TP-LINK®

User Guide

TL-SC4171G

Wireless Pan/Tilt Surveillance Camera

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http://www.tp-link.com

FCC STATEMENT

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to pro-vide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not in-stalled and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/ TV technician for help.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

This device may not cause harmful interference.

This device must accept any interference received, including interference that may cause undesired operation.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

CE Mark Warning

This is a class B product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

CONTENTS

Package Contents

The following items should be found in your package:

➢ TL-SC4171G Wireless Pan/Tilt Surveillance Camera

➢ Power Adapter

➢ Camera Mount Kit & Pads

➢ Ethernet Cable

➢ Quick Installation Guide

➢ Resource CD, including:

  ● This User Guide

  ● Application Guide

  ● Other helpful information

☞ **Note:**

Make sure that the package contains the above items. If any of the listed items are damaged or missing, please contact your distributor.

Chapter 1   Safety Instruction

➢ **Before you use this product**

This product has been designed with safety in mind. However, the electrical products can cause fires which may lead to serious body injury if not used properly. To avoid such accidents, be sure to heed the following.

➢ **Legal Caution**

Video and audio surveillance can be forbidden by laws that vary from country to country. Check the laws in your local region before using this product for surveillance purposes.

➢ **Don't open the housing of the product**

Don't try to open the housing or remove the covers which may expose yourself to dangerous voltage or other hazards.

➢ **Don't use the accessories not recommended by the manufacturer**

➢ **Heed the safety precautions**

Be sure to follow the general safety precautions and the "Operation Notice."

➢ **Operation Notice - Operating or storage location**

Avoid operating or storing the camera in the following locations:

- Extremely hot or cold places (Operating temperature: 0 °C to + 50 °C [32 °F to 122°F])
- Exposed to direct sunlight for a long time, or close to heating equipment (e.g., near heaters)
- Close to water (e.g., near a bathtub, kitchen sink, laundry tub)
- Close to sources of strong magnetism
- Close to sources of powerful electromagnetic radiation, such as radios or TV transmitters
- Locations subject to strong vibration or shock

➢ **In case of a breakdown**

In case of system breakdown, discontinue use and contact your authorized dealer.

➢ **In case of abnormal operation**

- If the unit emits smoke or an unusual smell,
- If water or other foreign objects enter the cabinet, or
- If you drop the unit or damage the cabinet: 1 Disconnect the cable and the connecting cables. 2 Contact your authorized dealer or the store where you purchased the product.

➢ **Transportation**

When transporting the camera, repack it as originally packed at the factory or in materials of equal quality.

➢ **Ventilation**

To prevent heat buildup, do not block air circulation around the device.

➢ **Cleaning**

- Use a soft, dry cloth to clean the external surfaces of the device. Stubborn stains can be removed using a soft cloth dampened with a small quantity of detergent solution, then wipe dry.
- Do not use volatile solvents such as alcohol, benzene or thinners as they may damage the surface.

Chapter 2   Minimum System Requirement & Product Feature

2.1   System Requirement

We strongly recommend your computers follow our minimum requirements in order to use this IP-Camera normally. If computer level is lower than this, it might cause some problems.

Item	Requirements
CPU	Pentium 4 1600MHz (or equivalent AMD)
Graphic Card	64 MB RAM graphic cards(or equivalent on-board graphic cards)
RAM	512 MB
Operating System	Windows 98, Windows ME (Please see ☞ **Note:**), Windows 7, Windows 2000, 2003, XP, Vista, Mac OS X Leopard, Linux
Web Browser	Internet Explore 6 or later

☞ **Note:**

1. If you are using Windows 98 or Windows ME, please install IP Installer before using WEB UI to ensure the system runs normally.

2. If you can't view the record video file, please install Xvid codec while installing Intelligent IP Installer. (For Windows 98, ME or 2000 server, the codec might not work properly. You'll need to download Xvid codec 1.0 from the internet.

3. Please always update the latest Windows component. (.Net Framework, Windows Media Player, Enhance ActiveX Security)
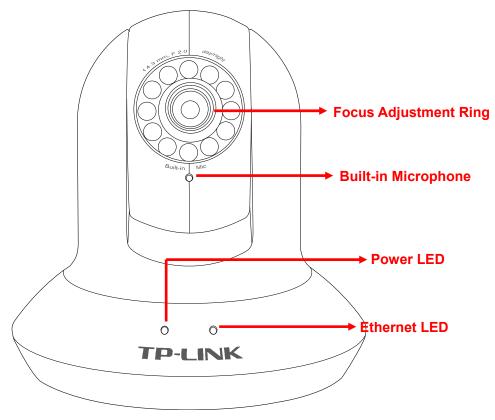
2.2   Product Feature

SYSTEM	
Resolutions	MPEG-4/Motion JPEG/JPEG: 3 resolutions from 640x480 to 160x120 via API and configuration web page
Compressing format	MPEG-4 / Motion JPEG / JPEG
Frame Rate	MPEG-4: Up to 30 fps at 640x480 Motion JPEG: Up to 15 fps at 640x480
Image settings	Rotation: Mirror, Flip, Mirror Flip
	Brightness/Contrast/Saturation/Hue
	Overlay capabilities: time, date, text and privacy image

Shutter Time	1/7.5 ~ 1/120 sec.
Image snapshot	Yes
Video Recording	Yes
Full Screen Viewing	Yes
Digital Zoom	10x digital
Audio	Two-way (full/half duplex) with built-in microphone
	Audio compression: G.711 PCM, 8kHz, 64kbit/s
Instant Messenger	Support MSN Live View
Mobile Phone Live View	Through 2.5 WAP, 3GPP, 3G Streaming, and 3G Browser
Alarm Sending	FTP Client/SMTP/HTTP Event
Security	Password Protection/HTTPS encryption/WEP64/128 bit, WPA/WPA2-PSK
Alarm and Event Management	Input: alarm input, motion detection Output: FTP/SMTP/HTTP Event
Supported protocols	Bonjour, TCP/IP, DHCP, PPPoE, ARP, ICMP, FTP, SMTP, DNS, NTP, UPnP, RTSP, RTP, HTTP, TCP, UDP, 3GPP/ISMA RTSP
Simultaneous Connection	Up to 5 users
Operating conditions	0°C ~ 50℃ (32℉ ~ 122℉)
HARDWARE	
Lens	F1.8, 4.2 mm Megapixel board lens
IR LEDs / Working Distance	5 φ LEDs x 12 (850nm)/10M
Input / Output	Alarm Output Max 30W
Power	12V DC, 1A, Max 5W
Wireless	IEEE 802.11b/g (for wireless model)

2.3 Physical Overview

2.3.1 Front view

Focus Adjustment Ring

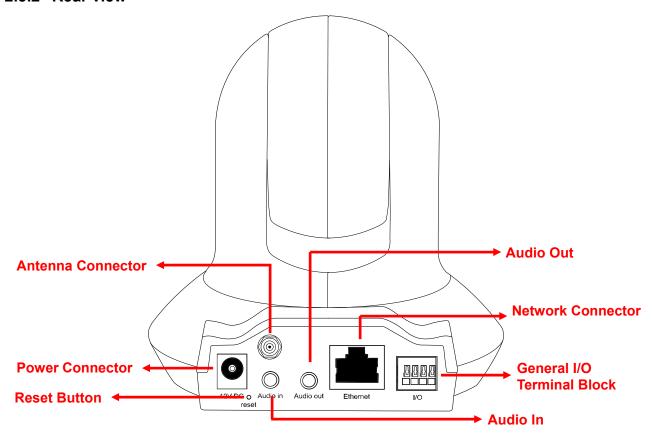Built-in Microphone

Power LED

Ethernet LED

Focus Adjustment Ring: Adjust the focus to get a clear image.

Built-in Microphone: Built-in microphone for two-way audio.

Power LED: Power LED will light up after completing the boot process.

Ethernet LED: Ethernet LED will light up after successfully connecting to the Ethernet.

2.3.2 Rear view

Power Connector: For connection of 12V DC input.

Reset Button: To reset the IP camera, please carry out the following steps.

- Make sure the camera is powered on for at least 30 seconds to complete its normal startup.

- Keep the camera powered on, then press and hold the **Reset** button for more than 10 seconds. Afterwards release it, and the camera will be restored to factory defaults after rebooting.

Antenna Connector: For connection of IEEE 802.11b/g wireless network.

Audio In: To support audio in with Microphone for two way audio.

Audio Out: To support audio out with earphones or speakers for two way audio.

Network Connector: For connection to the Ethernet via Ethernet cable.

General I/O Terminal Block: Input/Output to support External Alarm and Sensor used for motion detection, event triggering and alarm notification, etc.

Chapter 3   Using IP Camera via Web Browser

3.1   Obtain the IP Address
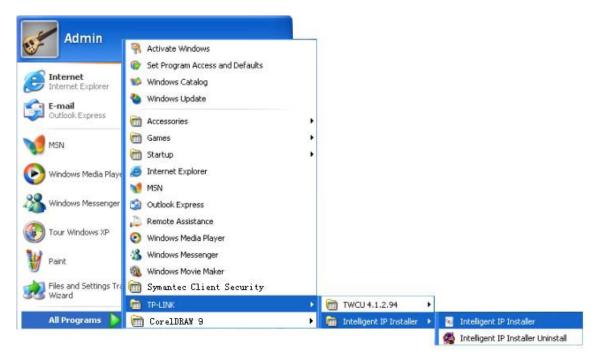
1. Insert the provided CD into your CD-ROM driver. The Setup Wizard will automatically pop up on your computer's screen as shown in the figure below.
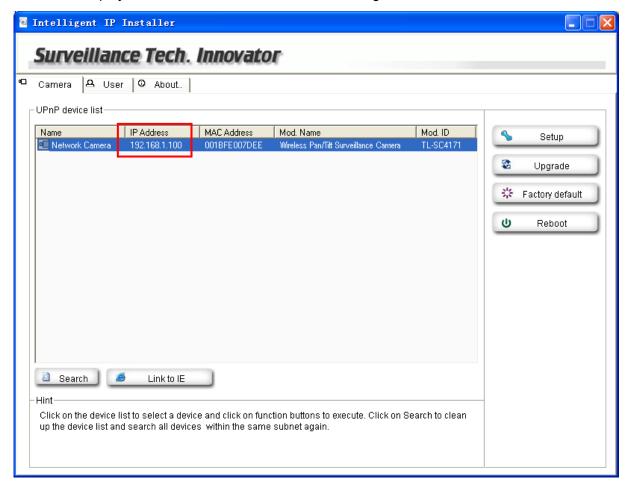
2. Choose the **Intelligent IP Installer**, and then the next screen appears. Click on **Intelligent IP Installer** to begin the installation.

3. After the installation is finished, click **Start > All Programs > TP-LINK > Intelligent IP Installer > Intelligent IP Installer** to start using the program.

4. The following screen will then display. Click the **Search** button to search Network Cameras in the network; it displays Network Cameras information including IP Address.
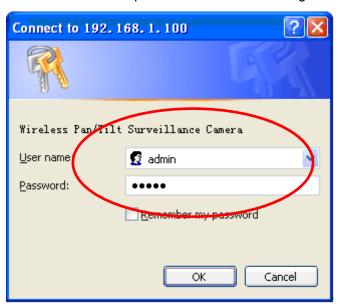
3.2 Windows Web Browser

1. Click **Link to IE** button or launch your web browser, and enter the IP address (obtain from the figure above) of the IP camera in the Location / Address field of your browser.

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) **Note:**
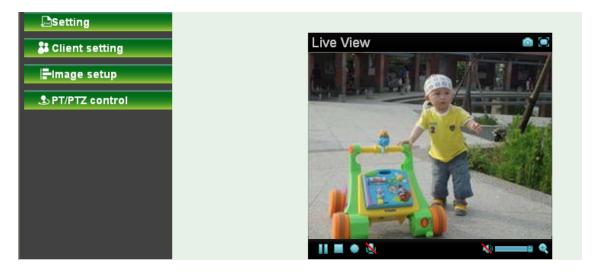
1) For the first time login with IE, you will need to enable "**Download signed ActiveX controls**". Please go to **Tool→Internet Options…→Security→Custom Level…** and find **Download signed ActiveX controls** to prompt it. For detailed information, please refer to the Quick Installation Guide.

2) If you only want to view the video without setting page, enter "http://<IP>/index2.htm" as your web URL. For example, you can enter "http://192.168.1.100/index2.htm" as your web URL to view the video without setting page.

2. Enter the default User name "admin" and password "admin" in the login window as shown below.

) **Note:**

The default user name "admin" and the password "admin" are set at the factory for the administrator. You can change them in the Account Menu (Please check "**Setting → Basic → Security → Account**")

3. The monitor image will be displayed in your browser. In the far left side of main configuration are **Setting, Client Setting, Image Setup and PT/PTZ control**. For more details, you can check Section 6.2 、 Section 6.3, Section 6.4 and Section 6.5.

3.3 Mac Web Browser

1. Click the **Safari** icon, and enter the IP address of the IP camera in the Location / Address field of your browser.

   ☞ **Note:**
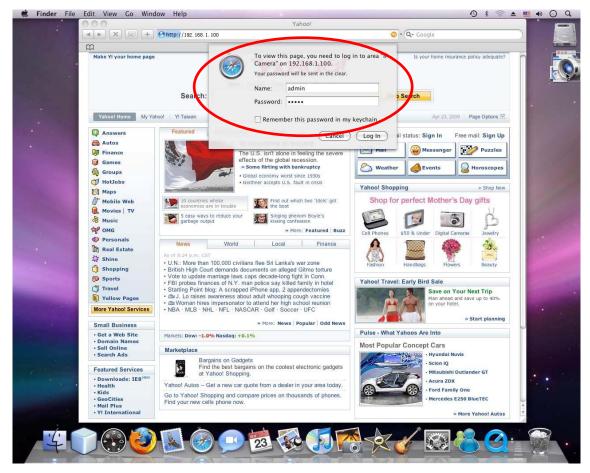
   If you only want to view the video without setting page, enter "http://<IP>/index2.htm" as your web URL.
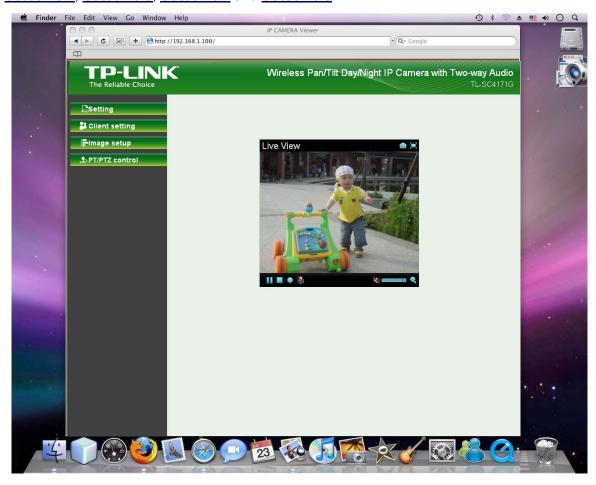
2. Enter the default User name "admin" and password "admin" in the dialog box as shown below.

