PLANET
Networking & Communication

User's Manual

ICA-HM835

2 Mega-Pixel Vandal Proof Fisheye IP Camera

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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. (example-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 for PLANET 2 Mega-Pixel Vandal Proof Fish-eye IP Camera
Model: ICA-HM835
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Part No. EM-ICAHM835

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1. Introduction

PLANET ICA-HM835 is the new H.264 2Mega-Pixel Fixed Dome IP camera featuring a fish-eye lens for 360 degree panoramic wide angle view without blind spot. The ICA-HM835 delivers clear image through Multi-streaming H.264 and Motion JPEG video up to UXGA (1600 x 1200 pixels). The fish-eye lens with 2Mega Pixel high resolution images provides 360 degree wide view surveillance and the panorama function with quad view enables four different angles images to display simultaneously for monitoring and recording.

The ICA-HM835 digital Pan/Tilt and zoom function can provide users 7 different video modes including:

- ✔ 360° Source image
- ✔ 180° double broad view
- ✔ 360° source view with 3 PTZ
- ✔ Quad view
- ✔ 360° broad view with 2 PTZ
- ✔ 180° source view with 3 PTZ
- ✔ 180° broad view with 2 PTZ

Furthermore, the ICA-HM835 applies perspective correction software to eliminate the rounding normally associated with fish-eye lenses and thus save lots of traditional mechanical Pan/Tilt maintenance cost. The ICA-HM835 is the perfect choice for outdoor surveillance system by providing IP-66 certified water-proof protection. The vandal-proof design with die-cast aluminum body prevents the intentional destruction. Water-resistant construction with weather-proof solid housing performs reliable operation in any environment.

It has built-in ICR (IR-cut filter Removable) for day / night surveillance and is compatible with IEEE 802.3af PoE (Power over Ethernet) for easy installation without concerning the outlet / socket locations. In addition, the ICA-HM835 provides surveillance functions including DI/DO alarm, MicroSD card support for local storage, and 2-Way audio that enables audio communication between local and remote ICA-HM835 installed sites by connecting the external microphone and speaker.

The ICA-HM835 is the perfect panoramic surveillance application for the hallway, stores or offices so customers do not need to install multiple IP cameras and thus can save lots of installation and maintenance cost. Moreover, the ICA-HM835 can be managed by PLANET Cam Viewer 3 IP-Surveillance management software for multi-camera video surveillance application and provides monitoring, recording and event management functions to secure your property and life.

1.1 Overview

This user's guide explains how to operate this camera from a computer. User should read this manual completely and carefully before you operate the internet camera.

1.2 Features

- H.264 and M-JPEG dual codec
- High performance video decoder to decrease image distortion
- High quality 2Mega-Pixel CMOS image sensor (maximum up to 1600 x 1200 resolution)
- Day/Night switch with ICR (IR-cut Filter Removable)
- IP66 for outdoor application
- 360 degree Fish-Eye panoramic wide angle view
- 7 different 360 degree/ 180 degree video mode including digital PTZ function

- External I/O trigger for various surveillance application
- 2-Way audio with built-in microphone and speaker
- 10 motion detection areas / E-mail and FTP alert
- IEEE 802.3af standard PoE interface
- DDNS and FTP uploading provide more alternatives in surveillance network

1.3 Package Contents

IP Camera unit x 1

Power Adapter x 1

Quick Installation Guide x 1

User's Manual CD x 1

Screw Package Kit x 1

GPIO Connector 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.*

2. Basic Setup

This chapter provides details of installing and configuring the Internet camera

2.1 System Requirement

The Internet Camera can be monitoring on all of Windows operating system that suggest with system requirment below in order to got better video performance when resolution up to 2 megapixel.

CPU	Intel® Core2 Duo E5300 2.6GHz
RAM	1 GB
Video RAM	128MB
Display Chip	nVIDIA GeForce 8500GT or ATI Radeon HD 4350 or above
Display Resolution	1024 x 768 24bits
Operating System	Windows2000 SP4 / Windows XP Pro SP2 / Windows 2003 / Vista
DirectX	9.0c or above
Network	Wired Ethernet 100Base-TX

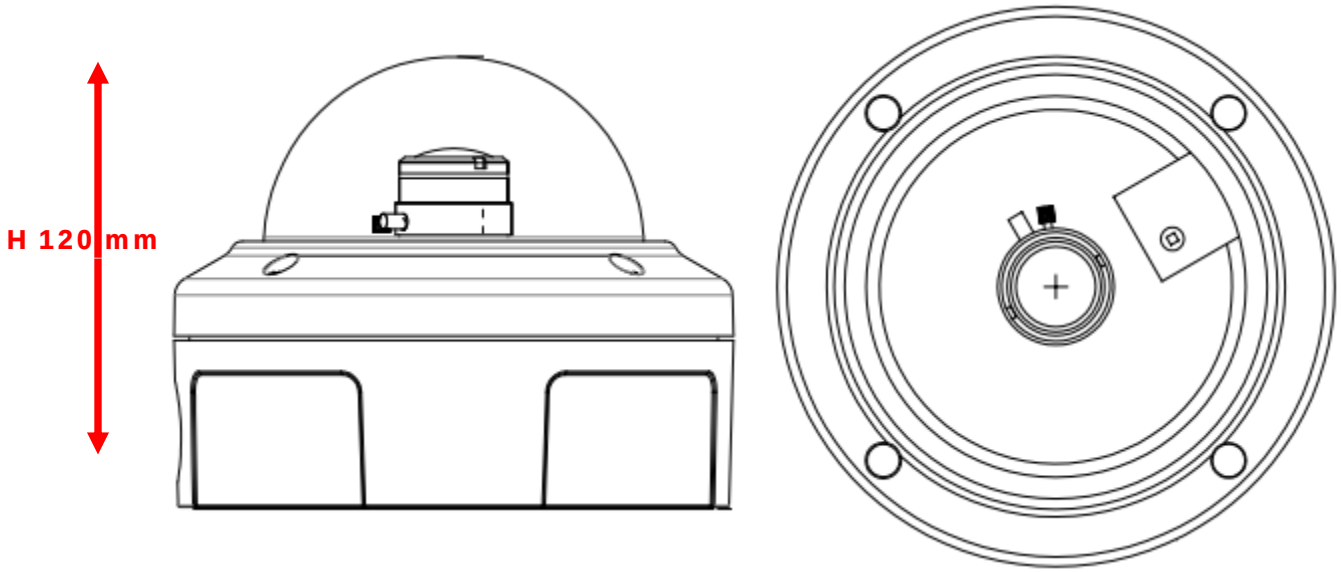
NOTE:

1. *The listed information is minimum system requirements only. Actual requirement will vary depending on the nature of your environment.*
2. *The ICA-HM835 can be managed by PLANET Cam Viewer Three if you want to configure more detail information and settings of camera viewer plus software please refer to the CD-ROM folder "**D:\Manual\Cam Viewer 3**", assume D is your CD-ROM drive.*

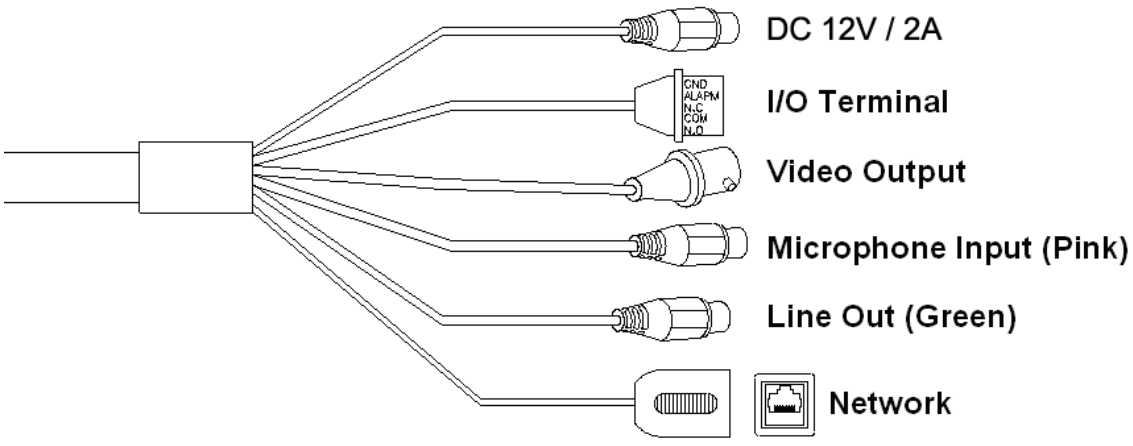
2.2 Physical Description

2.2.1 Identification of ICA-HM835 physical detail

Font view



Connector



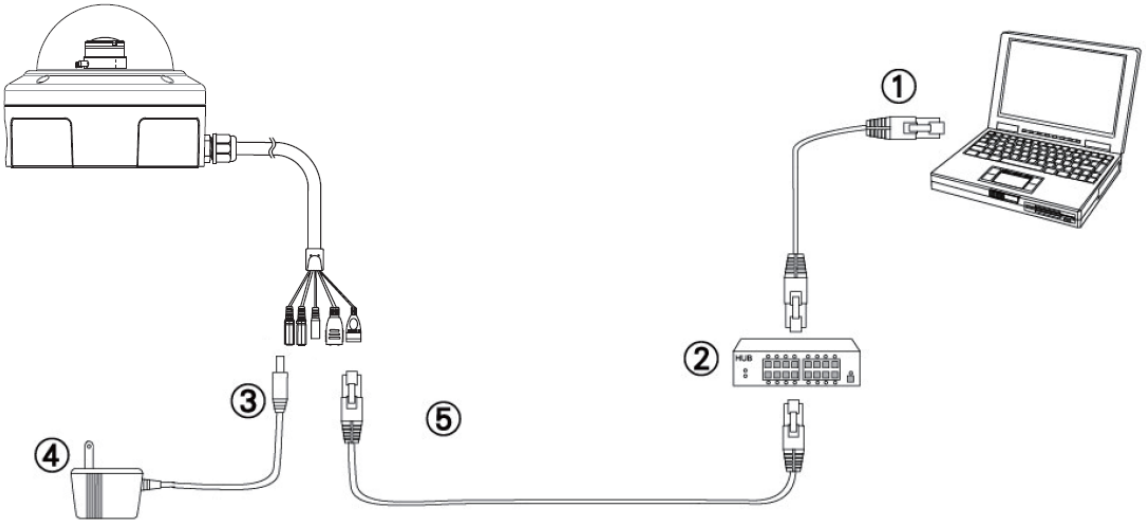
Interface	Description
Power Jack	The input power is DC 12V,2A. **Note**：ONLY use package power adapter supplied with the internet. Otherwise, the product may be damaged.
Network (RJ-45 LAN socket)	Connect to PC or Hub/Switch. For connect to 10Base-T Ethernet or 100Base-TX Fast Ethernet cabling. This Ethernet port built auto-negotiaiton 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. **Note**：ONLY use one power source, either from DC or from 802.3af Power over Ethernet.
Line Out (Green)	Connect a loud speaker to the IP Camera. This is for voice alerting and two-way audio.
Microphone Input (Pink)	Connect a microphone to the IP Camera.
Video Output(BNC)	Connect Video BNC connector to a TV set if necessary (to check camera viewing angle and focus).
GPIO	The 6 pin terminal block includes 4 input ports and 1 output ports.

Terminal block for I/O connectors:

Name	Pin	Function
Common	1	Digital output implementation; Pin2 to COM (Pin1) is a Photo-coupled relay on Normal Open status. External device can directly connect to the terminals. However the current that will go through the 2 nodes must not exceed 130mA. An external “Relay” can also be connected to the terminals as an implementation. In this case, current (or/and voltage) limitation is specified by the external Relay.
Relay_NO	2	
DGND	3	Connect to GND to activate, or leave floating (or unconnected) to deactivate.
DIGI Input	4	
DGND	5	PIN with a short wire connecting two revert to factory default settings.
Load default	6	

2.3 Hardware Installation

2.3.1 Physical Installation



Step 1. **Prepare a PC with Ethernet link to the network**

Step 2. **Connect an Ethernet cable**

Connect LAN port (RJ-45) of the IP Camera to a network switch. When this switch is a PoE device, you can ignore the next step.

NOTE: If there has an IEEE 802.3af PoE switch in your network, you can connect the IP Camera LAN cable to this PoE switch to obtain power. The power adapter is unnecessary when IP Camera is connected to a PoE switch.

Step 3. **Attach the power supply**

Plug in power adapter to IP Camera and connect another end to power outlet.

NOTE: Only use the power adapter supplied with IP Camera otherwise, the product may be damaged.

Step 4. **Plug Power on 110v or 220V**

Ensure the power adaptor specification matches the power system (110V AC or 220V AC) and connect the adaptor to the outlet

Step 5. **Check LED status**

The Power LED is defined to identify IP Camera status. When IP Camera booting the LED will be flashing and while IP Camera is ready the LED will be green.

2.4 Initial Utility Installation

This chapter shows how to quick set up your IP Camera. The IP Camera is with the default settings. However to help you find the networked IP Camera quickly the Windows utility (PLANET IPInstaller) can search the IP Cameras in the network that shall help you to configure some basic setting before you start advanced management and monitoring.

Please insert the bundle CD disk into your CD/DVD-ROM drive. When the welcome web page appears, please click your IP Camera name on the IP Camera list i.e. ICA-HM835. Then click on the utility IPInstaller to start the program.

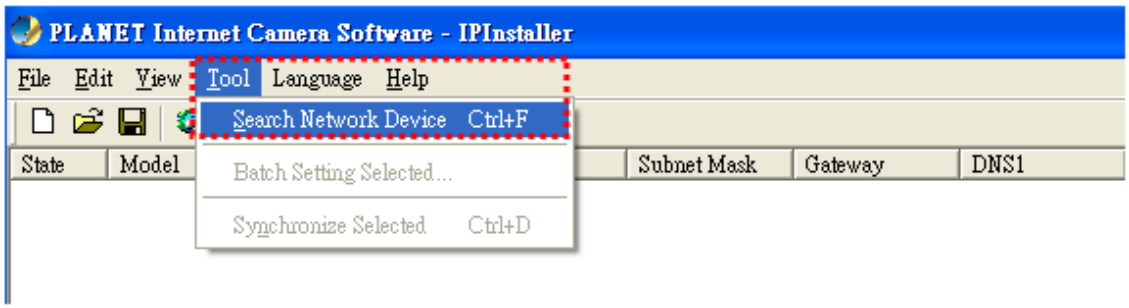
2.5 Preparation

When you installed the camera on a LAN environment, you may execute PLANET IPInstaller to discover camera's IP address and set up related parameters in the camera.

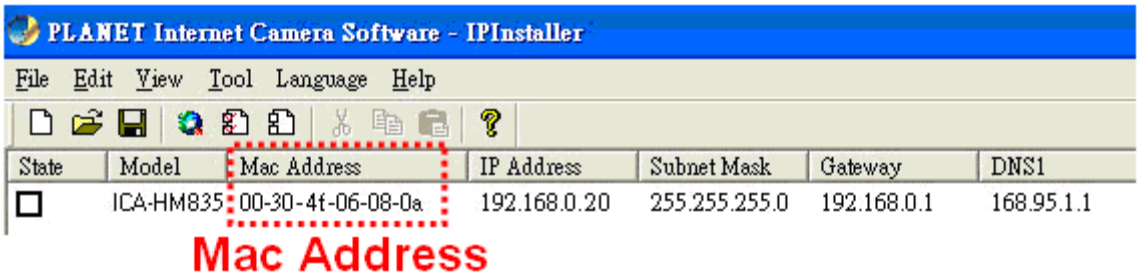
2.5.1 Configure Network by PLANET IPInstaller

Please click "**Search Network Device**" button. PLANET IPInstaller will list all networked IP Camera in the LAN. If the IP Camera doesn't be found, you may check whether this IP Camera is connect to network properly and press the search button again.

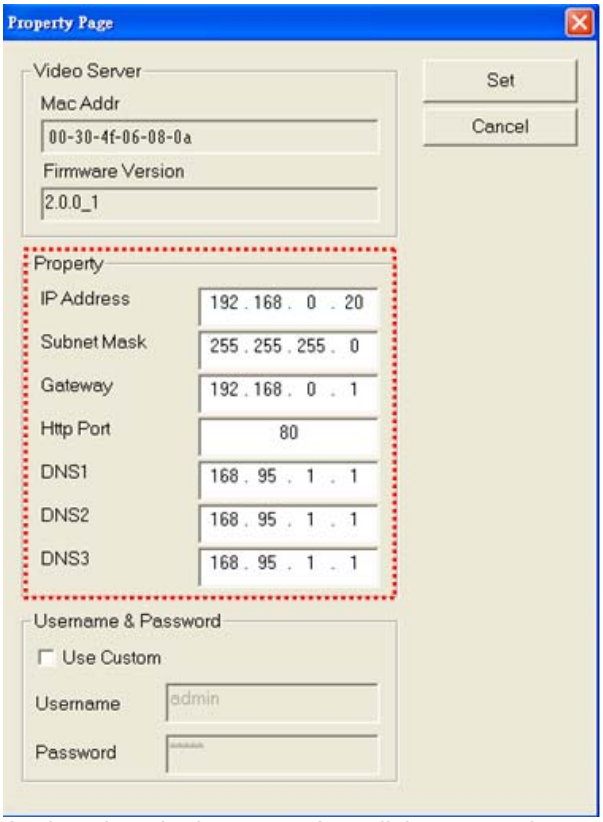
1. Click the menu bar **Tool > Search Network Device** to search the device in the LAN.



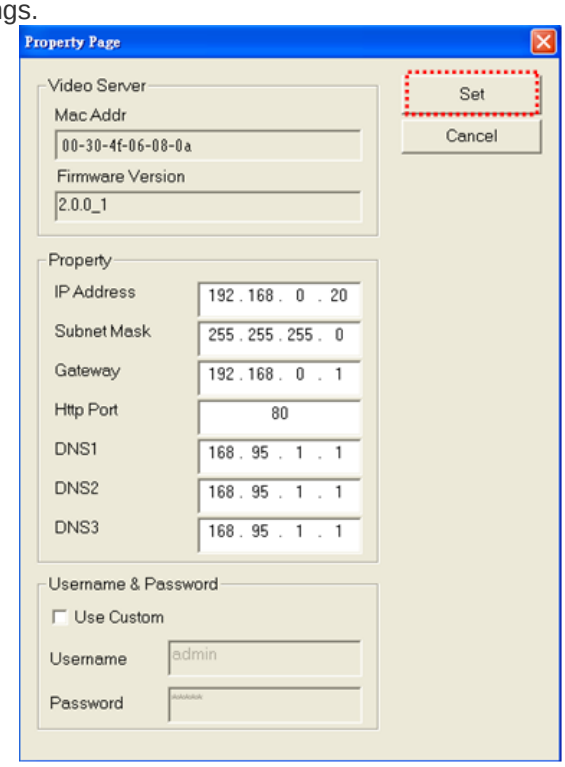
2. Select IP Camera with the MAC Address corresponds to the IP Camera that is to be configured.
3.



4. Double click the item to open the Property Page or click the menu bar **View > Property**.



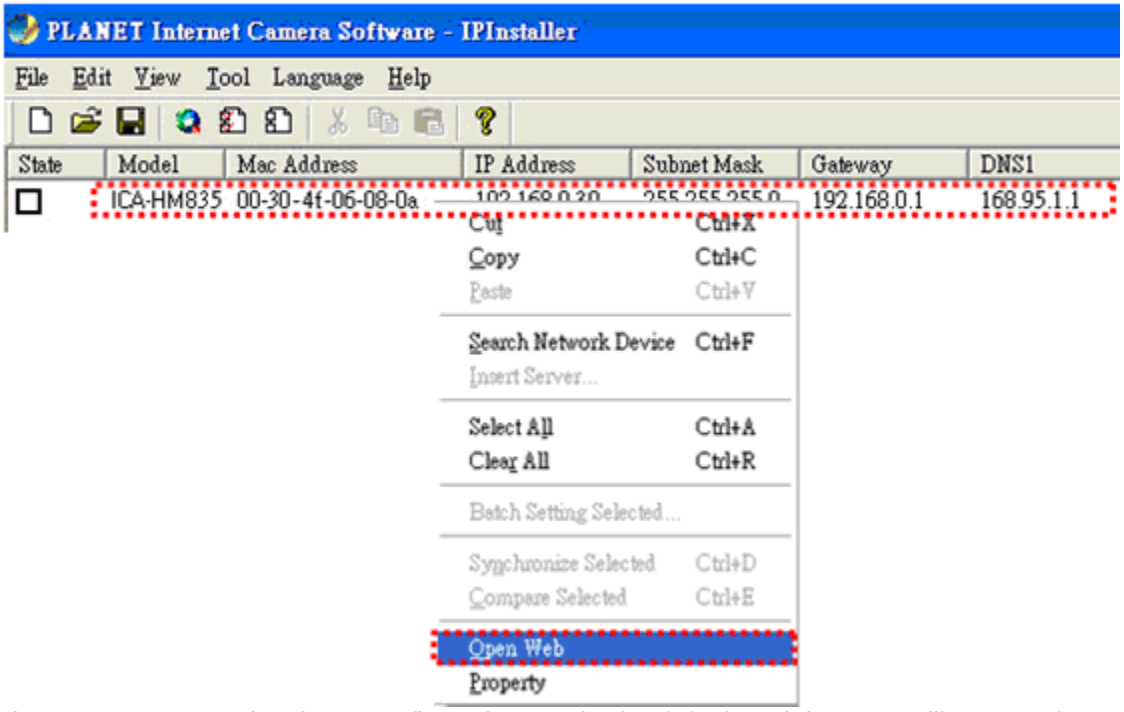
5. After filling the desired settings in the properties, click on "**Set**" button to complete the configuration settings.



