# Network Camera

User Manual

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| Symbol | Description |
|---|---|
| **Danger** | Indicates a hazardous situation which, if not avoided, will or could result in death or serious injury. |
| **Caution** | Indicates a potentially hazardous situation which, if not avoided, could result in equipment damage, data loss, performance degradation, or unexpected results. |
| **Note** | Provides additional information to emphasize or supplement important points of the main text. |

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# Chapter 1 Overview

## 1.1 Configuration Process

This section briefly explains the software configuration process of the network camera. Please set up the device according to the actual situation.

### General Configuration Process

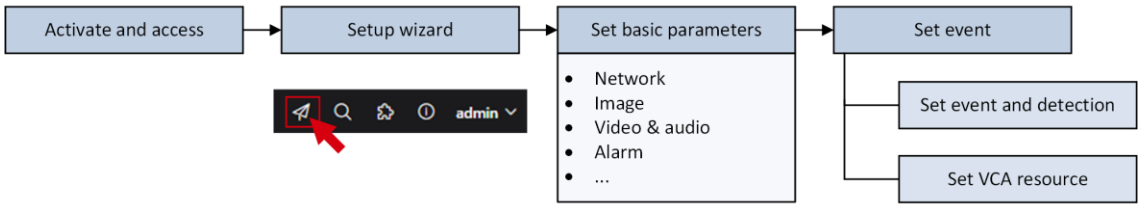



**Figure 1-1 General Configuration Process**

- ***Activate and access device via web browser.*** You should set a login password (for **admin** user) to activate the device when accessing the device via network. Open the web browser and enter the IP address. The default IP address of the device is 192.168.1.64.
- Follow the **Wizard** or click on the web page to quickly set the device parameters.
- Set the basic parameters, including network, image, video and audio, alarm, etc.
- Set event and detection rules. You can set basic ***event and detection*** rules or ***allocate VCA resources*** for deep learning function.

## 1.2 Firmware Update

For better user experience, we recommend you update your device to the latest firmware. Please get the latest firmware package from the official website or the local technical expert. For more information, please visit the official website: ***https://ltsecurityinc.com/downloads***.
For the upgrading settings, refer to ***Upgrade***.

## 1.3 System Requirement

Your computer should meet the requirements for proper visiting and operating the product.

| | |
|---|---|
| Operating System | Microsoft Windows XP SP1 and above version |
| CPU | 2.0 GHz or higher |

| | |
|---|---|
| RAM | 1G or higher |
| Display | 1024×768 resolution or higher |
| Web Browser | For the details, see ***Plug-in Installation*** |

# Chapter 2 Device Activation and Accessing

To protect the security and privacy of the user account and data, you should set a login password to activate the device when accessing the device via network.

**Note**

Refer to the user manual of the software client for detailed information about the client software activation.

## 2.1 Activate the Device via IP Portal

Search and activate the online devices via IP Portal software.

**Before You Start**

Access *https://ltsecurityinc.com/downloads* to get IP Portal software to install.

**Steps**

1. Connect the device to network using the network cable.
2. Run IP Portal software to search the online devices.
3. Check **Device Status** from the device list and select **Inactive** device.
4. Create and input the new password in the password field and confirm the password.

   **Caution**

   We highly recommend you create a strong password of your own choosing (using a minimum of 8 characters, including upper case letters, lower case letters, numbers, and special characters) in order to increase the security of your product. And we recommend you reset your password regularly, especially in the high security system, resetting the password monthly or weekly can better protect your product.

5. Click **OK**.
   **Device Status** changes into **Active**.
6. Optional: Change the network parameters of the device in **Modify Network Parameters**.

## 2.2 Activate the Device via Browser

You can access and activate the device via the browser.

**Steps**

1. Connect the device to the PC using the network cables.
2. Change the IP address of the PC and device to the same segment.

**Note**

The default IP address of the device is 192.168.1.64. You can set the IP address of the PC from 192.168.1.2 to 192.168.1.253 (except 192.168.1.64). For example, you can set the IP address of the PC to 192.168.1.100.

3. Input ***192.168.1.64*** in the browser.
4. Set device activation password.

**Caution**

We highly recommend you create a strong password of your own choosing (using a minimum of 8 characters, including at least three of the following categories: upper case letters, lower case letters, numbers, and special characters) in order to increase the security of your product. And we recommend you reset your password regularly, especially in the high security system, resetting the password monthly or weekly can better protect your product.

5. Click **OK**.
6. Input the activation password to log in to the device.
7. Optional: Go to **Configuration** → **Network** → **Network Settings** → **TCP/IP** to change the IP address of the device to the same segment of your network.

## 2.3 Login

Log in to the device via Web browser.

### 2.3.1 Plug-in Installation

Certain operating systems and web browsers may restrict the display and operation of the device function. You should install a plug-in or complete certain settings to ensure normal display and operation. For detailed restricted function, refer to the actual device.

| Operating System | Web Browser | Operation |
|---|---|---|
| Windows | ● Internet Explorer 10+<br>● Google Chrome 57 and earlier version<br>● Mozilla Firefox 52 and earlier version | Follow pop-up prompts to complete plug-in installation. |
| | ● Google Chrome 57+<br>● Mozilla Firefox 52+<br>● Edge 89+ | |

| | | |
|---|---|---|
| | Click to download and install plug-in. | |
| Mac OS | ● Google Chrome 57+<br>● Mozilla Firefox 52+<br>● Mac Safari 16+ | Plug-in installation is not required.<br>Go to **Configuration** → **Network** → **Network Service** → **WebSocket(s)** to enable WebSocket or WebSockets for normal view. Display and operation of certain functions are restricted. For example, Playback and Picture are not available. For detailed restricted function, refer to the actual device. |

**Note**

- The device only supports Windows and Mac OS system and does not support Linux system.
- To improve the user experience of certain devices, it's recommended to use a more advanced web browser for access. Please refer to the actual device or product specification.
- Certain device models do not support Internet Explorer web browser.

## 2.3.2 Admin Password Recovery

If you forget the admin password, you can reset the password by clicking **Forget Password** on the login page after completing the account security settings.
You can reset the password by setting the security question or email.

**Note**

When you need to reset the password, make sure that the device and the PC are on the same network segment.

### Security Question

You can set the account security during the activation. Or you can go to **Configuration** → **System** → **User Management**, click **Account Security Settings**, select the security question and input your answer.
You can click **Forget Password** and answer the security question to reset the admin password when accessing the device via browser.

### Email

You can set the account security during the activation. Or you can go to **Configuration** → **System** → **User Management**, click **Account Security Settings**, input your email address to receive the verification code during the recovering operation process.

## 2.3.3 Illegal Login Lock

It helps to improve security when accessing the device via Internet.
Go to **Maintenance and Security** → **Security** → **Login Management** and enable **Enable Illegal Login Lock**. **Illegal Login Attempts** and **Locking Duration** are configurable.

**Illegal Login Attempts**

When your login attempts with the wrong password reach the set times, the device is locked.

**Locking Duration**

The device releases the lock after the setting duration.

# Chapter 3 Live View

It introduces the live view parameters, function icons and transmission parameters settings.

## 3.1 Live View Parameters

The supported functions vary depending on the model.

### 3.1.1 Start and Stop Live View

Click **Live View**. Click to start live view. Click to stop live view.

### 3.1.2 Aspect Ratio

Aspect Ratio is the display ratio of the width to height of the image.

- refers to 4:3 window size.
- refers to 16:9 window size.
- refers to original window size.
- refers to self-adaptive window size.
- refers to original ratio window size.

### 3.1.3 Live View Stream Type

Select the live view stream type according to your needs. For the detailed information about the stream type selection, refer to ***Stream Type***.

### 3.1.4 Select the Third-Party Plug-in

When the live view cannot display via certain browsers, you can change the plug-in for live view according to the browser.

**Steps**

1. Click **Live View**.
2. Click to select the plug-in.
   - When you access the device via Internet Explorer, you can select Webcomponents or QuickTime.
   - When you access the device via the other browsers, you can select Webcomponents, QuickTime or MJPEG.

### 3.1.5 Light

Click to turn on or turn off the illuminator.

**Caution**

For the device with laser:

- DO NOT stare at operating light source. May be harmful to the eyes.
- If appropriate shielding or eye protection is not available, turn on the light only at a safe distance or in the area that is not directly exposed to light.
- When assembling, installing or maintaining the device, DO NOT turn on the light, or wear eye protection.

### 3.1.6 Count Pixel

It helps to get the height and width pixel of the selected region in the live view image.

**Steps**

1. Click to enable the function.
2. Drag the mouse onto the image to select a desired rectangle area.
   The width pixel and height pixel are displayed on the bottom of the live view image.

### 3.1.7 Start Digital Zoom

It helps to see detailed information about any region in the image.

**Steps**

1. Click to enable the digital zoom.
2. In live view image, drag the mouse to select the desired region.
3. Click in the live view image back to the original image.

### 3.1.8 Auxiliary Focus

It is used for motorized devices. It can improve the image if the device cannot focus clearly.
For the device that supports ABF, adjust the lens angle, then focus and click ABF button on the device. The device can focus clearly.
Click to focus automatically.

**Note**

- If the device cannot focus with auxiliary focus, you can use ***Lens Initialization***, then use auxiliary focus again to make the image clear.
- If auxiliary focus cannot help the device focus clearly, you can use manual focus.

## 3.1.9 Lens Initialization

Lens initialization is used on the device equipped with motorized lens. The function can reset lens when long time zoom or focus results in blurred image. This function varies according to different models.

Click to operate lens initialization.

## 3.1.10 Lens Parameters Adjustment

PTZ is an abbreviation for pan, tilt, and zoom. It means the movement options of the device. In live view interface, you can click the direction control buttons to control the pan/tilt movement, and click the zoom/focus/iris buttons to realize lens control.

**Note**

- Supported PTZ functions may vary according to different camera models.
- For the devices which support lens movements only, the direction buttons are invalid.

### Direction Control

Click and hold the direction button to pan/tilt the device.

### Zoom

- Click , and the lens zoom in.
- Click , and the lens zoom out.

### Focus

- Click , then the lens focuses near, and the nearby object gets clear.
- Click , then the lens focuses far, and the distant object gets clear.

### Iris

- When the image is too dark, click to enlarge the iris.
- When the image is too bright, click to stop down the iris.

### PTZ Speed

Slide to adjust the speed of the pan/tilt movement.

### PTZ Lock

PTZ lock means to disable the zoom, focus and PTZ rotation functions of the corresponding

channel, so that to reduce the target missing caused by PTZ adjustment.

**Note**

The function is only supported by certain device models.

Click 🔒 to lock the PTZ operation or click 🔓 to unlock it.

## PTRZ Adjustment

PTRZ is an abbreviation for pan, tilt, rotate and zoom. It means the movement options of the device. In the interface, you can use the control buttons to adjust the movement of the device, such as device panning, tilting, rotating, and zooming.

**Note**

The function is only supported by certain device models.

Go to **Configuration** → **PTZ** → **PTRZ**.

## Control Panel

| | |
|---|---|
| | Click and hold the directional button to pan/tilt the device. |
| ● ↺<br>● ↻ | Click and hold the button to adjust rotating position. |

## Auto Recovery

Click ⊙, the device will correct the rotating position automatically to make the live view image positive. Make sure the **Self-Test Status** is **Initialized**.

**Note**

- Go to **Configuration** → **PTZ** → **PTZ** to view the **Self-Test Status**.
- If you want to initialize PTZ and enable PTZ self-check manually, go to **Configuration** → **PTZ** → **PTZ** and click **Self-Test**, then the PTZ is initialized.

Refer to ***Lens Parameters Adjustment*** for more detailed settings of lens adjustment.

### 3.1.11 Conduct 3D Positioning

3D positioning is to relocate the selected area to the image center.

**Steps**

1. Click to enable the function.
2. Select a target area in live image.
   - Left click on a point on live image: the point is relocated to the center of the live image. With no zooming in or out effect.
   - Hold and drag the mouse to a lower right position to frame an area on the live: the framed area is zoomed in and relocated to the center of the live image.
   - Hold and drag the mouse to an upper left position to frame an area on the live: the framed area is zoomed out and relocated to the center of the live image.
3. Click the button again to turn off the function.

## 3.2 Set Transmission Parameters

The live view image may be displayed abnormally according to the network conditions. In different network environments, you can adjust the transmission parameters to solve the problem.

**Steps**

1. Go to **Configuration** → **Local** → **Live View Parameters**.
2. Set the transmission parameters as required.

**Protocol**

**TCP**

TCP ensures complete delivery of streaming data and better video quality, yet the real-time transmission will be affected. It is suitable for a stable network environment.

**UDP**

UDP is suitable for the unstable network environment that does not demand high video fluency.

**MULTICAST**

MULTICAST is suitable for the situation that there are multiple clients. You should set the multicast address for them before selection.

**Note**

For detailed information about multicast, refer to ***Multicast***.

**HTTP**

HTTP is suitable for the situation that the third-party needs to get the stream from the device.

**Playing Performance**

**Shortest Delay**

The device takes real-time video image as the priority over the video fluency.

**Balanced**

The device ensures both real-time video image and fluency.

**Fluent**

The device takes video fluency as the priority over teal-time. In poor network environment, the device cannot ensure video fluency even the fluency is enabled.

**Custom**

You can set the frame rate manually. In poor network environment, you can reduce the frame rate to get a fluent live view. But the rule information may cannot display.

3. Click **Save**.

# Chapter 4 Video and Audio

This part introduces the configuration of video and audio related parameters.

## 4.1 Video Settings

This part introduces the settings of video parameters, such as stream type, video encoding, and resolution.
Go to setting page: **Configuration** → **Video/Audio** → **Video**.

### 4.1.1 Stream Type

For device support more than one stream, you can specify parameters for each stream type.

**Main Stream**

The stream stands for the best stream performance the device supports. It usually offers the best resolution and frame rate the device can do. But high resolution and frame rate usually means larger storage space and higher bandwidth requirements in transmission.

**Sub Stream**

The stream usually offers comparatively low resolution options, which consumes less bandwidth and storage space.

**Other Streams**

Steams other than the main stream and sub stream may also be offered for customized usage.

### 4.1.2 Video Type

Select the content (video and audio) that should be contained in the stream.

**Video Stream**

Only video content is contained in the stream.

**Video&Audio**

Video content and audio content are contained in the composite stream.

### 4.1.3 Resolution

Select video resolution according to actual needs. Higher resolution requires higher bandwidth

and storage.

## 4.1.4 Bitrate Type and Max. Bitrate

**Constant Bitrate**

It means that the stream is compressed and transmitted at a comparatively fixed bitrate. The compression speed is fast, but mosaic may occur on the image.

**Variable Bitrate**

It means that the device automatically adjusts the bitrate under the set **Max. Bitrate**. The compression speed is slower than that of the constant bitrate. But it guarantees the image quality of complex scenes.

## 4.1.5 Video Quality

When **Bitrate Type** is set as Variable, video quality is configurable. Select a video quality according to actual needs. Note that higher video quality requires higher bandwidth.

## 4.1.6 Frame Rate

The frame rate is to describe the frequency at which the video stream is updated, and it is measured by frames per second (fps).
A higher frame rate is advantageous when there is movement in the video stream, as it maintains image quality throughout. Note that higher frame rate requires higher bandwidth and larger storage space.

## 4.1.7 Video Encoding

It stands for the compression standard the device adopts for video encoding.

**Note**

Available compression standards vary according to device models.

### H.264

H.264, also known as MPEG-4 Part 10, Advanced Video Coding, is a compression standard. Without compressing image quality, it increases compression ratio and reduces the size of video file than MJPEG or MPEG-4 Part 2.

### H.264+

H.264+ is an improved compression coding technology based on H.264. By enabling H.264+, you

can estimate the HDD consumption by its maximum average bitrate. Compared to H.264, H.264+ reduces storage by up to 50% with the same maximum bitrate in most scenes.
When H.264+ is enabled, **Max. Average Bitrate** is configurable. The device gives a recommended max. average bitrate by default. You can adjust the parameter to a higher value if the video quality is less satisfactory. Max. average bitrate should not be higher than max. bitrate.

**Note**

When H.264+ is enabled, **I Frame Interval** is not configurable.

## H.265

H.265, also known as High Efficiency Video Coding (HEVC) and MPEG-H Part 2, is a compression standard. In comparison to H.264, it offers better video compression at the same resolution, frame rate and image quality.

## H.265+

H.265+ is an improved compression coding technology based on H.265. By enabling H.265+, you can estimate the HDD consumption by its maximum average bitrate. Compared to H.265, H.265+ reduces storage by up to 50% with the same maximum bitrate in most scenes.
When H.265+ is enabled, **Max. Average Bitrate** is configurable. The device gives a recommended max. average bitrate by default. You can adjust the parameter to a higher value if the video quality is less satisfactory. Max. average bitrate should not be higher than max. bitrate.

**Note**

When H.265+ is enabled, **I Frame Interval** is not configurable.

## I-Frame Interval

I-frame interval defines the number of frames between 2 I-frames.
In H.264 and H.265, an I-frame, or intra frame, is a self-contained frame that can be independently decoded without any reference to other images. An I-frame consumes more bits than other frames. Thus, video with more I-frames, in other words, smaller I-frame interval, generates more steady and reliable data bits while requiring more storage space.

## SVC

Scalable Video Coding (SVC) is the name for the Annex G extension of the H.264 or H.265 video compression standard.
The objective of the SVC standardization has been to enable the encoding of a high-quality video bitstream that contains one or more subset bitstreams that can themselves be decoded with a complexity and reconstruction quality similar to that achieved using the existing H.264 or H.265 design with the same quantity of data as in the subset bitstream. The subset bitstream is derived

by dropping packets from the larger bitstream.
SVC enables forward compatibility for older hardware: the same bitstream can be consumed by basic hardware which can only decode a low-resolution subset, while more advanced hardware will be able decode high quality video stream.

### MPEG4

MPEG4, referring to MPEG-4 Part 2, is a video compression format developed by Moving Picture Experts Group (MPEG).

### MJPEG

Motion JPEG (M-JPEG or MJPEG) is a video compression format in which intraframe coding technology is used. Images in an MJPEG format are compressed as individual JPEG images.

### Profile

This function means that under the same bitrate, the more complex the profile is, the higher the quality of the image is, and the requirement for network bandwidth is also higher.

## 4.1.8 Smoothing

It refers to the smoothness of the stream. The higher value of the smoothing is, the better fluency of the stream will be, though, the video quality may not be so satisfactory. The lower value of the smoothing is, the higher quality of the stream will be, though it may appear not fluent.

## 4.1.9 AI Encoding

It can save video recording storage space after enabling this function, and you can enter **Average Bit Rate** according to actual demands.
**Note:**
● Parameters of video encoding and H.265+ cannot be configured after enabling the AI encoding function.
● Only the main stream supports this function.
● AI encoding may differ by the device model. Refer to the device you purchased for actual conditions.

# 4.2 Audio Settings

It is a function to set audio parameters such as audio encoding, environment noise filtering.
Go to the audio settings page: **Configuration** → **Video/Audio** → **Audio**.

**Note**

Only certain camera models support the function.

### 4.2.1 Audio Encoding

Select the audio encoding compression of the audio.

### 4.2.2 Audio Input

**Note**

- Connect the audio input device as required.
- The audio input display varies with the device models.

| | |
|---|---|
| LineIn | Set **Audio Input** to **LineIn** when the device connects to the audio input device with high output power, such as MP3, synthesizer or active pickup. |
| MicIn | Set **Audio Input** to **MicIn** when the device connects to the audio input device with low output power, such as microphone or passive pickup. |

### 4.2.3 Audio Output

**Note**

Connect the audio output device as required.

It is a switch of the device audio output. When it is disabled, all the device audios cannot output. The audio output display varies with the device modes.

### 4.2.4 Environmental Noise Filter

Set it as OFF or ON. When the function is enabled, the noise in the environment can be filtered to some extent.

## 4.3 Two-way Audio

It is used to realize the two-way audio function between the monitoring center and the target in

the monitoring screen.

**Before You Start**

- Make sure the audio input device (pick-up or microphone) and audio output device (speaker) connected to the device is working properly. Refer to specifications of audio input and output devices for device connection.
- If the device has built-in microphone and speaker, two-way audio function can be enabled directly.

**Steps**

1. Click **Live View**.
2. Click on the toolbar to enable two-way audio function of the camera.
3. Click , disable the two-way audio function.

# 4.4 ROI

ROI (Region of Interest) encoding helps to discriminate the ROI and background information in video compression. Technology assigns more encoding resources to the region of interest, thus increasing the quality of the ROI whereas background information is less focused.

## 4.4.1 Set ROI

ROI (Region of Interest) encoding helps to assign more encoding resources to the region of interest, thus, to increase the quality of the ROI whereas the background information is less focused.

**Before You Start**

Please check the video coding type. ROI is supported when the video coding type is H.264 or H.265.

**Steps**

1. Go to **Configuration** → **Video/Audio** → **ROI**.
2. Check **Enable**.
3. Select **Stream Type**.
4. Select **Region No.** and click to draw ROI region on the live view.

**Note**

Select the fixed region that needs to be adjusted and drag the mouse to adjust its position.

5. Input the **Area Name** and **ROI Level**.
6. Click **Save**.

**Note**

The higher the ROI level is, the clearer the image of the detected region is.

7. Optional: Select another region No. and repeat the above steps if you need to draw multiple fixed regions.

## 4.5 Set Target Cropping

You can crop the image, transmit and save only the images of the target area to save transmission bandwidth and storage.

**Steps**

1. Go to **Configuration** → **Video/Audio** → **Target Cropping**.
2. Check **Enable** and set **Third Stream** as the **Stream Type**.

**Note**

After enabling target cropping, the third-stream resolution cannot be configured.

3. Select a **Cropping Resolution**.
   A red frame appears in the live view.
4. Drag the frame to the target area.
5. Click **Save**.

**Note**

- Only certain models support target cropping and the function varies according to different camera models.
- Some functions may be disabled after enabling target cropping.

## 4.6 Display Info. on Stream

The information of the objects (e.g. human, vehicle, etc.) is marked in the video stream. You can set rules on the connected rear-end device or client software to detect events including line crossing, intrusion, etc.

**Before You Start**

This function is supported in smart events. Go to **VCA**, select **Smart Event** and click **Next** to enable **Smart Event**.

**Steps**

1. Go to **Configuration** → **Video/Audio** → **Display Info. on Stream**.
2. Check **Enable Dual-VCA**.

3. Click **Save**.

# 4.7 Display Settings

It offers parameter settings to adjust image features.
Go to **Configuration** → **Image** → **Display Settings**.
Click **Restore Default** to restore settings.

## 4.7.1 Scene Mode

There are several sets of image parameters predefined for different installation environments. Select a scene according to the actual installation environment to speed up the display settings.

### Image Adjustment

By adjusting **Brightness**, **Saturation**, **Contrast** and **Sharpness**, the image can be best displayed.

### Exposure Settings

Exposure is controlled by the combination of iris, shutter, and photo sensibility. You can adjust image effects by setting exposure parameters.
In **Manual** mode, you need to set **Exposure Time**, **Gain** and **Slow Shutter**.

### Focus

It offers options to adjust the focus mode.

**Focus Mode**

**Auto**

The device focuses automatically as the scene changes. If you cannot get a well-focused image under auto mode, reduce light sources in the image and avoid flashing lights.

**Semi-auto**

The device focuses once after the PTZ and lens zooming. If the image is clear, the focus does not change when the scene changes.

**Manual**

You can adjust the focus manually on the live view page.

### Day/Night Switch

Day/Night Switch function can provide color images and black/white images in day and night mode. Switch mode is configurable.

**Day**

The image is always in color.

**Night**

The image is black/white or colorful and the supplement light will be enabled to ensure clear live view image at night.

**Note**

Only certain device models support the supplement light and colorful image.

**Auto**

The camera switches between day mode and night mode according to the light condition of the environment.

**Scheduled-Switch**

Set the **Start Time** and the **End Time** to define the duration for day mode.

**Triggered by alarm input**

You can set **Triggering Status** as **Day** or **Night**. For example, if the **Triggering Status** is **Night**, the mode turns into **Night** when the device receives alarm input signal.

**Triggered by video**

The camera switches between the day mode and the night mode according to the light condition of environment. This mode is applicable when the device supports road traffic and vehicle detection.

