EDIMAX

NETWORKING PEOPLE TOGETHER

802.11g Wireless Internet Camera

User Manual

Version: 1.0

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Contents

1. Introduction

Thank you for choosing the Internet Camera. This Internet Camera sends live video through 10/100Mbps wired or 54Mbps 11g wireless network to a web browser or camera viewer across Internet anywhere in the world! This compact, self-contained unit lets you keep an eye on your home, your kids, and your workplace—whatever's important to you.

How does the Camera do all of this? Unlike standard "web cams" that require an attached PC, the Internet Camera can connect directly to a network. The Motion JPEG video compression produces a high quality, high-frame rate, 640 x 480 video stream.

The included Camera Viewer utility lets you record the video stream to your local hard drive, "live" or on a predetermined schedule.

Use the instructions in this Guide to help you integrate the Camera into your network. These instructions should be all you need to get the most out of the Internet Camera.

2. Package Content

- One Internet Camera
- One Antenna
- One Power Adapter
- One Camera Stand
- One 100M Category 5 Ethernet Cable
- One Quick Installation Guide
- One CD (Including Manual/Utility/Driver)

If any of the above items are missing, please contact your supplier.

3. System Requirement

System requirement for PC, MAC or Notebook PC to access the Internet Camera are:

- OS System: Windows 98SE, Me, NT, 2000, XP, Server 2003
- CPU: Intel Pentium III 750MHz above or Intel Celeron 1GHz above
- Memory Size: 128MB (256MB recommended)
- VGA Card Resolution: 800 x 600 or above

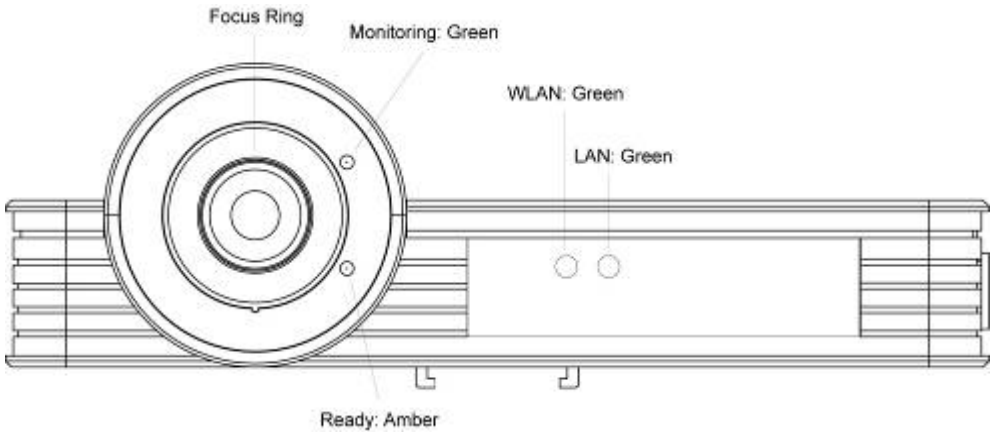
4. Hardware Installation

4.1. LED and Focusing

The Camera head and its focus ring allow you to modify the aim and focus of the Camera. To adjust the Camera's focus, rotate the dark focus ring.

There are four LEDs indicating the camera status and networking status.

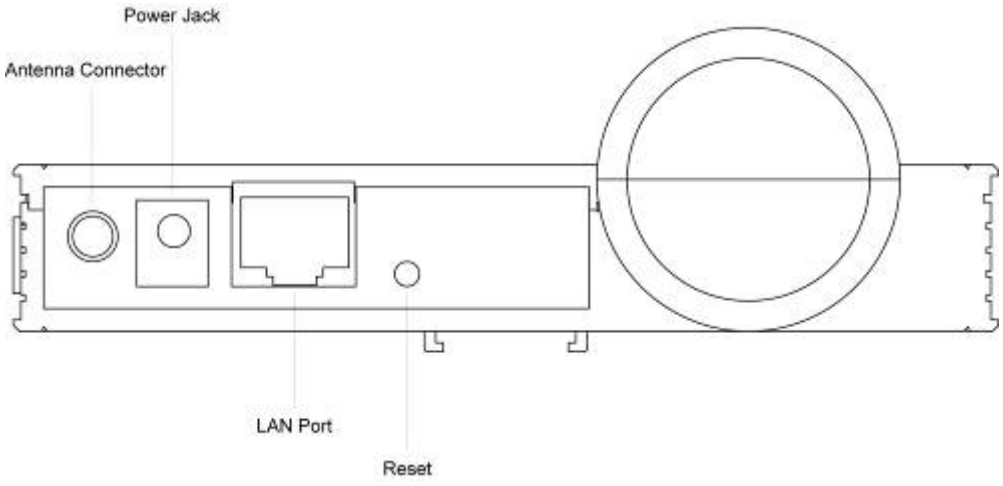
- **Monitoring**
  When someone is viewing the camera, the LED will light.
- **Ready**
  When the camera is power on and ready for access, the LED will light.
- **WLAN**
  When the Internet Camera is linking to a Wireless LAN AP or a Wireless Station, the LED is lighting. The LED is flashing when video is transmitted or received through wireless network.
- **LAN**
  When the Internet Camera is linking to wired network, the LED is lighting. The LED is flashing when video is transmitted or received through wired network.



4.2. Camera Ports

The Camera features three ports and a Reset button.

- **Antenna Connector**
  This round connection is standard Reverse SMA connector where any antennas with Reverse SMA connector can connect to the Internet Camera.
- **Power**
  The Power port is where you can connect the power adapter.
- **LAN**
  The LAN port is where you can connect the Ethernet network cable.
- **Reset**
  1. If problems occur with your Internet Camera, press the reset button with a pencil tip (for less than 2 seconds) and the Internet Camera will re-boot itself, keeping your original configurations.
  2. If problems persist or you experience extreme problems or you forgot your password, press the reset button for longer than 5 seconds and the Internet Camera will reset itself to the factory default settings (warning: your original configurations will be replaced with the factory default settings).



4.3. Installation Procedure

1. Unpack the Internet Camera package and verify that all the items listed in the Chapter 2 are provided.
2. Connect the Internet Camera to your network by attached the network cable from the switch/router to the UTP port of the Internet Camera.
3. Connect the power adapter to the Internet Camera and plug the power adapter to power outlet. The Internet Camera will be powered on. When the Internet Camera is ready, the Ready LED will show orange color.

Note: It is highly recommended to use the power adapter shipped with the Internet Camera, do NOT use any other power adapter from any sources.

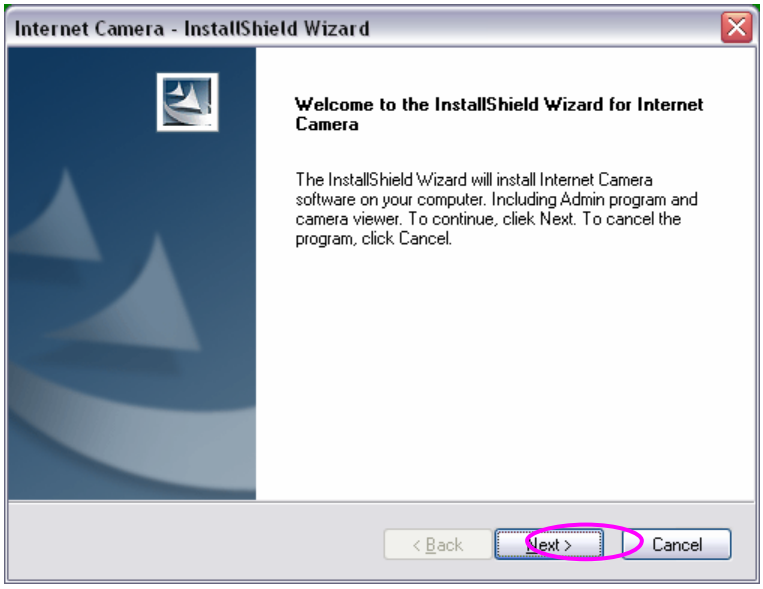
5. Software Installation

Follow the simple steps below to run the Install Wizard to guide you quickly through the Installation process. The following installation is implemented in Windows XP. The installation procedures in Windows 98SE/Me/2000/Server 2003 are similar.

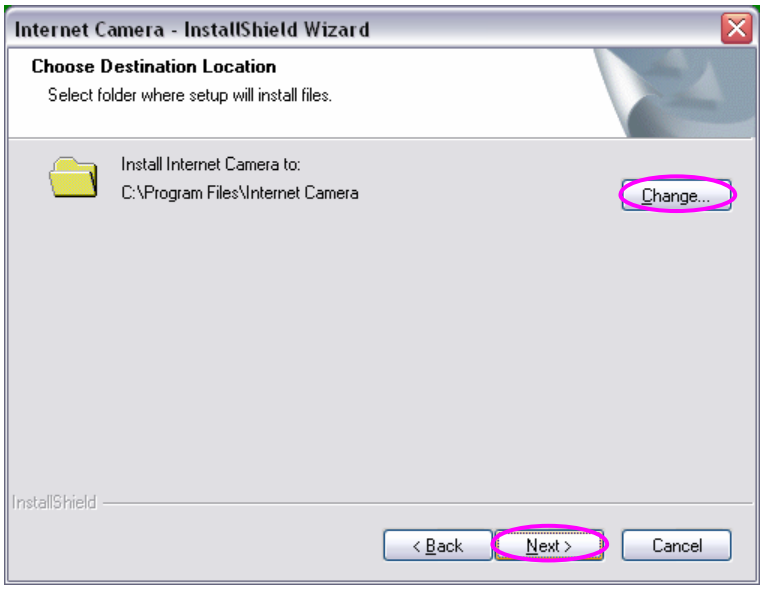
1. Insert the CD shipped along with the Internet Camera into your CD-ROM drive. The "Autorun.exe" program should be executed automatically. If not, run "Autorun.exe" manually from "Autorun" folder in the CD.

2. The Install Wizard will show four selections, select the program you want to install or click "Exit" to install the program later. The following installation steps are the demonstration of "IC-1000/Wg" and "Click To Setup".

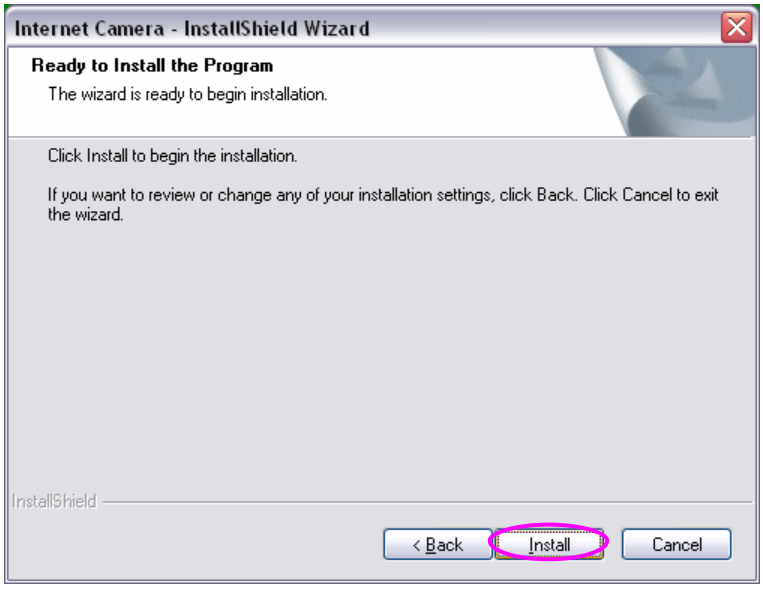
3. The system will start the installation procedures. Click "Next" to continue installation.



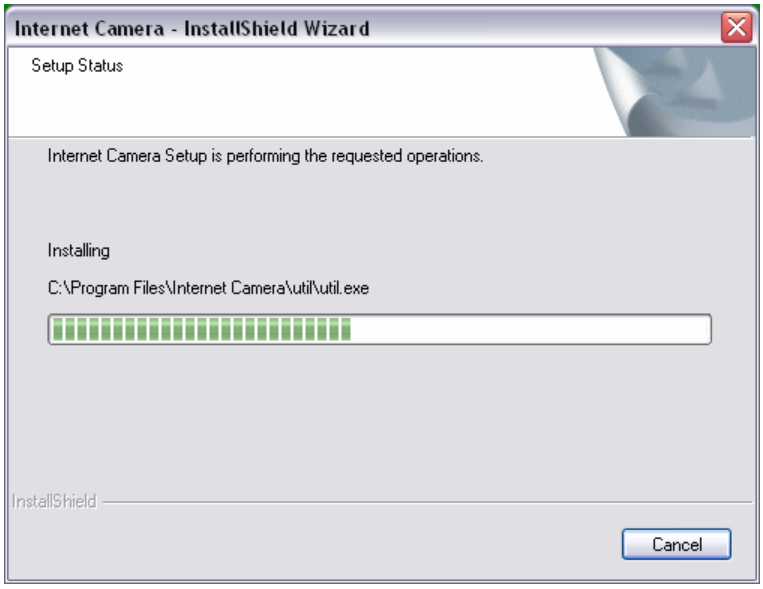
4. If you wish to install the software program in an alternate location, click "Change"; otherwise click "Next" to move on to the next step.



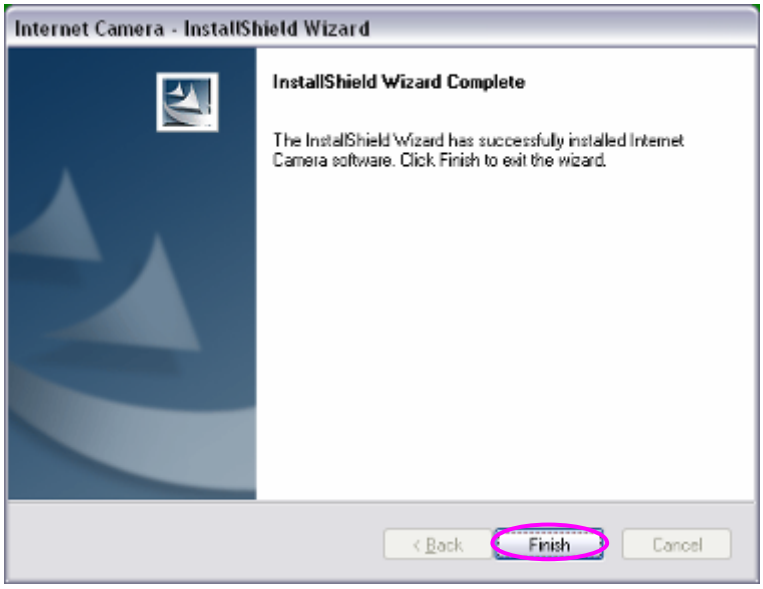
5. Click “Install” to start installing the program.



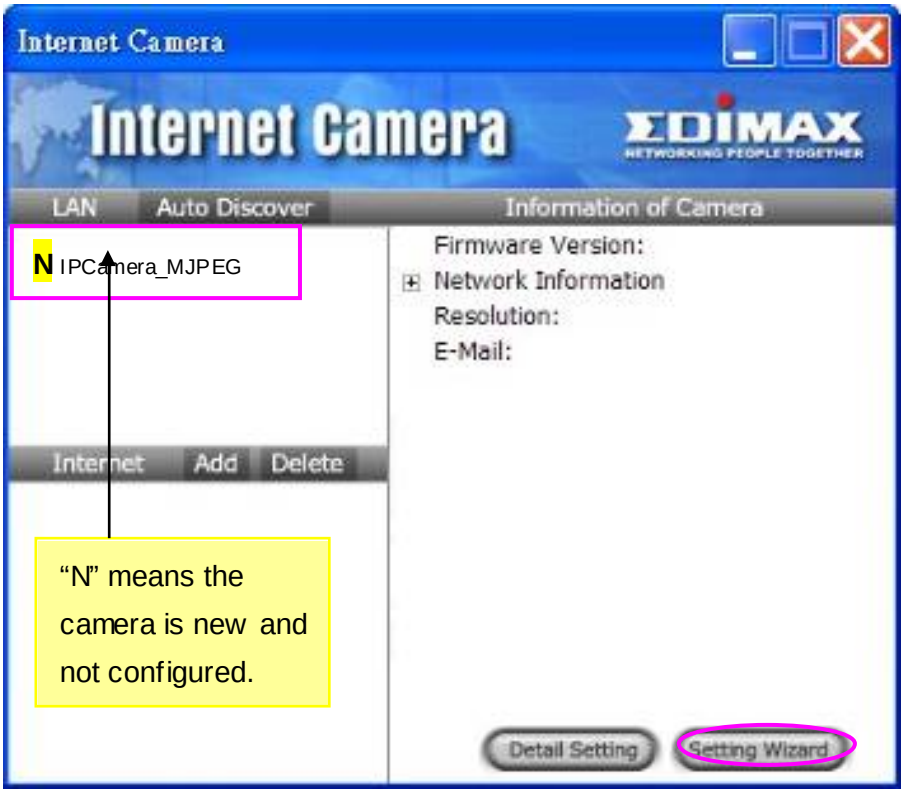
6. The system will install the program automatically.



