Parking Management System

User's Manual

ZHEJIANG DAHUA VISION TECHNOLOGY CO., LTD. V2.0

Foreword

Overview

This manual introduces the functions and operations of the parking management system (hereinafter referred to as "PMS").

Safety Instructions

The following categorized signal words with defined meaning might appear in the manual.

Signal Words	Meaning
DANGER	Indicates a high potential hazard which, if not avoided, will result in death or serious injury.
WARNING	Indicates a medium or low potential hazard which, if not avoided, could result in slight or moderate injury.
CAUTION	Indicates a potential risk which, if not avoided, could result in property damage, data loss, lower performance, or unpredictable result.
TIPS	Provides methods to help you solve a problem or save you time.
NOTE	Provides additional information as the emphasis and supplement to the text.

Revision History

Version	Revision Content	Release Time
V2.0	Updated parking lot management, LED display management, alarm scheme and license, and more.	December 2020
V1.4.0	Updated the English expression of each interface, add "3.11.15 Email Server Settings" and "3.11.16 Syslog Server Settings"	June 2020
V1.3.0	Software version updated.	November 2019
V1.2.0	Added user/vehicle/card management, universal API port, WAN access through web interface and client; optimized statistics on the homepage; add reverse vehicle search on PMS client.	July 2019
V1.0.0	First release.	December 2018

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1 Overview

1.1 Introduction

PMS centers on the businesses of intelligent entrance/exit management system, and in the meantime, integrates operations relating to video monitoring and entry/exit control. It supports:

- Management of ANPR camera, boom barrier, LED display, VTO (door station), and other hardware products.
- Management of multiple parking lots.
- Vehicle and owner management.
- Live view and playback of videos from multiple devices and channels.
- Remotely open the boom barrier.
- Connect VTO (door station) to PMS by one-click, and realize voice communication between PMS and the VTO (door station).
- Search records of vehicle pass.
- Clear vehicle information on PMS when the vehicle has left the parking lot.
- View diagrams and charts of vehicles that enter or leave an area.
- Research vehicle search by entering the plate number.
- Download and install PMS client.

1.2 System Requirements

Table 1-1 System requirements

Parameter	Description
Processor	Intel(R) Xeon(R) E3-1220 v5 3.0 GHz
Memory	8 GB
HDD	500 GB
Operating system	Windows 10 (64 bit) /Windows Sever 2016 (64 bit)/ Windows Sever 2019 (64 bit)
Browser	IE11 or later, Chrome
Hardware	DirectX9.0c or later
Resolution	1280 × 1024, 1920 × 1080 (recommended)

2 Config Tool

Config Tool supports refreshing, restarting, stopping services, and modifying service ports.

The Config Tool is installed by default after the server is installed. If you want to reinstall it, download the Config Tool installation package on the web interface of PMS.

Log in to the PMS web interface, and click to download the installation package. Install the package, and then log in to the tool.

Figure 2-1 System settings

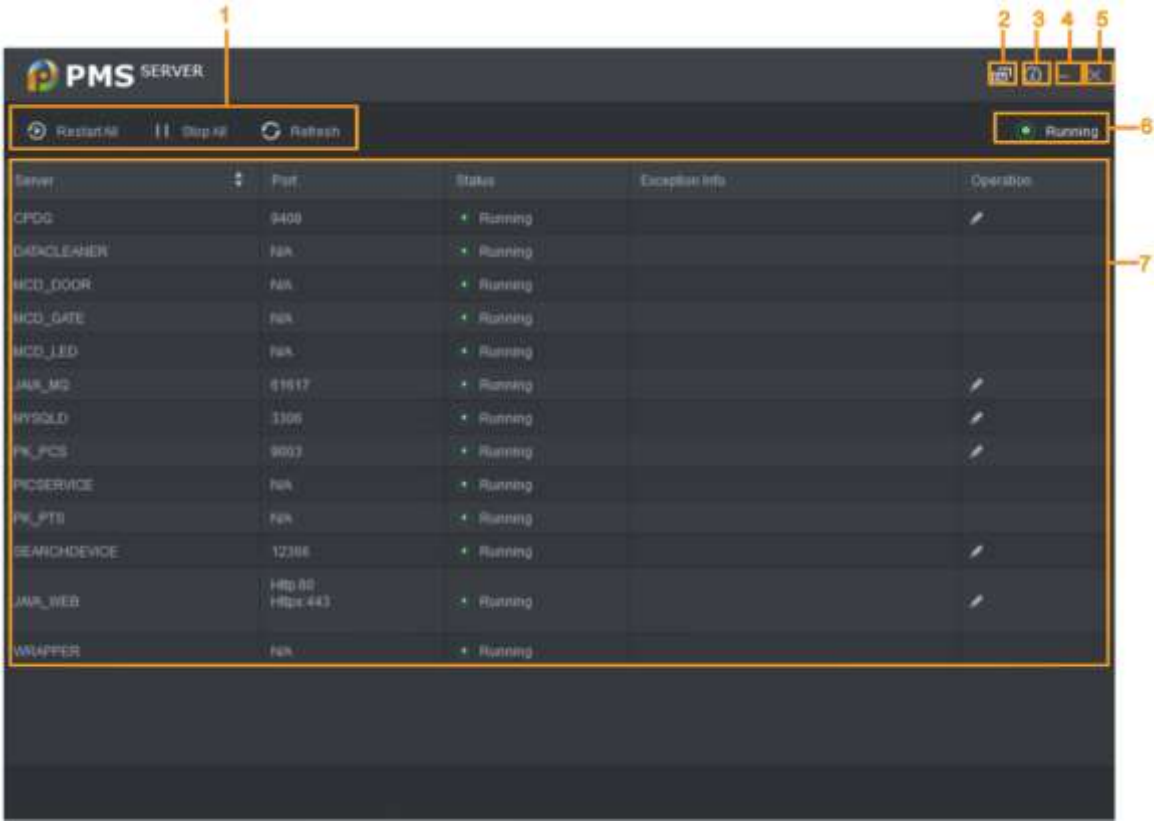


Table 2-1 Interface introduction

No.	Function	Description
1	Service management	• Restart All: Restart all services. • Stop All: Stop all services. • Refresh: Refresh services.
2	Language setting	The system supports Chinese and English. Click the icon to switch the language. The settings take effective after restarting the Config Tool.
3	About	View the software version and release date.
4	Minimize	Minimize the Config Tool interface.

No.	Function	Description
5	Close	Close the Config Tool.
6	Overall service status	Displays the overall service status. ● : Service is starting. ● : Service exception. ● : Service is stopping. ● : Service is running. ● : Service stopped.
7	Service details	Displays each service and the details. Click to modify the service port number, and then the system will automatically restart the service.

3 Web Operation

You can make function and system settings, as well as view report statistics and logs on the web interface.

3.1 Installation and Login

3.1.1 Installing PMS Server

Install PMS server on your PC, and then you can log in to the PMS web interface and make operations. Make sure that you have acquired program before installation, otherwise, contact technical support.

Step 1 Double-click the provided installation file General_PMS_Eng_Vxxx.R.xxx.exe.

Step 2 Read the agreement, select **I have read and agree the agreement**, and then click **Next**.

Step 3 Select the server type, and then click **Next**.

Step 4 Select the installation path (drive C by default), and view the space required for installing the PMS and the space available on your PC.

Step 5 Click **Install**.

Wait 1–3 minutes (depending on your PC performance) until the installation finishes.

Step 6 After installation, click **Run Now** to start the PMS server immediately.

Figure 3-1 Installation

3.1.2 Logging in to PMS Web

Step 1 Open browser, enter http://PMS IP address (for example, http://192.168.1.1) in the browser address bar, and then press the Enter key.

If it prompts **Your connection is not private**, click **Proceed to xx.xx.xx.xx (unsafe)** to go to the login interface.

Figure 3-2 Login

Step 2 Enter the username and the password (system and 123456 by default), and then click **Log in**.

- For first-time login, you need to read the **Software License Agreement**, select **I agree to and accept all the contents of the above software license agreement**, and then click **OK**. After this, a box will be displayed for you to change the default password and set the answers to security questions.
- You can also change the password by clicking Hi , system, and then clicking **Change Password**.
- If the password is entered wrong for 6 consecutive times, the account will be locked for 10 minutes.
- Resetting the password requires collecting some basic user information.

3.2 Home

You can configure functions and system settings, and view report statistics and logs on the web interface.

Install and log in to PMS according to steps shown in "3.1 Installation and Login."

Figure 3-3 Homepage

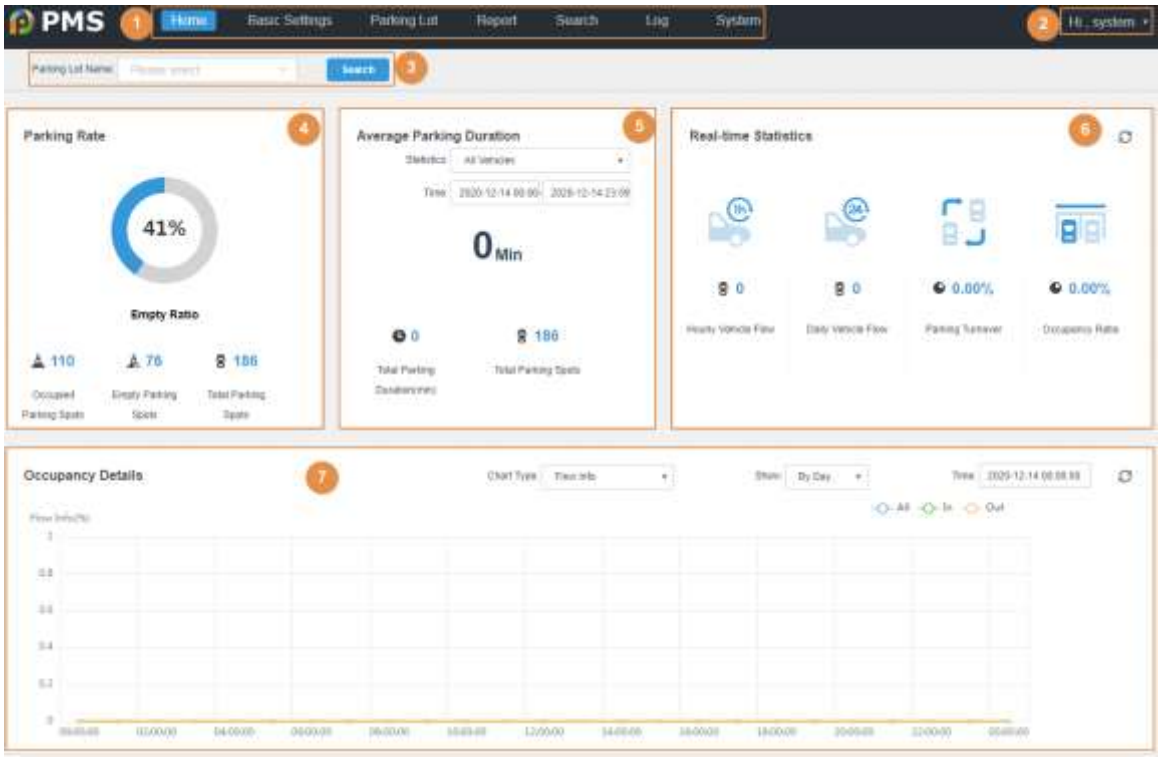


Table 3-1 Home description

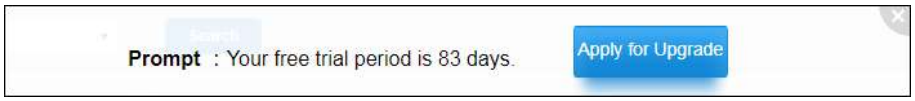
No.	Name	Description
1	Menu	Displays the menu of system functions.
2	Username	Displays login username. Click ▼ on the right, and you can do operations such as viewing software license agreement and software statement, changing password, applying for license, and logging out.
3	Search	Select parking lot name, and click **Search**, then you can view information of the selected parking lot, such as parking rate, and average parking duration.
4	Parking rate	Displays ratio of empty, occupied, and total parking spots.
5	Average parking duration	Displays the average and total parking duration, and total parking spots of the selected parking lot according to the selected the statistics method and within the selected period.
6	Real-time statistics	Displays accumulated vehicle flow per hour or per day, parking turnover rate, and occupancy ratio of the selected parking lot. Click ↻ to refresh the real-time statistics.

No.	Name	Description
7	Vehicle flow information	Displays curve of flow change in the parking lot. Hover over the curve, and you can view the time information, and vehicle flow data (**OUT**, **IN**, and **All**) at a specific time. ● Chart type: View the flow info or occupancy ratio. ● Click ▼ next to **Show** to view the flow information by day, week, month, or year. ● Click 2020-12-14 00:00:00 next to **Time** to change the period that vehicle flow is displayed. ● Click **All**, **In** or **Out**, and the corresponding vehicle flow curve will be displayed. Click the icon again to hide the corresponding information.

3.3 License

- For users who have installed PMS, they can enjoy a free trial up to 90 days with no limitations to device connections. On the **Home** interface, you can view the remaining trial days in a pop-up box.

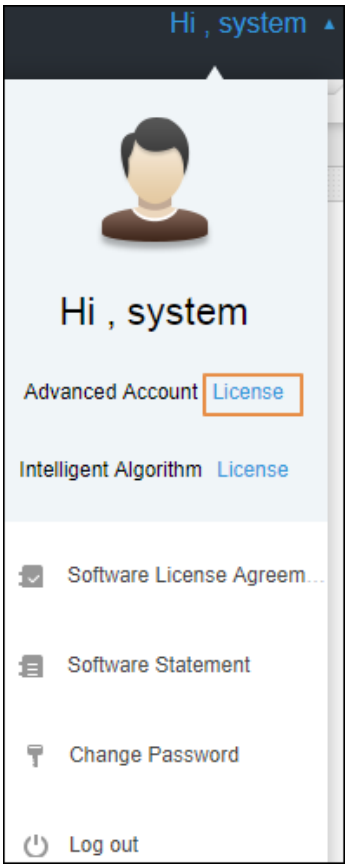
Figure 3-4 Trial prompt



- Alternately, you can apply for upgrading your license to enjoy the service permanently. This section introduces how to upgrade your license.

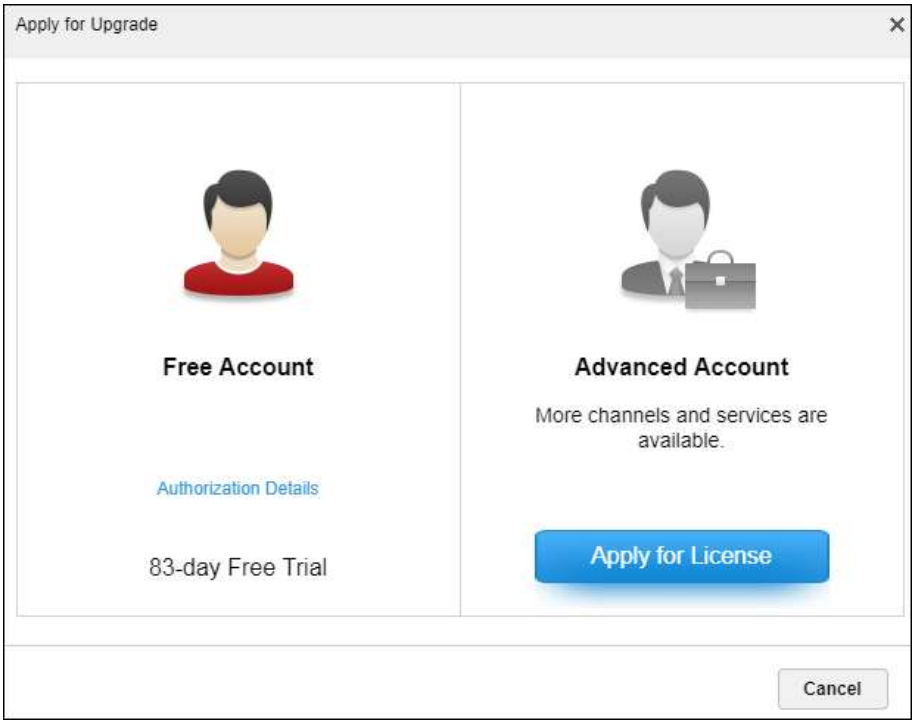
Step 1 Click **Apply for Upgrade**, or point to the username at the upper-right side, and then click **License** next to **Advanced Account**.