2.5.2 Open the Web-based UI of the select camera

If IPInstaller finds IP Camera, please select the device you want to view and click the "**Open Web**" button. Then you could see the video from IP Camera directly.

1. To access the Web-based UI of the selected unit, run the **View > Open Web** on the menu bar.



If the Internet Camera has been configured correctly, the default Web browser will open to the home page of the selected device.

If you find your browser is opened and automatically connected to the camera Home Page, it means you've assigned an IP Address to the unit successfully. Now you can close the IP Installer and start to use your camera.

2.6 Setup ActiveX to use the Internet Camera

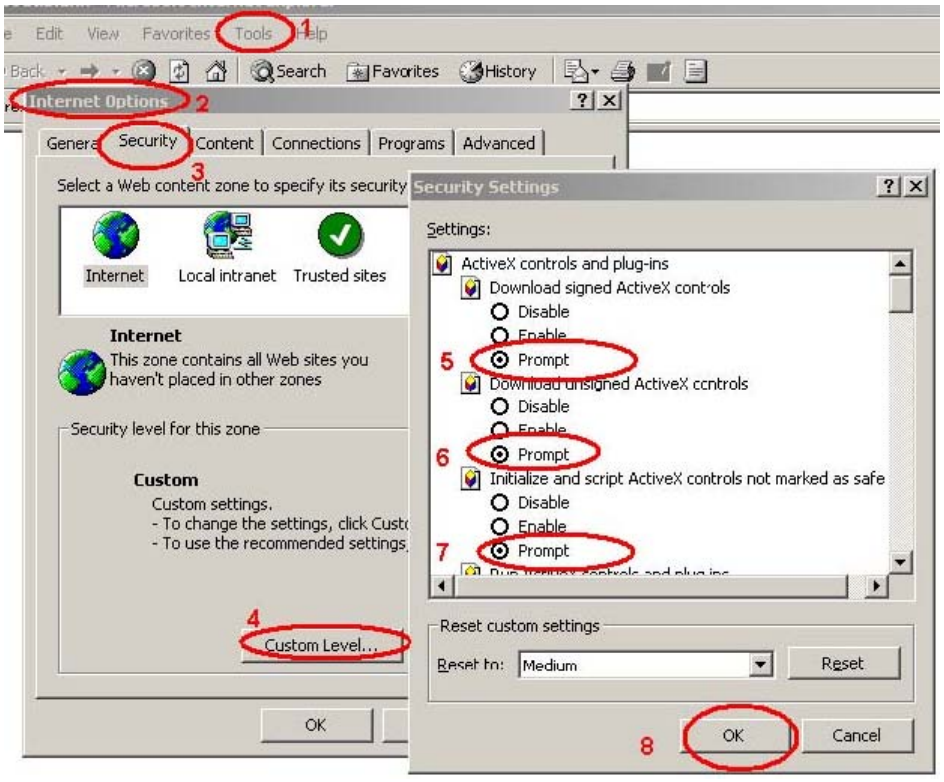
The Internet Camera web pages communicate with the Internet Camera using an ActiveX control. The ActiveX control must be downloaded from the Internet Camera and installed on your PC. Your Internet Explorer security settings must allow for the web page to work correctly. To use the Internet Camera, user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

2.6.1 Internet Explorer 6 for Windows XP

From your IE browse ➔ "Tools" ➔ "Internet Options…" ➔ "Security" ➔"Custom Level…", please setup your "Settings" as follow.

Set the first 3 items

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



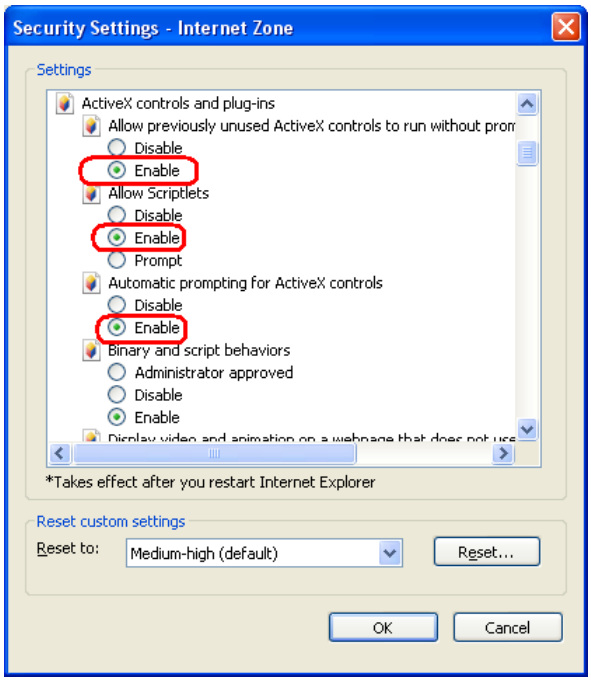
By now, you have finished your entire PC configuration for Internet Camera.

2.6.2 Internet Explorer 7 for Windows XP

From your IE browse ➔ ”Tools” ➔ ”Internet Options…” ➔ ”Security” ➔”Custom Level…”, please setup your “Settings” as follow.

Set the first 3 items

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

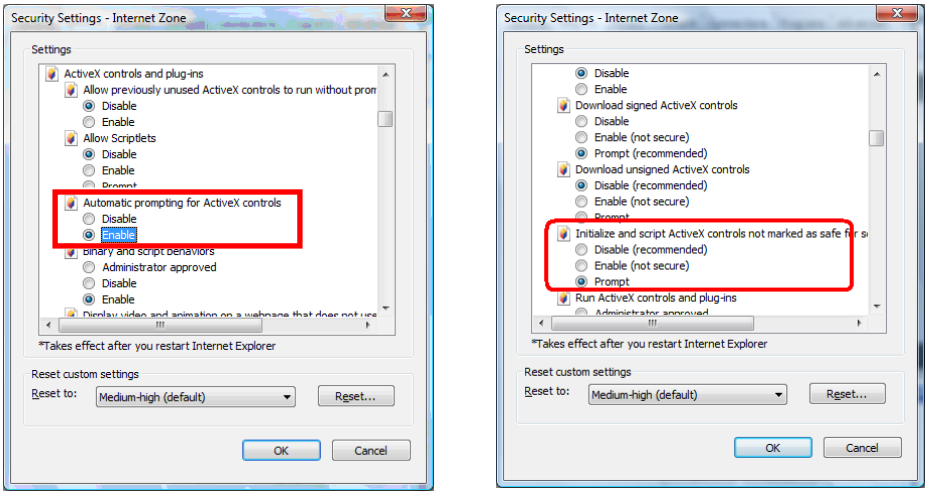


By now, you have finished your entire PC configuration for Internet Camera.

2.6.3 Internet Explorer 7 for Windows Vista

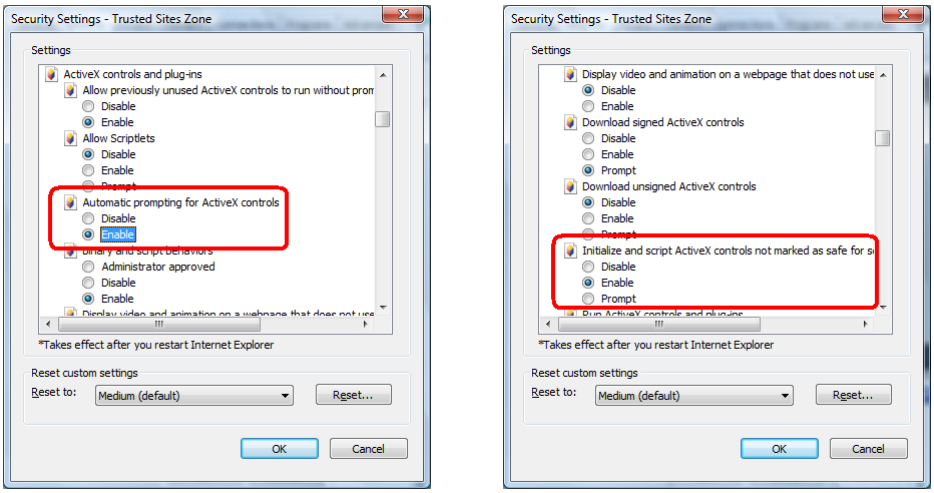
From your IE browse ➔ ”Tools” ➔ ”Internet Options…” ➔ ”Security” ➔ ”Internet” ➔”Custom Level…”, please setup your “Settings” as follow.

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



From your IE browse ➔ ”Tools” ➔ ”Internet Options…” ➔ ”Security” ➔ ”Trusted Sites” ➔”Custom Level…”, please setup your “Settings” as follow.

- *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.

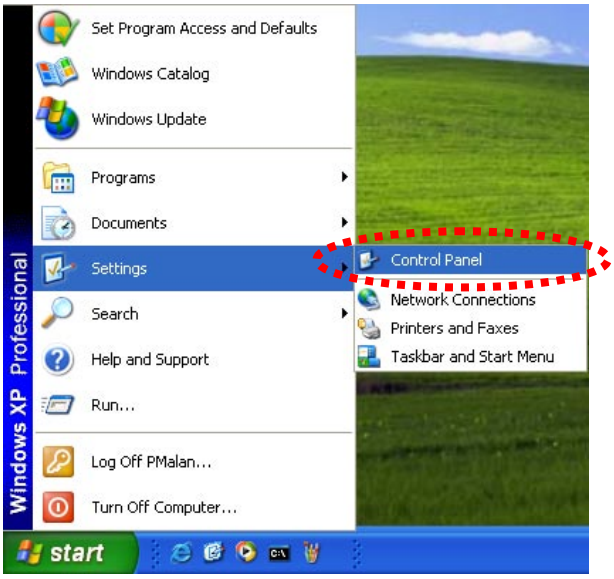
2.7 Using UPnP of Windows XP or Vista

2.7.1 Windows XP

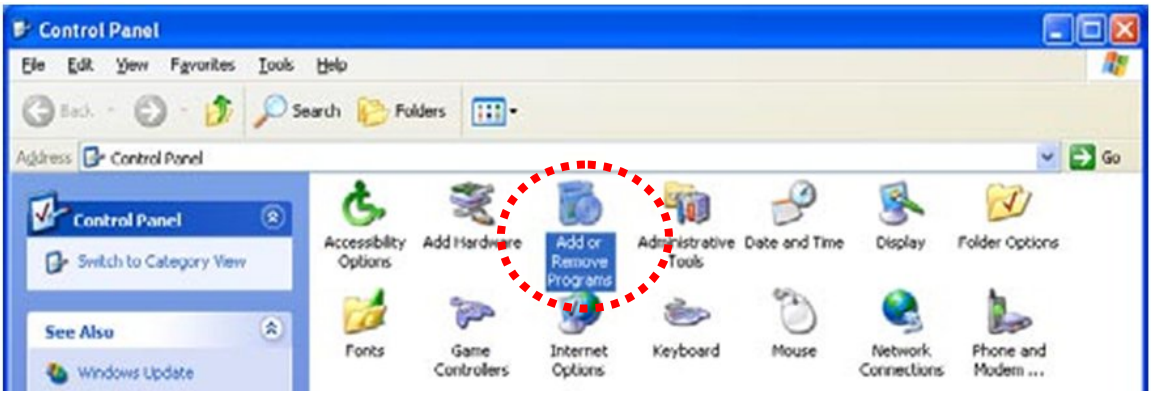
UPnP™ is short for Universal Plug and Play, which is a networking architecture that provides compatibility among networking equipment, software, and peripherals. This device is an UPnP enabled device. If the operating system, Windows XP, of your PC is UPnP enabled, the Internet Camera will be very easy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

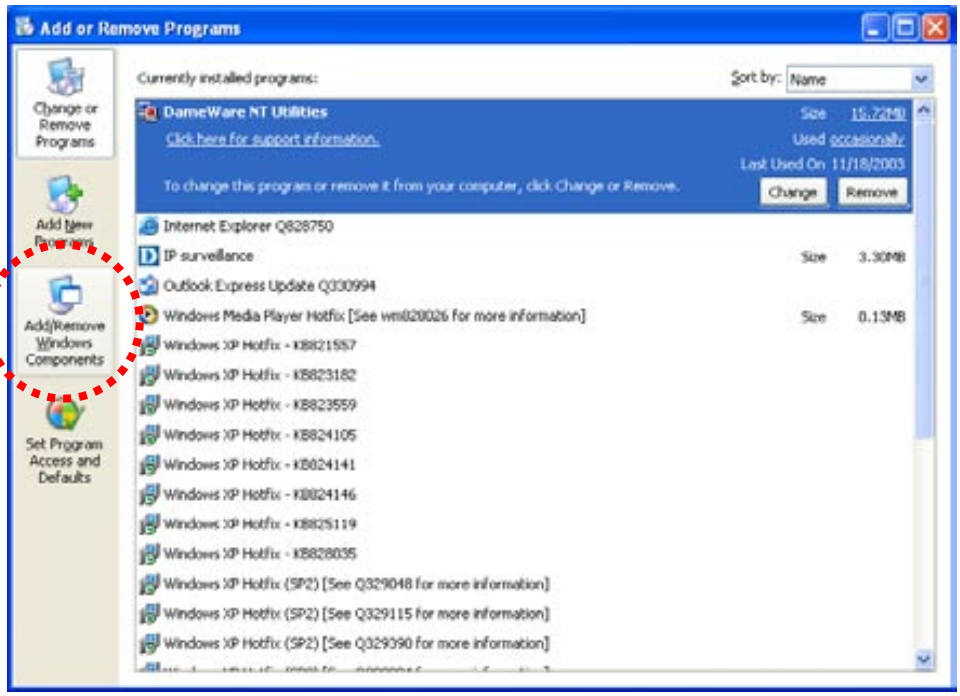
NOTE: *Windows 2000 does not support UPnP feature.*

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

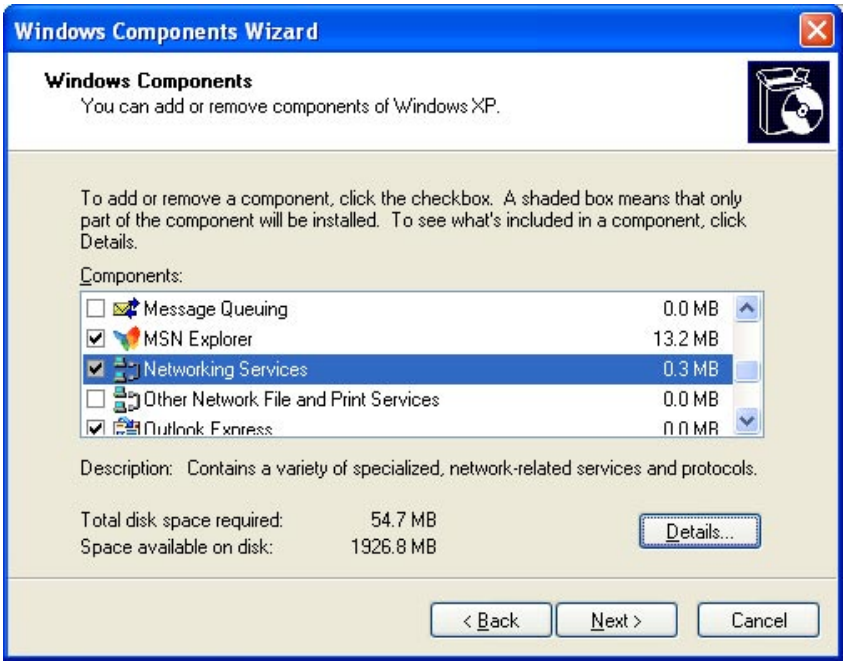


The "**Control Panel**" will display on the screen and double click "**Add or Remove Programs**" to continue

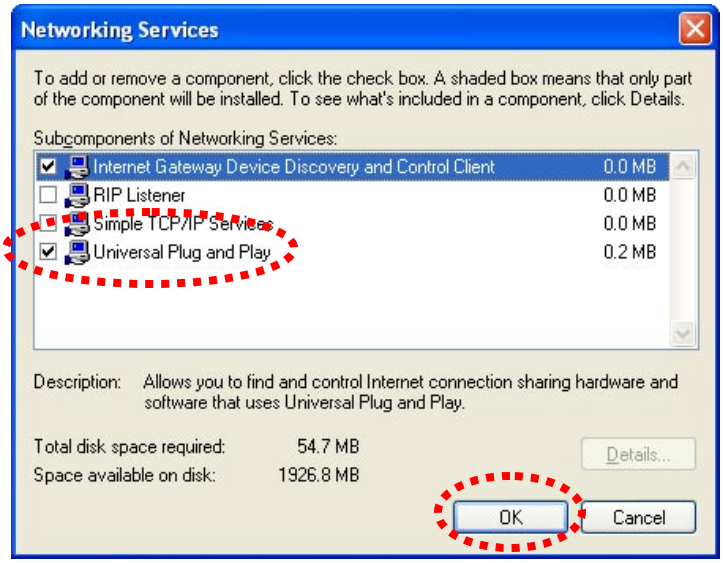




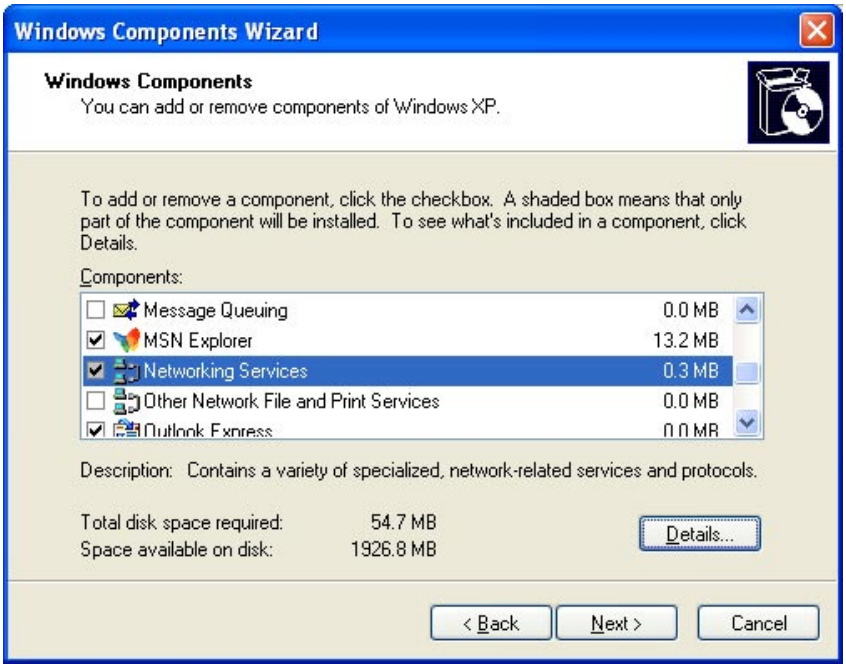
The following screen will appear, select "**Networking Services**" and click "**Details**" to continue



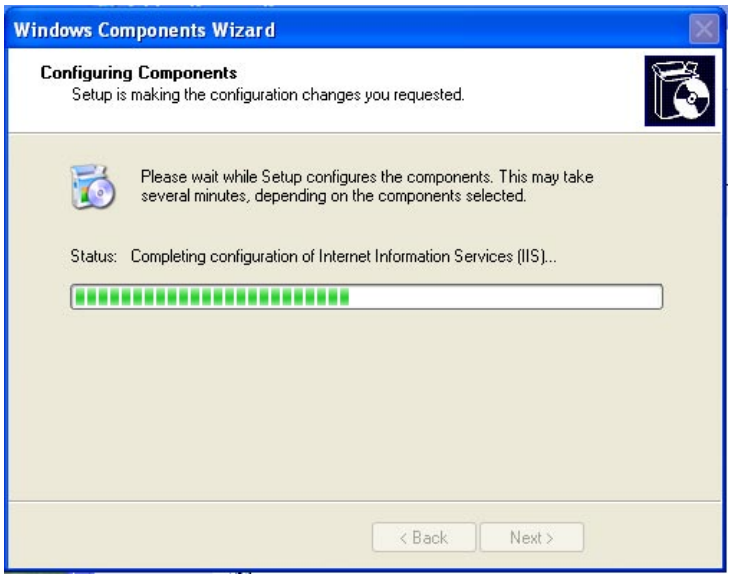
The “Networking Services” will display on the screen, select “**Universal Plug and Play**” and click “**OK**” to continue.