**Note**

- Day/Night Switch function varies according to models.
- You can turn on the smart supplement light for better image effect. For supplement light settings, refer to ***Supplement Light Settings***.

## Supplement Light Settings

You can set supplement light and refer to the actual device for relevant parameters.

**Smart Supplement Light**

Smart supplement light avoids over exposure when the supplement light is on.

**Supplement Light Mode**

When the device supports supplement light, you can select supplement light mode.

**IR Supplement Light**

IR light is enabled.

**White Supplement Light**

White light is enabled.

**Mixed Light**

Both IR light and white light are enabled.

**Smart**

When you select this mode after enabling certain smart events or motion detection, in the night state, the default supplement light mode is IR supplement light mode. When the alarm is triggered, the white light is enabled, and the device captures the target. After the alarm ends, the supplement light mode will switch to IR supplement light mode.
Only device models with IR and white light or hybrid supplement light with IR and white light support this function.

**Off**

Supplement light is disabled.

**Note**

The supplement light mode may vary according to different device models.

**Light Brightness Control**

**Auto**

The brightness adjusts according to the actual environment automatically.

**Manual**

You can drag the slider or set value to adjust the brightness.

## Back light

**BLC**

If you focus on an object against strong backlight, the object will be too dark to be seen clearly. BLC (backlight compensation) compensates light to the object in the front to make it clear. If BLC mode is set as Custom, you can draw a red rectangle on the live view image as the BLC area.

**WDR**

The WDR (Wide Dynamic Range) function helps the camera provide clear images in environment with strong illumination differences.
When there are both very bright and very dark areas simultaneously in the field of view, you can enable the WDR function and set the level. WDR automatically balances the brightness level of the whole image and provides clear images with more details.

**Note**

When WDR is enabled, some other functions may not be supported. Refer to the actual interface for details.

WDR Off WDR On

**Figure 4-1 WDR**

**HLC**

When the bright area of the image is over-exposed and the dark area is under-exposed, the HLC (High Light Compression) function can be enabled to weaken the bright area and brighten the dark area, so as to achieve the light balance of the overall picture.

## White Balance

White balance is the white rendition function of the camera. It is used to adjust the color temperature according to the environment.

Cold Warm Auto White Balance

**Figure 4-2 White Balance**

## Noise Reduction

Digital Noise Reduction (DNR) is used to reduce the image noise and improve the image quality. **Normal** and **Expert** modes are selectable.

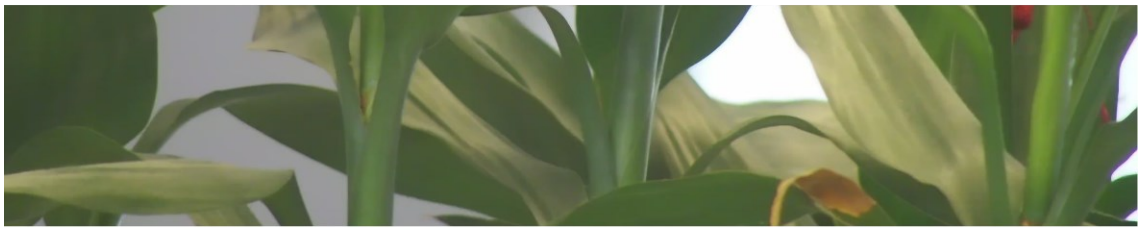
**Normal**

Set the DNR level to control the noise reduction degree. The higher level means stronger reduction degree.

**Expert**

Set the DNR level for both space DNR and time DNR to control the noise reduction degree. The higher level means stronger reduction degree.

DNR Off



DNR On

**Figure 4-3 DNR**

## Defog

You can enable the defog function when the environment is foggy and the image is misty. It enhances the subtle details so that the image appears clearer.

Defog Off

Defog On

**Figure 4-4 Defog**

## EIS

Increase the stability of video image by using jitter compensation technology.

## Gray Scale

You can choose the range of the **Gray Scale** as [0-255] or [16-235].

## Mirror

When the live view image is the reverse of the actual scene, this function helps to display the image normally.
Select the mirror mode as needed.

**Note**

The video recording will be shortly interrupted when the function is enabled.

### Rotate

When this function is enabled, the live view will rotate 90° counterclockwise. For example, 1280 × 720 is rotated to 720 × 1280.
Enabling this function can change the effective range of monitoring in the vertical direction.

**Note**

This function is supported under certain settings.

### Lens Distortion Correction

For device equipped with motorized lens, image may appear distorted to some extent. Enable this function to correct the distortion.

**Note**

- This function is only supported by certain device equipped with motorized lens.
- The edge of image will be lost if this function is enabled.

## 4.7.2 Image Parameters Switch

The device automatically switches image parameters in set time periods.
Go to image parameters switch setting page: **Configuration** → **Image** → **Display Settings** → **Image Parameters Switch**, and set parameters as needed.

### Set Scheduled-switch

Switch the image to the linked scene mode automatically in certain time periods.

**Steps**

1. Check **Scheduled-switch**.
2. Select and configure the corresponding time period and linked scene mode.

   **Note**

   For Linked Scene configuration, refer to ***Scene Mode***.

3. Click **Save**.

### 4.7.3 Video Standard

Video standard is an ability of a video card or video display device that defines the amount of colors that are shown and the resolution. The two most common video standards used are NTSC and PAL. In NTSC, 30 frames are transmitted each second. Each frame is made up of 525 individual scan lines. In PAL, 25 frames are transmitted each second. Each frame is made up of 625 individual scan lines. Select video signal standard according to the video system in your country/region.

### 4.7.4 Local Video Output

If the device is equipped with video output interfaces, such as BNC, CVBS, HDMI, and SDI, you can preview the live image directly by connecting the device to a monitor screen.
Select the output mode as ON/OFF to control the output.

## 4.8 OSD

You can customize OSD (On-screen Display) information such as device name, time/date, font, color, and text overlay displayed on video stream.
Go to OSD setting page: **Configuration** → **Image** → **OSD Settings**. Set the corresponding parameters and click **Save** to take effect.

#### Character Set

Select character set for displayed information. If Korean is required to be displayed on screen, select **EUC-KR**. Otherwise, select **GBK**.

#### Display

Set camera name, date, week, and their related display formats.

#### Format Settings

Set OSD parameters, such as **Display Mode**, **OSD Size**, **Font Color**, and **Alignment**.

#### Text Overlay

Set customized overlay text on image.

## 4.9 Set Privacy Mask

The function blocks certain areas in the live view to protect privacy. No matter how the device moves, the blocked scene will never be seen.

**Steps**

1. Go to **Configuration** → **Image** → **Privacy Mask**.
2. Check **Enable**.
3. Click . Drag the mouse in the live view to draw a closed area.

| | |
|---|---|
| **Drag the corners of the area** | Adjust the size of the area. |
| **Drag the area** | Adjust the position of the area. |
| **Click** 🗑 | Clear all the areas you set. |

4. Click **Add** to add a privacy mask and set **Area Name** and **Mask Type**.
5. Click **Save**.

## 4.10 Overlay Picture

Overlay a customized picture on live view.

**Before You Start**

The picture to overlay must be in BMP format with 24-bit, and the maximum picture size is 128 × 128 pixel.

**Steps**

1. Go to **Configuration** → **Image** → **Picture Overlay**.
2. Check **Enable**.
3. Click **Upload** to select a picture and open it.
   The picture with a red rectangle will appear in live view after successfully uploading.
4. Drag the red rectangle to adjust the picture position.
5. Click **Save**.

# Chapter 5 Video Recording and Picture Capture

This part introduces the operations of capturing video clips and snapshots, playback, and downloading captured files.

## 5.1 Storage Settings

This part introduces the configuration of several common storage paths.

### 5.1.1 Memory Card

You can view the capacity, free space, status, type, and property of the memory card. Encryption of memory card is supported to ensure data security.

#### Set New or Unencrypted Memory Card

**Before You Start**

Insert a new or unencrypted memory card into the device. For detailed installation, refer to *Quick Start Guide* of the device.

**Steps**

1. Go to **Configuration** → **Storage** → **Storage Management** → **HDD Management**.
2. Select the memory card.

> **Note**
>
> If an **Unlock** button appears, you need to unlock the memory card first. See ***Detect Memory Card Status*** for details.

3. Click **Format** to initialize the memory card.
   When the **Status** of memory card turns from **Uninitialized** to **Normal**, the memory card is ready for use.
4. Optional: Encrypt the memory card.
   1) Click **Encrypted Format**.
   2) Set the encryption password.
   3) Click **OK**.
      When the **Encryption Status** turns to **Encrypted**, the memory card is ready for use.

> **Note**
>
> Keep your encryption password properly. Encryption password cannot be found if forgotten.

5. Optional: Define the **Quota** of the memory card. Input the percentage for storing different contents according to your needs.
6. Click **Save**.

## Set Encrypted Memory Card

**Before You Start**

- Insert an encrypted memory card into the device. For detailed installation, refer to *Quick Start Guide* of the device.
- You need to know the correct encryption password for the memory card.

**Steps**

1. Go to **Configuration** → **Storage** → **Storage Management** → **HDD Management**.
2. Select the memory card.

**Note**

If an **Unlock** button appears, you need to unlock the memory card first. See ***Detect Memory Card Status*** for details.

3. Verify the encryption password.
   1) Click **Parity**.
   2) Enter the encryption password.
   3) Click **OK**.
   When the **Encryption Status** turns to **Encrypted**, the memory card is ready for use.

**Note**

If the encryption password is forgotten and you still want to use this memory card, see ***Set New or Unencrypted Memory Card*** to format and set the memory card. All existing contents will be removed.

4. Optional: Define the **Quota** of the memory card. Input the percentage for storing different contents according to your needs.
5. Click **Save**.

## Detect Memory Card Status

The device detects the status of LTS memory card. You receive notifications when your memory card is detected abnormal.

**Before You Start**

The configuration page only appears when a certain type of memory card is installed on the device.

**Steps**

1. Go to **Configuration** → **Storage** → **Storage Management** → **HDD Management**.
2. Check the **Remaining Lifespan** and **Health Status** of your memory card.

   **Remaining Lifespan**

   It shows the percentage of the remaining lifespan. The lifespan of a memory card may be influenced by factors such as its capacity and the bitrate. You need to change the memory card if the remaining lifespan is not enough.

   **Health Status**

   It shows the condition of your memory card. You will receive a notification if the health status is anything other than good when the **Arming Schedule** and **Linkage Method** are set.

**Note**

It is recommended that you change the memory card when the health status is not "good".

3. Click **R/W Lock** to set the permission of reading and writing to the memory card.
   1. Add a LockSelect the **Lock Switch** as ON.
   2. Enter the password.
   3. Click **Save**

Unlock

- If you use the memory card on the device that locks it, unlocking will be done automatically, and no unlocking procedures are required on the part of users.
- If you use the memory card (with a lock) on a different device, you can go to **HDD Management** to unlock the memory card manually. Select the memory card and click **Unlock**. Enter the correct password to unlock it.
  1. Remove the LockSelect the **Lock Switch** as OFF.
  2. Enter the password in **Password Settings**.
  3. Click **Save**.

**Note**

- Only admin user can set the **R/W Lock**.
- The memory card can only be read and written when it is unlocked.
- If the device, which adds a lock to a memory card, is restored to the factory settings, you can go to **HDD Management** to unlock the memory card.

4. Set **Arming Schedule** and **Linkage Method**. See ***Set Arming Schedule*** and ***Linkage Method Settings*** for details.
5. Click **Save**.

## 5.1.2 Set FTP

You can configure the FTP server to save images which are captured by events or a timed snapshot

task.

**Before You Start**

Get the FTP server address first.

**Steps**

1. Go to **Configuration** → **Event** → **Alarm Setting** → **FTP**.
2. Configure FTP settings.

   **Server Address and Port**

   The FTP server address and corresponding port.

   **User Name and Password**

   The FTP user should have permission to upload pictures.
   If the FTP server supports picture uploading by anonymous users, you can check **Anonymous Login** to hide your device information during uploading.

   **Directory Structure**

   The saving path of snapshots in the FTP server.
3. Optional: Check **Upload Picture** to enable uploading snapshots to the FTP server.

   **Picture Filing Interval**

   For better picture management, you can set the picture filing interval from 1 day to 30 days. Pictures captured in the same time interval will be saved in one folder named after the beginning date and ending date of the time interval.

   **Picture Name**

   Set the naming rule for captured pictures. You can choose **Default** in the drop-down list to use the default rule, that is, IP address_channel number_capture time_event type.jpg (e.g., 10.11.37.189_01_20150917094425492_FACE_DETECTION.jpg). Or you can customize it by adding a **Custom Prefix** to the default naming rule.
4. Optional: Check **Enable Automatic Network Replenishment**.

   **Note**

   **Upload to FTP/Memory Card/NAS** in **Linkage Method** and **Enable Automatic Network Replenishment** should be enabled simultaneously.

5. Click **Test** to verify the FTP server.
6. Click **Save**.

## 5.1.3 Set NAS

Take network server as network disk to store the record files, captured images, etc.

**Before You Start**

Get the IP address of the network disk first.

**Steps**

1. Go to NAS setting page: **Configuration** → **Storage** → **Storage Management** → **Net HDD**.
2. Click **Add**.
3. Set **Mounting Type**.

   **Mounting Type**

   Select file system protocol according to the operation system.
   Enter user name and password of the net HDD to guarantee the security if **SMB/CIFS** is selected.
4. Set the **Server IP Address** and **File Path** for the disk.

   **Server Address**

   The IP address of the network disk.

   **File Path**

   The saving path of network disk files.
5. Click **Test** to check whether the network disk is available.
6. Click **OK** to finish the steps to add a Net HDD.
7. Optional: Configure the Net HDD.

| | |
|---|---|
| **Edit** | Click to edit the parameter setting. |
| **Delete** | Delete the Net HDD.<br>● Click .<br>● Select the Net HDD, click **Delete**. |

8. Click **Save**.

## 5.1.4 eMMC Protection

It is to automatically stop the use of eMMC as a storage media when its health status is poor.

**Note**

The eMMC protection is only supported by certain device models with an eMMC hardware.

Go to **Configuration** → **System** → **System Settings** → **System Service** for the settings.
eMMC, short for embedded multimedia card, is an embedded non-volatile memory system. It is able to store the captured images or videos of the device.
The device monitors the eMMC health status and turns off the eMMC when its status is poor. Otherwise, using a worn-out eMMC may lead to device boot failure.

## 5.1.5 Set Cloud Storage

It helps to upload the captured pictures and data to the cloud. The platform requests picture

directly from the cloud for picture and analysis. The function is only supported by certain models.

**Steps**

**Caution**

If cloud storage is enabled, the pictures are stored in the cloud video manager firstly.

1. Go to **Configuration** → **Storage** → **Storage Management** → **Cloud Storage**.
2. Check **Enable**.
3. Set basic parameters.

| | |
|---|---|
| **Protocol Version** | The protocol version of the cloud video manager. |
| **Server IP** | The IP address of the cloud video manager. It supports IPv4 address. |
| **Serve Port** | The port of the cloud video manager. You are recommended to use the default port. |
| **AccessKey** | The key to log in to the cloud video manager. |
| **SecretKey** | The key to encrypt the data stored in the cloud video manager. |
| **User Name and Password** | The user name and password of the cloud video manager. |
| **Picture Storage Pool ID** | The ID of the picture storage region in the cloud video manager. Make sure storage pool ID and the storage region ID are the same. |

4. Click **Test** to test the configured settings.
5. Click **Save**.

# 5.2 Video Recording

This part introduces the operations of manual and scheduled recording, playback, and downloading recorded files.

## 5.2.1 Record Automatically

This function can record video automatically during configured time periods.

**Before You Start**

Select **Trigger Recording** in event settings for each record type except **Continuous**. See ***Event and Alarm*** for details.

**Steps**

1. Go to **Configuration** → **Storage** → **Schedule Settings** → **Record Schedule**.

2. Check **Enable**.
3. Select a record type.

**Note**

The record type vary according to different models.

**Continuous**

The video will be recorded continuously according to the schedule.

**Motion Detection**

When motion detection is enabled and trigger recording is selected as linkage method, object movement is recorded.

**Alarm**

When alarm input is enabled and trigger recording is selected as linkage method, the video is recorded after receiving alarm signal from external alarm input device.

**Motion | Alarm**

Video is recorded when motion is detected, or alarm signal is received from the external alarm input device.

**Motion & Alarm**

Video is recorded only when motion is detected, and alarm signal is received from the external alarm input device.

**Event**

The video is recorded when configured event is detected.

4. Set schedule for the selected record type. Refer to ***Set Arming Schedule*** for the setting operation.
5. Set the advanced recording parameters.

**Overwrite**

Enable **Overwrite** to overwrite the video records when the storage space is full. Otherwise, the camera cannot record new videos.

**Pre-record**

The time period you set to record before the scheduled time.

**Post-record**

The time period you set to stop recording after the scheduled time.

**Stream Type**

Select the stream type for recording.

**Note**

When you select the stream type with higher bitrate, the actual time of the pre-record and post-record may be less than the set value.

**Recording Expiration**

The recordings are deleted when they exceed the expired time. The expired time is configurable. Note that once the recordings are deleted, they can not be recovered.

6. Click **Save**.

## 5.2.2 Record Manually

**Steps**

1. Go to **Configuration** → **Local**.
2. Set the **Video Size** and **Video Saving Path** for recorded video files.
3. Click **Save**.
4. Click in the live view interface to start recording. Click to stop recording.

**What to do next**

View the recorded video files.
Go to **Configuration** → **Local** and click **Open** behind **Video Saving Path** to open the saving path and view the files.

## 5.2.3 Playback and Download Video

You can search, playback, clip and download the videos stored in the local storage or network storage.

**Steps**

1. Go to **Playback** → **Video**.
2. Set search condition and click **Search**.
   The matched video files showed on the timing bar.
3. Click to play the video files.
   – Click to play video files on a full screen. Press **ESC** to exit full screen.
   – Click to stop video playback for all channels.
4. Optional: Click to clip video files. Click again to stop clipping video files

**Note**

Go to **Configuration** → **Local** → **Clip Saving Path**, view and change the saving path of clipped video files.

5. Optional: Click on the playback interface to download files.

**Note**

Go to **Configuration** → **Local** → **Downloaded File Saving Path**, view and change the saving path of downloaded video files.

## 5.3 Capture Configuration

The device can capture the pictures manually or automatically and save them in configured saving path. You can view and download the snapshots.

### 5.3.1 Capture Automatically

This function can capture pictures automatically during configured time periods.

**Before You Start**

If event-triggered capture is required, you should configure related linkage methods in event settings. Refer to ***Event and Alarm*** for event settings.

**Steps**

1. Go to **Configuration** → **Storage** → **Schedule Settings** → **Picture Capture**.
2. Set capture schedule. Refer to ***Set Arming Schedule*** for configuring schedule time.

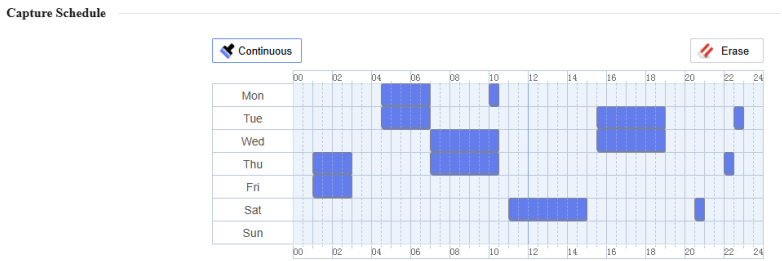



**Figure 5-1 Set Capture Schedule**

3. Set the capture parameters.

**Scheduled Capture**

Capture a picture at the configured time interval.

**Event-Triggered Capture**

Capture a picture when an event is triggered.

4. Set the **Format**, **Resolution**, **Quality**, **Interval**, and **Capture Number**.

**Note**

The resolution of the captured picture is the same as the resolution of the captured picture stream. You can select **Stream Type** in **Advanced**.

5. Click **Save**.

## 5.3.2 Capture Manually

**Steps**

1. Go to **Configuration** → **Local**.
2. Set the **Image Format** and saving path to for snapshots.

   **JPEG**

   The picture size of this format is comparatively small, which is better for network transmission.

   **BMP**

   The picture is compressed with good quality.
3. Click **Save**.
4. Click near the live view or play back window to capture a picture manually.

## 5.3.3 View and Download Picture

You can search, view and download the pictures stored in the local storage or network storage.

**Steps**

1. Go to **Playback** → **Picture**.
2. Set search condition and click **Search**.
   The matched pictures are shown in the file list.
3. Download the pictures.
   – Select the pictures then click **Download** to download them.
   – Click **Download This Page** to download the pictures of this page.
   – Click **Download All** to download all the pictures.

**Note**

Go to **Configuration** → **Local** → **Playback Capture Saving Path**, view and change the saving path of captured pictures when playback.

# Chapter 6 Event and Alarm

This part introduces the configuration of events. The device takes certain responses to triggered alarm. Certain events may not be supported by certain device models.

## 6.1 Set Motion Detection

It helps to detect the moving objects in the detection region and trigger the linkage actions.

**Steps**

1. Go to **Configuration** → **Event** → **Event and Detection** → **Motion Detection**.
2. Check **Enable**.
3. Optional: Highlight to display the moving object in the image in green.
   1) Check **Enable Dynamic Analysis for Motion**.
   2) Go to **Configuration** → **Local**.
   3) Set **Rules** to **Enable**.
4. Select mode in **Configuration** and set rule region and rule parameters.
   – For the information about normal mode, see ***Normal Mode***.
   – For the information about expert mode, see ***Expert Mode***.
5. Set the arming schedule and linkage methods. For the information about arming schedule settings, see ***Set Arming Schedule***. For the information about linkage methods, see ***Linkage Method Settings***.
6. Click **Save**.

### 6.1.1 Expert Mode

You can configure different motion detection parameters for day and night according to the actual needs.

**Steps**

1. Select **Expert Mode** in **Configuration**.
2. Set parameters of expert mode.

**Scheduled Image Settings**

**OFF**

Image switch is disabled.

**Auto-Switch**

The system switches day/night mode automatically according to environment. It displays colored image at day and black and white image at night.

**Scheduled-Switch**

The system switches day/night mode according to the schedule. It switches to day mode

during the set periods and switches to night mode during the other periods.

**Sensitivity**

The higher the value of sensitivity is, the more sensitive the motion detection is. If scheduled image settings are enabled, the sensitivity of day and night can be set separately.

3. Select an **Area** and click . Click and drag the mouse onto the live image and then release the mouse to finish drawing one area.

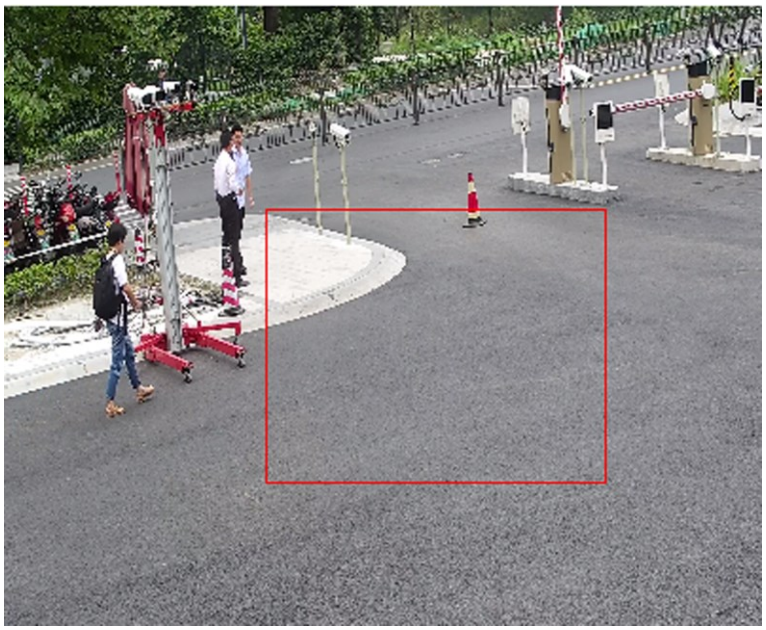


**Figure 6-1 Set Rules**

4. Click  to clear all the areas.
5. Click **Save**.
6. Optional: Repeat above steps to set up multiple areas.

## 6.1.2 Normal Mode

You can set motion detection parameters according to the device default parameters.