☞ **Note:**

The default user name "admin" and the password are set at the factory for the administrator. You can change them in the Account Menu (Please check "**Setting** → **Basic** → **Security** → **Account**")

3. The monitor image will be displayed in your browser. In the far left side of main configuration are **Setting, Client Setting, Image Setup and PT/PTZ control**. For more details, you can check Section 6.2, Section 6.3, Section 6.4 and Section 6.5.

Chapter 4   Using IP Camera via Mobile Phone

4.1   Mobile Phone Viewing

To use IP cameras via mobile phones, please make sure your RTSP is set to "On" (Default is "On"). To change the settings of IP cameras, Please check "**Settings → Basic → Camera → General**."

4.1.1 3G Mobile Phone Streaming Viewing

For 3G mobile phone viewing, type "rtsp://<IP>:<PORT>/video.3gp " into your 3G Streaming Link. <IP> is the Public IP address of your IP camera (to obtain the IP Address, please refer to Section 3.1); <PORT> is the RTSP port of your IP camera (Default value is 554.) Example: rtsp://192.168.1.100:554/video.3gp.

☞ **Note:**

You can also use RTSP clients (RealPlayer, VLC, QuickTime layer etc) to view RTSP streaming, just type in "rtsp://<IP>:<PORT>/video.3gp" as the Player URL.

4.1.2 2.5G Mobile Phone WAP Viewing

For 2.5G mobile phone viewing, type "http://<IP>/mobile.wml " into your 2.5G WAP Browser. <IP> is the Public IP address of your IP camera (to obtain the IP Address, please refer to Section 3.1).

4.1.3 2.5G Mobile Phone Browser Viewing

For 2.5G mobile phone viewing, type "http://<IP>/mobile.htm " into your 2.5G Web Browser. <IP> is the Public IP address of your IP camera (to obtain the IP Address, please refer to Section 3.1).

4.2   Using IP Camera via iPhone

You can use TP-LINK Web User Interface via iPhone. If you want to use TP-LINK web UI via iPhone, please follow the setting process below.

1. **Select Safari function**   2. **Enter IP address in your web link.**

3. Type name and password. Default value is admin / admin. Then click Login In.

4. The TP-LINK User Interface and live image will show up in the middle of screen.

☞ **Note:** It will show continuous snapshots, not a real time video streaming. Therefore, the recording feature is disabled.

Chapter 5   MSN Messenger (Supports up to Windows Live Messenger version 8089)

Please follow the steps below to set up the Messenger function.

1. **Application of a new MSN account:** You can download MSN software freely and create a new MSN account (e.g. camera at home@msn.com) to use Microsoft Live Messenger.

2. **Login Account and Password:** Go to **Setting→Basic→Network→Messenger**, set the Messenger to "On". Then, enter the new account (camera at home@msn.com) and password to login.

☞ **Note:** This account (e.g. camera at home@msn.com) is not your commonly used MSN account but a new one applied for IP Camera.
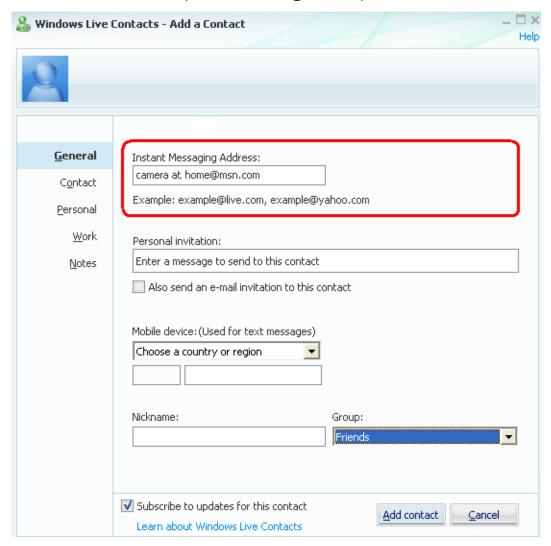
3. **IP Notification:** Choose "**On**" at the option of IP Notification. If this feature switches **On**, camera will send IP notification to the users who are allowed.
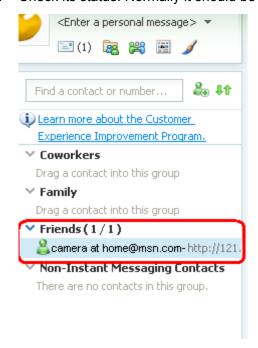
4. **Privacy & User & Allow List:** Choose "**On**" at the option of Privacy, then User column will appear and be able to build Allow List, so that only the users listed can access the camera via MSN.

5. **Log in Working Account:** Use your working account to login in the Messenger software. And add the camera's MSN account (camera at home@msn.com) as a contact.
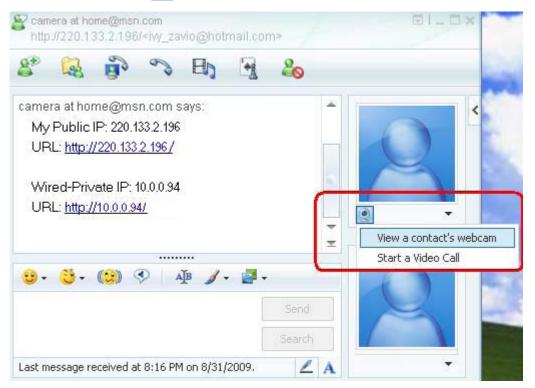
6. Check its status. Normally it should be online.
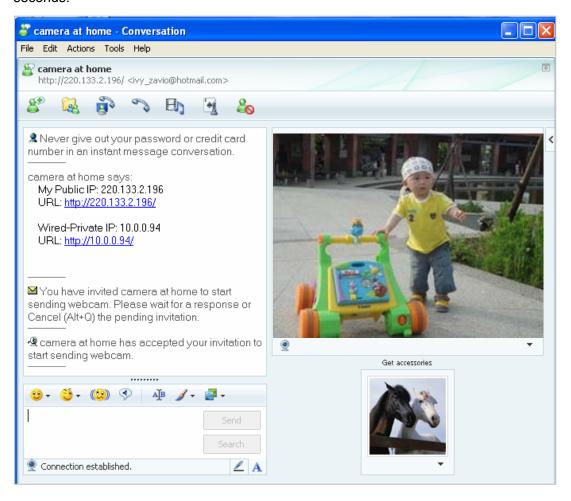
7. The Camera at home will show up with its Public IP and Private IP after sending a message of "**Ping**" in the lower key (if the option of IP Notification is "On").
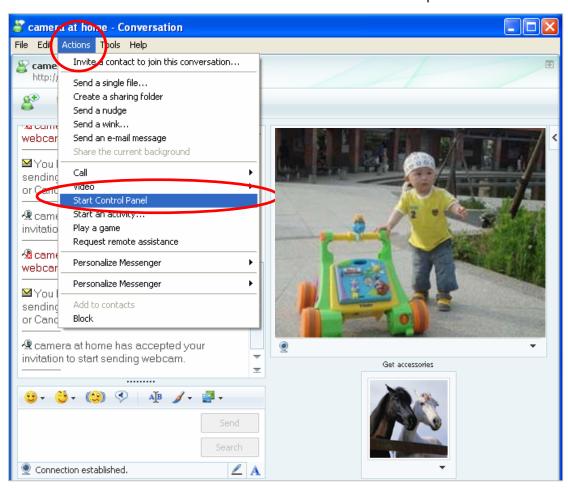
8. Click the camera icon [camera icon] and select **View a contact's webcam** to view the video.
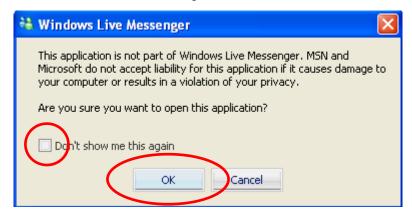
9. The IP Camera will accept your invitation; the live video will show up in the right screen after few seconds.
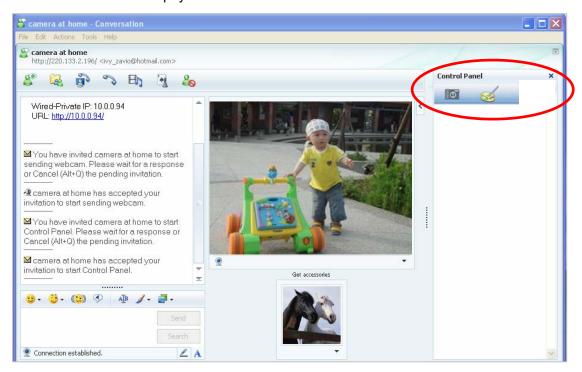
10. Click **Action** button and choose **Start Control Panel** to use control panel.
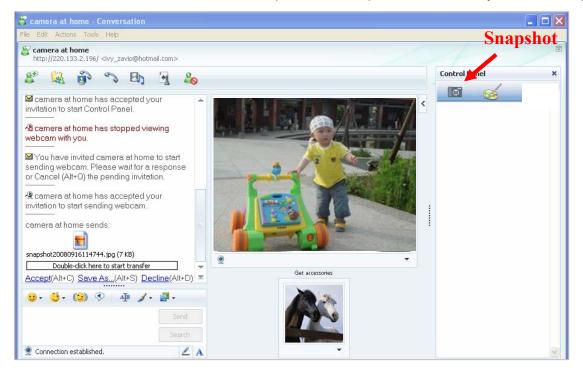
11. The dialog box will show up with "This application is not part if Window Live Message…" Tick the box of "Don't show me this again" and click **OK**.

12. The IP Camera will accept your invitation to start Control Panel.
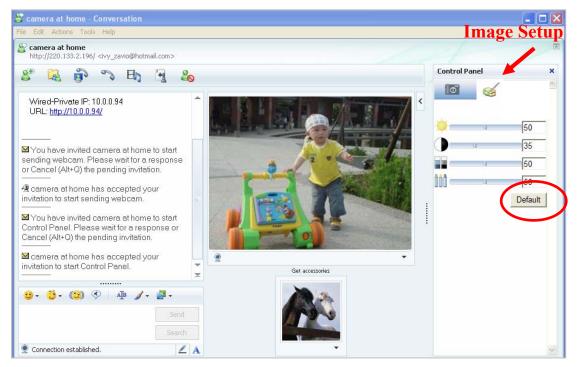
13. You can click Camera icon to snapshot then the picture will send to you immediately.

14. You can click paint palette icon ![palette] showing up with tool bar to set up image. Then, you can use the tool bar to optimize video Brightness ☀, Contrast ◑, Saturation ▨ and Hue ▮▮▮. After the adjustment of all setting, you can still click [Default] to make the setting back to the original setting.
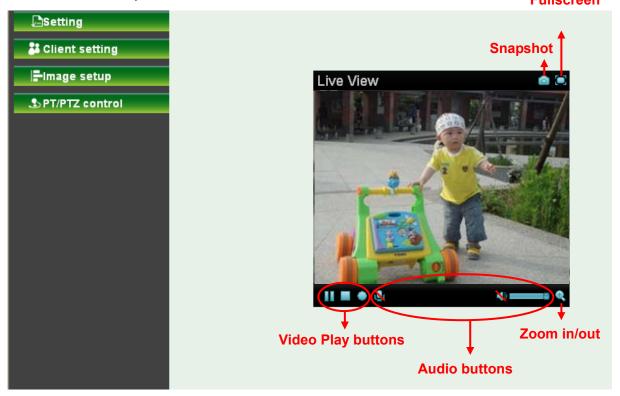
Chapter 6　Configuration of Main Menu

In the far left side of main configuration are **Setting, Client Setting, Image Setup** and **PT/PTZ control**. Please see the content behind for more details. In the right hand side of the below picture, you can see the Live View screen of web user interface. There are some functions, such as Snapshot, Zoom and Audio and Video Play.
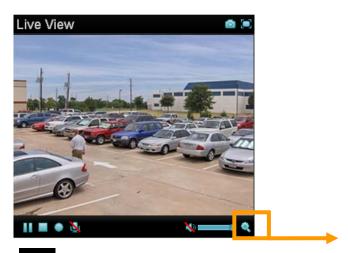
6.1　Live View

6.1.1　Snapshot

You can capture a still image shot by the camera and save it in your computer.

Symbols	Meaning
📷	A snapshot window will appear
Save	Save the picture in your computer
Close	Return to the view page
🔲	Full Screen

6.1.2 Zoom in / out the image via the monitor window

- Click to display the digital zoom in window.

- Pull the to adjust the digital zoom range and it will be showed on the above window.

- You can use the left click of your mouse to move the to any where on the window.

6.1.3 Video play buttons

Symbols	Meaning
	Pause the current video
	Play the video
	Stop the current video
	Record the current video

☞ **Note:**

Concerning the recording storage requirement of your hard disk, please refer to the <u>APPENDIX B. Storage Requirement Table</u>.
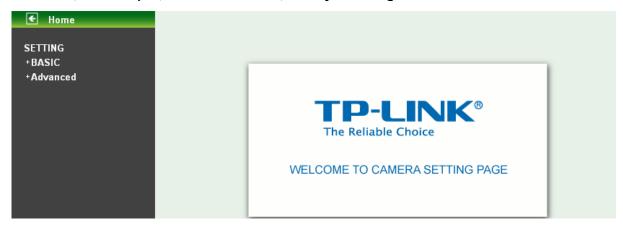
6.1.4 Audio buttons

Symbols	Meaning	Note
	Speakers turned on	mean the speakers of your computer are turned on to transmit the sounds from the connected IP camera(s)

	Speakers turned off	
	Microphone turned on	mean you can broadcast to the connected IP camera(s) via the Ethernet using your microphone
	Microphone turned off	
	Volume control bar	
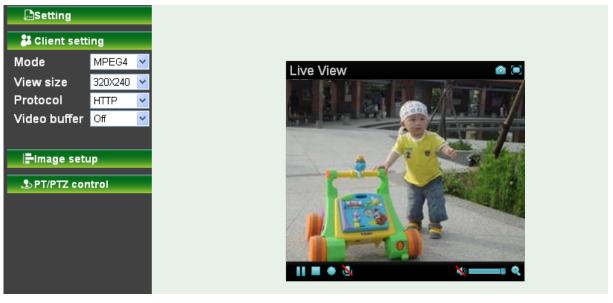
6.2   Setting

This function is only for the Administrator. Click **SETTING** to get into the **Basic** and **Advanced Setting** menu. The former includes for sub-folders, such as **System, Camera, Network,** and **Security**. The latter includes **PT/PTZ control, Preset position, Patrol, FTP Client, SMTP, Http Event, Alarm output, Schedule, Alarm input, Motion Detection,** and **System Log.**

6.3   Client Setting

This function is only for the client.

