User's Manual

Internet Camera with Pan/Titl/Zoom

Model No.: SP5530

http://www.micronet.info

FCC Certifications

This product 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 such interference when operating in a commercial environment. This equipment generates, uses and can radiate radio frequency energy, and if not installed and used according to the instructions, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause interference, in which case the user, at his or her own expense, will be required to take whatever measures may be required to correct the interference.

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.

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ABOUT THIS MANUAL

This manual provides instructions and illustrations on how to use your MPEG-4 (Wireless) Pan/Tilt Internet Camera as follows:

- **Chapter 1, Introduction**, provides the general information on the camera.

- **Chapter 2, Hardware Installation**, describes the hardware installation procedure for the camera.

- **Chapter 3, Security**, explains the security feature of the camera.

- **Chapter 4, Application of the Camera**, provides the illustrations of the camera's applications.

- **Chapter 5, Using the Camera**, guides you through the configuration using the web browser.

- **Chapter 6, FFdshow & AVISavior**, helps you to use the utilities provided within the Installation CD.

- **Chapter 7, IPView Pro**, helps you to install and use the software.

- **Chapter 8, Appendix**.

Please note that the illustrations or setting values in this manual are **FOR YOUR REFERENCE ONLY**. The actual settings and values depend on your system and network. If you are not sure about the respective information, please ask your network administrator or MIS staff for help.

INTRODUCTION

Thank you for purchasing the SP5530 Pan/Tilt Internet Camera, a standalone system that can be connected directly to an Ethernet or Fast Ethernet standard. With support for latest MPEG-4 technology, you can record streaming video that utilizes high quality MPEG-4 images to your hard drive, enable motion detection and set up automated email alerts for security. The built-in microphone provides you with the audio function, allowing you to **"watch"** and **"listen"** from the camera. Compared with the conventional PC Camera, the camera features a built-in CPU and web-based solutions that can provide a cost-effective solution to transmit the real-time high-quality video images and sounds synchronously for monitoring.

The camera can be managed remotely, so that you can use a web browser to access and control it from any notebook/desktop PC over the Intranet or Internet. The simple installation procedures and web-based interface allow you to integrate it into your network easily. With comprehensive applications supported, the Internet camera is your best solution for remote monitoring and video images with high quality and high performance.

1.1. Features and Benefits

Simple to Use

The SP5530 Pan/Tilt Internet Camera is a standalone system with built-in CPU with no special hardware (such as a PC frame capture card) or software required. The camera supports DirectX 9.0; therefore, only web browser software such as Internet Explorer 5.0 or above is required. Once you have a valid IP Address, just connect it and you can view the picture and receive sound from your camera. In addition, the camera stand allows you to adjust the camera for optimal viewing angle. You can tilt the camera right or left (up to 170/ 170 degrees) and forward or backward (up to 45/90 degrees).

Support Variety of Platforms

The camera supports TCP/IP networking, SMTP e-mail, HTTP and other Internet related protocols. It can be utilized in a mixed operating system environment, including Windows 98SE/ME/ 2000/XP. Moreover, it can be integrated easily into other www/ Intranet applications.

Web Configuration

Applying a standard web browser, the administrator can configure and manage the camera directly from its own web page via the Intranet or Internet. Up to 64 user names and passwords are permitted with privilege setting controlled by the administrator.

Remote Utility

The powerful IPView Pro application assigns the administrator with a pre-defined user ID and password, allowing the administrator to modify the camera settings from the remote site via Intranet or Internet. When new firmware is available, you can also upgrade remotely over the network for added convenience. Users are also allowed to monitor the image and take snapshots.

Broad Range of Applications

With today's high-speed Internet services, the camera provides the ideal solution for live video images over the Intranet or Internet for remote monitoring. The camera allows remote access from a web browser for live image viewing and allows the administrator to manage and control the camera anywhere and anytime in the world. The camera can be applied to monitor various objects and places such as homes, offices, banks, hospitals, child-care centers, amusement parks and other various industrial and public locations. The camera can also be used for intruder detection; in addition, it can capture still images for archiving and many more applications.

1.2. Unpacking the Package

Unpack the package and check all the items carefully. In addition to this *User's Manual*, be certain that you have:

- One SP5530 Pan/Tilt Internet Camera
- One power adapter
- One RJ-45 Ethernet Cable
- One Metal Clip
- One Installation CD-ROM
- One Quick Installation Guide

If any item contained is damaged or missing, please contact your local dealer immediately. Also, keep the box and packing materials in case you need to ship the unit in the future.

1.3. System Requirement

Networking

Local Area Network:

■ 10Base-T Ethernet or 100Base-TX Fast Ethernet

Accessing the Camera

For Web Browser Users

■ Operating System: Microsoft® Windows® 98SE/ME/ 2000/XP
■ CPU: Intel Celeron 1.5GHz or above (Intel Pentium 4 is preferred)
■ Memory Size: 128MB or above
■ Resolution: 800x600 or above
■ Microsoft® Internet Explorer 5.0 or above

For IPView Pro Application Users

■ Operating System: Microsoft® Windows® 98SE/ME/ 2000/XP.
■ CPU: Intel Celeron 1.5GHz or above (Intel Pentium 4 is preferred)
■ Memory Size: 128 MB or above
■ Resolution: 800x600 or above

1.4. Physical Description

This section describes the externally visible features of the camera.

Front Panel

There are two LED indicators on the front panel of the camera: **Power LED** and **Link LED**.

Link   Power

1. Power LED

The Power LED is the LED on the right. A steady light confirms that the camera is powered on.

2. Link LED

The Link LED is the LED on the left. A steady light confirms that the camera has good connection to LAN.

Depending on the data traffic, the Link LED will begin to flash, indicating that the camera is receiving/sending data from/to the network.

3. Internal MIC

The built-in omni-directional microphone allows the camera to receive sound and voice.

Rear Panel

1. DC Power Connector   2. Reset Button   3. Network Cable Connector
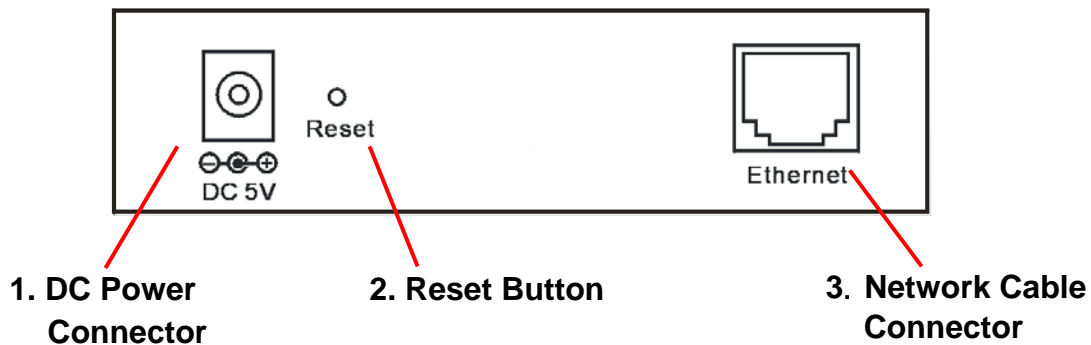
1. DC Power Connector

The DC power input connector is located on the camera's rear panel, and is labeled DC5V 2.5A with a single jack socket to supply power to the camera. Power will be generated when the power supply is connected to a wall outlet.

2. Reset Button

Factory Reset will be initiated when the reset button is pressed continuously for three seconds; meanwhile, the Link LED lights up or blinks. Release the reset button and the Link LED will turn off, indicating that the camera has restored factory default settings. When factory reset is completed, the configuration of camera will return to the defaults as:

- IP address: **192.168.1.2**
- Administrator's login name: **admin**
- Password: **admin**
- Wireless status (for wireless model): **disabled**

3. Network Cable Connector

The camera's rear panel features an RJ-45 connector for connections to 10Base-T Ethernet cabling or 100Base-TX Fast Ethernet cabling (which should be Category 5 twisted-pair cable). The port supports the N-Way protocol and "AutoMDIX" function, allowing the camera to automatically detect or negotiate the transmission speed of the network.
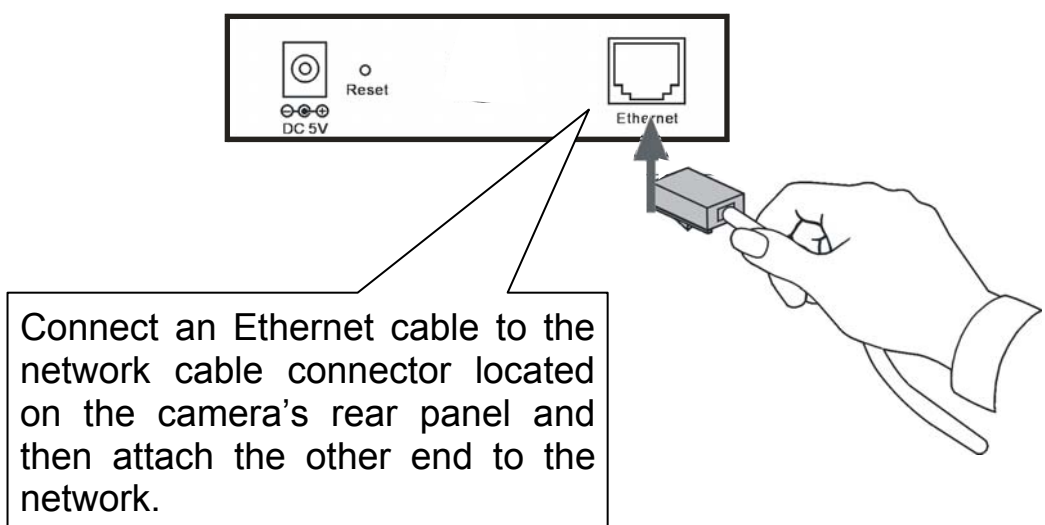
HARDWARE INSTALLATION

2.1. Attaching the Metal Clip

Wall screw   Screw

Screw

Ear

Ear

Wall screw
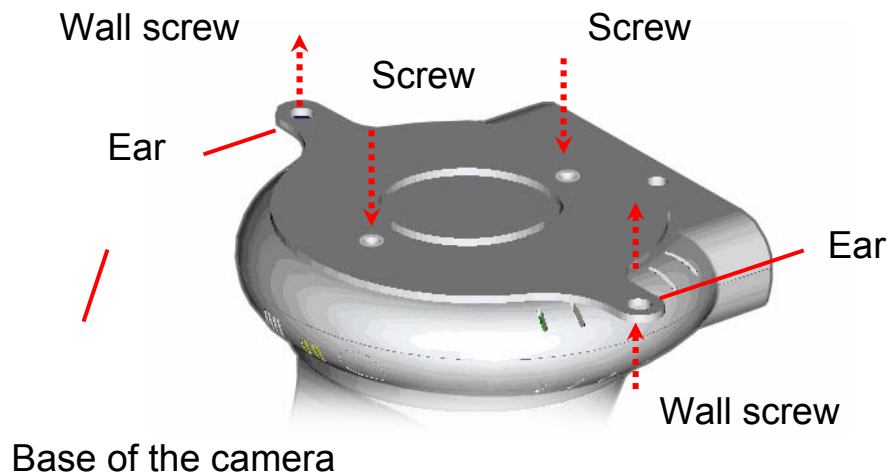
Base of the camera

To attach the metal clip, remove the two rubber pads under the base of the camera first. Place the metal clip onto the camera base and align the two holes of metal clip with two screw holes on the camera base. Then, secure the metal clip with two screws (provided in the package). There are two ears on each side of the metal clip, allowing the camera to be mounted on the ceiling or wall using two wall screws (provided in the package).

2.2. Connecting the Ethernet cable

Reset

DC 5V

Ethernet

Connect an Ethernet cable to the network cable connector located on the camera's rear panel and then attach the other end to the network.

2.3. Attaching the Power Supply
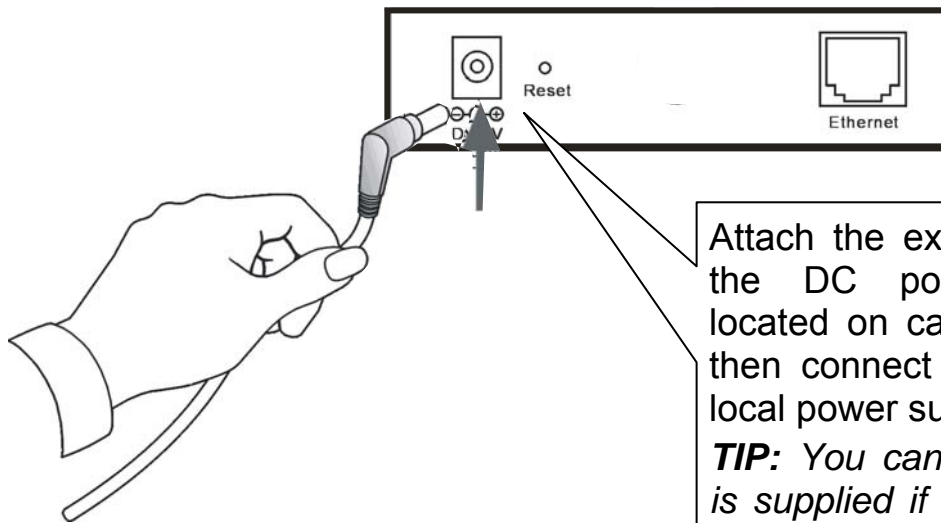
Attach the external power supply to the DC power input connector located on camera's rear panel and then connect the other end to your local power supply.

TIP: You can confirm power source is supplied if the Power LED on the camera is illuminated.

SECURITY

To ensure the highest security and prevent unauthorized usage of the camera, the Administrator has the exclusive privilege to access the System Administration to set, control, and authorize the level of entry and privileges for all users. The camera supports multi-level password protection, and access to the camera is strictly restricted to defined user who has a "User Name" and "User Password" that is assigned by the Administrator.

The Administrator can release a public user name and password, so when remote users access the camera, they will have the right to view the image transmitted by the camera.

*NOTE: The default settings of Administrator's login name/password are **admin**/**admin** and are easily known by unauthorized users. Therefore, it is strongly recommended that you change the login name and password the first time you use the camera.*

APPLICATION OF THE CAMERA

The camera can be applied in a wide variety of applications. With the built-in CPU, it can work as a standalone system that provides a web-based solution, transmitting high quality video images and sounds for monitoring purposes.   It can be managed remotely, accessed and controlled from any PC desktop over the Intranet or Internet via a web browser. With easy installation procedure, real-time live images are made available.

The following section will provide the typical applications for the camera and also include some basic knowledge to assist in the installation and configuration of the camera.

Applications:

- Monitoring of local and remote places and objects such as construction sites, hospitals, amusement parks, schools and day-care centers through the use of a web browser.
- View image from IPView Pro.
- Configure the camera to save image or send-mail messages with a short video clip.

Application Diagrams of the Camera

Home Applications
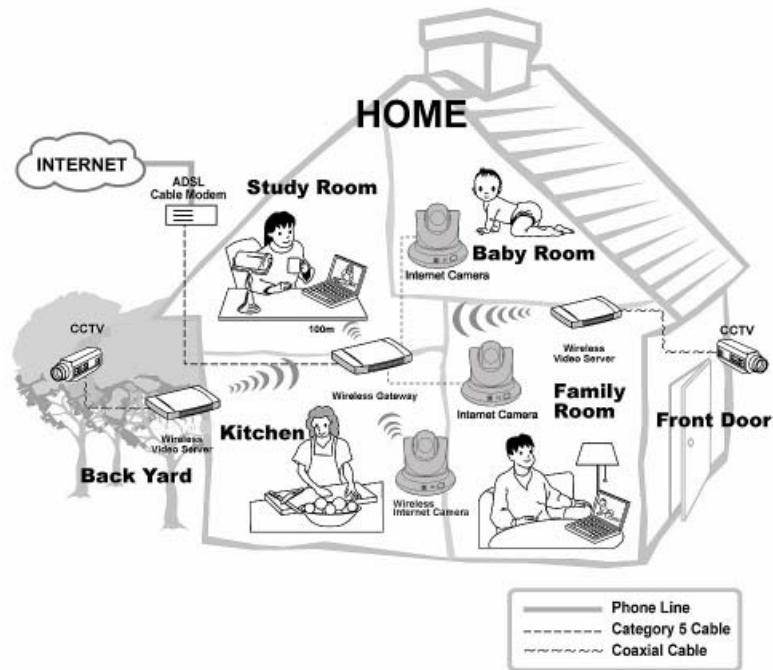
SOHO Applications
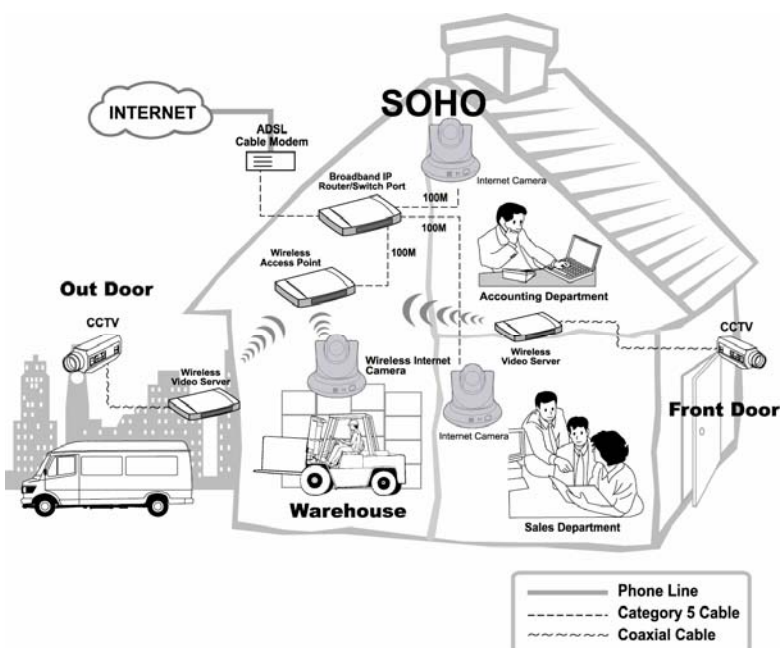
# Enterprise Applications
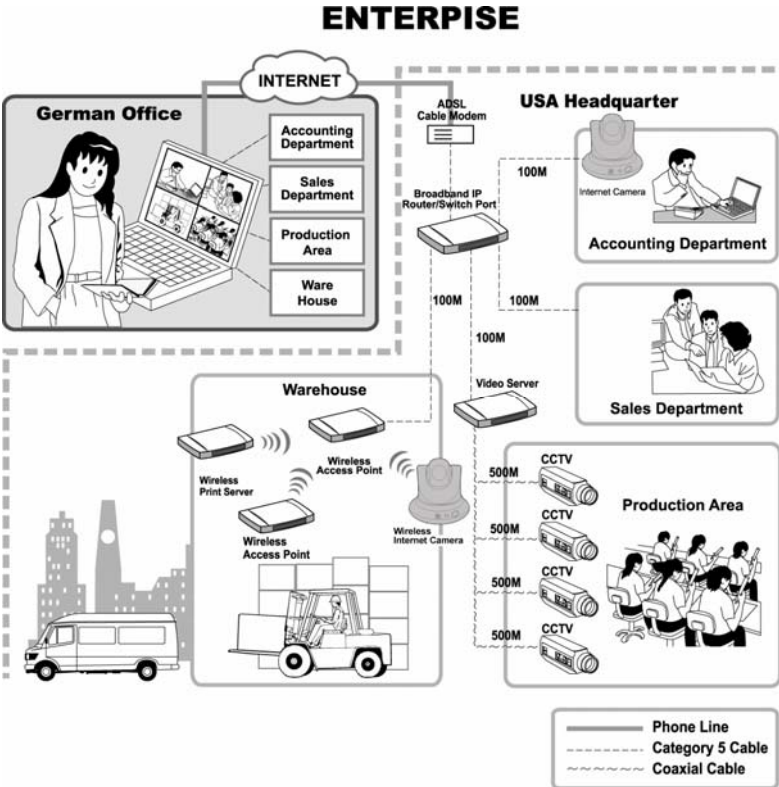
USING THE CAMERA

