

Deployment Guide to 2MP Starlight White Light & IR License Plate Recognition Bullet Camera (ANPR B1105) Outside China V1.1.1

Contents

| | |
|---|----|
| 1 Revision History | 1 |
| 2 Introduction..... | 2 |
| 2.1 Applicable products..... | 2 |
| 2.2 System Networking Diagram | 2 |
| 3 Site Deployment Configuration | 3 |
| 3.1 System Requirements..... | 3 |
| 3.1.1 System Requirements | 3 |
| 3.2 Camera Configuration | 3 |
| 3.2.1 Plug-in Installation | 3 |
| 3.2.2 Password Change | 4 |
| 3.2.3 IP Configuration..... | 6 |
| 3.3 Camera Software Configuration..... | 7 |
| 3.3.1 Camera Provisioning | 7 |
| 3.3.2 Image..... | 8 |
| 3.3.3 Detection Mode Configuration..... | 8 |
| 4 Video&Image Database Registration..... | 8 |
| 4.1 Registration..... | 8 |
| 4.2 Time Configuration..... | 9 |
| 5 Function Configuration | 10 |
| 5.1 Blocklist, Allowlist and let-through policy | 10 |
| 5.1.1 Allowlist Configuration | 10 |
| 5.1.2 Blocklist Configuration | 11 |
| 5.2 Alarm | 12 |
| 5.2.1 Alarm Input | 12 |
| 5.2.2 Alarm Output | 13 |
| 5.3 Primary and Secondary Cameras..... | 13 |
| 5.3.1 IPC1 Configuration | 13 |
| 5.3.2 IPC2 Configuration | 14 |
| 5.4 Mixed Entrance/Exit | 14 |
| 5.4.1 IPC1 Configuration | 14 |
| 5.4.2 IPC2 Configuration | 15 |
| 6 Maintenance..... | 16 |
| 6.1 Software Upgrade | 16 |

6.2 Diagnosis Info 17

1 Revision History

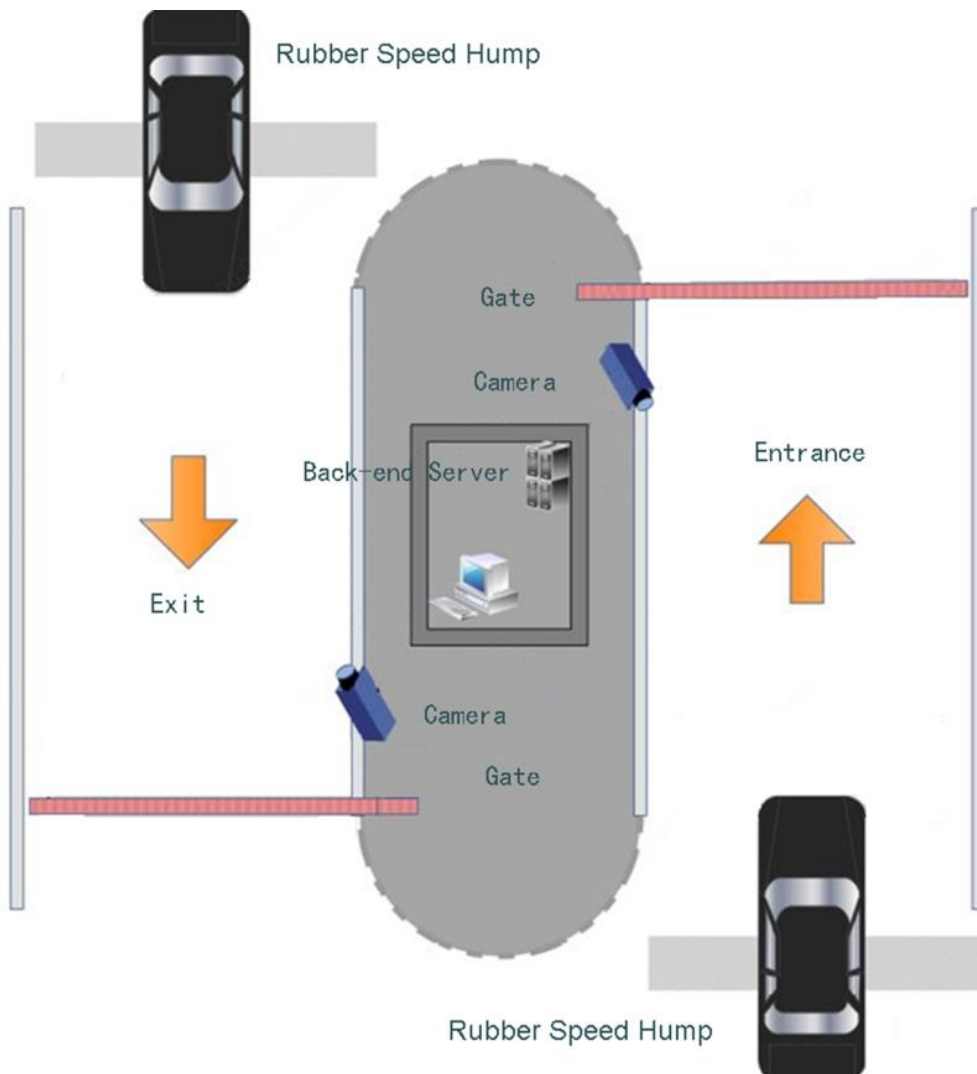
- Change Whitelist to Allowlist
- Changed Blacklist to Blocklist

