# Speed Dome IP Camera Series

# User Manual

**Surveon**

# Revision History

| Version | Description | Date |
|---------|-------------|------|
| 1.0 | Initial release | Aug 2018 |

# Table of Contents

# Safety Precautions

### Electric Shock Warning

This equipment may cause electric shocks if not handled properly.

- Access to this equipment should only be granted to trained operators and maintenance personnel who have been instructed of, and fully understand the possible hazardous conditions and the consequences of accessing non-field-serviceable units such as the power supplies.
- The system must be unplugged before moving, or in the even that it becomes damaged.

### Reliable Grounding

Particular attention should be given to prepare reliable grounding for the power supply connection. It is suggested to use a direct connection to the branch circuit. Check for proper grounding before powering on the device.

### Overloading Protection

The device should be installed according to specifications. Provide a suitable power source with electrical overload protection. Do not overload the AC supply branch circuit that provides power to the device.

### ESD Precautions

Please observe all conventional anti-ESD methods while handling the device. The use of a grounded wrist strap and an anti-static work pad are recommended. Avoid dust and debris in your work area.

# Device Installation/Site Selection

The device should be installed according to specifications. This device should be operated at a site that is:

- Clean, dry, and free of excessive airborne particles.

- Well-ventilated and away from heat sources such as direct sunlight and radiators.

- Clear of vibration or physical shock.

- Away from strong electromagnetic fields produced by other devices.

- Available with properly grounded wall outlet for power. In regions where power sources are unstable, apply surge suppression.

- Available with sufficient space behind the device for cabling.

Never install or use, unless waterproof or dust-resistant is listed as a feature, the device in the following locations:

- Areas where chemicals are used.

- Areas where dust, debris, or pollen is in excess.

- Areas where corrosive gas, sea water or high humidity is present.

- Areas where steam vapor or flammable environments is generated.

- Areas where radiation, X-rays, strong electric waves, or magnetism is generated.

- Areas outside of the allowable ambient operating temperature range.

- Areas subject to impact or rigorous vibration.

# Chapter 1.  Product Overview

## 1.1. Network Camera Introduction

Speed Dome Camera series are professional network cameras that use Internet Protocol (IP) to transmit video streams and control signals over networks. Capable of operating over both LANs and WANs, they provide a complete budget-conscious remote surveillance solution that are ultra clear and highly integrated. Speed Dome Camera series combine a user-friendly interface and simplified installation with a powerful feature set to provide users an easy upgrade path to new digital surveillance system in a virtual environment. These highlights make Speed Dome Camera series ideal choices for environments that require remote surveillance or video transmission.

## 1.2. Features and Benefits

Speed Dome IP camera is a cutting-edge digital video transmission device. It can compress and transmit real-time images of outstanding quality using a reasonable amount of bandwidth through a standard TCP/IP network. The following features make this IP camera an outstanding choice when building an intelligent IP surveillance system:

- High Video Quality

High image quality is essential in security surveillance applications. It is important to be able to clearly capture an incident in progress and identify persons or objects involved. A network camera gives exceptional video quality, even greater than that of traditional analog cameras, which means that more detail or larger areas can be covered.

- H.265/H.264/MPEG-4/MJPEG Compression

Motion JPEG, MPEG-4, H.265, H.264 (also known as MPEG-4 Part 10/AVC), each employ different techniques to reduce the amount of data transferred and stored in a network video system. Network cameras that support multiple compression standards are ideal for maximum flexibility and integration possibilities.

- Dual Streaming

Dual-stream design enables simultaneous support of real-time video monitoring, video recording, or mobile viewing applications which require different resolutions, compression formats and frame rates.

- MicroSD Card Slot

IP surveillance relies on network connectivity, making it susceptible to attacks on the network between the camera and recording facilities. With onboard recording capability, our network cameras can truly be online 24/7. The microSD card slot design ensures sufficient recording capacity for an over-weekend period even at full frame rate and high resolution.

■ Tampering Detection

This is an intelligent video analytics application available only in selected network cameras in the market. When a camera is manipulated in any way (e.g. accidental redirection, blocking, defocusing, spray-painted, covered or damaged), it can automatically trigger recording and alert notifications.

■ Power-over-Ethernet

The built-in Power-over-Ethernet support reduces cabling and installation costs, and enables users to consolidate power facilities for higher reliability. With PoE, a camera can still operate in the event of a power failure if it is connected to a centralized backup power with an Uninterruptible Power Supply.

# 1.3. Technical Specifications

| CAM6471EZ-5 | 3 Megapixel 30x Zoom D/N Outdoor Speed Dome Network Camera |
|---|---|

## Specifications for CAM6471EZ-5

| Model Name | CAM6471EZ-5 |
|---|---|
| Description | 3 Megapixel 30x Zoom D/N Outdoor Speed Dome Network Camera |
| Image Sensor | 1/2.8" megapixel Sony Progressive CMOS |
| Lens | f4.3 - 129 mm autofocus lens, F1.6 |
| SNR | 50dB |
| WDR | Yes |
| Day/Night ICR | Yes |
| IR LED | N/A |
| Min Illumination | 0.002 lux (B/W)<br>0.04 lux (Color) |
| Iris Control | Automatic / Manual IRIS control |
| Shutter Time | 1/1 ~ 1/10,000 s |
| Viewing Angle | Horizontal FOV: $62^0$ (wide),$2^0$ (tele)<br>Vertical FOV: $47^0$ (wide),$2^0$ (tele) |
| Camera Angle Adjustment | Pan: 360° endless, 5°–400°/s<br>Tilt: -10° ~ +190°, 5°–400°/s |
| Pan/Tilt/Zoom Functionalities | 1. 180° Horizontal Instant Flip<br>2. 256 preset positions<br>3. Preset position auto scanning<br>4. 30x optical zoom and 10x digital zoom, total 300x zoom |
| Video Compression | H.265/H.264/MJPEG |
| Resolution | Up to 2048 x 1536 |
| Video FPS | 30 fps at 3 MP (2048 x 1536)<br>60 fps at 1080P (1920 x 1080)<br>60 fps at SXGA (1280 x 1024)<br>60 fps at 720P (1280 x 720)<br>60 fps at D1 (720 x 480)<br>60 fps at VGA (640 x 480)<br>60 fps at QVGA (320 x 240) |
| Video Stream | Up to 4 individually configurable streams in<br>H.265/H.264/MJPEG |
| Bit Rate | 64K ~ 10Mbps, VBR, CBR, controller frame rate and quality |
| Video Control | AGC (Auto Gain Control), AWB (Auto White Balance), BLC (Back Light Compensation), 2D/3D Noise Reduction, Digital Image Stabilization, Image adjustment, Privacy zone: On/Off (5 zones) |
| Intelligent Video | Motion detection |
| Video Jack | N/A |
| Built-in MIC | N/A |

| | |
|---|---|
| Audio Compression | G.711/G.726/AAC/LPCM |
| Audio Input / Output | Line In/Out, Terminal Block |
| Alarm In/Out | 4/2, terminal block |
| Video Buffer | N/A |
| Event Action | Send snapshot or video clip by FTP or email, record to local storage, trigger DO |
| Supported Protocols | ARP, PPPoE, IPv4/v6, ICMP, IGMP, QoS, TCP, UDP, DHCP, UPnP, SNMP, SMTP, RTP, RTSP, HTTP, HTTPS, FTP, NTP, DDNS |
| Ethernet | RJ-45, 10/100M |
| Local Storage | MicroSD/SDHC/SDXC |
| RS-485 | Yes |
| USB | N/A |
| SDK | Surveon SDK 2.0 |
| OS | Microsoft Windows 7/8 |
| Browser | IE 8.x or above, Safari, Chrome (via IE Tab) |
| Software | Surveon VMS 2.5 |
| Temperature | Operation: -40°C~ 50°C (-40°F~122°F) |
| Humidity | 10 to 90% |
| Power | 802.3at PoE+ / DC 12V / AC 24V |
| Power Consumption | Max. 25.4W (w/o Heater )<br>Max.57W (w/ Heater ) |
| Dimension | ø192mm x 282mm (H)<br>ø7.5" x 11.1" (H) |
| Weight | 2.9 Kg |
| Certification | CE / FCC / RoHS / IP66 / IK10 |

# Chapter 2. Hardware Overview

## 2.1. Overview

### Bottom View
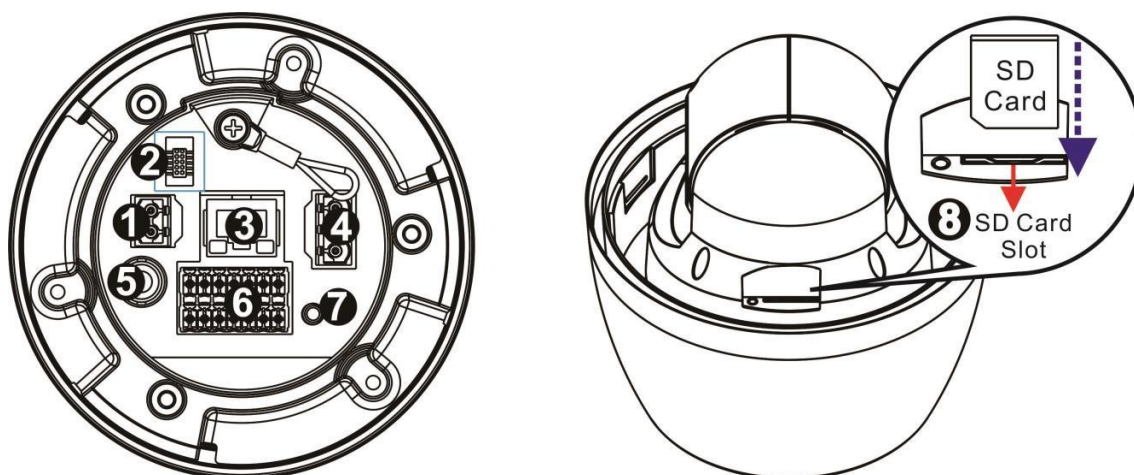


| No. | Connector |
|:---:|:---:|
| 1 | Power Connector (DC12V) |
| 2 | Console Connector |
| 3 | RJ-45 Port |
| 4 | Power Connector (AC24V) |
| 5 | BNC |
| 6 | Audio/Alarm I/O & RS-485 Connector |
| 7 | Reset Button |
| 8 | SD Card Slot |

## 2.2. Dimensions

Unit:mm(inches)

103.4 (4.07")

282.41 (11.12")

191.36 (7.55")
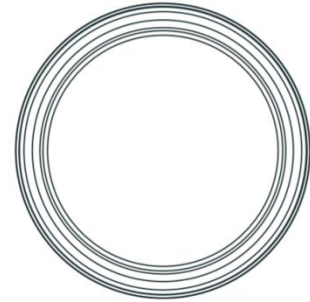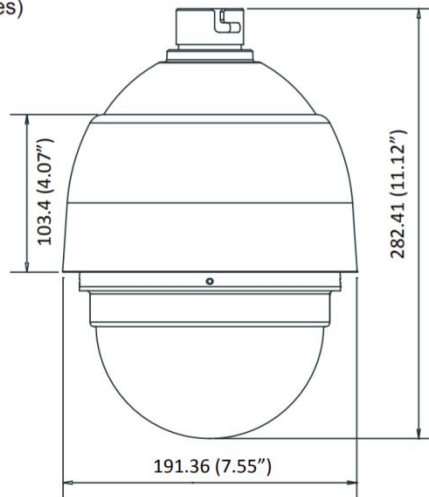
## 2.3. Camera Setup

### Preparation for Dome Camera Setup

1. Unpack the dome package and take out the dome body.

2. Remove the plastic wrapping on the dome cover.

3. Remove the Styrofoam sheet from the inside of the dome cover.



4. Remove the tape and lens cap on the camera.
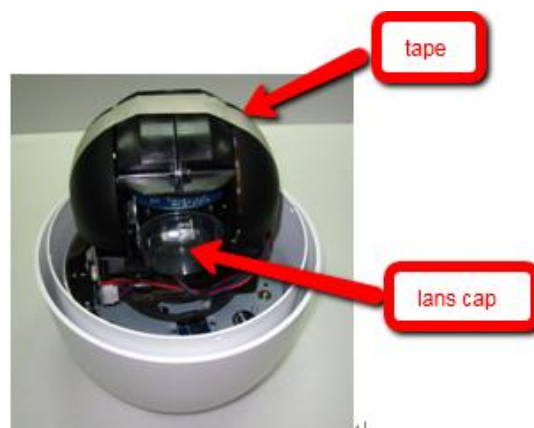


5. Remove the two screws on the dome cover.

6. Attach the dome cover. Before doing that, apply some lubricant on the cover's waterproof rubber to make the installation process smoother.



Note that the tiny protrusion on the dome cover must align with one of the four holes on the dome body.

7. Gently pressure the dome cover downward with two hands on the side of it.
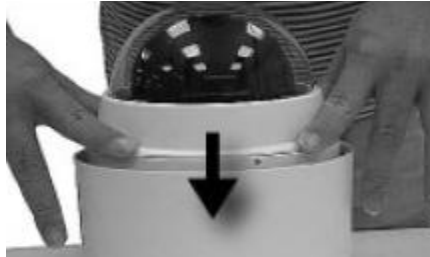


8. Use one M3 Screw and the original two screws to screw the dome cover and camera body together.



## Camera Cable Connections

### Connecting Power

Pin definitions of the power connector:
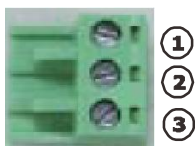


| Pin | Definition | Color of Power Wire Connected |
|-----|-----------|-------------------------------|
| 1 | AC 24- | Blue or Black |
| 2 | FG | Yellow/Green or Green |
| 3 | AC 24+ | Brown or White |

1. Connect the power wires of AC adapter with the power connector. Please check the colors of the power wires carefully, and screw them with the connector properly.
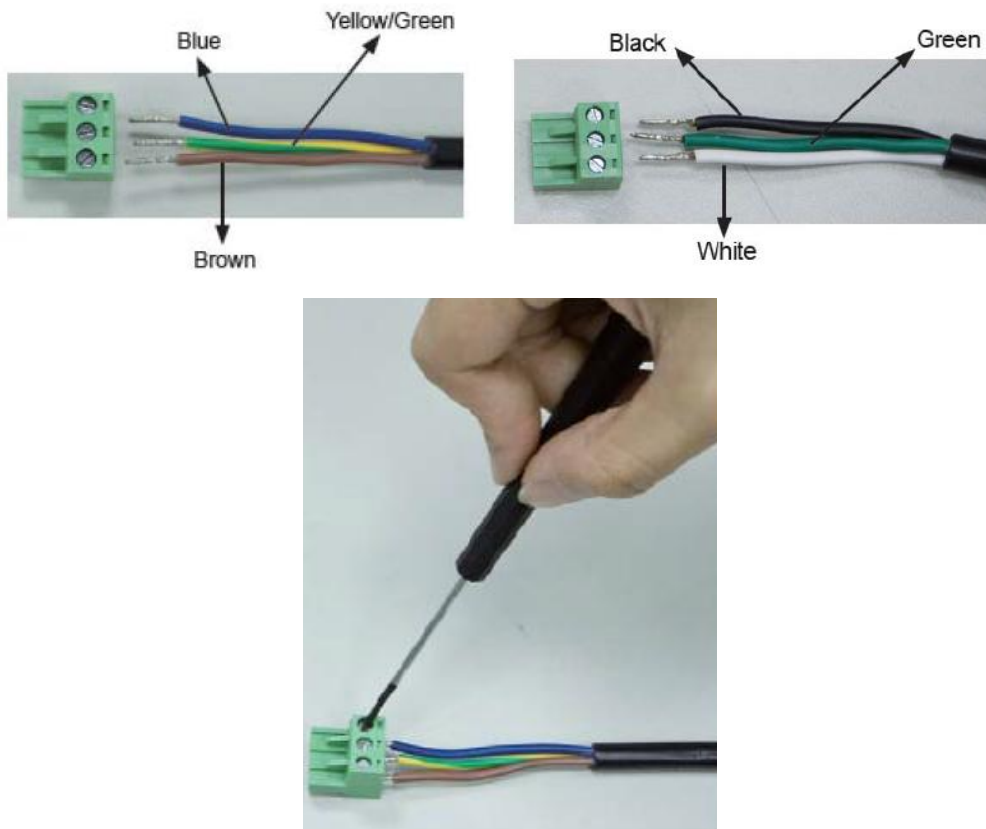




**Warning:** When done connecting the cables to the connector, please check for LIVE WIRES! Do not leave "LIVE WIRES" out of the connector unconnected! Please cover up the LIVE WIRES with proper electrical tape to avoid short-circuiting the camera!

