



iDS-2CD7xxG0-xxxxx
Network Bullet Camera

User Manual

Legal Information

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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/>).

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Symbol Conventions

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

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

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.

Transportation

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

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.
- Make sure the plug is properly connected to the power socket.
- DO NOT connect multiple devices to one power adapter, to avoid overheating or fire hazards caused by overload.

System Security

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

Battery

- Improper use or replacement of the battery may result in explosion hazard.
- Replace with the same or equivalent type only. Dispose of used batteries in conformance with the local codes.

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.

Environment

- Make sure the running environment meets the requirement of the device. The operating temperature shall be -30° to 60° C (-22° to 140° F), and the operating humidity shall be 95% or less, non-condensing.
- 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.

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

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Chapter 1 System Requirements

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:** 1 GB or more
- **Display:** 1024×768 resolution or higher
- **Web Browser:** Internet Explorer 8.0 or above version, Mozilla Firefox 30.0 to 51, or Google Chrome 31 to 51.

Chapter 2 Device Activation and Accessing



NOTE: 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.

See the software client user manual for details about the client software activation.

2.1 Activate the Device via SADP

Search and activate the online devices via SADP software.

Before You Start

Access 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.



STRONG PASSWORD RECOMMENDED – We highly recommend that you create a strong password of your own choosing (using a minimum of eight 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. We also recommend that you reset your password regularly. Especially in high security systems, resetting the password monthly or weekly can better protect your product.

Proper configuration of all passwords and other security settings is the responsibility of the installer and/or end-user.

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 a 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.



STRONG PASSWORD RECOMMENDED – We highly recommend that you create a strong password of your own choosing (using a minimum of eight 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. We also recommend that you reset your password regularly. Especially in high security systems, resetting the password monthly or weekly can better protect your product.

Proper configuration of all passwords and other security settings is the responsibility of the installer and/or end-user.

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 a Web browser.

2.3.1 Plug-in Installation

Certain operation systems and Web browsers 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"> • Internet Explorer 8+ • Google Chrome 57 and earlier version • Mozilla Firefox 52 and earlier version 	Follow pop-up prompts to complete plug-in installation.
	<ul style="list-style-type: none"> • Google Chrome 57+ • Mozilla Firefox 52+ 	Click  Download Plug-in to download and install plug-in.
Mac OS	<ul style="list-style-type: none"> • Google Chrome 57+ • Mozilla Firefox 52+ • Mac Safari 16+ 	Plug-in installation is not required. Go to Configuration → Network → Advanced Settings → Network Service 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 restrictions, refer to actual device.



NOTE: The camera supports only Windows and Mac OS system and does not support Linux system.

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.



NOTE: You can reset the password by setting the security question or e-mail.

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

Security Question: You can set the account security during the activation, or you can go to **Configuration** → **System** → **User Management**, click **Account Security Settings**, select the security question, and input your answer.

You can click **Forget Password** and answer the security question to reset the admin password when accessing the device via a browser.

Email: You can set the account security during the activation, or you can go to **Configuration** → **System** → **User Management**, click **Account Security Settings**, and input your e-mail address to receive the verification code during the recovering operation process.

Illegal Login Lock

It helps to improve security when accessing the device via the Internet.

The admin user can set the login attempts with the wrong password. When your login attempts with the wrong password reach the set number of times, the device locks.

Go to **Configuration** → **System** → **Security** → **Security Service**, and enable **Enable Illegal Login Lock**, and set the number of illegal login attempts.

Chapter 3 Live View

Introduction to live view parameters, function icons, and transmission parameters settings.

3.1 Live View Parameters

The supported functions vary by model.

3.1.1 Enable and Disable Live View

This function is used to quickly enable or disable live view of all channels.

- Click  to start live view of all channels.
- Click  to stop live view of all channels.

3.1.2 Adjust Aspect Ratio

Steps

1. Click **Live View**.
2. Click  to select the aspect ratio.
 - : 4:3 window size
 - : 16:9 window size
 - : Original window size
 - : Self-adaptive window size
 - : Original ratio window size

3.1.3 Live View Stream Type

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

3.1.4 Select 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.

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 other browsers, you can select Webcomponents, QuickTime, VLC, or MJPEG.

3.1.5 Window Division

- : 1 × 1 window division
- : 2 × 2 window division
- : 3 × 3 window division
- : 4 × 4 window division

3.1.6 Light

Click  to turn on or turn off the illuminator.

3.1.7 Count Pixel

Use 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

Use to see a detailed information of any region in the image.

Steps

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

3.1.9 Auxiliary Focus

Use for motorized device to improve the image if the device cannot focus clearly.

For devices that support ABF, adjust the lens angle, then focus and click the ABF button on the device. The device can focus clearly.



NOTE: Click  to focus automatically.

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 devices equipped with a motorized lens. The function can reset the lens when long time zoom or focus results in blurred image. This function varies by model.

- **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 the lens automatically during the configured time periods.

3.1.11 Quick Set Live View

Offers 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: This function is supported only 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.

3.1.13 Conduct 3D Positioning

3D positioning relocates 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 a stable network environment.
 - **UDP**
UDP is suitable for an unstable network environment that does not demand high video fluency.
 - **MULTICAST**
Multicast is suitable for situations where 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 situations in which a 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 a poor network environment, the device cannot ensure video fluency even if the fluency is enabled.

- **Custom**

- You can set the frame rate manually. In a 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**.

3.3 Set Smooth Streaming

This function tackles latency and network congestion caused by unstable network condition, and keeps the live view stream on the Web browser or the client software smooth.

Before You Start

Add the device to your client software and select NPQ protocol in client software before configuring the smooth streaming function.

Be sure that the **Bitrate Type** is selected as **Constant** and **SVC** is selected as **OFF** before enabling the function. Go to **Configuration** → **Video/Audio** → **Video** to set the parameters.

Steps

1. Go to the settings page: **Configuration** → **Network** → **Advanced Settings** → **Smooth Streaming**.

2. Check **Enable Smooth Streaming**.

3. Select the mode for smooth streaming.

- **Auto:** The resolution and bitrate are adjusted automatically, with resolution taking priority. The upper limits of these two parameters will not exceed the values you set on the Video page. Go to **Configuration** → **Video/Audio** → **Video**, set the Resolution and Max. Bitrate before you enable the smooth streaming function. In this mode, the frame rate will adjust to the maximum value automatically.
- **Resolution Priority:** The resolution stays the same as the set value on the Video page, and the bitrate will be adjusted automatically. Go to **Configuration** → **Video/Audio** → **Video**, set the Max. Bitrate before you enable smooth streaming function. In this mode, the framerate will be adjusted to the maximum value automatically.

- **Error Correction:** The resolution and bitrate stay the same as the set values on Video page. The mode is used to correct the data error during transmission to ensure the image quality. You can set the Error Correction Proportion within range of 0–100.

When the proportion is 0, the data error will be corrected by data retransmission. When the proportion is higher than 0, the error data will be corrected via redundant data that is added to the stream and data retransmission. The higher the value, the more redundant data will be generated, the more data error would be corrected, but a larger bandwidth would be required. When the proportion is 100, the redundant data will be as large as the original data, and twice the bandwidth is required.



NOTE: Be sure the bandwidth is sufficient in the Error Correction mode.

4. Save the settings.

Chapter 4 Video and Audio

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

4.1 Video Settings

This section introduces video parameter settings such as stream type, video encoding, and resolution.

1. Go to setting page: **Configuration** → **Video/Audio** → **Video**.

4.1.1 Stream Type

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

- **Main Stream:** This 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:** This 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 them back.

Steps



NOTE: The function is supported only 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 more bandwidth and storage.

4.1.4 Bitrate Type and Max. Bitrate

- **Constant Bitrate:** 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:** The device automatically adjusts the bitrate under the set **Max. Bitrate**. The compression speed is slower than that of the constant bitrate, but it guarantees the image quality of complex scenes.

4.1.5 Video Quality

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

4.1.6 Frame Rate

Frame rate is the frequency the video stream is updated and is measured in 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 rates require higher bandwidth and larger storage space.

4.1.7 Video Encoding

The compression standard the device uses for video encoding.



NOTE: Available compression standards vary by model.

- **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 files more 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, **Video Quality, I Frame Interval, Profile** and **SVC** are 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: With H.265+ enabled, **Video Quality, I Frame Interval, Profile,** and **SVC** are not configurable.

- **I-Frame Interval:** I-frame interval defines the number of frames between two 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 is to enable 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, refers to MPEG-4 Part 2, 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 MJPEG format is compressed as individual JPEG images.
- **Profile:** This function means that under the same bitrate, the more complex the profile, the higher the quality of the image, and the requirement for network bandwidth is also higher.