2 Introduction

2.1 Applicable products

- 2MP white light recognition bullet camera: HC121@TS8C-Z-NB/HC121@TS8C-Z
- 2MP IR recognition bullet camera: HC121@TS8CR-Z-NB/HC121@TS8CR-Z

2.2 System Networking Diagram



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 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 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 Note: The graphics card needs to use the latest driver, and drivers after August 2009 are recommended. |
| Audio adapter | Required 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 1280*1024 |

3.2 Camera Configuration

The camera supports **PoE**

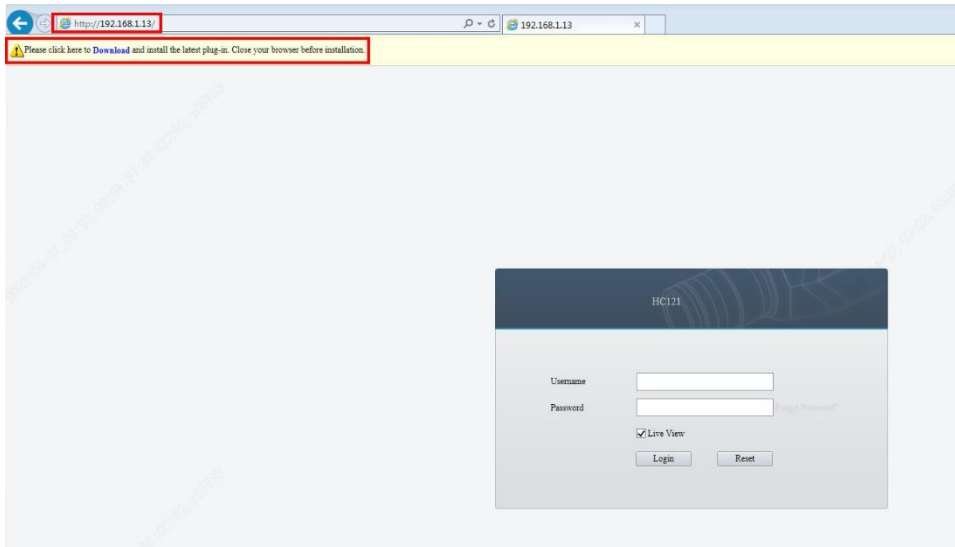
3.2.1 Plug-in Installation



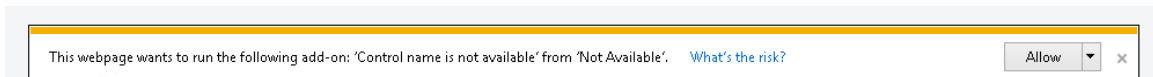
1. Installation of the plug-in is required if you are using Internet Explorer.
 2. The camera supports Chrome (V57 or later), Firefox (V58 or later), and Edge (V16 or later). These browsers do not require you to install the plug-in at login. Chrome is recommended.
 3. Skip this section if you are not using IE.
 4. By default the plug-in is saved in C:\ Program Files (x86) \WebPlugin IPC UN or C:\ Program Files (x86) \WebPlugin IPC NB
-

5. You can uninstall the plug-in from the computer's control panel or by removing plug-in information in the directory.

- Step 1** Set the IP address of the PC to 192.168.1.X or 192.168.0.X (neither 192.168.1.13 nor 192.168.0.13)
- Step 2** Run the Internet Explorer as administrator, 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 3** On "Please click here to Download and install the latest plug-in. Close your browser before installation" displayed on the interface, click **Download**.