Figure 3-5 User information



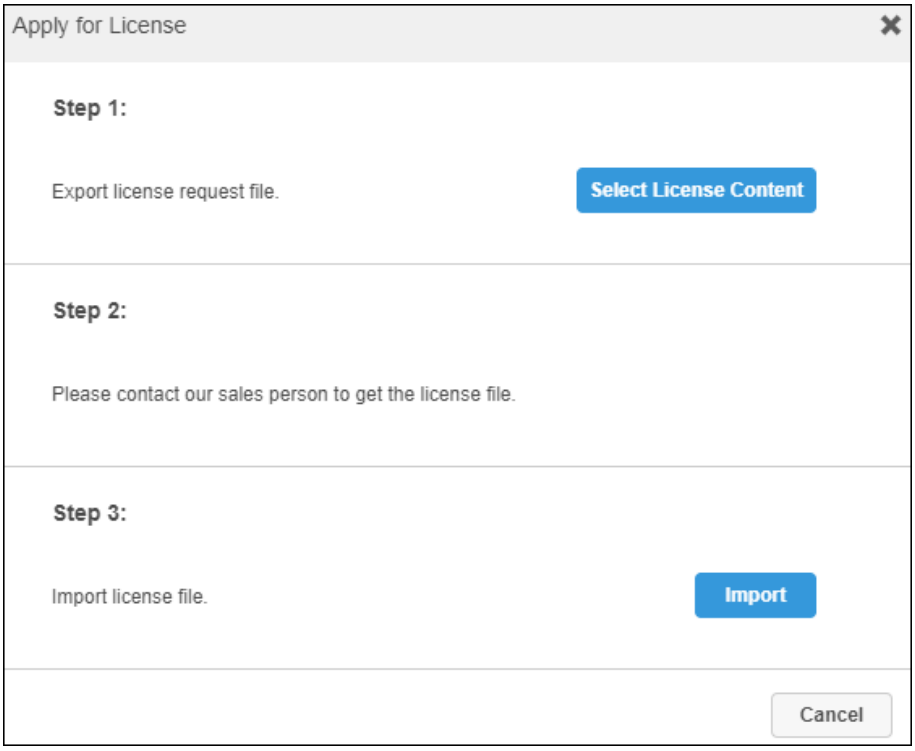
Step 2 Click **Apply for License** to upgrade to advanced account, which has no limitation on the period and you can enjoy more channels.

Figure 3-6 Apply for upgrade



Step 3 On the **Apply for License** interface, follow on-screen instructions to apply for the license.

Figure 3-7 Enter license information

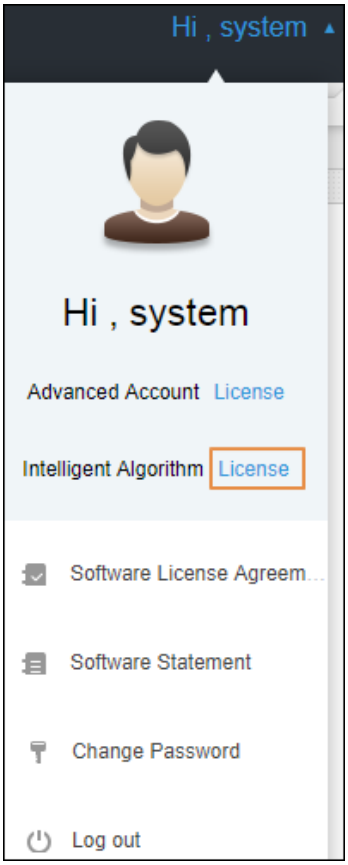


3.4 Importing Algorithm

PMS supports importing algorithm of license plate recognition to manage the parking spots in multiple parking lots.

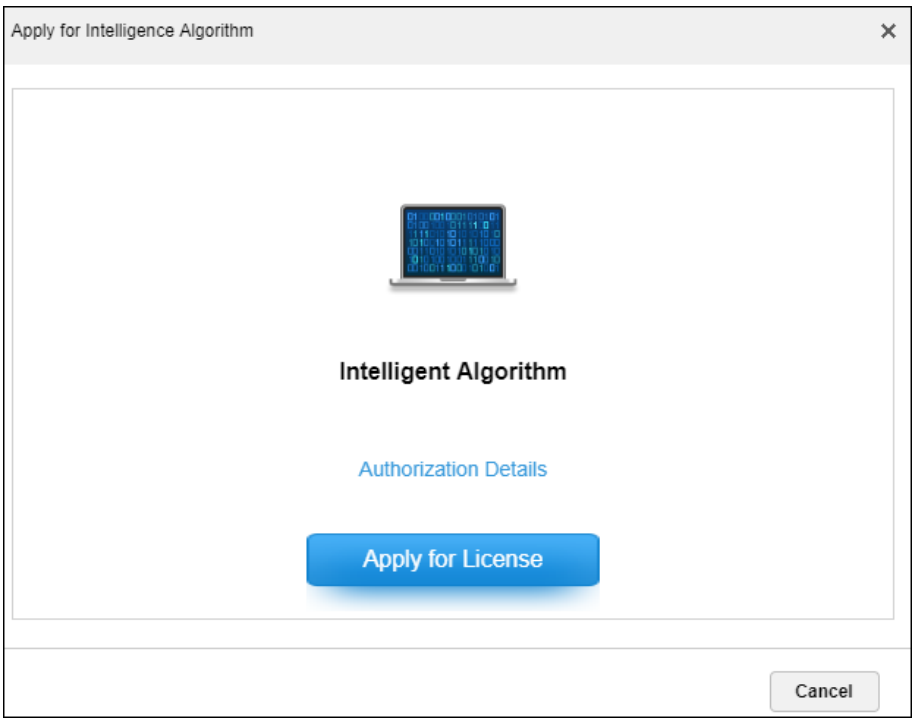
Step 1 Point to the username at the upper-right side, and then click **License** next to **Intelligent Algorithm**.

Figure 3-8 User information



Step 2 Click **Apply for License**.

Figure 3-9 Apply for intelligence algorithm



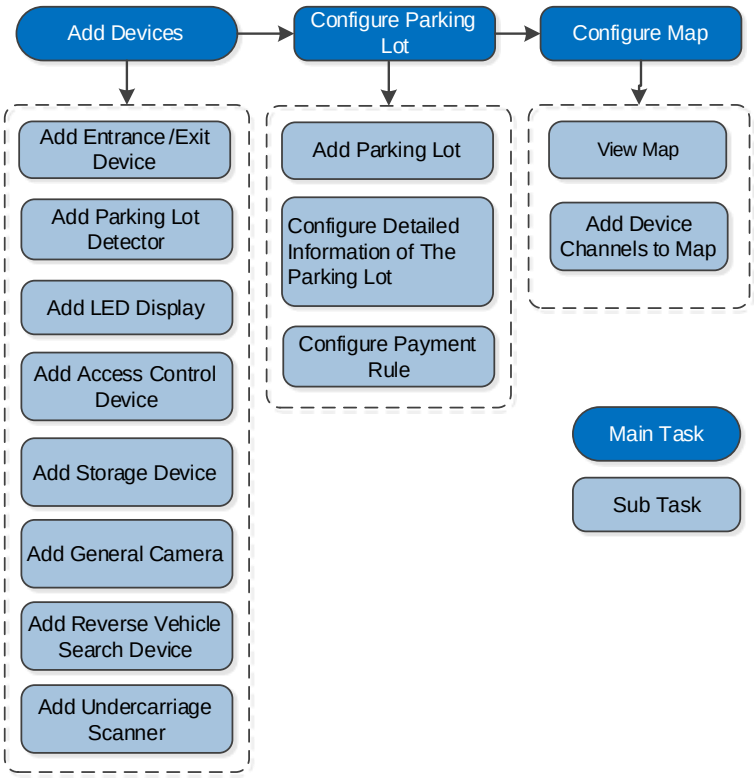
Step 3 On the **Apply for Intelligence Algorithm** interface, follow on-screen instructions to apply for the intelligence algorithm (same steps as applying for the advanced account license).

3.5 Quick Settings

The quick settings flow is shown in the following figure.

The settings flow is an example that illustrates the major procedures. You can add the required devices as needed.

Figure 3-10 Quick settings flow



3.5.1 Adding Device

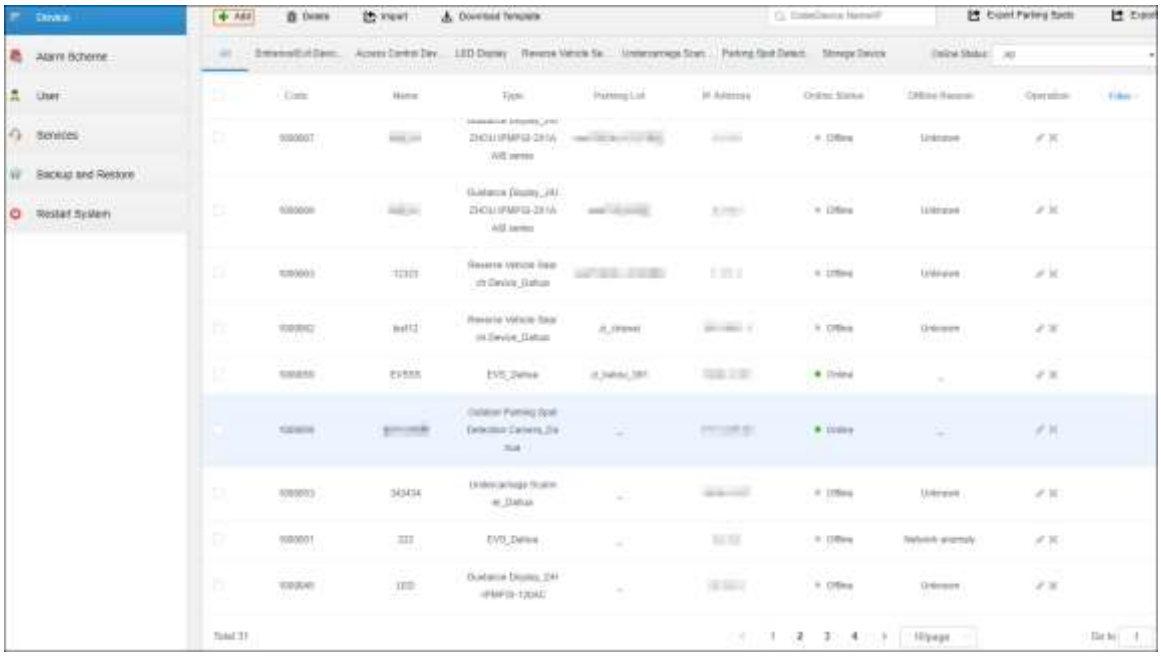
Add different types of devices to PMS as needed for different functions, and then you can import device data for statistics.

- Add devices one by one: Click , and then add device information step by step. See the steps below.
- Add devices in batches: Click **Download Template** to download the template, fill in the device information in the template, and then click **Import** to import devices to PMS.

Step 1 Select **Basic Settings > Device.**

In the **Online Status** column, grey icon means the device is offline, and green means the device is online.

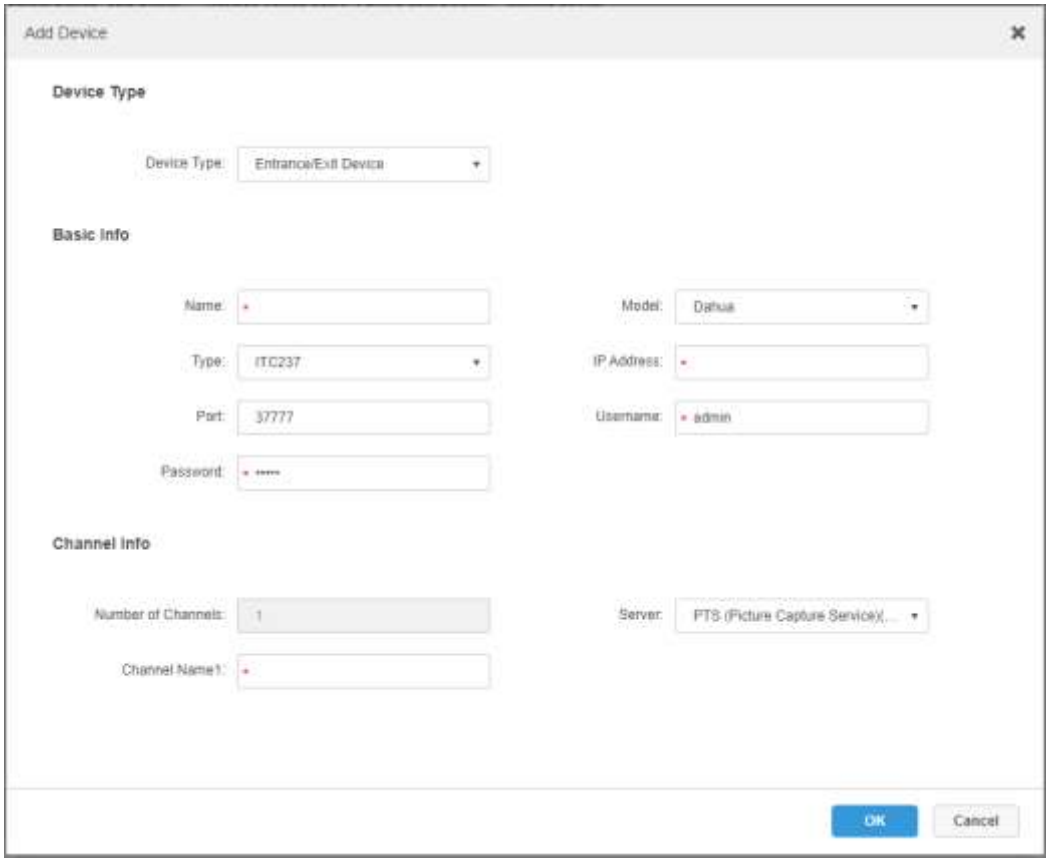
Figure 3-11 Device



- Edit device information: .
- Delete devices: Click to delete a device, or select before one or multiple devices, and then click **Delete** ( ) to delete the selected device(s).
- Export device information: Click **Export**. You need to enter the login password and encryption password to open the exported Excel file.
- Export parking spot information corresponding to the vehicle detector: Click **Export Parking Spots**.

Step 2 Click .

Figure 3-12 Add device



Step 3 Select **Device Type**. You can select from entrance/exit device, access control device, parking lot detector, LED display, storage device, general camera, reverse vehicle search device, and undercarriage scanner.

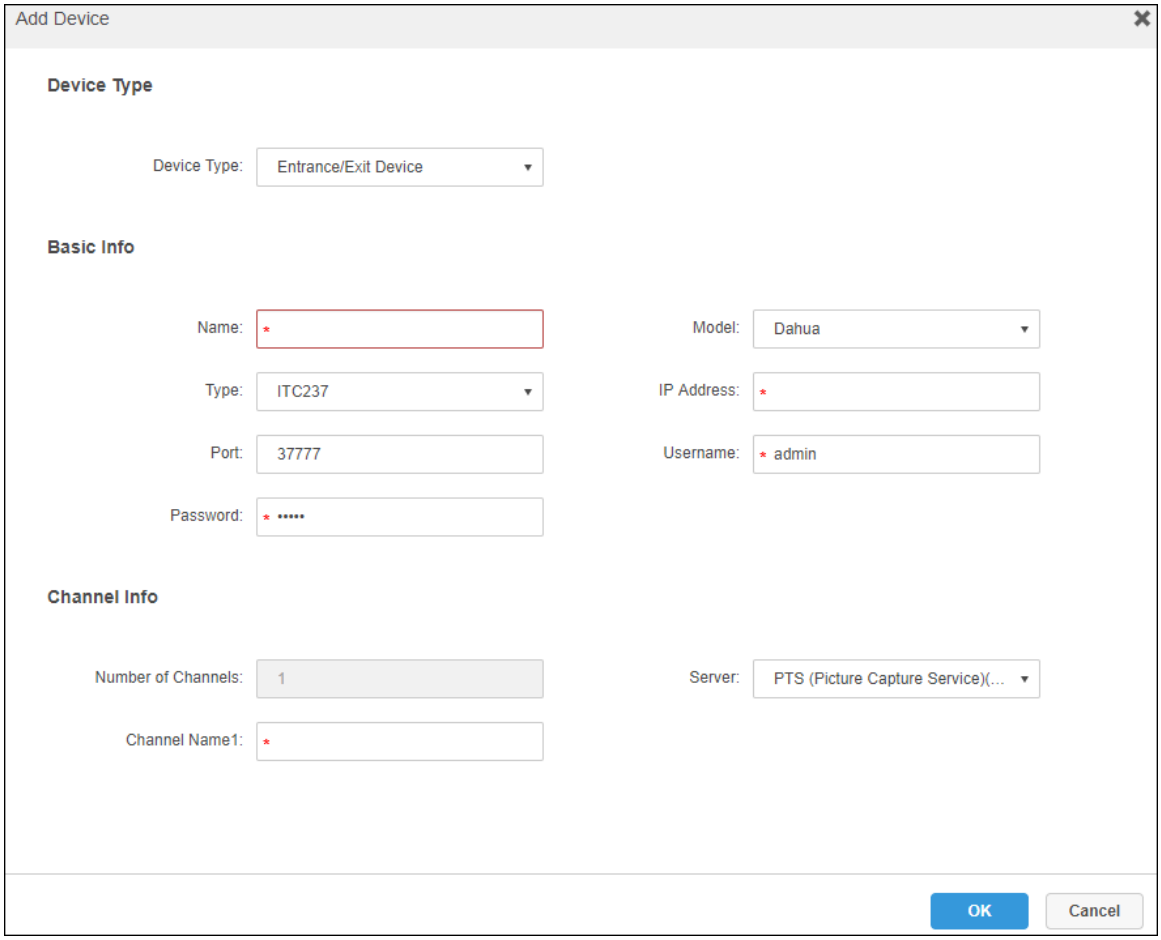
This chapter introduces how to add each type of devices.

