G.S.D. GROUP

USER MAUAL

QUAD CAMERA

QUAD

Statement

Thank you for using our network camera series. Our network camera is an integrated network camera developed for network video surveillance. The high-performance chip integrates audio and video acquisition, compression, and transmission and the use of advanced and efficient encoding algorithm guarantees clearer and smoother video streaming. The embedded Web server enables users to easily view and remotely control cameras through the IE browser.

Our network cameras are suitable for large and medium-sized enterprises, government projects, large shopping malls, chain supermarkets, intelligent buildings, hotels, hospitals, schools, and various venues where remote video transmission and surveillance are desired. The product features ease of installation and user-friendly control.

Introduction:

- In this Manual, IP cameras refer to 4D panoramic network cameras.
- Click indicates the click on the left mouse button.
- Double click indicates the double click on the left mouse button.
- The IP address of the IP camera is 192.168.1.168 by default.
- You need to set the password as instructed when you use the IP camera for the first time. You can log in with admin in lower case as username and initial password given in Section 4.2.
- The Web port number is 80 by default and the ONVIF port number is synchronized with the Web port number. Port 9000 is not supported.

Notes:

Part of information contained in this Manual may differ from the real product. For any problem that is not given in this Manual, please contact our technical support or authorized distributor. This Manual is subject to change at any time. The latest version shall prevail.

1 Overview

1.1 Scope of Application

The camera provides multiple different angles of view and is suitable for surveillance application scenarios with wide coverage so that you do not have to install multiple ordinary cameras. It can be used in large squares, traffic intersections, industrial parks, large shopping malls, sports venues, and exhibition centers to monitor activities and traffic flow in a large area and improve regional management, as shown below:

1.2 Product Description

The IP camera is a digital networked surveillance camera that can independently operate the built-in Web server. Users can use the IP camera for real-time surveillance whenever and wherever possible by using a Web browser or client software.

The IP camera, based on the up-to-date digital solutions, is an integrated media processing platform featuring audio/video acquisition, compression, and network transmission on a single board. Any remote users can perform real-time surveillance by entering the IP address or domain name of the IP camera in their Web browser. The IP camera solution is suitable for residential or commercial environments and various venues that remote network video surveillance and transmission are desired. This product features ease of installation and user-friendly control.

The IP camera can be configured with multiple users with different role permissions for ease of management.

The IP camera offers several alarm functions, and when an event occurs, will actively send you email notification, capture image or alarm recordings, and will store alarm recordings in the TF card for your future retrieval.

1.3 Operating Environment

Operating system: Windows XP/Windows 7/Windows 8/Windows 10/Windows 11/ MacOS 10 and later versions

CPU: Intel I3 or later versions

Memory: 2 GB or higher

Video memory: 1 GB or higher

Display: 1024×768 or higher

Browser: IE 10, Chrome 57, Firefox 52, Edge 41, and Safari 12 and their respective later versions

2 Device Connections

The IP camera can be connected in the following two ways:

2.1 Connecting to a PC

Connect the IP camera to a PC using a network cable, connect the power input to the 12 VDC adapter, and then set the IP addresses of the PC and IP camera in the same network segment. If the network connectivity is normal, the IP camera will communicate with the PC within one minute after it is turned on.

2.2 Using a Router/Switch

This method is generally used to connect the IP camera to the Internet. The IP camera and PC are connected to the LAN ports of the router/switch, and the gateway of the IP camera is set to the IP address of the router.
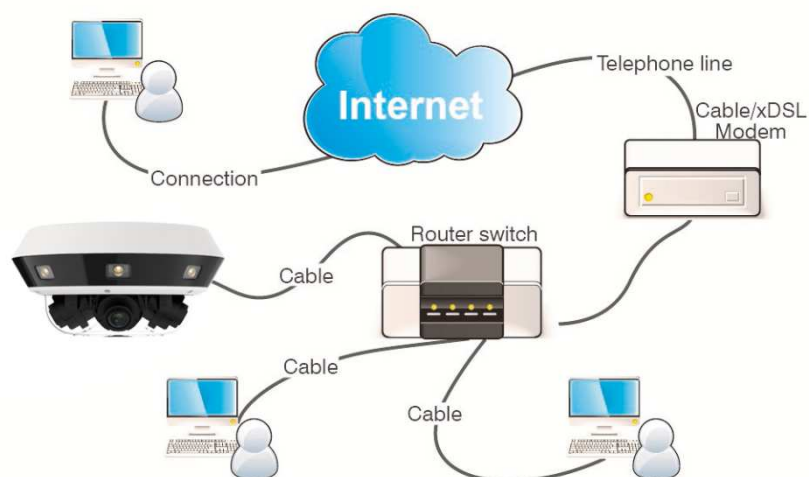
3 Setting IP Address of IPC Using Device Config Tool

Run Device Config Tool ![icon] and click Search to obtain the information of the IPC in the LAN as shown in the following figure. Then, locate the IPC according to the P2P ID or MAC address of the camera.

Note: The camera assigns an IP address using DHCP by default. Default username: admin, default password: admin.

Select your desired device and enter its username and password. Edit network settings and click Modify to save your changes.

Note: If the current network supports DHCP, you can change Net Mode to DHCP to obtain an IP address.

4 Web Login

4.1 Web Accessing IPC

In Device Config Tool, search for IPCs in the current network. As shown in the following figure, you can click an IP address to log in to the corresponding camera using your IE browser.

Alternatively, you can launch your IE browser and enter http://ip:web port in the address bar. As shown in the preceding figure, the IP address of the device you currently want to access is 172.20.52.30 and web port number is 80. The combined URL is http://172.20.52.30:80. Note: The HTTP access mode will use port 80 by default in actual use.

4.2 Initial Login

You need to set the password before activating the IPC on the Web browser you use to access the IPC for the first time, as shown in Figure 4.2.1. You need to set a secure and complex password. Click to check the requirement for a password:

A password shall be 8 to 16 digits long and contain at least any two of the following characters: uppercase letters, lowercase letters, numbers, and special characters.

Figure 4.2.1

After setting a new password, click OK to save your change. The Web client will display the screen as shown in Figure 4.2.2. Users can enable the corresponding password retrieval method by checking the checkbox next to it, or click Cancel without enabling the password retrieval function.

Figure 4.2.2

① Security Question Configuration: These verification questions should be answered to change the primary user password. If this checkbox is checked, you need to select three among 15 commonly-used questions and set answers to retrieve your password. An answer can contain at most 64 characters.

② Certificate of authorization: A secret key should be used to change the primary user password. If this checkbox is checked, you need to click Export to download the secret key file, namely, certificate.txt.

③ Super code (Not recommended): A super code should be used to change your password. The MAC address and system time of the current IP camera are used to calculate a super code that can be used to change the primary user password. Certain security risks exist since the MAC address of the IP camera, however, is broadcast in the network while the system time can be directly obtained when you log in to the Web and use the super code to change the primary user password. Users are not advised to check this checkbox.

Please keep the verfication information safe when you enable the password retrieval function.

4.3 Normal Login

You will be directed to the login screen as shown in Figure 4.3.1 when you access the Web page of the IPC. Enter your username and password and click Login to go to the operation screen of the IPC. You can select your desired system language on the login screen.
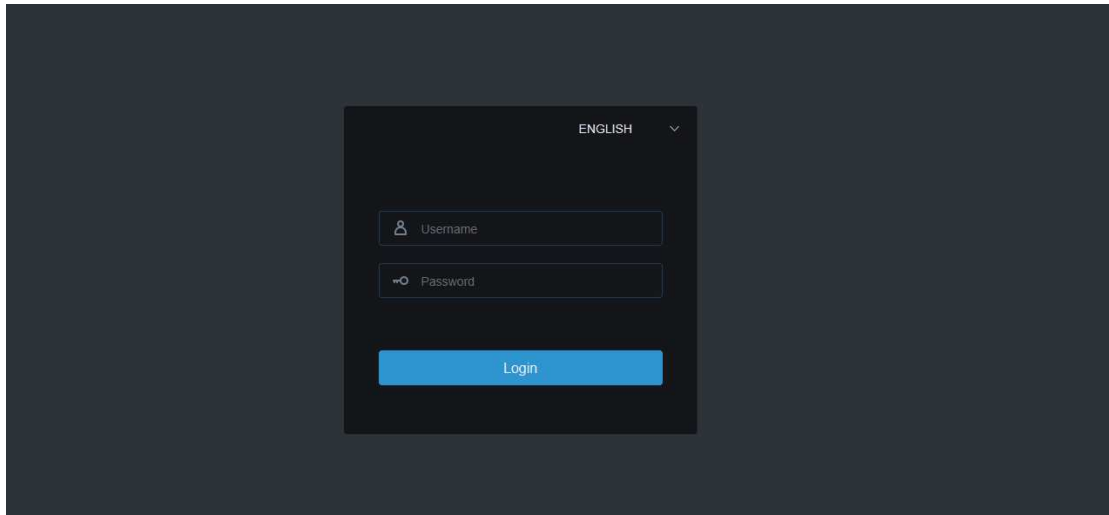
Figure 4.3.1

4.4 Password Retrieval

The password retrieval function is enabled for the IPC. Users can click Recover Password on the login screen to go to the Recover Password screen if they forget their login passwords. You can retrieve your password by security question configuration, certificate of authorization, or super code according to your setting at initial login.

4.4.1 Security Question Configuration

On the login screen, click Recover Password to open the Recover Password screen, as shown in Figure 4.4.1. Security Question Verification is selected by default. You can change the primary user password by setting right answers to security questions.
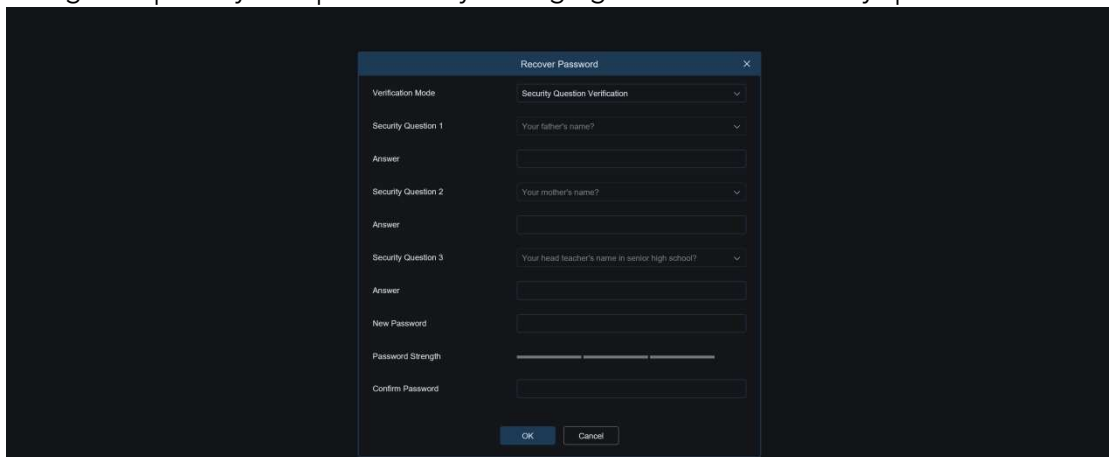
Figure 4.4.1

4.4.2 Certificate of Authorization

On the login screen, click Recover Password to open the Recover Password screen and switch to Certificate of authorization. Figure 4.4.2 shows the screen. Click Import to import the secret key file, namely, certificate.txt. You will be prompted to download the secret key file when you check the "Certification of authorization" checkbox at your initial login.
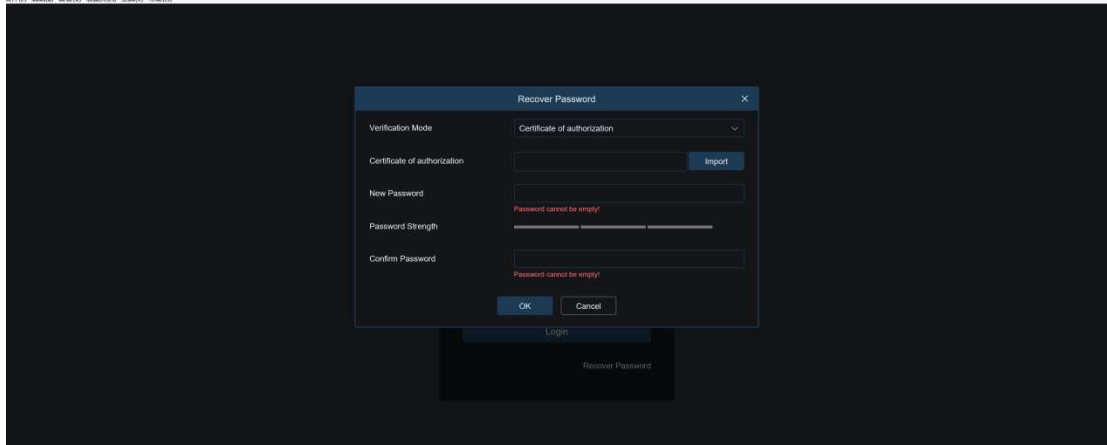
Figure 4.4.2

4.4.3 Super Code

On the login screen, click Recover Password to open the Recover Password screen and switch to Super Code. Figure 4.4.3 shows the screen. Enter the correct verification code to change the primary user password. The verification code is calculated according to certain rules by using the MAC address and system time of the IPC.
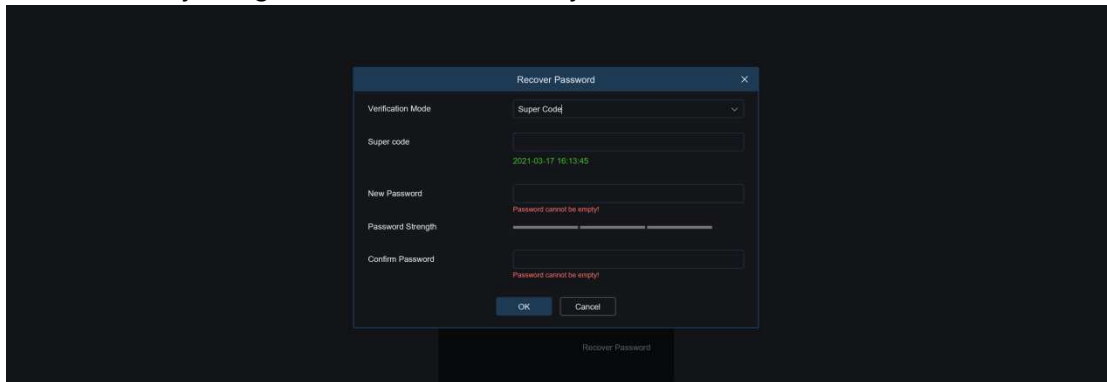
Figure 4.4.3

4.5 Password Aging

Using the same password for a prolonged period of time will pose great security risks. The program will record the last system time you change the password. When the current login time is 90 days later than the last time you change the password, the system will ask whether you want to change the password.
When deciding to change the password, users will be directed to the screen as shown in

Figure 4.5.1. Enter the old password for verification purpose and set a new password according to on-screen instructions.
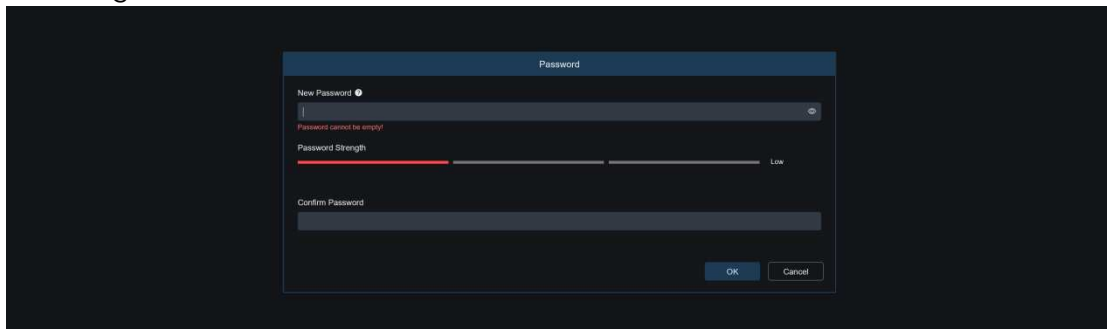
Figure 4.5.1

5 Installing Plug-in

When logging in to the IPC from an IE browser, you need to install the plug-in to normally preview images. Download and install the plug-in according to the on-screen instruction shown in Figure 5.1.1.
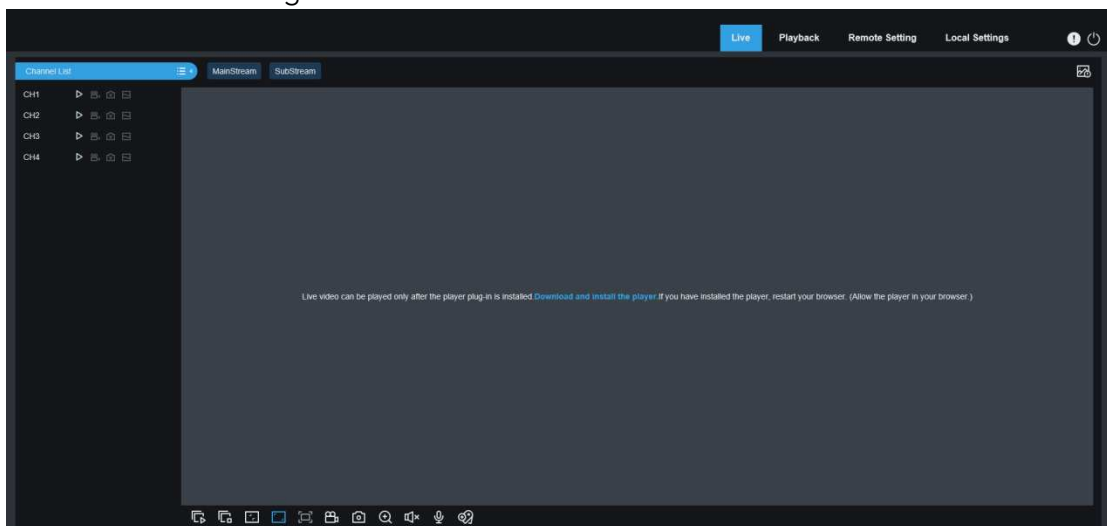
Figure 5.1.1

Note:

Programs without plug-ins are supported. You can skip the plug-in installation procedure when Safari 12, Chrome 57, Firefox 52 and their respective later versions, and Edge 41 are used.

6 Live View

6.1 Live View Menu

Upon successful login, the Web client goes to the Live screen, as shown in the following figure.

Note: Functions may differ for different products. The real product shall prevail.
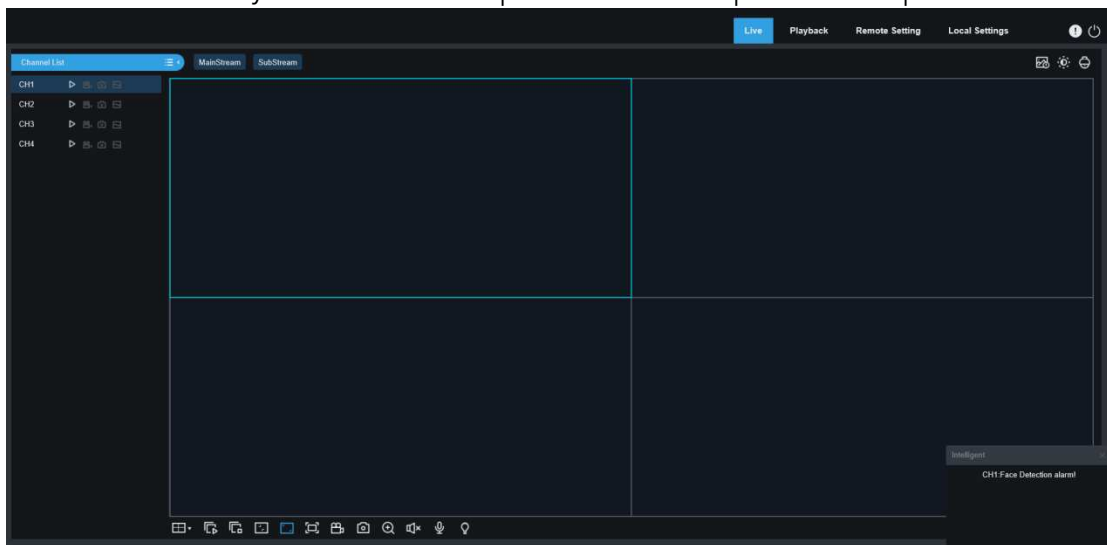
Stream Switch Menu: Enables users to switch the image quality of the current live view in the upper left corner.

    Main stream: Higher definition with higher bandwidth use, higher requirement on interface performance on the PC side.

    Sub stream: Moderate bandwidth use and requirement on PC, lower image quality compared with mainstream.

    Mobile stream: Lowest bandwidth use and requirement on PC, worst image quality.

Main Menu Switch Bar: Enables users to switch among Live, Playback, Remote Setting, and Local Settings.

Info: Displays current login user, Web version, and plug-in version.

AI Alarm: When the alarm push bar on the right is enabled, images will be pushed to you when face and pedestrian & vehicle detection is made.

Color: Used to adjust current image settings, such as saturation and sharpness.

PTZ Setting: Used to re-adjust camera focal length in PTZ Setting.

Exit: Log out.

Recording & alarm status: Displays the alarm and recording status of the current IPC. For

details, refer to Section 6.2.

Stop/Play: Used to enable or disable the current stream live view.

Bitrate: Used to switch between main stream and sub stream in the current live view.

Divide Screen: Users can click this icon to select different layouts to display them in live view.

Play: Used to play streams of all channels in live view.

Stop: Used to stop streams of all channels in live view.

Original Proportions: Displays the current live view in original proportions.

Stretch: Displays the current live view in stretch mode.

Full Screen: Displays the current live view in full screen mode. Users can double click the screen to enable or disable this function. Users can press Esc to exit from the full screen mode if enabled.

Record: Enables users to manually record streams in live view. The record icon on the left is to manually record selected channels and that at the bottom is to record all channels.

Capture: Enables users to capture the image of the current stream. The capture icon on the left is to manually capture images on selected channels and that at the bottom is to capture images on all channels.

Digital Zoom: Used to zoom in a certain part of the display screen.

Audio: Used to turn on or off or adjust the sound of the stream in live view.

Voice Intercom: Used to talk to the IP camera.

Light: Used to manually turn on or off white light.

 Pixel Counter: Used to select an area to check the pixel of the area in the stream.

 Add Tag: Users can click the icon to add tags.

Pop-up Info: When an alarm is triggered, the alarm of the corresponding channel will be displayed in the lower right corner.

6.2 Recording Status

The recording status is a simple prompt and brief description for the current alarm of the camera from the Web client. Several types of alarms may exist at a time. The following section explains them in details:

No icon: The SD card works normally but no video recording is made.

R: The camera is making routine video recording.

Note: When the camera is making video recording with alarm triggered, this icon disappears but routine video recording continues.

H: The SD card is abnormal. Please check the SD.

M: A motion alarm is in progress but the motion alarm recording is not made.

M: A motion alarm is in progress and the motion alarm recording is made.

I: An IO alarm is in progress but the IO alarm recording is not made.

I: An IO alarm is in progress and the IO alarm recording is made.

S: An intelligent alarm is in progress but the intelligent alarm recording is not made.

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

S: An intelligent alarm is in progress and the intelligent alarm recording is made.

7 Playback Screen

The camera should enable users to view real-time images and also save image informations for retrieval upon request.

7.1 General Playback

The playback function mainly includes general video search and AI search. The following figure shows the general video search function.

1. **Search Mode Switch:** Enables users to switch search modes. As shown in the preceding figure, General is enabled by default and general recording files will be searched. To switch to AI image search, refer to the later part of this section.
2. **Search Date:** Enables users to set the date to search for recording files. Users will be prompted with dates with recording files when they click Search.
3. **Search Type:** Displays the search types the current camera supports. Users can search for part of recording files as needed.
4. **Channel Selection:** Enables users to select channels to search for.
5. **Playback Progress Bar Zoom-in/-out:** The progress bar displays the 24H progress information. Users can zoom in or out the progress bar to locate their play position more accurately. Users can also use this function by controlling the mouse wheel.

Pause/Play: Used to pause/play back streams.

Stop: Used to stop streams.

Forward by One Frame: Used to forward an image by one frame with each click.

Synchronous Playback: Used to play back recording files in four channels at a time.

Record: Used to manually record the current stream.

Capture: Enables users to capture the image of the current stream.

Download: Used to download the recording files in your search result.

Speed: Enables users to play back recording files in 1/8, 1/4, 1/2, 1, X2, X4, X8, or X16 speed mode.

Play All: Used to play recording files in all channels.

Stop All: Used to stop recording files in all channels.

Audio: Used to turn on or off or adjust the sound of the stream in playback mode.

Add Default Tag: Used to add default tags. Mark the current time of the current channel as the playback start time, and click the icon to add tags.

Add Tag: Used to add custom tags. Click Add Tag. The Custom window appears. Users can name tags.

Digital Zoom: Used to zoom in a certain part of the stream in playback mode.

Original Proportions: Displays the current playback view in original proportions.

Stretch: Displays the current playback view in stretch mode.

Full Screen: Displays the current playback view in full screen mode. Users can double click the screen to enable or disable this function. Users can press Esc to exit from the full screen mode if enabled.

6. **Search:** Displays your search result in the SD card according to search settings.
7. **Playback Progress Bar:** The timeline bar shown at the bottom displays the current playback progress bar and total playback progress bar in different color bars according to search results.

7.2 Picture Search

When the auto capture function is enabled for the camera, users can search for and play pictures on this screen.
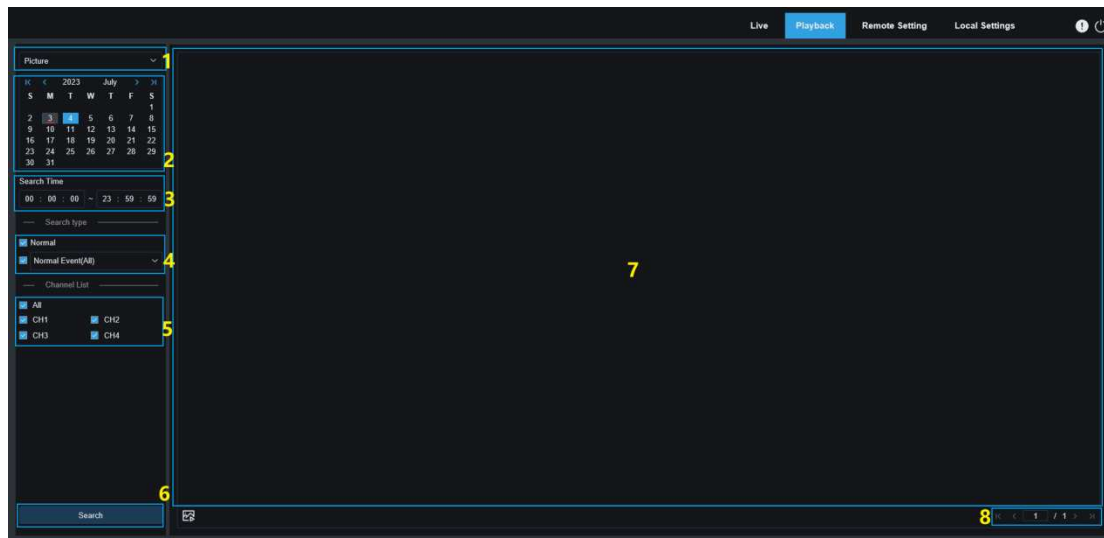
1. **Search Mode Switch:** Enables users to switch search modes. The currently effective search mode is Picture.
2. **Search Date:** Enables users to set the date to search for pictures. Users will be prompted with dates with recording files when they click Search.
3. **Search Time:** Used to set the time to search for pictures. Users can search for images by specifying a time range for easy retrieval.
4. **Search Type:** Enables users to select picture capture type to search for, or select All Type to select all types.
5. **Channel Selection:** Enables users to select channels to search for.
6. **Search:** Users can click Search to start searching for pictures.
7. **Search Result Display Area:** Displays searched pictures. When users double click a picture, the videos recorded before and after the time period when the picture is captured will be played.
8. **Search Result Page Turn:** Users can turn search result pages in the lower right corner.

7.3 Playback by Tag

On this screen, users can view all previously added tags and edit, play back or delete them.
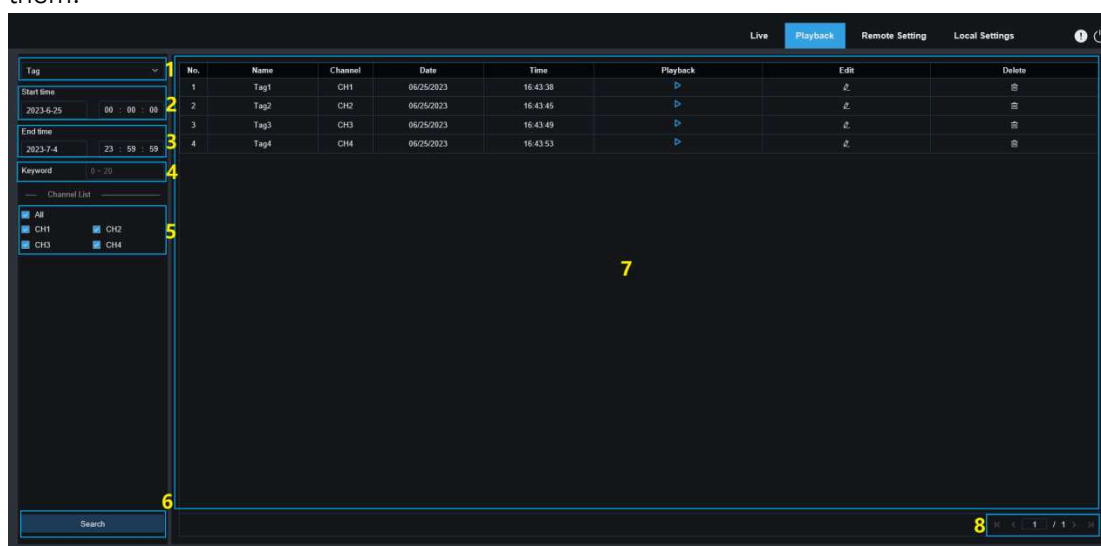
1. **Search Mode Switch:** Enables users to switch search modes. The currently effective search mode is Tag.
2. **Start Time:** Used to set the time to start searching for tags.
3. **End Time:** Used to set the time to end searching for tags.
4. **Keyword:** Users can search tags by entering keywords.
5. **Channel Selection:** Enables users to select channels to search for.
6. **Search:** Click Search to start searching.
7. **Search Result Display Area:** Displays search results matching users search conditions.

Click the ▷ button to play back events. Click the ✏ button to modify the name of an event. When you click the Save button, the Modify success dialog box appears. Click the 🗑 button to delete the event.

8. **Search Result Page Turn:** Users can turn search result pages in the lower right corner.

7.4 Smart

You can enable smart playback by logging in from a browser without plug-ins, as shown in the following figure:

This function can identify artificially triggered alarms (if any) in routine operations and will display these alarms in blue in the play timeline bar at the bottom.

1. **Search Mode Switch:** Enables users to switch search modes. The currently effective search mode is Smart.
2. **Search Date:** Enables users to set the date to search for smart events. Users will be prompted with dates with recording files when they click Search.
3. **Search Time:** Used to set the time to search for events for easy retrieval.
4. **Search Type:** Displays the search types the current camera supports. Users can search for part of recording files as needed.
5. **Channel Selection:** Enables users to select channels to search for.
6. **Search:** Click Search to start searching.
7. **Search Result Display Area:** Displays search results.

▷ **Pause/Play:** Used to pause/play back streams.

▢ **Stop:** Used to stop streams.

◯ **Capture:** Enables users to capture the image of the current stream.

×1 **Speed:** Enables users to play back recording files in 1/8, 1/4, 1/2, 1, X2, X4, X8, or X16 speed mode.

◁× **Audio:** Used to turn on or off or adjust the sound of the stream in playback mode.

☆ **Smart:** Users can click this icon to go to Smart detection area setting screen.

⊞ **All:** Users can click **All** to set the entire screen of the camera to Smart detection area.

🗑 **Delete:** Users can click **Clear All** to clear the entire area.

 Digital Zoom: Used to zoom in a certain part of the stream in playback mode.

 Original Proportions: Displays the current live view in original proportions.

 **Stretch:** Displays the current live view in stretch mode.

 Full Screen: Displays the current playback view in full screen mode. Users can double click the screen to enable or disable this function. Users can press Esc to exit from the full screen mode if enabled.

7.5 AI

7.5.1 Playback by Face Detection

The camera recognize faces and then face information and also image information will be stored in the TF card. Users can quickly retrieve face images matching search conditions as needed and quickly locate recording files according to captures images. The following figure shows the face search playback screen.
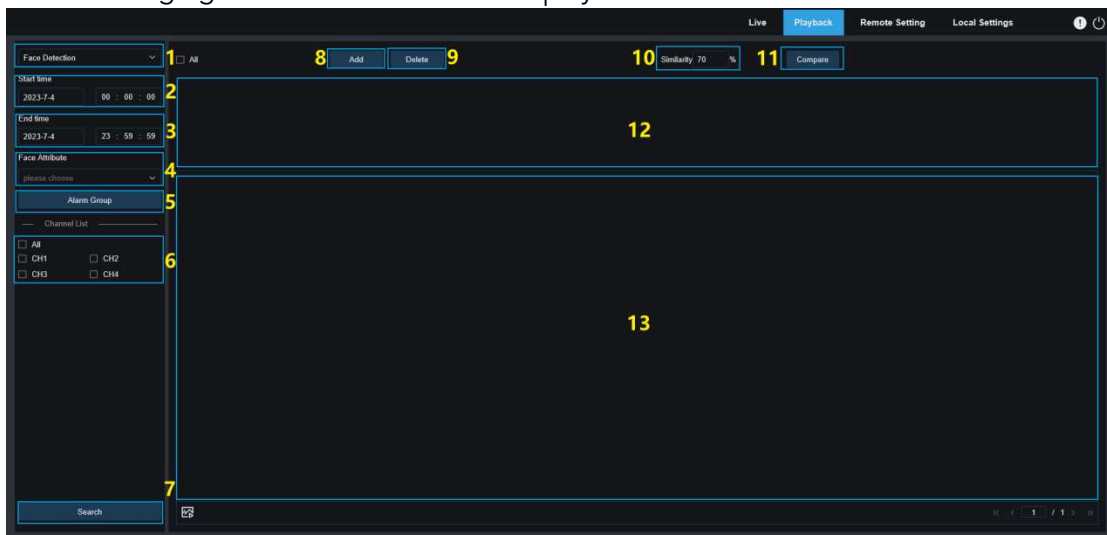

1. **Search Mode Switch:** Enables users to switch search modes. The currently effective search mode is Face Detection.
2. **Start Time:** Used to set the time to start searching for face images.
3. **End Time:** Used to set the time to end searching for face images.
4. **Face Attribute:** The Face Attribute checkbox is not checked by default. When this checkbox is checked, only face images with face attribute detection enabled will be retrieved. The camera can recognize five face attributes including gender, age group, mask, glasses, and facial expression.
5. **Alarm Group:** The camera will match images with the corresponding group according to face database settings when capturing face images. This setting enables users to retrieve their desired images in the corresponding group.
6. **Channel Selection:** Enables users to select channels to search for.
7. **Search:** Used to search for face data according to settings.
8. **Add:** Add images to the image display area for comparison. Users can add local

images and captured images.