7. Click “Finish” to complete the software installation.

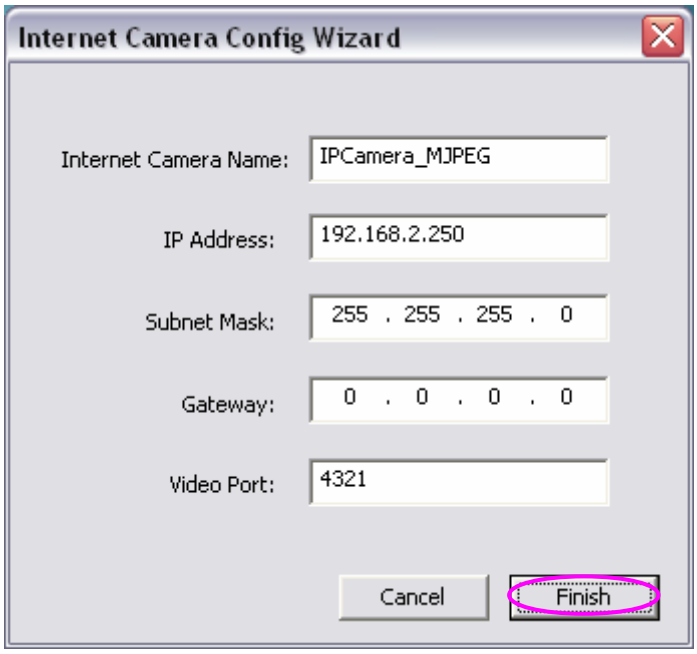


8. When the installation is completed. The system will auto run ”Administrator Utility“. On the Internet Camera first page, the cameras found in the network are listed in the left window. Choose the one you want to configure and click “Setting Wizard” to proceed.



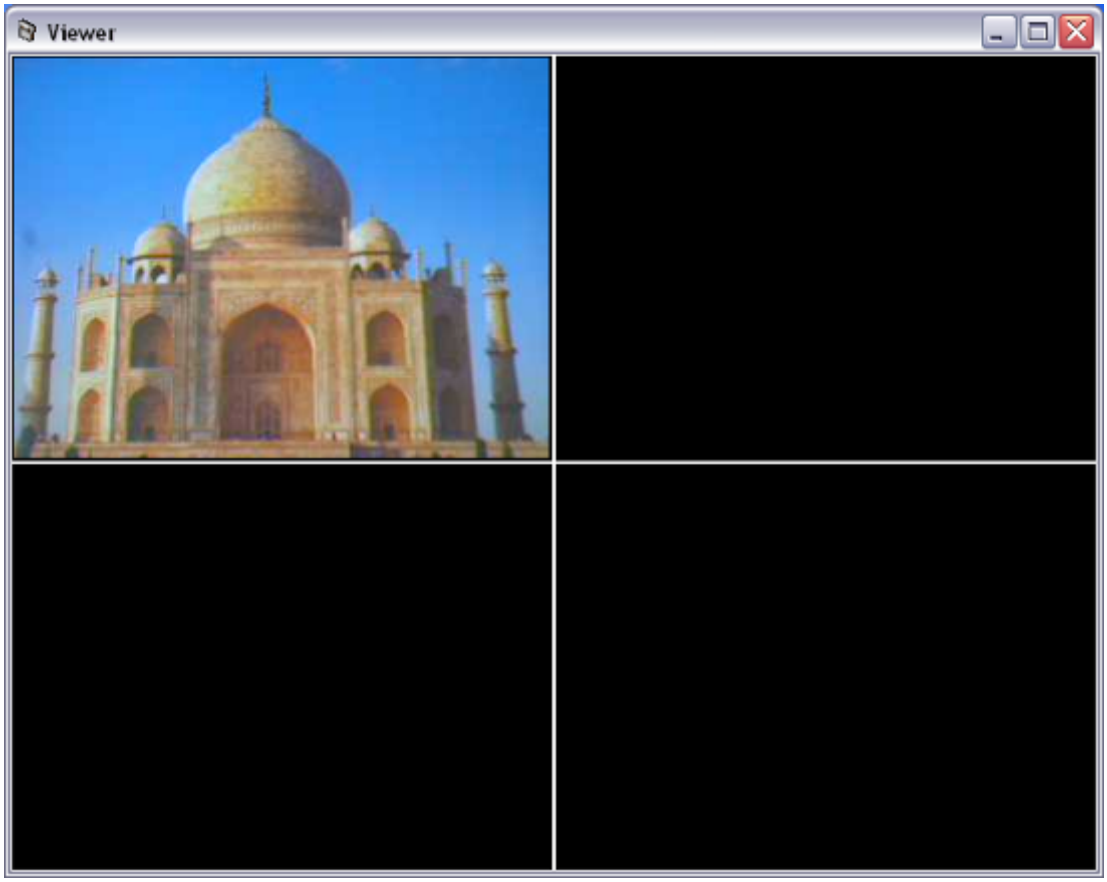
9. Please enter the default password “1234” and click “OK” to login to the IP setup page.

10. Internet Camera is working through the network (TCP/IP Protocol). The IP address setting must be correct, or you cannot access to the camera. The wizard program will detect the IP address status of your network automatically and suggest a free IP address for the Camera. You can accept the suggested value or enter the value manually. If you enter the value manually, please be aware that the “Subnet Mask” must be the same for both the camera and the PC. Click “Finish” to apply the configuration.



11. This wizard will pop up a window to ask you if you want to run the “Camera Viewer” and see the video of the Camera immediately. Select “OK” to run “Camera Viewer”.

12. The “Camera Viewer” will show the video automatically. Congratulations, you can use the camera through the network to view the video from now on.



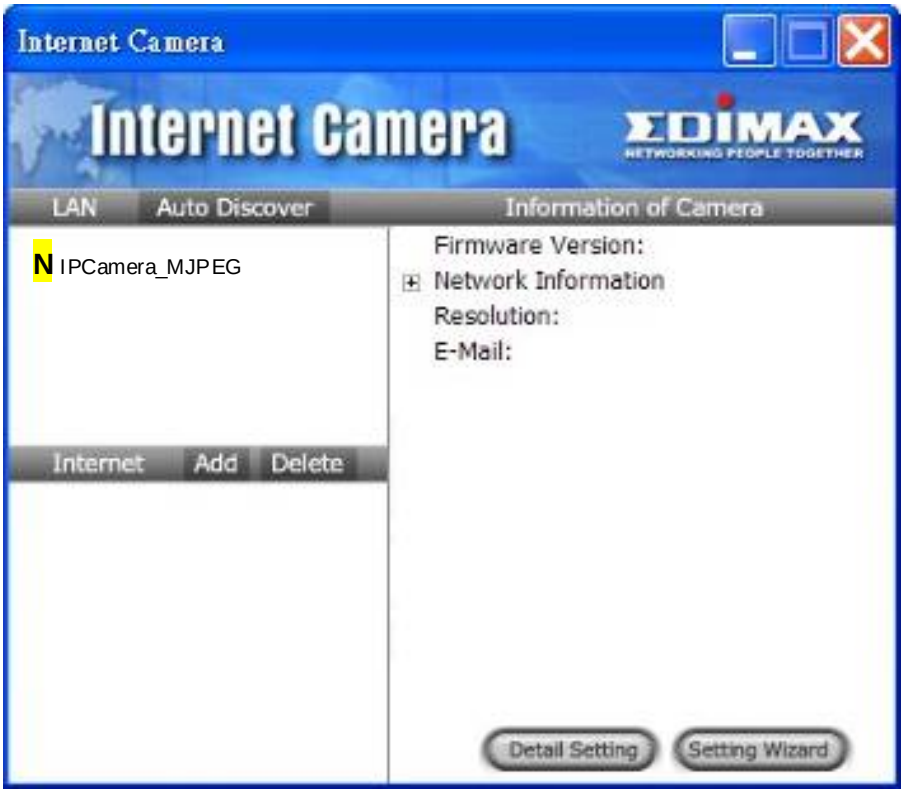
6. Using the Administrator Utility

The Administrator Utility allows users to search and setup the cameras located within the Intranet or on the Internet. From the utility, users can view all the information of the selected camera; furthermore, it provides a setting wizard, which can guide users to add the camera to the network easily and promptly.

There are two ways to run the Administrator Utility as follows.

1. Click “Start”, select “Programs\IP Camera\Admin Utility” to run the utility.
2. Click the “IP Camera Admin” icon  to run the utility.

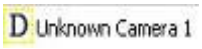
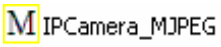
Once the utility is started, it will search all the cameras within the network. To do more settings, please refer to the description in the following sections.



6.1. General Setting

LAN	
Auto Discover	Click the button will search the camera within the network automatically.
Camera List	The list shows the camera name and the setup status of the camera.
	N IPCamera_MJPEG It means the camera is in the default setting.
	IPCamera_MJPEG It means the camera is configured before.

Internet	
Add	Click "Add" will appear a window for you to enter the IP Address of the camera on the Internet.
Delete	Click "Delete" to delete the camera from the list.

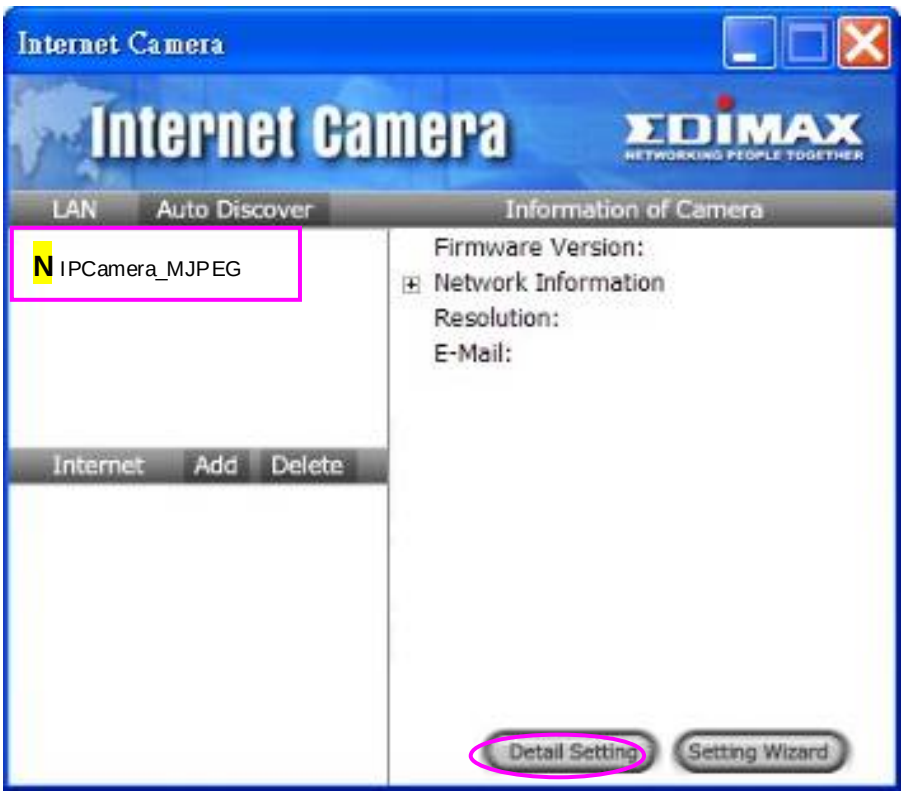
Camera List	The list shows the camera name and the connect status of the camera.  It means the camera is disconnected or not in the Internet.  It means the camera is connected.
Information of Camera	
Camera Information	It displays all information of the selected camera. The information includes Firmware Version, Network Information, IP Address, UPnP Setting, DDNS Setting, Wireless Setting, Resolution and E-mail setting, etc.
Camera Setting	
Detail Setting	Click "Detail Setting" to do more setting of the camera such as IP address, Resolution, password and firmware upgrade, etc.
Setting Wizard	Click "Setting Wizard" to setup the necessary setting for the camera.

6.2. Detail Setting

When you click the "Detail Setting", a screen will pop up for you to enter the "Administrator Name" and "Password". The default value is as follows.

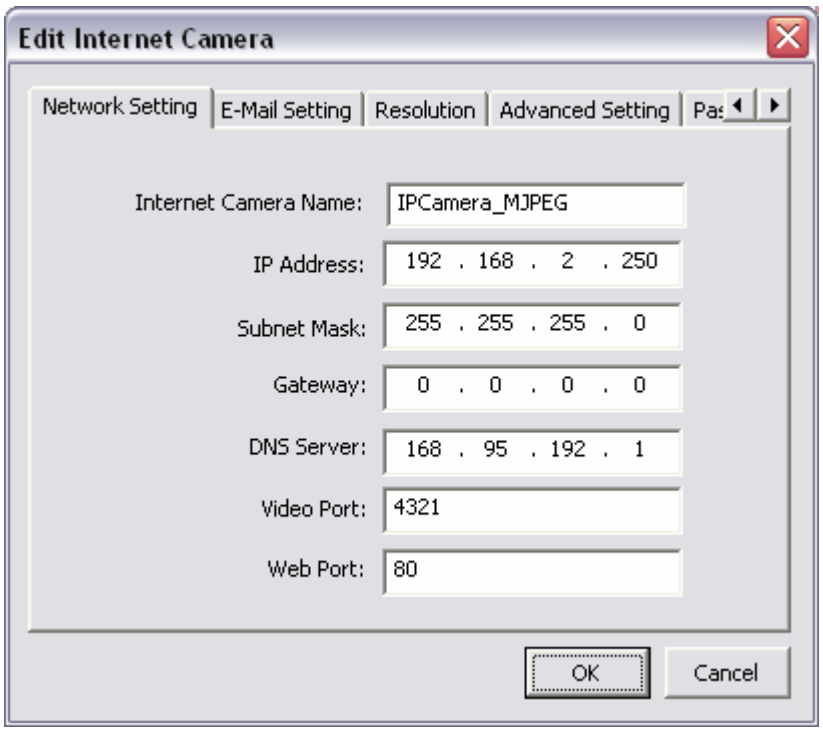
Name: "**Admin**"

Password: "**1234**"



If the name and password you enter are correct, you can start to setup the camera.

6.2.1. Network Setting

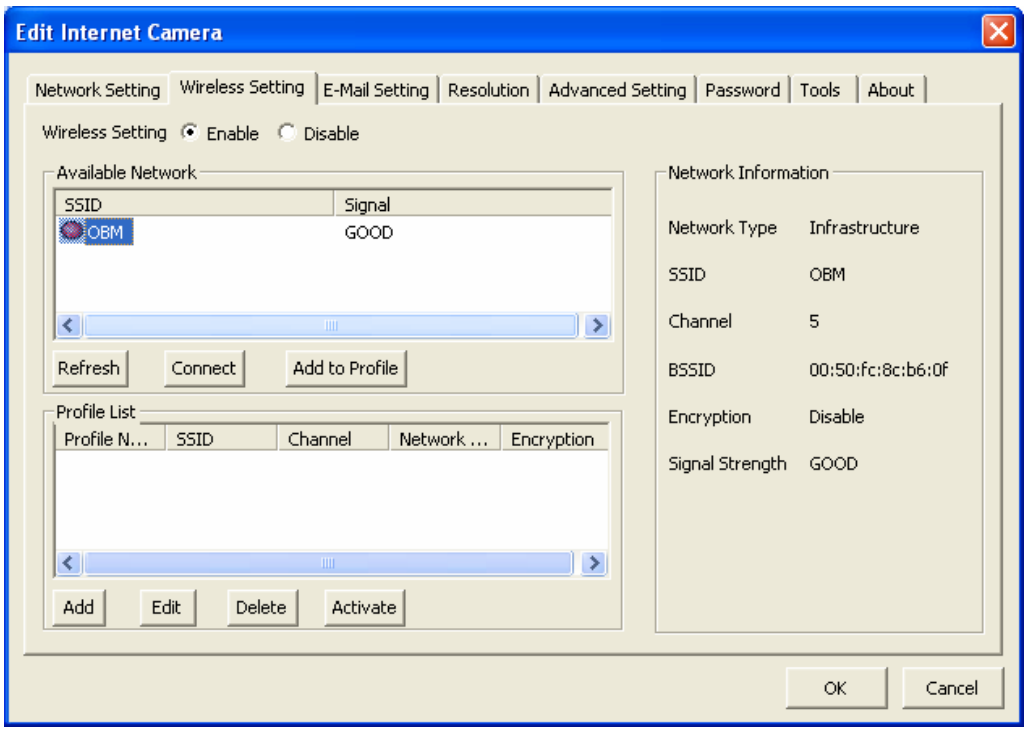


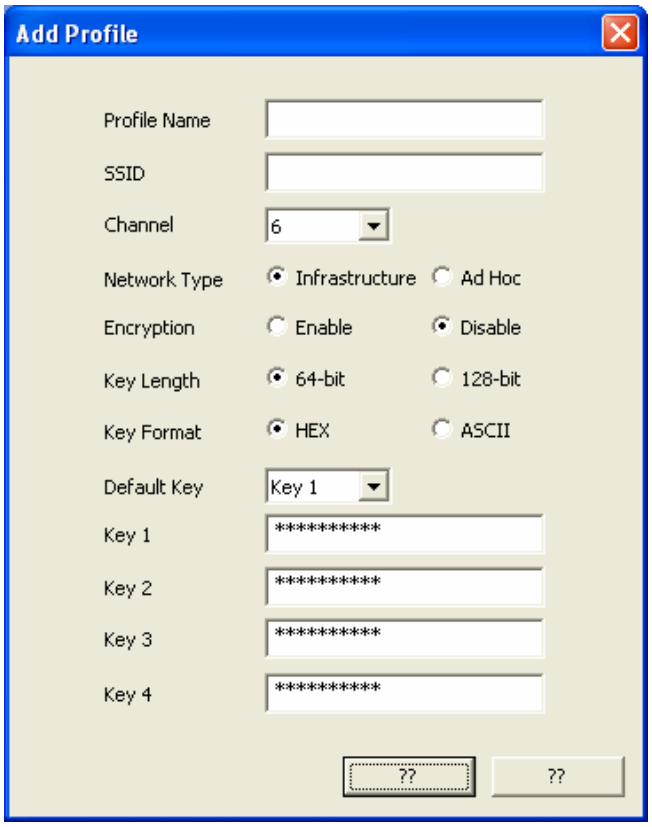
Network Setting	
Internet Camera Name	The default camera name is “WIPCamera_MJPEG”. It is recommended to name a meaningful name for the camera.
IP Address	Enter an unused IP Address within the IP address range used on your LAN. If the IP Address of your LAN is from the 192.168.2.1 to 192.168.2.254, you can set an unused IP Address from the range for the camera, for example: 192.168.2.250.
Subnet Mask	The Subnet Mask field must match the subnet setting on your LAN. For example: 255.255.255.0.
Gateway	The Gateway is used to forward frames to destinations in a different subnet on the Internet. The Gateway setting must be the same with the gateway used by the PCs on your LAN.
DNS Server	DNS Server (Domain Name Server) that translates names to IP addresses. Set the same DNS Server as the PCs on your LAN.

