Smart Linkage PTZ Camera

User Manual

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Contents

Chapter 1 Overview

1.1 Product Introduction

The Smart-Linkage PTZ Camera is an HD camera for remote monitoring through network. It is easy to install with simple wiring and is easy to use.

The device consists of two channels: Camera 01 is the PTZ channel and Camera 02 is the panoramic channel. The integrated design combines the advantage of panoramic camera and PTZ camera to capture the whole picture and details at the same time. Based on deep learning technology, the device is able to filter out interference factors and get a clear image of the target.
The device has multiple features and can be widely used in complicated environments such as entrances and exits, mixed-traffic roads, sidewalks, parks, scenic areas, streets, stations, residential blocks, and boundaries.

1.2 Key Function

The key functions of the device are as follows. Available functions vary depending on the model.

Linked Movement

When the panoramic channel is panning, the PTZ channel follows. The movement of the PTZ channel can also be controlled separately.

Linked Capture

The panoramic channel and the PTZ channel are linked together to fast locate and capture targets.

Face Capture

The device detects, tracks, captures, grades, and filters moving faces, and outputs captured pictures.

Multi-Target-Type Detection

The device captures different types of targets, such as faces, human bodies, and vehicles, and extracts features of the target.

Face Comparison and Modeling

The device compares captured faces with pictures in the library and outputs the result, or creates face models and uploads to the surveillance center.

1.3 System Requirement

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

	Recommended Specifications
Operating System	Microsoft Windows XP/ Windows 7/ Windows 8/ Windows 10 Mac OS 10.13 or later
CPU	Intel® Pentium® IV 3.0 GHz or higher
RAM	1 G or higher
Display	1024 × 768 resolution or higher
Web Browser	Internet Explorer 10 and above version, Apple Safari 12 and above version, Mozilla Firefox 52 and above version, Google Chrome 57 and above version.

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 Device

The device need to be activated by setting a strong password before use. This part introduces activation using different client tools.

2.1.1 Activate Device via Web Browser

Use web browser to activate the device. For the device with the DHCP enabled by default, use SADP software or PC client to activate the device.

Before You Start

Make sure your device and your PC connect to the same LAN.

Steps

1. Change the IP address of your PC to the same subnet as the device.

   The default IP address of the device is 192.168.1.64.
2. Open a web browser and input the default IP address.
3. Create and confirm the admin password.

   Caution

   STRONG PASSWORD RECOMMENDED-We highly recommend you create a strong password of your own choosing (using a minimum of 8 characters, including upper case letters, lower case letters, numbers, and special characters) in order to increase the security of your product. And we recommend you reset your password regularly, especially in the high security system, resetting the password monthly or weekly can better protect your product.
4. Click **OK** to complete activation and enter **Live View** page.
5. Modify IP address of the camera.
   1) Enter IP address modification page. **Configuration → Network → TCP/IP**
   2) Change IP address.
   3) Save the settings.

2.1.2 Activate via SADP

SADP is a tool to detect, activate and modify the IP address of the device over the LAN.

Before You Start

- Get the SADP software from the supplied disk or the official website ***http://www.hikvision.com/*** , and install the SADP according to the prompts.
- The device and the PC that runs the SADP tool should belong to the same subnet.

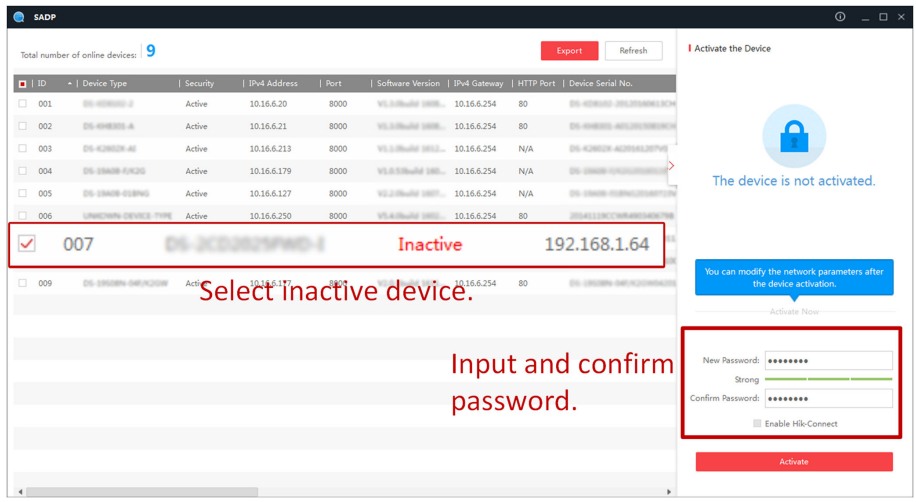
The following steps show how to activate one device and modify its IP address. For batch activation and IP address modification, refer to *User Manual of SADP* for details.

Steps

1. Run the SADP software and search the online devices.
2. Find and select your device in online device list.
3. Input new password (admin password) and confirm the password.

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

4. Click **Activate** to start activation.



Status of the device becomes **Active** after successful activation.

5. Modify IP address of the device.
   1) Select the device.
   2) Change the device IP address to the same subnet as your computer by either modifying the IP address manually or checking **Enable DHCP**.
   3) Input the admin password and click **Modify** to activate your IP address modification.

2.2 Access Device via Web Browser

Before You Start

Check the system requirement to confirm that the operating computer and web browser meets the requirements.

Steps

1. Open the web browser.
2. Input IP address of the device to enter the login interface.
3. Input user name and password.

Note

Illegal login lock is activated by default. If admin user performs seven failed password attempts (five attempts for user/operator), the IP address is blocked for 30 minutes.
If illegal login lock is not needed, go to **Configuration → System → Security → Security Service** to turn it off.

4. Click **Login**.
5. Download and install appropriate plug-in for your web browser.

   For IE based web browser, webcomponents and QuickTime™ are optional. For non-IE based web browser, webcomponents, QuickTime™, VLC and MJEPG are optional.

2.2.1 Plug-in Installation

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

Operating System	Web Browser	Operation
Windows	Internet Explorer 10+	Follow pop-up prompts to complete plug-in installation.
Windows 7 and above version	Google Chrome 57+ Mozilla Firefox 52+	Click Download Plug-in to download and install plug-in.
Mac OS	Google Chrome 57+ Mozilla Firefox 52+ Mac Safari 12+	Plug-in installation is not required. Go to **Configuration → Network → Advanced Settings → Network Service** to enable WebSocket or Websockets for normal view. Display and operation of certain functions

Operating System	Web Browser	Operation
		are restricted. For example, Playback and Picture are not available. For detailed restricted function, refer to the actual device.

Note

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

2.2.2 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.

2.2.3 Illegal Login Lock

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

Go to **Configuration → System → Security → Security Service** , and enable **Enable Illegal Login Lock**. **Illegal Login Attempt** and **Locking Duration** are configurable.

Illegal Login Attempt

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

Locking Duration

The device releases the lock after the setting duration.

Chapter 3 Smart Function

3.1 Allocate VCA Resource

VCA resource offers you options to enable certain VCA functions according to actual need. It allocates resources to the desired functions.

Steps

1. Go to **Configuration → System → System Settings → VCA Resource** .
2. Select a desired VCA combination for the device.

Table 3-1 VCA Resource

VCA Combination	Function Description
Camera 01: Monitoring Camera 02: Smart Event	The panoramic channel (Camera 02) supports four additional smart events, line crossing detection, intrusion detection, region exiting detection and region entrance detection. The four events are often used to monitor and defend areas with clear perimeters. See ***Smart Event*** for instructions. When targets trigger the smart event detections, the PTZ channel (Camera 01) tracks the target and takes pictures after proper linked capture configuration. See ***Linked Capture*** for instructions.
Camera 01: Face Capture Camera 02: Multi-Target-Type Detection (Capture Target With Feature)	The panoramic channel (Camera 02) supports detecting, capturing and analyzing features of multiple target types. The target type can be human face and human body. See ***Multi-Target-Type Detection in Panoramic Channel*** for instructions. When targets trigger the multi-target-type detection in the panoramic channel, the PTZ channel (Camera 01) takes pictures of the targets after proper linked capture configuration. See ***Linked Capture*** for instructions. The PTZ channel is able to operate independent face detection and capture. Captured face pictures are available for the comparison with the face pictures in the library or creating face models for further usage. See ***Face Capture*** , ***Face Comparison*** and ***Face Modeling*** for instructions.
Camera 01: Multi-Target-Type Detection (Comparison Mode) Camera 02: Multi-Target-Type Detection (Capture Target With Feature)	The panoramic channel (Camera 02) supports detecting, capturing and analyzing features of multiple target types. The target type can be human face and human body. See ***Multi-Target-Type Detection in Panoramic Channel*** for instructions.

