PLANET
Networking & Communication

Internet Camera

ICA-210 / ICA-210W

User's Manual

Version 1.0

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Disclaimer

CE mark Warning

WEEE Notice

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

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Revision

User's Manual for PLANET Internet Camera
Model: ICA-210/ICA210W

Rev: 1.0 (Mar. 2006)

Part No.EM-ICA210WV1

TABLE OF CONTENTS

ABOUT THIS GUIDE

This manual provides instructions and illustrations on how to use your Pan/Tilt Wireless Internet Camera, includes:

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

- Chapter 7, **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.

1

INTRODUCTION

Thank you for purchasing the ICA-210/ICA-210W Wired /Wireless Internet Camera, a camera device that can be connected directly to an Ethernet or Fast Ethernet network and also supported by the wireless transmission based on the IEEE 802.11g standard.   Compared to the conventional PC camera, the Internet Camera features a built-in CPU (central processing unit) and web-based solutions that can provide a cost-effective solution to transmit the real-time high-quality video images for monitoring. In addition, the built-in microphone provides you with the audio function, allowing you to "watch" and "listen" from the camera.

The Internet 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 of high quality, and high performance remote video viewing.

General Features and Benefits

Simple to Use

The ICA-210/ICA-210W is a standalone system with built-in CPU requiring no special hardware or software such as PC frame grabber cards. Allows remote access from web browser for live image/Audio viewing and listen.

Use Internet Explorer 5.0 or above to view image online. Just plug and view the picture from your ICA-210/ICA-210W with a valid IP Address.

Support Variety of Network usage

The ICA-210/ICA-210W supports TCP/IP networking, UPnP, SMTP e-mail, FTP, DDNS, HTTP and other Internet related protocols for various applications. It can be utilized in a mixed operating system environment, including Windows 98SE/ME/ 2000/XP and Windows NT 4.0. It can be integrated easily into other www/Intranet applications.

Web Configuration

Applying a standard web browser, the administrator can configure and manage the ICA-210/ICA-210W directly from web page via the Intranet or Internet. Built-in wide angle Pan/Tilt device and allows remote control from web browser. View multiple video windows simultaneously on the web page.

Remote Utility

The powerful IPView Pro application allows the administrator to modify the ICA-210/ICA-210W 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 / motion detection with alert and e-mail sending / recording triggered by Motion Detection, Schedule, and Manual.

Broad Range of Applications

With today's high-speed Internet services, the ICA-210/ICA-210W can provide the ideal solution for live video images over the Intranet and Internet for remote monitoring. The ICA-210/ICA-210W allows remote access from a web browser for live image viewing and allows administrator to manage and control the ICA-210/ICA-210W anywhere and any time in the world. Apply the ICA-210/ICA-210W to monitor various objects and places such as homes, offices, banks, hospitals, child-care centers, amusement parks and other varieties of industrial and public monitoring.

With built-in Pyroelectricity Passive Infrared Sensor for motion detection, the ICA-210/ICA-210W can be used for intruder detection; in addition, it can capture still images for archiving.

802.11g / 802.11b compliant

To avoid wire burden ICA-210W supports wireless LAN and security protection WEP (64/128bit) and WPA-PSK.

Unpacking the Package

Unpack the package and check all the items carefully. Be certain that you have:

- One ICA-210 or ICA-210W Internet Camera.
- One RJ-45 Ethernet Cable
- One Camera Stand
- One AC power adapter
- 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 packing materials and box in case you need to ship the units in the future.

System Requirement

Networking

- LAN: 10Base-T Ethernet or 100Base-TX Fast Ethernet.
- WLAN: IEEE 802.11g Wireless LAN with internal chip antenna.(ICA-210W)

Accessing the Camera

For Web Browser Users

- OS: Microsoft® Windows® 98SE/ME/2000/XP
- CPU: Intel Pentium III 350MHz or above
- Memory Size: 128MB
- Resolution: 800x600 or above
- Microsoft® Internet Explorer 5.0 or above

For IPView Pro Application Users

- OS: Microsoft® Windows® 98SE/ME/2000/XP.
- CPU: Intel Pentium III 650MHz or above (Pentium 4 is preferred)
- Memory Size: 256MB
- Resolution: 1024x768 or above

NOTE: When you connect multiple cameras and monitor their images synchronously, it is recommended to use a high performance system, such as a Pentium 4, 2.4GHz, 512MB RAM computer.

Physical Description

This section provides the illustration of the camera and explains the function of each component.

Front and Side View
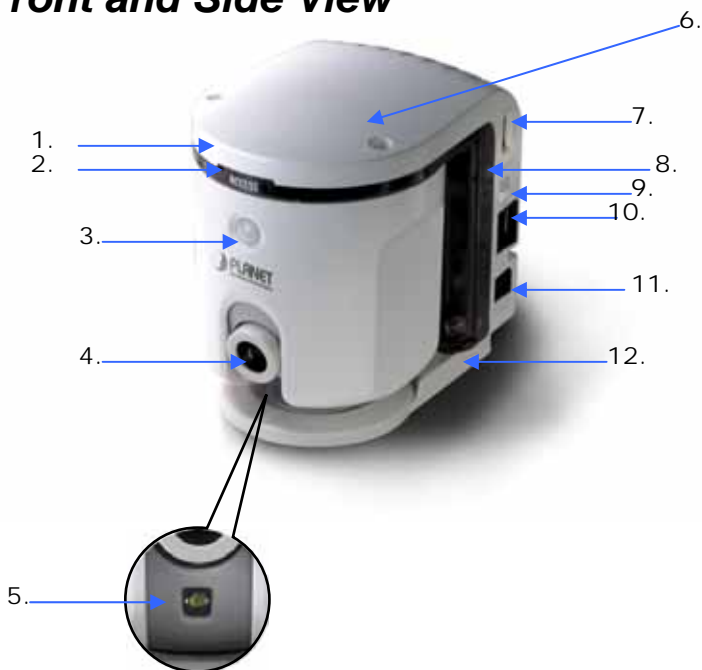
1. Internal MIC

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

2. ACCESS LED

The ACCESS LED indicates the system status by:
  - **Green light on:** The camera is powered on.
  - **Green light flashing:** The camera is receiving/sending data from/to the LAN.
  - **Orange light flashing slowly:** The camera is in Privacy mode.

3. PIR Sensor

The PIR Sensor allows you to monitor the target area dynamically. To use this motion detection function, you have to enable this sensor from the web configuration page.

4. Camera Lens

5. Compensative Flash LED

This Flash LED allows you to capture video images even in a dark environment. You can turn on the flash light from the web configuration page.

6. Internal Antenna for ICA-210W

7. USB Port

The USB port allows you to expand the camera's function, such as connecting a large storage device. To connect the USB device, simply plug the USB device into the USB port. Alternately, you can connect the USB device through a USB cable.

8. STATUS LED

The STATUS LED indicates the configuration status by:
- **Green light flashing:** The camera is powered on and works in normal mode.
- **Orange-Red light flashing:** Indicates the camera cannot access DHCP within the network.

9. Privacy Mode Button

Press this button to enter the camera's privacy mode; this makes the camera stop monitoring temporarily until it releases from the privacy mode.

10. Network Cable Connector

This RJ-45 connector is used to connect the 10Base-T Ethernet or 100Base-TX Fast Ethernet network (which should be Category 5 twisted-pair cable). The port supports the NWay protocol, allowing the camera to automatically detect or negotiate the transmission speed of the network.

11. DC Power Connector

The DC power input connector is located on the camera's side panel, and is labeled DC 5V 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.

12. Camera Stand

The camera stand allows you to place the camera on a flat surface, instead of hanging on the wall or installing on a tripod.

Rear and Bottom View (without the Camera Stand)

1. Screw Hole

The screw hole can be used to attach the camera stand or a tripod.

2. Reset Button

Press the button to reboot the camera; press and hold the button for 5 second will reload the factory default settings for the camera. The button works as the function in **Web Configuration Utility > Setting menu > Maintenance > Reboot** or **Factory reset**.

When you perform a factory reset and try to re-login into the camera, the default password is re-loaded as "**admin**." Use the factory default setting for password to login, and then the system will ask you to change the password.

3. Hanging Hole

The two holes on the rear panel of the camera allow you to place the camera on the wall.

2

HARDWARE INSTALLATION

Connecting to LAN and Power

To connect the camera to your network, connect an Ethernet cable to the LAN connector located on the camera's side panel, and then attach it to the network device.

To provide power to the camera, connect the AC power adapter to the DC power input connector located on the camera's side panel, and then plug it to the electrical outlet.

Connect to LAN

Connect to power
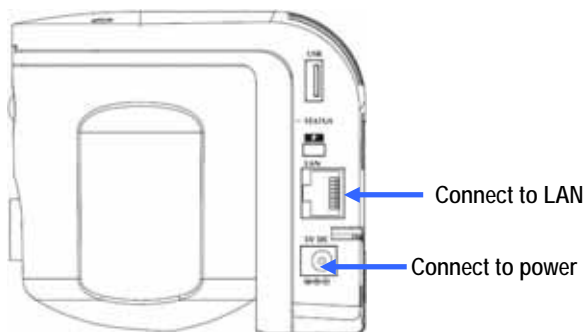
Installing the Camera Stand

If you want to place the camera on the flat surface, instead of hanging on the wall, you have to install the camera stand onto the bottom part of the camera.

The following describe the installation procedure of the camera stand:

1. Align the camera stand with the bottom part of the camera. Then, secure the camera stand with the screw.

2. Place the camera on a flat surface, and connect the Ethernet cable and AC power adapter as described in the previous section.

