Honeywell | 30 Series

Honeywell 30 Series IP Cameras Configuration Guide

HC30W42R3 HC30W45R3 HC30W45R2 HC30WB2R1 HC30WB5R1
HC30WB5R2 HC30WE2R3 HC30WE5R3 HC30WE5R2 HC30WF5R1

Recommended

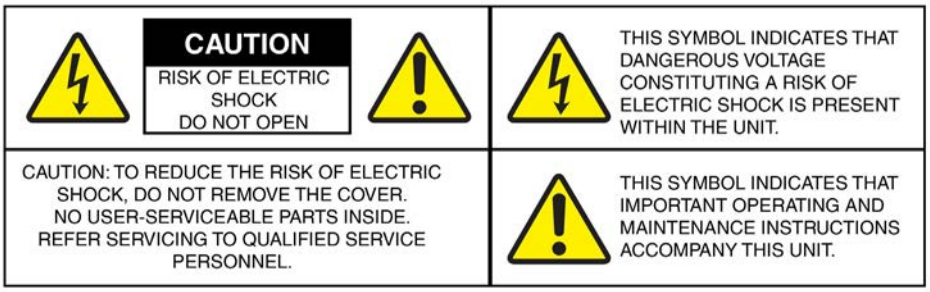
Find the latest version of this and other Honeywell 30 Series IP camera documents on the Honeywell Video website. Go to: http://www.honeywellvideosystems.com/ndaa/ to find your camera and view/download the latest documentation.

Refer to the Honeywell Open Technology Alliance to learn more about our open and integrated solutions (go to: http://www.security.honeywell.com/hota/).

Revisions

Issue	Date	Revisions
A	04/2019	New document.
B	04/2019	Add Compatible SD Card
V1-A	05/2019	Add Fisheye features; Modify special characters in password; Add HLC; Add Pixel Calculator; Modify HTTPS; Add Certificate Request and upload files; Modify Motion detection (intrusion detection, people detection); Add audio settings; Add audio detection settings; Add audio detection event settings; Delete remote log server; Modify Version screenshot; Add mount type.

Cautions and Warnings



WARNING **Installation and servicing should be performed only by qualified and experienced technicians to conform to all local codes and to maintain your warranty.**

WARNING **To ensure compliance with electrical safety standards this product is intended for use with a Listed Power Adapter marked with "Limited Power Source", "LPS", on the unit, output rated 12 V DC, minimum 0.7A, Tma=60°C or from Power over Ethernet (PoE) provided by Listed Information Technology Equipment meeting the IEEE 802.3af PoE standard.**

The Ethernet connection is not intended to be connected to exposed (outside plant) networks. Do not connect two power sources to the camera at the same time.

Regulatory Statements

Photobiological safety

This product fulfills the requirements for photobiological safety according to IEC/EN 62471 (risk group 1).

General Data Protection Regulation

Please be aware that this product can store personal data.

Personal data is protected by the General Data Protection Regulation (2016/679) in Europe and therefore the owners of personal data have obtained certain rights thanks to this regulation.

We strongly advise you to be fully aware of these owner ("data subjects") rights as well as which limitations you have to obey regarding the use and distribution of this data.

Further details can be found on the GDPR website of the EU:
https://ec.europa.eu/commission/priorities/justice-and-fundamental-rights/data-protection/2018-reform-eu-data-protection-rules_en

FCC Compliance Statement

Information to the User: 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 instruction manual, 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.

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

Canadian Compliance Statement

This Class B digital apparatus complies with Canadian ICES-003.

Manufacturer's Declaration of Conformance

The equipment supplied with this guide meets the provisions of the following European Union council directives:

- 2014/30/EU for EMC
- 2001/95/EC for safety, and
- 2015/863 for RoHS compliance.

Waste Electrical and Electronic Equipment (WEEE)

Correct Disposal of this Product (applicable in the European Union and other European countries with separate collection systems).

This product should be disposed of, at the end of its useful life, as per applicable local laws, regulations, and procedures.

Safety Instructions

Before installing or operating the unit, read and follow all instructions. After installation, retain the safety and operating instructions for future reference.

1. **HEED WARNINGS** - Adhere to all warnings on the unit and in the operating instructions.
2. **INSTALLATION**
   - Install in accordance with the manufacturer's instructions.
   - Installation and servicing should be performed only by qualified and experienced technicians to conform to all local codes and to maintain your warranty.
   - Any wall or ceiling mounting of the product should follow the manufacturer's instructions and use a mounting kit approved or recommended by the manufacturer.
3. **POWER SOURCES -** This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supplied to your facility, consult your product dealer or local power company.
4. **MOUNTING SYSTEM** - Use only with a mounting system recommended by the manufacturer, or sold with the product.
5. **ATTACHMENTS/ACCESSORIES** - Do not use attachments/accessories not recommended by the product manufacturer as they may result in the risk of fire, electric shock, or injury to persons.
6. **CLEANING** - Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
7. **SERVICING** - Do not attempt to service this unit yourself. Refer all servicing to qualified service personnel.
8. **REPLACEMENT PARTS** - When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock or other hazards. Using replacement parts or accessories other than the original manufacturers may invalidate the warranty.

Warranty and Service

Subject to the terms and conditions listed on the product warranty, during the warranty period Honeywell will repair or replace, at its sole option, free of charge, any defective products returned prepaid.

In the event you have a problem with any Honeywell product, please call Customer Service at 1.800.323.4576 for assistance or to request a **Return Merchandise Authorization (RMA)** number.

Be sure to have the model number, serial number, and the nature of the problem available for the technical service representative.

Prior authorization must be obtained for all returns, exchanges, or credits. **Items shipped to Honeywell without a clearly identified Return Merchandise Authorization (RMA) number may be refused.**

Table of Contents

Figures

Tables

About This Document

This document provides instructions for accessing, configuring, and operating the Honeywell 30 Series IP cameras. This document is intended for system installers, administrators, and operators.

Overview of Contents

This document contains the following chapters and appendixes:

- *Chapter 1, Introduction*, provides an overview of the main features of the Honeywell 30 Series IP cameras.
- *Chapter 2 , Accessing the Camera*, describes how to install the ConfigTool to access the camera remotely from a web browser. It also describes how to update your camera's firmware.
- *Chapter 3, Logging In and Viewing Live Video*, describes how to log in to a camera and using the main page.
- *Chapter 4, Configuring Camera Settings*, describes camera configurations.
- *Chapter 5, Configuring Network Settings*, describes network configurations.
- *Chapter 6, Configuring Video Analytics*, describes video analytics configurations.
- *Chapter 7, Configuring Storage Settings*, describes storage configurations.
- *Chapter 8, Configuring System Settings, describes general system configurations.*
- *Chapter 9, Viewing System Information, describes system information, such as version, log and online user information.*
- *Chapter 10, Troubleshooting*, lists common problems and solutions.
- *Chapter 11, Appendix*, lists the descriptions of symbols.

1 Introduction

This chapter contains the following sections:

Overview

Honeywell 30 Series IP cameras integrate traditional camera and network video technology, combining video data collection and transmission. These flexible, fully featured cameras are the ideal choice for a wide range of indoor and outdoor surveillance applications.

Plug-and-play compatible with Honeywell 30 Series Network Video Recorder, the cameras offer 2 or 5 megapixel resolution at up to 30 frames per second and use video compression technology to save bandwidth and storage while ensuring maximum video quality. All the cameras are True Day/Night with intelligent IR capability, providing up to 165 ft (50 m) of illumination in low-light and nighttime scenes. Also, all the cameras support WDR function at up to 120 dB.

Each camera comes with configurable motion detection and camera tamper detection and supports up to 5 user-defined privacy mask areas. In addition to a 12 VDC adapter, all the cameras support Power over Ethernet (PoE), eliminating the need for a separate power supply and associated wiring. All models also support local video storage on microSDHC cards (up to 128 GB) when network service is interrupted.

Key Features

Key features of the Honeywell 30 Series IP cameras include the following:

Camera

- Day/Night mode auto-switch
- Video parameter setup, such as electronic shutter and gain
- Motion detection
- Camera tampering detection
- People detection
- Wide dynamic range
- IR night vision
- Fisheye dewarping

Storage

- Central server backup (configure in Event settings)

- Recording over Internet, files stored on client PC
- Network storage (NAS)

Network Monitoring

- Latency time less than 500ms (network bandwidth support required)
- Up to 10 connections
- Compatible with the following network protocols: IPv4, IPv6, TCP/IP, HTTP, HTTPS, UPnP, RTSP/RTP/RTCP, IGMP, CIFS/SMB, SMTP, DHCP, NTP, DNS, DDNS, CoS, QoS, SNMP, 802.1X, UDP, ICMP, ARP, TLS

Network Management

- Camera configuration and management via Ethernet
- Device management via Internet or client PC

User Management

- Each user belongs to specific group
- Different user rights for each group
- User rights cannot exceed group rights

System Management

- Log function
- System resource information and running real-time status display

2 Accessing the Camera

This chapter contains the following sections:

Installing the IPC Tool Utility

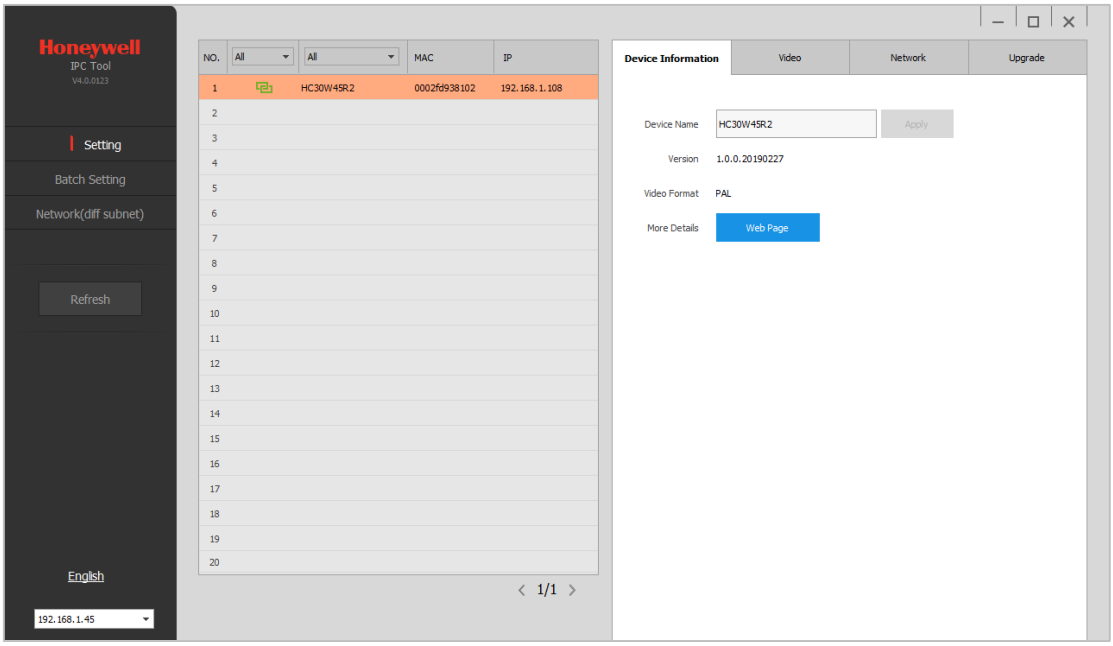
To install the IPC Tool utility and create a desktop shortcut:

1. Insert the included Software and Document disc into your PC's disc drive.
2. Install the IPC Tool utility to your PC. The shortcut  is added to the desktop.

Discovering Your Camera on the Network

To discover your network camera(s), open the IPC Tool utility  , enter your user name and password, and then click **Connect**. Cameras that are online have a green connected icon next to them. Cameras that are offline have a gray disconnected icon  next to them. To refresh the list, click **Refresh**.

Figure 2-1 IPC Tool



Assigning a New IP Address to Your Camera

The current IP address of your camera appears in the **IP** column of the devices list. If you want, you can assign a new static IP address to the camera.

To change the IP address of a single camera:

1. Select the camera that you want to configure from the devices list.
2. Click the **Network** tab.
3. Clear the **DHCP** check box.
4. Enter the new IP settings in the **IP Address**, **Subnet Mask**, and **Default Gateway** fields.
5. Click **Apply** to apply the settings.

To change the IP addresses of multiple cameras at the same time:

1. In the left-most pane of the IPC Tool utility, click **Batch Setting**.
2. Select all the cameras that you want to configure from the devices list.
3. Click the **Network** tab.
4. Do one of the following:
   - To assign dynamic IP addresses, select the **Set all to DHCP** check box, and then click **Apply**.
   - To assign static IP addresses, enter the settings in **IP Range**, **Subnet Mask**, and **Default Gateway** fields, and then click **Apply**.

Upgrading the Camera's Firmware

Before you begin using your camera, make sure you have the latest firmware installed. You can upgrade a single camera or multiple cameras at the same time.

To upgrade a single camera:

1. Select the camera that you want to upgrade from the devices list.
2. Click the **Upgrade** tab.
3. Click **Browse**, navigate to the directory that contains the firmware file (.bin), select the file, and then click **Open**. The firmware file appears in the **Target File** field.
4. Click **Upgrade**. When the upgrade is complete, the camera will reboot.

To upgrade multiple cameras at the same time:

1. In the left-most pane of the IPC Tool utility, click **Batch Setting**.
2. Select all the cameras that you want to upgrade from the devices list.
3. Click the **Upgrade** tab.
4. Click **Browse**, navigate to the directory that contains the firmware file (.bin), select the file, and then click **Open**. The firmware file appears in the **Target File** field.
5. Click **Upgrade**. When the upgrade is complete, the cameras will reboot.

Accessing the Camera from a Web Browser

To access the camera from a web browser:

1. Select the camera that you want to access from the devices list. The camera must be online  .
2. On the **Device Information** tab, click **Web Page**. The web client opens in your default browser.

3 Logging In and Viewing Live Video

This chapter contains the following sections:

Logging In to the Camera via the Web Client

Using the web client, you can monitor live video, play back recorded video, and configure camera settings.

Before You Begin

Before you log in to the web client, ensure that the following conditions are met:

- The camera is properly connected to the network.
- The camera's IP address and the PC's IP address are in the same network segment. If there is a router, set the corresponding gateway and subnet mask.
- A network connection has been established. To check this, ping the camera's IP address. (Enter "ping [IP address]").

Logging In to the Camera

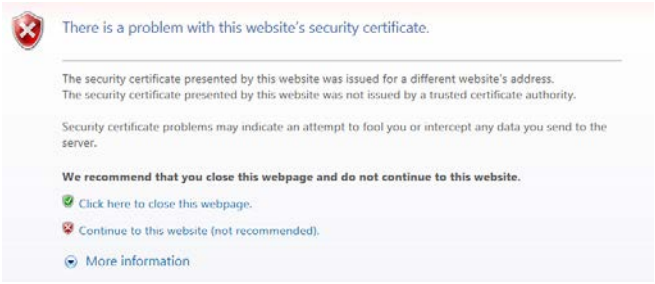
Logging In via Internet Explorer

1. Open **Internet Explorer**, type the camera's IP address in the address bar, and then click **Enter**. For example, if your camera's IP address is **192.168.1.108**, you would type https://192.168.1.108.

Note	Internet Explorer 11 (or later) with ActiveX plug-in is supported.

2. The following window is displayed. Click **Continue to this website (not recommended)**.

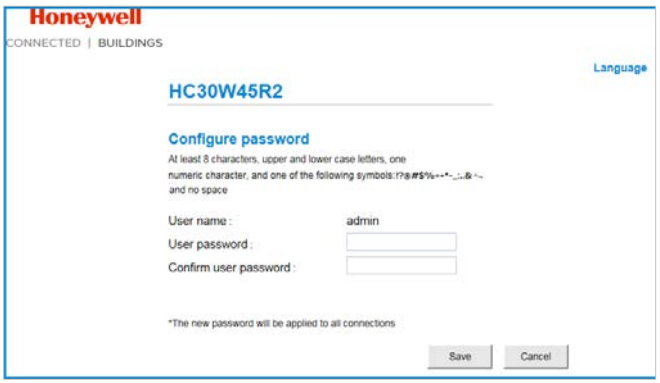
Figure 3-1 Security Certificate Problem



For how to resolve the security certificate problem, see *Export CA Certificate* on page *85*.

3. For security purposes, you are required to create a new secure password at the first login.

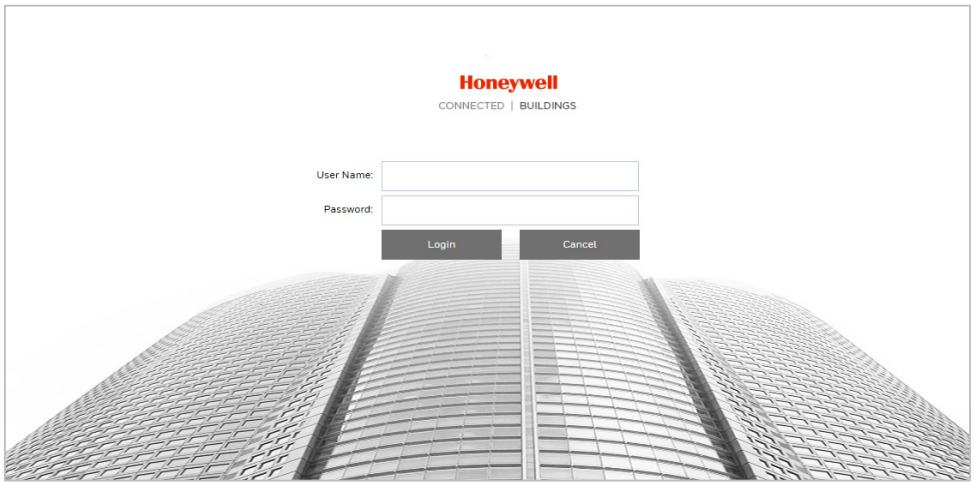
Figure 3-2 Change Password



The password must be at least 8 characters in length and contain at least one uppercase letter, one lowercase letter, one number, and one special character (!?@#$%=+*-_:;.&^~). The password cannot be blank. Click **Save**.

4. The login screen is displayed. Enter the admin user name and password, and then click **Sign in**.

Figure 3-3 Login Page

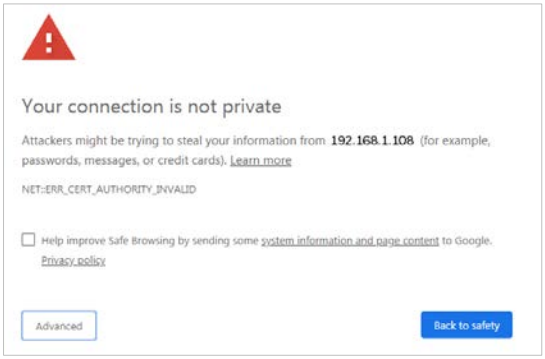


If you are logging in for the first time, you will be prompted to download and install the plugin. Follow the on-screen instructions to install it. When the installation is complete, the web client automatically refreshes and the main page opens (*Figure 3-7*).

Logging in Via Google Chrome

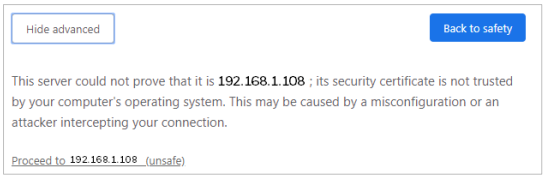
1. Open **Google Chrome**, type the camera's IP address in the address bar, and then click **Enter**. For example, if your camera's IP address is **192.168.1.108**, you would type https://192.168.1.108.
2. The following window is displayed. Click **Advanced**.

Figure 3-4 Safety Problem



3. The following window is displayed. Click **Proceed to 192.168.1.108 (unsafe)**.

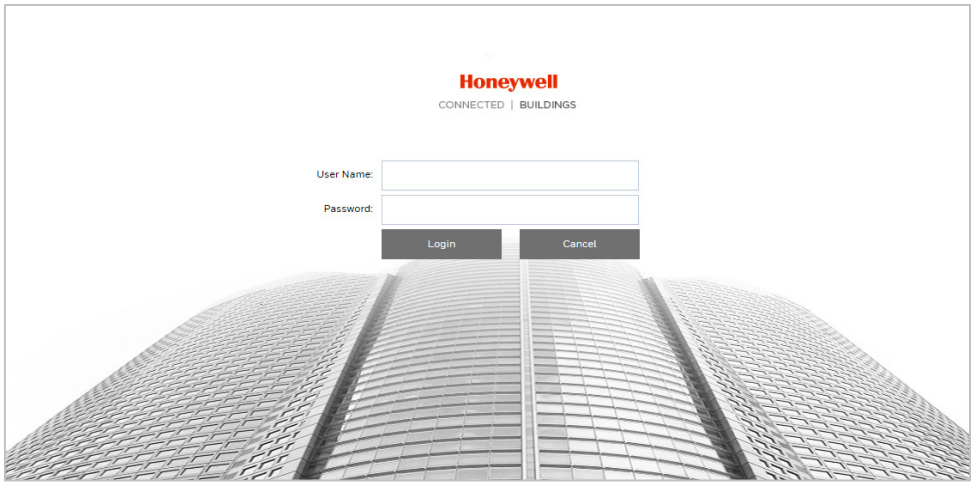
Figure 3-5 Security Certificate Problem



For how to resolve the security certificate problem, see *Export CA Certificate* on page *85*.

4. The login screen is displayed. Enter the admin user name and password, and then click **Sign in**.

Figure 3-6 Login Page



Note	Chrome 71 (or later) is supported for H.264 video. Chrome is not supported for H.265 video.

Using the Main Page

The main page has the following areas: video stream settings area, manual triggers area, system menu, live view resize buttons, live view controls toolbar and live video window.

The main page of the Fisheye model (HC30WF5R1) is different from the other models. For the main page of the Fisheye model, see *Fisheye Main Page* on page *12*.

Figure 3-7 Main Page

1. System Menu (see *System Menu* on page *10*)
2. Video Stream Settings (see *Video Stream Settings* on page *10*)
3. Manual Triggers (see *Manual Triggers Settings* on page *11*)
4. PTZ Panel (see *PTZ Panel* on page *11*)
5. Global View (see *Global View* on page *11*)
6. Live View Controls Toolbar (see *Live View Controls* on page *10*)
7. Resize Buttons (see *Resize Buttons* on page *12*)

Host Name

You can change the host name according to your needs. For more information, see *Configuring System General Settings* on page *80*.

System Menu

When you log in to the camera using the web client, the main page opens by default. To access the settings page, language page or to log out, select the corresponding tab.

Video Stream Settings

The camera supports multiple streams (streams 1, 2 and 3) simultaneously. You can select any of them for live viewing. For more information about multiple streams, see *Video Stream* on page *31*.

Live View Controls

From the Live View controls toolbar, you can zoom in on a scene, take a snapshot, or manually record video. These controls are described in more details below.

Figure 3-8 Live View Window Controls

Table 3-1 Live View Window Controls

Icon	Control	Description
	**Snapshot**	Click to capture and save video images. The captured images will be displayed in a pop-up window. Right click the image and select **Save picture as** to save it in JPEG (*.jpg) or BMP (*.bmp) format.
	**Digital Zoom**	Click and uncheck **Disable digital zoom** to enable the zoom operation. The navigation screen shows the part of the image being magnified. To resize the navigation area, put the cursor on a border and drag the border. To move to a different area you want to magnify, drag the navigation screen. To zoom the image, scroll the mouse wheel.
	**Pause**	Pause the transmission of the streaming media. The button becomes the Resume button after clicking the Pause button.
	**Stop**	Stop the transmission of the streaming media. Click the Resume button to continue transmission.

Icon	Control	Description
	**Start MP4 Recording**	Click to record the video clip in MP4 file format and save it to your computer. You can play the video clip by VLC player. Press the **Stop MP4 Recording** button to end recording. When you exit the web browser, video recording stops accordingly. • If you run the Internet Explorer as administrator and this is the first time you record, the recording will be stored under C:\Record. • If you run the Internet Explorer as non-administrator, a pop-up window will be displayed for you to select the destination. • If you have selected the storage path as non-administrator, and then you run the Internet Explorer as administrator, the recording will be stored in your previously selected path.
	**Volume**	Click to move the slider bar to adjust the volume on the local computer. (Only HC30WF5R1 supports this function.)
	**Mute**	Click to turn off the audio on the local computer. Click it again to turn on the audio. (Only HC30WF5R1 supports this function.)
	**Full Screen**	Click to switch to the full screen mode. Press the “Esc” key or double click the screen to switch to the normal mode.

Manual Triggers Settings

Click to enable/disable an event trigger manually. Configure an event setting before you enable this function. A total of 3 events can be configured. For more information, see *Configuring Event Settings* on page *60*.

PTZ Panel

The camera supports digital pan/tilt/zoom control, which allows roaming a smaller view frame within a large view frame. For more information, see *Configuring Digital PTZ Settings* on page *36*.

Global View

Click to display the Global View window. The Global View window contains a full view image (the largest frame size of the captured video) and a floating frame (the viewing region of the current video stream). The floating frame allows users to control the PTZ function. For more information, see *Configuring Digital PTZ Settings* on page *36*.

Note	The PTZ buttons on the panel are not operational unless you are showing only a portion of the full image. If the live view window is displaying the full view, the PTZ buttons are not functional.

Resize Buttons

Click **Auto**, the video window will resize automatically to fit the monitor.

Click **100%**, it will display the original main page size.