Network Setting	
Video Port	The Video Port is used to transmit or receive the video streaming in the network. The default port setting is “4321”. If you want to view the video from the camera, the port setting should be correct.
Web Port	This camera support web connection, the default web port is 80. Since the web server may use port 80, you can use a different port for the camera. If you change the web port from 80 to 8080, you must type **http://192.168.2.3:8080** to connect the camera through the web browser.

6.2.2. Wireless Setting

If you want to use the Internet Camera through wireless LAN, please set up the Internet Camera through Ethernet first and make sure your wireless LAN setting is correct. After setting the wireless LAN, unplug the Ethernet cable then you can start to use the Internet Camera through wireless LAN. If the wireless configuration does not work, please plug the Ethernet cable again, and configure the Internet Camera through Ethernet until the wireless LAN settings are correct.





Wireless Setting

Wireless Setting	Enable or disable the wireless function of the Internet Camera. By default, the function is disabled.

Available Network

Available Network	This list shows all available wireless networks within range of your Internet Camera. It also displays the information of the networks including the SSID and Signal Strength. If you want to connect to any networks on the list, double-click the item on the list or select the item and click "Connect", and the Internet Camera will automatically connect to the selected network.
Refresh Button	Click "Refresh" button to collect the new information of all the wireless networks nearby.
Connect Button	Click "Connect" to connect to the selected network.
Add to Profile Button	Add the selected network to Profile List and save it in your PC.

Profile List

Profile List	The "Profiles List" is for you to manage the networks you connect to frequently. The profile list displays all the profiles and the relative settings of the profiles including Profile Name, SSID, Channel, etc. If you want to connect to any profiles on the list, double-click the profile or select the profile and click "Activate", and the Internet Camera will automatically connect to the selected profile.
Add/Delete/Edit Button	Click these buttons to add/delete/edit the selected profiles.
Activate Button	Click "Activate" to connect to the selected profile. When a profile is activated, the card will be initially connected to the profile.

Configure the Profile

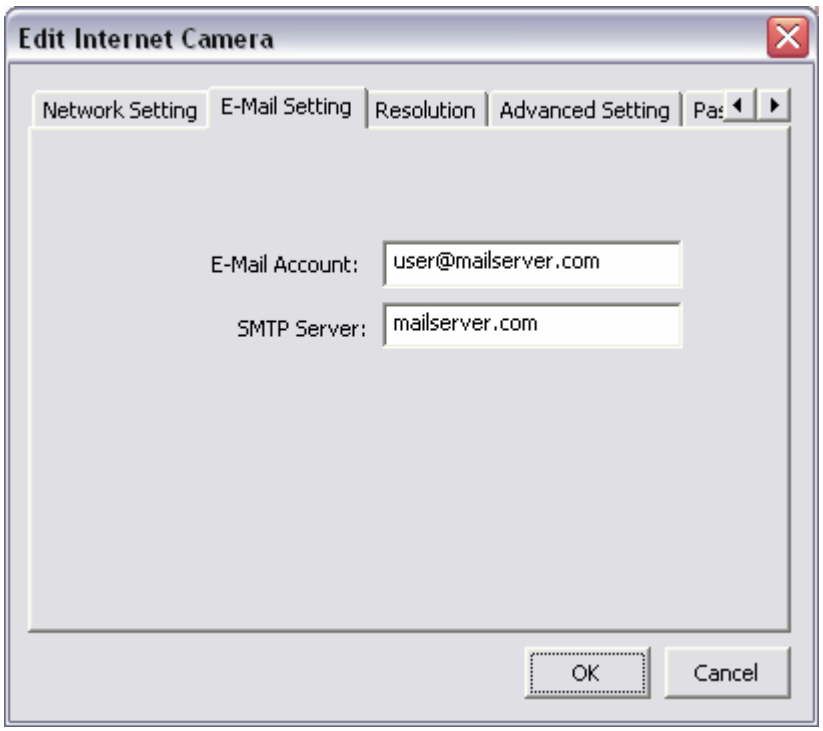
Profile Name	Define a recognizable profile name for you to identify the different networks.
SSID	The SSID (up to 32 printable ASCII characters) is the unique name identified in a WLAN. The ID prevents the unintentional merging of two co-located WLANs. You may specify a SSID for the card and then only the device with the same SSID can interconnect to the card. If you want to add one of the networks nearby to the profile list, pull down the menu, all the networks nearby will be listed and you can add one of them to the profile list.
Channel	This setting is only available for Ad Hoc mode. Select the number of the radio channel used for the networking. The channel setting should be the same with the network you are connecting to.
Network Type	Infrastructure – This operation mode requires the presence of a Wireless LAN Access Point or Router. All communication is done via the Access Point or Router. Ad-Hoc – Select this mode if you want to connect to another wireless stations in the Wireless LAN network without through an Access Point or Router.

Configure the Profile

Encryption	Enable or disable the encryption function for the wireless data communications.
Key Length	You may select 64-bit or 128-bit to encrypt transmitted data. Larger key length will provide higher level of security, but the throughput will be lower.
Key Format	Hexdecimal – Only “A-F“, “a-f“ and “0-9“ are allowed to be set as WEP key. ASCII – Numerical values, characters or signs are allowed to be WEP key. It is more recognizable for user.
Default Key	Select one of the keys (1~4) as the encryption key.
Key1 ~ Key4	The WEP keys are used to encrypt data transmitted in the wireless network. Fill the text box by following rules below. 64-bit – Input 10-digit Hex values (in the “A-F”, “a-f” and “0-9” range) or 5-digit ASCII characters (including “a-z” and “0-9”) as the encryption keys. For example: “0123456aef“ or “test1”. 128-bit – Input 26-digit Hex values (in the “A-F”, “a-f” and “0-9” range) or 13-digit ASCII characters (including “a-z” and “0-9”) as the encryption keys. For example: “01234567890123456789abcdef“ or “administrator”.

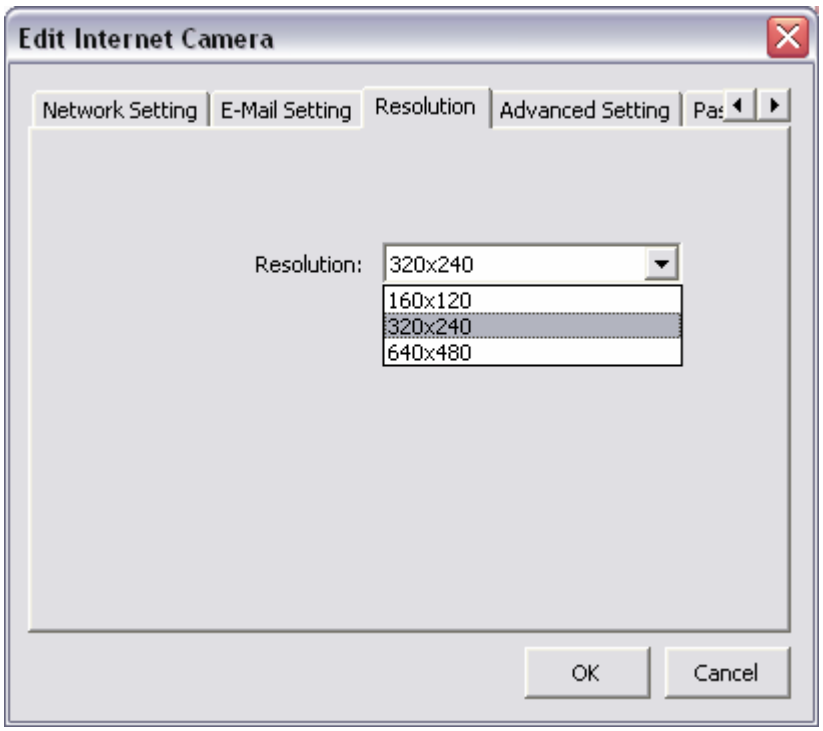
Network Information	
Network Information List	This list shows the detailed network information of the selected network from the Available Network list. The information including Network Type, SSID, Channel, BSSID, Encryption Setting and Signal Strength. BSSID is the MAC Address of the wireless devices.

6.2.3. E-Mail Setting



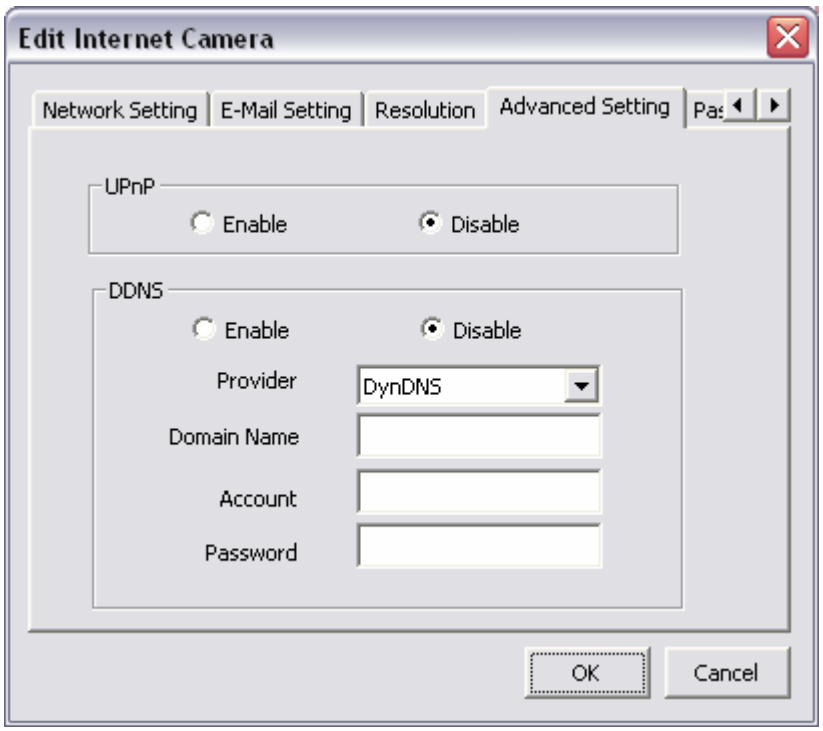
E-Mail Setting	
E-Mail Account	This camera supports “Snap Shot” function. You can snapshot a picture and send the picture by E-Mail. Enter the E-Mail Account for receiving the picture.
SMTP Server	Enter the SMTP Server for the E-Mail sending.

6.2.4. Resolution



Resolution	
Resolution	Select the desired video resolution format. Larger resolution requires more bandwidth. 640 x 480 is “VGA” format. 320 x 240 is “CIF” format.

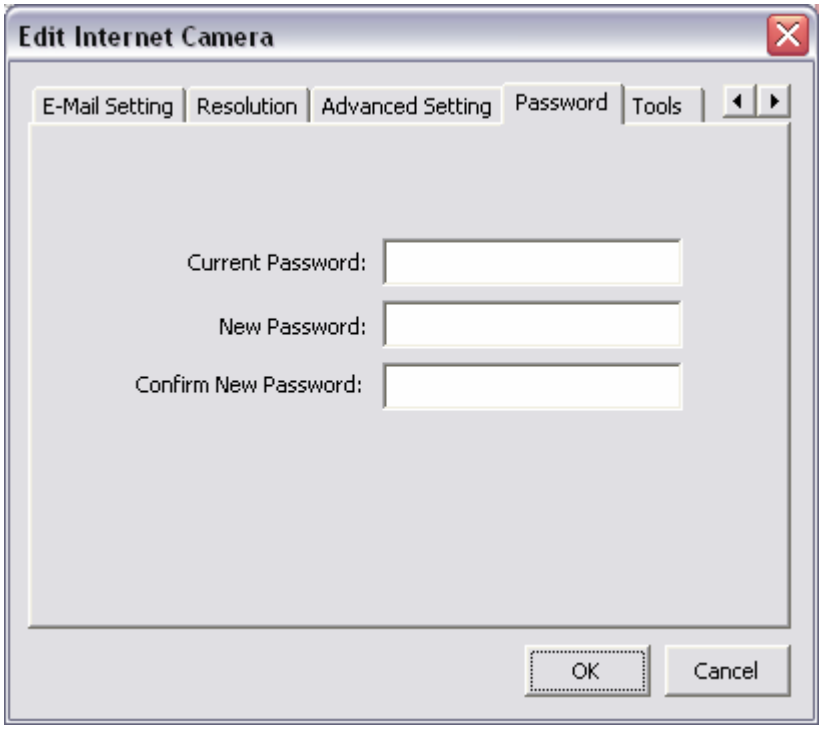
6.2.5. Advanced Setting



Advanced Setting	
UPnP	When the UPnP function is enabled, the camera can be detected by UPnP compliant system such as Windows XP. The camera will be displayed in the Neighborhood of Windows XP, so you can directly click the camera to view the video through web browser.
DDNS	Many internet connections use a "Dynamic IP address", where the Internet IP address is allocated dynamically whenever the Internet connection is established. Internet users should know the IP Address of the camera when they want to connect to the camera every time. DDNS is designed to solve this problem, by allowing users to connect to your LAN using a domain name, rather than an IP address.
Enable/Disable	Enable or disable DDNS function of the camera.
Provider	Several companies provide DDNS service. This camera supports the service from DynDNS who is one of the DDNS providers.

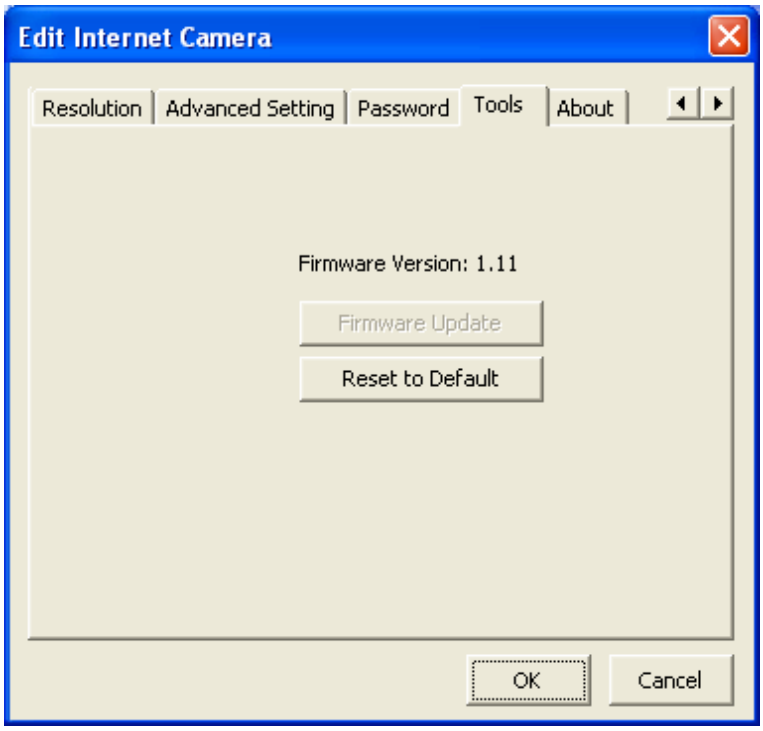
Advanced Setting	
Domain Name	The domain name given by DynDNS is “registername.dyndns.com”. Enter the domain name that you register for the camera from DynDNS web site.
Account	Enter the login name for the DDNS service.
Password	Enter the password for the DDNS service.

6.2.6. Password



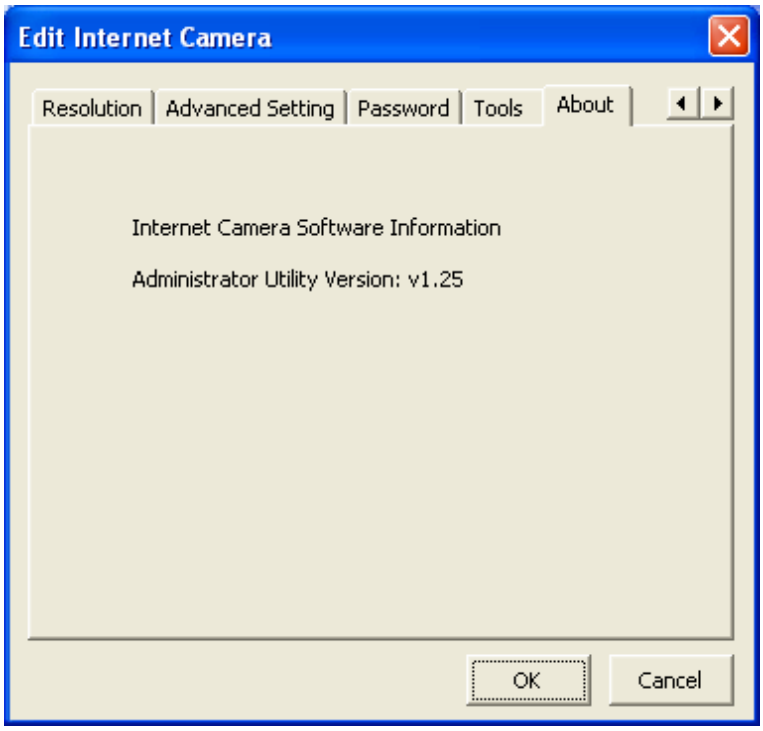
Password	
Current Password	Enter the current password of the camera.
New Password	Enter the new password you want to use for the camera.
Confirm New Password	Retype the new password to confirm the setting.