- Step 4** Follow the prompts to download the plug-in. The default storage path is

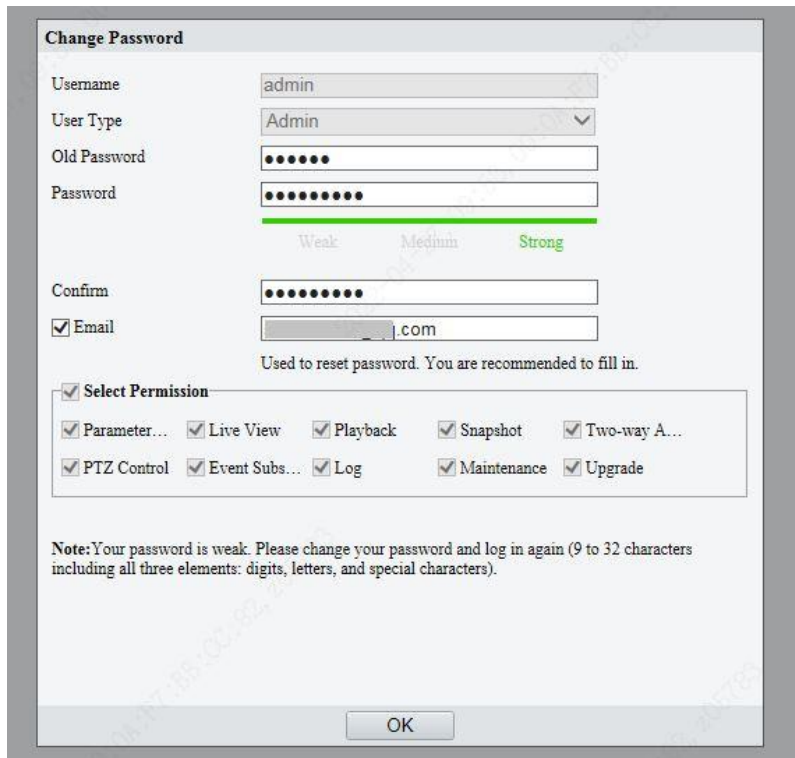


- Step 5** Close Internet Explorer and run **Setup.exe** to install the plug-in.
- Step 6** Open the Web interface of the camera on a browser again. The interface does not display the plug-in installation prompt.

3.2.2 Password Change

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.

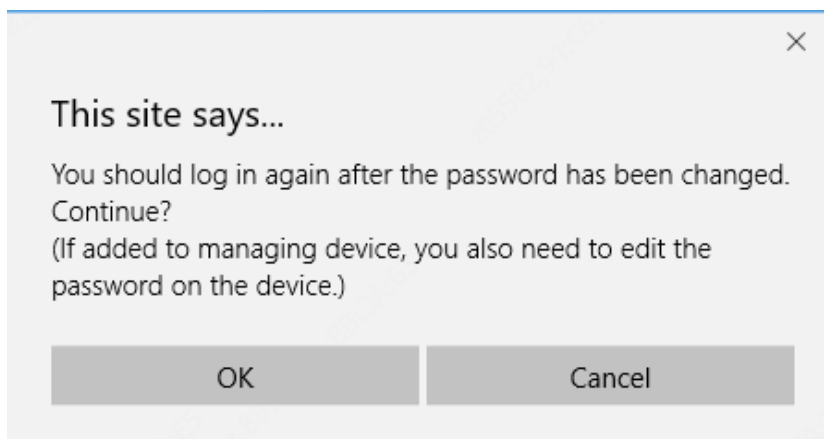
- Step 1** After the plug-in is installed, open the Web interface of the camera, and use the default username and password (admin and 123456, respectively) to log in to the camera.
- Step 2** The interface prompts you to change password. Enter the old password (that is, the initial password, 123456) in the **Old Password** field, and the new password in the **Password**, **Confirm** and **Email** fields. The new password must contain 9 to 32 characters including all three elements: digits, letters, and special characters. Click **OK** to confirm the password change.



The image shows a 'Change Password' dialog box. It contains the following fields and options:

- Username:** admin
- User Type:** Admin (dropdown menu)
- Old Password:** [masked with 6 dots]
- Password:** [masked with 8 dots]
- Confirm:** [masked with 8 dots]
- Email:** [masked]@.com (checkbox checked)
- Select Permission:** (checkbox checked) with a list of permissions: Parameter..., Live View, Playback, Snapshot, Two-way A..., PTZ Control, Event Subs..., Log, Maintenance, Upgrade.
- Note:** Your password is weak. Please change your password and log in again (9 to 32 characters including all three elements: digits, letters, and special characters).
- Strength Indicator:** A progress bar below the Password field is labeled 'Weak', 'Medium', and 'Strong'.
- OK** button at the bottom.