Click Client Setting to control **Mode, View Size, Protocol,** and **Video Buffer**.

6.3.1 Mode

Click the pull-down box to choose between MPEG-4 MJPEG, and JPEG video compression mode. MJPEG streaming is unavailable if RTSP mode is "On." (Please check **Setting** → **Basic** → **Camera** → **General.**)

6.3.2 View Size

Select the desired display image size to 640X480 or 320X240.

6.3.3 Protocol
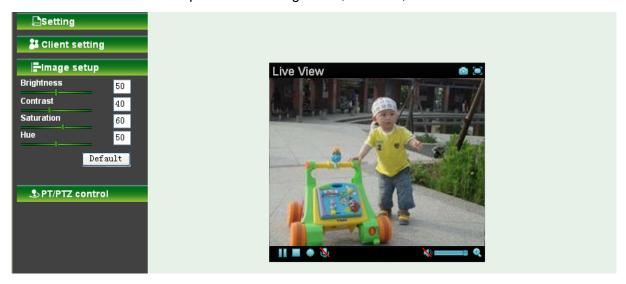
Select the transferring protocol from TCP, UDP, HTTP and Multicast.

6.3.4 Video Buffer

Turn the Video Buffer function On/Off. The Video Buffer function makes the streaming more smoothly in unsteady network environment, but might cause a little delay in live viewing.

6.4 Image Setup

You can use the tool bar to optimize video Brightness, Contrast, Saturation and Hue.

6.4.1 Brightness

The higher value the brightness is, the brighter the image is.

6.4.2 Contrast

The contrast is a measure of a display system, defined as the ratio of white to black that the system is capable of producing. The higher value the contrast is, the more delicate of color you can have.

6.4.3 Saturation

The saturation of a color is determined by a combination of light intensity and how much it is distributed across the spectrum of different wavelengths. The higher value the saturation is, the more colorful the image will be.

6.4.4 Hue

Hue is one of the three main attributes of perceived color, affected by different wavelength of color. With higher value of hue, color will be much more vivid.

6.4.5 Default

After the adjustment of all setting, you can still click Default to make the setting back to the original setting.

6.5 PT/PTZ Control

6.5.1 Pan / Tilt / Home control buttons

If you want the IP camera to move, please click the arrow button of the corresponding direction. When you click [button] button, the camera will return to "home position"—a preset position which can be set by yourself. For more detailed information, please refer to Section 8.2.

6.5.2 Other camera control functions

➢ **Preset:**

● **Set:** Click **Set** button to save the current position of the camera as a preset position.

● **Go:** Click **Go** button and choose one of the preset positions, then the camera will move to the preset position.

➢ **Patrol:**
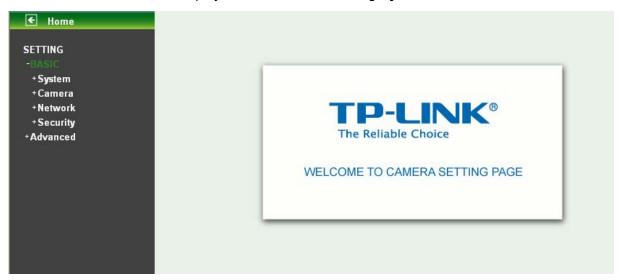
● **Set:** Click **Set** button and choose one of the patrol tours, then the chosen tour will be set as default.

● **Go:** Click **Go** button, then the camera will move along the default tour path.

☞ **Note:**

Before you start this function, you need to specify Guard tour setting in **Setting** → **Advance** → **Patrol**. For more detailed information about Patrol functions, please refer to <u>Section 8.3</u>.
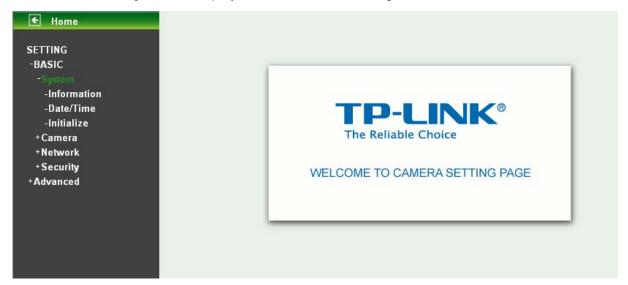
Chapter 7   Setting-Basic

Click the folder of **Basic** to display the sub folders including **System**, **Camera**, **Network**, and **Security.**

7.1   System

Click the folder of **System** to display the sub-folders including **Information**, **Date/Time**, and **Initialize**.
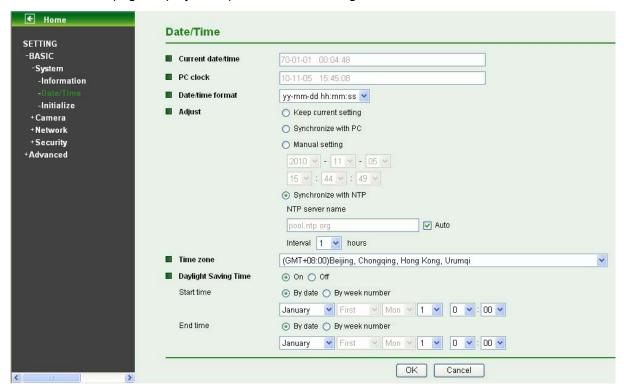
7.1.1   Information

The **Information** page provides the product factory information which includes **Product Name**, **Firmware Version** and **Web Version**.

7.1.2 Date/Time

The **Date/ Time** page displays all options of time setting.
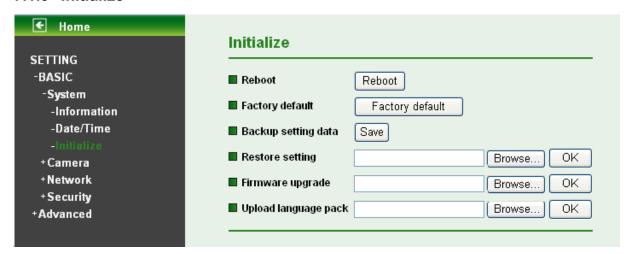
➢ **Current date / time:** This displays the current date and time of this IP Camera.

➢ **PC clock:** This displays the date and time of the monitoring PC clock.

➢ **Date / Time format:** You can click the pull down box to select different time display formats.

➢ **Adjust:** You can select one of those four adjusting modes for your IP Camera.

- **Keep current setting:** Select this mode to keep the current date and time of this IP Camera.

- **Synchronize with PC:** Select this mode to keep the date and time of this IP Camera is the same as the monitoring PC.

- **Manual setting:** Select this mode to adjust manually the date and time of this IP Camera.

- **Synchronize with NTP:** Specify the NTP server name and the Refresh Interval to synchronize the date and time of this IP Camera with those of the time server, known as the NTP server.

➢ **Time Zone:** You can select the Time Zone of the format from Greenwich Mean Time. The time will display the same as the current date / time option.

➢ **Daylight Saving Time:** There are two modes to choose for setting up daylight saving time.

- **By Date:** Set the start and end time by select month, day, hour, and minute.

- **By Week Number:** Set the start and end time by select month, week, hour, and minute.

☞ **Note:**

The NTP server (Network Time Protocol) is the time server which is an Internet standard protocol built on the top of TCP/IP. This assures accurate synchronization to the millisecond of computer clock times in a network of computers.

7.1.3 Initialize

➢ **Reboot:** Click this button to reboot. A confirmation dialogue will appear and then click "OK" to process. It takes two minutes to reboot this IP Camera.

➢ **Factory Default:** Click this button to reset this IP Camera to the factory default setting. A confirmation dialogue will appear and then click "OK" to process. Don't turn off this IP Camera until the device reboots.

➢ **Backup Setting data:** You can save the setting data of this IP Camera into a file. Click "Save" and follow the instructions on the browser to save the setting data file to your specified location.

➢ **Restore Setting:** Download the saved setting data of this IP Camera. Click "Browse" and select saved file. Click "OK" and this IP Camera is adjusted according to the loaded data; the camera will restart.

➢ **Firmware Update:** Upgrade the device software. Click "Browse" and select the file for upgrading. A confirmation dialogue will appear. Click "OK" to start upgrading. This IP Camera will reboot upon completion.

☞ **Note:**

Use only upgrade files that are special for this IP Camera. Otherwise problems may occur. Don't turn off the IP Camera power or disconnect the network until the upgrading is completed.
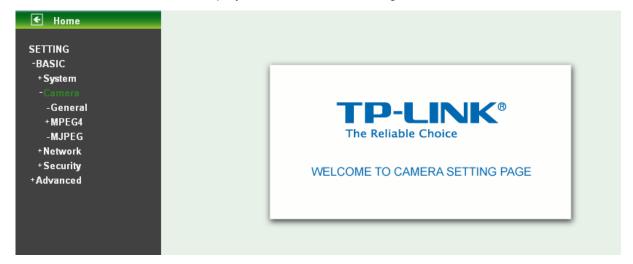
☞ **Note:**

After upgrading new firmware, please execute "Factory Default" first to make it work.
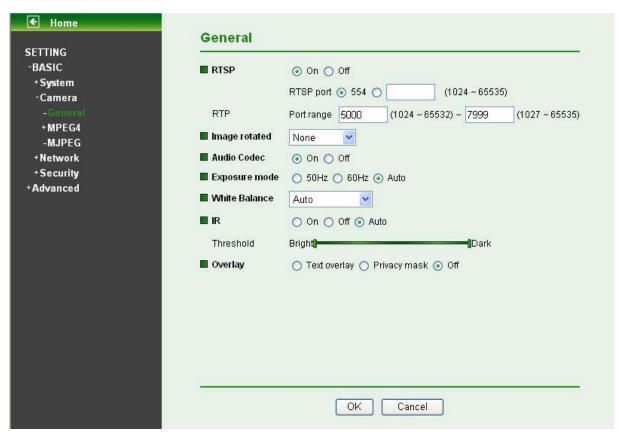
➢ **Upload Language Pack:** Upgrade the device language pack. Click "Browse" and select the file for upgrading. A confirmation dialogue will appear. Click "OK" to start upgrading. The upgrade is applied immediately. The default language is "English".

7.2 Camera

Click the folder of **Camera** to display the sub folders including **General, MPEG4 and MJPEG**.

7.2.1 General

➢ **RTSP**: Switch RTSP "On" or "Off." When the RTSP mode is "On", MJPEG streaming is unavailable.

● **RTSP Port**: Specify the transmission port number of RTSP streaming. The default value is 554.

● **Port Range**: Specify the transmission port range of RTP streaming video. RTP will select a port randomly from this range.

☞ **Note:**

RTSP (Real Time Streaming Protocol) is a protocol for use in streaming media system which allows clients to remotely control a streaming video server. RTSP is supports by most of the media clients such as Real Player, QuickTime and VLC etc.

- ➢ **Image Rotate:** Select the screen display "flip", "mirror", or "flip + mirror."

- ➢ **Audio Codec:** If this option is selected "On", the microphone will start sound reception.

- ➢ **Exposure mode**: You can choose 50Hz, 60Hz or Auto. If you choose Auto option, the camera will adjust automatically to perform well.

- ➢ **White Balance**: You can choose the white balance to Auto, Florescent, Incandescent and Black & White.

- ➢ **IR:** You can turn IR light On/Off or Auto. If you select Auto mode, you can adjust threshold for IR Auto-On and Auto-Off respectively. In the right hand side of threshold bar, if the tool bar is closer to the right, the IR will auto-on easily in the dark environment. Conversely, in the left hand side of threshold bar, if the tool bar is more approached to the left, the IR will auto-off easily in the bright environment.

☞ **Note:**
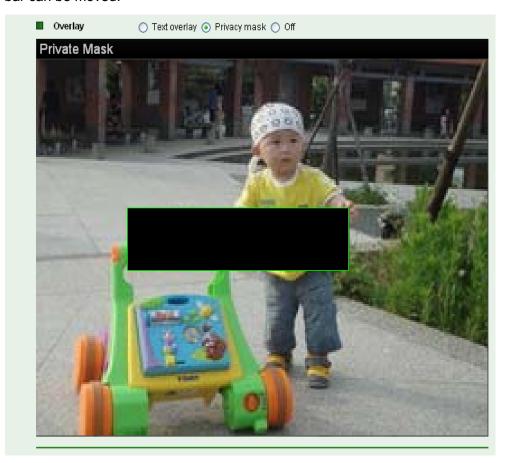
1. The effective range of the IR (Infrared) light is 10 meters (33 feet), and it is strongly suggested that you install it in a place without any barriers within 3 meters of the field of view (10 feet). Reflected light from a large closed barrier (such as a wall) may cause the camera to shut down the infrared light.

2. Normally, 10 seconds after the environment becomes darker than the threshold, the camera will turn on the IR (Infrared) light. One typical abnormal situation is that a barrier is very close to the camera and shields all available light.

- ➢ **Overlay:**

  - ● **Text Overlay:** You can see some information on the display screen which includes **Text color, Background color, Alias, Date/Time** and **Display position.**
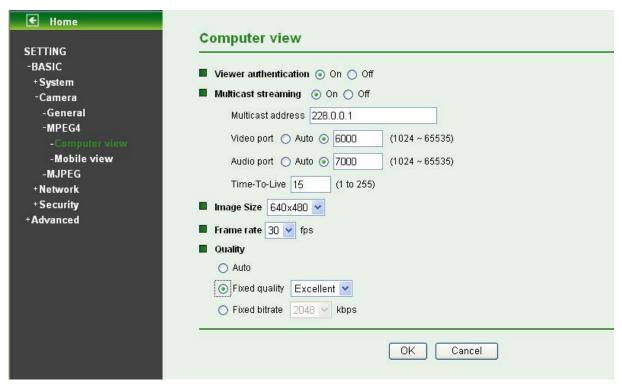
● **Privacy Mask:** You can cover a specific area of the video image with the black bar. The black bar can be moved.

