USER MANUAL

PTZ CAMERA

PTZ

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Preface

Thank you for using our High Definition (HD) intelligent Pan/Tilt/Zoom camera (hereinafter referred to as the PTZ camera). This product is a new network PTZ camera integrating the network remote monitoring, video server, and HD PTZ camera functions. It uses a powerful System on a Chip (SoC) as a media processor that embraces audio/video acquisition, compression, and transmission. The standard H.264/H.265 encoding algorithm ensures a clearer and smoother video transmission effect. The built-in Web Server allows users to easily perform real-time monitoring and remote control of front-end PTZ cameras through the Internet Explorer (IE) browser. The PTZ camera supports dynamic adjustment of the encoding parameters, including TCP/IP, PPPoE, DHCP, UDP, FTP, SNMP, and other protocols. It also supports open interconnection protocols such as ONVIF and CGI. The PTZ camera has a built-in PTZ, which is driven by a precision motor. The device is sensitive and operates stably, and there is no image dithering under any circumstances.

Owing to its characteristics, the PTZ camera is widely used in various customer groups, including large and medium-sized enterprises, government projects, shopping malls, chain supermarkets, intelligent buildings, hotels, hospitals, and schools. It is also applied to various occasions where remote network video transmission and monitoring are required. This product is easy to install and user friendly.

Note:

In this manual, PTZ cameras refer to professional network PTZ cameras.
Click indicates click on the left mouse button.
Double click indicates double click on the left mouse button.
The default IP address of a PTZ camera is 192.168.1.168
The username of the default administrator of the PTZ camera upon delivery is admin (lower case), and the password is admin (lower case).
The Web port number is 80 by default. The media port number is 9000 by default.
The specific functions depend on the actual models.

Notes:

Some information contained in this manual may differ from the actual product. For any problems that cannot be solved using this manual, please feel free to contact our technical support or product vendor. This manual is subject to change without prior notice.

1. Overview

1.Scope of Application

PTZ cameras with powerful image processing capabilities can be applied in various public places such as shopping malls, supermarkets, schools, factories, and workshops, as well as environments requiring HD video images such as banks and street intersections, as shown below:
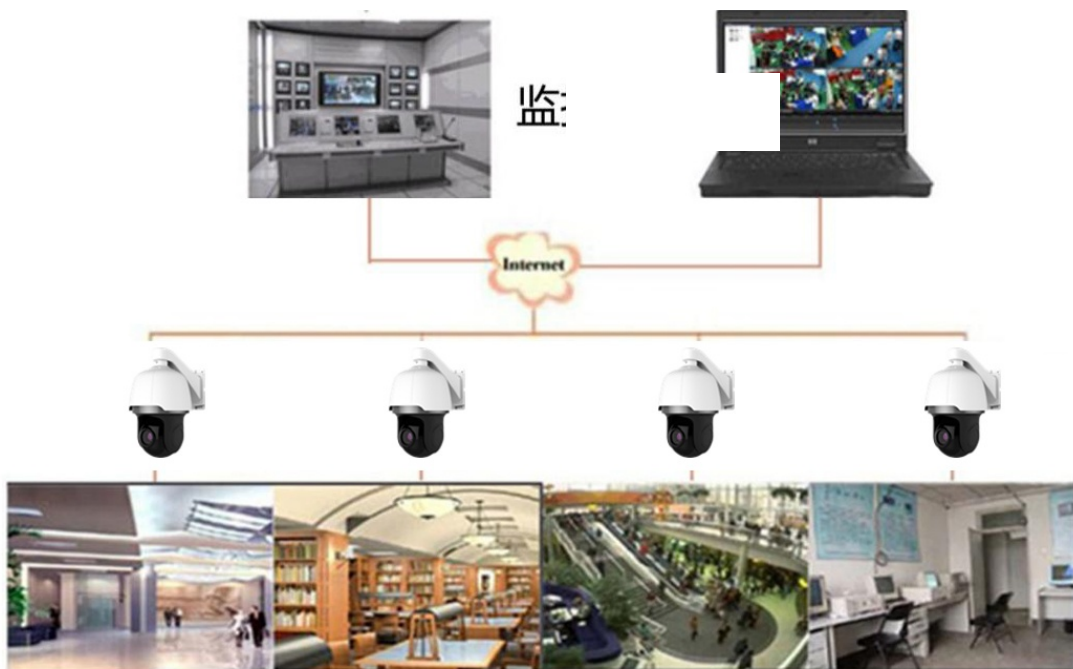
2.Product Description

This product is a digital network PTZ camera for monitoring. It has a built-in Web server and can operate independently.

➢ Supports Web access, application in Wide Area Network (WAN) environments, and PTZ camera parameter configuration.

➢ Supports simultaneous multi-user live view.

➢ Supports multiple network transmission protocols (DHCP, PPPoE, TCP/IP).

The PTZ camera, based on the state-of-the-art Hisilicon solution, is an integrated media processing platform for audio/video acquisition, compression, and network transmission on a single board. It can achieve the High Profile encoding standard of H.264/H.265 at most. This PTZ camera solution is suitable for small and medium-sized families or business offices as well as the occasions requiring remote network video transmission and monitoring. This product is easy to install and user friendly.

Three-stream transmission is supported. Users can select to use the main stream, sub

stream, or mobile stream in accordance with the actual application environments.

Video recording to memory cards is supported. Users can store mobile alarm video recordings and intelligent alarm video recordings in memory cards, and can play them back in real time on Web pages.

Cruise function: It also supports the cruise function, involving default cruise, preset point configuration, watch position, track cruise, pattern scan, and line scan.

3.Operating Environment

System: Windows XP, Windows 7, Windows 8, Windows 10, Windows 11, MacOS 10, or later.

CPU: Intel I3 or later.

Memory: 2 GB or higher.

Video memory: 1 GB or higher.

Display: 1024 × 768 or higher.

Browsers: IE 10 and later, Chrome 57 and later, Firefox 52 and later, Edge 41 and later, and Safari 12 and later.

2. Device Connection

A PTZ camera can be connected in two ways:

2.1. Connecting to a PC

Directly connect a PTZ camera to a PC through a network cable, connect the power input to the DC 12 V adapter, and set the IP addresses of the PC and the PTZ camera on the same network segment. If the network is running properly, the PTZ camera will communicate with the PC within one minute after turned on.

2.2. Connecting Through a Router/Switch

This connection method is used when a PTZ camera is connected to the Internet where the PTZ camera and PC are connected to the LAN ports of a router/switch and the gateway of the camera is set to the IP address of the router.
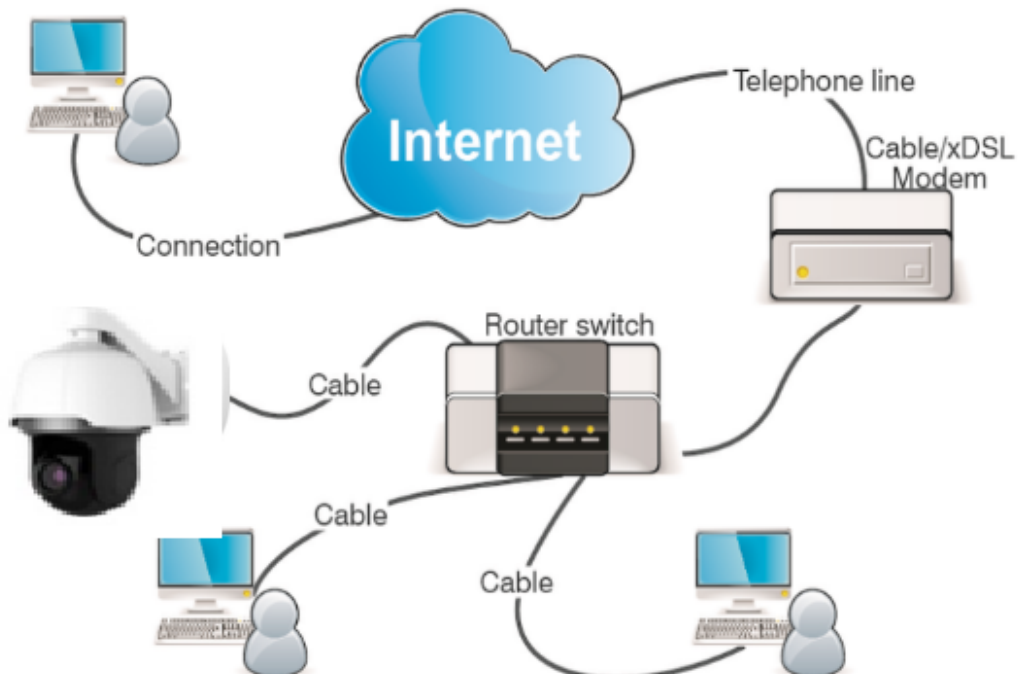
3. IP Configuration of a PTZ Camera by Device Config Tool

Run the Device Config Tool ( ), click **Search** to obtain the PTZ camera information of the LAN as shown in Figure 3.1, and locate the PTZ camera in accordance with its P2P or MAC address.

No.	IP	Media Port	Web Port	Channel	Device Name	Device Type	Device Version	Net Mask	Gateway	MAC	Network Mode	P2P ID	Status
1	172.20.58.24	9000	80	1	327DE@307	RS-CH281M4ND-DF-WA2812PW	V18.25.8.2.2_220402	255.255.255.0	172.20.58.1	00-23-63-94-A7-01	DHCP	NK8RKSMX2VT4SSSP111A	
2	172.20.58.25	9000	80	1	RS-CH228M8TA-LDF-LFWA2812PW	RS-CH228M8TA-LDF-LFWA2812PW	V31.35.8.2.2_220301	255.255.255.0	172.20.58.1	00-23-63-94-A6-BC	DHCP	RSV2106001549442	
3	172.20.58.32	9000	80	1	Hhh	IP CAMERA	V1.0.0.B0001701010103_220331	255.255.255.0	172.20.58.1	00-23-63-98-C4-CE	DHCP	H3LXDSD24U2PVBF4111A	
4	172.20.58.36	9000	80	1	IP CAMERA	IP CAMERA	V27.45.8.2.2_220318	255.255.255.0	172.20.58.1	00-23-63-91-EC-FB	DHCP	V5LR322T76EHP1HA111A	
5	172.20.58.37	9000	80	1	IP CAMERA	IP CAMERA	V31.35.8.2.2_220301	255.255.255.0	172.20.58.1	00-23-63-92-14-5C	DHCP	W6RNEWB2B9XJNV6R111A	
6	172.20.58.38	9000	80	1	IP CAMERA	IP CAMERA	V26.34.8.2.2_220402	255.255.255.0	172.20.58.1	00-23-63-90-8D-9C	DHCP	SRDGHGWYYUFAS7CX111A	
7	172.20.58.41	9000	80	1	98529_IM415	RS-CH340N4MDA-LDF-LFWA2812PW	V30.85.8.2.2_220412	255.255.255.0	172.20.58.1	00-23-63-94-A7-0D	DHCP	ZPBFUMZ7SWHLPCW511...	
8	172.20.58.54	9000	80	40	DVR7116	D7116	V8.2.2-20220416	255.255.255.0	172.20.58.1	00-23-63-98-48-4F	DHCP	RSV2111004372562	
9	172.20.58.58	9000	80	1	dwl	RS-CH340N4KRB-LTF-LFW36PW-M	V30.85.8.2.2_220412	255.255.255.0	172.20.58.1	00-23-63-94-A6-E1	DHCP	RSV2106001591170	
10	172.20.58.70	9000	80	1	IP CAMERA	IP CAMERA	V1.0.0.B0001701010103_220331	255.255.255.0	172.20.58.1	00-23-63-98-C4-C4	DHCP	F2TXPBB234ZFLHD5111A	

Figure 3.1

Note: The default IP address of the PTZ camera is 192.168.1.168, the default username is admin, and the default password is admin.

As shown in Figure 3.1, select the corresponding device, enter your username and password, edit the corresponding network information, and click **Modify** to save changes.

Note: If the current network supports DHCP, you can directly change the **Net Mode** to **DHCP** to get the IP address.

4. Login Through IE

4.1. Accessing a PTZ Camera from a Web Client

Figure 4.1.1

Use Device Config Tool to search for the PTZ cameras in the current network. As shown in Figure 4.1.1, click an IP address and use your IE browser to log in to the corresponding PTZ camera.

You can also open your IE browser and type the following information into the address bar: HTTP://ip:web port. As shown in Figure 4.1.1, the IP address of the device to be accessed is 172.20.62.26, the web port number is 80, and the combined URL is http://172.20.62.26:80.

Note: In practical applications, the default port number is 80 in HTTP access mode.

4.2. Logging in to a PTZ Camera for the First Time

When you access a PTZ camera from a web client, the program pops up the screen as shown in Figure 4.2.1 because the default password of the device is too simple, asking you to set a more complex password. Click to see the password setting requirement:

A password must be 8 to 16 characters long consisting of any two of the following types of characters: uppercase letters, lowercase letters, digits, and special characters. The password must be different from the username.
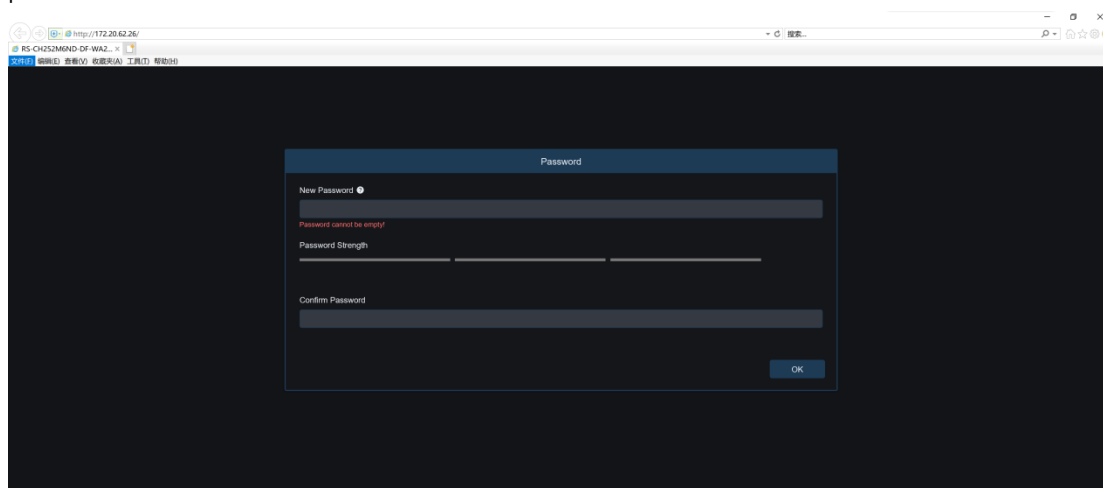
Figure 4.2.1

After setting a new password, click **OK** to save the change. The screen is displayed as shown in Figure 4.2.2. You can select the check boxes as needed to set the corresponding password retrieval method. You may cancel the setting directly by not selecting the checkboxes, and then the password retrieval function is disabled.
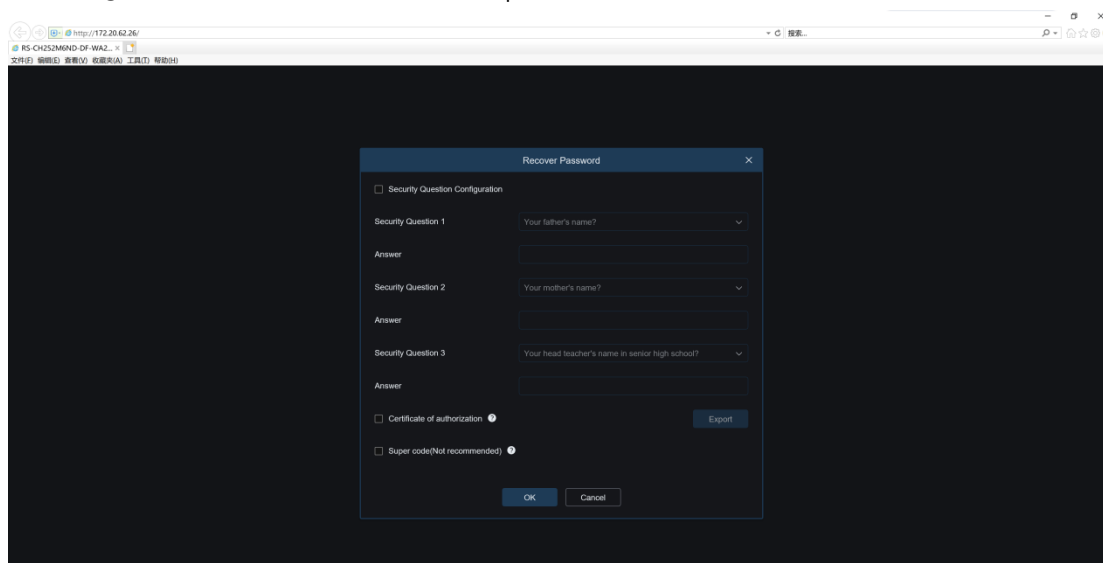
Figure 4.2.2

①Security Question Configuration: This method is used to change the user password by

question verification. You need to select the **Security Question Configuration** check box, select three questions among 15 questions, and set each answer at a maximum length of 64 characters for recovering your password.

②Certificate of authorization: This method is used to change the user password by using a certificate. You need to select the **Certificate of authorization** check box, and click **Export** to download the certificate.txt file.

③Super code (Not recommended): This method is used to calculate a super code, with which you are allowed to change the user password. The super code is calculated based on the MAC address and system time of the PTZ camera. It is not recommended that you enable this function because the MAC address of the PTZ camera is broadcast over the network and the system time of the PTZ camera can be directly obtained when you log in from a web client.

Note: If the password retrieval function is enabled, keep your verification information properly.

4.3. Logging in to a PTZ Camera Normally

After accessing a PTZ camera from a web client, you are directed to the login screen as shown in Figure 4.3.1. Enter your username and password, and click **Login** to access the GUI where you can perform operations on the PTZ camera. You can select the language as required upon login.
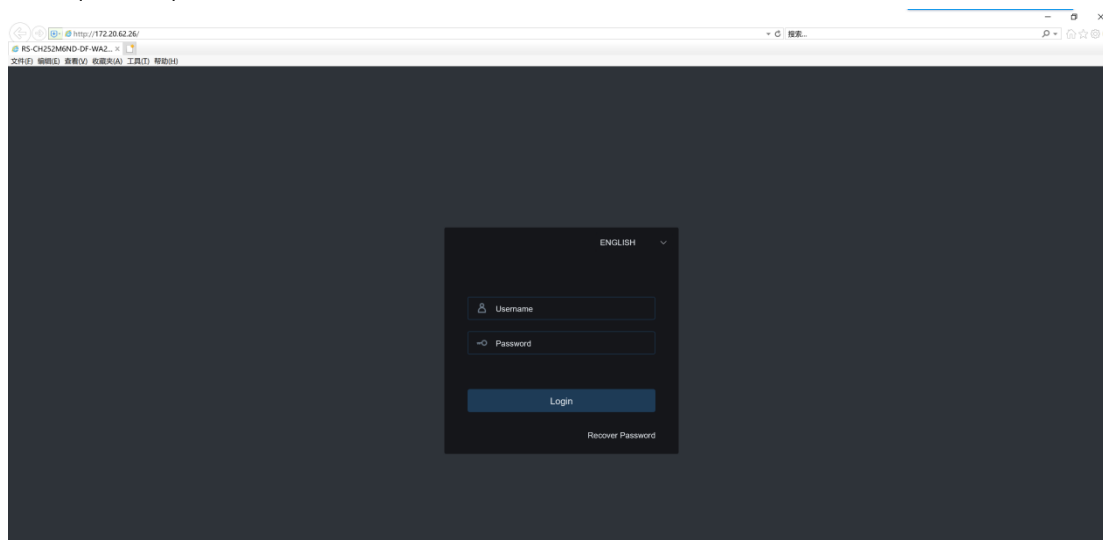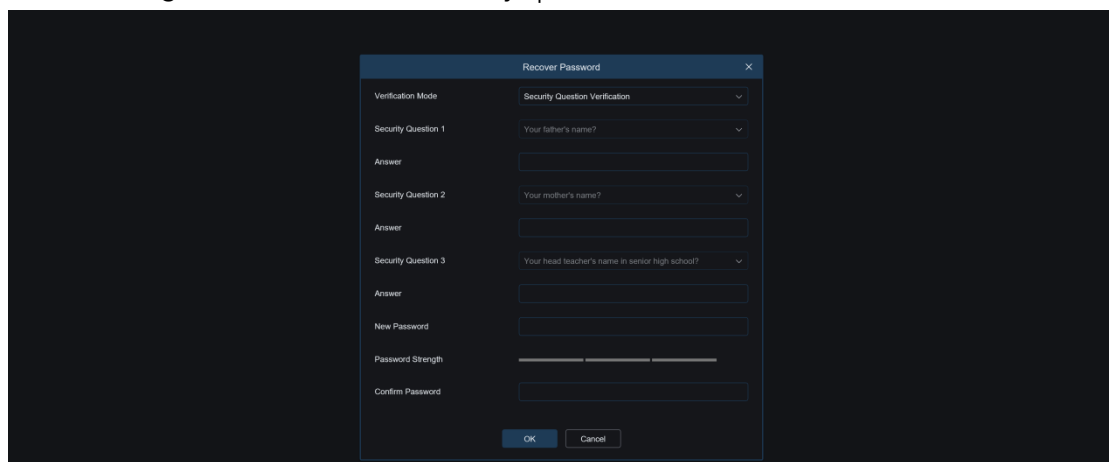
Figure 4.3.1

4.4. Password Retrieval

When the password retrieval function is enabled, if you forget the login information, you can click **Recover Password** on the login screen to enter the **Recover Password** screen. You can select **Security Question Configuration**, **Certificate of authorization**, or **Super code** upon the first login for password retrieval.

4.4.1. Security Question Configuration

On the login screen, click **Recover Password** to enter the **Recover Password** screen, as shown in Figure 4.4.1. In this example, the default configuration is that you can recover your password by security question verification. Then, you can change the password after entering the answers to the security questions.

Figure 4.4.1

4.4.2. Certificate of Authorization

On the login screen, click **Recover Password** to enter the **Recover Password** screen, and select **Certificate of authorization**. The screen is changed, as shown in Figure 4.4.2. Click **Import** and select the certificate.txt file, which is downloaded when you enable the password retrieval function upon the first login. After the file is imported, you can change the user password by entering a new password.
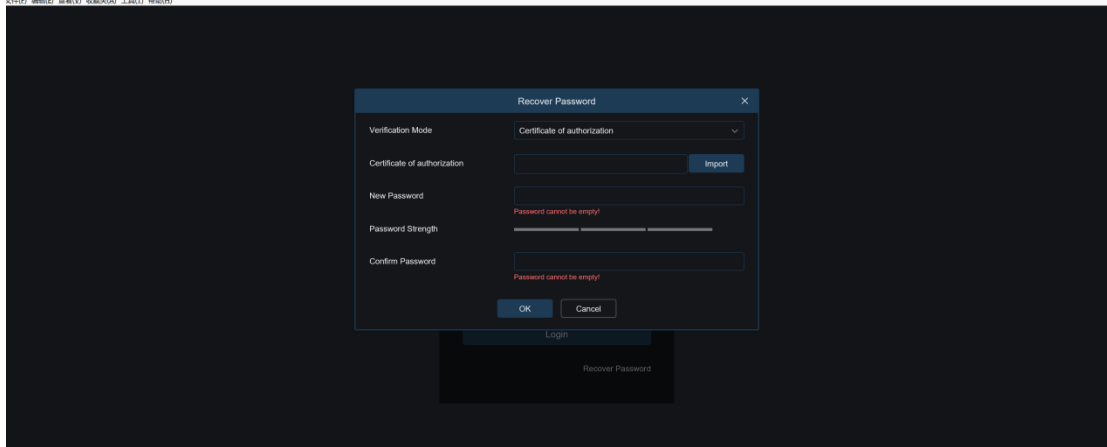
Figure 4.4.2

4.4.3. Super Code

On the login screen, click **Recover Password** to enter the **Recover Password** screen, and select **Super code**. The screen is changed, as shown in Figure 4.4.3. Enter the correct super code. Then, you can change the user password. The super code is calculated based on the MAC address of the PTZ camera and the system time prompted on the screen.
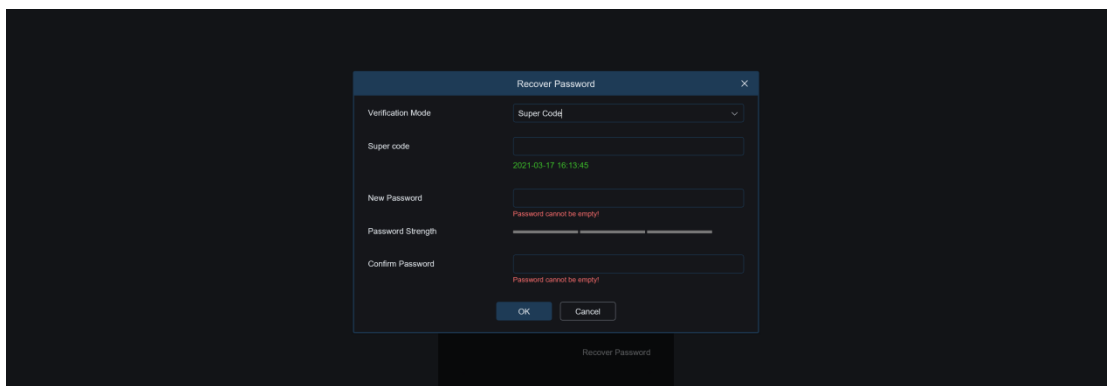
Figure 4.4.3

4.5. Password Aging

Security risks may arise if you use the same password for a long period of time.

Therefore, the time when the password was changed last time is recorded. When you log in to the system, if the current login time is 90 days later than the last password change time, the system will ask you whether to change the password.

When you decide to change the password, the screen is displayed as shown in Figure 4.5.1. As instructed on the screen, enter the old password for verification and set a new password.
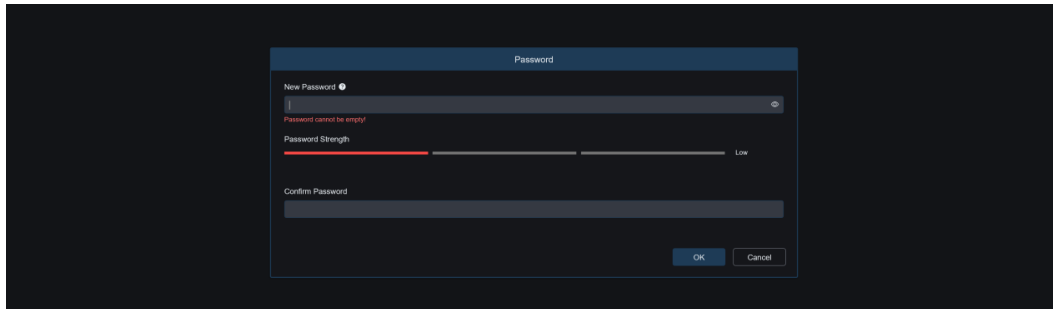
Figure 4.5.1

5. Plug-in Installation

When you log in to the system from your IE browser, you can live-view images properly only when the plug-in is installed. Download and install the plug-in as instructed on the screen as shown in Figure 5.1.1.
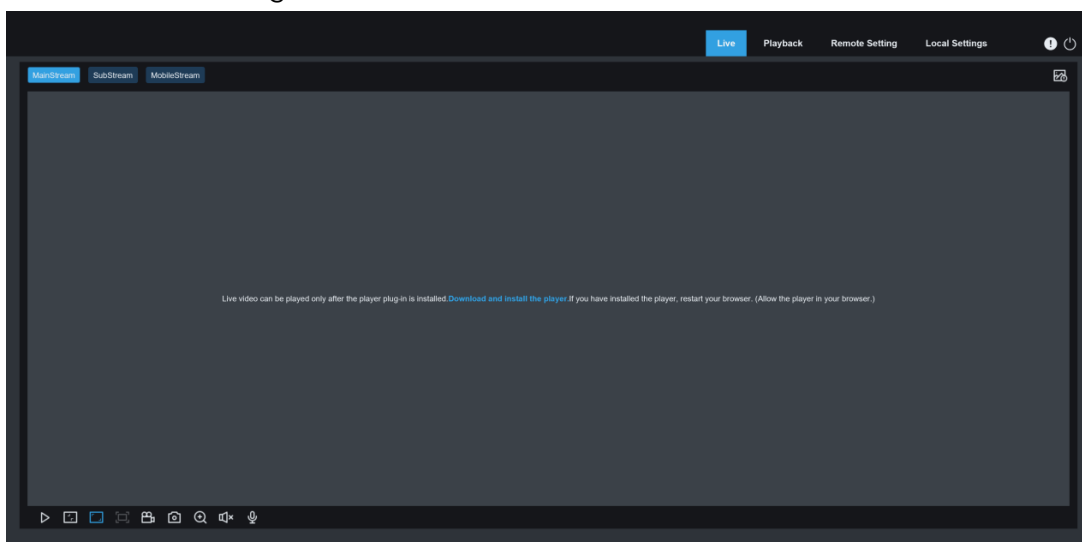
Figure 5.1.1

Note: You can skip the plug-in installation if you access the web server from browsers including Safari 12 and later, Chrome 57 and later, Firefox 52 and later, and Edge 41.

6. Basic Operations

6.1. Power-On Self-Test (POST)

After a PTZ camera is powered on, it performs the Power-On Self-Test (POST):
The PTZ camera horizontally rotates clockwise at a constant speed until zero point is detected.
The PTZ camera performs an action vertically and finally stays at a position with 45° vertical angle, with the lens overlapping with the ID marked on the PTZ camera enclosure. Some PTZ cameras may return to the position before power-off. The conditions depend on the actual models.
Lens actions: The lens are pulled to the near end, pushed to the farthest, and then are pulled back to the near end from the far end to complete the camera self-test.

6.2. Basic Functions of a PTZ Camera

➢ Cruise function: The PTZ camera supports preset point configuration, watch position, track cruise, pattern scan, and line scan.
➢ Automatic adjustment for the zoom ratio: When the zoom ratio of the PTZ camera is changed, the speed in the horizontal and vertical directions automatically changes with the zoom ratio. If the zoom ratio increases, the moving speed of the PTZ camera automatically slows down. If the zoom ratio decreases, the PTZ camera moves faster automatically. The zoom ratio ensures a better object tracking effect.
➢ Power-off memory: If the PTZ camera is performing cruise operation before power-off, after it is powered on again, it continues the cruise operation after the self-test. Some PTZ cameras may return to the position before power-off. The conditions depend on the actual models.

Click in the top right corner of the live view screen to call or hide the PTZ control GUI, as shown in the following figure:
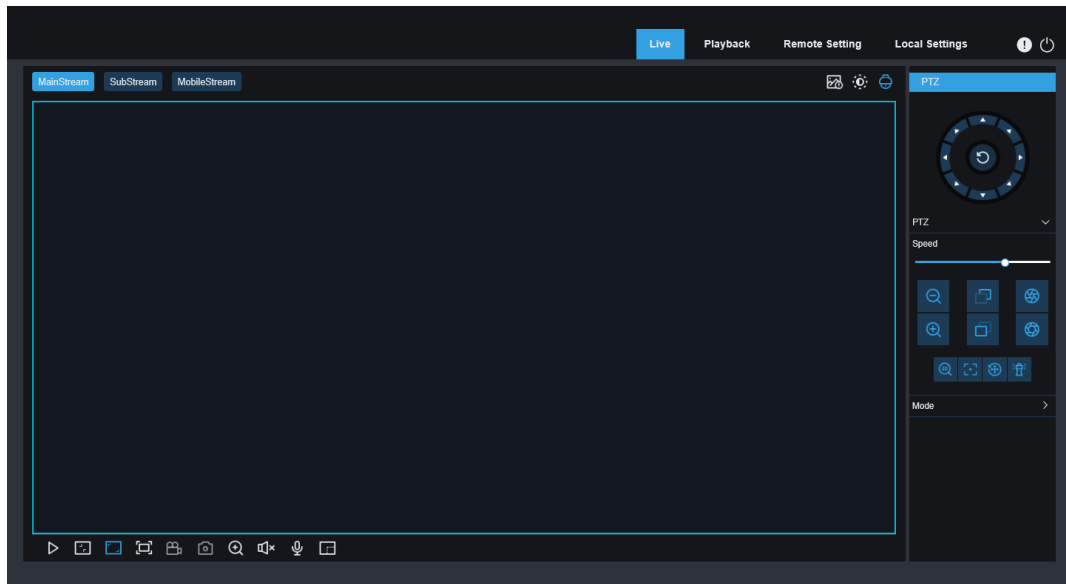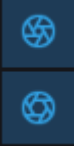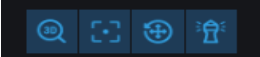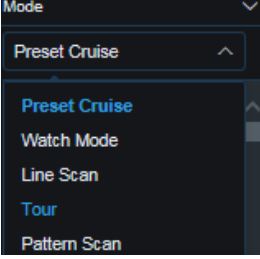
6.3. PTZ Control Operations

6.3.1. Introduction to Buttons

Click in the top right corner of the live view screen to call or hide the PTZ control GUI. For a description of the buttons, refer to the following table.

	Long-press the arrow keys to control the rotation direction of the PTZ. If you click , the PTZ camera keeps rotating horizontally, and in this case, the button becomes sky blue. You can click it again
	Use the scroll bar to adjust the rotation speed of the PTZ. The speed stage ranges from 1 to 10. The larger the value is, the faster the speed is.
	It indicates "Focus adjustment –" and "Focus adjustment +". When you press , the camera pans in and the scene zooms in. When you press , the camera pans out and the scene

	It indicates "Focus −" and "Focus +". In Manual Focus Mode, press and hold to make nearby objects become clear and distant objects gradually become blurred; press and hold to make distant objects become clear and near objects gradually become blurred.
	It indicates "Iris −" and "Iris +". When the monitoring screen is relatively dark, you can press and hold to increase the iris. Similarly, you can press and hold to decrease the iris.
	Auxiliary function buttons. The functions of the buttons depend on the actual models. The functions include "3D positioning", "Auxiliary focus", "One-click reset", "One-click watch", and "Lens initialization".
	The functional modes include: 1. Preset Cruise (Refer to 6.3.3 Preset Cruise for instructions.) 2. Watch Mode (Refer to 6.3.4 Watch Mode for instructions.) 3. Line Scan (Refer to 6.3.5 Line Scan for instructions.) 4. Tour (Refer to 6.3.6 Tour for instructions.) 5. Pattern Scan (Refer to 6.3.7 Pattern Scan for instructions.) The functional modes depend on the actual models.

6.3.2. Auxiliary Function Buttons

: Enables or disables the 3D positioning function.

Click to enable 3D positioning. After the function is enabled, the button changes to , and when it is clicked again, 3D positioning is disabled. When the 3D positioning function is enabled, you can perform the following operations:

Click the mouse on the live view screen, and the PTZ camera moves the corresponding point to the center of the video.

Press and hold the left mouse button and drag the mouse towards the bottom (top) right to form a rectangular area. Then, the PTZ camera moves its center to the center of the video and zoom in the view.

Press and hold the left mouse button and drag the mouse towards the top (bottom) left form a rectangular area. Then, the PTZ camera moves its center to the center of the video and zoom out the view.

: Auxiliary focusing. Click this button to make the PTZ camera automatically focus.

: One-click reset. Click this button to make the PTZ camera clear the preset points and cruise path.

: Lens initialization. Click this button to initialize the lens. This function depends on the actual model, and the actual GUI shall prevail.

: One-click watch. Click this button to perform one-click watch. This function depends on the actual model, and the actual GUI shall prevail.

6.3.3. Preset Cruise
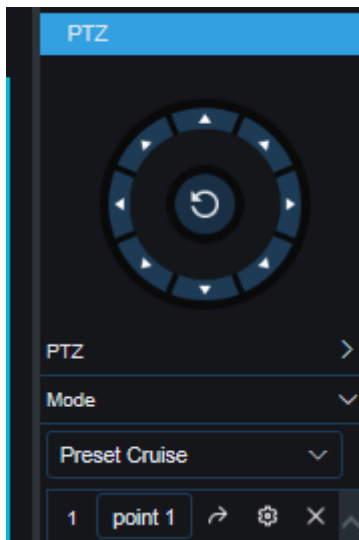
1. Operate on the arrow keys for PTZ control to make the PTZ camera rotate to the position to be saved, and click ⚙ to add the preset points.

2. After adding preset points, click ↗ to call a preset point to make the PTZ camera rotate to the corresponding preset point position.

3. To delete a preset point, click ✕.

4. Click the point1 text box to edit the name of the preset point.

Note: You can add 255 preset points at most.

6.3.4. Watch Mode
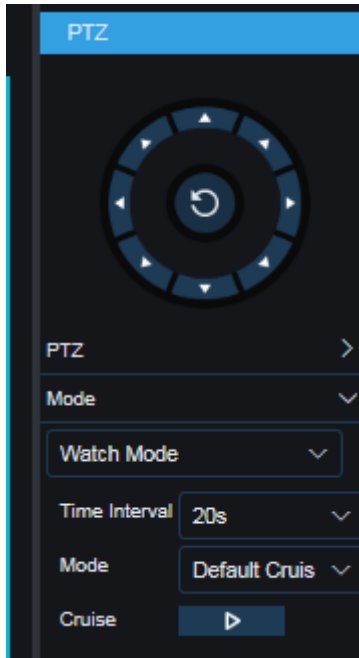
When the watch function is enabled for the PTZ camera, if no control signal is received within the configured watch waiting time, the PTZ camera will automatically execute the preset action.

Set the cruise mode to **Watch Mode**.

Set **Time Interval**: When you manually rotate the PTZ camera, you need to wait for 20 s before the watch action is resumed. Thus, you can set the time interval to 15–240 s.

Set **Watch Mode**: It can be set to default cruise, preset point, line scan, track cruise, and pattern scan.

Note: There can be only one watch point at a time.

Default cruise: Click the button for calling cruise, and the PTZ camera continuously rotates 360° counterclockwise at a constant speed.

