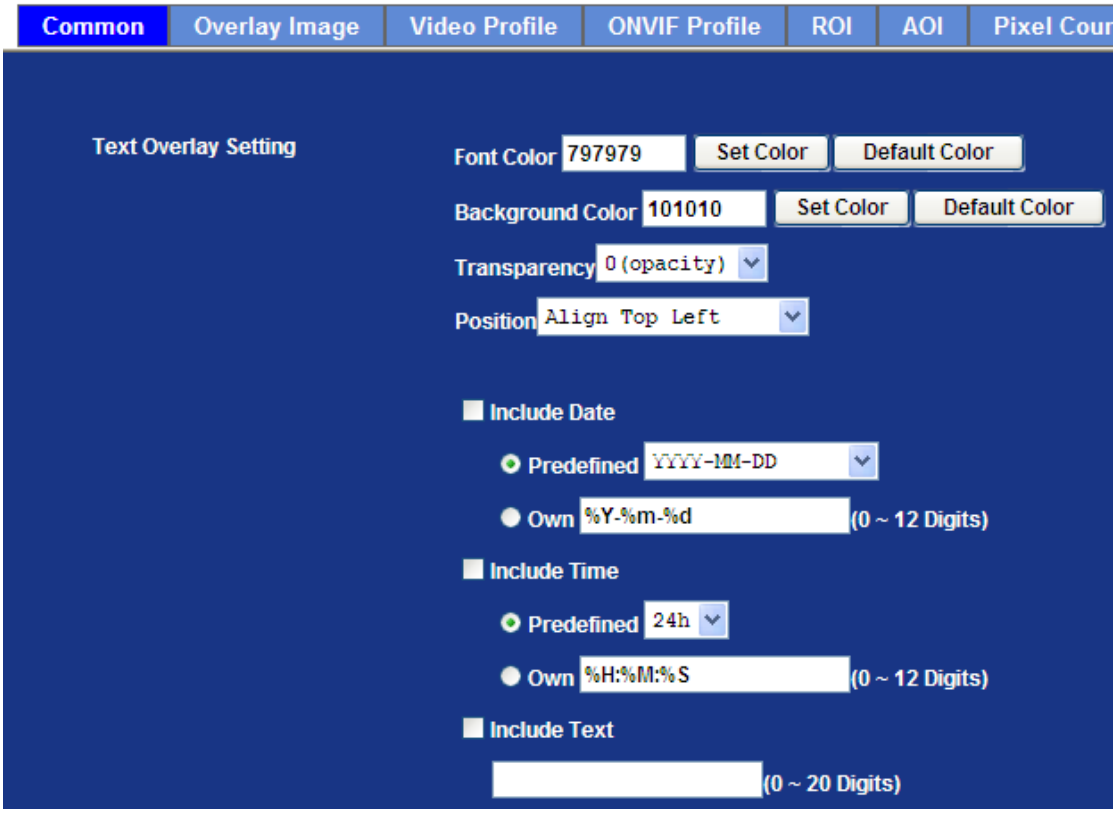
Please be aware that you should not turn off the power during updating the firmware and waiting for the “finish” message. Furthermore, do not try to upgrade new firmware if necessary.

System Restart	The device is restarted without changing any of the settings.

3.8 Video Configuration

This device provides 2 modes of video profile. The first one is 2MEGA Mode which supports video resolution up to 1920 x 1080. The second one is 720p Mode which supports video resolution up to 1280 x 720. User only can select either one to operate the camera. Switching between these two modes, the device will take time to re-configure system.

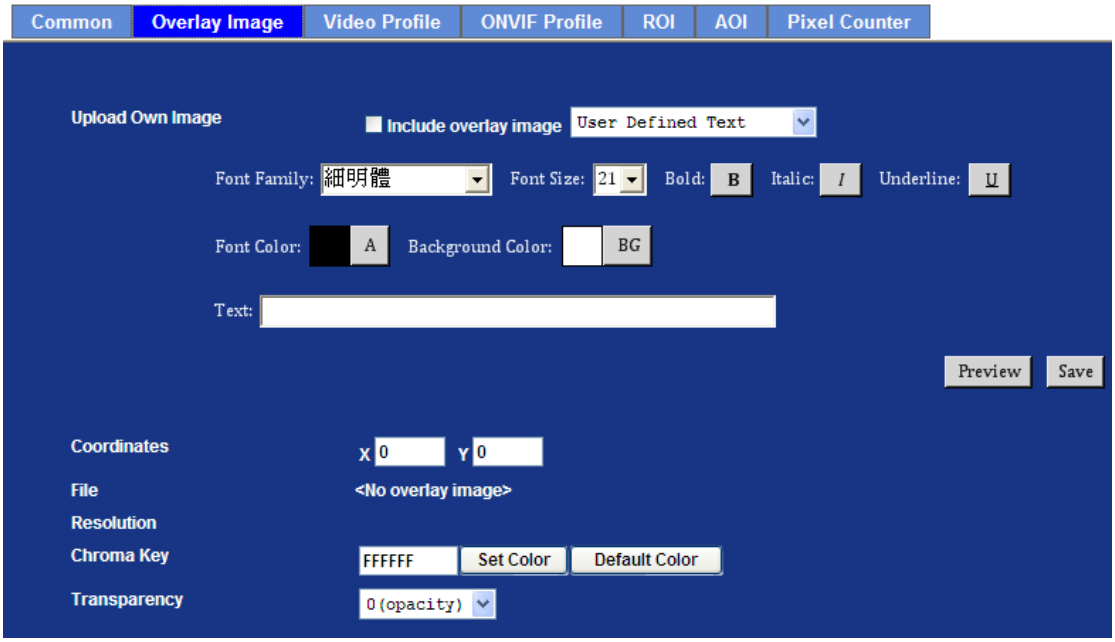
3.8.1 Common



Video Profile	User can only choose either 1080p or 1080p WDR mode.
Text Overlay Setting	There are some important information that can be embedded into image, including date, time, and/or text.

3.8.2 Overlay Image

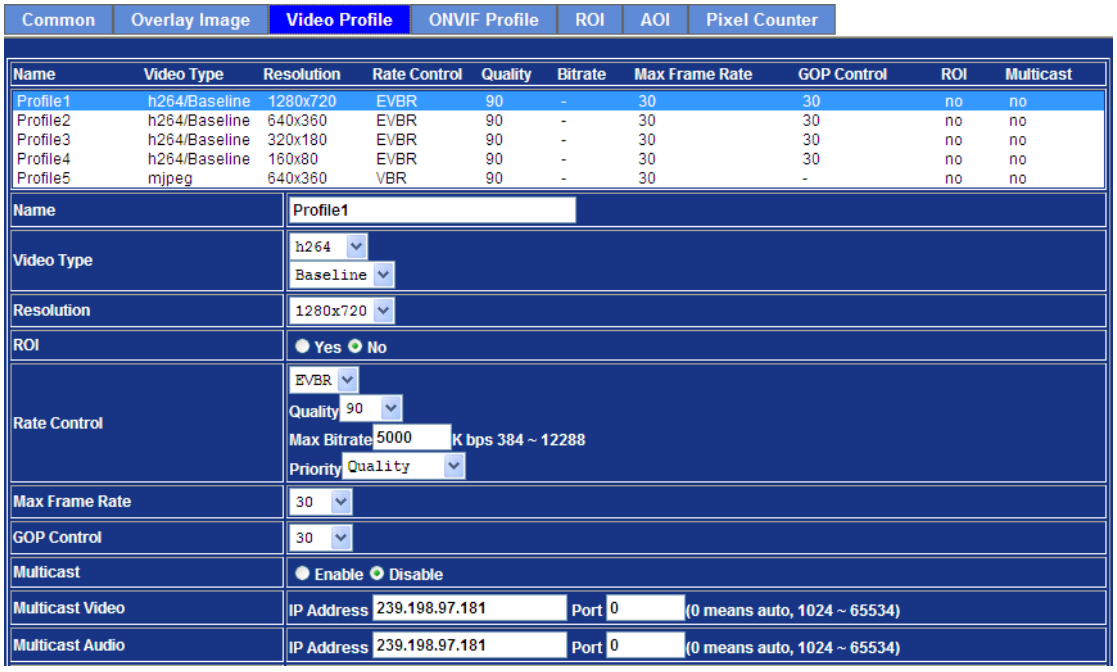
User can upload bitmap file to the camera and overlay the picture on streaming video and set its attributes.



Upload Own Image	There are two options: “Image Overlay Setting” or “User Defined Text”.
Image Overlay Setting	Check this item to enable image overlay. Otherwise, the uploaded bitmap will not be overlaid on video.
Coordinates	Set position of image on the video.
File	Information of the uploaded bitmap file.
Resolution	Size information of the uploaded bitmap file.
Chroma Key (Background Color)	Define the Chroma key of the uploaded bitmap file. Then user can set transparency of the bitmap.
Transparency	Lower value will lower transparency. Value 0 means opacity.

3.8.3 Video Profile

User can modify the detailed parameter for each video profile on this page.



Name	To assign a name to the selected profile.
Video Type	Video codec of the selected profile.
Resolution	Resolution of the selected profile.
ROI	Assign the selected profile as a ROI stream or not. (Only available for the profiles with higher resolutions)
Rate Control	Defines the rate control method of this profile. There are three options: Constant Bit Rate (CBR), Variable Bit Rate (VBR), and

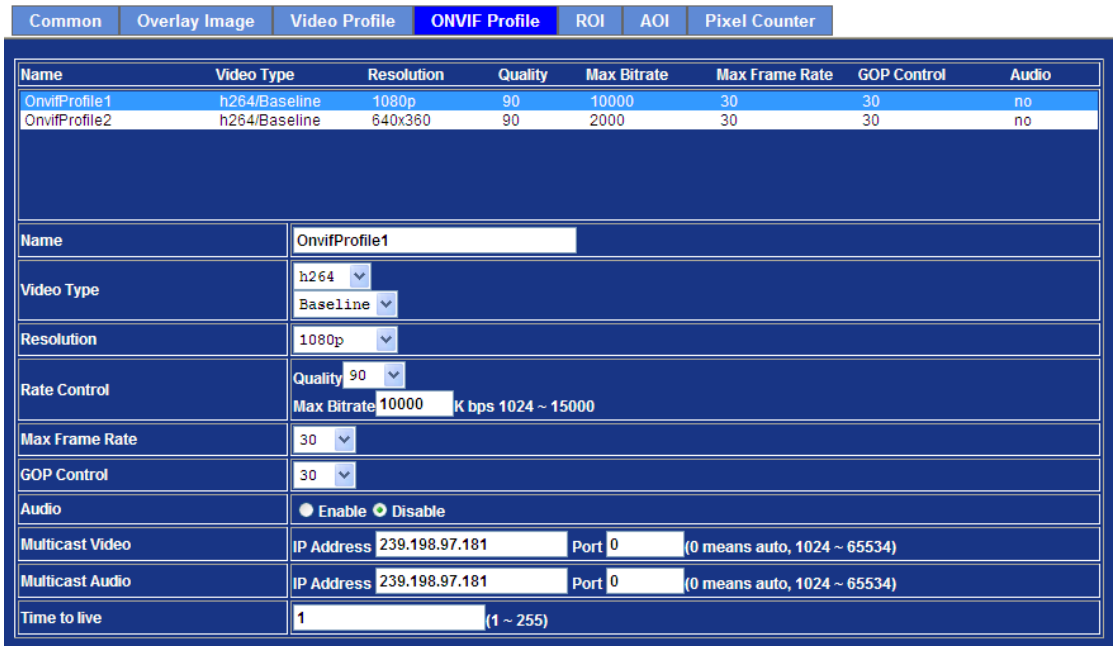
	Enhanced Variable Bit Rate (EVBR). For CBR, the video bit rate is between low and high bandwidth based on different resolutions. User can set the desired bit rate to match the limitation of bandwidth. For VBR, user should choose the quality level to set the video quality rather than bit rate. The quality level is between 1 and 100. The higher value can reach the better quality but of course will consume higher bandwidth. For EVBR, the video bitrate is based on normal VBR mode. However, the bitrate can be limited to the max. Bitrate while there are lots of motions in video.
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. User can set the desired max. Frame rate versus 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 every 30 frames.
Multicast	Enable or disable the multicast function.
Multicast Video	IP address and port for multicast video streaming of the selected profile.
Multicast Audio	IP address and port for multicast audio streaming of the selected profile
Time to live	Time to live (TTL) is a mechanism that limits the lifespan of data in a computer or network. Once the prescribed event count or timespan has elapsed, data is discarded. TTL prevents a data packet from circulating indefinitely.
Always Enable Multicast	Multicast streaming is always enabled or by request

Warning!!!

