Initiatives on the Use of Video Products

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

Please read the following initiatives carefully:

● Everyone has a reasonable expectation of privacy, and the installation of video products should not be in conflict with this reasonable expectation. Therefore, a warning notice shall be given in a reasonable and effective manner and clarify the monitoring range, when installing video products in public areas. For non-public areas, a third party's rights and interests shall be evaluated when installing video products, including but not limited to, installing video products only after obtaining the consent of the stakeholders, and not installing highly-invisible video products.

● The purpose of video products is to record real activities within a specific time and space and under specific conditions. Therefore, every user shall first reasonably define his/her own rights in such specific scope, in order to avoid infringing on a third party's portraits, privacy or other legitimate rights.

● During the use of video products, video image data derived from real scenes will continue to be generated, including a large amount of biological data (such as facial images), and the data could be further applied or reprocessed. Video products themselves could not distinguish good from bad regarding how to use the data based solely on the images captured by the video products. The result of data usage depends on the method and purpose of use of the data controllers. Therefore, data controllers shall not only comply with all the applicable laws and regulations and other normative requirements, but also respect international norms, social morality, good morals, common practices and other non-mandatory requirements, and respect individual privacy, portrait and other rights and interests.

● The rights, values and other demands of various stakeholders should always be considered when processing video data that is continuously generated by video products. In this regard, product security and data security are extremely crucial. Therefore, every end user and data controller, shall undertake all reasonable and necessary measures to ensure data security and avoid data leakage, improper disclosure and improper use, including but not limited to, setting up access control, selecting a suitable network environment (the Internet or Intranet) where video products are connected, establishing and constantly optimizing network security.
Video products have made great contributions to the improvement of social security around the world, and we believe that these products will also play an active role in more aspects of social life. Any abuse of video products in violation of human rights or leading to criminal activities are contrary to the original intent of technological innovation and product development. Therefore, each user shall establish an evaluation and tracking mechanism of their product application to ensure that every product is used in a proper and reasonable manner and with good faith.
Legal Information

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

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## Symbol Conventions

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

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Danger]</td>
<td>Indicates a hazardous situation which, if not avoided, will or could result in death or serious injury.</td>
</tr>
<tr>
<td>![Caution]</td>
<td>Indicates a potentially hazardous situation which, if not avoided, could result in equipment damage, data loss, performance degradation, or unexpected results.</td>
</tr>
<tr>
<td>![Note]</td>
<td>Provides additional information to emphasize or supplement important points of the main text.</td>
</tr>
</tbody>
</table>
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 over-heating 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.

Using Environment
- Make sure the running environment meets the requirement of the device. The operating temperature shall be -30°C to 60°C (-22°F to 140°F), and the operating humidity shall be 95% or less, no condensing.
- 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 Requirement

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

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating System</td>
<td>Microsoft Windows XP SP1 and above version</td>
</tr>
<tr>
<td>CPU</td>
<td>2.0 GHz or higher</td>
</tr>
<tr>
<td>RAM</td>
<td>1G or higher</td>
</tr>
<tr>
<td>Display</td>
<td>1024×768 resolution or higher</td>
</tr>
<tr>
<td>Web Browser</td>
<td>Internet Explorer 8.0 and above version, Mozilla Firefox 30.0 to 51, and Google Chrome 31 to 51</td>
</tr>
</tbody>
</table>
Chapter 2 Device Activation and Accessing

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

**Note**
Refer to the user manual of the software client for the detailed information 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.

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

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

### 2.2 Activate the Device via Browser

You can access and activate the device via the browser.

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

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

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

Caution

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

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

2.3 Login

Log in to the device via Web browser.

2.3.1 Plug-in Installation

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

<table>
<thead>
<tr>
<th>Operating System</th>
<th>Web Browser</th>
<th>Operation</th>
</tr>
</thead>
</table>
| Windows          | ● Internet Explorer 8+  
                  ● Google Chrome 57 and earlier version  
                  ● Mozilla Firefox 52 and earlier version | Follow pop-up prompts to complete plug-in installation. |
|                  | ● Google Chrome 57+  
                  ● Mozilla Firefox 52+ | Click [Download Plug-in] to download and install plug-in. |
<table>
<thead>
<tr>
<th>Operating System</th>
<th>Web Browser</th>
<th>Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mac OS</td>
<td>● Google Chrome 57+&lt;br&gt;● Mozilla Firefox 52+&lt;br&gt;● Mac Safari 16+</td>
<td>Plug-in installation is not required.&lt;br&gt;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 restricted function, refer to the actual device.</td>
</tr>
</tbody>
</table>

**Note**
The camera only supports Windows and Mac OS system and do 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. You can reset the password by setting the security question or email.

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

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

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

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

It helps to improve the security when accessing the device via Internet.
The admin user can set the login attempts with the wrong password. When your login attempts with the wrong password reach the set times, the device is locked.
Go to **Configuration** → **System** → **Security** → **Security Service**, and enable **Enable Illegal Login Lock**, and set the illegal login attempts.
Chapter 3 Live View

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

3.1 Live View Parameters

The supported functions vary depending on the model.

3.1.1 Enable and Disable Live View

This function is used to quickly enable or disable live view of all channels.
- Click \( \text{ } \) to start live view of all channels.
- Click \( \text{ } \) to stop live view of all channels.