VCA Combination	Function Description
	When targets trigger the multi-target-type detection in the panoramic channel, the PTZ channel (Camera 01) takes pictures of the targets after proper linked capture configuration. See ***Linked Capture*** for instructions. The PTZ channel is able to operate independent multi-target-type detection and capture. Captured face pictures are available for the comparison with the face pictures in the library or creating face models for further usage. See ***Multi-Target-Type Detection in PTZ Channel*** , ***Face Comparison*** and ***Face Modeling*** for instructions.

3. Click **Save**.

Note

A reboot is needed for the settings to take effect.

3.2 Linked Capture

The panoramic channel and the PTZ channel are linked together to fast locate and capture targets.

Function Setup

To set up the linked capture, the following configurations should be done in order:

1. The panorama tracking settings, which link the panoramic channel and the PTZ channel. See ***Set Panorama Tracking*** for instructions.
2. The detection and capture settings of the panoramic channel. See ***Smart Event*** or ***Multi-Target-Type Detection in Panoramic Channel*** for instructions.
3. The rapid focus settings of the PTZ channel. See ***Set Rapid Focus*** for instructions.

Real-time Capture Display

Click **Smart Display** to view the real-time captured pictures.

3.3 Multi-Target-Type Detection in Panoramic Channel

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

Go to **Configuration → System → System Settings → VCA Resource** to enable the multi-target-type detection for Camera 02 (the panoramic channel).

3.3.1 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 the configuration page.
   - If you set the VCA Resource to Face Capture (Camera 01) and Multi-Target-Type Detection (Camera 02), the configuration path is **Configuration → Multi-Target-Type Detection → Rule** .
   - If you set the VCA Resource to Multi-Target-Type Detection for both channels, the configuration path is **Configuration → Multi-Target-Type Detection → Camera 02 → Rule** .
2. Check **Rule**.
3. Select a configuration mode.

   Normal One detection scene is allowed to set. The device captures targets in the scene during the set arming schedule.

   See ***Normal Mode Settings*** for details.

   Expert The device can patrol among the detection scenes and capture target images. Detection scenes and patrol schedule should be set in advance.

   See ***Expert Mode Settings*** for details.

What to do next

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

Normal Mode Settings

Steps

1. **Optional:** Click **Lock** to lock PTZ control to prevent the interruption from other PTZ related action during configuration.

   Normally, the PTZ control is automatically locked when you enter the configuration interface. You can manually resume the lock when the countdown is over.
2. Use PTZ control panel to locate a scene.
3. Click ⬡ , and draw a detection area on live image.
4. Input **Mounting Height** of the device.
5. Input 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.
6. Click **Save**.
7. Set arming schedule. See ***Set Arming Schedule*** .

8. Set linkage method. See ***Linkage Method Settings*** .

Expert Mode Settings

Steps

1. **Optional:** Click **Lock** to lock PTZ control to prevent the interruption from other PTZ related action during configuration.

   Normally, the PTZ control is automatically locked when you enter the configuration interface. You can manually resume the lock when the countdown is over.

2. Set detection scenes and detection areas.
   1) Select a detection scene.
   2) Click on live image to select a channel, and control the PTZ buttons to desired scenes (both channels are adjustable).

      Note

      When you adjust the pan angle of the panoramic channel (camera 02), the PTZ channel (camera 01) automatically follows to pan together.
      The PTZ channel is also allowed to be adjusted independently by clicking on the live image of the channel first and hitting PTZ control buttons.

   3) Click , and draw a detection area on the panoramic channel.
   4) Click **Save**.

      The device saves the PTZ positions for both channels.
   5) Repeat above steps to set other detection scenes and areas.
3. Input **Mounting Height** of the device.
4. Input 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 patrol schedule.
   1) Click **Patrol Schedule**.
   2) Draw time bars as desired.
   3) Click a time bar and click **Configuration**.
   4) Edit patrol path and input dwell time for each detection scene.

	Add a detection scene to the patrol path.
	Adjust the order of the scenes.
×	Delete the detection scene.

6. Set linkage method. See ***Linkage Method Settings*** .
7. Click **Save**.

3.3.2 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 rule information.

Display on Picture

Check the desired information to be overlaid on alarm pictures.

Display Human Tracking Pattern on Alarm Picture

Overlay human moving pattern on the alarm picture.

Display Motor Vehicle Tracking Pattern on Alarm Picture

Overlay motor vehicle moving pattern on the alarm picture.

Display Target Info. on Alarm Picture

Overlay the alarm pictures with target information.

Target Picture Settings

You can set the face picture type by selecting **Custom**, **Head Shot**, **Half-Body Shot**, or **Full-Body Shot**. If you select **Custom**, you can define detailed picture width and height of a picture freely. If the captured pictures should have the same picture height, check **Fixed Value** and input desired picture height.

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

Note

Face Beautification slightly adjusts the skin tone and reduces facial noise.

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**.

Text Overlay

You can check desired items (Device No., Camera Info. and Capture Time) and adjust their order to display on captured pictures by clicking .

The content of **Device No.** and **Camera Info** should be input on the same page.

3.3.3 Multi-Target-Type Detection Algorithm Parameters

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

Note

- If you set the VCA Resource to Face Capture (Camera 01) and Multi-Target-Type Detection (Camera 02), the configuration path is **Configuration → Multi-Target-Type Detection → Rule** .
- If you set the VCA Resource to Multi-Target-Type Detection for both channels, the configuration path is **Configuration → Multi-Target-Type Detection → Camera 02 → Rule** .

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

Quick Shot

The device captures the target picture once the score of the captured face exceeds the **Quick Shot Threshold** during the **Max. Capture Interval**. Otherwise, the device selects and uploads the picture with the highest score during the **Max. Capture Interval**.

Quick Shot Threshold

It refers to the quality of face to trigger quick shot.

Max. Capture Interval

It describes the max. time occupation for one quick shot.

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 lowers the exposure level. If a face in the actual scene is darker than the set reference, the device increases the exposure level.

Minimum Duration

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

Capture Ratio Factor

It stands for the zooming level of the PTZ channel during tracking. Lower value means larger zoomed-in level, which means the larger the target is in the captured picture.

Capture Vertical Offset Factor

It stands for relative position of human body in the scene of the PTZ channel when the tracking happens. Human body from head to feet is marked from 0 to 100 by algorithm. The body part that the set value stands for stays in the center of the PTZ channel.

Dwell Time for Capture

The dwell time of the PTZ channel after a capture.

Upload No-License-Plate Vehicle

Upload the captured picture of the vehicle with no license plate.

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 stays in the scene for 5 seconds.

Data Upload

Check one or more desired target types for picture uploading.

3.4 Multi-Target-Type Detection in PTZ Channel

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

Go to **Configuration → System → System Settings → VCA Resource** to enable the multi-target-type detection for Camera 01 (the PTZ channel).

3.4.1 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 → Camera 01 → Rule** .
2. Check **Enable**.
3. **Optional:** Click **Lock** to lock PTZ control to prevent the interruption from other PTZ related action during configuration.

   Normally, the PTZ control is automatically locked when you enter the configuration interface. You can manually resume the lock when the countdown is over.
4. Use PTZ control panel to locate a scene.
5. Click ⬡ , and draw a detection area on live image.
6. Input 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.
7. Input **Mounting Height** of the device.
8. Click **Save**.
9. Set arming schedule. See ***Set Arming Schedule*** .
10. Set linkage method. See ***Linkage Method Settings*** .

What to do next

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

3.4.2 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 rule information.

Display Target Info. on Alarm Picture

Overlay the alarm pictures with target information.

Target Picture Settings

You can set the face picture type by selecting **Custom**, **Head Shot**, **Half-Body Shot**, or **Full-Body Shot**. If you select **Custom**, you can define detailed picture width and height of a picture freely. If the captured pictures should have the same picture height, check **Fixed Value** and input desired picture height.

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

Note

Face Beautification slightly adjusts the skin tone and reduces facial noise.

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**.

Text Overlay

You can check desired items (Device No., Camera Info. and Capture Time) and adjust their order to display on captured pictures by clicking  .

The content of **Device No.** and **Camera Info** should be input on the same page.

3.4.3 Multi-Target-Type Detection Algorithm Parameters

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

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

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.

3.5 Face Capture

Face capture function detects and captures faces in surveillance scenes. When the grading of the detected face exceeds an algorithm-defined value, the PTZ camera channel captures the face and triggers linkage actions. Set up rule and parameters before using the function.

Note

- For certain device models, you need to select **Face Capture** on **VCA Resource** page first.
- This function is only supported by certain device models.

3.5.1 Set Auto Face Capture Rule

After set the face capture rules and algorithm parameters, the device captures faces and trigger linkage actions automatically.

Steps

1. Go to **Configuration → Face Capture → Rule** .
2. Check **Enable**.
3. **Optional:** Click **Lock** to lock PTZ control to prevent the interruption from other PTZ related action during configuration.

   Normally, the PTZ control is automatically locked when you enter the configuration interface. You can manually resume the lock when the countdown is over.
4. Use PTZ control panel to locate a scene with a face.
5. Click ⬡ , and draw a detection area on live image.
6. Input **Mounting Height** of the device.
7. Input or draw the min. pupil distance and the max. pupil distance.