To enable the multicast streaming, make sure your Intranet does support multicast function. Otherwise, your Intranet may fall into network storm seriously.

3.8.4 ONVIF Profile

ONVIF protocol defines profile of video streams. In case, the NVR, CMS and/or VMS connect to this device via ONVIF protocol. Use this page to define parameters of video streams.



Name	To assign a name to the selected profile.
Video Type	Video codec of the selected profile.
Resolution	Resolution of the selected profile.
Rate Control	Defines the rate control method of this profile. There are three options: Constant Bit Rate (CBR), Variable Bit Rate (VBR), and Enhanced Variable Bit Rate (EVBR). For CBR, the video bit rate is between low and high bandwidth based on different resolutions. User can set the desired bit rate to match the limitation of bandwidth. For VBR, user should choose the quality level to set the video quality rather than bit rate. The quality level is between 1 and 100. The higher value can reach the better quality but of course will consume higher bandwidth. For EVBR, the video bitrate is based on normal VBR mode. However, the bitrate can be limited to the max. Bitrate while there are lots of motions in video.
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. User can set the desired max frame rate versus video quality under the limited bandwidth.
GOP Control	Defines the Intra/Inter-frame (I/P) ratio of this profile. For example,

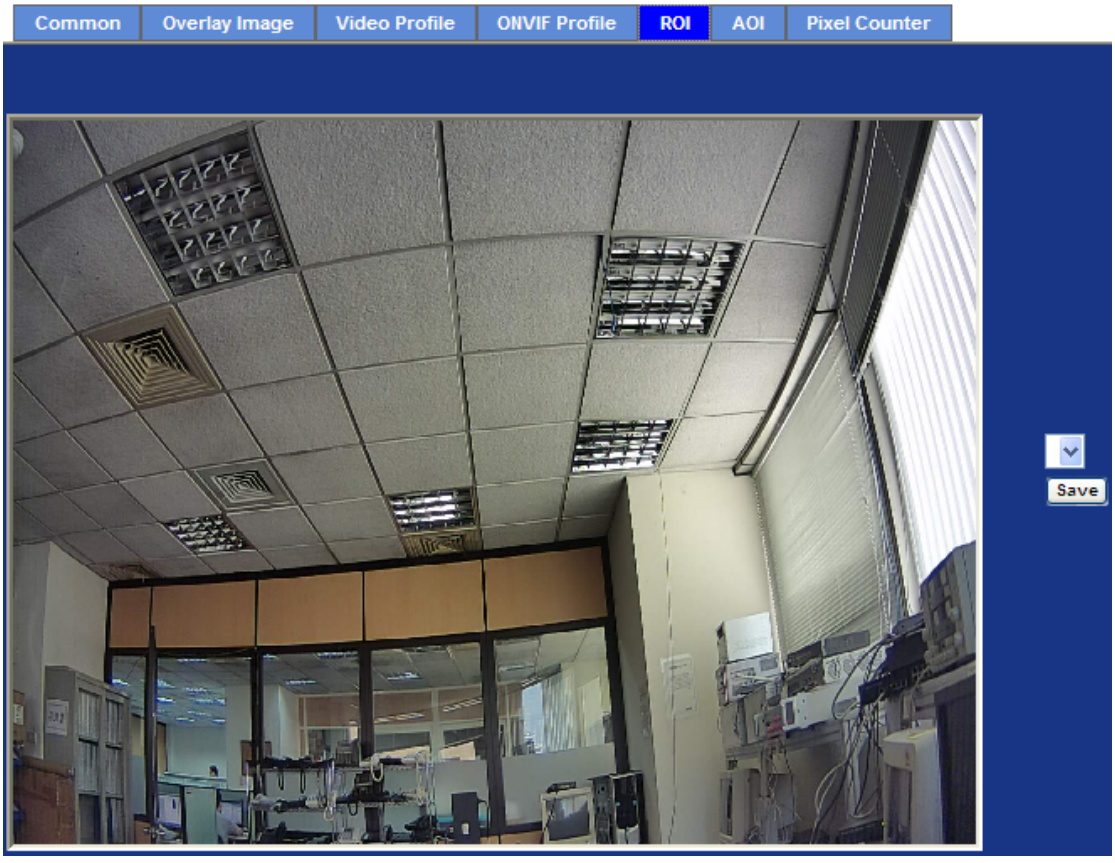
	set the GOP to 30, then the video stream will have one Intra-frame every 30 frames.
Audio	Enable or disable the audio function.
Multicast Video	IP address and port for multicast video streaming of the selected profile.
Multicast Audio	IP address and port for multicast audio streaming of the selected profile
Time to Live	Time to live (TTL) is a mechanism that limits the lifespan of data in a computer or network. Once the prescribed event count or timespan has elapsed, data is discarded. TTL prevents a data packet from circulating indefinitely.

Warning!!!

To enable the multicast streaming, make sure your Intranet does support multicast function. Otherwise, your Intranet may fall into network storm seriously.

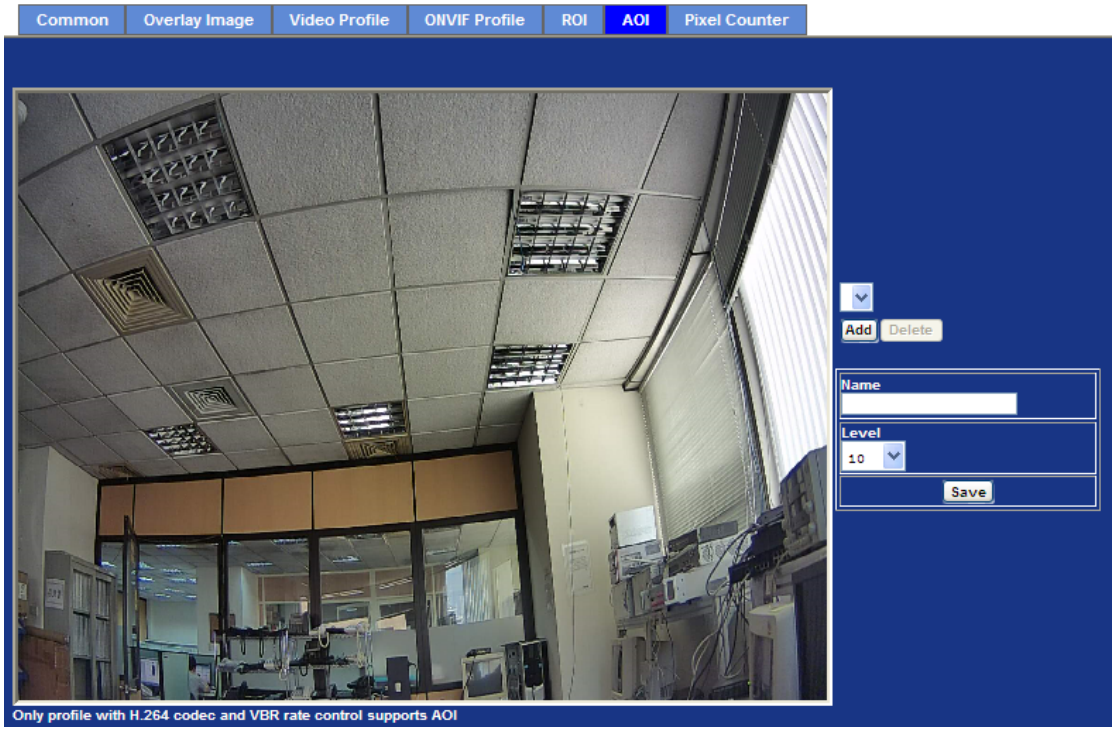
3.8.5 ROI

ROI means Region of Interest. Use this page to specify location and size of ROI windows. Only the maximum resolution profiles can be defined as ROI. In this model, user can define maximum three ROI windows.



3.8.6 AOI

AOI means Area of Interest. Use this page to specify location and size of AOI windows. Only the profiles with H.264 codec and VBR rate control can support AOI function. It enables a non-uniform distribution of the image quality between a selected region (the AOI) and the rest of the image (background).



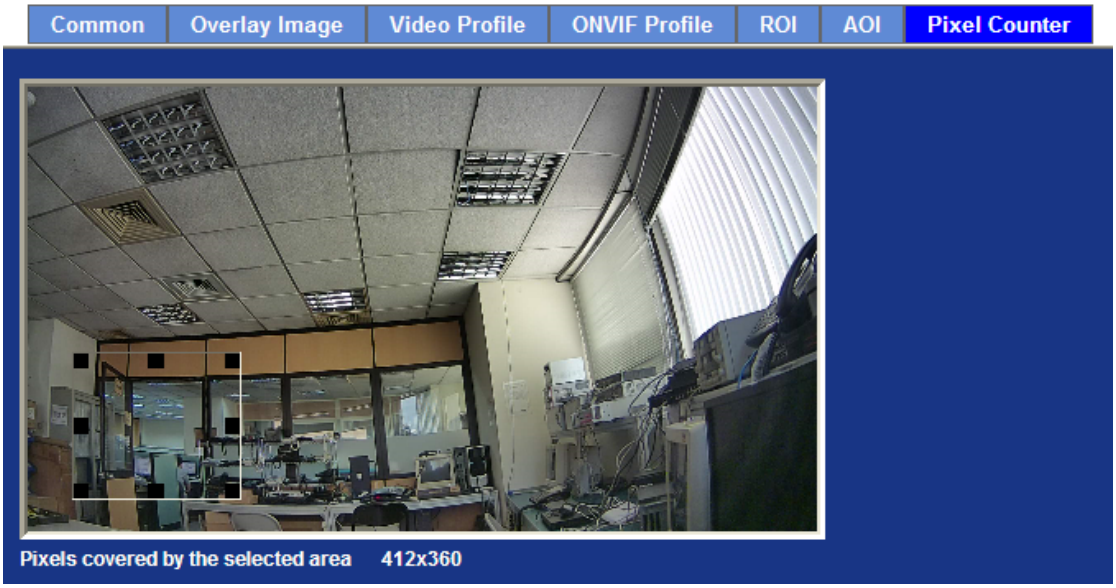
Add and Del	To add or delete the AOI windows. User can specify up to 2 AOI windows to change the video quality in specified areas. By dragging mouse on the image, you can change the position and size of the selected AOI window accordingly
Name	Name of the specified AOI window.
Level	Adjust the video quality of specified AOI window. The higher value will be better for video quality.