**Steps**

1. Select **Normal Mode** in **Configuration**.
2. Set the **Sensitivity** of normal mode. The higher the value of sensitivity is, the more sensitive the motion detection is. If the sensitivity is set to ***0***, motion detection and dynamic analysis do not take effect.
3. Set **Detection Target**. Human and vehicle are available. If the detection target is not selected, all the detected targets will be reported, including the human and vehicle. This function allows alarm triggering by specified target types (human and vehicle).

**Note**

This function is only available for certain device models under certain settings. Please refer to the actual settings.

4. Click and drag the mouse on the live image, and then right click the mouse to finish drawing one area.
5. Optional: Click to clear all the areas.
6. Optional: You can set the parameters of multiple areas by repeating the above steps.

## 6.2 Set Video Tampering Alarm

When the configured area is covered and cannot be monitored normally, the alarm is triggered, and the device takes certain alarm response actions.

**Steps**

1. Go to **Configuration** → **Event** → **Event and Detection** → **Video Tampering**.
2. Check **Enable**.
3. Set the **Sensitivity**. The higher the value is, the easier to detect the area covering.
4. Click and drag the mouse into the live view to draw the area.

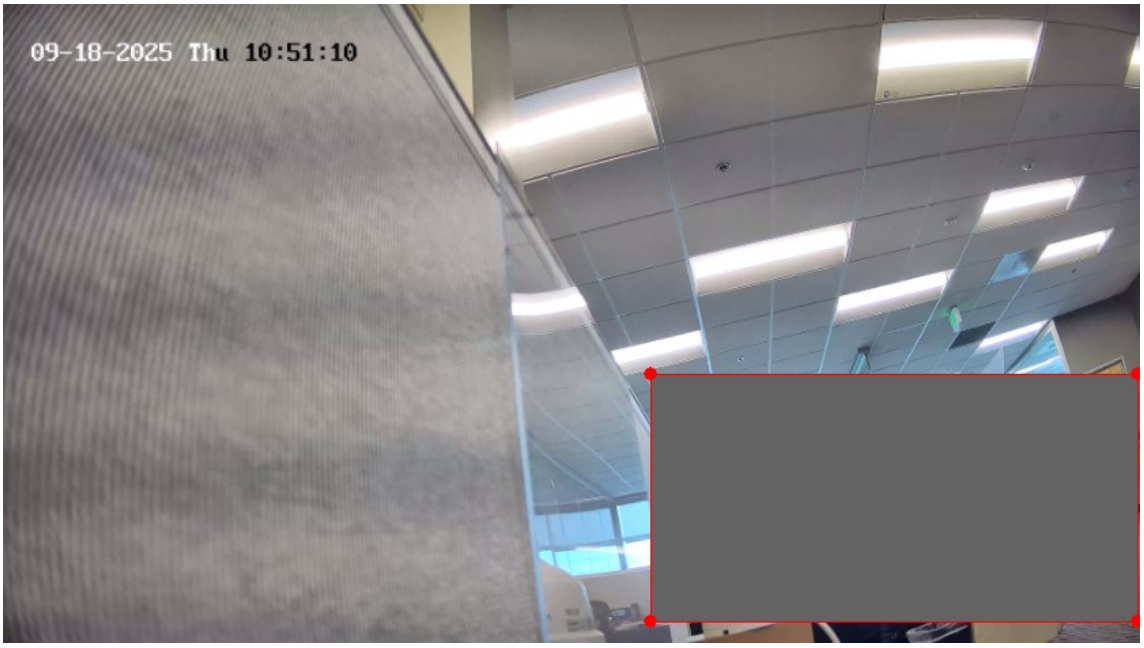



**Figure 6-2 Set Video Tampering Area**

5. Optional: Click to delete all the drawn areas.
6. Refer to ***Set Arming Schedule*** for setting scheduled time. Refer to ***Linkage Method Settings*** for setting linkage method.
7. Click **Save**.

## 6.3 Set Alarm Input

Alarm signal from the external device triggers the corresponding actions of the current device.

**Before You Start**

**Note**

This function is only supported by certain models.

Make sure the external alarm device is connected. See *Quick Start Guide* for cable connection.

**Steps**

1. Go to **Configuration** → **Event** → **Event and Detection** → **Alarm Input**.
2. Select an **Alarm Input NO.** and click to set alarm input.
3. Select **Alarm Type** from the dropdown list. Edit the **Alarm Name**.
4. Check **Enable Alarm Input Handling**.
5. Refer to ***Set Arming Schedule*** for setting scheduled time. Refer to ***Linkage Method Settings*** for setting linkage method.
6. Click **Copy to...** to copy the settings to other alarm input channels.
7. Click **Save**.

## 6.4 Set Exception Alarm

Exception such as network disconnection can trigger the device to take corresponding action.

**Steps**

1. Go to **Configuration** → **Event** → **Event and Detection** → **Exception**.
2. Select **Exception Type**.

   **HDD Full**

   The HDD storage is full.

   **HDD Error**

   Error occurs in HDD.

   **Network Disconnected**

   The device is offline.

   **IP Address Conflict**

   The IP address of current device is same as that of another device in the network.

   **Illegal Login**

   Incorrect user name or password is entered.
3. Refer to ***Linkage Method Settings*** for setting linkage method.
4. Click **Save**.

## 6.5 Set Video Quality Diagnosis

When the video quality of the device is abnormal and the alarm linkage is set, the alarm will be triggered automatically.

**Steps**

1. Go to **Configuration** → **Event** → **Event and Detection** → **Video Quality Diagnosis**.
2. Select **Diagnosis Type**.
3. Set the corresponding parameters.

   **Alarm Detection Interval**

   The time interval to detect the exception.

   **Sensitivity**

   The higher the value is, the more easily the exception will be detected, and the higher possibility of misinformation will be.

   **Alarm Delay Times**

   The device uploads the alarm when the alarm reaches the set number of times.
4. Check the selected diagnosis type, and the related type will be detected.
5. Set arming schedule. See ***Set Arming Schedule***.
6. Set linkage method. See ***Linkage Method Settings***.
7. Click **Save**.

**Note**

The function is only supported by certain models. The actual display varies with models.

## 6.6 Set Audio Exception Detection

Audio exception detection function detects the abnormal sound in the scene, such as the sudden increase/decrease of the sound intensity, and some certain actions can be taken as response.

**Steps**

1. Go to **Configuration** → **Event** → **Event and Detection** → **Audio Exception Detection**.
2. Select one or several audio exception detection types.

   **Audio Loss Detection**

   Detect sudden loss of audio track.

   **Sudden Increase of Sound Intensity Detection**

   Detect sudden increase of sound intensity. **Sensitivity** and **Sound Intensity Threshold** are configurable.

**Note**

- The lower the sensitivity is, the more significant the change should be to trigger the detection.
- The sound intensity threshold refers to the sound intensity reference for the detection. It is recommended to set as the average sound intensity in the environment. The louder the environment sound, the higher the value should be. You can adjust it according to the real environment.

**Sudden Decrease of Sound Intensity Detection**

Detect sudden decrease of sound intensity. **Sensitivity** is configurable.

3. Refer to ***Set Arming Schedule*** for setting scheduled time. Refer to ***Linkage Method Settings*** for setting linkage methods.
4. Click **Save**.

**Note**

The function is only supported by certain models. The actual function varies according to different models.

## 6.7 Set Defocus Detection

The blurred image caused by lens defocus can be detected. If it occurs, the device can take linkage actions.

**Steps**

1. Go to **Configuration** → **Event** → **Event and Detection** → **Defocus Detection**.
2. Check **Enable**.
3. Set **Sensitivity**. The higher the value is, the more easily the defocus image can trigger the alarm. You can adjust the value according to the actual environment.
4. For the linkage method settings, refer to ***Linkage Method Settings***.
5. Click **Save**.

**Note**

The function is only supported by certain models. The actual display varies with models.

## 6.8 Set Scene Change Detection

Scene change detection function detects the change of the scene. Some certain actions can be

taken when the alarm is triggered.

**Steps**

1. Go to **Configuration** → **Event** → **Event and Detection** → **Scene Change Detection**.
2. Click **Enable**.
3. Set the **Sensitivity**. The higher the value is, the more easily the change of scene can be detected. But the detection accuracy is reduced.
4. Refer to ***Set Arming Schedule*** for setting scheduled time. Refer to ***Linkage Method Settings*** for setting linkage method.
5. Click **Save**.

**Note**

The function is only supported by certain models. The actual display varies with models.

# Chapter 7 Arming Schedule and Alarm Linkage

Arming schedule is a customized time period in which the device performs certain tasks. Alarm linkage is the response to the detected certain incident or target during the scheduled time.

## 7.1 Set Arming Schedule

Set the valid time of the device tasks.

**Steps**

1. Optional: Click **Arming Schedule and Linkage Method** in the related event interface.
2. Click **Edit** behind **Arming Schedule**.
3. Click **Draw** and drag the time bar to draw desired valid time.

**Note**

- Each cell represents 30 minutes.
- Move the mouse over the drawn time period to see specific time periods and fine-tune the start time and end time.
- Up to 8 periods can be configured for one day.

4. Click **Erase** and drag the time bar to clear selected valid time.
5. Click **OK** to save the settings.

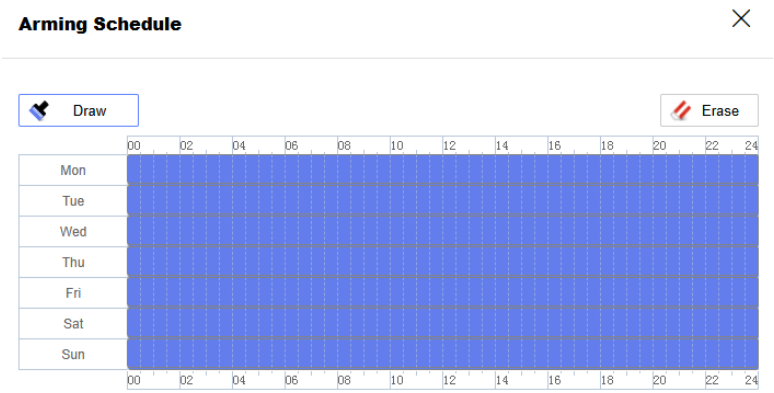



**Figure 7-1 Set Arming Schedule**

# 7.2 Linkage Method Settings

You can enable the linkage functions when an event or alarm occurs.

## 7.2.1 Trigger Alarm Output

If the device has been connected to an alarm output device, and the alarm output No. has been configured, the device sends alarm information to the connected alarm output device when an alarm is triggered.

**Steps**

1. Go to **Configuration** → **Event** → **Alarm Setting** → **Alarm Output**.
2. Set alarm output parameters.

| | |
|---|---|
| **Automatic Alarm** | For the information about the configuration, see ***Automatic Alarm***. |
| **Manual Alarm** | For the information about the configuration, see ***Manual Alarm***. |

### Manual Alarm

You can trigger an alarm output manually.

**Before You Start**

Make sure the alarm output device is connected to the device.

**Steps**

1. Select the **Alarm Output No.** according to the alarm interface connected to the external alarm device. Click to set alarm parameters.

   **Alarm Name**

   Custom a name for the alarm output.
2. Click **Manual Alarm** to enable manual alarm output.
3. Optional: Click **Clear Alarm** to disable manual alarm output.

### Automatic Alarm

Set the automatic alarm parameters, then the device triggers an alarm output automatically in the set arming schedule.

**Before You Start**

Make sure the alarm output device is connected to the device.

**Steps**

1. Select the **Alarm Output No.** according to the alarm interface connected to the external alarm device. Click to set alarm parameters.

   **Alarm Name**

   Custom a name for the alarm output.

   **Delay**

   It refers to the time duration that the alarm output remains after an alarm occurs.
2. Set the alarming schedule. For the information about the settings, see ***Set Arming Schedule***.
3. Optional: Click **Copy to…** to copy the parameters to other alarm output channels.
4. Click **Save**.

## 7.2.2 Upload FTP/NAS/Memory Card

If you have enabled and configured the FTP/NAS/memory card uploading, the device sends the alarm information to the FTP server, network attached storage and memory card when an alarm is triggered.
Refer to ***Set FTP*** to set the FTP server.
Refer to ***Set NAS*** for NAS configuration.
Refer to ***Set New or Unencrypted Memory Card*** for memory card storage configuration.

## 7.2.3 Send Email

Check **Send Email**, and the device sends an email to the designated addresses with alarm information when an alarm event is detected.
For email settings, refer to ***Set Email***.

### Set Email

When the email is configured and **Send Email** is enabled as a linkage method, the device sends an email notification to all designated recipients if an alarm event is detected.

**Before You Start**

Set the DNS server before using the Email function. Go to **Configuration** → **Network** → **Network Settings** → **TCP/IP** for DNS settings.

**Steps**

1. Go to email settings page: **Configuration** → **Event** → **Alarm Setting** → **Email**.
2. Set email parameters.
   1) Input the sender's email information, including the **Sender's Address**, **SMTP Server**, and **SMTP Port**.
   2) Optional: If your email server requires authentication, check **Authentication** and input your user name and password to log in to the server.
   3) Set the **E-mail Encryption**.

- When you select **TLS**, and disable STARTTLS, emails are sent after being encrypted by TLS. The SMTP port should be set as 465.
- When you select **TLS** and check **Enable STARTTLS**, emails are sent after being encrypted by STARTTLS, and the **SMTP Port** should be set as 25.

**Note**

If you want to use STARTTLS, make sure that the protocol is supported by your email server. If you check the **Enable STARTTLS** while the protocol is not supported by your email sever, your email is sent with no encryption.

4) Optional: If you want to receive notification with alarm pictures, check **Attached Picture**. The notification email has a certain number of attached alarm pictures about the event with configurable image capturing intervals.

**Note**

The number of alarm pictures may vary according to different device models and different events.

5) Input the recipient's information, including the recipient's name and address.
6) Click **Test** to see if the function is well configured.

3. Click **Save**.

## 7.2.4 Notify Surveillance Center

Check **Notify Surveillance Center**, the alarm information is uploaded to the surveillance center when an alarm event is detected.

## 7.2.5 Trigger Recording

Check **Trigger Recording**, and the device records the video about the detected alarm event.
For recording settings, refer to ***Video Recording and Picture Capture***.

## 7.2.6 Flashing Light

After enabling **Flashing Light** and setting the **Flashing Light Alarm Output**, the light flashes when an alarm event is detected.

### Set Flashing Alarm Light Output

When events occur, the flashing light on the device can be triggered as an alarm.

**Steps**

1. Go to **Configuration** → **Event** → **Alarm Setting** → **Flashing Alarm Light Output**.

2. Set **Flashing Duration** and **Flashing Frequency**.

   **Flashing Duration**

   The time that the flashing lasts when one alarm happens.

   **Flashing Frequency**

   The rate at which the light flashes. High frequency, medium frequency, low frequency, and normally on are selectable.
3. Set the arming schedule. See ***Set Arming Schedule*** for details.
4. Click **Save**.

**Note**

Only certain device models support the function.

## 7.2.7 Audible Warning

After enabling **Audible Warning** and setting **Audible Alarm Output**, the built-in speaker of the device or connected external speaker plays warning sounds when an alarm happens.
For audible alarm output settings, refer to ***Set Audible Alarm Output***.

**Note**

The function is only supported by certain camera models.

### Set Audible Alarm Output

When the device detects targets in the detection area, audible alarm can be triggered as a warning.

**Steps**

1. Go to **Configuration** → **Event** → **Alarm Setting** → **Audible Alarm Output**.
2. Select **Audio Type** and set related parameters.
   - Select **Prompt Audio** and set the alarm times you need.
   - Select **Warning Sound** and its contents. Set the alarm times you need.
   - Select **Custom Audio**. You can select a custom audio file from the drop-down list. If no file is available, you can click **Set** → **Add** to upload an audio file that meets the requirement. Up to three audio files can be uploaded.
3. Optional: Click **Test** to play the selected audio file on the device.
4. Set arming schedule for audible alarm. See ***Set Arming Schedule*** for details.
5. Click **Save**.

**Note**

The function is only supported by certain device models.

## 7.2.8 Alarm Server

The device can send alarms to destination IP address or host name through HTTP, HTTPS, or ISUP protocol. The destination IP address or host name should support HTTP, HTTP, or ISUP data transmission.

### Set Alarm Server

**Steps**

1. Go to **Configuration** → **Event** → **Alarm Setting** → **Alarm Server**.
2. Enter **Destination IP or Host Name**, **URL**, and **Port**.
3. Select **Protocol**.

**Note**

HTTP, HTTPS, and ISUP are selectable. It is recommended to use HTTPS, as it encrypts data transmission during communication.

4. Click **Test** to check if the IP or host is available.
5. Click **Save**.

# Chapter 8 Network Settings

## 8.1 TCP/IP

TCP/IP settings must be properly configured before you operate the device over network. IPv4 and IPv6 are both supported. Both versions can be configured simultaneously without conflicting to each other.
Go to **Configuration** → **Network** → **Network Settings** → **TCP/IP** for parameter settings.

**NIC Type**

Select a NIC (Network Interface Card) type according to your network condition.

**IPv4**

Two IPv4 modes are available.

**DHCP**

The device automatically gets the IPv4 parameters from the network if you check **DHCP**. The device IP address is changed after enabling the function. You can use IP Portal to get the device IP address.

**Note**

The network that the device is connected to should support DHCP (Dynamic Host Configuration Protocol).

**Manual**

You can set the device IPv4 parameters manually. Input **IPv4 Address**, **IPv4 Subnet Mask**, and **IPv4 Default Gateway**, and click **Test** to see if the IP address is available.

**IPv6**

Three IPv6 modes are available.

**Route Advertisement**

The IPv6 address is generated by combining the route advertisement and the device Mac address.

**Note**

Route advertisement mode requires the support from the router that the device is connected to.

**DHCP**

The IPv6 address is assigned by the server, router, or gateway.

**Manual**

Input **IPv6 Address**, **IPv6 Subnet**, **IPv6 Default Gateway**. Consult the network administrator for required information.

**MTU**

It stands for maximum transmission unit. It is the size of the largest protocol data unit that can be communicated in a single network layer transaction.
The valid value range of MTU is 1280 to 1500.

**DNS**

It stands for domain name server. It is required if you need to visit the device with domain name. And it is also required for some applications (e.g., sending email). Set **Preferred DNS Server** and **Alternate DNS server** properly if needed.

**Domain Name Settings**

Check **Enable Dynamic Domain Name** and input **Register Domain Name**. The device is registered under the register domain name for easier management within the local area network.

**Note**

**DHCP** should be enabled for the dynamic domain name to take effect.

## 8.2 Access to Device via Domain Name

You can use the Dynamic DNS (DDNS) for network access. The dynamic IP address of the device can be mapped to a domain name resolution server to realize the network access via domain name. The DDNS service of the device only supports HTTPS.

**Before You Start**

Registration on the DDNS server is required before configuring the DDNS settings of the device.

**Steps**

1. Refer to ***TCP/IP*** to set DNS parameters.
2. Go to the DDNS settings page: **Configuration** → **Network** → **Network Settings** → **DDNS**.
3. Check **Enable** and select **DDNS Type**.

   **DynDNS**

   Dynamic DNS server is used for domain name resolution.

   **NO-IP**

   NO-IP server is used for domain name resolution.
4. Input the domain name information and click **Save**.
5. Check the device ports and complete port mapping. Refer to ***Port Mapping*** for port mapping settings.
6. Access the device.

| | |
|---|---|
| **By Browsers** | Enter the domain name in the browser address bar to access the device. |
| **By Client Software** | Add domain name to the client software. Refer to the client manual for specific adding methods. |

## 8.3 Access to Device via PPPoE Dial Up Connection

This device supports the PPPoE auto dial-up function. The device gets a public IP address by ADSL dial-up after the device is connected to a modem. You need to configure the PPPoE parameters of the device.

**Steps**

1. Go to **Configuration** → **Network** → **Network Settings** → **PPPoE**.
2. Check **Enable**.
3. Set the PPPoE parameters.

   **Dynamic IP**

   After successful dial-up, the dynamic IP address of the WAN is displayed.

   **User Name**

   User name for dial-up network access.

   **Password**

   Password for dial-up network access.

   **Confirm**

   Input your dial-up password again.
4. Click **Save**.
5. Access the device.

| | |
|---|---|
| **By Browsers** | Enter the WAN dynamic IP address in the browser address bar to access the device. |
| **By Client Software** | Add the WAN dynamic IP address to the client software. Refer to the client manual for details. |

**Note**

The obtained IP address is dynamically assigned via PPPoE, so the IP address always changes after rebooting the camera. To solve the inconvenience of the dynamic IP, you need to get a domain name from the DDNS provider (e.g. DynDns.com). Refer to ***Access to Device via Domain Name*** for detail information.

## 8.4 SNMP

You can set the SNMP (Simple Network Management Protocol) to get device information in network management.

**Before You Start**

Before setting the SNMP, you should download the SNMP software and manage to receive the device information via SNMP port.

**Steps**

1. Go to **Configuration** → **Network** → **Network Settings** → **SNMP**.
2. Check **Enable SNMPv1**, **Enable SNMP v2c** or **Enable SNMPv3**.

**Note**

The SNMP version you select should be the same as that of the SNMP software.
And you also need to use the different version according to the security level required. SNMP v1 is not secure and SNMP v2 requires password for access. And SNMP v3 provides encryption and if you use the third version, HTTPS protocol must be enabled.

3. Configure the SNMP settings.
4. Click **Save**.

## 8.5 Set IEEE 802.1X

You can authenticate user permission of the connected device by setting IEEE 802.1X.
Go to **Configuration** → **Network** → **Network Settings** → **802.1X**, and enable the function.
Select protocol and version according to router information. User name and password of server are required.

**Note**

- If you set the **Protocol** to **EAP-TLS**, select the **Client Certificate** and **CA Certificate**.
- If the function is abnormal, check if the selected certificate is abnormal in **Certificate Management**.

## 8.6 Set QoS

QoS (Quality of Service) can help improve network delays and network congestion by setting priority for data sending.

**Note**

QoS needs support from network device such as router and switch.

**Steps**

1. Go to **Configuration** → **Network** → **Network Settings** → **QoS**.
2. Set **Video/Audio DSCP**, **Event/Alarm DSCP** and **Management DSCP**.

**Note**

Network can identify the priority of data transmission. The bigger the DSCP value is, the higher the priority is. You need to set the same value in router while configuring.

3. Click **Save**.

## 8.7 HTTP(S)

HTTP is an application-layer protocol for transmitting hypermedia documents. HTTPS is a network protocol that enables encrypted transmission and identity authentication, which improves the security of remote access.

**Steps**

1. Go to **Configuration** → **Network** → **Network Service** → **HTTP(S)**.
2. Enter **HTTP Port**.

**Note**

It refers to the port through which the browser accesses the device. For example, when the **HTTP Port** is modified to 81, you need to enter http://192.168.1.64:81 in the browser for login.

3. Check **Enable** in **HTTPS**.

**Note**

You can click **TLS Settings** to set the TLS version that the device supports. Refer to for details.

4. Enter **HTTPS Port**.
5. Optional: Check **Enable HTTPS Browsing** to access the device only via HTTPS protocol.
6. Select **Server Certificate**.
7. Set **Web Authentication**.

**Authentication**

Digest and digest/basic are supported, which means authentication information is needed when WEB request is sent to the device. If you select **digest/basic**, it means the device supports digest or basic authentication. If you select **digest**, the device only supports digest authentication.

**Digest Algorithm**

MD5, SHA256 and MD5/SHA256 encrypted algorithm in WEB authentication. If you enable the digest algorithm except for MD5, the third-party platform might not be able to log in to

the device or enable live view because of compatibility. The encrypted algorithm with high strength is recommended.

8. Click **Save**.

# 8.8 Multicast

Multicast is group communication where data transmission is addressed to a group of destination devices simultaneously.
Go to **Configuration** → **Network** → **Network Service** → **Multicast** for the multicast settings.

**IP Address**

It stands for the address of multicast host.

## 8.8.1 Multicast Discovery

Go to **Configuration** → **Network** → **Network Settings** → **TCP/IP** to enable this function.
Check the **Enable Multicast Discovery**, and then the online network camera can be automatically detected by client software via private multicast protocol in the LAN.

# 8.9 RTSP

RTSP (Real Time Streaming Protocol) is an application-layer controlling protocol for streaming media.