4.1.8 Smoothing

This refers to the smoothness of the stream. The higher the smoothing value, the better the stream fluency, though the video quality may be lower. The lower the smoothing value, the higher the stream quality, 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 assigns 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 **Drawing**.
 - 2) Click and drag the mouse on the view screen to draw the fixed region.
 - 3) Click **Stop Drawing**.



NOTE: 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**.



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

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

4.2.2 Set Face Tracking ROI

When the face tracking function is enabled in ROI and a face appears in the live picture, the image of the face is clearer than that of the surrounding area.

Steps

1. Go to the ROI setting page: **Configuration** → **Video/Audio** → **ROI**.
2. Check **Enable Face Tracking**.
3. Select **ROI Level** in **Dynamic Region**.



NOTE: ROI level means image quality enhancing level. The larger the value, the better the quality.

4. Click **Save**.

4.2.3 Set Target Tracking ROI

The moving target is clearer than other areas in live image or recordings after enabling the function.

Before You Start

Go to **Configuration** → **PTZ** → **Smart Tracking** to complete the smart tracking settings.

Steps

1. Go to **Configuration** → **Video/Audio** → **ROI**.
2. Check **Enable Target Tracking**.
3. Set **ROI Level** for target tracking. The higher the value, the clearer the target.
4. Click **Save**.

4.2.4 Set License Plate Tracking ROI

When the license plate tracking ROI function is enabled and the license plate appears in the live picture, the image of the license plate is than that of the surrounding area.

Steps

1. Go to the ROI setting page: **Configuration** → **Video/Audio** → **ROI**.
2. Check **Enable License Plate Tracking**.
3. Select **ROI Level** in **Dynamic Region**.



NOTE: ROI level means the image quality enhancing level. The larger the value, the better the image quality.

4. Click **Save**.

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.

Steps

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

4.4 Audio Settings

This function sets audio parameters such as audio encoding and environment noise filtering. Go to the audio settings page: **Configuration** → **Video/Audio** → **Audio**.

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 by model.

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

4.4.3 Audio Output



NOTE: Connect the audio output device as required.

This switches the device audio output. You can adjust the output volume as required. When it is disabled, device audio does not provide output. The audio output display varies by device model.

4.4.4 Environmental Noise Filter

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

4.5 Two-Way Audio

Use 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 are working properly. See audio input and output device specifications for connection.
- If the device has a 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 the two-way audio function of the camera.
3. Click  and select , move the slider to adjust the volume.

4. Click , disable the two-way audio function.

4.6 Display Settings

This 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.
- **Exposure Settings:** Exposure is controlled by the combination of iris, shutter, and photo sensibility. You can adjust image effect by setting exposure parameters.



NOTE: 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 in the day mode and black/white images in night mode. Switch mode is configurable.

- **Day:** The image is always in color.
- **Night:** The image is always black/white.
- **Auto:** The camera automatically switches between day mode and the night mode according to the illumination.

- **Scheduled-Switch:** Set the **Start Time** and the **End Time** to define the duration for day mode.

- **Triggered by Alarm Input:** Two trigger modes are available: **Day** and **Night**. For example, if the trigger mode is **Night**, the image turns black and white when the device receives an alarm input signal.



NOTE: Day/Night Switch function varies by model.

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

- **Rotate:** When enabled, the live view will rotate 90 ° counterclockwise. For example, 1280 × 720 is rotated to 720 × 1280.



NOTE: Enabling this function can change the effective range of monitoring in the vertical direction.

- **Lens Distortion Correction:** For devices equipped with a motorized lens, image may appear distorted to some extent. Enable this function to correct the distortion.



NOTE: This function is supported only by certain devices equipped with a motorized lens.

The edge of image will be lost if this function is enabled.

- **BLC:** If you focus on an object against a 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 environments with strong illumination differences.



NOTE: 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.

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

- **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.

- **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. Use a higher level for more reduction.
 - **Expert:** Set the DNR level for both space DNR and time DNR to control the noise reduction degree. A higher level means stronger reduction degree.
- **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.
- **EIS:** Increase the stability of video image by using jitter compensation technology.
- **Mirror:** When the live view image is reverse of actual scene, this function displays the image normally.

**NOTE:**

Select the mirror mode as needed.

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 Scheduled-Switch:** Switch the image to the linked scene mode automatically in certain time periods.

Steps

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



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

3. Click **Save**.

4.6.3 Video Standard

Video standard sets the video card or video display device to define the amount of colors shown and the resolution. The two most common video standard are NTSC and PAL. In NTSC, 30 frames are transmitted each second, with each frame made of 525 scan lines. In PAL, 25 frames are transmitted each second, with each frame made up 625 scan lines. Select video signal standard according to system in your country.

4.6.4 Local Video Output

If the device has 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.
- **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**.



NOTE: Up to four areas are supported for setting.

4.9 Overlay Picture

Overlay a customized picture on live view.

Before You Start

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

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 by model.

Some functions may be disabled after enabling target cropping.

Chapter 5 Video Recording and Picture Capture

This section introduces 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

To store 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 **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 content according to your need.
4. Click **Save**.

Detect Memory Card Status

Detects the memory card status of Hikvision memory card. You receive notifications when your memory card is detected to be abnormal.

Before You Start

Memory card should be 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 if the health status is not "good."

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

Unlock

- If you use the memory card on the camera 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 camera, you can go to **HDD Management** interface to unlock the memory card manually. Select the memory card, and click the **Unlock** button shown next to the **Format** button. Then enter the correct password to unlock it.
4. Remove the LockSelect the **Lock Switch** as OFF.
 5. Enter the password in **Password Settings**.
 6. Click **Save**.



NOTE: Only admin user can set the **R/W Lock**.

The memory card can only be read and write when it is unlocked.

If the camera, which adds a lock to a memory card, is restored to the factory settings, you can go to **HDD Management** interface to unlock the memory card.

7. Set **Arming Schedule** and **Linkage Method**. Refer to **Set Arming Schedule** and **Linkage Method Settings** for details.
8. 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 for 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.

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



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

3. Click **Test** to verify the FTP server.
4. 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.

1. Click **Test** to check whether the network disk is available.

2. Click **Save**.

5.1.4 eMMC Protection

If you enable eMMC protection, the lifespan of the eMMC is displayed.

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 supported only by certain models.

Steps



CAUTION!

If cloud storage is enabled, the pictures are preferentially stored in the cloud storage server.

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 storage server.
 - **Server IP:** The IP address of the cloud storage server. It supports IPv4 address.
 - **Server Port:** The port of the cloud storage server. 6001 is the default port and you are not recommended to edit it.
 - **User Name and Password:** The user name and password of the cloud storage server.
 - **Picture Storage Pool ID:** The ID of the picture storage region in the cloud storage server. 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 types vary by model.

- **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 a stream type with a 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 cannot 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  to start recording. Click  to stop recording.

5.2.3 Set Lite Storage

After lite storage is enabled, the video stream frame rate and bitrate can be reduced to lengthen the storage time of the memory card when there is no moving object in the monitoring scenario.

Steps

1. Go to **Configuration** → **Storage** → **Storage Management** → **Lite Storage**.
2. Check **Enable** and set the level. The higher the level, the larger the frame rate and bitrate, and the shorter the recommended storage time.
3. Set the storage time. The device automatically calculates the bitrate and offers the recommended storage time according to the memory card space and level. You are recommended to set the storage time to the device recommended time.



NOTE: If lite storage is enabled, an unformatted memory card will be formatted automatically.

The displayed available space of the memory card is assigned by default according to **Percentage of Record** in **Storage** → **Storage Management** → **Quota**. You can adjust it as required.

Only certain device models support this function.

5.2.4 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**. Matching video files show on the timing bar.
3. Click  to play the video files.



NOTE: Click  to clip video files.

Click  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**.



NOTE: 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, 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 Pictures

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**. Matching pictures show 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 Events and Alarms

This section introduces configuring events. The device takes certain responses to triggered alarms.

6.1 Basic Event

6.1.1 Set Motion Detection

Motion detection detects moving objects in the detection region and triggers linked 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 information about normal mode, see **Normal Mode**.
 - For 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**.

Expert Mode

You can configure the motion detection parameters of day/night switch according to the actual needs.

Steps

1. Select expert mode in **Configuration**.
2. Set parameters of expert mode.
 - **Day/Night Switch**
 - **OFF**: Day/night switch is disabled.
 - **Day/Night 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.
 - **Day/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 sensitivity value, the more sensitive the motion detection. If the sensitivity is set to **0**, motion detection and dynamic analysis do not take effect.
 - **Proportion:** The proportion that a moving object occupies in the drawn area. When the size of the object exceeds the set proportion, motion detection is triggered.
3. Select an **Area** and click **Draw Area**. Click and drag the mouse on the live video, then release the mouse to finish drawing one area.
- **Stop Drawing:** Finish drawing one area.
 - **Clear All:** Delete all the areas.



