



User's Guide

TV-IP301
TV-IP301W

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ABOUT THIS GUIDE

This manual provides instructions and illustrations on how to use your TV-IP301/TV-IP301W Advanced Day/Night (Wireless) Internet Camera Server with Audio, includes:

- Chapter 1, **Introduction**, provides the general information on the camera.
- Chapter 2, **Hardware Installation**, describes the hardware installation procedure for the camera.
- Chapter 3, **Security**, explains the security feature of the camera.
- Chapter 4, **Application of the Camera**, provides the illustrations of the camera's applications.
- Chapter 5, **Using the Camera**, guides you through the configuration using the web browser.
- Chapter 6, **IPView Pro**, helps you to install and use the software.
- Chapter 7, **Appendix**.

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

INTRODUCTION

Thank you for purchasing the TV-IP301/TV-IP301W Advanced Day/Night (Wireless) Internet Camera Server with Audio, a standalone system that can be connected directly to an Ethernet or Fast Ethernet network. With support for latest MPEG4 technology, you can record streaming video that utilizes high quality MPEG-4 images to your hard drive, enable motion detection and setup automated e-mail alerts for security. The built-in microphone provides you with the audio function, allowing you to “**watch**” and “**listen**” from the camera. Compared to the conventional PC Camera, this camera features a built-in CPU and web-based solutions that can provide a cost-effective solution to transmit the real-time high-quality video images and sounds synchronously for monitoring.

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

Features and Benefits

Simple to Use

TV-IP301/TV-IP301W Advanced Day/Night (Wireless) Internet Camera Server with Audio is a standalone system with built-in CPU, no special hardware (such as a PC frame capture card) or software required. The camera supports DirectX 9.0; therefore, the only requirement you need is the web browser software such as Internet Explorer 5.0 or above. Once you have a valid IP Address, just connect it and you can view the picture and receive sound from your camera.

Support Variety of Platforms

Supporting TCP/IP networking, SMTP e-mail, HTTP and other Internet related protocols, the camera can be utilized in a mixed operating system environment, such as Windows. It can be integrated easily into other www/Intranet applications.

Web Configuration

Using a standard web browser, the administrator can configure and manage the camera directly from his own web page via the Intranet or Internet. Up to **64** users name and password are permitted with privilege setting controlled by the administrator.

Remote Utility

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

Connection to External Devices

Supporting auxiliary Input/Output Connector, you can connect the camera to a variety of external devices, such as switches and alarm relays. One can combine with programmable alarming facilities to develop a variety of security applications that are triggered on alarm-based events. The camera provides one input/output connector to connect external devices.

Broad Range of Applications

With today's high-speed Internet services, the camera can provide the ideal solution for live video images and audio sounds over the Intranet and Internet. The camera allows remote access from a web browser for live image viewing, so that you can use it to monitor various objects and places anytime and anywhere, such as homes, offices, banks, hospitals, child-care centers, amusement parks and other varieties of industrial and public monitoring. The camera can be used for intruder detection; in addition, it can capture still images for archiving and many other applications.

RS-485 Support

The pin 7 & 8 of the I/O connectors are used for RS-485 data transmission. You can connect a special featured device (such as an external camera stand with rotation function) to meet you needs. When the external device is connected, you can configure the settings and control the device from the ***RS-485*** window of Web Configuration Utility.

Day & Night Feature

The camera equipped with a Day & Night CCD IR lens which included 12 infrared LEDs to provide crystal clear images in real time, even at night. In a dark low light situation, the camera switches to deliver black & white images using its infrared LEDs, making it the best choice for your outdoor application.

Unpacking the Package

Unpack the package and check all the items carefully.

- One TV-IP301 or TV-IP301W.
- One External Antenna (TV-IP301W only)
- One Multi-Language Quick Installation Guide
- One Driver & Utility CD-ROM with User's Guide
- One AC power adapter suitable for your country's electric power.
- One Metal Camera Stand.
- One RJ45 Ethernet Cable

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

System Requirement

Networking

Local Area Network:

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

Wireless Local Area Network (TV-IP301W only):

- IEEE 802.11g WLAN.

Accessing the Camera

For Web Browser Users

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

For IPView Pro Application Users

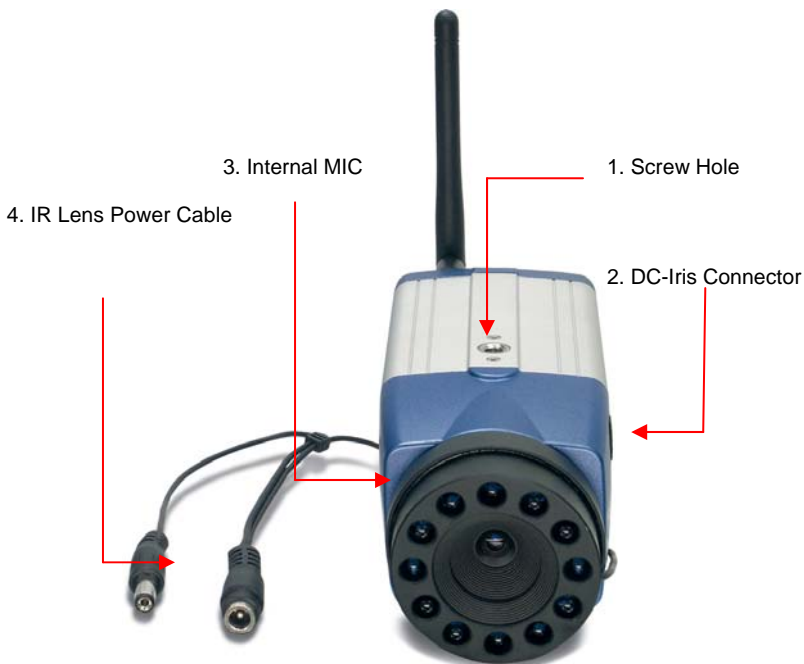
- OS: Microsoft® Windows® 98SE/ME/2000/XP.
- CPU: Intel Pentium 1GHz or above
- Memory Size: 256MB
- Resolution: 1024x768 or above

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

Components Guide

This section provides the multi-views of the camera and explains the function of each component.

Front, Side and Top/Bottom Panel



1. Screw Hole

Located on the top/bottom panel of the camera, the screw hole is used to connect the camera stand onto the camera by attaching the screw head on the camera stand into the screw hole of the camera.

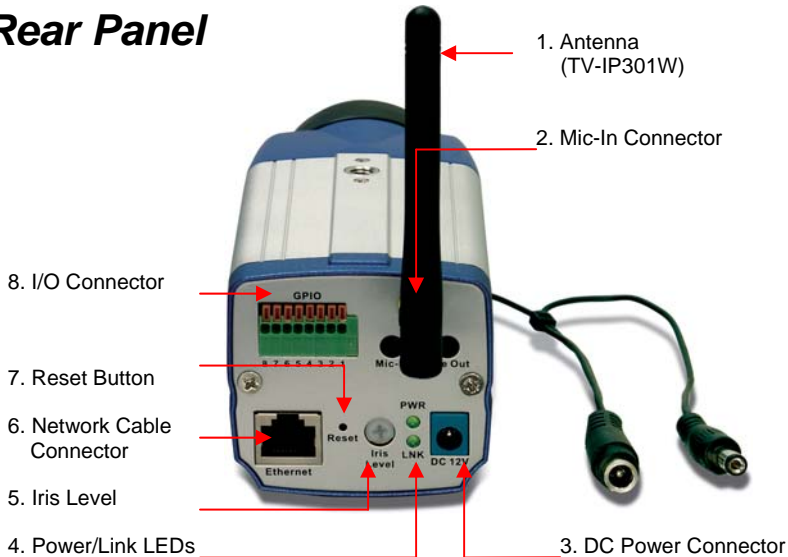
2. Internal MIC

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

3. DC-Iris Connector

The camera supports additional DC-Iris lens, and provides the power and control signal required for adjusting the lens through this DC-Iris connector (4-pin). You can attach any standard DC-Iris lens (optional) for specific purpose, such outdoor applications.

Rear Panel



1. Detachable Antenna (TV-IP301W)

The detachable external antenna allows you to adjust its position to obtain the maximum signal.

2. Mic-In Connector

This connector allows you to connect an external microphone.

3. DC Power Connector

The DC power input connector is located on the camera's rear panel, and is labeled DC 12V with a single jack socket to supply power to the camera. Power will be generated when the power supply is connected to a wall outlet.

4. Power/Link LEDs

The upper LED indicates the camera is powered on with a steady **GREEN** light.

The lower LED indicates the camera has good connection to LAN/WLAN connectivity with a steady **GREEN** light. It begins flashing to indicate the camera is receiving/sending data from/to the LAN/WLAN.

5. Iris Level

This screw-knob is useful only when the DC-Iris lens is connected to the camera. You can adjust the brightness of the video images from the DC-Iris lens.

6. Network Cable Connector

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

7. Reset Button

Reset will be initiated when this button is pressed. Factory Reset will be initiated when this button is pressed continuously for five seconds.

8. I/O Connector

The camera provides the I/O connectors on the rear panel (pin 1/2 are for input, pin 3/4, 5/6 are for output, pin 7/8 are for RS-485), which provide the physical interface to send and receive digital signals to a variety of external alarm devices.

2

HARDWARE INSTALLATION

Attaching the Camera to the Stand

The Internet camera comes with a camera stand, which has a swivel ball screw head that can be attached to the camera's screw hole on the up (or bottom) panel. Attach the camera to the stand and station it for your application. There are three holes located in the base of the camera stand, allowing the camera to be mounted on the ceiling or any wall securely.

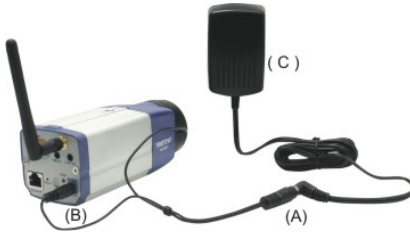


Connecting the Ethernet cable

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



Attaching the Power Supply



Attach the power supply plug to the cable of the lens (A), and then connect the cable's plug to the power connector located on the camera's rear panel labeled DC 12V (B). Then, connect the power supply to the wall outlet (C).

SECURITY

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

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

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

APPLICATIONS

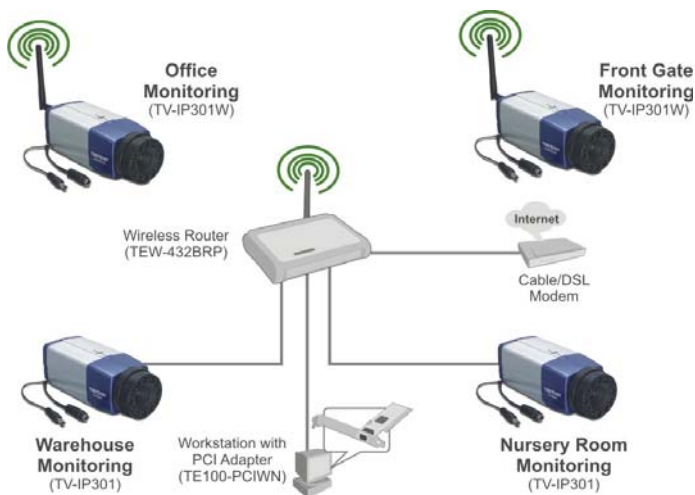
The TV-IP301/TV-IP301W Advanced Day/Night (Wireless) Camera Server with Audio can be applied in wide variety of applications, including:

- Monitor local and remote places and objects through a web browser, such as construction sites, hospitals, parks, schools and day-care centers.
- Capture single frame images or video images from the IPView Pro application.
- Connect up to two external devices to the camera for alarm notifications; in addition, when the trigger is activated, you can configure the camera to send e-mail messages that attach the video clip (with sound).

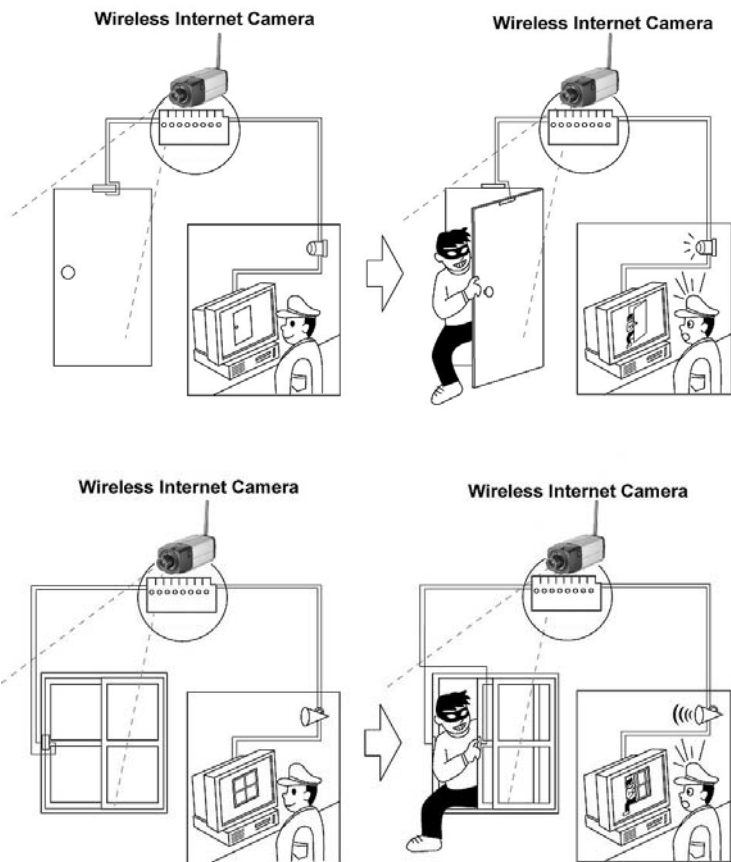
The following section provides the typical applications for your camera with the IPView Pro application, and also includes some basic knowledge to assist in the installation and configuration of the camera.

