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ITS V500R009B20 HC191@GI-OS Infrared ANPR User Guide

(For Overseas Use Only)

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Revision history

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Summary

This user guide describes how to configure parameters on the camera interface.

Intended audience

Camera users

Acronyms and abbreviations

Acronym or Abbreviation	English name	Chinese name	Explanation

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1 Logging in to the device

1.1 Before login

Install the device by referring to the quick guide of the product and perform a check. Then, connect the device to a power supply and start the device. You can manage and maintain cameras in a visualized manner on the Web browser.

The following uses Windows 11.0 as an example.

Check before login to the web interface


- The camera runs normally.
- The network between the client computer and the camera is available.
- You have the operation privileges.
- Install Chrome 119 or later on the client computer.
- The OS of the client computer is Windows 7/Windows 8 or later.

1.2 Logging in to the Web interface

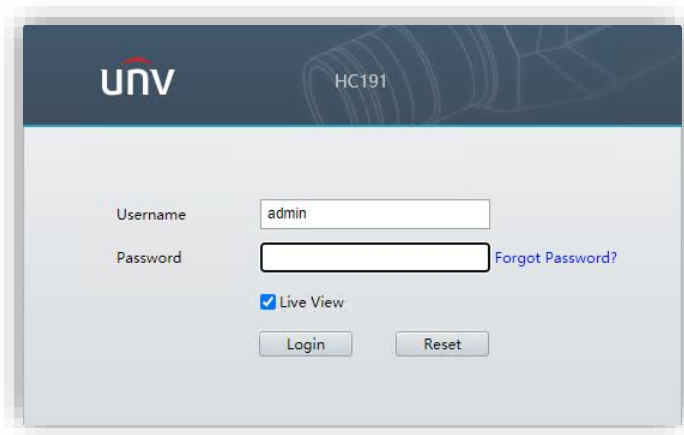
The default static IP address of the device is **192.168.1.13** and the subnet mask is **255.255.255.0**. The Dynamic Host Configuration Protocol (DHCP) is enabled on the device by default. If a DHCP server is used in the network, the IP address may be assigned dynamically. In this case, use the actual IP address for login.

The steps of logging in to the Web interface are as follows:

1. Enter the IP address in the address bar of the browser and press **Enter**.
 2. Download the control.
- The first time you log in to the web interface, you will be prompted to install the control, which is used for functions such as exporting local photos from the camera. Download the control, run as administrator to install the control, and then restart your browser to log in to the system.

 Please click here to [Download](#) and install the latest plug-in. Close your browser before installation.

3. Set the live view.



The screenshot shows the UNV HC191 login page. The header includes the UNV logo and the model number HC191. The login form contains the following elements:

- Username:** A text input field with the value "admin".
- Password:** A text input field.
- Forgot Password?:** A blue link next to the password field.
- Live View:** A checked checkbox.
- Login:** A button.
- Reset:** A button.

- If **Live View** is selected during initial login, the live view will be displayed on all live view screens after you log in to the Web interface.
- If **Live View** is not selected, the live view will be displayed only after the live view is enabled manually.

4. Enter the username and password, and then click **Login**.

During initial login, enter the default username **admin** and default password **123456**, and click **Login**. If you click **Reset**, the username and password text boxes will be cleared, and **Live View** will not be reset or cleared.

5. After logging in with the default username during initial login, you will enter the interface for changing the password forcibly.

- (1) Change the default password to a strong password.
- (2) Enter an email address for resetting or retrieving the password.

- If you want to change your password or email address after login, refer to "Users".
- If you forget your password, click **Forgot Password** to reset your password as prompted.

2 Live view

2.1 Live view

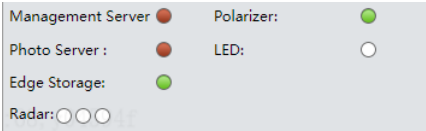
Live view means playing the audio and video information captured by the camera in real time in the video pane of the Web interface of the device.

After the login, you will enter the live view interface by default (if **Live View** has been selected on the login interface, the live view is displayed in the live view pane automatically).

Double-click the pane to enter or exit the full-screen state.

Table 2-1 Live control toolbar

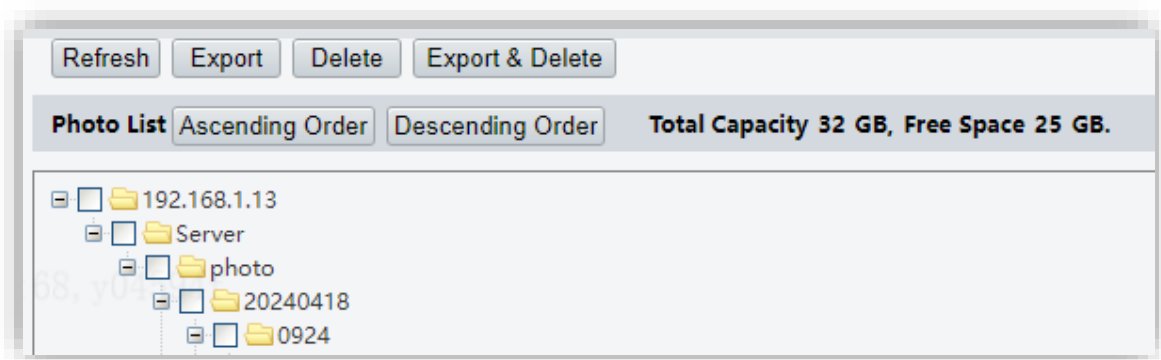
Configuration Item	Description
	Exit the current interface and return to the login interface.
	Set the image display ratio for the pane. <ul style="list-style-type: none"> ● If you want to display the live image proportionally, select Scale. ● If you want to display the live image according to the pane size, select Stretch.
	Intelligent business shortcut button. You can click it to quickly enter the intelligent business page.
	Image adjustment shortcut button. You can click it to quickly enter the image adjustment page.
	<p> : Click it to pause the live view. : Click it to start the live view. </p> <p> : Image capturing button, which is used to capture an image from the playback screen of the client. </p> <p> Note: You can set the path for saving images in "Local parameters". </p> <p> : Live recording button. You can click it to record the live video. If you switch the page or click the stop button, the recording will stop. </p> <p> Note: You can set the local path for saving video recordings in "Local parameters". </p> <p>  : Digital zoom function. You can click any position in the live screen and scroll the mouse wheel to zoom in. Then, drag the left mouse button to view other zoomed areas. You can right-click to restore the image. If you drag the left mouse button to form a rectangular area, the area will be automatically zoomed in. </p> <p> When you click , the image will be restored. </p>
	Click this button to open the local image folder.
	Click this button to clear the passing vehicle records on the Web.
	Click this button to manually capture an image.
	Click the button to start or stop saving captured images locally. <p> Note: You can set the local path for saving images in "Local parameters". </p>
	Image playback and pause button. You can click it to display the captured image on the Web page.
	<ol style="list-style-type: none"> ① Current frame rate of the live view ② Current bit rate status of the live view ③ Current resolution of the live view

	<p>④ Current encoding format of the live view</p> <p>⑤ Current packet loss rate of the live view</p>
	<p>Management Server: Current status of the management server status. Green indicates successful registration and red indicates registration failure or unregistered status.</p> <p>Photo Server: Current status of the photo server. Green indicates successful registration and red indicates registration failure or unregistered status.</p> <p>LED: Status of the fill light. White indicates that the fill light is not enabled, and green indicates that the fill light is enabled.</p> <p>Edge Storage: Storage status of the camera. Green indicates that the storage function is normal, and red indicates that the storage function is abnormal.</p> <p>Radar: Radar access status. White indicates that radar is not accessed, and green indicates that radar access is normal.</p>

3 Photo

Display the storage status of the current photo. For details on the full storage policy, refer to "Storage".

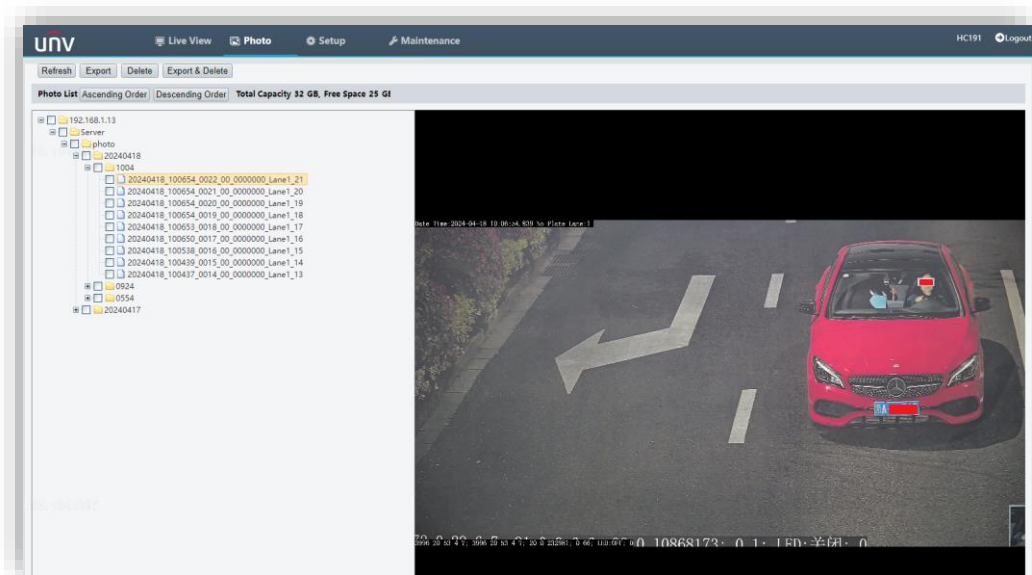
1. Click the **Photo** tab to enter the **Photo** page.



Button description:

Configurati on Item	Description
Refresh	Click Refresh to refresh the stored content to the latest state.
Export	Click Export to export the selected photos.
Delete	Click Delete to delete the selected photos.
Export & Delete	Click Export & Delete to export the selected photos and delete them from the server.
Ascending Order	Click Ascending Order to sort the photo paths chronologically in ascending order.
Descending Order	Click Descending Order to sort the photo paths chronologically in descending order.

- The preview area is on the right side of the photo page. You can click a photo in the photo list to preview it on the right side, as shown below.



4 Configuration

4.1 Local parameters

1. Go to **Setup > Local Parameters > Local Parameters**. Configure the video, recording and snapshot parameters.

Video

Display Mode:

Protocol:

Recording and Snapshot

Recording:

Subsection Time (min):

When Storage Full: Overwrite Recording Stop Recording

Total Capacity(GB):

Local Recording:

Files Folder:

Parameter description:

Configuration Item	Description
Display Mode	Select the display mode from the drop-down list according to the network status. The Min. Delay mode has the shortest live delay, followed by the Balanced mode and the Fluent mode. You can also customize it.
Protocol	Media stream transmission protocol for client-side decoding. You can select TCP or UDP from the drop-down list.
Recording	Select the recording subsection type from the drop-down list. <ul style="list-style-type: none">● Subsection By Time: Duration of a local recording subsection, that is, the duration of a single recording file. For example, 2 minutes per subsection.● Subsection By Size: Size of a local recording subsection, that is, the size of a single recording file. For example, 10 MB per subsection.
Subsection Time	<ul style="list-style-type: none">● Subsection Time: When Recording is set to Subsection By Time, you can set the subsection time, which ranges from 1 to 60 minutes.● Subsection Size: When Recording is set to Subsection By Size, you can set the subsection size, which ranges from 10 to 1024 MB.
When Storage Full	<ul style="list-style-type: none">● Overwrite Recording: When the total capacity assigned for local recording is full, the latest recording will overwrite the old recording file.● Overwrite Recording: When the total capacity assigned for local recording is full, the recording will stop.
Total Capacity	Set the total capacity assigned for local recording, which ranges from 1 to 1024 GB.
Local	Select the local recording format from the drop-down list. The options

Recording	include TS and MP4 .
Files Folder	<p>Path for saving snapshot photos or recordings.</p> <ul style="list-style-type: none"> ● Click Browse to browse and set a local path. ● Click Open to directly open the folder where the files are located. <p>Local folder description:</p> <p>IPCUN: path to the configuration file for local parameters and logs related to live stream and photo stream in the local computer</p> <p>JPEG: path for saving captured images locally</p> <p>Record: path for saving recordings locally</p> <p>Snap: path for saving live snapshots</p> <p>tmpPhoto: path for saving photo previews. Only the latest preview record is kept.</p>

4.2 System

4.2.1 Device information

The device information parameters are used in conjunction with the platform or OSD. You can configure them as required.

2. Select **Setup > System > Device Info**. The configuration page is as follows:

Note: This camera does not support the latitude and longitude configuration. Just keep the default settings.

4.2.2 Time

The parameters are mainly related to the time.

1. Select **Setup > System > Time**. The configuration page is as follows:

Sync Mode	Sync with Latest Server Time ▼	
Time Zone	(UTC+08:00) Beijing, Hong Kong, Urumqi, Singapore, Taipei, Perth ▼	
System Time	2024-04-18 10:44:05	
Set Time	2024-04-18 10:40:41 <input type="text"/>	<input type="button" value="Sync with Computer Time"/>
NTP Server		
NTP Server Address	<input type="text" value="0.0.0.0"/>	<input type="button" value="Test"/>
Port	<input type="text" value="123"/>	
Update Interval(s)	<input type="text" value="600"/>	



Note:

- When you set the time manually, it is recommended to set **Sync Mode** to **Sync with System Configuration**. Otherwise, the time set manually will be modified by the synchronized time.

Parameter description:

Configuration Item	Description
Sync Mode	<p>Sync with Latest Server Time: All the servers connected to the device synchronize the time to the device at regular intervals. The time of the device will be updated every time it is synchronized.</p> <p>Sync with System Configuration: Synchronize with the time module that comes with the device, that is, adopt the current system time.</p> <p>Sync with Photo Server: Synchronize with the photo server time (not recommended).</p> <p>Sync with Management Platform: Synchronize with the current management server time.</p> <p>Sync with NTP Server: Synchronize with the NTP server time.</p> <p>Sync with ONVIF Access Time: Synchronize with the time of the server for ONVIF access.</p>
Time Zone	Just select the time zone where the camera is located.
System Time	The current time of the camera system.
Set Time	You can set the time manually.
NTP Server	
NTP Server Address	<p>If Sync with NTP Server is selected, you need to configure the address of the NTP server.</p> <p>Note: After configuring the NTP server time, you can click Test to perform NTP verification.</p>
Port	Configure the NTP server port. The default port number of 123.
Updated Interval	Interval for time synchronization time. Set the parameter to 600 seconds.

4.2.3 Management server

If cameras are managed through the management platform, you need to set the management platform parameters to match the platform parameters.

1. Select **Setup > System > Management Server**. The configuration page is as follows:

- The configuration for access via ITU-T H.267 is as follows:

1. Check the **Enable** button.
2. Set **Protocol** to **ITU-T H.267**.

3. Set the parameters.

Configuration Item	Description
Server IP/Port	Enter the IP address and port of the server.
Server ID	Set an ID that follows the interface prompts and is consistent with the platform side. The ID only needs to conform to the protocol standard format.
Password/Confirm	Password: Enter the authentication password for connecting the device to the platform. The configuration must be the same for the device and the platform. Confirm: Enter the authentication password again.
Device ID	The device ID is consistent with the server ID.
Device Name	Customize the device name.

Expiration Date	The expiration time of the device after it is registered with the platform. The value range is 3600-36000 seconds, and the default value is 3600 seconds.
Registration Interval	The retry interval after the device fails to register with the platform. The value range is 60-600 seconds, and the default value is 60 seconds.
Heartbeat cycle	Interval for the device to send heartbeat messages after successful registration with the platform. The interval should be less than or equal to the registration expiration time. The value range is 5-3600 seconds, and the default value is 60 seconds.
Max. Heartbeat Timeout	The device is considered to be offline if it does not respond to heartbeats for N consecutive times. The value range is 3-255 times, the default value is 3 times.
Transmission Protocol	Select the transmission mode, which can be UDP or TCP. The default value is UDP.
Stream	Type of stream sent to the platform. The stream format should meet the requirements of the platform if any. If you select Automatic , the main stream will be adopted by default. Stream types include Automatic, Main Stream, Sub Stream and Third Stream . The default value is Automatic .
Local SIP Port	The default value is 5060 . You can input a local SIP port number as required.
Video Channel ID	For a single-channel device, the channel ID can be consistent with the device ID.
Alarm Input ID	Set an ID that follows the interface prompts and is consistent with the platform side.