7.2.2 MPEG-4

A. Computer View

If **RTSP** is **On** (please check "**Setting** → **Basic** → **Camera** → **General**"), the option of **Viewer Authentication** and **Multicast Streaming** will appear.

➢ **Viewer Authentication:** If the viewer authentication is **On**, the users will be requested to key in username and password when viewing through RTSP.

➢ **Multicast Streaming (If it's on):**

   ● **Multicast Address:** Specify the multicast server address.

   ● **Video / Audio Port:** Specify the transmission port number of the video data. Specify an even number from 1024 to 65535.

   ● **Time-to-Live:** Set the maximum TTL that multicast can pass through. Specify the value from 1 to 255.

➢ **Image Size:** Specify the image size when the network camera transmits. You can choose among 640 x 480, 320 x 240, and 160 x 120.

➢ **Frame Rate:** Set the frame rate of the MPEG4 image. You can choose values from 1, 2, 3, 4, 5, 7, 10, 15, 20, 25, and 30 fps. The unit "fps" stands for "frames per second".

➢ **Quality:**

   ● **Auto:** The quality and bitrate will be adjusted automatically according to the frame rate.

   ● **Fixed Quality:** You can select the value of quality among Medium, Standard, Good, Detailed and Excellent.

   ● **Fixed Bitrate:** Set the bitrate of MPEG4 image transmission for a line. You can select the value from 64, 128, 256, 384, 512, 768, 1024, 1280, 1536, and 2048 kbps.

☞ **Note:**

Concerning how to select the suitable image quality for Fixed Quality or Fixed Bitrate, please refer to the APPENDIX A. Frame-rate & Bitrate Table.

B. Mobile View

If **RTSP** is **On** (please check "**Setting** → **Basic** → **Camera** → **General**".), the option of **Viewer Authentication** and **Multicast Streaming** will appear.
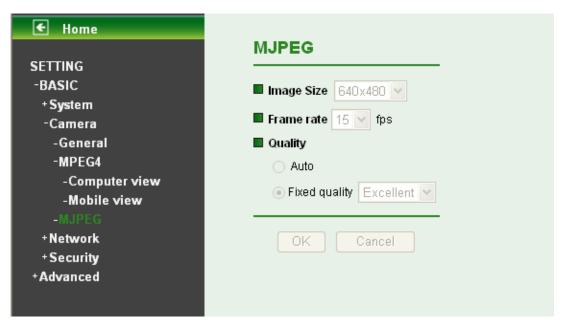
If RTSP is off, Mobile View will be disabled.

➢ **Viewer Authentication**: If the viewer authentication is On, the users will be requested to key-in username and password when viewing through RTSP.

➢ **Multicast Streaming (If it's on)**:

- **Multicast Address**: Specify the multicast server address.

- **Video / Audio Port**: Specify the transmission port number of the video data. Specify an even number from 1024 to 65535.

- **Time-To-Live:** Set the maximum TTL that multicast can pass through. Specify the value from 1 to 255.

➢ **Image Size:** The image size of Mobile View is fixed at 320x240 or 160 x 120.

➢ **Frame Rate:** Set the frame rate of the MPEG4 image. You can choose values from 5 and 10fps. The unit "fps" stands for "frames sent per second".

➢ **Quality:**

- **Auto:** The quality and bitrate will be adjusted automatically according to the frame rate.

- **Fixed Quality:** You can select the value of quality among Medium, Standard, Good, Detailed and Excellent.

- **Fixed Bitrate:** Set the bitrate of MPEG4 image transmission for a line. You can select the value from 16, 32, 48, 64, 128, and 256 kbps.

☞ **Note:**

Concerning how to select the suitable image quality for Fixed Quality or Fixed Bitrate, please refer to the APPENDIX A. Frame-rate and Bitrate Table.

7.2.3 MJPEG

If **RTSP** is **Off** (please check "**Setting → Basic → Camera → General**".), the option of **Image Size**, **Frame rate** and **Quality** will appear.
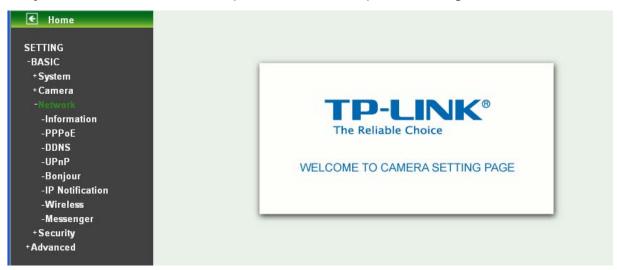
➢ **Image Size**: Specify the image size when the network camera transmits. You can choose among 640 x 480, 320 x 240, and 160 x 120.

➢ **Frame Rate**: Set the frame rate of the MJPEG image. You can choose values from 1, 2, 3, 4, 5, 7, 10, and 15 fps. The unit "fps" stands for "frames per second".

➢ **Quality:**

● **Auto:** The quality will be automatically decided.

● **Fixed Quality:** You can select the value of quality among Medium, Standard, Good, Detailed and Excellent.

☞ **Note:**

Concerning how to select the suitable image quality for Fixed Quality or Fixed Bitrate, please refer to the APPENDIX A. Frame-rate and Bitrate Table.
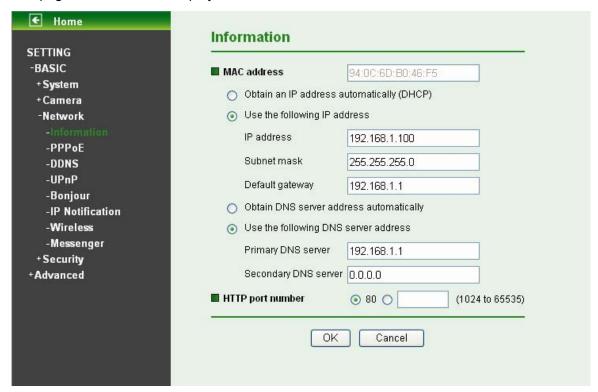
7.3 Network

Click the folder of **Network** to display the sub folders including **Information, PPPoE, DDNS, UPnP, Bonjour, IP Notification, Wireless (for wireless models)** and **Messenger**.

7.3.1 Information

The page of **Information** displays the MAC address of the device.

➢ **Obtain an IP address automatically (DHCP)**: If a DHCP server is installed on the network, to select this while the IP address is assigned by the DHCP server.

➢ **Obtain DNS server address automatically**: Select this to obtain the address of DNS server automatically.

➢ **Use the following IP address**: Select this when the fixed IP address is set.

● **IP address**: Enter the IP address of the device.

● **Subnet mask**: Enter the subnet mask.

● **Default gateway**: Enter the default gateway.

➢ **Use the following DNS server address**: Select this when you set the fixed address as the IP address of DNS server.

● **Primary DNS server**: Enter the IP address of the primary DNS server.

● **Secondary DNS server**: Enter the IP address of the secondary DNS server, if necessary.

➢ **HTTP port number**: Select 80 in general situations. If you want to use a port number other than 80, select the text box and enter a port number between 1024 and 65535.

When you have set the HTTP port number to a number other than 80 on the Network setting page or in the Setup Program, access the device by typing the IP address of the device on the web browser as follows: for example, when HTTP port number is set to 2000 and the IP address of your camera is set to 192.168.1.100, you should type in http://192.168.1.100:2000/ to access the device.

☞ **Note:**
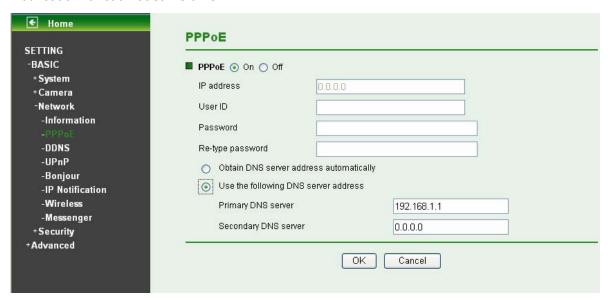
1. The IP Camera needs to be rebooted after it finishes changing the network setting completely. Please go to "**Setting→ Basic → System → Initialize**" page and click the **Reboot** button after you make some changes.

2. If you connect the IP Camera with your computer directly, the default network domain of camera is 192.168.1.xx.

7.3.2 PPPoE (Point-to-Point Protocol over Ethernet)

If your ISP provides Dynamic IP with authentication by username and password, type all PPPoE information in this part. When you use the PPPoE function, you need to turn on the DDNS or IP Notification function at same time.
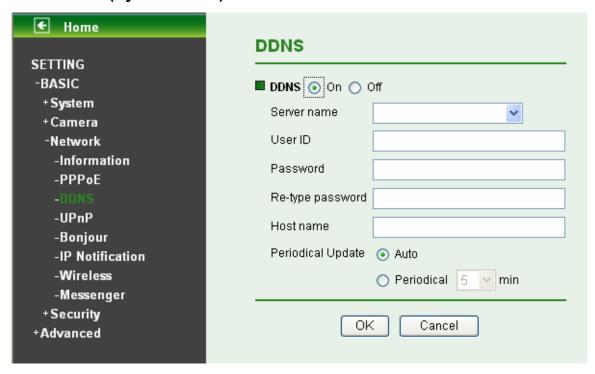
➢ **IP Address**: The IP address obtained at the PPPoE connecting with network.

➢ **User ID**: Enter the user ID for authentication necessary for PPPoE connections. Type it up to 64 characters.

➢ **Password**: Enter the password for authentication necessary for PPPoE connections. Type it up to 32 characters.

➢ **Re-type Password**: Re-type the password to confirm.

➢ **Obtain DNS server address automatically**: Select this to obtain the address of DNS server automatically.

➢ **Use the following DNS server address**: Select this when you set the fixed address as the IP address of DNS server.

  ● **Primary DNS server**: Enter the IP address of the primary DNS server.

  ● **Secondary DNS server**: Enter the IP address of the secondary DNS server.

☞ **Note:**

1. PPPoE (Point-to-Point Protocol over Ethernet): PPPoE is a network protocol for encapsulating Point-to-Point Protocol frames insider Ethernet frames. PPPoE connection is used mainly with ADSL service where individual users connect to the ADSL transceiver (modem) over Ethernet work. It also widely used in XDSL. (digital affiliate line such as ADSL, VDSL or SDSL)

2. The IP Camera needs to be rebooted after it finishes changing the network completely.

3. The IP Camera with Intelligent IP Installer can't be found after PPPoE is active, but you can get the IP address of the camera by IP Notification function. For more details, please refer to Section 7.3.6.

4. If the IP Notification function is not configured to report the IP address of the camera, you can reset the camera to its factory default settings by pressing the Reset button. Then the camera can be found by Intelligent IP Installer.

7.3.3 DDNS (Dynamic DNS)

DDNS is a system which allows the domain name data held in a name server to be updated in real time. The most common use for DDNS is allowing an internet domain name to be assigned to a computer with a varying/dynamic IP Address. This makes it possible for other sites on the internet to establish connection to the machine without needing to track the IP Address themselves.

➢ **Server name**: Choose the DDNS Server from the list.

➢ **User ID**: Enter the user ID for authentication necessary for DDNS connections. Type it up to 64 characters.

➢ **Password**: Enter the password for authentication necessary for DDNS connections. Type it up to 32 characters.

➢ **Re- type password**: Re-type the password to confirm.

➢ **Host name**: Enter the host name that is registered to the DDNS server.

➢ **Periodical Update**:

● **Auto**: The domain name data will be updated automatically.

● **Periodical**: The domain name data will be updated once in a period. The period can be chosen among 5, 10, 15, 30 and 60 minutes.

☞ **Note:**

How to apply DDNS username and Host name? You can apply DDNS username and Host name by the following steps:
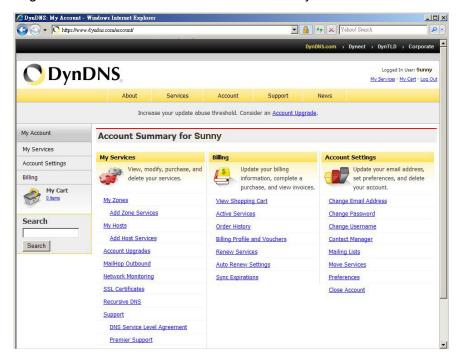
1. Login http://www.dyndns.org, click the Create Account.
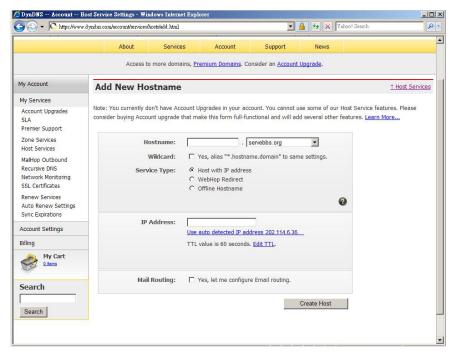
2. Input all information and follow step by step with DynDNS.

3. Login with new account and click Account → My Hosts → Add Host Services.
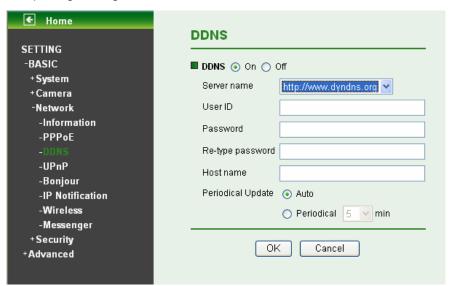
4. Type domain in the Hostname field and select sub-domain.

5. After type information, check your DDNS service.
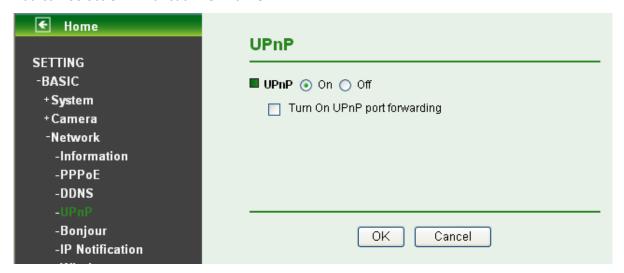
6. Type your DDNS User ID, Password and Host name in **Setting** → **Network** → **DDNS**. After completing setting, reboot IP Camera.
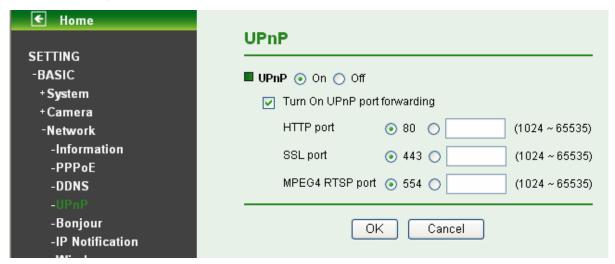
7.3.4 UPnP (Universal Plug and Play)

You can select UPnP function "**On**" or "**Off**".