**Steps**

1. Go to **Configuration** → **Network** → **Network Service** → **RTSP**.
2. Enter **Port**.
3. Set **Multicast** parameters.

   **Stream Type**

   The stream type as the multicast source.

   **Video Port**

   The video port of the selected stream.

   **Audio Port**

   The audio port of the selected stream.
4. Set **RTSP Authentication**.

   **Authentication**

   Digest and digest/basic are supported, which means authentication information is needed when RTSP request is sent to the device. If you select **digest/basic**, it means the device supports digest or basic authentication. If you select **digest**, the device only supports digest

authentication.

**Digest Algorithm**

MD5, SHA256 and MD5/SHA256 encrypted algorithm in RTSP authentication. If you enable the digest algorithm except for MD5, the third-party platform might not be able to log in to the device or enable live view because of compatibility. The encrypted algorithm with high strength is recommended.

5. Click **Save**.

## 8.10 Set SRTP

The Secure Real-time Transport Protocol (SRTP) is a Real-time Transport Protocol (RTP) internet protocol, intended to provide encryption, message authentication and integrity, and replay attack protection to the RTP data in both unicast and multicast applications.

**Steps**

1. Go to **Configuration** → **Network** → **Network Service** → **SRTP**.
2. Enter the **Port** number.
3. Set **Multicast** parameters.

**Stream Type**

The stream type as the multicast source.

**Video Port**

The video port of the selected stream.

**Audio Port**

The audio port of the selected stream.

4. Select **Server Certificate**.
5. Select **Encrypted Algorithm**.
6. Click **Save**.

**Note**

- Only certain device models support this function.
- If the function is abnormal, check if the selected certificate is abnormal in ***Certificate Management***.

## 8.11 Bonjour

It is an implementation of zero-configuration networking (zeroconf), a group of technologies that includes service discovery, address assignment, and hostname resolution. Bonjour locates devices such as printers, other computers, and the services that those devices offer on a local network

using multicast Domain Name System (mDNS) service records.

Go to **Configuration** → **Network** → **Network Service** → **Bonjour** to enable the function and click **Save**.

After enabling the function, the device spread and receive service information in local area network.

## 8.12 WebSocket(s)

WebSocket or WebSockets protocol should be enabled if you use Google Chrome 57 and its above version or Mozilla Firefox 52 and its above version to visit the device. Otherwise, live view, image capture, digital zoom, etc. cannot be used.
Go to **Configuration** → **Network** → **Network Service** → **WebSocket(s)** to set parameters and click **Save**.

**WebSocket**

TCP-based full-duplex communication protocol port for plug-in free preview via HTTP protocol.

**WebSockets**

TCP-based full-duplex communication protocol port for plug-in free preview via HTTPS protocol.

## 8.13 Port Mapping

By setting port mapping, you can access devices through the specified port.

**Steps**

1. Go to **Configuration** → **Network** → **Network Service** → **NAT**.
2. Select the port mapping mode.

| | |
|---|---|
| **Auto Port Mapping** | Refer to ***Set Auto Port Mapping*** for detailed information. |
| **Manual Port Mapping** | Refer to ***Set Manual Port Mapping*** for detailed information. |

3. Click **Save**.

### 8.13.1 Set Auto Port Mapping

**Steps**

1. Check **Enable UPnP™**, and choose a friendly name for the camera, or you can use the default name.
2. Select the port mapping mode to **Auto**.
3. Click **Save**.

**Note**

UPnP™ function on the router should be enabled at the same time.

## 8.13.2 Set Manual Port Mapping

**Steps**

1. Check **Enable UPnP™**, and choose a friendly name for the device, or you can use the default name.
2. Select the port mapping mode to **Manual** and set the external port to be the same as the internal port.
3. Click **Save**.

**What to do next**

Go to the router port mapping settings interface and set the port number and IP address to be the same as those on the device. For more information, refer to the router user manual.

## 8.13.3 Set Port Mapping on Router

The following settings are for a certain router. The settings vary depending on different models of routers.

**Steps**

1. Select the **WAN Connection Type**.
2. Set the **IP Address**, **Subnet Mask** and other network parameters of the router.
3. Go to **Forwarding** → **Virtual Severs** and input the **Port Number** and **IP Address**.
4. Click **Save**.

**Example**

When the cameras are connected to the same router, you can configure the ports of a camera as 80, 8000, and 554 with IP address 192.168.1.23, and the ports of another camera as 81, 8001, 555, 8201 with IP 192.168.1.24.

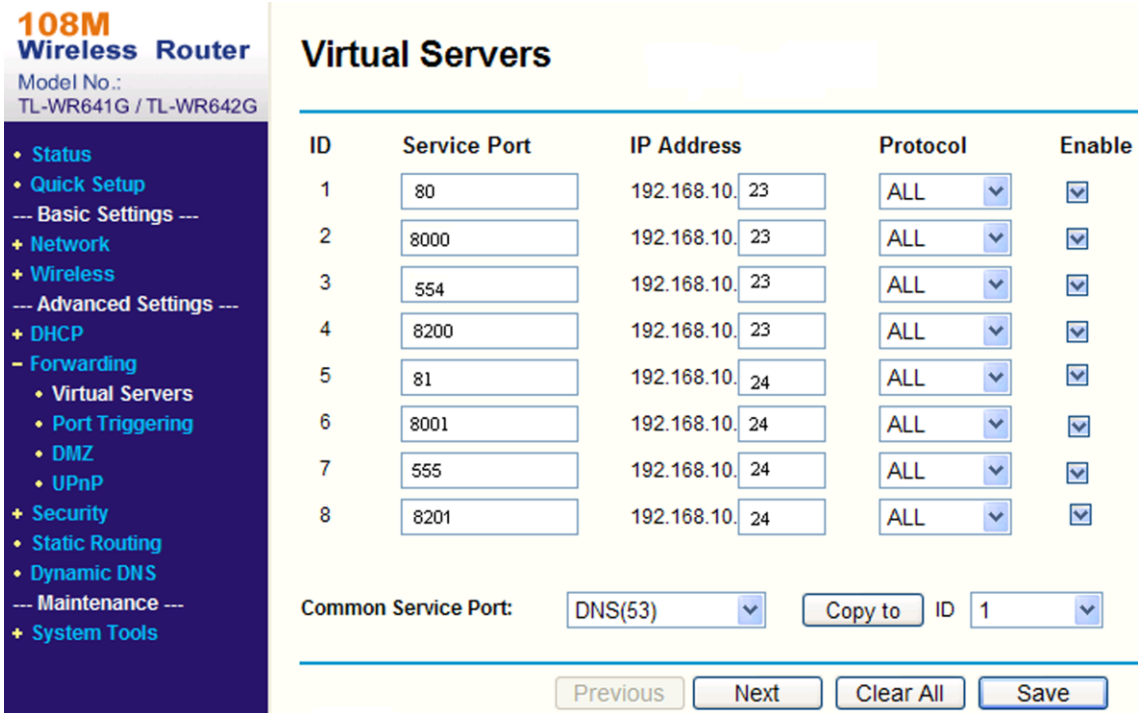



**Figure 8-1 Port Mapping on Router**

**Note**

The port of the network camera cannot conflict with other ports. For example, some web management port of the router is 80. Change the camera port if it is the same as the management port.

## 8.14 RTCP

The device relies on RTCP (Real-time Transport Control Protocol) to deliver packets sequentially to provide a reliable delivery mechanism and to provide services for flow control or congestion control.

Go to **Configuration** → **Network** → **Network Service** → **RTCP** and check **Enable** to enable the function.

## 8.15 Wireless Dial

Data of audio, video and image can be transferred via 3G/4G wireless network.

**Note**

The function is only supported by certain device models.

## 8.15.1 Set Wireless Dial

The built-in wireless module offers dial-up access to the Internet for the device.

**Before You Start**

Get a SIM card, and activate 3G/4G services. Insert the SIM card to the corresponding slot.

**Steps**

1. Go to **Configuration** → **Network** → **Network Settings** → **Wireless Dial**.
2. Check to enable the function.
3. Go to **Dial Parameters** to configure and save the parameters.
4. Click **Settings** behind **Dial Plan**. See ***Set Arming Schedule*** for detailed information.
5. View the **Dial Status**.

| | |
|---|---|
| **Click Refresh** | Refresh the dial status. |
| **Click Disconnect** | Disconnect the 3G/4G wireless network. |

When the **Dial Status** turns to **Connected**, it means a successful dial.

6. Access the device via the **IP Address** of the computer in the network.
   – Input the IP address in the browser to access the device.
   – Add the device in client application. Select **IP/Domain**, and input IP address and other parameters to access the device.
7. Optional: You can view 4G SIM card information and network carrier information.

**Note**

For certain device models working on **Performance Mode** or **Proactive Mode**, the wireless mode can be upgraded. If necessary, please upgrade the wireless mode under the guidance of a professional.

8. Optional: Click **Re-Camp** to reconnect the device to wireless network manually. The device will maintain airplane mode for 10 seconds and then connects to network automatically.
9. Optional: Check **Enable** to enable **Auto Re-Camp**, and then set the **Re-Camp Interval**. The device will reconnect to the wireless network at set **Re-Camp Interval** automatically.

**Note**

The function may vary according to different device models.

## 8.15.2 Wireless Expert Settings

Wireless expert settings provide more details of the 3G/4G wireless network to which the device

connects and helps the professionals troubleshoot potential network issues.

## Cell Radio Frequency Parameters

Cell radio frequency parameters provide the current wireless network information to which the device is connected.
Go to **Configuration** → **Network** → **Network Settings** → **Wireless Dial** → **Expert Settings** to view cell radio frequency parameters.

**Network Info**

It displays the current cellular network information. You can click **Refresh** to view the frequency information of different cells.

**Radio Frequency Fluctuation**

It records the fluctuation of the cellular network to which the device has connected during the past 7 days. Click **Export Report** and set and confirm the encryption password to export the fluctuation report.

## Lock Band

You can lock a set of bands that get the device faster data rates to improve the network speed.

**Steps**

1. Go to **Configuration** → **Network** → **Network Settings** → **Wireless Dial** → **Expert Settings** → **Lock Band**.
2. Check **Enable**.
3. Click **Add** and enter the band.

**Note**

- The band you enter should be B + number or N + number. For example, you can enter B1 or N1.
- Up to five bands are supported.

4. Optional: Click 🗑 to delete the selected band. You can also click **Clear All** to clear the list.

## Capture Baseband Packet

This function can capture the protocol interaction packet to help the professionals to locate the communication failures between 4G module and the base station.

**Steps**

**Note**

This function is reserved for the professionals and technical support staff.

1. Go to **Configuration** → **Network** → **Network Settings** → **Wireless Dial** → **Expert Settings**.
2. Click **Configuration** behind **Capture Baseband Packet** to enter the setting interface.
3. Check **Enable** to enable this function.
4. Set capture duration and the saving path. The saving path depends on the actual storage method of the device. You can click **Delete Captured Packet Under This Path** to delete the captured packet.
5. Click **Save**.
6. Click **Start Capturing Packet** to capture the baseband packet.
7. Optional: Click **Stop Capturing** to stop the capturing process.
8. After the capturing is completed, click **Export Captured Packet** to save the report.

### Speed Test

**Steps**

1. Go to **Configuration** → **Network** → **Network Settings** → **Wireless Dial** → **Expert Settings**.
2. Click **Configuration** behind **Speed Test** to enter the setting interface.
3. Select the default server or enter the server address. You can follow the steps below to get the nearby server address.

**Note**

You can follow the steps below to get the nearby server address.

1. Visit this website to get the nearby server address: ***https://www.speedtest.net/speedtest-servers-static.php***.
2. Select and copy the URL of the nearby speed test station and paste it in **Server Address**.

4. Click **Speed Test** to start the test.
   You can view the speed details after the test is completed. You can also click **Export Speed Test Result**.

## 8.16 WLAN AP (Access Point)

The device can be used as a wireless access point with the WLAN AP function. You can connect your phone or PC to the device AP, so as to access to the device and configure the parameters via your phone or PC.

**Note**

The function is only supported by certain device models.

## 8.16.1 Set WLAN AP

**Steps**

1. Go to **Configuration** → **Network** → **Network Settings** → **WLAN AP**.
2. Select the WLAN AP mode.

   **On**

   The function is enabled.

   **Maintenance Mode**

   The WLAN AP function is automatically turned on for 5 minutes after the device is cold booted (by turning the switch on the device to **ON**), after which the WLAN AP function is turned off if the device's 4G communication is normal, and remains on if the device's 4G communication is abnormal.

   **Off**

   The function is disabled.
3. Set the related parameters.

   **SSID**

   For certain device models, the default SSID of the device is named as "Serial Number".
   For certain device models, the default SSID of the device is named as "Default SSID" on the device label.
   You can define it as needed.

   **Security Mode**

   **WPA2-personal** mode is supported.

   **Encryption Type**

   **AES** and **TKIP** are selectable.

   **Password**

   The password for wireless connection via the device AP. The default password is the nine-digit serial number of the camera. Please change the default password and set a strong password after logging in for the first time.

   **Caution**

   We highly recommend you create a strong password of your own choosing (using a minimum of 8 characters, including upper case letters, lower case letters, numbers, and special characters) in order to increase the security of your product. And we recommend you reset your password regularly, especially in the high security system, resetting the password monthly or weekly can better protect your product.

4. Click **Save**.

**Note**

The function may vary according to different device models.

**What to do next**

You can connect your mobile phone or PC to the AP.

## 8.16.2 Access to Device via AP

You can access to the device via the device AP when the device cannot connect to the network.

**Steps**

1. Go to **Configuration** → **Network** → **Network Settings** → **WLAN AP** to enable WLAN AP function.

   For certain device models, the WLAN AP function is automatically turned on for 5 minutes after the device is cold booted (by turning the switch on the device to **ON**), after which the WLAN AP function is turned off if the device's 4G communication is normal, and remains on if the device's 4G communication is abnormal.
2. Search the device WLAN AP in the WLAN list of your phone or PC.
3. Enter the password and connect your mobile phone or PC to the AP.

**Note**

- The AP name is SSID ("Wlan-Serial Number" by default). The password is serial number by default. The serial number can be obtained from **Configuration** → **System** → **System Settings** → **Basic Information**.
- For certain device models, the AP name is the "Default SSID" on the device label.

4. Enter the IP address in the browser.

**Note**

The default IP of the device AP is 192.168.8.1.

**Result**

The connected devices will be displayed in the **Connected Device** interface.

# 8.17 Traffic Shaping

Traffic shaping is used to shape and smooth video data packet before transmission.
It helps to improve latency and reduce packet loss caused by network congestion and ensure the video quality as well. Shaping level is configurable.

# 8.18 Data Monitoring

You can view and manage the SIM card data or wired network data used by the device. SIM card data is the data service provided by network carriers; wired network data is usually provided through a 4G router.

**Steps**

1. Go to **Configuration** → **Network** → **Network Settings** → **Data Monitoring**.
2. Check **Enable**.
3. Set the following parameters according to your data plan.

   **Plan Type**

   **Daily**, **Monthly**, or **Annually** can be selected.

   **Data Plan**

   Enter the amount of usable data and select the unit.

   **Pre-Alarm Threshold**

   When the used data reaches the set percentage of data plan, the device sends an alarm message, and shows notification on the OSD or pop-up window.
4. Select **Normal Linkage**.
   If **Send Email** or **Notify Surveillance Center** is selected, the device sends an alarm message by Email or to surveillance center when the used data reaches the threshold.
5. Click **Save**.

**Note**

The function varies with different device models.

# 8.19 Wi-Fi

Connect the device to wireless network by setting Wi-Fi parameters.

**Note**

This function is only supported by certain device models.

## 8.19.1 Connect Device to Wi-Fi

**Before You Start**

Refer to the user manual of wireless router or AP to set SSID, key, and other parameters.

**Steps**

1. Go to TCP/IP settings page: **Configuration** → **Network** → **Network Settings** → **TCP/IP**.

2. Select **Wlan** to set the parameters. Refer to ***TCP/IP*** for detailed configuration.

**Note**

For stable use of Wi-Fi, it is not recommended to use DHCP.

3. Go to Wi-Fi settings page: **Configuration** → **Network** → **Network Service** → **Wi-Fi**.
4. Set and save the parameters.
   1) Check to enable Wi-Fi function.
   2) Click **Refresh** to view and select the available wireless router or AP, or click + to add it manually.
   3) Select or input a **SSID**, which should be the same as that of wireless router or AP.
      The parameters of the network is automatically shown in **Wi-Fi**.
   4) Select the **Network Mode** as **Manage**.
   5) Select the **Security Mode** according to your needs, and the parameters should be the same as those of the wireless network connection you set on the router or AP.
   6) Click **Save**.

**What to do next**

Go to TCP/IP settings page: **Configuration** → **Network** → **Network Settings** → **TCP/IP**, and click **Wlan** to check the **IPv4 Address** and log in the device.

## 8.20 Set ISUP

When the device is registered on ISUP platform (formerly called Ehome), you can visit and manage the device, transmit data, and forward alarm information over public network.

**Steps**

1. Go to **Configuration** → **Network** → **Platform Access** → **ISUP**.
2. Optional: Select an access center.
3. Check **Enable**.
4. Select a protocol version and enter related parameters.
5. Click **Save**.
   Register status turns to **Online** when the function is correctly set.

## 8.21 Access Camera via LTS Connect

LTS Connect is an application for mobile devices. Using the App, you can view live image, receive alarm notification and so on.

**Before You Start**

Connect the camera to network with network cables.

**Steps**

1. Get and install LTS Connect application by searching "LTS Connect" in App Store or Google Play(TM).
2. Start the application and register for an LTS Connect user account.
3. Log in after registration.
4. In the app, tap "+" on the upper-right corner and then scan the QR code of the camera to add the camera. You can find the QR code on the camera or on the cover of the Quick Start Guide of the camera in the package.
5. Follow the prompts to set the network connection and add the camera to your LTS Connect account.

   For detailed information, refer to the user manual of the LTS Connect app.

## 8.21.1 Enable PT Cloud Service on Camera

PT Cloud service should be enabled on your camera before using the service.
You can enable the service through IP Portal software or Web browser.

### Enable PT Cloud Service via Web Browser

Follow the following steps to enable PT Cloud Service via Web Browser.

**Before You Start**

You need to activate the camera before enabling the service.

**Steps**

1. Access the camera via web browser.
2. Enter platform access configuration interface. **Configuration** → **Network** → **Platform Access** → **PT Cloud**.
3. Check **Enable**.
4. Click and read "Terms of Service" and "Privacy Policy" in pop-up window.
5. Create a verification code or change the old verification code for the camera.

   **Note**

   The verification code is required when you add the camera to PT Cloud service.

6. Save the settings.

### Enable PT Cloud Service via IP Portal Software

This part introduces how to enable PT Cloud service via IP Portal software of an activated camera.

**Steps**

1. Run IP Portal software.
2. Select a camera and enter **Modify Network Parameters** page.
3. Check **Enable PT Cloud**.
4. Create a verification code or change the old verification code.

**Note**

The verification code is required when you add the camera to PT Cloud service.

5. Click and read "Terms of Service" and "Privacy Policy".
6. Confirm the settings.

## 8.21.2 Set Up LTS Connect

**Steps**

1. Get and install LTS Connect application by searching "LTS Connect" in App Store or Google Play(TM).
2. Start the application and register for an LTS Connect user account.
3. Log in after registration.

## 8.21.3 Add Camera to LTS Connect

**Steps**

1. Connect your mobile device to Wi-Fi.
2. Log into the LTS Connect app.
3. In the home page, tap "+" on the upper-right corner to add a camera.
4. Scan the QR code on camera body or on the *Quick Start Guide* cover.

**Note**

If the QR code is missing or too blurry to be recognized, you can also add the camera by inputting the camera's serial number.

5. Input the verification code of your camera.

**Note**

- The required verification code is the code you create or change when you enable PT Cloud service on the camera.
- If you forget the verification code, you can check the current verification code on **Platform Access** configuration page via web browser.

6. Tap **Connect to a Network** button in the popup interface.
7. Choose **Wired Connection** or **Wireless Connection** according to your camera function.

| | |
|---|---|
| **Wireless Connection** | Input the Wi-Fi password that your mobile phone has connected to, and tap **Next** to start the Wi-Fi connection process. (Locate the camera within 3 meters from the router when setting up the Wi-Fi.) |
| **Wired Connection** | Connect the camera to the router with a network cable and tap **Connected** in the result interface. |

**Note**

The router should be the same one which your mobile phone has connected to.

8. Tap **Add** in the next interface to finish adding.

   For detailed information, refer to the user manual of the LTS Connect app.

## 8.22 Set Open Network Video Interface

If you need to access the device through Open Network Video Interface protocol, you can configure the user settings to enhance the network security.

**Steps**

1. Go to **Configuration** → **Network** → **Platform Access** → **ONVIF**.
2. Check **Enable**.
3. Select an authentication mode.
   – If you select **Digest**, the device only supports digest authentication.
   – If you select **Digest&ws-username token**, the device supports digest authentication or ws-username token authentication.
4. Click **Add** to configure the Open Network Video Interface user.
5. Click **Save**.
6. Optional: Repeat the steps above to add more Open Network Video Interface users.
7. Optional: Manage the user.
   – Click 🗑 to delete the selected Open Network Video Interface user.
   – Click ✎ to modify the selected Open Network Video Interface user.

## 8.23 Set SDK Service

If you want to add the device to the client software, you should enable SDK Service or Enhanced SDK Service.

**Steps**

1. Go to **Configuration** → **Network** → **Platform Access** → **SDK Service**.

2. Set **SDK Service** parameters.
   1) Check **Enable** to add the device to the client software with SDK protocol.
   2) Enter the **Port** number.
3. Set **Enhanced SDK Service** parameters.
   1) Check **Enable** to add the device to the client software with SDK over TLS protocol.
   2) Optional: Click **TLS Settings** to enable the TLS version that the device supports. Refer to ***TLS*** for details.
   3) Enter the **Port** number.
   4) Select a server certificate to make sure the data transmission security. You can click **Certificate Management** to add a certificate. Refer to ***Certificate Management*** for details.
4. Click **Save**.

# Chapter 9 Calibration

The device calibration aims to adjust the monitoring angle of the panorama channel and to get an ideal monitoring scene, and you can set the tracking parameters accordingly.

## 9.1 Panorama Linkage Settings

Panorama linkage adjusts the monitoring angle of the panorama channel to get an ideal monitoring scene.

**Steps**
1. Go to **Configuration** → **Calibrate** → **Panorama Linkage**.
2. Click **Panorama Sele-Check** of **Self-Check** to let the device self-check.
3. Unlock the PTZ to adjust the monitoring angle of the panorama channel.

---

Note: If the target appears out of focus in the scene, it is recommended to set the focus mode to automatic or semi-automatic, and reduce the minimum focus distance. By setting Elevation Range, the vertical movement range of the device can be adjusted.

---

4. Click Save **Scene**.
5. Click **Restore the Scene** to restore the scene to the currently saved magnification and focus position.
6. Click **Save**.

## 9.2 Main/Sub Camera Calibration

This function calibrates the calibration linkage between the image coordinates of the panoramic camera and the PTZ coordinates of the PTZ camera.
The device has been calibrated by default. Enter the preview page, click 3D positioning and select the reference target in the panoramic image, then check whether the reference target can be displayed in the center of the PTZ image in sync. If the deviation is significant, recalibrate the device. It is recommended to use auto calibration first. If auto calibration fails, proceed with manual calibration.
Select **Calibration Mode** first, and click **Start Calibration**.

Note: It is recommended to use auto calibration mode.

## 9.3 Tracking Parameters Settings

**Steps**

1. Go to **Configuration** → **Calibrate** → **Tracking Parameters**.
2. Click **Track** to enable the tracking function.
3. Set **Tracking Zoom Ratio**, **Tracking Duration**, and **Tracking Initial Position** accordingly, and click **Set**.
4. Click **Save**.

# Chapter 10 System and Security

It introduces system maintenance, system settings and security management, and explains how to configure relevant parameters.

## 10.1 System Settings

### 10.1.1 View Device Information

You can view device information, such as Device No., Model, Serial No. and Firmware Version.
Enter **Configuration** → **System** → **System Settings** → **Basic Information** to view the device information.

