

# Network Camera

## User's Manual



## Important Information Before Using This Manual

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This is a fundamental guide for operating a S&M Technology network camera. Whether you are a first-time user or someone with experience using similar devices, it is essential to read this manual carefully before using the product. Pay close attention to the warnings and precautions outlined in this manual to ensure safe and effective use of the product. Following these safety guidelines will help prevent accidents and damage to property.

- The manufacturer is not liable for any damage to the product caused by the use of unauthorized parts or accessories or by failure to follow the instructions in this manual.
- The information in this manual is believed to be accurate as of the publication date. However, some features may not be described, and the manufacturer cannot be held responsible for any issues arising from their use. The content may change without notice, and future editions may be issued to incorporate any revisions.
- First-time users and those unfamiliar with the network camera should seek assistance from their retailer for installation and use.
- For expansion, repair, or disassembly purposes, always contact the retailer and request professional help.
- Both retailers and users should be aware that this product has been certified for electromagnetic compatibility for commercial use. If the product was unintentionally sold or purchased, please ensure it is replaced with a consumer version.

### Safety Symbols

#### In-Text Symbols

- **Caution** : Important information regarding a specific function.
- **Note** : Useful information about a specific function.

### Safety Symbols

#### WARNING

**RISK OF ELECTRIC SHOCK DO NOT OPEN**

**Warning : To reduce the risk of electric shock,  
do not remove the cover or back.  
There are no user-serviceable parts inside.  
Refer servicing to qualified personnel.**

# Important Safety Instructions

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## 1. Read Instructions

All safety and operating instructions should be read before using the equipment.

## 2. Retain Instructions

Keep the safety and operating instructions for future reference.

## 3. Cleaning

Unplug the equipment before cleaning. Do not use liquid aerosol cleaners. Use a damp, soft cloth for cleaning.

## 4. Attachments

Never add any attachments or equipment without the approval of the manufacturer, as such additions may result in fire, electric shock, or personal injury.

## 5. Water and Moisture

Do not use this equipment near water or in contact with water.

## 6. Placement and Accessories

Ensure the equipment is installed on a wall or ceiling strong enough to support it. Improper installation could cause the equipment to fall, resulting in injury or damage. Follow the manufacturer's instructions for mounting and use only approved mounting kits. When moving the equipment, do so carefully, as quick stops or excessive force can cause the equipment to overturn. Do not place the equipment in an enclosed space. Adequate ventilation is necessary to prevent overheating and reduce the risk of fire.

## 7. Power Sources

The equipment should be powered only from the type of source indicated on the labeling. If unsure of the power requirements, consult the dealer or local power company. Consider installing an Uninterruptible Power Supply (UPS) system for safe operation, preventing damage from unexpected power outages.

## 8. Power Cord

Always disconnect the power and cables before handling the equipment.

## 9. Lightning

For added protection during lightning storms, or when the equipment is left unused for long periods, unplug it from the wall outlet and disconnect any antenna or cable system. This will prevent lightning and power surge damage. Use a surge protector if lightning is common in the area.

## 10. Overloading

Avoid overloading wall outlets or extension cords, as this could result in fire or electric shock.

## 11. Objects and Liquids

Never insert objects into the equipment's openings, as they may contact dangerous voltage points or cause a short circuit. Avoid spilling liquids on the equipment.

## 12. Servicing

Do not attempt to service this equipment yourself. Refer servicing to qualified service personnel.

## 13. Damage Requiring Service

If the equipment shows signs of damage such as the following, unplug it and consult qualified service personnel: A. Damage to the power supply cord or plug B. Spilled liquid or impact damage C. Exposure to rain or water D. If the equipment does not operate normally, follow the

## Important Safety Instructions

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operating instructions to avoid unnecessary adjustments that could cause further damage. E. If the equipment has been dropped or the casing is damaged F. A noticeable change in performance indicates a need for servicing.

### 14. Replacement Parts

When replacing parts, ensure that the service technician uses parts specified by the manufacturer or parts with equivalent characteristics. Unauthorized substitutions could result in fire, electric shock, or other hazards.

### 15. Safety Check

After any service or repair, ask the service technician to perform safety checks to ensure the equipment is in proper working condition.

### 16. Installation

Installation should be carried out by a qualified technician and must comply with local codes.

### 17. Maximum Ambient Temperature (T<sub>mra</sub>)

Ensure that the equipment's maximum recommended operating temperature (T<sub>mra</sub>) is specified, so the customer and installer can determine a suitable operating environment.

## WEEE (Waste Electrical & Electronic Equipment)

### Proper Disposal of This Product

Applicable in the European Union and countries with separate waste collection systems.



The symbol displayed on the product or its packaging indicates that this device should not be disposed of with household waste at the end of its life cycle. To prevent potential environmental harm or health risks from improper disposal, please separate it from other waste and recycle it responsibly. This will promote the sustainable reuse of materials.

### For Household Users :

Contact the retailer from whom you purchased the product, or your local government office, for information on how to dispose of this product in an environmentally responsible manner.

### For Business Users :

Consult your supplier to check the terms and conditions in the purchase agreement. This product should not be mixed with other commercial waste for disposal.

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## OVERVIEW

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This camera is a megapixel motorized network camera module with a built-in web based viewer accessible by multiple browsers.

This camera supports dual compression formats and triple streaming simultaneously. The three standard compression formats include H.265, H.264 and MJPEG. The streams can be configured to a variety of resolutions, bit rates and frame rates.

**\* NOTE**

*The several features are dependent on camera model.*

### System Requirements

To ensure stable video streaming and high-performance monitoring, please ensure your PC meets the following specifications.

#### 1. Operating System

**Windows 7, 8 (32/64-bit)** : All Editions

**Windows 10, 11 (64-bit)** : Home, Professional Edition (Recommended)

#### 2. Processor (CPU)

**Minimum** : Intel Core i3 2.4 GHz or higher

**Recommended** : Intel Core i5, i7 2.8 GHz or higher (Essential for multi-channel viewing and high-frame-rate decoding)

#### 3. Memory (RAM)

**Minimum** : 8 GB or more

**Recommended** : 16 GB or more (For optimal multitasking and stability)

#### 4. Display Resolution

**Minimum** : 1280 x 1024 pixels or higher

**Color Depth** : 32-bit color recommended

#### 5. Supported Web Browsers

The web interface is optimized for the following modern browsers. Please use the latest version for the best experience.

- Microsoft Edge (Recommended)
- Google Chrome (Recommended)
- Apple Safari
- Mozilla Firefox
- Opera
- Brave

## WEB UI Menu

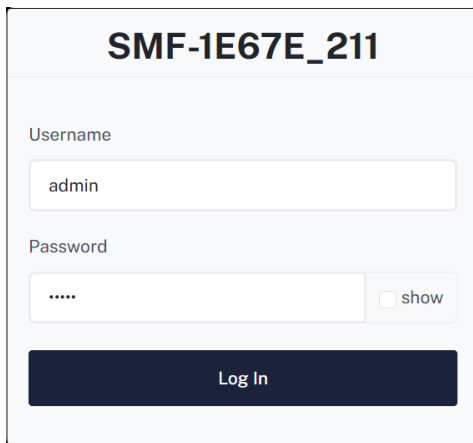
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### Login

This camera supports major operating systems and web browser environments. To access the camera, enter its IP address into the address bar of a supported web browser. A login prompt will appear as shown below.

Default Login Information:

