



TRENDnet[®]



User's Guide

**TV-IP212/TV-IP212W
TV-IP312/TV-IP312W**

PREFACE

Thank you for purchasing the TV-IP212/TV-IP212W/TV-IP312/TV-IP312W Wire/Wireless Internet Camera Server or Day/Night Internet Camera Server, a powerful dual-codec wireless network camera with the 2-way audio function that provides the high-quality image and on-the-spot audio via the Internet connection. The Infrared LEDs and light sensor (TV-IP312/TV-IP312W) enable the camera to capture images even in the dark environment. The camera can be installed as a standalone system within your application environment easily and quickly, and supports remote management function so that you can access and control it using a Web browser on your computers.

This guide will provide you more information of instruction and illustrations on how to use your camera, which includes:

- Chapter 1 Introduction to Your Camera** describes the features of the camera. You will also know the components and functions of the camera.
- Chapter 2 Hardware Installation** helps you install the camera according to your application environment. You can use this camera at home, at work, at any where you want.
- Chapter 3 Accessing the Camera** lets you start using your camera without problem. The camera can be set up easily and work within your network environment instantly.
- Chapter 4 Configuring the Camera** guides you through the configuration of the camera using the web browser on your PC.
- Chapter 5 Using SecurView™** shows you the detail instructions on operating SecurView™ software.

Chapter 6 Appendix provides the specification of the camera and some useful information for using your camera.

NOTE The illustrations and configuration values in this guide are for reference only. The actual settings depend on your practical application of the camera.

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CHAPTER 1

INTRODUCTION

1.1 Checking the Package Contents

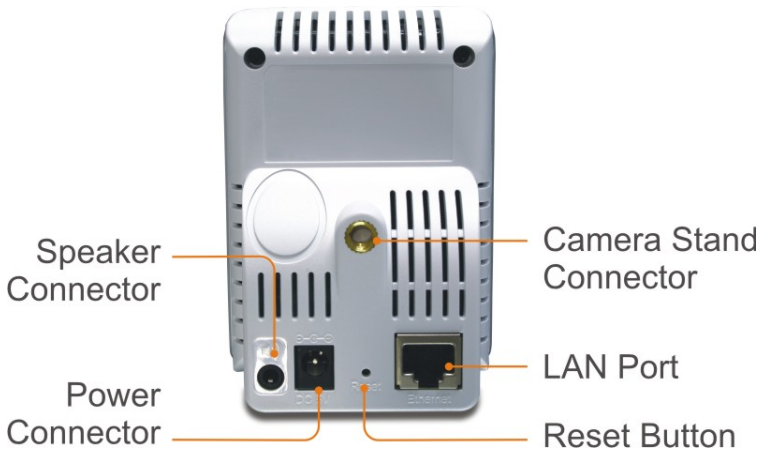
Please check the packaging contents. The packaging should include the following:

- TV-IP212/TV-IP212W/TV-IP312/TV-IP312W
- Multi-Language Quick Installation Guide
- Utility CD-ROM
- Detachable External Antenna (for TV-IP212W/TV-IP312W only)
- Camera Stand.
- RJ-45 Ethernet Cable
- AC Power Adapter (5VDC, 2.5A)

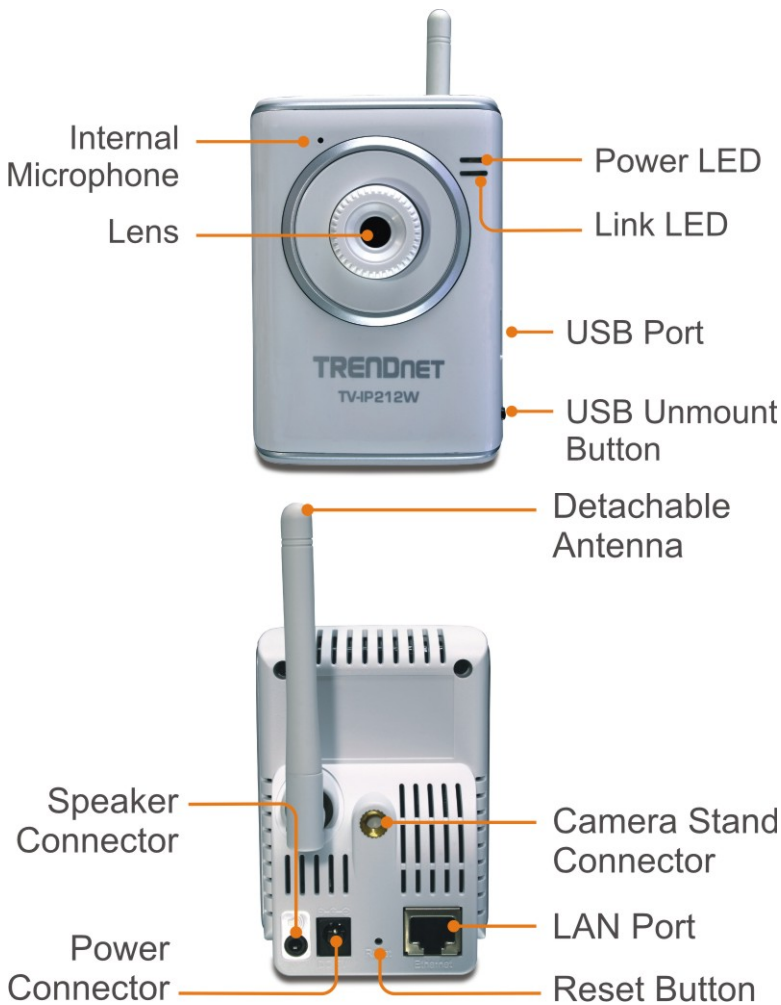
NOTE : If there is any item damage or missing, please contact your local authorized deal for replacement.

1.2 Getting to Know Your Camera

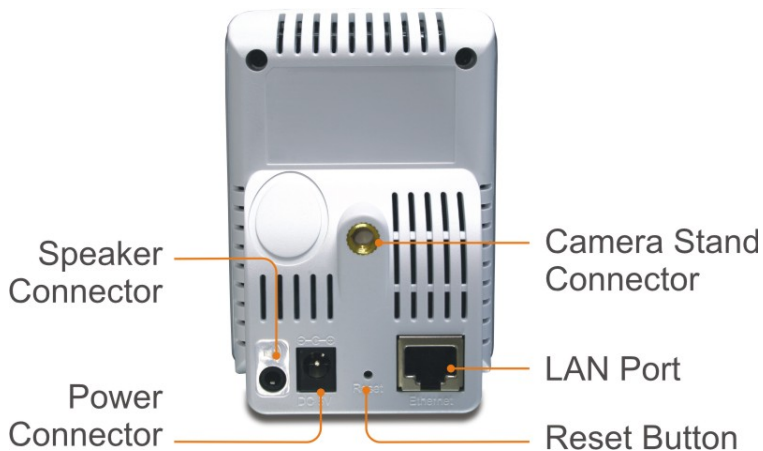
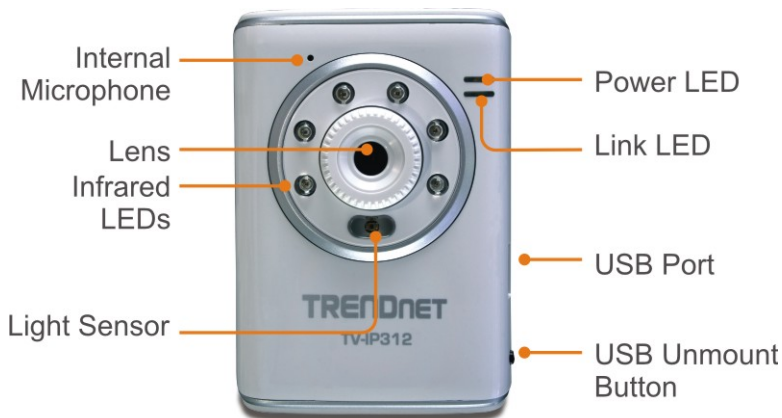
TV-IP212 (Front/Back View)



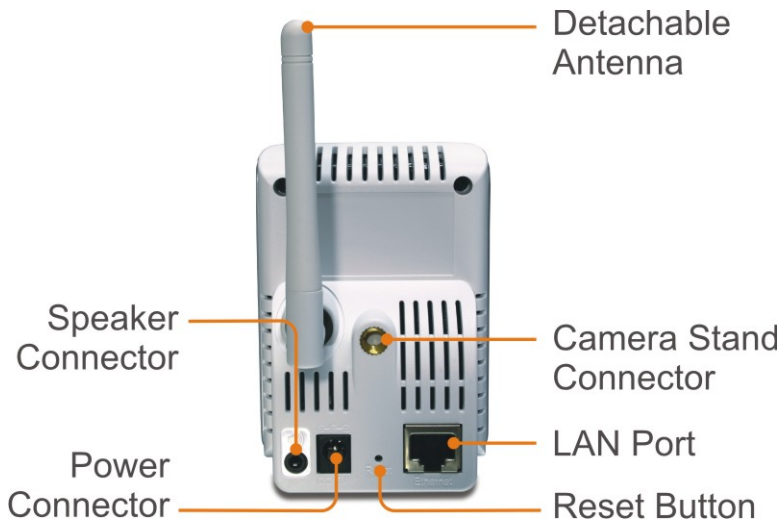
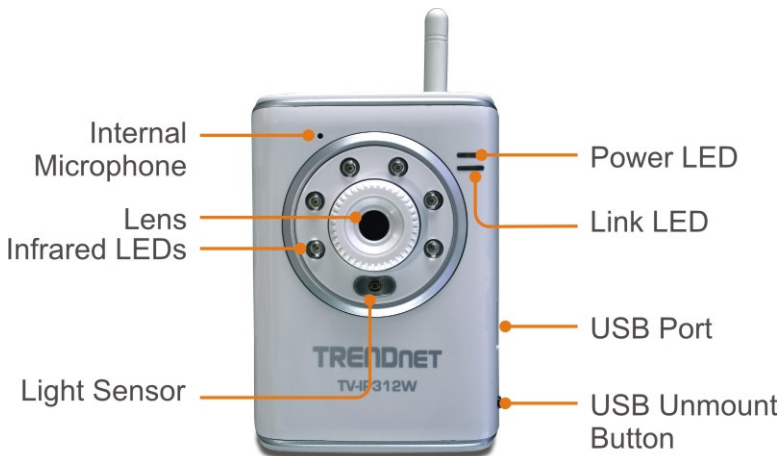
TV-IP212W (Front/Back View)



TV-IP312 (Front/Back View)



TV-IP312W (Front/Back View)



- **Internal Microphone:** It allows the camera to receive the sound or voice.
- **Infrared LEDs:** It allows your camera to capture clear image in a dark environment. (TV-IP312/TV-IP312W Model only)
- **Light Sensor:** It is used to trigger on and off the Infrared LEDs according the environmental light level.
- **Power LED:** A steady orange light indicates the camera is powered on.
- **Link LED:** A flash green light indicates the camera's network connection correctly.
-
- **Detachable Antenna (TV-IP212W/TV-IP312W only):**
The detachable external antenna allows you to adjust its position to obtain the maximum signal.
- **USB Port:** Connects an external USB Flash Drive, Hard Drive. It provides the power distribution up to 500mA.
- **USB Unmount Button:** Removed the connected USB device safely.

Pressing the Unmount button for four seconds, the Power LED will start flashing. After the Power LED resumes the steady orange light, you can remove the USB device safely.

- **Camera Stand Connection:** Connects the camera with the camera stand.
- **Speaker Connector:** Connects a external active speaker to the camera.

- **Power Connector:** Connects the AC power adapter to supply power to the camera.
- **LAN Port:** It is used to connect the network RJ-45 cable, which supports the NWay protocol so that the camera can detect the network speed automatically.
- **Reset Button:** Reset will be initiated when the reset button is pressed once. The power LED begins to flash.

Factory Reset will be initiated when the reset button is pressed continuously for three seconds or when Power LED begins to light up. Release the reset button and the Power LED will begin to flash.

1.3 Features and Benefits

■ MPEG4/MJPEG Dual-codec Supported

The camera provides you with excellent images by the MPEG4/MJPEG dual-codec selectable technology, allowing you to adjust image size and quality, and bit rate according to the networking environment.

■ 2-way Audio Capability

The built-in microphone of the camera provides on-the-spot audio via the Internet, allowing you to monitor the on-site voice. In addition, you can connect an external speaker to the camera to speak through the camera; the camera is embedded with an echo cancellation processor to provide a better sound quality.

■ Day & Night Surveillance Supported (TV-IP312/TV-IP312W Only)

The six Infrared LEDs around the standard lens assembly enable the camera to capture crystal clear images in the dark environment or at night. When the Light Sensor detects the environmental light level becomes low, the camera captures the images in black & white mode using these infrared LEDs.

■ Supports Multiple Profiles

The camera supports multiple profiles simultaneously, so that you can separately set up different image settings (such as image quality and frame rate) for the three video types of the camera: MPEG4, MJPEG, and 3GPP.

■ Supports RTSP

The camera supports RTSP (Real Time Streaming Protocol), which is a technology that allows you to view streaming media via the network. You can view the real-time video with the Quick Time player or RealPlayer. To view the real-time streaming image on your computer, open the Web browser and enter the RTSP link: [rtsp://\(IP address of the camera\)/mpeg4](rtsp://(IP address of the camera)/mpeg4).

■ **Remote Control Supported**

By using a standard Web browser or the bundled SecurView™ software application, the administrator can easily change the configuration of the camera via Intranet or Internet. In addition, the camera can be upgraded remotely when a new firmware is available. The users are also allowed to monitor the image and take snapshots via the network.

■ **Supports Connection to the External Devices**

With the auxiliary Input/Output connectors, you can connect the camera to a variety of external devices, such as the external speaker and the USB Flash Drive or Hard Drive.

■ **Multiple Platforms Supported**

The camera supports multiple network protocols, including TCP/IP, SMTP Email, HTTP, and other Internet related protocols. Therefore, you can use the camera in Windows 2000 and Windows XP, Windows Vista

■ **Multiple Applications Supported**

Through the remote access technology, you can use the cameras to monitor various objects and places for your own purposes. For example, babies at home, patients in the hospital, offices and banks, and more. The camera can capture both still images and video clips, so that you can keep the archives and restore them at any time.

1.4 System Requirement

■ Networking

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

WLAN: IEEE 802.11b/g.

■ Accessing the Camera using Web Browser

Platform: Microsoft® Windows® 2000/XP/Vista

CPU: Intel Pentium III 350MHz or above

RAM: 128MB

Resolution: 800x600 or above

Browser: Microsoft® Internet Explorer 6.0 or above

■ Accessing the Camera using SecurView™ Software View

Platform: Microsoft® Windows® 2000/XP/Vista

Hardware Requirement:

1 camera connected: Intel Pentium 4 1GHz; 512MB RAM

2 ~ 4 cameras connected: Intel Pentium 4 1.3GHz; 512MB RAM

5 ~ 8 cameras connected: Intel Pentium 4 2.4GHz; 1GB RAM

9 ~ 16 cameras connected: Intel Pentium 4 3.4GHz; 2GB RAM

Resolution: 1024x768 or above

NOTE If you connect multiple cameras to monitor various places simultaneously, you are recommended to use a higher performance computer.