2. After the parameters are configured, click **Save**.

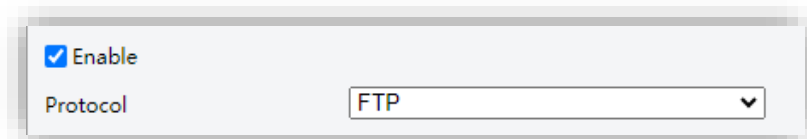
4.2.4 Photo server

This configuration item is mainly used for managing photo data upload.

1. Go to **Setup > System > Photo Server**. There are two options for the protocol.

- Upload via FTP

1. Check the **Enable** button.



The screenshot shows a configuration panel for the Photo Server. At the top, there is a checkbox labeled 'Enable' which is checked with a blue checkmark. Below this, there is a label 'Protocol' followed by a dropdown menu. The dropdown menu is currently set to 'FTP' and has a small downward arrow on the right side.

2. Configure parameters related to the FTP server.

The screenshot shows a 'Server Parameters' configuration window. It contains several input fields: 'Server IP' (0.0.0.0), 'Port No.' (21), 'Username', 'Password', and 'Confirm'. There are also checkboxes for 'Plate Separator', 'Custom Naming Rules', and 'Convert Path into UTF8...'. A 'Test' button is present. Below these fields are tabs for 'Photo of Passing Vehicle' and 'Photo of Violation'. A 'Save To:' section includes 'File Path' and 'File Name' tabs. A table with 6 rows and 2 columns (No. and Naming Element) is shown, with all 'Naming Element' dropdowns set to 'Disable'.

3. Configure FTP parameters:

Configuration Item	Description
Server IP/Port	Enter the IP address and port of the server.
Username/Password	Enter the username and password for logging in to the FTP server.
Confirm	Enter the FTP password again.
Plate Separator	Separator between the letter of province and the numbers on the license plate
Not Upload Pictures	If you check Passing Vehicle or Violation , the corresponding item will not be uploaded via FTP.
Test	Click this button to test whether the communication with the FTP server is normal.
Custom Naming Rules	After checking Custom Naming Rules , you can customize the naming elements of the file name in the passing vehicle or violation photos. The configuration rules are as follows: 1. Format requirement: Prefix < (Front padded string) Front length % Total length (Rear padded string) > Suffix Front length = Element length + Length of front padded string Length of rear padded string = Total length - Front length.
Convert Path into UTF8 Format	Check THIS OPTION to convert the path into UTF8 format.

4. Set the file path.

Configuration Item	Description
File Path	There are 6 levels. You can configure the named elements as required.
Separator	Configure the separator for each naming element of the file name as required.

File Name	There are 49 naming elements. When setting naming elements of the file name, add four random numbers and process diagram serial numbers if possible. This can avoid file overwriting due to the same file naming.
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Note:

- The configuration description for the file path and file naming of passing vehicle photos applies to violation photos. For the configuration description for violation photos, refer to the configuration description for passing vehicle photos.

2. Click **Save** to complete the configuration.

- Upload via LAPI

1. Set **Protocol** to **LAPI**.
2. Check **Enable**, and select **On** for **WebSocket**.

Enable
 Protocol:
 WebSocket: On Off

3. Configure LAPI-related parameters.

Enable
 Protocol:
 WebSocket: On Off
 Destination IP:
 Destination Port:
 Device ID:
 Authentication Key:
 Confirm Authentication Key:
 Report Data Type: Passing Vehicle Violation

Configuration Item	Description
Destination IP	There are 6 levels. You can configure the named elements as required.
Destination Port	Configure the separator for each naming element of the file name as required.
Device ID	The device ID is consistent with the report server ID.
Authentication Key	The device ID is consistent with the report server ID.
Confirm Authentication Key	The device ID is consistent with the report server ID.
Report Data type	You can select one type or both types as required.

4.2.5 Storage

This configuration item is used to set video storage and photo storage.

1. Select **Setup > System > Storage**. The configuration page is as follows:

Configuration Item	Description
Storage Medium	Adopt the default storage. You can click Format to format the data stored in the memory card. Use this function with caution. Storage Medium Status: Display whether the storage resource is normal and display the total capacity and remaining capacity of the current storage.
Allocate Capacity	
Video	The allocated capacity is used for storing videos.
Video Storage Info	
Storage Policy	Manual and Alarm Recording: Keep the default setting as this function is not common. Alarm Recording Only: This function is used in conjunction with Store When Disconnected . You need to configure the receiving address in Setup > Network > ONVIF .
When Storage Full	Overwrite: When the size of stored data reaches the limit, the earliest data will be overwritten. Stop: When the size of stored data reaches the limit, the store operation will be stopped.
Image Storage Info	
Image Storage Mode	Store When Disconnected: After the camera registers with the photo server successfully and when the network is available, images will be uploaded to the server, and the camera will not store the captured images locally. When the network is unavailable, the images will be temporarily stored in the memory card. After the network is restored, the images will be uploaded to the server. Real-time Store: Every captured image will be stored in the memory card. The captured images will also be sent to the server. If the network is not in good condition, it is not guaranteed that every captured image can be uploaded to the server. Not Store: This function can be ignored for practical application.

When Storage Full	<p>Overwrite: When the size of stored data reaches the limit, the earliest data will be overwritten.</p> <p>Stop: When the size of stored data reaches the limit, the store operation will be stopped.</p>
-------------------	--

4.2.6 Log

This configuration item is used to query configuration operation records after you log in to the system.

1. Select **Setup > System > Log**. The configuration page is as follows:

The screenshot shows the Log configuration interface. At the top, there are search filters: 'Time' with a date range from 2024-04-18 00:00:00 to 2024-04-18 23:59:59, 'Main Type' set to 'All', and 'Sub Type' set to 'All'. Below the filters are 'Query' and 'Export' buttons. The main area contains a table with the following data:

No.	Type	Sub Type	Date	Time	Username	IP	Result
1	Operator	Login	2024-04-18	14:00:43	admin	192.168.1.8	Succeeded.
2	Config Management	Configure Smart FTP	2024-04-18	13:58:55	admin	192.168.1.8	Succeeded.
3	Config Management	Configure Smart FTP	2024-04-18	13:57:52	admin	192.168.1.8	Succeeded.
4	Config Management	Configure Smart FTP	2024-04-18	13:57:40	admin	192.168.1.8	Succeeded.
5	Config Management	Configure Smart FTP	2024-04-18	13:56:38	admin	192.168.1.8	Succeeded.
6	Config Management	Configure Intelligent Platform	2024-04-18	13:55:19	admin	192.168.1.8	Succeeded.
7	Config Management	Configure Smart FTP	2024-04-18	13:55:14	admin	192.168.1.8	Succeeded.

At the bottom of the table, it says 'Total 14 items . << < 1 /1 > >>'.

2. Configure the time period for the search.
3. Configure the type and subtype of logs to be searched, and click **Query** to query the records in the specified time period.
4. If you need to export the logs to a table, click **Export** to save the search results in a table to a local computer.

4.3 Network

4.3.1 Wired network interface

This configuration item is used to set the camera network information, such as the IP addresses.

1. Go to **Setup > Network > Wired network** to configure IPv4 parameters.

- Static address
 1. Select **Static** to obtain an IP address.
 2. Enter the IP address, subnet mask and default gateway of the camera. Ensure that the IP address is unique across the network.
 3. Complete the static IP address configuration, as shown below.

IPv4	
Obtain IP Address	Static
Number of IP Address	Single
IP Address	192.168.1.13
Subnet Mask	255.255.255.0
Default Gateway	192.168.1.1

IPv6	
Mode	DHCP

Basic	
MTU	1500
Port Type	FE Port
Operating Mode	Auto-negotiation

- PPPoE

Connect the network via PPPoE.

1. Select **PPPoE** to obtain an IP address.
2. Enter the username and password provided by the Internet Service Provider (ISP) and confirm the password.
3. After you complete the PPPoE configuration, the device will obtain an IP address.

IPv4	
Obtain IP Address	PPPoE
IP Address	0.0.0.0
Username	user
Password	*****
Confirm	*****

IPv6	
Mode	DHCP

Basic	
Port Type	FE Port
Operating Mode	Auto-negotiation

- DHCP

Dynamic Host Configuration Protocol (DHCP) is enabled on the device by default. If a DHCP server is used in the network, the device can obtain an IP address automatically from the DHCP server.

1. Select **DHCP** to obtain an IP address.
2. Complete the DHCP configuration, as shown below.

The screenshot shows a configuration window with three sections: **IPv4**, **IPv6**, and **Basic**. In the **IPv4** section, the 'Obtain IP Address' dropdown is set to 'DHCP'. In the **IPv6** section, the 'Mode' dropdown is set to 'DHCP'. In the **Basic** section, 'MTU' is set to '1500', 'Port Type' is set to 'FE Port', and 'Operating Mode' is set to 'Auto-negotiation'.

2. Configure the IPv6 parameter if necessary. Otherwise, just keep the default settings.

- DHCP

1. The default IPv6 mode is **DHCP**. When **DHCP** is selected, the device can obtain an IP address from the DHCP server automatically.

The screenshot shows a configuration window with the **IPv6** section. The 'Mode' dropdown is set to 'DHCP'.

- Manual mode

1. Select **Manual**.
2. Enter the IPv6 address, subnet prefix length and default gateway of the camera. Ensure that the IP address is unique.
3. Configure basic parameters.

- Set the maximum transmission unit through the **MTU** parameter. A larger MTU value means higher communication efficiency and also higher transmission delay. You need to select an appropriate MTU to balance the communication efficiency and the transmission delay.
- The default value of **Port Type** is **FE Port**.
- The default value of **Operating Mode** is **Auto-negotiation**.

Basic	
MTU	1500
Port Type	FE Port
Operating Mode	Auto-negotiation

4.3.2 Network protocol

● 802.1x

802.1x is an access control protocol for the device to access the network of the switching device. In scenarios where high security is required, authentication and control are required for device access to the network. Only authenticated devices can access the LAN, which ensures LAN security for normal communication.

1. Go to **Setup > Network > Network Protocol** to configure 802.1x parameters.
2. Click **On** for **802.1x**.
3. Select the protocol type. The network can be available only after the device passes the protocol authentication.

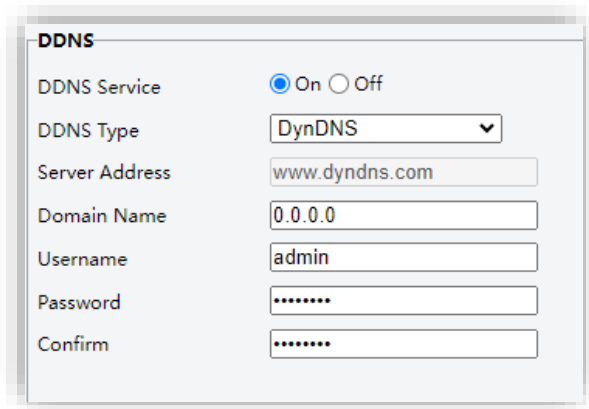
802.1x	
802.1x	<input checked="" type="radio"/> On <input type="radio"/> Off
Protocol	EAP-MD5
EAPOL Version	EAP-MD5
Username	admin
Password	*****
Confirm	*****

4. Select the Extensible Authentication Protocol over LAN (EAPoL) version according to the protocol version on the network switching device.
5. Enter the username and password, and confirm the password.

● DDNS

A Dynamic Domain Name Server (DDNS) maps a user's dynamic IP address to a fixed domain name resolution service. It helps other devices on the public network access dynamically changing IP addresses. The DDNS enables the public network side to know the corresponding IP address of the device and access the private network device for remote monitoring.

1. Go to **Setup > Network > Network Protocol** to configure DDNS parameters.
2. Click **On** for **DDNS Service**.

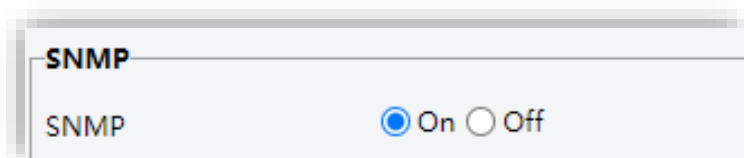


1. Select the DDNS type as required.
 - DynDNS/NO-IP: Overseas third-party DDNS service provider. You can get the server address, domain name and other information when applying for an account on the official website.
 - EZDDNS: Uniview DDNS service. You only need to enter the set domain name.
3. Click **Save** to complete the DDNS configuration.

● SNMP

When the camera needs to transmit specific configuration information to the server, you can use the SNMP service.

1. Go to **Setup > Network > Network Protocol** to configure SNMP parameters.
2. Click **On** for **SNMP**.



1. Configure SNMP parameters.

- SNMPv3



Note:

- When SNMPv3 is selected, both the camera and the server need to support SNMPv3.
-

SNMP

SNMP On Off

SNMP Type

Username

Authentication Mode

Password

Confirm

Encryption Mode

Password

Confirm

Trap Community Name

Trap Server Address

Trap Port

SNMP Port

Parameter description:

Configuration Item	Description
Password (for Authentication)	Set the password as instructed. It is the verification basis for the server to access the camera.
Confirm	Enter the authentication password again.
Password (for Encryption)	Encrypt the data that the IPC sends to the server as instructed.
Confirm	Enter the encryption password again.
SNMP Port	The default value is 161 , which can be modified.

- SNMPv2

SNMP

SNMP On Off

SNMP Type

Read Community

Read/Write Community

Trap Community Name

Trap Server Address

Trap Port

SNMP Port

Parameter description:

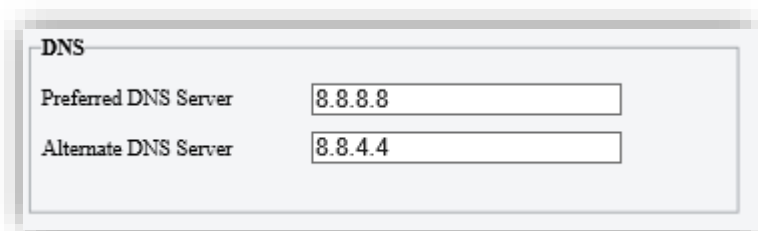
Configuration Item	Description
Read Community	The default name is Public , which can be modified to other strings. After the read community name is modified, the corresponding modification is required on the server side so that two-way authentication can be performed.
SNMP Port	The default value is 161 , which can be modified.

3. Click **Save** to complete the configuration.

● DNS

A Domain Name Server (DNS) is a distributed database in which Internet domain names are located and translated into Internet Protocol (IP) addresses. The DNS resolves the domain name of the accessing device, which helps the device access the external server or host through a domain name.

1. Go to **Setup > Network > Network Protocol** to configure DNS parameters.
2. The preferred DNS server address for overseas products is 8.8.8.8 by default, and the alternate DNS server address is 8.8.4.4.

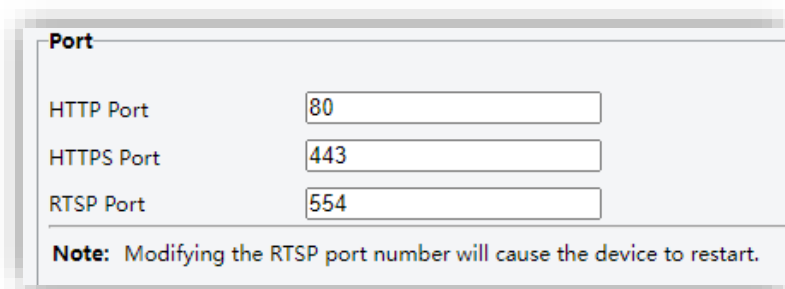


The screenshot shows a configuration window titled "DNS". It contains two input fields: "Preferred DNS Server" with the value "8.8.8.8" and "Alternate DNS Server" with the value "8.8.4.4".