Note

This function is not recommended for camera with PTZ/ePTZ functions.

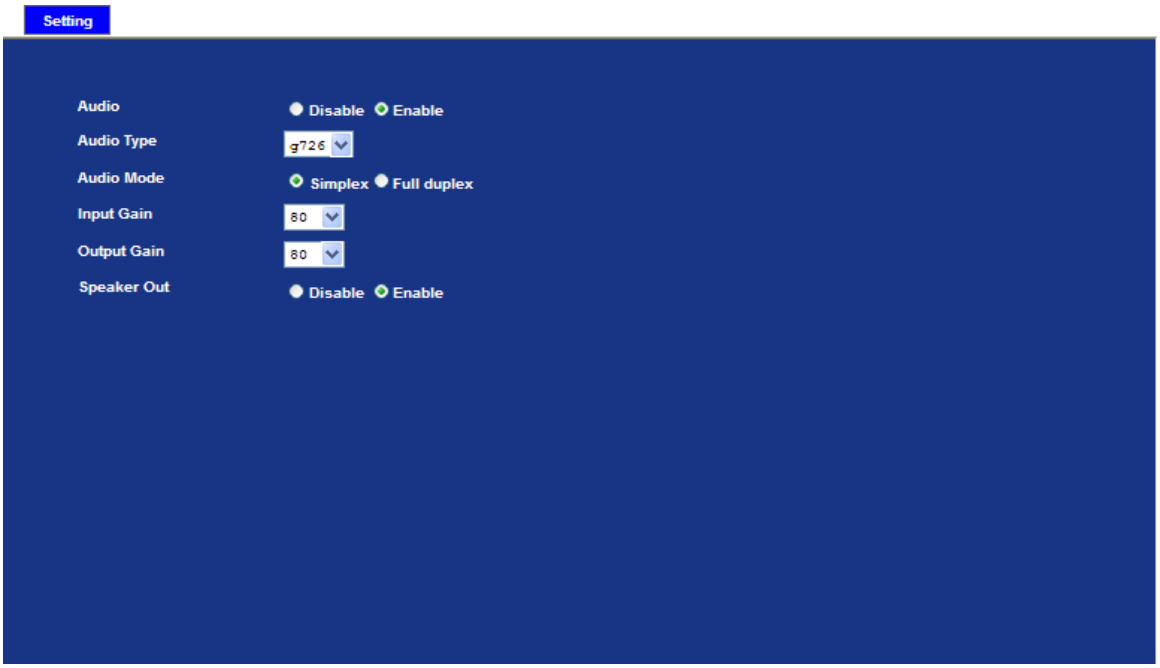
3.8.7 Pixel Counter

The pixel counter shows the number of pixels in an area of the image. The pixel counter is useful in situations where there is a requirement that the image is a certain size, for example in face recognition.



3.9 Audio Configuration

It's M-JPEG mode in this profile.

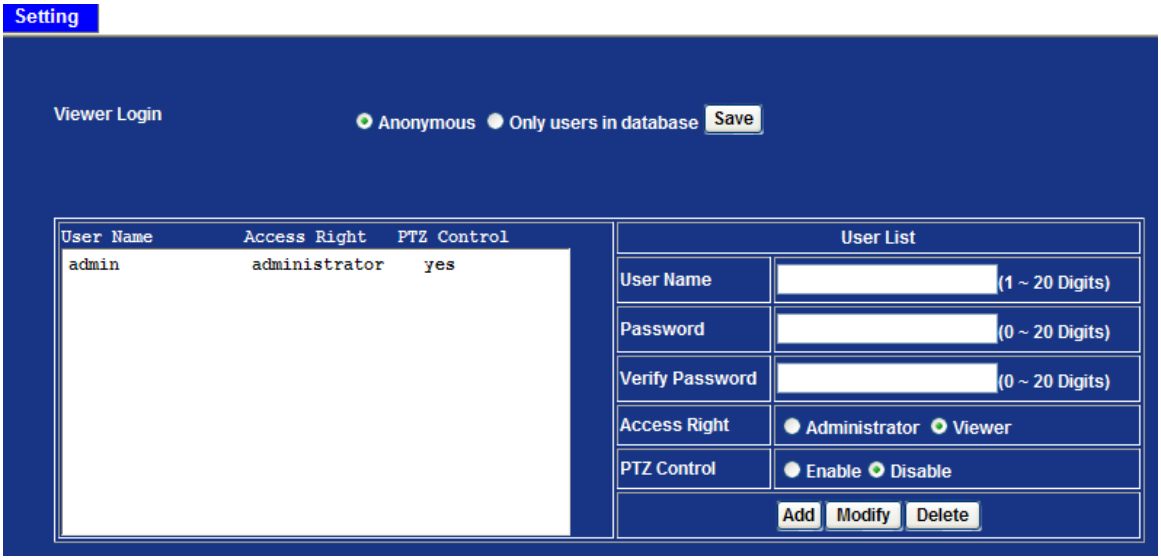


Audio	To enable or disable audio function.
Audio Type	To select G711 or G726 for *audio* coding.
Audio Mode:	To select Simplex or Full duplex (2-way audio) mode.
Input Gain:	To adjust gain of input audio.

Output Gain:	To adjust gain of output audio.

3.10 User Configuration

Use this menu to set the user names and password of the Administrator and up to 10 users, and access right of each user.

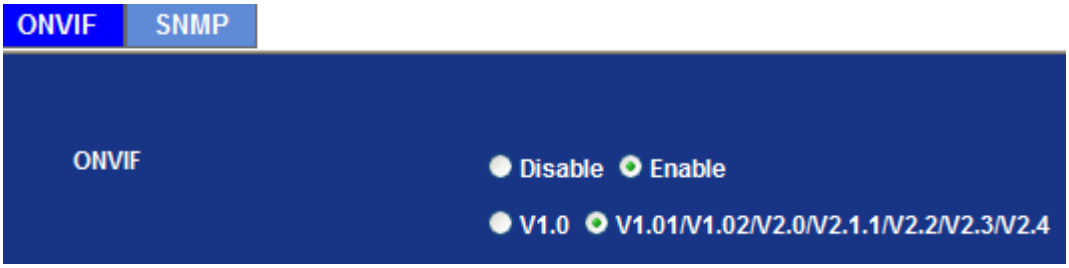


Viewer Login	Select “Anonymous” to allow any one viewing the video once connected. Otherwise, only users in database can view the video after login.
Access Right	Administrator can access every function in this device. However, Viewers only can view the video and access limited function.
PTZ Control	Authorize this user to control PTZ function or not.
Add, update, and remove of Users account	Manage the user’s account of viewer user.

3.11 Protocol Configuration

3.11.1 ONVIF

ONVIF is a global and open industry forum with the goal to facilitate the development and use of a global open standard for the interface of physical IP-based security products. In other words, it creates a standard for how IP products within video surveillance and other physical security areas can communicate with each other.



3.11.2 SNMP

Simple Network Management Protocol (**SNMP**) is an "Internet-standard protocol for managing devices on IP networks". Devices that typically support SNMP include routers, switches, servers, workstations, printers, and more. It is used mostly in network management systems to monitor network-attached devices for conditions that warrant administrative attention.

SNMP is a component of the Internet Protocol Suite as defined by the Internet Engineering Task Force (IETF). It consists of a set of standards for network management, including an application layer protocol, a database schema, and a set of data objects. SNMP exposes management data in the form of variables on the managed systems, which describe the system configuration. These variables can then be queried (and sometimes set) by managing applications.

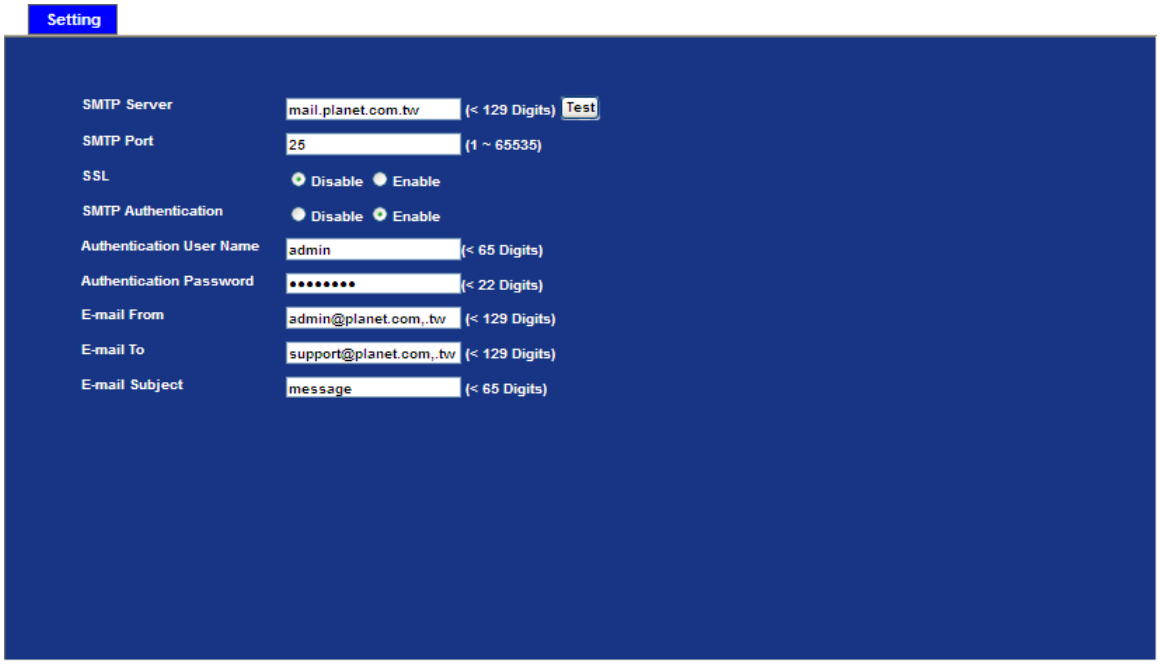
SNMP version 1 (SNMPv1) is the initial implementation of the SNMP protocol. SNMPv1 operates over protocols such as User Datagram Protocol (UDP), Internet Protocol (IP), OSI Connectionless Network Service (CLNS), AppleTalk Datagram-Delivery Protocol (DDP), and Novell Internet Packet Exchange (IPX). SNMPv1 is widely used and is the de facto network-management protocol in the Internet community

SNMPv2c is defined in RFC 1901–RFC 1908. In its initial stages, this was also informally known as *SNMPv1.5*. SNMPv2c comprises SNMPv2 *without* the controversial new SNMP v2 security model, using instead the simple community-based security scheme of SNMPv1. While officially only a "Draft Standard", this is widely considered the *de facto* SNMPv2 standard.

