



# **Network Camera**

**User Manual**

## Initiatives on the Use of Video Products

### **Thank you for choosing Hikvision products.**

Technology affects every aspect of our life. As a high-tech company, we are increasingly aware of the role technology plays in improving business efficiency and quality of life, but at the same time, the potential harm of its improper usage. For example, video products are capable of recording real, complete and clear images. This provides a high value in retrospect and preserving real-time facts. However, it may also result in the infringement of a third party's legitimate rights and interests if improper distribution, use and/or processing of video data takes place. With the philosophy of "Technology for the Good", Hikvision requests that every end user of video technology and video products shall comply with all the applicable laws and regulations, as well as ethical customs, aiming to jointly create a better community.

### **Please read the following initiatives carefully:**

- Everyone has a reasonable expectation of privacy, and the installation of video products should not be in conflict with this reasonable expectation. Therefore, a warning notice shall be given in a reasonable and effective manner and clarify the monitoring range, when installing video products in public areas. For non-public areas, a third party's rights and interests shall be evaluated when installing video products, including but not limited to, installing video products only after obtaining the consent of the stakeholders, and not installing highly-invisible video products.
- The purpose of video products is to record real activities within a specific time and space and under specific conditions. Therefore, every user shall first reasonably define his/her own rights in such specific scope, in order to avoid infringing on a third party's portraits, privacy or other legitimate rights.
- During the use of video products, video image data derived from real scenes will continue to be generated, including a large amount of biological data (such as facial images), and the data could be further applied or reprocessed. Video products themselves could not distinguish good from bad regarding how to use the data based solely on the images captured by the video products. The result of data usage depends on the method and purpose of use of the data controllers. Therefore, data controllers shall not only comply with all the applicable laws and regulations and other normative requirements, but also respect international norms, social morality, good morals, common practices and other non-mandatory requirements, and respect individual privacy, portrait and other rights and interests.
- The rights, values and other demands of various stakeholders should always be considered when processing video data that is continuously generated by video products. In this regard, product security and data security are extremely crucial. Therefore, every end user and data controller, shall undertake all reasonable and necessary measures to ensure data security and avoid data leakage, improper disclosure and improper use, including but not limited to, setting up access

control, selecting a suitable network environment (the Internet or Intranet) where video products are connected, establishing and constantly optimizing network security.

- Video products have made great contributions to the improvement of social security around the world, and we believe that these products will also play an active role in more aspects of social life. Any abuse of video products in violation of human rights or leading to criminal activities are contrary to the original intent of technological innovation and product development. Therefore, each user shall establish an evaluation and tracking mechanism of their product application to ensure that every product is used in a proper and reasonable manner and with good faith.

## Legal Information

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### About this Manual

The Manual includes instructions for using and managing the Product. Pictures, charts, images and all other information hereinafter are for description and explanation only. The information contained in the Manual is subject to change, without notice, due to firmware updates or other reasons. Please find the latest version of this Manual at the Hikvision website ( <https://www.hikvision.com/> ).

Please use this Manual with the guidance and assistance of professionals trained in supporting the Product.

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## Network Camera User Manual




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DEVELOPMENT OR PRODUCTION OF WEAPONS OF MASS DESTRUCTION, THE DEVELOPMENT OR PRODUCTION OF CHEMICAL OR BIOLOGICAL WEAPONS, ANY ACTIVITIES IN THE CONTEXT RELATED TO ANY NUCLEAR EXPLOSIVE OR UNSAFE NUCLEAR FUEL-CYCLE, OR IN SUPPORT OF HUMAN RIGHTS ABUSES.

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## Symbol Conventions

The symbols that may be found in this document are defined as follows.

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

## Safety Instruction

These instructions are intended to ensure that user can use the product correctly to avoid danger or property loss.

### Laws and Regulations

- The device should be used in compliance with local laws, electrical safety regulations, and fire prevention regulations.

### Electricity

- In the use of the product, you must be in strict compliance with the electrical safety regulations of the nation and region.
- The equipment shall not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the equipment.
- Provide a surge suppressor at the inlet opening of the equipment under special conditions such as the mountain top, iron tower, and forest.
- **CAUTION:** To reduce the risk of fire, replace only with the same type and rating of fuse.
- The equipment must be connected to an earthed mains socket-outlet.
- An appropriate readily accessible disconnect device shall be incorporated external to the equipment.
- An appropriate overcurrent protective device shall be incorporated external to the equipment, not exceeding the specification of the building.
- An all-pole mains switch shall be incorporated in the electrical installation of the building.
- Ensure correct wiring of the terminals for connection to an AC mains supply.
- The equipment has been designed, when required, modified for connection to an IT power distribution system.

### Battery

- Do not ingest battery. Chemical burn hazard!
- This product contains a coin/button cell battery. If the coin/button cell battery is swallowed, it can cause severe internal burns in just 2 hours and can lead to death.
- Keep new and used batteries away from children.
- If the battery compartment does not close securely, stop using the product and keep it away from children.
- If you think batteries might have been swallowed or placed inside any part of the body, seek immediate medical attention.
- **CAUTION:** Risk of explosion if the battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.
- **ATTENTION:** IL Y A RISQUE D'EXPLOSION SI LA BATTERIE EST REMPLACÉE PAR UNE BATTERIE DE TYPE INCORRECT. METTRE AU REBUT LES BATTERIES USAGÉES CONFORMÉMENT AUX INSTRUCTIONS.

- Improper replacement of the battery with an incorrect type may defeat a safeguard (for example, in the case of some lithium battery types).
- Do not dispose of the battery into fire or a hot oven, or mechanically crush or cut the battery, which may result in an explosion.
- Do not leave the battery in an extremely high temperature surrounding environment, which may result in an explosion or the leakage of flammable liquid or gas.
- Do not subject the battery to extremely low air pressure, which may result in an explosion or the leakage of flammable liquid or gas.
- + identifies the positive terminal(s) of equipment which is used with, or generates direct current.
- - identifies the negative terminal(s) of equipment which is used with, or generates direct current.

## Fire Prevention

- No naked flame sources, such as lighted candles, should be placed on the equipment.
- The serial port of the equipment is used for debugging only.

## Hot Surface Prevention

-  CAUTION: Hot parts! Burned fingers when handling the parts. Wait one-half hour after switching off before handling parts. This sticker is to indicate that the marked item can be hot and should not be touched without taking care. For device with this sticker, this device is intended for installation in a restricted access location, access can only be gained by service persons or by users who have been instructed about the reasons for the restrictions applied to the location and about any precautions that shall be taken.

## Installation

- Install the equipment according to the instructions in this manual.
- To prevent injury, this equipment must be securely attached to the floor/wall in accordance with the installation instructions.
- Never place the equipment in an unstable location. The equipment may fall, causing serious personal injury or death.

## Power Supply

- The input voltage should conform to IEC60950-1 standard: SELV (Safety Extra Low Voltage) and the Limited Power Source. Refer to the appropriate documentation for detailed information.
- The power source should meet limited power source or PS2 requirements according to IEC 60950-1 or IEC 62368-1 standard.
- DO NOT connect multiple devices to one power adapter, to avoid over-heating or fire hazards caused by overload.
- Make sure the plug is properly connected to the power socket.



## **White Light Illuminator (If supported)**

- Possibly hazardous optical radiation emitted from this product.
- DO NOT stare at operating light source. May be harmful to the eyes.
- Wear appropriate eye protection or DO NOT turn on the white light when you assemble, install or maintain the camera.

## **Transportation**

- Keep the device in original or similar packaging while transporting it.

## **System Security**

- The installer and user are responsible for password and security configuration.

## **Maintenance**

- If the product does not work properly, please contact your dealer or the nearest service center.
- We shall not assume any responsibility for problems caused by unauthorized repair or maintenance.
- A few device components (e.g., electrolytic capacitor) require regular replacement. The average lifespan varies, so periodic checking is recommended. Contact your dealer for details.

## **Cleaning**

- Please use a soft and dry cloth when clean inside and outside surfaces of the product cover. Do not use alkaline detergents.

## **Using Environment**

- When any laser equipment is in use, make sure that the device lens is not exposed to the laser beam, or it may burn out.
- DO NOT expose the device to high electromagnetic radiation or dusty environments.
- For indoor-only device, place it in a dry and well-ventilated environment.
- DO NOT aim the lens at the sun or any other bright light.
- Make sure the running environment meets the requirement of the device. The operating temperature shall be -30 °C to 60 °C (-22 °F to 140 °F), and the operating humidity shall be 95% or less (no condensing).
- DO NOT place the camera in extremely hot, cold, dusty or damp locations, and do not expose it to high electromagnetic radiation.

## **Emergency**

- If smoke, odor, or noise arises from the device, immediately turn off the power, unplug the power cable, and contact the service center.

### **Time Synchronization**

- Set up device time manually for the first time access if the local time is not synchronized with that of the network. Visit the device via Web browse/client software and go to time settings interface.

### **Reflection**

- Make sure that no reflective surface is too close to the device lens. The IR light from the device may reflect back into the lens causing reflection.

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## Chapter 1 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 <b><u><i>Plug-in Installation</i></u></b>

## 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 access the device via network.



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

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### 2.1 Activate the Device via SADP

Search and activate the online devices via SADP software.

#### Before You Start

Access [www.hikvision.com](http://www.hikvision.com) to get SADP software to install.

#### Steps

1. Connect the device to network using the network cable.
2. Run SADP 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.



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.

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5. Click **OK**.
6. Input the activation password to log in to the device.
7. **Optional:** Go to **Configuration** → **Network** → **Basic** → **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 operation systems and web browser may restrict the display and operation of the camera function. You should install 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	<ul style="list-style-type: none"><li>• Internet Explorer 8+</li><li>• Google Chrome 57 and earlier version</li><li>• Mozilla Firefox 52 and earlier version</li></ul>	Follow pop-up prompts to complete plug-in installation.
	<ul style="list-style-type: none"><li>• Google Chrome 57+</li><li>• Mozilla Firefox 52+</li></ul>	Click  <b>Download Plug-in</b> to download and install plug-in.
Mac OS	<ul style="list-style-type: none"><li>• Google Chrome 57+</li><li>• Mozilla Firefox 52+</li><li>• Mac Safari 16+</li></ul>	Plug-in installation is not required.

Operating System	Web Browser	Operation
		Go to <b>Configuration → Network → Advanced Settings → Network Service</b> 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.

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 **Note**

The camera only supports Windows and Mac OS system and do not support Linux system.

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## 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.

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 **Note**

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

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### 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 access 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 the security when accessing the device via Internet.

Go to **Configuration → System → Security → Security Service** , 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 Enable and Disable Live View

This function is used to quickly enable or disable live view of the channel.

- Click  to start the live view.
- Click  to stop the live view.

#### 3.1.2 Adjust Aspect Ratio

##### Steps

1. Click **Live View**.
2. Click  to select the aspect ratio.
  -  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, VLC or MJPEG.

### 3.1.5 Window Division

-  refers to 1 × 1 window division.
-  refers to 2 × 2 window division.
-  refers to 3 × 3 window division.
-  refers to 4 × 4 window division.


### 3.1.6 Light

Click  to turn on or turn off the illuminator.

### 3.1.7 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 on the image to select a desired rectangle area.  
The width pixel and height pixel are displayed on the bottom of the live view image.

### 3.1.8 Start Digital Zoom

It helps to see a detailed information of 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 to back to the original image.

### 3.1.9 Auxiliary Focus

It is used for motorized device. 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.
- 

### 3.1.10 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.

#### Manual Lens Initialization

Click  to operate lens initialization.


#### Auto Lens Initialization

Go to **Configuration** → **System** → **Maintenance** → **Lens Correction** to enable this function. You can set the arming schedule, and the device will correct lens automatically during the configured time periods.

### 3.1.11 Quick Set Live View

It offers a quick setup of PTZ, display settings, OSD, video/audio and VCA resource settings on live view page.

#### Steps

1. Click  to show quick setup page.
  2. Set PTZ, display settings, OSD, video/audio and VCA resource parameters.
    - For PTZ settings, see ***Lens Parameters Adjustment*** .
    - For display settings, see ***Display Settings*** .
    - For OSD settings, see ***OSD*** .
    - For audio and video settings, see ***Video and Audio*** .
    - For VCA settings, see ***Allocate VCA Resource*** .
- 

## Note



The function is only supported by certain models.

---



### 3.1.12 Lens Parameters Adjustment

It is used to adjust the lens focus, zoom and iris.


### Zoom

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



### Focus

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

### PTZ Speed

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

### 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 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.

Go to **Configuration** → **PTZ**, check **Enable PTZ Lock**, and click **Save**.

### 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

	Drag  on the control panel to pan/tilt the device.
<ul style="list-style-type: none"> <li>• </li> <li>• </li> </ul>	Click and hold the button to adjust rotating position.

## Auto Recovery

Click **Auto Recovery**, the device will correct the rotating position automatically to make the live view image positive. Make sure the **Self-checking state** is **Initialized**.

---

### Note


- Go to **Configuration** → **PTZ** → **PTZ** to view the **Self-checking state**.
  - 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.

## 3.1.13 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** .
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 the 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.

### Play Performance

#### Shortest Delay

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

#### Balanced

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

#### Fluent

The device takes the video fluency as the priority over real-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 not display.

3. Click **OK**.

## 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 supports 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

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

### Set Custom Video

You can set up additional video streams if required. For custom video streams, you can preview them, but cannot record or play back them.

#### Steps



##### Note

- The function is only supported by certain camera models.
- After restoring the device (not restore to default settings), quantity of custom video streams and their names are kept, but the related parameters are restored.

- 
1. Click **+** to add a stream.
  2. Change the stream name as needed.



### Note

Up to 32 letters and symbols (except &, <, >, ', or ") are allowed for the stream name.

3. Customize the stream parameters (resolution, frame rate, max. bitrate, video encoding).
4. **Optional:** Add stream description as needed.
5. **Optional:** If a custom stream is not needed, click **x** to delete it.
6. Click **Save**.

### 4.1.2 Video Type

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

#### Video

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 adjust 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 to 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 a MJPEG format is 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.

## 4.2 ROI

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

### 4.2.1 Set ROI

ROI (Region of Interest) encoding helps to assign more encoding resource 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.** in **Fixed Region** to draw ROI region.
  - 1) Click **Draw Area**.
  - 2) Click and drag the mouse on the view screen to draw the fixed region.
  - 3) Click **Stop Drawing**.



