KNC-Xi130HD
KNC-Xi210HD
Megapixel Network Camera

User's Manual

Date:21.February.2011

About This Document

This manual is intended for administrators and users of the KNC—Xi130HD, KNC—Xi210HD. It includes instructions for using and managing the Network Camera on your network. Previous experience of networking will be of use when installing and using this product. Some knowledge of UNIX or Linux-based systems would also be beneficial, for developing shell scripts and applications. Later versions of this document will be posted to the KT&C Website, as required. See also the product's online help, available via the Web-based interface.

Safety Notices Used In This Manual

Caution! – Indicates a potential hazard that can damage the product.
Important! – Indicates a potential hazard that can seriously impair operation.
Do not proceed beyond any of the above notice until you have fully understood the implications.

Legal Considerations

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

Electromagnetic Compatibility

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 or more of the following measures: Re-orient or relocate the receiving antenna. Increase the separation between the equipment and receiver. Connect the equipment to an outlet on a different circuit to the receiver. Consult your dealer or an experienced radio/TV technician for help. Shielded (STP) network cables must be used with this unit to ensure compliance with EMC standards.

USA – This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules.
These limits are designed to provide reasonable protection against harmful interference when the equipment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.
Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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

Europe – This digital equipment fulfills the requirements for radiated emission according to Class A of EN55022/2006, and the requirements for immunity according to EN55024/1998 residential, commercial, and light industry.

Liability

Every care has been taken in the preparation of this manual; please inform your local KT&C office of any inaccuracies or omissions. KT&C Co., Ltd. cannot be held responsible for any technical or typographical errors and reserves the right to make changes to the product and manuals without prior notice. KT&C Co., Ltd. makes no warranty of any kind with regard to the material contained within this document, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. KT&C Co., Ltd. shall not be liable nor responsible for incidental or consequential damages in connection with the furnishing, performance or use of this material.

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Support Services
Should you require any technical assistance, please contact your KT&C reseller. If your questions cannot be answered immediately, your reseller will forward your queries through the appropriate channels to ensure a rapid response. If you are connected to the Internet, you can:

- Download user documentation and firmware updates.
- Find answers to resolved problems in the FAQ database. Search by product, category, or phrases.
- Report problems to KT&C support staff by logging in to your private support area.
- Visit the KT&C Support Web at http://www.ktncusa.com
- Visit the KT&C Support Web to get the latest KCMS-3000(Free central management software) at www.ktnc.co.kr

Table of Contents

Overview

Thank you for purchasing a KT&C network surveillance product.

KT&C KNC-Xi130HD, KNC-Xi210HD is a high-performance, Megapixel Network Camera which offers the perfect solution for integrating network-based video surveillance system.

Key Features

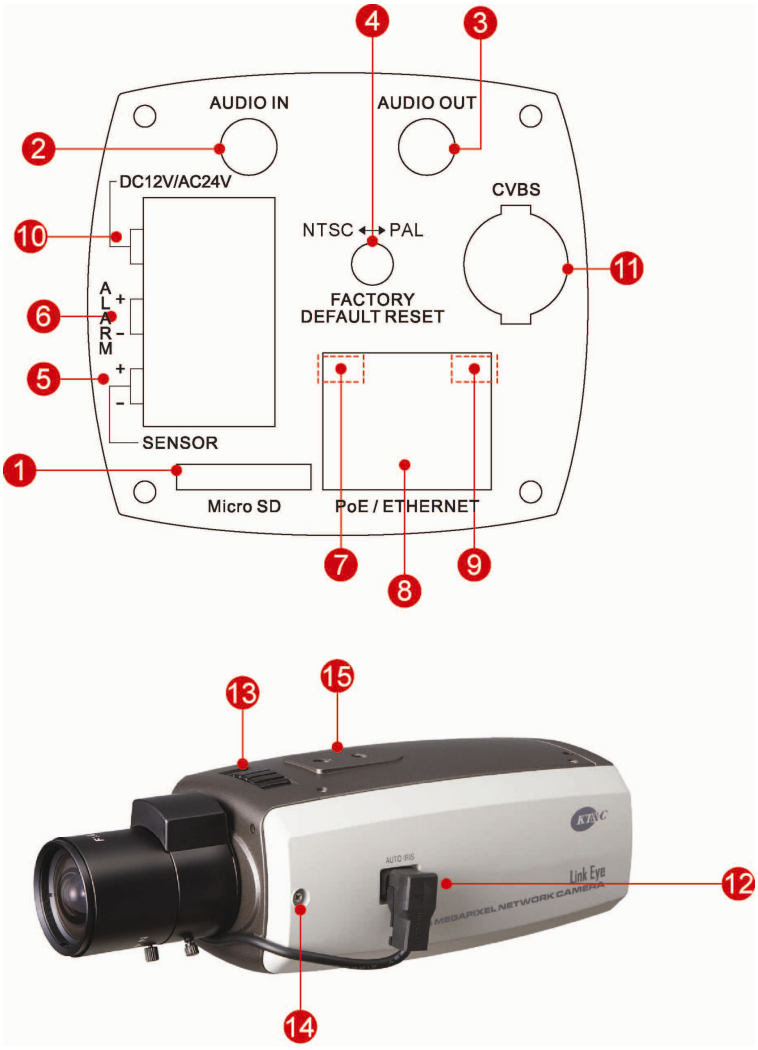
- Onvif 1.0
- Simultaneous H.264 and MJPEG video streams at up to 30 fps in SXGA resolution(KNC-Xi130HD) and in 1920x1080 resolution(KNC-Xi210HD)
- Micro SD/SDHC memory card support for recoding video streams (Maximum 32GB support)
- Power over Ethernet (PoE Class 3)
- Bi-directional audio support
- Multi-area motion detection
- Powerful event management
- Upgradeable firmware

System requirements for a PC

- Pentium® 4 CPU 2.4 GHz or higher, or equivalent AMD®
- 1 GB RAM
- AGP graphics card 64 MB RAM, Direct Draw
- CD-ROM drive (for using User's Manual and software)
- Microsoft® Windows® XP, 2000, 2003 Server
- DirectX® 9.0 or later
- Microsoft® Internet Explorer® 7.x or later
- Adobe® Reader® (for reading User's Manual in CD-ROM)

Product Description

Description and function



1. **Micro SD/SDHC Memory Slot** – Insert Micro SD or SDHC memory card for recording videos and saving images. (Maximum 32GB support)
2. **Line / MIC In** – Connect 3.5mm jack from line level audio source or MIC.
3. **Line Out** – Connect 3.5mm jack from speaker.
4. **Reset Switch/NTSC or PAL select** – Push and hold the reset button for more than 10 second to reset the Network Camera.
   Push this switch to use analog video of NTSC or PAL format on installing.
   Caution: ***This feature will reset all settings to the original factory default settings.***
   Caution: ***This button has two functions(factory default settings or selecting analog video).***
5. **Digital Input** – Connect signal from external sensor.

6. **Digital Output** – Connect signal to external alarm. (Max. current - DC 12V, 40mA)
7. **Network LED** – Network LED indicates network connection status.
8. **Network Connector** – The Network Camera connects to the network via a standard network cable, and automatically detects the speed of the local network segment (10BaseT/100BaseTX Ethernet). PoE Supported.
9. **Status LED** – Status LED indicates the Network Camera operation status.
10. **Power Input(AC, DC)** – Connect DC 12V or AC 24V power.
11. **Service Video Connector** – For checking the view of the camera on a portable monitor when the camera is being installed.
    *Caution: **The analog video can be viewed only in 1280x1024 resolution.***
12. **Auto Iris Jack** – Connect DC Iris cable.
13. **Back Focus Adjustment Level –** Use to adjust focus.
14. **Focus Fixing Screw** – Use to fix back focus adjustment level.
15. **Tripod Mounting Hole** – Use to connect standing bracket

Using the Network Camera

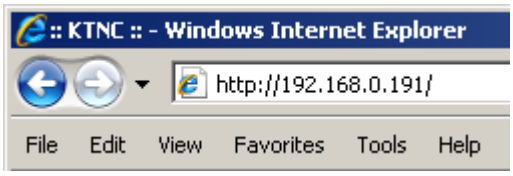
The Network Camera can be used with either Internet Explorer or Central Monitoring System (CMS) in Microsoft Windows operating systems.

Note: For information on installing the Network Camera, please refer to the Installation Guide.

Accessing the Network Camera

1. Start your browser

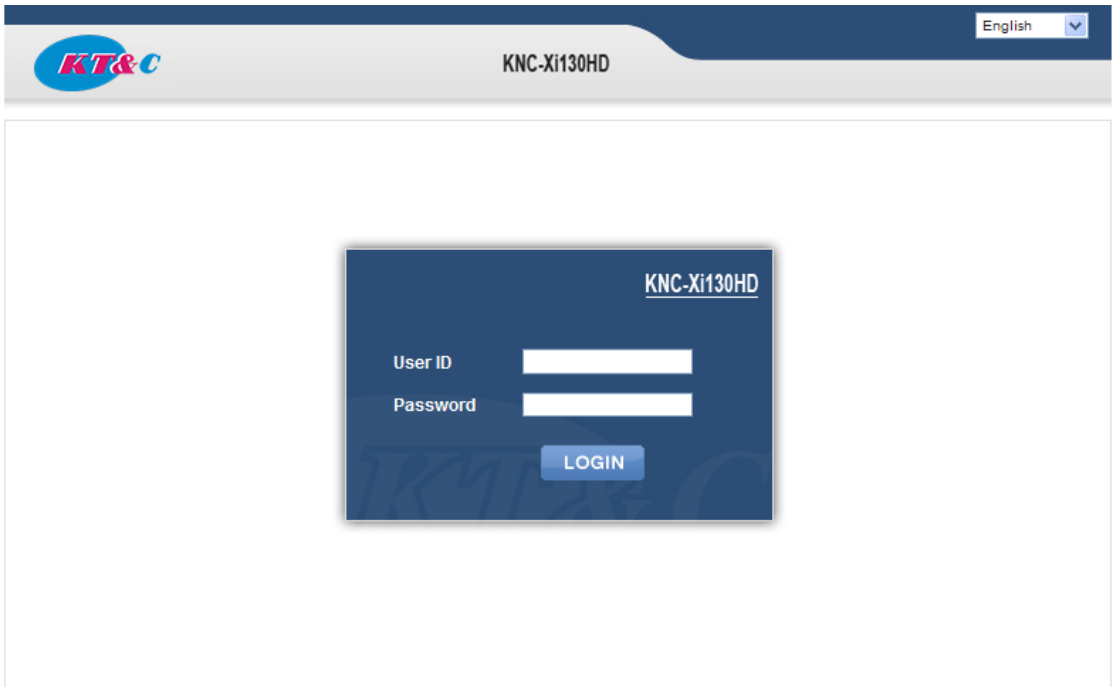
2. Enter the IP address or host name of the Network Camera in the Address field



3. Select the language which you want to use and enter ID and Password.

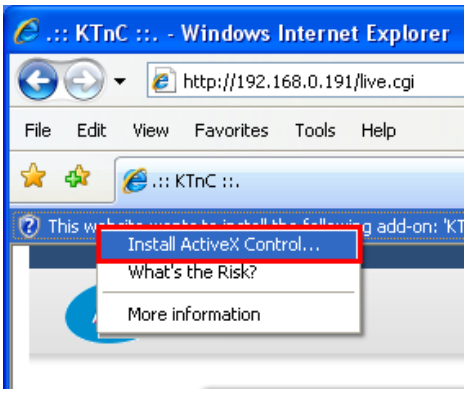
Note: Only administrator can change the language.

*Default User ID and Password is [ID: **admin**, Password: **admin**]*

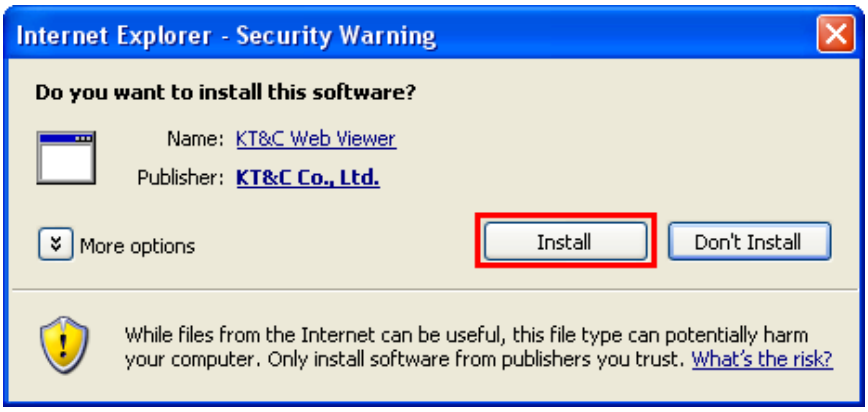


4. If you are accessing the Network Camera for the first time, you will see the warning message as shown below.

5. Click the warning message and select "Install ActiveX Control..."

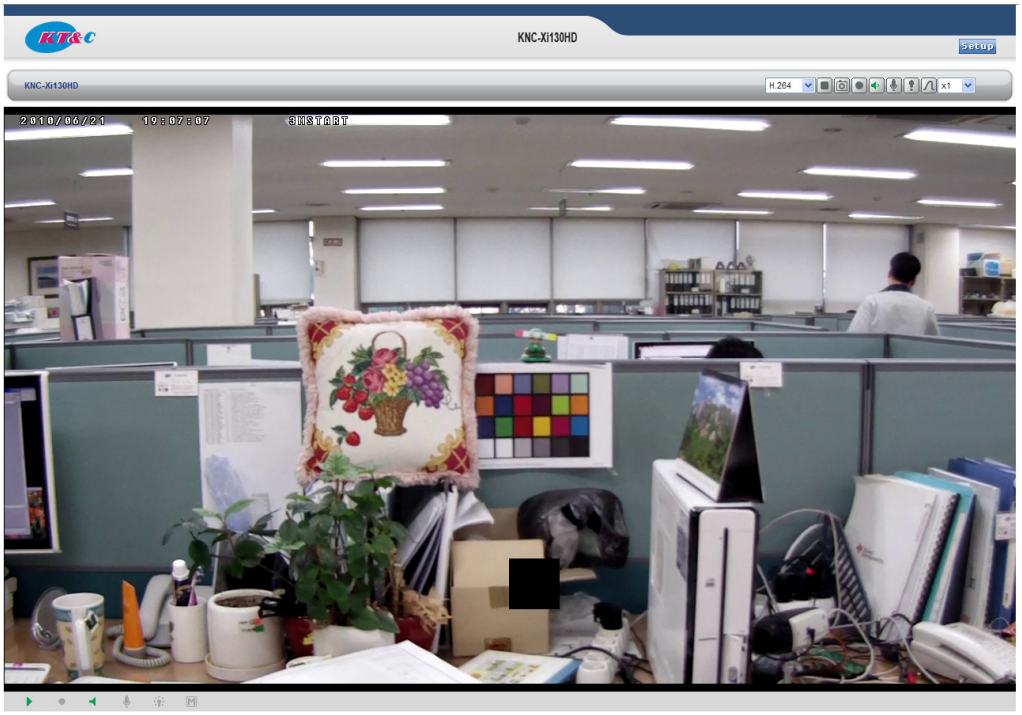


6. Click "Install" to install the KT&C Web Viewer.



7. If the Windows Security Alert pop-up window appears, click the "Unblock" Button.

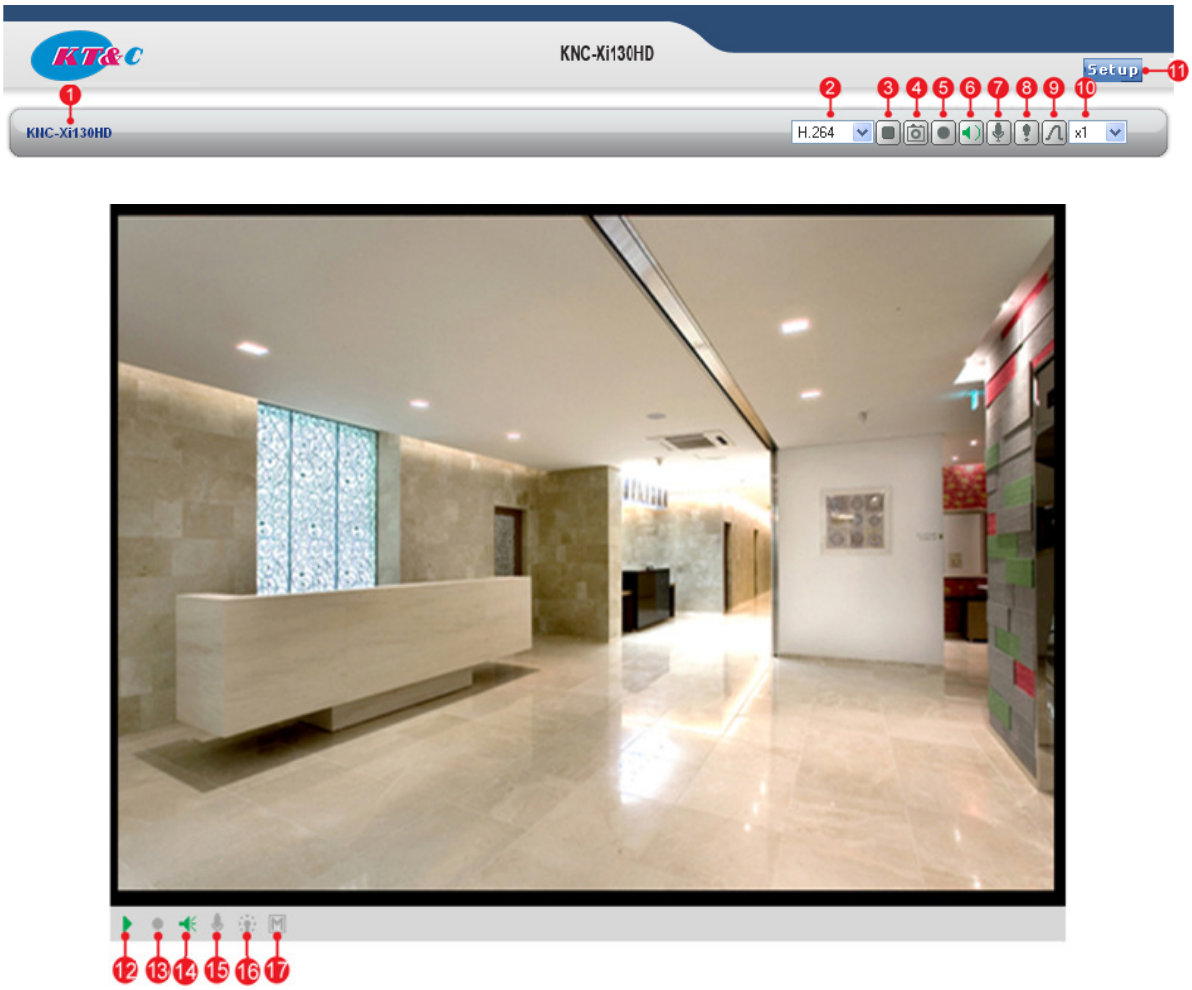
8. After installing the KT&C Web View ActiveX Control, a Live page will be displayed The video image will be displayed in your browser.



Important: To view streaming video in Microsoft Internet Explorer, you must set your browser to allow the KT&C Web Viewer to be installed on your computer. This ActiveX component will be installed when you access the camera for the first time.

Live View page

If the Network Camera has been customized on **Setup>Advanced>Live View Layout**, the buttons and other items shown below may or may not be displayed on the Live View page. The following diagram provides an overview of each available button.



1. **Host Name** – Displays the host name.
2. **Video Format** – The Video Format drop-down list allows the video format to change instantly on the Live View page.
3. **Play/Stop** – The Play/Stop button starts and stops the media stream.
4. **Snapshot** – The Snapshot button takes a snapshot of the live image. The target directory for saving snapshots are ***.../My document/KTNC/Snapshots***
5. **Record** – The Record button is used to record the current video stream to the local hard drive. The target directory for saving video clip are ***.../My document/KTNC/Video***

   Note: Video recording will be terminated automatically after 5 minutes.
6. **Sound/Mute** – Click the Sound/Mute button to switch the sound on or off.
7. **Microphone Control** – Click the Microphone Control Button to switch the microphone on or off.

Note: When user clicks on the microphone, it is allowed to be used only for 1 minute. It turns off automatically after 1 minute.

8. **Manual Trigger** – The Manual Trigger button triggers an event directly from the Live View page. Click this button to manually start the events instantly.
9. **Active/Inactive** – Click this button to manually start and stop the device which is connected to the digital output terminal, such as an alarm or light.

   Pulse – Click this button to activate the digital output terminal for a defined period of time. (e.g. to switch on a light for 10 seconds)
10. **Viewer Magnification** – The magnification drop-down list allows the video screen to amplify or shrink in live view mode. (0.5x, 1x, 1.5x, 2x)
11. **Setup** – Click the button to configure Network Camera. Please refer to Configuring Network Camera, on page 13.
12. **Video Indicator** – - Streaming / - Stopped.
13. **Record Indicator** – - Recording / - Stopped.
14. **Audio Indicator** – - Sound / - Mute.
15. **Microphone Indicator** – - Sound / - Mute.
16. **Alarm Output Indicator** – - Active / - Inactive.
17. **Motion Indicator** – - detected / - Undetected.

Configuring the Network Camera

This section describes how to configure the Network Camera and is intended for:

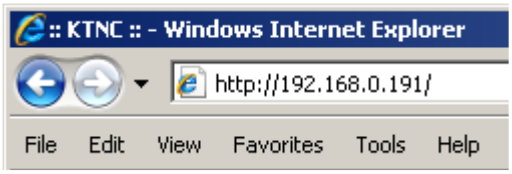
- Administrators, who have unrestricted access to the entire Setup menu.
- Operators, who have access to the Video & Image, Audio, and Event Configuration settings.

The Network Camera is configured from the Setup menu in a standard web browser.

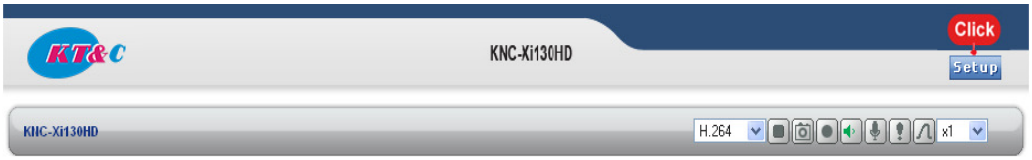
Accessing the Setup menu

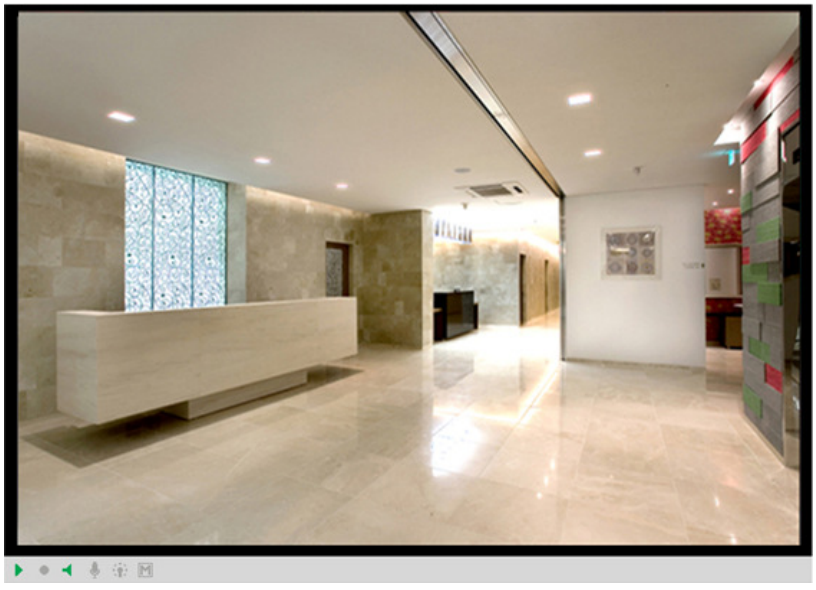
Follow the instructions below to access the Setup menu from a browser.