2. Insert the power connector into the power connector slot.
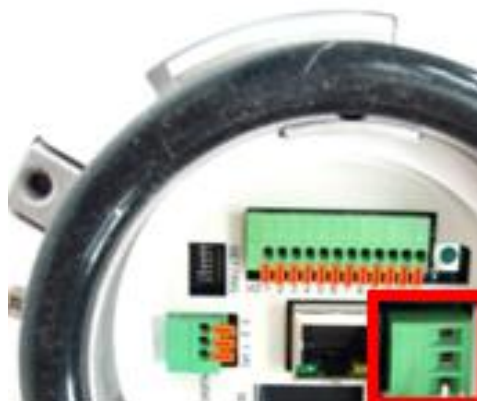
## Connecting Power with Optional AC Adapter

Adjust the power selector according to the practical local power voltage, and connect the power cord with the adapter and power outlet.



| **Note:** Contact your dealer for purchasing the adapters. |
| --- |

## Connecting LAN Cable

1. Connect one end of the LAN cable to the LAN connector of the network Speed Dome Camera, and the other end of the cable to the network switch or PC.
2. Check the status of the link indicator and activity indicator LEDs; if the LEDs are unlit, please check LAN connection.
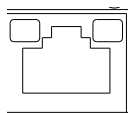
 Green Link Light indicates good network connection.

Orange Activity Light flashes for network activity indication.

## Applying Alarm I/O (Optional)

The network Speed Dome Camera supports 4 digital alarm inputs and 2 digital alarm outputs. Please make sure the alarm connections are properly wired before starting to configure alarm related settings. Please refer to the pin definition table below for alarm system wiring.
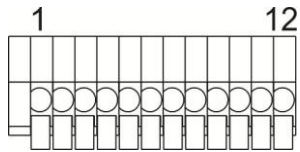
| Pin | Definition |
|-----|------------|
| 1 | ALARM_OUT_NO_1 |
| 2 | ALARM_OUT_NC_1 |
| 3 | ALARM_OUT_COM_1 |
| 4 | GND |
| 5 | ALARM_OUT_NO_2 |
| 6 | ALARM_OUT_NC_2 |

| Pin | Definition |
|-----|------------|
| 7 | ALARM_OUT_COM_2 |
| 8 | GND |
| 9 | ALARM_IN_4 |
| 10 | ALARM_IN_3 |
| 11 | ALARM_IN_2 |
| 12 | ALARM_IN_1 |

**Applying Audio (Optional)**

Set up the audio according to the audio pin definition.
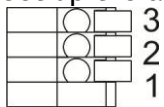


| Pin | Definition |
|-----|------------|
| 1 | LINE_OUT |
| 2 | GND |
| 3 | LINE_IN |

**Inserting and the Micro SDHC Card (Optional)**
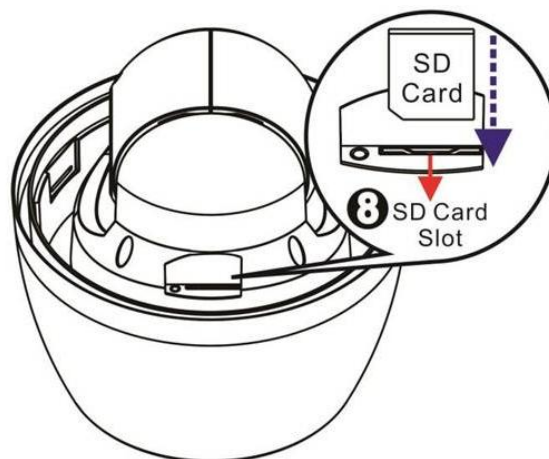


1. Make sure the golden finger of the Micro SDHC card is facing downwards.
2. Push the Micro SDHC card into the card slot until you hear a click sound.

# Chapter 3. Installation

## 3.1. Ceiling Mounting

Package Contents of Ceiling Mounting Kit

M8x12 Screw x1

Spring Washer-8 x1

Pendant Tube Washer x1

Rubber Washer-8 x1

Sponge x2

Items Needed

Waterproof Rubber x1 (provided with the package of the camera)

M5 Screw x1 (provided with the package of the camera)

Screws and Screw Anchors for fixing the Straight Tube onto the ceiling (provided by users)

Tools Needed

Electric Drill

Screw Driver

Wrench Kit

1. Ensure that the ceiling can support the weight of the Dome Camera and Straight Tube.

2. Make one cable entry hole and four screw holes on the ceiling with the electric drill.
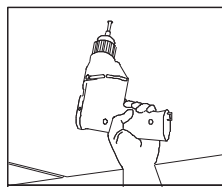


Otherwise, users can remove the Cable Entry Cover on the Straight Tube to place the cables.

3. Fix the Straight Tube to the ceiling with screws and screw anchors.
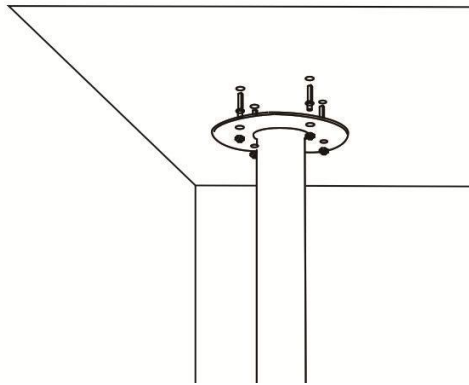


4. Fit the Waterproof Rubber to the Straight Tube. (You may turn the Waterproof Rubber inside out, which is shown in the picture below, to make the fitment easier.)



5. Thread the cables through the Straight Tube and the Outdoor Flange.
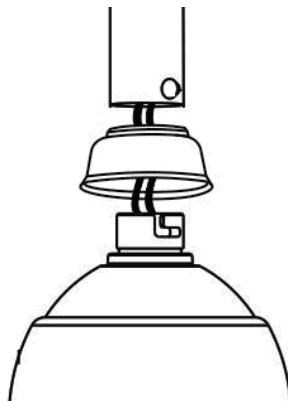
6. After threading the cables, please block the cable entry hole with the supplied sponge(s) to avoid insects entering the tube.
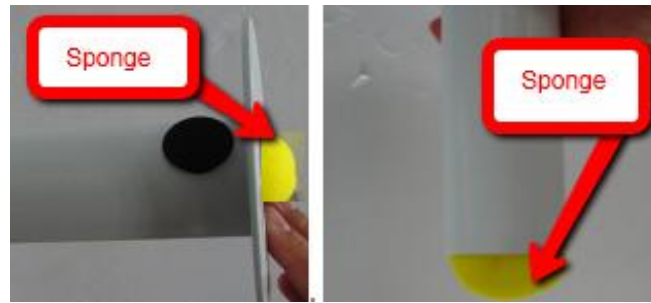


**7**. Fix the Outdoor Flange to the Straight Tube with the supplied screw (M8x12) and washers. Then adjust the Waterproof Rubber.
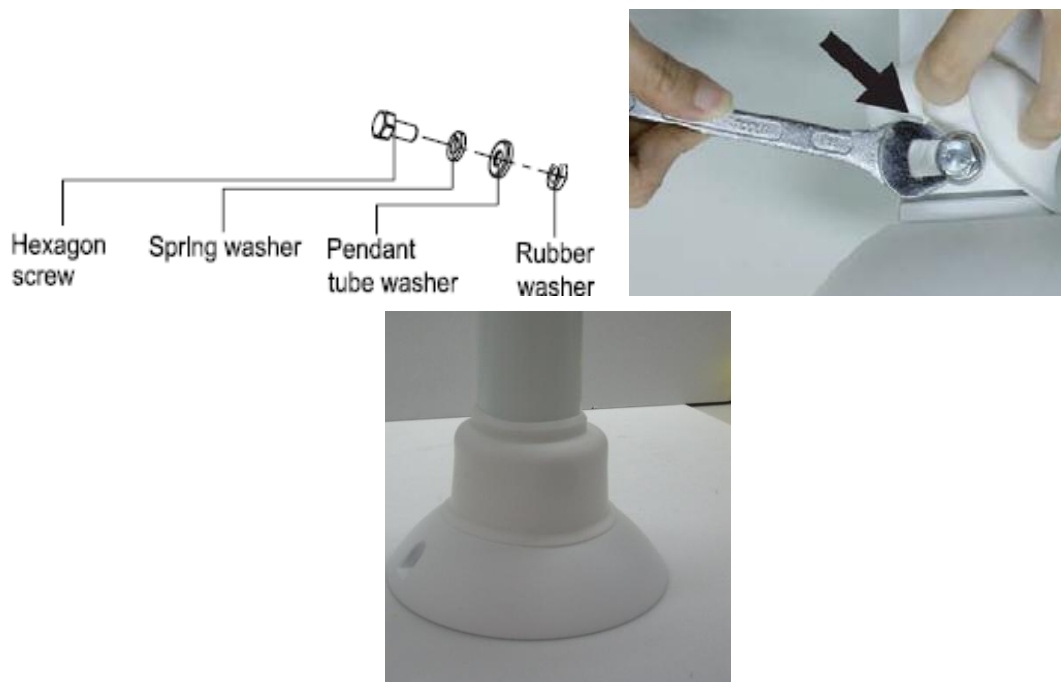


8. Mount the Dome Camera to the Outdoor Flange.

Rotate the dome body and make sure the thread holes on the Lock Screw Plate and Outdoor Flange are aligned. Then screw the M5 Screw.

# 3.2. Wall Mounting

Package Contents of Wall Mounting Kit

M8x12 Screw x1

Spring Washer-8 x1

Pendant Tube Washer x1

Rubber Washer-8 x1

Sponge x1

Items Needed

Waterproof Rubber x1 (provided with the package of the camera)

M5 Screw x1(provided with the package of the camera)

Screws and Screw Anchors for fixing the Pendant onto the wall (provided by users)

Tools Needed

Electric Drill

Screw Driver

Wrench Kit

1. Make one cable entry hole and four screw holes on the wall with the electric drill.
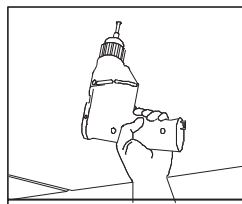


Otherwise, users can remove the Cable Entry Board on the Pendant's Mounting Plate to place the cables.
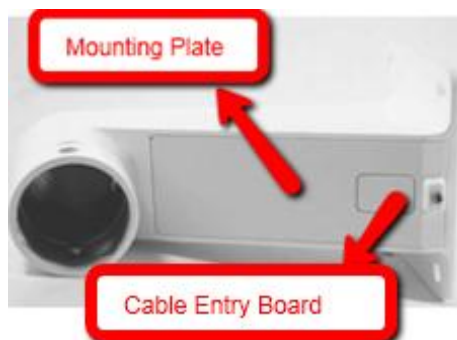
2. Fix the Pendant on the wall with screws and screw anchors.
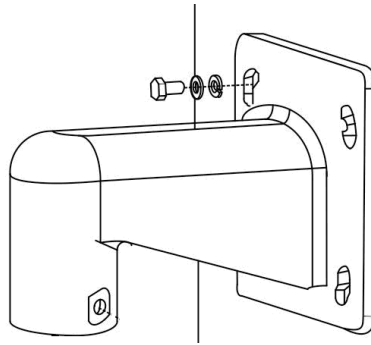


3. Fit the Waterproof Rubber to the Pendant. (You may turn the Waterproof Rubber inside out, which is shown in the picture below, to make the fitment easier.)



4. Run the cable(s) through the Pendant.

5. Please block the cable entry hole with the supplied sponge to avoid insects entering the Pendant. The sponge can be placed in two ways.
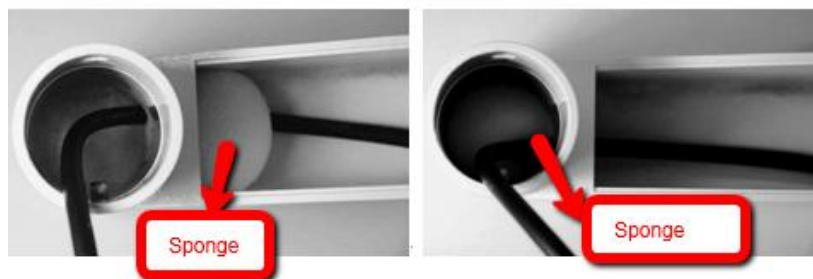


6. Thread the cable(s) through the Outdoor Flange and join the Outdoor Flange to the Pendant with the supplied screws (M8x12) and washers. Then adjust the Waterproof Rubber to the joint.

Rubber washer · Pendant tube washer · Spring washer · M8x12 screw
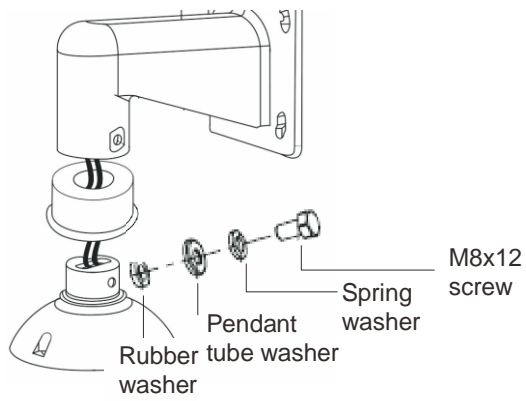


7. Mount the Dome Camera to the Outdoor Flange.

Rotate the dome body and make sure the thread holes on the Lock Screw Plate and Outdoor Flange are aligned. Then screw the M5 Screw.

# 3.3. Camera Deployment



Internet

Remote Client/Web Client
Management Center

DHCP Router

GbE Switch                                        Camera(s)

Smart Megapixel Video Recorder          VGA Station for Local Client
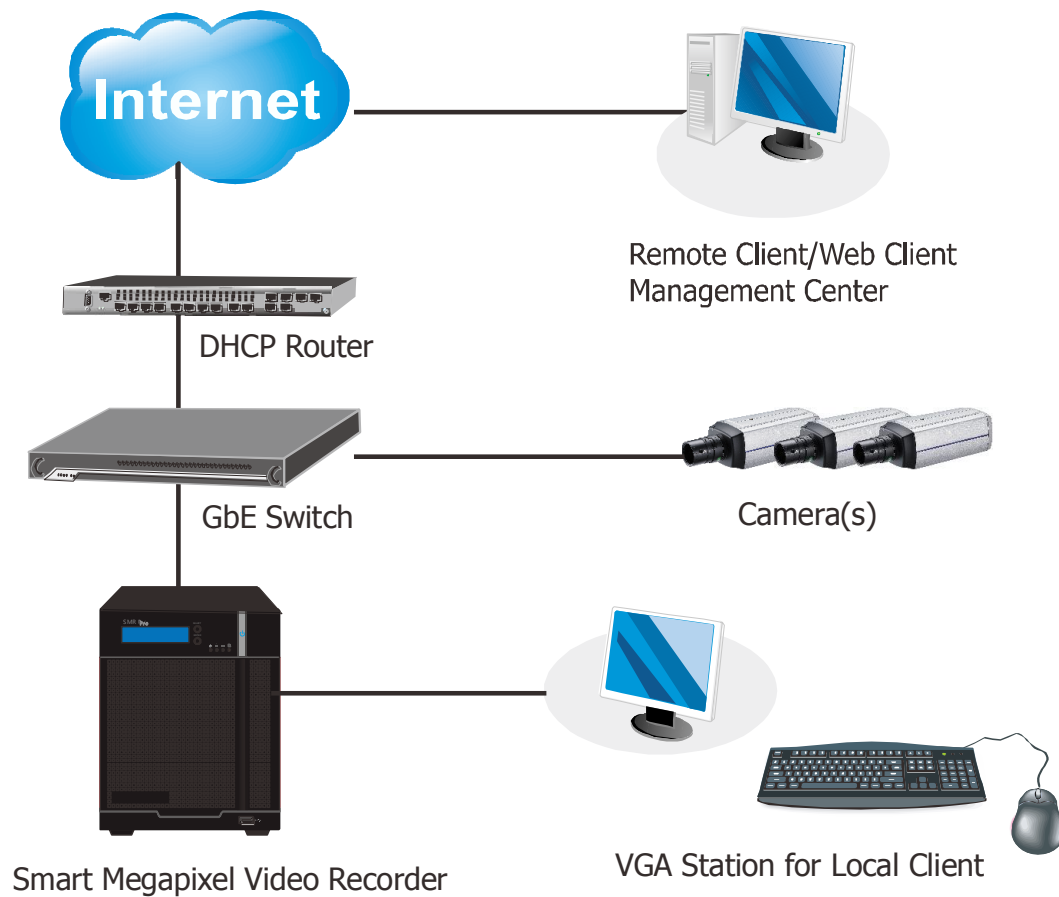
# 3.4. Before You Start

Please prepare a PC with Windows (XP or above) and web browsers (Internet Explorer 6.0 or above) installed.

# Chapter 4. Connecting to the Network Camera

## 4.1. Accessing the Camera

### Setting the Camera's IP

The network speed Dome camera's default IP address is: **192.168.0.250**. Therefore, to access the camera for the first time, set the PC's IP address as 192.168.0.XXX; for example:

- **IP Address: 192.168.0.100**
- **Subnet Mask: 255.255.255.0**

### Connecting to the Camera

1. Launch the web browser and enter the IP address of the network camera in the address bar of your browser and press enter.

2. Enter the default user name (admin) and password (admin) in the prompt request dialogue. (Please note that the user name and password are case sensitive.)