9. **Delete:** Used to delete the currently added image.
10. **Similarity:** Used to set the lowest similarity of feature values for matching faces when using the Compare function.
11. **Compare:** Used to retrieve face images by set search time, alarm group, and selected reference image.
12. **Added Image Display Area:** Displays currently added images that are available for comparison.
13. **Search Result Display Area:** The right section will display retrieved face images according to Search and Compare. When users double click an image, the videos recorded just before and after the time period when the image is captured will be played.

7.5.2 Playback by Pedestrian & Vehicle Detection

Similar to the face capture function, the camera can distinguish between pedestrians and vehicles, and record them as needed, enabling users to retrieve their desired records. The following figure shows the screen.
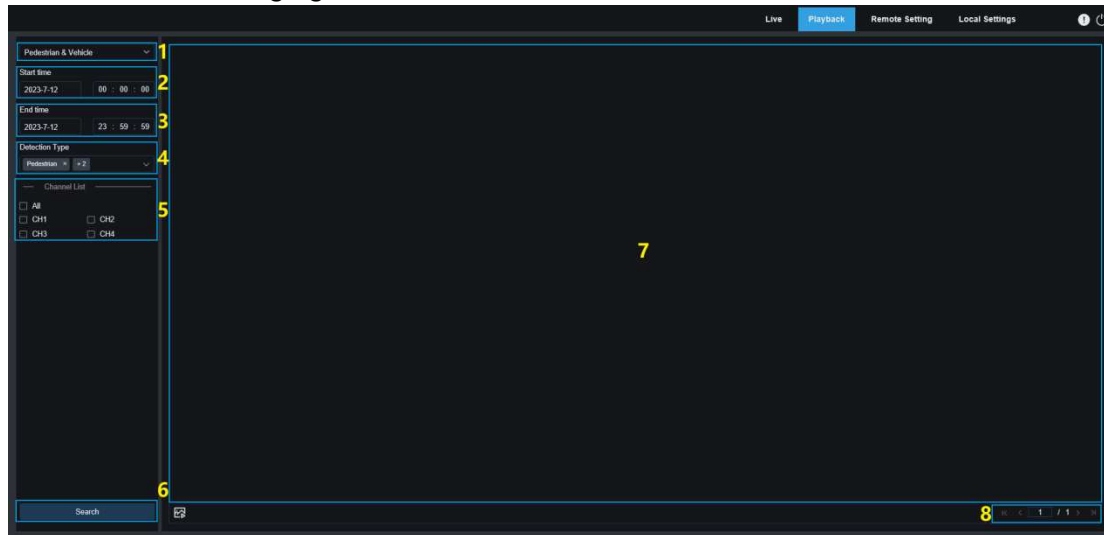
1. **Search Mode Switch:** Enables users to switch search modes. The currently effective search mode Pedestrian & Vehicle.
2. **Start Time:** Used to set the time to start searching for pedestrian & vehicle images.
3. **End Time:** Used to set the time to end searching for pedestrian & vehicle images.
4. **Detection Type:** Used to set pedestrian and/or vehicle images to search for as needed.
5. **Channel Selection:** Enables users to select channels to search for.
6. **Search:** Used to search for pedestrian & vehicle images according to search settings.
7. **Search Result Display Area:** Displays search results. When users double click an image, the videos recorded just before and after the time period when the image is captured will be played.
8. **Search Result Page Turn:** Users can turn search result pages in the lower right corner.

7.5.3 Line Crossing

With the development of technology, Line Crossing cannot only be compatible with the old way to alarm objects entering the warning area, but also add the pedestrian and vehicle detection function to alarm only pedestrian or vehicle objects and record image or video information for easy retrieval and viewing. The following figure shows the screen.
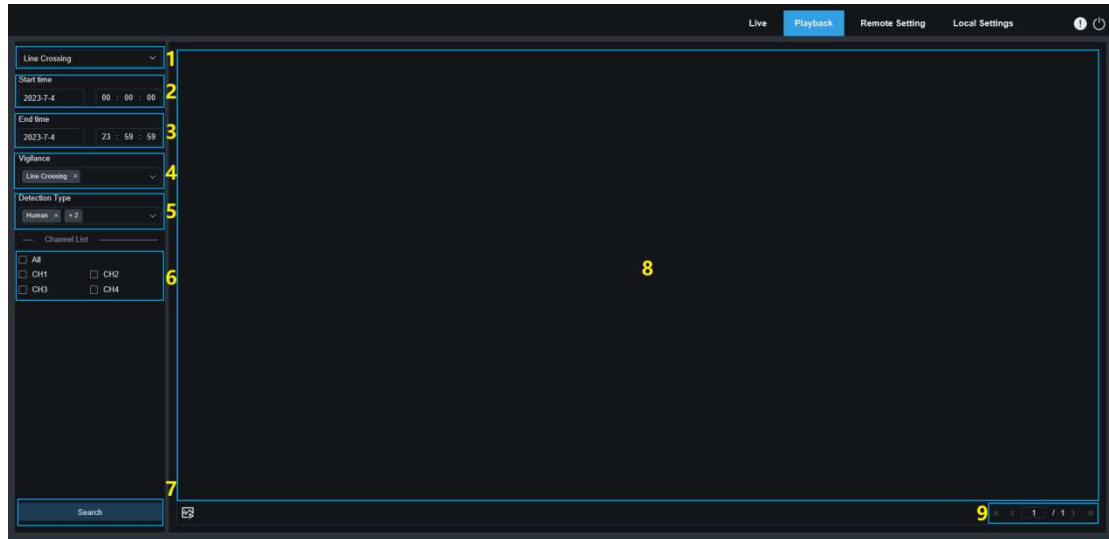
1. **Search Mode Switch:** Enables users to switch search modes. The currently effective search mode Line Crossing.
2. **Start Time:** Used to set the time to start searching for pedestrian & vehicle images.
3. **End Time:** Used to set the time to end searching for pedestrian & vehicle images.
4. **Vigilance:** Set the capture mode triggering an alarm to Line Crossing.
5. **Detection Type:** Used to set pedestrian and/or vehicle images to search for as needed.
6. **Channel Selection:** Enables users to select channels to search for.
7. **Search:** Used to search for pedestrian & vehicle images according to search settings.
8. **Search Result Display Area:** Displays search results. When users double click an image, the videos recorded just before and after the time period when the image is captured will be played.
9. **Search Result Page Turn:** Users can turn search result pages in the lower right corner.

7.5.4 Intrusion

The perimeter intrusion detection function detects whether objects enter the set warning area and triggers a linkage alarm according to the judgment. The pedestrian and vehicle detection function is available to alarm only pedestrian or vehicle objects and record image or video information for easy retrieval and viewing. The following figure shows the screen.
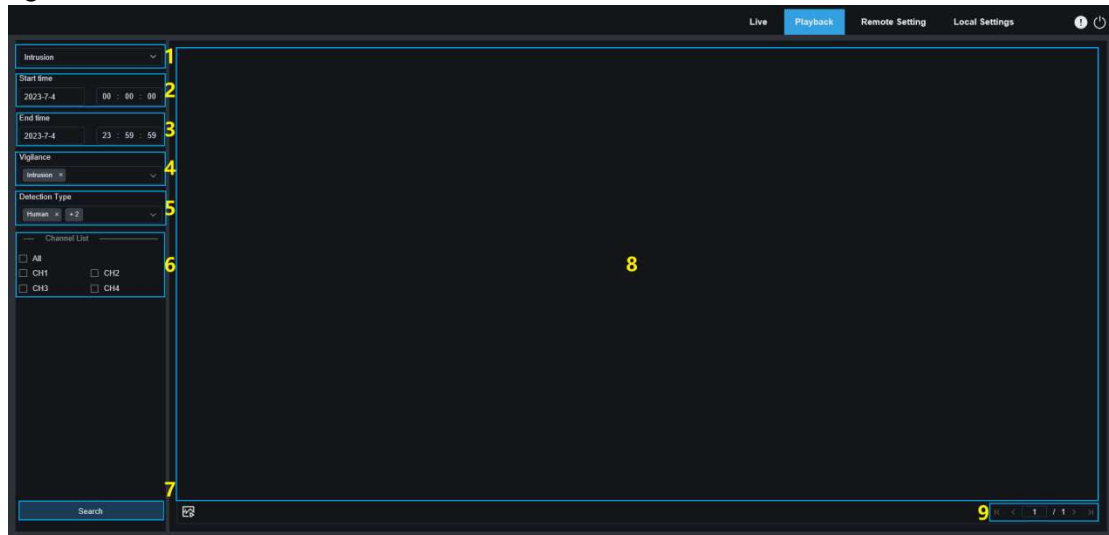
1. **Search Mode Switch:** Enables users to switch search modes. The currently effective search mode is Intrusion.
2. **Start Time:** Used to set the time to start searching for pedestrian & vehicle images.
3. **End Time:** Used to set the time to end searching for pedestrian & vehicle images.
4. **Vigilance:** Set the capture mode triggering an alarm to Intrusion.
5. **Detection Type:** Used to set pedestrian and/or vehicle images to search for as needed.
6. **Channel Selection:** Enables users to select channels to search for.
7. **Search:** Used to search for pedestrian & vehicle images according to search settings.
8. **Search Result Display Area:** Displays search results. When users double click an image, the videos recorded just before and after the time period when the image is captured will be played.
9. **Search Result Page Turn:** Users can turn search result pages in the lower right corner.

7.5.5 Region Entrance

The region entrance detection function detects whether objects enter the set warning area and triggers a linkage alarm according to the judgment. The pedestrian and vehicle detection function is available to alarm pedestrian or vehicle objects and record image or video information for easy retrieval and viewing. The following figure shows the screen.
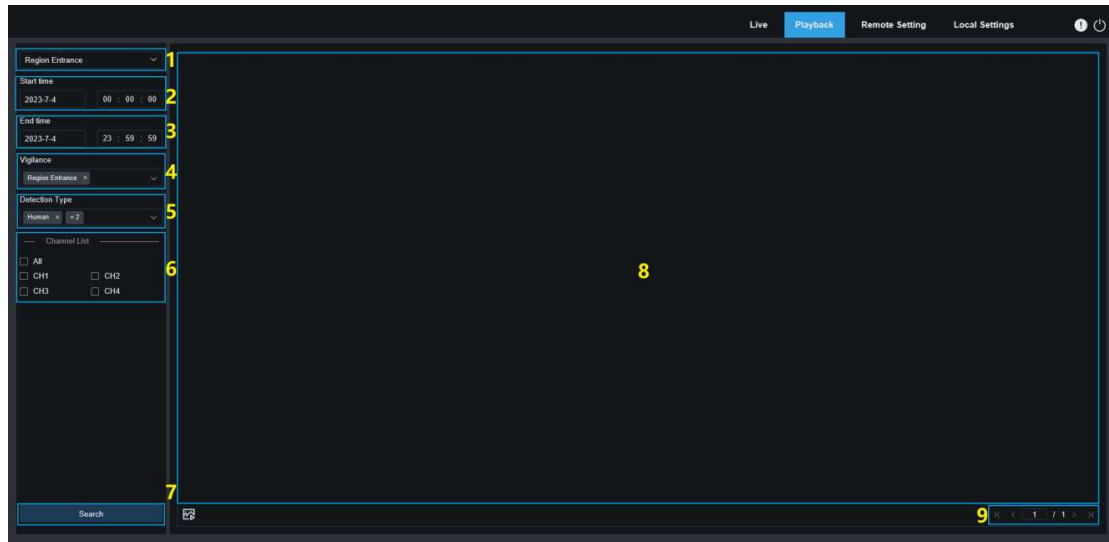
1. **Search Mode Switch:** Enables users to switch search modes. The currently effective search mode is Region Entrance.
2. **Start Time:** Used to set the time to start searching for pedestrian & vehicle images.
3. **End Time:** Used to set the time to end searching for pedestrian & vehicle images.
4. **Vigilance:** Set the capture mode triggering an alarm to Region Entrance.
5. **Detection Type:** Used to set pedestrian and/or vehicle images to search for as needed.
6. **Channel Selection:** Enables users to select channels to search for.
7. **Search:** Used to search for pedestrian & vehicle images according to search settings.
8. **Search Result Display Area:** Displays search results. When users double click an image, the videos recorded just before and after the time period when the image is captured will be played.
9. **Search Result Page Turn:** Users can turn search result pages in the lower right corner.

7.5.6 Region Exiting

The region exiting detection function detects whether objects exit from the set warning area and triggers a linkage alarm according to the judgment. The pedestrian and vehicle detection function is available to alarm pedestrian or vehicle objects and record image or video information for easy retrieval and viewing. The following figure shows the screen.
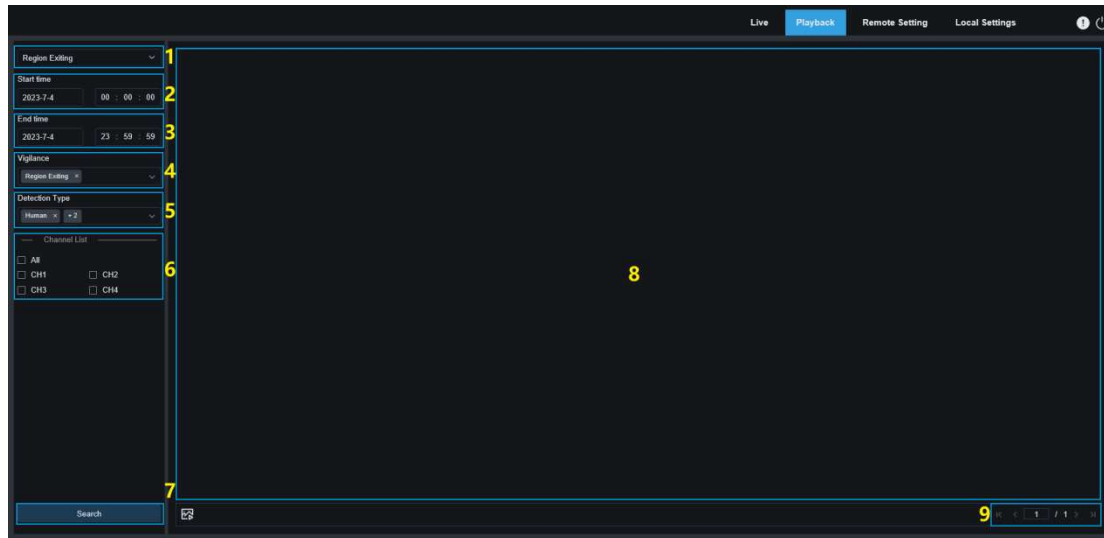
1. **Search Mode Switch:** Enables users to switch search modes. The currently effective search mode is Region Exiting.
2. **Start Time:** Used to set the time to start searching for pedestrian & vehicle images.
3. **End Time:** Used to set the time to end searching for pedestrian & vehicle images.
4. **Vigilance:** Set the capture mode triggering an alarm to Region Exiting.
5. **Detection Type:** Used to set pedestrian and/or vehicle images to search for as needed.
6. **Channel Selection:** Enables users to select channels to search for.
7. **Search:** Used to search for pedestrian & vehicle images according to search settings.
8. **Search Result Display Area:** Displays search results. When users double click an image, the videos recorded just before and after the time period when the image is captured will be played.
9. **Search Result Page Turn:** Users can turn search result pages in the lower right corner.

7.5.7 License Plate Detection

When the license plate detection function is enabled for the IPC, an alarm will be triggered when your desired license plate is recognized and image or video images will be recorded for easy retrieval and viewing. The following figure shows the screen.
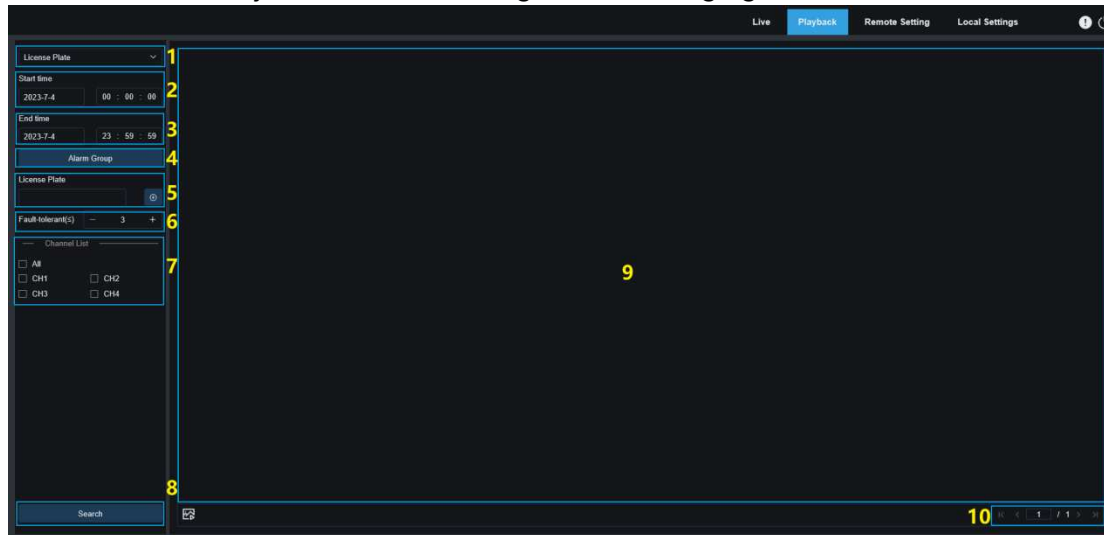
1. **Search Mode Switch:** Enables users to switch search modes. The currently effective search mode is License Plate.
2. **Start Time:** Used to set the time to start searching for license plate images.
3. **End Time:** Used to set the time to end searching for license plate images.
4. **Alarm Group:** Recognize license plates by groups set in the database.

Note: When no group restriction is set, all images will be retrieved and the similarity setting is effective. Unrecognized license plate information will be ignored when group restrictions are set.

5. **License Plate:** Filter by license plate informations.
6. **Fault-tolerant:** Specifies a fault-tolerant rate. For example, if you set the fault-tolerant rate to a three-character value, when you search for license plate number B734KB against the database to which license plate number B594SB is registered, the system will not obtain any license plate information. That is, a license plate number containing more than 3 characters that are different from the license plate number in the database will not be recognized.
7. **Channel Selection:** Enables users to select channels to search for.
8. **Search:** Used to search for license plate images according to settings.
9. **Search Result Display Area:** Displays search results. When users double click an image, the videos recorded just before and after the time period when the image is captured will be played.
10. **Search Result Page Turn:** Users can turn search result pages in the lower right corner.

7.5.8 Repeat Customer Detection

The face recognition function can only trigger an instant alarm event but also deeply mine data to meet customer requirements. For example, the repeat customer recognition function is a typical application by installing a camera in a certain area of a

shopping mall to check whether customers stop to watch the goods in this area. It is also possible to monitor a certain area to check whether a suspicious object frequently appears in the area. The following figure shows the repeat customer function screen.

1. **Search Mode Switch:** Enables users to switch search modes. The currently effective search mode is Repeat Customer.
2. **Start Time:** Used to set the time to start searching for pedestrian & vehicle images.
3. **End Time:** Used to set the time to end searching for pedestrian & vehicle images.
4. **Minimum Time Interval:** Used to set the minimum time interval between two capture actions of the same object to increase the search accuracy.
5. **Similarity:** Used to set the minimum similarity between other images and reference image for repeat customer matching.

Note: This setting takes effect only when alarm group is not checked for the current function.

6. **Face Attribute:** Filter searched images according to face feature values.

Note: All images can be retrieved if this option is not set. Only captured images matching the face attribute setting will be searched if this option is set.

7. **Alarm Group:** Repeat customers will be recognized by alarm groups set in the database if this option is set.

Note: When no group restriction is set, all images will be retrieved and the similarity setting is effective. Unrecognized people information will be ignored when group restrictions are set.

8. **Channel Selection:** Enables users to select channels to search for.
9. **Search:** Used to search for face images according to settings.
10. **Search Result Display Area:** Used to display search results in stacked mode. Users can double click image information in the display area to list the detailed information of images in stacked mode at the bottom area, and click an image again to play back it.
11. **Minimum Number of Occurrences:** Used to filter the search results by number of occurrences. You need to click Refresh to refresh the display.
12. **Sort Type:** Used to sort search results by time or capture count in ascending or descending order. You need to click Refresh to refresh the display.

13. **Refresh:** Refresh events on your IE browser according to Minimum number of occurrences and Sort Type settings.
14. **Secondary Display Area of Search Results:** Displays the image information of the selected object in an event list according to the selected information on the search result display area. Click the Play button to start playback.

7.5.9 Face Attendance

The face recognition function includes the repeat customer function and the face attendance function. The face attendance function is to retrieve matching faces in different groups (excluding strangers group) saved in the SD card at a specified time, and generate the attendance results according to the capture records. The following figure shows the function screen.
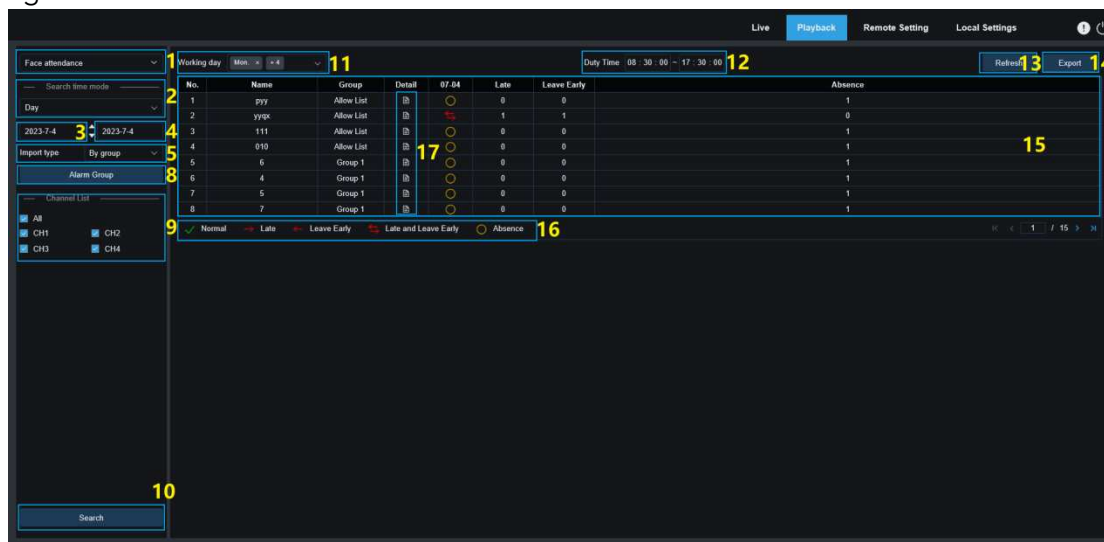
1. **Search Mode Switch:** Enables users to switch search modes. The currently effective search mode is Face Attendance.
2. **Search Time Mode:** The options include day, week, month, customize and today. The system will automatically change the start date and end date after an option is selected. When day is selected, the end date will be automatically synchronized with the start date. When week is selected, the start date and end date will be automatically changed to Monday and Sunday of the week in which the date is selected. When month is selected, the start date and end date will be automatically changed to the first day and the last day of the month in which the date is selected. When customize is selected, you can customize the date. When today is selected, the start date and end date will be automatically changed to the current day.
3. **Start Date:** Used to set the time to start searching for face attendance.
4. **End Date:** Used to set the time to end searching for face attendance.
5. **Import Type:** Used to select the import type. The options include By group and By face. The former one will search for matching results of all people in existing groups. The latter one will search for matching results of people in a certain group.

When By group is selected, face attendance results will be searched according to groups set in the database.

When By face is selected, the menu on the screen will change to that shown in the preceding figure.

6. **Select Images:** Click to select face images to be detected. The window shown in the following figure appears when you click this option.
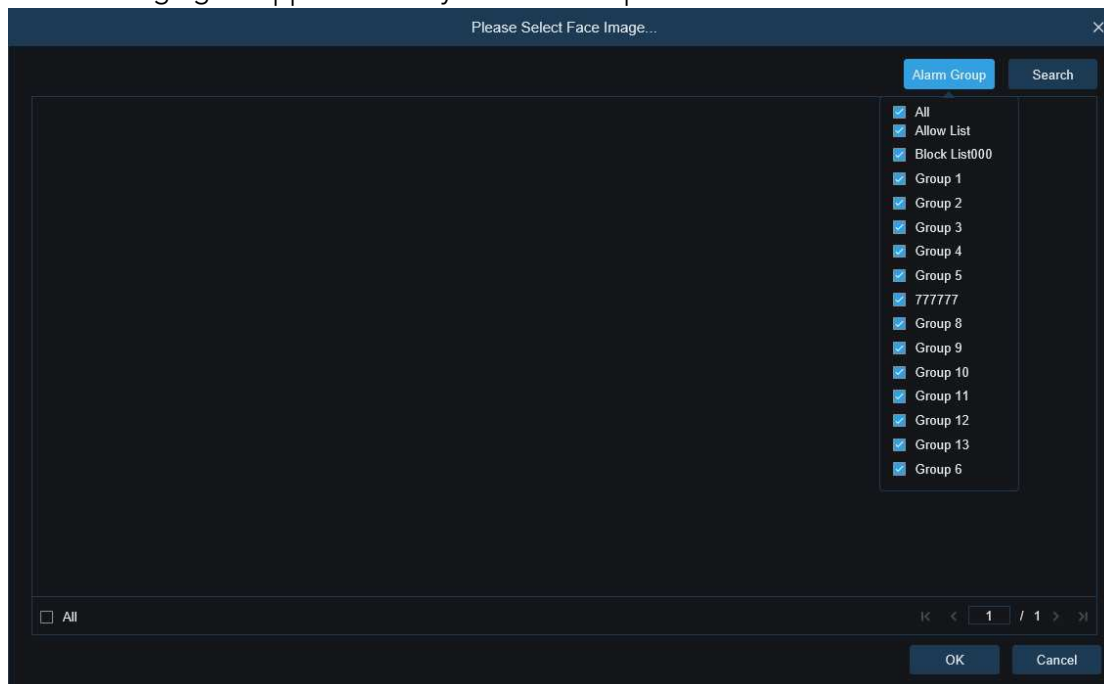
Click **Alarm Group** to select a group and then click Search. All face images in this group will be searched. Select the face images to be subject to face attendance, and click **OK**. Selected face images will be added to the **Chosen** queue. You can click **Cancel** to close the window.

7. **Chosen:** Displays the queue of selected face images. The window shown in the following figure appears when you click this option.
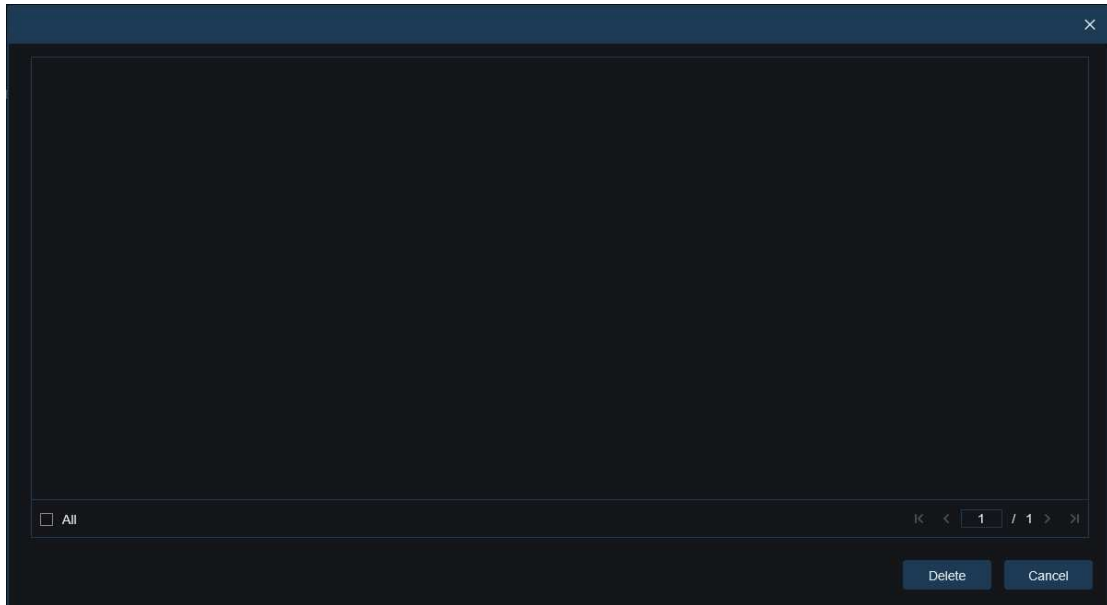
Select a face image and click **Delete**. You can delete the face image from the queue. You can click **All** to select all face images. You can click **Cancel** to close the window.

8. **Alarm Group:** Used to search for face attendance by groups set in the database.
9. **Channel Selection:** Enables users to select channels to search for.
10. **Search:** Used to search for face attendance according to settings.
11. **Working Day:** Used to set the working day.
12. **Duty Time:** Used to set the duty time.
13. **Refresh:** Click Refresh to refresh the search results if you have changed attendance settings.
14. **Export:** Used to export results to your PC.

Attendance Results: "←" indicates leave early, "→" indicates late, "[?]" indicates late and leave early, "√" indicates normal, and "○" indicates absence.The green line indicates the start time and end time of attendance.

15. Search Result Display Area: Used to display search results in a table in the upper right corner, as shown in the following figure.
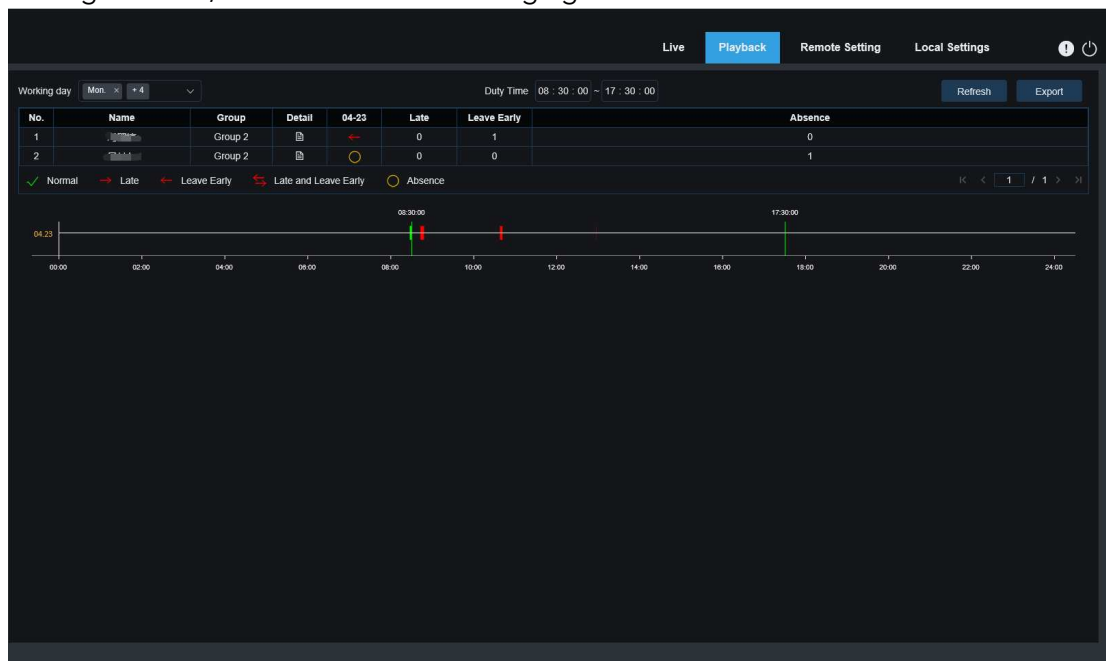
16. Secondary Display Area of Search Results: When you click a face image, the detailed time information will displayed in the lower right corner. The time points matching this face image will be marked with red bars. You can click the red bars to start playback.

17. Click the **Detail** icon to check details. Click the **Playback** to start playback.
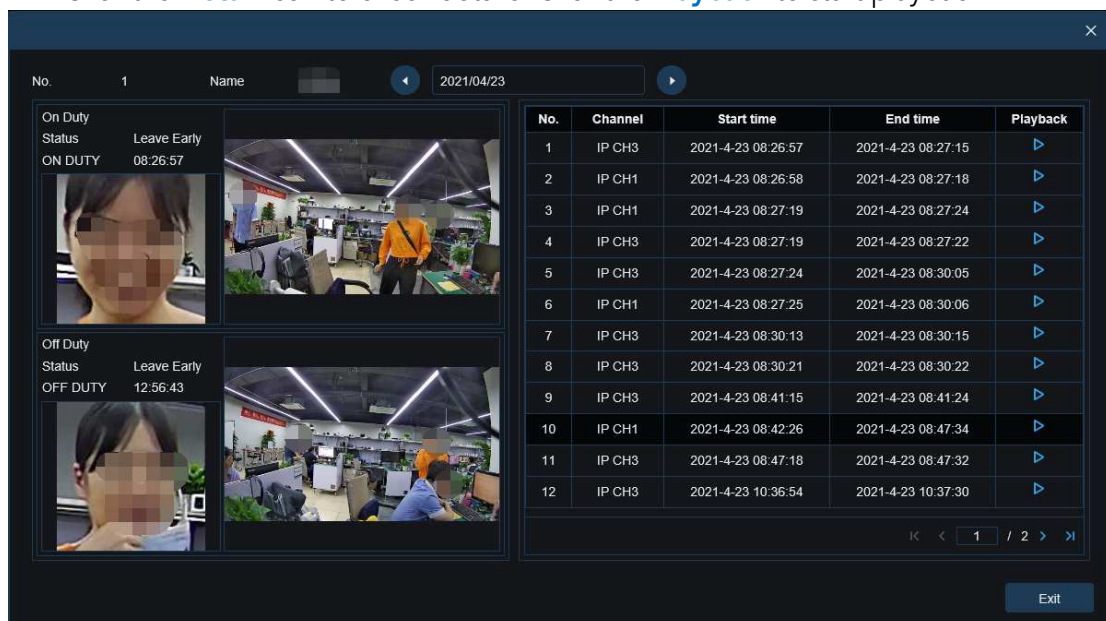
Click the arrow in the lower right corner to turn up or down result pages.