- **Username** : admin
- **Password** : admin



SMF-1E67E\_211

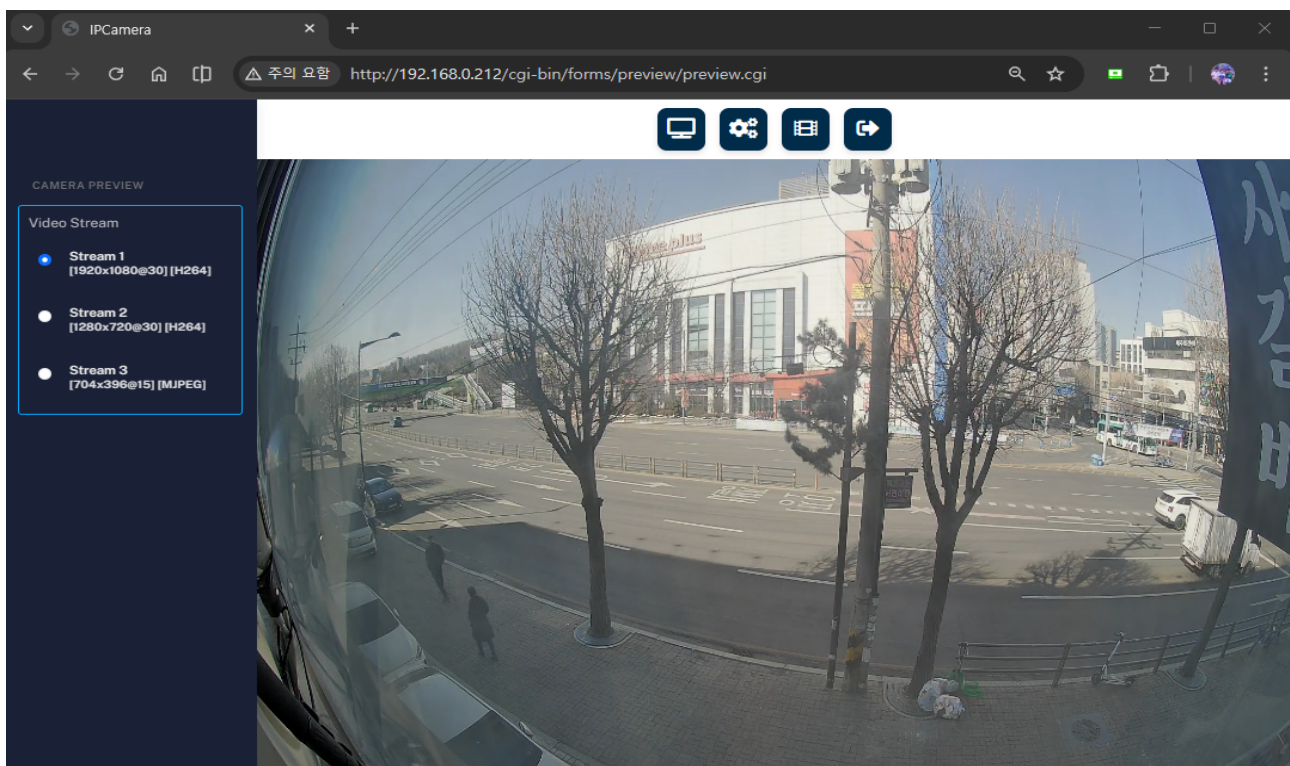
Username  
admin





Password  
.....  show

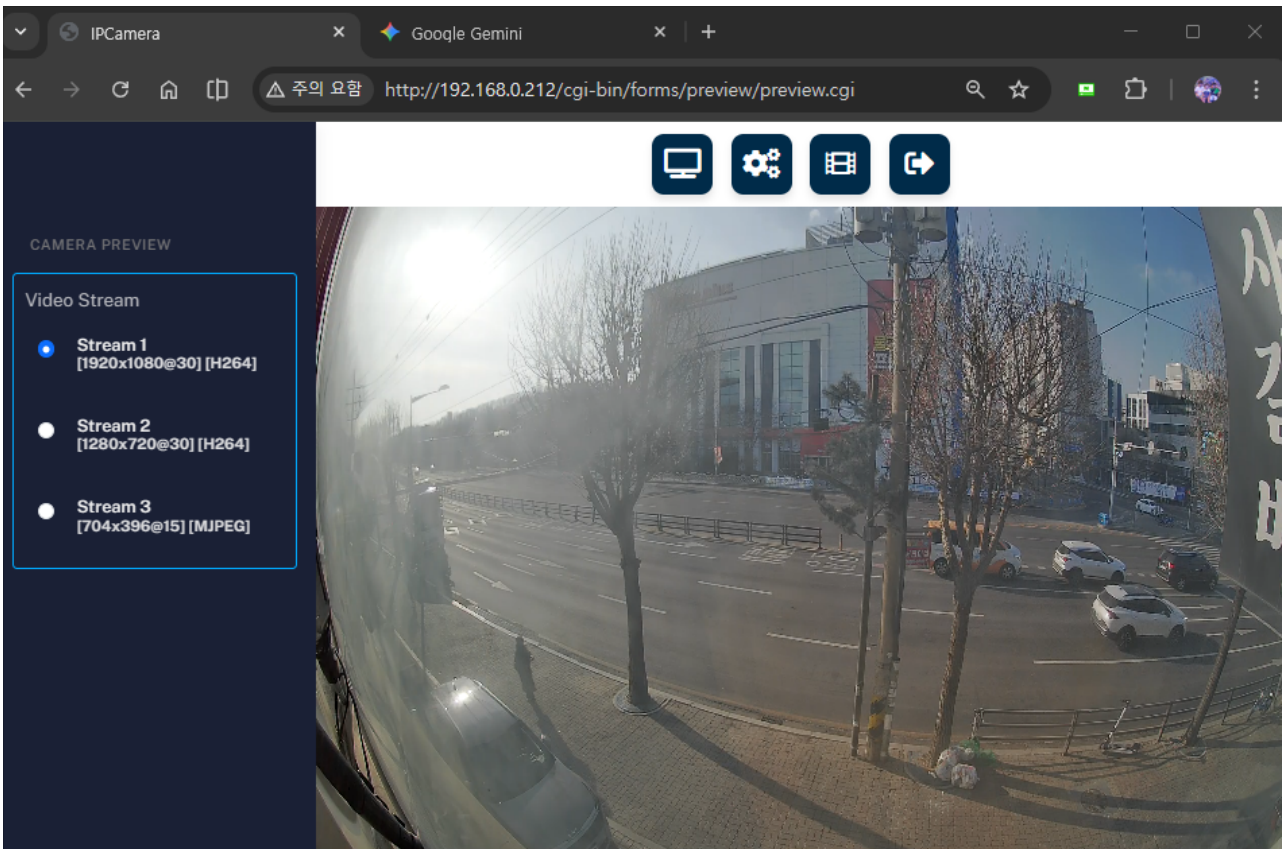
Log In

### Camera Preview

After logging into the network camera, you will be able to view the live video stream as shown below.



Designation	Function
 <b>Preview</b>	The Preview menu allows you to monitor the live video feed from your camera in real-time.
 <b>Camera Setting</b>	The Camera Setting menu is where you can customize all device configurations to suit your environment.
 <b>Play Back</b>	The Playback menu enables you to search and view recorded footage stored on your device.
 <b>Logout</b>	The <u>Logout</u> icon securely ends your current session and returns you to the login screen.



- **Video Stream** : Choose one of the three available streams from the left panel to control the video quality of the current view.
  - **Stream 1 [1920x1080@30][H264]** : High-quality main stream for detailed monitoring.
  - **Stream 2 [1280x720@30][H264]** : Standard-quality sub-stream for balanced performance.
  - **Stream 3 [704x396@15][MJPEG]** : Low-bandwidth stream for smoother viewing in limited network conditions.
- ※ **Camera Setting Synchronization** : The video feed displayed within the Setting menu is automatically synchronized with the stream selected in this panel. (e.g., if you select Stream 2, the configuration page will also display the stream 2 video feed).

## Information

You can find the detailed status of your device under the Information menu. This section is divided into three main categories.

Components [Information](#)

### General

Model	R02_0521_211
MAC Address	08:3c:03:1f:ff:db
IP Address	192.168.0.211
Zero Conf IP Address	169.254.124.200
Firmware Version	IPCAM 0.1.16

### Information

Server Time	2026-05-28 06:56:47
Running Time	01:04:24
CPU Usage	54.6 [%]
Inbound Bandwidth	427 [Kbps]
Outbound Bandwidth	5213 [Kbps]

### Client Connection Information

RTSP active playback sessions.

IP ADDRESS	STREAM	PROTOCOL	TOTAL TIME
192.168.0.240	Stream1	tcp	0 min
192.168.0.240	Stream2	unicast	0 min

### Open Source Information

[Show List](#)

### • General

This section displays the fundamental identification details of your camera.

- **Model Name** : The specific model designation of your device.
- **MAC Address** : The unique hardware identification address.
- **IP Address** : The current network address assigned to the camera.
- **Zeroconf IP Address** : The self-configured IP address used for local network discovery.
- **Firmware Version** : The current version of the operating software installed.

- **Information**

This section provides real-time monitoring of the camera's operational performance.

- **Server Time** : The current synchronized date and time of the system.
- **Running Time** : The total duration the camera has been powered on since the last reboot.
- **CPU Usage** : The real-time processing load of the camera's internal processor.
- **Inbound / Outbound Bandwidth** : Monitoring of the data traffic entering and leaving the device.

- **Client Connection Information**

Displays the current RTSP playback sessions connected to the IP camera.

- **IP Address** : Client device IP address
- **Stream** : Accessed video stream
- **Protocol** : Streaming protocol in use
- **Total Time** : Duration of the active session

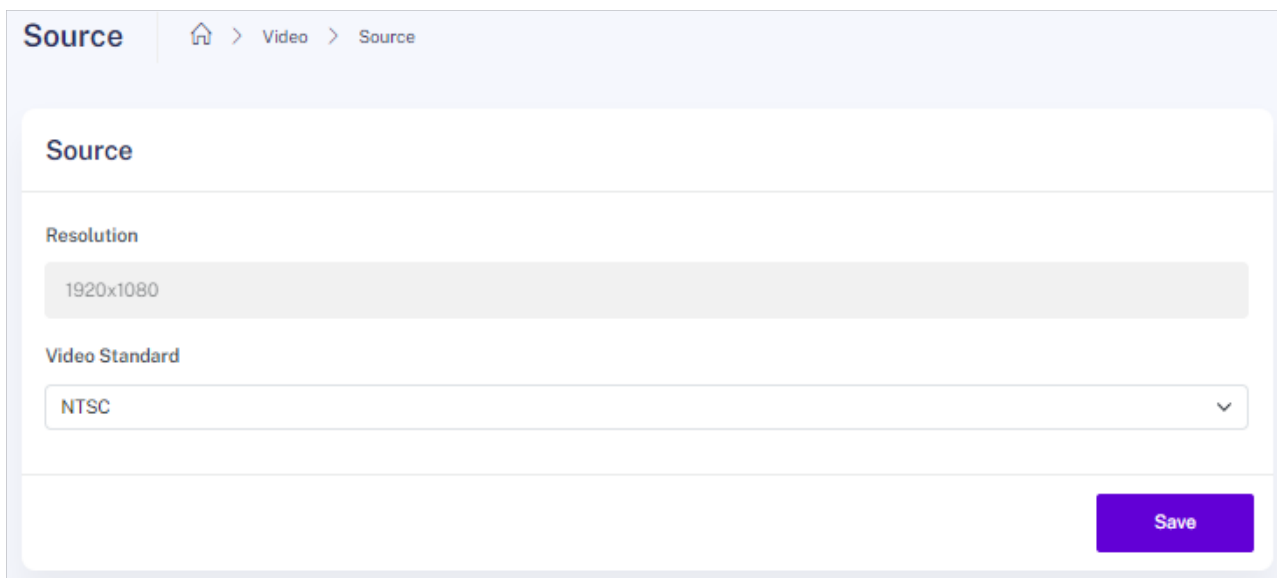
- **Open Source Information**

This section maintains transparency regarding the software architecture.