6.2.7. Tools



Tools	
Firmware Version	Display current firmware version.
Firmware Update	The utility is not allowed users to upgrade firmware. Please upgrade firmware in the Web Management.
Reset to Default	If you want to reset the camera, click this button. The default settings of the camera are as follows. Camera Name: “WIPCamera_MJPEG” IP Address: “192.168.2.3” Subnet Mask: 255.255.255.0 Administrator Name: “Admin” Password: “1234” Video Port: “4321” Web Port: “80”

6.2.8. About



About	
Administrator Utility Version	Display current Administrator Utility Version.

6.3. Setting Wizard

When you click the “Setting Wizard”, a screen will pop up for you to enter the “Administrator Name” and “Password”. The default value is as follows.

Name: “**Admin**”

Password: “**1234**”

If the name and password you enter are correct, you can start to setup the camera.

Setting Wizard	
Internet Camera Name	The default camera name is “WIPCamera_MJPEG”. It is recommended to enter a meaningful name for the camera.

Setting Wizard	
IP Address	The wizard will auto setup an available IP Address to the camera. For example: if the IP address of the network is 192.168.2.x, the wizard will search an unused IP Address from 192.168.2.250 to 192.168.2.0 and assign the camera an available IP Address. You are allowed to enter another IP Address to change the setting.
Subnet Mask	The wizard will auto search the Subnet Mask setting of the network and set the camera in the same Subnet Mask. You can enter another Subnet Mask to change the setting.
Gateway	The wizard will auto search the Gateway setting of the network and set the camera to use the same Gateway. You can enter another Gateway to change the setting.
Video Port	It defines the video stream port. The default value is “4321”.
Cancel	Click “Cancel” to stop wizard setting.
Finish	Click “Finish” to complete the camera setting.

When you finish the camera setting, you can click “Ok” to run the “Camera Viewer” immediately or click “Cancel” to run the “Camera Viewer” later.

7. Using the Camera Viewer

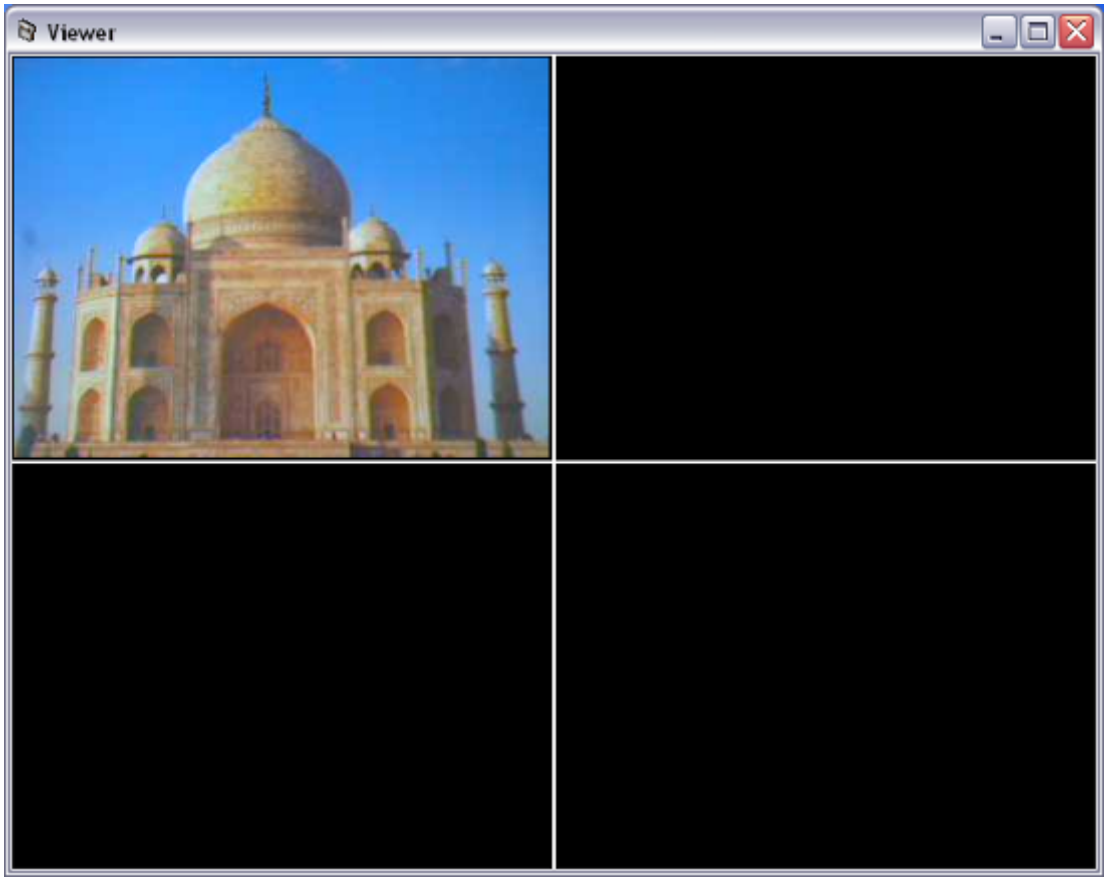
The Camera Viewer Utility allows users to view video from up to four cameras. It also allows users to manual/schedule record video and playback the recording file. The status of camera viewing such as frame rate, video received, and etc. are also recorded in time.

There are three ways to run the Camera Viewer Utility as follows.

1. Click "Start", select "Programs\IP Camera\Camera Viewer" to run the utility.
2. Click the "IP Camera Viewer" icon  to run the utility.
3. Click "Setting Wizard" from Administrator Utility and follow the instructions in the utility.

7.1. Panel Introduction

In the beginning when you start the Camera Viewer, you would see a Control Panel and a four division Viewer window.



7.2. Camera Buttons

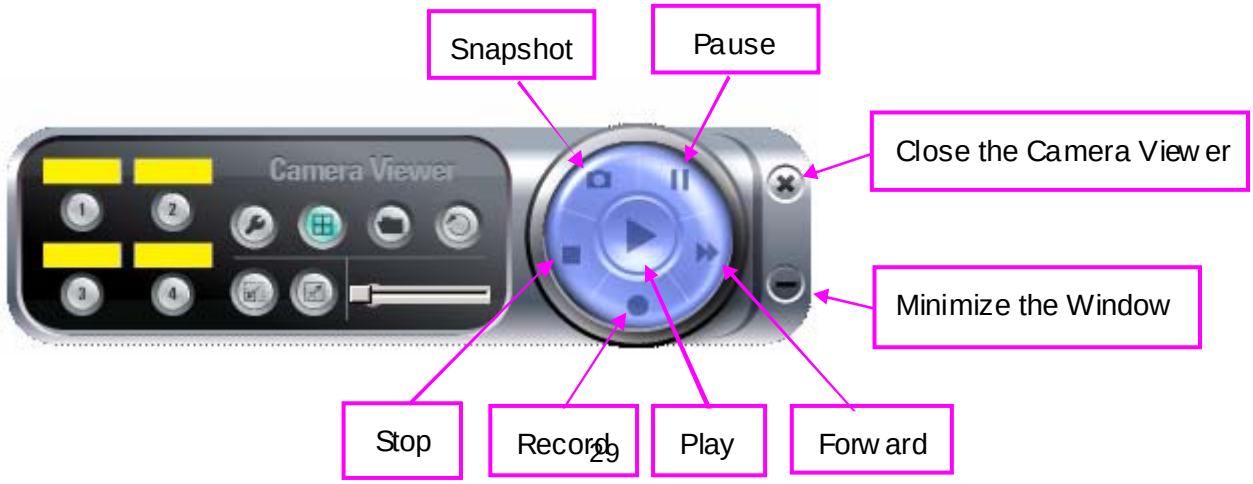
Camera Buttons	
Camera 	Click one of these four cameras will connect to the selected camera that you want to view and configure. If you want to remove the camera from the viewer, please right click the icon and select “Reset Camera x”. If you want to configure the camera, please right click the icon and select “Configure Camera x”.

7.3. Camera Status

There is a status bar shown different color to indicate the status of each Internet Camera.

Camera Status	
Yellow	It means that there is no camera set to connect.
Blue	It means that the camera is connected and playing the live video.
Pink	It means that the camera is not connected now.
Red	It means that the camera is recording.

7.4. Control Buttons



Control Buttons	
Play 	The “Play” button is an intelligent play user-interface. In the normal display mode and the Internet Camera is disconnected, clicking on the “Play” can make the viewer connect to the Internet Camera. In the playback mode, clicking on the “Play” can play the video in the normal speed.
Stop 	The “Stop” button is an intelligent play user-interface. In the normal display mode and the Internet Camera is connected, clicking on the “Stop” can make the viewer disconnect the camera. In the playback mode, clicking on the “Stop” can stop playing the video.
Pause 	The “Pause” button provides you a way to pause the current video display. When the displaying video is paused, click on the “Play” again to resume the video display.
Forward 	The “Forward” button to forward the speed of display when playback the recording file. Click the button at a time will increase the playing speed one time.
Snapshot 	Click “Snapshot” will make the viewer to take a snapshot of the video and save the picture as a bitmap file in the hard disk. (You can set the directory for storing these bitmap files at the Section 7.8.4)
Record 	By clicking on “Record” you can record video immediately.

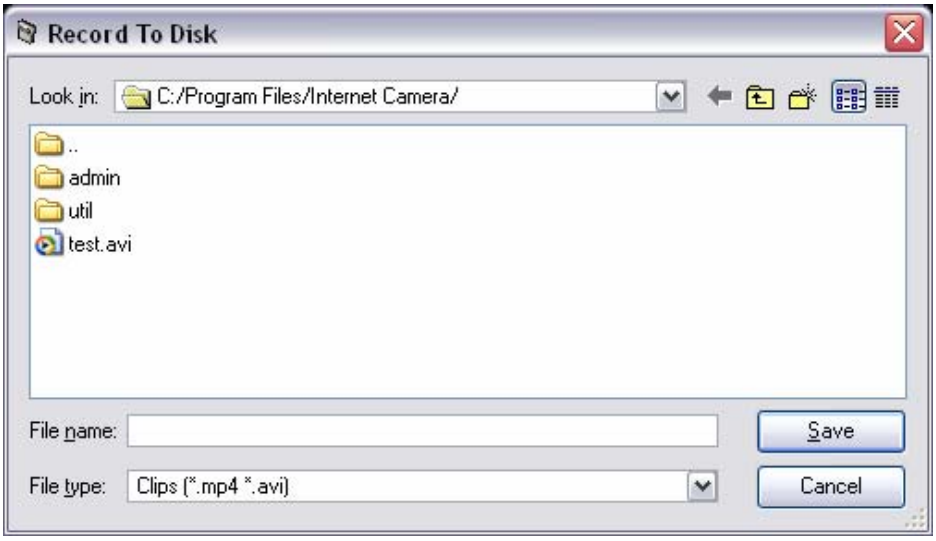
7.5. Video Recording

This utility allows you record the video in AVI format files. There are two ways of video recording – Manual Recording and Schedule Recording.

Manual Recording

You can manually record the video stream into an assigned video file.
Click "Record", then the "Record to Disk" window will pop up. Assign the path and file name that you want to save and click "Save", then the viewer utility will start to record the video stream. If you want to stop recording, click "Stop".

Note: Before manual recording, you have to click the camera button to select the Internet Camera that you want to record first and make sure that the viewer is successfully connecting to the Internet Camera.



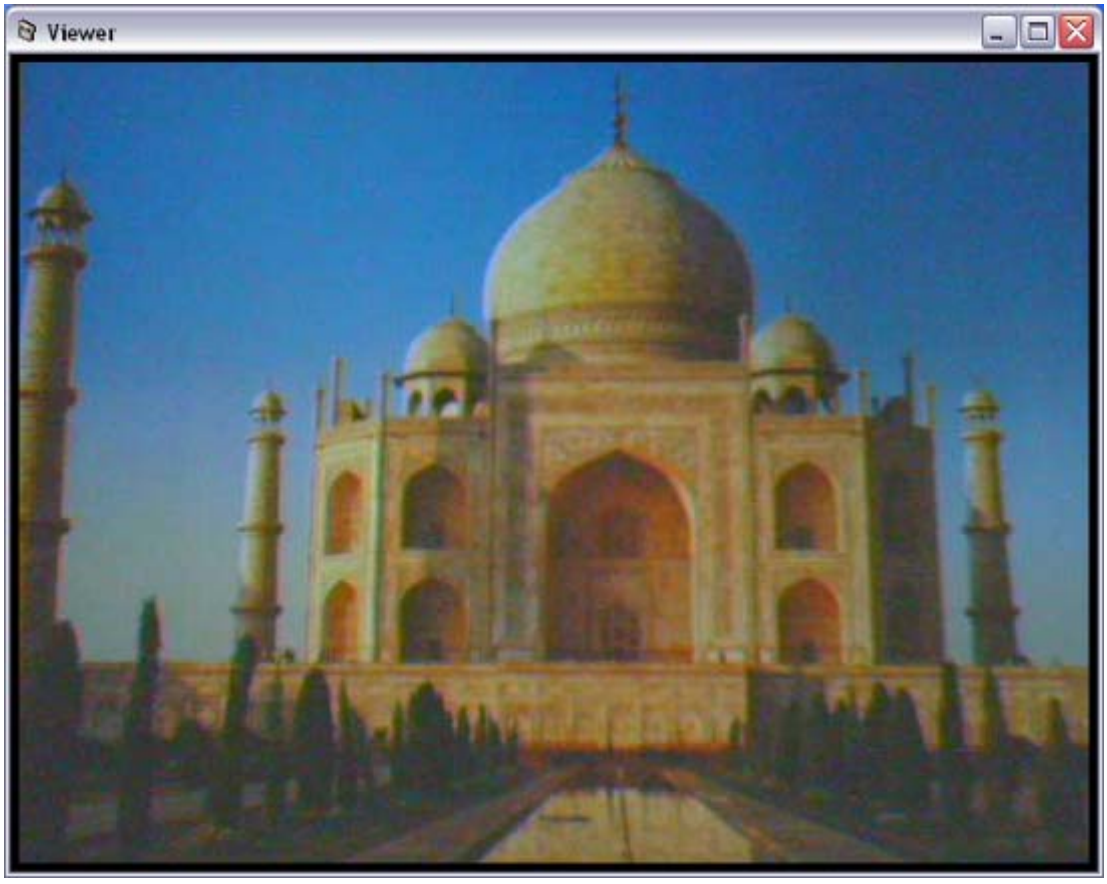
Schedule Recording

You can assign a schedule and let this viewer automatically recording the video stream into video files. Please refer to Section 7.8 to see how to setup schedule for the recording. The file name of the recorded video file is the start time of recording. For example, the file name "IPCamera_MJPEG_2004-10-8-23-56-40.avi" was started to record at 2004/10/8 23:56:40.

7.6. Change Resolution

The Internet Camera supports two resolution, 640x480 (VGA) and 320x240 (CIF). You can change the resolution of each Internet Camera by clicking the resolution button.

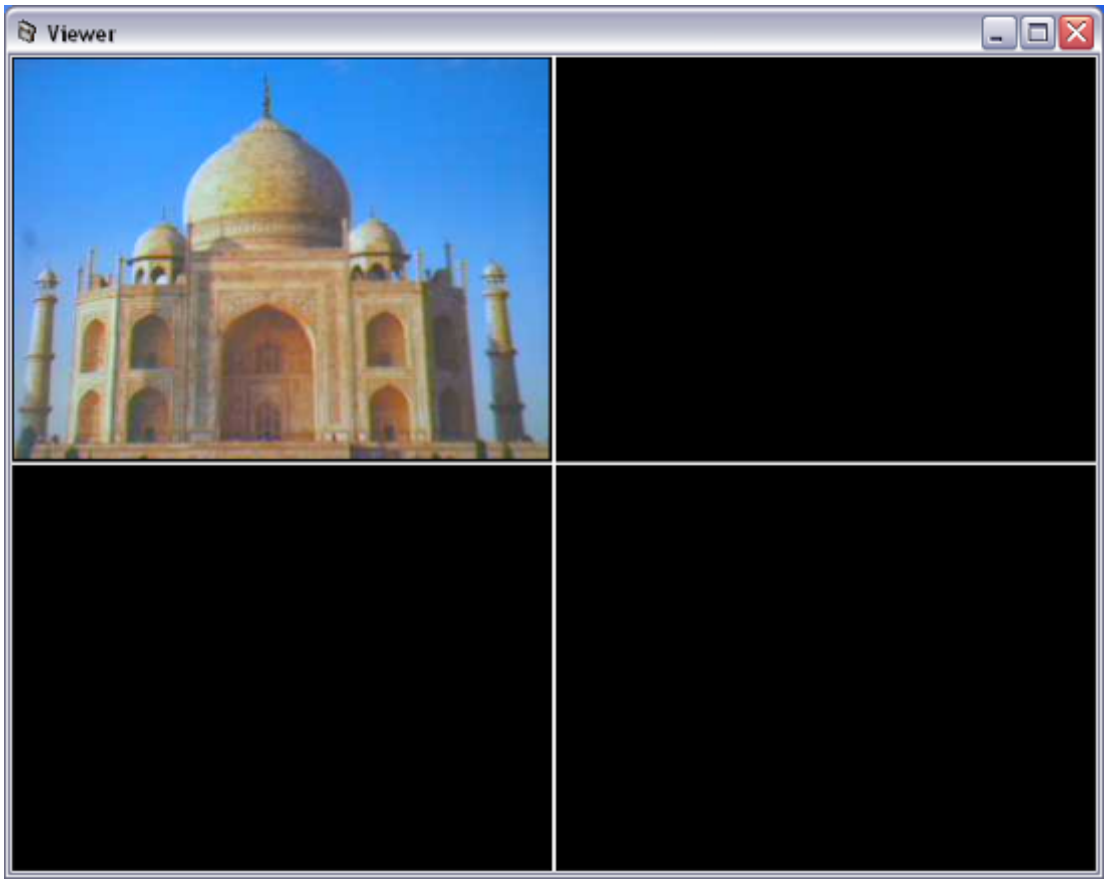
Note: Before changing the resolution of the Internet Camera, you have to select the Internet Camera by clicking the camera button first. If you change the resolution of an Internet Camera, other clients that are viewing the same Internet Camera simultaneously will also see the video with the changed resolution, too.