You can access and manage the camera through your web browser. This chapter describes the Web Configuration Utility and provides the instructions on using the camera with a web browser.

5.1. Web Configuration Utility

The camera must be configured through its built-in Web-based Configuration. Whenever you want to configure the camera, open your web browser (e.g. Internet Explorer in this manual), and type the default IP address **http://192.168.1.2** in the Address bar and press [**Enter**]. When the login page appears, type **admin** in the Name and Password box, and then click *Login*.

> *NOTE:*
> 1. *Extensive knowledge of LAN will be helpful in setting up the camera.*
> 2. *The computer's IP address must correspond with the camera's IP address in the same segment for the two devices to communicate.*

Enter the default IP Address in the Address bar.

Enter the default username and password.
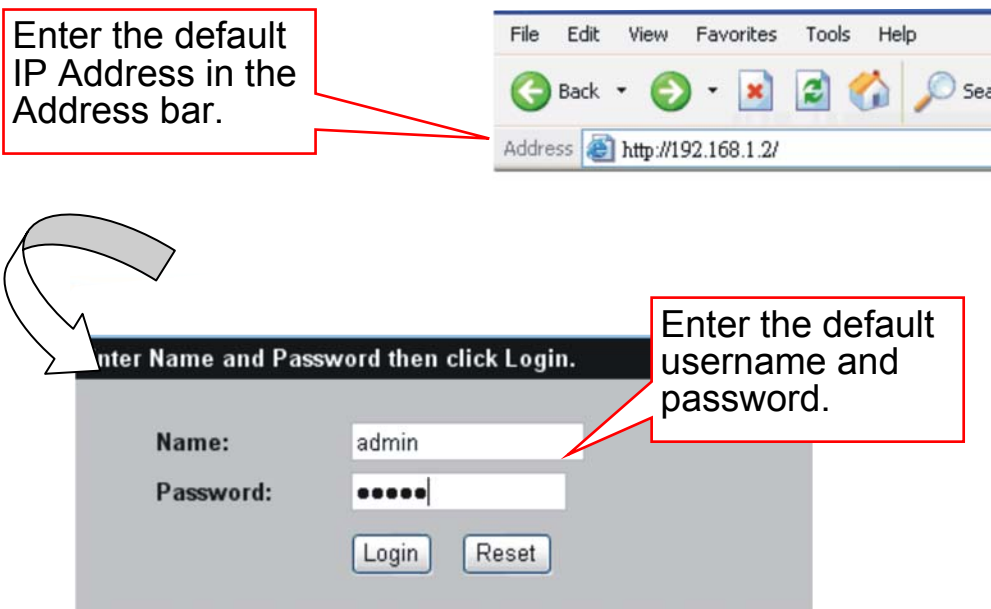
Login Screen of Web Configuration Utility

"**admin**" is the default username and password of the camera, and can be changed in the Web Configuration Utility.

After login, the **Home** window of the Configuration Utility will appear as below, which includes three areas: **Menu Bar**, **Video Show Area**, and **Control Buttons**.

NOTE: *If you are denied to enter the Web Configuration Utility, the following warning message will appear on the screen: "Please try to enter the correct username and password again, or contact your network administrator."*
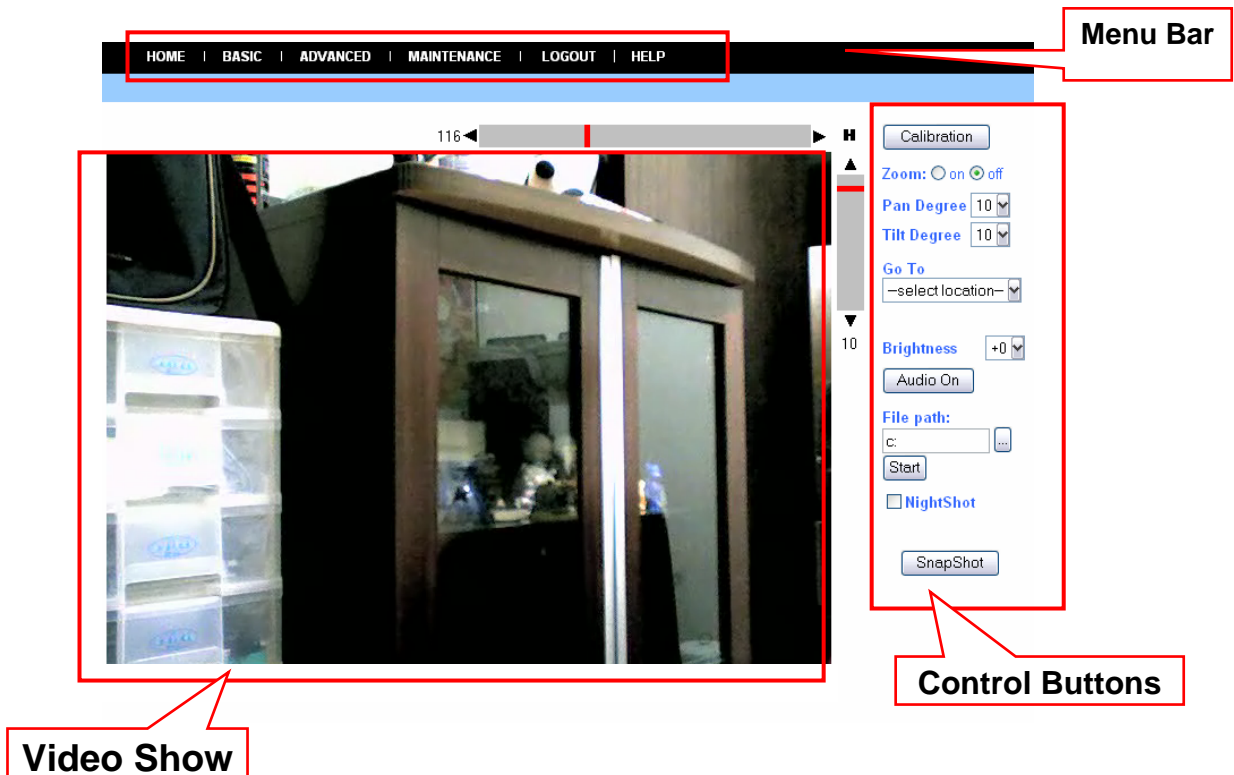
Home Window

- **Menu Bar** – the top of the window contains six items that allow you to set up the camera.
- **Video Show Area** – allows you to view the image taken from the camera. You can adjust the viewing angle by using the **Slider bars**.
- **Control Buttons** – These buttons allow you to control the camera's viewing angle, position, audio, and etc.

5.2. Controlling and Viewing Video

In the **Home** window, you can control the camera through the control buttons on the right side of the window. The real-time image from the camera will be displayed in the Video Show Area.

Zoom On / Zoom Off

When you select **ON**, move your mouse to the Video Show Area, and the cursor will change to the ◈ icon. Then, you can zoom in/out the image by clicking the left/right button on your mouse.

When the camera is in zoom out mode, click on any position of the Video Show Area, then the position will be moved and displayed in the center of the screen.

Adjust the Viewing Angle

To adjust the camera's viewing angle, simply click the **Slider bar** at the right-top corner of Video Show Area. Then, you can easily move the camera's lens to focus on the object that you want. Clicking the *Calibration* button allows you return to the original position saved in the camera.

The **Pan Degree** and **Tilt Degree** options allow you to increase/ decrease the range (5~90) of change when you click the buttons.

When you have saved position(s) in the camera, select the position from the **Go To** pull-down list. The camera's lens will move to the position immediately.

Adjust the Image Brightness

You can adjust the image brightness level through the **Brightness** option. The range is from +5 to -5.

Audio Function

Click the *Audio On* button to enable the camera's audio function; click again to disable.

Capture Video and Still Images

Click the *Start* button to start record a video clip, and you can specify the destination folder to save the file by clicking the browse button of the **File path** option.

Click the *Snapshot* button to capture a still image of the active camera, and save it into your computer.

NightShot

The camera is equipped with a high-resolution CCD lens to provide crystal clear images in real time, even at night. At dark or low light situation, select the **NightShot** option to switch the camera to deliver black & white images.

5.3. Basic Setup

The **Basic** menu contains three steps that will guide you through the basic configuration for the camera. Click **Basic** in the top menu bar to start the step-by-step configuration.

Basic → Network

The first step is to configure networking settings of the camera. According to your ISP's service, select one from the three connection types: **LAN**, **PPPoE**, and **DDNS**.

LAN	If your network access uses a fixed IP address or DHCP service, select this option and fill in the required data provided by your network administrator in the fields of **IP Address**, **IP Subnet Mask**, **Gateway IP Address**, and **DNS** (Domain Name Server).
PPPoE	If your network access uses PPPoE (Point-to-Point Protocol over Ethernet), select this option. Fill in the required data in the **User Name** and **Password** fields, which are supplied by your ISP. The IP Address is usually provided automatically.
DDNS	The camera supports Dynamic DNS (DDNS) feature, which allows you to assign a fixed host and domain name to a dynamic Internet IP address. Select *Yes* to enable this function, and then fill in the required data in the **User Name**, **Password** and **Domain Name** fields. Please note that you have to sign up for DDNS service with service providers before using this function.

When completed, click *Next* to continue.

Basic → Camera Name

The second step is to set up a descriptive name for the camera.

When completed, click *Next* to continue.

Basic → Time Zone

This step displays the current time setting of the camera. For system management purpose, a correct time setting is critical to having accurate time stamps on the system logs.

The **Method** pull-down menu allows you to set up the correct time by getting time from the computer or time server (an Internet connection required). In the **Time Zone** pull-down menu, select the time zone based on your location.

When completed, click ***Apply***.

*NOTE: If you set up these steps using incorrect networking settings, it will pop up a warning message on the screen. Click **OK** to modify these settings or **Cancel** to reserve the currently settings.*

Basic → Report

The last step provides some tips when you have Internet access problems.

Click ***Start*** to complete your basic network configuration. When completed, you are brought to the **Home** window.

*NOTE: During the configuration, you can return to **Home** window by clicking the **HOME** button that is available on every page of the utility, or exit the utility by clicking the **LOGOUT** button whenever you want.*

5.4. Advanced Setup

The camera will function fine after the **Basic** configuration; however, you may wish to explore more advanced options. This section explains each parameter and setting procedures for advanced configuration of the camera. Move your mouse onto the **Advanced** button, and it will automatically pop up a submenu bar as below.
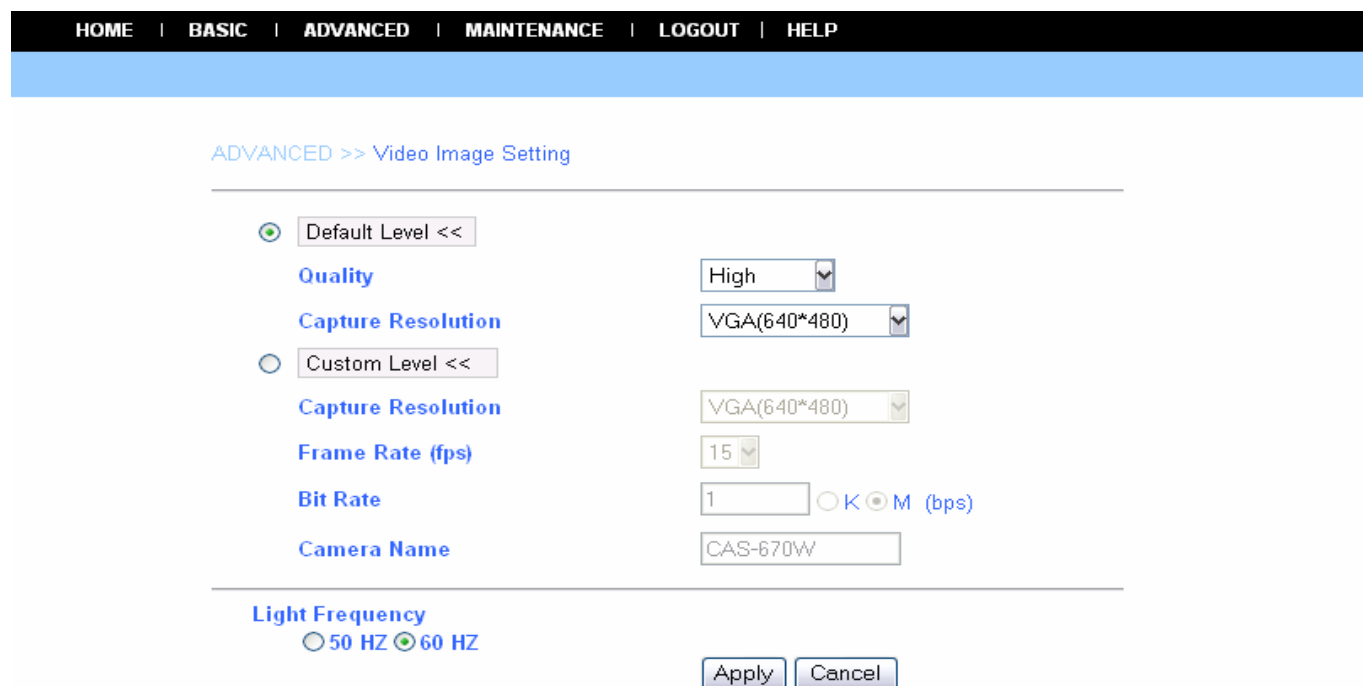
ADVANCED

Video ▶   Network ▶   Wireless ▶   Tools ▶   Account   Timezone

The submenu bar provides six submenu buttons: **Video**, **Network**, **Wireless** (for wireless model), **Tools**, **Account**, and **Timezone**. Each submenu button allows you to access advanced feature settings and is explained in details in the following sections.

Advanced → Video

There are three options under the **Video** submenu: **Image Setting**, **Location Setting** and **Motion Detection**.

Image Setting

Click the **Image Setting** item of the **Video** submenu to bring up the following screen for setting up camera image settings.

HOME | BASIC | ADVANCED | MAINTENANCE | LOGOUT | HELP

ADVANCED >> Video Image Setting

◉ Default Level <<
   Quality   High
   Capture Resolution   VGA(640*480)
○ Custom Level <<
   Capture Resolution   VGA(640*480)
   Frame Rate (fps)   15
   Bit Rate   1   ○ K ◉ M (bps)
   Camera Name   CAS-670W

Light Frequency
   ○ 50 HZ ◉ 60 HZ

Apply   Cancel

- **Default Level:** Select this option to use the default image settings of the camera.
  - **Quality:** You can set up the image quality from this pull-down list. The default setting is **High**.
- **Custom Level:** Select this option when you want to customize the image configuration.
  - **Capture Resolution:** You can set up the image resolution for capturing a still image. The default setting is **VGA(640*480)**.
  - **Frame Rate (fps):** Select the optimal setting according to your network status. Higher setting will result in better quality; however, it will use up more resources in your network at the same time.
  - **Bit Rate:** You can set up bit rate of the image by selecting **Kbps** or **Mbps**. The setting range is 4Kbps~3Mbps. Higher setting will result in better quality; however, it will use up more resources in your network.
  - **Camera Name:** You can change the name of the camera.
- **Light Frequency:** Adjust the light frequency to suit your area of operation by choosing from either **50 Hz** or **60 Hz** (default) options.