4.3.3 Network port number

● Port

1. Go to **Setup > Network > Network Port** to configure port parameters.



The screenshot shows a configuration window titled "Port". It contains three input fields: "HTTP Port" with the value "80", "HTTPS Port" with the value "443", and "RTSP Port" with the value "554". Below the fields is a note: "Note: Modifying the RTSP port number will cause the device to restart."

2. You can use the above default port parameters. If there is a port conflict, set the port number as required.



Note:

- When the HTTP port number is occupied, the message "Port conflict. Please enter again" will be displayed. Do not enter 23, 81, 82, 85, 3260, or 49152 that are occupied already.
- **HTTP Port/HTTPS Port:** When you log in to the browser after modification, add the modified port number after the address. For example, if the HTTP port number is changed to 88, you need to enter <http://192.168.1.13:88>.
- **RTSP Port:** Multimedia Streaming Protocol port, change it to an available port.

- **Port mapping**

The device is usually connected to the LAN port of the router. If you want to access the LAN device through the public network, port mapping is required.

1. Go to **Setup > Network > Network Port** to configure port mapping parameters.
2. Click **On** for **Port Mapping**.
3. Mapping type
 - UPnP

Port Type	External Port	Internal IP Address	Status
HTTP Port	80	0.0.0.0	Inactive
RTSP Port	554	0.0.0.0	Inactive
HTTPS Port	443	0.0.0.0	Inactive

➤ **Auto-negotiation:** The device and the router automatically negotiate the port number. If the **UPnP** function of the router is enabled, the port can be opened to enable communication between the internal network and the external network.

If this function is disabled, the **NAT** gateway releases the port. If a port is occupied, the device will automatically select another port to initiate a mapping request to ensure that the port is available.

➤ **Specify port:** When configuring this parameter, make sure that the specified port is available. Otherwise, the mapping will not take effect. The **NAT** gateway opens a fixed port. The mapping relationship always exists no matter whether the port is connected. After you fill in the mapping port number, the port will be available.

- Manual mode

- The camera automatically obtains an external **IP address**. Configure and fill in the external port number.
- If the configured external port number is already occupied, **Inactive** is displayed in the **Status** column.

4. Click **Save** to complete the port configuration.

4.3.4 ONVIF

This configuration item is used in conjunction with recording storage for disconnection. You need to complete the configuration in **Setup > System > Storage** before configuring the parameters on this page.

1. Go to **Setup > Network > ONVIF** to configure storage for disconnection.

2. Set **Stream Address** to the backup management server address of the superior server.

Note: This function is not common and you are not advised to use it unless required.

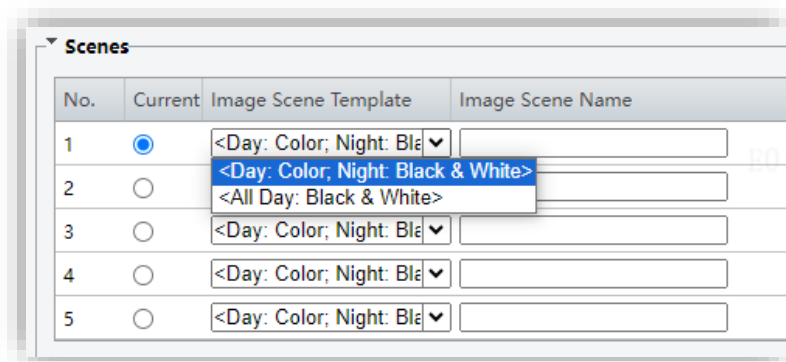
4.4 Video/Image

4.4.1 Image

This configuration item is used to adjust image parameters for live imaging.

- **Scene configuration**

1. Go to **Setup > Video/Image > Image** to configure the scene.
2. Select the image scene template as required. Currently, five scene templates are available. You can switch the scene in real time through the configuration on the image scene switching page, or configure scene switching based on custom scenes. For details on scene switching, refer to the configuration description.

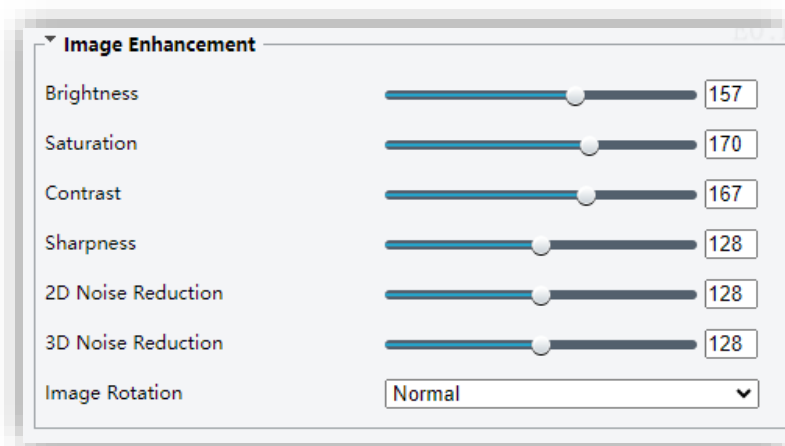


Note:

- The parameter configuration description for the live view is the same as that for images. The following description takes the live view as an example.

- **Live/Image - Image enhancement**

1. Go to **Setup > Video/Image > Image** to configure the image enhancement parameters.

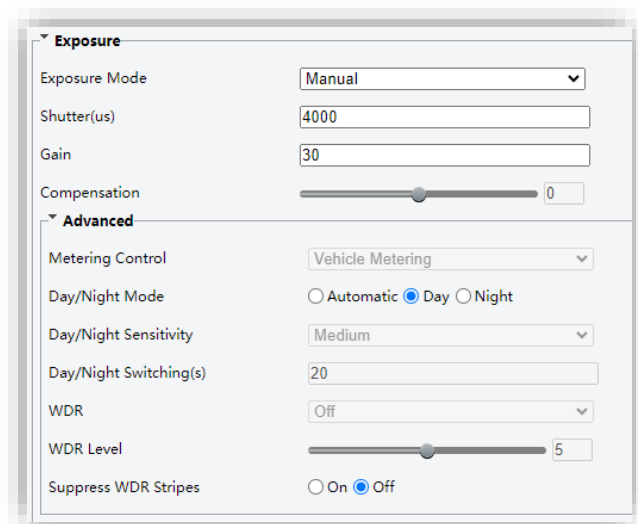


Configuration Item	Description
Brightness	Increase the brightness of the image.
Saturation	Adjust the saturation of the image colors. A higher value indicates that the colors are more vivid.
Contrast	Adjust the image contrast. The larger the value, the clearer the image is, and the more vivid the colors are. A small value makes the overall image grayish.
Sharpness	Visibility of the edge information. The larger the value, the sharper and more jagged the edges are.
2D Noise Reduction	In-frame noise reduction. The larger the value, the less clear the image is.
3D Noise Reduction	Based on the neighboring frames, the non-overlapping information is weakened by the weighted average filtering algorithm, enabling a pure and delicate image. Note: A large value will cause blur. Set the value with caution.
Image Rotation	The default value is Normal . You can rotate the image by 90 degrees. Generally, just keep the default value.

- **Live/Image - Exposure parameters**

This configuration item is used to set the shutter mode and adjust the overall brightness of the image.

1. Go to **Setup > Video/Image > Image** to configure the exposure parameters.



Note:

- Increasing the shutter time can improve the brightness. An excessive shutter value will lead to serious blur. Therefore, it is not recommended to set a large shutter value.
- Increasing the gain can improve the overall brightness of the image. But it can also cause noise, especially at night. Therefore, it is not recommended to set a large gain value.

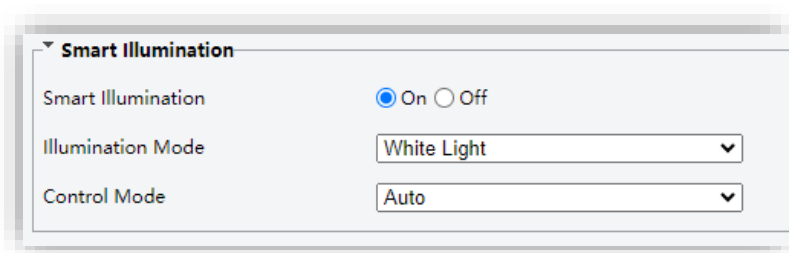
2. Configure the following parameters:

Configuration Item	Description
Exposure Mode	<p>Automatic: Exposure parameters are automatically adjusted based on the light intensity of the live view.</p> <p>Custom: Set the range of exposure parameters. Exposure parameters are automatically adjusted based on the light intensity of the live view within the set range.</p> <p>Indoor 50Hz: Available for the live view with 50 Hz ambient light</p> <p>Indoor 60Hz: Available for the live view with 60 Hz ambient light</p> <p>Manual: Set the exposure parameters manually and use exposure based on settings.</p>
Shutter	Time of the exposure state
Gain	Magnification. The larger the value, the brighter the image.
Compensation	Exposure compensation for the overall picture. The larger the value, the higher the overall brightness of the license plate. The smaller the value, the lower the overall brightness.
Metering Control	Vehicle Metering: Achieved by adjusting the brightness calculation weights for different areas

	<p>Evaluative Metering(BLC): A special kind of area metering, with a focus on the license plate/tailgate. The purpose is to make both the license plate/tailgate brightness and the overall brightness of the screen within the permissible range.</p> <p>Note: Metering Control is not available if Exposure Mode is set to Manual.</p>
Day/Night Mode	<p>Automatic: The camera automatically determines the day or night mode based on the brightness of the live view.</p> <p>Day: The camera is forced to be in day mode.</p> <p>Night: The camera is forced to be in night mode.</p>
Day/Night Sensitivity	<p>Four levels of sensitivity are available: High, Medium, Low, and Ultra-Low. If you select High, the sensitivity of day/night switching is high, and it is easier to switch between day and night modes.</p> <p>Note: When Day/Night Mode is set to Day or Night, Day/Night Sensitivity is grayed out.</p>
Day/Night Mode Switching	<p>The day/night mode can be switched only after the configured day/night switching time even when the switching condition is reached.</p>
WDR	<p>Off is selected by default. You can also select On.</p> <p>Note: This configuration item applies to entrance and exit cameras, and scenarios where headlights seriously affect the background details. This parameter can be ignored as it does not meet the application scenario of this camera.</p>
WDR Level	<p>Levels 1-3 indicate digital WDR, and levels 4-9 indicate optical WDR.</p> <p>This parameter can be ignored.</p>
Suppress WDR Stripes	<p>If this parameter is enabled, background stripes are suppressed. This parameter can be ignored as it does not apply to this camera.</p>

- **Smart illumination**

1. Go to **Setup > Video/Image > Image** to configure the smart illumination.

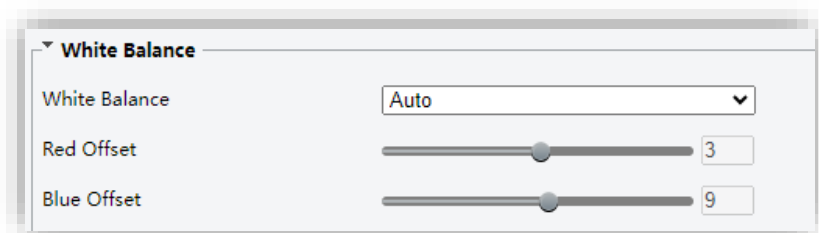


2. **Smart Illumination** is set to **On** by default. You do not need to modify it.
3. Keep the default settings of **Illumination Mode** and **Control Mode**.

- **Live/Image - White balance parameters**

Configure the white balance parameters for the live view and photo imaging. Due to different color temperatures and light sources, the color temperature of the subject changes, and white may have color casts. The process of establishing the true color of white is called white balance.

1. Go to **Setup > Video/Image > Image**.



2. Set the white balance parameters.

Configuration Item	Description
White Balance	<p>Auto: Automatically adjust the white balance value based on the live view situation.</p> <p>Fine Tune: Use the configured white balance value for balance adjustment.</p> <p>Fine Tune (based on night mode): The white balance is automatically adjusted during the daytime. Use night fine-tuning parameters for balance adjustment during the nighttime.</p> <p>Sodium Lamp: The image will be slightly yellowish. It is applicable to road scenes with sodium lamps.</p>
Red Offset	<p>The red component of the white balance. The larger the value, the more red the image is.</p> <p>Note: This parameter is available when the white balance mode is set to Fine Tune or Fine Tune (based on night mode).</p>
Blue Offset	<p>The blue component of the white balance. The larger the value, the more blue the image is.</p> <p>Note: This parameter is available when the white balance mode is set to Fine Tune or Fine Tune (based on night mode).</p>

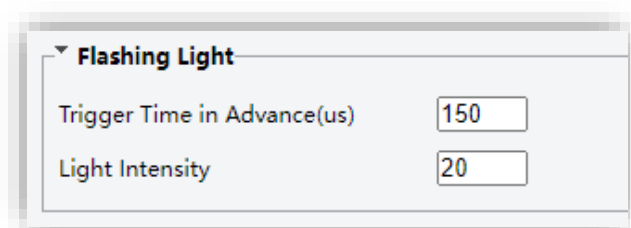
- **Illumination settings - Illumination mode**

This configuration item is a single/double shutter switch. The single shutter usually applies to an environment without illumination. **The parameter is inapplicable to this camera and can be ignored.**

- **Illumination settings - Flashing light**

This configuration item involves the flashing light. If there is no special requirement, it is recommended to keep the default settings.

1. Go to **Setup > Video/Image > Image**.



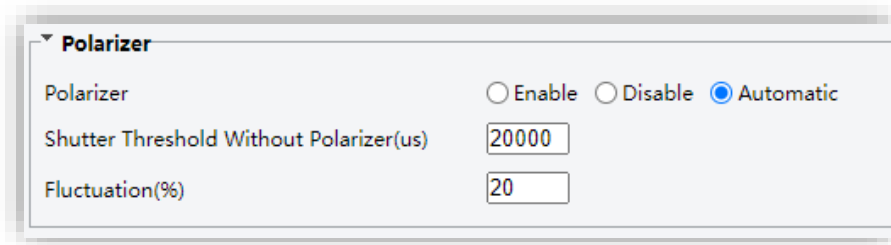
2. Configure the flashing light parameters on the illumination configuration page.

Configuration Item	Description
Trigger Time in Advance	The default value is 150 . It is used to control the amount of light for the shutter. Generally, keep the default settings.
Light Intensity	The default value is 20 . It is used to adjust the image brightness. Note: The brightness can only be slightly adjusted through this parameter. You can adjust the brightness through shutter time and gain adjustment.

● **Illumination settings - Polarizer**

The polarizer is used to filter polarized light.

1. Go to **Setup > Video/Image > Image**.



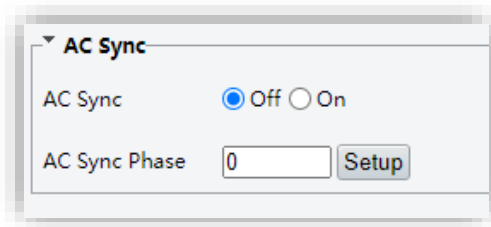
2. Configure the polarizer parameters on the illumination settings tab.

Configuration Item	Description
Polarizer	Enable: Turn on the polarizer forcibly. Disable: Turn off the polarizer forcibly. Automatic: The camera will switch the polarizer status based on the day and night conditions, that is, the polarizer is turned on in the daytime and off in the nighttime.
Shutter Threshold Without Polarizer	The shutter threshold for disabling the polarizer. When the overall environment becomes dark, the shutter gain increases and becomes greater than the shutter threshold for disabling the polarizer. In this case, the polarizer is turned off. Otherwise, the polarizer is turned on.
Fluctuation	In automatic mode, the polarizer is switched when the fluctuation threshold is met.

- **Illumination settings - AC sync**

This configuration item is used to synchronize the external ambient light. If the screen flickers, you can adjust this configuration item to solve the problem.

