



# **Internet Camera**

**ICA-100/ICA-100W**

**User's Manual**

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# Revision

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# Chapter 1

## Introduction



*This Chapter provides an overview of Internet Camera 's features and capabilities.*

Internet Camera provides a low cost solution for enterprise and SOHO users to enhance the ability of network environment. By connecting directly to an Ethernet or Fast Ethernet, the high quality video image can be monitored everywhere. The main difference from the conventional PC Camera is that Internet Camera is a standalone system. There is no need to attach another computer with Internet Camera like usual PC cameras do. Via a web browser, Internet Camera can be managed, accessed and controlled remotely over the Intranet or Internet. Management can be more efficient and relative cost will be reduced by this way.

### ICA-100/ICA-100W Features

Internet Camera includes many advanced features, which are designed to provide powerful functions while being easy to use.

#### **Vivid Your Website.**

Live-images on web site is a new trend of Internet nowadays. Must websites always be immutable and frozen with only text and static pictures? Add ICA-100 series to make websites more vigorous.

#### **User-friendly Interface.**

Internet Camera supports both ActiveX mode for Internet Explorer and Java mode for Internet Explorer and Netscape Navigator. The only requirement for configuration and image viewing is a web browser software such as Internet Explorer 5.0 or above or Netscape 6.0 or above. Via user-friendly web interface, even a beginner with less knowledge about network can manage easily.

#### **Remote Monitoring and Management.**

ICA-100 series can fully integrate with your network. By the conveniences of world wide Internet, you can do the monitoring anywhere. Via add-on utility, network administrators can decide whether individuals or the whole team may access ICA100 series. Multi-user password protection support offers more flexibility while managing ICA100 series.

#### **Alarm Trigger Function.**

Adding external sensors to the auxiliary I/O connector of ICA-100 series can let you program event-based notification to fit various security demands. Internet Camera can connect up to two input and two output external devices.

#### **DDNS Support**

Internet users can access the live images with a DDNS registered hostname instead of knowing camera's real IP address.

## Motion Detection

Monitor any suspicious movement in a specific area.

## Wired and Wireless Network Support.(ICA-100W only)

ICA-100W provides both wired and wireless function. You can use ICA-100W in different LAN environment by simple mode switching.

## Package Contents

The following items should be included:

- Internet Camera unit
- Camera Stand Accessory
- Power Adapter
- CD-ROM
- Quick Installation Guide
- Wireless Antenna\*2 (ICA-100W only)

If any of the above items are damaged or missing, please contact your dealer immediately.

## Physical Details

### Front Panel

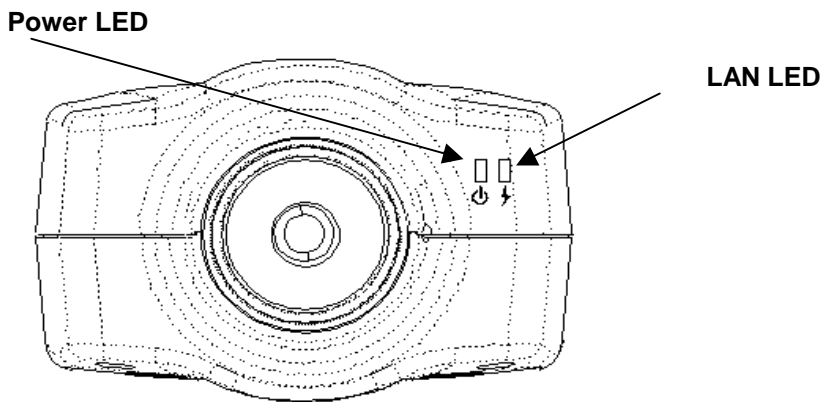


Figure 1-1: Front Panel

#### **Power LED**

The Power LED is positioned on the right side of ICA-100 series's lens while facing ICA-100 series. Steady blue confirms ICA-100 series is powered on.

#### **LAN ( /WLAN ) LED**

The LAN ( /WLAN ) LED is positioned on the far right side of ICA-100 series's lens while facing ICA-100 series. It is located right of the Power LED. Steady orange confirms good connection to LAN or WLAN connectivity. Dependent on the data traffic the LED will begin to flash to indicate ICA-100 series is receiving/ transferring from/to the LAN or WLAN network.

**Note:**

There are three settings for the Power and LAN ( /WLAN ) LED to control the light illumination for monitoring purpose from Normal / Off / Dummy. Please refer to the *Web Configuration* section for detailed information and usage.

## Rear Panel

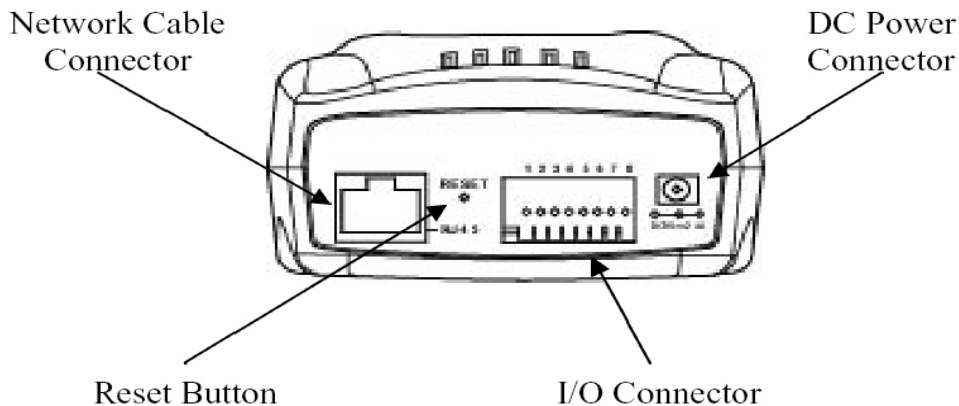


Figure 1-2: Rear panel of ICA-100

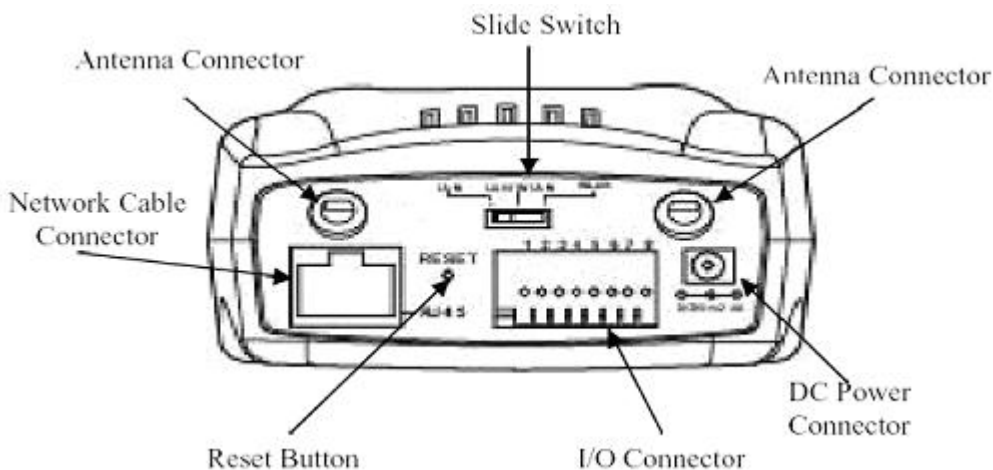


Figure 1-3: Rear panel of ICA-100W

### Network Cable Connector

Internet Camera provides 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 NWay protocol, allowing ICA-100 series to automatically detect or negotiate the transmission speed of the network.

### DC Power Connector

The DC power input connector is located on ICA-100 series's rear panel and is labeled DC 5V with a single jack socket to supply power to ICA-100 series. Power will be generated when the power supply is connected to a wall outlet.

### Reset Button

Reset will be initiated when the reset button is pressed once and Power LED begins to flash.

Factory Reset of ICA-100: Press the reset button for three seconds or until Power LED

begins to light up, then release the reset button and the Power LED will begin to flash indicating ICA-100 is changing to factory reset. When factory reset is completed the IP address will return to the default setting as 192.168.0.20.

Factory Reset of ICA-100W: Press the reset button for three seconds or until Power LED begins to light up, then release the reset button and the Power LED will begin to flash indicating ICA-100W is changing to factory reset. When factory reset is completed ICA-100W will be set to default on channel 11 and EES-ID is set as "NULL String" (This default setting will let ICA-100W able to connect ANY access point on the infrastructure network). The IP address will also return to the default setting as 192.168.0.20.

### **I/O Connector**

There are four I/O connectors, two for input and two for output situated on the rear panel. The I/O connectors provide the physical interface to send and receive digital signals to a variety of external alarm devices. *Please refer to the User's Guide appendix for detailed information.*

### **Slide Switch( ICA-100W only)**

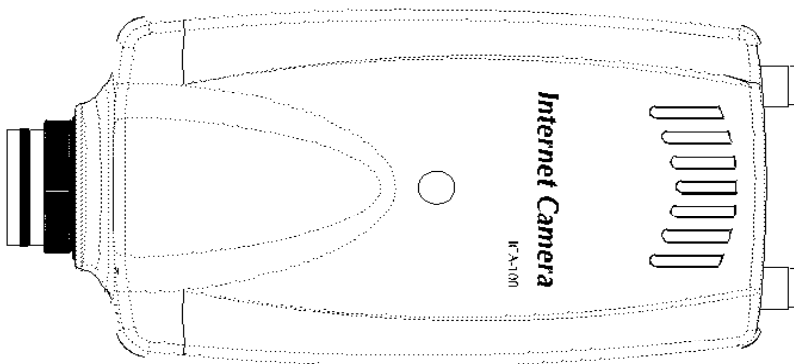
The slide switch permits user to determine the type of network communication media for ICA-100W and is positioned on the rear panel. The three settings are as follows:

- LAN (Local Area Network)
- LAN/WLAN (Local Area Network/Wireless Local Area Network)
- WLAN (Wireless Local Area Network)

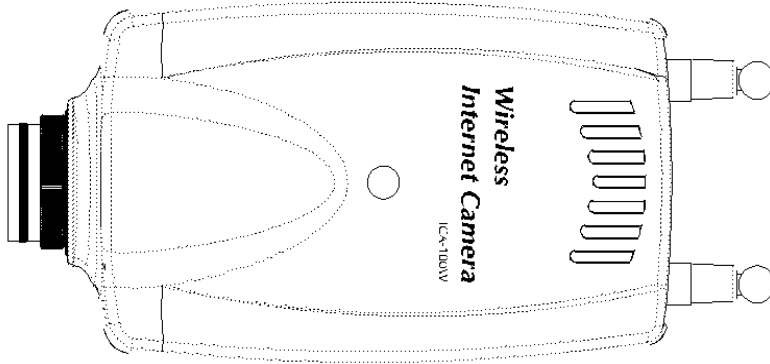
### **Antenna Connector( ICA-100W only)**

There are two Reverse Polarity SMA type antenna connectors located at the rear panel of ICA-100W providing connection for two high sensitivity antenna included with the device. You can also install the antenna with higher dB gain to get longer distance connection. However, only antenna connector above the DC power connector is used to transmit wireless signal. Thus, only connect the high dB gain antenna to this connector. The other one should still connect with bundled antenna.

## **Top Panel**



**Figure 1-4:Top Panel of ICA-100**

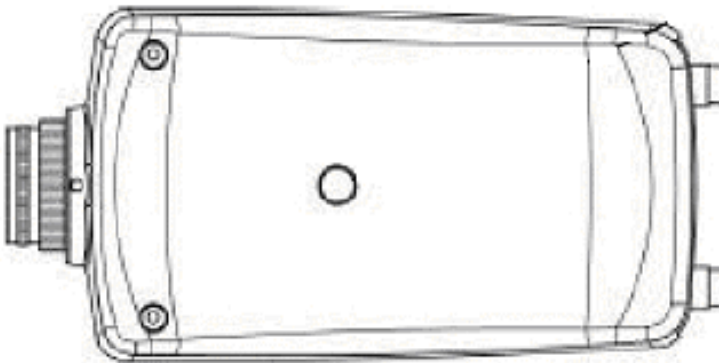


**Figure 1-5:Top Panel of ICA-100W**

### **Screw Hole**

Located on the top panel of ICA-100 series, the screw hole is used to connect the camera stand onto ICA-100 series by attaching the screw head on the camera stand into the screw hole of ICA-100 series.

### **Bottom Panel**



**Figure 1-6 Bottom Panel**

### **Screw Hole**

Located on the bottom panel of ICA-100 series the screw hole is used to connect the camera stand onto ICA-100 series by attaching the screw head on the camera stand into the screw hole of ICA-100 series.



# Chapter 2

## Installation

# 2

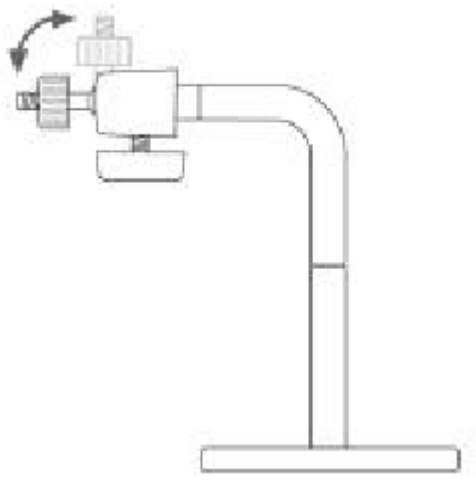
*This Chapter covers the physical installation of ICA-100 Series.*

### Requirements

	<i>ICA-100</i>	<i>ICA-100W</i>
<b>Network Environment</b>		
<b>LAN</b>	10/ 100M Ethernet	10/ 100M Ethernet IEEE 802.11b Wireless LAN
<b>Monitoring System Recommended to Access ICA-100 series</b>		
<b>System Hardware</b>	<ul style="list-style-type: none"> <li>• CPU: Pentium II, 266 MHz or above</li> <li>• Memory Size: 32 MB (64 MB recommended)</li> <li>• VGA card resolution: 800x600 or above</li> </ul>	
<b>Web Browser</b>	<ul style="list-style-type: none"> <li>• Internet Explorer 5.0 or above (ActiveX &amp; JAVA Mode – Image View for Windows OS and JAVA Mode – Image View for other OS)</li> <li>• Netscape 6.0 or above (JAVA Mode – Image View)</li> </ul>	
<b>System Requirement for IPView Application</b>		
<b>Support OS</b>	Win 98, Win 98 SE, Win 2000, Win Me, Win XP	
<b>System Hardware</b>	<ul style="list-style-type: none"> <li>• CPU: Pentium III, 450 MHz or above</li> <li>• Memory Size: 128 MB (256 MB recommended)</li> <li>• VGA card resolution: 800x600 or above</li> </ul>	

### Connecting ICA-100 series to the Camera Stand

ICA-100 series comes with a camera stand accessory with a swivel ball screw head that can be attached to ICA-100 series 's top or bottom screw hole. Attach the camera stand to ICA-100 series and station it for your application. There are three holes located in the base of the camera stand allowing ICA-100 series to be mounted on the ceiling or any wall securely.



**Figure 2-1: Camera Stand**

## Hardware Install Procedure

### ICA-100

#### 1. Connect an Ethernet cable

Connect one end of an Ethernet cable to the LAN port located on the ICA-100 rear panel and attach the other end to the network device (hub or switch).

#### 2. Attach the external power supply

Connect the provided power adapter to the ICA-100's connector labeled "5VDC" on rear panel.

#### 3. Check the LEDs

The PWR and ACT LEDs should be on.

### ICA-100W

#### 1. Attach Wireless Antenna (LAN+WLAN or WLAN mode)

Screw the 2 external Antenna provided into the antenna connector located on ICA-100W's rear panel.

#### 2. Connect an Ethernet cable (LAN or LAN+WLAN mode)

Connect one end of an Ethernet cable to the LAN port located on the ICA-100W's rear panel and attach the other end to the network device (hub or switch).

#### 3. Switch to appropriate network type

Select the desired Network communication type for ICA-100W from the Slide Switch. Position the Slide Switch to the setting required.

#### 4. Attach the external power supply

Connect the provided power adapter to the ICA-100W's connector labeled "5VDC" on rear panel.

#### 5. Check the LEDs

The PWR and ACT LEDs should be on.

# Chapter 3

## Configuration

# 3

*This Chapter provides details of the software configuration process.*

### Login

ICA-100 series must be configured through its built-in Web-based Configuration. Extensive knowledge of LAN will be helpful in setting up. From the web browser, type `http://192.168.0.20` in the address box to access Home page of ICA-100 series.

#### If you can't connect

If ICA-100 series do not respond, check the following:

- Machine is properly installed, LAN or WLAN connection is OK, and it is powered ON. You can test the connection by using the "ping" command:
  - Open the MS-DOS window or command prompt window.
  - Enter the command:  
ping 192.168.0.20  
If no response is received, either the connection is not working, or your PC's IP address is not compatible with ICA-100 series' IP Addresses. (See next item.)
- Ensure that your PC is using an IP Address within the range 192.168.0.1 to 192.168.0.254 (excluding 192.168.0.20). Also, the Network Mask should be set to 255.255.255.0 to match ICA-100 series.  
In Windows, you can check these settings by using *Control Panel-Network* to check the *Properties* for the TCP/IP protocol.

### Home Page

After the default IP address is entered from the browser, the Home page will appear with a still image. There will be three options to choose from to set-up and view your Internet Camera and they are as follows:

- View Image – ActiveX Mode
- View Image – Java Mode
- System Administration



## Wireless Internet Camera

- [View Image - ActiveX Mode](#)
- [View Image - Java Mode](#)
- [System Administration](#)



Figure 3-1: Home Page

## System Administration

Click on "**System Administration**" from the Home page to access the settings required for ICA-100 series. There will be several options in the menu bar to choose from to set your Internet Camera and they are as follows:

- System
- Image
- Users
- DateTime
- Trigger
- Upload
- Information
- Tools

### System

The System menu contains commands for settings that are required for inputting key details to set-up ICA-100 series for operation.

Click on "**System**" in the system administration menu bar and the System screen will appear. The screen below is from ICA-100W; the screen of ICA-100 is the same but has no "Wireless Interface" parameters.



# Wireless Internet Camera

- [System](#)
- [Image](#)
- [Users](#)
- [DateTime](#)
- [Trigger](#)
- [Upload](#)
- [Information](#)
- [Tools](#)
- [Home](#)

<b>System</b>	<p><b>Camera Name</b> : <input type="text" value="CS-00EDDB"/></p> <p><b>Location</b> : <input type="text"/></p> <p><b>Admin</b></p> <p>Admin ID : <input type="text"/></p> <p>Admin Password : <input type="text"/></p> <p>Confirm Password : <input type="text"/></p> <p><b>IP Assignment</b></p> <p><input checked="" type="radio"/> Manually Assign</p> <p>IP Address : <input type="text" value="192.168.0.20"/></p> <p>Subnet Mask : <input type="text" value="255.255.255.0"/></p> <p>Default Gateway : <input type="text" value="0.0.0.0"/></p> <p><input type="radio"/> Assign Automatically Using</p> <p><input type="radio"/> RARP</p> <p><input type="radio"/> BOOTP</p> <p><input type="radio"/> DHCP</p> <p><input type="radio"/> PPPoE</p> <p>Service Name : <input type="text"/></p> <p>User ID : <input type="text"/></p> <p>Password : <input type="text"/></p> <p><b>DNS IP Address</b></p> <p>1 : <input type="text" value="0.0.0.0"/></p> <p>2 : <input type="text" value="0.0.0.0"/></p> <p><b>Dynamic DNS</b> <input type="radio"/> Yes <input checked="" type="radio"/> No</p> <p>Service Provider : <input type="text" value="www.dyndns.org"/></p> <p>Host Name : <input type="text" value="vincentplanet.dyndns.org"/></p> <p>User Name : <input type="text" value="vincentplanet"/></p> <p>Password : <input type="text" value="password"/></p> <p><b>Wireless Interface</b></p> <p>Connection Mode : <input checked="" type="radio"/> Infrastructure</p> <p style="margin-left: 20px;"><input type="radio"/> 802.11 Adhoc</p> <p style="margin-left: 20px;"><input type="radio"/> Adhoc</p> <p>Network Name : <input type="text"/> (ESS-ID)</p> <p>Wireless Channel : <input type="text" value="11"/></p> <p>Encryption WEP Key : <input type="text"/> <input checked="" type="radio"/> ASCII <input type="radio"/> HEX</p> <p>Confirm WEP Key : <input type="text"/></p> <p><b>LED Control</b> <input checked="" type="radio"/> Normal <input type="radio"/> OFF <input type="radio"/> Dummy</p> <p><b>Loading ActiveX From</b> : <input type="text"/></p> <p><b>Open Second Port</b> <input type="radio"/> Yes <input checked="" type="radio"/> No</p> <p>1 : Web Server - Default 80</p> <p style="margin-left: 20px;"><input type="text" value="0"/></p> <p>2 : Transfer Image - Default 8481</p> <p style="margin-left: 20px;"><input type="text" value="0"/></p> <p style="text-align: right;"> <input type="button" value="Save"/> <input type="button" value="Cancel"/> </p>
---------------	---

**Figure 3-2: System Screen of ICA-100W****Camera Name:**

This field is used for entering a descriptive name for the device. The default setting for the Camera Name is CS-xxxxxx, where xxxxxx is the last six digit of the MAC Address. The maximum length is 32 (Printable ASCII).