Location Setting

Click the **Location Setting** item of the **Video** submenu to bring up the following screen for setting up the video control settings of the camera.
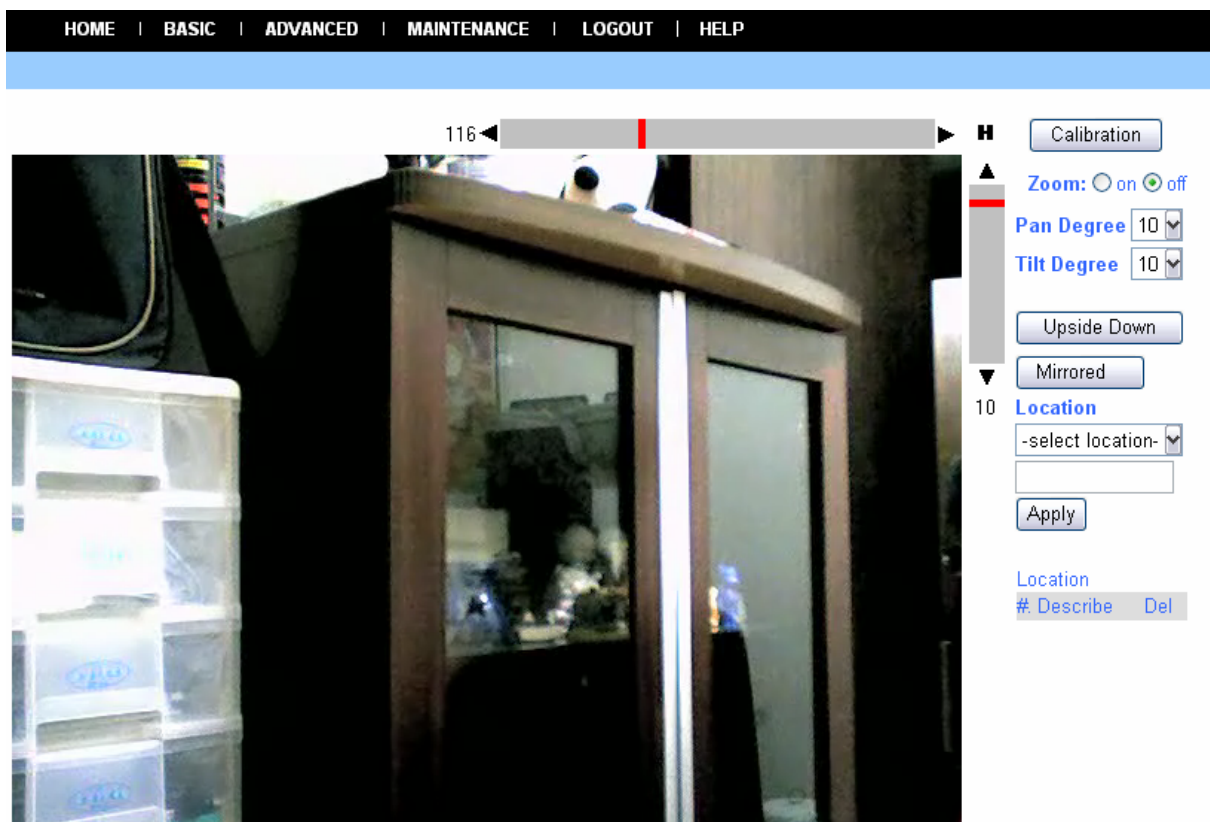

- **Upside Down:** Display the image in a vertical mirrored mode.
- **Mirrored:** Display the image in a horizontal mirrored mode.

- **Location:** When you have saved the position in the camera, select the location from the pull-down list, and then click **Apply**. The camera lens will move to the location immediately.

Motion Detection

Click the **Motion Detection** item of the **Video** submenu to bring up the following screen for setting up the motion detection settings of the camera.
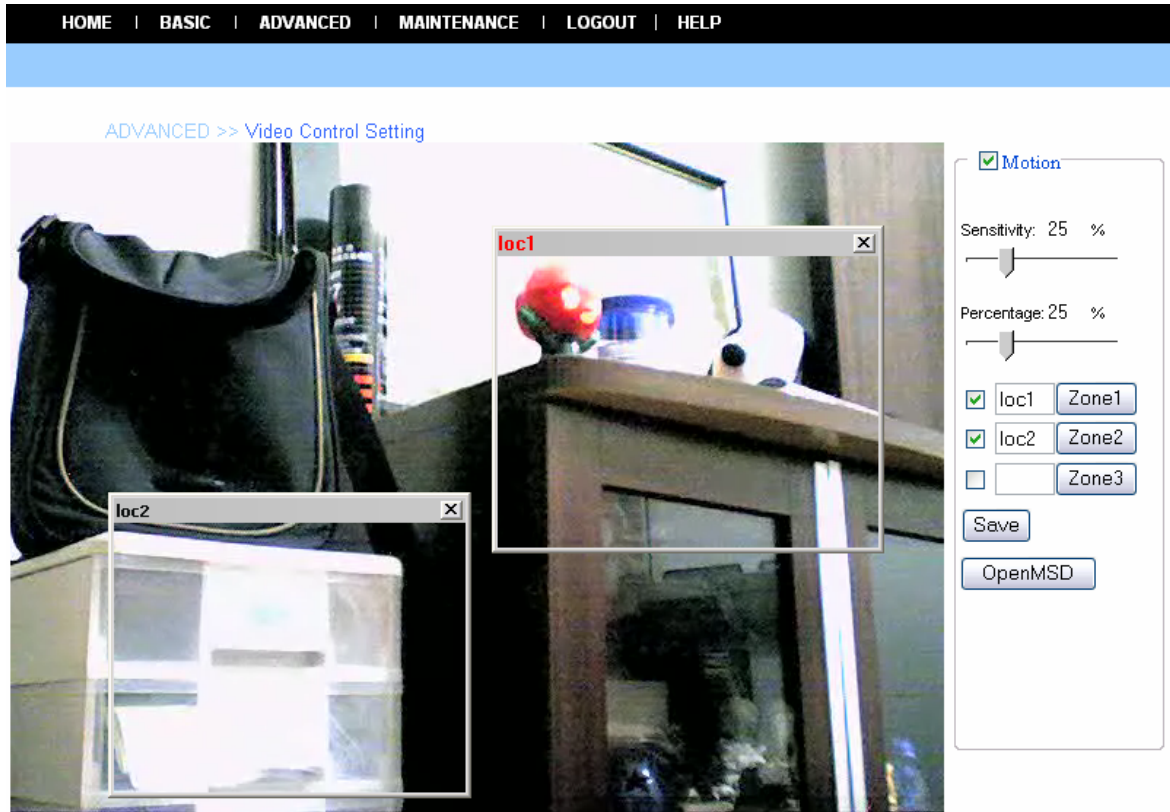
- **Motion:** Check this option to enable motion detection function of your camera. Once enabled, you can set up the detecting region by giving a name for the respective Zone# (#: 1/2/3). Then, build the Zone window(s) using your mouse to set up the detecting area(s). In addition, move the slide bars to adjust the **Sensitivity** level and **Percentage** level for detecting motion to record video or to send e-mail.
- **Open MSD:** Click this button to bring up a dialog window listing the detected motion event(s) of Zone # (#: 1/2/3).
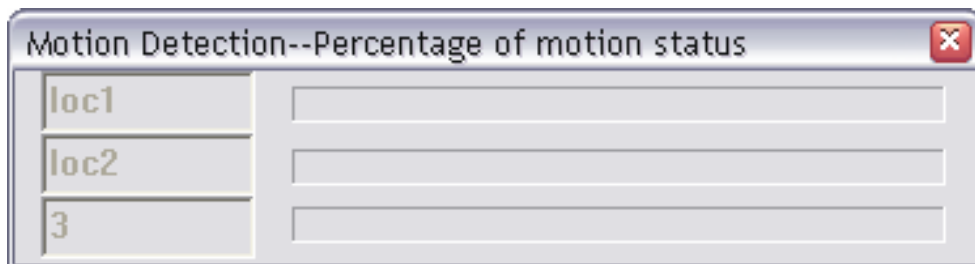
Advanced → Network

There are three options under the **Network** submenu: **LAN**, **PPPoE** and **DDNS**. The settings in these three options are the same as configured in the **Network** under **Basic** configuration. (The settings here are the same as the configuration made in Basic menu.)

LAN

Click the **LAN** item of the **Network** submenu to bring up the following screen.

If your network access uses a fixed IP address or DHCP service, select this option and fill in **IP Address**, **IP Subnet Mask**, **Gateway IP Addres**s, and **DNS** (Domain Name Server) fields accordingly with data provided by your network administrator.

PPPoE

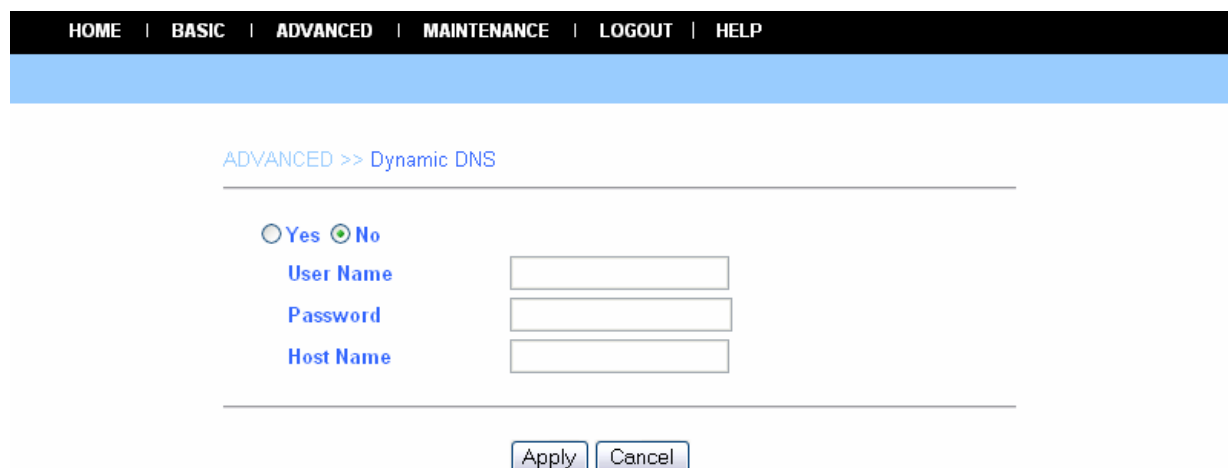Click the **PPPoE** item of the **Network** submenu to bring up the following screen.

If your network access uses PPPoE (Point-to-Point Protocol over Ethernet), select this option by checking the **Yes** item. Fill in the **User Name** and **Password** fields accordingly with data supplied by your ISP. The IP Address is usually provided automatically.

DDNS

Click the **DDNS** item of the **Network** submenu to bring up the following screen.

The camera supports Dynamic DNS (DDNS) feature, allowing you to assign a fixed host and domain name to a dynamic Internet IP address. Select **Yes** to enable this function, and then fill in the required data in the **User Name**, **Password** and **Domain Name** fields. Please note that you have to sign up for DDNS service with service providers before using this function.

Advanced → Tools

There are three options under the **Tools** submenu: **Recording**, **Port** and **Mail**.

Recording

Click the **Recording** item of the **Tools** submenu to bring up the following screen for setting up the record function of the camera.

- **Upload image to Network share folder:** Enable this function by checking the item, and then configure the following settings in this field.

  - **Login Method:** If the network share folder allows you to login using **Anonymous**, you will be able to upload the images without entering the User Name and Password. If not, you will have to use the correct settings to enter the folder.
  - **Login User:** Enter the user name in this field.
  - **Password:** Enter the user password in this field.
  - **Path:** Enter an existing folder name in this field, and the images will be uploaded to the given folder.
    Example: \\192.168.5.2\SHARE (the shared PC's IP is 192.168.5.2; the shared folder named is SHARE).

Then, you can select the upload mode and the recording method from the following two fields: **Shared Folder Mode** and **Recording Method**.

- **Shared Folder Mode:** You can set up this option by selecting **None**, **Recording File Number**, or **Shared Folder Size**.
- **Recording Method:**
  Always: The recorded images will be always uploaded to the network share folder.
  Schedule: Allows you to manage the uploading task by configuring the **Day** and **Time** options
  Smart Recording: Allows you to upload the recorded image only, and skips the empty files. To select this mode, you have to enable and configure the Motion Detection option first.

Port

Click the **Port** item of the **Tools** submenu to bring up the following screen for setting up the ports used to transmit the camera's data.

- - **Enable UPnP Control Point:** Set up the Web port to transmit the camera's image data. The default setting is port *80*.
- - **Non UPnP:** When you select this option, you can set up the following items manually.
  - **Web Port:** Set up the Web port to transmit the camera's image data. The default setting is port *80*.
  - **AV Control Port:** Set up the transmission of streaming data within the network. The default setting is port *5000*.
  - **AV Streaming Port:** The default setting is port *5001*.
  - **IP View Lite Port:** The default setting is port *5100*.

Mail

Click the **Mail** item of the **Tools** submenu to bring up the following screen for setting up e-mail function of the camera.

When you select **By E-mail**, the system will enable the alert function which will notify you **IP Change** or **Motion Detection** events by e-mail. If you select **None**, the system will do nothing.

- **By E-mail:** Configure the following settings. There are six basic settings in this field for your e-mail server.
  - **SMTP Login Name:** Enter the user name to login receiver's e-mail server.
  - **SMTP Password:** Enter the user password to login receiver's e-mail server.
  - **SMTP (mail) Server:** SMTP (Simple Mail Transfer Protocol) is a protocol for sending e-mail messages between servers. Input the mail server address in this field.
  - **Return Email Address:** Enter the e-mail address of the user who will be sending the e-mail.
  - **Recipient Email Address:** Enter the e-mail address of the user who will be receiving the e-mail.
  - **SMPT Port:** Enter the e-mail port used on your computer in this field. The default setting is port **25**.
- **Motion Detection Set Skip Time:** Sets up the duration of motion detection.

*NOTE: Click the **Test** button to test if the e-mail account is set up correctly. To test, you have to enable and configure the Motion Detection option first.*

Advanced → Account

The **Account** submenu contains the options that allow you to add/delete users. Also, you can manage camera users.

- **User Name:** Enter the user name in this field.
- **Password:** Enter the user password in this field.
- **Retype Password:** Enter the user password again to confirm the password.

When completed, click **Apply** to activate the user's account.

The following User List displays the existing camera users. You can modify or delete a user by click the respective icon.

Advanced → Timezone

The **Timezone** submenu displays the current camera time setting. For system management purpose, a correct time setting is critical to having accurate time stamps on the system logs.

- **Method:** Allows you to set up the correct time by getting time from the computer or time server (Internet connection required).
- **Time Zone:** Select the time zone based on your location.

5.5. Maintenance

There are two submenus under the **Maintenance** menu: **Configuration** and **Firmware Upload**. Move your mouse onto the **Maintenance** button, and it will automatically pop up a submenu bar as below.
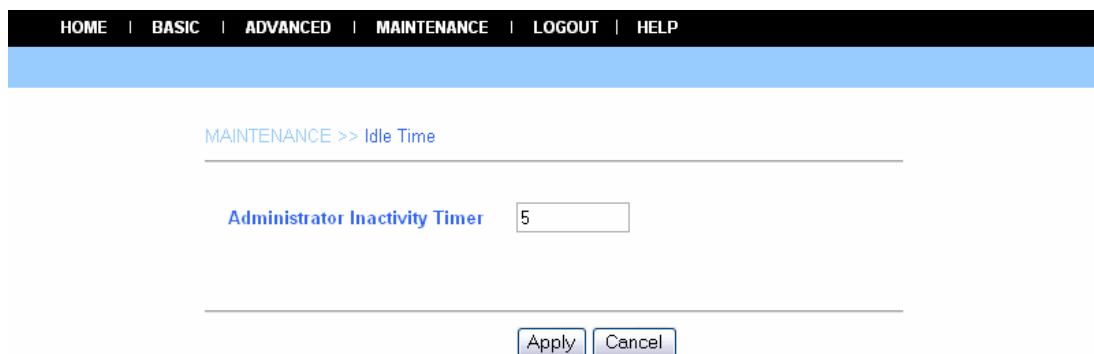
Maintenance → Configuration

There are four options under the **Configuration** submenu: **Idle Time**, **Reset Default**, **Reboot** and **Status**.

Idle Time

Click the **Idle Time** item of the **Configuration** submenu to bring up the following screen for setting up the idle time of the camera.

- **Administrator Inactivity Timer:** If the user does nothing within the specified time in this option, the system would automatically logout. The idle time must be larger than *0*.

Reset Default

Click the **Reset Default** item of the **Configuration** submenu to bring up the following screen for loading the default settings of the camera.

MAINTENANCE>> Reset Default

Back to Factory Defaults .

Please wait for the device to finish restarting. This should take about one minutes. Finally you need to login again.

[Reset]

Clicking *Reset* allows you to resume the factory default settings of the camera. This function is the same as pressing the **Reset** button on the camera.

Reboot

Click the **Reboot** item of the **Configuration** submenu to bring up the following screen for restarting the camera.

MAINTENANCE>> Reboot

Please wait for the device to finish restarting. This should take about one minutes. Finally you need to login again.