6.3.5. Line Scan
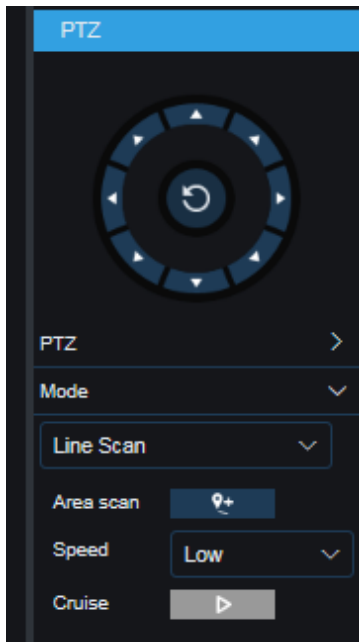
Set the cruise mode to **Line Scan**.

Click **start set** to record the current position of the PTZ camera as the start position. Rotate the PTZ camera, and click [+♀   ] to record the current position of the PTZ camera as the end position. Click **Cruise**, and the PTZ camera will cruise between the two points at a constant speed.

6.3.6. Track Cruise
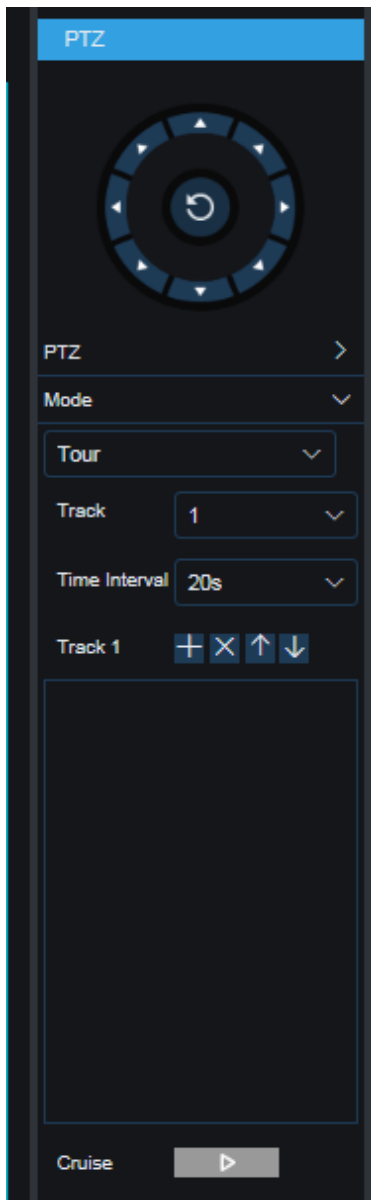
Track Cruise: In this mode, the PTZ camera cruises in accordance with the preset track. You can set four tracks at the same time, and for each track you can select 32 preset points and set the cruise interval for each preset point.

Set the cruise mode to **Tour**.

 Select the tracks for which preset points are to be added.

 Add and delete preset points to each track. You can click the up and down arrow buttons to change the preset point sequence.

 Set the time interval between switching preset points during cruise.

Click **Cruise**, and the PTZ camera will cruise in the order of the preset point positions.

Note: After adding preset points, you need to click **Cruise** to save the track path.

6.3.7. Pattern Scan
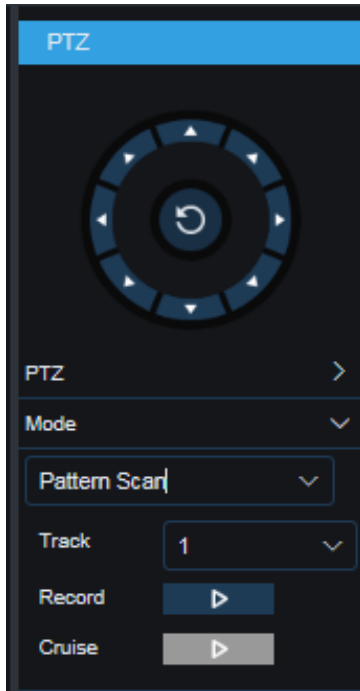
Pattern scan refers to scanning in accordance with the preset path, recording the actions such as horizontal movement, vertical movement, and zoom ratio change of the PTZ camera. After recording and saving, users can directly call the pattern scan path. The PTZ camera supports setting four pattern scan paths, which are numbered from 1 to 4. Each pattern scan path is stored on the PTZ camera.

Select the cruise mode to **Pattern Scan**.

 Select a path.

 Click this button to start recording. Perform PTZ operations on the PTZ camera, and then click this button to stop recording. After the recording is completed, click the button for calling cruise, and the PTZ camera will cruise in accordance with the recorded content.

6.4. Pigtail Specification

Label	Corresponding Pigtail Color
AUDIO IN	Pink
AUDIO OUT	White/Yellow
AUDIO GND	Purple
RS485+	Brown/White
RS485-	Brown
GROUND	Yellow/Green
ALARM IN	Blue
ALARM GND	Green/Purple
ALARM OUT+	Green
ALARM OUT-	Gray

The pigtails depend on the actual model.

7. Live View Screen

7.1. Live View

After you log in to a PTZ camera from a web client, the login live view screen is displayed, as shown in the following figure.
Note: The product features may differ, depending on the actual models.
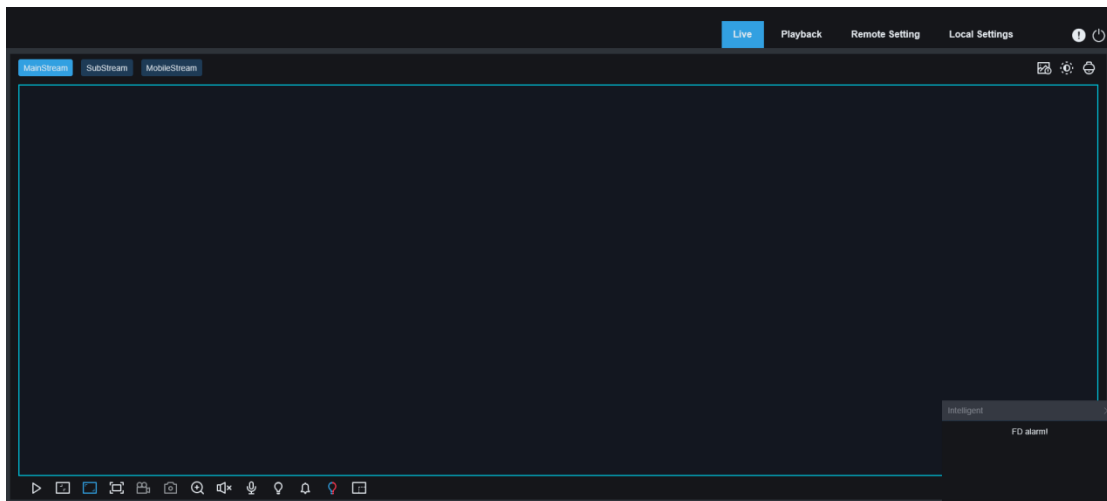
Stream Switching Menu: You can click the buttons in the top left corner to switch the

image quality of the current live view:

MainStream: The image quality is good, but the stream bandwidth is large, and the GUI performance requirements for PCs are higher.

SubStream: The requirements for bandwidth and PC performance are moderate, but the image quality is worse than that of the main stream.

MobileStream: The requirements for bandwidth and PC performance are the lowest, and the image quality is the worst.

Main Menu Switching Bar: In this area, you can switch the four Web function screens: **Live**, **Playback**, **Remote Setting**, and **Local Settings**.

Info: Click this button to display the information about the active user, Web version, and plug-in version.

AI alarm: Click this button to open the alarm push bar. It is used to push corresponding images during face detection and human & vehicle detection.

Color: Click this button to adjust the current image settings, such as image saturation and sharpness.

PTZ Setting: Click this button to perform PTZ setting and adjust the camera focal length.

Exit: Click this button to log out.

Recording & Alarm Status: Displays the alarm and recording status of the camera. For details, refer to Section 7.2.

Stop/Play: Click this button to enable or disable the live view of the current stream.

Original Proportions: Click this button to display the current live view in its original proportions.

Stretch: Click this button to make the current view stretch over the display area.

Full Screen: Click this button to display the live view in full screen. You can double-click the screen to enable or disable the function. After the function is enabled, you can press the Esc key to exit full screen mode.

Record: Click this button to manually record the stream of the live view.

Capture: Click this button to manually capture the image of the current stream.

Digital Zoom: Click this button to zoom in a certain area of the displayed image.

Audio: Click this button to turn on, turn off, or adjust the audio of the live view.

Voice Intercom: Click this button to intercommunicate with the camera.

Light: Click this button to manually turn on or turn off the white light.

Siren: Click this button to manually turn on or turn off the siren. (Note: Some models support the siren.)

Warning Light: Click this button to manually turn on or turn off the warning light. (Note: Some models support the warning light.)

Pixel Counter: Click this button to select an area to check its pixel size in the stream.

Add Tag: Click this button to add a tag.

Popup Information For some triggered alarms, the active alarms are displayed in the lower right corner of the screen.

7.2. Recording Status

The recording status simply indicates the active alarm of the PTZ camera and whether the recording is normal on a web client. Multiple alarms can exist at the same time, as described below:

No icon: The memory card is operating properly but no recording is made.

 R : The camera is performing general recording.

Note: When the PTZ camera performs alarm recording, this icon disappears, but the general recording process continues.

 H : The memory card is not operating properly. You need to check whether the memory card is faulty.

 M : The PTZ camera is in motion alarm status, but motion alarm recording is not turned on.

 M : The PTZ camera is in motion alarm status, and is performing motion alarm recording.

 I : The PTZ camera is in I/O alarm status, but I/O alarm recording is not turned on.

 I : The PTZ camera is in motion alarm status, and is performing I/O alarm recording.

 S : The PTZ camera is in intelligent alarm status, but intelligent alarm recording is not turned on.

Note: Intelligent alarms include face detection alarms and human & vehicle detection alarms.

 S : The PTZ camera is in intelligent alarm status, and is performing intelligent alarm recording.

8. Playback

The PTZ camera should not only enable users to view images in real time but also store the image information so that the information can be acquired when needed.

8.1. Normal Playback

The playback function includes general video search and AI search. The following figure shows general video search.
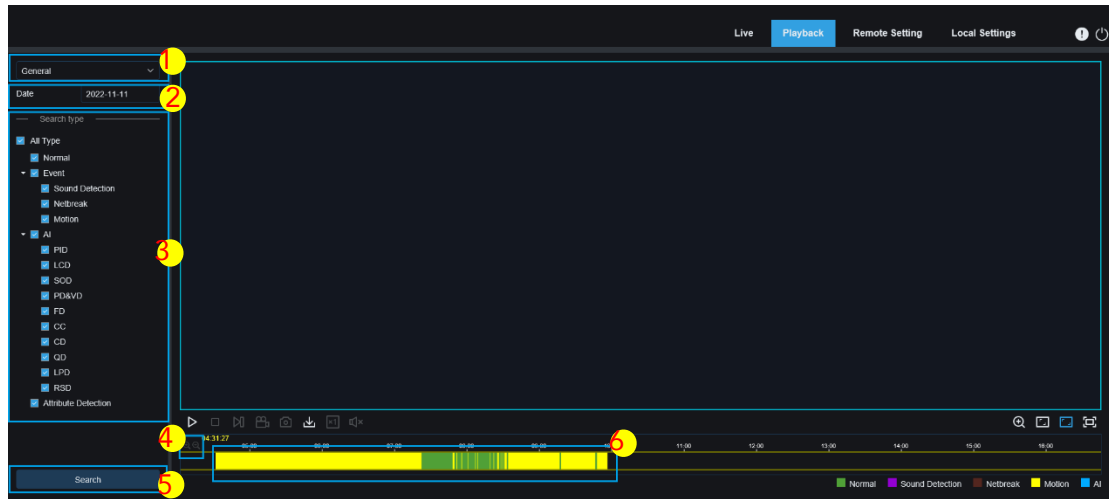
1. Search Mode Switching: Used to switch search functions, as shown in the figure above. By default, **General** is selected, meaning that general recording files are searched for. For AI image search, refer to the following sections of this chapter.

2. Search Date: Used to set the date on which recording files are searched for. Click **Search**, the dates with available recording files are displayed.

3. Search Type: Displays the search types supported by the PTZ camera. You can search for only part of the recording files as required.

4. Playback Progress Bar Scaling: By default, the progress bar is divided into 24 hours. You can scale the progress bar to help users find a playback position more precisely. You can also use the mouse wheel to scale the progress bar.

Pause/Play: Click this button to pause/play the playback stream.

Stop: Click this button to stop the playback stream.

Forward by One Frame: Click this button to play one frame with one click.

Record: Click this button to manually record the stream of the live view.

Capture: Click this button to manually capture the image of the current stream.

Download: Click this button to download the searched recording files.

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Speed: Click this button to change the playback speed. The supported speed includes 1/8, 1/4, 1/2, 1, X2, X4, X8, and X16.

Audio: Click this button to turn on, turn off, or adjust the audio of the playback stream.

Digital Zoom: Click this button to zoom in a certain area of the playback stream.

Original Proportions: Click this button to display the current live view in its original proportions.

Stretch: Click this button to make the current view stretch over the display area.

Full Screen: Click this button to display the playback stream in full screen. You can double-click the screen to enable or disable the function. After the function is enabled, you can press the Esc key to exit full screen mode.

5. Search: Click this button to display the recordings stored on the memory card in accordance with the search settings.

6. Playback Progress Bar: Playback progress bar: The time bar on the bottom displays the current playback progress bar and playback progress in different colors based on the search results.

8.2. Picture Search

When the auto capture function is enabled for the PTZ camera, you can search and play pictures on this screen.
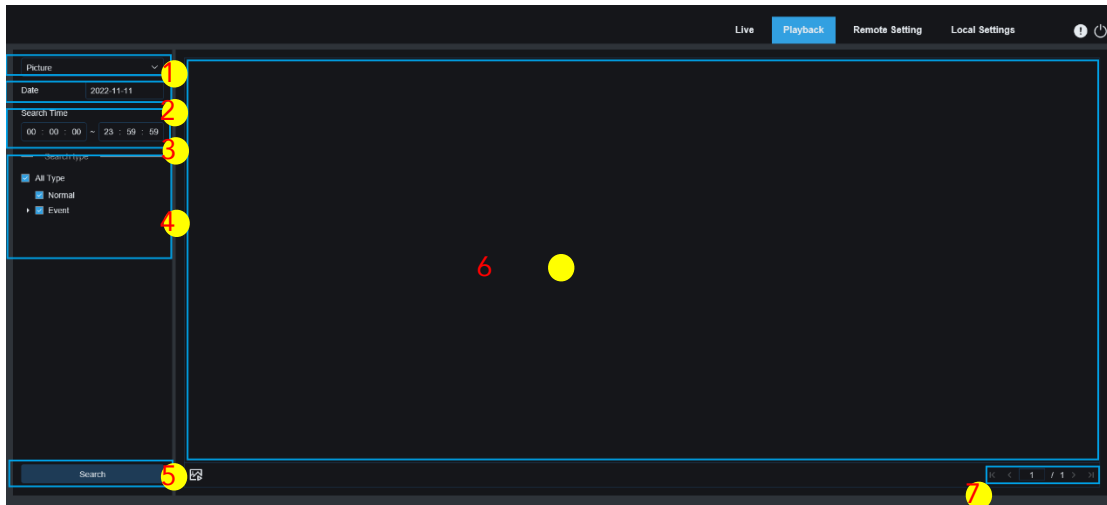
1. Search Mode Switching: Used to switch search functions. The current search mode is **Picture**.

2. Search Date: Used to set the date on which pictures are searched for. Click **Search**, the dates with available recording files are displayed.

3. Search Time: Used to set the time for searching for pictures, allowing users to search for pictures within a specific period of time.

4. Search Type: Used to select the types of pictures you want to search for. You can select **All Type** to select all picture types.

5. Search: Click this button to start searching for pictures.

6. Search Result Display Area: Displays the search result. Double-click a picture, and the videos in the time ranges before and after the picture will be played.

7. Search Result Page Turning: You can turn the pages of the search result in the bottom right corner.

8.3. Playing Back Recordings Using Tags

On this screen, you can view all the added tags, and edit, play back, or delete them.
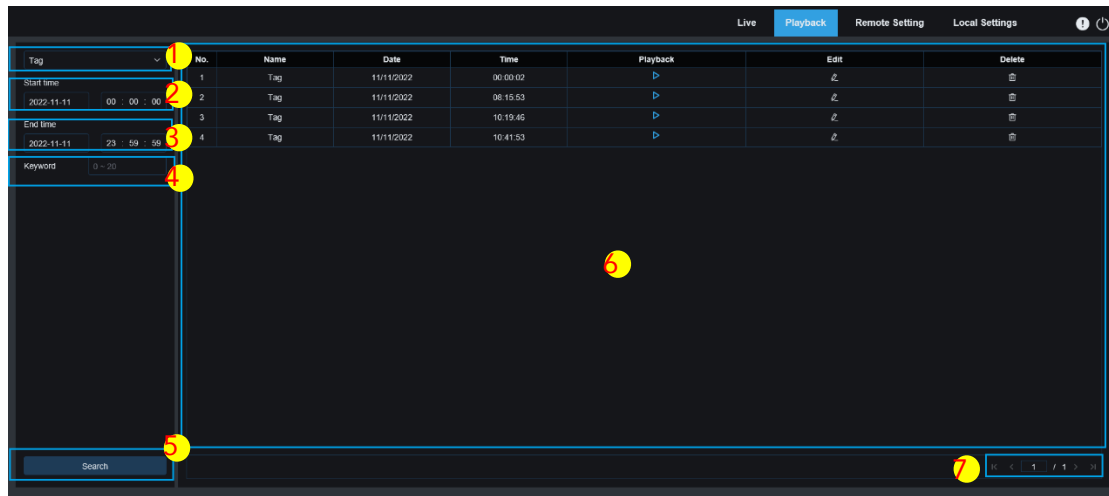
1. Search Mode Switching: Used to switch search functions. The current search mode is **Tag**.

2. Start time: Used to set the start time of searching for tags.

3. End time: Used to set the end time of searching for tags.

4. Keyword: Enter keywords for searching for tags.

5. Search: Click this button to start searching.

6. Search Result Display Area: Displays the search result.

Click [▷] to play back the events. Click [✎] to change the event name, and click **Save** to display the **Modify Success** dialog box. Click [🗑] to delete the event.

7. Search Result Page Turning: You can turn the pages of the search result in the bottom right corner.

8.4. Smart Playback

If you log in to the PTZ camera from a browser without the plug-in, you can perform smart playback, as shown in the following figure.
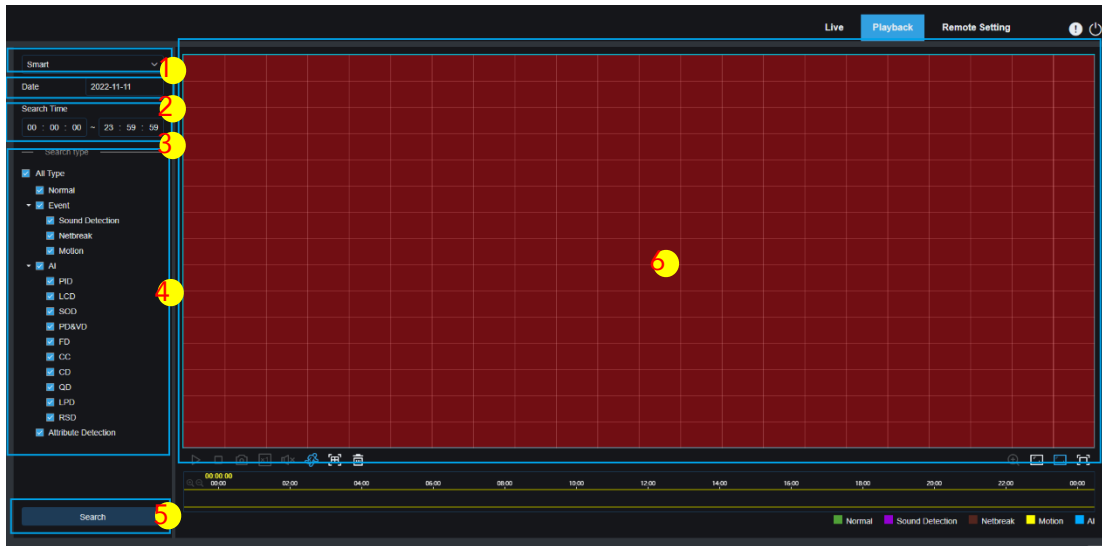
This function determines whether to trigger alarms in daily life. If it is enabled, the playback progress bar on the bottom becomes available (blue) and the corresponding video is displayed.

1. Search Mode Switching: Used to switch search functions. The current search mode is **Smart**.

2. Search Date: Used to set the date on which smart events are searched for. Click **Search**, the dates with available recording files are displayed.

3. Search Time: Used to set the time for searching for events, facilitating search operations.

4. Search Type: Displays the search types supported by the PTZ camera. You can search for only part of the recording files as required.

5. Search: Click this button to start searching.

6. Search Result Display Area: Displays the search result.

▷ **Pause/Play:** Click this button to pause/play the playback stream.

▢ **Stop:** Click this button to stop the playback stream.

▣ **Capture:** Click this button to manually capture the image of the current stream.

×1 **Speed:** Click this button to change the playback speed. The supported speed includes 1/8, 1/4, 1/2, 1, X2, X4, X8, and X16.

🔇 **Audio:** Click this button to turn on, turn off, or adjust the audio of the playback stream.

Add Default Tag: Used to add default tags. Click this button to mark the video playback start time at the current time in the current channel, and the tag is added.

Add Tag: Used to add custom tags. Click this button to pop up a dialog box, in which you can specify the name of the tag.

Smart: Click this button to enter the Smart area setting screen.

All: Click this button to set the full screen as the Smart detection area.

Delete: Click this button to clear the entire area.

Digital Zoom: Click this button to zoom in a certain area of the playback stream.

Original Proportions: Click this button to display the current view in its original proportions.

Stretch: Click this button to make the current view stretch over the display area.

Full Screen: Click this button to display the playback stream in full screen. You can double-click the screen to enable or disable the function. After the function is enabled, you can press the Esc key to exit full screen mode.

8.5. AI

8.5.1. Face Search and Playback

The PTZ camera performs face recognition, stores the obtained face information to a TF card and saves image-related information. You can quickly retrieve the captured faces meeting user requirements and locate corresponding videos. The face search and playback screen is shown in the following figure.
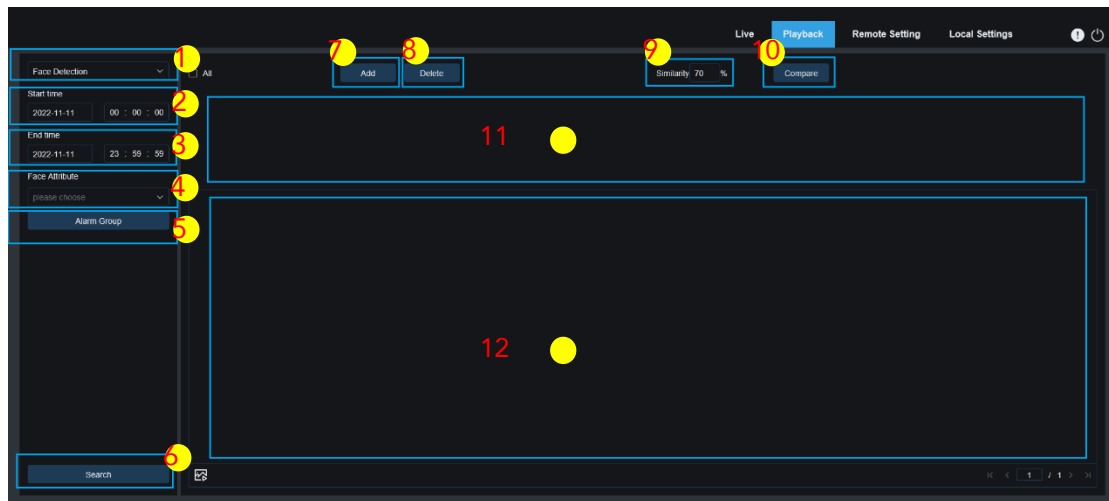
1. Search Mode Switching: Used to switch search functions. The current search mode is **AI-Face Detection**.

2. Start time: Used to set the start time of searching for faces.

3. End time: Used to set the end time of searching for faces.

4. Face Attribute: By default, **Face Attribute** is not set. If it is set, only the face images captured when the face attribute detection function is enabled are searched. Currently, five face attributes are supported, including gender, age group, mask, glasses, and expression.

5. Alarm Group: When capturing face images, the PTZ camera matches face images to the corresponding group in accordance with the settings of the face database. This setting allows you to search for the images of only the groups you want.

6. Search: Click this button to search for face data in accordance with the settings.

7. Add: Click this button to add images to the image display area for comparison purpose. You can add local images and captured images.

8. Delete: Click this button to delete the selected images.

9. Similarity: Used to set the lowest similarity of feature values for face matching when the Compare function is used.

10. Compare: Click this button to search for the captured faces in accordance with the configured search time, group in which the captured images are located, and the selected reference face image for comparison.

11. Add Image Display Area: Displays the images that are currently added and available for comparison.

12. Search Result Display Area: Displays the captured images searched by clicking **Search** and **Compare**. You can double-click a picture to play back the video in the time ranges before and after the picture.

8.5.2. Human & Vehicle Search and Playback

Similar to the face capture function, the PTZ camera can distinguish humans or vehicles, and record them as needed so as to obtain required records. The screen is shown in the following figure.
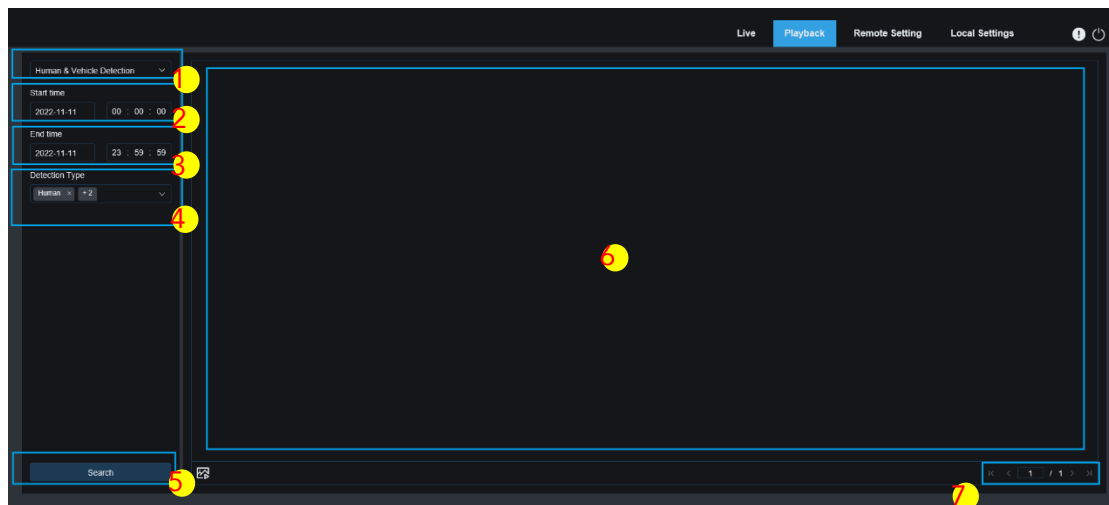
1. Search Mode Switching: Used to switch search functions. The current search mode is **AI-Human & Vehicle Detection**.

2. Start time: Used to set the start time of searching for human & vehicle images.

3. End time: Used to set the end time of searching for human & vehicle images.

4. Detection Type: Used to select human or vehicle images as needed, or select both.

5. Search: Click this button to search for human & vehicle images in accordance with the search settings.

6. Search Result Display Area: Displays the search result. You can double-click a picture to play back the video in the time ranges before and after the picture.

7. Search Result Page Turning: You can turn the pages of the search result in the bottom right corner.

8.5.3. PID&LCD

With the development of technology, AI-PID&LCD not only is compatible with the old solutions to report alarms for the targets entering the warning area, but also provides the human & vehicle detection function. This function enables the PTZ camera to report alarms for human or vehicle objects only and record image or video information for easy

search and viewing. The screen is shown in the following figure.
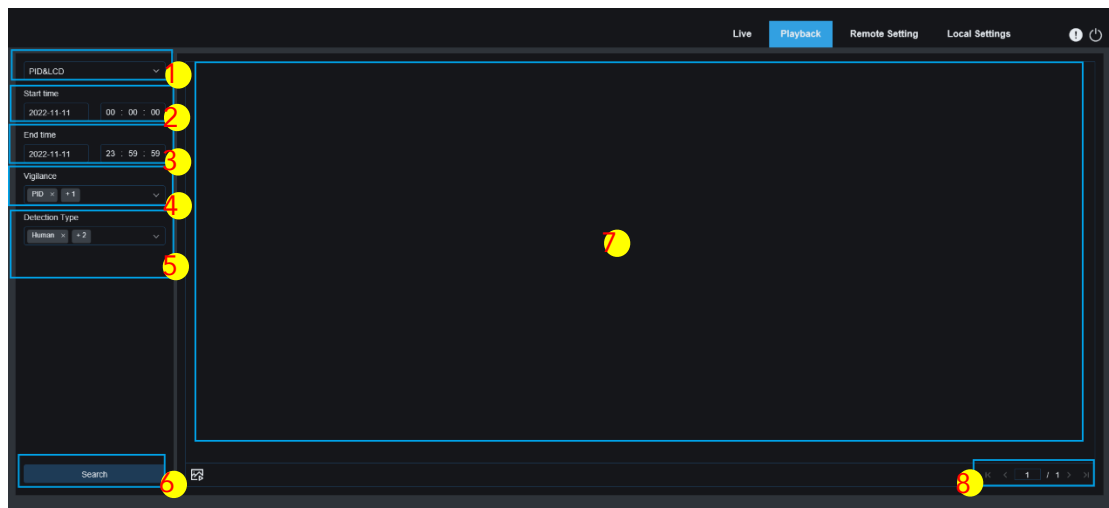
1. Search Mode Switching: Used to switch search functions. The current search mode is **AI-PID&LCD**.

2. Start time: Used to set the start time of searching for human & vehicle images.

3. End time: Used to set the end time of searching for human & vehicle images.

4. Vigilance: Used to select PID or LCD or both as the capture method.

5. Detection Type: Used to select human or vehicle images as needed, or select both.

6. Search: Click this button to search for human & vehicle images in accordance with the search settings.

7. Search Result Display Area: Displays the search result. You can double-click a picture to play back the video in the time ranges before and after the picture.

8. Search Result Page Turning: You can turn the pages of the search result in the bottom right corner.

8.5.4. Repeat Customer Detection

The face recognition function not only provides alarms in real time but also mines the data to meet customer requirements. For example, after installing a camera in a certain area of a shopping mall, the repeat customer detection function can be used to find out whether a customer stops to buy goods in this area. This function also helps monitor an area to learn whether a suspected target frequently appears in that area. The repeat customer function screen is shown in the following figure.
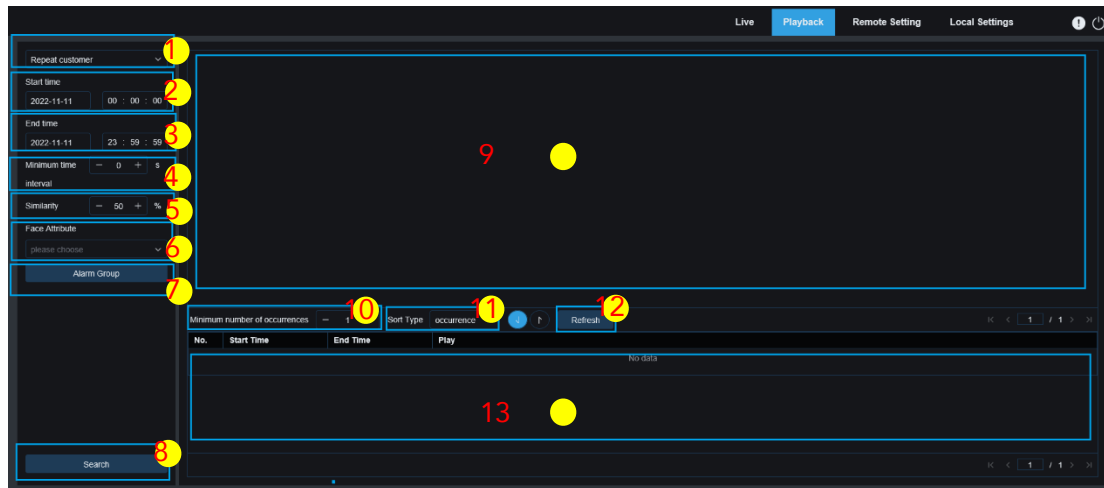
1. Search Mode Switching: Used to switch search functions. The current search mode is **AI-Repeat customer**.

2. Start time: Used to set the start time of searching for human & vehicle images.

3. End time: Used to set the end time of searching for human & vehicle images.

4. Minimum time interval: Used to set the minimum time interval for capturing the same object to increase the search accuracy.

5. Similarity: Used to set the lowest similarity between an image and the reference image in repeat customer matching.

Note: This setting takes effect only when **Alarm Group** is not configured in the function configuration.

6. Face Attribute: Used to filter the searched images in accordance with face feature values.

Note: If this option is not configured, the search is applied on all images. If this option is configured, only the captured images with **Face Attribute** enabled are searched.

7. Alarm Group: Used to recognize repeat customers in accordance with the group setting in the database.

Note: If no group is configured, the search is applied on all images, and in this case, the similarity setting takes effect. If the group configuration is set, stranger information will be ignored.

8. Search: Click this button to search for captured face images in accordance with the settings.

**9. Search Result Display Area:** Displays the search results in a stacked manner. Double-click the displayed images, and the stacked images are listed in the bottom area. Then, click the corresponding image to switch to the quick playback.

10. Minimum number of occurrences: Used to filter the search result by the number of occurrences. You need to click **Refresh** to update the display.

11. Sort Type: Used to sort the search result by time or capture count in ascending or descending sequence (the sequence can be configured). You need to click **Refresh** to update the display.

12. Refresh: Click this button to refresh the sorting sequence in your IE browser in accordance with **Minimum number of occurrences** and **Sort Type**.

13. Secondary Search Result Display Area: Displays the captured images of selected objects in the form of an event list in accordance with the information selected in the search result display area. You can click the **Play** button to switch to the quick playback.

8.5.5. Face Attendance

In addition to the repeat customer function, the Face Attendance (FA) function is also used in face recognition. The FA function is used to retrieve the face matching information in different groups (excluding the stranger group) stored in the memory card within a specified period of time, and generate the attendance result in accordance with the capture records. The functional screen is shown in the following figure.

1. Search Mode Switching: Used to switch search functions. The current search mode is **AI-Face Attendance**.

2. Search time mode: The options include **Day**, **Week**, **Month**, **Customize**, and **Today**. After a type is selected, the system automatically changes the start date and end date. If **Day** is selected, the end date and start date are automatically synchronized. If **Week** is selected, the start date and end date are automatically changed to the Monday and Sunday of the week in which the selected date is located. If **Month** is selected, the start date and end date are automatically changed to the first day and last day of the month in which the selected date is located. If **Customize** is selected, the search date can be customized. If **Today** is selected, the start date and end date are automatically changed to the current date.

3. Start date: Used to set the start date of FA searching.

4. End date: Used to set the end date of FA searching.

5. Import type: Used to select the import type, including **By group** and **By face**. **By group**: All persons in the existing groups are selected as detection objects and are searched for matching results. **By face**: The persons in a certain group are selected as detection objects and are search for matching results.
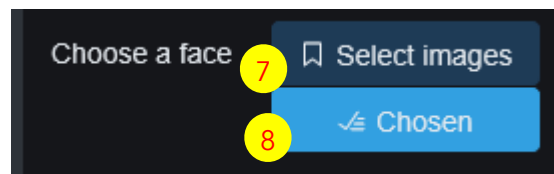
When **By face** is selected, the corresponding menu on the screen is changed as shown in the above figure.

6. Alarm Group: When **By group** is selected, FA results are searched by groups in the database.

7. Select images: Select the face image to be detected. After the face image is selected, the following screen is displayed.
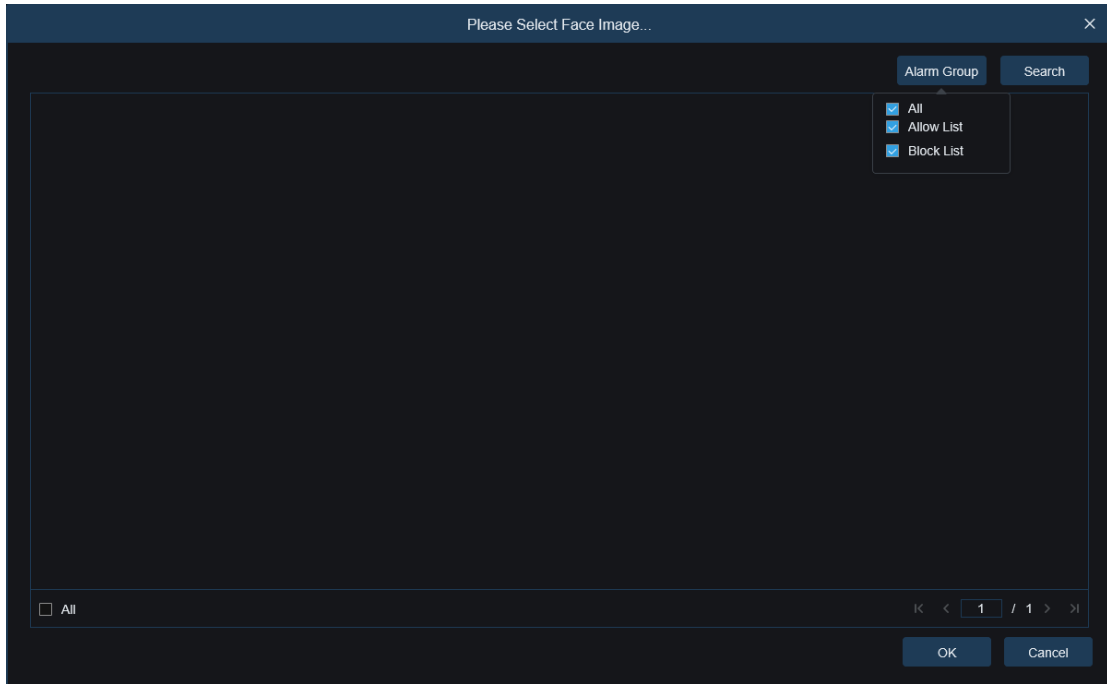
Click **Alarm Group** to select a group, and click **Search** to search for all the face images in this group. Select the face image for which FA detection is to be performed, and click **OK**. The face image is added to the **Chosen** list. You can click **Cancel** to close the window.

