ZUUM®

# Configuration Guide to 2MP Starlight White Light & IR License Plate Recognition Bullet Camera HC121 Series（ANPR B1103）V1.0.0

# Revision History

| Date | Version | CR ID | Chapter | Description | Revised By |
|---|---|---|---|---|---|
| 2021-10-18 | V1.0.0 | | Whole document | Released the first version. | Zhang Hongna (employee ID: 05773) |
| | | | | | |

# Contents

# 1 Revision History

Initial release.

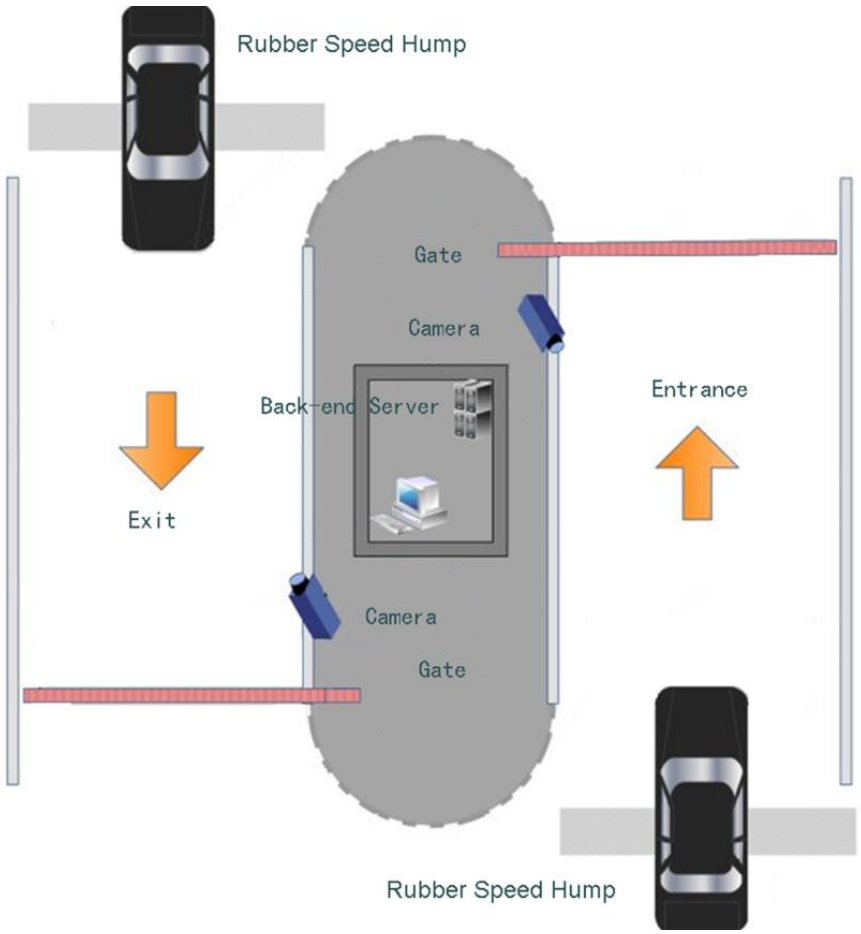
# 2 Introduction

## 2.1 Applicable products

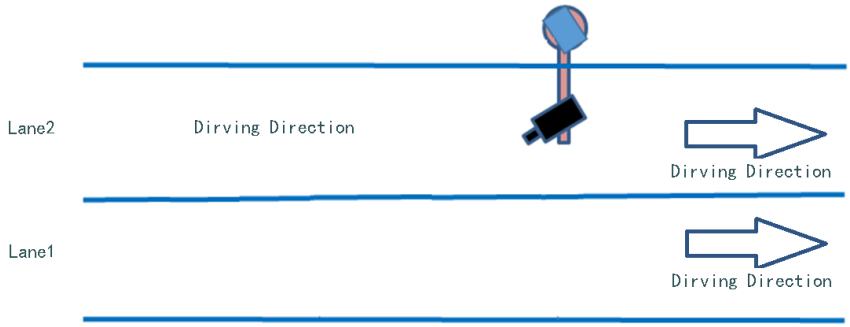
- Short-focus white light camera：GV-B2MP-IP-4.7-47-IR50LPR
- Long-focus IR camera：GV-B2MP-IP-4.7-47-IR50LPR-Z

## 2.2 System Networking Diagram

### 2.2.1 Campus Scenes



### 2.2.2 Road Scenes



# 3 Site Deployment Configuration

## 3.1 System Requirements

### 3.1.1 System Requirements

| Attribute | System Requirements |
|---|---|
| OS | Microsoft Windows XP or later version, with Microsoft Windows 7 recommended |
| Software | Microsoft Internet Explorer 8 or later version recommended as the browser<br>DirectX 9.0c or later version |
| CPU and the operating frequency | CPU in the Intel Core2 Duo series recommended, with the clock speed no lower than 2.4GHz<br>Or CPU in the Pentium 4 series with the clock speed no lower than 2.8GHz |
| Memory | 512MB at least, and 2GB or above recommended |
| Hard disk | 40GB at least, and 160GB or above recommended |
| Graphics card | Minimum memory 128MB, mainstream discrete graphics card of NVIDIA GeForce 9800 GT with 512MB or more memory recommended, with the hardware supporting DirectX 9.0c<br>Note: The graphics card needs to use the latest driver, and drivers after August 2009 are recommended. |
| Audio adapter | Required<br>Note: The audio adapter needs to use the latest driver. Otherwise, audio intercom or voice broadcast may be unavailable. |
| Network adapter | 100Mbit/s or above Ethernet card recommended |
| Display resolution | Higher than 1920 x 1080 |

## 3.2 Initialization

Initialize the camera for first use.

### 3.2.1 Plug-in Installation

**NOTE!**

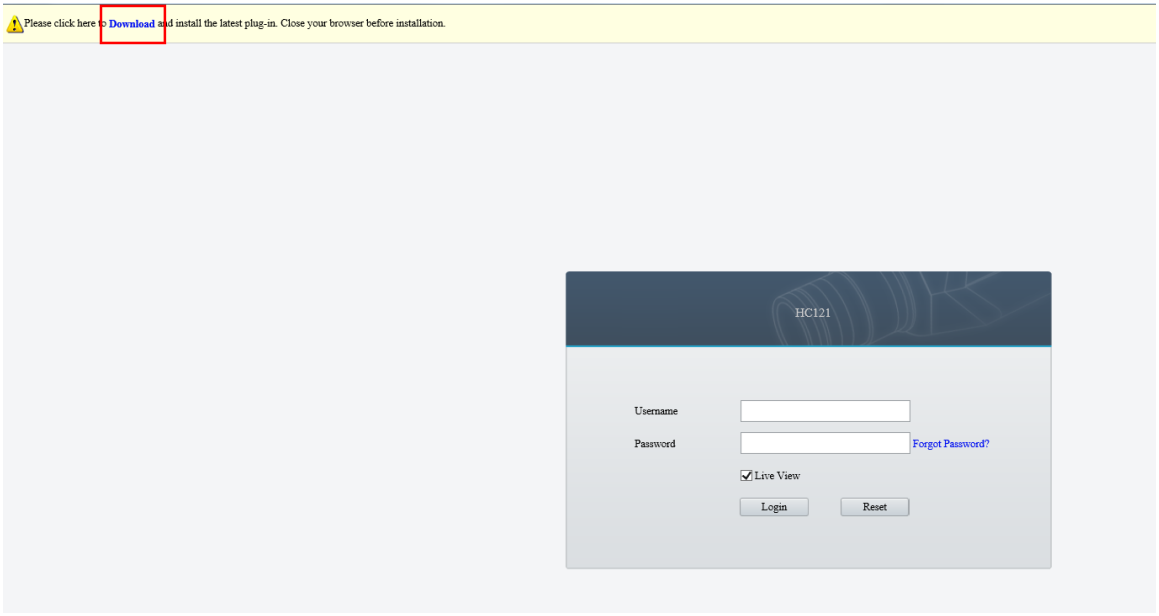
1. When Internet Explorer is to be used, the plug-in needs to be installed.

2. The camera supports browsers of Chrome (in 57 or a later version), Firefox (in 58 or a later version), and Edge (in 16 or a later version) without plug-in. Chrome is recommended.

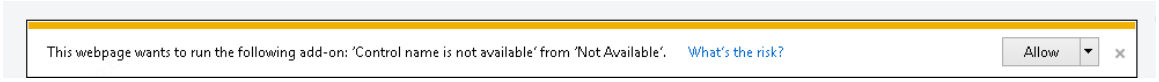
3. This section can be skipped if a browser other than Internet Explorer is to be used.

**Step 1** Enter the IP address of the camera (192.168.0.13 or 192.168.1.13 by default) in the address bar of Internet Explorer to log on to the Web interface of the camera.

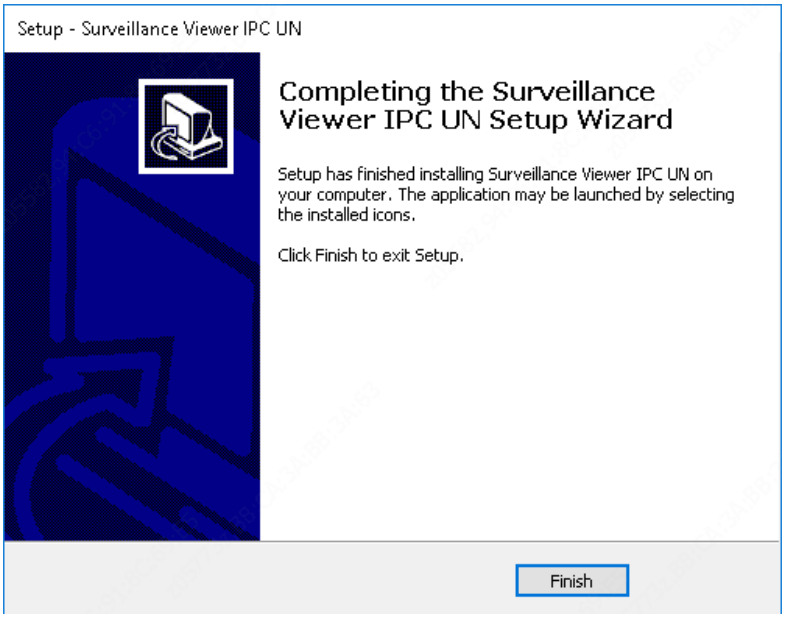
**Step 2** On "Please click here to Download and install the latest plug-in. Close your browser before installation" displayed on the interface, click **Download**.




**Step 3** Follow the prompts to download the plug-in. The default storage path is C:\Users*(Username)*\Downloads.




**Step 4** Close Internet Explorer and run **Setup.exe** to install the plug-in.



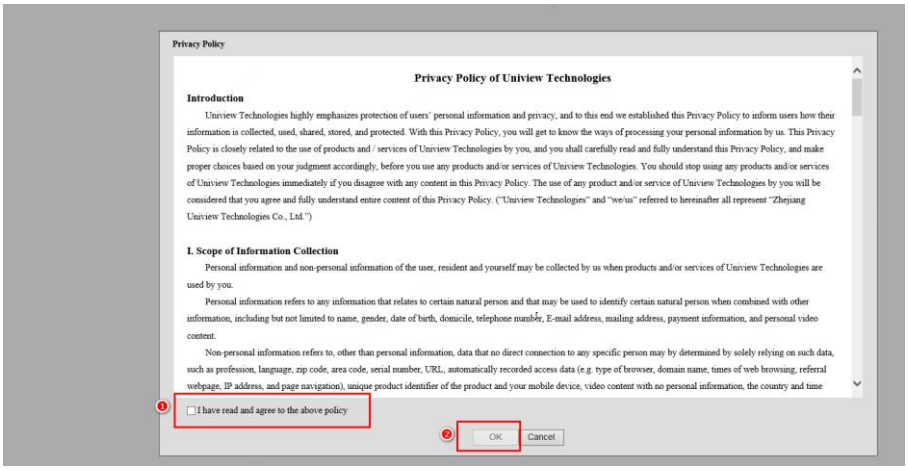

**Step 5** Open the Web interface of the camera on a browser again. The interface does not display the plug-in installation prompt.

### 3.2.2 Privacy Policy

**NOTE!**

A privacy policy window appears when you log in to the camera for the first time or after restoring factory settings. To access the camera, you must agree to the terms of the privacy policy.

Read the privacy policy carefully, select the "**I have read and agree to the above policy**" checkbox, and then click **OK**.



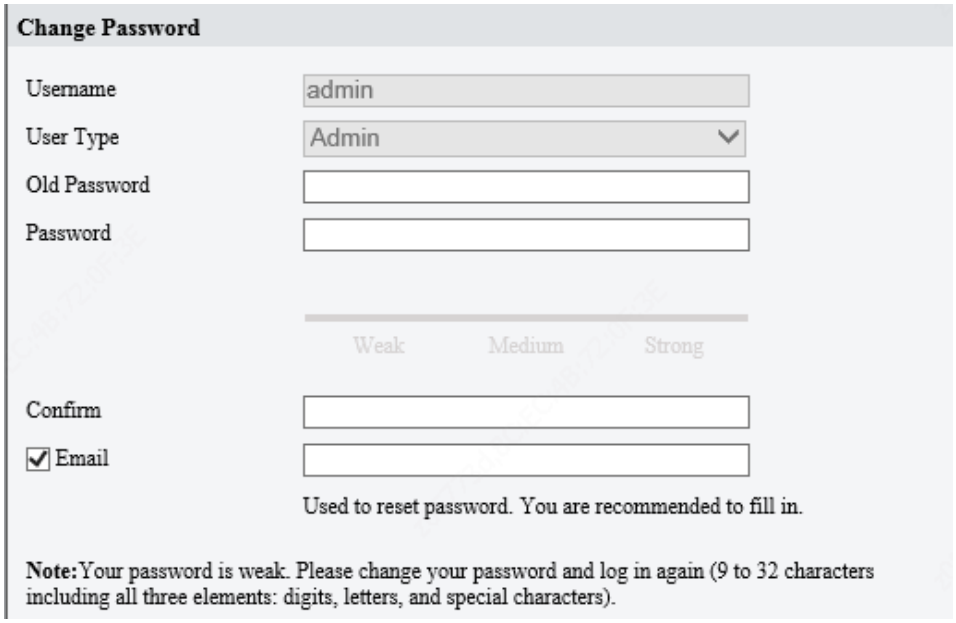

### 3.2.3 Password Change

**NOTE!**

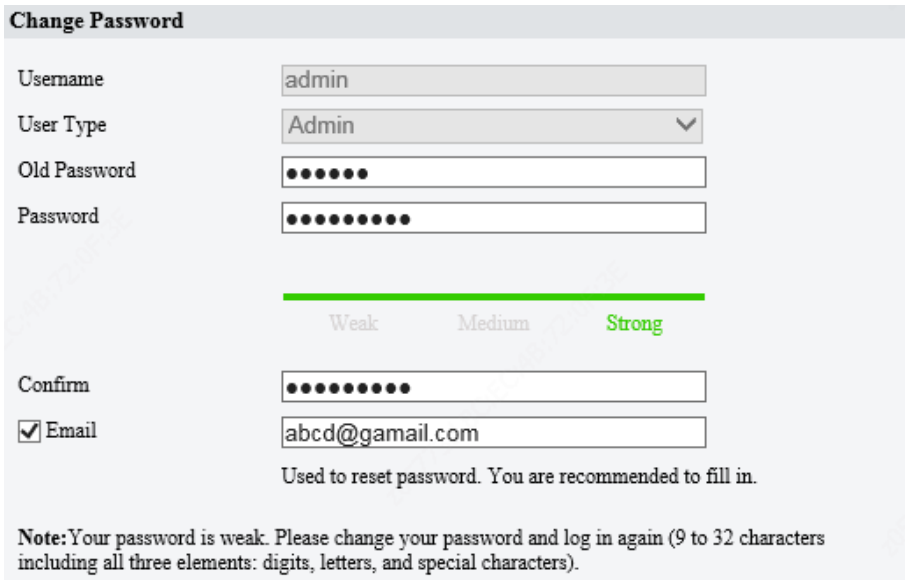
The password must be changed to a strong one when the camera is used for the first time. The initial username and password of the camera are admin and 123456, respectively.

**Step 1** After the plug-in is installed, open the Web interface of the camera, and use the default username and password (admin and 123456, respectively) to log in to the camera.

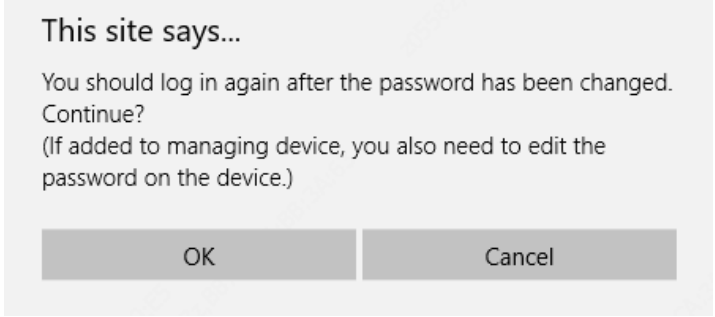
**Step 2** The interface prompts you to change password.



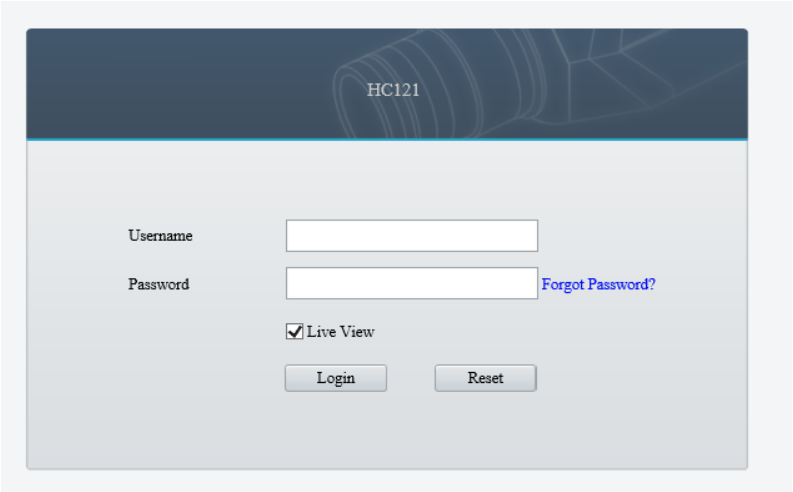

**Step 3** Enter the old password (that is, the initial password, 123456), a new password in **Password** and **Confirm** fields, an email address and then click **OK**.




**Step 4** In the displayed dialog box, click **OK**.



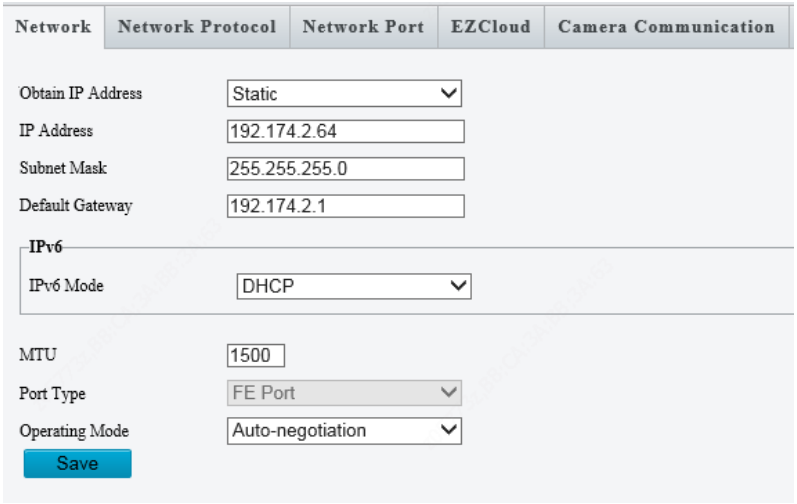

**Step 5** When the login interface is displayed again, enter the new password for login.



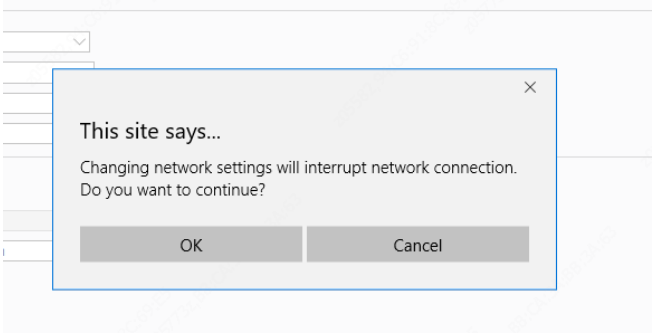

### 3.2.4 IP Configuration

The IP address of a new camera or a camera after u-boot upgrade is 192.168.0.13 or 192.168.1.13 by default, and needs to be changed to a planned one before the camera is used.

**Step 1** Choose **Setup** > **Network** > **Network**. Change **IP Address**, **Subnet Mask**, and **Default Gateway**, and then click **Save** to save the settings.