[Reboot]

Click *Reboot* to restart the camera.
After rebooting, both the Power LED and Link LED on the front panel will light on, and then you can enter your Name and Password to login.

Status

Click the **Status** item of the **Configuration** submenu to bring up the following screen, which displays the current configuration of the camera.

MAINTENANCE >>Status

Basic Status

IP Address: 192.168.1.2
IP Subnet Mask: 255.255.255.0
Gateway IP Address: 192.168.1.1

Wireless Status

SSID: OFF
Wireless IP Address: OFF
Channel: OFF
Signal: 0%

PPPoE Status

PPPoE: OFF

Video Image Status

Capture Resolution : VGA
Frame Rate (fps): 15
Camera Name: CAS-670W
Bit Rate: 1 M (bp

Server Status

Firmware Version: 1.37.0401.2005
On-Line User Numbers: 0
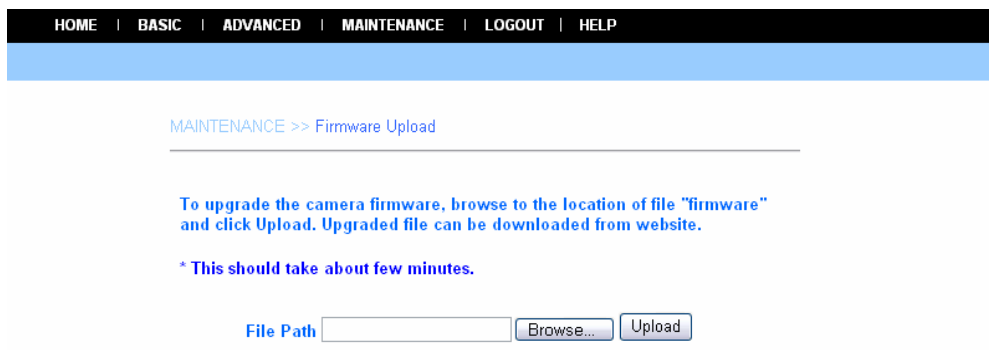
Log File Status

Log List :

The **Status** option contains camera information, including its basic status and the networking status.

Maintenance → Firmware Upload
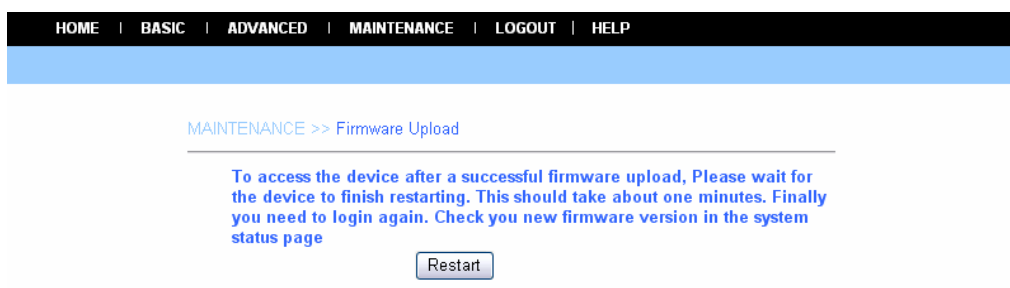
The **Firmware Upload** submenu allows you to update the firmware of the camera once you obtained the latest version of firmware.

Click ***Browse*** to point to the firmware file saved in your computer, and then click ***Upload***. The system will start to upgrade the firmware and then ask you to restart the camera. Click ***Restart*** when prompted.

NOTE: It will take a few minutes to update firmware. Please wait to complete the procedure; you can then reboot the camera.

5.6. Logout

Click the **LOGOUT** button to exit the Web Configuration Utility and return to the login screen of the utility.
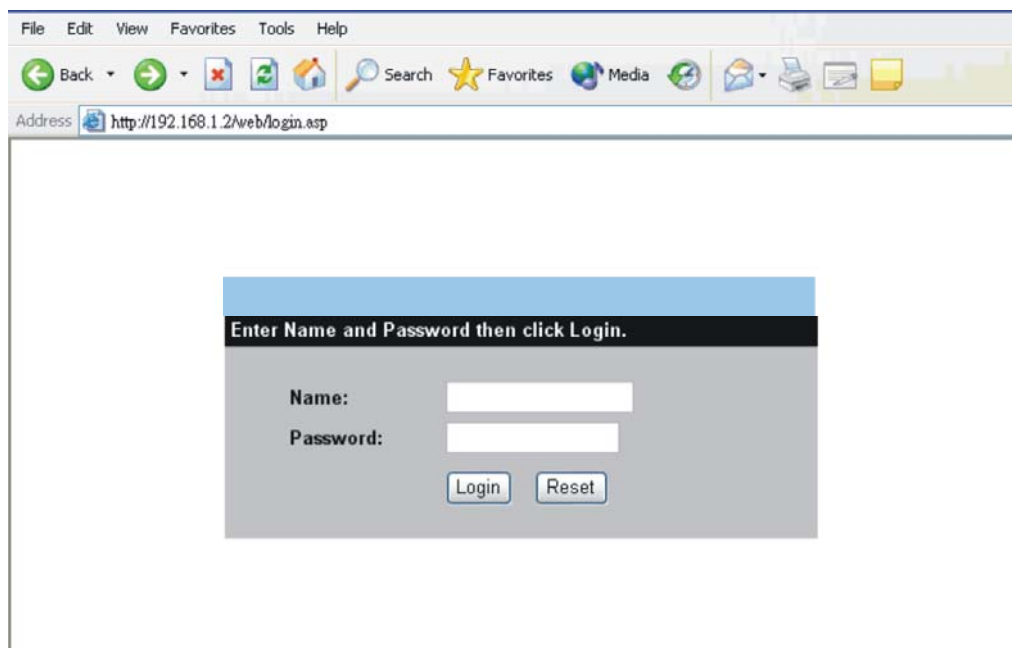
Help

Clicking the **HELP** button brings up a window, which provides you with general help information on controlling the camera.

*FF*DSHOW *& AVIS*AVIOR

This chapter is about the **FFdshow** and **AVISavior software** provided in the Installation CD. FFdshow allows you to play the recorded video files on your computer. AVISavior allows you to fix the damaged recorded video files.

6.1. Installing FFdshow

Step 1
Insert the CD-ROM into the CD-ROM drive

Step 2
Click the "**Utility/FFDShow/ffdshow.exe**" and install the software. In addition, you must select the desired language in the pop-up dialog window.

Then, the InstallShield Wizard will appear, and click **Next** in the welcome screen.
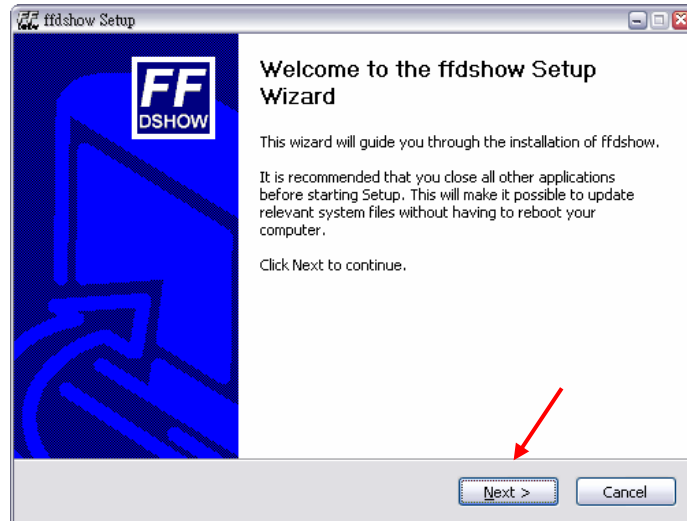
Step 3
Read and accept the License Agreement, and then click *I Agree*.
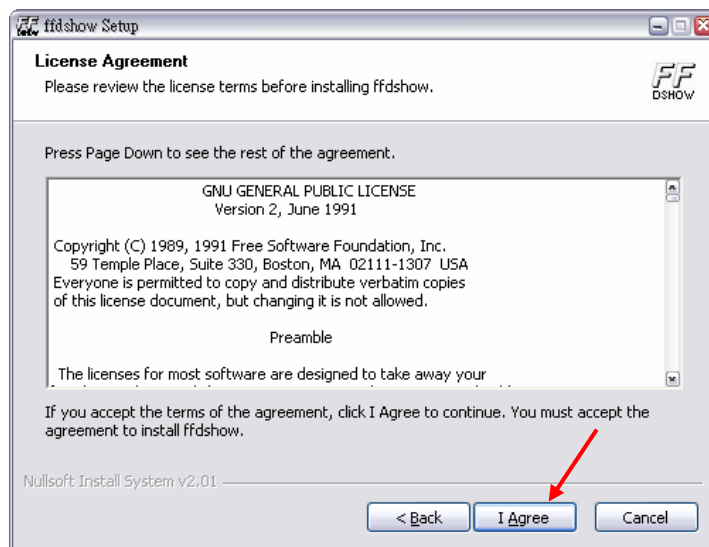
Step 4
Choose the components to be installed. If there is no specific requirement, leave the default setting, and click *Next*.
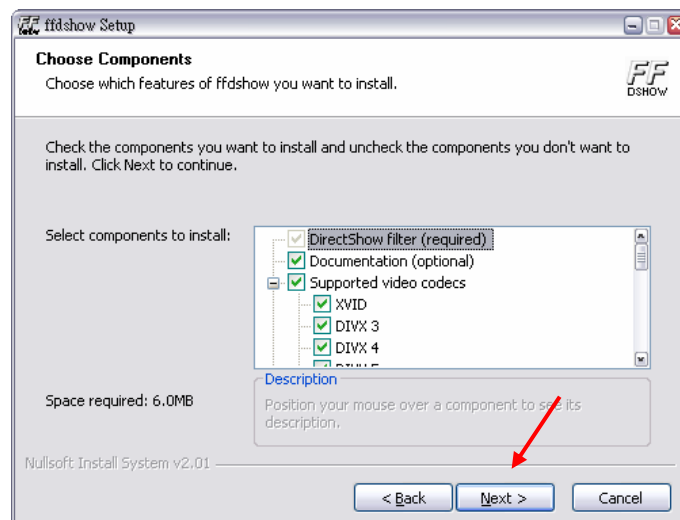
Step 5

Choose the destination location. If there is no specific requirement, leave the default setting, and click *Install*.
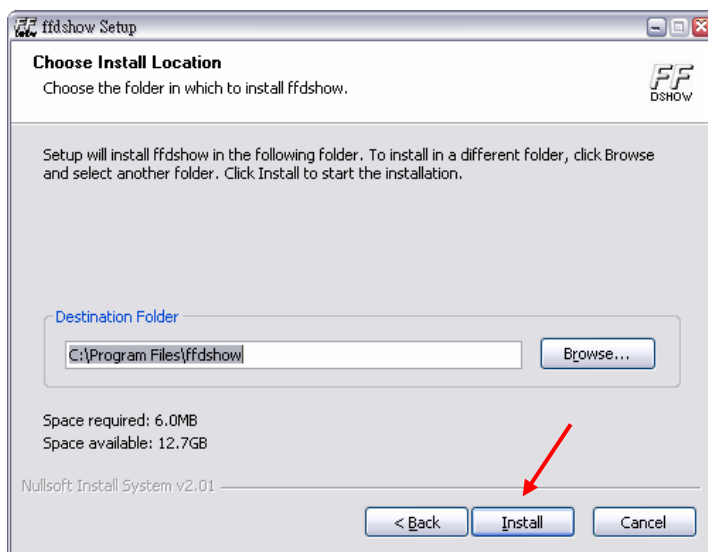
Step 6

The InstallShield Wizard starts to install the software, and the progress bar indicates the installation is proceeding. When completed, click *Next*. Then, click *Finish*.
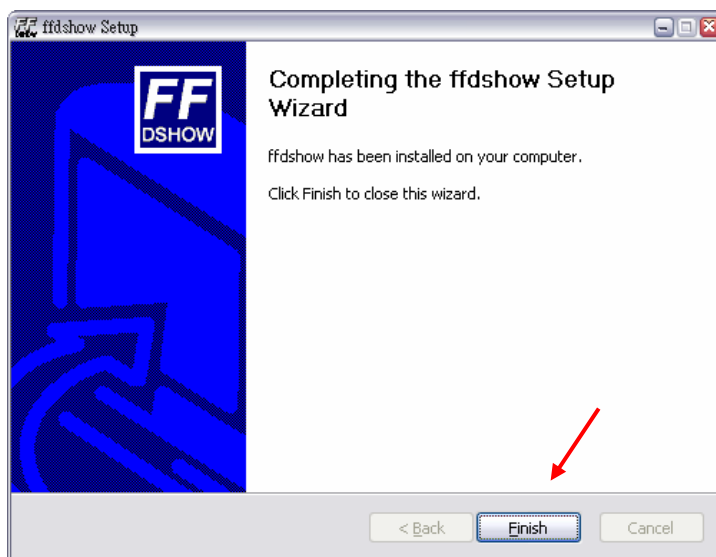
6.2. Configuration of FFdshow

Before playing the recorded video file, you have to change the following settings in FFdshow:

- Enable the **Subtitles** function.
- Set the **Error resilience** option to **none**.

1. Click **Start** > **Programs** > **ffdshow** > **Configuration** to open the **ffdshow properties** window.

2. Check the **Subtitles** item.
3. Select the Miscellaneous item, and then set the **Error resilience** option to **none**.
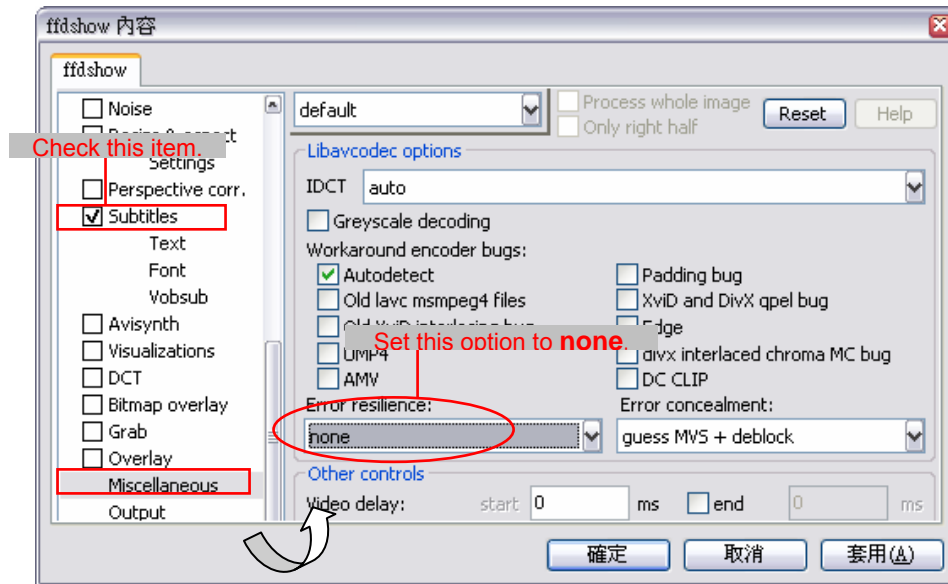
6.3. Playing the Video

Since you have the recorded video files from the camera, you can play the video files by simply using Windows Media Player in your computer.

1. Find the video file saved in the computer.
2. Double-click the file, and it will open Windows Media Player (as default in Microsoft Windows) to play the video file.

NOTE: By default, the destination folder for saving the recorded video files is :\Program\IPView Pro\, and the file will be named as xxxxxxxx_yyyyyy.avi (where x is date and y is time). Also, a subtitle file named as xxxxxxxx_yyyyyy.sub (the same date/time settings with the corresponded .avi file) will automatically be created. The destination folder can be changed by changing the Recording Configure option of IPView Pro.

6.4. Fixing the Video File

If, unfortunately, the recorded video restored in your computer is damaged, you can try to fix it using AVISavior. To launch the utility, insert the CD-ROM into the CD-ROM drive.

Click the **AVISavior** item, and the following window will appear on the screen.
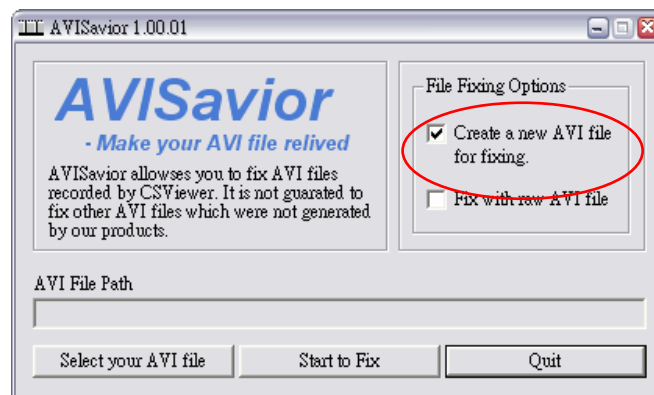
First, set up the File Fixing Options by checking the "**Create a new AVI file for fixing**" or "**Fix with raw AVI file**" item. Selecting the former one will create a new AVI file in the computer when file is fixed; selecting the latter one will overwrite the original file when is fixed.