3.12 E-mail Configuration

User may set up SMTP mail parameters for further operation of Event Schedule. 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.



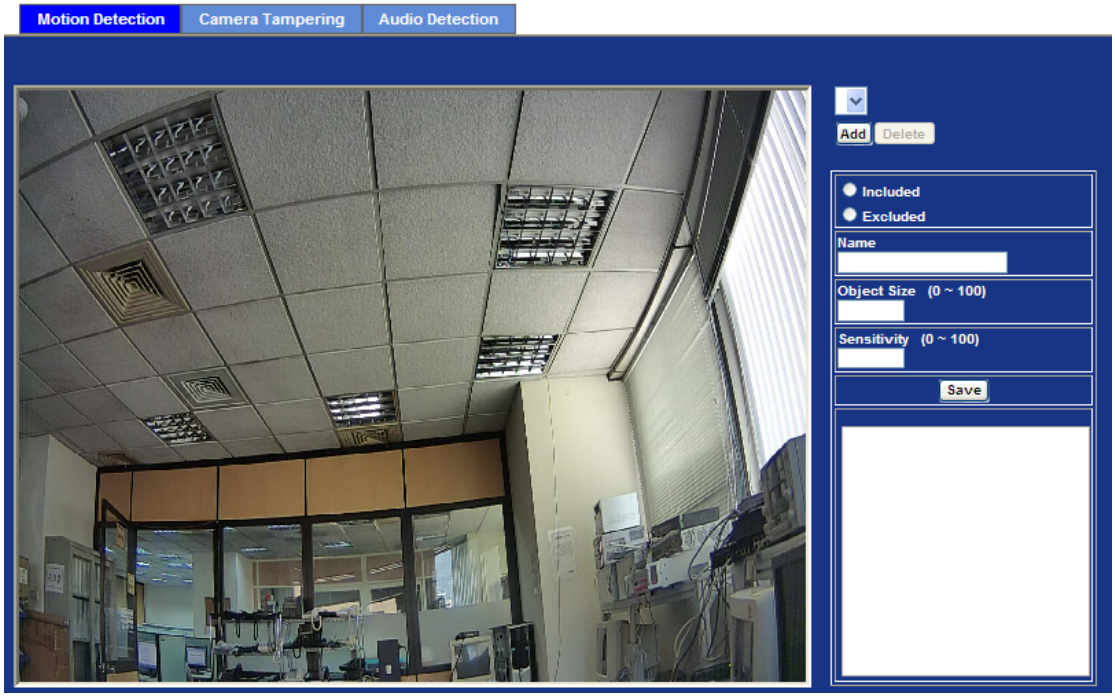
SMTP Server	Type the SMTP server name or the IP address of the SMTP server.
Test	Send a test mail to mail server to check this account is available or not.
SMTP Port	Set port number of SMTP service.
SSL	Enable SSL function or not.
SMTP Authentication	Select the authentication required when you send an e-mail. **Disable:** If no authentication is required when an e-mail is send. **Enable:** If authentication is required when an e-mail is sent.
Authentication User Name	Type the user name for the SMTP server if Authentication is Enabled.
Authentication Password	Type the password for the SMTP server if Authentication is Enabled.
E-mail From	Type the sender's e-mail address. This address is used to reply e-mails.
E-mail To	Type the receiver's e-mail address.
E-mail Subject	Type the subject/title of the e-mail.

3.13 Event Detection Configuration

This device supports 3 types of event detection: Motion Detection, Camera Tampering, Audio Detection.

3.13.1 Motion Detection

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



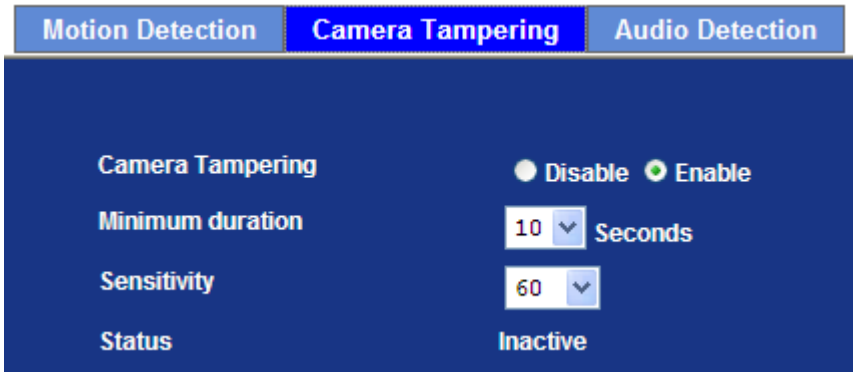
Add and Delete	To add or delete the motion windows. User can specify up to 4 included and /or excluded windows to monitor the video captured by this device. By dragging mouse on the image, you can change the position and size of the selected motion window accordingly.
Included or Excluded Window	These 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.
Type	Entrance - A moving object exists inside the guarded area. Theft - A static object has been removed from the guarded area. Desertion - A moving object has been left in the guarded area.
Object Size	Define the object size of motion detection. The higher object size will only larger objects trigger motion detection. The lower object size will even small objects trigger motion detection too. Generally speaking, the smaller size will be easier to trigger event.
Sensitivity	Define the sensitivity value of motion detection. The higher value will be more sensitivity.

Note

This function is not recommended for camera with PTZ/ePTZ functions.

3.13.2 Camera Tampering

Camera tampering detection is a new intelligent functionality that further strengthens the benefit of Network Camera. When the camera is moved, partially obscured, severely defocused, covered or sprayed, an event can be triggered to send notifications, upload images/files to remote server or email.



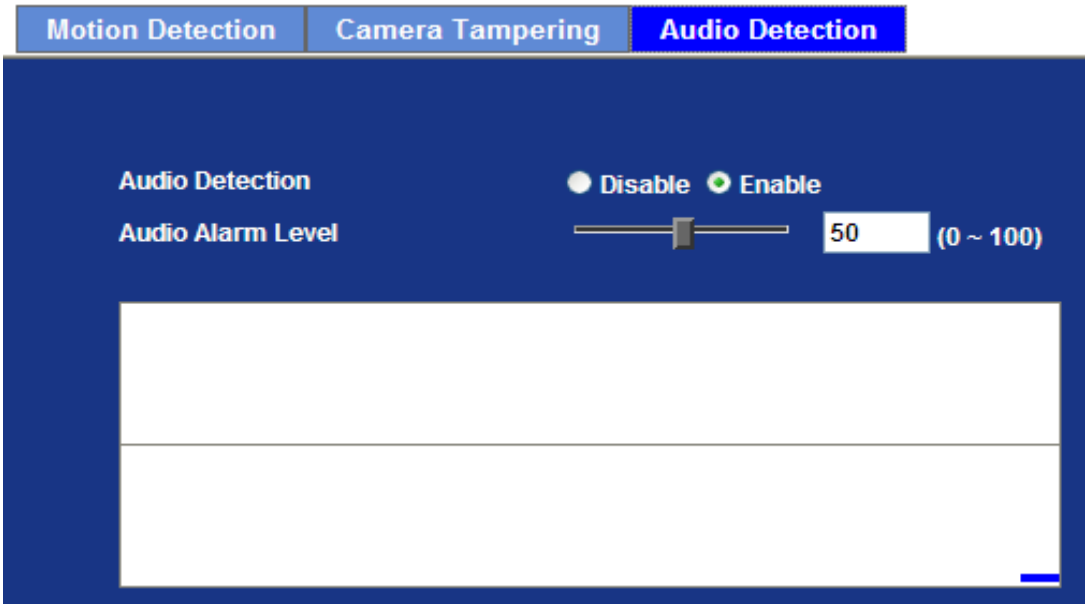
Minimum Duration	Define the minimum triggered duration by camera tampering detection. The triggered duration less than target value will be ignored to filter false alarms.

Note

This function is not recommended for camera with PTZ/ePTZ functions.

3.13.3 Audio Detection

Audio detection alarm can be used as a complement to motion detection. Since audio detection can react to events in areas too dark for the video motion detection functionality to work properly. In addition, it can be used to detect activity in areas outside of the camera's view.

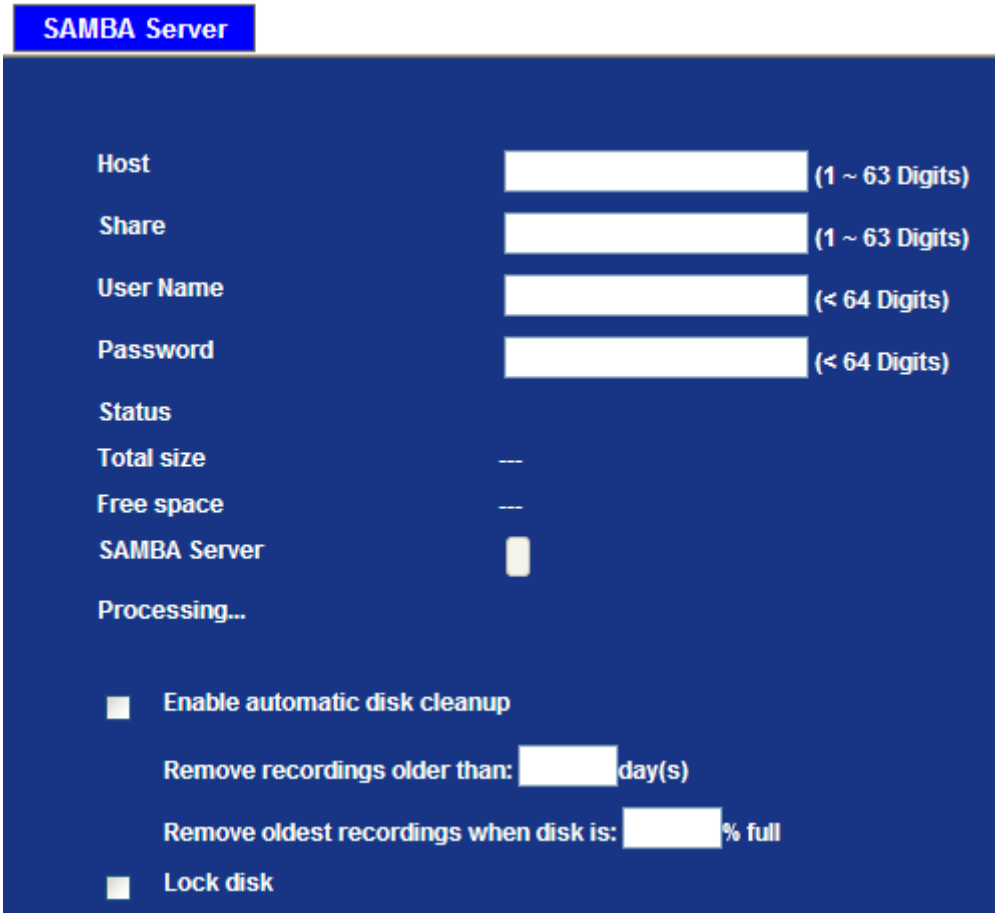


Audio Alarm Level	Define the threshold value of audio detection.