Once successfully logged in, live video displays in the center of your browser.



**Note:** If the live view does not display normally, please go to Installing ActiveX Components Section.

## Installing Active X Components in Internet Explorer (Optional)

1. After connecting to the camera, the request for installing the ActiveX control will appear just below the URL bar.

2. Right Click on the information bar, and click **Install ActiveX Control…** to permit ActiveX control installation.
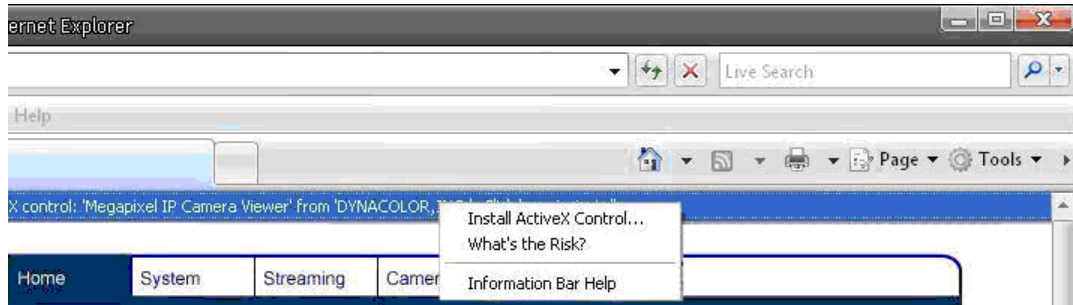


3. In the pop-up security warning window, click **Install** to start downloading DC Viewer software on the PC.

4. Click **Finish** after DC Viewer installation is complete.

**Note:** If the Live Video Pane on home page can not be shown for users who have installed the DC Viewer in the PC previously. Please refer to Upgrade the DC Viewer.

## Network Configuration for DHCP Users (Optional)

For users of DHCP Server, please go to System > Network on the web interface after logging into the camera to change the setting to *Get IP Address Automatically*.
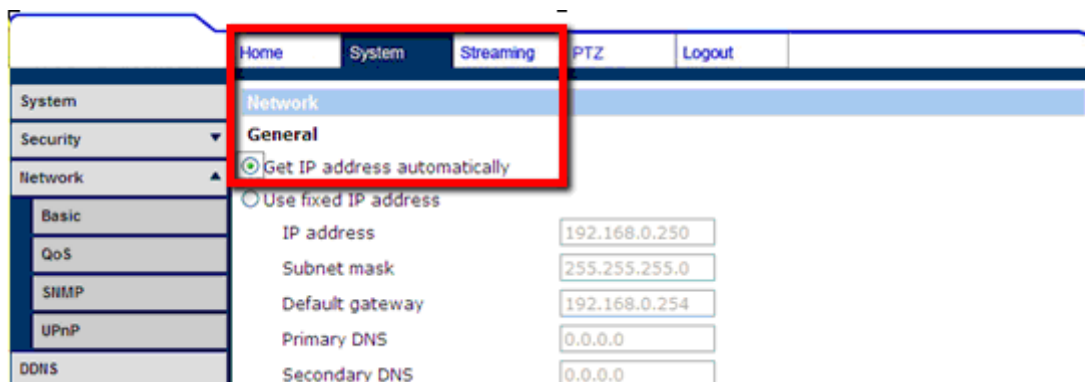
# Chapter 5. Configuration through Viewer Window Interface

## 5.1. Overview

The Full HD Speed Dome IP Camera transmits digital video and audio data using wire connection. Live video can be monitored and recorded from window-based computer via network.

The video encoder supports real-time Main Profile H.265 Full HD resolution. Up to 4 individually configurable streams in H.265/H.264/MJPEG are available for various network applications via speeding or limited bandwidth. Better image quality and high resolution are delivered by IP support. It eliminates the "combing" effect due to scene change and performs more stabilized image.

With IP solution, multiple and authorized users can view the immediate image from any location through network even using a standard web-browser. It enables users to access and remote the camera without at specific locations.

# 5.2. Interface Layout

This section demonstrates the layout of the network Speed Dome Camera's main interface.
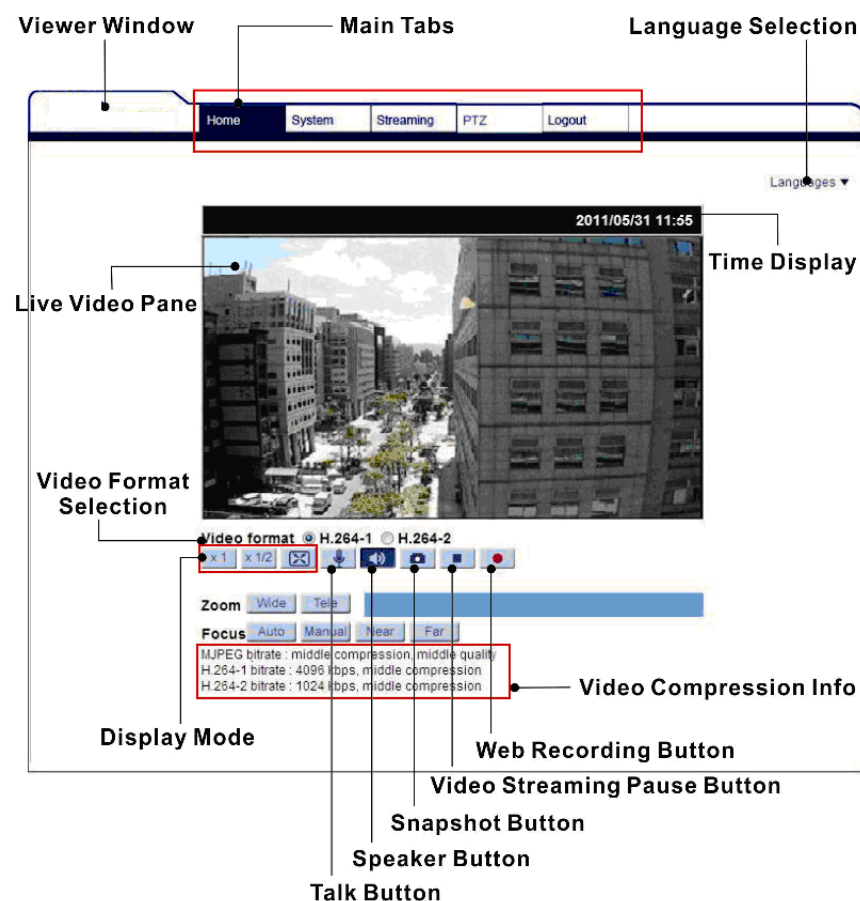


The five setting tabs on the interface are:

1. **Home:** Users can monitor live video of the targeted area.

2. **System:** The Administrator can set host name, system time, root password, network related settings, etc. Further details will be interpreted in the section System.

3. **Streaming:** The Administrator can modify video resolution and rotate type and select video compression mode in this page.

4. **PTZ:** Users are allowed to program Preset Point(s), Cruise Line(s), Auto Pan Path(s) and Sequence Line(s) via PTZ controls, and adjust various camera parameters including Auto Exposure (AE), White Balance (WB), Back Light Compensation (BLC), Sharpness, Exposure Compensation, Digital Zoom, etc.

5. **Logout:** Click on the tab to re-login the IP Camera with another username and password.

# 5.3. Home Page

Click on the tab **Home** to access the home Page. There are several function buttons on the Home pate. Detailed information of each item is as described in the following chapter.

## Function Items on the Home Page

### Multiple Languages Support

Multiple languages are supported, including German, English, French, Italian, Korean, Simplified Chinese, Russian, etc. for the viewer window interface.

### Digital Zoom Control

In the full screen mode, users can implement digital PTZ by rotating the mouse wheel (for zoom in/out), and drag the mouse into any direction.

### Screen Size Adjustment
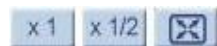


Image display size can be adjusted to x1/2 and full screen.

### Talk Button

 (On/Off)

Talk function allows the local site talks to the remote site. Click on the button to switch it to on/off. Please refer to <u>Security: Add user > Talk/Listen</u> for further details.

> **Note:** This function is only available for user who has granted this privilege by the Administrator.

### Speaker Button

 (On/Off)

Click on the **Speaker Button** to mute/activate the audio.

> **Note:** This function is only available for user who has granted this privilege by the Administrator.

## Snapshot Button

Click on the button and the JPEG snapshots will automatically be saved in the appointed place. The default place of saving snapshots is: C:\. To change the storage location, please refer to File Location for further details.

> **Note:** For users with Windows 7 operating system, it is required to log on as an Administrator to implement the Web Recording function.

## Video Streaming Pause /Restart Button

(Pause/Restart)
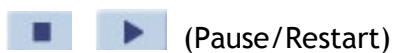
Click on the **Stop Button** to disable video streaming, the live video will be displayed as black. Press the **Restart But**ton to show the live video again.

## Web Recording Button

(On/Off)

Click on the **Recording Button** and the Live View through the web browsing will be directly recorded to the specific location on the local hard drive, which could be configured in the *File Location* page. The default storage location for the web recording is: C:\. Please refer to File Location for further details.

> **Note:** For users with Windows 7 operating system, it is required to log on as an Administrator to implement the Web Recording function.

## Manual Trigger Button (on/off)
**Click on the <Manual Trigger > button to turn on and off the manual trigger. Please refer to section** Manual Trigger **of the next chapter for further details.**

## Control Panel Button (Close/Open)

**Click on the <Control Panel> button to open and close the control panel.**

After clicking the <Control Panel> Button, the control panel will be shown as the figure below.
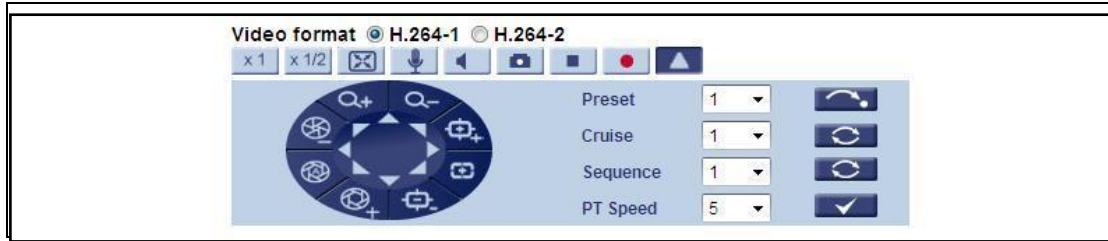
**Pan& Tilt Direction Control** 

The <Pan and Tilt Direction Control> on the control panel allows uses to control the camera with browser viewers other than IE.

**Iris Control** (Auto Iris / Iris+ / Iris-)

Click on the buttons (Auto ExpComp / Increase Exposure / Decrease Exposure) to adjust the value of Exposure Compensation.

**Zoom**  (Zoom in/ Zoom out)

Click on the buttons to zoom in or zoom out.

**Focus** (Auto Focus / Focus Near / Focus Far)

Click on the buttons to adjust the focus as near, far or automatic.

**Run Preset / Cruise / Sequence**

After setup the Preset / Cruise / Sequence lines according to the PTZ Settings, select a Preset / Cruise / Sequence line and start it by clicking on the <Run> button (  /  /  ).

**PT Speed (1~10)**

Set a number between 1 and 10 to determine the pan/tilt speed of the camera while using the Pan & Tilt Direction Control Panel. 1 is the slowest; 10 is the fastest.

**Zoom Adjustment** 

Click on the buttons <WIDE/TELE> to control zoom in/ out. Our move the cursor to the zoom adjustment drop-down menu to adjust the zoom ratio.

**Focus Adjustment**

**Auto Focus (Continuous AF)** 

Click on the <Auto> button to enable AF mode. In this mode, the camera will keep in focus automatically and continuously regardless of zoom changes or any view changes. The focus status will also be displayed above the live video pane.

**Manual button** manual

Click on the <Manual> button, and users can adjust focus manually via Near / Far buttons.

**Near / Far buttons** Near Far

Click on the <Manual> button first, and users can adjust focus manually via <Near> and <Far> buttons. The foxus status will also be displayed above the live video pane.

## Pan/Tilt Control
Users can implement pan/tilt control by moving the cursor to the live video pane, then left click and drag the pointer ← in any direction.

## Optical / Digital Zoom Control
In Normal View display mode, users can implement zoom in / out by moving the cursor to the live video pane and scrolling the mouse wheel. As in Full Screen mode, users can directly scroll the mouse wheel to zoom in / out on the image. Digital zoom is only available when the function is activated and which is set in <Camera- Misc1> page under the <PTZ> tab; refer to section Camera-Misc 1 section for details. When the camera reaches the limit of its optical range, it will automatically switch to digital zoom.

## Set Center Mode
Right click on the Live Video Pane and select <Set Center Mode>. Then users can position the interest area in the center of the Live Video Pane automatically by clicking on the point of interest. In <Set Center Mode>, right click on the Live Video Pane again and select <Set Emulated Joystick Mode> to return to control the camera direction by left clicking and dragging the pointer ← on the Live Video Pane.

## 5.4. System

Under the **System** *tab*, there are categories as the table below:

| | |
|---|---|
| System | System |
| | Security |
| | Network |
| | DDNS |
| | Mail |
| | FTP |
| | HTTP |
| | Application |
| | Motion Detection |
| | Tampering |
| | Storage Management |
| | Recording |
| | File Location |
| | View Log File |
| | View User Information |
| | View Parameters |
| | Factory Default |
| | Software Version |
| | Software Upgrade |
| | Maintenance |

**Note:** The *System Configuration* page is only accessible by the Administrator.

# System

The System Setting can be found under the path: **System > System**.

## Host Name

The name is for camera identification. If alarm function is enabled and is set to send alarm message by Mail/FTP, the host name entered here will display in the alarm message.

## Time Zone

Select the time zone you are in from the drop-down menu.

## Enable Daylight Saving Time

To enable DST, please check the item and then specify time offset and DST duration. The format for time offset is [hh:mm:ss]; for instance, if the amount of time offset is one hour, please enter "01:00:00" into the field.

## Time format

Choose a time format (yyyy/mm/dd or dd/mm/yyyy) from the drop-down menu. The format of the date and time displayed above the live video window will be changed according to the selected format.

## Sync With Computer Time

Select the item and video date and time display will synchronize with the PC's.

**NOTE:** Users **MUST** click on the <Save> button to confirm the setting. Otherwise, the time will not be synced.

## Manual

The Administrator can set video date, time and day manually. Entry format should be identical with that shown next to the enter field.

## Sync with NTP Server

Network Time Protocol (NTP) is an alternate way to synchronize your camera's clock with a NTP server. Please specify the server you wish to synchronize in the enter field. Then select an update interval from the drop-down menu. For further information about NTP, please see the web site: www.ntp.org.

**NOTE:** The synchronization will be done every time the camera boots up.

Click on <Save> to confirm the setting.

# Security

The Security Setting can be found under this path: **System > Security**.

Click the Security category, there will be a drop-down menu with tabs including *User*, *HTTPS*, *IP Filter*, and *IEEE 802.1X*.

## User

The User setting can be found under this path: **System > Security > User**.

### Admin Password

Change the administrator's password by inputting the new password in both text boxes. The input characters/numbers will be displayed as dots for security purposes. After clicking on <Save>, the web browser will ask the Administrator for the new password for access. The maximum length of the password is 14 digits.

> **Note:** The following characters are valid: A-Z, a-z, 0-9, !#$%&'-.@^_~.

### Add user

This item is for the administrator to add new users. Enter the new user's name in <User name> and the password in <User password>. Username can be up to 16 characters, and the maximum length of the password is 14 characters. Tick the boxes below to give privileges for functions, including **"Camera control"**, **"Talk"** and **"Listen"**. Click on <Add> to add the new user. The name of the new added user will be displayed in the <User name> drop-down list under <Manage User>. There is a maximum of twenty user accounts.

### I/O access

This item supports fundamental functions that enable users to view video when accessing to the camera.

### Camera Control

This item allows the appointed User to change camera parameters on the Camera Setting page.

### Talk/Listen

Talk and Listen functions allow the appointed user in the local site (PC site) communicating with, for instance, the administrator in the remote site.

Delete User

Pull down the <User name> drop-down list and select the username that is wished to be deleted. Click on <Delete> to remove the selected name.

Edit User

Pull down the <User name> drop-down list and select the username. Click on <Edit> and a popup window will appear. In the appeared window, enter the new user password and reset the privileges. Click on <Save> to confirm the changes. Then click on <Close> to complete the editing.

> **Note:** It is required to enter the user password as well as select the function open to the user. When finished, click on **Save** to modify the account authority.

## Streaming Authentication Setting
This item is for the administrator to activate the streaming authentication. Streaming authentication is to prevent the streaming from unauthorized access. Three options are provided: <disable>, <basic>, and <digest>, and the default setting is <disable>.

If the administrator selects <basic> from the drop-down list, any visitor / viewer will be asked to send the username and password in a plain text format.

If <digest> is selected, the authentication credentials (username and password) will be sent in an encrypted format.