1. Go to **Setup > Video/Image > Image** to configure AC synchronization on the illumination settings tab.

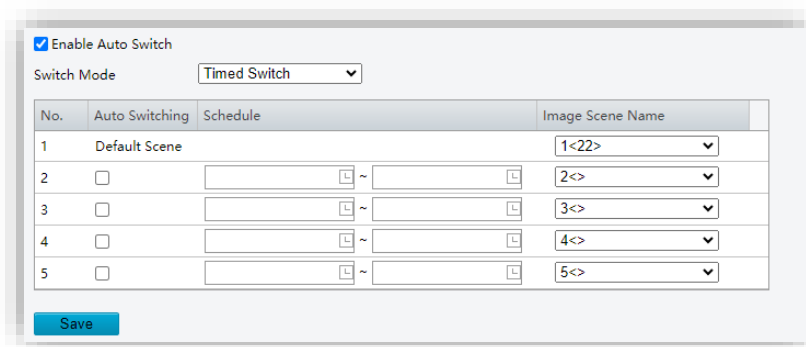


2. Click **On**.
3. Configure the phase. The recommended step size is 50. After configuring the parameters, observe the live effect.

4.4.2 Image scene switching

This configuration item applies to special scenes, such as the image parameter switching in a frontlighting or backlighting scene to achieve normal imaging. In general scenes, you can ignore this configuration item and keep the default settings.

1. Go to **Setup > Video/Image > Image Scene Switching** to configure the image scene switching parameters.
2. Check the **Enable Auto Switch** button.
3. Configure the scene switching parameters.



1. Set **Switch Mode** to **Timed Switch**.
2. In the scene switching list, select the scenes to be automatically switched and the time range for automatic switching.

Note: Scene names 1-5 correspond to scenes 1-5 in the scene switching area on the image page respectively. If scene switching is required, you can set the image parameters to be switched on the image page first.

3. Click **Save** to complete the configuration of image scene switching.

4.4.3 Video code

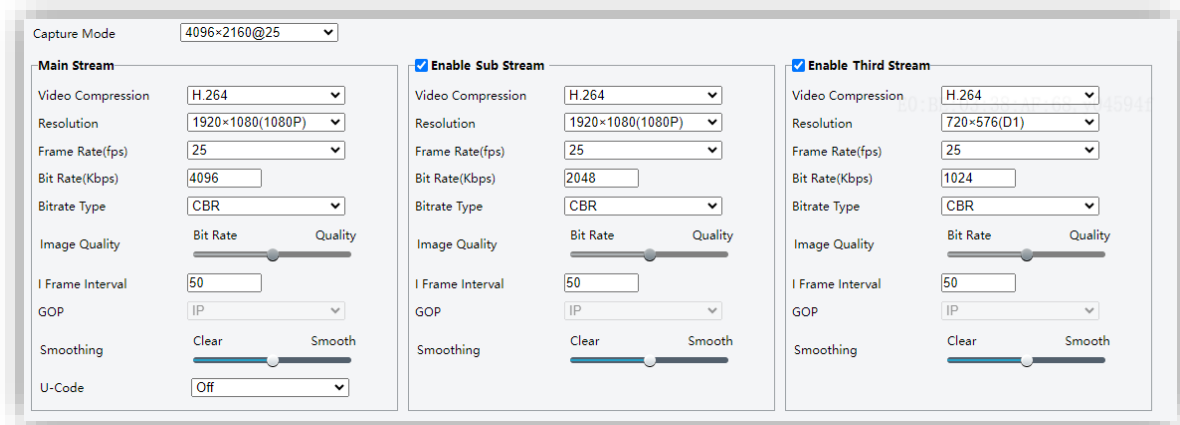
This configuration item is used to set video code parameters.

1. Go to **Setup > Video/Image > Video Code** to configure the video code parameters.



Note:

- The configuration description of the main stream, sub stream and third stream is the same. The following takes the main stream configuration as an example.



Configuration Item	Description
Capture Mode	Resolution and frame rate of a captured image
Code Compression	Select the coding format from the drop-down list. Options include H.265 , H.264 and MJPEG . Note: In H.265 or H.264 mode, you cannot set the image quality at CBR. In MJPEG mode, you cannot set the bit rate, I-frame interval, stream smoothing, SVC, and U-Code.
Resolution	Select the resolution from the drop-down list. The higher the resolution, the clearer the image.
Frame Rate	Select the frame rate from the drop-down list. The higher the frame rate, the smoother the live image.
Bit Rate	Enter the bit rate. An integer ranging from 128 to 16384 is recommended. Note: The bit rate range varies with the devices. Set this parameter according to the actual situation.
Bitrate Type	Select the bit rate type from the drop-down list, including constant bit rate and variable bit rate. ● CBR: The device will send data at a constant bit rate.

	<ul style="list-style-type: none"> ● VBR: The device will dynamically adjust the bit rate according to the image quality.
Image Quality	<p>Drag the slider bar to adjust the image quality. When the bit rate type is VBR, you can set the quality level of the encoded image. The closer the value is to "Bit Code", the lower the bit rate is, which will affect the image quality. The closer the value is to "Quality", the higher the bit rate is, and the higher the image quality is.</p>
I Frame Interval	<p>Enter the number of frames between the I-frames of an image. The larger the value, the smaller the storage space occupied by the compressed video. The smaller the value, the higher the image quality. It is recommended to use the default value.</p>
GOP	<p>IP frame coding is supported: An I-frame contains the complete image, and a P-frame contains the difference between this frame and the previous frame.</p>
Smoothing	<p>Drag the slider bar to adjust the level of stream smoothing. "Clear" means stream smoothing is disabled. The closer the value is to "Smooth", the higher the level of stream smoothing is, which will affect the image clarity.</p> <p>Note: When the network is poor, enabling stream smoothing can make the image smoother.</p>
U-Code	<p>Select U-Code mode from the drop-down list. Options include Off, Basic, and Advanced.</p> <ul style="list-style-type: none"> ● Basic: Reduce the bit rate by 25%. ● Advanced: Reduce the bit rate by 50%.

4.4.4 Image code

This configuration item is used to set the resolution and size of the captured images.



Note:

- The size of the image depends on the resolution and the saturation of colors of the scene captured, and it is not the same as the set value.

1. Go to **Setup > Video/Image > Image Code**.

The screenshot displays a configuration panel with the following sections and settings:

- Single Photo Resolution:** Resolution dropdown set to 4096x2160.
- Single Photo of Passing:** Clarity slider at 90, Photo Size(KB) input set to 1200.
- Small Photo of Plate:** Clarity slider at 99, Photo Size(KB) input set to 40.
- Thumbnail Image:** Clarity slider at 99, Photo Size(KB) input set to 200.
- Composite Photo of Passing:** Clarity slider at 70, Photo Size(KB) input set to 1400.
- Single Photo of Violation:** Clarity slider at 90, Photo Size(KB) input set to 1000.
- Composite Photo of Violation:** Clarity slider at 70, Photo Size(KB) input set to 3000.
- Close-up Photo of Vehicle:** Resolution dropdown set to 4096x2160.

2. Configure the following parameters:

Configuration Item	Description
Single Photo Resolution	
Resolution	Resolution of a single image. Select the resolution type as required.
Single Photo of Passing	
Clarity	Clarity of images. A larger value indicates that the images are clearer. The default value is 90 .
Photo Size	Set the size of a single image of the passing record. The value range is 1-2048 KB.
Small Photo of Plate	
Clarity	Clarity of images. A larger value indicates that the images are clearer. The default value is 99 .
Photo Size	Set the size of a small plate image. The value range is 1-40 KB.

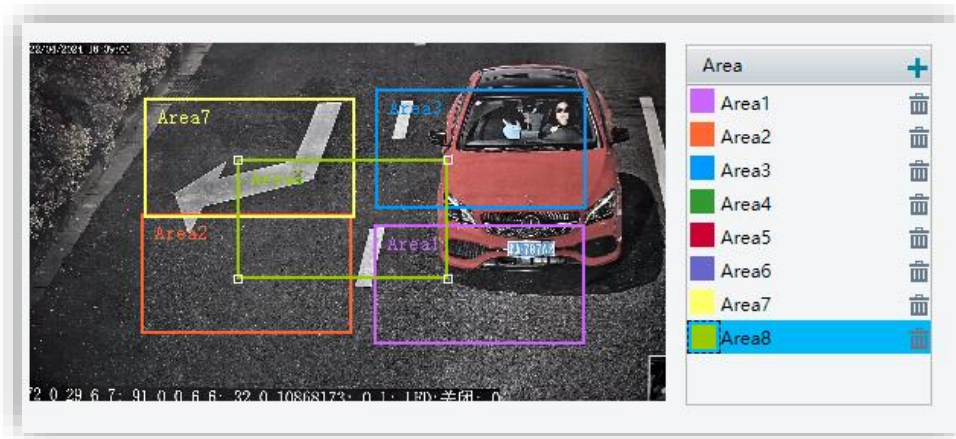
Thumbnail Image	
Clarity	Clarity of images. A larger value indicates that the images are clearer. The default value is 99 .
Photo Size	Set the size of a small face image. The value range is 1-200 KB.
Composite Photo of Passing	
Clarity	Clarity of images. A larger value indicates that the images are clearer. The default value is 70 .
Photo Size	Set the size of a composite image of the passing record. The value range is 1-3072 KB.
Single Photo of Violation	
Clarity	Clarity of images. A larger value indicates that the images are clearer. The default value is 90 .
Photo Size	Set the size of a single image of the violation record. The value range is 1-2048 KB.
Composite Photo of Violation	
Clarity	Clarity of images. A larger value indicates that the images are clearer. The default value is 70 .
Photo Size	Set the size of a composite image of the violation record. The value range is 1-3072 KB.
Close-up Photo of Vehicle	
Resolution	Resolution of close-up images. Select the solution type as required.

3. Click **Save** to complete the configuration.

4.4.5 Area enhancement

If area enhancement is enabled, the system will prioritize the image quality of this area when the bit rate is not enough.

1. Go to **Setup > Video/Image > Area Enhancement** to configure area enhancement parameters.



2. Click **+** on the right side to add an enhancement area (up to 8 areas). The rules for drawing an enhancement areas are as follows:

- **Redraw:** In any position of the live view, hold and drag the left mouse button to generate an area frame line. Move the cursor to any other position and then click to generate an area frame.
- **Draw additionally:** Move the mouse to any end point of the calibration line. When the cursor becomes a cross, hold and drag the left mouse button to adjust the length and direction of the calibration line. Hover over any position of the calibration line. Hold and drag the left mouse button to move the calibration line to another position.

4.4.6 Media stream

Media stream refers to the distribution of audio and video content in real time in the form of data stream. The media stream page displays the third-party clients that are currently receiving data from the camera, such as PCs or servers. By adding a media stream, the camera can transmit captured images or video files to a specific IP address or port via a specific transmission protocol.

1. Go to **Setup > Video/Image > Media Stream** to configure media stream parameters.

Stream Profile	Protocol	Destination IP	Destination ...	Persistent	Status	+
Main Stream	TCP	192.168.1.8	60883	Disable	Streaming	🗑️

2. Click **+** to add a media stream.
3. Set media stream rules.

Configuration Item	Description
Stream Profile	Select the output stream from the drop-down list, including Main Stream , Sub Stream and Third Stream . The device transmits the data captured under a specific stream to a third party.
Destination IP	IP address or domain name of the third-party receiving device
Transmission Protocol	The default transmission protocol is RTMP. The device transmits data to a third party via a specific protocol.
Persistent	If Persistent is enabled, the device will automatically create the last configured media stream after it is rebooted or started.

4. Click **OK** to complete the addition.

4.4.7 RTSP multicast

After RTSP multicast is configured, a third-party player can request the camera to send RTP multicast media streams via the RTSP protocol.

1. Go to **Setup > Video/Image > RTSP Multicast** to configure RTSP multicast parameters.

2. Set the multicast address (value range: 224.0.1.0-239.255.255.255) and port number (value range: 0-65535).
3. Click **Save** to save the configuration.

4.5 Intelligence

4.5.1 Intelligent service

This configuration item is used to set basic services of the camera, including the lane properties, drawing lane capturing and advanced parameter settings.



Note:

- The configuration depends on the number of lanes. For example, if the number of lanes is set to 2, you need to configure the parameters of 2 lanes.
- The configuration items for different lanes are the same. The following takes the configuration of lane 1 as an example.

- **Lane properties - Basic parameter settings**

1. Go to **Setup > Smart > Smart**.

2. Configure the following parameters:

Configuration Item	Description
Lane ID	Configure the lane ID according to the actual one.
Vehicle Type	Set the vehicle type to Normal Lane .
Input/Output ID	The input/output ID is used in conjunction with the input/output. Select the P port to which the input/output is connected.
Serial Port ID	The serial port ID is used in conjunction with radar. Select the serial port ID based on the 485 serial port to which radar is connected for the external device.
Default Lane Type	Select the lane type according to the actual situation, including straight, right turn, left turn and the combination of them. Set by Time: Set the lane type by time period.
Default Driving Direction	The driving direction of the lane can be from up to down, from down to up, and two-way. The default direction for ANPR devices is from up to down. Just keep the default settings. Set by Time: Set the driving direction by time period.
Detection Type	After the vehicle detection type is set, the camera captures images for the corresponding vehicles. Motor Vehicle is selected by default. You can also select Motorcycle .
Day Flashing Light ID	This parameter is used in conjunction with the flashing light. Select the F port to which the flashing light is connected.
Night Flashing Light ID	This parameter is used in conjunction with the flashing light. Select the F port to which the flashing light is connected.
Strobe Light ID	This parameter is used in conjunction with the strobe light. Select the P port to which the strobe light is connected.
Enable Light	After the vehicle type is selected, illumination will be provided through the flashing light to the corresponding vehicles.

3. Click **Save** to complete the basic parameter configuration.

- **Lane properties - Advanced parameter settings**

1. Go to **Setup > Smart - Smart**. Click **Advanced Settings** to set advanced parameters.

Default Speed Limit (km/h)

Default Lowest Speed (km/h)

Apply Speed Limit (%)

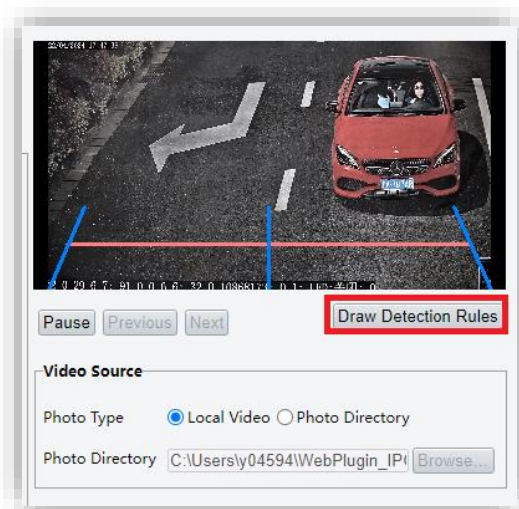
2. Configure the following parameters:

Configuration Item	Description
Default Speed Limit	The default speed limit of a lane is used to determine whether a vehicle exceeds the speed limit. Set by Time: You can configure speed limits by time period to meet different requirements on speed limit.
Default Lowest Speed	Default minimum requirement for speed limit. Just keep the default value.
Apply Speed Limit	The default allowable range for speeding is 10%. Note: When Default Speed Limit is set to 70 km/h , and Apply Speed Limit is set to 10% , then the maximum allowable speed is $70+70*10%=77$ km/h. Only when the speeds exceeds 77 km/h, the vehicle will be penalized for speeding.