### 10.1.2 Time and Date

You can configure time and date of the device by configuring time zone, time synchronization and Daylight Saving Time (DST).

#### Synchronize Time Manually

**Steps**

1. Go to **Configuration** → **System** → **System Settings** → **Time Settings**.
2. Select **Time Zone**.
3. Select **Manual Time Sync.**.
4. Choose one time synchronization method.
   – Select **Set Time** and manually input or select date and time from the pop-up calendar.

Click **Sync. with computer time** to synchronize the time of the device with that of the local PC.
5. Click **Save**.

#### Set NTP Server

You can use NTP server when accurate and reliable time source is required.

**Before You Start**

Set up an NTP server or obtain NTP server information.

**Steps**

1. Go to **Configuration** → **System** → **System Settings** → **Time Settings**.
2. Select **Time Zone**.
3. Click **NTP**.
4. Set **Server Address**, **NTP Port** and **Interval**.

**Note**

Server Address is NTP server IP address.

5. Click **Test** to test server connection.
6. Click **Save**.

### Synchronize Time by Satellite

**Note**

This function varies depending on different devices.

**Steps**

1. Enter **Configuration** → **System** → **System Settings** → **Time Settings**.
2. Select **Satellite Time Sync.**.
3. Set **Interval**.
4. Click **Save**.

### Set DST

If the region where the device is located adopts Daylight Saving Time (DST), you can set this function.

**Steps**

1. Go to **Configuration** → **System** → **System Settings** → **Time Settings**.
2. Check **Enable**.
3. Select **Start Time**, **End Time** and **DST Bias**.
4. Click **Save**.

## 10.1.3 Set RS-232

RS-232 can be used to debug device or access peripheral device. RS-232 can realize communication between the device and computer or terminal when the communication distance is short.

**Before You Start**

Connect the device to computer or terminal with RS-232 cable.

**Steps**

1. Go to **Configuration** → **System** → **System Settings** → **RS-232**.
2. Set RS-232 parameters to match the device with computer or terminal.
3. Click **Save**.

## 10.1.4 Set RS-485

RS-485 is used to connect the device to external device. You can use RS-485 to transmit the data between the device and the computer or terminal when the communication distance is too long.

**Before You Start**

Connect the device and computer or terminal with RS-485 cable.

**Steps**

1. Go to **Configuration** → **System** → **System Settings** → **RS-485**.
2. Set the RS-485 parameters.

> **Note**
> You should keep the parameters of the device and the computer or terminal all the same.

3. Click **Save**.

## 10.1.5 Enable Flash Protection

Overuse of flash may lead to device boot failure. You can use flash protection function to avoid this problem.
When the remaining lifespan of FLASH is below 5% or under high-frequency writes, write protection will be triggered with OSD overlay. In the write protection mode, data storage for some functions will be unavailable, and settings will be cleared after a restart.
Enter **Configuration** → **System** → **System Settings** → **System Service** and view **Flash Lifespan Usage** and enable **Flash Protection** according to actual demands.

## 10.1.6 Set Live View Connection

It controls the remote live view connection amount.
Live view connection controls the maximum live view that can be streamed at the same time.
Enter **Configuration** → **System** → **System Settings** → **System Service** to set the upper limit of the remote connection number.

## 10.1.7 Location Settings

Location displays and uploads the current longitude and latitude of the device.
Go to **Configuration** → **System** → **System Settings** → **Location**.

**Auto Uploading**

Check **Enable** and set **Location Upload Interval**.
The device will upload its location at the set interval. You can also click **Refresh** to upgrade the device location manually.

**Manual Settings**

Check **Enable** and set **Location Upload Interval**. Enter the longitude and latitude of the device and click **Save**.
The device will upload the set location at the set interval.

**Note**

This function may vary according to different device models.

### 10.1.8 External Device

For the device supporting external devices, including the supplement light, wiper on the housing, the LED light, and heater, you can control them via the Web browser when it is used with the housing. External devices vary depending on models.

### 10.1.9 View Open Source Software License

On the top-right corner, click ⓘ and select **Open Source Software Description** to download the license. You can view the license in the editor.

### 10.1.10 Wiegand

**Note**

This function is only supported by certain camera models.

Check **Enable** and select the protocol. The default protocol is SHA-1 26bit.
If enabled, the recognized license plate number will be output via the selected Wiegand protocol.

## 10.2 User and Account

### 10.2.1 Set User Account and Permission

The administrator can add, modify, or delete other accounts, and grant different permission to different user levels.

**Caution**

To increase security of using the device on the network, please change the password of your account regularly. Changing the password every 3 months is recommended. If the device is used in high-risk environment, it is recommended that the password should be changed every month or week.

**Steps**

1. Go to **Configuration** → **System** → **User Management** → **User Management**.
2. Click **Add**. Enter **User Name**, select **Level**, and enter **Password**. Assign remote permission to users based on needs.

   **Administrator**

   The administrator has the authority to all operations and can add users and operators and assign permission.

   **User**

   Users can be assigned permission to view live videos, set PTZ parameters, and change their own passwords, but there is no permission for other operations.

   **Operator**

   Operators can be assigned all permission except for operations on the administrator and creating accounts.

| | |
|---|---|
| **Modify** | Select a user and click ✎ to change the password and permission. |
| **Delete** | Select a user and click 🗑. |

**Note**

The administrator can add up to 31 user accounts.

3. Click **OK**.

## 10.2.2 Simultaneous Login

The administrator can set the maximum number of users logging into the system through web browser simultaneously.
Go to **Configuration** → **System** → **User Management** → **Online Users**, click **General Parameter**, and set **Simultaneous Login**.

## 10.2.3 Online Users

The information of users logging into the device is shown.
Go to **Configuration** → **System** → **User Management** → **Online Users** to view the list of online users.

## 10.2.4 Change Password

The device supports changing password function.
**Caution**
To increase security of using the device on the network, please change the password of your

account regularly. Changing the password every 3 months is recommended. If the device is used in high-risk environment, it is recommended that the password should be changed every month or week.The password requirement: 8 to 16 characters allowed. You can use a combination of numbers, lowercase, uppercase and special character for your password with at least two kinds of them contained. Do not contain following characters in the password: 123, admin, 4 consecutive digits in ascending or descending order, or 4 consecutive repeated characters.

**Steps**

1. Go to the right corner of the home page.
2. Click **admin** → **Change Password**, and set the parameters according to prompts.
3. Click **OK**.

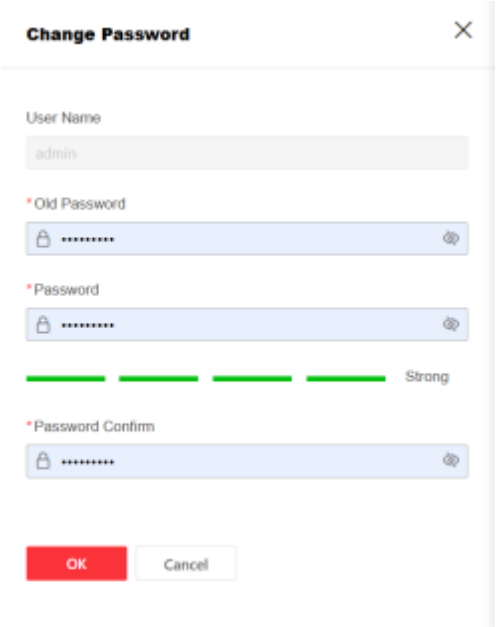



**Figure 10-1 Change Password**

# 10.3 Maintenance

## 10.3.1 Restart

You can restart the device via browser.

Go to **Maintenance and Security** → **Maintenance** → **Restart** and click **Restart**.

## 10.3.2 Upgrade

**Before You Start**

You need to obtain the correct upgrade package.

**Caution**

DO NOT disconnect power during the process, and the device restarts automatically after upgrade.

**Steps**

1. Go to **Maintenance and Security** → **Maintenance** → **Upgrade**.
2. Choose one method to upgrade.

| | |
|---|---|
| **Firmware** | Locate the exact path of the upgrade file. |
| **Firmware Directory** | Locate the directory which the upgrade file belongs to. |

3. Click 🗀 to select the upgrade file.
4. Click **Upgrade**.

## 10.3.3 Restore and Default

Restore and Default helps restore the device parameters to the default settings.

**Steps**

1. Go to **Maintenance and Security** → **Maintenance** → **Backup and Restore**.
2. Click **Restore** or **Default** according to your needs.

| | |
|---|---|
| **Restore** | Reset device parameters, except user information, IP parameters and video format to the default settings. |
| **Default** | Reset all the parameters to the factory default. |

**Note**

Be careful when using this function. After resetting to the factory default, all the parameters are reset to the default settings.

## 10.3.4 Import and Export Configuration File

It helps speed up batch configuration on other devices with the same parameters.

**Steps**

1. Export configuration file.
   1) Go to **Maintenance and Security** → **Maintenance** → **Backup and Restore** → **Backup**.
   2) Click **Export** and input the encryption password to export the current configuration file.
   3) Set the saving path to save the configuration file on local computer.
2. Import configuration file.
   1) Access the device that needs to be configured via web browser.

2) Go to **Maintenance and Security** → **Maintenance** → **Backup and Restore** → **Reset**.
3) Click 🗀 to select the saved configuration file.
4) Input the encryption password you have set when exporting the configuration file.
5) Click **Import**.

## 10.3.5 Search and Manage Log

Log helps locate and troubleshoot problems.

**Steps**

1. Go to **Maintenance and Security** → **Maintenance** → **Log**.
2. Set search conditions **Major Type**, **Minor Type**, **Start Time**, and **End Time**.
3. Click **Search**.
   The matched log files will be displayed on the log list.
4. Optional: Click **Export** to save the log files onto your computer.

## 10.3.6 Search Security Audit Logs

You can search and analyze the security log files of the device to find out the illegal intrusion and troubleshoot the security events.

**Steps**

**Note**

This function is only supported by certain camera models.

1. Go to **Maintenance and Security** → **Maintenance** → **Security Audit Log**.
2. Select log types, **Start Time**, and **End Time**.
3. Click **Search**.
   The log files that match the search conditions will be displayed on the Log List.
4. Optional: Click **Export** to save the log files to your computer.

## 10.3.7 SSH

Secure Shell (SSH) is a cryptographic network protocol for operating network services over an unsecured network.
Go to **Maintenance and Security** → **Maintenance** → **Device Debugging** and click **Settings** of **SSH**. You can edit the number of the port. Click **Save**.

**Caution**

Use the function with caution. The security risk of device internal information leakage exists when the function is enabled.

## 10.3.8 Export Diagnose Information

Diagnose information includes running logs, system information, and hardware information.
Go to **Maintenance and Security** → **Maintenance** → **Device Debugging** → **Diagnose Information**. Click **Export**. In the pop-up window, check desired diagnose information and click **Export** to export corresponding diagnose information of the device.

## 10.3.9 View Debugging Information

Debugging information function allows you to enable debugging information, configure its parameters, and search specific period debugging information.

**Steps**

1. Go to **Maintenance and Security** → **Maintenance** → **Device Debugging**, and click **View** of **Debugging Info**.
2. Click **Debugging Info Configuration**, and click **Enable**.
3. Set parameters like recording duration, storage location, etc.
4. Click **Save**.
5. Select time period, and click **Search**.
6. Click **Export** to export information if needed.

## 10.3.10 Diagnosis

For the device that supports 4G network, diagnosis can help get the communication packet and the device power and network information for future maintenance and troubleshooting.

### Capture Device Packet

This function is reserved for professionals and is used to get communication packet between the device and the external device for future problem diagnosis and debugging.

**Steps**

**Note**

This function is reserved for professional and technical support staff.

1. Go to **Maintenance and Security** → **Maintenance** → **Device Debugging** and click **Settings** of **Capture Device Packet**.
2. Check **Enable** to enable this function.
3. Set **Capture Duration** according to your need.
4. Select the packet saving path.

**Note**

1. The saving path option is subject to the actual storage method of the device.
2. You can click **Delete Captured Packet Under This Path** to delete the saved packet file(s).

5. Set NIC type, IP, and port.
6. Optional: You can select **Auto Capture,** and the device packet will be captured when wakeup happens.
7. Click **Save**.
8. Click **Start Capturing Packet**.
9. After the capture is completed, click **Export Captured Packet** to save the report.

### Export Device Info

Go to **Maintenance and Security** → **Maintenance** → **Device Debugging** → **Export Device Info**, you can click **Export** to export device information, such as voltage, current, power, 4G data.

## 10.4 Security

You can improve system security by setting security parameters.

### 10.4.1 Set IP Address Filter

IP address filter is a tool for access control. You can enable the IP address filter to allow or forbid the visits from certain IP addresses.

IP address refers to IPv4.

**Steps**

1. Go to **Maintenance and Security** → **Security** → **IP Address Filter**.
2. Check **Enable**.
3. Select the type of IP address filter.

| | |
|---|---|
| **Blocklist** | IP addresses in the list cannot access the device. |
| **Allowlist** | Only IP addresses in the list can access the device. |

4. Edit the IP address filter list.

| | |
|---|---|
| **Add** | Add a new IP address or IP address range to the list. |
| | Modify the selected IP address or IP address range in the list. |
| | Delete the selected IP address or IP address range in the list. |

5. Click **Save**.

## 10.4.2 Set MAC Address Filter

MAC address filter is a tool for access control. You can enable the MAC address filter to allow or forbid visits from the certain MAC addresses.

**Steps**

1. Go to **Maintenance and Security** → **Security** → **MAC Address Filter**.
2. Check **Enable**.
3. Select the type of MAC address filter.

| | |
|---|---|
| **Blocklist** | MAC addresses in the list cannot access the device. |
| **Allowlist** | Only MAC addresses in the list can access the device. |

4. Edit the MAC address filter list.

| | |
|---|---|
| **Add** | Add a new MAC address to the list. |
| | Modify the selected MAC address in the list. |
| | Delete the selected MAC address in the list. |

5. Click **Save**.

## 10.4.3 Control Timeout Settings

If this function is enabled, you will be logged out when you make no operation (not including viewing live image) to the device via web browser within the set timeout period.
Go to **Maintenance and Security** → **Security** → **Login Management** → **Control Timeout Settings** to complete settings.

## 10.4.4 Certificate Management

It helps to manage the server/client certificates and CA certificate, and to send an alarm if the certificates are close to expiry date or are expired/abnormal.

**Note**

The function is only supported by certain device models.

### Server Certificate/Client Certificate

**Note**

The device has default self-signed server/client certificate installed. The certificate ID is ***default***.

## Create and Install Self-signed Certificate

**Steps**

1. Go to **Maintenance and Security** → **Security** → **Certificate Management**.
2. Click **Create Self-signed Certificate**.
3. Input certificate information.

**Note**

The input certificate ID cannot be the same as the existing ones.

4. Click **Save** to save and install the certificate.
   The created certificate is displayed in the **Server/Client Certificate** list.
   If the certificate is used by certain functions, the function name is shown in the column **Functions**.
5. Optional: Click **Property** to see the certificate details.

## Install Self-signed Request Certificate

You can send the self-signed certificate to a trusted third-party for the signature and install the certificate to the device.

**Before You Start**

Create a self-signed certificate first. See ***Create and Install Self-signed Certificate*** for instructions.

**Steps**

1. Go to **Maintenance and Security** → **Security** → **Certificate Management**.
2. Select a self-signed certificate from the **Server/Client Certificate** list.
3. Click **Create Certificate Request**.
4. Input request information.
5. Click **Save**.
   The certificate request details are displayed in a pop-up window.
6. Copy the request content and save it as a request file.
7. Send the file to a trusted-third party for signature.
8. After receiving the certificate sent back from the third-party, install it to the device.
   1) Click **Import**.
   2) Input **Certificate ID**.

   **Note**

   The input certificate ID cannot be the same as the existed ones.

   3) Click 🗀 to select the certificate file.
   4) Select **Self-signed Request Certificate**.
   5) Click **Save**.
   The imported certificate is displayed in the **Server/Client Certificate** list.
   If the certificate is used by certain function, the function name is shown in the column

**Functions**.

9. Optional: Click **Property** see the certificate details.

## Install Other Authorized Certificate

If you already have an authorized certificate (not created by the device), you can import it to the device directly.

**Steps**

1. Go to **Maintenance and Security** → **Security** → **Certificate Management**.
2. Click **Import** on the **Server/Client Certificate** list.
3. Input **Certificate ID**.

**Note**

The input certificate ID cannot be the same as the existing ones.

4. Click to select the certificate file.
5. Select **Certificate and Key** and select a **Key Type** according to your certificate.

| | |
|---|---|
| **Independent Key** | If your certificate has an independent key, select this option.<br>Browse to select the private key and input the private-key password. |
| **PKCS#12** | If your certificate has the key in the same certificate file, select this option and input the password. |

6. Click **Save**.
   The imported certificate is displayed in the **Server/Client Certificate** list.
   If the certificate is used by certain function, the function name is shown in the column **Functions**.

## Install CA Certificate

**Before You Start**

Prepare a CA certificate in advance.

**Steps**

1. Go to **Maintenance and Security** → **Security** → **Certificate Management**.
2. Click **Import** onto the **CA Certificate** list.
3. Input **Certificate ID**.

**Note**

The input certificate ID cannot be the same as the existing ones.

4. Click to select the certificate file.
5. Click **Save**.
   The imported certificate is displayed in the **CA Certificate** list.

If the certificate is used by certain functions, the function name is shown in the **Functions** column.

### Enable Certificate Expiration Alarm

**Steps**

1. Check **Enable Certificate Expiration Alarm**. If enabled, you will receive an email or the camera links to the surveillance center that the certificate will expire soon or is expired or abnormal.
2. Set the **Remind Me Before Expiration (day)**, **Alarm Frequency (day)** and **Detection Time (hour)**.

**Note**

- If you set the reminding day before expiration to 1, then the camera will remind you the day before the expiration day. 1 to 30 days are available. Seven days is the default reminding days.
- If you set the reminding day before expiration to 1, and the detection time to 10:00, and the certificate will expire in 9:00 the next day, the camera will remind you in 10:00 the first day.

3. Click **Save**.

## 10.4.5 TLS

The Transport Layer Security (TLS) protocol aims primarily to provide privacy and data integrity between two or more communicating computer applications. TLS settings are effective for HTTP(S) and enhanced SDK service.

Go to **Maintenance and Security** → **Security** → **TLS** and enable the desired TLS protocol. Click **Save**.

**Caution**

Use the function with caution. The security risk of device internal information leakage exists when the function is enabled.

# Chapter 11 VCA Resource

VCA resource is a collection of smart functions supported by the device.

## 11.1 Set Open Platform

Open platform allows you to install the application for the third-party to develop and run its function and service. You can follow the steps to import and run smart applications.

**Steps**

1. Go to **VCA** interface.

**Note**

Before installing the application, make sure that the application you want to install fits the following conditions.

- Each application has its own exclusive name.
- The FLASH memory space that the application takes up is less than the available FLASH memory space of the device.
- The memory and computing power of the application is less than that available memory and computing power of the device.

2. Click **Import Application** and browse your local path to select an application package and import.
3. Click **Import License** and browse your local path to select a license file and import.
4. Optional: Set application.

| | |
|---|---|
| Click | Enable or disable the application. |
| Click | Delete the application. |
| Click | Export log. |
| Click | Browse a local path and import an application package to update the application. |
| Click | Clear memory fragmentation and free up more memory to enable more smart applications. |
| View details | Select an application and click on it to show the details on the page. |

## 11.2 General Settings

Set the general parameters which are related to smart applications.

Go to **VCA** → **Set Application** → **General Settings** to set the following parameters.

### Camera Info.

For camera information settings, refer to ***Set Camera Info***.

### FTP

For FTP settings, refer to ***Set FTP***.

### Email

For Email settings, refer to ***Set Email***.

### Alarm Output

For alarm output settings, refer to ***Automatic Alarm***.

### Audible Alarm Output

For audible alarm output settings, refer to ***Set Audible Alarm Output***.

### Alarm Server

For alarm server settings, refer to ***Alarm Server***.

### Metadata

For metadata settings, refer to ***Metadata***.

## 11.2.1 Set Camera Info

Customize specific information for the device. It may help identify a certain device when multiple devices are under management.

Go to **VCA** → **Set Application** → **General Settings** → **Camera Info** to set **Device No.** and **Camera Info**.

## 11.2.2 Metadata

Metadata is the raw data that the device collects before algorithm processing. It is often used for

third-party integration.

Go to **VCA** → **Set Application** → **General Settings** → **metadata Settings** to enable metadata uploading of the desired function.

**Note**

This function may vary according to different camera models.

**Smart Event**

The metadata of the smart event includes the target ID, target coordinate, time, etc.

**Face Capture**

The metadata of face capture includes the rule information, target ID, target coordinate, time information, etc. The camera detects the whole image by default. If the area is configured in the face capture settings, the camera detects the configured area.

## 11.2.3 Direct Search

The device transmits the POS information of the target to network video recorder after detecting the target. It is to achieve accurate and quick search on the connected network video recorder.

**Before You Start**

- Make sure the connected network video recorder (NVR) supporting Direct Search to do with the function.
- After the function is enabled, the ongoing smart application will be disabled while **Smart Event** or **Multi-Target-Type Detection** will be enabled.
- The function is only supported by certain models. The actual display varies with the models.

**Steps**

1. Enable the function of the device.
2. Set the function on the connected network video recorder.
   1) Enable Direct Search function for the selected channel (refer to the configured camera device) on the network video recorder.
   2) Click the Direct Search button on the playback page of the network video recorder.
   3) Click a target on a network video recorder to search for pictures that contain the target.
   4) Click a picture to play a video before and after that moment.

**Note**

Refer to the *User Manual* of NVR for the actual settings on NVR.

# 11.3 Smart Event

**Note**

- For certain device models, you need to enable the smart event function on **VCA** page first to show the function configuration page.
- The function varies according to different models.

## 11.3.1 Set Intrusion Detection

It is used to detect objects entering and loitering in a predefined virtual region. If it occurs, the device can take linkage actions.

**Before You Start**

- Go to **VCA** and select the application. Select **Smart Event** and click **Next** to enable the function.
- For the device supporting open platform, go to **VCA** to import and enable **Smart Event**.

**Steps**

1. Go to **VCA** → **Set Application** → **Smart Event** → **Intrusion Detection**.
2. Check **Enable**.
3. Click **Add** to add a rule and set a detection area.
   1) Draw a detection area. Click , click on the live view to specify the vertexes and draw the boundaries of the detection area, and right click to complete drawing.
   2) Set the minimum size and the maximum size for the target to improve detection accuracy. Only targets whose size are between the maximum size and the minimum size trigger the detection. Click  and , then drag the mouse in the live view to draw the minimum and maximum target size.
   3) Optional: Click  to delete all the setting areas.
4. Set parameters.

   **Detection Target**

   This function allows alarm triggering by specified selected target types. If the detection target is not selected, all the detected targets will be reported.

   **Note**

   This function is only available for certain device models under certain settings. Please refer to the actual settings.

   **Threshold**

   Threshold stands for the threshold for the time of the object loitering in the region. If the time that one object stays exceeds the threshold, the alarm is triggered. The larger the value of the threshold is, the longer the alarm triggering time is.

**Sensitivity**

Sensitivity stands for the percentage of the body part of an acceptable target that enters the predefined region. Sensitivity = 100 - S1/ST × 100. S1 stands for the target body part that goes across the predefined region. ST stands for the complete target body. The higher the value of sensitivity is, the more easily the alarm can be triggered.

**Target Validity**

If you set a higher validity, the required target features should be more obvious, and the alarm accuracy would be higher. The target with less obvious features would be missed.

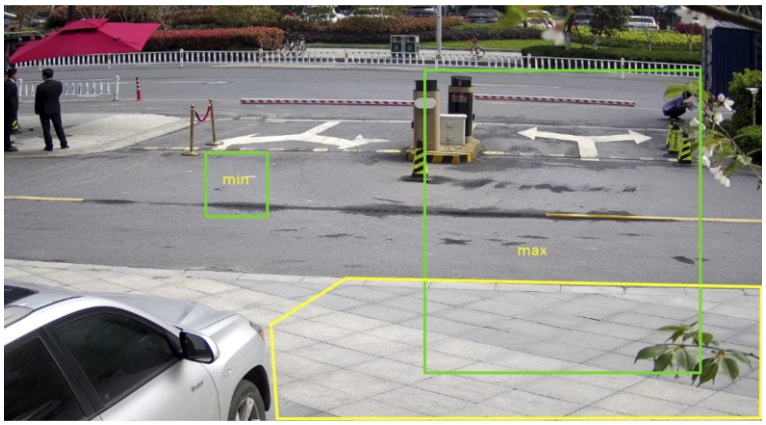



**Figure 10-1 Set Rule**

5. Optional: You can set the parameters of multiple areas by repeating the above steps.
6. For the arming schedule settings, refer to ***Set Arming Schedule***. For the linkage method settings, refer to ***Linkage Method Settings***.
7. Click **Save**.