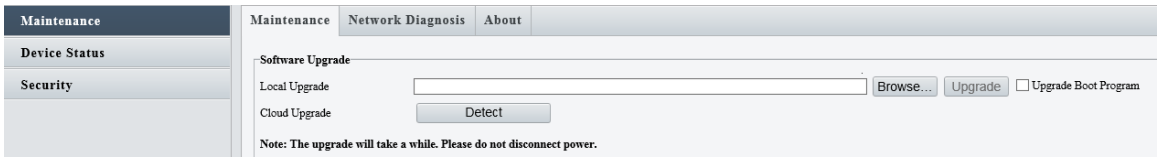

**Step 2** In the displayed dialog box, click **OK**.




**Step 3** The browser jumps to the new IP address of the camera and displays the login interface.

### 3.2.5 Camera Upgrade

**Step 1** Obtain the upgrade software package and save it in a local path. Choose **Maintenance** > **Maintenance** > **Maintenance**, and click **Browse...** to select the upgrade package.in **Software Upgrade**



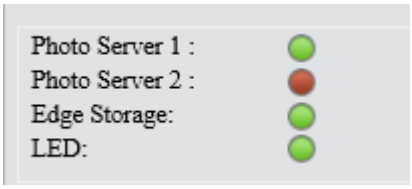

**Step 2** Click **Upgrade**.

### 3.2.6 Video&Image Database

**Step 1** Log in to the camera's web interface, choose **Setup > System > Photo Server**. For **Platform Communication Type**, select **Video & Image Database**.

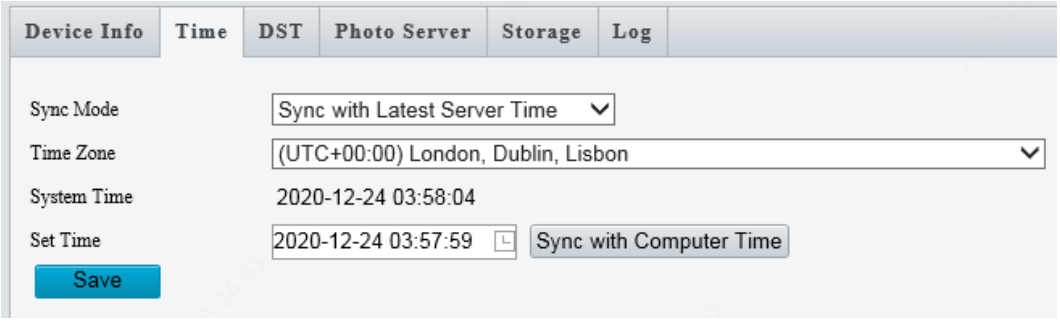
**Step 2** For Server IP, input the IP address of the corresponding Video & Image Database server. Set **Server Port** to **5073**. For **LPR ID**, enter a number that you like. The **Device ID** is a 20-digit number with 121 for digits 11-13. The device ID must be unique on the LAN. The **Username** and **Platform Access Code** are the username and password used to log in to the server


**Step 3** Add the camera to the VIID server. Check the indicator for **Photo Server 1.**  means the camera is added successfully.



### 3.2.7 Time Configuration

Log in to the camera, choose **Setup** > **System** > **Time**. Select a sync mode. The default mode is **Sync with Latest Server Time**. The default time zone is UTC+00:00) London, Dublin, Lisbon.




## 3.3 Adjustment

### 3.3.1 Smart

**Step 1** Park a car at the snapshot point for camera angle adjustment.

**Step 2** Adjust the camera angle up and down to make the license plate in the lower part of the image (in the range of 1/3 to 1/2 from the bottom up).

**Step 3** Adjust the camera angle left and right to make the captured vehicle in the center line of the image.

**Step 4** Rotate the camera angle to make the license plate horizontal.

Refer to the engineering guide of the camera and specify the snapshot point of different schemes. Then, adjust the universal joint angle to make the snapshot point of passing vehicles in the range specified in the guide and ensure that the license plates are **horizontal**. The horizontal pixel value of the license plate ranges from 60 to 300, and is recommended to be between 90 and 150.

### 3.3.1 Image

Choose **Setup > Video&Audio> Image**. See the table below to set image parameters.

| Model | Scene | Recommended parameters |
|---|---|---|
| HC121@TS8C-Z | Park | Gain 10, shutter 1/500s, far-illumination off, near-illumination level 100 |
| HC121@TS8C-Z | Road | Gain 10, shutter 1/250s, far-illumination off, near-illumination level 10 |
| HC121@TS8CR-Z | Park | Gain 10, shutter 1/500s, far-illumination off, near-illumination level 1 |
| HC121@TS8CR-Z | Road | Gain 15, shutter 1/250s, far-illumination off, near-illumination level 1 |

# 4 Common Configuration

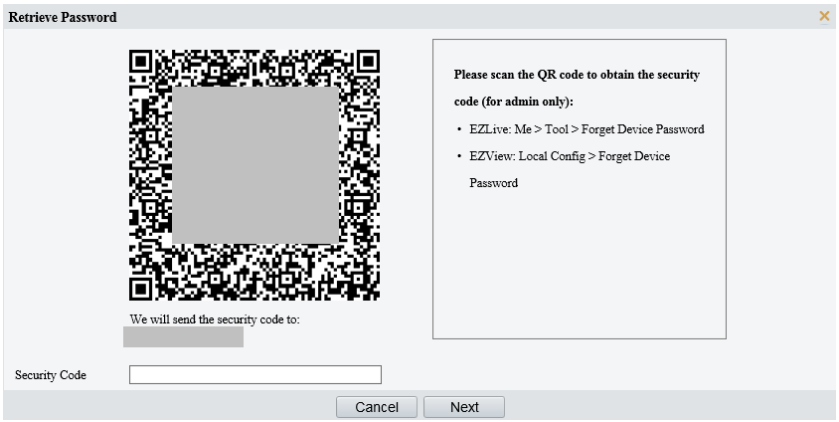
## 4.1 Login

**Step 1** Log on to the Web interface of the camera, and enter the username and password (admin and 123456 respectively by default) on the login page. **Live View** is selected by default. If you clear **Live View**, live view is not displayed after you log in to the camera.

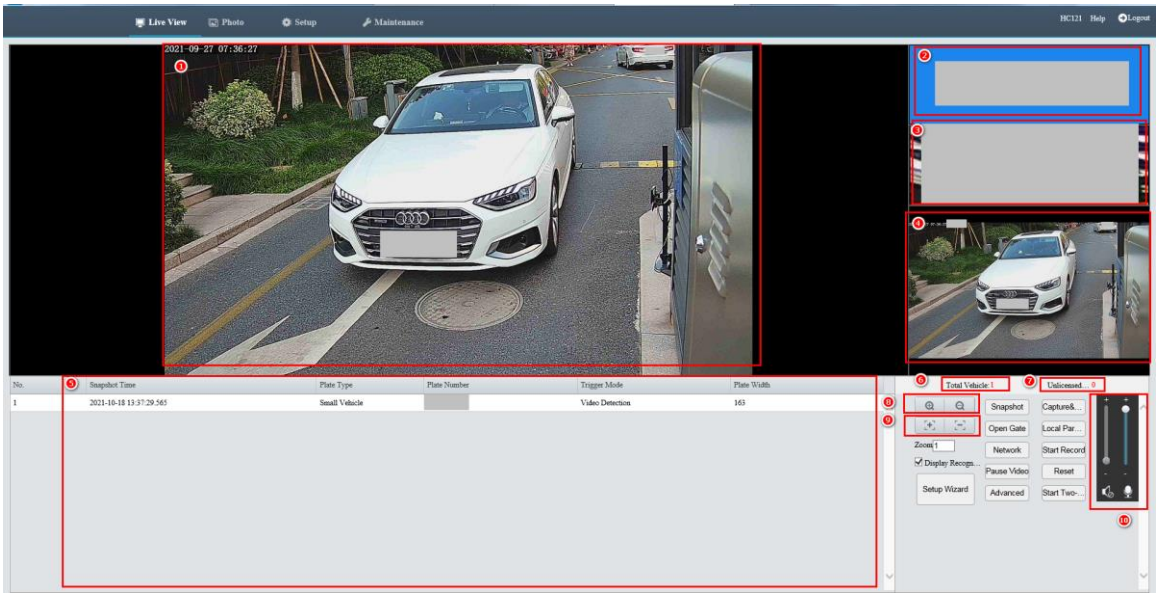

**Step 2** If you forgot your password, click **Forgot Password** and then follow the on-screen instructions to retrieve password.

(1) If you have set an email address when changing the password (see Password Change), scan the QR code using WeChat on your phone and then click **OK**. The security code will be automatically sent to your mailbox.

(2) If you have not set an email address or want to use another email address to receive the security code, scan the QR code using WeChat on your phone and then Send Email. Enter an email address and upload a clear photo of your front ID card. The security code will be sent to the mailbox you just entered after manual review within 1 to 3 working days.



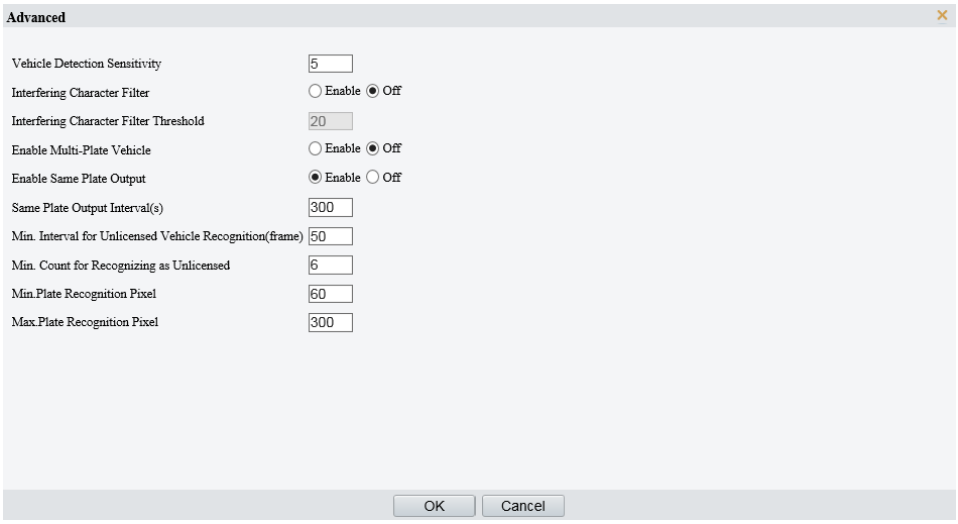
## 4.2 Live View




| No. | Parameter | Description |
|---|---|---|
| 1 | Display area of vehicle snapshots | Displays the live view in real time. |
| 2 | Display area of the real-time vehicle license plate recognition result | Displays the vehicle license plate recognition result in real time. |
| 3 | License plate snapshot display area | Displays the license plate snapshot when you select **Generate Color Photo** of **Small Photo of Plate**. |
| 4 | Live view area | Displays vehicle snapshots. |
| 5 | Display area of real-time passing vehicle records | Displays passing vehicle records in real time, containing **No.**, **Snapshot Time**, and **Plate Number**. |
| 6 | Total Vehicle | Displays the number of passing vehicles in real time.<br>The number is reset to 0 when you switch back to live view or click **Reset**. |
| 7 | Unlicensed Vehicle Passing | Displays the number of unlicensed vehicles passing in real time.<br>The number is reset to 0 when you switch back to live view or click **Reset**. |
| 8 | Zoom | Zooms to obtain different fields of view and video images of different sizes.<br>: Zoom+<br>: Zoom-<br>You can also enter an integer from 1 to 10 in the **Zoom** field to change the zoom. |
| 9 | Focus | Changes the image distance and obtains clear images.<br>: Focus+<br>: Focus- |

| | | |
|---|---|---|
| 10 | Audio input/output |  : Turns speaker off/on. When the speaker is off, no sound is produced. When the speaker is on, you can adjust the volume.<br>  : Adjusts the speaker volume.<br>  : Turns microphone off/on. When the microphone is off, no sound is transmitted. When the microphone is on, you can adjust the volume.<br>  : Adjusts the microphone volume. |
| 11 | Snapshot | Takes a snapshot of the current live view and saves the snapshot locally. The default path is |
| 12 | Capture&Recognize | Manual snapshot button. |
| 13 | Open Gate | Opens the gate manually. |
| 14 | Local Parameters | Accesses the **Local Parameters** page. See Local Parameters. |
| 15 | Network | Set Network. See Network. |
| 16 | Start Recording/Stop Recording | Starts/Stops local recording and saves the video locally. The default path is C:\Users\user\Surveillance_IPC\IPCUN\Record. |
| 17 | Pause Video/Start Video | Stops/Plays live view |
| 18 | Reset | Clears snapshot records on the Web page. After you click **Reset**, only snapshot records on the Web page are cleared. Locally stored images will not be deleted. |
| 19 | Advanced | See Advanced. |
| 20 | Start Two-way Audio | Turns speaker off/on. When the speaker is off, no sound is produced. When the speaker is on, you can adjust the volume. |
| 21 | Display Recognition Area | Display Recognition Area |
| 22 | Setup Wizard | See Setup Wizard. |

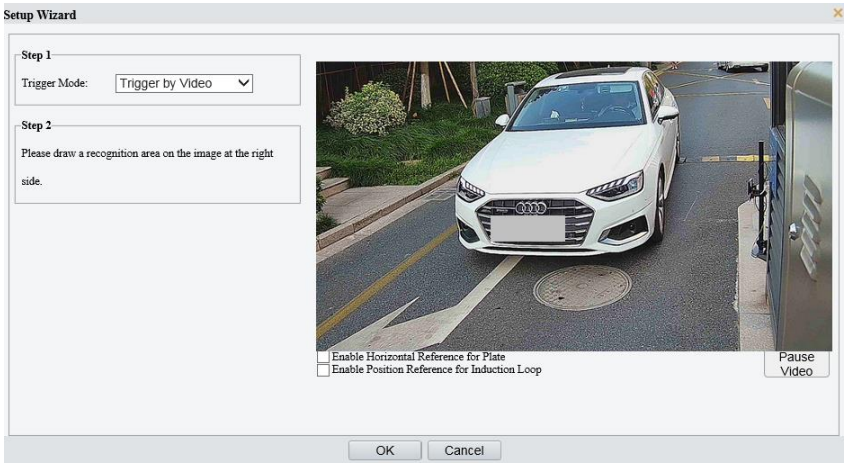
### 4.2.1 Advanced




| No. | Parameter | Description |
|---|---|---|
| 1 | Vehicle Detection Sensitivity | The default value is **5**.<br>A valid value ranges from 0 to 5.<br>The greater the value, the more likely vehicles will be detected, the lower the detection accuracy. |
| 2 | Interfering Character Filter | This function is enabled by default.<br>When enabled, interferences such as fences that may be recognized mistakenly as license plates will be filtered. |
| 3 | Interfering Character Filter Threshold | The default value 20 is recommended.<br>A valid value ranges from 15 to 28.<br>The greater the value, the more likely license plates are recognized mistakenly as interferences and filtered. |
| 4 | Enable Multi-Plate Vehicle | Currently not available. |
| 5 | Enable Same Plate Output | This function is enabled by default.<br>When enabled, the same license plate recognized within the set interval will only be captured once.<br>When disabled, the same license plate recognized continuously will only be captured once, and the same license plate recognized non-continuously will be captured each time. |
| 6 | Same Plate Output Interval(s) | The default value is 300.<br>When **Enable Same Plate Output** is enabled, the same license plate recognized within the set interval will only be captured once. |

| | | |
|---|---|---|
| 7 | Min. Interval for Unlicensed Vehicle Recognition(frame) | The default value 50 is recommended.<br>When multiple unlicensed vehicles are missed, lower the value appropriately; when unlicensed vehicles are repeatedly captured, increase the value appropriately. |
| 8 | Min. Count for Recognizing as Unlicensed | The default value 6 is recommended.<br>If licensed vehicles are recognized mistakenly as unlicensed vehicles, increase the value appropriately. |
| 9 | Min. Plate Recognition Pixel | The default value is 60.<br>A valid value ranges from 50 to 120.<br>When the pixel of the license plate is smaller than the set value, the camera will not capture the license plate. |
| 10 | Max. Plate Recognition Pixel | The default value is 300.<br>A valid value ranges from 120 to 300.<br>When the pixel of the license plate is greater than the set value, the camera will not capture the license plate. |

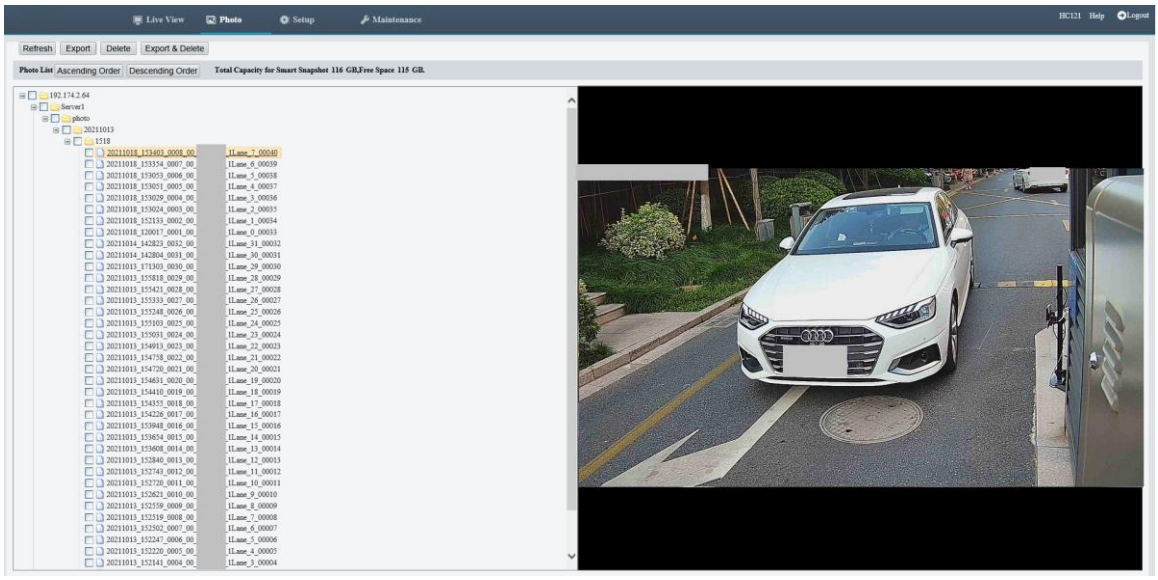
### 4.2.2 Setup Wizard




| No. | Parameter | Description |
|---|---|---|
| 1 | Trigger Mode: | **Trigger by Loop**<br>**Trigger by Video** |
| 2 | Enable Horizontal Reference for Plate | When the check box is selected, a horizontal reference line for plate is displayed. |
| 3 | Enable Position Reference for Induction Loop | When the check box is selected, position reference lines for the induction loop are displayed. |

## 4.3 Photo

With an SD card installed, you can view, export and delete passing vehicle images in the **Photo** page.




| No. | Parameter | Description |
|---|---|---|
| 1 | Refresh | Refreshes the photo list. |
| 2 | Export | Exports all selected images when you select ☐ in front of folders or images and click **Export**.<br>Note: If you log in to the camera without installing the plug-in, you cannot select the path of exported images, and the files are exported to the default download path of the browser. If you log in to the camera using Internet Explorer, a dialog box will be displayed after you click **Export**, and you can select the export path. |
| 3 | Delete | Deletes all selected files or images when you select ☐ in front of folders or images and click **Delete**. |
| 4 | Export & Delete | Exports all selected files or images and deletes the exported files when you select ☐ in front of folders or images and click **Export & Delete**.<br>Note: This button is unavailable if you log in to the camera without installing the plug-in. |
| 5 | Sorting | **Ascending Order**: Lists images in ascending order of the time.<br>**Descending Order**: Lists images in descending order of the time. |

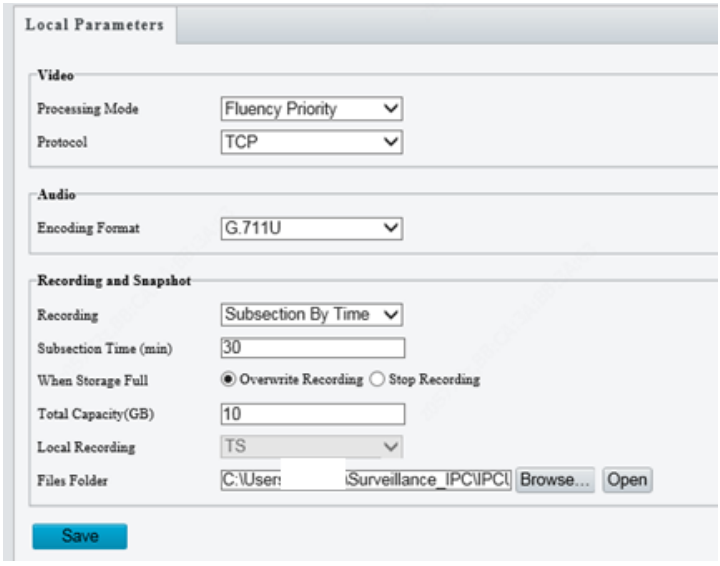
| | | |
|---|---|---|
| 6 | Photo List | Lists images with six directory levels.<br>Level 1: folder named the IP address of the camera<br>Level 2: folder named after the photo server, including server 1 and server 2<br>Level 3: **photo** folder<br>Level 4: folder named after the date, in the format of YYYYMMDD<br>Level 5: folder named after the time, in the format of HHMM<br>Level 6: image file named in the format of YYYYMMDD_HHMMSS_Record ID_Plate Color ID_License Plate No._Lane ID_Image No._Count |
| 7 | Image display area | Displays the selected image. |
| 8 | File selection statuses | ☐: Indicates the default unselected status.<br>☑: Indicates that all files of the passing vehicle record or in the folder are selected, and the selected files can be exported and deleted.<br>☑: Indicates that some folders or passing vehicle records in the folder are selected, and the selected files can be exported and deleted. |

## 4.4 Setup

### 4.4.1 Local Parameters

**NOTE!**

This page is unavailable if you log in to the camera without installing the plug-in.