3.1.2 Adjust Aspect Ratio

Steps
1. Click Live View.
2. Click \( \text{ } \) to select the aspect ratio.
   - \( \text{ } \) refers to 4:3 window size.
   - \( \text{ } \) refers to 16:9 window size.
   - \( \text{ } \) refers to original window size.
   - \( \text{ } \) refers to self-adaptive window size.
   - \( \text{ } \) refers to original ratio window size.

3.1.3 Live View Stream Type

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

3.1.4 Select the Third-Party Plug-in

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

Steps
1. Click Live View.
2. Click \( \text{ } \) to select the plug-in.

When you access the device via Internet Explorer, you can select Webcomponents or QuickTime. When you access the device via the other browsers, you can select Webcomponents,
QuickTime, VLC or MJPEG.

3.1.5 Window Division
●  refers to $1 \times 1$ window division.
●  refers to $2 \times 2$ window division.
●  refers to $3 \times 3$ window division.
●  refers to $4 \times 4$ window division.

3.1.6 Light
Click to turn on or turn off the illuminator.

3.1.7 Count Pixel
It helps to get the height and width pixel of the selected region in the live view image.
Steps
1. Click to enable the function.
2. Drag the mouse on the image to select a desired rectangle area.
   The width pixel and height pixel are displayed on the bottom of the live view image.

3.1.8 Start Digital Zoom
It helps to see a detailed information of any region in the image.
Steps
1. Click to enable the digital zoom.
2. In live view image, drag the mouse to select the desired region.
3. Click in the live view image to back to the original image.

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

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

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

**Manual Lens Initialization**

Click to operate lens initialization.

**Auto Lens Initialization**

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

3.1.11 Quick Set Live View

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

**Steps**

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

**Note**

The function is only supported by certain models.

3.1.12 Lens Parameters Adjustment

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

**Zoom**

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

**Focus**

- Click , then the lens focuses far and the distant object gets clear.
- Click , then the lens focuses near and the nearby object gets clear.
PTZ Speed
Slide to adjust the speed of the pan/tilt movement.

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

3.1.13 Conduct 3D Positioning

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

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

3.2 Set Transmission Parameters

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

Steps
1. Go to Configuration → Local.
2. Set the transmission parameters as required.

Protocol

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

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

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

For detailed information about multicast, refer to Multicast.

HTTP

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

Play Performance

Shortest Delay

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

Balanced

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

Fluent

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

Custom

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

3. Click OK.

3.3 Set Smooth Streaming

It is a function to tackle the latency and network congestion caused by unstable network condition, and keep 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 the 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 and resolution takes the priority. The upper limits of these two parameters will not exceed the values you set on Video page. Go to Configuration → Video/Audio → Video, set the Resolution and Max. Bitrate before
you enable smooth streaming function. In this mode, the frame rate will be adjusted to the maximum value automatically.

**Resolution Priority**

The resolution stays the same as the set value on **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 is, the more redundant date will be generated, the more data error would be corrected, but the larger bandwidth would be required. When the proportion is 100, the redundant data will be as large as the original data, and the bandwidth is twice 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 part introduces the settings of video parameters, such as, stream type, video encoding, and resolution.

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

4.1.1 Stream Type

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

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

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

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

Set Custom Video

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

Steps

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

1. Click + to add a stream.
2. Change the stream name as needed.
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 \(\times\) to delete it.
6. Click Save.

### 4.1.2 Video Type

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

**Video**
- Only video content is contained in the stream.

**Video & Audio**
- Video content and audio content are contained in the composite stream.

### 4.1.3 Resolution

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

### 4.1.4 Bitrate Type and Max. Bitrate

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

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

### 4.1.5 Video Quality

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

### 4.1.6 Frame Rate

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

4.1.7 Video Encoding

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

**Note**
Available compression standards vary according to device models.

**H.264**

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

**H.264+**

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

**Note**
When H.264+ is enabled, 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**

When H.265+ is enabled, **Video Quality**, **I Frame Interval**, **Profile** and **SVC** are not configurable.

### I-Frame Interval

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

### SVC

Scalable Video Coding (SVC) is the name for the Annex G extension of the H.264 or H.265 video compression standard. The objective of the SVC standardization has been to enable the encoding of a high-quality video bitstream that contains one or more subset bitstreams that can themselves be decoded with a complexity and reconstruction quality similar to that achieved using the existing H.264 or H.265 design with the same quantity of data as in the subset bitstream. The subset bitstream is derived by dropping packets from the larger bitstream. SVC enables forward compatibility for older hardware: the same bitstream can be consumed by basic hardware which can only decode a low-resolution subset, while more advanced hardware will be able decode high quality video stream.

### MPEG4

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

### MJPEG

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

### Profile

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

### 4.1.8 Smoothing

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

4.2 ROI

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

4.2.1 Set ROI

ROI (Region of Interest) encoding helps to 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 is, the clearer the image of the detected region is.

7. Optional: Select other region No. and repeat the above steps if you need to draw multiple fixed regions.
4.2.2 Set Face Tracking ROI

When the face tracking function is enabled in ROI and the 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 the image quality enhancing level. The larger the value is, the better the image quality would be.

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 is, the clearer the target is.
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 clearer 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 is, the better the image quality would be.

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

4.4 Audio Settings

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

4.4.1 Audio Encoding

Select the audio encoding compression of the audio.