   The **Min. Pupil Distance** and the **Max. Pupil Distance** are used to improve detection accuracy. Only targets whose pupil distance are between the maximum distance and the minimum distance trigger the capture.

   Click ▫ and □ to draw the distance on live image, or input values in the text fields of **Min. Pupil Distance** and **Max. Pupil Distance**.
8. Click **Save**.

What to do next

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

Go to **Smart Display** to see real-time captured face pictures.

3.5.2 Operate Manual Face Capture

Capture the target face manually in live view image.

Steps

1. Click **Live View**.
2. Click to start manual face capture.
3. Draw a frame to select the target face in live view image.

   The captured picture can be uploaded to the center.
4. Click the icon again to stop manual face capture.

3.5.3 Overlay and Capture

Overlay and Capture offers options to overlay information on stream or alarm pictures and set the captured pictures.

Display VCA Info. on Stream

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

Display Target Info. on Alarm Picture

Overlay the alarm pictures with target information.

Target Picture Settings

You can set the face picture type by selecting **Custom**, **Head Shot**, **Half-Body Shot**, or **Full-Body Shot**. If you select **Custom**, you can define detailed picture width and height of a picture freely. If the captured pictures should have the same picture height, check **Fixed Value** and input desired picture height.

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

Note

Face Beautification slightly adjusts the skin tone and reduces facial noise.

Background Picture Settings

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

Text Overlay

You can check desired items (Device No., Camera Info. and Capture Time) and adjust their order to display on captured pictures by clicking .

The content of **Device No.** and **Camera Info** should be input on the same page.

3.5.4 Face Capture Algorithm Parameters

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

Face Capture 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

Upload Feature

Feature stands for the feature information the algorithm can tell from face pictures. For example, gender, facial expression, wearing glasses or not, etc. Check the function to upload the information.

Best Shot

The device captures the target picture with the highest score after setting the parameters.

Capture Times

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

Capture Threshold

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

Remove Duplicated Faces

This function can filter out repeated captures of certain face.

Note

Remove Duplicated Faces, **Face Picture Comparison**, and **Face Modeling** cannot be turned on simultaneously, and the device can support only one function at a time. The last one you turned on can eventually take effect, and the other two turn off automatically.

Similarity Threshold for Duplicates Removing

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

Duplicates Removing Library Grading Threshold

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

Duplicates Removing Library Update Time

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

Quick Shot

The device captures the target picture once the score of the captured face exceeds the **Quick Shot Threshold** during the **Max. Capture Interval**. Otherwise, the device selects and uploads the picture with the highest score during the **Max. Capture Interval**.

Quick Shot Threshold

It refers to the quality of face to trigger quick shot.

Max. Capture Interval

It describes the max. time occupation for one quick shot.

Capture Times

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

Unlimited

The device keeps capturing the target face, which exceeds the **Quick Shot Threshold** during the **Max. Capture Interval**.

Limited

The device captures the target face according to the set times.

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

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.

3.6 Face Comparison

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

To realize the face comparison, you should set up:

- Face Capture or Multi-Target-Type Detection for capturing face pictures. See ***Face Capture*** or ***Multi-Target-Type Detection in PTZ Channel*** for configuration instructions.
- Face picture library, see ***Set Face Picture Library*** for configuration instructions.
- Face picture comparison rule, see ***Set Face Picture Comparison*** for configuration instructions.

3.6.1 Set Face Picture Library

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

Steps

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

      Threshold

      Face similarity higher than the set threshold triggers face picture comparison alarm uploading.
   3) Click **OK**.
   4) **Optional:** Modify a face picture library. Select the desired library and click ⚙ and change related parameters.
   5) **Optional:** Delete a library. Select the desired library and click × .
3. Add face pictures to the library.

Note

The picture format should be JPEG, and the size no larger than 300 K 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 compulsory 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.

3.6.2 Set Face Picture Comparison

The function compares captured pictures with face pictures in the 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.

Note

This function is only supported under certain VCA resource options.

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

Face Grading Threshold for Capture

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

Max. Capture Interval

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

Quick Setup Mode

Custom, **Face Attendance**, and **Face Recognition** are selectable. Select 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*** .

3.6.3 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.

3.7 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 in PTZ Channel*** 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.

   Note

   This function is only supported under certain VCA resource options.

   Quick Capture

   The device starts face modeling as soon as 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*** .

3.8 Smart Display

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

Note

To use this function, your web browser version should be above IE11.0.9600.17843.

Live View Parameter

Icon	Function
	For devices with multiple channels, you can choose a way to display the images.
	For devices with multiple channels, you can choose a channel for live view.
	Capture a picture.
	Start or stop recording.

Layout

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

Detect Features

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

Chapter 4 PTZ

PTZ is an abbreviation for pan, tilt, and zoom. It means the movement options of the camera.

4.1 PTZ Control

On the live view page, you can use the PTZ control buttons to control the device panning, tilting, and zooming.

Click on the live image to choose one channel and adjust it as follows. When the panoramic channel pans, the PTZ channel follows.

Note

Zooming, focus, and iris adjustments are not available for the panoramic channel (Camera 02).

PTZ Control Panel

	Click and hold the directional button to pan/tilt the device. **Note** • You can set **Keyboard Control Speed** in **Configuration → PTZ → Basic Settings** . The speed of pan/tilt movement in live view is based on this speed level. • You can set **Max. Tilt-angle** in **Configuration → PTZ → Basic Settings** to limit tilt movement range.
	Click the button, and the channels keep panning. **Note** You can set **Auto Scan Speed** in **Configuration → PTZ → Basic Settings** . The higher the value you set, the faster the device pans.
	Drag the slider to adjust the speed of pan/tilt movement.

Note

You can set **Manual Control Speed** in **Configuration → PTZ → Basic Settings** .

Compatible	The control speed is same as **Keyboard Control Speed**.
Pedestrian	Choose **Pedestrian** when you monitor the pedestrians.
Non-motor Vehicle	Choose **Non-motor Vehicle** when you monitor the non-motor vehicles.
Motor Vehicle	Choose **Motor Vehicle** when you monitor the motor vehicles.
Auto	You are recommended to set it as **Auto** when the application scene of the speed dome is complicated.

To avoid blurred image resulted from fast zoom, you can check **Enable Proportional Pan** in **Configuration → PTZ → Basic Settings** . If you enable this function, the pan/tilt speed change according to the amount of zoom. When there is a large amount of zoom, the pan/tilt speed will be slower for keeping the image from moving too fast on the live view image.

Zoom in/out

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

Note

- You can set **Zooming Speed** in **Configuration → PTZ → Basic Settings** . The higher the value is, the faster the zooming speed is.
- You can set **Zoom Limit** in **Configuration → Image → Display Settings → Other** to limit the maximum value of the total zoom (digital zoom and optical zoom).

Focus

	Click the button, then the lens focuses near and the object nearby gets clear.
	Click the button, then the lens focuses far and the object far away gets clear.

Iris

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

4.2 Set Preset

A preset is a predefined image position. For the defined preset, you can call the preset No. to view the position.

Steps

1. Click to show the setting panel, and click .
2. Click on live image to select a channel, and control the PTZ buttons to desired positions (both channels are adjustable).

Note

It is recommended to adjust the panoramic channel (Camera 02) first. Because When you adjust the pan angle of the panoramic channel (camera 02), the PTZ channel (camera 01) automatically follows to pan together.

3. Click the image of the PTZ channel.
4. Select a preset number from the preset list, and click to finish the setting.

Note

- Preset can only be set and called in the PTZ channel.
- Some presets are predefined with special command. You can only call them but not configure them.

5. Repeat the steps above to set multiple presets.

Click the button to call the preset.

Click the button to delete the preset.

Note

You can delete all presets in **Configuration → PTZ → Clear Config** . Click **Clear All Presets**, and click **Save**.

What to do next

Go to **Configuration → PTZ → Basic Settings** to set preset freezing and preset speed.

After enabling preset freezing, the live image switches directly from one preset to another, without showing the areas between these two scenes. It also guarantees the masked area will not be seen when the device is moving.

4.2.1 Special Presets

You can call the following presets with special demands to enable corresponding functions.

Preset No.	Function	Preset No.	Function
33	Auto flip	92	Set manual limits
34	Back to origin	93	Save manual limits
35	Call patrol 1	94	Remote reboot
36	Call patrol 2	95	Call OSD menu
37	Call patrol 3	96	Stop a scan
38	Call patrol 4	97	Start random scan
39	Day mode	98	Start frame scan
40	Night mode	99	Start auto scan
41	Call pattern 1	100	Start tilt scan
42	Call pattern 2	101	Start panorama scan
43	Call pattern 3	102	Call patrol 5
44	Call pattern 4	103	Call patrol 6
45	One-touch patrol	104	Call patrol 7
46	Day/Night Mode	105	Call patrol 8

4.3 Set Patrol Scan

Patrol scan is a function to automatically move among multiple presets.