CHAPTER 2

HARDWARE INSTALLATION

2.1 Installing the Camera Stand

The camera comes with a camera stand, which uses a swivel ball screw head to lock the camera. When the camera stand is attached, you can place the camera anywhere by mounting the camera through the three screw holes located in the base of the camera stand.



The Camera Stand

2.2 Connecting the Camera to LAN/WLAN

Connects an Ethernet cable to the LAN port located on the Camera's real panel, and then attaches it to the network.

Connects an antenna to the antenna connector. (TV-IP212W/TV-IP312W only)



Attach the external power supply to the DC power input connector located on Camera's real Panel, and then connect it to your local power supply.



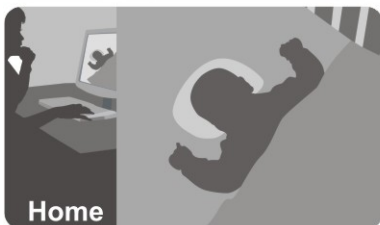
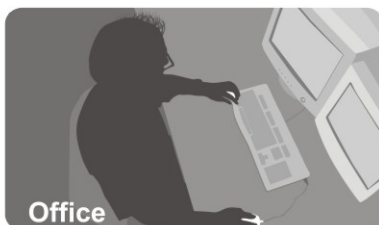
NOTE Please configure the wireless setting via the wire connection.

2.3 Applications of the Camera

The camera can be applied in multiple applications, including:

- Monitor local and remote places and objects via Internet or Intranet.
- Capture still images and video clips remotely.
- Upload images or send email messages with the still images attached.

The following diagram explains one of the typical applications for your camera and provides a basic example for installing the camera.



CHAPTER 3

ACCESSING THE CAMERA

3.1 Using IP Setup

The camera comes with a conveniently utility, IP Setup, which is included in the Installation CD-ROM, allowing you to search the camera on your network easily.

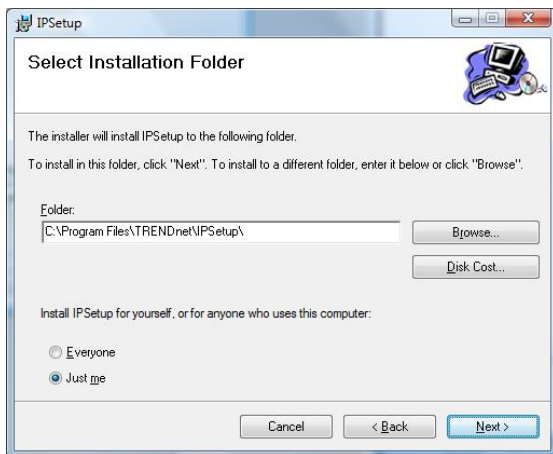
1. Insert the Installation CD-ROM into your computer's CD-ROM drive to initiate the Auto-Run program.



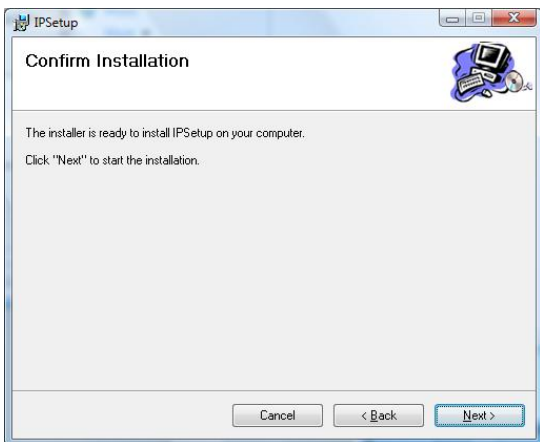
2. Click the **IP Setup** from the Auto-Run menu screen. Then IP Setup Wizard will appear. Click "**Next**" when the **Welcome to the IPSetup Setup Wizard** appears.



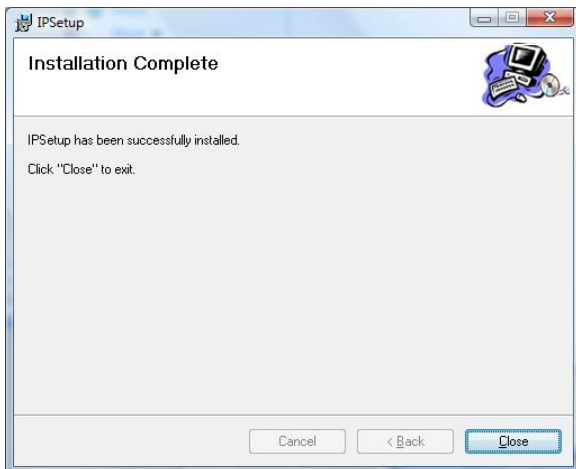
3. Click “**Browse**” to choose the desired destination location. By default, the destination location is C:\Program Files\TRENDnet\IPSetup. Then Click “**Next**”.



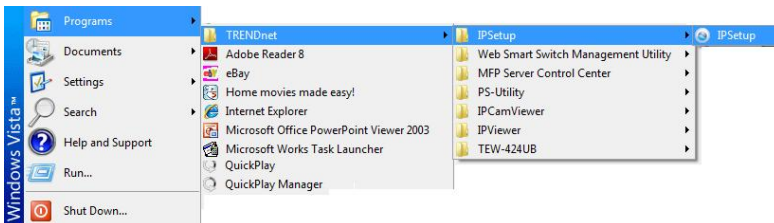
4. Click “**Next**” to confirm the IPSetup software to be installed to the computer.



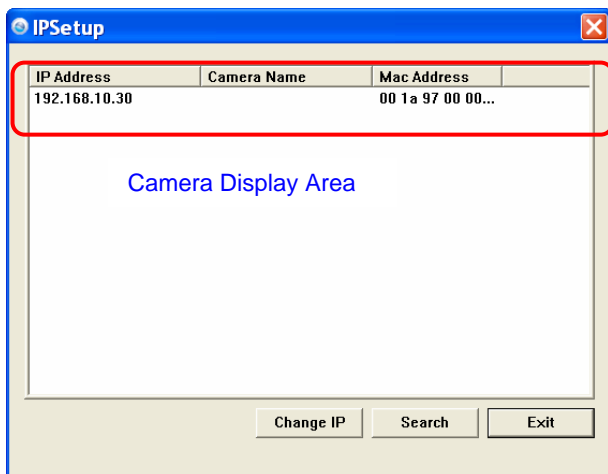
5. When the **Installation Complete** window appears, click "*Finish*".



- After installing the IPSetup utility, the application is automatically installed to your computer, and creates a folder in “ **Start** | **Program** | **TRENDnet** | **IPSetup** ”.
- Click **Start** > **Programs** > **TRENDnet** > **IPSetup**, and then click **IPSetup**



- The IPSetup window will appear. It will search the Camera within the same network.



- **Camera Display Area:** It shows the connected camera(s) within the same network

Double click the IP address, it will link to Camera's Web Configuration page.

- **Change IP:** Click this button to bring up the following window. It allows you to change the IP Address. You can select either **Static IP** or click **DHCP**. Then, enter the Administrator ID & password. By default ID/password is: admin. When complete, click "**Change**".

Change IP Address

Static IP

IP Address: 192 . 168 . 10 . 1

Submask: 255 . 255 . 255 . 0

Default gateway: 192 . 168 . 10 . 1

DHCP

Administrator ID _Password

ID:

Password:

Change Exit

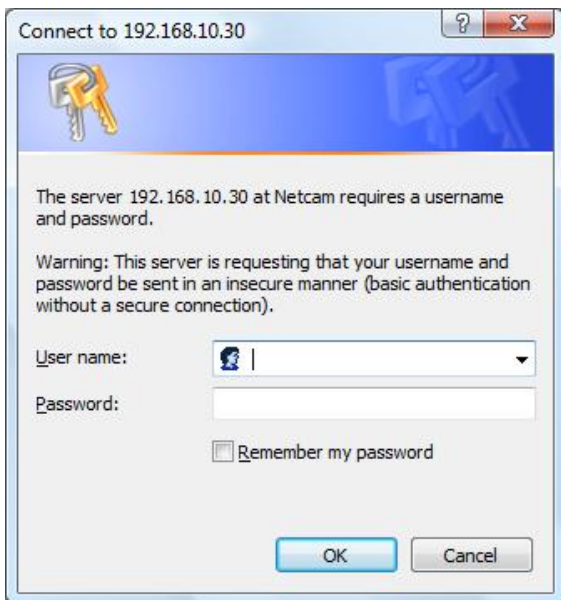
- **Search:** Click this button to search the connected camera in the same network.”
- **Exit:** Click this button to exit the program.

3.2 Accessing to the Camera

1. Open the Web browser on your computer (example showed in the User's Guide is based on the Internet Explorer)
2. Type the default IP address (**192.168.10.30**) and then press [Enter].

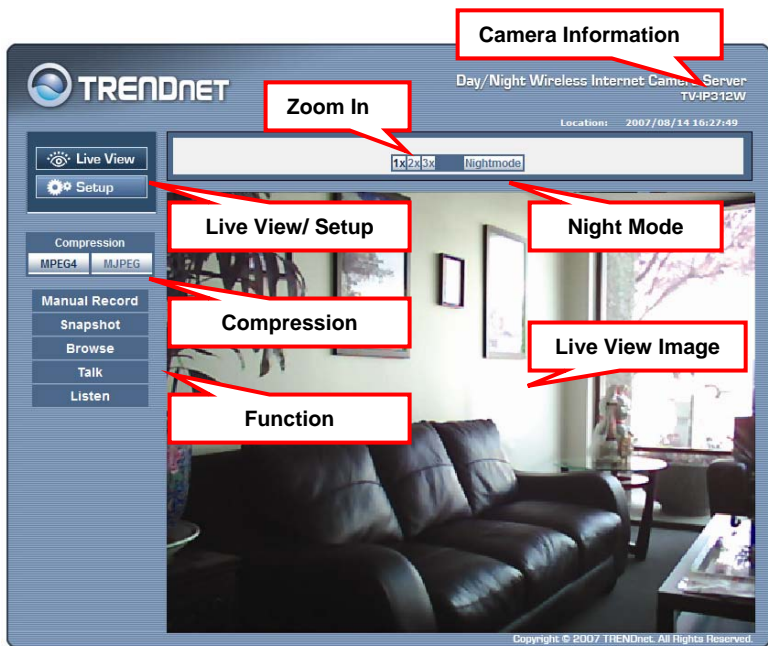


3. When the login window appears, enter the default User name (**admin**) and password (**admin**) and press **OK** to access to the main screen of the camera's Web Configuration.



NOTE If you are initially access to the camera, you will be ask to install a new plug-in for the camera. Permission request depends on the Internet security settings of your computer. Click **Yes** to proceed.

After you login into the Web Configuration of the camera, the main page will appear as below:



The main page of the Web Configuration provides you with many useful information and functions, including:

- **Camera Information** – Display the camera's location and the current date & time. The information can be modified in the Web Configuration.

- **Nightmode**– Click the button to enable the “nightshot mode” to deliver clearer images in the dark environment. However, this will reduce the frame rate of video setting. (TV-IP312/TV-IP312W only)
- **Live View Image** – Displays the real-time image of the connected camera.
- **Zoom In** – Click the buttons to zoom in the live view image by 1x, 2x, and 3x.
- **Live View/Setup Switch** – Click **Setup** to configure the camera. For details, see Chapter 4.
- **Compression Buttons** – Select to transmit and record the video using MPEG4 or MJPEG compression.
- **Function** – Use these buttons to control the audio and video functions.
 - **Manual Record** allows you to record and save a video clip.
 - **Snapshot** allows you to capture and save a still image.
 - **Browse** allows assign the destination folder to store the video clips and still images.
 - **Talk** allows you to speak out through the camera. Please note only one user is allowed to use this function at the same time.
 - **Listen** allows you receive the on-site sound and voice from the camera.

3.3 Configuring the IP Address of the PC

If you are failed to access to the camera, please check the IP address of your computer. When you connect the camera to your computer directly to proceed with configuration of the camera, you need to set up the IP addresses to be in the same segment for the two devices to communicate.

1. On your computer, click **Start > Control Panel** to open the Control Panel window.
2. Double-click **Network Connection** to open the Network Connection window.
3. Right-click **Local Area Connection** and then click **Properties** from the shortcut menu.
4. When the Local Area Connection Properties window appears, select the **General** tab.
5. Select **Internet Protocol [TCP/IP]** and then click **Properties** to bring up the Internet Protocol [TCP/IP] Properties window.
6. To configure a fixed IP address that is within the segment of the camera, select the **Use the following IP address** option. Then, enter an IP address into the empty field. The suggested IP address is **192.168.10.x** (x is 0~254 except 30), and the suggested Subnet mask is **255.255.255.0**.
7. When you are finished, click **OK**.

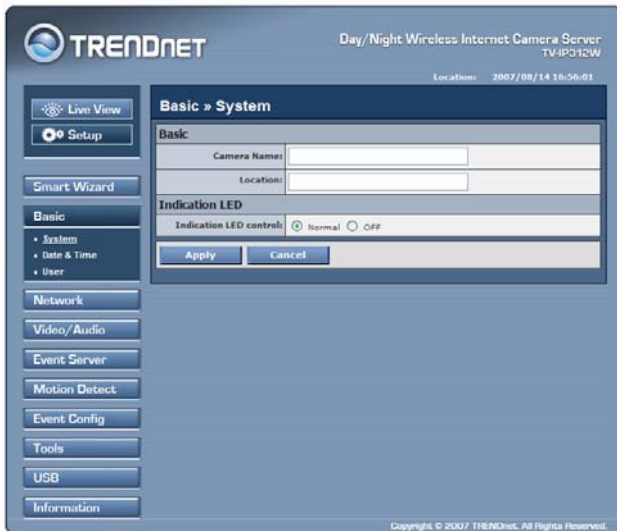
CHAPTER 4

CONFIGURING THE CAMERA

4.1 Using the Web Configuration

You can access and manage the camera through the Web browser or from the SecurView™ software (see chapter 5 in more detail). This chapter describes the Web Configuration, and guides you through the configuration of the camera by using the web browser.

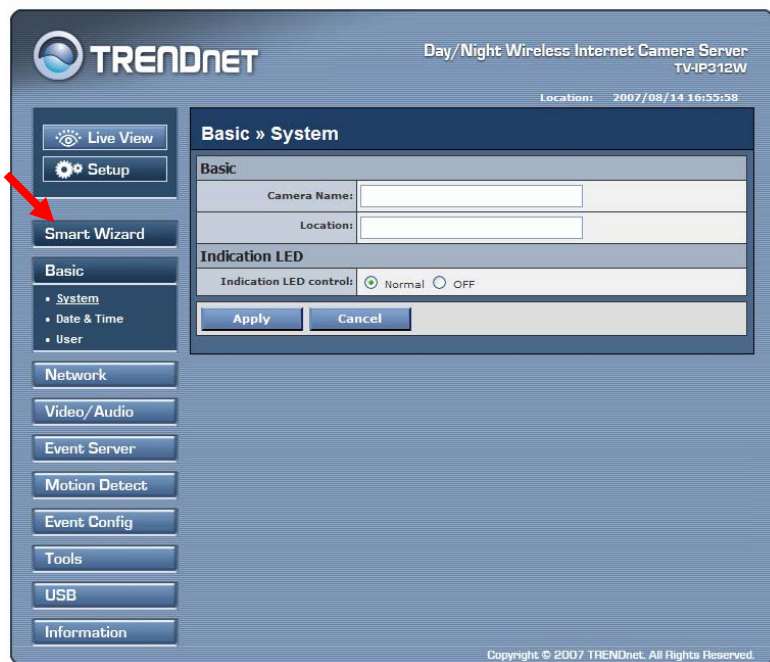
To configure the camera, click **Setup** on the main page of Web Configuration. The Web Configuration will start from the **Basic** page.