Click on <Save> to confirm the setting.

HTTPS

The HTTPS setting can be found under this path: **System > Security> HTTPS**.

*HTTPS* allows secure connections between the IP Camera and web browser using *Secure Socket Layer (SSL)* or *Transport Layer Security (TLS)*, which ensure camera settings or Username/ Password info from snooping. It is required to install a self-signed certificate or a CA-signed certificate for implementing *HTTPS*.

To use HTTPS on the IP Camera, a HTTPS certificate must be installed. The HTTPS certificate can be obtained by either creating and sending a certificate request to a Certificate Authority (CA) or creating a self-signed HTTPS certificate, as described below.

Create Self-signed Certificate

Before a CA-issued certificate is obtained, users can create and install a self-signed certificate first.

Click on **Create Button** under *Create Self-signed Certificate* and provide the requested information to install a self-signed certificate for the IP Camera. Please refer to the last part of this section: <u>Provide the Certificate Information</u> for more details.

> **Note:** The self-signed certificate does not provide the same high level of security as when using a CA-issued certificate.

### Install Signed Certificate

Click on the **Create Certificate Request Button** to create and submit a certificate request in order to obtain a signed certificate from CA.

Provide the request information in the create dialog. Please refer to the following Provide the Certificate Information for more details.

When the request is complete, the subject of the Created Request will be shown in the field. Click on **Properties** below the Subject field, copy the PEM-formatted request and send it to your selected CA.

When the signed certificate is returned, install it by uploading the signed certificate.

### Provide the Certificate Information

To create a Self-signed HTTPS Certificate or a Certificate Request to CA, please enter the information as requested:

|  | Create Self Signed Certificate | Create Certificate Request |
|---|---|---|
| Country | √ | √ |
| State or Province | √ | √ |
| Locality | √ | √ |
| Organization | √ | √ |
| Organizational Unit | √ | √ |
| Common Name | √ | √ |
| Valid Day | √ | - |

### Country

Enter a two-letter combination code to indicate the country the certificate will be used in. For instance, type in "US" to indicate United States.

### State or Province

Enter the local administrative region.

### Locality

Enter other geographical information.

### Organization

Enter the name of the organization to which the entity identified in *Common Name* belongs.

**Organization Unit**

Enter the name of the organizational unit to which the entity identified in *Common Name* belongs.

**Common Name**

Indicate the name of the person or other entity that the certificate identifies (often used to identify the website).

**Valid days**

Enter the period in days (1~9999) to indicate the valid period of certificate.

Click on **OK** to save the Certificate Information after complete.

**IP Filter**

The IP Filter setting can be found under this path: **System > Security > IP Filter**.

Using the IP filter, access to the IP Camera can be restricted by denying/allowing specific IP addresses.

**Enable IP Filter**

Check the box to enable the IP Filter function. Once enabled, the listed IP addresses (IPv4) will be allowed/ denied access to the IP Camera.

Select **Allow** or **Deny** from the drop-down list and click on the **Apply Button** to determine the IP Filter behavior.

**Add IP Address**

Input IP address at the blank space below the <Filtered IP Address> list and click <Add>. The newly-added address will be shown in the list. Up to 256 IP address entries can be specified.

In addition, to filter a group of IP addresses, enter an address at the blank space followed with a slash and a number ranging from 1 to 31, ex. 192.168.2.81/30. The number after the slash can define how many IP addresses will be filtered. For details, please refer to the following example.

Example: Filtering a group of consecutive IP addresses

The steps below show what will be filtered when 192.168.2.81/30 is entered.

**Step 1:** Convert 192.168.2.81 to binary numbers. The binary numbers are 11000000.10101000.00000010.01010001. Users can refer to <u>Appendix B: IP Addresses from Decimal to Binary</u> for converting the IP addresses to binary numbers. The number "30" after the slash is referring to the first 30 digits of the binary numbers.

**Step 2:** Convert a few IP addresses before and after 192.168.2.81 to binary numbers. Then compare their first 30 digits with the binary numbers of 192.168.2.81.

      a. Convert 192.168.2.80 to binary numbers. The binary numbers are 11000000.10101000.00000010.01010000. The first 30 digits are the same with the binary numbers of 192.168.2.81, thus 192.168.2.80 will be filtered.

      b. Convert 192.168.2.79 to binary numbers. The binary numbers are 11000000.10101000.00000010.01001111. The first 30 digits are different with the binary numbers of 192.168.2.81, thus 192.168.2.79 will not be filtered. This also means the IP addresses before 192.168.2.79 will not be filtered. Therefore, users can stop converting the IP addresses before 192.168.2.79 to binary numbers.

c. Repeat the same procedure in "a" with the IP addresses after 192.168.2.81. Stop when the situation occurs in "b" happened. Namely, the 30th digit of the binary numbers of IP address 192.168.2.84 is different, and will not be filtered.

As a result, the IP addresses 192.168.2.80 to 192.168.2.83 will be filtered when entering 192.168.2.81/30. The following table clearly shows the 30$^{th}$ digit of the binary numbers of IP addresses 192.168.79 and 192.168.84 are different from the others. Therefore, these two IP addresses will not be filtered.

| IP Addresses | Binary Numbers |
|---|---|
| 192.168.2.79 | 11000000.10101000.00000010.01001111 |
| 192.168.2.80 | 11000000.10101000.00000010.01010000 |
| 192.168.2.81 | 11000000.10101000.00000010.01010001 |
| 192.168.2.82 | 11000000.10101000.00000010.01010010 |
| 192.168.2.83 | 11000000.10101000.00000010.01010011 |
| 192.168.2.84 | 11000000.10101000.00000010.01010100 |

### Delete IP Address

To remove an IP address from the <Filtered IP Address> list, please select the address and click on <Delete>.

### IEEE 802.1X

The IEEE 802.1X setting can be found under this path: **System > Security > IEEE 802.1X**.

The IP Camera is allowed to access a network protected by 802.1X/EAPOL (Extensible Authentication Protocol over LAN).

Users need to contact with the network administrator for gaining certificates, user IDs and passwords

### CA Certificate

The CA certificate is created by the Certification Authority for the purpose of validating itself. Upload the certificate for checking the server's identity.

### Client Certificate/ Private Key

Upload the Client Certificate and Private Key for authenticating the IP Camera itself.

### Settings

Identity

Enter the user identity associated with the certificate. Up to 16 characters can be used.

Private Key Password

Enter the password (maximum 16 characters) for your user identity.

**Enable IEEE 802.1X**

Check the box to enable IEEE 802.1X.

Click on **Save** to save the IEEE 802.1X/ EAP- TLS setting.

# Network

The Network setting can be found under this path: **System > Network**.

Click on the **Network** category, there will be a drop-down menu with tabs including *Basic*, *QoS*, *SNMP*, and *UPnP*.

## Basic

The Basic setting can be found under this path: **System > Network > Basic**.

Users can choose to connect to the IP Camera with fixed or dynamic (DHCP) IP address. The IP Camera also provides PPPoE support for users who connect to the network via PPP over Ethernet (PPPoE).

### General

Get IP Address Automatically (DHCP)

The camera's default setting is *Use fixed IP address*.

If *Get IP Address Automatically* is selected, after the IP Camera restarts, users can search it through the Video Management Program: **autorun.exe**, which can be found in the supplied CD. Refer to the steps below to connect the camera through "Device Search" software.

> **Note:** Before searching the camera through DeviceSearch.exe, please record the camera's MAC aadress, which can be found on the label or on the package container of the camera, for later use and identification in the future.

Step 1: Double click on the program DeviceSearch.exe.

Step 2: After its window appears, click on the <Device Search> button on the top. All the finding IP devices will be listed in the page.

Step 3: Find the camera by its MAC address.

Step 4: Then double click or right click and select <Browse> to access the camera directly by the web browser.

Step 5: A prompt window requesting for the username and the password will appear. Enter the username and the password to login to the camera.

Select the item and insert the new IP address, ex. 192.168.7.123. Note that the inserted IP address should be in the same LAN as the PC's IP address. Then go to the Default gateway (explained later) blank and change the setting, ex. 192.168.7.254. Click on <Save> to confirm the new setting. A note for system restart will appear, click <OK> and the system will restart. Wait for 15 seconds. The camera's IP address in the URL bar will be changed, and users have to login again.

When using a static IP address to connect the camera, users can access the camera by inputting the IP address in the URL bar and hit  <Enter> on the keyboard. Alternatively, users can access the camera by the installer program: DeviceSearch.exe, which can be found in "DeviceSearch" folder in the supplied CD. Refer to the steps below to connect the camera through "DeviceSearch" software with a static IP address.

Step 1: Double click on the program DeviceSearch.exe.

Step 2: After its window appears, click on the <Device Search> button on the top. All the finding IP devices will be listed in the page.

Step 3: Find the camera by its IP address.

Step 4: Then double click or right click and select <Browse> to access the camera directly by the web browser.

Step 5: A prompt window requesting for the username and the password will appear. Enter the username and the password to login to the camera.

> ➢ IP address

  This is necessary for network identification.

> ➢ Subnet mask

  It is used to determine if the destination is in the same subnet. The default value is "255.255.255.0".

> ➢ Default gateway

  This is the gateway used to forward frames to destinations in different subnet. Invalid gateway setting will fail the transmission to destinations in different subnet.

> ➢ Primary DNS

  Primary DNS is the primary domain name server that translates hostnames into IP addresses.

> ➢ Secondary DNS

  Secondary DNS is a secondary domain name server that backups the primary DNS.

**Use PPPoE**

For the PPPoE users, enter the PPPoE Username and Password into the fields, and click on the **Save Button** to complete the setting.

**Advanced**

Web Server port

The default web server port is 80. Once the port is changed, the user must be notified the change for the connection to be successful. For instance, when the Administrator changes the HTTP port of the IP Camera whose IP address is 192.168.0.100 from 80 to 8080, the user must type in the web browser "http://192.168.0.100:8080" instead of "http://192.168.0.100".

RTSP Port

The default setting of RTSP Port is 554; the setting range is from 1024 to 65535.

MJPEG over HTTP Port

The default setting of MJPEG over HTTP Port is 8008; the setting range is from 1024 to 65535.

HTTPS port

The default setting of HTTPS Port is 443; the setting range is from 1024 to 65535.

> **Note:** Be aware to choose the different port from the one set for the web server port.

### IPv6 Address Configuration

With IPv6 support, users can use the corresponding IPv6 address for browsing. Enable IPv6 by checking the box and click on **Save** to complete the setting.

### QoS

The QoS (Quality of Service) setting can be found under this path: **System > Network > QoS**.

QoS allows providing differentiated service levels for different types of traffic packets, which guarantees delivery of priority services especially when network congestion occurs. Adapting the Differentiated Services (DiffServ) model, traffic flows are classified and marked with DSCP (DiffServ Codepoint) values, and thus receive the corresponding forwarding treatment from DiffServ capable routers.

### DSCP Settings

The DSCP value range is from 0 to 63. The default DSCP value is 0, which means DSCP is disabled. The IP Camera uses the following QoS Classes: Video, Audio and Management.

### Video DSCP

The class consists of applications such as MJPEG over HTTP, RTP/RTSP and RTSP/HTTP.

### Audio DSCP

This setting is only available for the IP Cameras that support audio.

### Management DSCP

The class consists of HTTP traffic: Web browsing.

> **Note:** To enable this function, please make sure the switches/ routers in the network support QoS.

## SNMP

The SNMP (Simple Network Management Protocol) setting can be found under this path: **System > Network > SNMP**.

With Simple Network Management Protocol (SNMP) support, the IP Camera can be monitored and managed remotely by the network management system.

### SNMP v1/ v2

Enable SNMP v1/ v2

Select the version of SNMP to use by checking the box.

### Read Community

Specify the community name that has read-only access to all supported SNMP objects. The default value is *public*.

### Write Community

Specify the community name that has read/write access to all supported SNMP objects (except read-only objects). The default value is *write*.

### SNMP v3

SNMP v3 supports an enhanced security system that provides protection against unauthorized users and ensures the privacy of the messages. Users will be requested to enter security name, authentication password and encryption password while setting the camera connections in the network management system. With SNMP v3, the messages sent between the cameras and the network management system will be encrypted to ensure privacy.

**Enable SNMP v3**
Enable SNMP v3 by checking the box.

**Security Name**
The maximum length of the security name is 32 characters.

⚠ **NOTE:** The valid characters are A-Z, a-z, 0-9 and !#$%&'-.@^_~.

**Authentication Type**
There are two authentication types available: MD5 and SHA. Select <SHA> for a higher security level.

**Authentication Password**
The authentication password must be 8 characters or more. The input characters / numbers will be displayed as dots for security purposes.

⚠ **NOTE:** The valid characters are A-Z, a-z, 0-9 and !#$%&'-.@^_~.

**Encryption Type**

There are two encryption types available: DES and AES. Select <AES> for a higher security level.

**Encryption Password**
The minimum length of the encryption password is 8 characters and the maximum length is 512 characters. The input characters / numbers will be displayed as dots for security purposes. The encryption password can also be left blank. However, the messages will not be encrypted to protect privacy.

⚠ **NOTE:** The valid characters are A-Z, a-z, 0-9 and !#$%&'-.@^_~.

## Traps for SNMP v1/ v2/ v3

Traps are used by the IP Camera to send massages to a management system for important events or status changes.

### Enable Traps

Check the box to activate trap reporting.

### Trap Address

Enter the IP address of the management server.

### Trap Community

Enter the community to use when sending a trap message to the management system.

**Trap Option**

Warm Start

A Warm Start SNMP trap signifies that the SNMP device, i.e. IP Camera, performs software reload.

Click on **Save Button** when complete.

**UPnP**

The UPnP setting can be found under this path: **System > Network > UPnP**.

**UPnP Setting**

Enable UPnP

When the UPnP is enabled, whenever the IP Camera is presented to the LAN, the icon of the connected IP Cameras will appear in My Network Places to allow for direct access.

> **Note:** To enable this function, please make sure the UPnP component is installed on your computer. Please refer to Install UPnP components for UPnP component installation procedure.

Enable UPnP Port Forwarding

When the UPnP port forwarding is enabled, the IP Camera is allowed to open the web server port on the router automatically.

> **Note:** To enable this function, please make sure that your router supports UPnP and it is activated.

Friendly Name

Set the name for the IP Camera for identity.

## DDNS

The DDNS setting can be found under this path: **System > DDNS**.

Dynamic Domain Name System (DDNS) allows a host name to be constantly synchronized with a dynamic IP address. In other words, it allows those using a dynamic IP address to be associated to a static domain name so others can connect to it by name.

### Enable DDNS

Check the item to enable DDNS.

### Provider

Select one DDNS host from the provider list.

### Host name

Enter the registered domain name in the field.

### Username/E-mail

Enter the username or e-mail required by the DDNS provider for authentication.

### Password/Key

Enter the password or key required by the DDNS provider for authentication.

## Mail

The Mail setting can be found under this path: **System > Mail**.

The Administrator can send an e-mail via Simple Mail Transfer Protocol (SMTP) when an alarm is triggered. SMTP is a protocol for sending e-mail messages between servers. SMTP is a relatively simple, text-based protocol, where one or more recipients of a message are specified and the message text is transferred.

Two sets of SMTP can be configured. Each set includes SMTP Server, Account Name, Password and E-mail Address settings. For SMTP server, contact your network service provider for more specific information.

## FTP

The FTP setting can be found under this path: **System > FTP**.

The Administrator can set as sending alarm message to a specific File Transfer Protocol (FTP) site when an alarm is triggered. Users can assign alarm message to up to two FTP sites. Enter the FTP details, which include server, server port, user name, password and remote folder, in the fields.

Click on **Save** when finished.

## HTTP

The HTTP setting can be found under this path: **System > HTTP**.

A HTTP Notification server can listen for notification messages from IP Cameras by triggered events. Enter the HTTP details, which include server name (for instance, http://192.168.0.1/admin.php), user name, and password in the fields. *Alarm* triggered and *Motion Detection* notifications can be sent to the specified HTTP server.

Click on **Save** when finished.

> **Note:** Please refer to *Application > Send HTTP Notification/Motion Detection* for HTTP Notification Settings.

### Events (Alarm Settings)

The Events setting can be found under this path: **System> Events**.

Click on the <Events> category, there will be a drop-down menu with tabs including <Application>, <Motion Detection>, <Network Failure Detection>, <Periodical Event>, <Manual Trigger>, and <Audio Detection>.

## Application

The Application setting can be found under this path: **System > Events>Application**.

The camera equips four alarm inputs and two relay outputs for cooperating with the alarm system to catch events' images. Please refer to the User's Manual in the supplied CD for alarm I/O pin definitions to connect the alarm devices.

### Alarm Pin Selection

Select an alarm pin which is to be configured from the *Alarm Pin Selection* field.

Then click on the **Edit Button** below the field to carry on alarm programming.

## Alarm Setting

### Alarm Switch

The Administrator can enable or disable the alarm function.

### Alarm Type

Select an alarm type, *Normal Close* or *Normal Open*, that corresponds with the alarm application.