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

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



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

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

### 4.3 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 the events including line crossing, intrusion, etc.

#### Before You Start

This function is supported in smart events. Go to the **VCA Resource** page to enable **Smart Event**.

#### Steps

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

### 4.4 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** .



Only certain camera models support the function.

---

#### 4.4.1 Audio Encoding

Select the audio encoding compression of the audio.

## 4.4.2 Audio Input

---

### Note

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

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

## 4.4.3 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 audio cannot output. The audio output display varies with the device modes.

## 4.4.4 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.

## 4.5 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.

### 4.6 Display Settings

It offers the parameter settings to adjust image features.

Go to **Configuration** → **Image** → **Display Settings** .

Click **Default** to restore settings.

#### 4.6.1 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 the **Brightness**, **Saturation**, **Hue**, **Contrast** and **Sharpness**, the image can be best displayed.



Low Saturation



High Saturation

Figure 4-1 Saturation

#### Exposure Settings

Exposure is controlled by the combination of iris, shutter, and photo sensibility. You can adjust image effect 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 and the minimum focus distance.

### 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.

### Min. Focus Distance

When the distance between the scene and lens is shorter than the Min. Focus Distance, the lens does not focus.

## 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 the day mode and the night mode according to the light condition of 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.



- 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*** .
- 

### Gray Scale

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

### 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.



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.



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

### 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 be not supported. Refer to the actual interface for details.

---

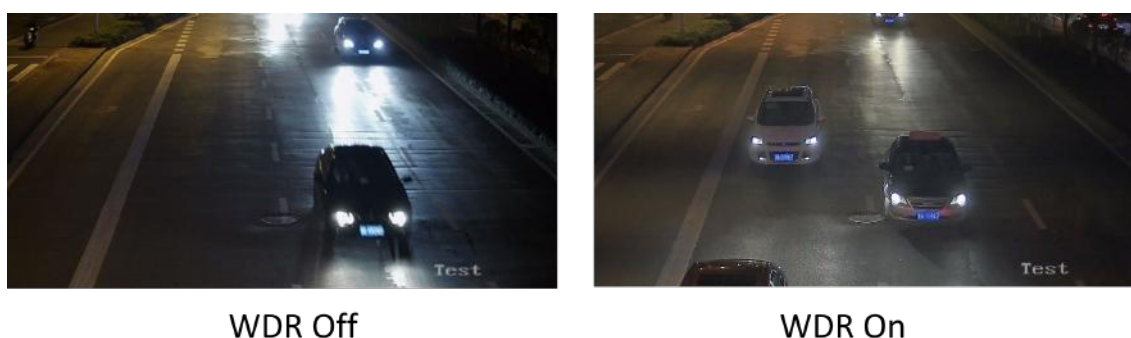


Figure 4-2 WDR

## 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.





**Figure 4-3 White Balance**

## DNR

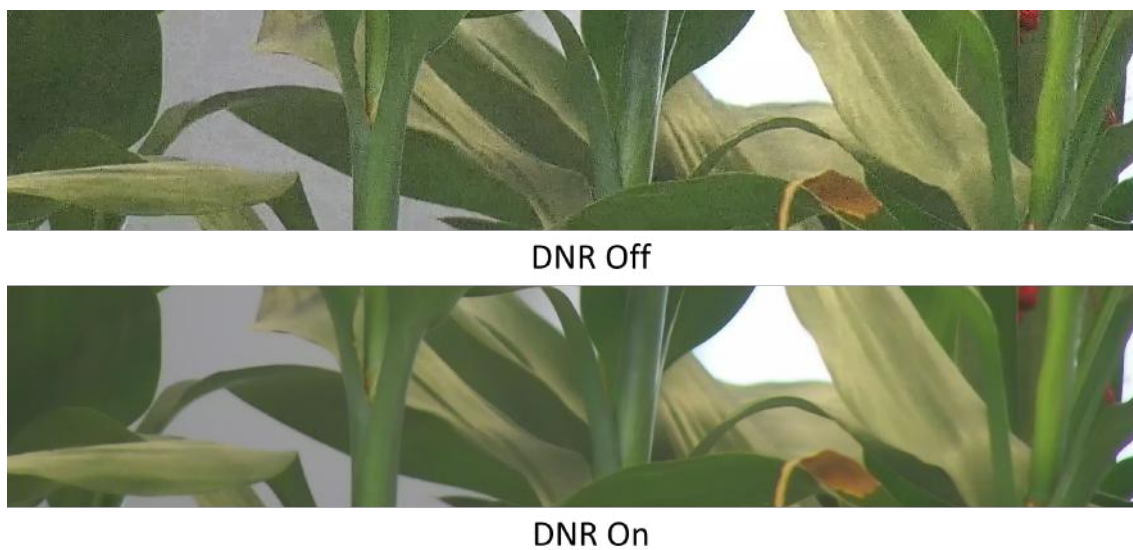
Digital Noise Reduction is used to reduce the image noise and improve the image quality. **Normal** and **Expert** modes are selectable.

### 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.



**Figure 4-4 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.



**Figure 4-5 Defog**

### EIS

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

### 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.

---

### 4.6.2 Image Parameters Switch

The device automatically switches image parameters in set time periods.

Go to image parameters switch setting page: **Configuration** → **Image** → **Image Parameters Switch**, and set parameters as needed.

### Set Switch

Switch the image parameters to the scene automatically in certain time periods.

#### Steps

1. Check **Enable**.
2. Select and configure the corresponding time period and the scene.



## Note

For the scene configuration, refer to **Scene Mode** .

---

3. Click **Save**.

### 4.6.3 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 standard 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.

### 4.6.4 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.

## 4.7 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 displayed on screen, select **EUC-KR**. Otherwise, select **GBK**.

### Displayed Information

Set camera name, date, week, and their related display format. For certain device models, you can also set tilt angle as the displayed information.

### Text Overlay

Set customized overlay text on image.

### OSD Parameters

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

### 4.8 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 privacy mask setting page: **Configuration** → **Image** → **Privacy Mask** .
2. Check **Enable Privacy Mask**.
3. Click **Draw Area**. 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**     Clear all the areas you set.

4. Click **Stop Drawing**.
5. Click **Save**.

### 4.9 Overlay Picture

Overlay a customized picture on live view.

#### Before You Start

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

#### Steps

1. Go to picture overlay setting page: **Configuration** → **Image** → **Picture Overlay** .
2. Click **Browse** to select a picture, and click **Upload**.  
The picture with a red rectangle will appear in live view after successfully uploading.
3. Check **Enable Picture Overlay**.
4. Drag the picture to adjust its position.
5. Click **Save**.

### 4.10 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 Target Cropping** 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.
-

## 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 Set Memory Card

If you choose to store the files to memory card, make sure you insert and format the memory card in advance.

##### Before You Start

Insert the memory card to the camera. For detailed installation, refer to *Quick Start Guide* of the camera.

##### Steps

1. Go to storage management setting page: **Configuration → Storage → Storage Management → HDD Management** .
2. Select the memory card, and click **Format** to start initializing the memory card.  
The **Status** of memory card turns to **Normal** from **Uninitialized**, which means the memory card can be used normally.
3. **Optional**: Define the **Quota** of the memory card. Input the quota percentage for different contents according to your need.
4. Click **Save**.

#### Detect Memory Card Status

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

##### Before You Start

The configuration page only appears when a Hikvision memory card is installed to the device.

##### Steps

1. Go to **Configuration → Storage → Storage Management → Memory Card Detection** .
2. Click **Status Detection** to 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. There are three status descriptions: good, bad, and damaged. 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.
  - Add a Lock
    - a. Select the **Lock Switch** as ON.
    - b. Enter the password.
    - c. 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.
  - Remove the Lock
    - a. Select the **Lock Switch** as OFF.
    - b. Enter the password in **Password Settings**.
    - c. 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 → Network → Advanced Settings → FTP** .
2. Configure FTP settings.

### FTP Protocol

FTP and SFTP are selectable. The files uploading is encrypted by using SFTP protocol.

### Server Address and Port

The FTP server address and corresponding port.

### User Name and Password

The FTP user should have the permission to upload pictures.

If the FTP server supports picture uploading by anonymous users, you can check **Anonymous** to hide your device information during uploading.

### Directory Structure

The saving path of snapshots in 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.

3. Check **Upload Picture** to enable uploading snapshots to the FTP server.
4. Check **Enable Automatic Network Replenishment**.



### Note

**Upload to FTP/Memory Card/NAS in Linkage Method** and **Enable Automatic Network Replenishment** should be both 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 **HDD No.**. Enter the server 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.

### **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.

3. Click **Test** to check whether the network disk is available.
4. 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 → Maintenance → 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 the 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 Cloud Storage**.
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.

<b>Serve Port</b>	The port of the cloud video manager. You are recommended to use the default port.
<b>AccessKey</b>	The key to log in to the cloud video manager.
<b>SecretKey</b>	The key to encrypt the data stored in the cloud video manager.
<b>User Name and Password</b>	The user name and password of the cloud video manager.
<b>Picture Storage Pool ID</b>	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 is vary according to different models.

---

#### Continuous

The video will be recorded continuously according to the schedule.

#### Motion

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. Click **Advanced** to set the advanced settings.

### 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 **Record File Size** and saving path to for recorded files.
3. Click **Save**.
4. Click  in the live view interface to start recording. Click  to stop recording.

## 5.2.3 Playback and Download Video

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

### Steps

1. Click **Playback**.
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 clip video files.
  - Double click the live view image to play video files in full screen. Press **ESC** to exit full screen.



Go to **Configuration → Local** , click **Save clips to** to change the saving path of clipped video files.

4. Click ⬇ on the playback interface to download files.
  - 1) Set search condition and click **Search**.
  - 2) Select the video files and then click **Download**.



Go to **Configuration → Local** , click **Save downloaded files to** to 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 → Capture → Capture Parameters** .
2. Set the capture type.

#### Timing

Capture a picture at the configured time interval.

#### Event-Triggered

Capture a picture when an event is triggered.

3. Set the **Format, Resolution, Quality, Interval, and Capture Number**.
4. Refer to ***Set Arming Schedule*** for configuring schedule time.
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. Click **Picture**.
2. Set search condition and click **Search**.  
The matched pictures showed in the file list.
3. Select the pictures then click **Download** to download them.



#### Note

Go to **Configuration → Local**, click **Save snapshots when playback** to change the saving path of pictures.

---

## Chapter 6 Event and Alarm

This part introduces the configuration of events. The device takes certain response to triggered alarm.

### 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 → Basic Event → Motion Detection** .
2. Check **Enable Motion Detection**.
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 **Configuration Mode**, 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.

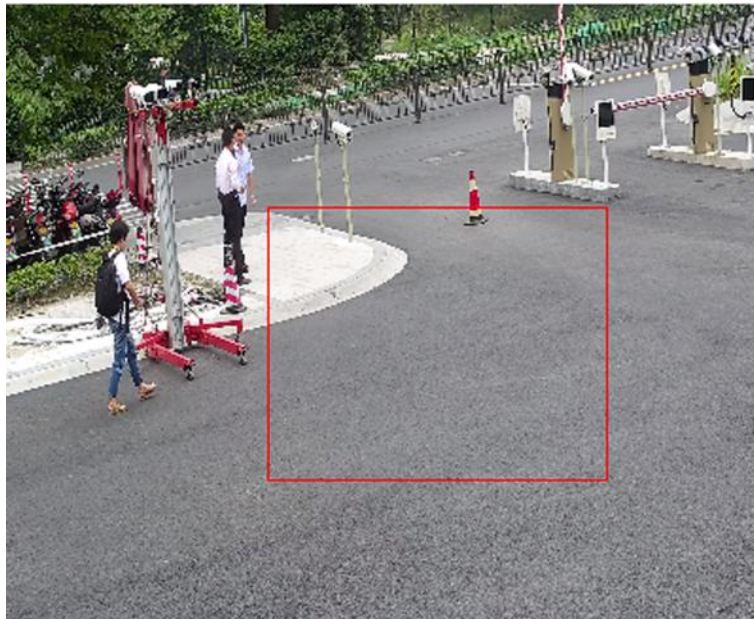
###### Scheduled-Switch

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 is enabled, the sensitivity of day and night can be set separately.

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



**Figure 6-1 Set Rules**

**Stop Drawing** Finish drawing one area.

**Clear All** Delete all the areas.

4. Click **Save**.
5. **Optional:** Repeat above steps to set 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.

4. Click **Draw Area**. Click and drag the mouse on the live video, and then right click the mouse to finish drawing one area.

**Clear** Clear the selected area.

**Clear All** Clear all the areas.

5. **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 → Basic Event → Video Tampering** .