8. Chosen: Displays the list of selected face images. After clicking **Chosen**, the window is displayed as shown in the following figure.
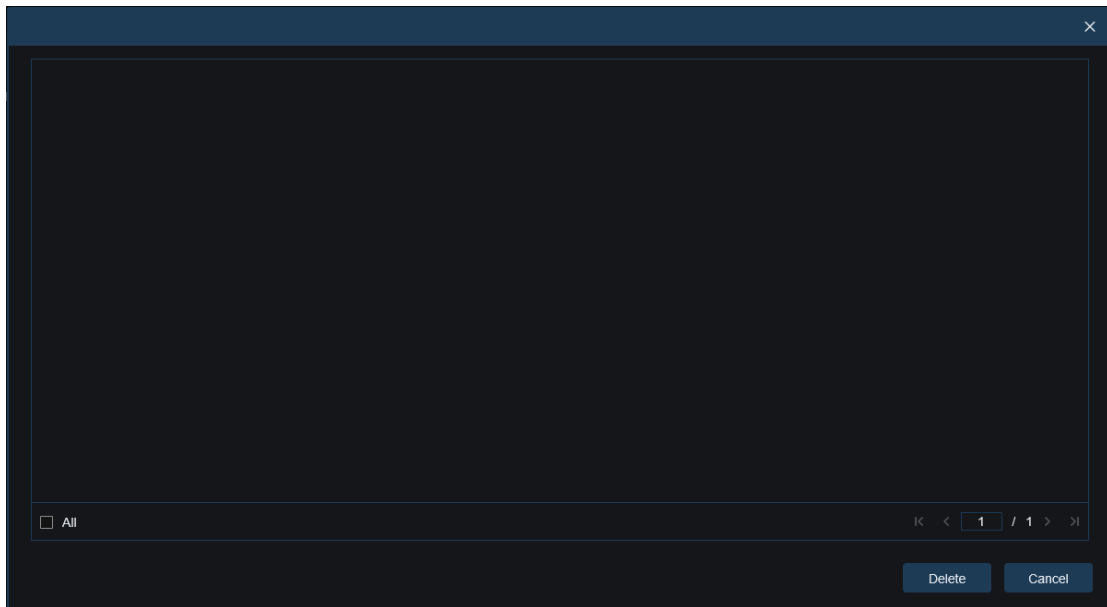
Select a face image and click **Delete**. The face image is deleted from the list. You can also click **All** to select all face images. Click **Cancel** to close this window.

9. Search: Used to search FA information in accordance with the settings.

10. Working Day: Used to set the working day.
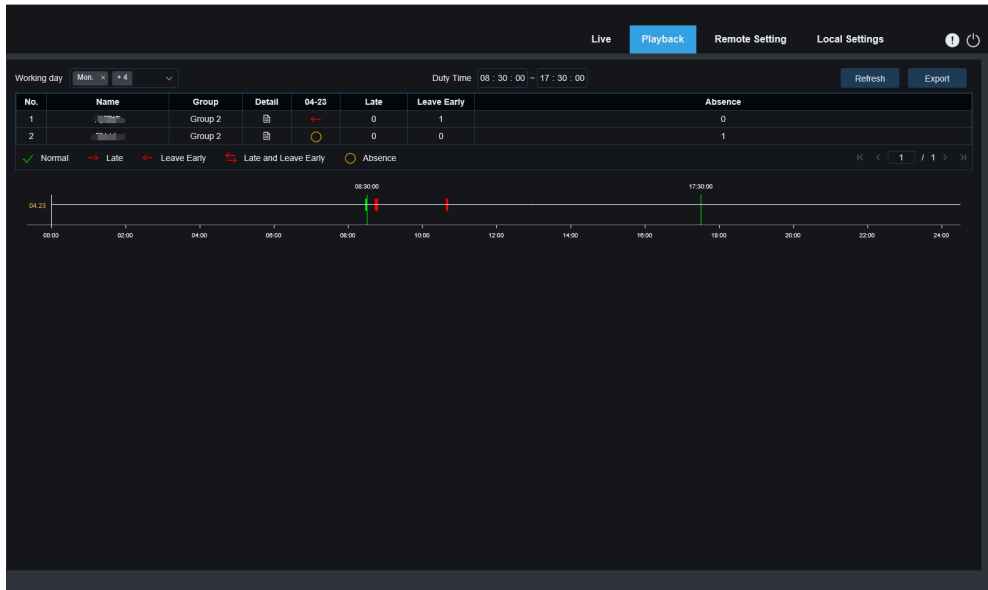
11. Duty Time: Used to set duty time.

12. Refresh: After changing attendance parameters, click **Refresh** to refresh the search result.

13. Export: Click this button to export the result to the PC.

14. Search Result Display Area: Displays the search result in the form of a table.

15. FA Result: ← indicates leaving early. → indicates arriving late. ⇄ indicates both leaving early and arriving late. √ indicates normal attendance. ○ indicates absence. The green lines indicate the start time and end time of attendance.

16. Secondary Search Result Display Area: Click a person, and the detailed time information is displayed on the right. Each timepoint that matches this person is marked with a red bar. You can click the red bar to switch to the quick playback.

Click **Detail** to view the detailed information. Click the corresponding icon in the **Playback** column to switch to the quick playback.
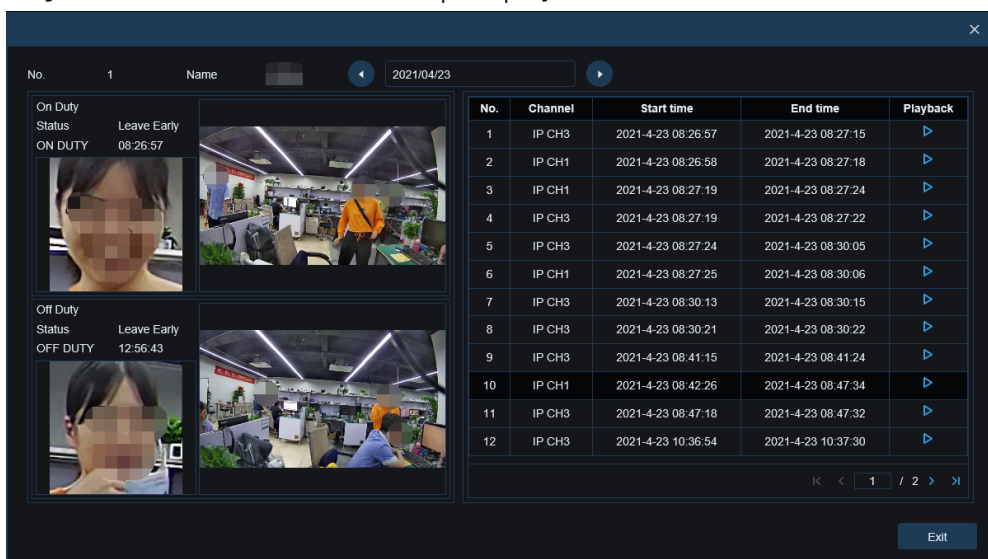
Click the arrow in the bottom right corner to scroll down the search result.

8.5.6. License Plate Detection

When the license plate detection function is enabled for the PTZ camera, alarms will be reported for any recognized license plates, and pictures or videos will be recorded for easy search and viewing. The screen is shown in the following figure.
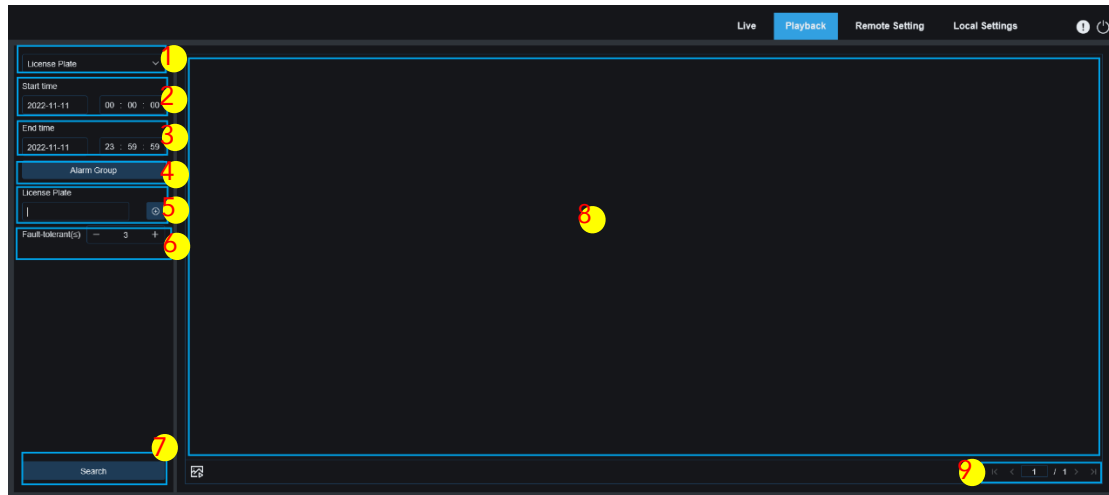

1. Search Mode Switching: Used to switch search functions. The current search mode is **License Plate**.

2. Start time: Used to set the start time of searching for license plate images.

3. End time: Used to set the end time of searching for license plate images.

4. Alarm Group: Used to recognize license plates in accordance with the group setting in the database.

Note: If no group is configured, the search is applied on all images, and in this case, the similarity setting takes effect. If the group configuration is set, strange license plate information will be ignored.

5. License Plate: Used to filter and query license plates.

6. Fault-tolerant: Fault-tolerant rate. For example, suppose it is set to 3 (meaning that the query criteria is three characters), if the license plate number in the allow list in the group is B594SB, an alarm will be reported when a vehicle with the license plate number B734KB enters the surveillance area. In other words, any license plate number having 0–3 characters different from that in the database can be recognized.

7. Search: Click this button to search for captured license plate images in accordance with the settings.

8. Search Result Display Area: Displays the search result. You can double-click a picture to play back the video in the time ranges before and after the picture.

9. Search Result Page Turning: You can turn the pages of the search result in the bottom right corner.

9. Remote Setting

9.1. Preview

On the Live view, you can set statistical data, including channel name, device time, and CC, as well as image overlay positions. The screen is shown in the following figure.
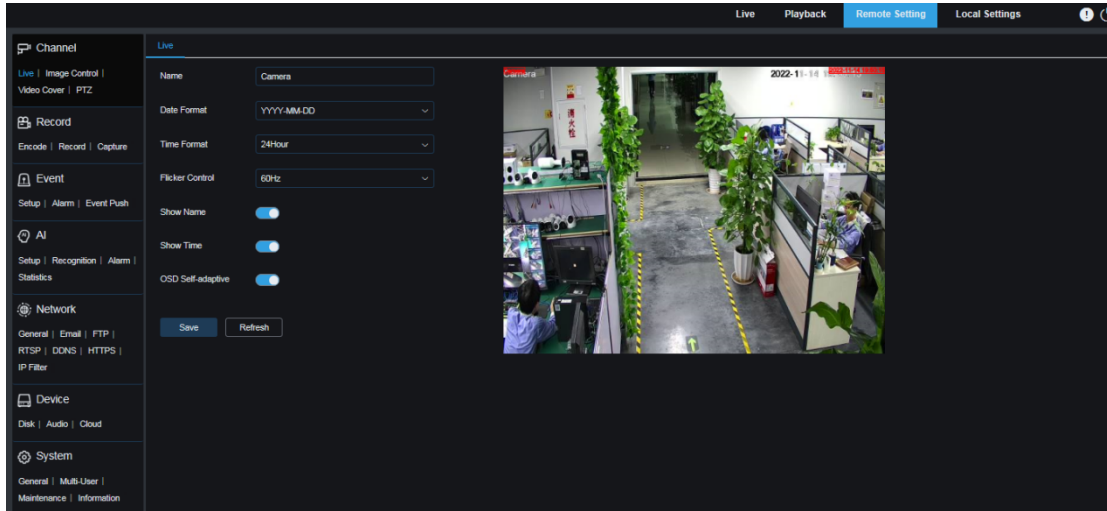
1. Name: Used to set the channel name of the PTZ camera of OSD.

2. Date Format: Used to set the date format of the PTZ camera of OSD, which can be **MM/DD/YYYY**, **YYYY-MM-DD**, and **DD/MM/YYYY**

3. Time Format: Used to set the hour format of the PTZ camera of OSD, which can be **12Hour** and **24Hour**.

4. Flicker Control: Used to set the image refresh frequency, which can be **60Hz** and **50Hz**, corresponding to NTSC and PAL respectively.

5. Show Name: Used to set whether to display channel names on images.

6. Show Time: Used to set where to display channel time on images.

7. OSD Self-adaptive: Used to set whether to change the font color of OSD in accordance with the screen background to ensure clear display.

8. Channel Name Display Location: You can set the location where the channel name is displayed by dragging the location on the image.

9. Time Display Location: You can set the location where the channel time is displayed by dragging the location on the image.

10. Alarm Statistic Display Location: You can set the location where alarm statistics are displayed by dragging the location on the image. This setting is available only when the alarm statistics display function is enabled.

11. Save: Click this button to save the current changes.

12. Refresh: Click this button to refresh the parameters on the current view.

9.2. Image Control

Image control is used to directly control and modify graphic parameters, including color

to black mode, wide dynamic range, backlight compensation. The following figure shows the screen, which depends on the actual model.
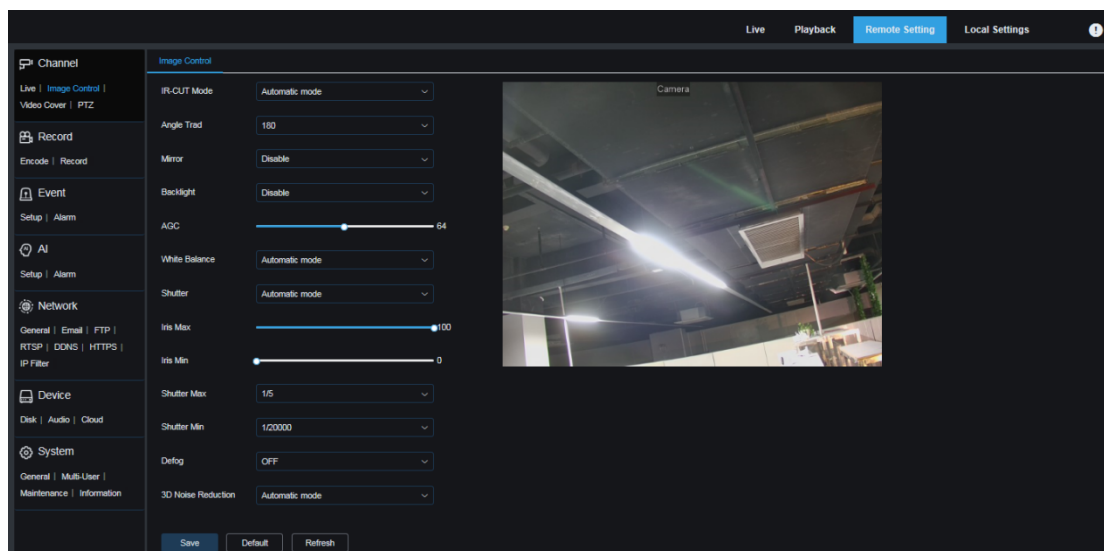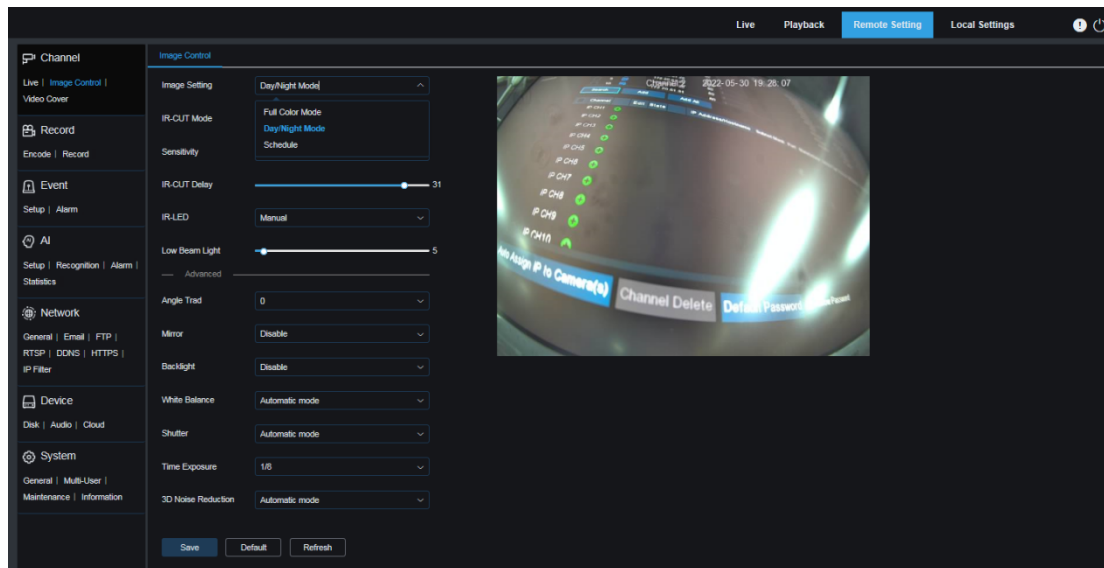
Image Setting: Used to set the camera mode of the PTZ camera. There are three mode options.

Full Color Mode: The PTZ camera operates in Full Color Mode.

Day/Night Mode: The PTZ camera operates in Day/Night Mode.

Schedule: The PTZ camera operates in Schedule Mode. The Full Color Mode and Day/Night Mode are automatically switched as scheduled.

White Light: Used to set the supplementary lighting effect of white light of the PTZ camera in Full Color Mode. There are four mode options.

Automatic mode: In Automatic Mode, the supplementary light effect of white light is automatically controlled.

Manual: In Manual Mode, light compensation is applied in accordance with the manually configured white light brightness value.

Schedule: In Schedule Mode, the white light is automatically turned on and off for light

compensation as scheduled.

OFF: The white light is turned off.

IR-CUT Mode: Used to set the day-night switching mode of the PTZ camera in Day/Night Mode. There are five mode options.

Auto: Used to automatically control mode switching. Whether color to black/white switching is performed depends on image judgment. Whether black/white to color switching is performed depends on photosensitivity judgment.

Day: Forced Color Mode. It is not switched to black/white.

Night: Forced Black White Mode. It is not switched to color.

Image: Similar to Auto Mode, color to black switching and black to color switching are judged by image control (for non-photosensitive models).

Schedule: Used to switch between black/white and color as scheduled. If this function is enabled, you need to set the start time and end time for night vision status.

IR-CUT Delay: Used to switch day and night for Automatic Mode and Image Mode. The day/night switchover delay ranges from 1 s to 36 s. Day/night switchover is performed only when the ambient illumination meets the switchover requirements and the duration exceeds the preset threshold.

IR-LED: Used to set the supplementary lighting effect of the IR light of the PTZ camera in night vision status. There are three mode options.

SmartIR: In this mode, the light compensation level of the IR light is intelligently controlled in accordance with focal length and overexposure condition.

Manual: In this mode, light compensation is performed in accordance with the configured brightness of the IR light.

OFF: No light is compensated.

Low Beam Light: Used to manually adjust the brightness of the IR light (0–100, of which 0 indicates that the IR light is turned off and 100 indicates the highest brightness).

Angle Trad: Image rotation setting. In some application scenarios, the PTZ camera position is reversed compared with the presetting. For example, the PTZ camera is designed to be hung upside down, but actually it is placed flatwise, then you can set this parameter to adjust the image.

Mirror: Used to set the mirror mode for adjusting the image effect. There are four mode options.

Disable: The Mirror Mode is disabled.

Vertical: Used to set the Mirror Mode in the vertical direction to make the images interact between upper and lower.

Horizontal: Used to set the Mirror Mode in the horizontal direction to make the images interact between left and right.

All: Both Vertical and Horizontal are enabled. The effect is similar to that of 180° rotation, but the implementation principle is different.

Backlight: Used to set the performance when backlight is turned on. There are four

mode options.

WDR: In Wide Dynamic Range (WDR) mode, the image is uniformly balanced based on the setting and both light areas and dark areas can be clearly distinguished.

HLC: In Highlight Compensation (HLC) mode, the objects in highlighted areas are clearer in the images. (It is supported by some models.)

Back Light: With the backlight compensation function, the objects in dark areas are more clearer.

Disable: Images are not optimized with backlight on.

White Balance: The three primary colors (red, green, and blue) can be mixed to generate white. It is a measure for adjusting color. There are two mode options.

Automatic mode: In this mode, the white light is adjusted by the default parameters.

Manual: In this mode, you can set the gain of red, green, and blue to synthesize white light.

Shutter: Used to set the shutter exposure time. There are two mode options.

Automatic mode: A proper exposure time is automatically selected in accordance with the Time Exposure setting.

Manual: The current Time Exposure setting is used.

Shutter First: The shutter is first. In other words, the shutter is manually defined, and the iris value is obtained by metering of the PTZ camera.

Iris First: The iris is first. In other words, the iris is manually defined, and the corresponding shutter value is obtained by metering of the PTZ camera.

Time Exposure: Used to set the exposure time of the PTZ camera. This parameter is used together with **Shutter**. If the exposure time is too long, the image may be overexposed. If the exposure time is too short, the image may be dark.

Defog: Foggy days may cause image quality to deteriorate. The defog function can optimize image rendering in foggy days. There are three options:

OFF: The defog function is disabled.

Automatic mode: In this mode, the PTZ camera automatically judges the defog effect.

Manual: In this mode, defogging is performed in accordance with the manually configured value.

3D Noise Reduction: Used to reduce image noise to obtain a clearer picture. There are three mode options:

Automatic mode: In this mode, the PTZ camera automatically selects the noise reduction effect in accordance with algorithms.

OFF: The noise reduction function is disabled.

Manual: In this mode, image noise is reduced in accordance with the noise reduction coefficient manually configured.

Save: Click this button to save the image parameter setting.

Default: Click this button to restore the default image parameter setting.

Refresh: Click this button to refresh the image parameters.

9.3. Video Tampering

In practical applications, if monitoring and recording are not suitable for some areas that can be monitored by the PTZ camera, you can use this function to hide such areas. The screen is shown in the following figure.
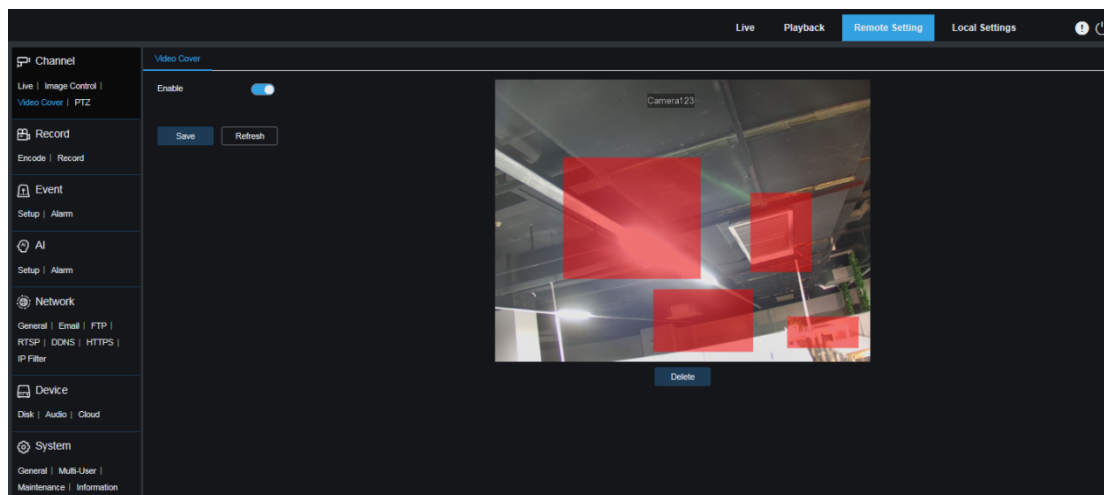
Enable: Used to enable or disable the video tampering function.

Tampering Area Setting: You can set the areas to be tampered in the monitoring screen. The tampering areas are red in setting and are turned to black after the setting takes effect. You can set four tampering areas.

Delete: Click this button to delete the selected tampering areas.

9.4. PTZ

Click the **PTZ** tab to set PTZ parameters. The PTZ parameter setting screen is shown in the following figure. Generally, it is not recommended that you modify PTZ parameters at will to prevent the PTZ to become uncontrollable.

Protocol: There are two options: **PELCO-D**, and **PELCO-P**. The protocol content includes PTZ control commands, PTZ camera control commands, and auxiliary control commands. RS-485 transmission is usually used. For the PTZ camera, this parameter is fixedly set to **PELCO-D**.

Baudrate: Used to set the baudrate of the effective data signal modulation carrier. For the PTZ camera, this parameter is fixedly set to **9600**.

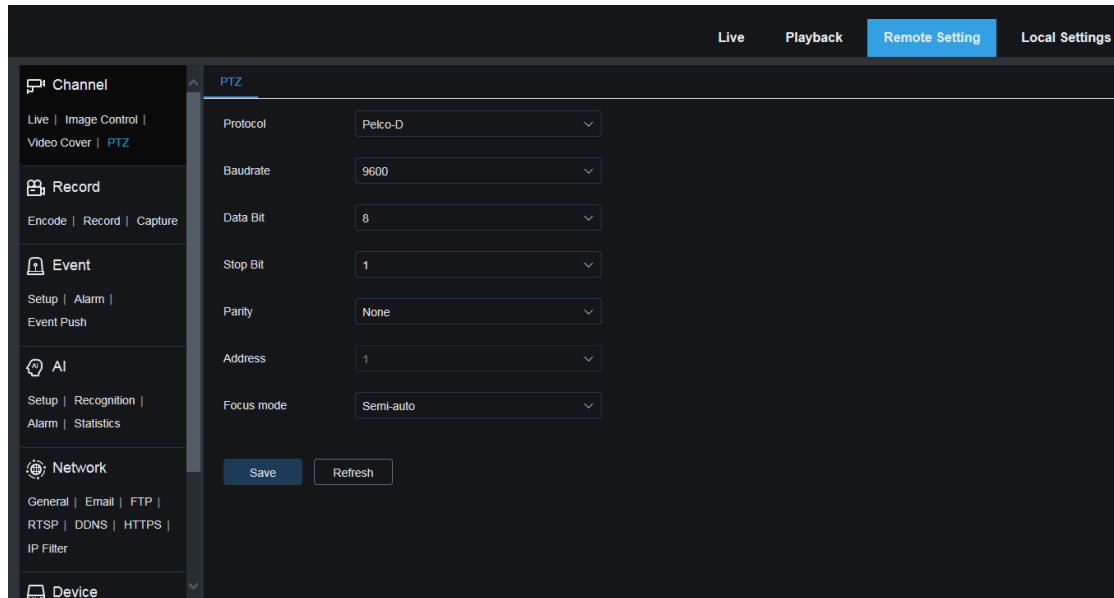**DataBit / StopBit:** **DataBit** indicates the number of bits sent. **StopBit** indicates the end of the packet and the beginning of the next (information) packet. The available values of **DataBit** are: 8, 7, 6, 5. It is recommended that the default value 8 be used. The available values of **StopBit** are 1 and 2. It is recommended that the default value 1 be used.

Parity: Parity checking. The default value is None.

Address: Address of the PTZ system for receiving commands. Each PTZ camera needs a unique address to ensure normal operation. This address is automatically obtained by the PTZ camera and cannot be configured.

Focus mode: Used to set the focus mode.

Auto: The PTZ camera automatically focuses with the change of the scenario.

Semi-auto: After operating on the PTZ or changing the zoom ratio to make the PTZ camera to focus clearly, the PTZ camera does focus any more even after the scenario changes. Default semi-automatic

Manual: The PTZ camera is manually focused on the live view screen. Operations on the PTZ, zoom ratio change, and scenario change do not trigger the focusing action.

(Note: Only some models support RS485.)

9.5. Recording Parameters

You can configure live view parameters and recording parameters on this screen.

9.5.1. Encoding Parameters

The image quality parameters for video recording or network transmission are configured on this screen. In general, the parameters on the **MainStream** tab are related to the quality of videos recorded in the HDD; the parameters on the **SubStream** tab are related to the quality of live videos remotely accessed from a Web client and CMS; the parameters on the **MobileStream** tab (the mobile stream function can be disabled) are related to the quality of live videos remotely accessed by mobile devices.
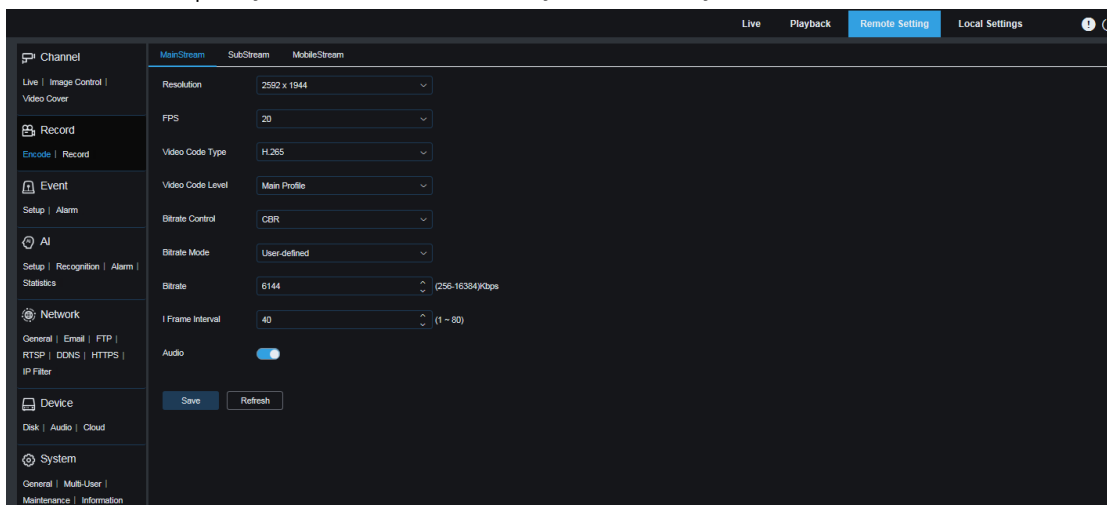
Resolution: Used to set the resolution of video recording.

FPS: Used to set the frame rate of recording on the PTZ camera.

Video Code Type: Channel decoding type. The options include H.264, H.265, H.264+, H.265+, and MJPEG (MJPEG exists in substream mode only).

Video Code Level: Video quality level. The options include Bestline, Main Profile, and High Profile (for H.265, only Main Profile is available).

Bitrate Control: Used to set the bit rate level. For simple scenarios such as a plastered wall, CBR is selected. For complicated scenarios such as a busy street, VBR is selected.

Bitrate Mode: To manually set a bit rate, select **User-defined**. To select a preset bit rate, select **Preset**.

Bitrate: Corresponds to the data transmission speed of video recording by the PTZ camera. The recordings with a higher bit rate gain better image quality.

I Frame Interval: Used to set an I-frame interval. This option is available for PTZ cameras only.

Audio: If you want to record both audio and video and connect your microphone to a PTZ camera or use a PTZ camera with audio functions, set this parameter to ON.

9.5.2. Recording Parameters

9.5.2.1. Recording Parameters

You can set the recording parameters on this screen.
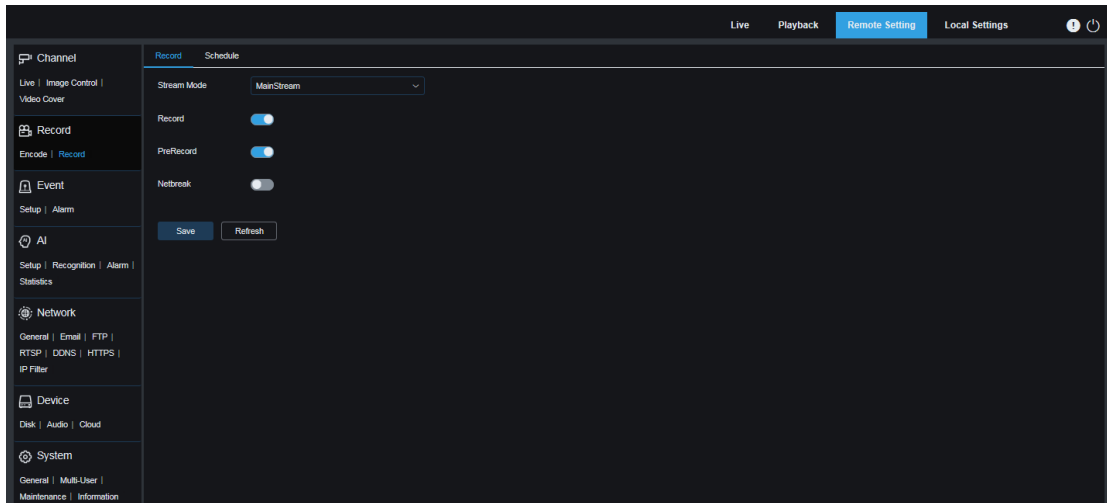
Stream Mode: Used to select a recording mode, that is, video stream to be stored in a memory card. By default, **MainStream** is selected.

Record: Used to set whether to enable recording.

PreRecord: If this option is set to ON, the PTZ camera will start recording a few seconds before an alarm event occurs. If your main recording type is based on motion detection or I/O alarm, it is recommended that you set this option to ON.

Netbreak: If this option is set to ON, recording continues even when the network is disconnected or network failure occurs.

9.5.2.2. Recording Schedule

You can set when the PTZ camera starts recording on this screen. You can set a recording plan in the recording schedule. Recording is conducted within the selected time period only. You can drag the cursor to mark areas.
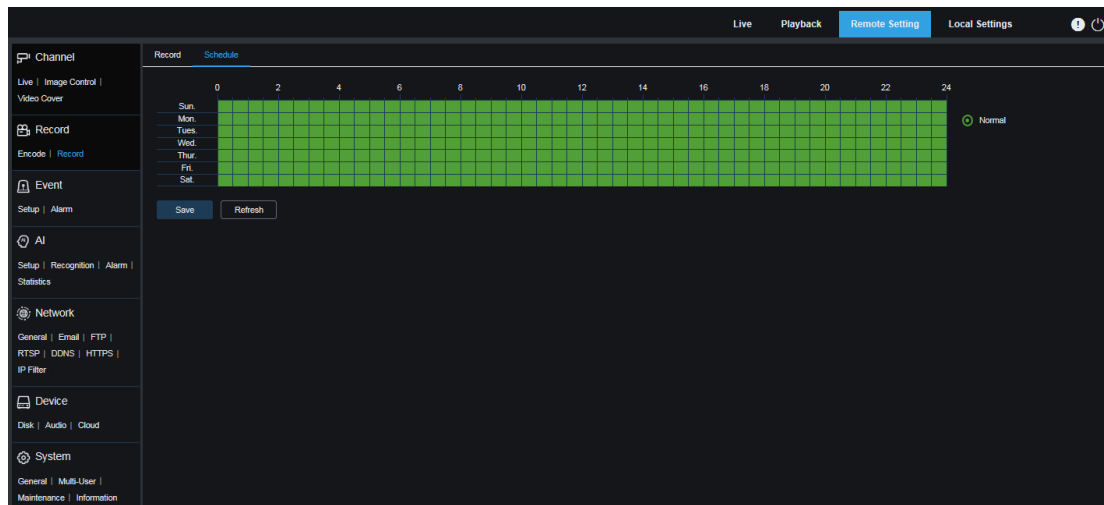
9.5.3. Capture

9.5.3.1. Capture Settings
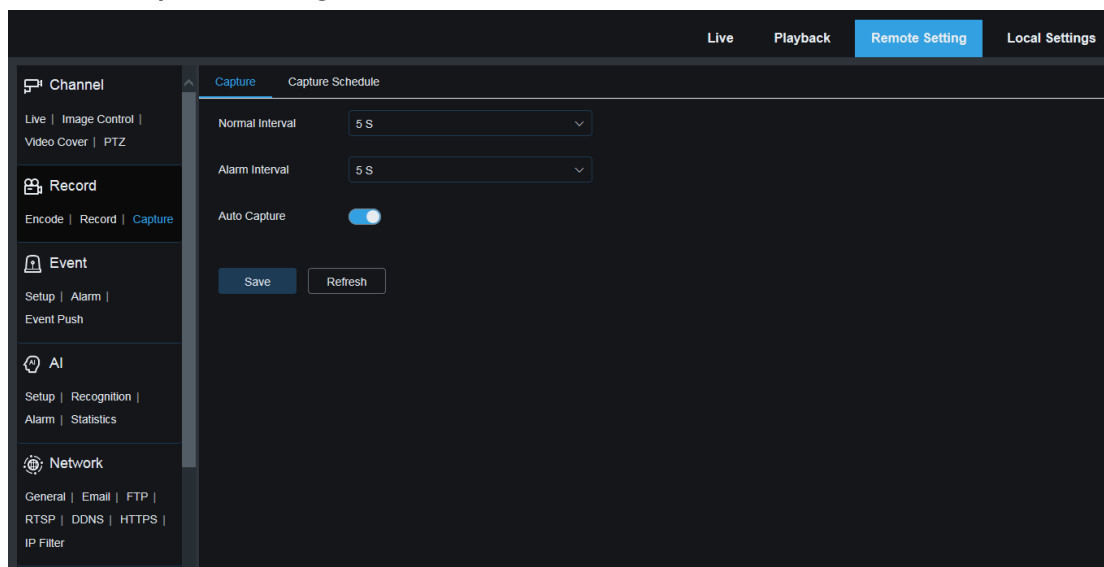
Normal Interval: Used to set the capture interval in normal recording.

Alarm Interval: Used to set the alarm capture interval when motion detection, I/O alarm, or PIR is triggered.

Auto Capture: Automatic capture.