1. Start the browser and enter the IP address or host name of the Network Camera in the location/address field.



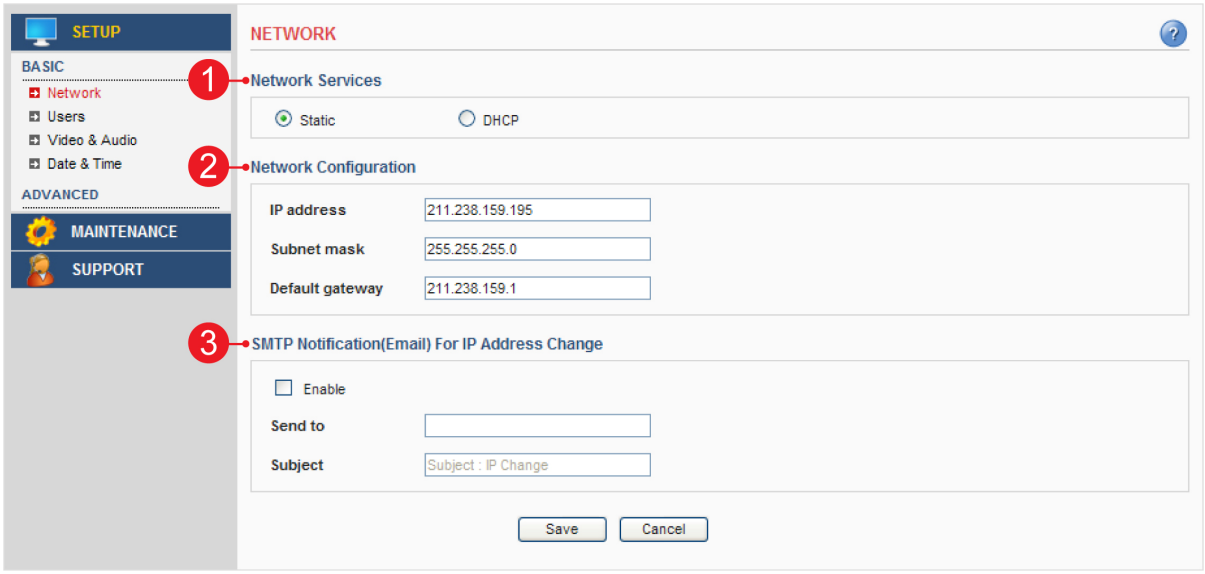
2. The Live View page is now being displayed. Click Setup to display the Setup menu.





Basic > Network

This section describes the basic network settings and SMTP notification. If the SMTP notification feature is enabled, user can receive an IP change notification by e-mail when the IP address is changed by the DHCP server.



1. **Network Services**
   A. Static – Assigns a static IP address manually.
   B. DHCP – Assigns a dynamic IP address automatically from the DHCP server on your network.

   Important: DHCP should be enabled only if you are using the SMTP notification for the IP address change, or if your DHCP server can update a DNS server, which allows you to access the Network Camera by the host name. If DHCP is enabled and you cannot access the unit, then you may have to reset the unit to the factory default and redo the installation again.

2. **Network Configuration**
   A. IP Address – Specify a unique IP address for your Network Camera.
   B. Subnet mask – Specify the mask of the Network Camera located subnet.
   C. Default gateway – Specify the IP address of the default gateway (router) used for connecting devices to the network.

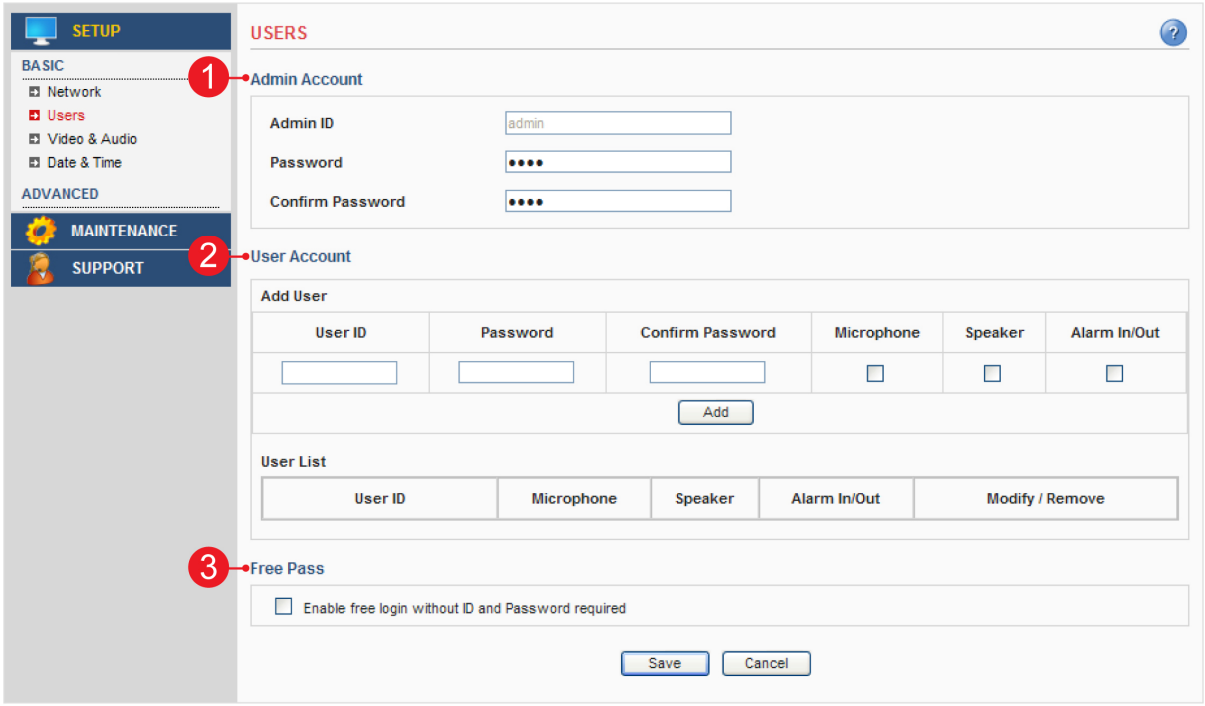
3. **SMTP Notification(E-mail) for IP Address Change**
   A. Send to – Enter the e-mail address of receiver.
   B. Subject – Enter the e-mail subject as desired.

   *Important: Before using the SMTP Notification for IP address change, SMTP server has to be set on **Advanced > SMTP.***

Note: DHCP is a protocol for automatic IP address assignment on a network. IP address assignment via DHCP may lead to a situation where the IP address changes and you lose connection with the Network Camera. Enable the SMTP Notification of IP address change to receive a notification from the Network Camera when the IP address changes.

Basic > Users

This section describes the administrator and user account settings. Each user can be configured to different authority levels.



1. **Admin Account**
   A. Admin ID – Enter the administrator ID.
   B. Admin Password – Enter the administrator password.
   Important: Factory default value is ID: ***admin****, Password:* ***admin****.*

2. **User Account**
   A. Add User – Add a user account. Enter the user ID and Password. Each user can be configured to a different level of authority for MIC, Speaker, Alarm In/Out, PTZ, etc.
   B. User List – Displays list of authorized user for the network camera. Click the modify button to modify the authority. Click the remove button to erase the user account.

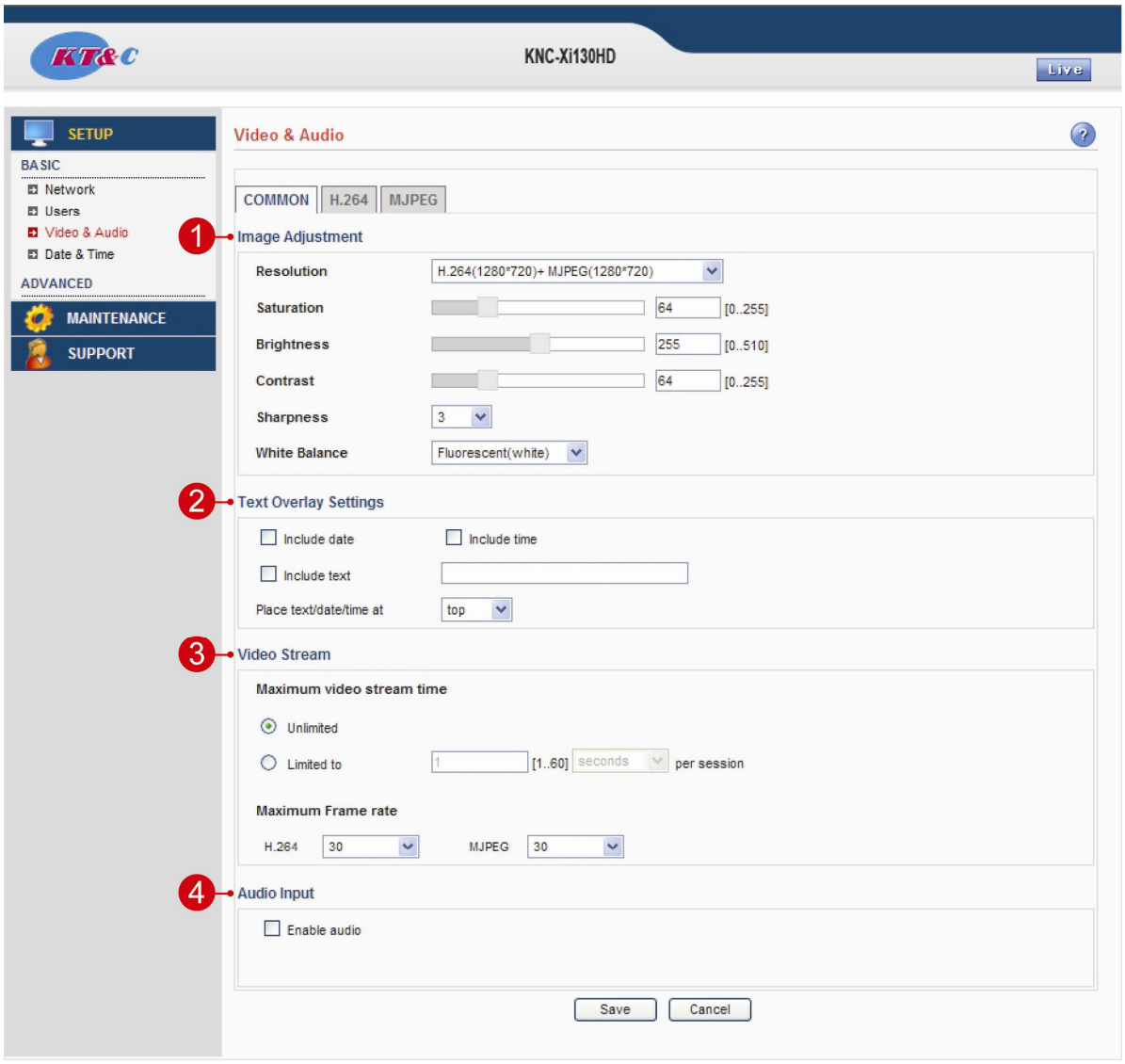
3. **Free Pass**
   - Free Pass means that anybody on the network can access the Network Camera and its images (but not the Setup tools) from a browser without login in to the unit. To enable the feature, check the box to Enable Free Pass.

   Important: If this feature is enabled, all users can access the Live View page without a login process. If the Network Camera is installed at an area needing privacy, this feature must be disabled.

Basic > Video & Audio > Common

This section the basic settings for video and audios.

Important: These setting values will affect the original video and images.



1. **Image Adjustment**
   A. Resolution – Select the resolution to use for the H.264 and JPEG image.
   B. Video Format – Select the analog video format.

   Note: video format is selectable only for 1280x1024 resolution.

   When the ip camera is being installed, the installer may use this function for easy orientation and focusing

   C. Saturation – Select an appropriate level by entering a value in the range between 0-255. Lower values mean less color saturation and the value 255 gives maximum color saturation.
   D. Brightness – The image brightness can be adjusted in the range between 0-510, where a higher value produces a brighter image.

E. Contrast – The image contrast can be adjusted in the range between 0-255, where a higher value produces a high contrasted image.

F. Sharpness – The image sharpness can be adjusted by selecting values, where a higher value produces a sharper image.

G. White Balance – The image quality can be modified by selecting one of the white balance modes. If manual mode is selected the Red gain and the Blue gain should be set to a value between 1 to 16384.

2. Text Overlay Settings

A. Include date – Includes date in the video image as configured.

B. Include time – Includes time in the video image as configured.

C. Include text –Enter your own text in the field to overlay text in the video image.

Note: The maximum number of characters in this field is 17 characters.
You can see the whole text (max 17 characters) in the video image. But if you use 320x240 resolution, you can only view up to 2 characters.

D. Place text/date/time at – Select top or bottom position to display text, date, time.

3. **Video Stream**

A. Maximum video stream time – This feature is used to limit the length of time that the streaming is displayed. Set unlimited or set the maximum time in seconds, minutes or hours. When the set time has expired, a new stream can be started by refreshing the page in the browser.

B. Maximum Frame rate - This feature is used to limit the frame rate. The frame rate can be set by selecting values from the drop down list.

Note: The maximum video stream time does not apply to clients connected via CMS (Central Monitoring System) software.

4. **Audio Input**

A. Enable audio - Check this box to enable audio functionality

B. Source – Select an audio input source between the microphone or line level input.

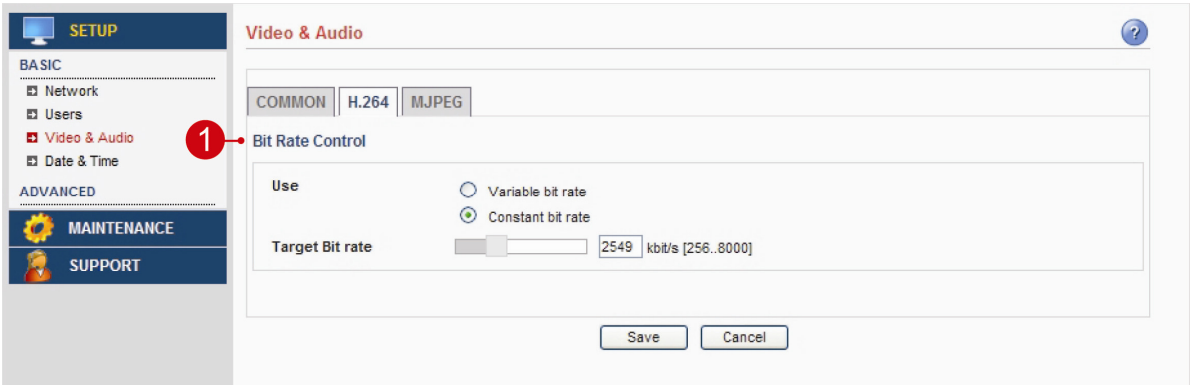
C. Encoding – Select the digital audio encoding format to use.

D. Bit rate – Depending on the selected encoding, set the required bit rate (audio quality). Higher the bit rate, Greater the bandwidth required.

Basic > Video & Audio > H.264

This section describes the basic setting for the H.264.

Note: These setting values do not apply to the MJPEG video.



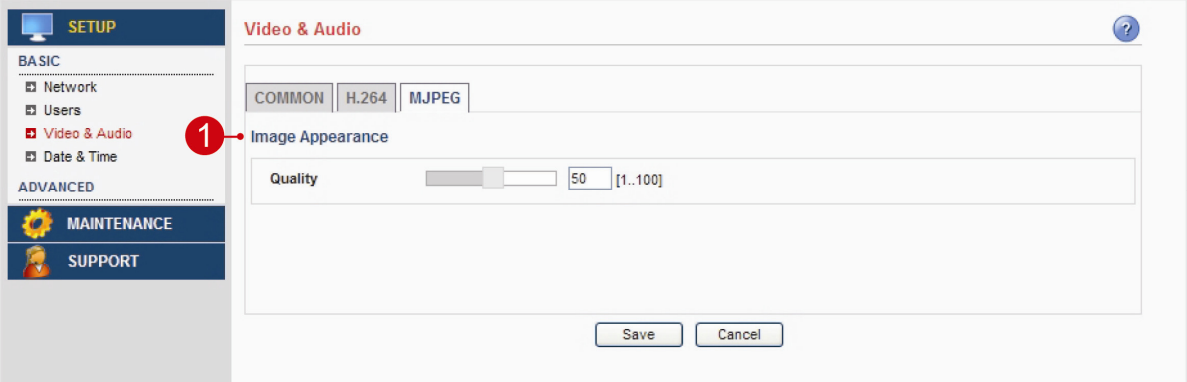
1. **Bit Rate Control**
   A. Variable bit rate (VBR) – Set the Network Camera to produce the variable bit rate H.264 video.
   B. Constant bit rate (CBR) – Set the Network Camera to produce the constant bit rate H.264 video.
   C. Target bit rate – The target bit rate can be adjusted in the range 256Kbps-8000Kbps. High value improves video quality, but uses more bandwidth.

   Note: When the variable bit rate is applied, the target bit rate will be a maximum bit rate of the VBR H.264 video. If the constant bit rate is applied, the bit rate of CBR H.264 video will be fixed to the target bit rate.

Basic > Video & Audio > MJPEG

This section describes basic setting for MJPEG video.

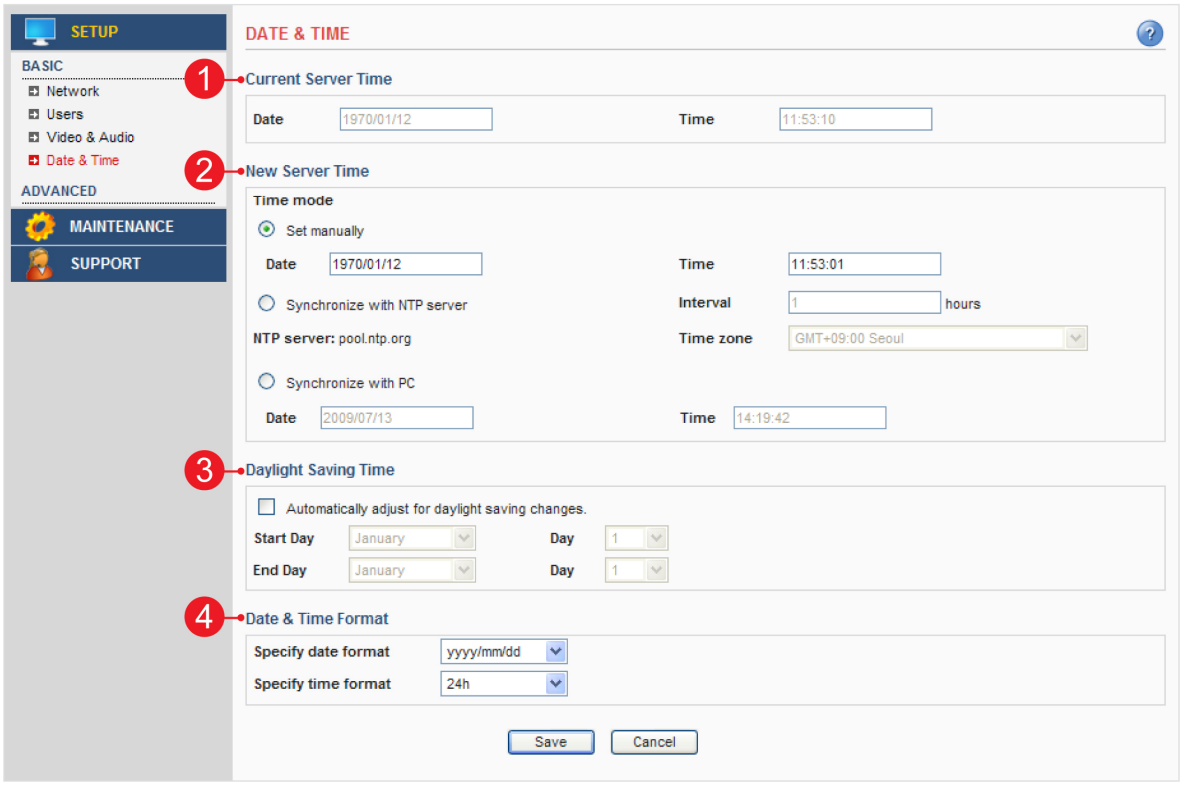
Note: These setting values do not apply to H.246 video.



1. **Image Appearance**
   A. Quality – Changing the image quality affects the amount of bandwidth required. High value improves image quality, but uses more bandwidth.

Basic > Date & Time

This section describes about the date and time settings.



1. **Current Server Time**
   A. Date – Displays current date of Network Camera.
   B. Time – Displays current time of Network Camera.

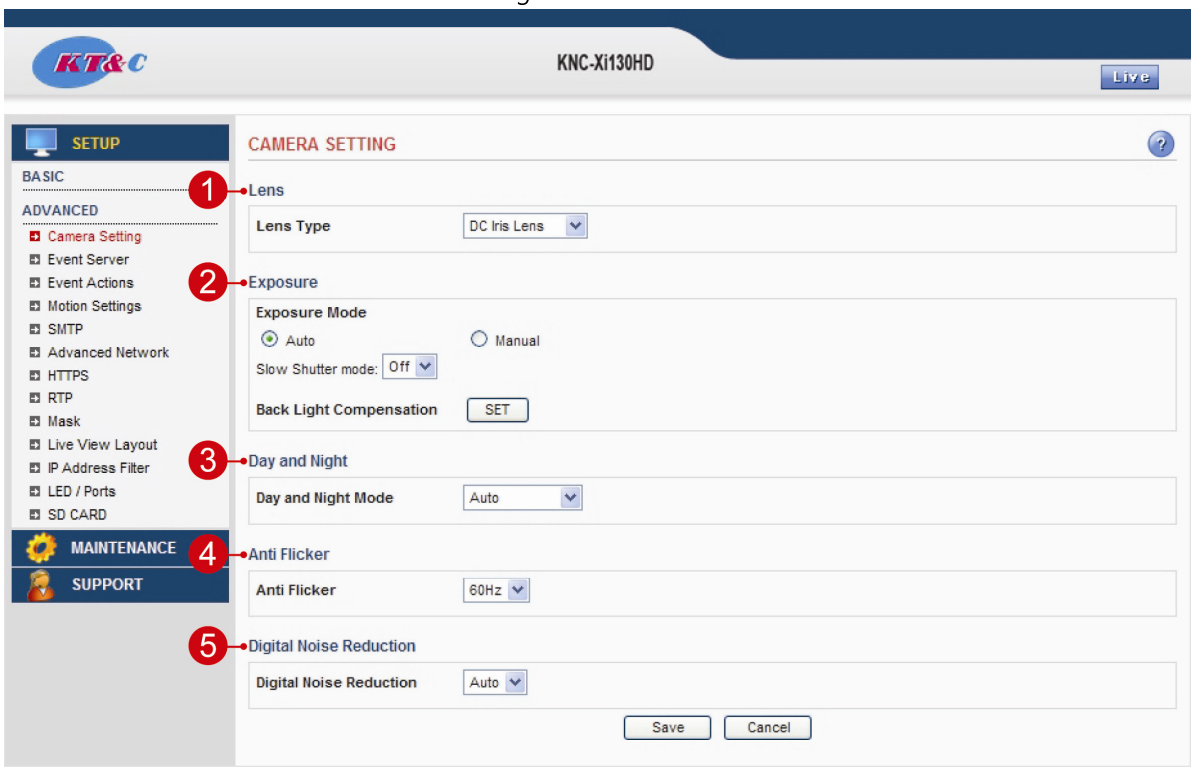
2. **New Server Time**
   A. Set manually – Using this option allows you to enter the time and date manually.
   B. Synchronize with NTP server – The Network Camera will sync the time with a NTP server. The NTP server's IP address or host name is specified in the *Setup>Advanced Network>NTP Setting*
   C. Synchronize with PC – sync the time with a local computer.

3. **Daylight Saving Time**
   - Enable this feature to adjust automatically to the daylight savings time.
   - Set the start and end date.

4. **Date & Time Format**
   - This format will be used when displaying the date and time as overlay in the video image.

Advanced > Camera Setting

This section describes the advanced settings of the camera.



1. **Lens**
   - Lens Type – The camera lens type can be selected from the drop down list.

2. **Exposure**
   - Exposure Mode – The camera's exposure mode can be set to auto or manual by selecting Auto/Manual.

   A. Auto – The ip camera will adjust the exposure automatically.
   Slow Shutter mode – This will allow more light in the ip camera so that even a low lit scene can produce a good image, but at the expense of increased motion blur.

   B. Manual – The exposure in the ip camera can be controlled manually by Max gain and shutter speed.

   C. Back Light Compensation - Backlight compensation makes the subject appear clearer when the image background is too bright, or the subject is too dark.

2. **Day and Night**
   - Day and Night Mode – The day and night mode can be selected from the drop down list.

A. Auto – the camera will automatically switch between IR cut filter On and Off, according to the current lighting conditions.
Color – the ip camera will always stay in color mode.
Black and White – This camera will be able to "see" infrared light, e.g. at night., thus making the image clearer.

3. Anti Flicker

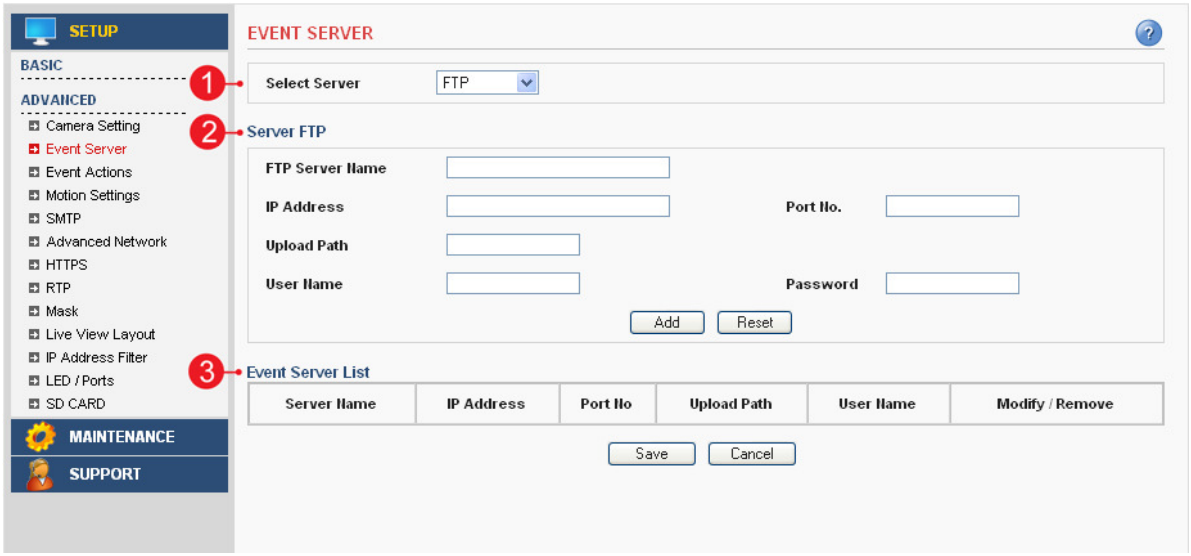
- Anti Flicker – This setting is used to remove 50/60 Hz flicker.