2. Check **Enable**.

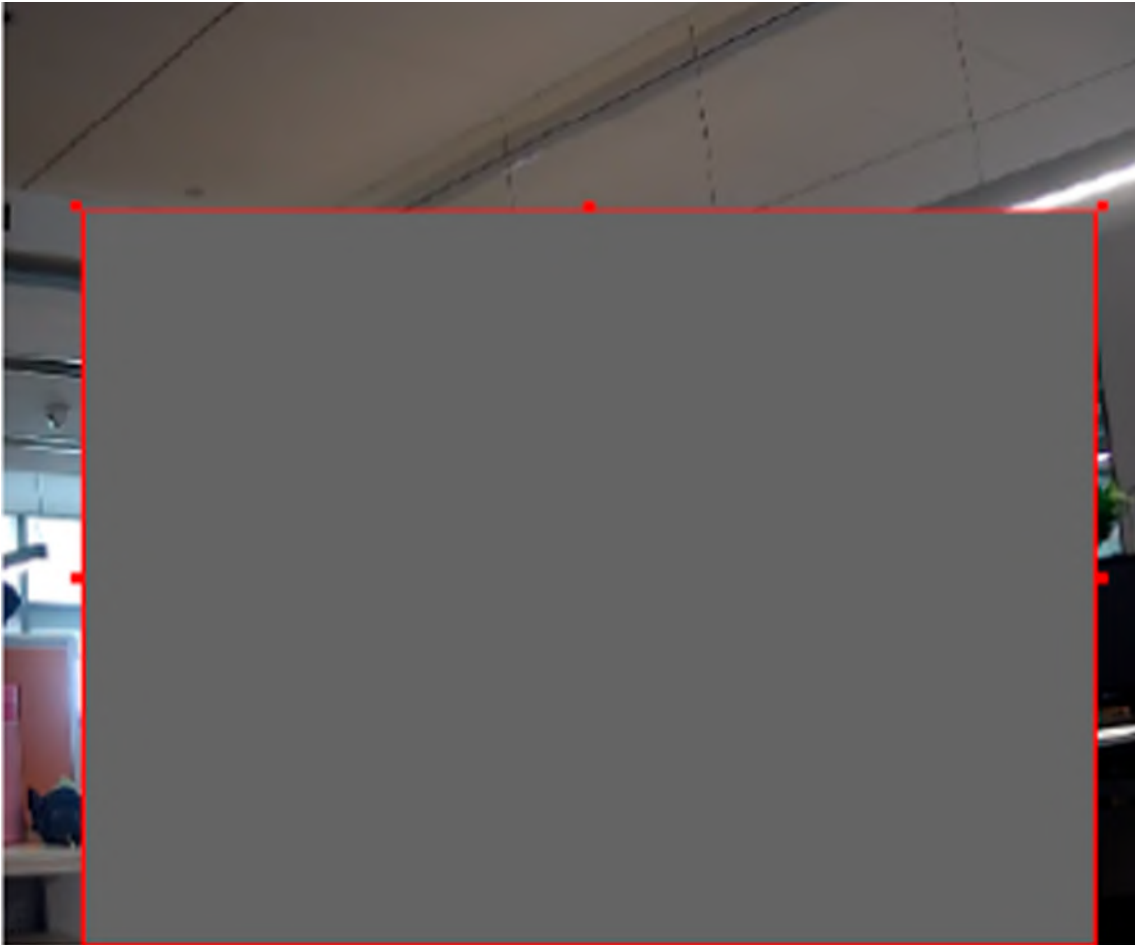
3. Set the **Sensitivity**. The higher the value is, the easier to detect the area covering.

4. Click **Draw Area** and drag the mouse in the live view to draw the area.

**Stop Drawing** Finish drawing.

**Clear All** Delete all the drawn areas.





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

5. Refer to ***Set Arming Schedule*** for setting scheduled time. Refer to ***Linkage Method Settings*** for setting linkage method.
6. Click **Save**.

### **6.3 Set Exception Alarm**

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

#### **Steps**

1. Go to **Configuration → Event → Basic Event → 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 Conflicted**

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

### **Illegal Login**

Incorrect user name or password is entered.

### **Abnormal Reboot**

The device reboots abnormally.

3. Refer to **Linkage Method Settings** for setting linkage method.

4. Click **Save**.

## **6.4 Set Alarm Input**

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

### **Before You Start**

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

### **Steps**

1. Go to **Configuration → Event → Basic Event → Alarm Input** .

2. Check **Enable Alarm Input Handling**.

3. Select **Alarm Input NO.** and **Alarm Type** from the dropdown list. Edit the **Alarm Name**.

4. Refer to **Set Arming Schedule** for setting scheduled time. Refer to **Linkage Method Settings** for setting linkage method.

5. Click **Copy to...** to copy the settings to other alarm input channels.

6. 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 → Basic Event → 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 would be.

### Alarm Delay Times

The device uploads the alarm when the alarm reaches the set number of times.

4. Check **Enable**, and the selected diagnosis 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 Vibration Detection

It is used to detect whether the device is vibrating. The device reports an alarm and triggers linkage actions if the function is enabled.

### Steps

1. Go to **Configuration** → **Event** → **Basic Event** → **Vibration Detection** .
2. Check **Enable**.
3. Drag the slider to set the detection sensitivity. You can also enter number to set the sensitivity.
4. Set the arming schedule. See [Set Arming Schedule](#) .
5. Set the linkage method. See [Linkage Method Settings](#) .
6. Click **Save**.



#### Note

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

---

## 6.7 Detect Audio Exception

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** → **Smart Event** → **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 varies according to different models.

---

## 6.8 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 → Smart Event → 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.

---

## 6.9 Detect Scene Change

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 → Smart Event → 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 varies according to different models.

---

## 6.10 Draw Area

This section introduces the configuration of area.

### Steps

1. Click **Detection Area**.
2. Click on the live view to draw the boundaries of the detection region, and right click to complete drawing.
3. Click **Save**.



### Note

- Click **Clear** to clear the selected area.
  - Click **Clear All** to clear all pre-defined areas.
- 

## 6.11 Set Size Filter

This part introduces the setting of size filter. Only the target whose size is between the minimum value and maximum value is detected and triggers alarm.

### Steps

1. Click **Max. Size**, and drag the mouse in the live view to draw the maximum target size.
2. Click **Min. Size**, and drag the mouse in the live view to draw the minimum target size.
3. Click **Save**.

## Chapter 7 Network Settings

### 7.1 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** → **Basic 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 SADP to get the device IP address.



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.



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.

### Dynamic Domain Name

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.

---

## 7.1.1 Multicast

Multicast is group communication where data transmission is addressed to a group of destination devices simultaneously.

Go to **Configuration** → **Network** → **Basic Settings** → **Multicast** for the multicast settings.

### IP Address

It stands for the address of multicast host.

### 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.

## 7.1.2 Multicast Discovery

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.

## 7.2 SNMP

You can set the SNMP network management protocol to get the alarm event and exception messages in network transmission.

### 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 the settings page: **Configuration → Network → Advanced 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**.

## 7.3 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 → Advanced Settings → SRTP** .
2. Select **Server Certificate**.
3. Select **Encrypted Algorithm**.
4. 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.
- 

## 7.4 Port Mapping

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



### Before You Start

When the ports in the device are the same as those of other devices in the network, refer to **Port** to modify the device ports.

### Steps

1. Go to **Configuration → Network → Basic Settings → 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**.

### 7.4.1 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.

---

### 7.4.2 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.

### 7.4.3 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 Servers** , 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.

ID	Service Port	IP Address	Protocol	Enable
1	80	192.168.10.23	ALL	<input checked="" type="checkbox"/>
2	8000	192.168.10.23	ALL	<input checked="" type="checkbox"/>
3	554	192.168.10.23	ALL	<input checked="" type="checkbox"/>
4	8200	192.168.10.23	ALL	<input checked="" type="checkbox"/>
5	81	192.168.10.24	ALL	<input checked="" type="checkbox"/>
6	8001	192.168.10.24	ALL	<input checked="" type="checkbox"/>
7	555	192.168.10.24	ALL	<input checked="" type="checkbox"/>
8	8201	192.168.10.24	ALL	<input checked="" type="checkbox"/>

Common Service Port: DNS(53) Copy to ID 1

Previous Next Clear All Save

Figure 7-1 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.

## 7.5 Port

The device port can be modified when the device cannot access the network due to port conflicts.

### Caution

Do not modify the default port parameters at will, otherwise the device may be inaccessible.

Go to **Configuration** → **Network** → **Basic Settings** → **Port** for port settings.

### HTTP Port

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.

### HTTPS Port

It refers to the port through which the browser accesses the device with certificate. Certificate verification is required to ensure the secure access.

### RTSP Port

It refers to the port of real-time streaming protocol.

### SRTP Port

It refers to the port of secure real-time transport protocol.

### Server Port

It refers to the port through which the client adds the device.

### Enhanced SDK Service Port

It refers to the port through which the client adds the device. Certificate verification is required to ensure the secure access.

### WebSocket Port

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

### WebSockets Port

TCP-based full-duplex communication protocol port for plug-in free preview. Certificate verification is required to ensure the secure access.



### Note

- Enhanced SDK Service Port, WebSocket Port, and WebSockets Port are only supported by certain models.
  - For device models that support that function, go to **Configuration → Network → Advanced Settings → Network Service** to enable it.
- 

## 7.6 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.

### 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 → Basic Settings → DDNS**.
3. Check **Enable DDNS** 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** to check the device port , and 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.

## 7.7 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 → Basic Settings → PPPoE** .
2. Check **Enable PPPoE**.
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.

---

## 7.8 Set Network Service

You can control the ON/OFF status of certain protocol as desired.

### Steps

---

## Note

This function varies according to different models.

---

1. Go to **Configuration** → **Network** → **Advanced Settings** → **Network Service** .
2. Set network service.

### WebSocket & WebSockets

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.

If the device uses HTTP, enable WebSocket.

If the device uses HTTPS, enable WebSockets.

When you use WebSockets, select the **Server Certificate**.

---

## Note

Complete certificate management before selecting server certificate. Refer to **Certificate Management** for detailed information.

---

### SDK Service & Enhanced SDK Service

Check **Enable SDK Service** to add the device to the client software with SDK protocol.

Check **Enable Enhanced SDK Service** to add the device to the client software with SDK over TLS protocol.

When you use Enhanced SDK Service, select the **Server Certificate**.

## Note

- Complete certificate management before selecting server certificate. Refer to ***Certificate Management*** for detailed information.
  - When set up connection between the device and the client software, it is recommended to use Enhanced SDK Service and set the communication in Arming Mode to encrypt the data transmission. See the user manual of the client software for the arming mode settings.
- 

### **TLS (Transport Layer Security)**

The device offers TLS1.1, TLS1.2 and TLS1.3. Enable one or more protocol versions according to your need.

#### **Bonjour**

Uncheck to disable the protocol.

3. Click **Save**.

## **7.9 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 → Advanced Settings → Integration Protocol** .
2. Check **Enable Open Network Video Interface**.
3. Click **Add** to configure the Open Network Video Interface user.

**Delete** Delete the selected Open Network Video Interface user.

**Modify** Modify the selected Open Network Video Interface user.

4. Click **Save**.

5. **Optional:** Repeat the steps above to add more Open Network Video Interface users.

## **7.10 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 → Advanced Settings → Platform Access** .
2. Select **ISUP** as the platform access mode.
3. Select **Enable**.
4. Select a protocol version and input related parameters.
5. Click **Save**.

Register status turns to **Online** when the function is correctly set.

### 7.11 Set 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.

#### Steps

1. Go to **Configuration** → **Network** → **Advanced Settings** → **Alarm Server** .
2. Enter **Destination IP or Host Name**, **URL**, and **Port**.
3. **Optional**: Check **Enable** to enable ANR.
4. Select **Protocol**.



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

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

### 7.12 Access Camera via Hik-Connect

Hik-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 Hik-Connect application by the following ways.
  - Visit <https://appstore.hikvision.com> to download the application according to your mobile phone system.
  - Visit the official site of our company. Then go to **Support** → **Tools** → **Hikvision App Store** .
  - Scan the QR code below to download the application.



If errors like "Unknown app" occur during the installation, solve the problem in two ways.

- Visit <https://appstore.hikvision.com/static/help/index.html> to refer to the troubleshooting.
  - Visit <https://appstore.hikvision.com/> , and click **Installation Help** at the upper right corner of the interface to refer to the troubleshooting.
- 

2. Start the application and register for a Hik-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 Hik-Connect account.

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

### 7.12.1 Enable Hik-Connect Service on Camera

Hik-Connect service should be enabled on your camera before using the service.

You can enable the service through SADP software or Web browser.

#### Enable Hik-Connect Service via Web Browser

Follow the following steps to enable Hik-Connect 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 → Advanced Settings → Platform Access**
3. Select Hik-Connect as the **Platform Access Mode**.
4. Check **Enable**.
5. Click and read "Terms of Service" and "Privacy Policy" in pop-up window.
6. 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 Hik-Connect service.

---

7. Save the settings.

#### Enable Hik-Connect Service via SADP Software

This part introduce how to enable Hik-Connect service via SADP software of an activated camera.



### Steps

1. Run SADP software.
  2. Select a camera and enter **Modify Network Parameters** page.
  3. Check **Enable Hik-Connect**.
  4. Create a verification code or change the old verification code.
- 



The verification code is required when you add the camera to Hik-Connect service.

---

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

### 7.12.2 Set Up Hik-Connect

#### Steps

1. Get and install Hik-Connect application by the following ways.
  - Visit <https://appstore.hikvision.com> to download the application according to your mobile phone system.
  - Visit the official site of our company. Then go to **Support** → **Tools** → **Hikvision App Store** .
  - Scan the QR code below to download the application.



If errors like "Unknown app" occur during the installation, solve the problem in two ways.

- Visit <https://appstore.hikvision.com/static/help/index.html> to refer to the troubleshooting.
  - Visit <https://appstore.hikvision.com/> , and click **Installation Help** at the upper right corner of the interface to refer to the troubleshooting.
- 

2. Start the application and register for a Hik-Connect user account.
3. Log in after registration.

### 7.12.3 Add Camera to Hik-Connect

#### Steps

1. Connect your mobile device to a Wi-Fi.
2. Log into the Hik-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 blur 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 Hik-Connect 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.

<b>Wireless Connection</b>	Input the Wi-Fi password that your mobile phone has connected to, and tap <b>Next</b> to start the Wi-Fi connection process. (Locate the camera within 3 meters from the router when setting up the Wi-Fi.)
<b>Wired Connection</b>	Connect the camera to the router with a network cable and tap <b>Connected</b> 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 Hik-Connect app.

## Chapter 8 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.

### 8.1 Set Arming Schedule

Set the valid time of the device tasks.

#### Steps

1. Click **Arming Schedule**.
2. Drag the time bar to draw desired valid time.



Up to 8 periods can be configured for one day.

---

3. Adjust the time period.
  - Click on the selected time period, and enter the desired value. Click **Save**.
  - Click on the selected time period. Drag the both ends to adjust the time period.
  - Click on the selected time period, and drag it on the time bar.
4. **Optional:** Click **Copy to...** to copy the same settings to other days.
5. Click **Save**.

### 8.2 Linkage Method Settings

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

#### 8.2.1 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



This function is only supported by certain models.

---

1. Go to **Configuration → Event → Basic Event → 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](#) .

3. Click **Save**.

## **Manual Alarm**

You can trigger an alarm output manually.

### **Steps**

1. Set the manual alarm parameters.

#### **Alarm Output No.**

Select the alarm output No. according to the alarm interface connected to the external alarm device.

#### **Alarm Name**

Custom a name for the alarm output.

#### **Delay**

Select **Manual**.

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.

### **Steps**

1. Set automatic alarm parameters.

#### **Alarm Output No.**

Select the alarm output No. according to the alarm interface connected to the external alarm device.