### Triggered Action (Multi-option)

The Administrator can specify alarm actions that will take at an alarm occurrence. All options are listed as follows:

### Enable Alarm Output 1/2

Select these items to enable alarm relay outputs.

### Send Message by FTP/E-Mail

The Administrator can select whether to send an alarm message by FTP and/or E-Mail when an alarm is triggered.

### Upload Image by FTP

Select this item and the Administrator can assign a FTP site and configure various parameters. When the alarm is triggered, event images will be uploaded to the appointed FTP site.

### Upload Image by E-Mail

Select this item and the Administrator can assign an e-mail address and configure various parameters. When the alarm is triggered, event images will be sent to the appointed e-mail address.

<Pre-trigger buffer> function allows users to check what happened to cause the trigger. The <Pre-trigger buffer> frame rate could be pre-determined. On the other hand, <Post-trigger buffer> is for users to upload certain amount of images after alarm input is triggered.

Check the box <Continue image upload> to upload the triggered images during certain time or keep uploading until the trigger is off.        Select <Upload for __sec> and enter the duration in the blank.        The images of the duration will be

uploading by E-mail when the alarm input is triggered. The setting range is from 1 sec. to 99999 sec. Select <Upload during the trigger active> to make the images keep being uploaded to E-mail during the trigger active until the alarm is released. Set the Image frequency as the upload frame rate. The setting range is from 1 frame to 15 frames per second.

**Note:** Make sure SMTP or FTP configuration has been completed. Please refer to section Mail and FTP for further details.

**PTZ Function**

Assign a camera function: *Preset*, *Sequence*, *Autopan* or *Cruise*, and specify a Preset Point/Sequence Line/Autopan Path/Cruise Line for the camera to perform at an alarm occurrence.

> **Note:** Please refer to the sections through Preset to Sequence for details of Preset Point/Cruise Line/Autopan Path/Sequence Line setups.

If the selected function is *Preset*, it is required to enter its dwell time (1~256 sec.) in the corresponding field as shown below. When the alarm is triggered, the camera will go to the selected Preset Point and stay there for a user-defined period of time. As for other function modes, the camera will keep executing the specified function; to stop the performance, simply change the camera's status.

> **Note:** The dwell time is only adjustable when selecting Preset as the alarm action. When the dwell time is up, the Camera will go back to its trigger position and recheck alarm pin status.

**Send HTTP Notification**

Check this item, select the destination HTTP address, and specify the parameters for event notifications by *Alarm* triggered. When an alarm is triggered, the notification can be sent to the specified HTTP server.

For instance, if the custom parameter is set as" action=1&group=2", and the HTTP server name is" http://192.168.0.1/admin.php", the notification will be sent to HTTP server as" http://192.168.0.1/admin.php? action=1&group=2" when alarm is triggered.

**Record Video Clip**

Check this item and select a video recording storage type, <SD Card> or <NAS> (Network-Attached Storage). The alarm-triggered recording will be saved into the microSD card or the NAS.

Pre-trigger buffer recording function allows users to check what happened to cause the trigger. The pre-trigger buffer time range is from 1 sec. to 3 sec. Select <Upload for __ sec> to set the recording duration after alarm is triggered. The setting range is from 1 sec. to 99999 sec. Select <Upload during the trigger active> to record the triggered video until the trigger is off.

> ⚠️ **NOTE:** Please make sure the local recording (with microSD / SDHC card) or the remote recording (with NAS) is activated so that this function can be implemented. Refer to section Recording for further details.

**File Name**

Enter a file name in the File name field, ex. image.jpg. The uploaded image's file name format can be set in this section. Please select the one that meets your requirements.

Add Date/Time Suffix

File name: imageYYMMDD_HHNNSS_XX.jpg

Y: Year, M: Month, D: Day

H: Hour, N: Minute, S: Second

X: Sequence Number

Add Sequence Number Suffix (No Maximum Value)

File name: imageXXXXXXX.jpg

X: Sequence Number

Add Sequence Number Suffix (up to # and then start over)

File Name: imageXX.jpg

X: Sequence Number

The file name suffix will end at the number being set. For example, if the setting is up to "10," the file name will start from 00, end at 10, and then start all over again.

Overwrite

The original image in the FTP site will be overwritten by the new uploaded file with a static filename.

**Save**

After complete all the settings mentions above, please click on the **Save Button** to save all the settings on this page.

## Motion Detection

The Motion Detection setting can be found under this path: **System> Events> Motion Detection**.

Motion Detection function allows the camera to detect suspicious motion and trigger alarms when motion volume in the detected area reaches / exceeds the determined sensitivity threshold value.

The function supports up to 4 sets of Motion Detection Settings. Settings can be chosen from the drop-down menu beside <Motion Detection>. In each set of setting, there is a **Motion Detection Window** (the red frame shown in the figure below) displayed on the Live Video Pane. The Motion Detection Window is for defining the motion detection area. To change the size of the Motion Detection Window, move the mouse cursor to the edge of the frame and draw it outward / inward. To shift the window to the intended location, move the mouse cursor to the center of the window and click and drag.



Users can configure up to 10 sets of Motion Detection Windows in each set of Motion Detection Setting. Click on the <add> button under the Live Video Pane to add a Motion Detection Window. To cancel a Motion Detection Window, move the mouse cursor to the selected Window, and click on the <delete> button.

If Motion Detection function is activated, the pop-up window (Motion) with indication of motion will be shown.



When motion is detected, the signals will be displayed on the Motion window as shown below.

## Motion Detection

In each set of Motion Detection Setting, the default setting for the Motion Detection function is <Off>. Enable the function by selecting <On>. Users can also activate the function according to the schedule previously set in the <Schedule> setting page. Select <By schedule> and click <Please select…> to choose the desired schedule from the drop-down menu.

## Motion Detection Setting

Users could adjust various parameters of Motion Detection in this section.

### Sampling Pixel Interval [1-10]

This item is used to examine the differences between two frames. Users can configure the interval of sampling pixel. The default value is 1. For instance, if users set the interval as 3, IP camera system will take one sampling pixel from every 3 pixels of each row and each column in detection area (refer to the figure below). The alarm will be triggered when differences are detected.



### Detection Level [1-100]

Users can configure detection level for each sampling pixel. Detection level is how much the camera can accept the differences between two sampling pixels. The smaller the value is, the more minor motions it detects. The default level is 10.

### Sensitivity Level [1-100]

The default level is 80, which means if 20% or more sampling pixels are detected differently, system will detect motion. The bigger the value,    the more sensitive it is. Meanwhile, when the value is bigger, the red horizontal line in the motion indication window will be lower accordingly.

### Time Interval (sec) [0-7200]

The value is the interval between each detected motion. The default interval is 10.

### Triggered Action (Multi-option)

The Administrator can specify alarm actions that will take when motion is detected. All options are listed as follows:

### Enable Alarm Output 1/2

Check the item and select the predefined type of alarm output to enable alarm relay output when motion is detected.

### Send Alarm Message by FTP/E-Mail

The Administrator can select whether to send an alarm message by FTP and/or E-Mail when motion is detected.

### Upload Image by FTP

Select this item and the Administrator can assign a FTP site and configure various parameters. When motion is detected, event images will be uploaded to the appointed FTP site.

### Upload Image by E-Mail

Select this item and the Administrator can assign an e-mail address and configure various parameters. When motion is detected, event images will be sent to the appointed e-mail address.

> **Note:** Make sure SMTP or FTP configuration has been completed. Refer to Mail and FTP for further details.

### Send HTTP Notification

Check this item, select the destination HTTP address, and specify the parameters for event notifications by *Motion Detection* triggered. When an alarm is triggered, the notification can be sent to the specified HTTP server.

For instance, if the custom parameter is set as" action=1&group=2", and the HTTP server name is" http://192.168.0.1/admin.php", the notification will be sent to HTTP server as" http://192.168.0.1/admin.php? action=1&group=2" when alarm is triggered.

### Record Video Clip

Check this item and select a video recording storage type, <SD Card> or <NAS> (Network-Attached Storage>. The Motion Detection recording will be stored in microSD / SDHC card or the NAS when motion is detected.

Pre-trigger buffer recording function allows users to check what happened to cause the trigger. The pre-trigger buffer time range is from 1 sec. to 3 sec. Select <Upload for __ sec> to set the recording duration after motion is triggered. The setting range is from 1 sec. to 99999 sec. Select <Upload during the trigger active> to record the triggered video until the trigger is off.

**NOTE:** Please make sure the local recording (with microSD / SDHC card) or the remote recording (with NAS) is activated so that this function can be implemented. Refer to section <u>Recording</u> for further details.

## File Name

The uploaded image's filename format can be set in this section. Please select the one that meets your requirements.

### Add date/time suffix
File name: imageYYMMDD_HHNNSS_XX.jpg
Y: Year, M: Month, D: Day
H: Hour, N: Minute, S: Second
X: Sequence Number

### Add sequence number suffix (no maximum value)
File name: imageXXXXXXX.jpg
X: Sequence Number

### Add sequence number suffix up to # and then start over
File Name: imageXX.jpg
X: Sequence Number

The file name suffix will end at the number being set. For example, if the setting is up to "10", the file name will start from 00, end at 10, and then start all over again.

**Overwrite**
The original image in the FTP site will be overwritten by the new uploaded file with a static filename.

## Save

Click on the **Save Button** to save all the Motion Detection settings mentioned above.

# Network Failure Detection

The Network Failure Detection setting can be found under this path: **System> Events> Network Failure Detection**.

Network Failure Detection allows the camera to ping another IP device (e.g. NVR, VSS, Video Server, etc.) within the network periodically and generates some actions in case of network failure occurs, for instance, a Video Server is somehow disconnected.

Being capable of implementing local recording (through microSD card) or remote recording (via NAS) when network failure happens, the camera can be a backup recording device for the surveillance system.

## Detection Switch
The default setting for the Detection Switch function is <Off>. Enable the function by selecting <On>. Users can also activate the function according to the schedule time that is previously set in the <Schedule> setting page.    Select <By schedule> and click <Please select...> to choose the desired schedule from the drop-down menu.

## Detection Type
Input the IP device address and the period of ping time to ping. The ping time setting range is from 1 min. to 99 min.

## Triggered Action (Multi-option)
The administrator can specify alarm actions that will take when network failure is detected. All options are listed as follows.

## Enable Alarm Output 1 /2
Select the item to enable alarm relay output.

## Record Video Clip
Check the item and select a video recording storage type, <SD Card> or <NAS> (Network-Attached Storage). The alarm-triggered recording will be saved into the microSD card.

Pre-trigger buffer recording function allows users to check what happened to cause the trigger. The pre-trigger buffer time range is from 1 sec. to 3 sec. Select <Upload for __ sec> to set the recording duration after alarm is triggered. The setting range is from 1 sec. to 99999 sec. Select <Upload during the trigger active> to record the triggered video until the trigger is off.

> ⚠ **NOTE:** Please make sure the local recording (with microSD / SDHC card) or the remote recording (with NAS) is activated so that this function can be implemented. Refer to section Recording for further details.

**Send Alarm Message by FTP/E-Mail**
The administrator can select whether to send an alarm message by FTP and/or E-mail when an alarm is triggered.

**<u>Save</u>**
Click on the <Save> button to save all the settings mentioned above.

# Periodical Event

The Periodical Event setting can be found under this path: **System> Events> Periodical Event**.

With Periodical Event setting, users can set the camera to upload images periodically to an FTP site or an E-mail address. For example, if the time interval is set to 60 seconds, the camera will upload images to the FTP site or the E-mail address every 60 seconds. The images to be uploaded are the images before and after the triggered moment. Users can define how many images to be uploaded in the <Triggered Action> section of this setting page.

**<u>Periodical Event</u>**
The default setting for the Periodical Event function is <Off>. Enable the function by selecting <On>.

**<u>Time Interval</u>**
The default value of the time interval is 60 seconds. The setting range of the time interval is from 60 to 3600 seconds.

**<u>Triggered Action</u>**
**Upload Image by FTP**
Select this item and the administrator can assign an FTP site and configure various parameters. Images will be uploaded to the appointed FTP site periodically.

The <Pre-trigger buffer> function can define how many images to be uploaded before the triggered moment. The <Post-trigger buffer> function can define how many images to be uploaded after the triggered moment.

> **NOTE:** Normally the setting range of the <Pre-trigger buffer> is 1 frame to 20 frames. However, the setting range will change accordingly if the frame rate of MJPEG on the <Video Frame Rate> setting page is 6 or smaller.

> **NOTE:** Make sure FTP configuration has been completed. Refer to section <u>FTP</u> of this chapter for further details.

**Upload Image by E-Mail**
Select this item and the administrator can assign an E-mail address and configure various parameters. Images will be uploaded to the appointed E-mail address periodically.

The <Pre-trigger buffer> function can define how many images to be uploaded before the triggered moment. The <Post-trigger buffer> function can define how many images to be uploaded after the triggered moment.

> ⚠ **NOTE:** Normally the setting range of the <Pre-trigger buffer> is 1 frame to 20 frames. However, the setting range will change accordingly if the frame rate of MJPEG on the <Video Frame Rate> setting page is 6 or smaller.

> ⚠ **NOTE:** Make sure SMTP configuration has been completed. Refer to section Mail of this chapter for further details.

**File Name**
Enter a file name in the blank, ex. image.jpg. The uploaded image's file name format can be set in this section. Please select the one that meets the requirements.

**Add date/time suffix**
File name: imageYYMMDD_HHNNSS_XX.jpg
Y: Year, M: Month, D: Day
H: Hour, N: Minute, S: Second
X: Sequence Number

**Add sequence number suffix (no maximum value)**
File name: imageXXXXXXX.jpg
X: Sequence Number

**Add sequence number suffix up to # and then start over**
File Name: imageXX.jpg
X: Sequence Number

The file name suffix will end at the number being set. For example, if the setting is up to "10", the file name will start from 00, end at 10, and then start all over again.

**Overwrite**
The original image in the FTP site will be overwritten by the new uploaded file with a static filename.

**Save**
Click on <Save> to save all the settings mentioned above.

## Manual Trigger

The Manual Trigger setting can be found under this path: **System> Events> Manual Trigger**.

With Manual Trigger setting, the current image(s) or video can be uploaded to the appointed destination, such as an FTP site or an E-mail address. The administrator can specify the triggered actions that will take when the users switched the Manual Trigger button to ON. All options are listed as follows.

### Manual Trigger
The default setting for the Manual Trigger function is <Off>. Enable the function by selecting <On>. After the Manual Trigger function is enabled, click the Manual Trigger button on the Home page to start uploading data. Click again to stop uploading.

### Triggered Action (Multi-option)
The administrator can specify alarm actions that will take at an alarm occurrence. All options are listed as follows.

### Enable Alarm Output 1/2
Select these items to enable alarm relay outputs.

### Send Message by FTP/E-Mail
The administrator can select whether to send an alarm message by FTP and/or E-mail when an alarm is triggered.

### Upload Image by FTP
Select this item and the administrator can assign an FTP site and configure various parameters. When the alarm is triggered, event images will be uploaded to the appointed FTP site.

<Pre-trigger buffer> function allows users to check what happened to cause the trigger. The <Pre-trigger buffer> frame rate could be pre-determined. On the other hand, <Post-trigger buffer> is for users to upload certain amount of images after the alarm input is triggered.

> **NOTE:** Normally the setting range of the <Pre-trigger buffer> is 1 frame to 20 frames. However, the setting range will change accordingly if the frame rate of MJPEG on the <Video Frame Rate> setting page is 6 or smaller.

Check the box <Continue image upload> to upload the triggered images during certain time or keep uploading until the trigger is off.    Select <Upload for __sec> and enter the duration in the blank.    The images of the duration will be uploaded to FTP when the alarm input is triggered. The setting range is from 1 sec. to 99999 sec. Select <Upload during the trigger active> to make the images keep being uploaded to FTP during the trigger active until the alarm is released. Set the Image frequency as the upload frame rate. The setting range is from 1 frame to 15 frames per second.

**NOTE:** Make sure the FTP configuration has been completed. Refer to section FTP for further details.

**Upload Image by E-Mail**
Select this item and the administrator can assign an E-mail address and configure various parameters. When the alarm is triggered, event images will be sent to the appointed E-mail address.

<Pre-trigger buffer> function allows users to check what happened to cause the trigger. The <Pre-trigger buffer> frame rate could be pre-determined. On the other hand, <Post-trigger buffer> is for users to upload certain amount of images after alarm input is triggered.

**NOTE:** Normally the setting range of the <Pre-trigger buffer> is 1 frame to 20 frames. However, the setting range will change accordingly if the frame rate of MJPEG on the <Video Frame Rate> setting page is 6 or smaller.

Check the box <Continue image upload> to upload the triggered images during certain time or keep uploading until the trigger is off. Select <Upload for __sec> and enter the duration in the blank. The images of the duration will be uploading by E-mail when the alarm input is triggered. The setting range is from 1 sec. to 99999 sec. Select <Upload during the trigger active> to make the images keep being uploaded to E-mail during the trigger active until the alarm is released. Set the Image frequency as the upload frame rate. The setting range is from 1 frame to 15 frames per second.