3.14 Storage Configuration

This page shows the status of the Samba server. You may also set up related parameters to manage the Samba server.

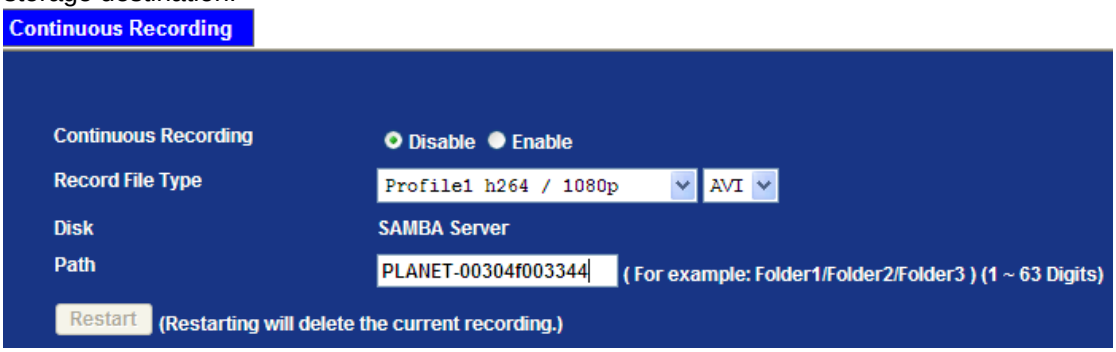
3.14.1 SAMBA Server



Host	Type the server name or the IP address of the SAMBA server.
Share	Set working directory path of SAMBA server.
User Name	Type the user name for the SAMBA server
Password	Type the password for the SAMBA server.

3.15 Continuous Recording Configuration

You may enable or disable continuous recording function here. Select Samba server for storage destination.



Continuous Recording	Enable or disable this function.
Record File Type	Choose a video profile to record.
Disk	Save recorded files to remote SAMBA server.
Path	Define the folder path for the recorded files.
Restart	Be careful not to click this button or will all the files recorded on remote SAMBA server will be deleted.

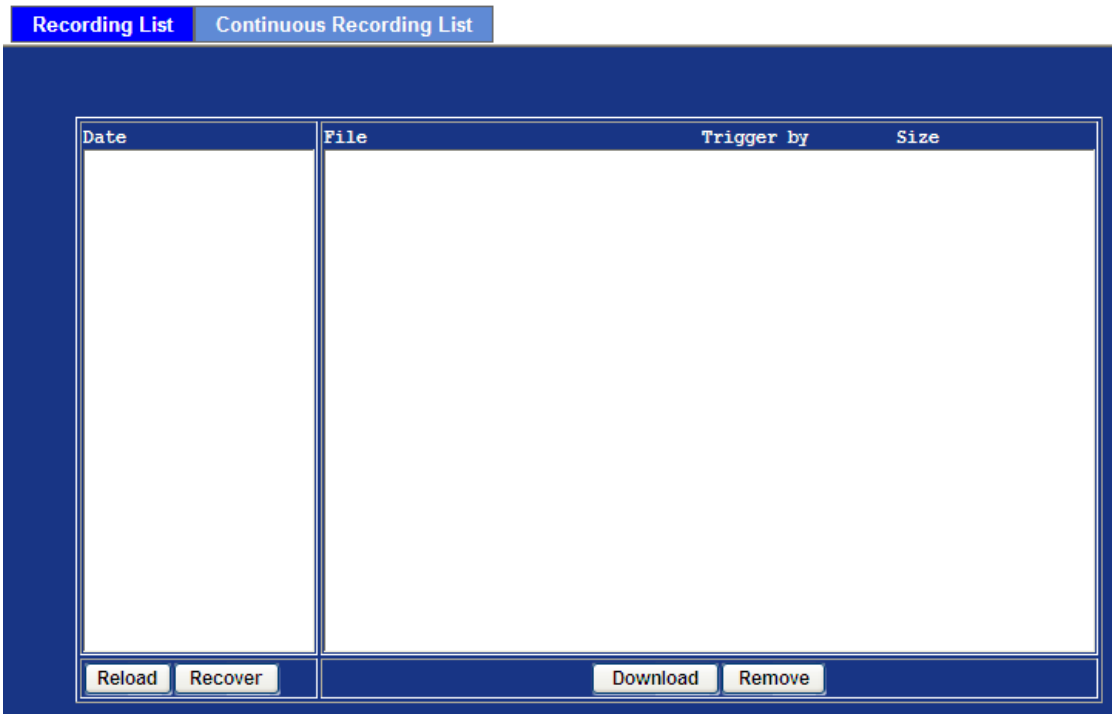
Note

There are various factors affecting the recording results, such as the camera's system loading, network condition, multiple clients accessing, and so on. No guarantee will be given to "seamless recording" in the recorded video files.

3.16 Recording List Configuration

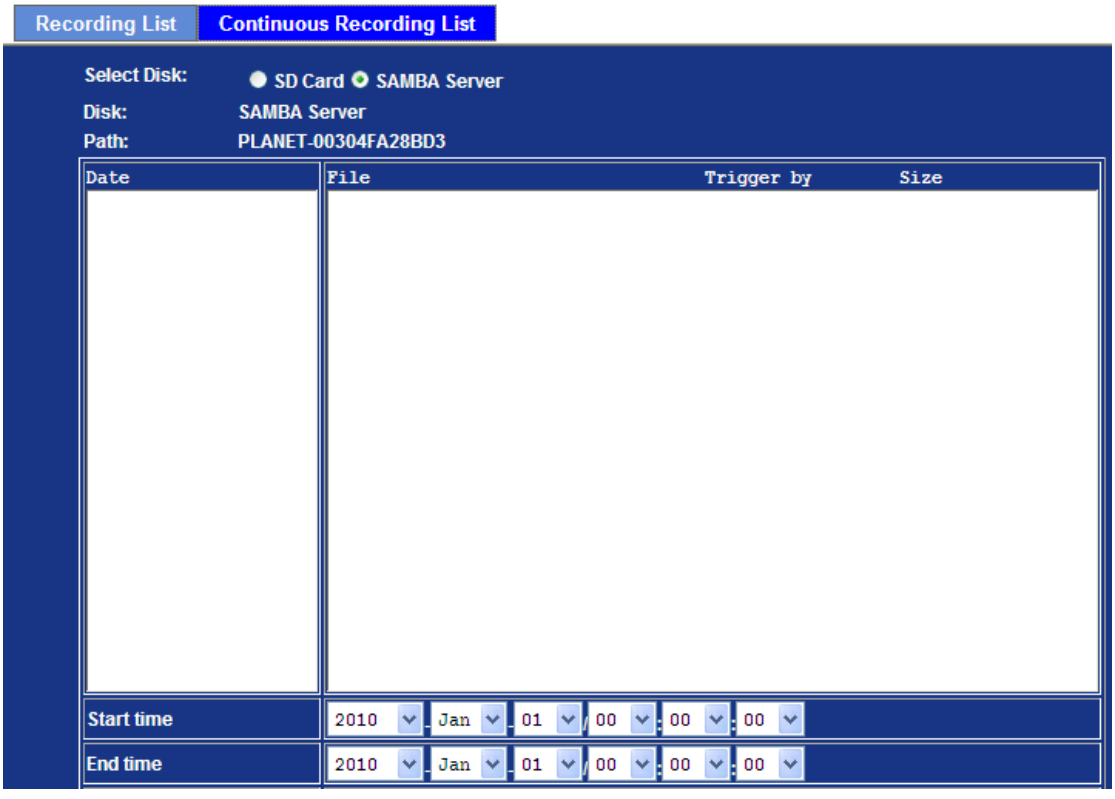
3.16.1 Recording List

This page only shows the event recording files which are stored on SD card. User may play or delete the selected file.



3.16.2 Continuous Recording List

This page only shows the continuous recording files which are stored on remote SAMBA server. User may play or delete the selected file.



3.17 Event Server Configuration

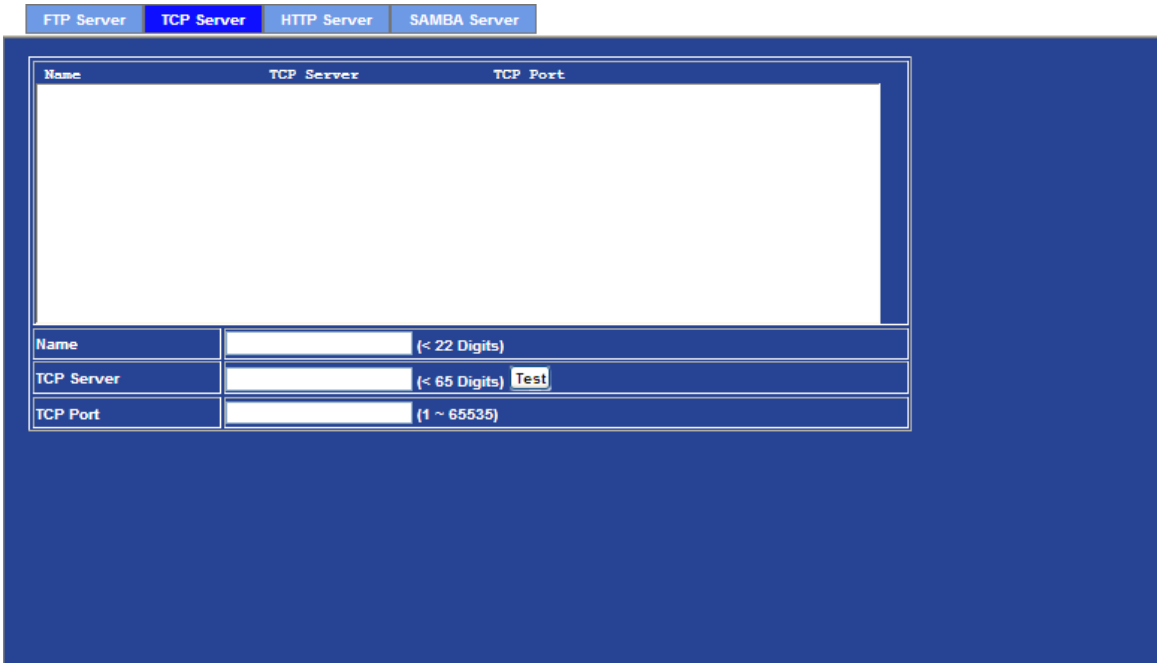
3.17.1 FTP Server

You may set up FTP parameters for further operation of Event Schedule. If users want to send an alarm message 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 he wishes. Therefore, user needs to specify a name for each FTP setting.
FTP Server	Type 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	Type the user name for the FTP server.
FTP Login Password	Type 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.