8 Remote Parameter Setup

8.1 Live View

On the Live view, users can set channel name, device time, and CC, as well as statistics on smart functions and image stacking, as shown in the following figure.
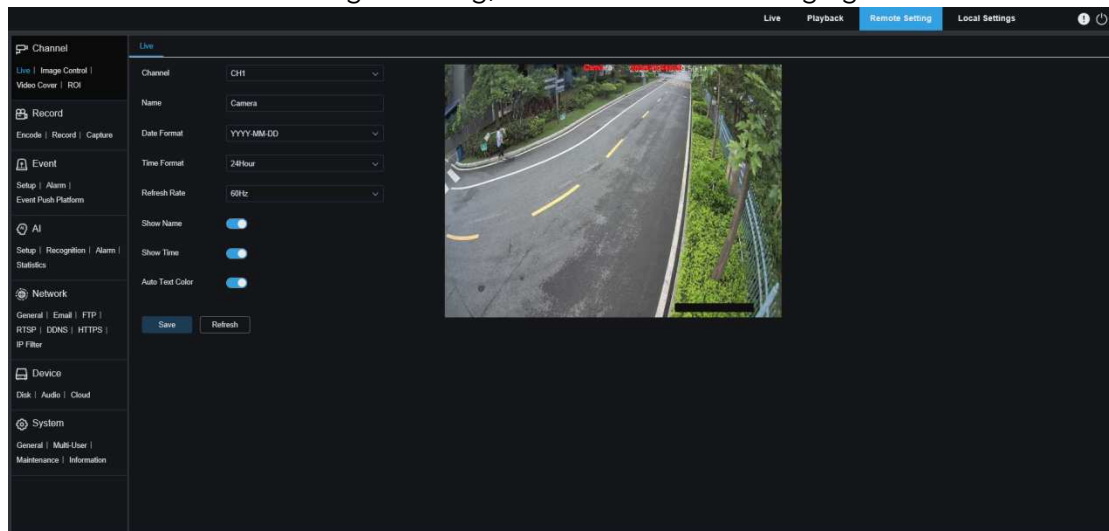
Channel: Users can select a channel and set parameters.

Name: Specifies a channel name.

Date Format: Used to set the date format displayed on the OSD of the camera. The options include MM/DD/YYYY, YYYY-MM-DD, and DD/MM/YYYY.

Time Format: Used to set the time format displayed on the OSD of the camera. The options include 12H and 24H.

Refresh Rate: Used to set the refresh rate of the camera. The options include 60 Hz and 50 Hz, corresponding to NTSC and PAL.

Show Name: Specifies the channel name in live view.

Show Time: Specifies the camera time in live view.

Auto Text Color: Adaptive display of OSD color of camera time and channel name. OSD characters switch between black and white according to image background to avoid unclear display.

Channel Name Display Location: Users can set where a channel name is displayed by dragging it over an image.

Time Display Location: Users can set where a channel time is displayed by dragging it over an image.

Alarm Statistic Display Location: Users can set whether alarm statistic is displayed by dragging it over an image. This setting is displayed only when the alarm statistic function is enabled.

Save: Save your changes.

Refresh: Refresh parameters on the current screen.

8.2 Image Control

Image control is to directly control and modify graphical parameters, such as color to

black mode, wide dynamic range, backlight compensation, as shown in the following figure.
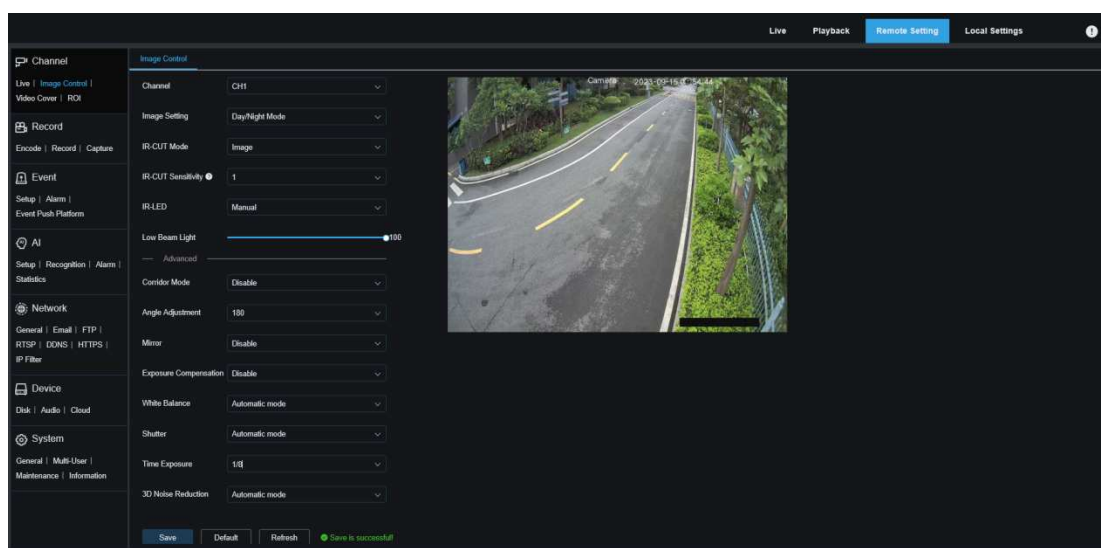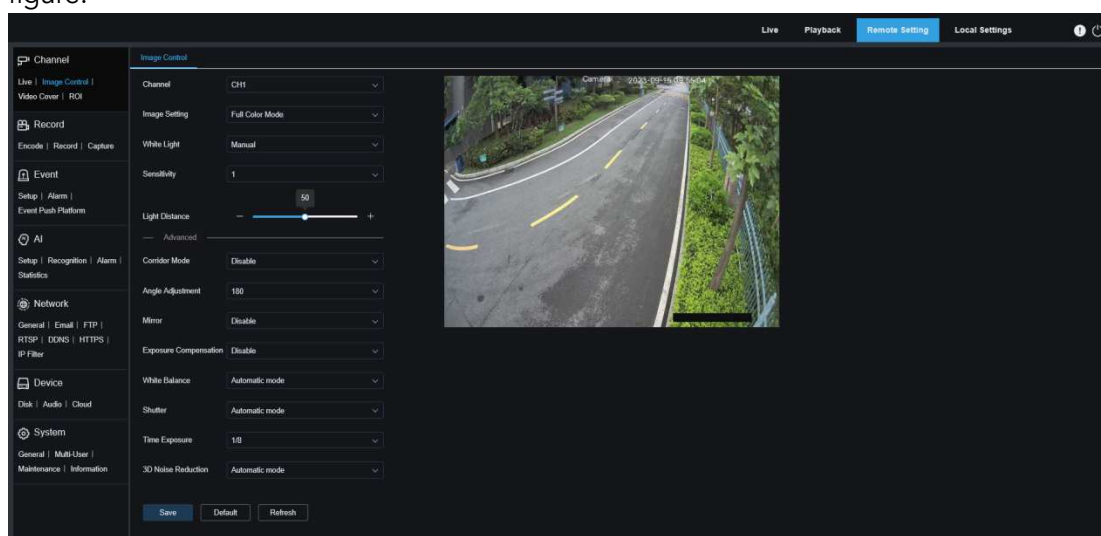
Channel: Users can select a channel and set parameters.

Image Setting: Used to set a camera image mode. There are three modes in total.

    Full Color Mode: The camera works in Full Color Mode.

    Day/Night Mode: The camera works in Day/Night Mode.

    Schedule: The camera works in Schedule Mode. Users can set the schedule to automatically switch between Full Color Mode and Day/Night Mode.

White Light: Used to set the supplementary lighting effect of the warm light in **Full Color Mode**. There are four modes in total.

    Automatic Mode: In this mode, the camera automatically adjust the intensity of the fill light according to ambient illumination.

    Manual: In this mode, the camera supplements the lighting effect at a fixed brightness value.

    Schedule: In this mode, users can set the schedule to automatically supplement the lighting effect by automatically turning on or off the warm light.

    OFF: Used to turn off the warm light.

Sensitivity: Specifies sensitivity 0-3, indicating the degree to which the camera senses

the ambient light. The higher the value is, the higher the sensitivity is.

Light Distance: Specifies value range 0-100. **White Light** is the adjusted brightness value of the fill light in **Manual** mode. The higher the value is, the higher the brightness is.

IR-CUT Mode: Set the day/night mode of the camera in **Day/Night Mode** mode. There are four modes in total.

> **Day:** Specifies Forced Color Mode without switching to B/W mode.
>
> **Night:** Specifies Forced B/W Mode without switching to color mode.
>
> **Image:** Similar to automatic mode, image control is used to switch between color to black and black to color mode (for non-photosensitive model).
>
> **Schedule:** Used to switch between B/W mode and color mode according schedule settings. Users need to set the start and end time to enter the night vision mode if this function is enabled.

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

> **SmartIR:** Used to intelligently control the light complement intensity of the IR light and dynamically control the light complement of the IR light according to focal length and framing overexposure.
>
> **Manual:** In this mode, users can manually fill light at the set intensity of the IR light.
>
> **OFF:** No light complement is available.

Low Beam Light: Users can manually adjust the brightness value of the IR light. (value range: 0-100. 0 indicates that the IR light is off and 100 indicates the highest brightness.)

Corridor Mode: Specifies the Corridor Mode.

Angle Adjustment: Specifies image rotation settings. Users can set this value to adjust an image to its horizontal positioning when it is upside down in some camera application scenarios.

Mirror: Used to set the Mirror Mode. There are four modes in total.

> **Disable:** Used to disable the Mirror Mode.
>
> **Vertical:** Specifies Mirror Mode in vertical direction to makes images on the screen swap up and down.
>
> **Horizontal:** Specifies Mirror Mode in horizontal direction to makes images on the screen swap left and right.
>
> **All:** Both **Vertical and Horizontal** are enabled. The resulting effect is similar to 180° rotation, but the implementation principle is different.

Exposure Compensation: Used to set how the program behaves when backlit. There are four modes, including:

> **WDR:** Specifies wide dynamic range. Users can make the entire screen balanced according to the **WDR Level** setting to clearly recognize both bright and dark areas.
>
> **HLC:** Specifies highlight compensation. Objects in the highlighted area on the screen can be recognized more clearly according to the **HLC Level** setting. (This function is unavailable in some models.)
>
> **Back Light:** The dark areas on the screen can be displayed more clearly according to the **BLC Level** and **BLC Area** settings.
>
> **Disable:** No exposure compensation optimization will apply on the image screen.

White Balance: Specifies white balance settings. There are two modes:

> **Automatic mode:** In this mode, default parameters will be used for white light

adjustment.

Manual: In this mode, users can manually set synthetic gained white light of red, green, and blue.

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

Automatic Mode: The program automatically select a proper exposure time according to the **Time Exposure** setting.

Manual: The current **Time Exposure** setting will be directly used.

Note: In Automatic mode, the Flickerless option is unavailable for exposure time. In Manual mode, the Flickerless option is available for exposure time. If users switch to the Automatic mode, the exposure time automatically switches to 1/100 or 1/120.

Time Exposure: Used with the Shutter function to set the exposure time. When the exposure time is set to a large value, the monitoring screen will be over exposed. The monitoring screen is dark when the exposure time is set to a low value.

3D Noise Reduction: Used to reduce image noise to make the screen more clear. There are three modes.

Automatic mode: The camera automatically selects the noise reduction effect based on algorithms.

OFF: The noise reduction function is disabled.

Manual: The noise is reduced according to the manually set noise reduction coefficient.

Save: Used to save edited image parameters.

Default: Used to restore image control parameters to default values.

Refresh: Used to refresh image parameters.

8.3 Video Cover

If users want to cover some specific areas in an image screen, this function enables users to create up to four private areas of any size at any locations. Enable this function and select the private areas to be enabled. The areas are covered with "red blocks". Users can click the edge of a red block and drag it to adjust to any size to create a privacy area.
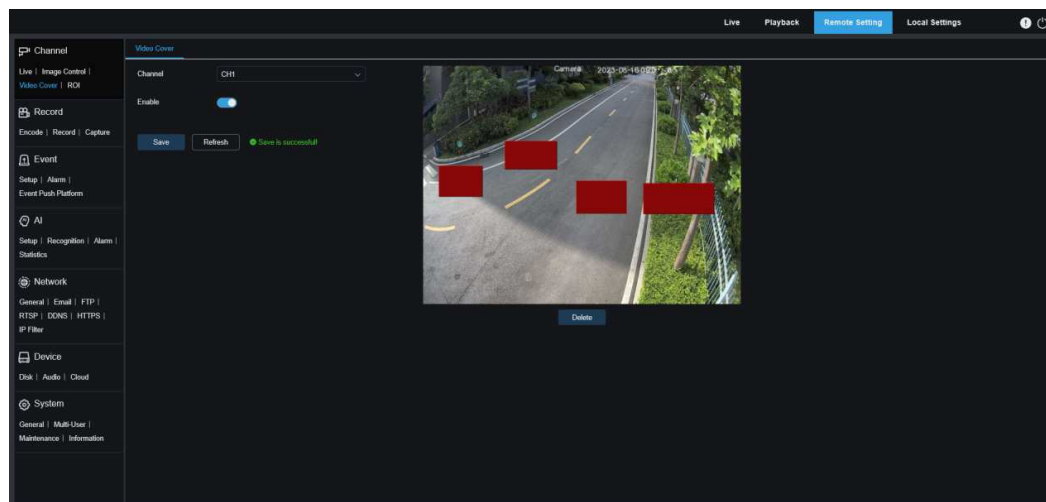
Channel: Users can select a channel and set parameters.

Enable: Used to enable the video cover function.

Cover Area Setting: Users can set up to four private areas which can be moved or stretched by users. The cover blocks are in red when setting and change to black after taking effect.

Delete: Used to delete selected cover blocks.

Note: When private areas are set, the images covered by private areas are invisible in live view and playback mode.

8.4 ROI

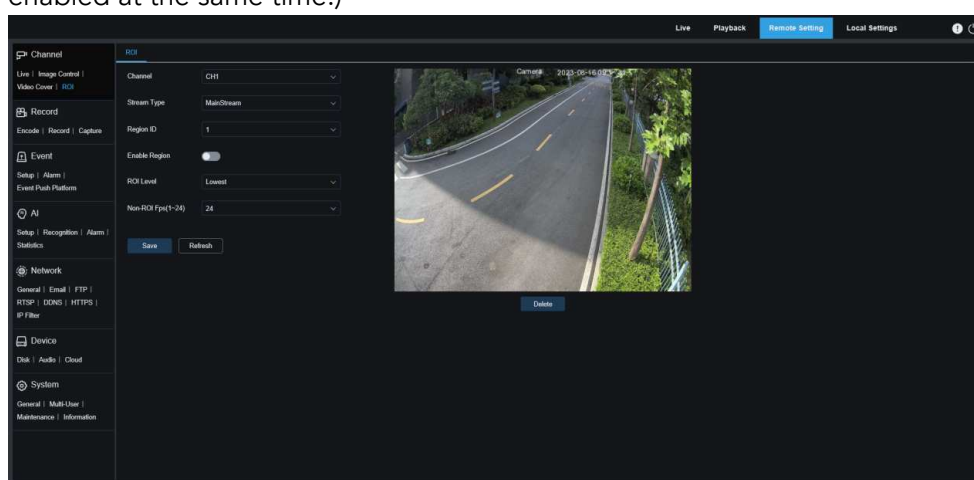ROI (sensitive area) is a region of interest selected from the video region. This region can be set with a frame rate and definition different from the non-selected region. (Note: This function is mutually exclusive with H.264+ and H.265+ coding, and cannot be enabled at the same time.)

Channel: Users can select a channel and set parameters.

Stream Type: Used to select the stream type you want to set.

Region ID: Used to set the region ID you want to set. Users can set up to eight regions.

Enable Region: Used to enable a region. The Region ID and Enable Region are independent for each region and need to be enabled, disabled, or set separately.

ROI Level: Used to set the quality of image in the region of interest. The higher the quality is, the higher definition the image is.

Non-ROI Fps: Used to set the frame rate outside the region of interest.

When Video Code Type is selected as H264+ or H265+, the ROI function is mutually exclusive with the function and cannot be enabled, as shown in the following figure.
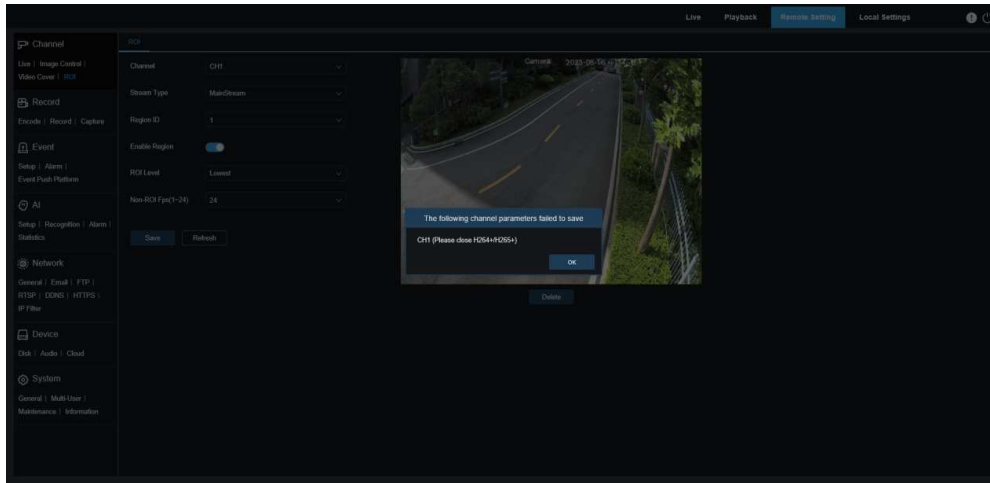
8.5 Record

In this menu, users can configure live view parameters and recording parameters.

8.5.1 Encode

In this menu, users can configure image quality parameters for video recording and network transmission. Generally, "MainStream" is the quality of video recordings that will be stored in the HDD, and "SubStream" is the quality of video recordings in live view via remote access (for example, Web client and CMS).
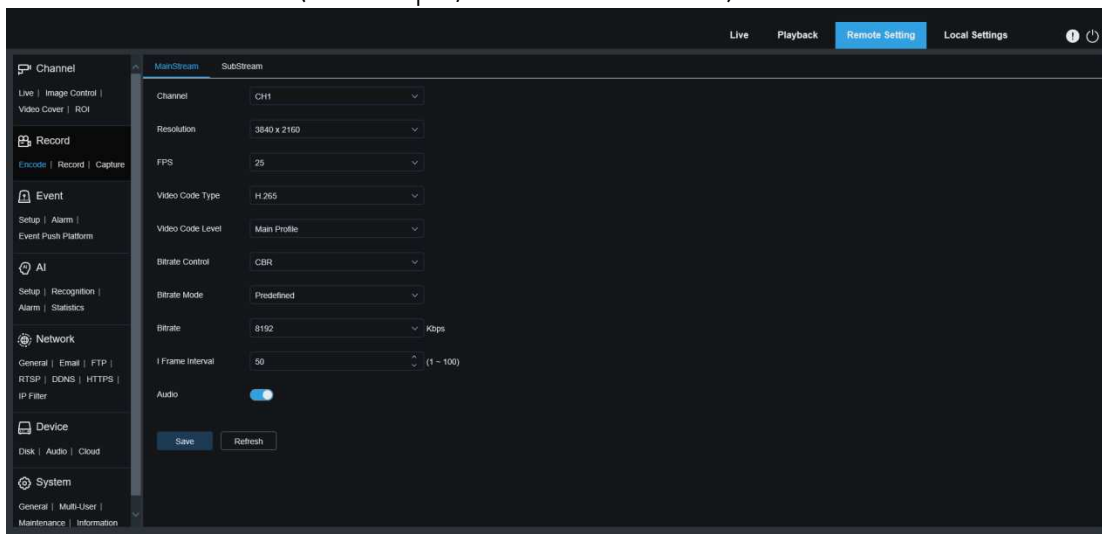
Channel: Users can select a channel and set parameters.
Resolution: Specifies the resolution of recorded images.
FPS: Specifies the frame rate of IPC recording.
Video Code Type: Specifies code type. The options include H.264, H.265, H.264+, H.265+, and MJPEG.
(The MJPEG mode exists only in Substream mode)
Video Code Level: Specifies video quality level. The options include Bestline, Main Profile, and High Profile.
(Only Main Profile is available for H.265 and H.265+.) Note: This option is unavailable in

MJPEG mode.

Bitrate Control: Specifies bit rate control level. For simple scenarios, for example, gray walls, constant bit rate (CBR) is recommended. For complicated scenarios, for example, busy streets, variable bit rate (VBR) is recommended.

Bitrate Mode: If you want to set the bit rate by yourself, please select the "User-defined" mode. If you want to select the predefined bit rate, please select the "Predefined" mode.

Bitrate: Specifies the data transfer rate of video recordings by IPC. Recordings of higher quality will be gained with higher bit rate.

I Frame Interval: Specifies the I frame interval of the camera.

Audio: Enable this option if you want to record both audio and video at a time and connect the MIC to the IPC or use a camera with the audio recording function.

8.5.2 Record

8.5.2.1 Record Parameters

In this menu, users can configure record parameters.
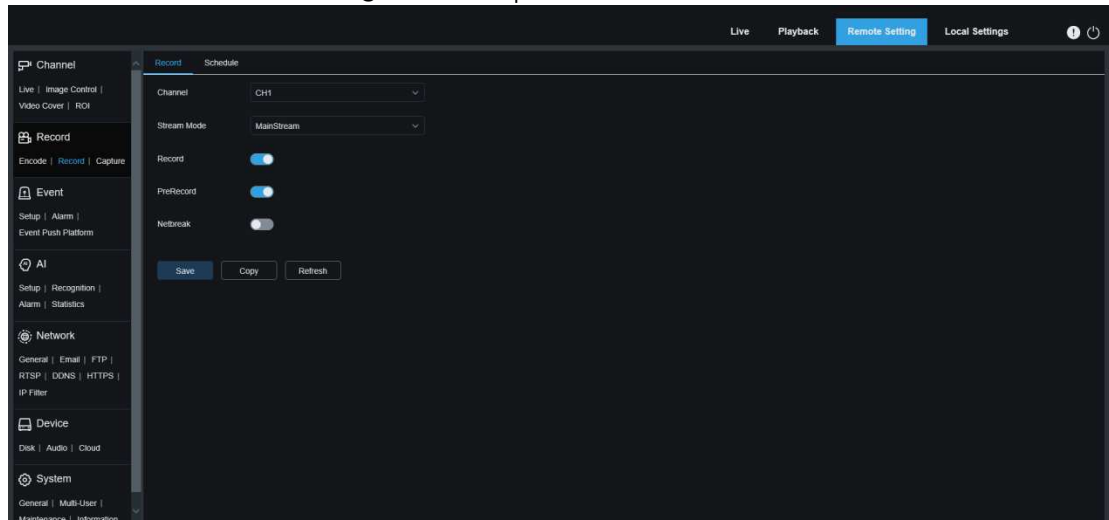
Channel: Users can select a channel and set parameters.

Stream Mode: Specifies the record mode, that is, the video stream to be saved in the SD card. MainStream is selected by default.

Record: Select to enable recording.

PreRecord: If this option is enabled, the IPC starts recording a few seconds before an alarm event occurs. This option is recommended if the recording type is mainly based on motion detection or I/O alarms.

Netbreak: When this option is enabled, events will be recorded even when the network is disconnected or network connection error occurs.

Copy: Users can copy the parameters of the current channel to other channels.

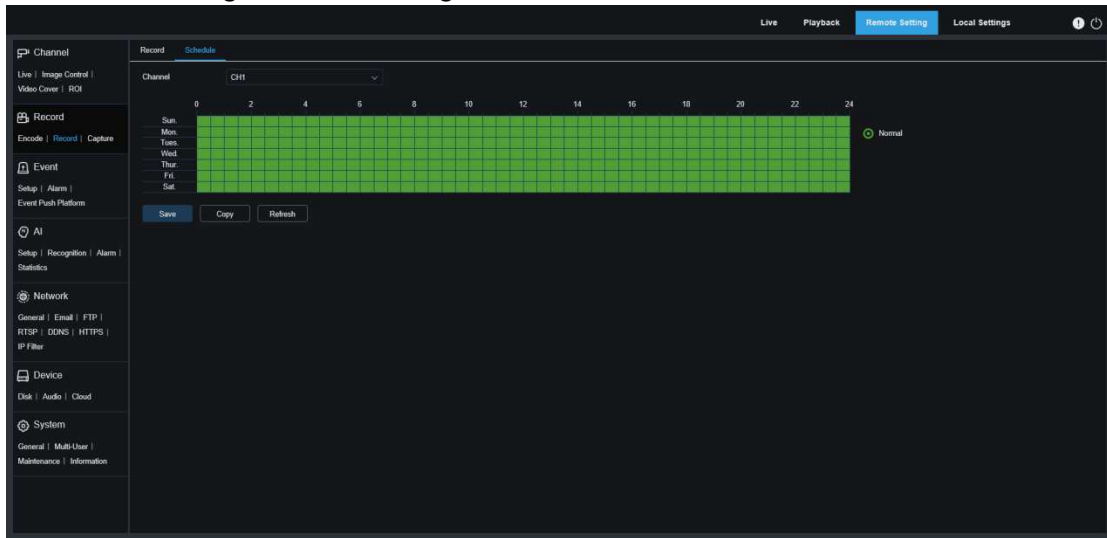### 8.5.2.2 Schedule

In this menu, users can specify when the IPC will record videos. Users can set recording plans in the schedules of different channels. Recording will be made only within the selected time range. Users can drag their cursors to mark areas.

8.5.3 Capture

8.5.3.1 Capture Settings

In this menu, users can configure automatic capture parameters.
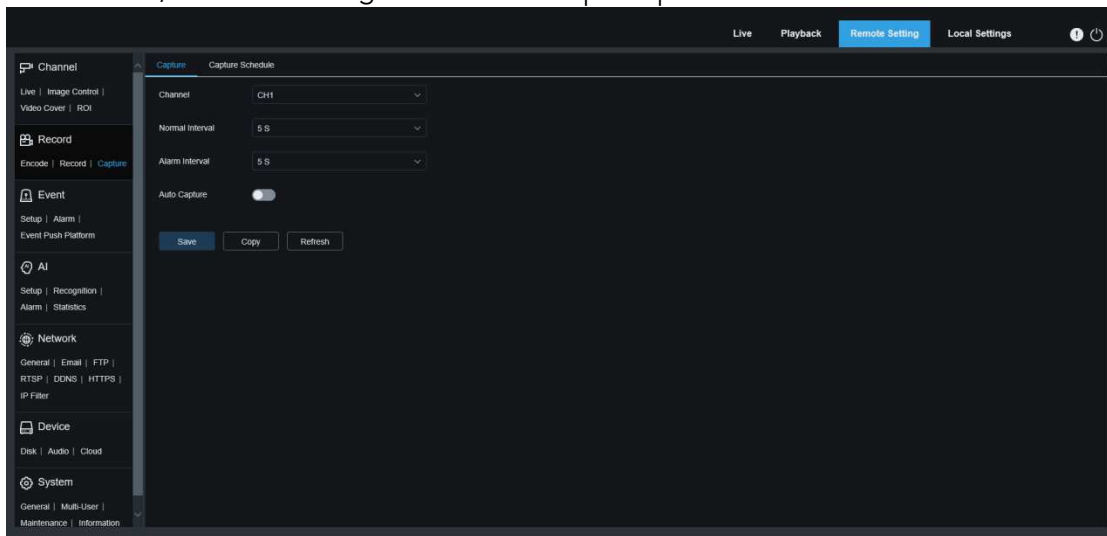
Channel: Users can select a channel and set parameters.

Normal Interval: Specifies the normal capture internal, that is, the capture interval in normal recording.

Alarm Interval: Specifies the alarm capture interval, that is, the capture interval during which motion detection and I/O alarm are triggered.

Auto Capture: Used to enable/disable auto capture.

8.5.3.2 Capture Schedule

Channel: Users can select a channel and set parameters.

Normal: When an area is marked in green, the channel normally captures images in the corresponding time range in this area.

Motion: When an area is marked in yellow, the channel captures images under motion detection in the corresponding time range in this area.

IO: When an area is marked in red, the channel normally captures images under I/O alarm in the corresponding time range in this area.

8.6 Event Setup

8.6.1 Setup

8.6.1.1 Motion

On this page, users can configure motion detection parameters. The camera will trigger a series of alarms when detecting the movement of detected objects in the monitoring screen. For example, the camera will send an email alarm together with images that trigger the alarm (if enabled) to the specified email address, or push a notification through a mobile app.
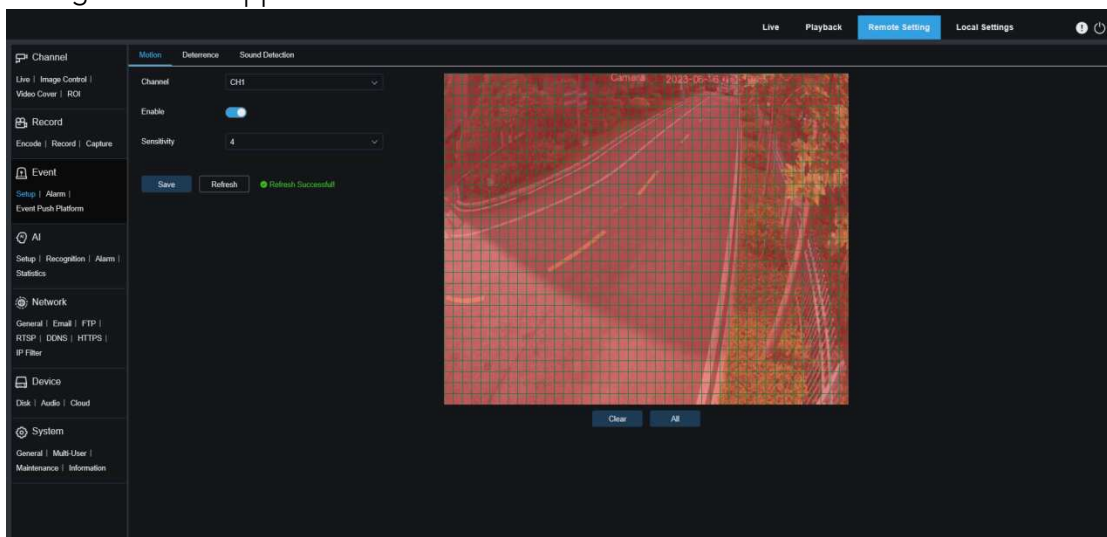
Users can drag their left mouse button to frame a detection area in the right window. Only motion in the area will trigger an alarm.

Channel: Users can select a channel and set parameters.

Enable: Used to enable or disable motion detection.

Sensitivity: Specifies the sensitivity of motion detection. The higher the value is, the higher the sensitivity.

8.6.1.2 White Light Deterrence

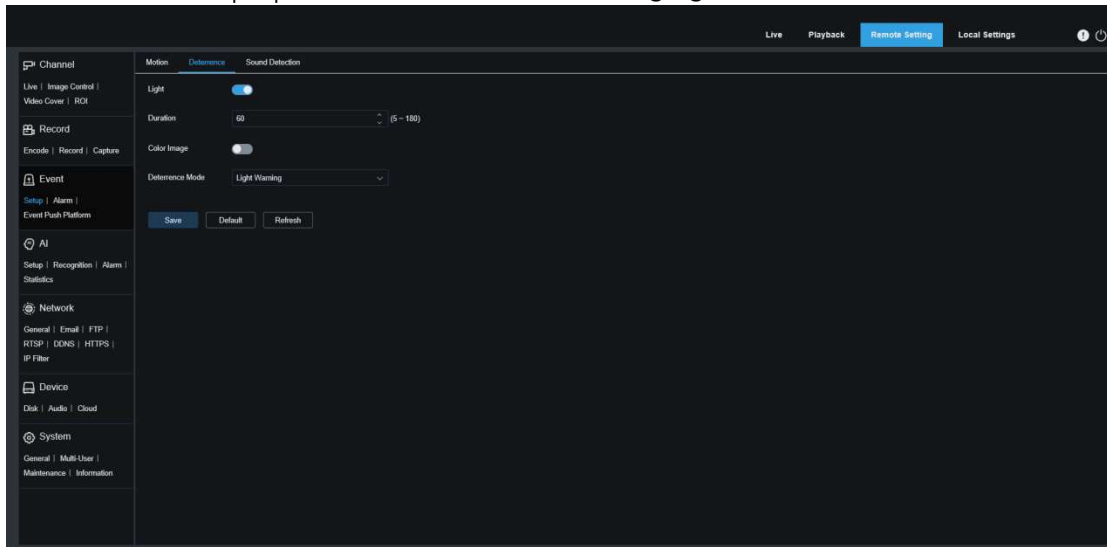When the camera supports white light, users can configure deterrence parameters in this menu. When a deterrence alarm is triggered, the white light will be automatically turned on for deterrence purpose. as shown in the following figure:

Note: When the camera supports white light and image control is set to Full Color Mode, the white light parameters are grayed out and unavailable. All parameters on this page can be set when image control is set to Day/Night Mode.

Light: Used to turn on or off a light alarm.

Duration: Specifies the duration for which the white light is turned on.