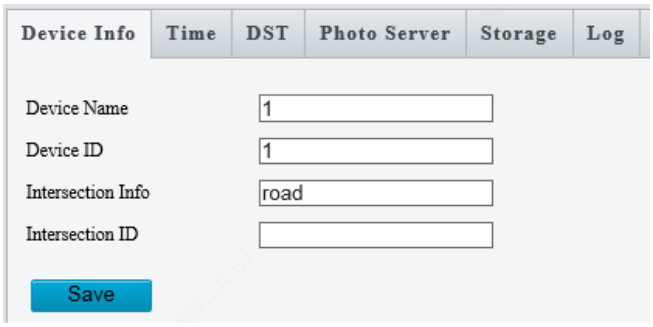


Parameter description

| No. | Parameter | Description |
|---|---|---|
| 1 | Processing Mode | The values include **Real-Time Priority**, **Fluency Priority**, and **Ultra-low Latency**. You can configure this parameter to adjust the live view display effect during focusing. |
| 2 | Protocol | The value is **TCP** by default and can be set to **UDP**. You can select a protocol based on actual requirements to capture packets and locate live view display problems. (The protocol indicates the media stream transmission mode between the PC and the camera.) |
| 3 | Encoding Format | Currently, only **G.711U** is supported. |
| 4 | Recording | The default value is **Subsection By Time**, and the section duration is 30 minutes.<br>The other optional value is **Subsection by Size**, and the section size is 100MB.<br>If video data in a long period of time needs to be stored, you are advised to select **Subsection By Time** with **Subsection Time (min)** set to **60**. |
| 6 | When Storage Full | The values are as follows:<br>**Overwrite Recording**: If the size of the generated video files exceeds the configured total capacity, video files generated at the earliest time will be overwritten.<br>**Stop Recording**: If the size of the generated video files exceeds the configured total capacity, recording stops. |
| 7 | Total Capacity(GB) | This parameter specifies the local storage space allocated to video files. The value is 10 by default and can be customized to 1–1024. |
| 8 | Local Recording | Currently, only **TS** is supported. |
| 9 | Files Folder | By default, the plug-in installation path is selected. You can also configure a file storage path. Local videos, vehicle snapshots, and live view snapshots are stored in the path.<br>Vehicle snapshots are stored in the **JPEG** folder. Local videos are stored in the **Record** folder. Live view snapshots are stored in the **Snap** folder. |

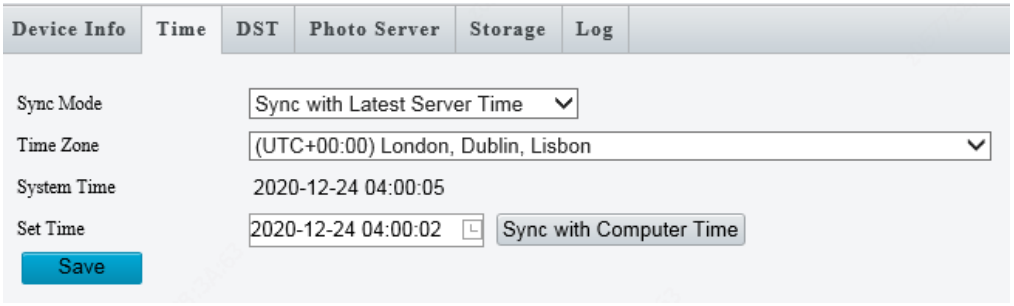
## 4.4.2 System

### 1. Device Info

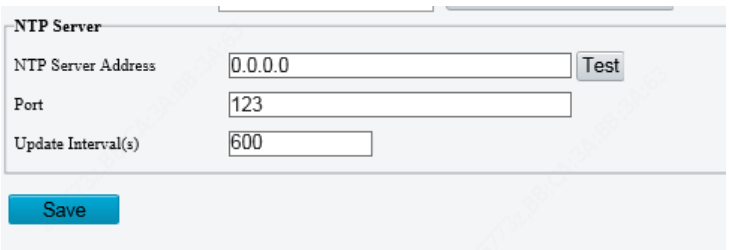


| No. | Parameter | Description |
|---|---|---|
| 1 | Device Name | The value is **1** by default and can be customized.<br>Rule: 0–32 characters, including upper case letters (A-Z), lower case letters (a-z), digits (0-9), underscores (_), hyphens (-), dots (.), and plus signs (+). |
| 2 | Device ID | The value is **1** by default and can be customized.<br>Rule: 0–32 characters, including upper case letters (A-Z), lower case letters (a-z), digits (0-9), underscores (_), hyphens (-), dots (.), and plus signs (+). |
| 3 | Intersection Info | The value is **road** by default and can be customized.<br>Rule: 1–33 characters |
| 4 | Intersection ID | The value is null by default and can be customized.<br>Rule: 0–32 characters, including upper case letters (A-Z), lower case letters (a-z), digits (0-9), underscores (_), hyphens (-), dots (.), and plus signs (+). |

## 2. Time



| No. | Parameter | Description |
|---|---|---|
| 1 | Sync Mode | The default value is **Sync with Latest Server Time**. Available values include:<br>**Sync with System Configuration**: The camera uses the configured system time or synchronizes the computer time.<br>**Sync with Photo Server**: If the camera connects to a photo server that can synchronize the system time, the photo server time is used. If the camera does not connect to a photo server or the connected photo server cannot synchronize the system time, the time cannot be synchronized.<br>**Sync with NTP Server**: If the camera connects to an NTP server that can synchronize time, the NTP server time is used. If the camera does not connect to an NTP server, the time cannot be synchronized. If you select **Sync with NTP Server**, **NTP Server Address** and **Update Interval(s)** are displayed.<br>**Sync with Latest Server Time**: The time is synchronized with the time of all servers, and the latest synchronized server time prevails. For example, server 1 and server 2 are registered. Server 1 synchronizes the time with the camera first, and then server 2 synchronizes the time. The camera finally synchronizes the time with server 2.<br>**Sync with Cloud Server**: If the camera is online on EZCloud, it will synchronize time with EZCloud. |
| 2 | Time Zone | The default time zone is **(UTC+00:00) London, Dublin, Lisbon**. |
| 3 | System Time | Current running time of the camera |
| 4 | Set Time | You can manually configure the system time or select **Sync with Computer Time**.<br>When **Sync Mode** is set to **Sync with Photo Server** or **Sync with NTP Server**, **Set Time** is grayed out. |




**NOTE!**

**NTP Server** is available when **Sync Mode** is set to **Sync with NTP Server**. If the NTP service is disabled:

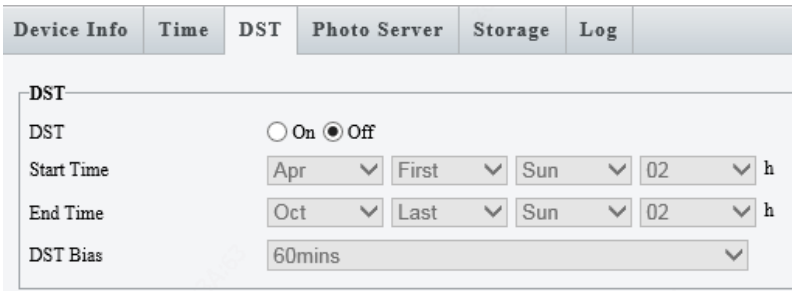
1. When the camera runs independently, the camera maintains the system time.

2. When the camera registers with a platform, the platform delivers the time to the camera.

When an independent NTP server is deployed, **Sync Mode** is set to **Sync with NTP Server**, and the correct NTP server IP address and port number are configured, the camera synchronizes time with the NTP server 3s after the configuration.

| No. | Parameter | Description |
|---|---|---|
| 1 | NTP Server Address | Indicates the IP address of the accessed NTP server. The default value is **0.0.0.0**. |
| 2 | Port | The default value is **123**. |
| 3 | Update Interval(s) | Indicates the interval for the camera to synchronize time with the NTP server. It is available only when **Sync Mode** is set to **Sync with NTP Server**. |

### 3. DST

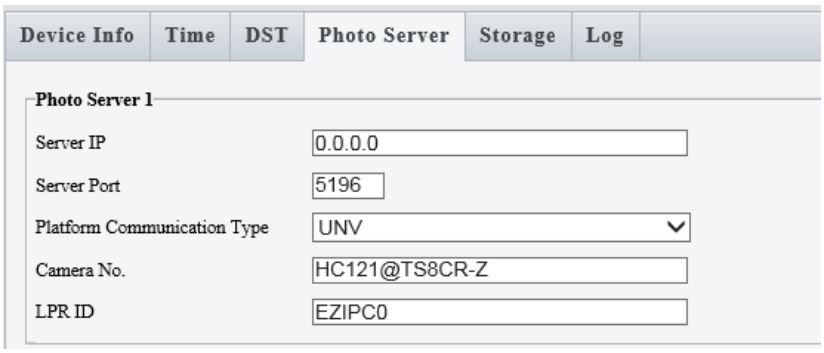



| No. | Parameter | Description |
|---|---|---|
| 1 | DST | By default, **Off** is selected. If you select **On**, you can configure **Start Time**, **End Time**, and **DST Bias**. **DST Bias** indicates the offset between the display time and the actual time. |

### 4. Photo Server

Two photo servers are supported and can be configured at the same time. **Photo server 2** is disabled by default and should be enabled before it can be used. **Photo server 1** supports **UNV**, **CDS**, **FTP**, **UPARK Video & Image Database** and **maxima** communication types, while server 2 supports **UNV** and **LAPI.**

UNV

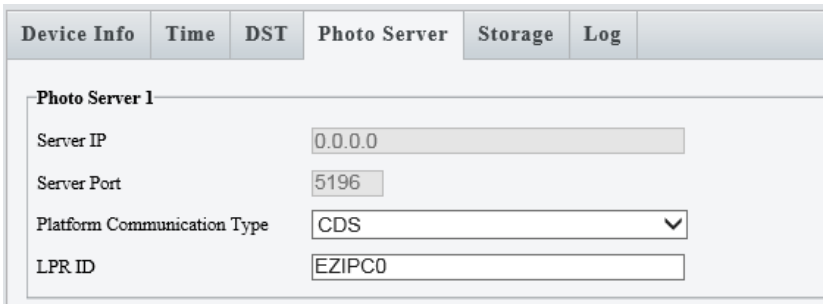



| No. | Parameter | Description |
|---|---|---|
| 1 | Server IP | This parameter indicates the IP address of the TMS when the UNV protocol is used. |
| 2 | Server Port | The default value is **5196**.<br>This parameter indicates the port number of the TMS when the UNV protocol is used. The default value is **5196**. |
| 4 | Camera No. | This is a customized camera code, and is the camera model by default.. |

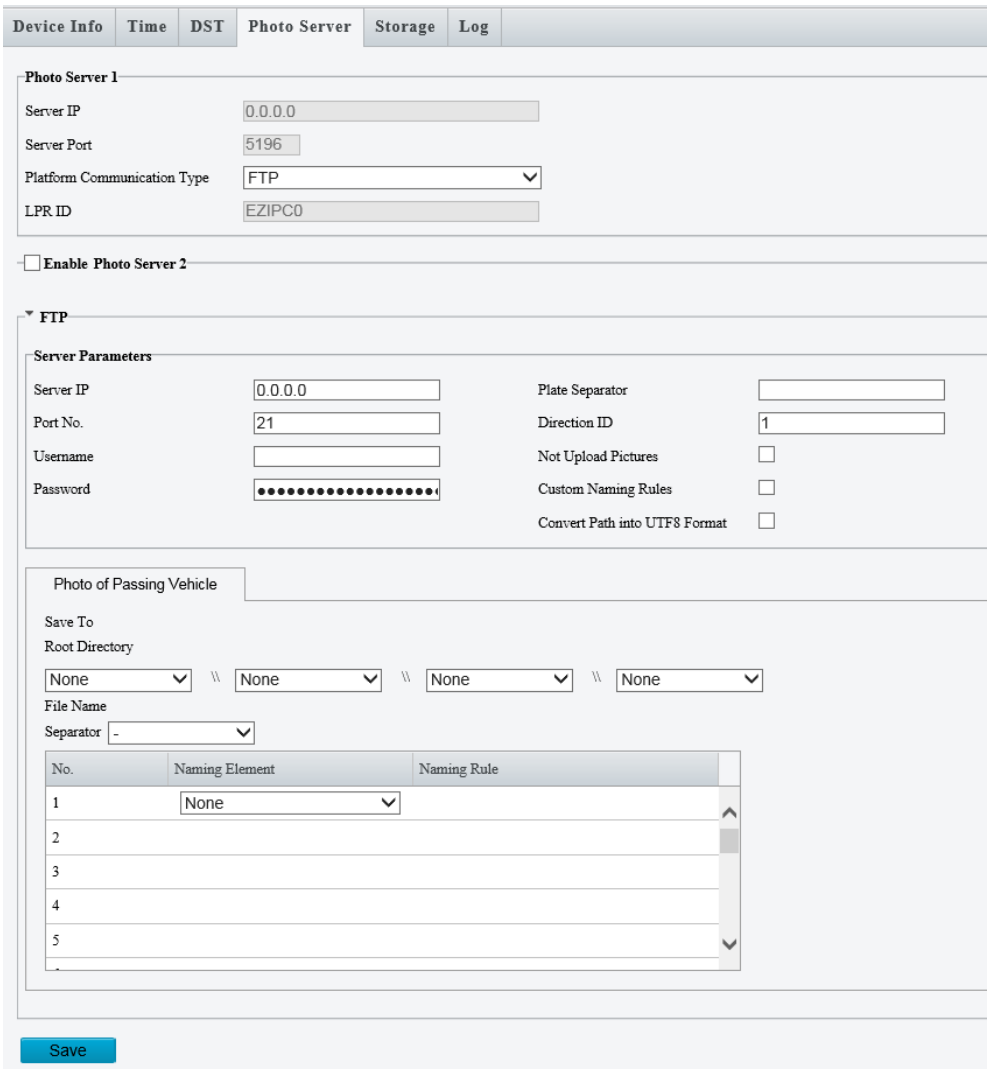
| | | |
|---|---|---|
| 5 | LPR ID | When the camera registers with the TMS, the **LPR ID** must be consistent with that configured for the TMS. Otherwise, the registration fails.<br>The same **LPR ID** can be configured for multiple cameras. Images of these cameras will be aggregated to images of the LPR with the ID. |

CDS

Add the camera via UNV first and then change the platform communication type to CDS.

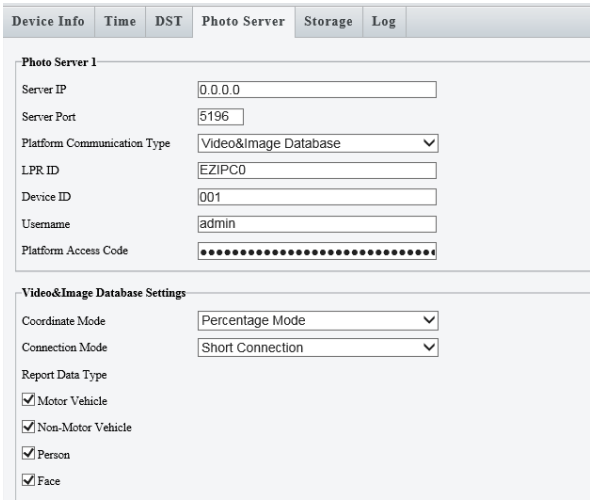



FTP



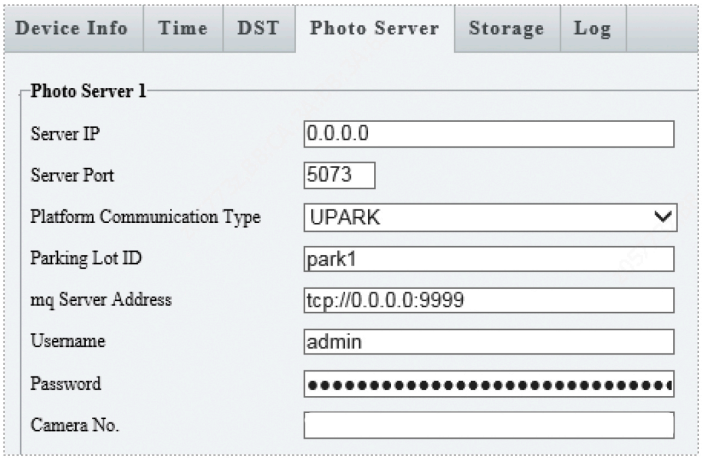
| No. | Parameter | Description |
|---|---|---|
| 1 | Server IP | This parameter indicates the IP address of the FTP server to which the camera uploads images. |
| 2 | Port No. | The value is **21** by default and can be configured as required. |
| 3 | Username/Password | These are the username and password created on the FTP tool. |
| 4 | Plate Separator | You can configure it as required. |
| 5 | Direction ID | Values include:<br>**0**: unknown<br>**1**: east to west<br>**2**: south to north<br>**3**: west to east<br>**4**: north to south<br>**5**: southeast to northwest<br>**6**: northwest to southeast<br>**7**: northeast to southwest<br>**8**: southwest to northeast<br>You can configure other values based on actual requirements. |
| 6 | Not Upload Pictures | If you select it, the camera does not upload images to the FTP server. This function can be ignored. |
| 7 | Custom Naming Rules | If you select it, you need to configure **Naming Element** and **Naming Rule**. |
| 8 | Convert Path into UTF8 Format | If you select it, the encoding format is converted to UTF-8. If you do not select it, the default GBK encoding format is used. |
| 9 | Root Directory | You can configure the FTP storage path here. |
| 10 | File Name | You can configure the names of files to be uploaded to the FTP server. |

## Video&Image Database



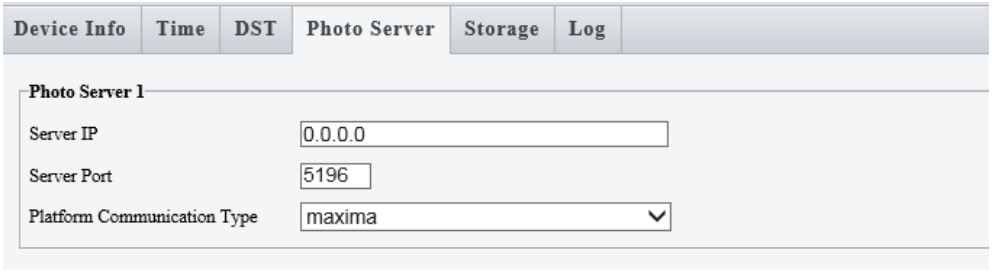
| No. | Parameter | Description |
|---|---|---|
| 1 | Server IP | This parameter indicates the IP address of the MD server when the **Video & Image Database** protocol is used. |
| 2 | Server Port | The default value is **5196**.<br>This parameter indicates the port number of the MD server when the **Video & Image Database** protocol is used. The default value is **5073**. |
| 3 | LPR ID | The default value is **EZIPC0**. This function is unavailable and can be ignored. |
| 4 | Device ID | The default value is **001.**The **Device ID** is a 20-digit number with 121 for digits 11-13. The device ID must be unique on the LAN |
| 5 | Username | This parameter is available only when the **Video & Image Database** protocol is used. It indicates the username to the MD server. |
| 6 | Platform Access Code | This parameter is available only when the **Video & Image Database** protocol is used. It indicates the password to the MD server. |

UPARK




| No. | Parameter | Description |
|---|---|---|
| 1 | Server IP | MQ Server IP |
| 2 | Server Port | MQ Server port |
| 3 | Camera No. | The default value is Product Config |
| 4 | Parking Lot ID | The default value is park1 |
| 5 | mq Server Address | The default value is tcp://0.0.0.0(MQ Server IP):9999 |
| 6 | Username/Password | These are the username and password created on the MQ Server |

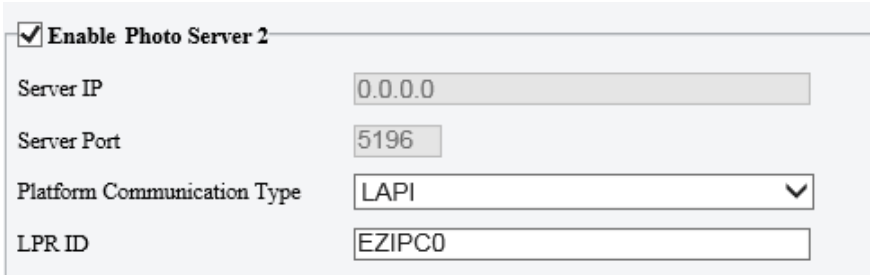
maxima




| No. | Parameter | Description |
|---|---|---|
| 1 | Server IP | maxima Server IP |
| 2 | Server Port | maxima Server port |

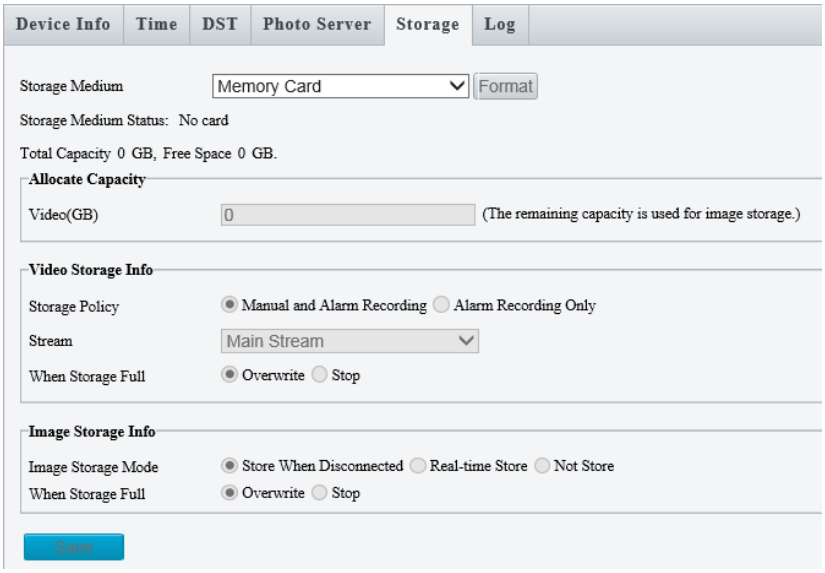
### LAPI

The photo server 2 supports **LAPI**. Add the camera on the photo server via **LAPI** without configuration on the camera.