If a router is used to access to internet and it supports UPnP IGD function, please tick **Turn On UPnP port forwarding**.

➢ **HTTP port**: The default HTTP port is 80. Or the port number can be entered, ranged from 1024 to 65535.

➢ **SSL port**: The default SSL port is 443. Or the port number can be entered, ranged from 1024 to 65535.

➢ **MPEG4 RTSP port**: The default MPEG-4 RTSP Port is 554. Or the port number can be entered, ranged from 1024 to 65535.

☞ **Note:**

UPnP (Universal Plug and Play): UPnP is a set of computer network protocol. It allows devices to connect seamlessly and simplify the implementation of networks in the home and corporate environments. The device supports UPnP which is enabled by default. The device will be automatically detected and a new icon will be added to "My Network Place" if it also enables on your computer. It provides Port Forwarding for opening a port in a router or firewall in a private network in order to let a party from the outside world contact a inside user.

7.3.5 Bonjour

Bonjour, also known as zero-configuration networking, enables automatic discovery of computers, devices, and services on IP networks. Bonjour uses industry standard IP protocols to allow devices to automatically discover each other without the need to enter IP addresses or configure DNS servers.
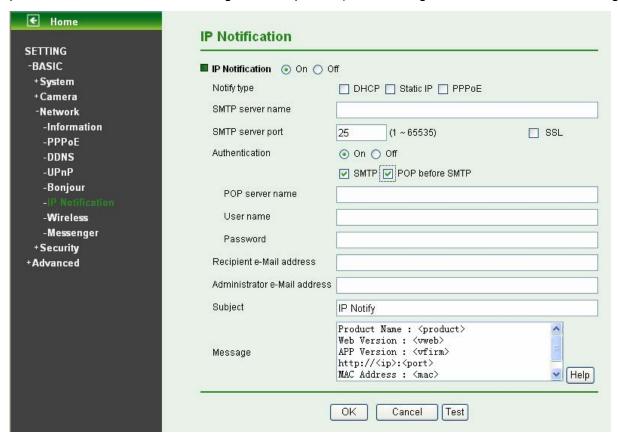
➢ **Device Name**: Enter Device Name as you wish.

☞ **Note:**

How to use Bonjour in your Windows Browser UI? Please check the link below: **http://www.apple.com/support/downloads/bonjourforwindows.html**.

7.3.6 IP Notification

Once IP Notification is set to "On", the camera will automatically send an e-mail notification to tell users its updated network parameters if the network settings about IP address, network connection type, HTTP port or wireless connection is changed or completed. (Some settings will take effect after rebooting.)
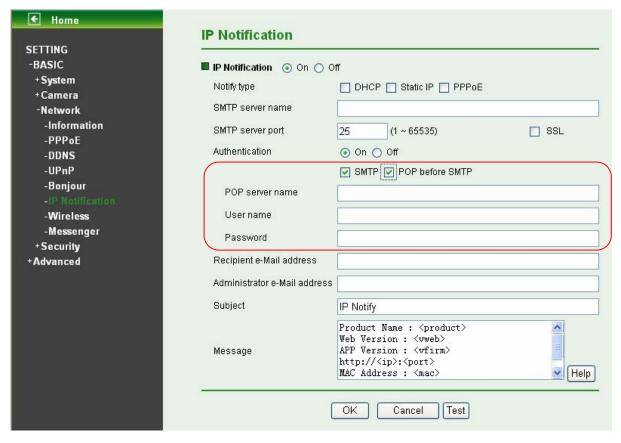
➢ **Notify Type**: You can select the notify type among DHCP, Static IP, and PPPoE. When the network settings related to the chosen notify type are changed, an e-mail notification will be sent to inform you of the updated network information of the camera.

➢ **SMTP Server Name**: Type the SMTP server name up to 64 characters, or the IP address of the SMTP server.

➢ **SMTP Server Port**: You can set port number from 1~65535 according to your mail server. The default value is 25.

● **SSL**: Tick SSL box if the mail server you use has security restriction.

☞ **Note:**

If you use g-mail as your mail server, you should set 587 as your port number and tick SSL box.
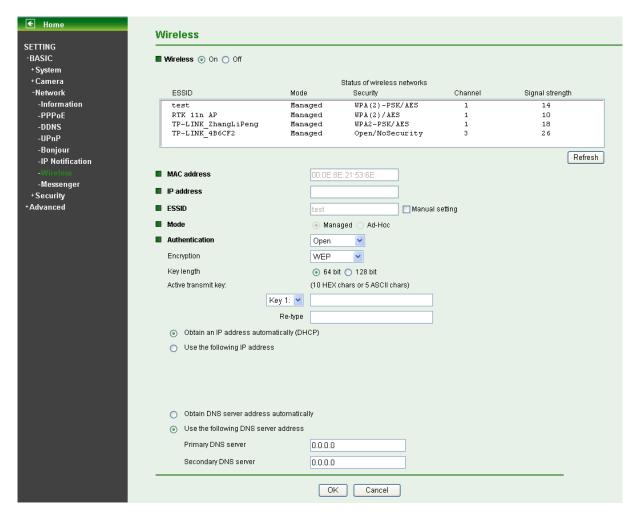
➢ **Authentication**: Select the authentication required when you send an email.

● **Off**: Select if no authentication is necessary when an email is sent.

● **On**: When authentication is necessary for sending an e-mail, there are three options **SMPT, POP before SMPT** or **both**.

- ➢ **SMTP**: Select if SMTP authentication is necessary when an e-mail is sent.
- ➢ **POP before SMTP**: Select if POP before SMTP authentication is necessary when an e-mail is sent.
  - ● **POP server name**: It is necessary when the POP before SMTP is selected in Authentication. Type the POP (receiving mail) server name up to 64 characters, or type the IP address of the POP server. This setting is necessary when the SMTP server which sends e-mails performs authentication using the POP user account.
  - ● **User name, Password**: Type the user name and Password of the user who has the mail account. This setting is necessary when the SMTP server which sends e-mails performs authentication.
- ➢ **Recipient e-mail address**: Type the recipient e-Mail address up to 64 characters. You can specify up to three recipient E-mail addresses.
- ➢ **Administrator e-mail address**: Type the Administrator e-Mail address up to 64 characters. This address is used for reply mail and sending system messages from the SMTP server.
- ➢ **Subject**: Type the subject/title of the e-Mail up to 64 characters. With respect to mail which is sent according to the IP notification.
- ➢ **Message**: Type the text of the E-mail up to 384 characters. Default value provides network information including IP, Port, MAC, Model, Firmware Version and Web Version.

7.3.7 Wireless

The wireless network has to be set up by using cable network connection. After setting the camera correctly, the wireless function can work with cable network connection. Wireless settings must be the same as the access point or ad-hoc device. When changing the settings they should always be made first in the camera and then in the wireless access point. This ensures that the camera is always accessible when making changes.

➢ **Status of Wireless Networks**

The list above is the result of network scan. The network currently linked to will be shown in blue. The following information is provided.

- **ESSID** - The name of a wireless network (or ad-hoc device). If the same name occurs several times this means that several access points for that network were found. The camera cannot be configured to only associate with one particular access point.

- **Mode** - Shows if the network type is Managed (access point or router) or Ad-Hoc (another client).

- **Security** - Shows which type of security the network uses. See below for the security types supported by the camera.

- **Channel** - Shows the wireless channel currently in use.

- **Signal strength** - Shows the signal strength.

- **Refresh**: Click the **Refresh** button to rescan the existing wireless networks in the local area.

➢ **Wireless Setting**

These settings control how the camera is connected to the wireless network.
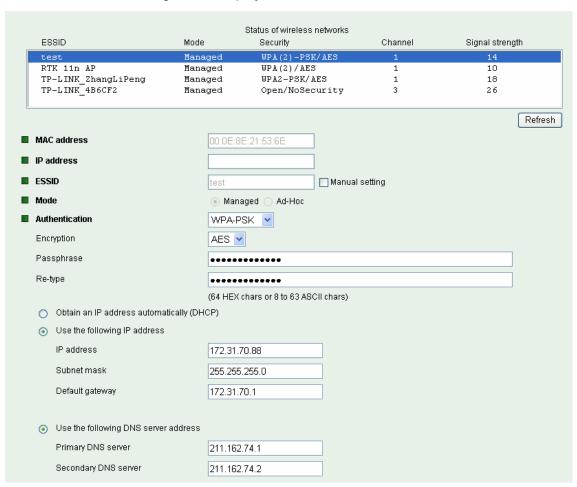
- **MAC address** – This displays the MAC address of the IP camera.

- **IP address** – The **IP address** field is not for entering, but for displaying. It displays blank, 0.0.0.0 or an IP Address. When it is blank, the camera doesn't establish physical link with access point. The 0.0.0.0 means that physical link is established, and that IP camera is trying to get the IP address. When it displays an IP address, users can use wireless network.

- **ESSID (ESSID is sometimes written as SSID)** - This is the name of the wireless network to which the camera is ready to connect. The field accepts up to 32 alphanumeric characters. The name must be exactly the same as that used in the wireless access point; otherwise, the connection will not be established.

  Leaving this field blank means the camera will attempt to access the nearest unsecured network. There are two methods to enter the ESSID field.

  ✓ Method 1: Click the desired wireless network in the network list above, then the field will display the ESSID of that network.

  ✓ Method 2: Tick the box "Manual Setting" behind the field, then ESSID can be entered.

- **Mode** – The Managed option means the camera will attempt to connect to an access point. The Ad-hoc option allows the camera to connect to other wireless device clients.

- **Authentication** – The authentication of the wireless network. All the parameters for authentication must be the same as that of the desired AP or Router. **64/128-bit WEP**, **WPA-PSK** and **WPA2-PSK** encryption security are supported by the camera. Click the desired wireless network in the network list above, the corresponding option will be selected as same as that of the desired AP or Router automatically. Here we select the first item in the network list above for example to introduce how to join in a wireless network.

  Select the first item, the figure will display as shown below:

  ✓ **Encryption** – Keep this option the same with that of network **test**.

  ✓ **Passphrase** - Enter the desired AP/ Router's password here.

  ✓ **Re-type** – Enter the password above again to affirm it.
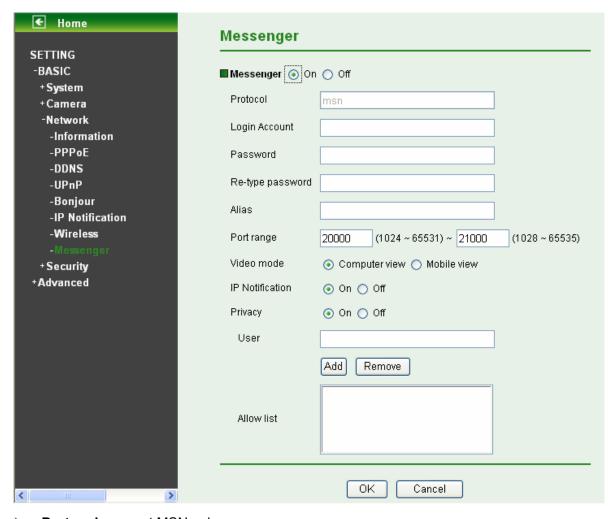
- ✓ **Obtain an IP address automatically (DHCP)** – If a DHCP server is installed on the network, to select this while the IP address is assigned by the DHCP server.

- ✓ **Use the following IP address** - Select this when the fixed IP address is set.

  - ◇ **IP address**: Enter the IP address of the camera, which must be in the same subnet with that of the desired AP/ Router.

  - ◇ **Subnet mask**: Enter the subnet mask.

  - ◇ **Default gateway**: Enter the default gateway.

- ✓ **Obtain DNS server address automatically** - If you select **Obtain an IP address automatically (DHCP)** above, this entry will display in the figure. Select this to obtain the address of DNS server automatically.

- ✓ **Use the following DNS server address** - Select this when you set the fixed address as the IP address of DNS server.

  - ◇ **Primary DNS server**: Enter the IP address of the primary DNS server.

  - ◇ **Secondary DNS server**: Enter the IP address of the secondary DNS server, if necessary.

7.3.8 Messenger

If Messenger option is selected **On**, you can set out the setting of MSN account.

Messenger function provides an easy-connect feature. User can easily know what the camera's private and public IP addresses are.

➢ **Protocol**: support MSN only.

➢ **Login Account**: Camera will use this account to login MSN server. This MSN account should be applied form http://www.msn.com.

➢ **Password**: password for this msn account.

➢ **Re-type password**: re-type password to double confirm.

➢ **Alias**: This alias will display on MSN like the following which display in red frame.

➢ **Port range**: Camera will select one port from this port range for video transmission.

➢ **Video Mode**: You can select Computer View or Mobile View.

● **Computer View**: This mode is the default value.

● **Mobile View**: If Messenger function doesn't work due to the firewall or the function limit of router, please choose Mobile View.

➢ **IP Notification**: Switch the IP notification On/Off. If this feature switches On, camera will send IP notification to the users who are allowed.

➢ **Privacy**: Switch privacy On/Off. When privacy turns on, only those users in allow list can access the camera.

➢ **User**: Input to this blank to edit allow list.

➢ **Allow list**: When privacy turns on, only those users in allow list can access the camera.

7.4 Security

Click the folder of **Security** to display the sub folders including **Account** and **HTTPS.**

7.4.1 Account

The device fault account and password setting is "admin / admin". That means everyone who knows IP address can access the device including all configuration. It is necessary to assign a password if the device is intended to be accessed by others.

➢ **User name**: Set a user name between 4-16 characters.

➢ **Password**: Set a password between 4-16 characters.

➢ **Re-type Password**: Re-type the password to confirm.

➢ **Viewer Mode**: Set the user mode among **Admin, Operator,** and **Viewer**. Different viewer mode has different limits of authority.

- The Admin mode has all authority of configuration.