Step 3 In the displayed dialog box, click **OK**.



The image shows a 'This site says...' dialog box with the following content:

- Title:** This site says...
- Text:** You should log in again after the password has been changed. Continue? (If added to managing device, you also need to edit the password on the device.)
- Buttons:** OK and Cancel.

Step 4 When the login interface is displayed again, enter the new password for login.

HC121

Username

Password [Forgot Password?](#)

Live View

3.2.3 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 click **Save** to save the configuration.

Live View Photo Setup Maintenance

Local Parameters

System

Network

Video & Audio

Smart

External Device

Events

OSD

Network Network Protocol Network Port P2P Camera Communication

IPv4

Obtain IP Address Static

IP Address 192.174.3.120

Subnet Mask 255.255.255.0

Default Gateway 192.174.3.1

IPv6

Mode DHCP

Basic

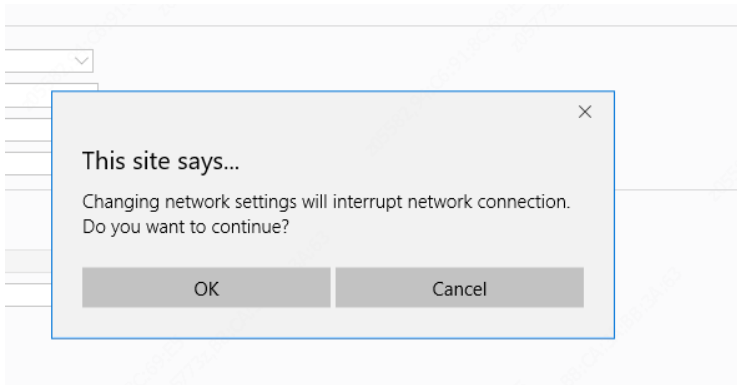
MTU 1500

Port Type FE Port

Operating Mode Auto-negotiation

Save

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.

3.3 Camera Software Configuration

This chapter describes the necessary configurations to complete the fundamental deployment

3.3.1 Camera Provisioning

Camera installation angles: Horizontal angle: $-45^{\circ}\sim 45^{\circ}$. Vertical angle: 30° . Horizontal tilt angle: $-15^{\circ}\sim 15^{\circ}$

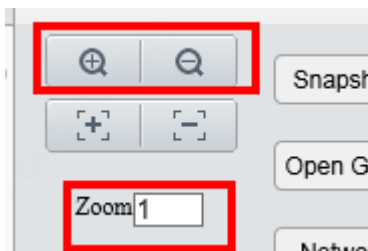
Plate width: Max identification range is 60~300 pixels

Best identification range: 90~150 pixels

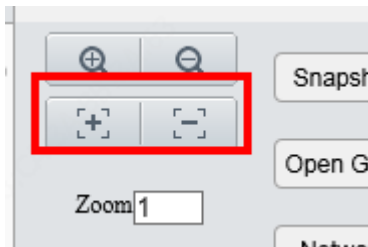
Step 1 Perform an initial adjustment of the camera's installation angle. Park a car at the intended capture point to adjust the monitoring direction of the camera.

Step 2 Open the **live view** page.

Step 3 Click + or - to adjust zoom, or enter a value in the **Zoom** field (max. 160. Modify the **Max Zoom Ratio** in **Setup > Video&Audio > Image**) Adjust properly according to on-site conditions.



Step 4 Click + or - to adjust focus till the license plate number is clearly visible.



3.3.2 Image

Step 1 Choose **Setup > Video&Audio> Image**. See the table below to set image parameters.

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

3.3.3 Detection Mode Configuration

Step 1 Choose **Setup > Smart > Smart**. Click **Draw Detection Rules** to draw a detection area. The detection area shall cover areas where vehicles will drive on.

Keep the following in mind while drawing detection rules:

- (1) Position: Usually the detection area shall be on the lower part of the image.
- (2) Height: The height of the detection area shall occupy 1/3 to 1/2 of the image height. Take both large vehicles (such as a truck) and small vehicles (such as a compact car) into consideration, because usually the license plate on a large vehicle is higher than that on a small vehicle.
- (3) Width: The detection area shall cover the far left and far right sides where vehicles may pass through. Make sure the width of the detection area does not exceed 2/3 of the image width; otherwise, it will result in prolonged snapshot time and mistaken snapshots of the neighboring vehicles.