The Web Configuration contains the settings that are required for the camera in the left menu bar, including **Smart Wizard**, **Basic**, **Network**, **Video/Audio**, **Event Server**, **Motion detect**, **Event Config**, **Tools**, **USB**, and **Information**.

4.2 Using Smart Wizard

The camera's Smart Wizard lets you configure your camera easily and quickly. The wizard will guide you through the necessary settings with detailed instructions on each step.



To start the wizard, click **Smart Wizard** in the left menu bar.

Step 1. Camera Settings

Camera Settings

Camera Name:	<input type="text"/>
Location:	<input type="text"/>
Admin Password:	<input type="text"/>
Confirm Password:	<input type="text"/>

Enter Camera name, Location, New Admin password and enter again to confirm Admin password

Step 2. IP Settings

IP Settings

DHCP
 Static IP

IP: . . .

Subnet Mask: . . .

Default Gateway: . . .

Primary DNS: . . .

Secondary DNS: . . .

PPPoE

User Name:

Password:

Select the IP setting according to your network: DHCP, Static IP, or PPPoE.

Step 3. Email Settings

Email Settings

SMTP Server Address:	<input type="text"/>
Sender Email Address:	<input type="text"/>
Authentication Mode:	<input checked="" type="radio"/> None <input type="radio"/> SMTP
Sender User Name:	<input type="text"/>
Sender Password:	<input type="text"/>
Receiver #1 Email Address:	<input type="text"/>
Receiver #2 Email Address:	<input type="text"/>

Enter the required information to be able to send email with image.

Step 4. Wireless Networking (for TV-IP212W/TV-IP312W only)

Wireless Networking

Network ID(SSID):	<input type="text" value="TRENDnet"/> <input type="button" value="Site Survey"/>
Wireless Mode:	<input checked="" type="radio"/> Infrastructure <input type="radio"/> Ad-Hoc
Channel:	<input type="text" value="6"/>
Authentication:	<input type="text" value="Open"/>
Encryption:	<input checked="" type="radio"/> None <input type="radio"/> WEP
Format:	<input checked="" type="radio"/> ASCII <input type="radio"/> HEX
Key Length:	<input checked="" type="radio"/> 64 bits <input type="radio"/> 128 bits
<input checked="" type="radio"/> WEP Key 1:	<input type="text"/>
<input type="radio"/> WEP Key 2:	<input type="text"/>
<input type="radio"/> WEP Key 3:	<input type="text"/>
<input type="radio"/> WEP Key 4:	<input type="text"/>

Select **Enable** to enable the wireless function of the camera, and then complete the required settings.

Step 5. Confirm Settings

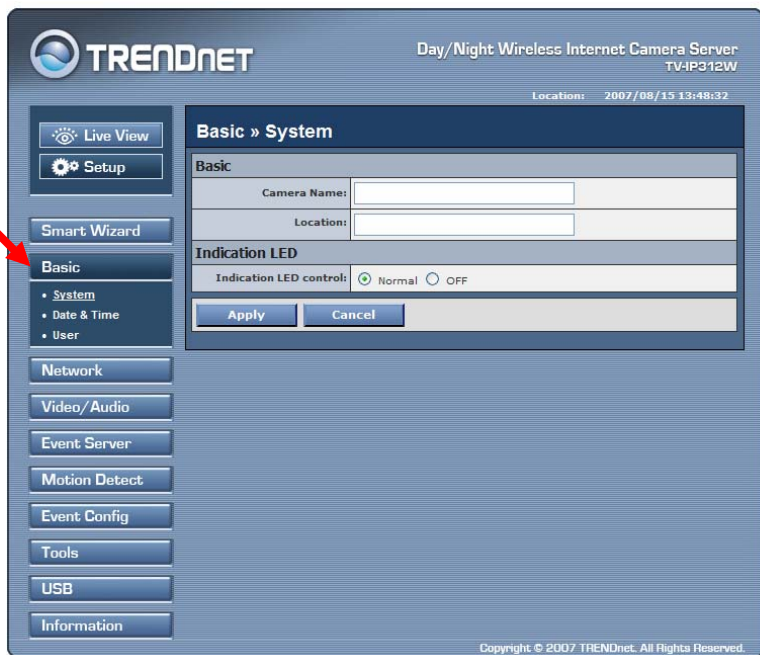
Confirm Settings	
Camera Name:	
Location:	
IP Mode:	Static
IP Address:	192.168.10.30
Subnet Mask:	255.255.255.0
Default Gateway:	192.168.10.1
Primary DNS Address:	
Secondary DNS Address:	
SMTP Server Address:	
Sender Email Address:	
Authentication mode:	None
Sender User Name:	
Receiver #1 Email Address:	
Receiver #2 Email Address:	
ESSID:	TRENDnet
Connection:	Infrastructure
Channel:	6
Authentication :	Open
Encryption :	None
<input type="button" value=" < Prev"/> <input type="button" value=" Apply"/> <input type="button" value=" Cancel"/>	

This step shows all the setting information.

This step shows the configuration of your camera. When you confirm the settings, click **Apply** to finish the wizard and reboot the camera. Otherwise, click **Prev** to go back to the previous step(s) and change the settings; or click **Cancel** to end the wizard and discard the changes.

4.3 Basic Setup

The Basic menu contains three sub-menus that provide the system settings for the camera, such as the Camera Name, Location, Date & Time, and User management.



The screenshot displays the TRENDNET web interface for a Day/Night Wireless Internet Camera Server (TV-IP312W). The interface includes a top navigation bar with the TRENDNET logo and the device name. A left sidebar contains various menu items, with 'Basic' highlighted and indicated by a red arrow. The main content area shows the 'Basic » System' configuration page, which includes fields for 'Camera Name' and 'Location', and an 'Indication LED' control set to 'Normal'. The 'Apply' and 'Cancel' buttons are visible at the bottom of the configuration area.

Day/Night Wireless Internet Camera Server
TV-IP312W
Location: 2007/08/15 13:48:32

Basic » System

Basic

Camera Name:

Location:

Indication LED

Indication LED control: Normal OFF

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Basic >> System

Basic » System	
Basic	
Camera Name:	<input type="text"/>
Location:	<input type="text"/>
Indication LED	
Indication LED control:	<input checked="" type="radio"/> Normal <input type="radio"/> OFF
<input type="button" value="Apply"/>	<input type="button" value="Cancel"/>

■ Basic

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

■ Indication LED

This item allows you to set the LED illumination as desired. There are two options: **Normal** and **OFF**.

Basic >> Date & Time

Basic » Date & Time	
Date and Time	
TimeZone:	(GMT) Greenwich Mean Time : Dublin, Edinburgh, Lisbon, London <input type="button" value="v"/>
Setting:	<input type="radio"/> Synchronize with PC
	<input checked="" type="radio"/> Synchronize with NTP Server:
	NTP Server Address: <input type="text"/>
	Update Interval: <input type="text" value="6"/> <input type="button" value="v"/> hours
	<input type="radio"/> Manual
Date:	<input type="text" value="2007/08/15"/> (YYYY/MM/DD)
Time:	<input type="text" value="10:33:42"/> (hh:mm:ss)
<input type="button" value="Apply"/>	<input type="button" value="Cancel"/>

■ Date & Time

- **TimeZone:** Select the proper time zone for the region from the pull-down menu.
- **Synchronize with PC:** Select this option and the date & time settings of the camera will be synchronized with the connected computer.
- **Synchronize with NTP Server:** Select this option and the time will be synchronized with the NTP Server. You need to enter the IP address of the server and select the update interval in the following two boxes.
- **Manual:** Select this option to set the date and time manually.

Basic >> User

Basic » User	
User Accounts	
Administrator:	User Name: <input type="text"/> Confirm Password: <input type="password"/> <input type="button" value="Modify"/>
General User:	User Name: <input type="text"/> Password: <input type="password"/> <input type="button" value="Add/Modify"/> User List: <input type="text"/> <input type="button" value="Delete"/>
Guest:	User Name: <input type="text"/> Password: <input type="password"/> <input type="button" value="Add/Modify"/> User List: <input type="text"/> <input type="button" value="Delete"/>

■ Administrator

To prevent unauthorized access to the camera's Web Configuration, you are strongly recommend to change the default administrator password. Type the administrator password twice to set and confirm the password.

■ **General User**

- **User Name:** Enter the user's name you want to add to use the camera.
- **Password:** Enter the password for the new user.

When you are finished, click **Add/Modify** to add the new user to the camera. To modify the user's information, select the one you want to modify from **User List** and click **Add/Modify**.

- **User List:** Display the existing users of the camera. To delete a user, select the one you want to delete and click **Delete**.

■ **Guest**

- **User Name:** Enter the guest's name you want to add to use the camera.
- **Password:** Enter the password for the new guest.
- **User List:** Display the existing guests of the camera. To delete a user, select the one you want to delete and click **Delete**.

NOTE The "General User" can access the camera and control the Function buttons of the camera's Web Configuration; the "Guest" can only view the live view image from the main page of the Web Configuration while accessing the camera. Only the "Administrator" is allowed to configure the camera through the Web Configuration.

4.4 Network Settings

The Network menu contains three sub-menus that provide the network settings for the camera, such as the IP Setting, DDNS Setting, IP Filter, and Wireless network.

TRENDNET Day/Night Wireless Internet Camera Server
TV-IP312W
Location: 2007/08/15 10:40:30

Network » Network

Network

IP Setting :

- DHCP
- Static IP

IP: 192 . 168 . 1 . 170

Subnet Mask: 255 . 255 . 255 . 0

Default Gateway: 192 . 168 . 1 . 254

Primary DNS: [] . [] . [] . []

Secondary DNS: [] . [] . [] . []

PPPoE

User Name: []

Password: []

DDNS Setting:

- Enable

Provider: members.dyndns.org

Host Name: []

User Name: []

Password: []

UPnP: Enable

Ports Number

HTTP Port: 80 (default: 80)

RTSP Port: 554 (default: 554)

Apply **Cancel**

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Network >> Network

Network » Network	
Network	
IP Setting :	<input type="radio"/> DHCP <input checked="" type="radio"/> Static IP IP: <input type="text" value="192"/> . <input type="text" value="168"/> . <input type="text" value="1"/> . <input type="text" value="170"/> 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" value="192"/> . <input type="text" value="168"/> . <input type="text" value="1"/> . <input type="text" value="254"/> 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="radio"/> PPPoE User Name: <input type="text"/> Password: <input type="text"/>
DDNS Setting:	<input type="checkbox"/> Enable Provider: <input type="text" value="members.dyndns.org"/> <input type="button" value="v"/> Host Name: <input type="text"/> User Name: <input type="text"/> Password: <input type="text"/>
UPnP:	<input type="checkbox"/> Enable
Ports Number	HTTP Port: <input type="text" value="80"/> (default: 80) RTSP Port: <input type="text" value="554"/> (default: 554)
<input type="button" value="Apply"/> <input type="button" value="Cancel"/>	

■ IP Setting

This item allows you to select the IP address mode and set up the related configuration.

- **DHCP:** Select this option when your network uses the DHCP server. When the camera starts up, it will be assigned an IP address from the DHCP server automatically.

- **Static IP:** Select this option to assign the IP address for the camera directly. You can use IPSetup to obtain the related setting values.

IP	Enter the IP address of the camera. The default setting is 192.168.10.30 .
Subnet Mask	Enter the Subnet Mask of the camera. The default setting is 255.255.255.0 .
Default Gateway	Enter the Default Gateway of the camera. The default setting is 192.168.10.1 .
Primary/ Secondary DNS	DNS (Domain Name System) translates domain names into IP addresses. Enter the Primary DNS and Secondary DNS that are provided by ISP.

- **PPPoE:** Select this option when you use a direct connection via the ADSL modem. You should have a PPPoE account from your Internet service provider. Enter the **User Name** and **Password**. The camera will get an IP address from the ISP as starting up.

NOTE Once the camera get an IP address from the ISP as starting up, it automatically sends a notification email to you. Therefore, when you select PPPoE as your connecting type, you have to set up the email or DDNS configuration in advance.

■ DDNS Setting

With the Dynamic DNS feature, you can assign a fixed host and domain name to a dynamic Internet IP address. Select the **Enable** option to enable this feature. Then, select the Provider from the pull-down list and enter the required information in the **Host Name**, **User Name**, and **Password** boxes. Please note that you have to sign up for DDNS service with the service provider first.

■ UPnP

The camera supports UPnP (Universal Plug and Play), which is a set of computer network protocols that enable the device-to-device interoperability. In addition, it supports port auto mapping function

so that you can access the camera if it is behind an NAT router or firewall. Select the **Enable** option to enable this feature.

■ **Ports Number**

- **HTTP Port:** The default HTTP port is **80**.
- **RTSP Port:** Configure the transmission of streaming data within the network. The default RTSP (Real Time Streaming Protocol) port is **554**.

NOTE If the camera is behind an NAT router or firewall, the suggested to be used is from 1024 to 65535.

Network >> IP Filter

Network >> IP Filter	
IP Filter	
IP Address Range:	Start: <input type="text"/> . <input type="text"/> . <input type="text"/> . <input type="text"/>
	End: <input type="text"/> . <input type="text"/> . <input type="text"/> . <input type="text"/> <input type="button" value="Add"/>
Deny IP List:	<input type="button" value="v"/> <input type="button" value="Delete"/>

The IP Filter setting allows the administrator of the camera to limit the users within a certain range of IP addresses to access the camera.

■ Start/End IP Address

Assign a range of IP addresses that are not allowed to access the camera by entering the Start IP address and End IP address. When you are finished, click **Add** to save the range setting. You can repeat the action to assign multiple ranges for the camera.

For example, when you enter 192.168.10.50 in Start IP Address and 192.168.10.80 in End IP Address, the user whose IP address located within 192.168.10.50 ~ 192.168.10.80 will not be allowed to access the camera.

■ Deny IP List

The list displays the range setting(s) of IP addresses that are not allowed to access the camera. To clear the setting, select a range of IP addresses from the list and click **Delete**.

Network >> Wireless Setting (for TV-IP212W/TV-IP312W only)

Network & Wireless Setting	
Wireless	
Enable:	<input checked="" type="checkbox"/>
Network ID(SSID):	TRENDnet <input type="button" value="Site Survey"/>
Wireless Mode:	<input checked="" type="radio"/> Infrastructure <input type="radio"/> Ad-Hoc
Channel:	6
Authentication:	Open
Encryption	<input checked="" type="radio"/> None <input type="radio"/> WEP
Format	<input checked="" type="radio"/> ASCII <input type="radio"/> HEX
Key Length	<input checked="" type="radio"/> 64 bits <input type="radio"/> 128 bits
<input checked="" type="radio"/> WEP Key 1	<input type="text"/>
<input type="radio"/> WEP Key 2	<input type="text"/>
<input type="radio"/> WEP Key 3	<input type="text"/>
<input type="radio"/> WEP Key 4	<input type="text"/>
<input type="button" value="Apply"/> <input type="button" value="Cancel"/>	

■ Wireless

The camera supports WLAN while you use the wireless network. Select the **Enable** option to enable this feature.