- **Component List** : A comprehensive list of open-source software components and libraries utilized in this camera's firmware.

## Video > Source

Specify the video source. Depending on the source signal or mode, each stream configuration will be affected and the streaming will be automatically adjusted based on system performance.

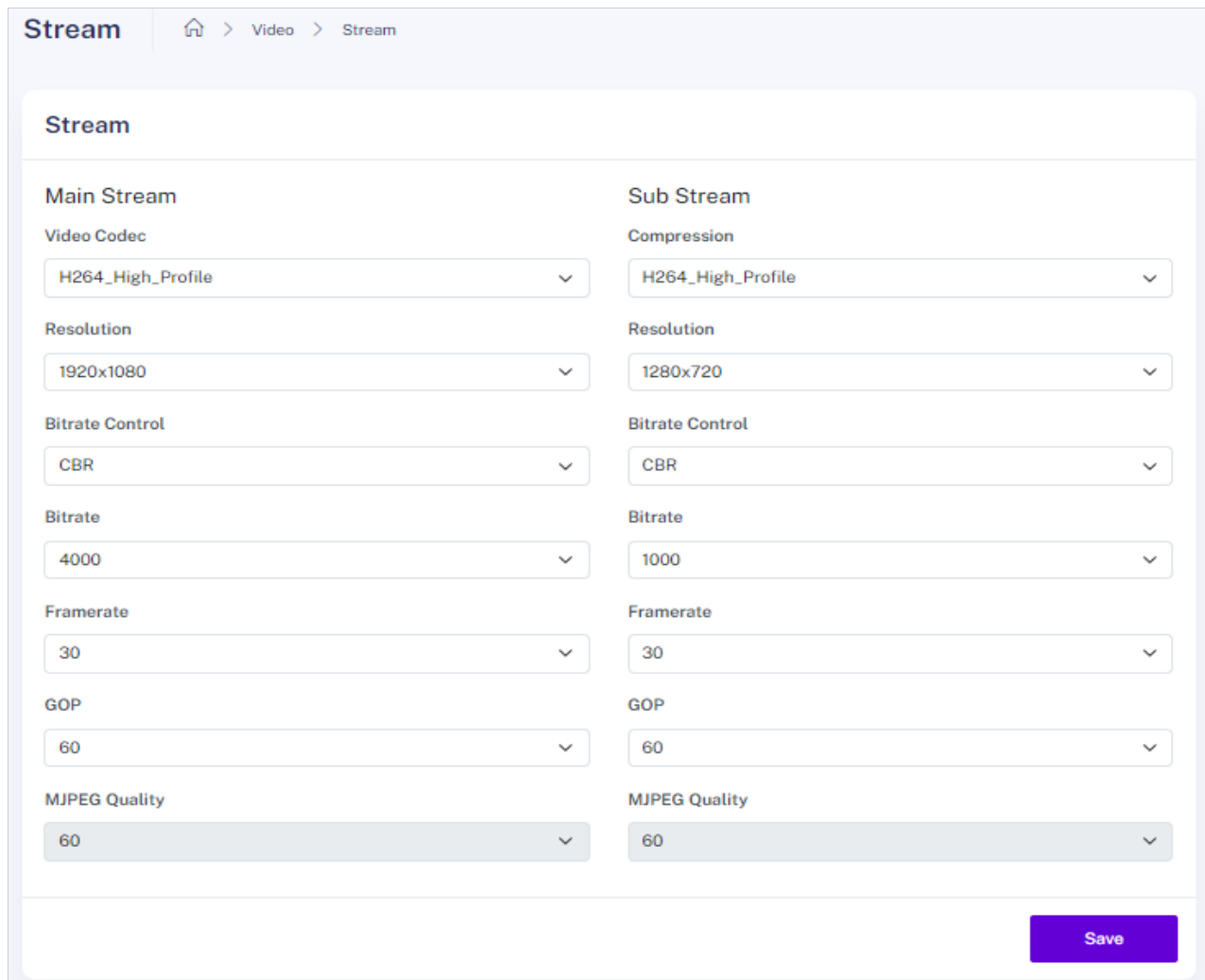


The screenshot shows a web interface for configuring video source settings. At the top, there is a breadcrumb trail: Home > Video > Source. Below this, the main configuration area is titled 'Source'. It contains two primary settings: 'Resolution', which is currently set to '1920x1080', and 'Video Standard', which is set to 'NTSC' via a dropdown menu. A purple 'Save' button is positioned at the bottom right of the configuration area.

- **Resolution** : Specify the video mode to be used.
- **Mode** : Select the video standard signal: NTSC or PAL.
- \* **Note** : *The available Resolution options and frame rates are automatically filtered based on your Mode selection.*

## Video > Stream

In this menu, you can individually configure the Main Stream and Sub Stream. These settings determine the video quality, file size, and network transmission efficiency.



The screenshot shows a web interface for configuring video streams. At the top, there is a breadcrumb trail: Home > Video > Stream. Below this, the 'Stream' configuration page is displayed, divided into two columns: 'Main Stream' and 'Sub Stream'. Each column contains several settings, each with a dropdown menu. The 'Main Stream' settings are: Video Codec (H264\_High\_Profile), Resolution (1920x1080), Bitrate Control (CBR), Bitrate (4000), Framerate (30), GOP (60), and MJPEG Quality (60). The 'Sub Stream' settings are: Compression (H264\_High\_Profile), Resolution (1280x720), Bitrate Control (CBR), Bitrate (1000), Framerate (30), GOP (60), and MJPEG Quality (60). A purple 'Save' button is located at the bottom right of the configuration area.

- **Compression** : Select the video compression standard (Codec).
  - **H.264(Baseline/Main/High)** : Provides reliable video quality and wide compatibility across all devices, with High Profile offering the best balance of clarity and efficiency for HD recording.
  - **H.265(Main)** : Offers up to 50% better compression than H.264, significantly saving storage and bandwidth for high-resolution video while requiring modern hardware for playback.
  - **MJPEG** : Streams video as a sequence of individual high-quality JPEG images, ensuring low-latency snapshots at the cost of much higher storage and bandwidth usage.
- **Resolution** : Set the dimensions (width x height) of the video image.
  - **Main Stream** : Typically used for high-quality recording (e.g., 1920x1080).
  - **Sub Stream** : Lower resolution used for smooth mobile monitoring (e.g., 1280x720).
- **Bitrate Control** : Choose how the camera manages data transmission.
  - **CBR (Constant Bitrate)** : Maintains a fixed data rate, making storage usage predictable.

- **VBR (Variable Bitrate)** : Adjusts the data rate based on the complexity of the scene (saves data in static scenes).
- **Bitrate** : Defines the maximum data rate (kbps) per second, where higher values improve image detail at the cost of increased storage and bandwidth consumption.
- **Framerate (FPS)** : Sets the number of frames captured per second, where higher values (e.g., 30 FPS) provide smoother motion and lower values optimize network bandwidth and storage efficiency.
- **GOP (Group of Pictures)** : Sets the interval between complete image data (I-frames), where a value double the framerate (e.g., GOP 60 for 30 FPS) is generally recommended for optimal compression efficiency.
- **MJPEG Quality** : Adjusts the image clarity for the MJPEG stream on a scale of 1 to 100, directly impacting both visual detail and file size.

## Audio > Stream

Enable audio by clicking the checkbox to configure the camera's basic audio settings on this page.

The screenshot shows the 'Audio > Stream' configuration interface. It includes a breadcrumb trail 'Audio > Stream'. The main section is titled 'Stream' and contains the following settings:

- Enable Audio**: A toggle switch that is currently turned on.
- Audio sampling rate**: A dropdown menu set to '8000'.
- Audio Codec**: A dropdown menu set to 'G.711-ulaw'.
- Volume**: A slider control set to '5'.
- Save**: A purple button at the bottom right to save the settings.

- **Enable Audio** : Turns the audio input on or off for the stream.
- **Audio Sampling Rate** : Sets the number of samples of audio carried per second, where a higher value like 48000 provides clearer, high-fidelity sound compared to 8000.
- **Codec for RTSP and MP4 Encoding** : Selects the audio compression format, offering AAC for high-quality efficient compression, or G.711 (a-law/u-law) for standard telecommunication compatibility.

- **Volume** : Adjusts the input audio levels on a scale of 0 to 100, where 50 is the default balanced setting.

## Camera > Image

Adjust the visual characteristics of the camera feed to optimize image quality for various lighting conditions and environments.

The screenshot shows the 'Image' settings panel. It contains five input fields arranged in two columns. The left column has 'Brightness' (50, [0-100]), 'Contrast' (50, [0-100]), and 'Saturation' (50, [0-100]). The right column has 'Sharpness' (50, [0-100]) and 'Hue' (0, [0-180]). A purple 'Save' button is at the bottom right.