3.17.2 TCP Server

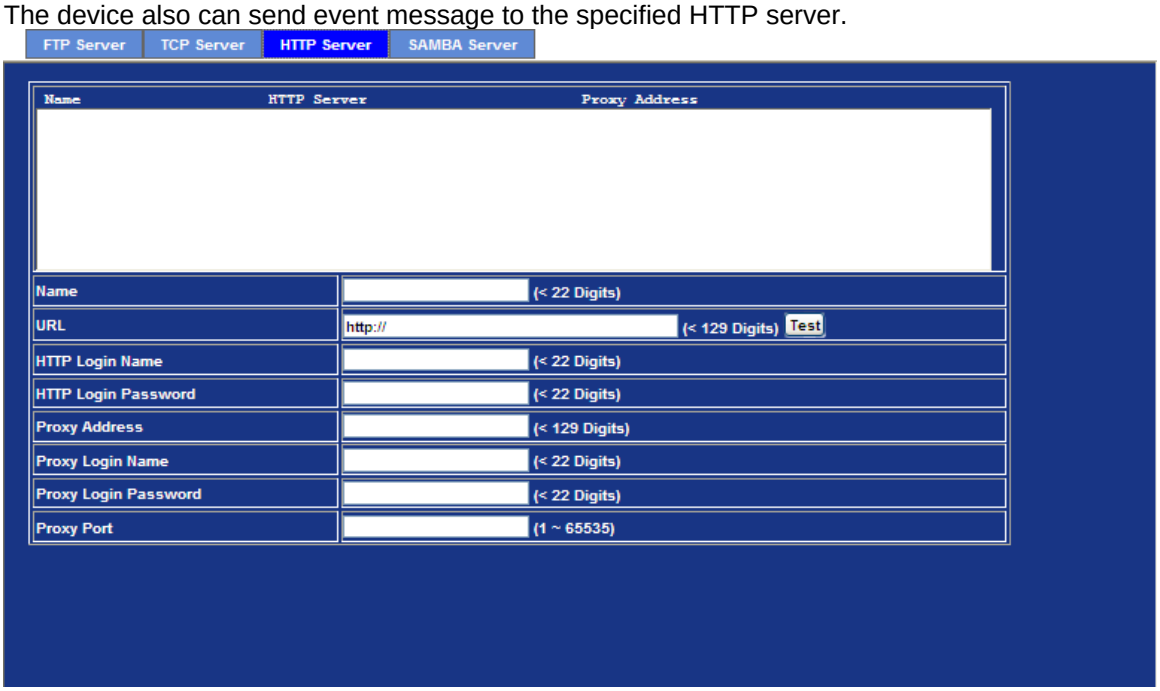
In addition to sending video file to FTP server, the device also can send event message to specified TCP server.



Name	User can specify multiple TCP servers as he wishes. 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.

3.17.3 HTTP Server

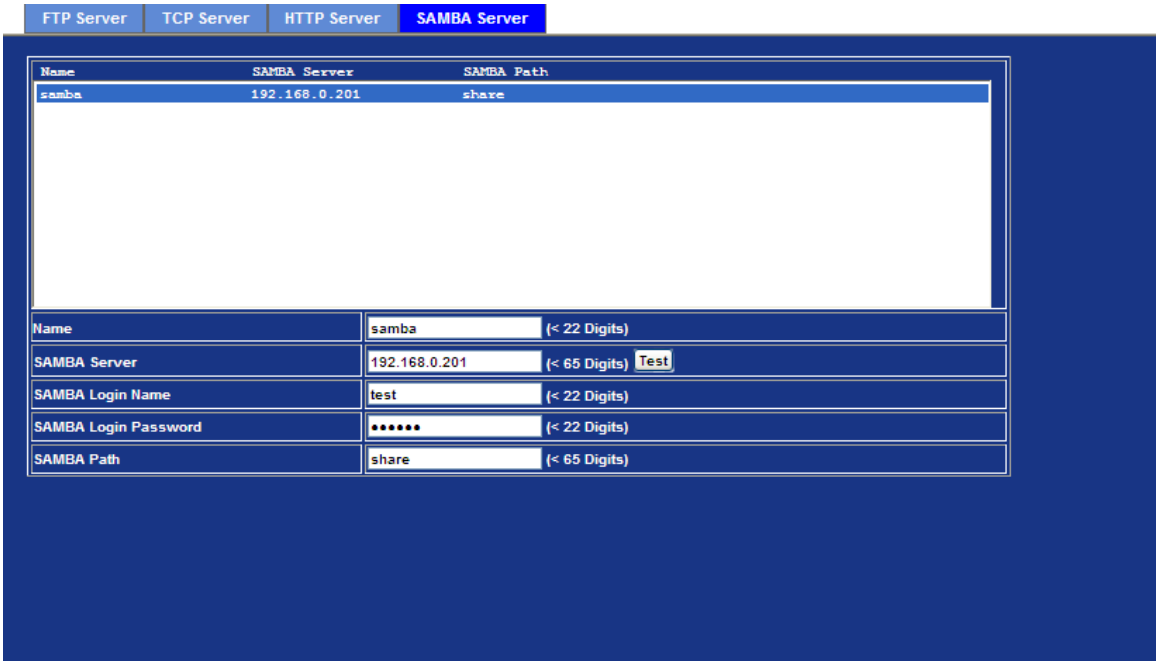
The device also can send event message to the specified HTTP server.



Name	User can specify multiple HTTP servers as he wishes. Therefore, user 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.

3.17.4 SAMBA Server

The device also can send video stream to the specified SAMBA server. Most of the times, the SAMBA server will be another PC or NAS server.



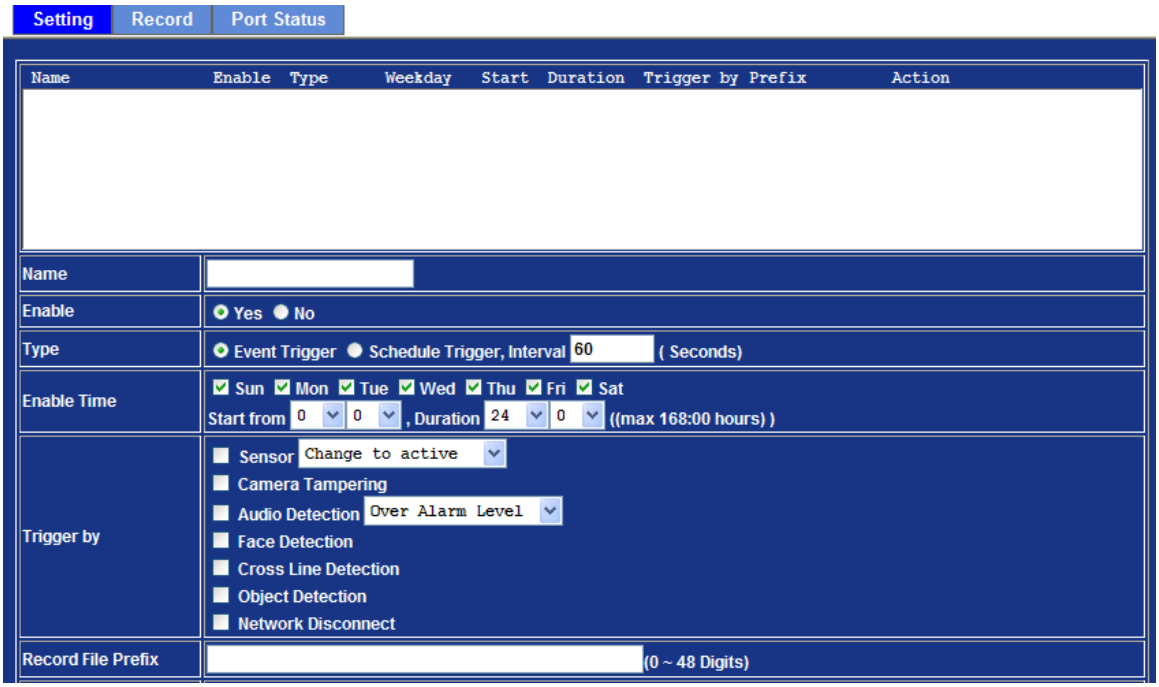
Name	User can specify multiple HTTP servers as he wishes. Therefore, user needs to specify a name for each HTTP server setting.
SAMBA Server	Type the server name or the IP address of the SAMBA server.
Test	Check the SAMBA server whether this account is available or not.
SAMBA Login name	Type the user name for the SAMBA server.

SAMBA Login Password	Type the password for the SAMBA server.
SAMBA Path	Set working directory path of SAMBA server.

3.18 Event Schedule Configuration

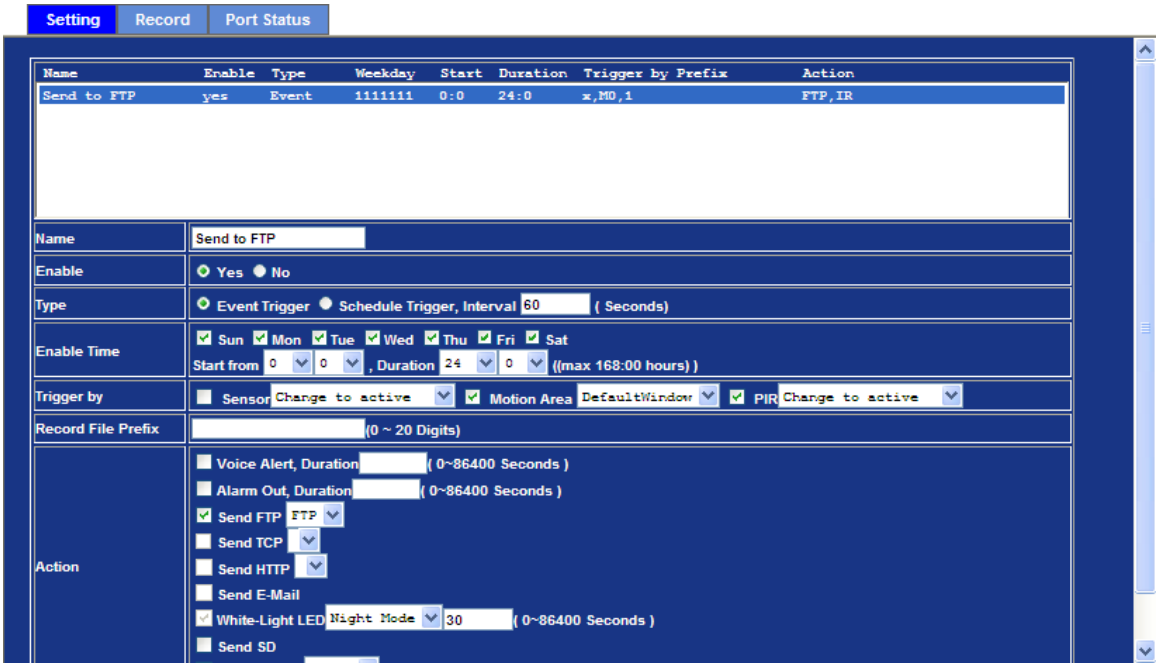
This menu is used to specify the schedule of Events and activate some actions provided by this device.