4. Digital Noise Reduction

- Digital Noise Reduction – The digital noise reduction can help depress noise under low light situation but also blur some of the image detail. So it is better to set this value higher under low light situation, and set it lower under good light condition.

Advanced > Event Server

This section describes configuring the event server used in the event action section.



1. **Select Server**

   A. Select the server type to configure. Configuration is only available for FTP servers.

2. **Server FTP**

   - FTP Server Name – Enter the any descriptive name.
   - IP Address – Enter the server's IP address or host name.

   *Important: DNS server must be specified in the **Setup>Advanced>Advanced network** if you are using a host name.*

   - Port No. – Enter the port number used by the FTP server. The default is 21.
   - Upload Path – Specify the path to the directory where the uploaded images will be stored. Note that a directory must be created in the FTP server before using this feature.
   - User Name – Enter the User ID.
   - Password – Enter the Password.

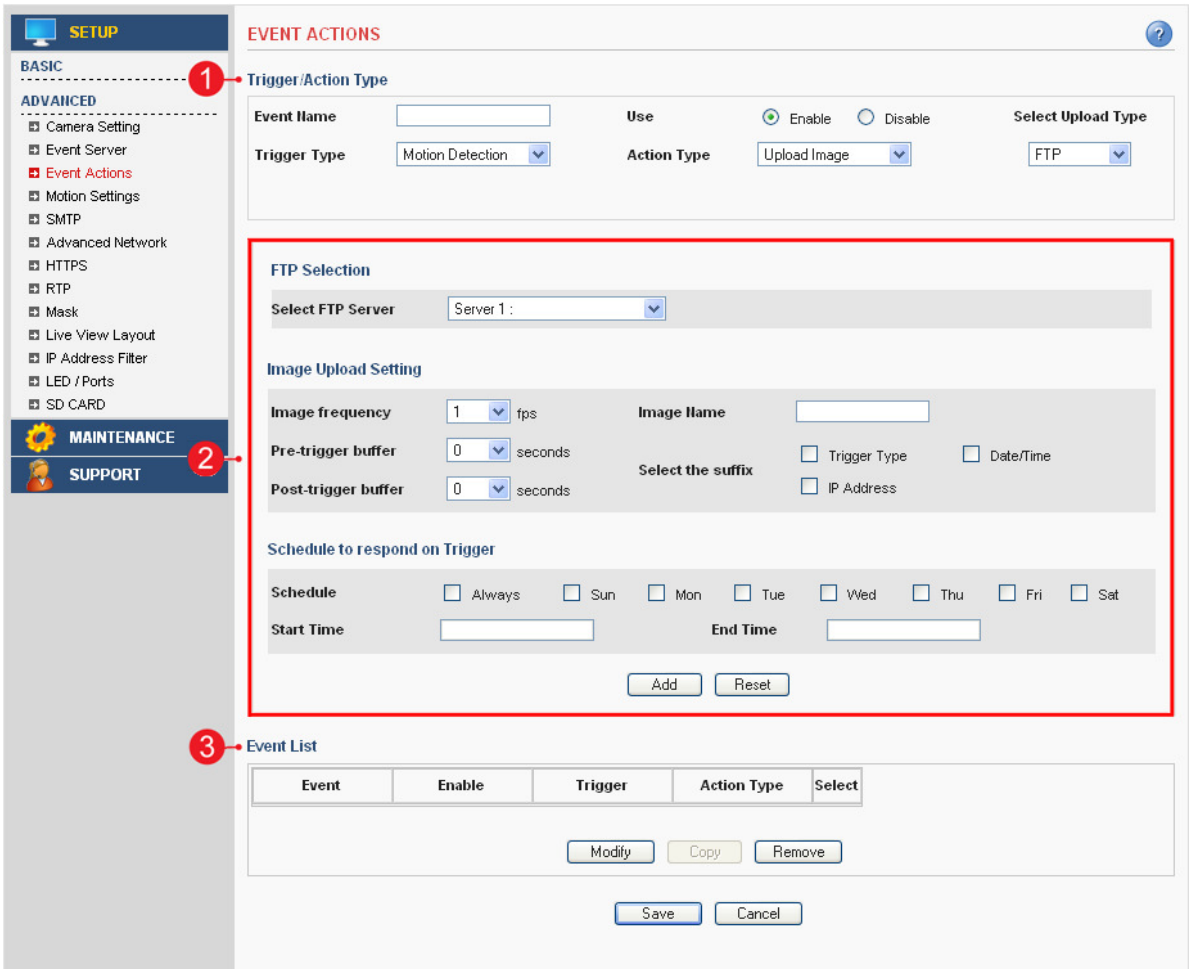
3. **Event Server List**

   - Display all of the configured servers. Click modify button to modify setting values. Click remove button to erase the event server.

   Note: A total of 3 event servers can be configured.

Advanced > Event Actions

This section describes how to configure the Network Camera for event handling. Various actions can be configured to run when certain types of event occur.



1. **Trigger / Action Type**

   A. Defines the trigger type or action type.

2. **Action Configuration**

   - Configures parameters of event action describing how and when the Network Camera is going to perform the certain actions.

3. **Event List**

   - Displays all of the configured actions. Click the modify button to modify the setting values. Click the remove button to erase the event action.

Prepare to configure event action

Event Servers are used for receiving uploaded image files and/or notification messages. To set up an Event server for your Network Camera, go to **Setup>Advanced>Event Server or Setup>Advanced>SMTP** and enter the required information according to the selected server type.

Note: When High image resolution and/or lower compression levels is used for uploading images to SD card or FTP server, SMTP server, individual images may be missing.
If this occurs, Lower image resolution and/or lower compression levels must be used for seamless uploading.

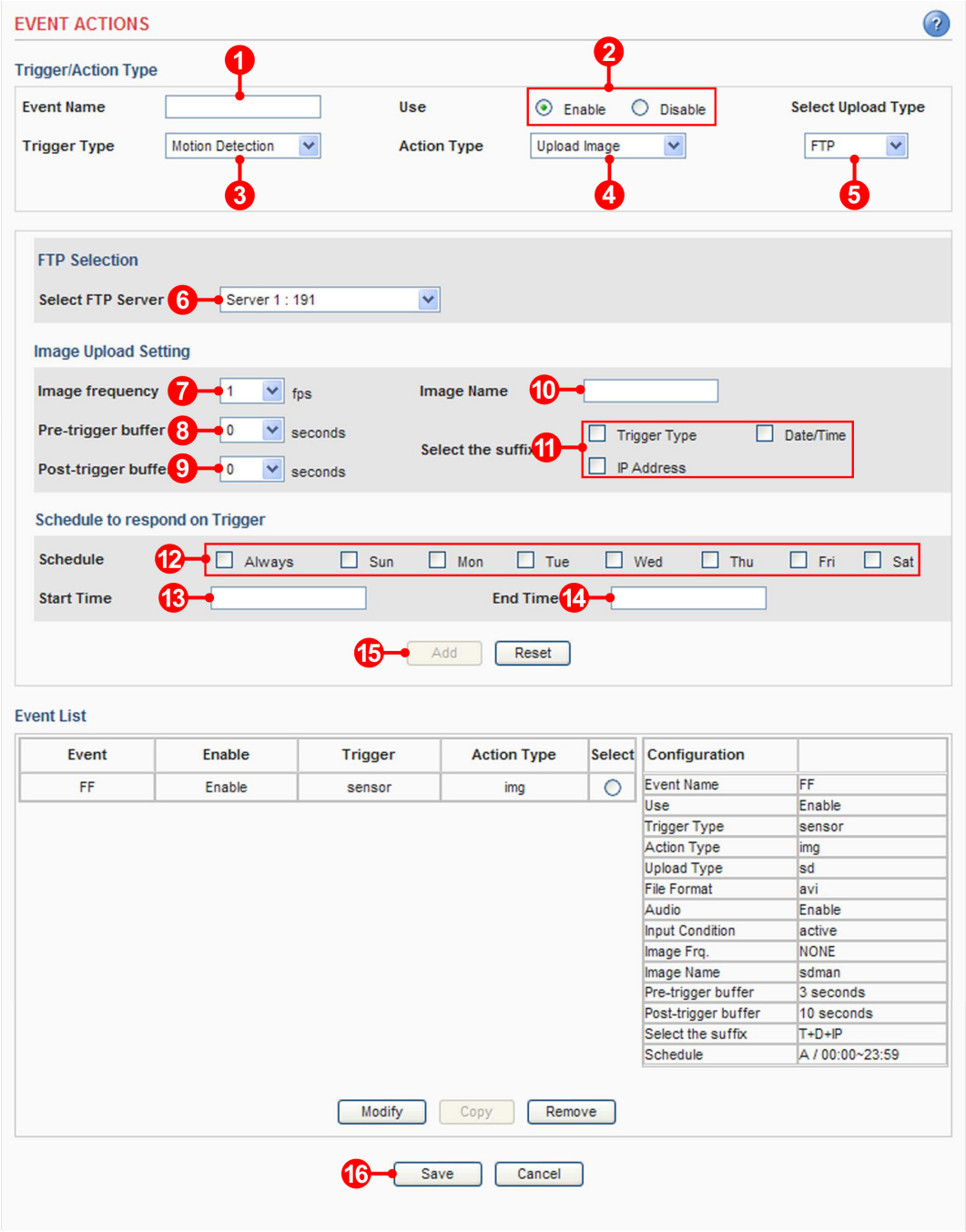
Server Type	Purpose	Information required
FTP Server	Receives uploaded images	● Descriptive name of your choice ● User Name and Password (to FTP server) ● Upload path ● Port number
E-mail (SMTP)	Receives uploaded images Receives notification messages	● Descriptive name of your choice ● User Name and Password (to SMTP server)

Variation of event action configuration

Trigger Type	Action Type	Upload Type	Consequence
Motion detection	Upload image	FTP	Upload images to FTP server
		E-mail	Upload images via E-mail.
		SD CARD	Save images or videos to SD card
	Activate output		Activate digital output
	E-mail notification		Send a notification message
Sensor in	Upload image	FTP	Upload images to FTP server
		E-mail	Upload images via E-mail.
		SD CARD	Save images or videos to SD card
	Activate output		Activate digital output
	E-mail notification		Send a notification message
Manual Trigger	Upload image	FTP	Upload images to FTP server
		E-mail	Upload images via E-mail.
		SD CARD	Save images or videos to SD card
	Activate output		Activate digital output
	E-mail notification		Send a notification message
Network Fail	Upload image	SD CARD	Save images or videos to SD card
	Activate Output		Activate digital output.
SD Card Scheduling	Upload image	SD CARD	Save videos to SD card
Reboot	E-mail notification		Send a notification message

Note: SD card recording can be used only by one trigger type at the same time.

Action configuration for [Motion Detection + Upload Image + FTP]



1. Enter a descriptive event name.
2. Select the enable
3. Select the trigger type to motion detection.
4. Select the action type to upload image.
5. Select the upload type to FTP.
6. Select the FTP server that will receive uploaded image files.
7. Select the image frequency. (frame per second)

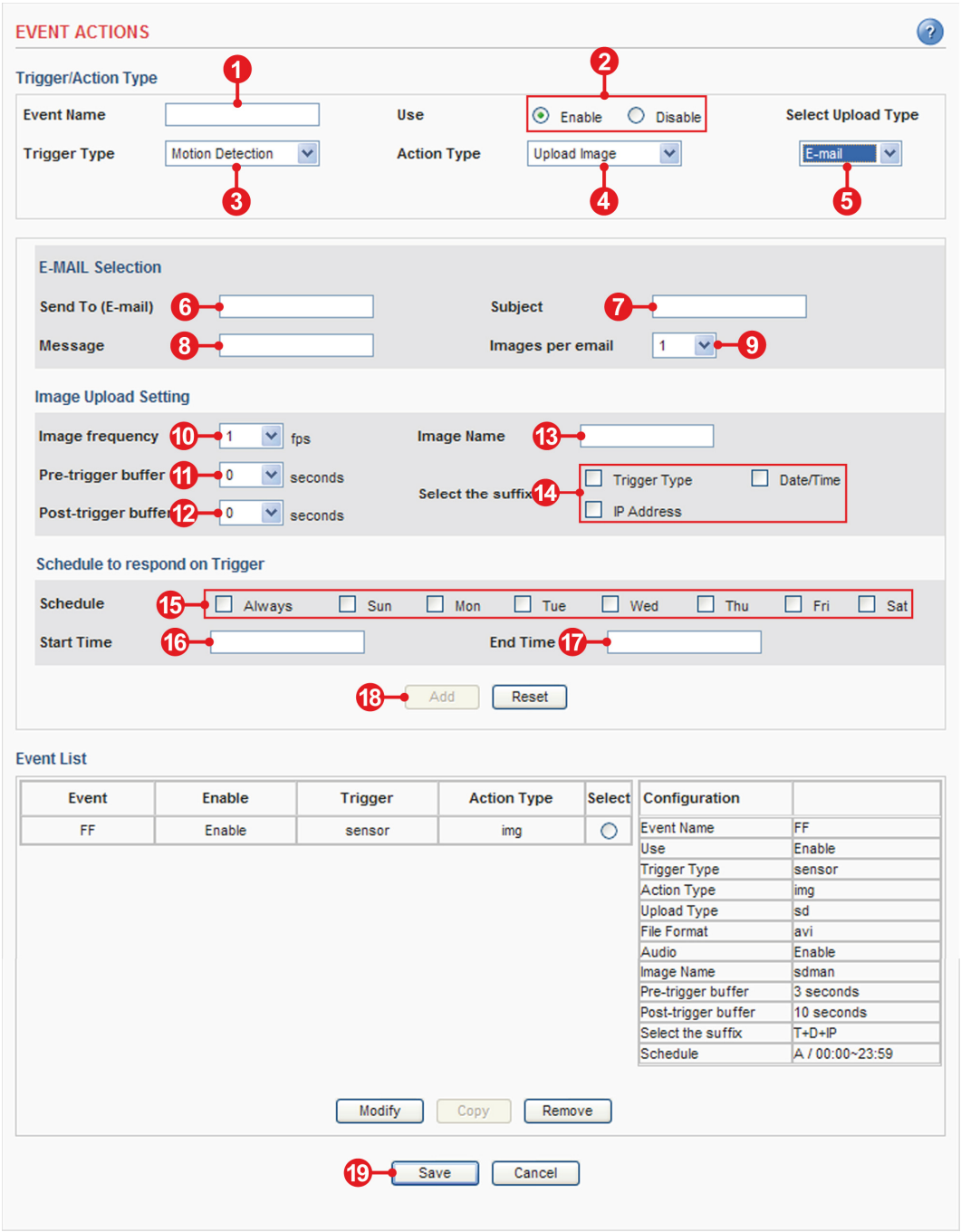
8. Select the pre-trigger buffer.
9. Select the post-trigger buffer.
10. Enter a descriptive image name.
11. Select the suffix of image name.
12. Select the schedule by a day of the week.
13. Enter the start time in a 24hour format.
14. Enter the end time in a 24hour format.
15. Click the Add button to add configuration on the event list.
16. Click the Save button to save configuration.

Note: ***Pre-trigger buffer*** *- A pre-trigger buffer contains images/video from the time immediately preceding the trigger. These are stored internally in the camera. This buffer can be very useful when checking to see what caused the trigger.*

Post-trigger buffer *- This function is the counterpart to the pre-trigger buffer described above and contains images/video from the time immediately after the trigger.*

Important: Image frequency and Pre-trigger buffer can be changed depending on the settings of JPEG frame rate.

Action configuration for [Motion Detection + Upload Image + E-mail]



1. Enter a descriptive event name.
2. Select the enable.
3. Select the trigger type to motion detection.
4. Select the action type to upload image.
5. Select the upload type to E-mail.
6. Enter the e-mail address which receives image files.
7. Enter a descriptive subject.

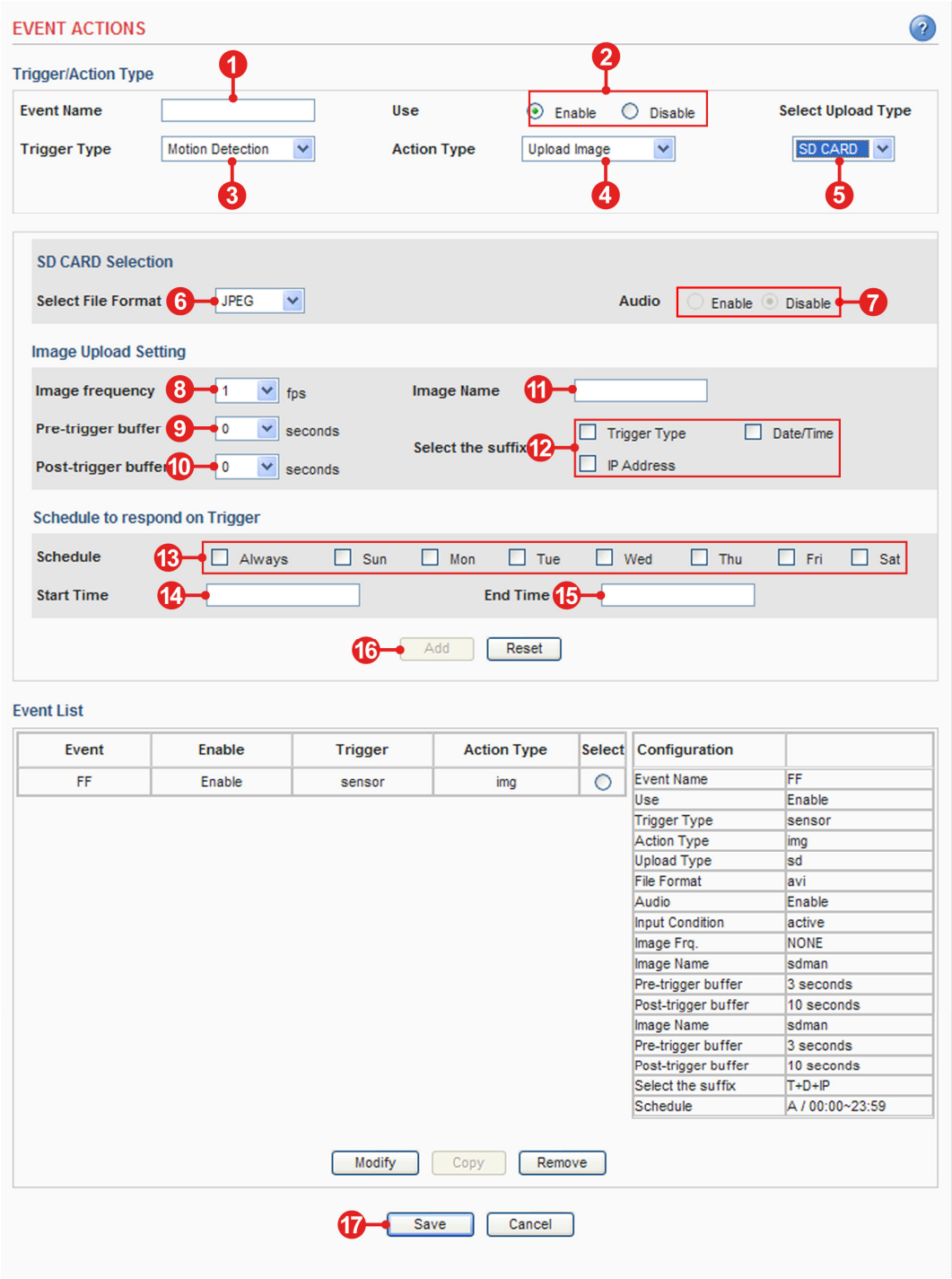
8. Enter a descriptive message.
9. Select the number of images.
10. Select the image frequency. (frame per second)
11. Select the pre-trigger buffer.
12. Select the post-trigger buffer.
13. Enter a descriptive image name.
14. Select the suffix of image name.
15. Select the schedule by a day of the week.
16. Enter the start time in a 24hour format.
17. Enter the end time in a 24hour format.
18. Click the Add button to add configuration on the event list.
19. Click the Save button to save configuration.

Note: ***Pre-trigger buffer*** *- A pre-trigger buffer contains images/video from the time immediately preceding the trigger. These are stored internally in the camera. This buffer can be very useful when checking to see what caused the trigger.*

Post-trigger buffer *- This function is the counterpart to the pre-trigger buffer described above and contains images/video from the time immediately after the trigger.*

Important: Image frequency and Pre-trigger buffer can be changed depending on the settings of JPEG frame rate.

Action configuration for [Motion Detection + Upload Image + SD Card]



1. Enter a descriptive event name.
2. Select the enable.
3. Select the trigger type to motion detection.
4. Select the action type to upload image.
5. Select the upload type to SD CARD.
6. Select the recording file format.

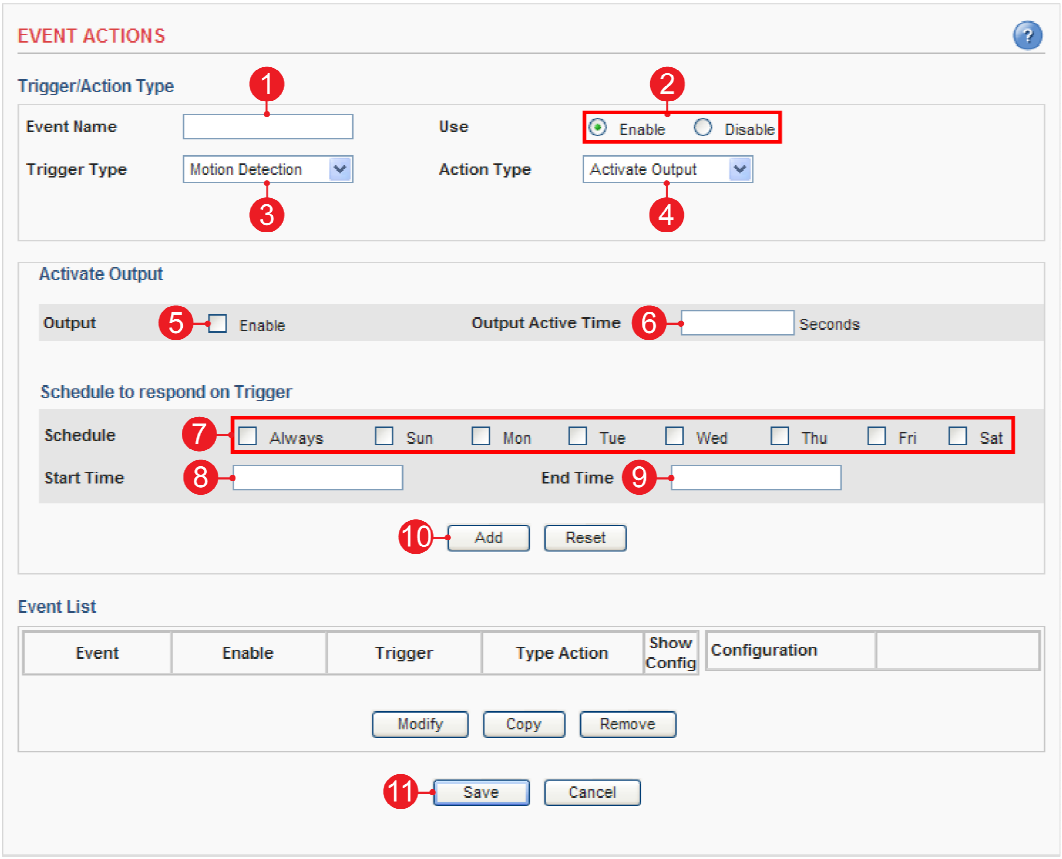
7. Enable or disable the Audio.
   Note: When select the JPEG file format, the audio will be disabled.
8. Select the image frequency. (frame per second)
   Note: When select the AVI file format, the image frequency will be disabled.
9. Select the pre-trigger buffer.
10. Select the post-trigger buffer.
11. Enter a descriptive image name.
12. Select the suffix of image name.
13. Select the schedule by a day of the week.
14. Enter the start time in a 24hour format.
15. Enter the end time in a 24hour format.
16. Click the Add button to add configuration on the event list.
17. Click the Save button to save configuration.