- **Brightness [0~100]** : Selects the overall image brightness level, where higher values make the image lighter and lower values make it darker.
- **Contrast [0~100]** : Selects the level of difference between dark and bright areas to enhance image definition.
- **Saturation [0~100]** : Selects the color intensity of the image, where lower values reduce color and higher values increase vividness.
- **Sharpness [0~100]** : Selects the level of edge enhancement to improve image detail, which may introduce noise or halos at high settings.
- **Hue [0~180]** : Selects the color tone adjustment to correct color shifts and achieve natural-looking colors.

## Camera > OSD

Configure the information overlays that appear directly on the video stream to provide essential metadata and identification.

The screenshot shows the 'OSD' settings panel. It has two toggle switches at the top: 'Enable On-Screen Display' and 'Enable Date&Time OSD'. Below are two input fields: 'Text' (containing 'CAM237') and 'Color' (a dropdown menu set to 'White'). A purple 'Save' button is at the bottom right.

- **Enable On-Screen Display** : Activates or deactivates the text overlay feature on the video feed.
- **Text** : Allows you to enter a custom string (such as the camera location or name) to be displayed on the screen.
- **Enable Date & Time OSD** : Overlays the current date and time on the video stream, which is crucial for synchronized event recording and evidence.
- **Color** : Sets the font color for the OSD text. Available options are White, Black, Yellow, Cyan, Green, Magenta, Red, and Blue.

## Camera > Exposure

Selects how the camera controls exposure to achieve optimal image brightness.

The screenshot shows the 'Exposure' settings panel with the following configurations:

- Exposure Mode: Auto
- Shutter(sec): 1/1000
- Slow Shutter: off
- Max.Shutter(sec): 1/30
- Exposure Compensation: 5
- Gain(dB): 5
- Auto Iris: off
- Max.Gain(dB): 5
- Flicker-less: 60Hz

- **Exposure Mode** : Selects whether exposure parameters are automatically adjusted by the camera or manually fixed by the user.
- **Slow Shutter** : Selects the level of slow shutter operation to increase brightness in low-light conditions, which may cause motion blur at higher values.
- **Luminance Compensation** : Selects the target brightness level used to fine-tune overall image luminance.
- **Auto Iris** : Selects whether the camera automatically controls the lens aperture to regulate incoming light.
- **Flicker-less** : Selects whether image flicker is reduced by synchronizing with the local power frequency (50Hz/60Hz).
- **Shutter (sec)** : Selects a fixed shutter speed in Manual mode to control exposure time.
- **Max. Shutter (sec)** : Selects the slowest allowable shutter speed in Auto mode to limit

motion blur.

- **Gain (dB)** : Selects a fixed level of electronic signal amplification in Manual mode to increase image brightness.
- **Max. Gain (dB)** : Selects the maximum electronic amplification level in Auto mode to reduce noise in low-light environments.

## Camera > AWB

Selects how the camera adjusts white balance to maintain accurate and natural color reproduction.

**AWB**

Mode  
Auto

R Gain  
398

G Gain  
256

B Gain  
520

min:0, max:2047

Save

- **Mode** : Selects whether white balance is automatically adjusted by the camera (Auto) or manually controlled.
- **R Gain [0~2047]** : Selects the red color amplification level used to fine-tune white balance.
- **G Gain [0~2047]** : Selects the green color amplification level used to fine-tune white balance.
- **B Gain [0~2047]** : Selects the blue color amplification level used to fine-tune white balance.

## Camera > Day & Night

Selects how the camera switches between day and night image modes based on lighting conditions.

**Day/Night**

Mode  
Auto

Threshold (Day->Night)  
40

Switching Time  
5

Threshold (Night->Day)  
90

Save

- **Mode** : Selects whether day and night switching is automatically controlled by the camera or manually set.
  - **Auto** : The camera automatically switches between Day and Night modes based on ambient light levels and the configured threshold values.
  - **Day** : The camera is forced to operate in Day mode at all times, maintaining color imaging and disabling night-related functions regardless of lighting conditions.
  - **Night** : The camera is forced to operate in Night mode at all times, typically enabling IR sensitivity and black-and-white imaging regardless of ambient light.
  - **External** : The camera switches between Day and Night modes based on an external control signal, such as a digital input from an IR-cut filter sensor or external device.
- **Switching Time** : Selects the delay time applied before switching between day and night modes to prevent frequent toggling.
- **Threshold (Day → Night)** : Selects the brightness level at which the camera switches from day mode to night mode.
- **Threshold (Night → Day)** : Selects the brightness level at which the camera switches from night mode back to day mode.

## Camera > WDR

Selects how the camera handles scenes with both very bright and very dark areas to preserve image detail.

The screenshot shows the WDR settings page with the following configuration:

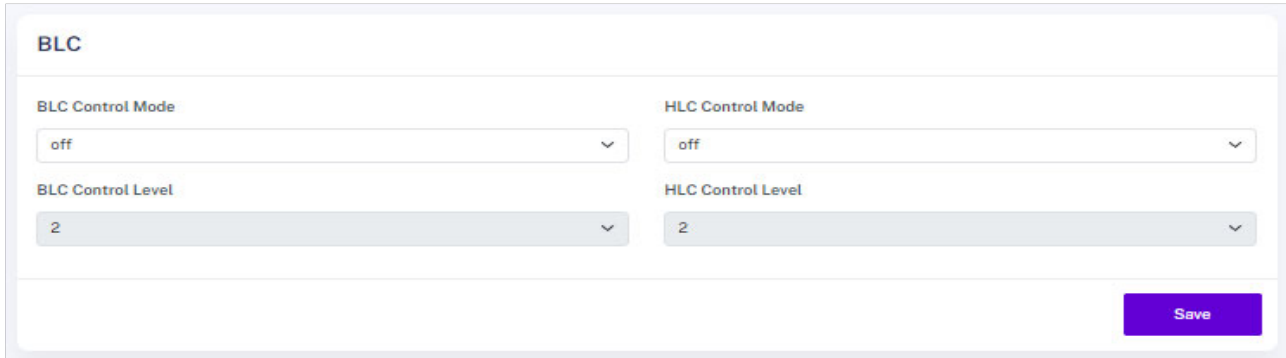
SHDR Mode Enable	DWDR Mode Enable
off	off
SHDR Level	DWDR Level
3	3

A 'Save' button is visible at the bottom right.

- **SHDR Mode Enable** : Selects whether Sensor-based HDR processing is enabled to improve dynamic range at the sensor level.
- **SHDR Level** : Selects the strength level of Sensor-based HDR processing, where higher levels increase dynamic range but may affect naturalness.
- **DWDR Mode Enable** : Selects whether Digital WDR processing is enabled to enhance visibility in high-contrast scenes.
- **DWDR Level** : Selects the strength level of Digital WDR processing, where higher levels increase shadow detail but may introduce noise.

## Camera > BLC

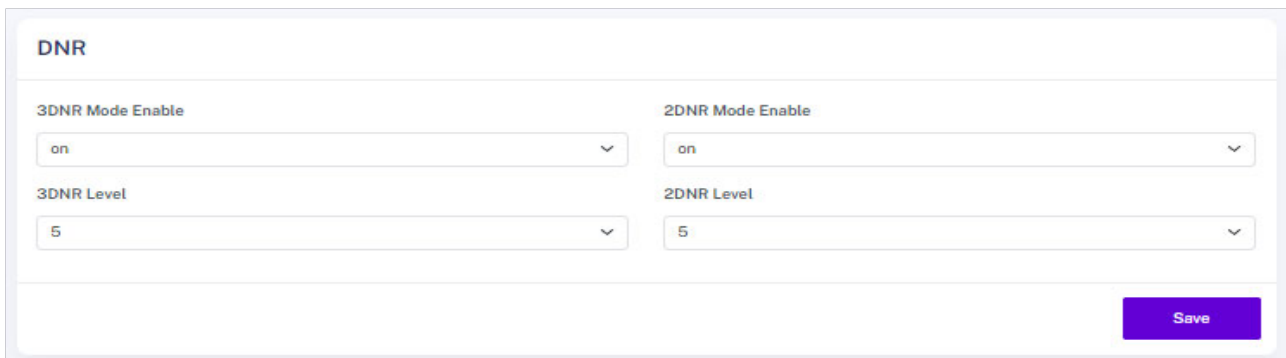
Selects how the camera compensates for strong backlighting to improve subject visibility.



- **BLC Control Mode** : Selects whether backlight compensation is enabled or disabled.
- **BLC Control Level** : Selects the strength level of backlight compensation applied to dark foreground areas.
- **HLC (Highlight Compensation)** : Selects how the camera suppresses extremely bright light sources to reduce glare.
- **HLC Control Mode** : Selects whether highlight compensation is enabled or disabled.
- **HLC Control Level** : Selects the strength level used to suppress overexposed highlight areas.

## Camera > DNR

Reduces image noise to improve visual clarity, mainly in low-light environments.



- **3DNR Mode Enable** : Enables noise reduction by analyzing differences between consecutive frames.
- **3DNR Level** : Sets the intensity of temporal noise reduction, with higher values increasing noise suppression but risking motion blur.
- **2DNR Mode Enable** : Enables noise reduction by smoothing noise within a single frame.
- **2DNR Level** : Sets the intensity of spatial noise reduction, where higher values may reduce image detail.

## Camera > LDC

Selects how the camera corrects optical distortion caused by wide-angle lenses.