9.5.3.2. Capture Schedule
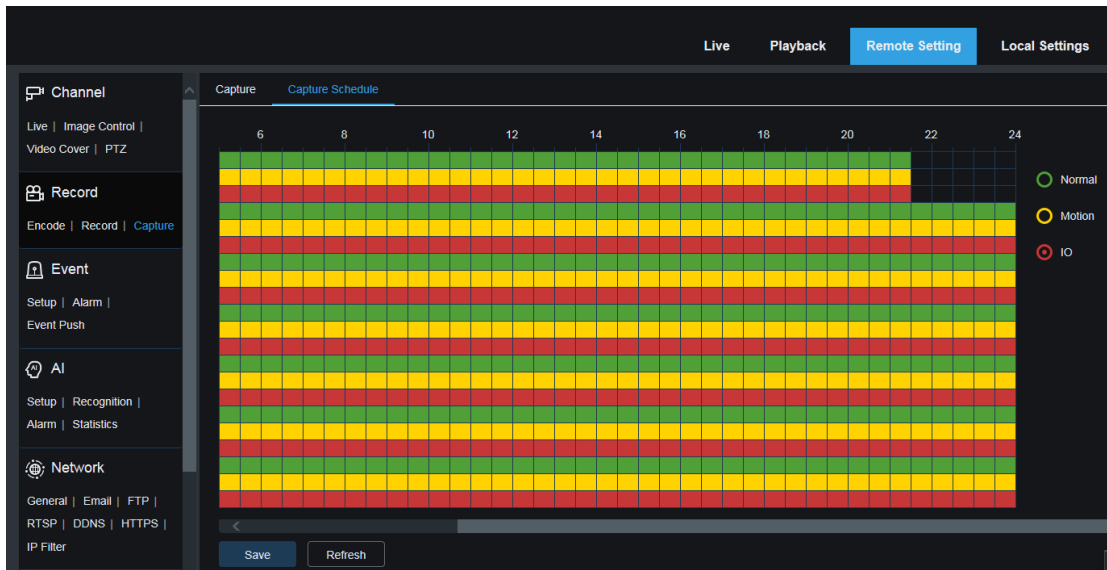
Normal: When an area is marked green, it indicates that the PTZ camera performs normal capture on the area within the corresponding time period.

Motion: When an area is marked yellow, it indicates that the PTZ camera performs motion detection and capture on the area within the corresponding time period.

IO: When an area is marked red, it indicates that the PTZ camera performs I/O alarm capture on the area within the corresponding time period.

No Capture: For the areas marked black, it indicates that no capture is performed within the time period.

9.6. Event Setup

9.6.1. Parameter Setting

9.6.1.1. Motion Detection

You to configure motion detection parameters on this screen. When the PTZ camera detects the movement of a detected object on the screen, it triggers a series of alarms. For example, it sends an alert email to the mailbox specified by the user, including the additional image that triggers the alarm (if this option is enabled), or it pushes notifications via the app.
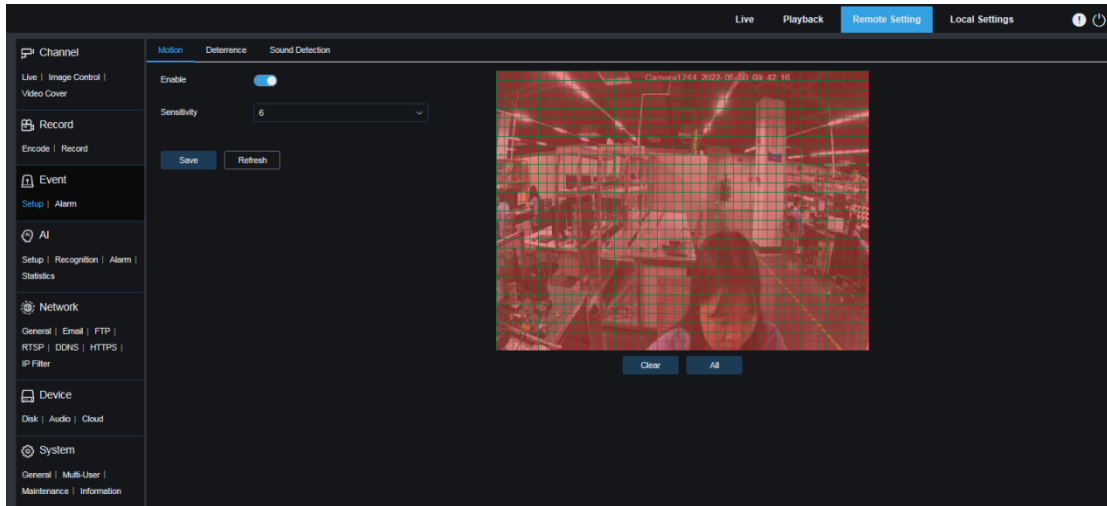
You can drag the left button of the mouse to delimit the detection area on the right. An alarm can be triggered by the motion detected in the area only.

Enable: Used to enable or disable motion detection.

Sensitivity: Used to set the sensitivity of motion detection. The larger the value is, the higher the sensitivity is.

9.6.1.2. Sound Alarm

You can set sound detection alarm response on this screen. When the PTZ camera detects that the connected audio changes, if the requirement of alarm detection is met, an alarm will be triggered.
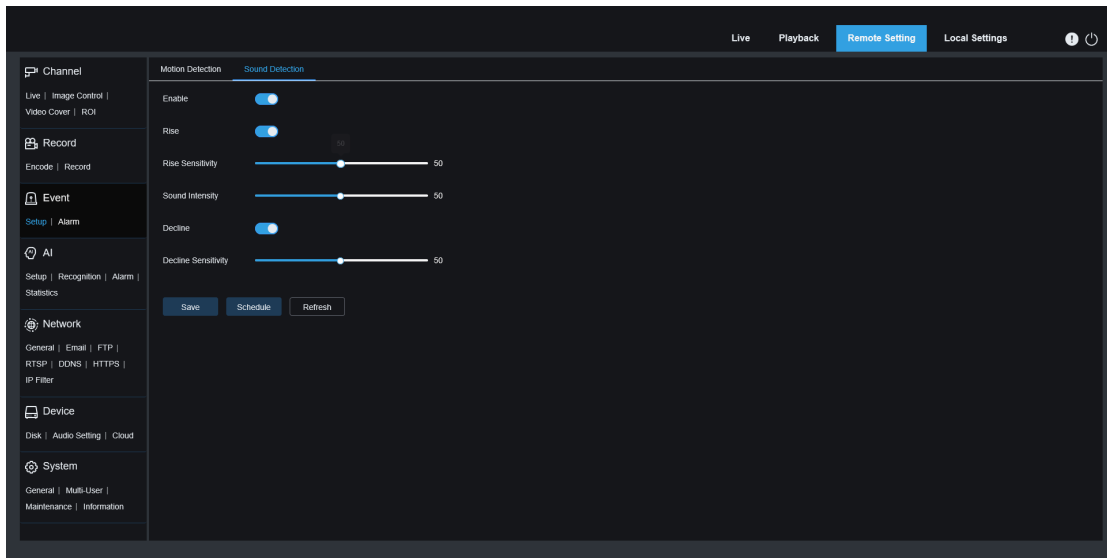
Enable: Used to enable or disable audio detection.

Rise: Used to set the volume rise switch. When this option is set to ON, an alarm is triggered only when the volume rises sharply.

Rise Sensitivity: Used to set the rise sensitivity. The larger the value is, the easier it is to trigger an alarm.

Sound Intensity: Used to set the sound intensity. The parameter value is the threshold.

The larger the threshold is, the louder the sound is required to trigger a rise alarm.

Decline: Volume decline switch. When this option is turned on, an alarm will be triggered only when the volume declines steeply.
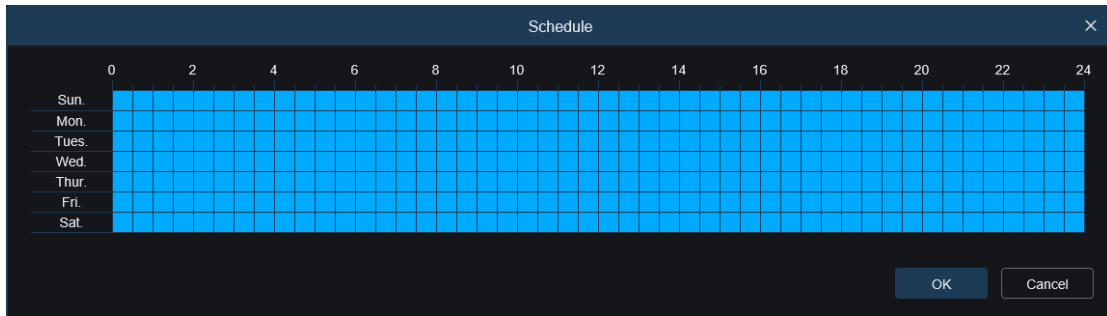
Decline Sensitivity: Used to set the decline sensitivity. The larger the value is, the easier it is to trigger an alarm.

Schedule: Used to set a sound alarm schedule. A sound alarm is triggered only within the scheduled time.

9.6.1.3. White Light Deterrence

When the PTZ camera supports white light, you can set white light deterrence parameters on this screen. When an alarm linking to deterrence is triggered, the white light is automatically turned on for deterrence purpose, as shown in the following figure.
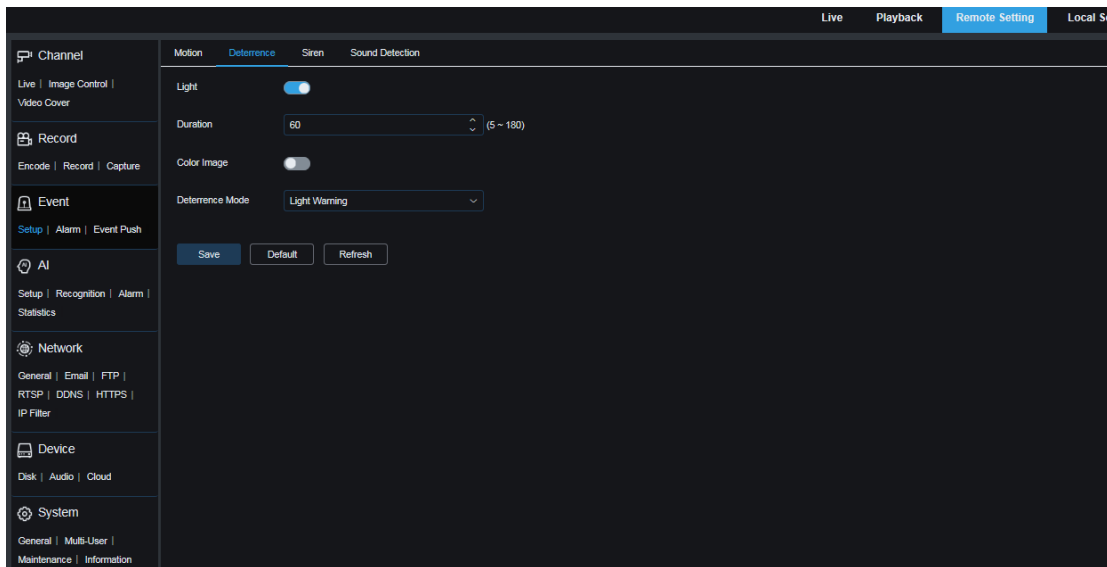
When the PTZ camera supports white light and image control is set to Full Color Mode, the white light parameters such as **Light** become unavailable; when image control is set to Day/Night Mode, all parameters on this screen are available.

Light: White light deterrence switch.

Duration: Used to set the duration of white light deterrence.

Color Image: Used to determine whether to switch the image to the color image when white light deterrence is triggered. When this option is set to ON, if you switch to Night Vision Mode in Day/Night Mode, when an alarm is triggered and white light deterrence

is performed, the image will switch to Full Color Mode and will not switch back to Night Vision Mode until white light deterrence is completed.

Deterrence Mode: Used to set White Light Deterrence Mode. There are two mode options:

Light Warning: The white light is steady on during deterrence.

Light Strobe: The white light flickers at a configured frequency during deterrence.

When the PTZ camera supports warning light, you can set deterrence parameters on this screen. When an alarm linking to deterrence is triggered, the light can be turned on as configured, as shown in the following figure.
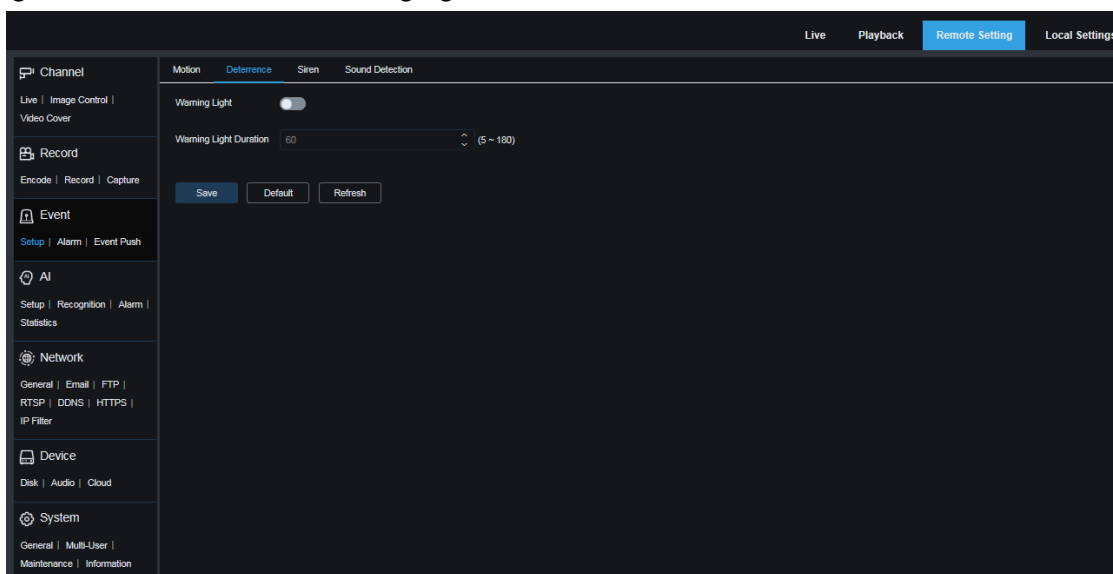
When the PTZ camera supports white light and image control is set to Full Color Mode, the white light parameters such as **Light** become unavailable; when image control is set to Day/Night Mode, all parameters on this screen are available.

Warning Light: Warning light switch.

Warning Light Duration: Used to set the alternate flickering duration of warning light.

9.6.1.4. Siren Deterrence

When the PTZ camera supports siren, you can set siren deterrence parameters on this screen. When an alarm linking to deterrence is triggered, the siren is automatically turned on for deterrence purpose, as shown in the following figure.
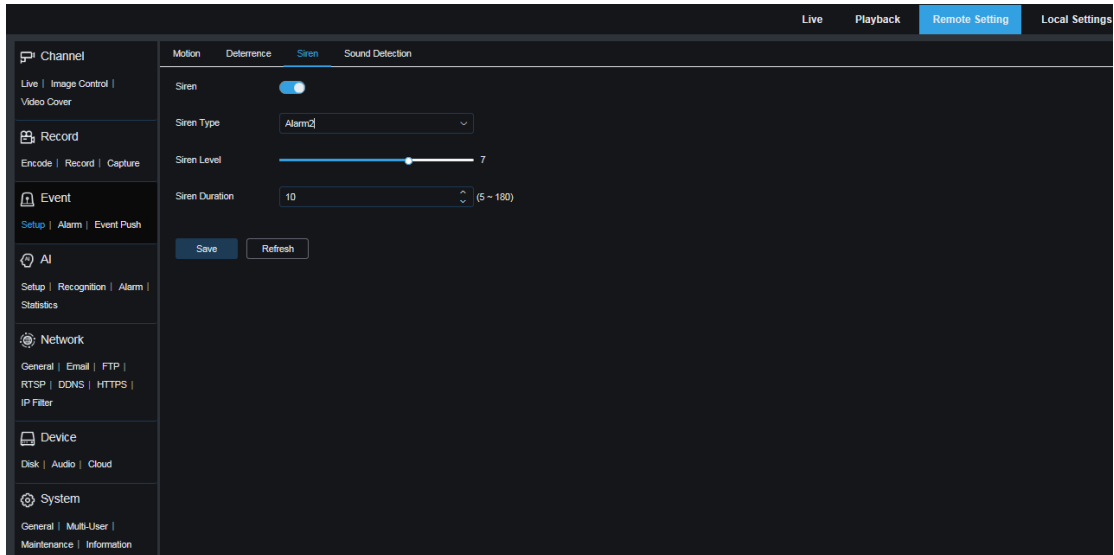
Siren: Used to turn on or turn off the siren.

Siren Type: Used to set the siren file type.

By default, there are two files for users to configure. You can customize and import three siren audio files (the audio file format can be .wav and .pcm, and the file size is not larger than 256 K).

Siren Level: Used to set the siren volume level.

Siren Duration: Used to set the siren sound duration.

9.6.1.5. Video Tampering Detection

Video tampering in live view can be detected and alarms can be reported if there are any.
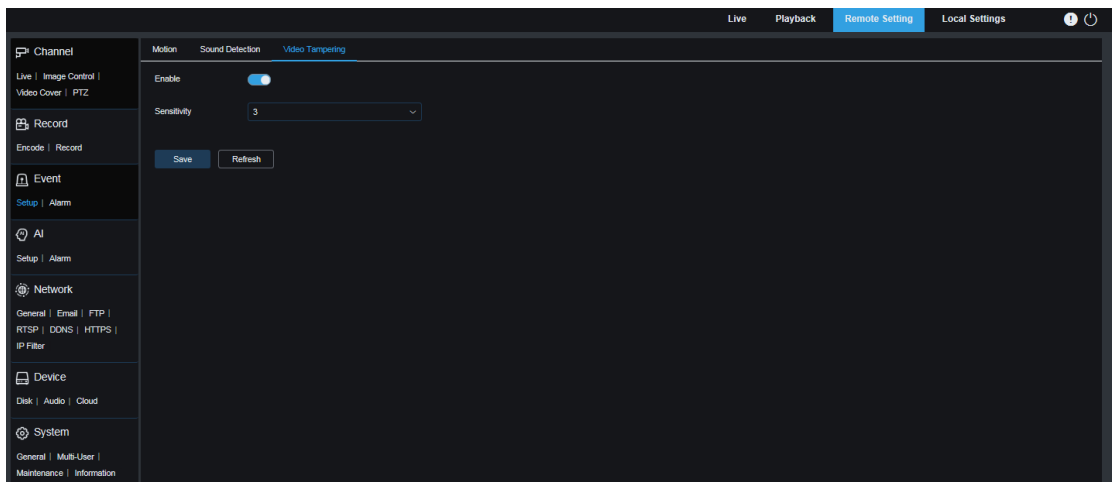
Enable: Used to enable or disable video tampering detection.

Sensitivity: Used to set the sensitivity of video tampering detection. The larger the value is, the higher the sensitivity is.

9.6.2. Alarm Setting

You can set the actions to be performed when alarms are triggered on this screen.

9.6.2.1. Motion Detection

Latch Time: Used to set the duration for triggering an external alarm when motion is detected.

Post Recording: You can set the duration of continuous recording after an event occurs. The options include 5 s, 10 s, 20 s, and 30 s. The default duration is 5 s, and the maximum duration can be set to 30 s.
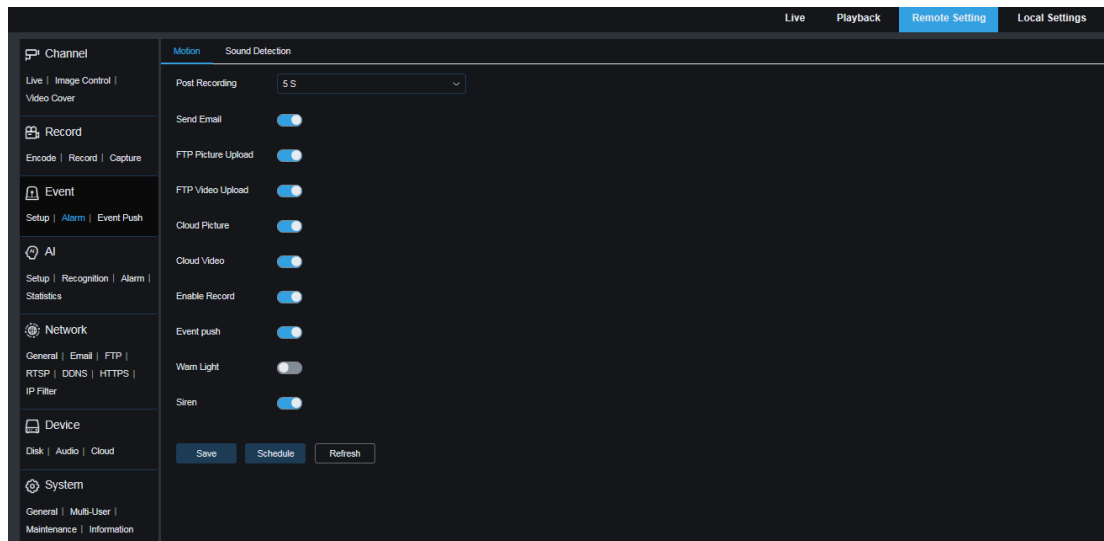
Send Email: Used to set whether an email can be automatically sent when motion is detected.

FTP Picture Upload: Used to set whether to upload alarm pictures to the FTP server after an alarm is triggered.

FTP Video Upload: Used to set whether to upload alarm videos to the FTP server after an alarm is triggered.

Cloud Picture: Used to set whether to upload alarm pictures to the cloud storage after an alarm is triggered.

Cloud Video: Used to set whether to upload alarm videos to the cloud storage after an alarm is triggered.

Alarm Out: Optional. If your device supports connection to an external alarm device, you can set this option to ON to activate the external alarm device.

Enable Record: If this option is set to ON, this kind of recordings will be enabled when an alarm is triggered.

Event push: If this option is set to ON, this type of information will be pushed to the third-party client when an alarm is triggered.

Warn Light: If this option is set to ON, the warning light will be turned on for deterrence when an alarm is triggered.

Siren: If this option is set to ON, the siren will be turned on for deterrence when an
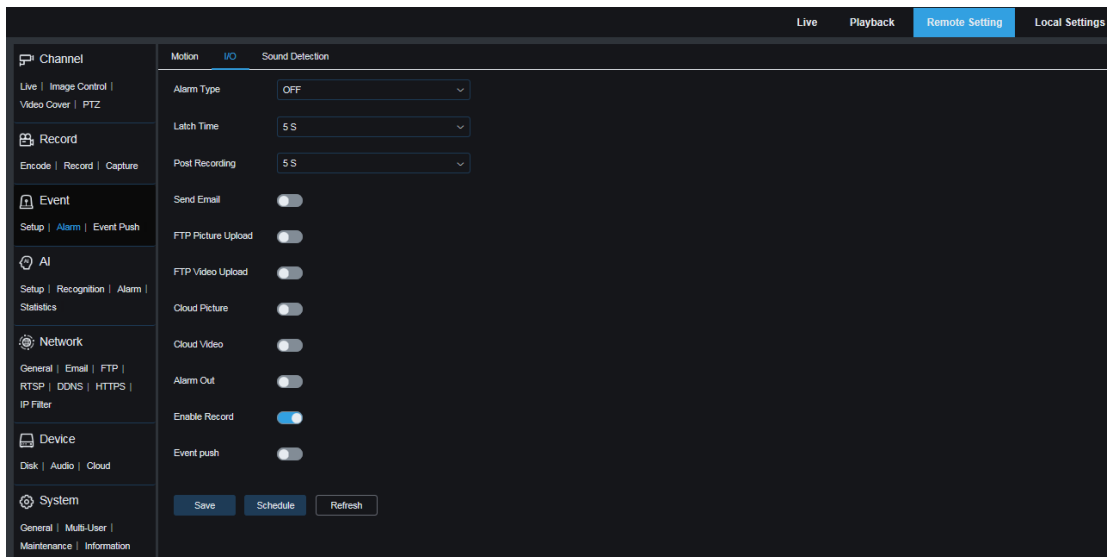
alarm is triggered.

Schedule: Click this button to set the scheduled time of each alarm action. A series of alarm are triggered only within the scheduled time.
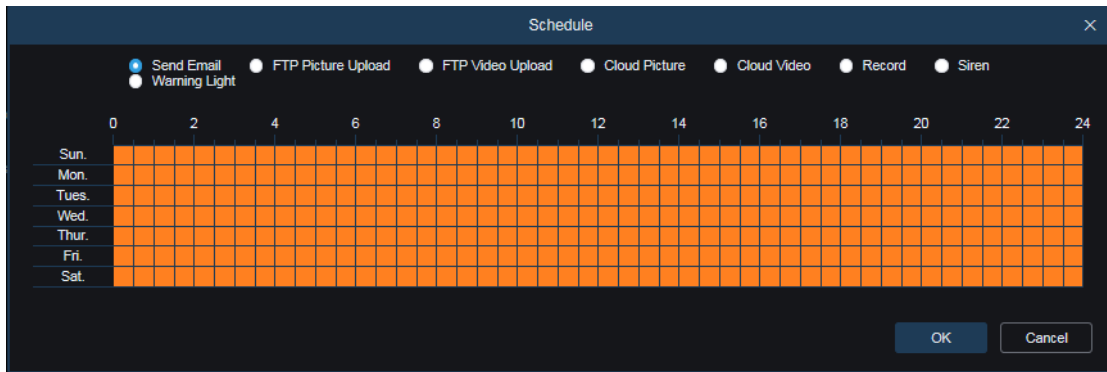
9.6.2.2. I/O Alarm

This function is available only when your device supports I/O sensors and is connected to an external I/O alarm device.

Alarm Type: There are three options: **Normally-Open**, **Normally-Close**, and **OFF**. Select a type that matches the sensor type, or select OFF to disable the sensor triggering function.

Latch Time: Used to set the duration for triggering an external alarm when an I/O alarm is detected.

Post Recording: You can set the duration of continuous recording after an event occurs. The options include 5 s, 10 s, 20 s, and 30 s. The default duration is 5 s, and the maximum duration can be set to 30 s.

Send Email: Used to set whether an email can be automatically sent when an I/O alarm is detected.

FTP Picture Upload: Used to set whether to upload alarm pictures to the FTP server after an alarm is triggered.

FTP Video Upload: Used to set whether to upload alarm videos to the FTP server after an alarm is triggered.

Cloud Picture: Used to set whether to upload alarm pictures to the cloud storage after an alarm is triggered.

Cloud Video: Used to set whether to upload alarm videos to the cloud storage after an alarm is triggered.

Alarm Out: Optional. If your device supports connection to an external alarm device, you can set this option to ON to activate the external alarm device.

Enable Record: If this option is set to ON, this kind of recordings will be enabled when an alarm is triggered.

Event push: If this option is set to ON, this type of information will be pushed to the third-party client when an alarm is triggered.

Schedule: Click this button to set the scheduled time of each alarm action. A series of alarm are triggered only within the scheduled time.

9.6.2.3. Sound Alarm
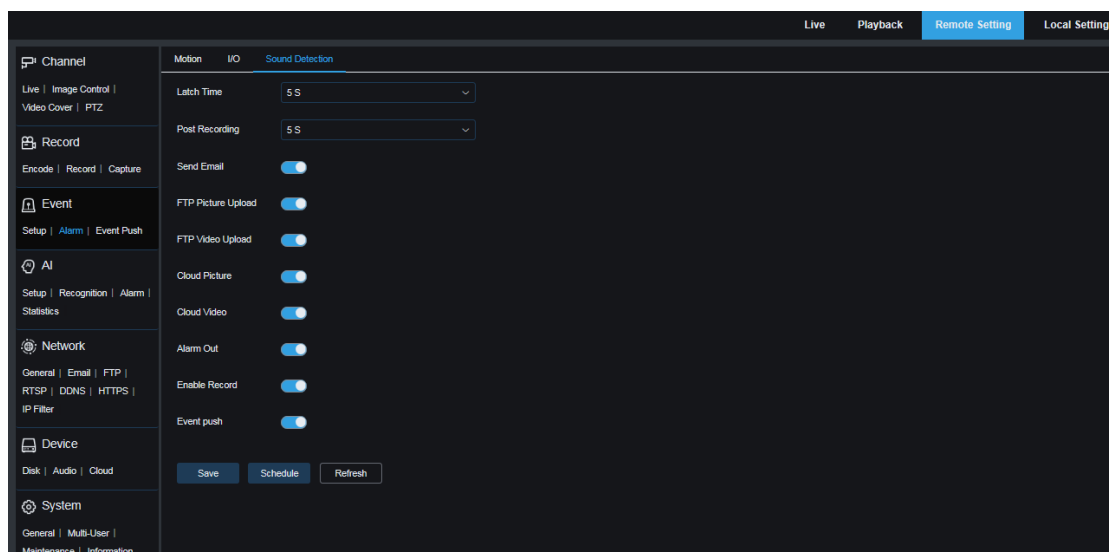
Latch Time: Used to set the duration for triggering an external alarm when a sound alarm is detected.

Post Recording: You can set the duration of continuous recording after an event occurs. The options include 5 s, 10 s, 20 s, and 30 s. The default duration is 5 s, and the maximum duration can be set to 30 s.

Send Email: Used to set whether an email can be automatically sent when a sound alarm is detected.

FTP Picture Upload: Used to set whether to upload alarm pictures to the FTP server after an alarm is triggered.

FTP Video Upload: Used to set whether to upload alarm videos to the FTP server after an alarm is triggered.

Cloud Picture: Used to set whether to upload alarm pictures to the cloud storage after an alarm is triggered.
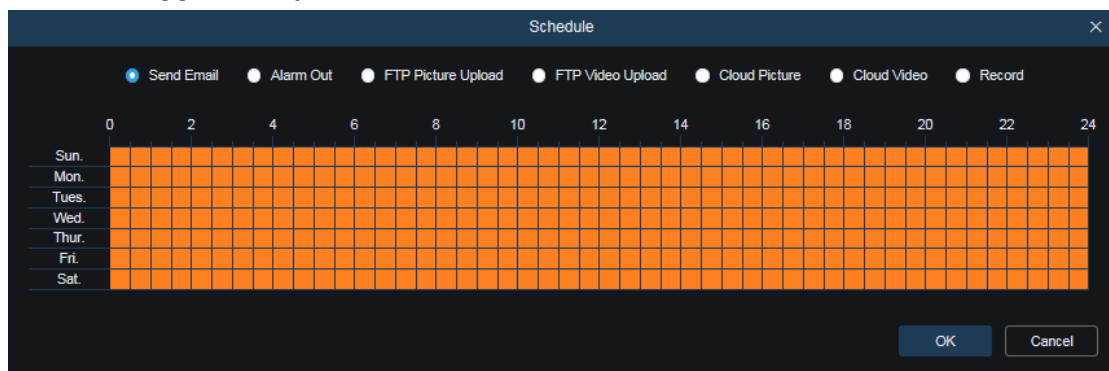
Cloud Video: Used to set whether to upload alarm videos to the cloud storage after an alarm is triggered.

Alarm Out: Optional. If your device supports connection to an external alarm device, you can set this option to ON to activate the external alarm device.

Enable Record: If this option is set to ON, this kind of recordings will be enabled when an alarm is triggered.

Event push: If this option is set to ON, this type of information will be pushed to the third-party client when an alarm is triggered.

Schedule: Click this button to set the scheduled time of each alarm action. A series of alarm are triggered only within the scheduled time.

9.6.2.4. Video Tampering Alarm

Latch Time: Used to set the duration for triggering an external alarm when a video tampering alarm is detected.

Send Email: Used to set whether an email can be automatically sent when a sound alarm is detected.

FTP Picture Upload: Used to set whether to upload alarm pictures to the FTP server after an alarm is triggered.

Cloud Picture: Used to set whether to upload alarm pictures to the cloud storage after an alarm is triggered.
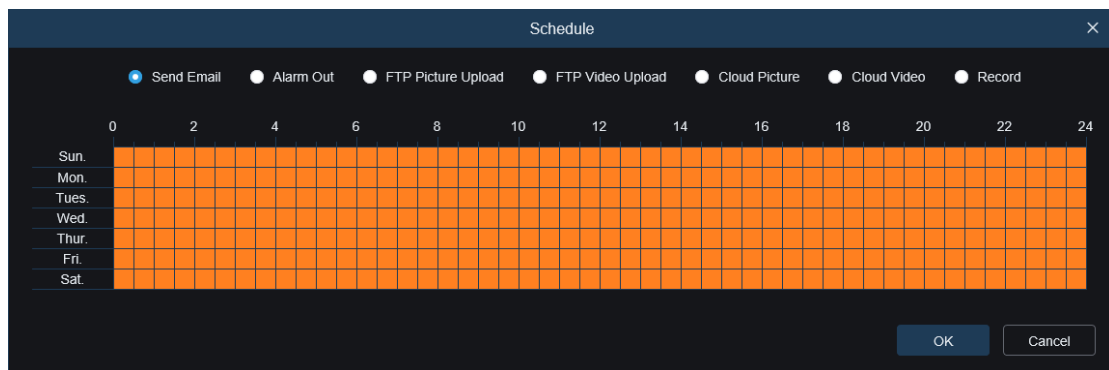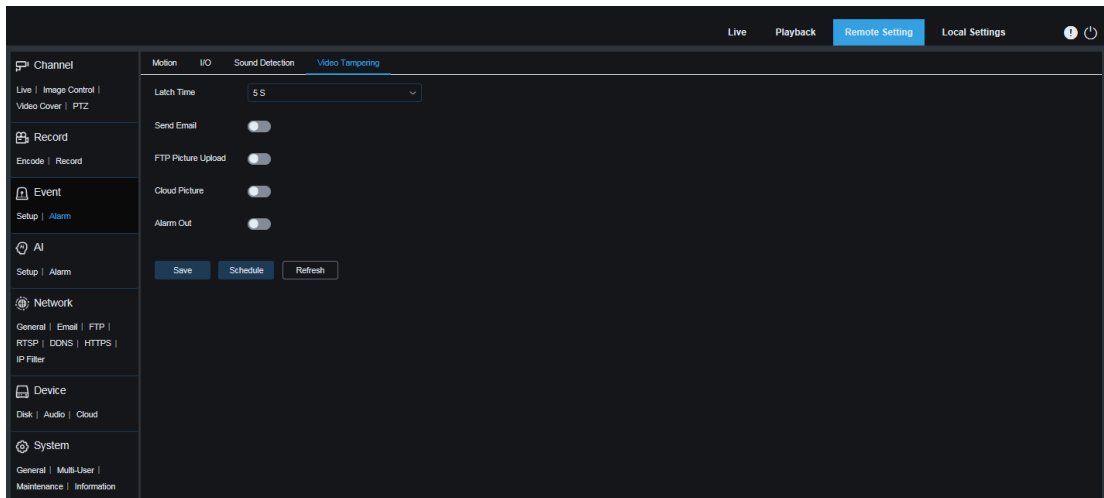
Alarm Out: Optional. If your device supports connection to an external alarm device, you can set this option to ON to activate the external alarm device.

Schedule: Click this button to set the scheduled time of each alarm action. A series of alarm are triggered only within the scheduled time.
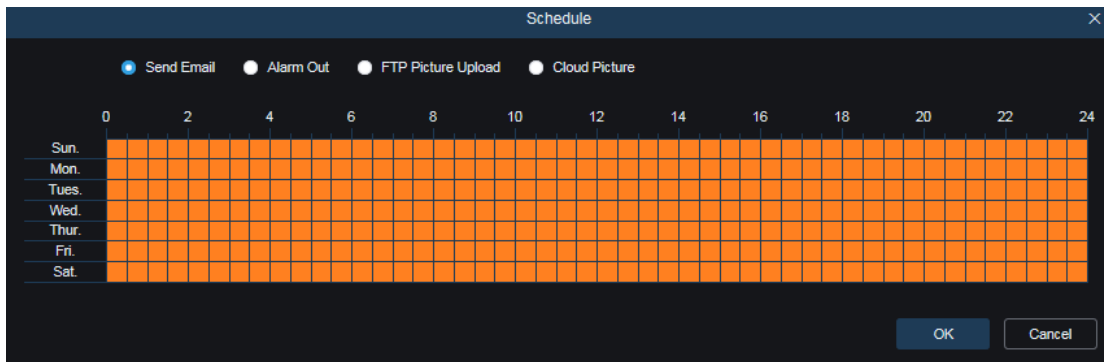
(Note: Some models support video tampering alarms.)

9.6.3. Event Push

Event push can be implemented in two modes: HTTP push mode and UDP push mode. HTTP push mode provides POST method and GET method. UDP push mode provides unicast, multicast, and broadcast methods.

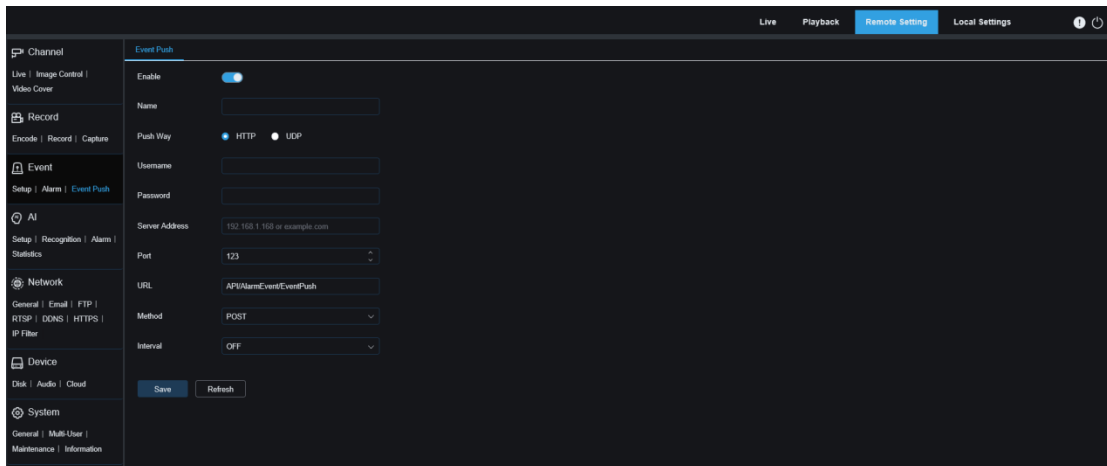### 9.6.3.1. HTTP Push

Enable: Used to enable or disable the event push function.

Name: Used to set the channel name.

Push Way: Used to set the push mode. Both HTTP push mode and UDP push mode are supported. You can select **HTTP** or **UDP** as required.

Username: Used to set the username. It can be set to NULL if there is not any.

Password: Used to set the password. It can be set to NULL if there is not any.

Server Address: Used to set the server address.

Port: Used to set the server port. (port number range: 1–65535.)

URL: Used to set the server API. It can be set to NULL if there is not any.

