Wired / Wireless
Mega-Pixel CMOS PT IP Camera

ICA-M220 / ICA-M220W

User's Manual

Version: 1.00

Copyright

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 Wired/Wireless Mega-Pixel CMOS PT Internet Camera
Model: ICA-M220 / ICA-M220W
Rev: 1.0 (Nov. 2008)
Part No. EM-ICAM220_M220W

Table of Content

1. Introduction

Thank you for purchasing the Mega-Pixel CMOS PT Internet Camera. It is versatile and high image solution of surveillance application PT Internet Camera is also a stand-alone camera system with a built-in processor and web server that provides highest quality video and system performance.

1.1 Overview

This user's manual explains how to operate the Mega-Pixel CMOS PT Internet Camera from a computer, unless model name specified terms "PT Internet Camera" will be used for the two models. The user's manual is written to be read on the computer display. However, users might consider printing it out to access easily and read it before you operate the Network Camera. This guide shows how to quick set up the three cameras.

1.2 Features

- 1.3 Mega-Pixel CMOS sensor built-in
- Offers pan range of 350-degrees and tilt range of 120-degrees to control over network
- 2-Way audio with built-in microphone and additional external speaker
- Plug-N-Watch is able to simplify system integration in existing network environment
- Easy configuration: Network administrators can configure and manage via Windows-based utility or web interface
- Wireless model is compatible with IEEE 802.11n and backward compatible with IEEE 802.11b/g
- DDNS, PPPoE and FTP uploading supports more alternatives in surveillance network
- Motion Detection: the motion detection feature can monitor any suspicious movement in specific area
- Supports 3 video resolutions: MPEG4: XGA (1024 x 768), VGA (640 x 480), QVGA (320 x 240), MJEPG: SXGA (1280 x 1024), VGA (640 x 480), and QVGA (320 x 240)
- Anti-flicker function, eliminates flash caused by fluorescent lights, 50 / 60Hz selectable
- Supports UPnP, Windows XP (and above), automatically detects the IP camera in network neighborhood
- Sends captured picture and video by Email or FTP when motion is detected
- Built-in real-time clock, date and time information will be recorded with every captured picture / video clip
- Supports up to 16 users with different passwords for each user
- WEP / WPA / WPA2 Wireless data encryption (wireless model)
- Supports WPS function (wireless model)
- Supports SD card to save local recording video and image
- Cam Viewer - Central management software supported

1.3 Package Contents

IP Camera unit x 1

Power Adapter x 1

Ethernet cable x 1

Quick Installation Guide x 1

User's manual CD x 1

Accessories Package x 1

Antenna x 2 (ICA-M220W)

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 unit packet will cause damage and void the warranty for this product.

2. Basic Setup

This chapter provides details of installing and configuring the PT Internet Camera

2.1 System Requirements

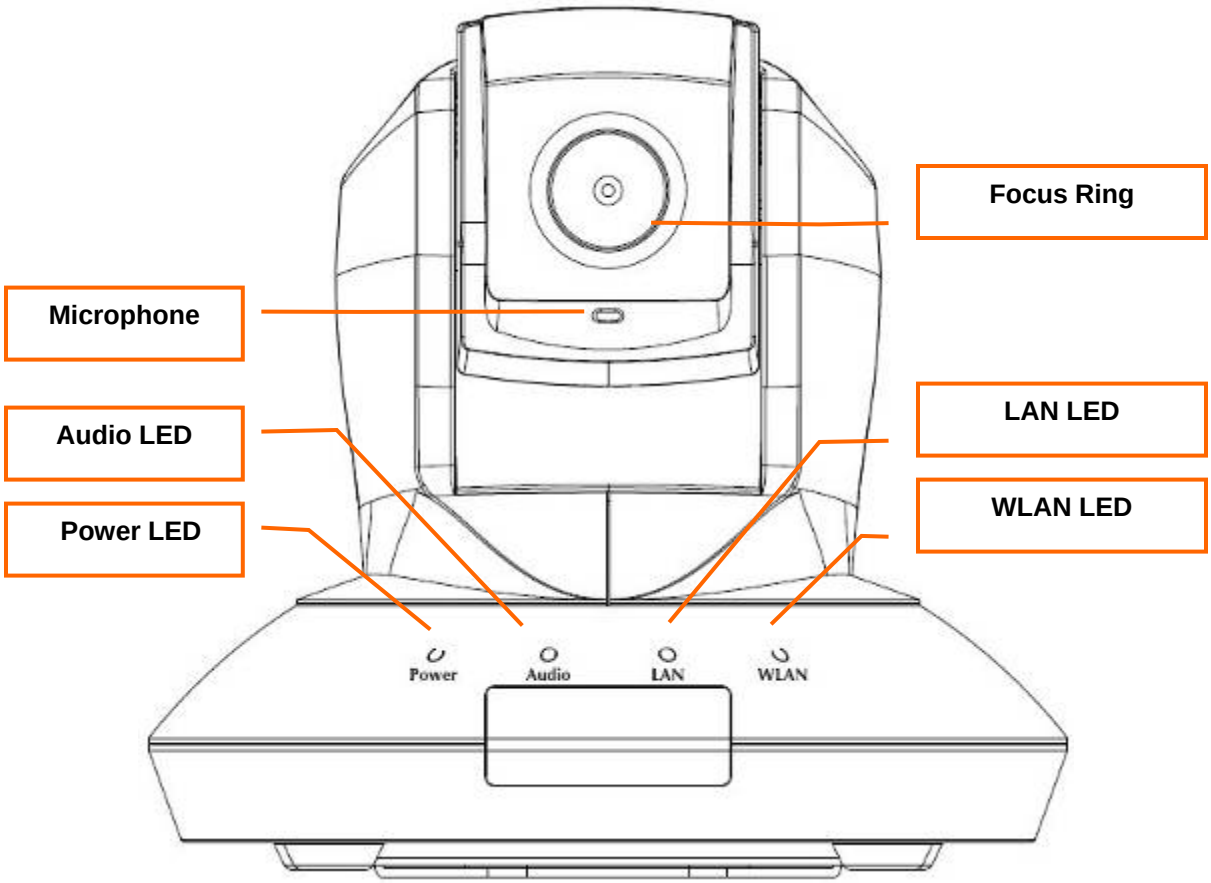
Network Interface	10/100M Base-TX Ethernet
Monitoring System	Recommended for Internet Explorer 6.0 or later
System Hardware	• CPU: Pentium 4, 3.0GHz or above • Memory Size : 512 MB (512 MB or above Recommended) • VGA card resolution : 1024 x 768 or above VGA card memory : 64 MB or above (At least 128 MB for Megs-pixel resolution) • **Network bandwidth: In VGA resolution mode, minimum upload bandwidth is 1Mbps.**

Note

The listed information is minimum system requirements only. Actual requirement will vary depending on the nature of your environment.

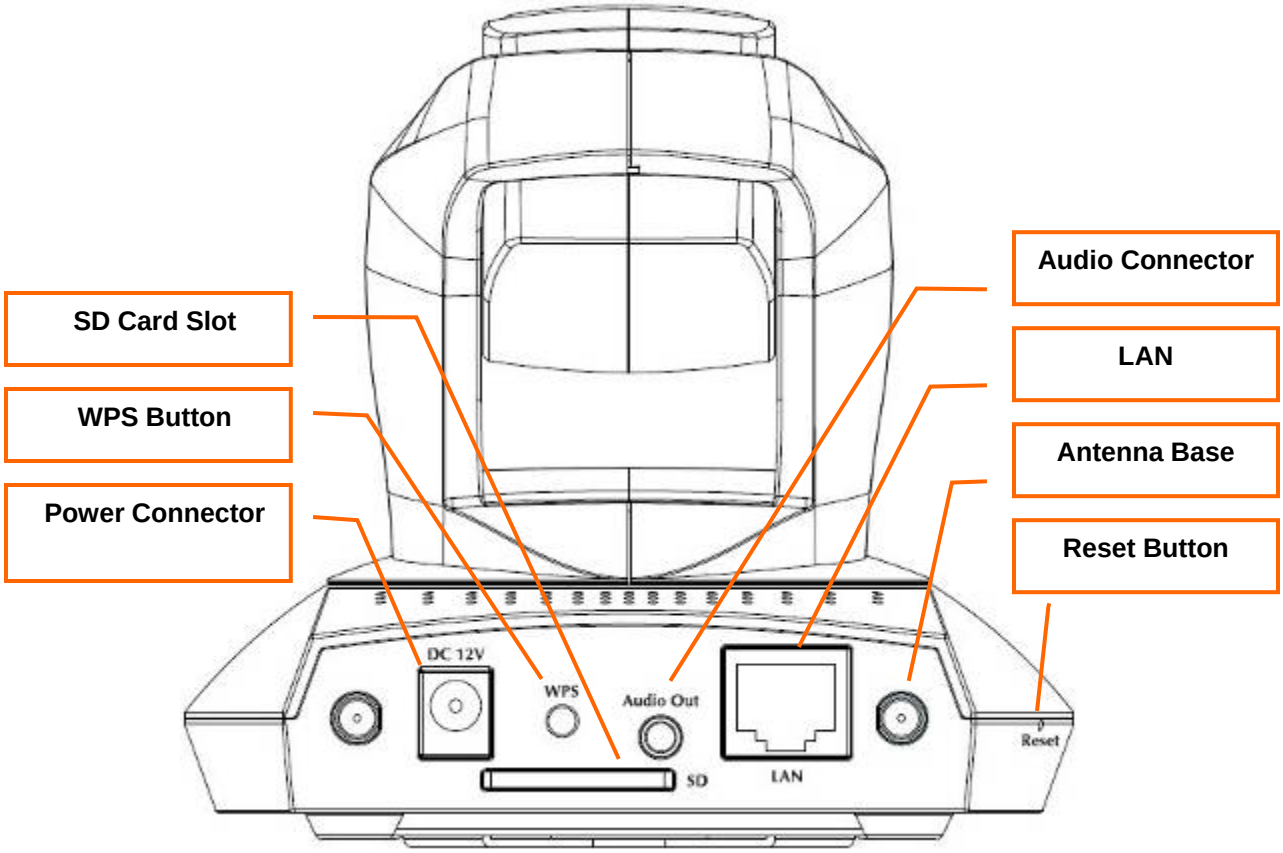
2.2 Physical Description

2.2.1 Front Panel



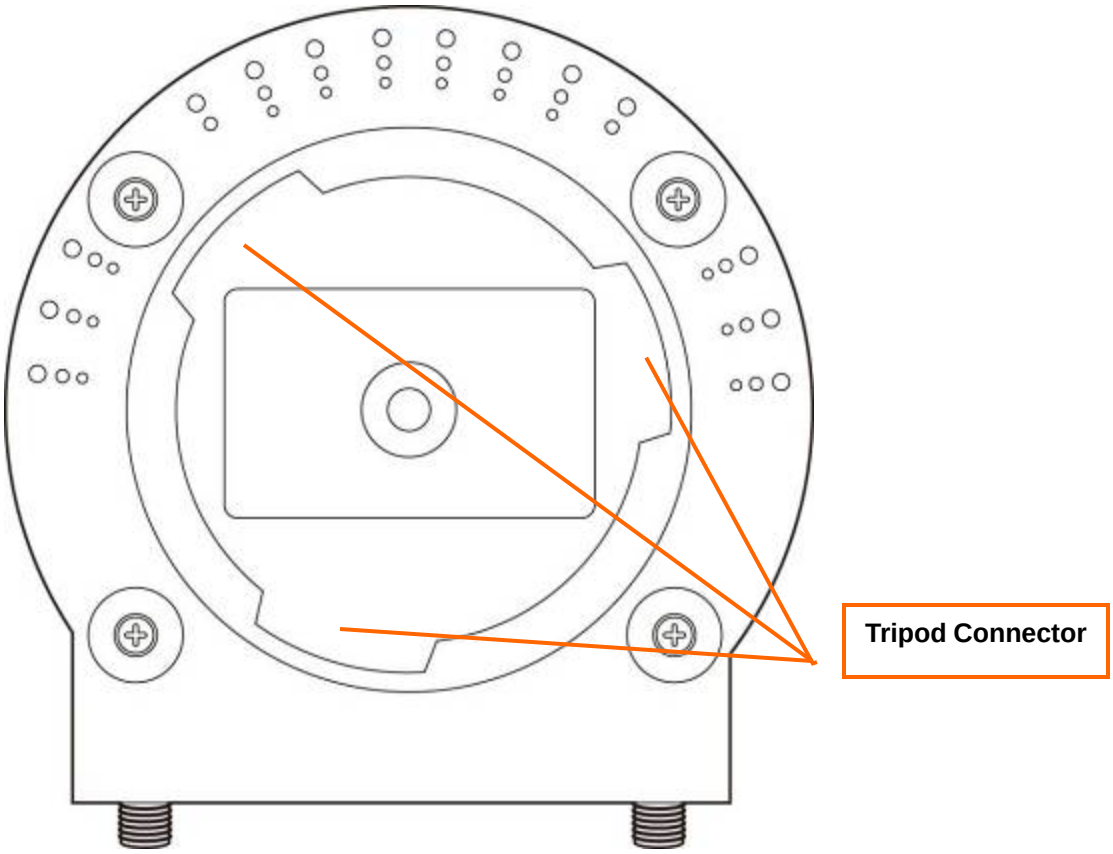
Focus Ring	User could use this ring to adjust focus manually.
LAN LED	The LED indicates LAN activity. It be flashing while network accessing via Ethernet.
WLAN LED (ICA-M220W only)	The LED indicates the wireless accessing of the PT Internet Camera. Light be flashing while transferring via wireless LAN. If be flashing at low speed once a second indicated that waiting for WPS connection form AP.
Microphone	The Camera has built-in an internal microphone. This microphone is hidden in the pinhole located on the front panel.
Audio LED	The LED indicates the audio activity, when it be flashing while speak function enable, if volume adjust to 0 the function will be disable.
Power LED	The LED is used to indicate DC power status.

2.2.2 Rear Panel



Audio Connector	Audio-Out allows device to output audio or alerting sound.
LAN	This is a RJ-45 connector for connections to 10/100 Base-TX Ethernet cabling and built N-Way protocol can detect or negotiate the transmission speed of the network automatically.
Reset Button	Press the button with pen nib and hold for 5 seconds to reset the camera settings to factory default value.
SD Card Slot	Accepts SD / SD-HC memory card for image / video storage
Antenna Base (ICA-M220W only)	Allows device connects to the supplied antenna.
WPS Button (ICA-M220W only)	Press the button on IP Cam and press it on the AP you want to connect for wireless.
Power Connector	The input power is 12VDC, 1A. **Only use the power adapter supplied with PT Internet Camera, otherwise the product may be damaged.**

2.2.3 Bottom Panel



Tripod Connector:

Allows connects to tripod to secure the camera when the camera is not put on a horizontal surface.

2.3 Hardware Installation

2.3.1 Camera Physical Installation

Please follow the following instructions to set your IP camera up.

1. Unpack the product package and check if anything's missing.

2. Connect the Ethernet cable to your local area network, and connect the other end to the LAN jack of this IP camera.

Note User can skip this step if you plan to use wireless LAN only

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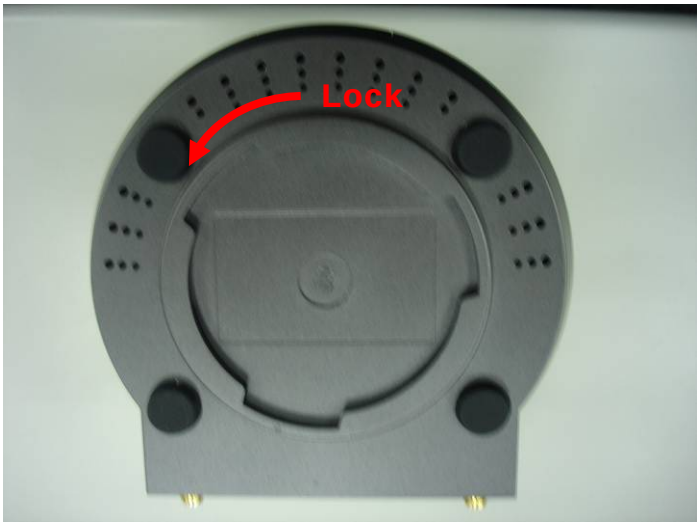
Plug the power adapter to wall socket, and connect the power connector to the power jack located at the bottom of the IP camera,

3. (ICA-M220W only) Connect two antennas to the antenna bases, which is located at the back of the PT Internet Camera.

4. Place the camera at a secure place, and point the camera to the place you wish to monitor. If you wish to hang the camera on the ceiling or wall, please use the tripod connector (located at the bottom of the camera) to secure the camera.



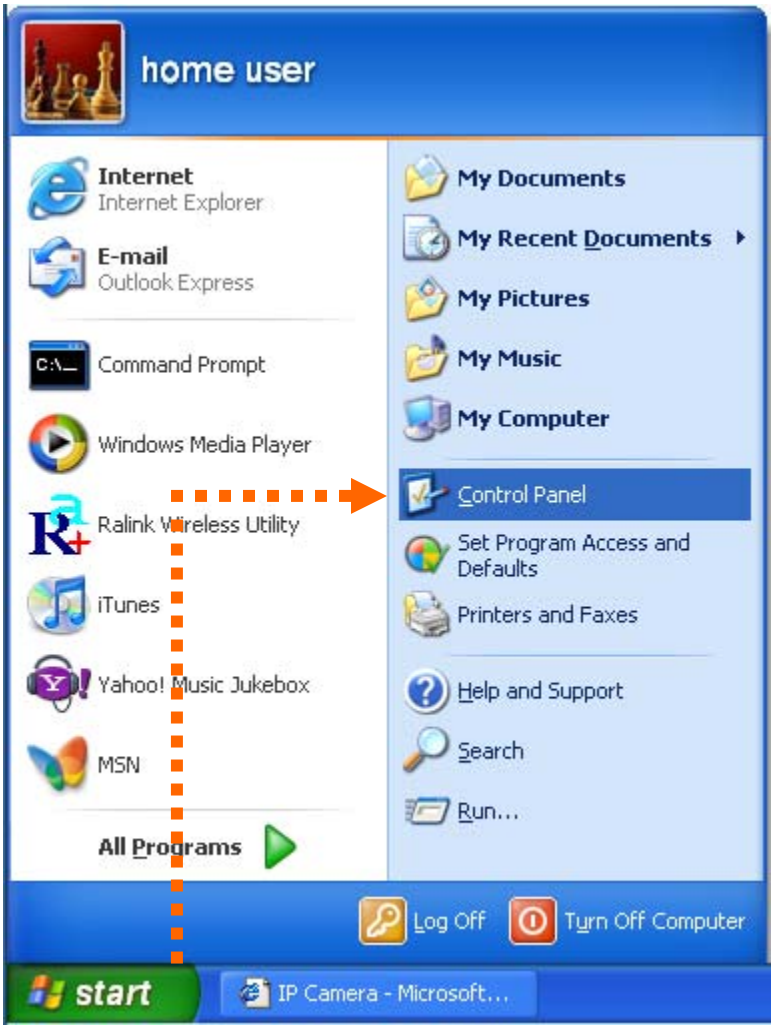
5. Launch Internet Explorer on your computer, and following the instructions given in next section to set the PT Internet Camera.