Then, select the AVI file that you want to fix. Click the **Select your AVI File** button to bring up a dialog window for choosing the AVI file to be fixed. After the file is selected, the path of the AVI file will appear in the box, as shown below.
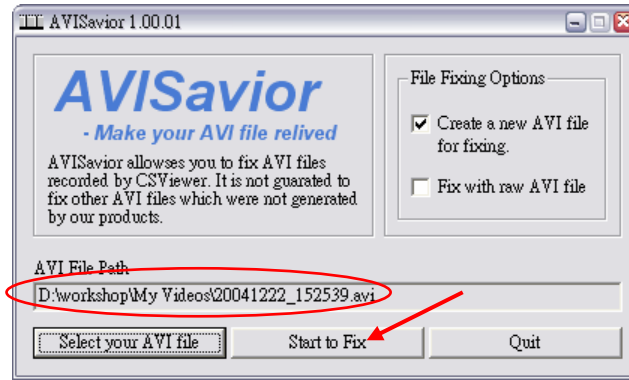
Click the **Start to Fix** button to start fixing.

IPVIEW PRO

This chapter is about IPView Pro, a powerful software application designed with a user-friendly interface for ease of control and navigation needs.

7.1. Installation

Step 1
Insert the CD-ROM into the CD-ROM drive.

Step 2
Click the "**Utility/ IPView Pro/ IPViewPro Standard.exe**" item to activate the InstallShield Wizard. Click *Next* in the welcome screen.
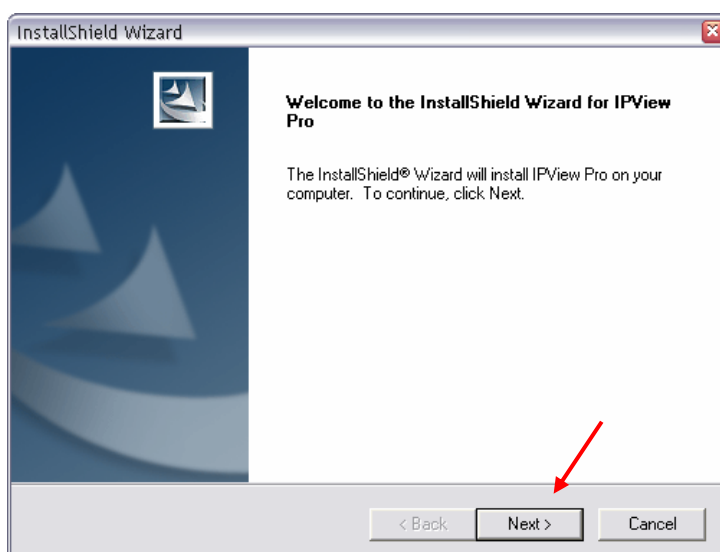
Step 3

Read and accept the License Agreement, and then click *Yes*.
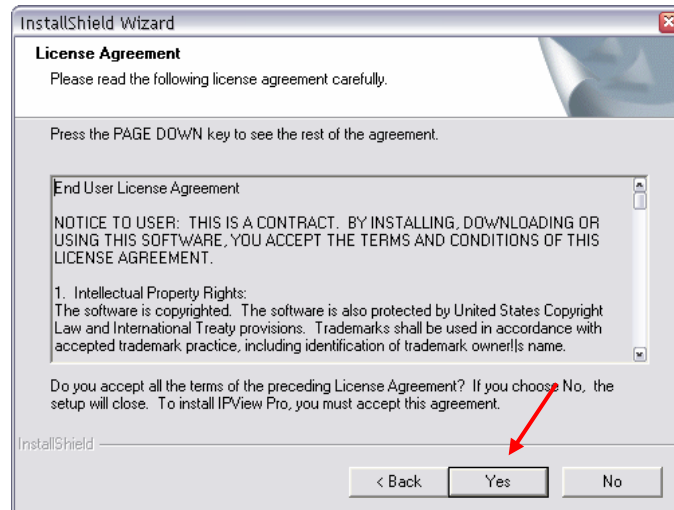
Step 4
Choose the destination location. If there is no specific requirement, leave the default setting and click *Next*.
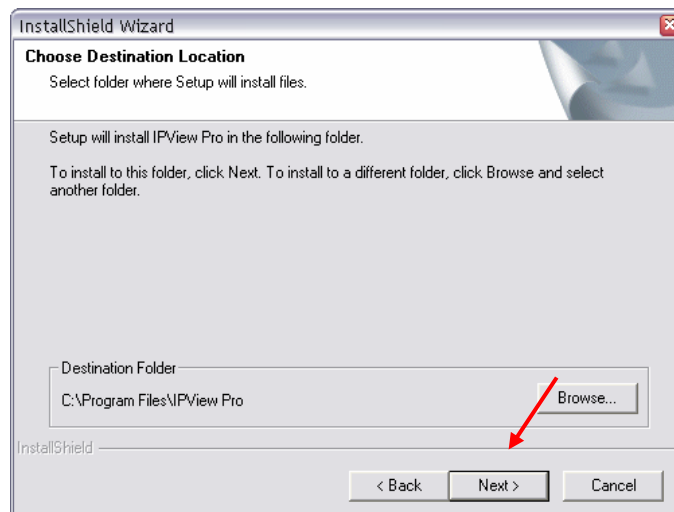
Step 5
The InstallShield Wizard starts to install the software, and the progress bar indicates the installation is proceeding.
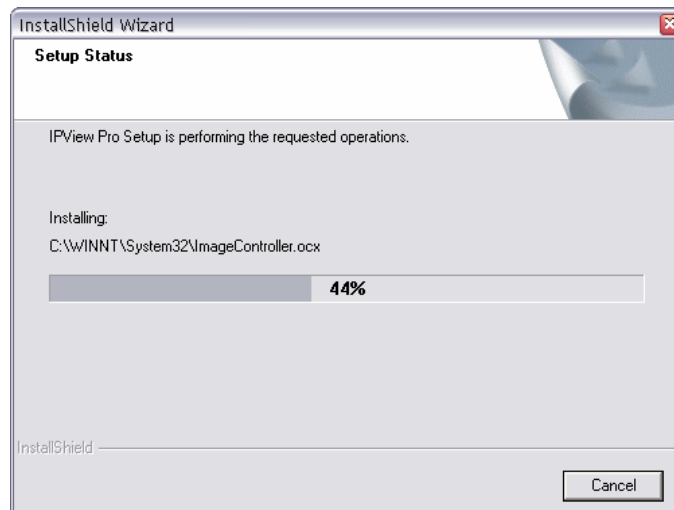
Step 6
When the Digital Signature warning screen appears, click *Continue Anyway*.
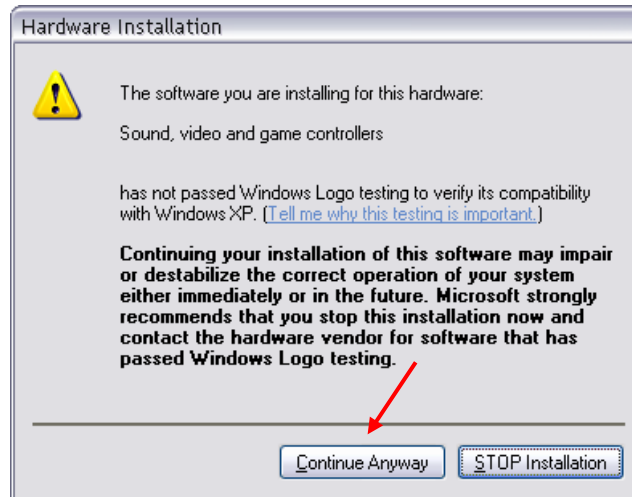
Step 7
Click *Finish* to complete the installation.
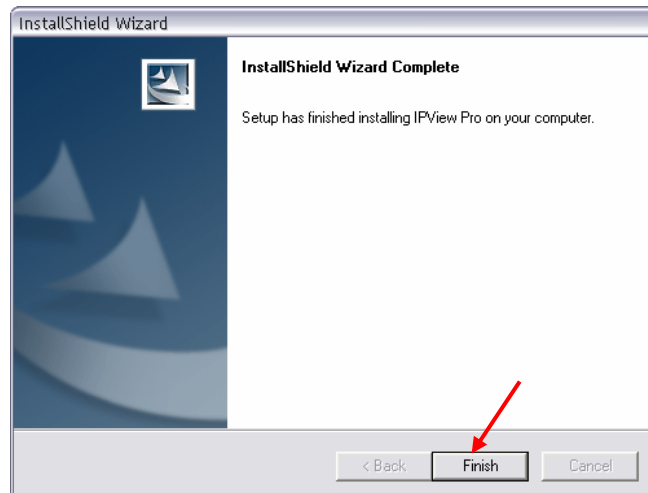
7.2. Getting Started
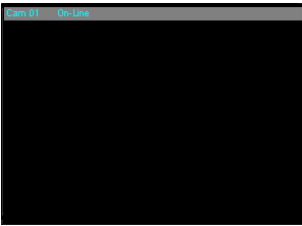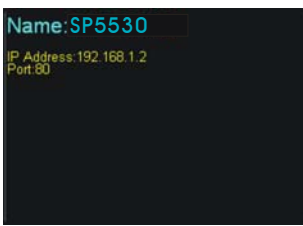
This section describes the User Interface of IPView Pro with detailed procedures for using the application.

To launch IPView Pro, click **Start** > **Programs** > **IPView Pro** > **IPView Pro**. The main screen will appear as below:
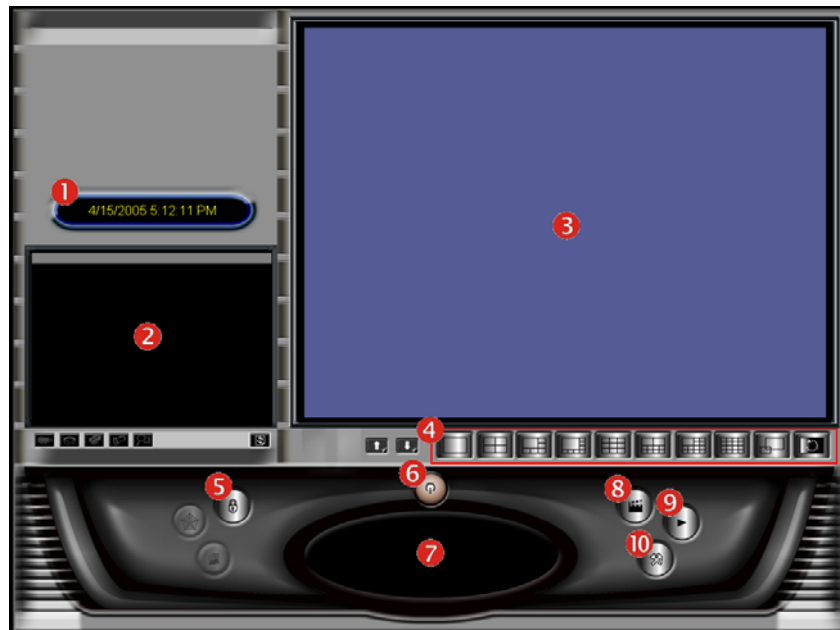
> **NOTE:** *IPView Pro requires that the resolution setting is up to 1024x768 in the system. Please configure the resolution to 1024x768 or higher; otherwise, the screen may be incomplete when launching the program.*

Item Feature

NO.	Item	Description
❶	Date/Time	Show current date/time.
❷	Status Mode Window	Show the camera's status in this window. Click the ***Change Status Mode*** button (🅢) on the right lower corner of the window to change the display mode: **Camera list mode** **Camera information mode**
❸	View Window	Show the camera's view in this window.

❹	View Mode Buttons	Select the view mode from these buttons.

		Show one camera in View Window.
		Show four cameras in View Window.
		Show six cameras in View Window with the first one as the major view.
		Show eight cameras in View Window with the first one as the major view.
		Show nine cameras in View Window.
		Show ten cameras in View Window with the first two as the major views.
		Show thirteen cameras in View Window with the first one as the major view.
		Show sixteen cameras in View Window.
		Show the selected camera in full screen view.
		Enable displaying the video views in circles.

❺	Key Lock Button	Click to lock/unlock the camera. When locked, the user cannot operate any camera.
❻	Power Button	Click to exit or minimize IPView Pro.
❼	Pan/Tilt Control Panel	When the camera is added, the Pan/Tilt control buttons will appear on the panel, as shown below: / / / / / / / : Click these buttons to adjust the camera's viewing angle to Up/ Down/Left/Right/Left-Up/Left-Down/Right-Up/Right-Down. : Once you have saved two (or more) positions in the camera, click the **Swing** button to control the camera swinging from one position to another position. : Click the **Home** button to return the camera to the default position.
❽	Record Button	Records video clip of the selected camera and saves it in the computer. The storage position can be configured in System Configuration. When you click the button, you can select **Manual Record**, **Schedule Record**, or **Motion Record**.
❾	Play Button	Play the recorded video file in the computer.
❿	Configuration Button	Click to enter the System Configuration.

7.3. Using IPView Pro

Adding a Camera

To add a camera:

Click the *Configuration* button ⊗ to enter the System Configuration.
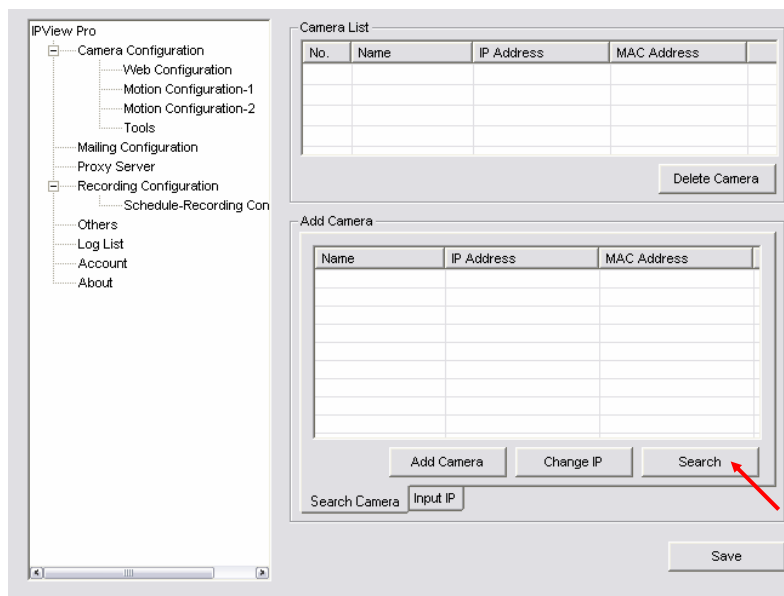
If you are not sure of the camera's IP address, you can click *Search* to search for all the available camera(s) within the network.

1. Select the camera you want by highlighting it, and then click *Add Camera*. Enter the User Name and Password when prompted.
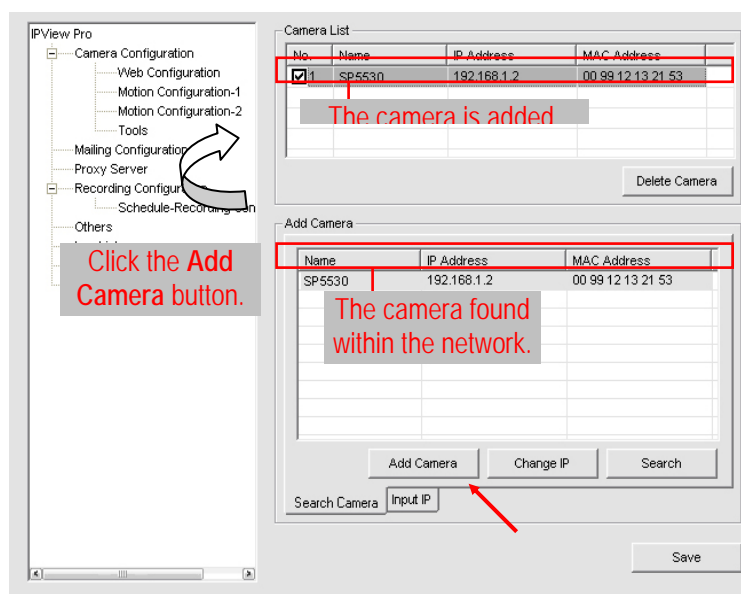
2. Click *Save*, and then click the *Configuration* button to return to View Window. The selected camera's video will be displayed now.

As an alternative, you can add a camera by entering its IP address.
1. Select the **Input IP** tab.
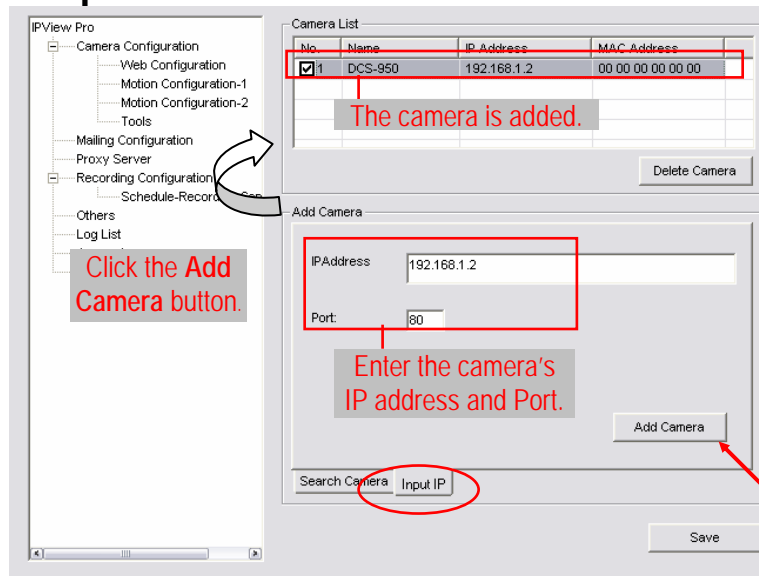
2. Enter the camera's IP address (default: 192.168.1.2) and Port (default: 80), and then click Add Camera.
3. Click Save, and then click the Configure button to return to View Window. The selected camera's video will be displayed now.