#### **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. Click **Copy to...** to copy the parameters to other alarm output channels.
4. Click **Save**.

### 8.2.2 FTP/NAS/Memory Card Uploading

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 Memory Card** for memory card storage configuration.

### 8.2.3 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 receivers if an alarm event is detected.

##### Before You Start

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

##### Steps

1. Go to email settings page: **Configuration → Network → Advanced Settings → 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 **SSL** or **TLS**, and disable **STARTTLS**, emails are sent after encrypted by SSL or TLS. The SMTP port should be set as 465.
    - When you select **SSL** or **TLS** and **Enable STARTTLS**, emails are sent after 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 Image**. The notification email has 3 attached alarm pictures about the event with configurable image capturing interval.
- 5) Input the receiver's information, including the receiver's name and address.
- 6) Click **Test** to see if the function is well configured.

3. Click **Save**.

### 8.2.4 Notify Surveillance Center

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

### 8.2.5 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\*\*\*](#) .

### 8.2.6 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** → **Basic Event** → **Flashing Alarm Light Output** .
2. Set **Flashing Duration**, **Flashing Frequency** and **Brightness**.

##### 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.

##### Brightness

The brightness of the light.

3. Set the arming schedule. See [\*\*\*Set Arming Schedule\*\*\*](#) for details.
4. Click **Save**.

---

 **Note**

Only certain device models support the function.

---

## 8.2.7 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** → **Basic Event** → **Audible Alarm Output** .
  2. Select **Sound Type** and set related parameters.
    - Select **Prompt** and set the alarm times you need.
    - Select **Warning** 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 **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.

---

## Chapter 9 System and Security

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

### 9.1 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.

### 9.2 Search and Manage Log

Log helps locate and troubleshoot problems.

#### Steps

1. Go to **Configuration** → **System** → **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 in your computer.

### 9.3 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** , click **General** and set **Simultaneous Login**.

### 9.4 Import and Export Configuration File

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

Enter **Configuration** → **System** → **Maintenance** → **Upgrade & Maintenance** . Choose device parameters that need to be imported or exported and follow the instructions on the interface to import or export configuration file.



## 9.5 Search and Export Data Aware Information

The data aware function is used to search and export the data of the restart, arming and capture alarm statistics.

### Before You Start

Log in to the device via admin user account.

### Steps

1. Go to **Application** → **Data Aware** .
2. Select the search condition.

**Statistics Type**    Options

**Capture Alarm**    Report Type, alarm target, protocol, alarm link and start time.

**Restart Records**    Statistics type, start time and end time.

**Arming**            Arming type, start time and end time.

3. Click **Counting**.

The data information that match the conditions will be displayed.

4. **Optional:** Click **Export** to save the data information to the local device.

## 9.6 Export Diagnose Information

Diagnose information includes running log, system information, hardware information.

Go to **Configuration** → **System** → **Maintenance** → **Upgrade & Maintenance** , and click **Diagnose Information** to export diagnose information of the device.

## 9.7 Reboot

You can reboot the device via browser.

Go to **Configuration** → **System** → **Maintenance** → **Upgrade & Maintenance** , and click **Reboot**.

## 9.8 Restore and Default

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

### Steps

1. Go to **Configuration** → **System** → **Maintenance** → **Upgrade & Maintenance** .
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.

---



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

---

## 9.9 Upgrade

### Before You Start

You need to obtain the correct upgrade package.

---



### Caution

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

---

### Steps

1. Go to **Configuration** → **System** → **Maintenance** → **Upgrade & Maintenance** .
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 **Browse** to select the upgrade file.
4. Click **Upgrade**.

## 9.10 View Open Source Software License

Go to **Configuration** → **System** → **System Settings** → **About Device** , and click **View Licenses**.

## 9.11 Wiegand

---



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.

## 9.12 Metadata

Metadata is the raw data that the camera and the radar collect before algorithm processing. It provide the option to users to explore various data usages.

Go to **Configuration → System → 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.

You can check **Enable Stream Rule** to overlay the stream rule on the live view image. Make sure you have checked Sub-stream and selected the sub-stream in the live view.

You can check **Overlay Rule Frame and Target Frame on Background Picture** to overlay rule and target on the sub-stream. Make sure you have checked Sub-stream and selected the sub-stream in the live view.

#### **Face Recognition**

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

#### **Multi-target-type Detection**

The metadata of multi-target-type detection includes the vehicle information and face recognition information, such as the target ID, target coordinate, time information, vehicle moving direction, etc.

#### **Road Traffic**

The metadata of road traffic is detected vehicle information, including the vehicle location in the scene, vehicle ID, license plate, validity, moving direction, country/region, etc.

## **9.13 Time and Date**

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

### **9.13.1 Synchronize Time Manually**

#### **Steps**

1. Go to **Configuration → System → System Settings → Time Settings** .
2. Select **Time Zone**.
3. Click **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.
  - Check **Sync. with computer time** to synchronize the time of the device with that of the local PC.

5. Click **Save**.

### 9.13.2 Set NTP Server

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

#### Before You Start

Set up a 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**.



Server Address is NTP server IP address.

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

### 9.13.3 Synchronize Time by Satellite



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**.

### 9.13.4 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 → DST** .
2. Check **Enable DST**.
3. Select **Start Time, End Time** and **DST Bias**.
4. Click **Save**.

### 9.14 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**.

### 9.15 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**.

### 9.16 Location Settings

Location displays and uploads the current longitude and latitude of the device.

#### 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.

**Longitude&Latitude**

Enable

Location Upload Interval  60 s

Longitude 120°12'20.33"E

Latitude 30°11'16.03"N

**Figure 9-1 Auto Uploading**

## 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.

**Longitude&Latitude**

Enable

Location Upload Interval  60 s

Longitude	East	0	°	0	'	0.000000	"
Latitude	North	0	°	0	'	0.000000	"

**Figure 9-2 Manual Settings**

---

### Note

This function may vary according to different device models.

---

## 9.17 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 with models.

### 9.17.1 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 Light

White light is enabled.

#### Mix 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.

---

### Brightness Adjustment Mode

#### Auto

The brightness adjusts according to the actual environment automatically.

#### Manual

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

### 9.17.2 Window Heater

You can enable the window heater to remove mist around the lens of the device.

Go to **Configuration** → **System** → **System Settings** → **External Device** and select the mode as required.



#### Note

When the supplement light is on, the power of window heater will be decreased.

---

## 9.18 Security

You can improve system security by setting security parameters.

### 9.18.1 Authentication

You can improve network access security by setting RTSP and WEB authentication.

Go to **Configuration** → **System** → **Security** → **Authentication** to choose authentication protocol and method according to your needs.

#### RTSP 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.

#### RTSP 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.

#### WEB 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.

#### WEB 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.



#### Note

Refer to the specific content of protocol to view authentication requirements.

---

### 9.18.2 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 the certain IP addresses.

IP address refers to IPv4.



### Steps

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

**Forbidden** IP addresses in the list cannot access the device.

**Allowed** 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** Modify the selected IP address or IP address range in the list.

**Delete** Delete the selected IP address or IP address range in the list.

5. Click **Save**.

### 9.18.3 Set MAC Address Filter

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

#### Steps

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

**Forbidden** MAC addresses in the list cannot access the device.

**Allowed** 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** Modify the selected MAC address in the list.

**Delete** Delete the selected MAC address in the list.

5. Click **Save**.

### 9.18.4 Set HTTPS

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 → Advanced Settings → HTTPS** .
2. Check **Enable** to access the camera via HTTP or HTTPS protocol.
3. Check **Enable HTTPS Browsing** to access the camera only via HTTPS protocol.
4. Select the **Server Certificate**.

5. Click **Save**.



If the function is abnormal, check if the selected certificate is abnormal in **Certificate Management**.

---

### 9.18.5 Set QoS

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



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

---

#### Steps

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



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 configuration.

---

3. Click **Save**.

### 9.18.6 Set IEEE 802.1X

IEEE 802.1x is a port-based network access control. It enhances the security level of the LAN/WLAN. When devices connect to the network with IEEE 802.1x standard, the authentication is needed.

Go to **Configuration → Network → Advanced Settings → 802.1X**, and enable the function.

Set **Protocol** and **EAPOL Version** according to router information.

#### Protocol

EAP-LEAP, EAP-TLS, and EAP-MD5 are selectable

##### EAP-LEAP and EAP-MD5

If you use EAP-LEAP or EAP-MD5, the authentication server must be configured. Register a user name and password for 802.1X in the server in advance. Input the user name and password for authentication.

##### EAP-TLS

If you use EAP-TLS, input Identify, Private Key Password, and upload CA Certificate, User Certificate and Private Key.

#### EAPOL Version

The EAPOL version must be identical with that of the router or the switch.

### 9.18.7 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 **Configuration → System → Security → Advanced Security** to complete settings.

### 9.18.8 Search Security Audit Logs

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

#### Steps

---



This function is only supported by certain camera models.

---

1. Go to **Configuration → System → 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.

### 9.18.9 Security Reinforcement

Security reinforce is a solution to enhance network security. With the function enabled, risky functions, protocols, ports of the device are disabled and more secured alternative functions, protocols and ports are enabled.

Go to **Configuration → System → Security → Advanced Security** . Check **Security Reinforcement**, and click **Save**.

### 9.18.10 SSH

Secure Shell (SSH) is a cryptographic network protocol for operating network services over an unsecured network.

Go to **Configuration → System → Security → Security Service** , and check **Enable SSH**.

The SSH function is disabled by default.

---

## **Caution**

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

---

## 9.19 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.

---

### 9.19.1 Create Self-signed Certificate

#### Steps

1. Click **Create Self-signed Certificate**.
  2. Follow the prompt to enter **Certificate ID, Country/Region, Hostname/IP, Validity** and other parameters.
- 

#### **Note**

The certificate ID should be digits or letters and be no more than 64 characters.

---

3. Click **OK**.
4. **Optional:** Click **Export** to export the certificate, or click **Delete** to delete the certificate to recreate a certificate, or click **Certificate Properties** to view the certificate details.

### 9.19.2 Create Certificate Request

#### Before You Start

Select a self-signed certificate.

#### Steps

1. Click **Create Certificate Request**.
2. Enter the related information.
3. Click **OK**.

### 9.19.3 Import Certificate

#### Steps

1. Click **Import**.
2. Click **Create Certificate Request**.

3. Enter the **Certificate ID**.
4. Click **Browser** to select the desired server/client certificate.
5. Select the desired import method and enter the required information.
6. Click **OK**.
7. **Optional:** Click **Export** to export the certificate, or click **Delete** to delete the certificate to recreate a certificate, or click **Certificate Properties** to view the certificate details.

---

 **Note**

- Up to 16 certificates are allowed.
  - If certain functions are using the certificate, it cannot be deleted.
  - You can view the functions that are using the certificate in the functions column.
  - You cannot create a certificate that has the same ID with that of the existing certificate and import a certificate that has the same content with that of the existing certificate.
- 

### 9.19.4 Install Server/Client Certificate

#### Steps

1. Go to **Configuration → System → Security → Certificate Management** .
2. Click **Create Self-signed Certificate**, **Create Certificate Request** and **Import** to install server/client certificate.

**Create self-signed certificate**    Refer to [\*Create Self-signed Certificate\*](#)

**Create certificate request**    Refer to [\*Create Certificate Request\*](#)

**Import Certificate**    Refer to [\*Import Certificate\*](#)

### 9.19.5 Install CA Certificate

#### Steps

1. Click **Import**.
2. Enter the **Certificate ID**.
3. Click **Browser** to select the desired server/client certificate.
4. Select the desired import method and enter the required information.
5. Click **OK**.

---

 **Note**

Up to 16 certificates are allowed.

---

### 9.19.6 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**.

## 9.20 User and Account

### 9.20.1 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 of viewing live video, setting PTZ parameters, and changing their own passwords, but 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 **Modify** to change the password and permission.

**Delete** Select a user and click **Delete**.



The administrator can add up to 31 user accounts.

---

3. Click **OK**.

### 9.20.2 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** , click **General** and set **Simultaneous Login**.

### 9.20.3 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.

## Chapter 10 VCA Resource

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

### 10.1 Allocate VCA Resource

VCA resource offers you options to enable certain VCA functions according to actual needs. It helps allocate more resources to the desired functions.

#### Steps

1. Go to **VCA → VCA Resource**.
2. Select desired VCA functions.
3. Save the settings.



#### Note

Certain VCA functions are mutually exclusive. When a certain function or functions are selected and saved, others will be hidden.

---

### 10.2 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 → General VCA Settings** to set **Device No.** and **Camera Info**.

### 10.3 Smart Event



#### Note

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

#### 10.3.1 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 → VCA Resource**, and select **Smart Event**.
- For the device supporting HEOP, go to **VCA → APP** to import and enable **Smart Event**.



## Steps

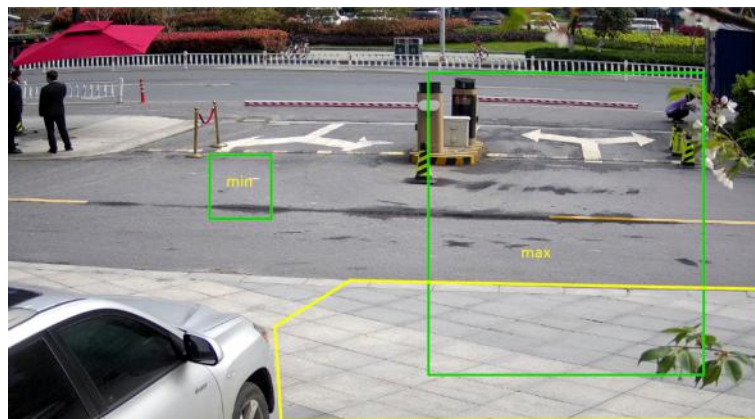
1. Go to **VCA → Smart Event → Intrusion Detection** .
2. Check **Enable**.
3. Select a **Region**. For the detection region settings, refer to ***Draw Area*** .
4. Set the minimum size and the maximum size for the target to improve detection accuracy. Only targets whose size are between the maximum size and the minimum size trigger the detection. For the detail settings, refer to ***Set Size Filter*** .
5. Set rules.

## Sensitivity

Sensitivity stands for the percentage of the body part of an acceptable target that enters the predefined region.  $Sensitivity = 100 - S1/ST \times 100$ . 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

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.