Resolution	
VGA	Change the resolution to 640x480 (VGA) mode.
CIF	Change the resolution to 320x240 (CIF) mode.

7.7. View Four Cameras Simultaneously

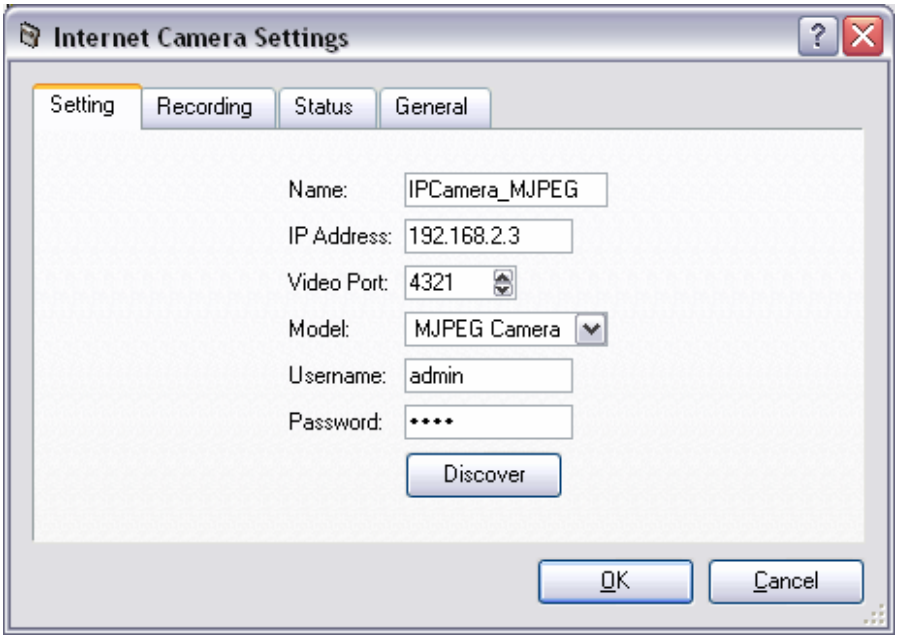
Click the four division button  can view the 4 cameras simultaneously in a four-division window. When



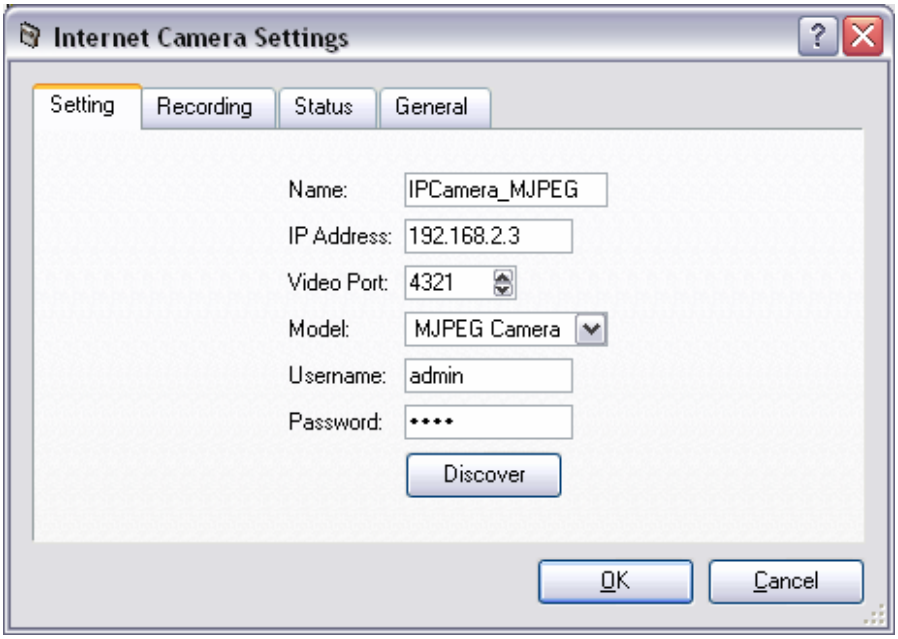
7.8. Viewer Utility Setting

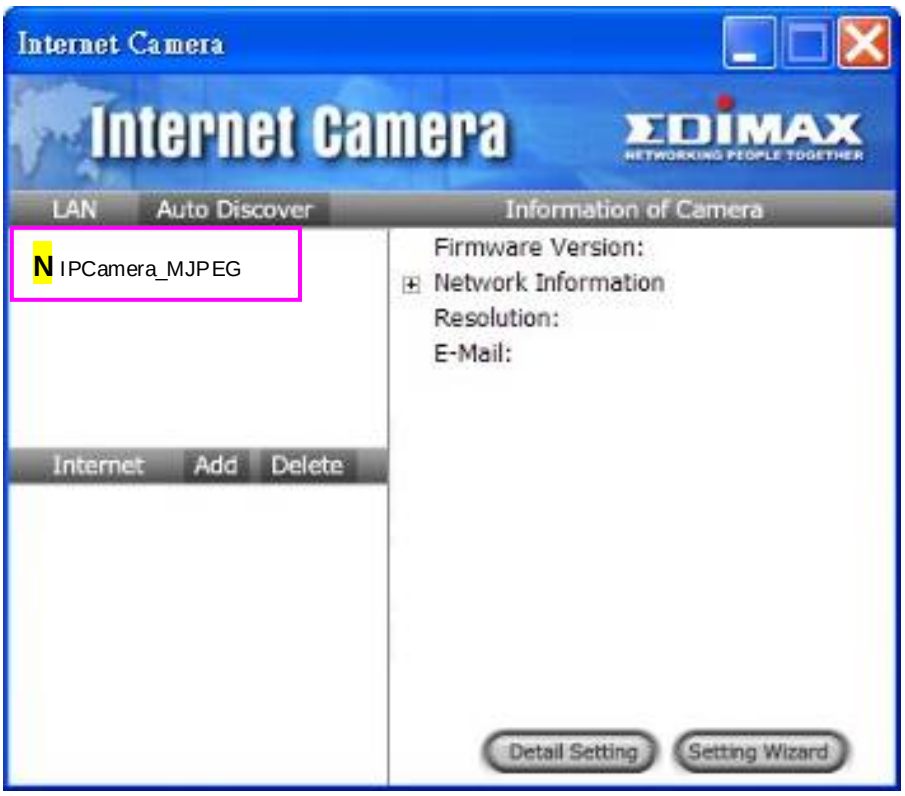
Click the “Setting”  , then the setting window of the Internet Camera will pop up.

Note: When you want to change the settings such as IP Address, Video Port, etc. in the “Setting” option, you must disconnect the Internet Camera first by clicking the “Stop”.


Internet Camera Settings
Setting
Recording
Status
General
Name:
IPCamera_MJPEG
IP Address:
192.168.2.3
Video Port:
4321
Model:
MJPEG Camera
Username:
admin
Password:
Discover
OK
Cancel

7.8.1. Setting


Internet Camera Settings
Setting
Recording
Status
General
Name:
IPCamera_MJPEG
IP Address:
192.168.2.3
Video Port:
4321
Model:
MJPEG Camera
Username:
admin
Password:
Discover
OK
Cancel



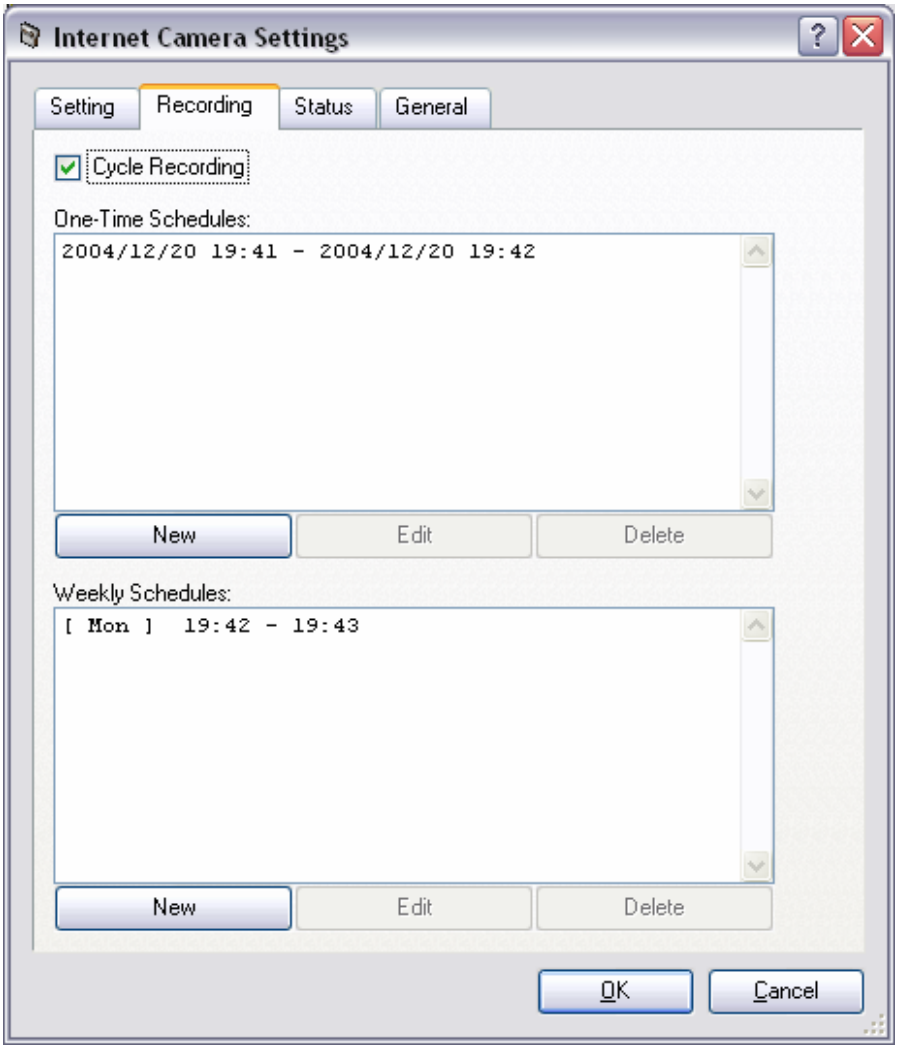
Setting	
Name	It is not required to fill the camera name for connecting camera. It is for users to identify the camera.
IP Address	IP address/Domain name of the Internet Camera.
Video Port	The number of service port used by the Internet Camera.
Model	Select “MJPEG Camera” (This camera only supports Motion JPEG).
Username	The user name for login into the Internet Camera. By default, the user name is “Admin”.
Password	The password for login into the Internet Camera. By default, the password is “1234”.
Discover	Click “Discover”, then camera auto-discover windows will pop up. The window will show all the discovered cameras on LAN environment for you to select.

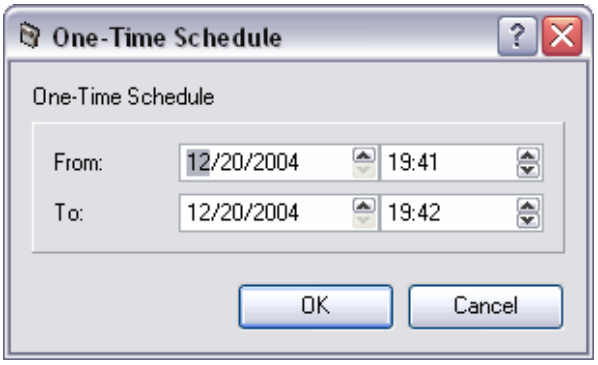
7.8.2. Recording

You can setup schedule for the recording here. This utility will record the video stream in the assigned file folder according to the schedule automatically. The recorded video files are AVI format.

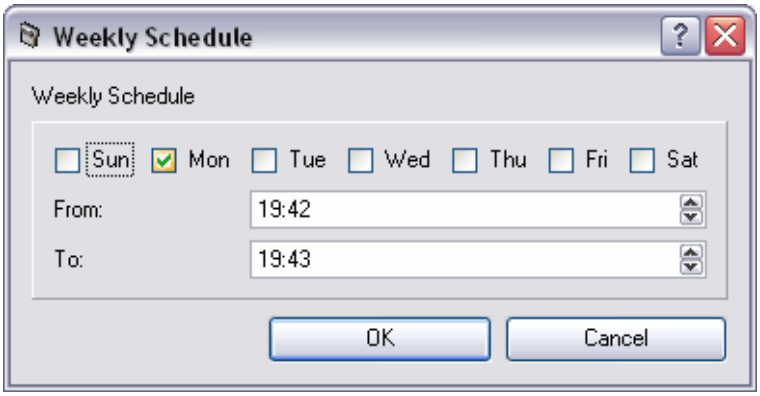
Note:

1. The utility will only start to record the video stream when this utility is running and is successfully connecting to the Internet camera in the beginning of the schedule.
2. The schedule setting of one-time or weekly schedule should not overlap, or the recording will fail.





One-Time Schedule



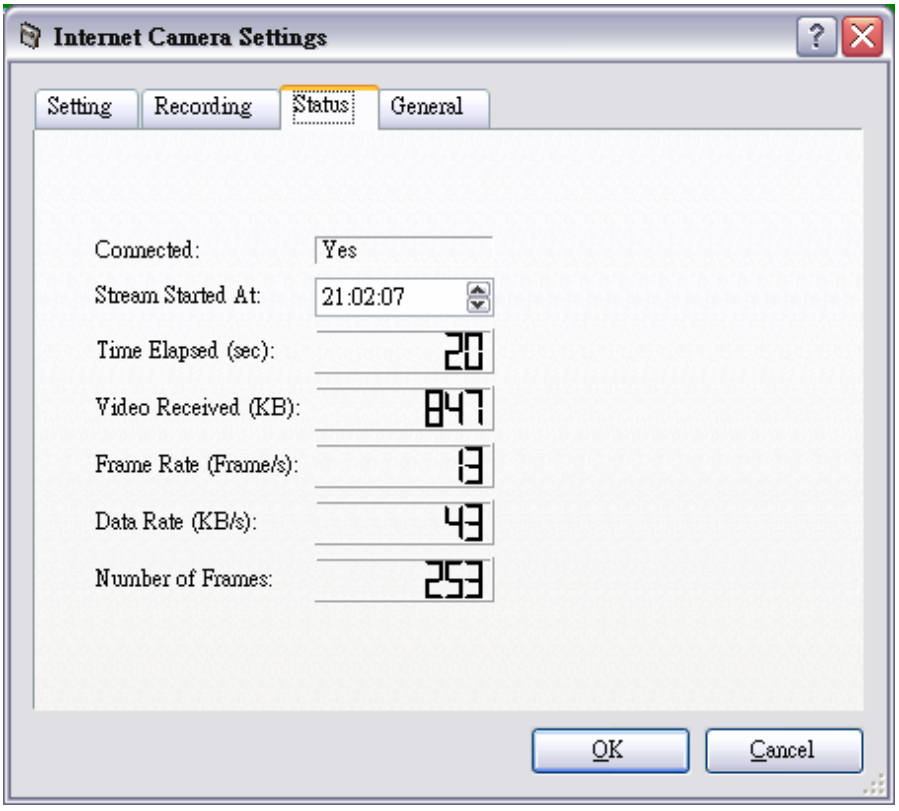
Weekly Schedule

Schedule	
Cycle Recording	Select this item to enable cycle recording. When the Cycle Recording is enabled and the storage usage has already reached the maximum reserved storage space, the utility will automatically delete the oldest recorded video file and use the space to store the newly recorded video stream.
One-Time Schedule	You can assign a range of time and the utility will automatically record the video stream only during the period of time. The default time is 2 minutes later from the current time.
Weekly Schedule	You can assign the days in a week and the period of time in a day when you want to record the video stream. The utility will automatically record the video stream during the periods of time every week again and again.

Schedule	
New	Click “New” to add a new recording schedule.
Edit	Select an existing schedule in the schedule list and click “Edit” to edit the schedule.
Delete	Select an existing schedule in the schedule list and click “Delete” to delete the schedule.