Please click “**Next**” to continue



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



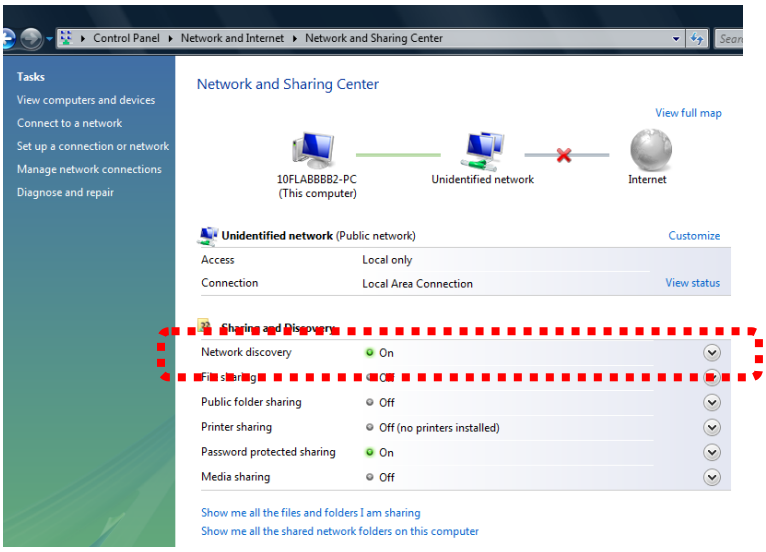
Please click "**Finish**" to complete the UPnP installation

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.

2.7.2 Windows Vista

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

Go to **Start > Control Panel > Network and Internet > Network and Sharing Center,** and turn on "**Network Discovery**".



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.

3. Web-based Management

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

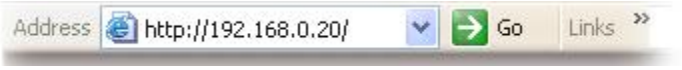
3.1 Introduction

The Internet Camera can be configured with your Web Browser. Before configure, please make sure your PC is under the same IP segment with Internet Camera.

3.2 Connecting to Internet Camera

- Use the following procedure to establish a connection from your PC to the camera.
- 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 "



After connected to IP Camera, it will prompt for User Name and Password, please enter **admin/admin** to continue Web Management. Confirm the installation as it is required to view the video stream and some operations.

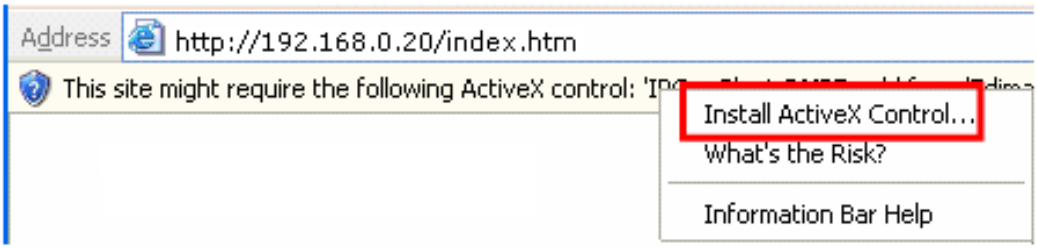
If difficulty is met, please refer to the following steps to establish the connection:

- The IP Camera must be installed and powered ON.
- If the IP Camera's default IP Address (**192.168.0.20**) is already used by another device, the other device must be turned OFF until the device is allocated a new IP Address during configuration.
-

NOTE: *If the User name and Password have been changed with PLANET IPInstaller, please enter the new User name and Password here.*

For the first installaiton, there will be a prompt to install the ActiveX control.

Click on the message, and click **Install ActiveX Control…**



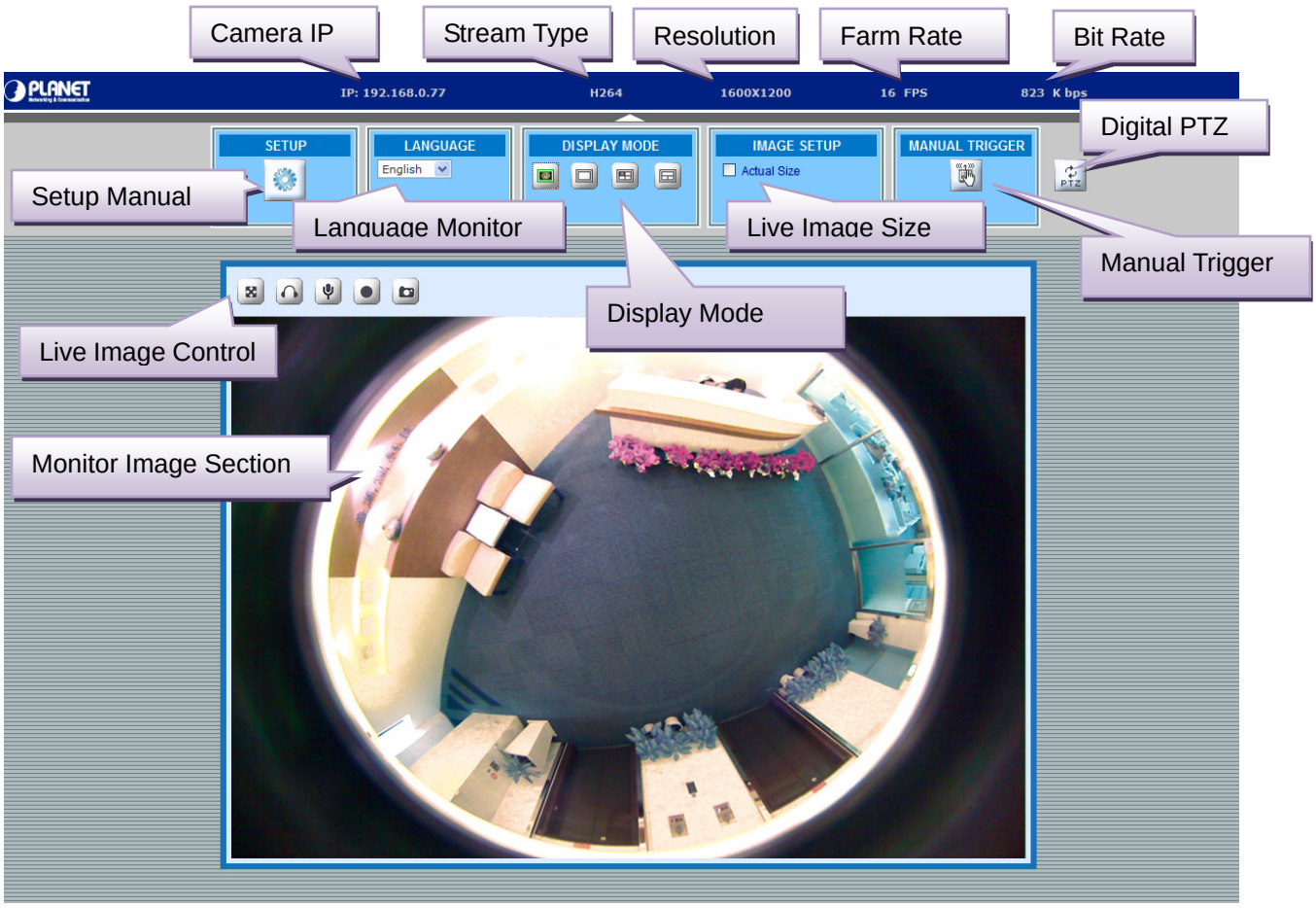
When you see this message, click **Install**' to install required ActiveX control

If the device has been configured correctly, the default Web browser will open to the home page of the selected device.

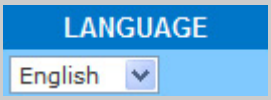
NOTE:	*If you log in the Internet Camera as an ordinary user, setting function will be not available. If you log in the camera as the administrator, you can perform all the settings provided within the Internet Camera.*

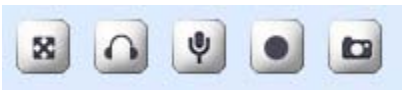
3.3 Live View

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



Button	Description
	● **Video**：Configure bit rate, frame rate and resolution of video profiles. ● **Camera**：Adjust camera general parameters, such as image rotate, Brightness, audio, record parameters. ● **Event**：Configure the event server, I/O ports information, and object motion detection settings. ● **Schedule**：Configure the event schedule and storage while event triggered. ● **Network**：Configure Network settings such as, SMTP, RTSP, DHCP, DDNS, and UPnP, etc. ● **System**：Configure system information, date & time, maintenance, and view system log file.

	The Internet Camera could provide multiple languages to meet customer's requirement. (English, Traditional Chinese and Simplified Chinese)
	Select display mode to view the different type of the image.
	The Internet Camera allow user to display the live video in actual size mode. (Uses every available space to display the image captured by this camera).
	The camera allow user to trigger the alarm manually. User can click the button active the alarm immediately while a suspicious object discovered.
	The Digital PTZ button can control camera up/down/left/right and zoom in/out position.



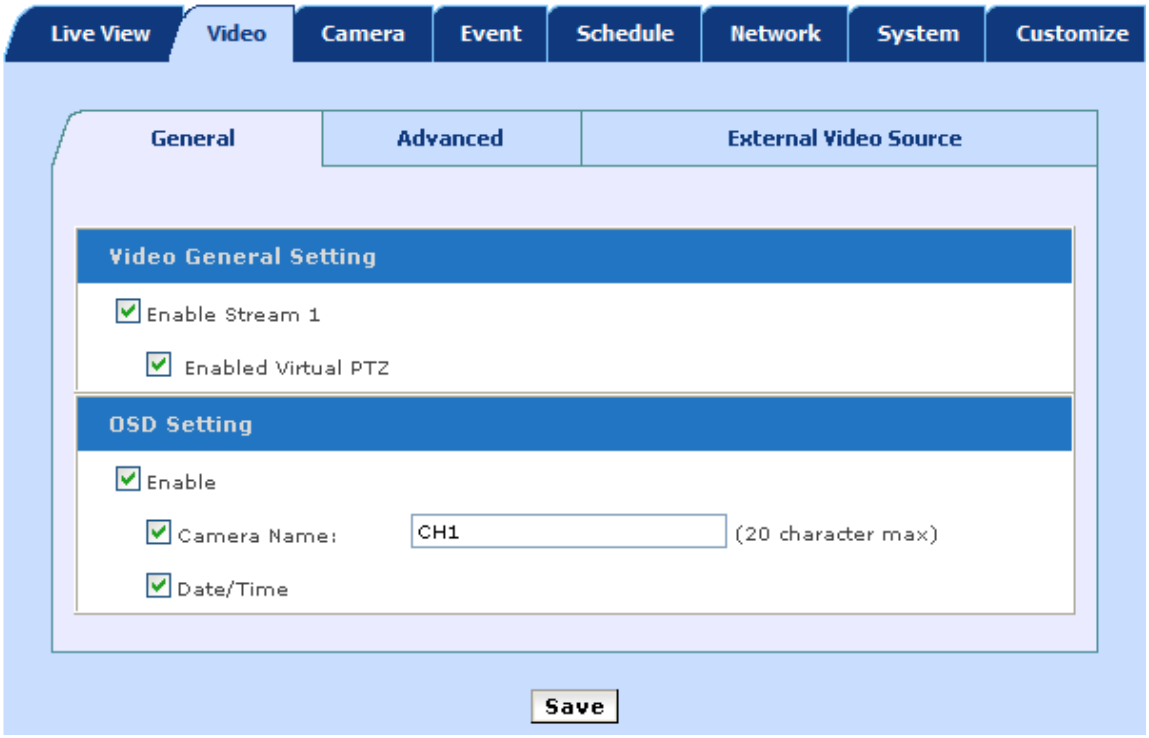
Button	Description
Full screen	Click the icon can display the image in full-screen mode (uses every browser available space to display the image captured by this camera).
Monitor Listen	Click the icon can listen for the audio input from local end.
Monitor Talk (2-way audio)	The Internet Camera supports 2-way audio function. User can chose to enable or disable this function by toggling the icon.
Video Record	Click the icon be able to activate the record function start recording. The video file is saved as AVI format into your local PC.
Snapshot	Click the icon be able to activate the snapshot function to take a picture.

3.4 Video Configuration

This Internet Camera provides multiple video stream profiles as below to support different request to each client simultaneously. Each user can choose preferred video profile as his request independently.

3.4.1 Video General Settings

The menu allow user to disable/enable the stream profiles and OSD.



Video General Setting:	User can check either box to enable stream profile for live viewing. Check each box to enable stream1 or virtual PTZ for live viewing.
OSD Setting:	There are some important information can be embedded into image, including date, time, and/or camera name.
Virtual PTZ:	The PTZ function will display in Quad view, Quad with source view and Double view of Ceiling Mount. Click on the PTZ will popup the box.

NOTE: *When the configuration is finish, please click "**Save**" to save and enable the setting.*

1. Ch: Select the channel. (1~4)

2. Step: The speed of the camera move. (1~10)

3. Pan Tilt control of this IP camera

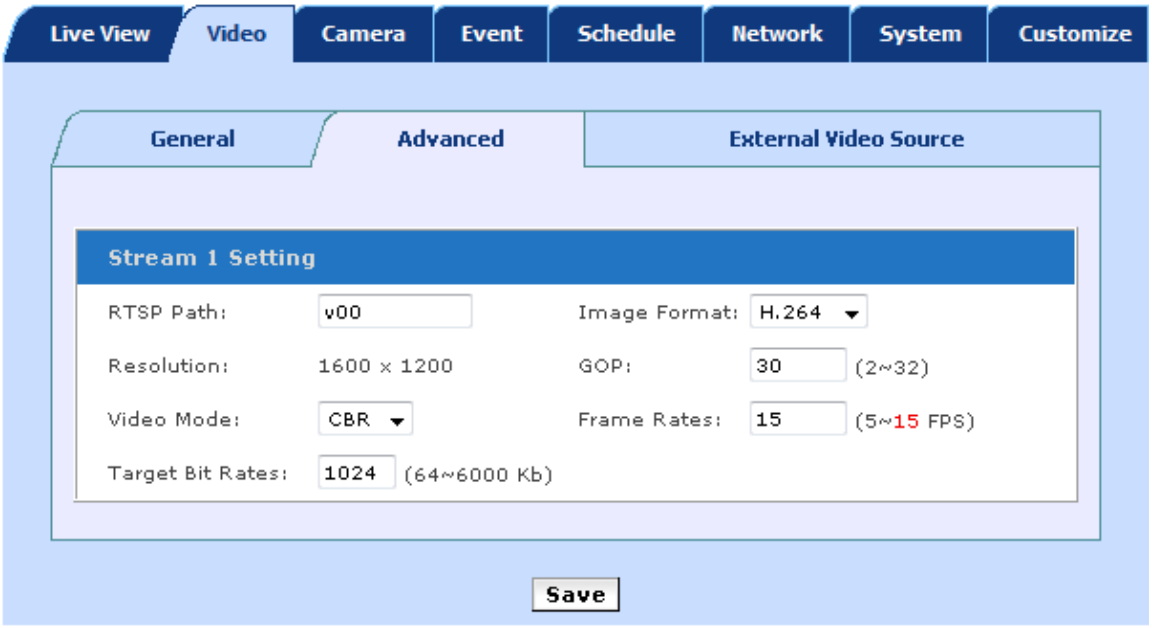
4. Zoom: Digital zooms in/out. (1~10)

5. Move the box.

6. Close the box.

3.4.2 Video Advanced Settings

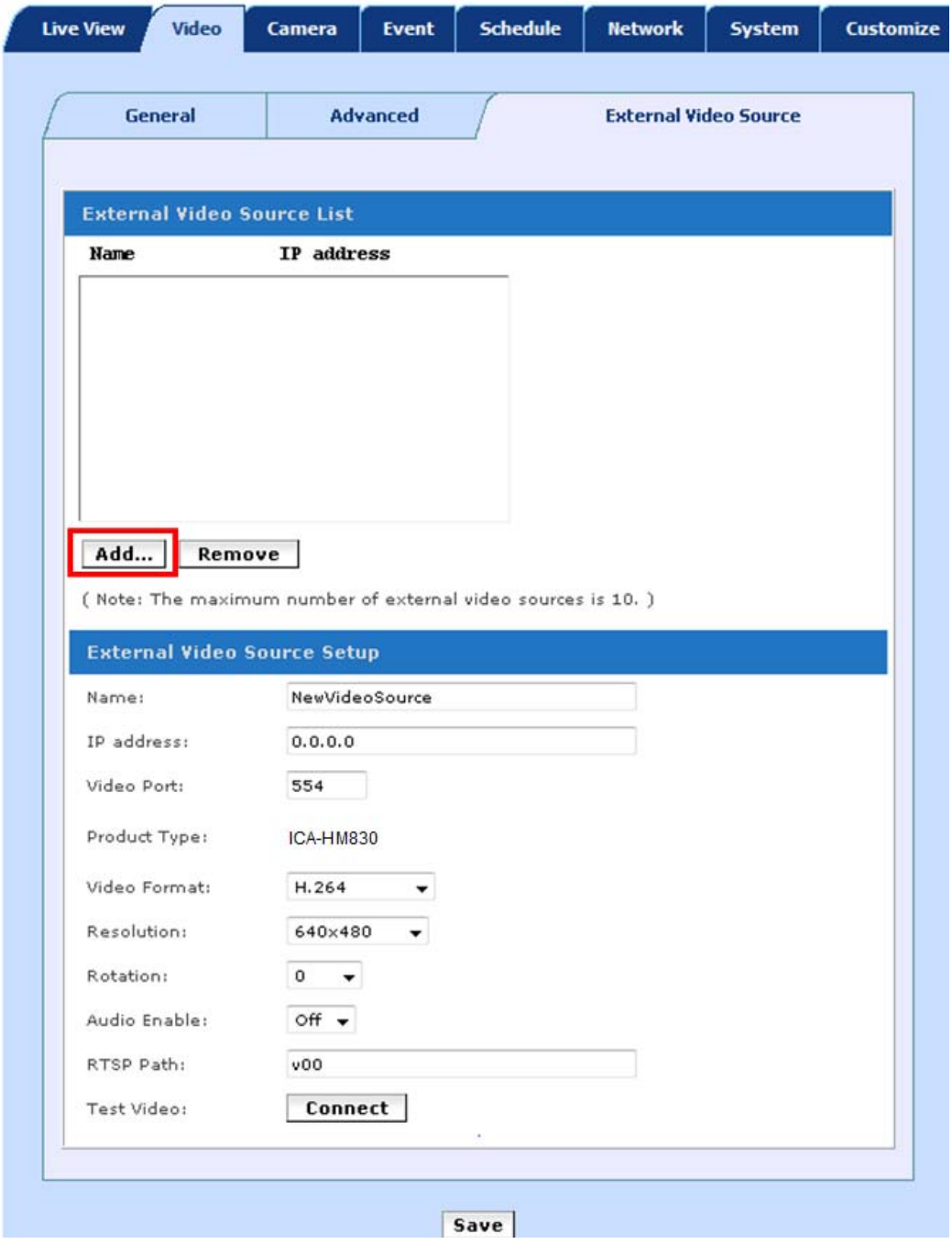
This Internet Camera provides video stream profiles to support different request. The stream 1 can up to maximum resolution 1600 x 1200 (2 Mega Pixel).



RTSP Path	It is the stream ID used for RTSP client streaming connection, such as VLC player. (Default v00).
Resolution	Image size 1600x1200
Video Modes	Choose between variable bit rate (VBR) and constant bit rate (CBR) **VBR:** User should choose the quality level to set the video quality rather than bit rate. **CBR:** The video bit rate is between low to high bandwidth based on different resolutions. User can set the bit rate range from 64 to 6000kb
Target Bit Rates(CBR)	Choose the number of frames to encode per second.
Quality Level(VBR)	The quality level is between Standard and Best. The best level can reach the better quality but of course will consume higher bandwidth.
Image Format	2 kinds of format to choose from; H.264 and M-JPEG
GOP	Defines the Intra/Inter-frame (I/P) ratio of this profile.
Frame Rates	Choose the number of frames to display per second. With resolution 1600x1200, FPS can only set up to 15FPS.

3.4.3 External Video Source

The Internet Camera provided the video conference feature, if you have multiple Internet Cameras (ICA-HM835) within your system, you can monitor the video of remote connected camera form the browser.

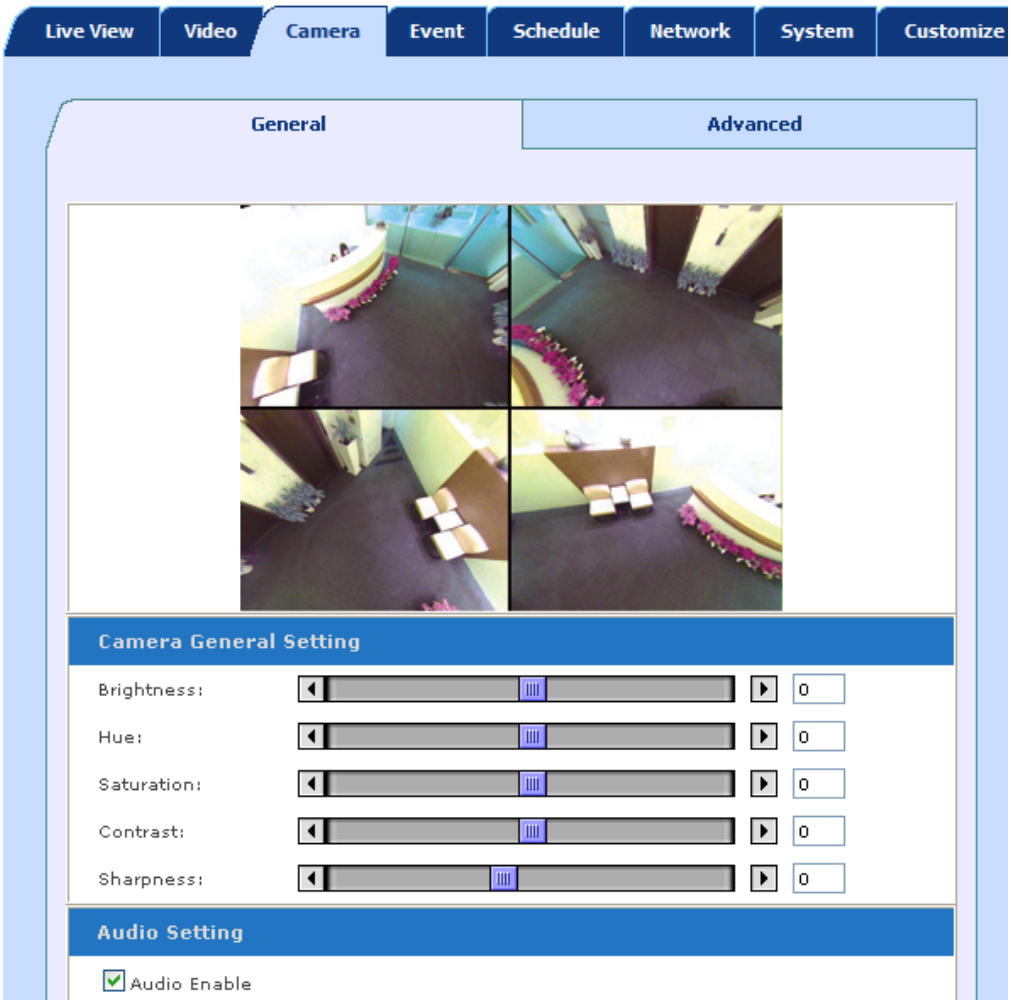


External Video Source List	List all of external camera for user selection while video conference. Maximum number of external is 10.
External Video Source Setup	According to remote camera video settings to setup those parameters into the list.
Connect	When the configuration is finish, please click the button to make the video test.