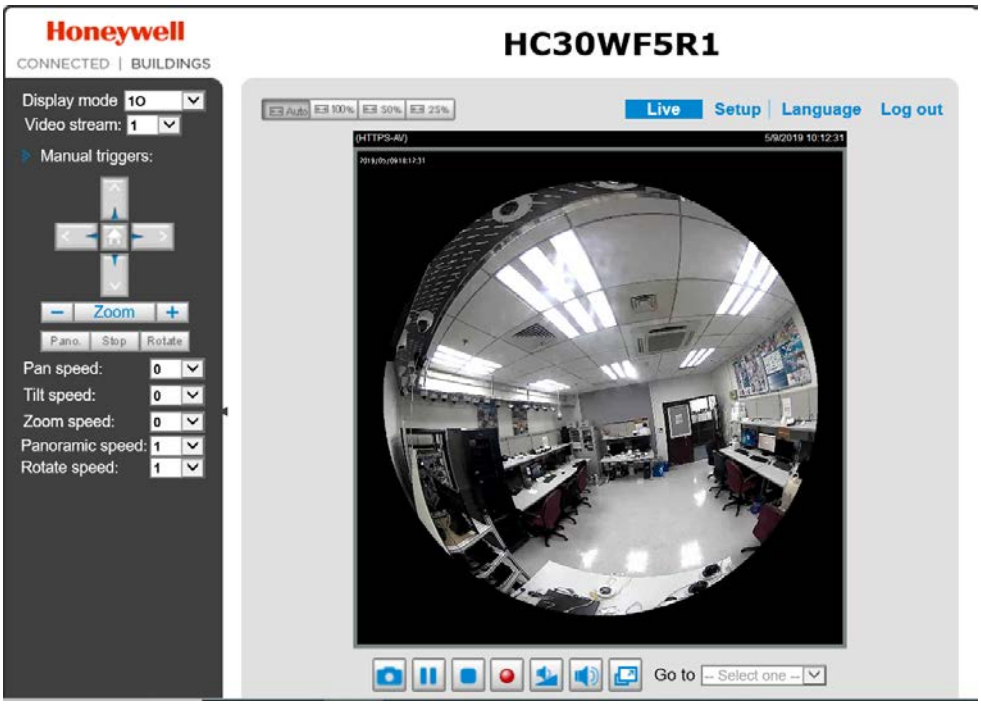
Click **50%**, it will resize the main page to 50% of its original size.

Click **25%**, it will resize the main page to 25% of its original size.

Fisheye Main Page

The main page of Fisheye model (HC30WF5R1) is as below:

Figure 3-9 Fisheye Main Page



The main differences are the display mode, Live View Controls (see *Live View Controls* on page *10*) and PTZ Panel (see *PTZ Operations (Fisheye Model)* on page *40*).

Display Mode

Due to the fisheye lens' wide coverage of 180º hemispheric and 360º panoramic views and to manipulate the details within, the following display modes are provided:

Figure 3-10 Fisheye Display Mode

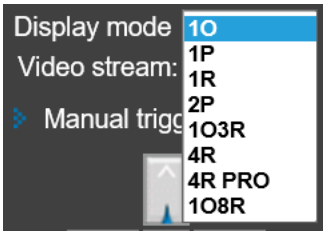


Table 3-2 Fisheye Display Mode

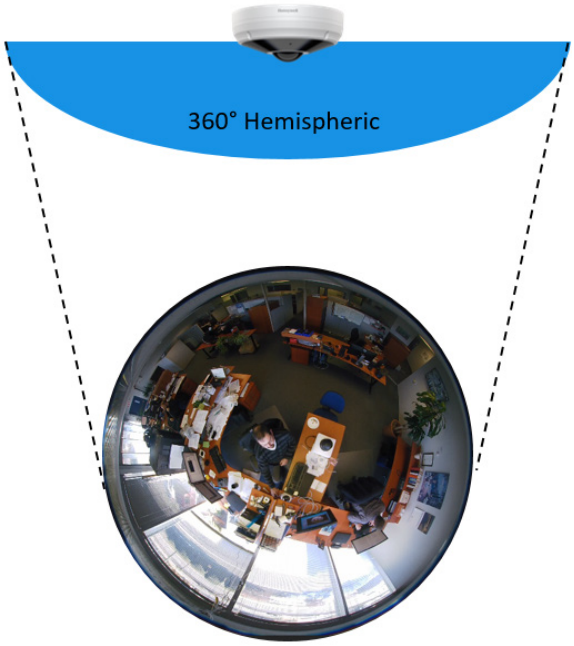
Display Mode	Description
1O	One Original fisheye view
1P	One Panoramic view
1R	One Regional view
1P2R	One Panoramic and two Regional views (Wall mount)
2P	Two Panoramic views
1P3R	One Panoramic and three Regional views (Wall mount)
1O3R	One Original and three Regional views
4R	Four Regional views
4R PRO	Four Regional views interactively displayed when the field of view changes in any of the views
1O8R	One Original and eight Regional views

1O (One Original) Display Mode

When mounted on a ceiling, the fisheye camera can cover an approximate of 64 m² surveillance area (installed at a height of approximately 3 meters), while still keeping details in videos with recognizable facial features of people passing through the area.

The 1O view is especially adequate for taking an overview glimpse of the surveillance area when mounted on the ceiling.

Figure 3-11 1O (Original) Display mode

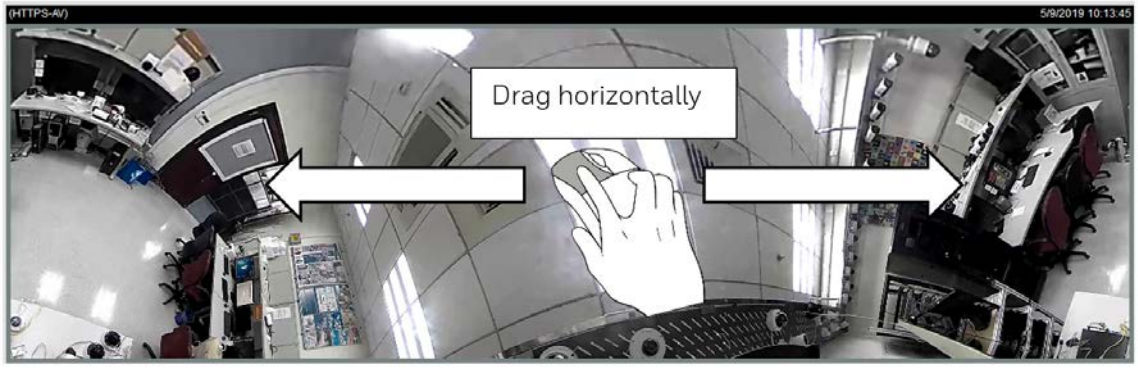


1P (One Panoramic) Display Mode

With the image correction algorithms in firmware, the hemispheric image is transformed into a rectilinear stripe in the 1P display mode. You can use the PTZ panel or simply use mouse drags to quickly move through the 360º panoramic view. (Mouse control on the Panoramic view is available with the Ceiling mount type.)

When mounted on a wall, this mode can cover a 180º overview from side to side, e.g., on the entrance of a building or a corridor.

Figure 3-12 1P (One Panoramic) Display mode

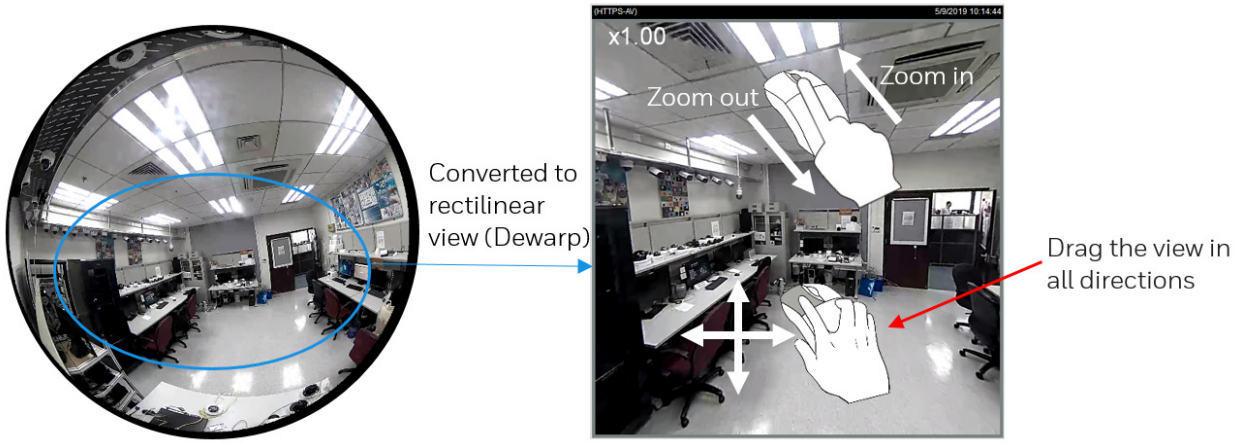


Note	The 1P view is applicable for an overview, the Zoom in/out function does not apply in this mode.

1R (One Regional) Display Mode

The 1R mode provides access to one image section within the hemisphere. You can zoom in or out (using the mouse wheel or PTZ panel) or travel to other areas in the hemisphere using mouse clicks and drags. A single click on a particular object can bring the object to the center of your view window. Click and hold down the left mouse button, and you can drag the view in all directions.

Figure 3-13 1R (One Regional) Display mode



1P2R (One Panoramic and Two Regional) Display Mode

The 1P2R mode provides access to two regional views and the reference to their relative positions on a panoramic view. This display mode is available only when you select the **Wall** mount type, see the Mount type section in *General Settings* on page *20*.

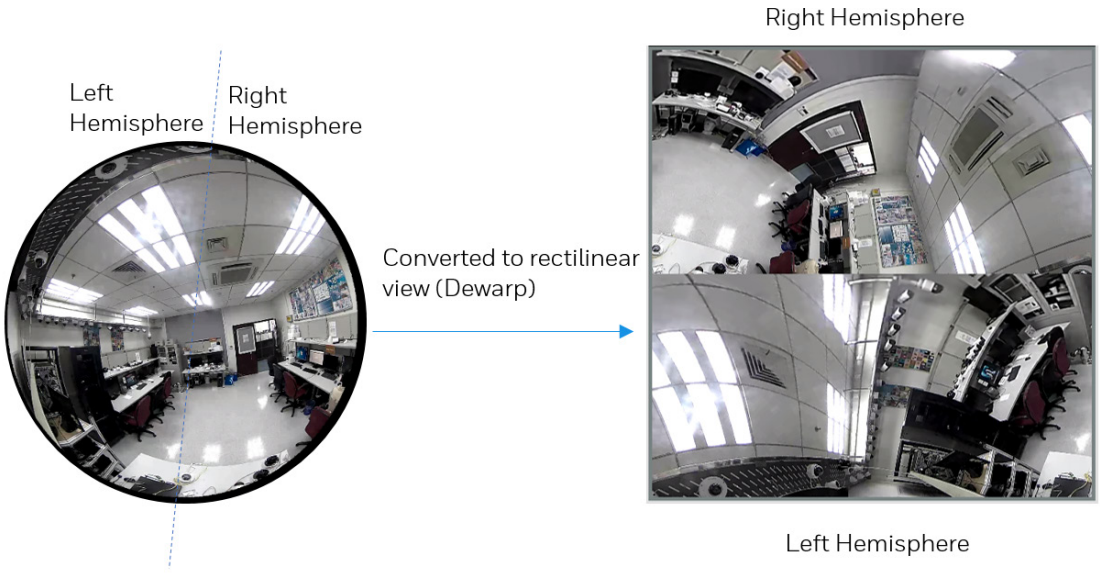
The operations of the 1P2R display mode is similar to the operations of the 1O3R, see *The operations of the 1P3R display mode is similar* to the operations of the 1O3R, see ***Error! Not a valid bookmark self-reference.*** on page *16*.

1O3R (One Original and Three Regional) Display Mode on page *16*.

2P (Two Panoramic View) Display mode

Similar to 1P, the 2P display mode provides simultaneous access to both the left and right sections of a hemisphere. Both panoramic views are corrected into a more viewable dewarped image. You can use a mouse click and drag to quickly scroll horizontally through the surveillance area.

Figure 3-14 2P (Two Panoramic View) Display mode



1P3R (One Panoramic and Three Regional) Display Mode

The 1P2R mode provides access to two regional views and the reference to their relative positions on a panoramic view. This display mode is available only when you select the **Wall** mount type, see the Mount type section in *General Settings* on page *20*.

The operations of the 1P3R display mode is similar to the operations of the 1O3R, see ***Error! Not a valid bookmark self-reference.*** on page *16*.

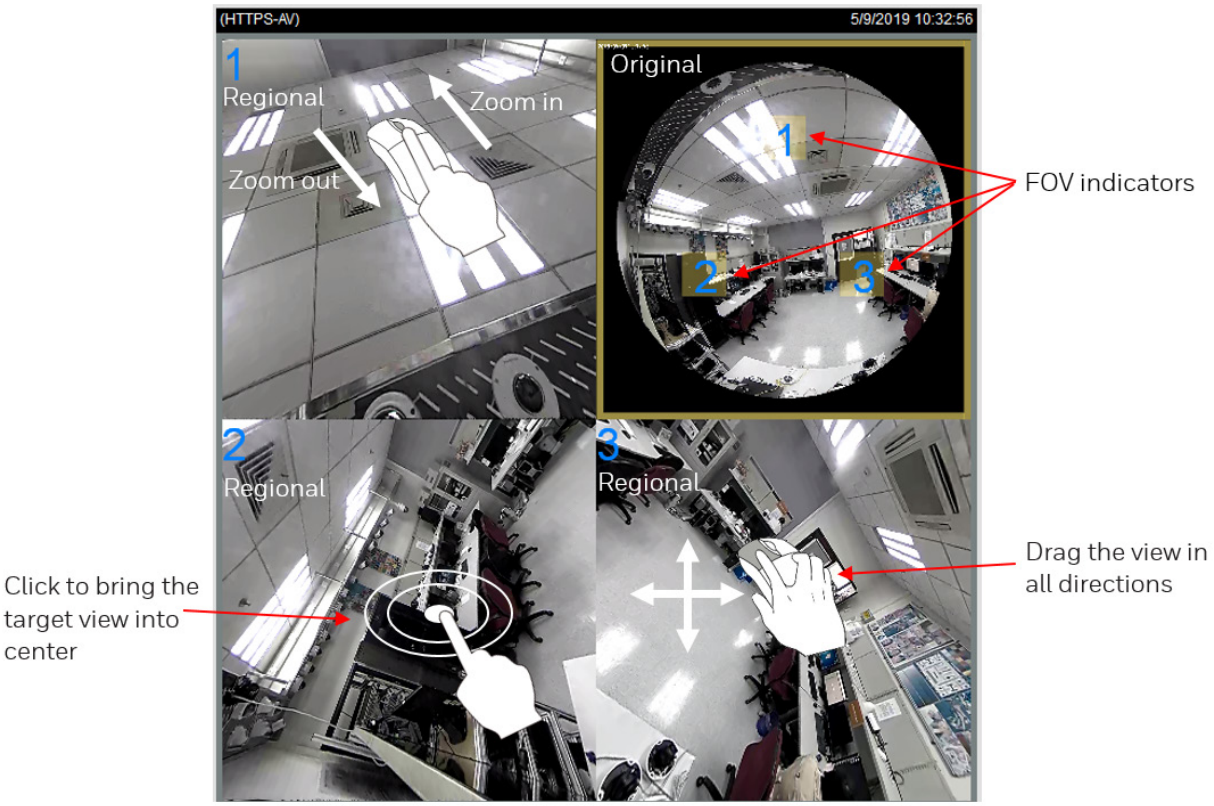
1O3R (One Original and Three Regional) Display Mode

The 1O3R mode provides access to multiple live view sections within the hemisphere and the reference to their relative positions on an Original circular view. The FOV (Field of View) indicators (#1 ~ #3) interact with your current operation as you may zoom in/out or move the live view window to a different place.

You can zoom in or out or travel to other areas within the hemisphere using identical methods as previously described in the 1R mode.

You can also change the locations of Regional views by dragging the FOV indicators on the "Original" circular view.

Figure 3-15 1O3R (One Original & Three Regional) Display mode



If you select a regional window, you can see the position of the regional window in the original window.

Figure 3-16 Regional Window Selection

Note	• In a Regional view displaying 100% of video feed (via the Resize buttons - see *Resize Buttons* on page *12*), your mouse wheel can be used to scroll the view window vertically before you click a live image. • After you click the live image, the mouse wheel becomes the zoom in/out tool.

4R (Four Regional) Display mode

The view control and look and feel are identical to that as described in the 1O3R mode except that the Original circular view is absent from this mode.

Figure 3-17 4R (Four Regional) Display mode

4R PRO (Four Regional Proactive) Display mode

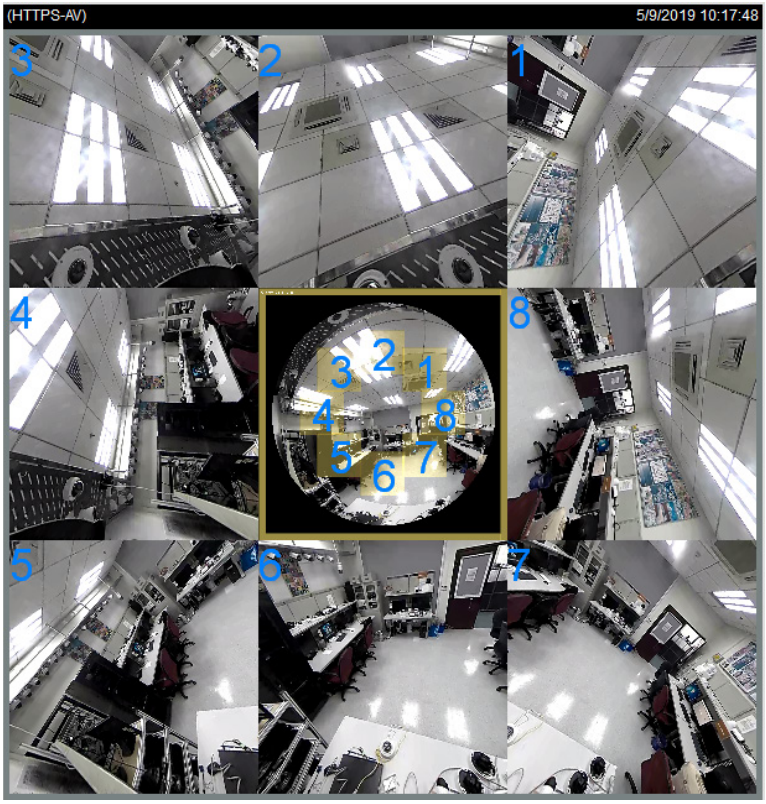
The 4R PRO mode is similar to the 4R mode except that the quad view windows consecutively rotate in correspondence to the change of view area in one window.

Note	The zoom in/out and tilt control is not available in this mode.

1O8R (One Original and Eight Regional) Display mode

The view control and look and feel are identical to that as described in the 1O3R mode.

Figure 3-18 1O8R (One Original and Eight Regional) Display mode



Note	If you change the position of a view in hemisphere, e.g., the #3 window, you may lose the configuration change by switching to another display mode. The live view window does not automatically save your view section layout.

4 Configuring Camera Settings

This chapter contains the following sections:

Configuring Camera Properties

Go to **Setup →Camera Setup → Properties**.

This section describes how to configure the image settings of camera (picture, exposure, lighting compensation, white balance, day and night, IR light, etc.).

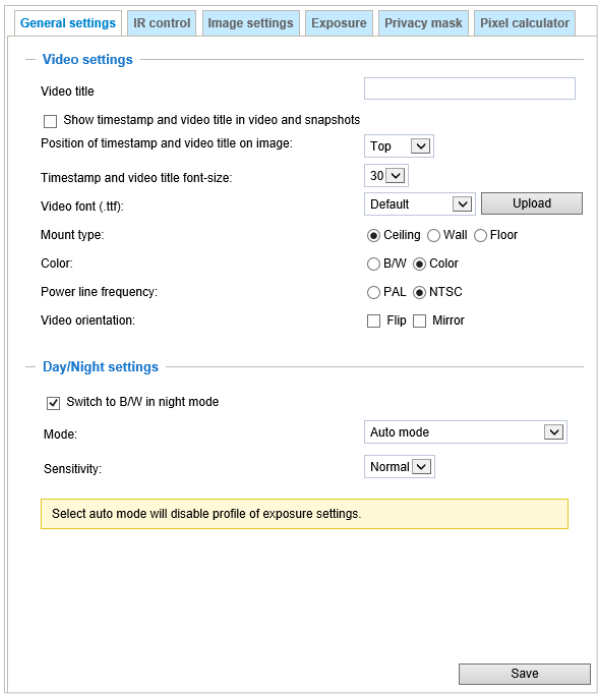
Note	Click **Save** to enable the settings after you completed the settings on each page.

General Settings

Go to **Setup →Camera Setup → Properties→General Settings**.

On this page, you can configure the general video settings and day/night settings.

Figure 4-1 General Settings



Video Settings

Video Title: Enter a name that will be displayed on the title bar of the live video.

Show timestamp and video title in video and snapshots: Check to display timestamp and video title in live video and snapshots.

Position of timestamp and video title on image: Select a position from the dropdown list to display timestamp and video title on the top or at the bottom of the video stream.

Timestamp and video title font-size: Select a font size for the timestamp and title.

Video font (.ttf): You can select a True Type font file for the display of textual messages on video.

Mount type: The camera provides 3 Mount types - Ceiling, Wall, and Floor.

- **Ceiling**: The Ceiling mount type automatically delivers upside-down images. The Ceiling mode supports the following Display modes - 1O, 1P, 1R, 2P, 1O3R, 4R, 4R PRO, and 1O8R.
- **Wall**: The Wall mount type applies to the monitoring of long, side-to-side surveillance areas, such as when mounted on a wall facing a corridor. Different Mount types have different options with the Display mode settings. For example, the 1P2R (1 Panoramic & 2 Regional) and 1P3R (1 Panoramic & 3 Regional) display modes are only available when the “Wall” Mount type is applied.
- **Floor**: The Display modes with the Floor mount type are identical to those for the Ceiling mount except that the images are not vertically flipped.

Color: Select to display color or black/white video streams.

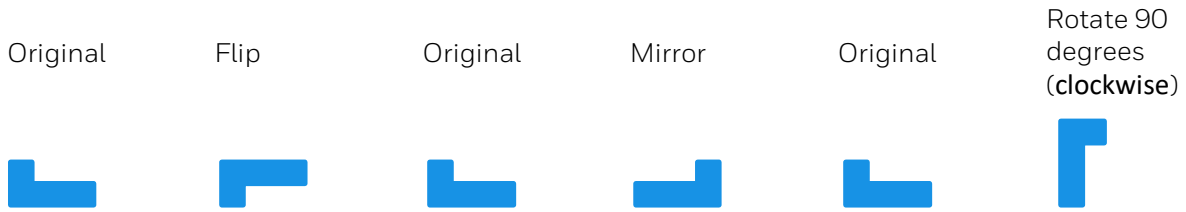
Power line frequency: Set the power line frequency consistent with local utility settings to eliminate image flickering associated with fluorescent lights.

Note	The power line frequency is changed, you must disconnect and reconnect the power cord of the camera in order for the new setting to take effect.

Video orientation:

- Flip: vertically reflect the display of the live video;
- Mirror: horizontally reflect the display of the live video.
- Select both Flip and Mirror if the camera is installed upside-down (e.g., on the ceiling) to correct the image orientation.
- Rotate: Rotate the video by 90 degrees or 270 degrees. The rotation here indicates clockwise rotation. Rotation can be applied with flip, mirror, and physical lens rotation settings to adapt to different mounting locations, such as a corridor.

Figure 4-2 Video Orientation



Note	The flip/mirror/rotate operation will clear the video settings, privacy mask settings, exposure window, motion settings, preset position and viewing window.

Day/Night Settings

Switch to B/W in night mode: Check to enable the camera to automatically switch to Black/White during night mode.

Mode:

- Auto mode (The Day/Night Exposure Profile will not be available if Auto mode is selected)

  The camera automatically removes the filter by judging the level of ambient light.

Note	Select auto mode will disable profile of exposure settings.

- Day mode

In day mode, the camera switches on the IR cut filter at all times to block infrared light from reaching the sensor so that the colors will not be distorted.

- Night mode

  In night mode, the camera switches off the IR cut filter at all times for the sensor to accept infrared light, thus helping to improve low light sensitivity.

- Schedule mode

  The camera switches between day mode and night mode based on a specified schedule. Enter the start and end time for day mode. The time format is [hh:mm] and is expressed in 24-hour clock time. By default, the start and end time of day mode are set to 07:00 and 18:00.

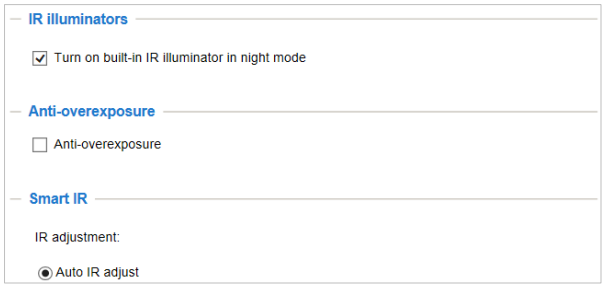
Sensitivity: Adjust the responsiveness of the IR filter to lighting conditions as **Low**, **Normal**, or **High**.

IR Control Settings

Go to **Setup →Camera Setup → Properties→IR Control**.

On this page, you can turn on the IR illuminator and adjust the luminance of IR lights.

Figure 4-3 IR Control Settings



Turn on built-in IR illuminator in night mode: Check to turn on the camera's onboard IR illuminator when the camera detects low light condition and enters the night mode.

Anti-overexposure: When checked, the camera automatically adjusts the IR projection to adjacent objects in order to avoid over-exposure in the night mode.

IR Adjustment: Adjust the luminance of IR lights.

Figure 4-4 IR Adjustment

- Auto IR adjust: Select it and the camera will automatically control the luminance of IR lights.
- Manual IR adjust: Select it to control the luminance of IR lights manually. To increase the luminance of IR lights, drag the slider to the right; to decrease the luminance of IR lights, drag the slider to the left.

Image Settings

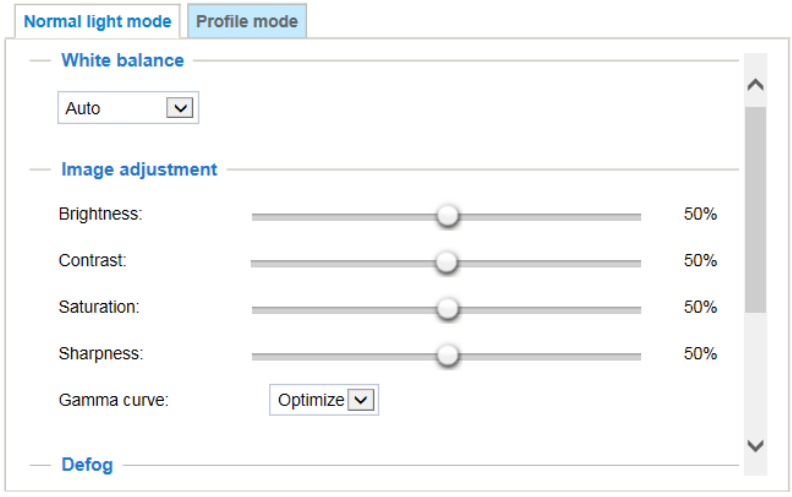
Go to **Setup →Camera Setup → Properties→Image Settings**.