7.8.3. Status

You can see the current status information of the connection session between the utility and the Internet Camera.

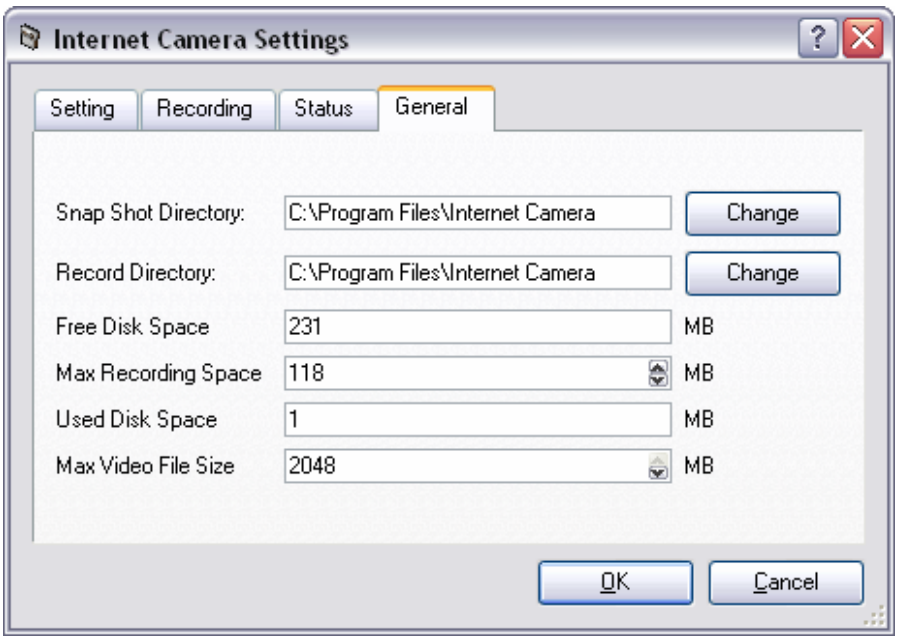


Status	
Connected	It displays “Yes” when the utility is connecting to the Internet Camera and displays “No” when the utility is not connecting to the Internet Camera.

Status	
Stream Started At	The beginning time of the current connection session between the utility and the Internet Camera.
Time Elapsed	The elapsed time of the current connection session between the utility and the Internet Camera.
Video Received	The total size (Unit is KByte) of video stream received during the current connection session between the utility and the Internet Camera.
Frame Rate	The frame rate (frame per second) of the current video download speed from the Internet Camera to the utility.
Data Rate	The data rate (KByte per second) of the current video download speed from the Internet Camera to the utility.
Number of Frames	The total number of video frames received during the current connection session between the utility and the Internet Camera.

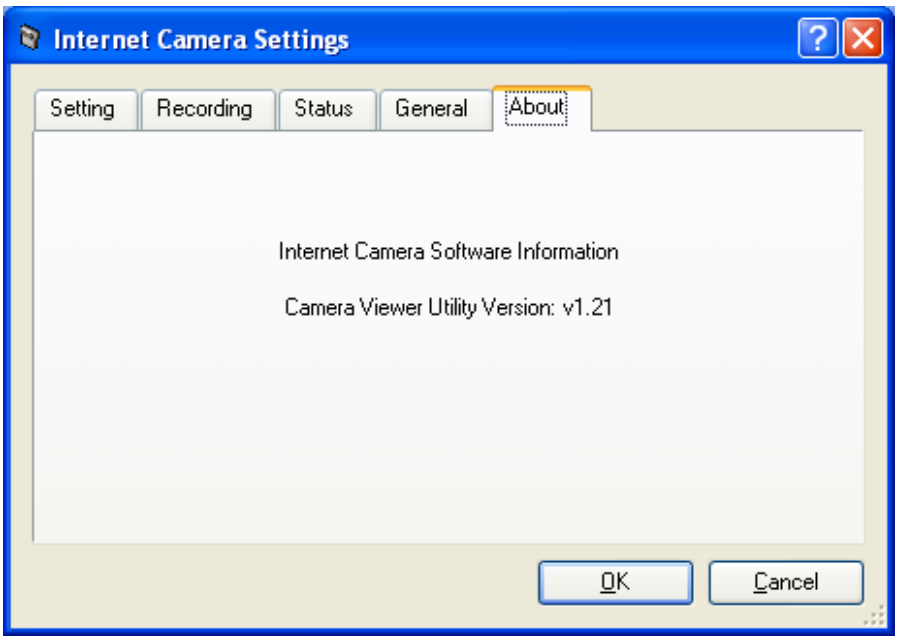
7.8.4. General

You can manage storage usage for this Internet Camera here.



General	
Snap Shot Directory	This lets you assign the directory where bitmap files will be stored when you click “Snapshot” to take pictures. The default folder is where the software program is installed, for example: “C:\Program Files\Internet Camera”.
Record Directory	This lets you assign the directory where the recorded video files will be stored. The default folder is where the software program is installed, for example: “C:\Program Files\Internet Camera”.
Free Disk Space	The current free disk space of the hard drive where is assigned to save recording files.
Max Recording Space	You can reserve a disk space to store the recorded video and snapshot files. If the space is run out, a message will pop up to remind you.
Used Disk Space	The current used disk space for saving the recording file.
Max Video File Size	This let you assign a maximum size of each video file. The upper bound of this value is 2 GB per file.

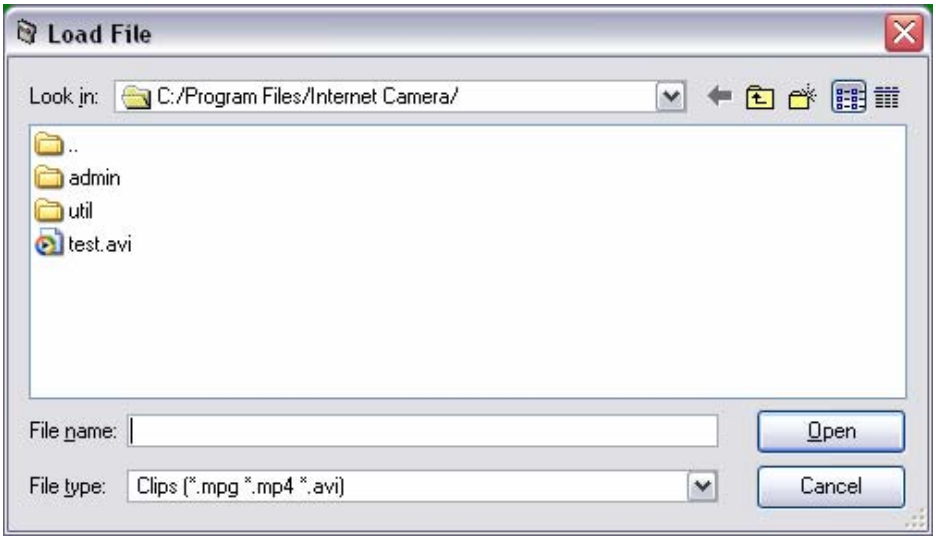
7.8.5. About



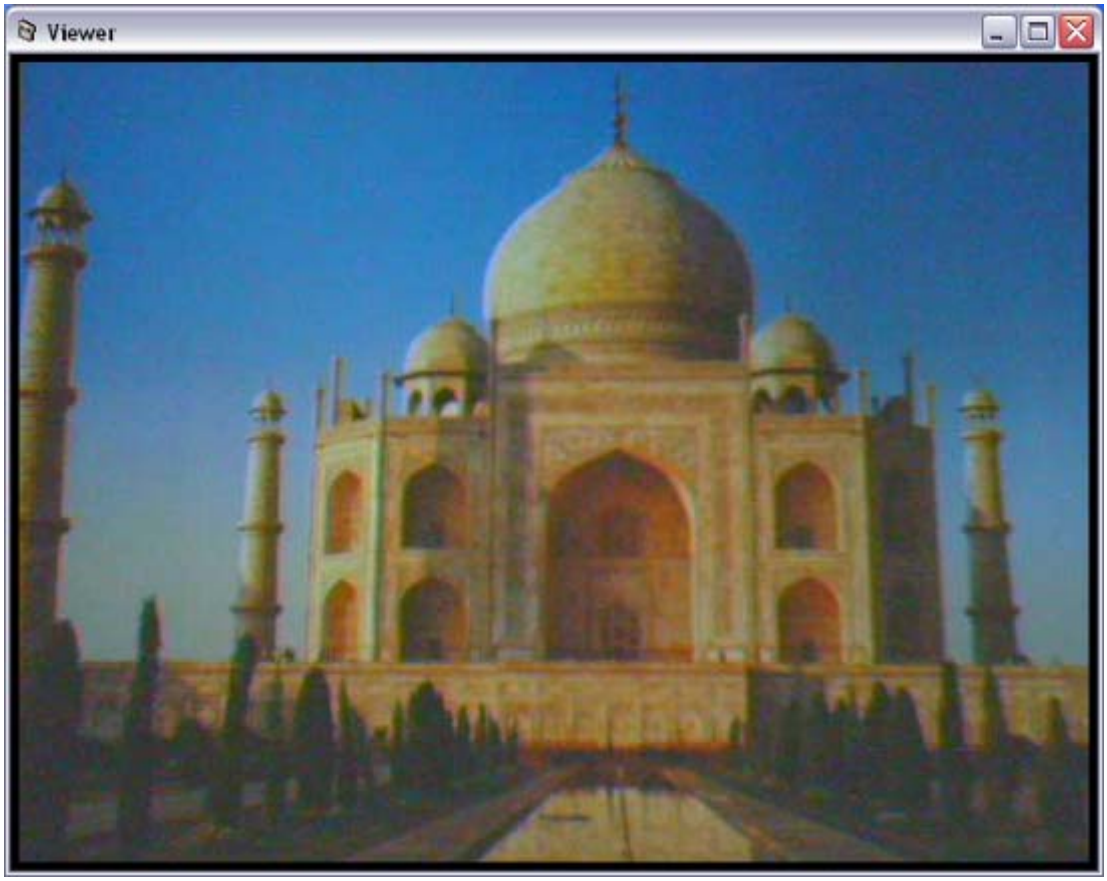
About	
Camera Viewer Utility Version	Display current Camera Viewer Utility Version.

7.9. Playback

Click the “Open File” and a “Load File” window will be popped up. Select the file that you want to play.



The viewer will start to play the selected video file.

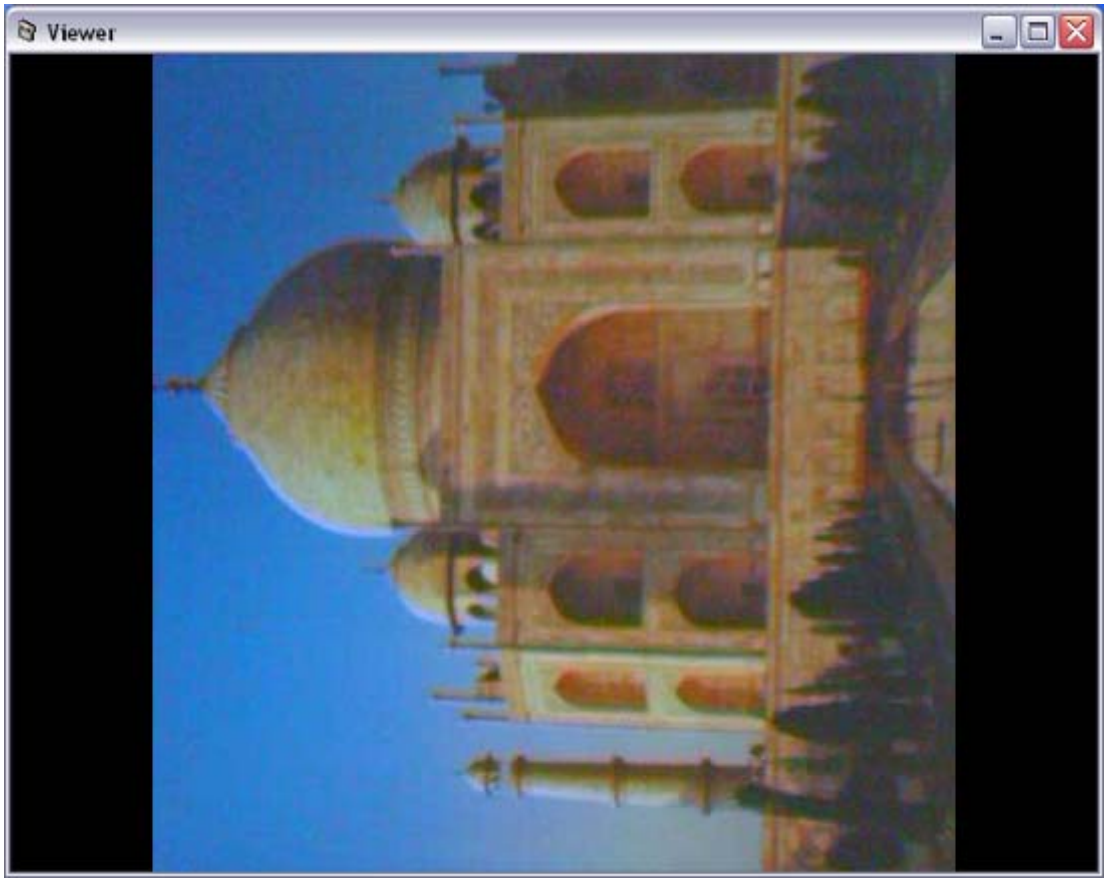


Playing Control	
Play 	When the video playback is in Stop state, just click "Play" and the viewer will play the video file from the beginning point. When the video playback is in Pause state, just click "Play" and the viewer will play the video file from the current pause point. When the viewer is playing with fast speed, just click "Play" to let the viewer play with the normal speed.
Pause 	When the recorded video is playing, you can click "Pause" to freeze the playback. If you want the viewer to continue playing from the current pause point, just click "Play".
Stop 	When the viewer is playing, you can click "Stop" to stop the playback. If you want the viewer to play again, just click "Play" and the viewer will play the video file from the beginning point.

Playing Control	
Forward 	If you want the viewer to play the video file in a faster speed when the viewer is playing the video file, just click “Forward” and the viewer will double the playing speed. If you want the viewer play with the normal speed when the viewer is playing with fast speed, just click “Play”.

7.10. Rotate Video

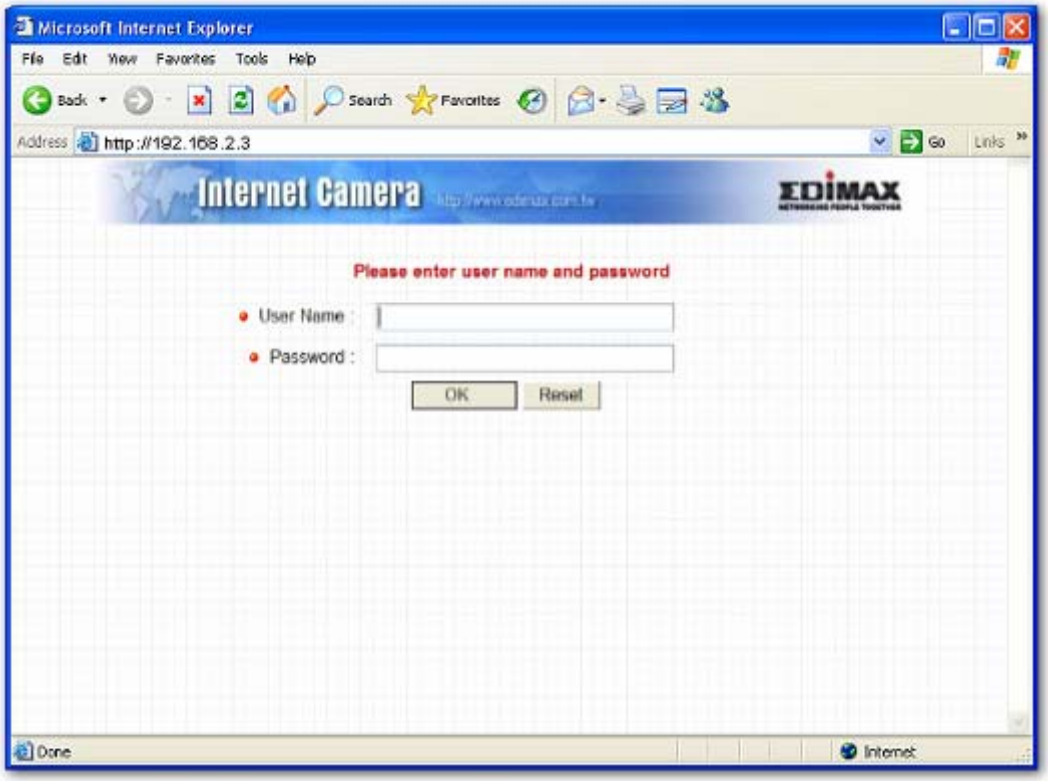
Rotate function lets you rotate the video frame 90 of degree angle counterclockwise each time you click the “Rotate”  . With this function, you can view the live video with normal, 90 degree, 180 degree and 270 degree angles counterclockwise. Below is the video with 90 of degree angle counterclockwise rotation.