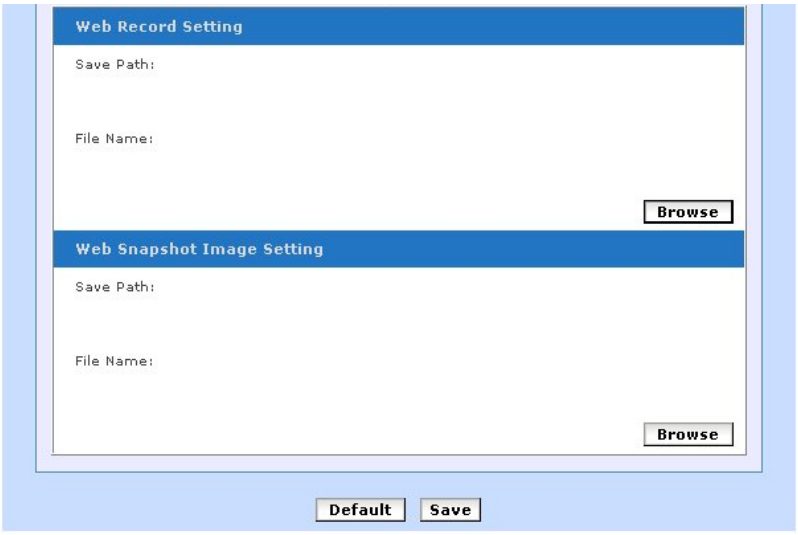
3.5 Video Configuration

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

3.5.1 Camera General Settings



Camera General setting	Adjust the image parameters for a better view. **Brightness:** Large value will brighten camera. **Hue:** Large value will be colorful. **Saturation:** Large value will contrast camera heavily.
Audio Setting	To enable or disable audio function.



Web Record Setting	**Save Path / File name:** Click on the “Browse” button to select the desired path to save as well as naming the video file.
Web Snapshot Image Setting	**Save Path / File name:** Click on the “Browse” button to select the desired path to save as well as naming the video file.
Default	Set “**Camera General Setting’** and ‘A**udio Setting”** back to default

3.5.2 Camera Advanced Settings

The menu allow user to adjust the camera white balance, exposure, gain control and ICR active mode.

White Balance	Adjust the white balance according to the environment **Auto:** will adjust the white balance setting automatically. **Hold:** will hold the white balance setting. **Sunny:** will fix the color temperature with sunny day mode. **Cloudy:** will fix the color temperature with cloudy day mode. **Indoor:** will fix the color temperature with indoor mode.

Exposure	**Automatic:** will adjust the internal gain automatically. **Flicker-free 50Hz:** will effects of exposure to 50Hz. **Flicker-free 60Hz:** will effects of exposure to 60Hz.
Max Exposure Time	Increase / reduce the exposure time for lens.
Max Gain Control	To adjust maximum gain of input video.
Infrared (IR) Cut Filter	User can turn Auto or setting for fix mode. This function is very useful under low illumination environment.
Camera Mount	2 kinds of format to choose from; Wall and Ceiling

Ceiling Mode：5 kinds of format to choose.

360° Source image

180° double broad view

360° source view with 3 PTZ

Quad view

360° broad view with 2 PTZ

Wall Mode：2 kinds of format to choose.

180° source view with 3 PTZ

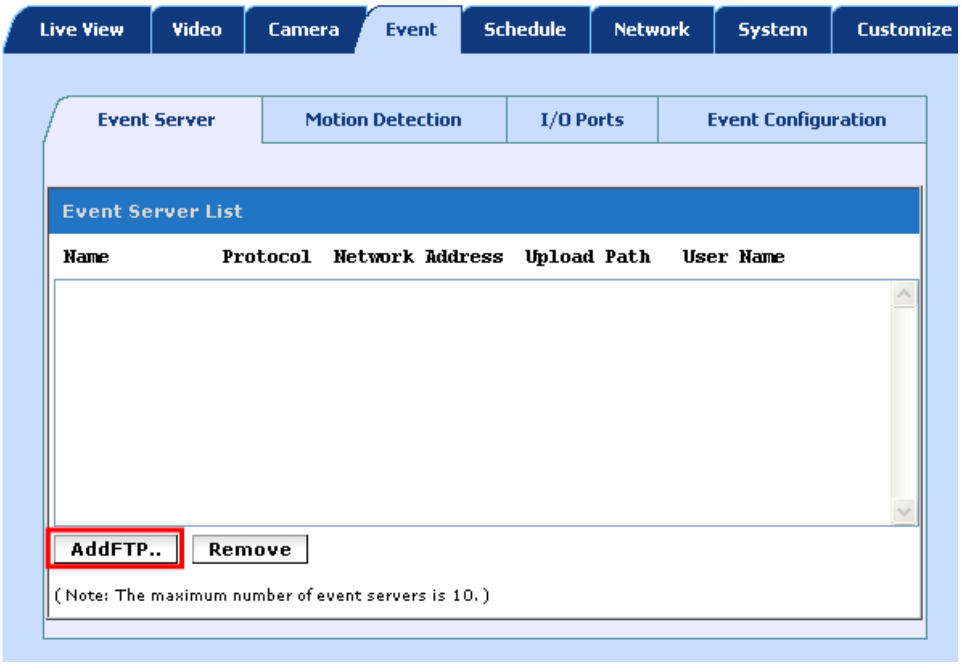
180° broad view with 2 PTZ

3.6 Event Configuration

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

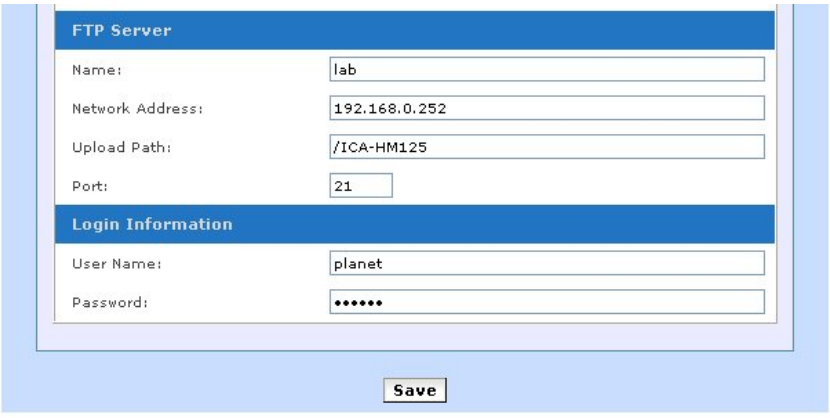
3.6.1 Event Server

The Internet Camera supports FTP upload function that will upload image while event trigger.



3.6.1.1 FTP server

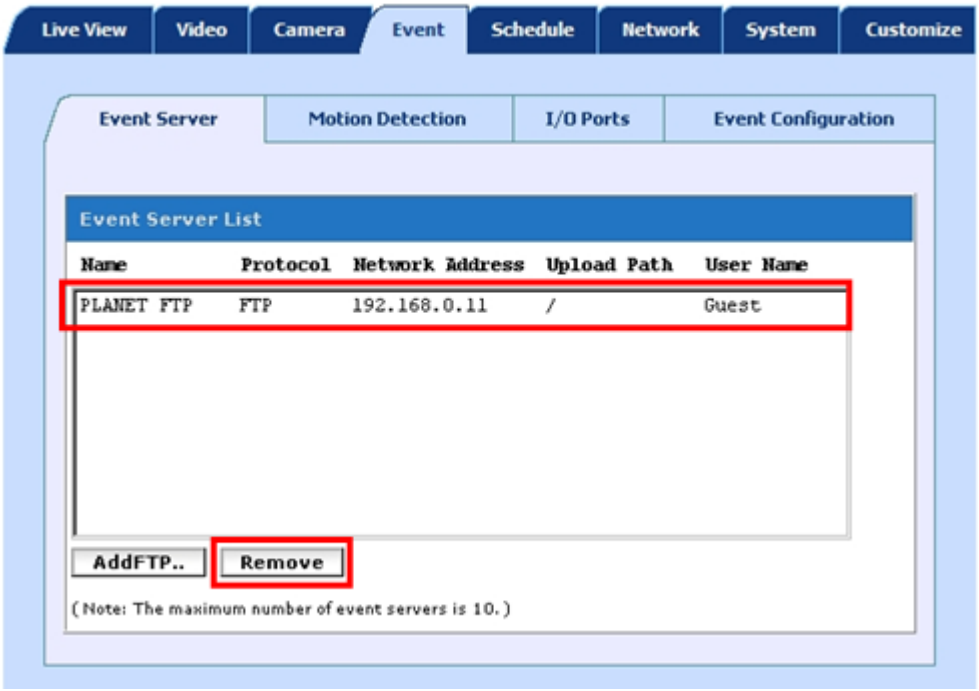
You may setup FTP parameters for further operation of Event Schedule. That's, if users want to send the alarm message to an FTP server.



FTP Server	**Name:** User can specify a FTP server as wish. Therefore, user needs to specify a name for each FTP setting. **Network:** Type the server name or the IP address of the FTP server. **Upload Path:** Set working directory path of FTP server. **Port:** Set port number of FTP service.
Login Information	**User Name:** Type the user name for the FTP server. **Password:** Type the password for the FTP server.

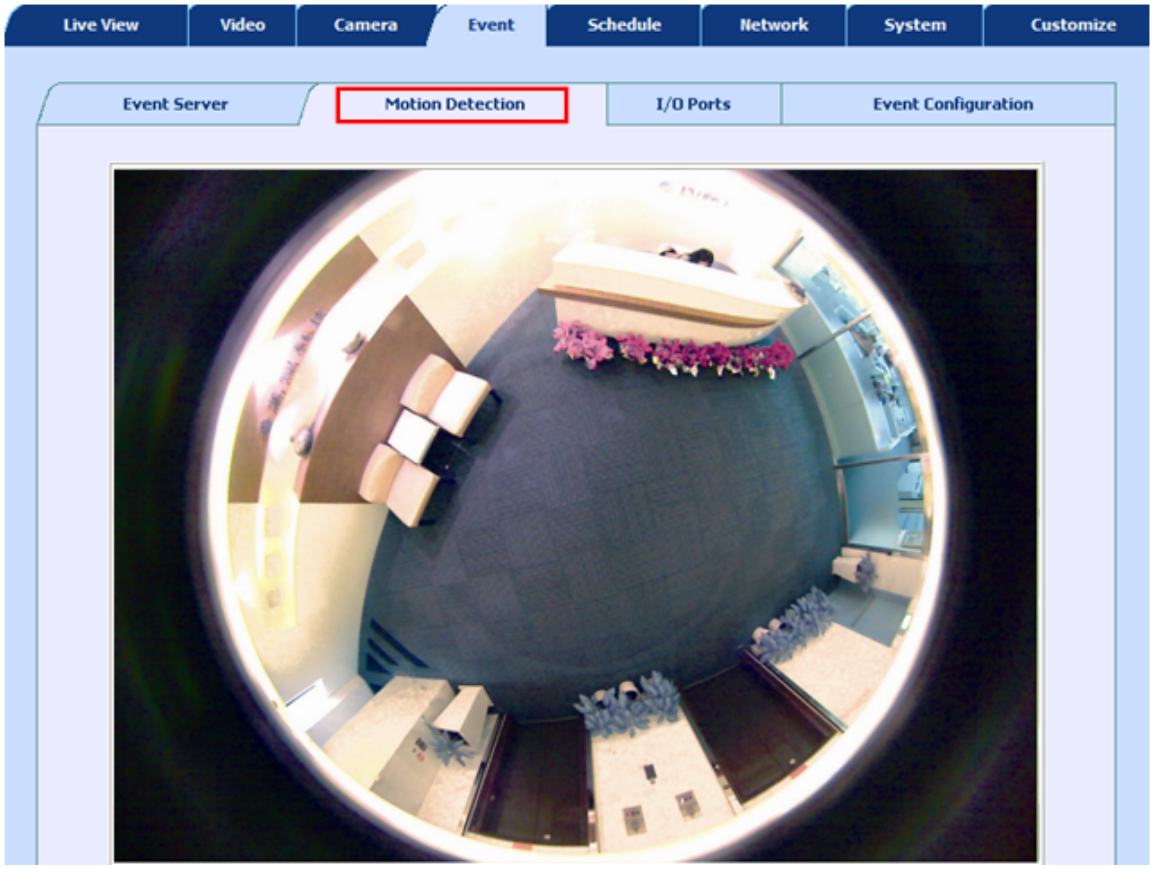
3.6.1.2 Event Server Remove

When want to delete the unnecessary servers, user just need to click "**Remove"** button to delete selected event servers.

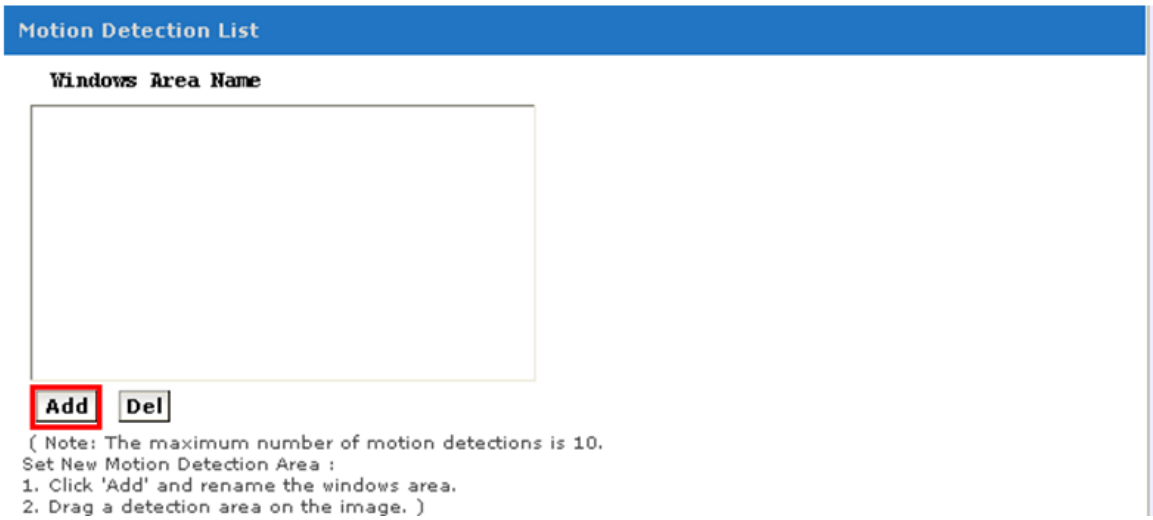


3.6.2 Motion Detection

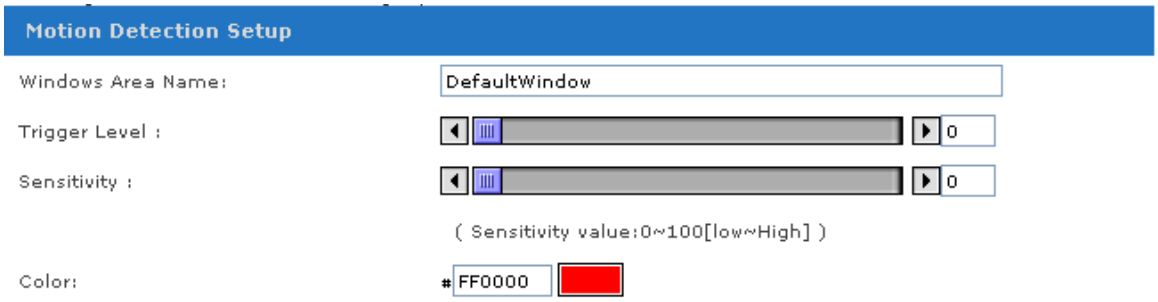
Use this menu to specify motion detection window and set the conditions for detection while observing a captured image.



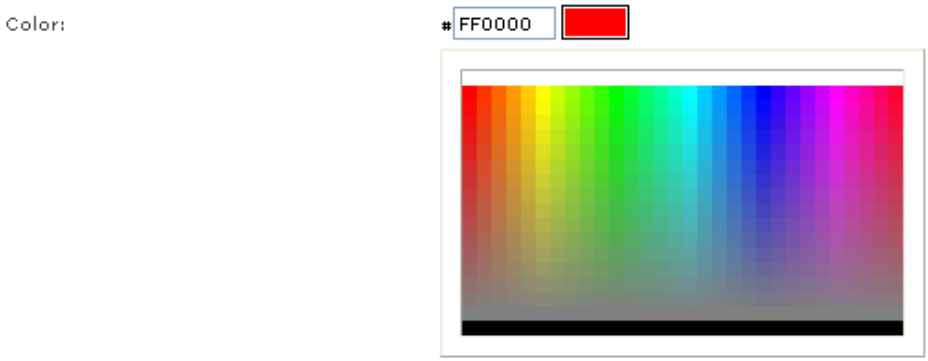
Add a motion detection area please click on "**Add"** to set up a detection area as indicated below.



Motion Detection List	**Add and Del:** To add or delete the motion windows. User can specify up to 10 areas to monitor the video captured by this device. By dragging mouse on the bar, you can change the trigger and sensitivity level of the detect motion area accordingly.



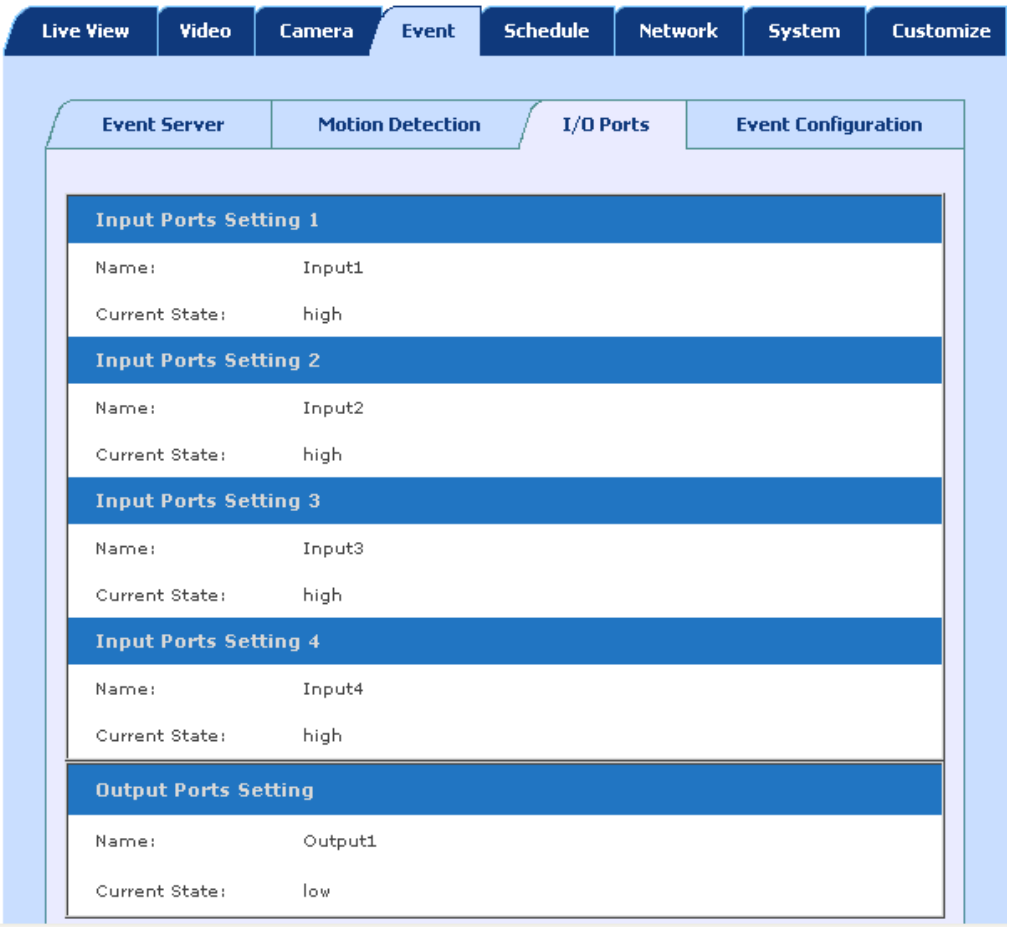
Motion Detection Setup	**Window Area Name:** Name of the specified motion area. **Trigger Level:** Defines the trigger level of motion detection for this detection area. (0~100, low~high) **Sensitivity:** Defines the sensitivity value of motion detection. The higher value will be more sensitivity. (0~100, low~high)



Color	Select color for detection area indication.
View All Windows	Displays all detection windows on screen.
View Selected Window	Only displays selected detection window on screen.