- **Network ID (SSID):** The default SSID setting is “TRENDnet”. To connect the camera to a specified access point, set a SSID for the camera to correspond with the access point’s ESS-ID. To connect the camera to an Ad-Hoc wireless workgroup, set the same wireless channel and SSID to match with the computer’s configuration.

Click **Site Survey** to display the available wireless networks, so that you can easily connect to one of the listed wireless networks.

Wireless					
Enable:		<input checked="" type="checkbox"/>			
Network ID(SSID):		TRENDnet	Site Survey		
ESSID	Mac	Channel	Mode	Privacy	Signal
TRENDnet	00:11:e0:00:00:00	8	Infrastructure	No	39%
11g	00:06:c7:00:00:00	1	Infrastructure	No	70%
OMGTNET	00:18:e7:00:00:00	3	Infrastructure	No	29%
trendnetsky	00:18:e7:00:00:00	5	Infrastructure	Yes	55%
CAMTEST	00:c0:02:00:00:00	10	Infrastructure	No	55%
LAB411	00:90:4b:00:00:00	11	Infrastructure	Yes	60%
FastN	00:14:d1:00:00:00	11	Infrastructure	No	96%

List of searching results

- **Wireless Mode:** Select the type of wireless communication for the camera: **Infrastructure** or **Ad-Hoc**.
- **Channel:** Select the appropriate channel from the list.
- **Authentication:** Select the authentication method to secure the camera from being used by unauthorized user: **Open**, **Shared-key**, **WPA-PSK**, and **WPA2-PSK**. The following table explains the four options:

Open	The default setting of Authentication mode, which communicates the key across the network.
Shared-key	Allow communication only with other devices with identical WEP settings.
WPA-PSK/ WPA2-PSK	WPA-PSK/WPA2-PSK is specially designed for the users who do not have access to network authentication servers. 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.

If you select **Open** or **Shared-key** as the Authentication mode, you need to complete the following settings:

Encryption: Select the **WEP** option to enable the data encryption feature to secure the camera within the wireless network.

Format: Once you enable the Encryption feature, you need to determine the encryption format by selecting **ASCII** or **HEX**. ASCII format causes each character you type to be interpreted as an eight-bit value. Hex format causes each pair of characters you type to be interpreted as an eight-bit value in hexadecimal (base 16) notation.

Key Length: Select the WEP key length you use: **64 bits** or **128 bits**.

WEP Key 1/2/3/4: Enter the WEP key(s) in the following boxes.

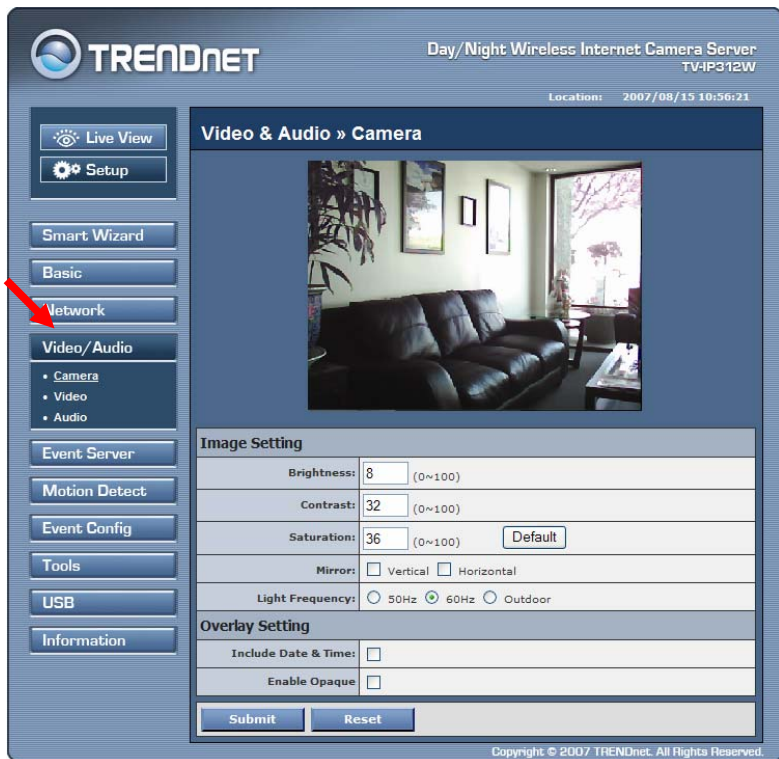
If you select **WPA-PSK** or **WPA2-PSK** as the Authentication mode, you need to complete the following settings:

Encryption: Select **TKIP** or **AES**. TKIP (Temporal Key Integrity Protocol) changes the temporal key every 10,000 packets to insure much greater security than the standard WEP security. 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 box, and this name must match the Pre-shared key value in the remote device.

4.5 Setting up Video & Audio

The Video & Audio menu contains three sub-menus that provide the video and audio settings for the camera.



The screenshot displays the TRENDNET web interface for a Day/Night Wireless Internet Camera Server (TV-IP312W). The interface includes a navigation sidebar on the left with buttons for Live View, Setup, Smart Wizard, Basic, Network, Video/Audio (selected), Event Server, Motion Detect, Event Config, Tools, USB, and Information. A red arrow points to the Video/Audio menu item. The main content area is titled "Video & Audio » Camera" and features a live video feed of a living room with a leather sofa. Below the video feed are two sections: "Image Setting" and "Overlay Setting".

Image Setting

Brightness:	<input type="text" value="8"/>	(0~100)
Contrast:	<input type="text" value="32"/>	(0~100)
Saturation:	<input type="text" value="36"/>	(0~100) <input type="button" value="Default"/>
Mirror:	<input type="checkbox"/> Vertical <input type="checkbox"/> Horizontal	
Light Frequency:	<input type="radio"/> 50Hz <input checked="" type="radio"/> 60Hz <input type="radio"/> Outdoor	

Overlay Setting

Include Date & Time:	<input type="checkbox"/>
Enable Opaque:	<input type="checkbox"/>

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Video & Audio >> Camera

Image Setting	
Brightness:	<input type="text" value="8"/> (0~100)
Contrast:	<input type="text" value="32"/> (0~100)
Saturation:	<input type="text" value="36"/> (0~100) <input type="button" value="Default"/>
Mirror:	<input type="checkbox"/> Vertical <input type="checkbox"/> Horizontal
Light Frequency:	<input type="radio"/> 50Hz <input checked="" type="radio"/> 60Hz <input type="radio"/> Outdoor
Overlay Setting	
Include Date & Time:	<input type="checkbox"/>
Enable Opaque:	<input type="checkbox"/>
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

■ Image Setting

- **Brightness:** Adjust the brightness level from 0 ~ 100.
- **Contrast:** Adjust the contrast level from 0 ~ 100.
- **Saturation:** Adjust the colors level from 0 ~ 100.

Click **Default** to restore the default settings of the three options above.

- **Mirror:** Select the **Horizontal** option to mirror the image horizontally. Select the **Vertical** option to mirror the image vertically.
- **Light Frequency:** Select the proper frequency according to the camera's location: **50Hz**, **60Hz**, or **Outdoor**.

■ Overlay Setting

- **Includes Date & Time:** Select this option to display the date & time stamp on the live view image.
- **Enable Opaque:** Select this option to set a black background to the displayed date & time stamp.

Video & Audio >> Video

The screenshot shows a configuration window titled "Video & Audio » Video". It is organized into three main sections: MPEG4, MJPEG, and 3GPP. Each section contains settings for Video Resolution, Video Quality, and Frame Rate. The 3GPP section also includes radio button options for "Settings". At the bottom of the window are "Apply" and "Cancel" buttons.

Format	Video Resolution	Video Quality	Frame Rate	Settings
MPEG4	VGA	Highest	30 fps	
MJPEG	VGA	High	30 fps	
3GPP				<input checked="" type="radio"/> Disable <input type="radio"/> 3GPP Without Audio <input type="radio"/> 3GPP With Audio

■ MPEG4

- **Video Resolution:** Select the desired video resolution from the three formats: **VGA**, **QVGA** and **QQVGA**. The higher setting (VGA) obtains better video quality while it uses more resource within your network.
- **Video Quality:** Select the desired image quality from five levels: **Lowest**, **Low**, **Medium**, **High**, and **Highest**.
- **Frame Rate:** Select a proper setting depending on your network status.

■ MJPEG

- **Video Resolution:** Select the desired video resolution from the three formats: **VGA**, **QVGA** and **QQVGA**. The higher setting (VGA) obtains better video quality while it uses more resource within your network.

- **Video Quality:** Select the desired image quality from five levels: **Lowest, Low, Medium, High, and Highest.**
- **Frame Rate:** Select a proper setting depending on your network status.

NOTE The camera supports both MPEG4 and MJPEG compression. MJPEG capture the images in JPEG format, which require higher bandwidth to view smooth video. The administrator can control the bandwidth of each connection well through the setting options above.

■ 3GPP

The camera supports 3GPP specification. Select the **Disable** option to disable this feature. Otherwise, select **3GPP Without Audio** or **3GPP With Audio** to transfer the video clips without or with audio.

If you use a mobile phone that supports 3GPP, you can also view the real-time streaming image captured by the camera on your phone (with the default player on the phone) by entering the RTSP link: [rtsp://\(IP address of the camera\)/3gp](rtsp://(IP address of the camera)/3gp).

Video & Audio >> Audio

Video & Audio » Audio	
Camera Microphone In	
Enable:	<input checked="" type="checkbox"/>
Camera Speaker Out	
Enable:	<input checked="" type="checkbox"/>
Volume:	<input type="text" value="90"/>
Apply Cancel	

■ Camera Microphone In

Select the **Enable** option to enable the camera's audio function, so that you can receive the on-site sound and voice from the camera.

■ Camera Speaker Out

Select the **Enable** option to enable the camera's external speaker function, so that the connected speaker can play the sound and voice through the camera.

- **Volume:** Set the speaker's volume.

4.6 Event Server Configuration

The Event Server menu contains three sub-menus that allow you to upload images to FTP, send emails that include still images, and store the images to a NAS system.



The screenshot displays the web interface for a Trendnet Day/Night Wireless Internet Camera Server (TV-IP312W). The interface includes a navigation menu on the left with options like Live View, Setup, Smart Wizard, Basic, Network, Video/Audio, Event Server, Motion Detect, Event Config, Tools, USB, and Information. A red arrow points to the 'Event Server' menu item. The main content area is titled 'Event Server Setting > FTP' and contains a form with the following fields:

FTP	
Host Address:	<input type="text"/>
Port Number:	<input type="text" value="21"/>
User Name:	<input type="text"/>
Password:	<input type="password"/>
Directory Path:	<input type="text"/>
Passive mode:	<input checked="" type="checkbox"/> Enable

At the bottom of the form are three buttons: Test, Apply, and Cancel. The footer of the interface reads 'Copyright © 2007 TRENDnet. All Rights Reserved.'

When you complete the required settings for FTP, Email, or Network Storage, click **Test** to test the related configuration is correct or not. Once the camera connects to the server successfully, click **Apply**.

Event Server Setting >> FTP

Event Server Setting » FTP	
FTP	
Host Address:	<input type="text"/>
Port Number:	<input type="text" value="21"/>
User Name:	<input type="text"/>
Password:	<input type="password"/>
Directory Path:	<input type="text"/>
Passive mode:	<input checked="" type="checkbox"/> Enable
<input type="button" value="Test"/> <input type="button" value="Apply"/> <input type="button" value="Cancel"/>	

■ FTP

- **Host Address:** Enter the IP address of the target FTP server.
- **Port Number:** Enter the port number used for the FTP server.
- **User Name:** Enter the user name to login into the FTP server.
- **Password:** Enter the password to login into the FTP server.
- **Directory Path:** Enter the destination folder for uploading the images. For example, **/Test/**.
- **Passive Mode:** Select the **Enable** option to enable passive mode.

Event Server Setting >> Email

Event Server Setting » Email	
Email	
SMTP Server Address:	<input type="text"/>
Sender Email Address:	<input type="text"/>
Authentication Mode:	<input checked="" type="radio"/> None <input type="radio"/> SMTP
Sender User Name:	<input type="text"/>
Sender Password:	<input type="text"/>
Receiver #1 Email Address:	<input type="text"/>
Receiver #2 Email Address:	<input type="text"/>
<input type="button" value="Test"/> <input type="button" value="Apply"/> <input type="button" value="Cancel"/>	

■ Email

- **SMTP Server Address:** Enter the mail server address. For example, mymail.com.
- **Sender Email Address:** Enter the email address of the user who will send the email. For example, John@mymail.com.
- **Sender User Name:** Enter the user name to login the mail server.
- **Sender Password:** Enter the password to login the mail server.
- **Receiver #1 Email Address:** Enter the first email address of the user who will receive the email.
- **Receiver #2 Email Address:** Enter the second email address of the user who will receive the email.

Event Server Setting >> Network Storage

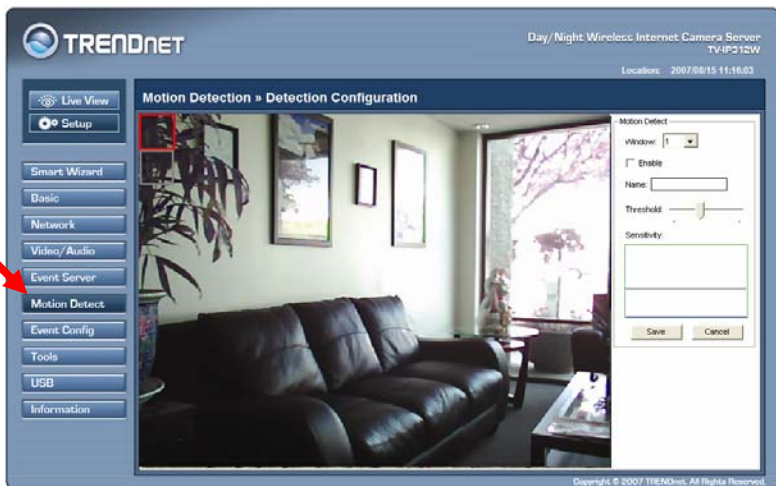
Event Server Setting » Network Storage	
Network Storage	
Samba Server Address:	<input type="text" value="192.168.10.51"/>
Share:	<input type="text" value="SAC7001-_e1"/>
Path:	<input type="text" value="/ts-u200/"/>
User Name:	<input type="text"/> <input checked="" type="checkbox"/> Anonymous
Password:	<input type="password"/>
Split By:	<input checked="" type="radio"/> File Size <input type="text" value="100"/> (MB) <input type="radio"/> Recording Time <input type="text" value="30"/> (Minutes)
When Disk Full:	<input type="radio"/> Stop Recording <input checked="" type="radio"/> Recycle - Delete Oldest Folder
<input type="button" value="Test"/> <input type="button" value="Apply"/> <input type="button" value="Cancel"/>	

■ Net Storage

- **Samba Server Address:** Enter the IP address of the Network Storage server. For example: **192.168.10.51**.
- **Share:** Assign the folder on the Network Storage server to share the files to users. For example, **SAC7001-e1**.
- **Path:** Assign the path for uploading the files on the Network Storage server. For example, **/ts-u200 /**.
- **User Name:** Enter the user name to login into the Network Storage server.
- **Password:** Enter the password to login into the Network Storage server.
- **Split By:** When the file is too large to upload smoothly, use this option to split it by selecting **File Size** or **Recording Time**.
- **When Disk Full:** Select **Stop Recording** or **Recycle – Delete Oldest Folder of File** when the storage space on the Network Storage server is full.