Color Image: Used to enable or disable Color Image. When this option is enabled, if the Day/Night Mode is switched to the Night Vision mode, when an alarm is triggered and white light deterrence is enabled, the image will switch to Color Mode and switch back to the Night Vision mode until white light deterrence ends.

Deterrence Mode: Used to set the white light mode. There are two modes:

> **Light Warning:** Steady-on mode, in which the white light is steadily on during deterrence.
>
> **Light Strobe:** Blink mode, in which the white light blinks at a set frequency during deterrence.

8.6.1.3 Sound Alarm

Users can set sound detection alarms and responses. An alarm is triggered when the camera detects the change to the connected audio and requirements set in alarm detection are met.
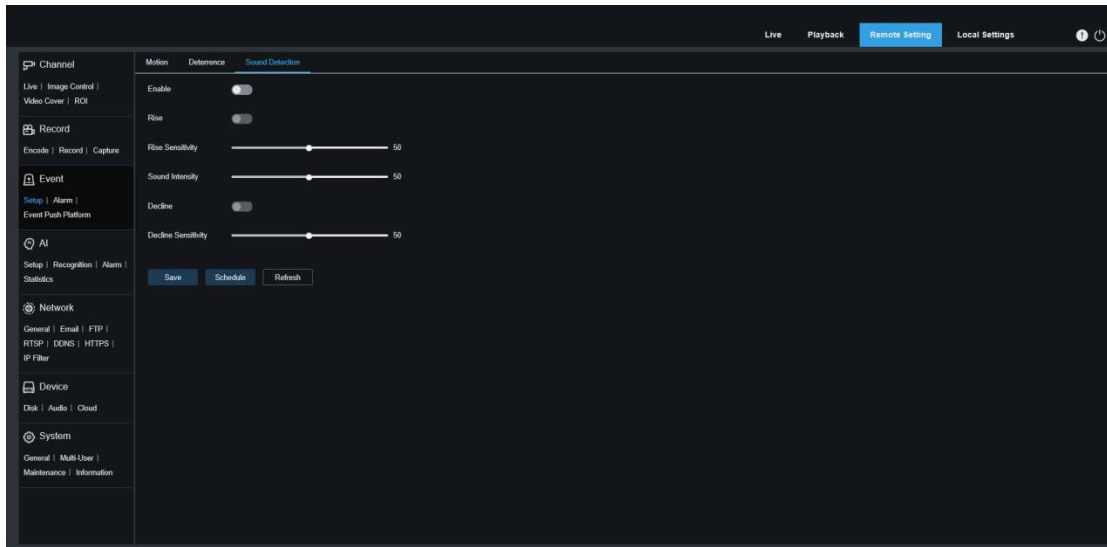
Enable: Used to enable or disable sound detection.

Rise: Volume rise switch. If this option is enabled, an alarm will be triggered only when the volume suddenly rises.

Rise Sensitivity: Specifies the sensitivity to trigger volume rise. The value ranges from 1 to 100. The higher the value is, the higher the sensitivity to volume rise is.

Sound Intensity: Specifies sound intensity. This setting specifies the sound threshold. The higher the threshold is, the higher the sound level is to trigger a rise alarm (value range 1-100).

Decline: Volume decline switch. If this option is enabled, an alarm will be triggered only when the volume suddenly declines.

Decline Sensitivity: Specifies the sensitivity to trigger volume decline. The value ranges from 1 to 100. The higher the value is, the higher the sensitivity to volume decline is.

Schedule: Specifies the schedule for sound alarms. All schedules are enabled by default. Users can customize the time range to trigger a sound alarm so that a sound alarm will be triggered only within the scheduled time.
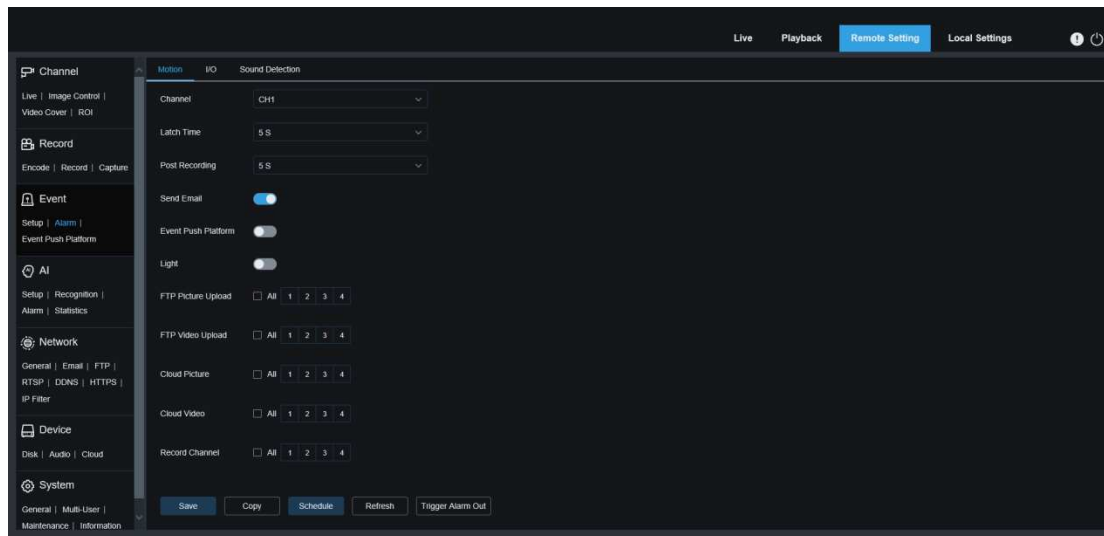

8.6.2 Alarm

In this menu, users can set actions to be executed when alarms are triggered.

8.6.2.1 Motion

Channel: Users can select a channel and set parameters.

Latch Time: Used to configure the time length an external alarm is triggered when motion is detected.

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

Post Recording: Users can set the recording duration of the camera after an event occurs. The options include 5 s, 10 s, 20 s, and 30 s. The default recording duration is 5 s and the maximum value is 30 s.

Send Email: If this option is enabled, the camera will automatically send an email to users when motion is detected.

Event Push Platform: If this option is enabled, the information of this type will be pushed to the client when an alarm is triggered.

Light: When this option is enabled, the white light will be turned on for deterrence when an alarm is triggered.

FTP Picture Upload: Alarm pictures will be uploaded to the FTP server according to selected channels when an alarm is triggered.

FTP Video Upload: Alarm videos will be uploaded to the FTP server according to selected channels when an alarm is triggered.

Cloud Picture: Alarm pictures will be uploaded to the cloud storage platform according to selected channels when an alarm is triggered.

Cloud Video: Alarm videos will be uploaded to the cloud storage platform according to selected channels when an alarm is triggered.

Record Channel: Recordings of this type will be recorded according to selected channels when an alarm is triggered.

Copy: Users can copy the parameters of the current channel to other channels.

Schedule: Used to set schedules of alarm actions. A series of alarm actions will be triggered only within the schedule time.

Trigger Alarm Out: Used to enable outputting of alarm signals through the I/O interface when an alarm is triggered.

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8.6.2.2 I/O Alarm

This function is optional. This function is available only when the camera supports an I/O sensor and is connected to an external I/O alarm device.
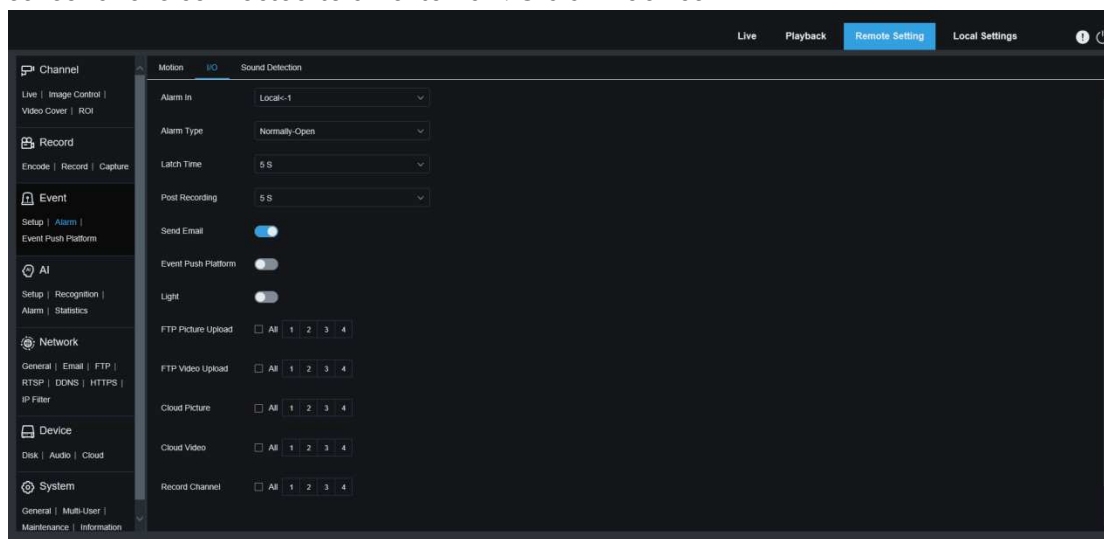
Alarm In: Users can select Local<-1 or Local<-2 to generate an alarm.

Alarm Type: The options include Normally-Open, Normally-Closed, and Off. Select a type that matches the user's sensor, or select "Off" to turn off the sensor trigger feature.

Latch Time: Used to configure the time length an external alarm is triggered when an I/O alarm is detected.

Post Recording: Users can set the recording duration of the camera after an event occurs. The options include 5 s, 10 s, 20 s, and 30 s. The default recording duration is 5 s and the maximum value is 30 s.

Send Email: If this option is enabled, the camera will automatically send an email to users when an I/O alarm is detected.

Event Push Platform: If this option is enabled, the information of this type will be pushed to the client when an alarm is triggered.

Light: When this option is enabled, the white light will be turned on for deterrence when an alarm is triggered.

FTP Picture Upload: Alarm pictures will be uploaded to the FTP server according to selected channels when an alarm is triggered.

FTP Video Upload: Alarm videos will be uploaded to the FTP server according to selected channels when an alarm is triggered.

Cloud Picture: Alarm pictures will be uploaded to the cloud storage platform according
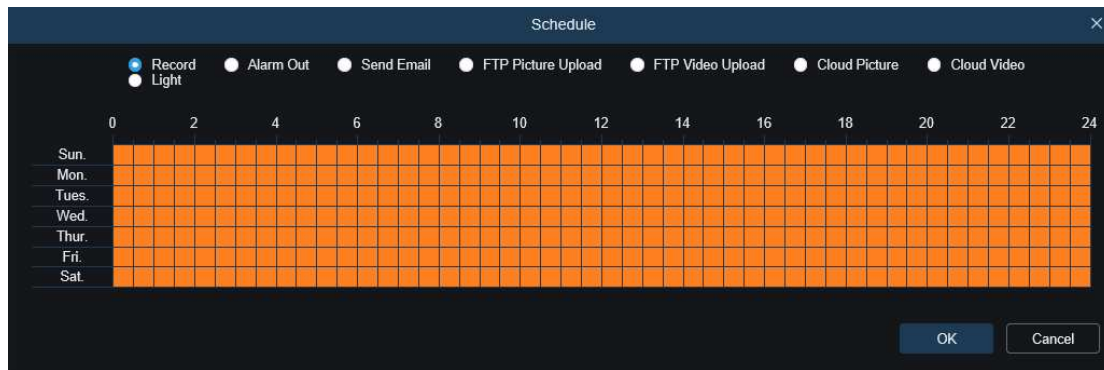
to selected channels when an alarm is triggered.

Cloud Video: Alarm videos will be uploaded to the cloud storage platform according to selected channels when an alarm is triggered.

Record Channel: Recordings of this type will be recorded according to selected channels when an alarm is triggered.

Copy: Users can copy the parameters of the current channel to other channels.

Schedule: Used to set schedules of alarm actions. A series of alarm actions will be triggered only within the schedule time.

Trigger Alarm Out: Used to enable outputting of alarm signals through the I/O interface when an alarm is triggered.

8.6.2.3 Sound Alarm
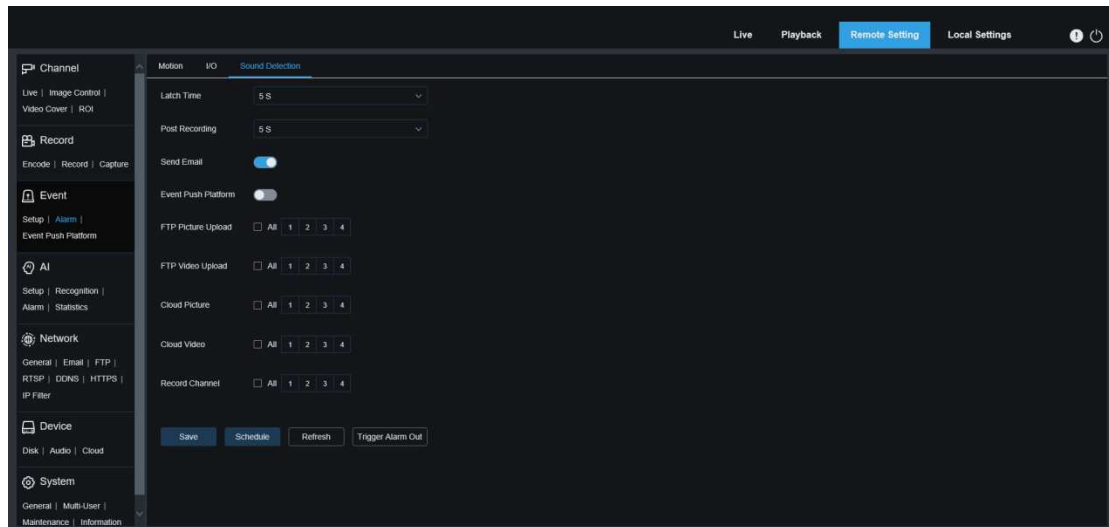
Latch Time: Used to configure the time length an external alarm is triggered when a sound alarm is detected.

Post Recording: Users can set the recording duration of the camera after an event occurs. The options include 5 s, 10 s, 20 s, and 30 s. The default recording duration is 5 s and the maximum value is 30 s.

Send Email: If this option is enabled, the camera will automatically send an email to users when a sound alarm is detected.

Event Push Platform: If this option is enabled, the information of this type will be pushed to the client when an alarm is triggered.

FTP Picture Upload: Alarm pictures will be uploaded to the FTP server according to selected channels when an alarm is triggered.

FTP Picture Video: Alarm videos will be uploaded to the FTP server according to selected channels when an alarm is triggered.

Cloud Picture: Alarm pictures will be uploaded to the cloud storage platform according to selected channels when an alarm is triggered.

Cloud Video: Alarm videos will be uploaded to the cloud storage platform according to selected channels when an alarm is triggered.

Record Channel: If the option is checked, recordings of this type will be recorded according to selected channels when an alarm is triggered.

Schedule: Used to set schedules of alarm actions. A series of alarm actions will be triggered only within the schedule time.
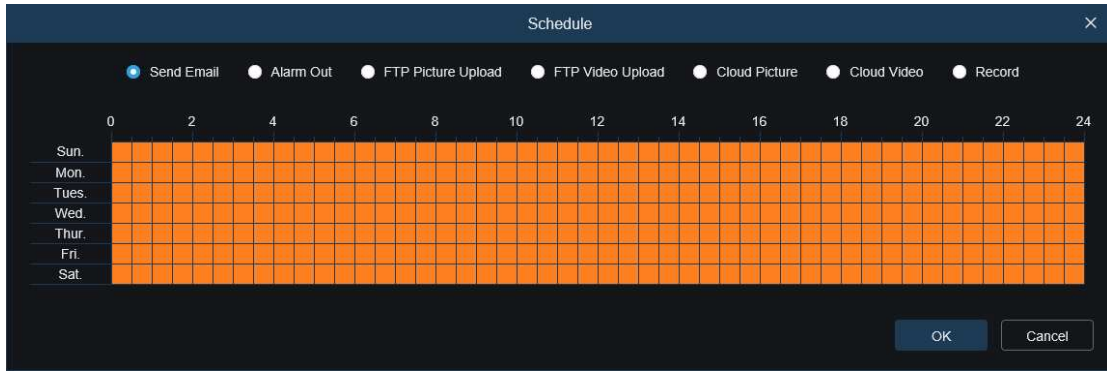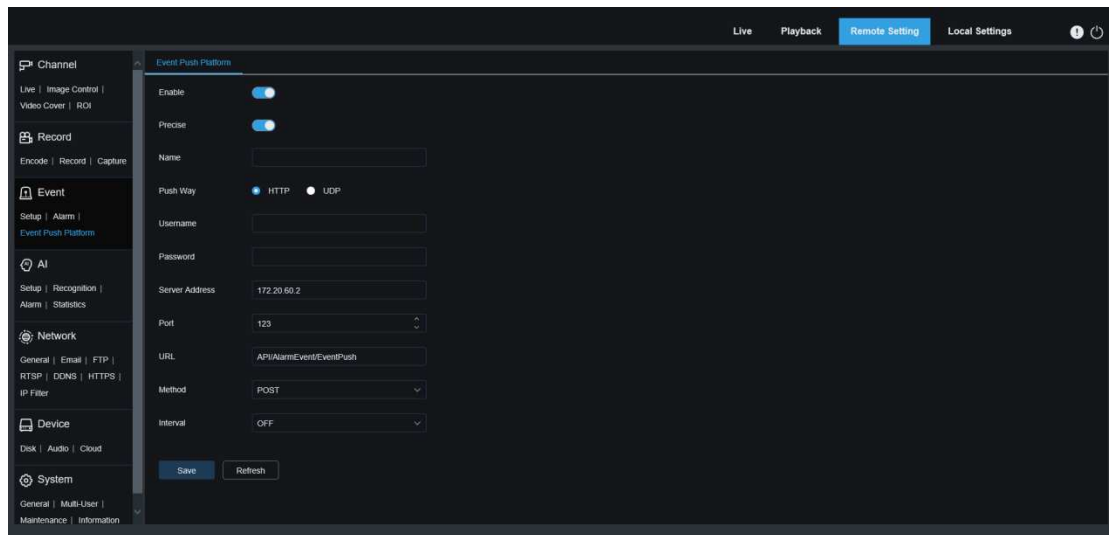
Trigger Alarm Out: Used to enable outputting of alarm signals through the I/O interface when an alarm is triggered.

8.6.3 Event Push Platform

Events are pushed through HTTP or UDP. The HTTP method includes POST and GET and the UDP method includes unicast, multicast, and broadcast. (Note: The event push function is available for some models.)

8.6.2.1 HTTP Push

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

Precise: Enable or disable. If this option is enabled, the start time and end time will be pushed when an event is triggered.

Name: Specifies channel name. Chinese characters are not supported.

Push Way: Specifies the way of push. The options include HTTP and UDP and users can check the HTTP or UDP option as needed.

Username: Specifies the username. This field can be null if no name is available.

Password: Specifies the password. This field can be null if no password is available.

**Server Address:** Specifies the IP address of the server.

Port: Specifies the port number of the server. (Port No. range: 1 to 65535)

URL: Specifies server API. This field can be null if no API is available.

Method: Specifies the HTTP method. The options include POST and GET: Images can be pushed only when the HTTP-POST method is selected. In other mode, only messages without images are pushed. The alarm type regarding images is the same as that in the alarm push bar in live view on the Web client.

Interval: Specifies the keepalive interval. The keepalive mechanism periodically pushes a message to the client at the set time without affecting normal alarm push. No keepalive mechanism is available in UDP.

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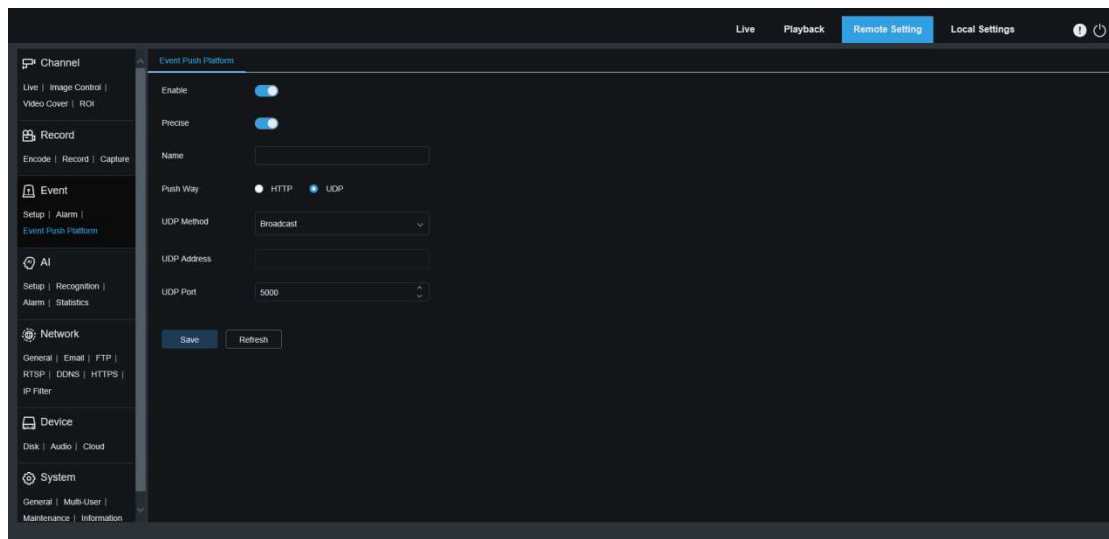
Enable: Used to enable or disable the event push function.

Precise: Enable or disable. If this option is enabled, the start time and end time will be pushed when an event is triggered.

Name: Specifies channel name. Chinese characters are not supported.

Push Way: Specifies the way of push. The options include HTTP and UDP and users can check the HTTP or UDP option as needed.

UDP Method: Specifies the type of UDP push. The options include Unicast, Multicast, and Broadcast.

> **Unicast:** Users can receive push messages simply by enter the IP address and port number of the UDP server on the client and only this address can receive messages.
>
> **Multicast:** Multiple UDP servers on the client using the same UDP address and port number in the same network segment will receive messages while addresses other than this UDP address will not receive messages.
>
> **Broadcast:** All UDP servers in the network segment will receive messages.

UDP Address: Specifies the IP address of a UDP server.

UDP Port: Specifies the port number of a UDP server (value range: 1 to 65535).

8.7 AI

8.7.1 Setup

To enable AI alarm for the camera, you need to enable the corresponding alarm functions in the Setup menu. Enabled functions consume the computing power of the camera. Due to performance restrictions, Heat Map can be enabled together with other functions and Line Crossing can also be enabled together with Intrusion, Region Entrance, and Region Exiting, while Object Detection, Face Detection, Pedestrian&Vehicle, Cross Counting, Crowd Density, Queue Length, and License Plate cannot be enabled at the same time.

8.7.1.1 Face Detection

The face detection function operates by detecting face objects through the camera to obtain captured images matching set conditions, then calculating the face feature data of the captured images using the face model algorithm, and finally comparing these images with face images in the face database to generate alarms. You need to enable the face detection function first.
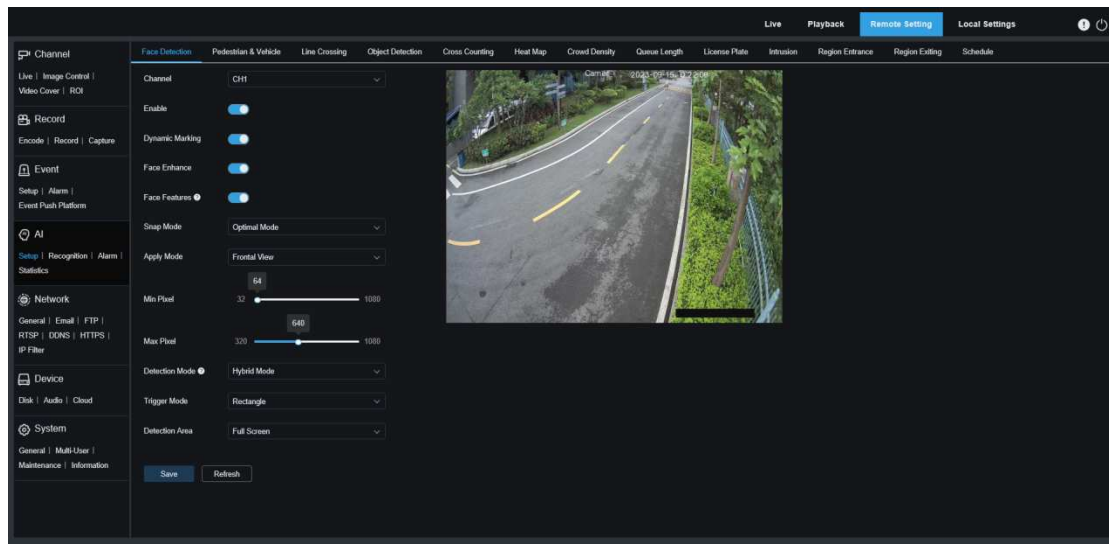
Channel: Users can select a channel and set parameters.

Enable: Used to enable or disable face detection.

Dynamic Marking: Displays a face detection box and is used to turn on or off the detection rule line.

Face Enhance: Face enhancement switch used to improve the capture effect of moving objects. Meanwhile, you can use this function to adjust the brightness of the recognized face closest to the camera and optimize the capture effect.

Face Features: Used to recognize the attributes of captured face images including age, gender, mask, glasses, and facial expression. Note: This function needs to be enabled to use the AD alarm.

Snap Mode: Used to set Snap Mode. Users can enable push notifications in live view or connect an NVR to check the push effect. Three snap modes are supported, including:

    Optimal Mode: The camera detects an object until it disappears, and only pushes an image that the camera thinks best when the object disappears.

    RealTime Mode: The camera detects an object and pushes an image in real time,

and pushes an image again that the camera thinks best when the object disappears.

Interval Mode: Users can set the snap number and snap frequency as needed. The options for Snap Num include 1, 2, 3, and unlimited, and the value range for Snap Frequency is 1 to 255. For example, if 5 s is set, a push action will be initiated at 5 s, 10 s and 15 s when an object is detected.

Apply Mode: Used to filter captured images. That is, only captured images matching angle setting will be pushed. There are three modes, including:

Frontal View: Only captured images with frontal view of an object will be pushed.

Multi Angle: Captured images with only side view of an object detected can also be pushed.

Customize: Users can customize the angle of an object to be pushed. If this function is enabled, Roll Range, Pitch Range, Yaw Range, and Picture Quality options, as well as Frontal Default and Multi Default buttons will become available.

Roll Range: Specifies the roll range of an face image in the 3D model. When the angle does not conform to the set limit, face detection can be made but no push action will not be performed.

Pitch Range: Specifies the pitch range of an face image in the 3D model. When the angle does not conform to the set limit, face detection can be made but no push action will not be performed.

Yaw Range: Specifies the yaw range of an face image in the 3D model. When the angle does not conform to the set limit, face detection can be made but no push action will not be performed.

Picture Quality: High-quality images are beneficial to filter out non-face images that are incorrectly detected.

Frontal Default Apply Mode: This control displays when Customize is selected. Set the angle value of the image to be pushed as follows: Roll Range: 30, Pitch Range: 30, Yaw Range: 45, and Picture Quality: 100.

Multi Default Apply Mode: This control displays when Customize is selected. Set the angle value of the image to be pushed as follows: Roll Range: 180, Pitch Range: 180, Yaw Range: 180, and Picture Quality: 100.

Min Pixel: Used to set the minimum recognition pixel box. Only faces greater than the set pixel can be recognized.

Max Pixel: Used to set the maximum recognition pixel box. Only faces lower than the set pixel can be recognized.

Detection Mode: Filters the performance of detected objects in the camera. There are two modes, including:

Hybrid Mode: All objects in the screen are subject to face detection.

Motion Mode: Motionless faces, for example, portraits and statues in the scene, will be filtered out.

Trigger Mode: Used to set the type of detection rule line. There are two options.

Rectangle: Only face objects in the set area will be detected.

Line: Face objects will be tracked only when the detection line is crossed according to settings.

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

Full Screen: All monitoring areas that can be reached by the camera will be
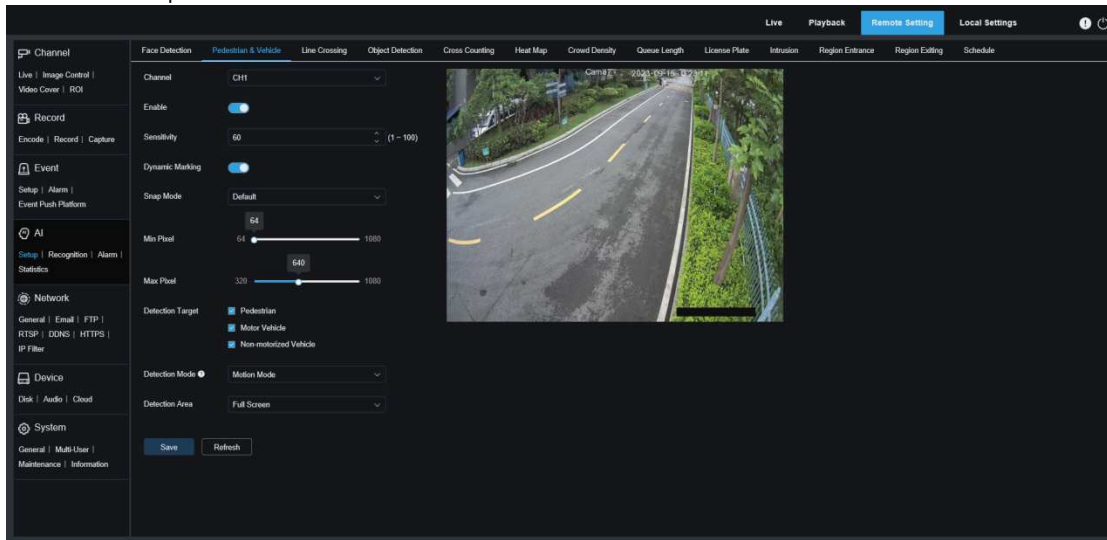
detected.

User-defined: Only areas set in Customize by users will be detected.

Rule Type: This setting option is available only in line crossing detection mode. There are two detection trigger modes, namely, A→B and B→A.

Rule Line Setting Area: Users can set a quadrilateral detection area in this area or detection triggering line according to parameter setup.

8.7.1.2 Pedestrian&Vehicle

The pedestrian and vehicle detection function is used to recognize pedestrians and vehicles in the screen, generate alarms, and record captured images according to function setup.

Channel: Users can select a channel and set parameters.

Enable: Used to enable or disable the pedestrian & vehicle detection function.

Sensitivity: The higher the detection sensitivity, the better the pedestrian or vehicle can be detected, but the higher the false alarm rate.

Dynamic Marking: Displays a pedestrian & vehicle detection box and is used to turn on or off the detection rule line.

Snap Mode: Used to set Snap Mode. Users can enable push notifications in live view or connect an NVR to check the push effect. Three snap modes are supported, including:

> **Default:** The camera detects an object until it disappears, and only pushes a pedestrian or vehicle image when the object disappears.
> **RealTime Mode:** The camera detects an object and pushes an image in real time, and push an image again when the object disappears.
> **Interval Mode:** In this mode, images will be pushed at the set number according to the set time interval.
> When Snap Mode is selected as Interval Mode, the Snap Num and Snap Frequency setting options are available.
> **Snap Num:** The camera pushes images of the same object 1, 2, 3, or unlimited times according to the interval set in Snap Frequency.
> **Snap Frequency:** Images will be pushed according to the set time when an object appears or since the last push time.

Min Pixel: Used to set the minimum recognition pixel box. Only pedestrians and vehicles greater than the set pixel can be recognized.

Max Pixel: Used to set the maximum recognition pixel box. Only pedestrians and vehicles lower than the set pixel can be recognized.

Detection Target: The options include Pedestrian, Motor Vehicle, Non-motorized Vehicle, and All.

Detection Mode: Used to filter behaviors of objects in the detection area. There are two modes.

Hybrid Mode: All pedestrians or vehicles in the screen will be detected.

Motion Mode: Motionless pedestrians or vehicles will be filtered out.

**Detection Area:** Specifies detection area settings. There are two modes.

Full Screen: All monitoring areas that can be reached by the camera will be detected.

User-defined: Only areas set in Customize by users will be detected.

Rule Line Setting Area: Users can set objects to be detected in this area when users customize a detection area.

8.7.1.3 Line Crossing

The line crossing detection function detects pedestrians or vehicles crossing the set virtual line. An alarm is triggered when a specific object crosses the predefined detection line.
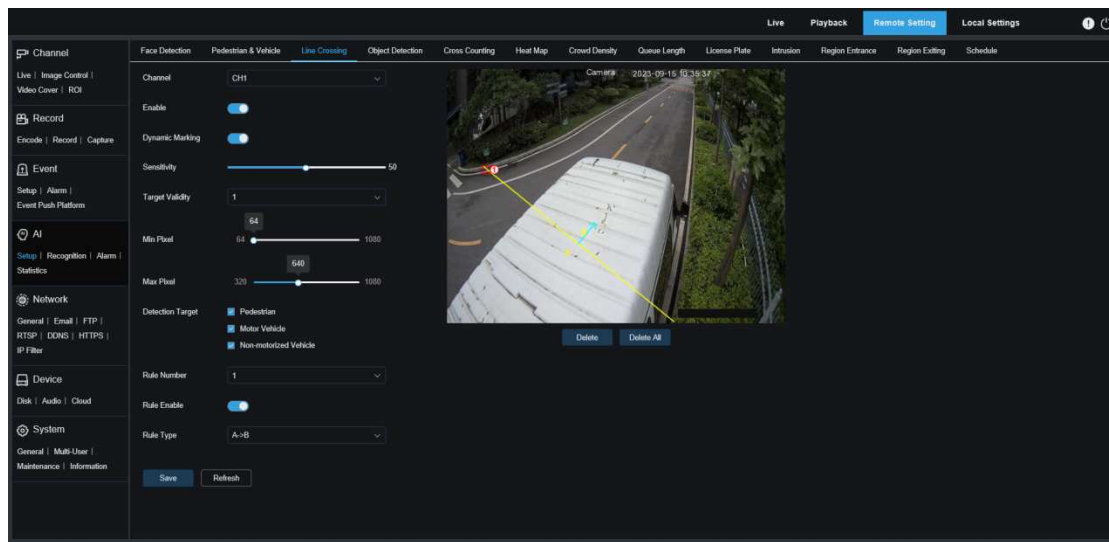
Channel: Users can select a channel and set parameters.