Before You Start

Make sure that you have defined more than one presets. See ***Set Preset*** for detailed configuration.

Steps

1. Click to show the setting panel, and click to enter patrol setting interface.
2. Select a patrol number from the list and click .
3. Click + to add presets.

Preset

Select predefined preset.

Speed

Set the speed of moving from one preset to another.

Time

It is the duration staying on one patrol point.

× Delete the presets in patrol.

Adjust the preset order.

Note

A patrol can be configured with 32 presets at most, and 2 presets at least.

4. Click **OK** to finish a patrol setting.
5. Repeat the steps above to configure multiple patrols.
6. Operate patrols.

Call the patrol.

Stop patroling.

× Delete the patrol.

Set the patrol.

Note

You can delete all patrols in **Configuration → PTZ → Clear Config** . Click **Clear All Patrols**, and click **Save**.

4.4 Set Pattern Scan

The device can move as the recorded pattern.

Steps

1. Click to show the PTZ control panel, and click .
2. Click the live image of the PTZ channel (Camera 01).

Note

Pattern scan is only supported by the PTZ channel.

3. Select one pattern scan path that needs to be set.
4. Click to start recording pattern scan.
5. Click PTZ control buttons as demands. Only the patterns of PTZ channel can be recorded.

Note

Recording stops when the space for pattern scan is 0%.

6. Click to complete one pattern scan path settings.
7. Click to call pattern scan.

   Stop pattern scan.

   Reset pattern scan path.

   Delete the selected pattern scan.

Note

If you need to delete all the pattern scans, go to **Configuration → PTZ → Clear Config** , and check **Clear All Patterns**, and click **Save**.

4.5 Set Initial Position

Initial position refers to the relative initial position of the device azimuth. You can set the initial position if you need to select one point in the scene as the base point.

Steps

1. Go to **Configuration → PTZ → Initial Position** .
2. Click on live image to select a channel, and control the PTZ buttons to desired positions (both channels are adjustable).

Note

It is recommended to adjust the panoramic channel (Camera 02) first. Because When you adjust the pan angle of the panoramic channel (camera 02), the PTZ channel (camera 01) automatically follows to pan together.

3. Click **Set** to save the information of initial position.

   Call The device moves to the set initial position.

   Clear Clear the set initial position.

4.6 Set Scheduled Tasks

You can set the device to perform a certain task during a certain period.

Steps

1. Go to **Configuration → PTZ → Scheduled Tasks** .
2. Check **Enable Scheduled Task**.
3. Select the task type and set the period. For setting the period, refer to ***Set Arming Schedule*** .

4. Repeat step 3 to set more than one scheduled tasks.
5. Set **Park Time**. During the set task period, if you operate the device manually, the scheduled task will be suspended. When the manual operation is over, the device will continue to perform the scheduled task after the set park time.
6. Click **Save**.

Note

If you want to clear all scheduled tasks, go to **Configuration → PTZ → Clear Config** , check **Clear All Scheduled Tasks**, and click **Save**.

4.7 Set Park Action

You can set the device to perform an action (for example, preset or patrol) or return to a position after a period of inactivity (park time).

Before You Start

Set the action type first. For example, if you want to select patrol as park action, you should set the patrol. See ***Set Patrol Scan*** for details.

Steps

1. Go to **Configuration → PTZ → Park Action** .
2. Check **Enable Park Action**.
3. Set **Park Time**: the inactive time before the device starts park action.
4. Select **Action Type** according to your needs.
5. Select an **Action Type ID**, if you select patrol or preset as action type.

   When the action type is patrol, action type ID stands for patrol No. When the action type is preset, action type ID stands for preset No.
6. Click **Save**.

4.8 Set Privacy Mask

Privacy mask enables you to cover certain areas on the live image to prevent certain spots in the surveillance area from being live viewed and recorded.

Steps

1. Go to **Configuration → PTZ → Privacy Mask** .
2. Select a channel.
3. Adjust the live image to the target scene via PTZ control buttons.
4. Draw the area.

Draw Area	Click **Draw Area**, and click on the live view image to determine the boundary of the mask.
Stop Drawing	Click**Stop Drawing** after drawing the mask.

5. Click **Add**.

   It is listed in **Privacy Mask List**.

6. Edit **Name**, **Type**, and **Active Zoom Ratio** on your demand.

   Active Zoom Ratio

   When the actual zoom ratio is less than the set active zoom ratio, the set area can not be covered. When the actual zoom ratio is greater than the set active zoom ratio, the privacy mask is valid. The maximum value of active zoom ratio depends on the camera module.

   Note

   Active zoom ratio is only supported for the PTZ channel.

7. Repeat the steps above to set other privacy masks.
8. Check **Enable Privacy Masks**.

4.9 Set Rapid Focus

Rapid focus is a function to reduce time of focusing comparing with that of normal focusing. To use the function, calibration should be done first. Rapid focus may not be supported by certain camera models.

Steps

1. Go to **Configuration → PTZ → Rapid Focus** .
2. **Optional:** Check **Enable Height Compensation** if the mounting height of the device is lower than 3 meters.
3. Select a calibration mode.

   Auto Calibration — Click **Auto Calibrate**. The device generates scenes and completes calibration automatically.

   Note

   If auto calibration fails, use manual calibration.

   Manual Calibration — Set up the calibration scenes and rules manually. See below steps for details.

   1) Adjust the live image to a desired scene via PTZ control buttons, and click **Add**.
   2) Set the **Rate** and the **Calibration Point Amount** of the added scene.

Note

More calibration points may increase calibration accuracy, but more focusing time is required. The default amount is recommended.

3) Select the scene to display the calibration line.
4) Adjust the length and position of the line by dragging its two endpoints.

Note

The red line is recommended to stay in the center of the scene and to cover ground at the same time.
Double click the image to enter full screen mode.

5) Click **Start Calibration**

Calibration status displays on the live image.

6) Repeat to add other scenes and complete the calibration.

4. Check **Enable** after successful calibration.

5. Click **Save**.

4.10 Set Device Position

Before You Start

Go to **Configuration → PTZ → Basic Settings → PTZ OSD** to enable **PT Status** display.
Use other direction indicating devices to find the North at the device location.

Steps

1. Go to **Configuration → PTZ → Position Settings** .

2. Set compass.

1) Adjust the tilt position of the device to 0 by controlling the up arrow and down arrow on the PTZ panel.
2) Adjust the pan position to show the live view of the north direction by controlling the left arrow and right arrow on the PTZ panel.
3) Click **Set as North**.

3. Click **Gyroscope Attitude Calibration** to calibrate gyroscope.

Note

Only the device with built-in gyroscope supports this function.

4. Get the device location information in advance, and input the longitude and latitude of the device manually.

5. Set vandal-proof alarm.

The function enables the device to trigger alarms when its position changes because of shock or vandalism.

Sensitivity

The higher the value is, the easier the alarm will be triggered.

Upload Vandal-proof Alarm

The device uploads the alarm information when the alarm is triggered.

Vandal-proof Alarm Voice Warning

The device triggers the alarm with audible warning.

6. Click **Save**.

What to do next

If you lost direction when operating the device, you can click **Point to North** to call the north position that is saved in the device.

4.11 Set Panorama Tracking

The PTZ channel tracks detected target after panoramic channel and PTZ channel.

Steps

1. Go to **Configuration → PTZ → Panorama Tracking** .
2. Select calibration mode.

Auto Calibration	Select the **Calibration Mode** as **Auto**, and click **Start Calibration**. The device starts calibration automatically. After calibration finished, click **Stop Calibration** and exit the interface.
Manual Calibration	Select and add calibration positions manually. The detailed manual calibration configuration is as follows.

1) Select the **Calibration Mode** as **Manual**
2) Select a calibration point in **Calibration Parameter** list.

   A numbered green cross is displayed on the panoramic image. You can drag the green cross to adjust its position.
3) Click **Add** to save the cross position in the panoramic channel.
4) Adjust PTZ to place the green cross in the PTZ camera channel to the same position as the green cross in panoramic camera channel. 1× zoom ratio is recommended.

   Note

   To quickly locate the desired point in the PTZ channel, you can click and click the target position in the PTZ channel.
5) Click to save the PTZ position of this calibration point.
6) Repeat the steps above to set at least 4 calibration points.
7) Click **Start Calibration**.
3. Check **Track**.
4. Click **Save** to finish calibration.

4.12 Set Power Off Memory

This function can resume the previous PTZ status of device after it restarting from a power-off.

Steps

1. Go to **Configuration → PTZ → Basic Settings** .
2. Select **Resume Time Point**. When the device stays at one position for the set resume time point or more, the position is saved as a momory point. The device returns to the last memory point when it restarts.
3. Click **Save**.

4.13 Set PTZ Priority

The function can set the PTZ priority of different signals.

Steps

1. Go to **Configuration → PTZ → Prioritize PTZ** .
2. Set the priority signal and delayed time.

   Network

   The network signal controls the device with priority.