**Figure 10-1 Set Rule**

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

## 10.3.2 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 → VCA Resource** , and select **Smart Event**.
- For the device supporting HEOP, go to **VCA → APP** to import and enable **Smart Event**.

### Steps

1. Go to **VCA → Smart Event → Line Crossing Detection** .
2. Check **Enable**.
3. Select one **Line** and set the size filter. For the size filter settings, refer to ***Set Size Filter*** .
4. Click **Draw Area** and a line with an arrow appears in the live video. Drag the line to the location on the live video as desired.
5. Set rules.

#### 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

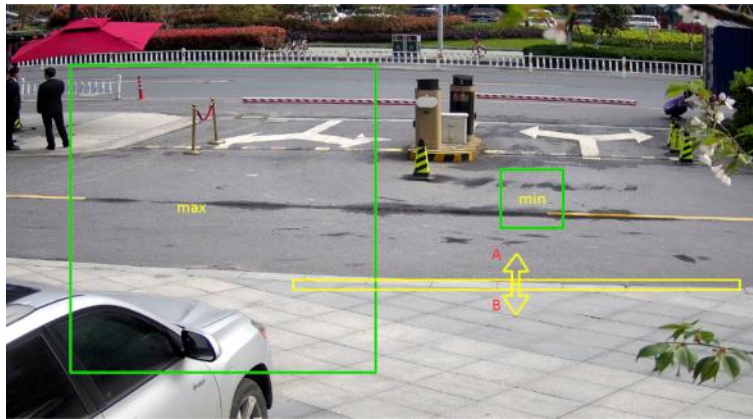
It stands for the percentage of the body part of an acceptable target that goes across the pre-defined line.  $\text{Sensitivity} = 100 - S1/ST \times 100$ . S1 stands for the target body part that goes across the pre-defined line. ST stands for the complete target body. The higher the value of sensitivity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

#### 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.

#### 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**

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

### 10.3.3 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 → VCA Resource** , and select **Smart Event**.
- For the device supporting HEOP, go to **VCA → APP** to import and enable **Smart Event**.

#### Steps

1. Go to **VCA → Smart Event → Region Entrance Detection** .
2. Check **Enable**.
3. Select a **Region**. For the detection region settings, refer to **Draw Area** .
4. 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. For the detail settings, refer to **Set Size Filter** .
5. Set the detection target, sensitivity and the target validity.

#### Sensitivity

It stands for the percentage of the body part of an acceptable target that goes across the predefined region.  $\text{Sensitivity} = 100 - S1/ST \times 100$ . 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.

#### 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.

### 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.

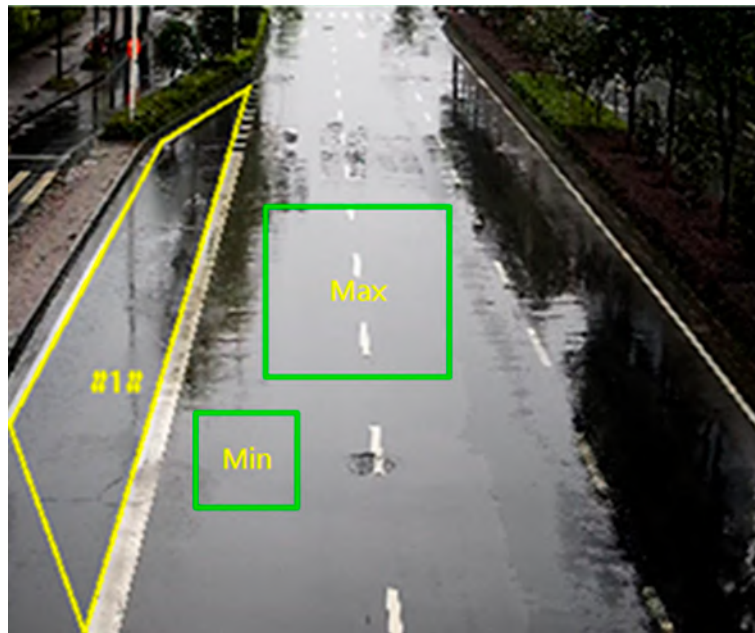


Figure 10-3 Set Rule

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

### 10.3.4 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 → VCA Resource** , and select **Smart Event**.
- For the device supporting HEOP, go to **VCA → APP** to import and enable **Smart Event**.

#### Steps

1. Go to **VCA → Smart Event → Region Exiting Detection**
2. Check **Enable**.
3. Select a **Region**. For the detection region settings, refer to [Draw Area](#) .

4. 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. For the detail settings, refer to **Set Size Filter**.
5. Set the detection target, sensitivity and the target validity.

### Sensitivity

It stands for the percentage of the body part of an acceptable target that goes across the predefined region.  $\text{Sensitivity} = 100 - S1/ST \times 100$ . 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.

### 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.

### 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.

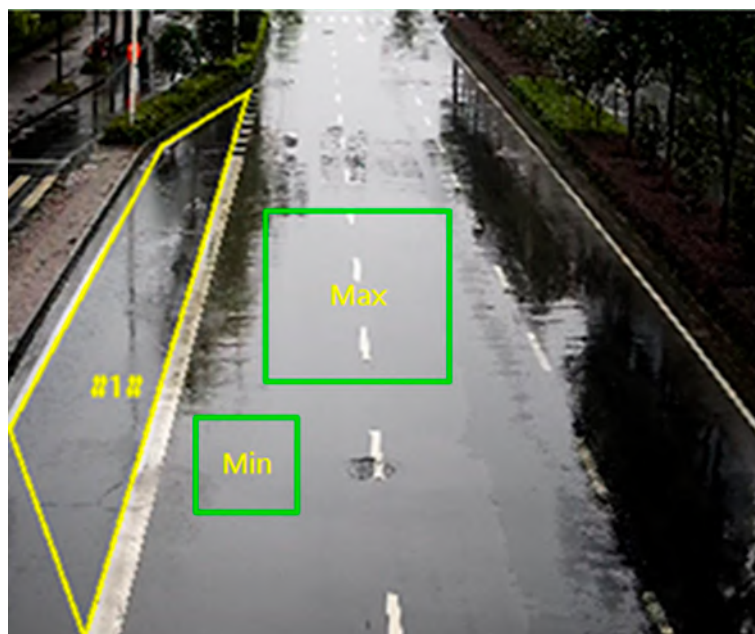


Figure 10-4 Set Rule

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

### 10.3.5 Set Unattended Baggage Detection

It is used to detect the 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** → **VCA Resource** , and select **Smart Event**.

#### Steps

1. Go to **VCA** → **Smart Event** → **Unattended Baggage Detection** .
2. Check **Enable**.
3. Select a region. For the detection region settings, refer to ***Draw Area*** .
4. 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. For the detail settings, refer to ***Set Size Filter*** .
5. Set rules.

#### Sensitivity

Sensitivity stands for the percentage of the body part of an acceptable target that enters the predefined region.  $Sensitivity = 100 - S1/ST \times 100$ . 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.

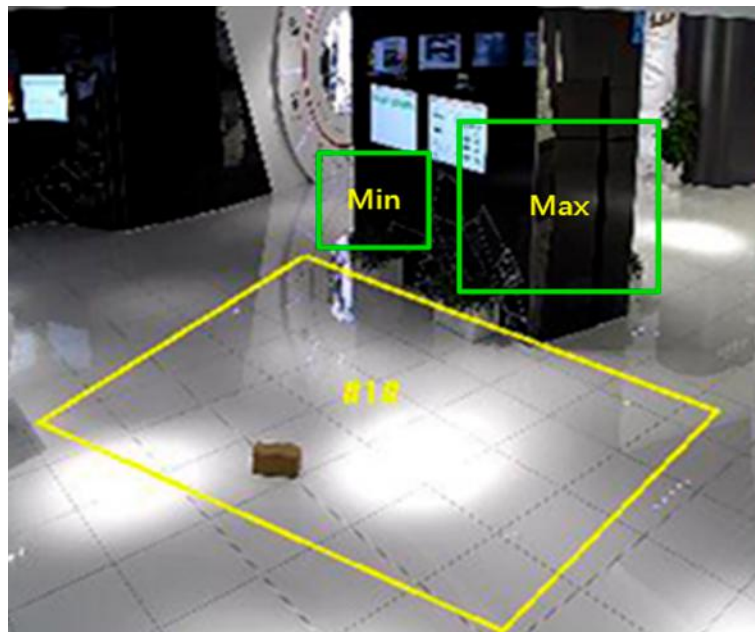


Figure 10-5 Set Rule

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

### 10.3.6 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 → VCA Resource** , and select **Smart Event**.

#### Steps

- 1.** Go to **VCA → Smart Event → Object Removal Detection** .
- 2.** Check **Enable**.
- 3.** Select a region. For the detection region settings, refer to [Draw Area](#) .
- 4.** 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. For the detail settings, refer to [Set Size Filter](#) .
- 5.** Set the rule.

#### Sensitivity



Sensitivity stands for the percentage of the body part of an acceptable target that enters the predefined region.  $\text{Sensitivity} = 100 - S1/ST \times 100$ . 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.

6. **Optional:** Repeat the above steps to set more regions.
7. For the arming schedule settings, see **Set Arming Schedule** . For the linkage method settings, see **Linkage Method Settings** .
8. Click **Save**.



### Note

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

---

### 10.3.7 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 → VCA Resource** , and enable **Smart Event**.

#### Steps

1. Go to **VCA → Smart Event → Loitering Detection** .
2. Check **Enable**.
3. Select a **Region**. For the detection region settings, refer to **Draw Area** .
4. 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. For the detail settings, refer to **Set Size Filter** .
5. 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.  $\text{Sensitivity} = 100 - S1/ST \times 100$ . 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.



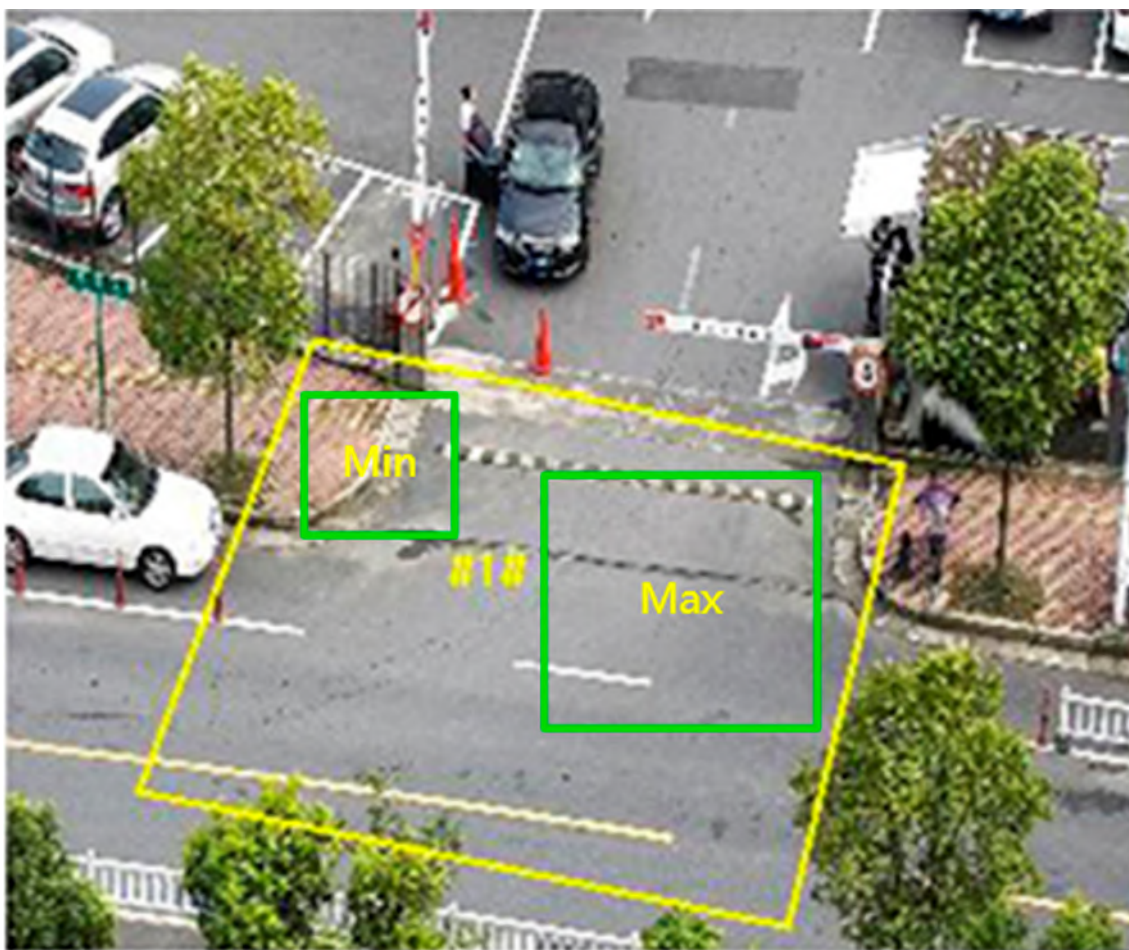


Figure 10-6 Set Rules

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

### 10.3.8 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** → **VCA Resource** , and enable **Smart Event**.

#### Steps

1. Go to **VCA** → **Smart Event** → **People Gathering Detection** .
2. Check **Enable**.

3. Select a **Region**. For the detection region settings, refer to **Draw Area** .
4. Set rules.

### Percentage

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

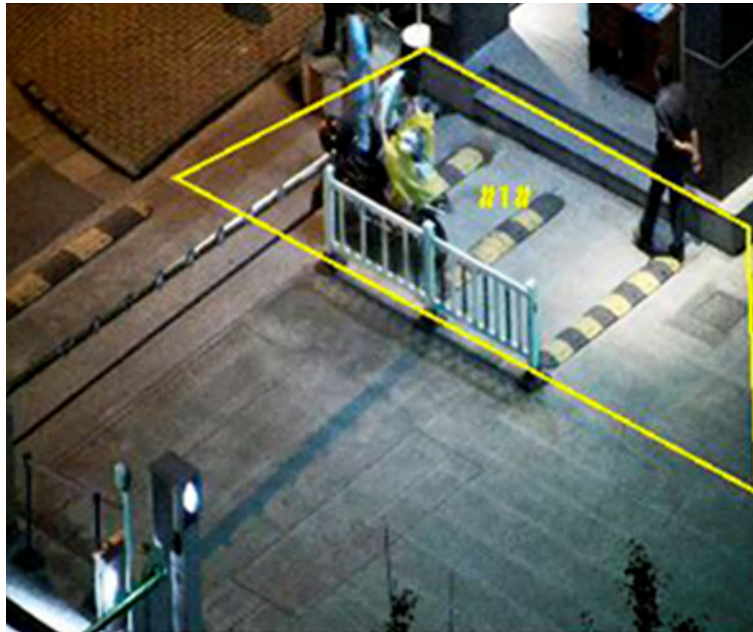


Figure 10-7 Set Rules

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**.

