

## **SPECO SILVER SERIES**

### **5MP IP Camera**

O5SB1/O5ST1/O5SD1/O5SP1/O5SD1M/O5SB1M/O5ST1M/O5SCM1/O5SCM2

Please read this manual carefully before operating the unit and keep it for further reference

# Important Safeguards and Warnings

## 1. Electrical safety

- All installation and operation here should conform to local electrical safety codes.
- Use a certified/listed 12VDC Class 2 power supply only.
- **Please note: Do not connect two power supplying sources to the device at the same time; it may result in device damage! The product must be grounded to reduce the risk of electric shock.**
- Improper handling and/or installation could run the risk of fire or electrical shock.

## 2. Environment

- Device should not be subject to heavy stress, heavy vibration, or exposure to water during transportation, storage, and installation.
- This product should be installed in a cool, dry place away from direct sunlight and heat sources.
- Do not install the product in extreme temperature conditions.
- Do not expose the camera to electromagnetic radiation or it may result in CMOS sensor failure.
- Do not block any ventilation openings.
- Do not allow water and liquid intrusion into the camera.

## 3. Operation and Daily Maintenance

- Please shut down the device and then unplug the power cable before you begin any maintenance work.
- Do not touch the CMOS sensor optic component. You can use a blower to clean the dust on the lens surface.
- Always use the dry soft cloth to clean the device. If there is too much dust, use a cloth dampened with a small quantity of neutral detergent. Finally use the dry cloth to clean the device.
- Please use a professional optical cleaning method to clean the enclosure. Improper enclosure cleaning (such as using cloth) may result in poor IR functionality and/or IR reflection.
- The grounding holes of the product are recommended to be grounded to further enhance the reliability of the camera.
- Dome cover is an optical device, please don't touch or wipe cover surface directly during installation and use, please refer to the following methods if dirt is found:
  - Stained with dirt - Use oil-free soft brush or hair dryer to remove it gently.

Stained with grease or fingerprint - Use oil-free cotton cloth or paper soaked with alcohol or detergent to wipe from the lens center outward. Change the cloth and wipe several times if it is not clean enough.

## Warning

This camera should be installed by qualified personnel only.

All the examination and repair work should be done by qualified personnel.

Any unauthorized changes or modifications could void the warranty.

## Statement

This guide is for reference only.

Product manuals and specifications may be modified without prior notice.

Speco Technologies reserves the right to modify these without notice and without incurring any obligation.

Speco Technologies is not liable for any loss caused by improper operation.

## Regulatory Information

### 1.1 FCC conditions:

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

- This device may not cause harmful interference
- This device must accept any interference received, including interference that may cause undesired operation.

### 1.2 FCC compliance:

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

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

**Note:**

Before installation, check the package and make sure that all components are included.

Contact your rep or Speco customer service department immediately if something is broken or missing in the package.

Accessory Name	Amount
Network Camera Unit	1
Quick Start Guide	1
Installation Accessories Bag	1

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## 1. Introduction

### Welcome

Thank you for purchasing this network camera!

Please read this manual carefully before operating the unit and retain it for future reference.

Should you require any technical assistance, please contact Speco Technologies Technical Support at 1-800-645-5516

### Main Features

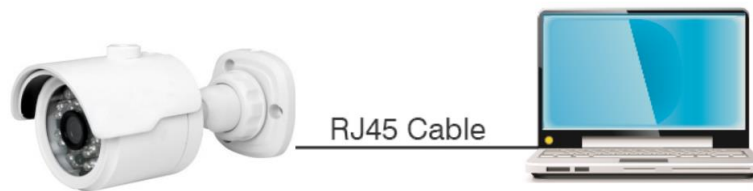
- Built-in PoE (Power over Ethernet)
- Integrated IR LEDs for clear vision in low light
- IP66 rated for outdoor installations
- Remote viewing support via web browser, mobile app, and VMS

## 2. Device Connection

IP camera can be connected in two ways:

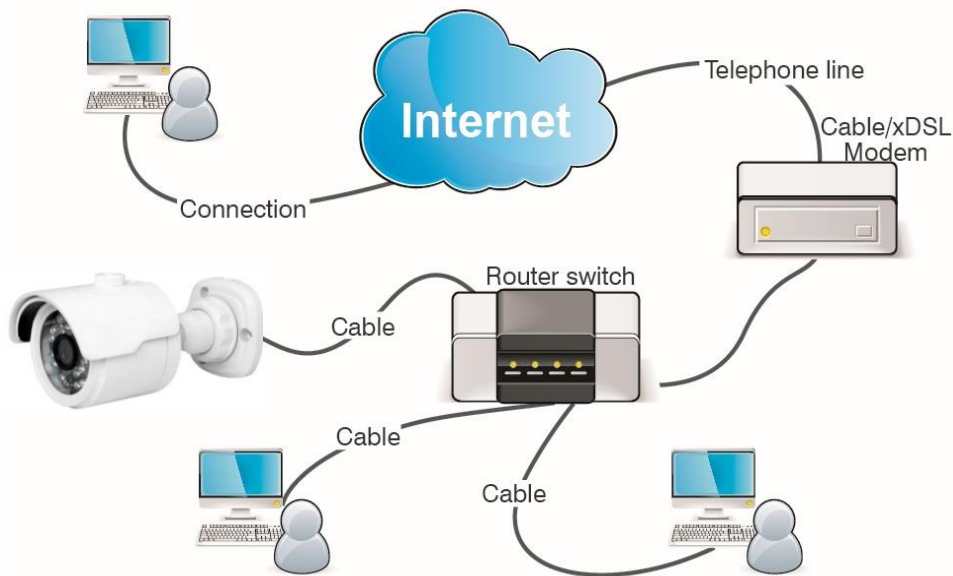
### 1. Connection to PC

Connect IP camera to PC via straight-through network cable, with power input connected to a DC 12V adaptor, and set the IP addresses of the PC and IP camera in one network segment. The IP camera will communicate with PC within one minute after being powered on if the network operates normally.



### 2. Connection to router/switch

This is more commonly used in connecting the IP camera to Internet, where the camera and PC are connected to LAN ports of a router/switch, with gateway of the camera set to the IP address of the router.

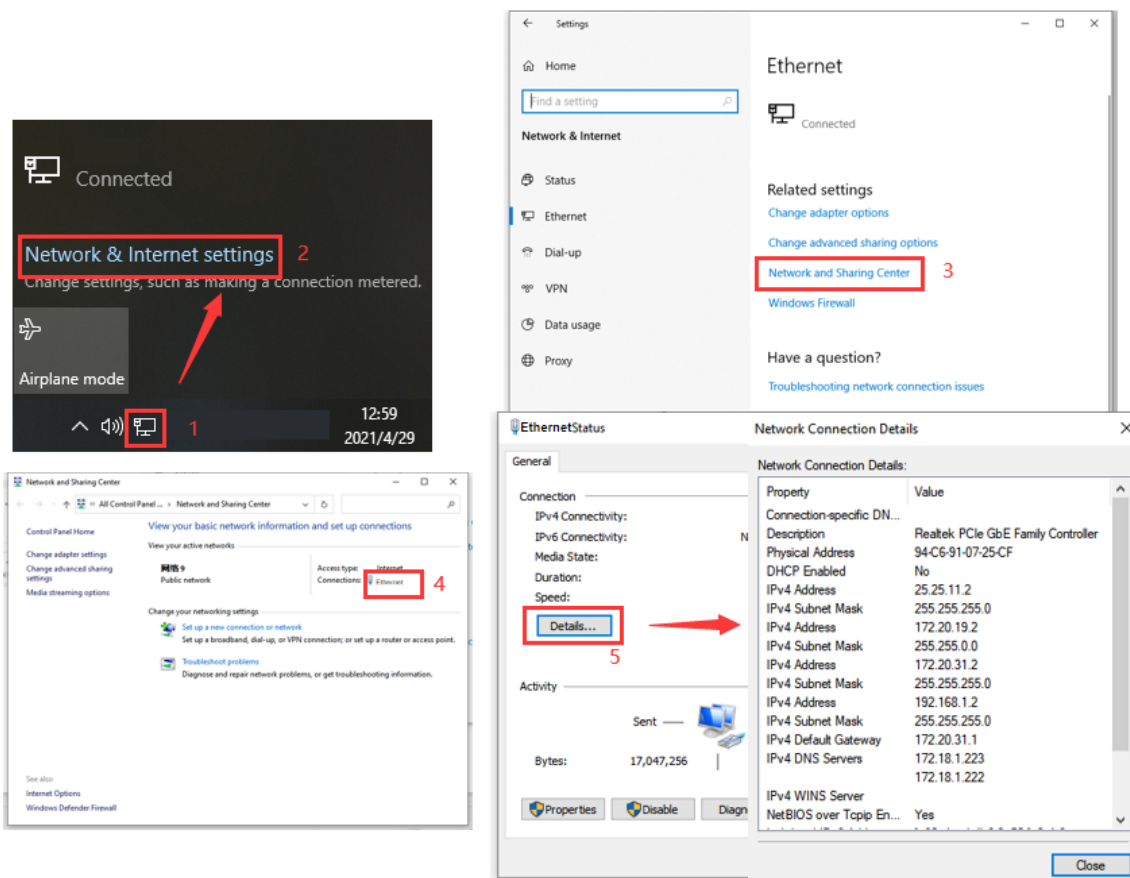


### 3. Setting IP address via Speco Silver Scanner


Devices that communicate with each other on the Internet must follow the constraints of the network protocol. For example, the PC and IP camera are in the same local area network, and the setting IP of the IP camera must be in the same network segment as the IP of the PC in order to communicate normally. Take the camera in factory mode as an example:

Step 1: Obtain the basic setting information of the current network. Open Network on the PC (Win10)→Open Network and Internet Settings→Network Sharing Center→Ethernet→Details to view the setting information of the current network.

Note: If the current network supports DHCP to assign IP, this step can be ignored.



Step 2: Run [Speco Silver Scanner](#). The IP camera can be located according to the Mac address.

Device Search

Search

Upgrade

Config

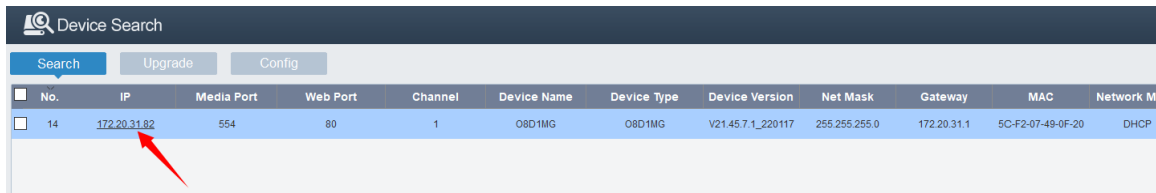
<input type="checkbox"/>	No.	IP	Media Port	Web Port	Channel	Device Name	Device Type	Device Version	Net Mask	Gateway	MAC	Network M
<input type="checkbox"/>	14	172.20.31.82	554	80	1	O8D1MG	O8D1MG	V21.45.7.1_220117	255.255.255.0	172.20.31.1	5C-F2-07-49-0F-20	DHCP

Figure 3.1

## 4. IE Log in

### 4.1 Access to IP camera web port

Use [Speco Silver Scanner](#) to search the IP camera of the current network. Click on the searched IP and log in to the camera with IE browser as shown in Figure 4.1.1.



Device Search											
<a href="#">Search</a> <a href="#">Upgrade</a> <a href="#">Config</a>											
No.	IP	Media Port	Web Port	Channel	Device Name	Device Type	Device Version	Net Mask	Gateway	MAC	Network M
14	172.20.31.82	554	80	1	O8D1MG	O8D1MG	V21.45.7.1_220117	255.255.255.0	172.20.31.1	5C-F2-07-49-0F-20	DHCP

Figure 4.1.1

You can also directly open the IE browser and enter HTTP://ip:web port. Take device shown in Figure 4.1.1 as an example, the IP of the current device to be accessed is 172.20.31.82, the web port is 80, and the combined URL is <http://172.20.31.82:80>.

Note: In actual use scenario, the http access method will default to port 80.

### 4.2 Initial login

In the first time accessing the web of the camera, the program will remind you to set a more complicated password as the default password of the device is too simple. The interface as shown in



Figure 4.2.1 will be popped up. Click  to check password requirements:

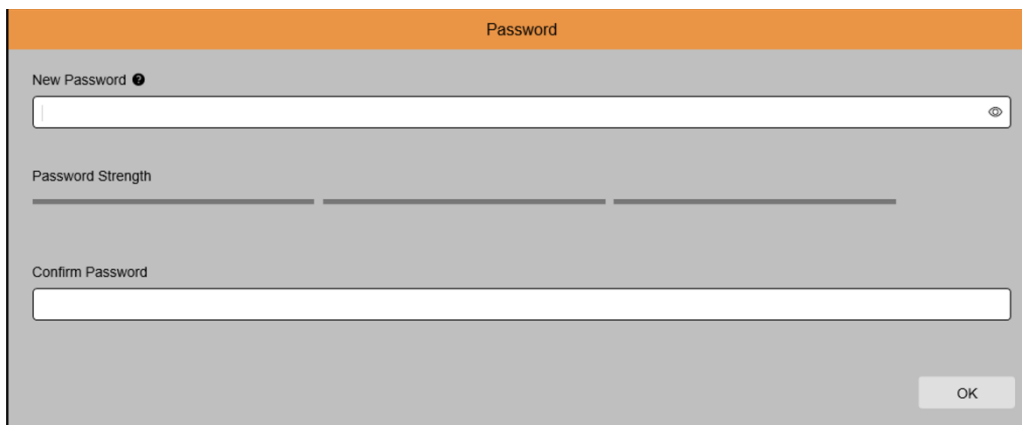
The password should be 8-15 characters, including letters, numbers or special characters.

1.8~9 characters: The combination should consist of at least 3 uppercase letters, lowercase letters, numbers or special characters.

2.10~15 characters: The combination should consist of at least 2 uppercase letters, lowercase letters, numbers or special characters.

3. It is forbidden to repeat and continuous characters exceeding 4 digits.

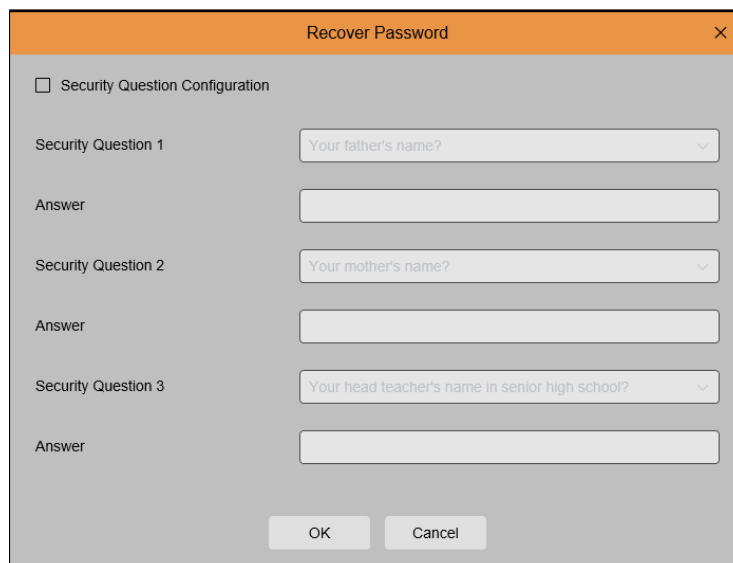
4. It is forbidden for the continuous keys of the keyboard pattern to exceed 4 digits.



The interface is titled "Password" in an orange header bar. It contains a "New Password" label with a help icon, a password input field with a toggle icon, a "Password Strength" indicator with a progress bar, a "Confirm Password" label, and a corresponding password input field. An "OK" button is located in the bottom right corner.

Figure 4.2.1

Set a new password, click OK to save, the interface as shown in Figure 4.2.2 will pop up. You can check to choose the corresponding password retrieval method, or cancel the setting directly without



The interface is titled "Recover Password" in an orange header bar with a close button (X). It features a checkbox labeled "Security Question Configuration". Below this, there are three sets of security questions. Each set includes a question label, a dropdown menu for the question, and a text input field for the answer. The questions are: "Security Question 1" (Your father's name?), "Security Question 2" (Your mother's name?), and "Security Question 3" (Your head teacher's name in senior high school?). At the bottom, there are "OK" and "Cancel" buttons.

checking, and the password retrieval function will not be enabled.

Figure 4.2.2

Security Question Configuration: to modify the main user's password by question verification. After enabling, you need to select 3 of the 15 frequently used questions and set the answer required to retrieve the password. The maximum length of the answer is 64 characters.