LDC

Mode

off

Level

0

Save

- **Mode** : Selects whether lens distortion correction is enabled or disabled.
- **Level** : Selects the strength level of lens distortion correction applied to the image.

## Camera > Rotate Control

Selects how the camera adjusts image orientation for installation and viewing requirements.

Rotate

Enable Mirror Image

Enable Rotate Image

Mirror Image

Mirror

Rotate Image

Degree-90

Save

- **Enable Mirror Image** : Selects whether horizontal image mirroring is enabled.
- **Mirror Image** : Selects the mirror direction applied to the image.
- **Enable Rotate Image** : Selects whether image rotation is enabled.
- **Rotate Image** : Selects the rotation angle applied to the image.

## Camera > Privacy Mask

Selects how the camera blocks specified areas of the image with a solid color to protect privacy.

Privacy Mask

Enable Privacy Mask

Color

Mosaic

Name

test

No	Name	Color	Actions
1	test	Mosaic	Edit Delete

Save

- **Enable Privacy Mask** : Selects whether privacy masking is enabled for the monitored video.
- **Color** : Selects the display style of the privacy mask area, which is automatically applied after saving (e.g., Mosaic).
- **Name** : Selects or defines the name assigned to each privacy mask area for identification.
- **Privacy Mask List** : Displays all configured privacy masks, showing their name, mask style, enable status, and edit/delete options.
- **Privacy Mask Setup** : Allows users to add, resize, name, and delete privacy mask areas directly on the video screen using the mouse.

## Camera > Digital Zoom

Selects how the camera digitally enlarges the image for closer viewing.

- **Enable Digital Zoom** : Selects whether digital zoom is enabled or disabled.
- **Level** : Selects the digital zoom magnification level from x1.0 to x16.

## Event > Motion Detection

Selects how the camera detects motion within the image.

No.	Name	Sensitivity	Actions
1	md1	High	Edit Delete

- **Enable** : Selects whether motion detection is enabled.
  - **Name** : Selects or defines the name of the motion detection area.
  - **Sensitivity** : Selects the motion detection sensitivity level.
  - **Dwell** : Selects the time duration motion must persist to be detected.
  - **Motion Detection List** : Displays the configured motion detection areas with name, sensitivity, and edit/delete options.
- ※ **Area Create** : Defines a motion detection or masking area by left-clicking and dragging the mouse.

## Event > Tamper

Selects how the camera detects tampering events such as blocking or defocusing.

The screenshot shows a configuration window titled "Tamper". At the top left, there is a blue toggle switch labeled "Enable" which is currently turned on. Below this, there is a "Dwell" label followed by a dropdown menu showing the value "3". At the bottom right of the window, there is a purple button labeled "Save".

- **Enable** : Selects whether tamper detection is enabled.
- **Dwell** : Selects the duration that a tampering condition must persist before being detected as an event.

## Event > Reboot

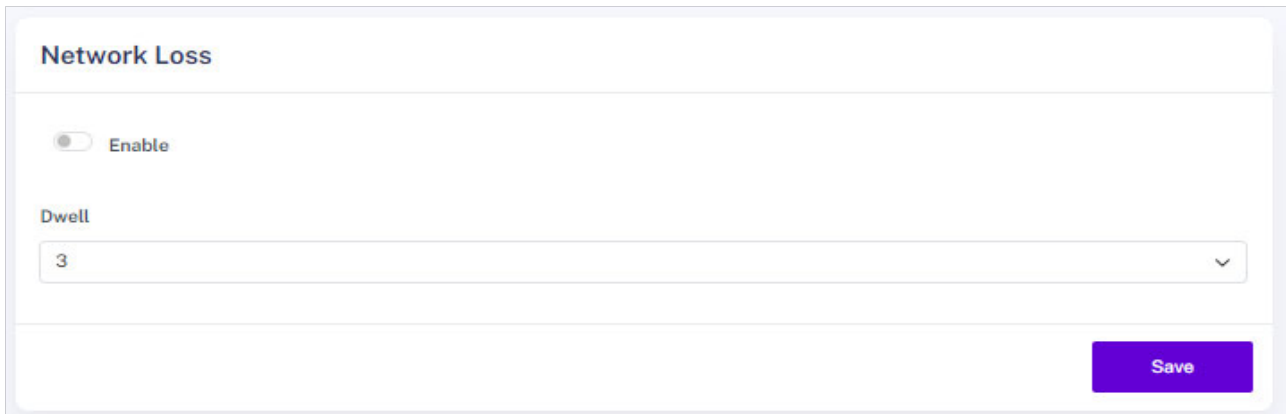
Selects whether the camera generates a notification when a reboot event occurs.

The screenshot shows a configuration window titled "Reboot". At the top left, there is a grey toggle switch labeled "Enable" which is currently turned off. Below this, there is a "Dwell" label followed by a dropdown menu showing the value "3". At the bottom right of the window, there is a purple button labeled "Save".

- **Enable** : Selects whether reboot event notification is enabled.
- **Dwell** : Selects the minimum duration required before a reboot event notification is triggered.

## Event > Network Loss

Selects whether a network connection loss event notification is generated when the camera loses network connectivity.

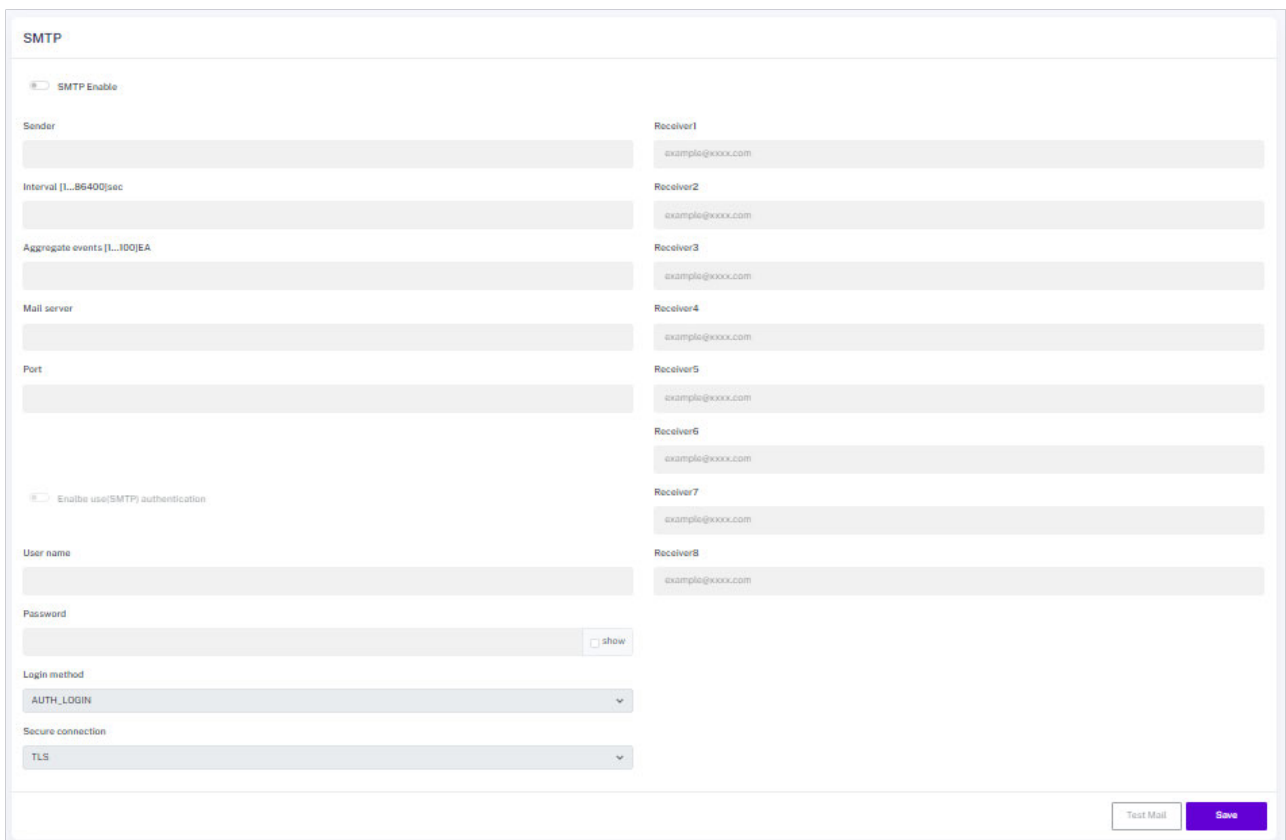


The screenshot shows the 'Network Loss' configuration panel. At the top, there is a toggle switch labeled 'Enable' which is currently turned off. Below this is a 'Dwell' section with a dropdown menu showing the value '3'. At the bottom right of the panel is a purple 'Save' button.

- **Enable** : Selects whether network loss event notification is enabled.
- **Dwell** : Selects the minimum duration the network loss condition must persist before the event notification is generated.

## Event > SMTP

Selects how the camera is configured to send event notification emails using SMTP.



The screenshot shows the 'SMTP' configuration panel. It features a 'SMTP Enable' toggle switch at the top left. Below it are several input fields: 'Sender', 'Interval [1..86400]sec', 'Aggregate events [1..100]EA', 'Mail server', 'Port', 'User name', and 'Password' (with a 'show' checkbox). There are also dropdown menus for 'Login method' (set to 'AUTH\_LOGIN') and 'Secure connection' (set to 'TLS'). On the right side, there are eight 'Receiver' fields, each containing 'example@xxxx.com'. At the bottom right, there are 'Test Mail' and 'Save' buttons.