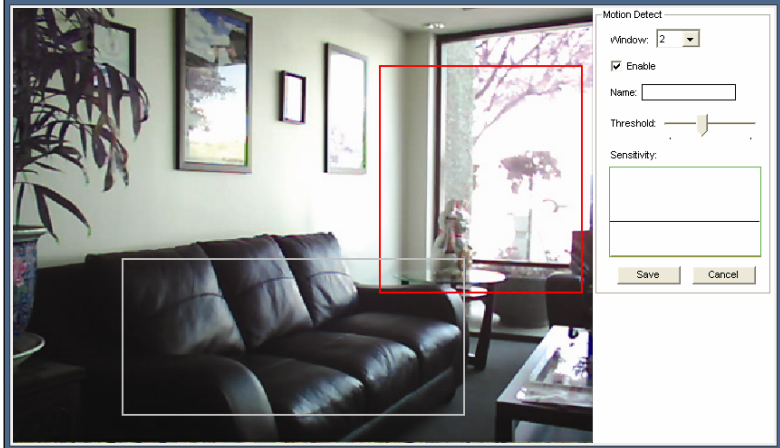
4.7 Motion Detect

The Motion Detect menu contains the command and option that allow you to enable and set up the motion detection feature of the camera. The camera provides two detecting areas.



To enable the detecting area, select **Window 1** or **2** from the pull-down list, and then select **Enable**. When the detecting area is enabled, you can use the mouse to move the detecting area and change the area coverage.

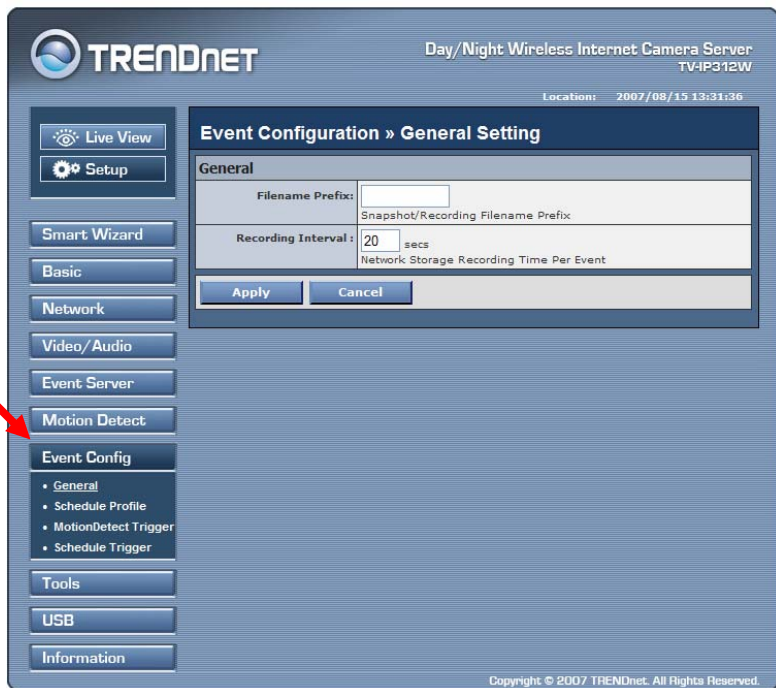
Motion Detection » Detection Configuration



- **Name:** Assign a name to the detecting area.
- **Threshold:** Move the slide bar to adjust the level for detecting motion to record video.

4.8 Event Config

The Event Config menu contains four sub-menus that provide the commands to configure event profiles.



The screenshot displays the Trendnet web interface for a Day/Night Wireless Internet Camera Server (TV-IP312W). The location is 2007/08/15 13:31:36. The main menu on the left includes Live View, Setup, Smart Wizard, Basic, Network, Video/Audio, Event Server, Motion Detect, Event Config (highlighted with a red arrow), Tools, USB, and Information. The Event Config sub-menu is expanded, showing General, Schedule Profile, MotionDetect Trigger, and Schedule Trigger. The main content area is titled 'Event Configuration » General Setting' and contains the following settings:

General	
Filename Prefix:	<input type="text"/>
Snapshot/Recording Filename Prefix	
Recording Interval:	<input type="text" value="20"/> secs
Network Storage Recording Time Per Event	

Buttons for 'Apply' and 'Cancel' are located at the bottom of the settings area.

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Event Configuration >> General Setting

Event Configuration » General Setting

General

Filename Prefix:
Snapshot/Recording Filename Prefix

Recording Interval: secs
Network Storage Recording Time Per Event

- **Snapshot/Recording Filename Prefix:** You can assign a given prefix to each new captured file. Otherwise, leave this option blank to use the default setting.
- **Network Storage Recording Time Per Event:** Limit the recording time while you are using the Network Storage solution.

Event Configuration >> Arrange Schedule Profile

Event Configuration » Arrange Schedule Profile

Schedule Profiles

This sub-menu displays the scheduled profile(s). To customize the profile, click **Add** and then enter a descriptive name for the profile in the prompt dialog window.

Explorer User Prompt

Script Prompt:
 Please enter a profile name

After entering the profile name, click **OK** and the profile is added to the Schedule Profiles list. To delete the profile, select the profile in the list and click **Delete**.

The screenshot shows a software interface for configuring a schedule profile. The window title is "Event Configuration » Arrange Schedule Profile". It features a "Schedule Profiles" list at the top with one entry, "Camera1", and "Add" and "Delete" buttons. Below this, the "Profile Name:" field contains "Camera1". The "Weekdays:" section has radio buttons for Sun (selected), Mon, Tue, Wed, Thr, Fri, and Sat. The "Time List:" section includes an empty list box and buttons for "Add", "Copy this to all weekdays", "Delete", and "Delete this from all weekdays". At the bottom, there are fields for "Start Time:" and "End Time:" and a "Save" button.

- **Profile Name:** Display the profile name that you select in the Schedule Profiles list.
- **Weekdays:** Select the weekday(s) that you want to separately assign in the schedule profile. The weekday that has been assigned will be displayed with green color.
- **Time List:** Display the time period that you have assigned within the selected weekday. To assign the same time period to every weekday, click **Add this to all weekdays**; click **Delete this from all weekdays** to remove the selected time period from every weekday. Click **Delete** to remove the selected time period.
- **Start/End Time:** Enter the start and end time and then click **Add** to assign a time period within in the selected weekday.

Event Configuration >> Motion Detect Trigger

Event Configuration > Motion Detect Trigger	
Motion Detect Trigger (*Please set the corresponding server setting first)	
Enable	<input type="checkbox"/> Select to enable
Schedule Profile:	always
Action:	<input type="checkbox"/> Send Email <input type="checkbox"/> FTP Upload <input type="checkbox"/> Record to Network Storage <input type="checkbox"/> Save Image to USB
Apply Cancel	

Select the **Enable** option to enable the trigger function of the camera, so that you can send captured images within the detecting area to the FTP server, email receiver, Network Storage server, or the connected USB device. You have to configure corresponding settings, such as FTP server and email server, to enable this feature.

- **Schedule Profile:** Select a schedule profile from the pull-down list.
- **Action:** Select the destination that the captured images will be sent to: **Send Email**, **FTP Upload**, **Record to Network Storage**, or **Save Image to USB**.

Event Configuration >> Schedule Trigger

Event Configuration » Schedule Trigger	
Email Schedule	
Enables:	<input type="checkbox"/>
Schedule Profiles:	always ▼
Interval:	20 secs
FTP Schedule	
Enables:	<input type="checkbox"/>
Schedule Profiles:	always ▼
Interval:	30 secs
Network Storage Schedule	
Enables:	<input type="checkbox"/>
Schedule Profiles:	always ▼
Interval:	30 secs
<input type="button" value="Apply"/> <input type="button" value="Cancel"/>	

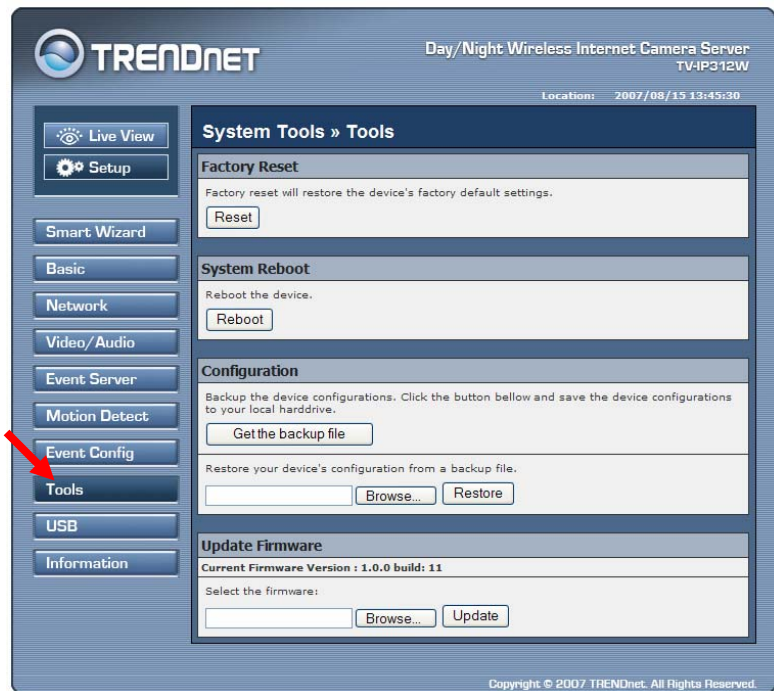
You can separately configure the schedule for trigger function of the camera by **Email**, **FTP**, or **Network Storage**. Select the **Enable** option on each item, and then select a **Schedule Profile** from the pull-down list and set the **Interval** time.

NOTE If the setting value of the **Network Storage Recording Time per Event** option in General Setting is longer than the **Interval** time in Network Storage Schedule, the recorded file will be a continuous video clip.

For example, if you set the **Network Storage Recording Time Per Event** as 10 seconds and the **Interval** as 5 seconds, recorded file becomes a non-stop video clip because the camera will record a 10-second video clip every 5 seconds.

4.9 Tools

The Tools menu provides the commands that allow you to restart or reset the camera. You can also backup and restore your configuration, and upgrade the firmware for the camera.



The screenshot displays the Trendnet web interface for a Day/Night Wireless Internet Camera Server (TV-IP312W). The interface includes a navigation sidebar on the left with buttons for Live View, Setup, Smart Wizard, Basic, Network, Video/Audio, Event Server, Motion Detect, Event Config, Tools, USB, and Information. A red arrow points to the Tools button. The main content area is titled "System Tools » Tools" and contains four sections: "Factory Reset" with a "Reset" button; "System Reboot" with a "Reboot" button; "Configuration" with a "Get the backup file" button and a "Restore" button; and "Update Firmware" with a "Browse..." button and an "Update" button. The current firmware version is listed as 1.0.0 build: 11. The location and time are shown as 2007/08/15 13:45:30. The copyright notice at the bottom reads "Copyright © 2007 TRENDnet. All Rights Reserved."

■ **Factory Reset**

Click **Reset** to restore all factory default settings for the camera.

■ **System Reboot**

Click **Reboot** to restart the camera just like turning the device off and on. The camera configuration will be retained after rebooting.

■ **Configuration**

You can save your camera configuration as a backup file on your computer. Whenever you want to resume the original settings, you can restore them by retrieving the backup file.

- **Backup:** Click **Get the backup file** to save the current configuration of the camera.
- **Restore:** Click **Browse** to locate the backup file and then click **Restore**.

■ **Update Firmware**

This item displays the current firmware version. You can upgrade the firmware for your camera once you obtained a latest version of firmware.

- **Select the firmware:** Click **Browse** to locate the backup file and then click **Update**.

NOTE Make sure to keep the camera connected to the power source during the process of upgrading firmware. Otherwise, the camera might be damaged because of failure of upgrading firmware.

4.10 USB

The USB menu provides the information and controls of the connected USB device.

The screenshot displays the TRENDnet web interface for a Day/Night Wireless Internet Camera Server (TV-IP312W). The left sidebar contains navigation buttons: Live View, Setup, Smart Wizard, Basic, Network, Video/Audio, Event Server, Motion Detect, Event Config, Tools, USB, and Information. A red arrow points to the 'USB' button. The main content area is titled 'USB » USB Setting' and includes the following sections:

- Dismount USB:** A 'Safely dismount USB:' label followed by a 'Dismount' button.
- USB Information:** A table showing 'Total space: Usb not available' and 'Free space: Usb not available'.
- USB Setting:** A section with the label 'When Disk is Full:' and two radio button options: 'Stop Recording' (unselected) and 'Recycle - Delete Oldest Folder' (selected). Below this are 'Apply' and 'Cancel' buttons.

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■ USB Dismount

To safely remove the connected USB device, you can press the Unmount button for four seconds on the camera or click **Dismount** from this item.

■ USB Information

Display the **Total space** and **Free space** of the USB device.

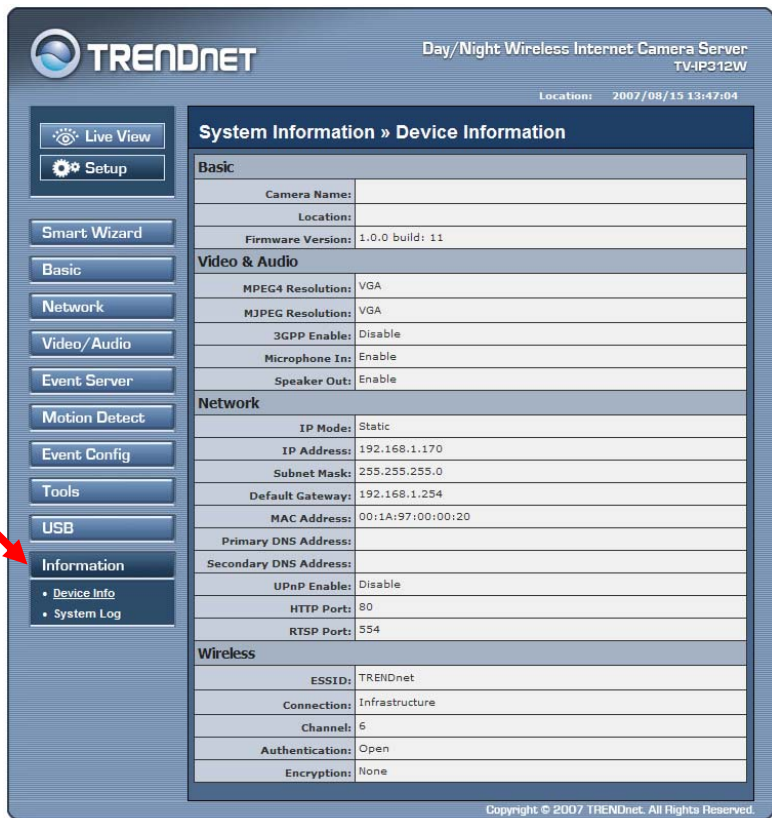
■ USB Setting

- **When Disk Full:** Select **Stop Recording** or **Recycle – Delete Oldest Folder of File** when the storage space on the USB device is full.

NOTE The connected USB storage device can be only used to store still images.

4.11 Information

The Information menu displays the current configuration and events log of the camera.