## 11.3.2 Set Line Crossing Detection

It is used to detect objects crossing a predefined virtual line. If it occurs, the device can take linkage actions.

**Before You Start**

- Go to **VCA** and select the application. Select **Smart Event** and click **Next** to enable the function.
- For the device supporting open platform, go to **VCA** to import and enable **Smart Event**.

**Steps**

1. Go to **VCA** → **Set Application** → **Smart Event** → **Line Crossing Detection**.
2. Check **Enable**.
3. Click **Add** to add a rule and set a detection area.
   1) Draw a detection line. Click ⊡ and a line with an arrow appears in the live view. Drag the line to the location on the live view as desired.

2) Set the minimum size and the maximum size for the target to improve detection accuracy. Only targets whose size are between the maximum size and the minimum size trigger the detection. Click and , then drag the mouse in the live view to draw the minimum and maximum target size.
3) Optional: Click to delete all the setting areas.

4. Set parameters.

**Detection Target**

This function allows alarm triggering by specified selected target types. If the detection target is not selected, all the detected targets will be reported.

**Note**

This function is only available for certain device models under certain settings. Please refer to the actual settings.

**Direction**

It stands for the direction from which the object goes across the line.
A<->B: The object going across the line from both directions can be detected and alarms are triggered.
A->B: Only the object crossing the configured line from the A side to the B side can be detected.
B->A: Only the object crossing the configured line from the B side to the A side can be detected.

**Sensitivity**

It stands for the percentage of the body part of an acceptable target that goes across the predefined line. Sensitivity = 100 - S1/ST × 100. S1 stands for the target body part that goes across the pre-defined line. ST stands for the complete target body. The higher the value of sensitivity is, the more easily the alarm can be triggered.

**Target Validity**

If you set a higher validity, the required target features should be more obvious, and the alarm accuracy would be higher. The target with less obvious features would be missing.

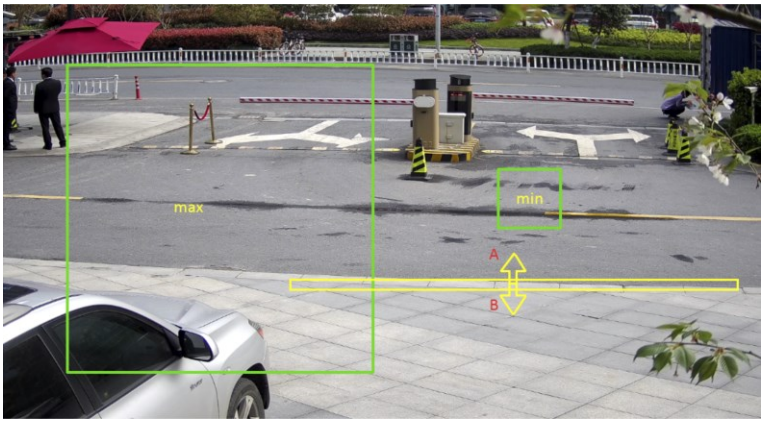



**Figure 10-2 Set Rule**

5. Optional: You can set the parameters of multiple areas by repeating the above steps.
6. For the arming schedule settings, refer to ***Set Arming Schedule***. For the linkage method settings, refer to ***Linkage Method Settings***.
7. Click **Save**.

## 11.3.3 Set Region Entrance Detection

It is used to detect objects entering a predefined virtual region from the outside place. If it occurs, the device can take linkage actions.

**Before You Start**

- Go to **VCA** and select the application. Select **Smart Event** and click **Next** to enable the function.
- For the device supporting open platform, go to **VCA** to import and enable **Smart Event**.

**Steps**

1. Go to **VCA** → **Set Application** → **Smart Event** → **Region Entrance Detection**.
2. Check **Enable**.
3. Click **Add** to add a rule and set a detection area.
   1) Draw a detection area. Click , click on the live view to specify the vertexes and draw the boundaries of the detection area, and right click to complete drawing.
   2) Set the minimum size and the maximum size for the target to improve detection accuracy. Only targets whose size are between the maximum size and the minimum size trigger the detection. Click  and , then drag the mouse in the live view to draw the minimum and maximum target size.
   3) Optional: Click  to delete all the setting areas.
4. Set parameters.

   **Detection Target**

   This function allows alarm triggering by specified selected target types. If the detection target is not selected, all the detected targets will be reported.

**Note**

This function is only available for certain device models under certain settings. Please refer to the actual settings.

**Sensitivity**

It stands for the percentage of the body part of an acceptable target that goes across the predefined region. Sensitivity = 100 - S1/ST × 100. S1 stands for the target body part that goes across the predefined region. ST stands for the complete target body. The higher the value of sensitivity is, the more easily the alarm can be triggered.

**Target Validity**

If you set a higher validity, the required target features should be more obvious, and the alarm accuracy would be higher. The target with less obvious features would be missing.

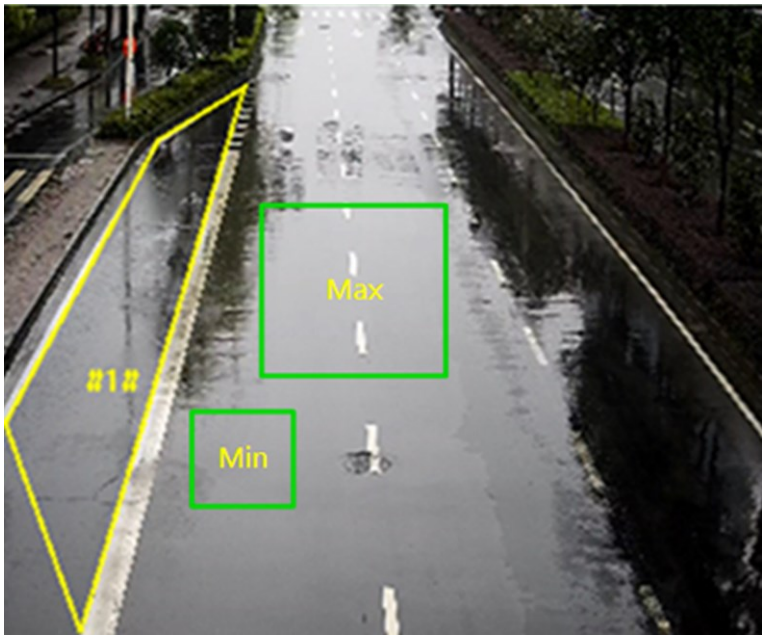



**Figure 10-3 Set Rule**

5. Optional: You can set the parameters of multiple areas by repeating the above steps.
6. For the arming schedule settings, refer to ***Set Arming Schedule***. For the linkage method settings, refer to ***Linkage Method Settings***.
7. Click **Save**.

## 11.3.4 Set Region Exiting Detection

It is used to detect objects exiting from a predefined virtual region. If it occurs, the device can take linkage actions.

**Before You Start**

- Go to **VCA** and select the application. Select **Smart Event** and click **Next** to enable the function.

- For the device supporting open platform, go to **VCA** to import and enable **Smart Event**.

**Steps**

1. Go to **VCA** → **Set Application** → **Smart Event** → **Region Exiting Detection**.
2. Check **Enable**.
3. Click **Add** to add a rule and set a detection area.
   1) Draw a detection area. Click , click on the live view to specify the vertexes and draw the boundaries of the detection area, and right click to complete drawing.
   2) Set the minimum size and the maximum size for the target to improve detection accuracy. Only targets whose size are between the maximum size and the minimum size trigger the detection. Click and , then drag the mouse in the live view to draw the minimum and maximum target size.
   3) Optional: Click to delete all the setting areas.
4. Set parameters.

**Detection Target**

This function allows alarm triggering by specified selected target types. If the detection target is not selected, all the detected targets will be reported.

**Note**

This function is only available for certain device models under certain settings. Please refer to the actual settings.

**Sensitivity**

It stands for the percentage of the body part of an acceptable target that goes across the predefined region. Sensitivity = 100 - S1/ST × 100. S1 stands for the target body part that goes across the predefined region. ST stands for the complete target body. The higher the value of sensitivity is, the more easily the alarm can be triggered.

**Target Validity**

If you set a higher validity, the required target features should be more obvious, and the alarm accuracy would be higher. The target with less obvious features would be missing.

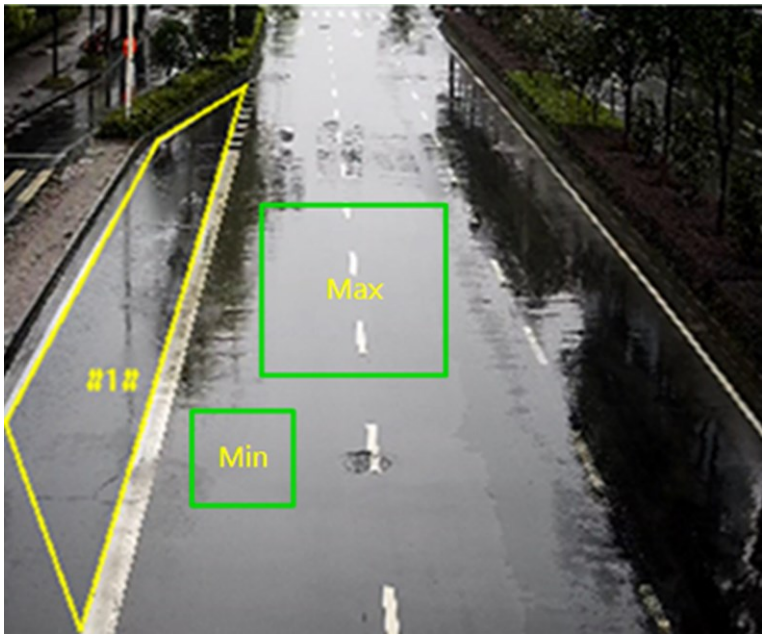



**Figure 10-4 Set Rule**

5. Optional: You can set the parameters of multiple areas by repeating the above steps.
6. For the arming schedule settings, refer to ***Set Arming Schedule***. For the linkage method settings, refer to ***Linkage Method Settings***.
7. Click **Save**.

## 11.3.5 Set Unattended Baggage Detection

It is used to detect objects left over in the predefined region. Linkage methods can be triggered after the object is left and stays in the region for a set time period.

**Before You Start**

- Go to **VCA** and select the application. Select **Smart Event** and click **Next** to enable the function.
- For the device supporting open platform, go to **VCA** to import and enable **Smart Event**.

**Steps**

1. Go to **VCA** → **Set Application** → **Smart Event** → **Unattended Baggage Detection**.
2. Check **Enable**.
3. Click **Add** to add a rule and set a detection area.
   1) Draw a detection area. Click , click on the live view to specify the vertexes and draw the boundaries of the detection area, and right click to complete drawing.
   2) Set the minimum size and the maximum size for the target to improve detection accuracy. Only targets whose size are between the maximum size and the minimum size trigger the detection. Click  and , then drag the mouse in the live view to draw the minimum and maximum target size.
   3) Optional: Click  to delete all the setting areas.
4. Set parameters.

**Sensitivity**

Sensitivity stands for the percentage of the body part of an acceptable target that enters the predefined region. Sensitivity = 100 - S1/ST × 100. S1 stands for the target body part that goes across the predefined region. ST stands for the complete target body. The higher the value of sensitivity is, the more easily the alarm can be triggered.

**Threshold**

It stands for the time of the objects left in the region. Alarm is triggered after the object is left and stays in the region for the set time period.

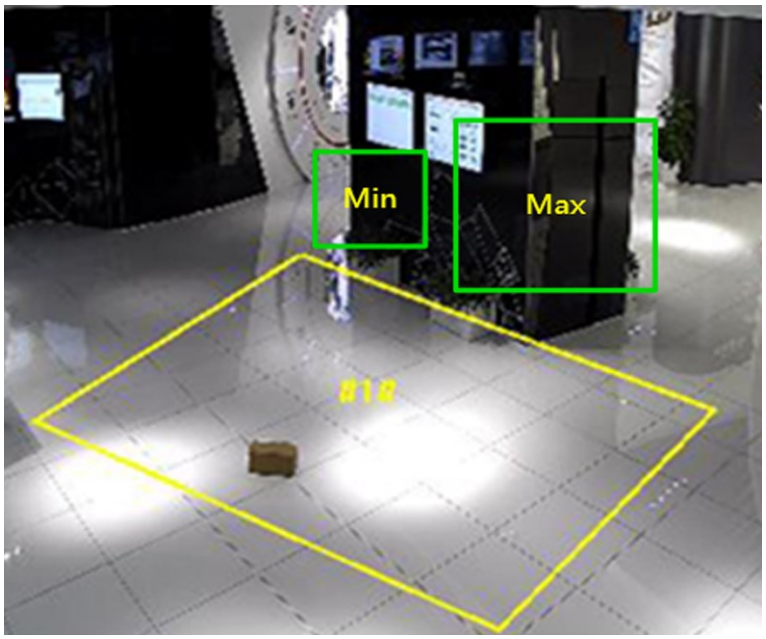



**Figure 10-5 Set Rule**

5. Optional: You can set the parameters of multiple areas by repeating the above steps.
6. For the arming schedule settings, refer to ***Set Arming Schedule***. For the linkage method settings, refer to ***Linkage Method Settings***.
7. Click **Save**.

**Note**

The function is only supported by certain models. The actual display varies with the models.

## 11.3.6 Set Object Removal Detection

It detects whether the objects are removed from the predefined detection region, such as the exhibits on display. If it occurs, the device can take linkage actions, and the staff can take measures to reduce property loss.

**Before You Start**

- Go to **VCA** and select the application. Select **Smart Event** and click **Next** to enable the function.

- For the device supporting open platform, go to **VCA** to import and enable **Smart Event**.

**Steps**

1. Go to **VCA** → **Set Application** → **Smart Event** → **Object Removal Detection**.
2. Check **Enable**.
3. Click **Add** to add a rule and set a detection area.
   1) Draw a detection area. Click , click on the live view to specify the vertexes and draw the boundaries of the detection area, and right click to complete drawing.
   2) Set the minimum size and the maximum size for the target to improve detection accuracy. Only targets whose size are between the maximum size and the minimum size trigger the detection. Click  and , then drag the mouse in the live view to draw the minimum and maximum target size.
   3) Optional: Click  to delete all the setting areas.
4. Set parameters.

   **Sensitivity**

   Sensitivity stands for the percentage of the body part of an acceptable target that enters the predefined region. Sensitivity = 100 - S1/ST × 100. S1 stands for the target body part that goes across the predefined region. ST stands for the complete target body. The higher the value of sensitivity is, the more easily the alarm can be triggered.

   **Threshold**

   The threshold for the time of the objects removed from the region. If you set the value as 10, alarm is triggered after the object disappears from the region for 10s.

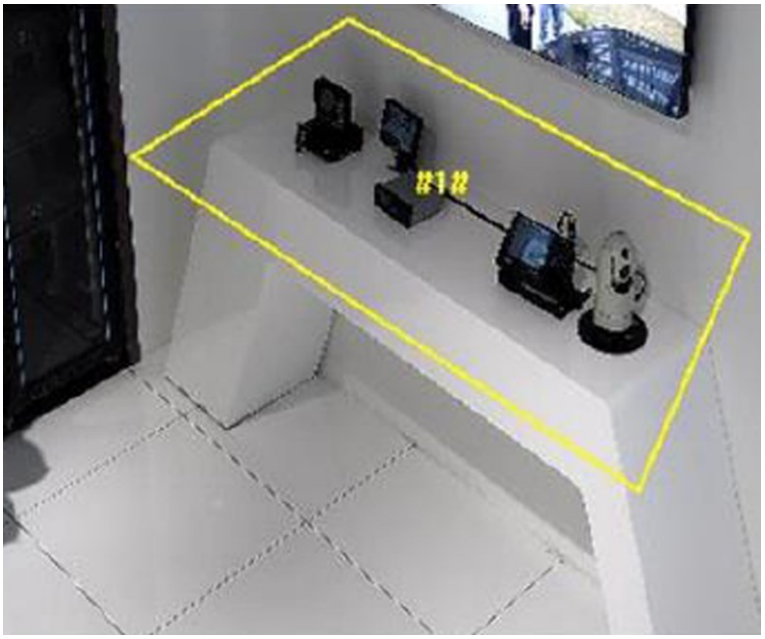



**Figure 10-6 Set Rule**

5. Optional: You can set the parameters of multiple areas by repeating the above steps.

6. For the arming schedule settings, see ***Set Arming Schedule***. For the linkage method settings, see ***Linkage Method Settings***.
7. Click **Save**.

**Note**

The function is only supported by certain models. The actual display varies with the models.

## 11.3.7 Set Loitering Detection

It detects whether there is any target loitering in a predefined area. If the time that the target loiters in the set region reaches the set threshold, the device can take linkage actions.

**Before You Start**

- Go to **VCA** and select the application. Select **Smart Event** and click **Next** to enable the function.
- For the device supporting open platform, go to **VCA** to import and enable **Smart Event**.

**Steps**

1. Go to **VCA** → **Set Application** → **Smart Event** → **Loitering Detection**.
2. Check **Enable**.
3. Click **Add** to add a rule and set a detection area.
   1) Draw a detection area. Click , click on the live view to specify the vertexes and draw the boundaries of the detection area, and right click to complete drawing.
   2) Set the minimum size and the maximum size for the target to improve detection accuracy. Only targets whose size are between the maximum size and the minimum size trigger the detection. Click  and , then drag the mouse in the live view to draw the minimum and maximum target size.
   3) Optional: Click  to delete all the setting areas.
4. Set rules.

   **Threshold**

   Threshold stands for the threshold for the time of the object loitering in the region. If the time that one object stays exceeds the threshold, the alarm is triggered. The larger the value of the threshold is, the longer the alarm triggering time is.

   **Sensitivity**

   Sensitivity stands for the percentage of the body part of an acceptable target that enters the predefined region. Sensitivity = 100 - S1/ST × 100. S1 stands for the target body part that goes across the predefined region. ST stands for the complete target body. The higher the value of sensitivity is, the more easily the alarm can be triggered.

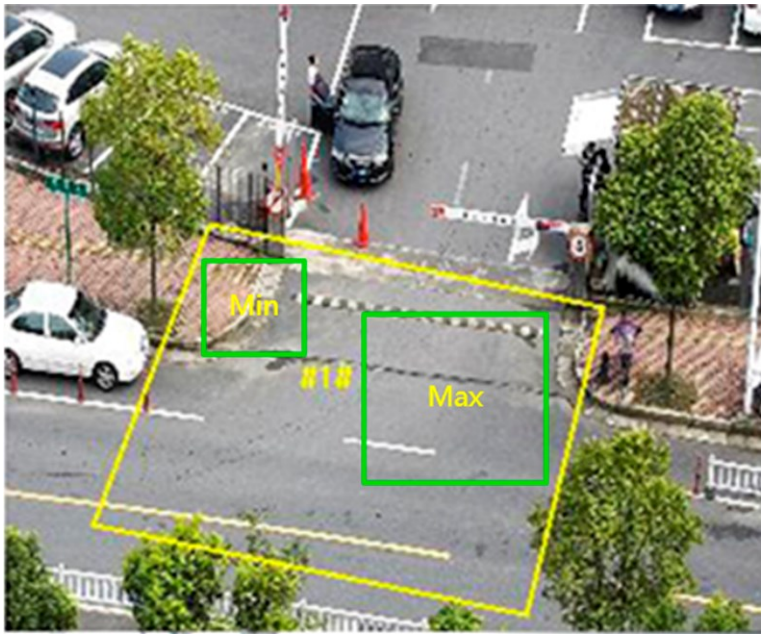



**Figure 10-7 Set Rule**

5. Optional: You can set the parameters of multiple areas by repeating the above steps.
6. For the arming schedule settings, refer to ***Set Arming Schedule***. For the linkage method settings, refer to ***Linkage Method Settings***.
7. Click **Save**.

**Note**

The function is only supported by certain models. The actual display varies with the models.

## 11.3.8 Set People Gathering Detection

It detects the people density in a predefined area. If the people density exceeds the set percentage, the device can take linkage actions.

**Before You Start**

- Go to **VCA** and select the application. Select **Smart Event** and click **Next** to enable the function.
- For the device supporting open platform, go to **VCA** to import and enable **Smart Event**.

**Steps**

1. Go to **VCA** → **Set Application** → **Smart Event** → **People Gathering Detection**.
2. Check **Enable**.
3. Click **Add** to add a rule and set a detection area.
   1) Draw a detection area. Click , click on the live view to specify the vertexes and draw the boundaries of the detection area, and right click to complete drawing.
   2) Optional: Click  to delete all the setting areas.
4. Set rules.

**Percentage**

It stands for the percentage of people in the predefined area. When the people percentage in the live view exceeds the set value, the device will trigger an alarm.

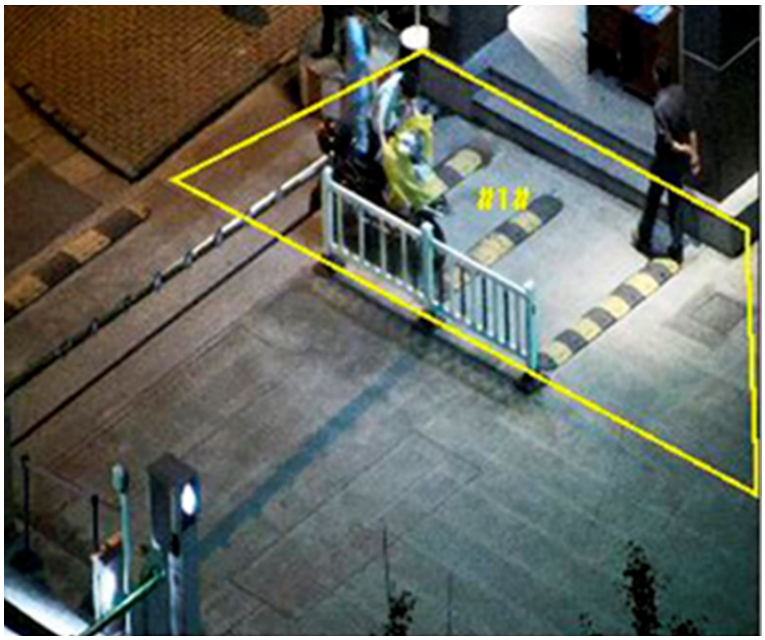



**Figure 10-8 Set Rule**

5. Optional: You can set the parameters of multiple areas by repeating the above steps.
6. For the arming schedule settings, refer to ***Set Arming Schedule***. For the linkage method settings, refer to ***Linkage Method Settings***
7. Click **Save**.

**Note**

The function is only supported by certain models. The actual display varies with the models.

## 11.3.9 Set Fast Moving Detection

When there are targets moving at a high speed in a predefined area, the device will take linkage actions and trigger an alarm.

**Before You Start**

- Go to **VCA** and select the application. Select **Smart Event** and click **Next** to enable the function.
- For the device supporting open platform, go to **VCA** to import and enable **Smart Event**.

**Steps**

1. Go to **VCA** → **Set Application** → **Smart Event** → **Fast Moving Detection**.
2. Check **Enable**.
3. Click **Add** to add a rule and set a detection area.

1) Draw a detection area. Click , click on the live view to specify the vertexes and draw the boundaries of the detection area, and right click to complete drawing.
2) Set the minimum size and the maximum size for the target to improve detection accuracy. Only targets whose size are between the maximum size and the minimum size trigger the detection. Click and , then drag the mouse in the live view to draw the minimum and maximum target size.
3) Optional: Click to delete all the setting areas.

4. Set Rules.

**Sensitivity**

Sensitivity stands for the percentage of the body part of an acceptable target that enters the pre-defined region. Sensitivity = 100 - S1/ST × 100. S1 stands for the target body part that goes across the pre-defined region. ST stands for the complete target body. The higher the value of sensitivity is, the more easily the alarm can be triggered.