Enable: Used to enable or disable the line crossing detection function.

Dynamic Marking: Displays a detection box and is used to turn on or off the detection rule line.

Sensitivity: Users can set this parameter to filter out small disturbing objects. The higher the sensitivity, the smaller the objects can be detected.

Target Validity: Specifies the confidence level of an object, that is, the similarity between the object and the set detection type. An alarm will be triggered only when the similarity setting is reached or exceeded. The higher the setting, the higher the similarity requirement, the more obvious the desired object feature, and the higher the alarm accuracy. The value ranges from 1 to 4, and 1 indicates the highest confidence level. The similarity for a detection object is 80%, 60%, 40%, and 20% corresponding to confidence level 1, 2, 3, and 4.

Detection Target: Used to set objects subject to perimeter intrusion detection.

Pedestrian: A perimeter intrusion alarm will be triggered only for pedestrian objects.

Motor Vehicle: A perimeter intrusion alarm will be triggered only for motor vehicle objects.

Non-motorized Vehicle: A perimeter intrusion alarm will be triggered only for non-motorized vehicles.

Rule Number: Specifies a rule line number. The LCD function enables you to set four detection rule lines.

Rule Enable: Used to turn on or off rule lines. Each rule line has an independent enable switch associated with the currently selected Rule Number.

Rule Type: Specifies the rule to trigger a rule line. The options include A→B, B→A, and A←→B. The setting is related to the currently selected Rule Number.

Rule Line Setting Area: Users can set, modify, or display edited rule lines.

Delete: Used to delete selected rule lines in the rule line setting area.

Delete All: Used to delete all rule lines.

8.7.1.5 Object Detection

Salient object detection. An alarm will be generated when belongings left behind or lost are detected in the monitored scene.
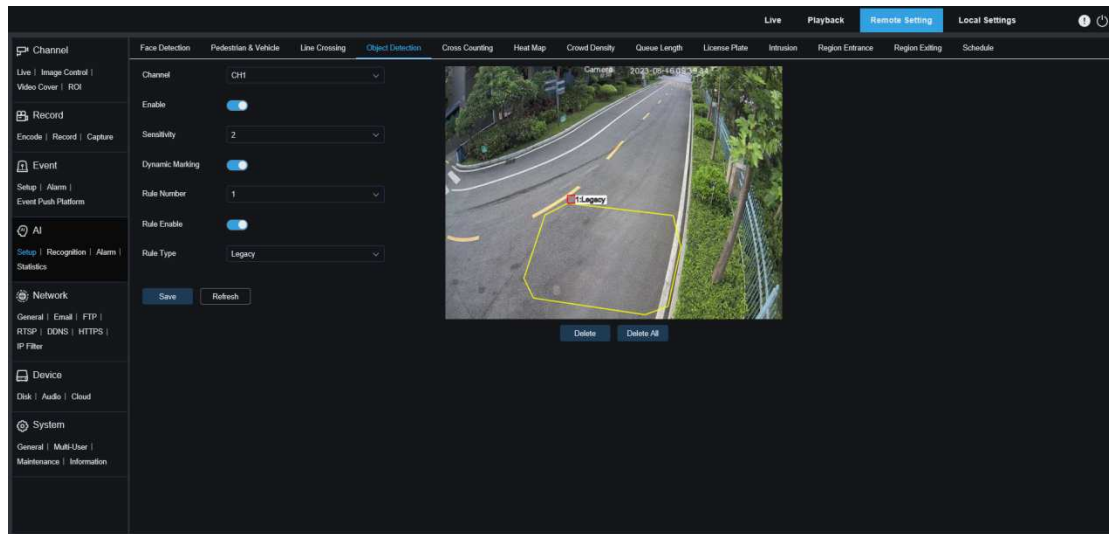
Channel: Users can select a channel and set parameters.

Enable: Used to enable the SOD function.

Sensitivity: Users can set this parameter to filter out small disturbing objects. The higher the sensitivity, the smaller the objects can be detected.

Dynamic Marking: Displays a detection box and is used to turn on or off the detection rule line.

Rule Number: Specifies a rule line number. The LCD function enables you to set four detection rule lines.

Rule Enable: Used to turn on or off rule lines. Each rule line has an independent enable switch associated with the currently selected Rule Number.

Rule Type: Specifies the rule to trigger a rule line. Users can set legacy or lost alarm in the detection area. The options include Legacy, Lost, and Lost & Legacy. The setting is related to the currently selected Rule Number.

Rule Line Setting Area: Users can set, modify, or display edited rule lines.

Delete: Used to delete selected rule lines in the rule line setting area.

Delete All: Used to delete all rule lines.

8.7.1.6 Cross Counting

The cross counting (CC) function records crossing data of a specific object in the monitored area. Set a crossing line, two sides of which are area A and area B. For example, if A→B is selected as the triggering rule, when an object enters area A, crosses the detection line, and leaves area B, the in counter increases by 1; when an object enters area B, crosses the detection line, and leaves area A, the out counter increases by 1. An alarm will be triggered only when the in count minus the out count is greater than or equal to Alarm Number when counting increases. The following figure shows the screen.
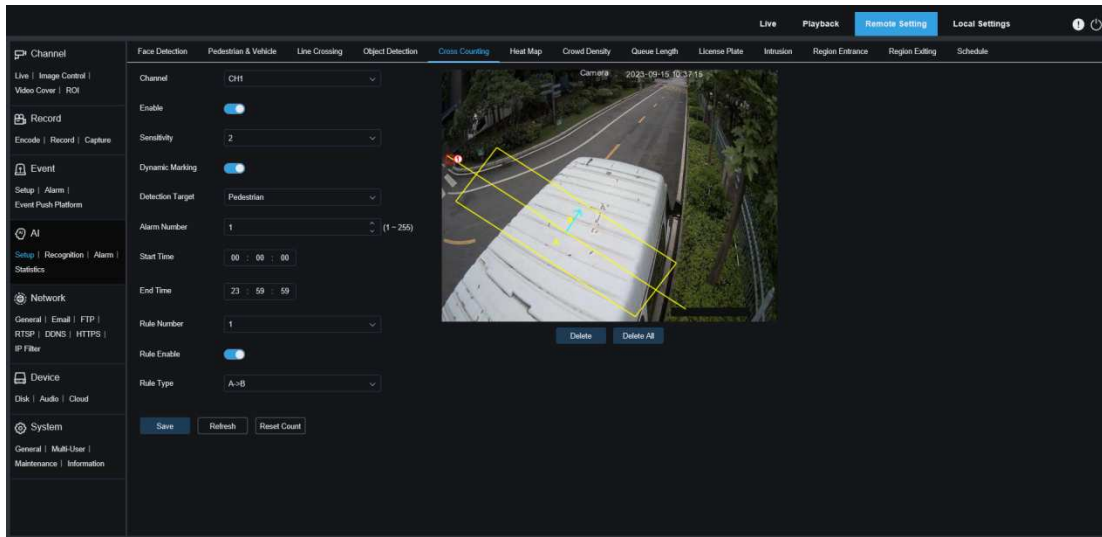
Channel: Users can select a channel and set parameters.

Enable: Used to enable cross counting (CC).

Sensitivity: Users can set this parameter to filter out small disturbing objects. The higher the sensitivity, the smaller the objects can be detected. It can also be used to detect distant objects in the scene.

Dynamic Marking: Displays a detection box and is used to turn on or off the detection rule line.

Detection Target: Used to set the type of objects to be recognized by CC detection. There are three modes. The switch and save action will clear the current counter.

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

   Pedestrian: Only pedestrian objects will be recognized.

   Motor Vehicle: Only motor vehicle objects will be recognized.

   Non-motorized Vehicle: Only non-motorized vehicle objects will be detected.

Alarm Number: Used to set the condition to trigger an alarm. The camera will trigger a CC alarm when the trigger counter is updated and the in count minus the out count is greater than or equal to the current setting.

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

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

Rule Number: Specifies rule line number. Only one rule line is supported for CC detection.

Rule Enable: Used to turn on or off the rule line for the current rule number.

Rule Type: Used to set the increment direction of the in and out counters. The options include A→B and B→A. For example, when A→B is selected, the in count increases when a monitored object enters area A and leaves area B, and the out count increases when a monitored object enters area B and leaves area A.

Reset Count: Used to clear the current counter.

Line-crossing Setting Area: Used to set the rule line in this area subject to CC detection.

Count Area: Displays the CC detection counter. Adjust the display location by referring to Section 8.1.

8.7.1.7 Heat Map

Users can set all areas or a specified area in the heat map to detect the activity information in the specified area. In addition, users can save and upload changes at an interval of 10 minutes. A heat map report enables users to intuitively view people distribution in terms of time or space to identify regional activities in the scene. This function is for data recording and will not trigger an alarm.
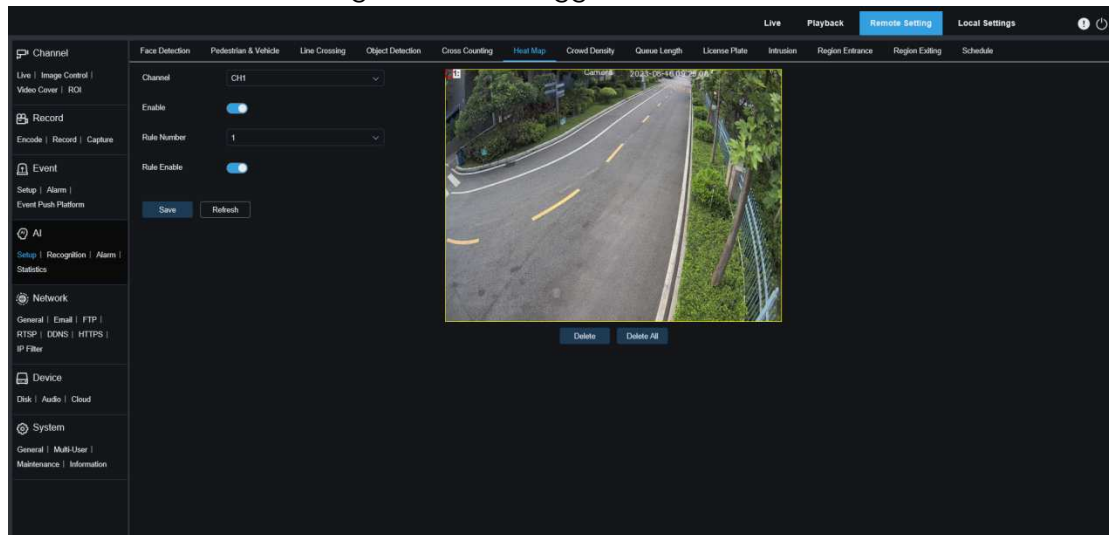
Channel: Users can select a channel and set parameters.

Enable: Used to enable heat map (HM).

Rule Number: Specifies rule line number. Only one rule line is supported for heat map.

Rule Enable: Used to turn on or off the rule line for the current rule number.

Surveillance Area Setting: Used to set the area that a heat map will apply. All areas are selected by default.

8.7.1.8 Crowd Density

The crowd detection function recognizes people in the surveillance area according to head count by the pedestrian recognition function and makes statistics. An alarm will be triggered when the preset people number is exceeded.
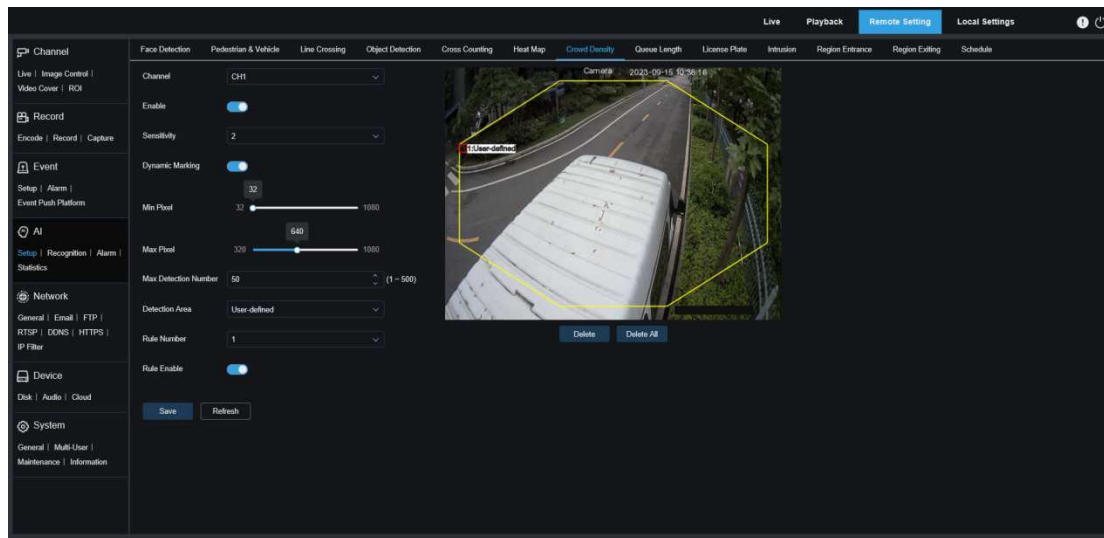
Channel: Users can select a channel and set parameters.

Enable: Used to enable crowd detection.

Sensitivity: Users can set this parameter to filter out small disturbing objects. The higher the sensitivity, the smaller the objects can be detected.

Dynamic Marking: Displays a detection box and is used to turn on or off the detection rule line.

Min Pixel: Objects in the screen with heads smaller than the setting will be filtered out based on the 1080 resolution.

Max Pixel: Objects in the screen with heads greater than the setting will be filtered out based on the 1080 resolution.

Max Detection Number: Specifies the maximum number of heads that can be detected in the detection area. An alarm will be triggered when this numerical value is exceeded.

Detection Area: Used to set the area subject to crowd detection. There are two modes.

    Full Screen: All areas that can be reached by the camera will be detected.

    User-defined: Users can customize a detection area.

Rule Number: Specifies rule line number. This value is displayed when users customize a detection area. Only one detection rule line is supported.

Rule Enable: Used to turn on or off the rule line for the current rule number. This option is available when users customize a detection area.

Detection Area Setting: This setting is available when User-defined is selected. Users need to set an octagonal detection area.

Count Display Area: Displays the people count in the current surveillance area. Adjust the display location by referring to Section 8.1.

8.7.1.9 Queue Length

The queue detection function monitors the number of people in queue and queue time in the set area. An alarm will be triggered when the queue is too long or the queue time is too long.
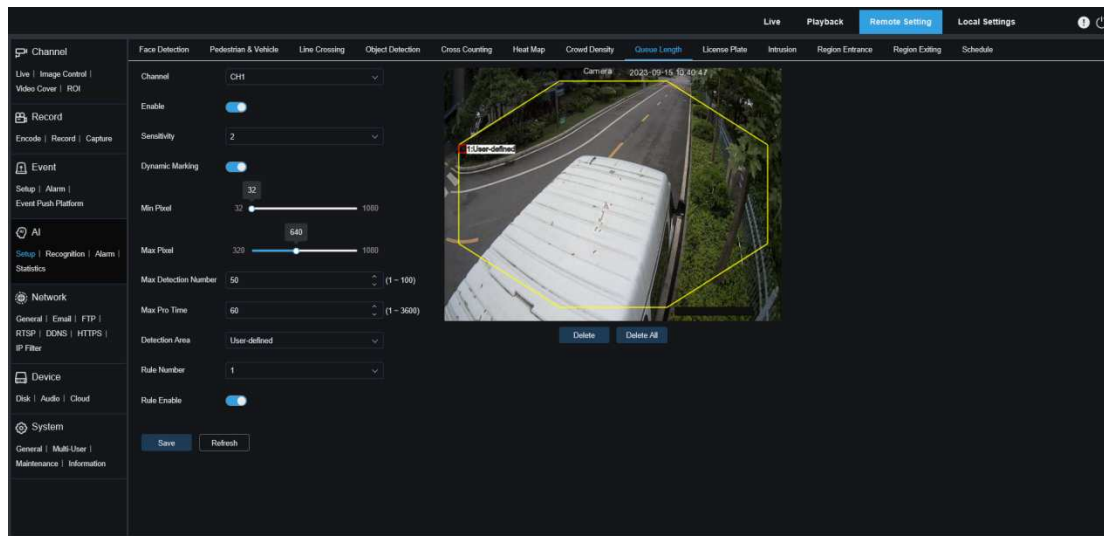
Channel: Users can select a channel and set parameters.

Enable: Used to enable queue detection.

Sensitivity: Users can set this parameter to filter out small disturbing objects. The higher the sensitivity, the smaller the objects can be detected.

Dynamic Marking: Displays a detection box and is used to turn on or off the detection rule line.

Min Pixel: Objects in the screen with heads smaller than the setting will be filtered out based on the 1080 resolution.

Max Pixel: Objects in the screen with heads greater than the setting will be filtered out based on the 1080 resolution.

Max Detection Number: Specifies the maximum number of heads that can be detected in the detection area. An alarm will be triggered when this numerical value is exceeded.

Max Pro Time: Specifies the maximum allowable stay time of people in the detection area. An alarm will be triggered if no people leaves the detection area when the setting time is exceeded. (This time length starts from the time point when the last person leaves the area. If no one leaves the area before the set time is reached, the processing will be considered timeout and an alarm will be triggered.)

Note: The counter is reset only when an object leaves the detection area. The situation where an object suddenly disappears in the detection area will be ignored. The counter works only when objects are detected in the area.

Detection Area: Used to set the area subject to queue detection. There are two modes.

Full Screen: All areas that can be reached by the camera will be detected.

User-defined: Users can customize a detection area.

Rule Number: Specifies rule line number. This value is displayed when users customize a detection area. Only one detection rule line is supported.

Rule Enable: Used to turn on or off the rule line for the current rule number. This option is available when users customize a detection area.

Detection Area Setting: This setting is available when User-defined is selected. Users need to set an octagonal detection area.

Count Display Area: Displays the people count in the current surveillance area and the service time required for people in queue. Adjust the display location by referring to Section 8.1.

8.7.1.10 License Plate

The license plate detection function detects the license plates of passing vehicles, identifies strange vehicles or vehicles registered to the database, and triggers alarms. For this purpose, the license plate detection function needs to be enabled.
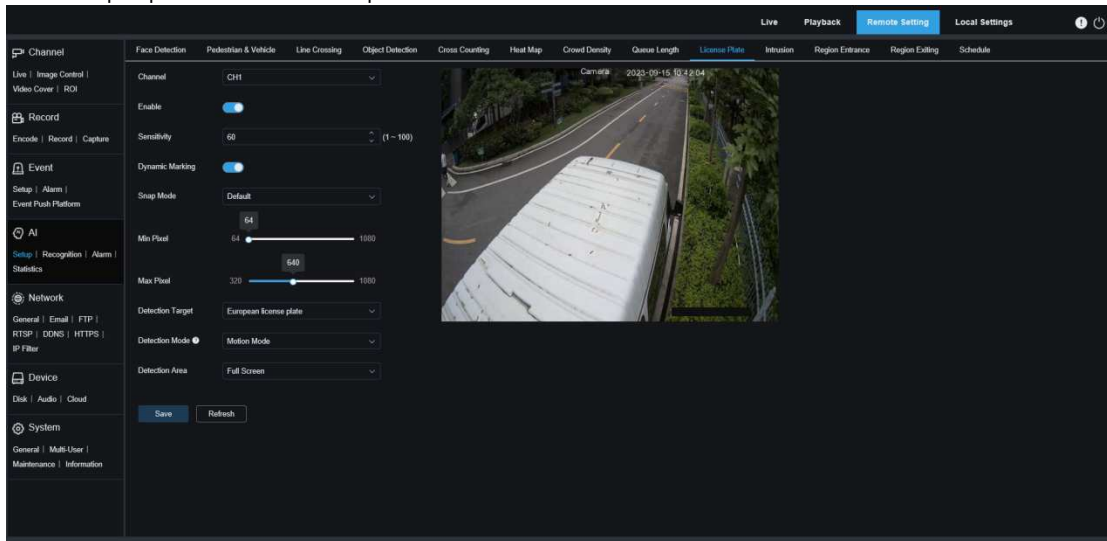
Channel: Users can select a channel and set parameters.

Enable: Used to enable license plate detection.

Sensitivity: Users can set this parameter to filter out small disturbing objects. The higher the sensitivity, the easier the objects are detected.

Dynamic Marking: Displays a detection box and is used to turn on or off the detection rule line.

Snap Mode: Used to set Snap Mode. Users can enable push notifications in live view or connect an NVR to check the push effect. Three snap modes are supported, including:

> The camera detects an object until it disappears, and only pushes a license plate image when the object disappears.

> **RealTime Mode:** The camera detects an object and pushes an image in real time, and push an image again when the object disappears.

> **Interval Mode:** In this mode, images will be pushed at the set number according to the set time interval.

Min pixel: Used to set the minimum recognition pixel box. Only license plates greater than the set pixel can be recognized.

Max pixel: Used to set the maximum recognition pixel box. Only license plates lower than the set pixel can be recognized.

Detection Target: Specifies the type of license plate to be detected. The options include:

> European license plate, and American license plate.

Detection Mode: Specifies the license plate detection mode. There are two modes as follows:

> **Hybrid Mode:** All static license plates in the screen will be detected.

> **Motion Mode:** Motionless vehicles and their license plates will be filtered out and only license plates of moving vehicles will be detected.

Detection Area: Used to set an area subject to license plate detection. There are two types:

Full Screen: The license plate detection will be made in full screen.

User-defined: Users can customize a detection area.

8.7.1.11 Intrusion

The perimeter intrusion detection function can detect whether an object enters the set area in the live view, and trigger an alarm according to the judgment result.
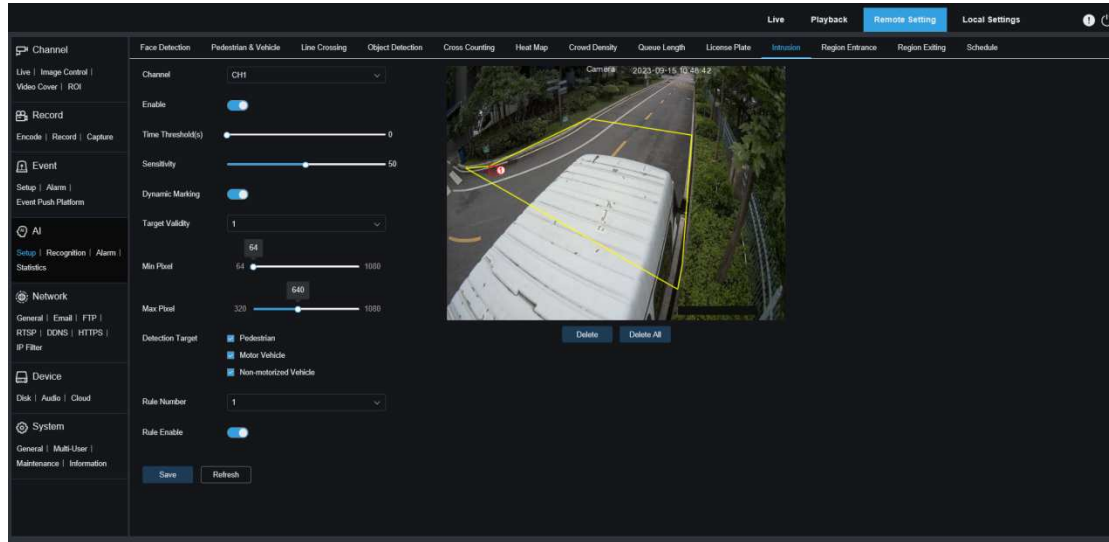
Channel: Users can select a channel and set parameters.

Enable: Used to enable the perimeter intrusion detection function.

Time Threshold(s): Specifies time threshold. An alarm will be generated after an object enters the alert area and stays for this time. For example, if the time threshold is set to 5, an alarm will be generated when an object enters the area and stays for 5 seconds. The maximum setting value is 10 s.

Sensitivity: Users can set this parameter to filter out small disturbing objects. The higher the sensitivity, the easier the objects are detected.

Dynamic Marking: Displays a detection box and is used to turn on or off the detection rule line.

Target Validity: Specifies the confidence level of an object, that is, the similarity between the object and the set detection type. An alarm will be triggered only when the similarity setting is reached or exceeded. The higher the setting, the higher the similarity requirement, the more obvious the desired object feature, and the higher the alarm accuracy. The value ranges from 1 to 4, and 1 indicates the highest confidence level. The similarity for a detection object is 80%, 60%, 40%, and 20% corresponding to confidence level 1, 2, 3, and 4.

Min pixel: Used to set the minimum recognition pixel box. Only objects greater than the set pixel can be recognized.

Max pixel: Used to set the maximum recognition pixel box. Only objects lower than the set pixel can be recognized.

Detection Target: Detection objects include:

    Pedestrian: An alarm will be triggered only for pedestrian objects.

    Motor Vehicle: An alarm will be triggered only for motor vehicle objects.

    Non-motorized Vehicle: An alarm will be triggered only for non-motorized vehicle objects.

Rule Number: Specifies a rule line number. The intrusion detection function enables you to set four detection rule lines.

Rule Enable: Used to turn on or off rule lines. Each rule line has an independent enable

switch associated with the currently selected Rule Number.

8.7.1.12 Region Entrance

The region entrance detection function can detect whether an object enters the set alert area, and trigger an alarm according to the judgment result.

Channel: Users can select a channel and set parameters.

Enable: Used to enable the region entrance detection function.

Sensitivity: Users can set this parameter to filter out small disturbing objects. The higher the sensitivity, the easier the objects are detected.

Dynamic Marking: Displays a detection box and is used to turn on or off the detection rule line.

Target Validity: Specifies the confidence level of an object, that is, the similarity between the object and the set detection type. An alarm will be triggered only when the similarity setting is reached or exceeded. The higher the setting, the higher the similarity requirement, the more obvious the desired object feature, and the higher the alarm accuracy. The value ranges from 1 to 4, and 1 indicates the highest confidence level. The similarity for a detection object is 80%, 60%, 40%, and 20% corresponding to confidence level 1, 2, 3, and 4.

Min pixel: Used to set the minimum recognition pixel box. Only objects greater than the set pixel can be recognized.

Max pixel: Used to set the maximum recognition pixel box. Only objects lower than the set pixel can be recognized.

Detection Target: Detection objects include:

      Pedestrian: An alarm will be triggered only for pedestrian objects.

      Motor Vehicle: An alarm will be triggered only for motor vehicle objects.

      Non-motorized Vehicle: An alarm will be triggered only for non-motorized vehicle objects.

Rule Number: Specifies a rule line number. The region entrance detection function enables you to set four detection rule lines.

Rule Enable: Used to turn on or off rule lines. Each rule line has an independent enable switch associated with the currently selected Rule Number.

8.7.1.13 Region Exiting

The region exiting detection function can detect whether an object leaves the set alert

area, and trigger an alarm according to the judgment result.
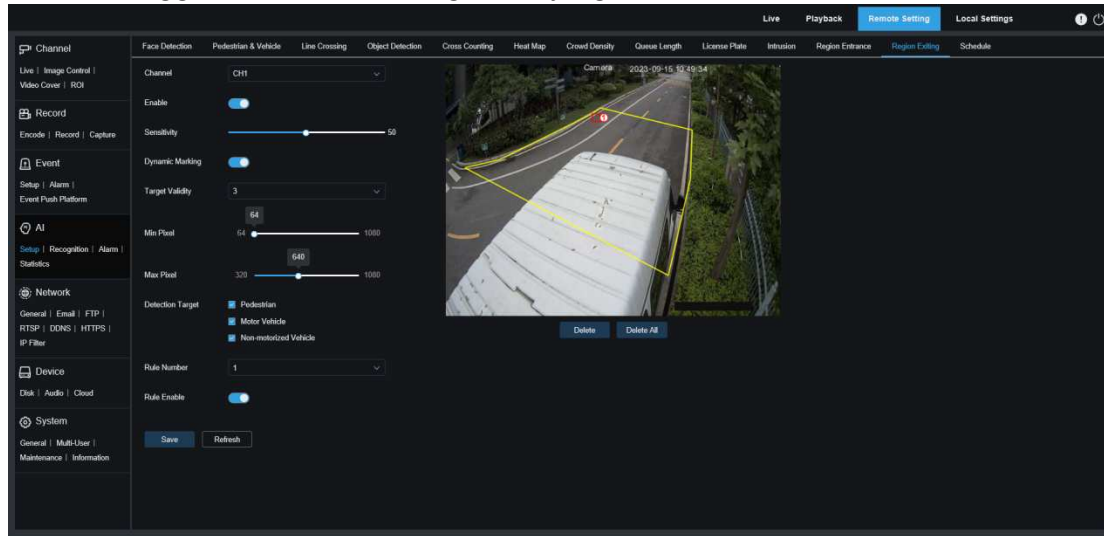
Channel: Users can select a channel and set parameters.

Enable: Used to enable the region exiting intrusion detection function.

Sensitivity: Users can set this parameter to filter out small disturbing objects. The higher the sensitivity, the easier the objects are detected.

Dynamic Marking: Displays a detection box and is used to turn on or off the detection rule line.

Target Validity: Specifies the confidence level of an object, that is, the similarity between the object and the set detection type. An alarm will be triggered only when the similarity setting is reached or exceeded. The higher the setting, the higher the similarity requirement, the more obvious the desired object feature, and the higher the alarm accuracy. The value ranges from 1 to 4, and 1 indicates the highest confidence level. The similarity for a detection object is 80%, 60%, 40%, and 20% corresponding to confidence level 1, 2, 3, and 4.

Min pixel: Used to set the minimum recognition pixel box. Only license plates greater than the set pixel can be recognized.

Max pixel: Used to set the maximum recognition pixel box. Only license plates lower than the set pixel can be recognized.

Detection Target: Specifies the type of license plate to be detected. The options include:

> **Pedestrian:** An alarm will be triggered only for pedestrian objects.
>
> **Motor Vehicle:** An alarm will be triggered only for motor vehicle objects.
>
> **Non-motorized Vehicle:** An alarm will be triggered only for non-motorized vehicle objects.

Rule Number: Specifies a rule line number. The region exiting detection function enables you to set four detection rule lines.

Rule Enable: Used to turn on or off rule lines. Each rule line has an independent enable switch associated with the currently selected Rule Number.

8.7.1.12 AI Schedule

The AI schedule function can be enabled to set the schedule of AI functions. Checked indicates enabled, cleared indicates disabled, and gray indicates unavailable.
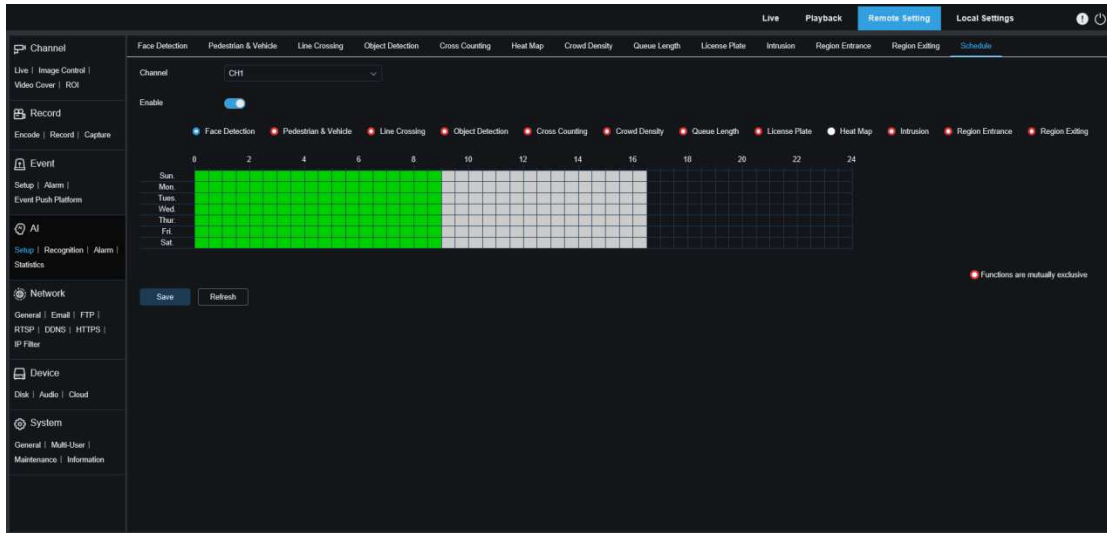
Channel: Users can select a channel and set parameters.

Enable: Used to enable the schedule function.

Functions are mutually exclusive: Indicates that functions are mutually exclusive.

Notes:

- AI functions that are mutually exclusive cannot be set in the same time range. That is, two AI mutually exclusive functions cannot be enabled in the time range. This restriction will exist on the UI.
- All AI functions cannot be manually enabled or disabled and are controlled by the schedule after the AI schedule is enabled, but users can change some parameters, for example, sensitivity and detection type.

8.7.2 Recognition

8.7.2.1 Face Recognition

The face recognition function mainly recognizes the identity of a detection object and require comparison with base data. The program establishes a foundation database for face matching through the database management function.

Note: It will take a short time for the system to load changes to the database to take them into effect.
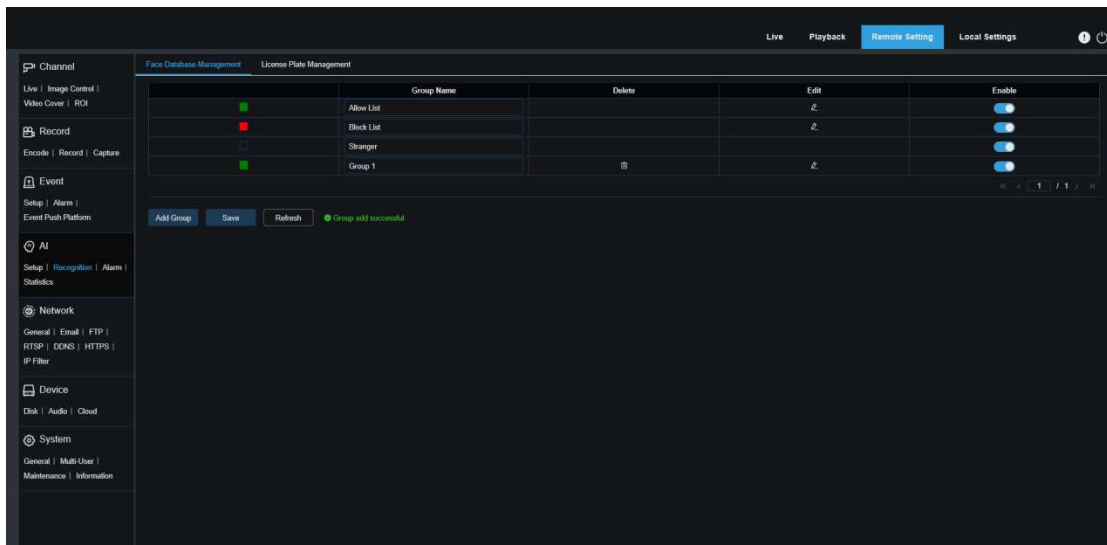
Alarm Policy Display: Only used as strategy prompts in the camera. Green indicates allow list, red indicates block list, and no color indicates stranger group.