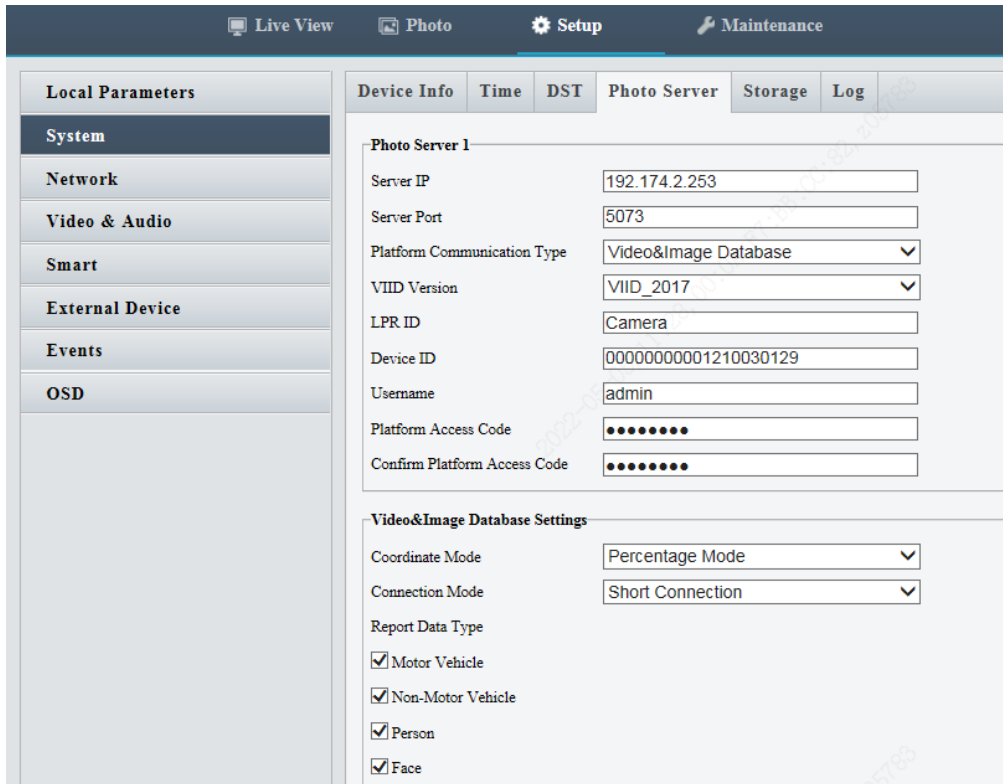



4 Video&Image Database Registration

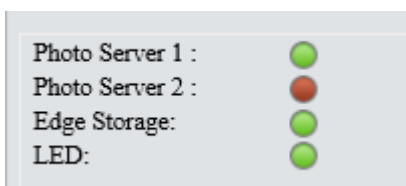
4.1 Registration

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. **Confirm Platform Access Code** is the same as **Platform Access Code**.

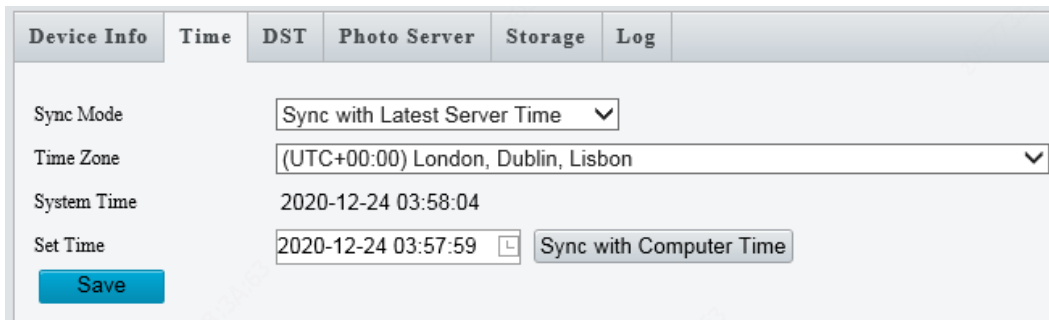


Step 3 Add the camera to the VIID server. Check the indicator for **Photo Server 1**.  means the camera is added successfully.



4.2 Time Configuration

Step 1 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.