3

SECURITY

To ensure the highest security and prevent unauthorized usage of the camera, the administrator has the exclusive privilege to access the System Administration for settings and control requirements to allow users the level of entry and authorize the privileges for all users. The camera supports multi-level password protection. Accessing to the camera is strictly restricted to defined users with a "User Name" and "User Password", which are assigned by the administrator.

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

NOTE: Since the default settings are Null String, it is highly recommended to set the "Admin Password" when you are the first time to use the camera. Once the password is defined, only the administrator is permitted to manage the camera. The security feature of the camera will not be enabled until the "Admin Password" is defined; therefore, you have to complete this procedure as soon as possible.

4

APPLICATIONS

The ICA-210/ICA-210W can be applied in 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 the easy installation procedure, real-time live images will be available. In addition, once the ICA-210/ICA-210W is installed coupled with the IPView Pro application, you can further expand the scope of the ICA-210/ICA-210W.

The following section provides the example applications for your camera with the IPView Pro application, and also includes some basic knowledge to assist in the installation and configuration of the camera.

Applications of the Camera

- Monitor local and remote places and objects through a web browser, such as construction sites, hospitals, parks, schools and day-care centers.

- Capture a single image or record video images from the IPView Pro application.

- Configure the camera to upload image or send email messages with a single frame image.

Application Diagrams of the Camera

Home Application Diagram
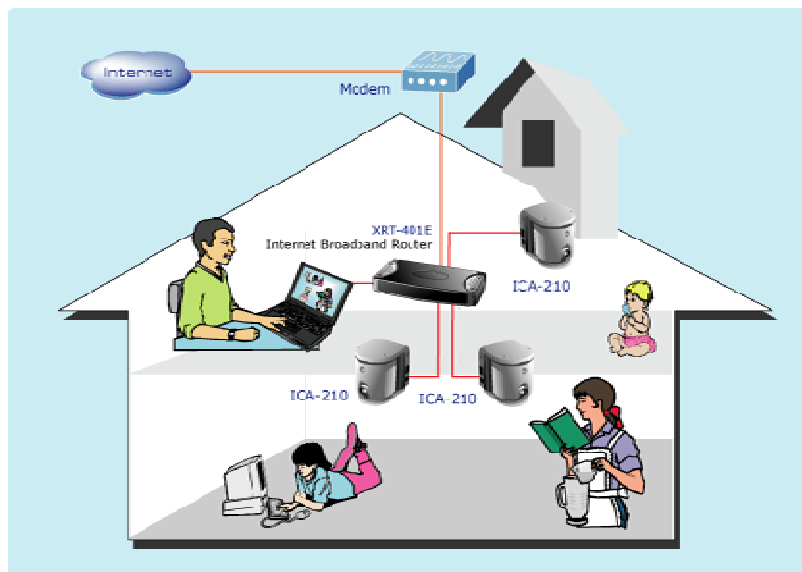
Office Application Diagram

5
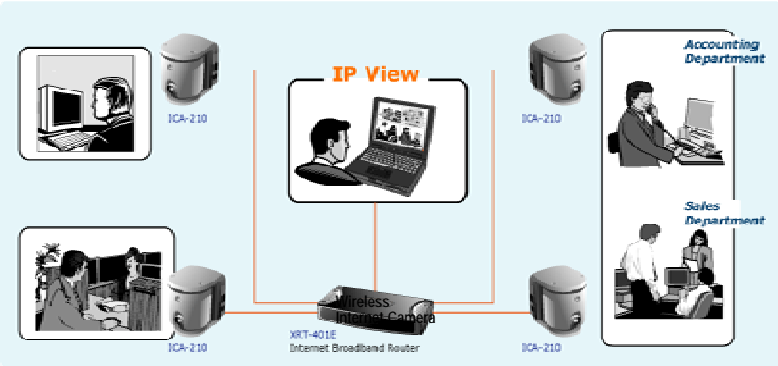
USING THE CAMERA

You can access and manage the ICA-210 / ICA-210W Internet Camera through: *1)* a web browser, and *2)* the enclosed software IPView Pro. This chapter describes the Web Configuration Utility, and provides the instructions on using the camera with a web browser.

Web Configuration

From the web browser, enter the default IP address **192.168.0.20** in the Address bar and then press [Enter] to access the Web Configuration Utility. The welcome viewing screen is shown on the next page.

When the login page appears, type **admin and admin** in the Name and Password blank space, and then click OK.

NOTE: The computer's IP address must correspond with the camera's IP address in the same segment for the two devices to communicate.
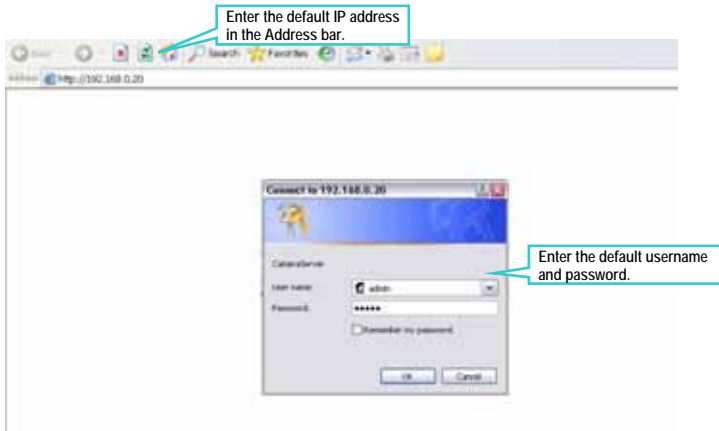
Login the Web Configuration Utility

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

TIP: Extensive knowledge of LAN will be helpful in configuring the camera.

After login, the home page of the Internet camera will show as below, which includes three major areas: **Configuration Area**, **Information Area**, and **Video Show Area**.

- **Configuration Area** – provides three menus that allow you to configure the camera's function settings, including the **Main menu**, **Preset menu**, and **Setting menu**.
- **Information Area** – displays the general information of the camera, including the camera name and the current date/time.
- **Video Show Area** – displays the real-time video of the

24

connected camera. This area also provides the video clip recording and image snapshot features.

Information Area

Video Show Area

Configuration Area
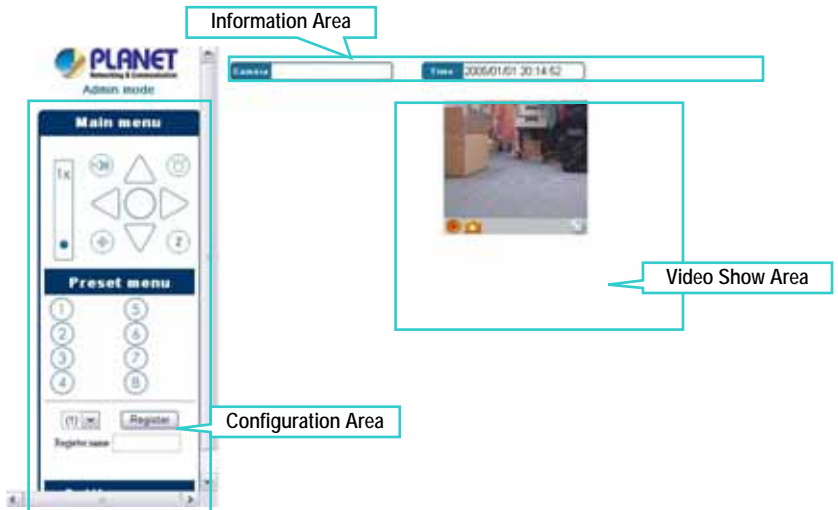
Home page of the Internet Camera

Controlling and Viewing Video

In the Home page of the Internet Camera, you can control the camera through the control buttons in the **Main menu** and **Preset menu**, and the real-time video images from the connected camera will be displayed in the **Video Show Area**.
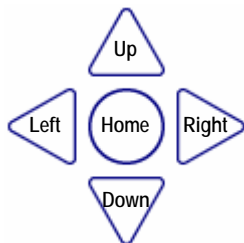
Digital Zoom In/Out

In the **Main menu**, click the Digital Zoom Bar to zoom in/out the displayed image by 1X, 2X, or 4X.
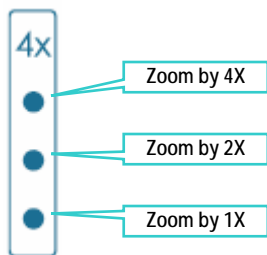
Digital Zoom Bar

Adjust the Camera Lens Position

You can control the camera lens position by clicking the Up/ Down/Left/Right arrow buttons in the **Main menu**. Clicking the *Home* button will move the lens to the original home position.

Camera Lens Control Buttons

You can also assign up to **8** positions for the camera by pressing *Register* button in the **Preset menu**, this enables you to move the camera lens to the desired position by a simple finger click.

To set up the position, move the camera lens to the desired position first, and select the number (1~8) from the pull-down list, then click the *Register* button. To identify the assigned position easily, you can name the position by entering a descriptive name in the **Register name** box.

When you have assigned the position for the camera, simply click the Number button (1~8) and the camera lens will move to the pre-defined position immediately.

Record Video and Capture Image

In the **Video Show Area**, you can click the Record button (⬤) to record and save a video clip, or click the Snapshot button (📷) to capture and save a still image.