On this page, you can configure the White balance and adjust Image parameters.

Two sets of image settings are available:

- In **Normal Light Mode** tab, configure normal situations for image settings.
- In **Profile Mode** tab, configure special situations for image settings.
  - Night Mode: Check **Enable to apply these settings at** and select this mode to apply the settings at night.
  - Schedule Mode: Check **Enable to apply these settings at** and select this mode to apply the settings at a specific period. Enter the time manually in the field.

Figure 4-5 Image Settings



White Balance

Adjust the value for the best color temperature.

Auto: Select it and the camera will automatically adjust the color temperature.

Fixed current: Select it and the camera will use current color temperature value.

Manual: You may manually tune the color temperature by dragging the R Gain and B Gain slider.

Image Adjustment

Brightness: Adjust the image brightness level (0% to 100%).

Contrast: Adjust the image contrast level (0% to 100%).

Saturation: Adjust the image saturation level (0% to 100%).

Sharpness: Adjust the image sharpness level (0% to 100%).

Gamma curve: Adjust the image sharpness level (0.45 to 1, Detailed to Contrast).

- Optimize: The system automatically adjusts the gamma curve.

- Manual: Drag the slider to change the preferred level of Gamma correction towards higher contrast or towards the higher luminance for detailed expression for both dark and lighted areas of an image.

Note	The Gamma curve function is disabled when the WDR feature in Exposure settings is enabled.

Defog

Check to improve the visibility quality of captured image in poor weather conditions such as smog, fog, or smoke.

3D Noise Reduction

Drag the slider to adjust the reduction strength (from low to high).

Note	3D Noise Reduction is mostly applied in low-light conditions. In a low-light condition with fast moving objects, trails of after-images may occur. You may then select a lower strength level.

Note	All changes made to image settings are directly shown on screen. To recall the original settings without incorporating the changes, click **Restore**. After you completed the settings, click **Save**.

Exposure

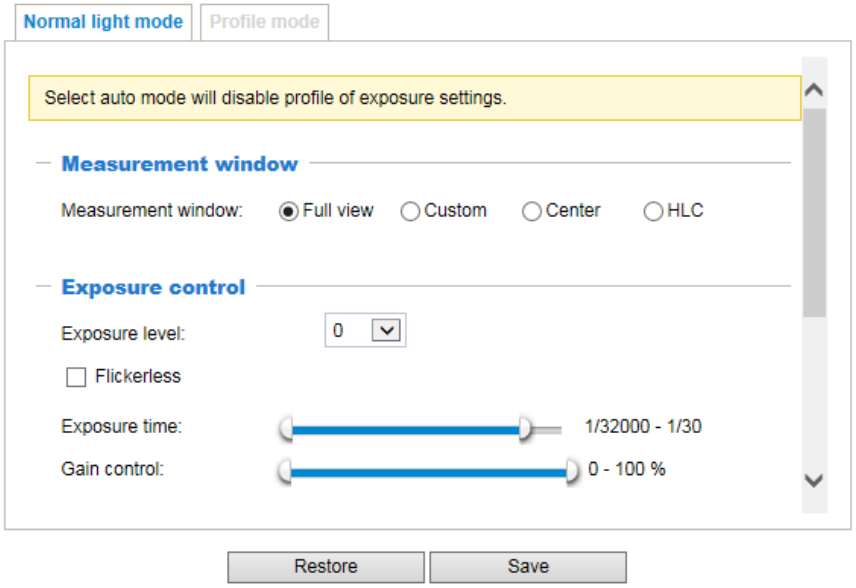
Go to **Setup →Camera Setup → Properties→Exposure**.

On this page, you can set the Exposure measurement window, Exposure level, Exposure mode, Exposure time, Gain control, and Day/Night mode settings.

Two sets of exposure settings are available:

- In **Normal Light Mode** tab, configure normal situations for image settings.
- In **Profile Mode** tab, configure special situations for image settings.
  - Night Mode: Check **Enable to apply these settings at** and select this mode to apply the settings at night.
  - Schedule Mode: Check **Enable to apply these settings at** and select this mode to apply the settings at a specific period. Enter the time manually in the field.

Figure 4-6 Exposure



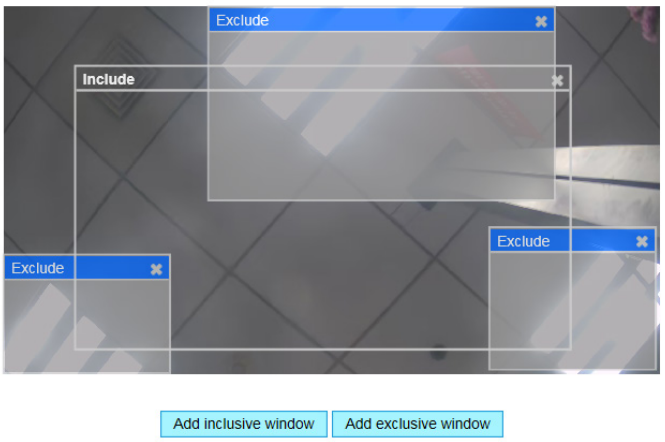
Measurement Window

Measurement Window: This function allows users to set measurement window(s) for low light compensation. For example, where low-light objects are posed against an extremely bright background. You may want to exclude the bright sunlight shining through a building's corridor.

- Full view: Calculate the full range of view and offer appropriate light compensation.
- Custom: Manually add customized windows as inclusive or exclusive regions. A total of 10 windows can be configured.

  The inclusive windows have a higher priority. You can overlap these windows, and, if you place an exclusive window within a larger inclusive window, the exclusive part of the overlapped windows will be deducted from the inclusive window. An exposure value will then be calculated out of the remaining of the inclusive window.

  Figure 4-7 Measurement Window



- Center: This option will automatically add an inclusive window in the middle of the window and give the necessary light compensation.
- HLC (Highlight Compensation): Firmware detects strong light sources and compensates on affected spots to enhance the overall image quality. For example, the HLC helps reduce the glares produced by spotlights or headlights.

Exposure Control

Exposure level: You can manually set the Exposure level, which ranges from -2.0 to +2.0 (dark to bright). You can drag the slider on the **Exposure time** and **Gain control** slide bars to specify a range of shutter time and Gain control values within which the camera can automatically tune to an optimal imaging result. You may prefer a shorter shutter time to better capture moving objects, while a faster shutter reduces light and needs to be compensated by electrical brightness gains.

Flickerless: Check to reduce flicker in the image.

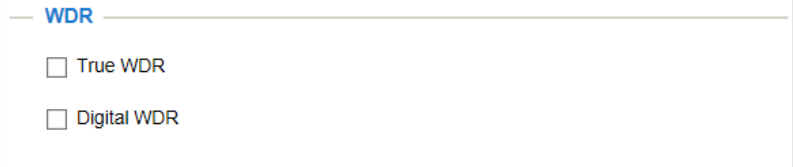
AE Speed Adjustment

Check **Enable AE speed adjustment** to apply it in fast changing lighting conditions, such as a highway lane or entrance of a parking area at night where cars passing by with their lights on and it can bring fast changes in light levels. It is also applicable to a situation if the camera is installed on a vehicle, and when it needs to adapt to fast changes of light when entering and leaving a tunnel.

Figure 4-8 AE Speed Adjustment

WDR

Figure 4-9 WDR



True WDR: Check to enable the Wide Dynamic Range function which can capture details in a high contrast environment. Use the slide bar to select the strength (Low, Medium or High) of the WDR Pro functionality, depending on the lighting condition at the installation site. You can select a higher effect when the contrast is high (between the shaded area and the light behind the objects).

Digital WDR: Check to enable the Digital Wide Dynamic Range function.

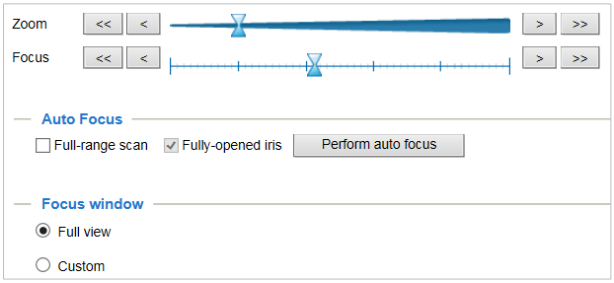
Digital WDR is a software-based technique that enhances the image quality by adjusting the gamma value to brighten dark areas. True WDR is a sensor-based technology. A True WDR CCTV can produce images with an extremely wide dynamic range. The WDR image sensor can capture several images with short and long exposures, then combining them into a single frame.

Focus

Note	This function only applies to HC30W45R2/ HC30WB5R2/ HC30WE5R2 motorized focus/zoom cameras.

Go to **Setup →Camera Setup → Properties→Focus**.

Figure 4-10 Focus



To perform the automated Focus function:

1. Select from the bottom of the screen whether you want to perform focus adjustment on the **Full view** or within a **Custom** focus window. You can create a custom window and click and drag the window to a desired position on screen.
2. It is recommended to **Reset** to the default back focus position of the sensor board.
3. You can check **Fully-opened iris** (default) to increase the iris size for a better focus adjustment result.
4. Check **Fully-opened iris** or **Full-range scan** buttons.

   Full-range scan: Check it and a full-range scan through the camera's entire focal length can take about 30 to 80 seconds. If it is not checked, the auto focus scan will only go through the length where optimal focus may occur, and that takes about 15 to 20 seconds. In theory, best results of the auto scan can be acquired when the camera's iris is fully open.
5. Wait for the scan to complete. After a short while, the clearest image obtained should be displayed and the optimal focus range achieved. Use the arrow marks on the sides to fine-tune the focus if you are not satisfied with the results. You may still need to use the arrow marks to fine-tune the focus depending on the live image on your screen. “>” means moving from wide to tele end; and “<” tele to wide.

Focus window:

By default, the optimal focus is found on a full view window. You may designate a custom window within your current field of view to acquire the best focus out of it. However, you cannot place a focus window on a distant background, e.g., a hall way that stretches away for 3 meters or farther. Doing so you will not benefit from the Focus window function.

- Full view: The focus tuning takes place by referring to the full view.
- Custom: You can create a focus window and drag it to a place of interest in your view window.

Note	It is recommended that this function be used only when you have a solid object in your view window that is showing a consistent color or texture. This function will not take effect if you set the focus window on a distant background.

Privacy Mask

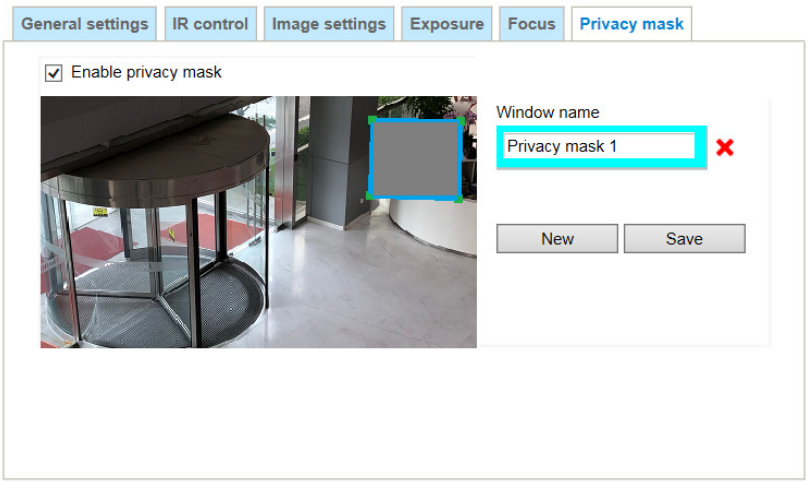
Go to **Setup →Camera Setup → Properties→Privacy Mask**.

Masks areas of the video for privacy.

To configure privacy masks

1. Click **New** to add a new window.
2. Use 4 mouse clicks to create a new masking window, which is recommended to be at least twice the size of the object (height and width) you want to cover.
3. Enter a Window Name and click **Save** to enable the setting.
4. Check **Enable privacy mask** to enable this function.

Figure 4-11 Privacy Mask



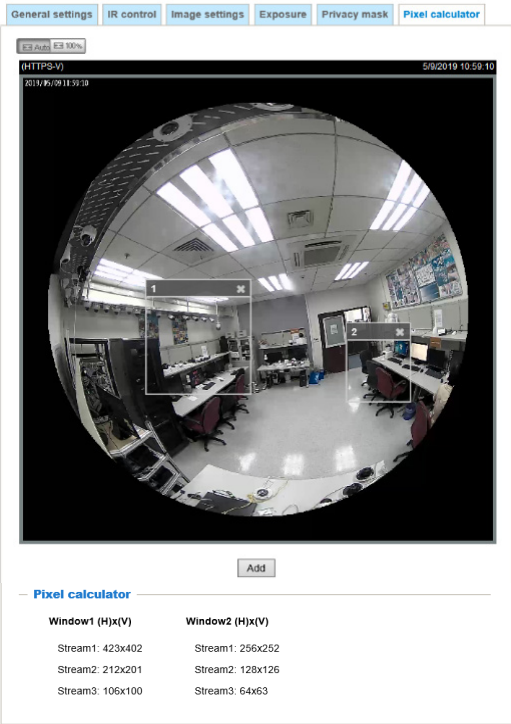
Note	• Up to 5 privacy mask windows can be configured on the same screen. • If you want to delete the privacy mask window, click the 'x' mark on the right side of window name.

Pixel Calculator (Fisheye Model Only)

With the pixel calculator feature, you can estimate a coverage area, the distance from the subject, and place a ruler or an object of known size. You can then draw a calculator frame to cover the subject of your interest.

Go to **Setup →Camera Setup → Properties→Pixel Calculator.**

Figure 4-12 Pixel Calculator



Perform the following steps to use the pixel calculator feature:

1. Click **Add** to create a pixel calculator window.
2. Move it to an area of your interest,
3. Place the cursor to the right bottom corner of window and drag the corner to change the size of window.
4. The calculated numbers will be listed at the lower screen. You will then understand if the current setting fulfills your requests for the number of pixels. For instance, for recognizing the faces of persons passing through a location. A facial recognition usually requires around 130 pixels per meter or higher.

   If your current configuration cannot fulfill a requirement, you can raise the resolution of the stream, use the stream that fulfill the requirement or lower the installation height of camera.

Configuring Video Settings

Go to **Setup →Camera Setup → Video**.

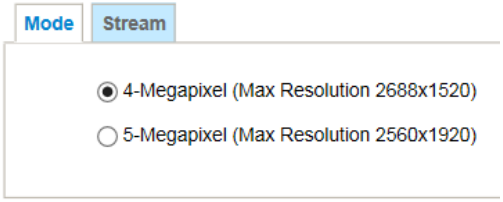
This section describes how to configure video mode and video streaming properties (format, resolution, frame rate, bit rate, I-frame interval, etc.).

Video Mode

Go to **Setup →Camera Setup → Video→ Mode**.

Note	This function only applies to HC30W45R3/HC30WE5R3/HC30WB5R1/ HC30W45R2/HC30WB5R2/HC30WE5R2/HC30WF5R1 cameras.

Figure 4-13 Video Mode



4-Megapixel (Max Resolution 2688x1520): Select it and the maximum resolution will be 2688x1520. The aspect ratio will be 16:9.

5-Megapixel (Max Resolution 2560x1920): Select it and the maximum resolution will be 2560x1920. The aspect ratio will be 4:3.

Note	Changing the video mode will clear the following settings: privacy mask, exposure widow, motion, viewing window, preset position and focus window.

Video Stream

Go to **Setup →Camera Setup → Video→ Stream**.

The cameras support multiple streams with frame sizes ranging from 640 x 360 to 2560x1920 pixels.

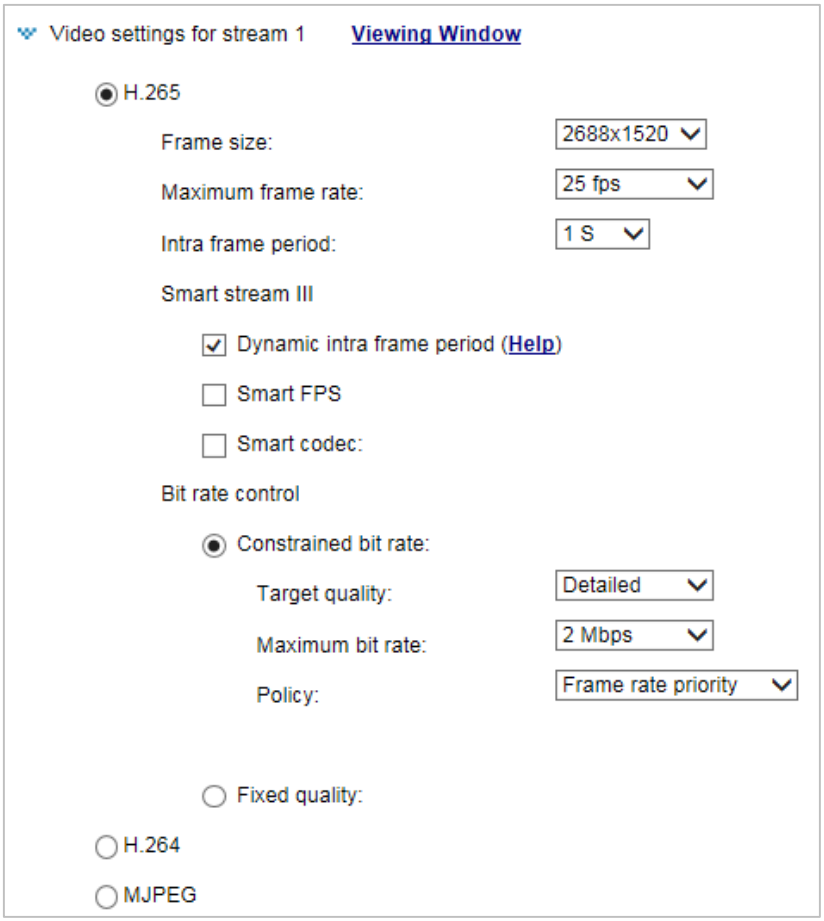
See the following table for streams and frame sizes:

Table 4-1 Stream and Frame Size Matrix

Model	Main Stream	Sub Stream	Third Stream
HC30W42R3	1920×1080/1600x904/ 1360x768/1280x720/640x360	1280x720/ 640x360	640x360
HC30W45R3 (4MP)	2688x1520/1920x1080/ 1600x904/1280x720/640x360	1280x720/ 640x360	640x360

Model	Main Stream	Sub Stream	Third Stream
HC30W45R3 (5MP)	2560x1920/2048x1536/1600x1200/ 1280x960/800x600/640x480	800x600/ 640x480	640x480
HC30W45R2 (4MP)	2688x1520/1920x1080/ 1600x904/1280x720/640x360	1280x720/ 640x360	640x360
HC30W45R2 (5MP)	2560x1920/2048x1536/1600x1200/ 1280x960/800x600/640x480	800x600/ 640x480	640x480
HC30WB2R1	1920×1080/1600x904/ 1360x768/1280x720/640x360	1280x720/ 640x360	640x360
HC30WB5R1 (4MP)	2688x1520/1920x1080/ 1600x904/1280x720/640x360	1280x720/ 640x360	640x360
HC30WB5R1 (5MP)	2560x1920/2048x1536/1600x1200/ 1280x960/800x600/640x480	800x600/ 640x480	640x480
HC30WB5R2 (4MP)	2688x1520/1920x1080/ 1600x904/1280x720/640x360	1280x720/ 640x360	640x360
HC30WB5R2 (5MP)	2560x1920/2048x1536/1600x1200/ 1280x960/800x600/640x480	800x600/ 640x480	640x480
HC30WE2R3	1920×1080/1600x904/ 1360x768/1280x720/640x360	1280x720/ 640x360	640x360
HC30WE5R3 (4MP)	2688x1520/1920x1080/ 1600x904/1280x720/640x360	1280x720/ 640x360	640x360
HC30WE5R3 (5MP)	2560x1920/2048x1536/1600x1200/ 1280x960/800x600/640x480	800x600/ 640x480	640x480
HC30WE5R2 (4MP)	2688x1520/1920x1080/ 1600x904/1280x720/640x360	1280x720/ 640x360	640x360
HC30WE5R2 (5MP)	2560x1920/2048x1536/1600x1200/ 1280x960/800x600/640x480	800x600/ 640x480	640x480
HC30WF5R1	1920x1920/1536x1536/1200x1200/ 960x960/480x480	960x960/ 480x480	480x480

Figure 4-14 Video Stream



Viewing Window

Click **Viewing Window** to open the viewing region settings page. On this page, you can configure the Region of Interest and the Frame Size for a video stream. For example, you can crop only a portion of the image that is of your interest, and thus save the bandwidth needed to transmit the video stream.

Follow the steps below to set up those settings for a stream:

1. Select a stream for which you want to set up the viewing window.
2. Select a Region of Interest from the drop-down list. The floating frame will resize accordingly. If you want to set up a customized viewing region, you can also resize and drag the floating frame to a desired position with your mouse.

Note	All the items in the Region of Interest should not be larger than the Frame Size (current maximum resolution).

Click the stream item to display the detailed information. The maximum frame size will follow your settings in the above Viewing Window sections.

The camera provides real-time H.265, H.264 and MJPEG compression standards (Triple Codec) for real-time viewing.

- If the H.265 or H.264 mode is selected, the video is streamed via RTSP protocol.
- If the JPEG mode is selected, the camera sends consecutive JPEG images to the client, producing a moving effect similar to a filmstrip. Every single JPEG image transmitted guarantees the same image quality, which in turn comes at the expense of variable bandwidth usage. Because the media contents are a combination of JPEG images, no audio data is transmitted to the client.

There are several parameters through which you can adjust the video performance:

Frame size

Set different video resolutions for different viewing devices. For example, you can configure a smaller frame size and lower bit rate for remote viewing on mobile phones and a larger video size and a higher bit rate for live viewing on web browsers, or recording the stream to an NVR. A larger frame size takes up more bandwidth.

Maximum frame rate

This limits the maximum refresh frame rate per second. Set the frame rate higher for smoother video quality and for recognizing moving objects in the field of view.

If the power line frequency is set to PAL, the frame rates are selectable at 1fps, 2fps, 3fps, 5fps, 8fps, 10fps, 12fps, 15fps, and up to 25fps. If the power line frequency is set to NTSC, the frame rates are selectable at 1fps, 2fps, 3fps, 5fps, 8fps, 10fps, 12fps, 15fps, and up to 30fps. You can also select **Customize** and manually enter a value.

The frame rate will decrease if you select a higher resolution.

Note	For 5M models, if you enable the WDR function, the maximum frame rate is 20fps.

Intra frame period

Determine how often for firmware to plant an I frame. The shorter the duration, the more likely you will get better video quality, but at the cost of higher network bandwidth consumption. Select the intra frame period from the following durations: 1/4 second, 1/2 second, 1 second, 2 seconds, 3 seconds, and 4 seconds.

Smart Stream III

Dynamic Intra frame period

High quality motion codecs, such as H.265, utilize the redundancies between video frames to deliver video streams at a balance of quality and bit rate. The encoding parameters are summarized and illustrated below. The I-frames are completely self-referential and they are largest in size. The P-frames are predicted frames. The encoder refers to the previous I- or P-frames for redundant image information.

Smart FPS

In a static scene, the algorithm puts old frames in queue when no motions occur in scene. When motions occur, the encoding returns to normal to deliver real-time streaming.

By queuing the old frames from a static scene, both the computing efforts and the size of P frames are reduced. It is beneficial for keeping up with the frame rate requirements.

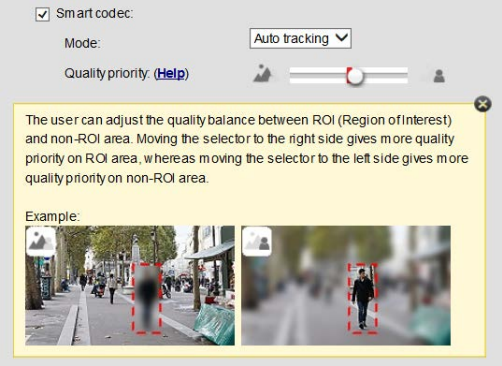
A default frame difference threshold, 1%, is embedded in firmware for returning from Smart FPS to normal encoding when motions occur.

Smart codec

Smart codec effectively reduces the quality of the whole or the non-interested areas on a screen and therefore reduces the bandwidth consumed.

You can manually specify the video quality for the foreground and the background areas.

Figure 4-15 Video Quality



Slider to the right - higher quality in the ROI areas

Slider to the left - higher quality in the non-ROI areas.

Select an operation mode if Smart codec is preferred.

- Auto tracking: The Auto mode configures the whole screen into the non-interested area. The video quality of part of the screen returns to normal when one or more objects move in that area. The remainder of the screen where there are no moving objects (no pixel changes) will still be transmitted in low-quality format.
- Manual: The Manual mode allows you to configure 3 ROI windows (Region of Interest, with Foreground quality) on the screen. Areas not included in any ROI windows will be considered as the non-interested areas. The details in the ROI areas will be transmitted in a higher-quality video format.
- Hybrid: The major difference between the “Manual” mode and the “Hybrid” mode is that:

  In the “Hybrid“ mode, any objects entering the non-interested area will restore the video quality of the moving objects and the area around them. The video quality of the associated non-interested area is immediately restored to normal to cover the moving objects.

  In the “Manual” mode, the non-interested area is always transmitted using a low-quality format regardless of the activities occurring inside.
- Quality priority: Drag the slider to adjust the quality contrast between the ROI and non-interested areas.
  - The farther the slider is to the right, the higher the image quality of the ROI areas.
  - On the contrary, the farther the slider to the left, the higher the image quality of the non-interested area.

In this way, you may set up an ROI window as a privacy mask by covering a protected area using an ROI window, while the rest of the screen becomes the non-interested area. You may then configure the non-interested area to have a high image quality, or vice versa.