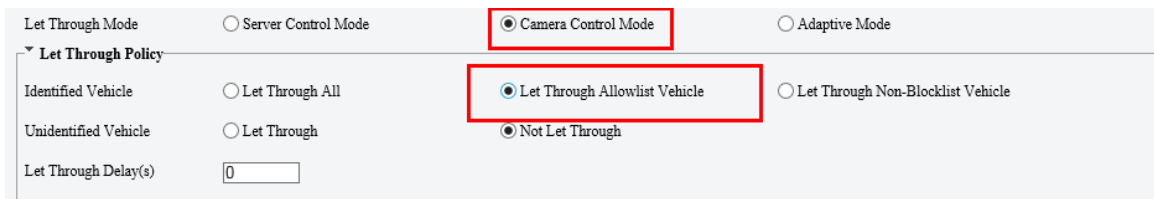


5 Function Configuration

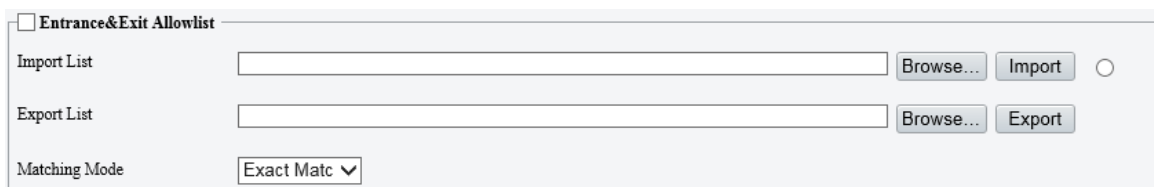
5.1 Blocklist, Allowlist and let-through policy

5.1.1 Allowlist Configuration

Step 1 Choose **Setup > Smart > Vehicle List**. Select **Entrance&Exit Allowlist**. For **Let Through Mode**, select **Camera Control Mode**. For **Identified Vehicle**, select **Let Through Allowlist Vehicle**.



Step 2 Choose **Setup > Smart > Vehicle List**. Select **Entrance&Exit Allowlist**.



Step 3 Export the allowlist template: click the **Browse** button right to the **Export** List field, specify a local directory, and click **Export**. A GateAllowlist.csv file will be saved in the directory.



Step 4 Use EXCEL to edit the allowlist template, and save it when you are done.

| | A | B | C | D |
|---|--------|----------|----------|---|
| 1 | A325KB | 20210101 | 20220101 | |
| 2 | AW205F | 20210101 | 20220101 | |
| 3 | | | | |
| 4 | | | | |

Step 5 Import the allowlist: click the **Browse** button right to the **Import List** field, select the GateAllowlist.csv on your computer, and then click **Import** to import the allowlist.

Step 6 The green icon means the import has succeeded.

5.1.2 Blocklist Configuration

Step 1 Choose Setup > Smart > Vehicle List. Select Entrance&Exit Blocklist. For **Let Through Mode**, select **Camera Control Mode**. For **Identified Vehicle**, select **Let Through Non-Blocklist Vehicle**.

Step 2 Choose **Setup > Smart > Vehicle List**. Select **Entrance&Exit Blocklist**.

Step 3 Export the blocklist template: click the **Browse** button right to the **Export List** field, specify a local directory, click **Export**. A GateBlocklist.csv file will be saved in the directory.

Step 4 Use EXCEL to edit the blocklist template.

| | A | B | C | D | E |
|---|--------|---|---|---|---|
| 1 | AJ770T | | | | |
| 2 | A719Y3 | | | | |
| 3 | | | | | |

Step 5 Import the blocklist: click the **Browse** button right to the **Import List** field, select the GateBlocklist.csv on your computer, and then click **Import** to import the blocklist.

Step 6 The green icon means the import has succeeded.

5.2 Alarm

5.2.1 Alarm Input

Step 1 Choose **Setup > Events > Alarm Input** to configure Alarm Input. Select from the **Select Alarm** drop-down list according to the actual wire connection. Take **Alarm Input 1** as an example. For **Alarm Name**, the default setting is **1**, and you can change it as you need. For **Alarm Type**, the default setting is **N.O.**. Set the alarm type correctly according to the status of the peripheral alarm device. Select **On** for **Alarm Input**. Click **Save**.

Step 2 The steps to configure **Alarm Input 2** are the same as the steps to configure **Alarm Input 1**. The configurations, enablement/disablement of **Alarm Input 1** and of **Alarm Input 2** are separated and do not affect each other.

5.2.2 Alarm Output

Step 1 Choose **Setup > Events > Alarm Output** to configure Alarm Output. Select **Alarm Output1** from the **Select Alarm** drop-down list. For **Alarm Name**, the default setting is **2** and you can change it as you need. The **Default Status** is **N.O.**. The default **Delay (ms)** is 500 and you can change it as appropriate. The **Default Status** shall be set to N.O. when you use it with the gate. Click **Save**.