Note: ***Pre-trigger buffer*** *- A pre-trigger buffer contains images/video from the time immediately preceding the trigger. These are stored internally in the camera. This buffer can be very useful when checking to see what caused the trigger.*

Post-trigger buffer *- This function is the counterpart to the pre-trigger buffer described above and contains images/video from the time immediately after the trigger.*

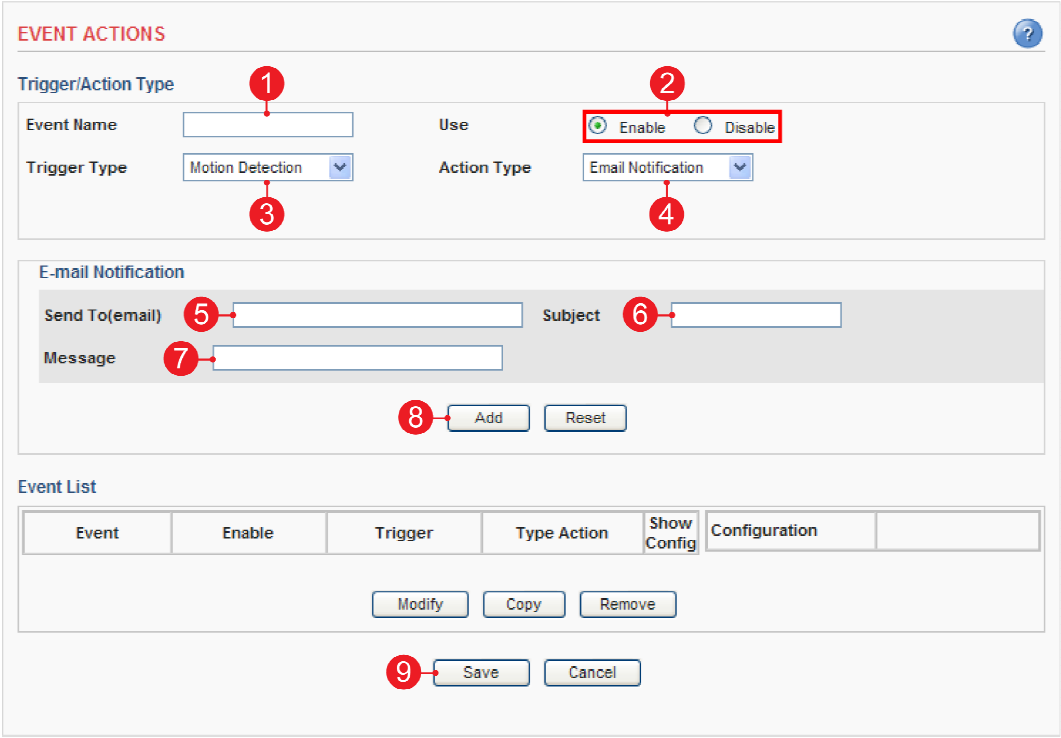
Important: Image frequency and Pre-trigger buffer can be changed depending on the settings of JPEG frame rate.

Action configuration for [Motion Detection + Activate output]



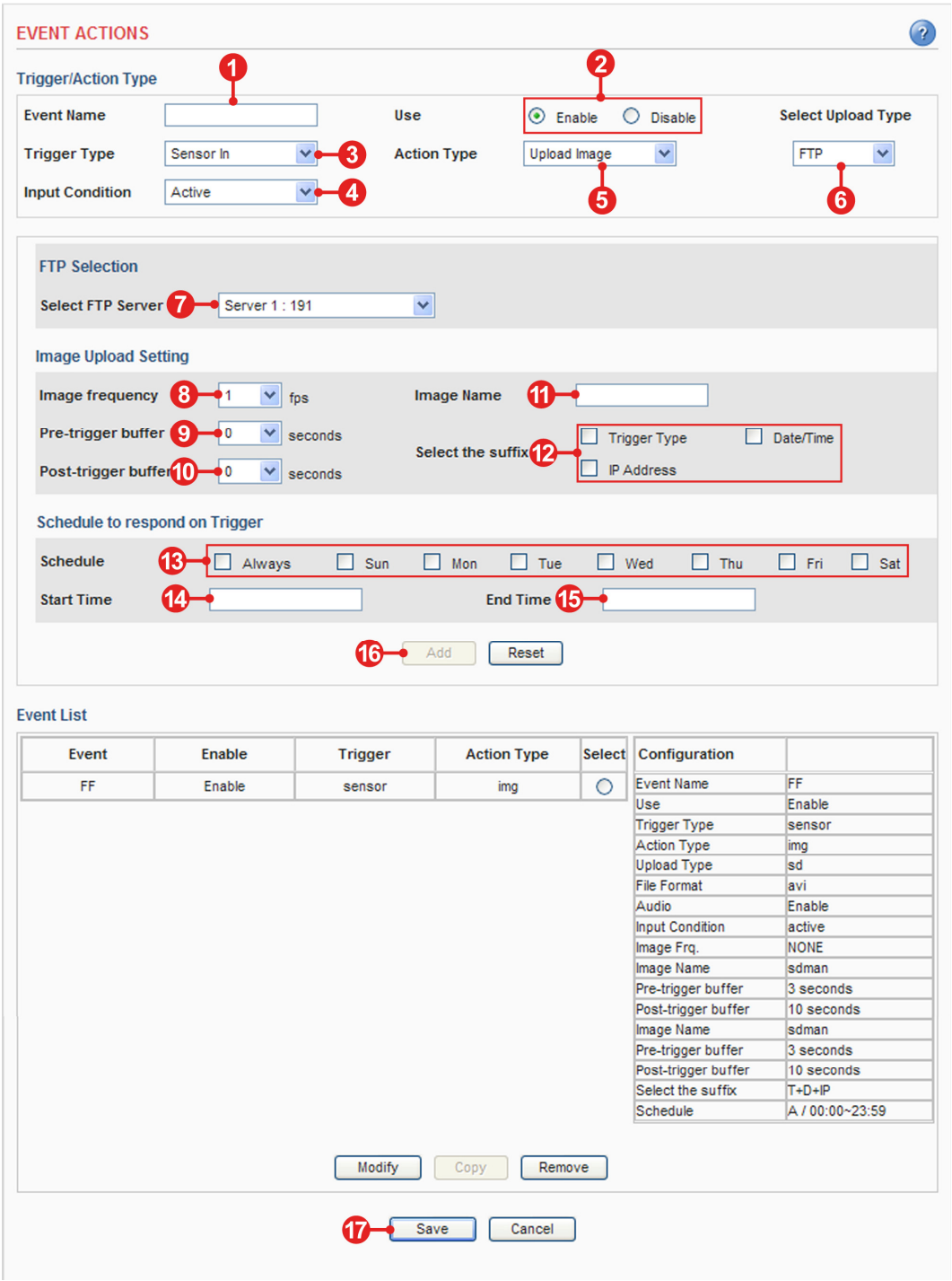
1. Enter a descriptive event name.
2. Select the enable.
3. Select the trigger type to motion detection.
4. Select the action type to activate output.
5. Check the enable.
6. Enter the output active time.
7. Select the schedule by a day of the week.
8. Enter the start time in a 24hour format.
9. Enter the end time in a 24hour format.
10. Click the Add button to add configuration on the event list.
11. Click the Save button to save configuration.

Action configuration for [Motion Detection + E-mail Notification]



1. Enter a descriptive event name.
2. Select the enable.
3. Select the trigger type to motion detection.
4. Select the action type to e-mail notification.
5. Enter the e-mail address which receives notification.
6. Enter a descriptive subject.
7. Enter a descriptive message.
8. Click the Add button to add configuration on the event list.
9. Click the Save button to save configuration.

Action configuration for [Sensor Input + Upload Image + FTP]



1. Enter a descriptive event name.
2. Select the enable.
3. Select the trigger type to sensor in.
4. Select the input condition
   A. Active – Event will trigger when the input condition is active.

B. Inactive – Event will trigger when the input condition is inactive.
C. Change – Event will trigger when input condition is changed.

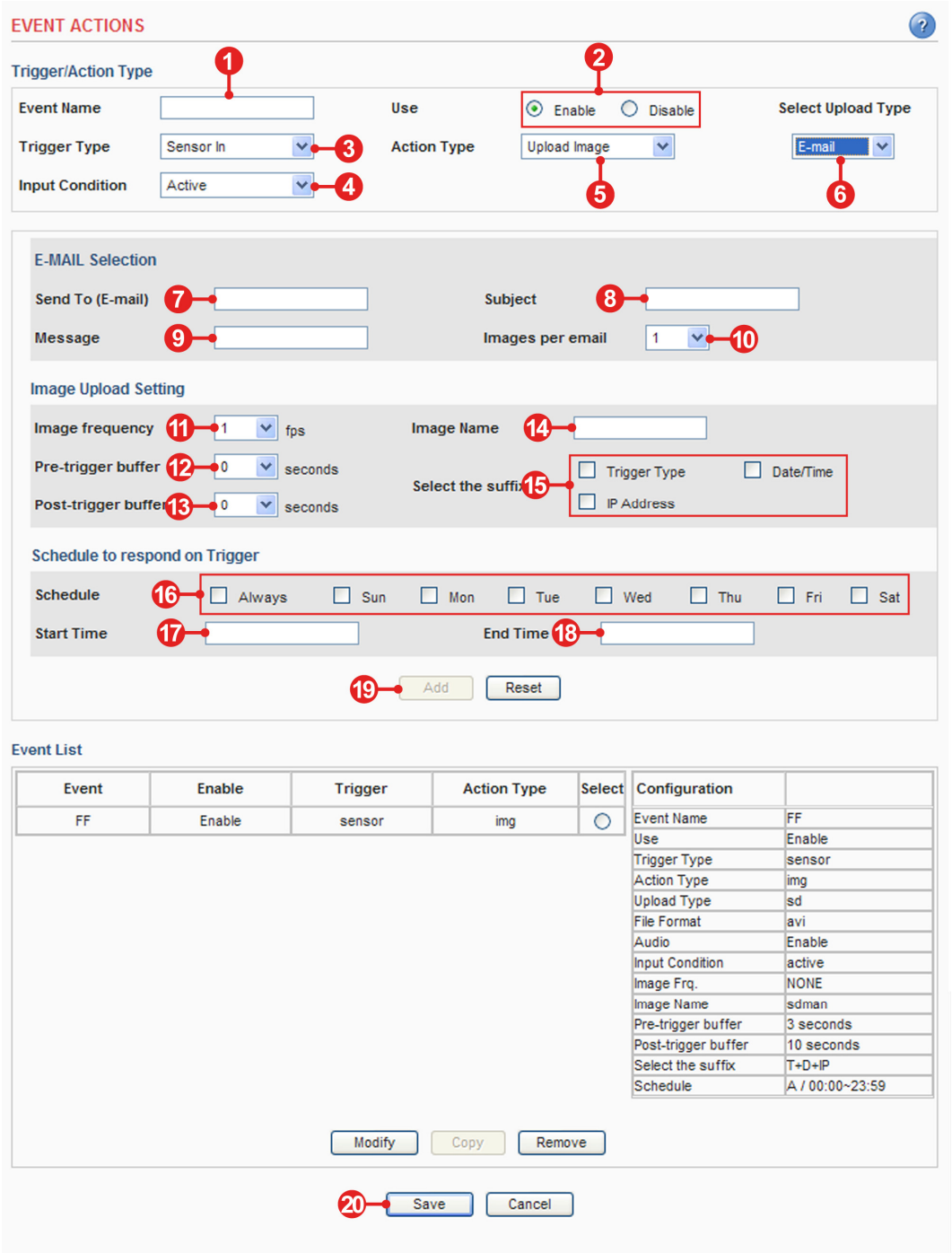
5. Select the action type to upload image.
6. Select the upload type to FTP.
7. Select the FTP server that receives uploaded image files.
8. Select the image frequency. (frame per second)
9. Select the pre-trigger buffer.
10. Select the post-trigger buffer.
11. Enter a descriptive image name.
12. Select the suffix of image name.
13. Select the schedule by a day of the week.
14. Enter the start time in a 24hour format.
15. Enter the end time in a 24hour format.
16. Click the Add button to add configuration on the event list.
17. Click the Save button to save configuration.

Note: ***Pre-trigger buffer*** *- A pre-trigger buffer contains images/video from the time immediately preceding the trigger. These are stored internally in the camera. This buffer can be very useful when checking to see what caused the trigger.*

Post-trigger buffer *- This function is the counterpart to the pre-trigger buffer described above and contains images/video from the time immediately after the trigger.*

Important: Image frequency and Pre-trigger buffer can be changed depending on the settings of JPEG frame rate.

Action configuration for [Sensor Input + Upload Image + E-mail]



1. Enter a descriptive event name.
2. Select the enable.
3. Select the trigger type to sensor in.
4. Select the input condition
   A. Active – Event will trigger when input condition is active.
   B. Inactive – Event will trigger when input condition is inactive.

C. Change – Event will trigger when input condition is changed

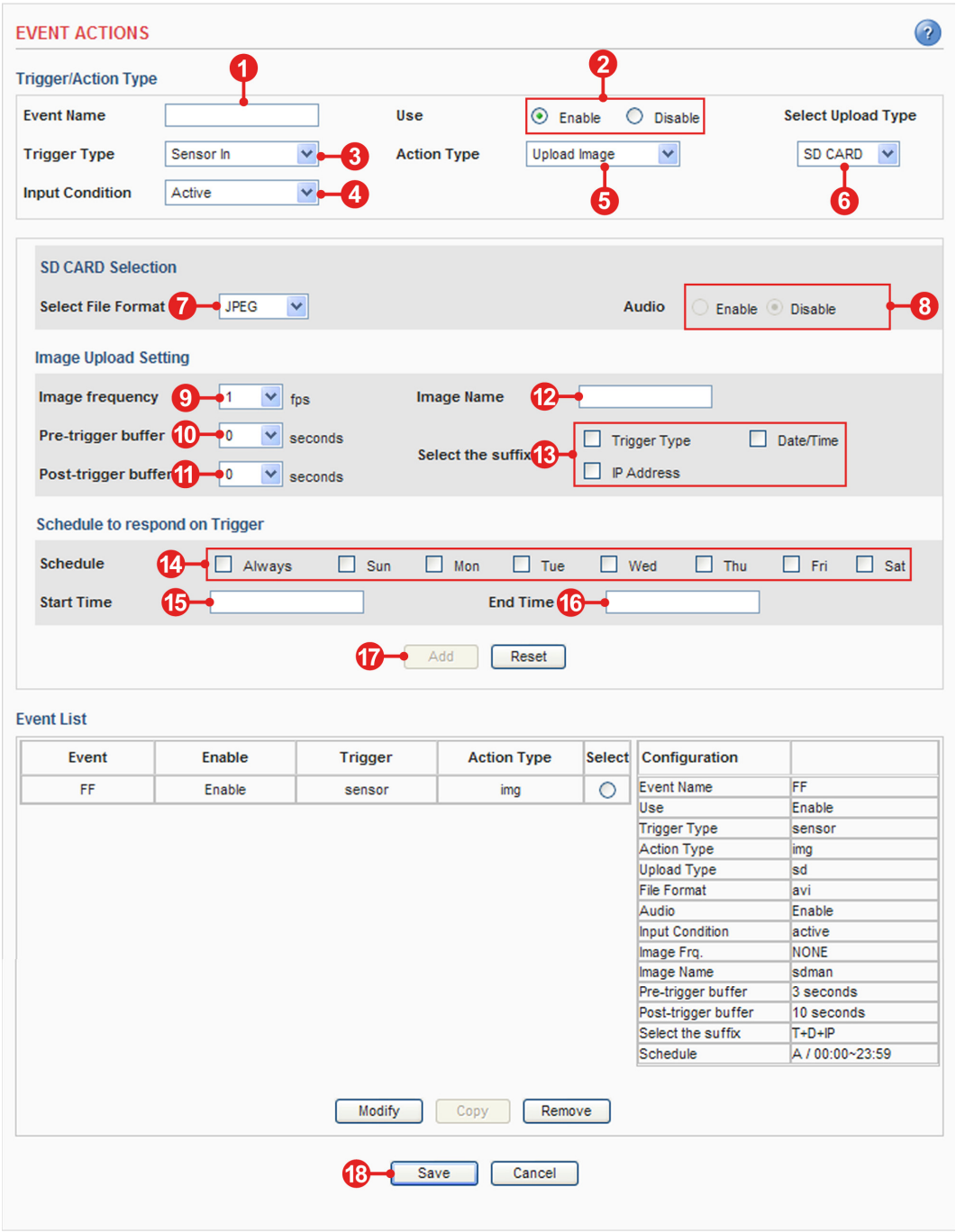
5. Select the action type to upload image.
6. Select upload type to E-mail.
7. Enter the e-mail address which receives image files.
8. Enter a descriptive subject.
9. Enter a descriptive message.
10. Select the number of images.
11. Select the image frequency. (frame per second)
12. Select the pre-trigger buffer.
13. Select the post-trigger buffer.
14. Enter a descriptive image name.
15. Select the suffix of image name.
16. Select the schedule by a day of the week.
17. Enter the start time in a 24hour format.
18. Enter the end time in a 24hour format.
19. Click the Add button to add configuration on the event list.
20. Click the Save button to save configuration.

Note: ***Pre-trigger buffer*** *- A pre-trigger buffer contains images/video from the time immediately preceding the trigger. These are stored internally in the camera. This buffer can be very useful when checking to see what caused the trigger.*

Post-trigger buffer *- This function is the counterpart to the pre-trigger buffer described above and contains images/video from the time immediately after the trigger.*

Important: Image frequency and Pre-trigger buffer can be changed depending on the settings of JPEG frame rate.

Action configuration for [Sensor Input + Upload Image + SD Card]



1. Enter a descriptive event name.
2. Select the enable.
3. Select the trigger type to sensor in.
4. Select the input condition
   A. Active – Event will trigger when input condition is active.
   B. Inactive – Event will trigger when input condition is inactive.
   C. Change – Event will trigger when input condition is changed

5. Select the action type to upload image.
6. Select the upload type to SD CARD.
7. Select the recording file format.
8. Enable or Disable the audio.

   Note: When the JPEG file format is selected, the audio will be disabled.
9. Select the image frequency. (frame per second)

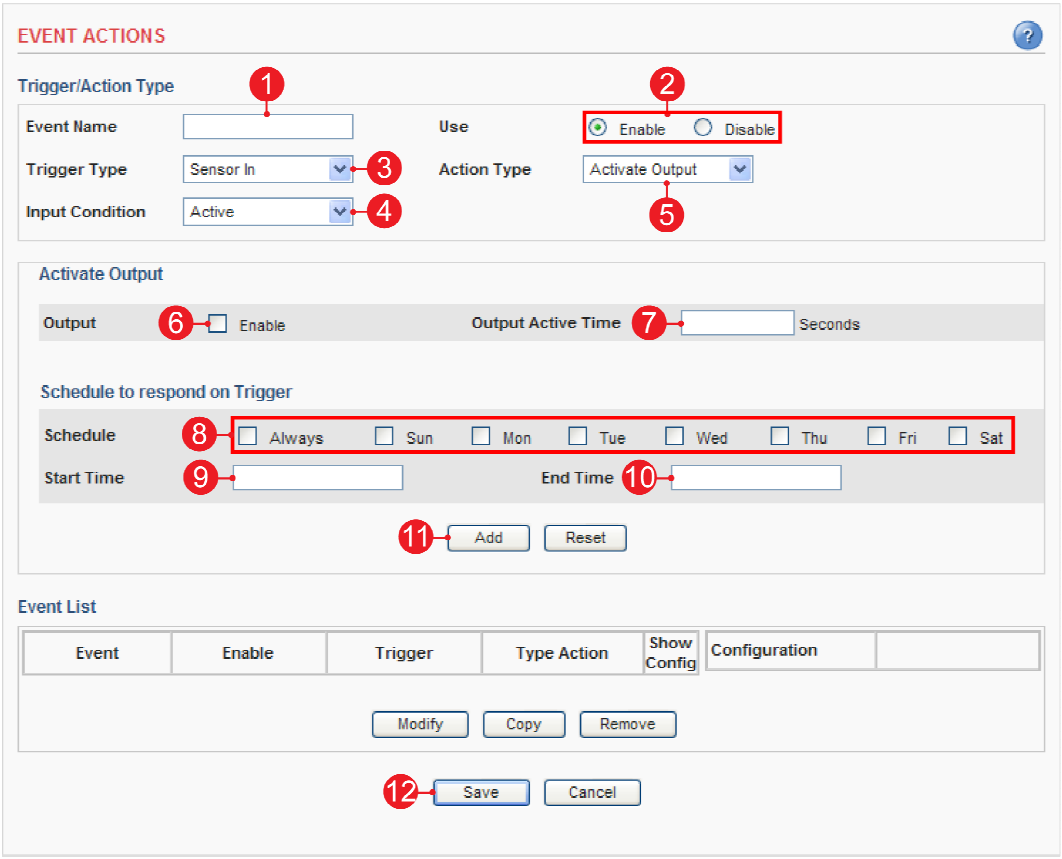
   Note: When the AVI file format is selected, the image frequency will be disabled.
10. Select the pre-trigger buffer.
11. Select the post-trigger buffer.
12. Enter a descriptive image name.
13. Select the suffix of image name.
14. Select the schedule by a day of the week.
15. Enter the start time in a 24hour format.
16. Enter the end time in a 24hour format.
17. Click the Add button to add configuration on the event list.
18. Click the Save button to save configuration.

Note: ***Pre-trigger buffer*** *- A pre-trigger buffer contains images/video from the time immediately preceding the trigger. These are stored internally in the camera. This buffer can be very useful when checking to see what caused the trigger.*

Post-trigger buffer *- This function is the counterpart to the pre-trigger buffer described above and contains images/video from the time immediately after the trigger.*

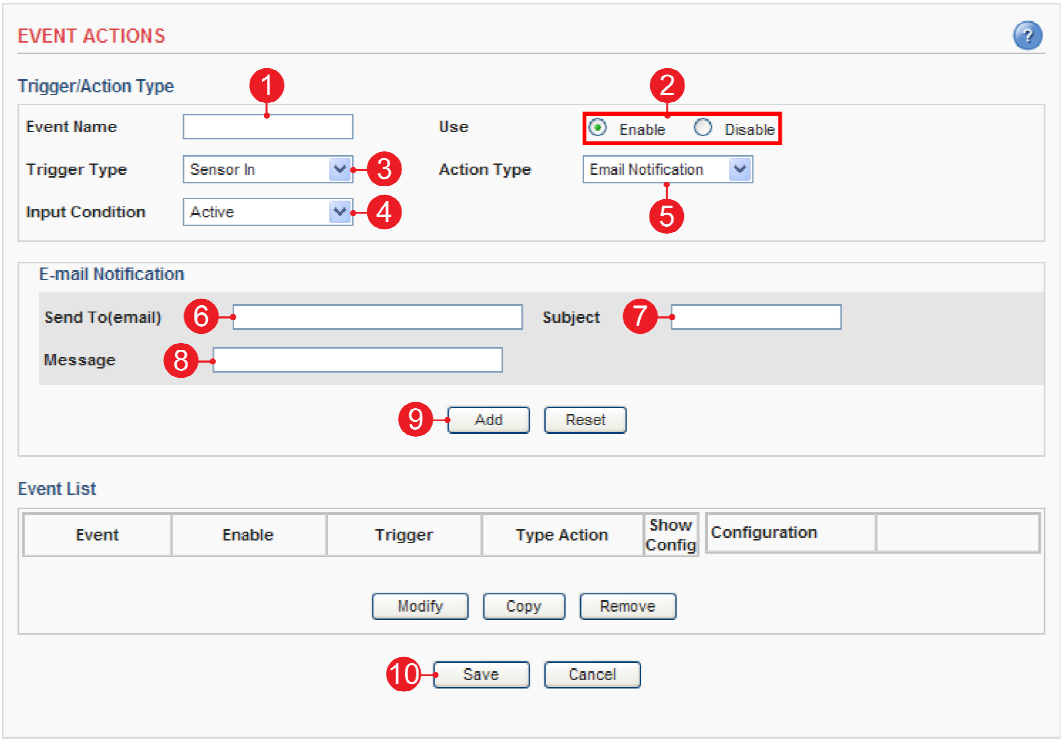
Important: Image frequency and Pre-trigger buffer can be changed depending on the settings of JPEG frame rate.