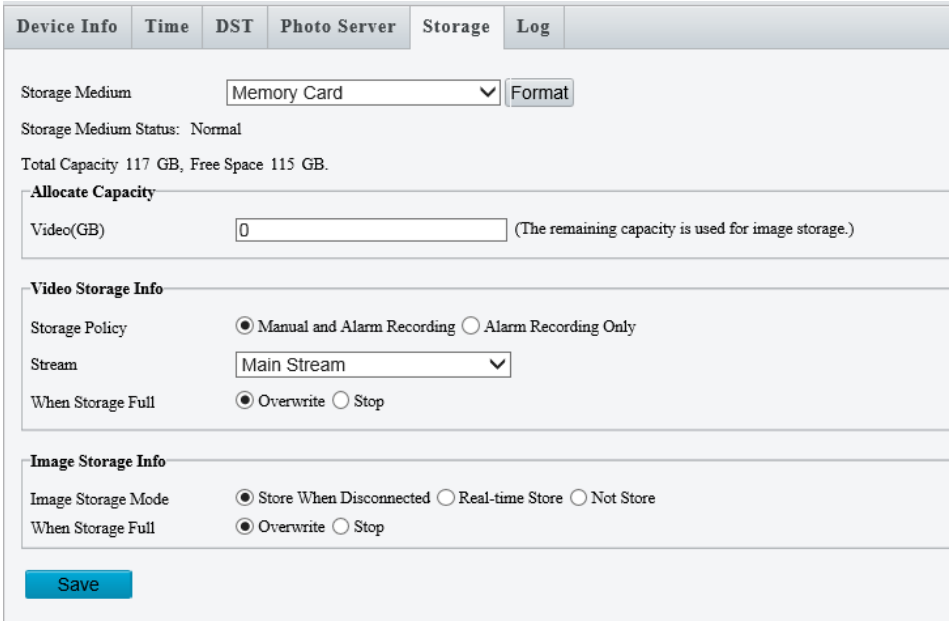



## 5. Storage

The camera does not ship with an SD card. When no SD card is installed, the storage parameters cannot be configured. An SD card of up to 128GB is supported.




The following shows the interface after a 128GB SD card is installed.

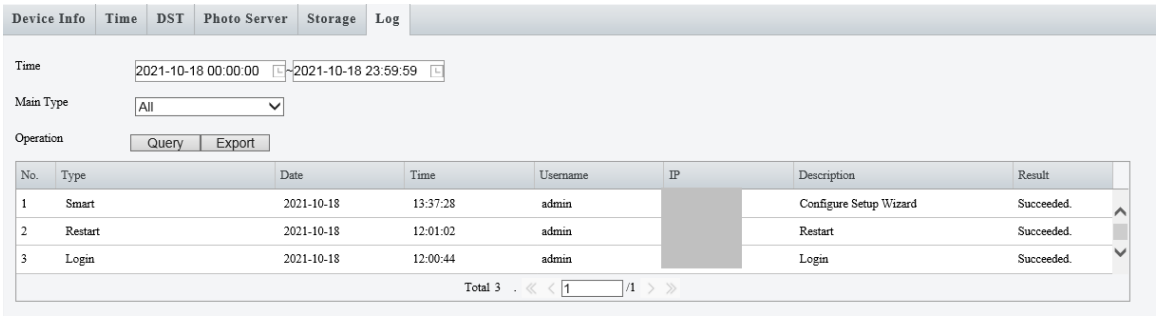



| No. | Parameter | Description |
|---|---|---|
| 1 | Storage Medium | The default and only value is **Memory Card**. You can click **Format** to format the memory card. |
| 2 | Storage Medium Status | Displays the SD card status, **No card** or **Normal**. |
| 3 | Allocate Capacity | **Video(GB)**:When manual recording is enabled for **Storage Policy**, you need to allocate the video storage capacity. |
| 4 | Video Storage Info | The default value of **Storage Policy** is **Manual and Alarm Recording**. The values include:<br>**Manual and Alarm Recording**: When you select this option, videos are stored in the memory card. You can log in to the camera through SSH to export the video data, and play exported videos only in .uvrd format.<br>**Alarm Recording Only**: This is the default option. If the option is not selected, and the camera is not allocated with a storage capacity, the memory card does not store video data, and **Stream** cannot be configured. If the camera is allocated with a storage capacity and connected to a platform, the memory card stores the live view stream after the camera is disconnected from the network, and **Stream** can be configured in this case.<br>When **Manual and Alarm Recording** is selected for **Storage Policy**, you can configure **Stream** as **Main Stream** or **Sub Stream** (if **Sub Stream** is enabled under **Setup** > **Video & Audio** > **Video Encoding**).<br>In the video storage policy, the default value of **When Storage Full** is **Overwrite**. Available values include:<br>**Overwrite**: When the storage space is full, video files generated at the earliest time will be deleted, and new video files will be stored.<br>**Stop**: When the storage space is full, recording will stop. |

| | | |
|---|---|---|
| 5 | Image Storage Mode | The default value of **Store When Disconnected** is selected by default. Available values include:<br>**Store When Disconnected**: Before a platform is configured, the camera stores the images on the SD card. After a platform is configured, images on the SD card are transmitted to the TMS and deleted from the SD card. After the camera registers with a platform, real-time images are uploaded to the platform only and are not stored on the SD card.<br>**Real-time Store**: After a platform is configured, images are stored in real time on both the platform and the SD card. Images generated before the platform configuration are not uploaded to the platform.<br>**Not Store**: If a TMS is not configured and **Not Store** is selected, snapshot images are stored on the SD card. After a TMS is configured, images on the SD card are transmitted to the TMS and persist on the SD card, and images generated afterwards are uploaded to the platform only and are not stored on the SD card.<br>Note:<br>Photo server 1 supports all the three values, while photo server 2 supports **Store When Disconnected** only.<br>In the image storage policy, the default value of **When Storage Full** is **Overwrite**. Available values include:<br>**Overwrite**: When the storage space is full, image files generated at the earliest time will be deleted, and new image files will be stored.<br>**Stop**: When the storage space is full, image storage will stop. |

## 6. Log

View camera operation logs.

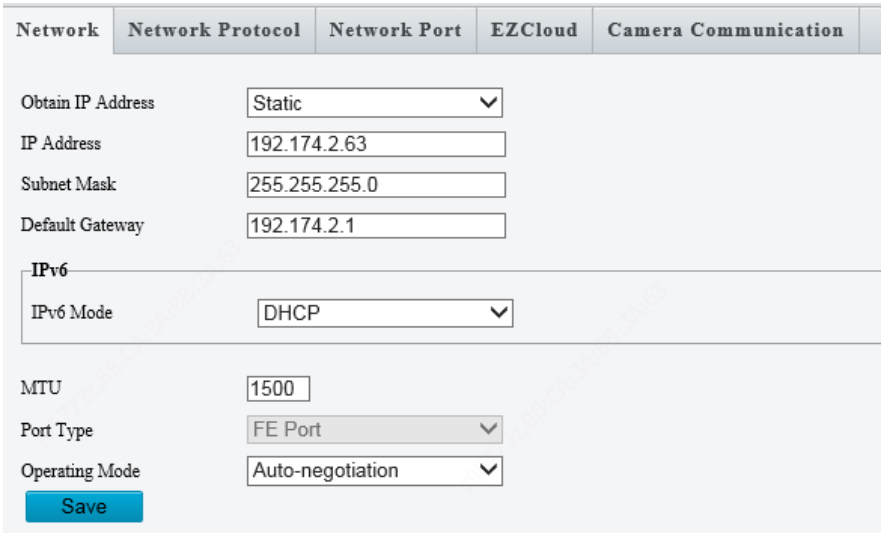



| No. | Parameter | Description |
|---|---|---|
| 1 | Time | Set query time period (default: 00:00:00 to 23:59:59). |
| 2 | Main Type | Select a log type to query from the drop-down list which includes Login, Restart, Alarm, Network, Video & Audio, PTZ, Image Setting, Smart and Config Management. **All** is set by default. |
| 3 | Operation | Query or export logs. |

| | | |
|---|---|---|
| 4 | Table | A table of camera operation logs, including Type, Date, Time, Username, IP, Description and Result.<br>Type: Show the log type queried, including Login, Restart, Alarm, Network, Video & Audio, PTZ, Image Setting, Smart and Config Management.<br>Time: Show the execution time of operation.<br>Username: Show who performed the operation.<br>IP: Show the login IP address.<br>Description: Show a description of the operation.<br>Result: Succeeded/Failed. |

### 4.4.3 Network

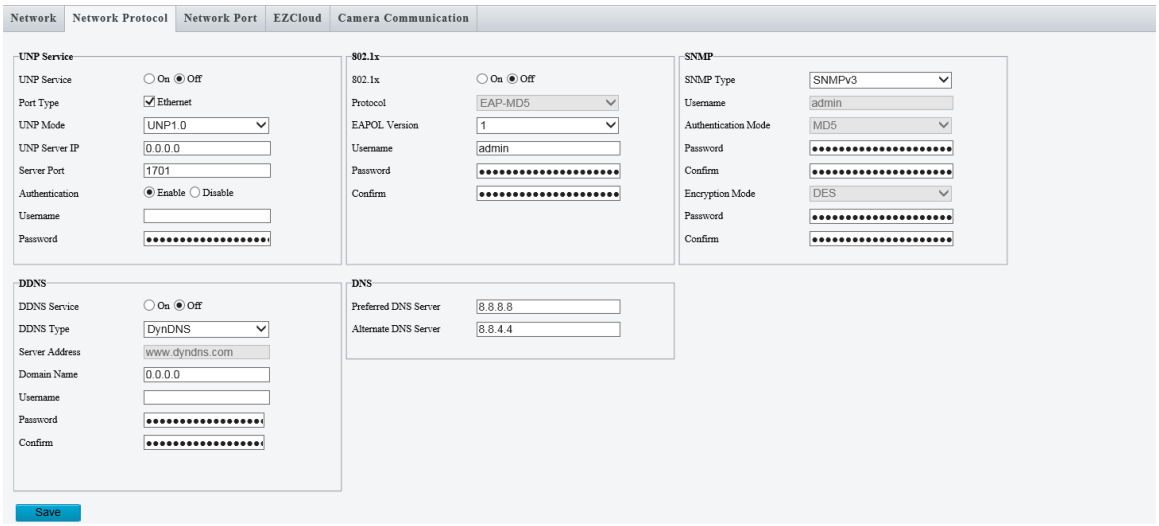
#### 1. Network




| No. | Parameter | Description |
|---|---|---|
| 1 | Obtain IP Address | Static IP address configuration and IP address obtaining using DHCP are supported. To obtain IP addresses using DHCP, connect the camera to a DHCP server. A PPPoE server is required for PPPoE. |
| 2 | IP Address | If **Obtain IP Address** is set to **Static**, you need to manually configure the IP address. The camera has two initial IP addresses: 192.168.0.13 and 192.168.1.13. |
| 3 | Subnet Mask | If **Obtain IP Address** is set to **Static**, you need to manually configure the subnet mask of the LAN to which the camera accesses. The default value is **255.255.255.0**. |
| 4 | Default Gateway | If **Obtain IP Address** is set to **Static**, you need to manually configure the gateway of the LAN to which the camera accesses. The default value is **192.168.0.1**. |

| | | |
|---|---|---|
| 5 | IPv6 Mode | The default IPv6 mode is **DHCP**. **Manual** is supported.<br>**IPv6** is added to the network settings of the camera. After you configure an IPv6 address and use the IPv6 address to log in to the camera, the firmware converts the IPv6 address to an IPv4 address and switches to the camera login page.<br>Note: When you set an IPv6 address to access the camera, the computer IP address also needs to be converted to an IPv6 address and must be in the same network segment as that of the camera. The setting method is the same as that of an IPv4 address. |
| 6 | IPv6 Address | You can manually configure an IPv6 address. |
| 7 | Prefix Length | You can configure the length of the IPv6 address prefix to 1–127. |
| 8 | Default Gateway | You can configure the IPv6 gateway. |
| 9 | MTU | The value is **1500** by default and ranges from 576 to 1500. When the network condition is poor, you can reduce the MTU value. |
| 10 | Port Type | The value is **FE-Port** and cannot be changed. |
| 11 | Operating Mode | The default value is **Auto-negotiation**. When the network condition is poor, you can select **10M Half Duplex** or another value to ensure real-time streams. (When the network condition is poor, you need to reduce the uplink interface load of the access switch or optical transceiver.)<br>Note: You are advised to retain the default value in applications because the following risks may occur if another value is selected:<br>1. As various switch types exist, network port negotiation with the switch may fail.<br>2. As the network port rate is limited, images cannot be uploaded in real time, especially at intersections with heavy traffic. |

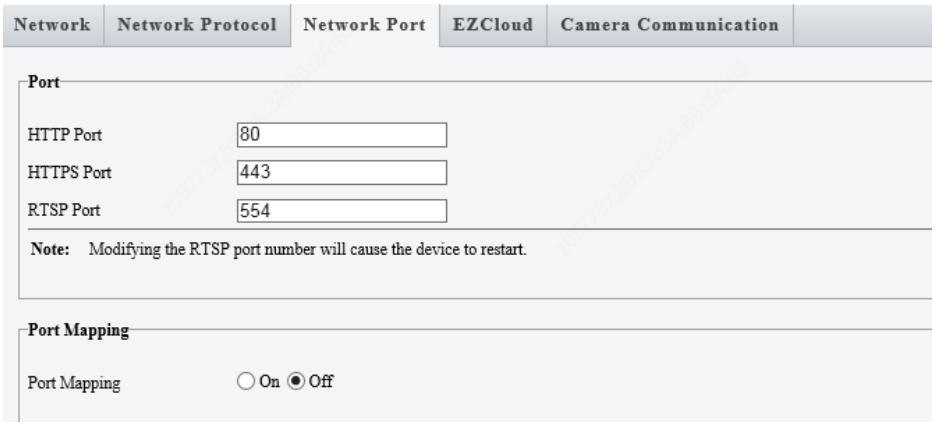
## 2. Network Protocol




UNP, 802.1X, SNMP, DDNS, and DNS are supported.

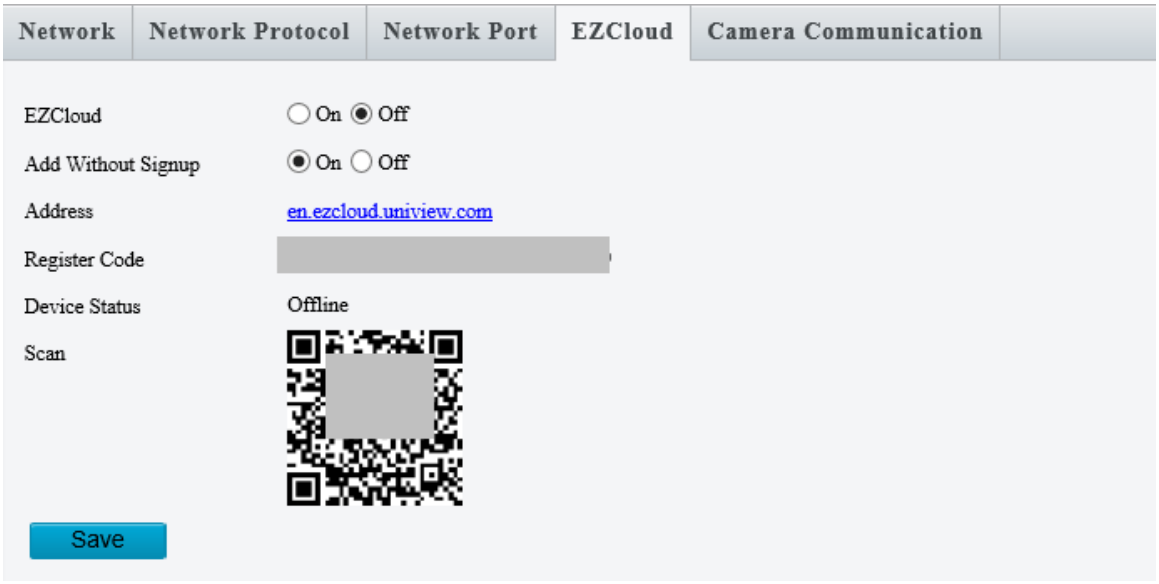
| No. | Protocol | Description |
|---|---|---|
| 1 | UNP | The Universal Network Passport (UNP) protocol is used for login from a private network to a public network and security protection. It needs to cooperate with UNV platform. |
| 2 | 802.1X | 802.1X, an access control and authentication protocol based on the client/server mode, is used to authenticate cameras that access a network in scenarios with high security requirements. Only authenticated cameras can access the network for communication.<br>This function is used with the switch. The 802.1X protocol authentication function also needs to be enabled for the port of the switch connected to the camera. When a user's login password configured on the camera is the same as that configured on the port of the switch, the authentication server determines that the user is valid and sends an authentication success message and port enable command to the switch to allow service streams of the user to access the network over the port. If the two passwords are different, the authentication server returns an authentication failure message to the switch. The port on the switch is disabled and transmits only authentication data and rejects service data. The user cannot ping the camera through a PC. |
| 3 | SNMP | The default value of **SNMP Type** is **SNMPv3**. SNMPv3 supports authentication and ciphertext transmission.<br>The value can also be set to **SNMPv2**.<br>Note: You are advised to set **SNMP Type** to **SNMPv2** when packets are captured on site to locate problems. |
| 4 | DDNS | The DDNS service is provided for cameras that do not have fixed IP addresses but want to have fixed domain names. After you configure DDNS parameters, you can directly access a camera using the domain name.<br>**DDNS Type**: The values include **NO-IP**, **EZDDNS**, and **DynDNS**. The default value is **DynDNS.**<br>When **DynDNS** or **NO-IP** is selected, you can configure parameters, such as **Domain Name**, **Username**, and **Password**, and use the domain name to access the camera.<br>When **EZDDNS** is selected, you need to configure **Domain Name** and use the server IP address or domain name to access the camera after you pass the test. |
| 5 | DNS | After you enter the IP addresses of the preferred and alternate DNS servers, the camera uses the IP address of the preferred DNS server as the IP address of the DNS server. If the preferred DNS server is invalid, the alternate DNS server is enabled. |

## 3. Network Port




| No. | Parameter | Description |
|---|---|---|
| 1 | HTTP Port | The value is **80** by default and can be changed. After the change, you need to enter "http://*camera IP address*:*HTTP Port*" in the address box of a browser to access the camera. |
| 2 | HTTPS Port | The value is **443** by default and can be changed. HTTPS is a securer access mode than HTTP.<br>After the change, you need to enter "https://*camera IP address*:*HTTPS Port*" in the address box of a browser to access the camera. |
| 3 | RTSP Port | The value is **554** by default and can be changed. After the change, you need to restart the camera.<br>The RTSP port of UNV cameras is used to view live views on the Web page, play back videos stored on the Web page, and request live view streams using VLC. If authentication is not set for the RTSP port, you do not need to enter the username and password when requesting live view streams using VLC. If authentication is enabled for the RTSP port, you need to enter the username and password when requesting live view streams using VLC. |
| 4 | Port Mapping | To access a camera on a LAN from a device on the public network, you need to set **Port Mapping** to **On**. The default value is **Off**. |

### 4. EZCloud

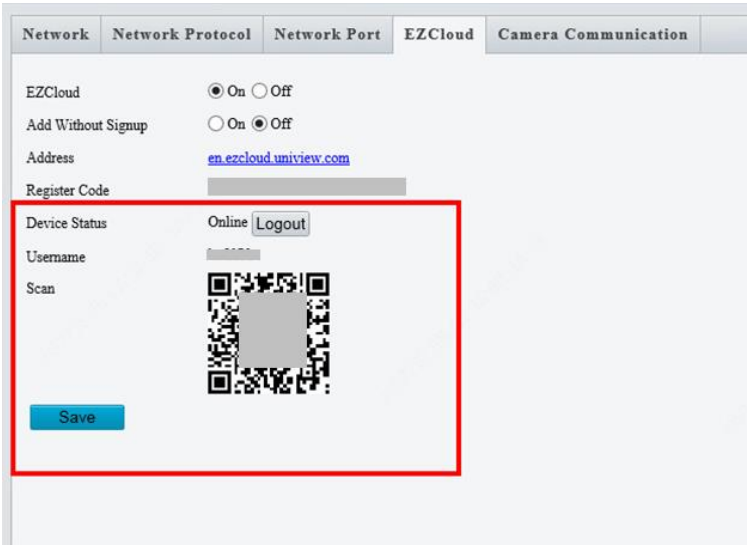



The LPR camera supports P2P connection. The operation steps are as follows.