Applications of the Camera

Home/ Business Application Diagram



I/O Connector Application Diagram



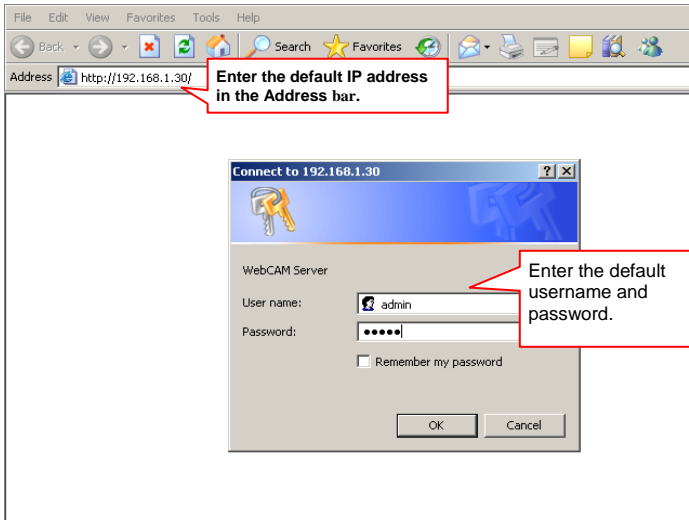
USING THE CAMERA

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

Web Configuration Utility

Whenever you want to configure the camera, open your web browser (e.g. Internet Explorer in this manual), and type the default IP address ***http://192.168.1.30*** in the Address bar and press [Enter]. When the login page appears, type **admin** in the Name and Password box, and then click *Login*.

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



Login the Web Configuration Utility

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

After login, the default page of the Web Configuration Utility will show as below, which includes one **Live Show (ActiveX / JAVA)** button and three areas: **Information**, **Configuration**, and **System**.



- **Information** – provides the general information of the camera, including Status, Connections, Event Log, and About.
- **Configuration** – allows you to configure the camera's function settings, including Video & Audio, Advanced Video, Event Handling, Ftp & Mail, Motion Detection, I/O Port, and RS-485.
- **System** – allows you to change the system settings, including Basic Settings, Date & Time, Network, User Management, and Tools.

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

Information

Status

The screenshot shows the 'Status' page for a camera named 'TV-IP301'. The page header includes the name 'TV-IP301', the location, and the date '2006-05-04' at '18:09:17'. On the left, there is a navigation menu with options: 'View LiveShow ActiveX', 'View LiveShow Java', 'Information' (with sub-items: Status, Connections, Event Log, About), 'Configuration', and 'System'. The main content area is titled 'Device Status' and contains a table with the following data:

Resolution:	640 x 480
Compression:	MPEG4
Quality:	Highest
Framerate:	30 fps
Audio mode:	ADPCM
Sample rate:	8K/mono

The **Status** page provides the information about the current configuration of the camera. You can check the video and audio settings in this page:

Connections

The screenshot shows the 'Connections' page for the same camera 'TV-IP301'. The page header shows the name 'TV-IP301', the location, and the date '2006-05-04' at '18:06:43'. The navigation menu on the left is identical to the Status page, but the 'Information' sub-item 'Connections' is selected. The main content area is titled 'Connection Status' and displays a table with the following data:

IP	Username	Login Time
192.168.1.1	admin	Thu May 4 18:06:02 2006

Below the table is a 'Refresh' button.

The **Connections** page provides the information of user connecting the camera, including the IP, Username, and Login Time.

Event Log




The screenshot shows a web interface for a camera named TV-IP301. The top bar displays the name, location, date (2006-05-04), and time (18:08:13). On the left, there is a navigation menu with options like 'View LiveShow', 'ActiveX', 'Java', and 'Information'. The main content area is titled 'Event Log' and contains a table with three columns: Date, Time, and Event. Below the table is a 'Refresh' button.

Date	Time	Event
2006/05/04	17:24:30	System start
2006/05/04	17:24:31	DNS Start
2006/05/04	17:24:31	DNS Setting fail
2006/05/04	17:24:32	UPnP start
2006/05/04	17:24:52	UPnP setting fail

The **Event Log** page displays a list containing the event log of the camera, including the Date, Time, and description of Event.

About



The screenshot shows the 'About' page for the TV-IP301 camera. The top bar shows the name, location, date (2006-05-04), and time (18:05:03). The left navigation menu is the same as in the previous screenshot. The main content area is titled 'About' and is divided into two sections: 'Device Information' and 'Network Information'. Each section contains a list of key-value pairs.

Device Information	
Device Name:	TV-IP301
Location:	
Model Name:	TV-IP301
F/W version:	1.00 build: 23

Network Information	
IP Address:	192.168.1.30 (Fixed)
Subnet Mask:	255.255.255.0
Default Gateway:	0.0.0.0
MAC Address:	00:00:08:61:A1:36

The **About** page displays the Device Information and Network Information.

Configuration

Video & Audio

The screenshot shows the configuration interface for a Trendnet camera. At the top, it displays the device name 'TV-IP301' and the current date and time '2006-05-15 11:39:31'. The left sidebar contains navigation menus for 'View LiveShow', 'Information', 'Configuration', and 'System'. The 'Configuration' menu is expanded to show 'Video & Audio' as the selected option. The main content area is titled 'Video & Audio' and is divided into three sections: 'Video Settings', 'Image Adjustment', and 'Audio Settings'. Each section contains various settings with radio buttons, dropdown menus, and input fields, along with 'Save' and 'Default' buttons.

TRENDnet Advanced Day/Night Internet Camera Server
TV-IP301

Name: Location: 2006-05-15 11:39:31

View LiveShow **ActiveX**

View LiveShow Java

Information

Configuration

- Video & Audio
- Advanced Video
- Event Handling
- FTP & Email
- Motion Detection
- I/O Port
- RS-485

System

Video & Audio

Video Settings

Resolution: 640x480 320x240 160x120

Compression: MPEG4 IP ratio: 15 (3-128) JPEG

Frame rate: 30 fps

Quality: Highest High Medium Low Lowest

Flip: Horizontal Vertical

Save

Image Adjustment

Brightness: 0

Contrast: 0

Color: 0

Sharpness: 0

Default Save

Audio Settings

Audio Format: ADPCM (8k_mono) PCM (8k_mono)

MIC Input Gain: 8

Save

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The **Video & Audio** page contains commands to control the image and audio settings of the camera. Once you have changed the settings in each option, click **Save** to store the settings. Clicking **Default** allows you to reload the system default settings.

Video Settings

Video & Audio	
Video Settings	
Resolution:	<input checked="" type="radio"/> 640x480 <input type="radio"/> 320x240 <input checked="" type="radio"/> 160x120
Compression:	<input checked="" type="radio"/> MPEG4 IP ratio: <input type="text" value="15"/> (3-128)
	<input type="radio"/> JPEG
Frame rate:	<input type="text" value="30"/> fps ▾
Quality:	<input checked="" type="radio"/> Highest <input type="radio"/> High <input type="radio"/> Medium <input type="radio"/> Low <input type="radio"/> Lowest
Flip:	<input type="checkbox"/> Horizontal <input type="checkbox"/> Vertical
<input type="button" value="Save"/>	

- **Resolution:** Select the desired video resolution from three formats: **640x480**, **320x240**, and **160x120**. The higher setting can obtain better quality; however, it will use more resource within your network.
- **Compression:** Select the desired compression format as **MPEG4** or **JPEG**.
- **IP ratio:** Adjust the IP ratio of MPEG4. The value range is from 3 to 128, and the default setting is 15.
- **Frame rate:** Select the optimal setting depending on your network status. Please note that the higher setting can obtain better quality; however, it will use more resource within your network.
- **Quality:** Select the desired image quality from five levels: **Highest**, **High**, **Medium**, **Low**, and **Lowest**.
- **Flip:** Select **Horizontal** to display the image in a horizontal mirror mode. Select **Vertical** to display the image in a vertical mirror mode.

Image Adjustment

Image Adjustment	
Brightness:	<input type="text" value="0"/>
Contrast:	<input type="text" value="0"/>
Color:	<input type="text" value="0"/>
Sharpness:	<input type="text" value="0"/>
<input type="button" value="Default"/> <input type="button" value="Save"/>	

- **Brightness:** Adjust the brightness level. The value range is from -64 to 64, and the default setting is 0.
- **Contrast:** Adjust the contrast level. The value range is from -64 to 64, and the default setting is 0.
- **Color:** Adjust the colors level. The value range is from -64 to 64, and the default setting is 0.
- **Sharpness:** Adjust the sharpness level. The value range is from -64 to 64, and the default setting is 0.

Audio Settings

Audio Settings	
Audio Format:	<input checked="" type="radio"/> ADPCM (8k,mono) <input type="radio"/> PCM 48K/mono
MIC Input Gain:	<input type="text" value="8"/>
<input type="button" value="Save"/>	

- **Audio Format:** Select the audio format as **ADPCM** or **PCM**.
- **MIC Input Gain:** You can adjust the volume of the microphone for the camera recording.

Note: PCM and ADPCM are different audio codes. PCM has better audio quality, but requires higher bandwidth (8Kbps). ADPCM has slightly less quality and requires less bandwidth (2Kbps). If you are viewing the camera via Internet, we suggest that you set the audio to ADPCM.

Advanced Video

TRENDNET Advanced Day/Night Internet Camera Server
TV-IP301

Name: Location: 2006-05-15 11:40:19

View LiveShow ActiveX
View LiveShow Java
Information
Configuration
• Video & Audio
• Advanced Video
• Event Handling
• FTP & Email
• Motion Detection
• I/O Port
• RS-485
System

Advanced Video

Advanced Image Configuration

White balance: Auto

Exposure: Fixed(1/30s, for auto iris lens)
 Auto

Max exposure: 1/ 30 sec (4-600)

Anti Flicker: 50Hz 60Hz

Backlight Compensation: 0 (0-255)

Noise reduction: 2 (0-5, 0 for disable)

Save

Overlay image

Graphic overlay Enable
Position: x 0 y 0
Image upload: Upload

Text overlay Enable
Position: x 0 y 0
Text:
 include date & time
Text color: White
Background: transparent 75%

Motion detection text overlay Enable
Position: x 0 y 0
Text:
Text color: White
Background: transparent 75%

Save

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The **Advanced Video** page allows you to configure the advanced video settings. Once you have changed the settings in each option, click **Save** to store the settings.

Advanced Image Configuration

Advanced Image Configuration	
White balance:	<input type="text" value="Auto"/>
Exposure:	<input type="radio"/> Fixed(1/30s, for auto iris lens) <input checked="" type="radio"/> Auto
Max exposure:	1/ <input type="text" value="30"/> sec (4-500)
Anti-Flicker:	<input type="radio"/> 50Hz <input type="radio"/> 60Hz
Backlight Compensation:	<input type="text" value="0"/> (0-255)
Noise reduction:	<input type="text" value="2"/> (0-5, 0 for disable)
<input type="button" value="Save"/>	

This field contains the advanced settings for capturing images.

- **White balance:** Select **Auto** or **Fixed** of the white balance setting according to the existing environment.
- **Exposure:** Select **Auto (1/30s)** and **Fixed 1/30 (for auto-iris lens)** of the exposure mode.
- **Max Exposure:** When you select **Auto** exposure mode then you can enter a proper value (4-500) to set the max exposure.
- **Anti-Flicker:** Select the proper frequency (**50Hz** or **60Hz**) to eliminate flicker image.
- **Backlight Compensation:** You can enter a proper value (0-255) to adjust the backlight. This is helpful when the camera is located in a dark environment.
- **Noise reduction:** You can enter a proper value (0-5) to reduce the noise image.

Overlay Image

Overlay Image	
Graphic overlay	<input type="checkbox"/> Enable
	Position: x <input type="text" value="0"/> y <input type="text" value="0"/>
	Image upload: <input type="button" value="Upload"/>
Text overlay	<input type="checkbox"/> Enable
	Position: x <input type="text" value="0"/> y <input type="text" value="0"/>
	Text: <input type="text"/>
	<input type="checkbox"/> include date & time
	Text color: <input type="text" value="White"/>
	Background: <input type="text" value="transparent 75%"/>
Motion detection text overlay	<input type="checkbox"/> Enable
	Position: x <input type="text" value="0"/> y <input type="text" value="0"/>
	Text: <input type="text"/>
	Text color: <input type="text" value="White"/>
	Background: <input type="text" value="transparent 75%"/>
<input type="button" value="Save"/>	

This field is used to control the image/text overlay feature of the camera. The options include: **Enable graphic overlay**, **Enable text overlay**, and **Enable motion detection text overlay**. To enable the feature, select the corresponding check box and complete the required configuration. (Note: The input overlay graphic should be with width and height equal to 16 or multiple of 16, maximum 160x160, and in bitmap (.bmp) format or JPEG (.jpg) format. And **Image overlay** and **Time Stamp** function are not supported in JPEG-QVGA and JPEG-QQVGA mode)

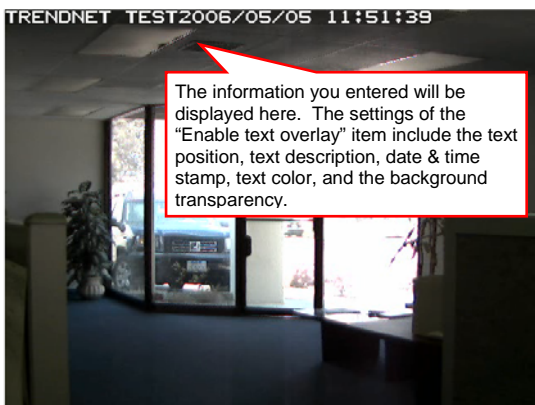
For example, when you select the **Enable text overlay** item and complete the related settings in the following options, you can see the text information on the ActiveX screen.

LiveShow - ActiveX

Camera : TV-IP301

Location :

Video Audio

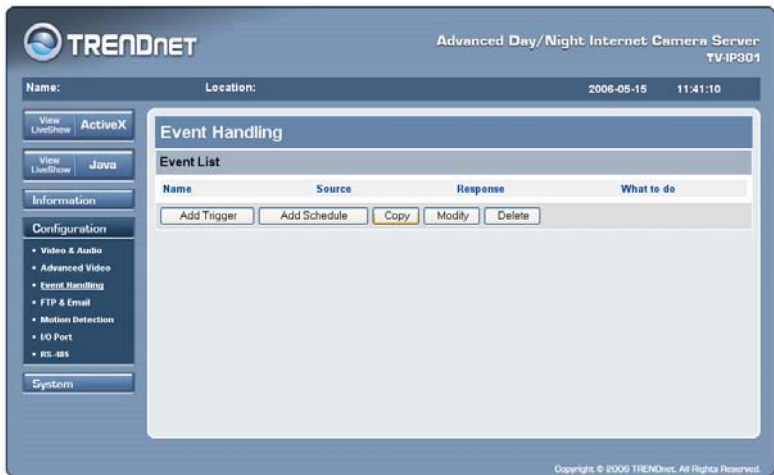


The information you entered will be displayed here. The settings of the "Enable text overlay" item include the text position, text description, date & time stamp, text color, and the background transparency.