- The Operator mode can not only view the Live View but also control the PTZ (apply in speed dome).

- The Viewer mode only can view the Live View.

➢ **Viewer Authentication**: Select whether the authentication is needed when users access to live view.

- **On**: Authentication is required to let different users have different levels of permission to access the camera view.

- **Off**: Authentication is not required to access the camera. Click **Off** and select one (among **Admin**, **Operator** and **Viewer**) from the pull list as default, then all users can view directly the video with the default permission without entering username and password.

*If you want to have a higher authority than default, you can key in appropriate username and password in the diag box that pop up when performing advanced operations that are only allowed by the higher authority.

7.4.2 HTTPS

HTTPS is a URI scheme used to indicate a secure HTTP connection. It is syntactically identical to the http:// scheme normally used for accessing resources using HTTP. Use an https: //URL/ with a different default TCP port (443) and an additional encryption / authentication layer between the HTTP and TCP, you can use the IP camera through HTTPS easily by using https:// instead of http://.

➢ **Create & Install**: Create a self-signed certificate for HTTPS to recognize.

➢ **Installed Certificate**: Display or remove the properties of the installed certificate.

➢ **HTTPS Connection Policy**: Set HTTPS connection policy for different level of users.

To use the HTTPS encryption, please set up "**Create self-signed certificate**" for the first time you use the HTTPS function, and then set up the connection policy for different users.
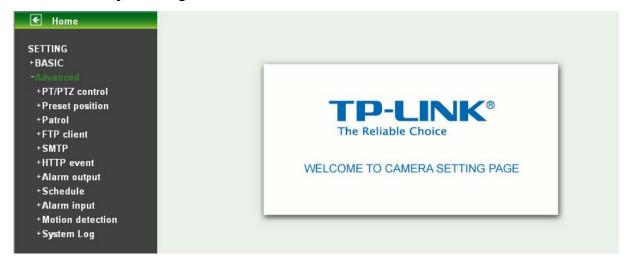
☞ **Note:**

When enable HTTPS with RTSP on mode, the IP Camera only protect the setting such as username and password and do not protect video and audio. When enable HTTPS with RTSP off mode, the IP Camera will protect all setting including video and audio.
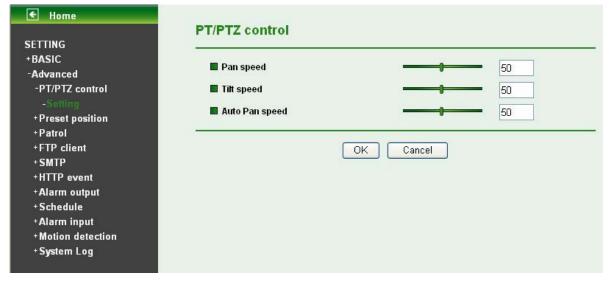
Chapter 8   Setting-Advanced

Click the folder of **Advanced** to display the sub folders including **PT Control, Present Position, Patrol, FTP client, SMTP, HTTP Event, Alarm Output, Schedule, Alarm Input, Alarm Buffer, Motion detection** and **System Log.**
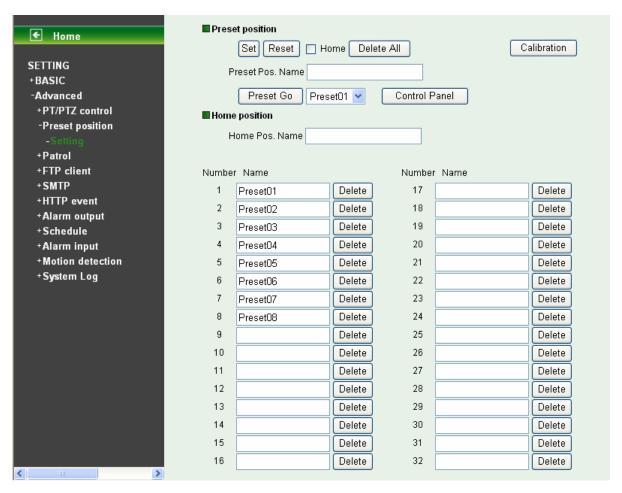
8.1   PT/PTZ Control

In this section, it provides **Pan, Tilt, Auto Pan speed** control setting.

➢ **Pan speed**: Specify the moving speed of the left and right commands. Available options are from 0 (slowest) to 100 (fastest). The larger the value, the faster the speed.

➢ **Tilt speed**: Specify the moving speed of the up and down commands. Available options are from 0 (slowest) to 100 (fastest). The larger the value, the faster the speed.

➢ **Auto Pan speed**: Specify the moving speed of the patrol tour. Available options are from 0 (slowest) to 100 (fastest). The larger the value, the faster the speed.

8.2 Preset Position

➢ **Set**: Use it to save the camera position to a preset number. Carry out the following steps.

- Move the camera to the position to be saved while you are checking the image with the main console.

- Write the preset position name in "Preset Pos. Name text" box.

- Click the **Set**. The camera position is saved.

- If want to set this position as home position, click **Home** option on. Click the **Set**. The camera position is saved as home position.

☞ **Note:**
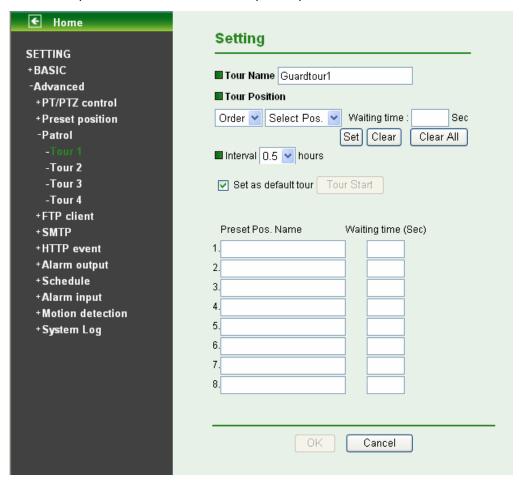
Setting the new Home position will replace previous **Home** position.

➢ **Reset**: When writing the preset position name in Preset Pos. Name text box, press **Reset** to clean filed words.

➢ **Delete All**: Be careful! When pressing Delete All, all Preset Position information will be deleted.

➢ **Calibration**: Click it and the camera will move to the straight ahead position.

➢ **Preset Go**: Choose one preset position, click the button, and then the camera will be set to the selected preset position. This button allows users to adjust the camera position more conveniently and efficiently.

➢ **Control panel**: Click **Control panel** button and the control panel will appear. The camera position can be adjusted by clicking the direction buttons.

➤ **Delete**: Select a preset number from 1 to 32 in the list box. Use it to delete a specific preset position setting.

8.3 Patrol

There are four patrol tours to set for composing different preset positions. Each one lists up to 8 positions which can be programmed, and the camera moves to the programmed positions sequentially. The camera stops when it moves to the last preset position.

➤ **Tour name**: Rename the tour name.

➤ **Tour position**

● **Order**: There are 8 orders to select for camera directions.

● **Select Pos.**: There are preset positions to choose for each order. (For more information about preset position, please refer to Section 8.2.)

● **Waiting time**: Define how long the camera is needed to stop at this position. The range is 1~99 seconds.

● **Set**: Click it to save the camera position to a preset number.

● **Clear**: If a preset position is not needed, select the tour order and click **Clear** to delete this position information.

● **Clear All:** Be careful! When you click Clear All, it will clear out all information of this tour.

➤ **Interval**: Define the cycle interval between two patrol tours. The interval value is among 0.5, 1, 2, 4, 8, 12 and 24 hours.

➤ **Set as default tour**: Tick it to set this tour as default.

- **Tour Start**: To click **Tour Start,** and then the camera will start the preset patrol tour.

- **Tour Stop**: While the camera moves on patrol tour, click **Tour Stop** to stop the patrol tour.

➢ **Carry out the following steps**:

1. Click **Order** and choose one of eight orders.

2. Click **Select Pos.** and choose one of the preset positions.

3. Fill in the **Waiting time**.

4. Click **Set**, and then the tour position is saved.

5. Follow the steps to set the other orders.

6. Click the **OK** to save the tour.

8.4   FTP Client

This menu is used for capturing and sending images to an FTP server. By using FTP client function, you can send to FTP server the image file which has been shot and recorded linked with the built-in motion detection function. Click the folder of **FTP client** to display the sub folders including **General, Alarm sending** and **Periodical sending**.

8.4.1   General

Select "**On**" when you use FTP function. The FTP client setting page appears.

Select "**Off**", when you do not use the FTP client function.

☞ **Note:**
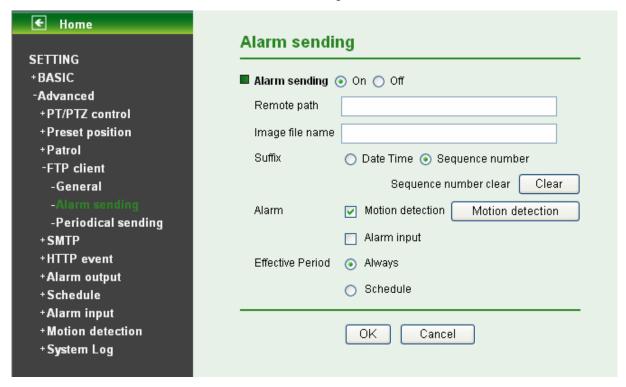
The frame rate and operability on the main viewer may decrease while a file is being transmitted by the FTP client function.

➢ **FTP server name**: Type the FTP server name to upload still images up to 64 characters, or the IP address of the FTP server.

➢ **User name**: Type the user name for the FTP server.

➢ **Password**: Type the password for the FTP server.

➢ **Re-type password**: To confirm the password, type the same characters as you typed in the Password box.

> ➢ **Passive mode**: Set whether you use the passive mode of FTP server or not when connecting to FTP server. Select On to connect to FTP server using the passive mode.

8.4.2 Alarm Sending

Set to forward the image file to the specified FTP server linked with the alarm detection by the built-in motion detection function. Select **On** to send the image file to FTP server linked with the alarm detection.

> ➢ **Remote Path**: Type the path to the destination in FTP server up to 64 characters.

> ➢ **Image File Name**: Type the file name you want to assign to the images when sending to the FTP server. You can use up to 10 alphanumeric characters, - (hyphen) and _ (underscore) for naming.

> ➢ **Suffix**: Select a suffix to add to the file name

> > ● **Date & time**: The date & time suffix is added to the Image file name. The date/time suffix consists of lower two-digits of year (2 digits), month (2 digits), date (2 digits), hour (2 digits), minute (2 digits), second (2 digits), and consecutive number (2 digits), thus 14-digit number is added to the file name.

> > ● **Sequence number**: A consecutive number of 10 digits between 0000000001 and 4294967295 and two fixed digits 00 are added to the Image file name.

> > ● **Sequence number clear**: Click **Clear** and the suffix of the sequence number returns to 1.

> ➢ **Alarm**

> > ● **Motion Detection**: Click it on for using Motion Detection function as a sensor. You can set motion detection function at the motion detection function page.

☞ **Note:**

You can set motion detection at **motion detection** page. (Please go to "**Setting → Advanced →Motion Detection → Setting**". For more details, please refer to <u>Section 8.10</u>.)

- **Alarm Input:** Select the connected alarm.

  ✓ **Alarm input1:** The external sensor which is connected to **Alarm input1** of the alarm input.

You can set the alarm input function at **Alarm Input** page. (Please go to "**Setting → Advanced → Alarm Input → Setting**". For more details, please refer to Section 8.9.)

➢ **Effective period**: Set the period when the periodical sending is effective.

- **Always**: The periodical sending is always effective.

- **Schedule**: You can specify the period when the periodical sending is effective in the Schedule setting in the other section.

You can set schedule function at **Schedule** page. (Please go to "**Setting → Advanced → Schedule → Setting".** For more details, please refer to Section 8.8.)

8.4.3 Periodical Sending

You can set to send an image file to FTP server periodically by selecting **On** to send the image file to FTP server linked with setting period.

➢ **Remote path**: Type the path to the destination in FTP server up to 64 characters.

➢ **Image file name**: Type the file name of the image sent by SMTP up to 10 alphanumeric characters, - (hyphen) and _ (under score).

➢ **Suffix**: Select a suffix to be added to the file name sent by SMTP.

- **None**: The name of the sent file will be the Image file name.

- **Date & time**: The date & time suffix is added to the Image file name. The date & time suffix consists of lower two-digits of year (2 digits), month (2 digits), date (2 digits), hour (2 digits), minute (2 digits) and second (2 digits), and consecutive number (2 digits), thus 14-digit number is added to the file name.

- **Sequence number**: A consecutive number is added to the Image file name.

- **Sequence number clea**r: Click **Clear** and the suffix of the sequence number returns to 1.

➢ **Interval**: Set the time interval of the periodical sending. Min value is 1 min and Max value is 24 hour.
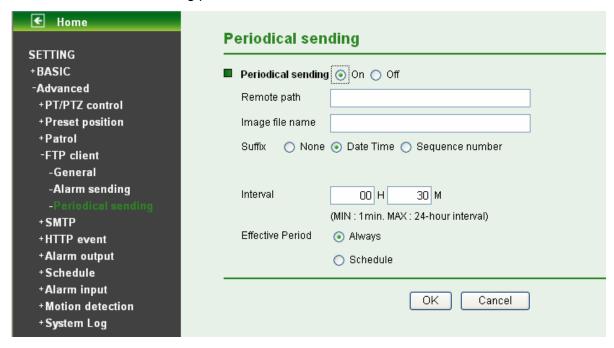
➢ **Effective period**: Set the period when the periodical sending is effective.

● **Always**: The periodical sending is always effective.

● **Schedule**: You can specify the period when the periodical sending is effective in the Schedule setting in the other section.

☞ **Note:**

You can set schedule function at **schedule** page. (Please go to "**Setting → Advanced → Schedule → Setting**". For more details, please refer to <u>Section 8.8</u>.)

8.5 SMTP
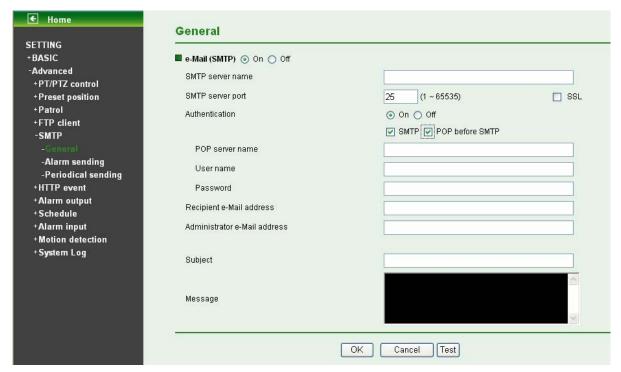
SMTP is used for sending an image via e-mail. By using Mail (SMTP) function, you can send a mail with attached image file which has been shot linked with the external sensor input or with the built-in motion detection function. The image file can also be sent periodically. Click the folder of **SMTP** to display the sub folders including **General, Alarm sending** and **Periodical sending**.