Action configuration for [Sensor Input + Activate Output]



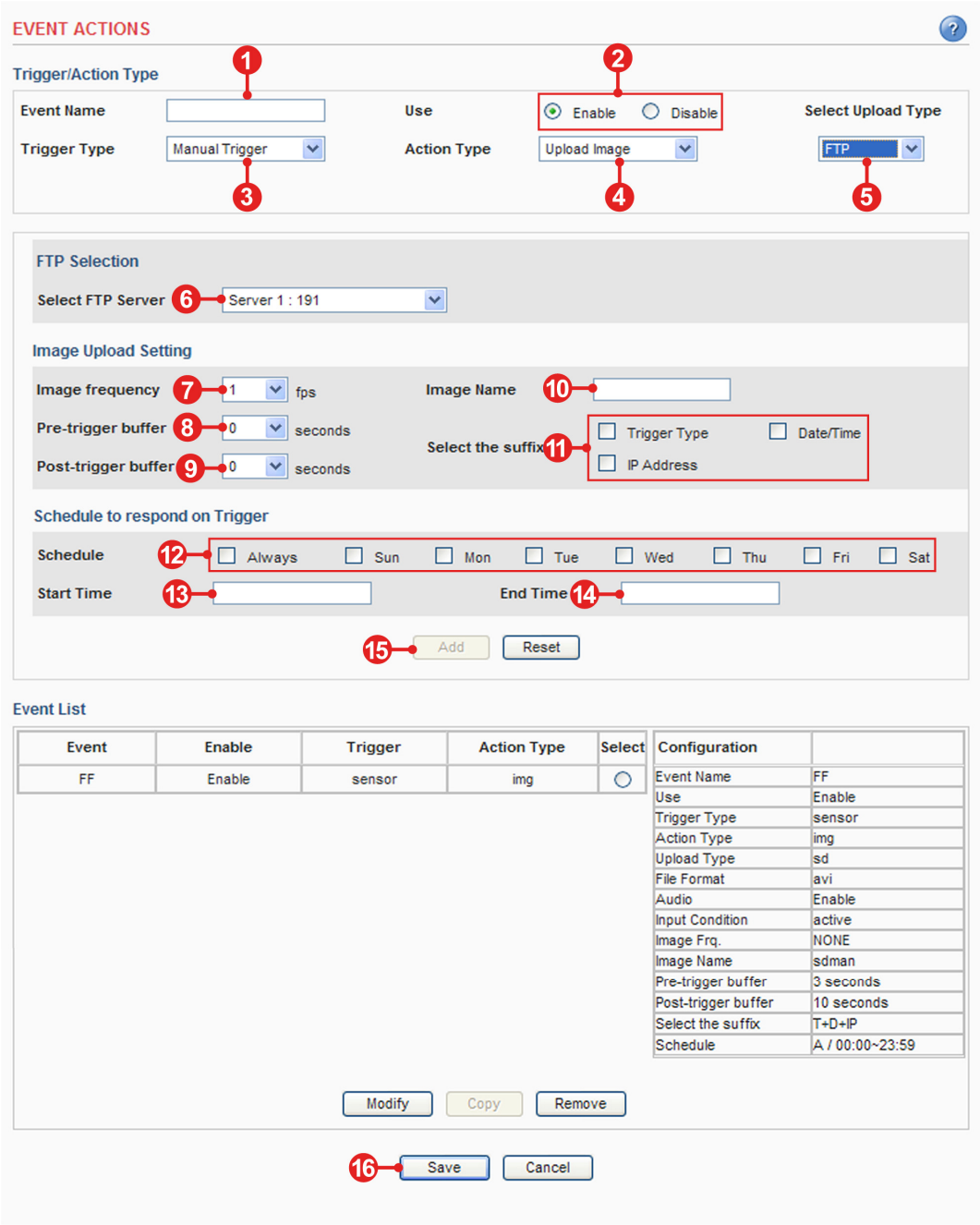
1. Enter a descriptive event name.
2. Select the enable.
3. Select the trigger type to sensor in.
4. Select the input condition
   A. Active – Event will trigger when input condition is active.
   B. Inactive – Event will trigger when input condition is inactive.
   C. Change – Event will trigger when input condition is changed.
5. Select the action type to activate output.
6. Check the enable.
7. Enter the output active time.
8. Select the schedule by a day of the week.
9. Enter the start time in a 24hour format.
10. Enter the end time in a 24hour format.
11. Click the Add button to add configuration on the event list.
12. Click the Save button to save configuration.

Action configuration for [Sensor Input + E-mail Notification]



1. Enter a descriptive event name.
2. Select the enable.
3. Select the trigger type to sensor in.
4. Select the input condition
   A. Active – Event will trigger when input condition is active.
   B. Inactive – Event will trigger when input condition is inactive.
   C. Change – Event will trigger when input condition is changed.
5. Select the action type to e-mail notification.
6. Enter the e-mail address which receives notification.
7. Enter a descriptive subject.
8. Enter a descriptive message.
9. Click the Add button to add configuration on the event list.
10. Click the Save button to save configuration.

Action configuration for [Manual Trigger + Upload Image + FTP]



1. Enter a descriptive event name.
2. Select the enable.
3. Select the trigger type to manual trigger.
4. Select the action type to upload image.
5. Select the upload type to FTP.
6. Select the FTP server that receives uploaded image files.
7. Select the image frequency. (frame per second)

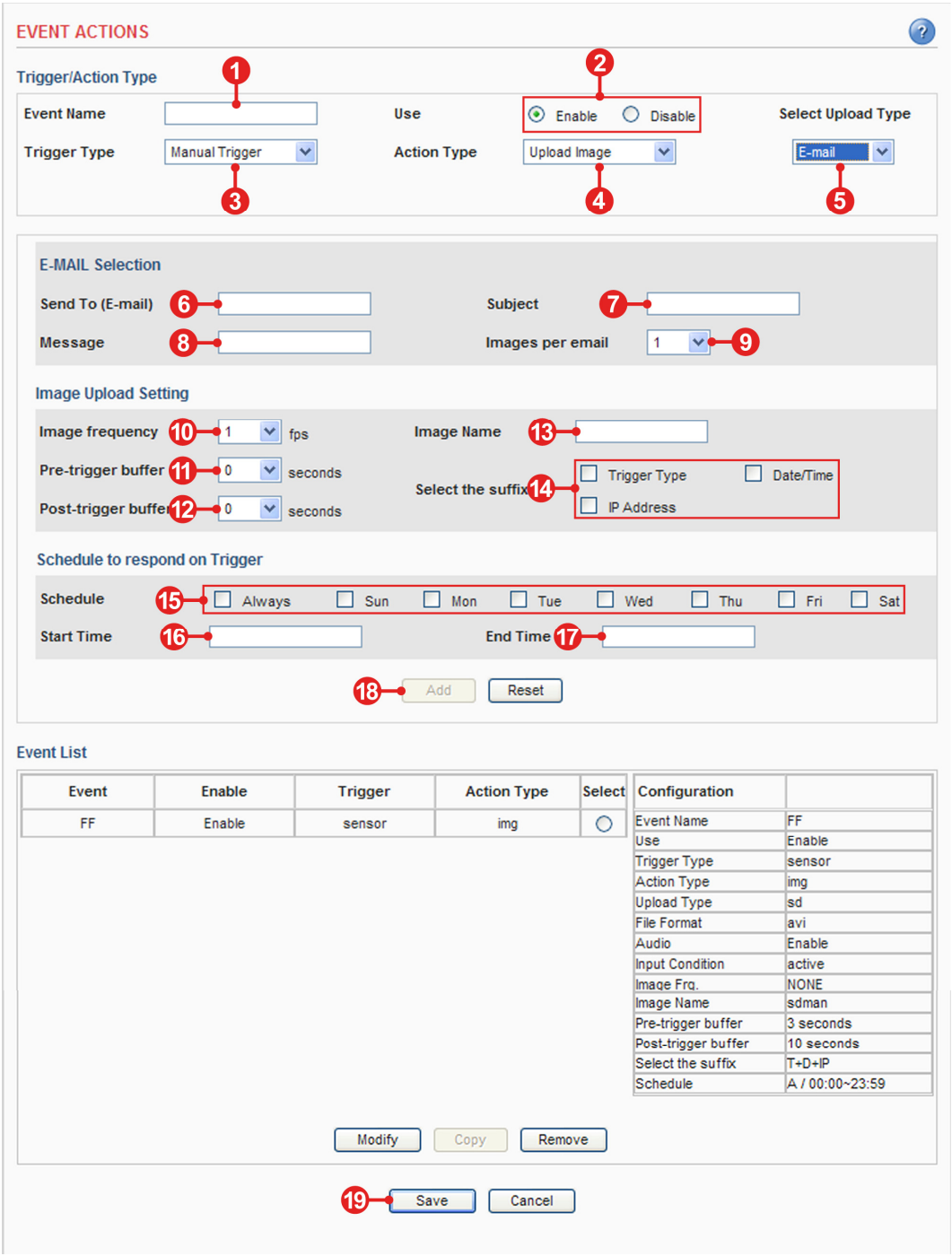
8. Select the pre-trigger buffer.
9. Select the post-trigger buffer.
10. Enter a descriptive image name.
11. Select the suffix of image name.
12. Select the schedule by a day of the week.
13. Enter the start time in a 24hour format.
14. Enter the end time in a 24hour format.
15. Click the Add button to add configuration on the event list.
16. Click the Save button to save configuration.

Note: ***Pre-trigger buffer*** *- A pre-trigger buffer contains images/video from the time immediately preceding the trigger. These are stored internally in the camera. This buffer can be very useful when checking to see what caused the trigger.*

Post-trigger buffer *- This function is the counterpart to the pre-trigger buffer described above and contains images/video from the time immediately after the trigger.*

Important: Image frequency and pre-trigger buffer can be changed depending on the settings of JPEG frame rate.

Action configuration for [Manual Trigger + Upload Image + E-mail]



1. Enter a descriptive event name.
2. Select the enable.
3. Select the trigger type to manual trigger.
4. Select the action type to upload image.
5. Select the upload type to E-mail.
6. Enter the e-mail address which receives image files.

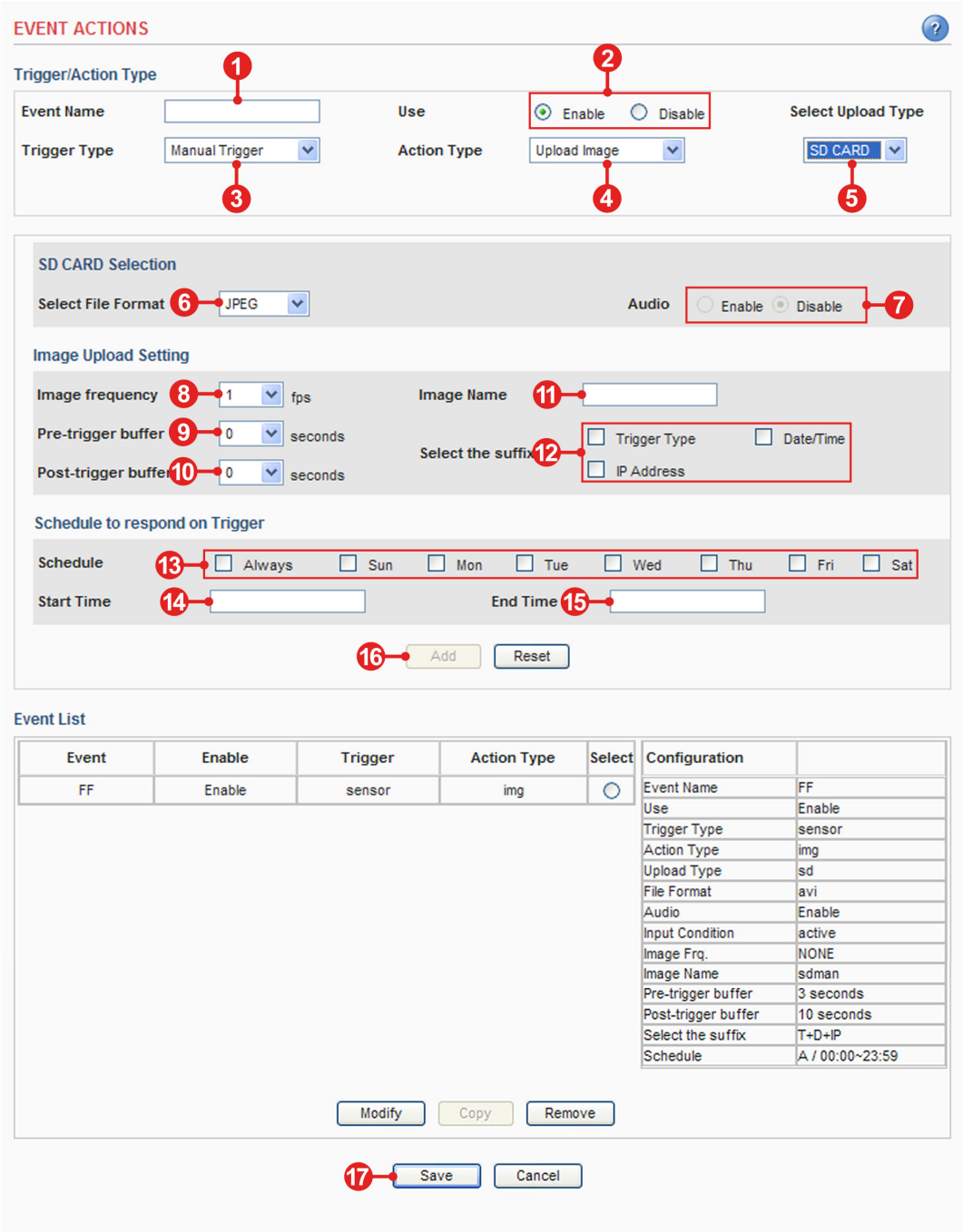
7. Enter a descriptive subject.
8. Enter a descriptive message.
9. Select the number of images.
10. Select the image frequency. (frame per second)
11. Select pre-trigger buffer.
12. Select post-trigger buffer.
13. Enter a descriptive image name.
14. Select the suffix of image name.
15. Select the schedule by a day of the week.
16. Enter the start time in a 24hour format.
17. Enter the end time in a 24hour format.
18. Click the Add button to add configuration on the event list.
19. Click the Save button to save configuration.

Note: ***Pre-trigger buffer*** *- A pre-trigger buffer contains images/video from the time immediately preceding the trigger. These are stored internally in the camera. This buffer can be very useful when checking to see what caused the trigger.*

Post-trigger buffer *- This function is the counterpart to the pre-trigger buffer described above and contains images/video from the time immediately after the trigger.*

Important: Image frequency and pre-trigger buffer can be changed depending on the settings of JPEG frame rate.

Action configuration for [Manual Trigger + Upload Image + SD Card]



1. Enter a descriptive event name.
2. Select the enable.
3. Select the trigger type to manual trigger.
4. Select the action type to upload image.
5. Select the upload type to SD CARD.
6. Select the recording file format.
7. Enable or disable the audio

Note: When the JPEG file format is selected, the audio will be disabled.

8. Select the image frequency. (frame per second)

   Note: When the AVI file format is selected, the image frequency will be disabled.

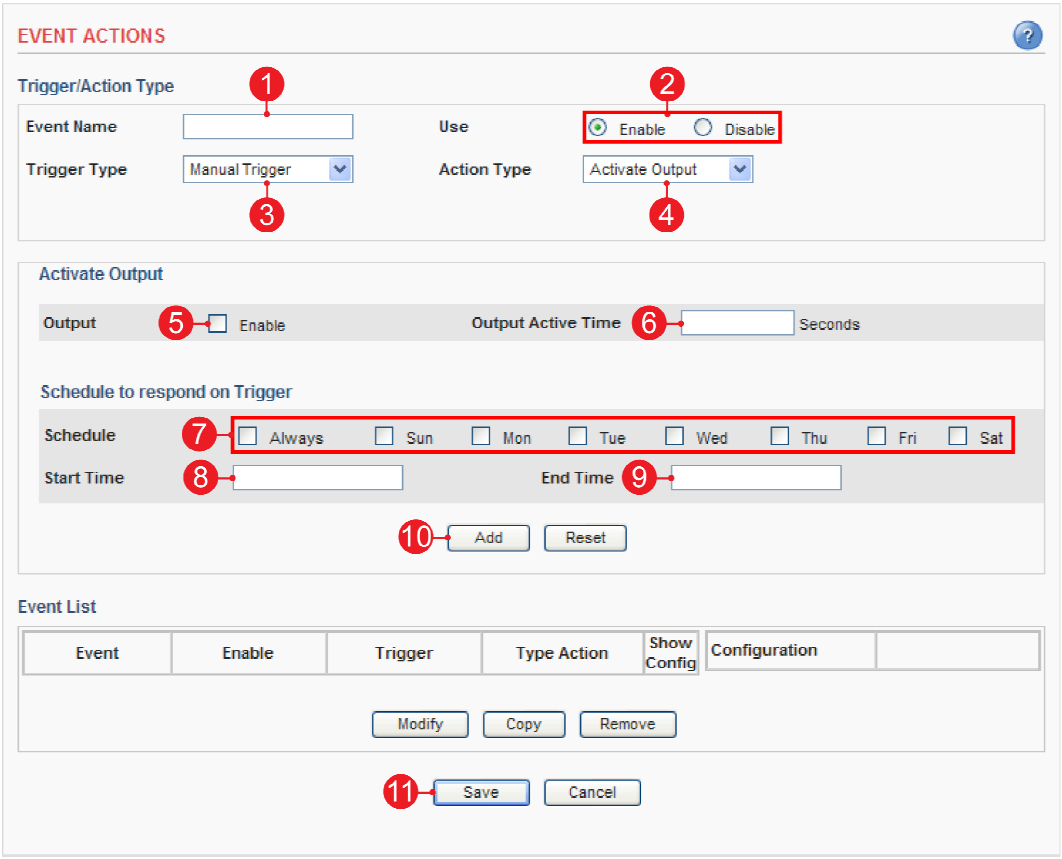
9. Select the pre-trigger buffer.
10. Select the post-trigger buffer.
11. Enter a descriptive image name.
12. Select the suffix of image name.
13. Select the schedule by a day of the week.
14. Enter the start time in a 24hour format.
15. Enter the end time in a 24hour format.
16. Click the Add button to add configuration on the event list.
17. Click the Save button to save configuration.

Note: ***Pre-trigger buffer*** *- A pre-trigger buffer contains images/video from the time immediately preceding the trigger. These are stored internally in the camera. This buffer can be very useful when checking to see what caused the trigger.*

Post-trigger buffer *- This function is the counterpart to the pre-trigger buffer described above and contains images/video from the time immediately after the trigger.*

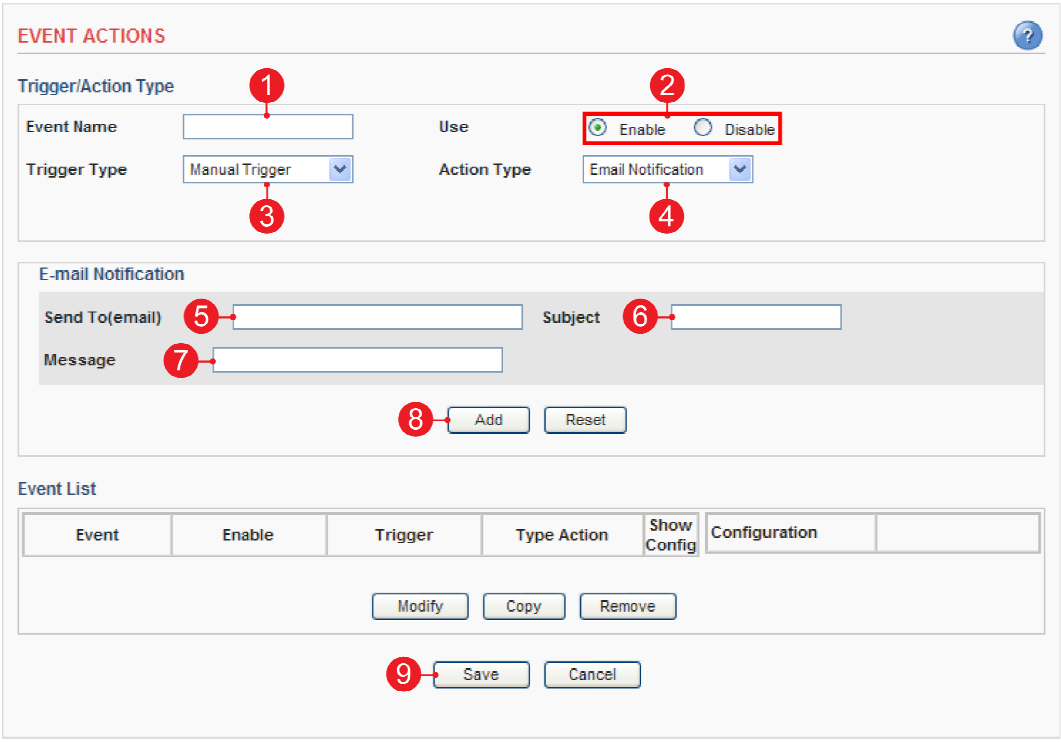
Important: Image frequency and pre-trigger buffer can be changed depending on the settings of JPEG frame rate.

Action configuration for [Manual Trigger + Activate Output]



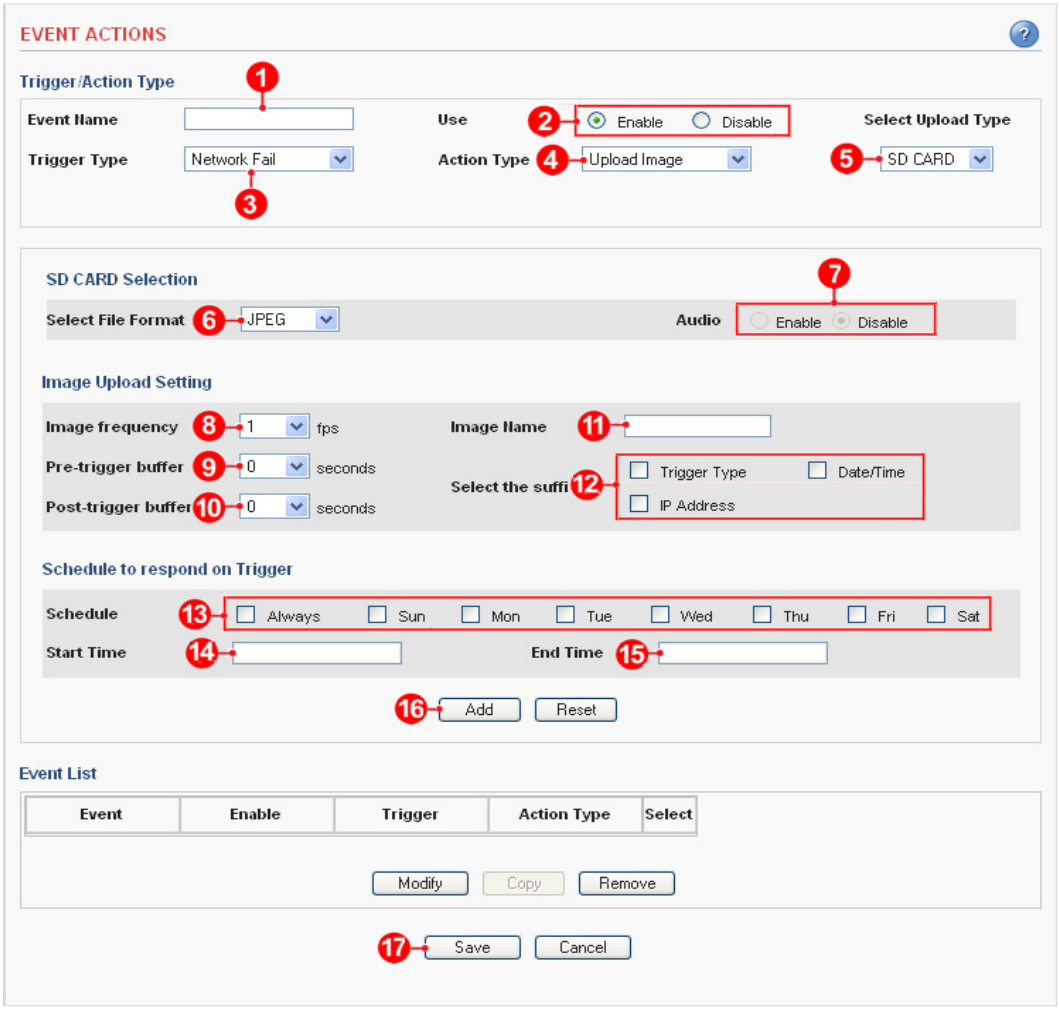
1. Enter a descriptive event name.
2. Select the enable.
3. Select the trigger type to manual trigger.
4. Select the action type to activate output.
5. Check the enable.
6. Enter the output active time.
7. Select the schedule by a day of the week.
8. Enter the start time in a 24hour format.
9. Enter the end time in a 24hour format.
10. Click the Add button to add configuration on the event list.
11. Click the Save button to save configuration.

Action configuration for [Manual Trigger + E-mail Notification]



1. Enter a descriptive event name.
2. Select the enable.
3. Select the trigger type to manual trigger.
4. Select the action type to e-mail notification.
5. Enter the e-mail address which receives notification.
6. Enter a descriptive subject.
7. Enter a descriptive message.
8. Click the Add button to add configuration on the event list.
9. Click the Save button to save configuration.

Action configuration for [Network Fail + Upload Image + SD Card]



1. Enter a descriptive event name.
2. Select the enable.
3. Select the trigger type to network fail.
4. Select the action type to upload image.
5. Select the upload type to SD CARD.
6. Select the recording file format.
7. Enable or disable the audio

   Note: When the JPEG file format is selected, the audio will be disabled.
8. Select the image frequency. (frame per second)

   Note: When the AVI file format is selected, the image frequency will be disabled.
9. Select the pre-trigger buffer.
10. Select the post-trigger buffer.
11. Enter a descriptive image name.
12. Select the suffix of image name.
13. Select the schedule by a day of the week.