8. Web Connection and Setup

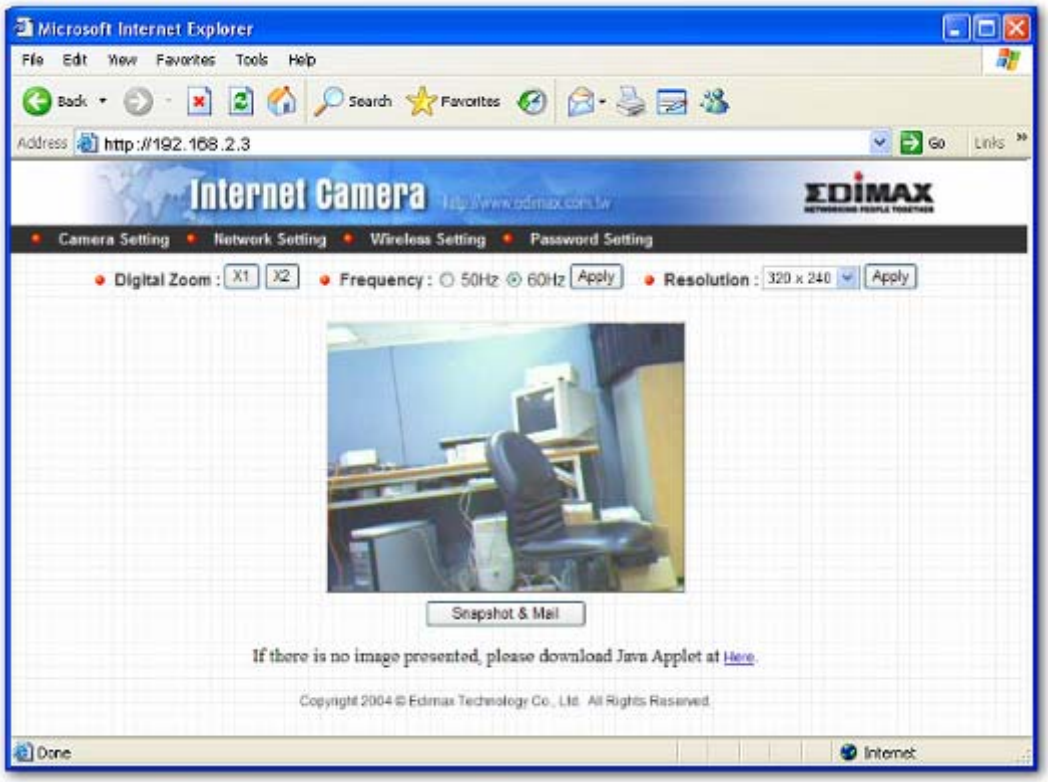
You can use the Web browser to connect the camera for viewing or setting. Open the web browser and enter the IP Address of the camera to establish a connection. The default IP Address of the camera is "**192.168.2.3**".

When the welcome screen appears, enter the "Admin Name" and "Password". The default values are:
Admin Name: "**admin**"
Password: "**1234**"



When the camera is connected, the video image will be shown up in the web screen directly. The menu options for the web control screen are as follows.
Camera Setting – View live video and adjust the video format from the menu.
Network Setting – Setup the camera functions in the menu.
Wireless Setting – Configure the Internet Camera to connect to a wireless network.
Password Setting – Up to four sets of user name and password can be set here.

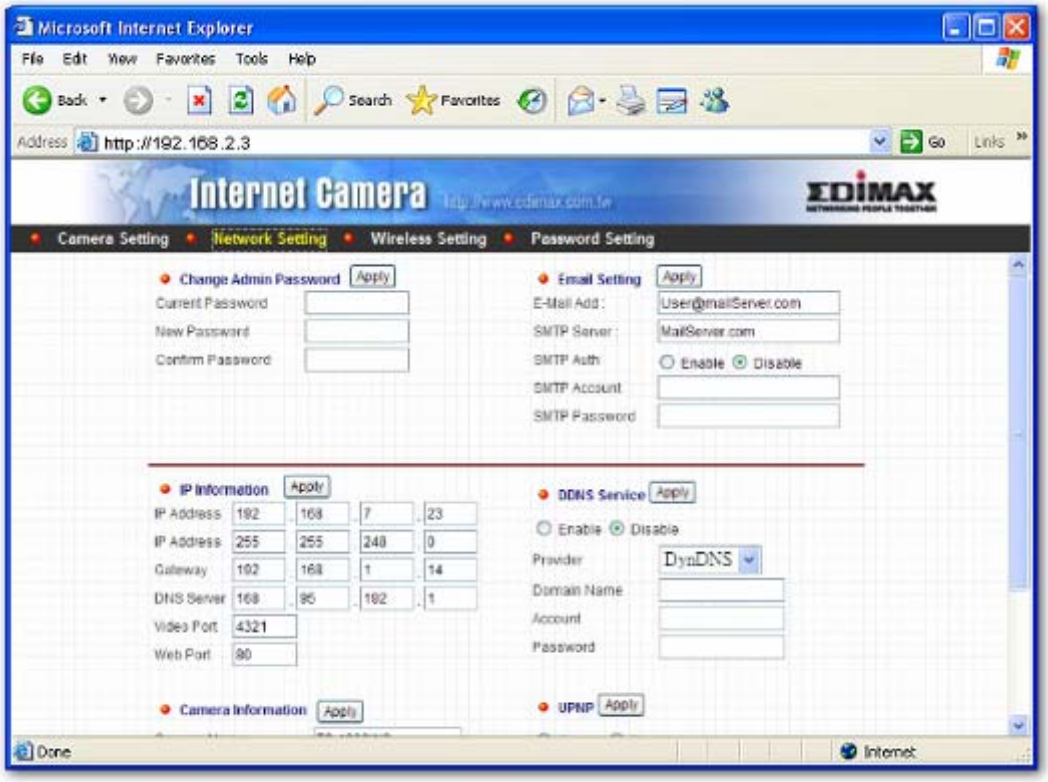
8.1. Camera Setting



Camera Setting	
Digital Zoom	It allows you to zoom in or zoom out the video size. Click “x2”, the image size in the display area will be magnified 2 times to the original size. In 640x480 resolution, only central area of the screen will be magnified two times. Click “x1”, the image size in the display area will be minified to the original size.
Frequency	Select the line frequency (50 or 60MHz) to improve the viewing quality under the fluorescent light.
Resolution	Select the desired video resolution format. Larger resolution requires more bandwidth. 640 x 480 is “VGA” format. 320 x 240 is “CIF” format. The default resolution is CIF format.

Camera Setting	
Snapshot & Mail	If you want to snapshot a picture for the current video, click this button. The system will send the picture to the E-Mail account you set up in the "E-Mail Setting" immediately.
Apply	Click "Apply" to validate "Frequency" or "Resolution" setting.

8.2. Network Setting



Change Admin Password	
Current Password	Enter current password.
New Password	Specify the new password you want to change to.
Confirm Password	Enter the new password again for confirmation.
Apply	When you finish the "Change Admin Password", click "Apply".

E-Mail Setting

E-Mail Address	Set up the E-Mail account as the receiver for the snapshot picture.
SMTP Server	Specify the SMTP mail server for sending E-Mail.
Apply	When you finish the "E-Mail Setting", click "Apply".

IP Information

IP Address	Enter an unused IP Address within the IP address range used on your LAN. If the IP Address of your LAN is from the 192.168.2.0 to 192.168.2.250, you can set an unused IP Address from the range for the camera, for example: 192.168.2.250.
Subnet Mask	The Subnet Mask field must match the subnet setting on your LAN. For example: 255.255.255.0.
Gateway	The Gateway is used to forward frames to destinations in a different subnet on the Internet. The Gateway setting must be the same with the gateway used by the PCs on your LAN.
DNS Server	DNS Server (Domain Name Server) that translates names to IP addresses. Set the same DNS Server as the PCs on your LAN.
Video Port	The Video Port is used to transmit or receive the video streaming in the network. The default port setting is "4321". If you want to view the video from the camera, the port setting should be correct.
Web Port	This camera support web connection, the default web port is 80. Since the web server may use port 80, you can use a different port for the camera. If you change the web port from 80 to 8080, you must type **http://192.168.2.3:8080** to connect the camera through the web browser.
Apply	When you finish the "IP Information", click "Apply".

Camera Information

Camera Name	The default camera name is “WIPCamera_MJPEG”. It is recommended to name a meaningful name for the camera.
Firmware	Display the current firmware version of the camera.
Apply	When you finish the “Camera Information”, click “Apply”.

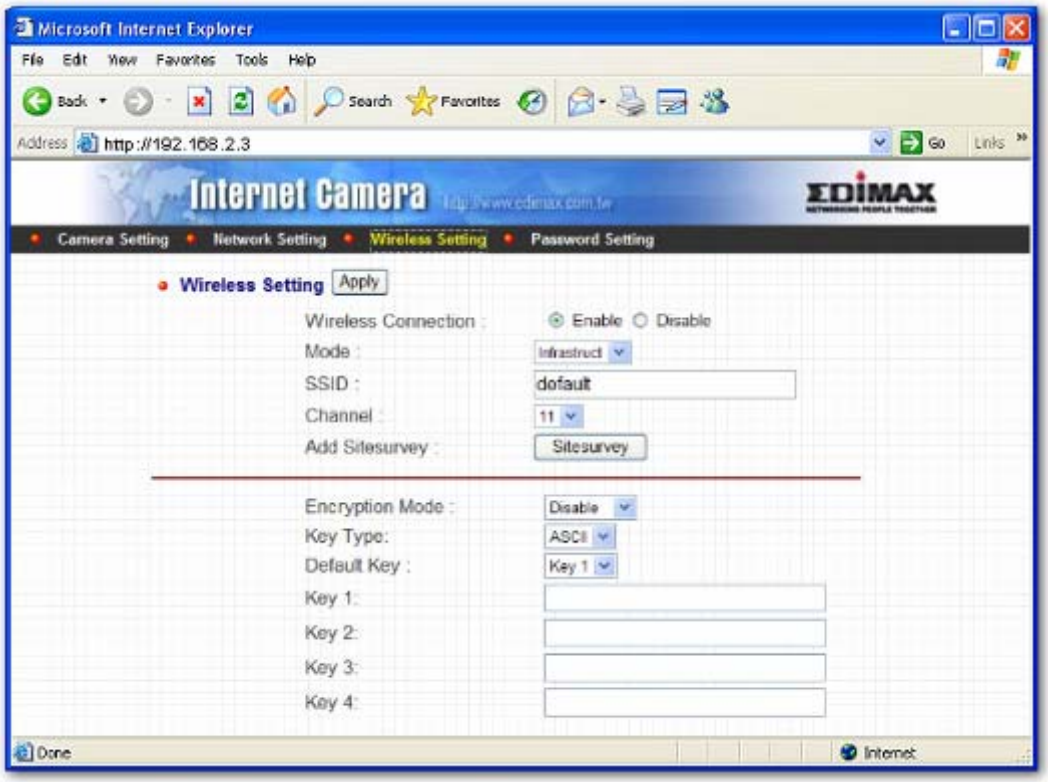
DDNS Service	
Enable/Disable	Enable or disable DDNS function of the camera.
Provider	Several companies provide DDNS service. This camera supports the service from DynDNS company.
Domain Name	The domain name given by DynDNS is “registername.dyndns.com”. Enter the domain name that you register for the camera from DynDNS website.
Account	Enter the login name for the DDNS service.
Password	Enter the password for the DDNS service.
Apply	When you finish the “DDNS Service” setting, click “Apply”.

UPnP	
Enable/Disable	Enable or disable UPnP function of the camera.
Apply	When you finish the “UPnP” setting, click “Apply”.

Maintenance

Reset to Default	To reset the camera to factory default, click “Apply”. Then, follow the instruction of the screen to complete the process. The factory defaults are as follows. Camera Name: “WIPCamera_MJPEG” IP Address: “192.168.2.3” Subnet Mask: 255.255.255.0 Administrator Name: “Admin”, Password: “1234” Video Port: “4321”, Web Port: “80”
Reboot System	To reboot the Internet Camera, click “Reboot System” and click “Apply”.
LED Light OFF/ON	There are four LEDs to indicate the status of Internet Camera. If you wan to secure the camera from noticing, you can turn off the LED light by clicking “LED Light OFF” and click “Apply”. To turn on the LED light, click “LED Light ON” and click “Apply”.
Upgrade Firmware	Click “Upgrade Firmware” and “Apply” buttons the Web Management will lead you to enter into upgrade mode. Select the “*.bin” file and click “Upgrade” to start upgrading. Note that the Internet Camera will stay in Upgrade Mode until you finish the firmware upgrading.

8.3. Wireless Setting

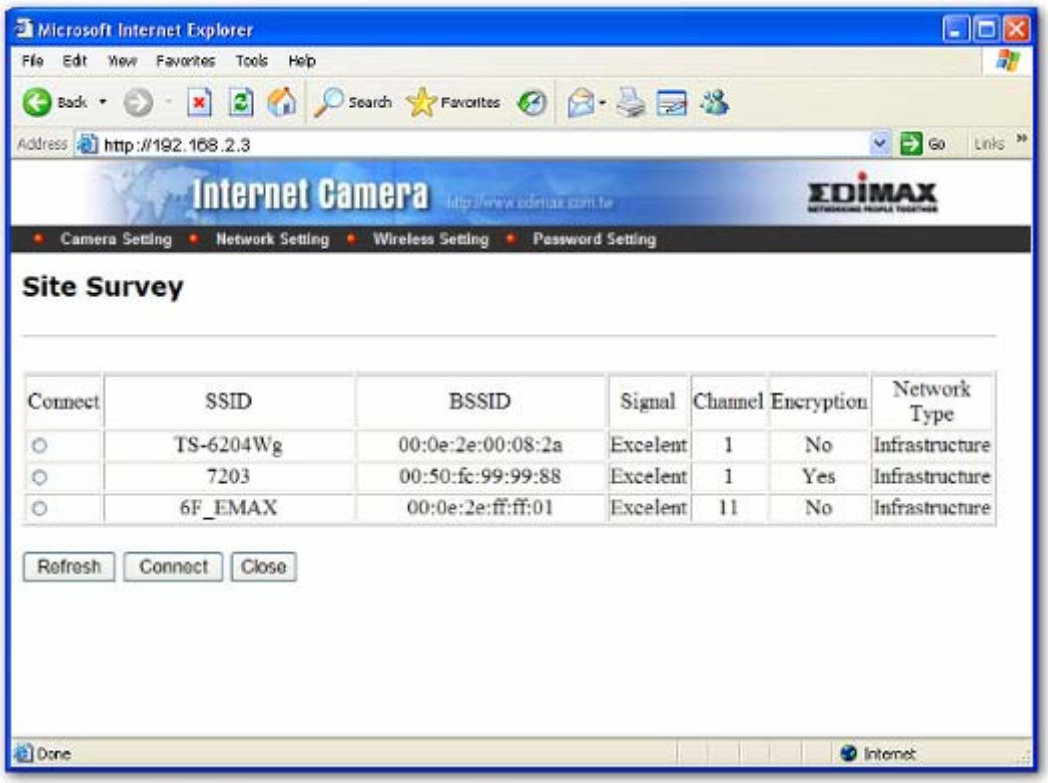


Wireless Setting	
Wireless Connection	Enable or disable the wireless function of the Internet Camera. By default, the function is disabled.
Mode	Infrastructure – This operation mode requires the presence of a Wireless LAN Access Point or Router. All communication is done via the Access Point or Router. Ad-Hoc – Select this mode if you want to connect to another wireless stations in the Wireless LAN network without through an Access Point or Router.

Wireless Setting	
SSID	The SSID (up to 32 printable ASCII characters) is the unique name identified in a WLAN. The ID prevents the unintentional merging of two co-located WLANs. You may specify a SSID for the card and then only the device with the same SSID can interconnect to the card. If you want to add one of the networks nearby to the profile list, pull down the menu, all the networks nearby will be listed and you can add one of them to the profile list.
Channel	This setting is only available for Ad Hoc mode. Select the number of the radio channel used for the networking. The channel setting should be the same with the network you are connecting to.
Site Survey	Click "Site Survey" button to search all the wireless LAN networks nearby the Internet Camera.

Encryption Setting	
Encryption Mode	Disable – Disable the encryption function for the wireless data communications. WEP64 – Enable data encryption function with 64-bit key length of encryption keys. WEP128 – Enable data encryption function with 128-bit key length of encryption keys.
Key Type	HEX – Only "A-F", "a-f" and "0-9" are allowed to be set as WEP key. ASCII – Numerical values, characters or signs are allowed to be WEP key. It is more recognizable for user.
Default Key	Select one of the keys (1~4) as the encryption key.