### 10.3.9 Set People Running Detection

When there are people moving at a high speed in a predefined area, the device will consider people are running, and trigger an alarm.

#### Before You Start

Go to **VCA → VCA Resource** , and enable **Smart Event**.

#### Steps

1. Go to **VCA → Smart Event → People Running Detection** .
2. Check **Enable**.
3. Select a **Region**. For the detection region settings, refer to **Draw Area** .

4. 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. For the detail settings, refer to **Set Size Filter** .
5. Set Rules.

### Sensitivity

Sensitivity stands for the percentage of the body part of an acceptable target that enters the pre-defined region.  $\text{Sensitivity} = 100 - S1/ST \times 100$ . 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 10-8 Set Rules

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

### 10.3.10 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 → VCA Resource** , and enable **Smart Event**.

#### Steps

1. Go to **VCA → Smart Event → Parking Detection** .



2. Check **Enable**.
3. Select a **Region**. For the detection region settings, refer to ***Draw Area*** .
4. 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. For the detail settings, refer to ***Set Size Filter*** .
5. 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.  $Sensitivity = 100 - S1/ST \times 100$ . 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.

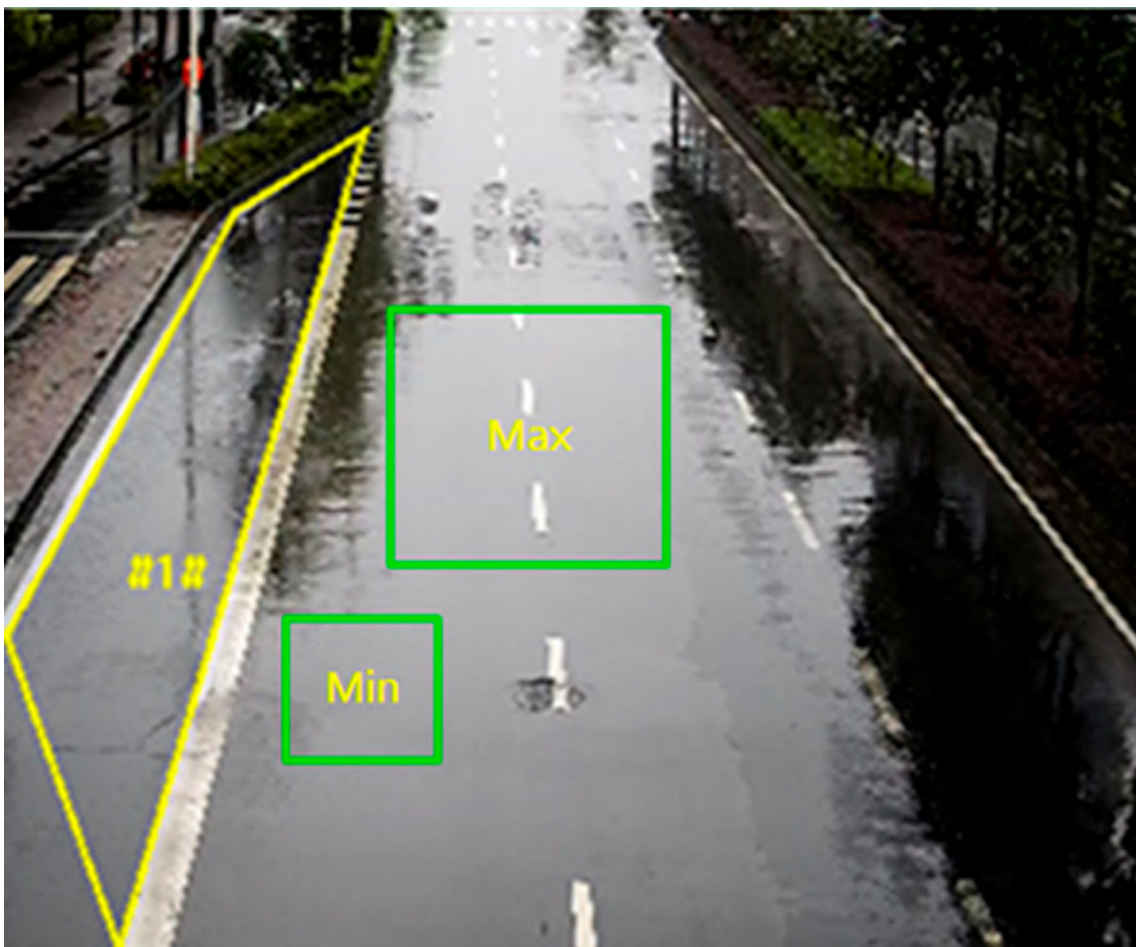


Figure 10-9 Set Rules

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

### 10.4 Face Capture

The device can capture the face that appears in the configured area, and the face information will be uploaded with the captured picture as well.



- For device that supports face capture, you need to enable the function in **VCA Resource**. Refer to **Allocate VCA Resource** for details.
  - Face capture is only supported by certain models.
- 

#### 10.4.1 Set Face Capture

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

##### Before You Start

To enable the function, go to **VCA → VCA Resource** and select **Face Recognition**.

##### Steps

- 1.** Go to **VCA → Face Capture** .
- 2.** For shield region settings, refer to **Set Shield Region** .
- 3.** Select **Rule** and check **Rule**.
- 4.** Input the min. pupil distance in the text field, or click  to draw the min. pupil distance.

##### Min. Pupil Distance

The min. pupil distance refers to the minimum area between two pupils, and it is basic for the device to recognize a face.

- 5.** Input the max. pupil distance in the text field, or click  to draw the max. pupil distance.
- 6.** 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.
- 7.** For the arming schedule settings, refer to **Set Arming Schedule** . For the linkage method settings, refer to **Linkage Method Settings** .
- 8.** Click **Save**.
- 9.** 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 face images in **Picture**. Refer to [\*\*View and Download Picture\*\*](#) for details.

### 10.4.2 Overlay and Capture

Choose to configure capture parameters and the information you want to display on stream and picture.

#### 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.

#### 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 skin tone 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.



#### Background Picture Settings

Comparing 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 need 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.

#### Camera

You can set **Device No.** and **Camera Info.** for the camera, which can be overlaid on captured picture.

#### Text Overlay

You can check desired items and adjust their order to display on captured pictures by   . The content of **Device No.** and **Camera Info** should be on the same page.

### 10.4.3 Face Capture Algorithms Parameters

It is used to set and optimize the parameters of the algorithm library for face capture.

Go to **VCA → Face Capture → Advanced Parameters Configuration** .

#### Face Capture Version

It lists the version of the algorithms library.

#### Capture Parameters

##### Upload Feature

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

##### Best Shot

The best shot after target leaves the detection area.

##### 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.

##### 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.

##### Quick Shot

You can define quick shot threshold and max. capture interval.

##### Quick Shot Threshold

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

##### Remove Duplicated Faces

This function can 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 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

Every face picture is kept in the duplicates removing library for the set update time.

## 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.

## Minimum 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 action. If the detected face stays in the scene for less 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 0s) 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.



## Restore Default

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

## 10.4.4 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 area. Repeat this step above to set more shield regions.
3. **Optional:** Click  to delete the drawn areas.
4. Click **Save**.



## 10.5 Multi-Target-Type Detection (Capture Target With Feature)

Multi-Target-Type Detection is to detect, capture and upload data of targets in multiple types, such as human face, human body, and vehicle.





- The function is only supported by certain device models.
  - For certain device models, you need to enable **Multi-Target-Type Detection (Capture Target with Feature)** on **VCA Resource** page first.
- 

### 10.5.1 Set Multi-Target-Type Detection Rule

After setting the multi-target-type detection rules and algorithm parameters, the device captures targets of multiple types and triggers linkage actions automatically.

#### Steps

1. Go to **VCA → Multi-Target-Type Detection (Capture Target with Feature) → Rule** .
2. Check **Rule**.
3. Click  , and draw a detection area on live image.
4. Enter the min. pupil distance in the text field, or click  to draw min. pupil distance.

#### Min. Pupil Distance

The min. pupil distance refers to the minimum area between two pupils, and it is basic for the device to recognize a face.

5. Set arming schedule. See [Set Arming Schedule](#) .
6. Set linkage method. See [Linkage Method Settings](#) .
7. Click **Save**.

#### What to do next

Go to **Picture** to search and view the captured pictures.

Go to **Smart Display** to see currently captured target pictures.

### 10.5.2 Overlay and Capture

Choose to configure capture parameters and the information you want to display on stream and picture.

#### 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.

#### 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 skin tone 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.



### Background Picture Settings

Comparing 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 need 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.

### Camera

You can set **Device No.** and **Camera Info.** for the camera, which can be overlaid on captured picture.

### Text Overlay

You can check desired items and adjust their order to display on captured pictures by   .  
The content of **Device No.** and **Camera Info** should be on the same page.

## 10.5.3 Multi-Target-Type Detection Algorithm Parameters

It is used to set and optimize the parameters of the algorithm library for Multi-Target-Type Detection.

Go to the **VCA → Multi-Target-Type Detection (Capture Target with Feature) → Advanced Parameters Configuration** for configuration.

### HMS Version

It refers to the current algorithm version, which cannot be edited.

### Restore Defaults

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

## Capture Parameters

### Best Shot

#### Capture Threshold

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

### Remove Duplicated Faces

This function can 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 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

Every face picture is kept in the duplicates removing library for the set update time.

### Face Exposure

Enable the function, and the device automatically adjusts exposure level when human faces appear in the scene.

#### Reference Brightness

It refers to the reference brightness of a face in the face exposure mode. If a face in the actual scene is brighter than the set reference brightness, the device lower the exposure level. If a face in the actual scene is darker than the set reference, the device increases the exposure level.

#### Minimum Duration

The extra time the device keeps the face exposure level after the face disappears in the scene.

### Face Filtering Time

It means the time interval between the camera detecting a face and taking a capture action. If the detected face stays in the scene for less 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.



### Data Upload

Check one or more desired target types for picture uploading.

## 10.5.4 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 area. Repeat this step above to set more shield regions.
3. **Optional:** Click  to delete the drawn areas.
4. Click **Save**.

## 10.6 Face Comparison and Modeling

For certain device models, you need to enable **Face Picture Comparison** on **VCA Resource** page first.



### Note

The function is only supported by certain device models.

---


### 10.6.1 Face Comparison

Face comparison serves the purpose of face recognition by comparing the captured faces with those in face picture library.

### Set Face Picture Library



Face picture library is used to store modeled human faces and information.

### Steps

1. Go to **VCA → Face Picture Library**.
2. Create a face picture library.
  - 1) Click  to add a face picture library.
  - 2) Input library name, threshold and remarks.

#### Threshold

Face similarity higher than the set threshold triggers face picture comparison alarm uploading.

- 3) Click **OK**.
  - 4) **Optional:** Modify a face picture library. Select the desired library and click  and change related parameters.
  - 5) **Optional:** Delete a library. Select the desired library and click .
3. Add face pictures to the library.

---

 **Note**

The picture format should be JPEG, and the size no larger than 300 KB per file.

---

**Add one face picture** Click **Add** and upload the face picture with detailed face information.

**Import face pictures in batch** Click **Import** and select picture path.

 **Note**

- When you import face pictures in batch, the picture name is saved as the face name. For other face information, you should modify one by one manually.
- The verification code for exporting and importing should be a combination of 8 to 16 digits, containing numerics, upper case and lower case letters.

#### 4. **Optional:** Modify face information.

- 1) Select a face picture library.
- 2) Select the target face picture. You can use the search function to locate the picture by inputting search conditions, and click **Search**.
- 3) Click **Modify**.
- 4) Edit detailed information.

---

 **Note**

Face picture is not allowed to change.

---

- 5) Click **OK**.

#### 5. Create models for each face picture in library.

Modeling process builds up face model for each face picture. Face model is required for face picture comparison to take effect.

**Modeling** Select one or more face pictures, and click **Modeling**.

**Batch Modeling** Select a face picture library, and click **Batch Modeling**.

#### 6. **Optional:** Repeat to create more face libraries.

7. Click **Save**.

## Set Face Picture Comparison

The function compares captured pictures with face pictures in library and outputs comparison result. Comparison result can trigger certain actions when arming schedule and linkage method are set.

### Before You Start

You should first create a face picture library and add face pictures. See [Set Face Picture Library](#).

### Steps

1. Go to **VCA → Comparison and Modeling → Face Comparison and Modeling** .
2. Select **Face Picture Comparison**.
3. Check **Enable Face Picture Comparison**.
4. Select a face picture library as the reference.
5. Select desired face information to upload.
6. Select the desired linked comparison alarm.
7. Select a face comparison mode.

**Best Comparison**      The device captures and compares the target face continuously when the face target stays in the detection area, and upload the best scored face picture and related alarm information when the target face leaves the area.

**Quick Comparison**      The device capture and compares the target face when the face grading exceeds the set **Face Grading Threshold for Capture**.

#### **Face Grading Threshold for Capture**

The face grading threshold for the device to judge whether to capture and upload the face or not.

#### **Max. Capture Interval**

The max. interval between two captures when the target is in the detection area. The camera takes the capture when it reaches the max. interval even if the face grading does not reach the set threshold.

#### **Quick Setup Mode**

Select the mode according to actual using scenarios. In custom mode, you can set **Comparison Timeout** and **Comparison Times**.

8. Set arming schedule. See **Set Arming Schedule** .
9. Set linkage method. See **Linkage Method Settings** .

## View Face Comparison Result

### Steps

1. Go to **Application**.
2. Set search condition and click **Counting**.

Matched results are shown in **Face Picture Comparison Statistics** area.