4.4.2 Audio Input

<table>
<thead>
<tr>
<th>Note</th>
</tr>
</thead>
</table>
| ● Connect the audio input device as required.  
● The audio input display varies with the device models. |

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

4.4.3 Audio Output

<table>
<thead>
<tr>
<th>Note</th>
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<tbody>
<tr>
<td>Connect the audio output device as required.</td>
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</tbody>
</table>

It is a switch of the device audio output. You can adjust the output volume as required. When it is disabled, all the device audio cannot output. The audio output display varies with the device.
modes.

4.4.4 Environmental Noise Filter

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

4.5 Two-way Audio

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

Before You Start

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

Steps

1. Click Live View.
2. Click on the toolbar to enable two-way audio function of the camera.
3. Click and select , move the slider to adjust the volume.
4. Click , disable the two-way audio function.

4.6 Display Settings

It offers the parameter settings to adjust image features.

Go to Configuration → Image → Display Settings.

Click Default to restore settings.
4.6.1 Scene Mode

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

Image Adjustment

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

Exposure Settings

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

Focus

It offers options to adjust the focus mode and the minimum focus distance.

Focus Mode

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

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

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

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

Day/Night Switch

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

Day
The image is always in color.

Night
The image is always black/white
Auto

The camera switches between the day mode and the night mode according to the illumination automatically.

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 alarm input signal.

---

**Note**

Day/Night Switch function varies according to models.

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

Lens Distortion Correction

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

---

**Note**

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

BLC

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

WDR

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

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

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 degree. The higher level means stronger reduction degree.

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

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

### 4.6.4 Local Video Output

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

### 4.7 OSD

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

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

**Displayed Information**
Set camera name, date, week, and their related display format.

**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 4 areas are supported for setting.

### 4.9 Overlay Picture

Overlay a customized picture on live view.

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

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

\textbf{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 \textit{Configuration} $\rightarrow$ \textit{Video/Audio} $\rightarrow$ \textit{Target Cropping}.
2. Check \textbf{Enable Target Cropping} and set \textbf{Third Stream} as the \textbf{Stream Type}.

\begin{center}
\textbf{iNote}
After enabling target cropping, the third stream resolution cannot be configured.
\end{center}

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

\begin{center}
\textbf{iNote}
\begin{itemize}
  \item Only certain models support target cropping and the function varies according to different camera models.
  \item Some functions may be disabled after enabling target cropping.
\end{itemize}
\end{center}
Chapter 5 Video Recording and Picture Capture

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

5.1 Storage Settings

This part introduces the configuration of several common storage paths.

5.1.1 Set Memory Card

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

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

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

Detect Memory Card Status

It helps to detect the memory card status of Hikvision memory card. You receive notifications when your memory card is detected abnormal.

Before You Start
Memory card should be installed to the device.

Steps
1. Go to memory card detection setting page: 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](image)
It is recommended that you change the memory card when the health status is not “good”.

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

**Unlock**
- If you use the memory card on the 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.
   1. Remove the LockSelect the **Lock Switch** as OFF.
   2. Enter the password in **Password Settings**.
   3. Click **Save**.

![Note](image)
- 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.

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

**5.1.2 Set FTP**

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

**Before You Start**
Get the FTP server address first.
Steps
1. Go to **Configuration → Network → Advanced Settings → FTP**.
2. Configure FTP settings.

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

**Server Address and Port**
- The FTP server address and corresponding port.

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

**Directory Structure**
- The saving path of snapshots in the FTP server.

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

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

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

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

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

**5.1.3 Set NAS**

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

**Before You Start**
- Get the IP address of the network disk first.
Steps
1. Go to NAS setting page: Configuration → Storage → Storage Management → Net HDD.
2. Click HDD No.. Enter the server address and file path for the disk.
   
   **Server Address**
   
   The IP address of the network disk.

   **File Path**
   
   The saving path of network disk files.

   **Mounting Type**
   
   Select file system protocol according to the operation system.
   
   Enter user name and password of the net HDD to guarantee the security if SMB/CIFS is selected.
3. Click Test to check whether the network disk is available.
4. Click Save.

5.1.4 eMMC Protection

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 only supported by certain models.

**Caution**

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

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.

   **Serve 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**
   
   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 type is vary according to different models.

Continuous
The video will be recorded continuously according to the schedule.

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

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

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

Motion & Alarm
Video is recorded only when motion is detected and alarm signal is received from the external alarm input device.
Event
The video is recorded when configured event is detected.

4. Set schedule for the selected record type. Refer to Set Arming Schedule for the setting operation.

5. Click Advanced to set the advanced settings.

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

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

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

Stream Type
Select the stream type for recording.

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

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

6. Click Save.

5.2.2 Record Manually

Steps
1. Go to Configuration → Local.
2. Set the Record File Size and saving path to for recorded files.
3. Click Save.
4. Click ⌁ to start recording. Click ⌁ to stop recording.

5.2.3 Set Lite Storage

After the lite storage is enabled, the frame rate and bitrate of the video stream 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 is, the larger the frame rate and bitrate are, and the shorter the recommended storage time is.

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 the lite storage is enabled, 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 the 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**.
   The matched video files showed on the timing bar.
3. Click ▶ to play the video files.
   - Click ⌂ to clip video files.
   - Click ⚪ to play video files in full screen. Press **ESC** to exit full screen.

![Note]

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, you should configure related linkage methods in event settings. Refer to Event and Alarm for event settings.