## 4.3 General login

To access the camera web interface, the login interface will be entered as shown in Figure 4.3.1. Enter the corresponding account password, then click login, you can access the camera's operating interface. At the same time, you can select the desired language when log in.

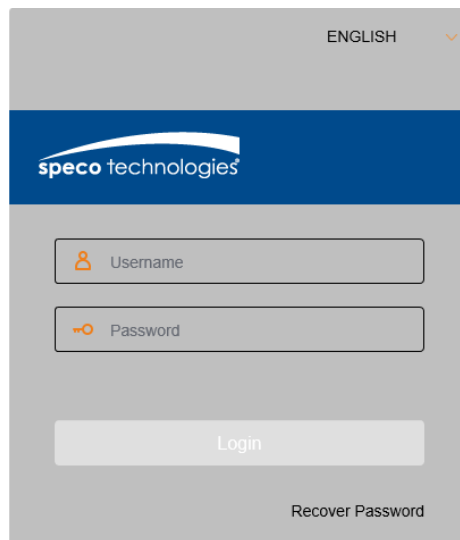


Figure 4.3.1

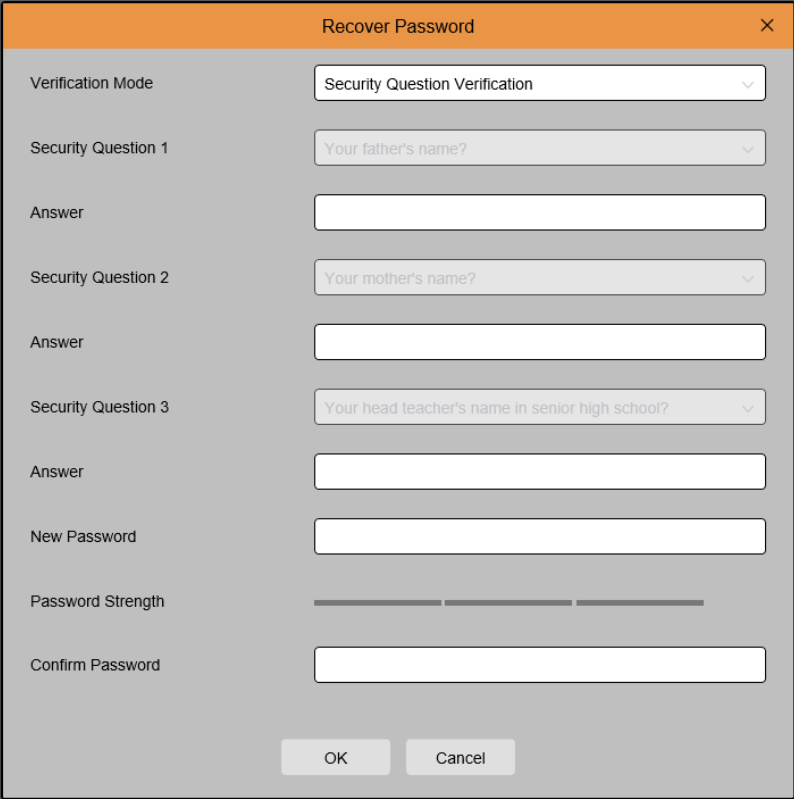
## 4.4 Retrieve password

If you forget the login information, you can click Recover Password on the login interface to enter the password retrieval interface. Then you can recover your password using the security question verification. You can also reset the camera with the physical reset button on the camera to regain access.

### 4.4.1 Security Question Verification

Reset the main user password through the security question and open the password retrieval interface. As shown in Figure 4.4.1, the default interface is to retrieve the password through the problem verification. Fill in the corresponding answer in the security question, you can directly

modify the password of the current main user.



The image shows a 'Recover Password' dialog box with an orange header bar containing a close button (X). The dialog is set against a dark gray background. It contains the following fields and controls:

- Verification Mode:** A dropdown menu currently showing 'Security Question Verification'.
- Security Question 1:** A dropdown menu showing 'Your father's name?'.
- Answer:** A text input field.
- Security Question 2:** A dropdown menu showing 'Your mother's name?'.
- Answer:** A text input field.
- Security Question 3:** A dropdown menu showing 'Your head teacher's name in senior high school?'.
- Answer:** A text input field.
- New Password:** A text input field.
- Password Strength:** A progress bar consisting of three segments, with the first two filled.
- Confirm Password:** A text input field.
- Buttons:** 'OK' and 'Cancel' buttons at the bottom.

Figure 4.4.1

## 4.5 Password Expired

Using the same password for a long time poses a great security risk. For this reason, the program will record the system time of the last password modification. If the system time of current login is 90 days later than the system time of the last password modification, the user will be reminded to change the password.

When user decides to change the password, the interface jumps to Figure 4.5.1. According to the interface prompts, user can set a new password by verification with old password.

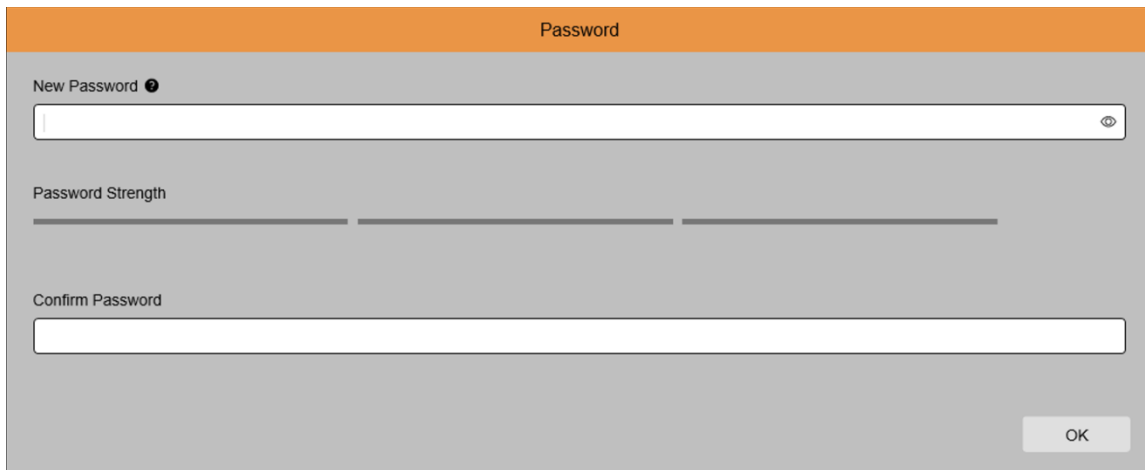
The image shows a web-based password change interface. At the top, there is an orange header bar with the word "Password" in white. Below this, the background is a light gray. The first section is labeled "New Password" with a small question mark icon to its right. It contains a white text input field with a small eye icon on the right side. Below the input field is a "Password Strength" indicator, which consists of a horizontal line divided into three equal segments. The second section is labeled "Confirm Password" and contains another white text input field. In the bottom right corner of the form, there is a gray button with the text "OK" in black.

Figure 4.5.1

## 5. Plug-in Installation

Use IE browser to log in, you need to install the plug-in to preview the image normally. When the prompt in Figure 5.1.1 appears, please download and install the plug-in according to the prompt.

Live video can be played only after the player plug-in is installed. [Download and install the player](#). If you have installed the player, restart your browser. (Allow the player in your browser.)

Figure 5.1.1

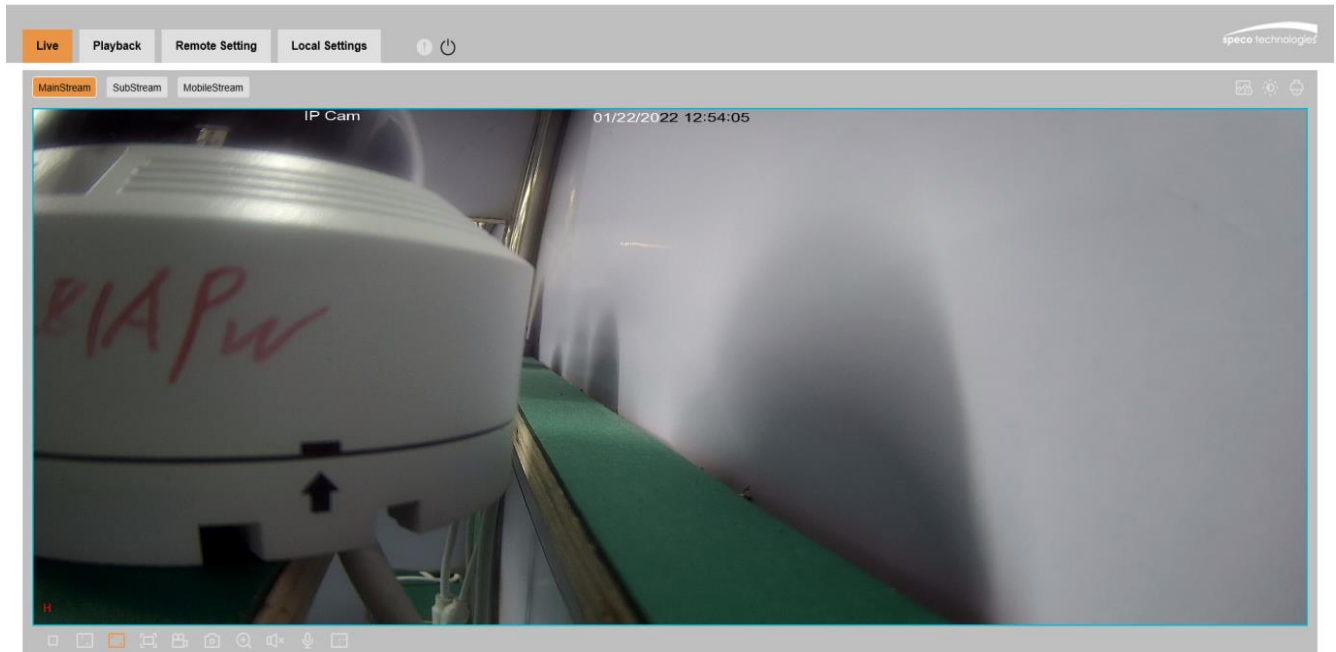
Note: Programs without plug-ins are supported. When using Safari 12 and above, Chrome57 and above, Firefox 52 and above, Edge 41 and other browsers for web access, the plug-in installation steps can be ignored.

## 6. Preview

## 6.1 Live

After the login is successful, the web terminal enters the login preview interface, which is shown in the following figure.

Note: The functions of different products are different, please refer to the actual situation.



**Code stream switching menu:** the upper left corner can switch the image quality of the current preview interface:

**Main stream:** The image is clearer, but the stream bandwidth is large, which requires higher performance on the PC-side interface

**Sub stream:** Bandwidth and requirements for the PC are moderate, but the image will be worse than the main stream.

**Mobile stream:** The bandwidth and requirements for the PC are the lowest, but the image is also the worst.

**Main menu switching bar:** Switch the function interface of the web. The web terminal has 4 menus: Live, Playback, Remote Setting, and Local Settings.

**Info:** Display the currently logged-in user, web version and plug-in version.

**AI alarm:** Open the alarm push bar on the right, and push the corresponding picture when

performing functions such as face alarm, human and vehicle detection.

**Color:** Adjust the current image settings, such as image saturation, sharpness, etc.

**PTZ Setting:** Open the pan/tilt operation setting and re-adjust the focus of camera.

**Exit:** Exit the current login

**Recording alarm status:** Prompt the alarm and recording status of camera, please refer to section 6.2 for details

**Stop/Play:** Open and close the current stream preview

**Original Proportions:** Display the current preview image in original proportions

**Stretch:** Display the current preview image in a way that fills the display area

**Full Screen:** Display the current preview screen in full screen, you can double-click the screen to turn on/off the function, and press Esc to exit the full screen when enabling the function

**Record:** Manually record the stream of current preview

**Capture:** Manually capture the picture of the current stream

**Digital Zoom:** Electronically zoom in on certain area of the display screen

**Audio:** turn on/off, adjust the sound in current preview

**Voice Intercom:** Talk to the camera

**Warning Light:** Manually turn on/off the white light

**Siren:** Manually turn on/off the white light

**Pixel Counter:** Select the area by frame to check the pixel size of the area in the code stream.

**Bullet box information:** when some alarms are triggered, the lower right corner will prompt the current alarm

## 6.2 Recording Status

The recording status is a simple reminder from the web to the current alarm of the camera, which can show whether the recording is normal. There can be multiple alarms at the same time. For specific instructions, please refer to the following introduction:

No icon: The SD card of camera is normal, but no video is being recorded.

**R** The camera is performing general recording.

Note: When the camera performs alarm recording, the mark will disappear, but general recording will continue.

**H** The SD card is in an abnormal state, please check the SD card.

**M** The camera is in motion alarm, but motion alarm recording is not enabled.

**M** The camera is in motion alarm, and motion alarm recording is performing.

**I** The camera is in IO alarm, but IO alarm recording is not enabled.

**I** The camera is in IO alarm, and IO alarm recording is performing.

**PIR** The camera is in PIR alarm, but PIR alarm recording is not enabled.

**PIR** The camera is in PIR alarm, and PIR alarm recording is performing.

**S** The camera is in smart alarm, but the smart alarm recording is not performed.

Note: Intelligent alarms include Face alarm, Human&Vehicle alarm, etc.

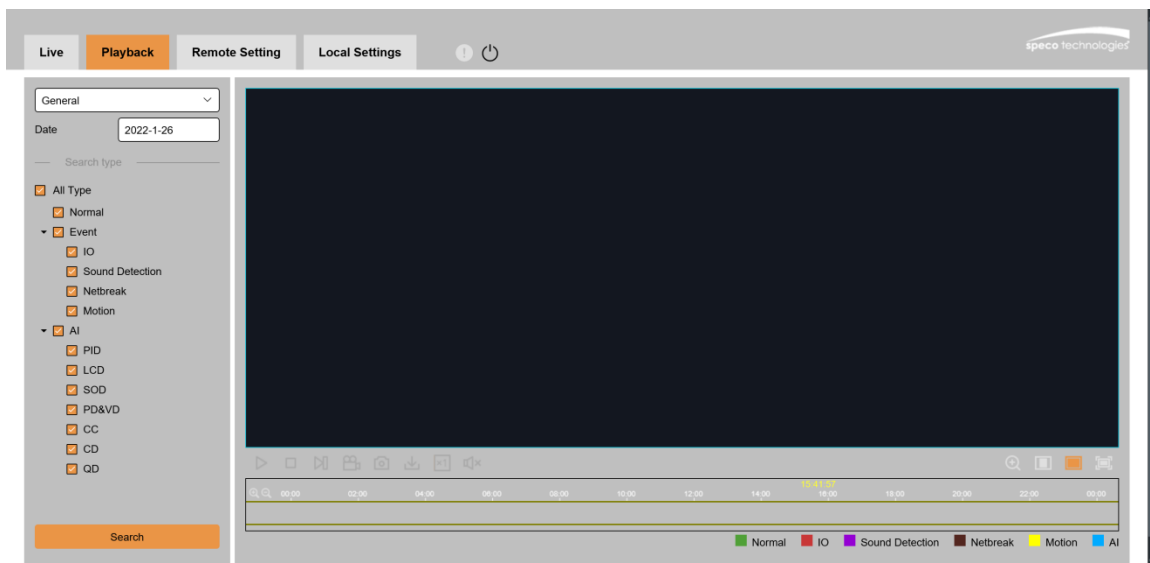
**S** The camera is in smart alarm and smart alarm recording is performing.

## 7. Playback

The camera not only needs to allow us to see the real-time image, but also needs to save the image information so that it can be retrieved and viewed when needed.

### 7.1 General Playback

The playback function is mainly composed of General video search and AI search functions. The following figure shows the video search.



**Search Mode:** Switch the current search mode. As shown in the figure above, the default is General search, and the search information is ordinary video files. You can switch to AI search.

**Search date:** Set the date to search for the video, click search, it will prompt the date of the video file.

**Search Type:** Display the search type supported by the camera. You can search and view part of the video according to your demand.

**Search:** Search and display the videos in the SD card according to the search settings.



**Pause/Play:** Pause/Play playback stream



**Stop:** Close the playback stream



**Forward by One Frame:** Play one frame of image every time you click



**Record:** Manually record the current preview stream



**Capture:** Manually capture the picture of the current stream



**Download:** Download the currently searched video



**speed:** Playing speed. Support speed adjustment like 1/8, 1/4, 1/2, 1, X2, X4, X8



**Audio:** Turn on/off, adjust the sound of playback stream

**Playback progress bar:** The time bar below shows the current playback progress bar in different colors according to the search results.



**Digital Zoom:** Electronically zoom in on certain area of the display stream



**Original Proportions:** Display the current preview image in original proportions



**Stretch:** Display the current preview image in a way that fills the display area



**Full Screen:** Display the current preview image in full screen, you can double-click the screen to turn on/off the function, and press Esc to exit the full screen when enabling the function

**Playback progress bar zoom in/out:** the progress bar defaults to display the progress of 24 hours. By this function, you can more accurately jump to the corresponding playback position. This function also works through the mouse wheel.