The screenshot shows the 'Alarm Output' configuration page. At the top, there are two tabs: 'Alarm Input' and 'Alarm Output', with 'Alarm Output' being the active tab. Below the tabs, there is a 'Select Alarm' dropdown menu with 'Alarm Output 1' selected. Underneath, there is a 'Rule Settings' section with the following fields: 'Alarm Name' (text input with 'A1'), 'Default Status' (dropdown menu with 'N.O.'), 'Delay(ms)' (text input with '500'), and 'Relay Mode' (dropdown menu with 'Monostable'). At the bottom of the form is a blue 'Save' button.

5.3 Primary and Secondary Cameras

Configure two LPR cameras: IPC1 and IPC2.

5.3.1 IPC1 Configuration

Step 1 Log in to IPC1's web interface, choose **Setup > Network > Camera Communication**. Select **Disable** for **Trigger Snapshot**.

The screenshot shows the 'Camera Communication' configuration page. At the top, there are five tabs: 'Network', 'Network Protocol', 'Network Port', 'EZCloud', and 'Camera Communication', with 'Camera Communication' being the active tab. Below the tabs, there are several settings: 'Trigger Snapshot' (radio buttons for 'Enable' and 'Disable', with 'Disable' selected), 'Local IP' (text input with '192.174.2.64'), 'Listener Port' (text input with '3334'), 'Transport Mode' (dropdown menu with 'TCP'), 'Remote IP' (text input with '192.174.2.63'), 'Remote Port' (text input with '3333'), 'Transparent Message Trans...' (radio buttons for 'Enable' and 'Off', with 'Off' selected), 'Entry and Exit Mix' (radio buttons for 'Enable' and 'Off', with 'Off' selected), 'Match Time for Entry and E...' (text input with '300'), 'Entrance&Exit Dual Camera' (radio buttons for 'Off', 'Secondary Camera', and 'Primary Camera', with 'Primary Camera' selected), and 'Dual Camera Snapshot Inter...' (text input with '1000'). At the bottom of the form is a blue 'Save' button.

Step 2 For **Listener Port**, enter a port number of your choosing. The port number will be used when you configure IPC2.

Step 3 For **Transport Mode**, **TCP** is recommended.

Step 4 For **Remote IP**, set **IPC2's** IP as the remote IP.

Step 5 For **Remote Port**, set IPC2's listener port as the remote port.

Step 6 For **Entrance&Exit Dual Camera**, select **Primary Camera**.

Step 7 Click **Save**.

5.3.2 IPC2 Configuration

Step 1 Log in to IPC2's web interface, choose **Setup > Network > Camera Communication**. Select **Disable** for **Trigger Snapshot**.

Network Network Protocol Network Port EZCloud Camera Communication

Trigger Snapshot Enable Disable

Local IP

Listener Port

Transport Mode

Remote IP

Remote Port

Transparent Message Trans... Enable Off

Entry and Exit Mix Enable Off

Match Time for Entry and E...

Entrance&Exit Dual Camera Off Secondary Camera Primary Camera

Dual Camera Snapshot Inter...

Step 2 Set **Listener Port** to the port number that has been used as **Remote Port** for IPC1.

Step 3 For **Transport Mode**, use the same setting as IPC1.

Step 4 For **Remote IP**, set IPC1's IP as the remote IP.

Step 5 For **Remote Port**, set IPC1's listener port as the remote port.

Step 6 For **Entrance&Exit Dual Camera**, select **Secondary Camera**.

Step 7 Click **Save**.

5.4 Mixed Entrance/Exit

This solution is applicable when the lanes are not wide enough to provide an entrance and an exit separately. Configure two LPR cameras: IPC1 and IPC2.

5.4.1 IPC1 Configuration

Step 1 Log in to IPC1's web interface, choose **Setup > Network > Camera Communication**. Select **Disable** for **Trigger Snapshot**.

| Network | Network Protocol | Network Port | EZCloud | Camera Communication |
|-------------------------------------|--|--------------|---------|----------------------|
| Trigger Snapshot | <input type="radio"/> Enable <input checked="" type="radio"/> Disable | | | |
| Local IP | <input type="text" value="192.174.2.64"/> | | | |
| Listener Port | <input type="text" value="3334"/> | | | |
| Transport Mode | <input type="text" value="TCP"/> | | | |
| Remote IP | <input type="text" value="192.174.2.63"/> | | | |
| Remote Port | <input type="text" value="3333"/> | | | |
| Transparent Message Trans... | <input type="radio"/> Enable <input checked="" type="radio"/> Off | | | |
| Entry and Exit Mix | <input checked="" type="radio"/> Enable <input type="radio"/> Off | | | |
| Match Time for Entry and E... | <input type="text" value="300"/> | | | |
| Entrance&Exit Dual Camera | <input checked="" type="radio"/> Off <input type="radio"/> Secondary Camera <input type="radio"/> Primary Camera | | | |
| Dual Camera Snapshot Inter... | <input type="text" value="1000"/> | | | |
| <input type="button" value="Save"/> | | | | |