2.3.2 Locate the IP Address of this IP Camera

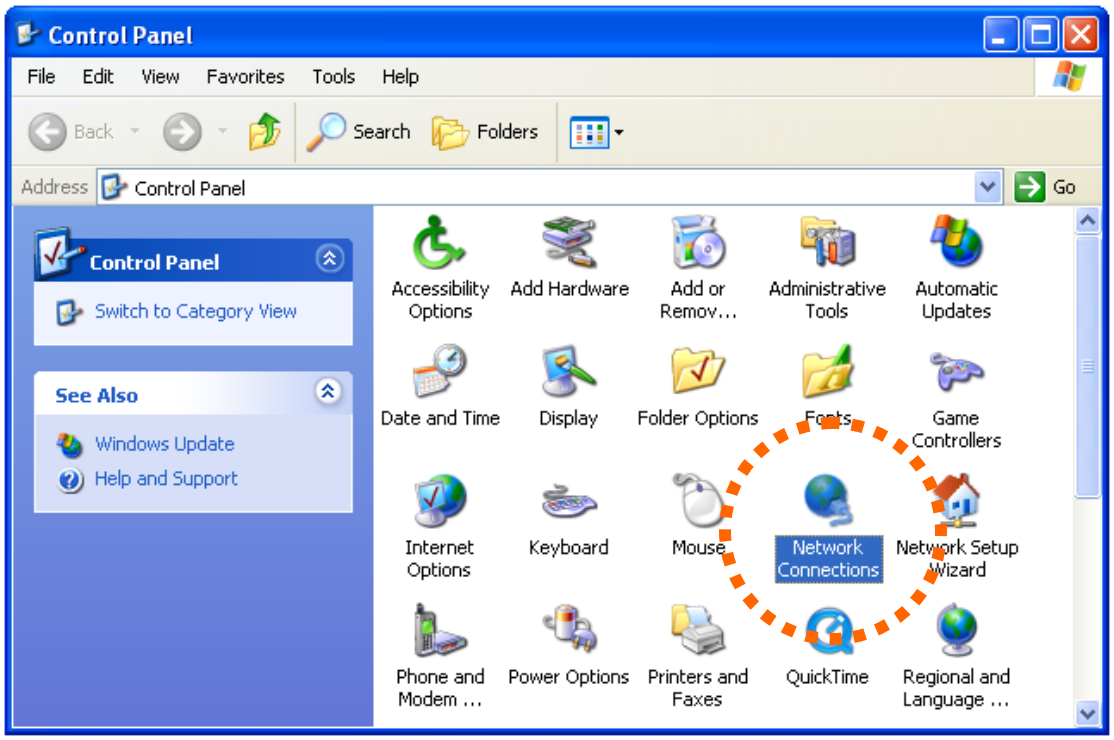
Default IP address of this IP camera is **192.168.0.20**. If you wish to assign another IP address to this IP camera, you have to log onto the web configuration interface of the camera first.

If the left three fields of the IP address of your computer is not 192.168.0, you'll have to change the IP address of your computer first:

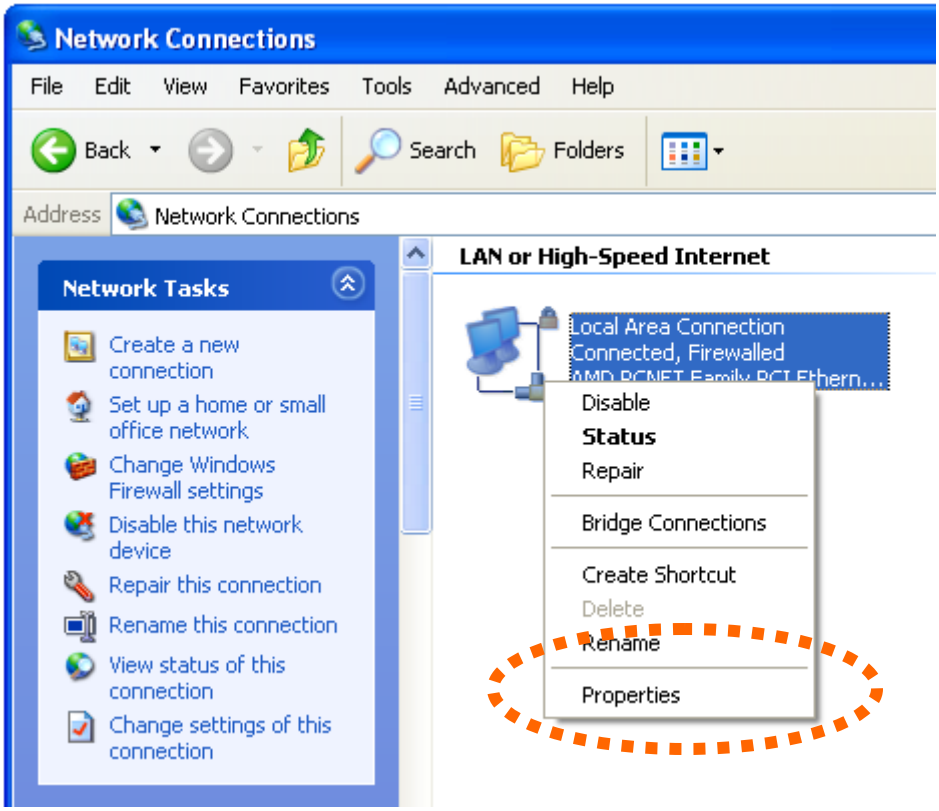
1. Click **Start** ➔ **Control Panel**



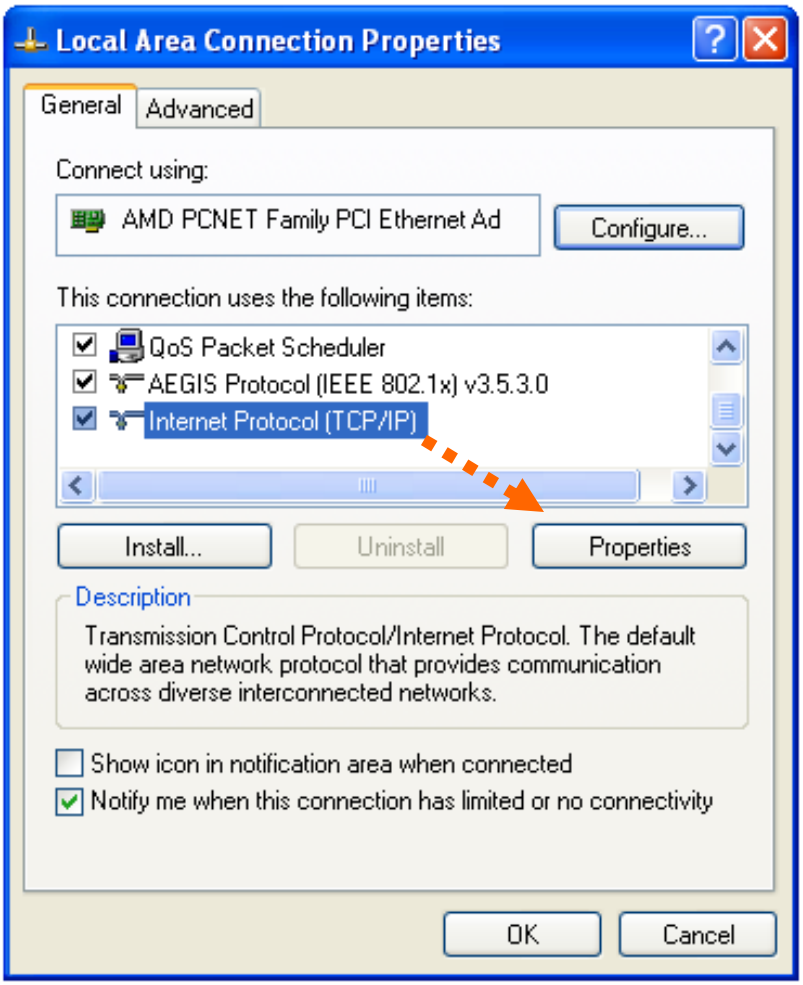
2. Double-click **Network Connections** icon.



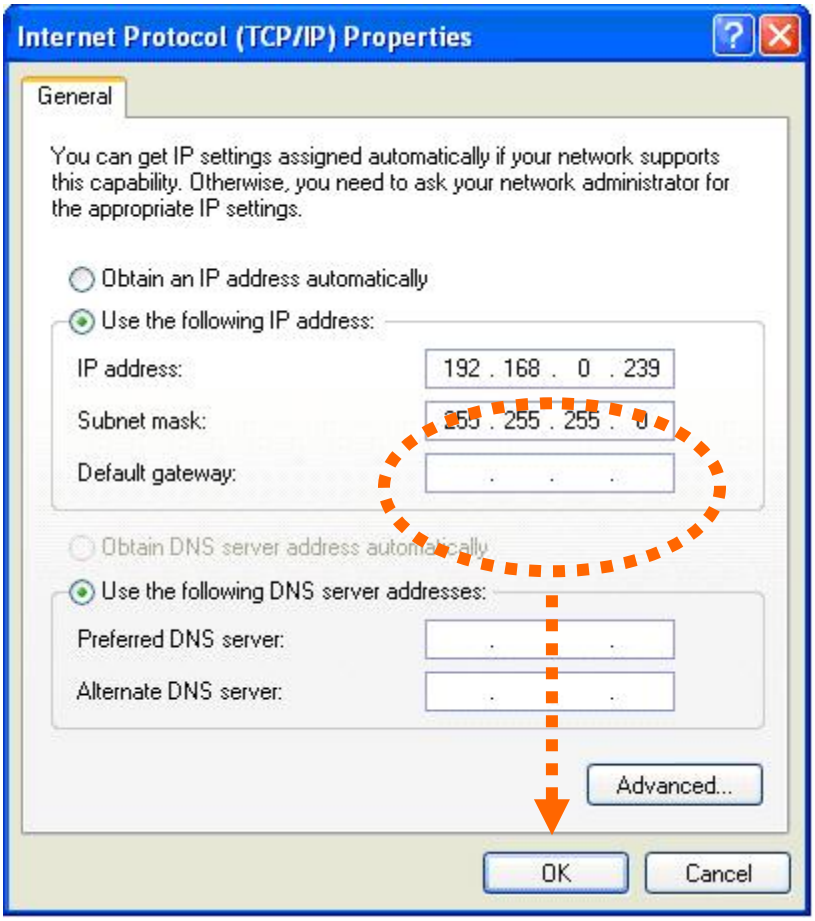
3. Right-click **Local Area Connection**, and click **Properties**.



4. Select '**Internet Protocol (TCP/IP)**', then click **Properties**.



5. In **IP address** field, please fill in any IP address begins with **192.168.0**, and ends with a value greater than 2 and less than 254 (You can use the following example 192.168.0.239). In Subnet mask field, please fill 255.255.255.0. Please keep all other fields empty, and click **OK**.



If you changed the IP address of this PT internet camera and you forget it, there're 2 methods to recover it:

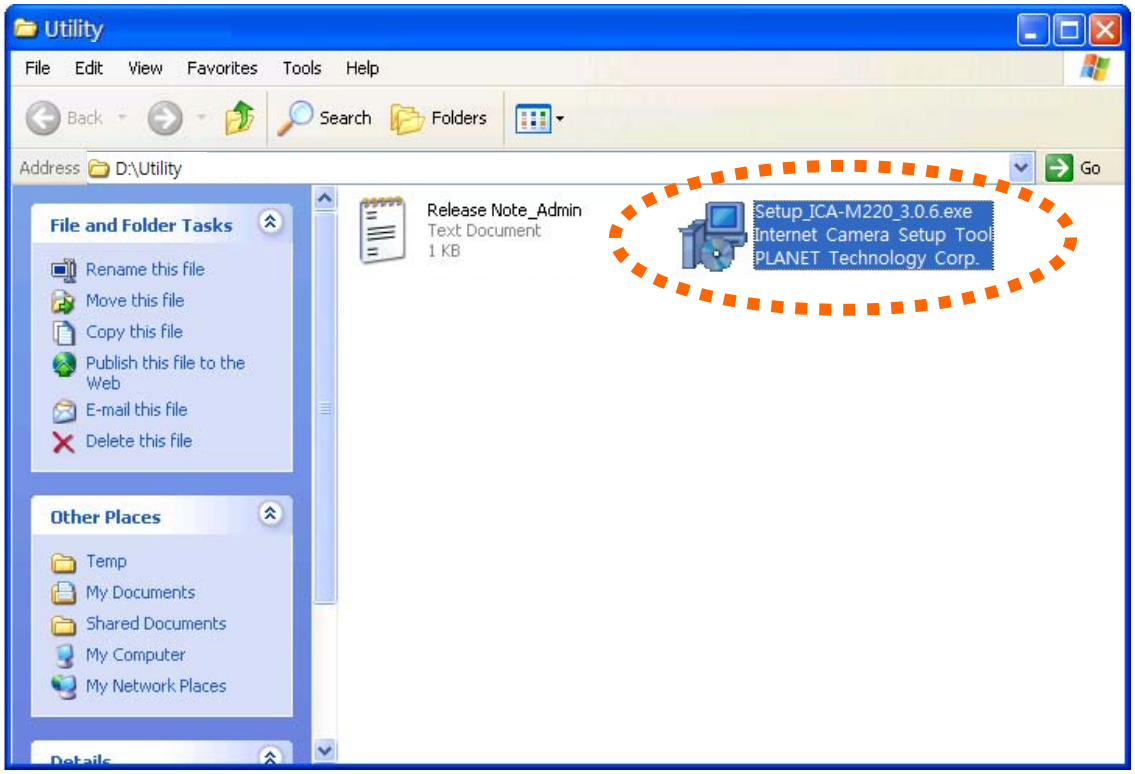
a. Press and hold the **Reset** button located at the bottom of this IP camera, to clear all settings of the IP camera and reset the IP address back to **192.168.0.20**. You'll lose all settings in the IP camera.

b. Ask network administrator to check the DHCP release table, if the camera was set to obtain the IP address by DHCP, a new record will be added to DHCP release table on DHCP server when the IP camera is connected to the local area network.

2.4 Initial Utility Installation

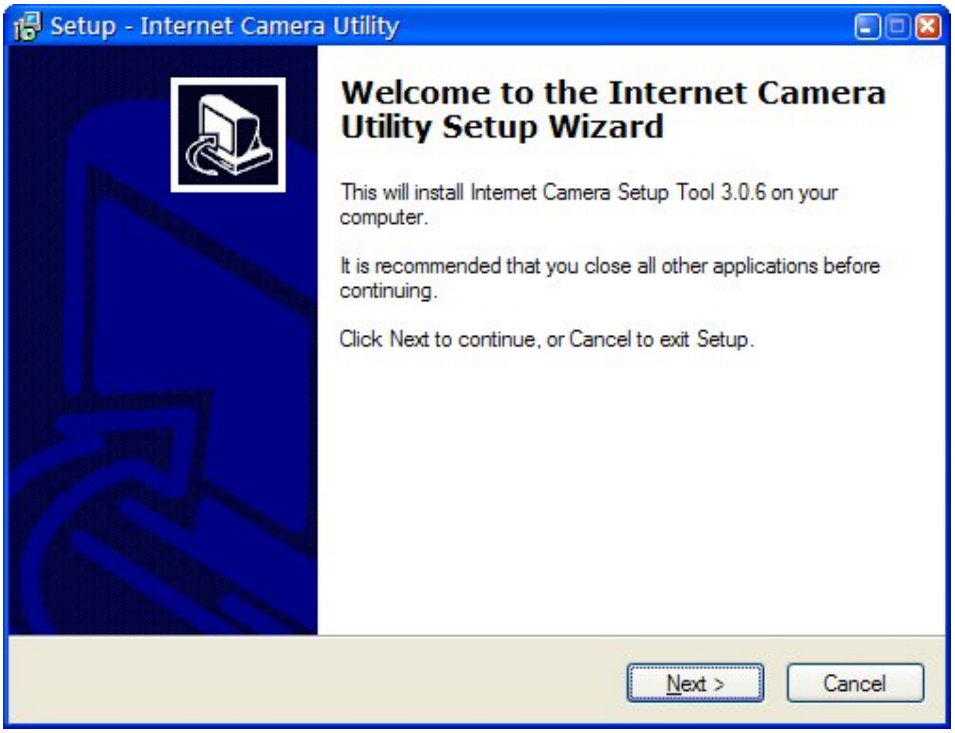
This chapter shows how to quick set up your PT Internet Camera. The Camera is with the default settings. However to help you find the networked camera quickly the admin software can search the cameras in the network that shall help you to configure some basic setting before you started advanced management and monitoring.

Please insert the user manual CD-ROM supplied in the product package, and the CD will automatically running the installation, if not please double-click **Setup_ICA-M220_x.x.x** icon:

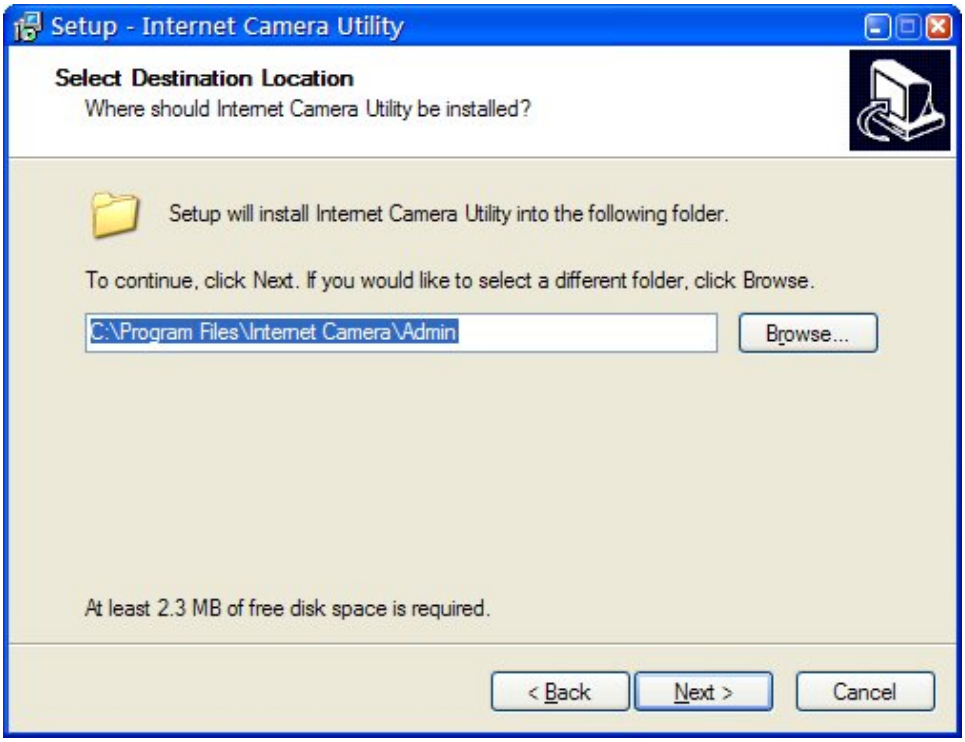


Then follow the following instructions to install and use camera admin software:

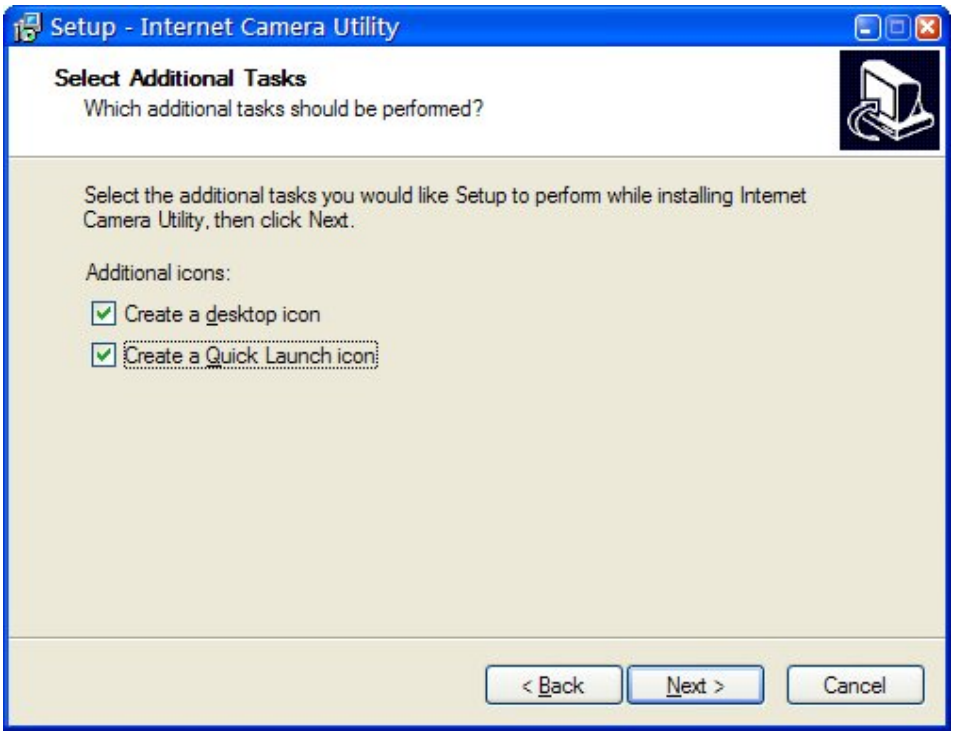
1. Click **Next** to start install camera admin software:



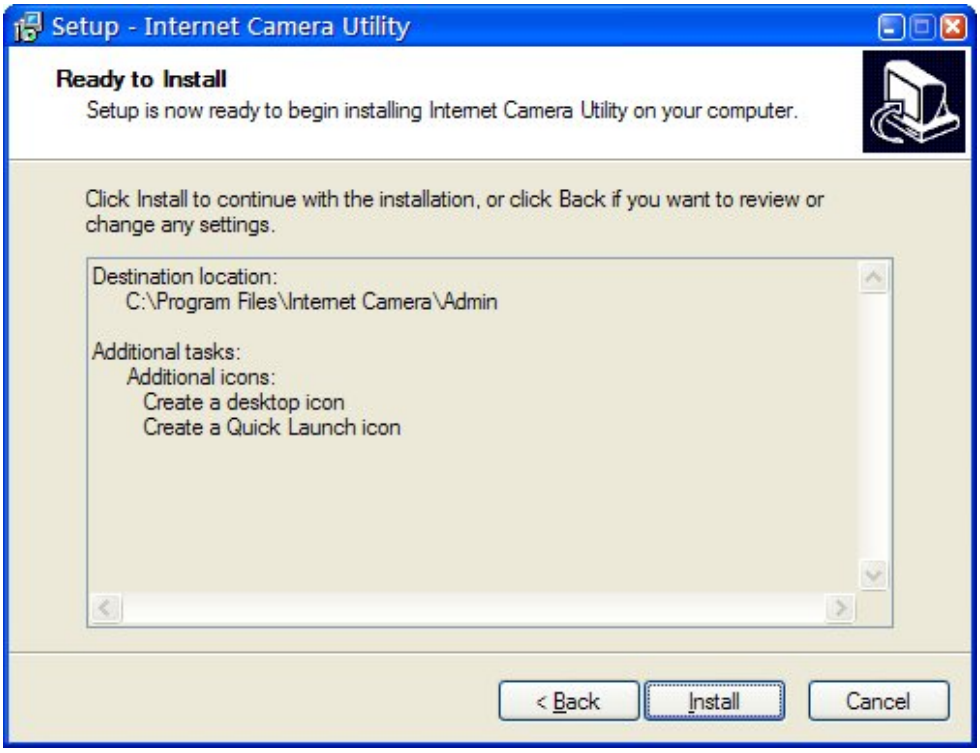
2. You can change the installation folder of camera setup software here, click **Browse** to select an existing folder, or you can just click **Next** to use default installation folder:



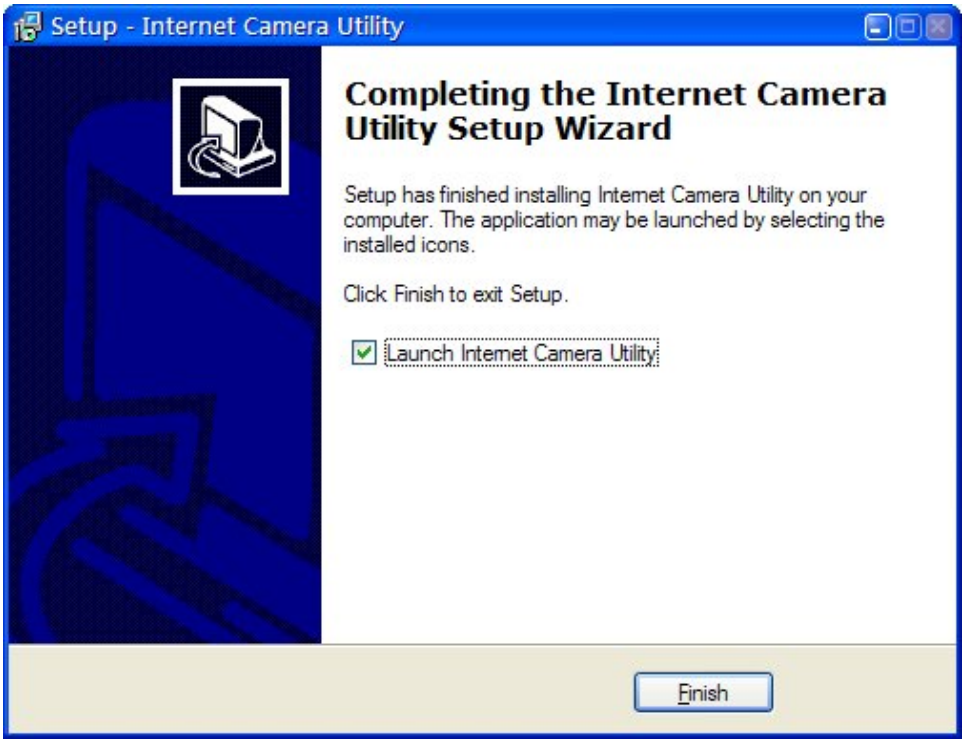
3. If you wish to create desktop icon and / or quick launch icon for camera admin software, please check corresponding box, and click **Next** to continue.



4. You'll see a brief of all options you selected, click **Install** to install camera admin software now, or click **back** to back to previous steps to change settings.

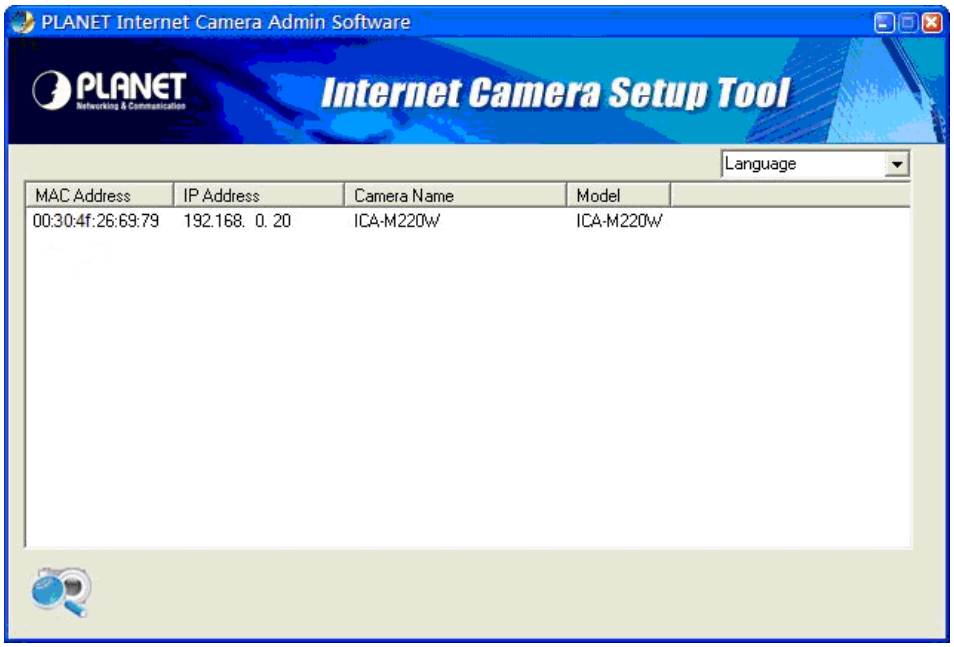


5. When you see this message, the installation of camera admin software is complete. If you wish to launch camera admin software now, keep **Launch IP Cam Admin Utility** box checked, and click **Finish** to close installation utility.

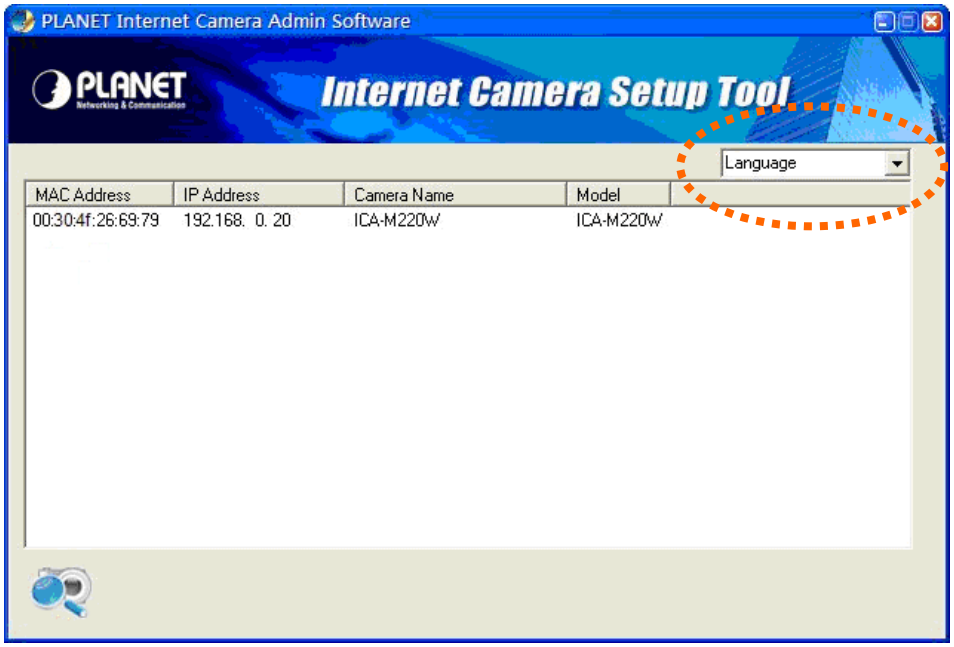


6. Please double-click the utility icon on the desktop then you will see the PT Internet Camera utility.

After the camera admin software is launched, all cameras found on your local area network will be displayed:



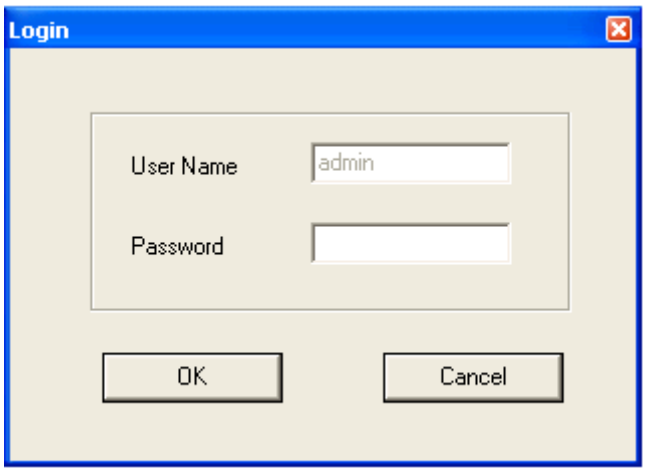
All camera-related information will be displayed here. If you wish to connect to certain camera by web browser, double-click the camera listed here.
The camera admin software also provides several functions:



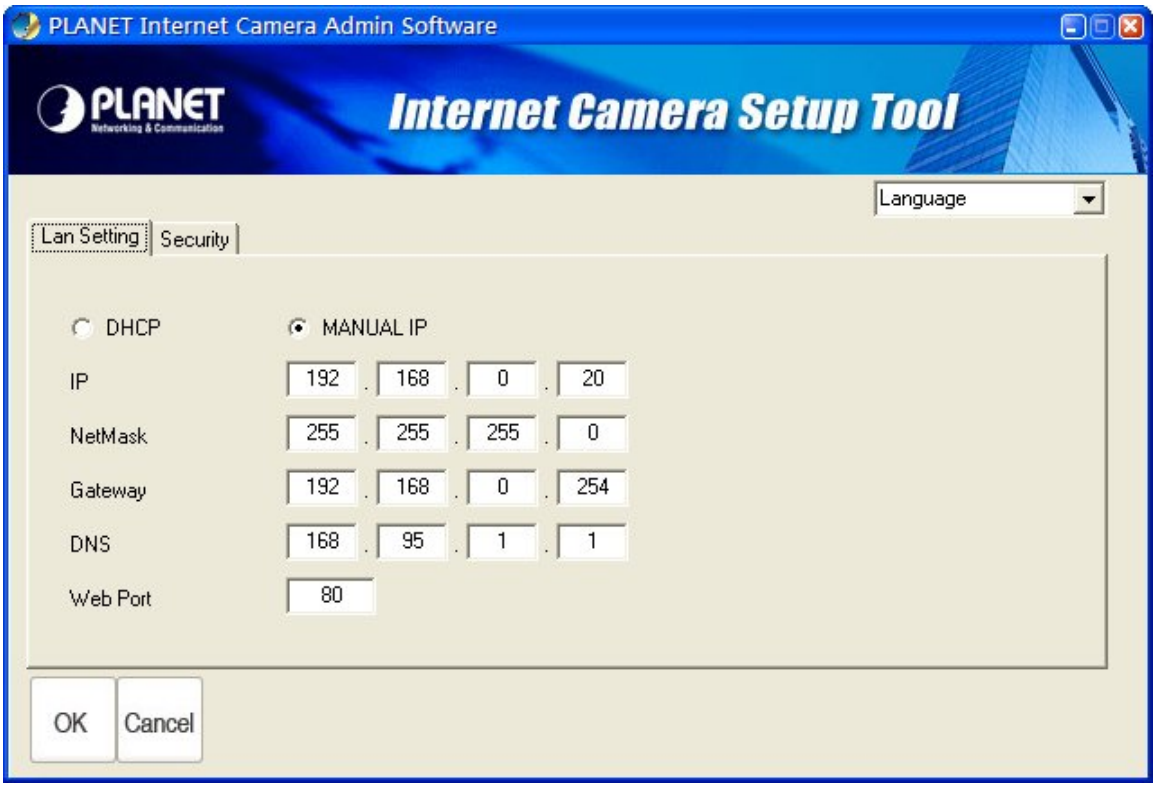
Language	This camera admin software supports 3 languages: English, Chinese, and Japanese. User can select the language oneself wish to use from language dropdown menu located at upper-right corner of camera admin software.
	Search camera: Click this button to search all cameras on local area network again.
	Browse camera via web: Select a camera listed above first, and then click this button to connect to the camera by web browser.
	Configure camera: Click this button to configure camera's network and security setting. You'll be prompted to input camera's password:

2.5 Camera Admin locate PT Internet Camera

If you can't connect to the camera by the instructions given in last chapter, you can use camera admin software to search the camera which is connected to your local area network. The admin software is also capable to locate multiple cameras on your local area network.

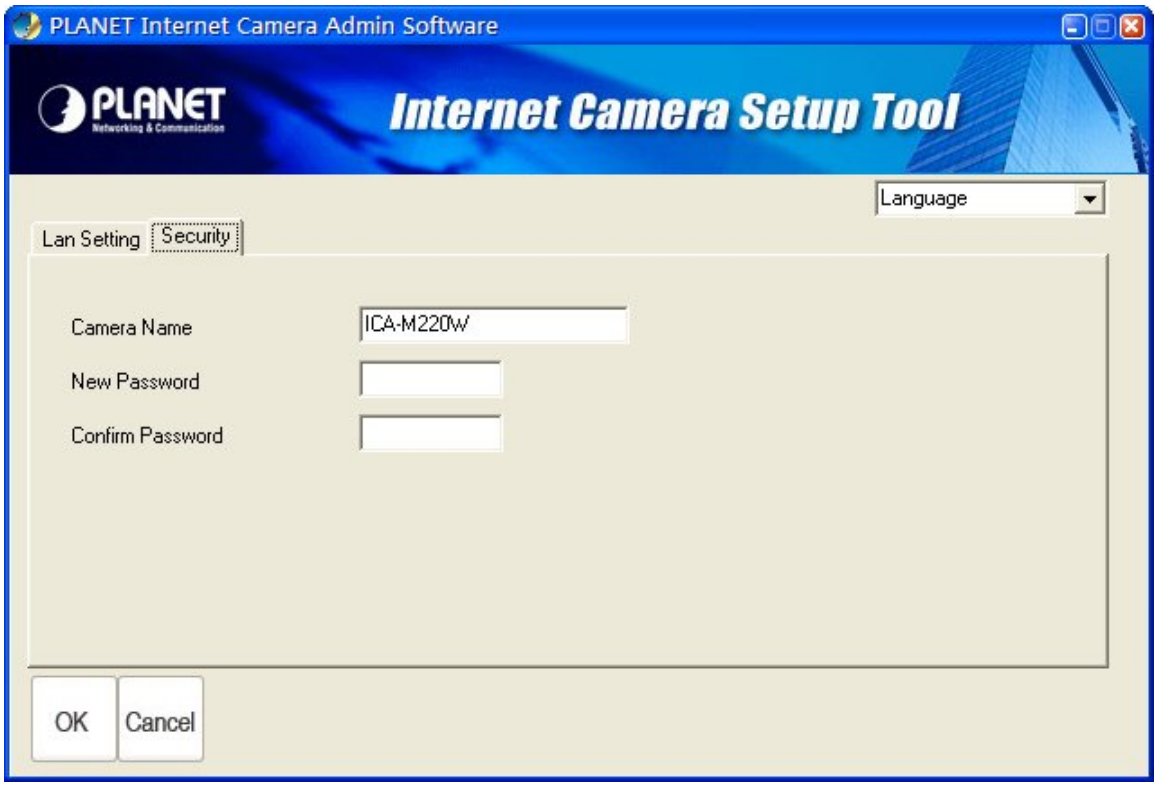


Input the password (default: **admin**) and click **OK** to configure the camera's network and security setting:



In **Lan Setting** page, user can configure camera's network settings. Select **DHCP** to set the camera to obtain an IP address from DHCP server on local area network automatically, and select **Manual IP** to input the IP address information manually. Click **OK** to save settings.

In **Security' page**, user can change the camera's name and password (user name is always 'admin' and cannot be changed). You have to input the same password in both **New Password** and **Confirm Password** field, or you'll be prompted to input new password again. Click **OK** to save settings or click **Cancel** to discard changes.



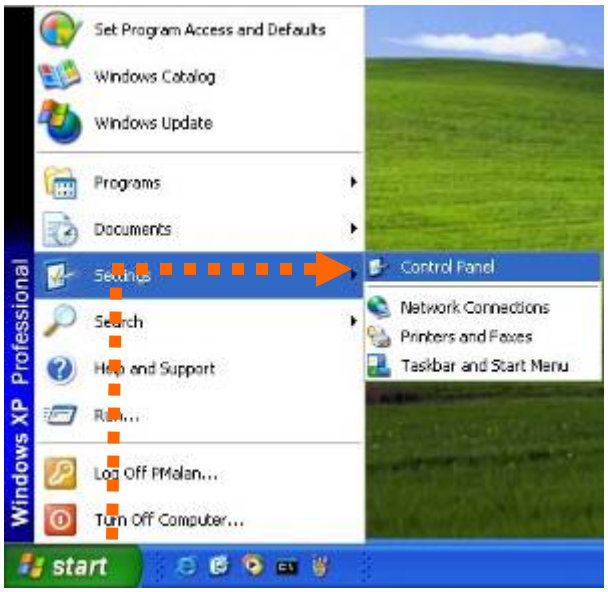
2.6 UPnP Function

Universal Plug and Play (UPnP) is a set of computer network protocols. This is to allow device to connect seamlessly and to simplify the implementation of network in the network and corporate environments.

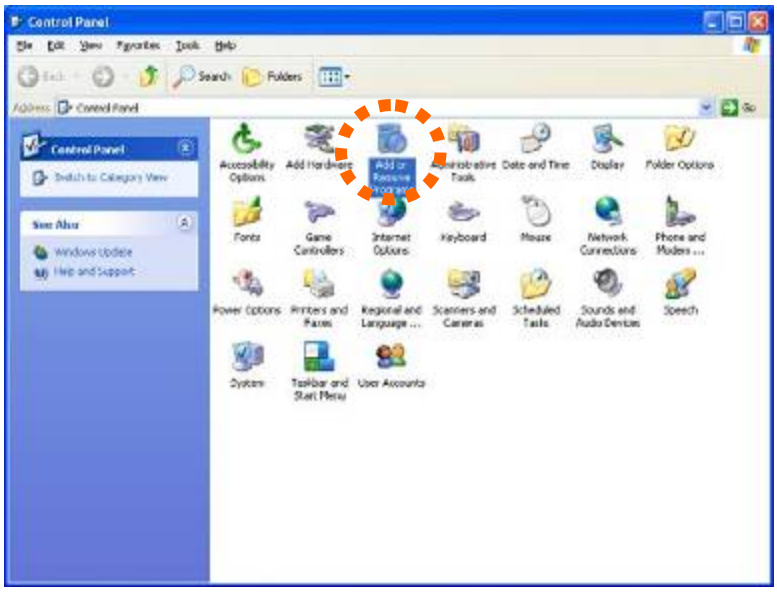
2.6.1 Windows XP

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.