3.6.3 I/O Ports

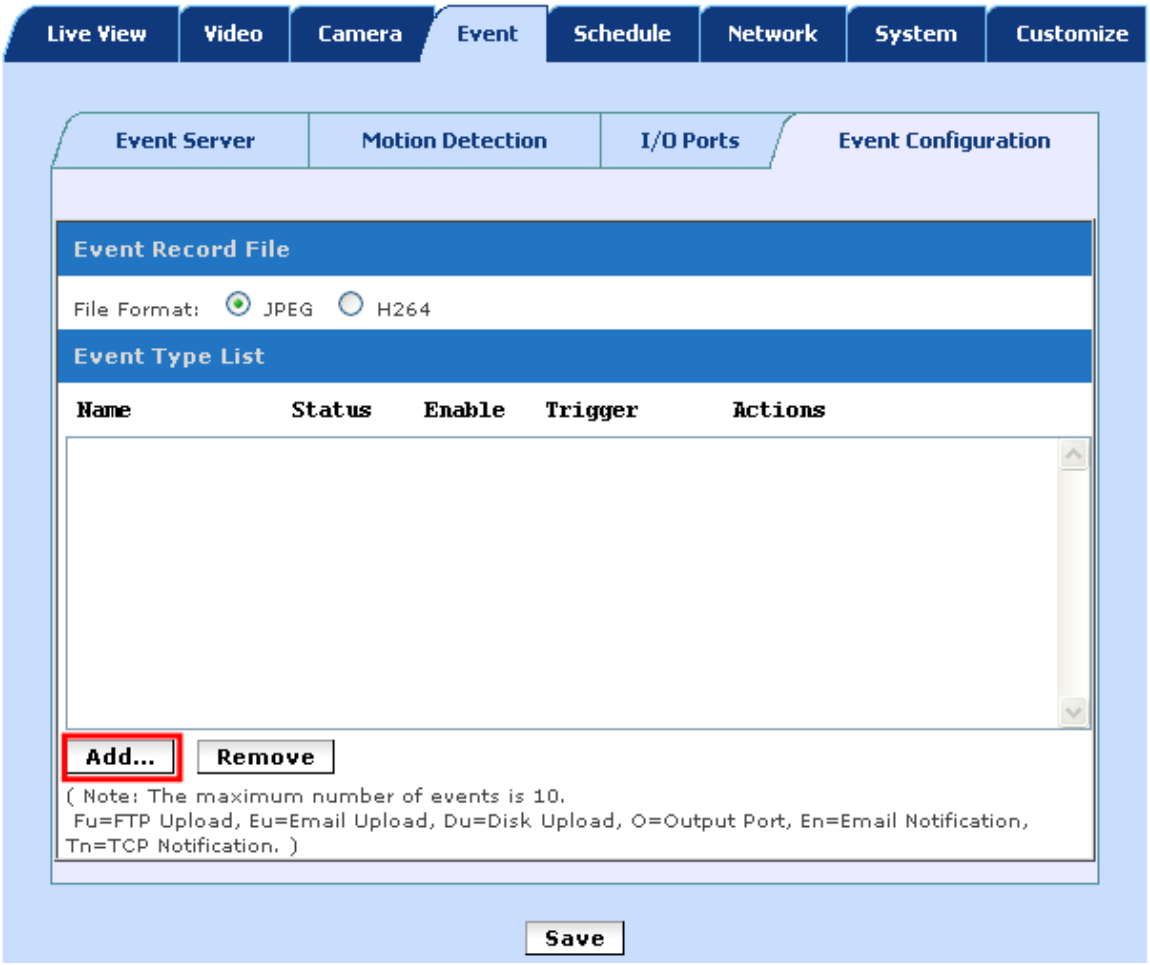
The Camera can be activated by the external sensor that senses physical changes in the area Camera is monitoring. These changes can include intrusion detection or certain physical change in the monitored area.



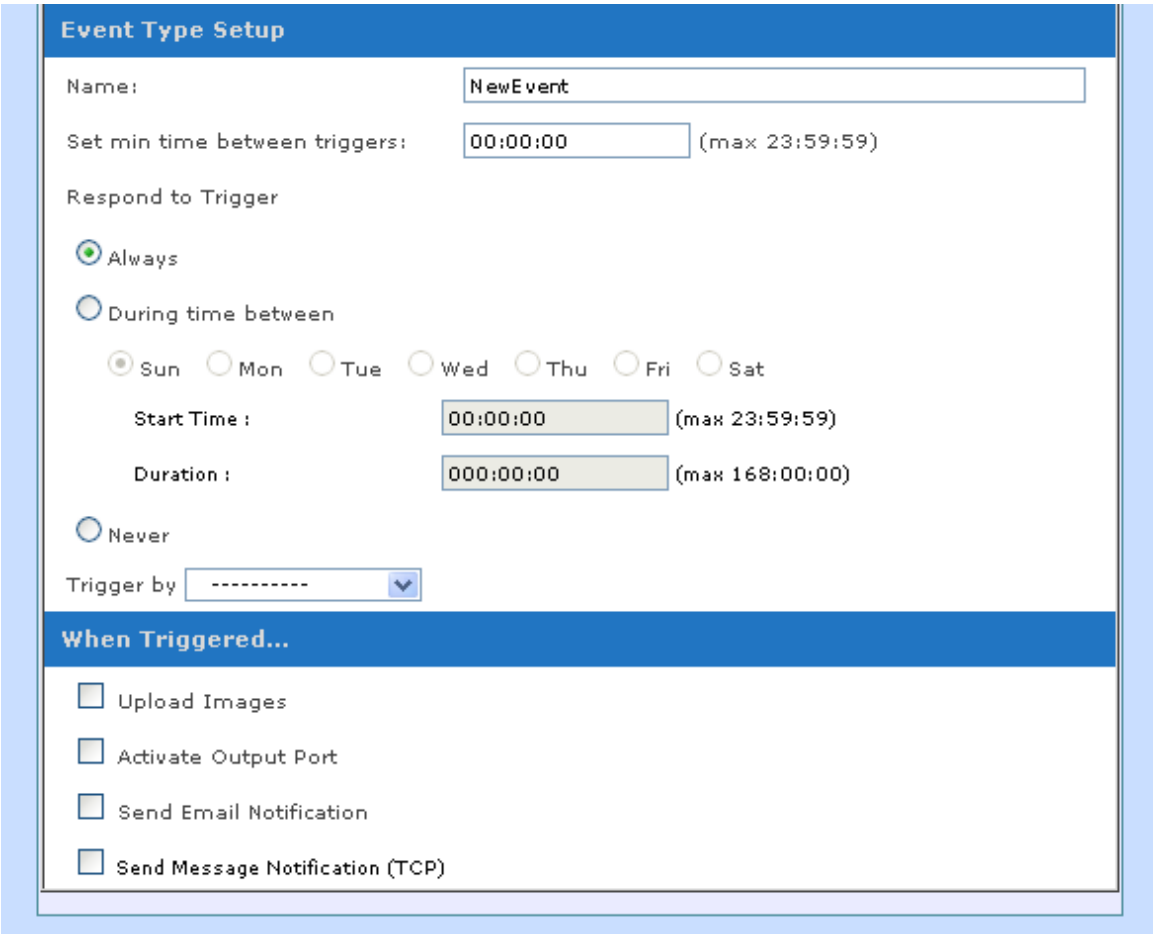
Input ports setting	**Name:** The field needs to specify a name for input sensor setting. **Current Status:** The field displays the input port current status.
Output Ports setting	**Name:** The field needs to specify a name for output sensor setting. **Current Status:** The field displayed the output port current status.

3.6.4 Event Configuration

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



To add an event trigger, please click on “**Add”** and setup panel will be expanded.



Event Type Setup	**Name:** Name of the Event or Schedule. **Set min time between trigger:** Set the time interval between each trigger. **Respond to Trigger:** Set the time period for the trigger. ✓ **Always:** Active the selected event immediate and continuous. ✓ **Only during time frame:** Choose a day and the starting time then configure the duration time (168hrs = 24x7). If duration time is set to 168(hrs), it is the same as choosing “Always” ✓ **Never:** Stop the selected event immediately. **Trigger by:** Select the triggered sources with event trigger.
When Triggered …	**Upload Images:** Upload captured image to event server once event trigged.

Activate Output Port:
Activate the external alarm once event trigged.

Send Email Notification:
Send notification through SMTP server once event trigged.

Send Message Notification (TCP):
Send notification through TCP server once event trigged.

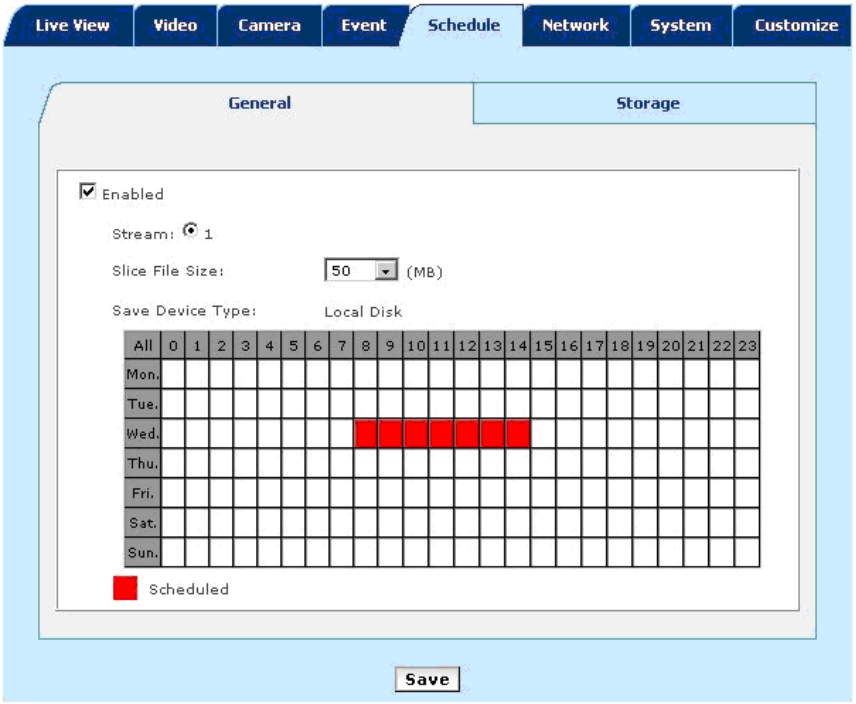
3.7 Schedule Configuration

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

3.7.1 General Setting

The page define the day (specified by days of a week) and time (specified by each single hour) for that will be recording during the scheduled period.

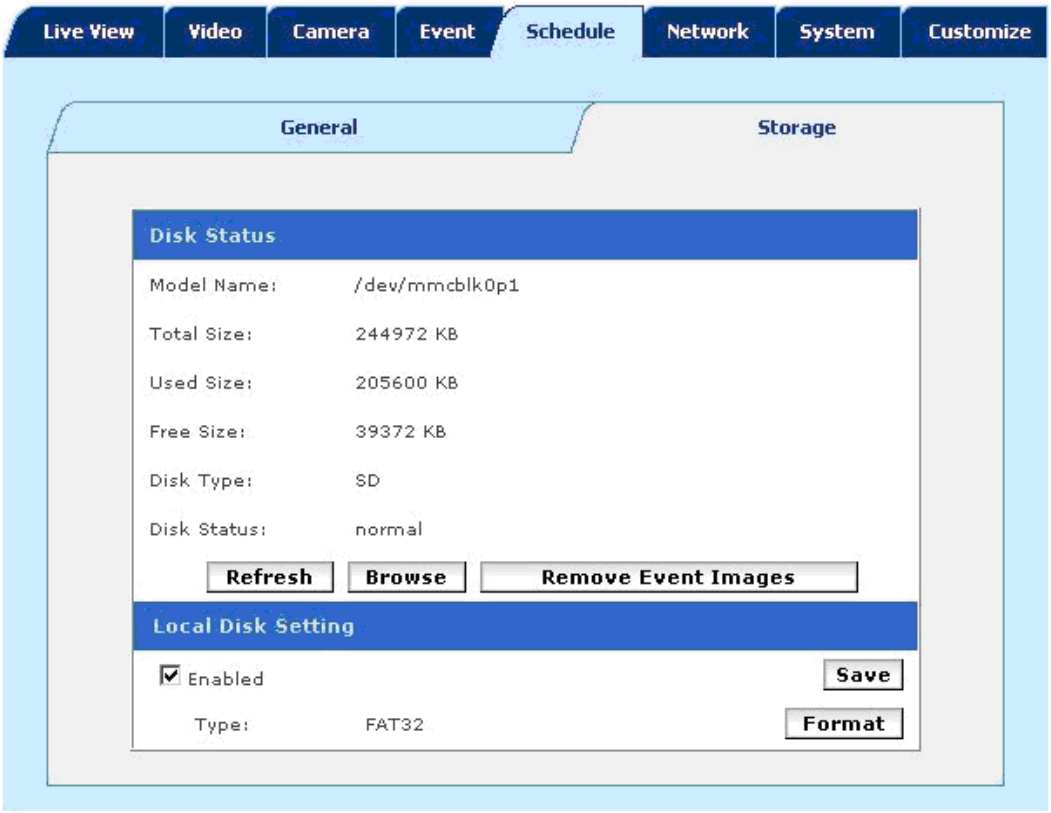
Note that only video data will be recorded. User can select which video stream should be recorded, and the size of each sliced file. When the check box is ticked and setting is saved, recording process starts. Recording files are saved to the Micro SD storage.



Enable	Enable or disable this schedule record.
Stream	Select one of the stream profiles for video recorded.
Slice File Size	Define the sliced file size for each recording files.
Save Device type	The storage device information.

3.7.2 Storage Setting

The page display the storage information, includes disk size info, type and status. The warning message shows when recording is on process. The SD card should not be removed during the recording process.



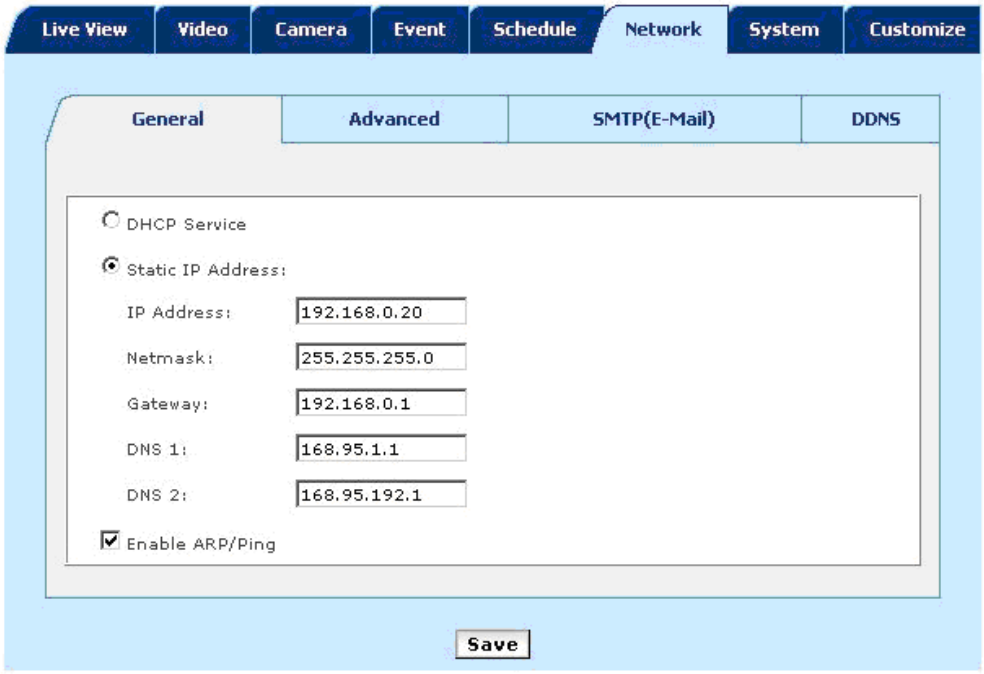
Disk Status	**Refresh:** User can click the button refreshes the status displayed of SD card. **Browse:** User can click the button to download the file on SD card. **Remove Event Image:** User can click the button remove the event image.
Local Disk Setting	The Internet Camera support the local Micro SD disk feature, user can mark the check box to active the function. **Format:** When insert a new Micro SD/SDHC card, user simply click the button to complete the disk format operation in the Internet Camera.

3.8 Network Configuration

Use this menu to configure the network to connect the Internet Camera and the clients.

3.8.1 Network General Settings

This section provides the menu of connecting the Internet Camera through Ethernet cable.



DHCP Service	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 you do not select “DHCP Service”, then you need to enter these network parameters by yourself.
Static IP Address	Please type in IP address, Subnet Mask, Gateway, DNS manually. **IP address:** This IP address is a unique numbers that identifies a computer or device on the LAN. These numbers are usually shown in groups separated by periods, for example: 192.168.0.20 **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

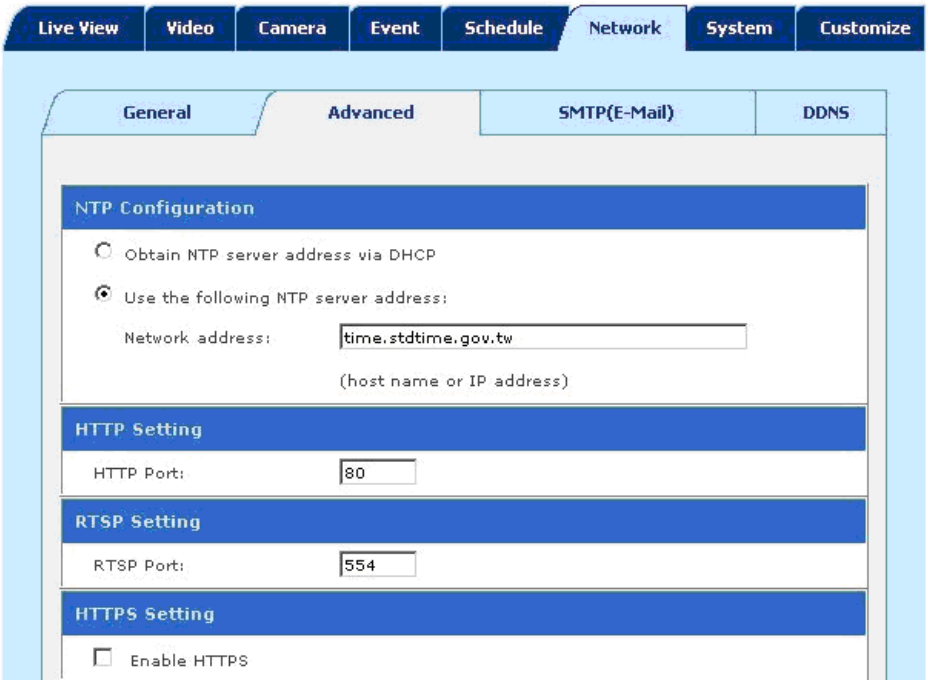
demonstration 11111111 11111111 11111111 00000000 will usually be shown in the corresponding, more readable form as 255.255.255.0.

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.

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.

Enable ARP/Ping	Enable the camera to accept ARP or ping packets from the network. If disable this option may provide extra security from intentional ping.