Snapshot Record

Output 1 Active

Event Handling



The **Event Handling** page displays a list containing the event(s) for the camera. You can click the **Add Trigger** or **Add Schedule** button to set up the event handling. Once you set up the events, you can also edit the event logs by clicking the **Copy** or **Modify** button. Clicking the **Delete** button allows you to remove the selected event.

For example, the following window will appear when you click **Add Schedule** to arrange a schedule event, so that you can configure the events by giving the **Schedule Event Name**, assigning the **Schedule Time Frame**, and deciding **What to do**.

Handle Schedule

Schedule Event Name

Schedule Time Frame

Always

Never

Only during time frame:

Trigger interval seconds

What to do

FTP upload

Mail notify

Output port 1

Output port 2

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- **Schedule Event Name:** Enter a name for the event that you create.

- **Schedule Time Frame:** You can select **Always**, **Never**, or **Only during time frame** to set up the time frame for response. Or, you can manually enter the trigger interval time. If you select the **Only during time frame** option in this field and click **Config**, the following window will appear, which allows you to assign the specific time frame.

Handle Time Frame

Time Frame List

Name

Details of Time Frame

Name:

Days: Sun Mon Tue Wed Thu Fri Sat

Times:

Start time: :

Stop time: :

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- **What to do:** You can decide the camera's response when triggered, including **FTP upload**, **Mail notify**, and **Output port 1/2**. Select the desired method and then complete the required configuration. If you select the **FTP upload** or **Mail notify** option, you can click **Configuration** to set up the ftp/mail configuration. The setting options will be explained in the following section.

Ftp & Mail

The screenshot shows the configuration interface for a TrendNet camera server. At the top, it displays the TrendNet logo and the device name 'Advanced Day/Night Internet Camera Server TV-IP301'. Below this, there are fields for 'Name:', 'Location:', and the current date and time '2006-05-15 11:42:57'. A left-hand navigation menu includes options like 'View Livestow ActiveX', 'View LiveShow Java', 'Information', 'Configuration', and 'System'. The 'Configuration' menu is expanded to show 'FTP & Mail' as the selected option. The main content area is titled 'FTP & Mail Configuration' and is divided into two sections: 'FTP Server Configuration' and 'Mail Server Configuration'. The 'FTP Server Configuration' section includes fields for 'FTP site:', 'Port:' (set to 21), 'Path/directory:', 'Passive mode:' (with 'Yes' selected), 'User name:', and 'Password:', followed by a 'Save' button. The 'Mail Server Configuration' section includes fields for 'Sender email address:', 'SMTP server address:', 'SMTP username:', and 'SMTP password:', a 'PPPoE mail receiver:' field with a 'Test' button, and a checked checkbox for 'Send mail to PPPoE receiver when startup using PPPoE', with a 'Save' button at the bottom. A copyright notice 'Copyright © 2006 TRENDnet. All Rights Reserved.' is visible at the bottom right of the interface.

The **Ftp & Mail** page contains the options that allow you to upload images to the FTP server and send images by e-mail. Once you have changed the settings in each option, click **Save** to store the settings.

FTP Server Configuration

FTP & Email Configuration	
FTP Server Configuration	
FTP site:	<input type="text"/>
Port:	<input type="text" value="21"/>
Path/directory:	<input type="text"/>
Passive mode:	<input checked="" type="radio"/> Yes <input type="radio"/> No
User name:	<input type="text"/>
Password:	<input type="text"/>
<input type="button" value="Save"/>	

- **FTP site:** Enter the IP address of the target FTP site.
- **Port:** The standard port number for the FTP server is port **21**, and it's also the default setting. If the FTP server uses a specific port, please confirm the IT manager.
- **Path/directory:** Enter the path/directory for uploading the images.
- **Passive mode:** Click **Yes/No** to enable/disable passive mode.
- **User name/Password:** Enter the user name and password in the two fields to login the FTP server.

Mail Server Configuration

Mail Server Configuration	
Sender email address:	<input type="text"/>
SMTP server address:	<input type="text"/>
SMTP username:	<input type="text"/>
SMTP password:	<input type="text"/>
PPPoE mail receiver:	<input type="text"/> <input type="button" value="Test"/>
<input checked="" type="checkbox"/> Send mail to PPPoE receiver when startup using PPPoE	

- **Sender email address:** Enter the e-mail address of the user who will send the e-mail.
- **SMTP server address:** Enter the mail server address in the field.

- **SMTP username/password:** Enter the user name and password in the two fields to login the mail server.
- **Enable sending mail with IP address on startup when using PPPoE:** You will receive an e-mail automatically regarding to your camera's IP address once you select this option. Enter the receiver's e-mail address in the following box and click Test to test the function. You will get the test result as below information window (**OK** or **Fail**).

Mail OK

The test mail was sent.

Close

Or

Mail fails!

Mail transferring fails. Please check your mail address and mail server setting again.

Close

Motion Detection



The **Motion Detection** page contains the options that allow you to setup the motion detection settings of the camera. Once you have changed the settings in each option, click **Save** to store the settings.

To enable the detecting area, select the check box of **Window 1/2**. Then, you can use the mouse to move the detecting area and change the area coverage.

In addition, you can move the slide bars to adjust the **Scale** level and **Threshold** level for detecting motion to record video.

I/O Port

The screenshot shows the web interface for an Advanced Day/Night Internet Camera Server (TV-IP301). The page title is "I/O Port". The interface includes a navigation menu on the left with options like "View LiveShow", "ActiveX", "Java", "Information", "Configuration", and "System". The main content area displays the "Generic Input Status" and "Generic Output Status".

Generic Input Status

Input source:	Active
---------------	--------

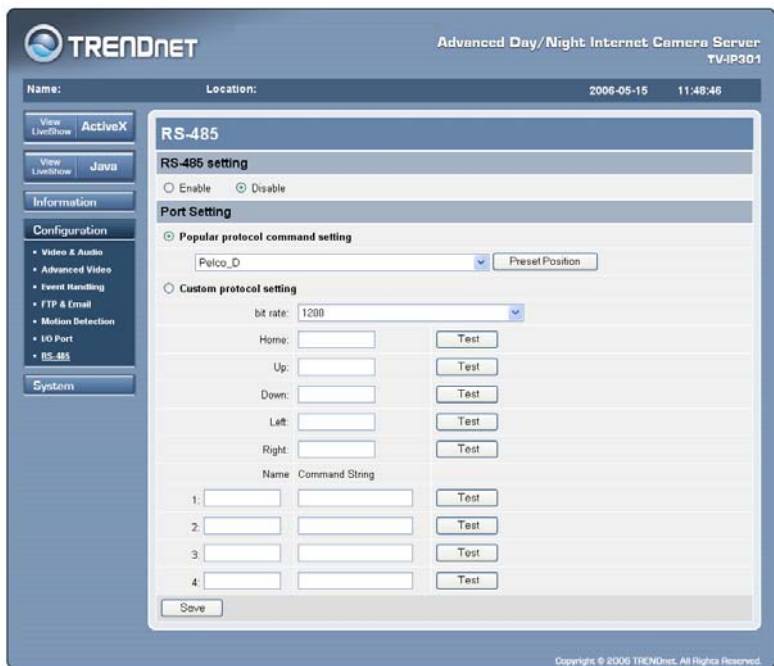
Generic Output Status

Output switch1:	Off	<input type="button" value="Active"/>
Output switch2:	Off	<input type="button" value="Active"/>

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The **I/O Port** page allows you to setup the **Generic Input Status** and **Generic Output Status**.

RS-485



The **RS-485** page contains the control settings for external device through the I/O port. Once you have changed the settings in each option, click **Save** to store the settings.

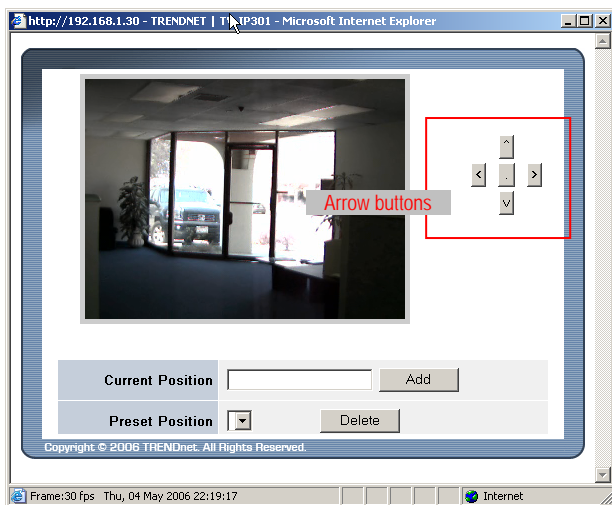
***NOTE:** When you enable RS-485 function of the camera, it will provide the additional control buttons on the View Image screen. See the illustrations on page 55, 56.*

RS-485 setting

Select the **Enable** option to enable the function of the camera, and complete the related settings in the following fields.

Port Setting

- **Popular protocol command setting:** Select the proper protocol from the pull-down menu. You can click the **Preset Position** button to bring up a control window, which allows you to control the camera with more options.



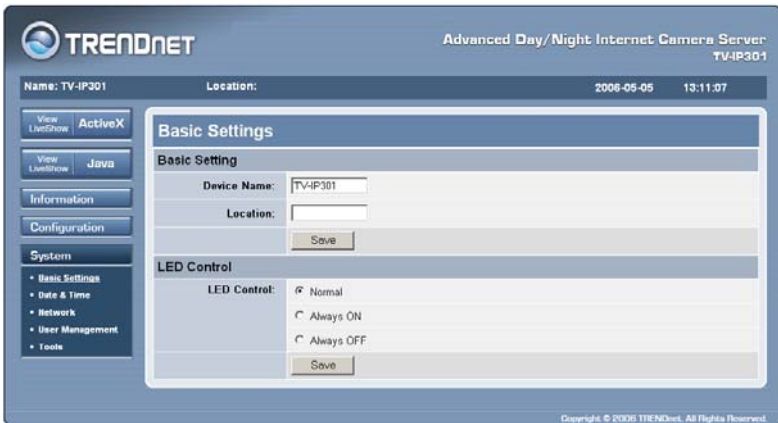
Arrow buttons	Use these buttons to move the camera's lens to your desired position. Click the center button to return to the default home position.
Current Position	When you move the camera's lens to your desired position, assign the position by entering a name (a maximum of 16 characters) in this box, then click Add . The position will be saved in

	the Preset Position with a number.
Preset Position	When you have saved position(s) in the camera, select the position number from the pull-down list; the camera's lens will move to the position immediately. You can use the Delete button to remove the preset position(s). You can save up to 8 positions.

- **Custom protocol setting:** Selecting this field allows you to configure the commands protocol manually. You can click **Test** to test each command that you have assigned. In the **Name** and **Command String** boxes, you can customize more buttons for your needs. Please note that the setting values in the **Command String** boxes should be from the connected external device (please refer to the manual of connected device).

System

Basic Settings



The **Basic Settings** page contains the settings for identifying the camera, including Device Name and Location. Also, you can change the LED Control in this page. Once you have changed the settings in each option, click **Save** to store the settings.

Basic Setting

Basic Settings	
Basic Setting	
Device Name:	<input type="text" value="TV-IP301"/>
Location:	<input type="text"/>
	<input type="button" value="Save"/>

- **Device Name:** Enter a descriptive name for the camera.

- **Location:** Enter a descriptive name for the location used by the camera.

LED Control

LED Control	
LED Control:	<input checked="" type="radio"/> Normal <input type="radio"/> Always ON <input type="radio"/> Always OFF
<input type="button" value="Save"/>	

The LED control allows you to setup the LED illumination as desired. This feature provides the flexibility when surveillance activity is **Normal**. There are three options: **Normal**, **Always ON**, and **Always OFF**.

Date & Time

The screenshot shows the configuration interface for a TrendNet camera. The page title is "Advanced Day/Night Internet Camera Server TV-IP301". The camera name is "TV-IP301" and the location is "2006-05-05 13:12:10". On the left, there is a navigation menu with options: View LiveShow (ActiveX), View LiveShow (Java), Information, Configuration, System, Basic Settings, Date & Time, Network, User Management, and Tools. The "Date & Time" section is active and contains the following settings:

- Synchronize with Time Server
 - IP Address:
 - Protocol: NTP TIME
 - Time Zone:
- Synchronize with this PC
 - This PC: 2006-05-05 13:11:37
- Set Manually
 - Date: (yyyy-mm-dd)
 - Time: (hh:mm:ss)

A "Save" button is located at the bottom of the configuration area. The footer of the page reads "Copyright © 2006 TRENDnet. All Rights Reserved."

The **Date & Time** page contains the commands to set up the camera's time and date. Once you have changed the settings in each option, click **Save** to store the settings.

Synchronize with Time Server

Select this option and the time will be based on GMT setting. When selecting the option, you have to enter the required information in the following fields:

- **IP Address:** Enter the IP Address of the Time Server.
- **Protocol:** Select proper protocol: **NTP** or **TIME**.
- **Time Zone:** Select the time zone for the region from the pull-down menu. Please refer to the Appendix for the time zone selection table.

Synchronize with this PC

Select this option and the time will be based on the computer's setting.

Set Manually

Select this option to set the time manually.

Network

The screenshot shows the 'Network' configuration page for a TrendNet camera. The page has a blue header with the TrendNet logo and the title 'Advanced Day/Night Internet Camera Server TV-IP301'. Below the header, there are fields for 'Name:', 'Location:', and a timestamp '2006-05-15 11:49:46'. On the left side, there is a navigation menu with options like 'View LiveShow ActiveX', 'View LiveShow Java', 'Information', 'Configuration', and 'System'. The main content area is titled 'Network' and contains several sections: 'IP Address' with radio buttons for 'Use fixed IP address' (selected), 'Obtain IP address automatically via DHCP', and 'Obtain IP address automatically via PPPoE'. The fixed IP address section has input fields for 'Fixed IP address' (192, 168, 1, 30), 'Subnet Mask' (255, 255, 255, 0), and 'Default Gateway'. Below this are fields for 'User ID' and 'Password'. A 'Save' button is present. The next section is 'DNS Server IP Address' with a note 'Use following DNS Server address' and input fields for 'Primary DNS' and 'Secondary DNS', each with four boxes. A 'Save' button is also here. The 'Dynamic DNS Service' section has a checkbox 'Enable Dynamic DNS service' which is unchecked. It includes a 'Service Provider' dropdown menu (set to 'www.EZ-IP.Net'), and input fields for 'Host Name', 'User Name', and 'Password'. A 'Save' button is at the bottom of this section. The 'Http Port' section has a text input field for 'Http port' (set to 80) and a note '(default is 80)'. A 'Save' button is below. The 'UPnP' section has a checked checkbox 'Enable UPnP' and a 'Save' button. At the bottom right of the page, there is a small copyright notice: 'Copyright © 2006 TRENDnet. All Rights Reserved.'