3.18.1 Setting



Name	Name of the Event or Schedule.
Enable	Enable or disable this Event or Schedule.
Type	Schedule start with Event trigger or Schedule trigger.
Enable Time	Define the feasible time slot.
Trigger by	Select the triggered sources with event trigger.
Record File Prefix	Define the prefix of recorded filename
Action	Define the actions once event is triggered.

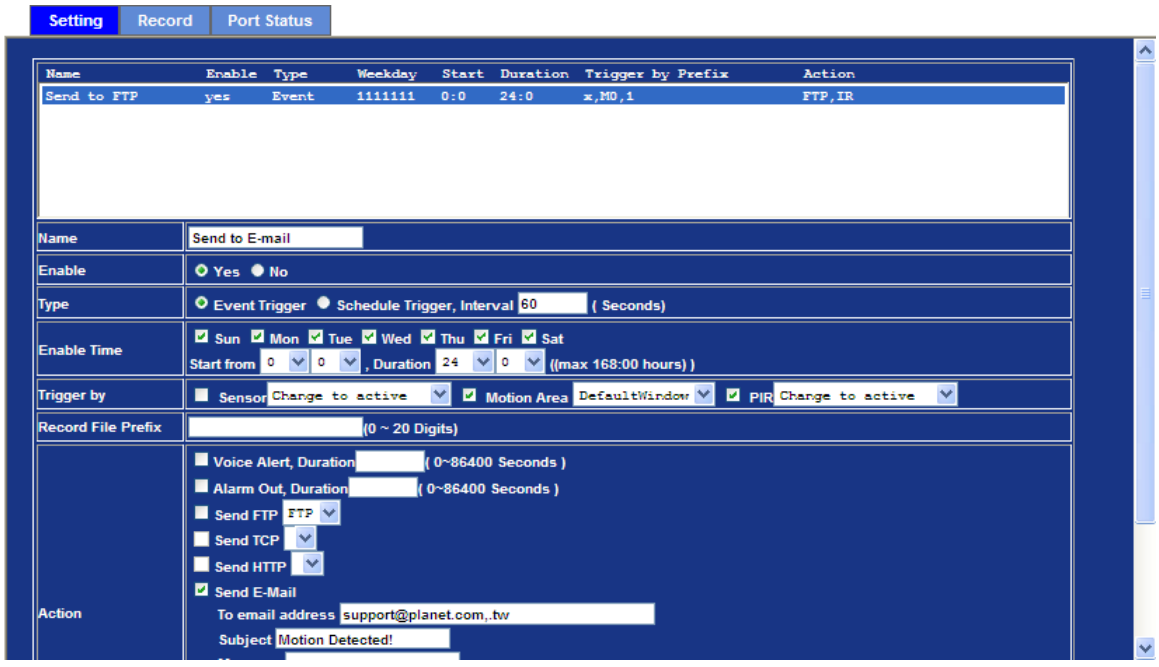
Example 1.



Send file to FTP server triggered by motion:

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

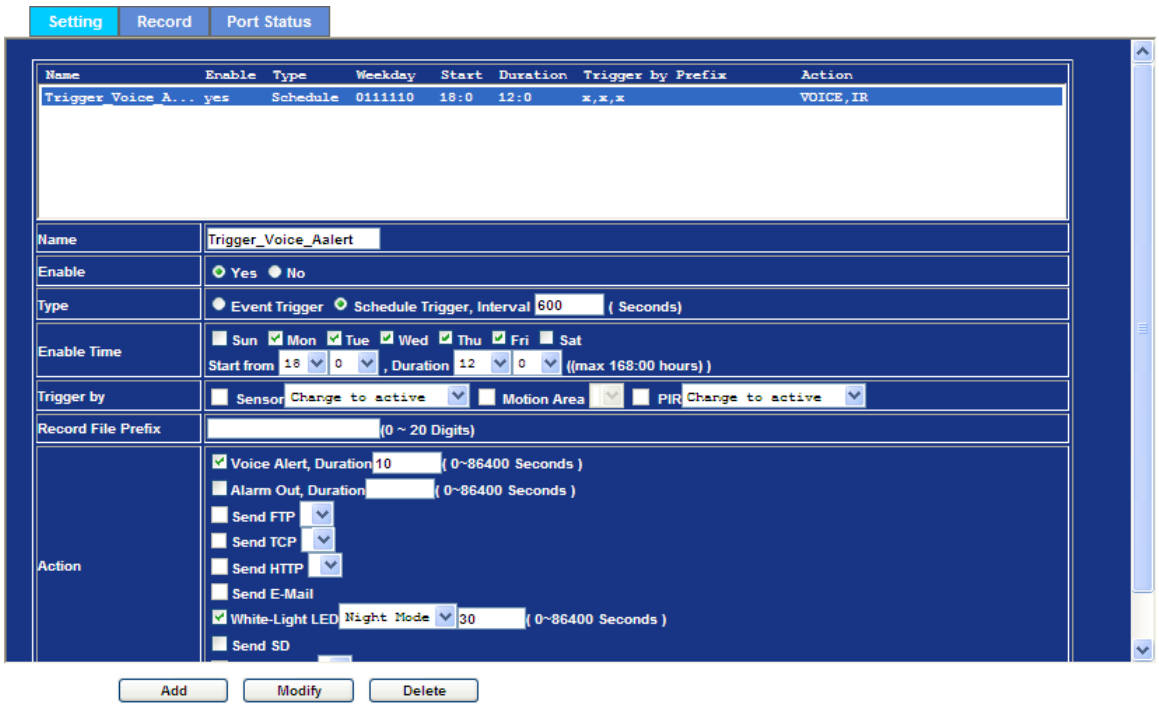
Example 2.



Send file to e-mail server triggered by motion (from Friday 18:00 to Saturday 06:00):

1. Select event trigger.
2. Enable time: start from Friday 18:00 and keep working for 12 hours, until it stops on Saturday 06:00.
3. Triggered by : Motion Area (Added to Object Detection page)
4. Action : Send e-mail (Add to 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.

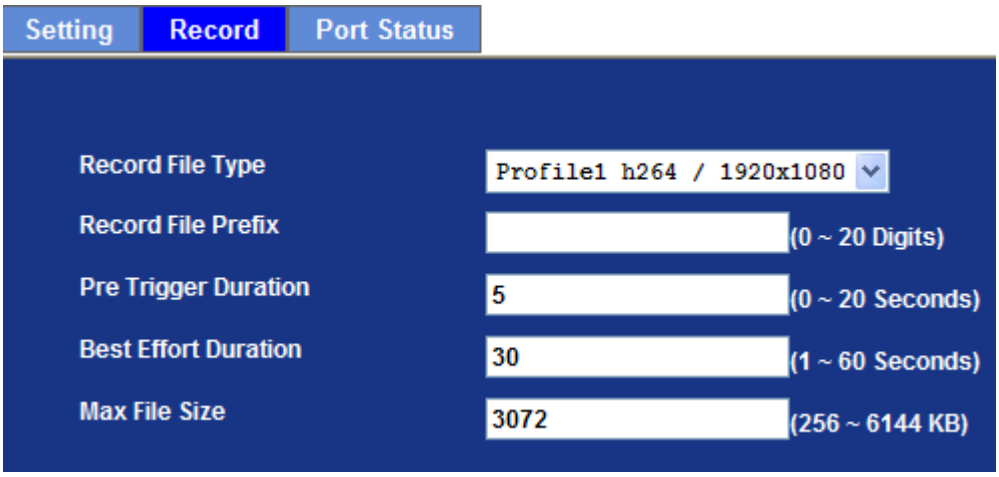


Enable Voice Alert every 10 minutes during 18:00 to 24:00 from Monday to Friday.

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

3.18.2 Record

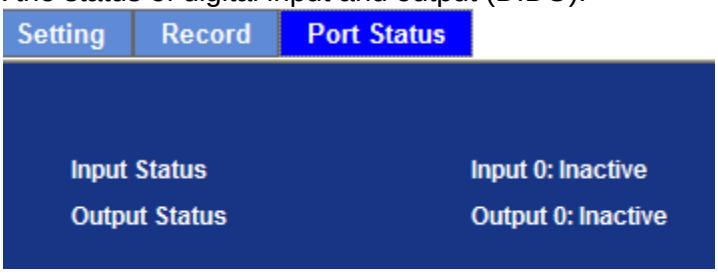
User can choose the type of record file for event or schedule application.



Record File Type	Choose AVI or JPEG file format for record file.
Record File Prefix	Define the prefix of recorded filename.
Pre-Trigger Duration	Define the maximum duration of pre-alarm.
Best Effort Duration	Define the best effort duration of post-alarm.
Max File Size	Define the maximum buffer size of record file.

3.18.3 Port Status

User can check the status of digital input and output (DIDO).



Appendix A: Ping IP Address

The ping (or 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 whether Internet camera is installed or not, or if the IP address conflicts with any other device over the network.

If you want to make sure the IP address of Internet 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 Internet camera.

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

If you want to detect any other device conflicting with the IP address of Internet camera, you also can utilize the ping command but you must disconnect the Internet camera from the network first.

Appendix B: Bandwidth and Video Size 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 from 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. 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
320 x 240	8 ~ 20k byte per frame	256kbps~768kbps @ 30fps	192kbps~512kbps @ 30fps
640 x 480	20 ~ 50K byte per frame	512kbps~3072kbps @ 30fps	384kbps~1536kbps @ 30fps
1920 x 1080	200 ~ 500k byte per frame	-	1536kbps~10000kbps @ 30fps
2048 x 1536	300 ~ 750k byte per frame	-	2048kbps~12000kbps @ 30fps

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.