3.8.2 Network Advanced Settings



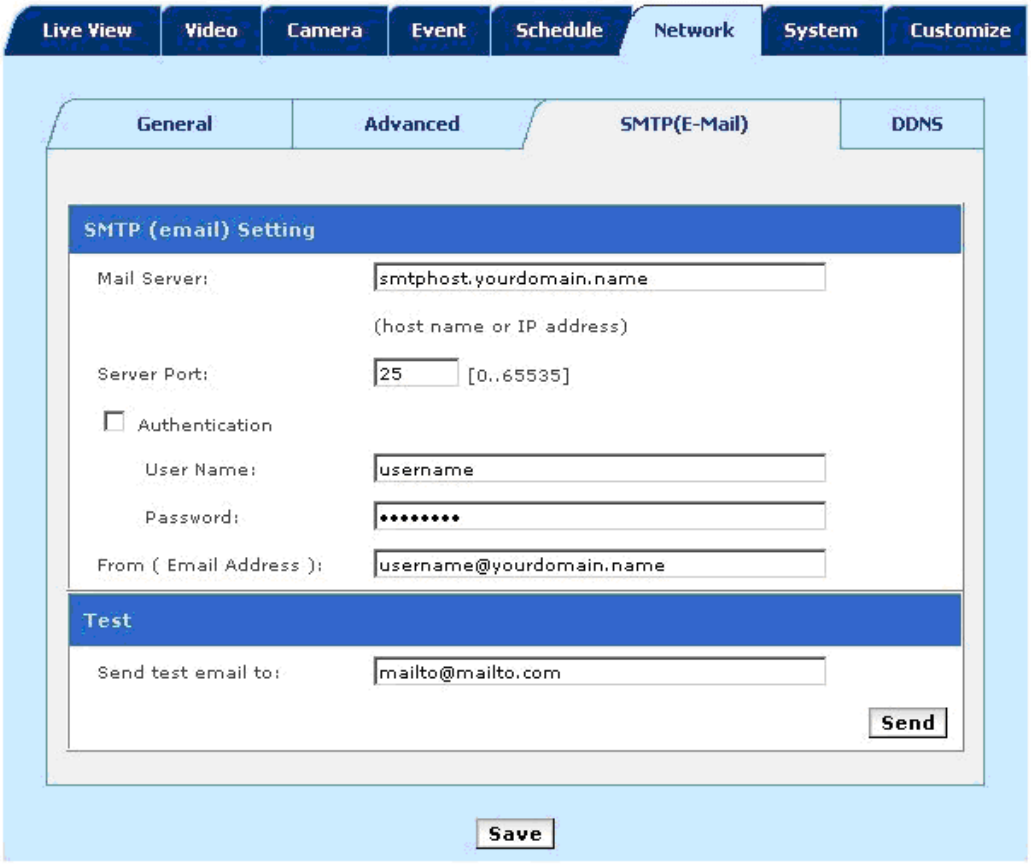
NTP Configuration	Configure a NTP (Network Time Protocol) server so that the camera system date and time can be synchronized with a specified Time Server. This configuration is provided for one of the potions of system date/time adjustment.
HTTP Setting	The Internet Camera supports changeable HTTP ports. This port is very useful for Intranet usage. Users could assign the 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 back of IP address. For example: http://192.168.0.20:8080. Therefore, the user can access the Internet Camera by either http://xx.xx.xx.xx/, or http://xx.xx.xx.xx:xxxx/ to access the Internet Camera. 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.
RTSP Setting	**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)
HTTPS Setting	**Enable HTTPS:** The HTTPS service is a combination of the Hypertext Transfer Protocol with the SSL/TLS protocol to provide encryption and secure identification of the camera access.

Bonjour Setting	**Enable Bonjour:** The Bonjour service allows camera can be discovered with Apple Safari browser applied that will show in the Bonjour bookmarks menu.
UPnP Notification	**Enable UPnP:** The UPnP function allows camera can automatically be detected and a new icon will be added to “My Network Places” if your operating system is UPnP enabled.
NAT Traversal Setting	**Enable NAT Traversal:** When enabled, the Internet Camera will attempt to configure port mapping in a NAT router on your network.

3.8.3 Network SMTP Settings

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

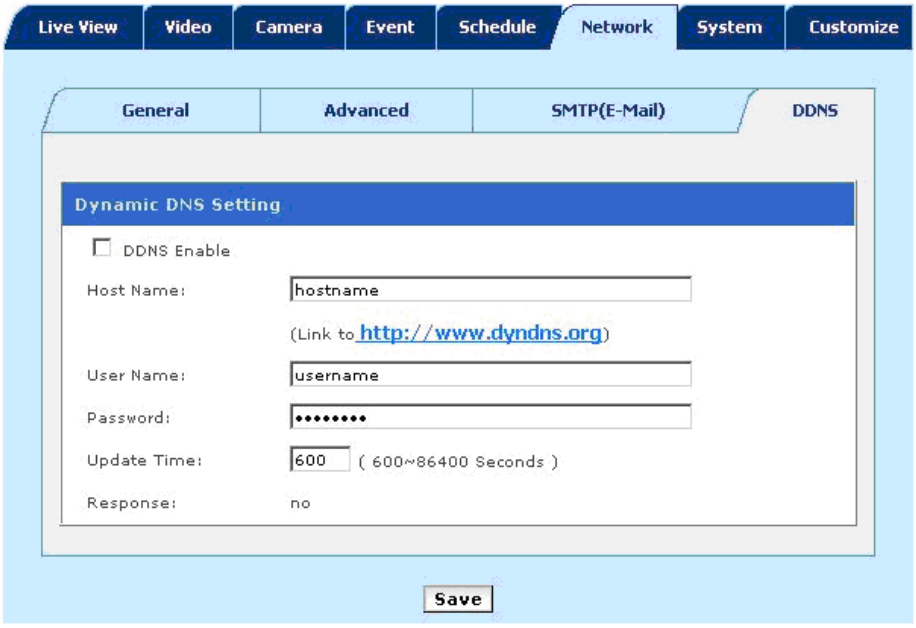


SMTP (email) Setting	**Mail Server:** Type the SMTP server name or the IP address of the SMTP server. **Server Port:** Set port number of SMTP service.(The default value is 25) **Authentication:** Select the authentication required when you send an e-mail. **User Name:** Type the user name for the SMTP server if Authentication is Enable. **Password:** Type the password for the SMTP server if Authentication is Enable. **From (Email Address):** Type the sender's E-mail address. This address is used for reply e-mails.
Test	**Send test email to:** Send a test mail to mail server to check this account is available or not.

3.8.4 DDNS server

DDNS: Stands for Dynamic Domain Name Server

The Internet Camera 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 Internet Camera to use an easier way to remember naming format rather than an IP address. The Internet uses DNS servers to lookup 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.



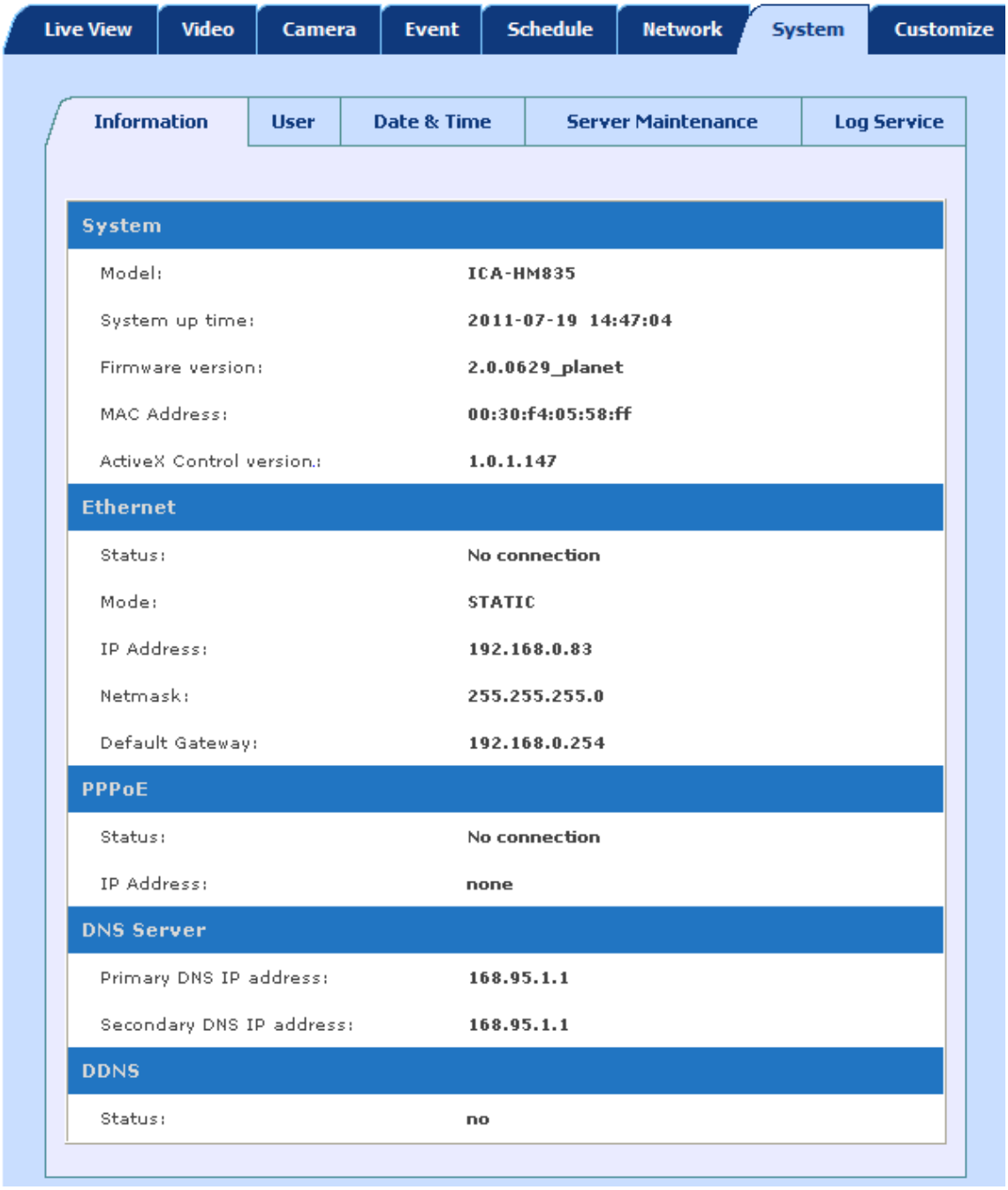
Dynamic DNS Setting	**DDNS:** To enable or disable the DDNS service here. **DDNS Host:** The domain name is applied of this device. **User Name:** The user name is used to log into DDNS. **Password:** The password is used to log into DDNS. **Update Time:** Periodically, the Internet Camera updates its access info to sever in the configured time. **Response:** The Internet Camera responds the connection info.

3.9 System Maintain

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

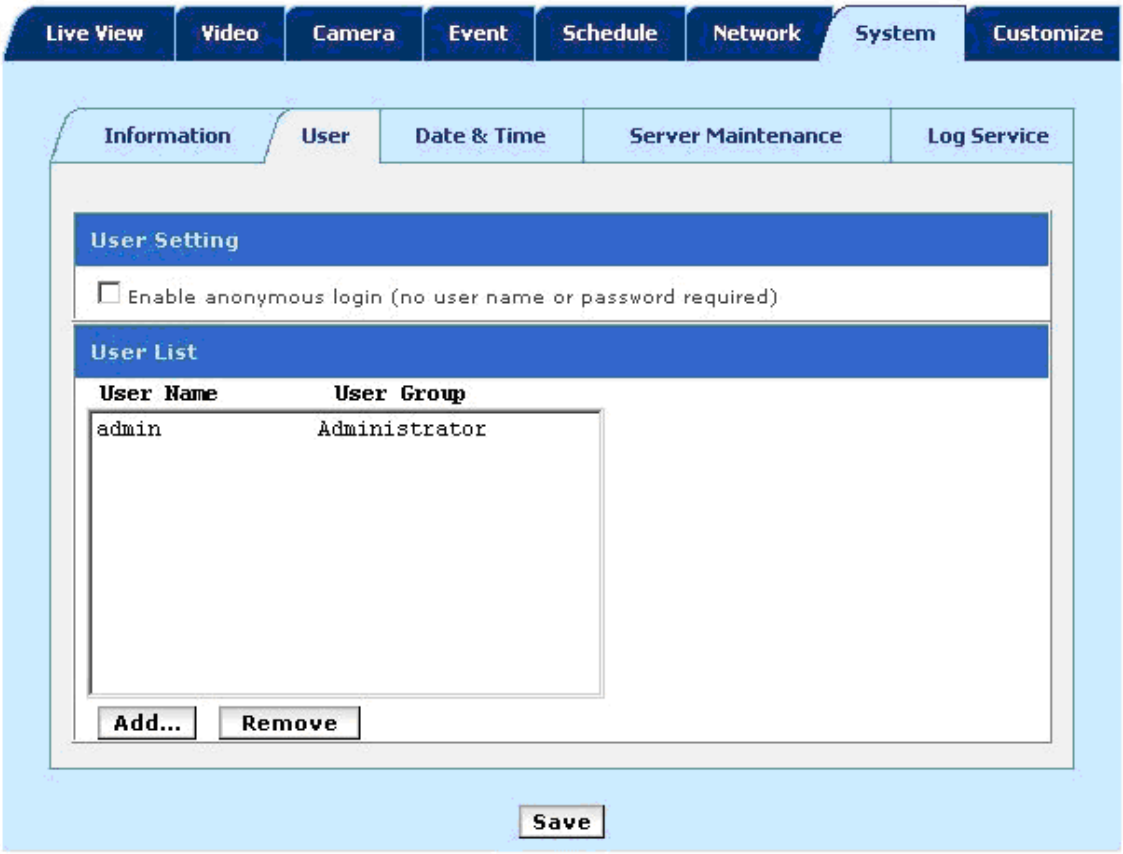
3.9.1 System Information

User can use this menu to get the system and network information of this camera and detailed descriptions of every setting will be given below.



3.9.2 User Account Configuration

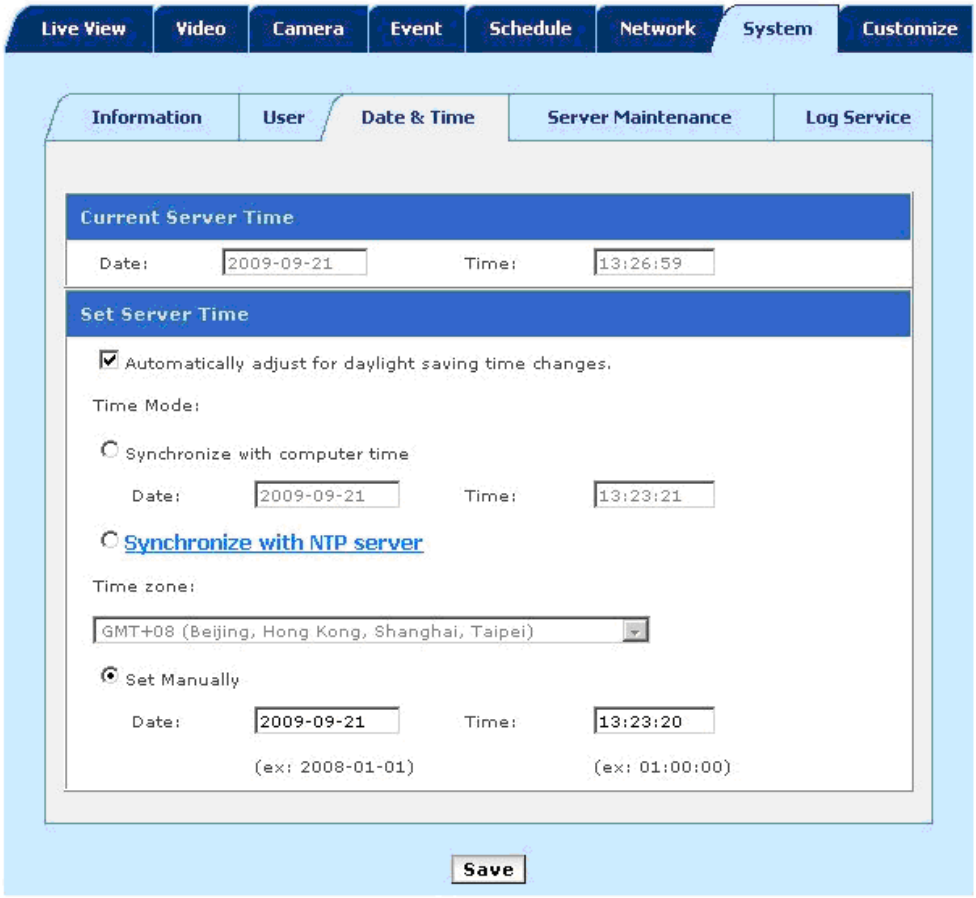
If users wish to allow other people to view the live image captured by this camera, but don't want to allow them to modify system settings that can give them user-level user name and password, so they can only view the image and can not change any system setting. When they want to click menus other than Camera, they will see the following message informing that they don't have permission to do that:



User Setting	**Enable anonymous login (no user name or password required):** The check box allow any one viewing the video once connected. Otherwise, only users in database can view the video after login.

3.9.3 Date & Time Configuration

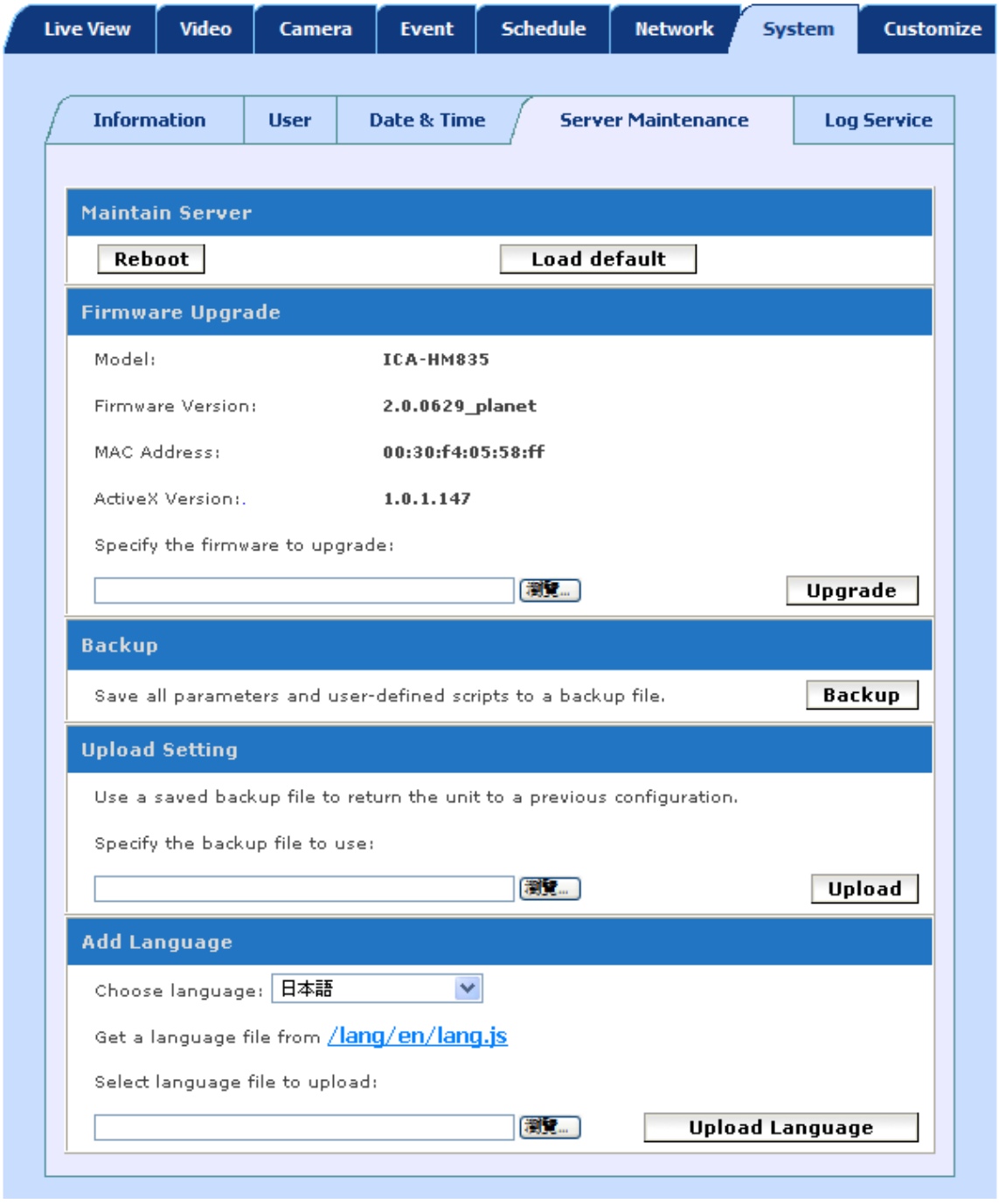
This setting allows user to change the date and time of the real time clock in this IP camera. User can set the time manually, or use network time protocol (NTP) to set the time automatically.



Current Server Time	**Date & Time:** Displays the date and time of the Internet Camera.
Set Server Time	**Automatically adjust for daylight saving time changes:** Sets up the date and time of daylight saving stop time. **Synchronize with computer time:** Click this option to enable time synchronization with PC time. **Synchronize with NTP server:** Click this option if you want to synchronize the Internet Camera's date and time with those of time server called NTP server (Network Time Protocol). **Time zone:** Please select the time zone of the country / city of resident from dropdown menu here. **Set Manually:** Click this option to set time and date manually.

3.9.4 Server Maintenance

This menu allows user to upgrade firmware, clear all settings, reboot the IP camera, and backup all parameters.



Maintain Server	**Reboot:** The Internet Camera is restarted without changing any of the settings. **Load Default:** Recall the Internet Camera hard factory default settings. Note that click

	this button will reset all device's parameters to the factory settings including the IP address.
Firmware Upgrade	The Internet Camera supports new firmware upgrade. Step 1. Close all other application programs which are not necessary for firmware update. Step 2. Make sure that only you access this device at this moment. Step 3. Disable Motion Detection function. Step 4. Select "**Firmware name**". Step 5. Select the Firmware binary file. Step 6. Once the firmware file was selected, select "Upgrade". Step 7. The upgrade progress information will be displayed on the screen. Step 8. A message will be shown while the firmware upgraded. Once the upgrading process completed, the Internet Camera will reboot the system automatically. Please wait for upgrade procedural finished, and then you can use PLANET IPInstaller to search the Internet Camera again.
Warning!!! **The download firmware procedure can not be interrupted. If the power and/or network connection are broken during the download procedure, it might possibly cause serious damage to the Internet Camera.** **Please be aware that you should not turn off the power during updating the firmware and wait for finish message.** **Furthermore, do not try to upgrade new firmware if it's not necessary.**	
Backup	**Save all parameters and user-defined scripts to backup file:** 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.
Upload setting	**Specify the backup file to use:** 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.
Add Language	**Choose language:** The Internet Camera could provide multiple languages to meet customer's requirement. **Select language file to upload:** User can manually update other language into IP camera through language file upload.