**Location:**

This field is used for entering a descriptive name for the location used by ICA-100 series.

**Admin:**

This field is used for entering the Administrator ID along with the password to access the System Administration settings. Be sure to enter the password twice to confirm the details once in the Admin Password field and again in the Confirm Password field. The default setting for Admin is blank space (Null String) you need to key in the Admin ID with a maximum length of 12 (Printable ASCII) characters and enter the Admin Password with a maximum length of 8 (Printable ASCII) characters. Please note that Admin ID and Admin Password must be set before using IPView utility to connect Internet Camera; otherwise the Internet Camera can not be added to IPView.

**IP Assignment:**

There are two options to select from the IP Assignment.

**Note:** Access to ICA-100 series is done through assigning a proper IP address. Please make sure to use a vacant IP address when you assign the IP address for ICA-100 series. This will prevent errors from occurring if the IP address is overlapped.

**Manually Assign**

You can click **“Manually Assign”** and directly enter the IP address.

The default settings are as follows:

- Default IP – 192.168.0.20
- Subnet Mask – 255.255.255.0
- Default Gateway – 0.0.0.0

**Assign Automatically Using**

If your network is using RARP, BOOTP or DHCP server you can click **“Assign Automatically Using”** and click on **“RARP”**, **“BOOTP”** or **“DHCP”**. Under this setting ICA-100 series will automatically assign an IP address from RARP, BOOTP or DHCP server. Each time ICA-100 series starts up be sure the RARP, BOOTP or DHCP server is setup as assign a static IP to your Internet Camera. If your application requires direct connection from an ADSL modem through ICA-100 series's RJ-45 LAN port and you also have an ISP PPPoE account. Click on **“PPPoE”** option and enter the Service Name, User ID and Password into the respective fields. ICA-100 series will get an IP address from the ISP each time ICA-100 series starts up.

**DNS IP Address:**

DNS (Domain Name System) server is an Internet service that translates domain names into IP addresses. Enter at least one DNS IP Address.

**Dynamic DNS:**

Click Yes/No to enable/disable DDNS function. Before you use this function, you must register a hostname from a DDNS service provider first.

**Service Provider**

Enter the URL of the DDNS service provider whom you registered to.

### Host Name

Enter the hostname you registered.

### User Name

Enter the user name that used to login the DDNS web site.

### Password

Enter the password of your account.

## Wireless Interface: (ICA-100W only)

### Connection Mode:

Use the Connection Mode to determine the type of wireless communication for ICA-100W. There are three choices of **Infrastructure mode**, **802.11 Adhoc mode** and **Adhoc mode**. The default setting for the Connection Mode is Infrastructure.

**Note:** Keep in mind after setting the Wireless Interface, making sure that the Slide Switch on the rear panel is positioned to either LAN/WLAN or WLAN setting for the wireless communication to take effect.

### Network Name:

This field is used to setup which wireless network (ESS-ID Extended Service Set ID) ICA-100W is to be connected for communication. The ESS-ID is a unique identifier shared among all points in a wireless network environment. The default Network Name is blank space (NULL String), this default setting will let ICA-100W connect to ANY access point under the infrastructure network mode. To connect ICA-100W to a specific access point on the network make sure to set the ESS-ID of ICA-100W to correspond with the access point's ESS-ID for communication. Type any string up to 32 characters long (spaces, symbols, and punctuation are not allowed) in the Network Name box.

To connect ICA-100W to an Ad-hoc wireless workgroup make sure to set the same wireless channel and ESSID to match with the PC/Notebook wireless channel and ESS-ID for direct wireless communication under the Ad-hoc wireless workgroup (ad-hoc and 802.11 ad-hoc modes).

**Note :** ICA-100W ad-hoc mode supports two modes (802.11 ad-hoc mode and proprietary ad-hoc mode). Which option should be chosen depends on which ad-hoc mode is supported by your wireless card driver on the PC/ Notebook. Some driver supports both modes, however, some driver support only one of the modes. The names of each ad-hoc mode may not be consistent between each wireless card vendor therefore you may need to try each of the ad-hoc mode (802.11 mode and proprietary mode) and select the mode that can communicate with each other.

### Wireless Channel:

The pull down menu provides the wireless channel for communication. A "channel" is a range of frequencies to be used in communication between ICA-100W and Access Point in infrastructure mode or ICA-100W and PC/Notebook in Ad-hoc mode. Select the appropriate channel from the list provided depending on the regulatory region that the unit is sold. The default setting is at channel 11.

### Encryption WEP Key:

Wireless network communications are easily intercepted. WEP (Wired Equivalent Privacy) is an encryption method specified by the IEEE 802.11b standard to make any intercepted communications extremely difficult to interpret by unauthorized parties. To enable WEP Encryption, first decide which WEP key format will be applied.

Click on ASCII or HEX check box to select input format as ASCII format or HEX format, and then input WEP key. To Confirm the WEP key you must enter the data once again in the Confirm WEP Key field.

#### ASCII input format:

ASCII format causes each character 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 64-bit WEP key, input 5 ASCII characters, for example, '12345'. To setup 128-bit WEP key, input 13 ASCII characters, for example, '1234567890123'. These character counts result in bit counts of 40 and 104, respectively; ICA-100W 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 64-bit WEP key, input 10 HEX format, for example, '3132333435', this is the same with ASCII input '12345'. To setup 128-bit WEP key, input 26 HEX format, for example, '31323334353637383930313233', this is the same with ASCII input '1234567890123'. These character counts result in bit counts of 40 and 104, respectively; ICA-100W will automatically pad your input to a bit count of 64 or 128.

On the Confirm WEP Key field, input the same characters as the Encryption Code field. Make sure the Encryption Code is the same with the access point's encryption code that ICA-100W is to be connected under Infrastructure mode. Your PC/Notebook's encryption code also needs to be setup the same with ICA-100W's encryption code under either Infrastructure mode or Ad-hoc mode.

The default setting for the Encryption Key is Disable therefore, to secure the wireless transmission be sure to Enable the Encryption Key by entering the relevant data.

**Note:** Carefully input Encryption Code, any error setting will cause communication link to fail.

#### LED Control:

The LED control allows user to setup the LED illumination as desired. This feature provides the flexibility when surveillance activity is ON.

There are three options as follows:

##### Normal

Power - Steady On of the LED indicator.

LAN - Steady On of the LED indicator. When LAN activity is present the LED indicator will flash steadily.

##### OFF

Power - LED indicator is off

LAN - LED indicator is off

##### Dummy

Power - Steady On of the LED indicator.

LAN - Steady On of the LED indicator with random flashing.

The default setting for the LED control is at Normal. When you have configured the LED control the correct illumination will set in after 1 minute.



**Note:** This function is built-in to the LED indicators to add extra capabilities. The three options allow the Administrator to configure and camouflage the illumination for the LED indicator to falsify the monitoring status. In Normal Mode the LED indicator functions as normally. Under Off Mode the LED indicators are both off however, it is still monitoring the activity. In Dummy Mode the LED indicators operate in monitoring condition but monitoring activity is off or on.

### Loading ActiveX From:

This field is used to specify the location of Xplug Control (ActiveX) plug-in program. Enter the information as required in .ocx format, for example: `http://www.<your company>.com/xplug.ocx` where **<your company>** must be replaced with your company's DNS name.

### Open Second Port:

The Web Server field allows settings to open a second port for ICA-100 series. This will permit users IP Sharing Gateways to support multiple Internet Cameras. By default Port 80 is always opened for ICA-100 series Web Server access. Select

**“Yes”** and input the second port value. For example: If you have 5 Internet Cameras to be installed, each with an IP address from

192.168.0.101

192.168.0.102

192.168.0.103

192.168.0.104

192.168.0.105

You can open the second port for each Internet Camera from port 81 to Port 85 as illustrated below:

Internet Camera 1 – IP 192.168.0.101, second web port 81

Internet Camera 2 – IP 192.168.0.102, second web port 82

Internet Camera 3 – IP 192.168.0.103, second web port 83

Internet Camera 4 – IP 192.168.0.104, second web port 84

Internet Camera 5 – IP 192.168.0.105, second web port 85

You also need to setup your DSL gateway for Port Mapping.

Port 81 map to 192.168.0.101

Port 82 map to 192.168.0.102

Port 83 map to 192.168.0.103

Port 84 map to 192.168.0.104

Port 85 map to 192.168.0.105

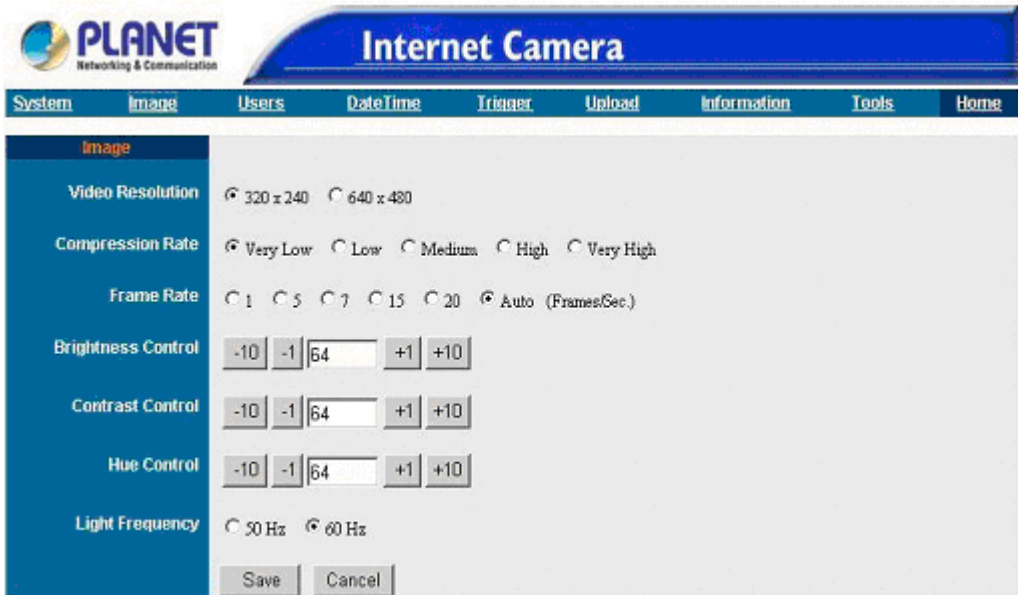
The Transfer Image field allows settings to open a second port for ICA-100 series to transfer images. The default Port 8481 is open image transfer and you can define a second port similar to the above.

### Save/Cancel:

After making sure all settings in the System are correct, click on the **“Save”** icon to store the settings for ICA-100 series. You can alternatively click on the **“Cancel”** icon to restore all settings to the values last saved to or retrieved from ICA-100 series.

## Image

Image menu in the system administration contains commands to provide the settings for the images captured by ICA-100 series. Click on “**Image**” in the system administration menu bar and the Image screen will appear as illustrated below:



**Figure 3-3: Image Screen**

### Video Resolution:

Select the desired video resolution format ranging from 320x240 (default) or 640x480.

### Compression Rate:

Select the desired compression rate with five levels from very low to very high. Higher video compression rate will generate more compact file size with less video quality and vice-versa. The default setting is at Medium.

### Frame Rate:

Select the frame rate desired with default setting at Auto for optimal frame rate.

### Brightness Control:

Adjust the brightness level with default setting at 64.

### Contrast Control:

Adjust the contrast level with default setting at 64.

### Hue Control:

Adjust the hue level with default setting at 64.

### Light Frequency:

Adjust the light frequency to suit your area of operation from the options either 50 Hz or 60 Hz (default).

**Note:** 50 Hz and 60 Hz variants are available to accommodate the different light frequency found in USA (60 Hz) and Europe (50 Hz) for ICA-100 series to ensure better image quality.

### Save/Cancel:

After making sure all settings in the Image are correct, click on the **“Save”** icon to store the settings for ICA-100 series. You can alternatively click on the **“Cancel”** icon to restore all settings to the values last saved to or retrieved from ICA-100 series.

## Users

The User options menu contains commands to allow system administrator to assign legal users who are permitted to monitor ICA-100 series from the remote site. Click on **“Users”** in the system administration menu bar and the Users screen will appear as illustrated below:

Figure 3-4: Users Screen

### Add User:

#### User Name:

Enter the user name in this field. A maximum of 64 users names are allowed, however each users name must be different. Each user name can be used as a group given the password for example, if the User Name is “Guest” and the User Password is “Guest” anyone can access ICA-100 series with these details used as a group of users under the User Name Guest. The maximum length for the User Name is 12 (Printable ASCII).

#### User Password:

Enter the user’s password assigned by the administrator. The maximum password length is 8 (Printable ASCII).

#### I/O Output Control:

Administrator has the authority to give permission for the privilege to control the I/O Output Control to user’s by selecting **“Yes”** or **“No”** to activate the I/O Output control.

To add a new users name input the necessary information first and click on the **“Add”** icon.

### Delete User:

Select the user you wish to delete from the pull down menu and click on the **“delete”** icon.

**Note:** Once administrator has configured ICA-100 series **Users**, any user will be required to enter a login password to access the video image of ICA-100 series. The password dialog box is illustrated below.



Figure 3-5: User Login Screen

## DateTime

The DateTime menu contains commands for setting ICA-100 series' time and date requirements to provide correct information to users who might be thousands of miles away in the remote site. There are two options to select from the DateTime menu bar either Synchronized with Time Server or Set Manually. Click on **“DateTime”** in the system administration menu bar and the DateTime screen will appear as illustrated below:



Figure 3-6: DateTime Screen

### DateTime:

Select **“Synchronized with Time Server”** and the time will be based on GMT setting. The time will be synchronized every 10 minutes. This is also the default setting for ICA-100 series.

### IP Address:

Enter the IP Address of the Time Server in this field.

**Note:** Please find below NTP server web address for your reference to set the time server.

<http://www.eecis.udel.edu/~mills/ntp/clock1.htm>

<http://www.eecis.udel.edu/~mills/ntp/clock2.htm>

### **Protocol:**

Two options of NTP or Time are available for your selection to link with the Time Server. The default setting is NTP.

### **TimeZone:**

System administrator must select the time zone for the region. *Please refer to the appendix for the time zone selection table.*

To set the Date Time manually select **“Set Manually”** and system administrator must enter the Date and Time in the respective field manually.

**Note:** When you select Set Manually, each time ICA-100 series is powered off and on you must re-enter the details once again due to time lost.

### **Save/Cancel:**

After making sure all settings in the DateTime are correct, click on the **“Save”** icon to store the settings for ICA-100 series. You can alternatively click on the **“Cancel”** icon to restore all settings to the values last saved to or retrieved from ICA-100 series.

## **Trigger**

The Trigger menu contains commands for the I/O Trigger connectors providing the physical interface for 2 digital output and 2 digital input that is used for connecting a diversity of external alarm devices to ICA-100 series such as IR-Sensor and alarm relay. Click on **“Trigger”** in the system administration menu bar and the Trigger screen will appear as illustrated below:

**Trigger**

**I/O Input 1 Trigger**

Send e-mail attached with image

SMTP Server Address :

Sender e-mail Address :

Receiver e-mail Address :

Sending Interval :  Seconds

Sending Times :

Trigger I/O Output

Output 1 Time :  Seconds

Output 2 Time :  Seconds

**I/O Input 2 Trigger**

Send e-mail attached with image

SMTP Server Address :

Sender e-mail Address :

Receiver e-mail Address :

Sending Interval :  Seconds

Sending Times :

Trigger I/O Output

Output 1 Time :  Seconds

Output 2 Time :  Seconds

**Figure 3-7: Trigger Screen**

The default setting for the I/O Trigger functions are disabled. You must enable the I/O Trigger first before the Triggers will perform. There are two options to select from the Trigger screen **I/O Input 1 Trigger** and **I/O Input 2 Trigger**.

#### **I/O Input 1 Trigger:**

Select “**Send e-mail attached with image**” and enter the relevant information such as the SMTP Server Address, Sender e-mail Address, Receiver e-mail Address, Sending Interval and Sending Times.

#### **SMTP Server Address**

SMTP(Simple Mail Transfer Protocol) is a protocol for sending e-mail messages between servers. The mail server address must be filled in this field. If the SMTP server needs authentication, ICA-100 series will use Admin ID and Admin Password entered in System page as login account and password.

#### **Sender e-mail Address**

The e-mail address of who will be sending the e-mail.

#### **Receiver e-mail**

The e-mail address of the person whom will receive the e-mail.

#### **Sending Interval**

The period of time between each email being sent to the receiver. If the setting is at 10 seconds, a new e-mail will be sent in 10 seconds interval to the receiver.

### **Sending Time**

The number of times the e-mail will be sent to the receiver before it terminates.

Select **“Trigger I/O Output”** and enter the setting for Output 1 time and Output 2 time in seconds. These fields determine the duration for activating the external output devices.

**I/O Input 2 Trigger** setting procedures are same as above.

### **Save/Cancel:**

After making sure all settings in the System are correct, click on the **“Save”** icon to store the settings for ICA-100 series. You can alternatively click on the **“Cancel”** icon to restore all settings to the values last saved to or retrieved from ICA-100 series.

*Please refer to the appendix for detailed information regarding the I/O Connector.*

### **Warning**

When connecting other devices through the I/O connectors, please make sure the maximum current of 100mA is strictly observed. Any failure to do so might cause a loss of power to ICA-100 series and possibly cause serious damage to ICA-100 series.

## **Upload**

The Upload menu contains commands for setting ICA-100 series to upload images to a specified FTP server, time scheduling, and manual operation. Click on **“Upload”** in the system administration menu bar and the Upload screen will appear as illustrated below:

**Note:** Before using the Upload function, please ensure the User account used has “write” permission of the FTP server or the specified folder.

Upload

<b>FTP Server</b>	Host Address : <input style="width: 90%;" type="text"/> Port Number : <input style="width: 50%;" type="text"/> (Default is 21) User Name : <input style="width: 90%;" type="text"/> Password : <input style="width: 90%;" type="password"/> Directory Path : <input style="width: 90%;" type="text"/> Passive Mode : <input type="radio"/> Yes <input checked="" type="radio"/> No
<b>Time Schedule</b>	<input type="checkbox"/> Upload image to FTP server <div style="border: 1px solid #ccc; padding: 5px;"> <input checked="" type="radio"/> Always  <input type="radio"/> Schedule            Day : <input type="checkbox"/> Mon <input type="checkbox"/> Tue <input type="checkbox"/> Wed <input type="checkbox"/> Thu <input type="checkbox"/> Fri <input type="checkbox"/> Sat <input type="checkbox"/> Sun            Time Period : Start : <input style="width: 50%;" type="text"/> (hh:mm:ss)                            Stop : <input style="width: 50%;" type="text"/> (hh:mm:ss)         </div> Image Frequency : <input checked="" type="radio"/> <input style="width: 50px;" type="text"/> Frames/Second <input type="radio"/> <input style="width: 50px;" type="text"/> Seconds/Frame Base File Name : <input style="width: 90%;" type="text"/> File : <input checked="" type="radio"/> Overwrite <input type="radio"/> Date/Time Suffix <input type="radio"/> Sequence Number Suffix Up to <input style="width: 50px;" type="text"/>
<b>Manual Operation</b>	<input type="checkbox"/> Upload image to FTP server Base File Name : <input style="width: 90%;" type="text"/> File : <input checked="" type="radio"/> Overwrite <input type="radio"/> Date/Time Suffix <input type="radio"/> Sequence Number Suffix Up to <input style="width: 50px;" type="text"/>
<input type="button" value="Save"/> <input type="button" value="Cancel"/>	

**Figure 3-8: Upload Screen**

### FTP Server:

#### Host Address:

Enter the IP address of target FTP server.