   RS-485

   The RS-485 signal controls the device with priority.

   Delay

   It refers to the time interval of PTZ operation controlled by different signals. When the operation with high priority is finished, the low priority signal controls the device after the setting interval.
3. Click **Save**.

Chapter 5 Live View

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

5.1 Live View Parameters

The supported functions vary depending on the model.

Note

For multichannel devices, select the desired channel first before live view settings.

5.1.1 Window Division

You can choose a layout for live view window.

- displays one live image. You can click ← → to switch between channels.
- displays live images in 2 × 2 layout.
- displays live images in PIP (picture in picture) layout.
- displays live images in 1 × 2 layout.
- displays live images in 2 × 1 layout.

5.1.2 Start and Stop Live View

On **Live View** page, click to start all live view. Click to stop all live view.

You can also start the live view of the channels one by one through clicking a divided window first and double-clicking a channel from the channel list on left.

5.1.3 Aspect Ratio

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

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

5.1.4 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*** .

5.1.5 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.

5.1.6 Conduct Regional Focus

You can enable the function to focus on certain area.

Steps

Note

This function varies with the device model.

1. Click to enable regional focus.
2. Drag the mouse on the live view to draw a rectangle as the desired focus area.
3. Click to disable this function.

5.1.7 Conduct Regional Exposure

When the brightness of live view is not balanced, you can enable this function to optimize the exposure of the selected image region.

Steps

1. Click to enable regional exposure.
2. Drag the mouse on the live view to draw a rectangle as the desired exposure area.
3. Click to disable this function.

5.1.8 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.

5.1.9 Lens Initialization

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

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.

5.1.10 Light

Click to turn on or turn off the illuminator.

5.1.11 Wiper

For the device that has a wiper, you can control the wiper via web browser.

Steps

1. Click on live view page.

   The wiper wipes the window one time.

5.1.12 Display Target Information on Live View

Go to **Configuration → Local → Live View Parameters** for settings.

Note

Related smart function should be configured and enabled in advance.

Display POS Information

POS information refers to the target features or ID information, such as, target ID, target height, etc. Supported POS information types varies according to device models.

Human Target Track

It refers to the human target moving patterns in live view.

Note

Multi-target-type detection should be set before enabling the function.

Motor Vehicle Target Track

It refers to the moving pattern of the motor vehicle in live view.

Note

Multi-target-type detection should be set before enabling the function.

5.2 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 teal-time. In poor network environment, the device cannot ensures 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.

Auto Start Live View

- **Yes** means the live view is started automatically. It requires a high performance monitoring device and a stable network environment.
- **No** means the live view should be started manually.

3. Click **OK**.

Chapter 6 Video and Audio

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

6.1 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** .

Note

For device with multiple camera channels, select a channel before other settings.

6.1.1 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.

6.1.2 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.

6.1.3 Resolution

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

6.1.4 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.

6.1.5 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.

6.1.6 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.

6.1.7 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.

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.

6.1.8 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.

6.1.9 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.

6.1.10 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.

6.1.11 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.

6.2 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.

6.2.1 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 the channel No. according to your need.
4. Select **Stream Type**.
5. 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.
6. Input the **Region Name** and **ROI Level**.
7. Click **Save**.

   Note
   The higher the ROI level is, the clearer the image of the detected region is.
8. **Optional:** Select other region No. and repeat the above steps if you need to draw multiple fixed regions.

6.2.2 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**.

6.2.3 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**.

6.3 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** .

6.3.1 Audio Input

External audio pick-up device is available for audio input, and audio encoding and input volume are configurable.

Audio Encoding

The device offers several compression standard. Select according to your need.

Audio Input

LineIn is supported for external audio pick-up device.

Input volume

Adjust the volume of the audio input.

6.3.2 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.

6.4 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.

6.5 Display Settings

It offers the parameter settings to adjust image features.

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

For device that supports multiple channels, display settings of each channel is required. The settings for different channels may be different. This part introduces all possible parameters among the channels.

Click **Default** to restore settings.

6.5.1 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**, **Contrast** and **Sharpness**, the image can be best displayed.

Exposure Settings

Exposure is controlled by the combination of iris, shutter, and gain. You can adjust image effect by setting exposure parameters.

Exposure Mode

Auto

The iris, shutter, and gain values are adjusted automatically.

You can limit the changing ranges of iris, shutter and gain by setting **Max. Iris Limit**, **Min. Iris Limit**, **Max. Shutter Limit**, **Min. Shutter Limit** and **Limit Gain** for better exposure effect.

Iris Priority

The value of iris needs to be adjusted manually. The shutter and gain values are adjusted automatically according to the brightness of the environment.

You can limit the changing ranges of the shutter and gain by setting **Max. Shutter Limit**, **Min. Shutter Limit** and **Limit Gain** for better exposure effect.

Shutter Priority

The value of shutter needs to be adjusted manually. The iris and gain values are adjusted automatically according to the brightness of the environment.

You can limit the changing ranges of the iris by setting **Max. Iris Limit**, **Min. Iris Limit** and **Limit Gain** for better exposure effect.

Manual

You need to set **Iris**, **Shutter**, and **Gain** manually.

Slow Shutter

The higher the slow shutter level is, the slower the shutter speed is. It ensures full exposure in underexposure condition.

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.

Set Supplement Light

Steps

1. Go to **Configuration → Maintenance → System Service** .
2. Check **Enable Supplement Light**.
3. Click **Save**.
4. Go to **Configuration → Image → Display Settings → Day/Night Switch** to set supplement light parameters.

   Smart Supplement Light

   This feature uses smart image processing technology to reduce overexposure caused by supplement light.

   Supplememt Light Mode

   When the mode is set to **Auto**, the supplement light is automatically turned in or off according to the image brightness.

   When the mode is set to **Scheduled**, set the start time and end time for the light to work.

   When the mode is set to **NC**, the light is off.

   When the mode is set to **NO**, the light is on.

   Brightness Limit

Adjust the upper limit of supplement light power. For devices with both white light and IR light, white light and IR light brightness limit can be set separately.

Note

The function varies on device settings and device models.

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.

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.

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.

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.

White Balance

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

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.

6.5.2 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 Link to Preset

You can set a preset to switch the image to a linked scene.

Steps

1. Check **Link to Preset**.
2. Select a preset.
3. Check and set a time period and a linked scene mode.
4. Click **Save**.

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**.

6.5.3 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.

6.6 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** .

Select a channel.

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**.

Chapter 7 Video Recording and Picture Capture

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

7.1 Storage Settings

This part introduces the configuration of several common storage paths.

7.1.1 Memory Card

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

Set New or Unencrypted Memory Card

Before You Start

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

Steps

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

   Note

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

3. Click **Format** to initialize the memory card.

   When the **Status** of memory card turns from **Uninitialized** to **Normal**, the memory card is ready for use.

4. **Optional:** Encrypt the memory card.
   1) Click **Encrypted Format**.
   2) Set the encryption password.
   3) Click **OK**.

      When the **Encryption Status** turns to **Encrypted**, the memory card is ready for use.

   Note

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

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

Set Encrypted Memory Card

Before You Start

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

Steps

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

   Note

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

3. Verify the encryption password.
   1) Click **Parity**.
   2) Enter the encryption password.
   3) Click **OK**.

      When the **Encryption Status** turns to **Encrypted**, the memory card is ready for use.

   Note

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

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

Detect Memory Card Status

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

Before You Start

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

Steps

1. Go to **Configuration → Storage → Storage Management → Memory Card Detection** .
2. Click **Status Detection** to check the **Remaining Lifespan** and **Health Status** of your memory card.

Remaining Lifespan

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

Health Status

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

Note

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

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

Note

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

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

7.1.2 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.

   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 Filling 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. Click **Upload Picture** to enable uploading snapshots to the FTP server.
4. Click **Test** to verify the FTP server.
5. Click **Save**.

7.1.3 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**.

7.1.4 Set Cloud Storage

It helps to upload the captured pictures and data to the cloud. The platform requests picture directly from the cloud for picture and analysis. The function is only supported by certain models.

Steps

Caution

If cloud storage is enabled, the pictures are stored in the cloud 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 ID	The ID of the picture storage region in the cloud storage server. Make sure storage pool ID and the storage region ID are the same.

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

7.2 Video Recording

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

7.2.1 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. Select channel No.
3. Check **Enable**.
4. 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.

5. Set schedule for the selected record type. Refer to ***Set Arming Schedule*** for the setting operation.
6. 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.

7. Click **Save**.

7.2.2 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.

7.2.3 Playback and Download Video

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

Steps

1. Click **Playback**.
2. Select channel No.
3. Set search condition and click **Search**.

   The matched video files showed on the timing bar.
4. 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.

5. 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.

7.3 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.

7.3.1 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**.

7.3.2 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.

7.3.3 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. Select channel No.
3. Set search condition and click **Search**.

   The matched pictures showed in the file list.
4. 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 8 Event and Alarm

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

8.1 Basic Event

8.1.1 Set Motion Detection

This function detects moving objects in the detection region and trigger linkage actions.