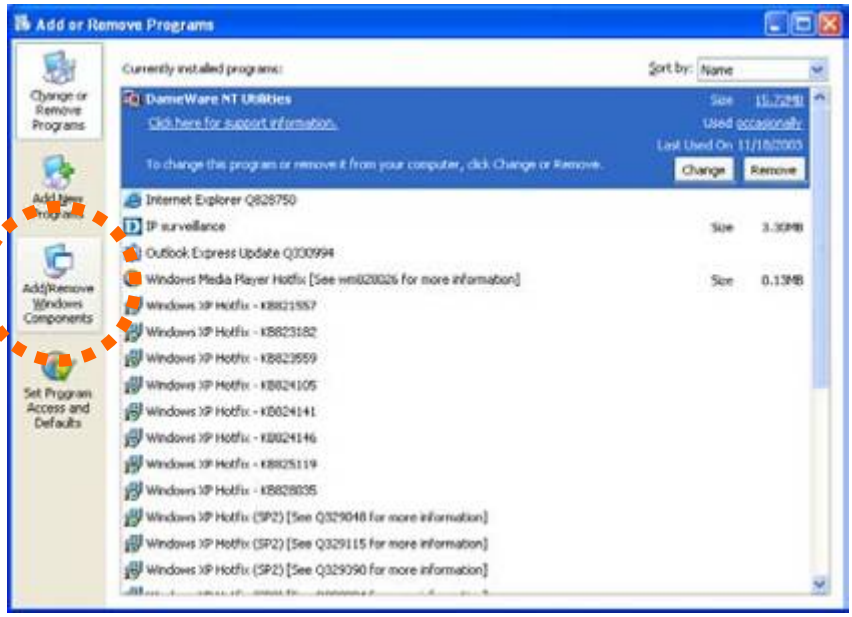
Go to **Start** ➔ **Settings**, and Click **Control Panel**



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

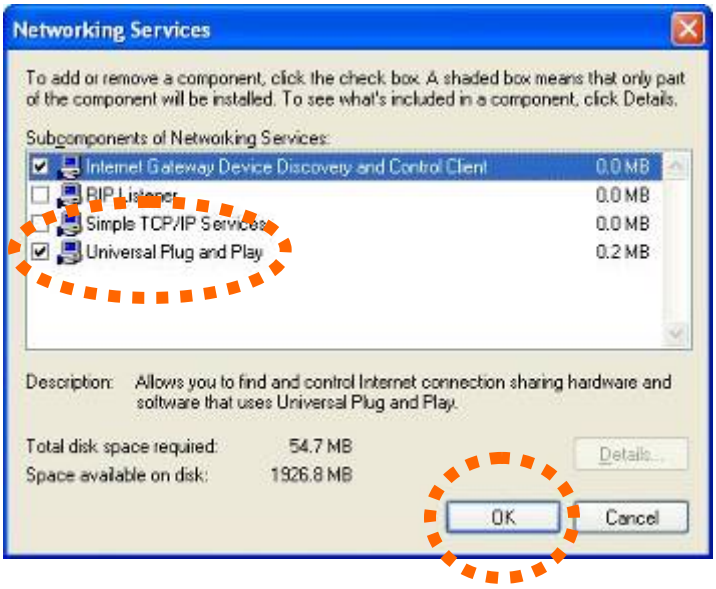


The **Add or Remove Programs** will display on the screen and click **Add/Remove Widows Components** to continue.

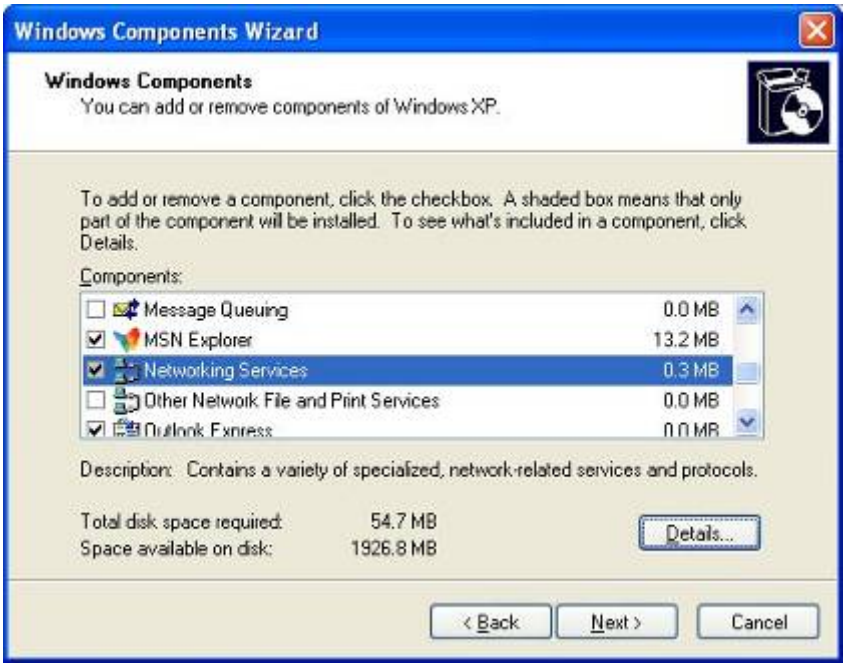


The following screen will appear, select **Networking Services** and click **Details** to continue

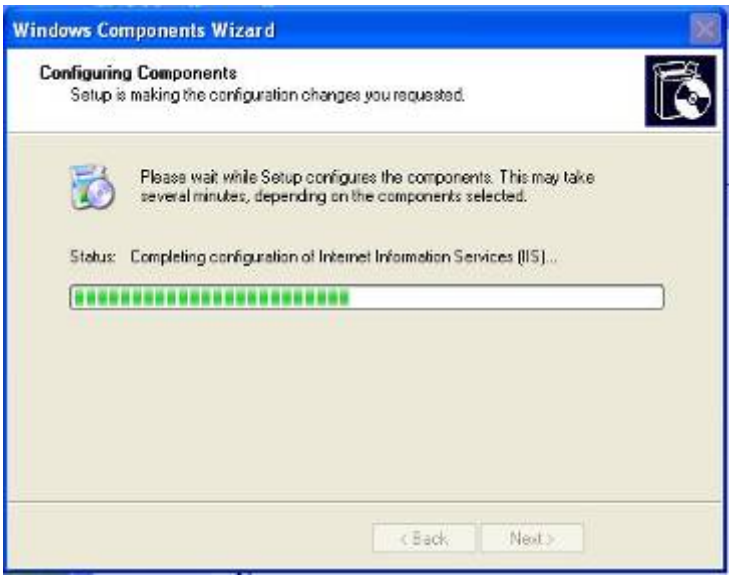
The **Networking Services** will display on the screen, select **Universal Plug and Play** and click **OK** to continue.



Please click **Next** to continue

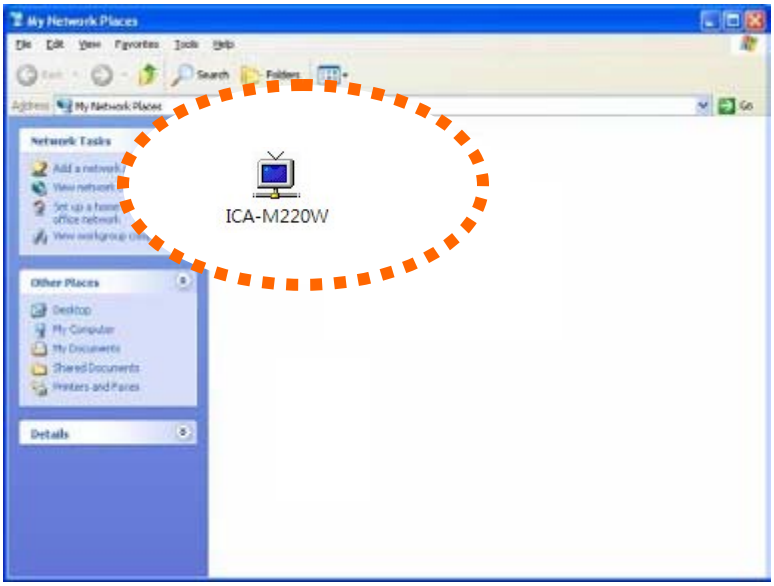


The program will start installing the UPnP automatically. You will see the below pop-up screen, please wait while Setup configures the components.



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

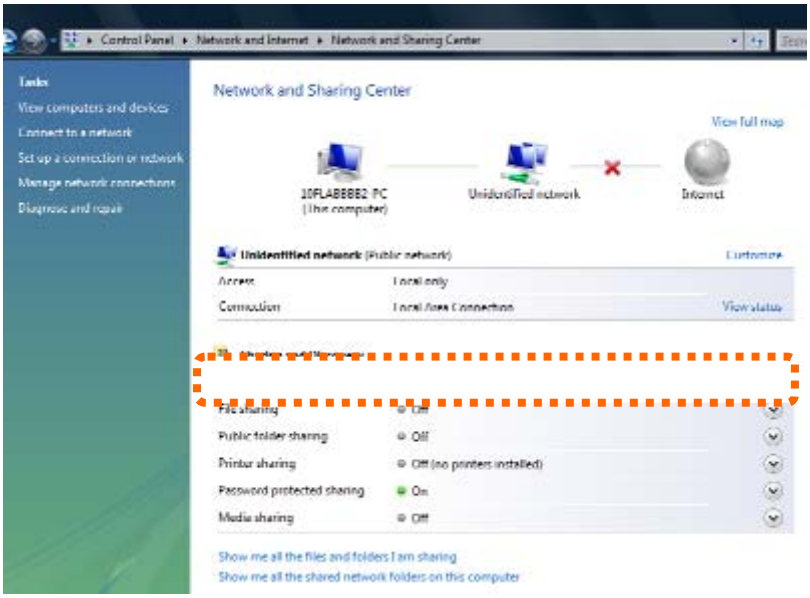
Double-click **My Network Places** on the desktop, the My Network Places will display on the screen and double-click the **UPnP** icon with PT Internet Camera to view your device in an internet browser.



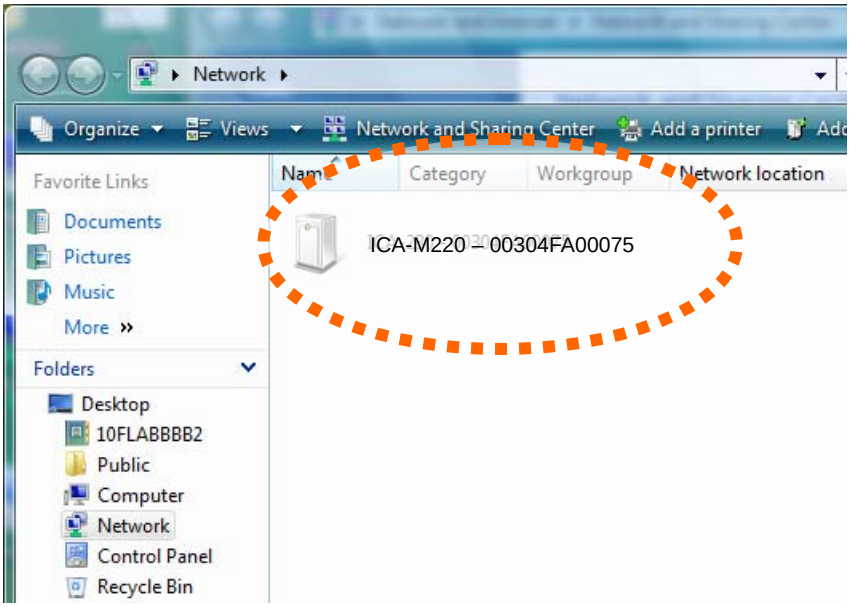
2.6.2 Windows Vista

If the operating system, Windows Vista, 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 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 PT Internet Camera to view your device in an internet browser.



2.7 Setup ActiveX to use the PT Internet Camera

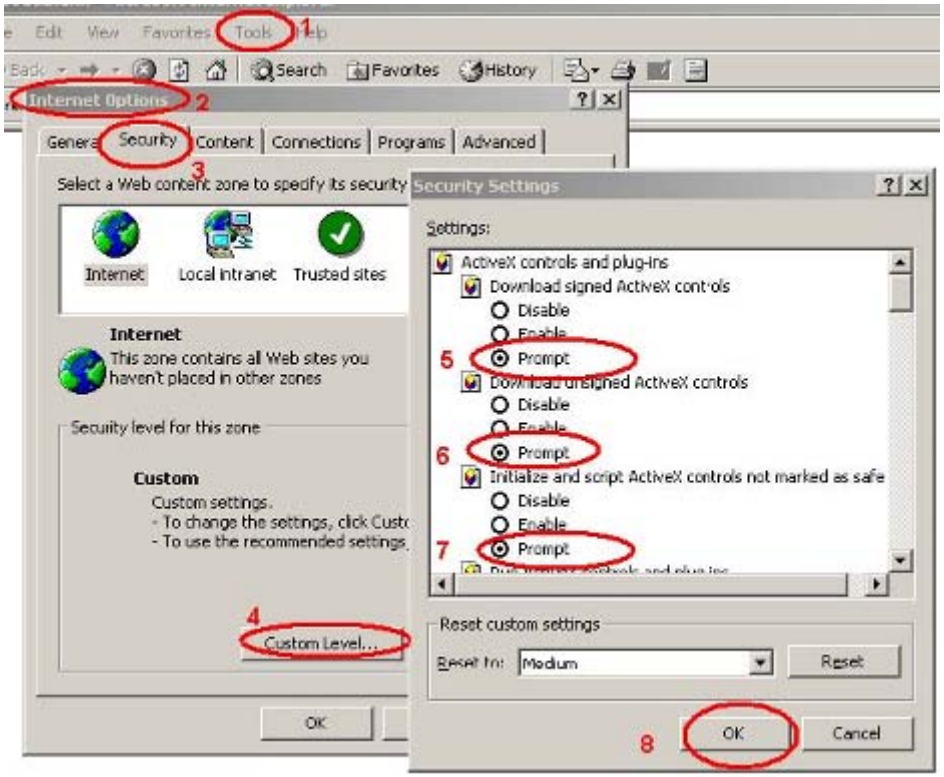
The PT Internet Camera web pages communicate with the PT Internet Camera using an ActiveX control. The ActiveX control must be downloaded from the PT Internet Camera and installed on your PC. Your Internet Explorer security settings must allow for the web page to work correctly. To use the PT Internet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

2.7.1 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*



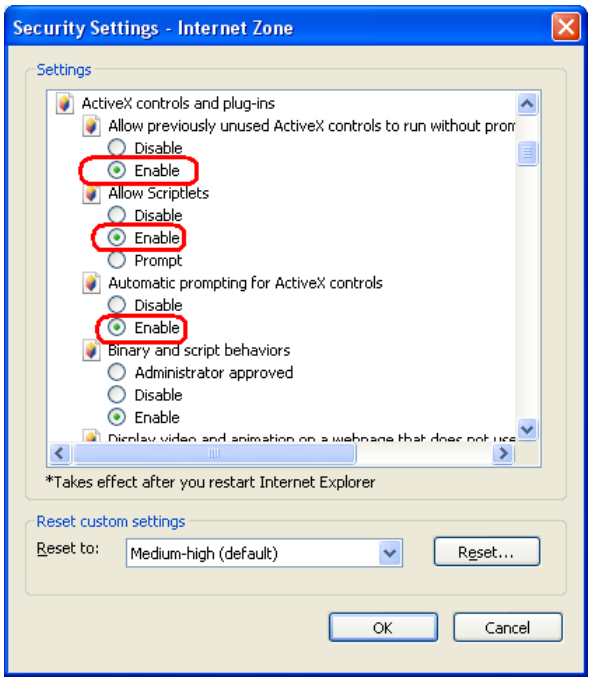
By now, you have finished your entire PC configuration for PT Internet Camera.

2.7.2 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*

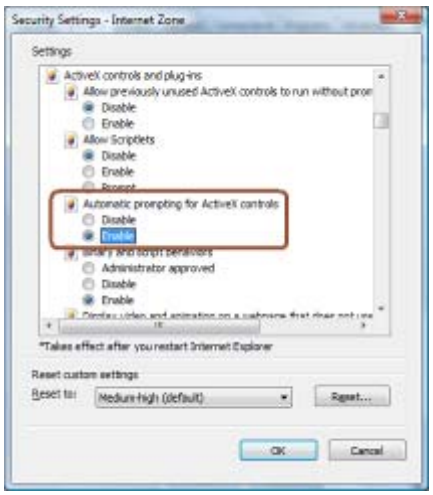


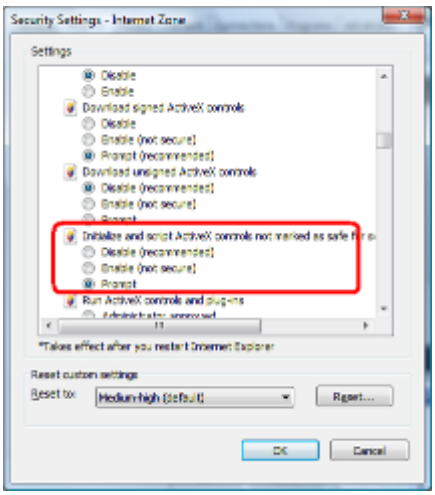
By now, you have finished your entire PC configuration for PT Internet Camera.

2.7.3 Internet Explorer 7 for Windows Vista

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

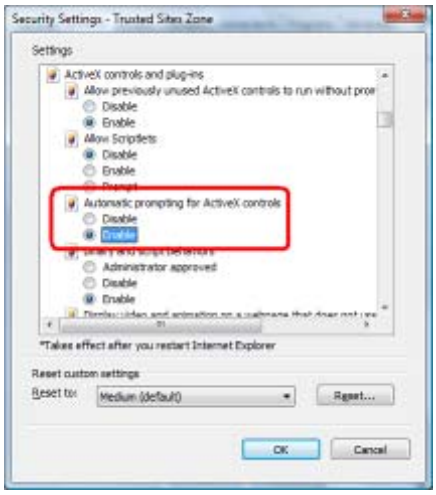
- *Enable 'Automatic prompting for ActiveX controls'*
- *Prompt 'Initialize and script active controls not marked….'*

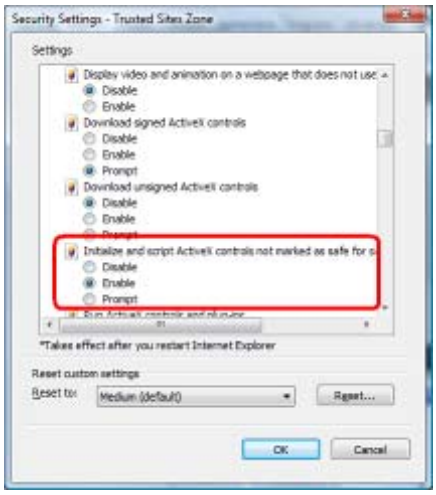




From your IE browse ➔ '**Tools**' ➔ '**Internet Options…**' ➔ '**Security**' ➔ '**Trusted Sites**' ➔'**Custom Level…**', please setup your **Settings** as follow.

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





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

3. Web-based Management Interface

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

3.1 Introduction

The ICA-M220 / ICA-M220W can be configured with your Web Browser. Before configure, please make sure your PC is under the same IP segment with PT Internet Camera.

3.2 Connecting to PT Internet Camera

- Use the following procedure to establish a connection from your PC to the PT Internet Camera.
- Once connected, you can add the PT Internet Camera to your Browser's Favorites or Bookmarks.

Make sure the IP camera is correctly powered (Power LED is on), and then launch Internet Explorer and type the IP address of the IP camera in address bar of Internet Explorer. The Default IP: **http://192.168.0.20.**

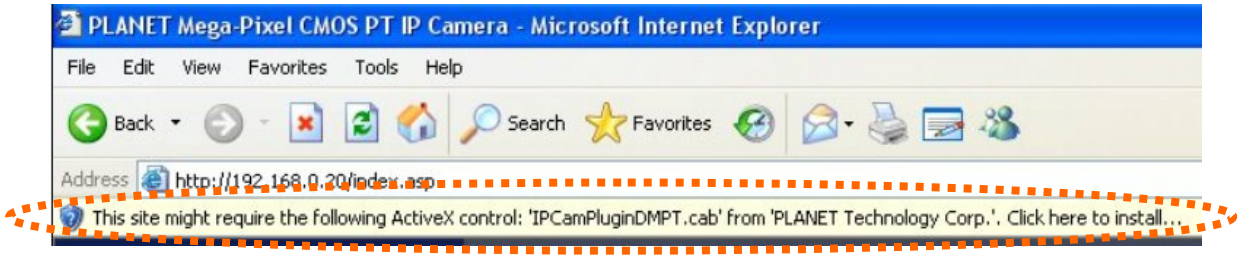
You should be prompted to input the user name and password. Default username and password is **admin/admin**. Click **OK** to continue after user name and password has entered.

If you're rejected, maybe the password has been modified previously. This should not happen if this is a newly-purchased camera, however, if you get the camera from someone else, the password would be changed. Please try to obtain the correct user name / password, or you'll have to reset the camera.