#### Port Number:

Most of the FTP servers using port 21. If the target FTP server uses specific port, please ask the FTP server administrator to provide the information.

#### User Name:

Enter the user name used to login FTP server in this field.

#### Password:

Enter the password used to login FTP server in this field.

#### Directory Path:



Enter a folder name which already exists in FTP server, then the images will be uploaded to the given folder.

#### Passive Mode:

Some FTP servers use passive mode. Please confirm this with the FTP server administrator.

#### Time Schedule:

Enable “**Upload image to FTP server**” and enter the appropriate information such as the schedule, image frequency and base file name.

#### Schedule:

Select **Always** option, ICA-100 series will try to connect the FTP server and start uploading right after the configuration saved.

Select **Schedule** option to manage the uploading task. Input the desired Day and Time Period parameters in corresponding fields.

#### Image Frequency:

Here provides two ways to set the image frequency:

Set Auto/1/2/3 frames per second, or

Set the interval of two sequential frames in seconds.

#### Base File Name:

Enter the file name for the uploaded image.

#### File:

Choose **Overwrite** option, then every time you upload the image to FTP server, it will use the same file name and overwrite the previous one. There will be only one image stored in FTP server.

Choose **Date/Time Suffix** option, and the full file name of the image will be “Base File Name+ Date+ Time”.

Choose **Sequence Number Suffix Up to** option, and the full file name of the image will be “Base File Name+ Sequence Number”. For example, if you enter “3” in this option, Internet Camera will create three files named BaseName1, BaseName2, BaseName3 in FTP server. The fourth file will use file name of BaseName1 and the previous file with the same name will be overwritten.

#### Manual Operation:

Enable this option, then every time you click the Image Upload “ON” button on **View Image- ActiveX Mode** or **View Image- Java Mode** web pages, Internet Camera will start to upload the image. The setting of the uploaded file name please refer to **Base File Name** and **File** above.

#### Save/Cancel:

After all the changes are done, click on the **Save** button to store the settings, and it will take effect immediately. Or click **Cancel** to discard all the changes.

## Information

The Information menu contains commands for displaying information about ICA-100 series. Click on “**Information**” in the system administration menu bar and the Information screen will appear as illustrated below:



**Figure 3-9: Information Screen**

The Information table provides detailed information of ICA-100 series such as the Model Name, Firmware Version, Mac Address, and IP Address.

## Tools

The Tools menu contains commands for restarting ICA-100 series. Click on “**Tools**” in the system administration menu bar and the Tools screen will appear as illustrated below:



**Figure 3-10: Tools Screen**

### Reset:

The Reset command restarts ICA-100 series just like turning the device off and on and saved settings are retained. The Reset panel contains the message “Do you really want to reset this device?” and a YES button. If you do not want to reset ICA-100 series, exit the panel without clicking YES, otherwise, click on the “**YES**” icon and the reset process will initiate.

### Factory Reset:

A factory reset restarts ICA-100 series and returns all of its settings to their default values. The Factory Reset panel contains the message “Do you really want to factory reset this device?” and a YES button. If you do not want to carry out a factory reset command, exit the panel without clicking YES, otherwise click on the “**YES**” icon and factory reset will be initiated.

**Note:** The Network must be reconfigured after a Factory Reset. Once the configuration is completed click on “**Home**” to return to the Welcome screen and select the desired Viewing Image either through ActiveX Mode or Java Mode as described in the next section. Then position ICA-100 series to the desired location appropriately for your purpose. Followed by adjustment of ICA-100 series focus, done

manually by turning the lens clockwise or anti-clockwise to the desire image quality. Please refer to the appendix for detailed information regarding Adjust Internet Camera Focus and Replacing the Lens.

## View Image- ActiveX Mode

Before using ActiveX mode to view image, the Xplug Control (ActiveX) plug-in program must install into the PC/Notebook first. Please refer to the appendix for detailed information regarding Installation of Xplug Control (ActiveX) into your PC/Notebook or Web Server.

To view video images from the browser, click on “View Image – ActiveX Mode” from the Home page to access the video images from Internet Explorer as illustrated below:

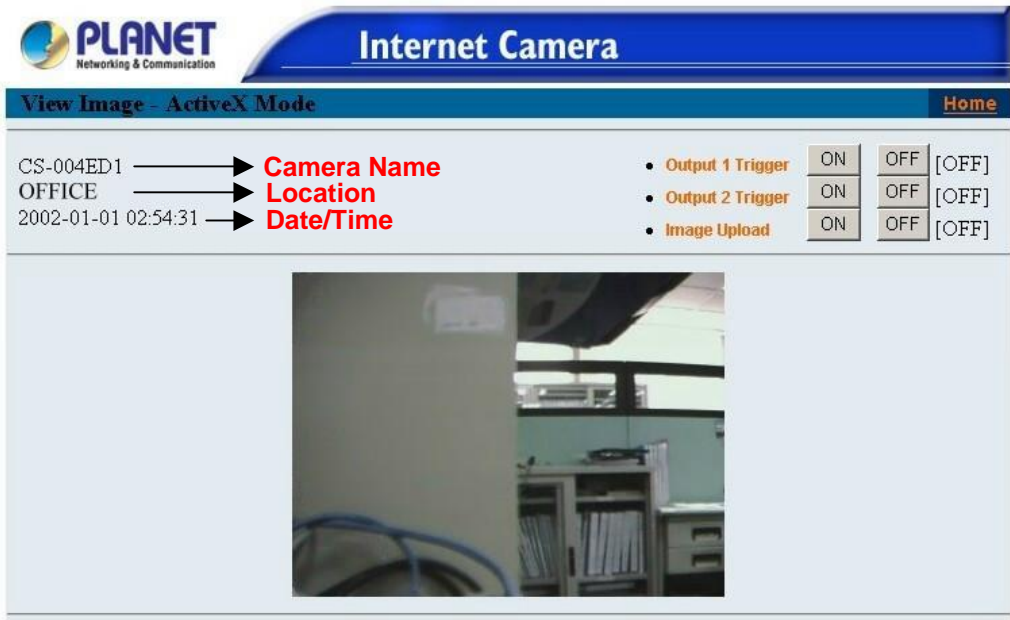


Figure 3-11: View Image- ActiveX Mode

### Camera Name

The Camera name will be display when the Camera Name field is entered in the Web Configuration setting under “System”

### Location

The location of ICA-100 series will be displayed when the Location field is entered in the Web Configuration settings under “System”.

### Date/ Time

It indicates current date and time.

**Note:** Please refer to the appendix on how to install ActiveX.

1. Install to the Web Server
2. Install to your Local PC

In the View Image – ActiveX Mode you are allowed two output trigger options. Click on the “ON” button can activate the external device immediately. Click on the “OFF” button can deactivate it.

The explanation of Image Upload button please refers to **Upload** web page of **System**

## Administration.

### View Image- Java Mode

Click on “**View Image – Java Mode**” from the Welcome screen to access the video images from the Internet Explorer or Netscape browser as illustrated below:

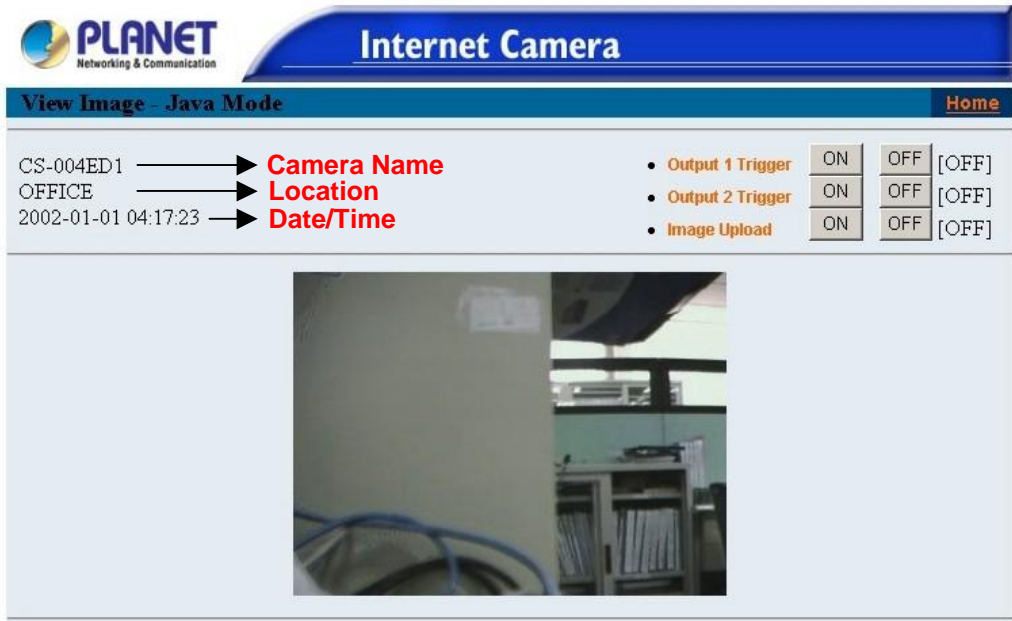


Figure 3-12: View Image- Java Mode

#### Camera Name

The Camera name will be display when the Camera Name field is entered in the Web Configuration setting under “**System**”

#### Location

The location of ICA-100 series will be displayed when the Location field is entered in the Web Configuration settings under “**System**”.

#### Date/ Time

It indicates current date and time.

**Note:** Please refer to the appendix on how to install ActiveX.

1. Install to the Web Server
2. Install to your Local PC

In the View Image – Java Mode you are allowed two output trigger options. Click on the “**ON**” button can activate the external device immediately. Click on the “**OFF**” button can deactivate it.

The explanation of Image Upload button please refers to **Upload** web page of **System Administration**.

# Chapter 4

## IPView Installation

# 4

*This Chapter details the installation procedure of IPView utility.*

### Install Procedure

#### STEP 1

Insert the CD-ROM into the CD-ROM drive to initiate the autorun program. Once completed a menu screen will appear as follows:



**Figure 4-1: Menu Screen**

#### STEP 2

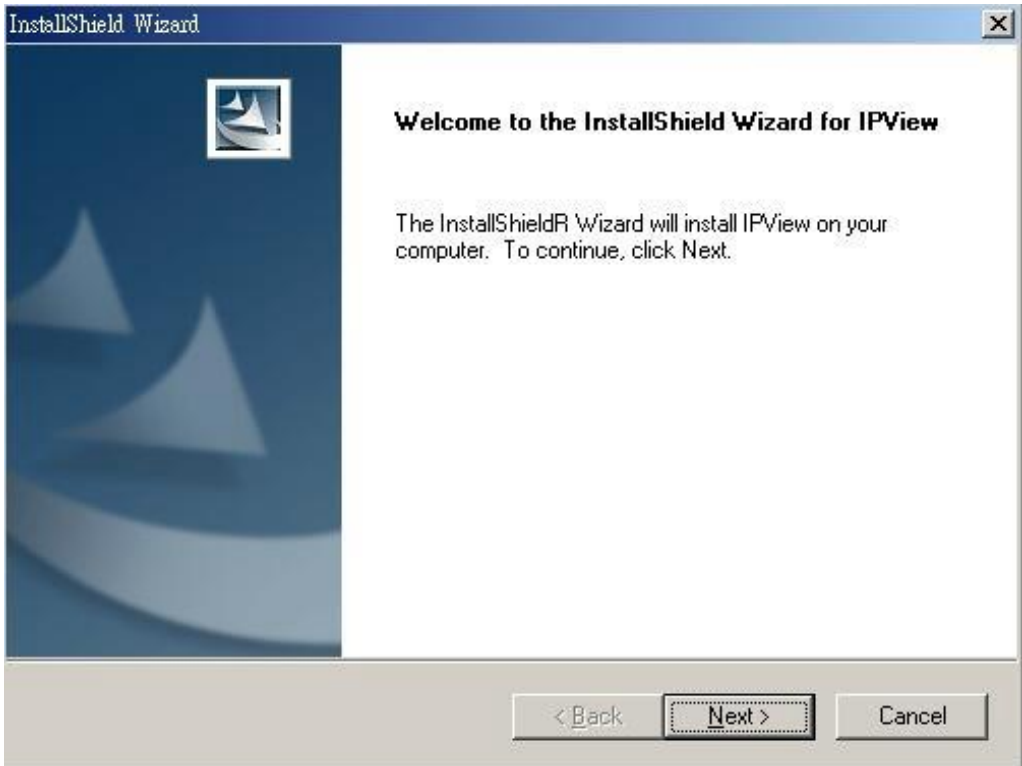
To install the IPView Application click on the "**IPView**" hyperlink to activate the installation procedure for the application program.

If the above screen is not shown, you can start the installation as follows.

1. Click on **Start Menu/ Run**.
2. Enter "D:\IPView\ipviewsetup.exe" in the appeared box, where "D" is the letter of your CD-ROM drive.
3. Click on "**OK**" button.

#### STEP 3

The Welcome screen will appear. Click on the "**Next**" button to proceed with the installation.



**Figure 4-2: Welcome Screen**

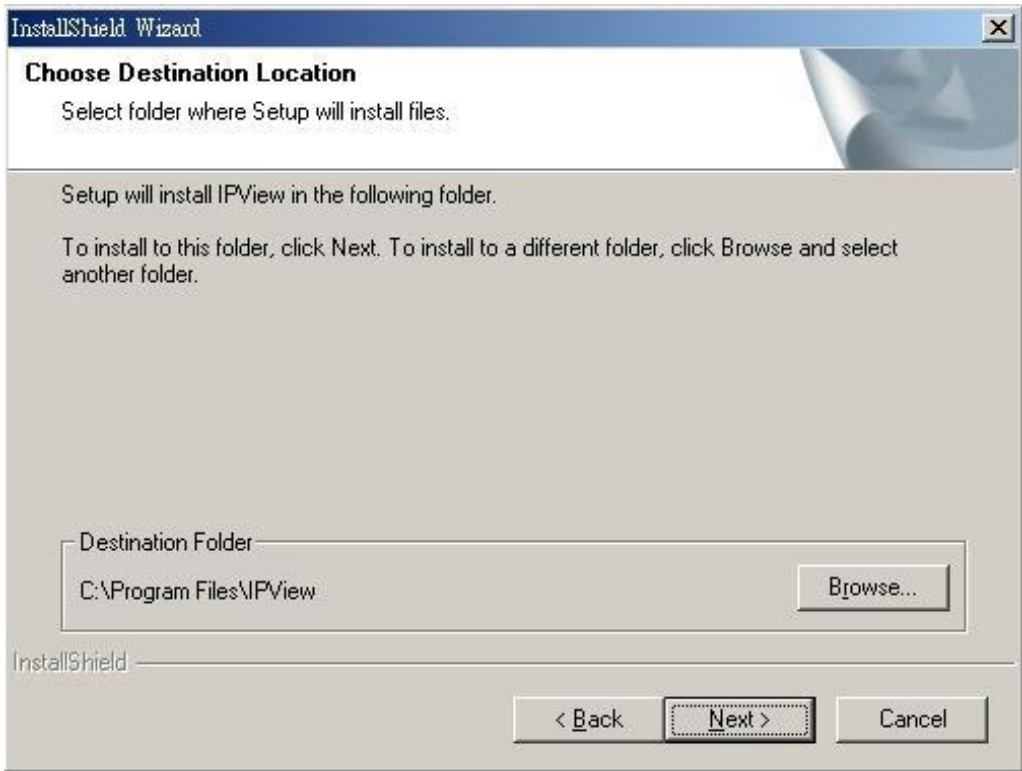
#### STEP 4

The License Agreement prompt will appear as below. Read the details carefully and click on the “**Yes**” icon to continue with the installation procedure.



**Figure 4-3: License Agreement****STEP 5**

A prompt will appear and in the Destination Location dialog box, you may click on **“Next”** to accept the recommended destination location or click on **“Browse”** to select another location. After specifying the desired destination location, click on **“Next”** to proceed further.

**Figure 4-4: Destination Location****STEP 6**

The Select Program Folder prompt will appear providing information of where the IPView application will be located, click on **“Next”** to continue. Click on **“Back”** can return to the previous screens.



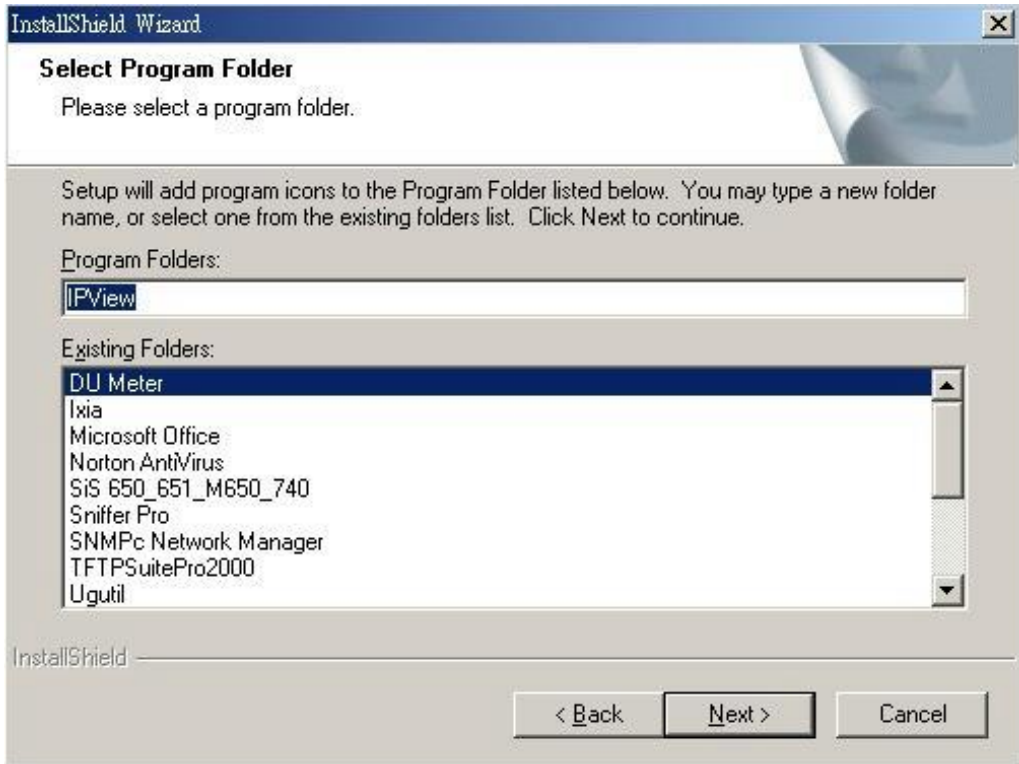


Figure 4-5: Select Program Folder

#### STEP 7

Please wait until Figure 4-7 or Figure 4-8 appears. Select “Yes, I want to restart my computer now” and click on the “**Finish**” icon to restart the computer in Figure 4-7. If Figure 4-8 appears, click on the “**Finish**” icon to complete the installation procedure.