## 7.2 Playback Searched by Human&Vehicle

The camera can distinguish between people or cars, and record them, so as to search for the required records. The interface is shown in the figure below.



**Search Mode:** Switch the search mode. The current search mode is AI-Human & Vehicle Detection

**Start time:** Set the start time of search.

**End time:** Set the end time of search.

**Detection Type:** Set the captures of human or car to be searched, and you can also search both at the same time.

**Search:** Search for human&vehicle captures according to the search element settings.

**Search Results Display Area:** Display the search results. Double-click the picture to enter the playback for a short period of time before and after the detection.

**Search results Flip:** You can flip the search results in the lower right corner.

## 7.3 PID&LCD

Perimeter Intrusion Detection (PID) and Line Crossing Detection (LCD). AI-PID & LCD can be combined with human & vehicle detection to alert you of human & vehicle only. This is indicated on the recordings and can provide a quick and easy way to search and playback. The interface is shown in the figure below.



**Search Mode:** Switch the search mode. The current search mode is AI-PID&LCD.

**Start time:** Set the start time of search.

**End time:** Set the end time of search.

**Vigilance:** Set the capture mode of triggering the alarm to PID or LCD, and it can also be set at the same time.

**Detection Type:** Set the captures of human or car to be searched, and you can also search both at the same time.

**Search:** Search for human&car captures according to the search element settings.

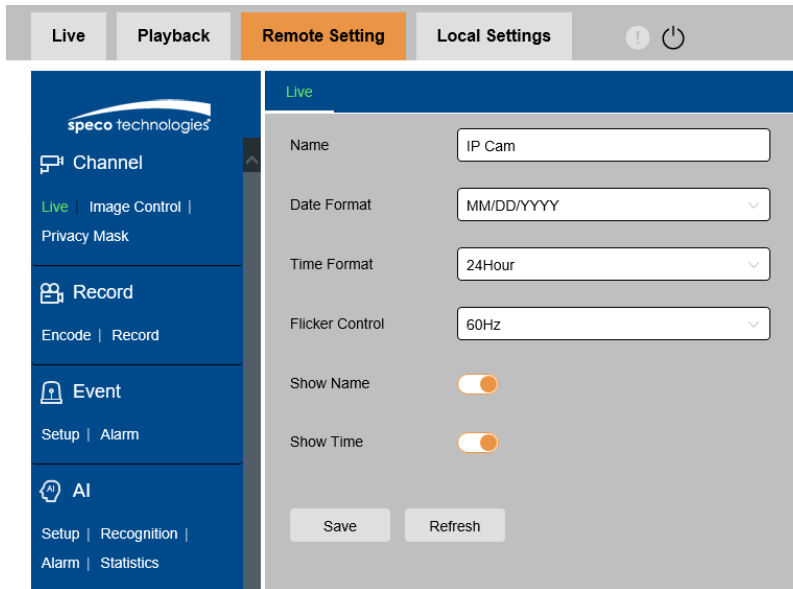
**Search Results Display Area:** Display the search results. Double-click the picture to enter the playback for a short period of time before and after the detection.

**Search results Flip:** You can flip the search results in the lower right corner.

## 8、Remote Setting

### 8.1 Live

The Live is to set the location where the channel name, device time, CC and other intelligent function statistics data and the image are superimposed. The interface is shown in the figure below.



**Name:** Set the channel name that camera shown on the OSD.

**Date Format:** Set OSD date format displaying. There are three types: MM/DD/YYYY, YYYY-MM-DD, and DD/MM/YYYY.

**Time Format:** Set OSD time format. There are 12 hours and 24 hours optional.

**Flicker Control:** Set the refresh rate of the image. There are two options of 60Hz and 50Hz, corresponding to N standard and P standard.

**Show Name:** Set whether to display the channel name in the image.

**Show Time:** Set whether to show the channel time in the image.

**Channel Name Display Position:** Set by dragging the channel name on the image.

**Time Display Position:** Set by dragging the channel time on the image.

**Alarm Statistics Display Position:** Set by dragging the position of the channel alarm statistics on the

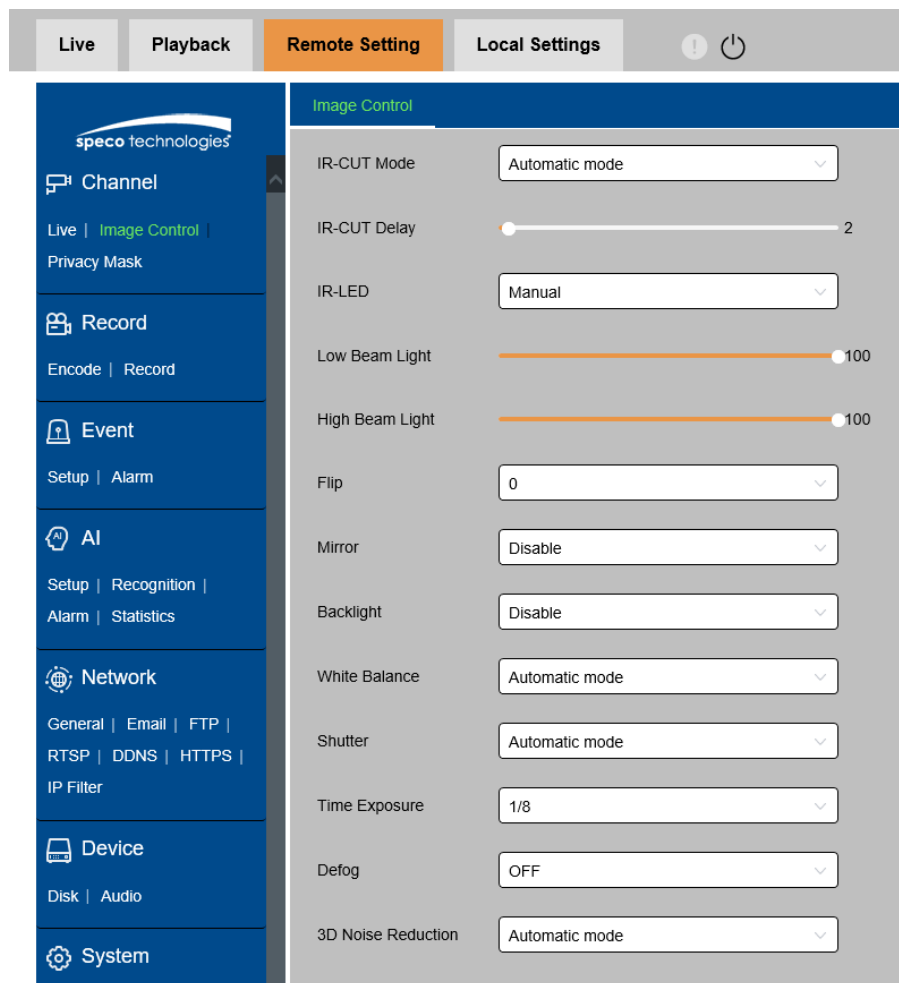
image. This setting will only be displayed when the function is enabled.

**Save:** Save current modification

**Refresh:** Re-obtain the current interface parameters.

## 8.2 Image Control

Image control is to directly control and modify graphics parameters, such as color to black mode, wide dynamic, backlight supplement, etc. The interface is shown as below.



**IR-CUT Mode:** Set the day/night switching mode of the camera, a total of 5 modes.

**Automatic mode:** Automatically control switching mode. Color switching to black white is controlled by image, black white switching to color is controlled by photosensitive.

**Color Mode:** Mandatory color mode, do not switch to black white mode.

**Black White Mode:** Mandatory black white mode, do not switch to color mode.

**Image Mode:** Similar to the automatic mode, the color-to-black and the black-to-color modes are controlled through the image (supported by some models)

**Schedule:** Switch between black white and color through the schedule setting. To enable this function, you need to set the start and end time of night vision.

**IR-CUT Delay:** Automatic mode and Image Mode switch between day and night, the duration of IR-CUT need to be determined. For example, when switching the night vision, the night vision switch will only be performed when the camera is in the dark for the set time.

**IR-LED:** Set the fill light effect of the camera's IR LED during night vision, there are 2 modes.

**SmartIR:** Intelligently control the intensity of the IR LED's fill light, and dynamically control the IR LED's fill light according to the focal length and whether the picture is over-exposed.

**Manual:** Manual mode, fill light with the set brightness of the IR LED.

**Angle Trad:** Image rotation setting. The camera is inverted from the preset in some scenarios. For example, it is designed to be used upside down, but in practice it is used horizontally. The image can be adjusted by this value.

**Mirror:** Set the mirror mode to adjust the picture effect, there are 4 modes.

**Disable:** Turn off the mirror mode.

**Vertical:** Mirror mode in vertical direction, which makes the images of the screen interactive up and down.

**Horizontal:** Mirror mode in horizontal direction, which makes images of the screen are interactive left and right.

**All:** Turn on Vertical and Horizontal at the same time, the effect is similar to 180° rotation, but the realization principle is different.

**Backlight:** Set the performance of the firmware in backlight, there are 4 modes:

**WDR:** Wide dynamic mode, according to the set value to make the overall picture in a balanced state, bright and dark areas can be seen clearly.

**HLC:** Highlight Compensation. Make the objects in the highlighted area clearer in the image. (Supported by some models)

**Back Light:** Make objects clearer in dark places.

**Disable:** Turn off Back Light.

**White Balance:** Use three primary colors of red, green, and blue to generate white after mixing, which is an indicator of color adjustment. There are 2 modes.

**Automatic mode:** Use the default parameters of the firmware to adjust the white light.

**Manual:** The user actively sets the red, green, and blue gains to synthesize white light.

**Shutter:** Set the shutter exposure time, there are 2 modes.

**Automatic mode:** According to the set Time Exposure value, the firmware automatically selects an appropriate exposure time.

**Manual:** Directly use the time set in Time Exposure.

**Time Exposure:** Set the camera's exposure time, used in conjunction with Shutter. When the exposure time is long, the image will be overexposed, and when the exposure time is short, the picture will be dark.

**Defog:** Foggy weather will cause the image to be bad. The defog function can offset this shortage.

There are three settings:

**OFF:** Disable defog function

**Automatic mode:** The camera automatically defog.

**Manual:** Defog according to the manually set value.

**3D Noise Reduction:** Reduce the noise in the image and make the picture clearer. There are three modes:

**Automatic mode:** The camera automatically selects the noise reduction according to the algorithm.

**OFF:** Disable noise reduction.

**Manual:** Reduce noise manually.

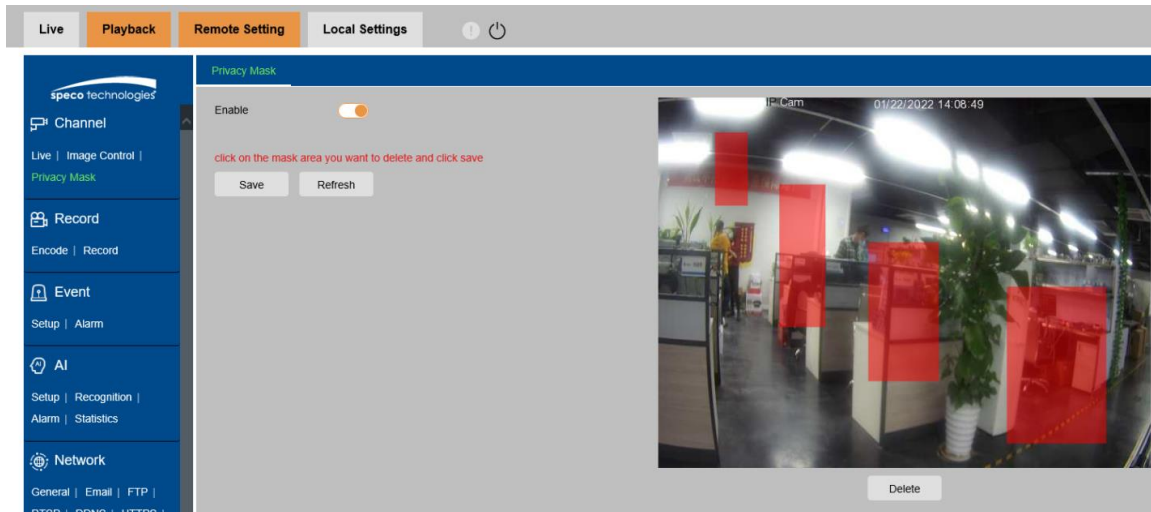
**Save:** Save parameters.

**Default:** Restore parameters to the default.

**Refresh:** Re-obtain parameters.

## 8.3 Video Cover

In actual use, some areas are not suitable for monitoring and recording. Those areas can be hidden in the video through this function. The interface is shown in the figure below.



**Enable:** Switch to turn on the function.

**Cover Area:** Set the area that needs to be covered on the monitoring screen. When setting, the covering block is red, and the corresponding area of the screen is black when it is enabled. 4 covering blocks can be set.

**Delete:** Remove the selected covering block.

## 8.5 Record

This menu allows you to configure the preview and recording parameters.

### 8.5.1 Encode

This menu allows you to configure the image quality of recorded video or network transmission. Generally, the main stream is the quality of the recorded video that will be saved in the HDD; the sub stream is the preview video quality through remote access (such as Web client and CMS). The mobile stream which can be disabled defines the preview quality of the mobile device through remote access.

The screenshot displays the 'Remote Setting' tab in the IP camera's web interface. The left sidebar contains navigation menus for 'Channel', 'Record', 'Event', 'AI', and 'Network'. The main content area is titled 'MainStream' and includes settings for Resolution (3840 x 2160), FPS (30), Video Code Type (H.264), Video Code Level (Main Profile), Bitrate Control (CBR), Bitrate Mode (Predefined), Bitrate (8192 Kbps), and I Frame Interval (60). An 'Audio' toggle switch is currently turned on. 'Save' and 'Refresh' buttons are located at the bottom of the settings panel.

**Resolution:** The resolution of the recorded image.

**FPS:** The number of frames recorded by IP camera.

**Video Code Type:** Decoding type, there are H264, H265, H264+, H265+ and MJPEG (MJPEG mode only exists in sub-stream mode)

**Video Code Level:** Video quality level, including Bestline, Main Profile and High Profile (for H265, only Main Profile is available).

**Bitrate Control:** Select the bitrate level. For simple scenes, such as gray walls, a constant bit rate (CBR) is suitable. For more complex scenes, such as busy streets, variable bit rate (VBR) is more suitable.

**Bitrate Mode:** If you want to set the bitrate yourself, please select the "Custom" mode. If you want to select a preset bitrate, select "Preset Mode".

**Bitrate:** The data transmission speed that IP camera uses to record. Video with higher bitrate will have better quality.

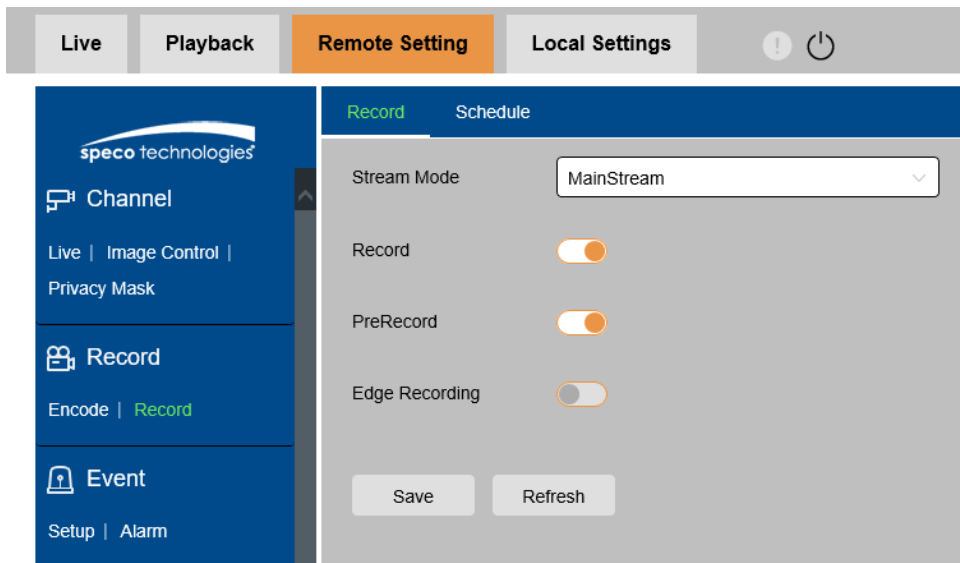
**I Frame Interval:** Set the I frame interval, only IP camera can be set.