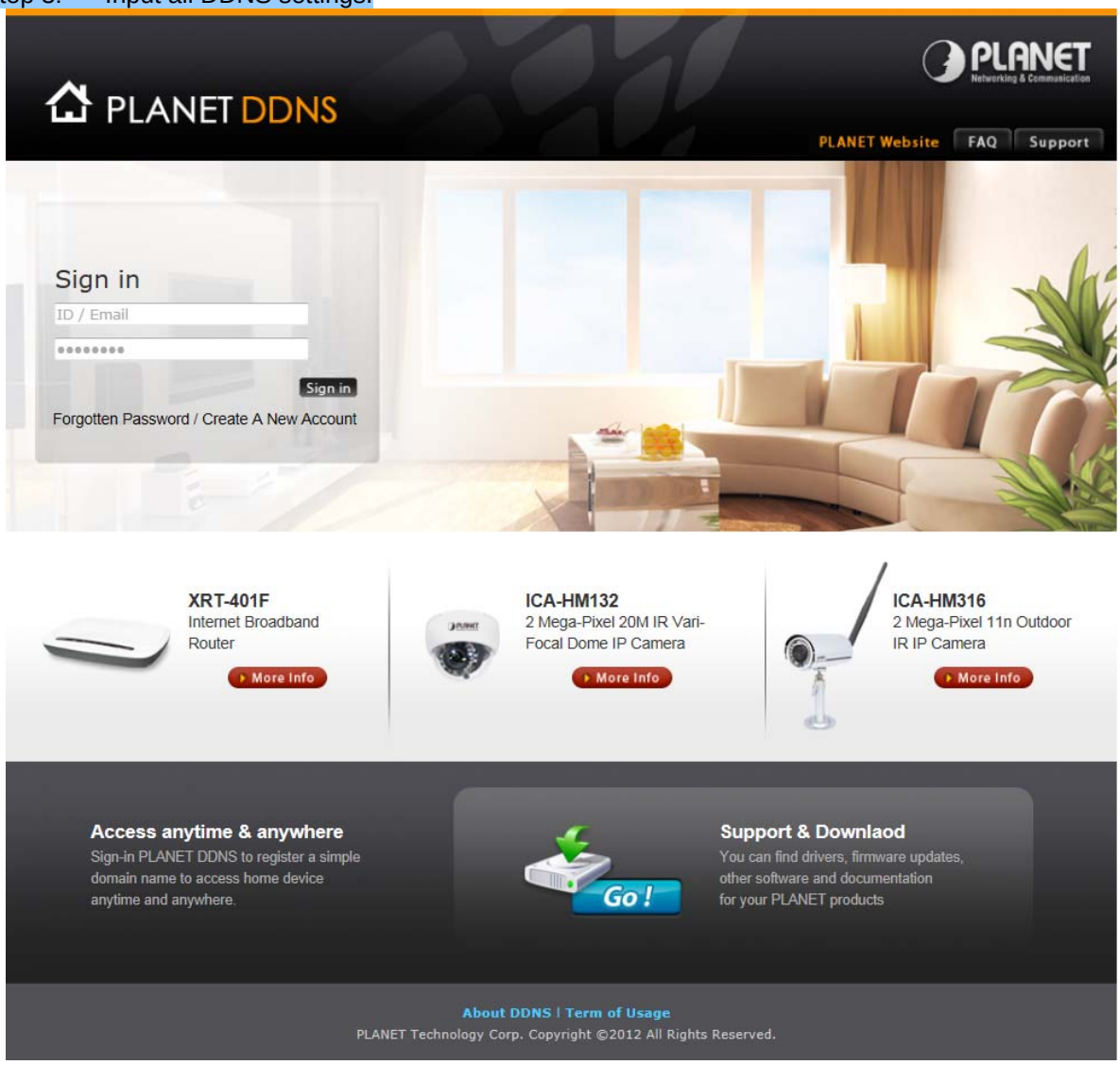
Appendix C: DDNS Application

Configuring PLANET DDNS:

Step 1: Visit DDNS provider's web site and register an account if you do not have one yet. For example: Register an account at http://planetddns.com

Step 2: Enable DDNS option through accessing web page of the camera.

Step 3: Input all DDNS settings.



Appendix D: Configuring 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 set up as fixed IP address. Port forwarding or Virtual Server function of router also needs to be set up. 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 below:

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

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

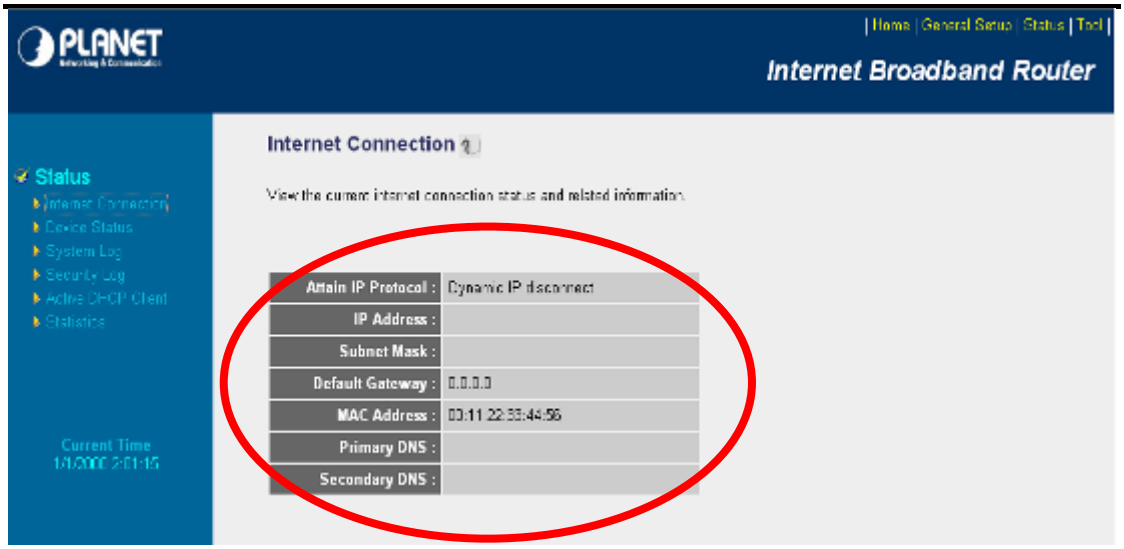
1. Assign a local/fixed IP address to your device

The device must be assigned a local and fixed IP address that allows it to be recognized by the router. Manually set up the device with a fixed IP address, for example, *192.168.0.100*.

2. Access the Router with Your Web browser

The following steps generally apply to any router that you have on your network. PLANET WNRT-620 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.

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

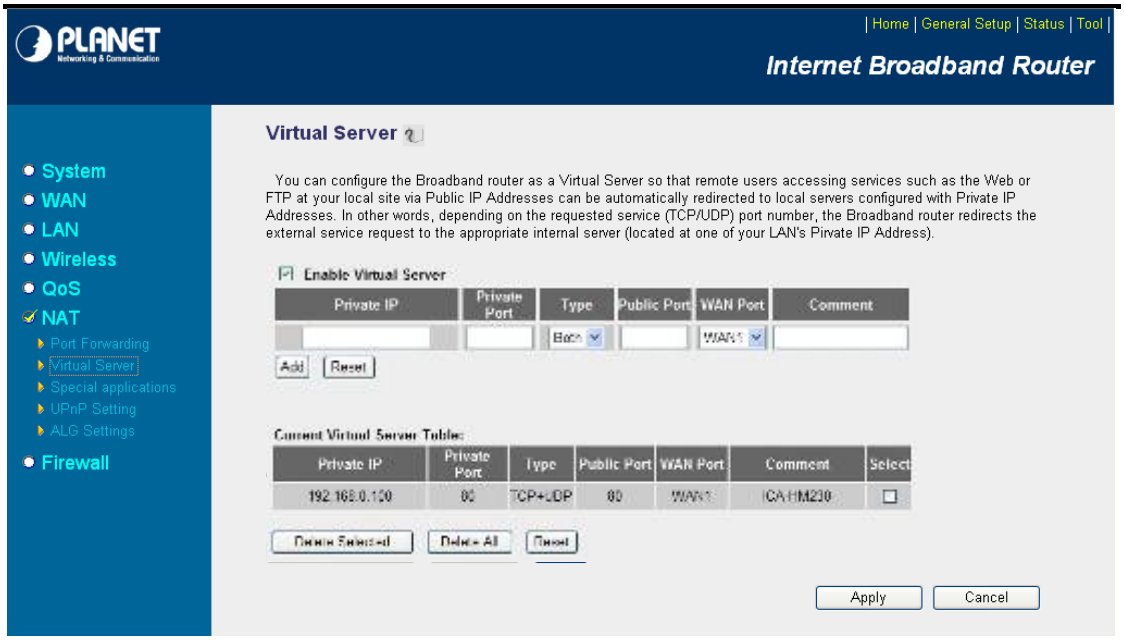
The firewall security features built into the router and most routers prevent users from accessing the video from the device over the Internet. The router connects to the Internet over a series of numbered ports. The ports normally used by the device are blocked from access over the Internet. Therefore, 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.

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., **192.168.0.100**) in the **Private IP** field.
- If you are using the default camera port settings, enter **80** into the **Public** and **Private Port** section, click **Add**.

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

Note	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 accessed from WAN by the router's WAN IP address.

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

Appendix E: 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, 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	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 F: Troubleshooting & Frequently Asked Questions

Features	
The video and audio codec is adopted in the device.	The device utilizes H.264 and M-JPEG triple compressions to provide high quality images. Where H.264 is standard for video compression, M-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 that accesses the device simultaneously.	The maximum number of users is limited to 8. 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 weatherproof and could be installed outdoor.
Installing this device	
Status LED does not light up.	Check and confirm whether the DC power adaptor, included in the package, is used. Secure the power connector and power it on again.
The network cabling is required for the device.	The device uses Category 5 UTP cable allowing 10 and/ 100BASE-TX 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 used for the first time or after factory default reset	Username = **admin** and password = **admin**. Note that it's all case sensitive.
Forgot the username and password	Follow the steps below. (1)Remove power, and press and hold the button in the back of IP camera. (2)Power on the camera. Don't release the button during the system booting. (3)It will take around 30 seconds to boot the camera. (4)Release the button when camera finishes proceed. (5)Re-login the camera using the default IP (http://192.168.0.20), and username (admin), password (admin).
Forgot the IP address of the device.	Check IP address of device by using PLANET IPWizard program or by UPnP discovery or set the device to default by reset button.
PLANET IP Wizard II program cannot find the device.	● Re-power the device if you cannot find the unit within 1 minute. ● Do not connect device over a router. PLANET IP Wizard II

	program cannot detect device over a router. ● If IP address is not assigned to the PC running PLANET IP Wizard II program, then PLANET IP Wizard 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.
PLANET IP Wizard II program fails to save the network parameters.	Network may have trouble. Confirm the parameters and connections of the device.
UPnP NAT Traversal	
Cannot work with NAT router	Maybe NAT router does not support UPnP function. Please check user's manual of router and turn on UPnP function.
Some IP cameras are working while others 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.
Accessing this device	
Cannot access the login page and other web pages of the Internet Camera from Internet Explorer	● Maybe the IP address of the Internet camera is already being used by another device or computer. To confirm this possible problem, disconnect the Internet 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 Internet camera via a crossover cable. ● Make sure the Internet connection and setting are ok. Make sure to enter the IP address of Internet Explorer correctly. If the Internet camera has a dynamic address, it may have changed since you last checked it. ● Network congestion may prevent the web page from appearing quickly. Wait for a while. The IP address and subnet mask of the PC and Internet camera must be in the same class of the private IP address on the LAN. ● Make sure the http port used by the Internet camera, default=80, is forwarded to the Internet camera's private IP address. ● The port number assigned in your Internet camera might not be available via Internet. Check your ISP for available port. ● The proxy server may prevent you from connecting directly to the Internet camera. Do not use the proxy server for the setup. ● Confirm whether 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 Internet camera from the Internet with the global IP address of the router and port number of Internet camera. ● Some routers reject the global IP address to access the Internet camera on the same LAN. Access with the private IP address and correct port number of Internet camera. ● When you use DDNS, you need to set Default Gateway and DNS server address. ● If it's not working after the above procedure, reset Internet camera to default setting and install it again.
Image or video does not appear on the main page.	● When the PC connects to Internet camera for the first time, 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.
How to check whether 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".	Set up 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 to slow down 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.
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.
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 ensure 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	Please install 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.