You can change the settings of the recorded/captured file by clicking the Setting button (⚙), which will bring up the following dialog window:
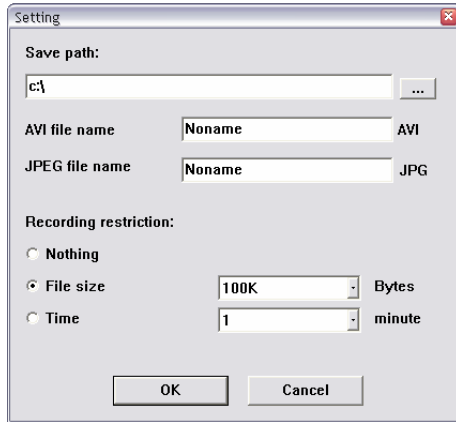
- **Save path:** Assign the destination folder to save the recorded/ captured file.
- **AVI file name:** Assign the file name for the recorded video clip.
- **JPEG file name:** Assign the file name for the captured still image.
- **Recording restriction:** Set up the restriction for the recorded/ captured file by **Nothing**, **File size**, or **Time**.

Flash LED On/Off

The camera is equipped with a compensative flash LED that allows you to capture clear images in a dark environment. At dark or low illumination situation, click the Flash LED button (⊗) to turn on the flash light of the camera. Press again to turn off the flash light.

28

Buzzer On/Off

In the **Main menu**, you can use the Buzzer button (⟨◁⟩) to test the internal buzzer of the camera. When user click the camera will sound **Bi-Bi**, **Bi**, **Alarm**, **Bi-Bo-Bi-Bo**, and **Robot** depending on the *Buzzer Setting.*

PIR Sensor On/Off

In the **Main menu**, you can click Sensor button (⊕) to turn on/off the camera's sensor motion detection feature, which allows you to monitor the target area dynamically.

Privacy Mode On/Off

In the **Main menu**, you can click Privacy mode button (ⓩ) to enter the camera's Privacy mode, this makes the camera stop monitoring temporarily until it leaves the Privacy mode.

Multiple-View Mode

If you connect multiple cameras within your system, you can monitor the video of these connected cameras from the browser. Click the **Setting menu → Multiview mode** to change to the following window that allows you to monitor the cameras simultaneously.

To return to the Home page, click *Back*.
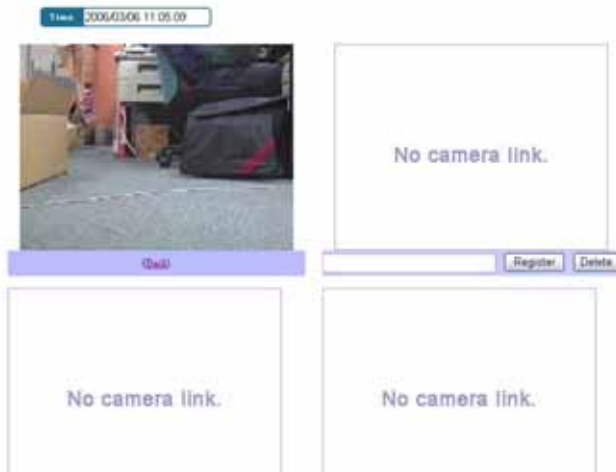
Multiple View Mode

Basic Configuration

The **Setting menu** contains the basic camera setting, three steps that will guide you through the basic configuration for the camera.

Main menu

Preset menu

Setting menu

Camera setting

Resolution
176x144 ▼
Horizontal degree(s)
10 ▼
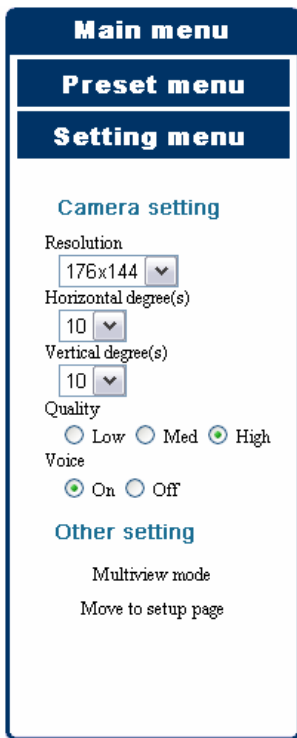Vertical degree(s)
10 ▼
Quality
  ○ Low ○ Med ⊙ High
Voice
  ⊙ On ○ Off

Other setting

Multiview mode

Move to setup page

- **Resolution:** You can set up the image resolution by selecting **176x144**, **320x240**, or **640x480**.

- **Horizontal degree(s):** Allows you to change the pan moving angle (1°~10°) when you pan the camera lens position.

- **Vertical degree(s):** Allows you to change the tilt moving angle (1°~10°) when you tilt the camera lens position.

- **Quality:** You can set up the image quality by selecting **Low**, **med**, or **High**.

- **Voice:** Select **On**/**Off** to enable/ disable the camera's audio volume.

Advanced Configuration

Clicking the **Move to setup page** option in the **Setting menu** allows you to configure the advanced settings for the camera, including **Camera setting**, **Security setting**, **Network setting**, **System setting**, and **Maintenance**.

Camera Setting

The **Camera setting** page provides three sub-menus: **Camera setting**, **Date/Time setting**, and **Buzzer setting**.

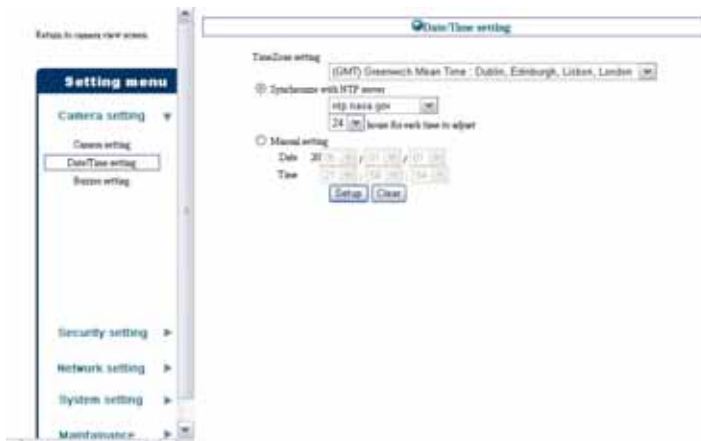## Camera setting > Camera setting

- **Camera name:** Assign a descriptive name for the camera.
- **Image size:** Select the desired image resolution from three formats: **176x144**, **320x240**, and **640x480**. The bigger size can obtain better quality; however, it will use more resource within your network.
- **Quality:** Select the desired image quality from three levels: **Low**, **Med**, and **High**.

- **Brightness:** Adjust the brightness level ranging from **1** to **128**.
- **Contrast:** Adjust the contrast level ranging from **1** to **128**.
- **Color:** Adjust the color level ranging from **1** to **128**.
- **Sharpness:** Adjust the sharpness level ranging from **1** to **12**.
- **Frequency:** To eliminate flicker image, select the proper frequency according to the camera's location. The options include: **50Hz**, **60Hz**, or **Outdoor**.
- **Flip Image:** Select **Horizontal** to display the image in a horizontal mirror mode. Select **Vertical** to display the image in a vertical mirror mode.

Camera setting > Date/Time setting

This sub-menu allows you to set up the correct date and time for the camera. For system management purpose, it is critical to have accurate time stamps on the system logs.

- **Time Zone setting:** Select a time zone according to your location.
- **Synchronize with NTP Server:** Select this option and the date/time will be based on Time Zone setting.
- **Manual setting:** Select the option to set up the date and time manually.

Camera setting > Buzzer setting
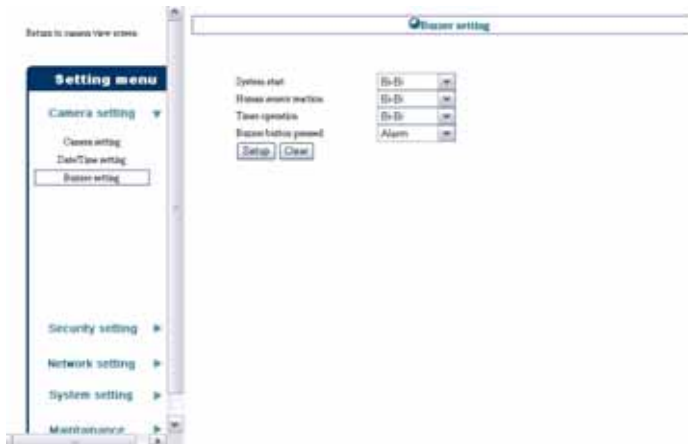
If you enable the camera's buzzer feature, you can set up the buzzer sound type for the following action of the camera: **System start**, **Human sensor reaction**, **Timer operation**, and **Buzzer button pressed**.

The available buzzer sound include: **Bi-Bi**, **Bi**, **Alarm**, **Bi-Bo-Bi-Bo**, and **Robot**.

Security Setting

The **Security setting** page provides three sub-menus: **Sensor setting**, **Schedule setting**, and **Access time setting**.

Security setting > Sensor setting

This sub-menu allows you to assign the time period for the camera to trigger the following action settings by PIR motion detection sensor.

- **Sensor setting:** Select **Enable**/**Disable** to enable/disable the camera's PIR sensor. When you enable the feature, the option **Use below operation times** must be selected so that the settings in **Operation time 1** or **2** can be applied. Otherwise, the camera will keep detecting always.
- **Operation time 1/2:** If the camera's sensor feature is enabled, the two options allow you to assign the schedule.

-   Action: You can decide the camera's response when triggered, including **Buzzer**, **Email**, **FTP**, **Flash the light**, and **Save image to USB disk**.

Security setting > Schedule setting

This sub-menu allows you to assign the time period for the camera to trigger the following action settings according to your schedule.