Bit rate control

Constrained bit rate

A complex scene generally produces a larger file size, meaning that higher bandwidth will be needed for data transmission. The bandwidth utilization is configurable to match a selected level, resulting in mutable video quality performance.

- Target quality: Select a desired quality ranging from Medium to Excellent. If you select **Customized**, you can enter a value to specify the quality.
- Maximum bit rate: Select a bit rate from the dropdown list. The bit rate ranges from 20kbps to a maximum of 40Mbps. If you select **Customized**, you can enter a value to specify the maximum bit rate.
- Policy: If **Frame rate priority** is selected, the camera will try to maintain the frame rate per second performance, while the image quality will be compromised. If **Image quality priority** is selected, the camera may drop some video frames in order to maintain image quality.

Fixed quality

All frames are transmitted with the same quality.

- Quality: Select a desired quality ranging from Medium to Excellent. If you select **Customized**, you can enter a value to specify the quality.
- Maximum bit rate: Select a bit rate from the dropdown list. The bit rate ranges from 1 Mbps to a maximum of 40Mbps. If you select **Customized**, you can enter a value to specify the maximum bit rate.

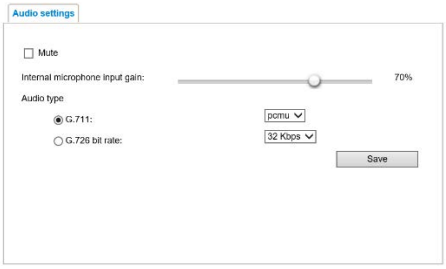
  The Maximum bit rate setting in the Fixed quality configuration can ensure a reasonable and limited use of network bandwidth. For example, in low light conditions where a Fixed quality setting is applied, video packet sizes can tremendously increase when noises are produced with electrical gains.

Configuring Audio Settings

Go to **Setup →Camera Setup → Audio**.

Note Only HC30WF5R1 supports this function.

Figure 4-16 Audio



Mute: Check to disable audio transmission from the Network Camera to all clients.

Internal microphone input gain: Select the gain of the internal audio input according to ambient conditions. Adjust the gain from 0% (least) to 100% (most).

Audio type: Select audio codec as G.711 or G.726 and the bit rate.

- G.711 provides good sound quality and requires about 64Kbps. Select pcmu (μ-Law) or pcma (A-Law) mode.
- G.726 is a speech codec standard covering voice transmission at rates of 16, 24, 32, and 40kbit/s.

After you complete the settings on this page, click **Save** to enable the settings.

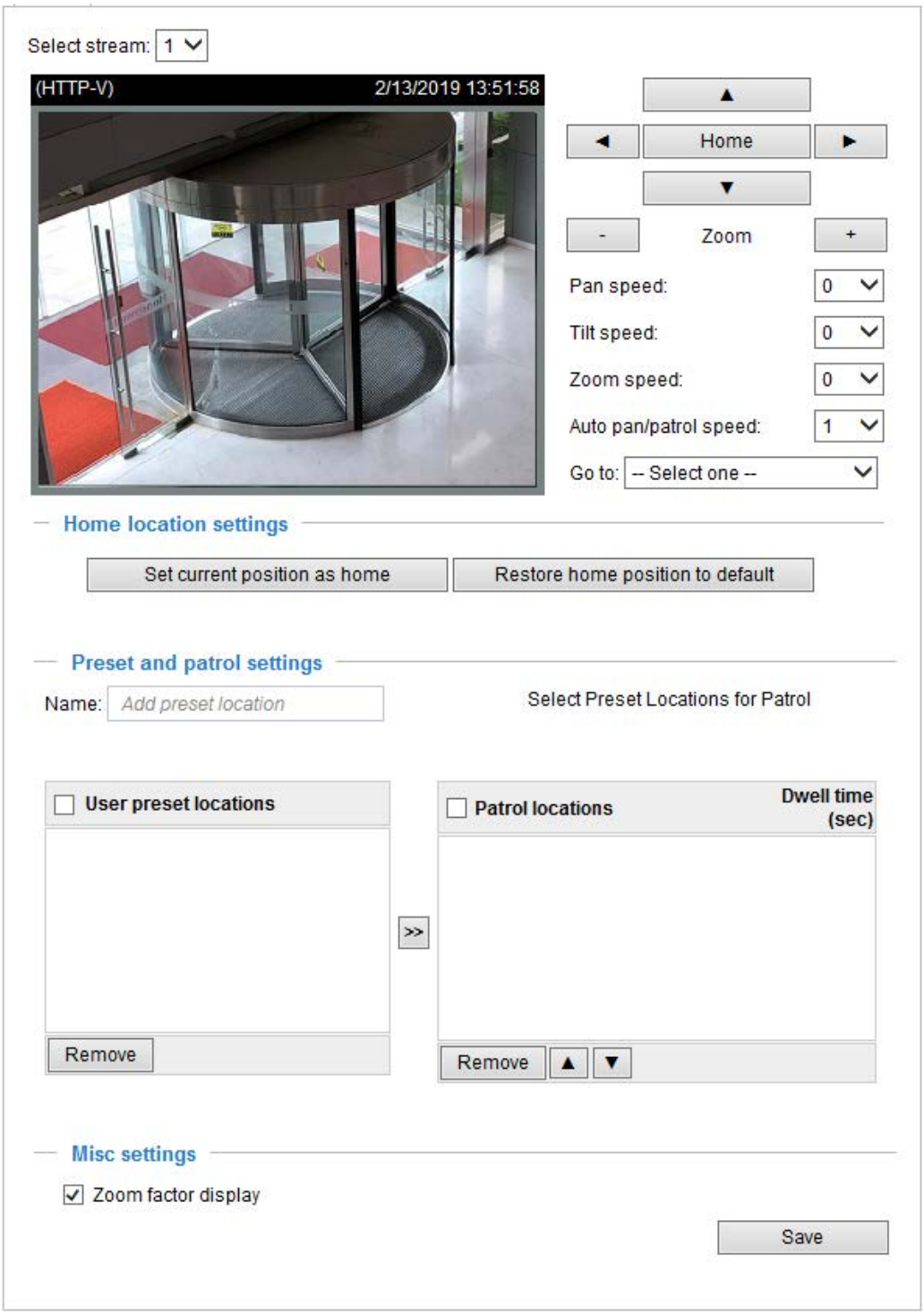
Configuring Digital PTZ Settings

This section describes how to control the camera's digital Pan/Tilt/Zoom operation.

Within a field of view, it allows you to quickly move the focus to a target area for close-up viewing without physically moving the camera. You are still able to digitally zoom and navigate the camera's viewable area.

Go to **Setup →Camera Setup → PTZ Settings.**

Figure 4-17 PTZ Settings



PTZ Operations

Move: Click  ,  ,  or  to move the video image up, down, to the left or to the right. To return to the home location, click **Home**.

Zoom: Click  to zoom out the video image, or click  to zoom in the video image.

Pan Speed: Select a speed (-5 to 5) from the dropdown list.

Tilt Speed: Select a speed (-5 to 5) from the dropdown list.

Zoom Speed: Select a speed (-5 to 5) from the dropdown list.

Auto Pan/Patrol Speed: Select a speed (1 to 5) from the dropdown list.

Go to: Select a preset location from the drop-down list, and the camera will move to the selected position. You should set a preset location first. See *Preset and Patrol Settings* on page *39*.

Home Location Settings

Set current position as home: Click to set the current position as the home location.

Restore home position to default: Click to restore the home position to default.

Preset and Patrol Settings

Set a Preset

1. Specify a name in the Name field.
2. Click **Add** and the preset will be listed in the User preset locations list.
3. Repeat the above steps to add more preset locations.
4. To remove a preset, select it and click **Remove**.

Set a Patrol

1. Select the preset locations in the preset locations list, and click  .
2. The selected preset locations will be displayed in the Patrol locations list. The default dwell time is 5 seconds.
3. Set the Dwelling time for the preset location during an auto patrol.
4. To delete a preset location from the Patrol locations list, select it and click **Remove**.
5. To rearrange the patrol order, select a location and click  .
6. Select patrol locations you want to save in the list and click **Save** to enable the patrol settings.
7. To implement the patrol schedule, go to the main page and click  .

Misc Settings

Zoom factor display: Check to display zoom factor on the video image.

PTZ Operations on Main Page

Global View

In addition to using the PTZ control panel, you can also use the mouse to drag or resize the floating frame to pan/tilt/zoom the viewing region. The live view window will also move to the viewing region accordingly.

Moving Instantly

If you check this item, the live view window will switch to the new viewing region instantly after you move the floating frame. If not selected, the process of moving from one position to another will be shown.

Click on Image

The PTZ function also supports “Click on Image”. When you click on any point of the Global View Window or Live View Window, the viewing region will also move to that point.

Note	The “Click on Image” function only applies when you have configured a smaller “Region of Interest” out of the maximum output frame. e.g., an 800 x 600 region from out of the camera’s maximum frame size.

Patrol Button

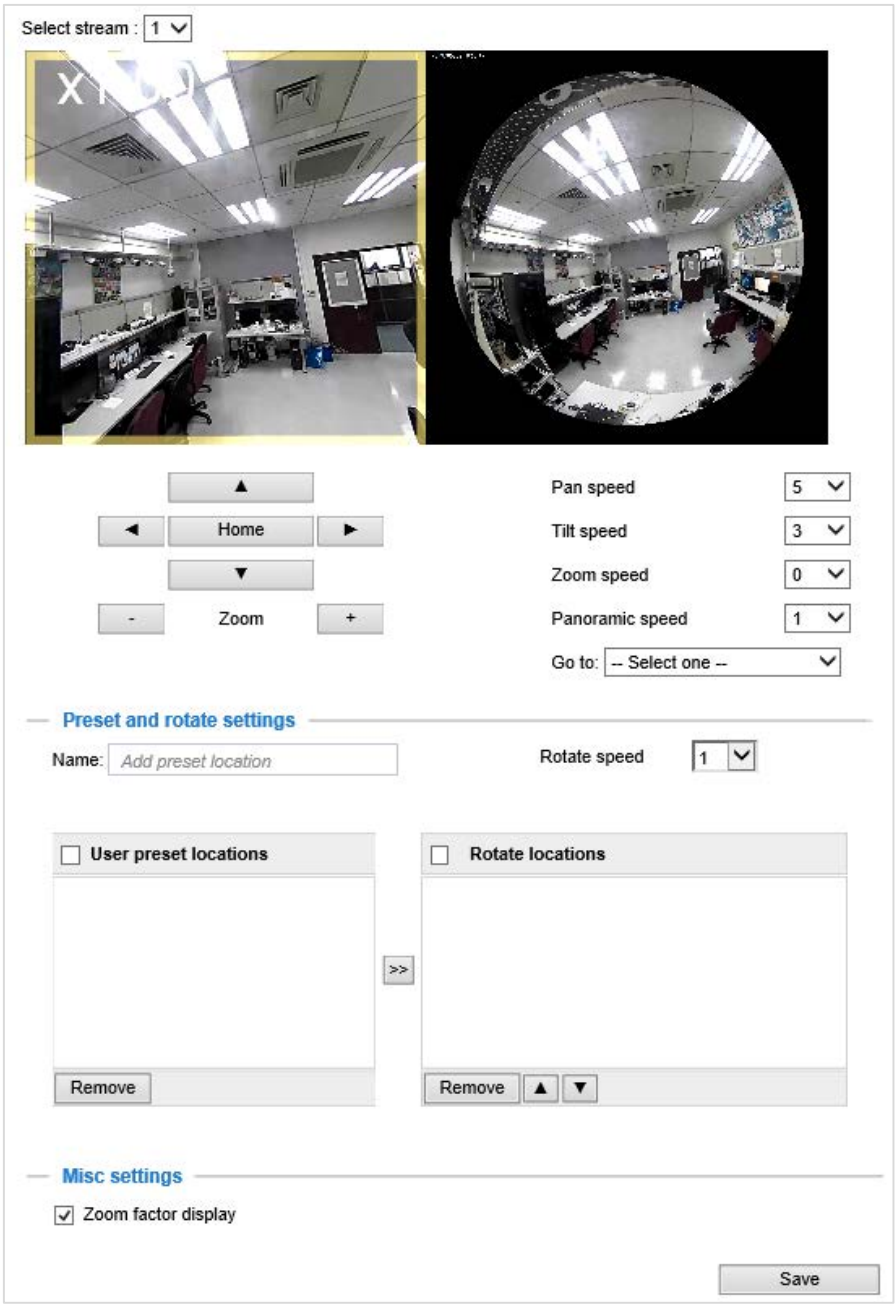
Click 

and the camera will patrol among the selected preset positions continuously.

PTZ Operations (Fisheye Model)

The fisheye PTZ function allows users to move among regional views for close-up viewing. The PTZ view takes effect when the current field of view is not the circular Original view or the Panoramic view. Users can then move the view in different directions or zoom in or zoom out on the screen.

Figure 4-18 PTZ Settings (Fisheye Model)



You can create preset positions in the hemisphere covered by the fisheye lens. A total of 20 preset positions can be configured.

Follow the steps below to configure preset positions and arrange them in a rotational tour through different positions.

1. Select a video stream on which the PTZ settings will take place.
2. Adjust the shooting area to the desired position using the PTZ keypad, the FOV indicators, or mouse clicks on the live screen. To begin the mouse control, click the two interactive windows. Due to the highly-sensitive mouse control, the PTZ control buttons can help fine-tune to an optimal location.

3. After you selected an area of interest, enter a name for the new position, which can contain up to 40 alphabetic and numeric characters.
4. Click **Add** to enable the settings. The preset positions will be listed on the **User preset locations**. (To add more positions you wish, repeat steps 1~3.)
5. Select the preset positions by their checkboxes.
6. Click the move button (>>) to move positions to the Patrol locations window.
7. You may select some or all of the imported positions as the stop points during the tour.
8. Select a preset position when you need to move to a specific place on screen.

   Select a preferred **Rotate speed** or **move the preset positions** for consecutively displaying views of multiple positions. The speeds for rotating through each position on a Regional view window are shown below.
9. Click **Save** to preserve your configuration.

   To remove a preset position from the list, select it and click **Remove**. You can re-arrange the order of the position hop on the list using the buttons.

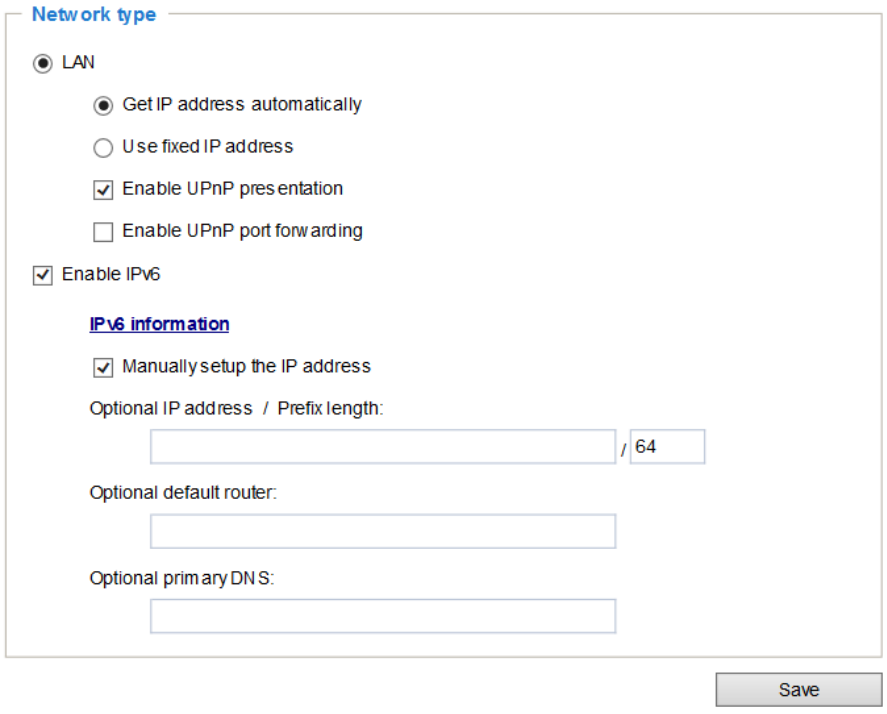
5 Configuring Network Settings

This chapter contains the following sections:

Configuring Network General Settings

This section describes how to configure a wired network connection for the camera.

Figure 5-1 Network Type



LAN

Get IP address automatically: Select this option to obtain an available dynamic IP address assigned by the DHCP server each time the camera is connected to the LAN.

Use fixed IP address: Select this option to manually assign a static IP address to the camera.

- IP address:
  1. You can make use of IPC Tool in the software CD to easily set up the camera on LAN. See *Accessing the Camera* on page 3.
  2. Enter the Static IP, Subnet mask, Default router, and Primary DNS provided by your ISP or network administrator.
- Subnet mask: This is used to determine if the destination is in the same subnet. The default value is “255.255.255.0”.
- Default router: This is the gateway used to forward frames to destinations in a different subnet. Invalid router setting will disable the transmission to destinations across different subnets.
- Primary DNS: The primary domain name server that translates hostnames into IP addresses.
- Secondary DNS: Secondary domain name server that backups the Primary DNS.
- Primary WINS server: The primary WINS server that maintains the database of computer names and IP addresses.
- Secondary WINS server: The secondary WINS server that maintains the database of computer names and IP addresses.

Enable UPnP presentation: Select this option to enable UPnP presentation for your camera so that whenever a camera is presented to the LAN, the shortcuts to connected cameras will be listed in My Network Places (Windows XP) or Network (Windows 7). You can click the shortcut to link to the web browser.

Note	To utilize this feature, make sure the UPnP component is installed on your computer.

Enable UPnP port forwarding: To access the camera from the Internet, select this option to allow the camera to open ports automatically on the router so that video streams can be sent out from a LAN. To utilize of this feature, make sure that your router supports UPnP and it is activated.

Enabling UPnP in Windows

The UPnP protocol is used to detect network devices with clients running Windows.

The camera can be detected by Windows' built-in network browser (My Network Places in Windows XP; Network in Windows).

To enable UPnP in Windows XP:

1. Go to **Start →Control Panel → Add or remove programs**.
2. Click **Add or remove programs**, then select **Networking Services** in the Windows Components Wizard.
3. Click **Details**, then select **Internet Gateway Device Discovery** and **Control Client and UPnP User Interface**.
4. Click **OK** to begin the installation.

To enable UPnP in Windows 7:

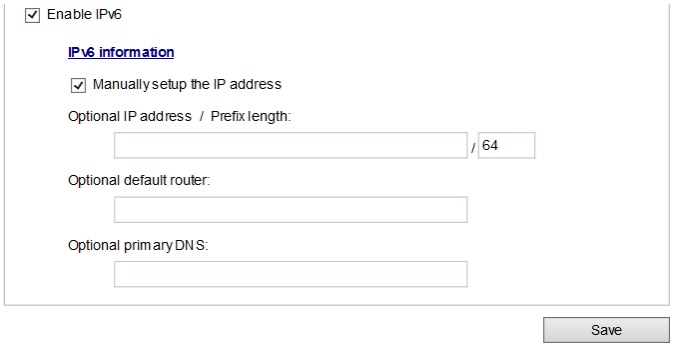
1. Go to **Start→ Control Panel→ Network and Internet → Network and Sharing Center**.
2. On the left pane, click **Change advanced sharing settings**.
3. On your current network profile, in the **Network discovery** area, click **Turn on network discovery**, and then click **Save changes**.

Enable IPv6

Select this option and click **Save** to enable IPv6 settings.

Note	This function only works if your network environment and hardware equipment support IPv6. The browser should be Microsoft® Internet Explorer 11.0+, Chrome 71+.

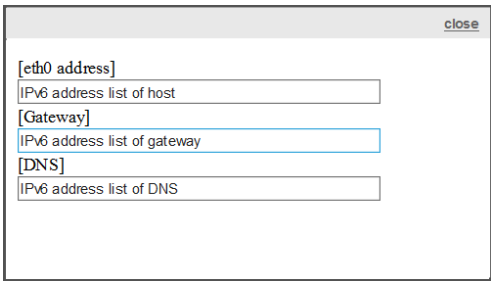
Figure 5-2 Enable IPv6



When IPv6 is enabled, by default, the network camera will listen to router advertisements and be assigned with a link-local IPv6 address accordingly.

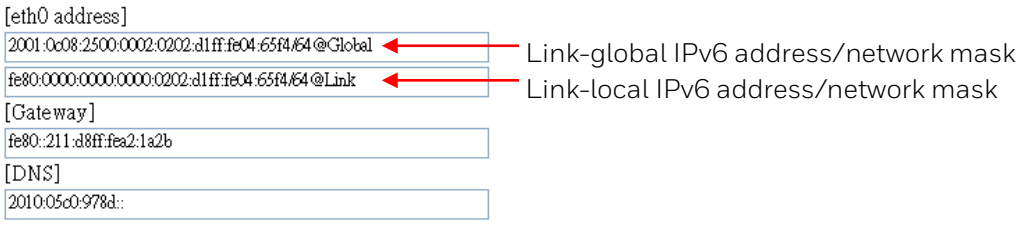
IPv6 Information: Click to obtain the IPv6 information as shown below.

Figure 5-3 IPv6 Information



If your IPv6 settings are successful, the IPv6 address list will be listed in the pop-up window. The IPv6 address will be displayed as follows:

Figure 5-4 IPv6 Address



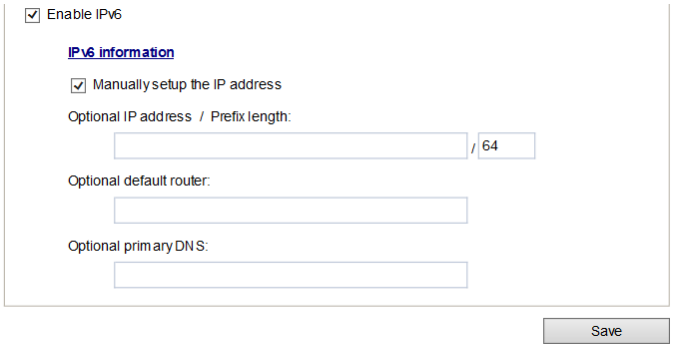
Follow the steps below to link to an IPv6 address:

1. Open your web browser.
2. Enter the link-global or link-local IPv6 address in the address bar of your web browser.
3. The format should be: http://[2001:0c08:2500:0002:0202:d1ff:fe04:65f4]/
4. Press **Enter** on the keyboard or click **Refresh** button to refresh the webpage.

Note	If you have a Secondary HTTP port (the default value is 8080), you can also link to the webpage using the following address format: (see *Configuring Streaming Protocols* on page *46* for detailed information.)

Manually setup the IP address: Select this option to manually set up IPv6 settings if your network environment does not have DHCPv6 server and router advertisements-enabled routers. If you check this item, the following blanks will be displayed for you to enter the corresponding information:

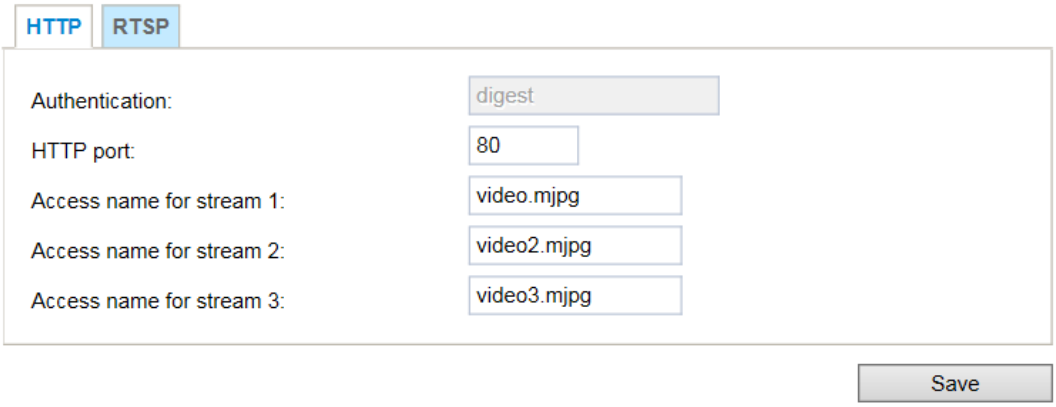
Figure 5-5 Manually setup IP Address



Configuring Streaming Protocols

Go to **Setup→Network Setup→Streaming Protocols**.

Figure 5-6 Streaming Protocols - HTTP



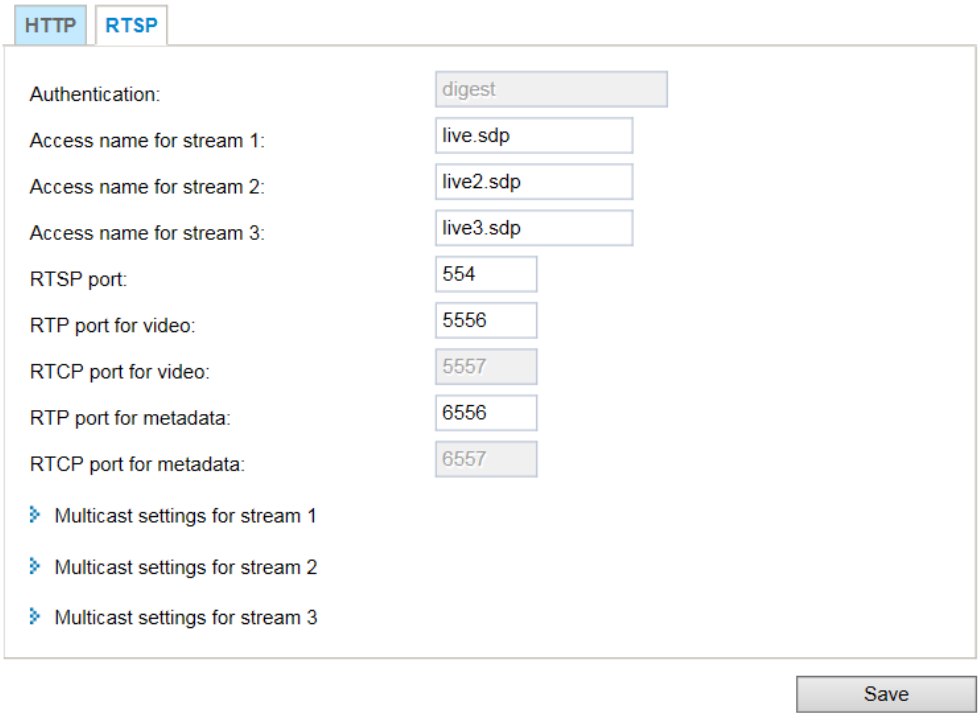
To utilize HTTP authentication, make sure that you have set a password for the camera first. For more information, see *Configuring User Accounts Settings* on page *86*.