The **Network** page contains the commands that allow you to set up networking configuration for the camera. Once you have

changed the settings in each option, click **Save** to store the settings.

IP Address

IP Address	
<input checked="" type="radio"/> Use fixed IP address	
Fixed IP address:	<input type="text" value="192"/> . <input type="text" value="168"/> . <input type="text" value="1"/> . <input type="text" value="30"/>
Subnet Mask:	<input type="text" value="255"/> . <input type="text" value="255"/> . <input type="text" value="255"/> . <input type="text" value="0"/>
Default Gateway:	<input type="text"/> . <input type="text"/> . <input type="text"/> . <input type="text"/>
<input type="radio"/> Obtain IP address automatically via DHCP	
<input type="radio"/> Obtain IP address automatically via PPPoE	
User ID:	<input type="text"/>
Password:	<input type="text"/>
<input type="button" value="Save"/>	

- **Use Fixed IP Address:** You can select this option and enter the IP address directly. The default settings are:
 - Fixed IP Address – 192.168.1.30
 - Subnet Mask – 255.255.255.0
 - Default Gateway – blank
- **Obtain IP address automatically via DHCP:** If your network uses the DHCP server, select this option. According to this setting, the camera will be assigned an IP address from the DHCP server automatically. Every time when the camera starts up, please make sure that the DHCP server is set to assign a static IP address to your camera.
- **Obtain IP address automatically via PPPoE:** If your application requires a direct connection from an ADSL modem through the camera's RJ-45 LAN port, select this option and enter the User ID and Password into the respective

boxes. (Note: You should have an ISP PPPoE account.) The camera will get an IP address from the ISP as starting up.

You will receive an e-mail automatically regarding to your camera's IP address once you check the “**Enable sending mail with IP address on startup when using PPPoE**” option (see page 35). Please kindly note that the mail will be sent according to the "Receiver e-mail" you filled from the Trigger web page. Moreover, this feature only applied to PPPoE mode.

DNS Server IP Address

DNS Server IP Address	
Use following DNS Server address	
Primary DNS:	<input type="text"/> . <input type="text"/> . <input type="text"/> . <input type="text"/>
Secondary DNS:	<input type="text"/> . <input type="text"/> . <input type="text"/> . <input type="text"/>
<input type="button" value="Save"/>	

DNS (Domain Name System) server is an Internet service that translates domain names into IP addresses. Enter at least one DNS IP address in the **Primary/Secondary DNS** fields.

Dynamic DNS Service

Dynamic DNS Service	
<input type="checkbox"/> Enable Dynamic DNS service	
Service Provider:	<input type="text" value="www.EZ-IP.Net"/>
Host Name:	<input type="text"/>
User Name:	<input type="text"/>
Password:	<input type="text"/>
<input type="button" value="Save"/>	

Select the **Enable Dynamic DNS Service** option to enable the Dynamic DNS feature of the camera, which allows you to run your domain over a changing IP address. Select one **Service**

Provider from the pull-down menu, and then enter the required information in the following fields, including the **Host Name**, **User Name**, and **Password**.

Http Port



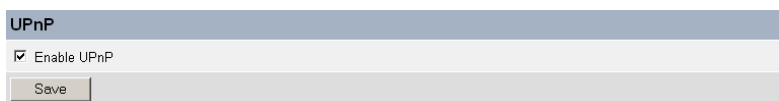
Http Port

Http port: (default is 80)

Save

The default HTTP Port is **80**.

UPnP



UPnP

Enable UPnP

Save

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

Wireless (for TV-IP301W)

TRENDNET Advanced Wireless Day/Night Internet Camera Server TV-IP301W

Name: Location: 2006-05-15 11:52:38

View LiveShow ActiveX
View LiveShow Java

Information
Configuration
System

- Basic Settings
- Date & Time
- Network
- Wireless
- User Management
- Tools

Wireless

Wireless Communication

Wireless Communication: Disabled Enabled (if enabled, configure settings below)

Connection Mode: Infrastructure Ad-Hoc SiteSurvey

ESSID: default

Channel: 11

Authentication Mode: Open System

Security Method: None WEP

Key Format: ASCII

Key Length: 64bits

Key 1:

Key 2:

Key 3:

Key 4:

WPA-PSK: TKIP AES

Pre-shared key:

Save

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If you use a wireless camera, you can configure the respective settings in the **Wireless** page. You can also disable the wireless function by selecting the **Disable wireless communication** option.

- **Connection Mode:** Use this option to determine the type of wireless communication for the camera. The available settings are **Infrastructure** mode and **Ad-Hoc** mode.
- **ESSID:** The ESSID (Extended Service Set ID) is a unique identifier shared among all points in a wireless network environment. The default Network Name is blank space (NULL String), and this default setting will allow the camera

to connect to ANY access point under the infrastructure network mode.

To connect the camera to a specific access point on the network, please make sure to set the ESSID of the camera to correspond with the access point's ESSID for communication. Enter a name in the Network Name box (a maximum of 32 characters including spaces and symbols, the punctuation are not allowed).

To connect the camera to an Ad-Hoc wireless workgroup, please make sure to set the same wireless channel and ESSID to match with the computer's settings for direct wireless communication under the Ad-Hoc wireless workgroup.

- **Channel:** This pull-down menu provides the wireless channel for communication. A "channel" is a range of frequencies to be used in communication between the camera and access point in Infrastructure mode, or the camera and PC/Notebook in Ad-Hoc mode. Select the appropriate channel from the list provided depending on the regulatory region where the unit is sold.
- **Authentication Mode: Open System** communicates the key across the network. **Shared** allows communication only with other devices with identical WEP settings.
- **Security Method:** Wireless network communications can be intercepted easily. Select the **WEP** option to enable the security feature of camera, which helps you protect your wireless network.
- **Key Format:** To enable WEP Encryption, you should decide the encryption format first by selecting the **ASCII** or **HEX** option, and then input the WEP key (in the following **Key 1~4** box).

ASCII input format: ASCII format causes each character you type to be interpreted as an eight-bit value. All unaccented upper- and lower-

case Western European characters that can be input through your keyboard's typing zone are valid. To setup a 64-bit WEP key, input 5 ASCII characters. For example, '12345'. To setup a 128-bit WEP key, input 13 ASCII characters. For example, '1234567890123'. These character counts result in bit counts of 40 and 104 respectively; the camera will automatically pad your input to a bit count of 64 or 128.

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

- **Key Length:** Select the proper setting for WEP Encryption. In general, a larger key length creates a stronger cipher. The default setting is **64bits**.
- **WPA-PSK:** This is a special mode designed for home and small business users who do not have access to network authentication servers. In this mode, the user has to manually enter the starting password in their access point or gateway, as well as in each PC on the wireless network. This mode includes two options: **TKIP** and **AES**.

TKIP	TKIP (Temporal Key Integrity Protocol) changes the temporal key every 10,000 packets. This insures much greater security than the standard WEP security.
AES	AES (Advanced Encryption Standard) is used to ensure the highest degree of security and authenticity for digital information.

- **Pre-shared key:** This is used to identify each other in the network. Enter the name in the **Pre-shared key** box, and this name must match the Pre-shared key value in the remote device.

User Management

The screenshot displays the 'User Management' page of a TrendNet device. At the top, it shows the device name 'Advanced Wireless Day/Night Internet Camera Server TV-IP301W' and the current date and time '2006-05-15 11:53:19'. A left-hand navigation menu includes options like 'View LiveShow', 'ActiveX', 'Java', 'Information', 'Configuration', 'System', and 'Tools'. The main content area is titled 'User Management' and contains a 'User List' table with columns for 'UserName' and 'Group'. The table lists a single user 'admin' with the group 'Administrator'. Below the table is a 'Delete' button. Underneath is a form for adding or modifying a user, with fields for 'User Name', 'Password', and 'Confirm Password'. The 'Privilege group' section has radio buttons for 'General user' (selected), 'Operator', and 'Administrator'. An 'Add/Modified' button is located below these options. At the bottom, the 'User Setting' section includes a checkbox for 'Enable anonymous user access (without user name or password)' and a 'Save' button. A copyright notice 'Copyright © 2006 TRENDnet. All Rights Reserved.' is visible at the very bottom of the interface.

The **User Management** page provides the commands that allow the system administrator to assign legal users who are permitted to monitor the camera from the remote site. Once you have changed the settings in each option, click **Save** to store the settings.

User List

User List	
UserName	Group
admin	Administrator

Delete

The User List displays the existing users of the camera. You can delete a user from this list.

To add or modify a user, complete the required settings in the following **User Management** field, including **User Name**, **Password**, **Confirm Password**, and setup the **Privilege group**.

User Setting

User Setting
<input type="checkbox"/> Enable anonymous user access (without user name or password)
Save

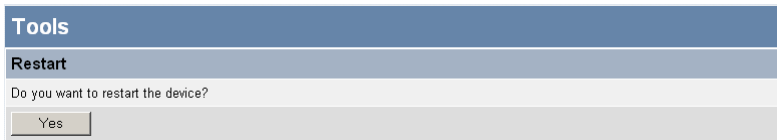
Selecting the option allows anyone to access the camera.

Tools



The **Tools** page provides the commands that allow you to restart or reset the camera. You can also upgrade the firmware for the camera from this page.

Restart



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

Factory Reset

Factory Reset	
Do you really want to restore factory default?	
<input type="button" value="Yes"/>	

Do you really want to factory reset this device? Click **YES** from this option, and you can resume all factory default settings for the camera.

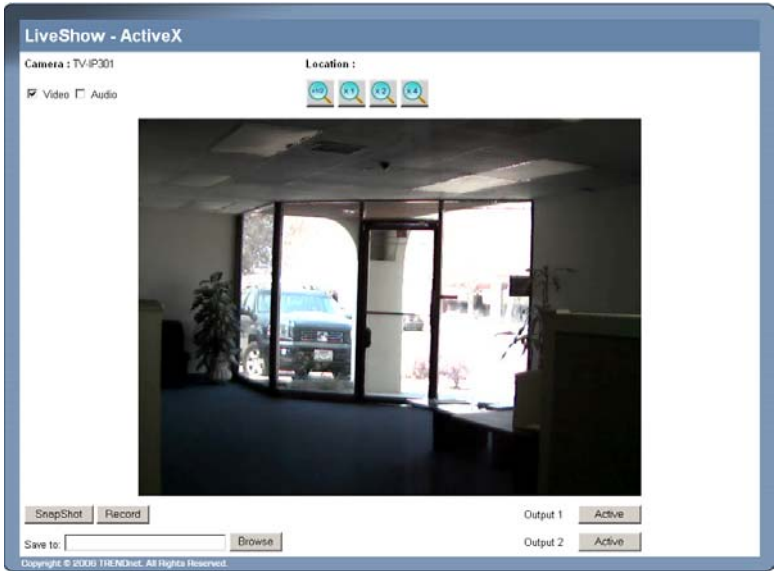
Firmware Upgrade

New Firmware File:	<input type="text"/>	<input type="button" value="Browse"/>
Warning: make sure to choose correct version before clicking "Update" button.		
<input type="button" value="Update"/>		

This option allows you to update the firmware of the camera once you obtained a latest version of firmware. Click **Browse** to find the firmware file saved in your computer, then click **Update**.

Viewing Image – Active X Mode

To view video images from the browser, click the Live Show ActiveX button to access the video images as illustrated below:



Camera/Location

The camera's name and location will be displayed when the Device Name and Location fields are assigned in the Web Configuration Utility.

Video/Audio

You can enable/disable the video and audio function by selecting the desired check box(s).

Zoom In/Out

Clicking the Zoom In/Out button to zoom in/out the video image.



: Reduce the image size by 50%.



: Resume the original size of the image.



: Enlarge the image size by 200%.



: Enlarge the image size by 400%.

Snapshot/Record

Click the **Snapshot** button to capture a still image; click the **Record** button to start recording. To use the features, you have to assign a destination from the **Save to** field to store the files.

Output 1/2

You can turn on/off the output device manually by clicking the **ON/OFF** button.

Viewing Image– JAVA Mode

To view video images from the browser, click **View Image – Java Mode** from the Welcome screen to access the video images from Internet Explorer or Netscape browser as illustrated below:



Camera/Location

The camera's name and location will be displayed when the Device Name and Location fields are assigned in the Web Configuration Utility.

Video/Audio

You can enable/disable the video and audio function by selecting the desired check box(s).

Browse/Capture

Allow you to capture and save the video image. At Java mode: the "Browse" function includes path selection and file name input. And the "Capture" function includes path selection, file name input and image capture and save.

RS-485 Controlling Function

When you enable RS-485 function of the camera, the system will provide the additional control buttons on the Live Show screen (Figure1 for Active X mode, Figure2 for JAVA mode) as below.