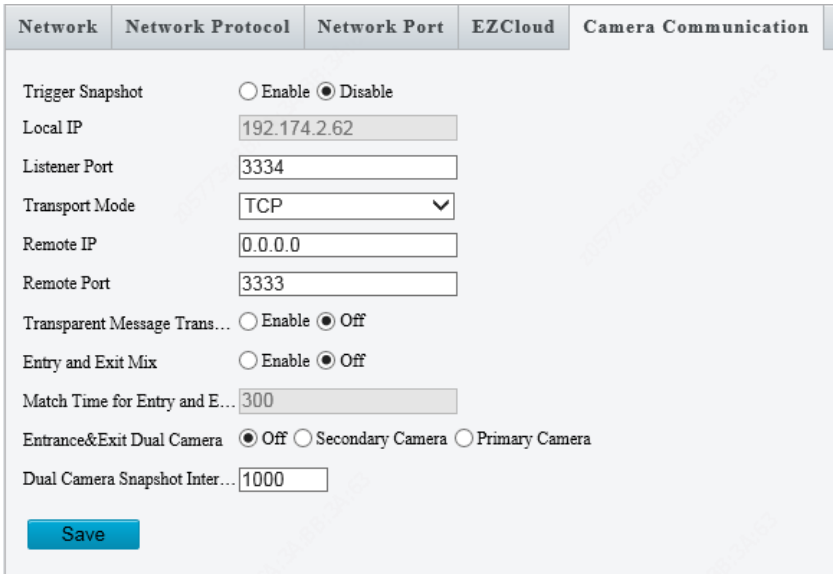
**Step 1** On the camera's web interface, enable EZCloud by selecting **On**.

**Step 2** Add the camera to EZCloud.

**Step 3** Check the device status. To log out, click **Logout**.



## 5. Camera Communication




| No. | Parameter | Description |
|---|---|---|
| 1 | Trigger Snapshot | Select **Enable** if necessary. For the configuration, refer to the *Configuration Guide to Dual-Camera Trigger Snapshot*. |
| 2 | Local IP/Listener Port | These parameters indicate the IP address and port number of the operating camera. When the operating camera needs to receive signals from a remote camera, its port number needs to be the same as the remote port number configured on the remote camera. |
| 3 | Transport Mode | The value is **TCP** by default and can be set to **UDP**.<br>Note: When the network condition is poor, you are not advised to use UDP. |
| 4 | Remote IP/Remote Port | These parameters indicate the IP address and port number of the camera that needs to receive signals from the operating camera. **Remote Port** must be the same as **Listener Port** of the receiving camera. |
| 5 | Transparent Message Transmission | This function is unavailable and can be ignored. |
| 6 | Entry and Exit Mix | This function is off by default, and you can enable it as required. The function is used when a channel is used for both entrance and exit, and is not required when a channel is used for entrance and another one is used for exit. To enable the function, you need to establish camera communication first. |
| 7 | Match Time for Entry and Exit Mix(s) | The default value is **300**. After enabling **Entry and Exit Mix**, you can configure **Match Time for Entry and Exit Mix**. If a vehicle passes two cameras within the time range, snapshot is triggered and the gate is opened only once. |

| | | |
|---|---|---|
| 8 | Entrance & Exit Dual Camera | This function is used together with a dual-camera solution, and two cameras are used for snapshot. The default value is **Off**.<br>**Secondary Camera**: If you select **Secondary Camera** for the local camera, the peer camera is **Primary Camera**.<br>**Primary Camera**: If you select **Primary Camera** for the local camera, the peer camera is **Secondary Camera**. |
| 9 | Dual Camera Snapshot Interval(ms) | If **Entrance & Exit Dual Camera** is **Off**, the snapshot interval between the primary and secondary cameras is 1000ms by default. When **Primary Camera** is selected, you can set the value. After dual-camera communication is configured, snapshot images of the primary and secondary cameras within the snapshot interval are regarded as for the same objective. |

### 4.4.4 Video & Audio

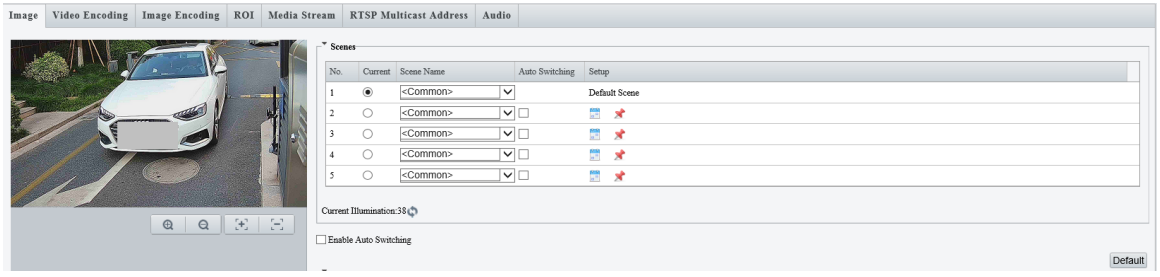
#### 1. Image

See the table below to set image parameters.

| Model | Scene | Recommended parameters |
|---|---|---|
| HC121@TS8C-Z | Park | Gain 10, shutter 1/500s, far-illumination off, near-illumination level 100 |
| HC121@TS8C-Z | Road | Gain 10, shutter 1/250s, far-illumination off, near-illumination level 10 |
| HC121@TS8CR-Z | Park | Gain 10, shutter 1/500s, far-illumination off, near-illumination level 1 |
| HC121@TS8CR-Z | Road | Gain 15, shutter 1/250s, far-illumination off, near-illumination level 1 |

#### Scenes

This page is used to configure strong front light and back light scenes.




| No. | Parameter | Description |
|---|---|---|
| 1 | Scene Name | The values include **Custom**, **Common**, **Test**, and **Indoor**. The default value is **Common**. Values **Test** and **Indoor** can be ignored. In strong front light and back light scenes, you can set the value to **Custom**, and adjust the exposure compensation value. |
| 2 | Auto Switching | After configuring the schedule and illumination range for scenes and adding the scenes to the auto-switching list, select **Enable Auto Switching** to enable automatic switching between the scenes. |

| | | |
|---|---|---|
| 3 | Default | You can click **Default** to restore configuration on this page to factory settings. |

**NOTE!**

1. If both **Schedule** and **Illumination** are configured for a scene, the scene takes effect only when both items meet requirements. If only one of the two items is configured, the scene takes effect when this configured item meets requirements.

2. Each scene supports multiple groups of schedule and illumination settings. The scene takes effect when one group meets requirements.

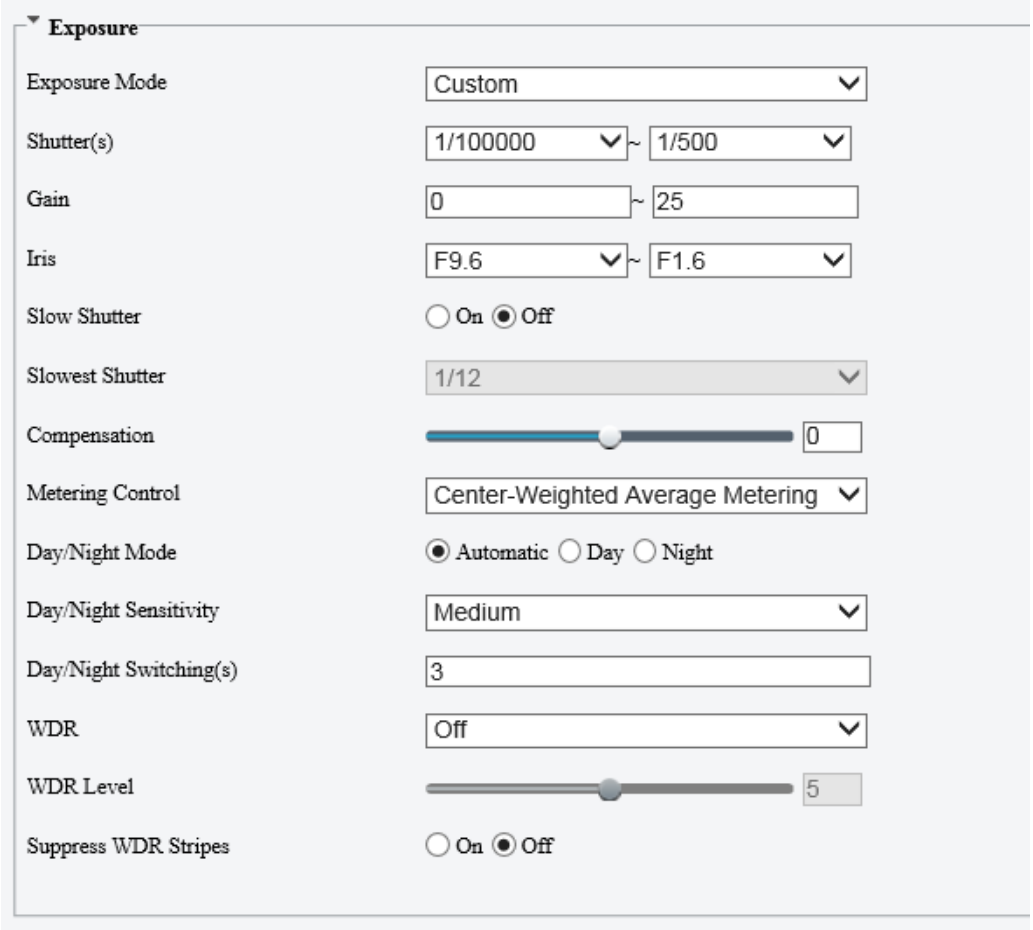
3. If you select **Enable Auto Switching**, scene settings become unavailable.

4. You are advised to use the central weight. If vehicle images do not meet expected effects under front light and back light, you can configure scenes based on the on-site conditions.

## Image Enhancement


| No. | Parameter | Description |
|---|---|---|
| 1 | Image Enhancement | You can use the default values for the parameters. (**2D Noise Reduction** indicates noise reduction within a frame. A larger value indicates stronger noise reduction and more blur images. **3D Noise Reduction** indicates that non-repeated information is filtered out through adjacent frame image comparison to display pure and refined images. However, motion blur or ghosting may occur.) |

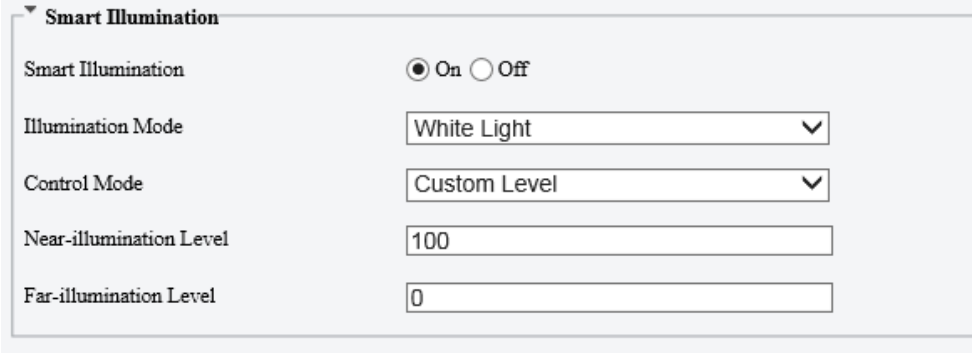
## Exposure




| No. | Parameter | Description |
|---|---|---|
| 1 | Exposure Mode | The default value is **Custom**. Available values include **Automatic**, **Custom**, **Iris Priority**, **Indoor 50Hz**, **Indoor 60Hz**, **Manual**, and **Low Motion Blur**. You can keep the default setting. |
| 2 | Shutter(s) | When **Exposure Mode** is set to **Custom**, the default range is **1/10000** to **1/250**. A too great value causes ghosting while a too small value produces dark images. |
| 3 | Gain | When **Exposure Mode** is set to **Custom**, the default range is **0** to **25**. You can adjust the value properly under night conditions. A greater gain increases the brightness but introduces noises, while a smaller gain decreases the image brightness. |
| 4 | Iris | The default value is **F9.6~F1.6**. Available values include **F1.6，F2.0，F2.4，F2.8，F3.4，F4.0，F4.8，F5.6，F6.8，F8.0** and **F9.6**. You can keep the default setting. |
| 5 | Slow Shutter/Slowest Shutter | You can enable **Slow Shutter** and adjust the value of **Slowest Shutter**. However, a slow shutter increases the image brightness while reducing the frame rate, and can cause motion blur or ghosting. You are advised to use the default setting. |
| 6 | Compensation | The default value is **0**, and you can retain the default value. If the application environment of the camera has serious front or back light, adjust the compensation value to improve the image effect. In a back light environment, increase the compensation value. In a front light environment, reduce the compensation value. |

| | | |
|---|---|---|
| 7 | Metering Control | The default value is **Center-Weighted Average Metering**, and you can retain the default value. If the brightness difference in different areas of an image is large, set the value to **Evaluative Metering (BLC)**. **Evaluative Metering (BLC)** is implemented by adjusting the brightness weight in different areas. **Center-Weighted Average Metering** focuses on the center of an image, and the weight of the surroundings is smaller. |
| 8 | Day/Night Mode | The value is **Automatic** by default, and can be changed to **Day** or **Night**. **Automatic** indicates that the camera switches between the day and night modes based on the preset threshold. **Day** indicates that the camera always uses the day mode. **Night** indicates that the camera always uses the night mode. The day/night switch function mainly affects the LED light supplement lamp and parameters like **White Balance**. |
| 9 | Day/Night Sensitivity | The default value is **Medium**, and other options include **Ultra-low**, **Low**, and **High**. A higher sensitivity indicates easier switchover between the day and night modes. |
| 10 | Day/Night Switching(s) | The default value is **3**, indicating that the camera switches between the day and night modes after the switching conditions are met for 3s. |
| 11 | WDR | The default value is **Off**, which takes effect on the whole day. |
| 12 | WDR Level | You are advised to keep the default value of **5**. A much high WDR level may result in blurred image or noise. A much low WDR level may result in insufficient brightness of the image. |
| 13 | Suppress WDR Stripes | This function is turned off by default. |

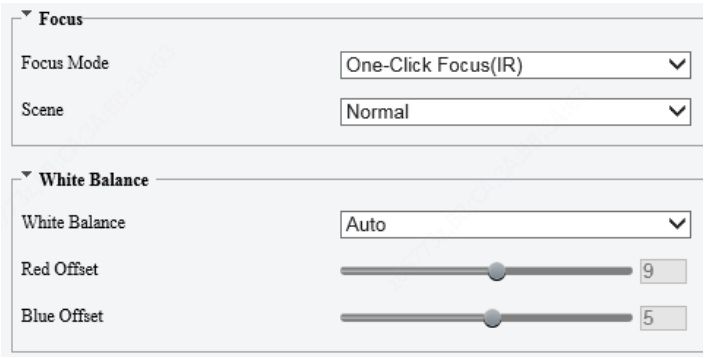
## Smart Illumination




| No. | Parameter | Description |
|---|---|---|
| 1 | Smart Illumination | The default value is **On**. You can disable the function if required. |
| 2 | Illumination Mode | GV-B2MP-IP-4.7-47-IR50LPR： The default and only value is **White Light** |

| | | |
|---|---|---|
| 3 | Control Mode | The values include:<br>**Global Mode**: This default value indicates that the camera turns on the light supplement lamp in the daytime and turns off the lamp at night.<br>**Overexposure Restrain**: Exposure is enhanced.<br>**Custom Level**: In this mode, the light supplement lamp is turned on throughout the day.<br>This parameter is valid only when **Smart Illumination** is set to **On**. |
| 4 | Near-illumination Level/Far-illumination Level | The values can be configured when **Control Mode** is set to **Custom Level**.<br>**Near-illumination Level** ranges from **0** to **1000**. |

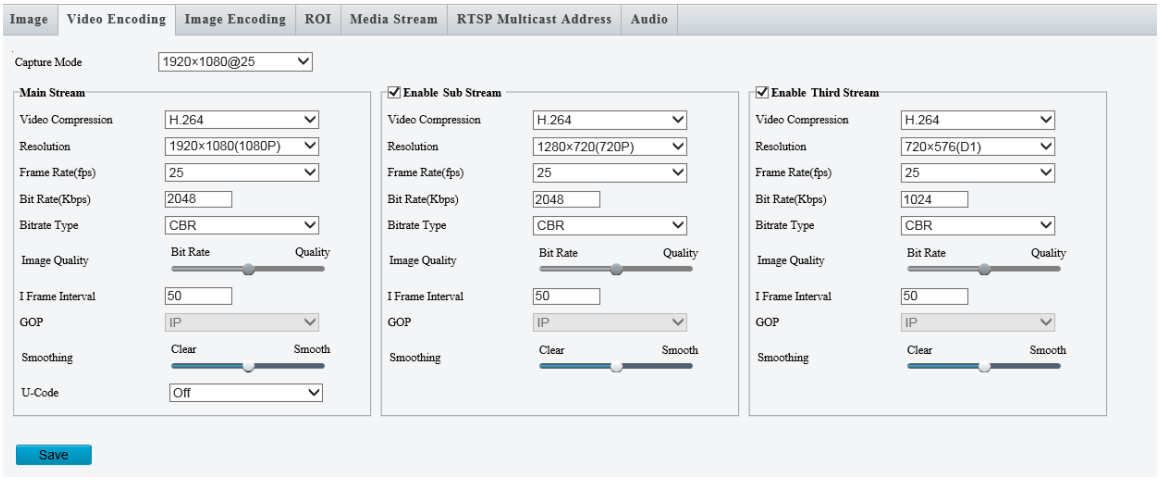
## Focus & White Balance




| No. | Parameter | Description |
|---|---|---|
| 1 | Focus Mode | GV-B2MP-IP-4.7-47-IR50LPR-Z： The default value is **One-Click Focus (IR)**.<br>GV-B2MP-IP-4.7-47-IR50LPR： The default value is **One-Click Focus.**<br>The values include:<br>**One-Click Focus**: In this mode, the camera determines whether the scene changes, and automatically triggers focusing if the scene changes, which easily causes false triggering.<br>**Manual Focus**: In this mode, focusing is triggered only when you click **Focus+** or **Focus-** on the live view, and is not triggered by scene change.<br>**One-Click Focus (Locked)**: In this mode, the determined focal length is locked, and only manual adjustment will trigger focusing.<br>**Auto Focus**: In this mode, the camera Auto Focus. |
| 2 | Scene | The default value is **Normal**. |
| 3 | White Balance | The default value is **Auto**. Available values include **Auto**, **Outdoor**, **Fine Tune**, **Sodium Lamp**, **Locked**, and **Auto2**. You can use the default setting. |
| 4 | Red Offset | A smaller value turns the live view screen to bluish green, while a greater value turns the live view screen to reddish. The value can be configured only when **White Balance** is set to **Fine Tune**. |

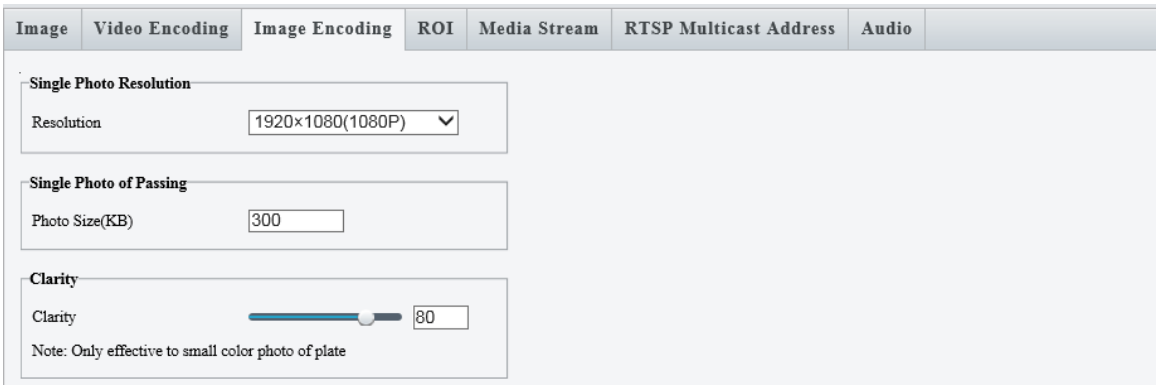
| | | |
|---|---|---|
| 5 | Blue Offset | A smaller value turns the live view screen to yellowish, while a greater value turns the live view screen to bluish. The value can be configured only when **White Balance** is set to **Fine Tune**. |