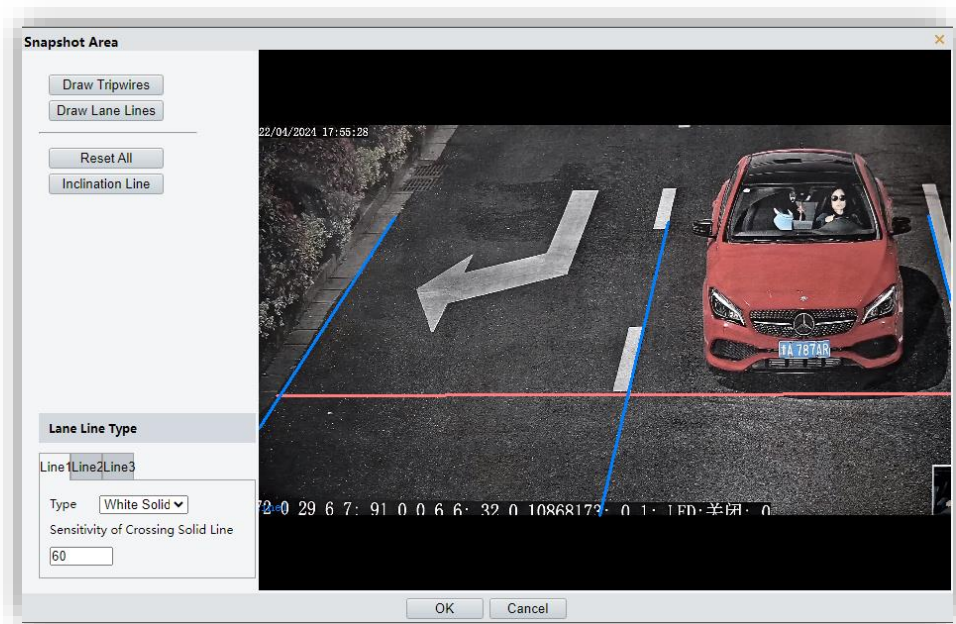
3. Click **Save** to complete the advanced parameter configuration.

● **Line configuration for intelligent services (local video)**

1. Go to **Setup > Smart > Smart**. Click on the right side of the page to configure lines for intelligent services.
2. Set **Video Source** to **Local Video**, and click **Draw Detection Rules**, as shown below:



3. On the line drawing page, draw the lane lines, tripwires and other lines, as shown below:



Drawing requirements:

1. You can directly click the tripwire or click **Draw Tripwire** to draw a tripwire. The operations for other buttons are the same.
2. The requirements for line drawing are as follows:
 - Lane line (blue): Drawn according to the actual lane line, as shown in the above figure.
 - Tripwire (red): The position of the tripwire is at the lower third of the overall screen, as shown in the above figure.
3. The inclination line is used to view the inclination angle of the license plate. **This configuration item can be ignored.**
4. The lane attribute options include the sensitivity of crossing solid line and the lane type. **This configuration item can be ignored for this device.**

4. Click **Save** to complete the line configuration.

● Line configuration for intelligent services (photo directory)

1. Go to **Setup > Smart > Smart**. Click on the right side of the page to configure lines for intelligent services.
2. Set **Video Source** to **Photo Directory**, and select the photo directory. The corresponding photo is displayed in the preview box. You can switch the photos by clicking **Previous** or **Next**, as shown below:

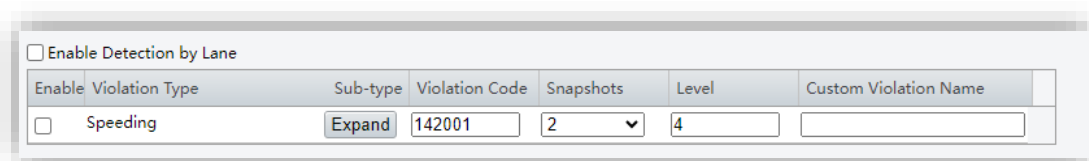


3. For details on drawing the lane lines and tripwires, see the drawing requirements mentioned in the local video section.

4.5.2 Violation type

This configuration item is used to set the violation type. You can configure speeding parameters on this page.

1. Go to **Setup > Smart > Violation Type** to configure the violation type.



2. In the list of violation types, check **Enable** for the corresponding violation, such as speeding.
3. Configure the following parameters:

Configuration Item	Description
Enable Detection by Lane	After detection by lane is enabled, you can request speed measurement for individual lanes to allow for different speeding judgment ways for lanes.
Violation Code	Violation code of speeding. Just keep the default value unless otherwise specified.
Snapshots	Set the number of speeding snapshots as required. The value range is 1-3.
Level	Priority of the violation type. This parameter is inapplicable to this camera and can be ignored. Just keep the default value.
Custom Violation Name	Configure the violation name as required.
Default	Click this button to restore the default settings of parameters on this page. Use this button with caution.

4. Click **Save** to complete the configuration.



Note:

- If you need to break down the speeding violation type by percentage, click **Expand**. The violation subtype can be set from speeding by 10% to speeding by 100%. Otherwise, just check **Enable** for **Speeding**.

4.5.3 Violation policy

1. Go to **Setup > Smart > Violation Policy** to configure the violation policy.

- **Record creation configuration**

1. Configure the parameters as follows:

Configuration Item	Description
Snapshot Type	
Violation Record	If this option is checked, violation records will be generated for vehicles. If not checked, no violation record will be generated.
Passing Record of Violation Vehicle	If this option is checked, passing records of violation vehicles be generated. If not checked, no passing record will be generated.
Passing Record of Non-violation Vehicle	If this option is checked, passing records of non-violation vehicles be generated. If not checked, no passing record will be generated.
Unidentified Vehicles	
Generate Motor Vehicle Violation Record	If this option is checked, violation records will be generated for unlicensed vehicles and vehicles with unidentified license plates. If not checked, no violation record will be generated.
Generate Motor Vehicle Passing Record	If this option is checked, passing records will be generated for unlicensed vehicles and vehicles with unidentified license plates. If not checked, no passing record will be generated.

2. Click **Save** to save the record creation configuration.

- **Violation policy**



Note:

- Days off: For example, Saturday was supposed to be a rest day, but it becomes a workday and the next Monday becomes a rest day. This means that Saturday is the day off.
- This configuration item can meet the need of not detecting violations on holidays/days off. In the non-holiday/days off period, only the selected violation type will be detected on the configured violation date and within the time range.

If you have requirements on the violation policy for holidays, days off and paid leaves, set the parameters here.

1. Go to **Setup > Smart > Violation Policy** to configure the following parameters:

- **Holidays/Days off**

1. Check **Enable Detection by period**, and then click **Holidays/Days Off**.

2. Click **+** to select the date as a day off or holiday, and then click **OK**.

- **Paid Leave**

1. Click **+** to add violation policy 1. You can configure details such as the violation type, violation date, and violation time.

The configuration page is as follows:

Policy1Details

Violation Type	Violation Date	Violation Time
<input type="checkbox"/> Speeding		

Violation Type	Violation Date	Violation Time
<input type="checkbox"/> Select All <input type="checkbox"/> Mon <input type="checkbox"/> Tue <input type="checkbox"/> Wed <input type="checkbox"/> Thu <input type="checkbox"/> Fri <input type="checkbox"/> Sat <input type="checkbox"/> Sun <input type="checkbox"/> Holidays <input type="checkbox"/> Paid Leave		

Violation Type	Violation Date	Violation Time
<input type="button" value="Delete"/>		
No.	Start Time	End Time
1	<input type="text" value=""/>	<input type="text" value=""/>
2	<input type="text" value=""/>	<input type="text" value=""/>

Configuration Item	Description
Violation type	Select the violation type for the violation policy. Note: The violation type should have been checked on the violation type page so that it will be displayed on this page.
Violation Date	Select Monday through Sunday. You can also select holidays and days off when Enable Detection by period is checked.
Violation Time	Set the start time and end time.

- After configuring the record creation parameters and the violation policy for holidays, days off, and paid leaves, click **Save** to complete the configuration.

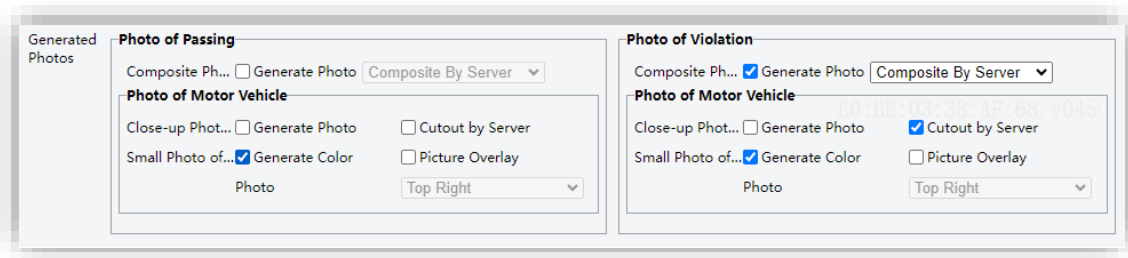
4.5.4 Image processing

This configuration item is used to set the type of images generated and the composition method of violation images.

- Go to **Setup > Smart > Snapshot Handling** to configure the parameters.

- **Type of generated images**

- On the **Snapshot Handling** page, the image type parameters are as follows:



2. Configure the parameters according to the following description.

Configuration Item	Description
Single Photo of Passing	
Composite Photo	<p>Select Generation Photo. There are two composition methods.</p> <p>Composite By Server: The passing vehicle images are composited by the server.</p> <p>Composite By Camera: The passing vehicle images are composited by the camera.</p>
Close-up Photo	<p>There are two options.</p> <p>Generate Photo: The close-up views of vehicles are generated by the camera.</p> <p>Cutout by Server: The close-up views of vehicles are constructed by the server.</p>
Small Photo of Plate	<p>There are two options.</p> <p>Generate Color: Small colorful images of vehicle license plates are generated.</p> <p>Picture Overlay: You can select top left, bottom left, top right, or bottom right as required.</p> <p>Note: After checking Picture Overlay, you can configure the width and height pixels of the small colorful images. Generally, keep the default values, as shown below:</p> <div style="border: 1px solid #ccc; padding: 5px; margin: 10px auto; width: fit-content;"> <p>Small Color Photo Width(px) <input type="text" value="440"/> Height(px) <input type="text" value="140"/></p> </div>
Photo of Violation	
Composite Photo	<p>Select Generation Photo. There are two composition methods.</p> <p>Composite By Server: The violation images are composited by the server.</p> <p>Composite By Camera: The violation images are composited by the camera.</p>
Close-up Photo	<p>There are two options.</p> <p>Generate Photo: The close-up views of vehicles are generated by the camera.</p> <p>Cutout by Server: The close-up views of vehicles are constructed by the server.</p>

Small Photo of Plate

There are two options.

Generate Color: Small colorful images of vehicle license plates are generated.

Picture Overlay: You can select top left, bottom left, top right, or bottom right as required.

Note: After checking **Picture Overlay**, you can configure the width and height pixels of the small colorful images. Generally, keep the default values, as shown below:

Small Color Photo Width(px) Height(px)

3. Click **Save** to complete the image type configuration.

● **Composition method**

1. On the **Snapshot Handling** page, the composition methods are as follows:

Photo Composition

1 Snapshot

2 Snapshot

3 Snapshot

Style

Position1 Snapshot1

Position2 Snapshot1Close-up

Position1 Snapshot1

Position2 Snapshot2

Position3 Snapshot1Close-up

Position1 Snapshot1

Position2 Snapshot2

Position3 Snapshot3

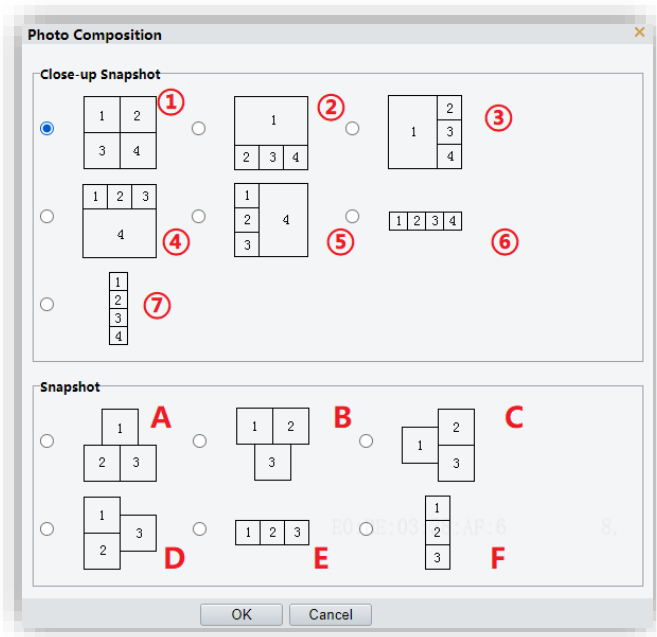
Position4 Snapshot1Close-up

Composite Photo Size Original Size

2. There are three styles of composition. Configure the style for the snapshots, the number of which depends on that configured in the violation type. (The configuration description takes 3 snapshots for speeding as an example.)

3. Click the style button under the snapshots. The following page will be displayed:

- If vehicle close-up photos are required for photo composition, configure the style in the **Close-up Snapshot** area (style 1 through style 7).
- If vehicle close-up photos are not required for photo composition, configure the style in the **Snapshot** area (style A through style F).



Note:

- For three snapshots, only style ①, style ⑥ (the size of the composite photo needs to be modified to that of a single photo), and style ⑦ (the size of the composite photo needs to be modified to that of a single photo) are supported. **Other styles are not supported.**

4. Configure the snapshot position and the size of the composite photo as follows:

Configuration Item	Description
Position 1	You can select snapshot 1 through snapshot 3 and snap 1 close-up. Select the corresponding overlay type. Overlay the configured option type in position 1 of the composite photo.
Position 2	You can select snapshot 1 through snapshot 3 and snap 1 close-up. Select the corresponding overlay type. Overlay the configured option type in position 2 of the composite photo.
Position 3	You can select snapshot 1 through snapshot 3 and snap 1 close-up. Select the corresponding overlay type. Overlay the configured option type in position 3 of the composite photo.
Position 4	You can select snapshot 1 through snapshot 3 and snap 1 close-up. Select the corresponding overlay type. Overlay the configured option type in position 4 of the composite photo.

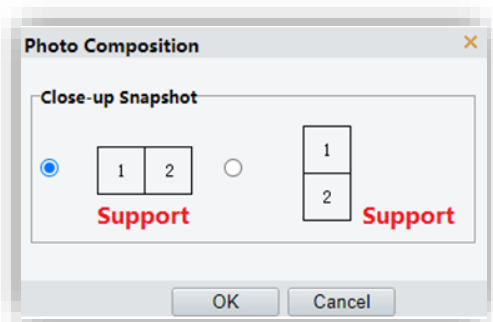
Size	<p>Two options are available.</p> <p>Original Size: The resolution of the composite photo is based on the resolution of a single photo. For example, the width and height resolution of a composite photo in the crisscross style is twice the resolution of a single photo.</p> <p>Size of One Photo: The resolution of the composite photo is the same as that of a single photo.</p>
------	---

5. Click **Save** to complete the composition method configuration.

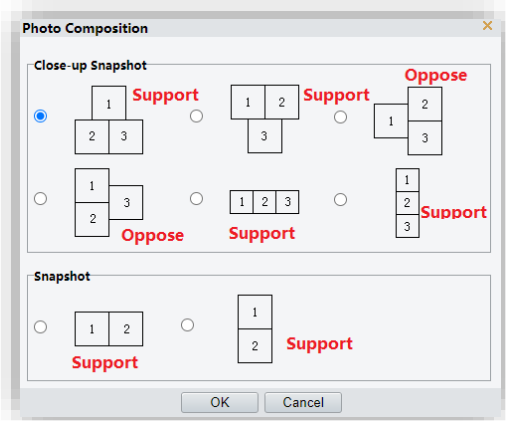


Note:

- Styles supported for one snapshot:

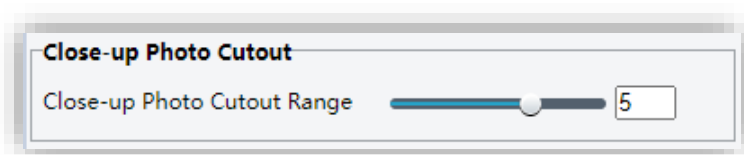


- Styles supported for two snapshots:



- **Close-up photo cutout configuration**

1. On the **Snapshot Handling** interface, the page for configuring close-up photo cutout is as follows:



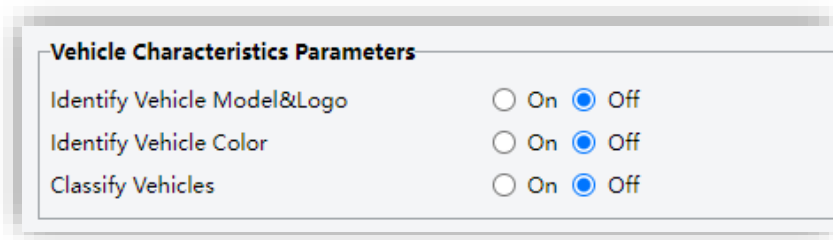
2. Configure the following parameter:

Configuration Item	Description
Close-up Photo Cutout Range	The value range is 1-7, and the default value is 5 . The photo cutout takes the license plate as the center. The larger the value, the smaller the proportion of vehicles in the photo.