Figure 4-6: Finish Screen



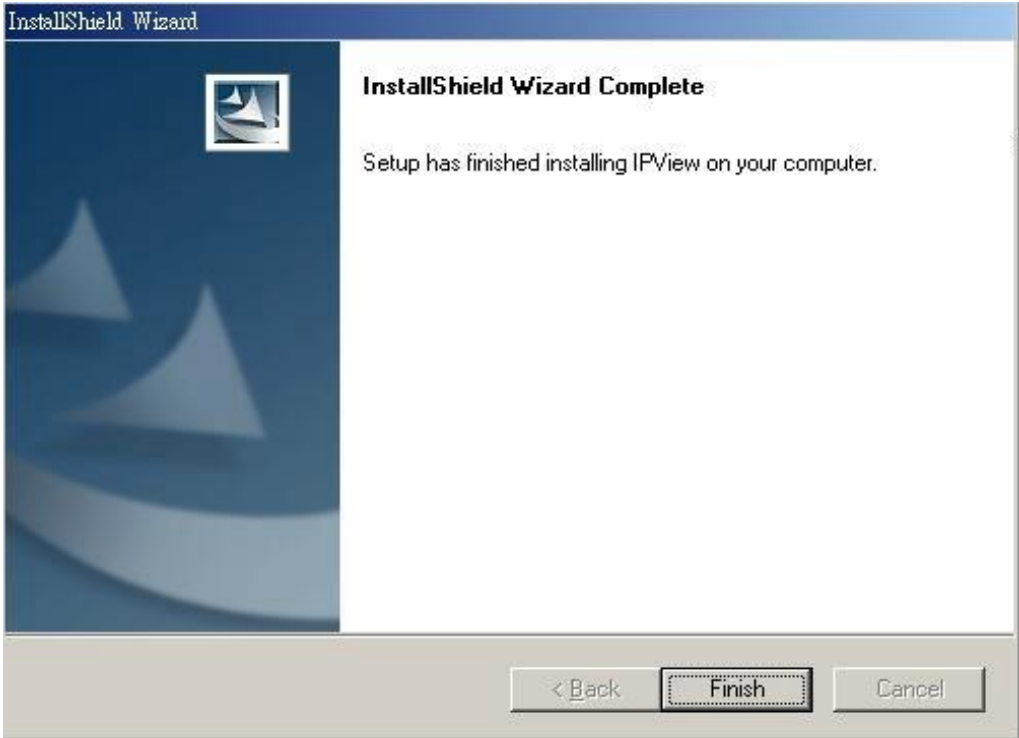


Figure 4-7: Finish Screen

## Launch IPView

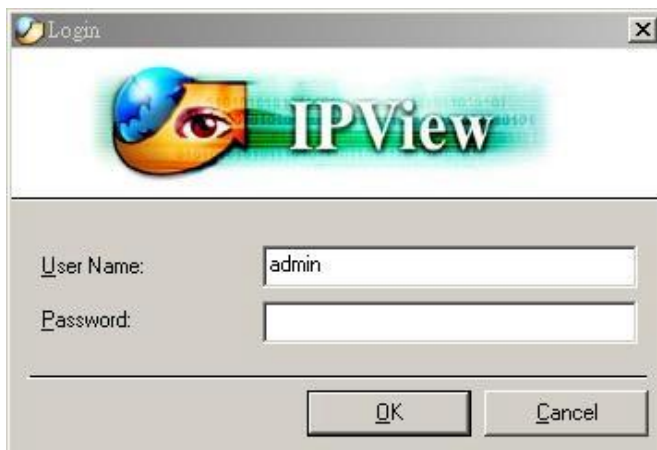
After successfully installing the IPView, the application program is automatically installed to \Program Files\IPView.

Click on **Start Menu/Programs/IPView/IPView** to launch the program.



**Figure 4-8: IPView Path**

Once IPView is executed, a Login dialog box will appear, you must enter the default User Name: **admin** into the respective field and click on “**OK**” to log into the application.



**Figure 4-9: IPView Login Dialog Box**



# Chapter 5

## Use of IPView

# 5

*This chapter describes operation of the IPView application interface with detailed procedures for using the application.*

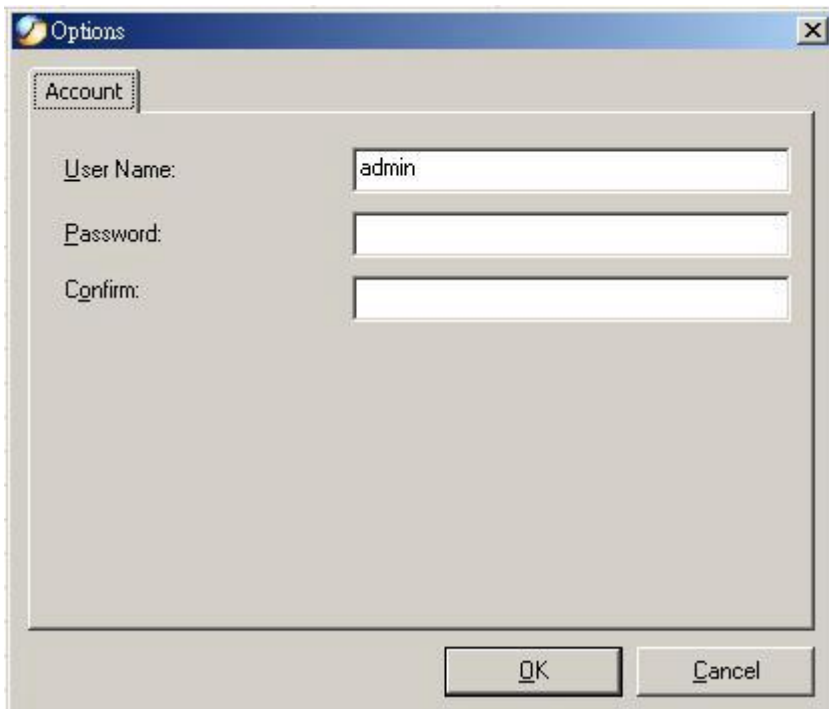
### Overview

IPView is responsible for the management of preview, configuration, and searching of each camera. It is designed with a user-friendly interface for ease of control and navigation requirements as illustrated below.

### Security

When IPView is used for the first time it is highly recommended to change the **User Name** and **Password** by the Administrator to constrain users access to the IPView application. This procedure should be done as soon as possible to prevent unauthorized usage of IPView application.

To change the **User Name** and **Password**, select **“Tools” > “Options”**. The **Options** dialog box will appear as illustrated below.



**Figure 5-1: Option Screen**

The administrator needs to enter a **User Name**, **Password** and **Confirm** password into the respective fields. Once all the new details are entered click on the **“OK”** icon. Make sure to save any changes you have made to keep the information updated.

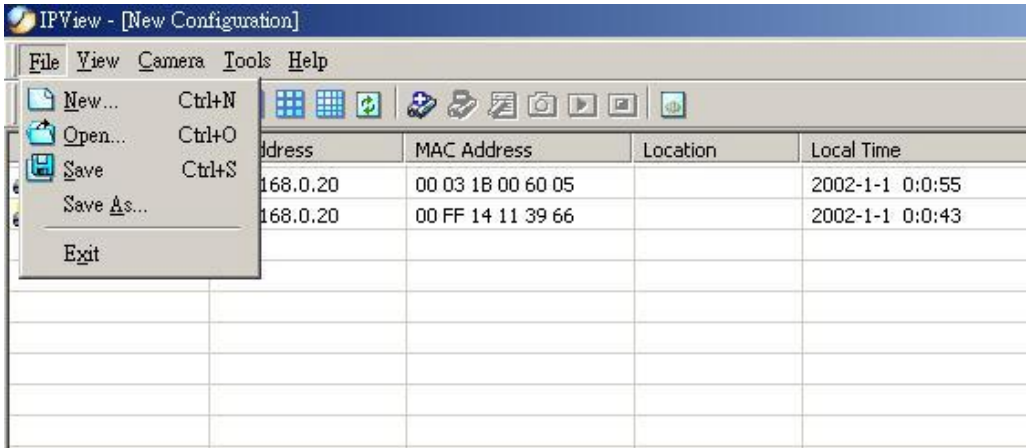
**Note:** Alternatively you can click the **Options** icon  as illustrated or use the hot key “F10”.

## Menu Bar

The menu bar provides easier access for users to navigate the IPView with different selections along with hot key capabilities as follows:

### File

“**File**” on the menu bar provides “**New**”, “**Open**”, “**Save**”, “**Save As**” and “**Exit**” for users to create new files, open existing files, save files, and exit the IPView as depicted below.



**Figure 5-2: File Screen**

### View

“**View**” on the menu bar provide users with management capabilities for “**Columns**”, “**List**”, “**Camera**” and “**Refresh**”. You can view **Camera** in “**1 Camera**”, “**4 Cameras**”, “**9 Cameras**”, “**16 Cameras**”. The “**View**” menu bar is pictured below.

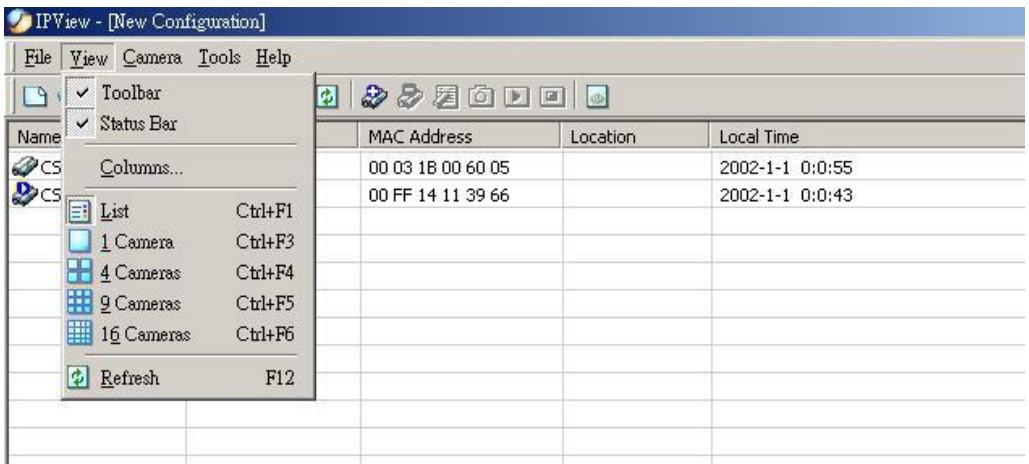


Figure 5-3: View Screen

## Camera

“**Camera**” on the menu bar provides options to manage the camera. One can “**Add**” additional Camera with a maximum of 16 Camera allowed for viewing. Through the management function one can “**Delete**” a camera, manage the “**Property**”, “**Enable**” for real time and take a “**Snap shot**” image. The menu bar is illustrated below:

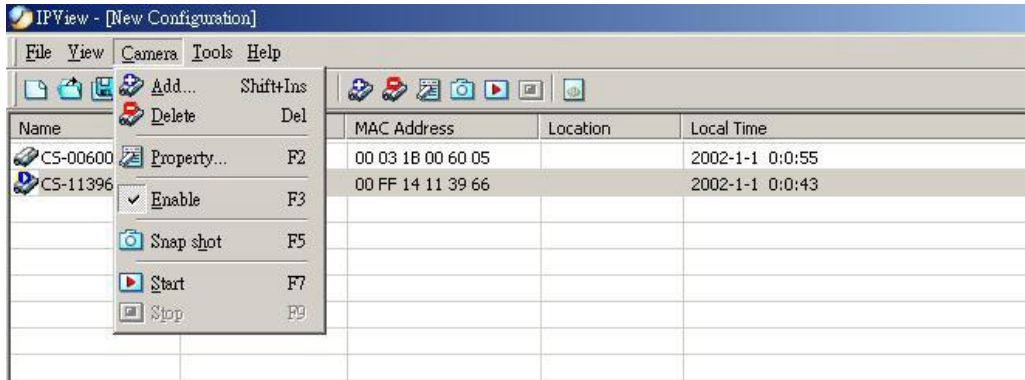


Figure 5-4: Camera Screen

By default the video image is enabled. There will be a “**check**” next to the **Enable** command to show that the Enable function is working. To disable real-time image select “**Camera**” > “**Enable**” and real-time video image will stop and shutdown. Once you select “**Motion Active Mode**” of a specific camera, the “**Enable Motion**” option will add to the drop-down list as below.

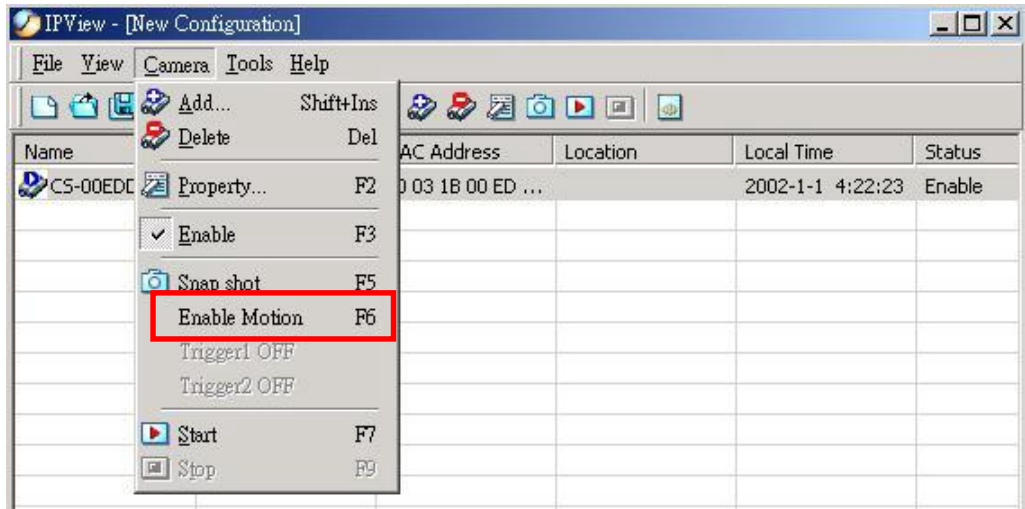


Figure 5-5: Camera Screen in Motion Active Mode

## Tools

“**Tools**” on the menu bar allows administrator management of the security settings such as User Name and Password to gain access into the IPView application. From

the menu bar select **"Tools" > "Options"** and a dialog box will appear. Administrator can change the User Name and Password for security settings to access the application.

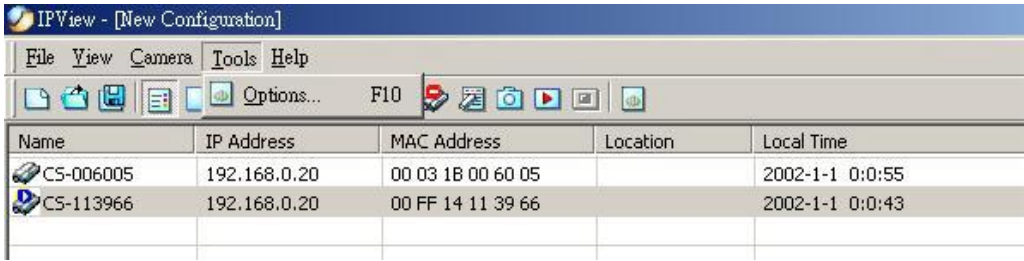


Figure 5-5: Tools Screen

## Help

**"Help"** on the menu bar provides **"Contents"** and **"About"** to assist users how to operate the camera in HTML format. From the menu bar select **"Help"** and can choose either **"Contents"** or **"About"** as depicted below:

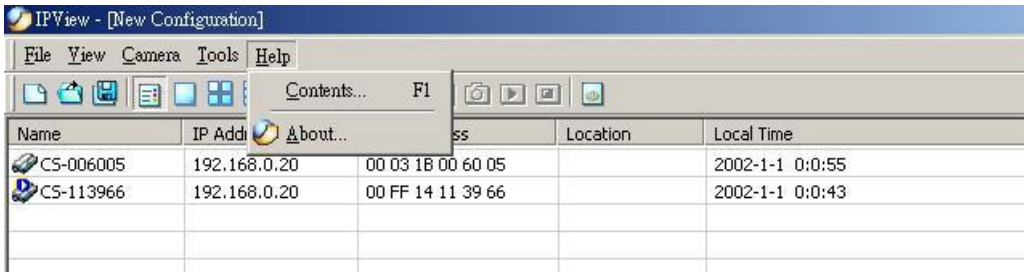


Figure 5-6: Help Screen

## Add Camera


Select **"Camera" > "Add"** on status bar or choose  from toolbar or use the hot-key "Shift + Ins". An **Add Camera** dialog box will appear as illustrated below.



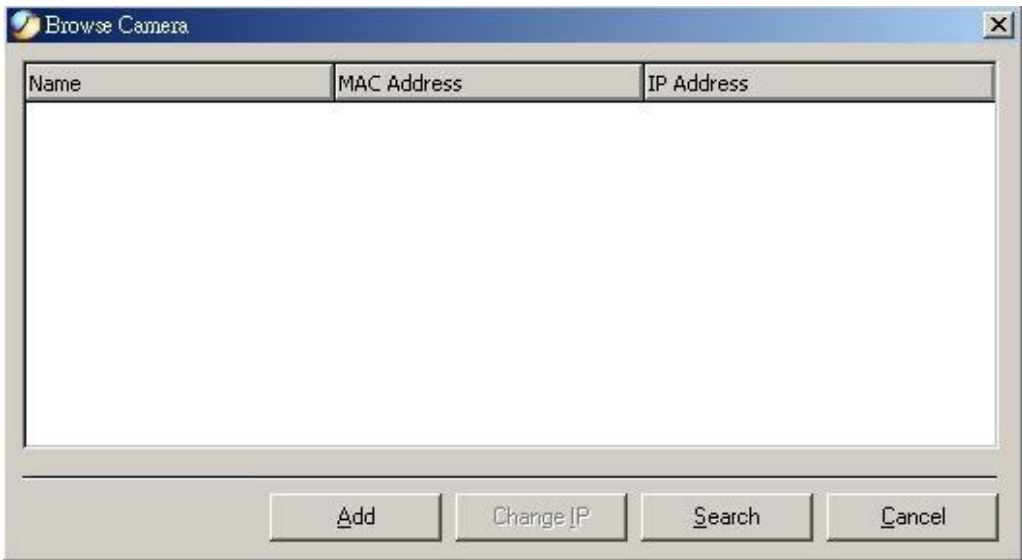
Figure 5-7: Add Camera Screen

You can enter the IP Address of the camera in the specified field and click the **"Add"** icon to add a new camera. If the IP Address is entered incorrectly a dialog box will appear to notify the error. If ICA-100 series are installed on Internet and have real IP addresses, they can only be added by entering correct IP address.



**Figure 5-8: Warning Message**

If you are unsure of the IP Address of the camera you can click on the **“Browse”** icon, the **Browse Camera** dialog box will appear with a blank screen as illustrated below.



**Figure 5-9: Browse Camera Screen**

Click on the **“Search”** icon and IPView will detect and search all the available camera's that are installed on the local area network as depicted below:



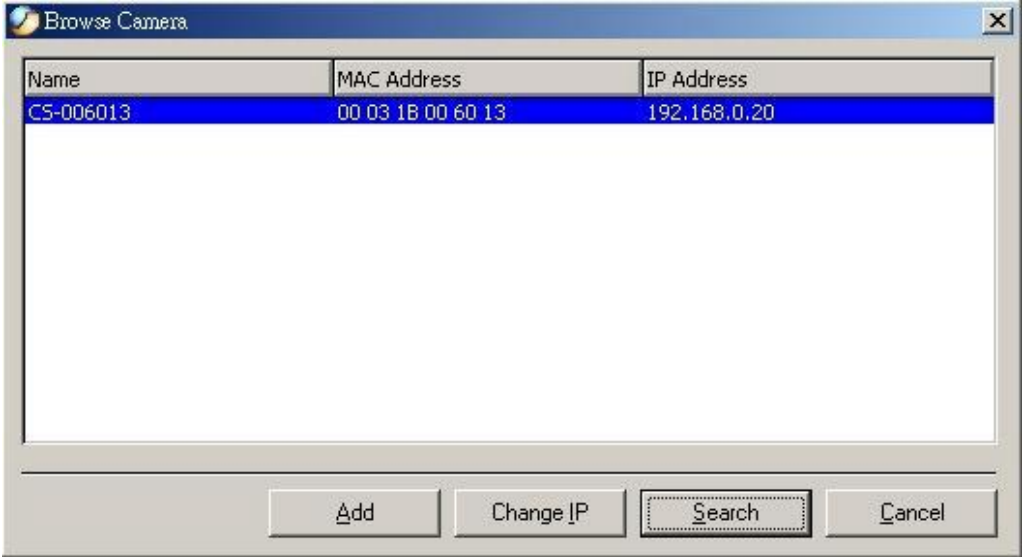


Figure 5-10: Search for Camera

Select the camera want to add and click on the “Add” icon. The **Add Camera** dialog box will appear again with the IP Address entered. Click on the “Add” icon and the camera will be automatically added into IPView list view format. Alternatively you can double click on the camera and the **Add Camera** dialog box will appear again with the IP Address entered. Click on the “Add” icon and the camera will be automatically added into IPView list view format.