**Figure 10-9 Set Rule**

5. Optional: You can set the parameters of multiple areas by repeating the above steps.
6. For the arming schedule settings, refer to ***Set Arming Schedule***. For the linkage method settings, refer to ***Linkage Method Settings***.
7. Click **Save**.

**Note**

The function is only supported by certain models. The actual display varies with the models.

## 11.3.10 Set Parking Detection

It detects parking violation in a predefined area. When the parking time exceeds a set threshold, the device can take linkage actions. It is applicable in expressway and one-way street.

**Before You Start**

- Go to **VCA** and select the application. Select **Smart Event** and click **Next** to enable the function.
- For the device supporting open platform, go to **VCA** to import and enable **Smart Event**.

**Steps**

1. Go to **VCA** → **Set Application** → **Smart Event** → **Parking Detection**.
2. Check **Enable**.
3. Click **Add** to add a rule and set a detection area.
   1) Draw a detection area. Click , click on the live view to specify the vertexes and draw the boundaries of the detection area, and right click to complete drawing.
   2) Set the minimum size and the maximum size for the target to improve detection accuracy. Only targets whose size are between the maximum size and the minimum size trigger the detection. Click  and , then drag the mouse in the live view to draw the minimum and maximum target size.
   3) Optional: Click  to delete all the setting areas.
4. Set rules.

   **Threshold**

   Threshold stands for the threshold for the parking time in the region. If the parking time exceeds the threshold, an alarm is triggered. The larger the value of the threshold is, the longer the alarm triggering time is.

   **Sensitivity**

   Sensitivity stands for the percentage of the part of an acceptable target that enters the pre-defined region. Sensitivity = 100 - S1/ST × 100. S1 stands for the target part that goes across the pre-defined region. ST stands for the complete target. The higher the value of sensitivity is, the more easily the alarm can be triggered.

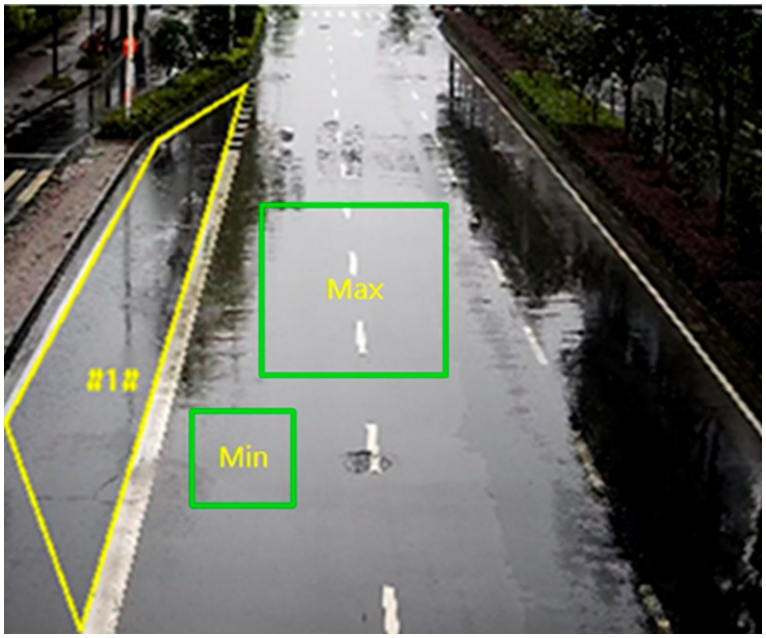



**Figure 10-10 Set Rule**

5. Optional: You can set the parameters of multiple areas by repeating the above steps.
6. For the arming schedule settings, refer to ***Set Arming Schedule***. For the linkage method settings, refer to ***Linkage Method Settings***
7. Click **Save**.

**Note**

The function is only supported by certain models. The actual display varies with the models.

## 11.4 Face Capture

The device can capture the face that meets the rules in the configured rule area, and the captured picture will be uploaded.

**Note**

- For certain device models, you need to enable this function on **VCA** page first.
- The function is only supported by certain device models.

### 11.4.1 Set Face Capture

The face that appears in the configured area can be captured.

**Before You Start**

- Go to **VCA** and select the application. Select **Face Capture** and click **Next** to enable the function.

- For the device supporting open platform, go to **VCA** to import and enable **Face Capture**.

**Steps**

1. Go to **VCA** → **Set Application** → **Face Capture** → **Rule**.
2. Check **Enable** to enable the rule settings.
3. Click to draw the detection area you want the face capture to take effect. Draw area by left-clicking end-points in the live view window, and right-clicking to finish the area drawing. It is recommended that the drawn area occupies 1/2 to 2/3 of the live view image.
4. Draw pupil distance.

   **Min. Pupil Distance**

   Click to draw the minimum pupil distance. If the pupil distance of the face in the video image is smaller than the minimum pupil distance, the face will not be detected.

   **Max. Pupil Distance**

   Click to draw the maximum pupil distance. If the pupil distance of the face in the video image is larger than the maximum pupil distance, the face will not be detected.

   You can also input the value of distance in the text field.
5. Optional: For shield region settings, refer to ***Set Shield Region***.
6. For the arming schedule settings, refer to ***Set Arming Schedule***. For the linkage method settings, refer to ***Linkage Method Settings***.
7. Click **Save**.
8. For overlay and capture settings, refer to ***Overlay and Capture***. For advanced parameters settings, refer to ***Face Capture Algorithms Parameters***.

**Result**

You can view and download captured pictures in **Playback** → **Picture**. Refer to ***View and Download Picture*** for details.

## 11.4.2 Overlay and Capture

Choose to configure capture parameters and the information you want to display on stream and picture.
Go to **VCA** → **Set Application** → **Face Capture** → **Overlay & Capture**.

**Display VCA info. on Stream**

Display smart information on stream, including the target and rules information.

**Display Target info. on Alarm Picture**

Overlay the alarm picture with target information.

**Background Picture Settings**

Compared to target picture, background picture is the scene image which offers extra environmental information. You can set the background picture quality and resolution. If the background image needs to be uploaded to the surveillance center, check **Background Upload**.

For some devices, you can also check **Face Picture** to upload the captured face picture.

**Target Picture Settings**

Custom, Head Shot, Half-Body Shot and Full-Body Shot are selectable.

**Note**

If you select **Custom**, you can customize **Width**, **Head Height** and **Body Height** as required.

You can check **Fixed Value** to set the picture height.

**Face Beautification**

Check **Face Beautification** and adjust the beautification level as needed.

**Note**

Face Beautification slightly adjusts the captured face pictures and reduces facial noise.

**Face Enhancement**

Check **Face Enhancement** and the device is able to capture better and clearer face pictures when it is dark.

**Text Overlay**

You can check desired items and adjust their order to display on captured pictures.
See ***Set Camera Info*** to set **Device No.** and **Camera Info**.

## 11.4.3 Face Capture Algorithms Parameters

It is used to set and optimize the parameters of the algorithm library for face capture function.
Go to **VCA** → **Set Application** → **Face Capture** → **Advanced**.

### Version

It stands for the current algorithm version.

### Capture Parameters

**Best Shot**

The best shot after target leaves the detection area.

**Capture Threshold**

It stands for the quality of face to trigger capture and alarm. Higher value means better quality should be met to trigger capture and alarm.

**Capture Times**

It refers to the capture times a face will be captured during its stay in the configured area. The default value is 1.

**Quick Shot**

When the face picture grading value is higher than the quick shot threshold, the face picture will be captured and uploaded. Otherwise, the picture with the highest grading value that reaches the max. capture interval will be selected for upload.

**Quick Shot Threshold**

It stands for the quality of face to trigger quick shot.

**Max. Capture Interval**

It refers to the max. time occupation for one quick shot.

**Capture Times**

It refers to the capture times a face will be captured during its stay in the configured area.

**Remove Duplicated Faces**

This function can help filter out repeated captures of certain face.

**Similarity Threshold for Duplicates Removing**

It is the similarity between the newly captured face and the picture in the duplicates removing library. When the similarity value is higher than the value you set, the captured picture is regarded as a duplicated face and will be dropped.

**Duplicates Removing Library Grading Threshold**

It is the face grading threshold that triggers duplicates checking. When the face grading is higher than the set value, the captured face is compared with the face pictures that are already in the duplicates removing library.

**Duplicates Removing Library Update Time**

The time from when each face picture is added to the duplicates removing library until when it is deleted.

**Face Exposure**

Check the checkbox to enable the face exposure.

**Reference Brightness**

The reference brightness of a face in the face exposure mode. If a face is detected, the camera adjusts the face brightness according to the value you set. The higher the value, the brighter the face is.

**Min. Duration**

The minimum duration of the camera exposures the face.

**Note**

If the face exposure is enabled, please make sure the WDR function is disabled, and the manual iris is selected.

**Face Filtering Time**

It means the time interval between the camera detecting a face and taking a capture. If the detected face stays in the scene for a time shorter than the set filtering time, capture will not be triggered. For example, if the face filtering time is set as 5 seconds, the camera will capture the detected face when the face keeps staying in the scene for 5 seconds.

**Note**

The face filtering time (longer than 0 s) may increase the possibility of the actual capture times less than the set value above.

**Facial Posture Filter**

Facial posture filter can filter out face of certain postures. The figure on the right of the slider stands for the posture angle which is acceptable in the face capture action. Click to display the diagram illustrating the face turning direction when setting up this filter.

**Upload Feature**

Feature stands for the feature information the algorithm can tell from face pictures. Check the function to upload the information.

### Restore Parameters

**Restore Defaults**

Click **Restore Default** to restore all the settings in advanced configuration to the factory default.

## 11.4.4 Set Shield Region

The shield region allows you to set the specific region in which the set smart function rule is invalid.

**Steps**

1. Select **Shield Region**.
2. Click to draw shield region. Repeat this step above to set more shield regions.
3. Optional: Select and click on the drawn region, then click to delete the selected drawn region.
4. Optional: Click to delete all drawn regions.
5. Click **Save**.

# 11.5 People Management

People management is used to detect and analyze people's number and changes in a predefined region. It can be applied to the entrances and exits, supermarkets, etc.

**Note**

- For certain device models, you need to enable **People Management** on **VCA** page first.
- The function is only supported by certain device models.

## 11.5.1 Regional People Counting

It counts people in a predefined area and detects people number changes and crowded situation. When the people number exception or waiting time exceptions occurs, the device can trigger an alarm.

Refer to ***Set People Density*** to set people density detection.

Refer to ***Set People Exception Detection*** to set people exception detection.

Refer to ***Waiting Time Exception Detection*** to set waiting time exception detection.

### Set People Density

This function detects the level of people density in the set rule region.

**Before You Start**

- Go to **VCA** → **Select Application**, select **People Management** and click **Next** to enable the function.
- For the device supporting open platform, go to **VCA** to import and enable **People Management**.

**Steps**

1. Go to **VCA** → **Set Application** → **People Management** → **Regional People Counting** → **Rule**.
2. Click **Add** to add a rule and set its name.
3. Set a rule.

**Figure 10-11 Set Rules**

**People Number OSD**

It displays the real-time people number in the live view window. You can drag the mouse to adjust the OSD window location.

**Note**

People density alarm does not support **Alarm Times Per Exception**, **Alarm Interval** and **First Alarm Delay** settings.

4. Click to draw a region in the live view window, left click the end-points in the live view window to define the boundary of the set rule region, and right click to finish drawing.

**Note**

- Up to 8 regions can be set at the same time.
- Try not to overlap the regions.

5. Check **People Density Alarm** to enable the function.

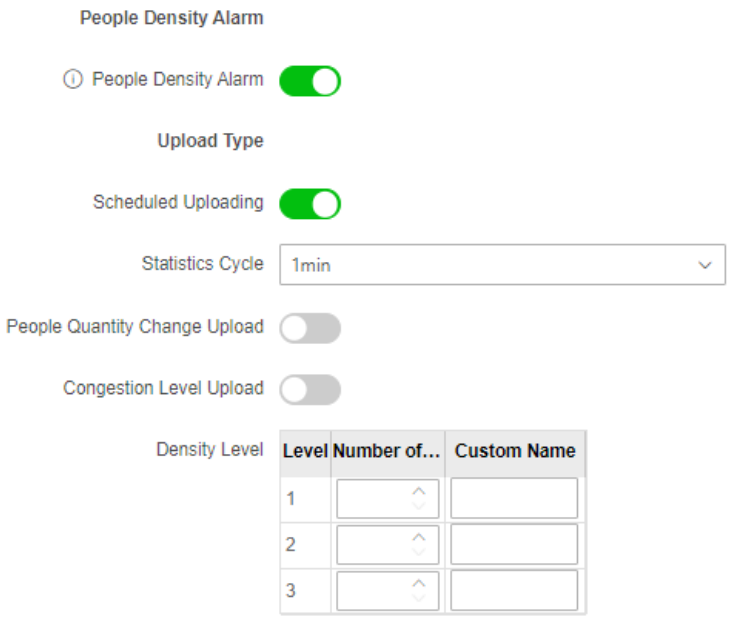



**Figure 10-12 People Density Alarm**

**Scheduled Uploading**

The device uploads people density information within the set statistics cycle.

**People Quantity Change Upload**

The device uploads the people quantity change information if there is any change in the set rule region.

**Congestion Level Upload**

The device uploads the congestion information when there is any change of congestion level in the set rule region.

**Density Level**

**Number of People**

The range for each level by inputting the lower limit of the number of people in the set rule region.

**Custom Name**

The name of the level.

**Note**

- Set the **Number of People** before the **Custom Name**.
- Up to three levels can be configured. The density increases from level 1 to level 3.

6. Set arming schedule. See ***Set Arming Schedule***.
7. Set linkage method. See ***Linkage Method Settings***.
8. Click **Save**.

9. Optional: Set text overlay. For detailed settings, refer to ***Overlay and Capture***.
10. Optional: View version and set filtering condition. For detailed settings, refer to ***Advanced Settings***.

## Set People Exception Detection

This function detects the number of people in the set rule region and an alarm is triggered when the situation meets the alarm-triggering condition.

### Before You Start

- Go to **VCA** → **Select Application**, select **People Management** and click **Next** to enable the function.
- For the device supporting open platform, go to **VCA** to import and enable **People Management**.

### Steps

1. Go to **VCA** → **Set Application** → **People Management** → **Regional People Counting** → **Rule**.
2. Click **Add** to add a rule and set its name.
3. Set a rule.

**Figure 10-13 Set Rules**

**People Number OSD**

It displays the real-time people number in the live view window. You can drag the mouse to adjust the OSD window location.

**Alarm Times Per Exception**

It refers to the alarm times after an alarm is triggered. If you do not check it and set the times, the device will keep sending alarms.

**Alarm Interval**

Within the set **Alarm Interval**, the same alarm will not be uploaded.

**First Alarm Delay**

When the first alarm is triggered, the alarm will be uploaded after a set time period.

4. Click to draw a region in the live view window, left click the end-points in the live view window to define the boundary of the set rule region, and right click to finish drawing.

**Note**

- Up to 8 regions can be set at the same time.
- Try not to overlap the regions.

5. Check **Regional People Exception Alarm**, and set **Alarm Trigger Condition** and **Alarm Threshold**.

**Note**

- After enabling **Ignore Situation of No People**, the device will not trigger an alarm when there are no people in the region.
- This function can filter the potential alarm condition under which the value is less than the set **Alarm Threshold** and no people in the region.

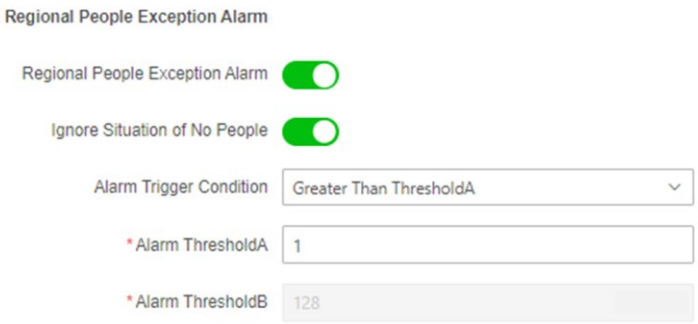



**Figure 10-14 Regional People Exception Alarm**

6. Set arming schedule. See ***Set Arming Schedule***.
7. Set linkage method. See ***Linkage Method Settings***.
8. Click **Save**.
9. Optional: Set text overlay. For detailed settings, refer to ***Overlay and Capture***.
10. Optional: View version and set filtering condition. For detailed settings, refer to ***Advanced Settings***.

## Waiting Time Exception Detection

This function detects the waiting time of the set rule region, and an alarm is triggered when the waiting time meets the alarm-triggering condition.

**Before You Start**

- Go to **VCA** → **Select Application**, select **People Management** and click **Next** to enable the

function.

- For the device supporting open platform, go to **VCA** to import and enable **People Management**.

**Steps**

1. Go to **VCA** → **Set Application** → **People Management** → **Regional People Counting** → **Rule**.
2. Click **Add** to add a rule and set its name.
3. Set a rule.

**Figure 10-15 Set Rules**

**People Number OSD**

It displays the real-time people number in the live view window. You can drag the mouse to adjust the OSD window location.

**Alarm Times Per Exception**

It refers to the alarm times after an alarm is triggered. If you do not check it and set the times, the device will keep sending alarms.

**Alarm Interval**

Within the set **Alarm Interval**, the same alarm will not be uploaded.

**First Alarm Delay**

When the first alarm is triggered, the alarm will be uploaded after a set time period.

**Note**

Dwell time exception alarm supports **Alarm Times Per Exception**, **Alarm Interval** and **First Alarm Delay** settings only on the condition that the **Alarm Trigger Condition** is **Greater Than Threshold A**.

4. Click to draw a region in the live view window, left click the end-points in the live view window to define the boundary of the set rule region, and right click to finish drawing.

**Note**

- Up to 8 regions can be set at the same time.
- Try not to overlap the regions.

5. Check **Dwell Time Exception Alarm** and set **Alarm Trigger Condition** and **Alarm Threshold**.

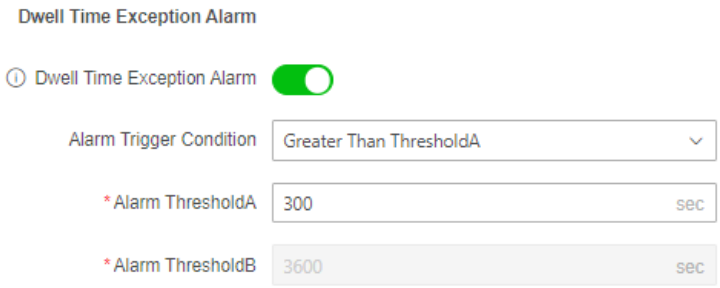



**Figure 10-16 Dwell Time Exception Alarm**

6. Set arming schedule. See ***Set Arming Schedule***.
7. Set linkage method. See ***Linkage Method Settings***.
8. Click **Save**.
9. Optional: Set text overlay. For detailed settings, refer to ***Overlay and Capture***.
10. Optional: View version and set filtering condition. For detailed settings, refer to ***Advanced Settings***.

## 11.5.2 Overlay and Capture

Go to **VCA** → **People Management** → **Overlay & Capture**. Check the information you want to overlay on the captured pictures. You can also click ↑ ↓ to adjust the order.

## 11.5.3 Advanced Settings

Set the advanced parameters for people management function and click **Save**.

**Version**

It stands for the current algorithm version.

**Algorithm Mode**

Select a mode according to the installation scene.

**Filter**

**Target Size**

It stands for the size of the target detection window. A target larger than this pixel can be counted as a real target. It can remove the false alarm of a certain fixed target.

**Displacement**

It stands for target displacement or target width. A target will not be counted if its displacement is less than the set percentage.

**Min. Waiting Duration**

Waiting time shorter than the set value will be filtered.

**Confidence**

The higher the threshold is, the more difficult a target will be detected, but the higher the accuracy is.

**Note**

The filtering settings should be operated by professionals. The filter settings can adjust the algorithm for detection to change the detection range, sensitivity, etc.

# 11.6 People Counting

People counting is used to calculate the number of people entering or exiting an area.

**Note**

- For certain device models, you need to enable **People Counting** on **VCA** page first.
- The function is only supported by certain device models.

## 11.6.1 Set People Counting Rule

After setting the detection rules and algorithm parameters, the device calculates the number of people entering or exiting in the rule area, triggers linkage actions and uploads data automatically.

**Before You Start**

- Go to **VCA** and select the application. Select **People Counting** and click **Next** to enable the function.
- For the device supporting open platform, go to **VCA** to import and enable **People Counting**.

**Steps**

1. Go to **VCA** → **Set Application** → **People Counting** → **Rule**.
2. Check **Enable** to enable the function.
3. Click **Add** to add a detection area.
4. Click to draw the polygon detection area (count area). Left-click end-points in the live view window, and right-click to finish the drawing.
5. Click to draw the detection line. The arrow shows entering direction, you can click to change direction.

**Note**

In order to improve the counting accuracy, please draw the detection area according to the following rules.

- The detection area needs to cover the people entering and exiting access.
- The detection line must be completely contained within the red detection area and perpendicular to the path of the person passing through.

6. Optional: Adjust the detection area and detection line.

| | |
|---|---|
| **Click** ✕ | Clear the selected detection area or line. |
| **Click** 🗑 | Clear all detection areas and lines. |

7. Optional: Repeat the above steps to draw up to 3 detection areas and corresponding detection lines.
8. Set people counting parameters.

**OSD Overlay Content**

Select the counting data type to be displayed in the live view image from the drop-down list and adjust the display position of people counting data in the live view image.

**Note**

OSD overlay only counts the number of the person on the current day. The data will be cleared automatically when the device restarts or at the daily reset time.

**Daily Reset Time**

The device clears the data in 00:00 each day by default. You can select a time point through the drop-down list. After selecting, the counting data will be automatically cleared at this time point every day.

You can click **Manual Reset** to manually trigger a data reset and clear the current people counting data.

9. Click **Save**.
10. Set arming schedule. See ***Set Arming Schedule***.
11. Set linkage method. See ***Linkage Method Settings***.
12. Click **Save**.
13. Optional: Set people counting data uploading parameters.

Click **Data Upload** to enter the interface. Click **Save** after finishing the settings.

**Real-Time Data Uploading**

Send the real-time data to the platform.

**Upload Data Periodically**

Set the **Data Statistics Cycle**, and the passenger flow counting data will be uploaded to the platform at intervals according to the **Data Statistics Cycle**.

14. Optional: Set people counting advanced parameters.

    Click **Advanced** to enter the interface. Click **Save** after finishing the settings.

    **Version**

    It stands for the current algorithm version.

    **Clear Storage Data**

    Clear all people counting data stored in the device. This function must be used with caution.

**Result**

- If the target crosses the detection area along the entering direction and crosses the detection line, then it is counted as the entering number.
- If the target crosses the detection area along the exiting direction and crosses the detection line, then it is counted as the exiting number.

# 11.7 Road Traffic

Vehicle Detection and Mixed-Traffic Detection are available for road traffic monitoring. The device captures the passing motor vehicles and non-motor vehicles and uploads the relevant information together with the captured pictures.

**Note**

- For certain device models, you need to select **Road Traffic** on **VCA** page first.
- The function is only supported by certain device models.

## 11.7.1 Set Vehicle Detection

The vehicles that enter the set lane can be detected and the picture of the vehicle and its license plate can be captured and stored. Alarms will be triggered, and captures can be uploaded.

**Before You Start**

- Go to **VCA** and select the application. Select **Road Traffic** and click **Next** to enable the function.
- Make sure the device is installed properly.
- Make sure the image parameters are properly configured.
- Make sure the captured license plate picture is clear enough.

**Steps**

1. Go to **VCA** → **Set Application** → **Road Traffic** → **Rule** and select **Vehicle Detection** as detection type.
2. Check **Enable**.
3. Select the operating mode.

    **Entrance/Exit**

The license plate information of the detected vehicle will be uploaded when the vehicle passes the detection area and triggers the detection in the entrance/exit.

**City Street**

The license plate information of the detected vehicle will be uploaded when the vehicle passes the detection area and triggers the detection in the city street.

**Alarm Input**

It means the input alarm will trigger a license plate capture and recognition action.