Figure 6-1 Set Rules

4. Optional: Repeat the above steps to set multiple areas.

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 sensitivity value, the more sensitive the motion detection. If the sensitivity is set to **0**, motion detection and dynamic analysis do not take effect.
3. Click **Draw Area**. Click and drag the mouse on the live video, then release the mouse to finish drawing one area.
 - **Stop Drawing:** Stop drawing one area.
 - **Clear All:** Clear all the areas.

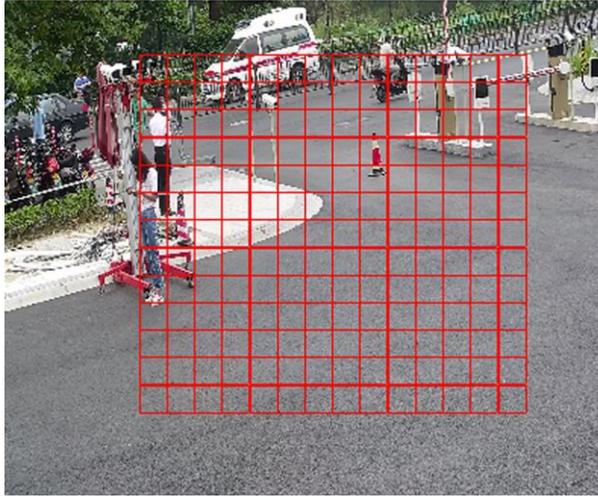


Figure 6-2 Set Rules

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

6.1.2 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.

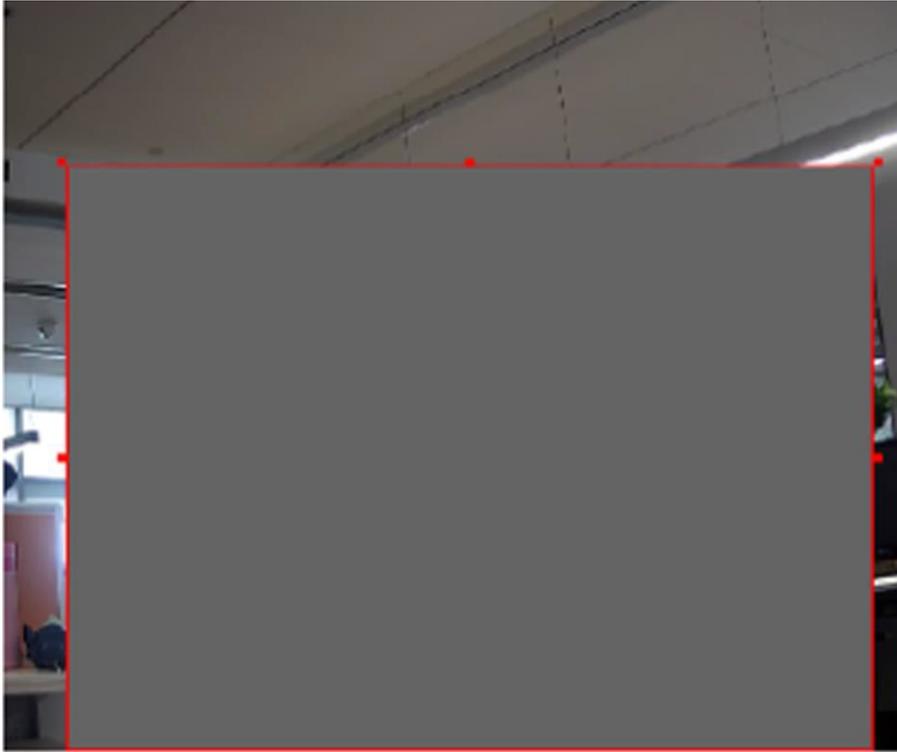


Figure 6-3 Set Video Tampering Area

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

6.1.3 Set PIR Alarm

A PIR (Passive Infrared) alarm is triggered when an intruder moves within the detector's field of view. The heat energy dissipated by a person or any other warm blooded creature such as a dog, cat, etc. can be detected.

Steps



NOTE: Only certain models support PIR alarm.

1. Go to **Configuration** → **Advanced Configuration** → **Basic Event** → **PIR Alarm**.
2. Check **Enable PIR Alarm**.
3. Refer to **Set Arming Schedule** for setting scheduled time. Refer to **Linkage Method Settings** for setting linkage method.
4. Click **Save**.

6.1.4 Set Exception Alarm

Exceptions 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 occurred in HDD.
 - **Network Disconnected:** The device is offline.
 - **IP Address Conflicted:** The current device's IP address is same as that of another device in the network.
 - **Illegal Login:** Incorrect user name or password entered.
3. Refer to *Linkage Method Settings* for setting linkage method.

4. Click **Save**.

6.1.5 Set Alarm Input

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

Before You Start

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

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 drop-down 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**.

6.1.6 Set Video Quality Diagnosis

If the device video quality is abnormal and the alarm linkage is set, the alarm will trigger 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 supported only by certain models. The actual display varies with models.

6.1.7 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 supported only by certain models. The actual display varies by model.

6.2 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 by model.

6.2.1 Detect Audio Exception

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



NOTE: Sensitivity and Sound Intensity Threshold are configurable.

The lower the sensitivity, the more significant the change must be to trigger the detection.

The sound intensity threshold refers to the sound intensity reference for detection. It is recommended to set it to the average sound intensity in the environment. The louder the environment sound, the higher the value should be. 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 by model.

6.2.2 Set Defocus Detection

A 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 supported only by certain models. The actual display varies with models.

6.2.3 Detect Scene Change

This detects change of the surveillance scene. 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, the more easily the change of scene can be detected. But 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.

6.2.4 Set Face Detection

Helps detect a face in the detection region. If a face is detected, the device triggers the linkage actions.

Steps

1. Go to **Configuration** → **Event** → **Smart Event** → **Face Detection**.
2. Check **Enable Face Detection**.
3. Optional: Highlight to display the face in the image.
 - 1) Check **Enable Dynamic Analysis for Face Detection**.
 - 2) Go to **Configuration** → **Local**, set **Rules** to **Enable**.
4. Set **Sensitivity**. The lower the sensitivity, the face profile or unclear face is more difficult to detect.
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**.

6.2.5 Set Video Loss

This function can detect the video signal loss in time and trigger the linkage action.

Steps

1. Go to **Configuration** → **Event** → **Basic Event** → **Video Loss**.
2. Check **Enable**.

3. See **Set Arming Schedule** for setting scheduled time. See **Linkage Method Settings** for setting linkage method.
4. Click **Save**.

6.2.6 Set Intrusion Detection

Detects objects entering and loitering in a pre-defined virtual region, after which the device can take linkage actions.

Steps

1. Go to **Configuration** → **Event** → **Smart Event** → **Intrusion Detection**.
2. Check **Enable**.
3. Select a **Region**. For the detection region settings, refer to **Draw Area**.
4. Set rules.
 - **Sensitivity:** Percentage of the body part of an acceptable target that enters the pre-defined region. $\text{Sensitivity} = 100 - S1/ST \times 100$. S1 is the target body part that crosses the pre-defined region. ST is the complete target body. The higher the sensitivity value, the more easily the alarm is triggered.
 - **Threshold:** The threshold for the time the object loiters in the region. If the time the object stays exceeds the threshold, the alarm is triggered. The larger the value, the longer the alarm trigger time.
 - **Object:** You can specify the object type to be detected.



Figure 6-4 Set Rule

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

6.2.7 Set Line Crossing Detection

Detects objects crossing a pre-defined virtual line. If it occurs, the device can take linkage actions.

Steps

1. Go to **Configuration** → **Event** → **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:** The direction from which an object goes across the line.
 - **A<->B:** An object going across the line from both directions can be detected and alarms are triggered.
 - **A->B:** Only n object crossing the configured line from the A side to the B side will be detected.
 - **B->A:** Only an object crossing the configured line from the B side to the A side will be detected.
 - **Sensitivity:** Percentage of body part of an acceptable target that crosses the pre-defined line. $\text{Sensitivity} = 100 - S1/ST \times 100$. S1 is the target body part that crosses the pre-defined line. ST is the complete target body. The higher the sensitivity value, the more easily the alarm is triggered.
 - **Object:** Specify the object type to be detected and the device will detect only that object type.