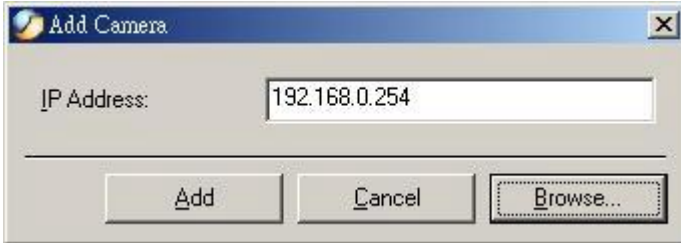


Figure 5-11: Enter Camera IP


If administrator has set the User Name and Password to ICA-100 series during configuration, a dialog box below will appear.







Figure 5-12: Login Camera

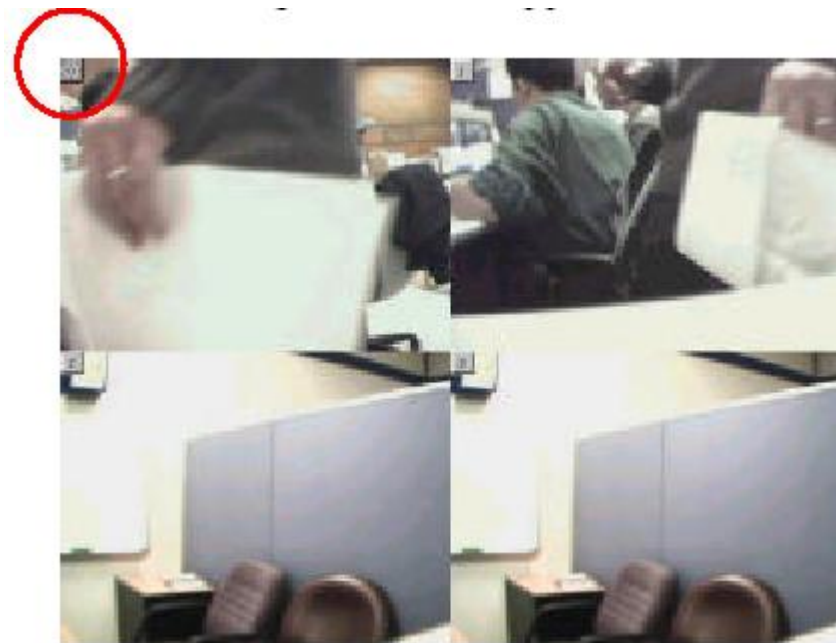
Enter the correct User Name and Password to add camera in the list. Please note that only one camera can be added at a time.

## Delete Camera

Select the camera wants to delete from IPView list view format. From the menu bar select **“Camera”** > **“Delete”** or click  from toolbar or use hot-key **“Del”**. A **Delete Camera** dialog box will appear and click on the **“Yes”** icon to delete the camera or click on **“No”** if you do not want to delete the camera.

## View Images

From the menu bar select **“View”** > **“4 Cameras”** (other choices are available with **1 Camera**, **9 Cameras** and **16 Cameras** viewing format) and the viewing screen will appear with the video image. Alternatively you can click the **1 Camera** icon as illustrated  or use the hot key **“Ctrl+F3”**. For **4 Cameras** , **9 Cameras**  and **16 Cameras**  click the respective icon or use the hot key as follows **“Ctrl+F4”**, **“Ctrl+F5”** and **“Ctrl+F6”**. To return to list view format use the hot key **“Ctrl+F1”**.




**Figure 5-13: 4 Cameras View**


The icon on the upper left corner of each partition indicates the sequence number of each camera on the IPView list.

To return to the IPView list view format, right click on the icon located on the upper left corner of the screen and a menu will appear. Select **“List”** and the viewing image will return to the list view format.


## Snap Shot

To snap shot a single image, highlight the camera you wish to snap shot from the list view format. Select “**Camera**” > “**Snap shot**” from menu bar or click  from toolbar or use the hot-key “F5”. A **Save Image** dialog box will appear for specifying the path of snap shot picture. Or from the viewing mode either 1, 4, 9, 16 cameras right click on the icon located on the upper left corner of the screen and a menu will appear and select the “**Snap shot**” icon. A **Save Image** dialog box will appear for specifying the path of snap shot picture.


## Record Images

Choose a camera first, from the menu bar select “**Camera**” > “**Start**” or click  from toolbar or use the hot-key “F7”. The recorded file will be saved as AVI format. Video recording can also be activated from the viewing mode either 1, 4, 9, 16 cameras right click on the icon located on the upper left corner of the screen and a menu will appear. Select the “**Start**” icon. If you want to specify the path of the recording file saved, please refer to Property section.

To stop recording a camera, you must select the camera from list view format first.

From the menu bar select “**Camera**” > “**Stop**” or click  from toolbar or use the hot-key “F9”. The recording function will be stopped. The alternative way is from the viewing mode either 1, 4, 9, 16 cameras right click on the icon located on the upper left corner of the screen and a menu will appear. Select the “**Stop**” icon. The recording function will be stopped.

## Property

“**Property**” option can use to configure the settings of ICA-100 series. Select a camera from list view format, then select “**Camera**” > “**Property**” from menu bar or click  from toolbar or use the hot-key “F2”. Then Camera Property dialog box will appear allowing to configure the chosen camera.

**Note:** Make sure to click the “Apply” button to save changes you have made to keep the information updated.

## General

It allows settings for the camera name, location and administrator information such as administrator ID and password. Please refer to Chapter 3 Configuration → System Administration → System section for further details.

The screenshot shows a Windows-style dialog box titled "Camera Property". It has a blue title bar with a close button (X) in the top right corner. Below the title bar is a tabbed interface with four main tabs: "Trigger 2", "Information", "Tools", and "Recording". Under the "Information" tab, there are sub-tabs: "General", "IP Assignment", "DNS", "Wireless", "Misc", "Image", "User", "Date/Time", and "Trigger 1". The "General" sub-tab is currently selected. The main area of the dialog contains several input fields: "Camera Name:" with the value "CS-006005", "Location:" (empty), and an "Administrator" section containing "Admin ID:", "Admin Password:", and "Password Confirm:" (all empty). At the bottom of the dialog are three buttons: "OK", "Cancel", and "Apply".

Figure 5-14: General Screen

## IP Assignment

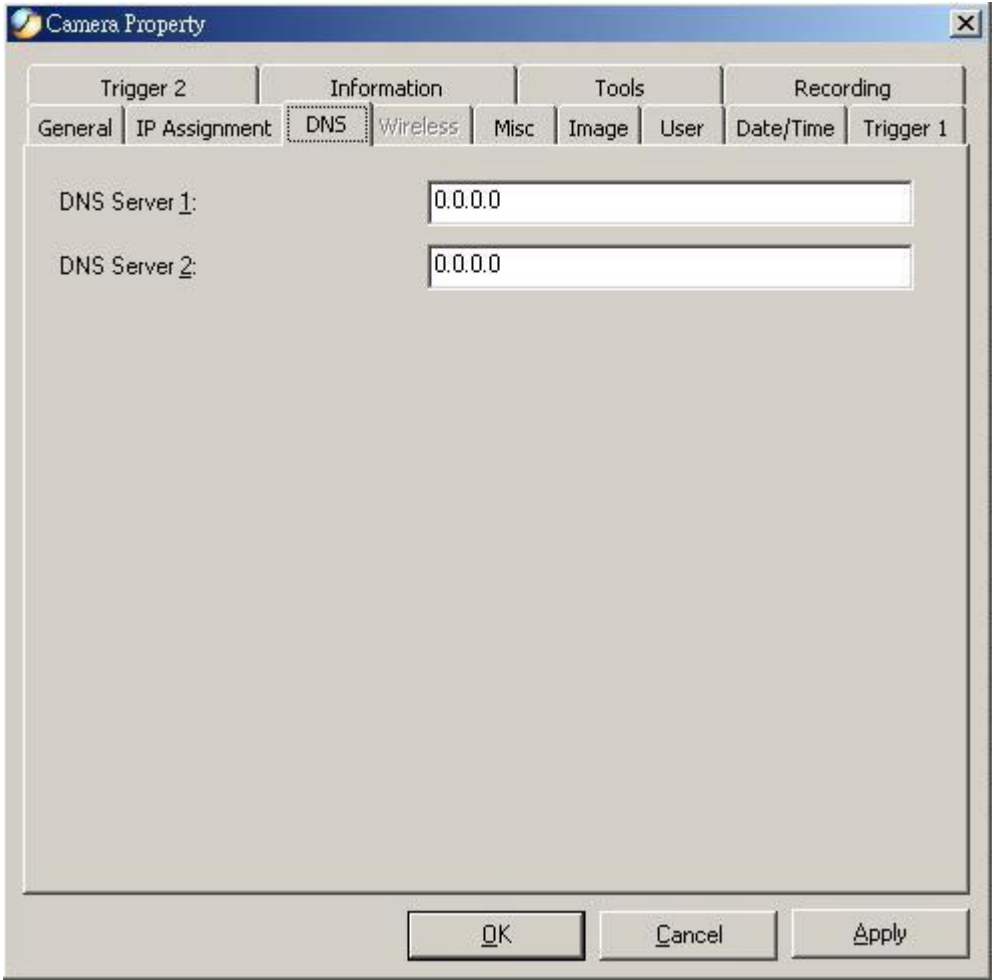
There are two options to select from the IP Assignment either **Manually Assign** or **Assign Automatically Using**. Please refer to Chapter 3 Configuration à System Administration à System section for further details.

The screenshot shows the 'Camera Property' dialog box with the 'IP Assignment' tab selected. The 'Manually Assign' radio button is chosen. The IP Address field is set to 192.168.0.20, the Subnet Mask to 255.255.255.0, and the Default Gateway to 192.168.0.1. The 'Automatic Assign' section is unselected, showing options for BARP, BOOTP, DHCP, and PPPoE. The Service Name, User ID, and Password fields are empty. The dialog has OK, Cancel, and Apply buttons at the bottom.

**Figure 5-15: IP Assignment Screen**

## DNS

DNS (Domain Name System) server is an Internet service that translates domain names into IP addresses. Enter at least one DNS IP Address. Please refer to Chapter 3 Configuration à System Administration à System section for further details.

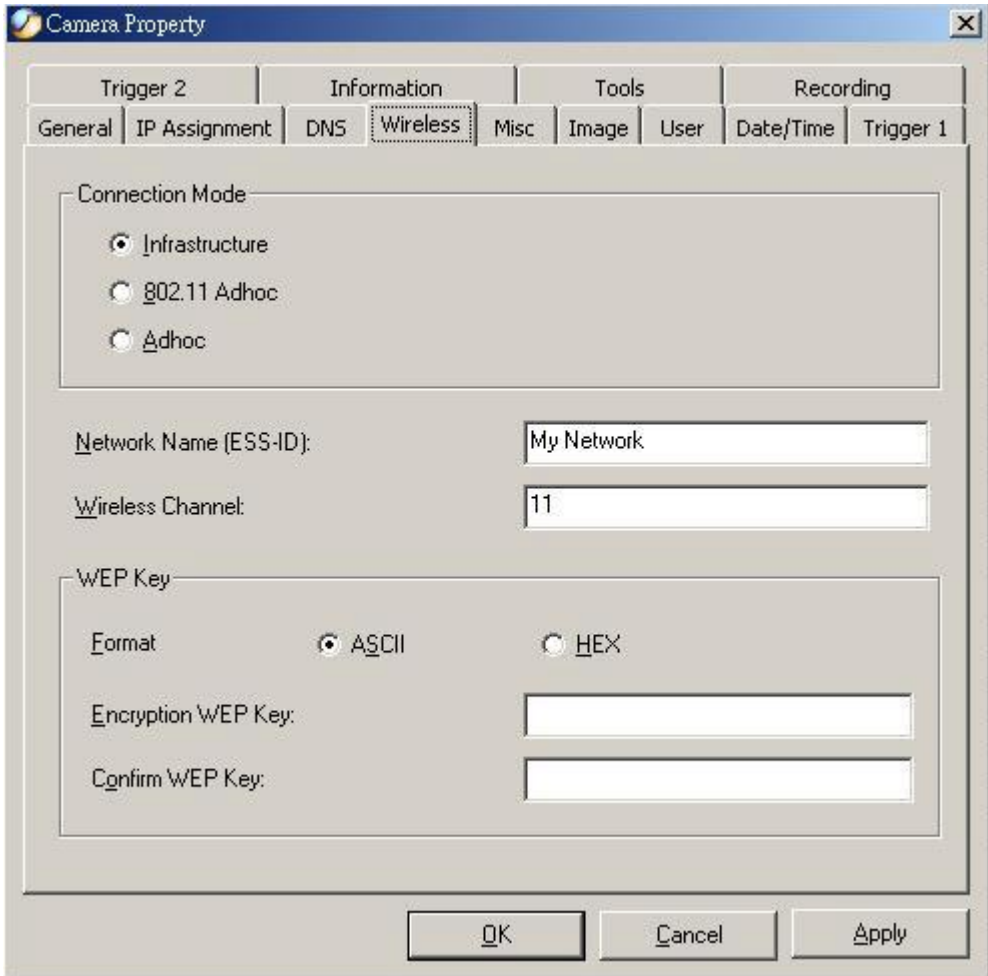


**Figure 5-16: DNS Screen**

## Wireless

(Please skip this section if your camera is not wireless.)

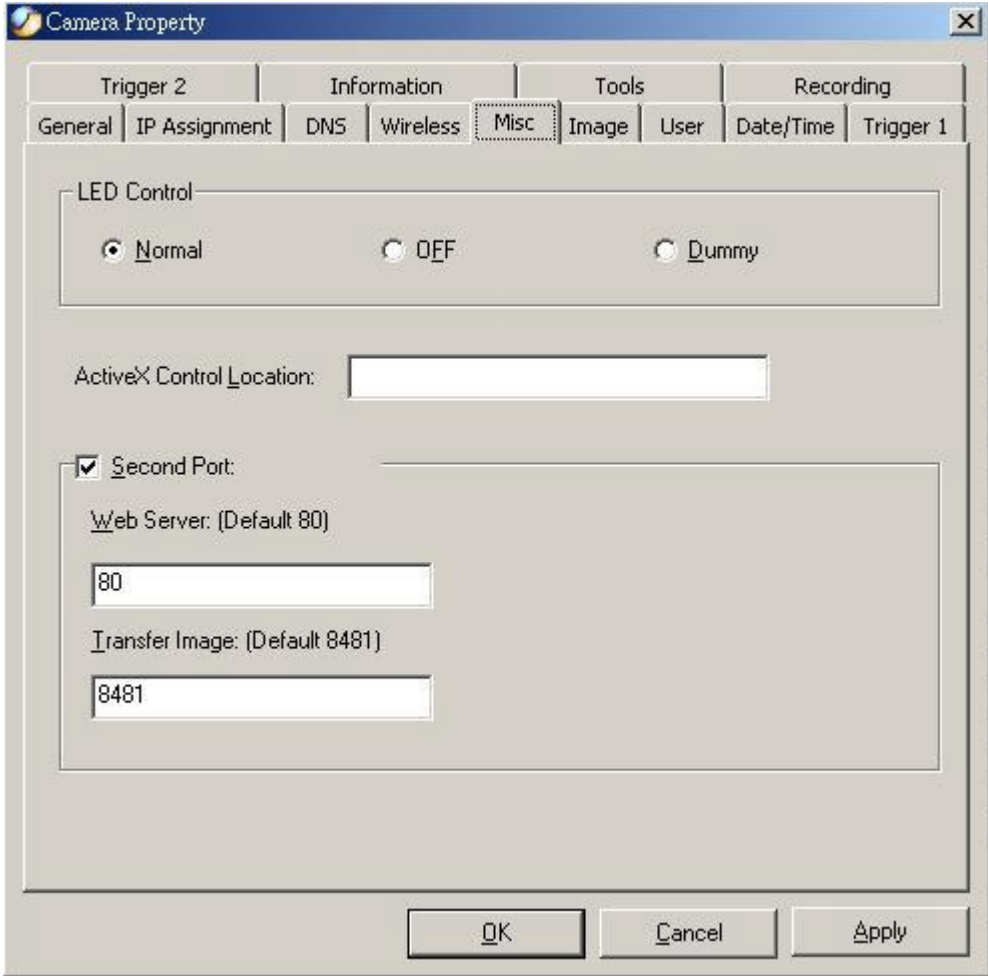
Allows setting for connection mode, network name, wireless channel, and WEP key. Please refer to Chapter 3 Configuration → System Administration → System section for further details.



**Figure 5-17: Wireless Screen**

## Misc

Allows setting for LED Control, ActiveX control location, and second port. Please refer to Chapter 3 Configuration → System Administration → System section for further details.



**Figure 5-18: Misc Screen**

## Image

Image provides the settings for the video image of the camera such as brightness, contrast, saturation, resolution, compression, frame rate, and light frequency. Please refer to Chapter 3 Configuration → System Administration → Image section for further details.

Regarding the Date Display field, there are three available options: No Display, Opaque Mode, and Transparent Mode. Choosing “Opaque Mode”, the background of the time stamp will be filled with white color. Choosing “Transparent Mode”, the time stamp will display on the screen with no background color.

Please note that this function is controlled by IPView software, so the time stamp can be displayed on live image with IPView and the recorded files. But if you use web browser to view the live image or upload single pictures to a FTP server, there would be no time stamp appeared.