3.5.1.1 Adding Entrance/Exit Device

Add devices such as ANPR camera to recognize the license plate.

Step 1 Select **Entrance/Exit Device** from the **Device Type** list.

Figure 3-13 Add entrance/exit device



Step 2 Configure parameters.

Parameters with * are required.

Table 3-2 Description of adding ANPR device

Parameter	Description
Name	The name that identifies the device.
Model	Select device model.
Type	Select the type of device from the list according to the device actually connected.
IP Address	IP address and port of device.
Port	
Username	Username and password for device login.
Password	
Number of Channels	Enter the number of device channels, and set the name of each channel.
Channel Name	
Server	Select the type of server according to actual conditions. For entrance/exit device, only PTS (picture capture service) is available.

Parameter	Description
Remarks	Click **on**, and then enter remarks for the channel. Click **off** to turn this function off. This parameter is available when **Access ANPR Kit** is selected from the **Type** list.

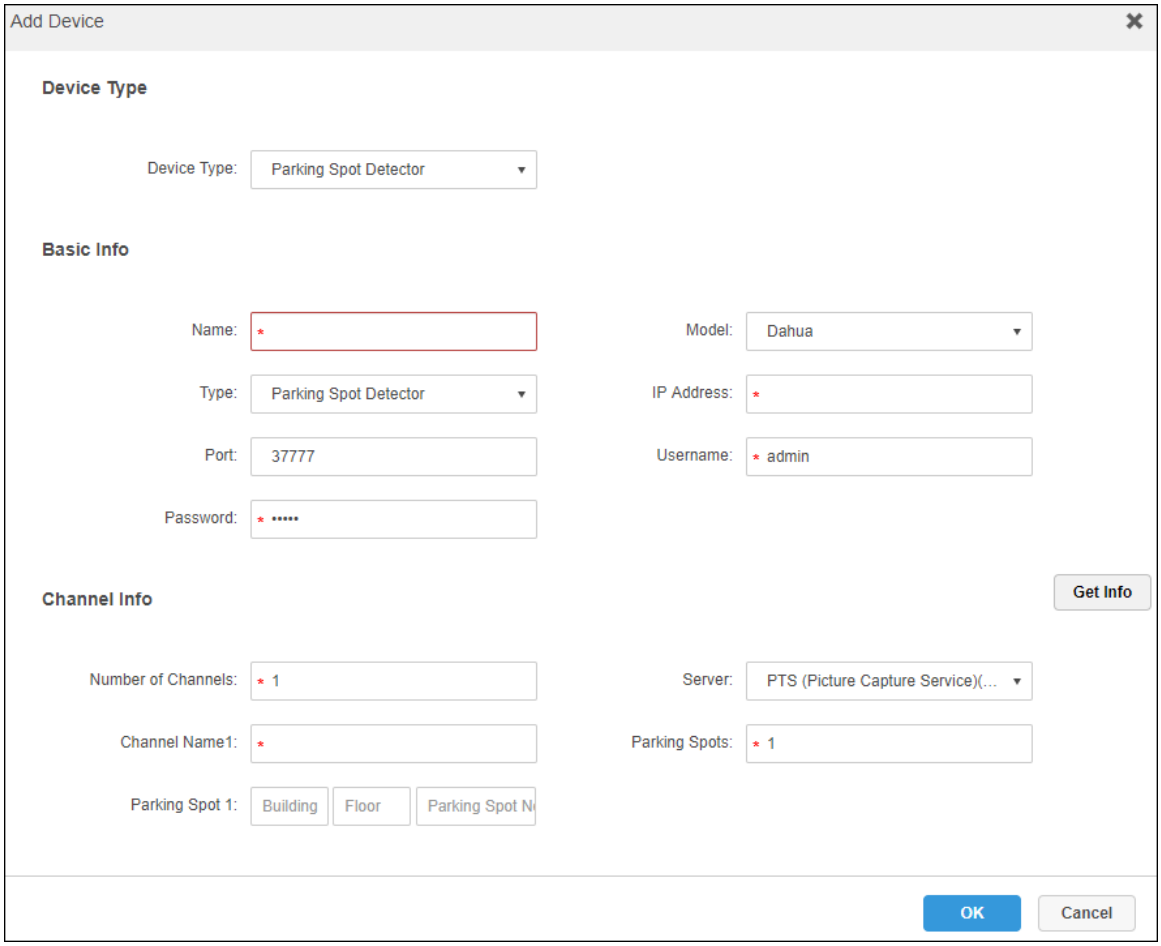
Step 3 Click **OK**.

3.5.1.2 Adding Parking Spot Detector

Add devices to detect the parking spots.

Step 1 Select **Parking Spot Detector** from the **Device Type** list.

Figure 3-14 Add parking spot detector



Step 2 Configure parameters.

Parameters with * are required.

Table 3-3 Description of adding parking spot detector

Parameter	Description
Name	The name that identifies the device.
Model	Select device model.

Parameter	Description
Type	Select the type of device from the list according to the device actually connected.
IP Address	IP address and port of device.
Port	
Username	Username and password for device login.
Password	
Mode	The way of adding the device to PMS. It includes **IP** and **Auto Registration**. This parameter is available when **Outdoor Parking Spot Detection Camera** is selected from the **Type** list.
Number of Channels	Enter the number of device channels, set the name of each channel and the number of parking spots detected by each channel, and define the parking spot No. in **Parking Spot 1**. **Parking Spots** and **Parking Spot 1** are required when **Parking Spot Detector** is selected from the **Type** list.
Channel Name	
Parking Spots	
Parking Spot1	
Server	Select the type of server according to actual conditions. For parking spot detector, only PTS (picture capture service) is available.

Step 3 Click **Get Info** to get the channel information and parking spot information.

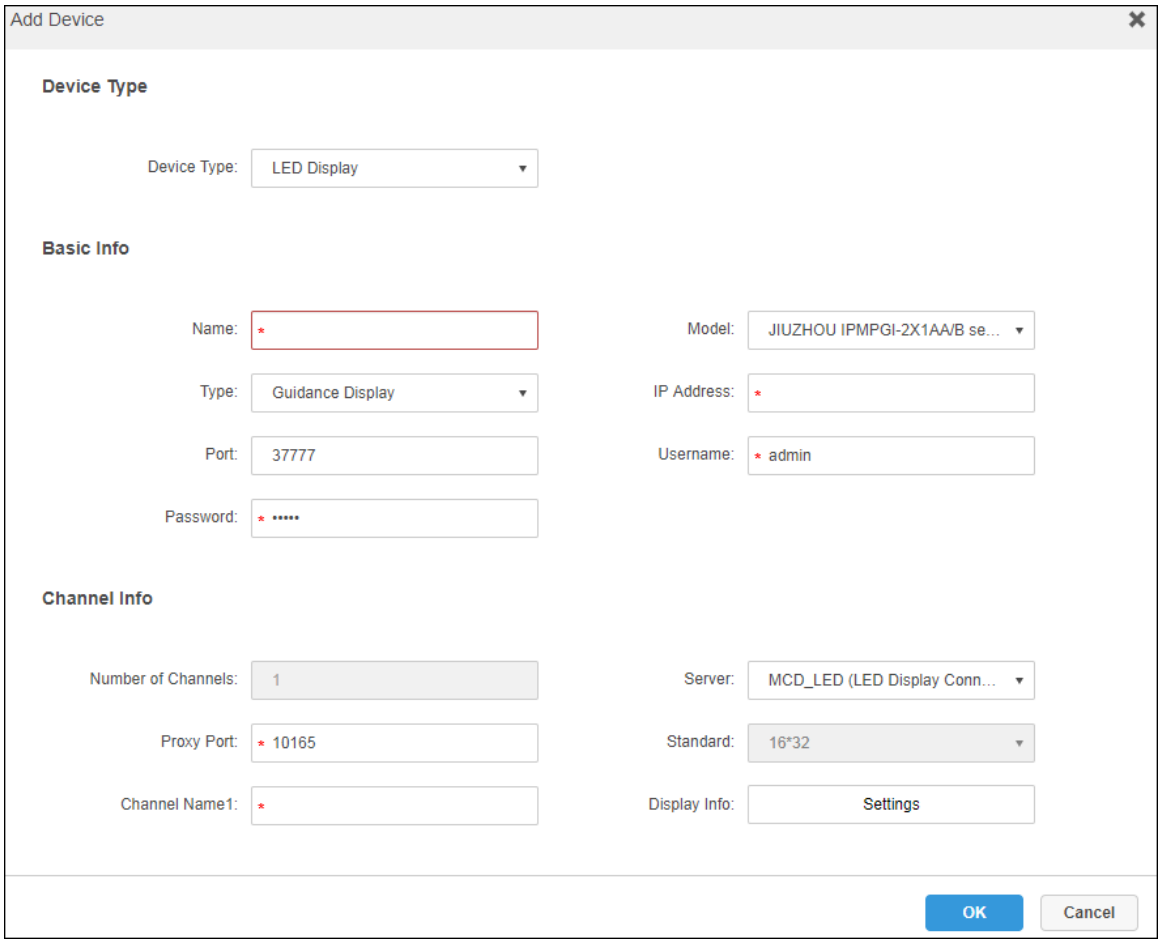
Step 4 Click **OK**.

3.5.1.3 Adding LED Display

Add LED displays to display the parking spot and other information on the LED display.

Step 1 Select **LED Display** from the **Device Type** list.

Figure 3-15 Add LED display



Step 2 Configure parameters.

Parameters with * are required.

Table 3-4 Description of adding LED display

Parameter	Description
Name	The name that identifies the device.
Model	Select device model.
Type	• **Guidance Display**: It displays primarily parking spots information. • **Information Display**: It displays multiple rows of information, such as plate number, vehicle entry time, and vehicle type.
IP Address	IP address and port of device.
Port	
Username	Username and the password for device login.
Password	
Number of Channels	The number and the name of device channels.
Channel Name1	
Server	Select the type of server. For LED display, only MCD_LED service is available.

Parameter	Description
Proxy Port	Enter the port as needed.
Standard	Size of LED display.
Display Info	Click **Settings** to set the information displayed on the LED display. See Figure 3-16, Figure 3-17, and Table 3-5.
Show Number of Rows	The rows that will be displayed on the information display. Range: 1–4. This parameter is available when **Information Display** is selected from the **Type** list.

Step 3 Set the information shown on the LED display.

The interfaces of different LED displays might vary, and the actual interface shall prevail.

Figure 3-16 Guidance display

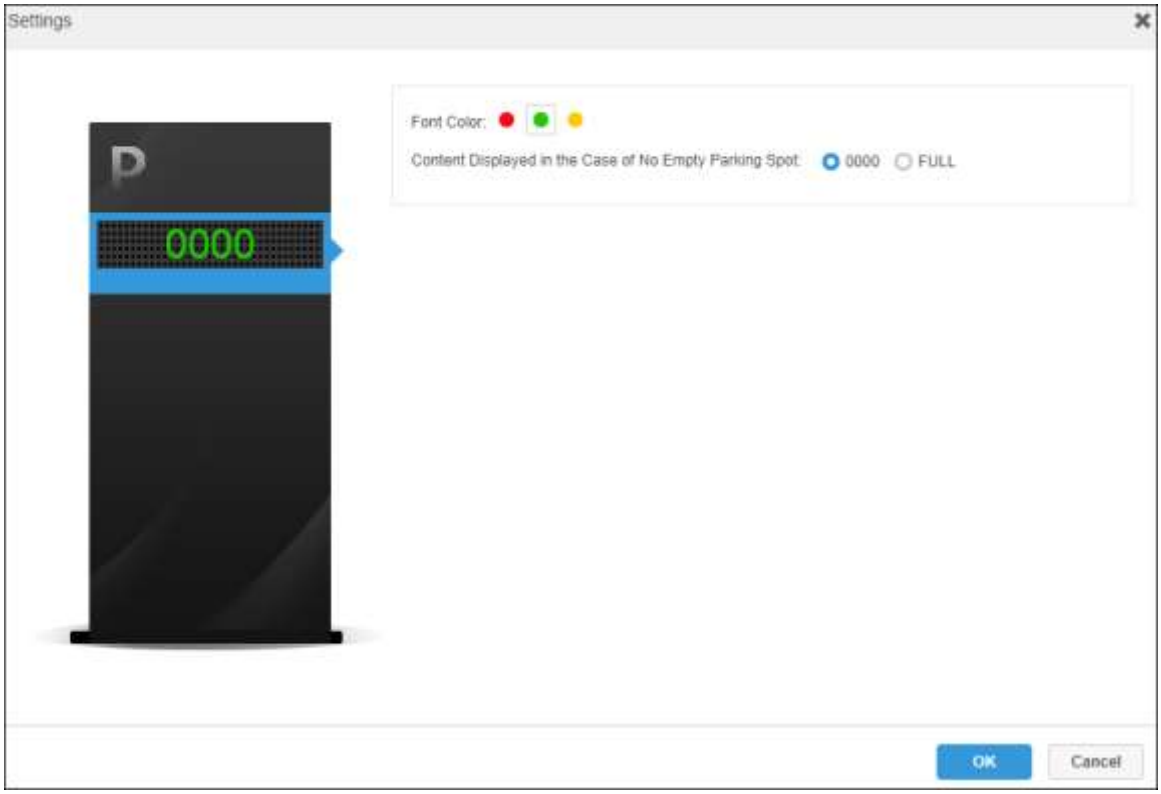


Figure 3-17 Information display

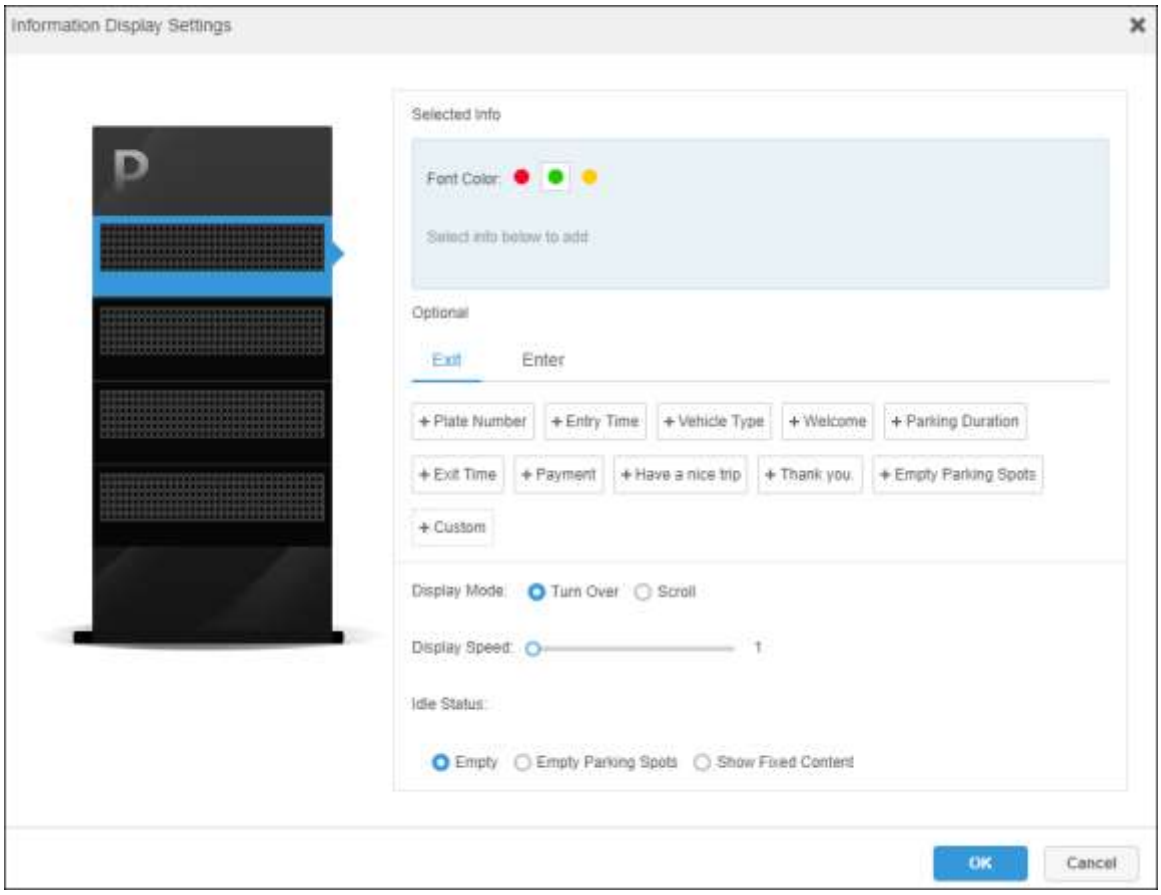


Table 3-5 Description of setting LED display

Parameter	Description
Font Color	Color of font on the screen. Red, green, and yellow are available.
Content Displayed in the Case of No Empty Parking Spot	Set the information displayed on the screen when there is no empty parking spot in the parking lot. You can select from **0000** and **FULL**. This parameter is available when **Guidance Display** is selected from the **Type** list.
Optional	Select the items displayed on the screen.
Display mode	Select how the information is displayed on the screen. You can select from **Turn Over** or **Scroll**.
Display Speed	The speed that the information displays on the screen, ranging from 1 through 100. The larger the value is, the faster the information displays.
Idle Status	Select the content displayed on the screen when no vehicle passes.
Icon Type	Configure the icon shows on the screen. This parameter is available when **Guidance Display** is selected from the **Type** list and **Model** is not **JIUZHOU**.