Group Name: Enables users to edit, modify, or display current group name. A specific group name will be displayed when an alarm is pushed.

Delete: Used to delete a group. The first three groups cannot be deleted.

Edit: Used to set reference images in a group. For more information, see the following figure.

Enable: Enables users to use group data for comparison during face recognition.

Add Group: Enables users to add a new database group. Users can add up to 16 database groups.

Users can click the **Edit** icon to set reference data for a specific group. The following figure shows the screen.
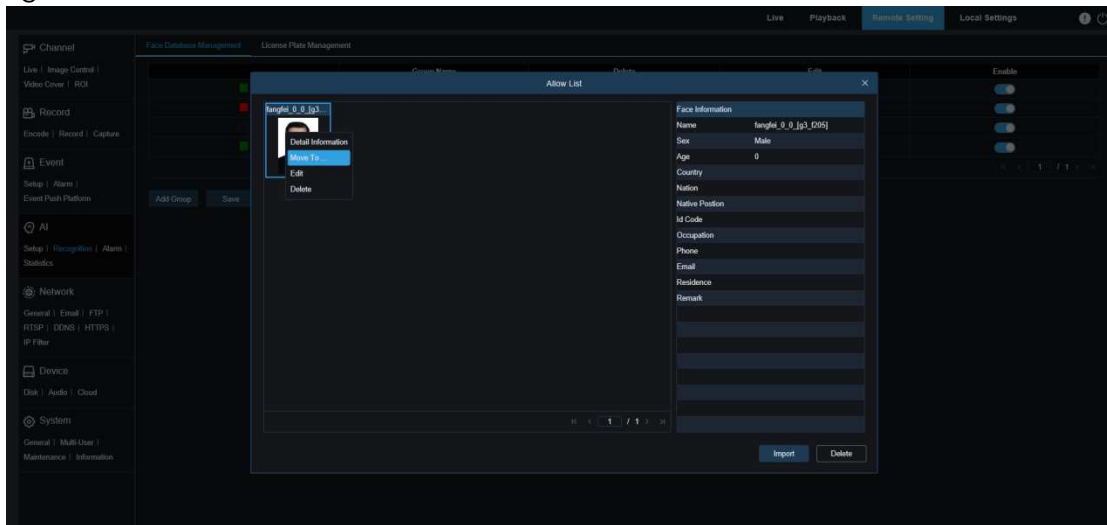
Added Image Display Area: Displays face database images in the currently added group.

Info: Displays the editing information of the selected image.

Detail Information: A right mouse button event, enabling users to check the information of the selected image.

Move To ...: A right mouse button event, enabling users to move the selected image to other groups.

Edit: A right mouse button event, enabling users to open the information editing screen of the selected image and perform editing actions.

Delete: A right mouse button event, enabling users to detect the selected images.

Import: Used to add new face data to the current group. Users can import local images or images captured by the camera.

Delete: Used to bulk delete face data in the database. Users can click this control, select images to delete and then click Delete.

8.7.2.2 License Plate Recognition

The license plate recognition function mainly recognizes the identity of a detection object and require comparison with base data. The program establishes a foundation database for license plate matching through the database management function.

Note: It will take a short time for the system to load changes to the database to take them into effect.
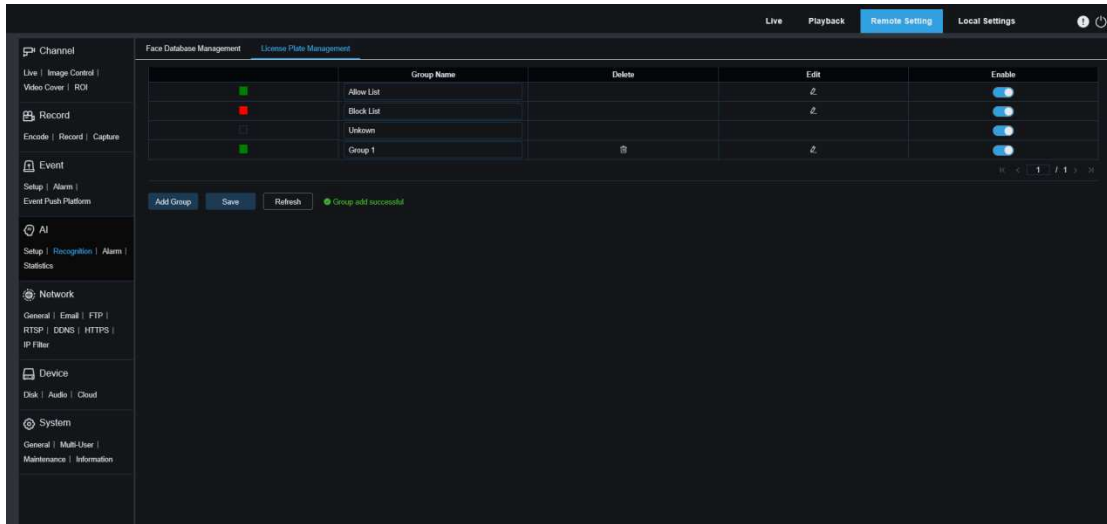
Alarm Policy Display: Only used as strategy prompts in the camera. Green indicates allow list, red indicates block list, and no color indicates unknown license plates.

Group Name: Enables users to edit, modify, or display current group name. A specific group name will be displayed when an alarm is pushed.

Delete: Used to delete a group. The first three groups cannot be deleted.

Edit: Used to set reference images in a group. For more information, see the following figure.

Users can click the **Edit** icon to set reference data for a specific group. The following figure shows the screen.
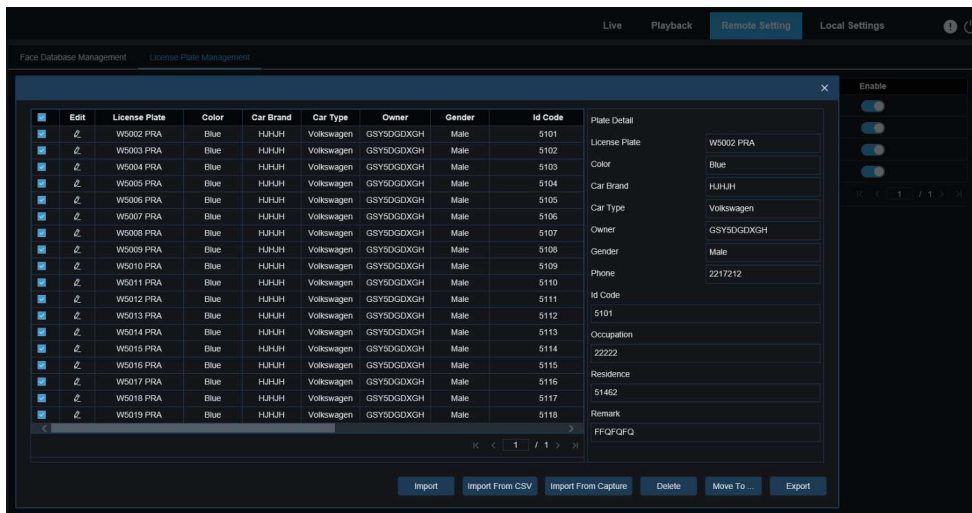
Users can add license plates in the following three ways: Import (manually add), Import From CSV (import from CVS files), and Import From Local Capture (import from local files).

1. Users can click the **Import** button to manually add a single piece of license plate information.
2. Users can click the **Import From CSV** button to import a single or multiple data entries from CVS files. The following figure shows the format of a CVS file:

Select the license plate file in CSV format to import and click the Import button to add to the group. Users can click the Delete button to delete unwanted license plate information. as shown in the following figure:
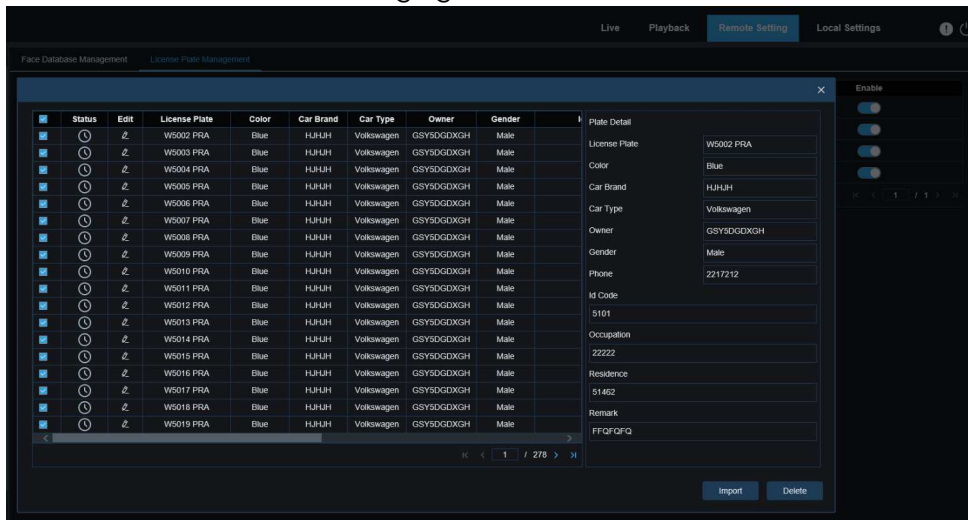
Note: A "Data added reaches the limit of the group" prompt box appears when more than 5000 data entries are added.

3. Users can click the **Import From Capture** button to import license plate information from local files to the database.
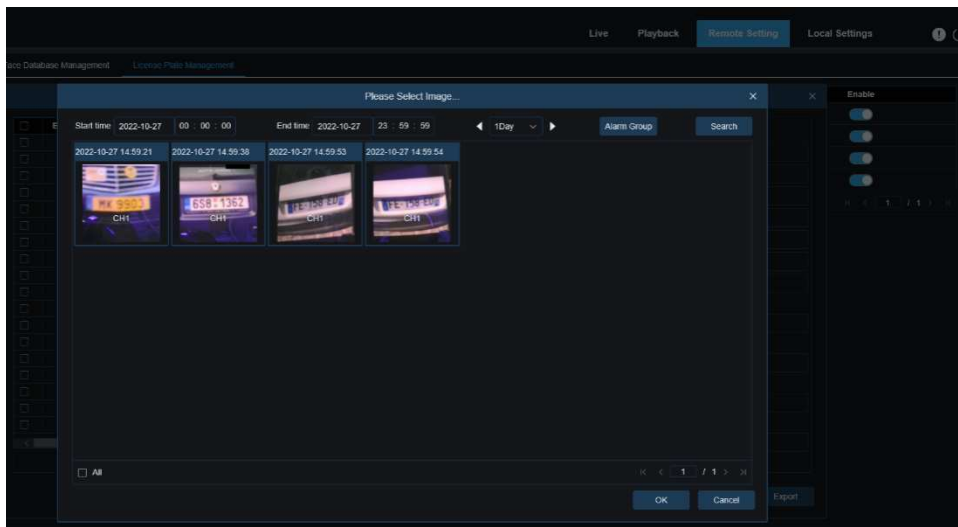

Select date, duration, and Alarm Group, and then click **Search**. License plates saved in

the device in this time range will be retrieved.

All: Used to select all license plate information.
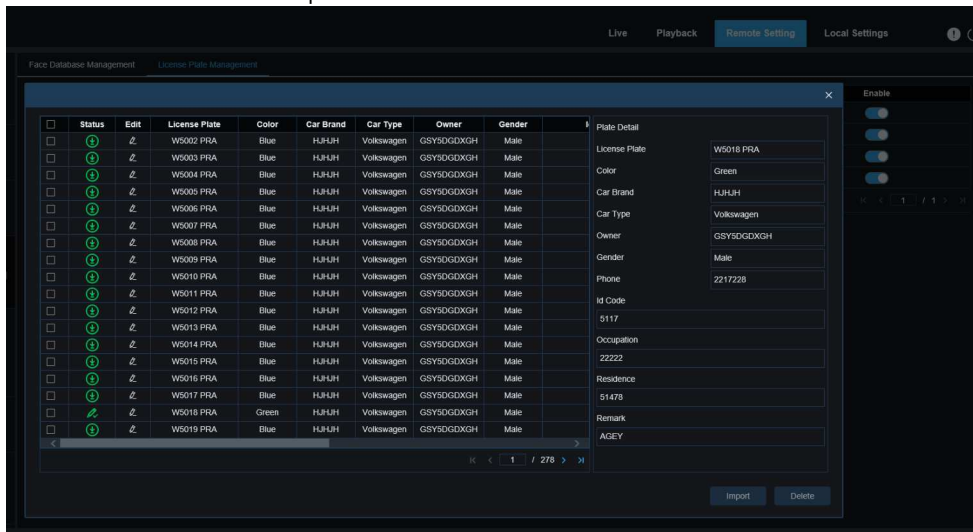
Users can click a data entry to edit the license plate information, and then click the **Save** button to save changes. If the information is changed successfully, the ⊕ icon changes to .

4. **Delete:** Check the checkbox next to the license plate information and click this button to delete the information.

5. **Move to…:** Check the checkbox next to the license plate information and click this button to move license plate information to other groups.

6. Click the **Export** button to export the information of the entire group and save it.

5. Enable: Enables users to use group data for comparison during license plate recognition.

6. Add Group: Enables users to add a new database group. Users can add up to 16 database groups.

8.7.3 Alarm

Alarm response to AI functions can be divided into 3 types according to the mode of implementation:

Type I includes Face Detection, Face Features, Pedestrian&Vehicle, Line Crossing, Object Detection, Cross Counting, Crowd Density, Queue Length, License Plate, Intrusion, Region Entrance, and Region Exiting. An alarm will be generated if alarm conditions are met, as determined by the camera.

Type II includes Face Recognition and License Plate Recognition. The camera obtains an alarm image, recognizes the face feature value or license plate information in the image, compare it with the information in the database, and then generates an alarm according to alarm group settings.

Type II is Face Attendance. The data will be automatically retrieved at a specific time and an alarm push email will be generated.

8.7.3.1 Face Detection, Face Features, Pedestrian&Vehicle, Line Crossing, Object Detection, Cross Counting, Crowd Density, Queue Length, License Plate, Intrusion,

Region Entrance, and Region Exiting

An alarm will be generated if alarm conditions are met, as determined by the camera.
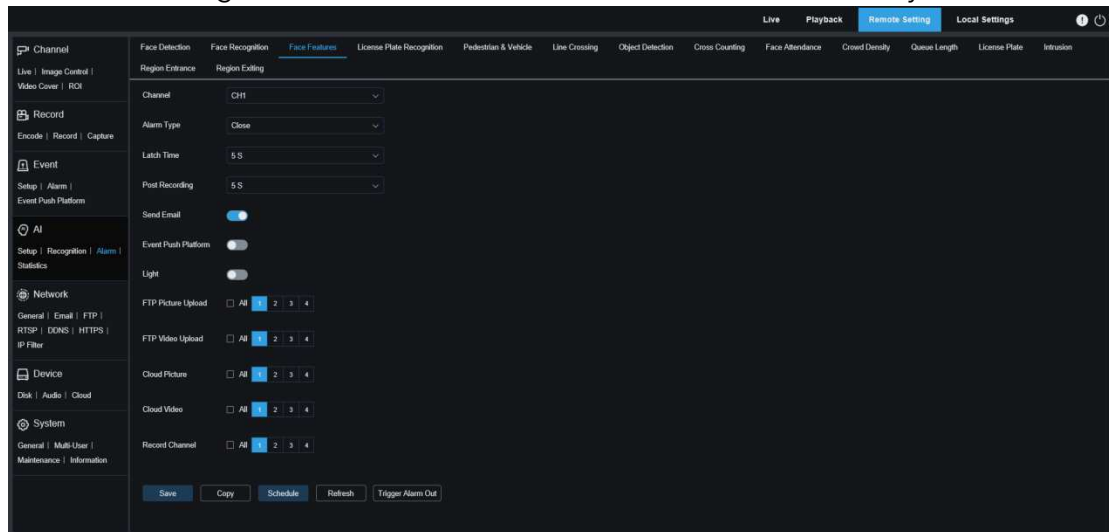
Channel: Users can select a channel and set parameters.

Alarm Type: An option specific to AD alarm. Enable the face attribute recognition function for AD alarm according to Section 8.7.1.1. An alarm will be triggered by detecting whether a captured object is masked. There are three modes.

  Close: AD alarm is not enabled.

  NO Mask: An alarm is triggered when an object is not masked.

  Wear Mask: An alarm is triggered when an object is masked.

Latch Time: The amount of time the I/O alarm lasts after the alarm ends.

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

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

Note: The effective time is controlled by the schedule.

Send Email: If this option is enabled, the camera will send an email when an alarm is detected.

Note: The effective time is controlled by the schedule.

Light: White light deterrence switch. When an alarm is triggered, the alarm response will be made according to the Remote Setting-Event-Setup-Deterrence setting on the white light deterrence page.

Event Push Platform: If this option is enabled, the information of this type will be pushed to the client when an alarm is triggered.

FTP Picture Upload: Select the channel to upload pictures to the FTP server. The camera sends pictures to the associated FTP server when an alarm is generated. When an alarm is continuously triggered, pictures will be sent every 10 s until the alarm is cleared.

Note: The effective time is controlled by the schedule and an FTP server shall be firstly associated.

FTP Video Upload: Select the channel to upload videos to the FTP server. The camera sends videos to the associated FTP server when an alarm is generated. When an alarm is continuously triggered, pictures will be sent every 10 s until the alarm is cleared.

Note: The effective time is controlled by the schedule and an FTP server shall be firstly associated.

Cloud Picture: Select the channel to upload pictures to the cloud storage server. The camera sends pictures to the associated cloud storage server when an alarm is generated. When an alarm is continuously triggered, pictures will be sent every 10 s until the alarm is cleared.

Note: The effective time is controlled by the schedule and a cloud storage server shall be firstly associated.

Cloud Video: Select the channel to upload videos to the cloud storage server. The camera sends videos to the associated cloud storage server when an alarm is generated. When an alarm is continuously triggered, pictures will be sent every 10 s until the alarm is cleared.

Note: The effective time is controlled by the schedule and a cloud storage server shall be firstly associated.

Record Channel: Specifies the channel to record when an alarm is triggered.

Trigger Alarm Out: Used to enable outputting of alarm signals through the I/O interface when an alarm is triggered.

Schedule: Used to configure the schedule for Send Email, Alarm Out, FTP Picture Upload, FTP Video Upload, Cloud Picture, Cloud Video, Record, and Light for the current alarm.

8.7.3.2 Face Recognition

The camera monitors and tracks an object and captures an face image and will firstly match the image with the database to get the corresponding group, and then directly call the alarm setting to generate an alarm. It will take a short time for the system to load changes to parameters to take them into effect.
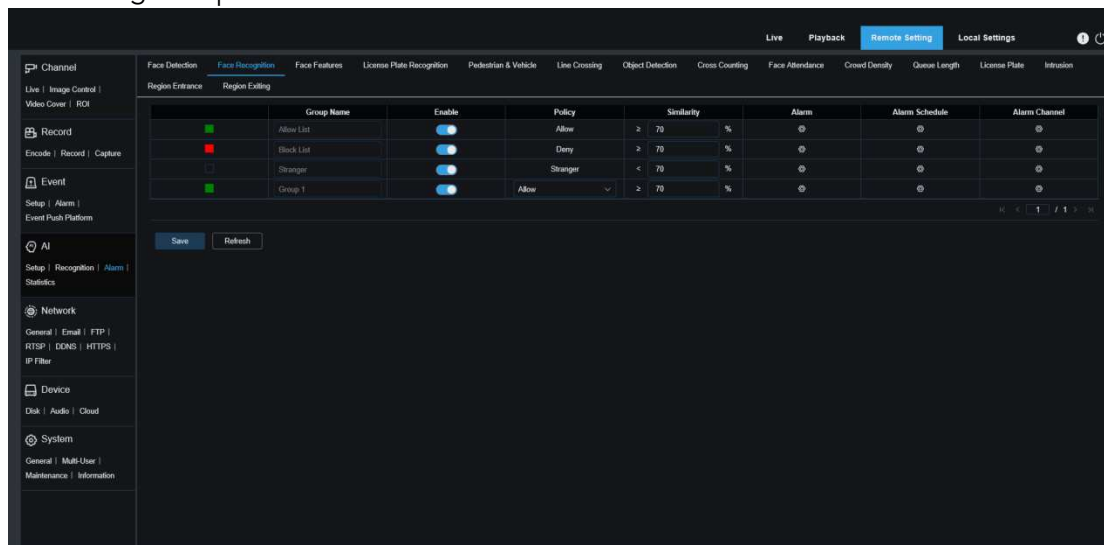

Group Name: Enables users to edit, modify, or display current group name. A specific group name will be displayed in live view when an alarm is pushed.

Enable: Used to enable alarm response settings.

Policy: Specifies an alarm policy. The first 3 groups cannot be edited and other groups can be customized as Allow or Deny.

Similarity: An alarm will be generated when the similarity is greater than the setting during face matching.

Alarm: Used to turn on or off group alarm settings.
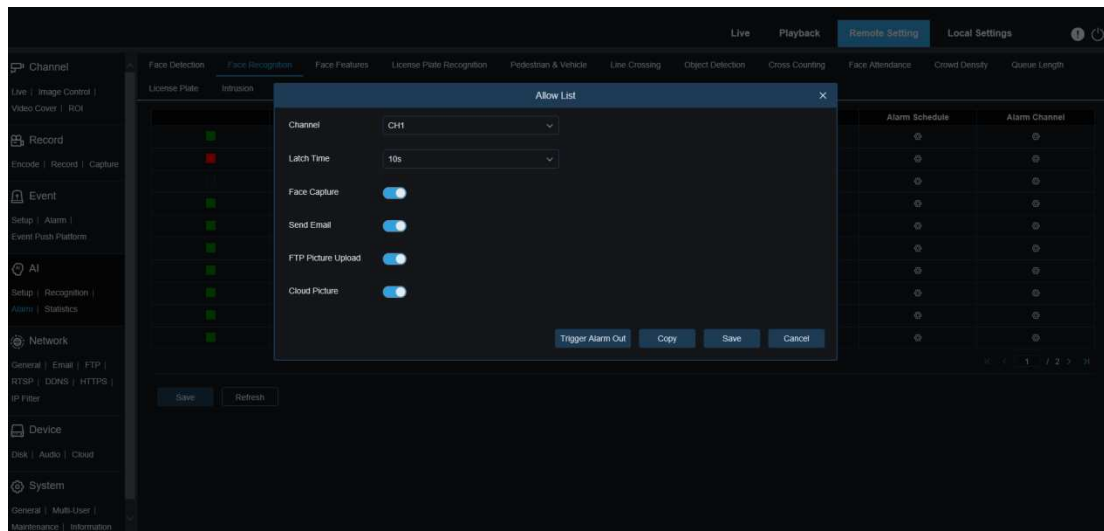
Channel: Users can select a channel and set parameters.

Latch Time: Specifies the time that the I/O alarm pigtail will continue alarming when the camera gets a face image and face matching is successful.

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

Face Capture: The enable switch to save face images to the SD card.

This setting is not controlled by Enable.

Send Email: The enable switch to send an email when group face recognition is successful.

Note: The effective time is controlled by the schedule.

FTP Picture Upload: The enable switch to send pictures to the associated FTP server when group face recognition is successful.

Note: The effective time is controlled by the schedule and an FTP server shall be firstly associated.

Cloud Picture: The enable switch to send pictures to the associated cloud storage server when group face recognition is successful.

Note: The effective time is controlled by the schedule and a cloud storage server shall be firstly associated.

Alarm Out Latch Time: Used to set different local alarms.

Copy: Used to copy parameter settings to other channels.

Alarm Schedule: Specifies the effective time of Send Email, Alarm Out, FTP Picture Upload, and Cloud Picture settings.

Alarm Channel: Used to set alarm channel.

8.7.3.3 Face Attendance

The face attendance function is to retrieve matching faces in different groups (excluding strangers group) saved in the SD card at a specified time, generate attendance files according to the capture records, and send these information to the associated email address.
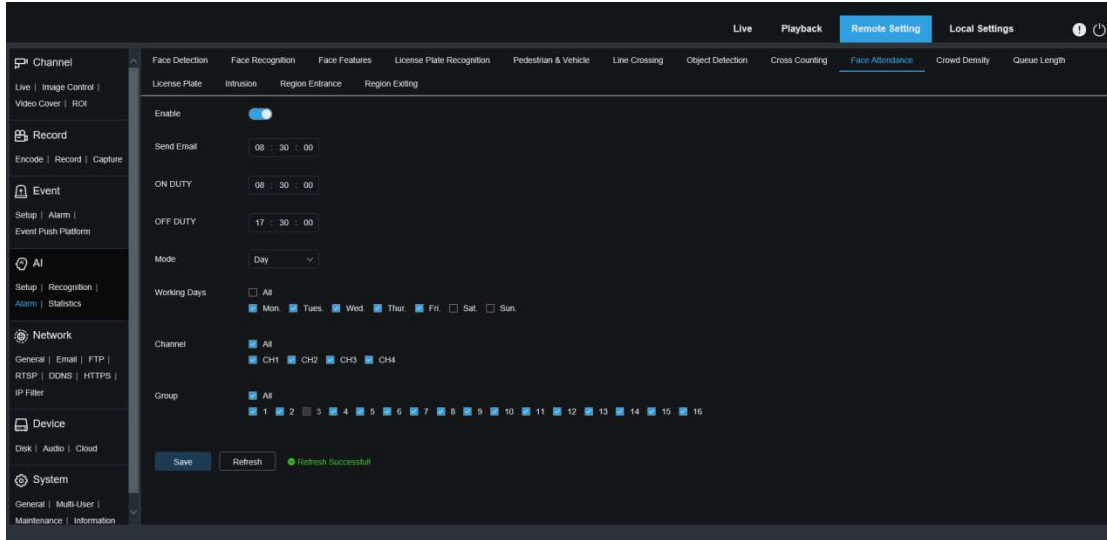
Enable: The enable switch to automatically generate face attendance files.

Send Email: Used to set the time to send face attendance files. The program makes retrieval at a certain interval, and automatically generates attendance files and sends an email when the retrieval time is greater than the set time.

Note: An email will not be sent if no attendance record is available.

ON DUTY: Used to set the on-duty reference time to generate attendance files.

OFF DUTY: Used to set the off-duty reference time to generate attendance files.

Mode: Used to set the time to generate and send attendance files. There are three modes.

Day: The attendance file the day before yesterday will be sent.

Week: For example, if it is set to Wednesday, the attendance information from last Wednesday to this Tuesday will be sent on this Wednesday.

Month: For example, if it is set to 15th of each month, the attendance information from the 15th of the previous month to the 14th of this month will be sent on the 15th of each month.

Working Days: Used to set the on-duty referent days to generate attendance files.

Channel: Specifies channels.

Group: Specifies groups subject to face attendance for which attendance files will generated.

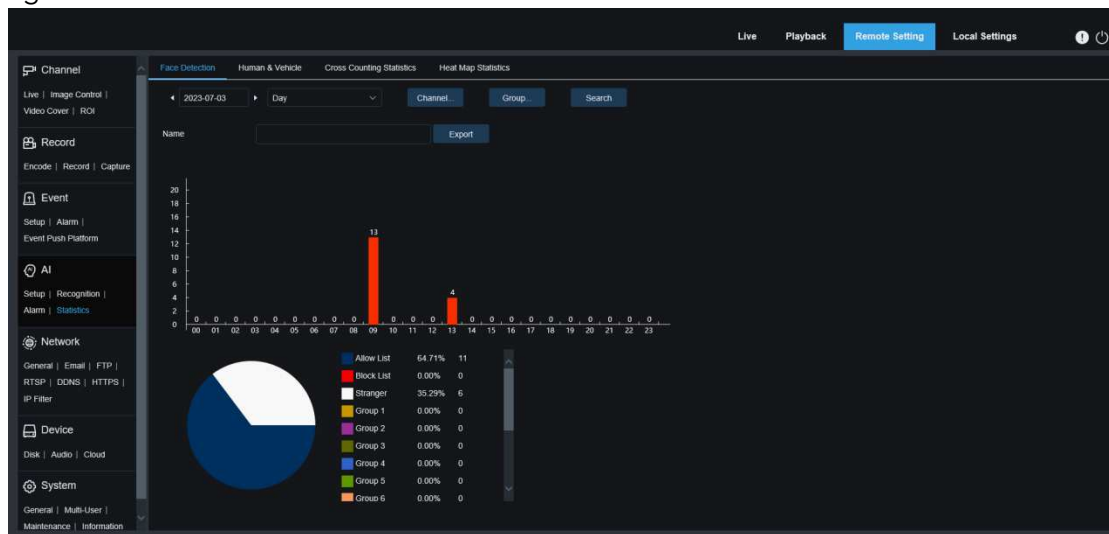Note: This function is unavailable for stranger group. Therefore, group 3 is grayed out by default.

8.7.4 Statistics

AI data statistics function.

8.7.4.1 Face Detection

The face image statistical analysis function enables users to search for and make

statistics on face data saved in the SD card according to search settings. The following figure shows the screen.

Time: Specifies the reference time for search mode.

Search Mode: The time range options include Day, Week, Month, Quarter, and Year.

Channel: Specifies a channel to search for.

Group: Specifies the group to search for when searching for statistics.

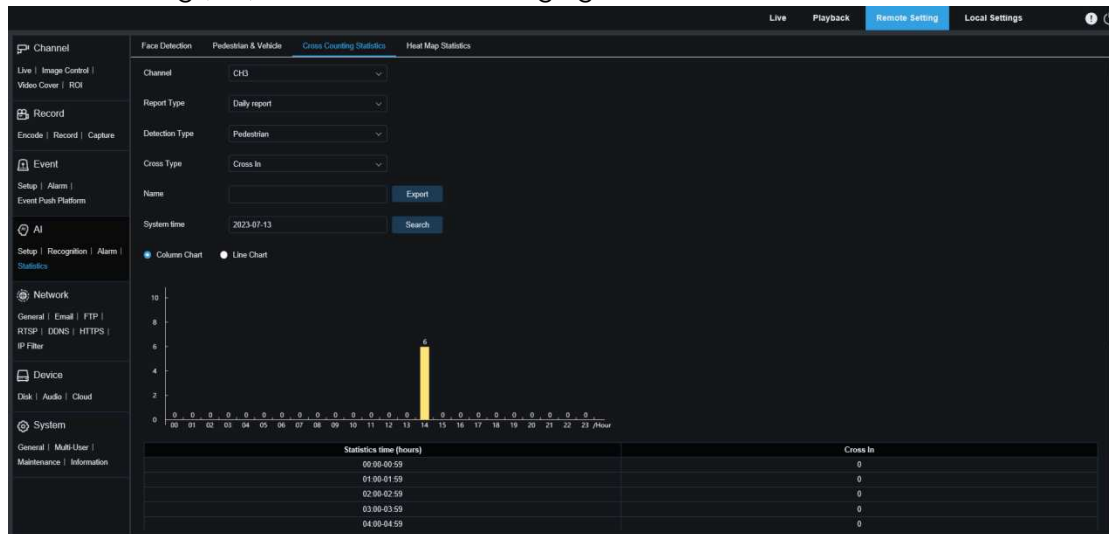**Search:** Click to search for data according to current search settings.

Export: Users need to add the name of an exported file. Export current search data in Excel format.

Display Area: Displays current search results at the bottom in charts.

8.7.4.2 Pedestrian & Vehicle

The pedestrian & vehicle statistics, including PD & VD, PID, and LCD alarms. The following figure shows the screen.
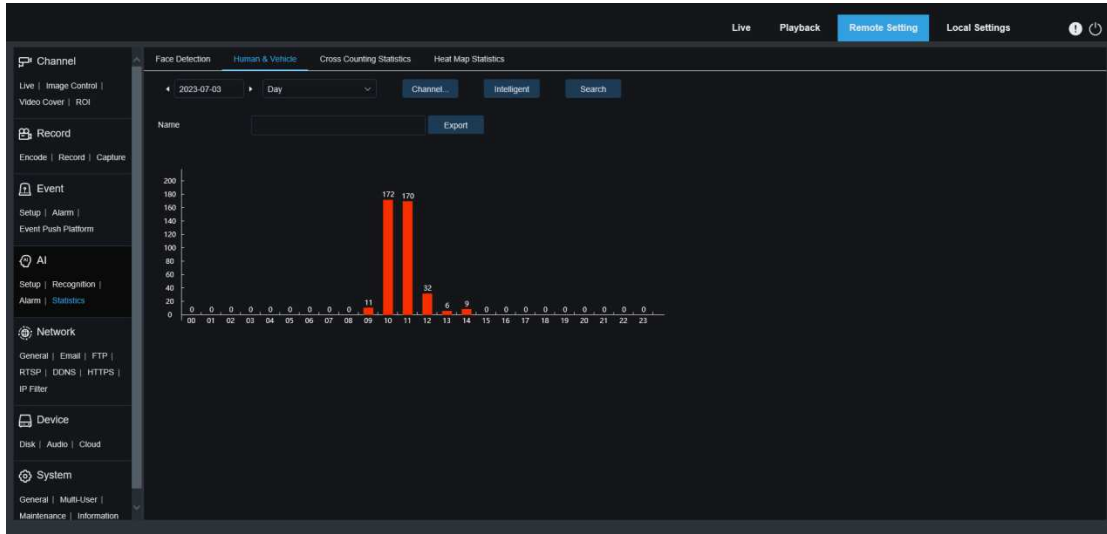
Time: Specifies the reference time for search mode.

Search Mode: The time range options include Day, Week, Month, Quarter, and Year.

Channel: Specifies a channel to search for.