## 10.6.2 Face Modeling

Face modeling serves the purpose of collecting face pictures, creating face models and uploading data to the surveillance center.

### Before You Start

Face Capture or Multi-Target-Type detection should be configured for face picture collection. See ***Face Capture*** or ***Multi-Target-Type Detection (Capture Target With Feature)*** for configuration instructions.

### Steps

1. Go to **Configuration** → **Comparison and Modeling** → **Face Comparison and Modeling** .
2. Select **Face Modeling** to start.
3. Check **Enable Face Modeling**.
4. Set parameters for modeling.

#### Report Face Modeling Information in Multi-Target-Type Capture Alarm

When a person triggers the multi-target-type detection, the alarm information includes the face modeling information of the detected face if checked.

#### Quick Capture

The device starts face modeling when it detects a face which scores higher than the set face grading threshold for capture.

#### Face Grading Threshold for Capture

The face grading threshold for the device to judge whether to capture and upload the face or not. Higher value means better picture quality.

#### Max. Capture Interval

The max. interval between two captures when the target is in the detection area. The camera takes the capture when it reaches the max. interval even if the face grading does not reach the set threshold.

5. Set arming schedule. See ***Set Arming Schedule*** .
6. Set linkage method. See ***Linkage Method Settings*** .

## 10.7 Heat Map

Heat map is a graphical representation of data represented in colors. The heat map function of the camera is used to analyze the visiting times and dwelling time of customers in a configured area.



### Note

The function is only supported by certain device models.

---

### 10.7.1 Set Heat Map

If you want to query statistical data of heat map, please configure the camera first.

### Before You Start

- Go to **VCA → VCA Resource** and enable **Heat Map**.
- Set the storage path first before searching heat map data. For the storage settings, refer to **Storage Settings** .

### Steps

1. Go to **VCA → Heat Map → Heat Map Configuration** .
2. Check **Enable Heat Map** to enable the function.
3. Go to **Area Settings** to draw a detection area.
  - Click **Draw Area**. Draw an area by left clicking the end-points in the live view window, and right click or click **Stop Drawing** to finish the area drawing.
  - Click **Select All** to select the whole live view window as the configured area.
  - Click **Clear** to clear the current drawn area.
4. Configure the parameters for the drawn area.

### Uploading Data Type

#### Dwell Time

It refers to the target's dwelling time in the detection area.

#### Dwell Time and People Number

It refers to the target's dwelling time in the detection area and the people number in the detection area.

### Expected Number of People

It refers to the max. number of people for heat map counting.

#### ON

It refers to that the camera will compare the max. number of the people in the actual scene with the set expected number of people and take the larger one as the max. number of people for heat map.

#### OFF

It refers to that the camera will take the actual number of people as the max. value of heat map.

5. Go to **Arming Schedule** tab, and click-and-drag the mouse on the time bar to set the arming schedule. For the arming schedule settings, refer to **Set Arming Schedule** .
6. Go to **Linkage Method** tab, and select the linkage method by checking the checkbox of notify the surveillance center. For the linkage settings, refer to **Linkage Method Settings** .
7. Click **Save**.

### What to do next

The heat map statistics will be calculated under **Application** tab. Go to **Application** to check the heat map statistics.



### 10.7.2 View Heat Map Data

Heat map can observe and calculate the people flow in a predefined region and display the flow statistics in graphical form. It can be applied to scenes of large passenger flow such as malls, supermarkets, and museums. You can find the customers' preferences to adjust the places of merchandise through heat map.

#### Before You Start

Finish heat map configuration. For details, refer to [Set Heat Map](#) .

#### Steps

1. Go to **Application** → **Heat Map Statistics** .
2. Select **Report Type**. Daily report, weekly report, monthly report, and annual report are selectable.
3. Select **Statistics Type**. By dwell time and by people number are selectable.
4. Select **Statistics Time**.
5. Click **Counting**.

Daily report calculates the data on the date you selected; weekly report calculates the week data your selected date belongs to; monthly report calculates the data for the month your selected date belongs to; and the annual report calculates the data for the year your selected date belongs to.

#### Example

After the calculating, you can view the data in the space heat map and time heat map.

#### Space Heat Map

Perform a statistical analysis on the cumulative dwelling of people in different areas in the entire image.

Different heat values correspond to different colors, among which red (255, 0, 0) represents the highest heat, and blue (0, 0, 255) represents the lowest heat. The highest heat value and lowest heat value are divided into N levels, corresponding to different colors.

#### Time Heat Map

Perform a statistical analysis on the total dwelling time of all people in the entire image.

The time heat map is presented in a line chart, and you can click **Export** to export the data in an excel file.

## 10.8 People Management

People management is used to detect and analyze people 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 Resource** page first.
  - The function is only supported by certain device models.
- 

## 10.8.1 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 exception 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 **Set Waiting Time Detection** to set waiting time exception detection.

### Set People Density

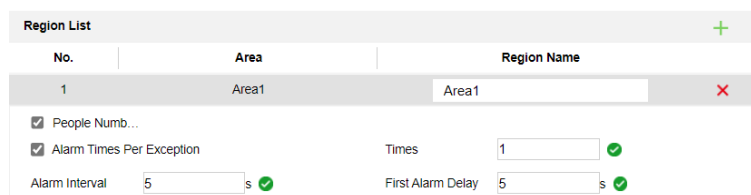
This function detects the level of people density in the set rule region.

#### Before You Start

Go to **VCA → VCA Resource** and enable **People Management**.

#### Steps

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



Region List			+
No.	Area	Region Name	
1	Area1	Area1	✖

People Numb...  
 Alarm Times Per Exception      Times: 1 ✓  
 Alarm Interval: 5 s ✓      First Alarm Delay: 5 s ✓


**Figure 10-10 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 detection 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 Detection** to enable the function.

People Density Detection ⓘ  
 Scheduled Uploading  
 Statistics Cycle   
 Number of People Change Upload  
 Congestion Level Upload

Density Level		
Level	Number of People(1-128)	Custom Name
1		
2		
3		

**Figure 10-11 People Density Detection**

**Scheduled Uploading**

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

**Number of People Change Upload**

The device uploads the people 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. Click **Save**.

7. Set arming schedule. See [Set Arming Schedule](#) .

8. Set linkage method. See [Linkage Method Settings](#) .

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](#) .

### What to do next

After configuration, you can view people density in the live view, and the overlaid information will be displayed in the live view.

## Note

To display the overlaid information, make sure that **Display POS Information in Configuration → Local → Live View Parameters** has been enabled.

## Set People Exception Detection

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

### Before You Start

Go to **VCA → VCA Resource** and enable **People Management**.

### Steps

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

Region List				+
No.	Area	Region Name		
1	Area1	Area1		×
<input checked="" type="checkbox"/> People Numb...				
<input checked="" type="checkbox"/> Alarm Times Per Exception		Times	1	✓
Alarm Interval	5	s	✓	
First Alarm Delay	5	s	✓	

Figure 10-12 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.

- 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

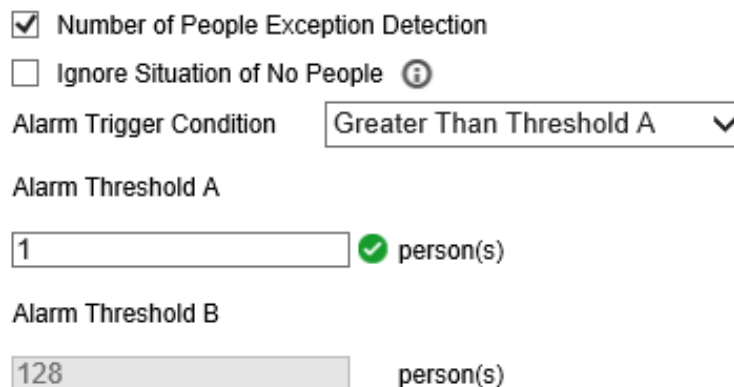
- Up to 8 regions can be set at the same time.
- Try not to overlap the regions.

- Check **Number of People Exception Detection**, 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 is 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.
- 



The screenshot shows the configuration interface for 'Number of People Exception Detection'. It includes a checked checkbox for 'Number of People Exception Detection' and an unchecked checkbox for 'Ignore Situation of No People' with an information icon. Below these are two sections: 'Alarm Trigger Condition' with a dropdown menu set to 'Greater Than Threshold A', and 'Alarm Threshold A' with a text input field containing '1' and a green checkmark icon followed by 'person(s)'. The second section is 'Alarm Threshold B' with a text input field containing '128' and 'person(s)'.

Figure 10-13 Number of People Exception Detection

- Click **Save**.
- Set arming schedule. See [Set Arming Schedule](#) .
- Set linkage method. See [Linkage Method Settings](#) .
- Optional:** Set text overlay. For detailed settings, refer to [Overlay and Capture](#) .
- 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 → VCA Resource** and enable **People Management**.

### Steps

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

Region List <span style="float: right;">+</span>		
No.	Area	Region Name
1	Area1	Area1 <span style="float: right;">✖</span>
<input checked="" type="checkbox"/> People Numb...		
<input checked="" type="checkbox"/> Alarm Times Per Exception		
		Times <input style="width: 50px;" type="text" value="1"/> <span style="float: right;">✔</span>
Alarm Interval	<input style="width: 50px;" type="text" value="5"/> s <span style="float: right;">✔</span>	First Alarm Delay <input style="width: 50px;" type="text" value="5"/> s <span style="float: right;">✔</span>

**Figure 10-14 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

Waiting time exception detection 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 **Waiting Time Exception Detection**, and set **Alarm Trigger Condition** and **Alarm Threshold**.

Waiting Time Exception Detection ⓘ

Alarm Trigger Condition  ▼

Alarm Threshold A  s

Alarm Threshold B  s

Figure 10-15 Waiting Time Exception Detection

6. Click **Save**.
7. Set arming schedule. See [Set Arming Schedule](#) .
8. Set linkage method. See [Linkage Method Settings](#) .
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](#) .

### 10.8.2 On/Off Duty Detection

When a target in a predefined area triggers an on/off duty rule, the device can take linkage actions. It can detect the on/off duty status and people number changes in a predefined area.

#### Before You Start

Go to **VCA → VCA Resource** , and select **People Management**.

#### Steps

1. Go to **VCA → People Management → On/Off Duty Detection** .
2. Click **+** and edit the rule name according to your need.
3. Select a rule and set **People On Duty**, **Mode**, and **Absence Duration**.

#### Absence Detection

If the people number in the set region is less than the value of person on duty and the lasting time is longer than the absence duration, an alarm is triggered.

#### On/Off Duty Detection

It includes on/off duty situation detection.

#### People Number OSD

It overlays the real-time people number on the live view. You can adjust the OSD location by dragging the mouse.



**Figure 10-16 Set Rules**

4. Click to draw a region in the live view window.

---

**Note**

Try not to overlap the regions.

5. For the arming schedule settings, refer to [Set Arming Schedule](#) . For the linkage method settings, refer to [Linkage Method Settings](#) .
6. **Optional:** You can set the parameters of multiple areas by repeating the above steps.
7. Click **Save**.
8. **Optional:** Set text overlay. For detailed settings, refer to [Overlay and Capture](#) .
9. **Optional:** View version and set filtering condition. For detailed settings, refer to [Advanced Settings](#) .

### 10.8.3 Queue Management

It is used to count queuing-up people number and waiting time of each person.

Refer to [Set Regional People Queuing-Up](#) to set regional people queuing-up detection.

Refer to [Set Waiting Time Detection](#) to set waiting time detection.

Refer to [Queue Management Statistics](#) to set and view queue management statistics.

---

**Note**

Queue management is only supported by certain models.

---

### Set Regional People Queuing-Up

It is used to count queuing-up persons in defined regions. Alarms are triggered when the alarm threshold condition and the alarm trigger are both met.

#### Before You Start

To enable the function, go to **VCA → VCA Resource** , and enable **People Management**.

#### Steps

1. Go to **VCA → People Management → Queue Management** .
2. Select **Regional People Queuing-Up**.



3. Select an OSD color and click **Add Region** to draw a detection region. Set **Region Name** and **Alarm Interval**. Repeat this step above to set more areas.

### Alarm Interval

During the set alarm interval, alarms of the same type only trigger one notification.



Figure 10-17 Set Regional People Queuing-Up



### Note

Try not to overlap the regions.

4. Set rules for regional people queuing-up.

### People Number OSD

It displays people number in the live view window.

### Ignore Situation of No People

The device will not trigger an alarm when there is no people in the scene. This function can filter the potential alarm condition under which the value is less than the set alarm threshold and no people is in the scene.

### Alarm Trigger Condition and Alarm Threshold

When the people number in the set region reaches alarm threshold and triggering condition, an alarm will be triggered.

5. For the arming schedule settings, refer to ***Set Arming Schedule*** . For the linkage method settings, refer to ***Linkage Method Settings*** .
6. **Optional:** Set scheduled data uploading. Both real-time uploading and scheduled uploading are supported.

### Real-Time Uploading

Check **Real-Time Upload** and the device uploads the detected target ID, waiting duration, and regional people number in real-time.

### Scheduled Uploading

The device uploads the people number whose waiting duration is equal to or larger than the **Minimum Duration of Stay** at the integral point.

For example, if the minimum duration of stay is set as 10 sec and two regions are covered, the device, at the integral point, will upload the people number when the duration of stay is equal to or longer than 10 sec in two regions respectively.

7. Click **Save**.

8. **Optional:** Set text overlay. For detailed settings, refer to [\*Overlay and Capture\*](#) .

9. **Optional:** View version and set filtering condition. For detailed settings, refer to [\*Advanced Settings\*](#) .

### What to do next

Go to **Application** → **Queue Management Statistics** to view detailed data analysis. For detailed settings, refer to [\*Queue Management Statistics\*](#) .

## Set Waiting Time Detection

It is used to count the waiting time of each person that enters a detection area. Alarms are triggered when the alarm threshold condition and the alarm trigger are both met.

### Before You Start

To enable the function, go to **VCA** → **VCA Resource** , and enable **People Management**.

### Steps

1. Go to **VCA** → **People Management** → **Queue Management** .
2. Select **Waiting Time Detection**.
3. Select a color and click **Add Region** to draw a detection region. Set **Region Name** and **Alarm Interval**. Repeat this step above to set more areas.