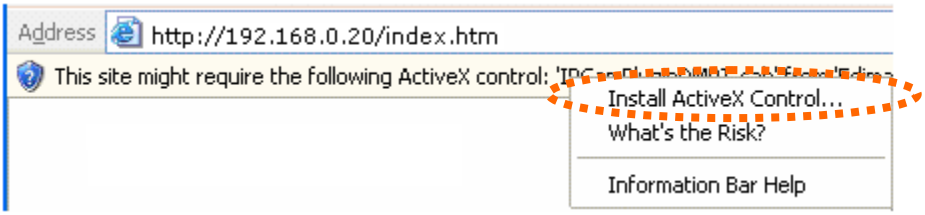
Note

If the User name and Password have been changed with Admin utility, please enter the new User name and Password here.

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



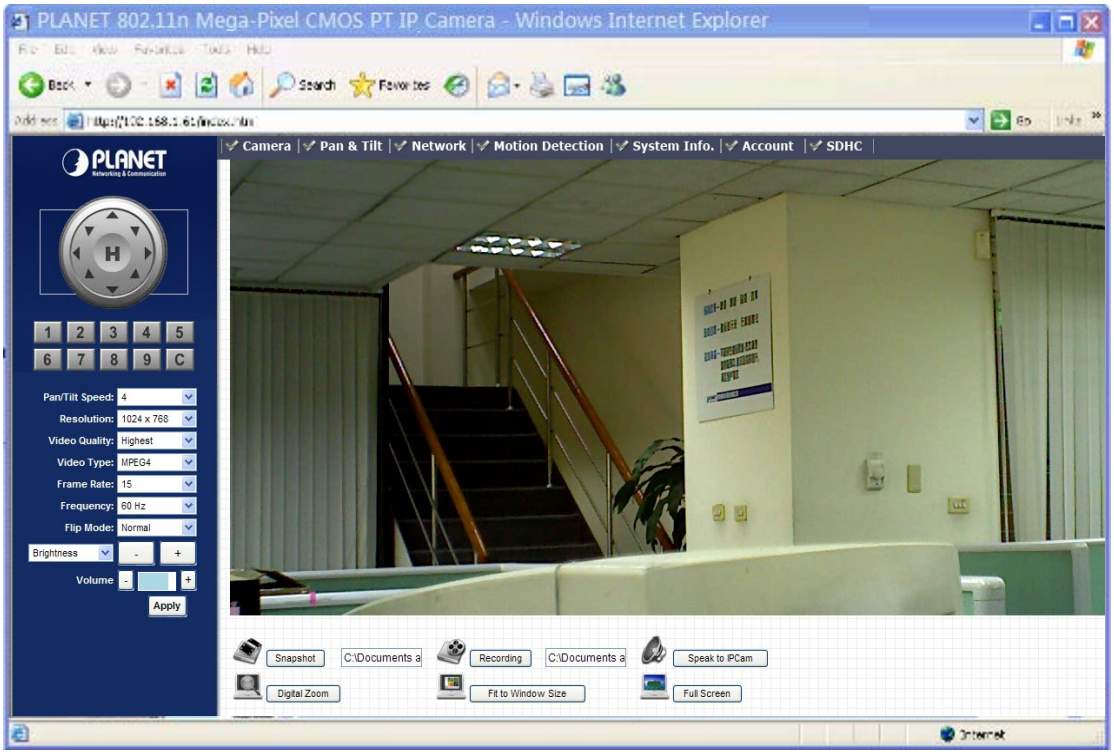
Click on the message, and click **Install ActiveX Control…**



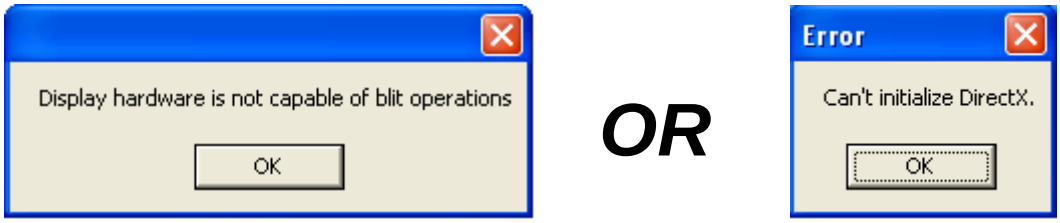
When you see this message, click **Instal**' to install required ActiveX control

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

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



If you see one of these messages (or both):



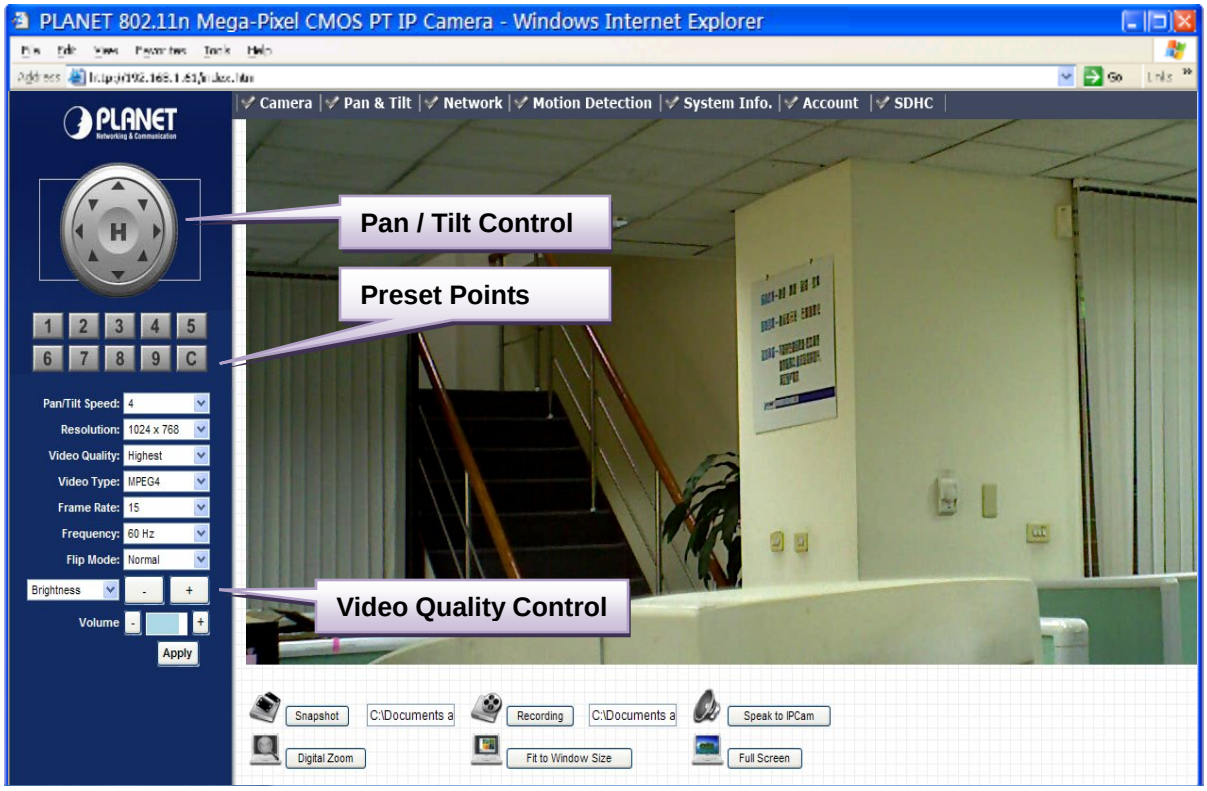
Your computer may not have the display capability that this IP camera requires, or you don't have Microsoft DirectX® installed. Please download Microsoft DirectX® from Microsoft's website (http://www.microsoft.com), and try again.

In some cases, your computer is able to display the image from IP camera correctly, but you'll still see these messages. If this happens, just ignore them

3.3 Camera Settings

The first menu after you logged onto web management interface is ‘Camera’, and this is the only menu you can see the real-time image from camera.

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



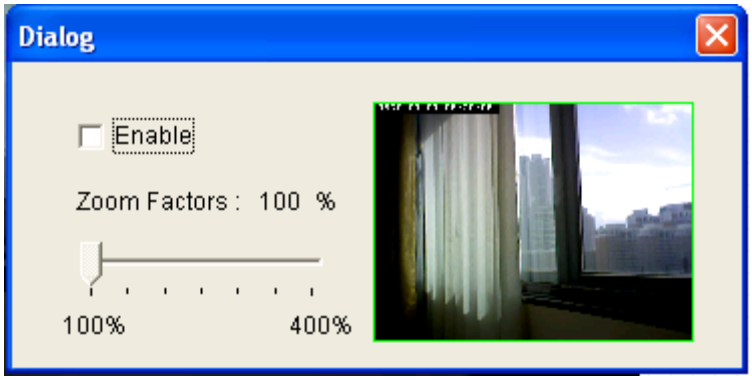
You can always back to this menu by clicking **Camera** on the top of web management interface.

The descriptions of every setting in this menu will be given below:

Pan/Tilt Speed	Specifies the moving speed when you use pan / tilt function to point the camera to a new direction. Available options are **1** (fastest) to **5** (slowest). Select 1 to move the camera by a faster speed, but you will not be able to control the movement precisely. If you wan to move the camera in a more accurate manner, select a slower speed.

Resolution	Specifies the video resolution. Available options are 1024 x 768, 640 x 480, and 320 x 240 @ MPEG4 or 1280x1024, 640x480 and 320x240 @ MJPEG Higher resolution provides more details about the objects captured by camera, but will consume more bandwidth, which will make the image refreshes very slow. If you have a slow Internet connection, you may want to use a lower resolution to make the image refresh faster. Selecting the resolution of 320 x 240 may cause the image become too small on a high-resolution computer monitor. If you want to save bandwidth while selecting a high resolution, please select a lower image quality (see below).
Video Quality	Specifies the quality of image captured by camera. There are 5 options from Highest to Lowest. Just like resolution, higher image quality will provide more details about the objects captured by camera, but the cost is bandwidth. Sometimes you just want to see if there's anything moving at the place where camera points to, you can select a lower image quality to get a higher image refresh rate.
Video Type	Select the video encoding type. Available options are **MJPEG** and **MPEG4**.
Frame Rate	The highest image refresh rate of this PT internet camera is 30, which is the same as TV. However, if you are using an Internet connection with limited bandwidth, and you don't need a fast image refresh rate, you can limit the maximum refresh rate (frame rate) to a certain value. Available options are 30, 15, 10, 5, and 3.
Frequency	If the place where this PT internet camera points to has a (or more) fluorescent light(s), the image may look flashing. In this case, you can adjust this setting to the frequency of electrical power; this can improve the image quality effectively. If you don't know which one you should use, just try any of them and select one with less flickered.
Flip Mode	If you're not putting this camera on a horizontal surface but hang the camera on the ceiling or wall, you can use this function to rotate the displaying image.
Show Date / Time	Select **Enable** to show current date and time of the internal clock of the camera on the upper-left corner of the image, select **Disable** to hide date / time.

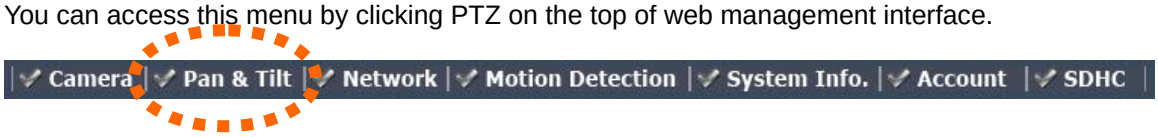
Video Quality Control **(Brightness, Saturation, Sharpness)**	Adjust the video quality by controlling the brightness, saturation, and sharpness of the displaying image, so you can see the image more clearly in certain environment. Select one of the video quality type (brightness, saturation, or sharpness) from dropdown menu, then click **+** or **-** button to increase / decrease setting.
Pan / Tilt Control 	Moves camera to a new direction. Press one of 8 directional buttons to move the camera, and press **H** to move the camera back to 'home' (original) position.
Volume	Adjust the volume of audio output. Press **+** or **-** button to increase or decrease volume.
Preset Points 	You can set up to **9** preset points of camera position; press the number to move the camera to preset point instantly. See next chapter for detail instructions of how to set preset points. Press **C** and the camera will cruise between all preset points automatically.
Snapshot	Click **Snapshot** button to save the displaying image as an image file, a message box will appear after you click **Snapshot** button, showing the filename and location of saved image file (default filename is current date and time). Default directory used to save image file is **C:**, you can change the directory by clicking the text input box located at the right of 'Snapshot' button:  and you'll be prompted to select a new directory.
Recording	Press this button to record the displaying image as a video file in AVI format, and you can play the video file back by Windows Media Player. To stop recording, press **Stop Recording** button (the same button). You can also change the directory used to save video file.
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).

Digital Zoom	If you wish to enlarge certain portion of the captured image, you can click this button to set digital zoom:  Click **Enable** to enable digital zoom function, then you can drag the slide bar to adjust zoom ratio. You can also use your mouse to drag the zoom area (the yellow square) to reposition the zoom area.
Fit to Window	Click this button and the image size will be adjusted to fit the size of browser window.
Speak to IP Cam	You can transmit the voice received by your computer's microphone to the camera's external speaker. Press and hold this button, then speak to the microphone. Please note that external speaker must be connected to this camera.

3.4 Pan and Tilt Settings

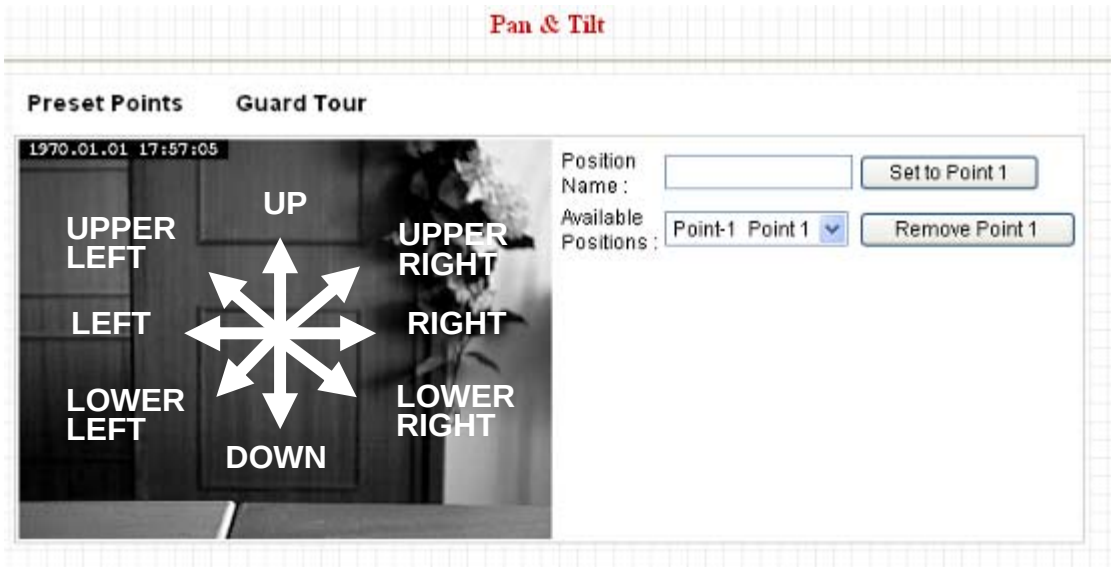
This PT internet camera supports pan and tilt function, as you explored in last section. You can also make the camera move automatically in pan and tilt menu by defining a set of pre-defined path.

You can access this menu by clicking PTZ on the top of web management interface.



3.4.1 Preset Points

You can define the camera position and save the position so you can recall the position later again. This camera provides 9 memory slots; follow the following instructions to move the camera and set a new preset point:



1. Select a memory slot from **Available Positions** dropdown menu first.

2. To move the camera, click the position of labeled text (not shown on image) on the image to move the camera to the direction. You may need to set the Pan / Tilt speed to a slower setting, so you can move the camera in a more accurate manner.

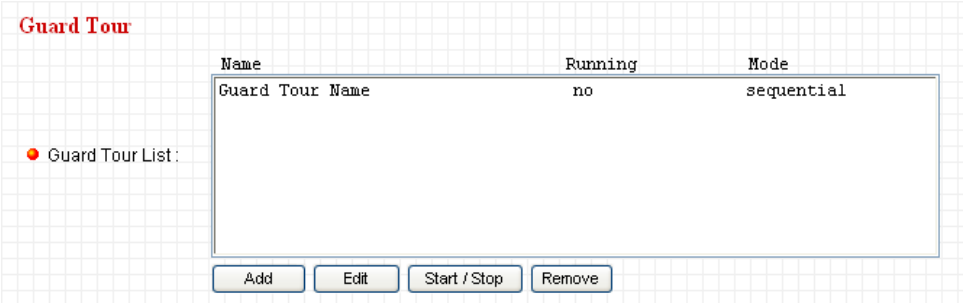
3. When you move the camera to the position you want, type a name in **Position name** field, and click **Set to Point *n*** (where 'n' is the number of memory slot) button to save the position to selected memory slot.

After you set the position, you can recall the position from **Camera** menu (click the position number button), and the camera will move to preset position instantly.

If you want to remove a preset position, select the memory slot from **Available Positions** dropdown menu, and then click **Remove Point *n***, (where 'n' is the number of memory slot you wish to clear position setting).

3.4.2 Grand Tour

You can make the camera move between many pre-defined positions, and define the time you wish to pause at every position; this is called as ‘Grand Tour’.

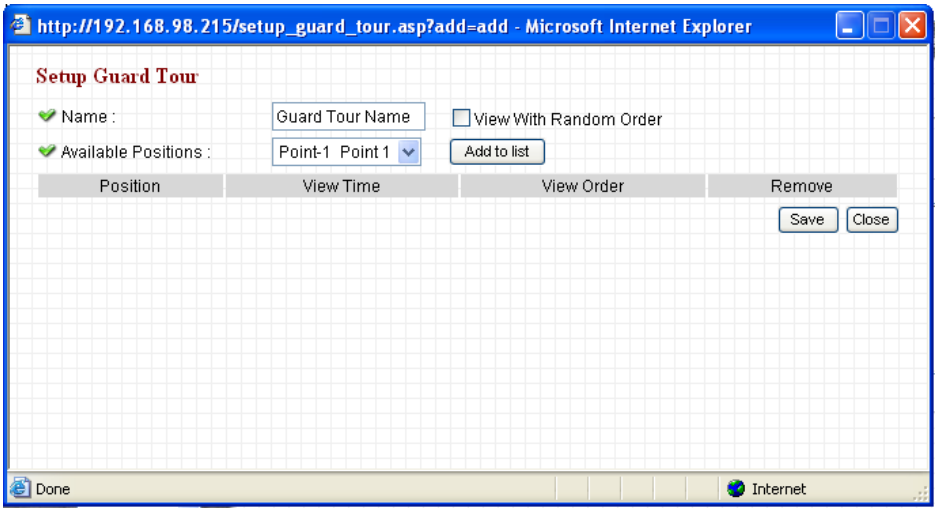


Before you can use this function, you have to define at least 2 positions in **Preset Points** section (refer to last section for detailed information).

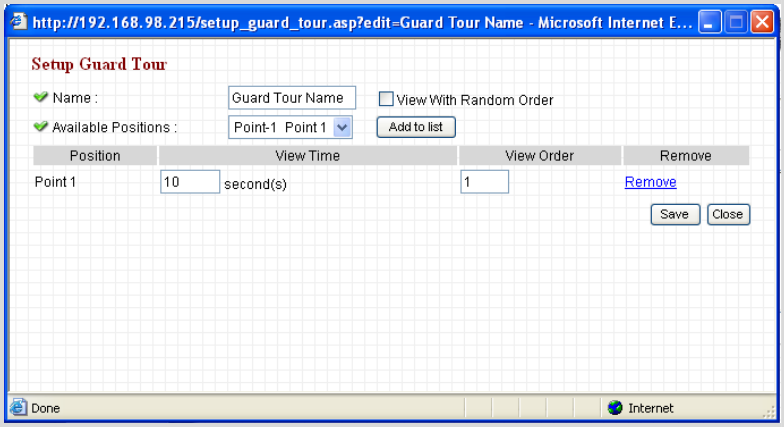
The descriptions of every setting in this menu will be given below:

Add	Add a new set of grand tour (see instructions below)
Edit	Edit a selected grand tour. The parameters for an existing grand tour will be recalled and you can modify them.
Start / Stop	Select a grand tour and click this button to start grand tour, click again to stop it. After a grand tour has been started, go to **Camera** menu to see it in action. Only one grand tour can be activated at the same time.
Remove	Remove a grand tour from the list.