The screenshot shows the Trendnet web interface for a Day/Night Wireless Internet Camera Server (TV-IP312W). The interface includes a navigation sidebar on the left with buttons for Live View, Setup, Smart Wizard, and various configuration categories. The 'Information' button is highlighted with a red arrow. The main content area displays 'System Information » Device Information' with a table of settings categorized into Basic, Video & Audio, Network, and Wireless.

TRENDnet Day/Night Wireless Internet Camera Server
TV-IP312W
Location: 2007/08/15 13:47:04

System Information » Device Information

Basic	
Camera Name:	
Location:	
Firmware Version:	1.0.0 build: 11

Video & Audio	
MPEG4 Resolution:	VGA
MJPEG Resolution:	VGA
3GPP Enable:	Disable
Microphone In:	Enable
Speaker Out:	Enable

Network	
IP Mode:	Static
IP Address:	192.168.1.170
Subnet Mask:	255.255.255.0
Default Gateway:	192.168.1.254
MAC Address:	00:1A:97:00:00:20
Primary DNS Address:	
Secondary DNS Address:	
UPnP Enable:	Disable
HTTP Port:	80
RTSP Port:	554

Wireless	
ESSID:	TRENDnet
Connection:	Infrastructure
Channel:	6
Authentication:	Open
Encryption:	None

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■ Device Info

Display the Basic, Video & Audio, Network, and Wireless settings of the camera.

■ **System Log**

The Logs table displays the events log recorded by the system.

CHAPTER 5

SECURVIEW™ SOFTWARE

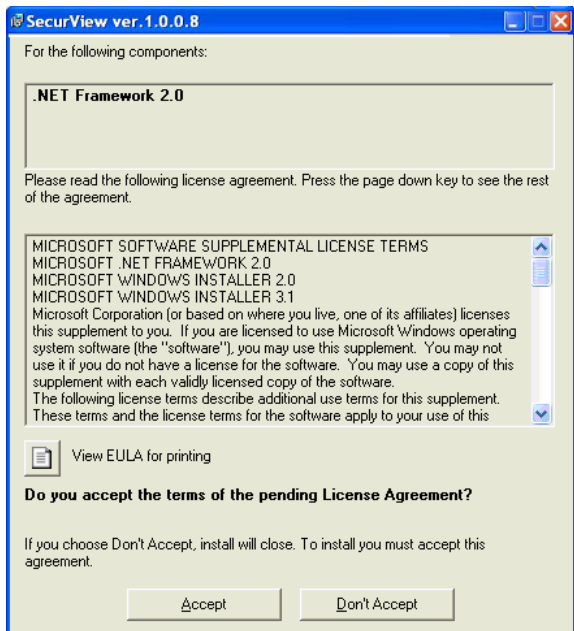
This Chapter describes detail instructions on operating SecurView™ software, a useful friendly application for ease of control and navigation requirement.

5.1 INSTALLATION

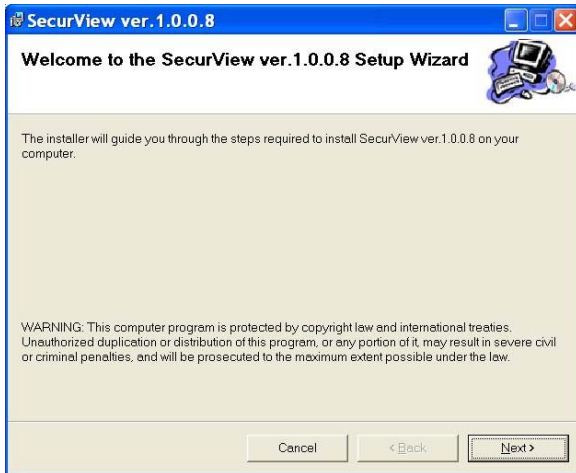
1. Insert the Installation CD-ROM into your computer's CD-ROM drive to initiate the Auto-Run program.
2. Click the **SecurView** from the Auto-Run menu screen.



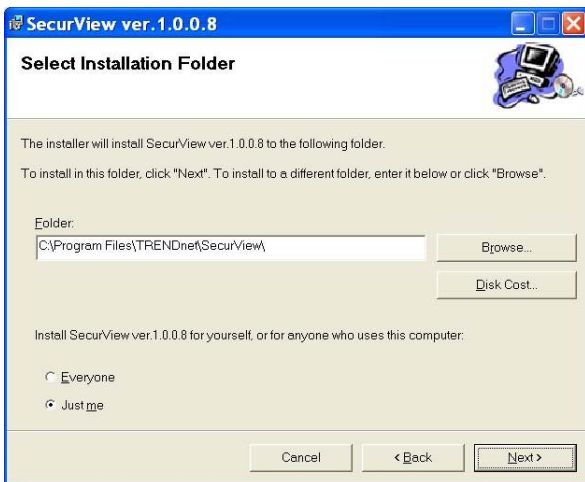
NOTE To use SecurView™, you must have Microsoft .NET Framework 2.0 installed in the computer. The setup wizard will detect it and, if the program is not installed yet, ask you to install it during the process of installing SecurView™.



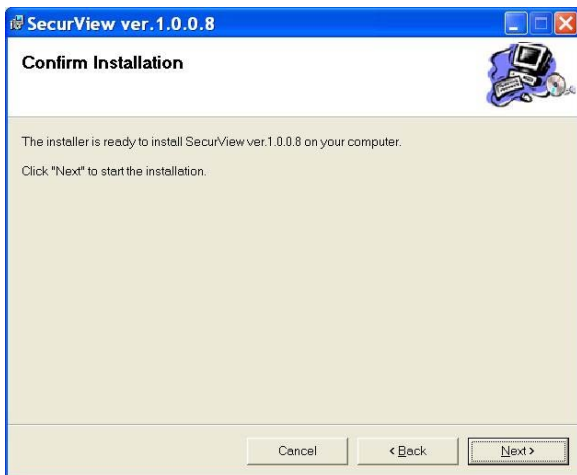
3. Then **SecurView Setup Wizard** will appear. Click "**Next**" when the **Welcome to the SecurView Setup Wizard** appears



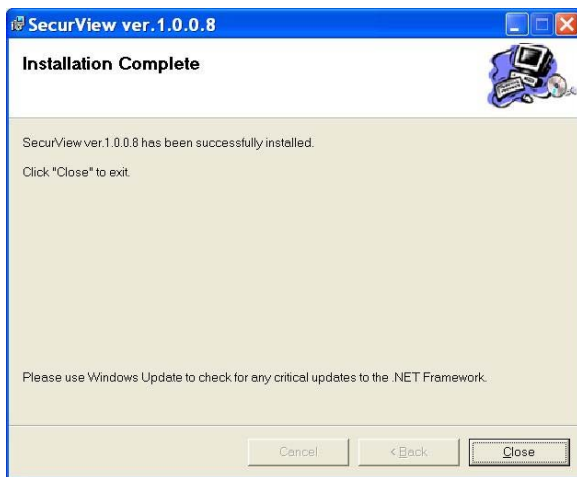
4. Click “**Browse**” to choose the desired destination location. By default, the destination location is C:\Program Files\TRENDnet\SecurView. Then Click “**Next**”.



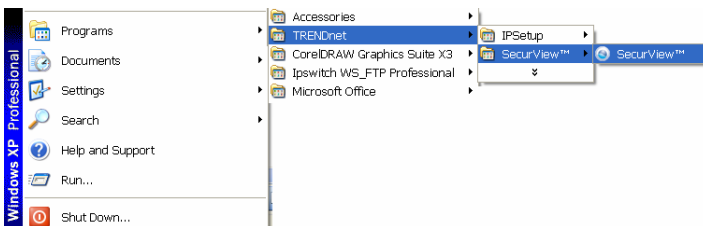
5. Click "**Next**" to confirm the SecurView software to be installed to the computer.



6. Click t When the **Installation Complete** window appears, click “*Close*”.

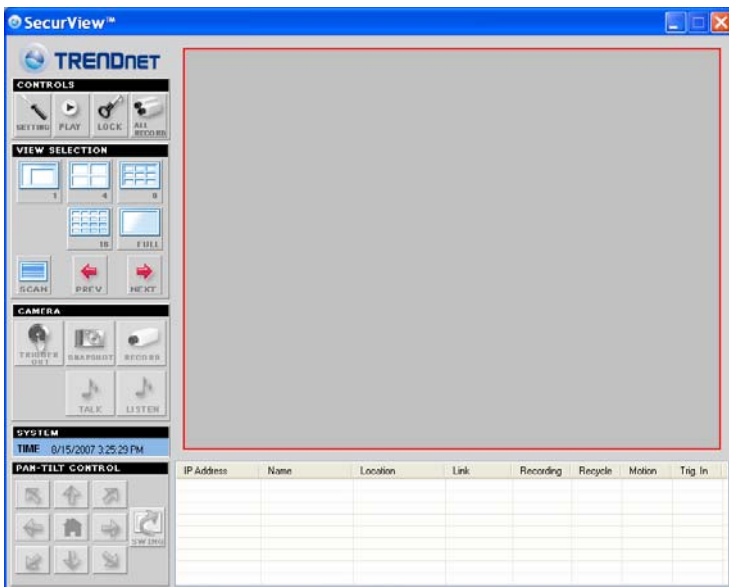


7. After installing the IPSetup utility, the application is automatically installed to your computer, and creates a folder in “ **Start |Program|TRENDnet|SecurView**”.



5.2 USING INSTALLATION

1. To launch the program, click **Start > Program > TRENDnet > SecurView**, and then click **SecuView™**. The main screen will appear as below.



NOTE Please set the resolution to 1024x768 or above on your computer while using SecurView™; otherwise, the displayed main screen may be distorted.

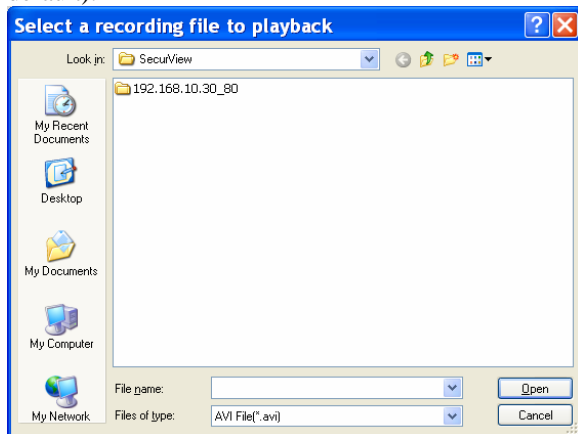
Item features

The following describes the function of each item on the main screen:


■ CONTROLS Panel



- **SETTING:** Click to enter the Setting screen of SecurView™. Click again to return to the main screen of SecurView™.
- **PLAY:** Click to play the recorded video file using the media player on the computer (for example, Windows Media Player by default).

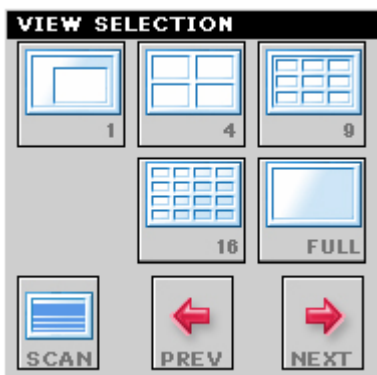


- **LOCK:** Click to lock the camera controls. Click again to resume controls for the camera. If you have set ID and Password in **SETTING > Account**, you will be asked to enter the required information to unlock.

- **ALL RECORD:** Click to start recording video clips using ALL connected cameras. To stop recording, please click Record button  to stop the individual camera. Please note: stop recording only stop the manual recording camera. For schedule recording, please change the setting on configuration.

TIP By default, the ID and Password boxes are “blank.” Click **SETTING > Account** to change the ID and password of lock/unlock function.

■ VIEW SELECTION Panel



- **View mode buttons:** SecurView™ provides multiple view modes, including 1/4/9/16 windows and Full screen mode.
- **SCAN:** When multiple cameras connected, click this button to display the video views between cameras. Click the Scan button again to stop scanning.
- **PREV:** When multiple cameras connected, click this button to switch the video view to the previous camera.
- **NEXT:** When multiple cameras connected, click this button to switch the video view to the next camera.

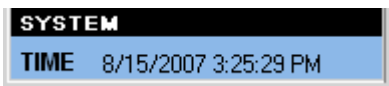
TIP To set the time interval of scanning, click **SETTING > Other** and then adjust the time from 1 to 10 seconds in the **Time interval of scan** option.

■ CAMERA Panel



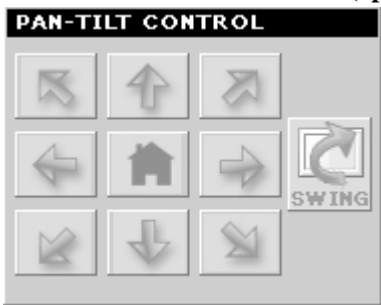
- **TRIGGER OUT:** Click to turn on the trigger out connector of the camera. This button is available only when the connected camera supports the trigger out connector, which is used to control the external device connected to the camera, such as a light.
- **SNAPSHOT:** Click to capture a still image using the selected camera and save the file in the computer.
- **RECORD:** Click to start recording a video clip using the selected camera. Click again to stop recording and save the file in the computer.
- **TALK:** Click to speak out through the camera. Please note only one user is allowed to use this function at the same time.
- **LISTEN:** Click to receive the on-site sound and voice from the camera.

■ SYSTEM Panel












This panel displays the current date and time.

■ PAN-TILT CONTROL Panel (optional)



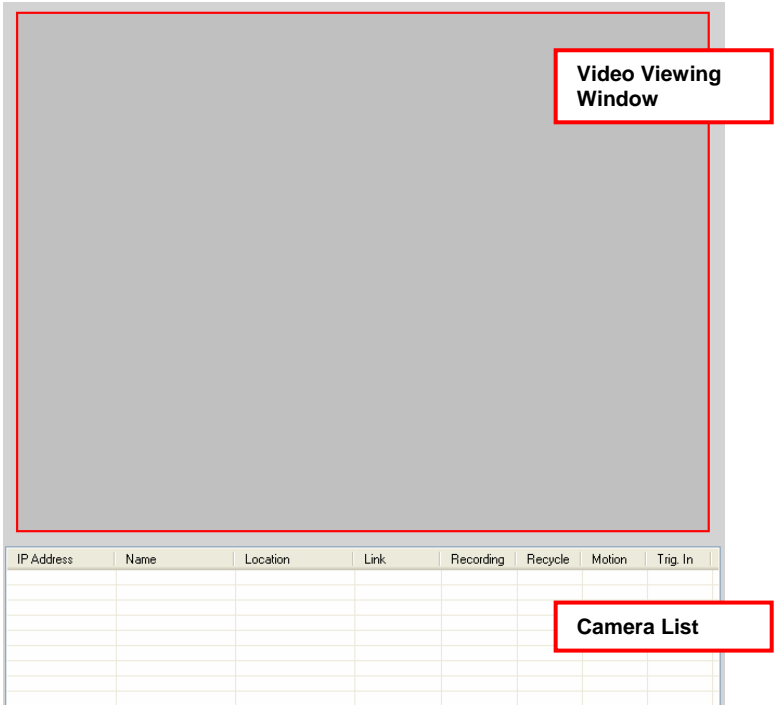
When you connect a pan/tilt camera, the system will detect the camera's function automatically and the PAN-TILT CONTROL buttons will become functional. Otherwise, these buttons are displayed as gray out buttons.

- **Direction/Home buttons:** Click these buttons to adjust the camera's viewing angle to Up () / Down () / Left () / Right () / Left-Up () / Left-Down () / Right-Up () / Right-Down ().