## 2. Video Encoding




| No. | Parameter | Description |
|---|---|---|
| 1 | Capture Mode | This parameter controls the resolution and frame rate of collected images. The default value is **1920x1080P@25**, and other values include **1920x1080P@30**, **1920x1080P@50**, and **1920x1080P@60**. |
| 2 | Main Stream/Sub Stream/Third Stream | By default, only the main stream is enabled, and you can view the main stream on the **Live View** page. After you enable the sub stream and third stream, you can switch among the main, sub, and third streams on the **Live View** page. |
| 3 | Video Compression | The values include **H.264** and **H.265**. |
| 4 | Resolution | These three parameters control the stream display effect on the **Live View** page.<br>Note:<br>1. When the network bandwidth is sufficient, you can increase the values of **Bit Rate** and **I Frame Interval** and set **Smoothing** to **Clear** to improve the live view effect.<br>2. The default bit rate is 2048Kbps. If the network condition is poor, you can set **Smoothing** to **Smooth** or reduce the bit rate to ensure smooth streams. |
| 5 | Frame Rate(fps) | |
| 6 | Bit Rate(Kbps) | |
| 7 | Image Quality | You can select **Bit Rate** or **Quality** based on actual requirements. |
| 8 | I Frame Interval | The value is an integer from 5 to 250. |
| 9 | GOP | The value is **IP** by default and cannot be changed. |
| 10 | U-Code | The default value is **Off**. This parameter indicates a video encoding mode that reduces the bit rate while maintaining high image quality. It can be set to **Basic Mode** or **Advanced Mode**. |

## 3. Image Encoding

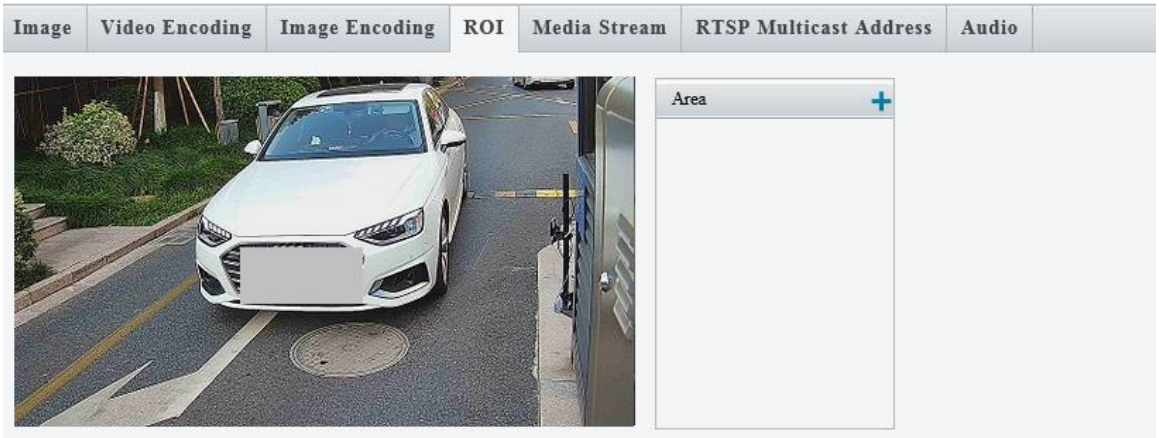



| No. | Parameter | Description |
|---|---|---|
| 1 | Resolution | This parameter sets the resolution of a single snapshot image. The default value is **1920×1080(1080P)**, and other values include **1280×720(720P)** and **720×576(D1)**. |
| 2 | Photo Size(KB) | This parameter sets the size of a single snapshot image. The default value is **300**. |
| 3 | Clarity | This parameter sets the image clarity. A greater value indicates clearer image. The default value is **80**. |

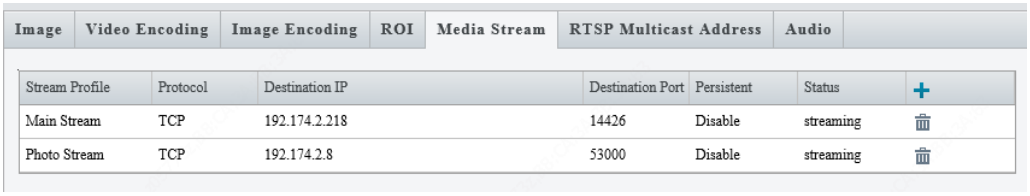
## 4. ROI

By default, Region of Interest (ROI) is disabled. If the live view is unclear due to poor network conditions, you can enable ROI to improve the resolution in a specific area.

Note: If you draw a too large area for ROI, the camera performance is affected. In most cases, you are not advised to enable ROI.




## 5. Media Stream

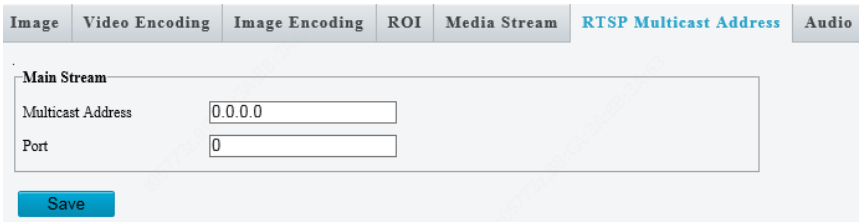


1) When the multicast function is enabled, you can add media streams on the page. A maximum of eight media streams can be added. When the camera interworks with the platform or NVR, two media streams need to be reserved.

2) The maximum bandwidth is 32Mbit/s. If the bandwidth exceeds the maximum value, a video stream channel cannot be established.

3) When adding a media stream, select **Enable** or **Disable** for **Persistent**. If you select **Enable**, the media stream is automatically created after the camera restarts. If you select **Disable**, the media stream is not automatically created after the camera restarts.

### 6. RTSP Multicast Address



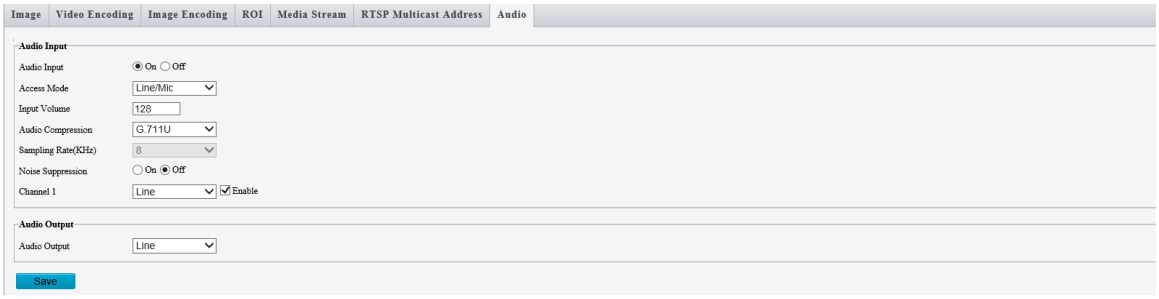

1) You can directly configure multicast on the front end and obtain media streams using RTSP.

2) For the main stream, the multicast IP address ranges from 224.0.1.0 to 239.255.255.255 and the port number ranges from 0 to 65535.

3) After correctly configuring multicast on the front end, you can use a third-party player VLC to play the live view.

4) In the **Media Stream** area, the multicast address and port number are the same as those configured before.

### 7. Audio

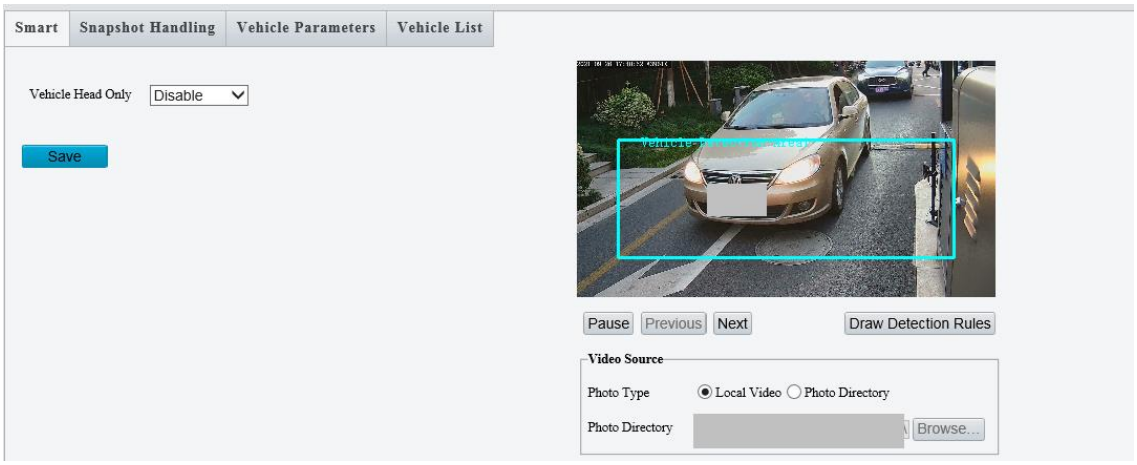


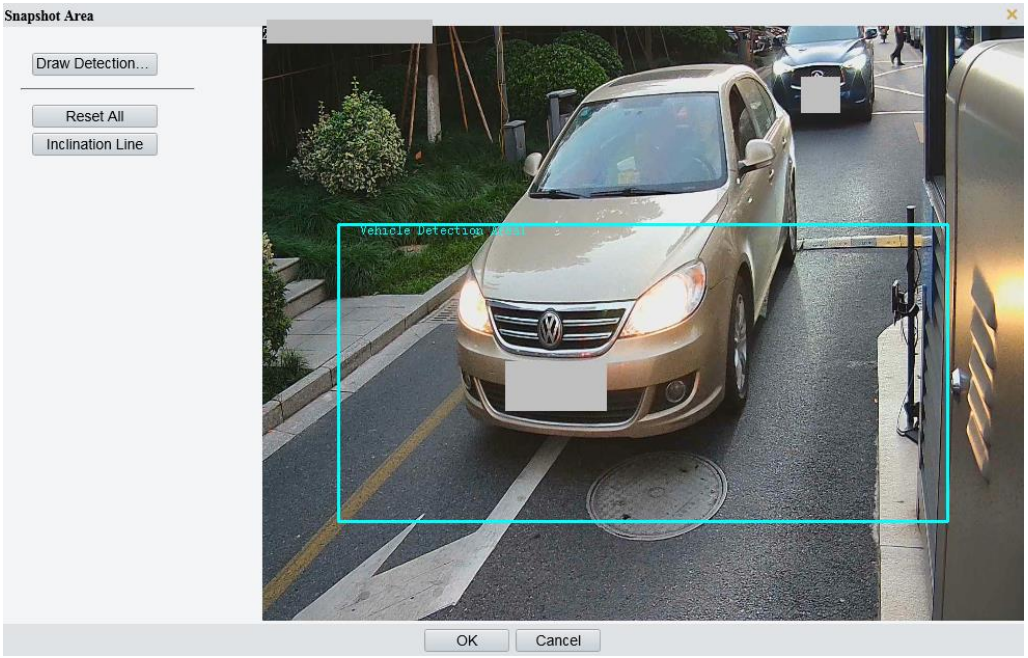

| No. | Parameter | Description |
|---|---|---|
| 1 | Audio Input | The value is **On** by default, and you can set it to **Off** to receive voice. |
| 2 | Access Mode | Only **Line/Mic** is allowed. |
| 3 | Input Gain | The value ranges from 0 to 255, and the default value is **128**. |
| 4 | Audio Compression | The value is **G.711U** by default, and can be changed to **G.711A**. |
| 5 | Sampling Rate(KHz) | The value is **8** and cannot be changed. |
| 6 | Noise Suppression | The value is **Off** by default and can be set to **On.** |

| | | |
|---|---|---|
| 7 | Channel 1 | The default and only value is **Line**.<br>You can select the **Enable** check box to enable the channel or clear the check box to disable the channel. |
| 8 | Audio Output | The default and only value is **Line**. |

### 4.4.5 Smart

#### 1. Smart

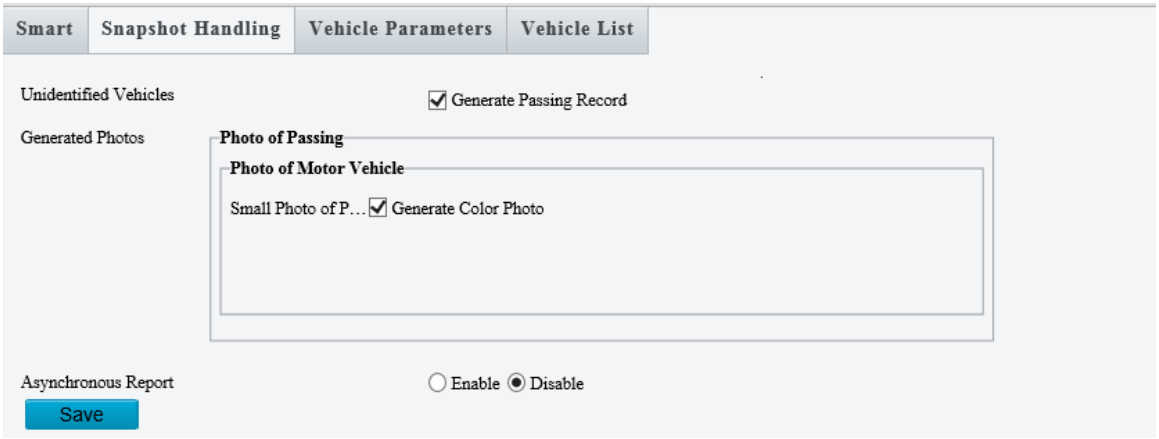



| No. | Parameter | Description |
|---|---|---|
| 1 | Vehicle Head Only | The default value is **Disable**, indicating that the camera captures both coming and going vehicles. You can change the value to **Enable**, which indicates that the camera captures only coming vehicles (from the top down). |
| 2 | Draw Detection Rules | When you click this button, the **Snapshot Area** interface is displayed. |

| | | |
|---|---|---|
| 3 | Photo Type | **Local Video** is selected by default.<br>The other available value is **Photo Directory**. |
| 4 | Photo Directory | The value indicates the image storage path. You can configure it only when **Photo Type** is set to **Photo Directory**. |
| 5 | Draw Detection Area | 1. It is recommended that the rectangular detection area be located in the lower part of the image, and the upper edge of the detection area align with the snapshot point.<br>2. It is recommended that the left and right edges of the detection area overlap the actual lane lines.<br>3. The height of the detection area is recommended to be between 1/4 and 1/3 of the image height.<br>Note:<br>1. If the video triggering scene is not upright (the camera is installed at a side), the detection area can be moved upwards so that the optimal position for license plate recognition is in the middle and lower part of the detection area.<br>2. During debugging, ensure that the license plate is horizontal. If the camera adopts algorithm A, the vehicle body needs to be upright (the lower edge of the windshield needs to be horizontal) for license plate recognition, and the license plate can slant a bit. If the tilt angle of the license plate exceeds 30°, make adjustment with the consideration of both the vehicle body and license plate. |
| 6 | Reset All | You can click this button to restore the vehicle detection area and license plate frame to the default settings. |
| 7 | Inclination Line | You can click this button to measure the tilt angle in campuses. When the tilt angle is large, recognition may be incorrect. In this case, you need to adjust the camera angle or installation position. Typically, the license plate should be horizontal.<br>1. The license plate tilt angle due to tilt driving of the vehicle must be less than 30°.<br>2. The license plate tilt angle due to tilt of the camera must be less than 15°. |

## 2. Snapshot Handling



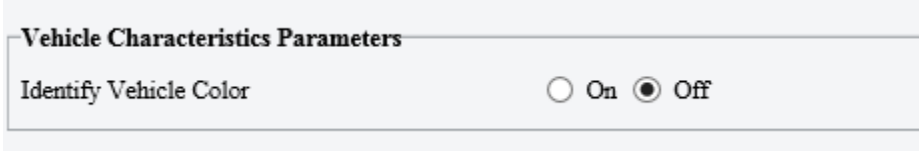
| No. | Parameter | Description |
|---|---|---|
| 1 | Generate Passing Record | **Generate Passing Record** is selected by default.<br>That is, passing records are generated for unidentified vehicles.<br>If you clear the check box, passing records are not generated for unidentified vehicles. |
| 2 | Small Photo of Plate | **Generate Color Photo** is selected by default.<br>That is, small color photos will be generated for identified vehicle license plates in the **photo** directory of the memory card.<br>If you select **Generate Binary Photo**, binary photos will be generated for identified vehicle license plates in the **photo** directory of the memory card.<br>(Note: Binary license plate photos need to be viewed by using an image viewer.) |
| 3 | Asynchronous Report | This parameter is invalid and can be ignored. |

## 3. Vehicle Parameters

### License Plate


| No. | Parameter | Description |
|---|---|---|
| 1 | Country | The default and only value is **Common**.<br>You can select the **Australia** |

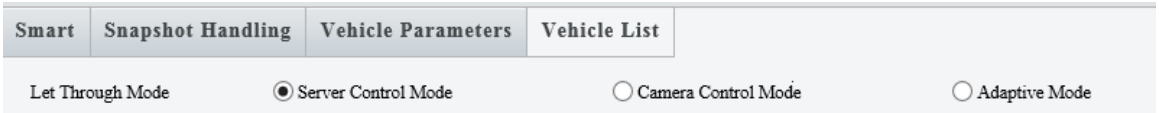
### Vehicle Characteristics Parameters




| No. | Parameter | Description |
|---|---|---|
| 1 | Identify Vehicle Color | Off by default.<br>When enabled, the camera can identify vehicle colors. |

## 4. Vehicle List

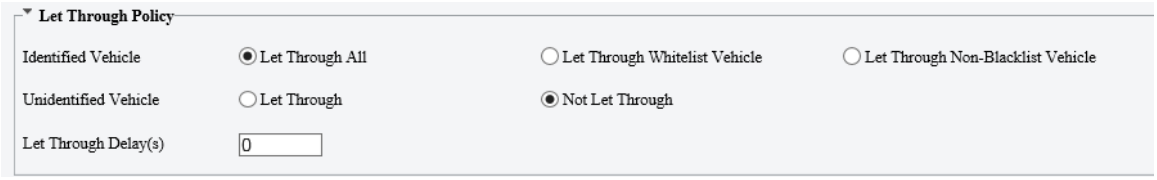
### Let Through Mode



| No. | Parameter | Description |
|---|---|---|
| 1 | Control Mode | **Server Control Mode**: The blacklist and whitelist and other let-through policies configured on the camera do not take effect. Letting through of vehicles is controlled by the server.<br>**Adaptive Mode**: Letting through of vehicles is controlled by the server when the server is online and is controlled by the camera when the server is offline.<br>**Camera Control Mode**: Letting through of vehicles is controlled by the camera. If the camera registers with a server and the server is online, the server can also control letting through of vehicles.<br>Note:<br>1. When **Control Mode** is set to **Server Control Mode** and the server is offline, the let-through policies of the camera do not take effect.<br>2. When **Control Mode** is set to **Camera Control Mode** or **Offline Control Mode** and the server is offline, the let-through policies for identified and unidentified vehicles take effect.<br>3. The whitelist and blacklist need to be imported, and **Entrance & Exit Whitelist** and **Entrance & Exit Blacklist** need to be selected before the lists can take effect.<br>4. An imported list will overwrite the previously imported list. |

## Let Through Policy

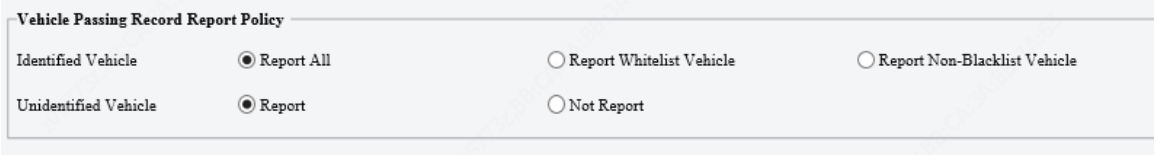
By default, **Control Mode** is set to **Server Control Mode**, **Identified Vehicle** to **Let Through All**, and **Unidentified Vehicle** to **Not Let Through**.




| No. | Parameter | Description |
|---|---|---|
| 1 | Identified Vehicle | **Let Through All**: All vehicles whose license plates are identified are allowed to pass through. The configuration of whitelists and blacklists is not involved.<br>**Let Through Whitelist Vehicle**: Only whitelisted vehicles whose license plates are identified are allowed to pass through.<br>**Let Through Non-Blacklist Vehicle**: Among vehicles whose license plates are identified, only vehicles not in the blacklist are allowed to pass through. |
| 2 | Unidentified Vehicle | **Let Through**: Vehicles without license plates are allowed to pass through.<br>**Not Let Through**: Vehicles without license plates are not allowed to pass through. |
| 3 | Let Through Delay(s) | The value is **0** by default and ranges from 0 to 600. When the camera captures a vehicle, the camera determines whether to open the barrier gate according to the let-through policies after this configured duration. Currently, this function |

| | | |
|---|---|---|
| | | takes effect only when **Control Mode** is set to **Camera Control Mode** and **Auto Snapshot** is enabled. |

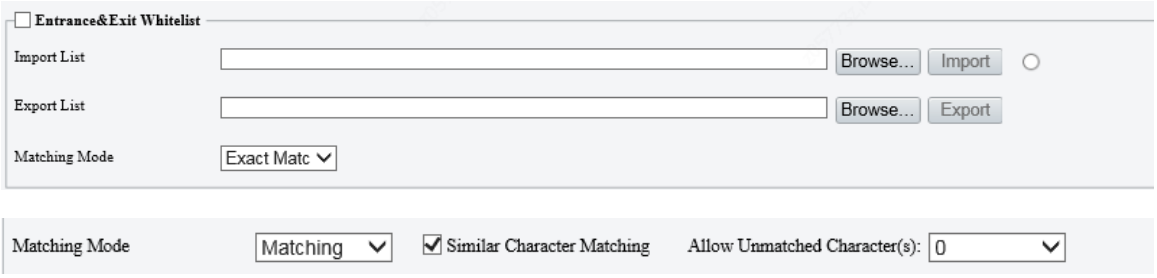
## Vehicle Passing Record Report Policy



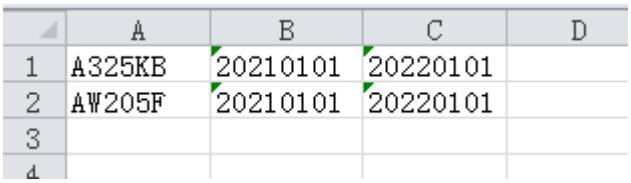

| No. | Parameter | Description |
|---|---|---|
| 1 | Identified Vehicle | **Report All**: The camera captures all vehicles whose license plates are identified and reports the records to the server. The configuration of whitelists and blacklists is not involved.<br>**Report Whitelist Vehicle**: The camera captures only whitelisted vehicles whose license plates are identified and reports the records to the server. **Entrance & Exit Whitelist** must be selected.<br>**Report Non-Blacklist Vehicle**: The camera captures only vehicles whose license plates are identified and that are not in the blacklist, and reports the records to the server. **Entrance & Exit Blacklist** must be selected. |
| 2 | Unidentified Vehicle | **Report**: The camera captures vehicles without license plates and reports the records to the server.<br>**Not Report**: The camera does not capture or report vehicles without license plates. |

- **Vehicle Passing Record Report Policy** takes effect when **Control Mode** is set to **Server Control Mode** or **Camera Control Mode**, and the whitelist or blacklist on the camera is used when required.