Parameter	Description
Idle Spot Buffer (0–9999)	When the number of idle spots is no more than the configured buffer value, the guidance screen shows FULL. Otherwise shows the actual spot number. This parameter is available when **Guidance Display** is selected from the **Type** list and **Model** is **QINGSONG**.

Step 4 Click **OK** to save the settings.

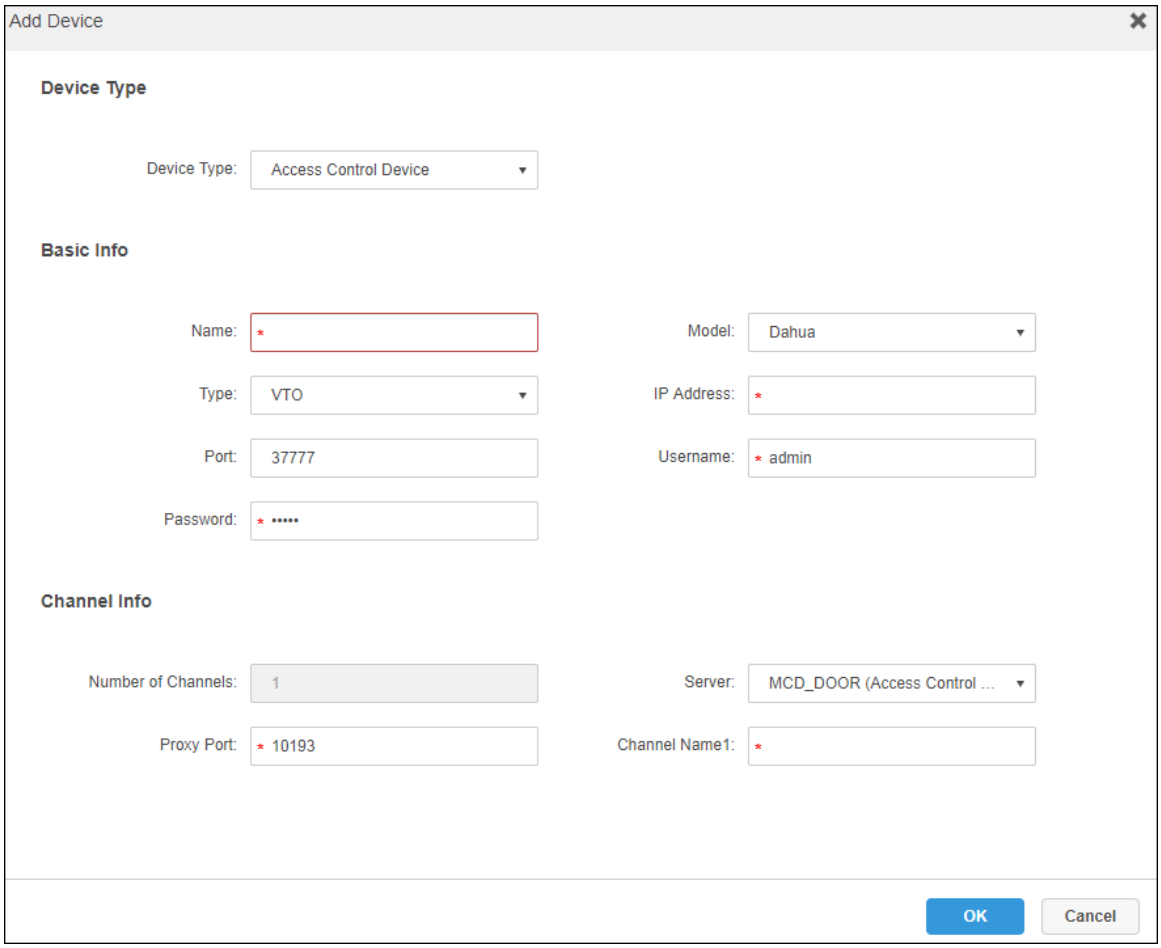
Step 5 Click **OK** to save device information.

3.5.1.4 Adding Access Control Device

Add access control devices, including VTO, card reader and I/O box, to control and record vehicles accessing parking lots.

Step 1 Select **Access Control Device** from the **Device Type** list.

Figure 3-18 Add access control device



Step 2 Configure parameters.

Parameters with * are required.

Table 3-6 Description of adding VTO (door station)

Parameter	Description
Name	The name that identifies the device.
Model	Select device model.
Type	You can select from **VTO** (door station), **Card Reader**, and **I/O Box**.
IP Address	IP address and port of device.
Port	
Username	Username and password for device login.
Password	
Number of Channels	The number and the name of device channels.
Channel Name1	
Server	Select the type of server. For access control devices, only MCD_DOOR service is available.
Proxy Port	Enter the port as needed.
In Channels	Receives signals from ANPR cameras and sends out to the bound LED display to show empty parking spots in certain parking lot. These parameters are available when **I/O Box** is selected from the **Type** list.
Out Channels	
In Channel Name1	
Out Channel Name1	

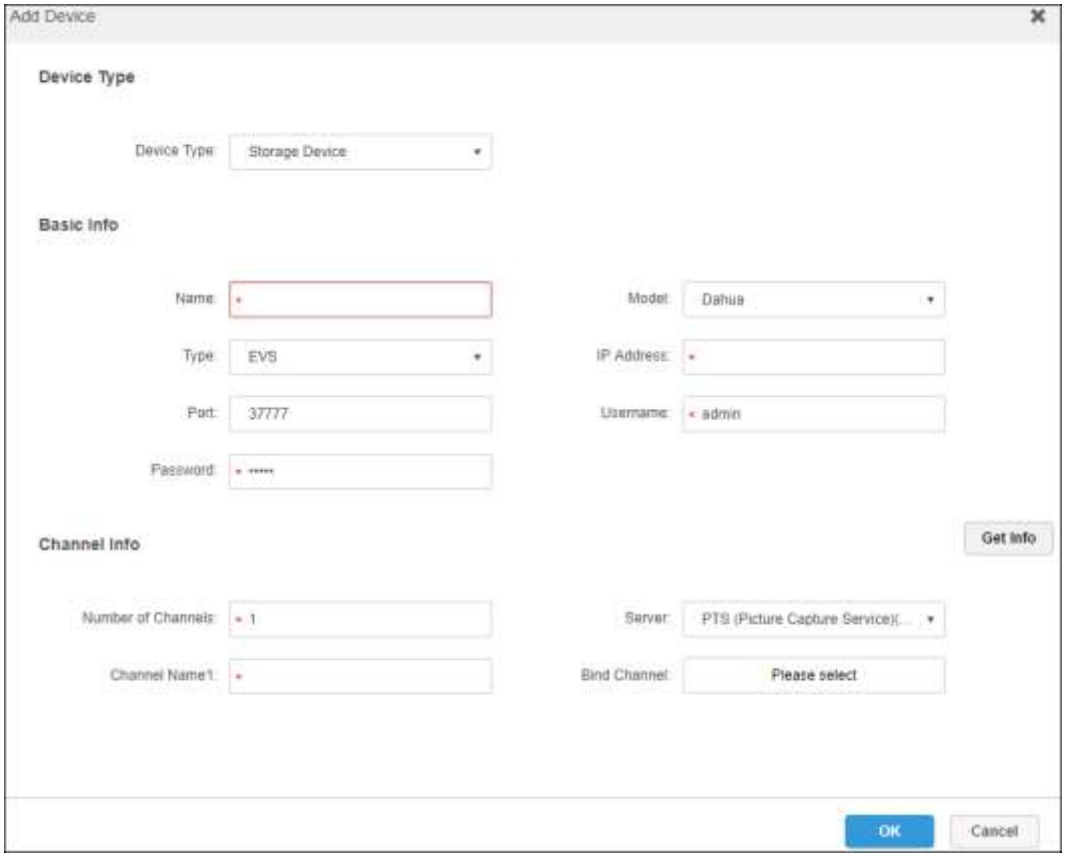
Step 3 Click **OK**.

3.5.1.5 Adding Storage Device

Add storage devices such as EVS and NVR to save the snapshots and videos.

Step 1 Select **Storage Device** from the **Device Type** list.

Figure 3-19 Add storage device



Step 2 Configure parameters.

Parameters with * are required.

Table 3-7 Description of adding VTO (door station)

Parameter	Description
Name	The name that identifies the device.
Model	Select device model.
Type	You can select from **EVS** (embedded video storage server) and **NVR** (network video server).
IP Address	IP address and port of device.
Port	
Username	Username and password for device login.
Password	
Number of Channels	The number and the name of device channels.
Channel Name1	
Server	Select the type of server. For access control devices, only PTS (picture capture service) is available.
Bind Channel	Click **Please select**, and then select the channel to be bound. The parameter is available when **EVS** is selected from the **Type** list.

Parameter	Description
Get Info	Get information of all EVS channels. The parameter is available when **EVS** is selected from the **Type** list.

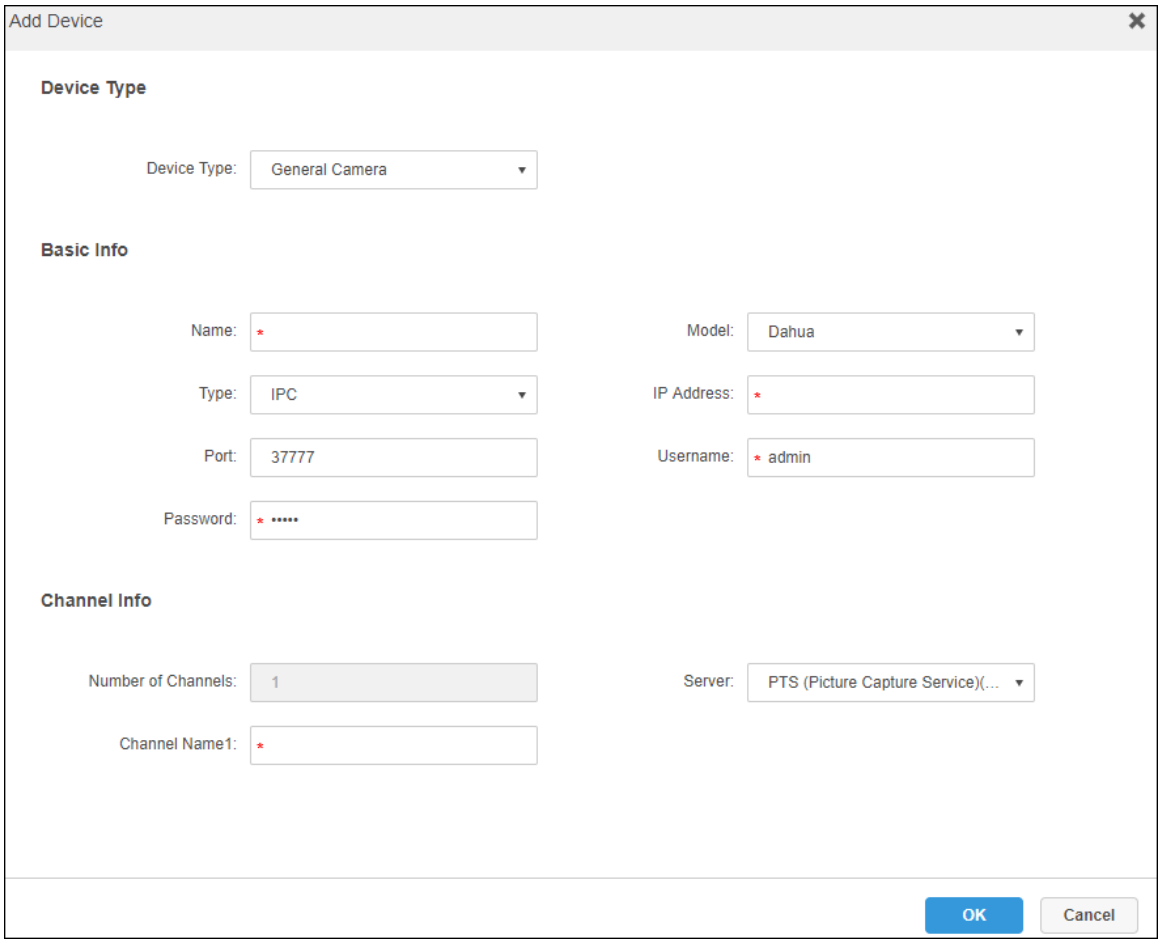
Step 3 Click **OK**.

3.5.1.6 Adding General Camera

Add cameras such as IPC and PTZ camera for video monitoring.

Step 1 Select **General Camera** from the **Device Type** list.

Figure 3-20 Add camera



Step 2 Configure parameters.

Parameters with * are required.

Table 3-8 Description of adding VTO (door station)

Parameter	Description
Name	The name that identifies the device.
Model	Select device model.
Type	You can select from **IPC** and **PTZ Camera**.
IP Address	IP address and port of device.
Port	

Parameter	Description
Username	Username and password for device login.
Password	
Number of Channels	The number and the name of device channels.
Channel Name1	
Server	Select the type of server. For camera, only PTS (picture capture service) is available.
Get Info	Get information of all camera channels. The parameter is available when **PTZ Camera** is selected from the **Type** list.

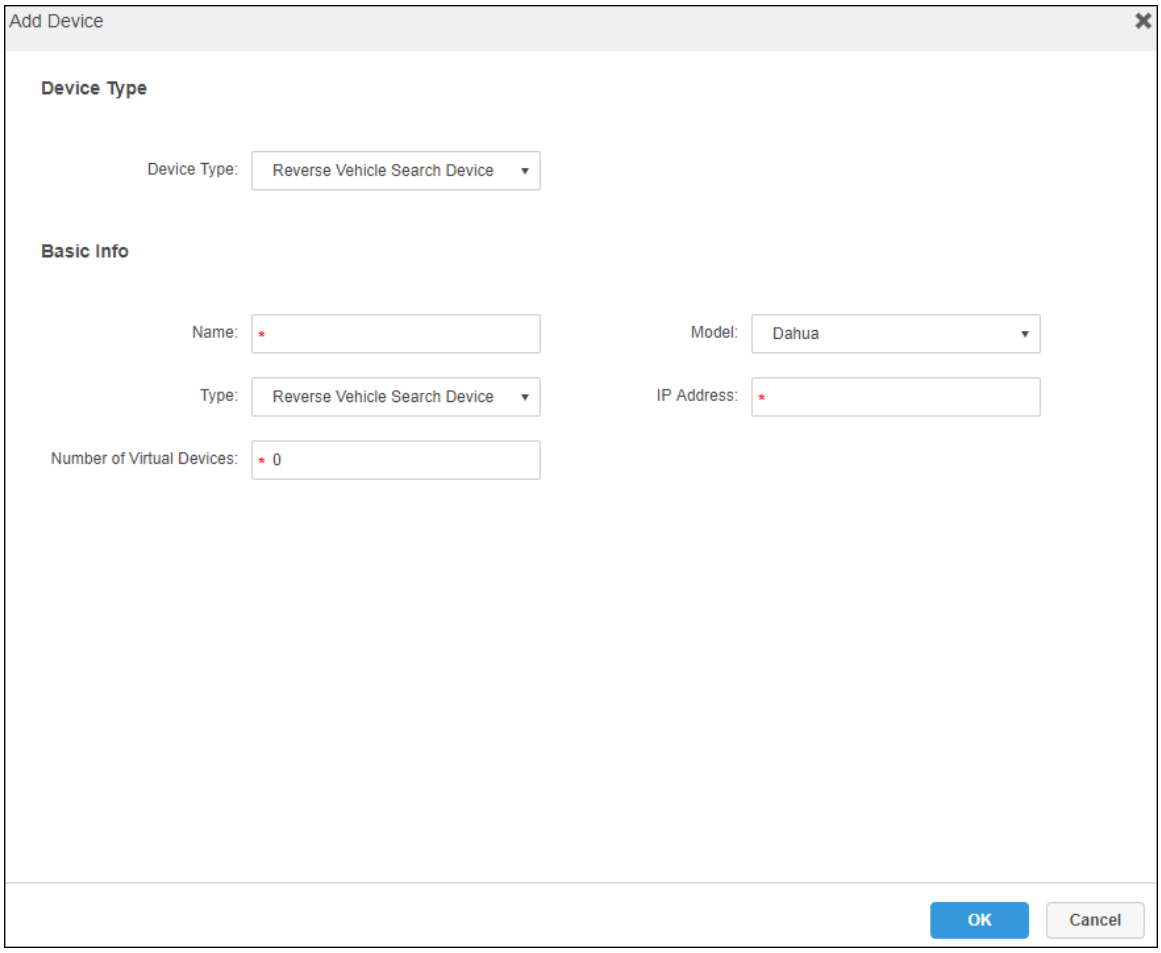
Step 3 Click **OK**.