Method: Used to set the HTTP push method. Both POST and GET methods are supported. Only the HTTP-POST method supports image push. Other methods push notifications only. The alarm type of image push is the same as that in the alarm column of live view on the Web client.

Interval: Used to set the keep-alive interval. The keep-alive mechanism ensures that a notification is periodically pushed to the client in accordance with the preset time while normal alarm push is not affected. There is no keep-alive mechanism in UDP mode.

9.6.3.2. UDP Push
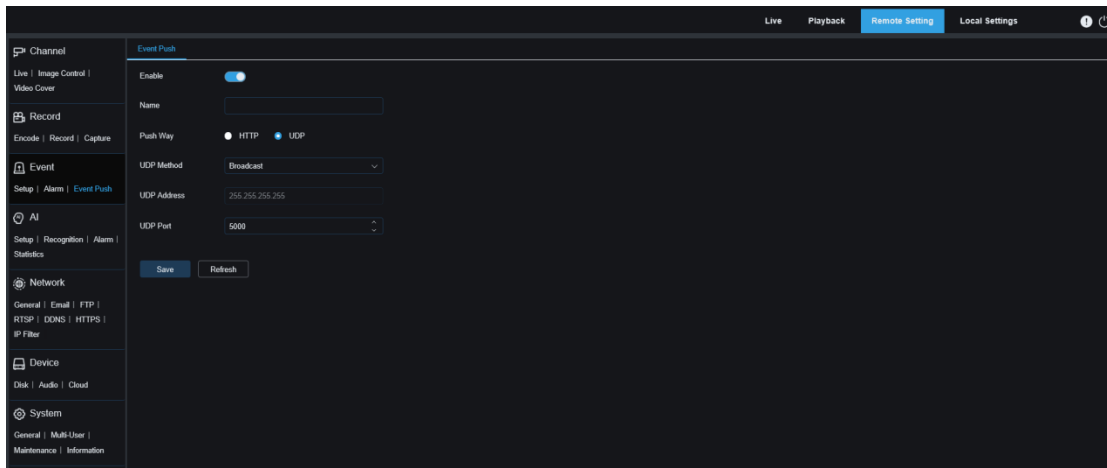
Enable: Used to enable or disable the event push function.

Name: Used to set the channel name.

Push Way: Used to set the push mode. Both HTTP push mode and UDP push mode are supported. You can select **HTTP** or **UDP** as required.

UDP Method: Used to set the UDP push method. There are three options: **Unicast**, **Multicast**, and **Broadcast**.

Unicast: Enter the IP address and port number of the UDP server of the client for receiving push notifications. The notifications can be received by this address only.

Multicast: Multiple clients in the same network segment of which the UDP servers use the same UDP address and port number can receive notifications. Other UDP addresses cannot receive notifications.

Broadcast: All UDP servers in the same network segment can receive notifications.

UDP Address: Used to set the UDP server address.

UDP Port: Used to set the UDP server port. (port number range: 1–65535)

9.7. AI

9.7.1. Setting

To use the AI alarm functions, enable the alarm functions in the **Setup** menu. The functions may consume computing capability of the PTZ camera. Due to the limited performance of the PTZ camera, the RSD function and other functions can be enabled at the same time, but PID, LCD, SOD, FD, PD&VD, CC, CD, QD, and LPD cannot be enabled at the same time. Depend on the actual model

9.7.1.1. FD

With the Face Detection (FD) function, the PTZ camera first detects the face target to obtain the captured image as required. Then, the face feature data of the captured image is calculated based on the face model algorithm and compared with that in the face database. Finally, an alarm is reported. To do this, you need to enable the face detection function.
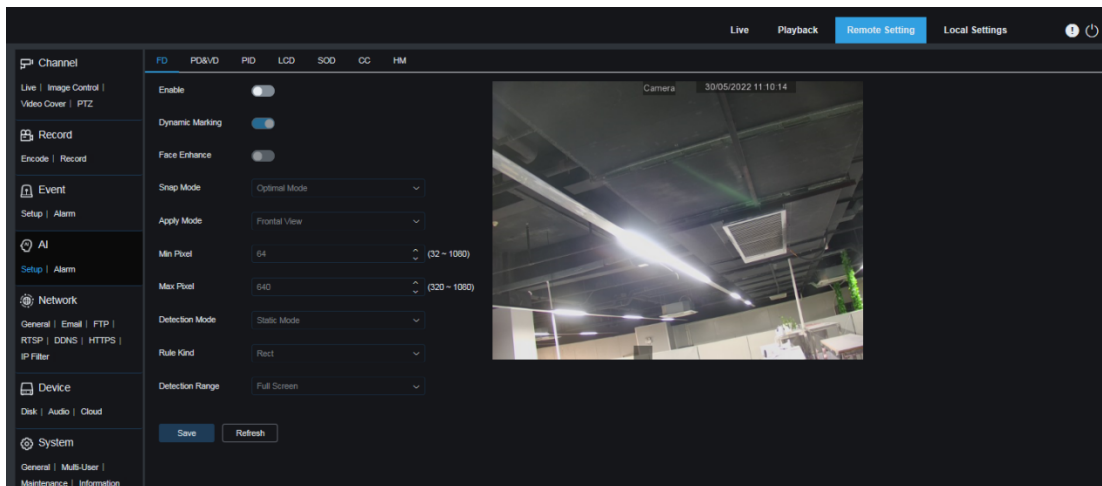
Enable: Used to enable or disable the face detection function.

Dynamic Marking: Used to determine whether to display the face detection box. It is the switch of the detection rule line. Depend on the actual model

Face Enhance: Used to enable or disable the face enhancement function, which can optimize the capture effect of moving objects. This function can adjust the brightness of the recognized face closest to the PTZ camera to optimize the capture effect.

Face Attribute: The features of a captured face image include: age, gender, mask, glasses, and expression. Note: To use the AD alarm function, you need to enable this function.

Snap Mode: Used to set the snap mode. You can receive push notifications in the live view or connect an NVR to view the image effect. There are three snap modes.

Optimal Mode: During the time from the PTZ camera detecting the target to the target disappearing, the PTZ camera pushes only one image that it considers the best when the target disappears.

RealTime Mode: When the PTZ camera detects the target, it immediately pushes an image; when the target disappears, it pushes the best image.

Interval Mode: In this mode, you need to set the interval between snapping and pushing in accordance with the number of snaps. **Snap Num** can be set to 1, 2, 3, or unlimited. **Snap Frequency** ranges from 1 s to 255 s. For example, if **Snap Frequency** is set to 5, an image is pushed at the 5th s, 10th s, and 15th s after the target is detected.

Apply Mode: Used to filter the captured images. In other words, only the captured images that meet the angle setting are pushed. There are three mode options.

Frontal View: In this mode, only the images of the front view of the target is pushed.

Multi Angle: In this mode, the images of targets are pushed, even including the targets of which only the side faces are detected.

Customize: In this mode, you can customize the angle of the target of which the images can be pushed. If this mode is enabled, the **Roll Range**, **Pitch Range**, **Yaw Range**, and **Picture Quality** parameters as well as the **Frontal Default** and **Multi Default** buttons will be displayed on the screen.

Roll Range: Used to set the roll range of the captured image in the 3D model. When the angle does not meet the setting, face detection can be conducted but the image will not be pushed.

Pitch Range: Used to set the pitch range of the captured image in the 3D model. When the angle does not meet the setting, face detection can be conducted but the image will not be pushed.

Yaw Range: Used to set the yaw range of the captured image in the 3D model. When the angle does not meet the setting, face detection can be conducted but the image will not be pushed.

Picture Quality: High quality images are good for filtering out the detected non-face images.

Min Pixel: Used to filter out the face targets of which the resolution is lower than the setting in the captured image based on the 1080p resolution. The default resolution is 64 × 64 pixels. The parameter value ranges from 32 to 1080 pixels.

Max Pixel: Used to filter out the face targets of which the resolution is higher than the setting in the captured image based on the 1080p resolution. The default resolution is 640 × 640 pixels. The parameter value ranges from 320 to 1080 pixels.

Detection Mode: Used to set how to filter the detected objects by the PTZ camera. There are two mode options.

Static Mode: In this mode, all objects in the images are detected.

Motion Mode: In this mode, motionless faces, such as portraits and statues, are filtered out.

Rule Kind: Used to set the detection rule line type. There are two types.

Rect: Only the face objects in the set area are detected.

Line: The face objects are tracked only when they cross the detection line.

Detection Range: This parameter is available when the detection area is used to recognize objects by default. There are two modes.

Full Screen: Detection is conducted in all areas that can be detected by the PTZ camera.

Customize: Detection is conducted in quadrilateral box areas only.

The Rule Type parameter is available only when the line-crossing detection mode is used. There are two detection trigger modes: A→B and B→A.

Frontal Default Apply Mode: When **Customize** is selected, this parameter is available. Set the angle parameters of the images to be pushed as follows: Range 30, Pitch Range: 30, Yaw Range: 45, Picture Quality: 100.

Multi Default Apply Mode: When **Customize** is selected, this parameter is available. Set the angle parameters of the images to be pushed as follows: Range 180, Pitch Range: 180, Yaw Range: 180, Picture Quality: 100.

Rule Line Setting Area: In this area, you can set a quadrilateral box area for detection or detection triggering lines.

9.7.1.2. PD&VD

The Pedestrian Detection (PD) & Vehicle Detection (VD) function is used to recognize pedestrians or vehicles in the images, generate alarms, and record the captured images.
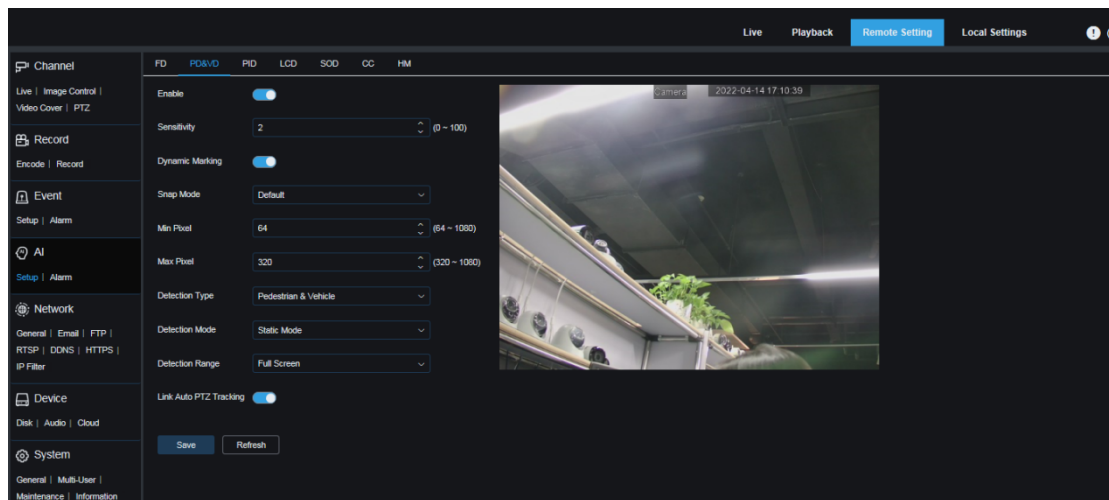
Enable: Used to enable or disable the PD&VD function.

Sensitivity: The higher the detection sensitivity is, the easier it is to detect pedestrians or vehicles, but the more the false alarms may be generated.

Dynamic Marking: Used to set whether to display the PD&VD detection box and whether to use the detection rule line.

Snap Mode: Used to set the snap mode. You can receive push notifications in the live view or connect an NVR to view the image effect. There are three snap modes.

Default: During the time from the PTZ camera detecting the target to the target disappearing, the PTZ camera pushes only one pedestrian or vehicle image that it considers the best when the target disappears.

RealTime Mode: When the PTZ camera detects the target, it immediately pushes an image; when the target disappears, it pushes another image.

Interval Mode: In this mode, you need to set the interval between pushing, and images are pushed for the set number of times based on the interval.

Snap Num: Used to set the number of times that the images of the same target considered by the PTZ camera are pushed (the value can be 1, 2, 3, or an unlimited number of times) at the interval configured by the Snap Frequency parameter.

Snap Frequency: Images are pushed based on the configured time from the target appearing or the last push time.

Min Pixel: Used to filter out the pedestrian or vehicle targets of which the resolution is lower than the setting in the image based on the 1080p resolution.

Max Pixel: Used to filter out the pedestrian or vehicle targets of which the resolution is higher than the setting in the image based on the 1080p resolution.

Detection Type: The options include **Pedestrian**, **Motor Vehicle**, and **Non-motorized Vehicle**. You can also select all three options.

Detection Mode: Used to set how to filter the objects in the detection area. There are

two mode options.

Static Mode: In this mode, all pedestrians or vehicles in the images are detected.

Motion Mode: In this mode, the motionless pedestrians or vehicles are filtered out.

Detection Range: Used to set the detection area. There are two mode options:

Full Screen: Detection is conducted in all areas that can be detected by the PTZ camera.

Customize: Detection is conducted in quadrilateral box areas only.

Rule Line Setting Area: When **Detection Range** is set to **Customize**, you can set the detection lines in this area to form an area for detection.

9.7.1.3. PID

With the Perimeter Intrusion Detection (PID) function, when a specific object enters or leaves the warning area, an alarm is reported.
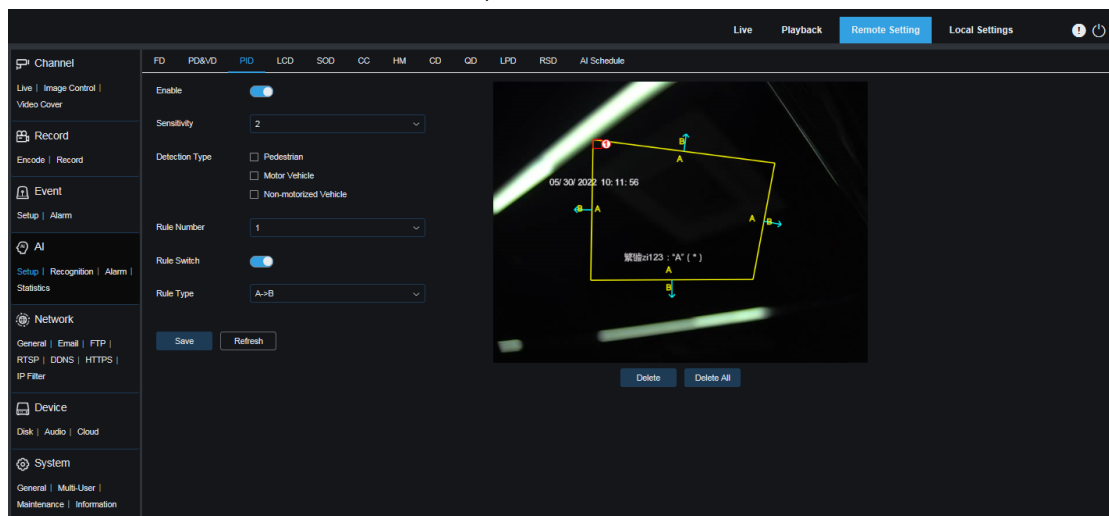
Enable: Used to enable or disable PID alarm function.

Sensitivity: Used to set the filtering level of disturbing objects. The higher the sensitivity is, the smaller the object that can be detected is.

Detection Type: Used to set the objects for PID.

Pedestrian: When a pedestrian intrudes the perimeter, an alarm is reported.

Motor Vehicle: When a motor vehicle intrudes the perimeter, an alarm is reported.

Non-motorized Vehicle: When a non-motorized vehicle intrudes the perimeter, an alarm is reported.

Rule Number: Used to select a rule line number. The PID function supports setting four detection rule lines.

Rule Switch: Used to enable or disable rule lines. Each rule line is controlled by an independent switch associated with the currently selected **Rule Number**.

Rule Type: Used to set the rule for triggering rule lines. There are three options: AB.BA.and AB. This setting is related to **Rule Number**.
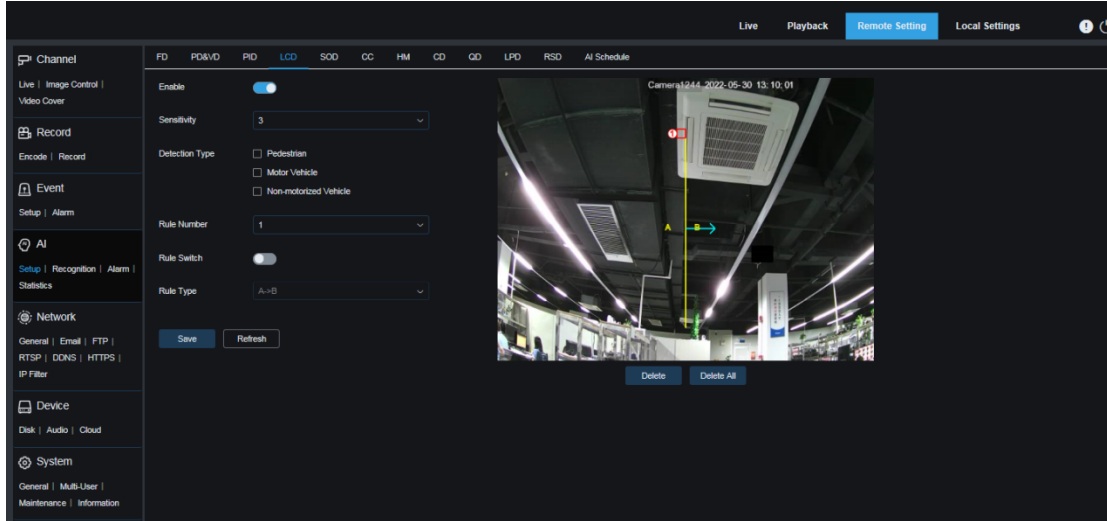
Rule Line Setting Area: In this area, you can set and view the edited rule lines.

Delete: Click this button to delete the selected rule lines in the rule line setting area.

Delete All: Click this button to delete all rule lines.

9.7.1.4. LCD

With the Line Crossing Detection (LCD) function, when a specific object crosses the preset detection line, an alarm is reported.

Enable: Used to enable or disable the LCD alarm function.

Sensitivity: Used to set the filtering level of disturbing objects. The higher the sensitivity is, the smaller the object that can be detected is.

Detection Type: Used to set the objects for PID. Pedestrian: Perimeter intrusion alarms are triggered for pedestrians only.

Motor Vehicle: Perimeter intrusion alarms are triggered for motor vehicles only.

Non-motorized Vehicle: Perimeter intrusion alarms are triggered for non-motorized vehicles only.

Rule Number: Used to select a rule line number. The LCD function supports setting four detection rule lines.

Rule Switch: Used to enable or disable rule lines. Each rule line is controlled by an independent switch associated with the currently selected **Rule Number**.

Rule Type: Used to set the rule for triggering rule lines. There are three options: **A→B**, **B→A**, and **A↔B**. This setting is related to **Rule Number**.

Rule Line Setting Area: In this area, you can set, modify, and view the edited rule lines.

Delete: Click this button to delete the selected rule lines in the rule line setting area.

Delete All: Click this button to delete all rule lines.

9.7.1.5. SOD

With the Stationary Object Detection (SOD) function, when there are items left or lost in the detection scenario, an alarm is reported.
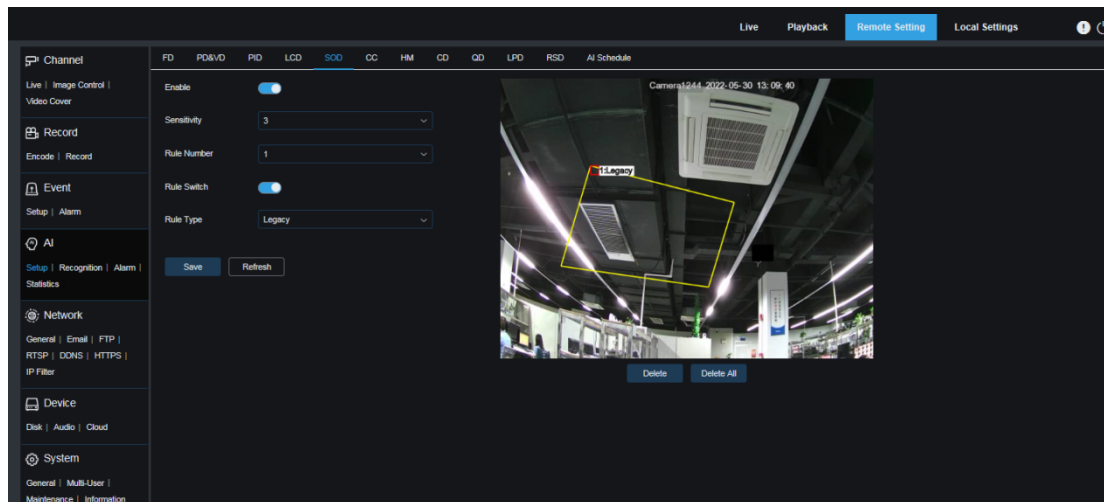
Enable: Used to enable or disable the SOD function.

Sensitivity: Used to set the filtering level of disturbing objects. The higher the sensitivity is, the smaller the object that can be detected is.

Rule Number: Used to select a rule line number. The LCD function supports setting four detection rule lines.

Rule Switch: Used to enable or disable rule lines. Each rule line is controlled by an independent switch associated with the currently selected **Rule Number**.

Rule Type: Used to set the rule for triggering rule lines, that is, whether an alarm is reported due to items left or lost. There are three options: **Legacy**, **Lost**, and **Lost & Legacy**. This setting is related to Rule Number.

Rule Line Setting Area: In this area, you can set, modify, and view the edited rule lines.

Delete: Click this button to delete the selected rule lines in the rule line setting area.

Delete All: Click this button to delete all rule lines.

9.7.1.6. CC

With the Cross Counting (CC) function, the statistics of specific line-cross objects in the surveillance area are recorded. You need to set a detection line, on two sides of which are area A and area B. For example, suppose the rule for triggering rule lines is A→B. When an object enters from area A, crosses the detection line, and leaves area B, the in count is incremented by one. When an object enters from area B, crosses the detection line, and leaves area A, the out count is incremented by one. When the count is updated, an alarm is triggered only when the in count minus the out count is larger than or equal to the set **Alarm Number** value, as shown in the following figure.
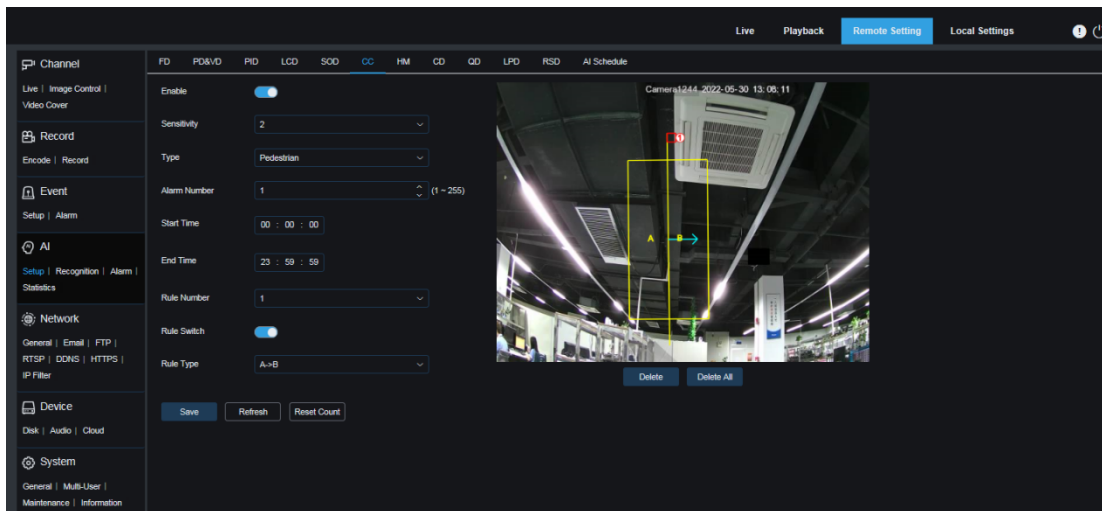
Enable: Used to enable or disable the CC statistics and alarm function.

Sensitivity: Used to set the filtering level of disturbing objects. The higher the sensitivity is, the smaller the object that can be detected is. This parameter can also be applied in detecting distant objects in the detection area.

Type: Used to set the type of objects to be recognized in CC detection. There are four modes. Switching the type may cause the current count to be cleared.

Motion: All objects, including pedestrians, vehicles, and cartons, are detected.

Pedestrian: Only pedestrians are recognized.

Motor Vehicle: Only motor vehicles are recognized.

Non-motorized Vehicle: Only non-motorized vehicles are recognized.

Alarm Number: Used to set the condition for triggering an alarm. When the PTZ camera updates the count, if the in count minus the out count is larger than or equal to the setting, a CC alarm will be reported.

Start Time: Used to set the start time of the CC function every day.

End Time: Used to set the end time of the CC function every day.

Rule Number: Used to select a rule line number. The CC detection function supports only one detection rule line.

Rule Switch: Used to enable or disable the rule line of the current number.

Rule Type: Used to set the direction for triggering in count and out count statistics to increase. There are two options: A→B and B→A. For example, if A→B is selected, the in count is incremented by one when a detected object enters area A and leaves area B, and the out count is incremented by one when a detected object enters area B and leaves area A.

Reset Count: Click this button to clear the currently displayed count.

Line-Crossing Setting Area: In this area, you can set the rule line for CC detection.

Count Area: In this area, the CC statistics are displayed. For details, refer to Section 8.1 for how to adjust display positions.

9.7.1.7. HM

With the Heat Map (HM) function, you can perform personnel activity analysis in all areas or specific areas. The changes are saved and reported every 10 minutes. The heat map is used to present personnel distribution by time or by space, facilitate learning the activity degree in each area. This function only supports data recording, not alarming.
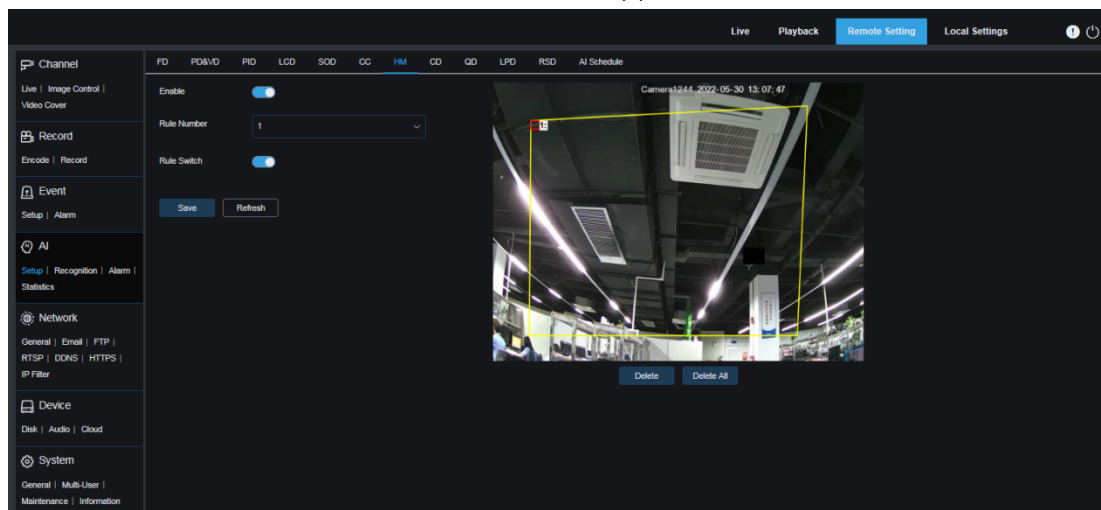
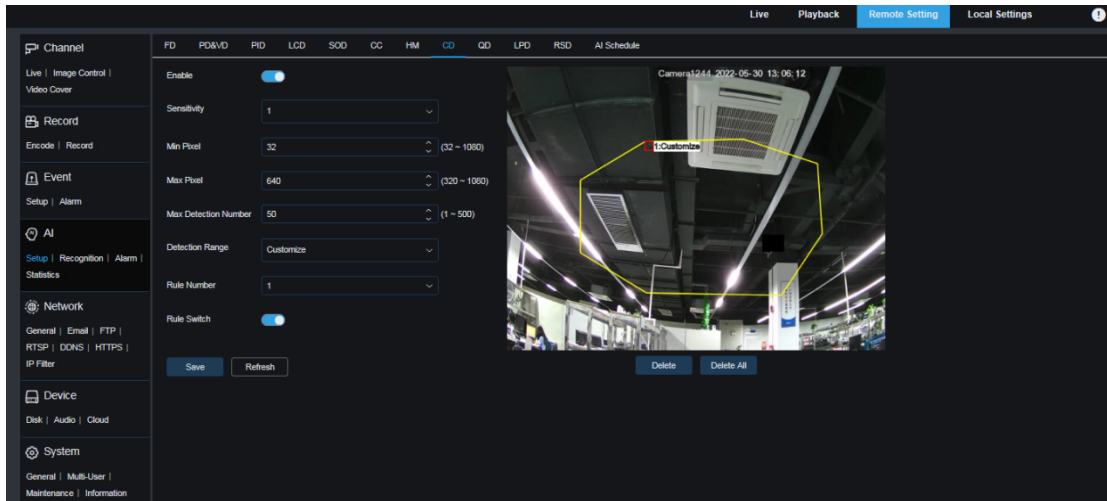**Enable:** Used to enable or disable the HM statistics function.

Rule Number: Used to select a rule line number. The HM function supports only one detection rule line.

Rule Switch: Used to enable or disable the rule line of the current number.

Detection Area Setting: In this area, you can set the areas for HM statistics. By default, all areas are selected.

9.7.1.8. CD

With the Crowd Detection (CD) function, the number of people in the surveillance area is counted through recognizing human heads by the human detection function. When the number of people exceeds the preset value, an alarm is reported.

Enable: Used to enable or disable the CD function.

Sensitivity: Used to set the filtering level of disturbing objects. The higher the sensitivity is, the smaller the object that can be detected is.

Min Pixel: Used to filter out the objects with heads smaller than the setting based on the 1080p resolution.

Max Pixel: Used to filter out the objects with heads larger than the setting based on the 1080p resolution.

Max Detection Number: Used to set the maximum number of human heads that can be detected in the detection area. If the value is exceeded, an alarm will be reported.

Detection Range: Used to set the area where the CD function is applied. There are two mode options.

Full Screen: In this mode, all areas covered by the PTZ camera are detected.

Customize: In this mode, you can customize detection areas.

Rule Number: Used to select a rule line number. It is available when **Detection Range** is set to **Customize**. One detection rule line is supported.

Rule Switch: Used to enable or disable the current rule line. It is available when you customize a detection area.

Detection Area Setting: When **Detection Range** is set to **Customize**, you need to set an octagonal detection area as needed.

Count Display Area: In this area, the number of people in the surveillance area is displayed. For how to adjust the display positions, refer to Section 9.1.

9.7.1.9. QD

With the Queue Detection (QD) function, you can set the number of people in the queue area and the waiting time. If the queue is too long or if the waiting time is too long, an alarm will be reported.
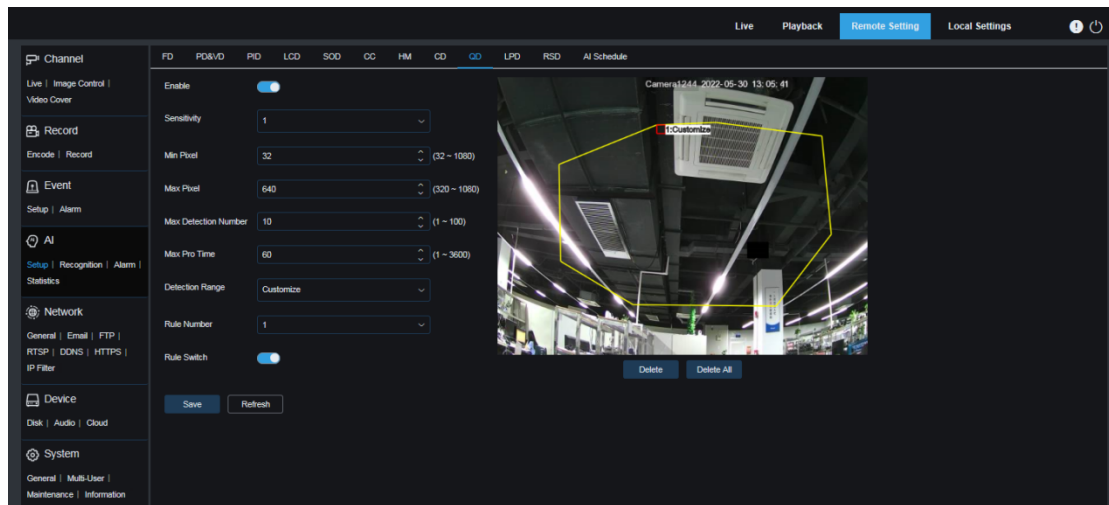
Enable: Used to enable or disable the QD function.

Sensitivity: Used to set the filtering level of disturbing objects. The higher the sensitivity is, the smaller the object that can be detected is.

Min Pixel: Used to filter out the objects with heads smaller than the setting based on the 1080p resolution.

Max Pixel: Used to filter out the objects with heads larger than the setting based on the 1080p resolution.

Max Detection Number: Used to set the maximum number of human heads that can be detected in the detection area. If the value is exceeded, an alarm will be reported.

Max Pro Time: Used to set the maximum duration allowed for a person to stay in the detection area. If no person leaves the detection area before the set duration expires, an alarm will be reported. (This duration starts from when the last person leaves the detection area. If no person leaves the detection area before the set duration expires, it is considered that timeout occurs and an alarm will be reported.)

Note: Counting is restarted only when an object leaves the detection area. If the target in the detection area suddenly disappears, the counting is ignored. Counting is started only when there are objects detected in the detection area.

Detection Range: Used to set the area where the QD function is applied. There are two mode options.

Full Screen: In this mode, all areas covered by the PTZ camera are detected.

Customize: In this mode, you can customize detection areas.

Rule Number: Used to select a rule line number. It is available when **Detection Range** is set to **Customize**. One detection rule line is supported.

Rule Switch: Used to enable or disable the current rule line. It is available when you customize a detection area.

Detection Area Setting: When **Detection Range** is set to **Customize**, you need to set an octagonal detection area as needed.

Count Display Area: In this area, the number of people in the surveillance area and the waiting time are displayed. For how to adjust the display positions, refer to Section 8.1.

9.7.1.10.LPD

With the License Plate Detection (LPD) function, the license plates of passing vehicles are detected to find out whether there are strange vehicles or vehicles registered in the database. If yes, alarms will be reported. Therefore, the LPD function should be enabled first.

Currently, the LPD function is only available for European and American regions.
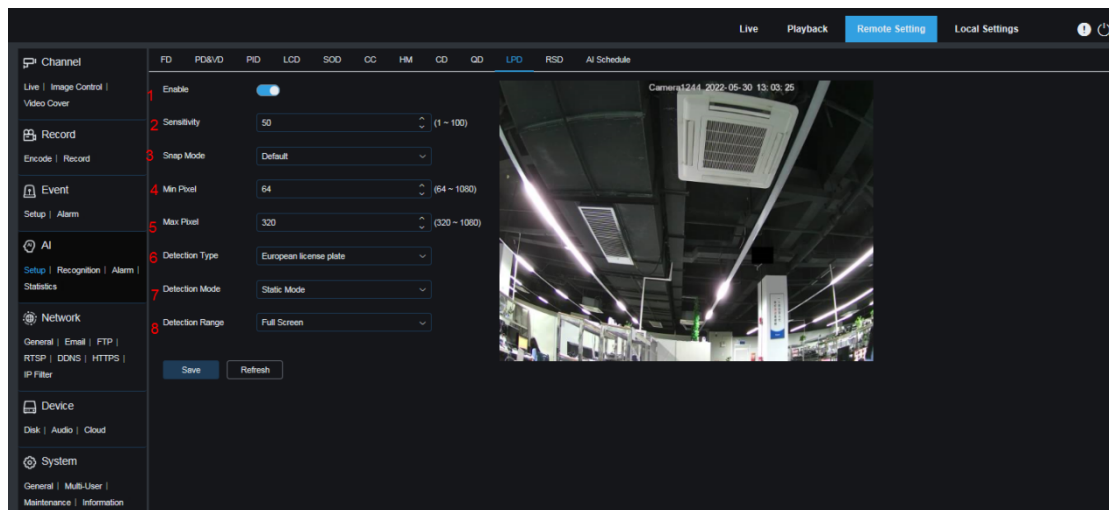
1. Enable: Used to enable or disable the LPD function.

2. Sensitivity: Used to set the filtering level of disturbing objects. The higher the sensitivity is, the easier it is to detect an object.

3. Snap Mode: Used to set the snap mode. You can receive push notifications in the live view or connect an NVR to view the image effect. There are three snap modes.

Default: During the time from the PTZ camera detecting the target to the target disappearing, the PTZ camera pushes only one license plate image when the target disappears.

RealTime Mode: When the PTZ camera detects the target, it immediately pushes an image; when the target disappears, it pushes another image.

Interval Mode: In this mode, you need to set the interval between pushing, and images are pushed for the set number of times based on the interval.

4. Min pixel: Used to set the minimum recognition pixel. Only the license plates with a resolution higher than the set minimum pixels can be recognized.

5. Max pixel: Used to set the maximum recognition pixel. Only the license plates with a resolution lower than the set maximum pixels can be recognized.

6. Detection Type: Used to set the type of license plates to be detected. There are two type options.

European license plate: License plates in European regions.

American license plate: License plates in American regions.

7. Detection Mode: Used to set the license plate detection mode. There are two mode options.

Static Mode: In this mode, the static license plates in the images are detected.

Motion Mode: In this mode, motionless vehicles and their license plates are filtered out, and only the license plates in motion are detected.

8. Detection Range: Used to set the area where the LPD function is applied. There are two type options.

Full Screen: The LPD detection is conducted in full screen.

Customize: The detection area is customized.