Steps

1. Go to **Configuration → Event → Basic Event → Motion Detection** .
2. Check **Enable Motion Detection**.
3. **Optional:** Check **Enable Motion Detection in PTZ Control**, and the device detects moving targets in PTZ movement.
4. **Optional:** Highlight moving objects in green.
   1) Check **Enable Dynamic Analysis for Motion**.
   2) Go to **Configuration → Local** to enable **Rules**.
5. Select **Configuration Mode**. Normal mode and expert mode are selectable.
   - For the information about normal mode, see ***Normal Mode*** .
   - For the information about expert mode, see ***Expert Mode*** .
6. Set the arming schedule. See ***Set Arming Schedule*** for details.
7. Set linkage methods. See ***Linkage Method Settings*** for details.
8. Click **Save**.

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 finfish drawing one area.

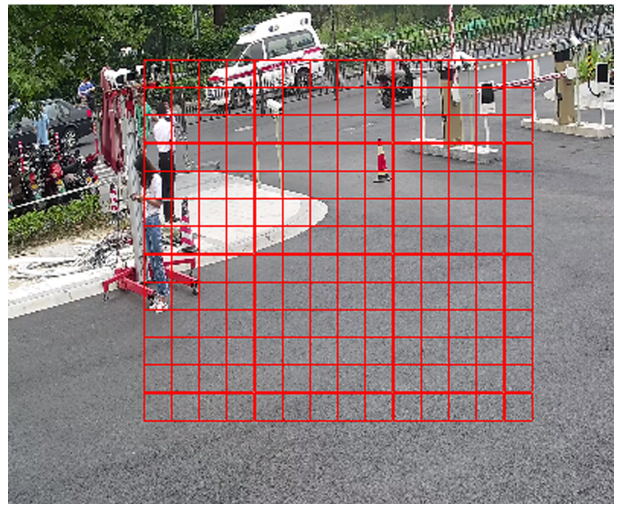


Figure 8-1 Set Rules

Stop Drawing Stop drawing one area.

Clear All Clear all the areas.

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

Expert Mode

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

Steps

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

Scheduled Image Settings

OFF

Image switch is disabled.

Auto-Switch

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

Scheduled-Switch

The system switches day/night mode according to the schedule. It switches to day mode during the set periods and switches to night mode during the other periods.

Sensitivity

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

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

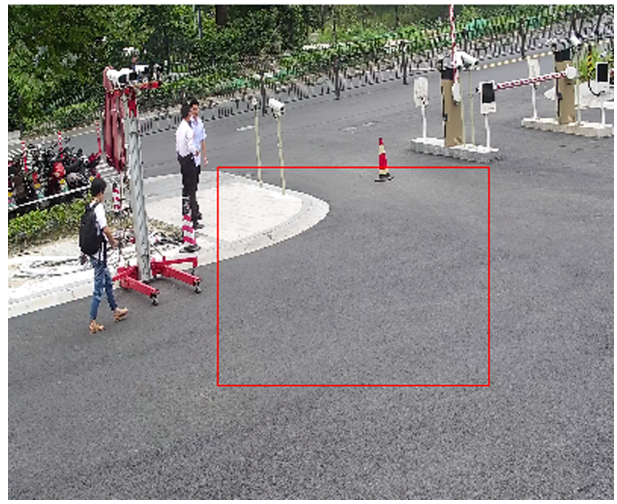


Figure 8-2 Set Rules

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

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

8.1.2 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. Select the channel number.
3. Check **Enable**.
4. Set the **Sensitivity**. The higher the value is, the easier to detect the area covering.
5. Click **Draw Area** and drag the mouse in the live view to draw the area.

Stop Drawing	Finish drawing.
Clear All	Delete all the drawn areas.

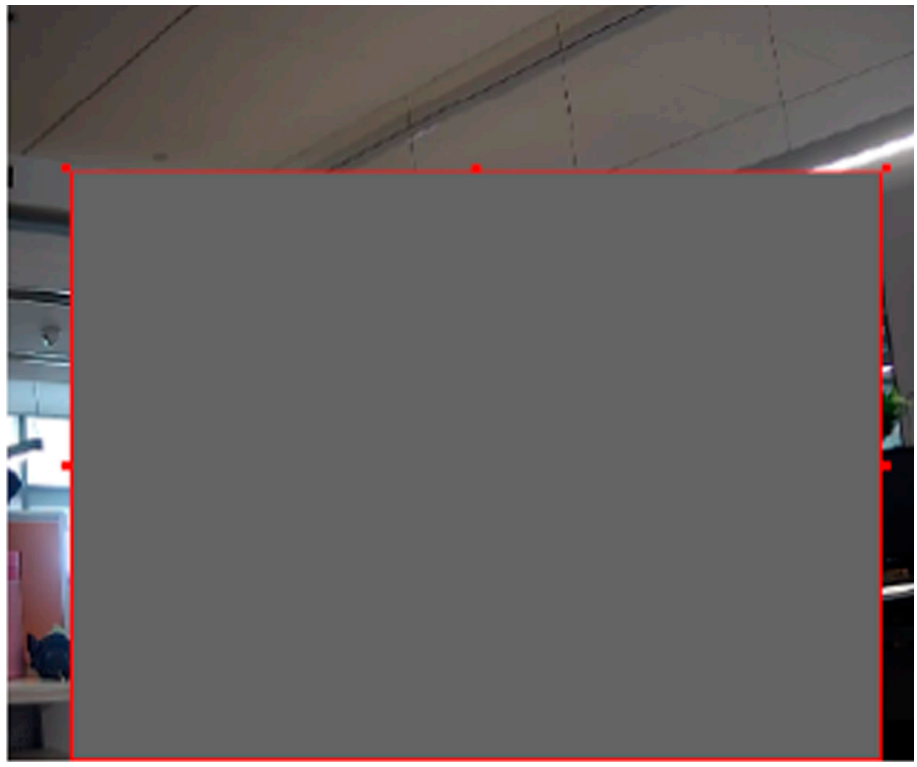


Figure 8-3 Set Video Tampering Area

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

8.1.3 Set Exception Alarm

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

Steps

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

HDD Full	The HDD storage is full.
HDD Error	Error occurs in HDD.
Network Disconnected	The device is offline.
IP Address Conflicted	The IP address of current device is same as that of other device in the network.
Illegal Login	Incorrect user name or password is entered.

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

8.1.4 Set Alarm Input

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

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

Steps
1. Go to **Configuration → Event → Basic Event → Alarm Input** .
2. Check **Enable Alarm Input Handing**.
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**.

8.2 Smart Event

Note

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

8.2.1 Set Intrusion Detection

Intrusion detection detects the object movement of entering and loitering in a predefined area. When intrusion occurs, the device takes linkage actions as response.

Steps
1. Go to **Configuration → Event → Smart Event → Intrusion Detection** .
2. Check **Enable**.
3. **Optional:** Click **Lock** to lock PTZ control to prevent the interruption from other PTZ related action during configuration.

   Normally, the PTZ control is automatically locked when you enter the configuration interface. You can manually resume the lock when the countdown is over.
4. Adjust the live image to the desired scene by using PTZ control buttons.
5. Draw detection area.
   1) Select a **Region No.**. Up to 4 regions can be set.
   2) Click **Detection Area**.
   3) Click on the live image to draw the boundaries of the detection area, and right click to complete drawing.

6. **Optional:** Set the minimum size and the maximum size for the target to improve detection accuracy. Only targets whose size are between the maximum size and the minimum size trigger the detection.
   1) Click **Max. Size**, and drag the mouse on live image. If you want to change the size, click the button and draw again.
   2) Click **Min. Size**, and drag the mouse on the live image. If you want to change the size, click the button and draw again.
7. Set detection parameters.

Sensitivity	It stands for the sensitivity of detecting an target. The higher the value of sensitivity is, the more easily the target is detected.
Threshold	Threshold stands for the time of the target loitering in the region. If the time that she/he stays in the region exceeds the threshold, the alarm is triggered.
Detection Target	You can specify the object type, and the device only detects the selected type of objects.

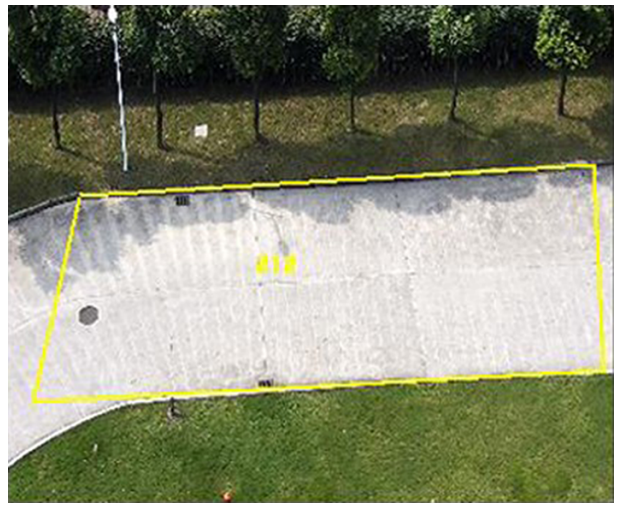


Figure 8-4 Draw Area

8. Click **Save**.
9. Repeat above steps to set other detection areas.
10. Set arming schedule. See ***Set Arming Schedule*** .
11. Set linkage method. See ***Linkage Method Settings*** .