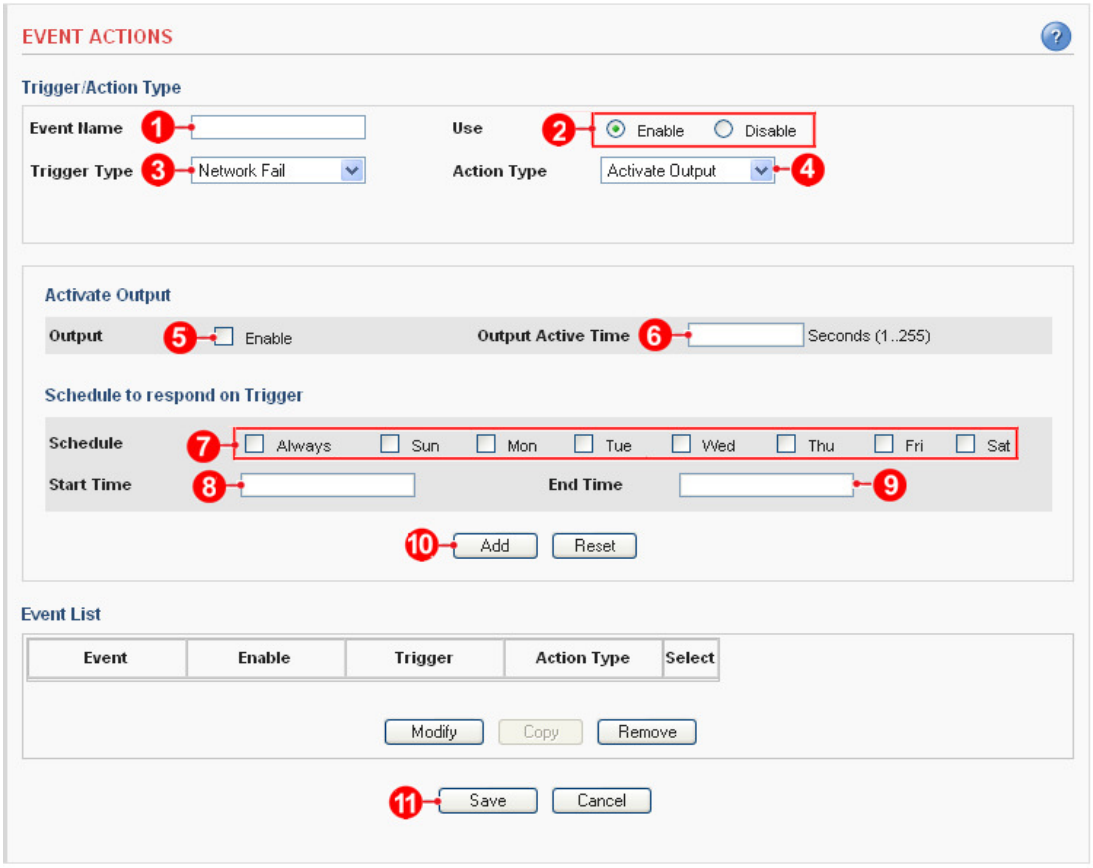
14. Enter the start time in a 24hour format.
15. Enter the end time in a 24hour format.
16. Click the Add button to add configuration on the event list.
17. Click the Save button to save configuration.

*Note: **Pre-trigger buffer** - A pre-trigger buffer contains images/video from the time immediately preceding the trigger. These are stored internally in the camera. This buffer can be very useful when checking to see what caused the trigger.*

***Post-trigger buffer** - This function is the counterpart to the pre-trigger buffer described above and contains images/video from the time immediately after the trigger.*

Important: Image frequency and pre-trigger buffer can be changed depending on the settings of JPEG frame rate.

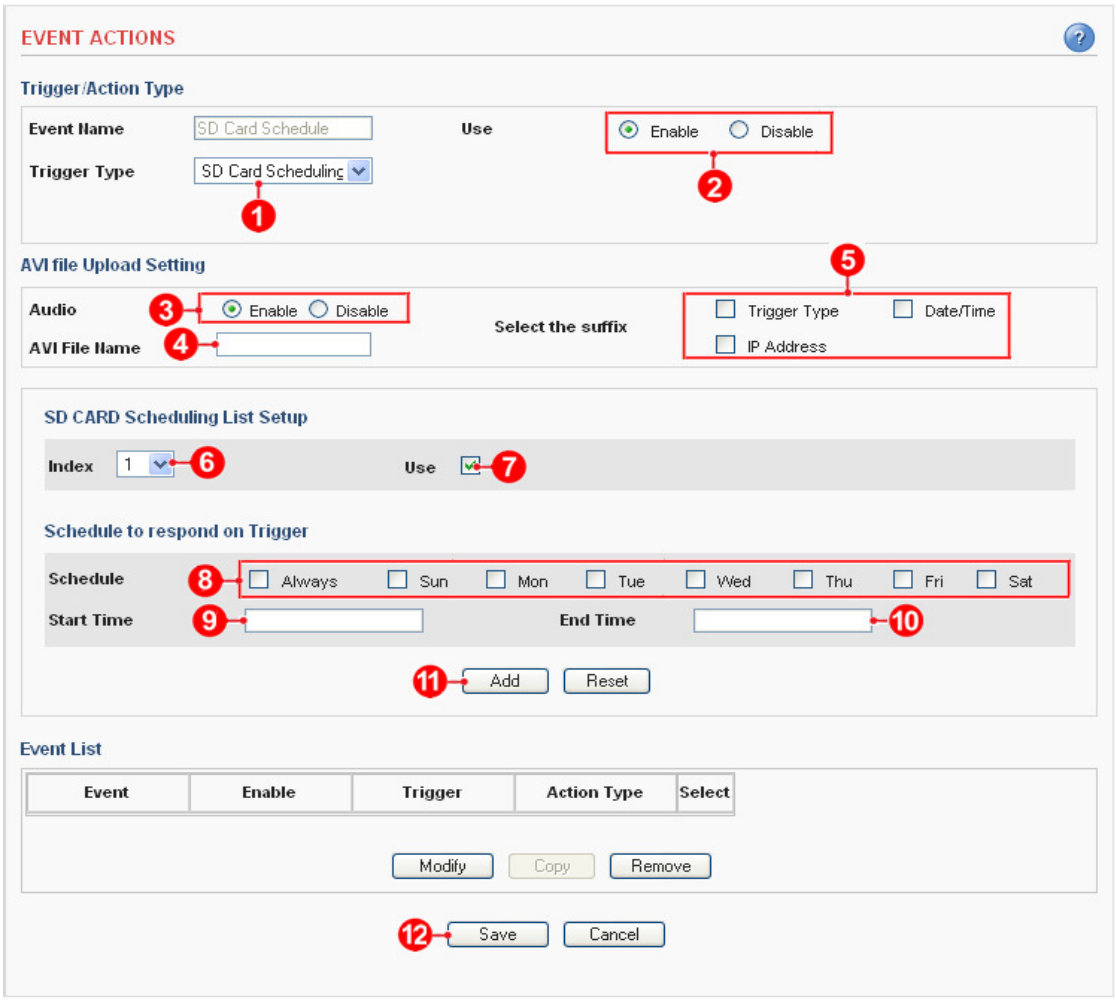
Action configuration for [Network Fail + Activate Output]



1. Enter a descriptive event name.
2. Select the enable.
3. Select the trigger type to network fail.
4. Select the action type to activate output.
5. Check the enable.
6. Enter the output active time.
7. Select the schedule by a day of the week.
8. Enter the start time in a 24hour format.
9. Enter the end time in a 24hour format.
10. Click the Add button to add configuration on the event list.
11. Click the Save button to save configuration.

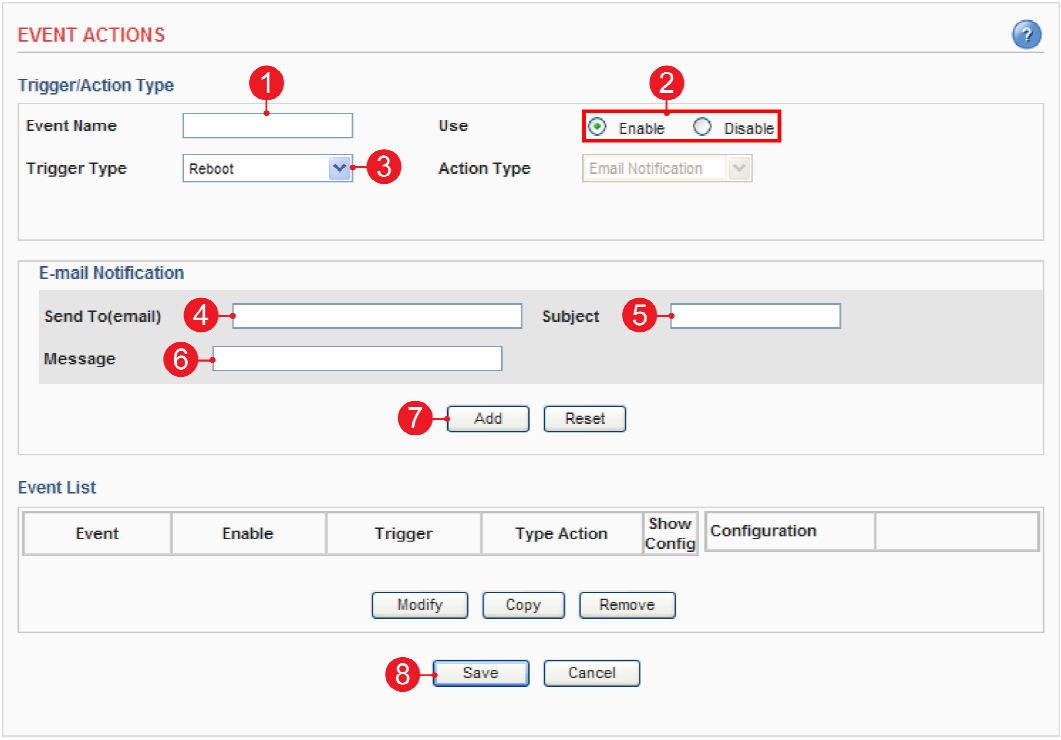
Action configuration for [SD Card Scheduling]

Note: ***The avi file is continuously saved as 1 minute files.***



1. Select the trigger type to sd card scheduling.
2. Select the enable.
3. Select the enable.
4. Enter the avi file name.
5. Select the suffix of the image name.
6. Select the SD card scheduling list setup index
7. Select use.
8. Select the schedule by a day of the week.
9. Enter the start time in a 24hour format.
10. Enter the end time in a 24hour format.
11. Click the Add button to add configuration on the event list.
12. Click the Save button to save configuration.

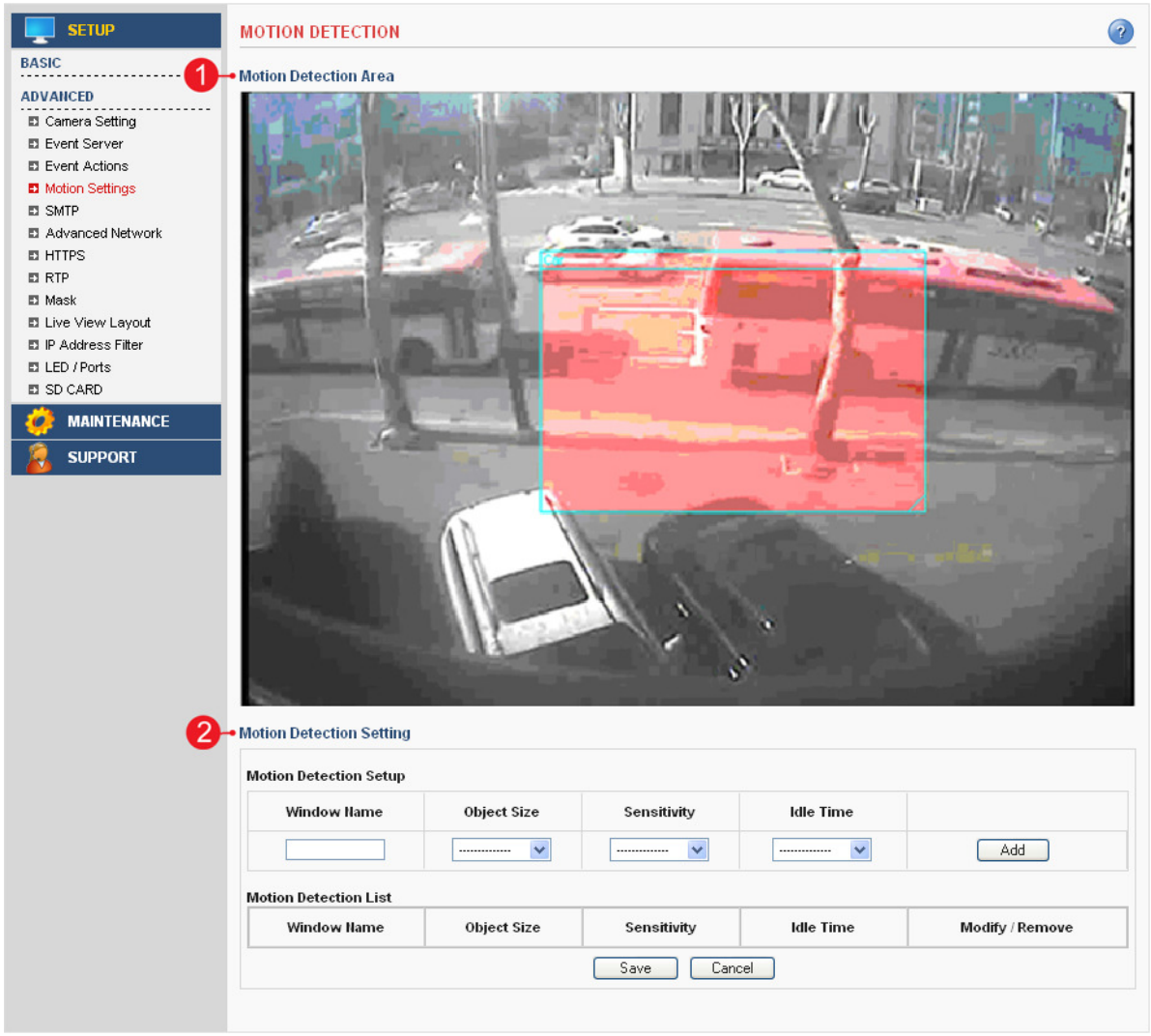
Action configuration for [Reboot]



1. Enter a descriptive event name.
2. Select the enable.
3. Select the trigger type to reboot.
   Note: Action type is pre-selected to e-mail notification.
4. Enter the e-mail address which receives notification.
5. Enter a descriptive subject.
6. Enter a descriptive message.
7. Click the Add button to add configuration on the event list.
8. Click the Save button to save configuration.

Advanced > Motion Settings

This section describes how to configure the Motion Detection.



1. **Motion Detection Area**
   A. This screen displays the live video image and users can configure the motion detection field as desired on the screen.
2. **Motion Detection Setting**
   A. Motion Detection Setup – Creates Motion Detection field. Enter the name of the Motion Detection field, Object Size, Sensitivity and Idle Time. Click the add button to create the new field.
   B. Motion Detection List – Display all of the Motion Detection fields. Click the modify button to modify setting values. Click the remove button to erase the Motion Detection field.

Note: A total of 5 motion fields can be configured.

Configuration of motion detection

Create the Motion Detection window in the following steps.

1. Enter a descriptive window name.
2. Select the Object Size.

   Note: Higher level – Only very large objects trigger motion detection.
   Lower level – Even small objects trigger motion detection.
   (Recommended values: 10 ~ 20%)
3. Select Sensitivity.

   Note: Higher level – Ordinary colored objects on ordinary backgrounds will trigger the motion detection.

Lower level – Only very bright objects on a dark background will trigger the motion detection. (Recommended values: 40 ~ 50%)

4. Select Idle Time.

   Note: Set the idle time to avoid continued event triggering by motion detection. Event will not be triggered again during this period of time.

5. Click the add button to create a new Motion Detection window.
6. Display the name of Motion Detection window.
7. Click the center of the window and drag to the desired position.
8. Drag the bottom right-hand corner to adjust the window size.
9. Click the save button to save configuration.

Examples:

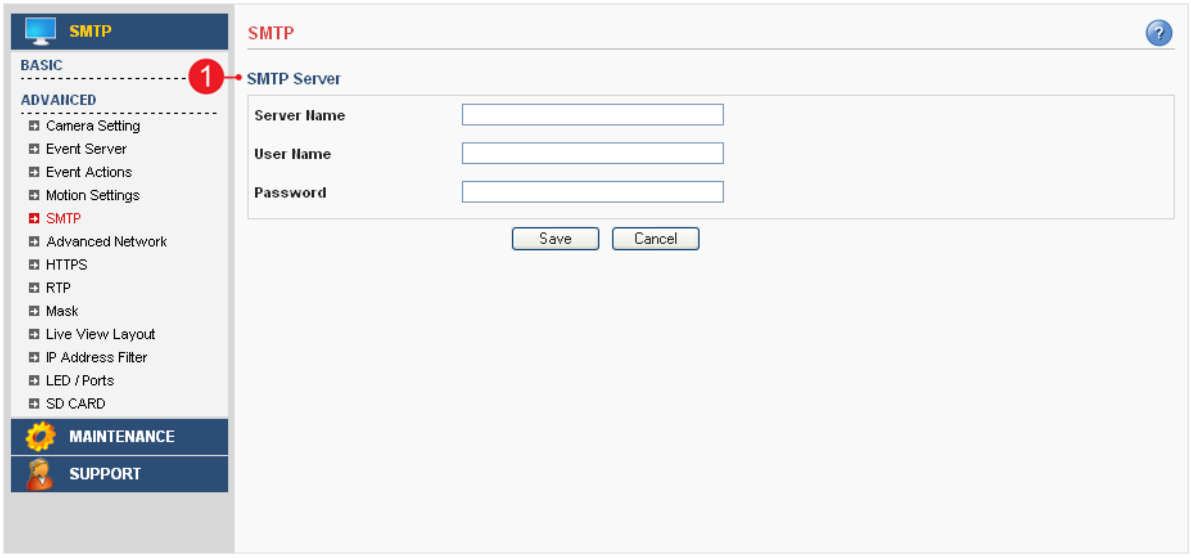
A. Avoid triggering on small objects in the video image by setting the Object Size level to high.

B. To reduce the number of triggers when there are a lot of movements during a short period of time, select a high Idle Time level.

C. To only detect flashing light, low Sensitivity should be selected. In other cases, a high Sensitivity level is recommended.

Advanced > SMTP

This section describes how to configure the SMTP server.



1. **SMTP Server**

   A. Server Name – Enter the SMTP server's Network address or host name.

   *Important: A DNS server must be specified in the **Setup>Advanced>Advanced network** if you are using a host name.*

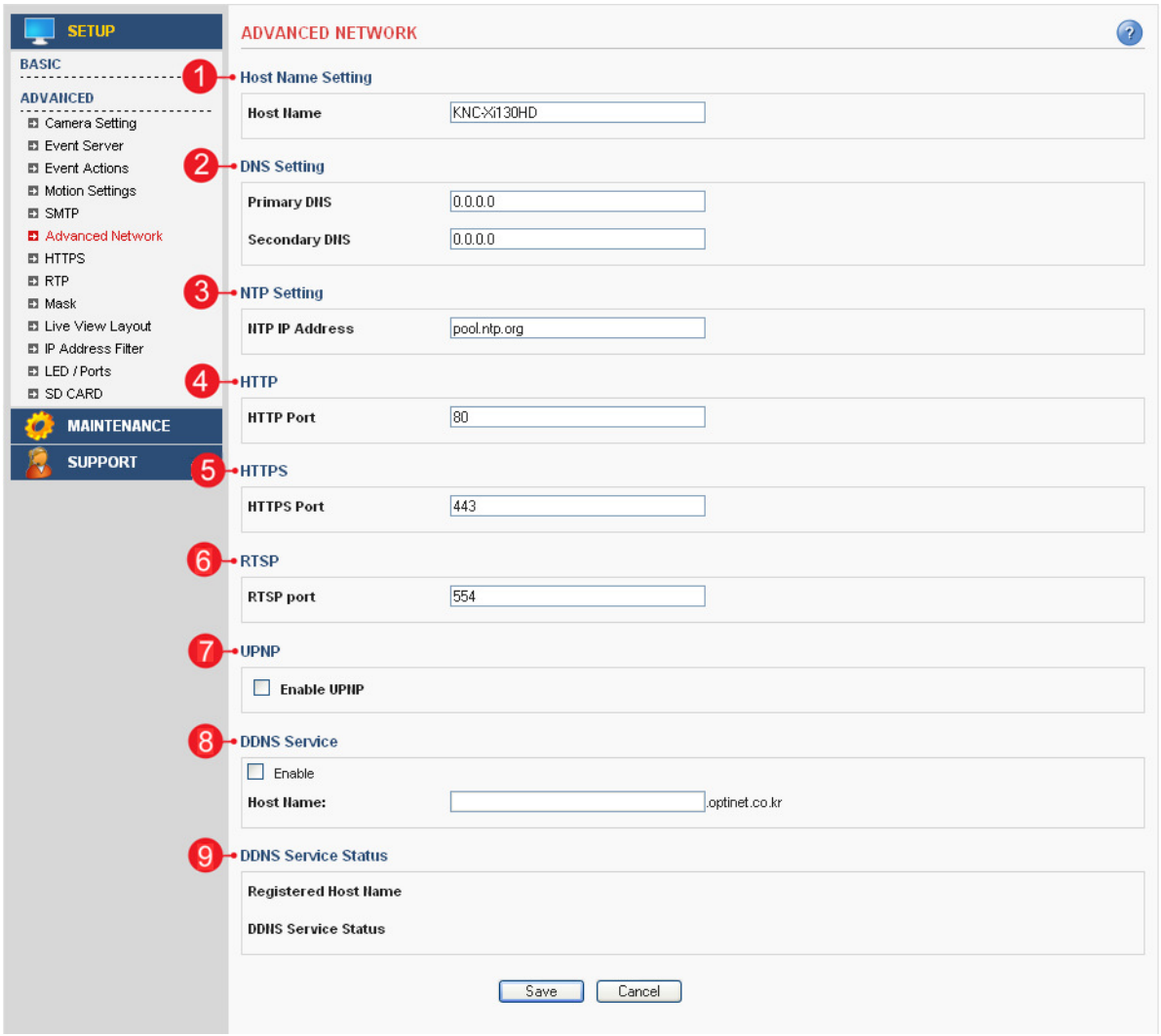
   B. User Name – Enter the user account which is registered with the SMTP server.

   C. Password – Enter the user password.

   Note: If your mail server does not require authentication, you don't need to enter the user name and password.

Advanced > Advanced Network

This section describes the advanced network settings.



1. **Host Name Setting**
   A. Host Name – The Network Camera can be accessed using a host name instead of an IP address. The host name is usually the same as the assigned DNS name. It is always the first part of a fully qualified domain name and is always one word, with no period.

2. **DNS Setting**
   A. Primary DNS - Enter the IP address of the primary DNS server. This server provides the translation of host names to the IP addresses on your network.
   B. Secondary DNS - Specify the IP address of the secondary DNS server. This will be used if the primary DNS server is unavailable.

Note: When setting up the Network Camera to use DHCP servers for obtaining network settings, the Network Camera will automatically look up and use the DNS server settings as provided by DHCP.

3. **NTP Setting**
   A. NTP IP Address – Enter the NTP server's IP address or host name.
   Important: The DNS server must be specified if you are using a host name.

4. **HTTP**
   A. HTTP Port – Enter the HTTP port the Network Camera will use. The default port is 80. Alternatively, any port in the range 1024-65535 may be used, but check first with your system administrator before changing the default setting.
5. **HTTPS**
   A. HTTPS Port – Enter the HTTPS port the Network Camera will use. The default port is 443. Alternatively, any port in the range 1024-65535 may be used, but check first with your system administrator before changing the default setting.
6. **RTSP**
   A. RTSP Port – Enter the RTSP port number the Network Camera will use. The default port is 554.