4.5.5 Vehicle parameters

This page allows you to configure vehicle parameters, which are mainly vehicle characteristics.

1. Go to **Setup > Smart > Vehicle Parameters**.



2. Configure the following parameters:

Configuration Item	Description
Identify Vehicle Model&Logo	The default value is Off . To identify the vehicle logos and models, click On .
Identify Vehicle Color	The default value is Off . To identify the vehicle colors, click On .
Classify Vehicles	The default value is Off . To identify the vehicle model category, click On .

4.6 External device

4.6.1 Serial port

The RS485 serial port is used for transparent data transmission with third-party devices and transmission of information captured by radar. Serial port parameters should be matched with the connected serial devices.

1. Go to **Setup > External Device > Serial Port**.

2. Select **Port Mode** and set relevant parameters.

Configuration Item	Description
Baud Rate	Data transmission rate (data bits/second). The larger the value, the faster the data is transmitted, but the shorter the transmission distance. Generally, keep the default value.
Data Bits	The actual number of data bits contained in a packet. Generally, keep the default value.
Stop Bits	A stop bit marks the end of the transmission of a data set. Generally, keep the default value.
Parity	Determine whether the received data bits are correct. You can select odd parity or even parity.
Flow Control	Control the process of data transmission to prevent data loss.

- **Radar H2 (single lane)**

1. If you need to access the single-lane radar, set **Port Mode** to **Radar H2(Single Lane)**, and click **Save**, as shown below:

The screenshot shows a configuration window titled "RS485_1". It contains several settings:

- Port Mode: Radar H2(Single Lane) (dropdown menu)
- Baud Rate: 9600 (dropdown menu)
- Data Bits: 8 (dropdown menu)
- Stop Bits: 1 (dropdown menu)
- Parity: None (dropdown menu)
- Flow Control: None (dropdown menu)
- Enable Trans-Channel: (checkbox)

- **Radar H2**

1. If you need to access the multi-lane radar, set **Port Mode** to **Radar H2**, and click **Save**, as shown below:

The screenshot shows a configuration window titled "RS485_1". It contains several settings:

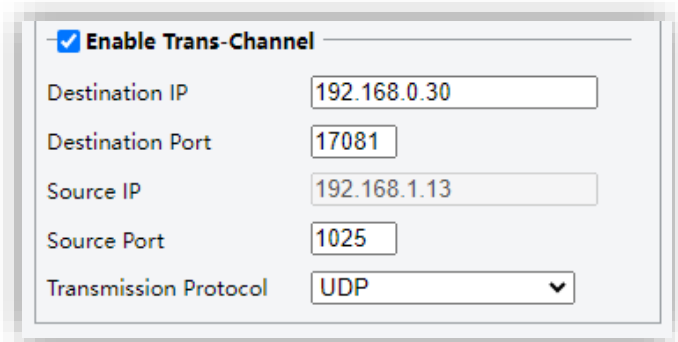
- Port Mode: Radar H2 (dropdown menu)
- Baud Rate: 9600 (dropdown menu)
- Data Bits: 8 (dropdown menu)
- Stop Bits: 1 (dropdown menu)
- Parity: None (dropdown menu)
- Flow Control: None (dropdown menu)
- Enable Trans-Channel: (checkbox)

- **Onvif transparent channel**

1. The parameter enables you to configure the serial port via ONVIF and send/receive the serial port data. It applies to special cases and can be ignored for this camera.

- **Trans-Channel**

1. Select **Trans-Channel** for the serial port mode. Check **Enable Trans-Channel** and configure the following parameters:



Configuration Item	Description
Destination IP	Enter the server address for transparent transmission.
Destination Port	Enter the corresponding server port.
Source Port	The port through which the camera sends data via the transparent channel. Generally, keep the default value. If you change it to another port, there may be a port conflict.
Transmission Protocol	You can select TCP or UDP .

2. Click **Save** to complete the configuration.

4.6.2 I/O

1. Go to **Setup > External Device > I/O**. The configuration page is as follows:

ID	Enable	Type	Level Value	Pulse Width	Brightness	Connection
F1	<input checked="" type="checkbox"/>	Flashing Light ▾	Low Level ▾	<input type="text" value="100"/>	<input type="button" value="Adjust"/>	
F2	<input checked="" type="checkbox"/>	Flashing Light ▾	Low Level ▾	<input type="text" value="100"/>	<input type="button" value="Adjust"/>	
F3	<input checked="" type="checkbox"/>	Flashing Light ▾	Low Level ▾	<input type="text" value="100"/>	<input type="button" value="Adjust"/>	
F4	<input checked="" type="checkbox"/>	Flashing Light ▾	Low Level ▾	<input type="text" value="100"/>	<input type="button" value="Adjust"/>	
P1	<input checked="" type="checkbox"/>	Strobe Light ▾	High Level ▾	<input type="text" value="5"/>	<input type="button" value="Adjust"/>	<input type="radio"/>
P2	<input checked="" type="checkbox"/>	Strobe Light ▾	High Level ▾	<input type="text" value="5"/>	<input type="button" value="Adjust"/>	<input type="radio"/>
P3	<input checked="" type="checkbox"/>	Strobe Light ▾	High Level ▾	<input type="text" value="5"/>	<input type="button" value="Adjust"/>	<input type="radio"/>
P4	<input checked="" type="checkbox"/>	Strobe Light ▾	High Level ▾	<input type="text" value="5"/>	<input type="button" value="Adjust"/>	<input type="radio"/>
P5	<input checked="" type="checkbox"/>	Strobe Light ▾	High Level ▾	<input type="text" value="5"/>	<input type="button" value="Adjust"/>	<input type="radio"/>
P6	<input checked="" type="checkbox"/>	Strobe Light ▾	High Level ▾	<input type="text" value="5"/>	<input type="button" value="Adjust"/>	<input type="radio"/>
P7	<input checked="" type="checkbox"/>	Strobe Light ▾	High Level ▾	<input type="text" value="5"/>	<input type="button" value="Adjust"/>	<input type="radio"/>
P8	<input checked="" type="checkbox"/>	Strobe Light ▾	High Level ▾	<input type="text" value="5"/>	<input type="button" value="Adjust"/>	<input type="radio"/>
RSV	<input checked="" type="checkbox"/>	Strobe Light ▾	High Level ▾	<input type="text" value="100"/>		

Tip: F* alarm output, P* 5V TTL level output. RSV is used to adjust the LED inside the housing.

Note: Select a type consistent with the illuminator type set for the lanes in smart configuration.

Configuration Item	Description
Enable	Enable all by default. You can uncheck the corresponding option if you do not need the light.
Type	Select the flashing light or strobe light. Generally, F ports correspond to flash lights and P ports correspond to strobe lights. Keep the default settings for common applications.
Level Value	The level is low for flashing lights and high for strobe lights. It is used in conjunction with the illuminator. Just keep the default settings.
Pulse Width	Pulse width of the P port controls the brightness of the strobe light. The larger the pulse width, the higher the brightness. This parameter is inapplicable to flashing lights corresponding to F ports. Just keep the default settings for the pulse width of the F port.
Brightness	The parameter applies only to the flashing level of the flashing light. After adjusting the brightness, check the Enable option on the flashing light adjustment page. You can set the daytime brightness and nighttime brightness. Daytime/Nighttime brightness: Level 1 through level 8. The higher the level, the higher the flashing intensity.
Default	This button restores the relevant parameters to the default settings. Use it with caution.

4.7 OSD

4.7.1 Live view

The configuration item is used to set the OSD overlay for the live view.

1. Go to **Setup > OSD > Live**.
2. Select the OSD overlay area. Check **Enable** and select the OSD content to be overlaid.

Enable	No.	Overlay OSD Content	X-Axis	Y-Axis
<input checked="" type="checkbox"/>	1	<Date & Time>	<input type="text" value="0"/>	<input type="text" value="0"/>
<input checked="" type="checkbox"/>	2	<div style="border: 1px solid black; padding: 2px;"> <div style="background-color: #e0e0e0; padding: 2px;"><Custom></div> <div style="padding: 2px;"><Date & Time></div> <div style="padding: 2px;"><Time></div> <div style="padding: 2px;"><Date></div> <div style="padding: 2px;"><Network Port></div> <div style="padding: 2px;"><Device Latitude and Longitude Coordinates></div> </div>	<input type="text" value="99"/>	<input type="text" value="0"/>
<input type="checkbox"/>	3	<Date & Time>	<input type="text" value="0"/>	<input type="text" value="99"/>
<input type="checkbox"/>	4	<Time>	<input type="text" value="99"/>	<input type="text" value="99"/>
<input type="checkbox"/>	5	<Network Port>	<input type="text" value="0"/>	<input type="text" value="7"/>
<input type="checkbox"/>	6	<Device Latitude and Longitude Coordinates>	<input type="text" value="99"/>	<input type="text" value="7"/>

3. After selecting the overlay content, set coordinates X and Y to determine the location of the new overlay area.

Remarks:

You can also directly the area in the left pane to the desired position. When an area is selected, the cursor becomes a cross arrow.

4. After configuring the location of the overlay area, set the text format, background and other information.

Display Style

Effect: ▼

Font Size: ▼


Font Color:

Min. Margin: ▼


Date Format: ▼ dd=Day; dddd=Day of the week; M=Month; y=Year

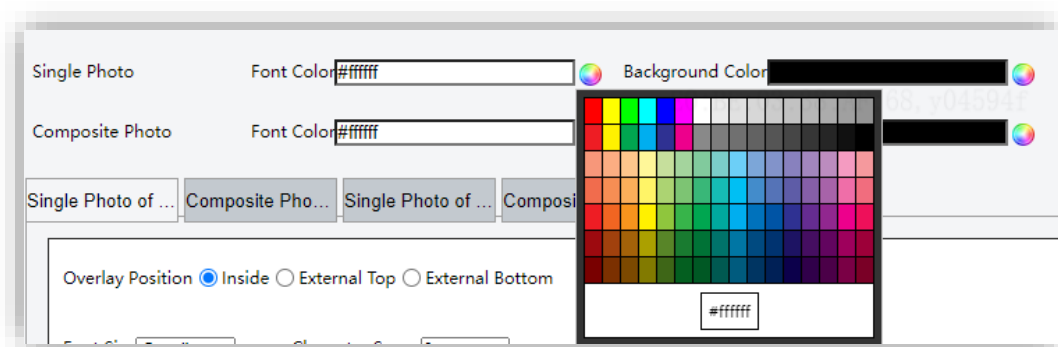
Time Format: ▼ h/H=12/24 Hour; tt=A.M. or P.M.; mm=Minute; ss=Second

Configuration Item	Description
Effect	Select the effect style of the OSD content from the drop-down list, including Background , Stroke , Hollow , Normal , and Inverse .
Font Size	Select the font size of the OSD content from the drop-down list, including Extra Large , Large , Medium , and Small .

Font Color	Click  to display the color selection page, where you can select the text color of the OSD content.
Min. Margin	Select the minimum margin from the drop-down list. This parameter is applicable when the space between the OSD area and the screen border is within 2 characters. You can adjust it as required. <ul style="list-style-type: none"> ● None: There is no space between the OSD area and the screen border. ● Single: The space between the OSD area and the screen border is one character wide. ● Double: The space between the OSD area and the screen border is two characters wide.
Date Format	Select the date format from the drop-down list, including yyyy-MM-dd, Mm-dd-yyyy, and yyyyMMdd.
Time Format	Select the time format from the drop-down list, including HH: mm: ss, HH: mm: ss.aaa, hh: mm: ss tt, and hh: mm: ss.aaa tt. You can select one as required.

4.7.2 Photo

1. Go to **Setup > OSD > Photo**.
2. Configure photo OSD overlay.
3. Check the OSD configuration mode.
 - **Follow live view - This configuration item is not supported and can be ignored.**
 1. The OSD content in the photo is consistent with that in the live view and changes according to the live view.
 - **Separate configuration**
 1. If the OSD content in the photo is inconsistent with that in the live view, you can configure the overlay information of the captured photo separately.
4. For the configuration items **Single Photo** and **Composite Photo**, click  to configure the font color and background color of individual photos and composite photos.






5. After configuring the font color and background color of individual photos and composite photos, configure the OSD for each photo type.

- **Single Photo of Passing**

1. Click the **Single Photo of Passing** tab and configure the following parameters:

Type	Custom Name	Overlay Format	Overlay ...	Space...	Line Feed...
Time			Area1	1	0
Plate Number			Area1	1	0
Speed			Area1	1	0
Vehicle Color			Area1	1	0

Configuration Item	Description
Overlay Position	There are 3 options for this parameter: Inside: The OSD overlay is inside the photo. External Top: The OSD overlay is on top of the outside of the photo. External Bottom: The OSD overlay is at the bottom of the outside of the photo.
Font Size	Select the font size of the OSD content from the drop-down list, including Extra Large, Large, Medium, and Small .
Character Space	Space between characters, ranging from 0 to 10. The default value is 0 , and you can modify the value as required.
Effect	Select Background, Normal, or Inverse as required.
Configuration Item Name	If you check Configuration Item Nam , the configuration item name will be overlaid on the photo for OSD overlay.
Vehicle Color Shade	This parameter is unchecked by default. If you check it, whether the color is dark or light will be displayed for OSD overlay of vehicle color.
Time Format	Select the time format from the drop-down list, including HH: mm: ss, HH: mm: ss.aaa, hh: mm: ss tt, and hh: mm: ss.aaa tt. You can select one as required.
Date Format	Select the date format from the drop-down list, including yyyy-MM-dd, Mm-dd-yyyy, and yyyyMMdd.

OSD Overlay Options	This area allows you to configure the content of the OSD overlay. Check the options as required to overlay them to the photo.
Custom Name	The name of the OSD option can be customized.
Overlay Format	The overlay format is used to change the overlay content instead of the configuration item name. The overlay format is <the total length of (padding characters)>. The length is 1 to 20 characters. If the overlay padding character string is null, 0 is added. total character length, overlay information is properly displayed, and information that exceeds the allowed total character length will not be cut.
Overlay Area	You can select the OSD overlay area from area 1 to area 8.
Space Count	The number of spaces after the overlay text. The value range is 0-10.
Line Feed Count	The value range is 0-3. The OSD overlay options after the configuration item will have line breaks according to this value.
Display Order	Click   to adjust the position of the overlay types on the interface. The overlay types will be displayed from left to right on the screen from top to bottom. If there is a line break, the OSD content will be displayed from left to right in another line.
Delete	Click  to delete the overlay types that do not need to be displayed.

2. Click **Save** to complete the configuration of **Single Photo of Passing**.



Note:

- For most configuration items of **Composite Photo of Passing**, **Single Photo of Violation**, **Composite Photo of Violation**, and **Close-up Photo**, you can refer to the configuration of **Single Photo of Passing**. The following section only describes the different configuration items.

- **Single Photo of Violation**

Configuration Item	Description
Speeding Percentage	If you check Speeding Percentage , the speeding percentage will be displayed in OSD overlay content.

- **Close-up Photo**

Configuration Item	Description
Single Photo of Passing	This parameter is unchecked by default. When checked, it will be used in conjunction with the close-up photo OSD function. When this parameter is checked and Close-Up Photo OSD is set to Copy Single Photo of Violation OSD , the OSD content of the close-up photo of passing will be the overlay information of the single photo of passing.
Single Photo of Violation	This parameter is unchecked by default. When checked, it will be used in conjunction with the close-up photo OSD function. When this parameter is checked and Close-Up Photo OSD is set to Copy Single Photo of Violation OSD , the OSD content of the close-up photo of violation will be the overlay information of the single photo of violation.
Close-Up Photo OSD	There are two overlay modes. Copy Single Photo of Violation OSD : Use the overlay information of the single photo of passing or single photo of violation. Selected OSD : Configure the OSD overlay information separately instead of using the overlay information of other photos.