If you wish to add a new set of grand tour, click **Add** to start to add a new grand tour set:



The descriptions of every setting in this menu will be given below:

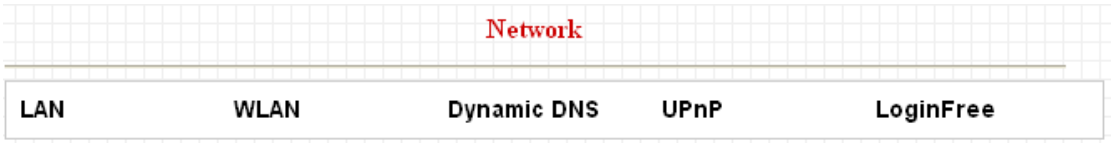
Name	Input the name of this set of grand tour here. As you may have many sets of grand tour, please give it a meaningful name so you can remember the main purpose of this set.
View with random order	Do not visit all positions in this grand tour by order; visit them randomly instead.
Available positions	Select preset points from dropdown menu here, then click **Add to list** to add this position to this grand tour. When you click **Add to list**, you'll be prompted to set these parameters:  **View Time:** Define the time you wish the camera to stop at this position in seconds. **View Order:** Give this position a number greater than 1 and not the same with other positions, and grand tour will start visiting positions by order (from 1 to last number, and then start from 1 again). **Remove:** Remove this position from list. **Save:** Save settings for this position. **Close** Close this window and discard all changes.

3.5 Network Settings

All network-related settings can be found in this menu, and you have to specify TCP/IP parameters in this menu if you want to change IP address, use PPPoE, Dynamic DNS, and activate UPnP function.

You can access this menu by clicking **LAN** on the top of web management interface.

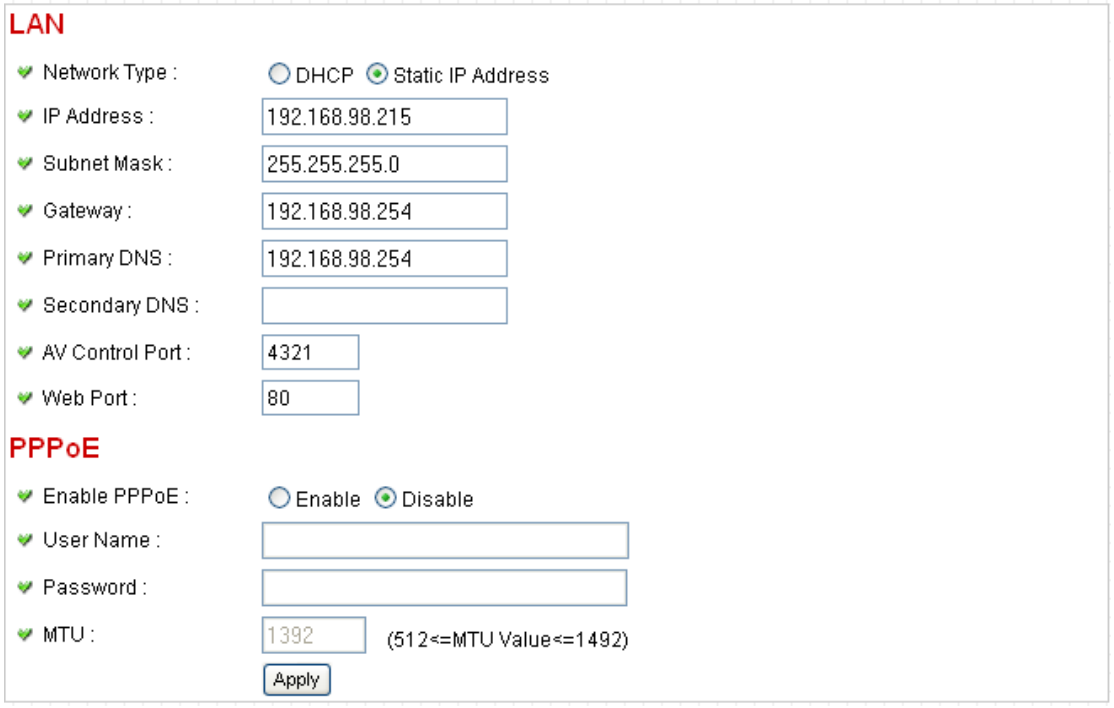
After you selected **Network**, network setting menu will appear. There are 5 sub-menus available here:



Please click the network setting you wish to set, and then refer to instructions given below:

3.5.1 LAN

You can define IP address and select the port number you wish to use here.

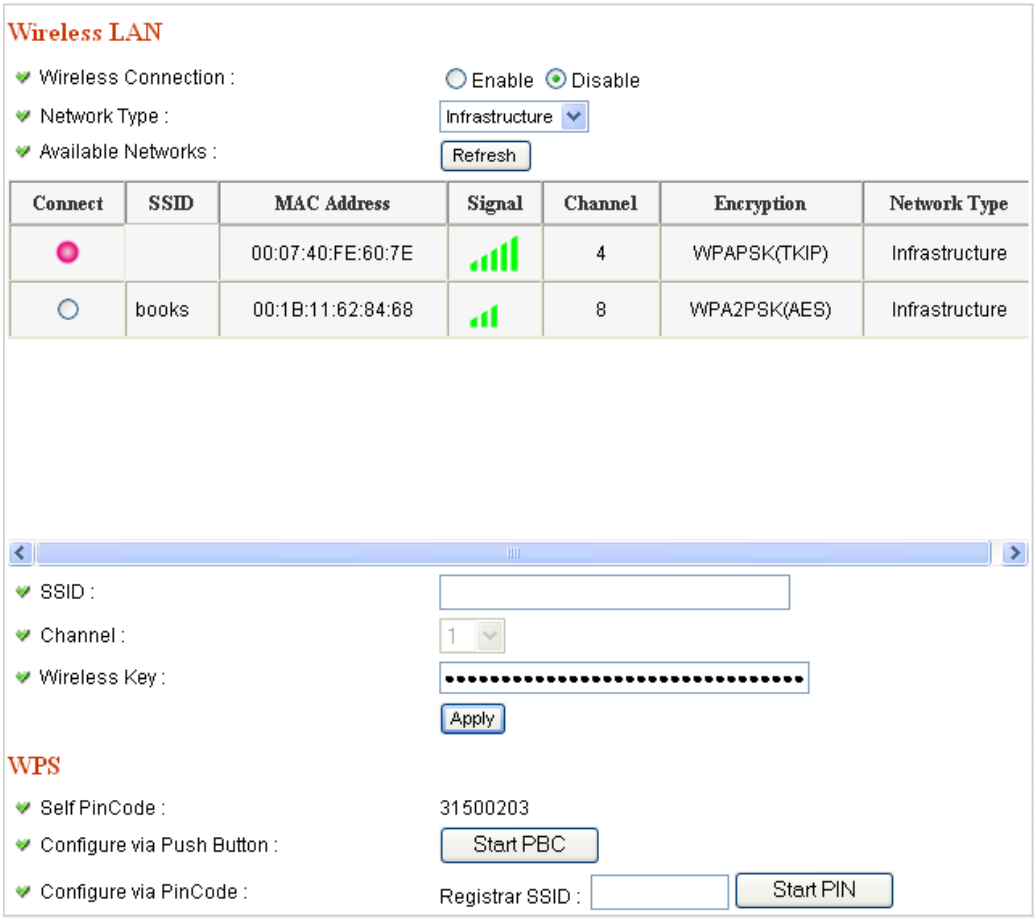


The descriptions of every setting in this menu will be given below:

Network Type	This camera can obtain the IP address from DHCP server automatically (if you have one), or set a fixed IP address. Select **DHCP** to obtain IP address automatically or **Static IP Address** to assign this IP camera with a fixed IP address. When **DHCP** is selected, IP address parameters below will be grayed out.
IP Address	Specify the IP address for this IP camera here.
Subnet Mask	Specify the subnet mask for this IP camera here.
Gateway	Specify the gateway address of the local network here.
Primary DNS	Specify the IP address of DNS server here. Please input IP address only. If you don't know the address of DNS server, ask network administrator or your ISP for help.
Secondary DNS	Specify the IP address of backup DNS server here. When primary DNS is unreachable, IP camera will use the IP address specified as DNS server. The field is optional.
AV Control Port	Specify the port number of video transfer here. If you have firewall on your network, you need to allow computers on Internet to access this port number of the IP address of IP camera, or you'll not be able to view video from Internet.
Web Port	Specify the port number of web management interface here. If it's not 80, you'll have to add **port** after the IP address / hostname of this IP camera. For example: If the HTTP port number you specified here is 90 and the IP address of IP camera is 10.20.20.30, then you have to input 'http://10.20.20.30:90' in the address bar of Internet explorer.
Enable PPPoE	Select **Enable** to activate PPPoE function of this IP camera, select **Disable** to disable it.
User Name	Input the PPPoE username assigned by your ISP here.
Password	Input the PPPoE password assigned by your ISP here.
MTU	Input the MTU (Maximum Transmission Unit) given by your ISP here. Ask your ISP if you don't know what value you should input here. Default value should work with most of ISPs and will give you a nice network performance.

Click **Apply** to save settings and make the new settings take effect.

3.5.2 WLAN (ICA-M220W only)



The descriptions of every setting in this menu will be given below:

Wireless Connection	Select **Enable** to activate wireless network function of this IP camera, select **Disable** to disable it.
Network Type	Select the network type of wireless connection. Available options are **Infrastructure** (Connect the IP camera to a wireless access point), and **Adhoc** (This IP camera will become a stand-alone wireless network point, other wireless computers / devices can discover this IP camera and connect to it without wireless access point). You can set to **Adhoc** when you don't have any wireless access point, but your computer has wireless network card. Set to 'Infrastructure' when you have wireless access point, and you have computers with wired network connection.

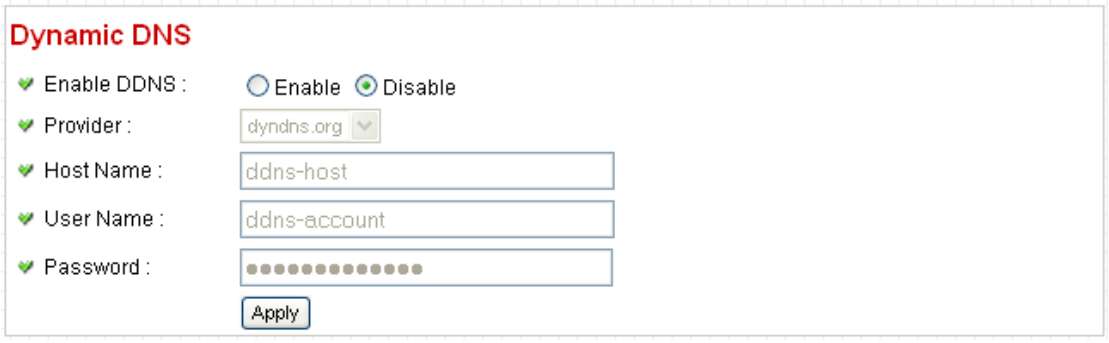
Available Networks	Here shows all wireless access points found by this IP camera. Please note not all access points will be displayed at the same time, if the access point you expected to connect does not appear, you may have to click **Refresh** button for several times until it appears. The descriptions of all fields is listed below: Connect: You can select the wireless access point you wish to connect here. **SSID:** The SSID of all found wireless access points will be shown here. Some wireless access point may hide their SSID; in this case, you have to identify them by their MAC address. **MAC Address:** If you there are many wireless access points in proximity or some wireless access point hides it's SSID, you can use MAC address to distinguish them. Signal: Shows the radio signal strength in percent. Channel: Shows the radio channel of this wireless access point. **Encryption:** Shows the encryption type used by this wireless access point. You must use the same encryption type if you wish to connect to a certain wireless access point. If the wireless access point does not use encryption, **Disabled** will be displayed here. **Network Type:** Shows the network type of a certain wireless access point (Infrastructure or Adhoc).
SSID	Input the SSID of the wireless access point you wish to connect. It should be less than 32 alphanumerical characters. When you select a wireless access point above, it's SSID will be filled in this field automatically. However, if the SSID is not displayed (the wireless access point you selected choose to hide it's SSID), you have to know it's SSID and input it here, or you will not be able to connect it.
Channel	Select the radio channel you wish to use here. When network type is Infrastructure, the radio channel is auto-selected according to the channel that wireless access point uses. You can only select the channel number when network type is **Adhoc**.

Wireless Key	Input the encryption key of selected wireless access point here. This is required when access point you wish to connect uses encryption.
Self PinCode	Here displays the WPS pin code used to connect to WPS-enabled wireless access points. You have to input this number into the WPS enabled access point to establish WPS connection.
Configure via Push Button	Click this button and this camera will enter PBC-style WPS connection state for 120 seconds. Please push 'Start PBC' button on the wireless access point you wish to connect within 120 seconds to establish WPS connection (The remaining time will be displayed on the button). If connection can not be established after 120 seconds, you'll be prompted by a message box, and you can press 'Start PBC' button to try again.
Configure via PinCode	If you have wireless access point's WPS PIN code, you can input it here and press **Start PIN** button to start to establish PIN-style WPS connection.

3.5.3 Dynamic DNS

If your ISP does not give you a fixed Internet IP address (i.e. the Internet address you're using when you access the Internet is not always the same – ask your ISP for detailed information), you can use this function to help you locate the IP address of this IP camera when you're away from home or office.

Before you can use this function, you'll need to apply for an account at dyndns.org (http://www.dyndns.org). Detailed instructions of how to apply a new account can be found on dyndns.org's website.



The descriptions of every setting in this menu will be given below:

Enable DDNS	Select **Enable** to activate Dynamic DNS function of this IP camera, select **Disable** to disable it.

Provider	Select dynamic DNS service provider here. Only dyndns.org is available currently.
Host Name	Input dynamic DNS host name here.
User Name	Input dynamic DNS user name here, must be the same as the one you applied on dyndns.org.
Password	Input dynamic DNS password here, must be the same as the one you applied on dyndns.org.

Click **Apply** to save settings and make the new settings take effect.

3.5.4 UPnP

When UPnP function is activated, all UPnP-compatible computers / network devices will be able to discover this IP camera automatically (only those in the same local network).

This function is useful and you don't have to remember the IP address of this IP camera. Simply open 'Network neighbor' and it's there!

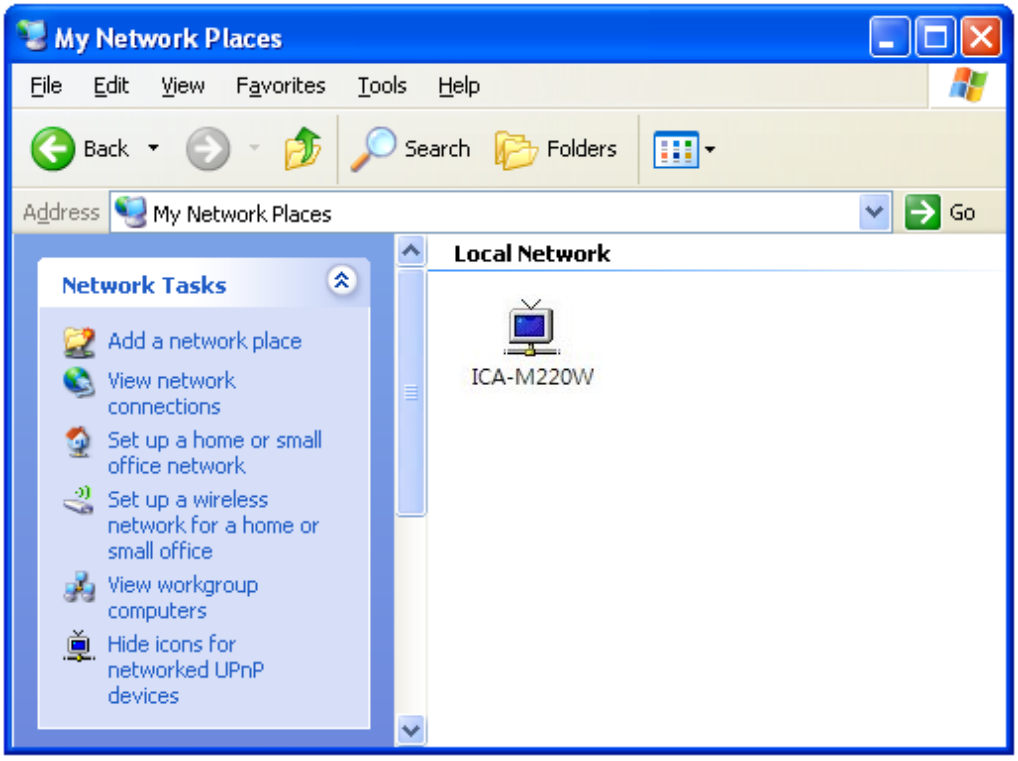
The descriptions of every setting in this menu will be given below:

Enable UPnP	Select **Enable** to activate UPnP function of this IP camera, select **Disable** to disable it.

Click **Apply** to save settings and make the new settings take effect.

After UPnP function is activated, a popup message will appear:

Click the message to open **My Network Places**, and you'll see the IP camera:



You can double-click the icon to launch Internet Explorer and log onto IP camera's web management interface directly.

3.5.5 LoginFree

This camera provides a method to let unauthorized users to view the image captured by this camera, which is called as **LoginFree**. When you wish to let everyone to view the image captured by this camera, or integrate the image with your own web application, you can use this function:

Input the filename here, and click **Apply** to save settings, then other users can access the image by this filename with .jpg extension with the camera's IP address as prefix. For example, if your camera's IP address is '192.168.0.20' and the filename you set here is **picture**, then everyone on the web can access the image captured by this camera by using the following address:

http://192.168.0.20/picture.jpg

Please note that no authentication will be required to see the captured image. If you wish to disable this function, clear the text in **Filename** field and click **Apply**.

3.6 Motion Detection Setting

When you wish to use this camera to monitor the activities, motion detection function will be very useful. Camera will detect the motion in captured image, and take a snapshot when motion is detected. So you can use this camera to keep the safety of the belongings you have.

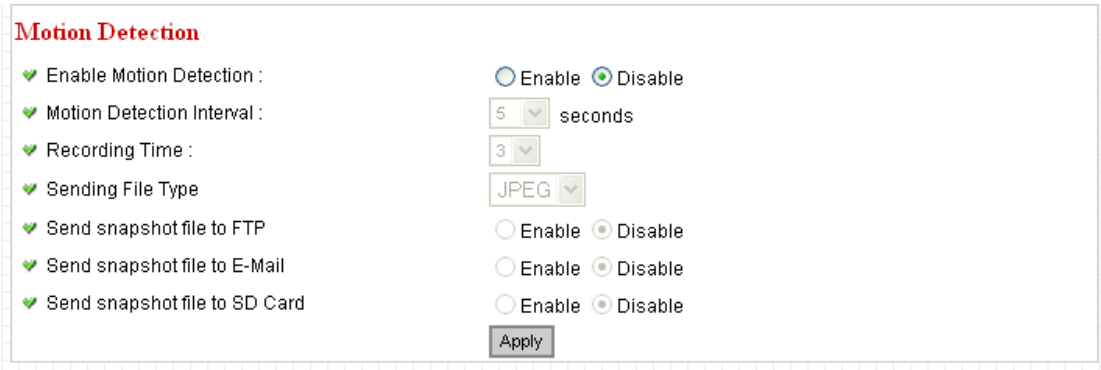
To use motion detection, click the following link from the top of menu:

After you selected **Motion Detection**, a sub-menu will appear. There are 5 sub-menus available here:

Detailed descriptions of every setting will be given below.

3.6.1 Motion Detection

You can use this menu to setup basic motion detection settings:



The descriptions of every setting in this menu will be given below:

Enable Motion Detection	Select **Enable** to enable motion detection, and select **Disable** to disable this function.
Motion Detection Interval	Select the time interval between two motions from dropdown menu. When a motion is detected, camera will not detect any motion again within the time interval you specified here. Available options are from 0 second (always detect new motion) to 60 seconds.
Recording Time	Select the duration you wish this camera to record image when a motion is detected from dropdown menu. Available options are 1, 2, 3, 4, and 5 (seconds).

Sending File Type	Select the file type that will be saved when a motion is detected. Select **JPEG** and a still picture in JPEG format will be saved; and select **AVI** to save a motion video clip.
Send snapshot file to FTP	Select **Enable** to send the saved file to appointed FTP server when a motion is detected, select' Disable' to disable this function. You have to configure FTP server parameters in **FTP Configuration** menu first, so this function will take effect (see below).
Send snapshot file to E-Mail	Select **Enable** to send the saved file to appointed E-mail address when a motion is detected, select **Disable** to disable this function. You have to configure mail server parameters in 'FTP Configuration' menu first, so this function will take effect (see below).
Send snapshot file to SD Card	Select **Enable** to send the saved file to SD card when a motion is detected, select **Disable** to disable this function. You have to insert a working SD card into the SD slot of this camera first, so this function will take effect.

Click **Apply** to save settings and make the new settings take effect.