9.7.1.11.RSD

The Rare Sound Detection (RSD) function is used to detect rare sounds, for example, baby crying, gunshot, and barking, and report alarms.
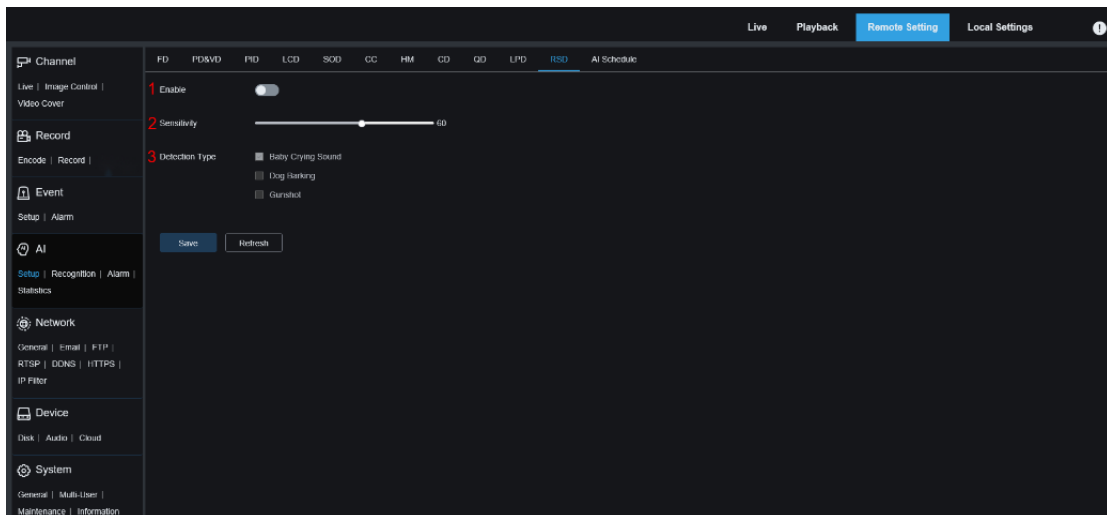
1. Enable: Used to enable or disable the RSD function.

2. Sensitivity: Used to set the sensitivity. 1 indicates the minimum while 100 indicates the maximum.

3. Detection Type: Used to set the detection type.

Baby Crying Sound: If this option is selected, baby crying sound can be detected.

Dog Barking: If this option is selected, dog barking can be detected.

Gunshot: If this option is selected, gunshot can be detected.

9.7.1.12.AI Schedule

With the AI schedule function, you can set the enablement schedule of each AI function. Being selected indicates enabled, being not selected indicates disabled, and being gray indicates unavailable.
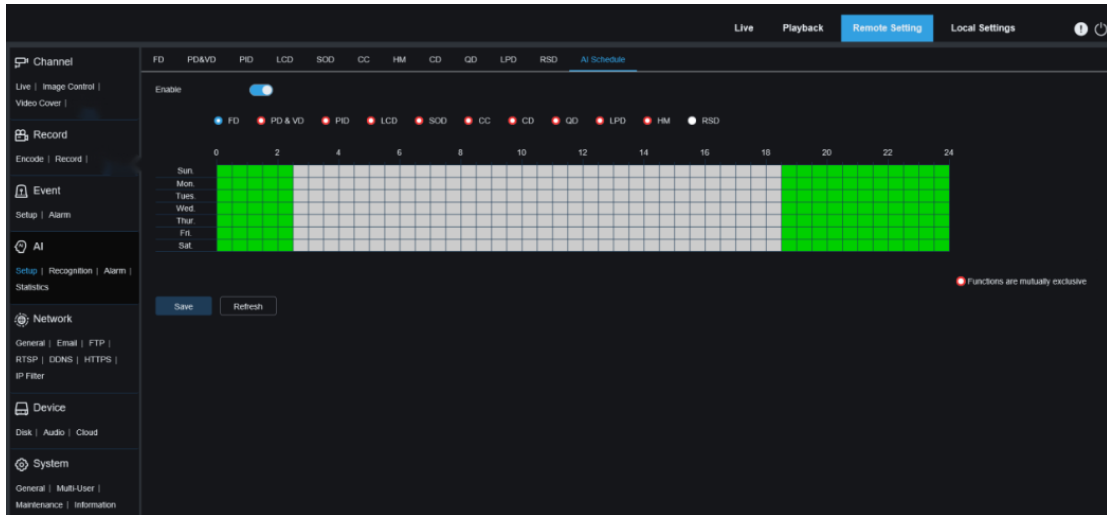
Enable: Used to enable or disable the AI schedule function.

Functions are mutually exclusive: Functions that are mutually exclusive with the selected functions.

Note:

- The functions that are mutually exclusive with each other cannot be set at the same time. In other words, two AI functions mutually exclusive with each other cannot be enabled at the same time. Restrictions are used for this on the screen.
- After the AI schedule is enabled, all AI function switches of this channel are controlled by the schedule, that is ,they cannot be enabled or disabled manually. However, parameters such as sensitivity can be modified as needed.

9.7.1.13.Automatic Tracking Parameters
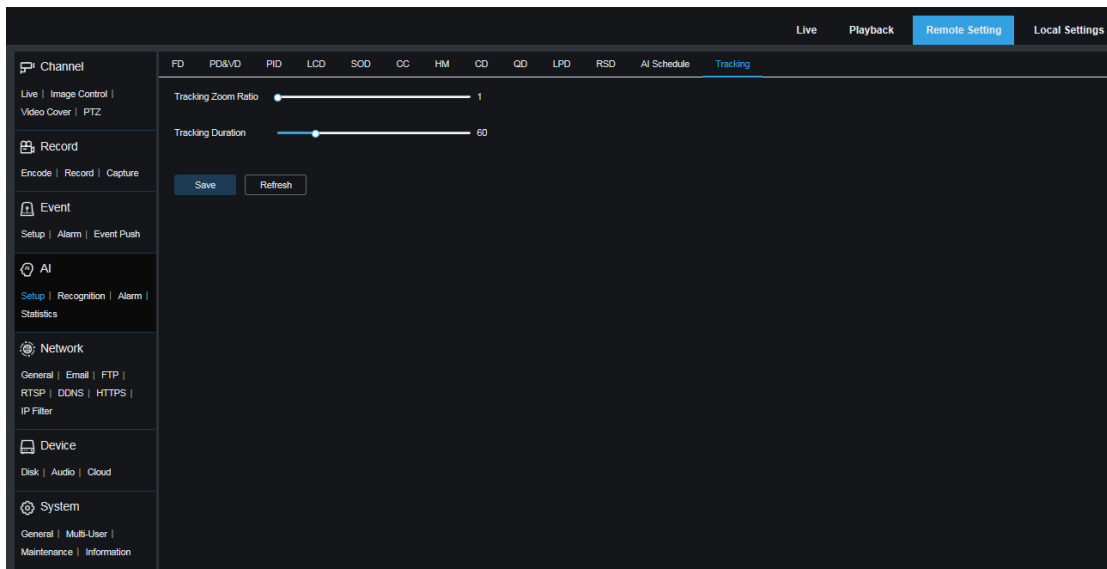
Tracking Zoom Ratio: Used to set the tracking zoom ratio.

Tracking Duration: Used to set the tracking duration, which ranges from 1 to 300. When the configured tracking duration expires, tracking is stopped.

9.7.2. Recognition

9.7.2.1. Face Recognition

The face recognition function aims to recognize the identity of a detected object. It uses base data for comparison. A database is set up for face matching.

Note: For any changes to the database, the system may take a short period of time to reload data before the changes can take effect completely.
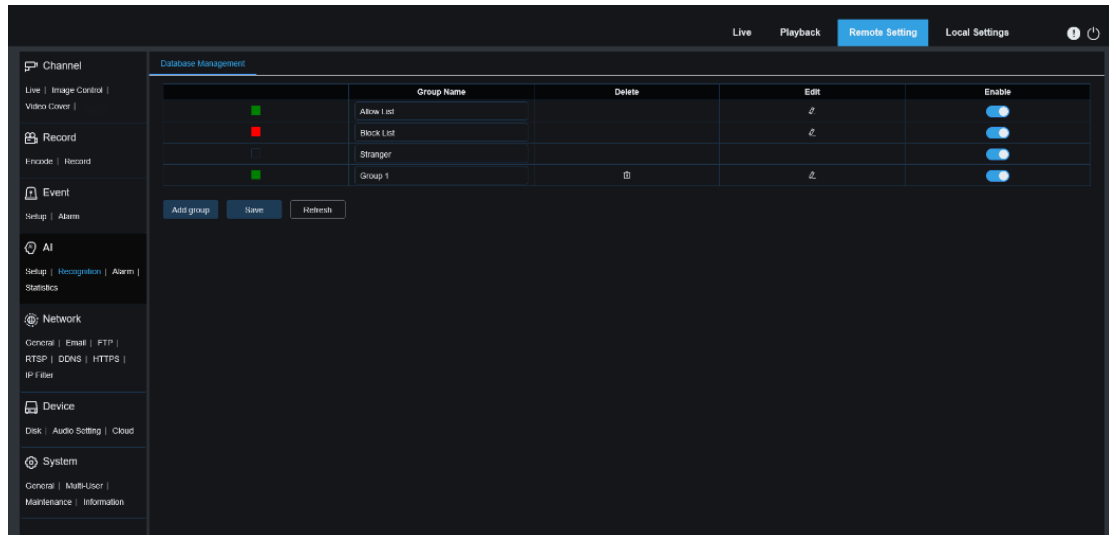

Alarm Policy Display: It serves only as a strategy prompt for the PTZ camera. Green indicates the allow list, red indicates the block list, and colorless indicates the stranger group.

Group Name: Used to modify and display the current group name. The group name is pushed together with the alarm.

Delete: In this column, you can delete the corresponding group. The first three groups cannot be deleted.

Edit: In this column, you can open the reference image setting for the corresponding group. For details, refer to the subsequent descriptions.

Enable: Used to enable or disable data comparison by group data for the face recognition function.

Add Group: Click this button to add a new database group. At most 16 database groups can be added.

Click the icon in the **Edit** column to set the reference data for the corresponding group, as shown in the following figure.
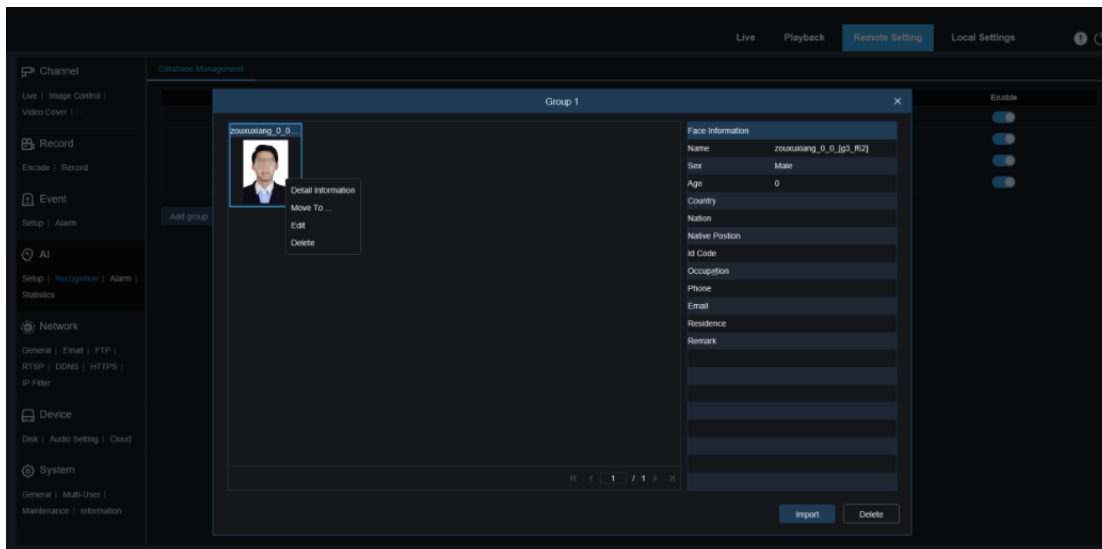
**Added Image Display Area:** In this area, the images that have been added to groups in the face database are displayed.

Info: Displays the information of the selected image.

Detail Information: Right-click the image and select this menu item to view the information about the selected image.

Move To ...: Right-click the image and select this menu item to move the selected image to another group.

Edit: Right-click the image and select this menu item to modify the information about the selected image.

Delete: Right-click the image and select this menu item to delete the selected image.

Import: Click this button to add new face data to the current group. You can import local images or the images captured by the PTZ camera.

Delete: Click this button to delete the face data in the database in batches. You can click this button to select the images to be deleted, and then click it again to delete the selected images.

9.7.2.2. License Plate Recognition

The license plate recognition function aims to recognize the identity of a detected object. It uses base data for comparison. A database is set up for license plate matching. Note: For any changes to the database, the system may take a short period of time to reload data before the changes can take effect completely.
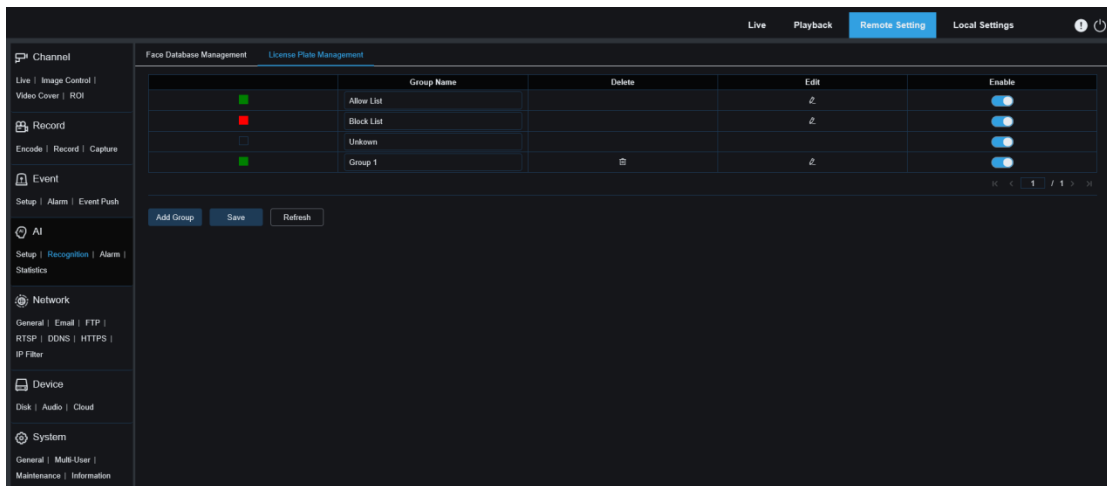
Alarm Policy Display: It serves only as a strategy prompt for the PTZ camera. Green indicates the allow list, red indicates the block list, and colorless indicates the strange license plate group.

Group Name: Used to modify and display the current group name. The group name is pushed together with the alarm.

Delete: In this column, you can delete the corresponding group. The first three groups cannot be deleted.

Edit: In this column, you can open the reference image setting for the corresponding group. For details, refer to the subsequent descriptions.

Click the icon in the **Edit** column to set the reference data for the corresponding group, as shown in the following figure.
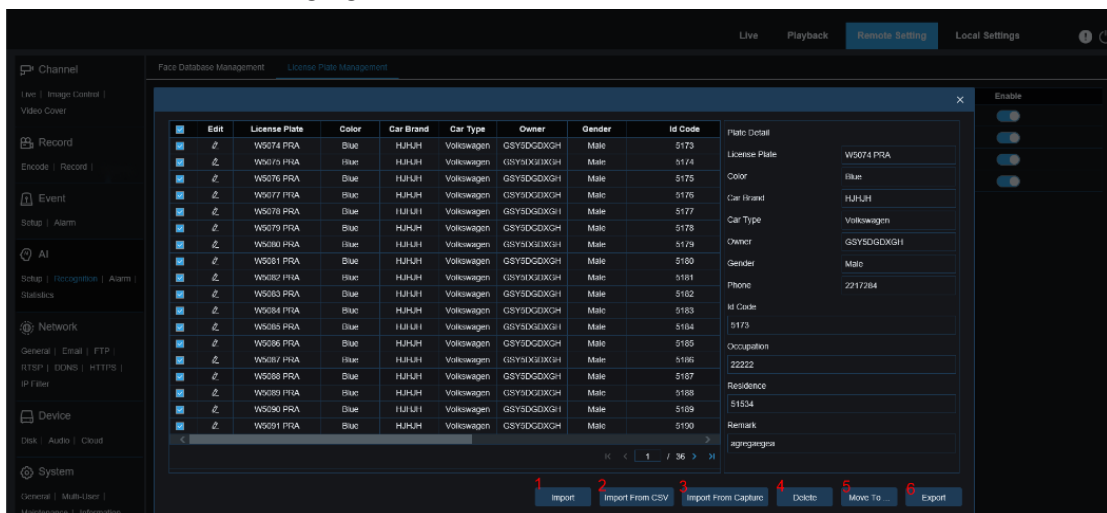
There are three methods for adding license plate information: **Import** (importing data manually), **Import From CSV** (importing data from a CSV table), and **Import From Local Capture** (importing local data).

1) Click the **Import** button to manually add an individual license plate.

2) Click the **Import From CSV** button to import one or multiple data from a CSV table. The following figure shows a CSV table.

Select the license plate file in .CSV format to be imported, and click **Import** to add it to the group. Click **Delete** to delete unwanted license plate information, as shown in the following figure.
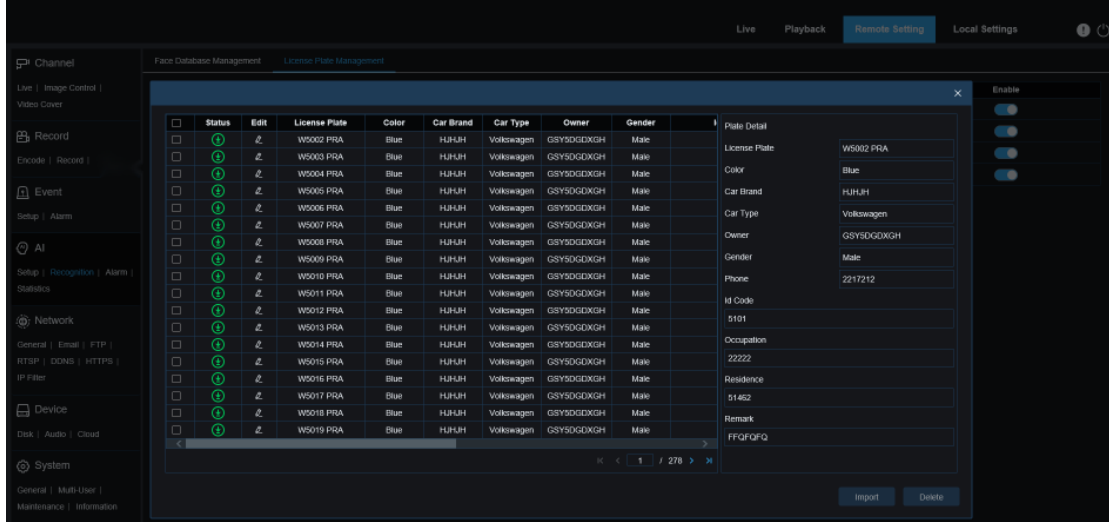

Note: When more than 5000 data entries are added, a dialog box indicating data exceeding the upper limit is displayed.

3) Click the **Import From Capture** button to import local license plate information to the database.
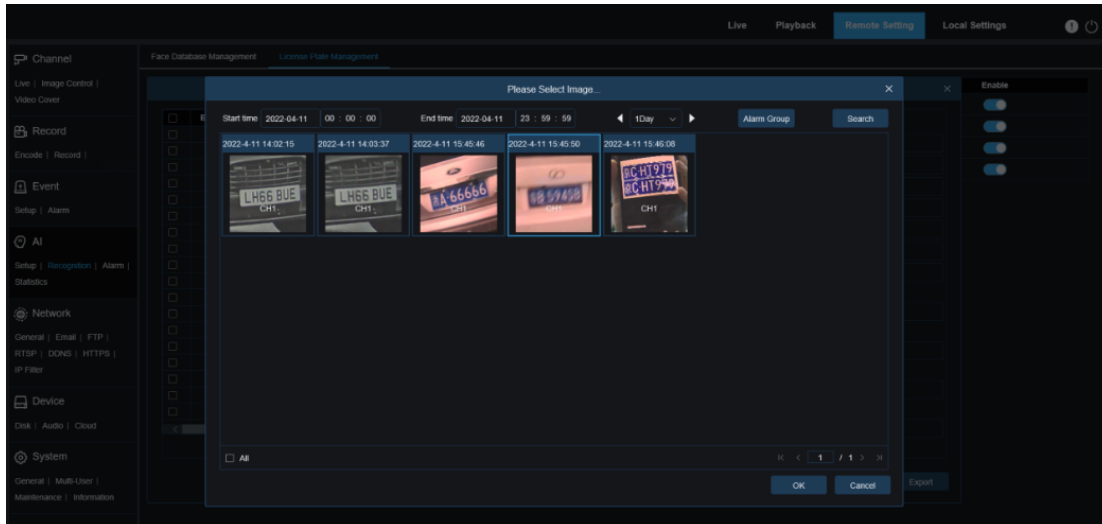
Select the date and duration, click **Alarm Group** to select an alarm group, and click **Search** to obtain all license plates saved within the time range.

All: All license plate information is selected.
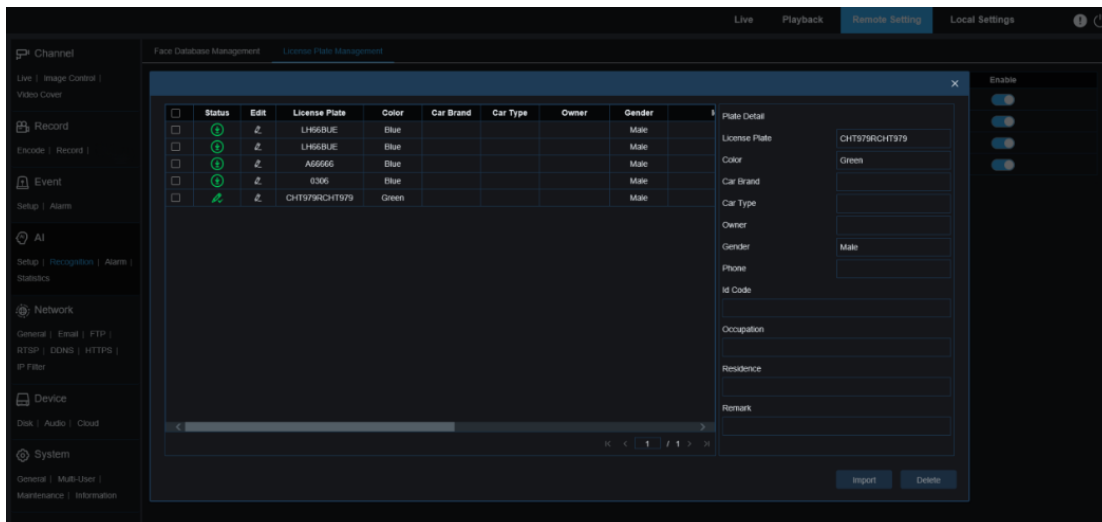
You can click a data entry to edit the corresponding license plate information. Then, click **Save** to save the change. If the modification succeeds, ⊕ will change to ✎.

4) **Delete:** After selecting the checkbox corresponding to a license plate, click **Delete** to delete the information.

5) **Move to…:** After selecting the checkbox corresponding to a license plate, click **Move to…** to move the license plate information to another group.

6) Click **Export** to export the information of the entire group.

5. Enable: Used to enable or disable the license plate recognition function by data comparison between groups.

6. Add Group: Click this button to add a new database group. At most 16 database groups can be added.

9.7.3. Alarm Setup

The alarm response to AI functions of the PTZ camera is divided into three categories in terms of implementation:

Category I includes FD, AD, PD&VD, PID, LCD, SOD, CC, CD, QD, LPD, and RSD. When the PTZ camera detects an event that meets the alarm requirement, an alarm is reported immediately.

Category II includes FR and LPR. When the PTZ camera captures an image that may cause an alarm, it recognizes the face feature or license plate information in the image, compares it with the information in the database, and generates an alarm in accordance with the alarm group setting.

Category III includes FA. Alarm emails are pushed after automatic data search within a specific period of time.

9.7.3.1. FD, AD, PD&VD, PID, LCD, SOD, CC, CD, QD, LPD, RSD

When the PTZ camera detects an event that meets the alarm requirement, an alarm is generated immediately.
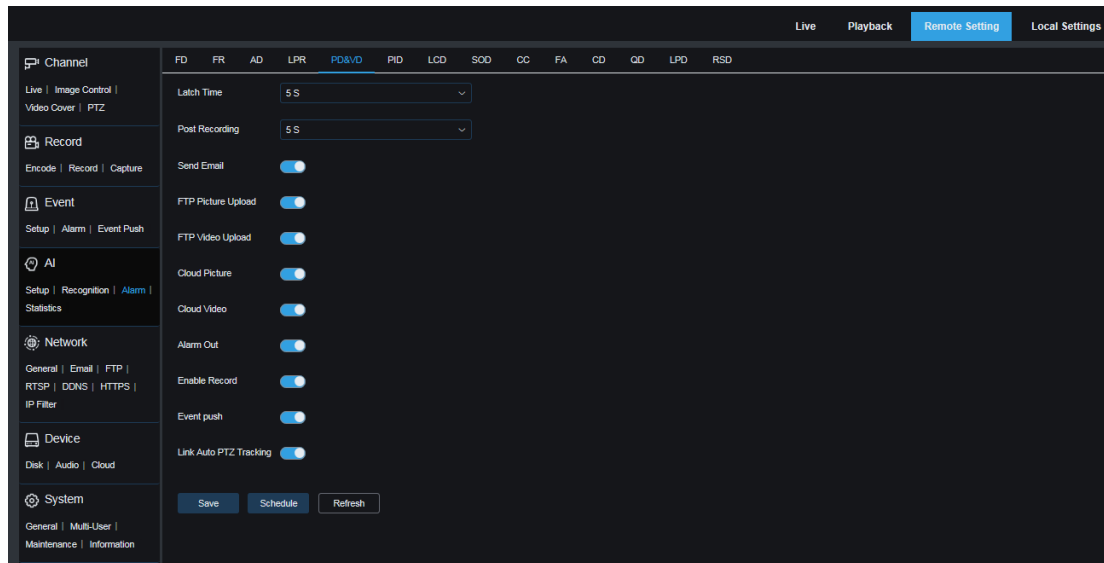
1. Alarm Type: This option is specific to AD alarms. You need to enable the face attribute recognition function in accordance with Section 9.7.1.1. Whether an alarm is reported depends on whether the detected object wears a mask. There are three mode options.

Close: AD alarms are disabled.

NO Mask: When the detected object is not wearing a mask, an alarm is reported.

Wear Mask: When the detected object is wearing a mask, an alarm is reported.

2. Latch Time: Used to set the duration of an I/O alarm after the alarm is stopped.

Note: The PTZ camera must support the I/O feature and the working time is controlled by the schedule.

3. Post Recording: Used to set the duration of recording after the alarm is stopped.

Note: The effective time is controlled by the schedule.

4. Send Email: Used to set whether to send an email when an alarm is reported.

Note: The effective time is controlled by the schedule.

5. FTP Picture Upload: Used to set whether to send the image to the associated FTP server when an alarm is reported. If the alarm is continuously triggered, the image is sent every 10 seconds until the alarm is cleared.

Note: The effective time is controlled by the schedule, and the FTP server should be associated first.

6. FTP Video Upload: Used to set whether to send the video to the associated FTP server when an alarm is reported. If the alarm is continuously triggered, the video is sent every 10 seconds until the alarm is cleared.

Note: The effective time is controlled by the schedule, and the FTP server should be associated first.

7. Cloud Picture: Used to set whether to send the image to the associated cloud storage server when an alarm is reported. If the alarm is continuously triggered, the image is sent every 10 seconds until the alarm is cleared.

Note: The effective time is controlled by the schedule, and the cloud storage server should be associated first.

8. Cloud Video: Used to set whether to send the video to the associated cloud storage server when an alarm is reported. If the alarm is continuously triggered, the video is sent every 10 seconds until the alarm is cleared.

Note: The effective time is controlled by the schedule, and the cloud storage server should be associated first.

9. Alarm Out: Alarm output switch for **Latch Time**.

**10. Enable Record:** Used to enable or disable **Post Recording**.

11. Schedule: Click this button to configure the schedule of the current alarm, including **Send Email**, **Alarm Out**, **FTP Picture Upload**, **FTP Video Upload**, **Cloud Picture**, **Cloud Video**, **Record**, **Light (Deterrent)**, and **Siren (Deterrent)**. (Note: The white light deterrence feature is available for some models.)

12. Deterrent: White light deterrence switch. When an alarm is triggered, the alarm is reported in accordance with the configuration on the **Deterrence** screen (GUI path: **Remote Setting > Event > Setup > Deterrence**). Deterrence includes white light and siren, controlled by the schedule. (The white light deterrence feature is available for some models.)

Link Auto PTZ Tracking: After the PTZ camera tracking function is enabled, you can used the PTZ camera to track moving objects. The PTZ camera can automatically detect moving objects in the detection area, and can automatically adjust its position to make the objects always in the center of the detection area. When manual tracking is required, you can click the **Manual Track** button in the live view, and then select a rectangular area including the target for tracking (Note: **Link Auto PTZ Tracking** is available on the PD&VD screen only.)

9.7.3.2. FR

For Face Recognition (FR) alarms, the PTZ camera first captures a face image, matches the face data with the database to obtain the group the object corresponds to. Then, the PTZ camera calls the alarm setting of the group and generates an alarm. For any changes to the parameters, the system may take a short period of time to reload data before the changes can take effect completely.
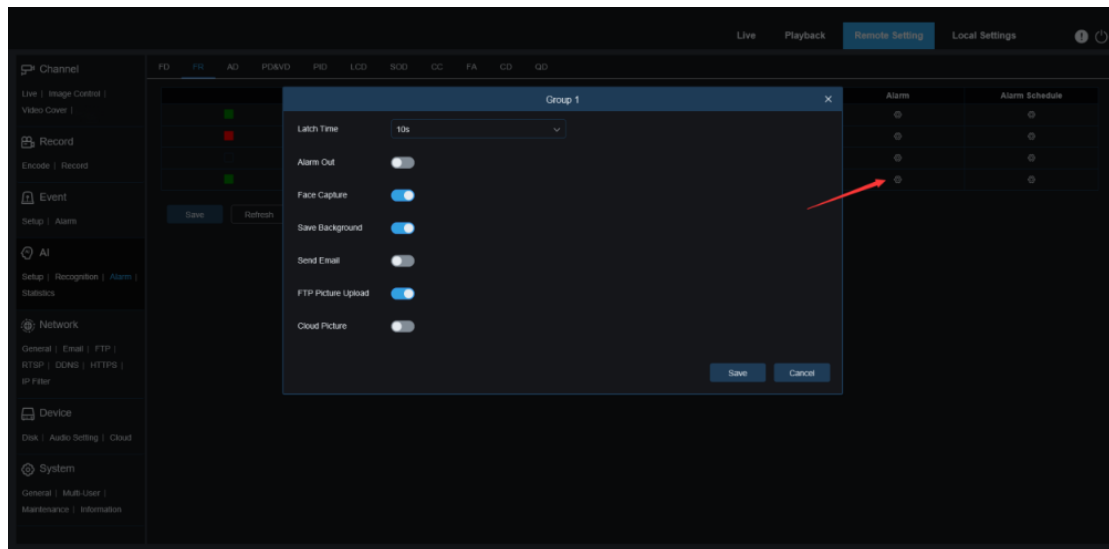
Group Name: Used to modify and display the current group name. The group name is pushed together with the alarm on the live view screen.

Enable: Used to enable or disable the alarm setting.

Policy: Used to set the alarm policy. The first three groups cannot be modified while other groups can be customized to **Allow** or **Deny**.

Similarity: When the similarity exceeds the threshold during face matching, an alarm is reported.

Alarm: Group alarm setting switch.

Alarm Schedule: Used to set the effective time of **Send Email**, **Alarm Out**, **FTP Picture Upload**, and **Cloud Picture**.

Latch Time: Used to set the duration of an I/O alarm after the PTZ camera captures an image and the image successfully matches the database.

Note: The PTZ camera must support the I/O feature and the working time is controlled by the schedule.

Alarm Out: Alarm output switch for **Latch Time**.

Save Picture: Used to set whether to save captured face images to the memory card. This setting is not controlled by **Enable**.

Save the Background: Used to set whether to save captured face images to the memory card and save background images simultaneously.

This setting is not controlled by **Enable**.

Send Email: Used to set whether to send an email when a face in the group is recognized and matched successfully.

Note: The effective time is controlled by the schedule.

FTP Picture Upload: Used to set whether to send an image to the associated FTP server when the face in the group is recognized and matched successfully.

Note: The effective time is controlled by the schedule, and the FTP server should be associated first.

Cloud Picture: Used to set whether to send an image to the associated cloud storage

server when the face in the group is recognized and matched successfully.

Note: The effective time is controlled by the schedule, and the cloud storage server should be associated first.

9.7.3.3. FA

The Face Attendance (FA) function is used to retrieve the face matching information of different groups (excluding the stranger group) stored in the memory card within a specified period of time, generate attendance files in accordance with the capture records, and send the files to associated email addresses.
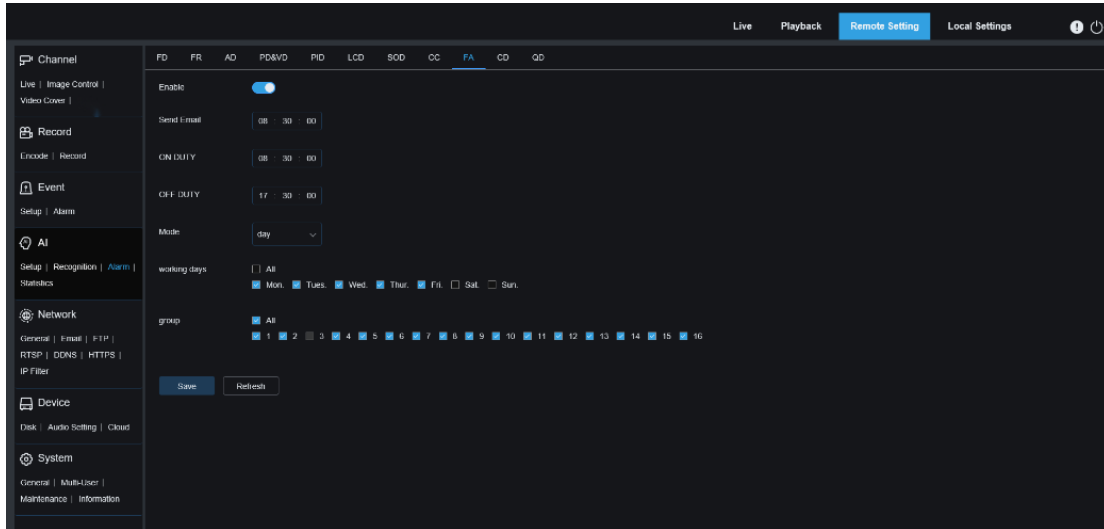
Enable: Used to set whether to automatically generate attendance files based on the FA function.

Send Email: Used to set the FA time. Data retrieval is conducted periodically. When the configured retrieval time expires, an attendance record file is automatically generated and sent via an email.

Note: If there are no attendance records, no emails will be sent.

ON DUTY: Used to set the on-duty reference time for generating an attendance file.

OFF DUTY: Used to set the off-duty reference time for generating an attendance file.

Mode: Used to set the time of generating and sending an attendance file. There are three mode options.

day: The attendance files of the previous day are sent.

Week: For example, if it is set to Wednesday, it indicates that the attendance files from last Wednesday to this Tuesday are sent on Wednesday.

Month: For example, if it is set to the 15th, it indicates that the attendance files from the 15th of last month to the 14th day of this month are sent on the 15th of this month on a monthly basis.

working days: Used to set the reference working days for generating an attendance file.

group: Used to set the groups for which attendance is required for generating an attendance file.

Note: This function is unavailable for the stranger group, and thus group 3 is unavailable by default.

9.7.4. Statistics

The following sections describe the AI-based statistical analysis functions.

9.7.4.1. Face Detection

The face data statistical analysis function is used to search the face data stored in the memory card in accordance with the search setting, as shown in the following figure.
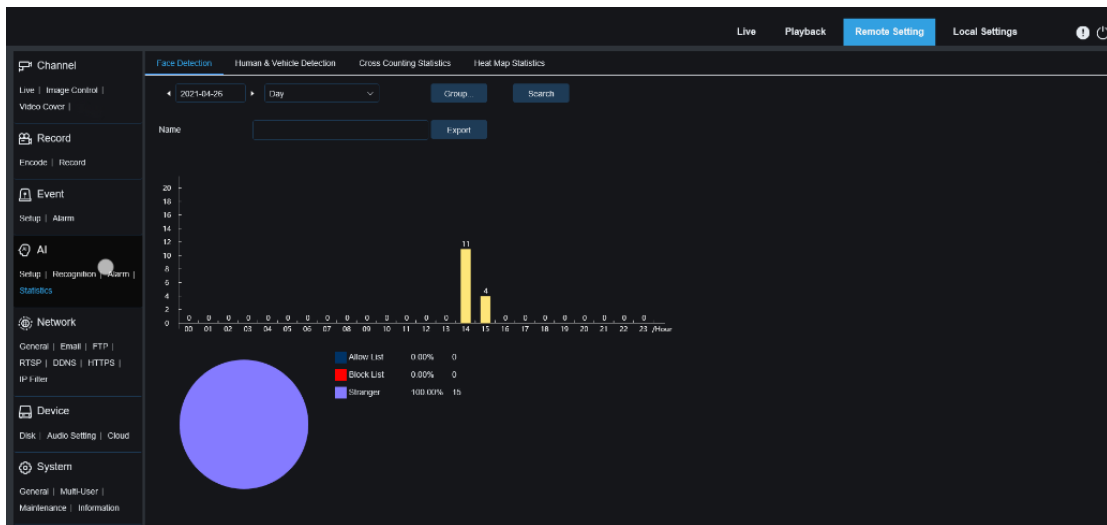
Time: Used to set the reference time of the search mode.

Search Mode: Five time ranges are supported in data search: **Day**, **Week**, **Month**, **Quarter**, and **Year**.

**Group:** Click this button to set the groups used in data retrieval.

Search: Click this button to restart data retrieval in accordance with the current search setting.

Export: Click this button to set the name of an exported file in Excel format for the data search result.

Display Area: In this area, the search result is displayed in a graph.