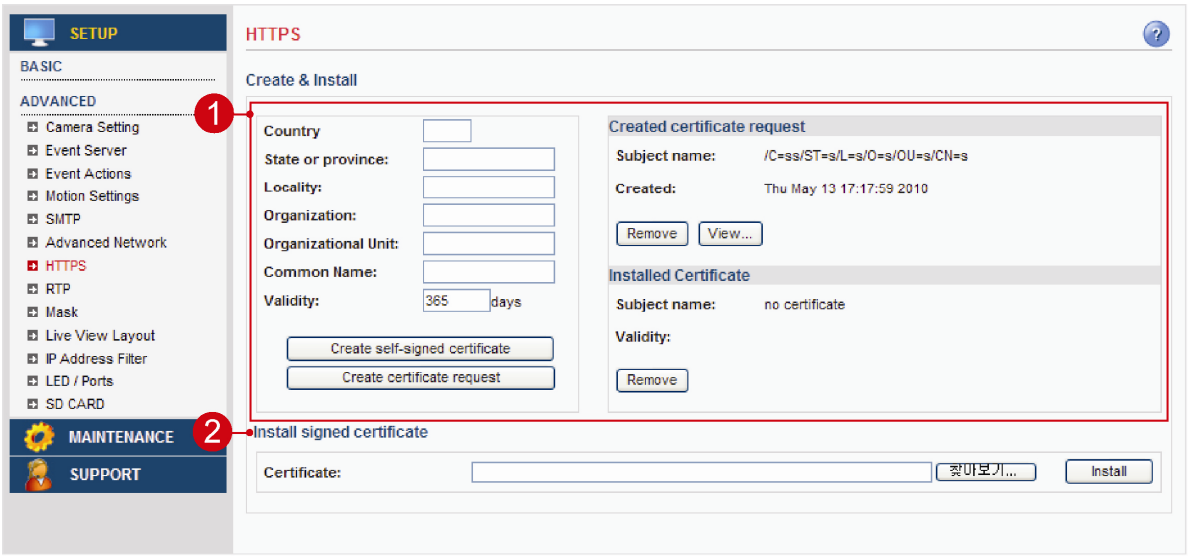
7. **DDNS Service**
   A. Enable – Check this box to enable DDNS service.
   B. Host Name – Enter the host name which you want to use for DDNS service.

8. **UPNP**
   A. Enable UPNP – Check this box to enable UPNP.

9. **DDNS Service Status**
   A. Displays the DDNS service's status in your ip product.

Advanced > HTTPS

This section describes the HTTPS settings. HTTPS provides encryption and secure identification of the server over an insecure network.



1. **Create**
   - A. Country – Enter a 2 letter code name of the country where the certificate will be used.
   - B. State or province – Enter the name of the local administrative region where the certificate will be used.
   - C. Locality – Enter any other geographical information of the place where the certificate will be used.
   - D. Organization – Enter the name of the organization to which the entity identified in the 'Common Name' belongs to.
   - E. Organizational Unit – Enter the name of the organizational unit or a department to which the entity identified in the 'Common Name' belongs to.
   - F. Common Name – Enter the name of a person or an entity that the certificate identifies with.
   - G. Validity – Enter the number of days for which the certificate is valid, used in the case of self-signed certificate only.
   - H. Create self-signed certificate – Clicking this button after filling all the above details creates a self-singed certificate.
   - I. Create certificate request – Clicking this button after filling all the above details except for Validity(validity is used only for a self signed certificate) creates a certificate request which is in the form of PEM formatted data.
   - J. Created Certificate Request – Shows the details of the certificate request currently present in the server.
     - Remove – Removes an already existing certificate.

- View – Shows the PEM formatted certificate request.

K. Installed Certificate – Shows the details of the self signed certificate.

- Remove – Removes an already existing certificate.

2. Install signed certificate

A. Certificate – The certificate is installed by browsing to the location of the certificate and then clicking Install.

Note: Only one certificate can be installed at a time. To install a new certificate any existing certificate should be removed first.

Advanced > RTP

This section describes the RTP settings. The RTP settings manage the IP addresses and port numbers to use for video and audio streams.

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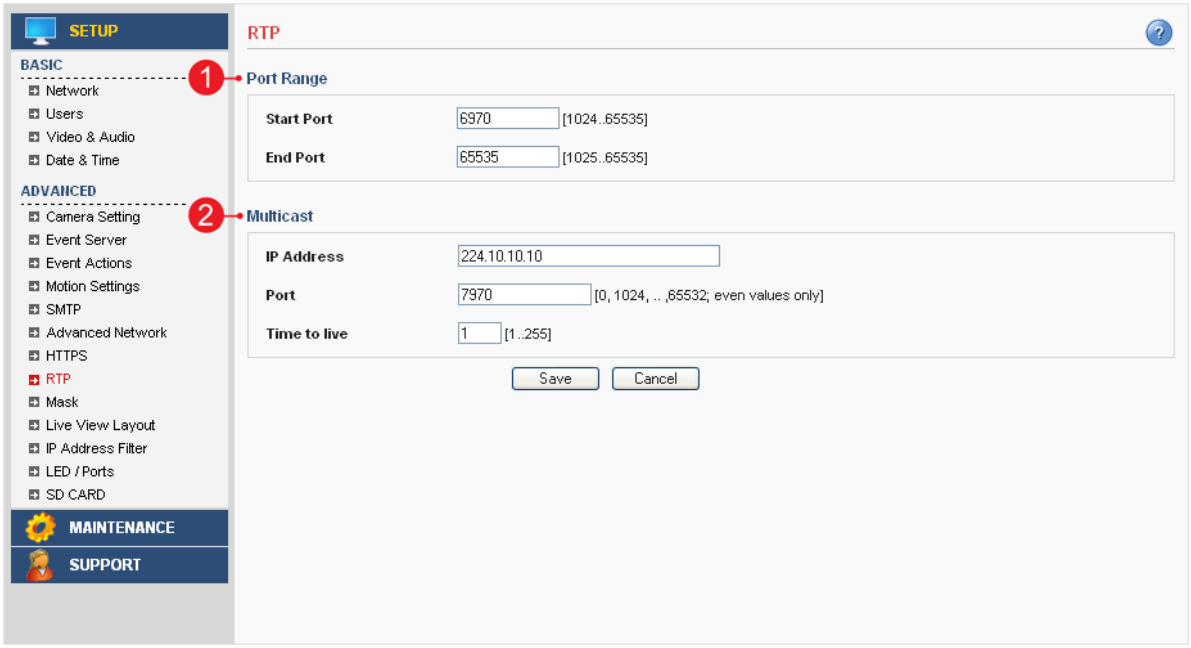
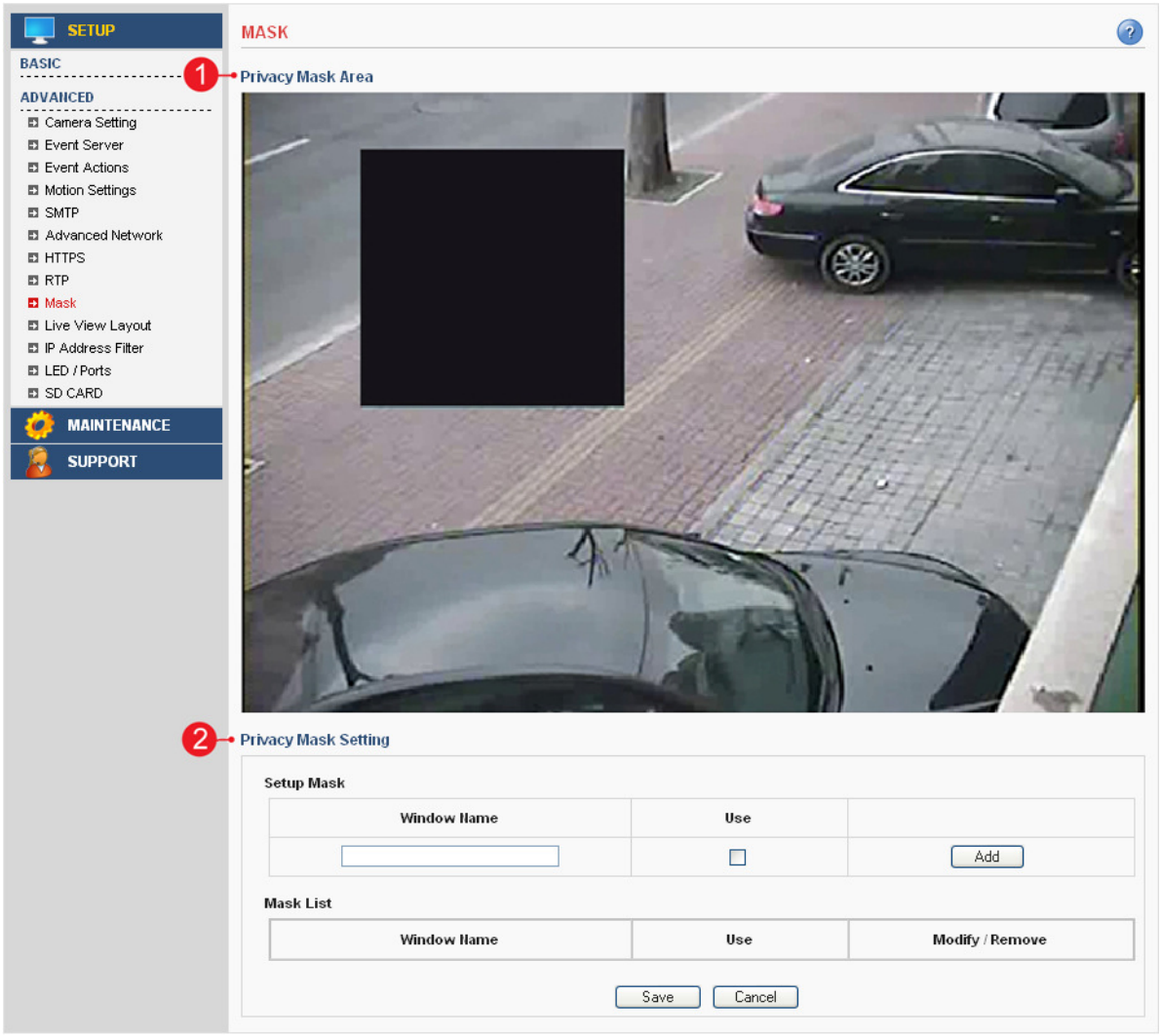


1. **Port Range**
   A. The RTP port range defines the range of ports that the video and audio streams will automatically use. Limit the range of ports permitted for RTP unicast or multicast by entering the Start port and End port in the provided fields with the value between 1024 and 65535.

2. **Multicast**
   A. IP Address – Enter the IP address that the Network Camera will use for multicast. Multicast IP address has to be specified in the range 224.xxx.xxx.xxx-239.xxx.xxx.xxx.
   B. Port – Enter the multicast port the Network Camera will use for multicast. The multicast port can be adjusted in the range 1024-65534 but it has to be even values. If the multicast port is 0, the Network Camera will assign the multicast port automatically.
   C. Time to Live – If IP packets (i.e. data) fail to get delivered to their destination within a reasonable length of time (which could be for various reasons), this setting will tell network routers when to discard the packet.
   The value is usually measured in 'hops', i.e. the number of network routers that can be passed before the packet arrives at its destination or drops in the middle.

Advanced > Mask

This section describes how to configure privacy mask.



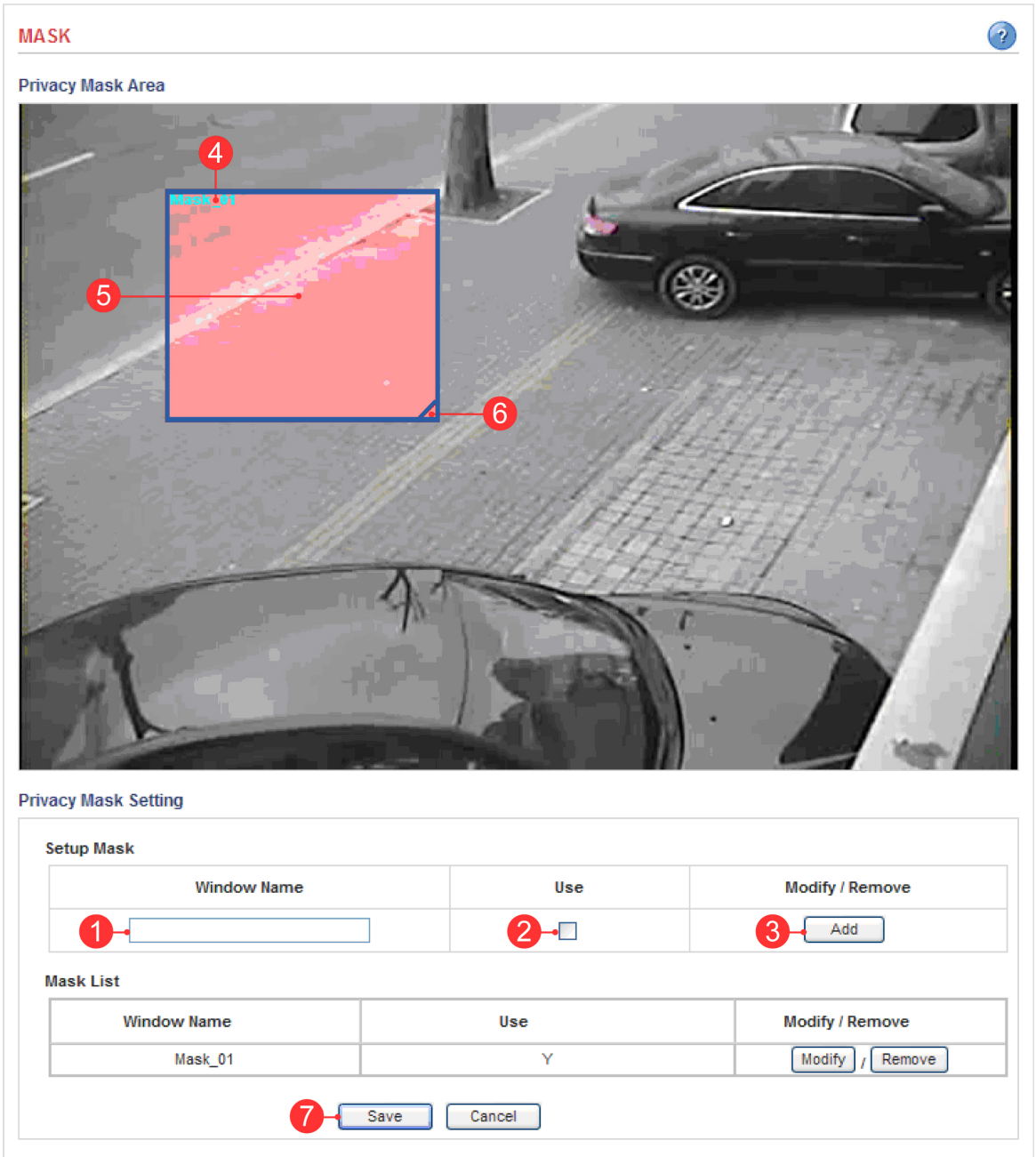
1. **Privacy Mask Area**
   A. This screen displays the live video image and user can configure a Privacy Mask window as desired on the screen.

2. **Privacy Mask Setting**
   A. Setup Mask – Creates Privacy Mask window. Enter the name of the Privacy Mask window, enable the check box for use then click the add button to create a new window.
   B. Mask List – Display all of the Privacy Mask windows. Click the modify button to modify setting values. Click the remove button to erase the Privacy Mask window.

Note: A total of 2 Privacy Mask window can be configured.

Configuration of privacy mask

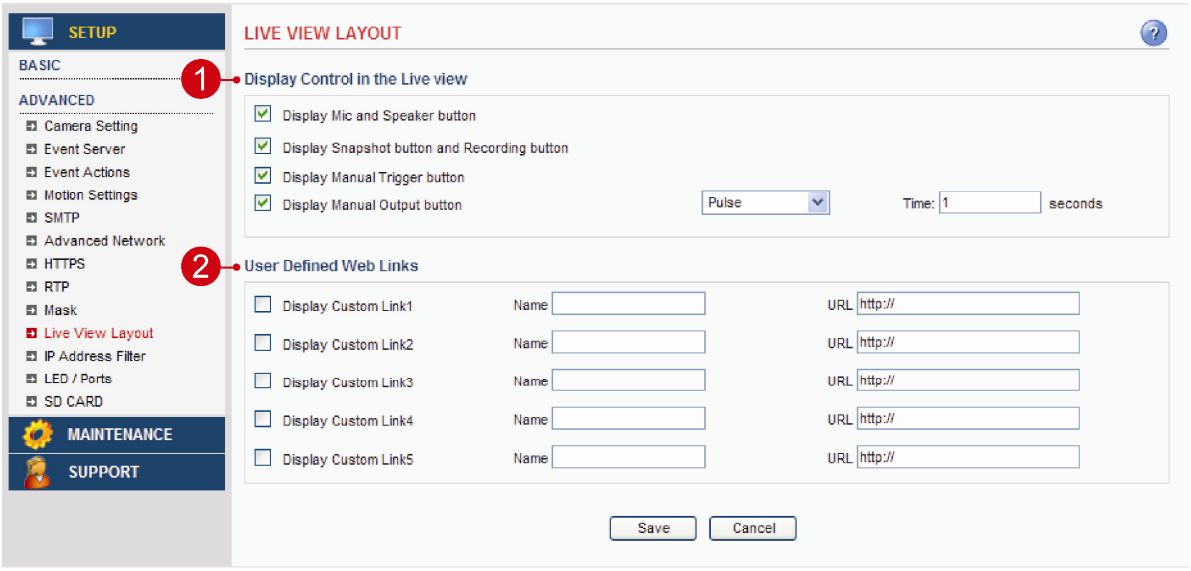
Create a Privacy Mask window with the following steps as shown below.



1. Enter a descriptive window name.
2. Check the check box for use.
3. Click the add button to create the new Privacy Mask window.
4. Displays the name of Privacy Mask window.
5. Click the center of the window and drag to the desired position.
6. Drag the bottom right-hand corner to adjust the window size.
7. Click the save button to save the configuration.

Advanced > Live View Layout

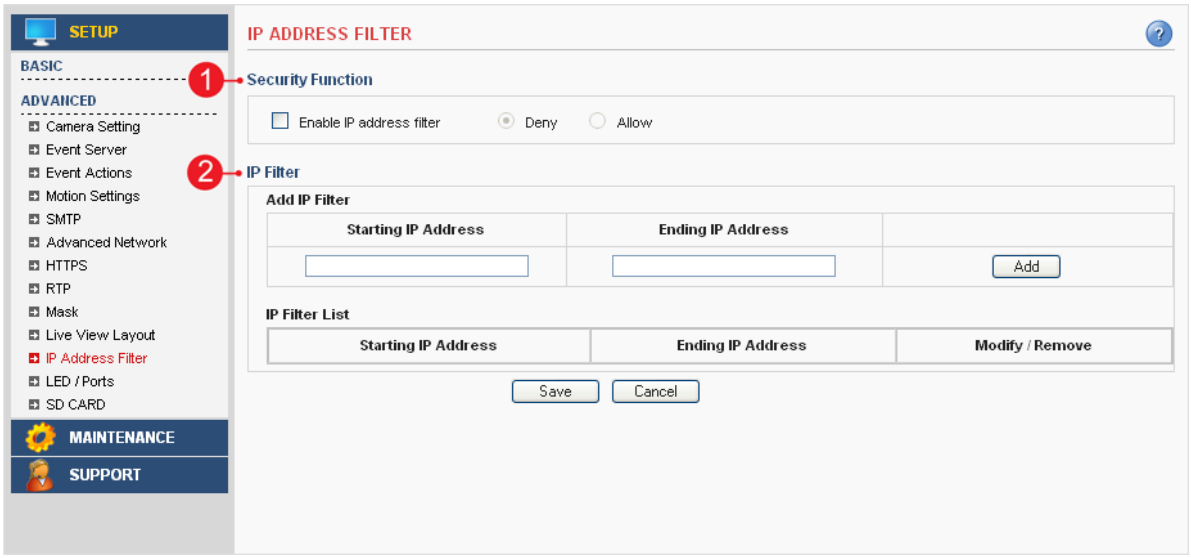
This section describes the settings of the live view layout.



1. **Display Control in the Live View**
   - The live view page can be customized as desired. To enable the control buttons, check the preferred check box.
   - In case of Manual alarm button, users can select pulse or active/inactive mode.
2. **User Defined Web Links**
   - Displays the web link specified by the user in the live view page.

Advanced > IP Address Filter

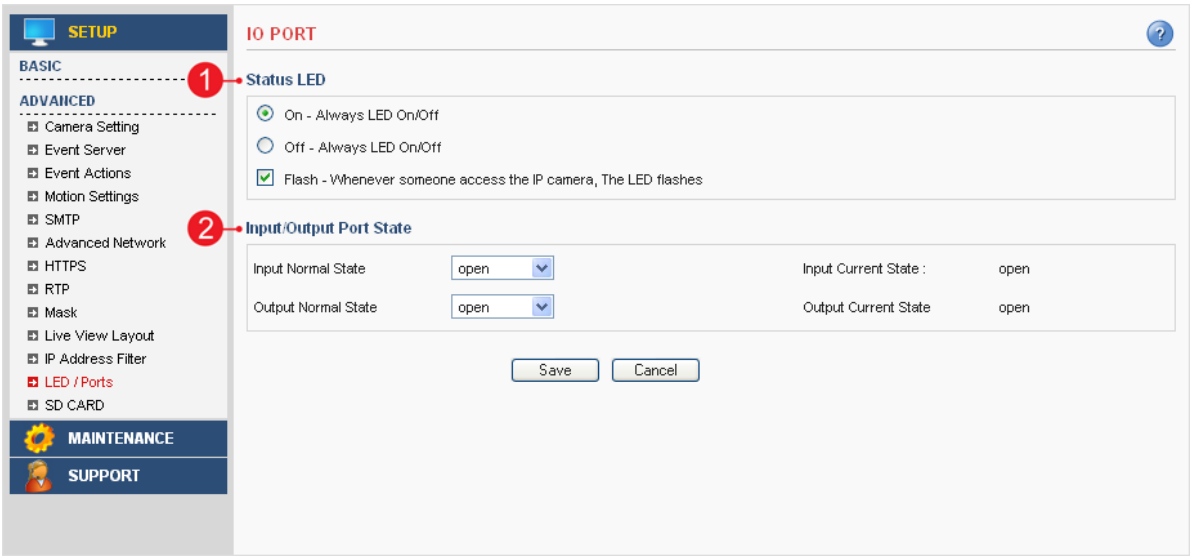
This section describes how to deny access to the Network Camera from a specific IP address.



1. **Security Function: Deny**
   A. Enable IP address filter – Checking this option will allow the user to either deny or allow access to the ip address in the list, which can be controlled by clicking on Deny or Allow option.
2. **IP Filter**
   A. Add IP Filter – Enter the IP address that you want to reject. The IP address can be entered by range.
   B. IP Filter List – Displays all of the denied IP address. Click the modify button to modify setting values. Click the remove button to erase the IP address.

Advanced > LED / Ports

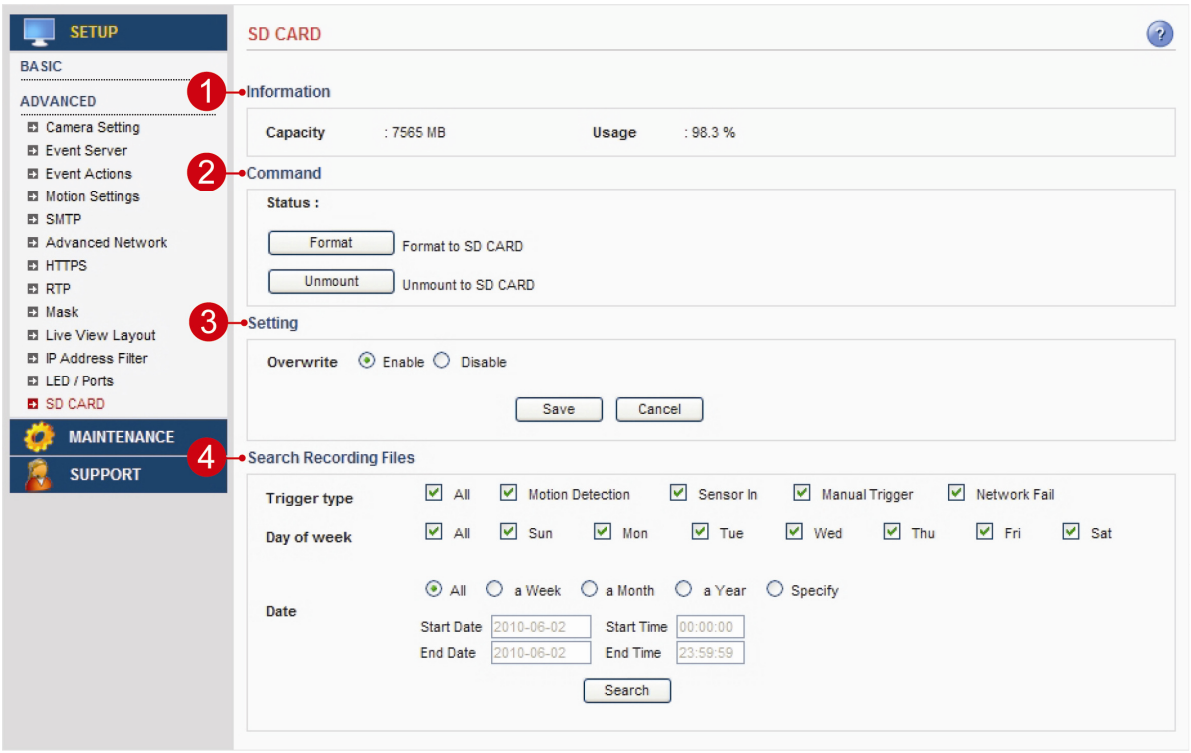
This section describes the setting of the status LED and the input / output port.