-   Schedule setup: Select **Enable**/**Disable** to enable/disable the camera's schedule feature.

-   Timer 1/2: If the camera's schedule feature is enabled, the two options allow you to assign the specific time frame for timed actions.

You can also set up the interval time (by minutes) for the camera's action in the **Interval** box. For example, if you set 10 minutes, the camera will act every 10 minutes during the assigned time period.

36

- **Action:** You can schedule several actions, including **Buzzer**, **Email**, **FTP**, **Flash the light**, and **Save image to USB disk**.

Note: The Email and FTP function have better work in a stable network environment to reduce the errors from the network traffic congestion.

Security setting > Access time setting

This sub-menu allows you to assign the time period for the users to view the video. When the feature is enabled, the users can only access the camera to view the video during the specific time period; during other time, the message "Access restricted Image cans not be viewed" will be displayed on the Video Show Area.

- **Access time setting:** Select **Enable**/**Disable** to enable/disable the camera's access time feature. If you disable the feature, the users are always allowed to view the video.

- **Access time 1/2:** If the camera's access time feature is enabled, the two options allow you to assign the specific time frame to view images.

Network Setting

The **Network setting** page provides six sub-menus: **Wireless setting**, **IP/Port setting**, **Dynamic DNS setting**, **UPnP setting**, **Email setting**, and **FTP setting**.

Network setting > Wireless setting (ICA-210W)

- **ESSID:** The ESSID (Extended Service Set ID) is a unique identifier shared among all points in a wireless network environment. Please enter the correct ID of the access point.

The following options allow you to select the security method for the camera (**No encryption**, **WEP**, and **WPA**).

Since the wireless network communications can be intercepted easily, you are strongly recommended to set up the encryption by selecting **WEP** or **WPA**.

If you select WEP encryption, you should decide the encryption format from the pull-down list (ASCII or HEX format), and then input the WEP key in the **code key** box.

ASCII input format: ASCII format causes each character you type to be interpreted as an eight-bit value. All unaccented upper- and lower-case Western European characters that can be input through your keyboard's typing zone are valid. To setup a 64-bit WEP key, input 5 ASCII characters. For example, '12345'. To setup an 128-bit WEP key, input 13 ASCII characters. For example, '1234567890123'. These character counts result in bit counts of 40 and 104 respectively; the camera will automatically pad your input to a bit count of 64 or 128.

HEX input format: Hex format causes each pair of characters you type to be interpreted as an eight-bit value in hexadecimal (base 16) notation. Only the digits 0 through 9 and the letters A through F (in upper or lower case) are valid. To setup a 64-bit WEP key, input 10 HEX format. For example, '3132333435', which is the same with ASCII input '12345'. To setup an 128-bit WEP key, input 26 HEX format. For example, '31323334353637383930313233', which is the same with ASCII input '1234567890123'. These character counts result in bit counts of 40 and 104, respectively; the camera will automatically pad your input to a bit count of 64 or 128.

WPA is a special mode designed for home and small business users who do not have access to network authentication servers. In this mode, the user has to manually enter the starting password in their access point or gateway, as well as in each PC on the wireless network. Enter the name in the **WPA-PSK (Share key)** box, and this name must match the Pre-shared key value in the remote device.

<u>Network setting > IP/Port setting</u>

- **IP address setting:** This option allows you to select the IP address mode and set up the related configuration.

DHCP	If your network uses the DHCP server, select this option. According to this setting, the camera will be assigned an IP address from the DHCP server automatically. Every time when the camera starts up, please make sure that the DHCP server is set to assign a static IP address to your camera.
Static IP	You can select this option and enter the IP address manually.
PPPoE	If your application requires a direct connection from an ADSL modem through the camera's RJ-45 LAN port, select this option and enter the User ID and Password into the respective boxes. (Note: You should have an ISP PPPoE account.) The camera will get an IP address from the ISP as starting up next time.

- HTTP port setting: The default HTTP port is **80**.

Network setting > Dynamic DNS setting

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

Network setting > UPnP setting

UPnP is the architecture for pervasive peer-to-peer network connectivity of intelligent appliances, wireless devices, and PCs of all form factors. Select **Enable**/**Disable** in the **UPnP setting** option to enable/disable the function of your camera.

Network setting > Email setting

If you enable the "alarm via e-mail" feature of the camera in the **Security setting**, you have to complete the required configuration in the **Email setting** sub-menu.

- **SMTP/POP server:** Enter the mail server in **SMTP server** or **POP server** box according to your network configuration. POP server will be used when the **Authentication mode** is set as **POP before SMTP**.
- **User name:** Enter the account user name to login into the mail server.
- **Authentication mode:** Select the correct authentication mode according to the setting of the customized mail server.
- **Password:** Enter the account password to login into the mail server.
- **Sender:** Enter the e-mail address of the user who will send the e-mail.

- **To:** Enter the e-mail address of the user who will receive the e-mail.
- **CC:** Enter the e-mail address of the user who will receive a copy the e-mail.
- **BCC:** Enter the e-mail address of the user who will receive a secret copy the e-mail.

Network setting > FTP setting
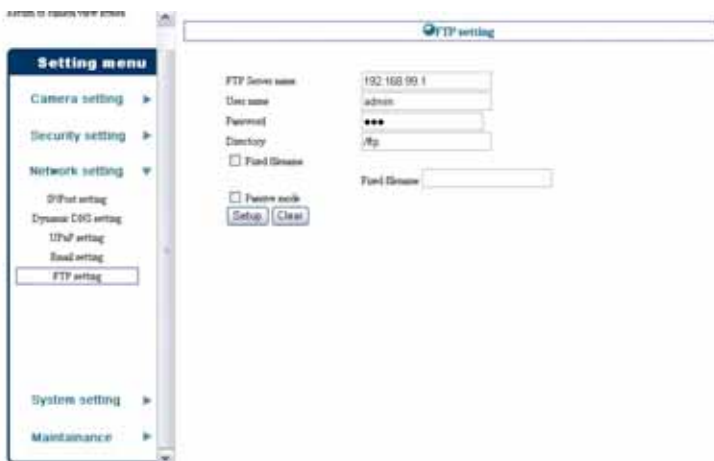
If you enable the "alarm via FTP" feature of the camera in the **Security setting**, you have to complete the required configuration in the **FTP setting** sub-menu.

- **FTP server name:** Enter the IP address of the target FTP site.
- **User name:** Enter the user name to login into the FTP server.
- **Password:** Enter the password to login into the FTP server.
- **Directory:** Enter the directory existed in FTP for uploading the images.

44

- **Passive mode:** Select this option to enable passive mode. The default setting is active mode.

System Setting

The **System setting** page provides two sub-menus that allow you to manage the users for the camera: **Administrator password** and **User setting**.

System setting > Administrator password

Enter the new password twice in the **New password** and **New password (confirm)** boxes to set up the new password for the administrator. Then, click *Setup* to complete the setting.

System setting > User setting
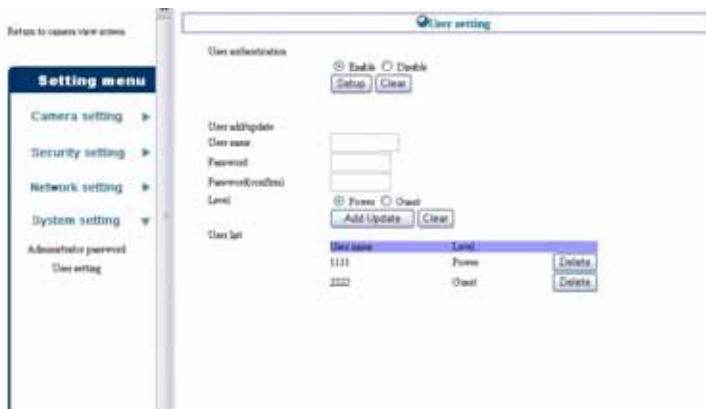
- **User authentication:** When the option is enabled, you have to enter the username and password in the login window to access the camera. When the option is disabled, you can directly access the camera as a **Power** user without entering the username and password; however, once you try to access the setup page, you will be asked to enter the administrator's username and password.
- **User add/update:** To add or modify a user, complete the required settings in the following fields, including **User Name**, **Password**, and **Password (confirm)**. In addition, you have to assign the user level as **Power** or **Guest**. The user name and password is available between 4-8 characters.

The following table explains the user level:

| Admin	Fully control the camera by accessing the complete configuration.
Power	Allowed to use some simplified function of the camera, such as using Zoom in/out, Buzzer, Flash led, adjusting the

	camera's lens position with the Control buttons and Preset menu, and changing to Multiple-view mode.
Guest	Allowed to view the video, and record/capture the video image by using the Record/Snapshot button.

-   User list: The list displays the existing users of the camera.
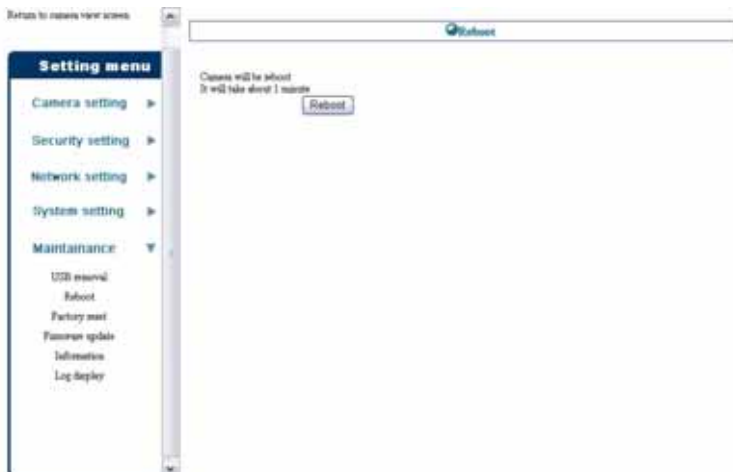
Maintenance

The **Maintenance** page provides six sub-menus: **USB removal**, **Reboot**, **Factory reset**, **Firmware update**, **Information**, and **Log display**.