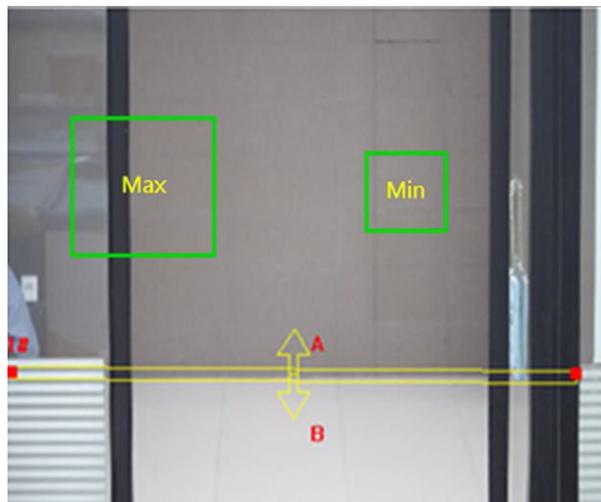


Figure 6-5 Set Rule

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**.

6.2.8 Set Region Entrance Detection

Use to detect objects entering a pre-defined virtual region. If it occurs, the device can take linkage actions.

Steps

1. Go to **Configuration** → **Event** → **Smart Event** → **Region Entrance Detection**.
2. Check **Enable**.
3. Select one **Region**. For the region settings, refer to **Draw Area**.
4. Select the detection target. **Human** and **Vehicle** are available. If the detection target is not selected, all detected targets will be reported, including humans and vehicles.

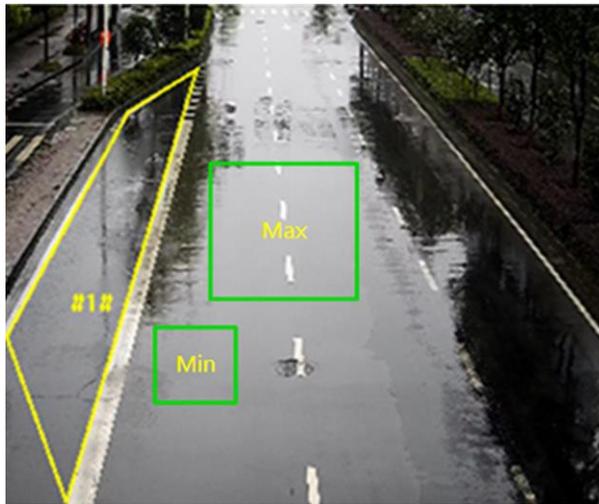


Figure 6-6 Set Rule

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

6.2.9 Set Region Exiting Detection

Detects objects exiting from a pre-defined virtual region. If it occurs, the device can take linkage actions.

Steps

1. Go to **Configuration** → **Event** → **Smart Event** → **Region Exiting Detection**.
2. Check **Enable**.
3. Select one **Region**. For the detection region settings, refer to **Draw Area**.

4. Select the detection target. **Human** and **Vehicle** are available. If the detection target is not selected, all detected targets will be reported, including humans and vehicles.

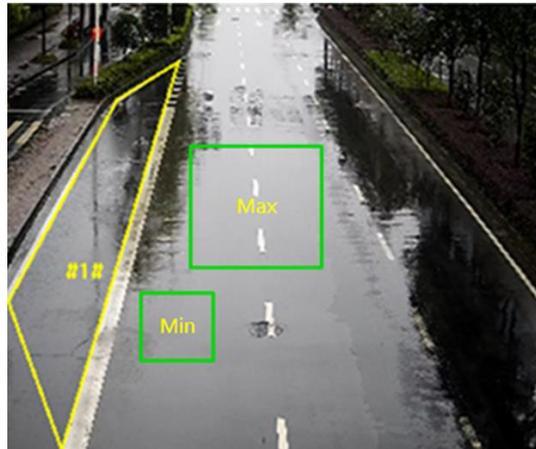


Figure 6-7 Set Rule

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

6.2.10 Set Unattended Baggage Detection

Use to detect objects left in a pre-defined region. Linkage methods can be triggered if an object is left and stays in the region for a set time period.

Steps

1. Go to **Configuration** → **Event** → **Smart Event** → **Unattended Baggage Detection**.
2. Check **Enable**.
3. Select one **Region**. For the detection region settings, refer to **Draw Area**.
4. Set rules.
 - **Sensitivity:** Percentage of body part of an acceptable target that enters a pre-defined region. $\text{Sensitivity} = 100 - S1/ST \times 100$. S1 is the target body part that crosses the pre-defined region. ST is the complete target body. The higher the sensitivity value, the more easily the alarm is triggered.
 - **Threshold:** The time of the objects left in the region. Alarm is triggered if the object is left and stays in the region for the set time period.

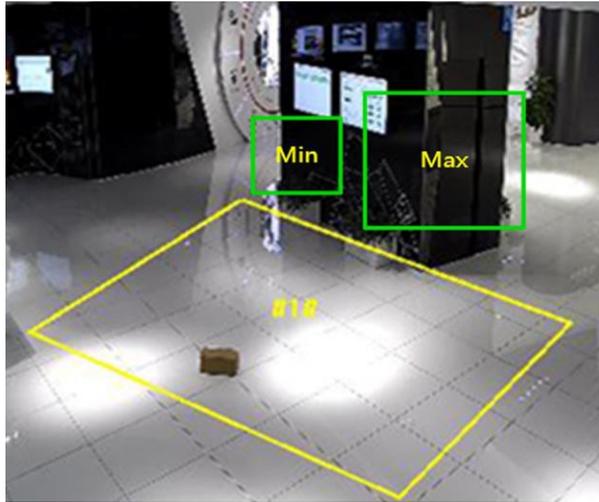


Figure 6-8 Set Rule

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

6.2.11 Set Object Removal Detection

Detects whether objects are removed from a pre-defined detection region such as exhibits on display. If it occurs, the device can take linkage actions and the staff can take measures to reduce property loss.

Steps

1. Go to **Configuration** → **Event** → **Smart Event** → **Object Removal Detection**.
 2. Check **Enable**.
 3. Select a **Region**. For the region settings, see **Draw Area**.
 4. Set the rule.
 - **Sensitivity (Range [1-100]):** Percentage of body part of an acceptable target that leaves the pre-defined region. $\text{Sensitivity} = 100 - S1/ST * 100$ S1 is the target body part that leaves the pre-defined region. ST is the complete target body.
- EXAMPLE:** If you set the value as 60, a target will be counted as a removed object only when 40 percent body part of the target leaves the region.
- **Threshold:** Range [5-100s], the threshold for the time of the objects removed from the region. If you set the value as 10, alarm is triggered after the object disappears from the region for 10s.

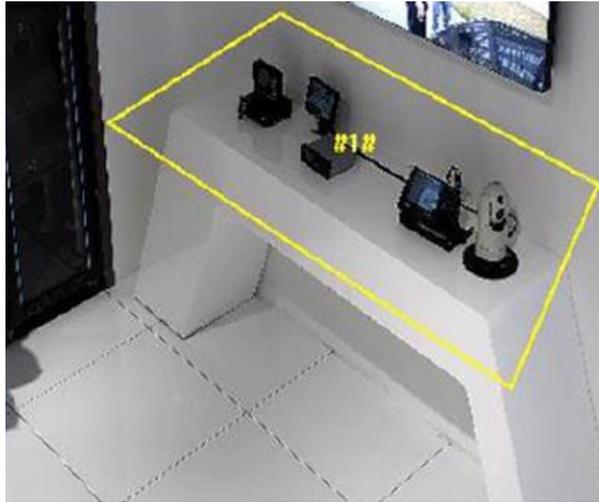


Figure 6-9 Set Rule

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



NOTE: The function is supported only by certain models. The actual display varies by model.

6.2.12 Draw Area

This section introduces the configuration of area.

Steps

1. Click **Draw 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 All** to clear all pre-defined areas.

6.2.13 Set Size Filter

This part introduces setting the size filter. Only a 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 a network. IPv4 and IPv6 are both supported. Both versions can be configured simultaneously without conflicting with each other.

1. Go to **Configuration** → **Basic Configuration** → **Network** → **TCP/IP** for parameter settings.

- **NIC Type:** Select a NIC (Network Interface Card) type according to your network.
- **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.



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

- **Manual:** You can set the device IPv4 parameters manually. Input **IPv4 Address**, **IPv4 Subnet Mask**, and **IPv4 Default Gateway**, and click **Test** to see if the IP address is available.
- **IPv6:** Three IPv6 modes are available.
- **Route Advertisement:** The IPv6 address is generated by combining the route advertisement and the device Mac address.



NOTE: Route advertisement mode requires 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 (Maximum Transmission Unit):** The size of the largest protocol data unit that can be communicated in a single network layer transaction.



NOTE: The valid MTU value range is 1280 to 1500.

- **DNS (Domain Name Server):** Required if you need to visit the device with a domain name. It is also required for some applications (e.g., sending e-mail). Set **Preferred DNS Server** and **Alternate DNS server** properly if needed.

7.1.1 Multicast

Multicast is a group communication where data transmission is addressed to a group of destination devices simultaneously. After setting multicast, you can send the source data efficiently to multiple receivers.