9.7.4.2. Human & Vehicle Detection

The human and vehicle statistics include PD&VD, PID, and LCD alarms. The screen is shown in the following figure.
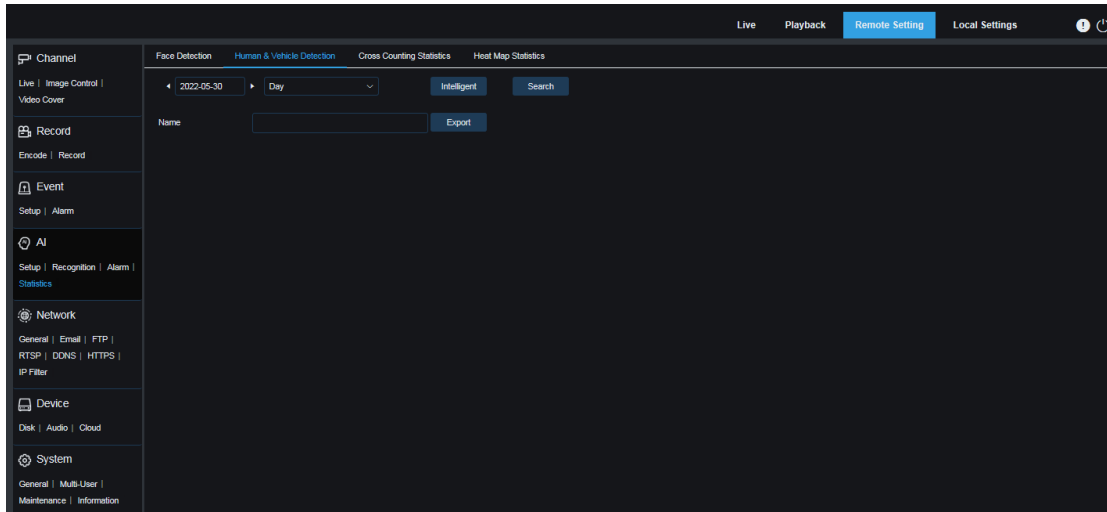
Time: Used to set the reference time of the search mode.

Search Mode: Five time ranges are supported in data search: **Day**, **Week**, **Month**, **Quarter**, and **Year**.

Intelligent: Click this button to set the tag type used in capturing images. The tags include **PID[Human]**, **PID[Vehicle]**, **LCD[Human]**, **LCD[Vehicle]**, **Human**, and **Vehicle**.

Search: Click this button to restart data retrieval in accordance with the current search setting.

Export: Click this button to set the name of an exported file in Excel format for the data search result.

Display Area: Displays the search result in a graph.

9.7.4.3. Cross Counting Statistics

The screen of the Cross counting (CC) statistics function is shown in the following figure.
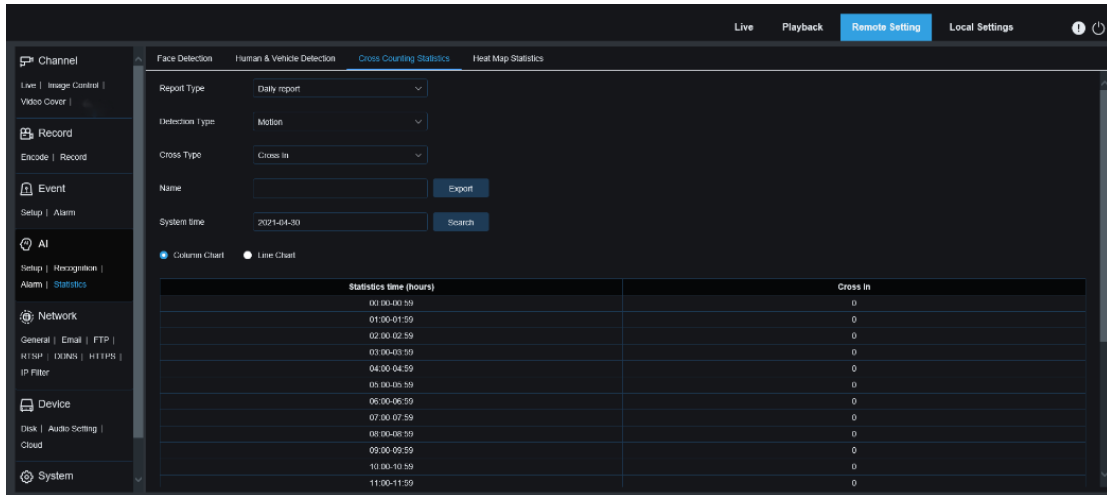
Report Type: The following four report types are supported: **Daily report**, **Weekly report**, **Monthly report**, and **Annual report**.

Detection Type: Used to set the alarm model as needed. For example, the motion-triggered data cannot be retrieved if this parameter is set to other models except

Motion. There are three options: **Motion**, **Person**, and **Vehicle**, corresponding to the function settings respectively.

Cross Type: Used to set the Cross Counting (CC) statistics mode for data search. There are two mode options, including **Cross In** and **Cross Out**.

Export: Click this button to set the name of an exported file in Excel format for the data search result.

**System time:** Used to select the reference time for the selected report type.

Mode: Used to set whether to display a column chart or a line chart.

Display Area: Displays the search result in a graph.

Search: Click this button to search face data in accordance with the settings.

9.7.4.4. Heat Map Statistics

The heat map function is used to record image changes in the surveillance area in a way similar to Motion Mode. With the heat map statistics, the data recorded in the memory card is displayed in a graph, as shown in the following figure.
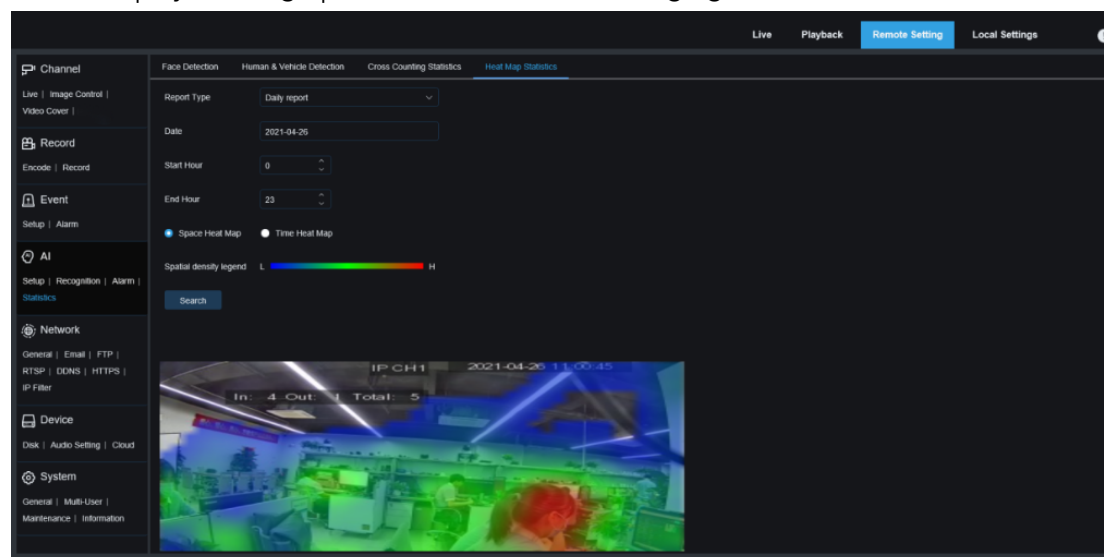
Report Type: The following four report types are supported: **Daily report**, **Weekly report**, **Monthly report**, and **Annual report**.

Date: Used to set the reference date for data search.

Start Hour: This option is available only when **Report Type** is set to **Daily report**. It sets the specific hour where the search starts.

End Hour: This option is available only when **Report Type** is set to **Daily report**. It sets the specific hour where the search ends.

Mode: Used to set the data display mode. There are two mode options including graph and table.

Display Area: In this area, the change frequency of the surveillance area is displayed in a graph, and the change frequency of the detection area in different time periods is displayed in a table.

Search: Click this button to search face data in accordance with the settings.

9.8. Network Settings

This menu allows you to configure network parameters, such as PPPoE, DHCP, and SNMP, of which DHCP is the most common type. In most cases, the network type is DHCP unless the static IP address is set manually. If you need an authenticated username and password to connect to the network, select PPPoE.

9.8.1. Basic Settings

9.8.1.1. General Setting
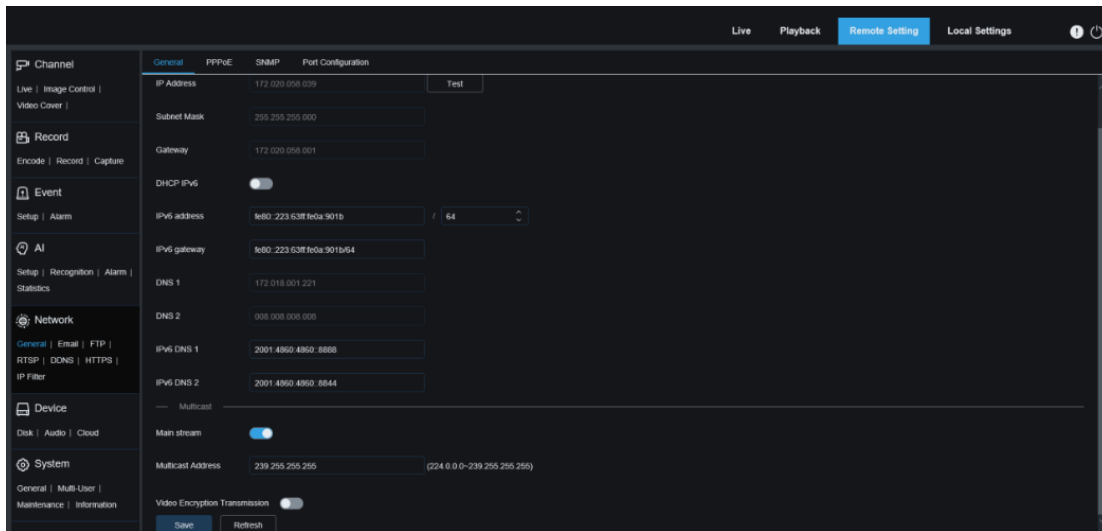
To connect to a router that allows DHCP, select DHCP. The router automatically assigns network parameters to the device. You can also manually set the following parameters for the network:

IP Address: Used to set the IP address of the PTZ camera in the network. An IP address consists of four numbers between 0 and 255, separated by periods, for example, 192.168.001.100.

Subnet Mask: A subnet mask is a network parameter that defines the range of IP addresses that can be used in the network. The IP address is to the street where you live on what the subnet mask is to the community. A subnet address consists of four numbers, separated by periods, for example, 255.255.000.000.

Gateway: This address allows the PTZ camera to access the network. The gateway address and the IP address use the same format, for example, 192.168.001.001.

IPv6 Address: Used to set the IPv6 address of the PTZ camera in the network. An IPv6 address consists of eight numbers between 0 and FFFF, separated by colons, for example, ABCD: EF01: 2345: 6789: ABCD: EF01: 2345: 6789.

DNS1/DNS2: DNS1 is the preferred DNS server and DNS2 is the alternate DNS server. Usually you just need to enter the DNS1 server address.

Main Stream: If this option is set to ON, the main stream can be used for multicast.

Muticast Address: Used to set the multicast address.
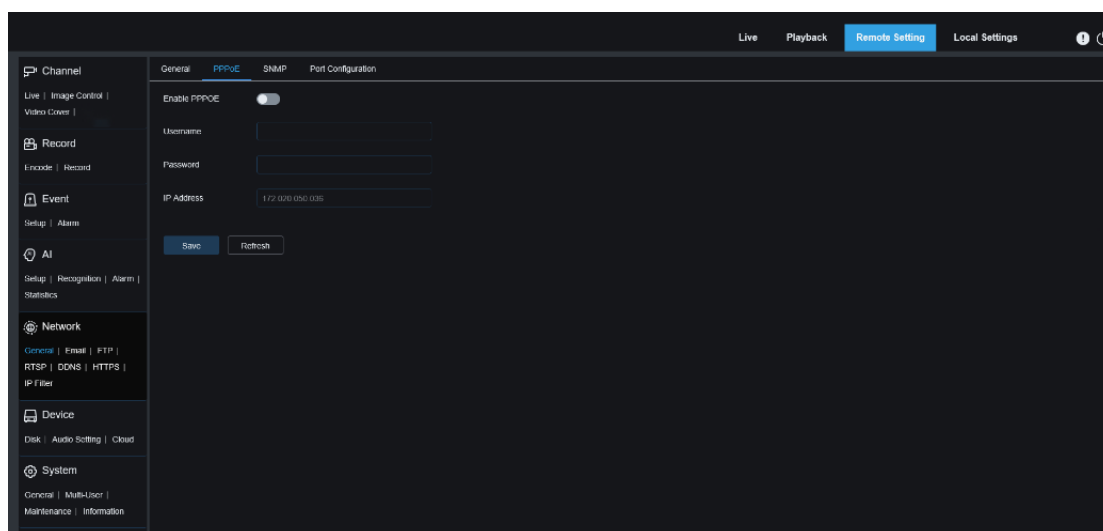
Video Encryption Transmission: Used to enable or disable audio/video encryption transmission.

If the PTZ camera supports displaying repeated IP addresses in the same network segment and if IP addresses are repeatedly used, when you click **Test** (Test), the following message will pop up:
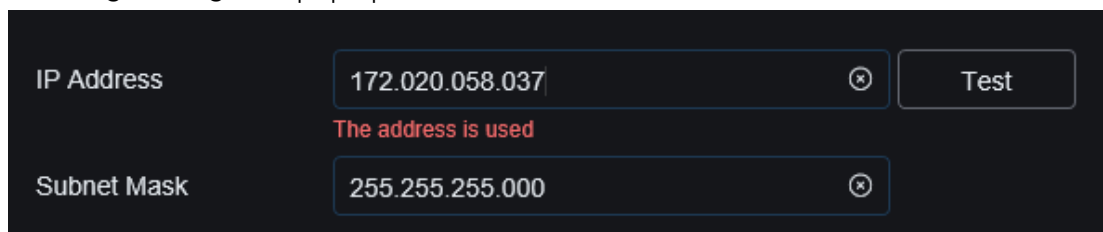

9.8.1.2. PPPoE

PPPoE is an advanced protocol that allows the PTZ camera to connect to the network more easily via a DSL modem.

Set **Enable PPPoE** to ON, and enter the username and password of PPPoE.

Click **Save** to save the configuration. The system is restarted to make the PPPoE configuration take effect.

9.8.1.3. SNMP

Simple Network Management Protocol (SNMP) is a standard application-layer protocol designed to manage nodes such as servers, workstations, routers, switches, and hubs over IP networks.
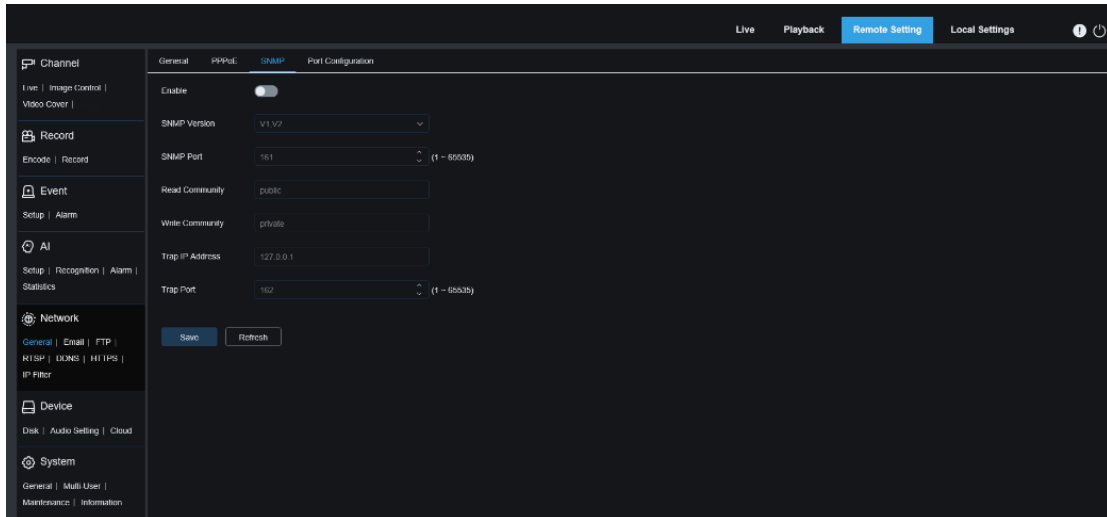
Enable: Used to enable or disable SNMP.

SNMP Version: Used to set the SNMP server version. Options: V1, V2; V1, V2, V3.

SNMP Port: Used to set the SNMP server port.

Read Community: Used to set the Read Community value of the SNMP server.

Write Community: Used to set the Write Community value of the SNMP server.

Trap IP Address: Used to set the Trap IP address of the SNMP server.

Trap Port: Used to set the Trap port of the SNMP server.

9.8.1.4. Port Configuration
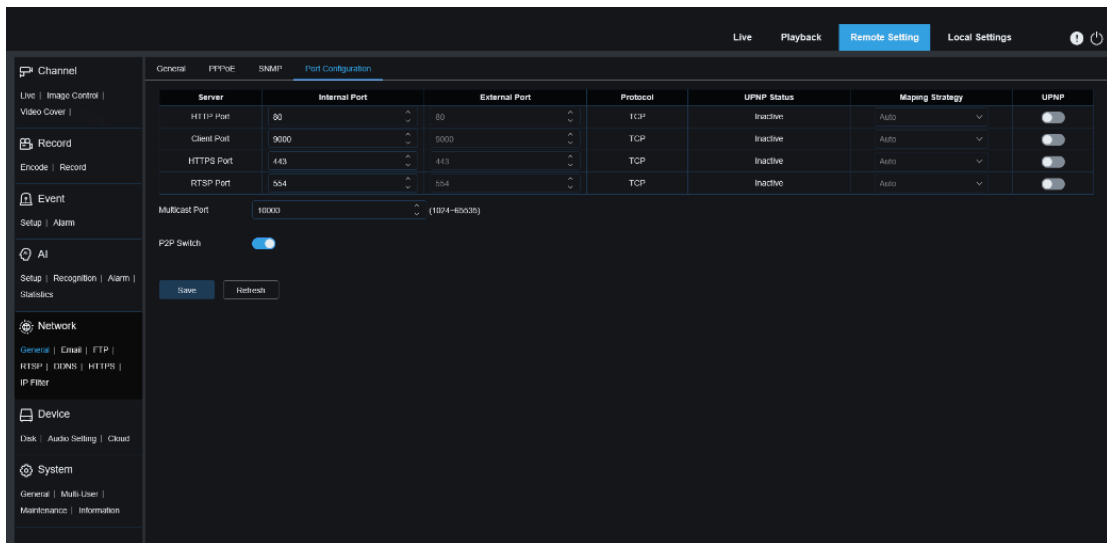
Web Port: This is the port you use to remotely log in to the PTZ camera (for example, using a web client). If port 80 is already used by other applications, change the port number.

Client Port: This is the port through which the PTZ camera sends messages (for example, using a mobile application). If the default port 9000 is already used by other applications, change the port number.

RTSP Port: The default port number is 554. If it is already used by other applications, change the port number.

HTTPS: It is an HTTP channel aiming for security. On the basis of HTTP, transmission encryption and identity authentication are used to ensure the security of transmission.
UPNP: To remotely log in to the device from a web Client, perform port forwarding on the router. Enable this option if your router supports UPnP. In this case, you do not need to manually configure port forwarding on the router. If your router does not support UPnP, make sure that port forwarding is performed manually on your router.
Multicast port: Used to set the multicast port.
P2P Switch: Used to enable or disable P2P. If it is set to OFF, P2P is disabled.

9.8.2. Email Setting

This menu allows you to configure email settings. If you want to receive system notifications via email when an alarm is triggered and the hard disk is full, complete the following configuration:
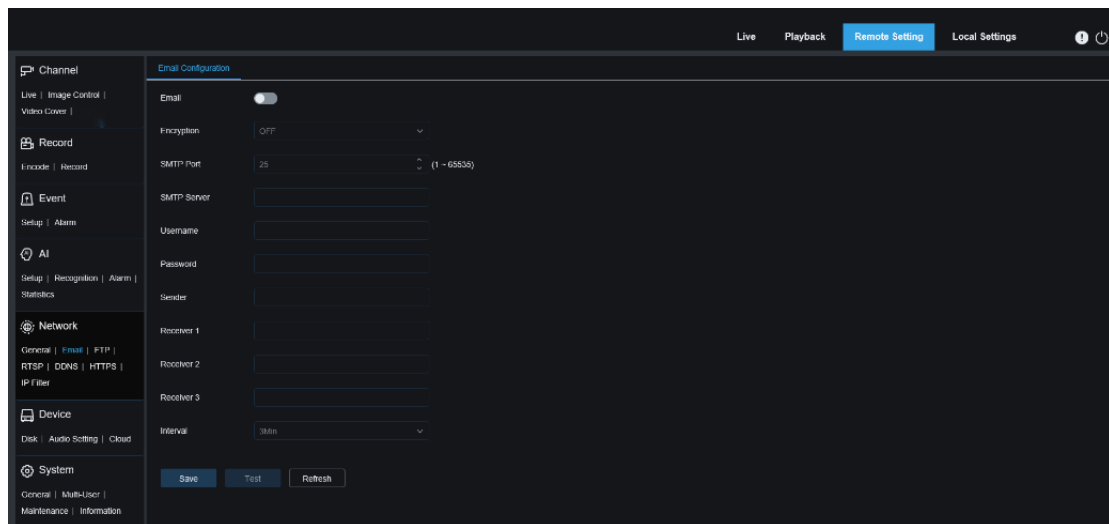
Email: Set this option to ON to enable the function.
Encryption: If your email server requires SSL or TLS authentication, set this parameter to ON. If you are not sure, set this parameter to Auto.
SMTP Port: Used to set the SMTP port number of the email server.
SMTP Server: Used to set the SMTP server address.
UserName: Used to set the username.
Password: Used to set the password.
Receiver 1–3: Used to set the email addresses for receiving event notifications from the PTZ camera.
Interval: Used to set the interval between notification emails from the PTZ camera.
To ensure that all settings are correct, click **Test**. An email is sent to your email box. If you receive a test email, it indicates that the parameter configurations are correct.

9.8.3. FTP Server Settings

With this menu, you can enable the FTP server and view the images and videos uploaded to the FTP server from the PTZ camera.
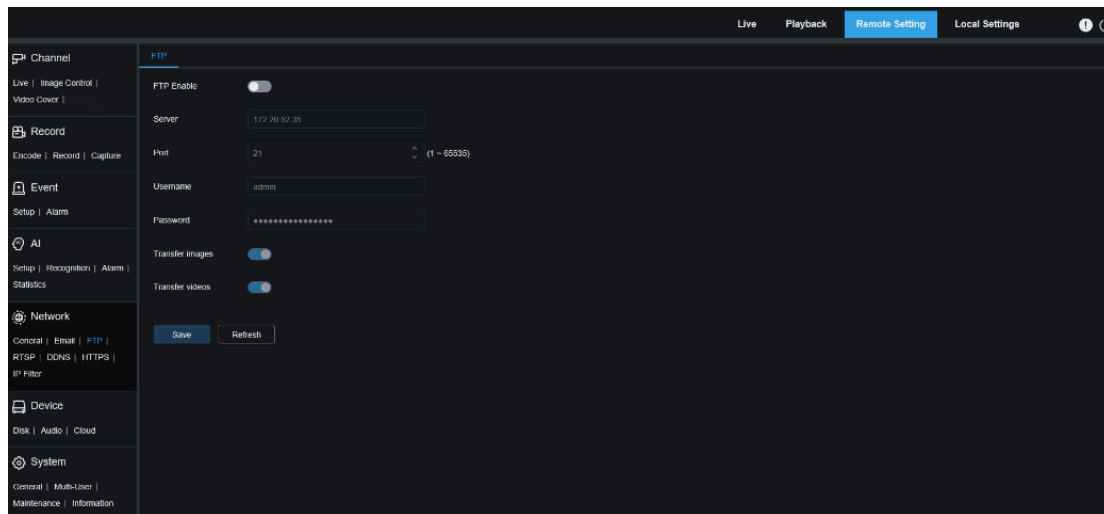
FTP Enable: Used to enable or disable the FTP function.

Server: Used to set the IP address or domain name of the FTP server.

Port: Used to set the FTP port.

Username/ Password: Used to set the username and password of the FTP server.

Transfer images: If this option is set to ON, the alarm images will be uploaded to the FTP server. Otherwise, only alarm texts will be uploaded.

Transfer Videos: If this option is set to ON, the alarm videos will be uploaded to the FTP server.

9.8.4. RTSP Settings

RFC2326: Real Time Streaming Protocol (RTSP) is an application layer protocol in the TCP/IP protocol architecture. This protocol defines how a one-to-many applications can efficiently transfer multimedia data over an IP network. You can view real-time images through a video player.

RTSP Enable: Used to enable or disable RTSP. This protocol can be used only after this option is set to ON.

Anonymous Login: Login

Used to set whether you can log in as a anonymous user. This protocol can be used without authentication only after this option is set to ON.
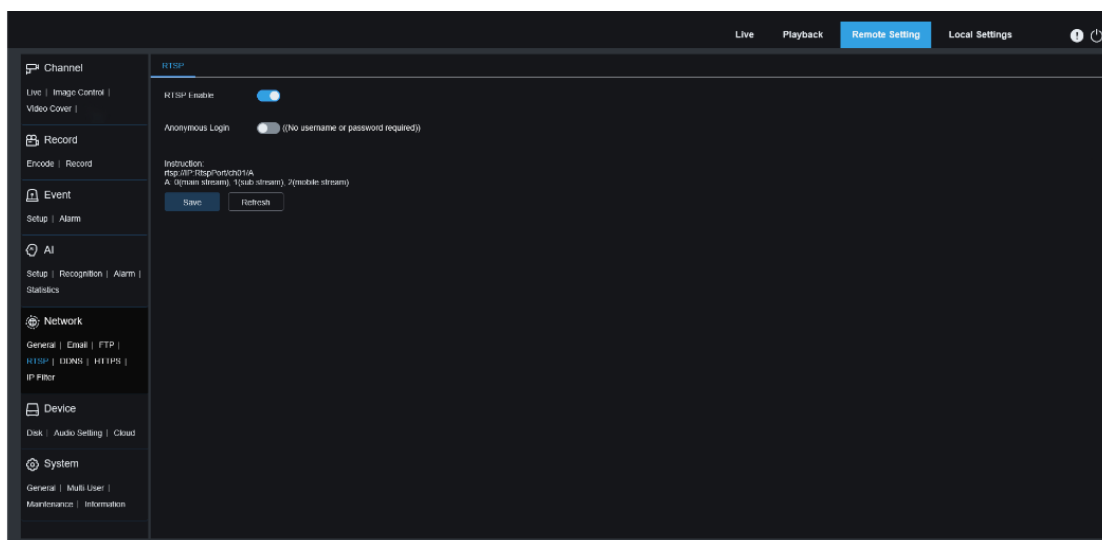
9.8.5. Dynamic Domain Name Settings

This menu allows you to configure the DDNS settings. The DDNS provides a static address to simplify remote connection to the PTZ camera. To use the DDNS, you first need to create an account on the webpage of the DDNS service provider.
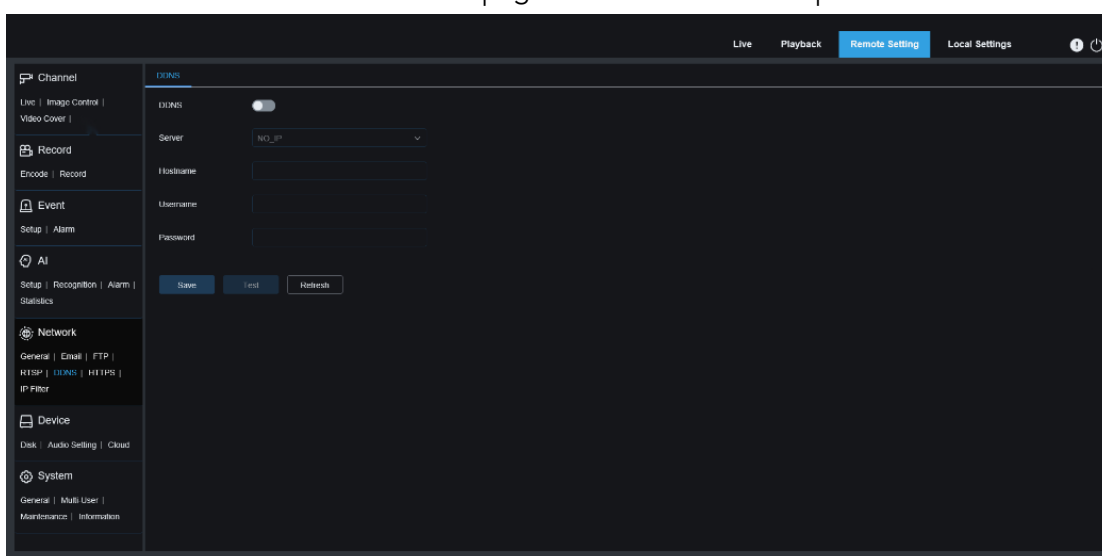
DDNS: Used to set whether to enable the DDNS.

Server: Used to set your preferred DDNS server (DDNS_3322, DYNDNS, NO_IP, or even CHANGEIP, DNSEXIT (supported by some models)).

Hostname: Enter the domain name you created on the webpage of the DDNS service provider. The entered address is used when you want to remotely connect a PC to the PTZ camera.

User/Password: Enter the username and password you created on the webpage of the DDNS service provider.

After setting all parameters, click **Test** to test the DDNS settings. If the test result

indicates network unreachable or DNS error, verify that the network is operating properly or the DDNS information is correct.

9.8.6. HTTPS Settings

This menu allows you to set HTTPS. You can connect your device over HTTPS.
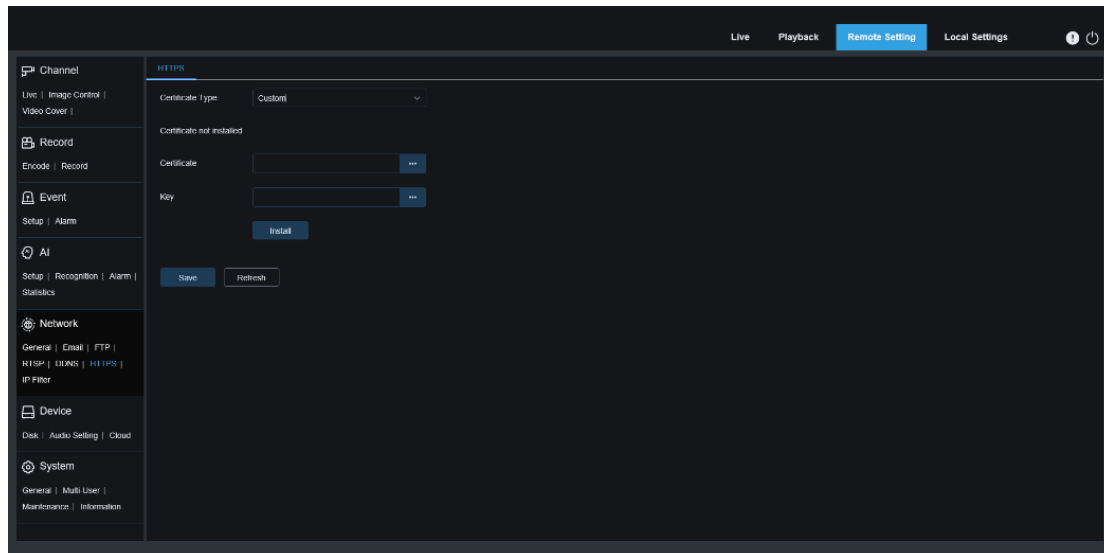
Certificate Type: Used to set the certificate type. There are two options: **Default** and **Custom**. The **Custom** option allows you to connect devices using your own certificate.
Certificate: When **Certificate Type** is set to **Custom**, you need to select a custom certificate.
Key: When **Certificate Type** is set to **Custom**, you need to select a custom Key file.

9.8.7. IP Filter

The IP filter function can be used to set the allow list and block list of devices to be connected.
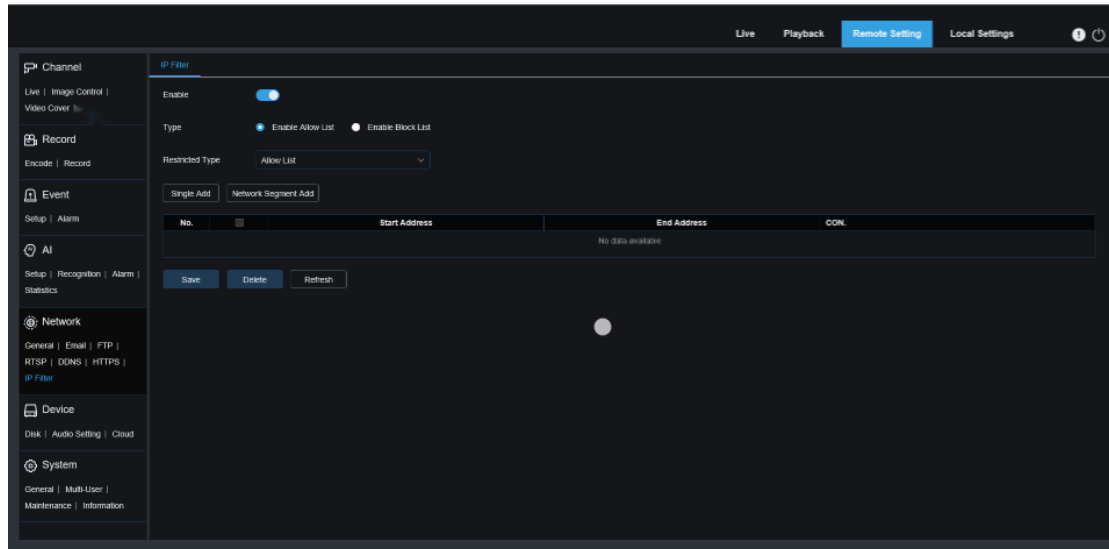
Enable: Used to enable or disable the IP filter function. When the function is enabled, you can choose to enable the block list or allow list.
Restricted Type: Used to select the list to be set (block list or allow list).
Start Address: Enter the start address.
End Address: Enter the end address.

9.9. Device Management

9.9.1. Disk Management

This menu allows you to check and configure the internal TF card. Formatting is required only for initial access and when a new TF card is used.
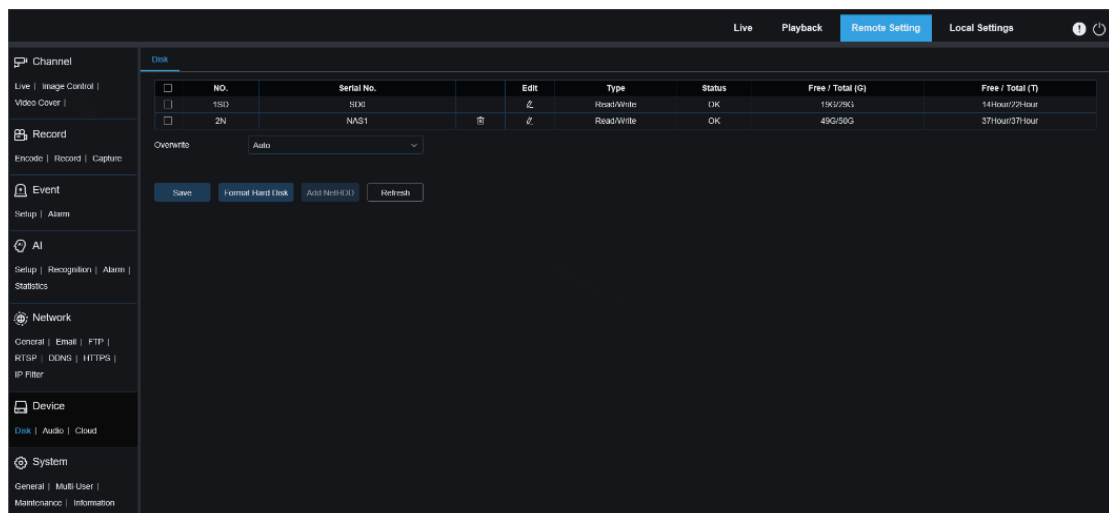
1. Format Hard Disk: Select the TF card to be formatted, and then click **Format Hard**

Disk. To start formatting, enter your username and password and then click **OK**.

2. Overwrite: Set this option to overwrite old records in a TF card when the card is full. If **Auto** is selected, the oldest data will be automatically overwritten when the TF card is full. If you do not want to overwrite any old videos, select **OFF**. If this function is disabled, you need to check the TF card status periodically to ensure that the TF card is not full.

3. ADD NetHDD: Click this button to add a network HDD. After a network HDD (NAS) is configured, you can connect the NAS to the Internet to record channel videos or capture images. The AI face database can only be stored in the HDD.
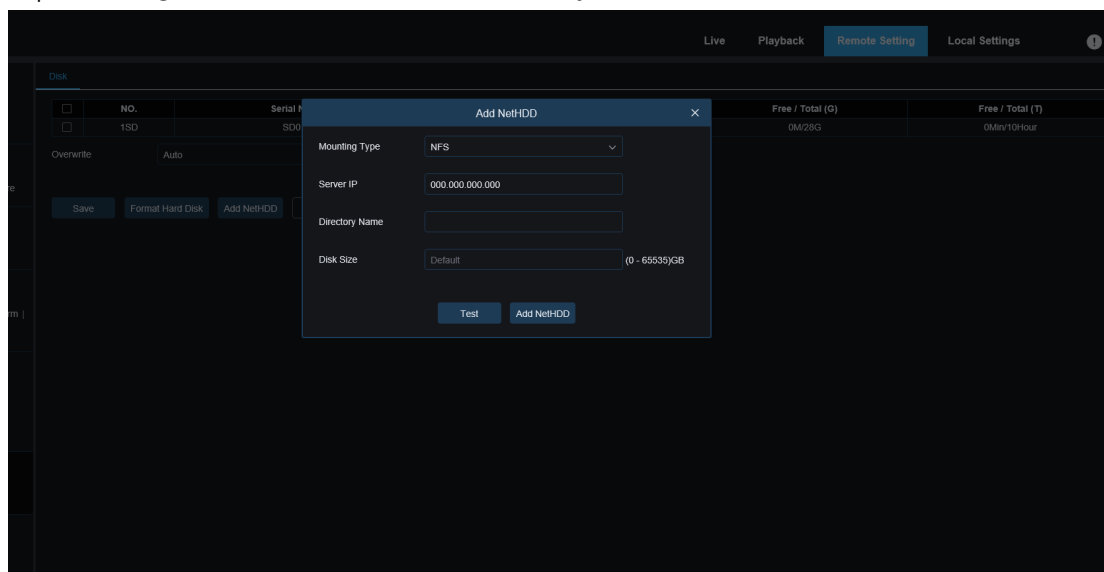
Mounting type: There are two mounting types: NFS, SMB/CIFS. NFS does not require username and password of the NAS, but SMB/CIFS requires such information.