Removing a Camera

To remove the camera from the list:

1. Select the camera you want to remove.

2. Click **Delete Camera**.

Viewing a Camera

From the View Modes of the panel, you can select one-camera mode or other modes to display your video. IPView Pro allows you to view up to a maximum of 16 cameras at the same time.

For example, if you use only one camera, select one-camera mode ( ), and the View Window will display the view as *figure 1*.

If there are four cameras, select four-camera mode ( ), and the View Window will display the view as *figure 2*.
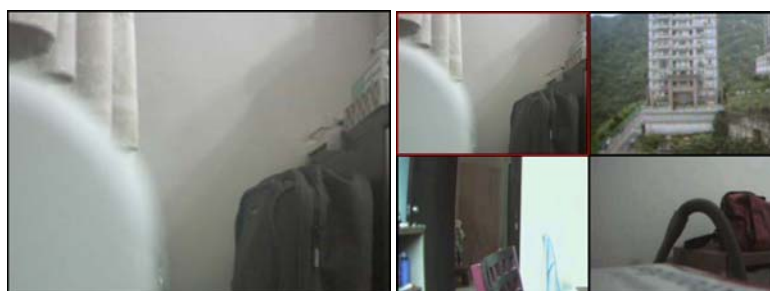
Figure 1.   Figure 2.

Recording *Video*

IPView Pro allows you to record the video clip and save it in your computer in three methods: **Manual Record**, **Schedule Record**, and **Motion Record**.

When you click the *Record* button and select **Manual Record**, it will start recording. Click the button again to stop. If you select **Schedule Record** or **Motion Record**, the system will record the video clip according to System Configuration settings.

Playing Recorded Video

The recorded video clips are saved in your computer, and can be played by using Windows Media Player. To start playback, simply click the *Play* button on the panel, and the following dialog screen will appear, allowing you to select the file to playback.
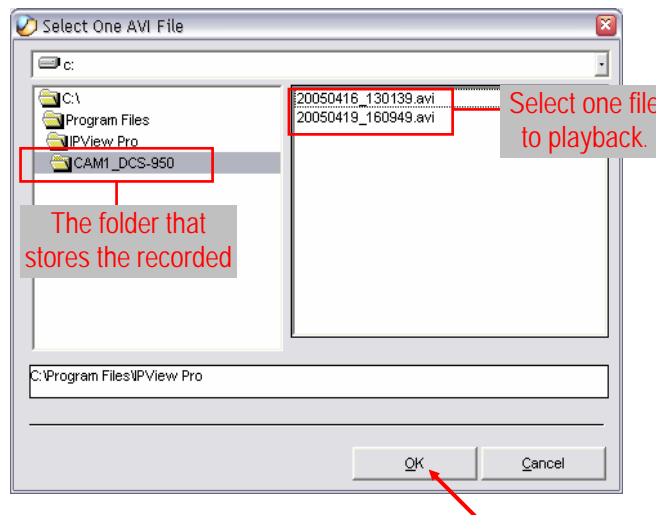
Select the recorded file in the computer you wish to play back, and then click *OK*.

7.4. Configuring the System

Clicking the *Configuration* button on the panel allows you to configure the system settings, and the **System Configuration Screen** will appear in the View Window as shown below. Once configured, click *Save* to save the settings, and then click the *Configuration* button again to exit configuration.
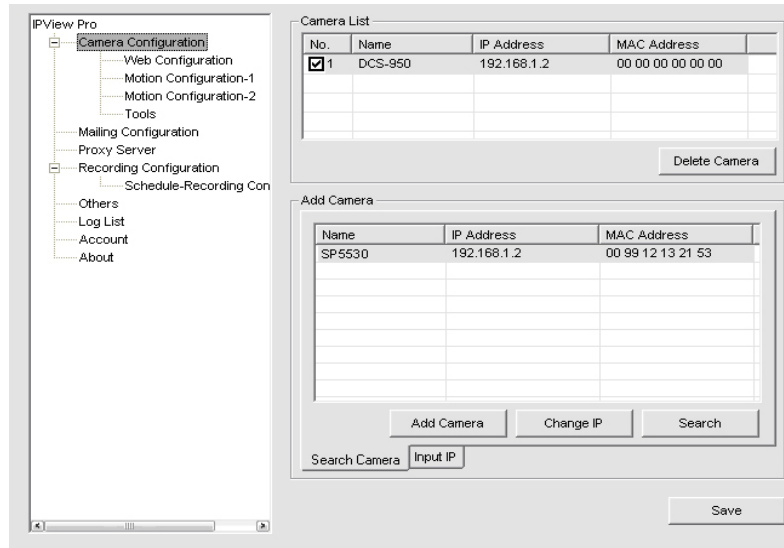
System Configuration Screen

Camera Configuration

In this field, you can add/delete the camera (as described in the previous section). Also, you can configure the following settings:

Web Configuration

In the left column, selecting the **Web Configuration** item will launch the Web Configuration Utility in View Window.
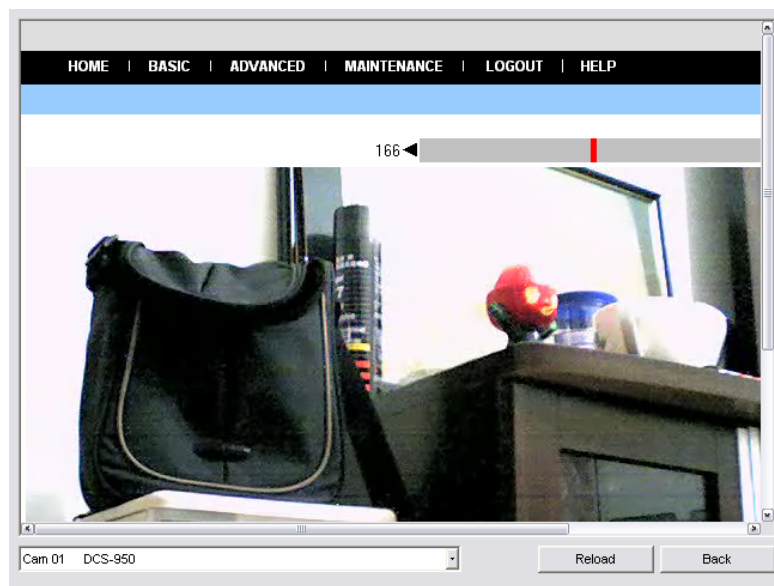
You can configure these settings according to the description in *Chapter 5, Using the Camera*. Click *Back* to exit the Web Configuration Utility.

Motion Configuration-1

The **Motion Configuration-1** item provides the commands for motion detection control. Before configuring, you should select one camera from the pull-down menu.
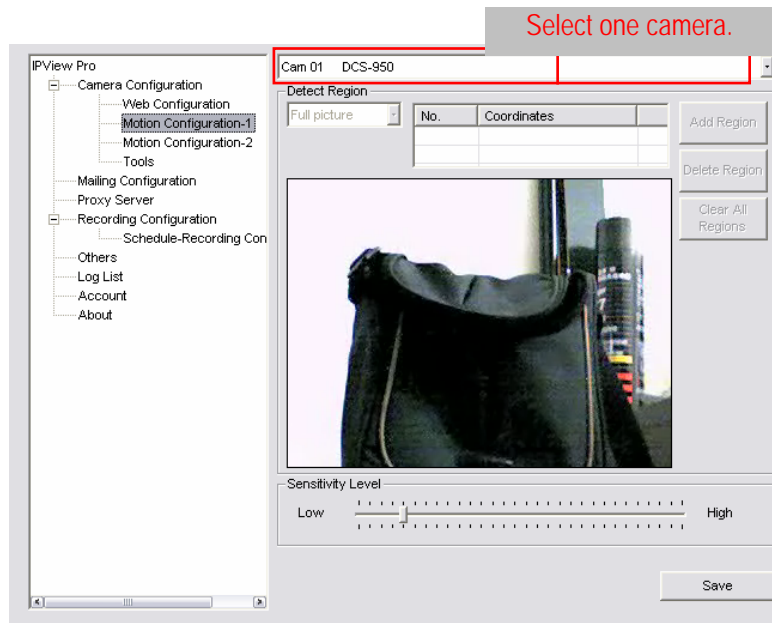
- **Detect Region:** When you select the **Full picture** option, the camera will monitor the whole area.
- **Sensitivity Level:** Move the slide bar to adjust the sensitivity level for detecting motion to record video.

Motion Configuration-2

The **Motion Configuration-2** item allows you to configure to the alarm and e-mail settings.
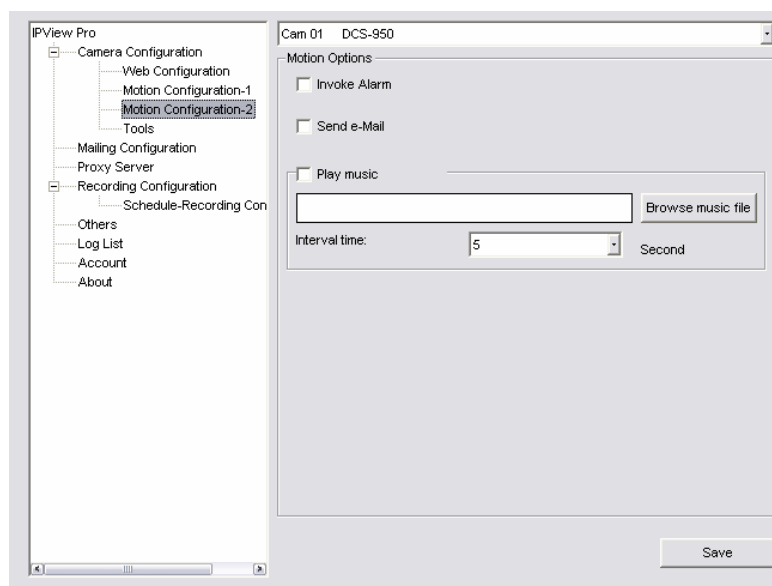
- **Invoke Alarm:** Select this option to enable alarm when motion is detected by the system.
- **Send e-mail:** When this option is checked, click the **Mailing Configuration** in the left column to enter the required information (see the following section).
- **Play music:** Selecting this option allows the system to play music. You can select a music file by clicking the *Browse music file* button, and set up the interval time in the following pull-down menu (1 to 20 seconds).

Tools
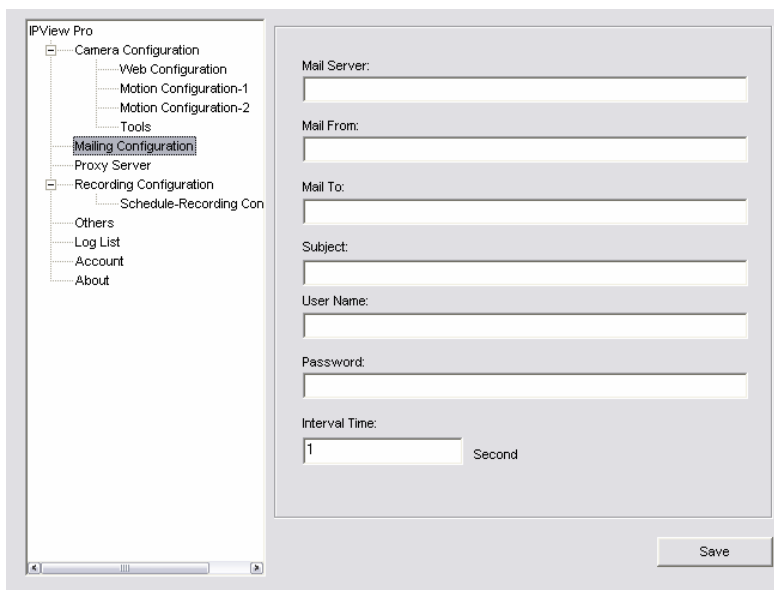
The **Tools** item allows you to configure the alarm and e-mail settings.
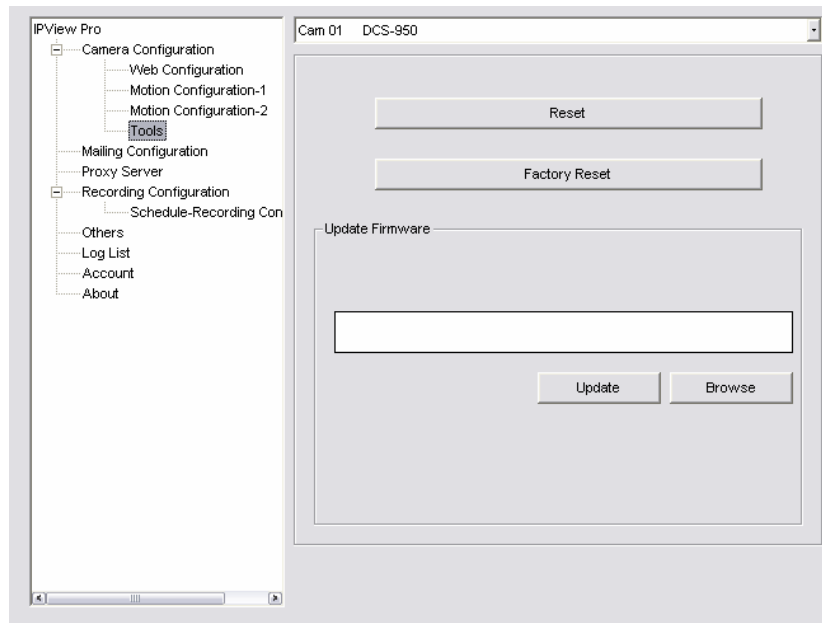
- **Reset:** Restores the original camera settings. Dialog box showing "Do you really want to reset this device?" will pop up. Click *Yes* in the pop-up dialog box to confirm.
- **Factory Reset:** Restores the factory default settings of the camera. Dialog box showing "Do you really want to factory reset this device?" will pop up. Click *Yes* in the pop-up dialog box to confirm.
- **Update Firmware:** When new firmware is available, you can upgrade it using this option. Click *Browse* to find the firmware file, and then click *Update*.

Mailing Configuration

When Motion Detection function is enabled and the **Send e-mail** option is checked, you should enter the required information in the respective fields.
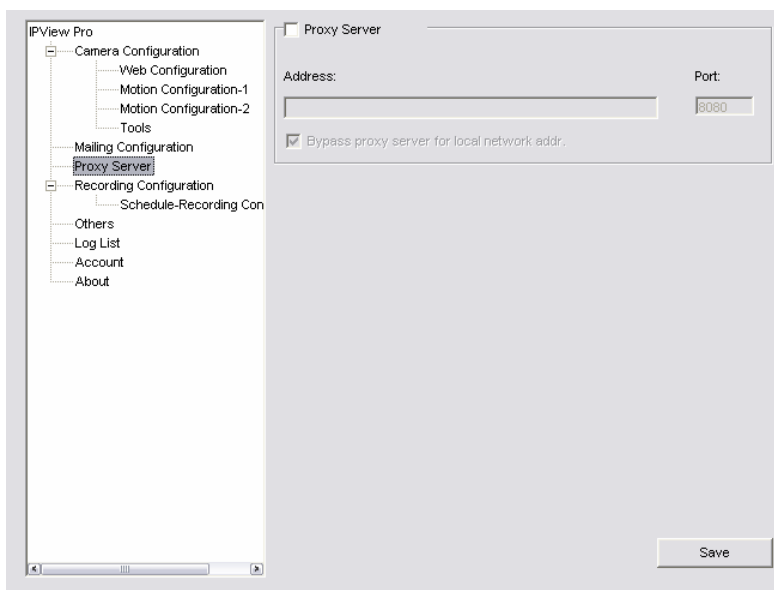
- **Mail Server:** Enter the mail server address used to send your e-mail.
- **Mail From/To:** Enter the sender's/receiver's e-mail address.
- **Subject:** Enter the title of the e-mail.
- **User Name/Password:** Enter the user name/password to login the mail server.
- **Interval Time:** Enter a number in this box to set up the time period (in seconds) for sending E-mail regularly.

Proxy Server

Check the Proxy Server option and enter the required settings in the **Address** and **Port** boxes to enable and use the Proxy Server function.

Recording Configuration

In this field, you can configure the storage settings.
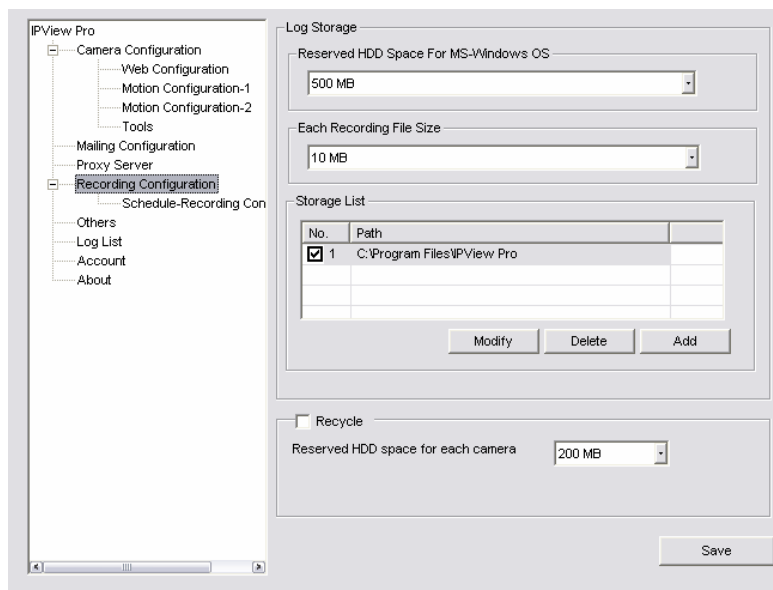
- **Log Storage:**
  - **Reserved HDD Space in MS-Windows OS –** You must reserve **500 MB** to **1000 MB** hard disk space for the program.
  - **Each Recording File Size –** If the recorded video files reach the file size limit, video images will be recorded into another file automatically. The available settings are from **10 MB** to **50 MB**.
  - **Storage List –** The destination folder for saving the recorded video file can be specified here. Click *Modify* to change the current path setting. Click *Add* to add a new destination folder. Click *Delete* to remove a selected path setting. Please note that you are not allowed to delete the path setting if there is only one setting in the list.
- **Recycle:** You must check this option to clear the files when the reserved space of your hard disk is full. The available settings are from **200 MB** to **50GB**.