Maintenance > USB removal
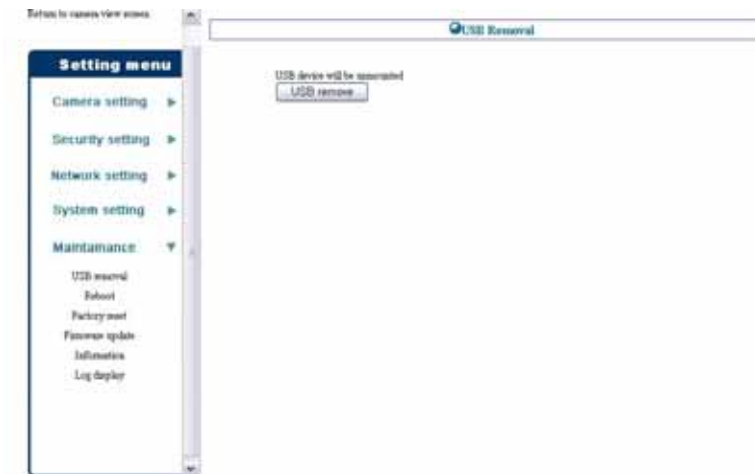
To remove the connected USB storage device safely, user better click the *USB remove* button in this sub-menu before removing.

Maintenance > Reboot

Do you really want to reboot this device? Click *Reboot* from this sub-menu, and you can restart the camera just like turning the device off and on and saved settings are retained.

Maintenance > Factory reset
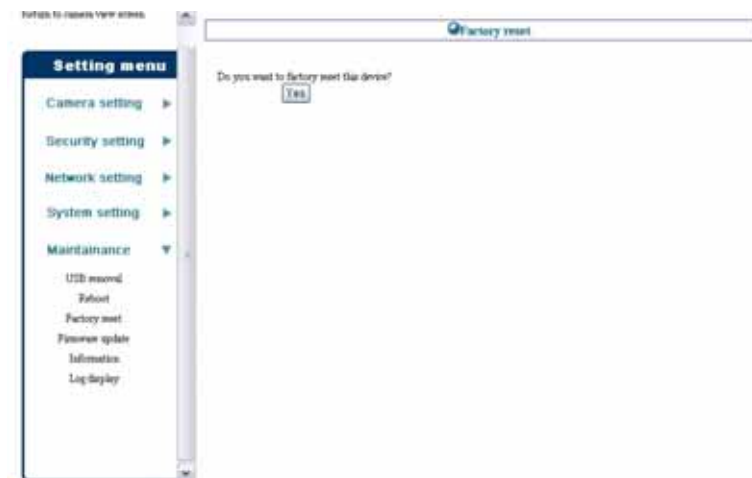
Do you want to factory reset this device? Click *Yes* from this sub-menu, and you can resume all factory default settings for the camera. Please note that you have to configure the network settings again after a factory reset.

Maintenance > Firmware update
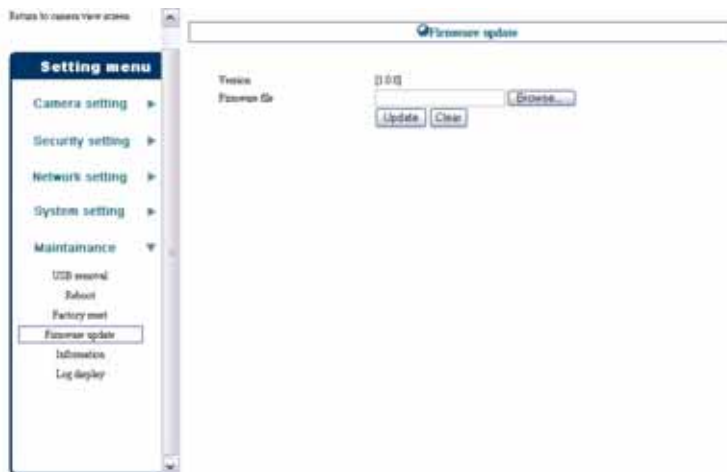
This option allows you to update the firmware of the camera once you obtained a latest version of firmware. Click *Browse* to find the firmware file saved in your computer, and then click *Update*. It will take a few minutes to update firmware. Please wait to complete the procedure; you can then reboot the camera.

Maintenance > Information

The **Information** sub-menu provides general information of the camera, including the firmware version, networking configuration, and security settings.

Maintenance > Log display

The **Log display** sub-menu provides a list that contains the events and actions of the camera.

6

IPVIEW PRO

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

Installation

Step 1
Insert the CD-ROM into the CD-ROM drive to initiate the auto-run program. Click on the **IPView Pro** item to activate the InstallShield Wizard.

Step 2
Click *Next* in the welcome screen.
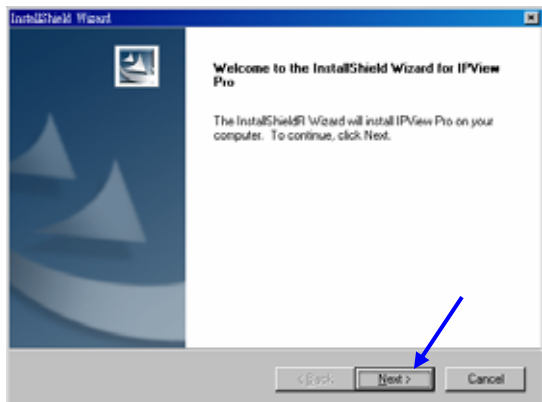
Step 3
Read and accept the License Agreement; then, click *Yes*.
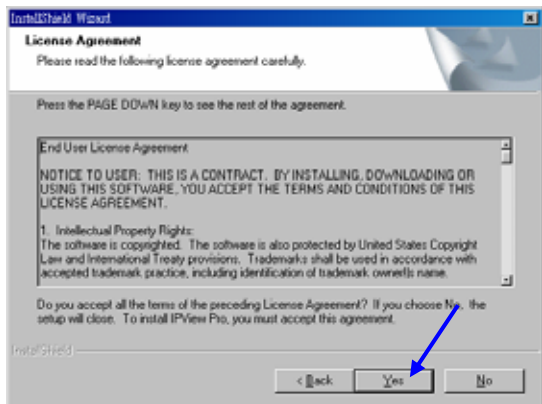
Step 4

Choose the destination location. If no specific requirement, leave the default setting and click *Next*.
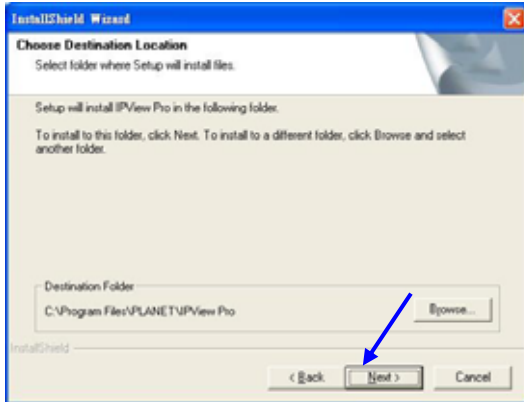
Step 5

The InstallShield Wizard starts to install the software, and the progress bar indicates the installation is proceeding.
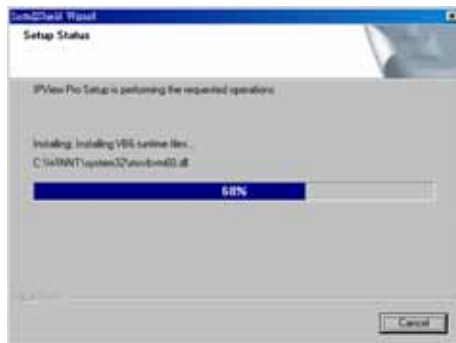
Step 6

If you use Windows® 2000/XP, it will appear a Digital Signature warning screen. Click *Continue Anyway* (Windows® XP) or *Yes* (Windows® 2000).
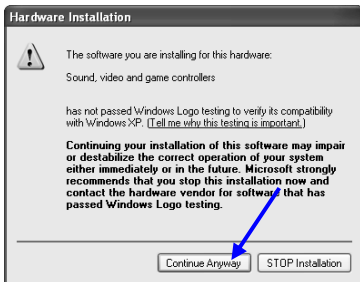
Windows® XP   *Windows® 2000*

Step 7

Click *Finish* to complete the installation.

57
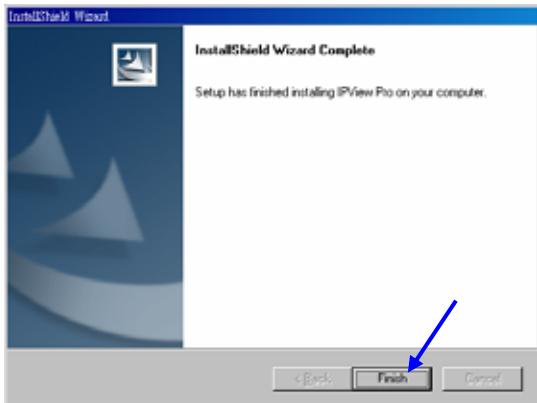
Getting Started

This section describes the User Interface of IPView Pro, with detailed procedures for using the application.