8.2.2 Set Line Crossing Detection

Line crossing detection is used to detect the object movement of crossing a predefined line. When it occurs, the device takes linkage actions as response.

Steps

1. Go to **Configuration → Event → Smart Event → Line Crossing Detection** .

2. Check **Enable**.
3. **Optional:** Click **Lock** to lock PTZ control to prevent the interruption from other PTZ related action during configuration.

   Normally, the PTZ control is automatically locked when you enter the configuration interface. You can manually resume the lock when the countdown is over.
4. Adjust the live image to the desired scene by using PTZ control buttons.
5. Draw detection line.
   1) Select a **Line No.**. Up to 4 lines can be set in the scene.
   2) Click **Detection Area**.

      A yellow line is displayed on live image.
   3) Click on the line, and drag its end points to adjust the length and position.
   4) Select the **Direction** for the detection line.

      Direction

      It stands for the direction from which the object goes across the line.

      A<->B

      The object going across the line from both directions can be detected and alarms are triggered.

      A->B

      Only the object crossing the configured line from side A to side B can be detected.

      B->A

      Only the object crossing the configured line from side B to side A can be detected.

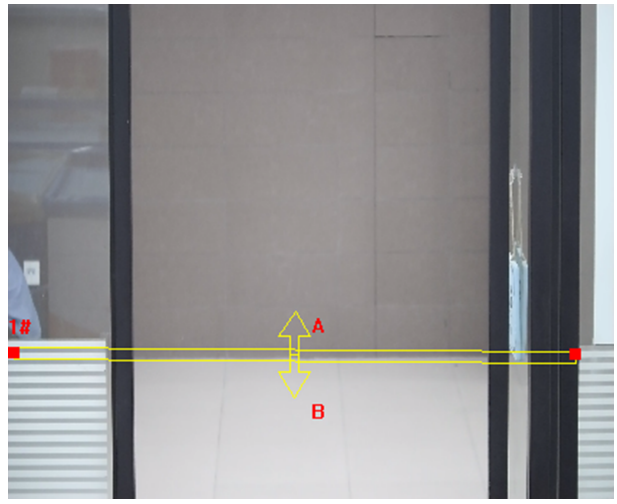


Figure 8-5 Draw Line

6. **Optional:** Set the minimum size and the maximum size for the target to improve detection accuracy. Only targets whose size are between the maximum size and the minimum size trigger the detection.
   1) Click **Max. Size**, and drag the mouse on live image. If you want to change the size, click the button and draw again.

2) Click **Min. Size**, and drag the mouse on the live image. If you want to change the size, click the button and draw again.

7. Set detection parameters.

Sensitivity	It stands for the sensitivity of detecting an target. The higher the value is, the more easily the target is detected.
Detection Target	You can specify the object type, and the device only detects the selected type of objects.

8. Click **Save**.

9. Repeat above steps to set other lines.

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

11. Set linkage method. See ***Linkage Method Settings*** .

8.2.3 Set Region Entrance Detection

Region entrance detection is used to detect the object movement of entering a predefined area. When it occurs, the device takes linkage actions as response.

Steps

1. Go to **Configuration → Event → Smart Event → Region Entrance Detection** .

2. Check **Enable**.

3. Optional: Click **Lock** to lock PTZ control to prevent the interruption from other PTZ related action during configuration.

Normally, the PTZ control is automatically locked when you enter the configuration interface. You can manually resume the lock when the countdown is over.

4. Adjust the live image to the desired scene by using PTZ control buttons.

5. Draw detection area.

1) Select a **Region No.**. Up to 4 regions can be set.
2) Click **Detection Area**.
3) Click on the live image to draw the boundaries of the detection area, and right click to complete drawing.

6. Optional: Set the minimum size and the maximum size for the target to improve detection accuracy. Only targets whose size are between the maximum size and the minimum size trigger the detection.

1) Click **Max. Size**, and drag the mouse on live image. If you want to change the size, click the button and draw again.
2) Click **Min. Size**, and drag the mouse on the live image. If you want to change the size, click the button and draw again.

7. Set detection parameters.

Sensitivity	It stands for the sensitivity of detecting an target. The higher the value is, the more easily the target is detected.

Detection Target You can specify the object type, and the device only detects the selected type of objects.

Figure 8-6 Draw Area

8. Click **Save**.
9. Repeat above steps to set other regions.
10. Set arming schedule. See ***Set Arming Schedule*** .
11. Set linkage method. See ***Linkage Method Settings*** .

8.2.4 Set Region Exiting Detection

Region exiting detection is used to detect the objects movement of exiting from a predefined area. When it occurs, the device takes linkage actions as response.

Steps

1. Go to **Configuration → Event → Smart Event → Region Exiting Detection** .
2. Check **Enable**.
3. **Optional:** Click **Lock** to lock PTZ control to prevent the interruption from other PTZ related action during configuration.

   Normally, the PTZ control is automatically locked when you enter the configuration interface. You can manually resume the lock when the countdown is over.
4. Adjust the live image to the desired scene by using PTZ control buttons.
5. Draw detection area.
   1) Select a **Region No.**. Up to 4 regions can be set.
   2) Click **Detection Area**.
   3) Click on the live image to draw the boundaries of the detection area, and right click to complete drawing.
6. **Optional:** Set the minimum size and the maximum size for the target to improve detection accuracy. Only targets whose size are between the maximum size and the minimum size trigger the detection.

1) Click **Max. Size**, and drag the mouse on live image. If you want to change the size, click the button and draw again.
2) Click **Min. Size**, and drag the mouse on the live image. If you want to change the size, click the button and draw again.

7. Set detection parameters.

Sensitivity It stands for the sensitivity of detecting an target. The higher the value is, the more easily the target is detected.

Detection Target You can specify the object type, and the device only detects the selected type of objects.

Figure 8-7 Draw Area

8. Click **Save**.
9. Repeat above steps to set other regions.
10. Set arming schedule. See ***Set Arming Schedule*** .
11. Set linkage method. See ***Linkage Method Settings*** .

8.2.5 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.

Chapter 9 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.

9.1 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**.
   - Click on the selected time period. Drag the both ends to adjust the time period.
   - Click on the selected time period, and drag it on the time bar.
4. **Optional:** Click **Copy to...** to copy the same settings to other days.
5. Click **Save**.

9.2 Linkage Method Settings

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

9.2.1 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**.

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**.

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.

9.2.2 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 New or Unencrypted Memory Card*** for memory card storage configuration.

9.2.3 Send Email

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

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

Set Email

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

Before You Start

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

Steps

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

      Note

      If you want to use STARTTLS, make sure that the protocol is supported by your email server. If you check the **Enable STARTTLS** while the protocol is not supported by your email sever, your email is sent with no encryption.
   4) **Optional:** If you want to receive notification with alarm pictures, check **Attached Image**. The notification email has 3 attached alarm pictures about the event with configurable image capturing interval.
   5) Input the receiver's information, including the receiver's name and address.
   6) Click **Test** to see if the function is well configured.
3. Click **Save**.

9.2.4 Notify Surveillance Center

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

9.2.5 Trigger Recording

Check **Trigger Recording**, and the device records the video about the detected alarm event.

For device with more than one camera channels, you can set one or more channels to take recordings if needed.

For recording settings, refer to ***Video Recording and Picture Capture***

Chapter 10 Network Settings

10.1 TCP/IP

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

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

NIC Type

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

IPv4

Two IPv4 modes are available.

DHCP

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

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.

Dynamic Domain Name

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

Note

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

10.1.1 Multicast

Multicast is 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 as the multicast source.

Video Port

The video port of the selected stream.

Audio Port

The audio port of the selected stream.

10.1.2 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.

10.2 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.

10.3 Port Mapping

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

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

Steps
1. Go to **Configuration → Network → Basic Settings → NAT** .
2. Select the port mapping mode.

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

3. Click **Save**.

10.3.1 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.

10.3.2 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.