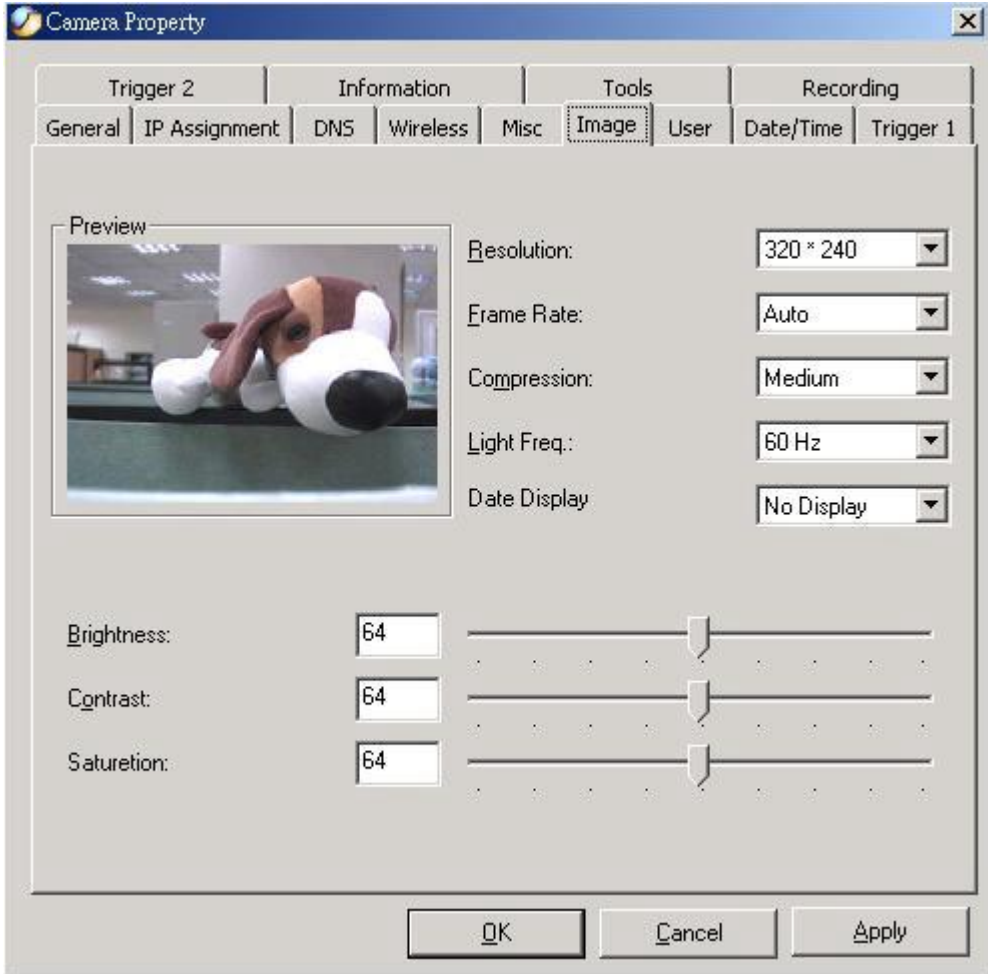
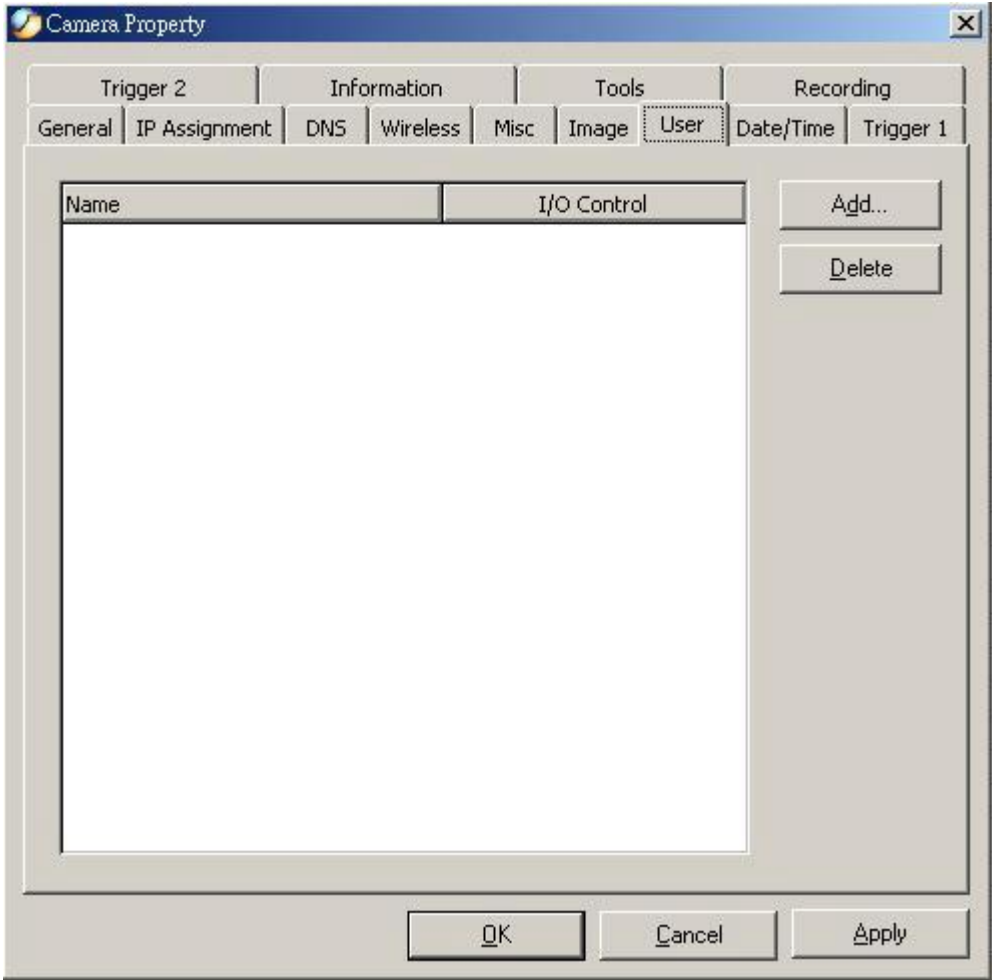


Figure 5-19: Image Screen

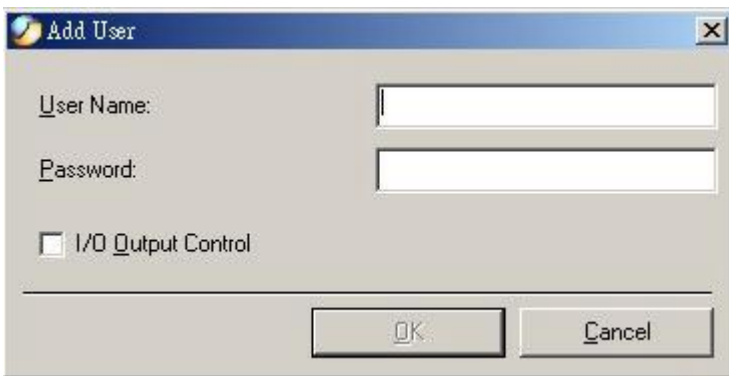
## User

This option allows system administrator to assign legal users who are permitted to monitor the camera from the remote site by **Add** or **Delete** user.



**Figure 5-20: User Screen**

To add a user click on the “**Add**” icon and the **Add User** dialog box will appear. Enter the User Name and Password into the specific field. Select the I/O Output Control to give users the privilege of accessing the I/O Output Control.



**Figure 5-21: Add User Screen**

To delete a user, select the user and click on the “**Delete**” icon. Please refer to Chapter 3 Configuration → System Administration → Users section for further details.

## Date/Time

Provides two settings of adjusting the camera's time and date: **Synchronized with Time Server** or **Set Manually**. Please refer to Chapter 3 Configuration à System Administration à DateTime section for further details.

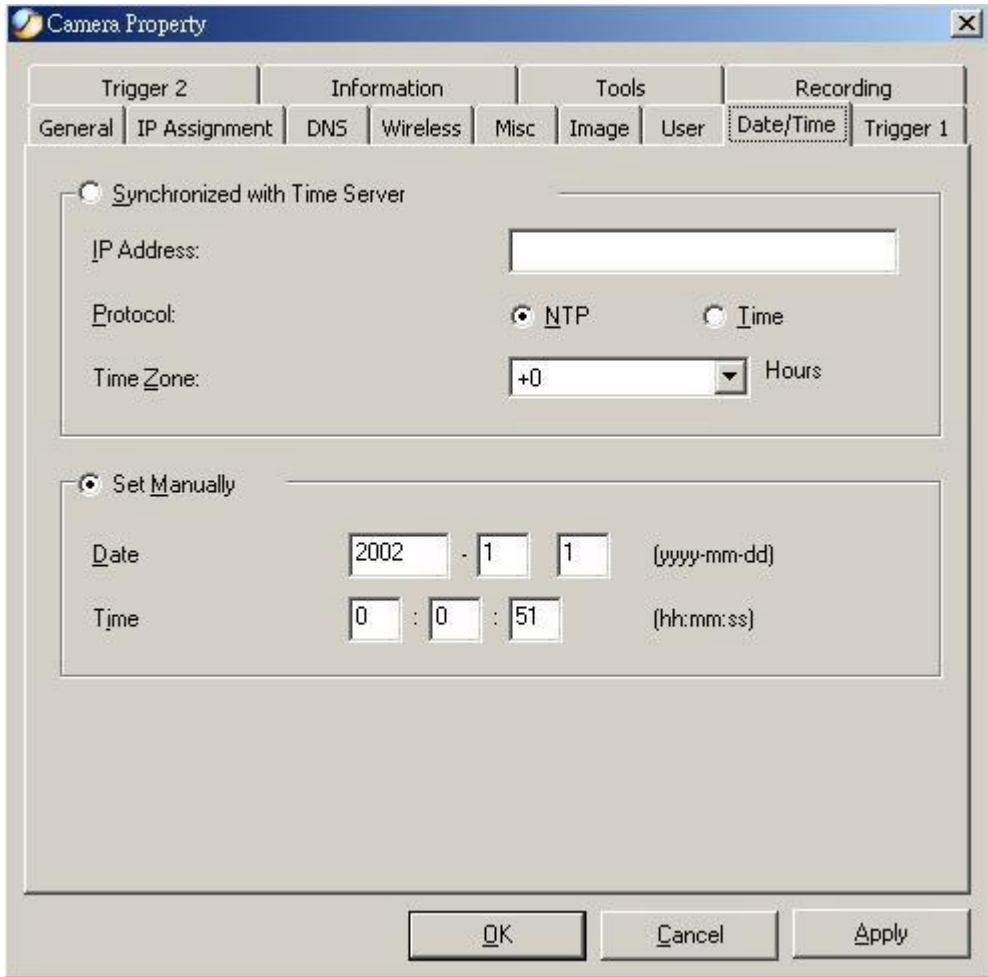
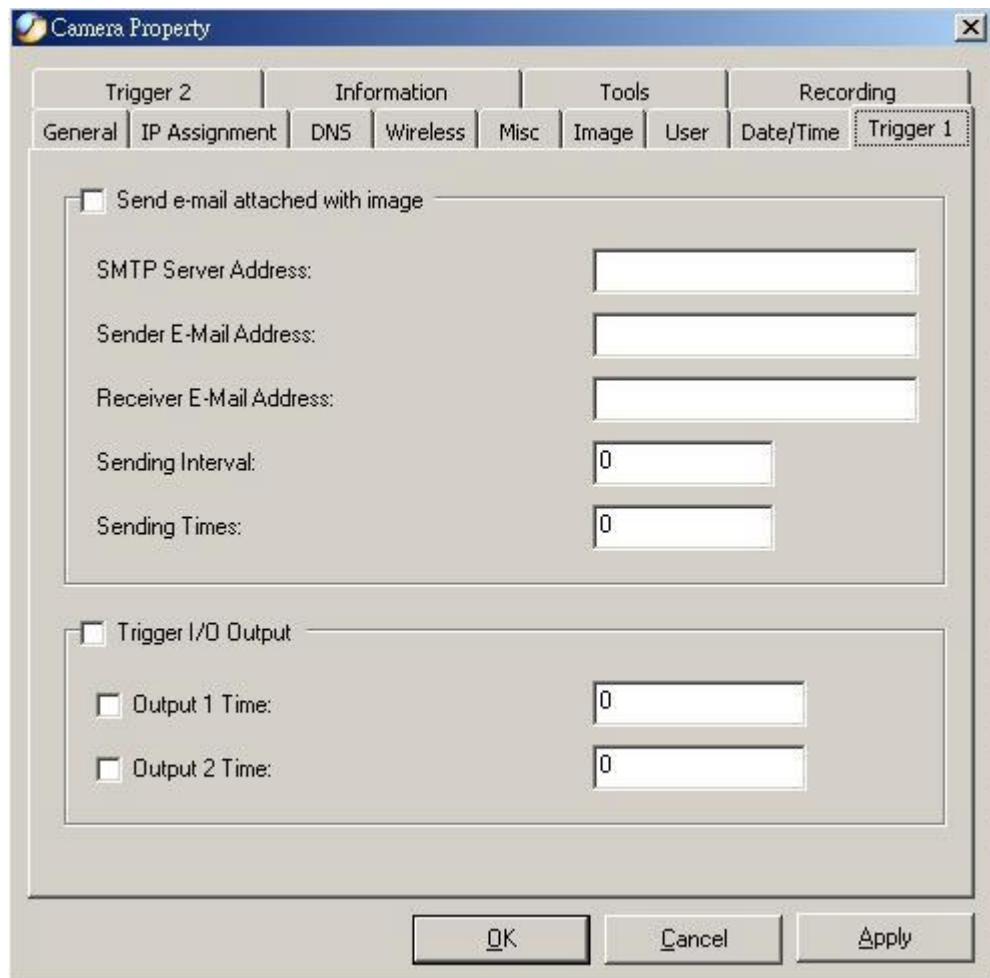


Figure 5-22: Date/Time Screen

## Trigger 1

Provides the settings of first set I/O trigger connectors. Please refer to Chapter 3 Configuration à System Administration à Trigger section for further details.



**Figure 5-23: Trigger1 Screen**

## Trigger 2

Provides the settings of first set I/O trigger connectors. Please refer to Chapter 3 Configuration → System Administration → Trigger section for further details.

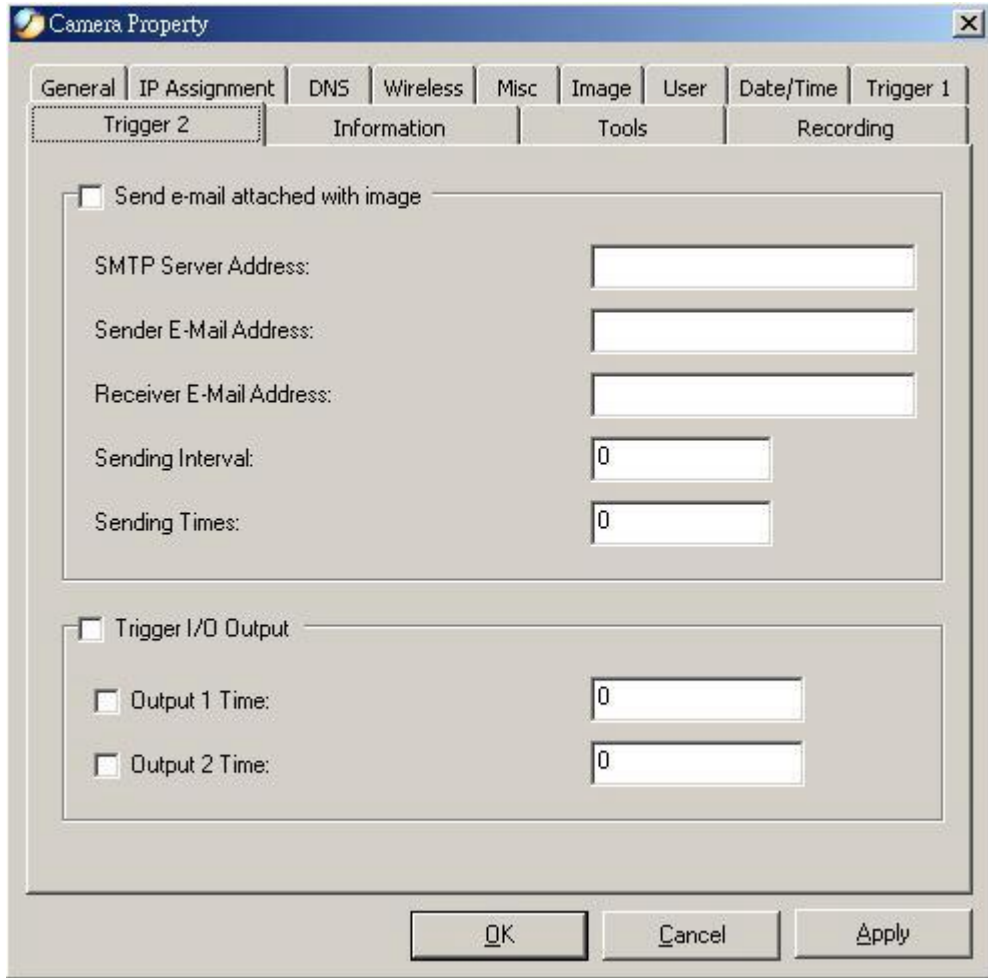
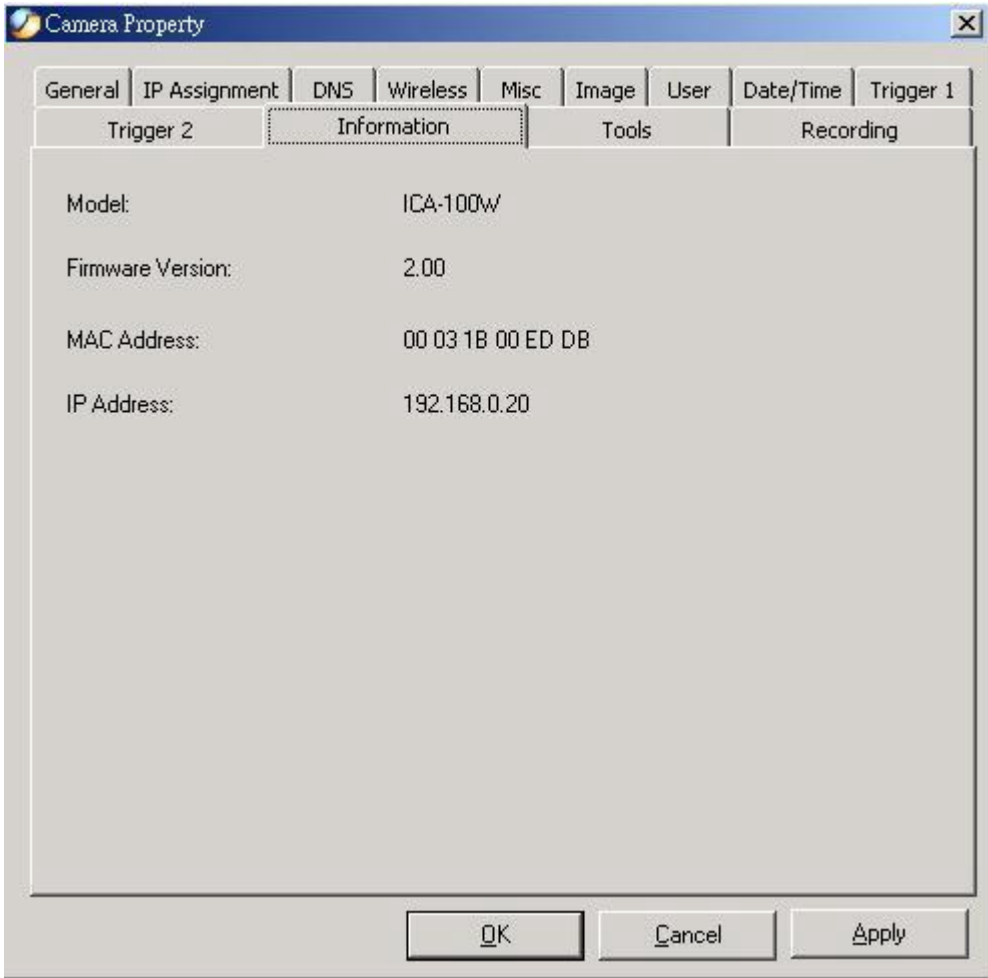


Figure 5-24: Trigger2 Screen

## Information

Displays information about the camera such as the model, firmware version, MAC address, and IP address. Please refer to Chapter 3 Configuration → System Administration → Information section for further details.



**Figure 5-25: Information Screen**

## Tools

Providing functions for reset the camera and update firmware. Please refer to Chapter 3 Configuration → System Administration → Tools section for further details on reset.

### Firmware Upgrade Procedure:

1. Download the latest firmware to a PC .
2. Activate IPView, select “**Camera**” > “**Properties**” and the **Camera Property** dialog box will appear.
3. Select the **Tools** tab and enter the full path of the firmware binary file name in the Update Firmware field or you can click on the “**Browse**” icon to select the file. Once the firmware file is entered, click on the “**Update**” icon to proceed with the updating process.
4. After process completed, click on the “**OK**” button below.