To launch IPView Pro, click **Start** > **Programs** > **PLANET** > **IPView Pro** > **IPView Pro**. The main screen will appear as below:

NOTE: IPView Pro requires the system's resolution setting up to 1024x768. Please configure the resolution to 1024x768 or higher; otherwise, it may shows incomplete screen when launching the program.

Item Feature

NO.	Item	Description
1	**Date/Time**	Show current date/time.
2	**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
3	**View Window**	Show the camera's view in this window.
4	**Connect/ Disconnect**	Click to connect/disconnect the camera.
5	**Rotate image angle**	Click to rotate the image shown in the View Window.
6	**Snapshot**	Click to capture a still image from the View Window.
7	**Audio ON/OFF**	Click to turn on/off the camera's audio.
8	**Zoom Mode**	Click to zoom in/out the image in the View Window.
9	**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.

59

			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.
10	**Key Lock Button**		Click to lock/unlock the camera. When locked, the user cannot operate any camera.
11	**Power Button**		Click to exit or minimize IPView Pro.
12	**Record Button**		Record video clip of the selected camera and save 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*.
13	**Play Button**		Play the recorded video file in the computer.
14	**System Configuration**		Click to enter the System Configuration.
15	**Pan/Tilt Buttons**		Click the Pan/Tilt buttons to move the camera lens to the desired position.

Using IPView Pro

Adding a Camera

To add a camera:

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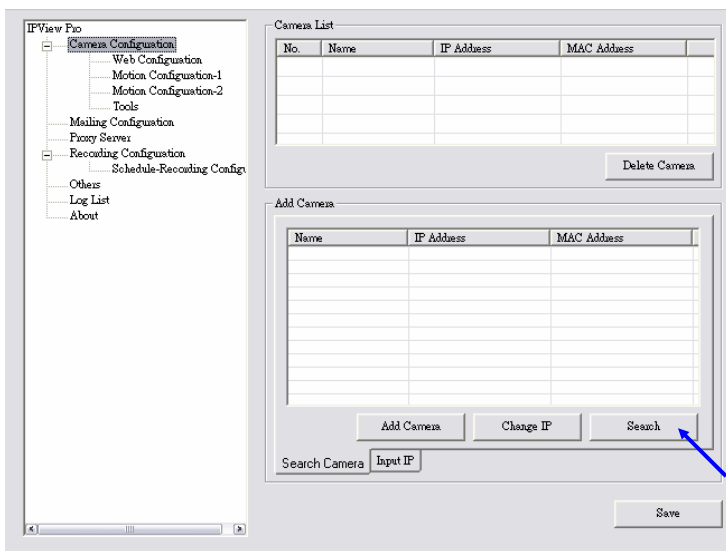
If you are not sure of the camera's IP address, you can click *Search* to search the available camera(s) within the network.

2. Select the camera you want by highlighting it, and then click *Add Camera*.
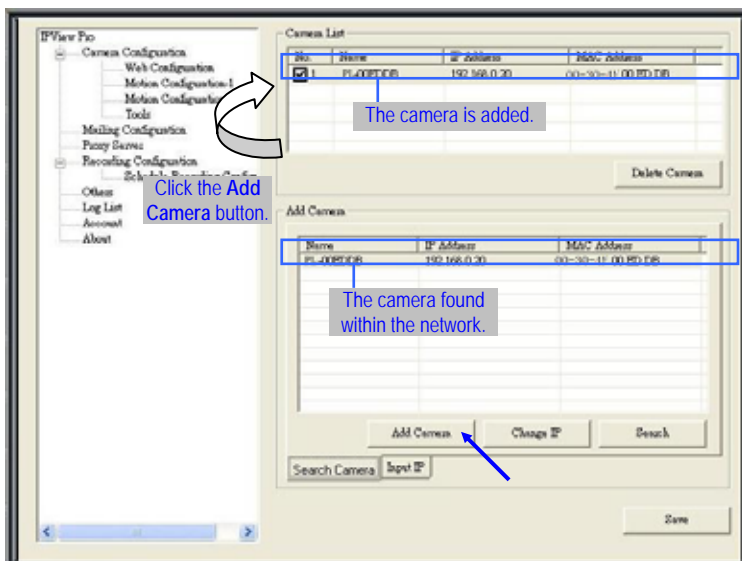
3. Click *Save*, and then click the **System Configure** button to return to View Window. The selected camera's video will be displayed now.

Alternately, you can add a camera by entering the IP address directly:

4. Select the **Input IP** tab.

The camera is added.

Click the **Add Camera** button.

Enter the camera's IP address and Port.
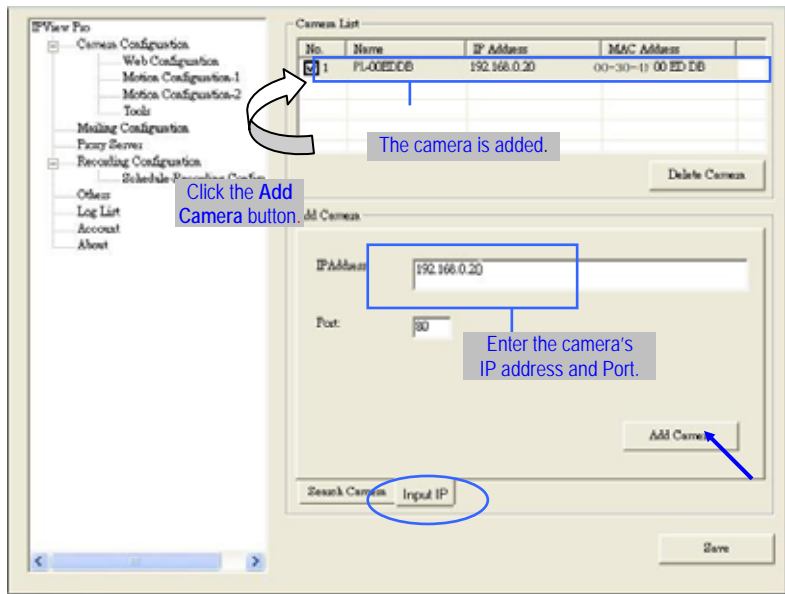
5. Enter the camera's IP address (default: 192.168.0.20) and Port (default: 80), and then click *Add Camera*.

6. Click *Save*, and then click the **System 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 a maximum of 16 cameras for viewing.

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 through the following 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 the settings in System Configuration.

Playing Recorded Video

The recorded video clips are saved in your computer, and can be played 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.
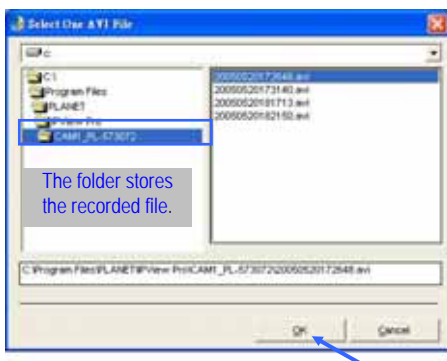
Select the recorded file in the computer, and then click *OK*.

Configuring the System

Clicking the *System 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 *System Configuration* button again to exit configuration.
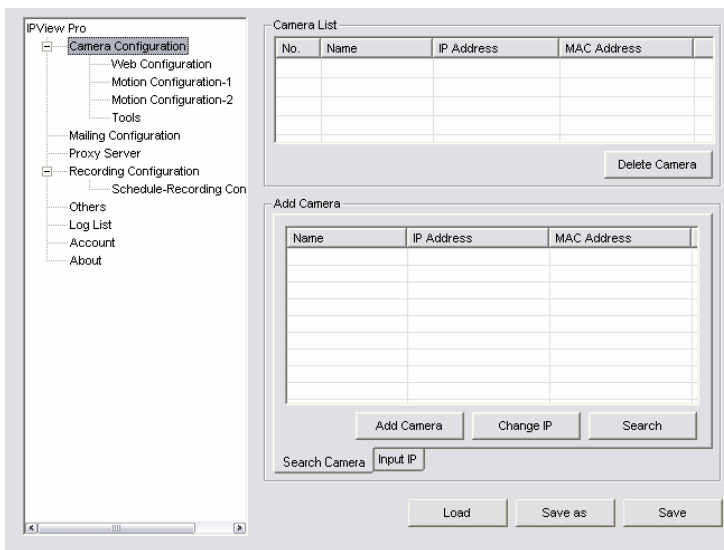
System Configuration Screen

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 connect to the web page of the Internet camera in.

You can configure these settings according to the description in *Chapter 5, Using the Camera*. Click *Back* to exit the web Configuration page.

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.

Select one camera.

Select Custom region.
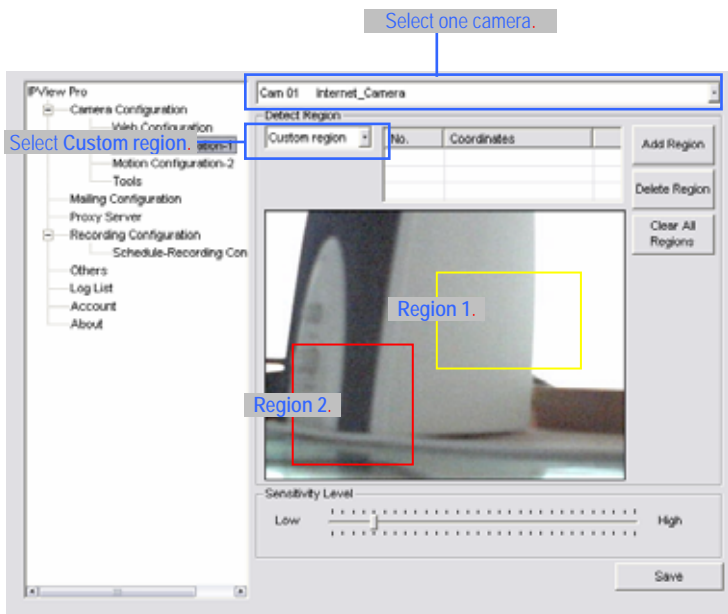
Region 1.