3.9.5 Log Service

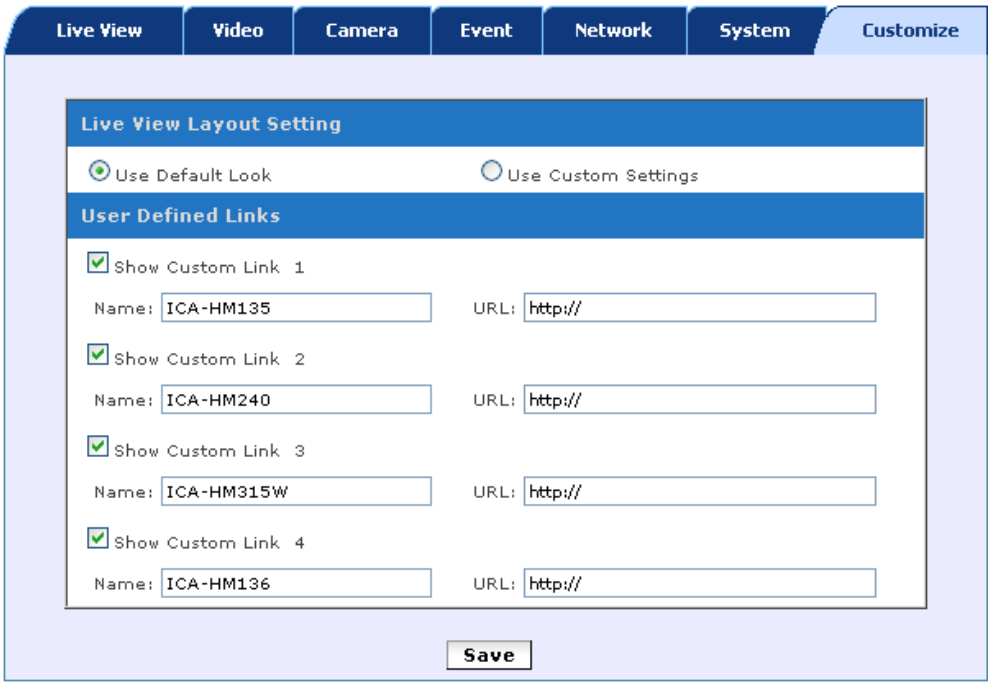
User can check the system log information of the camera, most system operations and/or process will be kept in a log system. The link provided the review of these records.

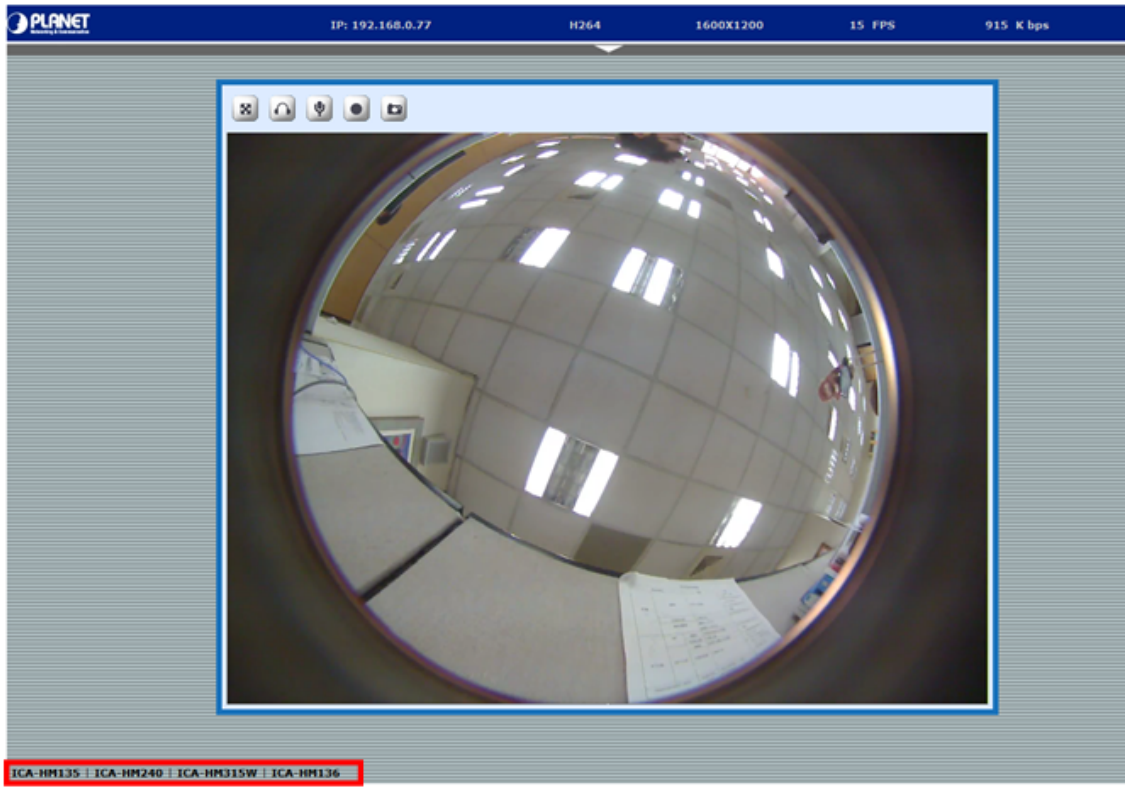
3.10 Customize

The manual allow user can have custom web style, manual change the background, text color and some description, etc.

3.10.1 Use Default Look

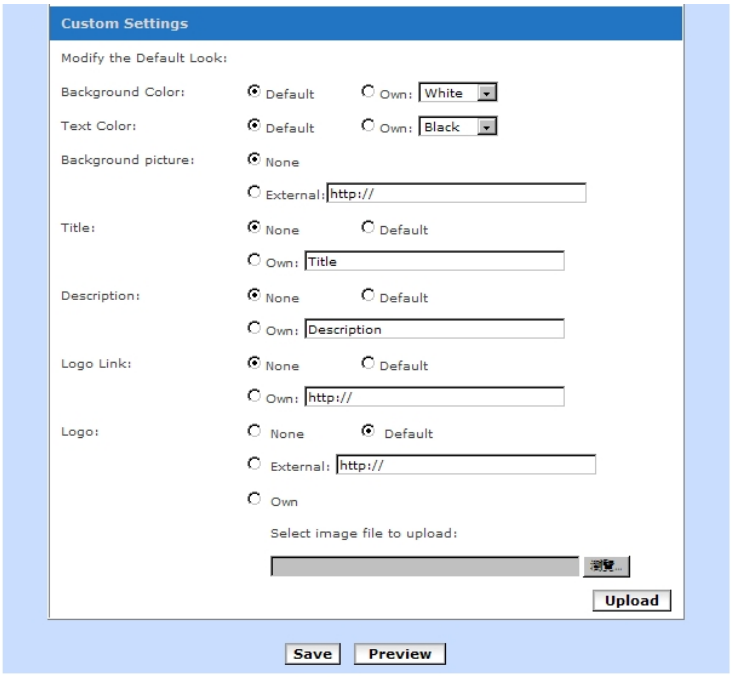
The parts may let user can manual add four hyperlinks at the live view page, user can type in other camera IP or any website you want into the URL field.

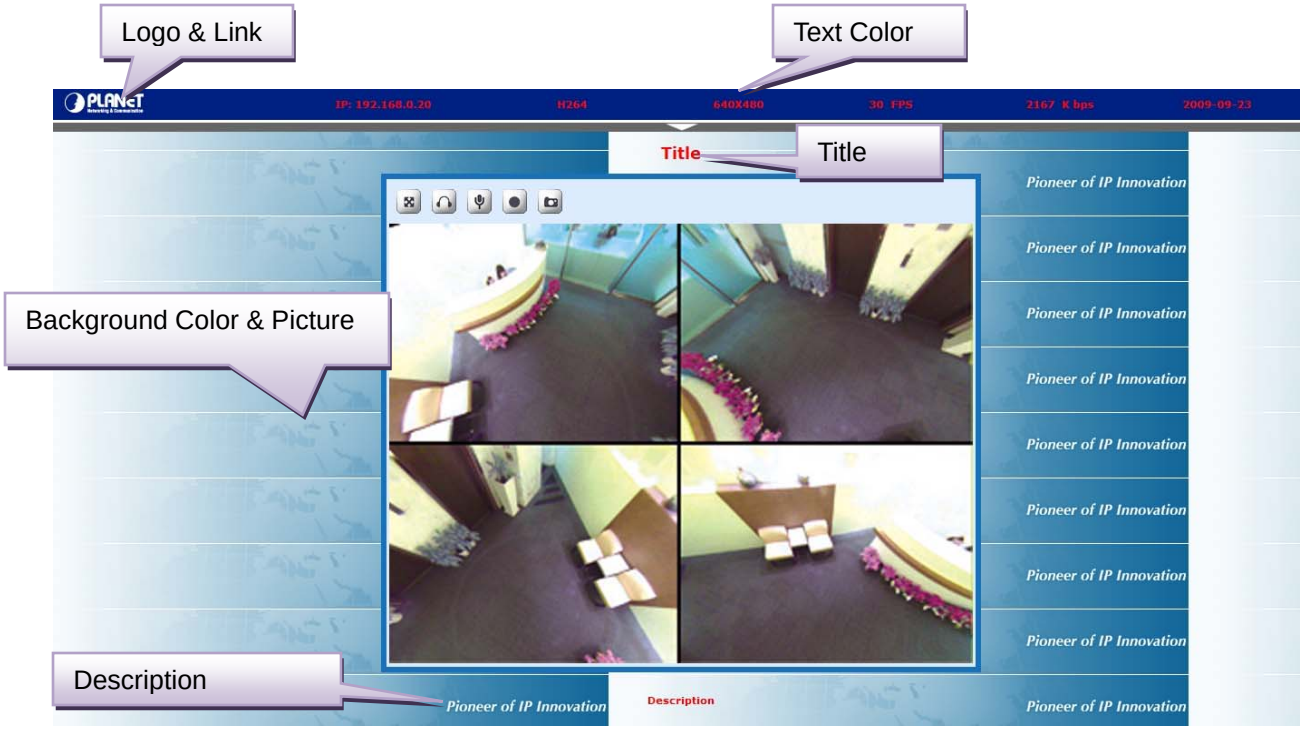




3.10.2 Use Custom Settings

The features allow the user can have custom settings for background color, text color and camera description evens upload image to change.



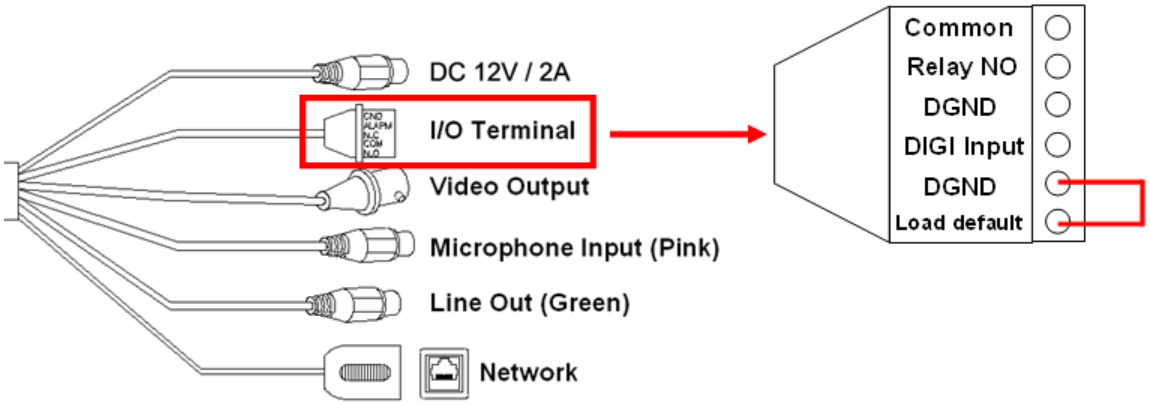

Logo & Link
Text Color
IP: 192.168.0.20
H264
640X480
30 FPS
2167 K bps
2009-09-23
Title
Title
Pioneer of IP Innovation
Background Color & Picture
Description
Pioneer of IP Innovation
Description
Pioneer of IP Innovation

Appendix A: Reset Factory Default Settings

The Rest to Factory Default Setting will used to restore the all factory default settings. Sometimes restarting the Internet Camera will make the system back to a normal state. However, if the system still got problems after restart, user can restore the factory default settings and install it again.

Restore the Internet Camera:

1. Removing an Ethernet cable. (Please unplug the power, and remove the Ethernet cable too)
2. Plugging “cable” into “DGND” and “Load Default”.



3. Plug power cable. (Plug in the power, please don’t plug the Ethernet cable.)
4. When camera starts again, please wait 10 seconds, then remove the cable.
5. Then unplug the power, after 5sec, re-plug the power and plug Ethernet cable.
6. Use the IPInstaller utility to search your ICA-HM835.
7. Re-login the camera using the default IP (http://192.168.0.20), and user name (admin), password (admin).

NOTE: *Restoring the factory default setting will lose the all previous settings included IP address forever. User needs to run the PLANET IPInstaller program to search the unit and configure it to let the Internet Camera work properly again.*

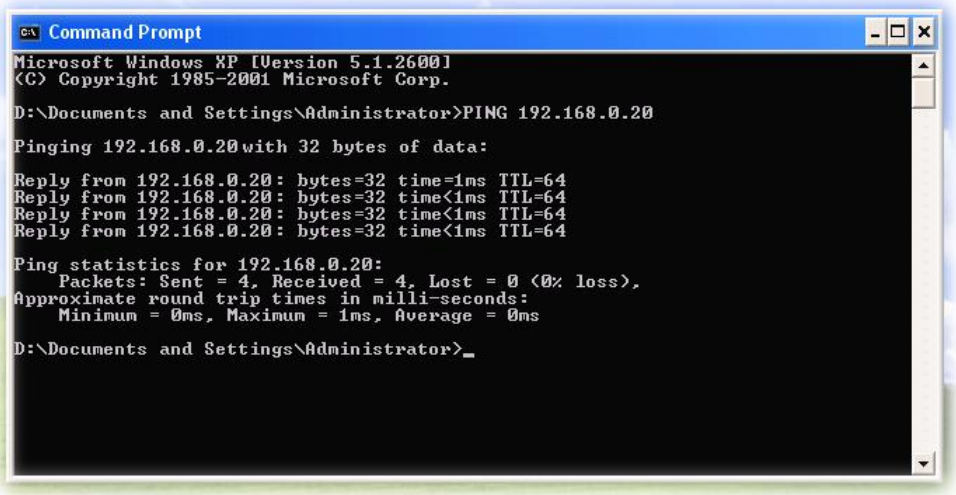
Appendix B: PING IP Address

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

If you want to make sure the IP address of 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 devices conflicts with the IP address of Internet Camera, also can utilize the PING command but you must disconnect the Internet Camera from the network first.

Appendix C:
Bandwidth and Video Size Estimation

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

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

Image Resolution	Average range of data sizes for M-JPEG mode	Average bit rate for H.264 mode
640 x 480 (VGA)	20 ~ 50K byte per frame	384kbps~1536kbps @ 30fps
1280x1024 (SXGA)	100 ~ 200k byte per frame	512kbps~3076kbps @ 15fps
1600x1200 (UXGA)	600 ~ 1500k byte per frame	640kbps~6144kbps @ 15fps

NOTE: *Audio streaming also takes bandwidth around 5 kbps to 64kbps. Most xDSL/Cable modem upload speeds may not even reach up to 128 kbps. Thus, you may not be able to receive any video while 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 D: DDNS Application

1. Preface

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

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

2. Ethernet Network Environment

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

(1) Environment of Fixed Valid IP Network

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

(2) Environment of Dynamic IP Network

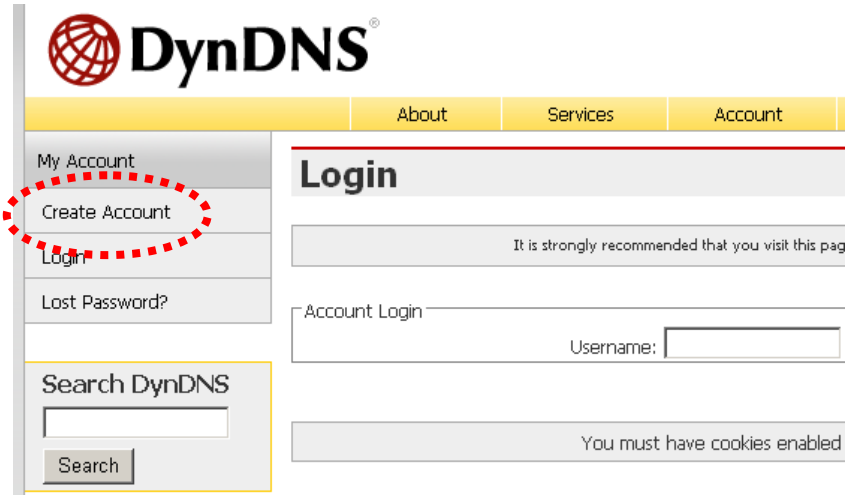
If users is under an environment of dynamic IP network (Dial-up xDSL), they have to apply a domain name in advance. Then apply DDNS service. Finally setup the necessary information of DDNS of the Networked Device in order to let the outside administrator be able to access through internet.

3. Application Steps – DDNS & Domain Name

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

(2). Click "Account"

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



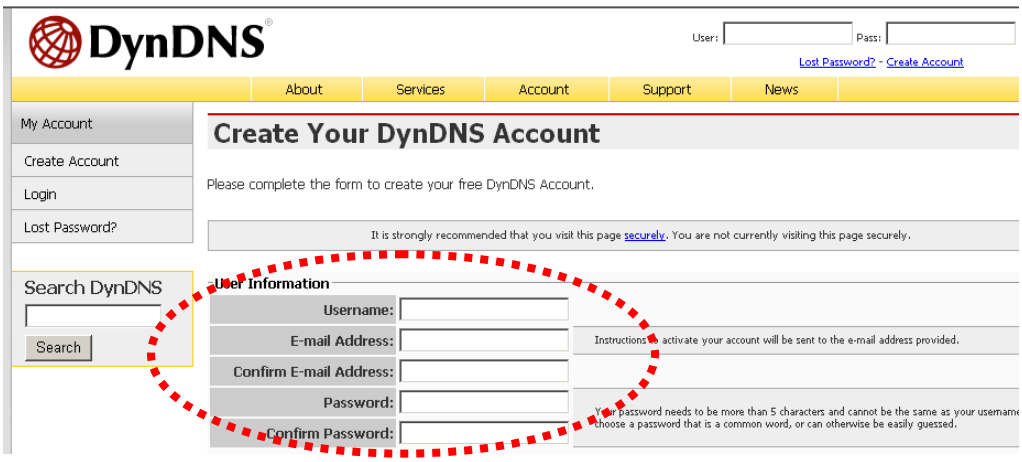
(4). Fill the application agreement and necessary information.