3.5.1.7 Reverse Vehicle Search Device

Add reverse vehicle search device to search for the parking position of your vehicle in the parking lot.

Step 1 Select **Reverse Vehicle Search Device** from the **Device Type** list.

Figure 3-21 Add reverse vehicle search device



Step 2 Enter device name and IP address, and select device model.

Parameters with * are required.

Table 3-9

Parameter	Description
Name	The name that identifies the device.
Model	Select device model.
Type	You can select from **IPC** and **PTZ Camera**.
IP Address	IP address and port of device.
Number of Virtual Devices	Configure the number of virtual devices which can be placed on the parking lot map to search for vehicles (through vehicle search line).

Step 3 Click **OK**.

3.5.2 Configuring Parking Lot

Add parking lots, and bind devices to each parking lot to manage and monitor parking spots and display the parking lot information on the LED display.

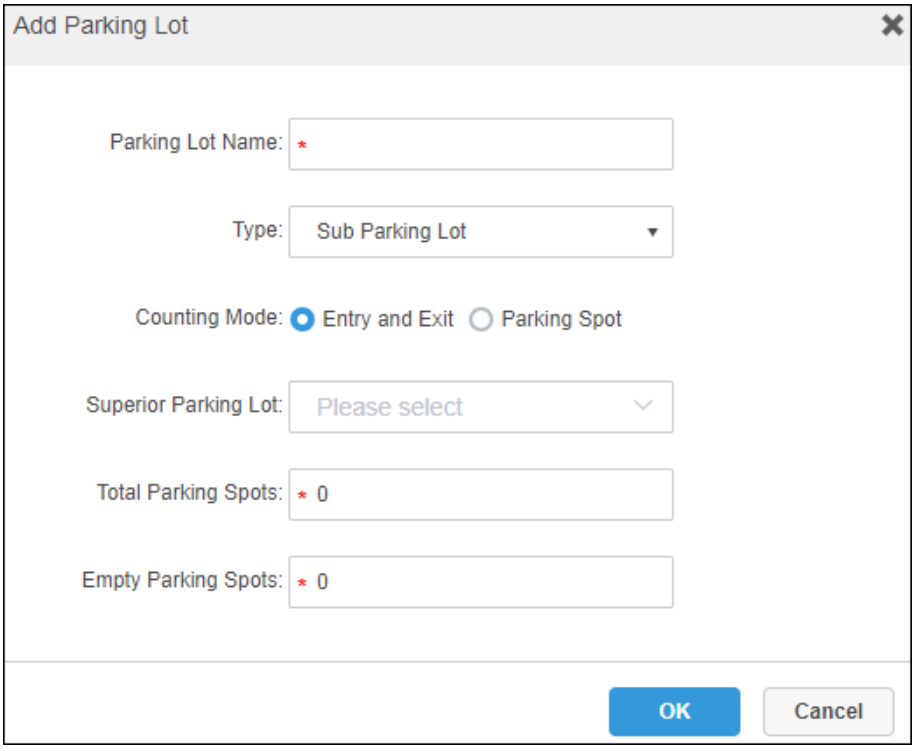
3.5.2.1 Adding Parking Lot

Add new parking lot before configuring parking lot details.

Step 1 Select **Parking Lot > Parking Lot Settings**.

Step 2 Click + at the right side.

Figure 3-22 Add parking lot



Step 3 Configure parking lot information.

Table 3-10 Description of adding parking lot (1)

Parameter	Description
Parking Lot Name	The name that identifies the parking lot.
Type	● **Sub Parking Lot**: You can add devices to it to know parking spot changes when vehicles enter or exit. ● **Parent Parking Lot**: You can add sub parking lots to it for data collection, or add ANPR devices to it to view entry and exit records. Parking spot changes cannot be counted when vehicles enter or exit.
Counting Mode	● **Entry and Exit**: Count the vehicles captured by the entry and exit cameras. ● **Parking Spot**: Count the vehicles according to parking spot occupancy.
Total Parking Spots	The total parking spots in the parking lot.
Empty Parking Spots	The parking spots available in the parking lot.

Step 4 Click **OK**.

3.5.2.2 Editing Parking Lot

You can edit parking lot details, add devices to the parking lot, and upload the map of the parking lot. The configuration varies according to different counting mode.

3.5.2.2.1 Entry and Exit

When set **Counting Mode** to **Entry and Exit**, configure parking lot details as following steps.

When the parking lot type is parent parking lot, which can only bind entry and exit cameras to get parking spots information, the detailed configuration is the same.

Step 1 Double-click the added parking lot, the counting mode of which is entry and exit or type is parent parking lot.

Step 2 Configure basic information of the parking lot.

Figure 3-23 Parking lot basic information (1)

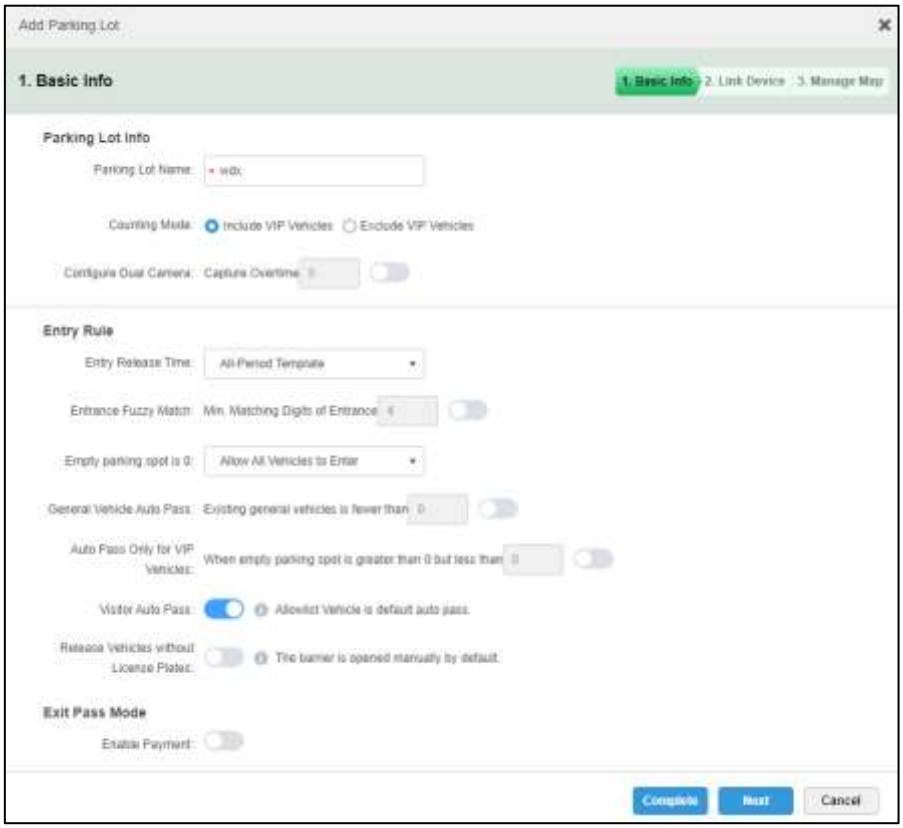


Table 3-11 Basic information description

Parameter	Description
Parking Lot Info	
Parking Lot Name	The name that identifies the parking lot.
Counting Mode	Include VIP Vehicles: When a VIP vehicle accesses, the empty parking spots minus 1. Exclude VIP Vehicles: When a VIP vehicle accesses, the empty parking spots stays the same.
Configure Dual Camera	Set capture overtime (5 by default). When both cameras capture a snapshot within the defined time period, system counts one vehicle.
Longitude	The longitude and latitude of the parking lot. Only appear when the parking lot type is **Parent Parking Lot**.
Latitude	
Entry Rule	
Entry Release Time	The time that the entry rule works. To configure the time template, see Step 3.
Entrance Fuzzy Match	For vehicles in the allowlist, by turning on **Entrance Fuzzy Match**, the vehicle will be released when the digits of its license plate reach or exceed the defined digits.
Empty parking spot is 0	Select the entry rule when no parking spot is available.

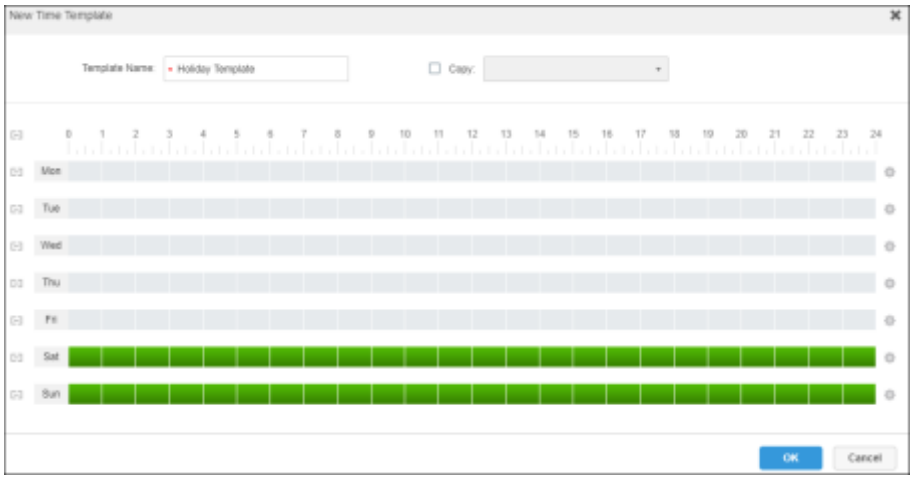
Parameter	Description
General Vehicle Auto Pass	Select whether to enable auto pass of general vehicles when the number of empty parking spots is less than the defined number.
Auto Pass Only for VIP Vehicles	Select whether to enable auto pass of VIP vehicles when the number of empty parking spots is less than the defined number.
Visitor Auto Pass	Select whether to enable auto pass of visitor vehicles.
Release Vehicles without License Plates	By enabling the function, vehicles without license plate will leave with no need of paying the parking fee; otherwise, parking fees must be paid before such vehicles leave.
Exit Pass Mode	
Enable Payment	Enable or disable charging parking fees when a vehicle leaves.
Allowlist Vehicle Auto Pass	Enable or disable vehicles in the allowlist to be released automatically.
Exit Fuzzy Match	For vehicles captured by the entry camera, by enabling **Exit Fuzzy Match**, the vehicle will be released when the digits of its license plate reach or exceed the defined digits (it is 4 by default).
Release Vehicles without License Plates	By enabling the function, vehicles without license plate will leave with no need of paying the parking fee; otherwise, parking fees must be paid before such vehicles leave.

Step 3 Configure the time that the entry rule works.

Click ▼ next to **Entry Release Time** to select a time template or click ✚ to add a customized time template. This section introduces how to add a customized time template.

1) Click ✚.

Figure 3-24 Add new time template



2) Enter the template name.

3) Point to the timeline, and when the pointer changes to ✎, you can draw time template, which will be displayed in green when finished.

- Point to the time template drawn, and when the pointer changes to , click the template that you have drawn to delete it.
- Click to add periods by entering numbers.
- Click before each day to select one or more day(s) of a week. Click the first to select the whole week.

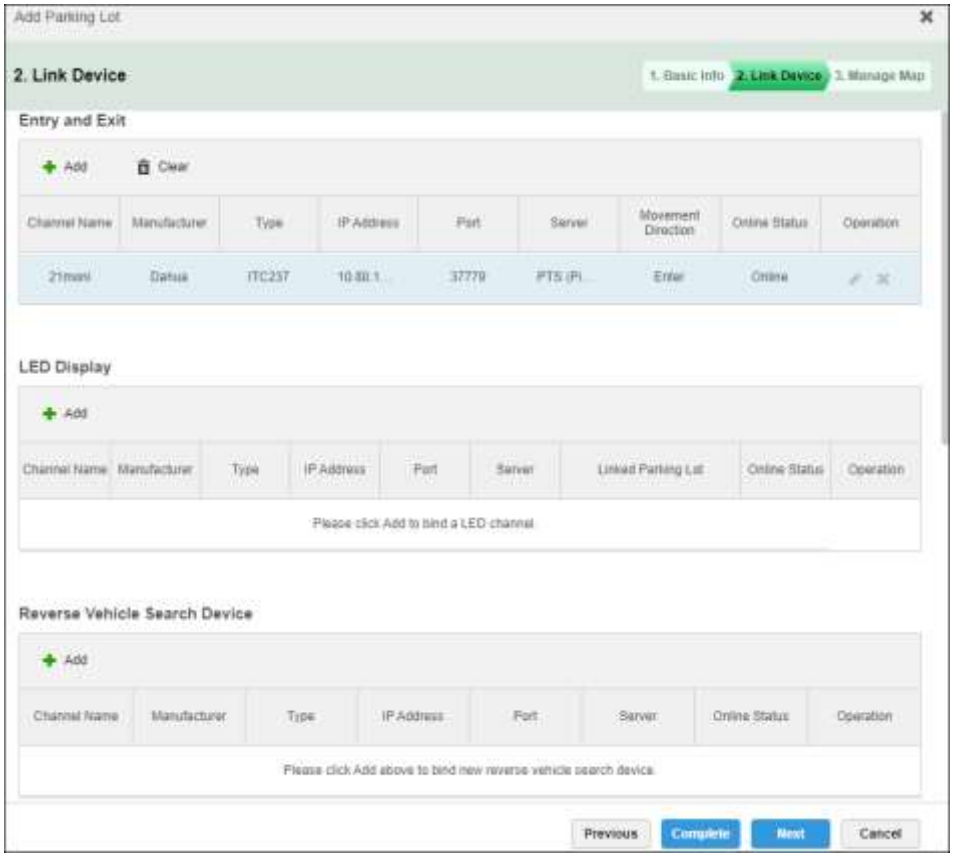
4) (Optional) Select the **Copy** check box, click , and then select a time template, then you can copy the settings of the time template to the customized template.
5) Click **OK**.

Step 4 Click **Next**, and then you can configure the devices to be bound to the parking lot. Bind the devices as needed.

- **Entry and Exit**: Add devices such as ANPR camera to recognize the license plate.
- **LED Display**: Displays the parking spot and other information on the LED display.
- **Reverse Vehicle Search Device**: Search for the parking position of your vehicle in the parking lot.
- **General Camera**: Add cameras such as IPC and PTZ camera for video monitoring.
- **Storage Device**: Add storage devices such as EVS and NVR to save the snapshots and videos.
- **I/O Box**: Add I/O Box to receive vehicle access signals and send to PMS.

The steps of adding devices are similar. This section takes adding **Entry and Exit** devices as an example.

Figure 3-25 Link device

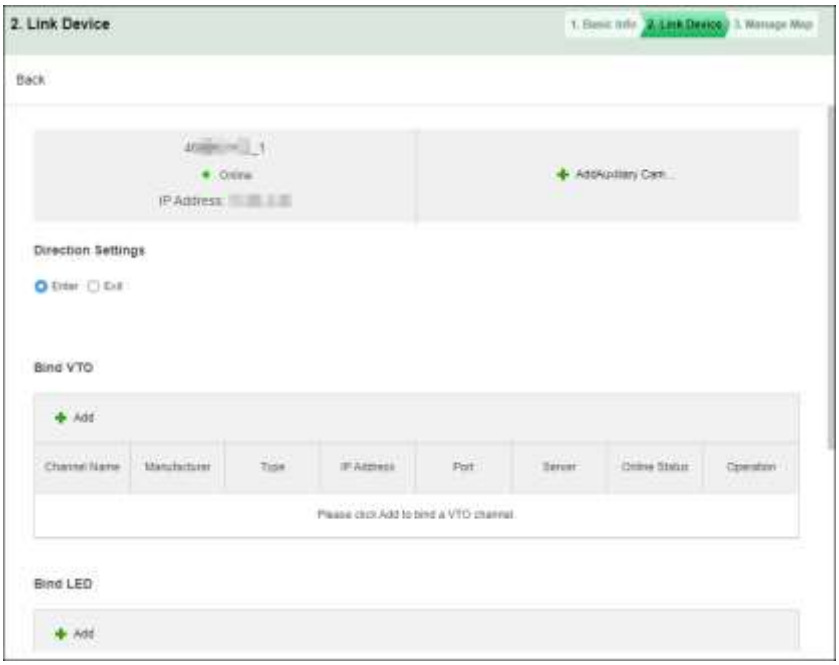


1) Click ✚.