**Audio:** If you want to record audio and video at the same time, and connect a microphone to the IP camera or use a camera with audio capabilities, please select this option.

## 8.5.2 Record

### 8.5.2.1 Recording Parameters

Recording parameters can be set by this menu.



**Stream Mode:** The video stream to be saved in the SD card in recording mode. The default is the main stream.

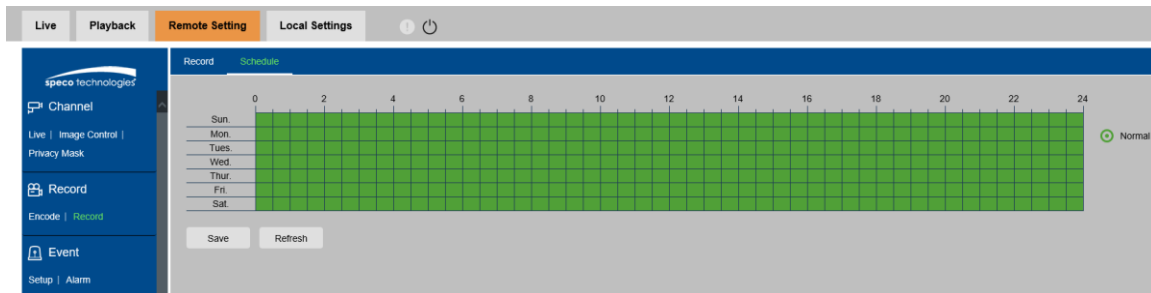
**Record:** Check to enable recording.

**PreRecord:** If this option is enabled, the IP camera will start recording a few seconds before the alarm event occurs. If your camera's main recording type is based on motion detection or I/O alarm, it is recommended to use this option.

**Netbreak:** Recording when the network is disconnected

### 8.5.2.2 Recording Schedule

This menu allows you to specify when the IP camera will record video, which can be set in the recording schedule. Only during the selected time period will the recording be performed. Drag the cursor to mark the area.

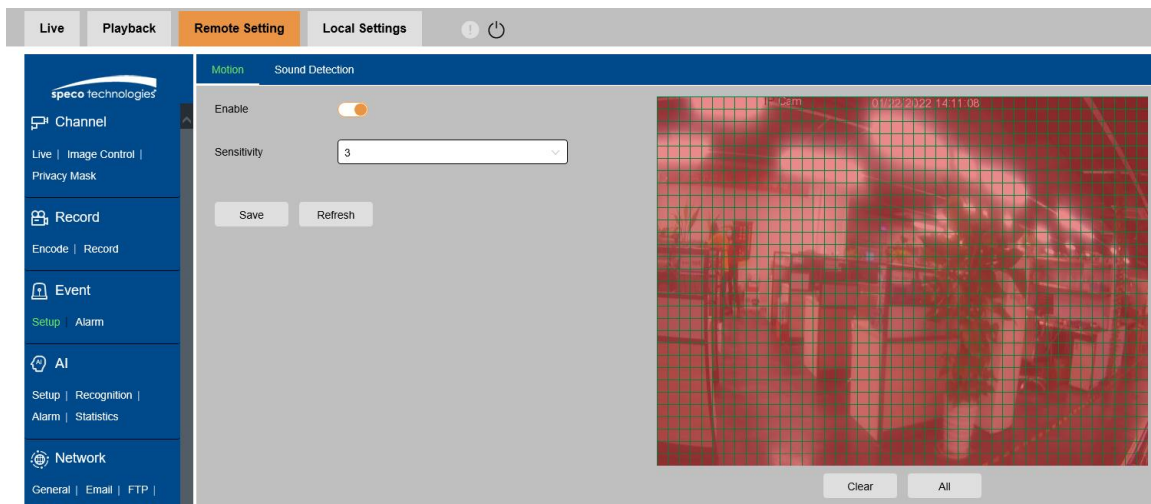


## 8.6 Event

### 8.6.1 Setup

#### 8.6.1.1 Motion Detection

This menu allows you to configure motion detection parameters. When motion is detected, a series of alarms are triggered, such as sending an email alert with additional images from the camera (if this option is enabled), pushing notifications via mobile APP.



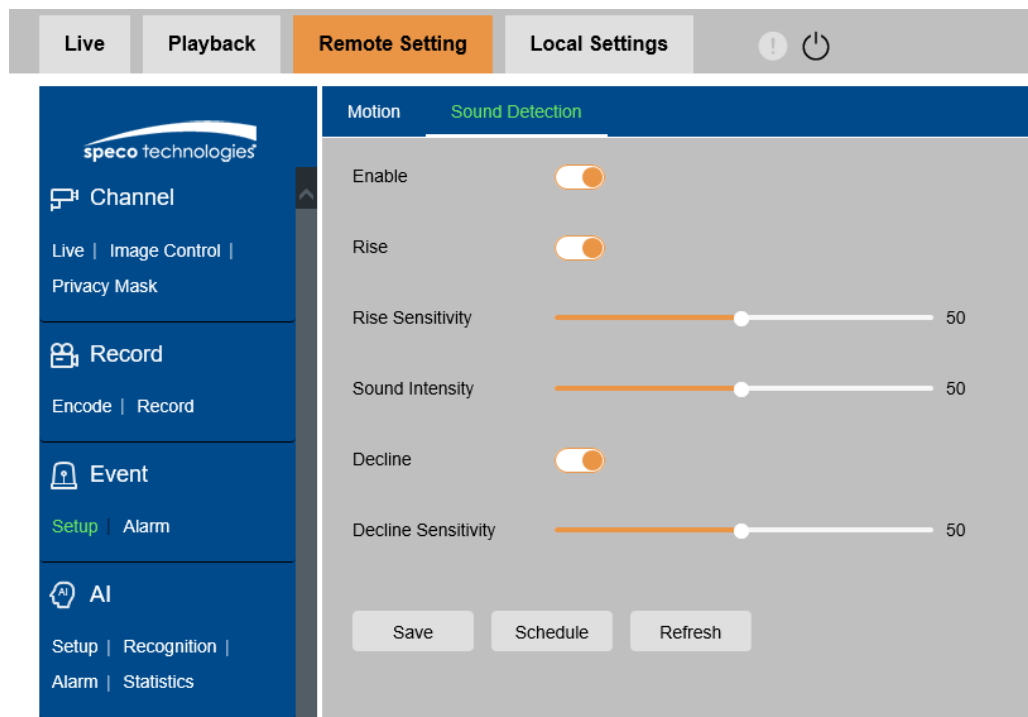
Drag the left mouse button to delimit the detection area in the right window. Only movement in the area will trigger an alarm.

**Enable:** Enable or disable motion detection.

**Sensitivity:** Set the sensitivity of motion detection. There is more large value, there is more sensitive.

### 8.6.1.2 Sound Detection

When the camera detects a change in the connected audio and meets the requirements of the alarm detection setting, an alarm will be triggered.



**Enable:** Turn on/off sound detection.

**Rise:** The alarm will be triggered only when the volume rises steeply.

**Rise Sensitivity:** Fine-tuning sound rise sensitive detection, and the sensitivity can be set to 1-100. The larger the value the lower the sound detection threshold.

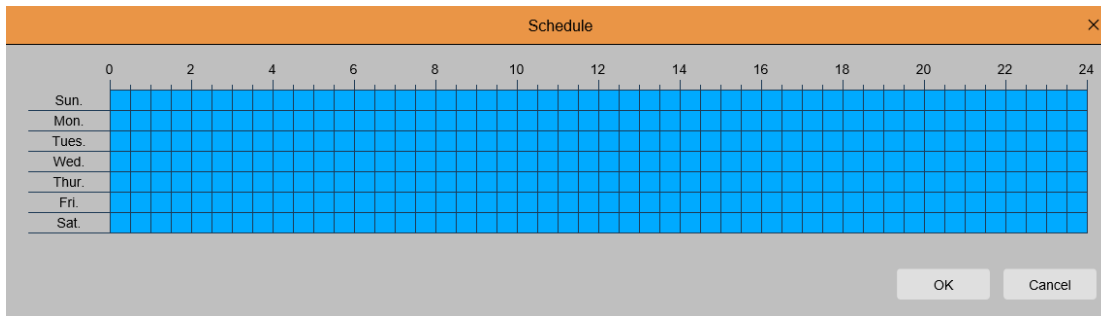
**Sound Intensity:** Coarse-tuning sound rise sensitive detection, and the sensitivity can be set to 1-100. The larger the value, the higher sound detection threshold. Hard to trigger alarm.

**Decline:** Turn on the sound drop detection, when the sound suddenly increases and decreases in a

short period of time, trigger the sharp drop alarm.

**Decline Sensitivity:** The decline sensitive can be set to 1-100, and the higher the value is, the higher the sensitivity. More easy to trigger alarm.

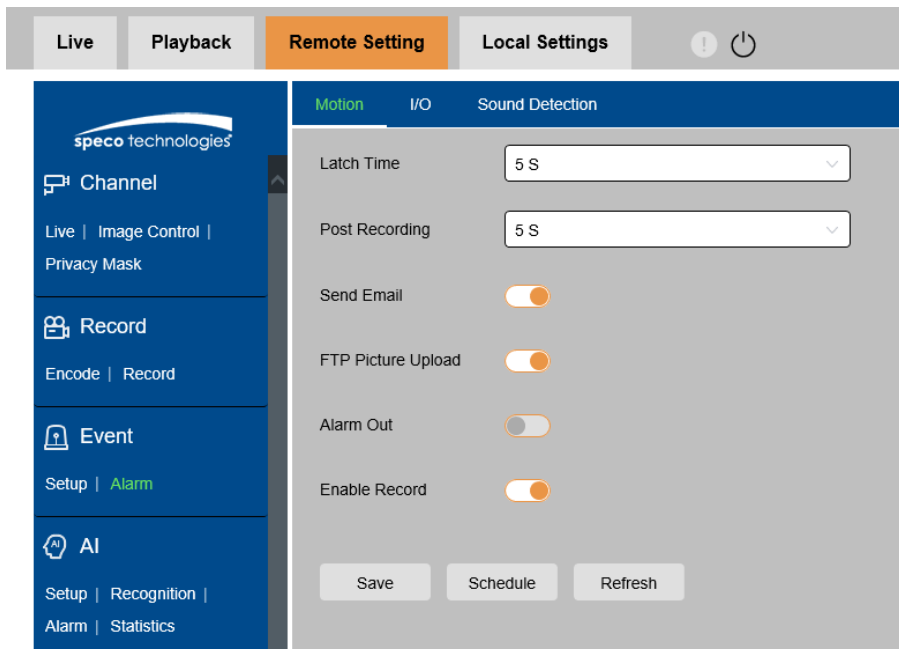
**Schedule:** Set the time schedule of sound detection. It is fully enable by default. The user can customize the time period of touch sound alarm.



## 8.6.2 Alarm

This menu can set the actions to be executed when various alarms are triggered.

### 8.6.2.1 Motion Detection



**Latch Time:** Set the external alarm triggering time when motion is detected.

**Post Recording:** Set the duration of the device's recording after the event occurs. There are 5s, 10 s,

20s, and 30s optional. The default recording time is 5s. The max is 30s.

**Send Email:** Set the camera to send email to your mailbox when it detects motion.

**FTP Picture Upload:** Upload the alarm picture to the FTP server after the alarm is triggered.

**Alarm Out:** Optional function. If your camera supports to connect an external alarm device, you can enable this function to activate the external alarm device.

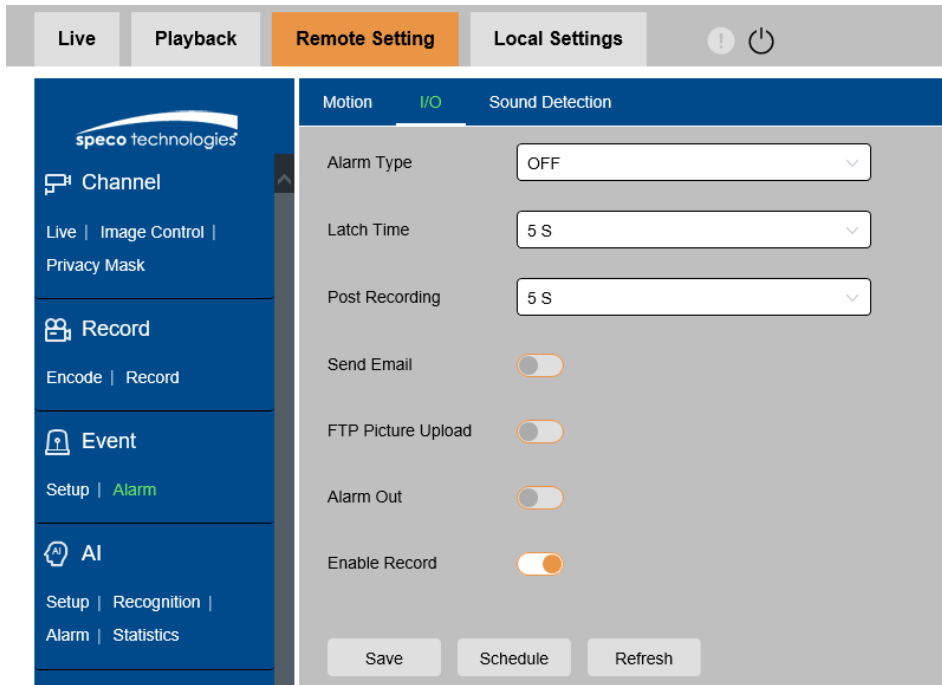
**Enable Record:** When checked, this type of recording will be enabled when an alarm is triggered.

**Schedule:** Set the scheduled time of each alarm action. A series of alarm actions will be executed within the scheduled time.

The screenshot shows a 'Schedule' configuration window. It features a grid for scheduling actions across a 24-hour period for each day of the week (Sun. to Sat.). The x-axis represents hours from 0 to 24, and the y-axis lists the days. The 'Send Email' action is selected via a radio button, and the entire grid is highlighted in orange, indicating it is active for all hours and days. Other actions like 'Alarm Out', 'FTP Picture Upload', and 'Record' are not selected. The window includes 'OK' and 'Cancel' buttons at the bottom right.

### 8.6.2.2 I/O Alarm

This is an optional function. This function can be enabled only if the camera supports I/O sensors and meanwhile is connected an external I/O alarm device.



**Alarm Type:** Three types are optional: Normally open, Normally close and Off. Select a type that matches your sensor type, or select "Off" to turn off the sensor trigger function.

**Latch Time:** The time that the camera IO alarm continues to alarm after the alarm ends.

**Post Recording:** Set the duration of the device's recording after the event occurs. There are 5s, 10 s, 20s, and 30s optional. The default recording time is 5s. The max is 30s.

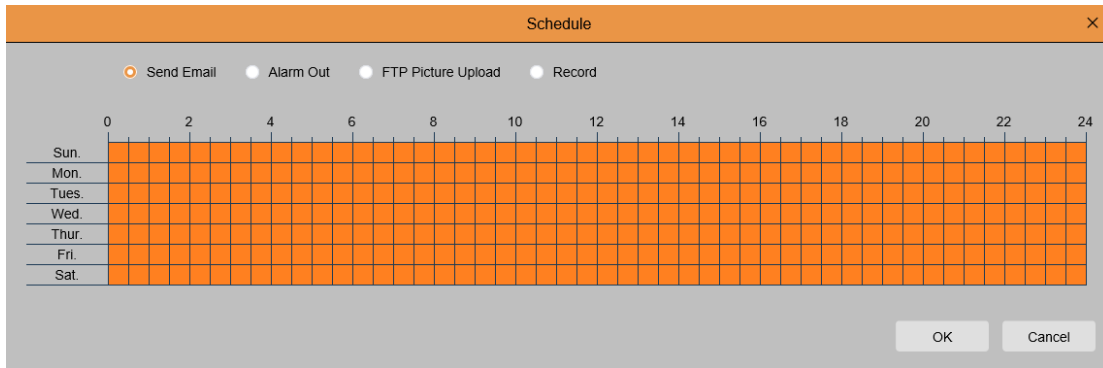
**Send Email:** Set the camera to send email to your mailbox when it detects I/O.