Steps
1. Go to Configuration → Storage → Schedule Settings → Capture → Capture Parameters.
2. Set the capture type.
   - Timing
     - Capture a picture at the configured time interval.
   - Event-Triggered
     - Capture a picture when an event is triggered.
3. Set the Format, Resolution, Quality, Interval, and Capture Number.
4. Refer to Set Arming Schedule for configuring schedule time.
5. Click Save.

5.3.2 Capture Manually

Steps
1. Go to Configuration → Local.
2. Set the Image Format and saving path to for snapshots.
   - JPEG
     - The picture size of this format is comparatively small, which is better for network transmission.
   - BMP
     - The picture is compressed with good quality.
3. Click Save.
4. Click near the live view or play back window to capture a picture manually.
5.3.3 View and Download Picture

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

Steps
1. Click **Picture**.
2. Set search condition and click **Search**.
   The matched pictures showed in the file list.
3. Select the pictures then click **Download** to download them.

![Note]

Go to **Configuration → Local**, click **Save snapshots when playback** to change the saving path of pictures.
Chapter 6 Event and Alarm

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

6.1 Basic Event

6.1.1 Set Motion Detection

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

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

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 value of sensitivity is, the more sensitive the motion detection is. If the sensitivity is set to 0, motion detection and dynamic analysis do not take effect.

Proportion
It refers to 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.

![Figure 6-1 Set Rules](image)

Stop Drawing Finish drawing one area.
Clear All Delete all the areas.

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 value of sensitivity is, the more sensitive the motion detection is. If the sensitivity is set to 0, motion detection and dynamic analysis do not take effect.
3. Click Draw Area. Click and drag the mouse on the live video, then release the mouse to finish drawing one area.
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.

<table>
<thead>
<tr>
<th>Button</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stop Drawing</td>
<td>Finish drawing.</td>
</tr>
<tr>
<td>Clear All</td>
<td>Delete all the drawn areas.</td>
</tr>
</tbody>
</table>
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 dogs, cats, etc., can be detected.

**Steps**

<table>
<thead>
<tr>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Only certain models support PIR alarm.</td>
</tr>
</tbody>
</table>

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

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

Steps
1. Go to Configuration → Event → Basic Event → Exception.
2. Select Exception Type.
   - HDD Full: The HDD storage is full.
   - HDD Error: Error occurs in HDD.
   - Network Disconnected: The device is offline.
   - IP Address Conflicted: The IP address of current device is same as that of other device in the network.
   - Illegal Login: Incorrect user name or password is entered.
3. Refer to Linkage Method Settings for setting linkage method.
4. Click Save.

6.1.5 Set Alarm Input

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

Before You Start
Make sure the external alarm device is connected. See Quick Start Guide for cables connection.

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

6.1.6 Set Video Quality Diagnosis

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

Steps
1. Go to Configuration → Event → Basic Event → Video Quality Diagnosis.
2. Select Diagnosis Type.
3. Set the corresponding parameters.

**Alarm Detection Interval**

The time interval to detect the exception.

**Sensitivity**

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

**Alarm Delay Times**

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

4. Check **Enable**, and the selected diagnosis type will be detected.
5. Set arming schedule. See **Set Arming Schedule**.
6. Set linkage method. See **Linkage Method Settings**.
7. Click **Save**.

---

**Note**

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

---

### 6.1.7 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 only supported by certain models. The actual display varies with models.

---

### 6.2 Smart Event

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**Note**

- For certain device models, you need to enable the smart event function on **VCA Resource** page first to show the function configuration page.
- The function varies according to different models.
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 some certain actions can be taken as response.

Steps
1. Go to Configuration → Event → Smart Event → Audio Exception Detection.
2. Select one or several audio exception detection types.
   - **Audio Loss Detection**
     Detect sudden loss of audio track.
   - **Sudden Increase of Sound Intensity Detection**
     Detect sudden increase of sound intensity. Sensitivity and Sound Intensity Threshold are configurable.
   - **Note**
     - The lower the sensitivity is, the more significant the change should be to trigger the detection.
     - The sound intensity threshold refers to the sound intensity reference for the detection. It is recommended to set as the average sound intensity in the environment. The louder the environment sound, the higher the value should be. You can adjust it according to the real environment.
   - **Sudden Decrease of Sound Intensity Detection**
     Detect sudden decrease of sound intensity. Sensitivity is configurable.
3. Refer to Set Arming Schedule for setting scheduled time. Refer to Linkage Method Settings for setting linkage methods.
4. Click Save.
   - **Note**
     The function varies according to different models.

6.2.2 Set Defocus Detection

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

Steps
1. Go to Configuration → Event → Smart Event → Defocus Detection.
2. Check Enable.
3. Set **Sensitivity**. The higher the value is, the more easily the defocus image can trigger the alarm. You can adjust the value according to the actual environment.

4. For the linkage method settings, refer to **Linkage Method Settings**.

5. Click **Save**.

---

**Note**

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

---

### 6.2.3 Detect Scene Change

Scene change detection function detects the change of surveillance scene. Some certain actions can be taken when the alarm is triggered.

**Steps**

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

---

**Note**

The function varies according to different models.

---

### 6.2.4 Set Face Detection

It helps to detect the 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 is, the profile of the face 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. Refer to Set Arming Schedule for setting scheduled time. Refer to Linkage Method Settings for setting linkage method.
4. Click Save.