Schedule-Recording Configuration

This recording function will work after you have enabled respective settings in the Schedule mode. The recording schedule can be defined by using **Date Mode** or **Week Mode**.

- **Date Mode:** First, select the desired camera from the pull-down menu. Then, set up the time in the **Start/Stop** fields. Click *Add* to add the recording schedule to the list. Click *Save* to save the settings.
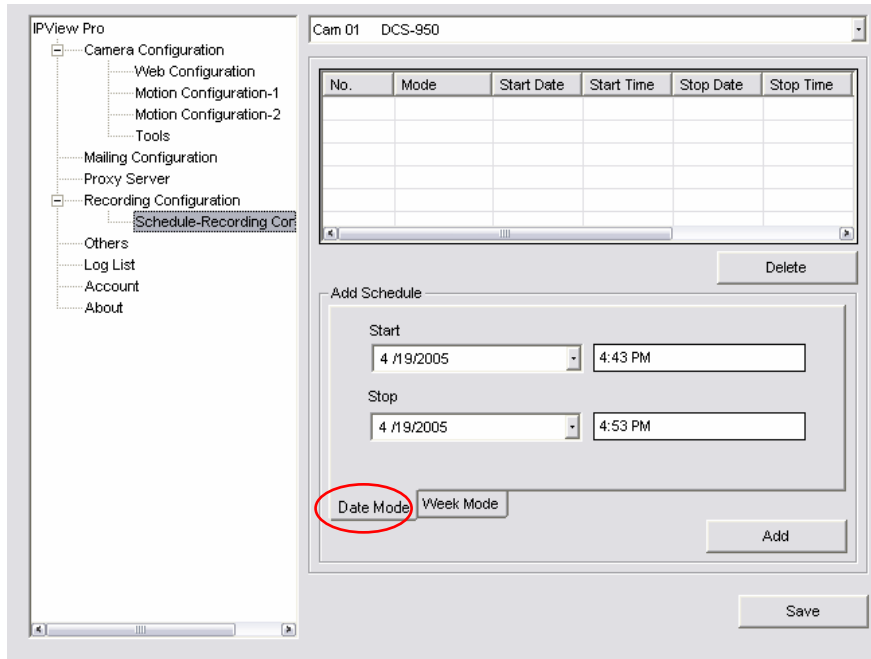
- **Week Mode:** First, select the desired camera from the pull-down menu. Then, set up the time in the **Start/Stop** fields, and select the desired day of the week from the weekday buttons. Click *Add* to add the recording schedule to the list. Click *Save* to save the settings.
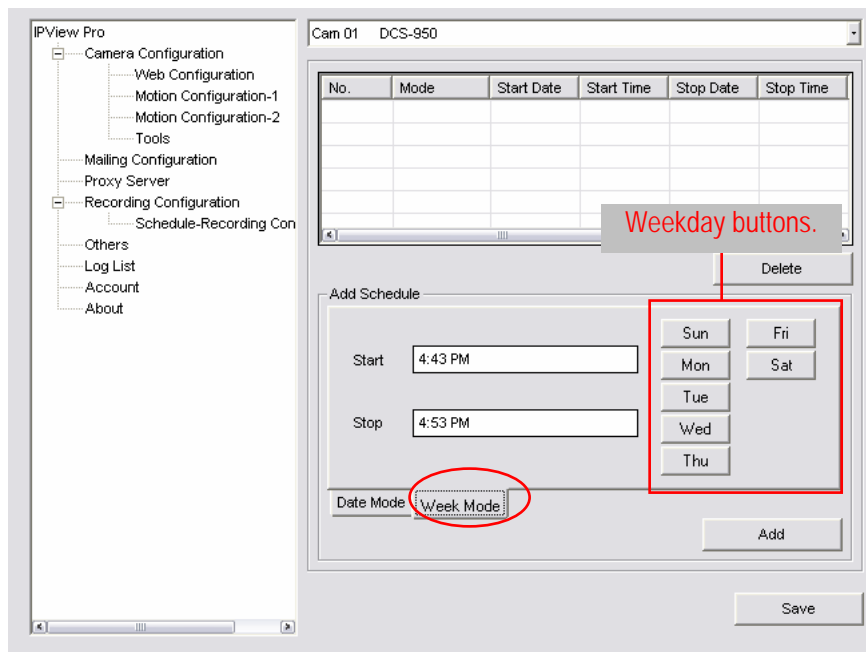
Others

When multiple cameras are connected, this option allows the system to display these views as the main view in cycles according to your time settings. The range of **Time interval of scan** is from **1** to **20** seconds.
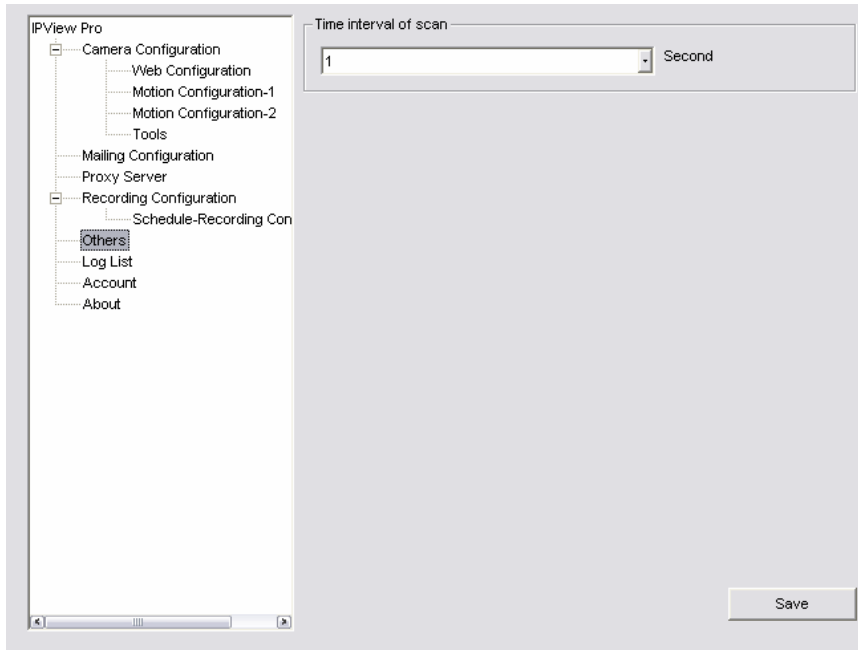
Log List

This field displays the user(s) information, which includes the Date, MAC address, and the brief description of events.
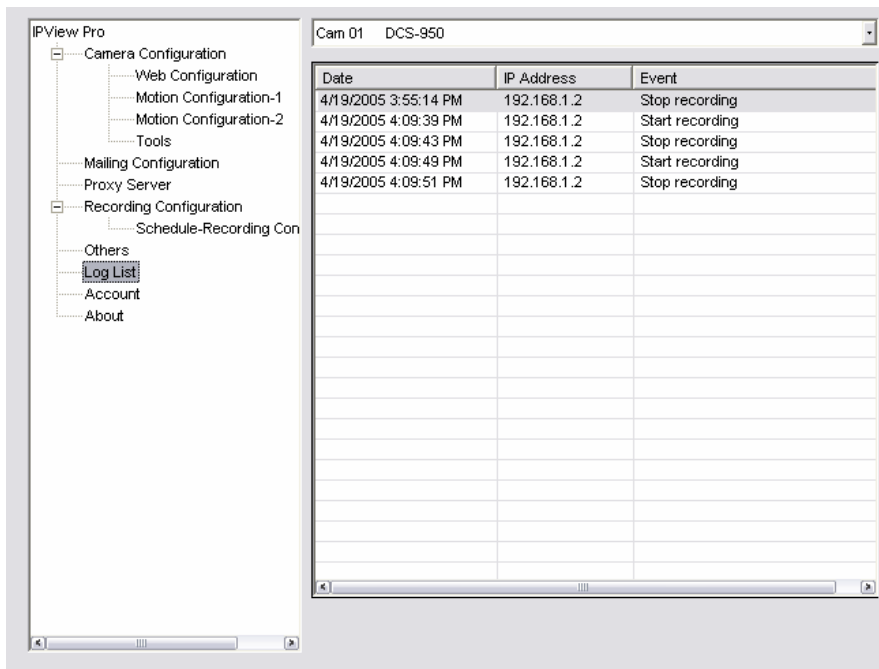
Account

This field allows the system administrator to manage the account information. Select **Login Password check** to enable the system to check the password when login.
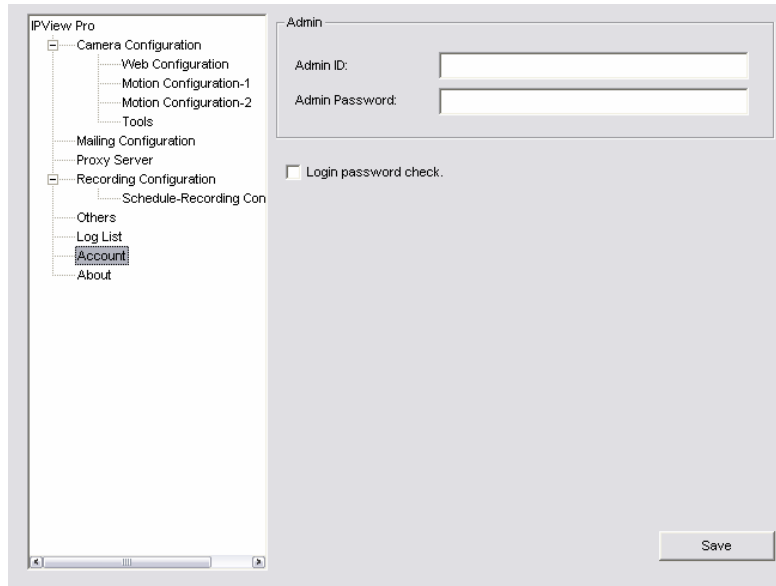
About

This field provides information on the software application.
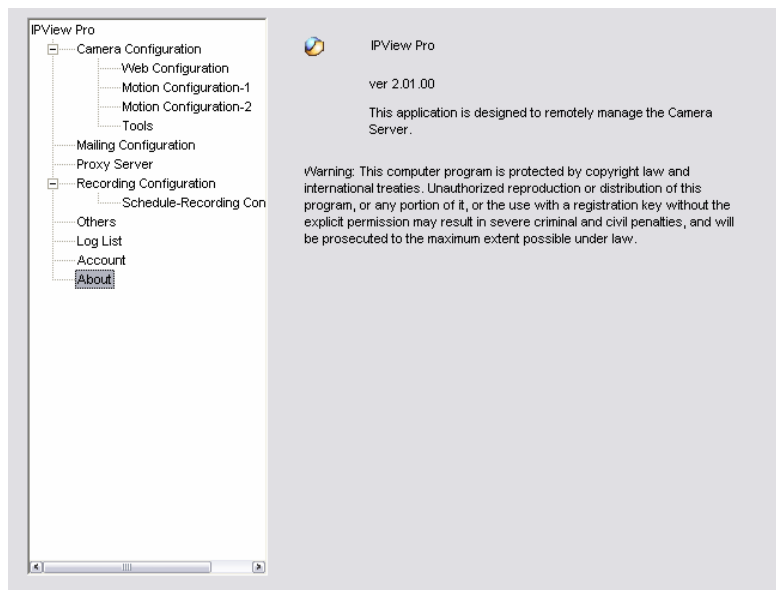
APPENDIX

A. Frequently Asked Questions

Internet Camera Features

Q: What is an Internet Camera?

A: Internet camera is a standalone system connecting directly to an Ethernet or Fast Ethernet network and is supported by the wireless transmission based on the IEEE 802.11g standard. It is different from the conventional PC camera. 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 camera can be managed remotely, accessed and controlled from any PC/Notebook over the Intranet or Internet via a web browser.

Q: How many users are allowed to access this Internet camera simultaneously?

A: Maximum number of users that can log onto the camera at the same time is 10. Please keep in mind the overall transmission speed will slow down when many users are logged on because all the users are sharing the same resources.

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

A: The camera utilizes the MPEG-4 image compression technology, thus providing high quality images for users. MPEG-4 is adopted since it is a standard for image compression and can be applied to various web browsers and software applications.

Q: Can I change the wireless antenna attached to the camera?

A: The wireless antenna can be changed for a variety of reasons such as extending the wireless transmission range: however, please consult authorized distributors in advance as the connectors must be SMA connector type.

Q: What is the wireless transmission range for the camera?

A: Generally, the wireless distance can go as far as 100 meters indoors and up to 300 meters outdoors. The number of walls, ceilings, or other objects that the wireless signals must pass through will limit this distance. Typical ranges vary depending on the types of materials and background Radio Frequency (RF) noise in your home or business and the configuration setting of your network environment.

Internet Camera Installation

Q: Can the Internet Camera be used outdoors?
A: The camera is not weatherproof. It needs to be equipped with a weatherproof case to be used outdoors, and it is not recommended.

Q: What network cabling is required for the camera?
A: The camera uses Category 5 UTP cable with RJ-45 connector, which allows 10 Base-T and 100 Base networking.

Q: Can the camera be set up as a PC-cam on the computer?
A: No, the camera is an Internet Camera used only on Ethernet and Fast Ethernet network and supported by wireless transmission.

Q: Can the camera be connected on the network if it consists of only private IP addresses?
A: The camera can be connected to LAN with private IP addresses.

Q: Can the camera be installed and work if a firewall exists on the network?
A: If a firewall exists on the network, port 80 is open for ordinary data communication. However, since the camera transmits image data, the default ports 5000, 5001 and 5100 are also required. Therefore, it is necessary to open ports 5000, 5001 and 5100 of the network for remote users to access the camera.

B. PING Your IP Address

The PING (Packet Internet Groper) command can determine whether a specific IP address is accessible by sending a packet to the specific address and waiting for a reply. It can also provide as a very useful tool to confirm if the IP address conflicts with the camera over the network.

Follow the step-by-step procedure below to utilize the PING command. However, you must disconnect the camera from the network first.

Start a DOS window.
Type ping x.x.x.x, where x.x.x.x is the IP address of the camera.

The replies in the following Trouble shooting section will provide useful explanation to the cause of the problem with the camera IP address.

C. Trouble Shooting

Q: I cannot access the camera from a web browser.
A1: One possible cause might be the IP Address for the camera is already being used by another device. To correct this problem, you need to first disconnect the camera from the network. Then run the PING utility (follow the instructions in Appendix B - PING Your IP Address).

A2: Another possible reason is the IP Address is located on a different subnet. To fix the problem, run the PING utility (follow the instructions in Appendix B - PING Your IP Address). If the utility returns "no response" or similar, the finding is probably correct, then you should proceed as follows:

In Windows 95/98/2000 and Windows NT, to double check if the IP Address of the camera is within the same subnet as your workstation, proceed as follows:

Click Start → Setting → Control Panel → Network. Then, select TCP/IP from the Network dialog box, and click "Specify an IP address" from the TCP/IP Properties dialog box. If the camera is situated on a subnet different than your workstation, you will not be able to set the IP address from this workstation. To verify, make sure the first 3 sections of the IP address of the camera corresponds to the first 3 sections of the workstation. Therefore the IP address of the camera must be set from a workstation on the same subnet.

A3: Another possibility might be problem with the network cable. Try replacing your network cable. Test the network interface of the product by connecting a local computer to the unit, utilizing a standard Crossover (hub to hub) Cable. If the problem is not solved, the camera might be faulty.

Q: Why does the Power LED not light up constantly?
A: The power supply used might be at fault. Confirm that you are using the provided power supply DC 5V for the camera and verify that the power supply is well connected.

Q: Why does the Link LED not light up properly?
A1: There might be a problem with the network cable. To confirm that the cables are working, PING the address of a known device on the network. If the cabling is OK and your network is reachable, you should receive a reply similar to the following (…bytes = 32 time = 2 ms).

A2: The network device utilized by the camera is not functioning properly such as hubs or switches. Confirm the power for the devices are well connected and functioning.

A3: The wireless connection might be at fault. In ad-hoc mode, make sure the camera wireless channel and SSID are set to match the PC/Notebook wireless channel and SSID for direct communication.

Under infrastructure mode, make sure the SSID on the PC/Notebook and the camera must match with the access point's SSID.

Q: Why does the camera work locally but not externally?
A1: Might be caused by the firewall protection. Need to check the Internet firewall with your system administrator.

A2: The default router setting might be a possible reason. Need to double check if the configuration of the default router settings is required.

Q: Why does a series of broad vertical white line appear throughout the image?
A: A possible cause is that the CMOS sensor becomes overloaded when the light source is too bright such as direct exposure to sunlight or halogen light. You need to reposition the camera into a more shaded area immediately as this will damage the CMOS sensor.

Q: The focus on the camera is bad, what should be done?
A1: The focus might not be correctly adjusted for the line of sight. You need to adjust the camera focus manually as described in Adjust Internet Camera Focus.