- Step 2** For **Listener Port**, enter a port number of your choosing. The port number will be used when you configure IPC2.
- Step 3** For **Transport Mode**, TCP is recommended.
- Step 4** For **Remote IP**, set IPC2's IP as the remote IP.
- Step 5** For **Remote Port**, set IPC2's listener port as the remote port.
- Step 6** For **Entry and Exit Mix**, select **Enable**. The default setting for **Match Time for Entry and Exit Mix(s)** is 300, and you can modify the value as needed.

5.4.2 IPC2 Configuration

- Step 1** Log in to IPC2's web interface, choose **Setup > Network > Camera Communication**. Select **Disable** for **Trigger Snapshot**.

| Network | Network Protocol | Network Port | EZCloud | Camera Communication |
|-------------------------------------|--|--------------|---------|----------------------|
| Trigger Snapshot | <input type="radio"/> Enable <input checked="" type="radio"/> Disable | | | |
| Local IP | <input type="text" value="192.174.2.63"/> | | | |
| Listener Port | <input type="text" value="3333"/> | | | |
| Transport Mode | <input type="text" value="TCP"/> | | | |
| Remote IP | <input type="text" value="192.174.2.64"/> | | | |
| Remote Port | <input type="text" value="3334"/> | | | |
| Transparent Message Trans... | <input type="radio"/> Enable <input checked="" type="radio"/> Off | | | |
| Entry and Exit Mix | <input checked="" type="radio"/> Enable <input type="radio"/> Off | | | |
| Match Time for Entry and E... | <input type="text" value="300"/> | | | |
| Entrance&Exit Dual Camera | <input checked="" type="radio"/> Off <input type="radio"/> Secondary Camera <input type="radio"/> Primary Camera | | | |
| Dual Camera Snapshot Inter... | <input type="text" value="1000"/> | | | |
| <input type="button" value="Save"/> | | | | |

- Step 2** Set **Listener Port** to the port number that has been used as **Remote Port** for IPC1.
- Step 3** For **Transport Mode**, keep it the same as that for IPC1.
- Step 4** For **Remote IP**, set IPC1's IP as the remote IP.
- Step 5** For **Remote Port**, set IPC1's listener port as the remote port.
- Step 6** For **Entry and Exit Mix**, select **Enable**. The default setting for **Match Time for Entry and Exit Mix(s)** shall be kept the same as that of IPC1.

6 Maintenance

6.1 Software 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** Choose **Maintenance > Maintenance > Maintenance**
- Step 3** Click **Browse...** and select the upgrade package so that the text box shows the path, such as D:\update*Upgrade package name*.
- Step 4** Click **Upgrade**. Then, a progress bar is displayed during the upgrade.

The screenshot shows the 'Software Upgrade' section of the camera's web interface. It includes a 'Local Upgrade' field with a 'Browse...' button and an 'Upgrade' button. There is also an 'Upgrade Boot Program' checkbox. A 'Cloud Upgrade' section has a 'Detect' button. A note at the bottom states: 'Note: The upgrade will take a while. Please do not disconnect power.'

Step 5 After the upgrade, log in to the camera again.

Step 6 Choose **Maintenance > Maintenance > Device Status**, check the version information

The screenshot shows the 'Device Status' page. It is divided into three sections: 'Basic Info', 'Version Info', and 'Status'.
Basic Info:
Model: HC121
Product Config: TS8C-Z-NB
IPv4 Network Info: 255.255.255.0/192.174
MAC Address: [Redacted]
Version Info:
Firmware Version: ANPR-B1105.[Redacted]
Hardware Version: A
Boot Version: V2.3
Serial No.: 2102[Redacted]0310
Status:
System Time: 2022/5/5 12:42:42
Operation Time: 0 Day(s) 1 Hour(s) 20 Minute(s)
A 'Refresh' button is located at the bottom left.

6.2 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 Choose **Maintenance > Maintenance > Maintenance**

Step 2 Click **Browse...**, select a local path, and click **Export** to export the camera diagnosis information for problem locating.

The screenshot shows the 'Diagnosis Info' section. It features an 'Export Diagnosis Info' field with a 'Browse...' button and an 'Export' button. There is also a checkbox labeled 'Collect Image Debugging Info' which is checked.