5 Maintenance

5.1 Maintenance

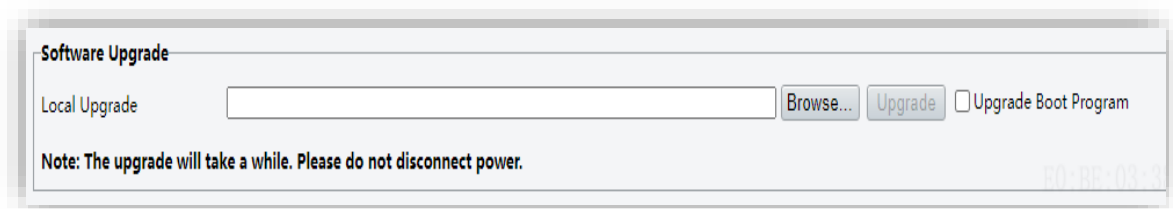
5.1.1 Maintenance

This configuration page allows you to perform maintenance operations such as upgrades and log export.

1. Go to **Maintenance > Maintenance > Maintenance** to configure the following parameters:

- **Software upgrade**

If a later version is available, you can upgrade the software through this configuration item.

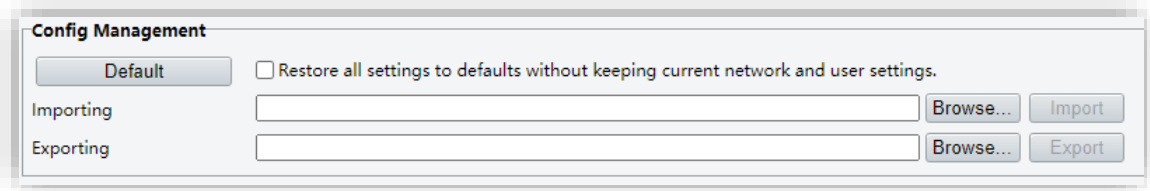


1. Click **Browse**, select the upgrade package, click **OK** and then **Upgrade** to upgrade the device.

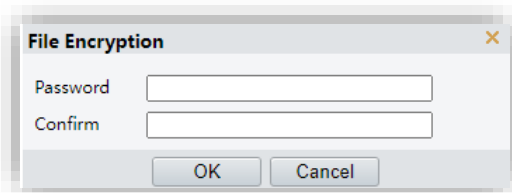
- **System configuration**

This configuration page allows you to restore the default settings of the device or export the settings.

1. Go to the system configuration area on the maintenance page, and click **Default** to restore the default settings. (If you want to restore all settings to defaults without keeping the current network and user settings, check the corresponding option before clicking **Default**).



2. You can export the settings, click **Browse** in the **Exporting** area, select the export path, and click **Export**. You need to encrypt the configuration file (for information security reasons, the encryption password is customized), as shown below:

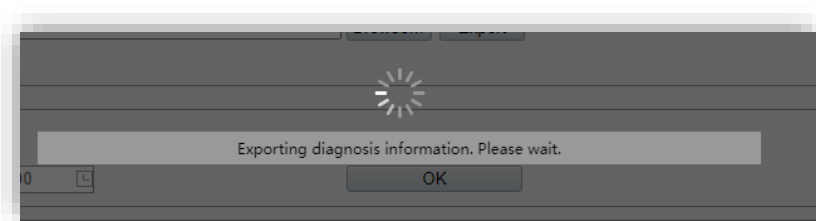


3. To import the settings into the camera, click **Browse** in the **Importing** area, select the configuration file and click **Import**. Then you need to enter the encryption password for the configuration file. You can configure the camera quickly by importing the configuration file.

● Diagnosis information

This configuration item is used to locate camera issues. **Generally, this operation is not recommended.**

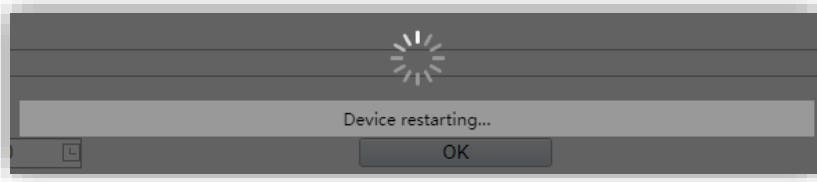
1. Enter the diagnosis information page of the maintenance interface. Click **Browse**, select the export path, and click **Export**.



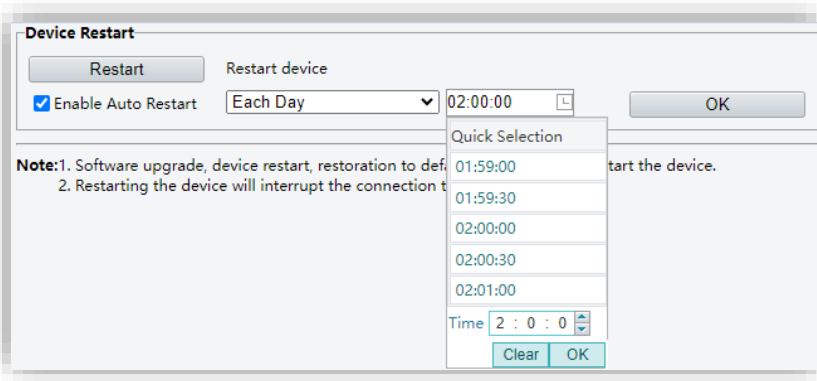
● System restart

This configuration item is used to restart the system or set a timed restart for the camera.

1. Go to the maintenance interface. If you need to restart the camera, click **Restart**. Then, the camera shows that it is restarting.



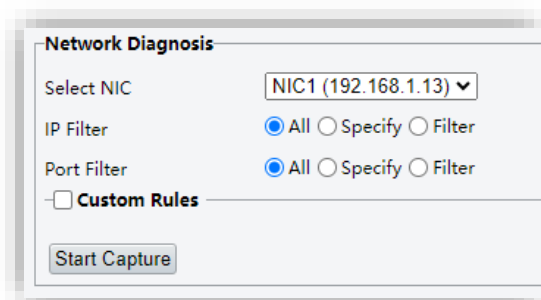
4. If you need to configure a timed restart for the camera, check **Enable Auto Restart** in the system restart area. Configure the time for the timed restart, and click **OK**.



2. Click **Save** to complete the configuration.

5.1.2 Network diagnosis

1. Go to **Maintenance > Maintenance > Network Diagnosis**.
 - **Network diagnosis**



1. Select NIC

NIC 1 is the NIC address of the device.

2. IP/Port Filter

After IP/port privileges are set, all users can only access the Web interface of the device with the limited IP address and use the authorized services, ensuring the security of the device.

All: All ports or IP addresses connected to the device can be captured.

Specify: A certain port or IP address can be captured.

Filter: All ports or IP addresses except a certain port or IP address can be captured.

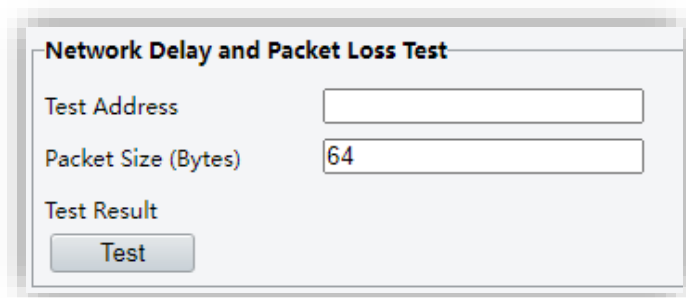
3. Custom Rules

Check **Custom Rules**, and configure the rules as required.

You can start to capture packets after completing the configuration. Then, save the captured data and check the diagnostic results.

- **Packet loss test**

You can send test packets to the test address several times. Then, determine whether the operation and network are normal based on the average latency (the average time from the transmission of test packets to receipt of response) and the packet loss rate (the ratio of the number of lost test packets to the number of sent test packets). This facilitates cause analysis for network failures.



The screenshot shows a dialog box titled "Network Delay and Packet Loss Test". It has three main sections: "Test Address" with an empty text input field, "Packet Size (Bytes)" with a text input field containing the value "64", and "Test Result" with a "Test" button.

- **Test Address:** A valid IP address or domain name. If the address is invalid, the system will display a message prompting for a valid IP or domain name.
- **Packet Size (Bytes):** Size of the test packet. Value range: An integer from 64 to 65507. If the value is out of range, the system will display a message indicating the value is out of the valid range.
- **Test Result:**
 - Destination address unreachable: The test address cannot be pinged and is unreachable.
 - Packet loss rate is not 0%: The test address cannot be pinged but is reachable with a high network latency.
 - Packet loss is 0%: The test address is successfully pinged.



Note:

- Due to the high network latency, pinging large test packets may fail. If the test address cannot be pinged, reduce the size of test packets appropriately.
-

5.1.3 About

This configuration item contains the declaration of open-source components, which is irrelevant to the camera configuration. Therefore, it can be ignored.

5.2 Device status

This configuration item is used to view the basic information, version, and running status of the device.

Basic Info	
Model	HC191
Product Config	GI-OS
IPv4 Network Info	192.168.1.13/255.255.255.0/192.168.1.1
MAC Address	c4:79:05:17:ae:03

Version Info	
Firmware Version	ITS-B5920.1.0.240412
Hardware Version	A
Boot Version	V2.2
Serial No.	210235C7F7323A000143
LAPI Version	V1.55

Status	
System Time	2024/4/23 17:30:08
Operation Time	0 Day(s) 0 Hour(s) 22 Minute(s)

5.3 Security

5.3.1 User

1. Go to **Maintenance > Security > User** to add, edit, or delete user information.

<input type="button" value="Add"/> <input type="button" value="Edit"/> <input type="button" value="Delete"/>		
No.	Username	User Type
1	admin	Admin

- **Add a user**

1. Click **Add** to go to the page for adding a user.

Figure 1: Common user

Figure 2: Operator

2. Set the parameters.

Configuration Item	Description
Username	Customize a username.
User Type	<p>Select the user type from the drop-down list, including Common User and Operator.</p> <p>Note:</p> <ul style="list-style-type: none"> ● A total of 32 users can be added to the device. The user types include administrator (at least 1), common user and operator (at most 31). ● An administrator has all the administrative and operational permissions of the device and users, for example, adding or deleting users. ● Operators have higher permissions than common users and can configure the device interface.

Password	Enter a custom password. Note: The password for the added user must be strong (9-32 characters, including letters, numbers and special symbols).
Confirm	Enter the custom password again.
Select Permission	The permissions vary with the user types. Check the permissions as required. Note: You can check Select Permission to select or deselect all permissions.

3. Click **OK** to save the configuration.

- **Edit user information**

1. Click the user whose information is to be modified.
2. Click **Edit** to go to the page for editing user information.
3. Set the parameters.

Configuration Item	Description
Administrator Password	Enter the administrator's password, not the password of the user that is being edited.
Password	Enter a custom password. You need to set/change it to a strong password (9-32 characters, including letters, numbers and special symbols).
Confirm	Enter the custom password again.
Select Permission	The permissions vary with the user types. Select the required permissions as required. Note: Check Select Permission to select or deselect all permissions.

4. Set the parameters.



Note:

- When editing the administrator information, you can modify the reserved email address for password reset.
- Only the **admin** user can modify the password. The new password cannot be the same as the current one.
 - Only the **admin** user can modify the name and password of a new user. When the name or password of a user is modified, if the user has logged in to the system, the user will be forced to log out and needs to enter the new name or password for the next login.

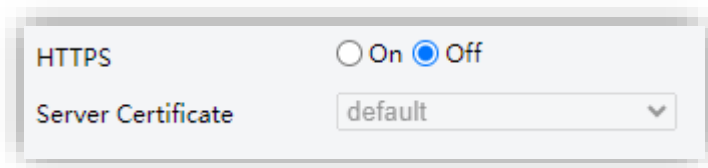
- **Delete a user**

Select the user to be deleted, and click **Delete**. After confirming the user information, click **OK** to delete the user.

5.3.2 HTTPS

HTTPS is a secure version of the HTTP protocol that uses the SSL protocol for encryption and authentication to enhance transmission security.

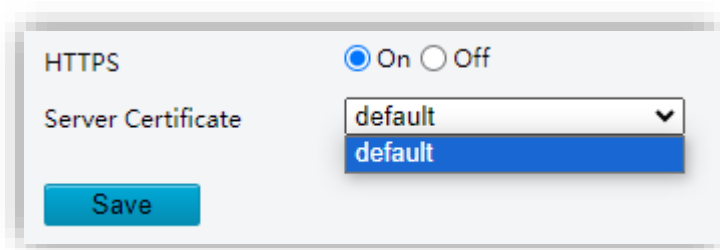
1. Go to **Maintenance > Security > HTTPS**.



2. Click **On** to enable HTTPS.
3. Log in with the account.

After HTTPS is enabled, the page is automatically redirected to the login interface. After you log in again, the secure information transmission channel is established.

4. Select the server certificate from the drop-down list.



- Default certificate
 - For details on the created certificate, refer to "Certificate management".
5. Click **Save** to complete the configuration.

5.3.3 Authentication

Set up RTSP authentication and Web authentication. The network will verify the audio, video, text, images and other information before transmitting them. This can greatly improve the security of information transmission.

1. Go to **Maintenance > Security > Authentication**.

RTSP Authentication: Digest MD5

HTTP Authentication: Digest MD5

Save

2. Select the authentication mode.

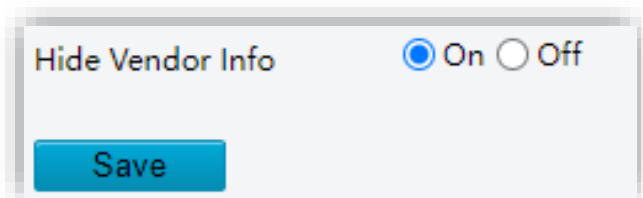
Configuration Item	Description
RTSP Authentication	<p>Select RTSP authentication mode from the drop-down list. Digest is selected by default.</p> <ul style="list-style-type: none"> ● Basic: Basic authentication. The username and password are encrypted with Base64. There are serious security risks. ● Digest: Digest authentication. When the RTSP authentication mode is set to digest authentication, the RTSP digest algorithm configuration is displayed. The default algorithm is MD5. <ul style="list-style-type: none"> ➤ Digest MD5: The requesting party needs to transmit usernames, passwords and domains by using the MD5 algorithm instead of in clear text, ensuring higher security. ➤ Digest SHA256: The working principle is the same as digest MD5, but the authentication is performed by using the SHA256 algorithm, which enables higher security than Digest MD5. ➤ Digest MD5/SHA256: Self-adaption of the MD5 or SHA256 algorithm is supported. ● None: Messages can be transmitted without authenticating the RTSP address.
Web Authentication	<p>Select Web authentication from the drop-down list. Digest authentication is selected by default.</p> <ul style="list-style-type: none"> ● Digest: Digest authentication. When Web authentication mode is set to digest authentication, the Web digest algorithm configuration is displayed. The default algorithm is MD5. ● Digest MD5: The requesting party needs to transmit usernames, passwords and domains by using the MD5 algorithm instead of in clear text, ensuring higher security. <ul style="list-style-type: none"> ➤ Digest SHA256: The working principle is the same as digest MD5, but the authentication is performed by using the SHA256 algorithm, which enables higher security than Digest MD5. ➤ Digest MD5/SHA256: Self-adaption of the MD5 or SHA256 algorithm is supported. ● None: Messages can be transmitted without authenticating the Web address.

3. Click **Save** to complete the configuration.

5.3.4 Registration information

If you do not need to display IPC vendor information on the server, you can select to hide vendor information on the Web interface.

1. Go to **Maintenance > Security > Registration Info**.
2. If **On** is selected, the management platform will not display the vendor information.



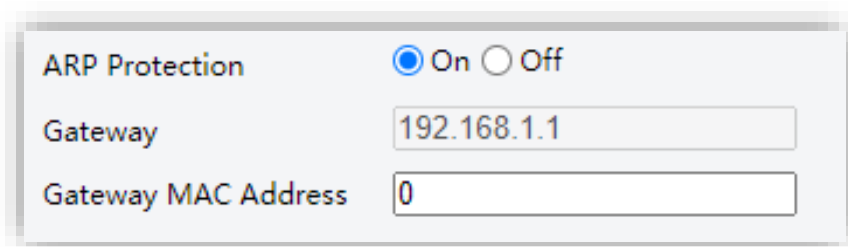
Hide Vendor Info On Off

Save

5.3.5 ARP protection

An ARP attack is always carried out over a Local Area Network (LAN) to achieve ARP spoofing by forging IP addresses and MAC addresses. By setting ARP protection, the device will verify the physical address of the access source to protect the IPC from ARP spoofing.