### Alarm Interval

During the set alarm interval, alarms of the same type only trigger one notification



**Figure 10-18 Set Waiting Time Detection**

4. Set **Alarm Trigger Condition** and **Alarm Threshold**. When the waiting time in the set region reaches alarm threshold and triggering condition, an alarm will be triggered.
5. For the arming schedule settings, refer to [Set Arming Schedule](#) . For the linkage method settings, refer to [Linkage Method Settings](#) .
6. Click **Save**.
7. **Optional:** Set text overlay. For detailed settings, refer to [Overlay and Capture](#) .
8. **Optional:** View version and set filtering condition. For detailed settings, refer to [Advanced Settings](#) .

### What to do next

Go to **Application** → **Queue Management Statistics** to view detailed data analysis. For detailed settings, refer to [Queue Management Statistics](#) .

## Queue Management Statistics

Queue management supports data analysis and report output.

## Before You Start

For queue management settings, refer to **Set Regional People Queuing-Up** and **Set Waiting Time Detection** .

- Select **Queuing-Up Time Analysis** and **Regional Comparison** to compare queuing-up people number of different regions.
- Select **Queuing-Up Time Analysis** and **Multi-Level Comparison** to compare queuing-up people number of different waiting time levels.
- Select **Queue Status Analysis** and **Regional Comparison** to compare the time and duration that a queue stays at a certain length in different regions.
- Select **Queue Status Analysis** and **Multi-Level Comparison** to compare the time and duration of the queue at different queue length levels.

## Steps

---



### Note

With an on-board memory card installed, the device can save up to one month's data. With NO memory card installed, the device can only save up to one week's data.

---

1. Go to **Application → Queue Management Statistics** .

Search Conditions

Queuing-Up T... Queue Status ...

Statistics Type

Regional Comparison

Multi-Level Comparison

Region

Region1

Region2

Region3

Region4

Region5

Region6

Region7

Region8

Waiting Time Level

shorter than 300 s

300 - 600 s

longer than 600 s

Report Type

Daily Report

Statistics Time

Start Time

2022-07-24

Counting

Figure 10-19 Queue Management Statistics

2. Select the analysis mode.  
**Queuing-Up Time Analysis**

Queuing-Up time analysis calculates people number of different waiting time levels.

### **Queue Status Analysis**

Queue status analysis calculates the time and duration that a queue stays a certain length.

#### **3. Select **Statistic Type**.**

##### **Regional Comparison**

Multiple regions and one level can be selected for analysis, and an analysis chart can be drawn.

##### **Multi-Level Comparison**

Multiple levels and regions can be selected for analysis, and one analysis chart is drawn for each region.

#### **4. Check one or more regions.**

#### **5. Set the waiting time level. Check one desired range and enter values.**

#### **6. Select **Report Type** and **Statistics Time**.**

#### **7. Click **Counting** to generate the report.**

### **10.8.4 Advanced Settings**

Go to **VCA → People Management → Advanced Parameters Configuration → Advanced** . Set the parameters and click **Save**.

#### **Version**

It stands for the current algorithm version.

#### **Overlay Intelligent Information**

Overlay the related intelligent information or POS information in the video.

#### **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 the 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.

##### **Validity**

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 the professionals. The filter settings can adjust the algorithm for detection to change the detection range, sensitivity, etc.

---

## 10.8.5 Overlay and Capture

Go to **VCA → People Management → Advanced Parameters Configuration → Overlay and Capture** . Check the information you want to overlay on the captured pictures. You can also click   to adjust the order.

## 10.9 Hard Hat Detection

This function detects targets in the set detection region who do not wear a hard hat and triggers an alarm.

---

### Note

- For certain device models, you need to select **AI Open Platform** on **VCA Resource** page first.
  - The function is only supported by certain device models.
- 

### 10.9.1 Set Hard Hat Detection

#### Before You Start

Go to **VCA → VCA Resource** , and select **AI Open Platform**.

#### Steps


1. Go to **VCA → Hard Hat Detection → AI Open Platform** .
2. Drag **Hard Hat Detection** model in **Model Library** to **Engine** to bind them.
3. Click **Hard Hat Detection** model in **Engine** and click **Task** to enable the function.
4. Select a **Task Type**.

**Live Video Analysis**      The device analyzes the live video to realize target detection, tracking 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.
6. Click **Configuration** besides **Arming Settings** to set 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 a linked channel.

- 1) Click **Linked Channel** to select a channel.
- 2) Click  of the linked channel to set rules.
- 3) Click **Add Rule**. Check **Enable** and rename the rule.
- 4) Select a **Rule Type**.
- 5) Set the detection rule and draw rule region or line.

---

#### **Note**

- Draw rule region: 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.
- Draw rule: 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.

- 
- 6) Click **OK**.

### 8. Click **Save**.

## 10.10 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 select **People Counting** on **VCA Resource** page first.
- The function is only supported by certain device models.

---

### 10.10.1 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 region, triggers linkage actions and uploads data automatically.

#### **Steps**

1. Go to **VCA** → **People Counting** → **Rule** .
2. Check **Enable People Counting** to enable the function.
3. Click  to draw the polygon detection region (count area). Left-click end-points in the live view window, and right-click to finish the drawing.
4. Click  to draw the detection line. The arrow shows entering direction, you can click  to change the direction.

---

#### **Note**


In order to improve the counting accuracy, please draw the detection region according to the following rules.

- The detection region needs to cover the people entering and exiting access.
- The detection line must be completely contained within the red detection region and perpendicular to the path of the person passing through.

**5. Optional:** Adjust the detection region and detection line.

Click  Clear the selected detection region or line.

Click  Clear all detection regions and lines.

**6. Optional:** Click  to reset counter. All the counting data related to the current settings count areas will be reset to zero.

**7. Optional:** Repeat the above steps to draw up to 3 detection regions and corresponding detection lines.

**8.** Set arming schedule. See [\*\*\*Set Arming Schedule\*\*\*](#) .

**9.** Set linkage method. See [\*\*\*Linkage Method Settings\*\*\*](#) .

**10.** Click **Save**.

**11. Optional:** Set people counting data uploading parameters. See [\*\*\*People Counting Data Uploading\*\*\*](#) .

**12. Optional:** Set people counting advanced parameters. See [\*\*\*People Counting Advanced Parameters\*\*\*](#) .

### Result

- If the target crosses the detection region along the entering direction and crosses the detection line, then it is counted as the entering number.
- If the target crosses the detection region along the exiting direction and crosses the detection line, then it is counted as the exiting number.

### What to do next

Go to **Application** to view detailed people counting data analysis. For detailed settings, refer to [\*\*\*View People Counting Data\*\*\*](#) .

## 10.10.2 People Counting Data Uploading

Go to **VCA** → **People Counting** → **Data Uploading** , set the data uploading parameters and click **Save**.

### Real-Time Upload Data

Send the real-time data to the platform.

### Data Statistics Cycle

Set the data statistic counting cycle.



### 10.10.3 People Counting Advanced Parameters

By setting the advanced parameters, the people counting accuracy and the display of people counting data can be improved.

#### People Counting Version

It stands for the current algorithm version.

#### Overlay Intelligent Information

Overlay the related intelligent information or POS information in the video.

#### Flow Overlay

Overlay the people counting data on the image, 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 set the time for the daily reset.

#### Manual Reset

Clear the current people counting data.

#### Clear Storage Data

Clear all people counting data stored in the device. This function must be used with caution.

### 10.10.4 View People Counting Data

You can view the people counting data stored in the device through the table, bar chart and line chart.

#### Before You Start

Set people counting rule first.

#### Steps

1. Go to **Application** → **People Counting Statistics** .
2. Set **Report Type**, **Statistics Type** and **Start Time**.
3. Click **Counting**.

You can select **Table**, **Bar Chart** and **Line Chart** to view the data, and you can export the people counting data through Excel.

## 10.11 Road Traffic

Vehicle Detection and Mixed-traffic Detection are available for the 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 Resource** page first.
  - This function is only supported by certain device models.
- 

### 10.11.1 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** → **VCA Resource** , and select **Road Traffic**.

#### Steps

1. Go to **VCA** → **Road Traffic** → **Detection Configuration** , and select **Vehicle 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.
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 **Region** and **Country/Region**.

7. Select the license plate information upload mode.

- |                      |  |
|----------------------|--|
| <b>Entrance/Exit</b> | The license plate information of the detected vehicle will be uploaded when the vehicle passes the detection area and triggers the detection in entrance/exit. |
| <b>City Street</b>   | The license plate information of the detected vehicle will be uploaded when the vehicle passes the detection area and triggers the detection in city streets.  |
| <b>Alarm Input</b>   | 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 can not be used for other basic events.
- When **Alarm Input** is selected and saved, previously configured linkage method for A<-1 will be canceled.

---

8. Select the **Detection mode**.

9. Check **Remove Duplicated License Plates** and set the **Time Interval**. The default time interval is 4 minutes.

10. Set 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*** .

### **Wiegand Linkage**

If enabled, the device can send reports to the third-party platform through the Wiegand protocol. This function is only supported by certain camera models.

---

### Note

- When Wiegand protocol is enabled in **Configuration → System → System Settings → Wiegand** , **Wiegand Linkage** will be enabled synchronously and cannot be configured.
- When Wiegand protocol is disabled in **Configuration → System → System Settings → Wiegand** , **Wiegand Linkage** will be disabled synchronously and cannot be configured.
- For Wiegand protocol, refer to ***Wiegand*** for detailed settings.

---

11. Click **Save**.

## 10.11.2 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 → VCA Resource** , and select **Road Traffic**.

### **Steps**

1. Go to **VCA → Road Traffic → Detection Configuration** , 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.
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 **Region** and **Country/Region**.

7. Check **Remove Duplicated License Plates** and set **Time Interval**. The default time interval is 4 minutes.

8. Set 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** .

### **Wiegand Linkage**

If enabled, the device can send reports to the third-party platform through the Wiegand protocol. This function is only supported by certain camera models.

---

### Note

- When Wiegand protocol is enabled in **Configuration → System → System Settings → Wiegand** , **Wiegand Linkage** will be enabled synchronously and cannot be configured.
- When Wiegand protocol is disabled in **Configuration → System → System Settings → Wiegand** , **Wiegand Linkage** will be disabled synchronously and cannot be configured.
- For Wiegand protocol, refer to **Wiegand** for detailed settings.

9. Click **Save**.

---

## 10.11.3 Uploading Pictures Settings

You can set the image parameters of the captured images in vehicle detection and mixed-traffic detection.

Go to **VCA → VCA Resource** , and select **Road Traffic**.

Go to **VCA → Road Traffic → Picture** .

### **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 **Picture Capture Interval** and set the interval.

### **License Plate Enhancement**

The larger the value is, the clearer the license plate is, but larger storage space is also required.

Check **License Plate Enhancement** and set the level. The default level is 50.



---

 **Note**

Only certain device models support this function.

---



### Overlay

You can overlay camera, device or vehicle information on the captured image and click   to adjust the order of overlay texts.

### 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](#).

---

### 10.11.4 Advanced Parameters Configuration

Go to **VCA → VCA Resource**, and select **Road Traffic**.

Go to **VCA → Road Traffic → Advanced Parameters Configuration**. Set the parameters and click **Save**.

#### Version

It stands for the current algorithm version.

#### Overlay Intelligent Information

Overlay the related intelligent information or POS information in the video.

### 10.11.5 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 **Browse** to open the PC local directory.
2. 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 blacklist & 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.

3. Click **Import** to import the selected file.
4. Click **Export** to open the PC local directory.
5. Select a directory in your PC local directory.
6. Name the file in the file name text field.
7. Click **Save**.

### 10.11.6 Vehicle Counting Statistics

You can set the vehicle counting parameters in vehicle detection and mixed-traffic detection.

Go to **VCA → VCA Resource** , and select **Road Traffic**.

Go to **VCA → Road Traffic → Vehicle Counting Statistics** . Check **Enable** to enable the function. Set the parameters and click **Save**.

#### Counting Type

Select the counting vehicle type as required.

#### Flow Overlay

Select the overlaid vehicle flow direction type, **None**, **All**, and **Forward/Reverse** are selectable.

Check **Enable OSD Overlay** and select **Flow Overlay**. The counting data will be displayed on the image, and you adjust the display position of counting data in the live view image.

---

### Note

OSD overlay only counts the number of vehicle 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 set the time for the daily reset.

#### Manual Reset

Clear the current counting data.

#### Real-Time Upload

Check **Real-Time Upload** and the device uploads the counting data in real-time.

## Chapter 11 Smart Display

This function displays real time pictures captured by smart functions and analyzes the target in real time.




---

### Note



The function is only supported when certain smart functions are enabled.

---

### Live View Parameter

Icon	Function
	Capture a picture.
	Start or stop recording.
	Adjust the volume of live view. Move the slider to right to turn up the volume and left to turn down the volume. Move to the left end to mute the live view.

### Download Display Pictures

Click  and the device stores captured pictures to the browser cache. Hover the pointer over the icon to see the number of pictures in the cache. Click  again to download the pictures in a package.


---

### Note


The browser cache has a limited size. The recommended number of pictures to download is no more than 200.

---

### Layout

Click  and choose **Layout**. Check the display content you need to add it to the smart display page. When real-time analyze is selected, you can choose the contents you want to display.

### Detect Feature

Click  and choose **Detect Feature**. Check the corresponding checkbox to display the features of the detection target.

## 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 EPTZ**.
3. The default **Stream Type** is **Third Stream** and cannot be configured.
4. Select **Patrol** in **Application**.
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 EPTZ**.
3. The default **Stream Type** is **Third Stream** and cannot be configured.
4. Select **Auto-tracking** in **Application**.
5. Click **Detection Area** to start drawing.
6. Click on the live video to specify the four vertexes of the detection area, and right click to complete drawing.
7. 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 =  $100 - S1/ST \times 100$ . 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.

**8.** Click **Save**.

## Appendix A. Device Command

Scan the following QR code to get device common serial port commands.

Note that the command list contains the commonly used serial port commands for all Hikvision network cameras.



## Appendix B. Device Communication Matrix

Scan the following QR code to get device communication matrix.

Note that the matrix contains all communication ports of Hikvision network cameras.



## Appendix C. FAQ

Scan the following QR code to find the frequently asked questions of the device.

Note that some frequently asked questions only apply to certain models.





See Far, Go Further