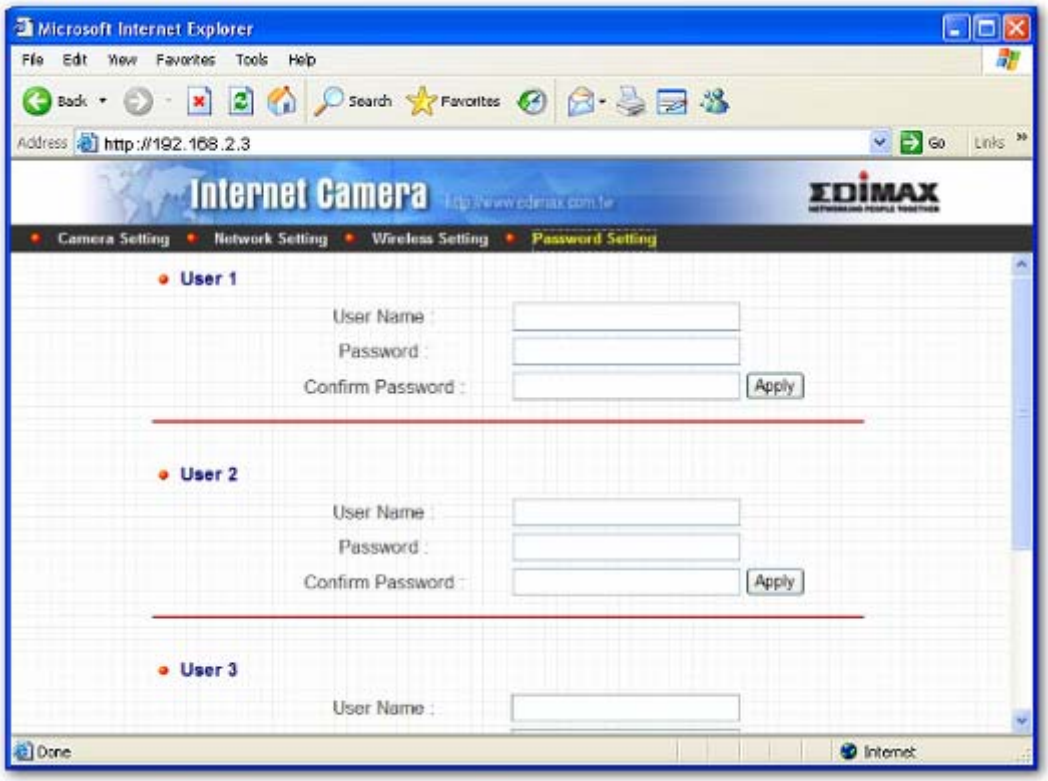
Encryption Setting	
Key1 ~ Key4	The WEP keys are used to encrypt data transmitted in the wireless network. Fill the text box by following rules below. 64-bit – Input 10-digit Hex values (in the “A-F”, “a-f” and “0-9” range) or 5-digit ASCII characters (including “a-z” and “0-9”) as the encryption keys. For example: “0123456aef“ or “test1”. 128-bit – Input 26-digit Hex values (in the “A-F”, “a-f” and “0-9” range) or 13-digit ASCII characters (including “a-z” and “0-9”) as the encryption keys. For example: “01234567890123456789abcdef“ or “administrator”.
Apply	When you finish “Wireless Setting”, click this button to validate the setting values.



Site Survey	
Site Survey List	The list displays the information of all the wireless networks nearby the Internet Camera. The information includes Connect Status, SSID, BSSID, Signal, Channel, Encryption Setting and Network Type.
Refresh Button	Click “Refresh” button to collect the new information of all the wireless networks nearby.
Connect Button	Click “Connect” to connect to the selected network.
Close Button	To close the Site Survey list, click this button.

8.4. Password Setting

The “Password Setting” allows users to add four user accounts who are able to view video from Camera Viewer and Web Management. These users, unlike Administrator, are not allowed to configure the camera.



User 1 / 2 / 3 / 4	
User Name	Up to four sets of user name and password can be added. Enter the user name to be the login name to the camera.
Password	Enter up to 4 digits password for the new user account.
Confirm Password	Enter the password again to confirm the setting.
Apply	Click “Apply” to add the user account.

9. Frequently Asked Questions

Q1: What is an Internet Camera?

A: The Internet Camera is a standalone system connecting directly to an Ethernet or Fast Ethernet network. It is different from the conventional PC Camera; the Internet Camera is an all-in-one system with built-in CPU and web-based solutions providing a low cost solution that can transmit high quality video images for monitoring. The Internet Camera can be managed remotely, accessed and controlled from any PC/Notebook over the Intranet via a web browser or camera viewer.

Q2: What algorithm is used to compress the digital image?

A: The Internet Camera utilizes JPEG image compression technology to provide high quality images. JPEG is a standard for image compression and can be applied to various web browser and application software.

Q3: Can I capture or record still images from the Internet Camera?

A: Yes, you are able to capture or record still images with the snapshot function from the Camera Viewer application supplied with the Internet Camera CD-ROM.

Q4: What network cabling is required for the Internet Camera?

A: The Internet Camera uses Category 5 UTP Twisted-pair cable allowing 10 Base-T and 100 Base-T networking.

Q5: Can the Internet Camera be setup as a PC-cam on the computer?

A: No, the Internet Camera is used only on Ethernet and Fast Ethernet network.

Q6: Can the Internet Camera be connected on the network if it consists of only private IP Addresses?

A: Yes, the Internet Camera can be connected to a LAN with private IP Addresses.

Q7: The focus on the Internet Camera is bad, how can I correct it?

A1: Adjust the Internet Camera focus manually.

Q8: There are no images available through the web browser.

A1: The Java Applet might be disabled, it usually happens in Windows XP SP2 and Windows Server 2003. If you are viewing the images from Internet Explorer make sure Java Applet has been enabled in the Internet Options menu (Select Advanced option and then Microsoft VM). To download the free software, please surf http://java.com/en/index.jsp.

10. Technical Specifications

- **Video specification**

Max Resolution: 640 x 480 pixels
Sensor: 300,000K pixels 1/4" color CMOS sensor
Gain control: Automatic
Exposure: Automatic
White Balance: Automatic
Focal Length: 6.0 mm
Aperture: F=1.8

- **Image (Video Setting)**

Image compression: Motion-JPEG Image Video
Digital 24-bit Color
Frame rate: 30fps@CIF, 20fps@VGA
Video resolution: 320x240, 640x480

- **System Hardware**

LAN Connector: One RJ-45 port to connect to 10/100Mbps Ethernet
Antenna Connector: One RP-SMA port to connect to antenna
LED Indicator: Monitoring LED (Green), Ready LED (Orange), LAN LED (Green), WLAN LED (Green)
Power Supply: 12VDC, 0.5A

- **HTTP/Utility**

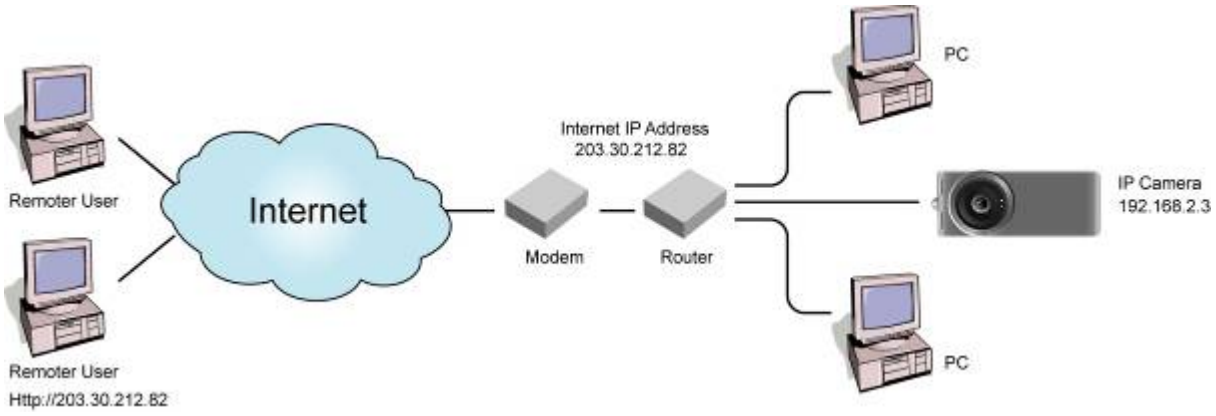
Includes easy-to-use Viewer & Recorder utility
Provides Admin utility & WEB browser Management
View multiple cameras simultaneously - Up to 4 cameras at a time
Manual/Schedule Record, Video Playback/Stop/Forward/Pause
Supports four additional user accounts for viewing camera
Auto sending Snap Shot by E-mail
Support DDNS and UPnP functions
Supports Windows 98SE/ME/NT/2000/XP/2003
Firmware Upgradeable

- **EMI & Safety**

FCC, CE

11. Appendix A Router/Gateway Setup for Internet Viewing

To view Internet Camera across the Internet, you have to make sure Router/Gateway has configured to pass incoming TCP/UDP connections from remote PC to the Internet Camera. The Router/Gateway should set port forwarding or virtual server for the connections. Please see the illustration as below.



Router/Gateway Port Forwarding/Virtual Server Setup

Name	Protocol	Port	LAN IP
Setup 1	TCP	80	192.168.2.3
Setup 2	TCP	4321	192.168.2.3
Setup 3	UDP	13364	192.168.2.3
Setup 4	UDP	15973	192.168.2.3

Port Definition

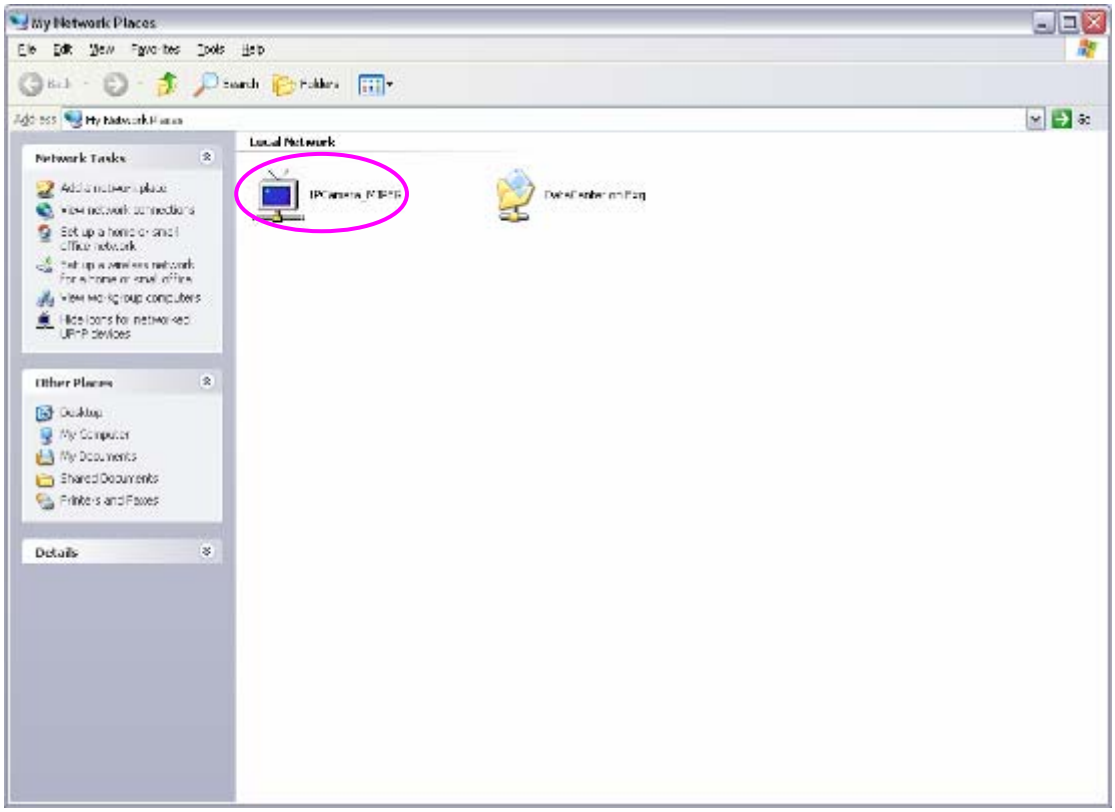
Setup 1	It is the port of Web port. You have to configure the protocol to "TCP".
Setup 2	It is the port of Video port. You have to configure the protocol to "TCP".
Setup 3	It is the port for Internet Camera and Administrator Utility communication. The protocol setting should be "UDP".
Setup 4	It is the port for Internet Camera and Camera Viewer Utility communication. The protocol setting should be "UDP".

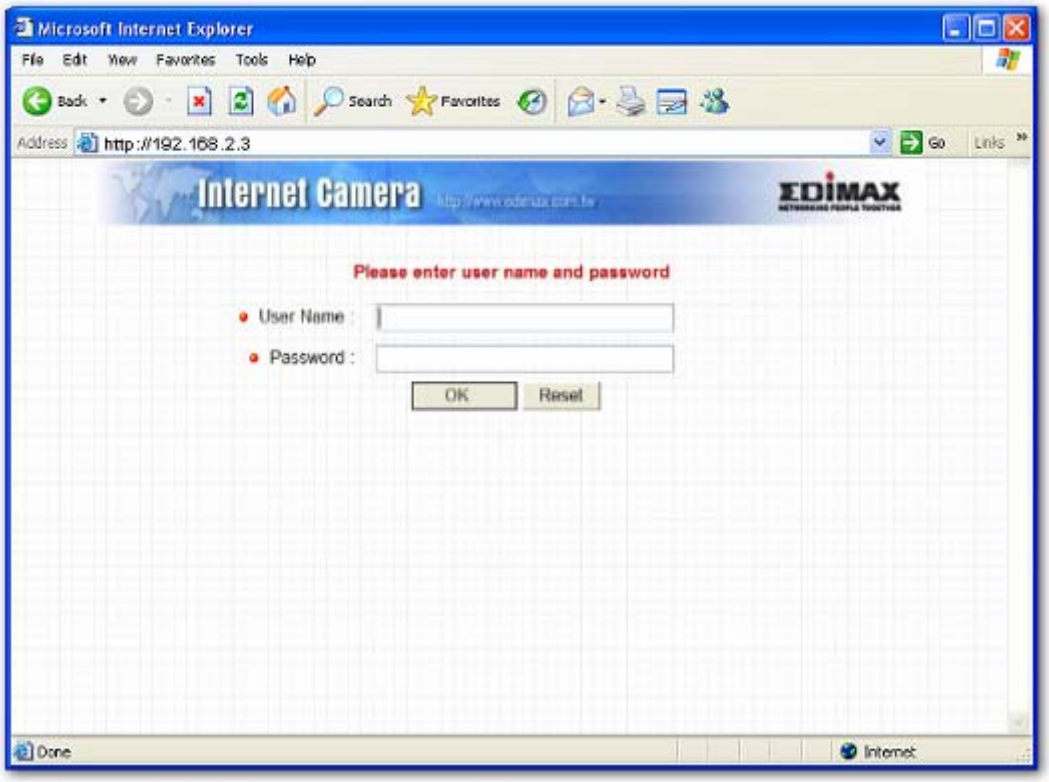
Viewing Internet Camera via Web Browser

Setup 1/Setup 2	If you want to view the video via Web Browser, you have to ensure the Router/Gateway has configured setup1 and setup 2. If the web port is not default port “80”, but changed to 8080. The remote user has to enter http://203.30.212.82:8080.
Viewing Internet Camera via Camera Viewer Utility	
Setup 2/Setup 4	If you want to use Camera Viewer Utility to view the camera, please make sure the Router/Gateway has configured setup2 and setup 4.
Setup Internet Camera via Administrator Utility	
Setup 3	If you want to use Administrator Utility to configure the Internet Camera via Internet, the Router/Gateway should configure setup 3.

12. Appendix B Viewing via UPnP in Windows XP

When the UPnP function is enabled, the camera can be detected by UPnP compliant system such as Windows XP. The camera will be displayed in the Neighborhood of Windows XP, so you can directly double click the camera or right click the camera and select “Invoke” to view the video through web browser.

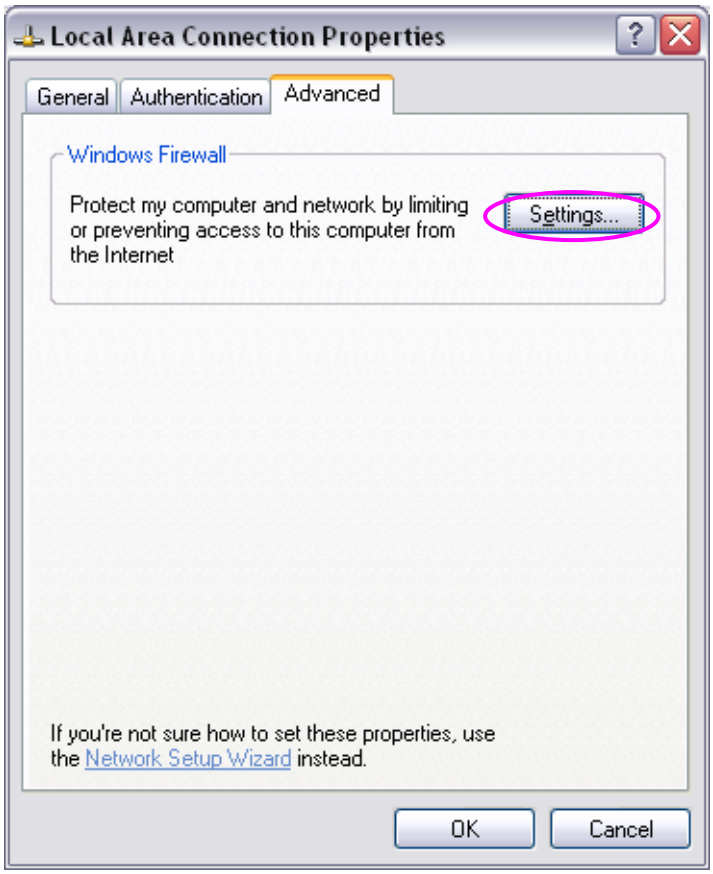




Enable UPnP in Windows XP SP2

If you can't find the camera in the Neighborhood of Windows XP SP2 or you have seen the following message when you double click the camera. You have to check if UPnP function is blocked by the firewall. Please follow the steps below to enable it.

1. Go to "Start\Settings\Network Connections".
2. Right click the "Local Area Connection" and select "Properties".
3. In the "Local Area Connection Properties", select "Advanced" option menu and click "Settings".



4. The “Windows Firewall” screen will be popped up, select “Exceptions” option menu.

5. Enable “UPnP Framework” from the “Programs and Services list” and click “Ok”.