**FTP Picture Upload:** Upload the alarm picture to the FTP server after the alarm is triggered.

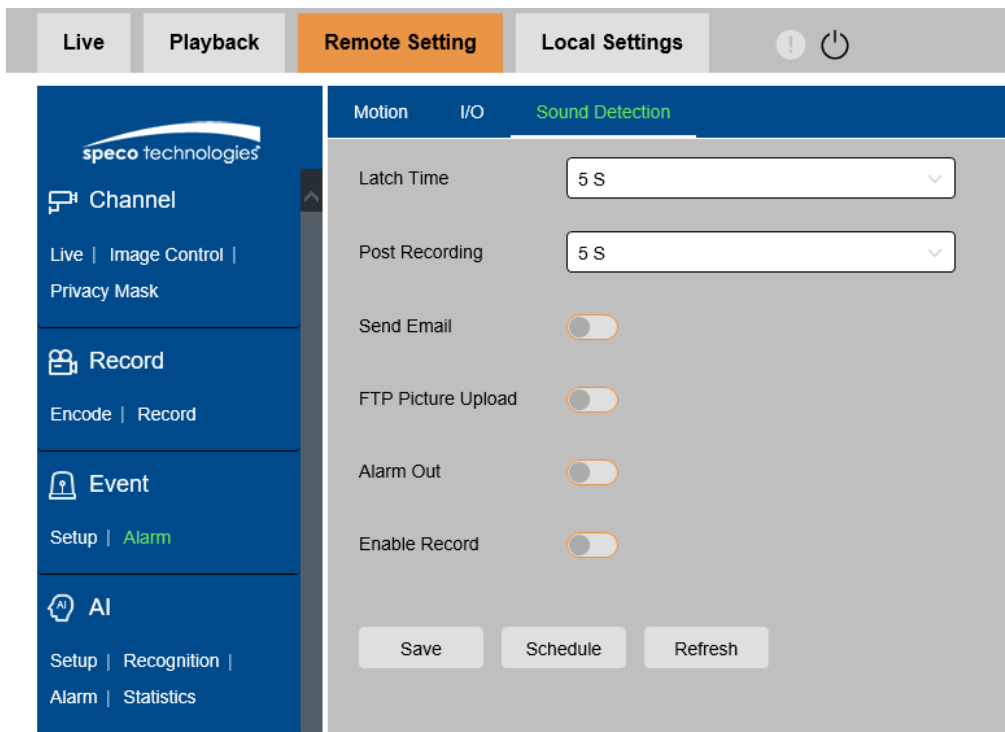
**Alarm Out:** Optional function. If your camera supports to connect an external alarm device, you can enable this function to activate the external alarm device.

**Enable Record:** When checked, this type of recording will be enabled when an alarm is triggered.

**Schedule:** Set the scheduled time of each alarm action. A series of alarm actions will be executed within the scheduled time.



### 8.6.2.3 Sound Alarm



**Latch Time:** Set the external alarm triggering time when motion is detected.

**Post Recording:** Set the duration of the device's recording after the event occurs. There are 5s, 10 s, 20s, and 30s optional. The default recording time is 5s. The max is 30s.

**Send Email:** Set the camera to send email to your mailbox when it detects sound.

**FTP Picture Upload:** Upload the alarm picture to the FTP server after the alarm is triggered.

**Alarm Out:** Optional function. If your camera supports to connect an external alarm device, you can

enable this function to activate the external alarm device.

**Enable Record:** When checked, this type of recording will be enabled when an alarm is triggered.

**Schedule:** Set the scheduled time of each alarm action. A series of alarm actions will be executed within the scheduled time.

The image shows a 'Schedule' configuration window. At the top, there are four radio buttons: 'Send Email' (selected), 'Alarm Out', 'FTP Picture Upload', and 'Record'. Below these is a grid representing a 24-hour day across seven days of the week (Sun. to Sat.). The grid is divided into 2-hour intervals, with the top row (Sun.) highlighted in orange. The x-axis is labeled with even numbers from 0 to 24. At the bottom right, there are 'OK' and 'Cancel' buttons.

## 8.7 AI

### 8.7.1 Setup

To use AI smart alarm, you need to enable the corresponding alarm function in the Setup menu first. This function requires the computing power of the camera. Due to the limitation of the camera's performance, HM and other functions can be enabled at the same time, whereas PID\LCD\SOD, PD&VD, CC, CD, and QD cannot be enabled at the same time.

#### 8.7.7.1 People and Vehicle Detection (PD & VD)

Through this function, camera can recognize pedestrian or vehicle in the image, trigger an alarm, and record the corresponding screenshot.

PD&VD	PID	LCD	SOD	CC	HM	CD	QD
Human&Vehicle Detection							
Enable	<input checked="" type="checkbox"/>						
Sensitivity	<input type="text" value="60"/> (0 ~ 100)						
Dynamic Marking	<input checked="" type="checkbox"/>						
Snap Mode	<input type="text" value="Default"/>						
Min Pixel	<input type="text" value="64"/> (64 ~ 1080)						
Max Pixel	<input type="text" value="640"/> (320 ~ 1080)						
Detection Type	<input type="text" value="Pedestrian &amp; Vehicle"/>						
Detection Mode	<input type="text" value="Motion Mode"/>						
Detection Range	<input type="text" value="Full Screen"/>						

**Enable:** Enable/disable the function.

**Sensitivity:** The larger the value is, the more accurate the detection is. But false alarm will also be more.

**Dynamic Marking:** Display the detection frame. Enable/disable the detection rule line.

**Snap Mode:** Set snapshot mode. You can enable the push reception on the preview interface or connect to the NVR to view the push effect. The firmware supports 3 kinds of snapshot modes.

**Default:** Camera detects until the target disappears. One picture relating human or vehicle will be pushed when the target disappears.

**RealTime Mode:** When camera detects the target, it immediately pushes a capture. When the target disappears, it will push a capture again.

**Interval Mode:** Set interval to push captures

**Snap Num:** Based on the interval set in Snap Frequency, camera pushes pictures by one time, two times, three times or unlimited times for the same target.

**Snap Frequency:** Camera pushes picture in the set time.

**Min Pixel:** Based on the resolution of 1080P, person or vehicle pictures that are less than min pixel will be filtered out.

**Max Pixel:** Based on the resolution of 1080P, person or vehicle pictures that are over max pixel will be filtered out.

**Detection:** There are 4 modes, like no detection, pedestrian detection only, vehicle detection only and pedestrian&vehicle detection.

**Detection Mode:** Filter the behavior of the target in camera, there are two modes:

Static Mode: Detect all pedestrians or vehicles.

Motion Mode: Filter out static pedestrians or vehicles.

**Detection Range:** Set detection area. There are two modes:

Full Screen: The detection area is the camera all cover area.

Customize: Select this mode and a region box will appear on the small window. User can drag or stretch this box to set a region for detection.

**Rule Setting Area:** When select Customize mode, detection rule can be set in this area.

### 8.7.7.2 Perimeter Intrusion Detection (PID)

When target enters or leaves the alarming zone, the alarm will be triggered through Perimeter Intrusion Detection (PID) function.

**Enable:** Enable/disable PID

**Sensitivity:** If the detected object sensitivity is higher, the moving Object can be detected easily.

**Dynamic Marking:** Display the detection frame. Enable/disable the detection rule.

**Detection Type:** Set the objects to be detected. There are four types:

OFF: Detect all objects passing through the line, like carton, pedestrian, vehicle, etc.

Pedestrian: Only detect pedestrian passing through the line.

Vehicle: Only detect vehicle passing through the line.

Pedestrian & Vehicle: Only detect pedestrian and vehicle passing through the line.

**Rule Number:** Choose rule. There are 4 rules can be chosen.

**Rule Switch:** The switch to enable/disable each rule

**Rule Type:** Setup for each rule. A->B means can detect A to B direction moving, B->A means can detect B to A direction moving, A  $\leftrightarrow$  B means can detect two directions moving.

**Rule Setting Area:** Edited rule can be set or displayed in this area.

**Delete:** Delete rule

**Delete All:** Delete all rules

### 8.7.7.3 Line Crossing Detection (LCD)

When detected target cross the preset line, the alarm will be triggered through Line Crossing Detection (LCD).

**Enable:** Enable/disable LCD

**Sensitivity:** If the detected object sensitivity is higher, the moving Object can be detected easily.

**Dynamic Marking:** Display the detection frame. Enable/disable the detection rule.

**Detection Type:** Set the objects to be detected. There are four types:

OFF: Detect all objects crossing the line, like carton, pedestrian, vehicle, etc.

Pedestrian: Only detect pedestrian crossing the line.

Vehicle: Only detect vehicle crossing the line.

Pedestrian & Vehicle: Only detect pedestrian and vehicle crossing the line.

**Rule Number:** Choose rule. There are 4 rules can be chosen.

**Rule Switch:** The switch to enable/disable each rule

**Rule Type:** Setup for each rule. A→B means can detect A to B direction moving, B→A means can detect B to A direction moving, A ↔ B means can detect two directions moving.

**Rule Setting Area:** Edited rule can be set or displayed in this area.

**Delete:** Delete rule

**Delete All:** Delete all rules

#### 8.7.7.4 Stationary Object Detection (SOD)

By this function, alarms are triggered when legacy or lost items is found in monitoring area.

**Enable:** Enable/disable SOD

**Sensitivity:** If the detected object sensitivity is higher, the moving Object can be detected easily.

**Dynamic Marking:** Display the detection frame. Enable/disable the detection rule.

**Rule Number:** Choose rule. There are 4 rules can be chosen.

**Rule Switch:** The switch to enable/disable each rule

**Rule Type:** Setup for each rule. There are three rules like Legacy、Lost、Lost & Legacy.

**Rule Setting Area:** Edited rule can be set or displayed in this area.

**Delete:** Delete rule

**Delete All:** Delete all rules

### 8.7.7.5 Cross Counting (CC)

Camera can record the specific objects crossing line in monitoring area by Cross Counting (CC) function. Set the crossing line, there are two areas (A and B) on two sides of line. When the rule is A→B, it means object crosses the line from area A to area B. The count in increases by one. When the object enters from area B and cross the line to area A, the count out increases by one. The alarm will only be triggered when the count in minus the count out is greater than or equal to the set Alarm Number count. The interface is as shown in the figure below.

**Enable:** Enable/disable CC

**Sensitivity:** If the detected object sensitivity is higher, the moving Object can be detected easily.

**Dynamic Marking:** Display the detection frame. Enable/disable the detection rule.

**Type:** Setup the detected objects type. There are three modes. Switching to save will clear the current count.

**Motion:** Detect all objects including carton, pedestrian, vehicle, etc.

Person: Only detect pedestrian

Vehicle: Only detect vehicle

**Alarm Number:** Set the condition of alarm. Camera can update the account. When the count in minus the count out is greater than or equal to the set Alarm Number count, the alarm will be triggered.

**Start Time CC:** Set the start time of CC function.

**End Time CC:** Set the end time of CC function.

**Rule Number:** Choose rule. There are only one rule can be chosen.

**Rule Switch:** The switch to enable/disable rule

**Rule Type:** Setup for rule. There are two directions of count in and count out including  $A \rightarrow B$  and  $B \rightarrow A$ . For example,  $A \rightarrow B$  means objects enter from area A and leave from area B, count in will increase. When objects enter from area B and leave from area A, count out will increase.。

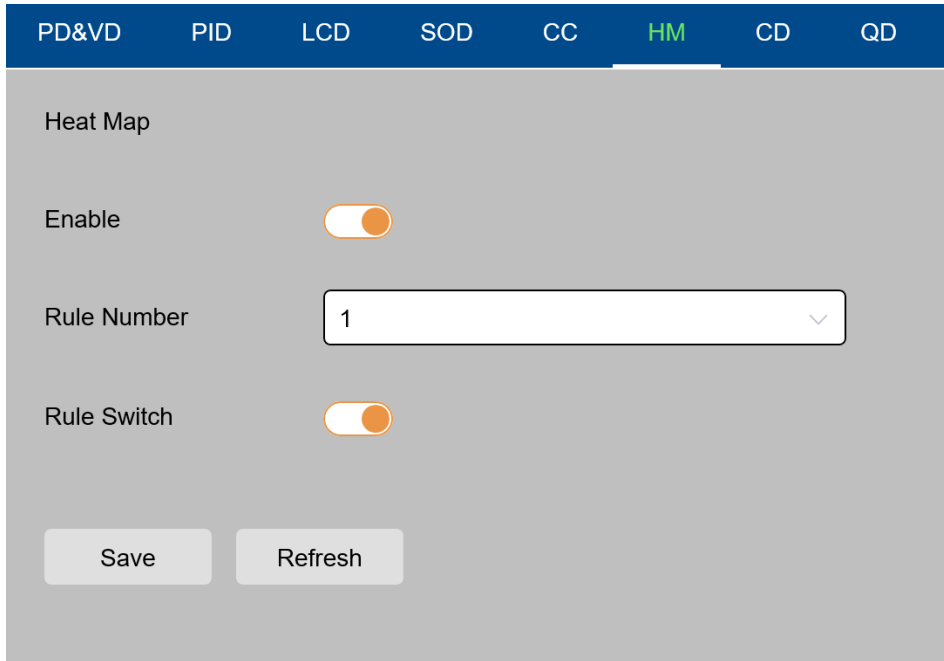
**Reset Count:** Clear the displayed count.

**Rule Setting Area:** Rule can be set in this area.

**Count Area:** Display the count. You can refer to Chapter 8.1 to adjust the specific display position.

#### 8.7.7.6 Heat Map Statistics (HM)

The Heat Map(HM) statistics function uses a logic similar to motion to judge whether there is a change in transmission in each area of the monitoring area, and save and upload the change at 10 minute intervals. Through a large number of statistics, user can view the change in each area in the scene. This function only supports data logging, not alarm.



PD&VD PID LCD SOD CC **HM** CD QD

Heat Map

Enable ☒

Rule Number

Rule Switch ☒

Save Refresh

**Enable:** Enable/disable HM

**Rule Number:** Choose rule. There are only one rule can be chosen.

**Rule Switch:** The switch to enable/disable rule

**Monitoring Area Setting:** Set the preferred area. All areas are selected by default.

#### 8.7.7.7 Crowd Density Detection (CD)

Crowd Density(CD) detection, the way of identifying the human head through the human figure recognition function, recognizes the number of people in the monitoring area. The alarm will be triggered when the number of people exceeds the preset value.

PD&VD	PID	LCD	SOD	CC	HM	CD	QD
Crowd Density Detection							
Enable	<input checked="" type="checkbox"/>						
Sensitivity	2						
Dynamic Marking	<input checked="" type="checkbox"/>						
Min Pixel	32 (32 ~ 1080)						
Max Pixel	640 (320 ~ 1080)						
Max Detection Number	50 (1 ~ 500)						
Detection Range	Customize						
Rule Number	1						
Rule Switch	<input checked="" type="checkbox"/>						

**Enable:** Enable/disable CD

**Sensitivity:** If the detected object sensitivity is higher, the moving Object can be detected easily.

**Dynamic Marking:** Display the detection frame. Enable/disable the detection rule.

**Min Pixel:** Based on the resolution of 1080P, the picture of heads that are less than min pixel will be filtered out.

**Max Pixel:** Based on the resolution of 1080P, the picture of heads that are over max pixel will be filtered out.

**Max Detection Number:** The maximum number of heads allowed to be detected in the detection area. If this number is exceeded, an alarm will be triggered.

**Detection Range:** Set detection area. There are two modes:

Full Screen: The detection area is the camera all cover area.

Customize: Only detect the area selected by the quadrilateral frame

**Rule Number:** Choose rule. There are only one rule can be chosen. This option is available when Customize mode is selected.

**Rule Switch:** The switch to enable/disable rule. This option is available when Customize mode is selected.

**Detection Range:** This option is available when Customize mode is selected. It needs to set an octagonal detection area.

**Count Display Area:** Display the number of people in monitoring area. You can refer to Chapter 8.1 to adjust the specific display position.

#### 8.7.7.8 Queue Length Detection (QD)

When the queue or the waiting time is too long, an alarm will be triggered by Queuing Detection(QD) function.

PD&VD	PID	LCD	SOD	CC	HM	CD	QD
Queue Length Detection							
Enable	<input checked="" type="checkbox"/>						
Sensitivity	<input type="text" value="2"/>						
Dynamic Marking	<input checked="" type="checkbox"/>						
Min Pixel	<input type="text" value="32"/> (32 ~ 1080)						
Max Pixel	<input type="text" value="640"/> (320 ~ 1080)						
Max Detection Number	<input type="text" value="10"/> (1 ~ 100)						
Max Pro Time	<input type="text" value="60"/> (1 ~ 3600)						
Detection Range	<input type="text" value="Customize"/>						
Rule Number	<input type="text" value="1"/>						
Rule Switch	<input checked="" type="checkbox"/>						

**Enable:** Enable/disable QD

**Sensitivity:** If the detected object sensitivity is higher, the moving Object can be detected easily.

**Dynamic Marking:** Display the detection frame. Enable/disable the detection rule.

**Min Pixel:** Based on the resolution of 1080P, the picture of heads that are less than min pixel will be filtered out.

**Max Pixel:** Based on the resolution of 1080P, the picture of heads that are over max pixel will be filtered out.

**Max Detection Number:** The maximum number of heads allowed to be detected in the detection area. If this number is exceeded, an alarm will be triggered.