1. **Status LED**
   - The Status LED on the Network Camera can be configured to behave in different ways.
   - On – The status LED shows steady red during normal operation.
   - Off – The status LED is off during normal operation.
   - Flash – The status LED flashes whenever images are fetched.
2. **Input/Output Port State**
   - Configures the status of the digital input and output port.
   - The Input/Output state of both the Normal and Current States are disconnected when its status is "Open," meaning that there is no signal received by the Network Camera.

Advanced > SD CARD

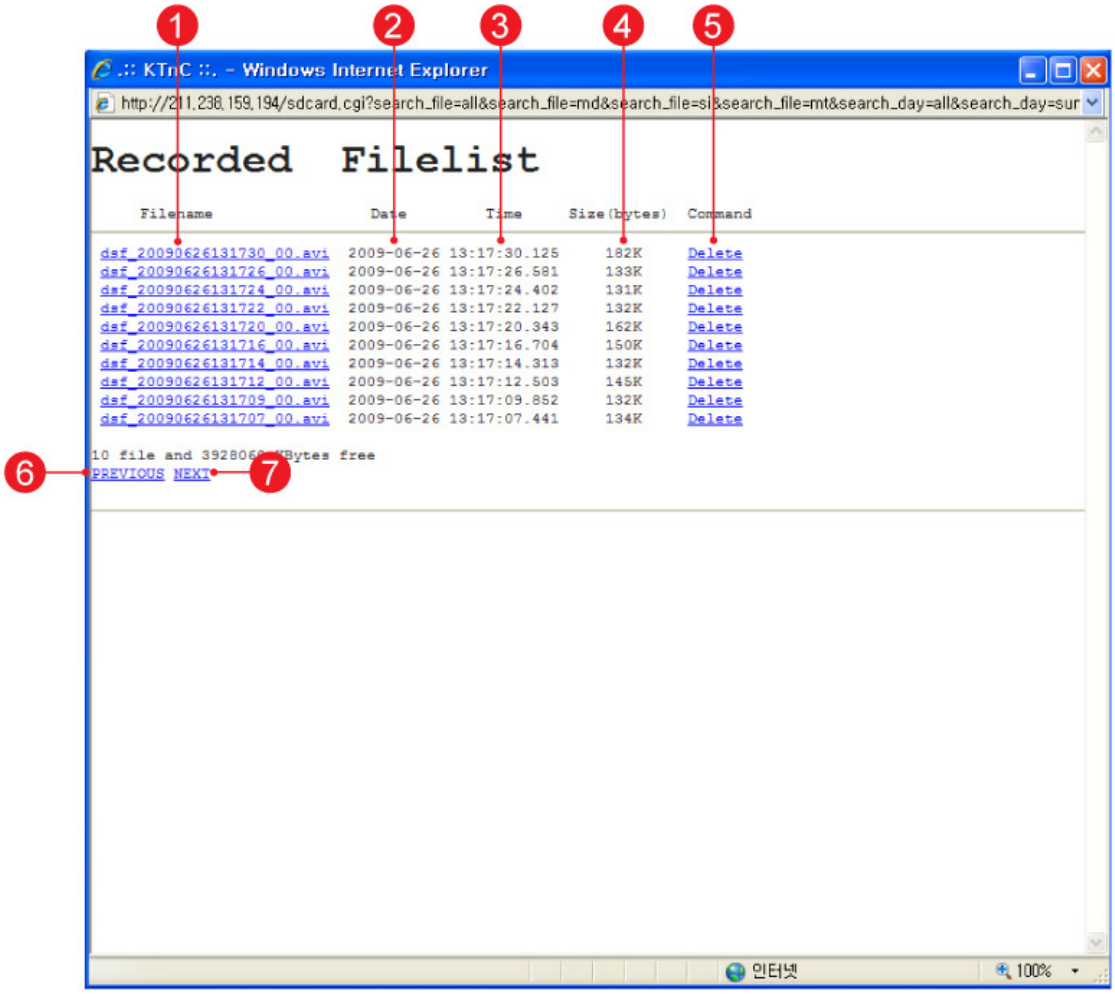
This section describes how to manage SD Cards and search for recorded files.



1. **Information**
   A. Capacity – It shows the total capacity of the SD card.
   B. Usage – It shows a usage percentage of the SD card.
   Note: When the overwrite setting is configured to disable, images can't be saved if the available storage size is less than 8 megabytes.
2. **Command**
   A. Format – Click the Format button to initialize the SD card.
   Caution: ***This feature will erase all recorded files permanently.***
   B. Unmount – Click the Unmount button before removing the SD card from the Network Camera.
   Caution: ***User must follow this procedure prior to removing the SD card in order to prevent damage to the recorded files.***
3. **Setting**
   A. Overwrite – In the event of reaching memory capacity, recorded files will be erased chronically in order to records new events.
4. **Search Recording Files**
   - You can search through the recorded files. Also the recorded files can be downloaded or deleted.
   Note: We recommend the VLC Media Player for playing recorded files.
   (http://www.videolan.org/vlc/)

Recorded File List

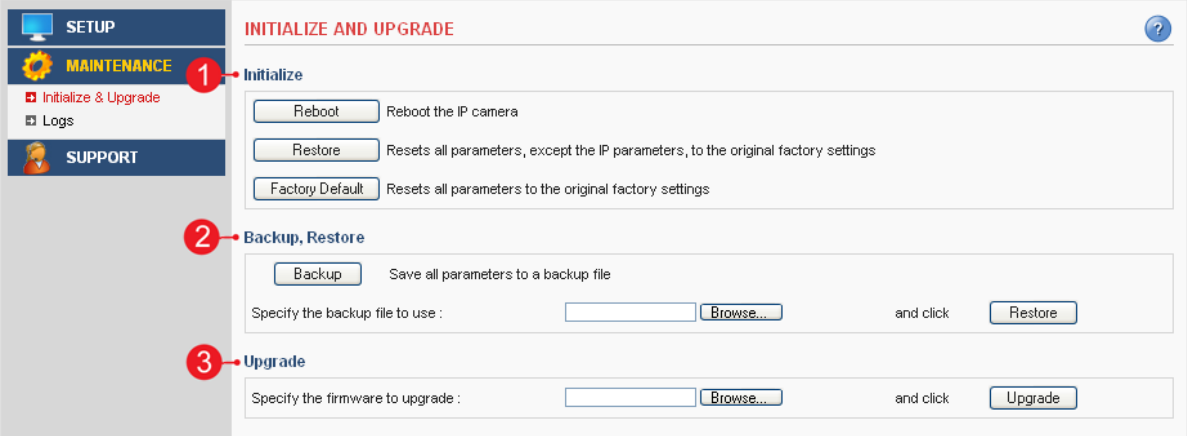
When you click on the search button, a recoded file list page will be newly created.



1. **Filename** – It shows the recorded files in the SD card. You can download it by clicking the corresponding link.
2. **Date -** It shows the date of recorded files in the SD card.
3. **Time** - It shows the time of recorded files in the SD card.
4. **Size** - It shows the size of recorded files in the SD card.
5. **Command** - This is for removing recorded files in the SD card.
6. **PREVIOUS** - Go to the previous page of the recording files.
7. **NEXT** - Go to the previous page of the recording files.

Maintenance > Initialize & Upgrade

This section describes how to reset the Network Camera and upgrade the firmware.



1. **Initialize**
   A. Reboot – Reboot the Network Camera.
   B. Restore – Reset all setting values, except network setting values.
   C. Factory Default – Reset all setting values to the original factory settings.

   Important: The Default button should be used with caution. Pressing this will return all settings to the factory default values, which also means that the IP address will need to be set again to make the unit accessible.

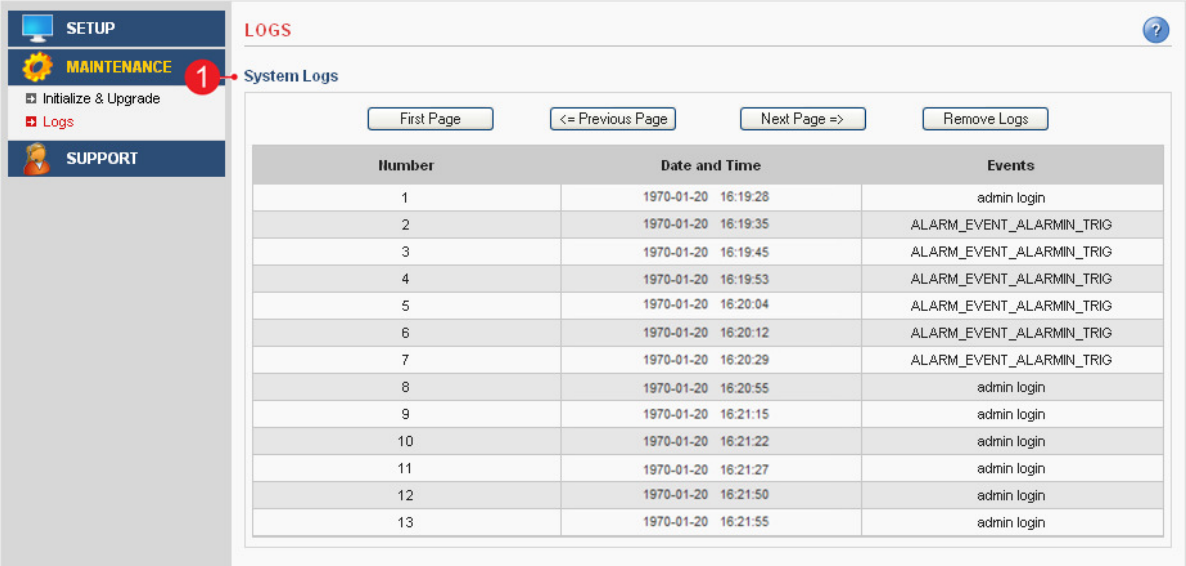
2. **Backup, Restore**
   A. Backup – Click the backup button to make a backup of all of the setting values in the Network Camera.
   B. Restore – If it is necessary to restore the camera to previous backed up settings, click the browse button to locate the saved backup file and then click the restore button.

3. **Upgrade**
   - Upgrade new firmware for the Network Camera. The latest firmware release can be downloaded from the KT&C website (*http://www.ktncusa.com)*

   A. Upgrade – To upgrade the firmware for the Network Camera, click the browse button to find the firmware file and then click the upgrade button.

Maintenance > Logs

This section describes the system logs.



1. **System Logs**
   - The Network Camera records when a particular event occurs in the log record.

   A. First Page – Go to the first page of the log record.

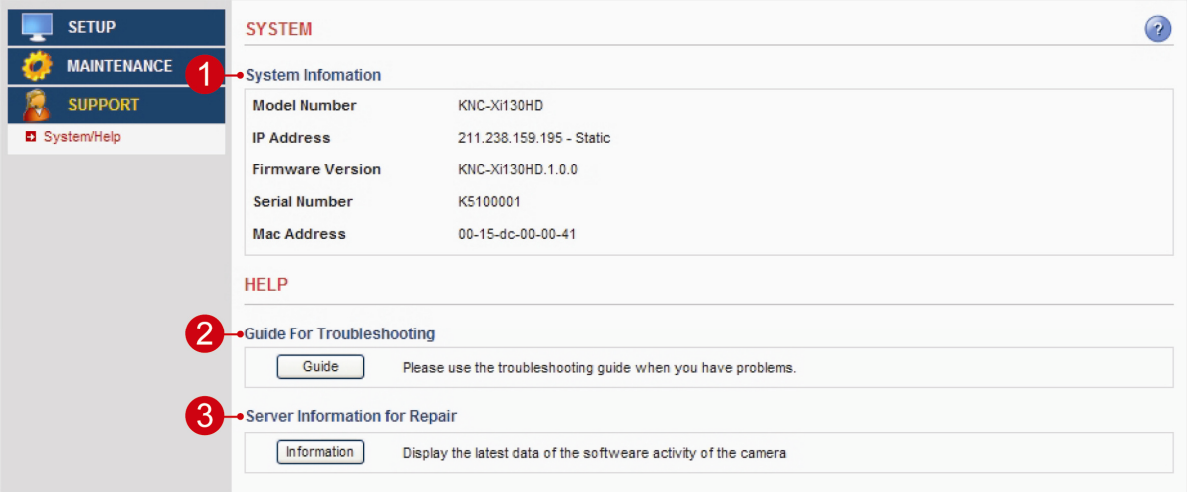
   B. Previous Page – Go to the previous page of the log record.

   C. Next Page – Go to the next page of the log record.

   D. Remove Logs – Remove all of the log record.

Support > System / Help

This section describes the system information and help menu.



1. **System Information**
   - Displays the system information of the Network Camera.

2. **Guide for Troubleshooting**
   - If you suspect a problem is being caused by incorrect configuration or some other minor problem, consult the troubleshooting guide.

3. **Server Information for Repair**
   - It would be helpful when you contacting your support channel with this report.

Product Specifications

ITEM		DESCRIPTION	NOTE
Model Name		KNC-Xi130HD, KNC-Xi210HD	
Image Device	KNC-Xi130HD	1/3" SONY 1.3M Progressive Scan CMOS	
	KNC-Xi210HD	1/2.8" SONY 3M Progressive Scan CMOS	
Lens	Lens Drive Type	Manual/DC	Unit: mm
	Mount	CS/C	
Day and Night		True Day & Night with ICR Mechanism	
Minimum Illumination		Color: 0.625 lux at 30 IRE, F1.4 B/W: 0.31 lux at 30 IRE, F1.4	
Video	Video Codec	H.264 Main Profile Motion JPEG	
	Resolutions (H.264/MJPEG)	H.264: Max. 1280x1024@30fps(KNC-Xi130HD) H.264: Max. 1920x1080@30fps(KNC-Xi210HD) H.264: Min. 320x240@30fps MJPEG: Max. 1280x720@30fps MJPEG: Min. 176x120@30fps	
	Video Streaming	Simultaneous Motion JPEG and H.264 Controllable frame rate and bandwidth Constant and variable bit rate (H.264)	
	Image Settings	Brightness, Contrast, Saturation, Sharpness, White Balance, Exposure Control, Back Light Compensation Compression levels : 100 (Motion JPEG) Viewer Magnification : 0.5x, 1x, 1.5x, 2x Overlay capabilities : time, date, text, privacy mask	
Audio	Audio Streaming	Two-way (full duplex)	
	Audio Codec	G.711, G.726	
	Audio Input/output	External microphone or line-in input (selectable) Line level output	
Network	Security	Multiple user access levels with password protection IP address filtering: Deny, Allow	
	Supported Protocols	IPv4, HTTP, HTTPS, TCP, RTSP, RTP, UDP, IGMP, RTCP, SMTP, FTP, ICMP, DHCP, ARP, DNS, DDNS, UPnP	
System Integration	API	Onvif 1.0 Open API for software integration, including API, SDK	
	Intelligent Video	Video motion detection	
	Alarm Triggers	Intelligent video, external inputs, manual triggers, Network Fail, Reboot, Schedule	
	Alarm Events	File upload via FTP, e-mail, SD card Notification via e-mail	

		External output activation	
Web Viewer		Video format change Stream play / stop Speaker sound / mute Microphone sound / mute Snapshot Instant recording(Max 5. minutes) Manual trigger Output control Screen magnification Status indicator (video, audio, record, alarm, motion)	
SD/SDHC	Supported Memory Card	SD Card (Max. 2GB) SDHC Card (Max. 32GB)	
	Recording Function	Event recording File search File download	
General	Enclosure	Alloy case	
	Processors and Memory	CPU : ARM 926EJ-S RAM : 128 MB Flash : 64 MB Real-time clock with backup battery	
	Power	DC12V 475mA, AC24V 5.2W Power over Ethernet Class 3 (IEEE 802.3af)	
	Interfaces	RJ-45 for Ethernet 10baseT/100baseTX with PoE Terminal block : - Power Input: DC 12V/ AC 24V - Digital input x 1 - Digital output x 1 3.5ø mono jack for MIC or Line input 3.5ø mono jack for Line output BNC for Service Video	
	Operating Conditions	Temperature: -10℃ ~50℃ (14℉~122℉) Humidity 20-80% RH (non-condensing)	
	Dimension	80 (W) X 62.6 (H) X 134.2 (D)	Unit: mm
	Weight	350g	
	Accessories	Installation Guide, CD with installation and management tools, CMS software, installation guide and User's guide *Visit the KT&C Support Web to get the latest KCMS-3000 (Free central management software) at www.ktncusa.com*	

Troubleshooting

This section describes the symptoms, possible causes and corrective actions.

Symptoms		Remedial Actions	Reference
Problems with IP address setting	The Network Camera is located on a different subnet.	If the Network Camera and your computer are located on different subnets, you will not be able to set the IP address. Contact your network administrator for obtaining an IP address on the same subnet as the computer that you are performing installation from.	
	The IP address is being used by another device.	Contact your network administrator. You must obtain a new IP address and reinstall the Network Camera.	
The Network Camera cannot be accessed from a web browser.	Cannot log in	Check if the user ID and password is correct. The ID and password are case sensitive.	
	IP address has been changed by DHCP	Reconfigure the IP address using the IP Installer. If a dynamic IP address via DHCP is required, enable the DHCP and configure the SMTP Notification (Email) For IP Address Change from the Setup>Basic>Network settings.	Installation Guide
	Other networking problems	Check the network cable by connecting it to another network device, then Ping the device from your computer.	
The Network Camera is not able to access externally	Firewall protection	Check the Internet firewall with your network administrator.	
	Default gateway required	Check if you need to configure the default gateway settings.	Page 14
The Network Camera does not turn on	DC power supply	Check the power.	
	AC power supply	Check the power.	
	PoE power supply	Check the Ethernet (CAT 5) cable that is connected to a PoE compatible power supply unit. Some power supply unit may not provide power when the total power supply limitation is exceeded. Check the Operating Instructions of the PoE power supply unit for maximum power output.	
No image displayed in the web viewer	ActiveX	To run the View Program in Microsoft Internet Explorer, configure your Web browser to allow the ActiveX controls. Also, make sure that KT&C Web Viewer component is installed on your PC.	Page 9
Video image problems	Missing images in uploads	This can occur when trying to use a larger image buffer than is actually available. Try lowering the frame rate or the upload period.	
	Slow performance	Slow performance may be caused by e.g. heavy network traffic, multiple users accessing the Network Camera, low performance computer, using features such as Motion Detection, Event action.	
	Image is not clear	Adjust the focus of the camera. Check the target bit late (H.264) or image quality (JPEG) is not configured too low.	Page16~19
	Video is stopped	Check if the network cable of the Network Camera is correctly connected. In case user uses switches or routers, check whether these network equipments are working properly.	Installation guide
	Blank Screen	Check the power source of the connected camera.	
	Video is often broken	Lower the target bit late (H.264) or image quality (JPEG)	
Audio problems	No audio	Check that the sound card in the PC, speaker and microphone are working. Ensure that the mute button is not enabled and the volume settings are correct.	
Motion Detection	Function is not working	Check if the Motion Detection is enabled. Check the sensitivity level Check the setting of the Motion Detection area.	Page 55~57

Glossary

This section provides glossary for understanding the Network Camera.

A.

- **ActiveX** - A control (or set of rules) used by a browser. ActiveX controls are often downloaded and installed automatically as required.
- **API** - Application Programming Interface. The KT&C API can be used for integrating KT&C products into other applications.
- **ARP** - Address Resolution Protocol. Used to associate an IP address to a hardware MAC address. A request is broadcasted on the local network to find out what the MAC address is for the IP address.
- **Aspect ratio** - A ratio of width to height in images. A common aspect ratio used for television screens and computer monitors is 4:3. High-definition television (HDTV) uses an aspect ratio of 16:9.

B.

- **BOOTP** - A protocol that can automatically configure a network device (give it an IP address).

C.

- **CGI** - Common Gateway Interface. A set of rules (or a program) that allows a Web Server to communicate with other programs.
- **Client/Server** - Describes the network relationship between two computer programs, in which one, the client makes a service request from another - the server.

D.

- **DC-iris** - The iris, a mechanism that automatically regulates the amount of light allowed entering to CCD, is electrically controlled by the camera
- **dB (Decibels)** - A unit to measure sound level changes. A 3dB change is the smallest level change we can hear. A gain of 0dB will leave the signal level unchanged.
- **De-interlacing** - De-interlacing is the process of converting a stream of interlaced frames to a stream of progressive frames.
- **A-DSL** - Digital Subscriber Line. A means of transferring data via standard phone line.

E.

- **Ethernet** - A widely used networking standard.

F.

- **Firewall** - A virtual barrier between a LAN (Local Area Network) and other networks, e.g. the internet.
- **FTP** - File Transfer Protocol. Used for the simple transfer of files to and from an FTP server.

- **Full-duplex** - Transmission of data, e.g. audio, in two directions simultaneously.

G.

- **G.711** - G.711 is the international standard for encoding telephone audio on 64 Kbps channel. It is a pulse code modulation (PCM) scheme operating at 8 kHz sample rate.
- **G.726** - Frequently used speech-compression algorithm in telecommunications due to its high perceived speech quality and low resource requirements.

H.

- **Half-duplex** - A half-duplex link communicates in one direction at a time only, Just like a walkie-talkie. Two way communications is possible, but not simultaneously.
- **HTTP** - Hypertext Transfer Protocol. The set of rules for exchanging files (text, images, sound, video, and other files) on the World Wide Web.
- **HTTP-S (HTTPS)** - An extension to the HTTP protocol to support the transmitting data securely over the World Wide Web.

I.

- **Intranet** - A private network limited to an organization or corporation. Usually closed to external traffic.
- **IP** - Internet Protocol.
- **IP address** - A unique set of numbers used by a computer on the network to allow it to be identified and found.

J.

- **JPEG** - A standard image format, used widely for photographs. Also known as JPG.

L.

- **LAN** - A local area network (LAN) is a group of computers and associated devices that typically share common resources within a limited geographical area.
- **Linux** - A popular operating system that is "open source" and practically free of charge.
- **Lux** - A standard unit for light measurement.

M.

- **Mbit/s** - Megabits per second. A unit for measuring speeds in networks. A LAN might run at 10 or 100 Mbit/s
- **MPEG4** - A video compression standard that makes good use of bandwidth. It can provide DVD-quality video streams at less than 1 Mbit/s.
- **Multicast** - A bandwidth-conserving technology that reduces bandwidth usage by simultaneously delivering a single stream of information to multiple network recipients.

P.

- **Ping** - A small utility used for sending data packets to network resources to check that they are working and that the network is intact.
- **Pre/post alarm image** - The images from immediately before and after an alarm.

- **Protocol** - A special set of rules governing how two entities will communicate. Protocols are found at many levels of communication, and there are hardware protocols and software protocols.

R.

- **Router** - A device that determines the next network point to which a packet should be forwarded on its way to its final destination. A router is often included as part of a network switch.
- **RTP** - Real Time Transfer Protocol. A transfer protocol designed for the delivery of live content, e.g. MPEG4.
- **RTSP** - Real Time Streaming Protocol is a network control(e.g. play, stop, etc) protocol used in multimedia, and a starting point for negotiating transports such as RTP, multicast and Unicast. RTSP can be considered a "remote control" for controlling the media stream delivered by a media server. RTSP servers typically use RTP as the protocol for the actual transport of audio/video data.

S.

- **SMTP** - Simple Mail Transfer Protocol is the protocol used to send e-mail across the Internet. SMTP authentication is a way of allowing people outside of a domain to use an SMTP server when sending e-mail.
- **SNMP** - Simple Network Management Protocol. An application layer protocol that facilitates the exchange of management information between network devices. It is part of the TCP/IP (Transmission Control Protocol/Internet Protocol) protocol suite.
- **Subnet Mask** - An IP address consists of two components: the network address and the host address. "Subnetting" enables a network administrator to further divide the host part of the address into two or more subnets. The subnet mask identifies the subnet to which an IP address belongs.
- **Switch** - Whilst a simple hub transmits all data to all devices connected to it, a switch only transmits the data to the device it is specifically intended for.

T.

- **TCP/IP** - Transmission Control Protocol/Internet Protocol. A suite of network protocols that determine how data is transmitted. TCP/IP is used on many networks, including the Internet. TCP keeps track of the individual packets of information and IP contains the rules for how the packets are actually sent and received.

U.

- **UDP** - The User Datagram Protocol is a communication protocol that offers a limited amount of service when messages are exchanged between computers in a network that uses the IP. UDP is an alternative to the TCP and, together with IP, is also known as UDP/IP.
- **Unicast** - Communication between a single sender and a single receiver over a network.

A new connection is established for each new user.

- **URL** - Uniform Resource Locator. An "address" on the network.

V.

- **Varifocal** - A varifocal lens provides a various range of focal length, as opposed to a lens with a fixed focal length, which only provides one.

W.

- **WAN** - Wide Area Network. Similar to a LAN, but on a larger geographical scale.
- **Web server** - A program on a computer that delivers the resources requested by the web user.