2) Select device channel, and then click **Complete**.

- You need to add the device first according to "3.5.1 Adding Device"; otherwise, no device channel can be selected.
- For **Entry and Exit** device, click ✎, and then you can:
  - ◇ Change the direction (**Enter** by default) that the camera detects.
  - ◇ Bind VTO (door station), LED display, and card reader to the camera.
  - ◇ Add auxiliary camera for enhanced detection accuracy if dual camera is enabled in the previous step.

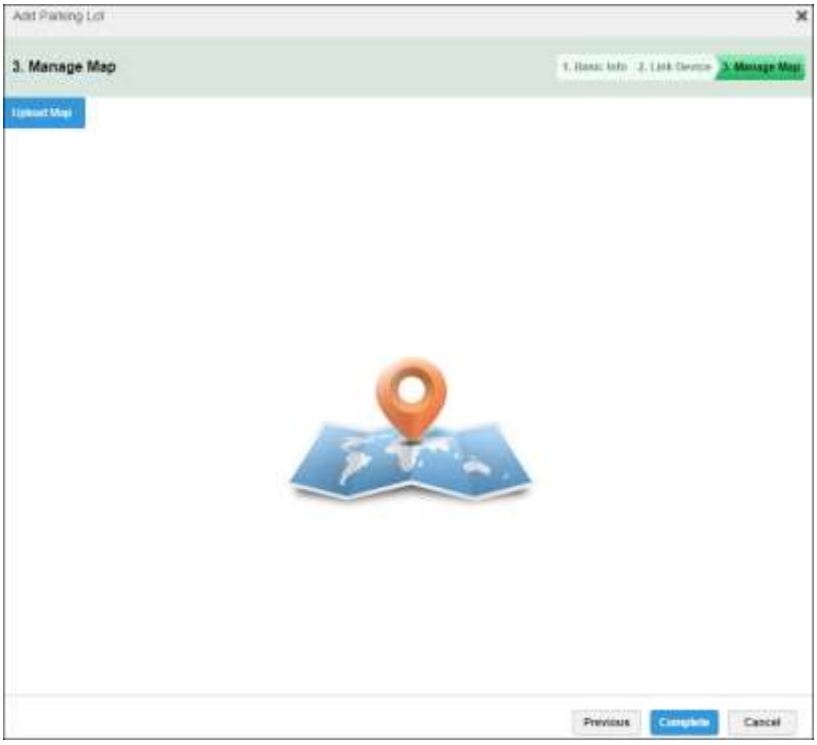
Figure 3-26 Edit entry and exit device



Step 5 Click **Next**, and then you can add map to the parking lot.

1) Click **Upload Map**.
2) Select parking lot map, and then upload it to PMS.

Figure 3-27 Map



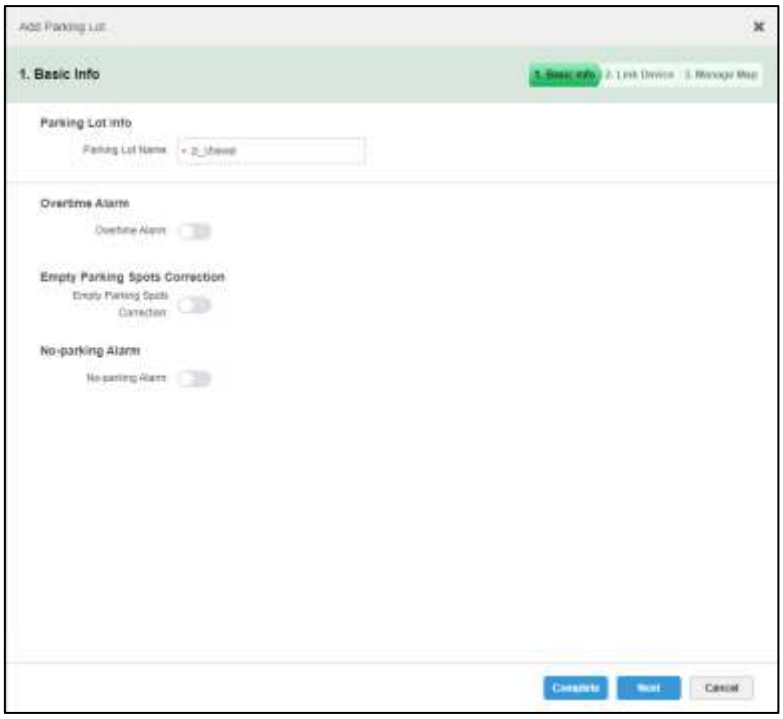
Step 6 Click **Complete**.

3.5.2.2.2 Parking Spot

Step 1 Double-click the added parking lot, the counting mode of which is parking spot.

Step 2 Configure basic information of the parking lot.

Figure 3-28 Parking lot basic information (2)



Step 3 Configure parameters.

Table 3-12 Basic information description

Parameter	Description
Parking Lot Name	The name that identifies the parking lot.
Overtime Alarm	By enabling the function and setting the time (24 hours at most), an alarm will be triggered when a vehicle parking in the parking lot over the defined time.
Empty Parking Spots Correction	Enable the function, and set the number of the empty parking spots, which refreshes the data shown on the LED display at defined time. For details, see "3.7.9 LED Custom Settings". This helps avoid data error that might happen after long-time operation. This function is available when empty parking spots correction is enabled from **System > Refresh Empty Parking Spots**.
No-parking Alarm	Set the time period of vehicles parking on the restricted spots before triggering the alarm.

Step 4 Bind devices to the parking lot as needed. For details, see "3.5.2.2.1 Entry and Exit".

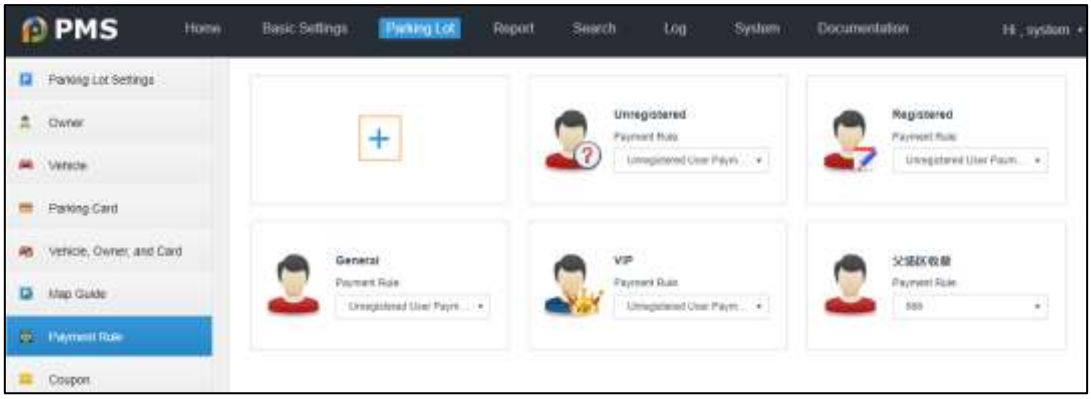
Different from entry and exit devices which use camera snapshots to count parking spots, for this counting mode (parking spot), you need to add parking spot detector to count empty parking spots.

3.5.2.3 Configuring Payment Rule

After setting the parking lot, you need to configure the payment rule, which defines the way of paying the parking fees by each kind of user.

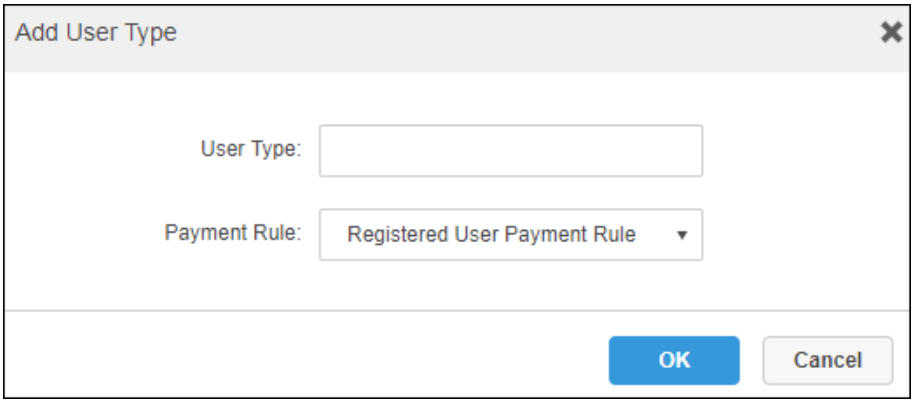
Step 1 Select **Parking Lot > Payment Rule**.

Figure 3-29 Payment rule



Step 2 Click + to create a user group.

Figure 3-30 Create user group

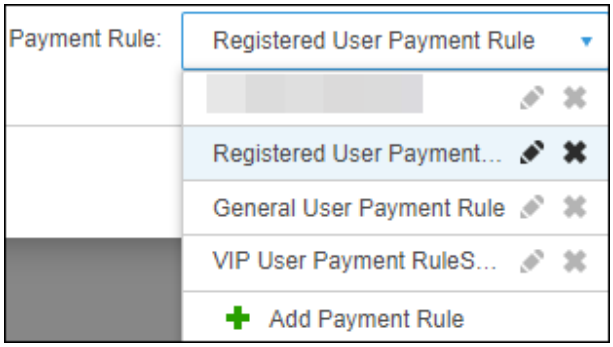


Step 3 Set user type and payment rule.

You can add a new payment rule, or modify or delete the existing payment rule. See Figure 3-31.

Click ▼ in the **Payment Rule** drop-down list to add, modify or delete payment rule.

Figure 3-31 Set payment rule



- Add a payment rule.

1) Click ✚.

Figure 3-32 Add payment rule (booth payment)

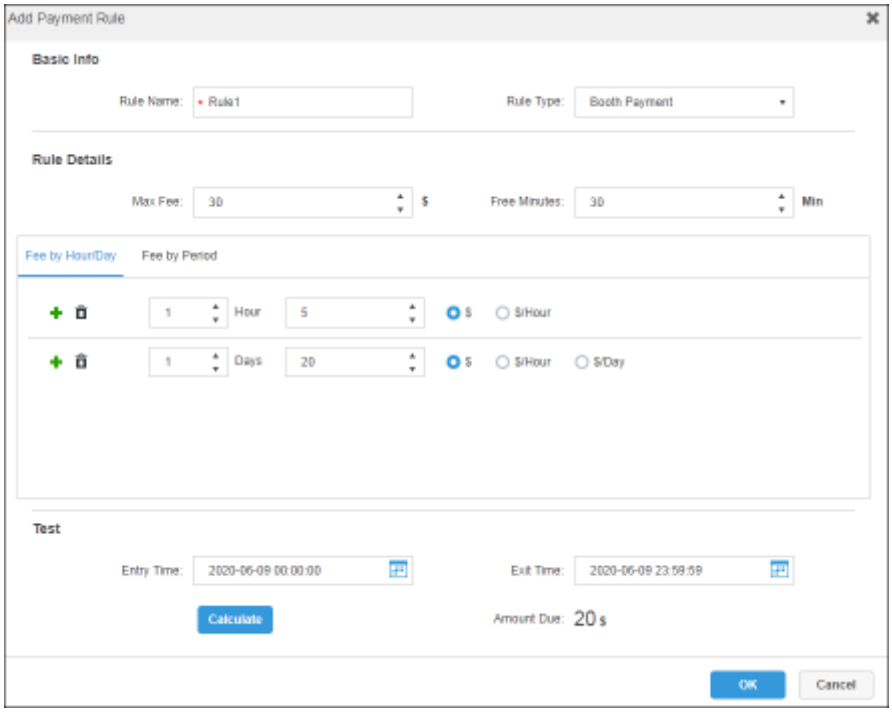
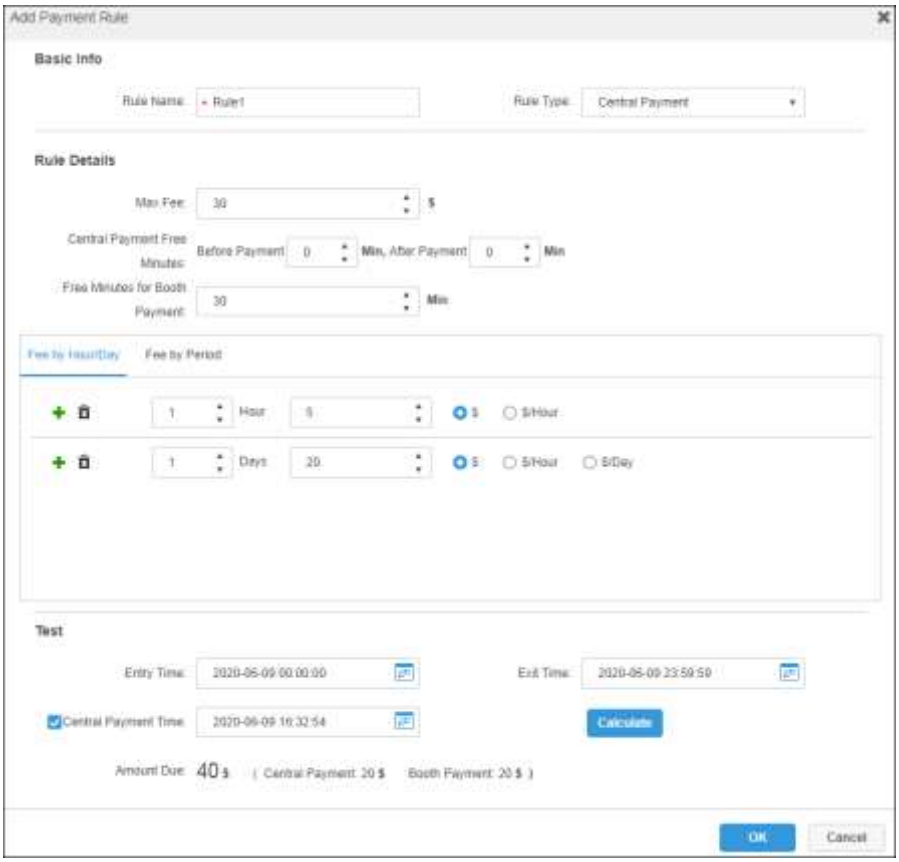


Figure 3-33 Add payment rule (central payment)



2) Set the payment rules. You can select from **Booth Payment** and **Central Payment**.

◇ **Booth Payment**: Vehicle owners need to pay the parking fees at the security booth before leaving the parking lot.

◇ **Central Payment**: Vehicle owners can pay the parking fees at the security booth or any booth in the parking lot that has installed with PMS and can settle the parking fee.

Table 3-13 Description of payment rule

Parameter	Description
Max Fee	Set the upper limit of daily parking fee.
Central Payment Free Minutes	Set the length of free parking in the parking lot before and after central payment.
Free Minutes for Booth payment	Set the length of free parking in the parking lot. No parking fees will be charged within the defined time.
Fee by Hour/Day	Set the parking fees for different time lengths. ● **$**: Charge different fees for different parking hours. You need to manually set the charging fee of each hour. ● **$/Hour**: Set average parking fee for each hour. Fox example, if you set $10 for 1 Hour, then the parking fee for 3 Hours is $30, and the like. ● **$/Day**: Set average parking fee for each day. Fox example, if you set $10 for 1 Day, then the parking fee for 2 Days is $20, and the like.
Fee by Period	Different charging rates are set for different time periods. You can define multiple periods and set different payment rules for them. ● By Interval Select **Fee By Interval**, set the **Period**, and set the parking fee for each hour, and then the parking fee during the defined period will be charged by hour. ● By Times Select **By Times**, set the period, and set the parking fee, and then the parking fee during the defined period will be charged only once.
Entry Time	You can test the charging results after setting the charging rules. Set the time that the vehicle enters and leaves the parking lot (**Entry Time** and **Exit Time** respectively), and also the time that the vehicle leaves the central payment place (**Central Payment Time**), and then click **Calculate**. The system displays the total parking fees need to be paid for the parking duration.
Exit Time	
Central Payment Time	
Calculation Result	

You can either select **Fee by Hour/Day** or **Fee by Period**.

Parameter	Description
Amount Due	**Central Payment Time** must be later than **Entry Time**, but earlier than **Exit Time**.

3) Click **OK**.

◇ Click to change the payment rule. For details, see the steps of adding payment rule.

◇ Click to delete payment rule.

Step 4 Click **OK**.