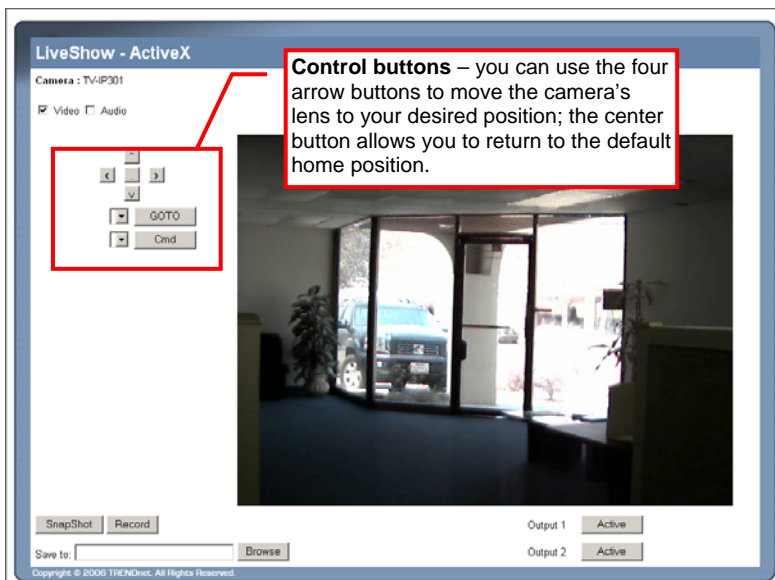


Figure1: Active X mode

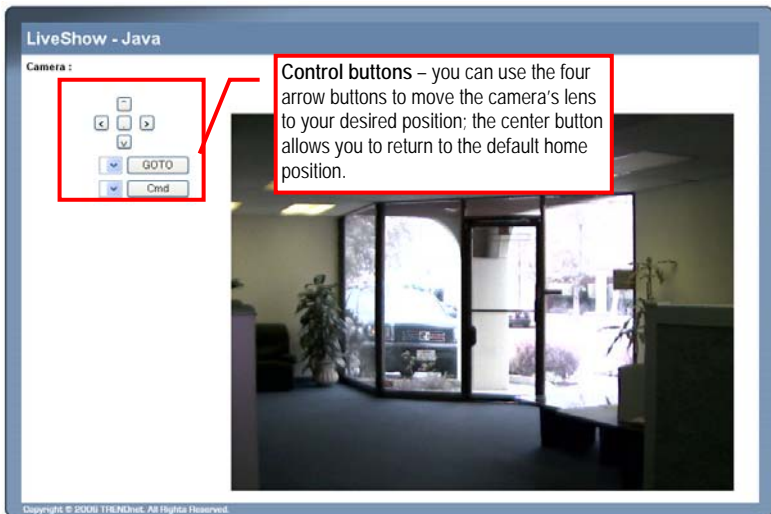


Figure2: JAVA mode

When you select **Popular protocol command setting** in RS-485 configuration window (see page 40), you can use the **GOTO** pull-down list to select one position, then click **GOTO** to move the camera's lens to your desired position.

If you select **Custom protocol setting** in RS-485 configuration window (see page 41), you can use the **Cmd** pull-down list to select one position, then click **Cmd** to move the camera's lens to your desired position.

IPVIEW PRO

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

Installation

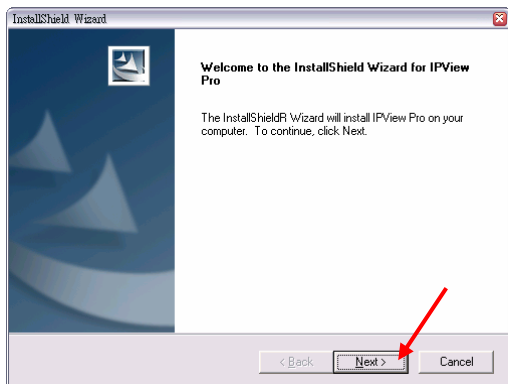
Step 1

Insert the CD-ROM into the CD-ROM drive to initiate the auto-run program. The menu screen will appear as below:



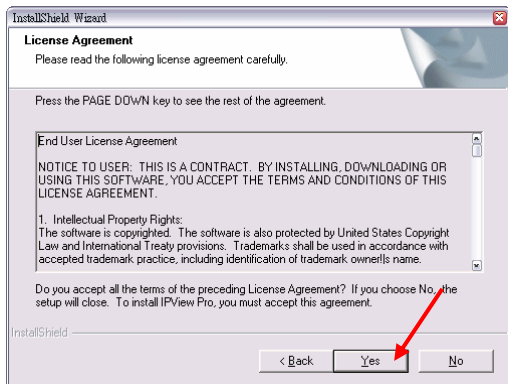
Step 2

Click the **IPView** item to activate the InstallShield Wizard. Click *Next* in the welcome screen.



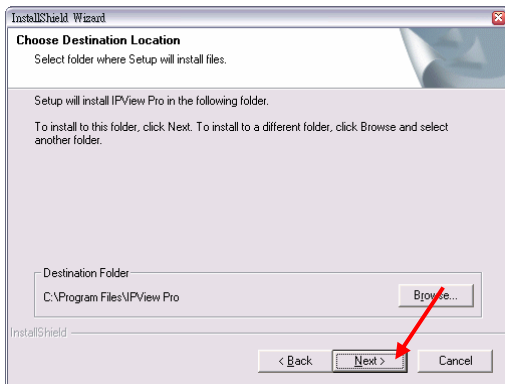
Step 3

Read and accept the License Agreement; then, click *Yes*.



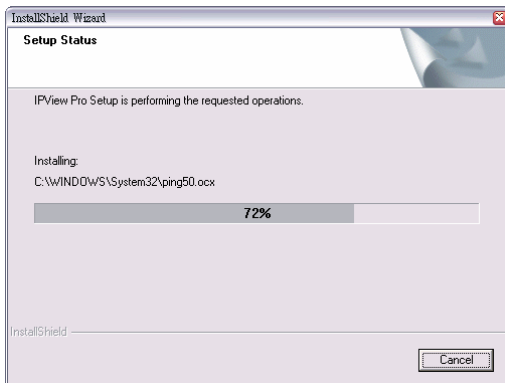
Step 4

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



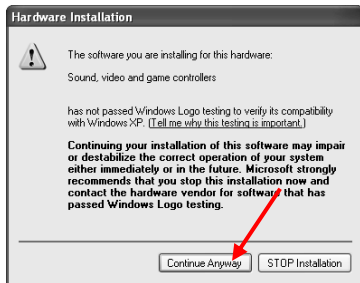
Step 5

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



Step 6

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



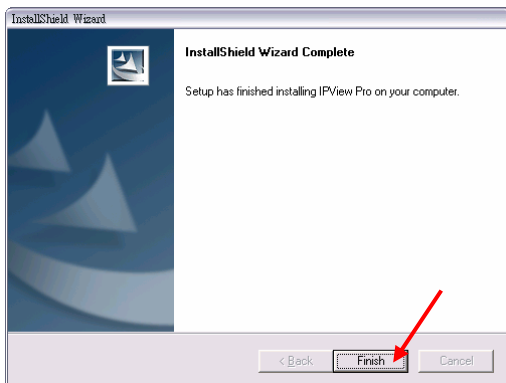
Windows® XP



Windows® 2000

Step 7

Click *Finish* to complete the installation.



Getting Started


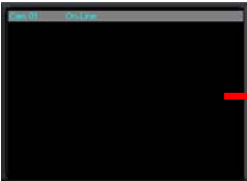



This section describes the User Interface of IPView Pro, with detailed procedures for using the application.









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



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

Item Feature

NO.	Item	Description
1	Date/Time	Show current date/time.
2	Status Mode Window	<p>Show the camera's status in this window. Click the <i>Change Status Mode</i> button () on the right lower corner of the window to change the display mode:</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Camera list mode</p> </div> <div style="text-align: center;">  <p>Camera information mode</p> </div> </div>
3	View Window	Show the camera's view in this window.
4	Connect/ Disconnect	Click to connect/disconnect the camera.
5	Rotate image angle	Click to rotate the image shown in the View Window.
6	Snapshot	Click to capture a still image from the View Window.
7	Audio ON/OFF	Click to turn on/off the camera's audio.
8	Zoom Mode	Click to zoom in/out the image in the View Window.
9	View Mode Buttons	<p>Select the view mode from these buttons.</p> <div style="display: flex; flex-direction: column; gap: 10px;"> <div style="display: flex; align-items: center;">  Show one camera in View Window. </div> <div style="display: flex; align-items: center;">  Show four cameras in View Window. </div> </div>

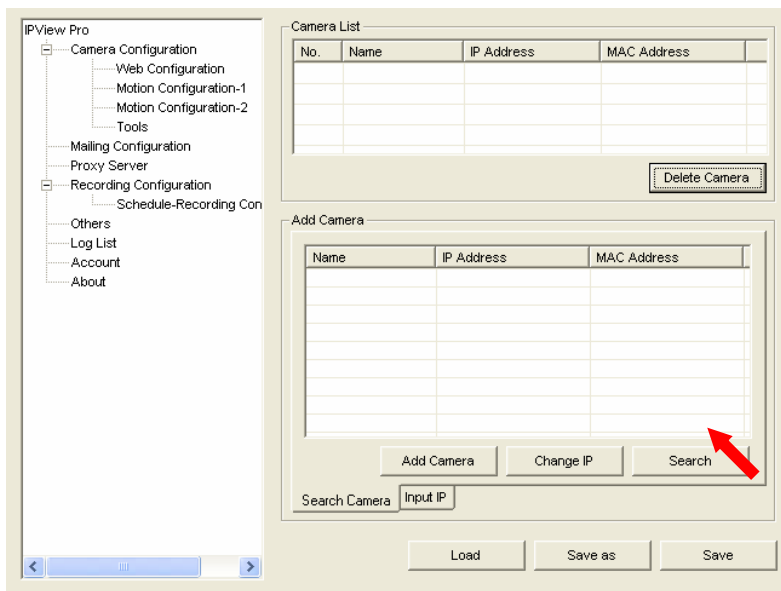
		 Show six cameras in View Window with the first one as the major view.  Show eight cameras in View Window with the first one as the major view.  Show nine cameras in View Window.  Show ten cameras in View Window with the first two as the major views.  Show thirteen cameras in View Window with the first one as the major view.  Show sixteen cameras in View Window.  Show the selected camera in full screen view.  Enable displaying the video views in circles.
10	Key Lock Button	Click to lock/unlock the camera. When locked, the user cannot operate any camera.
11	Power Button	Click to exit or minimize IPView Pro.
12	Record Button	Record video clip of the selected camera and save it in the computer. The storage position can be configured in System Configuration. When you click the button, you can select Manual Record , Schedule Record , or Motion Record .
13	Play Button	Play the recorded video file in the computer.
14	System Configuration	Click to enter the System Configuration.

Using IPView Pro

Adding a Camera

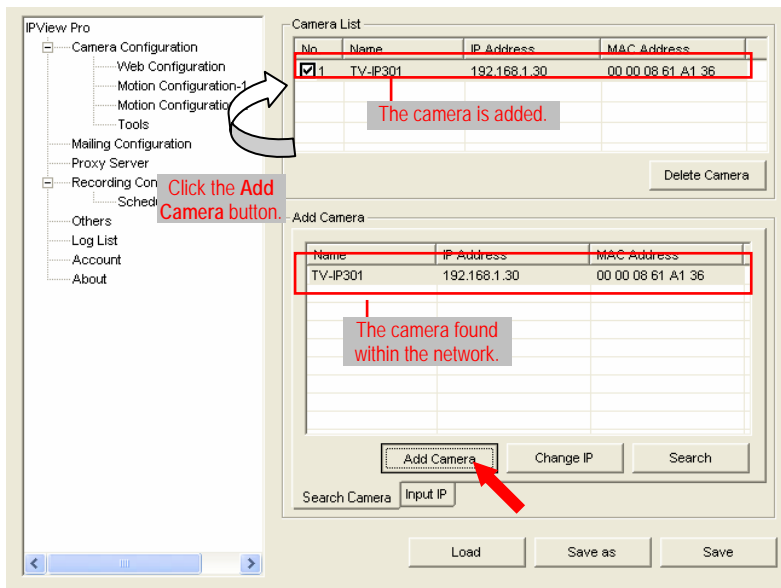
To add a camera:

1. Click the *System Configuration* button to enter the System Configuration.



If you are not sure of the camera's IP address, you can click *Search* to search the available camera(s) within the network.

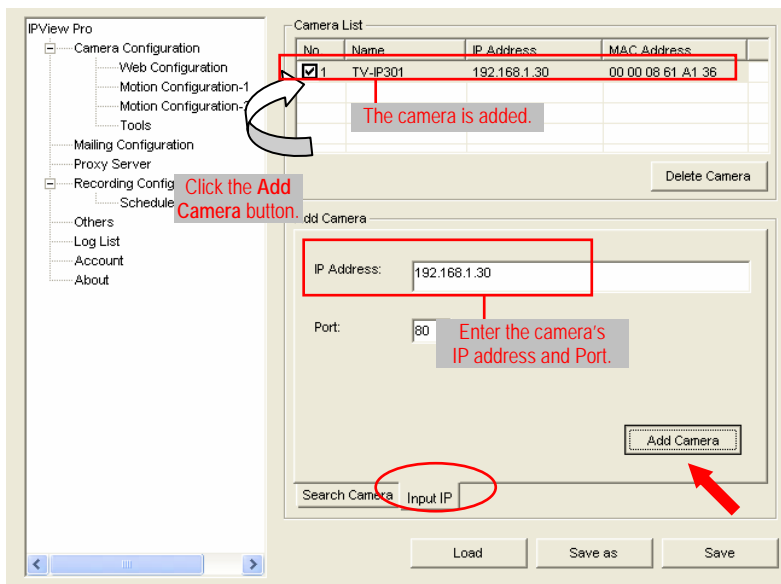
2. Select the camera you want by highlighting it, and then click **Add Camera**.



3. Click **Save**, and then click the **System Configuration** button to return to View Window. The selected camera's video will be displayed now. You can click **Save as** to save the selected cameras into the desired path and the selected cameras can be reloaded by **load** button.

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

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

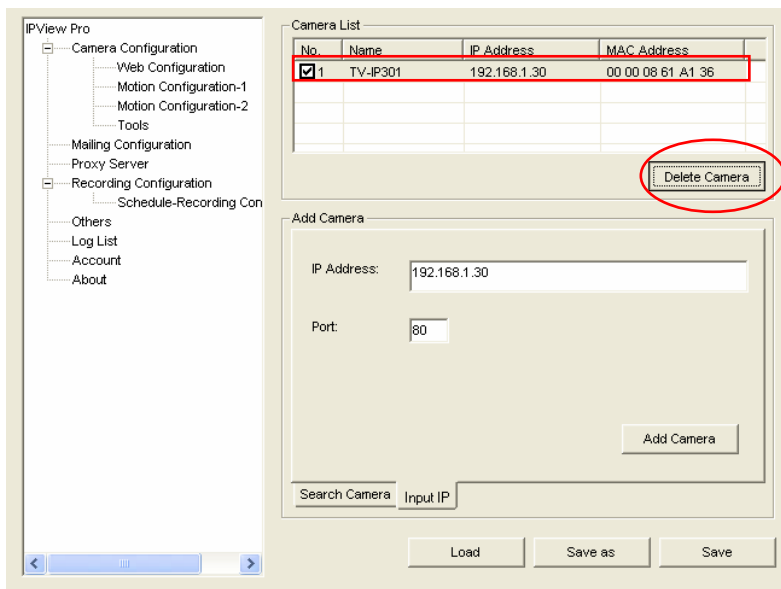


5. Enter the camera's IP address (default: 192.168.1.30) and Port (default: 80), and then click **Add Camera**.
6. Click **Save**, and then click the **System Configuration** button to return to View Window. The selected camera's video will be displayed now.