- **SMTP Enable** : Selects whether SMTP email notification is enabled.
- **Sender** : Selects the email address used as the sender of notification emails.
- **Interval [1..86400 sec]** : Selects the minimum time interval between consecutive notification emails.

- **Aggregate Events [1...100]** : Selects the number of events to be grouped and sent in a single notification email.
- **Mail Server** : Selects the SMTP server address used to send emails.
- **Mail Server Port** : Selects the port number used for SMTP communication.
- **Enable SMTP Authentication** : Selects whether SMTP authentication is required to send emails.
- **User Name** : Selects the user account used for SMTP authentication.
- **Password** : Selects the password used for SMTP authentication.
- **Login Method** : Selects the authentication method used when logging in to the SMTP server.
- **Secure Connection** : Selects the security protocol used for SMTP communication.
- **Receiver 1 ~ Receiver 8** : Selects the email addresses that will receive event notification emails.

## Event > FTP

Selects how the camera is configured to transfer files to an FTP server.

- **FTP Enable** : Selects whether FTP file transfer is enabled.
- **TLS Encryption Enable** : Selects whether TLS encryption is enabled for FTP communication.
- **Passive Mode Enable** : Selects whether FTP passive mode is enabled.
- **Anonymous Login Enable** : Selects whether anonymous login is used for FTP connection.
- **Server IP** : Selects the IP address of the FTP server.
- **Server Port** : Selects the port number used for FTP communication.

- **Username** : Selects the user account used to log in to the FTP server.
- **Password** : Selects the password used to authenticate with the FTP server.
- **Remote Directory** : Selects the destination directory on the FTP server where files are stored.
- **Prefix File Name** : Selects the prefix added to uploaded file names.
- **Additional Suffix** : Selects an additional suffix appended to uploaded file names.
- **Pre-event Dwell Time** : Selects the duration of data captured before an event occurs.
- **Post-event Dwell Time** : Selects the duration of data captured after an event occurs.
- **Pre-event Frame Rate** : Selects the frame rate applied to data captured before an event.
- **Post-event Frame Rate** : Selects the frame rate applied to data captured after an event.

## Event > Record

This menu allows configuration of event-based recording behavior and storage conditions.

**Record Setting**

Event Record Setting

Video Stream  
main

Recording time (sec)  
60

Pre recording time (sec)  
5

Save

- **Event Record Setting** : Enables or disables the event recording function.
- **Video Stream** : Selects the video stream to be used for recording.
- **Recording time (sec)** : Sets the recording duration after an event is triggered.
- **Pre recording time (sec)** : Sets the amount of video to save before the event occurs.

## Event > Actions

Selects which actions are triggered when specific events occur.

**Action**

	SMTP	FTP	RECORD
Motion Detection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tamper	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reboot	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Network Loss	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

FTP upload on motion is triggered by the firmware event path and follows these action settings.

Save

- **SMTP** : Selects whether an email notification is generated for the selected event.
- **FTP** : Selects whether event-related data is transferred to an FTP server.
- **Record** : Selects whether event-related video or data recording is performed.
- **Motion Detection** : Selects the actions to be executed when a motion detection event occurs.
- **Tamper** : Selects the actions to be executed when a tamper event occurs.
- **Reboot** : Selects the actions to be executed when a reboot event is detected.
- **Network Loss** : Selects the actions to be executed when a network loss event is detected.

## Record > Record

Selects how the camera stores video data.

- **Overwrite when storage is full** : Selects whether existing recorded data is overwritten when the storage becomes full.
- **Enable Continuous Record** : Selects whether continuous video recording is enabled.
- **Video Stream** : Selects which video stream is used for recording(Main or Sub stream).

## Record > Storage

Selects how the camera manages local storage devices.

Total	Used	Available	User Percent
14.9G	64.0K	14.9G	0%

- **Storage Type** : Selects the type of storage used by the camera (e.g., SD Card).
- **Format the Storage** : Selects whether the selected storage device is formatted.
- **Remove and Eject Storage Safely** : Selects whether the storage device is safely unmounted before removal.
- **Storage Information** : Displays the current status of the storage device.
- **Total** : Displays the total storage capacity.
- **Used** : Displays the amount of storage currently in use.
- **Available** : Displays the remaining available storage capacity.
- **Used Percent** : Displays the percentage of storage that is currently used.
- **Storage Status Message** : Displays a message indicating that no storage device is detected or that it is not mounted.

## Network > TCP/IP

This section allows you to configure the network communication parameters of the camera. Proper setup of these settings ensures that the camera can be correctly identified and accessed within your local network and across the internet.

TCP/IP

[Home](#) > [Network](#) > [TCP/IP](#)

**Setting**

Use DHCP

Hostname  
R02\_0521\_211083c031ffffdb

IPv4 Address  
192.168.0.211

Subnet Mask  
255.255.255.0

Gateway  
192.168.0.1

DNS  
8.8.8.8

Enable IPv6

IPv6 Address  
fe80::a3c:3ff:fe1f:ffdb/64

HTTP Port  
80

HTTPS Port  
443

RTSP Port  
554

Main Stream  
rtsp://192.168.0.211:554/media/1/1/Profile1

Sub Stream  
rtsp://192.168.0.211:554/media/1/2/Profile2

Save

- **Use DHCP** : Enables automatic assignment of IP address, Subnet Mask, and Gateway from a DHCP server on the network.
- **Hostname** : Defines a unique name for the camera device to identify it within the network environment.
- **IPv4 Address** : Sets the static logical address for the camera to communicate over an IPv4 network.
- **Subnet Mask** : Defines the range of the logical network to determine which IP addresses belong to the local network.
- **Gateway** : Specifies the IP address of the router that allows the camera to communicate with external networks.
- **DNS** : Sets the Domain Name System server address used to resolve hostnames into IP addresses.
- **HTTP Port** : Defines the port number (default: 80) used for accessing the camera's web interface via a standard web browser.
- **HTTPS Port** : Specifies the secure port number (default: 443) for encrypted communication between the browser and the camera.
- **RTSP Port** : Sets the port number (default: 554) used for streaming real-time video and audio data to external players or NVRs.
- **Enable IPv6** : Activates the next-generation Internet Protocol version 6 to allow for a broader range of IP addresses and improved network routing.
- **Stream 1 / Stream 2 (RTSP URL)** : Displays the unique network address (URL) used to access each video stream through an RTSP-compatible media player.

## Network > RTP

Configure the transport protocols for real-time video and audio streaming to ensure stable delivery across different network environments.

**RTP**

---

RTP Start Port

RTP End Port

---

<p><b>Main Stream</b></p> <p>Destination IP  <input type="text" value="239.255.0.1"/></p> <p>Port  <input type="text" value="22000"/></p> <p>TTL  <input type="text" value="128"/></p>	<p><b>Sub Stream</b></p> <p>Destination IP  <input type="text" value="239.255.0.2"/></p> <p>Port  <input type="text" value="22200"/></p> <p>TTL  <input type="text" value="128"/></p>
--	---

- **RTP Start / End Port** : Defines the range of ports reserved for streaming media data.
- **Destination IP (Stream 1/2)** : Sets the target IP address for multicast data transmission for each stream.
- **Port (Stream 1/2)** : Assigns specific multicast port numbers to separate traffic for different streams.
- **TTL (Time to Live)** : Determines the maximum number of network hops a multicast packet can travel before being discarded.

## Network > DDNS

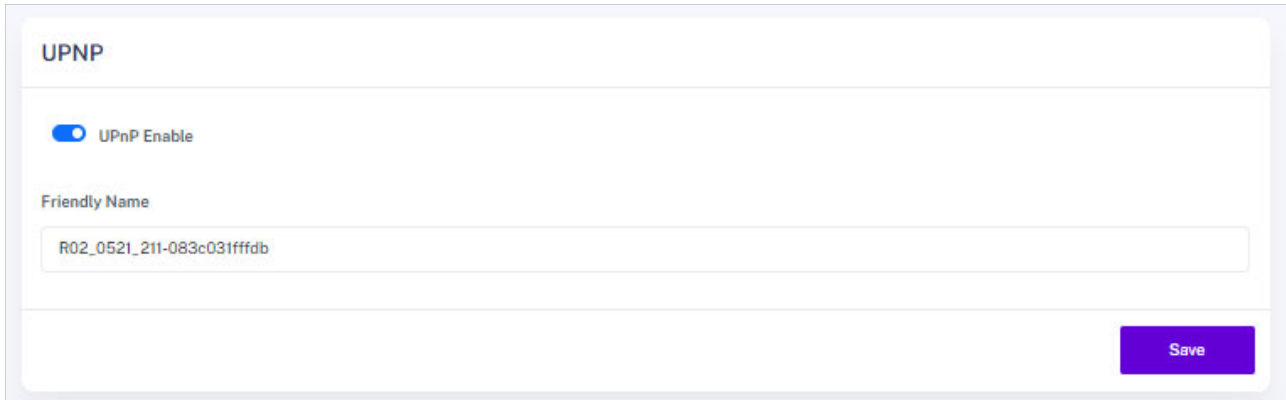
Configure the Dynamic Domain Name System to allow access to your camera using a fixed domain name even when the network's public IP address changes.