Region 2.

- **Detect Region:**
  - **Full picture –** When you select this option, the camera will monitor the whole area.
  - **Custom region –** Click **Add Region**, and then use mouse to draw an area in the view screen; when some motion detected within the area, the camera starts recording automatically. You can set multiple areas in the view screen. Click **Delete Region** to remove the area selected. Click **Clear All Region** to remove all areas in the view screen.

68

- **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 setting.
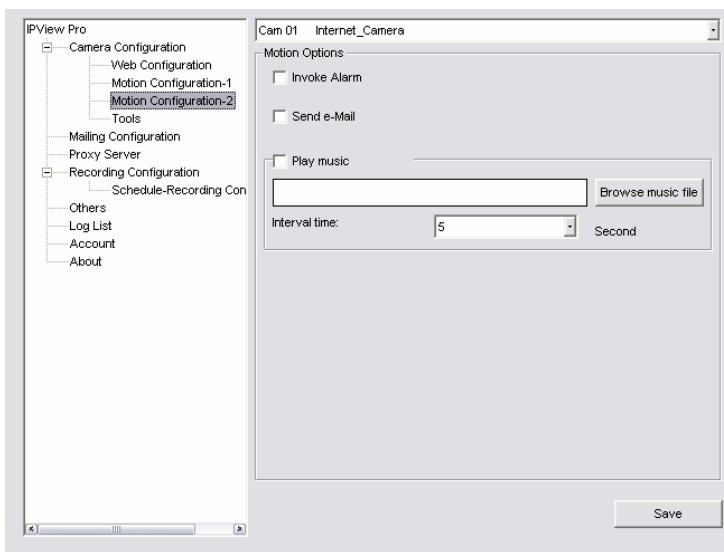
- **Invoke Alarm:** Select this option to enable alarm when some motion detected by the system.
- **Send e-mail:** When this option is checked, click the **Mailing Configuration** in the left column to enter the required information (see the following section).

- **Play music:** You can use the music file to alert the event. Click *Browse music file* to select the desired music, and set up the **Interval time**.

Tools
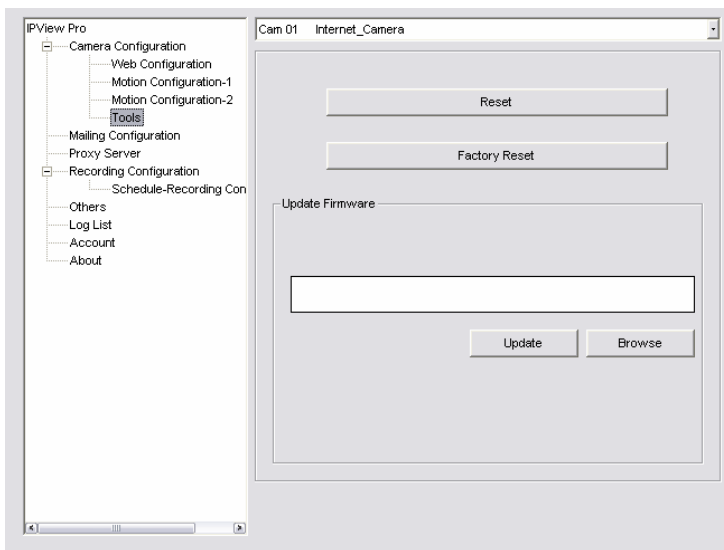
- **Reset:** Restore the original setting of your camera. Do you really want to reset this device? Click *Yes* in the pop-up dialog box to confirm.
- **Factory Reset:** Restore the factory default settings of the camera. Do you really want to factory reset this device? Click *Yes* in the pop-up dialog 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 that is 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 setup the time (in second) to send 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.
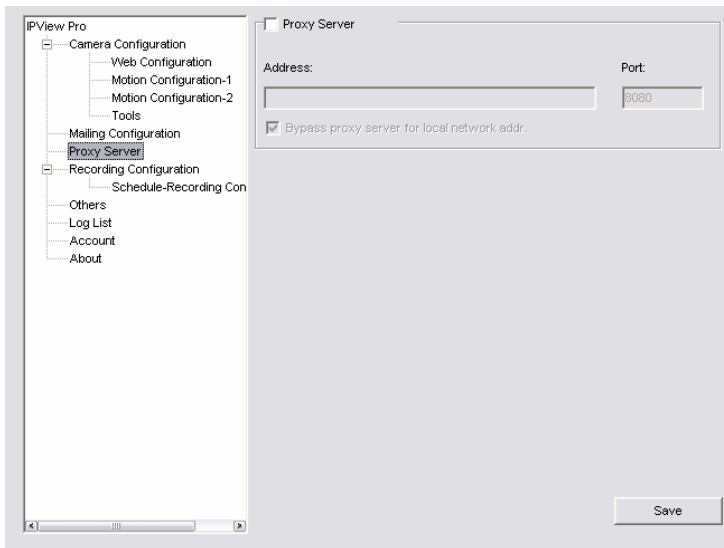
Recording Configuration

In this field, you can configure the storage settings.
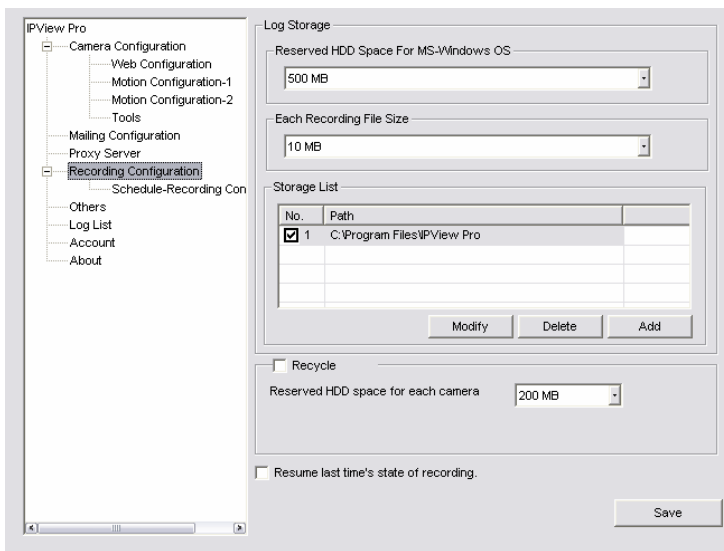
- **Log Storage:**
  - **Reserved HDD Space For MS-Windows OS** – You can reserve **500 MB** to **10000 MB** hard disk space for the program.
  - **Each Recording File Size** – If the recorded video files reach the file size limit, video images will be recorded into another file automatically. The available settings are from **10 MB** to **50 MB**.
  - **Storage List** – The destination folder to save 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 a path setting if there is only one setting in the list.

- **Recycle:** You can check this option to clear the files when the unreserved space of your hard disk is filled. The available settings are from **200 MB** to **50000 MB**.

- **Resume last time's state of recording:** You can check this option to store the recording state, and resume the recording state on the next time you record.

<u>Schedule-Recording Configuration</u>

This recording function will work after you have enabled respective settings in the Schedule mode. The recording schedule can be defined by **Date Mode** or **Week Mode**.
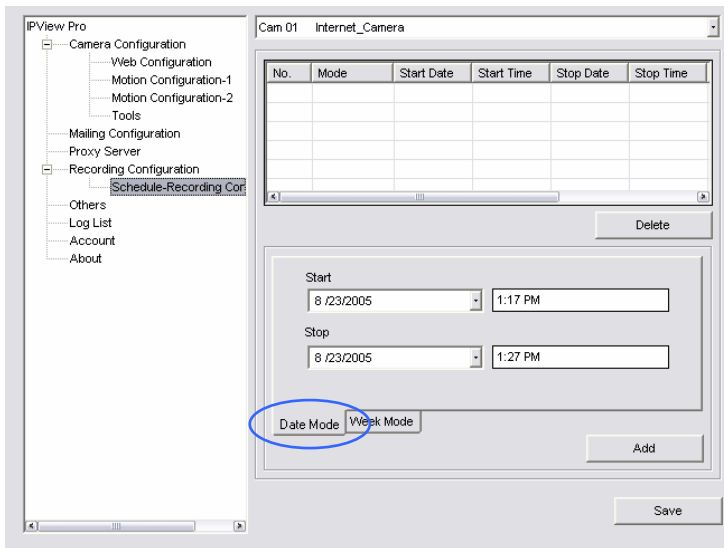
- **Date Mode:** First, select the camera desired from the pull-down menu. Then, setup the time in the **Start**/**Stop** fields. Click *Add* to add the recording schedule to the list. Click *Save* to save the settings.
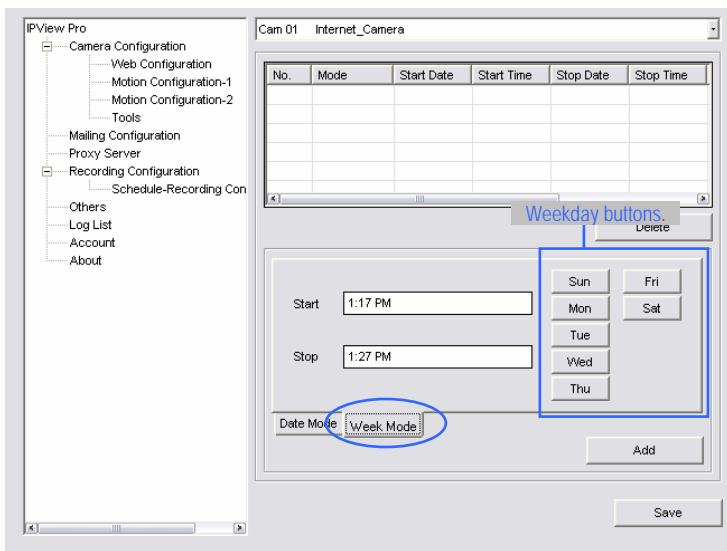
- **Week Mode:** First, select the camera desired from the pull-down menu. Then, setup the time in the **Start**/**Stop** fields, and select the weekday from the buttons. Click *Add* to add the recording schedule to the list. Click *Save* to save the settings.