Removing a Camera


To remove the camera from the list:

1. Select the camera you want to remove.
2. Click *Delete Camera*.



Viewing a Camera

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

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

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

Figure 1

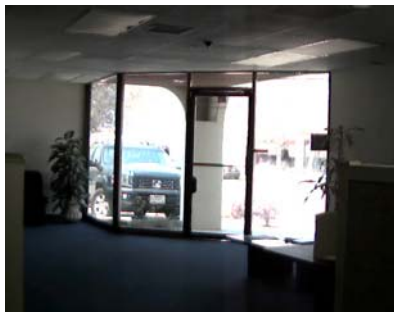


Figure 2



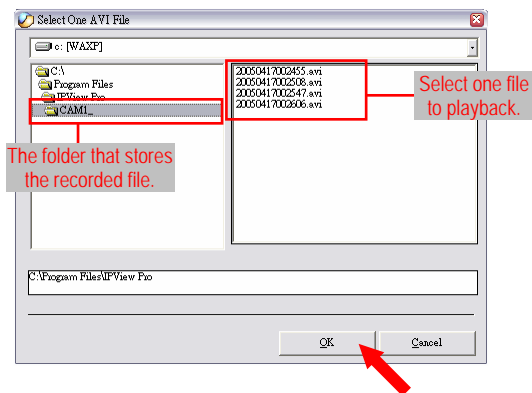
Recording Video

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

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

Playing Recorded Video

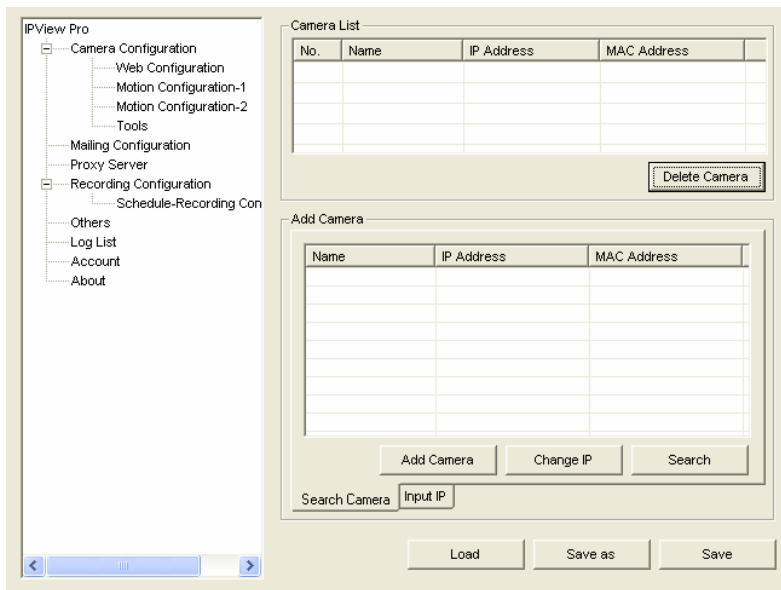
The recorded video clips are saved in your computer, and can be played using Windows Media Player. To start playback, simply click the *Play* button on the panel, and the following dialog screen will appear, allowing you to select the file to playback.



Select the recorded file in the computer, and then click *OK*.

Configuring the System

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



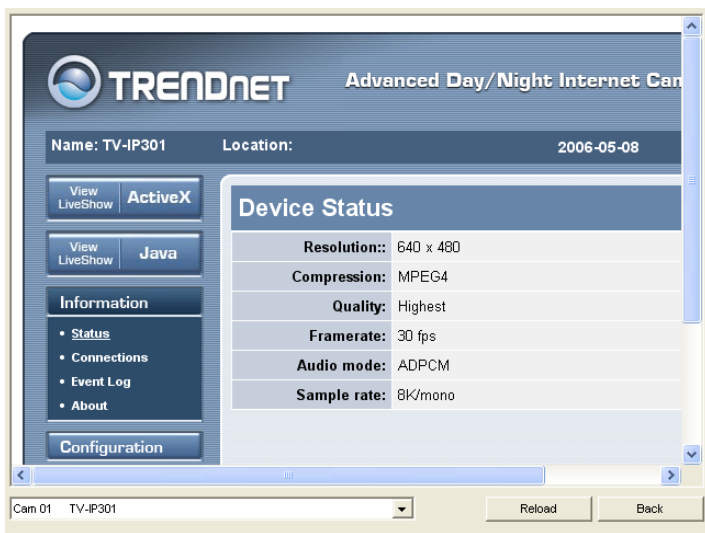
System Configuration Screen

Camera Configuration

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

Web Configuration

In the left column, selecting the **Web Configuration** item will launch the Web Configuration Utility in View Window.



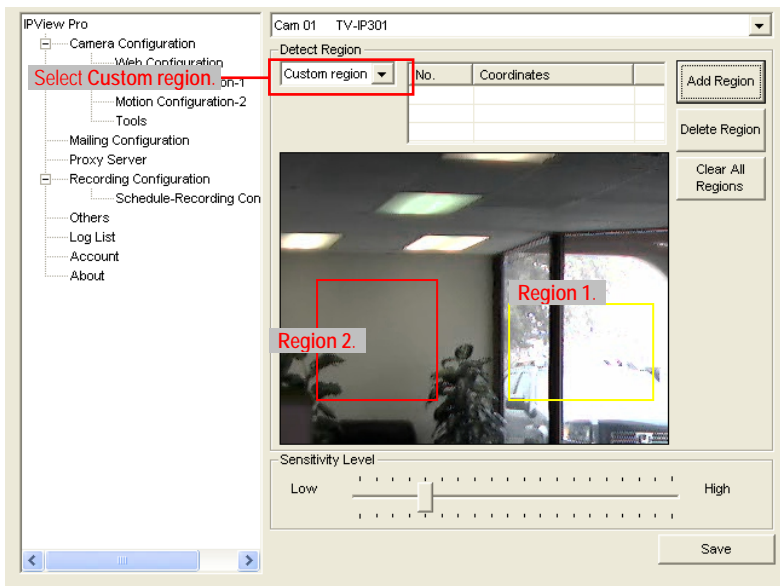
You can configure these settings according to the description in *Chapter 5, Using the Camera*. Click *Back* to exit the Web Configuration Utility.

Motion Configuration-1

The **Motion Configuration-1** item provides the commands for motion detection control. Before configuring, you should select one camera from the pull-down menu.

Select one camera.

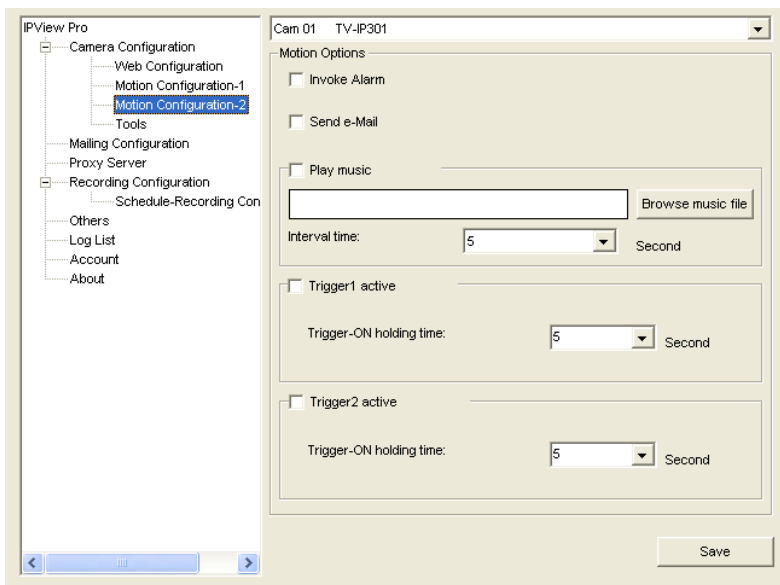




- **Detect Region:**
 - **Full picture** – When you select this option, the camera will monitor the whole area.
 - **Custom region** – Click **Add Region**, and then use mouse to draw an area in the view screen; when some motion detected within the area, the camera starts recording automatically. You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

Motion Configuration-2

The **Motion Configuration-2** item allows you to configure to the alarm and e-mail setting.

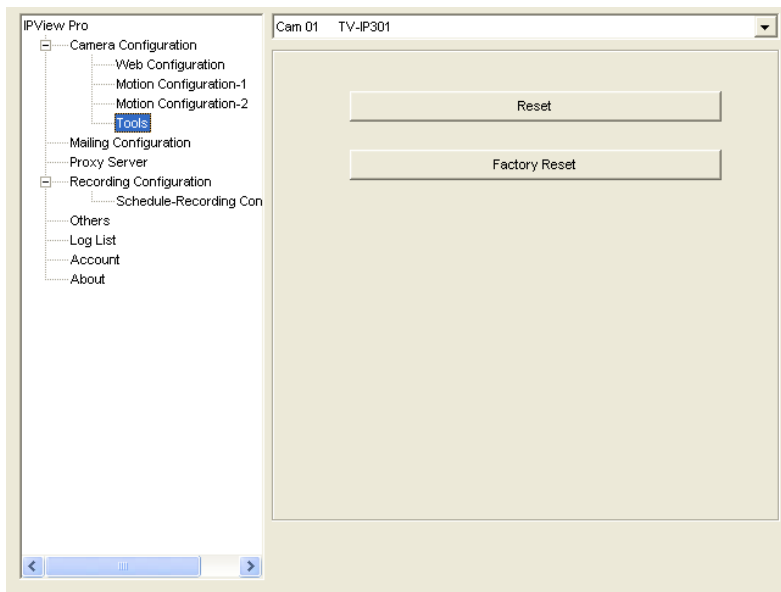


- **Invoke Alarm:** Select this option to enable alarm when some motion detected by the system.
- **Send e-mail:** When this option is checked, click the **Mailing Configuration** in the left column to enter the required information (see the following section).
- **Play music:** You can use the music file to alert the event. Click *Browse music file* to select the desired music, and set the **Interval time**.

- **Trigger1 active:** You can check this option to set the **Trigger-On holding time.**

Tools

The **Tools** item allows you to configure to the alarm and e-mail setting.



- **Reset:** Restore the original setting of your camera. Do you really want to reset this device? Click *Yes* in the pop-up dialog box to confirm.

- **Factory Reset:** Restore the factory default settings of the camera. Do you really want to factory reset this device? Click *Yes* in the pop-up dialog box to confirm.
- **Update Firmware:** When new firmware is available, you can upgrade it using this option. Click *Browse* to find the firmware file, and then click *Update*.

Mailing Configuration

When Motion Detection function is enabled and the **Send e-mail** option is checked, you should enter the required information in the respective fields.

The screenshot shows the 'IPView Pro' interface. On the left, a tree view lists configuration categories: Camera Configuration (with sub-items: Web Configuration, Motion Configuration-1, Motion Configuration-2, Tools), Mailing Configuration (highlighted), Proxy Server, Recording Configuration (with sub-item: Schedule-Recording Con), Others, Log List, Account, and About. The main window displays the 'Mailing Configuration' form with the following fields:

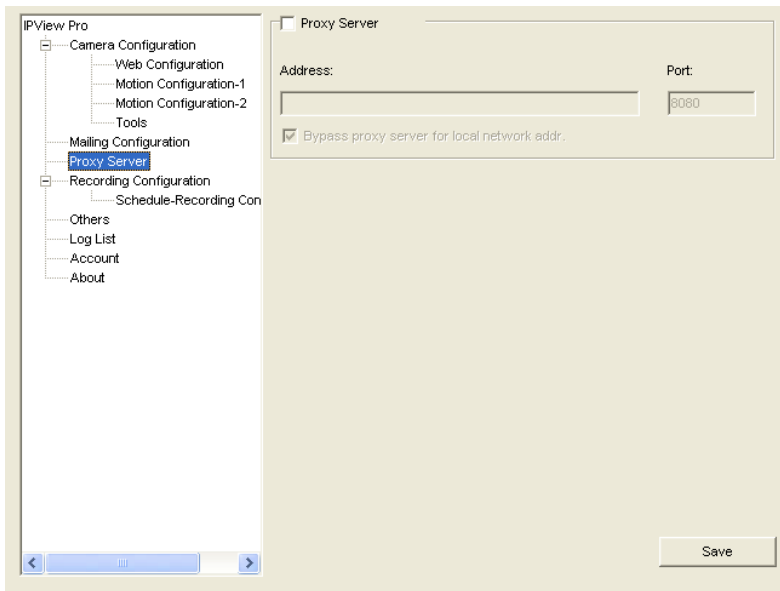
- Mail Server: [Empty text box]
- Mail From: [Empty text box]
- Mail To: [Empty text box]
- Subject: [Empty text box]
- User Name: [Empty text box]
- Password: [Empty text box]
- Interval Time: [Input box containing '10'] Second

A 'Save' button is located at the bottom right of the form area.

- **Mail Server:** Enter the mail server address that is used to send your e-mail.
- **Mail From/To:** Enter the sender's/receiver's e-mail address.
- **Subject:** Enter the title of the e-mail.
- **User Name/Password:** Enter the user name/password to login the mail server.
- **Interval Time:** Enter a number in this box to setup the time (in second) to send e-mail regularly.

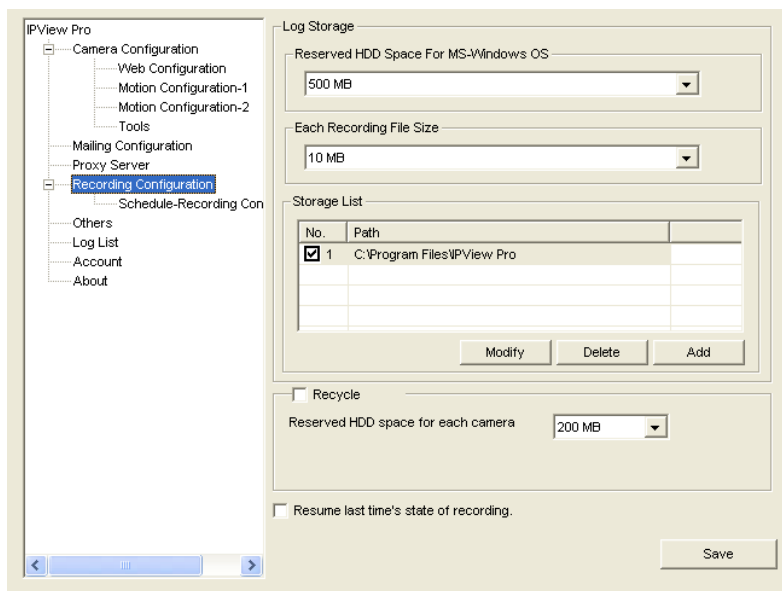
Proxy Server

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



Recording Configuration

In this field, you can configure the storage settings.