**NOTE:** Make sure SMTP configuration has been completed. Please refer to section Mail for further details.

**PTZ Function**
Assign a camera function: Preset, Sequence, Autopan or Cruise, and specify a Preset Point / Sequence Line / Autopan Path / Cruise Line for the camera to perform at an alarm occurrence.

**NOTE:** Please refer to the sections through Preset Programming to Sequence Line Programming for details of Preset Point / Cruise Line / Autopan Path / Sequence Line setups.

If the selected function is <Preset>, it is required to enter its dwell time (1 sec. to 256 sec.) in the corresponding field. When the alarm is triggered, the camera will go to the selected Preset Point and stay there for a user-defined period of time. As for other function modes, the camera will keep executing the specified function; to stop the performance, simply change the camera's status.

**NOTE:** The dwell time is only adjustable when <Preset> is selected. When the dwell time is up, the camera will go back to its trigger position and recheck the alarm pin status.

**Send HTTP notification**
Check this item, select the destination HTTP address, and specify the parameters for event notifications by <Alarm> triggered. When an alarm is triggered, the notification can be sent to the specified HTTP server.

For instance, if the custom parameter is set as "action=1&group=2", and the HTTP server name is "http://192.168.0.1/admin.php", the notification will be sent to HTTP server as "http://192.168.0.1/admin.php? action=1&group=2" when alarm is triggered.

**Record Video Clip**
Check the item and select a video recording storage type, <SD Card> or <NAS> (Network-Attached Storage). The alarm-triggered recording will be saved into the microSD card or the NAS.

Pre-trigger buffer recording function allows users to check what happened to cause the trigger. The pre-trigger buffer time range is from 1 sec. to 3 sec. Select <Upload for __ sec> to set the recording duration after alarm is triggered. The setting range is from 1 sec. to 99999 sec. Select <Upload during the trigger active> to record the triggered video until the trigger is off.

> ⚠ **NOTE:** Please make sure the local recording (with microSD / SDHC card) or the remote recording (with NAS) is activated so that this function can be implemented. Refer to section <u>Recording</u> for further details.

**File Name**
Enter a file name in the File name field, ex. image.jpg. The uploaded image's file name format can be set in this section. Please select the one that meets the requirements.

**Add date/time suffix**
File name: imageYYMMDD_HHNNSS_XX.jpg
Y: Year, M: Month, D: Day
H: Hour, N: Minute, S: Second
X: Sequence Number

**Add sequence number suffix (no maximum value)**
File name: imageXXXXXXX.jpg
X: Sequence Number

**Add sequence number suffix up to # and then start over**
File Name: imageXX.jpg
X: Sequence Number

The file name suffix will end at the number being set. For example, if the setting is up to "10", the file name will start from 00, end at 10, and then start all over again.

**Overwrite**
The original image in the FTP site will be overwritten by the new uploaded file with a static filename.

**Save**
Click on <Save> to save all the settings mentioned above.

## Audio Detection
The Audio Detection setting can be found under this path: **System> Events> Audio Detection**.

Audio Detection function allows the camera to detect audio and trigger alarms when audio volume in the detected area reaches / exceeds the determined sensitivity threshold value.

⚠️ **NOTE:** Audio Detection function is only available for models equipped with Audio I/O function.

**Audio Detection**

In Audio Detection Setting, the default setting for the Audio Detection function

is <Off>. Enable the function by selecting <On>.

**Audio Detection Setting**
Users could adjust various parameters of Audio Detection in this section.

**Detection level [1-100]:**
The item is to set detection level for each sampling volume; the smaller the value, the more sensitive it is. The default level is 10.

**Time interval (sec) [0-7200]:**
The value is the interval between each detected audio. The default interval is 10.

**Triggered Action** (Multi-option)
The administrator can specify alarm actions that will take when audio is detected. All options are listed as follows.

**Enable Alarm Output 1/2**
Select these items to enable alarm relay outputs.

**Send Alarm Message by FTP/E-Mail**
The administrator can select whether to send an alarm message by FTP and/or E-mail when audio is detected.

**Upload Image by FTP**

Select this item and the administrator can assign an FTP site and configure various parameters. When audio is detected, event images will be uploaded to the appointed FTP site.

<Pre-trigger buffer> function allows users to check what happened to cause the trigger. The <Pre-trigger buffer> frame rate could be pre-determined. On the other hand, <Post-trigger buffer> is for users to upload certain amount of images after audio event occurs.

> ⚠️ **NOTE:** Normally the setting range of the <Pre-trigger buffer> is 1 frame to 20 frames. However, the setting range will change accordingly if the frame rate of MJPEG on the <Video Frame Rate> setting page is 6 or smaller.

Check the box <Continue image upload> to upload the triggered images during certain time or keep uploading until the trigger is off. Select <Upload for __sec> and enter the duration in the blank. The images of the duration will be uploaded to FTP when the audio event occurs. The setting range is from 1 sec. to 99999 sec. Select <Upload during the trigger active> to make the images keep being uploaded to FTP during the trigger active until the event stops. Set the Image frequency as the upload frame rate. The setting range is from 1 frame to 15 frames per second.

> ⚠️ **NOTE:** Make sure FTP configuration has been completed. Refer to section FTP for further details.

**Upload Image by E-Mail**

Select this item and the administrator can assign an E-mail address and configure various parameters. When audio is detected, event images will be sent to the appointed E-mail address.

<Pre-trigger buffer> function allows users to check what happened to cause the trigger. The <Pre-trigger buffer> frame rate could be pre-determined. On the other hand, <Post-trigger buffer> is for users to upload certain amount of images after the audio event occurs.

> ⚠️ **NOTE:** Normally the setting range of the <Pre-trigger buffer> is 1 frame to 20 frames. However, the setting range will change accordingly if the frame rate of MJPEG on the <Video Frame Rate> setting page is 6 or smaller.

Check the box <Continue image upload> to upload the triggered images during certain time or keep uploading until the trigger is off. Select <Upload for

__sec> and enter the duration in the blank. The images of the duration will be uploading by E-mail when the audio event occurs. The setting range is from 1 sec to 99999 sec. Select <Upload during the trigger active> to make the images keep being uploaded to E-mail during the trigger active until the event stops. Set the Image frequency as the upload frame rate. The setting range is from 1 frame to 15 frames per second.

**NOTE:** Make sure SMTP configuration has been completed. Refer to section <u>Mail</u> for further details.

**Send HTTP Notification**
Check this item, select the destination HTTP address, and specify the parameters for event notifications by <Audio Detection> triggered. When an alarm is triggered, the notification can be sent to the specified HTTP server.

For instance, if the custom parameter is set as "action=1&group=2", and the HTTP server name is "http://192.168.0.1/admin.php", the notification will be sent to HTTP server as "http://192.168.0.1/admin.php? action=1&group=2" when alarm is triggered.

**Record Video Clip**
Check this item and select a video recording storage type, <SD Card> or <NAS> (Network-Attached Storage>. The Audio Detection recording will be stored in microSD / SDHC card or the NAS when audio is detected.

Pre-trigger buffer recording function allows users to check what happened to cause the trigger. The pre-trigger buffer time range is from 1 sec. to 3 sec. Select <Upload for __ sec> to set the recording duration after audio is triggered. The setting range is from 1 sec to 99999 sec. Select <Upload during the trigger active> to record the triggered video until the trigger is off.

**NOTE:** Please make sure the local recording (with microSD / SDHC card) or the remote recording (with NAS) is activated so that this function can be implemented. Refer to section <u>Recording</u> for further details.

**File Name**
Enter a file name in the blank, e.g. image.jpg. The uploaded image's file name format can be set in this section. Please select the one that meets the requirements.

**Add date/time suffix**
File name: imageYYMMDD_HHNNSS_XX.jpg
Y: Year, M: Month, D: Day
H: Hour, N: Minute, S: Second
X: Sequence Number

**Add sequence number suffix (no maximum value)**
File name: imageXXXXXXX.jpg
X: Sequence Number

**Add sequence number suffix up to # and then start over**
File Name: imageXX.jpg
X: Sequence Number

The file name suffix will end at the number being set. For example, if the setting is up to "10", the file name will start from 00, end at 10, and then start all over again.

**Overwrite**
The original image in the FTP site will be overwritten by the new uploaded file with a static filename.

**Save**
Please click on the <Save> button to save all the Audio Detection settings mentioned above.

## Storage Management (Local Recording)

The Storage Management setting can be found under this path: **System> Storage Management**.

Click on the <Storage Management> category, there will be a drop-down menu with tabs including <SD Card> and <Network Share>.

**SD Card**

The SD Card setting can be found under this path: **System> Storage Management> SD Card**.

Users can implement local recording to the microSD / SDHC card up to 32GB. This page shows the capacity information of the microSD card and a recording list with all the recording files saved on the memory card. Users can also format the microSD card and implement automatic recording cleanup through the setting page.

To implement microSD card recording, please go to the <Recording> page (refer to section Recording) for activation.

**NOTE:** Please format the microSD / SDHC card when using it for the first time. Formatting will also be required when a memory card is being used on one camera and later transferred to another camera with different software platform.

**NOTE:** It is not recommended to record with the microSD card for 24/7 continuously, as it may not be able to support long term continuous data read/write. Please contact the manufacturer of the microSD card for information regarding the reliability and the life expectancy.

## Device Information

When users insert the Micro SD/SDHC card, the card information such as the memory capacity and status will be shown at Device Information section.

When the memory card is successfully installed, the memory card status shall be shown at *Device Information* section in the Storage Management page.

## Device Setting

Click on the **Format Button** to format the memory card.

## Disk Cleanup Setting

Users can enable automatic recordings cleanup by specifying the time and storage limits.

## Recording List

Each video file on the Micro SD/SDHC card will be listed in the Recording list. The maximum file size is 60 MB/per file.

When the recording mode is set as *Always* (consecutive recording) and the Micro SD/SDHC card recording is also allowed to be enabled by events triggered, once events occur, the system will immediately implement events recording to the memory card. Then the IP Camera will return to the regular recording mode after events recording.

## Remove

To remove a file, select the file first, and then click on the **Remove Button**.

## Sort

Click on the **Sort Button**, and the files in the recording list will be listed in name and date order.

> **Note:** The capital letter A/M/N/R/V/U appearing in the very beginning of name denotes the sort of the recording: A stands for Alarm; M stands for Motion; N stands for Network Failure; R stands for Regular Recording; V stands for Manual Trigger; U stands for Audio Detection.

To open/download a video clip, select the file first, and then click on the **Download Button** below the *Recording List* field. The selected file window will pop up. Click on the AVI file to directly play the video in the player or download it to a specified location.

## Network Share (NAS)

The Network Share setting can be found under this path: **System> Storage Management> Network Share**.

Users can store the recording videos to a network share folder, or NAS (Network-Attached Storage). A NAS device is used for data storage and data sharing via network. This page displays the capacity information of the network device and a recording list with all the recording files saved on the network device. Users can also format the NAS and implement automatic recording cleanup through the setting page.

**Device information**
When a NAS is successfully installed, the device information such as the memory capacity and status will be shown at the <Device Information> section.

**Storage setting**
The administrator can set the camera to send the alarm messages to a specific NAS site when an alarm is triggered. Enter the network device details, which include host (the IP of the NAS), share (the folder name of the NAS), username, and password, in the fields.

Click on <Save> when finished.

**Storage Tools**
Click on the <Format> button to format the NAS.

**Disk cleanup setting**
Users can enable automatic recordings cleanup by specifying the time and storage limits.

**Recording List**

Each video file on the Network Share will be listed in the Recording list. The maximum file size is 60 MB/per file.

When the recording mode is set as <Always> (consecutive recording) and the NAS recording is also allowed to be enabled by events triggered, once events occur, the system will immediately implement events recording to the memory card. After the recording of the events are finished, the camera will return to the regular recording mode.

**Remove**

To remove a file, select the file first, and then click on the <Remove> button.

**Sort**

Click on the <Sort> button, and the files in the Recording list will be listed in name and date order.

> ⚠️ **NOTE:** The capital letter A / M / N / R / V / U appearing in the very beginning of name denotes the sort of the recording: A stands for Alarm; M stands for Motion; N stands for Network Failure; R stands for Regular Recording; V stands for Manual Trigger; U stands for Audio Detection.

**Download**

To open / download a video clip, select the file first, and then click on the <download> button below the Recording list field. The selected file window will pop up. Click on the AVI file to directly play the video in the player or download it to a specified location.

# Recording

The Recording setting can be found under this path: **System> Recording**.

In the <Recording> setting page, users can specify the recording schedule that fits the present surveillance requirement.

The Recording setting can be found under this path: **System > Recording**.

In the Recording setting page, users can specify the recording schedule that fits the present surveillance requirement.

## Recording Storage

Select a recording storage type, <SD Card> or <Network Share>.

## Activating the Recording Schedule

Two types of schedule mode are offered: <Always> and <Only during time frame>. Users can select <Always> to activate microSD / SDHC Card or Network Share Recording all the time. Or, select a set of schedule from the time frame blank, check specific weekdays and setup the start time (hour:minute) and time period (hour:minute) to activate the recording at certain time frames. The setting range for the duration time is from 00:00 to 168:59. Please click on <Save> to save the setup.

Select a recording schedule from the schedule list, and click <Delete> to delete the recording schedule.

## Terminating the Recording Schedule

Select <Disable> to terminate the recording function.


## Schedule

The Schedule setting can be found under this path: **System> Schedule**.

This function allows users to setup schedules for features including: <Alarm Switch>, <Motion Detection> and <Network Failure Detection>. The function supports up to 10 sets of time frames in the time frame list.

## Setting Schedules

To set a schedule, select a time frame from the time frame list first. Then check the weekday boxes below to choose the specific weekdays. At last, select a time mode, Day, Night or Time. Under Time mode, specify the start time (hour:minute) and the time duration (hour:minute) to activate the schedule triggered features. The setting range for the time duration is from 00:00 to 168:59. Click on <Delete> to delete a chosen time frame. Click on <Save> to save the setup.

## Time Mode

**Day**
The camera profile will be loaded when IR cut filter is off.

**Night**
The camera profile will be loaded when IR cut filter is on.

**Time**
This indicates the start time and the time duration for the schedule.

> **NOTE:** Users **MUST** select <By schedule> under each feature setting page to enable the schedule function.

## File Location (Snapshots and Web Recording)

The File Location setting can be found under this path: **System> File Location**.
Users can specify a storage location on the PC or in the hard drive for the snapshots and the live video recordings. The default setting is: C:\. Once the setting is confirmed, click on <Save>, and all the snapshots and the web recordings will be saved in the designate location.

> **NOTE:** Make sure the selected file path contains valid characters such as letters and numbers.

> **NOTE:** With Windows 7 or Windows 8 operating system, to implement the Snapshot and Web Recording functions, users must run IE as administrator. To run IE as administrator, right click on the IE browser icon and select "Run As Administrator" to launch IE.

# View Information

The View Information function can be found under this path: **System> View Information.**

Click on the category: <View Information>, there will be a drop-down menu with tabs including <Log File>, <User Information>, and <Parameters>.

# Log File

The Log File function can be found under this path: **System> View Information> Log File.**

Click on the tab to view the system log file. The content of the file provides useful information about connections after system boot-up.

# User Information

The User Information function can be found under this path: **System> View Information> User Information.**

The administrator can view the login information and privileges of each added user (refer to section <u>Security</u>).

**Get User Information**
All users in the network will be listed in the <User information> zone as shown below.

**User: 4321**
It indicates that one user's login username is "User", and the password is "4321".

**Get User Privacy**
Click on <get user privacy> at the bottom of the page, and the administrator can view each user's privileges as shown below.

**User: 1:1:0:1**
1:1:0:1= I/O access: Camera control: Talk: Listen (refer to section <u>Security</u>)

Therefore, it denotes the user is granted privileges of I/O access, Camera control and Listen.

## Parameters

The Parameters function can be found under this path: **System> View Information> Parameter.**

Click on this item to view the parameter settings of the entire system, such as Camera Settings, Mask Information and Network Information.

# Factory Default

The Factory Default setting can be found under this path: **System> Factory Default**.

Users can follow the instructions on this page to reset the camera to factory default settings if needed.

**Full Restore**
Click on <Full Restore> to recall the factory default settings. The camera system will restart in 30 seconds. The IP address will be restored to default. After the camera system is restarted, reconnect the camera using the default IP address. The default IP address is **192.168.0.250**.

**Partial Restore**
Click on <Partial Restore> to recall the factory default settings. The camera system will restart in 30 seconds. Refresh the browser page after the camera system is restarted.

⚠️    **NOTE:** The IP address will not be restored to default.

**Reboot**
Click on <Reboot> and the camera system will restart without changing the current settings. Refresh the browser page after the camera system is restarted.

## Software Version

The Software Version can be found under this path: **System> Software Version**.