Authentication (digest): User credentials are encrypted with MD5 algorithm which provide better protection against unauthorized accesses.

HTTP port: By default, the HTTP port is set to 80. It can also be assigned to another port number between 1025 and 65535.

Access name for stream 1 ~ 3: The camera supports multiple streams simultaneously. The access name is used to identify different video streams. You can set up the video quality of linked streams. For more information, see *Video Stream* on page *31*.

Figure 5-7 Streaming Protocols – RTSP



To utilize RTSP streaming authentication, make sure that you have set a password for controlling the access to video stream first. For more information, see *Configuring User Accounts Settings* on page *86*.

Authentication (digest): User credentials are encrypted with MD5 algorithm which provides better protection against unauthorized access.

Access name for stream 1 ~ 3: The camera supports multiple streams simultaneously. The access name is used to differentiate the streaming source.

If you want to use an RTSP player to access the camera, you have to set the video mode to H.264 or H.265 and use the following RTSP URL command to request transmission of the streaming data.

rtsp://<ip address>:<rtsp port>/<access name for stream 1 to 3>

For example, when the access name for stream 1 is set to live.sdp:

1. Launch an RTSP player.

2. Choose **File → Open URL**. A URL dialog box will pop up.

3. Type the above URL command in the text box.

4. The live video will be displayed in your player.

RTSP port /RTP port for video / RTCP port for video:

- RTSP (Real-Time Streaming Protocol) controls the delivery of streaming media. By default, the RTSP port number is set to 554.
- The RTP (Real-time Transport Protocol) is used to deliver video data to the clients. By default, the RTP port for video is set to 5556.
- The RTCP (Real-time Transport Control Protocol) allows the camera to transmit the data by monitoring the Internet traffic volume. By default, the RTCP port for video is set to 5557.

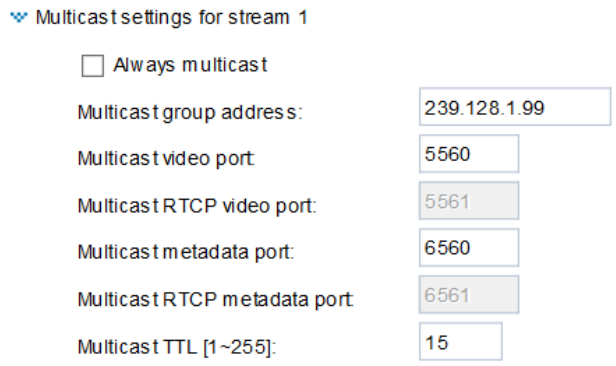
The ports can be changed to values between 1025 and 65535. The RTP port must be an even number and the RTCP port is the RTP port number plus one, and thus is always an odd number. When the RTP port changes, the RTCP port will change accordingly.

RTP port for metadata: By default, the RTP port for metadata is set to 6556.

RTCP port for metadata: By default, the RTCP port for video is set to 6557.

Multicast settings for streams: Click to display the detailed configuration information.

Figure 5-8 Multicast Settings



Always multicast: Check to enable multicast for video streams.

Multicast group address: Enter the Multicast group address.

Multicast video port/Multicast RTCP video port: The ports can be changed to values between 1025 and 65535. The multicast video port must be an even number and the multicast RTCP video port number is the multicast video port number plus one, and thus is always odd. When the multicast video port changes, the multicast RTCP video port will change accordingly.

Multicast metadata port/Multicast RTCP metadata port: The ports can be changed to values between 1025 and 65535. The multicast metadata port must be an even number and the multicast RTCP metadata port number is the multicast metadata port number plus one, and thus is always odd. When the multicast metadata port changes, the multicast RTCP metadata port will change accordingly.

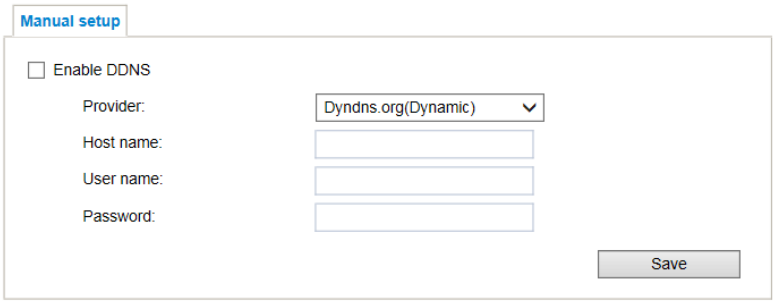
Multicast TTL [1~255]: The multicast TTL (Time To Live) is the value that tells the router the range a packet can be forwarded. The default value is **15**.

Configuring DDNS Settings

Go to **Setup→Network Setup→DDNS**.

This section describes how to configure the dynamic domain name service for the camera. DDNS is a service that allows your camera, especially when assigned with a dynamic IP address, to have a fixed host and domain name.

Figure 5-9 DDNS



Enable DDNS: Check to enable the DDNS setting.

Note	Before utilizing this function, apply for a dynamic domain account first and then access the system through that domain. Refer to the following link to apply for a dynamic domain account: http://www.dyndns.com/

Provider: Select a DDNS provider from the dropdown list.

Host name: Enter the host name of your dynamic domain account.

User name: Enter the user name of your dynamic domain account.

Password: Enter the password of your dynamic domain account.

Configuring QoS Settings

Go to **Setup →Network Setup →Qos**.

Quality of Service (QoS) is a network security mechanism. It fixes problems with network delays and jams. For network service, the quality of service includes the transmission bandwidth, delay, and packet loss, for example. Through QoS, you can guarantee the transmission bandwidth, reduce the delay, reduce the loss of data packets, and enhance the transmission quality with packet prioritization.

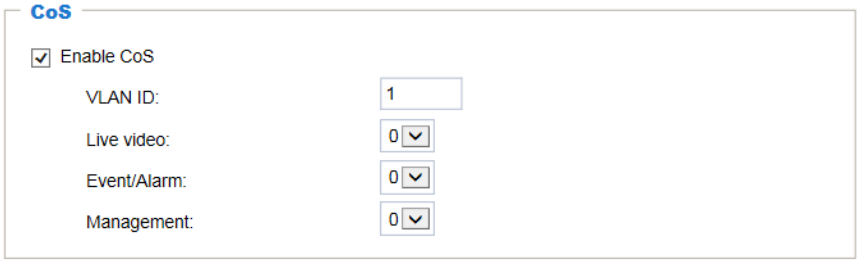
To utilize QoS in a network environment, the following requirements must be met:

- All network switches and routers in the network must include support for QoS.
- The network video devices used in the network must be QoS-enabled.

CoS

CoS refers to Class of Service. It indicates the frame priority level from 0 (lowest) to 7 (highest). The priority is set up on the network switches, which then use different queuing disciplines to forward the packets.

Figure 5-10 QoS



Enter the **VLAN ID** of your switch (0~4095) and choose the priority for each application (0~7).

If you assign Video the highest level, the switch will handle video packets first.

Note

- A VLAN Switch (802.1p) is required. Web browsing may fail if the CoS setting is incorrect.
- The Class of Service technologies do not guarantee a level of service in terms of bandwidth and delivery time; they offer a "best-effort." Users can think of CoS as "coarsely-grained" traffic control and QoS as "finely-grained" traffic control.
- Although CoS is simple to manage, it lacks scalability and does not offer end-to-end guarantees since it is based on L2 protocol.

QoS/DSCP

Routers at each network node classify packets according to their DSCP ((Differentiated Services Codepoint) value and give them a particular forwarding treatment; for example, how much bandwidth to reserve for it.

Figure 5-11 QoS/DSCP

Specify the DSCP value for each application (0~63).

Configuring SNMP Settings

Go to **Setup →Network Setup → SNMP**.

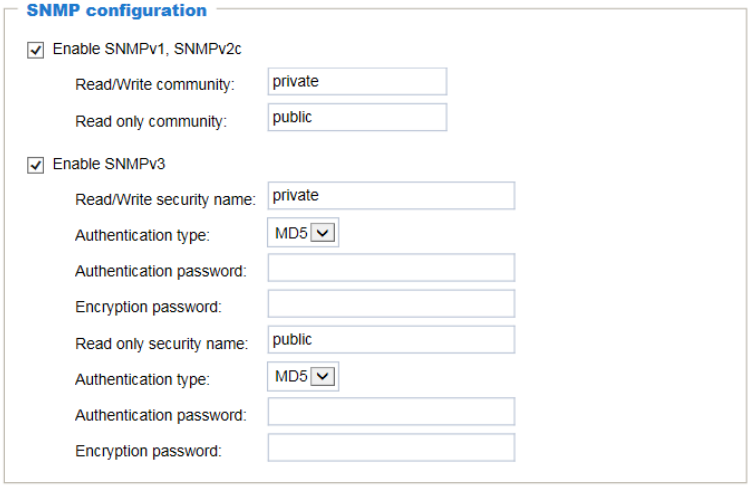
SNMP (Simple Network Management Protocol) is a protocol for collecting, organizing, and exchanging management information between managed devices on a network.

The SNMP consists of the following three key components:

- Manager: Network-management station (NMS), a server which executes applications that monitor and control managed devices.
- Agent: A network-management software module on a managed device which transfers the status of managed devices to the NMS.
- Managed device: A network node on a managed network. For example: routers, switches, bridges, hubs, computer hosts, printers, IP telephones, network cameras, web server, and database.

Before configuring SNMP settings on the page, enable your NMS first.

Figure 5-12 SNMP Configurations



Enable SNMPv1, SNMPv2c: Check to enable SNMPv1, SNMPv2c.

Enter the names of Read/Write community and Read Only community according to your NMS settings.

Enable SNMPv3: Check to enable SNMPv3 which contains cryptographic security, a higher security level.

- Security name: Choose Read/Write or Read Only and enter the community name according to your NMS settings.
- Authentication type: Select MD5 or SHA as the authentication method.
- Authentication password: Enter the password for authentication (at least 8 characters).
- Encryption password: Enter a password for encryption (at least 8 characters).

Configuring HTTPS Settings

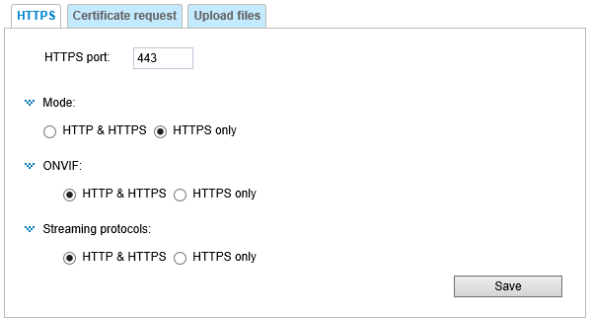
Go to **Setup →Network Setup → HTTPS**.

HTTPS

Go to **Setup →Network Setup → HTTPS→ HTTPS**.

This section explains how to enable authentication and encrypted communication. It helps protect streaming data transmission over the Internet on higher security level.

Figure 5-13 HTTP



HTTP & HTTPS: Select it and the web browser can be accessed via HTTP or HTTPS.

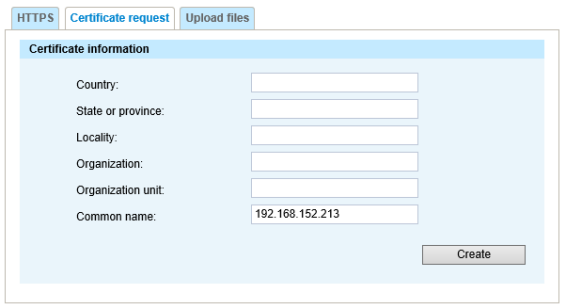
HTTPS only: Select it and the web browser can only be accessed via HTTPS with higher security level. This option is selected by default.

Certificate Request

Go to **Setup →Network Setup → HTTPS→ Certificate Request**.

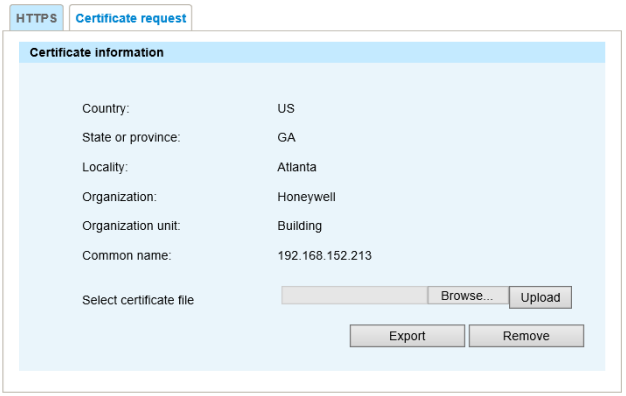
You can fill in certificate information and the certificate request file can be exported to the certificate issuing authority for signing and then being imported to camera.

Figure 5-14 Certificate Request



Enter the information of Country, State or province, Locality, Organization and Organization unit. Click **Create**. The following figure is displayed:

Figure 5-15 Certificate Request Created



Click **Export** to export the certificate request to your local computer. After you get the signing certificate from the certificate issuing authority, click **Browse** and **Upload** to import it to the camera. The imported certificate will replace the original self-signed certificate of the camera.

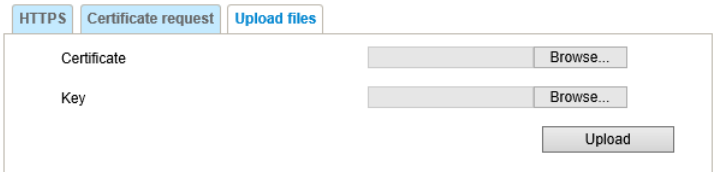
After the certificate file is uploaded successfully, if you want to remove the certificate, click **Remove**.

Upload files

Go to **Setup →Network Setup → HTTPS→ Upload files**.

You can import the certificate from third party here.

Figure 5-16 Upload files



To import the certificate from third party:

1. In the **Certificate** field, click **Browse** to select a certificate file you have already applied from 3rd party or CA domain.
2. In the **Key** field, click **Browse** to select a certificate key you have already applied from 3rd party or CA domain.
3. Click **Upload** and reboot camera.

After the certificate file is uploaded successfully, if you want to remove the certificate, click **Remove**.

Note

- Supported certificate type: HTTPS protocol.
- Supported certificate file format: *.cert format.
- Supported Key format: PEM format.

Configuring IEEE 802.1X Settings

Go to **Setup →Network Setup →802.1X**.

IEEE802.1X is the access control and authentication protocol for local and metropolitan area networks. It uses a port-based network access control protocol to restrict unauthorized user and/or device access to the LAN. The network devices, intermediary switch/access point/hub, and RADIUS server must support and enable 802.1x settings.

To configure IEEE 802.1x settings:

1. Before connecting the camera to the protected network with 802.1x, apply a digital certificate from a Certificate Authority (i.e., your network administrator) which can be validated by a RADIUS server.
2. Connect the camera to a PC or notebook outside of the protected LAN. Open the configuration page of the camera as shown below.

Figure 5-17 IEEE 802.1X Configurations – EAP-PEAP

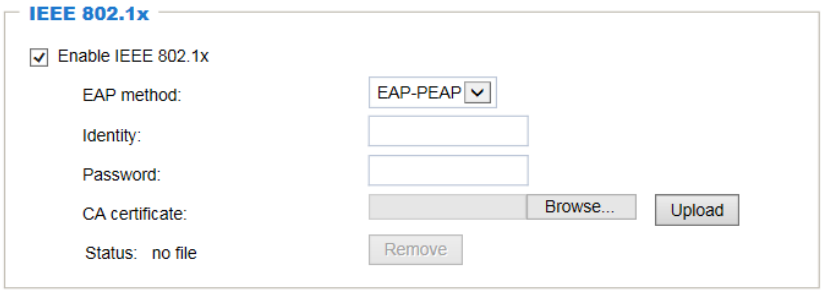
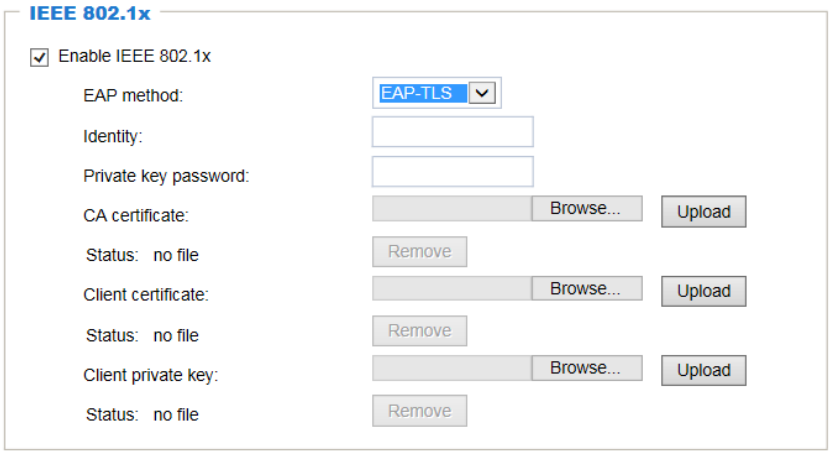


Figure 5-18 IEEE 802.1X Configurations – EAP-TLS



Select **EAP-PEAP** or **EAP-TLS** as the EAP method. Enter your ID and password issued by the CA, and then upload related certificate(s).

3. When all settings are complete, move the camera to the protected LAN by connecting it to an 802.1x enabled switch. The devices will then start the authentication automatically.

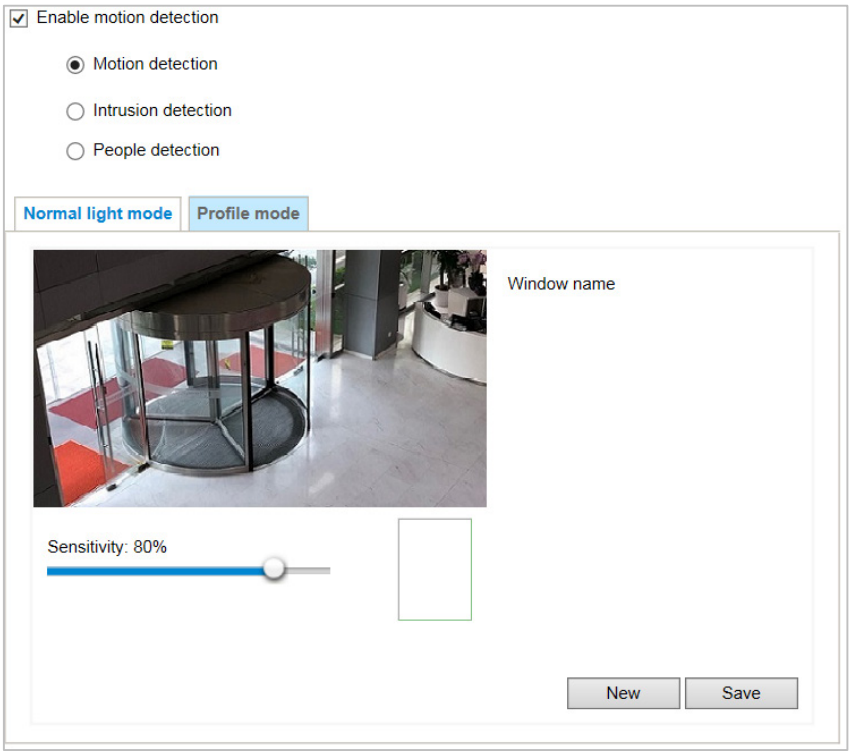
6 Configuring Video Analytics

This chapter contains the following sections:

Configuring Motion Detection Settings

Go to **Setup →Video Analytics → Motion Detection**.

Figure 6-1 Motion Detection



Two sets of motion detection settings are available:

- In **Normal Light Mode** tab, configure normal situations for motion detection settings.
- In **Profile Mode** tab, configure special situations for motion detection settings.
  - Night Mode: Check **Enable to apply these settings at** and select this mode to apply the settings at night.
  - Schedule Mode: Check **Enable to apply these settings at** and select this mode to apply the settings at a specific period. Enter the time manually in the field.

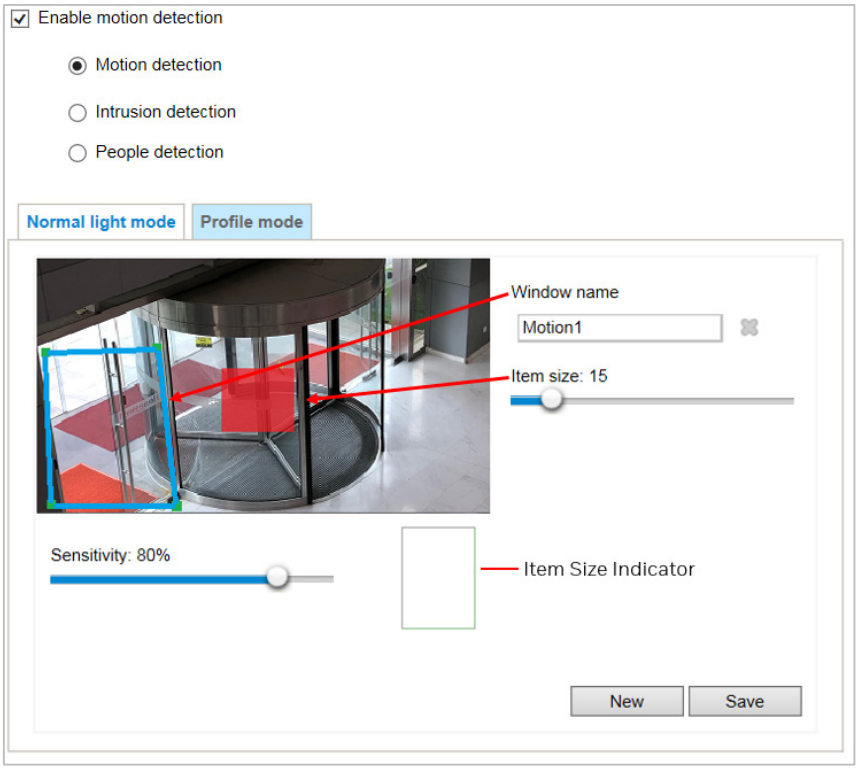
Motion Detection

The Motion Detection detects motions in customized windows. If a motion is detected, the frame of the customized window will become flashing red.

To enable motion detection:

1. Click **New** to add a new motion detection window.
2. In the Window Name text box, enter a name for the motion detection window.
   a. Draw a detection area by clicking four corner points on the target area. You can change the shape of the detection area by dragging the corner points.
   b. Drag the item size slider to change the minimum size of item to trigger an alarm. An item size box will appear in the center of screen for your reference (in semi-transparent red). An intruding object must be larger than the Item size to trigger an alarm. Change the item size according to the live view.
   c. To delete a window, click on the right of the window name.
3. Define the sensitivity to moving objects by moving the Sensitivity slider. A high sensitivity is prone to produce false alarms such as the fast changes of light (such as day/night mode switch, turning lights on/off). A movement must persist longer than 0.3 second for the motion to be detected.
4. Click **Save** to enable the settings.
5. Select **Enable motion detection** to enable this function.

Figure 6-2 Configuring Motion Detection Settings

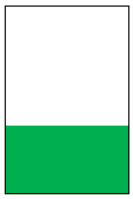
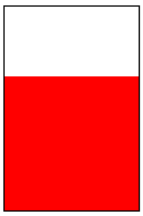


The Item Size Indicator will rise or fall depending on the variation between sequential images. When motions are detected by the camera and are considered to exceed the preset threshold, the red bar rises. Meanwhile, the motion detection window will be outlined in red.

Photos or videos can be captured instantly and configured to be sent to a remote server (i.e. via an Email). For more information on how to configure an event setting, see *Configuring Event Settings* on page *60*.

A green bar indicates that even though motions have been detected, the event has not been triggered because the image variations still fall under the preset threshold.

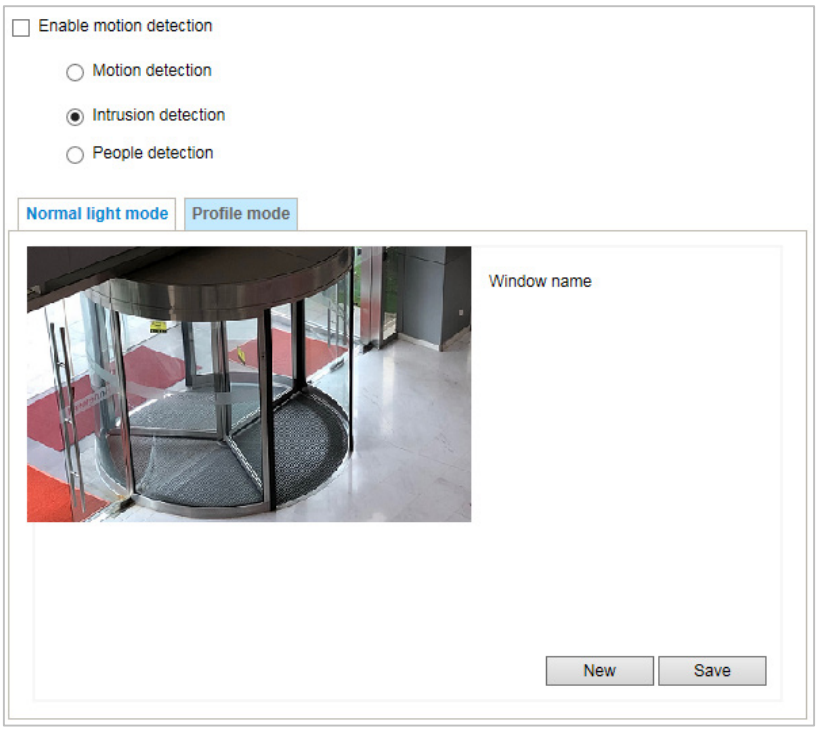
Figure 6-3 Item Size Indicator

Smaller than the item size	Larger than the item size
	

Intrusion Detection

The Intrusion Detection detects people motions in customized windows. If a people motion is detected, the frame of the customized window will become flashing red.