8.5.1 General

Select **On** when you use the SMTP function. The common setting options are displayed below. Select **Off**, if you do not wish to use the e-Mail (SMTP) function.

☞ **Note:**

The setting of **General** will be the same as the setting of **IP Notification**. (Please check "**Setting → Basic → Network → IP Notification**".)

➢ **SMTP server name**: Type the SMTP server name up to 64 characters, or the IP address of the SMTP server.

➢ **SMTP Server Port**: You can set port number from 1~65535 according to your mail server. The default value is 25.

● **SSL**: Tick SSL box if the mail server you use has security restriction.

➢ **Authentication**:

- **Off**: No authentication is necessary when an email is sent.

- **On**: Authentication is necessary when an e-mail is sent. To set the authentication, please select one from **SMTP** and **POP before SMTP**.

➢ **SMTP**: Select it if SMTP authentication is necessary when an e-mail is sent.

➢ **POP before SMTP**: Select it if POP before SMTP authentication is necessary when an e-mail is sent.
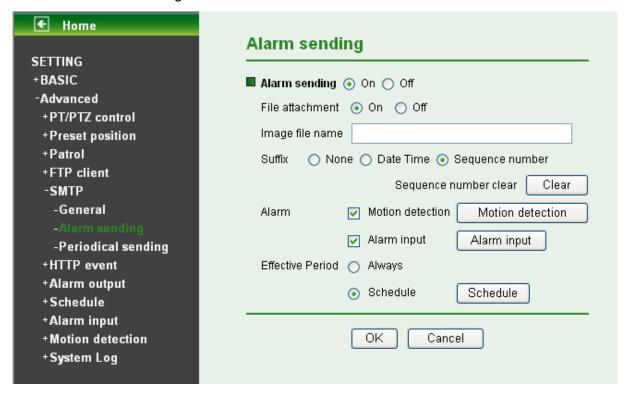
- **POP server name**: It is necessary when the POP before SMTP is selected in Authentication. Type the POP (receiving mail) server name up to 64 characters, or type the IP address of the POP server. This setting is necessary when the SMTP server which sends e-mails performs authentication using the POP user account.

- **User name, Password**: Type the User name and Password of the user's mail account. This setting is necessary when the SMTP server which sends e-mails performs authentication.

➢ **Recipient e-mail address**: Type the recipient e-Mail address up to 64 characters. You can specify up to three recipient E-mail addresses.

➢ **Administrator e-mail address**: Type the Administrator e-Mail address up to 64 characters. This address is used for reply mail and sending system messages from the SMTP server.

➢ **Subject**: Type the subject/title of the e-Mail up to 64 characters. With respect to mail which is sent according to the alarm detection when Alarm sending of the alarm tab is set to On, the characters standing for the sensor type added to the subject.

➢ **Message**: Type the text of the E-mail up to 384 characters. (A line break is equivalent to 2 characters.)

8.5.2 Alarm Sending

Set to send the mail with connection to the alarm detection by the built-in motion detection function. Select **On** to send the image file to SMTP server linked with the alarm detection.

- ➢ **Alarm sending**: Select **On** to set to send mail with connection to the alarm detection.

- ➢ **File attachment**: Set whether an image file is attached to the mail sent or not. When **On** is selected, the image file made by the settings below is attached. When **Off** is selected, only the message is sent.

- ➢ **Image file name**: Type the file name you want to assign to the image to attach a mail. You can use up to 10 alphanumeric, - (hyphen) and _ (underscore) for naming.

- ➢ **Suffix**: Select a suffix to add to the file name.

  - ● **Date & time**: The date & time suffix is added to the Image file name. The date/time suffix consists of lower two-digits of year (2 digits), month (2 digits), date (2 digits), hour (2 digits), minute (2 digits), second (2 digits), and consecutive number (2 digits), thus 14-digit number is added to the file name.

  - ● **Sequence number**: A consecutive number of 10 digits between 0000000001 and 4294967295 and two fixed digits 00 are added to the Image file name.

  - ● **Sequence number clear**: Click **Clea**r and the suffix of the sequence number returns to 1.

- ➢ **Alarm**

  - ● **Motion Detection**: Click it on for using Motion Detection function as a sensor. You can set motion detection function at the motion detection function page.

☞ Note:

You can set motion detection at **motion detection** page. (Please go to "**Setting → Advanced →Motion Detection → Setting**". For more details, please refer to <u>Section 8.10.</u>)

● **Alarm Input:** Select the connected alarm.

 ✓ **Alarm input1:** The external sensor which is connected to **Alarm input1** of the alarm input.

) **Note:**

You can set the alarm input function at **Alarm Input** page. (Please go to "**Setting** → **Advanced** → **Alarm Input** → **Setting**". For more details, please refer to Section 8.9.)

➢ **Effective period**: Set the period when the periodical sending is effective.

● **Always**: The periodical sending is always effective.

● **Schedule**: You can specify the period when the periodical sending is effective in the Schedule setting in the other section.

) **Note:**

You can set schedule function at **Schedule** page. (Please go to "**Setting** → **Advanced** → **Schedule** → **Setting".** For more details, please refer to Section 8.8.)

8.5.3 Periodical Sending

You can set to send an image file by SMTP server periodically by selecting **On** to send the image file by SMTP server linked with setting period.

➢ **Image file name**: Type the file name of the image sent by SMTP up to 10 alphanumeric characters, - (hyphen) and _ (under score).

➢ **Suffix**: Select a suffix to be added to the file name sent by SMTP.

● **None**: The name of the sent file will be the Image file name.

● **Date & time**: The date & time suffix is added to the Image file name. The date & time suffix consists of lower two-digits of year (2 digits), month (2 digits), date (2 digits), hour (2 digits), minute (2 digits) and second (2 digits), and consecutive number (2 digits), thus 14-digit number is added to the file name.

● **Sequence number**: A consecutive number is added to the Image file name.

● **Sequence number clear**: Click **Clear** and the suffix of the sequence number returns to 1.

➢ **Interval**: Set the time interval of the periodical sending. Min value is 30 min and Max value is 24 hour.

➢ **Effective period**: Set the period when the periodical sending is effective.

● **Always**: The periodical sending is always effective.

● **Schedule**: You can specify the period when the periodical sending is effective in the schedule setting in the other section. Please check "**Setting → Basic → Advance → Schedule → Setting**."
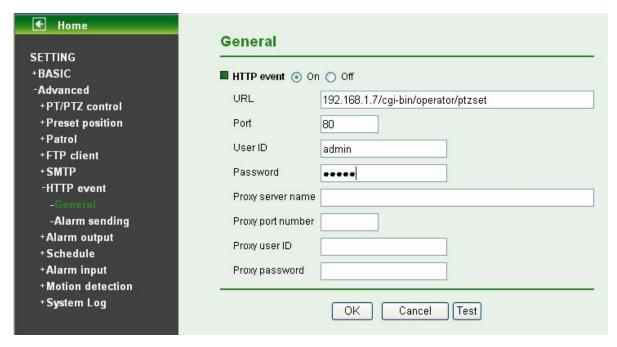
☞ **Note:**

You can set schedule function at **schedule** page. (Please go to "**Setting → Advanced → Schedule → Setting**"**.** For more details, please refer to <u>Section 8.8</u>.)

8.6 HTTP Event

HTTP Event is used for sending commands to an HTTP server. By using HTTP client function, you can send the command defined by yourself, linked with the external sensor input or with the built-in motion detection function to HTTP server. HTTP Event setting menu is composed of two tabs, General and Alarm sending. Click the folder of **HTTP Event** to display the sub folders including **General** and **Alarm sending**.

8.6.1 General

Select **On**, and you can start setting up the function.

HTTP Event: Set up the HTTP server URL, port, User ID, Password, and Proxy server settings.

For example:
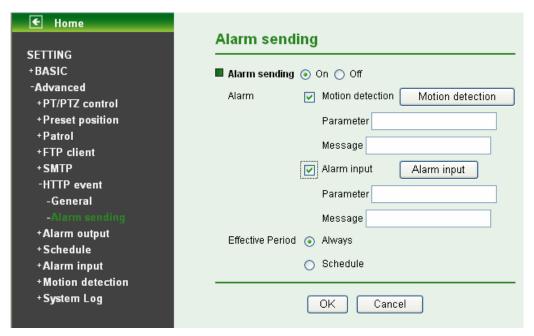
URL: 192.168.1.7/cgi-bin/operator/ptzset

☞ **Note:**

The setting of URL should be the same as CGI.

8.6.2 Alarm Sending

Set to send the commands via the alarm detection, external sensor input or built-in motion detection function. Select **On** to send the commands to HTTP server linked with the alarm detection.
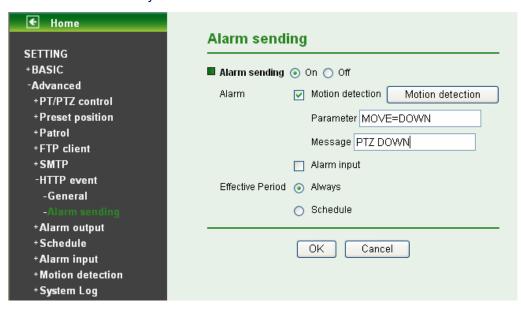
➢ **Alarm sending**: Select **On** to set to send command with connection to the alarm detection.

➢ **Alarm**

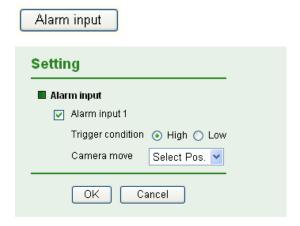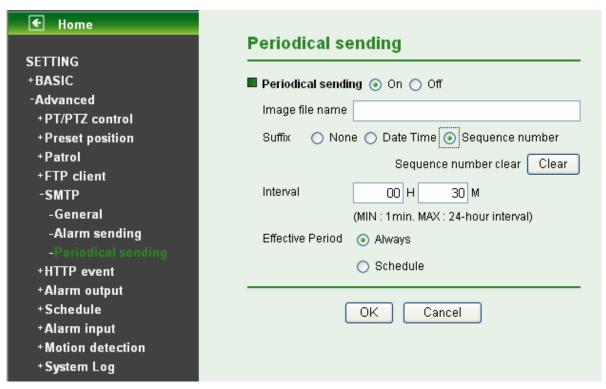● **Motion Detection:** Click it on for using Motion Detection function as a sensor. You can set motion detection function at the motion detection function page.

) **Note:**

1. You can set motion detection at **motion detection** page. (Please go to "**Setting** → **Advanced** →**Motion Detection** → **Setting**". For more details, please refer to Section 8.10.)

2. Motion Detection works only when the MPEG4 function is **On**.
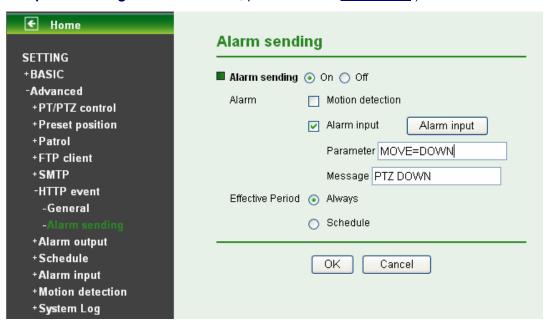
✓ **Parameter**: the parameter of CGI (defined in URL of HTTP → General) is from your target device. For example, move=down.

✓ **Message**: message will show up in the form of Message = PTZ down. If your target device didn't support the parameter of message, you can't see the message. So you can just take the message as a note. For example: PTZ down.

● **Alarm Input**: Select the connected alarm.

✓ **Alarm input1**: The external sensor which is connected to sensor input1 of the alarm input.

☞ **Note:**

You can set the alarm input function at **Alarm Input** page. (Please go to "**Setting → Advanced → Alarm Input → Setting**". For more details, please refer to <u>Section 8.9</u>.)

✓ **Parameter**: the parameter of CGI (defined in URL of **HTTP→General**) is from your target device. For example, move=down.
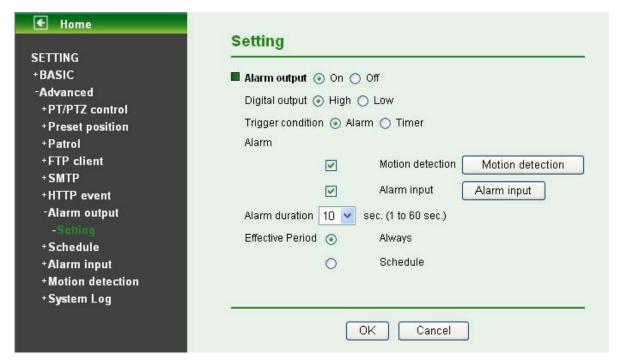
✓ **Message**: message will show up in the form of Message = PTZ down. If your target device didn't support the parameter of message, you can't see the message. So you can just take the message as a note. For example: PTZ down.

➢ **Effective period**: Set the period when the periodical sending is effective.

● **Always**: The periodical sending is always effective.

● **Schedule**: You can specify the period when the periodical sending is effective in the Schedule setting in the other section.

You can set schedule function at **Schedule** page. (Please go to "**Setting** → **Advanced** → **Schedule** → **Setting".** For more details, please refer to Section 8.8.)

8.7 Alarm Output

When you click **Alarm output** on the setting-advanced menu, the **Setting** menu appears. You can set in this menu to control the alarm out of I/O port on the rear of the device linked to the alarm detection and the timer.

Alarm output: To activate the Alarm output function, select **On**. When you do not use the Alarm output function, select **Off**.

➤ **Digital output**: Select High signal output and Low signal output as your alarm.

➤ **Trigger condition**: Select the mode of the Alarm output function. You can choose "Alarm" or "Timer".

➤ **Alarm**: Controls alarm output by synchronizing with an external sensor input or the built-in activity detection function.