1. Go to **Maintenance > Security > ARP Protection**.



ARP Protection On Off

Gateway

Gateway MAC Address

2. Click **On** to enable ARP protection.
3. Enter the physical address of the gateway, that is, the MAC address.
4. Click **Save** to complete the configuration.

5.3.6 Video watermark

With a video watermark, you can customize the encryption information to prevent external parties from deleting or tampering with the video information.



Note:

- You can go to the EZPlayer official website to verify the effect of the video player watermark.

-
1. Go to **Maintenance > Security > Watermark**.

2. Click **On** to enable the video watermark.
3. Customize the watermark content by entering 0-16 characters, including upper and lower case letters and numbers.
4. Click **Save** to complete the configuration.

5.3.7 IP address filtering

The IP address filtering feature allows you to allow or disallow specified IP addresses to access the device.

1. Go to **Maintenance > Security > IP Address Filtering**.

No.	IP Address	+

2. Click **On** to enable IP address filtering.
3. Select **Allowlist** or **Blocklist** to allow or disallow the added IP addresses to access to the camera.
4. Click **+** to enter an IP address.
 - Up to 32 IP addresses can be added and cannot be repeated.
 - The first byte of the IP address can be set from 1 to 223, and the fourth byte cannot be 0. Invalid IP addresses such as 0.0.0.0, 127.0.0.1, 255.255.255.255, and 224.0.0.1 are not allowed.

5. Click **Save** to complete the configuration.

5.3.8 Access policy

An access policy is designed to ensure that the device is not illegally used or accessed, and it is the main policy for ensuring network security.

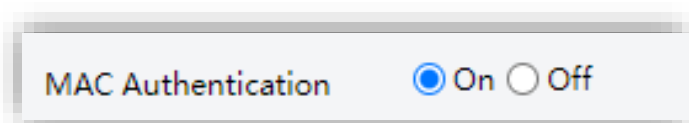
1. Go to **Maintenance > Security > Access Policy**.

● **MAC authentication**

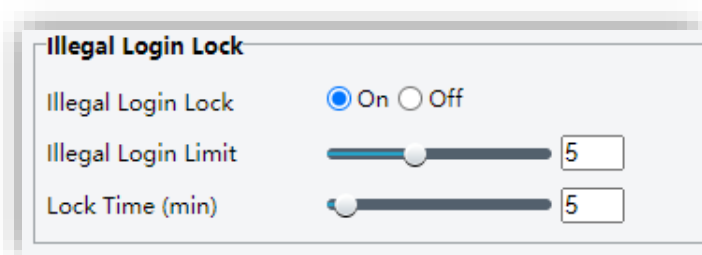
The MAC address is the hardware address, which is written inside the hardware by the vendor of the network equipment.

It is used to define the location of the network device in the underlying network transmission process.

Click **On** to enable MAC authentication.



● **Illegal login lock**



Note:

- By default, this feature is enabled, the illegal login limit is 5 times, and the lock time is 5 minutes. When this feature is enabled, the IPC will be locked if the number of login attempts with the wrong password reaches 5, and login is not allowed within 5 minutes. When this feature is disabled, the number of login attempts with a wrong password is not limited.

Configuration Item	Description
Illegal Login Lock	<p>Principle of Illegal login lockout: If a valid client IP address and a username are entered, but the password is wrong, the attempt will be regarded as one illegal login.</p> <p>Note:</p> <ul style="list-style-type: none">● The lockout can be released by powering off and restarting the device.● When a user is locked, the system records the lock log, including the username, IP and other information.
Illegal Login Limit	<ul style="list-style-type: none">● Set the number of login attempts with a wrong password. The

	<p>value is an integer from 2 to 10.</p> <ul style="list-style-type: none"> ● If the same user logs in with different client IP addresses, the illegal login limit depends on the latest configuration.
Lock Time (min)	Set the lock time as required. The value is an integer from 1 to 120.

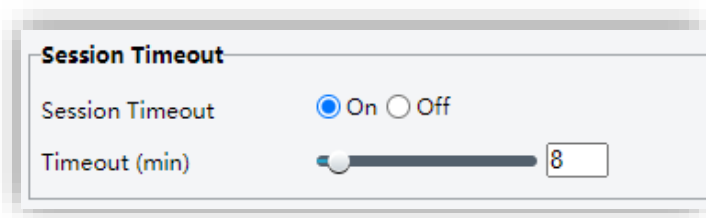
- **Session timeout**

A session is the connection established between the client (Web browser) and the server (device). When the session times out and the Web interface cannot obtain or issue the configuration within the set time, the user exits to the login interface.



Note:

- Only the administrator can set whether to enable session timeout.

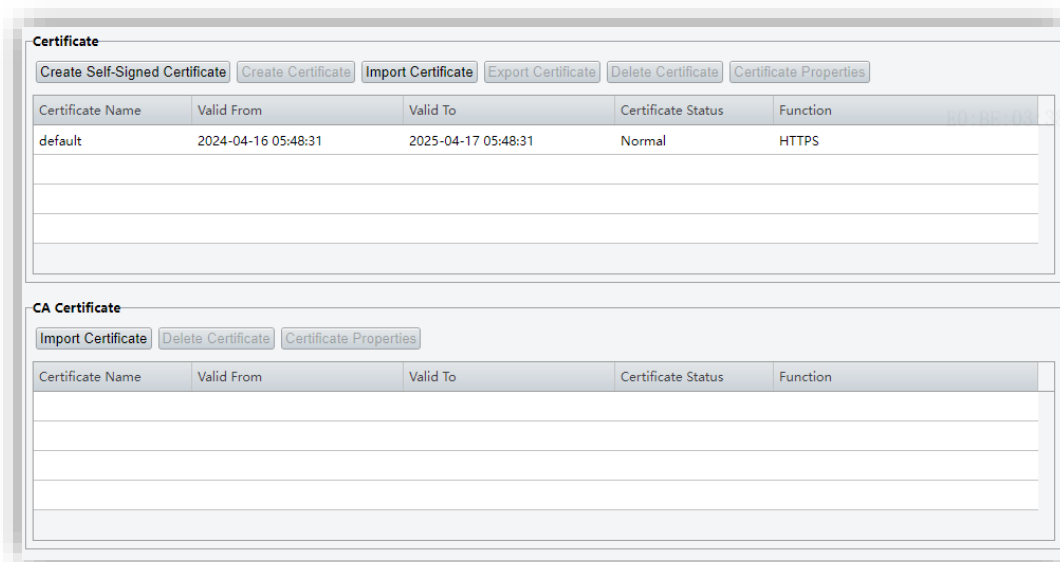


Configuration Item	Description
Session timeout	<p>Click On to enable and Off to disable session timeout.</p> <p>Take login to the same device as an example to determine a session:</p> <ul style="list-style-type: none"> ● If the conversation is established by using one browser under one client IP address, it is determined as one session. ● If the conversation is established by using two browsers under one client IP address, it is determined as two sessions. ● If the conversation is established by using two browsers under two client IP addresses, it is determined as four sessions. <p>Note: A maximum of 36 sessions can be established simultaneously.</p>
Timeout	<p>Set the timeout as required. The value is an integer from 1 to 120.</p> <p>Note: After the IPC is reconnected upon reboot, timeout shall be recalculated.</p>

5.3.9 Certificate management

A certificate is an electronic file that uniquely represents personnel and resources on the Internet. It enables secure and confidential communication between two entities. The certificate management page allows you to set different server certificates or CA certificates, check the certificate properties, and so on.

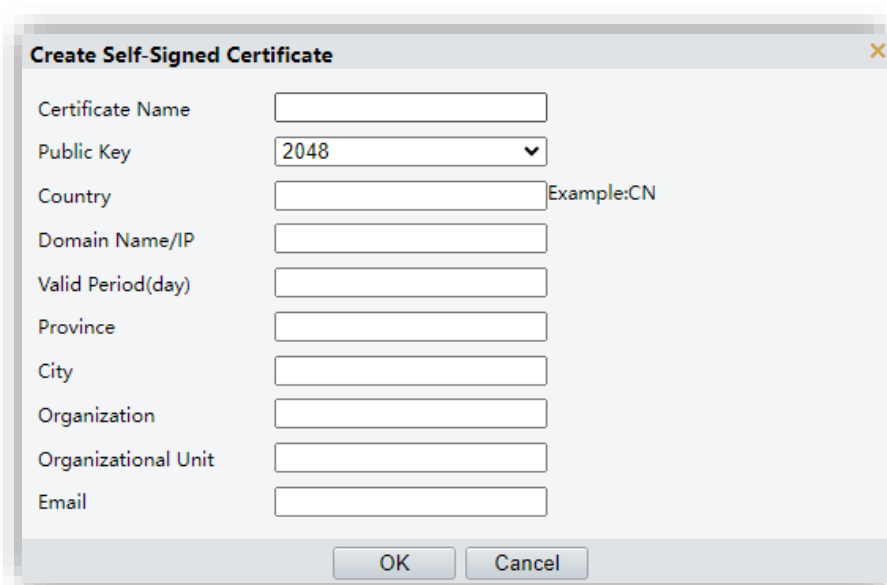
1. Go to **Maintenance > Security > Certificate Management**.



● Certificate

1. You can create a self-signed certificate or import a certificate.

Create Self-Signed Certificate: Applicable to occasions with low security requirements. A self-signed certificate is a digital certificate issued by an untrusted CA organization, that is, a certificate created, issued and signed by a company or software developer.



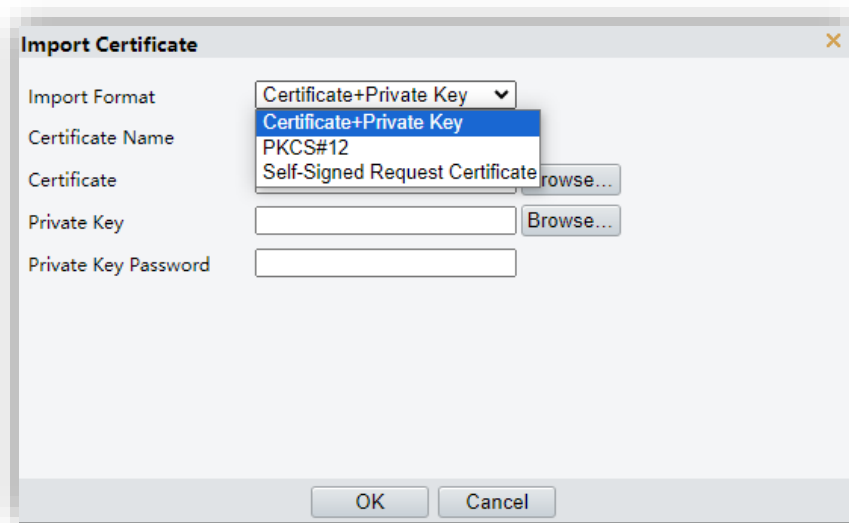
2. Set the self-signed certificate.

Configuration Item	Description
Certificate Name	Customize the certificate name.
Public Key	Select the length of the public key from the drop-down list, including 2048 and 1024. The default value is 2048 .
Country	Enter the country code in two characters. CN indicates China.

Domain Name/IP	Enter the IP address or domain name of the device.
Validity Period (day)	Enter the validity period of the certificate.
Province	Enter the full name of the province.
City	Enter the full name of the city.
Organization	Enter the organization name.
Organizational Unit	Enter the name of the organizational unit.
Email	Enter a valid email address for the contact person.

3. Click **OK** to complete the configuration.

- **Certificate - Import a certificate not certified by CA**



1. Click **Import Certificate**.

2. Set the certificate for import.

Configuration Item	Description
Import Format	You can select Certificate+Private Key , PKCS#12 or Self-Signed Request Certificate .
Certificate Name	Enter the certificate name.
Certificate	Select a certificate.
Private Key	Select a private key.
Private Key Password	Enter the private key password.

3. Click **OK** to complete the configuration.

- **Export a certificate**

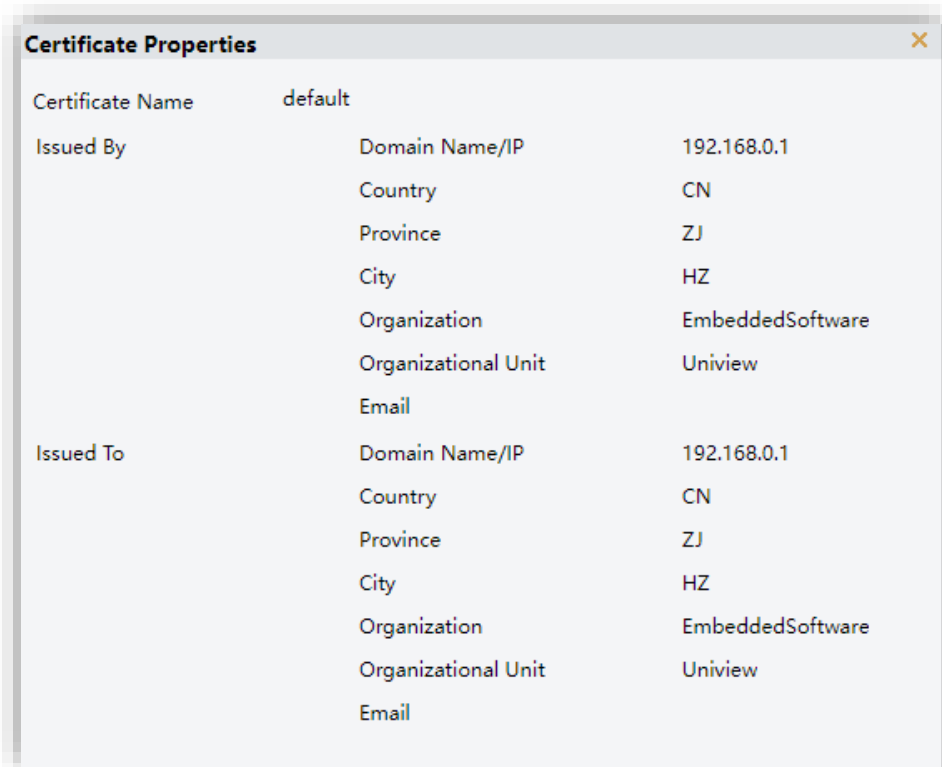
Click **Export Certificate** to save the certificate locally.

- **Delete a certificate**

You can select and delete a certificate as required. A certificate cannot be deleted if it is being used.

- **Certificate properties**

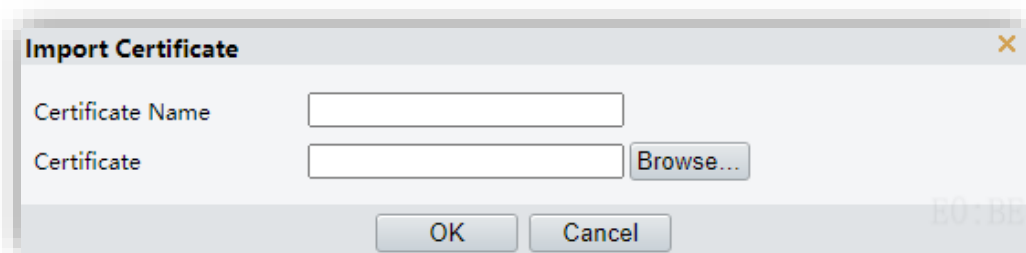
You can select a certificate and view the properties.



- **CA certificate**

CA is a certificate issuing authority, which is the core of public key infrastructure. CA is responsible for issuing and authenticating certificates and managing the issued certificates. A CA certificate is the self-signed certificate of CA, which is more secure and reliable.

1. Click **Import Certificate**.
2. Enter the certificate name and certificate.



3. Click **OK** to complete the configuration.

- **Delete a certificate**

You can select and delete a certificate as required. A certificate cannot be deleted if it is being used.

- Certificate properties

You can select a certificate and view the properties.