**Note**

- When **Alarm Input** is selected, the alarm input A<-1 will automatically be assigned to trigger vehicle detection and its alarm type is always NO.
- If the A<-1 alarm input is used to trigger vehicle detection, it cannot be used for other basic events.
- When **Alarm Input** is selected and saved, previously configured linkage method for A<-1 will be canceled.

4. Select the total number of lanes.
5. Click and drag the lane line to set its position or click and drag the line end to adjust the length and angle of the line.

   The blue detection line is the trigger line of the license plate, which is mainly used in the **Entrance/Exit** scene to improve capture efficiency. It is recommended to put it in the lower middle of the screen to make sure that the full-size car with the plate can pass it.
6. Adjust the zoom ratio of the camera so that the size of the vehicle in the image is close to that of the red frame. Only the position of red frame is adjustable.

**Note**

Only 1 license plate can be captured at one time for each lane.

7. Select **Area** and **Country/Region**.
8. Set the detection mode.

**Vehicle Priority**

The device will detect the vehicle scale first, then catch the plate out to make the analysis. It will get better accuracy but sometimes it will lose some results in the not-satisfied installation scenario.

**License Plate & Vehicle**

In license plate & vehicle mode, the device detects license plate and vehicle simultaneously and it uploads the alarm information and the captured pictures.

**Note**

It is recommended to select **Vehicle Priority** mode if there are no issues on installation and supplement light. After the issues of plate recognition are carried out, you can switch the mode to **License Plate & Vehicle** mode.

9. Check **Remove Duplicated License Plates** and set the **Time Interval**. The default time interval is 4 minutes.
10. Click **Save**.
11. Go to **Arming Schedule and Linkage Method**. You can set the arming schedule and linkage method independently for blocklist, allowlist and other list, and you should set them one by one.

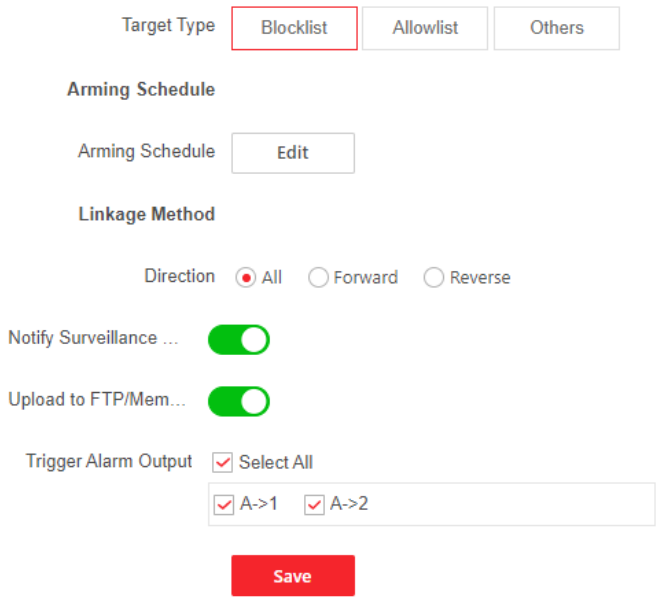



**Figure 10-17 Arming Schedule and Linkage Method**

1) Click to select the blocklist, allowlist and other list.
2) Set the arming schedule. Refer to ***Set Arming Schedule*** for details.
3) Set the linkage method. Check the checkbox of corresponding linkage method for each rule and click **Save** to save the settings.

**Direction**

Only the vehicles moving as the selected direction can trigger the selected linkage methods.

**All**

**All** means that vehicles in all moving directions will be considered. It is highly recommended to choose **All** if there is no special use.

**Forward**

**Forward** means that the vehicle moves toward the camera.

**Reverse**

**Reverse** means that the vehicle moves away from the camera.

**Wiegand Linkage**

The device can send reports to the third-party platform via the Wiegand protocol.
Make sure the device supports Wiegand interface, and the device is connected by Wiegand interface carefully.
Make sure the Wiegand is enabled, and the protocol is properly configured in the system settings. Refer to ***Wiegand*** for details.
Enable **Wiegand Linkage** and select the Wiegand interface connected to the external device.

The linkage will be triggered only when the detected vehicle driving direction is the same as the configured direction.

12. Go to **Road Traffic** → **Overlay & Capture** to set the image parameters and text overlay of the captured pictures. Refer to ***Overlay and Capture*** for details.
13. Import or export the license plate blocklist and allowlist. Refer to ***Import or Export Blocklist & Allowlist*** for details.

## 11.7.2 Set Mixed-Traffic Detection Rule

The motor vehicles and non-motor vehicles that enter the set lane can be detected, and the picture of targets can be captured and stored. Alarms will be triggered, and captures can be uploaded.

**Before You Start**

- Go to **VCA** and select the application. Select **Road Traffic** and click **Next** to enable the function.
- Make sure the device is installed properly.
- Make sure the image parameters are properly configured.

**Steps**

1. Go to **VCA** → **Set Application** → **Road Traffic** → **Rule** and select **Mixed-traffic Detection** as detection type.
2. Check **Enable**.
3. Select the total number of lanes.
4. Click and drag the lane line to set its position or click and drag the line end to adjust the length and angle of the line.

   The blue detection line is the trigger line of the license plate, which is mainly used in the **Entrance/Exit** scene to improve capture efficiency. It is recommended to put it in the lower middle of the screen to make sure that the full-size car with the plate can pass it.
5. Adjust the zoom ratio of the camera so that the size of the vehicle in the image is close to that of the red frame. Only the position of red frame is adjustable.

**Note**

Only 1 license plate can be captured at one time for each lane.

6. Select **Area** and **Country/Region**.
7. Check **Remove Duplicated License Plates** and set the **Time Interval**. The default time interval is 4 minutes.
8. Click **Save**.
9. Go to **Arming Schedule and Linkage Method**. You can set the arming schedule and linkage method independently for blocklist, allowlist and other list, and you should set them one by one.

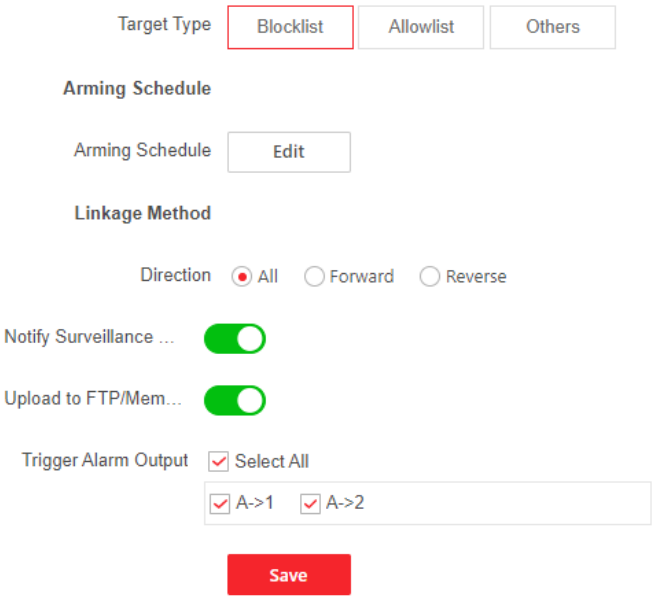



**Figure 10-18 Arming Schedule and Linkage Method**

1) Click to select the blocklist, allowlist and other list.
2) Set the arming schedule. Refer to ***Set Arming Schedule*** for details.
3) Set the linkage method. Check the checkbox of corresponding linkage method for each rule and click **Save** to save the settings.

**Direction**

Only the vehicles moving as the selected direction can trigger the selected linkage methods.

**All**

**All** means that vehicles in all moving directions will be considered. It is highly recommended to choose **All** if there is no special use.

**Forward**

**Forward** means that the vehicle moves toward the camera.

**Reverse**

**Reverse** means that the vehicle moves away from the camera.

**Wiegand Linkage**

The device can send reports to the third-party platform via the Wiegand protocol.
Make sure the device supports Wiegand interface, and the device is connected by Wiegand interface carefully.
Make sure the Wiegand is enabled, and the protocol is properly configured in the system settings. Refer to ***Wiegand*** for details.
Enable **Wiegand Linkage** and select the Wiegand interface connected to the external device.

The linkage will be triggered only when the detected vehicle driving direction is the same as the configured direction.

10. Go to **Road Traffic** → **Overlay & Capture** to set the image parameters and text overlay of the captured pictures. Refer to ***Overlay and Capture*** for details.
11. Import or export the license plate blocklist and allowlist. Refer to ***Import or Export Blocklist & Allowlist*** for details.

## 11.7.3 Overlay and Capture

You can set the image parameters of the captured images in vehicle detection and mixed-traffic

detection.

Go to **VCA** and select **Road Traffic**.

Go to **VCA** → **Set Application** → **Road Traffic** → **Overlay & Capture**.

**Note**

The function varies according to different device models.

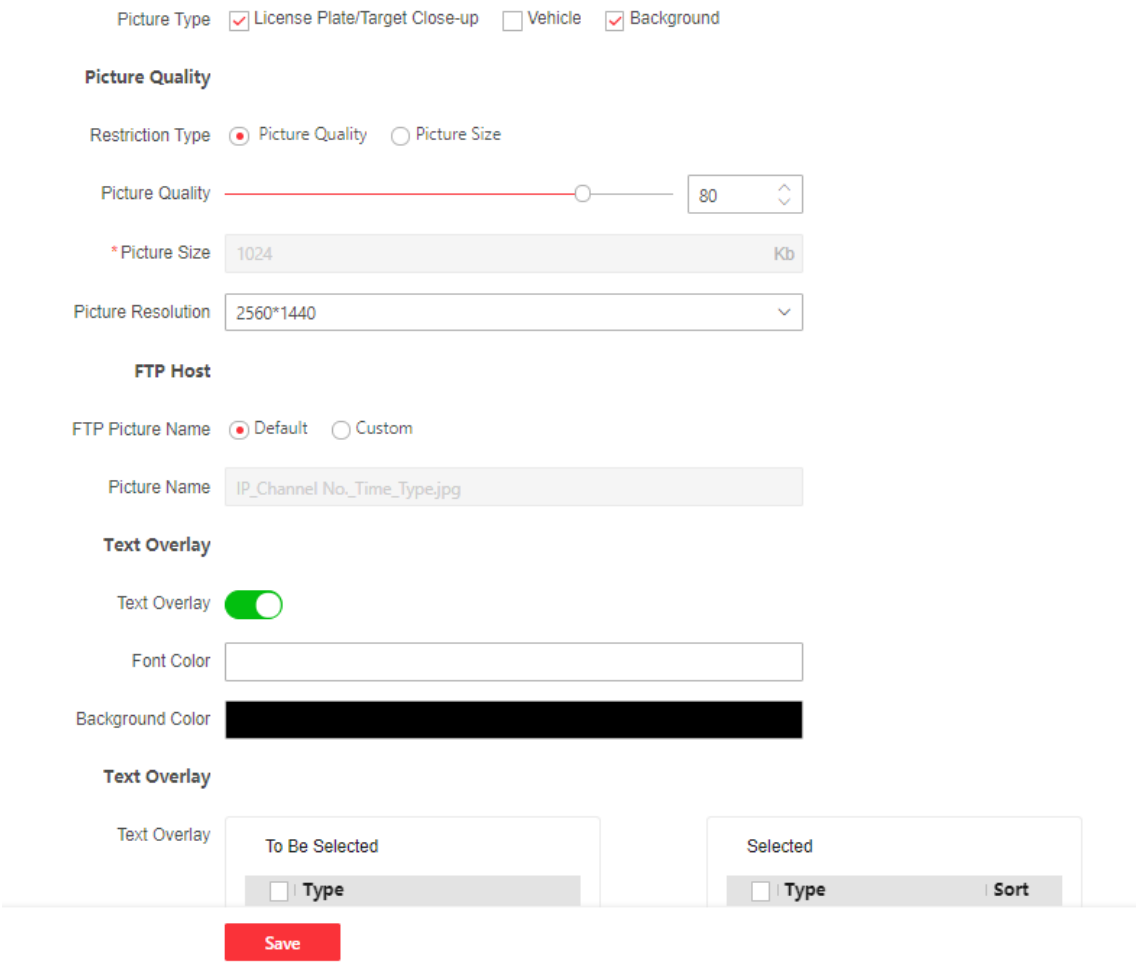



**Figure 10-19 Overlay & Capture**

**Picture Quality**

The larger the value is, the clearer the picture is, but larger storage space is also required.

**Picture Size**

The larger the value is, the larger the storage space is needed. And the level of network transmission requirement is also higher.

**Picture Resolution**

The captured background picture resolution.

**Picture Capture Interval**

The camera supports continuously trigger the alarm and upload captured picture each interval. Check **Capture Interval** and set the interval.

**FTP Picture Name**

You can set the naming rule for captured pictures in vehicle detection and mixed-traffic detection in the FTP server.
Select **Default** to use the default rule.
Select **Custom**, select information for the picture name, and click ↑ ↓ to adjust the order of picture name parameters. If **Capture Time** is not selected in custom mode, the captured picture triggered by the same vehicle later will replace the captured picture before due to the same picture name.

**Note**

For more information about FTP settings, refer to ***Set FTP***.

**Text Overlay**

You can overlay camera, device or vehicle information on the captured image and click ↑ ↓to adjust the order of overlay texts.
Set the font color and background color by selecting the color box and click the desired color in the pop-up palette or the drop-down box.

## 11.7.4 Import or Export Blocklist & Allowlist

You can import and export the blocklist and allowlist as desired and check the list content in this interface.

**Steps**

1. Click **Import** to import the selected file.
2. Click 🗀 to open the PC local directory.
3. Find the blocklist & allowlist file and click to select it. Click **Open** to confirm.

**Note**

- The file to import should correspond with the file template that is required by the camera. You are recommended to export an empty blocklist & allowlist file from the camera as the template and fill in the content.
- The file should be in the .xls format and the cell format should be Text.

4. Click **Import** to import the selected file.
5. Click **Export All** to export the license plate list.
6. Optional: Click **Add** to add a license plate and set its related information one by one.
7. Optional: Click to select the filtering type. **All Types**, **Wiegand CardID**, **License Plate No.** and **Type** are selectable. As for **Type**, you can select **Keywords** to define the specific filtering type. Click **Search** to view the results.
8. Optional: You can select a plate No. and click to delete a plate from the blocklist or allowlist.
9. Optional: You can select a plate No. and click to edit the related information of the license plate from the blocklist or allowlist.

### 11.7.5 Advanced Parameters Configuration

Go to **VCA** and select the application. Enter the application configuration interface and click **Advanced** to set advanced parameters. Click **Save** after finishing the configuration.

**Note**

The function varies according to different device models.

**Version**

It stands for the current algorithm version.

**Overlay Intelligent Information**

Overlay the related intelligent information or POS information in the video.

## 11.8 AI Open Platform

AI Open Platform is to generate a model library based on the training material provided by the user, then load the model library into the device and allow user to configure tasks and rules. When a target in the scene is detected to trigger the rules, the device can take linkage actions, which can realize personalized smart applications.

**Note**

- The function is only supported by certain device models.
- For certain device models, you need to enable **AI Open Platform** on **VCA** page first.

### 11.8.1 Set AI Open Platform

**Steps**

1. Go to **VCA** → **Set Application** → **AI Open Platform**.

**Note**

- Specific smart functions are supported for configuration via the AI Open Platform, such as hard hat detection, coal mine safety detection, etc.
- After selecting a specific function, the device will load the model package of the corresponding function.
- The function varies according to different device models, please refer to the actual device.

– For **Hard Hat Detection**, it detects targets in the set detection area who do not wear the hard hat and triggers an alarm.
– For **Coal Mine Safety Detection**, you should go to **VCA** → **Set Application** → **Coal Mine Safety Management** and enable the function. In coal mine scenarios, it detects targets such as persons and mine cars in the detection area, detects if the belt deviates from the idlers, and if the person not wears a hard hat. It triggers an alarm according to the set rules for coal mine safety detection.

2. Optional: Add a model into **Model Library**. Select the **Model Library** and related **Label File** from the local path, then set the **Model Name**. The model types are as follows.

**Detection Model**

Detects a specific target in the live view and provides the detection result and coordinate position of the target.

**Classification Model**

Classifies pictures or targets with attributes.

**Mixed Model**

Detects targets in the live view and classifies them.

**Note**

**Max. Number of Model Packages** refers to the maximum number of model packages that the device supports.

3. Select a model and enable it.
4. Select an **Analysis Mode**.

| | |
|---|---|
| **Live Video Analysis** | The device analyzes the live video to realize target detection and result uploading. |
| **Scheduled Capture Analysis** | The device captures based on the set **Auto-Switch Interval** to analyze the captured picture and upload results. |

5. Optional: Enable **Overlay Target Frame** and **Rule Overlay** according to your needs.

| | |
|---|---|
| **Overlay Target Frame** | Overlay the alarm picture with target frame. |

**Rule Overlay** Overlay the alarm picture with rule information.

6. Set the arming schedule and linkage method. For the arming schedule settings, refer to ***Set Arming Schedule***. For the linkage method settings, refer to ***Linkage Method Settings***.
7. Set rules for the linked channel. Refer to ***Set Rules*** for details.
8. Click **Save**.

## 11.8.2 Set Rules

Set rules for the linked channel.

**Before You Start**

Make sure the related model in **VCA** → **AI Open Platform** is selected, and the task configuration is finished.

**Steps**

1. Click **Linked Channel** to select a channel in **Channel Management**.
2. Click ⚙ of the linked channel to set rules.

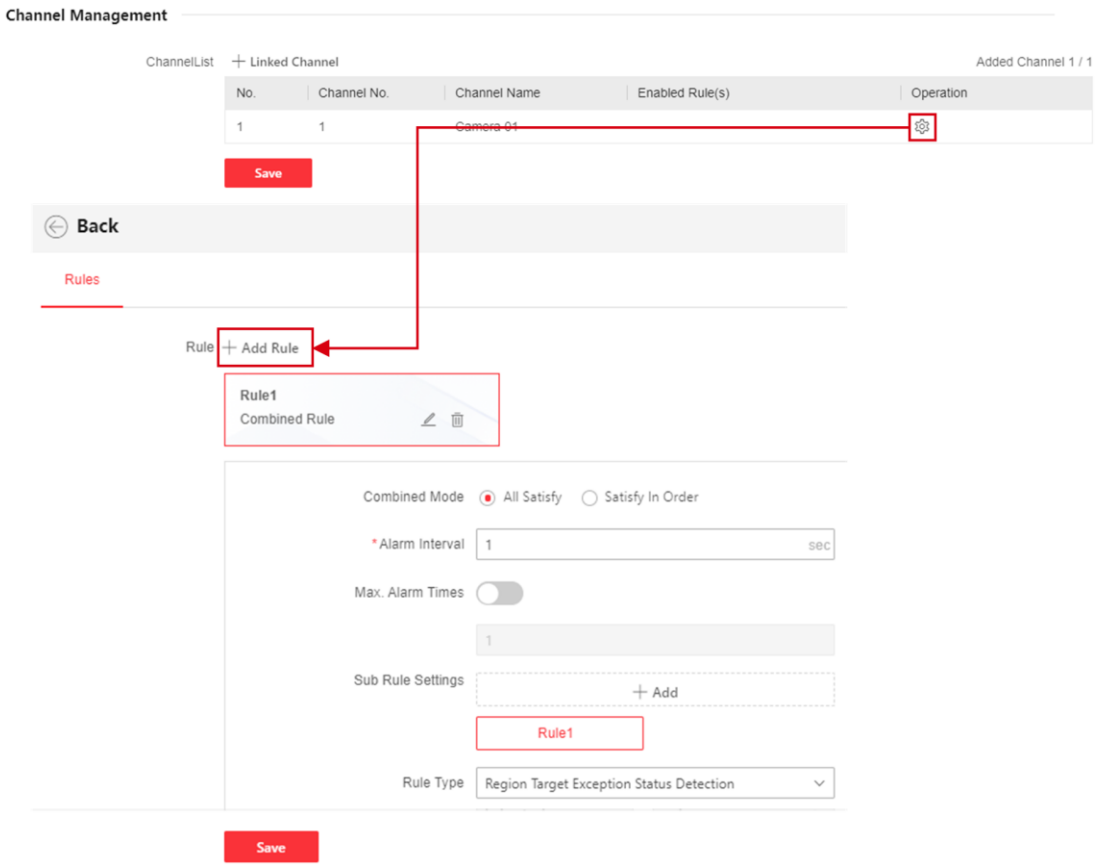



**Figure 10-20 Set Rules**

3. Click **Add Rule**. Select the rule and click ✎ to rename the rule and select the rule type.

**Region Target Exception Status Detection**

Detects and counts the number of the target in the predefined virtual rule area, and compares it with the setting rule. When satisfying the triggering condition, it will trigger the alarm.

**Line Crossing Target Detection**

Detects if any targets crossing the predefined virtual rule line and triggers the alarm when detects.

**Full Analysis Rule**

Detects and analyzes all targets in the predefined virtual rule area.

**Line Crossing Target Counting**

Detects and counts the number of the target crossing the predefined virtual rule line.

**Region Target Number Counting**

Detects and counts the number of the target in the predefined virtual rule area.

**Combined Rule**

Supports **Region Target Exception Status Detection** and **Line Crossing Target Detection** in the predefined virtual rule area. You can set **Combined Mode** as **All Satisfy** or **Satisfy In Order** for the detection order.

**Note**

Rule types vary according to different model packages, please refer to the actual device.

4. Set the detection rule and draw rule area or line.
   - Draw a rule area: click to draw a convex area in the live view window, left click the end-points in the live view window to define the boundary of the set rule area, and right click to finish drawing.
   - Draw a rule line: click and a line with an arrow appears in the live video. Drag the line to the location in the live view window as desired.
5. Set rule parameters.

**Object**

The detection target type of the model.

**Attribute**

The detection target property of the model.

**Duration**

The duration of the status. The alarm will be triggered when the set time duration is reached.

**Alarm Interval**

During the set alarm interval, alarms of the same type only trigger one notification.

**Sensitivity**

The higher the value of sensitivity is, the easier the alarm can be triggered. If the sensitivity value is too large, the false alarm may be produced easier. Please set it according to the actual situation.

**Max. Alarm Times**

The maximum number of times an alarm can be triggered in the status that triggers the alarm.

**Counting Interval**

The time interval for counting.

**Algorithm Validity**

When the confidence threshold given by the algorithm is greater than or equal to the set validity, an alarm is triggered and uploaded.

**Line Crossing**

The direction from which the target goes across the line.

**Quantity**

Check **Quantity** and select the alarm rule from the drop-down box. Set **Threshold** or the range (**Min** and **Max**) according to the alarm rule. When the number of the target satisfies the setting alarm rule, the device will trigger the alarm.

**Report Time Interval**

It refers to the time interval for uploading the counting results when selecting **Region Target Number Counting**.

**Note**

Rule parameters vary according to different rules, please refer to the actual device.

6. Click **Save**.

# Chapter 12 EPTZ

EPTZ (Electronic PTZ) is a high-resolution function that digitally zooms and pans into portions of the image, with no physical camera movement. If you want to use the EPTZ function, make sure your device supports the **Third Stream**. Third stream and EPTZ should be both enabled simultaneously.

**Note**

The function is only supported by certain device models.

## 12.1 Patrol

**Steps**

1. Go to **Configuration** → **EPTZ**.
2. Check **Enable**.
3. The default **Stream Type** is **Third Stream** and cannot be configured.
4. Select **Patrol** in **Application Mode**.
5. Click **Save**.

**What to do next**

For the detailed information about the patrol settings, see the PTZ operations on live view page.

## 12.2 Auto-Tracking

**Steps**

1. Go to **Configuration** → **EPTZ**.
2. Check **Enable**.
3. The default **Stream Type** is **Third Stream** and cannot be configured.
4. Select **Auto-tracking** in **Application Mode**.
5. Click to start drawing. Click on the live view video to specify the four vertexes of the detection area and right click to complete drawing.
6. Set rules.

   **Detection Target**

   Human and vehicle are available. If the detection target is not selected, all the detected targets will be tracked, including the human and vehicle.

**Note**

Only certain camera models support this function.

**Sensitivity**

It stands for the percentage of the body part of an acceptable target that is tracked. Sensitivity = 100 - S1/ST × 100. S1 stands for the target body part that enters the pre-defined area. ST stands for the complete target body. The higher the value of sensitivity is, the more easily the target can be tracked.

7. Click **Save**.