Click the **Home** button () to return the camera to the default position.

- **SWING:** If you have saved two or more positions for the selected camera, click this button to control the camera swinging from one position to another position.

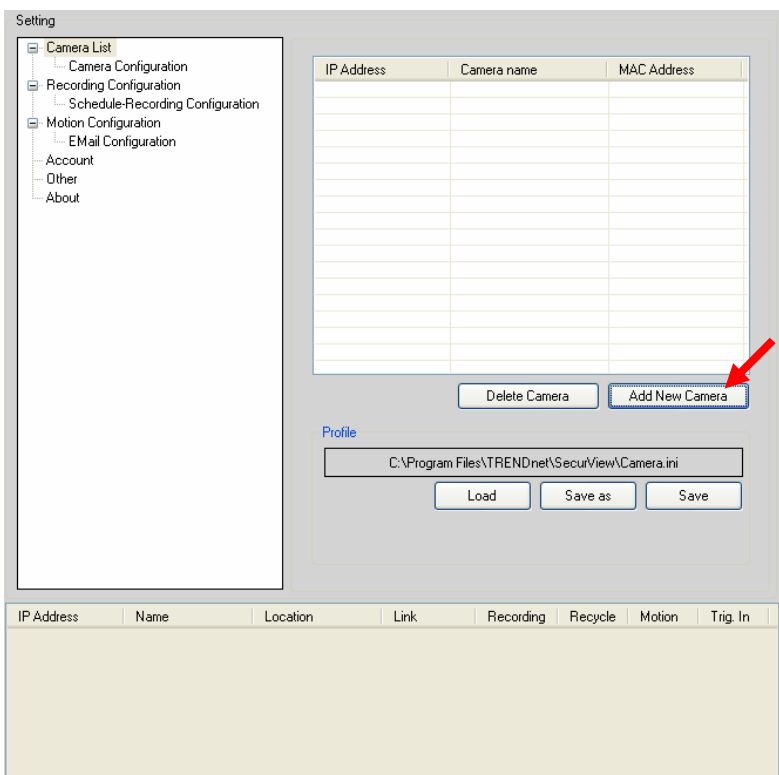
■ Video View Window and Camera List



- **Video Viewing Window:** This window displays the video view of the selected camera, which can be divided into 4/9/16 windows according to your selection in VIEW SELECTION panel.
- **Camera List:** This list displays the information of the connected camera(s).

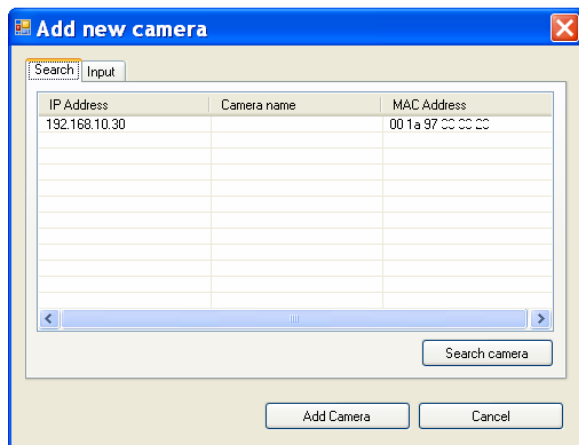
To add a camera

1. Click **SETTING** in the CONTROLS panel to display the Setting screen.
2. Click **Add New Camera**.

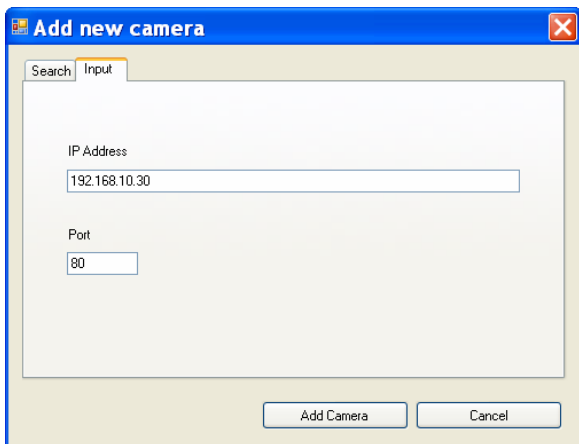


3. In the pop-up Add New Camera dialog window, you can:

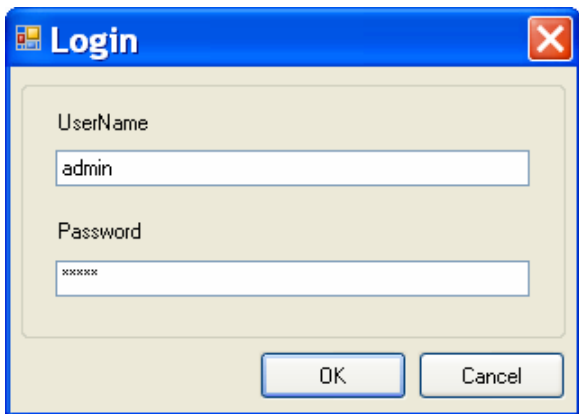
- Select the **Search** tab if you are not sure of the camera's IP address. Click **Search camera** to search the available camera within the network. Once the camera is found and is shown in the list, select it and click **Add Camera**.



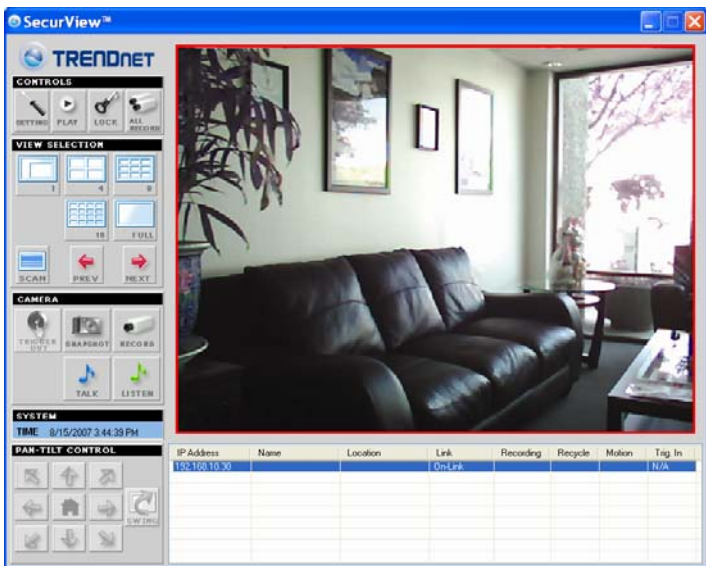
- Select the **Input** tab to add a camera by entering its IP address directly. Enter the camera's IP address (default: **192.168.10.30**) and Port (default: **80**), and then click **Add Camera**.



4. Enter the User name and Password for the camera, and then click **OK**. The connected camera will be displayed in the Camera List.

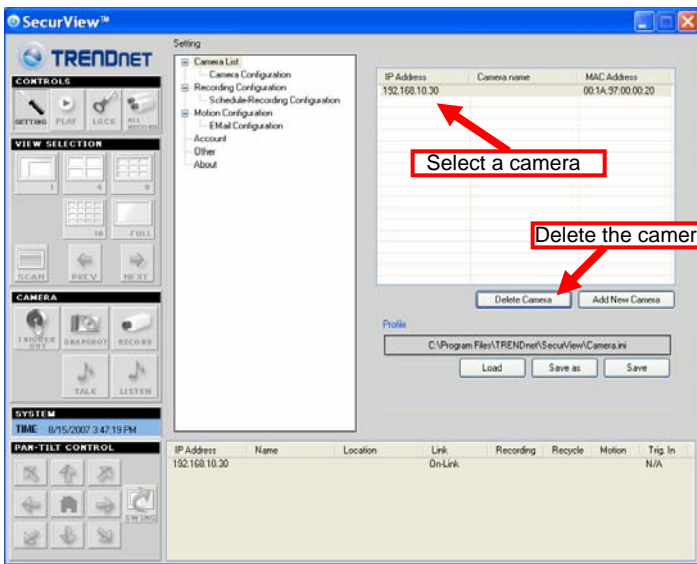


5. Click **SETTING** to return to the Video View Window. The video view of the selected camera will be displayed now.



To remove a camera

1. Click **SETTING** in the CONTROLS panel to display the Setting screen.
2. Select a camera from the list and click **Delete Camera**.



To link to the Web page of the camera

Click **SETTING** > **Camera List** > **Camera Configuration** and then **Link web page** to launch the Web browser that displays live view image and Web Configuration of the selected camera.

Setting

- Camera List
 - Camera Configuration
- Recording Configuration
 - Schedule-Recording Configuration
- Motion Configuration
 - E-Mail Configuration
- Account
- Other
- About

IP Address	Camera name	Location
192.168.10.30		

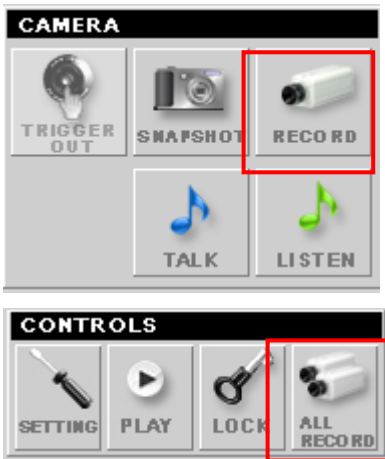
[Link web page](#)

To record video

SecurView™ provides three methods to record video clips: one is to click the **RECORD/All Record** button to record manually; the second is to record by motion detection; the third is to set the recording schedule in **Setting > Recording Configuration > Schedule Recording Configuration**.

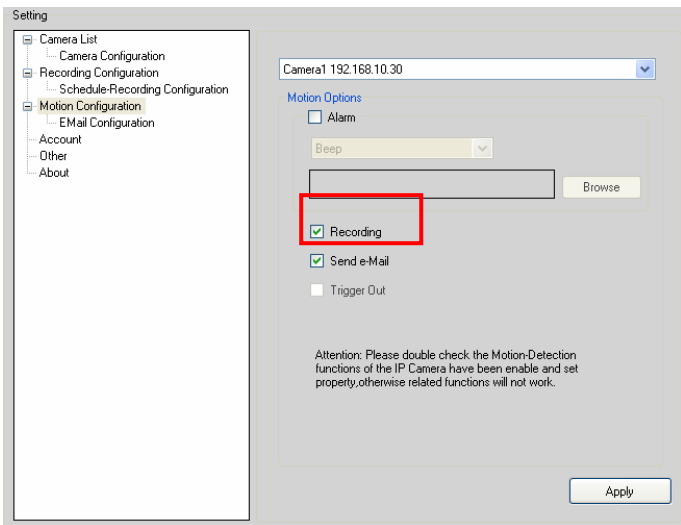
- **Manually recording**

Click **RECORD/All Record** and it starts recording. Click the button again to stop.



- **Trigger recording by motion detection**

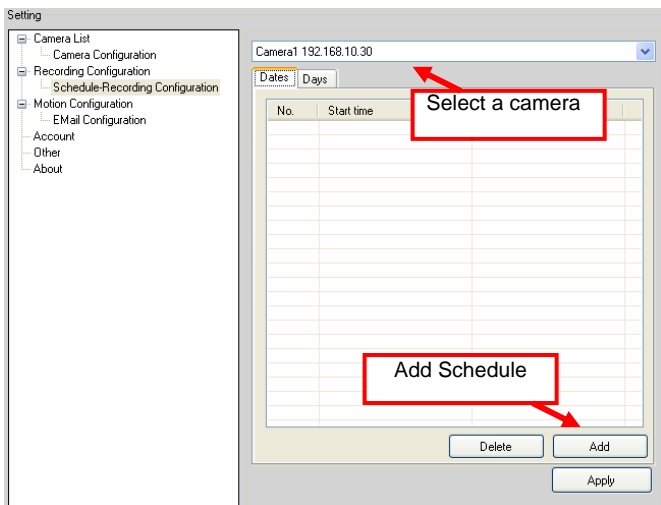
When the motion detection function of the selected camera is enabled, you can configure the camera to start recording triggered by the motion detected. Click **SETTING > Motion Configuration**, and then select the **Recording** option to enable the selected camera to record by motion detection.



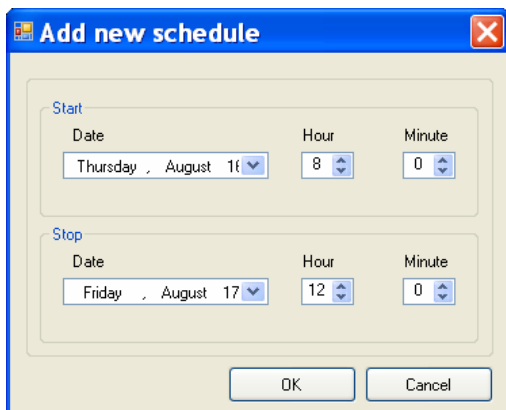
- **Schedule recording Configuration**

This recording method will work after you have completed the required settings in **Schedule Recording Configuration**. The recording schedule can be defined by **Dates** or **Days**.

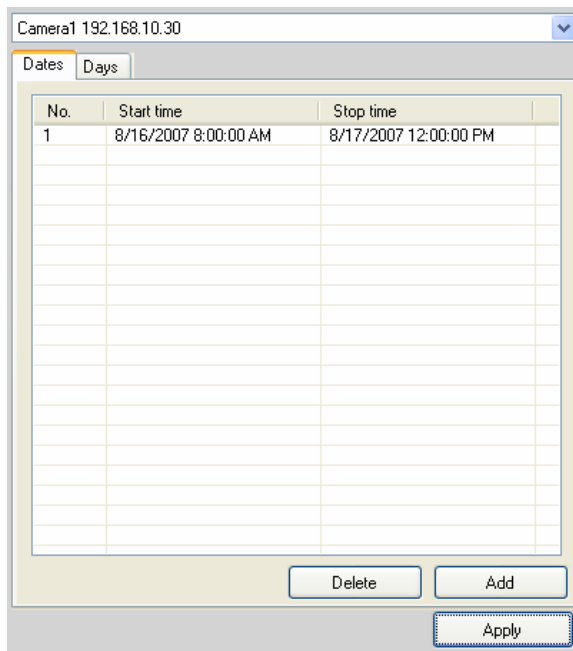
- **Dates:** Select the camera from the pull-down list..



- Then, click **Add** to set the Start/Stop date and time and then click **OK** to add the recording schedule to the list.



- Click **Apply** to save the settings



Days: First, select the camera from the pull-down list and select **Days** tab. Then, select the weekday from the day buttons and then set the time period. Click **Apply** to save the settings.