10.3.3 Set Port Mapping on Router

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

Steps

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

Example

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

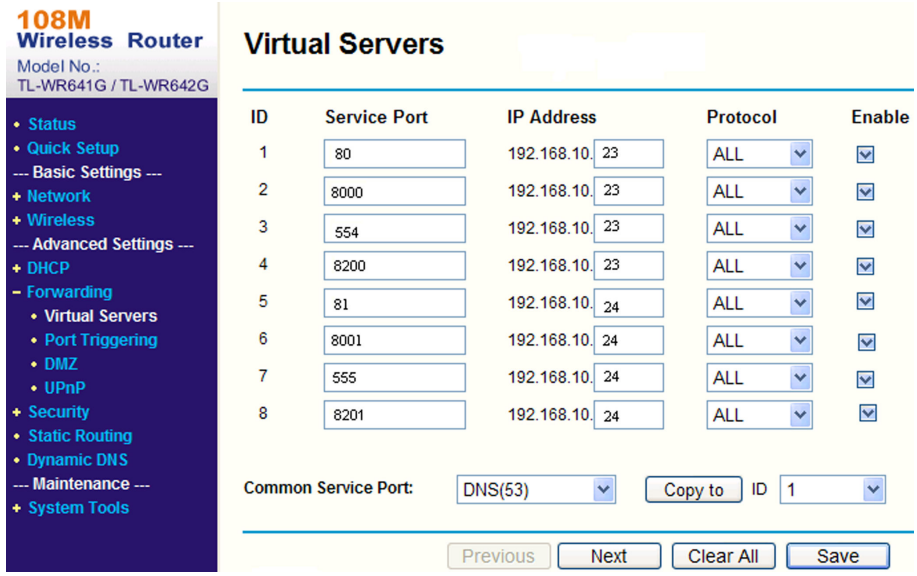


Figure 10-1 Port Mapping on Router

Note

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

10.4 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**.

10.5 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.

10.6 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.

10.7 Accessing via Mobile Client

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

Note

Hik-Connect service should be supported by the camera.

10.7.1 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.

   Note

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

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

10.7.2 Set Up Hik-Connect

Steps

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

Note

If errors 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.

10.7.3 Add Camera to Hik-Connect

Steps

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

Note

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

5. Input the verification code of your camera.

Note

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

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

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.

10.8 Set ISUP

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

Steps

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

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

10.9 Set Open Network Video Interface

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

Steps

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

   Delete Delete the selected Open Network Video Interface user.

   Modify Modify the selected Open Network Video Interface user.
4. Click **Save**.
5. **Optional:** Repeat the steps above to add more Open Network Video Interface users.

10.10 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, digital zoom, etc. cannot be used.

   If the device uses HTTP, enable WebSocket.

   If the device uses HTTPS, enable WebSockets.

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

   Note

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

   SDK Service & Enhanced SDK Service

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

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

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

   Note

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

   TLS (Transport Layer Security)

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

   Bonjour

   Uncheck to disable the protocol.
3. Click **Save**.

10.11 Set Alarm Server

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

Steps

1. Go to **Configuration → Network → Advanced Settings → Alarm Server** .
2. Enter **Destination IP or Host Name**, **URL**, and **Port**.
3. 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**.

10.12 TCP Acceleration

TCP acceleration is used to improve latency and reduce packet loss caused by network congestion in poor network condition, and guarantee the fluency of live view.

10.13 Traffic Shaping

Traffic shaping is used to shape and smooth video data packet before transmission.

It helps to improve latency and reduce packet loss caused by network congestion and ensure the video quality as well. Shaping level is configurable.

10.14 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.

Chapter 11 System and Security

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

11.1 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.

11.2 Restore and Default

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

Steps

1. Go to **Configuration → System → Maintenance → Upgrade & Maintenance** .
2. Click **Restore** or **Default** according to your needs.

Restore Reset device parameters, except user information, IP parameters and video format to the default settings.

Default Reset all the parameters to the factory default.

Note

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

11.3 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.

11.4 Import and Export Configuration File

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

Steps

1. Export configuration file.
   1) Go to **Configuration → System → Maintenance → Upgrade & Maintenance** .
   2) Click **Device Parameters** and input the encryption password to export the current configuration file.
   3) Set the saving path to save the configuration file in local computer.
2. Import configuration file.
   1) Access the device that needs to be configured via web browser.
   2) Click **Browse** to select the saved configuration file.
   3) Input the encryption password you have set when exporting the configuration file.
   4) Click **Import**.

11.5 Export Diagnose Information

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

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

11.6 Reboot

You can reboot the device via browser.

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

11.7 Upgrade

Before You Start

You need to obtain the correct upgrade package.

Caution

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

Steps

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

Firmware	Locate the exact path of the upgrade file.

Firmware Directory Locate the directory which the upgrade file belongs to.

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

11.8 View Open Source Software License

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

11.9 Set Live View Connection

It controls the remote live view connection amount.

Live view connection controls the maximun live view that can be streamed at the same time.

Enter **Configuration → System → Maintenance → System Service** to set the upper limit of the remote connection number.

11.10 Time and Date

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

11.10.1 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**.

11.10.2 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**.

11.10.3 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**.

11.11 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

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

Note

You should keep the parameters of the device and the computer or terminal the same.

3. Click **Save**.

Note

The settings take effect only for the PTZ channel.

11.12 Security

You can improve system security by setting security parameters.

11.12.1 Authentication

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

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

RTSP Authentication

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

RTSP Digest Algorithm

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

WEB Authentication

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

WEB Digest Algorithm

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

Note

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

11.12.2 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**.

11.12.3 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**.
3. **Optional:** Check **HTTPS Browsing** to access the device only via HTTPS protocol.
4. Select a server certificate.

   Note

   - Complete certificate management before selecting server certificate. Refer to ***Certificate Management*** for detailed information.
   - If the function is abnormal, check if the selected certificate is abnormal in **Certificate Management**.
5. Click **Save**.

11.12.4 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**.

11.12.5 Set IEEE 802.1X

You can authenticate user permission of the connected device by setting IEEE 802.1X.

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

Select protocol and version according to router information. User name and password of server are required.

Note

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

11.12.6 Security Audit Log

The security audit logs refer to the security operation 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.

Security audit logs can be saved on device internal storage. The log will be saved every half hour after device booting. Due to limited storage space, you can also save the logs on a log server.

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

Note

This function is only supported by certain camera models.

1. Go to **Configuration → System → Maintenance → Security Audit Log** .
2. Select log types, **Start Time**, and **End Time**.
3. Click **Search**.

   The log files that match the search conditions will be displayed on the Log List.
4. **Optional:** Click **Export** to save the log files to your computer.

Set Log Server

The log server should support syslog (RFC 3164) over TLS.

Before You Start

- Install client and CA certificates before configuration. Refer to ***Certificate Management*** for detailed information.
- Select certificates according to the requirement of the log server. If two-way authentication is required, select the CA certificate and the client certificate. If one-way authentication is required, select the CA certificate only.

Steps

1. Check **Enable Log Upload Server**.
2. **Optional:** Check **Enable Encrypted Transmission** if you want the log data to be encrypted.
3. Input **Log Server IP** and **Log Server Port**.
4. **Optional:** Select client certificate.
5. Select CA certificate to the device.
6. Click **Test** to test the settings.
7. Click **Save**.

11.12.7 SSH

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

The SSH function is disabled by default.

Caution

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

11.12.8 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.

11.12.9 Certificate Management

It manages the server/client certificates and CA certificate of the device.

Server Certificate/Client Certificate

Note

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

Create and Install Self-signed Certificate

Steps

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

   Note

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

4. Click **OK** to save and install the certificate.

   The created certificate is displayed in the **Server/Client Certificate** list.

   If the certificate is used by certain functions, the function name is shown in the column **Functions**.
5. **Optional:** Click **Certificate Property** to see the certificate details.

Install Self-signed Request Certificate

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

Before You Start

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

Steps

1. Go to **Configuration → System → Security → Certificate Management** .
2. Select a self-signed certificate from the Server/Client Certificate list.
3. Click **Create Certificate Request**.
4. Input request information.
5. Click **OK**.

   The certificate request details are displayed in a pop-up window.
6. Copy the request content and save it as a request file.
7. Send the file to a trusted-third party for signature.
8. After receiving the certificated sent back from the third-party, install it to the device.
   1) Click **Import**.
   2) Input **Certificate ID**.

Note

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

3) Click **Browse** to select the certificate file.
4) Select **Self-signed Request Certificate**.
5) Click **OK**.

The imported certificate is displayed in the **Server/Client Certificate** list.

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

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

Install Other Authorized Certificate

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

Steps

1. Go to **Configuration → System → Security → Certificate Management** .
2. Click **Import**.
3. Input **Certificate ID**.

Note

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

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

Independent Key	If your certificate has a independent key, select this option. Browse to select the private key and input the private-key password.
PKCS#12	If your certificate has the key in the same certificate file, select this option and input the password.

6. Click **OK**.

The imported certificate is displayed in the **Server/Client Certificate** list.

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

Install CA Certificate

Before You Start

Prepare a CA certificate in advance.

Steps

1. Go to **Configuration → System → Security → Certificate Management** .

2. Input **Certificate ID**.

Note

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

3. Click **Browse** to select the certificate file.
4. Click **OK**.

The imported certificate is displayed in the **CA Certificate** list.

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

11.12.10 User and Account

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**.

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**.

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.

Appendix A. Device Command

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

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

Appendix B. Device Communication Matrix

Scan the following QR code to get device communication matrix.

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


See Far, Go Further