Figure 6-4 Intrusion Detection



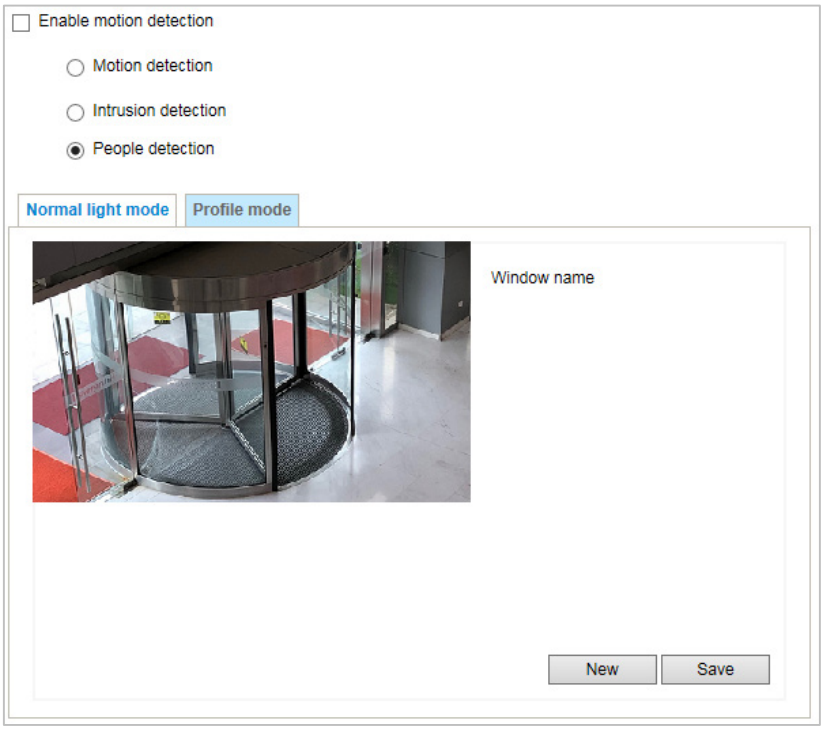
To enable intrusion detection:

1. Click **New** to add a new intrusion detection window.
2. In the Window Name text box, enter a name for the intrusion detection window. To delete a window, click the mark on the right of the window name.
3. Draw a detection area by clicking four corner points on the target area. You can change the shape of the detection area by dragging the corner points.
4. Click **Save** to enable the settings.
5. Select **Enable motion detection** to enable this function.

People Detection

The People Detection detects and traces people motions in customized windows. If a people motion is detected, a flashing red window will frame the head of the people and follow the motion of the people.

Figure 6-5 People Detection



To enable people detection:

1. Click **New** to add a new people detection window.
2. In the Window Name text box, enter a name for the people detection window. To delete a window, click on the right of the window name.
3. Draw a detection area by clicking four corner points on the target area. You can change the shape of the detection area by dragging the corner points.
4. Click **Save** to enable the settings.
5. Select **Enable motion detection** to enable this function.

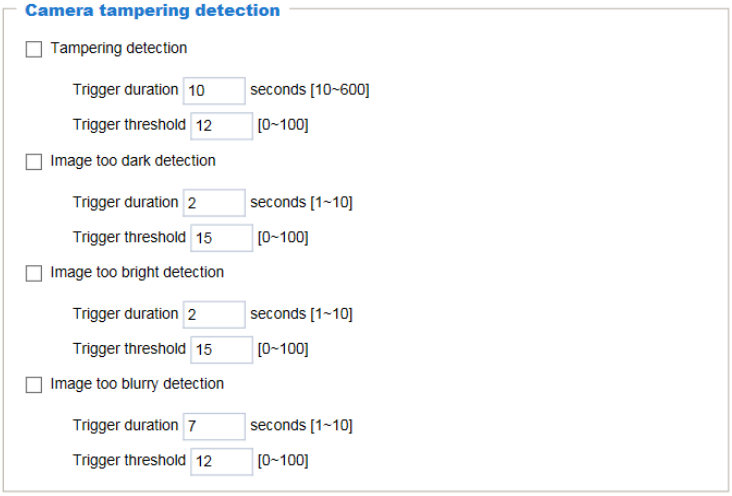
Note	Only one kind of motion detection (motion detection, intrusion detection or people detection) can be enabled at a time.

Configuring Tampering Detection Settings

Go to **Setup →Video Analytics → Tampering Detection**.

This section explains how to configure camera tamper detection settings. With tamper detection, the camera is capable of detecting incidents such as **redirection**, **blocking or defocusing**, or even **spray paint**.

Figure 6-6 Tampering Detection Configurations



Tampering detection: Check to enable tampering detection.

Image too dark detection: Check to enable image too dark detection. Too dark can be a cover on the camera or a spraying paint on the camera.

Image too bright detection: Check to enable image too bright detection. Too bright can be a flash light shining to the camera.

Image too blurry detection: Check to enable image too blurry detection. To blurry can be the result of strong interference on the camera, such as EMI interference.

Trigger duration: It specifies a set of time before the tampering is considered as a real alarm. This helps avoid false alarms by short-lived changes.

Trigger threshold: It determines how sensitive the tamper detection setting is. The lower the threshold value, the easier the detection is triggered.

You can configure Tampering Detection as a trigger element to the proactive event configurations in **Video Analytics → Event settings → Trigger.** For example, when the camera is tampered with, camera can be configured to send the pre- and post-event video clips to a networked storage device. For more information, see *Trigger* on page *63*.

Configuring Audio Detection

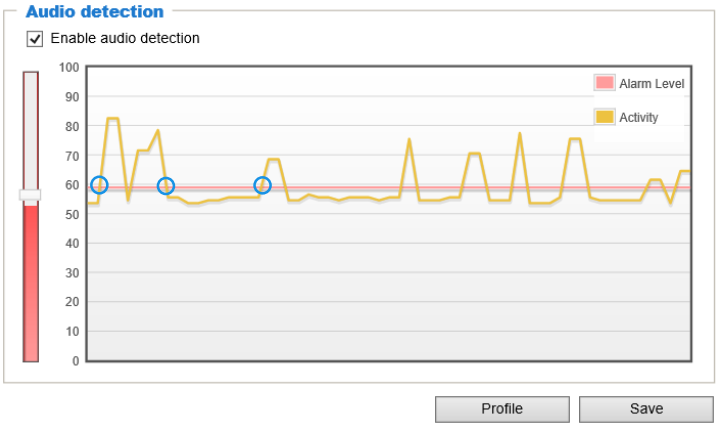
Go to **Setup →Video Analytics → Audio Detection**.

Note Only HC30WF5R1 supports this function.

Audio detection, along with video motion detection, is applicable in the following scenarios:

- Detection of activities not covered by camera view, e.g., a loud input by gun shots or breaking a door/ window.
- A usually noisy environment, such as a factory, suddenly becomes quiet due to a breakdown of machines.
- A PTZ camera can be directed to turn to a preset point by the occurrence of audio events.
- Dark environments where video motion detection may not function well.

Figure 6-7 Audio Detection



The blue circles indicate where the audio alarms can be triggered when exceeding or falling below the preset threshold.

Perform the following steps to configure Audio detection:

1. Once the Audio detection window is opened, the current sound input will be interactively indicated by a fluctuating yellow wave diagram.
2. Drag the Alarm level slider to a preferred location on the left slide bar.
3. Check **Enable audio detection** and click **Save**.

Note

- The volume numbers (0~100) on the left side of wave diagram does not represent decibel (dB). Sound intensity level has already been mapped to preset values. You can, however, use the real-world inputs at your installation site that are shown on the wave diagram to configure an alarm level.
- To configure this feature, you must not mute the audio in **Setup →Camera Setup → Audio**. The default of the camera can be muted due to the lack of an internal microphone. An external microphone is provided by users.

You can use the **Profile** window to configure a different audio detection setting. For example, a place can be noisy in the day time and become very quiet in the night.

1. Check **Enable this profile**. Once the Audio detection window is opened, the current sound input will be interactively indicated by a fluctuating yellow wave diagram.
2. Drag the **Alarm level** slider to a preferred location on the left slide bar.
3. Select the **Night mode** or **Schedule mode**. You may also manually configure a period of time during which this profile will take effect.
4. Click **Save** and then click **Close** to complete your configuration.

Figure 6-8 Audio Detection Profile

Note

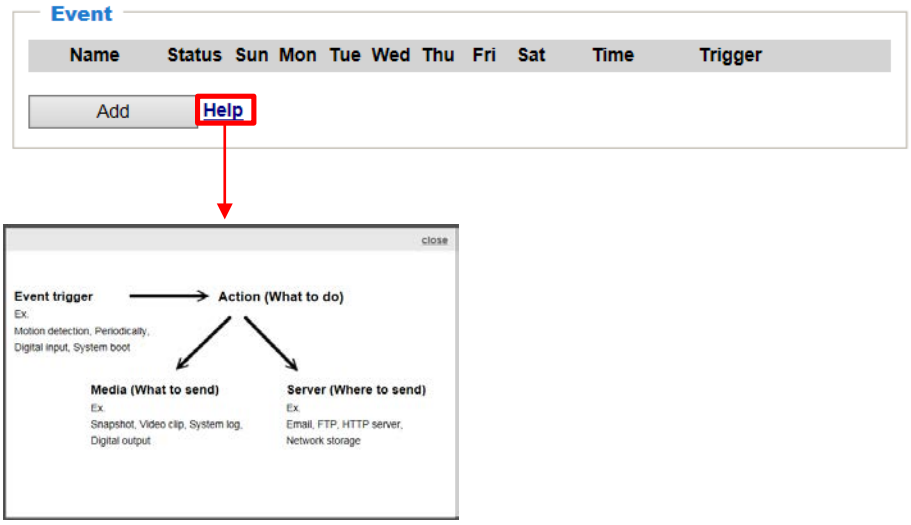
- If the Alarm level and the received volume are set within a range of 20% on the wave diagram, frequent alarms will be triggered. It is recommended to set the Alarm level farther apart from the detected sound level.
- To configure and enable this feature, you **must not** configure video stream #1 into **Motion JPEG**. If an external microphone input is connected and recording of audio stream is preferred, audio stream is transmitted between camera and viewer/recording station **along with stream #1**.

Configuring Event Settings

Go to **Setup →Video Analytics → Event Settings**.

This section describes how to configure the camera to respond to particular situations (event). A typical application is that when a motion is detected, the camera sends buffered images to an e-mail address as notifications. Click **Help**, there is an illustration shown in the pop-up window explaining that an event can be triggered by many sources, such as motion detection or external digital input devices. When an event is triggered, you can specify what type of action that will be performed. You can configure the camera to send snapshots or videos to your email address.

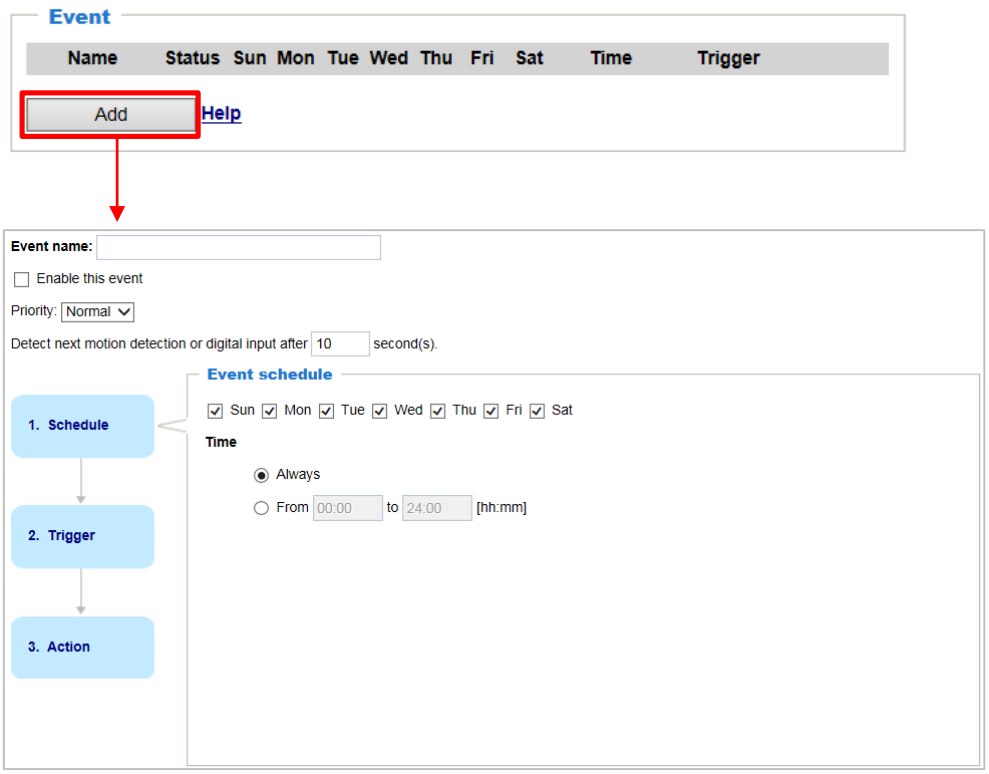
Figure 6-9 Event Settings



Event

In the **Event** tab, click **Add** to open the event settings window. Here you can arrange three elements -- Schedule, Trigger, and Action to set an event. A total of 3 event settings can be configured.

Figure 6-10 Event



- **Event name**: Enter a name for the event setting.
- **Enable this event**: Check to enable the event setting.
- **Priority**: Select the relative importance of this event (**High**, **Normal**, or **Low**). Events with a higher priority setting will be executed first.
- **Detect next motion detection or digital input after x seconds**: Enter the duration in seconds to pause motion detection after a motion is detected. This can prevent event-related actions to take place too frequently.

Schedule

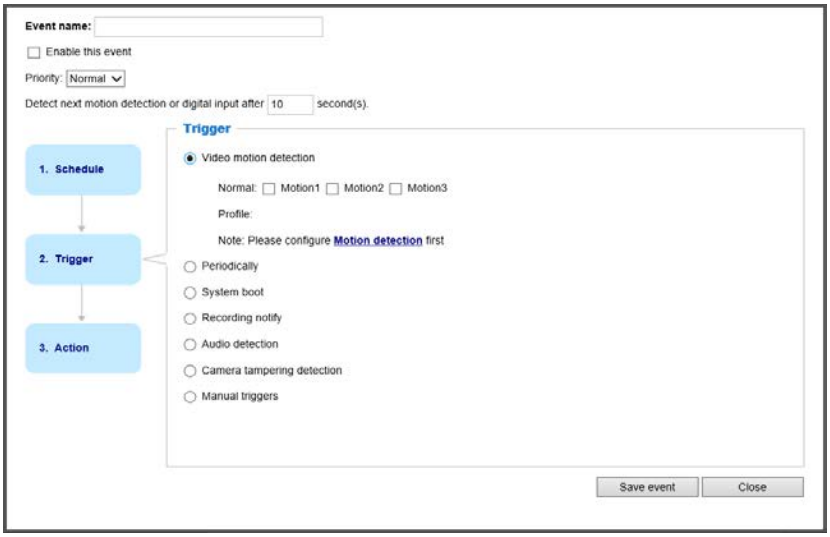
Specify the period of time during which the event trigger will take effect. Select the days of a week and the time in a day (in 24-hr time format) for the event triggering schedule. For example, you may prefer an event to be triggered only during the off-office hours.

Trigger

This is the cause or stimulus which defines when to trigger the camera.

There are several choices of trigger sources as shown below:

Figure 6-11 Trigger Sources



Video motion detection

This option makes use of the built-in motion detection mechanism as a trigger source. To enable this function, you need to configure a Motion Detection Window first. For more information, see *Configuring Motion Detection Settings* on page *55*.

Periodically

This option allows the camera to trigger periodically for every other defined minute. Up to 999 minutes can be set.

System boot

This option triggers the camera when the power to the camera is disconnected and re-connected.

Recording notify

This option allows the camera to trigger when the recording disk is full or when recording starts to overwrite older data.

Audio detection (Fisheye Model only)

A preset threshold can be configured with an external microphone as the trigger to system event. The triggering condition can be an input exceeding or falling below a threshold. Audio detection can take place as a complement to motion detection or as a method to detect activities not covered by the camera's view.

Camera tampering detection

This option allows the camera to trigger when the camera detects that is being tampered with. To enable this function, you need to configure the Tampering Detection option first, see *Configuring Tampering Detection Settings* on page *59*.

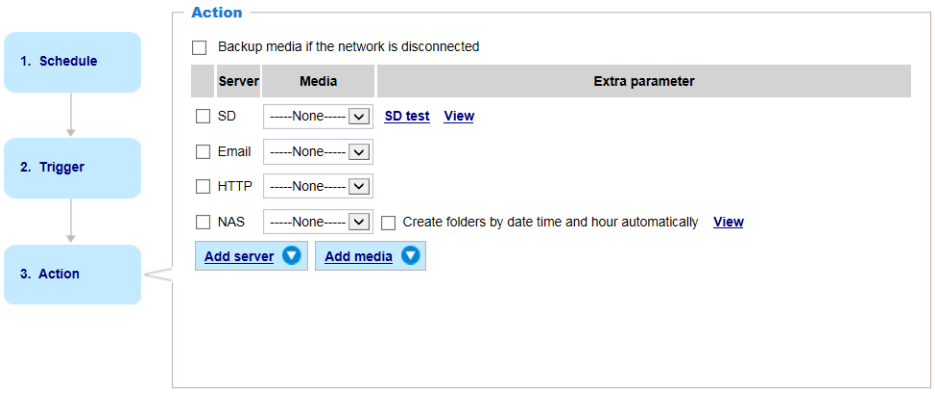
Manual triggers

This option allows users to enable event triggers manually by clicking the on/off button on the homepage. Configure 1 to 3 associated events before using this function.

Action

It defines the actions to be performed by the camera when a trigger is activated.

Figure 6-12 Action



Backup media if the network is disconnected:

Select this option to backup media files to SD card if the network is disconnected. This function will apply after you configure the Email, HTTP or NAS notification. For example, if a snapshot is supposed to be delivered to an Email receiver, in the event of network failure, the snapshot will be saved in the SD card. For more information about how to set up network storage, see *Add Server* on page *65*.

SD Test: Click to test your SD card. The system will display a message indicating the result as a success or a failure. If you want to use your SD card for local storage, format it before use. For more information, see *SD Card Format* on page *73* .

View: Click to open a file list window. This function is only for SD card and Network Storage.

- If you click the View button for an SD card, a content management page will prompt so that you can manage the recorded files on SD card. For more information, see *Content Management* on page *74*.
- If you click the View button for a Network storage, a file directory window will prompt for you to view recorded data on Network storage.

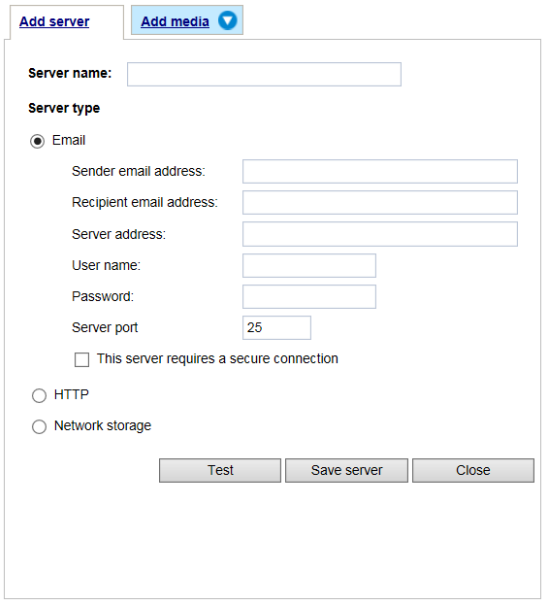
Create folders by date, time, and hour automatically: If you select this item, the system will automatically create folders by the date when video footages are stored onto the networked storage.

Add Server

Click **Add server** to open the server setting window. You can specify where the notification messages are sent to when a trigger is activated. A total of 5 server settings can be configured.

There are the following server types available: Email, HTTP, and Network storage. Select the item to display the detailed configuration options. You can configure either one or all of them.

Figure 6-13 Add Server



Server type - Email

Select to send the media files via email when a trigger is activated.

- Server name: Enter a name for the server setting.
- Sender email address: Enter the email address of the sender.
- Recipient email address: Enter the email address of the recipient.
- Server address: Enter the domain name or IP address of the email server.
- User name: Enter the user name of the email account if necessary.
- Password: Enter the password of the email account if necessary.
- Server port: The default mail server port is set to 25. You can also manually set another port.
- If your SMTP server requires a secure connection (SSL), select **This server requires a secure connection (SSL).**
- To verify if the email settings are correctly configured, click **Test**. The result will be shown in a pop-up window. If successful, you will also receive an email indicating the result.

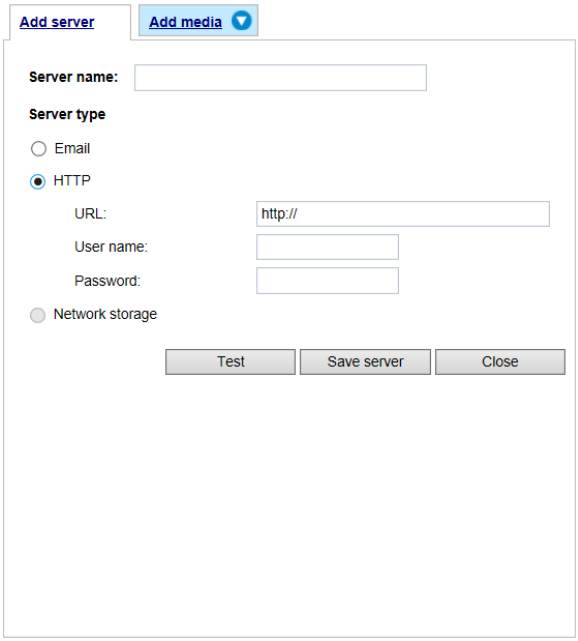
Click **Save server** to enable the settings.

After you configure the first event server, the new event server will be automatically display on the Server list. If you wish to add other server options, click **Add server**.

Server type - HTTP

Select to send the media files to an HTTP server when a trigger is activated.

Figure 6-14 Server type – HTTP



- Server name: Enter a name for the server setting.
- URL: Enter the URL of the HTTP server.
- User name: Enter the user name if necessary.
- Password: Enter the password if necessary.

To verify if the HTTP settings are correctly configured, click **Test**. The result will be shown in a pop-up window. If successful, you will receive a test.txt file on the HTTP server.

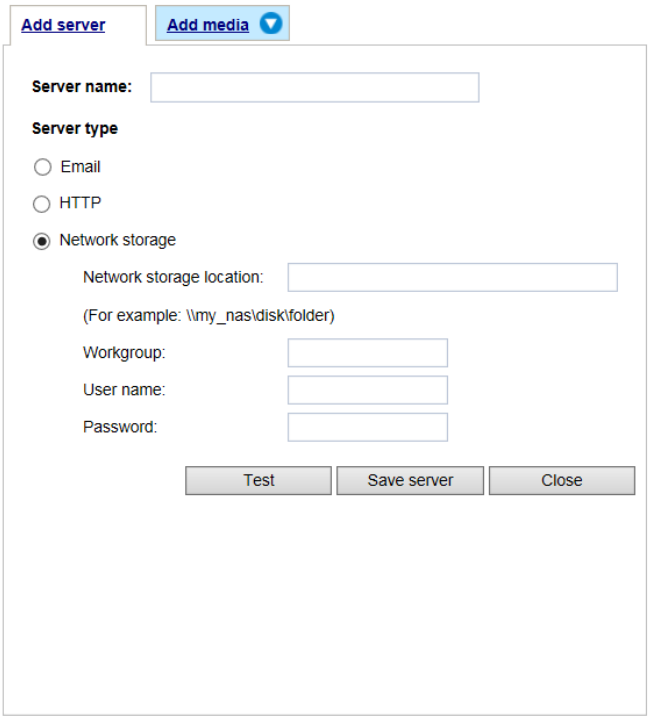
Click **Save server** to enable the settings.

Server type - Network storage

Select to send the media files to a networked storage when a trigger is activated. For more information about how to set up network storage, see *Add Server* on page 65. Only one NAS server can be configured.

Click **Save server** to enable the settings.

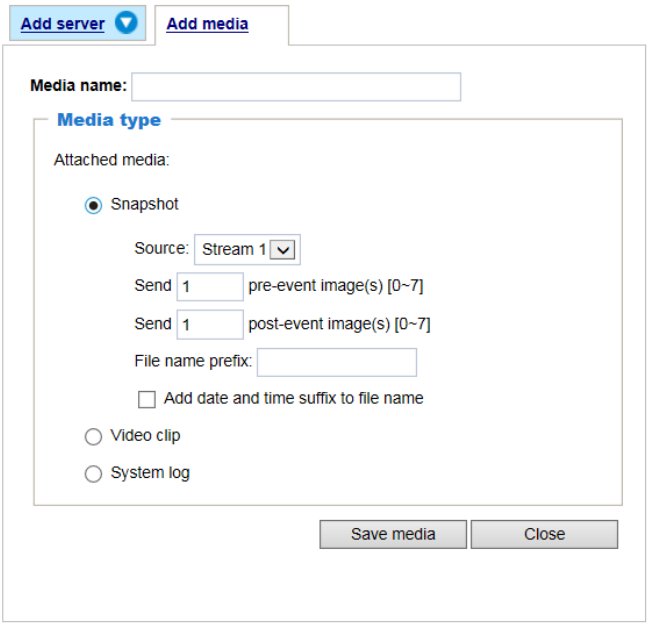
Figure 6-15 Network storage



Add Media

Click **Add media** to open the media setting window. You can specify the type of media that will be sent when a trigger is activated. A total of 5 media settings can be configured. There are three choices of media types available: Snapshot, Video Clip, and System log. Select the item to display the detailed configuration options. You can configure either one or all of them.

Figure 6-16 Add Media



Media type - Snapshot

Select to send snapshots when a trigger is activated.

- Media name: Enter a name for the media setting.
- Source: Select to take snapshots from any of the video streams.
- Send x pre-event images:

  The camera has a buffer to temporarily hold data up to a certain limit. Enter a number to decide how many images to capture before a trigger is activated. Up to 7 images can be generated.
- Send x post-event images:

  Enter a number to decide how many images to capture after a trigger is activated. Up to 7 images can be generated.