### Warning

During firmware update process please make sure no interruptions will occur as it might possibly cause serious damage to the Internet Camera

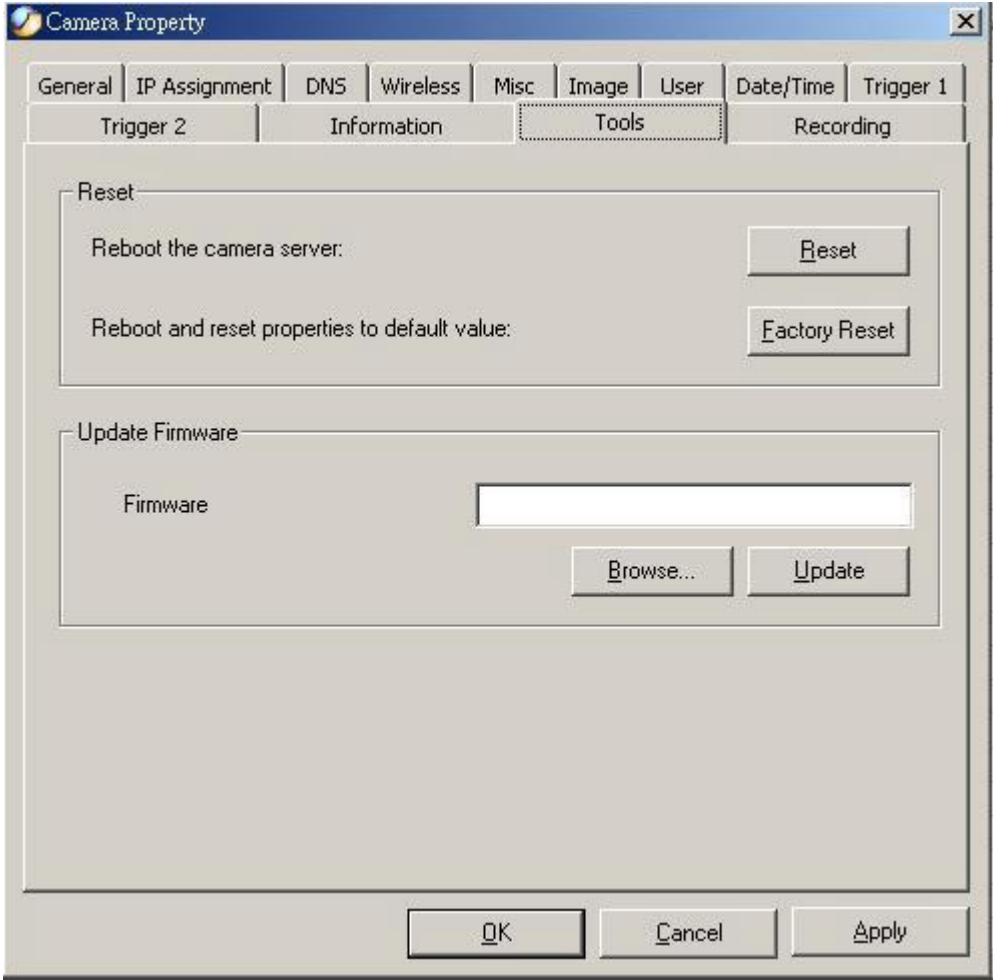
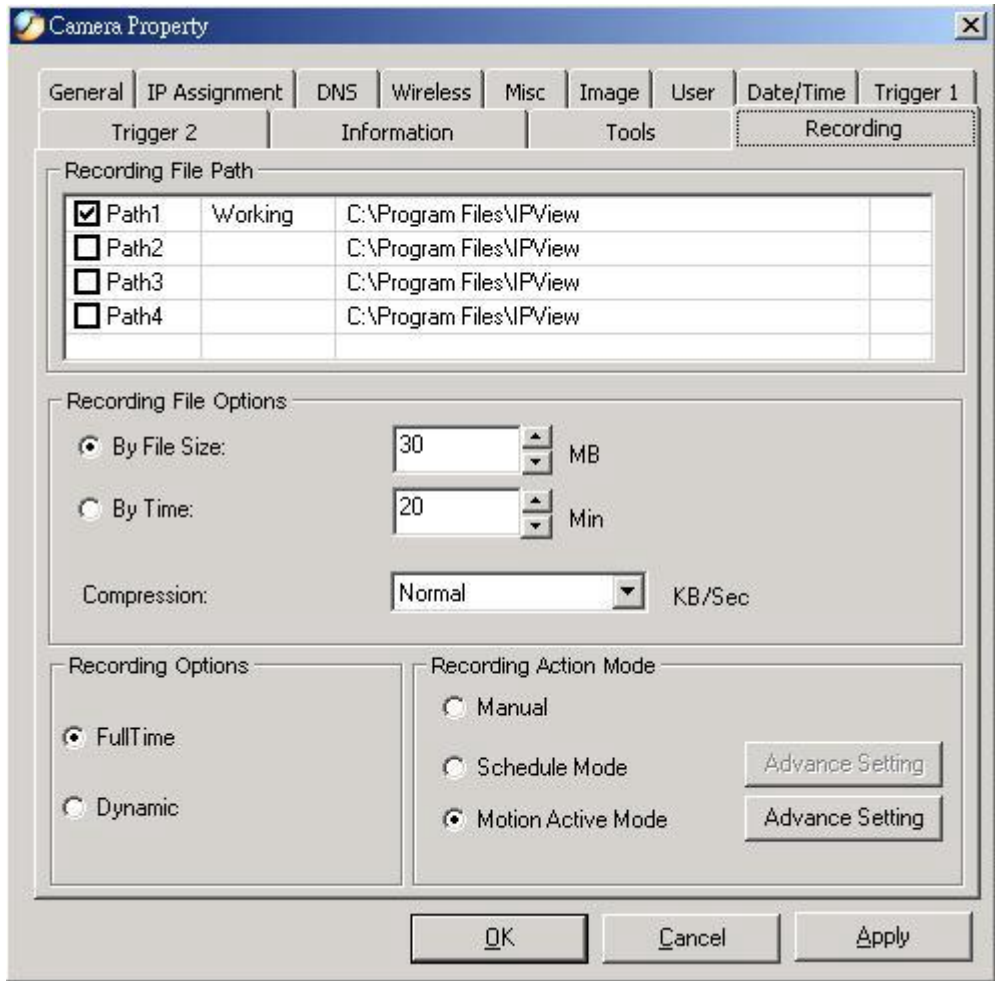


Figure 5-26: Tools Screen

## Recording



**Figure 5-27: Recording Screen**

### Recording File Path:

There are four file paths can be set here and only one of them is working at one time. It is suggested to set them to different disk drives. For example: set path 1 to C drive, and set path 2 to D drive. Once C drive run out of its disk space, IPView will switch the file path to path 2 automatically so that the recording task won't be interrupted.

### Recording File Options:

You can set the upper limitation of each file by the file size or recording time. Once the file reaches the limitation allocated, IPView will create a new file and keep recording. Furthermore, you can select the compression rate of the file by clicking the drop-down list behind "Compression".

### Recording Options:

This field is for Manual and Schedule recording mode. Select "FullTime", IPView will record every image frames. Select "Dynamic", IPView will record the images which different from previous one. Therefore, when you play this type of files, the video will be choppy. But Dynamic mode allows user to save hard disk space.

### Recording Action Mode:



## Manual

Manually control the recording operation.

## Schedule Mode

Select this option and click “Advanced Setting” for detailed configurations. The pre-defined schedule can be set by date or weekday.

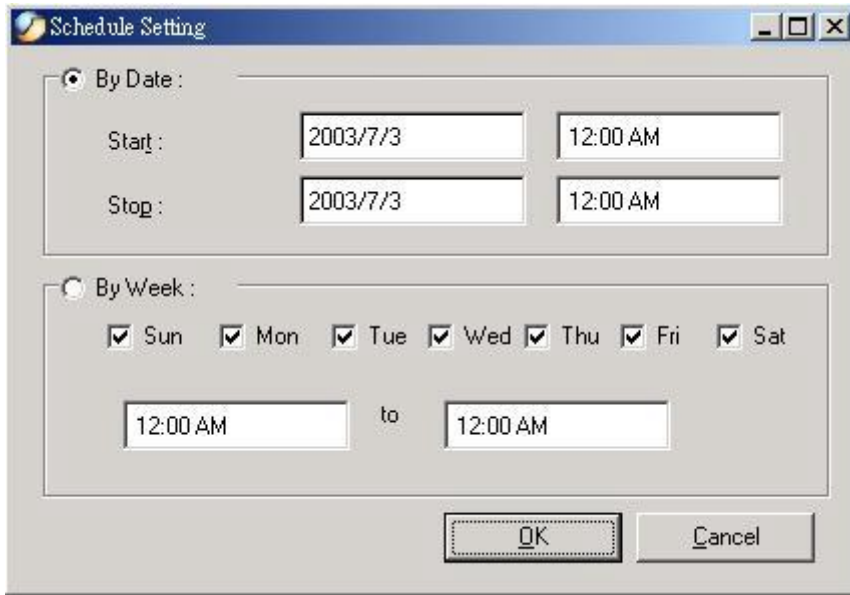
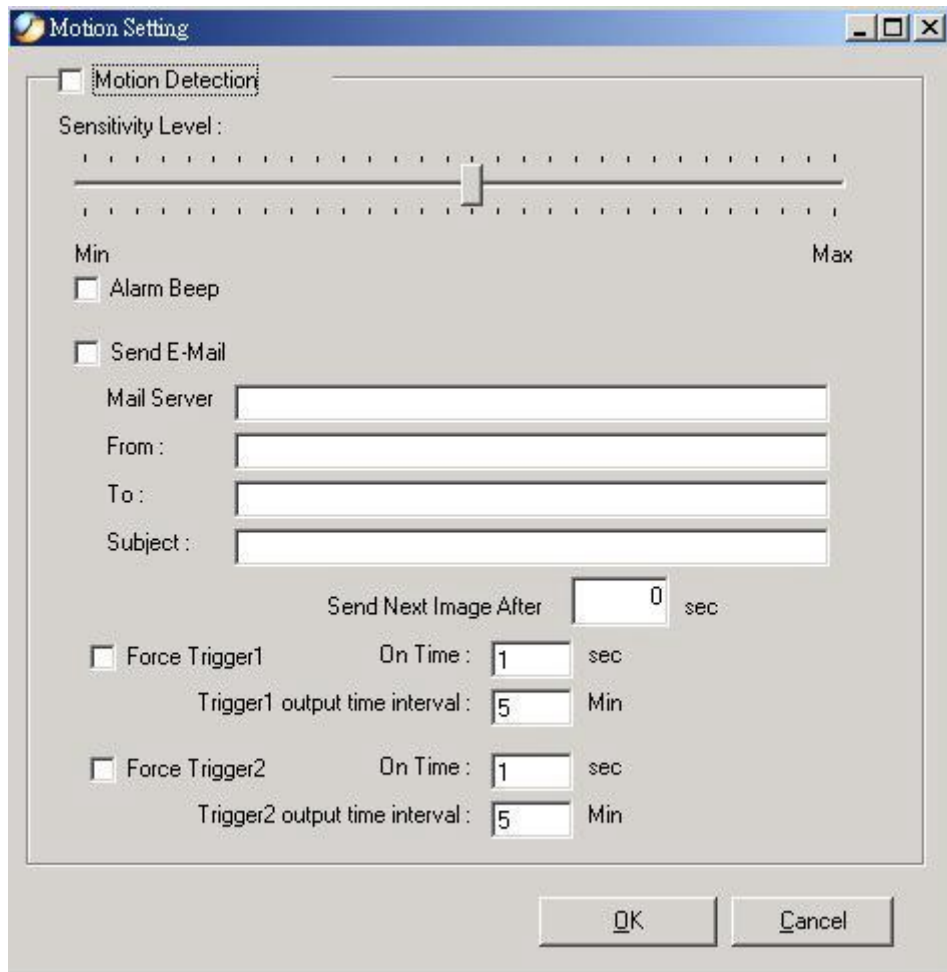


Figure 5-28: Schedule Setting Screen

## Motion Active Mode

Select this option and click “Advanced Setting” for detailed configurations. You can adjust the sensitivity level and choose the warning options when IPView detects a motion.

**Figure 5-29: Motion Setting Screen**

## IPView Icon Description



Create a new file. The alternative hot key is **Ctrl+N**.



Open an existing file. The alternative hot key is **Ctrl+O**.



Save a file. The alternative hot key is **Ctrl+S**.



List view format. The alternative hot key is **Ctrl+F1**.



1 camera view format. The alternative hot key is **Ctrl+F3**.



4 cameras view format. The alternative hot key is **Ctrl+F4**.



9 cameras view format. The alternative hot key is **Ctrl+F5**.



16 cameras view format. The alternative hot key is **Ctrl+F6**.



Refresh IPView application. The alternative hot key is **F12**.



Add a camera. The alternative hot key is **Shift+Ins**.



Delete a camera. The alternative hot key is **Del**.



Property settings used for configuring camera. The alternative hot key is **F2**.



Snap shot to capture a single image. The alternative hot key is **F5**.



Start video recording. The alternative hot key is **F7**.

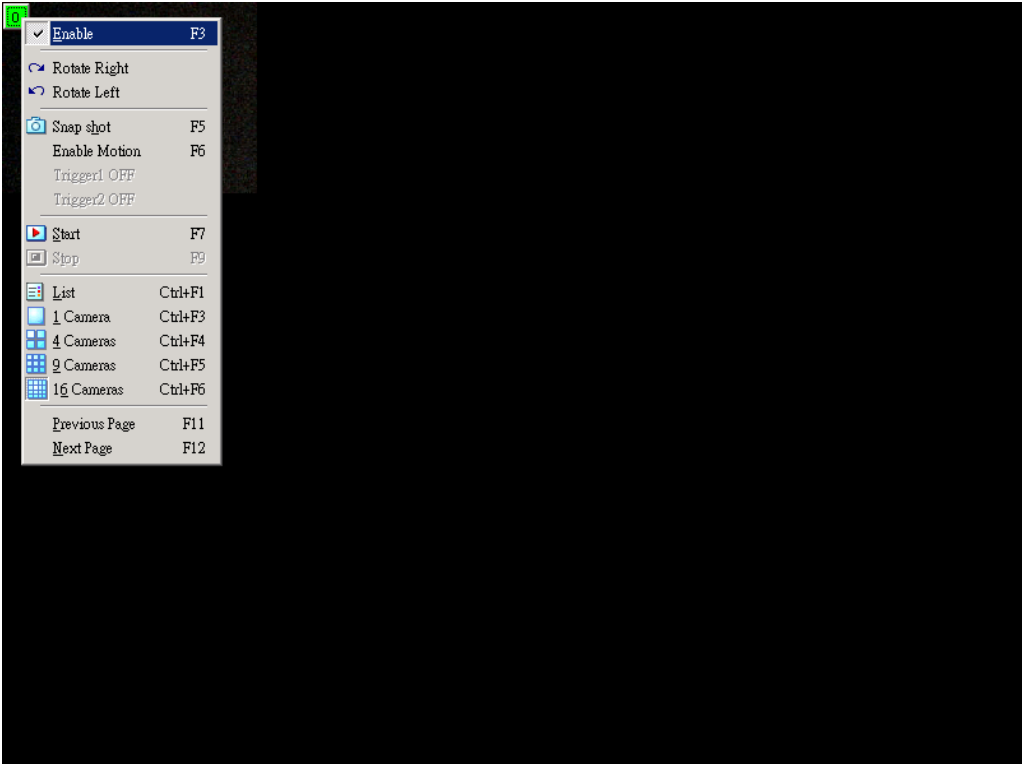


Stop video recording. The alternative hot key is **F9**.



Options to modify the User Name and Password for IPView. The alternative hot key is **F10**.





**Figure 5-31: Case Sensitive Menu in Camera View Format**



<b>Internet Camera Features</b>
<b>Q:</b> What is an Internet Camera?
<b>A:</b> The Internet Camera is a standalone system connecting directly to an Ethernet or Fast Ethernet network. And ICA-100W also supports the wireless transmission based on the IEEE 802.11b standard. It is different from the conventional PC Camera, the Internet Camera is an all-in-one system with built-in CPU and web-based solutions providing a low cost solution that can transmit high quality video images for monitoring. The Internet Camera can be managed remotely, accessed and controlled from any PC/Notebook over the Intranet or Internet via a web browser.
<b>Q:</b> What is the maximum number of users that can be allowed to access the Internet Camera simultaneously?
<b>A:</b> Maximum number of users that can log onto the Internet Camera at the same time is 64. Please keep in mind the overall performance of the transmission speed will slow down when many users are logged on.
<b>Q:</b> What algorithm is used to compress the digital image?
<b>A:</b> The Internet 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.
<b>Q:</b> Can I change the wireless antenna attached to the Wireless Internet Camera?
<b>A:</b> The wireless antenna can be changed for a variety of reasons such as extending the wireless transmission range, however, please consult authorized distributors before attempting as the connectors must be SMA connector type.
<b>Q:</b> What is the wireless transmission range for the Wireless Internet Camera?
<b>A:</b> Generally the wireless distance can go up to 100 meters indoors and up to 300 meters outdoors. The range are limited by the number of walls, ceilings, or other objects that the wireless signals must pass through. Typical ranges vary depends on the types of materials and background Radio Frequency (RF) noise in your home or business and the configuration setting of your network environment.
<b>Internet Camera Installation</b>
<b>Q:</b> Can the Internet Camera be used out-doors?
<b>A:</b> The Internet Camera is not weatherproof. It needs to be equipped with a weatherproof case to be used outdoors and it is not recommended.
<b>Q:</b> What network cabling is required for the Internet Camera?
<b>A:</b> The Internet Camera uses Category 5 UTP cable allowing 10 Base-T and 100 Base-T networking.

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

**A:** No, the Internet Camera can be used only on Ethernet and Fast Ethernet network.

**Q:** Can the Internet Camera be connected on the network if it consists of only private IP addresses?

**A:** The Internet Camera can be connected to LAN with private IP addresses.

**Q:** Can the Internet 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 Internet Camera transmits image data, the default port 8481 is also required. Therefore, it is necessary to open port 8481 of the network for remote users to access the Internet Camera.

# Appendix B

## Trouble Shooting



<b>Q:</b> I cannot access the Internet Camera from a web browser?
<p><b>A:</b> If ICA-100 series do not respond, check the following:</p> <ul style="list-style-type: none"> <li>Machine is properly installed, LAN or WLAN connection is OK, and it is powered ON. You can test the connection by using the "Ping" command: Open the MS-DOS window or command prompt window. Enter the command: ping 192.168.0.20 If no response is received, either the connection is not working, or your PC's IP address is not compatible with ICA-100 series' IP Addresses. (See next item.)</li> <li>Ensure that your PC is using an IP Address within the range 192.168.0.1 to 192.168.0.254 (excluding 192.168.0.20). Also, the Network Mask should be set to 255.255.255.0 to match ICA-100 series. In Windows, you can check these settings by using <i>Control Panel-Network</i> to check the <i>Properties</i> for the TCP/IP protocol.</li> </ul>
<b>Q:</b> Why does the Power LED not light up constantly?
<b>A:</b> The power supply used might be at fault. Confirm that you are using the provided power supply DC 5V for the Internet Camera and verify that the power supply is well connected.
<b>Q:</b> Why does the LAN LED not light up properly?
<p><b>A1:</b> 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).</p> <p><b>A2:</b> The network device utilized by the Internet Camera is not functioning properly such as hubs or switches. Confirm the power for the devices are well connected and functioning.</p>
<b>Q:</b> Why does the Internet Camera work locally but not externally?
<p><b>A1:</b> Might be caused from the firewall protection. Need to check the Internet firewall with your system administrator.</p> <p><b>A2:</b> The default router setting might be a possible reason. Need to double check if the configuration of the default router settings is required.</p>
<b>Q:</b> Why do a series of broad vertical white lines appear through out the image?
<b>A:</b> 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 Internet Camera into a more shaded area immediately for the bright light will damage the CMOS sensor.



<b>Q:</b> There is bad focus on the Internet Camera, what should be done?
<b>A1:</b> The focus might not be correctly adjusted for the line of sight. You need to adjust the Internet Camera focus manually as described in Appendix E: Adjust Internet Camera Focus.
<b>A2:</b> The adaptor used is not 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.
<b>Q:</b> Noisy images occur. How can I solve the problem?
<b>A1:</b> The video images might be noisy if the Internet Camera is used in a very low light environment. To solve this issue you need more light.
<b>Q:</b> There is a poor image quality, how can I improve the image?
<b>A1:</b> A possible 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.
<b>Note:</b> Applying only 16 or 256 colors on your computer will produce dithering artifacts in the image.
<b>A2:</b> The configuration on the Internet Camera image display is incorrect. You need to adjust the image related parameter for improve images such as brightness, contrast, hue and light frequency. Please refer to the Image section of Chapter 3 for detail information.
<b>Q:</b> There are no images available through the web browser?
<b>A:</b> 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.