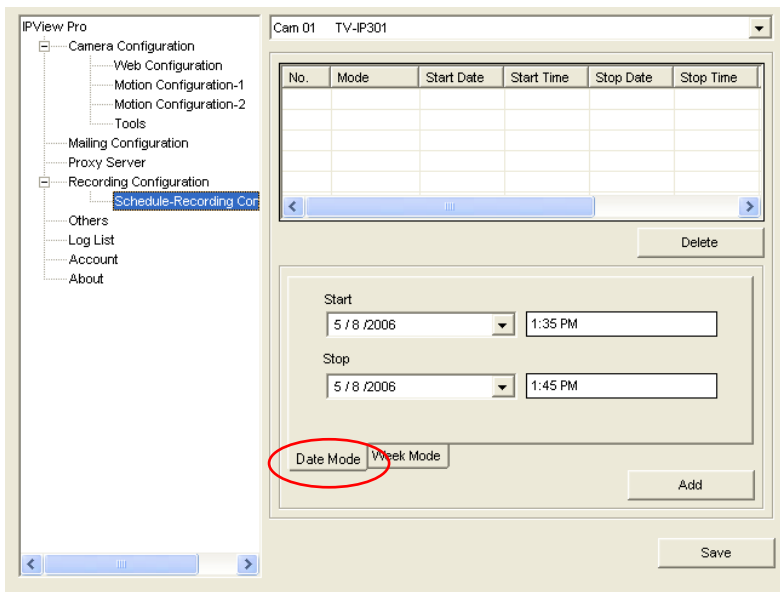


- **Log Storage:**
 - **Reserved HDD Space For MS-Windows OS** – You can reserve **500 MB** to **10000 MB** hard disk space for the program.
 - **Each Recording File Size** – If the recorded video files reach the file size limit, video images will be recorded into another file automatically. The available settings are from **10 MB** to **50 MB**.

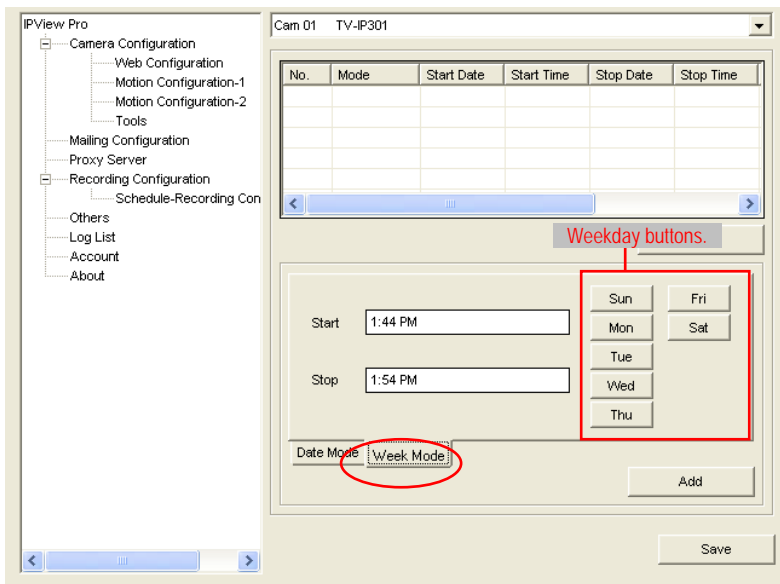
- **Storage List** – The destination folder to save the recorded video file can be specified here. Click *Modify* to change the current path setting; click *Add* to add a new destination folder; click *Delete* to remove a selected path setting. Please note that you are not allowed to delete a path setting if there is only one setting in the list.
- **Recycle:** You can check this option to clear the files when the unreserved space of your hard disk is filled. The available settings are from **200 MB** to **50000 MB**.
- **Resume last time's state of recording:** You can check this option to store the recording state, and resume the recording state on the next time you record.

Schedule-Recording Configuration

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



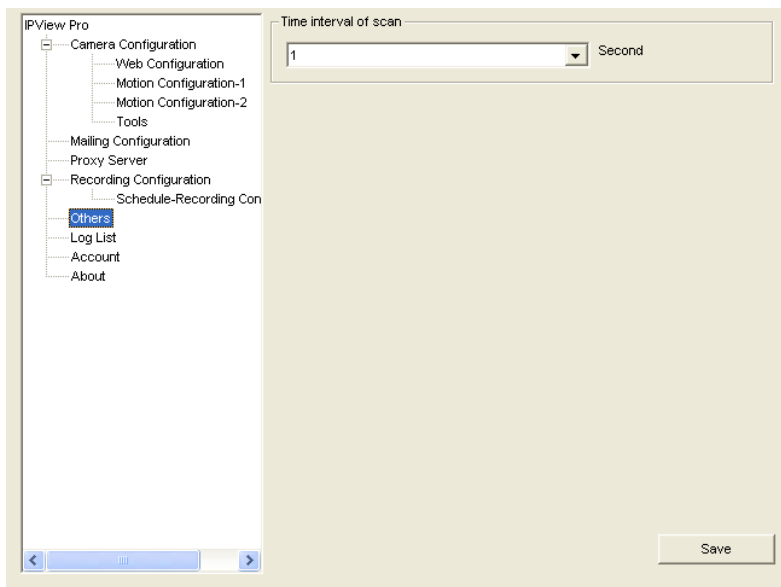
- **Date Mode:** First, select the camera desired from the pull-down menu. Then, setup the time in the **Start/Stop** fields. Click **Add** to add the recording schedule to the list. Click **Save** to save the settings.



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

Others

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



Log List

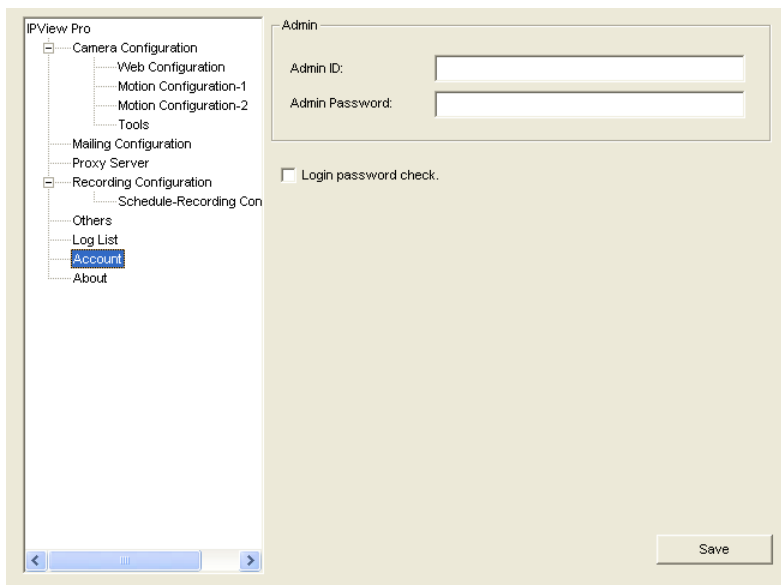
This file displays the user(s) information, which includes the Date, MAC address, and the brief description of events.

The screenshot shows the IPView Pro interface. On the left is a tree view of configuration options, with 'Log List' highlighted. On the right, a table displays system events for 'Cam 01 TV-IP301'.

Date	IP Address	Event
8/23/2005 1:05:31 PM	192.168.0.30	Connection succeeds
8/23/2005 1:05:31 PM	192.168.0.30	Image resolution has been changed
8/23/2005 1:06:28 PM	192.168.0.30	Stop recording
8/23/2005 1:06:32 PM	192.168.0.30	Off-Line
8/23/2005 1:12:15 PM	192.168.0.30	Connection succeeds
8/23/2005 1:12:49 PM	192.168.0.30	Start recording
8/23/2005 1:13:01 PM	192.168.0.30	The Recording engine is started and
8/23/2005 1:13:01 PM	192.168.0.30	Stop recording
8/23/2005 1:13:05 PM	192.168.0.30	Start recording

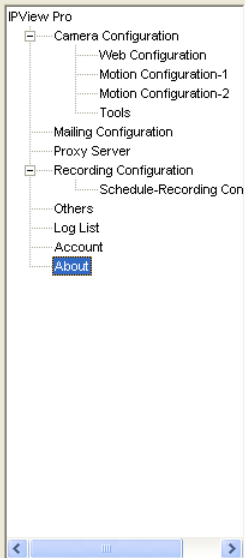
Account

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



About

This file provides information of the software application.



IPView Pro

ver 3.00.09

This application is designed to remotely manage the Camera Server.

Warning: This computer program is protected by copyright law and international treaties. Unauthorized reproduction or distribution of this program, or any portion of it, or the use with a registration key without the explicit permission may result in severe criminal and civil penalties, and will be prosecuted to the maximum extent possible under law.

APPENDIX

A Frequently Asked Questions

About MPEG4 Internet CCD Camera Features

Q: What is MPEG4 Internet CCD Camera?

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

Q: What is the maximum number of users that can be allowed to access the MPEG4 Internet CCD Camera simultaneously?

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

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

A: The camera utilizes the latest MPEG4 technology providing high quality images for users. You can record streaming video that utilizes high quality MPEG-4 images to your hard drive, enable motion detection and setup automated email alerts for security.

About Internet Camera Installation

Q: Can the MPEG4 Internet CCD Camera be used outdoors?

A: The camera is not weatherproof. It needs to be equipped with a weatherproof case to be used outdoors and it is not recommended.

Q: What network cabling is required for the MPEG4 Internet CCD Camera?

A: The camera uses Category 5 UTP cable allowing 10 Base-T and 100 Base-T networking.

Q: Can the MPEG4 Internet CCD Camera be setup as a PC-cam on the computer?

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

Q: Can the MPEG4 Internet CCD Camera be connected on the network if it consists of only private IP addresses?

A: Yes. The camera can be connected to LAN with private IP addresses.

B PING Your IP Address

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

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

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

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

C Troubleshooting

Q: I cannot access the MPEG4 Internet CCD Camera from a web browser.

A: The possible cause might be the IP Address for the camera is already being used by another device. To correct the possible problem, you need to first disconnect the camera from the network. Then run the PING utility (follow the instructions in *Appendix B - PING Your IP Address*).

Another possible reason is the IP Address is located on a different subnet. To fix the problem, run the PING utility. If the utility returns “no response” or similar, the finding is probably correct, then you should proceed as below:

In Windows 98SE/ME/2000 and Windows NT, double check the IP Address of the camera is within the same subnet as your workstation.

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

The other possible problems might be due to the network cable. Try replacing your network cable. Test the network interface of the product by connecting a local computer to the unit, utilizing a standard Crossover (hub to hub) Cable. If the problem is not solved, the camera might be faulty.

Q: Why does the Power LED not light up constantly?

A: The power supply used might be at fault. Confirm that you are using the provided power supply DC 12V for the camera and verify that the power supply is well connected.

Q: Why does the LAN LED not light up properly?

A: There might be a problem with the network cable. To confirm that the cables are working, PING the address of a know 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).

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

Q: Why does the MPEG4 Internet CCD Camera work locally but not externally?

A: It may be caused from the firewall protection. Need to check the Internet firewall with your system administrator.

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

Q: Why does a series of broad vertical white line appear through out the image?

A: A likely issue is that the CCD sensor becomes overloaded when the light source is too bright such as direct exposure to sunlight or halogen light. You need to reposition the camera into a more shaded area immediately as this will damage the CCD sensor.

Q: There is bad focus on the MPEG4 Internet CCD Camera, what should be done?

A: The focus might not be correctly adjusted for the line of sight. You need to adjust the focus manually as described in Adjust Camera Focus.

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

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

A: The video images might be noisy if the camera is used in a very low light environment.

Q: There is poor image quality, how can I improve the image?

A: A probable cause might be the incorrect display properties configuration for your desktop. You need to open the Display Properties on your desktop and configure your display to show at least 65'000 colors for example at least 16-bit.

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

Otherwise, the configuration of the camera's image display is incorrect. You need to adjust the related parameter for improving images through the **Preview** window under Web Configuration Utility, such as brightness, contrast, color and flicker. Please refer to the Web Configuration section for details.

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

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

D Time Zone Table

(GMT-12:00) Eniwetok, Kwajalein
(GMT-11:00) Midway Island, Samoa
(GMT-10:00) Hawaii
(GMT-09:00) Alaska
(GMT-08:00) Pacific Time (US & Canada); Tijuana
(GMT-07:00) Arizona
(GMT-07:00) Mountain Time (US & Canada)
(GMT-06:00) Central Time (US & Canada)
(GMT-06:00) Mexico City, Tegucigalpa
(GMT-06:00) Saskatchewan
(GMT-05:00) Bogota, Lima, Quito
(GMT-05:00) Eastern Time (US & Canada)
(GMT-05:00) Indiana (East)
(GMT-04:00) Atlantic Time (Canada)
(GMT-04:00) Caracas, La Paz
(GMT-04:00) Santiago
(GMT-03:30) Newfoundland
(GMT-03:00) Brasilia
(GMT-03:00) Buenos Aires, Georgetown
(GMT-02:00) Mid-Atlantic
(GMT-01:00) Azores, Cape Verde Is.
(GMT) Casablanca, Monrovia
(GMT) Greenwich Mean Time : Dublin, Edinburgh, Lisbon, London
(GMT+01:00) Amsterdam, Berlin, Bern, Rome, Stockholm, Vienna
(GMT+01:00) Belgrade, Bratislava, Budapest, Ljubljana, Prague
(GMT+01:00) Brussels, Copenhagen, Madrid, Paris, Vilnius
(GMT+01:00) Sarajevo, Skopje, Sofija, Warsaw, Zagreb
(GMT+02:00) Athens, Istanbul, Minsk
(GMT+02:00) Bucharest
(GMT+02:00) Cairo
(GMT+02:00) Harare, Pretoria
(GMT+02:00) Helsinki, Riga, Tallinn
(GMT+02:00) Jerusalem
(GMT+03:00) Baghdad, Kuwait, Riyadh
(GMT+03:00) Moscow, St. Petersburg, Volgograd
(GMT+03:00) Nairobi
(GMT+03:30) Tehran
(GMT+04:00) Abu Dhabi, Muscat
(GMT+04:00) Baku, Tbilisi
(GMT+04:30) Kabul
(GMT+05:00) Ekaterinburg
(GMT+05:00) Islamabad, Karachi, Tashkent
(GMT+05:30) Bombay, Calcutta, Madras, New Delhi
(GMT+06:00) Astana, Almaty, Dhaka
(GMT+06:00) Colombo

(GMT+07:00) Bangkok, Hanoi, Jakarta
(GMT+08:00) Beijing, Chongqing, Hong Kong, Urumqi
(GMT+08:00) Perth
(GMT+08:00) Singapore
(GMT+08:00) Taipei
(GMT+09:00) Osaka, Sapporo, Tokyo
(GMT+09:00) Seoul
(GMT+09:00) Yakutsk
(GMT+09:30) Adelaide
(GMT+09:30) Darwin
(GMT+10:00) Brisbane
(GMT+10:00) Canberra, Melbourne, Sydney
(GMT+10:00) Guam, Port Moresby
(GMT+10:00) Hobart
(GMT+10:00) Vladivostok
(GMT+08:00) Singapore
(GMT+08:00) Taipei
(GMT+09:00) Osaka, Sapporo, Tokyo
(GMT+09:00) Seoul
(GMT+09:00) Yakutsk
(GMT+09:30) Adelaide
(GMT+09:30) Darwin
(GMT+10:00) Brisbane
(GMT+10:00) Canberra, Melbourne, Sydney
(GMT+10:00) Guam, Port Moresby
(GMT+10:00) Hobart
(GMT+10:00) Vladivostok
(GMT+11:00) Magadan, Solomon Is., New Caledonia
(GMT+12:00) Auckland, Wellington
(GMT+12:00) Fiji, Kamchatka, Marshall Is.