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

- **IP Address:** Address of multicast host
- **Stream Type:** Stream type of the multicast source
- **Video Port:** Video port of the selected stream
- **Audio Port:** Audio port of the selected stream
- **FEC Port:** FEC port of the selected stream
- **FEC Ratio:** Ratio of forward error correction

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, download the SNMP software and receive the device information via the 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.

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. 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 use the default name.
2. Select the port mapping mode to **Auto**.
3. Click **Save**.



NOTE: Enable the UPnP™ function on the router 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 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, see the router user manual.

7.4.3 Set Port Mapping on Router

The following settings are for a specific router. Settings vary by router.

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: ID

Figure 7-1 Port Mapping on Router



NOTE: The network camera port cannot conflict with other ports. For example, for some routers the Web management port 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:** 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:** Port through which the browser accesses the device with certificate. Certificate verification is required to ensure secure access.
- **RTSP Port:** Real-time streaming protocol port.
- **SRTP Port:** Secure real-time transport protocol port.
- **Server Port:** Port through which the client adds the device.
- **Enhanced SDK Service Port:** 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 secure access.



NOTE: Enhanced SDK Service Port, WebSocket Port, and WebSockets Port are supported only 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 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.

1. Input the domain name information, and click **Save**.
2. 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.
3. Access the device.

- **By Browser:** 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 detailed information.

7.8 Wireless Dial

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



NOTE: The function is supported only by certain device models.

7.8.1 Set Wireless Dial

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

Before You Start

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

Steps

1. Go to **Configuration** → **Network** → **Advanced Settings** → **Wireless Dial**.
2. Check to enable the function.
3. Click **Dial Parameters** to configure and save the parameters.
4. Click **Dial Plan**. See **Set Arming Schedule** for detailed information.
5. Optional: Set **White List**. See **Set White List** for detailed information.
6. Click **Dial Status**.
 - **Click Refresh:** Refresh the dial status.
 - **Click Disconnect:** Disconnect the 3G/4G wireless network.



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

7. Access the device via the **IP Address** of the computer in the network.
 - Input the IP address in the browser to access the device.
 - Add the device in client application. Select **IP/Domain**, and input IP address and other parameters to access the device.

7.8.2 Set White List

Add the administrator's mobile phone number to the white list to receive alarm message from the device.

Steps

1. Go to white list settings page: **Configuration** → **Advanced Configuration** → **Wireless Dial** → **White List**.
2. Check **Enable SMS Alarm**.
3. Click **+** in the white list.
 - 1) Input the mobile phone number to receive alarm message.
 - 2) Check **Reboot via SMS**.
 - 3) Select the events, and the mobile phone can receive the alarm message when the event happens.

- 4) Click **Save**.
- 5) Optional: Repeat the steps above to set multiple recipients.
 - : Modify the white list parameters.
 - : Delete the white list that already set.
 - **Send Test SMS:** Send a message to the mobile phone for test.

4. Click **Save**.

7.9 Wi-Fi

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



NOTE: This function is supported only by certain device models.

7.9.1 Connect Wi-Fi Manually

Before You Start

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

Steps

1. Go to TCP/IP settings page: **Configuration** → **Network** → **Basic Configuration** → **TCP/IP**.
2. Select **Wlan** to set the parameters. Refer to **TCP/IP** for detailed configuration.



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

3. Go to Wi-Fi settings page: **Configuration** → ~~**Network**~~ → ~~**Advanced Configuration**~~ → ~~**Wi-Fi**~~.
4. Set and save the parameters.
 - 1) Click **Search**.
 - 2) Select a **SSID**, which should be the same as that of wireless router or AP. The parameters of the network is automatically shown in **Wi-Fi**.
 - 3) Select the **Network Mode** as **Manage**.
 - 4) Input the key to connect the wireless network. The key should be that of the wireless network connection you set on the router.

What To Do Next

Go to TCP/IP settings page: **Configuration** → **Network** → **Basic Configuration** → **TCP/IP**, and click **Wlan** to check the **IPv4 Address** and log in the device. See **Login** for detailed information.

7.9.2 Connect Wi-Fi Automatically

The device can connect the Wi-Fi automatically via WPS or QSS protocols, which both support PBC mode and PIN mode.

Use PBC

Set PBC to connect Wi-Fi automatically. PBC refers to Push-Button-Configuration, in which the user simply has to push a button, either an actual or virtual one (as the **Connect** button on the configuration interface of the IE browser), on both the Access Point (and a registrar of the network) and the new wireless client device.

Before You Start

The operation should be done within 120 seconds, otherwise the connection will fail.

Steps

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

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



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

3. Go to Wi-Fi settings page: **Configuration** → **Network** → **Advanced Configuration** → **Wi-Fi**.

4. Set Wi-Fi parameters.

1) Check Enable WPS.

2) Select **PBC connection**.

3) Check on the Wi-Fi router to see if there is a WPS button. If yes push the button and you will see the indicator near the button start flashing, which means the WPS function of the router is enabled. For detailed operation, please see the router's user guide.

4) Push the WPS button to enable the function on the camera. If there is not a WPS button on the camera, you can also click the virtual button to enable the PBC function on the Web interface.

5) Click **Connect**.

5. Click **Save**.

6. Set PBC code for wireless router or AP.

- Press the WPS or QSS button on the wireless router or AP within 120 seconds to complete the connection.

- Refer to the user guide of the router or AP to set PBC code.

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

- Input the IP address in the browser to access the device.

- Add the device in client application. Select **IP/Domain**, and input IP address and other parameters to access the device.

Use PIN on Device

The device can automatically connect the network by setting the device PIN code parameters in wireless router or AP via WPS or QSS protocols.

Steps

1. Go to TCP/IP settings page: **Configuration** → **Network** → **Basic Configuration** → **TCP/IP**.
2. Select **Wlan** to set the parameters. Refer to **TCP/IP** for detailed configuration.



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

3. Go to Wi-Fi setting page: **Configuration** → ~~**Network**~~ → ~~**Advanced Configuration**~~ → ~~**Wi-Fi**~~.
4. Check **Enable WPS**.
5. Click **Generate** to generate a device PIN code.
6. Refer to the wireless router's user manual or AP to input the code to the router or AP.
7. Go to TCP/IP settings page: **Configuration** → ~~**Network**~~ → ~~**Basic Configuration**~~ → ~~**TCP/IP**~~, and click **Wlan** to check the **IPv4 Address** and log in the device.
 - Input the IP address in the browser to access the device.
 - Add the device in client application. Select **IP/Domain**, and input IP address and other parameters to access the device.

Use PIN on Router

The device can automatically connect the network by setting the PIN code of wireless router or AP in device via WPS or QSS protocols.

Before You Start

Get the PIN code and SSID of the router or AP.

Steps

1. Go to TCP/IP settings page: **Configuration** → **Network** → **Basic Configuration** → **TCP/IP**.
2. Select **Wlan** to set the parameters. Refer to **TCP/IP** for detailed configuration.



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

3. Go to Wi-Fi settings page: **Configuration** → ~~**Network**~~ → ~~**Advanced Configuration**~~ → ~~**Wi-Fi**~~.
4. Set Wi-Fi parameters.
 - 1) Check **Enable WPS**.
 - 2) Select **Use router PIN code**.
 - 3) Enter the PIN code and SSID from the router side in the **SSID** and **Router PIN code** field.

- 4) Click **Connect**.
5. Click **Save**.
6. Go to TCP/IP setting page: **Configuration** → **Network** → **Basic Configuration** → **TCP/IP**, and click **Wlan** to check the **IPv4 Address** and log in the device.
 - Input the IP address in the browser to access the device.
 - Add the device in client application. Select **IP/Domain**, and input IP address and other parameters to access the device.

7.10 Set Network Service

You can control the ON/OFF status of certain protocols 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, and digital zoom function cannot be used.
 - If the device uses HTTP, enable WebSocket.
 - If the device uses HTTPS, enable WebSockets and select the server certificate.
 - **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.



NOTE: If you enable Enhanced SDK Service, you should select the server certificate.

When setting 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.

- **TLS (Transport Layer Security):** The device offers TLS1.1 and TLS1.2. Enable one or more protocol versions according to your need.
3. Click **Save**.

7.11 Set ONVIF

If you need to access to the device through ONVIF protocol, you can configure the ONVIF user to enhance the network security.

Steps

1. Go to **Configuration** → **Network** → **Advanced Settings** → **Integration Protocol**.
2. Check **Enable ONVIF**.
3. Click **Add** to configure the ONVIF user.
 - **Delete:** Delete the selected ONVIF user.
 - **Modify:** Modify the selected ONVIF user.
4. Click **Save**.
5. Optional: Repeat the steps above to add more ONVIF users.