  For example, if both the Send pre-event images and Send post-event images are set to 7, a total of 15 images can be generated after a trigger is activated.
- File name prefix

  Enter the text that will be appended to the front of the file name.
- Add date and time suffix to the file name

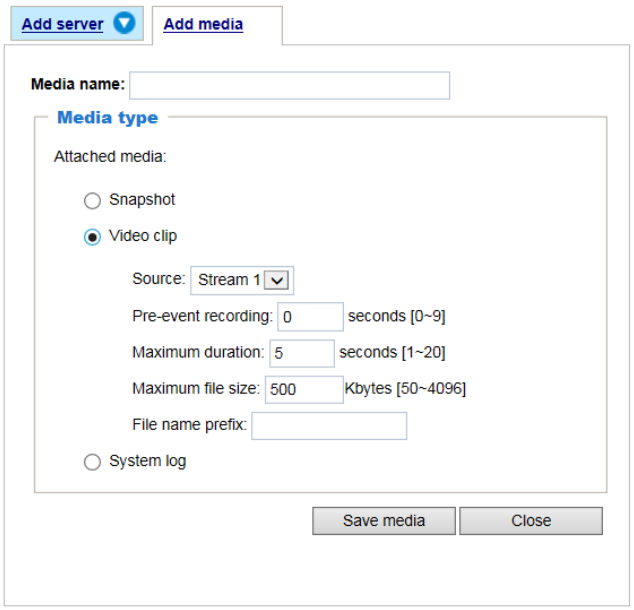
  Select this option to add a date/time suffix to the file name.

Click **Save media** to enable the settings. The new media server will be automatically displayed in the Media list. If you wish to add more media options, click **Add media**.

Media type - Video clip

Select to send video clips when a trigger is activated.

Figure 6-17 Media type - Video clip



- Media name: Enter a name for the media setting.
- Source: Select a video stream as the source of video clip.
- Pre-event recording

The camera has a buffer to temporarily hold data up to a certain limit. Enter a number to decide the duration of recording before a trigger is activated. Up to 9 seconds can be set.

- Maximum duration

  Specify the maximum recording duration in seconds. The duration can be up to 10 seconds.

  For example, if pre-event recording is set to five seconds and the maximum duration is set to ten seconds, the camera continues to record for another 4 seconds after a trigger is activated.

- Maximum file size

  Specify the maximum file size allowed. Some users may need to stitch the video clips together when searching and packing up forensic evidence.

- File name prefix

  Enter the text that will be appended to the front of the file name.

Click **Save media** to enable the settings.

Media type - System log

Select to send a system log when a trigger is activated.

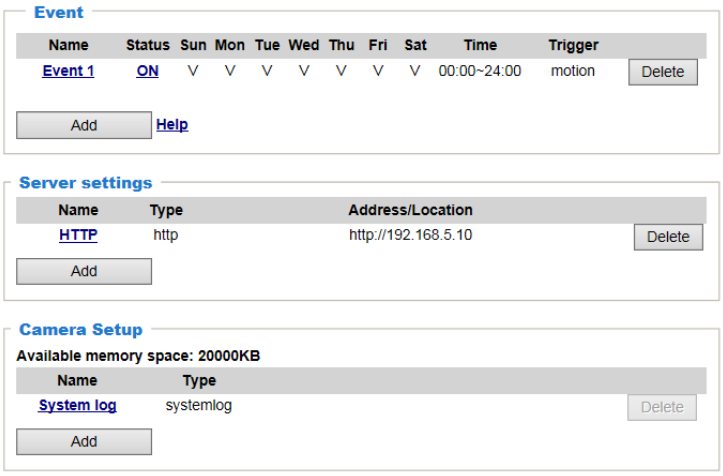
Click **Save media** to enable the settings, and then click **Close** to exit the page.

In the Event settings tab, the Servers and Medias you configured will be listed. Make sure the Event Status is set to **ON**, in order to enable the event triggering action.

When completed, click the **Save event** button to enable the settings and click **Close** to exit Event Settings page. The new Event / Server settings / Media will be displayed in the event drop-down list on the Event setting page.

See the example of the Event setting page below:

Figure 6-18 Event Settings Examples



When the Event Status is **ON**, the event configuration above is triggered by motion detection, the camera will automatically send snapshots via e-mail.

If you want to stop the event trigger, you can click on the **ON** button to turn it to **OFF** status or click the **Delete** button to remove the event setting.

To remove a server setting from the list, select a server name and click **Delete**.

You can only delete a server setting when it is not applied in an existing event setting.

To remove a media setting from the list, select a media name and click **Delete**.

You can only delete a media setting when it is not applied in an existing event setting.

7 Configuring Storage Settings

This chapter contains the following sections:

SD Card Management

Go to **Setup →Storage Setup →SD Card Management**.

This section describes how to manage the local storage on the camera. Here you can view SD card status, and implement SD card control.

See the following table for compatible SD Card.

Table 7-1 Compatible SD Card

SD Card Brand	Model	Size
Sandisk	microSDXC UHS-I Card	256 GB
Toshiba	microSDXC UHS-I Card	256 GB
Samsung	microSDXC UHS-I Card	256 GB
Toshiba	microSDXC UHS-I Card	128 GB
Sony	Sony Smart SD micro SDXC 64G	64 GB
Sony	Ultra microSDHC UHS-I 48MB/s	64 GB
Sandisk	microSDHC UHS-I Card	32 GB
Transcend	Transcend microSDHC 4G Class4	4 GB

Note

- It is recommended to turn OFF the recording activity before you remove an SD card from the camera.
- The lifespan of an SD card is limited. Regular replacement of the SD card can be necessary.
- Camera file system takes up several megabytes of memory space. The storage space cannot be used for recording.
- Using an SD card that already contains data recorded by another device should not be used in this camera.
- Do not modify or change the folder names in the SD card. That may result in camera malfunctions.

SD Card Status

This tab shows the status and reserved space of your SD card. Remember to format the SD card when using it for the first time, see *SD Card Format* on page *73*.

Figure 7-1 No SD Card

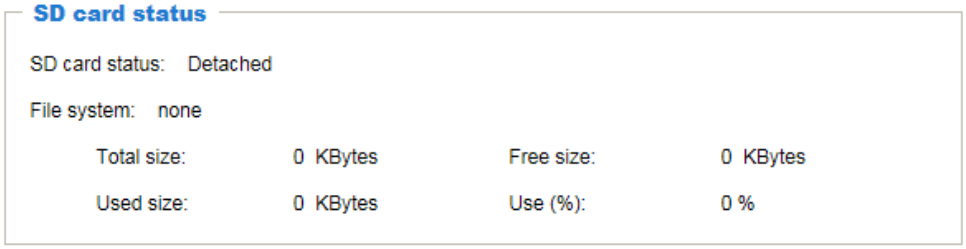
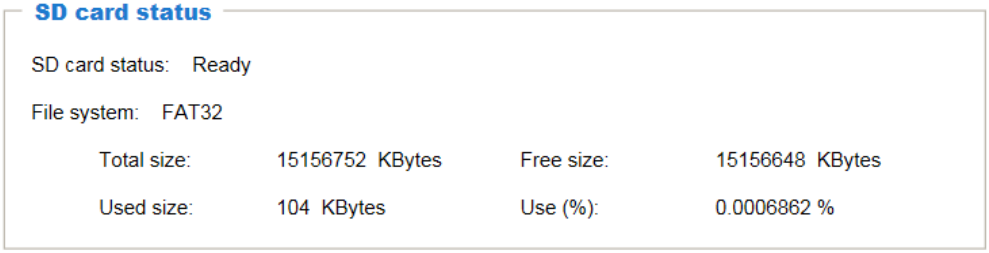


Figure 7-2 SD Card Onboard



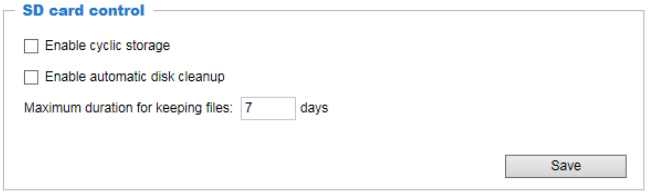
SD Card Format

The Linux kernel EXT4 file system format applies to SD card larger than 32GB. However, if EXT4 is applied, the computers running Windows will not be able to access the contents on the SD card unless using some 3rd-party software.

Figure 7-3 SD Card Format

SD Card Control

Figure 7-4 SD Card Control



- **Enable cyclic storage**: Check to enable cyclic recording. When the maximum capacity is reached, the oldest file will be overwritten by the latest one.
- **Enable automatic disk cleanup**: Check to enable automatic disk cleanup. Enter the number of days you wish to retain a file.

For example, if you enter “7 days”, the recorded files will be stored on the SD card for 7 days.

Click **Save** to enable your settings.

Content Management

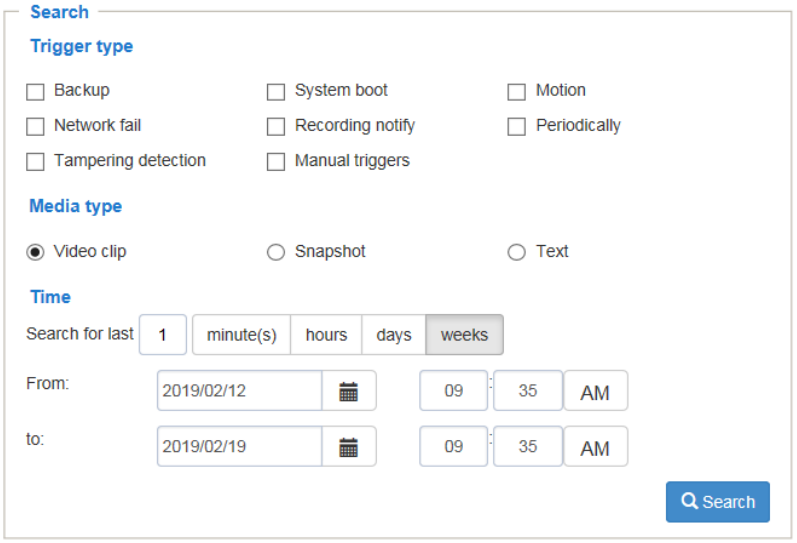
Go to **Setup →Storage Setup →Content Management**.

This section describes how to manage the content of recorded videos on the camera. Here you can search and view the records and view the searched results.

Searching and Viewing the Records

This tab allows the user to set up search criteria for recorded data. If you do not select any criteria and click **Search**, all recorded data will be listed in the **Search Results** tab.

Figure 7-5 Search



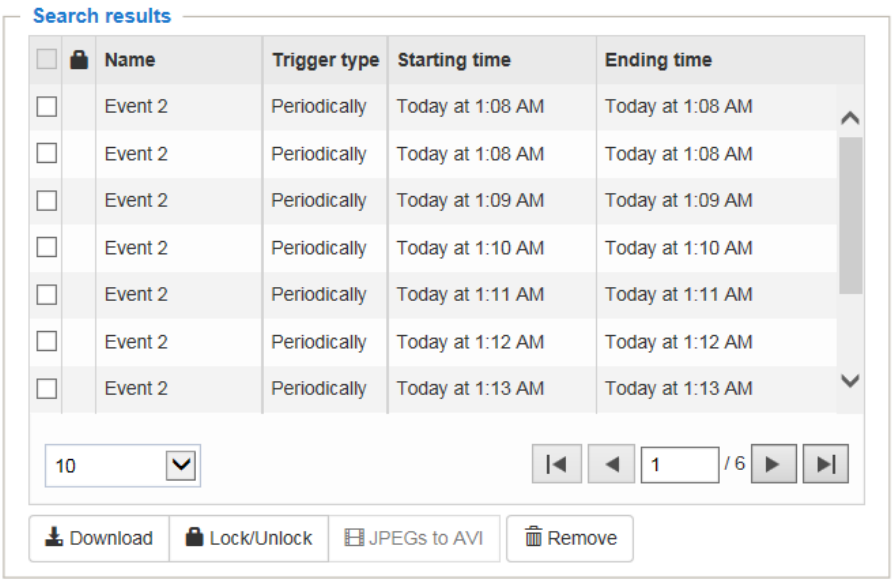
- Trigger Type: Select one or more trigger types.
- Media Type: Select a media type (Video clip, snapshot or text).
- Time: Manually enter the time range you want to search for contents created at a specific point in time.

Click **Search** and the recorded data corresponding to the search criteria will be listed in **Search Results** tab.

Search Results

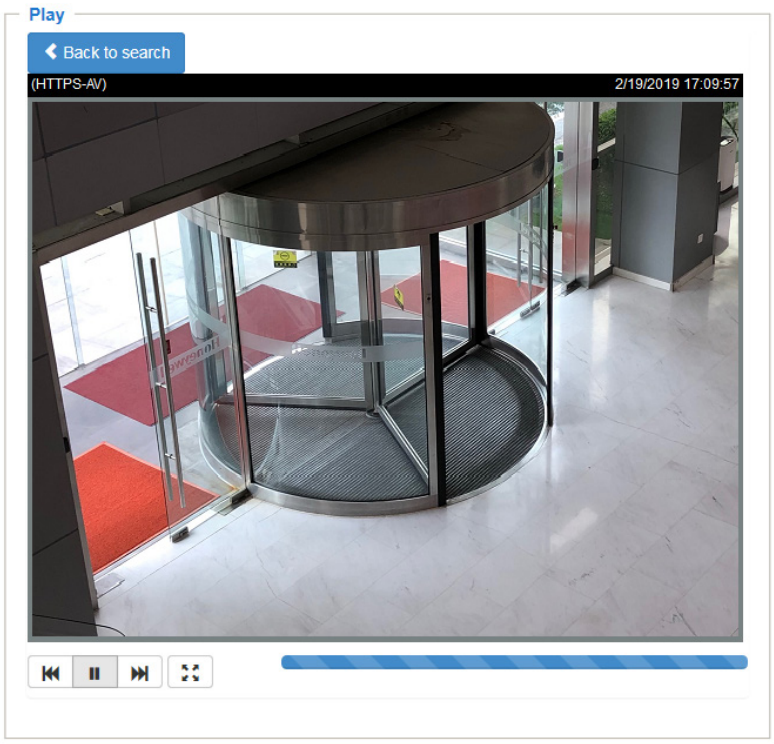
The following is an example of search results. To sort the search results, click each column header.

Figure 7-6 Search Results



- Play: Click on a search result and a Play window will be displayed for immediate review of the selected file.

  Figure 7-7 Play



- Download: Click on a search result and click **Download,** and a file download window will pop up for you to save the file. You can play the video clip by VLC player.
- JPEGs to AVI: This functions only applies to “JPEG” format files such as snapshots. You can select several snapshots from the list, then click this button. Those snapshots will be converted into an AVI file.

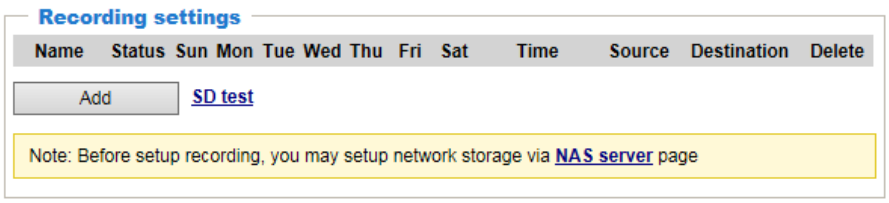
- Lock/Unlock: Select the checkbox in front of a desired search result, then click this button. The selected items will become Locked, which will not be deleted during cyclic recording. You can click again to unlock the selections.
- Remove: Select the desired search results, then click this button to delete the files.

Recording Settings

Go to **Setup →Storage Setup →Recording Settings**.

This section describes how to configure the recording settings for the camera.

Figure 7-8 Recording Settings



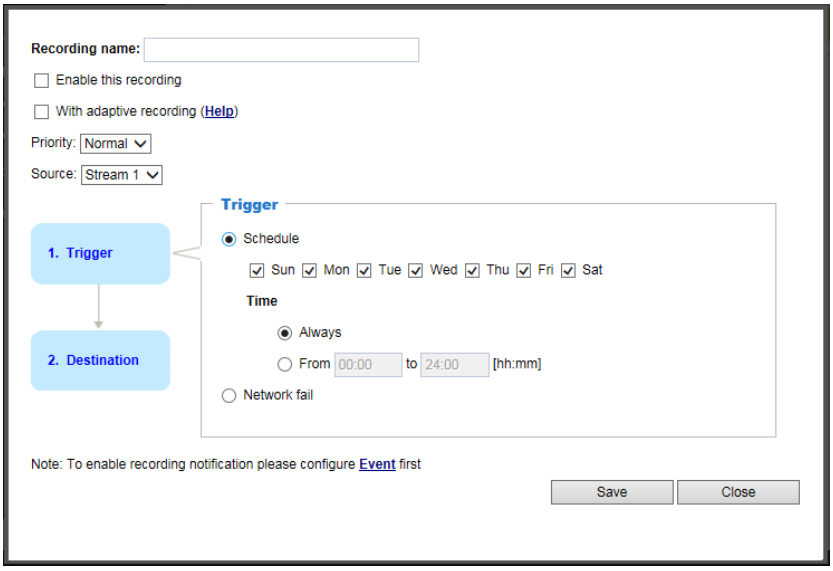
SD Test: Insert the SD card and click here to test.

Note	Format your SD card via the camera's web console when using it for the first time. For more information, see *SD Card Status* on page *73*.

Adding a Recording Setting

Click **Add** to open the recording setting window. On this page, you can define the adaptive recording, recording source, recording schedule, and recording capacity. A total of 2 recording settings can be configured.

Figure 7-9 Recording Settings Details



- Recording name: Enter a name for the recording setting.
- Enable this recording: Select this option to enable video recording.
- With adaptive recording:

  Select this option will activate the frame rate control according to alarm trigger.

  The frame control means that when there is a triggered alarm, the frame rate will raise up to the value you've configured on the Video quality page. For more information, see *Smart Stream III* on page *34*.

  If you enable adaptive recording on a camera, only when an event is triggered on camera will the server record the full frame rate streaming data; otherwise, it will only request the I frame data during normal monitoring, thus effectively saves bandwidths and storage space.

Note

- To enable adaptive recording, make sure you've set up the trigger source such as Motion Detection or Manual Trigger. For more information, see *Configuring Event Settings* on page *60*.
- When there is no alarm trigger:
  - JPEG mode: record 1 frame per second.
  - H.264 mode: record the I frame only.
- When the I frame period is >1s on Video settings page, firmware will force decreasing the I frame period to 1s when adaptive recording is enabled.

- Pre-event recording and post-event recording

  The camera has a buffer that temporarily holds data for a period. Therefore, when an event occurs, the camera can retrieve image frames taken several seconds ago. Enter a number to define the duration of recording before and after a trigger is activated.

- Priority: Select the relative importance of this recording (High, Normal, or Low). Recording with a higher priority setting will be executed first.
- Source: Select a video stream as the recording source.

Note	To enable recording notification, configure ***Event* settings** first, see *Configuring Event Settings* on page *60*.

Setting up a Recording

To set up a recording:

1. Select a trigger source.

   Schedule: The server will start to record files on the local storage or network storage (NAS).

   Network fail: Since network fail, the server will start to record files on the local storage (SD card).

2. Select a destination (SD or NAS) for the recorded video files. If you have not configured a NAS server, see *Adding NAS Server* on page *79*.

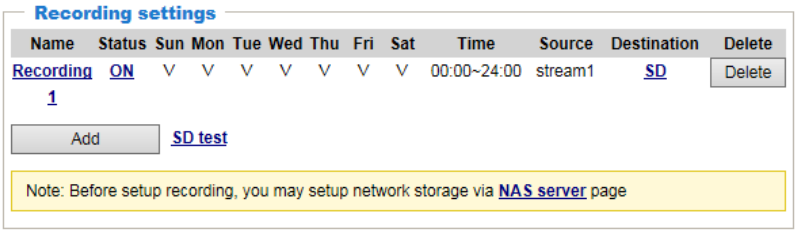
   - Capacity: You can choose either the entire free space available or limit the reserved space. The recording size limit must be larger than the reserved amount for cyclic recording. The reserved space is a small amount of space used only for the transaction stage when the capacity is about to be used up or recycled.
   - Enable cyclic recording: If you check this item, when the maximum capacity is reached, the oldest file will be overwritten by the latest one. The reserved amount is reserved for the transaction stage when the storage space is about to be full and new data arrives. The minimum for the reserved space must be larger than 15 MegaBytes.
   - Recording file management: You can manually assign the Maximum duration and the Maximum file size for each recording footage. You may need to stitch individual files together under some circumstances. You may also designate a file name prefix by filling in the responsive text field.
   - File name prefix: Enter the text that will be appended to the front of the file name.

If you want to enable recording notification, click **Event** to configure event triggering settings. For more information, see *Configuring Event Settings* on page *60*.

When completed, select **Enable this recording**. Click **Save** to enable the setting and click **Close** to exit this page. When the system begins recording, it will send the recorded files to the network storage. The new recording name will be displayed on the recording settings page as shown below.

To remove a recording setting from the page, click **Delete**.

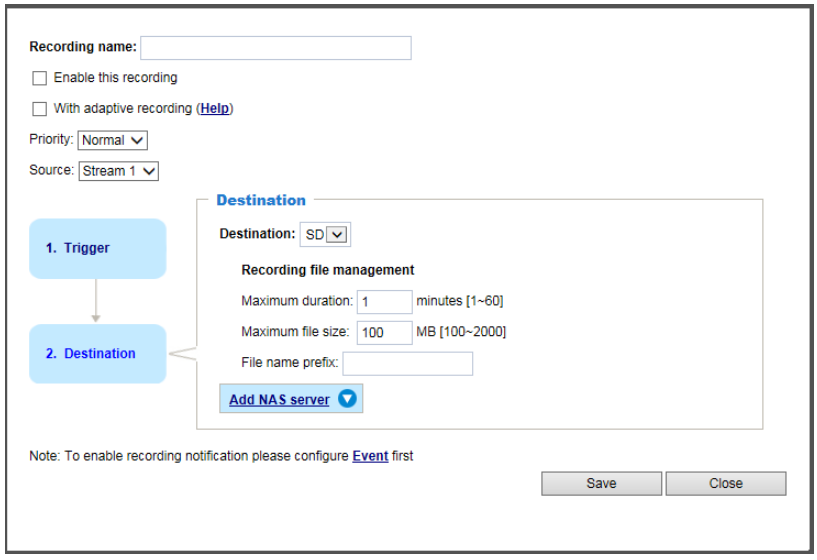
Figure 7-10 Recording 1



- Click Recording 1 (Name): Opens the Recording Settings page to modify.
- Click ON (Status): The Status will become OFF and stop recording.
- Click SD (Destination): Opens the file list of recordings.

Adding NAS Server

Figure 7-11 Add NAS Server



Click **Add NAS server** to open the server setting window and follow the steps below to set up:

1. Enter the information for your server.

   Server Name: Enter a name for your server.

   Network Storage Location: Enter the network storage path: \\server name or IP address\folder name

   Workgroup: Enter the workgroup for your server.

   User Name: Enter the user name for your server.

   Password: Enter the password for your server.

2. Click **Test** to check the setting. The result will be shown in the pop-up window. If it is successful, you will receive a test.txt file on the network storage server.
3. Click **Save** to complete the settings and click **Close** to exit the page.

8 Configuring System Settings

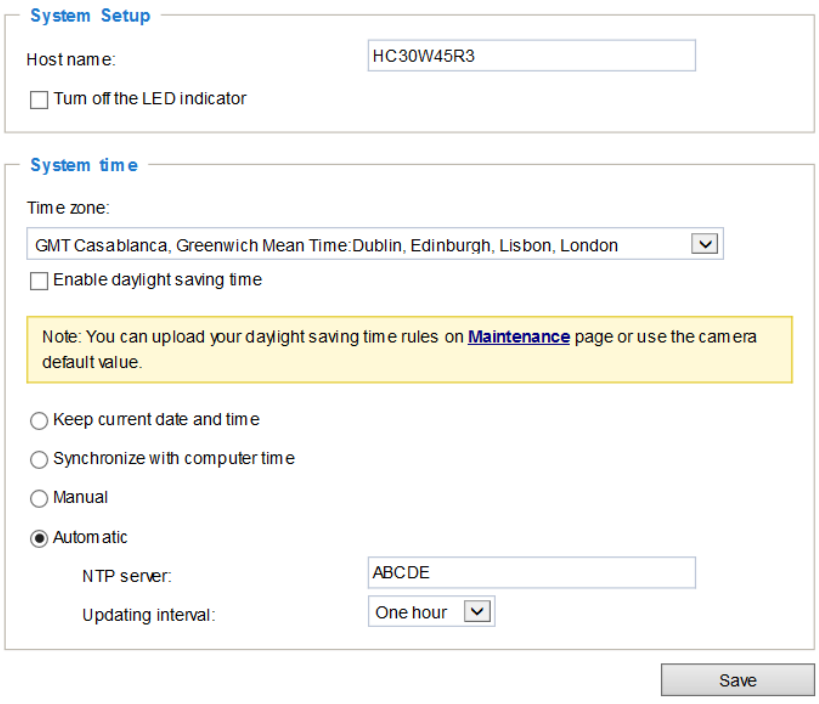
This chapter contains the following sections:

Configuring System General Settings

Go to **Setup →System Setup →General Settings**.

This section explains how to configure the basic settings for the camera, such as the host name and system time.

Figure 8-1 Configuring System General Settings



Host Name: Enter a name for the camera. The text will be displayed at the top of the main page.

Turn off the LED indicators: If you do not want others to notice the network camera is in operation, you can select this option to turn off the LED indicators.

Time zone: Select the appropriate time zone from the dropdown list. If you want to upload Daylight Savings Time rules, see *Configuring Maintenance Settings* on page *81* .

Keep current date and time: Select this option to preserve the current date and time of the camera. The camera's internal real-time clock maintains the date and time even when the power of the system is turned off.

Synchronize with computer time: Select this option to synchronize the date and time of the camera with the local computer. The read-only date and time of the PC is displayed as updated.

Manual: The administrator can enter the date and time manually. The date and time format are [yyyy/mm/dd] and [hh:mm:ss].

Automatic: The Network Time Protocol is a protocol which synchronizes computer clocks by periodically querying an NTP Server.