3.6.2 Motion Region

You can define the motion detection region within the image that camera captures, so this camera will ignore motions which are not covered by the motion region setting, and reduce the chances of false alarm.

The descriptions of every setting in this menu will be given below:

Region 1 – 3	Check the box to enable motion detection region 1 to 3. You can check multiple boxes to enable multiple motion detection regions. When you checked a box, a new region (and region number) will be displayed on captured image.
Sensitivity	Move the slide bar to change the motion detection sensitivity setting: Drag the slide to the right to increase sensitivity (camera will detect minor changes in the image), and drag the slide to the left to decrease sensitivity (camera will only detect major changes in the image).
Refresh	In case the objects of the image captured by the camera moved, click this button to reload the image captured by camera, so you can decide the motion detection region more precisely.
Save	Save motion detection region settings.

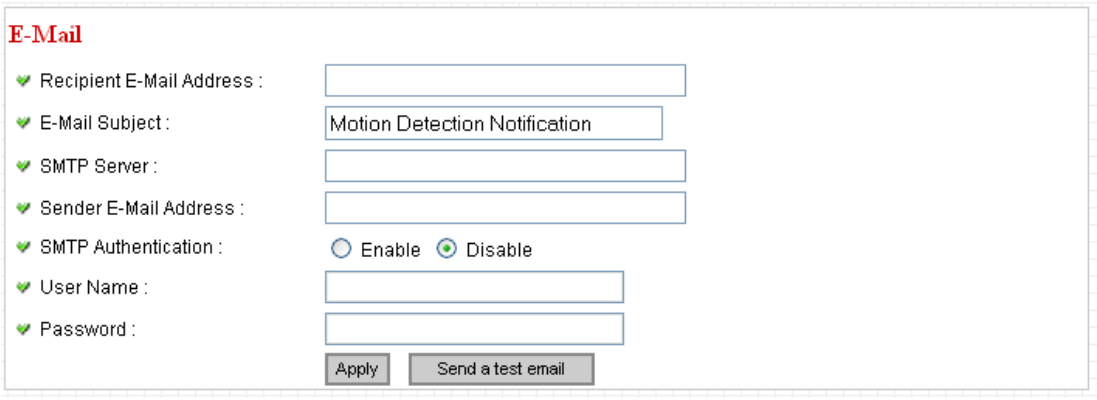
To change the motion detection region, you can **resize** and **reposition** it:

Move the mouse cursor to the eight dots located at the border of motion detection region, and the mouse cursor will switch to ↔ , ⤡ or ↕. You can click and hold mouse button and move the mouse to resize the motion detection region.

To move reposition the motion detection region, move the mouse within the motion detection region, and the mouse cursor will switch to ✥ Click and hold mouse button and move the mouse to reposition the motion detection region.

3.6.3 Email

You can define the destination address of E-mail sending and mail server parameters here.



The descriptions of every setting in this menu will be given below:

Recipient E-Mail Address	Input the email recipient's Email address here.
E-Mail Subject	Specify the title of sending email, so you can identify the mail sent from this camera from others quickly.
SMTP Server	Input the IP address or host name of the SMTP server (the server that delivers the Email for you) here. If you don't know, please refer to the SMTP server you're using in your Email software (like Outlook, Outlook Express etc.), or ask your network administrator or ISP.
Sender E-Mail Address	Input the Email address of mail sender, this will help you to identify the Email sent by this IP camera by sender's Email address. ***NOTE:*** *Some mail server would reject to deliver the Email from unknown sender, it's recommended to input your own Email address here, or any other actual one.*
SMTP Authentication	Some SMTP server requires mail senders to be authenticated before they can send Email. If your SMTP server requires you to do so, please select **Enable**, or select **Disable** to disable it. If you don't know, please refer to the SMTP server you're using in your Email software (like Outlook, Outlook Express etc.), or ask your network administrator or ISP.
User Name	Please input the user name of SMTP server here, if your SMTP server requires the use of authentication.
Password	Please input the password of SMTP server here, if your SMTP server requires the use of authentication.

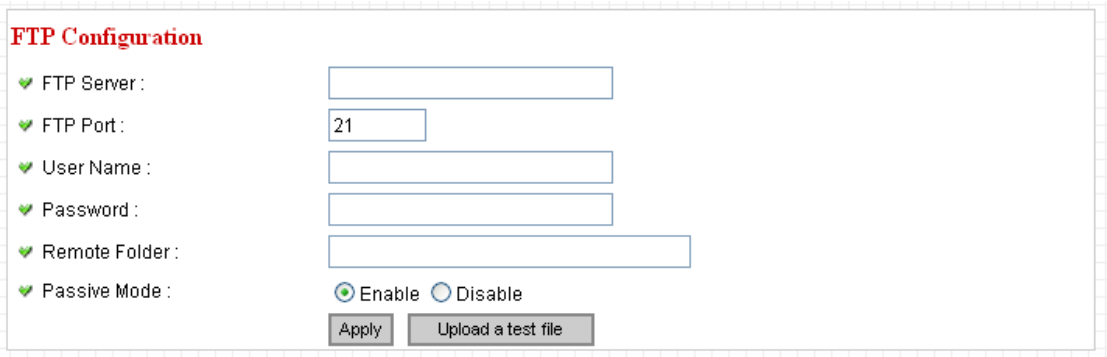
Recipient E-Mail Address	Input the email recipient's Email address here.

Click **Apply** to save settings and make the new settings take effect.

After that, you can click **Send a test email** to send a testing Email to the address you set here, so you can make sure the setting you specified here is correct and working.

3.6.4 FTP Configuration

You can set FTP server's parameters here.



The descriptions of every setting in this menu will be given below:

FTP Server	Input the IP address or host name of the FTP server you wish to use here.
FTP Port	Input the port number of the FTP server you wish to use here.
User Name	Input the user name of the FTP server you wish to use here.
Password	Input the password of the FTP server you wish to use here.
Remote Folder	Input the remote folder name on the FTP server here. If nothing is specified here, all uploaded image files will be placed in FTP server's root directory. Please ask FTP server's administrator to know which folder you should use. Certain user name may have restrictions and therefore can not place the file in the directory not owned by the user.
Passive Mode	Select **Enable** to use passive mode to send file, or select **Disable** to not to use passive mode to send file. Some FTP servers require passive mode, if you don't know, please ask FTP server's administrator; most of FTP servers will work fine with both modes, but if you found that non-passive mode is not working, you can try to use passive mode.

Click **Apply** to save settings and make the new settings take effect.

After that, you can click **Upload a test file** to send a file to the FTP server you set here, so you can make sure the setting you specified here is correct and working.

3.6.5 SD Card Configuration

You can define the filename and destination folder when saving a file in SD card.

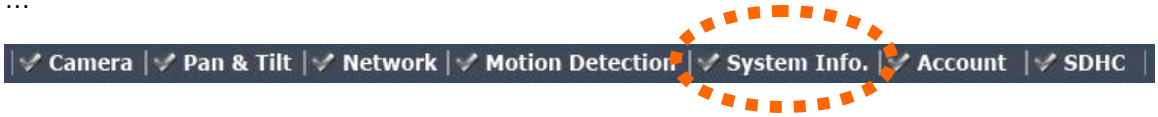
The descriptions of every setting in this menu will be given below:

File Name Prefix	Specify the filename prefix (the texts which will be added before the file sequence number).
Destination Folder	Specify the folder name that camera will store the saved image or video clip.

Click **Apply** to save settings and make the new settings take effect.

3.7 System Info

You can use this menu to get the operational information of this camera:
…



After you selected **System Info**, a sub-menu will appear. There are 4 sub-menus available here:

Detailed descriptions of every setting will be given below.

3.7.1 Camera Information

Camera information allows you to set the name and administrator's password of this camera.

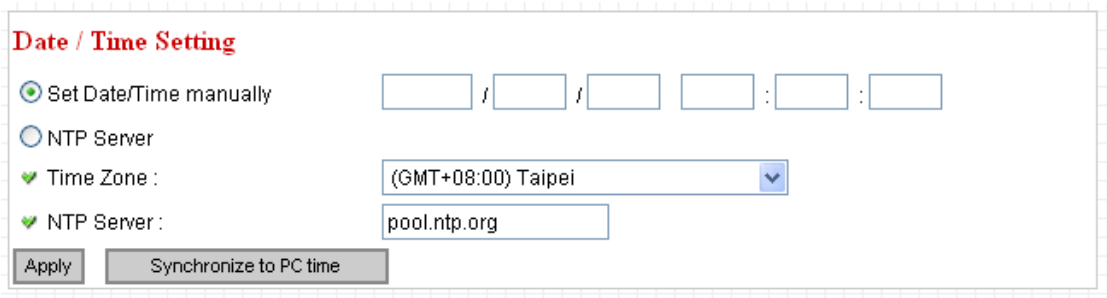
The descriptions of every setting in this menu will be given below:

Camera Name	Please specify the name of this IP Camera here. This can be used to identify your camera on the network when you have more than one IP camera in the same network. Default name begins with **ICA-M220/M220W**. You can modify the name to the one you can remember and meaningful to you, but never give all IP cameras in the same network with same name.
Password	Please specify user name admin's password here. (The one you need when you log onto web management interface and use 'admin' as user name.
Confirm Password	Please input the same password again, to make sure there's no typo.

Click **Apply** to save settings and make the new settings take effect.

3.7.2 Date / Time Setting

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



The descriptions of every setting in this menu will be given below:

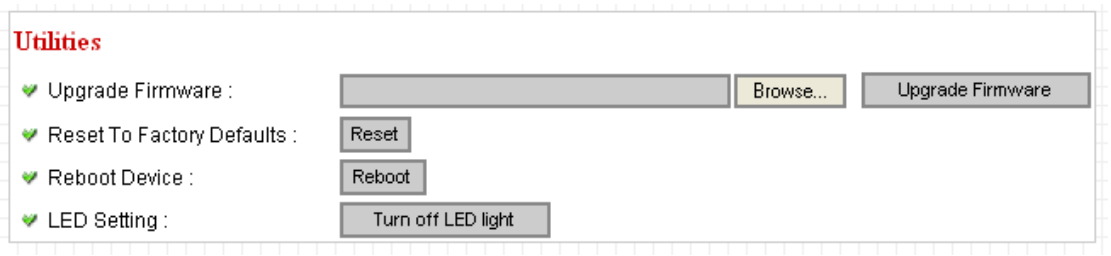
Set Date/Time manually / NTP Server	If you select **Set Date/Time manually**, you can set the date and time of this camera manually. Please input the date and time you wish to set here. Date / time format is YYYY / MM / DD HH:MM:SS Time is in 24-hour format. You can click **Synchronize to PC time** to use the time of the computer you're using. Example: 24th August 2007 = 2007/ 08 / 24, and PM 9:24:30 = 21:24:30 If you select 'NTP Server', the camera will get the date and time from NTP Server automatically.
Time Zone	Please select the time zone of the country / city of resident from dropdown menu here.
NTP Server	Please input the IP address or host name of NTP server here. You can use default value **pool.ntp.org**, or ask your ISP for the IP address or host name, if they have one.

Click **Apply** to save settings and make the new settings take effect.

If you wish to use the date and time setting of the computer which is connecting to the camera, click **Synchronize to PC time** button. The date and time setting of the computer will be filled to date and time setting in this page.

3.7.3 Utilities

This menu allows you to upgrade firmware, clear all settings, reboot the IP camera, and switch LED lights on/off.



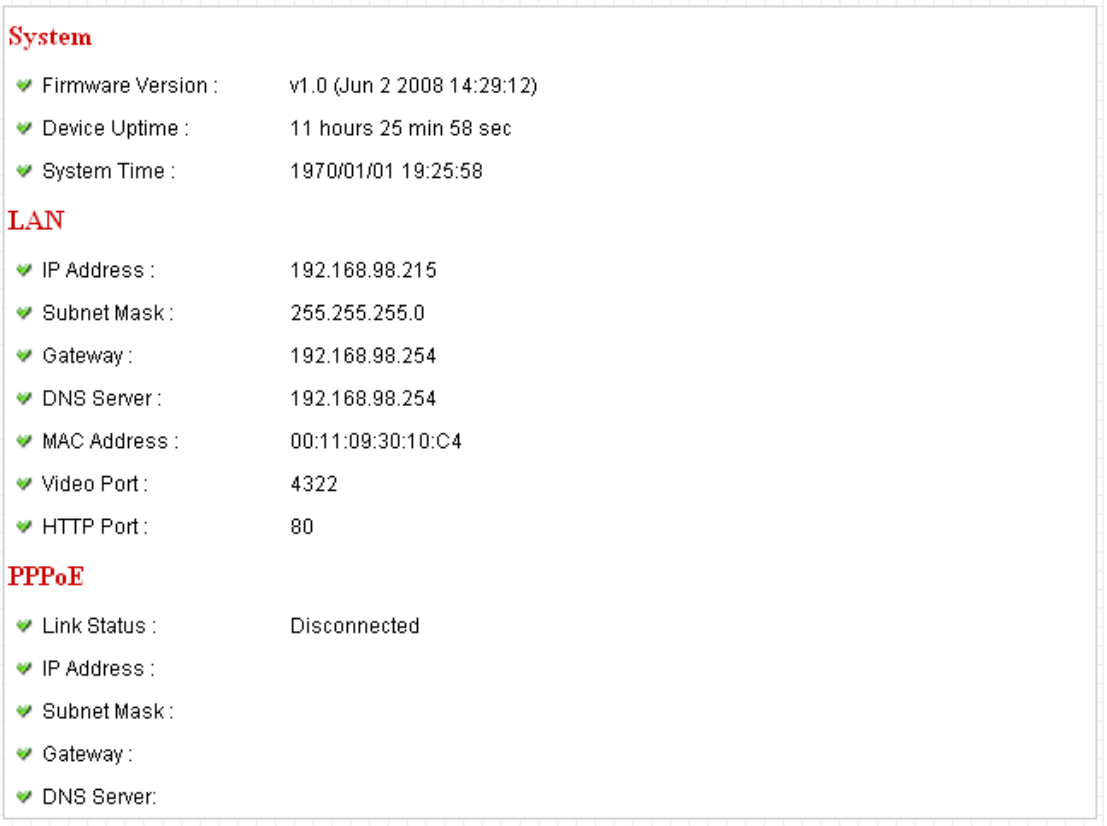
The descriptions of every setting in this menu will be given below:

Upgrade Firmware	If you downloaded latest firmware file from our website, you can click **Browse** button to pick a firmware file located on your computer's hard drive and you can upload the firmware file to the IP camera later. After you selected a proper firmware file from your computer, click **Upgrade Firmware** button to start upgrade. **DO NOT DISCONNECT NOW!** If the firmware file you provided is invalid of you didn't provide the firmware file, you'll be prompted to select another valid firmware file again. The IP camera will reboot after the upgrade procedure is done. **PLEASE NOTE THAT THE IP ADDRESS OF THE CAMERA WILL RESET TO DEFAULT VALUE: 192.168.0.20**
Reset to Factory Defaults	Clear all settings in the camera. Please think again before you do this, and then click this button to reset all settings. ***NOTE:*** *IP address will be reset to default value '192.168.0.20' also. You'll need to change the IP address setting of your computer if the IP address of your computer does not begin with '192.168.0', and subnet mask is not '255.255.255.0', or you'll not be able to connect to this IP camera again.*
Reboot Device	If you found the IP camera is responding slowly or behaves strange, you can click this button to try to reboot the IP camera, this may help.
LED Setting	Click **Turn off LED light** button to switch the LED light of this IP camera off, so all LEDs on the IP camera will stop working, in case you don't want other people know the camera is transferring data. You can click this button again to switch LED lights on again.

Click **Apply** to save settings and make the new settings take effect.

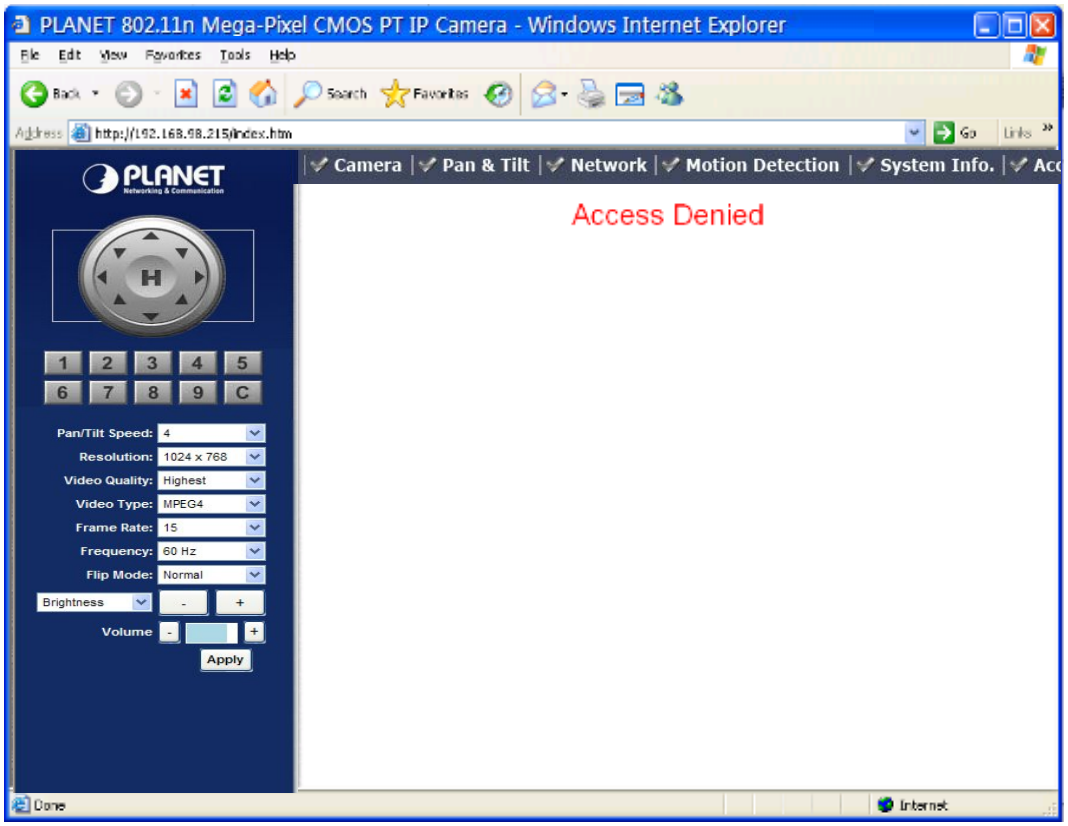
3.7.4 Status

This menu provides all information about this IP camera, like firmware version, system uptime, date / time, and network information.

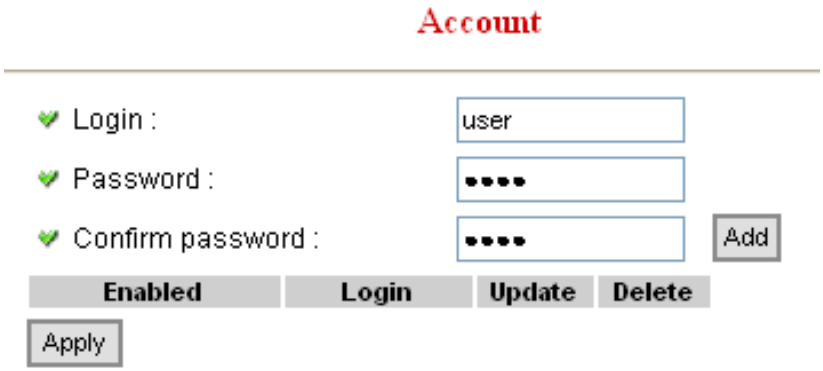


3.8 Account Settings

If you 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, you 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:



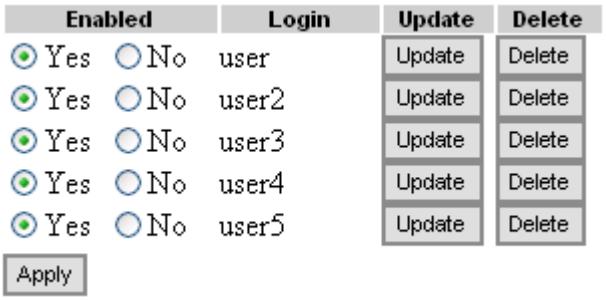
After you selected **Account**, you'll be prompted to input user account information:



The descriptions of every setting in this menu will be given below:

Login	Input the login name (user name) of this account.
Password	Input the password of this user here.
Confirm password	Input the password of this user here again for confirmation.
Add	Click this button to add the account.