The software version page displays the current software version, the switch version, the main version, the module version, the DSP firmware version, and the DSP parameter version.

⚠️    **NOTE:** The DSP firmware version and the DSP parameter version are only available for Full HD Ultra-WDR Speed Dome IP Camera.

# Software Upgrade

The Software Upgrade setting can be found under this path: **System > Software Upgrade**.

> **Note:** Make sure the upgrade software file is available before carrying out software upgrade.

The procedure of software upgrade is as below:

1. Click on **Browse** and select the binary file to be uploaded, ex. userland.img.

> **Note:** Do not change the upgrade file name, or the system will fail to find the file.

2. Pull down the upgrade binary file list and select the file you want to upgrade; in this case, select "userland.img."

3. Click on the **Upgrade Button**. The system will check whether the upgrade file exists or not, and then begin to upload the upgrade file. Subsequently, the upgrade status bar will be displayed on the page. When it runs to 100%, the upgrade process is finished. After the upgrade process is finished, the viewer will return to Homepage.

4. Close the video browser.

5. Go to **Start**, activate **Control Panel**, and then double click on **Add or Remove Programs**. In the *Currently Install Programs* list, select **DCViewer** and click on the **Remove Button** to uninstall the existing DC Viewer.

6. Open a new web browser, re-login the IP Camera, and then allow the automatic download of DC Viewer.

## Maintenance

The Maintenance setting can be found under this path: **System> Maintenance**.

Users can export configuration files to a specified location and retrieve data by uploading the configuration file to the camera.

### Export

Users can save the system settings by exporting a configuration file (.bin) to a specified location for future use. Click on the <Export> button, and the popup File Download window will come out. Click on <Save> and specify a desired location for saving the configuration file.

### Upload

To upload a configuration file to the camera, click on <Browse> to select the configuration file, and then click on the <Upload> button for uploading.

# 5.5. Streaming

Under the tab **<Streaming>**, there are categories including: <Video Format>, <Video Compression>, <Video OCX Protocol>, <Video Frame Rate>, and <Audio>.

In the Streaming submenu, the administrator can configure specific video resolution, video compression mode, video protocol, audio transmission mode, etc. Further details of these settings will be specified in the following sections.

**NOTE:** The <Streaming> setting page is only accessible by the administrator.

### Video Format

The Video Format setting can be found under this path: **Streaming> Video Format**.

**Video Resolution**
Under Video Resolution section, the available video resolution formats are including MJPEG, H.265 and H.264. Please refer to Appendix D: Video Resolution for more combination details.

Click on <Save> to confirm the setting.

## Text Overlay Settings

Users can select the items to display data including date/time/text on the live video pane. The maximum length of the string is 20 alphanumeric characters.

Click on **Save** to confirm the Text Overlay setting.

Video Rotate Type

Users can change video display type if necessary. Selectable video rotate types include Normal, Flip, Mirror, 90 degree clockwise, 180 degree rotate, and 90 degree counterclockwise. Refer to the following descriptions for the different video rotate type.

**Flip**
If <Flip> is selected, the image will be rotated vertically.

**Mirror**
If <Mirror> is select, the image will be rotated horizontally.

**90 Degree Counter-/clockwise**
Select <90 Degree Counter-/clockwise> to rotate the image by 90°
counter-/clockwise.

**180 Degree Rotate**
Select <180 Degree> to rotate the image by 180°.

Click on <Save> to confirm the setting.

**GOV Settings**
Users can set the GOV length to determine the frame structure (I-frames and P-frames) in a video stream for saving bandwidth. Less bandwidth is needed if the GOV length is set to a high value. However, the shorter the GOV length, the better the video quality is. The setting range is from 2 to 64. The default value for H.265/H.264-1 / H.264-2 / H.264-3 / H.264-4 is 60 / 60 / 30 / 30 (NTSC) or 50 / 50 / 25 / 25 (PAL). Click on <Save> to confirm the GOV setting.

**H.264 Profile**
Users can set each H.264 Profile to <Baseline Profile>, <Main Profile> or <High Profile> according to its compression needs. With the same bit rate, the higher the compression ratio, the better the image quality is. The default setting is <Main Profile>.

**NOTE:** Please make sure the higher compression ratio is supported by the system before setup.

Click on <Save> to confirm the setting.

# Video Compression

The Video Compression setting can be found under this path: **Streaming > Video Compression**.

Users can select a proper MJPEG/H.265/H.264 compression mode on the video compression page, depending on the application.

### MJPEG Q (Quality) Factor

Higher value implies higher bit rates and higher visual quality. The default setting of MJPEG Q factor is 35; the setting range is from 1 to 70.

### H.264-1/ H.264-2/H.265 Bit Rate

The default setting of H.264-1/ H.264-2 is 4096/1024 kbps; the setting range is from 64 to 8192 kbps. The default setting range of H.265 is from 64 to 10248 kbps.

### Display Compression Information

Users can also decide whether to display compression information on the Home page.

### CBR Mode Setting

The CBR (Constant Bit Rate) mode could be the preferred bit rage mode if the bandwidth available is limited. It is important to take account of image quality while choosing to use CBR mode.

Click on **Save** to confirm the setting.

## Video OCX Protocol

The Video OCX Protocol setting can be found under this path: **Streaming > Video OCX Protocol**.

In the Video OCX protocol setting page, users can select RTP over UDP, RTP over TCP, RTSP over HTTP or MJPEG over HTTP, for streaming media over the network. In the case of multicast networking, users can select the Multicast mode.

Video OCX protocol setting options include:

### RTP over UDP/ RTP over RTSP (TCP)/ RTSP over HTTP/ MJPEG over HTTP

Select a mode according to your data delivery requirements.

### Multicast Mode

Enter all required data, including *Multicast IP Addre*ss, *H.264 Video Po*rt, *MJPEG Video Port*, *Audio Port* and *TTL* into each blank.

Click on **Save** to confirm the setting.

## Video Frame Rate

The Video Frame Rate setting can be found under this path: **Streaming > Video Frame Rate**.

Video frame rate is for setting the frames per second (fps) if necessary.

### MJPEG/ H.264-1/ H.264-2/H.265 Frame Rate

The default setting of MJPEG Frame Rate is 30 fps; the setting range is from 1 to 30.

The default setting of H.265 Frame Rate is 30 fps; the setting range is from 1 to 30.

Click on **Save** to confirm the setting.

> **Note:**  Lower frame rate will decrease video smoothness.

## Audio (Audio Mode and Bit Rate Settings)

The Audio Mode setting can be found under this path: **Streaming > Audio**.

In the Audio page, the Administrator can select one transmission mode and audio bit rate.

### Transmission Mode

### Full-duplex (Talk and Listen Simultaneously)

In the Full-duplex mode, the local and remote sites can communicate with each other simultaneously, i.e. both sites can speak and be heard at the same time.

### Half-duplex (Talk or Listen, Not at the Same Time)

In the Half-duplex mode, the local/remote site can only talk or listen to the other site at a time.

### Simplex (Talk Only)

In the Talk only Simplex mode, the local/remote site can only talk to the other site.

### Simplex (Listen Only)

In the Listen only Simplex mode, the local/remote site can only listen to the other site.

### Disable

Select the item to turn off the audio transmission function.

### Server Gain Setting

Set the audio input/output gain levels for sound amplification. The audio gain values are adjustable from 1 to 6. The sound will be turned off if the audio gain is set to *Mute*.

### Bit Rate

Selectable audio transmission bit rate include 16 kbps (G.726), 24 kbps (G.726), 32 kbps (G.726), 40 kbps (G.726), uLAW (G.711) and ALAW (G.711). Both uLAW and ALAW signify 64 kbps but in different compression formats. Higher bit rate will let higher audio quality and require bigger bandwidth.

Click on **Save** to confirm the setting.

**Recording to Storage**

Select <Enable> from the drop-down menu to enable audio recording with videos into the microSD card or the NAS.

> ⚠️ **NOTE:** If the chosen bit rate is not compatible with the player, there will only be noise instead of audio during playback.

Click on <Save> to confirm the setting.

## 5.6 PTZ

Under the tab <**PTZ**>, there are categories including: <Preset>, <Cruise>, <Auto Pan>, <Sequence>, <Home>, <Tilt Range>, <Privacy Mask>, <Camera- Exposure>, <Camera-WB>, <Camera- Misc1>, <Camera- Misc2>, <Camera- Profile>, and <Camera-Default>.

## Preset

The Preset Programming can be found under this path: **PTZ > Preset**. Totally 256 Preset Points can be programmed for the IP Camera. Please refer to the instructions below to set a Preset Point.

### Preset Setting

To setup a Preset Point, please first move the cursor to the live view pane. Then left click and drag the red pointer with PTZ controls to a desired position and adjust the fine zoom/focus ratio. Subsequently, assign a number for the current position from the drop-down Number List (click on **Pre Page** or **Next Page Button** to reach number 1 to 256), and enter its descriptive name. Click on the **Set Button** to save the settings mentioned above.

### Preset Go

To have the camera move to a specified Preset position, please select the Preset Point from the drop-down Preset list (click on **PrePage** or **NextPage Button** to reach preset number 1 to 256). Then the camera shall readily move to the target position.

## Cruise

The Cruise Programming can be found under this path: **PTZ > Cruise**. The IP Camera supports up to eight Cruise Paths. Please follow the instructions below for Cruise Path setup.

### Cruise Setting

To setup a Cruise Path, please first select a path number from the drop-down list. Then move the cursor to the live view pane, and move the camera to a desired view (PTZ controls) as the start point of a Cruise Path. Click on the **Set Button** of *Record*

*Start* and start programming the Cruise Path via PTZ controls. When finishing programming, click on the **Set Button** of *Record End* to quit. Then this Cruise Path will be automatically recorded.

### Cruise Run

Select the specified Cruise Path from the drop-down list, click on the **Run Button**, and then the camera will start touring around as recorded.

To view the camera touring around in full screen mode, please move the cursor onto the live view pane, right-click and left-click to select *Full Screen*. Then users can view the camera navigation in full screen.

To stop running a Cruise Path, simply move the cursor to the live view pane and move the camera in any direction.

## Auto Pan

The Auto Pan Programming can be found under this path: **PTZ > Auto Pan**.

The IP Camera supports four Auto Pan Paths. Please refer to the instructions below to set an Auto Pan Path.

### Auto Pan Setting

To setup an Auto Pan Path, please select a path number from the drop-down list first. Then move the cursor to the live view pane, and move the camera to a desired view as the Start Point of an Auto Pan Path. Click on the **Set Button** of the *Start Point* and the current view will be automatically saved as the start point of the Auto Pan Path.

> **Note:** The room ratio of an Auto Pan's Start Point will persist throughout the whole path.

Enter the speed ratio into the Speed field; the speed ratio ranges from 0 (low) to 3 (fast). Then choose to run the Auto Pan Path in right/left direction from the Direction drop-down list.

Move the camera to another desired position as the end point of the Auto Pan Path. Click on the **Set Button** of the *End Point* for saving the setting.

### Auto Pan Run

Select the specified Auto Pan Path from the drop-down list, click on the <Run> button, and then the camera will start moving horizontally as recorded.

To view the camera panning in full screen mode, please move the cursor onto the live view pane, right-click and left-click to select "full screen". Then users can view the camera navigation in full screen.

To stop running an Auto Pan Path, simply move the cursor to the live view pane and move the camera in any direction.

## Sequence

The Sequence Line Programming can be found under this path: **PTZ > Sequence**.

The IP Camera supports totally eight Sequence Lines; each Sequence Line consists of up to 64 Preset Points. Please refer to the instructions below to program a Sequence Line.

> **Note:** Before setting this function, users must pre-define at least two Preset Points.

### Sequence Setting

Please click on the **Edit Button** in *Sequence Setting* section to enter the Sequence setting menu.

### Sequence Line

Please select the number of Sequence Line to be set from the drop-down list in the top of the Sequence setting menu.

### Sequential Preset Points Setting

Please setup each Preset Point of the programmed Sequence Line in order, assigning a Preset Point from the *Name* list for the specified number of Preset Point (click **Pre Page** or **Next Page Button** to reach preset point 1 to 256) and entering both Dwell Time (0~127) and Speed (0~14) into the corresponding fields.

When finishing the sequential Preset Points setting, please click on the **Save Button** in the top of the Sequence setting menu.

Select the specified Sequence Line from the drop-down list, click on the **Go Button**, and then the camera will start moving forward each scene sequentially as programmed.

To view the camera executing a Sequence Line in full screen mode, please move the cursor onto the live view pane, right-click and left-click to select *Full Screen*. Then users can view the camera navigation in full screen.

To stop running the Sequence Line, simply move the cursor to the live view pane and move the camera in any direction.

# Home

The Home Function can be found under this path: **PTZ > Home**.

Users are able to set an operation mode to ensure constant monitoring. If the IP Camera idles for a period of time, the selected function will be activated automatically; this is the *Home* function. The *Home* function allows constant and accurate monitoring to avoid the Dome Camera idling or missing events.

### Home Setting
### Activate/Disable Home Function

Select **On** or **Off** to activate or disable the Home function. Then click on the **Set Button** to save the setting.

### Time

The time here represents the duration of camera idle time previous to running a Preset Point/Cruise Line/Auto Pan Path/Sequence Line. When the *Home* function is activated, the Dome Camera will start to count down when it idles, and then execute the predefined action as time expires. The time period ranges from 1 to 128 minutes; please specify it in the field.

### Action Type

Please select a Home action type (Preset Point/Cruise Line/Auto Pan Path/Sequence Line) and specify the number of Preset Point/Cruise Line/Auto Pan Path/Sequence Line from the drop-down *Type* and *Line* lists. Click on the **Set Button** to save the Home settings.

# Tilt Range

The Tilt Range Setting can be found under this path: **PTZ > Tilt Range**.

The IP Camera's tilt angle is adjustable from minimum -10° to maximum 190°.

Please enter the desired minimum and maximum tilt angle into the corresponding fields respectively. Click on the **Set Button** to save the tilt angle settings.

⚠️ **NOTE:** The tilt angle range is between -10° to +100° when the Flip function under <Camera- Misc 1> setting page is set as <Off> or <M.E.>.

⚠️ **NOTE:** The tilt angle range is between -10° to +190° when the Flip function under <Camera- Misc 1> setting page is set as <Image>.

## Privacy Mask

The Privacy Mask can be found under this path: **PTZ> Privacy Mask**.

The Privacy Mask function aims to avoid any intrusive monitoring. When setting a mask, it is suggested to set it at least twice bigger (height and width) than the masked object. The camera will assume the center of the selected view as the starting point. Therefore, please keep the target object / region nearly positioned in the center of the scene. Refer to the following descriptions for setting a privacy mask.

⚠️ **NOTE:** When the Privacy Mask function is enabled, the Flip function under <Camera- Misc 1> setting page will be disabled.

## Mask Setting
**Switch**
Select <On> or <Off> to activate or disable the Privacy Mask function. Click on <Set> to apply the setting.

**Transparency**
The Privacy Mask can be set as transparency if necessary.

### Color Setting

Select a desired color from the <Color> drop-down list for the specified Privacy Mask. Click on <Set> to apply the Privacy Mask's color properties.

### Mask Number (1~16)

Specify the number of the programmed Privacy Mask in the corresponding field. The numbers of Privacy Masks vary with camera models.

After finishing the setup of a Privacy Mask, click on the button <Add> to save the programmed Privacy Mask.

### Mask Clearing

In this section, users can delete an existing Privacy Mask. Please select the Privacy Mask to be removed from the drop-down list, and click on the button <Clear>. Then the selected Privacy Mask will readily disappear.

## Camera - Exposure

The Exposure setting can be found under this path: **PTZ> Camera- Exposure**.

In the <Camera- Exposure> setting page, users can select either the <Full Auto> mode or adjust the parameter of the Shutter / P-Iris / Iris Priority mode for optimized video output in accordance with the operating environment.

### Auto Mode
**Max Gain**

This item is for users to set the maximum limit of gain. The Max Gain range is 3dB

to 57dB. To disable the function, select <Off>. The default setting is 24dB.

⚠ **NOTE:** Higher max gain may cause more image noises.

**Full Auto Mode**

In this mode, the camera's shutter speed, iris and AGC (Auto Gain Control)

control circuits work together automatically to get consistent video output level.

The minimum shutter speed range is configurable from 1/30 sec. to 1 sec. (NTSC)

or 1/25 sec. to 1 sec. (PAL).

⚠ **NOTE:** For Full HD Ultra-WDR Speed Dome IP Camera, this mode will not be shown when video format with "WDR" is selected under <TV System>.

**Shutter Priority Mode**

In this mode, it is the shutter speed that takes the main control of the

exposure. The range of the shutter speed is from 1/10000 sec. to 1/60 sec.

(NTSC) or 1/10000 sec. to 1/50 sec. (PAL).

**NOTE:** For Full HD Ultra-WDR Speed Dome IP Camera, this mode will not be shown when video format with "WDR" is selected under <TV System>.