6.2.6 Set Intrusion Detection

It is used to detect objects entering and loitering in a pre-defined virtual region. If it occurs, 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: Sensitivity stands for the percentage of the body part of an acceptable target that enters the pre-defined region. Sensitivity = 100 - S1/ST × 100. S1 stands for the target body part that goes across the pre-defined region. ST stands for the complete target body. The higher the value of sensitivity is, the more easily the alarm can be triggered.
   - Threshold: Threshold stands for the threshold for the time of the object loitering in the region. If the time that one object stays exceeds the threshold, the alarm is triggered. The larger the value of the threshold is, the longer the alarm triggering time is.
   - Object: You can specify the object type to be detected and the device only detects the selected type of object.
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.

6.2.7 Set Line Crossing Detection

It is used to detect 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**
  - A<->B: The object going across the line from both directions can be detected and alarms are triggered.
  - A->B: Only the object crossing the configured line from the A side to the B side can be detected.
  - B->A: Only the object crossing the configured line from the B side to the A side can be detected.

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

**Object**

You can specify the object type to be detected and the device only detects the selected type of object.

![Figure 6-5 Set Rule](image)

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

It is used to detect objects entering a pre-defined virtual region from the outside place. 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 the detected targets will be reported, including the human and the vehicle.
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

It is used to detect 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 the detected targets will be reported, including the human and the vehicle.
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

It is used to detect the objects left over in the pre-defined region. Linkage methods can be triggered after the 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
   Sensitivity stands for the percentage of the body part of an acceptable target that enters the pre-defined region. Sensitivity = 100 - S1/ST × 100. S1 stands for the target body part that goes across the pre-defined region. ST stands for the complete target body. The higher the value of sensitivity is, the more easily the alarm can be triggered.

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

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

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]. It stands for the percentage of the body part of an acceptable target that leaves the pre-defined region.

\[
\text{Sensitivity} = 100 - \frac{S1}{ST} \times 100
\]

S1 stands for the target body part that leaves the pre-defined region.
ST stands for the complete target body.

Example: If you set the value as 60, a target is possible to 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.
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 only supported by certain models. The actual display varies with the models.

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

**Steps**

1. Click **Max. Size**, and drag the mouse in the live view to draw the maximum target size.
2. Click **Min. Size**, and drag the mouse in the live view to draw the minimum target size.
3. Click **Save**.
Chapter 7 Network Settings

7.1 TCP/IP

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

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

IPv4
Two IPv4 modes are available.

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

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

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

IPv6
Three IPv6 modes are available.

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

![Note]
Route advertisement mode requires the support from the router that the device is connected to.

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

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

MTU

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

DNS

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

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

IP Address

It stands for the address of multicast host.

Stream Type

The stream type of the multicast source.

Video Port

The video port of the selected stream.

Audio Port

The audio port of the selected stream.

FEC Port

The FEC port of the selected stream.

FEC Ratio

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

**Steps**

1. Go to the settings page: **Configuration → Network → Advanced Settings → SNMP**.
2. Check **Enable SNMPv1**, **Enable SNMP v2c** or **Enable SNMPv3**.

   **Note**

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

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

7.3 Set SRTP

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

**Steps**

1. Go to **Configuration → Network → Advanced Settings → SRTP**.
2. Select **Server Certificate**.
3. Select **Encrypted Algorithm**.
4. Click **Save**.

   **Note**

   ● Only certain device models support this function.
   ● If the function is abnormal, check if the selected certificate is abnormal in certificate management.
7.4 Port Mapping

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

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

Steps
1. Go to Configuration → Network → Basic Settings → NAT.
2. Select the port mapping mode.
   - Auto Port Mapping Refer to Set Auto Port Mapping for detailed information.
3. Click Save.

7.4.1 Set Auto Port Mapping

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

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

7.4.2 Set Manual Port Mapping

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

What to do next
Go to the router port mapping settings interface and set the port number and IP address to be the same as those on the device. For more information, refer to the router user manual.
7.4.3 Set Port Mapping on Router

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

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

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

![Figure 7-1 Port Mapping on Router](image)

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

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

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

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

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

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

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

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

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

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

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

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

⚠️ Note
- Enhanced SDK Service Port, WebSocket Port, and WebSockets Port are only supported by certain models.
- For device models that support that function, go to Configuration → Network → Advanced Settings → Network Service to enable it.
7.6 Access to Device via Domain Name

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

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

Steps
1. Refer to TCP/IP to set DNS parameters.
2. Go to the DDNS settings page: Configuration → Network → Basic Settings → DDNS.
3. Check Enable DDNS and select DDNS type.
   - DynDNS
     Dynamic DNS server is used for domain name resolution.
   - NO-IP
     NO-IP server is used for domain name resolution.
4. Input the domain name information, and click Save.
5. Check the device ports and complete port mapping. Refer to Port to check the device port, and refer to Port Mapping for port mapping settings.
6. Access the device.
   - By Browsers
     Enter the domain name in the browser address bar to access the device.
   - By Client Software
     Add domain name to the client software. Refer to the client manual for specific adding methods.

7.7 Access to Device via PPPoE Dial Up Connection

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

Steps
1. Go to Configuration → Network → Basic Settings → PPPoE.
2. Check Enable PPPoE.
3. Set the PPPoE parameters.
   - Dynamic IP
     After successful dial-up, the dynamic IP address of the WAN is displayed.
   - User Name
     User name for dial-up network access.
Password
Password for dial-up network access.