**Max Pro Time:** Set the time that allows target leave the detection area. An alarm will be triggered when no one has left the detection area for a long time.

Note: The counting is restarted only when target leaves the detection area. If the target suddenly disappears in the area and it will be ignored. It is only counted when the target is detected in the area.

**Detection Range:** Set detection area. There are two modes:

Full Screen: The detection area is the camera all cover area.

Customize: Only detect the area selected by the quadrilateral frame

**Rule Number:** Choose rule. There are only one rule can be chosen. This option is available when Customize mode is selected.

**Rule Switch:** The switch to enable/disable rule. This option is available when Customize mode is selected.

**Detection Range:** This option is available when Customize mode is selected. It needs to set an octagonal detection area.

**Count Display Area:** Display the number of people and waiting time in monitoring area. You can refer to Chapter 8.1 to adjust the specific display position.

### 8.7.2 Alarm

The alarm can be realized by camera's AI function. It can be divided into 3 categories according to the implementation mode:

The first category includes PD&VD, PID, LCD, SOD, CC, CD, QD. When the camera detects an alarm event, it directly triggers an alarm.

The second category is FR. The camera obtains the alarm picture, recognizes the facial feature value of the picture and compares it with the data in the database, and then trigger the alarm according to the corresponding alarm grouping settings.

The third category is FA. The camera automatically searches for data at a specific time and send an alarm push email.

#### 8.7.3.1 AD, PD&VD, PID, LCD, SOD, CC, CD, QD

When the camera detects an alarm event, it will directly trigger an alarm

PD&VD	PID	LCD	SOD	CC	CD	QD
Latch Time		5 S				
Post Recording		5 S				
Send Email		<input type="checkbox"/>				
FTP Picture Upload		<input type="checkbox"/>				
Alarm Out		<input type="checkbox"/>				
Enable Record		<input type="checkbox"/>				
Save		Schedule		Refresh		

**Alarm Type:** Special option for AD alarm. The camera can alarm by identifying whether the captured object is wearing a mask or not. There are 3 modes.

Close: Disable AD alarm.

NO Mask: Alarm when the target is not wearing a mask.

**Wear Mask:** Alarm when the target is wearing a mask.

**Latch Time:** The time that the camera IO alarm continues to alarm after the alarm ends.

Note: The camera needs to support the IO output function, and the working time is controlled by the corresponding schedule.

**Post Recording:** The duration of recording after the alarm ends.

Note: At the same time, the effective time is controlled by the schedule.

**Send Email:** Whether the camera sends an email when it alarms.

Note: At the same time, the effective time is controlled by the schedule.

**FTP Picture Upload:** The camera sends the picture to the associated FTP server when it alarms.

When it is triggered continuously, it will be sent in a cycle of 10S until the alarm is end.

Note: At the same time, the effective time is controlled by the schedule. And the FTP server needs to be associated first.

**Alarm Out Latch Time:** Set the switch to enable.

**Enable Record Post Recording:** Set the switch to enable.

**Deterrent:** White light associated switch. When an alarm is triggered, the camera will respond to the alarm according to the setting of Remote Setting-Event-Setup-Deterrence. Specifically, it can be divided into white light response and speaker response, which are controlled by the schedule respectively. (Supported by some models with white light function)

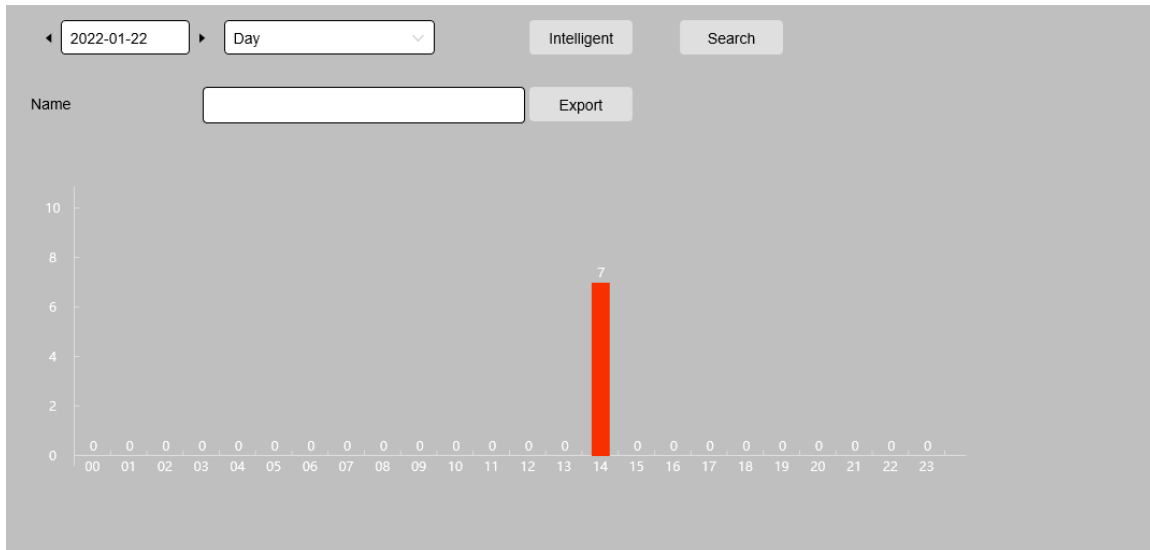
**Schedule:** Set the schedule of Send Email、Alarm Out、FTP Picture Upload、Record、Light (Deterrent)、Siren (Deterrent) ((Supported by some models with white light function)

#### 8.7.4 Statistics

This is AI data statistical analysis function.

##### 8.7.4.1 Human & Vehicle Detection

Human & Vehicle data statistics includes PD&VD, PID, LCD alarms. The interface of Human & Vehicle data statistics is shown as below.



**Time:** The reference time of the search mode.

**Search Mode:** It supports 5 time ranges, such as Day, Week, Month, Quarter and Year **Intelligent:** Search based on the type of mark when capturing the snapshot. There are 6 types of snapshots: PID[Human], PID[Vehicle], LCD[Human], LCD[Vehicle], Human, Vehicle.

**Search:** Search the data again according to the search settings.

**Export:** Need to add the export file name, and export the search data by Excel file.

**Display Area:** Display the search results in the form of a chart in below.

### 8.7.4.2 Cross Counting Statistics

The interface of Cross Counting Statistics is shown as below.

The interface includes the following search filters:

- Report Type:** Daily report
- Detection Type:** Motion
- Cross Type:** Cross In
- Name:** (empty text field)
- System time:** 2022-01-22

Buttons: Export, Search

Chart Type: ☒ Column Chart, ☐ Line Chart

Statistics time (hours)	Cross In
00:00-00:59	0
01:00-01:59	0
02:00-02:59	0
03:00-03:59	0
04:00-04:59	0

**Report Type:** Data search supports four time ranges: Daily report, Weekly report, Monthly report, and Annual report.

**Detection Type:** Set the corresponding alarm type. There are three types, For example, if the data is from the alarm triggered by Motion, it cannot be searched by other alarm types like Person or Vehicle.

**Cross Type:** Search data according to the statistical method of crossing the line. There are two types: Cross In and Cross Out.

**Export:** Need to add the export file name, and export the search data by Excel file.

**System time:** The reference time of the selected Report Type.

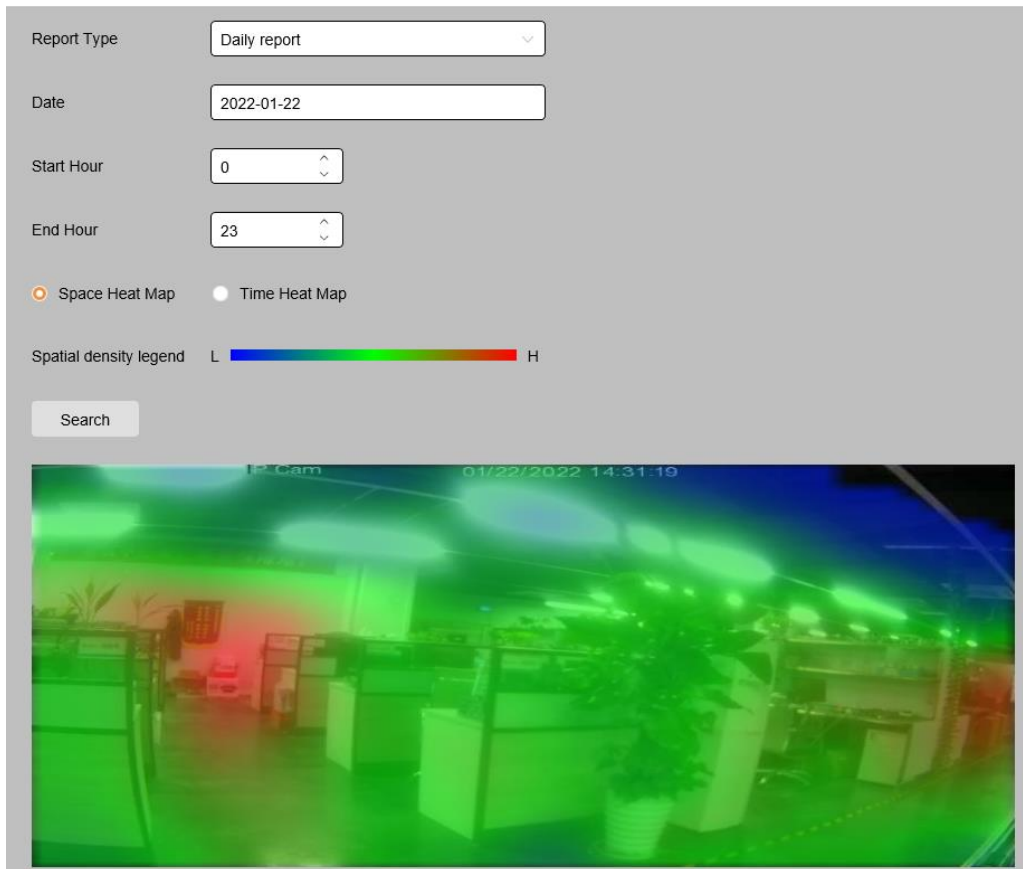
**Mode:** Choose to display the data as a bar graph or a line graph.

**Display Area:** Display the current search results in the form of graphs.

**Search:** Search the data again according to the search settings.

### 8.7.4.3 Heat Map Statistics

The heat map function is to record the changes in the monitoring area in a way similar to motion. Heat Map Statistics displays the data recorded in SD in an image format. The interface is shown in the below figure.



**Report Type:** Data search supports four time ranges: Daily report, Weekly report, Monthly report, and Annual report.

**Date:** The date that the data search refers to.

**Start Hour:** Only display when the Daily report is set. Set the specific hour when the search starts.

**End Hour:** Only displayed when the Daily report is set. Set the specific hour when the search ends.

**Mode:** Set the display way of the data when searching, there are two ways: graph and table

**Display Area:** Display the frequency of changes in the monitoring area in the form of graphs, and display the frequency of changes in the monitoring areas in different time periods in the form of tables.

**Search:** Search data according to the settings.

## 8.8 Network

This menu allows you to configure network parameters such as PPPoE, DHCP and SNMP. The most common type is DHCP. In most cases, the network type is DHCP unless you manually set a static IP. If you need to authenticate the user name and password to connect to the network, please choose PPPoE.

### 8.8.1 General

#### 8.8.1.1 General

The screenshot shows the 'Remote Setting' tab selected in the top navigation bar. Below it, the 'Local Settings' tab is active, and the 'General' sub-tab is selected. The 'General' sub-tab contains the following configuration options:

- DHCP:** A toggle switch that is currently turned on (orange).
- IP Address:** A text input field containing '172.020.031.082' and a 'Test' button to its right.
- Subnet Mask:** A text input field containing '255.255.255.000'.
- Gateway:** A text input field containing '172.020.031.001'.
- DNS 1:** A text input field containing '172.018.001.222'.
- DNS 2:** A text input field containing '008.008.008.008'.
- Multicast:** A section header with a dashed line below it.
- Main stream:** A toggle switch that is currently turned on (orange).
- Multicast Address:** A text input field containing '239.255.255.255' with a range '(224.0.0.0~239.255.255.255)' to its right.

At the bottom of the form are two buttons: 'Save' and 'Refresh'.

If connecting to a router that allows the use of DHCP, check the DHCP box. The router will automatically assign all network parameters to the camera unless you manually set the following parameters for the network:

**IP Address:** IP address is the identification of IP camera in the network. It consists of four groups of numbers between 0 and 255, separated by periods. For example, "192.168.001.100".

**Subnet Mask:** It is a network parameter that defines the range of IP addresses that can be used in the network. If the IP address is like the street where you live, then the subnet mask is like a community. The subnet address also consists of four sets of numbers, separated by periods. For example

"255.255.000.000"

**Gateway:** This address allows IP camera to access the network. The format of the gateway address is the same as the IP address. For example, "192.168.001.001".

**DNS1/DNS2:** DNS1 is the primary DNS server, and DNS2 is the backup DNS server. It is usually sufficient to enter the DNS1 server address.

**Main Stream:** After checking, you can use the main stream for multicast.

**Multicast Address:** Set the multicast address.

### 8.8.1.2 PPPoE

The screenshot displays the web interface for configuring an IP camera. At the top, there are two main tabs: 'Remote Setting' (highlighted in orange) and 'Local Settings'. Below these, there are four sub-tabs: 'General', 'PPPoE' (highlighted in green), 'SNMP', and 'Port Configuration'. The 'PPPoE' sub-tab is active, showing a configuration form. The form includes a toggle switch for 'Enable PPPOE', which is currently turned off. Below this are three text input fields: 'Username', 'Password', and 'IP Address'. The 'IP Address' field contains the value '172.020.031.082'. At the bottom of the form, there are two buttons: 'Save' and 'Refresh'.

This is an advanced protocol that allows IP camera to connect more directly to the network through a DSL modem.

Check the "Enable PPPOE" box, and then enter the PPPoE username and password.

Click "Apply" to save, and the system will restart to activate the PPPoE settings.

### 8.8.1.3 SNMP

Simple Network Management Protocol (SNMP), a standard application layer protocol, is specifically designed to manage network nodes (like servers, workstations, routers, switches, and HUBS, etc.) in an IP network.

The screenshot displays the SNMP configuration interface. At the top, there are tabs for 'Remote Setting' and 'Local Settings'. Below these, a sidebar contains 'General', 'PPPoE', 'SNMP', and 'Port Configuration'. The 'SNMP' tab is selected. The main area contains the following settings:

- Enable:** A toggle switch.
- SNMP Version:** A dropdown menu with 'V1,V2' selected.
- SNMP Port:** A text input field containing '161', with a range indicator '(1 ~ 65535)' to its right.
- Read Community:** A text input field containing 'public'.
- Write Community:** A text input field containing 'private'.
- Trap IP Address:** A text input field containing '127.0.0.1'.
- Trap Port:** A text input field containing '162', with a range indicator '(1 ~ 65535)' to its right.

At the bottom of the configuration area are two buttons: 'Save' and 'Refresh'.

**Enable:** Enable or disable SNMP.

**SNMP Version:** Set the version of the SNMP server. V1, V2, V1, V2 and V3 are optional.

**SNMP Port:** Set the port of the SNMP server.

**Read Community:** Set the Read Community value of the SNMP server.

**Write Community:** Set the Write Community value of the SNMP server.

**Trap IP Address:** Set the Trap IP address of the SNMP server.

**Trap Port:** Set the Trap port of the SNMP server.

### 8.8.1.4 Port Configuration

General	PPPoE	SNMP	Port Configuration			
Server	Internal Port	External Port	Protocol	UPNP Status	Mapping Strategy	UPNP
HTTP Port	80	80	TCP	Inactive	Auto	<input type="checkbox"/>
Client Port	554	9000	TCP	Inactive	Auto	<input type="checkbox"/>
HTTPS Port	443	443	TCP	Inactive	Auto	<input type="checkbox"/>
RTSP Port	554	554	TCP	Inactive	Auto	<input type="checkbox"/>
Multicast Port	10000	(1024-65535)				
<input type="button" value="Save"/> <input type="button" value="Refresh"/>						

**Web Port:** This is the port you use to log in to the IP camera remotely (for example, using a web client). If other application is already using port 80, please change it.

**Client Port:** This is the port that IP camera will use to send information (for example, using a mobile application). If other application already use the default port 9000, please change it.

**RTSP Port:** The default value is 554. If other applications have already used the default port 554, please change it.

**HTTPS:** It is an HTTP channel for security. On the basis of HTTP, the security of the transmission process is guaranteed through transmission encryption and identity authentication.