The screenshot shows a web interface for configuring DDNS. At the top, there is a toggle switch labeled 'DDNS Enable'. Below it are several input fields: 'DDNS Server', 'Registered Host', 'Username', 'Password', and 'Confirm Password'. At the bottom, there is a dropdown menu for 'Interval' with '10(min)' selected. A purple 'Save' button is positioned at the bottom right of the form.

- **DDNS Enable** : Activates or deactivates the DDNS service for the camera.
- **DDNS Server** : Selects the provider or server address that will host and update your domain name information.
- **Registered Host** : Defines the unique web address used to access the camera remotely.
- **Username / Password** : Sets the authentication credentials required to log into your DDNS provider account and update the IP information.
- **Interval** : Determines how frequently the camera communicates with the DDNS server to verify and update its current IP address.

## Network > UPNP

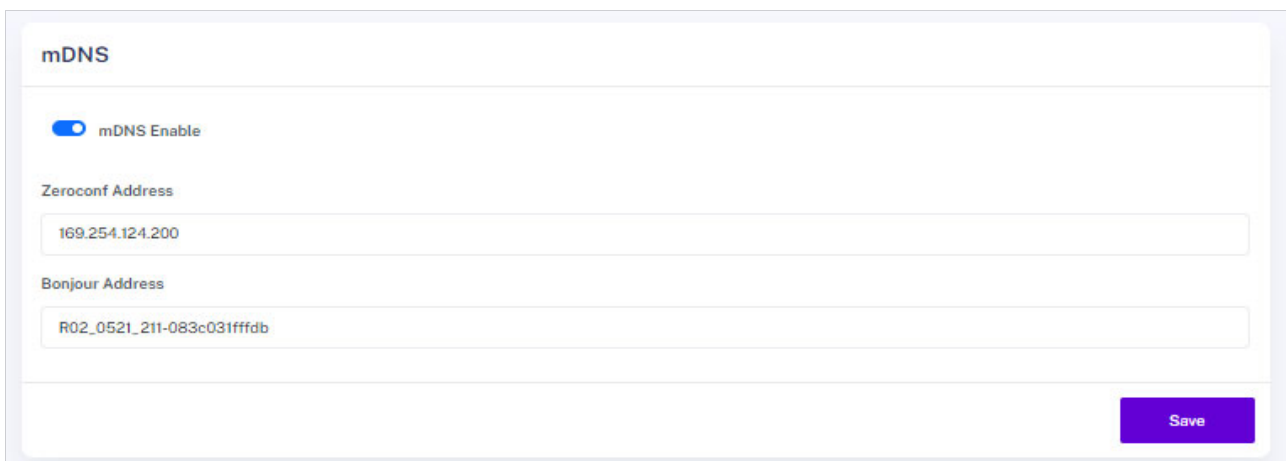
Enable Universal Plug and Play to allow the camera to automatically discover and configure port forwarding on your router for easy remote access.



- **UPnP Enable** : Activates the UPnP protocol, allowing the camera to automatically communicate with the network router to open necessary communication ports.
- **Friendly Name** : Defines the specific name of the camera that will appear in the "Network" or "Connected Devices" list on other UPnP-compatible devices (such as Windows PCs or Media Players).

## Network > mDNS

Enable Multicast DNS to allow the camera to be discovered on a local network without the need for a dedicated DNS server.



- **mDNS Enable** : Activates the mDNS protocol, allowing the camera to broadcast its presence to other devices on the same local subnet.
- **Zeroconf Address** : Displays the "Zero Configuration" IP address (typically in the 169.254.x.x range) automatically assigned to the camera when a DHCP server is unavailable, ensuring immediate local connectivity.
- **Bonjour Address** : Specifies the local hostname (e.g., camera\_name.local) used by Apple's Bonjour service and other discovery protocols to access the camera's web interface without typing an IP address.

## Security > User

User accounts can be added or modified or removed. The authority depends on the user group and automatically shows the permission status to access the menus.

The screenshot shows the 'User' configuration page. At the top, it says 'Configured Users' with a sub-note '1 user configured, 1 protected.' and a hint 'Select a user to inspect, or use the row actions on the right.' Below this is a table with the following columns: No, User, Group, Authority, Type, and Actions. The table contains one row for the 'admin' user, who is in the 'administrator' group and has permissions for 'live, setup, system'. The user's status is 'Protected'. Below the table are buttons for 'Add', 'Edit', 'Delete', and 'Save'.

No	User	Group	Authority	Type	Actions
1	admin Original account	administrator	live, setup, system	Protected	Edit Delete

- **Name** : Displays the login ID of the registered user.
- **Group** : Shows the user's group classification (e.g., administrator, operator, guest).
- **Authority** : Defines the specific access rights granted to the user, such as:
  - **Live** : Permission to view live video.
  - **Setup** : Permission to modify camera settings.
  - **System** : Permission to manage system-level configurations.
- **Add / Edit / Delete** : Buttons to create new users, modify existing accounts, or remove users from the list.

## Security > HTTPS

Configures secure communication by encrypting data transferred between the camera and the web browser.

The screenshot shows the 'HTTPS' configuration page. It has a toggle switch for 'Redirect HTTP to HTTPS' which is currently turned off. Below that is a 'Connection mode' dropdown menu with 'HTTP&HTTPS' selected. A 'Save' button is located at the bottom right of the form.

- **Redirect HTTP to HTTPS** : Automatically redirects insecure HTTP requests to the secure HTTPS protocol to ensure a protected connection.
- **Connection mode** : Selects how the device handles incoming web connections.
- **HTTP&HTTPS** : Allows access through both standard (unencrypted) and secure (encrypted) protocols.
- **HTTPS** : Restricts access to the secure encrypted protocol only, providing maximum security.

## Security > IP Filter

Provides the IP filtering elements such as On/Off, Priority, Policy and IP Ranges. The default setting is disabling.

No	Status	Policy	IP Range	Actions
No IP filter rules have been added yet.				

- **Enable IP address filtering** : Activates or deactivates the security feature that restricts access based on the visitor's IP address.
- **IP Filter List** : A table used to manage specific access rules for defined IP ranges.
- **No** : The index number of the filter rule.
- **Enable** : Turns the specific rule On or Off.
- **Policy** : Determines the action for the IP range; ALLOW grants access, while DROP blocks it.
- **Start IP / End IP** : Defines the specific range of IP addresses to which the policy is applied.

## Security > ONVIF

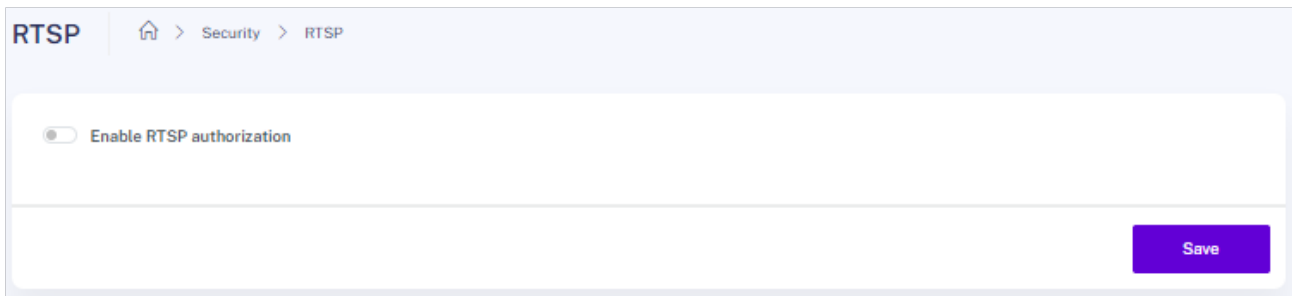
Configures the standard interface to ensure interoperability between the camera and third-party network video devices.

Digest Authentication Algorithm: MD5

- **Enable ONVIF security** : Activates authentication requirements for ONVIF communication to protect the camera from unauthorized access.
- **Digest Authentication Algorithm** : Selects the hashing method used for secure credential transmission.
  - **MD5** : Provides standard compatibility with most legacy security systems.
  - **SHA-256** : Offers a higher level of cryptographic security for modern, high-security environments.