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

By Browsers Enter the WAN dynamic IP address in the browser address bar to access the device.

By Client Software Add the WAN dynamic IP address to the client software. Refer to the client manual for details.

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

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

Note
The function is only supported by certain device models.

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 to the corresponding slot.

Steps
2. Check to enable the function.
3. Click Dial Parameters to configure and save the parameters.
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.

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 mobile phone number of administrator to the white list in order 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 certain 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 wireless network by setting Wi-Fi parameters.

⚠️ Note
This function is only supported 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 the 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.
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 can see the indicator near the button start flashing, which means the WPS function of the router is enabled. For detailed operation, please see the user guide of the router.
   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 in 120 second to quickly 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.

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 user manual of wireless router 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 you get 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 protocol as desired.

**Steps**

---

**Note**

This function varies according to different models.

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

WebSocket or WebSockets protocol should be enabled if you use Google Chrome 57 and its above version or Mozilla Firefox 52 and its above version to visit the device. Otherwise, live view, image capture, 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 set up connection between the device and the client software, it is recommended to use Enhanced SDK Service and set the communication in Arming Mode to encrypt the data transmission.

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**

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, HTTP, or ISUP data
transmission.

**Steps**
1. Go to **Configuration** → **Network** → **Advanced Settings** → **Alarm Server**.
2. Enter **Destination IP or Host Name, URL, and Port**.
3. 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 an application for mobile devices. Using the App, you can view live image, receive alarm notification and so on.

**Before You Start**
Connect the camera to network with network cables.

**Steps**
1. Get and install Hik-Connect application by the following ways.
   Visit [https://appstore.hikvision.com](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 like "Unknown app" occur during the installation, solve the problem in two ways.
Visit [https://appstore.hikvision.com/static/help/index.html](https://appstore.hikvision.com/static/help/index.html) to refer to the troubleshooting. Visit [https://appstore.hikvision.com/](https://appstore.hikvision.com/), and click **Installation Help** at the upper right corner of the interface to refer to the troubleshooting.

2. Start the application and register for a Hik-Connect user account.
3. Log in after registration.
4. In the app, tap "+" on the upper-right corner and then scan the QR code of the camera to add the camera. You can find the QR code on the camera or on the cover of the Quick Start Guide of the camera in the package.

5. Follow the prompts to set the network connection and add the camera to your Hik-Connect account.

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

7.13.1 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 Web browser.

Enable Hik-Connect Service via Web Browser

Follow the following steps to enable Hik-Connect Service via Web Browser.

Before You Start
You need to activate the camera before enabling the service.

Steps
1. Access the camera via web browser.
2. Enter platform access configuration interface. Configuration → Network → Advanced Settings → Platform Access
3. Select Hik-Connect as the Platform Access Mode.
4. Check Enable.
5. Click and read "Terms of Service" and "Privacy Policy" in pop-up window.
6. Create a verification code or change the old verification code for the camera.

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

7. Save the settings.

Enable Hik-Connect Service via SADP Software

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

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

![QR Code]

Note
If errors like "Unknown app" occur during the installation, solve the problem in two ways. Visit https://appstore.hikvision.com/static/help/index.html to refer to the troubleshooting. Visit https://appstore.hikvision.com/, and click Installation Help at the upper right corner of the interface to refer to the troubleshooting.

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

7.13.3 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.
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 which your mobile phone has connected to.

8. Tap **Add** in the next interface to finish adding.
   For detailed information, refer to the user manual of the Hik-Connect app.
Chapter 8 Arming Schedule and Alarm Linkage

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

8.1 Set Arming Schedule

Set the valid time of the device tasks.

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

```
**Note**
Up to 8 periods can be configured for one day.
```

3. Adjust the time period.
   - Click on the selected time period, and enter the desired value. Click **Save**.
   - Drag the both ends to adjust the time period.
   - 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.
Refer to **Set FTP** to set the FTP server.
Refer to **Set NAS** for NAS configuration.
Refer to *Set Memory Card* for memory card storage configuration.

### 8.2.3 Send Email

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

#### Set Email

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

**Before You Start**

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

**Steps**

1. Go to email settings page: **Configuration → Network → Advanced Settings → Email**.
2. Set email parameters.
   1) Input the sender's email information, including the **Sender's Address**, **SMTP Server**, and **SMTP Port**.
   2) Optional: If your email server requires authentication, check **Authentication** and input your user name and password to log in to the server.
   3) Set the **Email Encryption**.
      - When you select **SSL** or **TLS**, and disable STARTTLS, emails are sent after encrypted by SSL or TLS. The SMTP port should be set as 465.
      - When you select **SSL** or **TLS** and **Enable STARTTLS**, emails are sent after encrypted by STARTTLS, and the SMTP port should be set as 25.

   **Note**

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

4) Optional: If you want to receive notification with alarm pictures, check **Attached Image**. The notification email has 3 attached alarm pictures about the event with configurable image capturing interval.
5) Input the receiver's information, including the receiver's name and address.
6) Click **Test** to see if the function is well configured.
3. Click **Save**.
8.2.4 Notify Surveillance Center

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

8.2.5 Trigger Recording

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

8.2.6 Flashing Light

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

Set Flashing Alarm Light Output

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

Steps
1. Go to Configuration → Event → Basic Event → Flashing Alarm Light Output.
2. Set Flashing Duration, Flashing Frequency and Brightness.
   - **Flashing Duration**
     - The time that the flashing lasts when one alarm happens.
   - **Flashing Frequency**
     - The rate at which the light flashes. High frequency, medium frequency, low frequency, and normally on are selectable.
   - **Brightness**
     - The brightness of the light.
3. Set the arming schedule. See Set Arming Schedule for details.
4. Click Save.