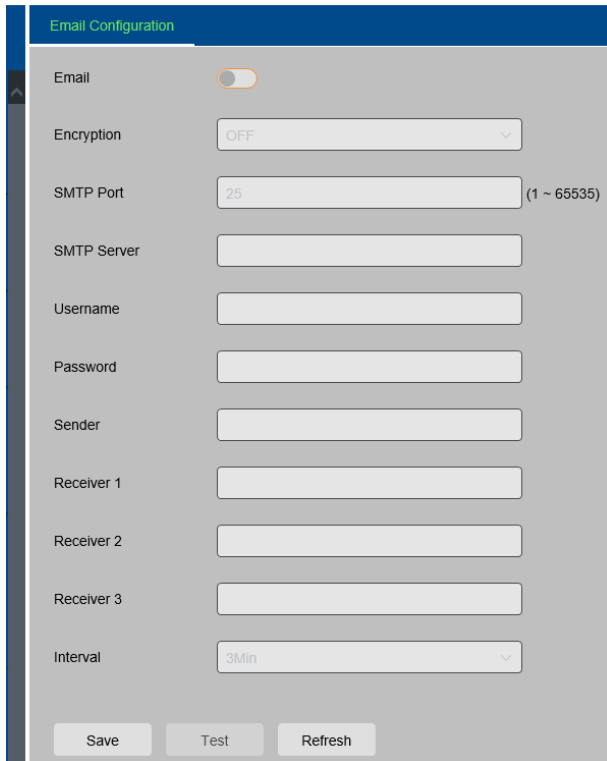
**UPNP:** If you want to use Web Client to log in to the device remotely, you need to complete port forwarding on the router. If your router supports UPnP, please enable this option. In this case, you do not need to manually configure port forwarding on the router. If your router does not support UPnP, please manually complete port forwarding on the router.

**Multicast port:** Multicast port can be set.

**P2P Switch:** P2P switch, P2P will not take effect after it is turned off.

## 8.8.2 Mail Settings

This menu allows you to configure email settings. If you want to receive notifications via email when an alarm is triggered or the hard drive is full, please complete these settings.

The screenshot shows a web interface titled "Email Configuration". It features a sidebar on the left with a blue header and a list of settings. The main content area is a light gray box with a blue header. The settings include: "Email" (a toggle switch), "Encryption" (a dropdown menu set to "OFF"), "SMTP Port" (a text input field with "25" and a range "(1 ~ 65535)" to its right), "SMTP Server" (a text input field), "Username" (a text input field), "Password" (a text input field), "Sender" (a text input field), "Receiver 1" (a text input field), "Receiver 2" (a text input field), "Receiver 3" (a text input field), and "Interval" (a dropdown menu set to "3Min"). At the bottom of the main area are three buttons: "Save", "Test", and "Refresh".

**Email:** Check to enable

**Encryption:** If your email server requires SSL or TLS authentication, please enable it. If you are not sure, please set to "Auto".

**SMTP Port:** Enter the SMTP port of the email server.

**SMTP Server:** Enter the SMTP server address of the e-mail.

**UserName:** Enter your email address

**Password:** Enter your email password

**Receiver 1~3:** Enter the email address you want to receive event notifications from IP camera.

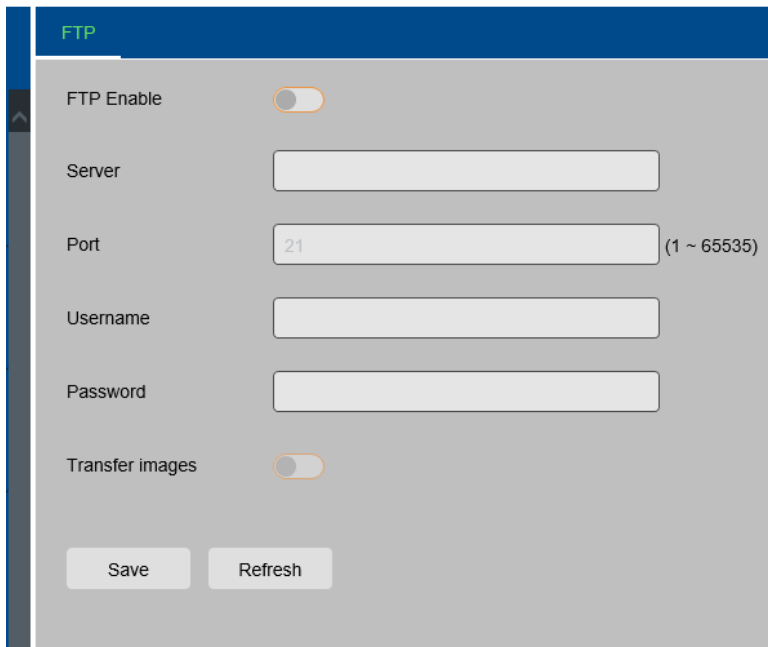
**Interval:** Configure the time interval between IP camera notification emails.

To make sure all settings are correct, click "Test Email". An email will be sent to your mailbox. If you receive a test email, it shows the configuration parameters are correct.



### 8.8.3 FTP Server Settings

Through this menu, you can enable the FTP server to view pictures and videos uploaded from IP camera to FTP.



The screenshot shows the 'FTP' settings page. It includes a toggle for 'FTP Enable', a text field for 'Server', a text field for 'Port' (with a range of 1 to 65535), text fields for 'Username' and 'Password', and another toggle for 'Transfer images'. 'Save' and 'Refresh' buttons are at the bottom.

**FTP Enable:** Click to enable FTP function.

**Server:** Enter the IP address or domain name of your FTP server.

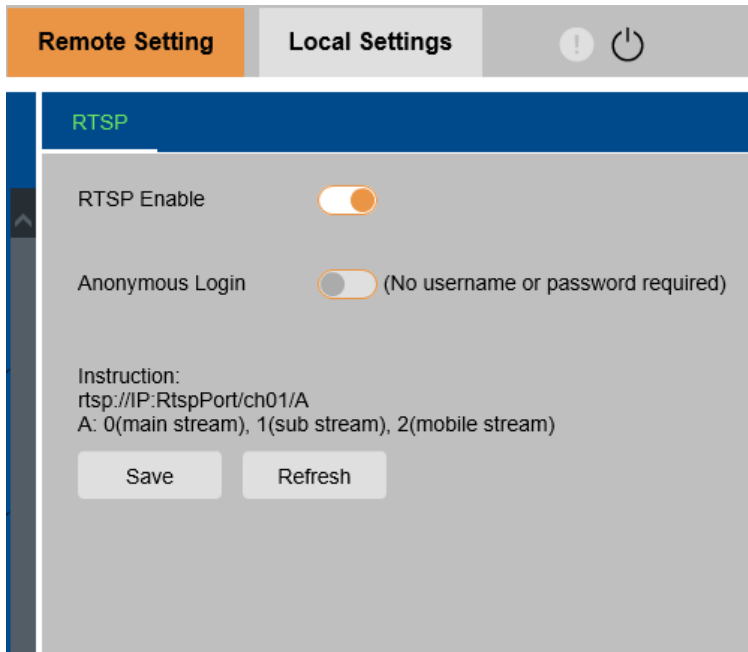
**Port:** Enter the FTP port.

**Name/ Password:** Enter the username/password of your FTP server.

**Transfer images:** After checking, the alarm pictures will be uploaded to the FTP server, otherwise only text warnings will be uploaded.

### 8.8.4 RTSP Settings

RTSP (Real Time Streaming Protocol), RFC2326, is an application layer protocol in the TCP/IP protocol system. This protocol defines how one-to-many applications can effectively transmit multimedia data through an IP network. It allows you to view real-time images through video player.



**RTSP Enable:** Turn on/off. This protocol can be used only after it is on.

**Anonymous Login:** Anonymous login. After it is enabled, the protocol can be used without authentication.

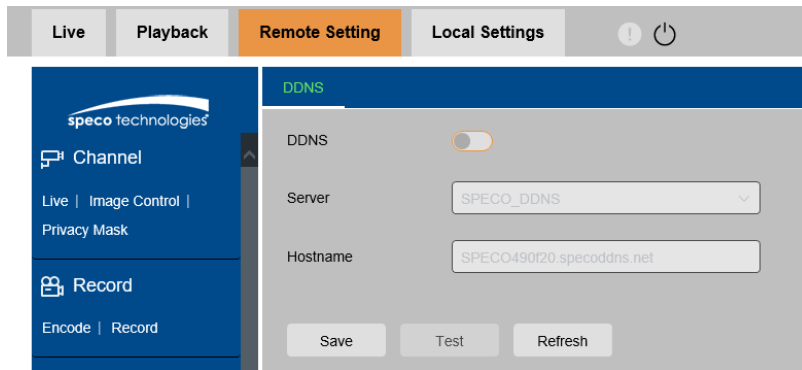
### 8.8.5 DDNS Settings

This menu allows you to set DDNS. DDNS provides a static address to simplify the remote connection with IP camera. To use DDNS, you first need to create an account on the webpage of the DDNS service provider.

**DDNS:** Check to enable DDNS.

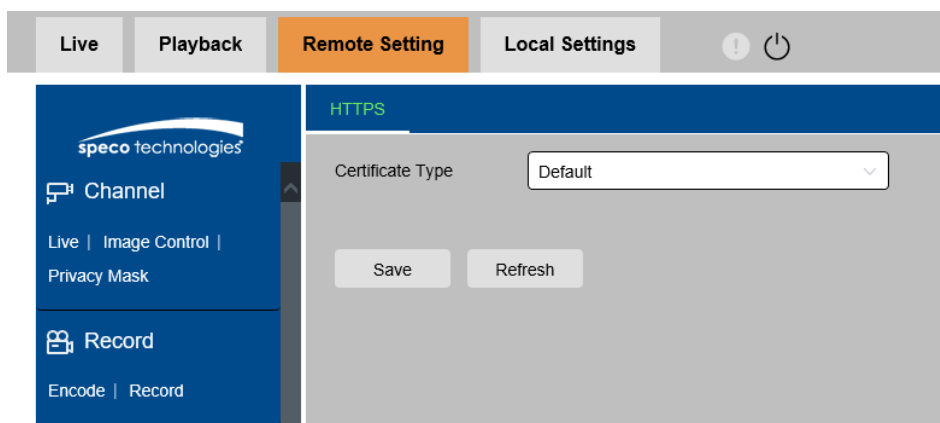
**Server:** Speco\_DDNS

**Hostname:** It will display automatically.



### 8.8.6 HTTPS Setting

The camera can be connected via HTTPS protocol, which can be set in this menu.



**Certificate Type:** Authentication type. There are two types: default and custom. Custom allows you to use your own certificate to connect to the camera.

**Certificate:** Under the custom type, a custom certificate must be selected.

**Key:** Under the custom type, a custom Key file must be selected.

## 8.8.7 IP Filter

This function can set the allow list and block list of camera.

IP Filter

Enable ☐

Type ☒ Enable Allow List ☐ Enable Block List

Restricted Type

No.	Start Address	End Address	CON.
No data available			

**Enable:** Enable or disable filter function. After enabling, allow list and block list are optional.

**Restricted Type:** Select the list (allow list and block list) to be set.

**Start Address:** Enter the start address.

**End Address:** Enter the end address.

## 8.9 Camera Management

### 8.9.1 Disk Management

This menu allows you to check and configure the internal SD card. Formatting is only required for the first access or when replacing a new SD card.

Disk

NO.	Serial No.	Edit	Type	Status	Free / Total (G)	Free / Total (T)
1SD	SD0		Read/Write	FULL	0M/14G	0Min/4Hour

Overwrite

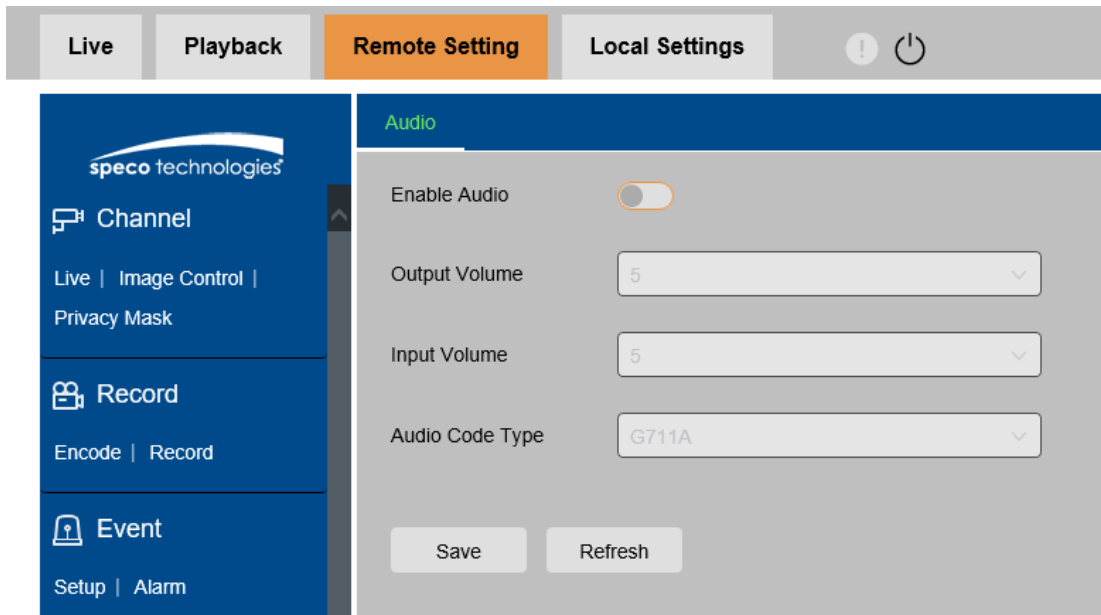
**Format Hard Disk:** Select the SD card to be formatted, and then click Format Hard Disk. To start formatting, you need to enter your username and password, and then click OK

**Overwrite:** When SD card is full, use this option to overwrite the old records on the SD card. Select Auto, when the SD card is full, the initial data will be automatically overwritten. If you do not want

any old videos to be overwritten, please select OFF. If this function is disabled, please check the SD card status regularly to ensure that the SD card is not full.

### 8.9.2 Audio Setting

This menu can set the volume of the camera.



**Enable Audio:** Turn on/off audio.

**Output Volume:** Set the volume of output audio.

**Input Volume:** Set the volume of input audio.

**Audio Code Type:** Set the audio decoding type. G711A and G711U are supported.

## 8.10 System

It used to change system information, such as date, time and region, password and permissions, etc.

### 8.10.1 General

#### 8.10.1.1 Date and time

The screenshot shows the 'Date and Time' configuration page. At the top, there are two tabs: 'Date and Time' (active) and 'Daylight Saving Time'. Below the tabs, the 'Time setting mode' is set to 'Static' (indicated by an orange radio button). The 'Date Format' is set to 'Month/Day/Year'. The 'Time Zone' is set to 'GMT+08:00 (Beijing, Chongqing, Hong Kong)'. The 'Time Format' is set to '24Hour'. The 'System time' is displayed as '01/22/2022' and '14 : 40 : 09'. At the bottom, there are three buttons: 'Save', 'Synchronize computer time', and 'Refresh'.

**Time setting mode:** Time mode, there are static and NTP synchronization optional. Static time needs to be set by yourself, while NTP synchronization will perform time calibration via network.

**Date Format:** Set the date format.

**Time Zone:** Select the time zone related to your area or city.

**Time Format:** Select the preferred time format.

**System Time:** Click the box to change the date and time.

**Synchronize computer time:** Synchronize the time to the computer time.

If NTP synchronization is selected, the time cannot be set manually at this time.

**Sever Address:** The automatic time calibration website can be chosen.

**Date and Time**    Daylight Saving Time

Time setting mode    ☐ Static    ☒ NTP server synchronization

Date Format    Month/Day/Year

Time Zone    GMT+08:00 (Beijing, Chongqing, Hong Kong)

Time Format    24Hour

System time    01/22/2022    14 : 39 : 56

Server Address    time.windows.com

Save    Synchronize computer time    Refresh

### 8.10.1.2 Daylight Saving Time (DST)

This function allows you to choose to increase DST in a specific time zone or region.

**Date and Time**    Daylight Saving Time

Daylight Saving Time    ☒    ☐ Set by week    ☐ Set by date

Start Time    March    The 2nd    Sun.    02 : 00 : 00

End Time    November    The 1st    Sun.    02 : 00 : 00

Time Offset    1Hour

Save    Refresh

**Daylight Saving Time:** If your time zone uses DST, please enable this option.

**Set by week:** Select the month, specific week and time for DST to start and end. For example, at 2 AM on the first Sunday of a month.

**Set by date:** Select the start and end date and time of DST.

**Start Time / End Time:** Set the start time and end time of DST.

**Time Offset:** Select the time that DST increases in your time zone. This is the difference between Coordinated Universal Time (UTC) and local time.