## Security > RTSP

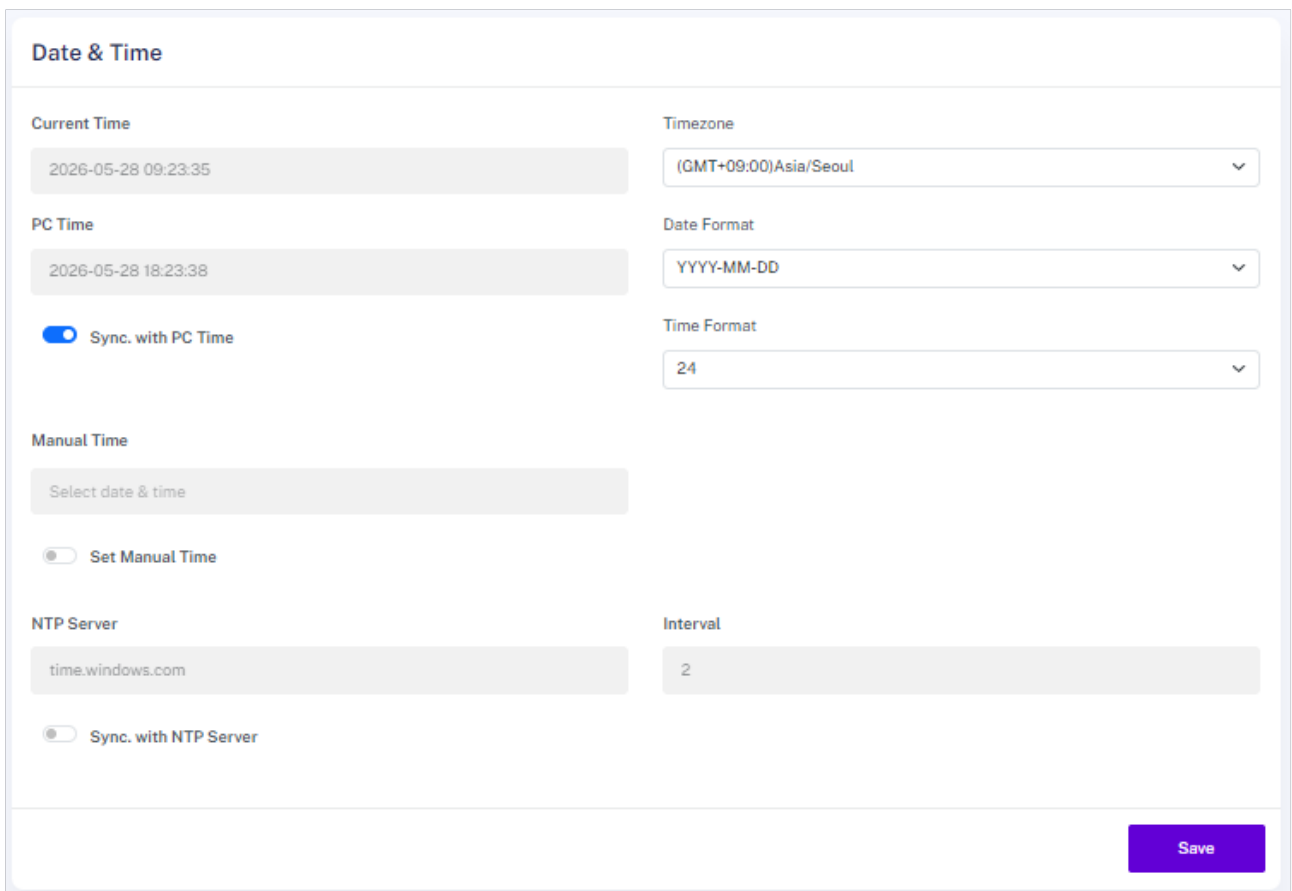
Configures the protocol used for controlling the delivery of real-time video and audio data.



- **Enable RTSP authorization** : Activates a security layer that requires a valid username and password before allowing access to the RTSP stream. This prevents unauthorized users from viewing the camera feed via media players or third-party software.

## System > Time

Sets the regional time zone to ensure the camera's internal clock aligns with your local geographic location.



- **Current Time** : Displays the camera's current system date and time.
- **Sync. with PC Time** : Synchronizes the camera's date and time with the accessing computer.

- **Date Format** : Selects the preferred display order for the date.
- **Set Manual Time** : Allows the user to manually enter a specific date and time.
- **Time Format** : Choose between a 24-hour or 12-hour clock display.
- **Sync. with NTP server** : Enables automatic time synchronization via a network time server.
- **NTP Server** : Specifies the server address.
- **Interval (Hour)** : Sets the frequency at which the camera updates its time from the NTP server.

## System > Language

Allows you to select the display language for the camera's web interface.

The screenshot shows a web interface for language settings. At the top, the title 'Language' is displayed. Below it, there is a label 'Language' and a dropdown menu currently showing 'English'. A 'Save' button is positioned at the bottom right of the form area.

- **Choose a language** : Select your preferred language from the available options: English, Korean, Japanese.

## System > Maintenance

Provides a software reset for the camera when troubleshooting.

The screenshot displays the 'Maintenance' section of the camera's web interface. It is organized into several functional blocks:
 

- Maintenance**: Contains three buttons: 'Restart' (Restart the unit.), 'Reset' (Resets all parameters to factory settings (except IP/PTZ).), and 'Default' (Resets all parameters to factory settings.).
- Upgrade**: Features a 'Firmware File Input' field with a file selection button and the text '파일 선택' and '선택된 파일 없음'. Below it is an 'Upgrade' button.
- Setup Export**: Includes a description 'Save all parameters and user-defined script to a export file.' and an 'Export' button.
- Setup Import**: Includes a description 'Import configurations from exported file.' and a file selection button with the text '파일 선택' and '선택된 파일 없음'. Below it is an 'Import' button.

- **Restart** : Camera is restarted without changing any settings. Use this method if the camera is not behaving as expected.
- **Reset** : Camera is restarted and most current settings are reset to factory default values, but the following settings do not reset :
  - The boot protocol (DHCP or static)
  - The static IP address
  - The default router
  - The subnet mask
  - The system time
- **Default** : The Default button should be used with caution. Pressing this returns the camera's settings to the factory default values, including the IP address.
- **Upgrade** : Provides the latest firmware for the camera. When you upgrade the firmware with a file, the camera receives the latest available functionality and enhanced reliability.
  - ⌘ **How to Upgrade** :
    1. Click the Browse button.
    2. Browse to the desired firmware file on your computer.
    3. Click the Upgrade button.
- **Setup Export** : This function allows the user to export the current device configuration settings and user-defined scripts as a backup file.
- **Setup Import** : This function allows the user to import and apply previously exported configuration files.

## System > Logs & Report

This menu provides system status reports and log management functions for monitoring and troubleshooting the device.

**Logs & Reports** | Home > System > Logs & Reports

### Report

**Report** Important information about the server's status

### Log

Overwrite when database is full

Database Capacity: 0% [ 0 / 25000 ] EA Delete All

Type: All

Start - End Date: 2026-05-26 to 2026-05-28

Start Time: 00:00

End Time: 23:59

**Search**

Show 10 entries Search:

No	Type	Date	Time	IP	User	Description
No logs found matching the criteria						

Showing 0 to 0 of 0 entries Previous Next

- **Report** : The report function provides important information about the current server and system status.
- **Log** : This section allows users to search, manage, and monitor system event logs.
- **Overwrite when database is full** : Enables automatic overwriting of old log data when the log database reaches full capacity.

- **Database Capacity** : Displays the current usage status of the log database.
- **Delete All** : Deletes all stored log records from the database.
- **Type** : Selects the log category to search.
- **Start - End Date** : Specifies the date range for log searching.
- **Start Time** : Sets the beginning time for the log search filter.
- **End Time** : Sets the ending time for the log search filter.
- **Search** : Executes the log search using the selected conditions.  
Search results are displayed in the log list below.
- **Log List** : The log list displays detailed information for each recorded event.

## Troubleshooting

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If a problem is suspected to be caused by incorrect configuration or some other minor issue, refer to the troubleshooting guide below.

### Upgrading the Firmware

Firmware is software that determines the functionality of the network camera. One of the first actions when troubleshooting a problem should be to check the current firmware version. The latest version may contain a correction for the particular issue. The current firmware version in the camera is displayed in the Basic Configuration or About section. For the latest firmware, contact your product administrator. Detailed instructions on how to perform the upgrade process are provided with each new release. See also the Maintenance/Upgrade section for more information.

### General Troubleshooting

The following list covers some of the problems that may be encountered and suggests possible remedies:

#### **Symptom → Possible Causes or Corrective Actions**

1. The camera cannot be accessed by some clients.
  - If using a proxy server, try disabling the proxy setting in your browser. Check all cabling and connectors.
2. The camera works locally, but not externally.
  - Check if there are firewall settings that need to be adjusted. Check if there are router settings that need to be configured.
3. Poor or intermittent network connection.
  - If using a network switch, ensure the port on the device uses the same setting for the network connection type (speed/duplex).
4. The camera cannot be accessed via a host name.
  - Check that the host name and DNS server settings are correct.
5. Unable to log in.
  - When HTTPS is enabled, ensure the correct protocol (HTTP or HTTPS) is used. When attempting to log in, you may need to manually type in http or https in the browser's address bar.
6. No image using Refresh and/or slow updating of images.
  - If images are very complex, try limiting the number of clients accessing the camera.
7. Images only shown in black & white.
  - Check the Video & Image setting.

8. Blurred images.
  - Refocus the camera.
9. Poor image quality.
  - Increasing lighting can often improve image quality. Check that there is sufficient lighting in the monitored area. Check all image and lighting settings.
10. Rolling dark bands or flickering in image.
  - Try adjusting the Exposure Control setting under AE and AWB settings.
11. H.264/H.265 not displayed in the client.
  - Ensure that the correct network interface is selected in the Video & Image/Stream settings.
12. Multicast H.264/H.265 not displayed in the client.
  - Check with your network administrator to ensure the multicast addresses used by the camera are valid for your network. Ensure that the Enable multicast checkbox is selected in the System/Network/RTP tab. Check with your network administrator if a firewall is preventing viewing.
13. Multicast H.264/H.265 only accessible by local clients.
  - Check if your router supports multicasting, or if the router settings between the client and the server need to be configured. The TTL value may need to be increased.
14. Color saturation is different in H.264/H.265 and Motion JPEG.
  - Modify the settings for your graphics adapter. Refer to the adapter's documentation for more information.
15. Poor audio quality.
  - Too many users/clients connected to the camera may affect the sound quality. Try limiting the number of clients allowed to connect.
16. Distorted audio.
  - Ensure the correct Audio Input source is selected. Select Microphone for a connected external microphone. Select Line for a connected line-in source.

**\* Note**

*If the required help cannot be found, refer to the User's Manual, or contact your network administrator.*