**P-Iris Mode**

In this mode, the minimum iris opening is limited to affect the exposure. The minimum iris opening can be adjusted from F4.8 to F19. The minimum shutter speed range is configurable from 1/30 sec. to 1 sec. (NTSC) or 1/25 sec. to 1 sec. (PAL).

**Iris Priority Mode**

In this mode, it is the iris that has the premier priority in control of the exposure. The value of iris is adjustable from F1.6 to F28. The minimum shutter speed range is configurable from 1/30 sec. to 1 sec. (NTSC) or 1/25 sec. to 1 sec. (PAL).

**Manual Mode**

In this mode, users can change the Shutter Speed, Iris, and Gain manually. The shutter speed range is from 1/10000 sec. to 1 sec. (NTSC) or from 1/10000 sec. to 1/1.5 sec. (PAL). The range of the iris size is from F1.6 to F28. The gain value range is from 1dB to 15dB.

## Camera - WB (White Balance)

The White Balance Setting can be found under this path: **PTZ > Camera - WB**.

A camera needs to find reference color temperature, which is a way of measuring the quality of a light source, for calculating all the other colors. The unit for measuring this ratio is in degree Kelvin (K). Users can select one of the White Balance Control modes according to the operating environment. The following table shows the color temperature of some light sources for reference.

| Light Sources | Color Temperature in K |
|---|---|
| Cloudy Sky | 6,000 to 8,000 |
| Noon Sun and Clear Sky | 6,500 |
| Household Lighting | 2,500 to 3,000 |
| 75-watt Bulb | 2,820 |
| Candle Flame | 1,200 to 1,500 |

### Auto Mode

The Auto Balance White mode is suitable for environment with light source having color temperature in the range roughly from 2700 to 7500K.

### Indoor/outdoor Mode

Select for indoor or outdoor mode.

### ATW Mode (Auto Tracing White Balance)

With Auto Tracking White Balance function, the white balance in a scene will be automatically adjusted while temperature color is changing. The ATW Mode is suitable for environments with light source having color temperature in the range roughly from 2500K to 10000K.

**One Push**
With One Push function, white balance is adjusted and fixed according to the scene the camera sees at the moment. This function is best for situations with minimal scene changes and continuous lighting. The function is suitable for light sources with any kind of color temperature. Follow the steps below to set the white balance.

Point the camera to the monitoring area.
Select <One Push> in the White Balance setting menu and click <Set>.
Click <Trigger> to adjust the white balance.

**NOTE:** In this mode, the value of white balance will not change as the scene or the light source varies. Therefore, users might have to re-adjust the white balance by clicking <Trigger> again when needed.

**Manual Mode**
In this mode, users can change the White Balance value manually via specifying R gain and B gain; the range of R/B gain is from 0 to 255.

# Camera - Misc 1 (Miscellaneous Setups Menu 1)

The Miscellaneous Setting Menu 1 can be found under this path: **PTZ > Camera- Misc 1**.

In the Camera- Misc (Miscellaneous) Setup Menu 1, users can set various camera parameters including Backlight Compensation (BLC), Sharpness, Exposures Compensation (ExpComp), Image Flip, Digital Zoom, Speed by Zoom and Day/Night Function. Each setting is specified as follows.

## BLC

Users can choose to activate or disable the BLC function. Click on the **Set Button** to save the setting.

## Sharpness

Increasing the sharpness level can make the image looked sharper; especially enhancing the object's edge. The Sharpness value is adjustable from 1 to 15. The default value is 6. Click on the button <Set> to apply the setting.

## ExpComp

Users can define the value of Exposure Compensation; the value ranges from 1 to 15. The default value is 8. Click on <Set> to apply the setting.

## Flip

Users can track an object continuously when it passes under the camera with setting Flip to Mechanical (M.E.) mode or Digital Flip (Image) mode.

> ⚠️ **NOTE:** The Flip setting is manual-controlled only. If a Preset Position or a point for other function (ex. Sequence) is set in the position that can only be reached through FLIP motion, when the Flip function is turned off, the position cannot be reached anymore.

> ⚠️ **NOTE:** To make the camera tilt between a specific range, such as -10° to +100° or -10° to +190°, please go to the <Tilt Range> setting page to set the tilt angle range. Otherwise, the camera will tilt 90° as the default setting.

### M.E. Mode

M.E. is a standard mechanical operation. As the camera tilts to the maximum angle, it will pan 180°, and then continue tilting to keep tracking objects.

### Image Mode

The Image mode (digital image flip mode) enables users to keep tracking the objects seamlessly. Under this mode, almost no delay occurs in comparing with that under the M.E. mode.

Click on <Set> to confirm the setting.

**Digital Zoom**
Select <On> to enable the Digital Zoom function. Click on <Set> to confirm the setting.

**Speed by Zoom**
This function allows the camera to adjust the pan/tilt speed automatically by the internal algorithm when the zoom ratio is changed. The rotating speed will become slower as the zoom ratio gets larger. Click on <Set> to save the setting.

**Day/Night Function**
This setting menu allows users to set the IR cut filter to Auto / Night / Day mode for the camera to catch clear images at different light conditions.

**Auto**
In this mode, the camera will automatically decide the occasion to remove the IR cut filter according to the image brightness level.

**Night**
Select this item when the environment light level is low. The IR cut filter will be removed to allow the camera to deliver clear images in black and white.

**Day**
Select this item to turn on the IR cut filter. The IR cut filter can filter out the IR light and allows the camera to deliver high quality images in color.

## Camera - Misc 2 (Miscellaneous Setups Menu 2)

The Miscellaneous Setting Menu 2 can be found under this path: **PTZ > Camera - Misc 2.**

In the Camera - Misc (Miscellaneous) Setups Menu 2, users can setup various functions such as *Wide Dynamic Range (WDR)*, *Auto Calibration*, Auto Defog, 2D Noise Reduction (2DNR), 3D Noise Reduction (3DNR), Image Stabilizer, OSD, Set Pan Zero and TV System.

### WDR

The WDR function is for solving high contrast or light changing issues so that enhances the video display. It is especially effective in the environment with extreme contrast. Click on <Set> button to apply the setting.

⚠️ **NOTE:** The two shutter WDR function for Full HD Ultra-WDR Speed Dome IP Camera can be enabled by selecting any video format with "WDR" under <TV System>.

**NOTE:** The WDR function and the Auto Defog function are mutually exclusive. Thus, once the WDR function is enabled, the Auto Defog function will be disabled.

**Inverse (Full HD Ultra-WDR Speed Dome IP Camera Only)**
When the Image Inverse function is activated, the image will be inversed vertically and horizontally. Click on <Set> to apply the setting.

**Auto Calibration**
With the Auto Calibration function, the camera calibrates when the deviation of dome pivot is detected. Click on <Set> button to apply the setting.

**Auto Defog (Full HD Speed Dome IP Camera Only)**
With the Auto Defog function, the visibility of the camera can be improved when there is fog. Click on <Set> button to save the setting.

**2DNR / 3DNR**
With the 2D / 3D Noise Reduction function, the processor analyzes pixel by pixel and frame by frame to eliminate environmental noise signal so that the highest quality image can be produced even in low light conditions. In comparison with 2DNR, 3DNR generates better de-noising effects. Click on <Set> to apply the setting.

**NOTE:** The 3DNR function is only available for Full HD Ultra-WDR Speed Dome IP Camera.

**Stabilizer (Full HD Ultra-WDR Speed Dome IP Camera Only)**
With the Image Stabilizer function, the camera can digitally adjust the blurring images caused by external vibration. Select <ON> to turn on the function. Click on <Set> to confirm the setting.

**OSD**
Select <On> on OSD Setting to turn on the OSD display on the live video. The OSD display shows the pan/tilt degree and the shooting position of the camera, such as NE 050/00, which "NE" indicates the shooting position of the camera, "050" indicates the pan degree, "00" indicates the tilt degree. Click on <Set> to save the setting.

**Set Pan Zero**
Click on <Set> to set the camera's currently shooting position as the start point for panning (0 degree).

**TV System**
Select the video format that matches the present TV system. Click on <Set> to save the setting.

The following table shows the available video formats for different types of models. The supported video formats for each model are marked by "v".

| Video Format | Model | Full HD Speed Dome IP Camera | Full HD Ultra-WDR Speed Dome IP Camera |
|---|---|---|---|
| NTSC | 1080p 60 fps | v | v |
| | 2M 30 fps | v | - |
| | WDR 30 fps | - | v |
| PAL | 1080p 50 fps | v | v |
| | 2M 25 fps | v | - |
| | WDR 25 fps | - | v |

⚠️ **NOTE:** To enable the two shutter WDR function of the Full HD Ultra-WDR Speed Dome IP Camera, the selected video format **MUST** include "WDR".

**Camera- Profile**

The Profile setting can be found under this path: **PTZ> Camera- Profile**

Camera Profile allows users to setup the desired image parameters for specific environments with different time schedules. Users can setup at most 10 sets of camera parameter configuration under the Camera tab. To enable this function, users must setup the schedules in advance. Refer to section <u>Schedule</u> for further details of schedule setup. Then, follow the steps below to setup a camera profile.

<u>Camera Profile Setup</u>

**Step 1.** In the "PTZ" tab, setup the camera parameters, such as Exposure, White Balance, etc., excluding TV System.

**Step 2.** Click on Profile and its setting menu will be displayed. Select a number from the Num drop-down list.

**Step 3.** Input a name for the profile in the Name field.

**Step 4.** Click on <Save> below the Name field. The camera configuration is saved and applied to the profile. Now a camera profile is created and saved.

**Step 5.** Select a profile from the Num drop-down list.

**Step 6.** Tick the By schedule box. Check the desired schedule(s) from the Schedule drop-down list. Multiple schedules can be applied to one profile.

**Step 7.** Click on <Save> below <By schedule>.

**Step 8.** Follow the steps above to set the rest of the profiles.

Now, the camera will automatically switch profiles according to the schedule.

Alternatively, manually select a number from the Num drop-down list. Then, click on <Load>, the camera will load and applied the setting of the profile.

> **NOTE:** If users wish to set the camera parameters to factory default setting, select <Normal> from the Num drop-down list. The camera will start loading the default values.

## Camera- Default

The Default Setting can be found under this path: **PTZ > Camera- Default**.

In the Camera Default page, users can set the camera back to factory default settings simply by clicking on the **Set Default Button**.

# 5.6. Logout

Click on the **Logout** tab on the top of the page, and the login window will pop up. This enables login with another user name.

# 5.7. Appendix

## Appendix A: Install UPnP Components

Please follow the instructions below to install UPnP components.

1. Go to *Start*, click on **Control Panel**, and then double click on **Add or Remove Programs**.

2. Click on **Add/Remove Windows Component**s in the *Add or Remove Programs* page.

3. Select **Networking Services** from the Components list in Components Wizard window of the Windows, and then click **Details**.

4. Select **UPnP User Interface** in the Networking Services' subcomponents list and then click on **OK**.

5. Click on **Next** in the *Windows Components Wizar*d page.

6. Click on **Finish** to complete installation.

## Appendix B: IP Addresses from Decimal to Binary

Follow the example below to convert the IP addresses to binary numbers. Use the calculator on the computer for conversion. The calculator can be found under this path: **Start> All Programs> Accessories> Calculator**. For Windows XP and Windows Vista, click <View> on the calculator and click <Scientific>. For Windows 7 and Windows 8, click <View> on the calculator and click <Programmer>. Then follow the steps in the following example to convert the IP addresses.

The example below shows how to convert 192.168.2.81 to binary numbers.

**Step 1:** On the left of the calculator, select <Dec>. Then enter the first decimal number of the IP address, "192". Select <Bin> and the number will be converted to binary number. Repeat the same procedure with the rest of decimal numbers. Remember to select <Dec> before entering the next decimal number. Otherwise a decimal number cannot be entered. The table below shows the binary number of each decimal number.

| Decimal Numbers | Binary Numbers |
|---|---|
| 192 | 11000000 |
| 168 | 10101000 |
| 2 | 10 |
| 81 | 1010001 |

**Step 2:** Each binary number should have eight digits. If a binary number does not have eight digits, please add 0 in front of it until it does. The binary number of each decimal number should be as follow.

| Decimal Numbers | Binary Numbers |
|---|---|
| 192 | 11000000 |
| 168 | 10101000 |
| 2 | 00000010 |
| 81 | 01010001 |

**Step 3:** Therefore, the binary numbers of IP address 192.168.2.81 is 11000000.10101000.00000010.01010001.

## Appendix C:    Auto-tracking (Selected Models Only)

The Autotracking function is only for some selected models. This function will only become available after authentication is done. For more information about authenticating the function, please see section: Inset Key from below.

The Autotracking function will automatically detect a moving object in the preset area and follow it according to the defined settings. Please find the function setting in the following path: **System> Autotracking**.

Click on the category <Autotracking>, the <Autotracking> and <Insert Key> tabs will be shown in the drop-down menu. Enter the setting menu by clicking the <Autotracking> tab.

**Autotracking**
The default setting of the Autotracking function is <Off>. Select <On> to enable the function.

⚠️ **NOTE:** Setting items will be available after <On> is selected.

**MAX Limit Setting**
This setting menu allows users to define a tracking area for the detection and tracking movement of the camera.

**Turn Off**
> To avoid the setting process being disturbed by the camera's tracking movement, please click on the <Turn Off> button to switch off the tracking function.

⚠️ **NOTE:** The Autotracking function needs to be reactivated to take effect after saving all the necessary settings. Please follow the steps below.

Select <Off> under <Autotracking> at the top.
Click the <Save> button for confirmation.
Select <On> under <Autotracking> at the top.
Click the <Save> button to confirm the settings.

**Enable tilt limit**
Tick the box to enable the tilt limit setting.

**Get U Tilt / D Tilt**
Please click and drag the PTZ pointer in the view window to the desired up or down tilt position. Then click on the <Get U Tilt> / <Get D Tilt> button to get the boundary values.

**Enable pan limit**
Tick the box to enable the pan limit setting.

**Get L Pan / R Pan**
Please click and drag the PTZ pointer in the view window to the desired left or right pan position. Then click on the <Get L Pan> / <Get R Pan> button to get the boundary values.

**Detection Range**
Detection range can be set to detect motions around the centre of the view window. Please choose a value to define the detection area (in percentage) around the centre point. The available options are <L(60%)>, <M(50%)> and <S(40%)>.

> **NOTE:** The percentage indicates the area around the centre **WILL NOT** be detected; e.g. L(60%) means that 60% of the area around the centre point will not be detected.

**Preset Setting**
In this setting menu, the Autotracking function and its related functions can be activated for the first 10 preset points of each sequence line.

> **NOTE:** When <Preset Setting> is activated, the <Home Setting> and the <Guard Timer Setting> will be unavailable.

**Off / On**
The default setting of the Preset Setting is <Off>. Select <On> to enable the function.

**Sequence line**
Select a desired sequence line from the drop-down menu to set its Autotracking function.

**Preset**
Select a desired preset point from the drop-down menu to set its Autotracking function.
Please use the <Autotacking> drop-down menu underneath to turn On / Off the tracking function for each chosen preset point.

**Ratio**
Zoom ratio can be set for the camera to automatically zoom in / out when it is tracking a moving object. Please type in the ratio number in the blank space.

**Guard Time**
Guard time is for defining the maximum tracking time of the camera for each chosen preset point. Please enter the time in seconds (range from 0 to 999) in the blank space. Click the <Set> button on the right to finish setting up a preset point.

**NOTE:** Repeat the steps from <Sequence line> to <Guard Time> for setting other preset points.

**Home Setting**

This function allows users to set the main monitoring area as the home position for the camera. In addition, maximum time can also be set for defining the time for the camera to keep watching a stopped tracking object. The camera will return to the home position according to the defined time setting.

**NOTE:** <Preset Setting> must be <Off> in order to configure the <Home Setting> function.

**Off / On**

The default setting of Home Setting is <Off>. Select <On> to enable the function.

**Home Position**

To set the home position, please click and drag the PTZ pointer in the view window to the desired position. Click on <Set> to confirm the position.

**Time**

Please type in the time that the camera should keep watching a stopped tracking object. The camera will return to the home position after the defined time period.

**Go**

Click on <Go> to move the camera to the home position.

**Guard Timer Setting**

This function allows users to set the main monitoring area as the guard position, and set the duration of time for the camera to track an object.

**NOTE:** <Preset Setting> must be <Off> in order to configure the <Guard Timer Setting> function.

**Off / On**

The default setting of the Guard Timer Setting is <Off>. Select <On> to enable the function.

**Guard Position**

To set the guard position, please click and drag the PTZ pointer in the view window to the desired position. Click on <Set> to confirm the position.

**Time**

Please type in the duration of time that the camera should track a moving object.

**Go**

Click on <Go> to move the camera to the guard position.

**Save**

Click on <Save> to confirm the settings.

**Insert Key**

If the Autotracking function is already available, users do not need to type in any product key in this page. However, if it is not, please contact the system installers or the sales representatives for the product key. Authentication can be done by type in the product key in the blank space provided in the <Inset Key> page and click <OK> to enable the function.