7.12 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, HTTPS, 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. Select **Protocol**.



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

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

7.13 Access Camera via Hik-Connect

Hik-Connect is a mobile device application. Use the app to view live image, receive alarm notification, etc.

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.



NOTE: If errors such as “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.



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

7.13.1 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 a 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 a 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 the 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.



NOTE: 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.

7.13.2 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.



NOTE: If errors such as "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.

7.13.3 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 blurry to be recognized, you can also add the camera by inputting the camera's serial number.

5. Input the verification code of your camera.



NOTE: The required verification code is the code you create or change when you enable 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.
 - **Wireless Connection:** Input the Wi-Fi password that your mobile phone has connected to, and tap **Next** to start the Wi-Fi connection process. (Locate the camera within 3 meters from the router when setting up the Wi-Fi.)
 - **Wired Connection:** Connect the camera to the router with a network cable and tap **Connected** in the result interface.



NOTE: The router should be the same one that your mobile phone has connected to.

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



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

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.



NOTE: Up to eight 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

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.



NOTE: 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 E-mail

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



NOTE: For e-mail settings, refer to **Set Email**.

Set E-mail

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

Before You Start

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

Steps

1. Go to e-mail settings page: **Configuration** → **Network** → **Advanced Settings** → **Email**.
2. Set e-mail parameters.
 - 1) Input the sender's e-mail information, including the **Sender's Address**, **SMTP Server**, and **SMTP Port**.
 - 2) Optional: If your e-mail 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.
3. Click **Save**.



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

- 4) Optional: If you want to receive notification with alarm pictures, check **Attached Image**. The notification email has three 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.

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 supported only 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 supported only by certain device models.

Chapter 9 System and Security

This section is an introduction to 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 a Web browser simultaneously.

1. 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.

1. 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 Export Diagnose Information

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

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

9.6 Reboot

You can reboot the device via a browser.

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

9.7 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.



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

9.8 Upgrade

Before You Start



CAUTION!

You need to obtain the correct upgrade package.

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 upgrade method.
 - **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**.

9.9 View Open Source Software License

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

9.10 Time and Date

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

9.10.1 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**.

9.10.2 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**.



NOTE: Server Address is NTP server IP address.

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

9.10.3 Synchronize Time by Satellite



NOTE: This function varies by device.

Steps

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

4. Click **Save**.

9.10.4 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**.

9.11 Set RS-485

RS-485 is used to connect the device to an 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 an 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**.

9.12 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 an 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**.

9.13 External Device

For devices that support external devices, including the supplement light, wiper on the housing, and the LED light, you can control them via the Web browser when it is used with the housing. External devices vary by model.

- **Brightness:** Adjust Low Beam Brightness and High Beam Brightness according to the actual scene.
- **Timing:** The LED light will be turned on by the schedule you set. You should set **Start Time** and **End Time**.
- **Auto:** The LED light will be turned on according to the environment illumination.

9.13.1 Supplement Light Settings

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

- **Smart Supplement Light:** Smart supplement light avoids overexposure when the supplement light is on.
- **Supplement Light Mode:** Can be selected if the device supports a supplement light.
- **IR Mode:** IR light is enabled.
- **White Light Mode:** White light is enabled.
- **Mix Mode:** Both IR light and white light are enabled.
- **Off:** Supplement light is disabled.
- **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.

9.14 Security

You can improve system security by setting security parameters.

9.14.1 Authentication

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

1. 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 an 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 supports only digest authentication.
 - **RTSP Digest Algorithm:** MD5, SHA256, and MD5/SHA256 encrypted algorithm in RTSP authentication. If you enable the digest algorithm except for MD5, a third-party platform might not be able to log in to

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

- **WEB Authentication:** Digest and digest/basic are supported, which means authentication information is needed when a 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 supports only 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. An encrypted algorithm with high strength is recommended.



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

9.14.2 Set IP Address Filter

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

9.14.3 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**.



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

9.14.4 Set QoS

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



NOTE: QoS needs support from the 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**.



NOTE: Network can identify the priority of data transmission. The larger the DSCP value, the higher the priority. You must set the same value in the router while configuring.

3. Click **Save**.

9.14.5 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, authentication is needed.

1. 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.

9.14.6 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 a Web browser within the set timeout period.

1. Go to **Configuration** → **System** → **Security** → **Advanced Security** to complete settings.

9.14.7 Search Security Audit Logs

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

Steps

This function is supported only 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.

9.14.8 Security Reinforcement

Security reinforce enhances network security. With the function enabled, risky functions, protocols, and ports of the device are disabled and more secured alternative functions, protocols and ports are enabled.

1. Go to **Configuration** → **System** → **Security** → **Advanced Security**.
2. Check **Security Reinforcement**.
3. Click **Save**.

9.15 Certificate Management

This manages server/client certificates and CA certificate, and sends an alarm if the certificates are close to expiration date or are expired/abnormal.

9.15.1 Create Self-Signed Certificate

Steps

1. Click **Create Self-signed Certificate**.
2. Follow the prompt to enter **Certificate ID**, **Country**, **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.

9.15.2 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**.

9.15.3 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 as that of the existing certificate nor import a certificate that has the same content as that of the existing certificate.

9.15.4 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

9.15.5 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.

9.15.6 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 at 10:00 the first day.

3. Click **Save**.

9.16 User and Account

9.16.1 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 three months is recommended. If the device is used in a high-risk environment, it is recommended that the password be changed monthly or weekly.

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 for all operations and can add users and operators and assign permission.
 - **User:** Users can be assigned permission to view live video, set PTZ parameters, and change their own passwords, but no permissions for other operations.
 - **Operator:** Operators can be assigned all permissions 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**.



NOTE: The administrator can add up to 31 user accounts.

3. Click **OK**.

9.16.2 Simultaneous Login

The administrator can set the maximum number of users simultaneously logging into the system through a Web browser.

1. Go to **Configuration** → **System** → **User Management**.
2. Click **General**.
3. Set **Simultaneous Login**.

9.16.3 Online Users

The information of users logging into the device is shown.

1. Go to **Configuration** → **System** → **User Management** → **Online Users** to view the list of online users.

Chapter 10 Allocate VCA Resource

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

Steps

1. Go to **Configuration** → **System** → **System Settings** → **VCA Resource**.
2. Select desired VCA function.
3. Save the settings.



NOTE: Some VCA functions are mutually exclusive. When certain function or functions are selected and saved, others will not be hidden.

10.1 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.



NOTE: 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 supported only by certain models.

10.1.1 Set Face Capture

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

Before You Start

To enable the function, go to **VCA Resource** and select **Face Capture**. **Steps**

1. Go to **Configuration** → **Face Capture**.
2. For shield region settings, refer to **Set Shield Region**.
3. Select **Rule** and check **Rule**.
4. Click  to draw the detection area. It is recommended that the drawn area occupies 1/2 to 2/3 of the live view image.
5. Click  and draw a rectangle based on the pupil distance of the face on the live view.



Figure 10-1 Set Face Capture

The device will detect if there is a human face in the area by the set minimum pupil distance.

6. For the arming schedule settings, refer to **Set Arming Schedule**. For the linkage method settings, refer to **Linkage Method Settings**.
7. Click **Save**.
8. For overlay and capture settings, refer to **Overlay and Capture**. For advanced parameters settings, refer to **Face Capture Algorithms Parameters**.

Result

You can view and download captured face images in **Picture**. See **View and Download Picture** for details.

10.1.2 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.

- **Background Picture Settings:** Comparing to target picture, background picture is the scene image offers extra environmental information. You can set the background picture quality and resolution. If the background image need to be uploaded to surveillance center, check **Background Upload**.
- **People Counting Overlay:** Select flow overlay type. Select the daily reset time. Click **Manual Reset** if you want to reset right now.
- **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.

10.1.3 Face Capture Algorithms Parameters

Use to set and optimize the parameters of the algorithm library for face capture.

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

- **Face Capture Version:** It lists the version of the algorithms library.
- **Detection Parameters**
 - **Generation Speed:** The speed to identify a target. The higher the value, the faster the target will be recognized. Setting the value quite low, and if there is a face in the configured area from the start, this face will not be captured. It can reduce the misinformation of the faces in wall painting or posters. The default value of 3 is recommended.
 - **Sensitivity:** The sensitivity to identify a target. The higher the value, the easier a face will be recognized, and the higher the possibility of misinformation. The default value of 3 is recommended.
- **Capture Parameters**
 - **Best Shot:** The best shot after target leaves the detection area.
 - **Capture Times:** Times a face will be captured during its stay in the configured area. The default value is 1.
 - **Capture Interval:** The frame interval to capture a picture. If you set the value as 1, which is the default value, it means the camera captures the face in every frame.
 - **Capture Threshold:** Quality of face to trigger capture and alarm. Higher value means better quality must be met to trigger capture and alarm.
 - **Quick Shot:** Define quick shot threshold and max. capture interval.
 - **Quick Shot Threshold:** Quality of face to trigger quick shot.
 - **Face Exposure:** Check checkbox to enable 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 set. The higher the value, the brighter the face.
 - **Minimum Duration:** The minimum duration the camera exposures the face. The default value is 1 minute.