>Note

Only certain device models support the function.

8.2.7 Audible Warning

After enabling Audible Warning and setting Audible Alarm Output, the built-in speaker of the device or connected external speaker plays warning sounds when an alarm happens. For audible alarm output settings, refer to Set Audible Alarm Output.
Note
The function is only supported by certain camera models.

Set Audible Alarm Output

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

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

Note
The function is only supported by certain device models.
Chapter 9 System and Security

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

9.1 View Device Information

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

9.2 Search and Manage Log

Log helps locate and troubleshoot problems.

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

9.3 Simultaneous Login

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

Go to **Configuration → System → User Management**, click **General** and set **Simultaneous Login**.

9.4 Import and Export Configuration File

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

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

9.5 Export Diagnose Information

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

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

### 9.6 Reboot

You can reboot the device via browser.

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.

<table>
<thead>
<tr>
<th><strong>Restore</strong></th>
<th>Reset device parameters, except user information, IP parameters and video format to the default settings.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Default</strong></td>
<td>Reset all the parameters to the factory default.</td>
</tr>
</tbody>
</table>

**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**

You need to obtain the correct upgrade package.

**Caution**

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

**Steps**
1. Go to **Configuration → System → Maintenance → Upgrade & Maintenance**.
2. Choose one method to upgrade.

<table>
<thead>
<tr>
<th><strong>Firmware</strong></th>
<th>Locate the exact path of the upgrade file.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Firmware Directory</strong></td>
<td>Locate the directory which the upgrade file belongs to.</td>
</tr>
</tbody>
</table>
3. Click **Browse** to select the upgrade file.
4. Click **Upgrade**.

### 9.9 View Open Source Software License

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 depending on different devices.

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

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

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

Steps
2. Set the RS-485 parameters.
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 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 the device supporting 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 with models.

**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 over exposure when the supplement light is on.

**Supplement Light Mode**
When the device supports supplement light, you can select supplement light mode.

**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.

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

**RTSP Authentication**

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

**RTSP Digest Algorithm**

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

**WEB Authentication**

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

**WEB Digest Algorithm**

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

IP address refers to IPv4.

Steps
1. Go to Configuration → System → Security → IP Address Filter.
2. Check Enable IP Address Filter.
3. Select the type of IP address filter.
   - Forbidden: IP addresses in the list cannot access the device.
   - Allowed: Only IP addresses in the list can access the device.
4. Edit the IP address filter list.
   - Add: Add a new IP address or IP address range to the list.
   - Modify: Modify the selected IP address or IP address range in the list.
   - Delete: Delete the selected IP address or IP address range in the list.
5. Click Save.

9.14.3 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 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 bigger the DSCP value is, the higher the priority is. You need to set the same value in router while configuration.

3. Click **Save**.

9.14.5 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, the authentication is needed.

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

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

**Protocol**

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

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

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

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

9.14.6 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 web browser within the set timeout period.
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 the illegal intrusion and troubleshoot the security events.

**Steps**

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

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

### 9.15 Certificate Management

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

#### 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 with that of the existing certificate and import a certificate that has the same content with 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** Refer to **Create Self-signed Certificate**
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 in 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 3 months is recommended. If the device is used in high-risk environment, it is recommended that the password should be changed every month or week.

Steps

1. Go to Configuration → System → User Management → User Management.
2. Click Add. Enter User Name, select Level, and enter Password. Assign remote permission to users based on needs.
   - **Administrator**
     - The administrator has the authority to all operations and can add users and operators and assign permission.
   - **User**
     - Users can be assigned permission of viewing live video, setting PTZ parameters, and changing their own passwords, but no permission for other operations.
   - **Operator**
     - Operators can be assigned all permission except for operations on the administrator and creating accounts.

   **Modify**
   - Select a user and click Modify to change the password and permission.

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

>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 logging into the system through web browser simultaneously.
Go to Configuration → System → User Management, click General and set Simultaneous Login.

9.16.3 Online Users

The information of users logging into the device is shown.
Go to Configuration → System → User Management → Online Users to view the list of online users.
Chapter 10 Allocate VCA Resource

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

Steps
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 only supported 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.
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 whether 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. Refer to 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

It is used to set and optimize the parameters of the algorithm library for face capture.
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 was a face in the configured area from the start, this face will not be captured. It can reduce the misinformation of the faces in the wall painting or posters. The default value of 3 is recommended.

**Sensitivity**
The sensitivity to identify a target. The higher the value is, the easier a face will be recognized, and the higher possibility of misinformation would be. The default value of 3 is recommended.

**Capture Parameters**

**Best Shot**
The best shot after target leave the detection area.

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

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

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

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

Face Exposure
Check the checkbox to enable the face exposure.

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

Minimum Duration
The minimum duration of the camera exposes the face. The default value is 1 minute.

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

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

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

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 vehicle, non-motor vehicle, and pedestrian 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**

Go to **Configuration** → **System** → **System Settings** → **VCA Resources**, and select **Road Traffic**.