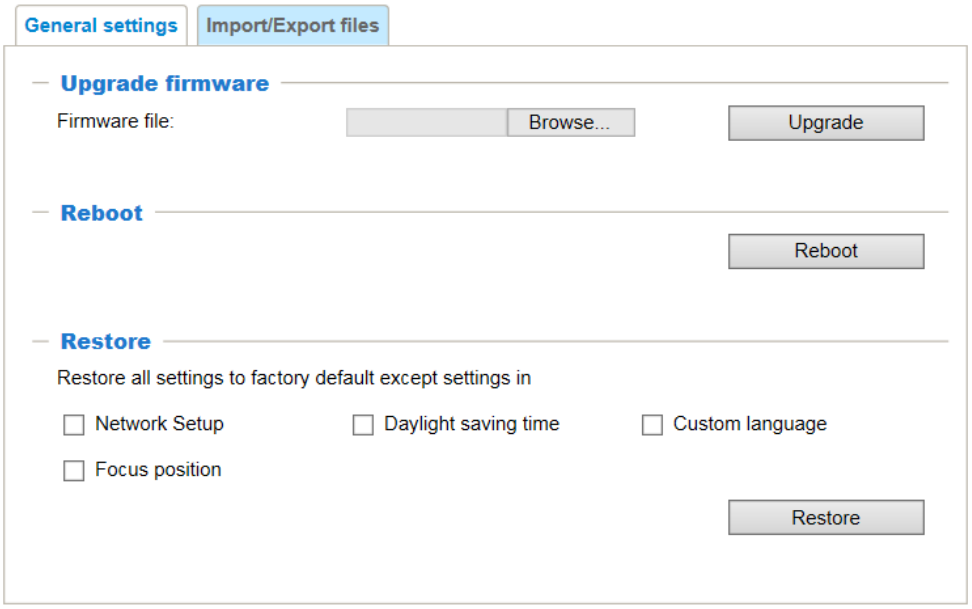
- NTP server: Assign the IP address or domain name of the time-server. Leaving the text box blank connects the camera to the default time servers. The precondition is that the camera must have the access to the Internet.
- Update interval: Select to update the time using the NTP server on an hourly, daily, weekly, or monthly basis.

Configuring Maintenance Settings

Go to **Setup →System Setup →Maintenance**.

This chapter describes how to restore the camera to factory default, upgrade firmware version, etc.

Figure 8-2 Maintenance



Upgrading Firmware

On this page, you can upgrade the firmware of the camera. It takes a few minutes to complete the process.

Note	Do not power off the camera during the upgrade.

Follow the steps below to upgrade the firmware:

1. Click **Browse...** and locate the firmware file.
2. Click **Upgrade**. The camera starts to upgrade and will reboot automatically when the upgrade completes.

If the upgrade is successful, the “Reboot system now!! This connection will close” message will be displayed. After that, re-access the camera.

Rebooting the Camera

On this page, you can reboot the camera. It takes about one minute to complete. After it is completed, the live video page will be displayed in your browser.

If the connection fails after rebooting, manually enter the IP address of the camera in the address field to resume the connection.

Restoring the Camera

Restore the camera to factory default settings.

Network Setup: Check to retain the Network Type settings (see *Configuring Network General Settings* on page *43*).

Daylight Saving Time: Check to retain the Daylight Saving Time settings (see *Importing /Exporting Files* on page *82*).

Custom Language: Select this option to retain the Custom Language settings.

Focus position: Check to retain the lens focus position using the previously saved position parameters.

If none of the options is selected, all settings will be restored to factory default. Click **Restore** and the camera will be rebooted.

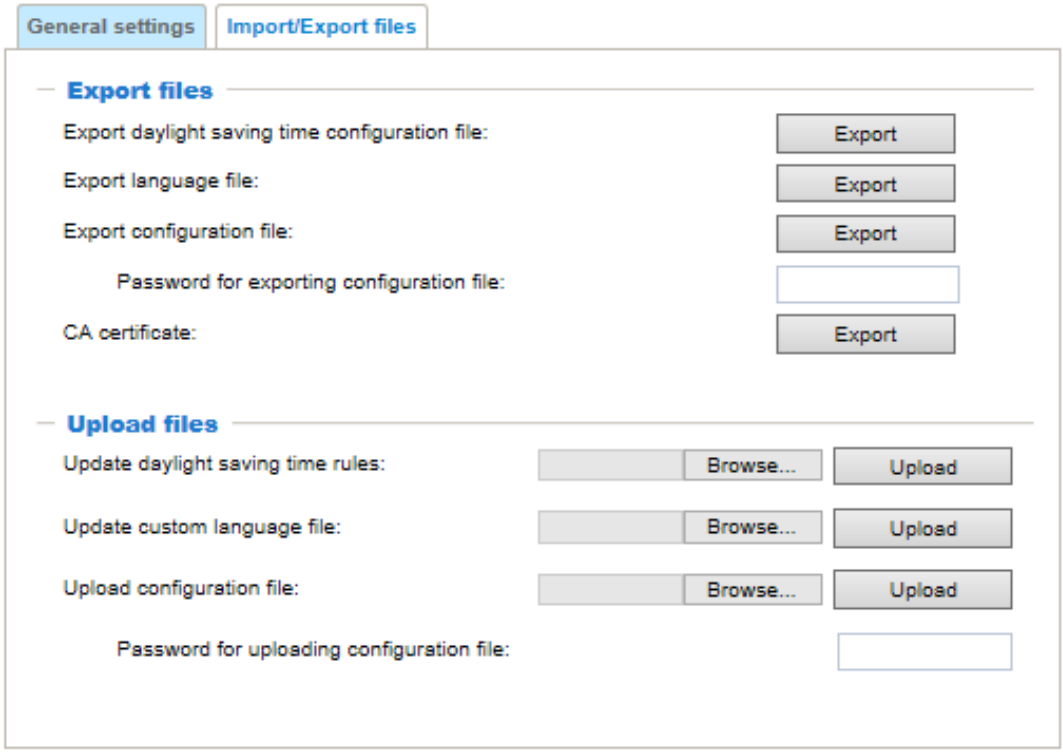
After it is completed, the live video page will be displayed in your browser.

If the connection fails after rebooting, manually enter the IP address of the camera in the address field to resume the connection.

Importing /Exporting Files

Export / Update daylight saving time rules, custom language file, configuration file, and server status report.

Figure 8-3 Import/Export Files



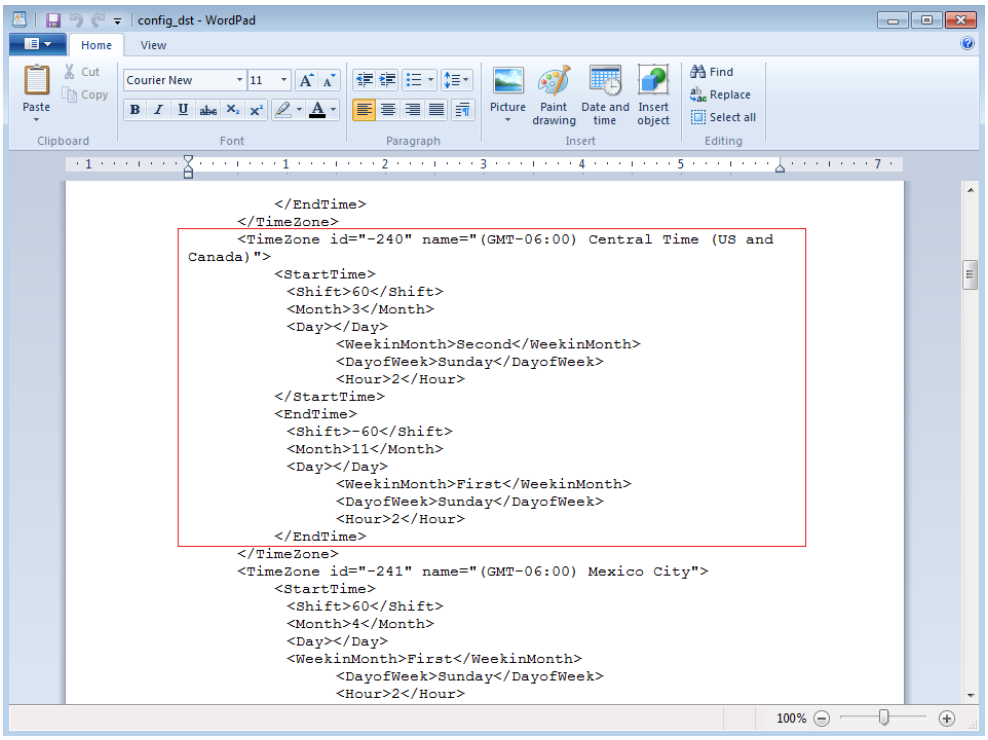
Export daylight saving time configuration file

Follow the steps below to export daylight saving time configuration file from the camera and set the start and end time of DST.

1. Click **Export** next to Export the daylight saving time configuration file.
2. A file download dialog will be displayed. Click **Open** to review the XML file or click **Save** to store the file for editing.
3. Open the file with Microsoft® Wordpad and locate your time zone; set the start and end time of DST.

After it is completed, save the file.

In the example below, DST begins each year at 2:00 a.m. on the second Sunday in March and ends at 2:00 a.m. on the first Sunday in November.



Export Language File

The camera supports the following languages: English, Deutsch, Español, Français, Italiano, 日本語, Português,Русский and 繁體中文. If your language is not listed, perform the following steps to customize the camera language.

Taking the English language file for example:

1. Click **Export** to export the **export translator.xml** file.
2. Save and open the **export translator.xml** file.
3. Replace all English string value in bold black into your own language and save the file. The following figure is a sample segment.

   Figure 8-4 Edit Language String

```
<lang>
    <language_name>English</language_name>
    <The_browser_can_not_support_Client_settings>The browser can not support Client
        settings.</The_browser_can_not_support_Client_settings>
    <The_browser_does_not_support_H265_warning_message>The video stream cannot be shown
        because your browser does not support H.265. Please use a different video
        codec.</The_browser_does_not_support_H265_warning_message>
    <_24hr_>(24hr)</_24hr_>
    <_for_example_my_nas_disk_folder_>(For example: \\my_nas\disk\folder)
        </_for_example_my_nas_disk_folder_>
    <_home>Home</_home>
    <_language>Language</_language>
    <_port>Port</_port>
```

4. Upload the updated **export translator.xml** file to your system. See *Update custom language file* on page *85*.

Export configuration file

Enter a password for exporting the configuration file and then click **Export** to export all parameters for the camera and user-defined scripts.

Export CA Certificate

The camera uses HTTPS, a secure communication protocol that verifies the identities of visited websites and servers and encrypts data exchanged between the client and the server. When you log in to the camera's web client for the first time, some browsers may display a warning that the connection is not private/secure. To access the web client, you must install a Honeywell-signed security certificate.

1. Click **Export** to save the root certificate (ca.crt) on your local computer.
2. Go to the directory where you saved the certificate and double-click the certificate. The **Certificate** window opens.
3. In the **Certificate** window, on the **General** tab, click **Install Certificate** to open the Certificate Import Wizard.
4. Click **Next** to continue.
5. Click **Place all certificates in the following store**, click **Browse**, click **Trusted Root Certification Authorities**, and then click **OK**.
6. Click **Next**, and then click **Finish** to close the Certificate Import Wizard. A confirmation dialog box appears with the message "The import was successful."
7. Click **OK**, and then click **OK** to close the Certificate window. And now your browser will not display a warning that the connection is not private/secure.

Update daylight saving time rules

Follow the steps below to update daylight saving time rules:

1. Click **Browse...** next to Update daylight saving time rules.
2. Select the XML file to update.
3. Click **Upload**.

Update custom language file

Click **Browse...** and select your own custom language file to upload.

Upload configuration file

Follow the steps below to upload a configuration file:

1. Enter the password for uploading the configuration file. The password must be the same with the password of the configuration file you set for exporting, or the uploading will be failed. For example, if you set the password A for the configuration file A and you set the password B for the configuration file B. When you want to upload the configuration file B, you must use the password B.
2. Click **Browse...** to locate the configuration file and then click **Upload** to upload the configuration file.

The model and firmware version of the device should be the same as the configuration file. If you have set up a fixed IP or other special settings for your device, it is not suggested to update a configuration file.

If the power is disconnected during firmware upgrade or if there is unknown reason causing abnormal LED status, and a Restore cannot recover normal working condition, you can perform the following steps to activate the camera with its backup firmware:

a. Press and hold down the reset button for at least one minute.

b. Power on the camera until the Red LED blinks rapidly.

c. After boot up, the firmware should return to the previous version before the camera hanged. (The procedure should take 5 to 10 minutes, longer than the normal boot-up process). When this process is completed, the LED status should return to normal.

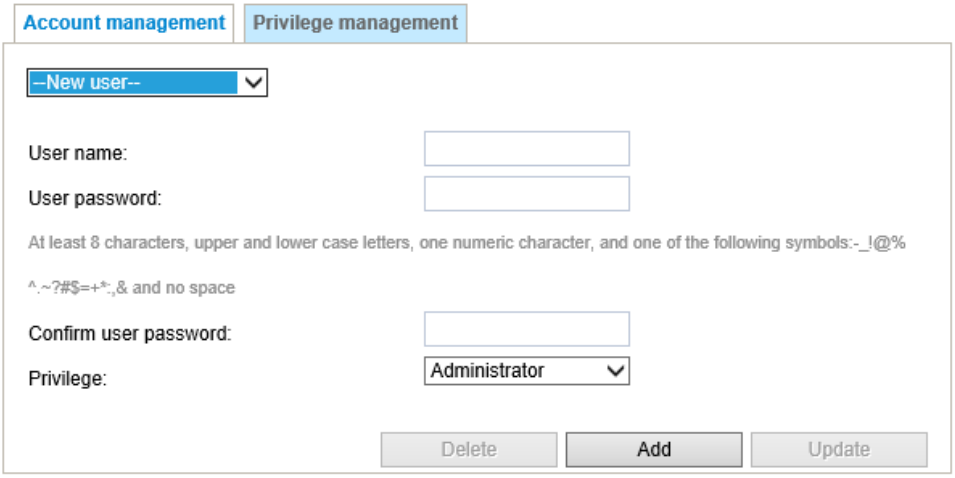
Configuring User Accounts Settings

Go to **Setup →System Setup →User Accounts**.

This section describes how to create multiple accounts and grant privileges to these accounts.

Account Management

Figure 8-5 Account Management



The administrator account name is “admin”, which is permanent and cannot be deleted.

The administrator can create up to 20 user accounts.

To create a new user:

1. Select New user from the dropdown list.
2. Enter the new user’s name and password and confirm the password. Some, but not all special ASCII characters are supported. You can use “!?@#$%=+*-_:,.&^~” in the password combination.
3. Select the privilege level for the new user account. Click **Add** to enable the setting.

The privilege levels are listed below:

Role	Privilege
Administrator	Full control
Operator	Live, Language, Special URL for configuring camera parameters
Viewer	Live, Language

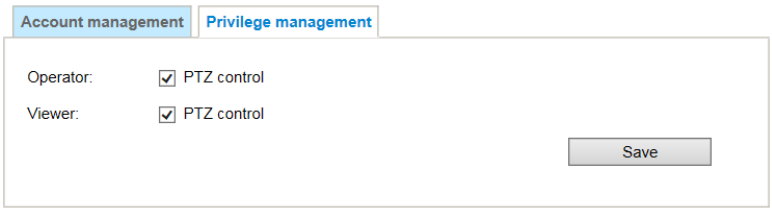
Access rights are sorted by user privilege (Administrator, Operator, and Viewer). Only administrators can access the Configuration page. Viewers can only access the main page for live viewing.

To change a user's access rights or delete user accounts:

1. Select an existing account to modify.
2. Make necessary changes and click **Update** or **Delete** to enable the setting.

Privilege Management

Figure 8-6 Privilege Management



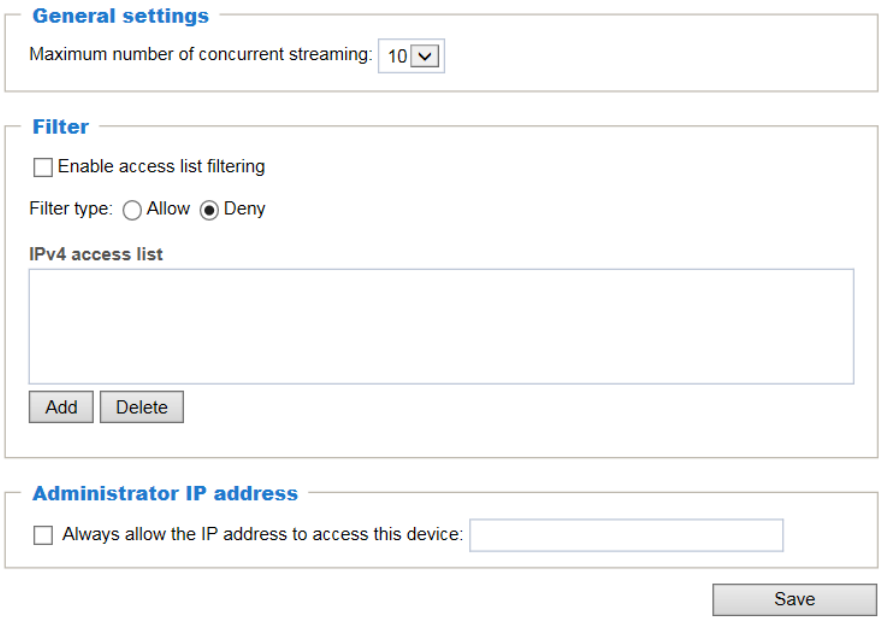
PTZ control: You can modify the management privilege as operators or viewers. Select or de-select the checkboxes, and then click **Save** to enable the settings. If you give Viewers the privilege, Operators will also have the ability to control the camera through the main page.

Configuring Access List Settings

Go to **Setup →System Setup →Access List**.

This section describes how to control access permission by verifying the client PC's IP address.

Figure 8-7 Access List



General Settings

Maximum number of concurrent streaming: Simultaneous live viewing for 1~10 clients (including stream 1 to stream 3). The default value is 10. If you modify the value and click **Save**, all current connections will be disconnected and automatically attempt to re-link (IE Explorer or Quick Time Player).

Filter

Enable access list filtering: Check this item and click **Save** to enable the access list filtering function.

Filter type: Select **Allow** or **Deny** as the filter type. If you choose Allow Type, only those clients whose IP addresses are on the Access List below can access the camera, and the others cannot. On the contrary, if you choose Deny Type, those clients whose IP addresses are on the Access List below will not be allowed to access the camera, and the others can.

You can add a rule to the following Access List.

Single: This rule allows the user to add an IP address to the Allowed/Denied list.

Network: This rule allows the user to assign a network address and corresponding subnet mask to the Allow/Deny List. The address and network mask are written in CIDR format.

Range: This rule allows the user to assign a range of IP addresses to the Allow/Deny List.

Note	• The IPv6 access list column will not be displayed unless you enable IPv6 on the Network page. For more information about IPv6 Settings, see *Enable IPv6* on page *45*. • The **Range** rule only applies to IPv4 addresses.

Administrator IP address

Always allow the IP address to access this device: Check it and add the Administrator's IP address in this field to make sure the Administrator can always connect to the device.

9 Viewing System Information

This chapter contains the following sections:

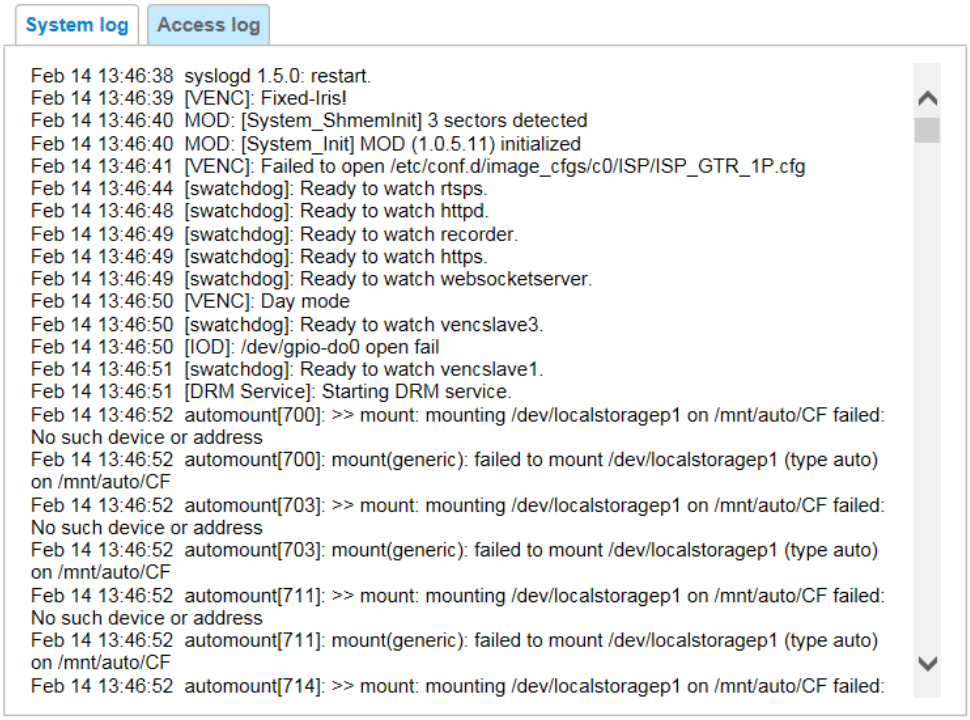
Log

Go to **Setup →Information →Logs**.

System Log

System log displays the system events in a chronological order. The system log is stored in the camera's buffer area and will be deleted after the camera is rebooted.

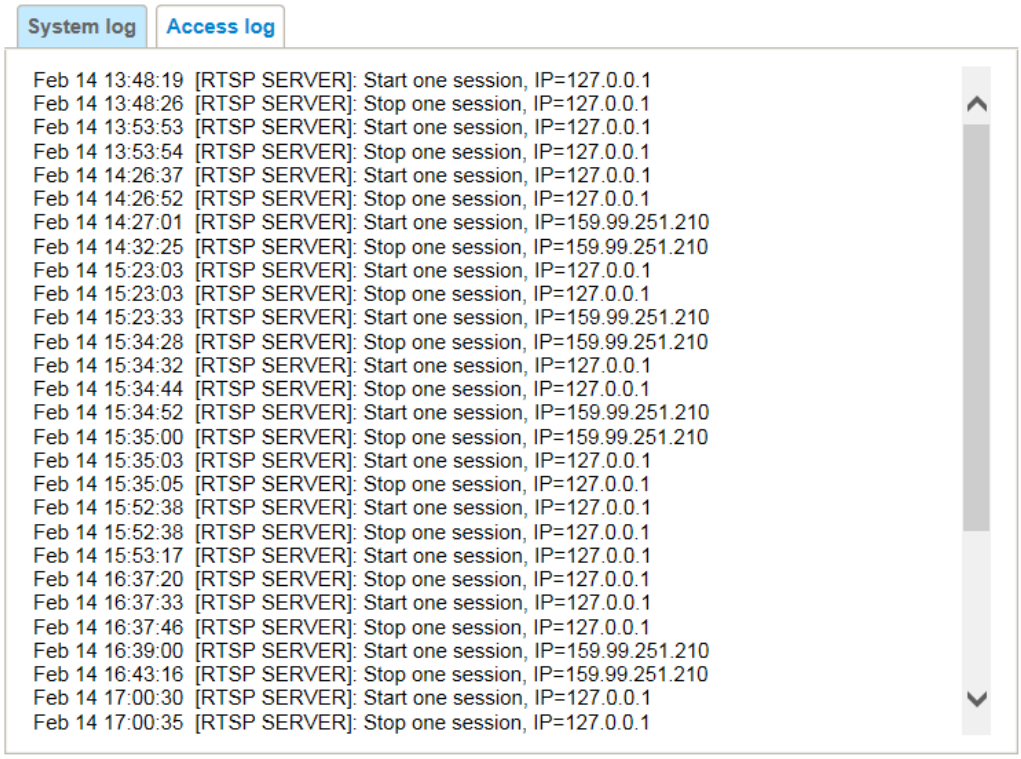
Figure 9-1 System Log



Access Log

Access log displays the access time and IP address of all viewers (including operators and administrators) in a chronological order. The access log is stored in the camera's buffer area and will be will be deleted after the camera is rebooted.

Figure 9-2 Access Log



Version

Go to **Setup →Information →Version**.

On the **Version** page, you can view the software version.

Figure 9-3 Version

10 Troubleshooting

Refer to the following guidelines to troubleshoot any performance issues. If you require additional assistance, contact Honeywell Technical Support (see back cover for contact information).

Table 10-1 Troubleshooting

Issues	Solutions
Cannot play downloaded file	• Use the player located on the CD that came with your camera.
IR video is poor.	• Ensure that the power supply is adequate. An inadequate power supply may not be able to support the IR lights. • Ensure that the objects to be illuminated are within the camera's IR range.
Cannot install/log in to web client.	• Ensure that your browser's security settings allow ActiveX controls. • Ensure that you have a valid network setup and that you are using the correct login user name and password.
Water leaking into camera housing.	• Do not unscrew the air tight hole.
Power supply is unstable.	• Use of a UPS power supply is strongly recommended.

11 Appendix

List of Symbols

The following is a list of symbols that may appear on the camera:

Symbol	Explanation
	The WEEE symbol. This symbol indicates that when the end-user wishes to discard this product, it must be sent to separate collection facilities for recovery and recycling. By separating this product from other household-type waste, the volume of waste sent to incinerators or landfills will be reduced, and thus natural resources will be conserved.
	The UL compliance logo. This logo indicates that the product has been tested and is listed by UL (formerly Underwriters Laboratories).
	The FCC compliance logo. This logo indicates that the product conforms to Federal Communications Commission compliance standards.
	The direct current symbol. This symbol indicates that the power input/output for the product is direct current.
	The alternating current symbol. This symbol indicates that the power input/output for the product is alternating current.
	The RCM compliance logo. This logo indicates that the product conforms with Australian RCM guidelines.
	The CE compliance logo. This logo indicates that the product conforms to the relevant guidelines/standards for the European Union harmonization legislation.
	The caution symbol. This symbol indicates important information.
	The protective earth (ground) symbol. This symbol indicates that the marked terminal is intended for connection to the protective earth/grounding conductor.

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