NOTE: If face exposure is enabled, make sure WDR is disabled, and manual iris is selected.

- **Face Filtering Time:** 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 if the face stays 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.

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

10.1.4 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**.

10.2 Road Traffic

Motor vehicles, non-motor vehicles, and pedestrians can be detected and captured when they enter the set lane to realize rapid detection and comprehensive surveillance of the targets on road.



NOTE: Only certain device models support this function.

10.2.1 Set Vehicle Detection

The vehicle that enters the set lane can be detected and the picture of the vehicle and its license plate can be captured and stored. Alarm will be triggered and capture can be uploaded.

Before You Start

1. Go to **Configuration** → **System** → **System Settings** → **VCA Resources**.
2. Select **Road Traffic**.

Steps

1. Go to **Configuration** → **Road Traffic** → **Detection Configuration**.
2. Select **Vehicle Detection** as detection type.
3. Check **Enable**.
4. Select the lane number.

5. Click and drag the lane line to set its position, or click and drag the line end to adjust the length and angle of the line.
6. Adjust the zoom ratio of the camera so that the size of the vehicle in the image is close to that of the red frame. Only the position of red frame is adjustable.



NOTE: Only one license plate can be captured at a time for each lane.

7. Select **Region** and **Country/Region**.
8. Select the license plate information upload mode.
 - **Entrance/Exit:** The license plate information of the detected vehicle will be uploaded when the vehicle passes the detection area and triggers the detection in entrance/exit.
 - **City Street:** The license plate information of the detected vehicle will be uploaded when the vehicle passes the detection area and triggers the detection in city streets.
 - **Alarm Input:** It means the input alarm will trigger a license plate capture and recognition action.



NOTE: When Alarm Input is selected, the alarm input A<-1 will automatically be assigned to trigger vehicle detection and its alarm type is always No. If the A<-1 alarm input is used to trigger vehicle detection, it 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.

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



NOTE: Up to eight license plates are supported.

11. 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**.
12. Click **Save**.

10.2.2 Set Mixed-Traffic Detection Rule

The motor vehicles, non-motor vehicles, and pedestrians that enter the set lane can be detected, and the picture of targets can be captured and stored. Alarm will be triggered and capture can be uploaded.

Before You Start

1. Go to **Configuration** → **System** → **System Settings** → **VCA Resources**.
2. Select **Road Traffic**.

Steps

1. Go to **Configuration** → **Road Traffic** → **Detection Configuration**.

2. Select **Mixed-Traffic Detection** as detection type.
3. Check **Enable**.
4. Select the lane number.
5. Select **Region** and **Country/Region**.
6. 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. Click **Save**.

10.2.3 Uploading Pictures Settings

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

1. Go to **Configuration** → **Road Traffic** → **Picture**.
 - **Picture Quality**: The larger the value, the clearer the picture, but more storage space is also required.
 - **Picture Size**: The larger the value, the more storage space is needed, and the level of network transmission requirement is also higher.
 - **Overlay**: You can overlay camera, device, or vehicle information on the captured image and click **↑** **↓** to adjust the order of overlay texts. For camera settings, go to **Configuration** → **Road Traffic** → **Camera** to set relevant parameters and click **Save**.

10.2.4 Camera Settings

You can set the parameters of each camera for better management.

1. Go to **Configuration** → **Road Traffic** → **Camera** to set relevant parameters, and click **Save**.

10.2.5 Import or Export Blacklist & Whitelist

You can import and export the blacklist and whitelist, and check the list content in this interface.

Steps

1. Click **Browse** to open the PC local directory.
2. Find the Blacklist & Whitelist 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 & Whitelist file from the camera as the template and fill in the content. The file should be in .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**.

10.3 Multi-Target-Type Detection

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



NOTE: Certain models require enabling **Multi-Target-Type Detection** on **VCA Resource** page first.

10.3.1 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 **Configuration** → **Multi-Target-Type Detection** → **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 is basic for the device to recognize a face.

1. Set arming schedule. See **Set Arming Schedule**.
2. Set linkage method. See **Linkage Method Settings**.
3. Click **Save**.

What To Do Next

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

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

10.3.2 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.

- **Background Picture Settings:** Comparing to target picture, background picture is the scene image offers extra environmental information. You can set the background picture quality and resolution. If the background image need to be uploaded to surveillance center, check **Background Upload**.
- **People Counting Overlay:** Select flow overlay type. Select the daily reset time. Click **Manual Reset** if you want to reset right now.
- **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.

10.3.3 Multi-Target-Type Detection Algorithm Parameters

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

1. Go to **Configuration** → **Multi-Target-Type Detection** → **Advanced Configuration** for configuration.

- **HMS Version:** The current algorithm version, which cannot be edited.
- **Restore Defaults:** Click **Restore** to restore all the settings in advanced configuration to the factory default.
- **Detection Parameters**
 - **Generation Speed:** The speed of deciding whether an object in detection area is a target or not. The higher the value, the faster the target will be detected. The default value is recommended.
 - **Sensitivity:** The sensitivity of recognizing a target. The higher the value, the easier a target will be recognized, and the higher the possibility for misinformation. The default value is recommended.
- **Capture Parameters**
 - **Best Shot**
 - > **Capture Threshold:** The quality of face to trigger capture and alarm. Higher value means better quality must be met to trigger capture and alarm.
 - **Face Exposure:** Enable the function, and the device automatically adjusts exposure level when human faces appear in the scene.
 - **Reference Brightness:** The reference brightness of a face in face exposure mode. If a face in the actual scene is brighter than the set reference brightness, the device lowers 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:** 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 if the face stays in the scene for 5 seconds.

10.3.4 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**.

10.4 Face Counting

Face counting detection can remove duplicate faces and calculate the number of objects that enter or exit a certain configured area.



NOTE: For certain device models, you need to select **Face Counting** on **VCA Resource** page first.

Only certain camera models support this function.

10.4.1 Set Face Counting Detection Rule

After setting the face counting detection rules and algorithm parameters, the device captures targets and triggers linkage actions automatically.

Steps

1. Go to **Configuration** → **Face Counting** → **Rule**.
2. Check **Rule**.
3. Enter the min. pupil distance in the text field, or click  to draw the min. pupil distance. The distance of the drawn pupil will be displayed on the box below the live view.
 - **Min. Pupil Distance:** The min. pupil distance refers to the minimum square size composed by the area between two pupils, and it is the basic standard for a camera to identify a target.
4. Enter the max. pupil distance in the text field, or click  to draw the max. pupil distance.

- **Max. Pupil Distance:** The max. pupil distance refers to the maximum square size composed by the area between two pupils, and it is the basic standard for a camera to identify a target.
5. Click  to draw the detection area. Draw an area by left-clicking end-points in the live view window, and right-clicking to finish the area drawing.
 6. Click  to draw the detection line. The arrow shows entering direction, you can click  to change the direction.
 - If the target crosses the counting area along the entering direction and crosses the detection line, then it is counted as the entering number.
 - If the target crosses the counting area along the exiting direction and crosses the detection line, then it is counted as the exiting number.
 7. Click  and  to draw region A and B. Make sure the two areas don't overlap. You can click  to change the direction.
 - If the target enters from A region to B region, then it is counted as the entering number.
 - If the target enters from B region to A region, then it is counted as the exiting number.
 8. Set arming schedule. See **Set Arming Schedule**.
 9. Set linkage method. See **Linkage Method Settings**.

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.

- **Background Picture Settings:** Comparing to target picture, background picture is the scene image offers extra environmental information. You can set the background picture quality and resolution. If the background image needs to be uploaded to surveillance center, check Background Upload.
- **People Counting Overlay:** Select flow overlay type. Select the daily reset time. Click **Manual Reset** if you want to reset right now.
- **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 Counting Algorithm Parameters

It is used to set and optimize the parameters of the algorithm parameters for Face Counting.



NOTE: These functions vary according to different models.

- **Face Capture Mode:** Current algorithm version, which cannot be edited.
- **Best Shot:** The best shot after the target leaves the detection area.
- **Capture Times:** Capture times a face will be captured during its stay in the configured area. The default value is 1.
- **Capture Threshold:** Quality of face to trigger capture and alarm. Higher value means better quality should be met to trigger capture and alarm.
- **Face Exposure:** The device adjusts the face brightness when it detects face in the image.
- **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.
- **Min. Duration:** The minimum duration the camera exposes the face.