3.5.3 Configuring Map

Devices added to the parking lot must be bound to their actual position on the map (except vehicle detector and reverse vehicle search device). Devices not added to parking lot will not be displayed in map settings.

A guidance display must be bound to the ANPR channel.

Step 1 Select **Parking Lot > Map Guide**.

Figure 3-34 Map guide

Step 2 Click the map to be configured.

Step 3 Add devices on the map by steps.

Figure 3-35 Add devices on the map

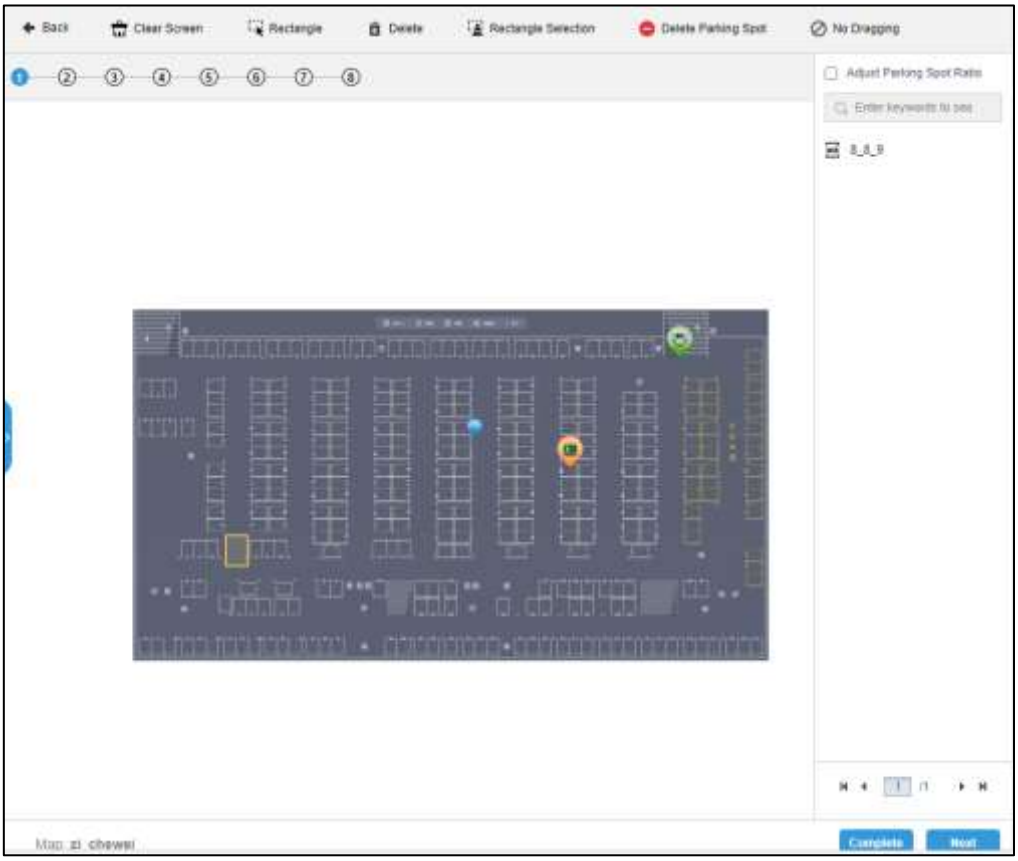


Table 3-14 Description of adding map

Parameter	Description
Back	Click to go back to the main interface.
Clear Screen	Click to clear all the device channels on the map.
Rectangle	Click to select multiple channels on the map.
Delete	After selecting channels on the map, click it to delete the channels.
Rectangle Selection	Select parking spot, and then delete parking spot in batches or prevent from moving the position of the parking spot on the map.
Delete Parking Spot	Select parking spot on the map, and then click the button to delete the selected parking spot.
No Dragging	Do not drag and move the parking spot on the map.

Step 4 Add device channels, parking spots, vehicle search line (optional) to the map. Channels include: Entrance/exit camera, LED display that shows the empty parking spots, reverse vehicle search device, and ultrasonic parking spot controller (optional).

When channel name is shown in red, it means this channel has not been added to the map.

- Add device channels: Select a channel at the root node on the right side, and then drag the channel to appropriate position on the map. After setting a channel, click **Next**, then you can go on to configure the next channel.
- Add parking spot: Click a parking spot in the right-side list, and hover over the map, an icon (for example, II_PP_6) appears on the map. Click on the map, a parking

spot is drawn on the map. You can continue to add the parking spots one by one. Right-click on the map to stop adding parking spots.

◇ Parking lots in red means parking is not allowed in this spot, and parking lots in yellow means parking is allowed. You can set a parking spot to **General** or **No Parking** when configuring channels of IVSS (**Basic Settings > Device > Add**).

◇ Adjust parking spot: Click , and it turns into . Click the round yellow circle in the center to move the position, and the one at the corner to adjust the size.

◇ Delete parking spots: Click **Rectangle Selection**, and then select the added parking spots on the map. Click **Delete Parking Spot** to delete the selected spots.

- Add vehicle search line: You can add vehicle search line after adding reverse vehicle search device.
  - ◇ Click **Draw Vehicle Search Line** above the map, and then draw a line starting from the reverse vehicle search device. Click parking spot on the map to add point for vehicle search.
  - ◇ Click **Select Vehicle Search Line** to select the line on the map.
  - ◇ After selecting the line, click **Delete Vehicle Search Line** to delete the selected line.

Step 5 Click **Complete**.

3.6 Basic Settings

Basic settings provide basis for further settings. The settings mainly include settings of device, alarm scheme, organization, and user, as well as system settings such as server settings, backup and restore, and system restart.

3.6.1 Device

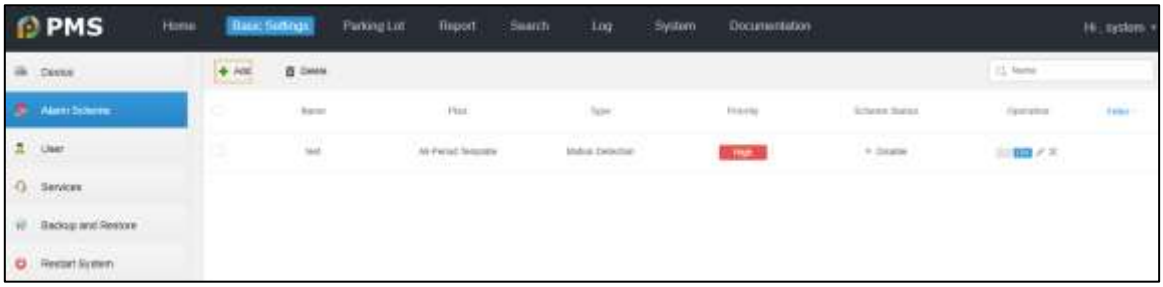
For settings details, see "3.5.1 Adding Device."

3.6.2 Alarm Scheme

You can add alarm scheme for devices, modify the added scheme, and turn on or turn off alarm scheme.

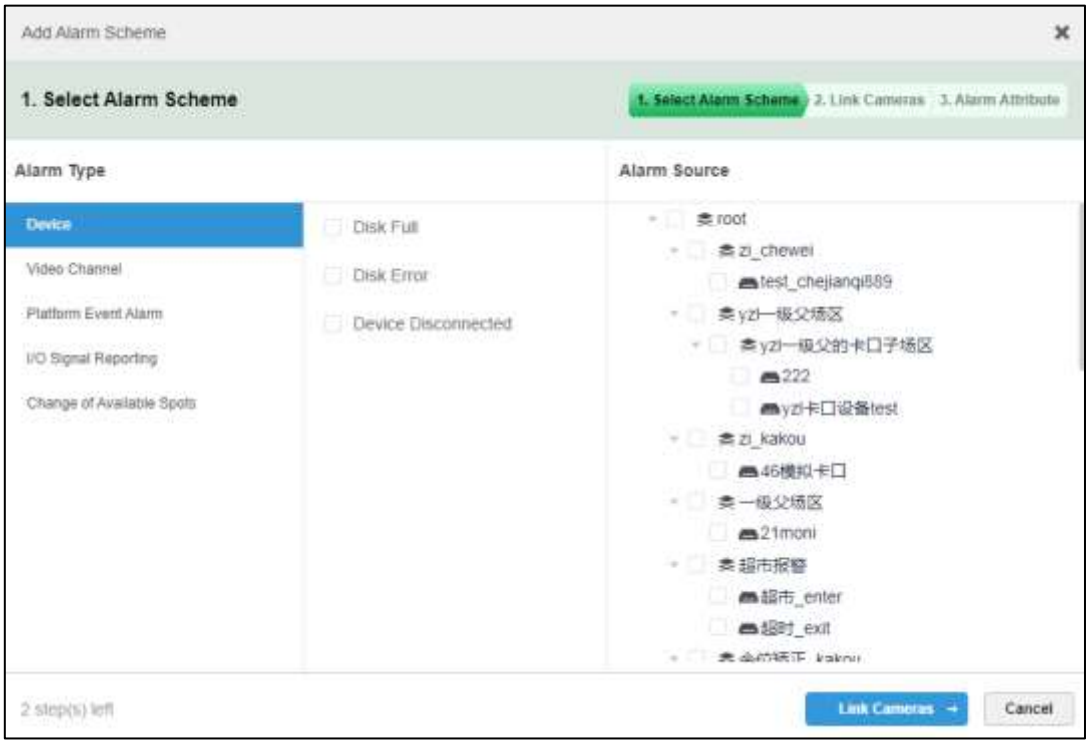
Step 1 Select **Basic Settings > Alarm Scheme**.

Figure 3-36 Alarm scheme



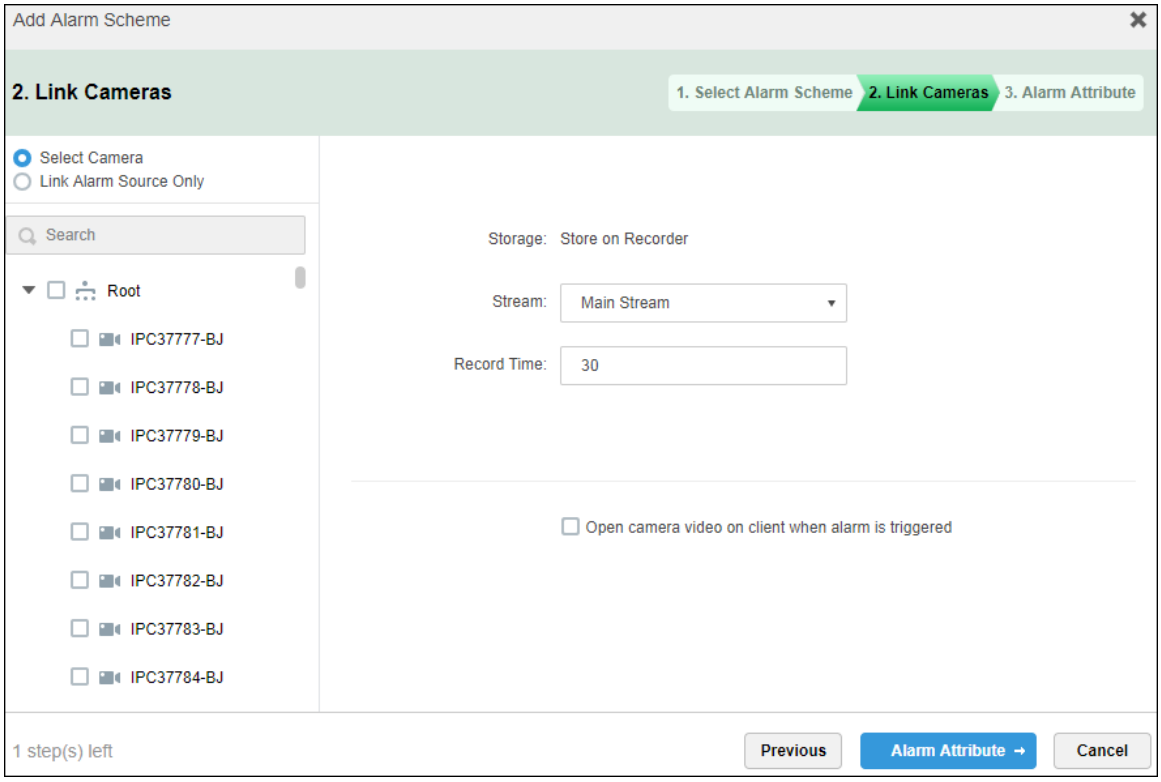
Step 2 Click **Add**.

Figure 3-37 Add alarm scheme



Step 3 Select alarm type and channel, and then click **Link Cameras**.

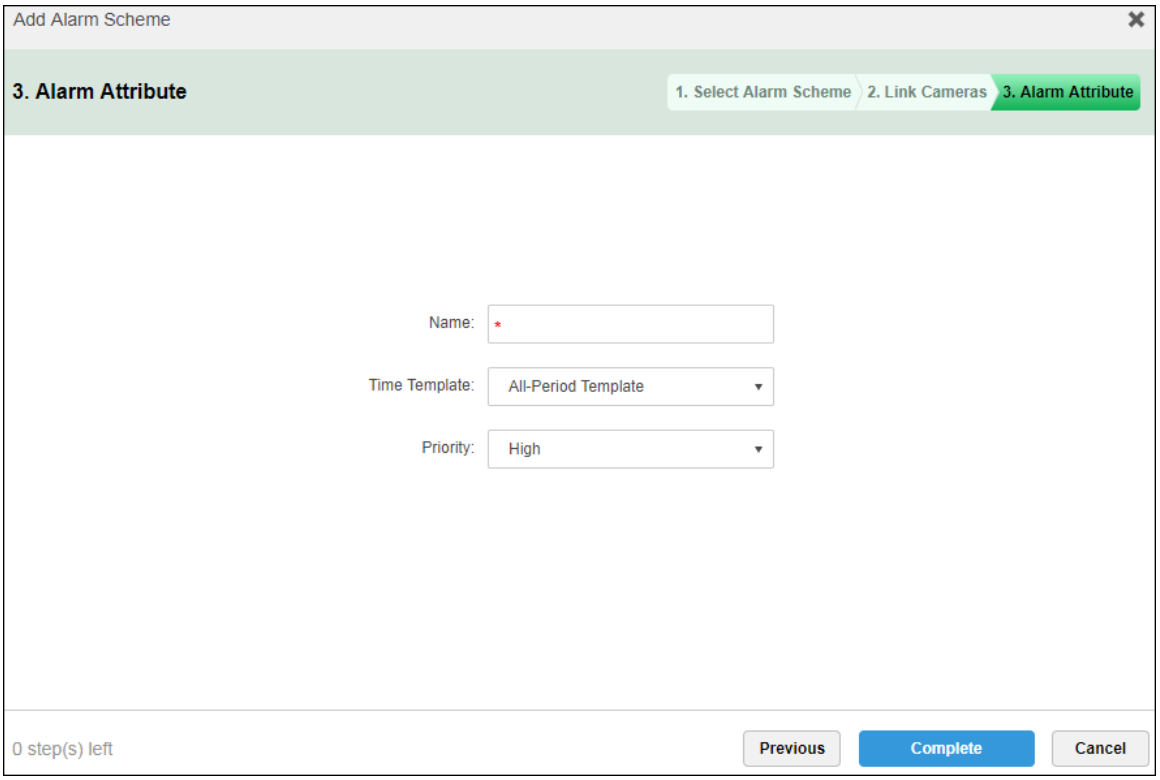
Figure 3-38 Link cameras



Step 4 Select camera, configure stream and record time, and confirm whether you want to enable **Open camera video on client when alarm is triggered**.

Step 5 Click **Alarm Attribute**.

Figure 3-39 Alarm attribute



Step 6 Enter the name of alarm scheme, and select time template and priority.

Step 7 Click Complete.

Other Operations

After adding the alarm schemes, you can:

- Select ☐, and then click Delete to delete the selected alarm scheme.
- Select ☐ on the title line to select all the schemes, and then click Delete to delete all of them.
- ON means scheme is enabled. Click it to disable the alarm scheme, and the icon changes to OFF.
- Click ✎ to change the alarm scheme. Refer to the steps of adding alarm scheme.
- Click ✖ to delete alarm scheme.