Camera1 192.168.10.30

Dates Days

Sun Mon Tue Wed Thu Fri Sat

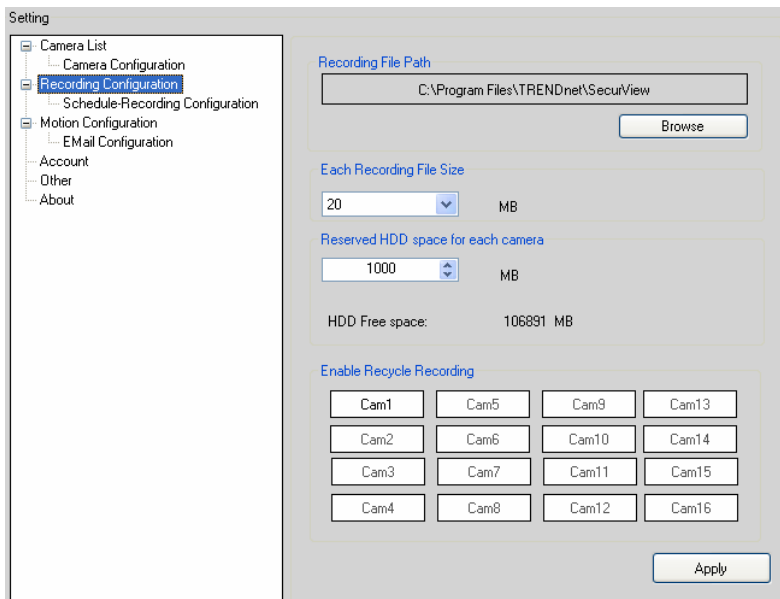
<input type="checkbox"/> 00:00-00:30	<input type="checkbox"/> 07:30-08:00	<input type="checkbox"/> 15:00-15:30	<input type="checkbox"/> 22:30-23:00
<input type="checkbox"/> 00:30-01:00	<input type="checkbox"/> 08:00-08:30	<input type="checkbox"/> 15:30-16:00	<input type="checkbox"/> 23:00-23:30
<input type="checkbox"/> 01:00-01:30	<input type="checkbox"/> 08:30-09:00	<input type="checkbox"/> 16:00-16:30	<input type="checkbox"/> 23:30-00:00
<input type="checkbox"/> 01:30-02:00	<input type="checkbox"/> 09:00-09:30	<input type="checkbox"/> 16:30-17:00	
<input type="checkbox"/> 02:00-02:30	<input type="checkbox"/> 09:30-010:00	<input type="checkbox"/> 17:00-17:30	
<input type="checkbox"/> 02:30-03:00	<input type="checkbox"/> 10:00-10:30	<input type="checkbox"/> 17:30-18:00	
<input type="checkbox"/> 03:00-03:30	<input checked="" type="checkbox"/> 10:30-11:00	<input type="checkbox"/> 18:00-18:30	
<input type="checkbox"/> 03:30-04:00	<input type="checkbox"/> 11:00-11:30	<input type="checkbox"/> 18:30-19:00	
<input type="checkbox"/> 04:00-04:30	<input checked="" type="checkbox"/> 11:30-12:00	<input type="checkbox"/> 19:00-19:30	
<input type="checkbox"/> 04:30-05:00	<input type="checkbox"/> 12:00-12:30	<input type="checkbox"/> 19:30-20:00	
<input type="checkbox"/> 05:00-05:30	<input type="checkbox"/> 12:30-13:00	<input type="checkbox"/> 20:00-20:30	
<input type="checkbox"/> 05:30-06:00	<input type="checkbox"/> 13:00-13:30	<input type="checkbox"/> 20:30-21:00	
<input type="checkbox"/> 06:00-06:30	<input type="checkbox"/> 13:30-14:00	<input type="checkbox"/> 21:00-21:30	
<input type="checkbox"/> 06:30-07:00	<input type="checkbox"/> 14:00-14:30	<input type="checkbox"/> 21:30-22:00	
<input type="checkbox"/> 07:00-07:30	<input type="checkbox"/> 14:30-15:00	<input type="checkbox"/> 22:00-22:30	

Fetch Template Paste Template Clear

Apply

To configure the recording settings

To configure the recording settings, including the storage folder and storage options, click **SETTING > Recording Configuration**.

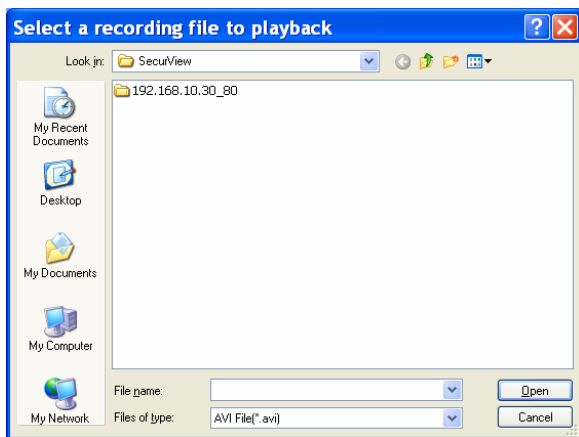


- **Recording File Path:** To change the destination folder to save the recorded video file, click **Browse** under the **Recording File Path** box to assign a new folder.
- **Each Recording File Size:** This option allows you to select from **20 to 100 MB** so that the video will be recorded as another file automatically when the recording file reaches the specified size limit.
- **Reserved HDD space for each camera:** This option allows you to set to reserve the storage space on the hard disk drive for the recording of each camera. Before setting the reserve space on the hard disk drive, you can check the available storage space that is displayed in the **HDD Free space** field.

- **Enable Recycle Recording:** Click on the camera number to clear the files when the unreserved space of the hard disk drive is full.

To playback the recorded video

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

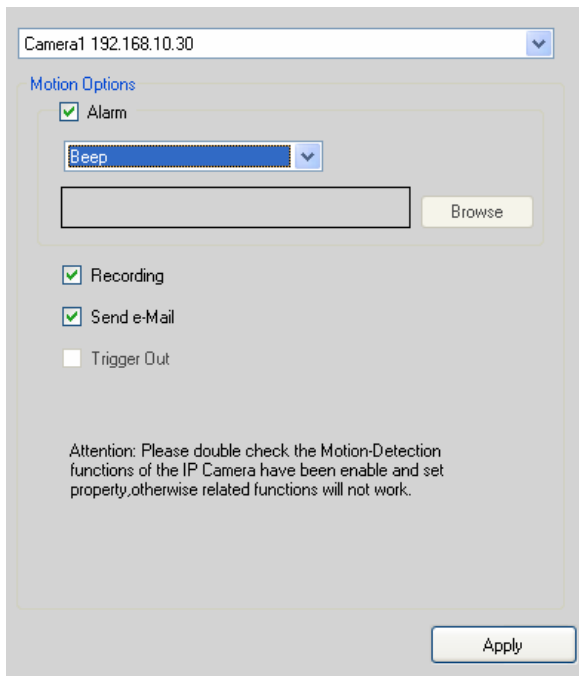


Select the recorded video file under the [camera] path and then click **Open** to launch the media player to playback.

NOTE If your player on the computer don't have video codec to playback the recorded video. You can download video codec from <http://www.xvid.org/downloads.15.0.html> to support.

To set up motion detection options

When the motion detection function of the selected camera is enabled, you can set the **Motion Options** by selecting **Alarm**, **Recording**, **Send e-Mail**, and **Trigger Out** under **SETTING > Motion Configuration**.



Camera1 192.168.10.30

Motion Options

Alarm

Beep

Browse

Recording

Send e-Mail

Trigger Out

Attention: Please double check the Motion-Detection functions of the IP Camera have been enable and set property, otherwise related functions will not work.

Apply

- **Alarm:** Select **Beep** or **Music** to alert you for the motion detected. When you select **Music**, you can customize the sound by clicking **Browse** and then selecting your favorite music (*.wav or *.mp3 file) in the computer.
- **Recording:** Select this option to enable the camera to record by motion detected.
- **Send Email:** Select this option so that the system will be able to send an email to the specified receiver. Once the option is

selected, you have to complete the required information in **SETTING > Motion Configuration > Email Configuration**.

The image shows a configuration window with a light gray background. It contains six text input fields, each with a label to its left: 'Mail Server:', 'Mail From:', 'Mail To:', 'User Name:', 'Password:', and 'Subject:'. Each label is followed by a white rectangular input box with a thin blue border. At the bottom right of the window is a button with the text 'Apply' inside it.

- **Mail Server:** Enter the mail server address. For example, mymail.com.
- **Mail From:** Enter the email address of the user who will send the email. For example, John@mymail.com.
- **Mail To:** Enter the email address of the user who will receive the email.
- **User Name:** Enter the user name to login the mail server.
- **Password:** Enter the password to login the mail server.
- **Subject:** Enter a subject for the notification email.

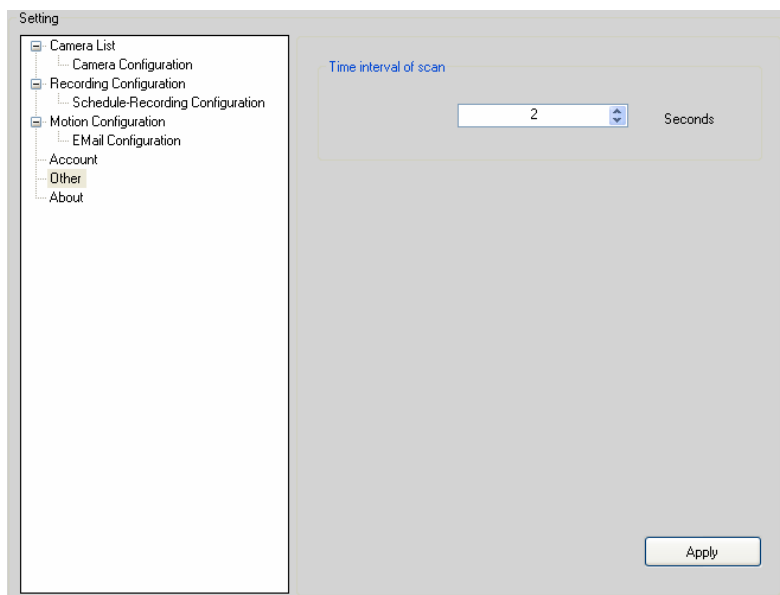
- **Trigger Out:** If the selected camera supports Trigger Out connector, select this option to enable the Trigger Out function.

Account

Click **SETTING > Account** to setup the username & password to lock & unlock the main screen of the SecurView.

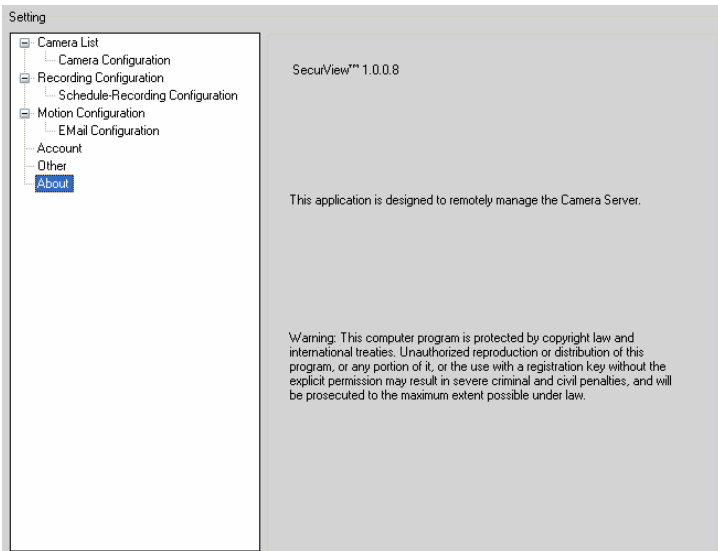
Other

Click **SETTING > Other** to setup the scanning time between cameras. The default setting is 2 seconds. You can set the interval time between 2 ~ 20 seconds.



Information

Click **SETTING** > **About** to display the information of the software application.



CHAPTER 6

APPENDIX

A.1 Specification

■ Image Sensor

Sensor	1/4" color CMOS
Resolution	640x480

■ Video

Compression	MPEG4/MJPEG
Video resolution	VGA/QVGA/QQVGA; 30fps max.

■ System Hardware

Processor	ARM9 base
RAM	32MB SDRAM
ROM	8MB NOR Flash
Power	DC 5V, 2.5AV

■ Communication

LAN	10/100Mbps Fast Ethernet, auto-sensed, Auto-MDIX
WLAN	IEEE 802.11b/g
Protocol support	TCP/IP, UDP, ICMP, DHCP, NTP, DNS, DDNS, SMTP, FTP, Samba, PPPoE, UPnP, RTP, RTSP, RTCP

■ User Interface

LAN	One RJ-45 port
Antenna	One detachable antenna
Reset	One reset button
USB	USB 1.1 port, with one unmount button; Power distribution: 500mA Max. Support FAT,FAT32 file system
LEDs	Power LED (orange); Link LED (green)
■ Audio	
Input	Built-in MIC
Output	Headphone 3.5mm output jack (Mono)
Codec	PCM/AMR (AMR is for 3GPP only)
■ SecurView™ Software	
OS Support	Windows 2000/XP/Vista
Feature	playback/recording/configuration features
■ Web Configuration	
OS Support	Windows 2000/XP/Vista
Browser	Internet Explorer 5.0 or above
■ Operating Environment	
Temperature	- Operation: 5°C ~ 45°C - Storage: -15°C ~ 60°C
Humidity	- Operation: 20% ~ 85% non-condensing - Storage: 0% ~ 90% non-condensing
■ EMI	
	FCC Class B, CE Class B

A.2 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

- ADPCM** Adaptive Differential Pulse Code Modulation, a new technology improved from PCM, which encodes analog sounds to digital form.
- AMR** AMR (Adaptive Multi-Rate) is an audio data compression scheme optimized for speech coding, which is adopted as the standard speech codec by 3GPP.
- 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

Developed by Microsoft, DHCP (Dynamic Host Configuration Protocol) is a protocol for assigning dynamic IP addresses to devices on a network. With dynamic addressing, a device can have a different IP address every time it connects to the network. In some systems, the device's IP address can even change while it is still connected. It 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. 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 <i>packet</i>) 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. 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.

M

MJPEG

MJPEG (Motion JPEG) composes a moving image by storing each frame of a moving picture sequence in JPEG compression, and then decompressing and displaying each frame at rapid speed to show the moving picture.

MPEG4

MPEG4 is designed to enable transmission and reception of high-quality audio and video over the Internet and next-generation mobile telephones.

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

PCM

PCM (Pulse Code Modulation) is a technique for converting analog audio signals into digital form for transmission.

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 network adapter Others are responsible for filtering

information between networks and forwarding data to its destination. Still other protocols dictate how data is transferred across the medium, and how servers respond to workstation requests and vice versa. Common network protocols responsible for the presentation and formatting of data for a network operating system are the Internetwork Packet Exchange (IPX) protocol or the Internet Protocol (IP). Protocols that dictate the format of data for transferers 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

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.

RTP

RTP (Real-time Transport Protocol) is a data transfer protocol defined to deliver **live media** to the clients at the same time, which defines the transmission of video and audio files in real time for Internet applications.

RTSP

RTSP (Real-time Streaming Protocol) is the standard used to transmit **stored media** to the client(s) at the same time, which provides client controls for random access to the content stream.

S

Server

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

SIP

SIP (Session Initiated Protocol) is a standard protocol that delivers the real-time communication for Voice over IP (VoIP), which establishes sessions for features such as audio and video conferencing.

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

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.

WEP

WEP is widely used as the basic security protocol in Wi-Fi networks, which secures data transmissions using 64-bit or 128-bit encryption.

Windows

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

WPA

WPA (Wi-Fi Protected Access) is used to improve the security of Wi-Fi networks, replacing the current WEP standard. It uses its own encryption, Temporal Key Integrity Protocol (TKIP), to secure data during transmission.

WPA2

Wi-Fi Protected Access 2, the latest security specification that provides greater data protection and network access control for Wi-Fi networks. WPA2 uses the government-grade AES encryption algorithm and IEEE 802.1X-based authentication, which are required to secure large corporate networks.

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20675 Manhattan Place
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