Intelligent: Search by tag type when obtaining captured images, including Intrusion[Pedestrian], Intrusion [Motor Vehicle], Intrusion[Non-motorized Vehicle], Region Entrance[Pedestrian], Region Entrance[Motor Vehicle], Region Entrance[Non-motorized Vehicle], Region Exiting[Pedestrian], Region Exiting[Motor Vehicle], Region Exiting[Non-motorized Vehicle], LCD[Human], LCD[Motor Vehicle], LCD[Non-motorized Vehicle], Pedestrian, Motor Vehicle, and Non-motorized Vehicle.

Search: Click to search for data according to current search settings.

Export: Users need to add the name of an exported file. Export current search data in Excel format.

Display Area: Displays current search results in charts.

8.7.4.3 Cross Counting Statistics

Cross counting (CC) statistics. The following figure shows the function screen.

Channel: Specifies a channel to search for.

Report Type: The options include Daily report, Weekly report, Monthly report, and Annual report.

Detection Type: Specifies alarm model as required by data. For example, users cannot search for data triggered by motion if other type is specified. The options include Motion, Pedestrian, Motor Vehicle, and Non-motorized Vehicle that correspond to function settings.

Cross Type: Search for data according to cross counting statistics. The options include Cross In and Cross Out.

Export: Users need to add the name of an exported file. Export current search data in Excel format.

System Time: Specifies the reference time for the currently selected Report Type.

Mode: Displays images in the icon display area in column chart or line chart.

**Display Area:** Displays current search results in charts.

Search: Click to search data according to current settings.

8.7.4.4 Heat Map Statistics

A heat map report enables users to intuitively view people distribution in terms of time or space.

- Space Heat Map: Displays people activity in different areas in the screen. A red spot indicates the area with highest density, that is, highest activity, and a red spot indicates the area with lowest density.
- Time Heat Map: Displays people activity in different times in the screen. The Y-axis value is the index calculated based on the number of people and dwell time. The higher the value is, the higher the activity is. The value does not represent the number of people.

A smart camera must be installed with a valid SD card where heat map information is stored. The following figure shows the screen.
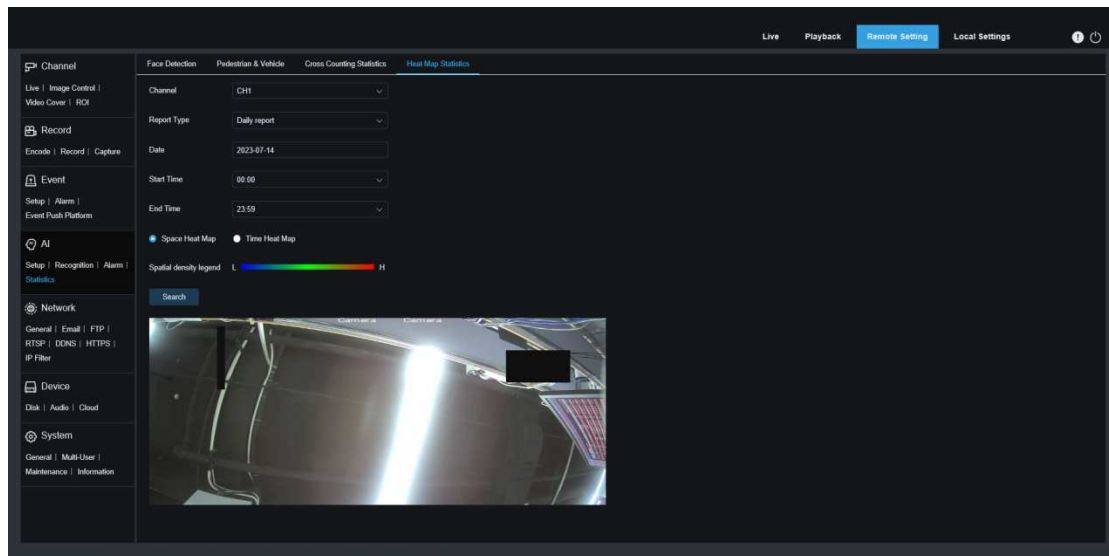
Channel: Specifies a channel to search for.

Report Type: The options include Daily report, Weekly report, Monthly report, and Annual report.

Date: Specifies the date to be referred to by data search.

Start Hour: This option is available only when Daily Report is selected. It is used to set the hour to start search.

End Hour: This option is available only when Daily Report is selected. It is used to set the hour to end search.

Mode: Used to set the mode of data display during search. The options include chart and table.

Display Area: Displays the degree of change frequency of the surveillance area in charts and displays the degree of change frequency of surveillance area in different time periods in tables.

Search: Click to search data according to current settings.

8.8 Network Setup

In this menu, users can configure network parameters, such as PPPoE, DHCP, and SNMP. DHCP is the most commonly used type. Unless you manually set a static IP address, DHCP is used as network type in most cases. Please select PPPoE if users need to authenticate username and password for network connection.

8.8.1 Basic Settings

8.8.1.1 General
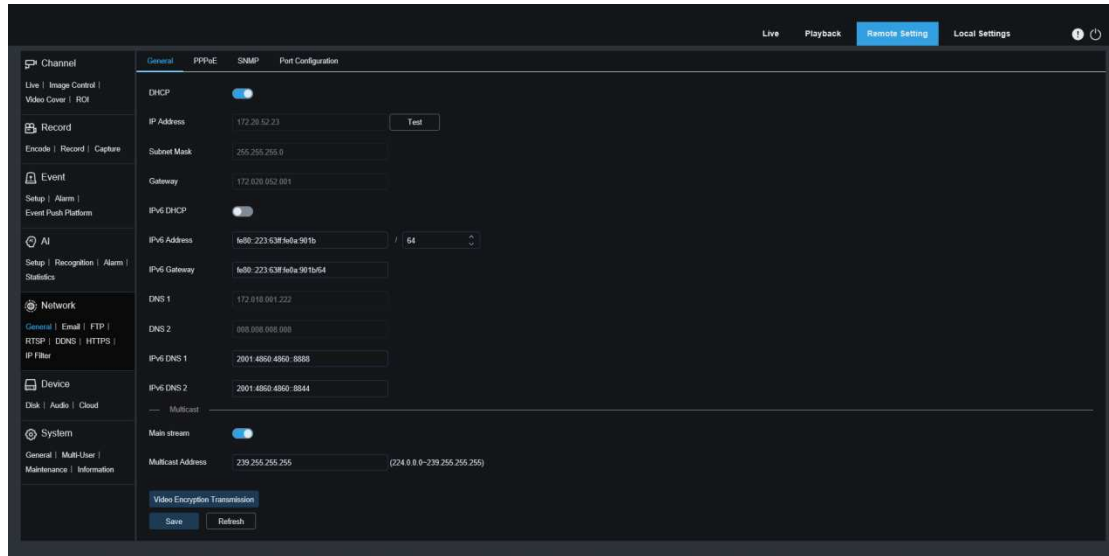
To connect to a router that supports DHCP, please check the DHCP checkbox. The router will automatically assign all network parameters to your device, unless you manually set the following network parameters:

IP Address: An IP address is the identifier of an IPC in the network. It consists of four sets of numbers between 0 and 255, separated by a period, 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. If an IP address is a street where people live, then a subnet mask is a community. A subnet address also consists of four sets of numbers separated by a period, for example, 255.255.000.000.

Gateway: An IPC accesses the Internet through a gateway address. A gateway address has the same format as an IP address, for example, 192.168.001.001.

IPv6 Address: An IPv6 address is the identifier of an IPC in the network. It consists of eight sets of numbers between 0 and FFFF, separated by a colon, for example, ABCD:EF01:2345:6789:ABCD:EF01:2345:6789.

DNS1/DNS2: DNS1 is a master DNS server and DNS2 is a slave DNS server. In general, you need only enter the IP address of the DNS1 server.

Main Stream: If this option is checked, multicast streaming will be enabled for main stream.

Multicast Address: Specifies a multicast address. A third party player will request an IPC to send multicast media stream over the RTSP protocol.

Video Encryption Transmission: Specifies video encryption transmission.

If an IPC can alert users with repeated IP addresses in the network segment and an IP address is repeatedly used, the prompt message shown in the following figure will be displayed when you click [Test]:
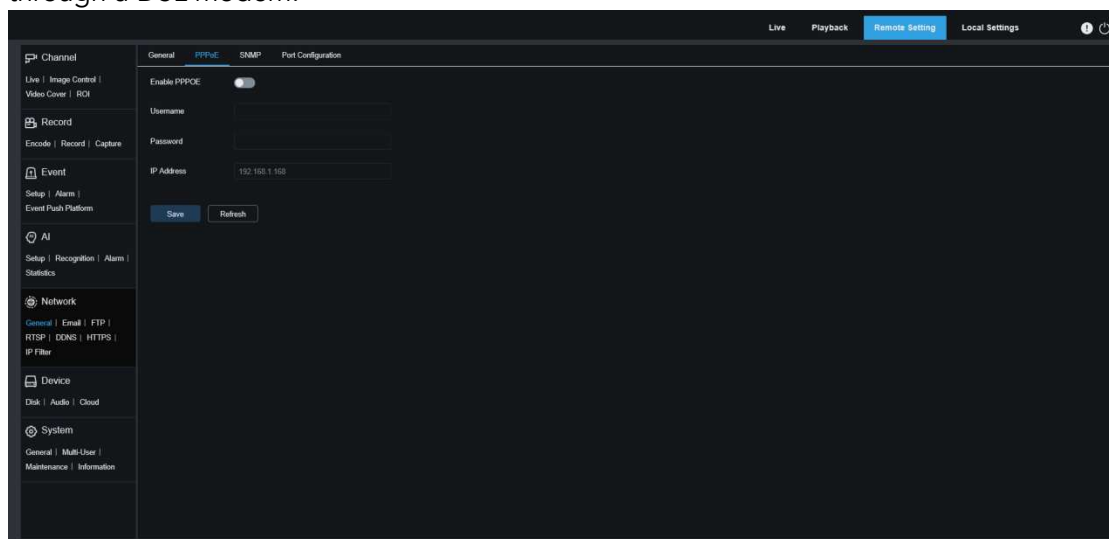

8.8.1.2 PPPoE

This is the high-level protocol that allows an IPC to connect more directly to the network through a DSL modem.

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

Click "Save". The system will reboot to activate PPPoE settings.

8.8.1.3 SNMP

Simple Network Management Protocol (SNMP) is a standard protocol specially designed for managing network nodes (servers, workstations, routers, switches and hubs, etc.) in IP networks. It is an application layer protocol.
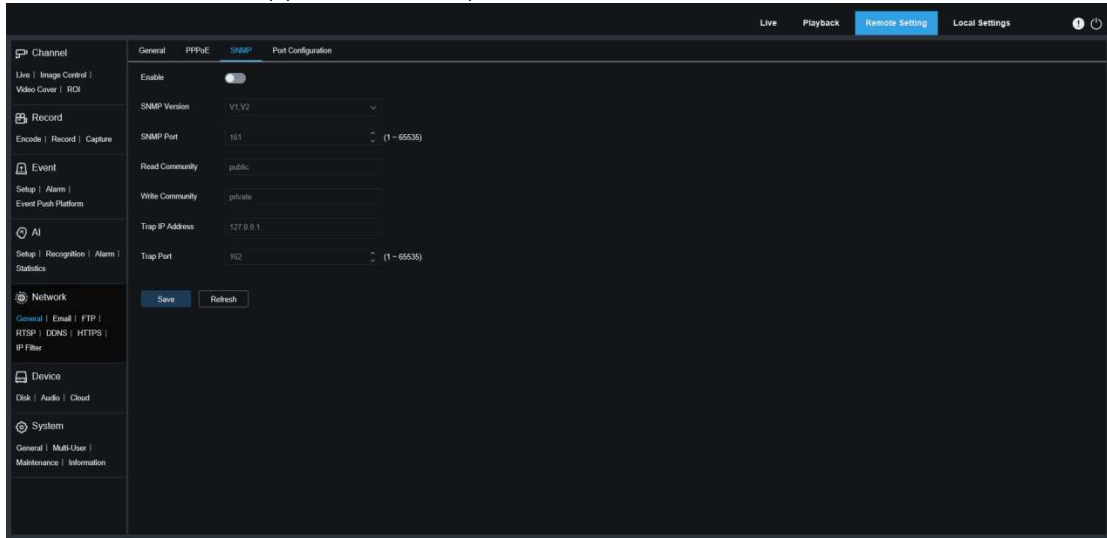
Enable: Used to enable or disable SNMP.

SNMP Version: Specifies the version of the SNMP server. The options include V1, V2 and V1, V2, and V3.

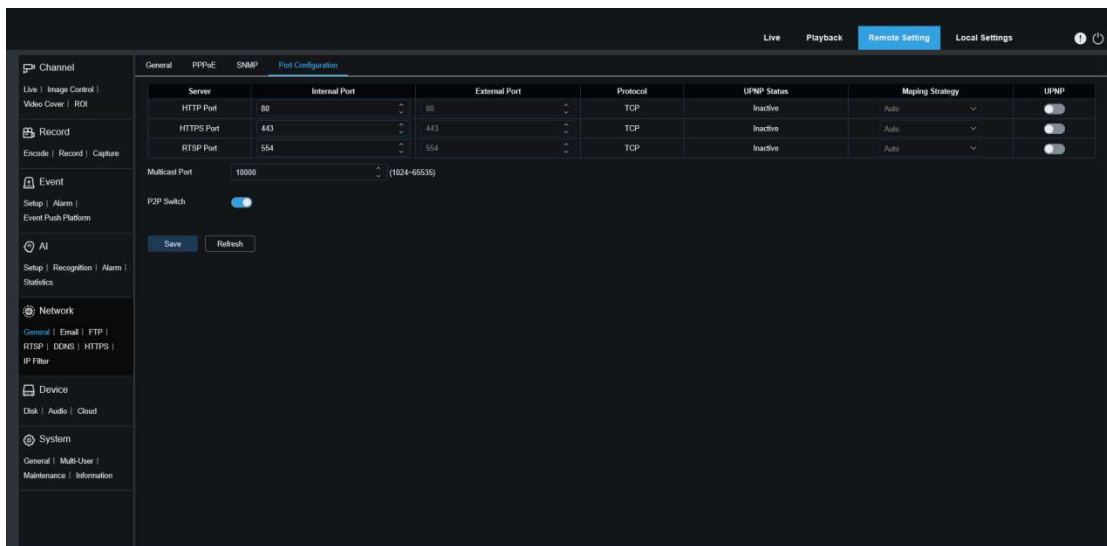**SNMP Port:** Specifies the port number of the SNMP server.

Read Community: Specifies the Read Community value of the SNMP server.

Write Community: Specifies the Write Community value of the SNMP server.

Trap IP Address: Specifies the Trap IP address of the SNMP server.

Trap Port: Specifies the Trap port number of the SNMP server.

8.8.1.4 Port Configuration

HTTP Port: This is the port that users will use to log in to the IPC remotely (for example, using a Web client). If port 80 has already been used by another application, please change it to another port number.

HTTPS Port: The default value is 443. HTTPS is the secure version of HTTP and guarantees transmission security by transmission encryption and authentication based on HTTP.

RTSP Port: The default value is 554. If port 554 has already been used by another application, please change the port number.

UPNP: To remotely log in to your device using a Web client, you need to complete port forwarding in the router. Please enable this option if your router supports UPnP. In this case, users do not have to manually configure port forwarding in the router. Please ensure that you have manually completed port forwarding in the router if your router does not support UPnP.

Multicast Port: Specifies a multicast port.

P2P Switch: Specifies P2P switch. P2P will not be effective if this option is disabled.

8.8.2 Email

In this menu, users can configure email settings. To receive system notifications through email when an alarm is triggered or the HDD is full, please configure these settings.
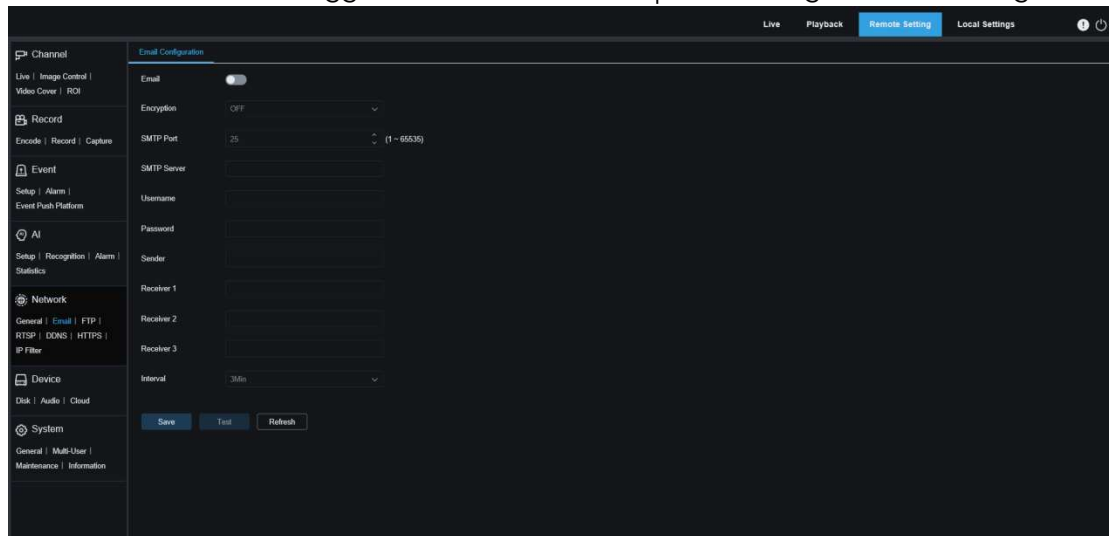
Email: Turn on to enable this function.

Encryption: Turn this function on if your email server needs SSL or TLS validation. Select "Auto" if you are not sure about this.

SMTP Port: Specifies the SMTP port for the email server.

SMTP Server: Specifies the IP address of the SMPT server.

UserName: Specifies the email address.
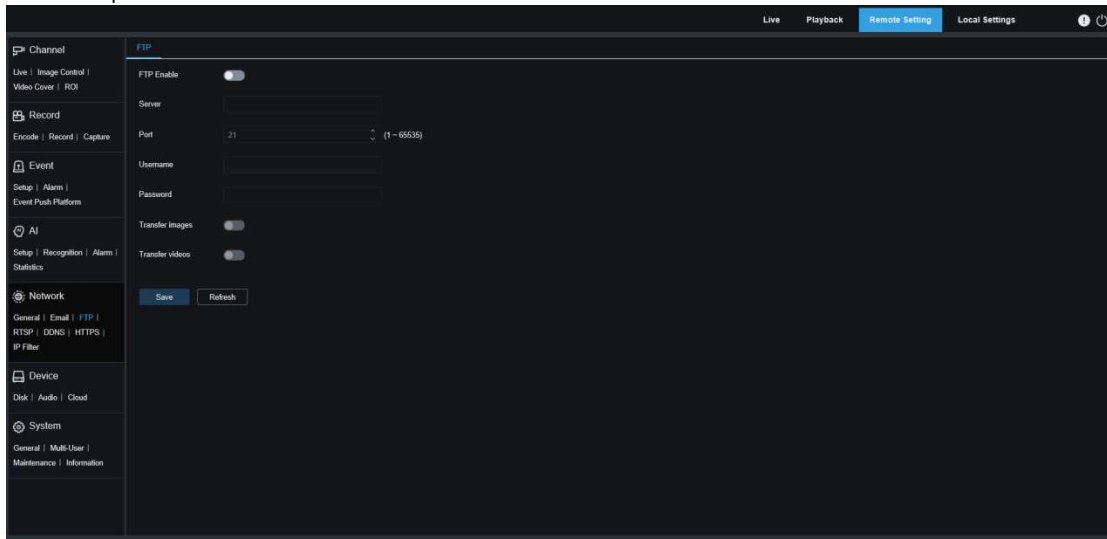
Password: Specifies the email password.

Receiver 1~3: Specifies the email address where the user wants to receive event notifications from IPCs.

Interval: Specifies the interval time you receive notification emails from IPCs.

Please click "**Test Email**" to check that all settings are correct. The system will send an email to the user's inbox. If the user receives the test email, the configuration parameters are correct.

8.8.3 FTP

In this menu, users can enable the FTP server through which users can view images and videos uploaded from IPCs to the FTP server.

FTP Enable: Click to enable the FTP function.

Server: Specifies the IP address or domain name of the SMPT server.

Port: Specifies the port number of the FTP server.

**Username/ Password:** Specifies the username and password of the SMPT server.

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

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

8.8.4 RTSP

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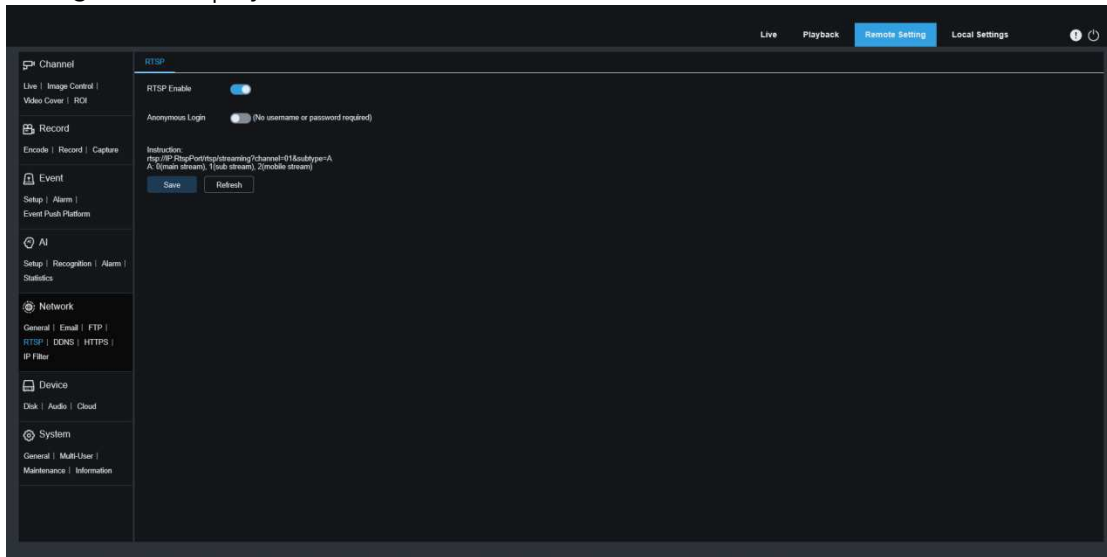

RTSP Enable: RTSP enable switch. This protocol is effective only if this switch is turned on.

Anonymous Login: Anonymous login. This protocol is effective without the need of authentication if this switch is turned on.

8.8.5 DDNS

In this menu, users can configure DDNS settings. DDNS provides a static address to simplify the remote connection with IPCs. To use DDNS, users first need to open an account on the DDNS service provider webpage.
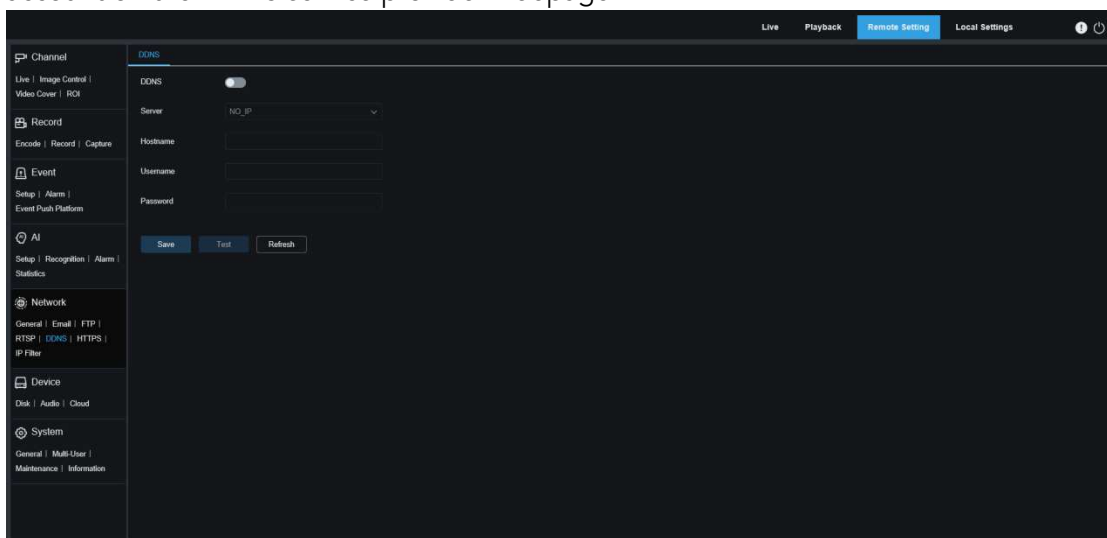
DDNS: DDNS enable switch. Turn it on to enable DDNS.

Server: Select your preferred DDNS server (DDNS_3322, DYNDNS, and NO_IP. CHANGEIP and DNSEXIT may be supported).

Hostname: Enter the domain name created by users on the DDNS service provider webpage. Users can enter this address in the URL box to remotely connect to IPCs through PC.

User/Password: Enter the username and password obtained when creating an account on the DDNS service provider webpage.

After entering all parameters,click Test DDNS to test DDNS settings. If the test result shows "network unreachable or DNS error", check the network connectivity or check whether the DDNS information is correct.

8.8.6 HTTPS

In this menu, users can set the HTTPS protocol. Users can connect to IPCs over the HTTPS protocol.
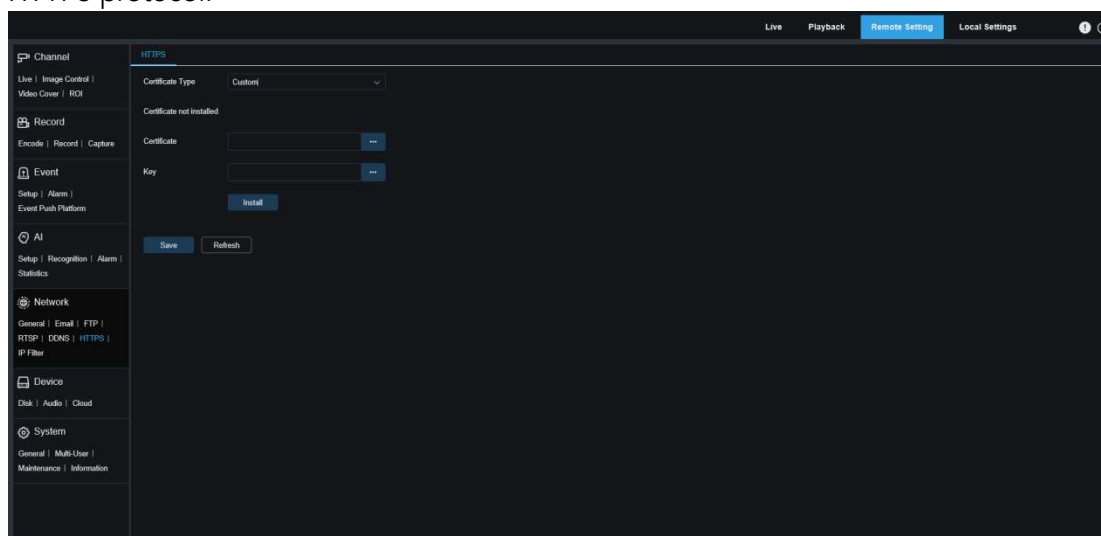

Certificate Type: The options include Default and Custom. In Custom mode, users can use their own certificates for connection with IPCs.

Certificate: In Custom mode, users need to select a custom certificate.

Key: In Custom mode, users need to select a custom key file.

8.8.7 IP Filter

The IP filter function enables users to set a allow list and a block list of IP addresses to access IPCs.
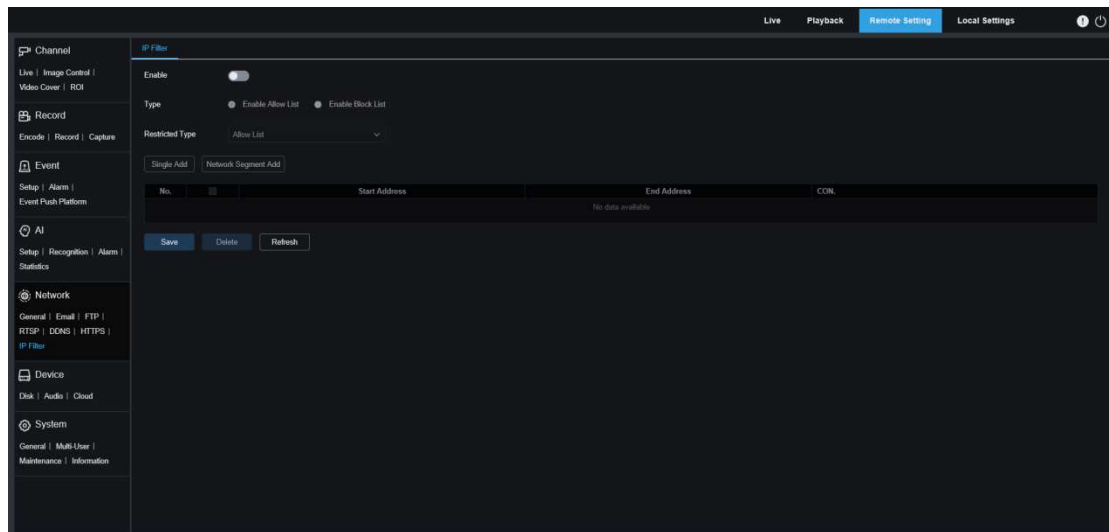
Enable: Used to enable or disable the filter function. If this function is enabled, users can enable block list or allow list.
Restricted Type: Select block list or allow list.
Single Add: Used to add a single IP address.
Network Segment Add: Used to add a network segment.
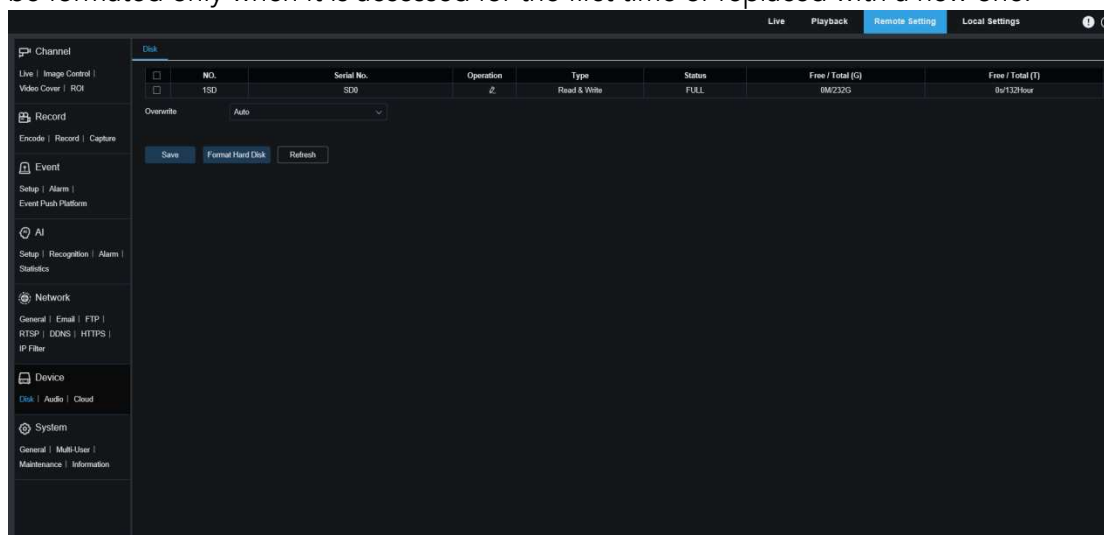   Start Address: Specifies the start address.
      End Address: Specifies the end address.
Delete: Remove added IP addresses from the allow list/block list.

8.9 Device

8.9.1 Disk

In this menu, users can inspect and configure the internal TF card. The TF card needs to be formated only when it is accessed for the first time or replaced with a new one.


Format Hard Disk: Select the TF card to be formated and click this button to format the TF card. Users need to enter username and password and click OK to start formating.
Overwrite: When the TF card is full, this option can be used to overwrite old data in the TF card. If **Auto** is selected, the oldest data will be automatically overwritten when the TF card is full. Select **OFF** if you do not want any old recording data to be overwritten. If this function is disabled, please regularly check that the TF card is not full.

8.9.2 Audio

In this menu, users can set the volume.
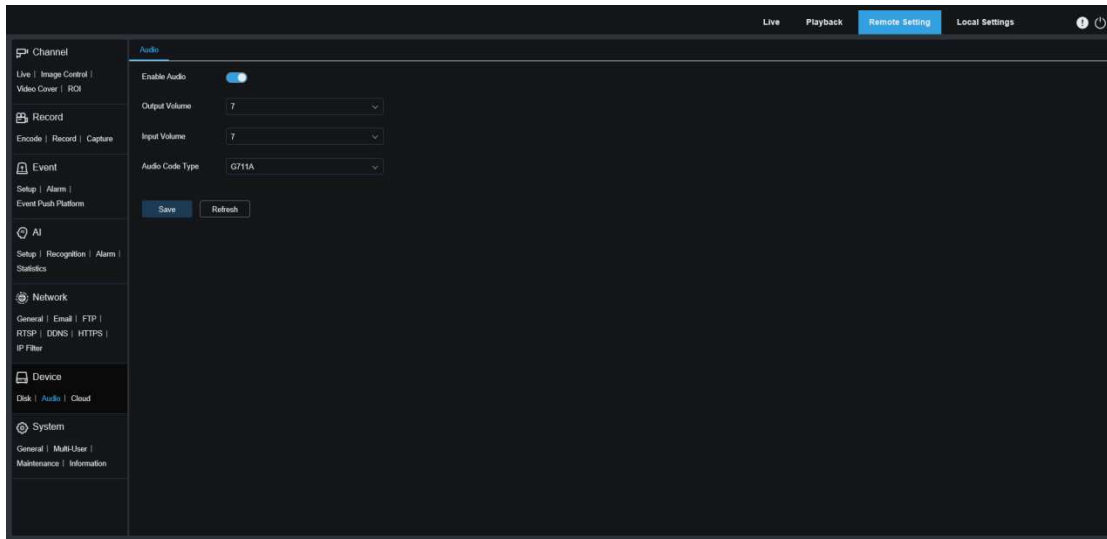

Enable Audio: Used to enable or disable audio.
Output Volume: Used to set the volume of output audio.
Input Volume: Used to set the volume of input audio.
Audio Code Type: Used to set audio code type. The options include G711A and G711U.