User Name: Enter the username of the NAS (unavailable in NFS mode).

Password: Enter the password of the NAS (unavailable in NFS mode).

Server IP: Enter the IP address of the NAS.

Directory Name: Used to set the directory where you want to store data in the NAS.

Disk Size: Used to set the size of the network HDD.

Test: Click this button to test whether the NAS can be reached.

Add NetHDD: Click this button to add an NAS.

9.9.2. Audio Management

This menu is used to set the volume of your device.
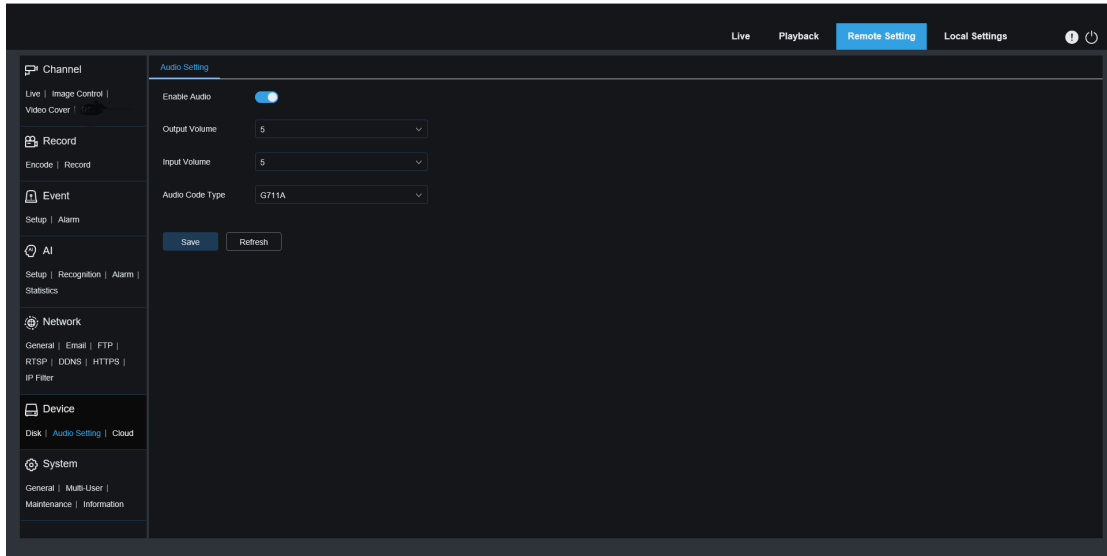
Enable Audio: Used to enable or disable audio.

Output Volume: Used to set the volume of output audio.

Input Volume: Used to set the volume of input audio.

Audio Code Type: Used to set the audio decoding type. There are two options: G711A and G711U.

9.9.3. Cloud Storage Settings

Your device can upload snapshots or videos to the cloud storage server through Dropbox, a free service that enables you to easily store and share pictures.
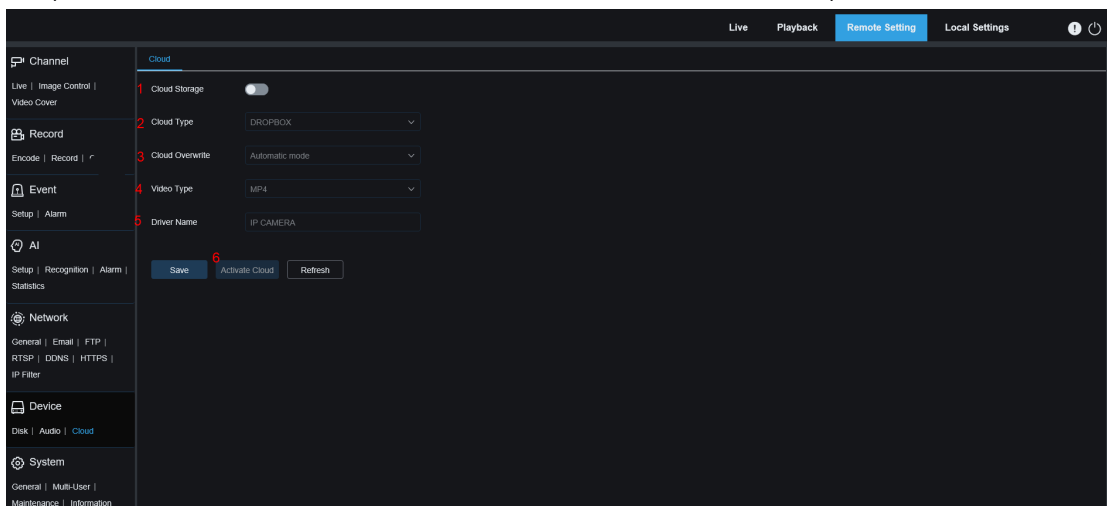
Before starting the cloud storage service, it is recommended that you create a Dropbox account with your email address and password. Then, visit **www.dropbox.com,** enter your email address and password, accept the terms, and click **Login**.

1. Cloud Storage: Set this option to ON to enable the function.

2. Cloud Type: Select the cloud storage type. There are two options: Dropbox and Google Drive.

3. Cloud Overwrite: Used to set the overwrite frequency of cloud storage.

4. Video Type: Used to set the format of videos uploaded to the cloud storage server.

5. Driver Name: Used to set the name of the directory where the channel videos and images are stored.

6. Activate Cloud: Click this button to activate the function. After a while, the page is automatically redirected to the Dropbox link. You can establish an association simply by entering the correct username and password.

9.10.System Settings

9.10.1.General

9.10.1.1.Date and Time
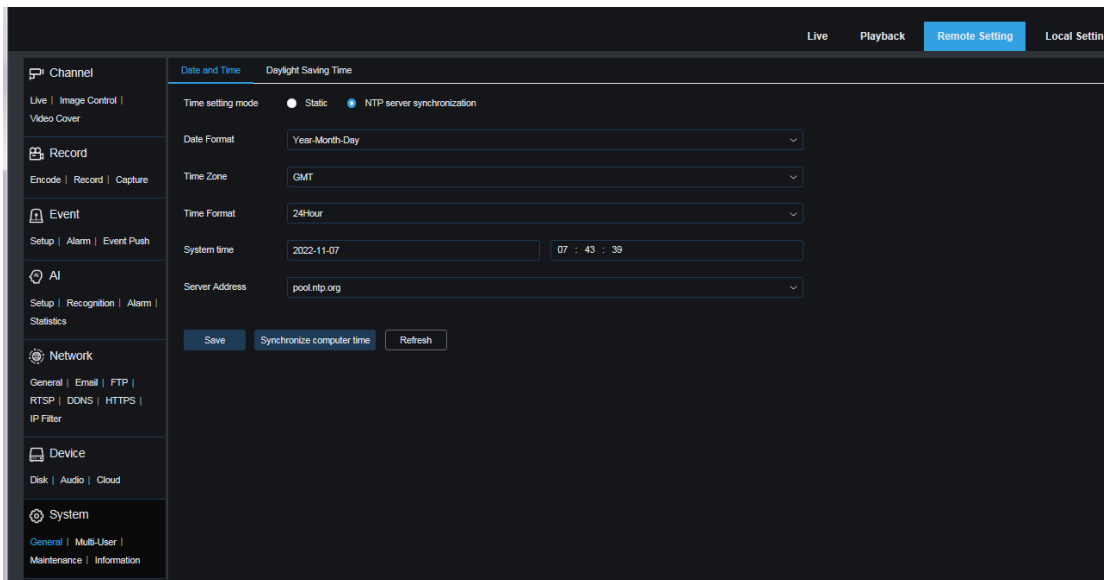
Time setting mode: There are two options: **Static** and **NTP server synchronization**. When **Static** is selected, you need to set the time manually. When **NTP server synchronization** is selected, time is synchronized to the network time.

Date Format: Used to set the date format.

Time Zone: Select the time zone associated with your region or city.

Time Format: Select your preferred time format.

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

Synchronize computer time: Click this button to synchronize the time to the computer time.

If **Time setting mode** is set to **NTP server synchronization**, you cannot set the time manually.

Server Address: Used to set the automatic time synchronization website.

(Note: By default, NTP is enabled, and the time zone is GMT.)

9.10.1.2.Daylight Saving Time

The Daylight Saving Time (DST) function enables you to choose when to add daylight saving time to a specific time zone or region.
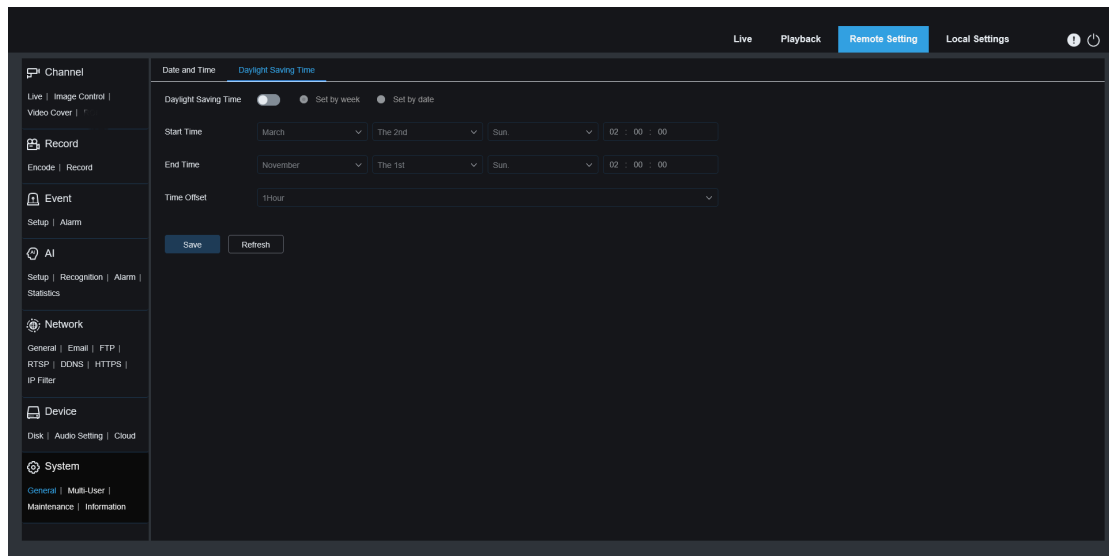
Daylight Saving Time: If DST is used in your time zone, set this option to ON.

Set by week: Used to set the month, weekday, and time when DST begins and ends. For example, 2 am on the first Sunday of a month.

Set by date: Used to set the date and time when DST begins and ends.

Start Time / End Time: Used to set the start time and end time of DST.

Time Offset: Used to set the time added to your time zone by DST. This is the difference between Universal Time Coordinated (UTC) and your local time.
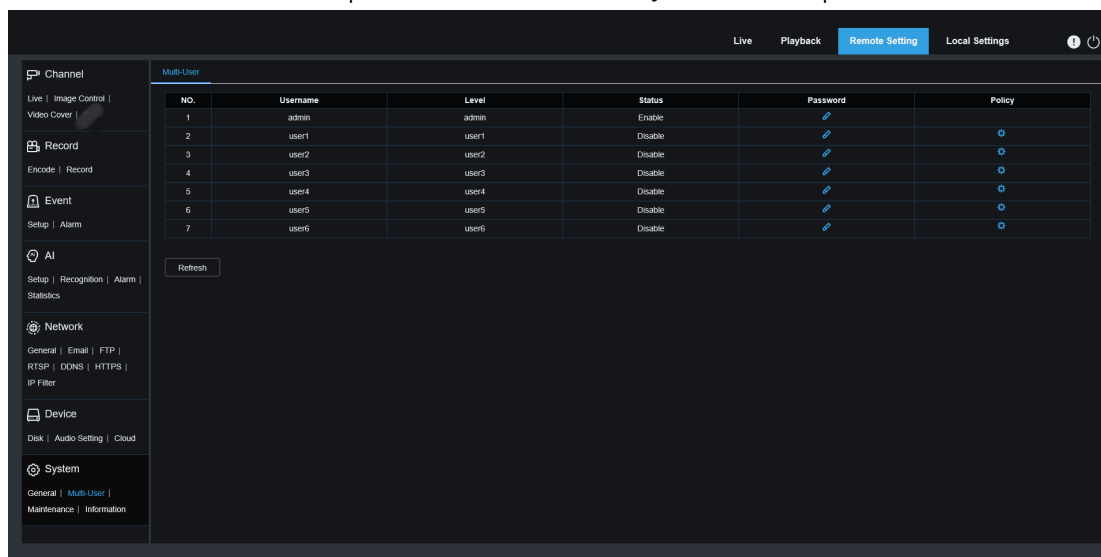
9.10.2.Multi-User Management

This menu allows you to configure username, password, and permissions.

The following user types are supported:

ADMIN—System Administrator: A system administrator can fully configure the system and can change administrator password and user passwords as well as enable or disable password protection.
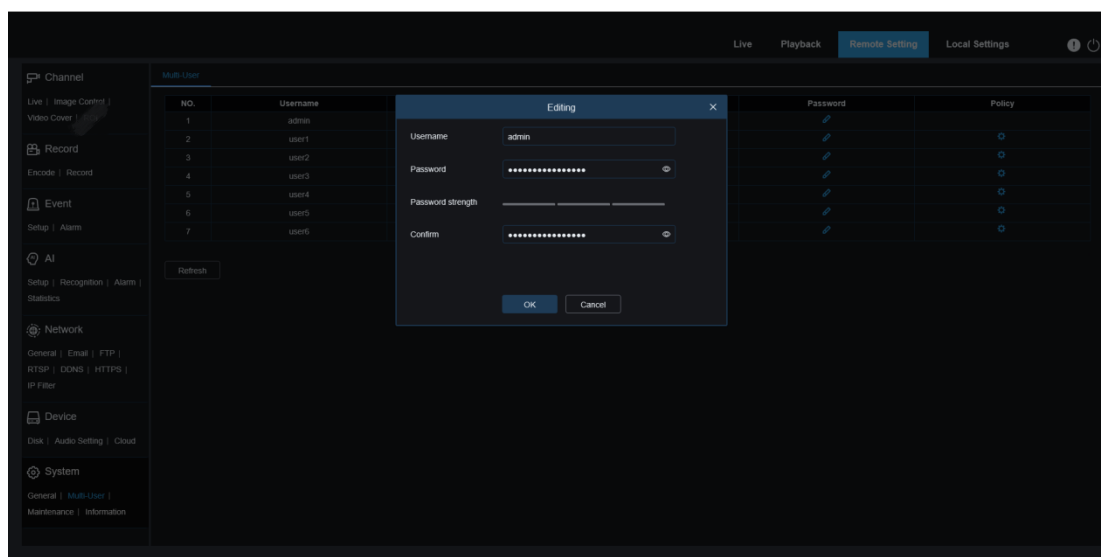
USER—Normal User: A normal user has only the live view, search, playback and other functions. You can set multiple users with different system access permissions.

To change the password of an administrator or a user, click the corresponding icon for editing password in the **Password** column. The password must contain at least eight characters and must be a combination of digits, letters, and symbols. Enter the new password again for confirmation. Save the new password. You will be asked to enter the old password for authentication.
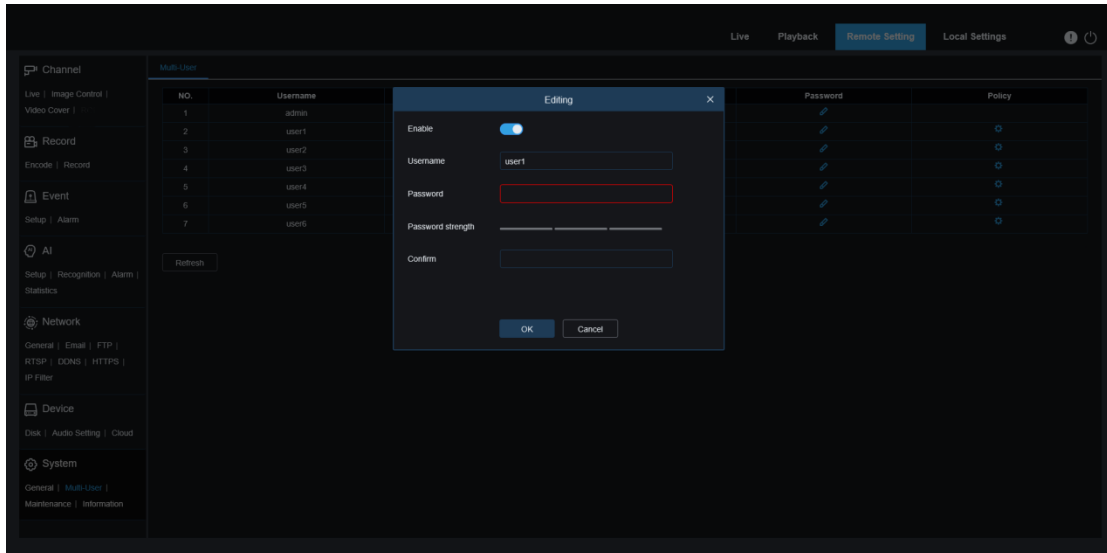
1. Select one of the inactive users and click the corresponding icon for editing password in the **Password** column.
2. Set **Enable** to ON to enable the user.
3. Click the **UserName** text box to edit the username.
4. Click the **Password** text box to enter your password.
5. Click the **Confirm** text box to enter your password again for confirmation.

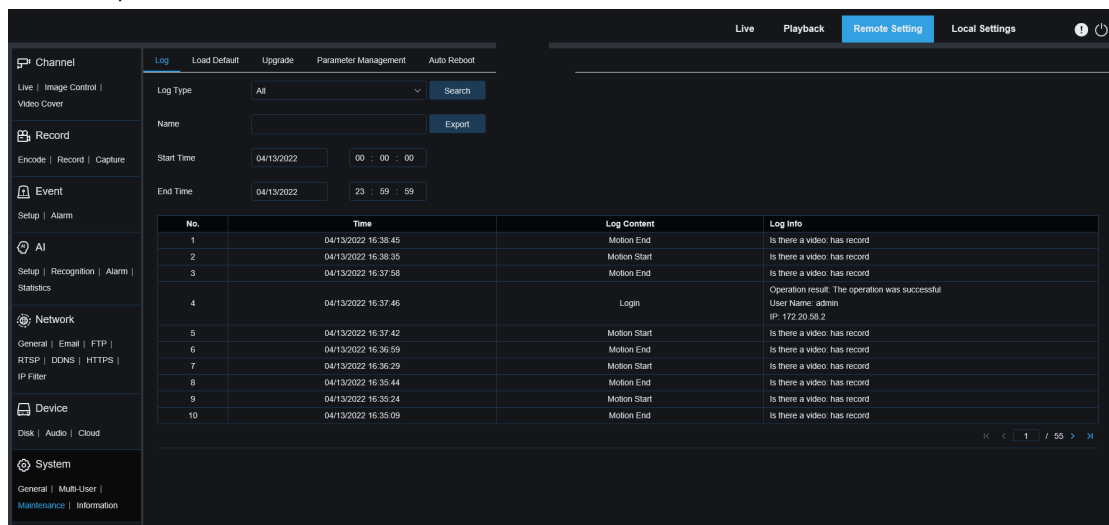Click **Save**. You need to enter the administrator password for authentication.
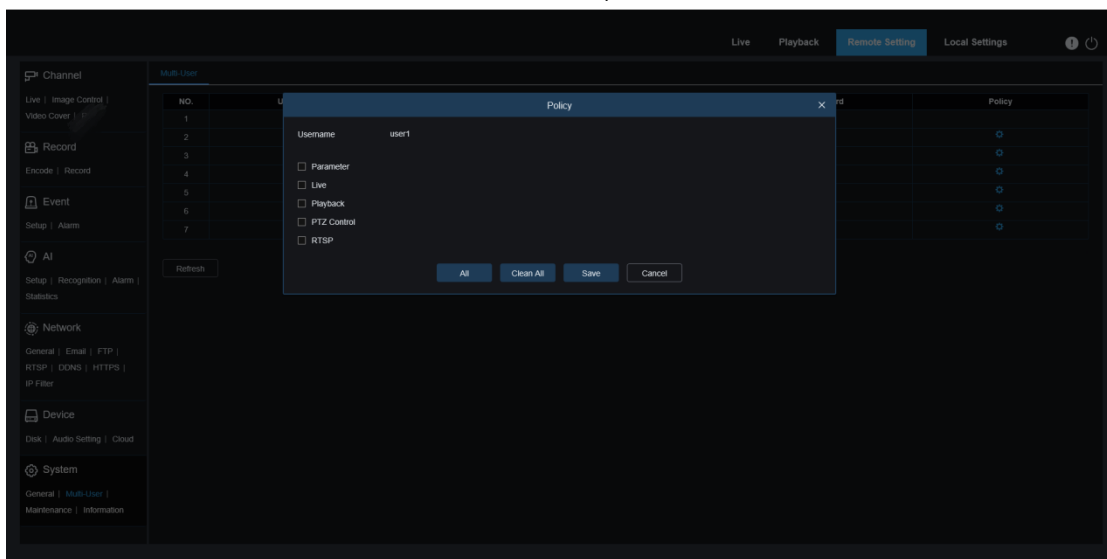
Set user permissions by selecting the check boxes corresponding to the functions. Click **All** to select all the check boxes. Click **Clear** to deselect all the check boxes.

9.10.3.System Maintenance

This menu allows you to search for and view system logs, restore factory settings, upgrade the system, export and import system parameters, and configure automatic system restart.

9.10.3.1.Log Management

The system log displays important system events, such as motion alarms and system warnings. You can easily import backup files in the system log to your computer within a preset time range.

Log Search and Backup:

1. Click the field next to **Start Time** and select the start date and time from the on-screen calendar.
2. Click the field 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 for from the **Log Type** drop-down list. You can select **All** to view the whole system log within the selected time range. The type options include: system log, configuration log, alarm log, account log, recording log, storage log, and network log.
4. Select the event type you want to search for from the **Minor Type** drop-down list (this list is unavailable if Log Type is set to **All**). You can select **All** to view the whole system log within the selected time range. The type options include:

system: System settings, restart, automatic restart, upgrade, time settings, and NTP time synchronization.

configuration: PTZ camera live view control, private area setting, recording mode setting, recording plan setting, main stream setting, network setting, substream setting, email setting, color setting, motion detection setting, hard disk setting, multi-user setting, NTP setting, image control, mobile stream setting, RTSP setting, IP filter setting, restore factory setting, audio setting, video tampering alarm setting, export setting, and

import setting.

alarm: Start of motion detection, end of motion detection, start of I/O alarm, end of I/O alarm, start of PID, end of PID, start of LCD, end of LCD, start of SOD, end of SOD, start of PD&VD, end of PD&VD, start of FD, end of FD, start of CC, end of CC, start of CD, end of CD, start of QD, end of QD, start of sound alarm, and end of sound alarm.

account: Login, logout, and switching users.

recording: Search, playback, and backup.

storage: HDD formatting, HDD full, and HDD fault.

network: Network disconnection, network online, network fault, and network mode changed.

5. Click this button to search.

6. Browse the system logs of the selected time range.

7. Click the $\lvert\mathsf{<}$, $\mathsf{<}$, $\mathsf{>}$, and $\mathsf{>}\rvert$ in the lower right corner of the screen to switch between pages of system log events.

Enter the name of the file to be exported in the **Name** text box. Click **Export** to create a backup of the system log.

9.10.3.2.Factory Setting Restoration

The device can be reset to factory settings. You can choose to reset all settings at a time or reset just the settings on a specific menu. Note: Restoring the default settings does not delete videos and snapshots stored in the memory card.
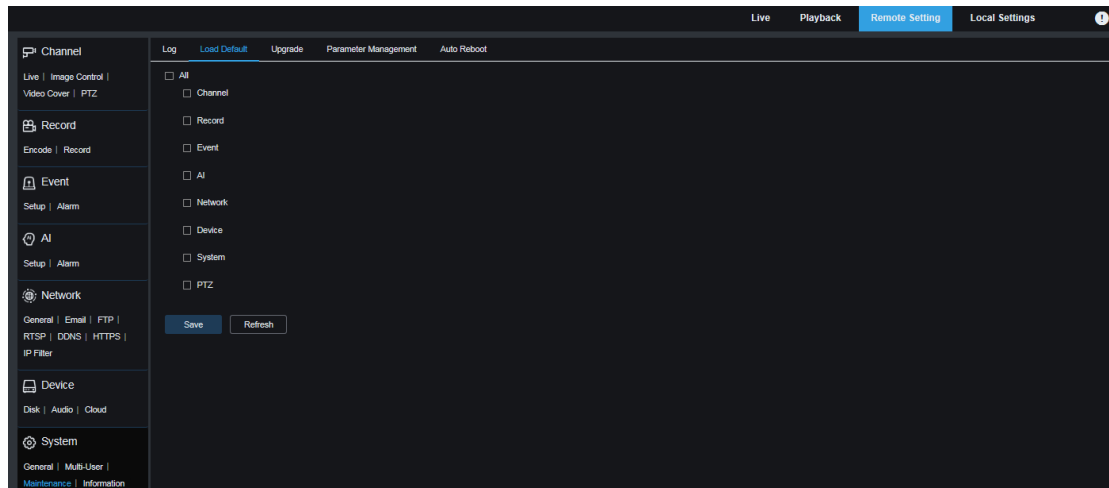
Select the items to be restored, or select **All** to select all items. Click **Save** to load the default settings of the selected items.

9.10.3.3.System Upgrade

This menu allows you to upgrade firmware.
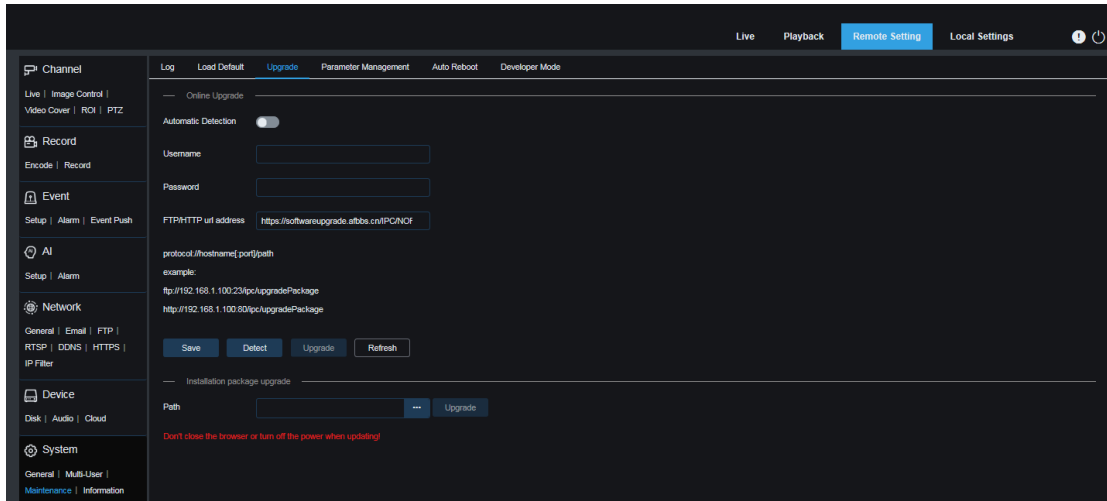
Automatic Detection: Used to enable or disable automatic detection. You can set this option to ON to automatically detect the over-the-air upgrade file.

**Username:** Used to set the username of the FTP server.

Password: Used to set the password of the FTP server.

FTP/HTTP url address: Enter the over-the-air upgrade address. For HTTP upgrade, username and password are not required.

Note: The FTP address is in the following format: ftp://{IP address of FTP server:port}/ Upgrade (the name of the directory containing the over-the-air upgrade path of the FTP server).

Save: Click this button to save the current settings.

Detect: After the upgrade file is uploaded and the upgrade path is set, you can click **Detect** to manually detect the over-the-air upgrade file. When updates are available, a message pops up, as shown in the following figure.
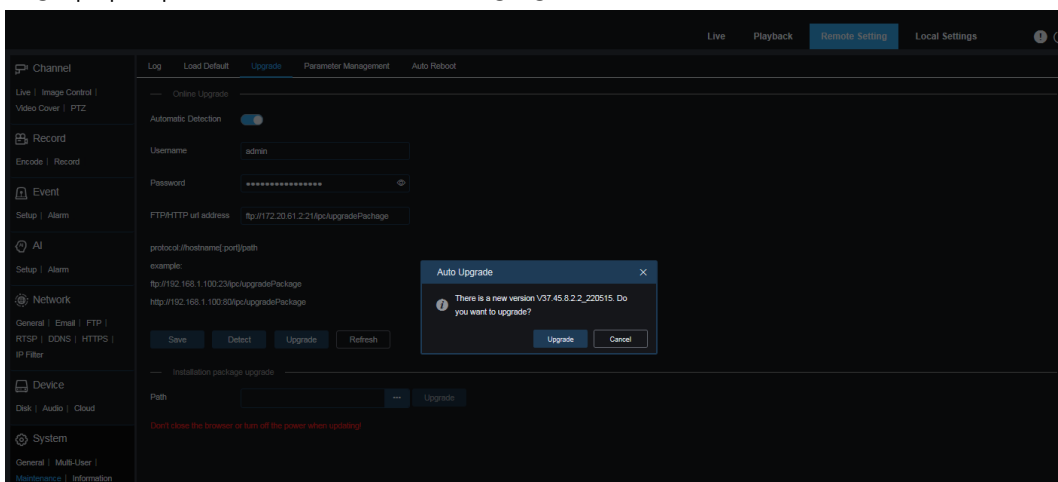
Upgrade: Click this button to start system upgrade.

Place the firmware file (.sw) into the HDD of your PC.

Click **...** next to **Path** to select the firmware file from your PC.

Click **Upgrade** to start system upgrade. The system upgrade takes about 2–3 minutes.

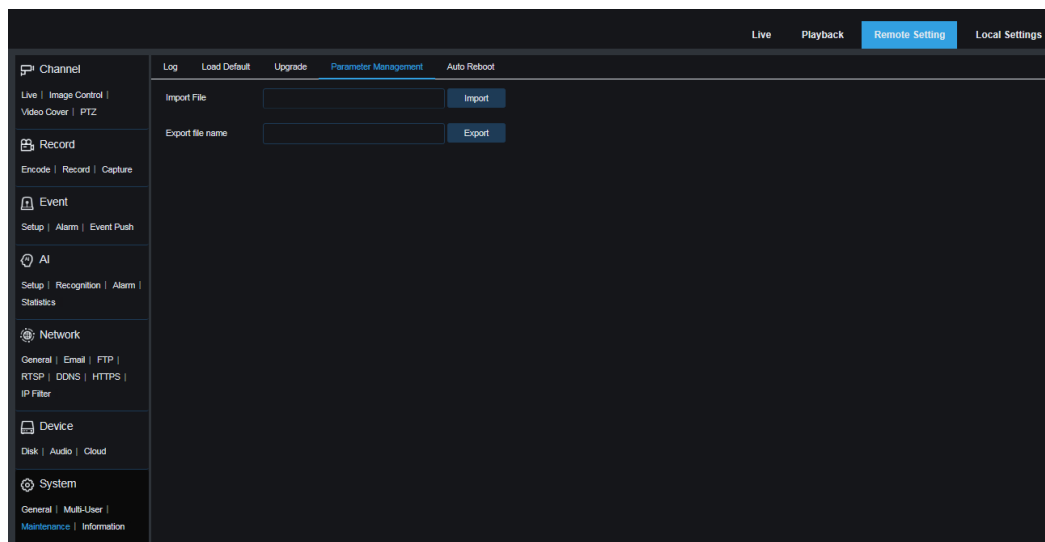Do not power off the device or close your IE browser while system upgrade is in

progress.

9.10.3.4.Parameter Management

You can export the configured parameters to your PC or import an exported configuration file to the device.


Import File: Click the **Import File** text box. The path selection dialog is displayed. Select the parameter file, and click **Import** to import parameters.

Export File Name: Click the **Export file name** text box, and enter the name of the file to which parameters are exported. Click **Export** to export parameters.

9.10.3.5.Automatic Maintenance

This menu enables the system to automatically reboot periodically. It is recommended that this function be enabled to ensure stable operation of the device.
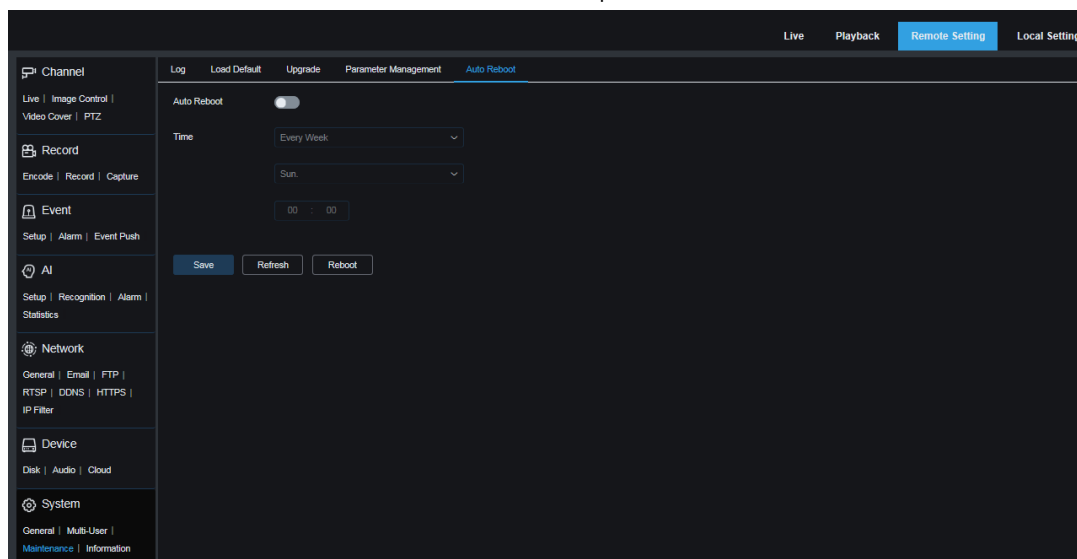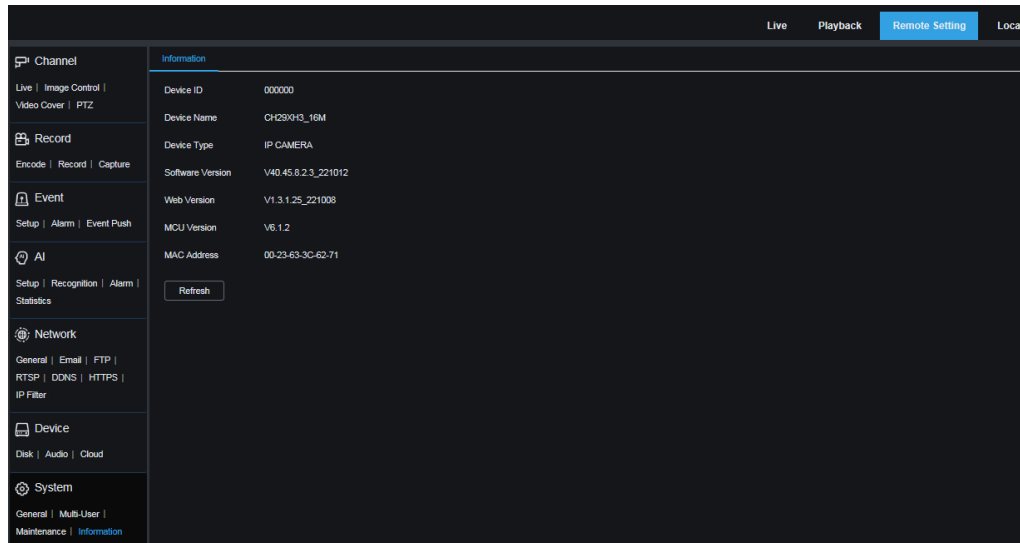

Auto Reboot: Set this option to ON to enable the function.

Time: You can set the PTZ camera to reboot by day, week, or month.

9.10.4.System Information

This menu allows you to view system information, including device ID, device model, MAC address, and firmware version.

10.Local Settings

This menu allows you to set the path for storing videos, download, and captured image files, as well as the format of videos and captured images.
Note: Programs without plug-ins are supported. You can skip this screen when you access a Web client from Safari 12 and later, Chrome 57 and later, Firefox 52 and later, and Edge 41.
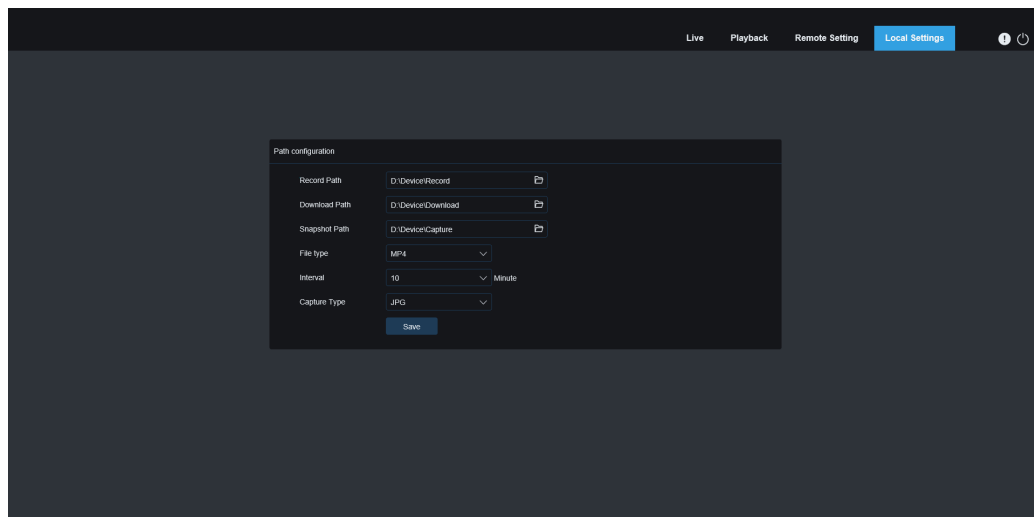
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