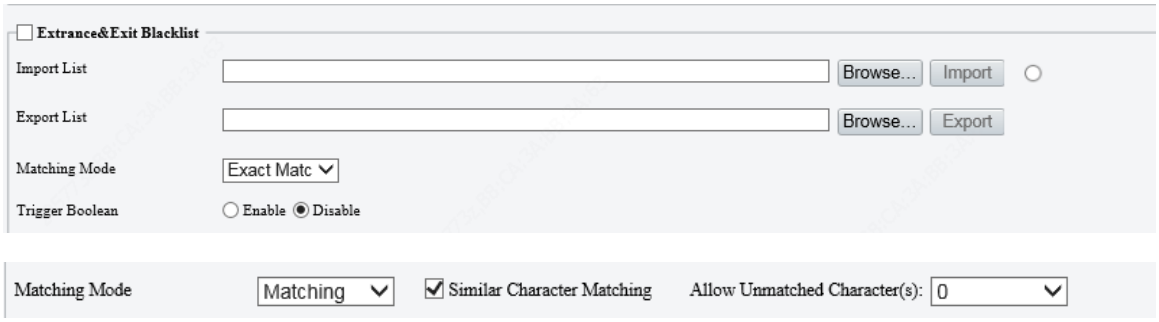
## Whitelist



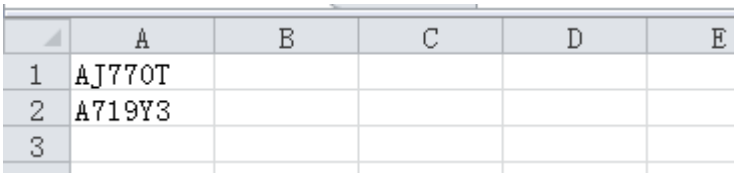

| No. | Parameter | Description |
|---|---|---|
| 1 | Entrance & Exit Whitelist | By default, it is not selected. The whitelist takes effect only if **Entrance & Exit Whitelist** is selected. |
| 2 | Import List | Click **Browse...**, select a whitelist file, and click **Import** to import the whitelist file. |

| | | |
|---|---|---|
| 3 | Export List | Click **Browse...** and select a path for saving the exported list. Click **Export** to export the whitelist in the camera. If the camera does not have a whitelist, the whitelist file template is exported.<br>  <br> |
| 4 | Matching Mode | The default value is **Exact Matching**. You can select **Exact Matching** or **Matching** based on actual requirements.<br>**Exact Matching**: A vehicle is allowed to pass through only if the letters and digits contained in the license plate are correct.<br>**Matching**: Chinese characters can be ignored, and the number of allowable unmatched characters can be set based on actual requirements.<br>**Allow Unmatched Character(s)**: indicates the number of unmatched characters (Chinese characters excluded) allowed in a license plate. If the value is within the threshold, a vehicle is allowed to pass through even though the license plate is not identified. The values include **0**, **1**, and **2**.<br>Note: If **Allow Unmatched Character(s)** is set to **1** or **2**, vehicles with different license plates may be identified as the same vehicle in a short period of time. Therefore, you are advised to set **Allow Unmatched Character(s)** to **0**. |

## Blacklist




| No. | Parameter | Description |
|---|---|---|
| 1 | Entrance & Exit Blacklist | By default, it is not selected. The blacklist takes effect only if **Entrance & Exit Blacklist** is selected. |
| 2 | Import List | Click **Browse...**, select a blacklist file, and click **Import** to import the blacklist file. |

| | | |
|---|---|---|
| 3 | Export List | Click **Browse...** and select a path for saving the exported list. Click **Export** to export the blacklist in the camera. If the camera does not have a blacklist, the blacklist file template is exported.<br>  <br> |
| 4 | Matching Mode | The default value is **Exact Matching**. You can select **Exact Matching** or **Matching** based on actual requirements.<br>**Exact Matching**: A vehicle is allowed to pass through only if the letters and digits contained in the license plate are correct.<br>**Matching**: Chinese characters can be ignored, and the number of allowable unmatched characters can be set based on actual requirements.<br>**Allow Unmatched Character(s)**: indicates the number of unmatched characters (Chinese characters excluded) allowed in a license plate. If the value is within the threshold, a vehicle is not allowed to pass through even though the license plate is not identified. The values include **0**, **1**, and **2**.<br>Note: If **Allow Unmatched Character(s)** is set to **1** or **2**, vehicles with different license plates may be identified as the same vehicle in a short period of time. Therefore, you are advised to set **Allow Unmatched Character(s)** to **0**. |
| 5 | Trigger Boolean | **Disable** is selected by default. This parameter can be ignored. |

List import status

Different colors, such as white, blue, red, and green are used to indicate the list import statuses. The initial color is white.

White : The camera does not have a list.

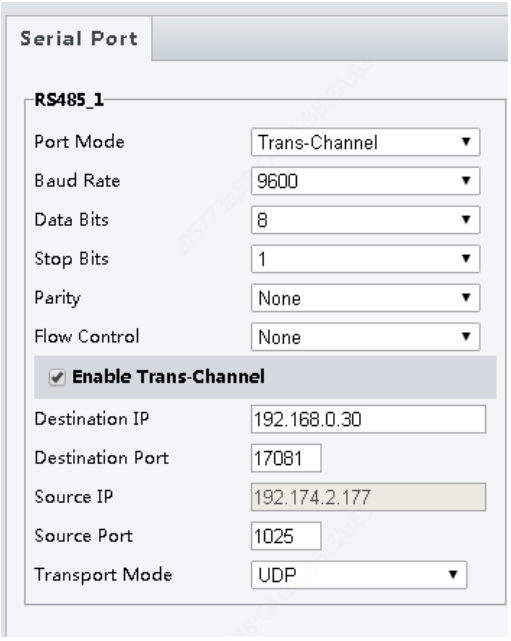
Blue : The list is being imported.

Red : The list fails to be imported.

Green : The list is imported.

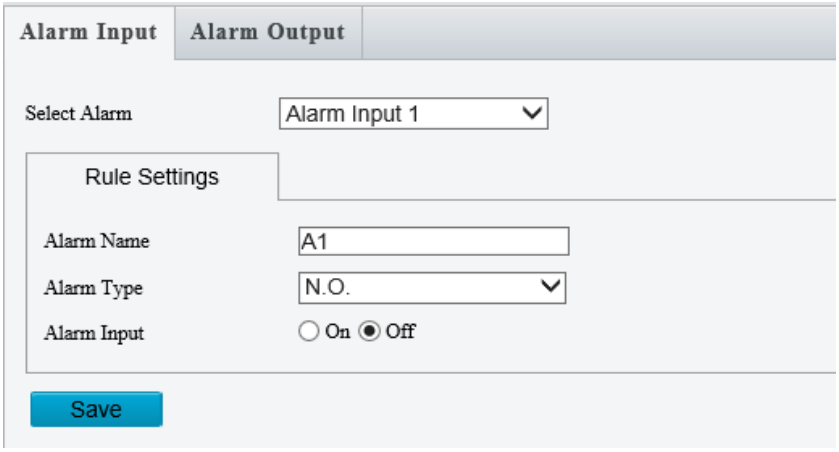
### 4.4.6 External Device

LED screen is not supported, and configuration is not required.




### 4.4.7 Events

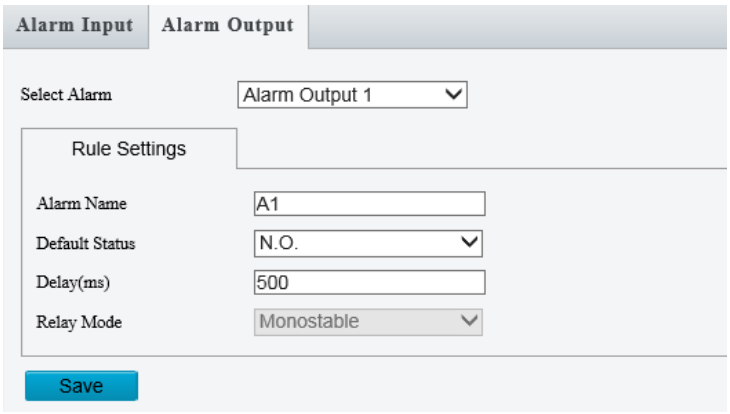
#### 1. Alarm Input




| No. | Parameter | Description |
|---|---|---|
| 1 | Select Alarm | The default value is **Alarm Input 1**. When **Alarm Input 1** is selected, the rule is configured for alarm input 1. When **Alarm Input 2** is selected, the rule is configured for alarm input 2.<br>Then, select the rule based on the customer requirements. When **Alarm Input 1** is selected, alarms are processed according to the rule of alarm input 1. When **Alarm Input 2** is selected, alarms are processed according to the rule of alarm input 2. |
| 2 | Alarm Name | This parameter can be customized and must be specified. The value is a string of up to 20 characters. The default value is **A1**. |
| 3 | Alarm Type | The value is **N.O.** by default and can be set to **N.C.** The value must be the same as that of the alarm input peripheral. |

| No. | Parameter | Description |
|---|---|---|
| 4 | Alarm Input | By default, **Off** is selected. You can select **On** to enable alarm input. |

### 2. Alarm Output

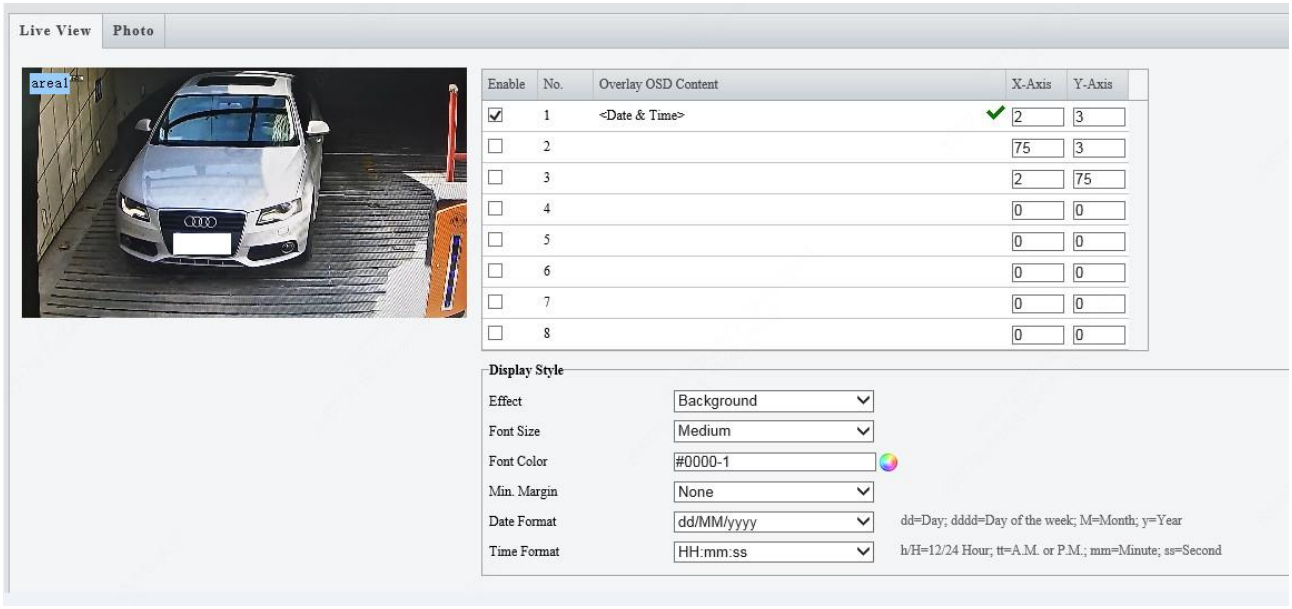



| No. | Parameter | Description |
|---|---|---|
| 1 | Select Alarm | The function is used with the SDK platform or whitelist. When a vehicle matches the whitelist, the camera sends the Boolean signal to open the barrier gate. The default value is **Alarm Input 1**. |
| 2 | Alarm Name | This parameter can be customized and must be specified. The value is a string of up to 20 characters. The default value is **A1**. |
| 3 | Alarm Type | The value is **N.O.** by default and can be set to **N.C.** The value must be the same as that of the alarm input peripheral. |
| 4 | Delay(ms) | This parameter sets the delay of the camera for sending the Boolean signal. The default value is **500**.<br>The value is an integer from 100 to 10000. |
| 5 | Relay Mode | The value is **Monostable**. This parameter applies to special scenarios and can be ignored. |

## 4.4.8 OSD

### 1. Live View

You can set On Screen Display (OSD) of live views. A maximum of eight areas can be added.

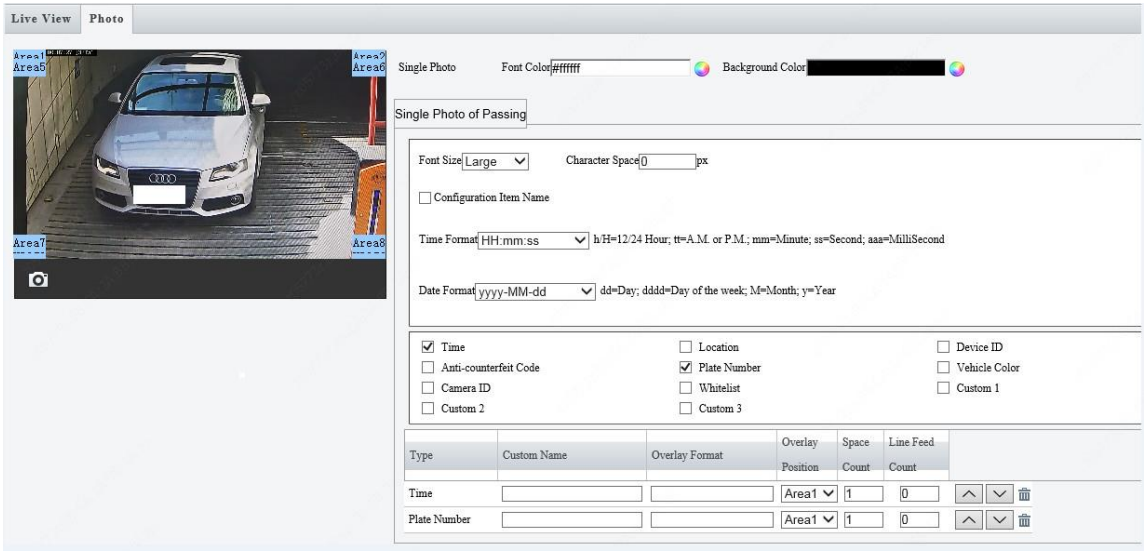



| No. | Parameter | Description |
|---|---|---|
| 1 | Overlay OSD Content | The values include **Custom**, **Date & Time**, **Time**, **Zoom** and **Date**. The default value is **Date & Time**. |
| 2 | X-Axis/Y-Axis | You can set the values to adjust the position of the overlay area. Alternatively, you can drag the overlay area in the live view. |
| 3 | Effect | The default value is **Background**. Available values include **Background**, **Stroke**, **Hollow**, **Normal**, and **Inverse**. |
| 4 | Font Size | The default value is **Medium**. Available values include **X-large**, **Large**, **Medium**, and **Small**. |
| 5 | Font Color | The default value is **#0000-1**. You can click to select a color. Then, the **Font Color** text box displays the hexadecimal code of the selected color, and the OSD overlay font color turns to the selected color. |
| 6 | Min. Margin | The default value is **None**. Other values include **Single** and **Double**. |
| 7 | Date Format | The default value is **dd/MM/yyyy**. Other values include:<br>**MM/dd/yyyy**<br>**dd MM,yyyy**<br>**MM dd,yyyy**<br>**dddd,dd MM,yyyy**<br>**dddd,MM dd,yyyy**<br>**yyyy/MM/dd**<br>**yyyy,MM dd**<br>**dddd,yyyy,MM dd**<br>Note: **dd** indicates the date, **dddd** indicates the day in the week, **MM** indicates the month, and **yyyy** indicates the year. |

| | | |
|---|---|---|
| 8 | Time Format | The value is **HH:mm:ss** by default, and can be changed to **hh:mm:ss tt**.<br>Note: **hh** indicates the hour in 12-hour system, **HH** indicates the hour in 24-hour system, **tt** indicates A.M. or P.M., **mm** indicates minute, and **ss** indicates second. |

## 2. Photo

**Font Color**, **Background Color**, **Font Size**, **Character Space**, **Time Format**, and **Date Format** can be configured based on actual requirements.




| No. | Parameter | Description |
|---|---|---|
| 1 | Font Color | The default value is **#ffffff**, indicating white. You can click to select a color. Then, the **Font Color** text box displays the hexadecimal code of the selected color, and the OSD overlay font color turns to the selected color. |
| 2 | Background Color | The default value is **#000000**, indicating black. You can click to select a color. Then, the **Background Color** text box displays the hexadecimal code of the selected color, and the background of the OSD overlay content turns to the selected color. |
| 3 | Configuration Item Name | By default, it is not selected. If it is selected, the configuration item name is displayed on the image.<br>You can set OSD on passing record photos based on actual requirements. After you select the OSD items, you can configure **Custom Name**, **Overlay Format**, **Overlay Position**, **Space Count**, and **Line Feed Count**. |
| 4 | Font Size | The default value is **Medium**. Available values include **X-large**, **Large**, **Medium**, and **Small**. |
| 5 | Character Space | The value is an integer from 0 to 10, indicating the number of pixels of the space between characters. |

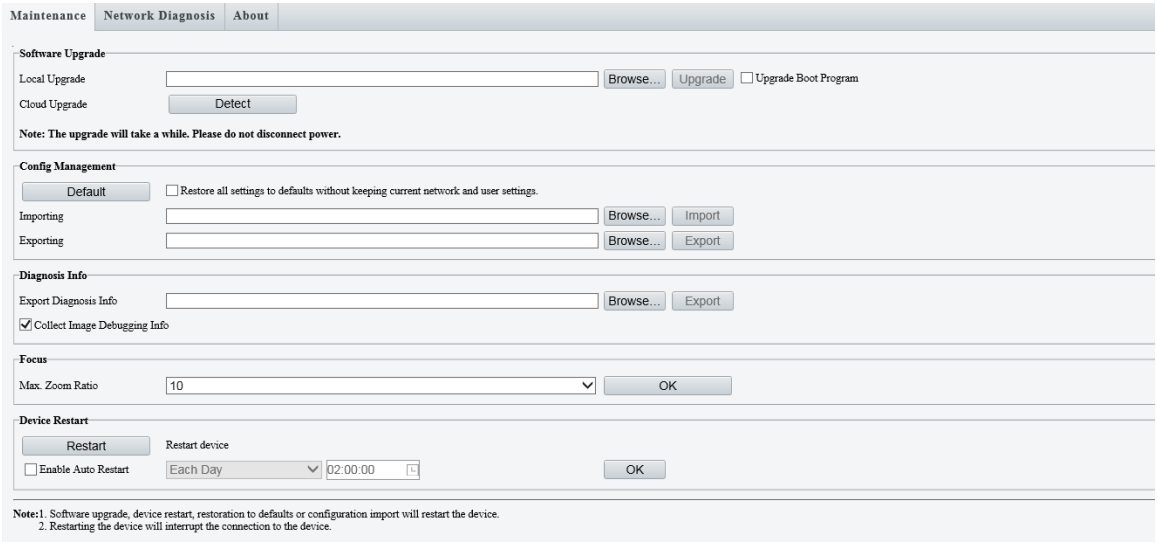
| | | |
|---|---|---|
| 6 | Date Format | The default value is **yyyy-MM-dd**. Other values include:<br>**MM/dd/yyyy**<br>**dd MM,yyyy**<br>**MM dd,yyyy**<br>**yyyy/MM/dd**<br>**MM dd yyyy dddd**<br>Note: **dd** indicates the date, **dddd** indicates the day in the week, **MM** indicates the month, and **yyyy** indicates the year. |
| 7 | Time Format | The default value is **HH:mm:ss**. Other values include: **hh:mm:ss tt**, **HH:mm:ss.aaa**, and **hh:mm:ss.aaa tt**.<br>Note: **hh** indicates the hour in 12-hour system, **HH** indicates the hour in 24-hour system, **tt** indicates A.M. or P.M., **mm** indicates minute, **ss** indicates second, and **aaa** indicates millisecond. |
| 8 | Overlay Area1 | You can set the values to adjust the position of the overlay area. Alternatively, you can drag the overlay area in the live view.<br>The value is an integer from 0 to 99. |
| 9 | Overlay Format | The overlay content instead of the configuration item name is configured. The overlay format is <total length of (padding characters)>. The length is 1 to 20 characters. If the overlay padding character string is null, 0 is added. If the length of overlay information is longer than the allowed total character length, overlay information is properly displayed, and information that exceeds the allowed total character length will not be cut. |
| 10 | Type | Available values include **Time**, **Location**, **Device ID**, **Anti-counterfeit Code**, **Plate Number**, **Vehicle Color**, **Camera ID**, **Whitelist**, **Custom 1**, **Custom 2**, and **Custom 3**. |
| 11 | Custom Name | You can customize configuration item names. If **Configuration Item Name** is selected, configuration item names and values are displayed on the screen. If the names are customized, customized names are displayed. |
| 12 | Overlay Format | Valid format: <total length of (padding characters)> |
| 13 | Overlay Position | A maximum of eight areas, areas 1–8, can be added. |
| 14 | Line Feed Count | The values **0**, **1**, **2**, and **3** indicate no line feed, line feed, one blank line, and two blank lines, respectively. The line feed effect varies depending on the font size. If a small font is used, a maximum of two blank lines are allowed. If a large font is used, line feed is not allowed. |
| 15 | Space Count | The value is an integer from 0 to 10. |
| 16 | Order adjustment buttons | : Click this button to adjust the order forward.<br>: Click this button to adjust the order backward.<br>The OSD overlay sequence can be adjusted by clicking the up and down arrows based on sense habits of people and standard requirements of the project. |

| | | |
|---|---|---|
| 17 | Deleting | : Click this button to delete the overlay content. |

# 4.5 Maintenance

## 4.5.1 Maintenance

### 1. Maintenance




#### Software Upgrade- Local Upgrade

In this pane, you can upgrade or roll back the camera firmware version. The operation steps are as follows:

**Step 1** Store the upgrade package to a local path, such as D:\update.

**Step 2** Click **Browse...** and select the upgrade package so that the text box shows the path, such as D:\update*Upgrade package name*.