A2: There is no adaptor fitted with your C-type lens. If you have previously changed the supplied CS-type lens, you may have unintentionally installed a C-type lens without fitting the adaptor first.

Q: How can I solve the problem of noisy images?
A1: The video images might be noisy if the camera is used is a very low light environment. To solve this issue you need more lighting.

A2: There might be wireless transmission interference; make sure there are no other wireless devices on the network that will affect the wireless transmission.

Q: The image quality is poor, how can I improve the image?
A1: A probable cause might be that your desktop's display properties are incorrectly configured. You need to open the Display Properties on your desktop and configure your display to show at least 65'000 colors, for example at least 16-bit.

> **NOTE:** *Applying only 16 or 256 colors on your computer will produce dithering artifacts in the image.*

A2: The configuration on the camera image display is incorrect. Through the Web Configuration Image section, you need to adjust the image related parameter for improving images such as brightness, contrast, hue and light frequency. Please refer to the Web Configuration section for detail information.

Q: There are no images available through the web browser?

A: The ActiveX might be disabled. If you are viewing the images from Internet Explorer, make sure ActiveX has been enabled in the Internet Options menu. Alternatively, you can use the Java Applet for viewing the required images.

D. Time Zone Table

```
(GMT-12:00) Eniwetok, Kwajalein
(GMT-11:00) Midway Island, Samoa
(GMT-10:00) Hawaii
(GMT-09:00) Alaska
(GMT-08:00) Pacific Time (US & Canada); Tijuana
(GMT-07:00) Arizona
(GMT-07:00) Mountain Time (US & Canada)
(GMT-06:00) Central Time (US & Canada)
(GMT-06:00) Mexico City, Tegucigalpa
(GMT-06:00) Saskatchewan
(GMT-05:00) Bogota, Lima, Quito
(GMT-05:00) Eastern Time (US & Canada)
(GMT-05:00) Indiana (East)
(GMT-04:00) Atlantic Time (Canada)
(GMT-04:00) Caracas, La Paz
```

```
(GMT-04:00) Santiago
(GMT-03:30) Newfoundland
(GMT-03:00) Brasilia
(GMT-03:00) Buenos Aires, Georgetown
(GMT-02:00) Mid-Atlantic
(GMT-01:00) Azores, Cape Verde Is.
(GMT) Casablanca, Monrovia
(GMT) Greenwich Mean Time : Dublin, Edinburgh, Lisbon, London
(GMT+01:00) Amsterdam, Berlin, Bern, Rome, Stockholm, Vienna
(GMT+01:00) Belgrade, Bratislava, Budapest, Ljubljana, Prague
(GMT+01:00) Brussels, Copenhagen, Madrid, Paris, Vilnius
(GMT+01:00) Sarajevo, Skopje, Sofija, Warsaw, Zagreb
(GMT+02:00) Athens, Istanbul, Minsk
(GMT+02:00) Bucharest
(GMT+02:00) Cairo
```

```
(GMT+02:00) Harare, Pretoria
(GMT+02:00) Helsinki, Riga, Tallinn
(GMT+02:00) Jerusalem
(GMT+03:00) Baghdad, Kuwait, Riyadh
(GMT+03:00) Moscow, St. Petersburg, Volgograd
(GMT+03:00) Nairobi
(GMT+03:30) Tehran
(GMT+04:00) Abu Dhabi, Muscat
(GMT+04:00) Baku, Tbilisi
(GMT+04:30) Kabul
(GMT+05:00) Ekaterinburg
(GMT+05:00) Islamabad, Karachi, Tashkent
(GMT+05:30) Bombay, Calcutta, Madras, New Delhi
(GMT+06:00) Astana, Almaty, Dhaka
(GMT+06:00) Colombo
```

```
(GMT+07:00) Bangkok, Hanoi, Jakarta
(GMT+08:00) Beijing, Chongqing, Hong Kong, Urumqi
(GMT+08:00) Perth
(GMT+08:00) Singapore
(GMT+08:00) Taipei
(GMT+09:00) Osaka, Sapporo, Tokyo
(GMT+09:00) Seoul
(GMT+09:00) Yakutsk
(GMT+09:30) Adelaide
(GMT+09:30) Darwin
(GMT+10:00) Brisbane
(GMT+10:00) Canberra, Melbourne, Sydney
(GMT+10:00) Guam, Port Moresby
(GMT+10:00) Hobart
(GMT+10:00) Vladivostok


(GMT+08:00) Singapore
(GMT+08:00) Taipei
(GMT+09:00) Osaka, Sapporo, Tokyo
(GMT+09:00) Seoul
(GMT+09:00) Yakutsk
(GMT+09:30) Adelaide
(GMT+09:30) Darwin
(GMT+10:00) Brisbane
(GMT+10:00) Canberra, Melbourne, Sydney
(GMT+10:00) Guam, Port Moresby
(GMT+10:00) Hobart
(GMT+10:00) Vladivostok
(GMT+11:00) Magadan, Solomon Is., New Caledonia
(GMT+12:00) Auckland, Wellington
(GMT+12:00) Fiji, Kamchatka, Marshall Is.
```

E. Adjust Internet Camera Focus

To adjust the focus of the lens, you need to turn the lens slowly in either clockwise or counter-clockwise direction until the desired image appears. DO NOT over turn the lens in either of the directions, as it will be out of focus.

NOTE: You can further adjust the camera's image quality through System Administration – Image of Web Configuration. Please refer to Web Configuration section for further details.

Warning
Direct exposure to sunlight may cause permanent damage to the CMOS sensor. Therefore, do not expose the Internet Camera's lens to sunlight directly. When operation is required in glaring light environment, it is recommended to use an iris lens. The Internet Camera is designed for indoor only.

F. Specification

Video specification

Resolution:	640 x 480 pixel
Sensor:	Color CMOS sensor
Lens:	F:2.8, f:4.5 mm Board Lens
Minimum illumination	0.5 Lux
Gain control:	Automatic
White Balance:	Automatic
Motion Detection:	Yes

Image (Video Setting)

Image compression:	MPEG-4/ Motion JPEG
Frame rate:	30fps @ QQVGA, 30fps @ QVGA, 30fps @ VGA
Compression Rate selection:	5 levels: Very low/Low/ Middle/High/Very high
Frame rate setting:	5/7/10/15/30 (depends on the video format)
Video resolution:	160x112, 320x240, 640x480

Audio

MIC Input:	Internal MIC (mono)
Sensitivity:	62dB

Hardware

LAN Connector:	One RJ-45 port, 10/100M auto-sensed, AutoMDIX
Wireless LAN:	Built-in 802.11g WLAN
Communication protocol:	HTTP, TCP/IP, UDP, ARP, ICMP, BOOTP, RARP, DHCP, PPPoE, DDNS, UPnP, SMTP, SMB, NTP
CPU:	ADMtek 5120
RAM:	32MB
Flash ROM:	4MB
OS:	Linux
Power Supply:	DC 5V 2.5A, switching type
Power consumption:	8 Watt (1600mA x 5V)
LED Indicator:	Power LED (Blue)
	Link LED (Orange)
Pan/Tilt:	Pan: -170°~ +170°
	Tilt: +45 ~ -90°

Software

Browser: Internet Explorer 5.0 or above
Application Software: IPView Pro
OS supported: Microsoft Windows 98SE/
ME/2000/XP

Operating Environment

Operating temperature: $5^{O}C \sim 40^{O}C$
Storage temperature: $-25^{O}C \sim 50^{O}C$
Humidity: 5% ~ 95%, non-condensing

EMI

FCC, CE, VCCI

G. Glossary of Terms

NUMBERS

10BASE-T 10BASE-T is Ethernet over UTP Category III, IV, or V unshielded twisted-pair media.

100BASE-TX The two-pair twisted-media implementation of 100BASE-T is called *100BASE-TX*.

802.11g An IEEE standard for wireless local area networks. It offers transmissions speeds at up to 54 Mbps in the 2.4-GHz band.

A

Access point It is the hardware interface between a wireless LAN and a wired LAN. The access point attaches to the wired LAN through an Ethernet connection.

Applet Applets are small Java programs that can be embedded in an HTML page. The rule at the moment is that an applet can only make an Internet connection to the computer form that the applet was sent.

ASCII American Standard Code For Information Interchange, it is the standard method for encoding characters as 8-bit sequences of binary numbers, allowing a maximum of 256 characters.

ARP Address Resolution Protocol. ARP is a protocol that resides at the TCP/IP Internet layer that delivers data on the same network by translating an IP address to a physical address.

AVI Audio Video Interleave, it is a Windows platform audio and video file format.

B

BOOTP Bootstrap Protocol is an Internet protocol that can automatically configure a network device in a diskless workstation to give its own IP address.

C

Communication	Communication has four components: sender, receiver, message, and medium. In networks, devices and application tasks and processes communicate messages to each other over media. They represent the sender and receivers. The data they send is the message. The cabling or transmission method they use is the medium.
Connection	In networking, two devices establish a connection to communicate with each other.

D

DHCP	Dynamic Host Configuration Protocol was developed by Microsoft a protocol for assigning dynamic IP addresses to devices on a network. With dynamic addressing, a device can have a different IP address every time it connects to the network. In some systems, the device's IP address can even change while it is still connected. DHCP also supports a mix of static and dynamic IP addresses. This simplifies the task for network administrators because the software keeps track of IP addresses rather than requiring an administrator to manage the task. This means a new computer can be added to a network without the hassle of manually assigning it a unique IP address. DHCP allows the specification for the service provided by a router, gateway, or other network device that automatically assigns an IP address to any device that requests one
DNS	Domain Name System is an Internet service that translates domain names into IP addresses. Since domain names are alphabetic, they're easier to remember. The Internet however, is really based on IP addresses every time you use a domain name the DNS will translate the name into the corresponding IP address. For example, the domain name *www.network_camera.com* might translate to *192.167.222.8.*

E

Enterprise network	An enterprise network consists of collections of networks connected to each other over a geographically dispersed area. The enterprise network serves the needs of a widely distributed company and operates the company's mission-critical applications.
Ethernet	The most popular LAN communication technology. There are a variety of types of Ethernet, including 10 Mbps (traditional Ethernet), 100 Mbps (Fast Ethernet), and 1,000 Mbps (Gigabit Ethernet). Most Ethernet networks use Category 5 cabling to carry information, in the form of electrical signals, between devices. Ethernet is an implementation of CSMA/CD that operates in a bus or star topology.

F

Fast Ethernet	Fast Ethernet, also called 100BASE-T, operates at 10 or 100Mbps per second over UTP, STP, or fiber-optic media.
Firewall	Firewall is considered the first line of defense in protecting private information. For better security, data can be encrypted. A system designed to prevent unauthorized access to or from a private network. Firewalls are frequently used to prevent unauthorized Internet users from accessing private networks connected to the Internet, especially Intranets all messages entering or leaving the intranet pass through the firewall, which examines each message and blocks those that do not meet the specified security criteria.

G

Gateway	A gateway links computers that use different data formats together.
Group	Groups consist of several user machines that have similar characteristics such as being in the same department.

H

HEX	Short for hexadecimal refers to the base-16 number system, which consists of 16 unique symbols: the numbers 0 to 9 and the letters A to F. For example, the decimal number 15 is represented as F in the hexadecimal numbering system. The hexadecimal system is useful because it can represent every byte (8 bits) as two consecutive hexadecimal digits. It is easier for humans to read hexadecimal numbers than binary numbers.

I

IEEE	Institute of Electrical and Electronic Engineers.
Intranet	This is a private network inside an organization or company, which uses the same software you will find on the public Internet. The only difference is that an Intranet is used for internal usage only.
Internet	The Internet is a globally linked system of computers that are logically connected based on the Internet Protocol (IP). The Internet provides different ways to access private and public information worldwide.
Internet address	To participate in Internet communications and on Internet Protocol-based networks, a node must have an Internet address that identifies it to the other nodes. All Internet addresses are IP addresses
IP	Internet Protocol is the standard that describes the layout of the basic unit of information on the Internet (the *packet*) and also details the numerical addressing format used to route the information. Your Internet service provider controls the IP address of any device it connects to the Internet. The IP addresses in your network must conform to IP addressing rules. In smaller LANs, most people will allow the DHCP function of a router or gateway to assign the IP addresses on internal networks.
IP address	IP address is a 32-binary digit number that identifies each sender or receiver of information that is sent in packets across the Internet. For example 80.80.80.69 is an IP address; it is the closet thing the Internet has to telephone numbers. When you "call" that number, using any connection methods, you get connected to the computer that "owns" that IP address.
ISP	Internet Service Provider is a company that maintains a network that is linked to the Internet by way of a dedicated communication line. An ISP offers the use of its dedicated communication lines to companies or individuals who can't afford the high monthly cost for a direct connection.

J

JAVA	Java is a programming language that is specially designed for writing programs that can be safely downloaded to your computer through the Internet without the fear of viruses. It is an object-oriented multi-thread programming best for creating applets and applications for the Internet, Intranet and other complex, distributed network.

L

LAN	Local Area Network a computer network that spans a relatively small area sharing common resources. Most LANs are confined to a single building or group of buildings.

N

NAT	Network Address Translator generally applied by a router, making many different IP addresses on an internal network appear to the Internet as a single address. For routing messages properly within your network, each device requires a unique IP address. But the addresses may not be valid outside your network. NAT solves the problem. When devices within your network request

	information from the Internet, the requests are forwarded to the Internet under the router's IP address. NAT distributes the responses to the proper IP addresses within your network.
Network	A network consists of a collection of two or more devices, people, or components that communicate with each other over physical or virtual media. The most common types of network are: **LAN** – (local area network): Computers are in close distance to one another. They are usually in the same office space, room, or building. **WAN** – (wide area network): The computers are in different geographic locations and are connected by telephone lines or radio waves.
NWay Protocol	A network protocol that can automatically negotiate the highest possible transmission speed between two devices.

P

PING	Packet Internet Groper, a utility used to determine whether a specific IP address is accessible. It functions by sending a packet to the specified address and waits for a reply. It is primarily used to troubleshoot Internet connections.
PPPoE	Point-to-Point Protocol over Ethernet. PPPoE is a specification for connecting the users on an Ethernet to the Internet through a common broadband medium, such as DSL or cable modem. All the users over the Ethernet share a common connection.
Protocol	Communication on the network is governed by sets of rules called protocols. Protocols provide the guidelines devices use to communicate with each other, and thus they have different functions. Some protocols are responsible for formatting and presenting and presenting data that will be transferred from file server memory to the file server's net work adapter Others are responsible for filtering information between networks and forwarding data to its destination. Still other protocols dictate how data is transferred across the medium, and how servers respond to workstation requests and vice versa. Common network protocols responsible for the presentation and formatting of data for a network operating system are the Internetwork Packet Exchange (IPX) protocol or the Internet Protocol (IP). Protocols that dictate the format of data for transferors the medium include token-passing and Carrier Sense Multiple Access with Collision Detection (CSMA/CD),implemented as token-ring, ARCNET, FDDI, or Ethernet. The Router Information Protocol (RIP), a part of the Transmission Control Protocol/Internet Protocol (TCP/IP) suite, forwards packets from one network to another using the same network protocol.

R

RARP	Reverse Address Resolution Protocol, a TCP/IP protocol that allows a physical address, such as an Ethernet address, to be translated into an IP address.
RJ-45	RJ-45 connector is used for Ethernet cable connections.
Router	A router is the network software or hardware entity charged with routing packets between networks.

S

Server	It is a simple computer that provides resources, such as files or other information.
SMTP	The Simple Mail Transfer Protocol is used for Internet mail.
SNMP	Simple Network Management Protocol. SNMP was designed to provide a common foundation for managing network devices.
Station	In LANs, a station consists of a device that can communicate data on the network. In FDDI, a

station includes both physical nodes and addressable logical devices. Workstations, single-attach stations, dual-attach stations, and concentrators are FDDI stations.

Subnet mask   In TCP/IP, the bits used to create the subnet are called the subnet mask.

T

(TCP/IP)   Transmission Control Protocol/Internet Protocol is a widely used transport protocol that connects diverse computers of various transmission methods. It was developed y the Department of Defense to connect different computer types and led to the development of the Internet.

Transceiver   A transceiver joins two network segments together. Transceivers can also be used to join a segment that uses one medium to a segment that uses a different medium. On a 10BASE-5 network, the transceiver connects the network adapter or other network device to the medium. Transceivers also can be used on 10BASE-2 or 10BASE-T networks to attach devices with AUI ports.

U

UDP   The User Datagram Protocol is a connectionless protocol that resides above IP in the TCP/IP suite

ULP   The upper-layer protocol refers to Application Layer protocols such as FTP, SNMP, and SMTP.

User Name   The USERNAME is the unique name assigned to each person who has access to the LAN.

Utility   It is a program that performs a specific task.

UTP   Unshielded twisted-pair. UTP is a form of cable used by all access methods. It consists of several pairs of wires enclosed in an unshielded sheath.

W

WAN   Wide-Area Network. A wide-area network consists of groups of interconnected computers that are separated by a wide distance and communicate with each other via common carrier telecommunication techniques.

Windows   Windows is a graphical user interface for workstations that use DOS.

Workgroup   A workgroup is a group of users who are physically located together and connected to the same LAN, or a group of users who are scattered throughout an organization but are logically connected by work and are connected to the same network group.

Workstations   Workstation refers to the intelligent computer on the user's desktop. This computer may be an Intel-based PC, a Macintosh, or a UNIX-based workstation. The workstation is any intelligent device a user works from.