## 8.10.2 Multi-user management

This menu allows you to configure user name, password and user permissions

The system supports the following user types:

**ADMIN** —System Administrator: The administrator can fully configure the system, and can change the administrator password and user password, and enable/disable password protection.

**USER** — Ordinary user: The user only has access to preview, search, playback and other functions. You can set up multiple users with different system access permission.

Multi-User					
NO.	Username	Level	Status	Password	Policy
1	admin	admin	Enable		
2	user1	user1	Disable		
3	user2	user2	Disable		
4	user3	user3	Disable		
5	user4	user4	Disable		
6	user5	user5	Disable		
7	user6	user6	Disable		

Refresh

Username	Editing	Password
admin		
user1		
user2		
user3		
user4		
user5		
user6		

Editing

Username

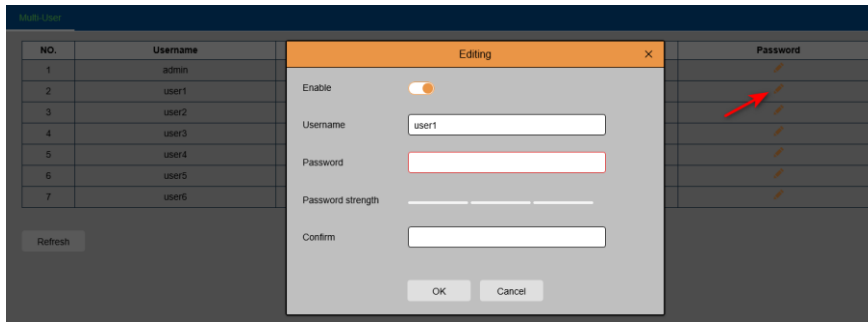
Password

Password strength

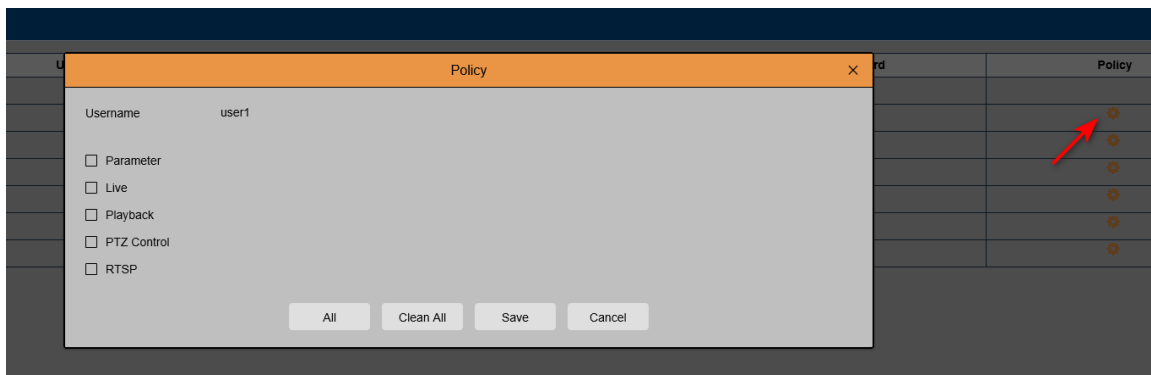
Confirm

OK Cancel

To change the administrator's or user's password, click the "Editing" icon. The password must be at least 8 characters and must be composed of numbers, letters and symbols. Enter the new password again to confirm. Save the new password, the system will ask you to enter the old password for authentication.



1. Select one of the disabled users and click "Editing" icon.
2. Check "Enable" to enable the user.
3. Click "UserName" to edit user name.
4. Click the area next to Password to enter the required password.
5. Click the area next to Confirm to re-enter the password.
6. Click Save. You need to enter the administrator password for authentication.



Set the user's permission and check the box corresponding to the function. Click All to select all boxes. Click Clear to clear all boxes.

### 8.10.3 System Maintenance

In this menu, you will be able to search and view system logs, restore factory settings, upgrade the system, export and import system parameters, and configure system's automatic reboot.

#### 8.10.3.1 Log Management

The system log shows important system events such as motion alarms and system warnings. You can easily import the system log backup file to the computer within a set period of time.

No.	Time	Log Content	Log Info
1	01/22/2022 14:43:19	Motion Start	Is there a video: has record
2	01/22/2022 14:43:16	Motion End	Is there a video: has record
3	01/22/2022 14:42:59	Motion Start	Is there a video: has record
4	01/22/2022 14:42:40	Motion End	Is there a video: has record
5	01/22/2022 14:42:28	Motion Start	Is there a video: has record
6	01/22/2022 14:42:23	Motion End	Is there a video: has record
7	01/22/2022 14:41:35	Motion Start	Is there a video: has record
8	01/22/2022 14:41:23	Motion End	Is there a video: has record
9	01/22/2022 14:40:57	Motion Start	Is there a video: has record
10	01/22/2022 14:40:44	Motion End	Is there a video: has record

### Log search and backup:

1. Click the area next to Start Time and select the start date and time from the on-screen calendar
2. Click the area next to End Time and select the end date and time from the on-screen calendar.
3. Select the event type you want to search from the drop-down list next to Log Type, or select All to view the entire system logs for the selected time period. Optional types are: system log, configuration log, alarm log, account log, recording log, storage log, and network log.

4. Select the type of event to search from the drop-down list next to Minor Type (if ALL is selected for Log Type, there will be no such menu), or select All to view the entire system logs for the selected time period. The optional types are:

- **system:** System settings, reboot, automatic reboot, upgrade, time setting and NTP time adjustment.
- **configuration:** IP camera preview control, privacy zone setting, recording mode setting, recording plan setting, main stream setting, network setting, sub-stream setting, mail setting, color setting, motion detection setting, hard disk setting, multi-user setting, NTP settings, image control, mobile stream settings, RTSP settings, IP filter settings, factory reset, audio settings, video occlusion alarm settings, export settings and import settings.
- **alarm:** Motion detection start, motion detection end, IO alarm start, IO alarm end, PID start, PID end, LCD start, LCD end, SOD start, SOD end, PD&VD start, PD&VD end, CC start, CC end, CD start, CD

end, QD start, QD end, sound alarm start and sound alarm end.

·**account:** Login, logout and switch users.

·**recording:** Search, playback and backup.

·**storage:** Format hard disk, hard disk is full, and hard disk error.

·**network:** Offline, online, network error and network mode change.

1. Click Search to search.

2. Browse the system log from the selected time interval:

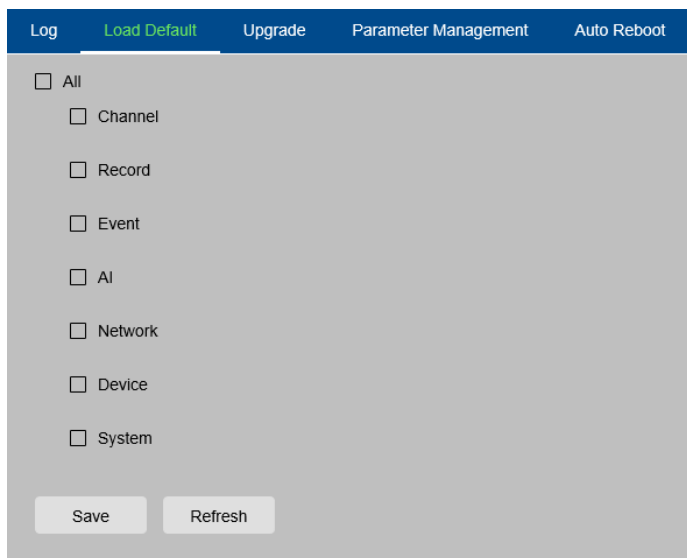
7. Switch the pages of system log events by such buttons like [K < / > >I](#).

Enter the export file name in the field next to Name. Click Export to create a backup of system logs.

### 8.10.3.2 Restore factory settings

Reset camera to factory settings. You can choose to reset all settings at once or reset the specific settings only.

Note: Restoring the default settings will not delete the videos and snapshots saved in the SD card.



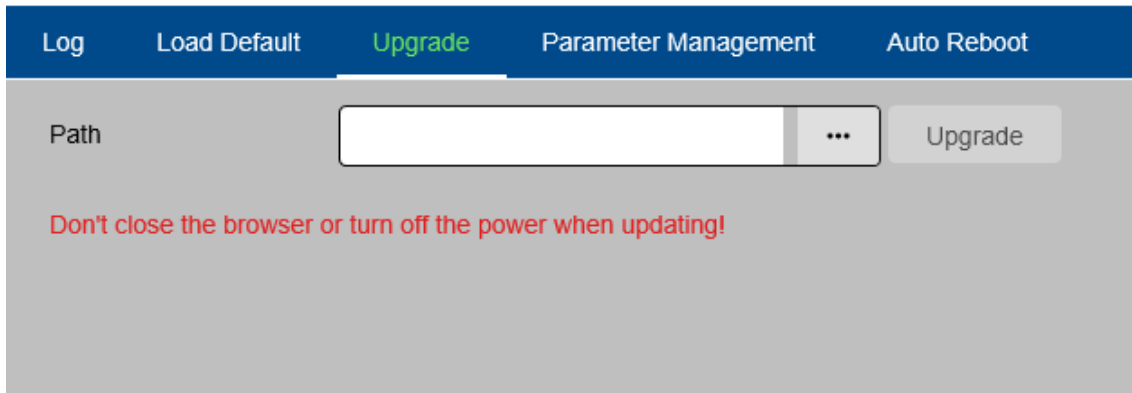
The screenshot shows the 'Load Default' settings page. The header is blue with tabs: 'Log', 'Load Default' (highlighted in green), 'Upgrade', 'Parameter Management', and 'Auto Reboot'. Below the header, there is a list of settings categories with checkboxes: 'All', 'Channel', 'Record', 'Event', 'AI', 'Network', 'Device', and 'System'. At the bottom, there are two buttons: 'Save' and 'Refresh'.

Select items to be restored, or click All to select all items. Click "Save" to load the default settings.



### 8.10.3.3 System Upgrade

This menu allows to upgrade camera's firmware.



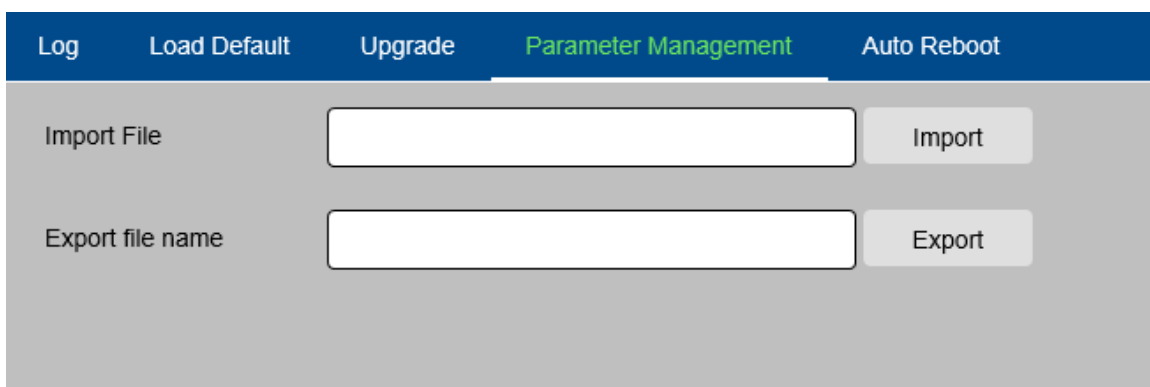
The screenshot shows the 'Upgrade' tab selected in the top navigation bar. Below the navigation bar, there is a 'Path' label followed by a text input field and a button with three dots (a file selector). To the right of the input field is an 'Upgrade' button. Below these elements, a red warning message states: 'Don't close the browser or turn off the power when updating!'.

1. Put the firmware file (.sw file) on the computer hard disk.
2. Click "..." beside "Path" and select the firmware file in the computer.

Click Upgrade button to start. The upgrade will last about 5-10 minutes, please do not turn off the power of the camera or close IE during this period.

### 8.10.3.4 Parameter management

You can export the configured main menu parameters to the computer, or import the exported settings file from the computer to the camera.



The screenshot shows the 'Parameter Management' tab selected in the top navigation bar. Below the navigation bar, there are two sections. The first section has an 'Import File' label, a text input field, and an 'Import' button. The second section has an 'Export file name' label, a text input field, and an 'Export' button.

**Import File:** Click the box, and the path window will pop up. After selecting the parameter file, click Import to start importing the parameters.

**Export File Name:** Click the box to enter the file name of the exported parameters. Click Export to

export parameters

### 8.10.3.5 Automatic Maintenance

This menu allows the system to automatically reboot periodically. It is recommended to keep this function enabled, because it can maintain the operational stability of the camera.

The screenshot shows the 'Auto Reboot' configuration page. At the top, there is a navigation bar with tabs: 'Log', 'Load Default', 'Upgrade', 'Parameter Management', and 'Auto Reboot' (which is highlighted in green). Below the navigation bar, the 'Auto Reboot' section contains a toggle switch that is currently turned off. Underneath the toggle, there are three input fields: 'Time' with a dropdown menu showing 'Every Week', a second dropdown menu showing 'Sun.', and a time selection field showing '00 : 00'. Below these fields, a red note states: 'Note: The system will restart at some random time within 2 hours after the set time point'. At the bottom of the page, there are three buttons: 'Save', 'Refresh', and 'Reboot'.

**Auto Reboot:** Click to enable

**Time:** The IP camera can be set to reboot by day, week or month.

### 8.10.4 System Information

This menu allows you to view system information, such as camera ID, model name, MAC address, firmware version, etc.




Information	
Device ID	000000
Device Name	RS-CH256M4ND-DF-WA2812PW
Device Type	RS-CH256M4ND-DF-WA2812PW
Hardware Version	RS-CM-379B
Software Version	V31.35.7.1_211122
Web Version	V1.0.1.157_211104
MAC Address	00-23-63-8D-E3-95
Refresh	

## 9. Local Settings

This menu allows you to set the save path of recording, downloading and snapshot files, as well as the format of recording and snapshot.

Note: Programs without plug-ins are supported. If you use Safari 12 and above, Chrome57 and above, Firefox 52 and above, Edge 41 and other browsers for web access, this menu can be ignored.

Path configuration

Record Path	<input type="text" value="D:\Device\Record"/>	
Download Path	<input type="text" value="D:\Device\Download"/>	
Snapshot Path	<input type="text" value="D:\Device\Capture"/>	
File type	<input type="text" value="MP4"/>	▼
Interval	<input type="text" value="10"/>	▼ Minute
Capture Type	<input type="text" value="JPG"/>	▼

## Appendix

### Appendix 1 Troubleshooting

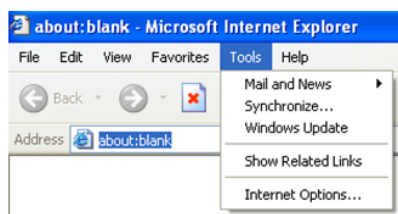
#### IP Scanner does not show any device.

Make sure that the PC that's running IP Scanner is on the same local network as the devices.

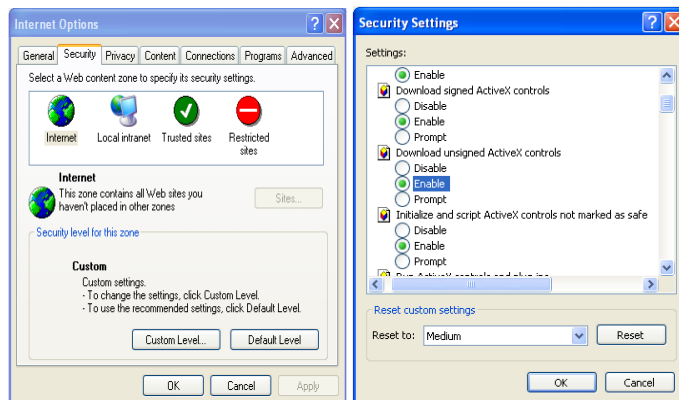
#### Internet Explorer cannot download ActiveX control.

IE browser may be set up to block ActiveX. Follow the steps below.

1. Open IE browser and then click Tools->Internet Options



2. Select Security and then Custom Level
3. Enable all the options under "ActiveX controls and plug-ins".
4. Click OK to finish setup.



**Models: O5SB1/O5ST1/O5SD1/O5SP1/O5SD1M/O5SB1M/O5ST1M**

**Federal Communications Commission (FCC) Statements**

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device maynot cause harmful interference,and (2) This device must accept any interference received, including interference that may cause undesired operation.

**FCC Responsible Party:**

Speco Technologies  
200 New Highway  
Amityville, NY11701  
[www.specotech.com](http://www.specotech.com)