When a user is added, it will be listed:



The descriptions of every setting in this menu will be given below:

Yes / No	Enable or disable this user account. If you just want to remove the access privilege of certain account and will give the privilege back later, you don't have to delete it, you can set to 'No' for this account when you want to remove the privilege temporarily, and set to **Yes** for this user when you want to give the privilege back.
Update	Update the account's user name and password. You can input the user name and password for this account again, and click **Add** to change its setting.
Delete	Delete this account. Please note that account will be detected right away when you click this button, so think again before you do it.

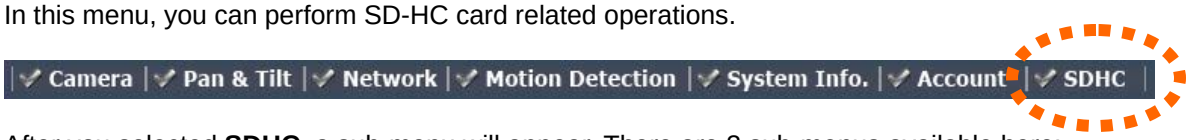
Click **Apply** to save settings and make the new settings take effect.

Note

Only one user (including administrator) will be able to view the image of IP camera at the same time.

3.9 SDHC

In this menu, you can perform SD-HC card related operations.

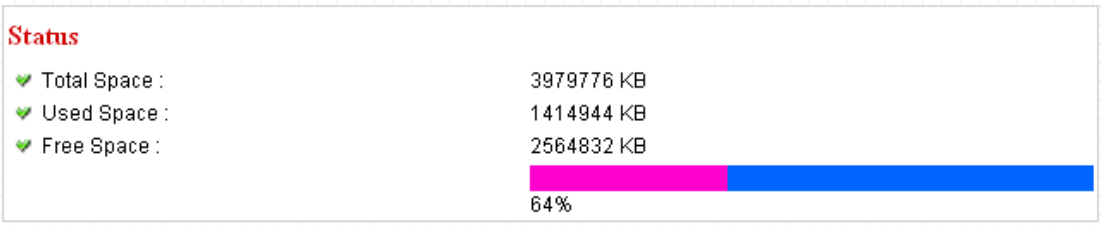


After you selected **SDHC**. a sub-menu will appear. There are 3 sub-menus available here:

Please click the SD card setting you wish to set, then refer to instructions given below:

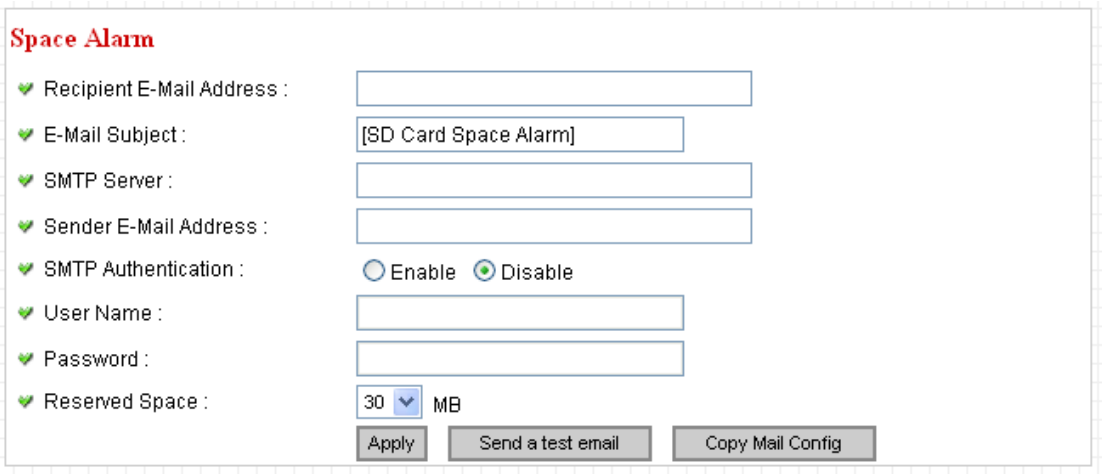
3.9.1 Status

Here shows the remaining card space for you.



3.9.2 Space Alarm

When you're using SD card to store captured image and video clip, you can have this camera to send an E-mail to you when there's only little remaining space left on SD card.



Note

If you have set E-mail settings in "Motion Picture" function, you can click "Copy Mail Config" button to use the same setting. However, user can use a different setting here.

The descriptions of every setting in this menu will be given below:

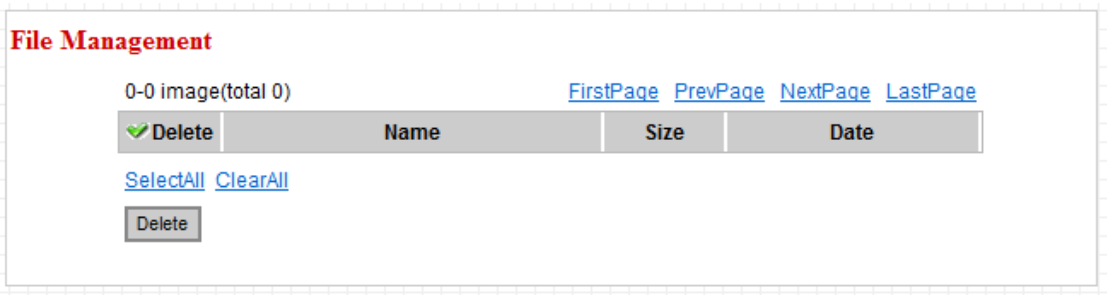
Recipient E-Mail Address	Input the E-mail address you wish to receive space alarm.
E-Mail Subject	Input the title of space alarm E-mail.
SMTP Server	Input the SMTP server address you wish to use to send E-mail.
Sender E-Mail Address	Input the sender E-mail address of the space alarm E-mail.
SMTP Authentication	Select **Enable** if the SMTP server you're using requires authentication, and input the username and password below; If the SMTP server you're using does not require authentication, select 'Disable' here. If you're not sure, ask your ISP or network administrator.
Reserved Space	Select the amount of SD card space which will be reserved and will not be used from dropdown menu.

Click **Apply** to save settings and make the new settings take effect.

User can click **Send a test email** button to send a test E-Mail by the configuration you set here.

3.9.3 File Management

You can use this menu to manage the files stored on SD card.

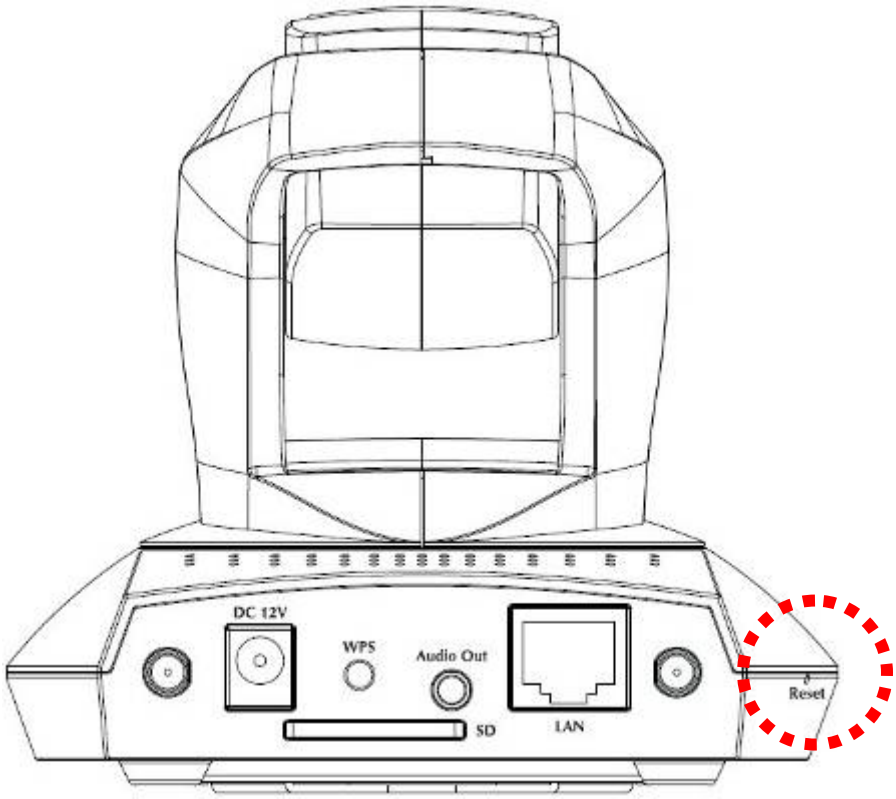


Appendix A: Reset Factory Default Settings

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

Restore the device:

1. Insert the paper clip or other suitable tool to press and hold the button down continuously.
2. Hold it over 8 seconds and release the tool. Then the device has been restored to default settings and reboot again.



Note

Restoring the factory default setting will lose the all previous settings included IP address forever. User needs to runt the Admin software to search the device and configure it to let the device 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 PT 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 PT 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 PT 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 PT Internet Camera, also can utilize the PING command but you must disconnect the PT Internet Camera from the network first.

Appendix C: DDNS Application

1. Preface

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

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

2. Ethernet Network Environment

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

(1) Environment of Fixed Valid IP Network

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

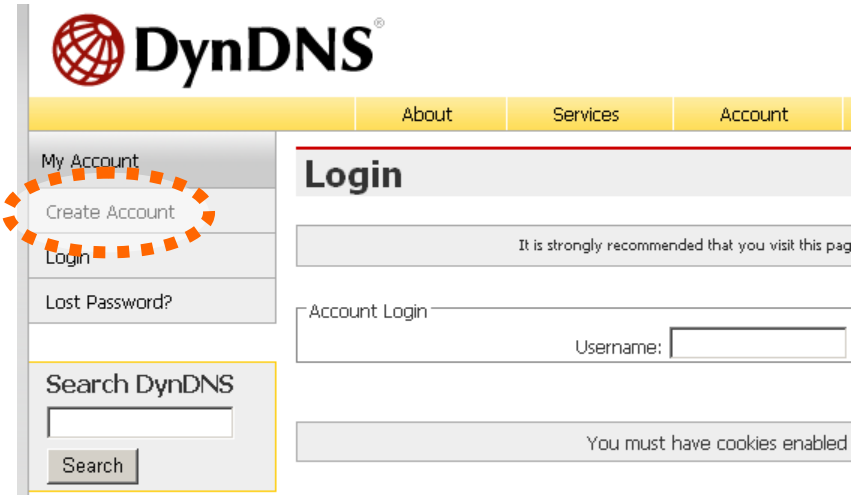
(2) Environment of Dynamic IP Network

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

3. Application Steps – DDNS & Domain Name

(1). Visit the following web site: http://www.dyndns.org/
(2). Click **Account**

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



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

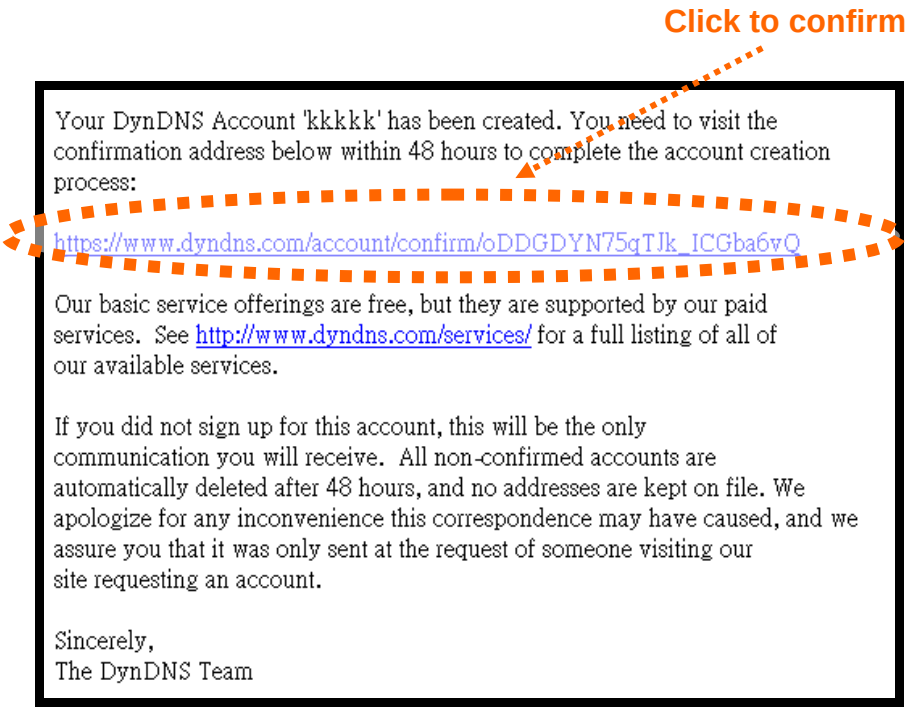
a. Username

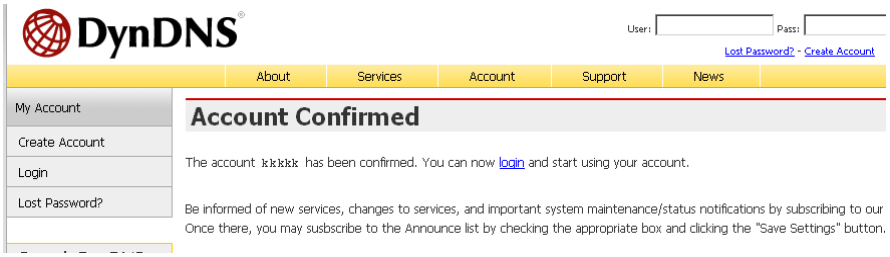
b. E-mail address and confirmation

c. Password and confirmation

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

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



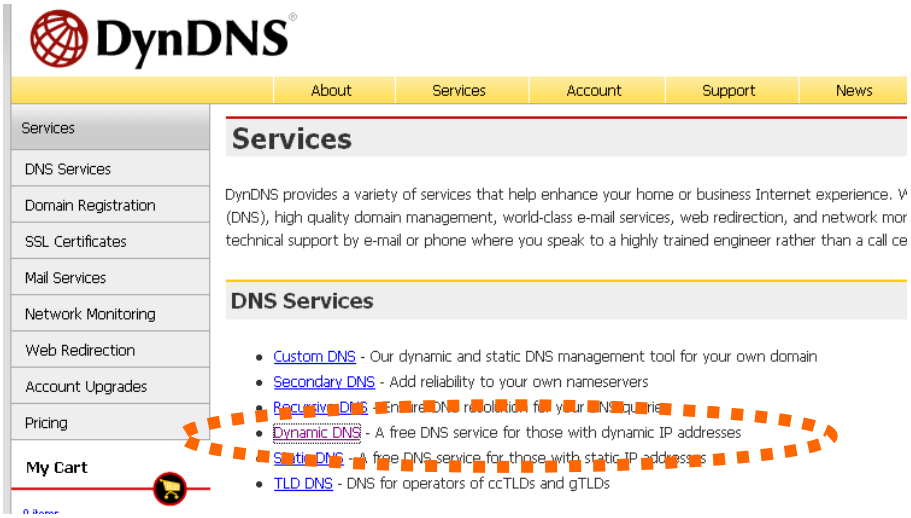


(6). Enter the web page http://www.dyndns.org/ again. Input your username and password that you just applied to login administration interface of DDNS server.

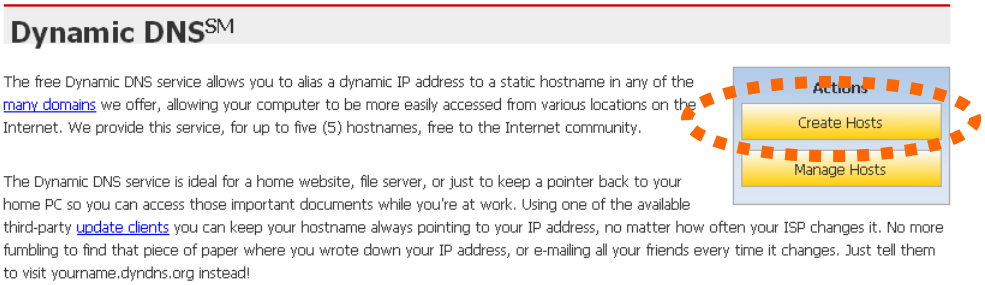
(7). If the correct username and password are input, you can see the following picture at the top-right of the login page.

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

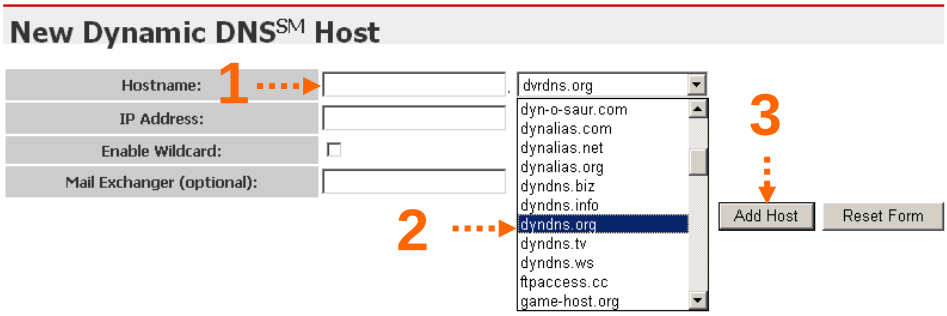
(9). Click the **Dynamic DNS**.



(10). Click the **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 and PPPoE of Network Device

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

Appendix D: ICA-M220 Series Specification

Product	ICA- M220W	ICA- M220
Video Specification		
Image Sensor	1.3Mega-Pixel 1/4” color CMOS sensor	
Lens	4.8 mm, F1.8	
Scan Method	Progressive	
Sensibility	1 Lux	
Signal to Noise	More than 50 dB	
Video Encoder	MPEG-4 and M-JPEG dual code	
Rate Control	CBR(Constant Bit Rate) / VBR(Variable Bit Rate)	
Video Resolution	30fps @ 640 x 480, 320 x 240, 160 x 120 15fps @ 1024 x 768 (MPEG-4) 15fps @ 1280 x 1024 (M-JPEG)	
Image Control	AGC, AWB, AES	
Color	Digital 24bit	
View Angle	Horizontal: 36 Degree / Vertical: 28 Degree	
P/T Range	Pan: 350 degree Tilt: 120 degree	
P/T Speed	5 levels speed adjustable Fastest (1) = 36.393 Degree/sec Slowest (2) = 0.212 Degree/sec	
Audio Specification		
Audio Codec	G.726	
Audio I/O	Audio in: Internal microphone / Audio out: External Speaker	
Network and Configuration		
Network Interface	1 x RJ-45	
Network Standard	IEEE 802.3/IEEE 802.3u	
Browser / Software	Microsoft ® Internet Explorer 6.0 or later, Cam Viewer Lite/Pro	
Network Protocol	TCP/IP, HTTP, SMTP, FTP, NTP, DNS DDNS, DHCP, UPnP, PPPoE	
Motion Detection	3 area definable	
Wireless Network		
Wireless Standard	IEEE 802.11b / 802.11g / 802.11n	-

Wireless Data Rate	11b: 1/2/5.5/11Mbps 11g: 6/9/12/24/36/48/54Mbps 11n (20MHz): MCS0-15, 32 with Half Guard Interval Support (up to 144Mbps) 11n (40MHz): MCS0-15, 32 with Half Guard Interval Support (up to 300Mbps)	-
Frequency	2.4GHz - 2.484GHz	-
RF Chain	2T3R mode	-
RF Modulation	11n: OFDM with BPSK, QPSK, 16-QAM, 64QAM 11g: OFDM with BPSK, QPSK, 16-QAM, 64QAM 11b: BPSK, QPSK, CCK	-
Wireless Encryption	WEP 64/128-bit, WPA-PSK, WPA2-PSK, Cisco CCX Support	-
Operating Mode	Infrastructure, Ad-Hoc Mode	-
Antenna Type	2 x 3 dBi (Max) Dual detachable diversity antenna	-
Antenna Connector	Reversed Polarity SMA Male	-
Output Power	802.11b mode: 17.5+/-2dBm 802.11g mode: 14+2/-1dBm 802.11n mode: 14+2/-1dBm	-
Receiver Sensitivity	11M : -90dBm 54M : -79dBm 300M : -68dBm	-
Wireless Operating Range	Open Space : 100 ~ 300m Inndoors : 35 ~ 100m	-
Wireless Power Impedance	802.11b:18dBm @ Nominal Temp Range 802.11g:15.5dBm @ Nominal Temp Range 802.11n:15.7dBm @ Nominal Temp Range	-
Environment Specifications		
Power Requirement	12V DC, 1A	
Dimension (W x D x H)	108 x 112 x108 mm	
Weight	350g	300g
Operating Temperature	0 ~ 50 Degree C	
Operating Humidity	10 ~ 80% (non-condensing)	
Emission	CE, FCC, PCT	