● **Motion Detection**: Click it on for using Motion Detection function as a sensor. You can set motion detection function at the motion detection function page.
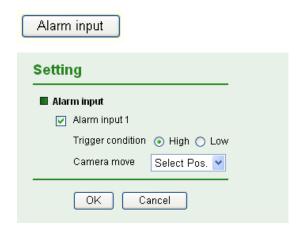
Note:

You can set motion detection at motion detection page. (Please go "**Setting** → **Advanced** → **Motion detection** → **Setting**")

Note:

Motion Detection works only when the Video mode is set to MPEG4 and the Cropping is set to **Off**.

● **Alarm Input**: Select the connected alarm.

✓ **Alarm input1**: The external sensor which is connected to Alarm input1 of the alarm input.

☞ **Note:**

You can set the alarm input function at alarm input page. (Please go "**Setting** →**Advanced** →**Alarm input** → **Setting**")

➢ **Alarm Duration**: There are up to 60 second options to choose for alarm duration interval.

➢ **Effective period**: Set the period when the periodical sending is effective.

● **Always**: The periodical sending is always effective.

● **Schedule**: You can specify the period when the periodical sending is effective in the Schedule setting in the other section.

☞ **Note:**
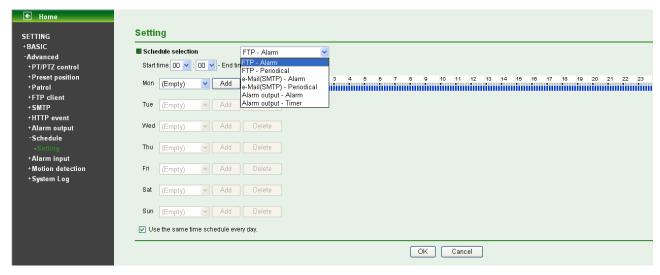
You can set schedule function at schedule page. (Please go "**Setting** → **Advanced** → **Schedule** → **Setting**")

8.8 Schedule

When you click **Schedule** on the setting-advanced menu, the **Setting** menu appears. This is the same menu as the setting menu which is displayed when you click Schedule to set Effective period and Schedule in FTP client setting menu, and E-Mail (SMTP) setting menu.

Example: When setting e-Mail (SMTP) (the alarm sending) in the Schedule setting menu.
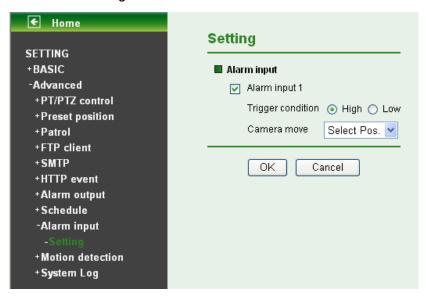
➢ **Schedule Selection**: Select the list box to specify the schedule you want to set.

● FTP - Alarm

● FTP - Periodical

● e-Mail (SMTP) - Alarm

● e-Mail (SMTP) - Periodical

● Alarm output - Alarm

● Alarm output - Timer

➢ **Mon (Monday) to Sun (Sunday)**: The time period on the right of the checked day is the effective period of the schedule.

➢ **Start time, End time**: Specify the Start time and the End time.

➢ **Use the same time** schedule every day: When this is checked, the Start time and End time set to Mon (Monday) are applied to all days. In this case, the Start time and End time of the other days than Mon (Monday) cannot be input.

8.9 Alarm Input
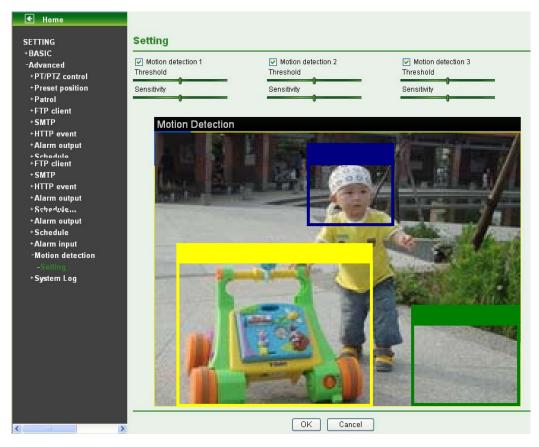
When you click **Alarm Input** on the setting-advanced menu, the **Setting** menu appears. You can set in this menu to control the external alarm input of I / O port on the rear of the device linked to FTP, SMTP, and HTTP sending function.

➢ **Alarm input 1**: Click it on for using external sensor which is connected to Alarm input1 of the camera I/O port.

● **Trigger condition**: Select High signal output and Low signal output as your alarm.

● **Camera move**: Pull down the window to select the camera preset position. When external alarm input happens, the camera will automatically move to that position.

8.10 Motion Detection
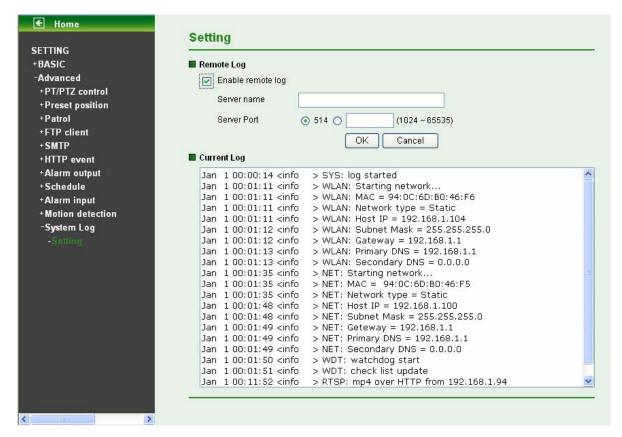
There are three Motion Detection functions as sensors to set for different detecting zones. Each one has Threshold and Sensitivity inputs which you can adjust to specific zone sequentially. Motion Detection function can support to FTP, SMTP and Alarm output for capturing and sending images or starting alarm output.

- ➢ **Motion Detection 1**: Click it on for using Motion Detection 1 function as a sensor. You can adjust and move the detecting zone by using mouse.

- ➢ **Motion Detection 2**: Click it on for using Motion Detection 2 function as a sensor. You can adjust and move the detecting zone by using mouse.

- ➢ **Motion Detection 3**: Click it on for using Motion Detection 3 function as a sensor. You can adjust and move the detecting zone by using mouse.

  - ● **Threshold**: It means the extent which the alarm will be triggered. If the tool bar is closer to the left hand, the threshold is lower; vice versa.

  - ● **Sensitivity**: It means that how often the sensor will scan the image different. If the tool bar is closer to the left hand, the sensitivity is lower; vice versa. The higher sensitivity it is and the more frequently it scans.

8.11 System Log

The System Log function allows users to review any changes and events happened. The system starts logging automatically after started.

➢ **Enable remote log**: Enables user to send the log data to a specified log server.

Appendix

A. FRAME-RATE AND BITRATE TABLE

Help to set IP Camera with your network environment to access Internet.

Base on your network UPLOAD environment to choose the suitable Image-Quality setting. For example, if the network environment is ADSL 256Kb/s (upload)/2Mb/s (download), the most fluent Image-Quality needs to set up under 256 Kb situation.

A.1. MPEG4 @ 30fps / Kbps

Quality	640*480	320*240	160*120
Excellent	1000	300	90
Detailed	400	150	50
Good	300	100	30
Standard	250	70	25
Medium	250	55	20

A.2. MPEG4 / Kbps, fps

Image-Size	Bitrate Setting	Frame-Rate Setting	Current Bitrate	Current Frame-Rate
640*480	2048	30	1800	26
640*480	2048	15	2200	16
640*480	1536	30	1500	30
640*480	1536	15	1700	16
640*480	1024	30	1000	30
640*480	1024	15	1000	16
640*480	512	30	500	30
640*480	512	15	600	16
320*240	1536	30	1500	30
320*240	1536	15	1600	16
320*240	1024	30	1000	30
320*240	1024	15	1000	16
320*240	512	30	550	30

320*240	512	15	600	16
160*120	1024	30	950	30
160*120	1024	15	750	16
160*120	512	30	500	30
160*120	512	15	50	16
160*120	128	30	130	30
160*120	128	15	140	16

A.3. MJPEG @ 15fps / Kbps

Quality	640*480	320*240	160*120
Excellent	4000	1500	600
Detailed	2400	900	400
Good	1600	650	300
Standard	1300	500	240
Medium	900	350	170

A.4. MJPEG / Kbps, fps

Image-Size	Quality Setting	Frame-Rate Setting	Current Bitrate	Current Frame-Rate
640*480	Excellent	15	4000	13
640*480	Excellent	5	1600	5
640*480	Good	15	1600	13
640*480	Good	5	650	5
640*480	Medium	15	900	14
640*480	Medium	5	360	5
320*240	Excellent	15	1500	13
320*240	Excellent	5	550	5
320*240	Good	15	650	13
320*240	Good	5	260	5

320*240	Medium	15	350	13
160*120	Medium	5	130	5
160*120	Excellent	15	600	13
160*120	Excellent	5	230	5
160*120	Good	15	300	13
160*120	Good	5	115	5
160*120	Medium	15	170	13
160*120	Medium	5	65	5

B. STORAGE REQUIREMENT TABLE

Help to set Recording Storage System. Please refer to the following table to find out the capability for recording into your hard disk.

B.1. MPEG4 Storage Requirement GB / channel / day @ 30fps

Quality	640*480	320*240	160*120
Excellent	10.5	3.2	0.9
Detailed	4.2	1.6	0.5
Good	3.2	1.1	0.3
Standard	2.6	0.7	0.3
Medium	2.6	0.6	0.2

B.2. MPEG4 Storage Requirement GB / channel / day @ 15fps

Quality	640*480	320*240	160*120
Excellent	5.3	1.6	0.4
Detailed	2.1	0.8	0.3
Good	1.6	0.6	0.2
Standard	1.3	0.4	0.1
Medium	1.3	0.3	0.1

B.3. MPEG4 Storage Requirement GB / channel / day

Image-Size	Bitrate Setting	Frame-Rate Setting	Current Bitrate

640*480	2048	30	23.0
640*480	2048	15	22.2
640*480	1536	30	18.5
640*480	1536	15	17.9
640*480	1024	30	10.5
640*480	1024	15	10.5
640*480	512	30	5.3
640*480	512	15	6.3
320*240	1536	30	15.8
320*240	1536	15	16.9
320*240	1024	30	10.5
320*240	1024	15	10.5
320*240	512	30	5.8
320*240	512	15	6.3
160*120	1024	30	10.0
160*120	1024	15	7.9
160*120	512	30	5.3
160*120	512	15	0.5
160*120	128	30	1.4
160*120	128	15	1.5

B.4. MJPEG Storage Requirement GB / channel / day @ 15fps

Quality	640*480	320*240	160*120
Excellent	42.2	15.8	6.3
Detailed	25.3	9.5	4.2
Good	16.9	6.9	3.2
Standard	13.7	5.3	2.5
Medium	9.5	3.7	1.8

B.5. MJPEG Storage Requirement GB / channel / day

Image-Size	Quality Setting	Frame-Rate Setting	Current Bitrate
640*480	Excellent	15	42.2
640*480	Excellent	5	16.9
640*480	Good	15	16.9
640*480	Good	5	6.9
640*480	Medium	15	9.5
640*480	Medium	5	3.8
320*240	Excellent	15	15.8
320*240	Excellent	5	5.8
320*240	Good	15	6.9
320*240	Good	5	2.7
320*240	Medium	15	3.7
160*120	Medium	5	1.4
160*120	Excellent	15	6.3
160*120	Excellent	5	2.4
160*120	Good	15	3.2
160*120	Good	5	1.2
160*120	Medium	15	1.8
160*120	Medium	5	0.7

C. TESTING SYSTEM SPECIFICATION

Software:	MainConsole Version 2.6.4 Professional
CPU:	AMD Athlon 64*2 @3600+MHz
Memory:	2048 MB (2 x 1024 DDR2-SDRAM)
Ethernet:	VIA Rhine II Fast Ethernet Adapter
Hard Disk:	ST3250620A (250 GB)
Graphic card:	ATI Technologies Inc EAX1600 Series
Operating System:	Windows XP Professional SP2 x64

D. PERFORMANCE OF 16 CHANNEL IP CAMERA

Results from Test with a Resolution of 704×480 CCD IPCamera

704x480	Quality	Frame Rate	CPU Load	Bandwidth
16 IP camera	Excellent	30	95%	15~20 Mbps

Results from Test with a Resolution of 640×480 CMOS IPCamera

640x480	Quality	Frame Rate	CPU Load	Bandwidth
16 IP camera	Excellent	30	95%	10~15 Mbps

Europe – EU Declaration of Conformity

This device complies with the essential requirements of the R&TTE Directive 1999/5/EC. The following test methods have been applied in order to prove presumption of conformity with the essential requirements of the R&TTE Directive 1999/5/EC:

Clause	Description
EN 60950-1: 2001	Safety of Information Technology Equipment
EN 50392: 2004	Generic standard to demonstrate the compliance of electronic and electrical apparatus with the basic restrictions related to human exposure to electromagnetic fields (0 Hz - 300 GHz)
EN 300 328 V1.6.1 (2004-11)	Electromagnetic compatibility and Radio spectrum Matters (ERM); Wideband transmission systems; Data transmission equipment operating in the 2,4 GHz ISM band and using wide band modulation techniques; Harmonized EN covering essential requirements under article 3.2 of the R&TTE Directive
EN 301 489-17 V1.2.1 (2002-08) and EN 301 489-1 V1.5.1 (2004-11)	Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 17: Specific conditions for 2,4 GHz wideband transmission systems and 5 GHz high performance RLAN equipment

This device is a 2.4 GHz wideband transmission system (transceiver), intended for use in all EU member states and EFTA countries, except in France and Italy where restrictive use applies.

In Italy the end-user should apply for a license at the national spectrum authorities in order to obtain authorization to use the device for setting up outdoor radio links and/or for supplying public access to telecommunications and/or network services.

This device may not be used for setting up outdoor radio links in France and in some areas the RF output power may be limited to 10 mW EIRP in the frequency range of 2454 – 2483.5 MHz. For detailed information the end-user should contact the national spectrum authority in France.

Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules.   These limits are designed to provide reasonable protection against harmful interference in a residential installation.   This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.   However, there is no guarantee that interference will not occur in a particular installation.   If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) this device must accept any interference received, including interference that may cause undesired operation.

FCC Caution:

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

IEEE 802.11b or 802.11g operation of this product in the U.S.A. is firmware-limited to channels 1 through 11.

IMPORTANT NOTE:

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.