NOTE: If face exposure is enabled, make sure WDR is disabled and manual iris is selected.

- **Real-Time Update Data:** After enabled, the real-time people counting data will be uploaded to the platform.
- **Data Statistics Cycle:** Select the data statistics cycle as required.
- **Algorithm Validity:** The higher the value, the more difficult it is to detect the target, but the higher the detection accuracy.
- **Restore Defaults:** Click Restore to restore all the settings in advanced configuration to the factory defaults.

10.4.4 View Face Counting Result

Steps

1. Go to **Application**.
2. Set search condition and click **Counting**. Matched results are shown in **Face Picture Comparison Statistics** and **People Counting Statistics** area.

10.5 Queue Management

Use to count queuing-up people number and waiting time of each person.



NOTE: Queue management is supported only by certain models.

10.5.1 Set Regional People Queuing-Up

Use 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 Resource**, and select **Queue Management**.

Steps

1. Go to **Configuration** → **Queue Management**.
2. Select **Regional People Queuing-Up**.
3. Click **Add Region** to draw the detection area and 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 10-2 Set Regional People Queuing-Up

4. Optional: Check **OSD** to display the region name and its real-time queuing-up people number.
5. Set **Alarm threshold**. An alarm is triggered when the alarm threshold condition is met.
6. For the arming schedule settings, refer to **Set Arming Schedule**. For the linkage method settings, refer to **Linkage Method Settings**.
7. Click **Save**.

10.5.2 Set Waiting Time Detection

It is used to count the waiting time of each person that enters the 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 Resource**, and select **Queue Management**.

Steps

1. Go to **Configuration** → **Queue Management**.
2. Select **Waiting Time Detection**.
3. Click **Add Region** to draw the detection area and 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 trigger only one notification



Figure 10-3 Set Waiting Time Detection

4. Set **Alarm threshold**. An alarm is triggered when the alarm threshold condition is met.
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: Enable **Display POS Information** and **Rule** in **Configuration** → **Local**. The detection area and the time people staying in the detection area can be viewed on the live view.

10.5.3 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 save only up to one week's data.

1. 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.
2. 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.

1. Check one or more regions.
2. Set the queue length level. Check one or more desired range checkboxes and input values.
3. Select **Report Type** and **Statistics Time.**
4. Click **Counting** to generate the report.

10.6 Counting

Calculates the number of people entering or exiting a certain configured area.



NOTE: Counting is supported only by certain models.

10.6.1 Set Counting

Use to calculate the objects entering and exiting the region, alarm events, and upload data.

Steps

1. Go to **Configuration** → **Counting.**
2. Check **Enable Counting.**
3. Optional: Check **Enable OSD Overlay**, and the real-time number of people entering and exiting the region is displayed on the live video.



NOTE: The overlay information counts only the number of the current day. The number is cleared when the device is restarted or midnight comes. You can also click **0** to clear the number manually.

4. Set the detection line and the objects across the line will be detected and counted.
 - : Draw a detection line.
 - : Delete the detection line.
 - : Change the direction.



Figure 10-4 Set Counting

5. For the arming schedule settings, refer to **Set Arming Schedule**. For the linkage method settings, refer to **Linkage Method Settings**.
6. Click **Save**.

10.6.2 View Counting Statistics

You can view and export the counting statistics stored in device or memory card.

Before You Start

Go to **Set Counting** to set queue management first.

Steps

1. Go to **Application**.
2. Select **Report Type**.
3. Select **Statistics Type**.
4. Select **Start Time**.
5. Click **Counting**.
6. Optional: Click **Export** to export the counting statistics. The counting statistics can be viewed in table, line chart, and bar chart.

10.7 Hard Hat Detection

Detects targets in the set monitoring region who do not wear a hard hat and triggers an alarm.



NOTE: Only certain device models support the function.

10.7.1 Set Hard Hat Detection

Before You Start

1. Go to **Configuration** → **System** → **System Settings** → **VCA Resources** to enable Hard Hat Detection.

Steps

1. Go to **Configuration** → **Hard Hat Detection**, and check **Enable Hard Hat Detection**.
2. Optional: Set **Target Generation Speed**. It refers to the target generation speed of the face entering the detection region. The greater the value, the quicker the generation speed.
3. Set detection region.
 - 1) Select detection region.
 - 2) Click **Draw Area**, and click and draw the endpoints of the region in the live view image.
 - 3) Right click to finish the drawing.
 - **Click Stop Drawing:** Finish drawing the region.
 - **Click Clear All:** Draw the region again.
4. For the arming schedule settings, refer to **Set Arming Schedule**. For the linkage method settings, refer to **Linkage Method Settings**.
5. Click **Save**.

10.8 Face Comparison and Modeling

For certain device models, you need to enable **Multi-Target-Type Detection** or **Face Capture** on **VCA Resource** page first.

10.8.1 Face Comparison

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

Set Face Picture Library

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

Steps

1. Go to **Configuration** → **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 set threshold triggers face picture comparison alarm uploading.

3) Click **OK**.

4) Optional: Modify face picture library. Select library, 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, 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, such as, name and gender, 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.



NOTE: 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 **Configuration** → **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. Optional: Check **Report Face Comparison Information During Multi-Target-Type Capture Alarm**, if you want to receive face comparison information during multi-target-type capture alarm.
6. Select desired face information to upload.
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 uploads the best scored face picture and related alarm information when the target face leaves the area.
 - **Quick Comparison:** The device captures 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**. Matches show in **Face Picture Comparison Statistics** area.

10.8.2 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** 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 that 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**.

Chapter 11 Open Platform

Open platform allows you to install a third-party application to develop and run its functions and services.



NOTE: Only certain device models support this function.

11.1 Set Open Platform

1. Go to **Configuration** → **Open Platform**.



NOTE: Before installing the application, read the Disclaimer at the bottom and make sure that the application you want to install fits the following conditions.

Each application has its own exclusive name.

Application's flash memory space is less than device's available flash memory space.

Application's memory and computing power is less than device's available memory and computing power.

2. In **Install Apps**, click **Browse** and select the imported application package.

3. Click **Import** to complete the installation.

The screenshot shows the 'Application' management interface. At the top, there are two progress bars: 'memory : 45MB available (total 60MB)' and 'flash : 13MB available (total 33MB)'. Below this is the 'Import Application' section with an 'Application Package' input field and 'Browse' and 'Import' buttons. A 'Status' label is also present. The main part of the interface is the 'Application List' table:

No.	Application Name	Operation	Version	Memory Used	Flash Used	Company	Status	License
1	HEOP TEST DEMO APP		V1.1.1	10MB	10MB	Hikvision	Stopped	Free
2	HEOP BASIC DEMO APP		V5.5.60	5MB	10MB	Hikvision	Stopped	Inactive

At the bottom, there is a 'Disclaimer' section with the following text: 'Please note that some applications and/or solutions available below are supplied and/or developed by third parties, not HIKVISION. YOUR RELIANCE ON THIRD PARTY'S APPLICATION AND/OR SOLUTIONS IS AT YOUR OWN RISK. HIKVISION MAKES NO WARRANTIES OR REPRESENTATIONS, EXPRESS OR IMPLIED, AS TO MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE, ACCURACY, RELIABILITY, SECURITY, OR NON-INFRINGEMENT OF THIRD PARTY'S APPLICATIONS AND/OR SOLUTIONS. YOU SHALL BE SOLELY RESPONSIBLE FOR TRANSACTION BETWEEN YOU AND SUCH THIRD PARTY.'

Figure 11-1 Open Platform



NOTE: Installed applications and information are displayed in **Application List** such as application name, operation, version, memory used, flash used, company, status, and license.

4. Optional: Set application.

- : Export log
- : Set permission
- : Delete the application
- : Enable or disable the application

5. Optional: In application display, click **Browse** and import the application certificate.

Chapter 12 Set EPTZ

EPTZ (Electronic PTZ) is a high-resolution function that digitally zooms and pans into portions of the image, with no physical camera movement.

Before You Start

If you want to use the EPTZ function, make sure you have select the **Fourth Stream** in the live view. Fourth stream and EPTZ must both be enabled simultaneously.

Steps

1. Go to **Configuration** → **EPTZ**.
2. Check **Enable EPTZ**.
3. Check **Fourth Stream**.
4. Select the **Application**. **Patrol** and **Auto-tracking** are selectable.

Chapter 13 Smart Display

Displays captured pictures when enabling smart functions.

Layout Preview

Click and select **Layout Preview**. Select the contents according to your needs. When you select real-time analysis, you can select the contents only for real-time analysis.

Detection Attribute

Click and select **Detection Attribute**. When you enable this function, the attribute information of target analysis can be displayed and the information you select will be displayed in the attribute analysis area.

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.