# Appendix C

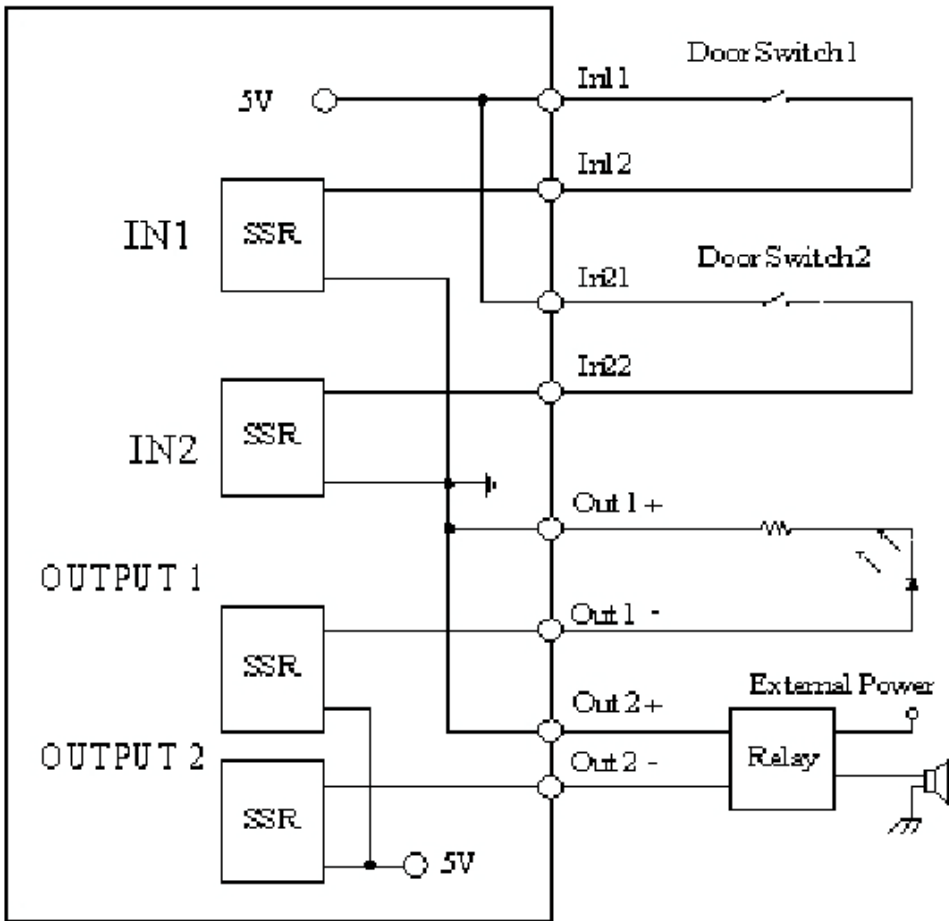
## I/O Connectors



An 8-pole connector is provided for auxiliary I/O connections to ICA-100 series. The I/O connector provides the physical interface for 2 digital outputs and 2 digital inputs that is used for connecting a diversity of external alarm devices to ICA-100 series such as IR-Sensor and alarm relay. The digital input is used for connecting external alarm devices. Once triggered, images will be taken and e-mailed. The supported transistor output can give a maximum of DC 5V to the externally connected alarm devices. Once triggered, the current will activate the devices.

In 1 In 2	In 1 & In 2 is a pair for digital input. It works at voltage 5V
In 3 In 4	In 3 & In 4 is a pair for digital input. It works at voltage 5V
Out 5 - Out 6 +	Out 5 - & Out 6 + is a pair for digital out. The out put voltage is 5 V and maximum current is 100 mA
Out 7 - Out 8 +	Out 7 - & Out 8 + is a pair for digital out. The out put voltage is 5 V and maximum current is 100 mA

## I/O Schematic Diagram



### Warning

1. When connecting a device to the Input connector, the device must be a passive component without voltage and electrical current.
2. When connecting other devices through the Output connector, please make sure the maximum current of DC 5V, 100mA is strictly observed.
3. Any failure of the above two points might cause serious damage to the camera.

## Appendix D

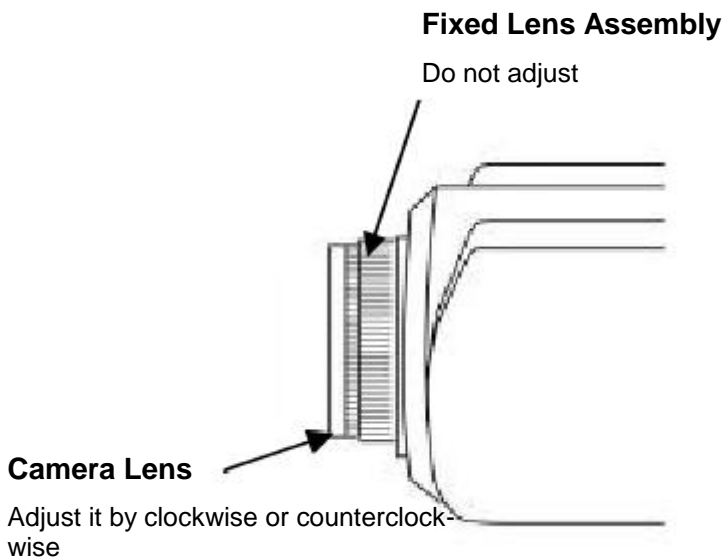
# Adjust Focus/ Replace Lens



The Internet Camera features an exchangeable CS-type lens that can be used for different applications as necessary. It supports rotational focus control so the lens can be adjusted to focus under normal and stable conditions to maximize the image quality of the Internet Camera.

### Adjust Internet Camera Focus

To adjust the focus of the lens you need to turn the lens slowly in either clockwise or counterclockwise direction until the desired image appears. **DO NOT** over turn the lens in either of the directions as it will be out of focus. **DO NOT** unscrew more than 1.0mm apart from the Fixed Lens Assembly unless you want to substitute the lens. While adjusting the Internet Camera's focus you can review the image quality from the Web browser.



**Note:** You can also adjust the Internet Camera's image quality through the Web Configuration under **System Administration -Image**. Please refer to Configuration chapter 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.

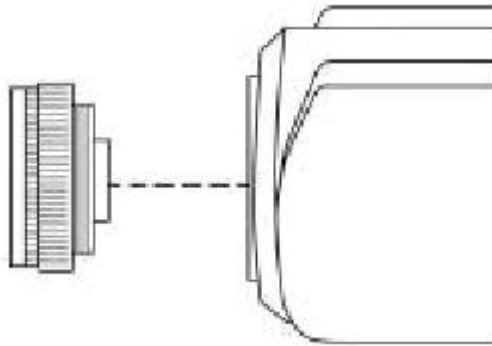
The Internet Camera is designed for indoor usage and if your application requires prolong exposure to sunlight, a sun visor is recommended to protect the Internet Camera.

## Replace the Lens

Since the Internet Camera is designed with a CS- mount, the lens equipped with the Internet Camera can be replaced with any standard C or CS lens commonly used within the surveillance industry.

Follow the instructions below to replace the supplied lens with any C or CS type lens.

1. Unscrew the Internet Camera lens
2. C-lens only, attach the new lens to a CS-C adapter
3. Screw the new lens onto the Internet Camera. If appropriate, adjust the iris according to the prevailing light conditions.
4. Refer to *Adjusting the Internet Camera Focus* on the previous page.
5. Refresh the web browser and monitor the results from the Internet Camera.



# Appendix E

## Install Xplug Control Utility



### Install on Web Server

#### STEP 1

Copy xplug.ocx to the home directory of a web server.

#### STEP 2

Log on the Home page of ICA-100 series, click on the "System Administration" link. The system page will appear.

#### STEP 3

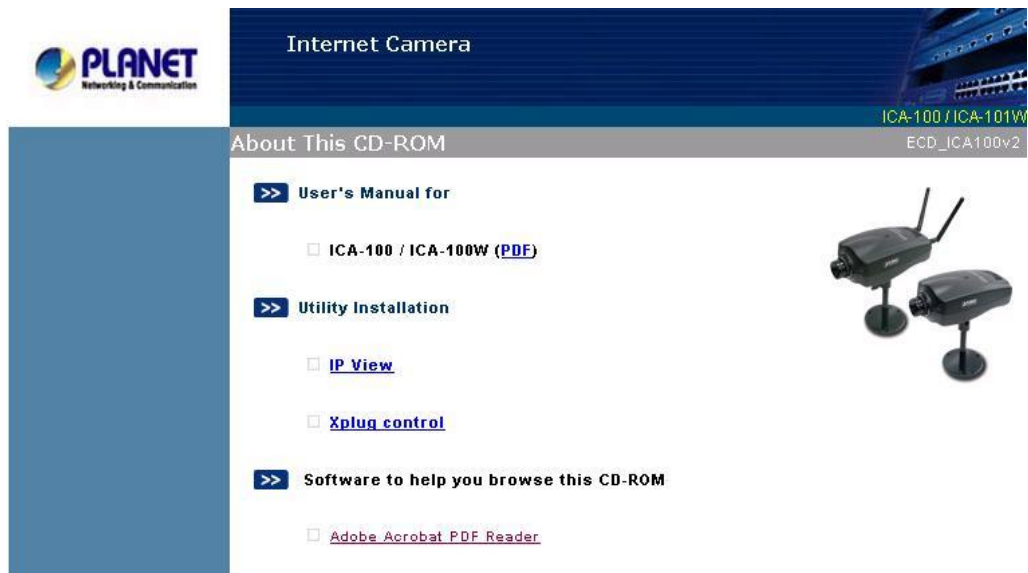
Locate the "Loading ActiveX From" field on system page. Fill the field with web server's address. Either IP address or Internet address will do.

Once the settings are completed, users are able to access ICA-100 series from the web browser by selecting the Image View – ActiveX mode.

### Install to Local PC

#### STEP 1

Insert the CD-ROM into the CD-ROM drive to initiate the autorun program. A menu screen will appear as follows:



#### STEP 2

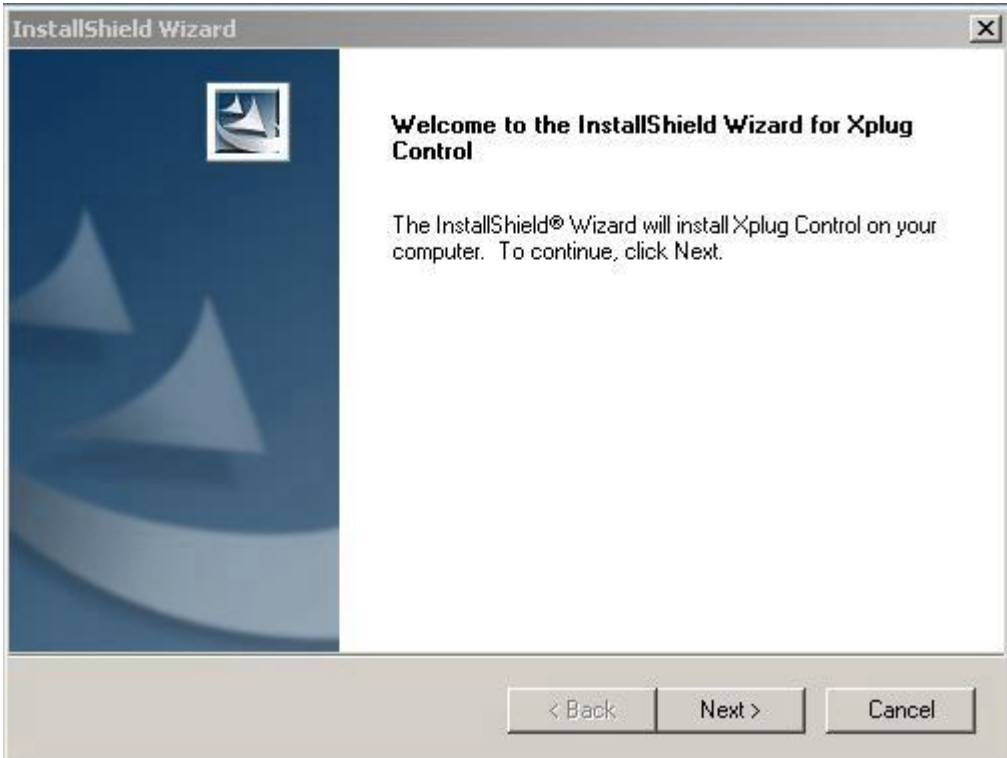
Click on the "Xplug Control" hyperlink to activate the installation procedure for the plug-in program.

If the above screen is not shown, you can start the installation as follows.

1. Click on **Start Menu/ Run**.
2. Enter "D:\ActiveX\xpctrl.exe" in the appeared box, where "D" is the letter of your CD-ROM drive.
3. Click on "**OK**" button.

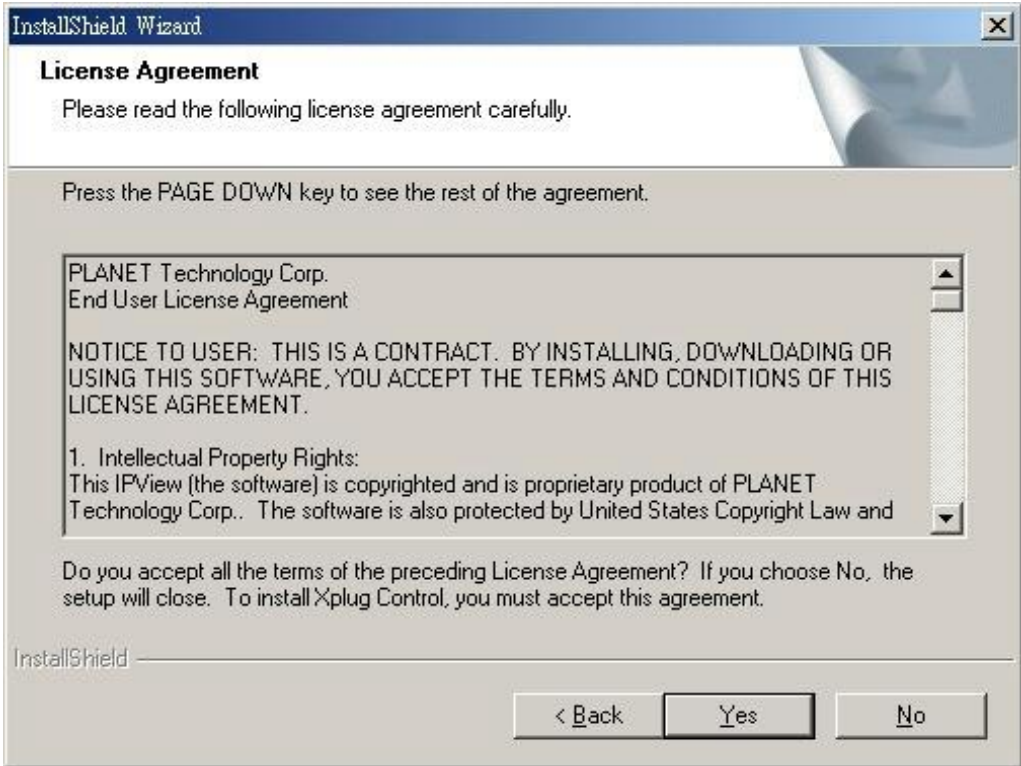
**STEP 3**

The Welcome screen will appear. Click on the "**Next**" button to proceed with the installation.



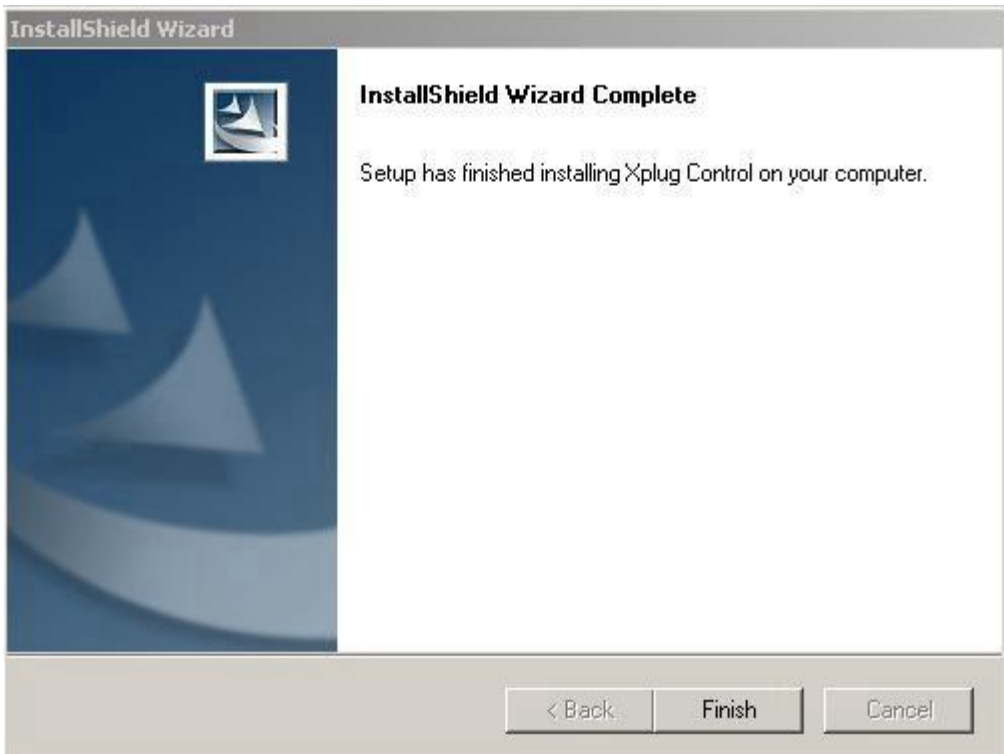
**STEP 4**

The License Agreement will appear as below. Read the details carefully and click on the "**Yes**" icon to continue with the installation procedure.



### STEP 5

Click on the **“Finish”** button to complete Setup of the Xplug Control Utility program for the Wireless Internet Camera.







# Appendix F

## Specification



	<i>ICA-100</i>	<i>ICA-100W</i>
<b>Video Specification</b>		
Resolution	640 x 480 pixel	
Sensor	1/3" color CMOS sensor	
Gain control	Automatic	
Exposure	Automatic	
White Balance	Automatic	
Shutter	Electronics 1/60 ~ 1/15000 sec	
Minimum Illumination	2.5lux@F1.4, 3000K color	
Focal Length	6.0 mm	
Aperture	f=1.8	
Focus Extent	20 cm - ∞	
Lens mounting	Fixed board lens, CS-mount type	
<b>Image (Video Setting)</b>		
Image compression	JPEG	
Frame rate	20fps@CIF, 3fps@VGA	
Compression Rate selection	5 level (Very Low, Low, Medium, High, Very High)	
Frame rate setting	1,5,7,15,20,auto(depends on the video format)	
Video resolution	320x240, 640x480	
Brightness control	Range 1- 128	
Contrast control	Range 1- 128	
Hue control	Range 1- 128	
<b>System Hardware</b>		
LAN Connector	One RJ-45 port to connect to 10/100Mbps Ethernet, auto-sensing	
Wireless LAN	-	Built-in 802.11b wireless LAN module with 2 SMA connector
Generic I/O Port	Four I/O ports, two for input and two for output	
LED Indicator	Power LED (Blue) ,LAN Activity LED (Orange)	

<b>Management</b>		
Communication media	10/100Mbps Ethernet	10/100Mbps Ethernet, IEEE 802.11b wireless
Communication protocol	HTTP, FTP, TCP/IP, UDP, ARP, ICMP, BOOTP, RARP, DHCP, PPPoE	
Management Utility	Internet Browser, Software Utility	
Utility Support OS	Win 98, Win 98 SE, Win 2000, Win Me, Win XP	
Utility Function	<ul style="list-style-type: none"><li>• Live image viewing</li><li>• Remote management</li><li>• Snap shot</li><li>• Picture recording</li><li>• Motion detection</li></ul>	
<b>Operating environment</b>		
Operating temperature	5 °C~ 50 °C	
Storage temperature	-25 °C ~ 50 °C	
Humidity	5% ~ 95% non-condensing	
<b>EMI</b>		
Regulation	FCC, CE, VCCI	

# Appendix G

## Glossary of Terms



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### NUMBERS

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#### **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.

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### A

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#### **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 from which 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 which 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.

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### B

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#### **BOOTP**

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

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### C

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#### **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.

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### D

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#### **DHCP**

Dynamic Host Configuration Protocol was developed by Microsoft. It is 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 for it.

## **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*.

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## **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.

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## **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.

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## **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.

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## **H**

### **HEX**

Short for hexadecimal. It 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.

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## **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 that 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 which is sent in packets across the Internet. For example 80.80.80.69 is an IP address, it acts as the telephone number of Internet. 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**

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### **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**

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### **LAN**

Local Area Network is 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**

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### **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**

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### **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 data that will be transferred from file server memory to the file server's network 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 transfers over the medium include tokenpassing 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**

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### **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**

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### **Server**

It is a simple computer that provides services, such as files accessing 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**

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**TCP/IP**

Transmission Control Protocol/Internet Protocol is a widely used transport protocol that connects diverse computers of various transmission methods. It was developed by 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**

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**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.

**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**

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**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.

**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.



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