E Adjusting Camera Focus

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

***NOTE:** You can further adjust the Internet Camera's image quality through Configuration – Video & Audio. Please refer to Web Configuration section for further details.*

Warning

Direct exposure to sunlight may cause permanent damage to the CCD 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.

NOTE: You can further adjust the camera's image quality through the **Preview** window under **Web Configuration Utility**. Please refer to **Web Configuration** section for further details.

WARNING: Direct exposure to sunlight may cause permanent damage to the CMOS sensor. Therefore do not expose the camera's lens directly to sunlight. When operation is required in glaring light environment, it is recommended to use an iris lens.

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

Replacing the Lens

Since the camera is designed with a CS- mount, the lens equipped with the 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 camera's lens assembly.
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 Camera Focus* on the previous page.
5. Refresh the web browser and monitor the results from the camera.

F I/O Terminal Application

Typically used in association with programming scripts for developing applications for motion detection, event triggering, alarm notification via e-mail, and a variety of external control functions. The 8-pin I/O Terminal Block is located on the rear panel and provides the interface to: a photo-coupled switch output, a photo-coupled input, and RS-485 interface. The RS-485 is typically used for pan/tilt/zoom control.

Connector Pin Assignment

PIN No.	FUNCTION	SPECIFICATION
1	Photo-Relay INPUT (+)	Active High voltage 9~40VDC
2	Photo-Relay INPUT (-)	Dropout voltage 0 VDC
3	Photo-Relay OUTPUT (Normal Open)	Close circuit current maximum 70 mAAC, or 100 mADC.
4	Photo-Relay OUTPUT (Common)	Output resistance 30 Ohm. Open circuit voltage maximum 240VAC or 350VDC
5	Photo-Relay OUTPUT (Normal Open)	Close circuit current maximum 70 mAAC, or 100 mADC.
6	Photo-Relay OUTPUT (Common)	Output resistance 30 Ohm. Open circuit voltage maximum 240VAC or 350VDC.
7	RS-485 (+) or (A)	Compliant to RS-485
8	RS-485 (-) or (B)	

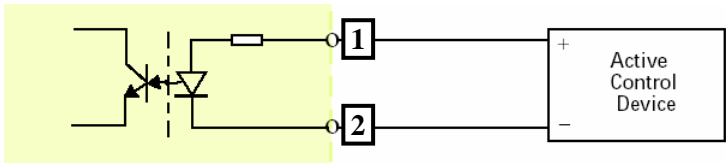
Monitoring and Controlling

By entering http requests in your browser's URL field, you can:

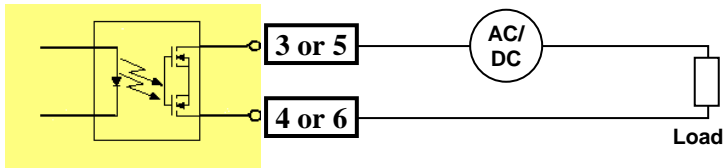
- Monitor the status of digital input.
- Drive the output switch on or off.
- Control the speed/position of pan/tilt/zoom motors in a swivel stand or a speed dome camera.

Interface Schematic

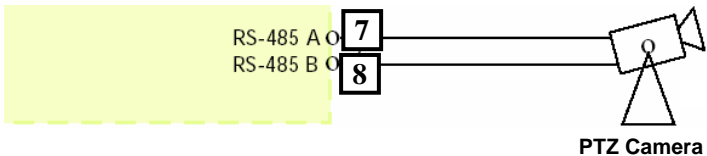
1. Input device (active control device) has independent power supply.



2. Output device (load) is driven by external power supply.



3. RS485 Interface



G Specification

Image Sensor

Sensor: Sony 1/4" progressive color CCD
Resolution: 640x480
Lens mounting: IR Lens or CS-mount type

System Hardware

CPU: ADMtek 5120
RAM: 32MB
Flash ROM: 4MB

User Interface

Operating system: Embedded Linux
Power: One power jack, DC 12V 1.5A
LAN: One RJ-45 port (with metal shielding)
Mic-In (10Kohm): 3.5mm phone jack for external line in
Line Out (32 ohm): 3.5mm phone jack for headphone output
Antenna: One external antenna (for wireless model)
Reset: One Reset button
LEDs: - One Power LED (green)
- One LAN/WLAN activity LED (green)
Generic I/O Port: 8 pin terminal block for I/O and RS-485

Input	2-pin (photo relay; Active High: 9-40VDC; Dropout: 0 VDC)
Output 1	1 set, 2-pin (photo relay, Close circuit current: 70mA or 100mA; 300hm; Open circuit voltage: 240 VAC or 350VDC)
Output 2	1 set, 2-pin (photo relay, Close circuit current: 70mA or 100mA; 300hm; Open circuit voltage: 240 VAC or 350VDC)
RS-485	Half duplex (to control external pan/tilt device)

Video

Compression: MPEG4/M-JPEG
Frame rate: 30fps max.
Video resolution: VGA/CIF/QCIF

Audio

Input: Built-in MIC, External MIC
Output: Headphone output jack (stereo, 32 ohm)
Compression: 8KHz/16KHz, PCM/ADPCM

Communication

LAN: 10/100Mbps Ethernet, auto-sensed, auto MDIX
WLAN: IEEE 802.11g proprietary module (for wireless model)
Protocol support: HTTP, FTP, TCP/IP, UDP, ARP, ICMP, DHCP, PPPoE, DDNS, SMTP, UPnP

Software

OS Support: Windows 98SE/ME/2000/XP
Browser: Internet Explorer 5.0 or above
Software application: IPView Pro, for playback/recording/configuration features

Operating Environment

Temperature: - Operation: 5°C ~ 45°C
- Storage: -10°C ~ 60°C
Humidity: 15% ~ 85% non-condensing

EMI

FCC Class B, CE Class B, VCCI Class B

H Glossary of Terms

NUMBERS

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

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

A

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

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

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

AVI Audio Video Interleave, it is a Windows platform audio and video file type, a common format for small movies and videos.

B

BOOTP

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

C

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

Connection

In networking, two devices establish a connection to communicate with each other.

D

DHCP

Dynamic Host Configuration Protocol was developed by Microsoft a protocol for assigning dynamic IP addresses to devices on a network. With dynamic addressing, a device can have a different IP address every time it connects to the network. In some systems, the device's IP address can even change while it is still connected. DHCP also supports a mix of static and dynamic IP addresses. This simplifies the task for network administrators because the software keeps track of IP addresses rather than requiring an administrator to manage the task. This means a new computer can be added to a network without the hassle of manually assigning it a unique IP address. DHCP

allows the specification for the service provided by a router, gateway, or other network device that automatically assigns an IP address to any device that requests one

DNS

Domain Name System is an Internet service that translates domain names into IP addresses. Since domain names are alphabetic, they're easier to remember. The Internet however, is really based on IP addresses every time you use a domain name the DNS will translate the name into the corresponding IP address. For example, the domain name *www.network_camera.com* might translate to *192.167.222.8*.

E

Enterprise network

An enterprise network consists of collections of networks connected to each other over a geographically dispersed area. The enterprise network serves the needs of a widely distributed company and operates the company's mission-critical applications.

Ethernet

The most popular LAN communication technology. There are a variety of types of Ethernet, including 10Mbps (traditional Ethernet), 100Mbps (Fast Ethernet), and 1,000Mbps (Gigabit Ethernet). Most Ethernet networks use Category 5 cabling to carry information, in the form of electrical signals, between devices. Ethernet is an implementation of CSMA/CD that operates in a bus or star topology.

F

Fast Ethernet

Fast Ethernet, also called 100BASE-T, operates at 10

or 100Mbps per second over UTP, STP, or fiber-optic media.

Firewall

Firewall is considered the first line of defense in protecting private information. For better security, data can be encrypted. A system designed to prevent unauthorized access to or from a private network. Firewalls are frequently used to prevent unauthorized Internet users from accessing private networks connected to the Internet, especially Intranets all messages entering or leaving the intranet pass through the firewall, which examines each message and blocks those that do not meet the specified security criteria.

G

Gateway

A gateway links computers that use different data formats together.

Group

Groups consist of several user machines that have similar characteristics such as being in the same department.

H

HEX

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

I

- Intranet** This is a private network, inside an organization or company that uses the same software you will find on the public Internet. The only difference is that an Intranet is used for internal usage only.
- Internet** The Internet is a globally linked system of computers that are logically connected based on the Internet Protocol (IP). The Internet provides different ways to access private and public information worldwide.
- Internet address** To participate in Internet communications and on Internet Protocol-based networks, a node must have an Internet address that identifies it to the other nodes. All Internet addresses are IP addresses
- IP** Internet Protocol is the standard that describes the layout of the basic unit of information on the Internet (the *packet*) and also details the numerical addressing format used to route the information. Your Internet service provider controls the IP address of any device it connects to the Internet. The IP addresses in your network must conform to IP addressing rules. In smaller LANs, most people will allow the DHCP function of a router or gateway to assign the IP addresses on internal networks.
- IP address** IP address is a 32-binary digit number that identifies each sender or receiver of information that is sent in packets across the Internet. For example 80.80.80.69 is an IP address, it is the closest thing the Internet has to telephone numbers. When you “call” that number, using any connection methods, you get connected to the computer that “owns” that IP address.

ISP ISP (Internet Service Provider) is a company that maintains a network that is linked to the Internet by way of a dedicated communication line. An ISP offers the use of its dedicated communication lines to companies or individuals who can't afford the high monthly cost for a direct connection.

J

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

L

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

N

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

network request information from the Internet, the requests are forwarded to the Internet under the router's IP address. NAT distributes the responses to the proper IP addresses within your network.

Network

A network consists of a collection of two or more devices, people, or components that communicate with each other over physical or virtual media. The most common types of network are:

LAN – (local area network): Computers are in close distance to one another. They are usually in the same office space, room, or building.

WAN – (wide area network): The computers are in different geographic locations and are connected by telephone lines or radio waves.

NWay Protocol A network protocol that can automatically negotiate the highest possible transmission speed between two devices.

P

PING

Packet Internet Groper, a utility used to determine whether a specific IP address is accessible. It functions by sending a packet to the specified address and waits for a reply. It is primarily used to troubleshoot Internet connections.

PPPoE

Point-to-Point Protocol over Ethernet. PPPoE is a specification for connecting the users on an Ethernet to the Internet through a common broadband medium, such as DSL or cable modem. All the users over the Ethernet share a common connection.

Protocol

Communication on the network is governed by sets of rules called protocols. Protocols provide the guidelines devices use to communicate with each other, and thus they have different functions. Some protocols are responsible for formatting and presenting and presenting data that will be transferred from file server memory to the file server's net work adapter Others are responsible for filtering information between networks and forwarding data to its destination. Still other protocols dictate how data is transferred across the medium, and how servers respond to workstation requests and vice versa. Common network protocols responsible for the presentation and formatting of data for a network operating system are the Internetwork Packet Exchange (IPX) protocol or the Internet Protocol (IP). Protocols that dictate the format of data for transferors the medium include token-passing and Carrier Sense Multiple Access with Collision Detection (CSMA/CD), implemented as token-ring, ARCNET, FDDI, or Ethernet. The Router Information Protocol (RIP),a part of the Transmission Control Protocol/Internet Protocol (TCP/IP) suite, forwards packets from one network to another using the same network protocol.

R

RARP

Reverse Address Resolution Protocol, a TCP/IP protocol that allows a physical address, such as an Ethernet address, to be translated into an IP address.

RJ-45

RJ-45 connector is used for Ethernet cable connections.

Router A router is the network software or hardware entity charged with routing packets between networks.

S

Server It is a simple computer that provides resources, such as files or other information.

SMTP The Simple Mail Transfer Protocol is used for Internet mail.

SNMP Simple Network Management Protocol. SNMP was designed to provide a common foundation for managing network devices.

Station In LANs, a station consists of a device that can communicate data on the network. In FDDI, a station includes both physical nodes and addressable logical devices. Workstations, single-attach stations, dual-attach stations, and concentrators are FDDI stations.

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

T

(TCP/IP) Transmission Control Protocol/Internet Protocol is a widely used transport protocol that connects diverse computers of various transmission methods. It was developed 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

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

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

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

Utility It is a program that performs a specific task.

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

W

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

- Windows** Windows is a graphical user interface for workstations that use DOS.
- Workgroup** A workgroup is a group of users who are physically located together and connected to the same LAN, or a group of users who are scattered throughout an organization but are logically connected by work and are connected to the same network group.
- Workstations** Workstation refers to the intelligent computer on the user's desktop. This computer may be an Intel-based PC, a Macintosh, or a UNIX-based workstation. The workstation is any intelligent device a user works from.



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