**Step 3** Click **Upgrade**. Then, a progress bar is displayed during the upgrade.

**Step 4** After the upgrade, log in to the camera again.

#### Software Upgrade- Cloud Upgrade

This function is currently not available.

#### Config Management

On this page, you can maintain the camera, such as restoring the default configuration, restarting the camera, and importing and exporting the camera configuration. The operation steps are as follows:

**Step 1** Click **Default** to restore the default configuration. After the restoration, the camera restarts, and configurations except network settings and user configuration are restored to the default values. If you select **Restore all settings to defaults without keeping current network and user settings**, the IP address and user configuration are all restored to the initial state.

**Step 2** Store a configuration file of the camera model to a local path, click **Browse...**, select the file, and click **Import** to import the configuration. After successful import, the camera restarts, and the camera configuration is updated.

**Step 3** Click **Browse...**, select a local path, and click **Export** to export the camera configuration, which can be imported to other cameras of the same model.

### Diagnosis Info

You can export camera diagnosis information to a specific directory or directly open the camera diagnosis information file to locate problems. The operations are as follows:

**Step 1** Click **Browse...**, select a local path, and click **Export** to export the camera diagnosis information for problem locating.

### Focus

**Step 1** You can set **Max. Zoom Ratio** based on actual requirements. **Max. Zoom Ratio** can be set to **10, 20, 40**, **80** or **160.**

### Device Restart

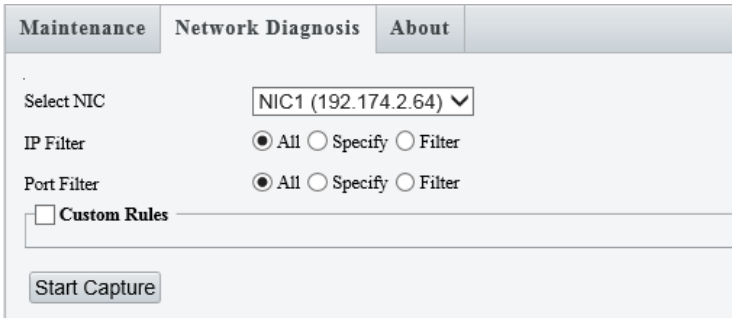
You can manually restart the camera or configure a camera restart rule to enable automatic restart. Perform the following operations:

**Step 1** Click **Restart** to manually restart the camera.

**Step 2** Select **Enable Auto Restart** and configure the restart cycle and restart time. The restart cycle can be **Each Day**, **Each Monday**, **Each Tuesday**, **Each Wednesday**, **Each Thursday**, **Each Friday**, **Each Saturday**, and **Each Sunday**. The restart time can be customized, but the default value **02:00:00** is recommended.

Note: During site deployment, it is recommended that cameras be restarted at different time to prevent overload of the platform due to a large number of online and offline cameras.

## 2. Network Diagnosis

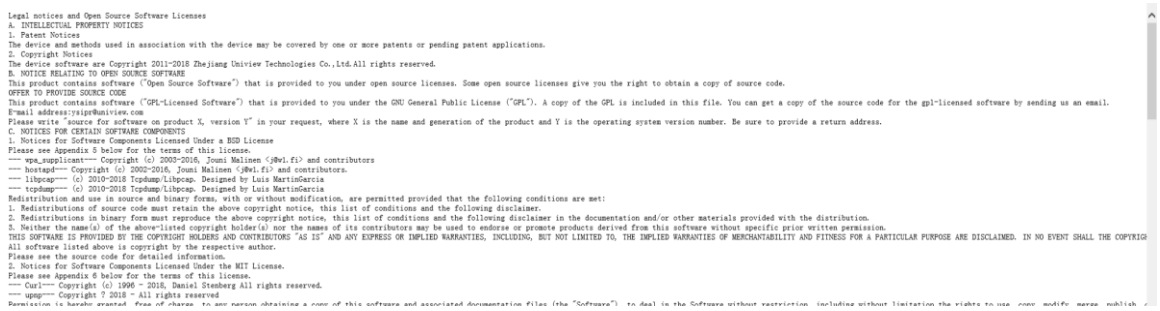



| No. | Parameter | Description |
|---|---|---|
| 1 | Select NIC | NIC1 (default) or NIC2. |
| 2 | IP Filter | All is selected by default.<br>All: No IP filtering.<br>Specify: Capture packets from or to the specified IP address(es).<br>Filter: Capture packets except those from or to the specified IP address(es). |

| | | |
|---|---|---|
| 3 | Port Filter | All is selected by default.<br>All: No port filtering.<br>Specify: Capture packets from or to the specified port(s).<br>Filter: Capture packets except those from or to the specified port(s). |
| 4 | Custom Rules | This function is disabled by default.<br>When enabled, you can customize the filtering rules. The rules must meet pcap syntax, otherwise, a message “Setting the parameter(s) failed” appears after you click **Start Capture**. |
| 5 | Start Capture | Click to start packet capture, click again to stop capture and save the packet file to the PC. Each packet file allows up to 100M. |

### 3. About

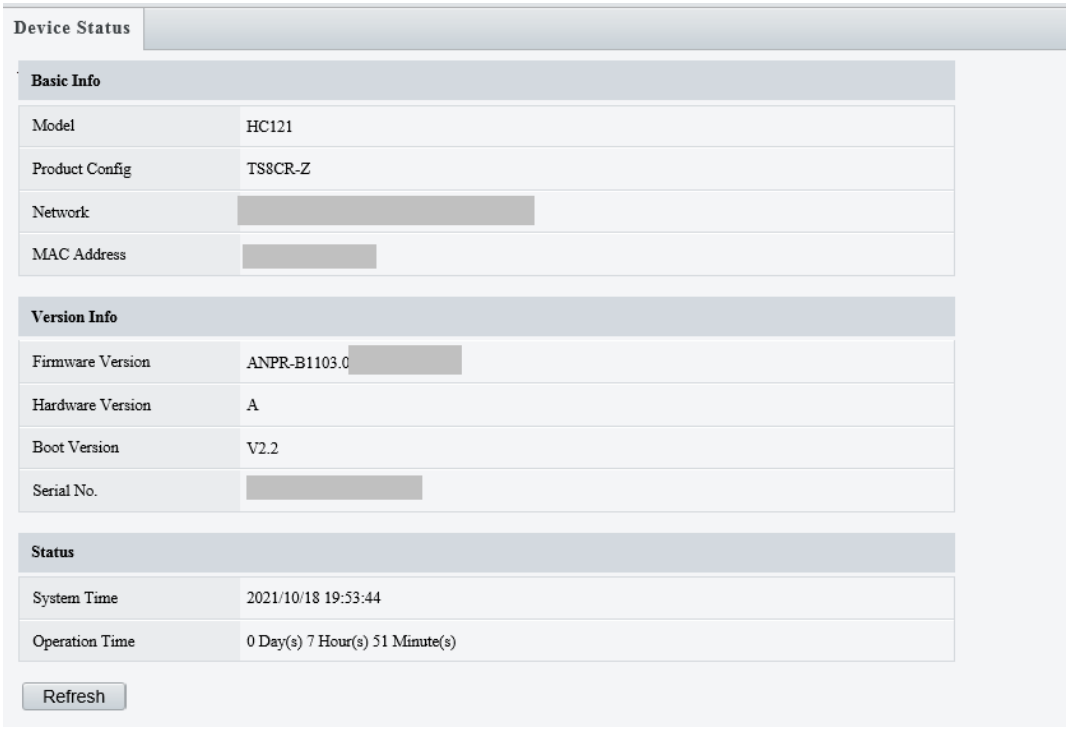
Click **Open Source Software Licenses** to view Source Software Licenses.



Legal notices and Open Source Software Licenses
A. INTELLECTUAL PROPERTY NOTICES
1. Patent Notices
The device and methods used in association with the device may be covered by one or more patents or pending patent applications.
2. Copyright Notices
The device software are Copyright 2011-2018 Zhejiang Uniview Technologies Co.,Ltd.All rights reserved.
B. NOTICE RELATING TO OPEN SOURCE SOFTWARE
This product contains software ("Open Source Software") that is provided to you under open source licenses. Some open source licenses give you the right to obtain a copy of source code.
OFFER TO PROVIDE SOURCE CODE
This product contains software ("GPL-Licensed Software") that is provided to you under the GNU General Public License ("GPL"). A copy of the GPL is included in this file. You can get a copy of the source code for the gpl-licensed software by sending us an email.
E-mail address:ysipr@uniview.com
Please write "source for software on product X, version Y" in your request, where X is the name and generation of the product and Y is the operating system version number. Be sure to provide a return address.
C. NOTICES FOR CERTAIN SOFTWARE COMPONENTS
1. Notices for Software Components Licensed Under a BSD License
Please see Appendix 5 below for the terms of this license.
--- wpa_supplicant--- Copyright (c) 2003-2016, Jouni Malinen <j@w1.fi> and contributors
--- hostapd--- Copyright (c) 2002-2016, Jouni Malinen <j@w1.fi> and contributors.
--- libpcap--- (c) 2010-2018 Tcpdump/Libpcap. Designed by Luis MartinGarcia
--- tcpdump--- (c) 2010-2018 Tcpdump/Libpcap. Designed by Luis MartinGarcia
Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:
1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. Neither the name(s) of the above-listed copyright holder(s) nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.
THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIG
All software listed above is copyright by the respective author.
Please see the source code for detailed information.
2. Notices for Software Components Licensed Under the MIT License.
Please see Appendix 6 below for the terms of this license.
--- Curl--- Copyright (c) 1996 - 2018, Daniel Stenberg All rights reserved
--- upnp--- Copyright ? 2018 - All rights reserved

## 4.5.2 Device Status

### 1. Device Status

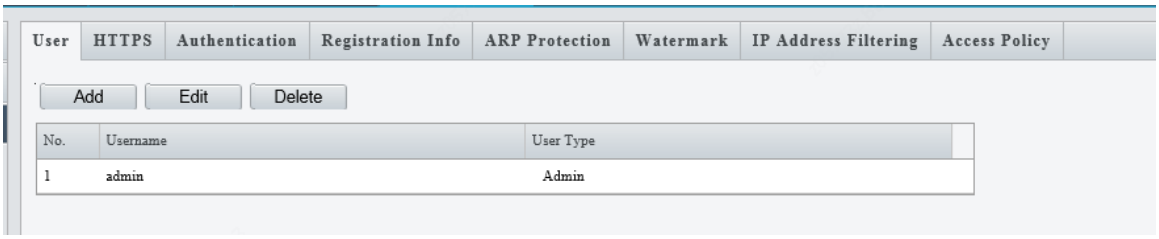
This page displays camera-related information, including the model, version information, and running time.




### 4.5.3 Security

#### 1. User

On this page, you can add, delete, or modify ordinary users of the camera, and change the password of the admin user.




**Step 1** To add a user, click **Add**, configure the username and password, and save the configuration.

**Step 2** To edit a user, select the desired user, click **Edit**, change the password, and save the setting.

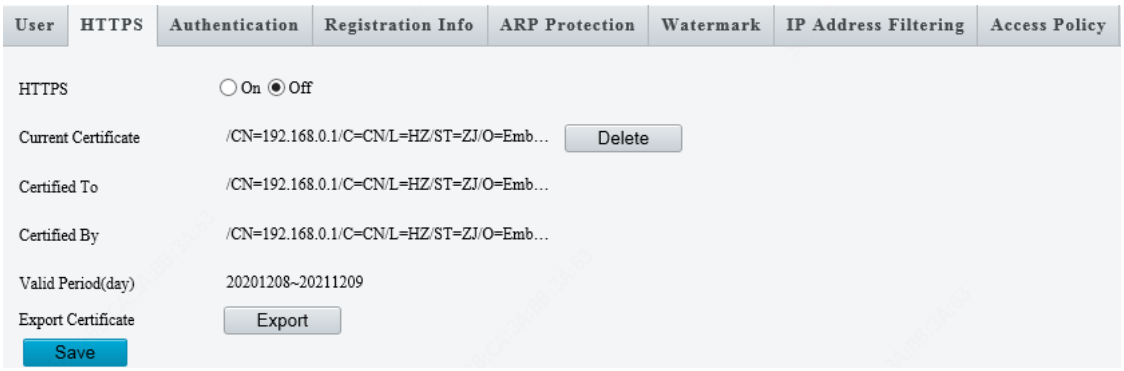
**Step 3** To delete a user, select the desired user and click **Delete**.

**NOTE!**

1. If the camera successfully registers with a platform, the username and password modified on the front end will be overwritten by the username and password on the platform after the camera is restarted. If you want to change the password used to log in to the camera after the camera successfully registers with a platform, change the password on the platform. On the platform, only the password can be changed, and the username cannot be modified.

2. A non-admin user cannot configure camera parameters and can only access the **Live View**, **Photo**, and **Maintenance** pages to view live views and photos, manually capture snapshots, and delete or export images.

## 2. HTTPS



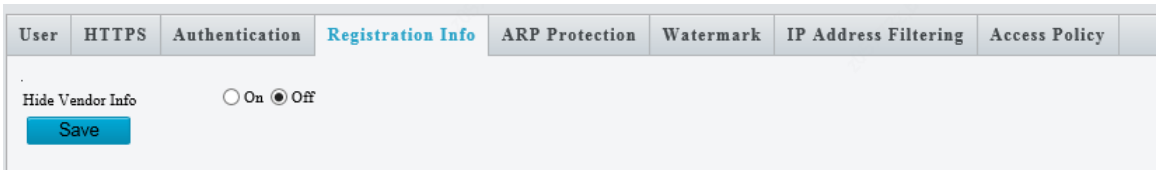

The HTTPS function is used for encryption to prevent network attacks. The HTTPS port is set under **Setup** > **Network** > **Port**. An SSL certificate is required to enable HTTPS.

| No. | Parameter | Description |
|---|---|---|
| 1 | HTTPS | HTTPS is turned off by default. |
| 2 | Delete | Delete the current certificate. |
| 3 | Export | Export the current certificate. |

## 3. Authentication


| No. | Parameter | Description |
|---|---|---|
| 1 | RTSP Authentication | The values include **None**, **Basic**, **Digest MD5**, and **Digest SHA256.**The default value is **Digest MD5**. RTSP is an application layer protocol and used to transmit and control real-time media streams, such as audio and video streams. The RTSP port is set under **Setup** > **Network** > **Port**. |
| 2 | HTTP Authentication | The values include **None**, **Digest MD5**, and **Digest SHA256.**The default value is **Digest MD5**. The HTTP port is set under **Setup** > **Network** > **Port**. |

## 4. Registration Info




By default, **Off** is selected. In this case, the camera vendor information is hidden when the camera interworks with the server using ONVIF.

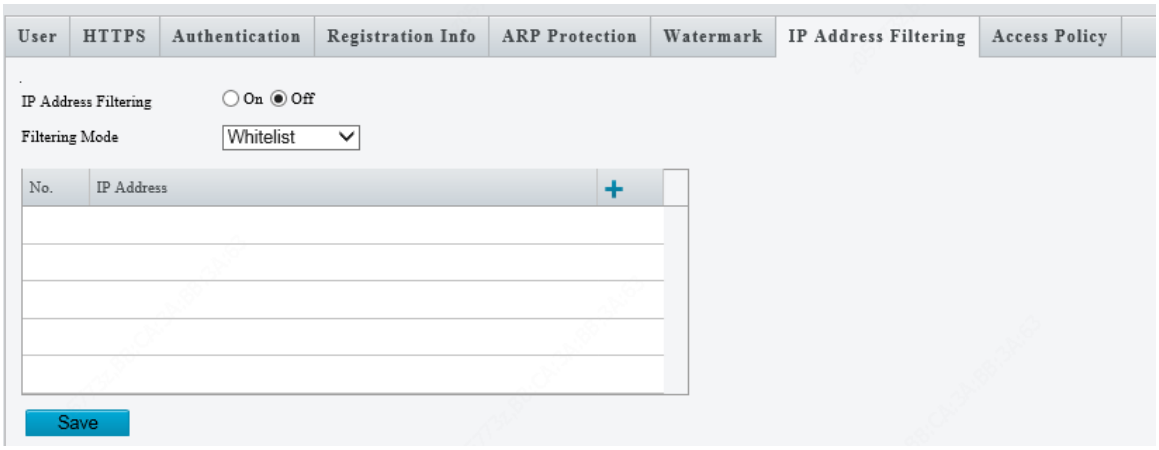
## 5. ARP Protection


If a device on a LAN forges the IP address of the gateway, communication data between the camera and the gateway will be sent to the forged device. After ARP protection is enabled, the camera sends data to the device whose MAC address corresponds to the gateway IP address.

## 6. Watermark


The function is used to prevent videos from being tampered. If a video is recorded on the camera or platform after you enable watermark and add the watermark content, the EZPlayer detects the watermark to check whether the video data matches with the watermark.

## 7. IP Address Filtering



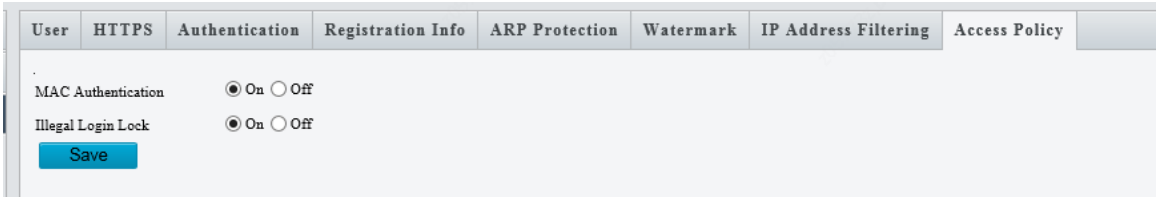

The IP address filtering function is used to allow or reject the access to the camera through a certain IP address. If an IP address is rejected to access the camera, the IP address can be pinged on the PC. However, the IP address cannot be used to log in to the Web interface of the camera.

Description

| No. | Parameter | Description |
|---|---|---|
| 1 | IP Address Filtering | By default, **Off** is selected. You can select **On** as required. |
| 2 | Filtering Mode | The default value is **Whitelist**. After an IP address is configured in this mode, only the configured IP address is allowed to access the camera.<br>If you change the value to **Deny Access** and an IP address is configured, the configured IP address is rejected to access the camera. |

| | | |
|---|---|---|
| 3 | IP Address | This sets the IP address that is allowed or rejected to access the camera. |

## 8. Access Policy




| No. | Parameter | Description |
|---|---|---|
| 1 | MAC Authentication | By default, **On** is selected. After MAC authentication is enabled, login authentication is required for users who log in to the camera through an SDK interface. Web portal login is not affected by the authentication.<br>Note: A third-party customer must use SDK 3.0 or later to interwork with the camera. If SDK interworking fails after a camera upgrade, MAC authentication needs to be disabled. |
| 2 | Illegal Login Lock | By default, **On** is selected. After illegal login lock is enabled, the camera will be locked for five minutes if the password entered on the Web login page of the camera is wrong for consecutive five times. If illegal login lock is disabled, the number of failed logon attempts on the Web login page of the camera is not limited and the camera will not be locked. |