8.9.3 Cloud

Users' IPCs can upload snapshots or videos to a cloud storage server through Dropbox. Dropbox is a free service that enables users to easily store and share images.
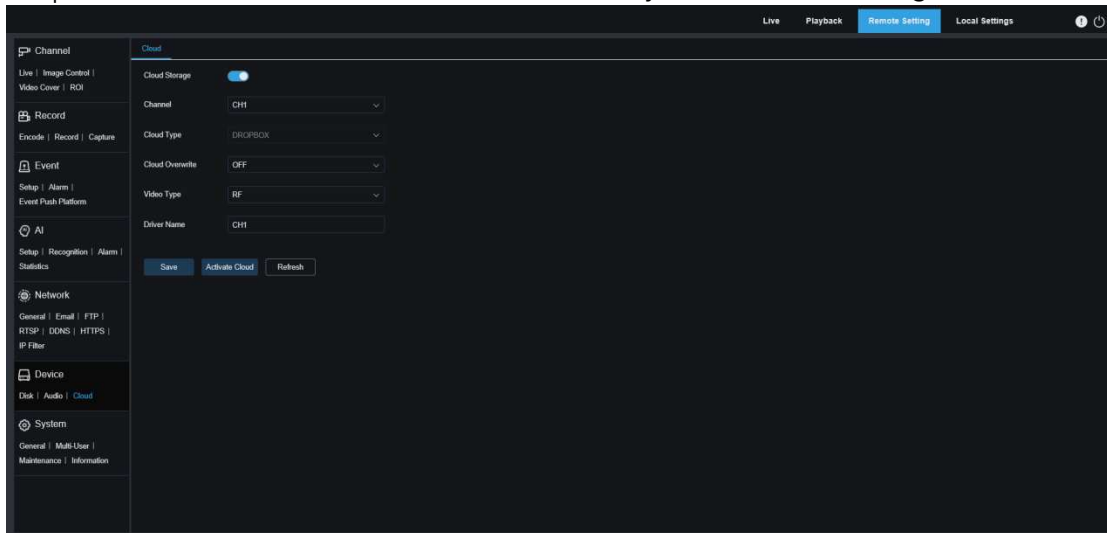
You are advised to create a Dropbox account using your email address and password before enabling the cloud storage service. Upon completion of creation, log in to www.dropbox.com and enter your email address and password, agree to the terms, and click Login.
Cloud Storage: Select to enable this function.
Cloud Type: Specifies cloud storage type. The options include Dropbox and Google

Drive.

Cloud Overwrite: Used to set the overwrite frequency of data in a cloud storage server.

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

Driver Name: Specifies the name of the folder storing videos and images.
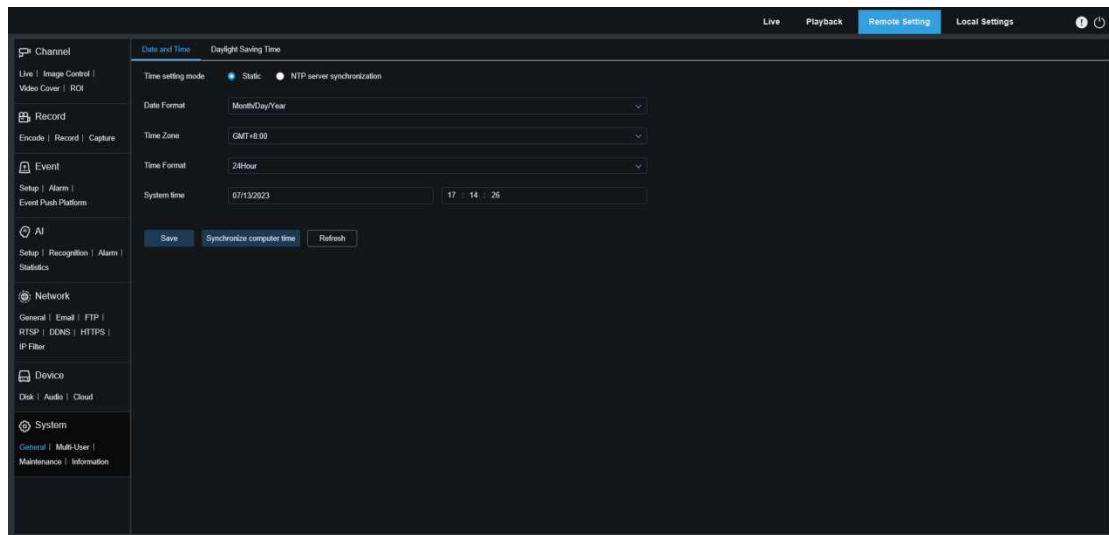
Activate Cloud: Click to activate this function. After a while, you will be redirected to the Dropbox link. Enter your username and password to establish the association.

8.10 System

Here, users modify system information, such as, date, time, region and change password and permissions.

8.10.1 General

8.10.1.1 Date and Time

Time Settings Mode: Specifies the time mode. The options include Static and NTP Server Synchronization.In Static mode, users need to set the time. In NTP Server Synchronization mode, the system time synchronizes with the time server over the network.

Date Format: Used to set the date format.

Time Zone: Used to select the time zone associated with the user's region or city.

Time Format: Used to select the preferred time format.

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

Synchronize Computer Time: Synchronize the time to the PC time.

If the NTP Server Synchronization mode is selected, users cannot manually set the time.

Sever Address: Users can select an automatic time synchronization website.

8.10.1.2 Daylight Saving Time

The Daylight Saving Time (DST) function enables users to add daylight saving time to a particular time zone or region.
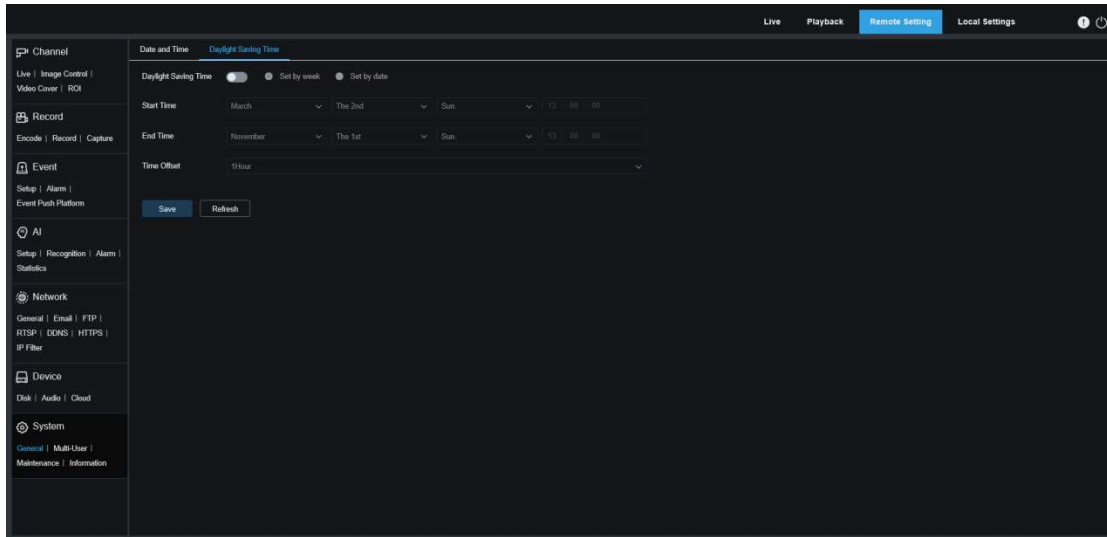
Daylight Saving Time: Enable this option to use DST in your time zone.

Set by Week: Specifies month, specific week, and time to start and end daylight saving time, for example, 2:00 a.m. on the first Sunday of a month.

Set by Date: Specifies the date and time to start and end daylight saving time.

Start Time / End Time: Specifies the start time and end time of daylight saving time.

Time Offset: Specifies the time increased in DST mode in the your time zone. This is the difference between Universal Time Coordinated (UTC) and the local time.

8.10.2 Multi-User

In this menu, users can configure username, password, and user permissions.

The system supports the following user types:

ADMIN - system administrator: The administrator can fully configure the system and can change administrator and user passwords and enable/disable password protection.

USER - normal user: Users only have access to live view, search, playback, and other features. Users can set multiple users with different access permissions.
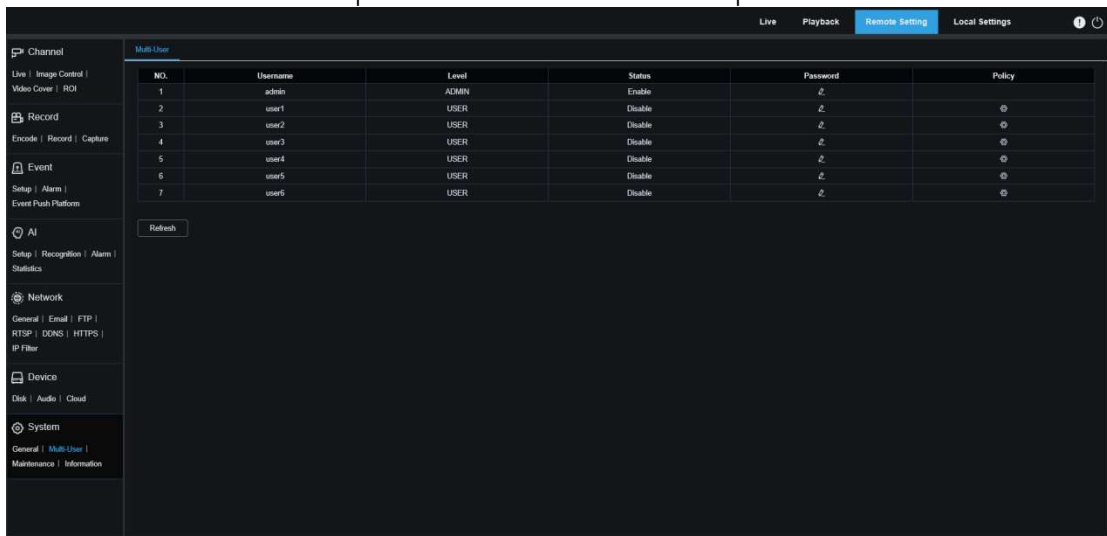
To change an administrator or user password, click the "Password Editing" icon. The password must be 8 to 16 characters in length and a combination of at least any two characters of numbers, uppercase letters, lowercase letters, and special characters. Enter

new password again for confirmation. Save the new password. The system will ask you to enter the old password for authentication.
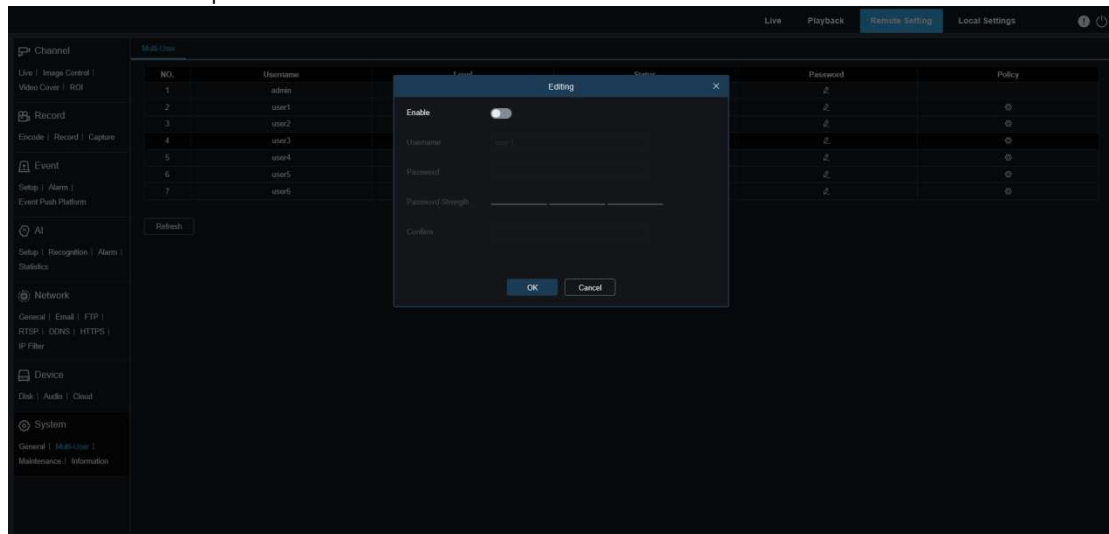
1. Select a user that is not enabled, and click the "Password Editing" icon.
2. Check "**Enable**" to enable the user.
3. Click "**UserName**" to edit username.
4. Click the field next to **Password** to enter your desired password.
5. Click the field next to **Confirm** to enter the password again.

Click **OK**. Users need to enter the administrator password for authentication.

Set permissions of sub users: Click the ⚙ button to go to the Policy page. You can enable permissions of the sub user simply by checking the corresponding feature boxes.Click **All** to select all boxes and click **Clear** to clear all boxes.
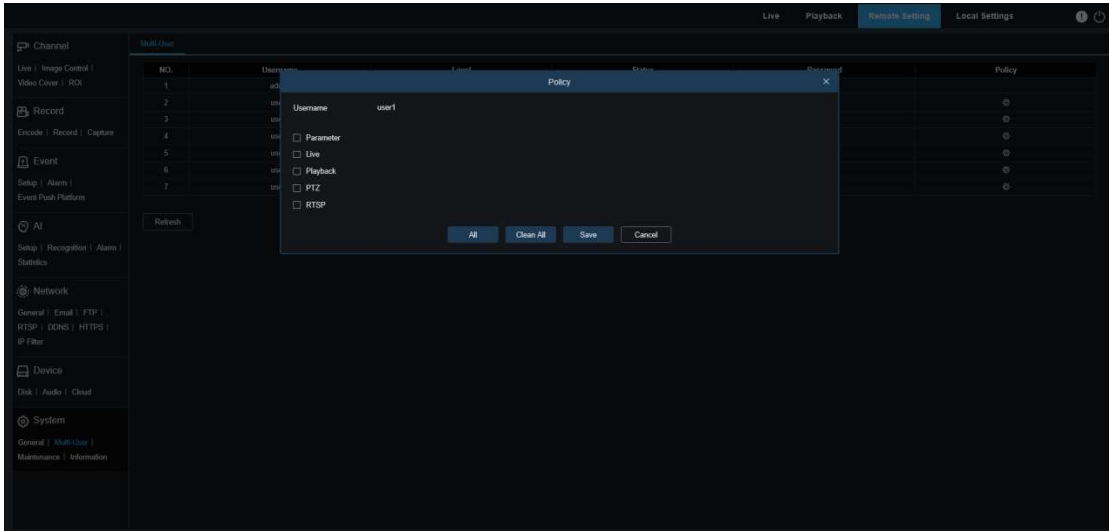

8.10.3 Maintenance

In this menu, users can search for and view the system log, restore to defaults, upgrade the system, export and import system parameters, and configure the auto reboot.

8.10.3.1 Log

The system log shows important system events, such as motion alarms and system warnings. Users can easily import the backup file of the system log to the PC within a set time period.
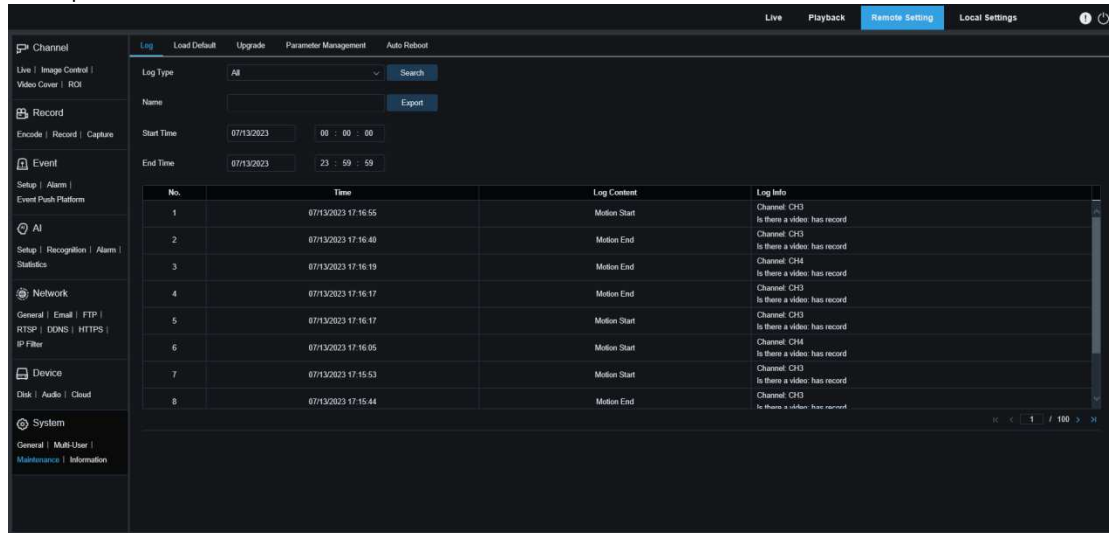
Log search and backup:
Select event type to search for from the drop-down list next to **Log Type** or select **All** to view the entire system log within the selected time range. The options include system log, configuration log, alarm log, account log, recording log, storage log, and network log.

·   **System:** System setup, reboot, auto reboot, upgrade, time setup, and NTP server

synchronization.

- **Configuration:** IPC live control, privacy area settings, recording mode settings, recording plan settings, main stream settings, network settings, substream settings, email settings, color settings, motion detection settings, hard disk settings, multi-user settings, NTP settings, image control, RTSP settings, IP filter settings, factory default settings, audio settings, export settings, import settings, and push settings.
- **Alarm:** Motion detection start, motion detection end, I/O alarm start, I/O alarm end, line crossing start, line crossing end, object detection start, object detection end, pedestrian&vehicle start, pedestrian&vehicle end, face detection start, face detection end, cross counting start, cross counting end, crowd density start, crowd density end, queue length start, queue length end, license plate start, license plate end, intrusion start, intrusion end, region entrance start, region entrance end, region exiting start, region exiting end, sound alarm start, and sound alarm end.
- **Account:** Login, logout, password lock, and user switching.
- **Record:** Search, playback, and backup.
- **Storage:** HDD formating, HDD full, and HDD error.
- **Network:** Network disconnection, network connection, network exception, and network mode change.

1. Select event type to search for from the drop-down list next to **Minor Type**. This menu is unavailable when All is selected for Log Type.
2. Enter the name of the imported file in the field next to **Name**. Click **Export** to create the backup of the system log.
3. Click the field next to **Start Time** to select the date and time to start searching from the on-screen calendar.
4. Click the field next to **End Time** to select the date and time to end searching from the on-screen calendar.
5. Click **Search** to start searching.
6. Browse the system log from the selected time period:
7. Use the ⏮ ‹ / › ⏭ button in the lower right corner to switch between pages of the system log.

8.10.3.2 Load Defaults

Restore the device to defaults. Users can either reset all settings at a time or reset only settings in a specific menu. Note: Restoring to defaults will not delete videos and snapshots stored in the SD card.
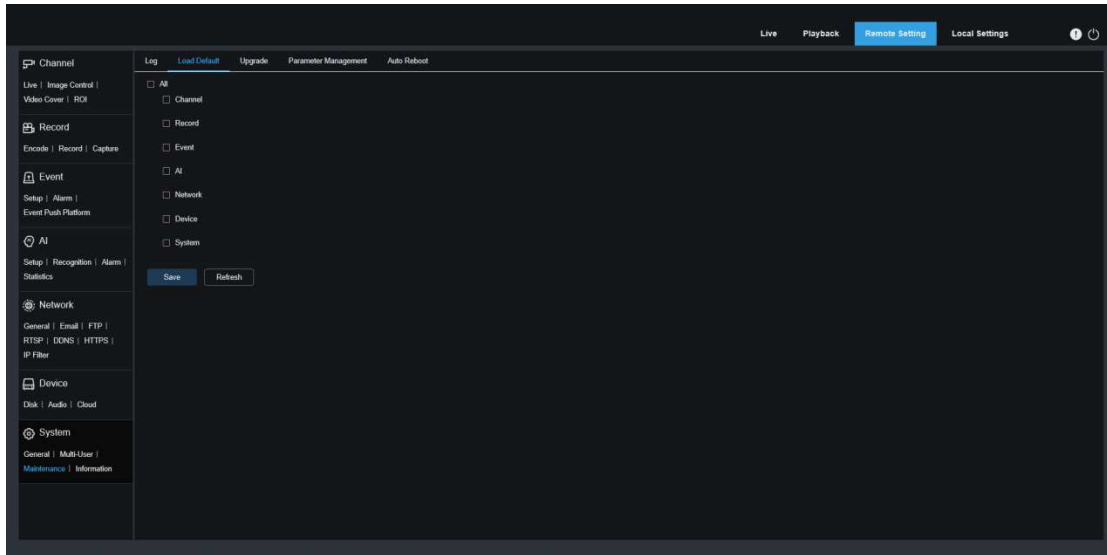
Check items to be restored to defaults or check **All** to select all items. Click "**Save**" to load defaults of selected items.

8.10.3.3 Upgrade
In this menu, users can upgrade firmware.
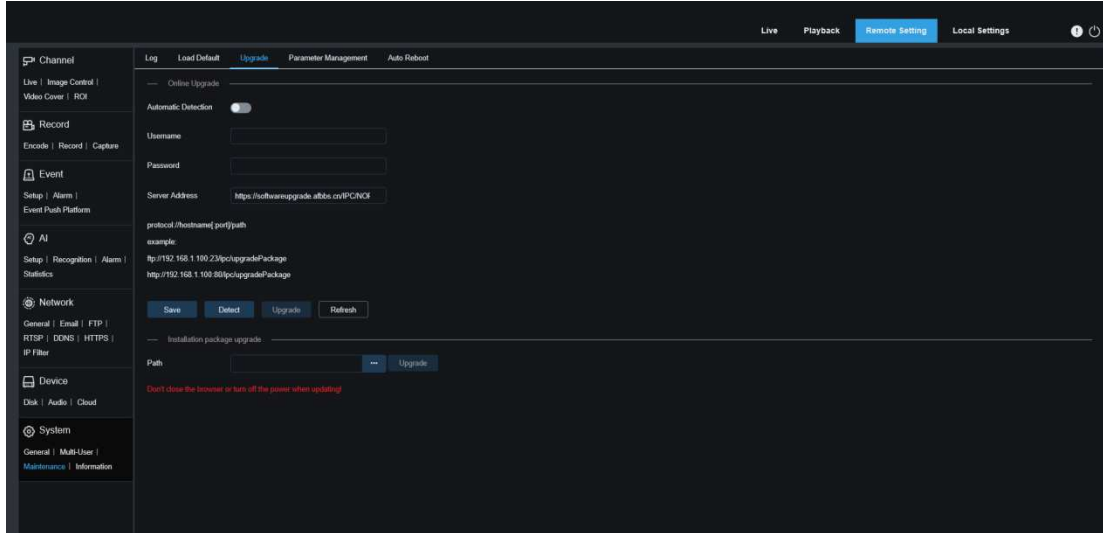
Automatic Detection: Enable automatic detection. If this function is enabled, the over-the-air upgrade file will be automatically detected.

**Username:** Specifies the username of the FTP server.

Password: Specifies the password of the FTP server.

FTP/HTTP url address: Specifies the over-the-air upgrade address (no username or password is required for HTTP upgrade).

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

Save: Click this button to save your settings.

Detect: After uploading the upgrade file and setting the upgrade path, click Detect to manually detect the over-the-air upgrade file. A prompt message displays when updates are available, as shown in the following figure:
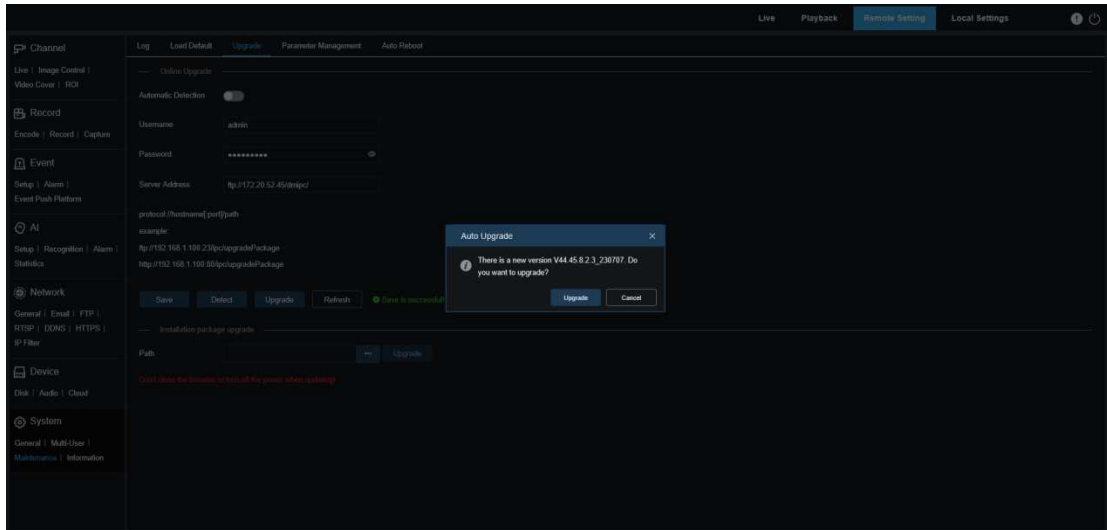
**Upgrade:** Click this button to start system upgrade.

Put the firmware file (.sw) to the HDD of your PC.

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

Click the **Upgrade** button to start system upgrade. The system upgrade will take about 2 to 3 minutes. Do not cut off the power supply to your device or close your IE browser while firmware upgrade is in progress.

8.10.3.4 Parameter Management

Users can export configured parameters in the main menu to the PC and can also import exported configuration files from the PC to the device.
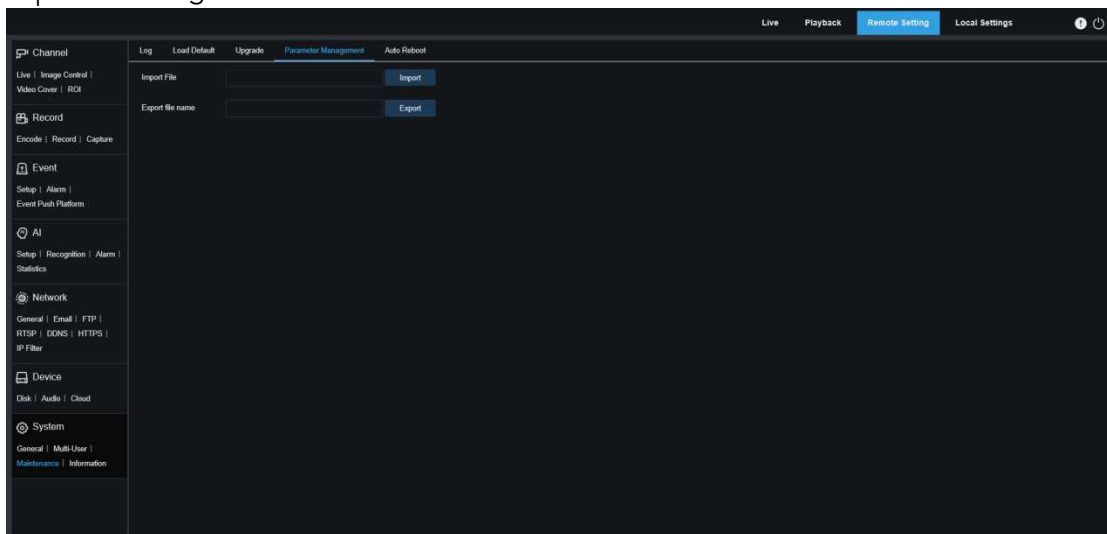

Import File: Click the field. A path window appears. Select the parameter file and click **Import** to start importing parameters.

Export File Name: Click the field and enter the file name of the exported parameters. Click **Export** to export parameters.

8.10.3.5 Auto Maintenance

In this menu, users can set periodic auto reboot. You are advised to enable this function to maintain the operational stability of your device.
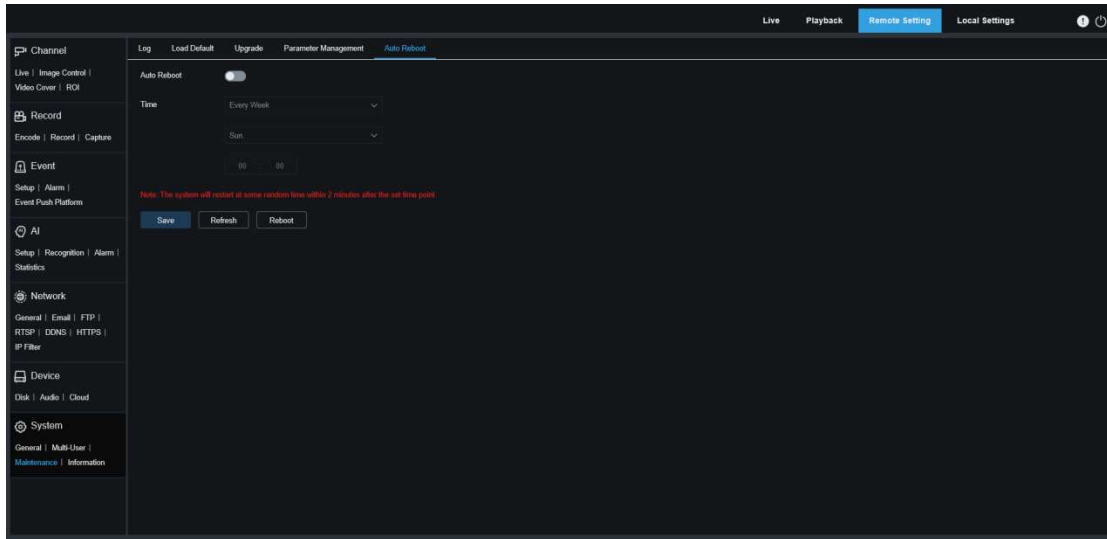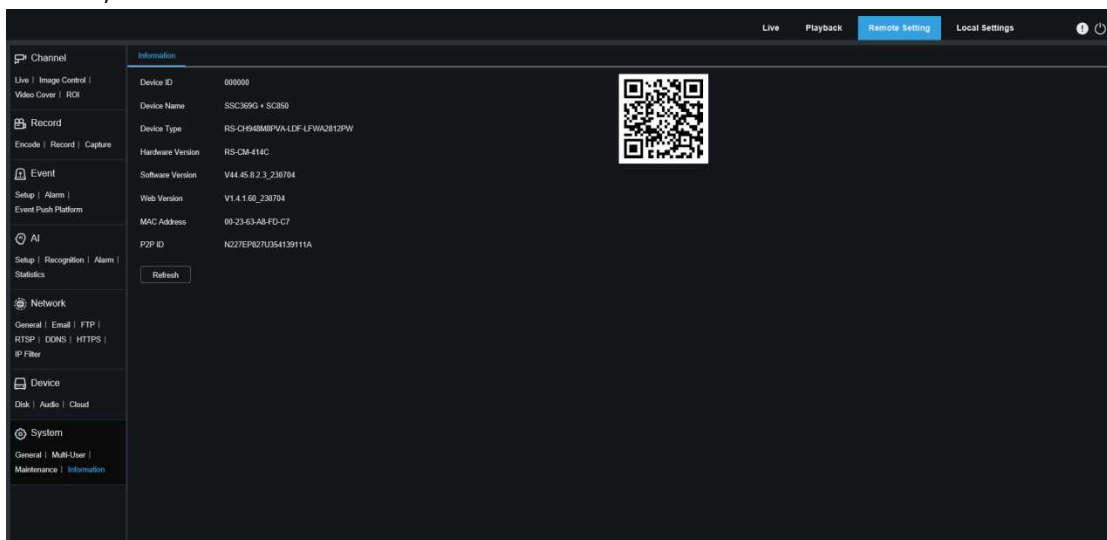
Auto Reboot: Check to enable this function.

Time: Users can set rebooting IPCs by day, week, or month.

8.10.4 Information

In this menu, users can view system information, such as device ID, device name, MAC address, and firmware version.

9 Local Settings

In this menu, users can set the storage path of recording files, downloaded files, and image files, as well s the format of recordings and images.
Note: Programs without plug-ins are supported. You can skip this page when Safari 12, Chrome 57, Firefox 52 and their respective later versions, and Edge 41 are used for Web access.
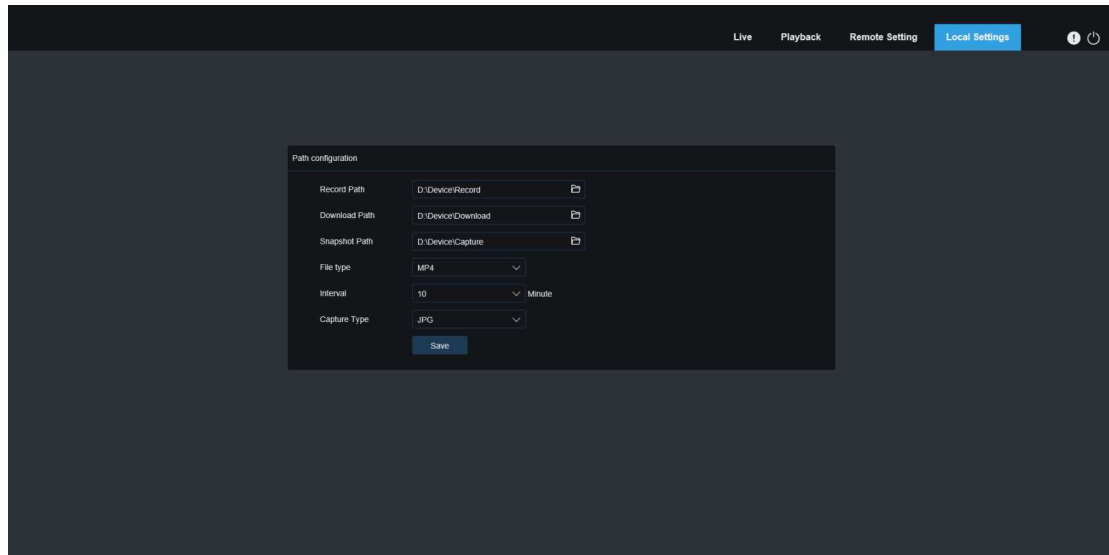
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