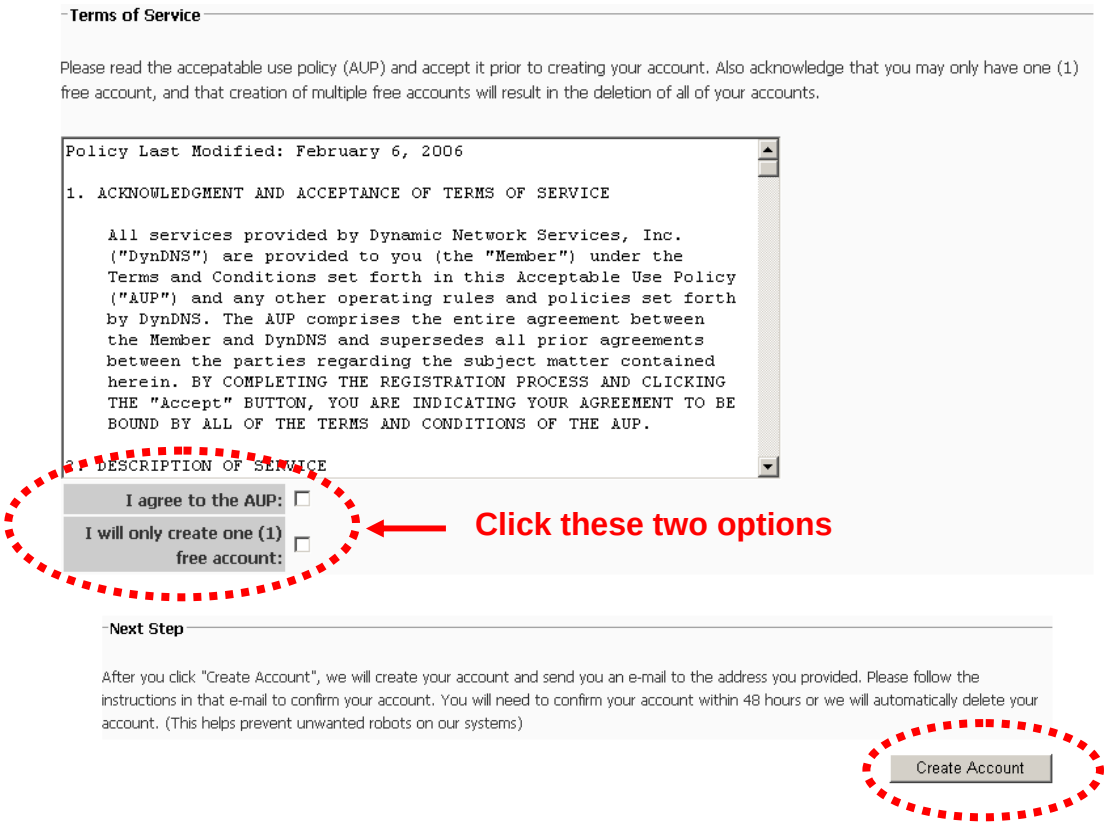
a. Username

b. E-mail address and confirmation

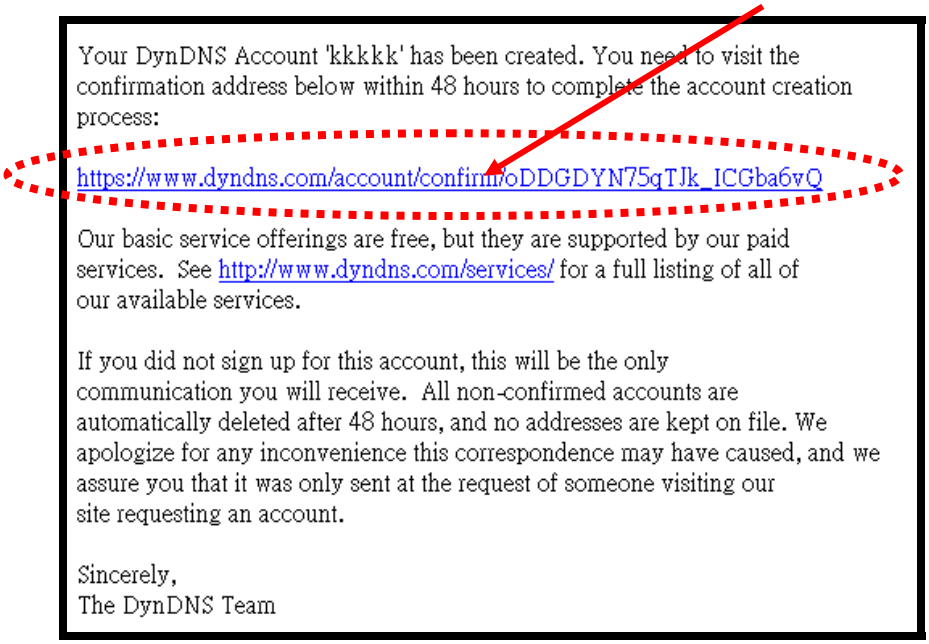
c. Password and confirmation

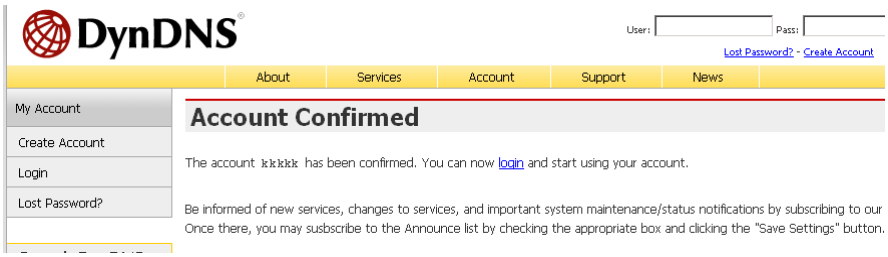
d. Submit all the input information and finish creating an account





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

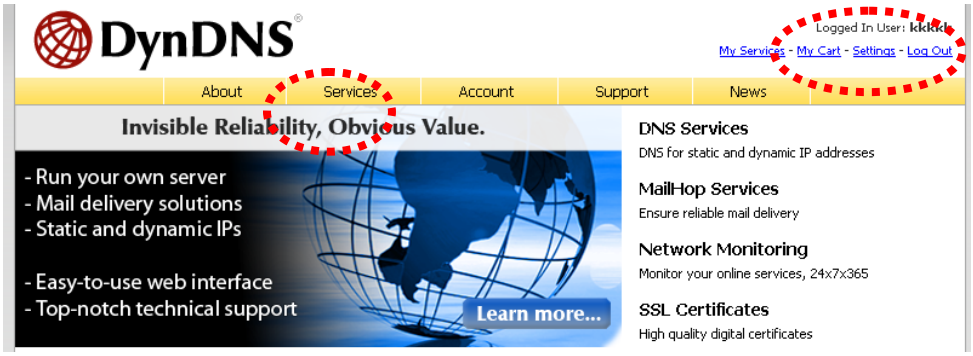




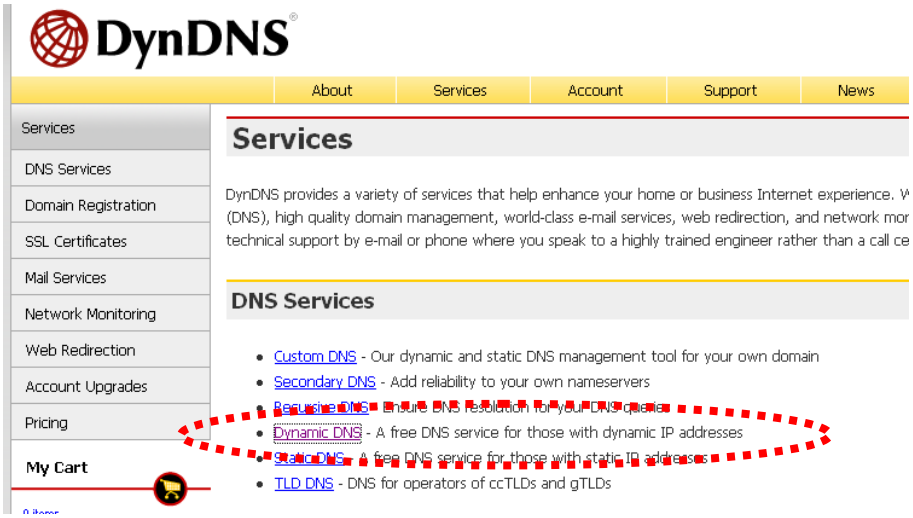
(6). Enter the web page http://www.dyndns.org/ again. Input your username and password that you just applied to login administration interface of DDNS server.

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

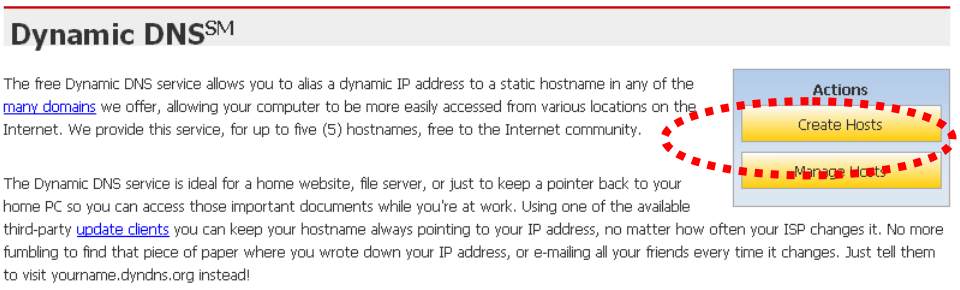
(8). Click the "Services".



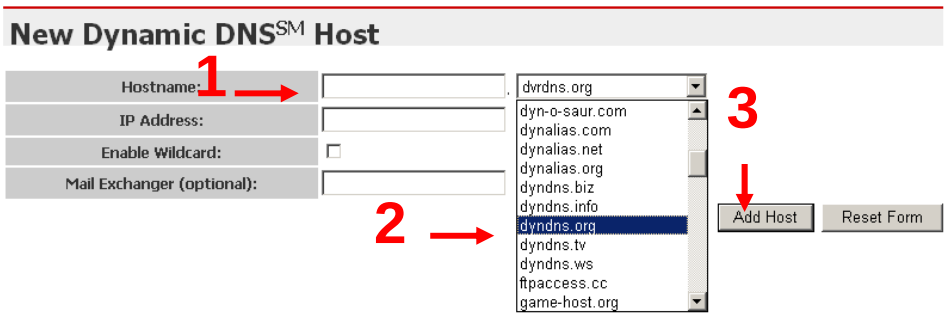
(9). Click the " Dynamic DNS ".



(10). Click the "Create Hosts".



(11). We could create a domain name without any charge at this step. First, we input the host name. (No.1) Then we pick a domain that is easy to remember. Finally (No.2), click the "Add Host" to submit the domain name information. (No.3)



4. Setup the DDNS of Network Device

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

Appendix E:
Configure Port Forwarding Manually

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

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

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

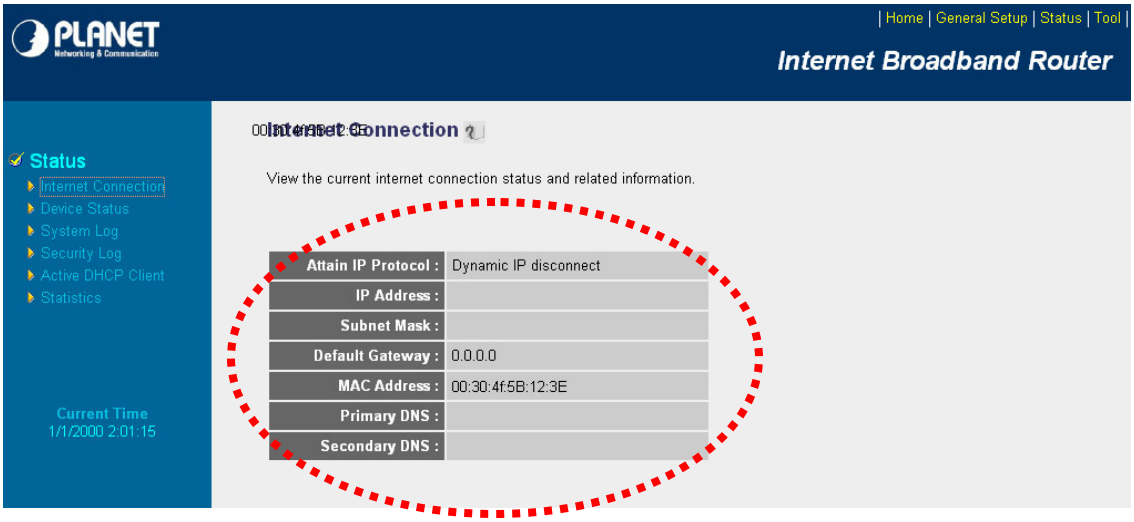
1. Assign a local/fixed IP address to your device

The Internet Camera must be assigned a local and fixed IP Address that allows it to be recognized by the router. Manually setup the Internet Camera 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. The 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

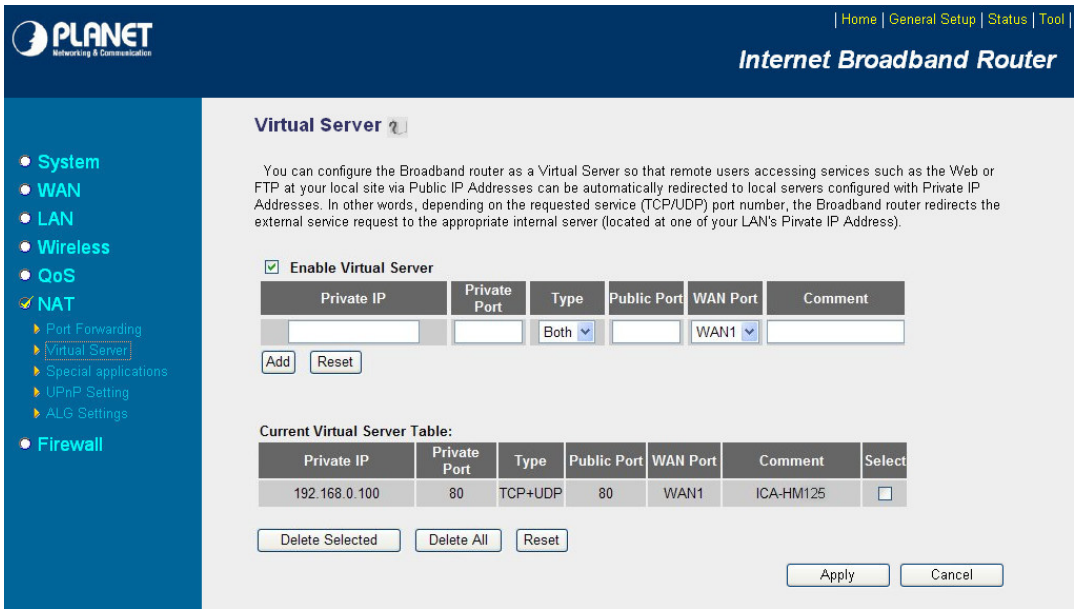
The firewall security features built into the router and most routers prevent users from accessing the video from the device over the Internet. The router connects to the Internet over a series of numbered ports. The ports normally used by the device are blocked from access over the Internet. Therefore, 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**, for example) in the **Private IP** field.
- If you are using the default camera port settings, enter **80** into the **Public** and **Private Port** section, click **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 access from WAN by the router's WAN IP Address.

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

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 compression to providing high quality images. Where H.264 is standards for video compression and M-JPEG is a standard for image compression. The audio codec is defined as u-Law for RTSP streaming.
The maximum number of user access device simultaneously.	The maximum number of users is limited to 10. However, it also depends on the total bandwidth accessed to this device from clients. The maximum data throughput of the device is around 20~25Mbps for UDP mode and 10Mbps for HTTP mode. Therefore, the actual number of connected clients is varying by streaming mode, settings of resolution, codec type, frame rate and bandwidth. Obviously, the performance of the each connected client will slow down when many users are logged on.
The device can be used outdoors or not.	The device is not weatherproof. It needs to be equipped with a weatherproof case for outdoors using. However, equipped with a weatherproof case might disable the audio function of the device.
Install this device	
Status LED does not light up.	Check and confirm that the DC power adaptor, included in packaged, is used. Secure the power connector and re-power it on again.
The network cabling is required for the device.	The device uses Category 5 UTP cable allowing 10 and/or 100 Base-T networking.
The device will be installed and work if a firewall exists on the network.	If a firewall exists on the network, port 80 is open for ordinary data communication. The HTTP port and RTSP port need to be opened on the firewall or NAT router.
The username and password for the first time or after factory default reset	Username = **admin** and leave password = **admin**. Note that it's all case sensitivity.
Forgot the username and password	Follow the steps below. 1. Restore the factory default setting by press and holding down more than 20 seconds on the device. 2. Reconfigure the device.
Forgot the IP address of the device.	Check IP address of device by using the IPInstaller program or by UPnP discovery or set the device to default by Reset button.

PLANET IPInstaller program cannot find the device.	• Re-power the device if cannot find the unit within 1 minutes. • Do not connect device over a router. IPInstaller program cannot detect device over a router. • If IP address is not assigned to the PC which running IPInstaller program, then the 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 IPInstaller program fails to save the network parameters.	Network may have trouble. Confirm the parameters and connections of the device.
UPnP NAT Traversal	
Can not 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 but others are failed	Maybe too many Internet Cameras have been installed on the LAN, and then NAT router is out of resource to support more cameras. You could turn off and on NAT router to clear out of date information inside router.
Access this device	
Cannot access the login page and other web pages of the Network Camera from Internet Explorer	• Maybe the IP Address of the Internet Camera is already being used by another device or computer. To confirm this possible problem, disconnect the Network Camera from the network first, and then run the PING utility to check it out. • Maybe due to the network cable. Try correcting your network cable and configuration. Test the network interface by connecting a local computer to the Network Camera via a crossover cable. • Make sure the Internet connection and setting is ok. • Make sure enter the IP address of Internet Explorer is correct. If the Internet Camera has a dynamic address, it may have changed since you last checked it. • Network congestion may prevent the web page appearing quickly. Wait for a while. The IP address and Subnet Mask of the PC and Network Camera must be in the same class of the private IP address on the LAN. • Make sure the http port used by the Network Camera, default=80, is forward to the Network Camera's private IP address.

	● The port number assigned in your 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 Network Camera, set up not to use the proxy server. ● Confirm that Default Gateway address is correct. ● The router needs Port Forwarding feature. Refer to your router's manual for details. ● Packet Filtering of the router may prohibit access from an external network. Refer to your router's manual for details. ● Access the Network Camera from the Internet with the global IP address of the router and port number of Network Camera. ● Some routers reject the global IP address to access the Network Camera on the same LAN. Access with the private IP address and correct port number of Network Camera. ● When you use DDNS, you need to set Default Gateway and DNS server address. ● If it's not working after above procedure, reset Network Camera to default setting and installed it again.
Image or video does not appear in the main page.	● The first time the PC connects to Internet Camera, a pop-up **Security Warning** window will appear to download ActiveX Controls. When using Windows XP, or Vista, log on with an appropriate account that is authorized to install applications. ● Network congestion may prevent the Image screen from appearing quickly. You may choose lower resolution to reduce the required bandwidth.
How to check the device's ActiveX is installed on your computer	Go to C:\Windows\Downloaded Program Files and check to see if there is an entry for the file "PControl". The status column should show "Installed". If the file is not listed, make sure your Security Settings in Internet Explorer are configured properly and then try reloading the device's home page. Most likely, the ActiveX control did not download and install correctly. Check your Internet Explorer security settings and then close and restart Internet Explorer. Try to browse and log in again.
Internet Explorer displays the following message: "Your current security settings prohibit downloading ActiveX controls".	Setup the IE security settings or configure the individual settings to allow downloading and scripting of ActiveX controls.
The device work locally but not externally.	● Might be caused from the firewall protection. Check the Internet firewall with your system or network administrator. The firewall may need to have some settings changed in order for the device to be accessible outside your LAN. ● Make sure that the device isn't conflicting with any other web server running on your LAN. ● Check the configuration of the router settings allow the device to

	be accessed outside your local LAN. ● Check the bandwidth of Internet connection. If the Internet bandwidth is lower than target bit rate, the video streaming will not work correctly.
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.
Video quality of the device	
The focus on the Camera is bad.	The lens is dirty or dust is attached. Fingerprints, dust, stain, etc. on the lens can degrade the image quality.
The color of the image is poor or strange.	● Adjust White Balance. ● To insure the images you are viewing are the best they can be, set the Display property setting (color quality) to 16bit at least and 24 bit or higher if possible within your computer. ● The configuration on the device image display is incorrect. You need to adjust the image related parameters such as brightness, contrast, hue and sharpness properly.
Miscellaneous	
Can not play the recorded .h264 file	Please installed VLC player to play the h264 filed recorded by the Device.

Appendix G: Product Specification

Camera Specification	
Image Device	1/3“ 2Mega Sensor
Effective Pixels	1600 x 1200 pixels
Sensitivity	1.5 Lux @ F2.0
Lens	Fish-Eye Lens, FOV=185°(D/H/V), F=2.0, f=1.25mm
View Angle	H:185 Degree / V:185 Degree / D:185 Degree
Video Specification	
Video Encoder	H.264 and Motion JPEG simultaneously
Video Profile	9 profiles including ceiling /wall mode - H.264/M-JPEG: UXGA / SVGA / VGA
Frame Rate	UXGA / SVGA / VGA Up to 15fps
Image Setting	Brightness, Hue, Saturation, Contrast, Sharpness, Exposure, White balance control, Text, time and date overlay
Streaming	M-JPEG streaming over HTTP (1fps @ 640x480) Controllable frame rate and bandwidth Constant and variable bit rate (H.264)
Audio Specification	
Audio Encoder	u-Law PCM 8Khz
Audio Streaming	One-Way or Two-Way
Microphone (Audio-Input)	External microphone input
Audio Input	Phone Jack
Audio Output	Phone Jack
Network Specification	
Supported Protocols	HTTP, HTTPS, TCP/IP, IPv4, UDP, SMTP, FTP, DHCP, DDNS, NTP, DNS, ARP, RTSP, RTP, Bonjour, UPnP
Security	Password protection, user access log
Users	3 Simultaneous unicast users
Ethernet	10/100M auto negotiation
System Integration	
Application Programming Interface	Open API for software integration SDK
Alarm Triggers	Intelligent video motion detection and external input
Motion Detection	10 zone video motion detection
Alarm Events	File upload via FTP, email and save to Micro SD Card External output activation
General	
Power Supply	AC/DC switching power adapter, Input: AC100 ~ 240V, output: DC12V/2A
PoE	IEEE 802.3af

PoE Consumption	Max 5 W
Connectors	RJ-45 10BaseT/100BaseTX , DC jack
Protection Class	IP-66 classification with Vandal and Weather proof
Operating Temperature	-20 ~ 60 degree C
Operating Humidity	20% ~ 80%
Viewing System	
OS	Windows® XP, 2000/ Vista 32bit , Win 7
Browser	IE 6.0 or latter
Video Player	VLC, Quick Time,
Software	
Monitor/ Recording / Management	PLANET CV3P (2-ch Cam Viewer Three Pro Trail Version) PLANET CV3L (64-ch Cam Viewer Three Lite Bundle Version)
Search & Installation	PLANET IPInstaller