**Steps**

1. Go to **Configuration** → **Road Traffic** → **Detection Configuration**, and select **Vehicle Detection** as detection type.
2. Check **Enable**.
3. Select the lane number.
4. Click and drag the lane line to set its position, or click and drag the line end to adjust the length and angle of the line.
5. Adjust the zoom ratio of the camera so that the size of the vehicle in the image is close to that of the red frame. Only the position of red frame is adjustable.

**Note**

Only 1 license plate can be captured at one time for each lane.

6. Select **Region** and **Country/Region**.
7. Select the license plate information upload mode.

<table>
<thead>
<tr>
<th><strong>Entrance/Exit</strong></th>
<th>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.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>City Street</strong></td>
<td>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.</td>
</tr>
</tbody>
</table>
**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.

---

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

---

**Note**

Up to 8 license plates are supported.

---

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

---

### 10.2.2 Set Mixed-Traffic Detection Rule

The motor vehicle, non-motor vehicle, and pedestrian 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**

Go to **Configuration** → **System** → **System Settings** → **VCA Resources**, and select **Road Traffic**.

**Steps**

1. Go to **Configuration** → **Road Traffic** → **Detection Configuration**, and select **Mixed-traffic Detection** as detection type.
2. Check **Enable**.
3. Select the lane number.
4. Select **Region** and **Country/Region**.
5. 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**.
6. 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.

Go to Configuration → Road Traffic → Picture.

Picture Quality
The larger the value is, the clearer the picture is, but larger storage space is also required.

Picture Size
The larger the value is, the larger the storage space is needed. And the level of network transmission requirement is also higher.

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.

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 as desired, 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 corresponds 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 the .xls format and the cell format should be Text.

3. Click Import to import the selected file.
4. Click Export to open the PC local directory.
5. Select a directory in your PC local directory.
6. Name the file in the file name text filed.
7. Click Save.
10.3 Multi-Target-Type Detection

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

**Note**
For certain device models, you need to enable 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 it is basic for the device to recognize a face.
5. Set arming schedule. See Set Arming Schedule.
7. Click Save.

**What to do next**

Go to Picture to search and view the captured pictures.
Go to Smart Display to see currently captured target pictures.

10.3.2 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.
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

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

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

**HMS Version**

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

**Restore Defaults**

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

**Detection Parameters**

**Generation Speed**

It is the speed of deciding whether an object in detection area is a target or not. The higher the value is, the faster the target will be detected. The default value is recommended.

**Sensitivity**

It is the sensitivity of recognizing a target. The higher the value is, the easier a target will be recognized, and the higher possibility of misinformation would be. The default value is recommended.
Capture Parameters

Best Shot

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

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

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

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

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

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 the duplicate faces and calculate the number of objects entered or exited 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 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.

10.4.3 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
  It refers to the current algorithm version, which cannot be edited.
Best Shot
The best shot after the target leaves the detection area.

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

Capture Threshold
It refers to the 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 is.

Min. Duration
The minimum duration of the camera exposes the face.

Note
If the face exposure is enabled, make sure the WDR function is disabled, and the 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 is, the more difficult it is to detect the target, but the higher the detection
accuracy would be.

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

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

**Note**
Queue management is only supported by certain models.

10.5.1 Set Regional People Queuing-Up

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

**Before You Start**
To enable the function, go to VCA 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.

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 only trigger one notification.

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 only save 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.

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

**10.6 Counting**

It helps to calculate the number of people entering or exiting a certain configured area.

- **Note**
  
  Counting is only supported by certain models.
10.6.1 Set Counting

It is used 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 only counts the number of the current day. The number is cleared when the device is restarted or midnight comes. You can also click 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.

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

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

Note
Only certain device models support the function.

10.7.1 Set Hard Hat Detection

Before You Start
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.
   Target Generation Speed
   It refers to the target generation speed of the face entering the detection region. The greater the value is, the quicker the generation speed is.
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.

   Figure 10-5 Hard Hat Detection
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 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.
   3) Click OK.
3) Optional: Modify a face picture library. Select the desired library and click and change related parameters.
4) Optional: Delete a library. Select the desired library and click .
3. Add face pictures to the library.

!\[Note\]

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

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

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

!\[Note\]

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

4. Optional: Modify face information.
   1) Select a face picture library.
   2) Select the target face picture. You can use the search function to locate the picture by inputting search conditions, 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.

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 upload 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**.
   Matched results are shown 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 which scores higher than the set face grading threshold for capture.

**Face Grading Threshold for Capture**

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

**Max. Capture Interval**

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

5. Set arming schedule. See *Set Arming Schedule*.

6. Set linkage method. See *Linkage Method Settings*.
Chapter 11 Open Platform

Open platform allows you to install the application for the third-party to develop and run its function and service.

Note
Only certain device models support the function.

11.1 Set Open Platform

Steps
1. Go to Configuration → Open Platform.

Note
Before installing the application, please read the Disclaimer at the bottom and make sure that the application you want to install fit the following conditions.
- Each application has its own exclusive name.
- The FLASH memory space that the application takes up is less than the available FLASH memory space of the device.
- The memory and computing power of the application is less than that available memory and computing power of the device.

2. In Install Apps, click Browse and select the imported application package.
3. Click Import to complete the installation.

![Application List](image)

Figure 11-1 Open Platform
The installed applications and their related 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 should be both 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.
   - Patrol Refer to
   - Auto-tracking Refer to
Chapter 13 Smart Display

It can display the 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.
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.
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.
See Far, Go Further