Others

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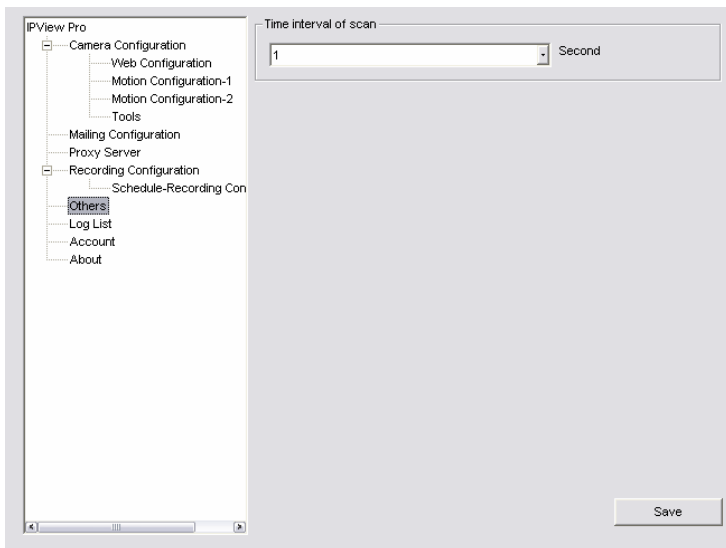
Log List

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

Account

This filed allows you to set the **Admin ID** and **Admin Password** of IPView Pro. You can also check the **Login password check** option to secure your camera by checking the login password.
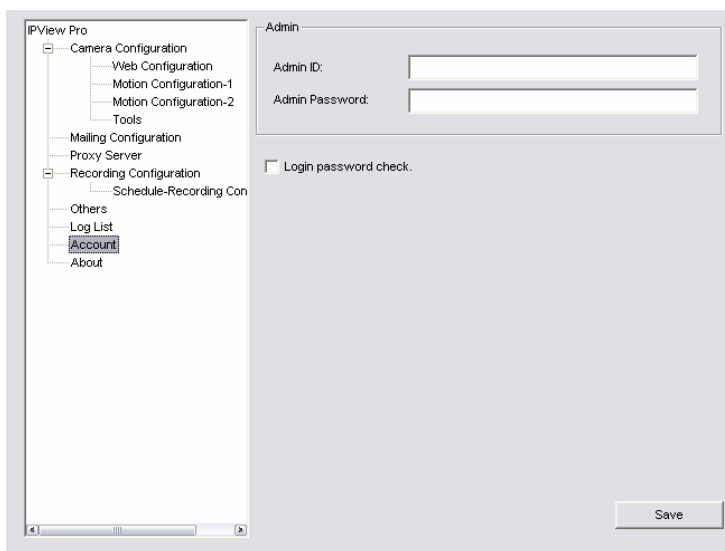
About

This filed provides information of the software application.

7
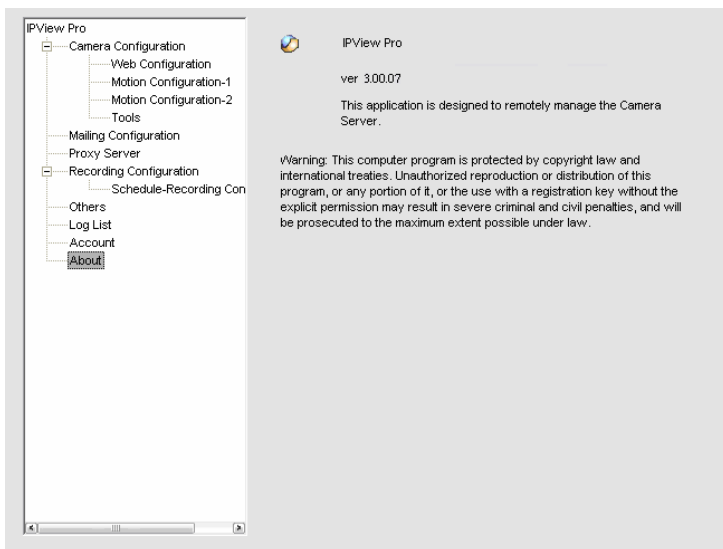
APPENDIX

A. Frequently Asked Questions

Internet Camera Features

Q: What is an Internet Camera?

A: The camera is a standalone system connecting directly to an Ethernet or Fast Ethernet network. It is different from the conventional PC camera, the 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: What algorithm is used to compress the digital image?

A: The camera utilizes the JPEG image compression technology providing high quality images for users. JPEG is adopted since it is a standard for image compression and can be applied to various web browser and application software without the need to install extra software.

Internet Camera Installation

Q: Can the Internet Camera be used out-doors?
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 allowing 10 Base-T and 100 Base-T networking.

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

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.

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 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 but first you must disconnect the camera from the network.

Start a DOS window. Type *ping x.x.x.x* and press [Enter], where *x.x.x.x* is the IP address of the camera.

The succeeding replies as illustrated below will provide useful explanation to the cause of the problem with the camera's IP address.

C. Troubleshooting

Q: I cannot access the camera from a web browser.
A1: The possible cause might be the IP Address for the camera is already being used by another device. To correct the possible 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, double check the IP Address of the camera is within the same subnet as your workstation.

Click "Start", "Setting", "Control Panel", and the "Network" icon. Select TCP/IP from the "Network" dialog box and from the "TCP/IP Properties" dialog box click "Specify an IP address".

If the camera is situated on a different subnet 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: Other possible problems might be due to 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 camera work locally but not externally?
A1: Might be caused from 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 through out the image?
A: A likely issue 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: There is bad focus on the camera, what should be done?
A: The focus might not be correctly adjusted for the line of sight. You need to adjust the camera focus manually as described in appendix Adjust Internet Camera Focus.

Q: Noisy images occur how can I solve the problem?
A: 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.

Q: There is poor image quality, how can I improve the image?
A1: A probable cause might be the incorrect display properties configuration for your desktop. 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. Please 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 improve 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.

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

85

(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. Adjusting the Camera Focus

To adjust the focus of the lens, you need to turn the lens slowly in either clockwise or anti-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 web page. 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 directly to sunlight. When operation is required in glaring light environment, it is recommended to use an iris lens.

The Internet Camera is designed for indoor usage and if your application requires prolong exposure to sunlight, a sun visor is recommended to protect the Internet Camera.

F. Specification

Image Sensor

Sensor Type   : Color CMOS sensor
Sensor Resolution   : 640 x 480 pixel
Lens   : f: 6.0 mm, F: 1.8

Video

Image Compression   : MJPEG
Image Frame Rate   : 30fps @ QCIF, 30fps @ CIF,
                           20fps @ VGA,
Quality Level   : Low/Middle/High
Video Resolution   : 176x144,, 320x240, 640x480
Auto White Balance   : Yes
Auto Exposure Control   : Yes
Auto Gain Control   : Yes
Digital Zoom   : Yes
Vertical/Horizontal Reversal : Yes

Audio

Input   : Built-in Omni-directional MIC;
                           frequency @ 50~ 16000Hz;
                           sensitivity @ -42dB +/- 3dB
Compression   : PCM

Hardware

CPU   : ADMtek 5120
RAM   : 16MB
Flash ROM   : 4MB
OS   : Linux

PIR Sensor	: Sensor distance @ 5 m (max.); Area @ X: +/- 15°, Y: +/- 15 °
Buzzer	: Internal alarm buzzer
USB Port	: Standard USB TypeA connector, USB 2.0/1.1 support
Pan/Tilt Function	: Pan +120° ~ -180° (-120° ~ -180° area is for Privacy mode); Tilt +45° ~ -5°

Communication

LAN Port	: RJ-45, 10/100M auto-sensed, Auto MDI-X
Wireless LAN	: 802.11g WLAN (ICA-210W)
Communication Protocol	: HTTP, FTP, TCP/IP, UDP, ARP, ICMP, DHCP, POP3, SMTP, PPPoE, DDNS, UPnP

Power

| Power Supply | : DC 5V, switching type |
| Power Consumption | : 9.5W @ 1900mA/5V (max.) |

Environment

Operating Temperature	: 0°C ~ 40°C
Operating Humidity	: 20% ~ 85%, non-condensing
Storage Temperature	: -10°C ~ 60°C
Storage Humidity	: 0% ~ 90%, non-condensing

EMI

FCC, CE Class B

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.

A

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 type, a common format for small movies and videos.

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 10Mbps (traditional Ethernet), 100Mbps (Fast Ethernet), and 1,000Mbps (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

Intranet   This is a private network, inside an organization or company that 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   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 that makes 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.