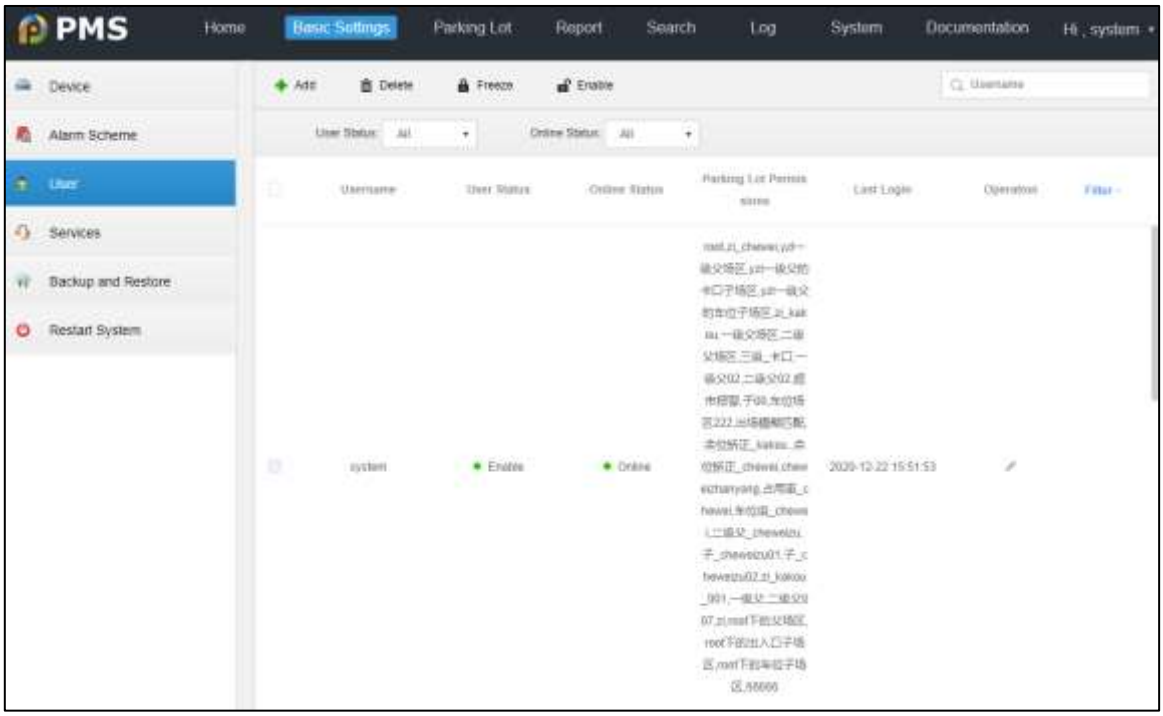
3.6.3 User

On this interface, you can add, delete, freeze, and enable user.

Step 1 Select **Basic Settings > User**.

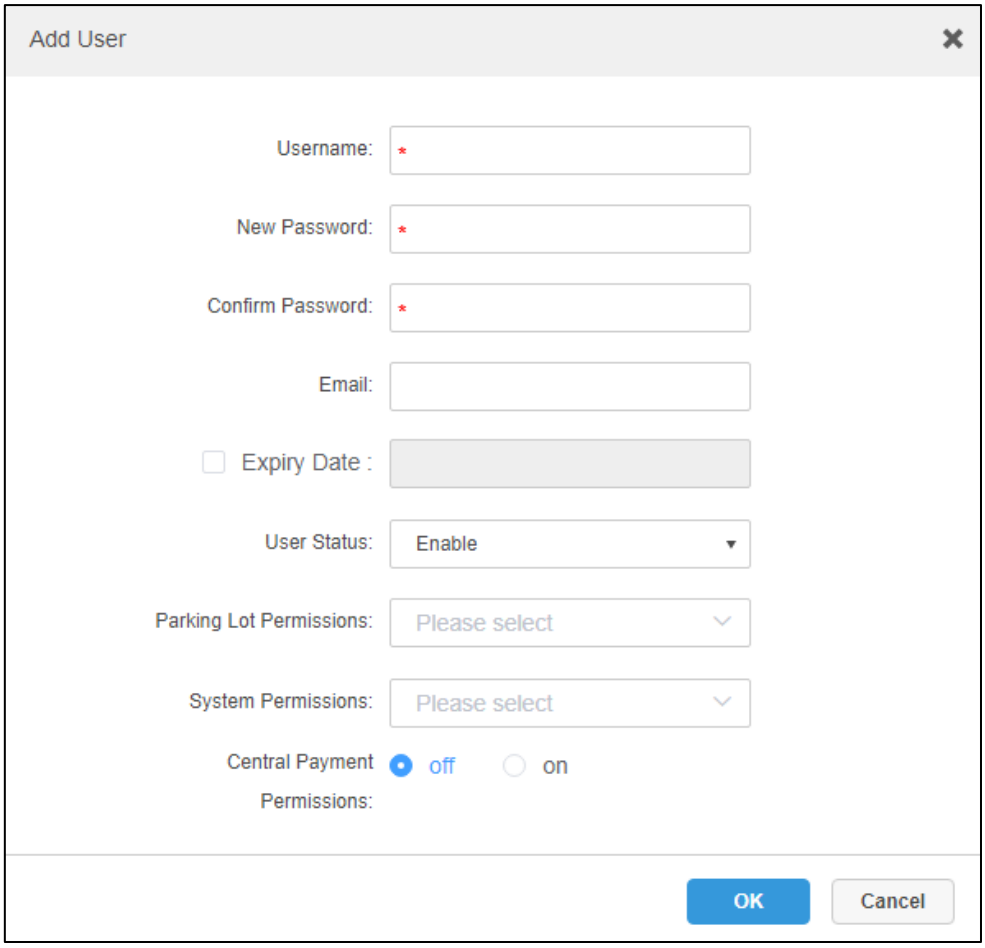
- You can enable or disable user status in the **User Status** column: The icon is green when user status is enabled, and gray when user status is disabled.
- In the **Status** column, the icon is green when user is online, and gray when offline.

Figure 3-40 User management



Step 2 Click **Add**.

Figure 3-41 Add user



Step 3 Configure parameters.

Parameters with * are required.

Table 3-15 Settings parameters of adding user

Parameter	Description
Username	Enter the username for log in to PMS web interface and PMS client.
New Password Confirm Password	The password should consist of 8 to 32 non-blank characters and contain at least two types of characters among uppercase, lowercase, number, and special character (excluding ' " ; : &).
Email	Enter the email address of the administrator. When a vehicle parks at the no-parking zone, the system sends an email to all current administrators in the title of *alarm time_parking spot_parking at no-parking zone*. The email function is available after configuring the email server. To configure the server, see "3.11.13 Email Server Settings."
Expiry Date	Set the time that the password expires. Select the **Expiry Date** check box to enable the function, and then click to set the date that the password expires.

Parameter	Description
User Status	Select **Enable** or **Freeze** to enable or disable user and its permissions
Parking Lot Permissions	Select the parking lot to be linked to the user.
System Permissions	Select the system permissions of the user.
Central Payment Permissions	● When selecting **on**, central payment is enabled, and the central payment interface will be displayed when the user logs in to the PMS Payment client. ● When selecting **off**, booth payment is enabled, and the booth payment interface will be displayed when the user logs in to the PMS Payment client. It is **off** by default.

Step 4 Click **OK**.

Other Operations

After adding the users, you can:

- Select ☐, and then click Delete to delete the selected user.
- Select ☐ of the title line to select all the users, and then click Delete to delete all of them.
- 🔒 means user is enabled. Click the icon, and it changes to 🔓, which means the user is disabled.
- Click ✎ to edit user information. For details, see the steps of adding user.
- Click ✖ to delete the user.

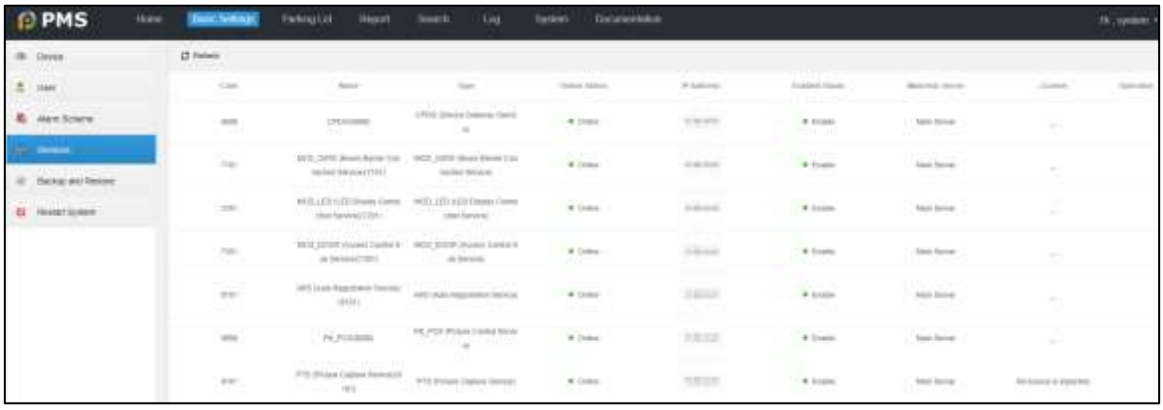
3.6.4 Services

You can view the details of services, such as name, status, and IP address.

Select **Basic Settings > Servers**. The **Server Config** interface is displayed.

- In the **Enabled Status** column, the icon is green when the server is online (status changes to **Enable**), and gray when offline (status changes to **Disable**).
- Master server and slave server are available. In the **Main/Sub Server** column, the icon is green when server is online, and gray when the server is frozen.
  - ◇ **Main server**: Cannot be frozen or deleted.
  - ◇ **Sub server**: Can be frozen or deleted.
- In the **License** column, you can view whether algorithm certificate is imported, and whether the certificate is successfully verified.

Figure 3-42 Services



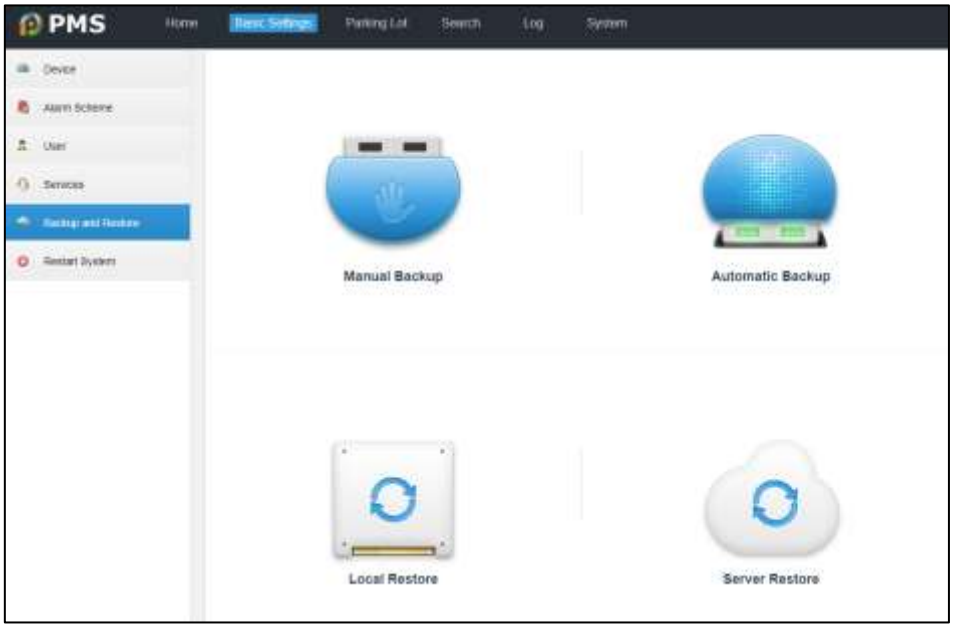
3.6.5 Backup and Restore

PMS supports backing up and restoring manually or automatically by the server.

Select **Basic Settings > Backup and Restore**, and you can:

- **Manual Backup**: Click **Manual Backup**, and then enter the **Login Password** and **Encrypted Password** to back up the files.
- **Automatic Backup**: You can select whether to enable this function.
- **Local Restore**: Select local file for restoring backup.
- **Server Restore**: The system automatically search the backup file and restore backup.

Figure 3-43 Backup and restore



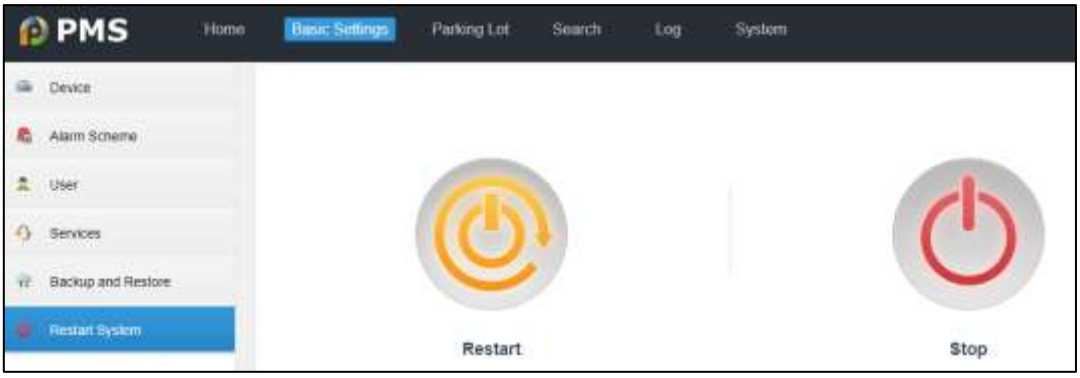
3.6.6 Restarting System

Select **Basic Settings > Restart System**, and then you can:

- Click to restart PMS service.

- Click to stop PMS service.

Figure 3-44 Restart system



3.7 Parking Lot

For the parking lot, you need to configure and manage information such as the vehicle and its owner's details, parking spot, payment rule of parking fees, coupon, LED display and more.

3.7.1 Parking Lot Settings

You can add parking lot or modify its settings.

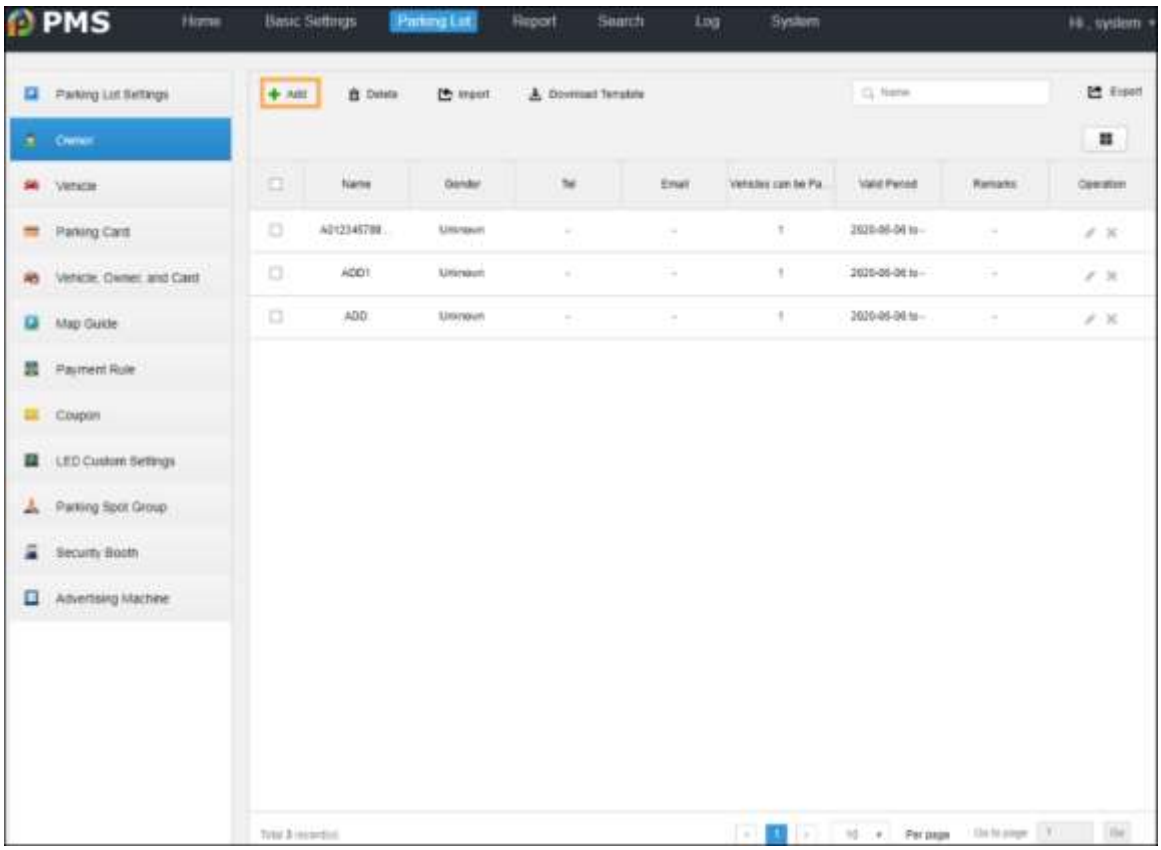
- Click ✚ to add a new parking lot. For details, see "3.5.2.1 Adding Parking Lot."
- Click ✎ to edit parking lot information. Refer to the steps of adding parking lot.
- Click ✖ to delete parking lot.

3.7.2 Vehicle Owner

You can add vehicle owner, and then modify or delete the added owner. You can also import owner information to the system by using the template.

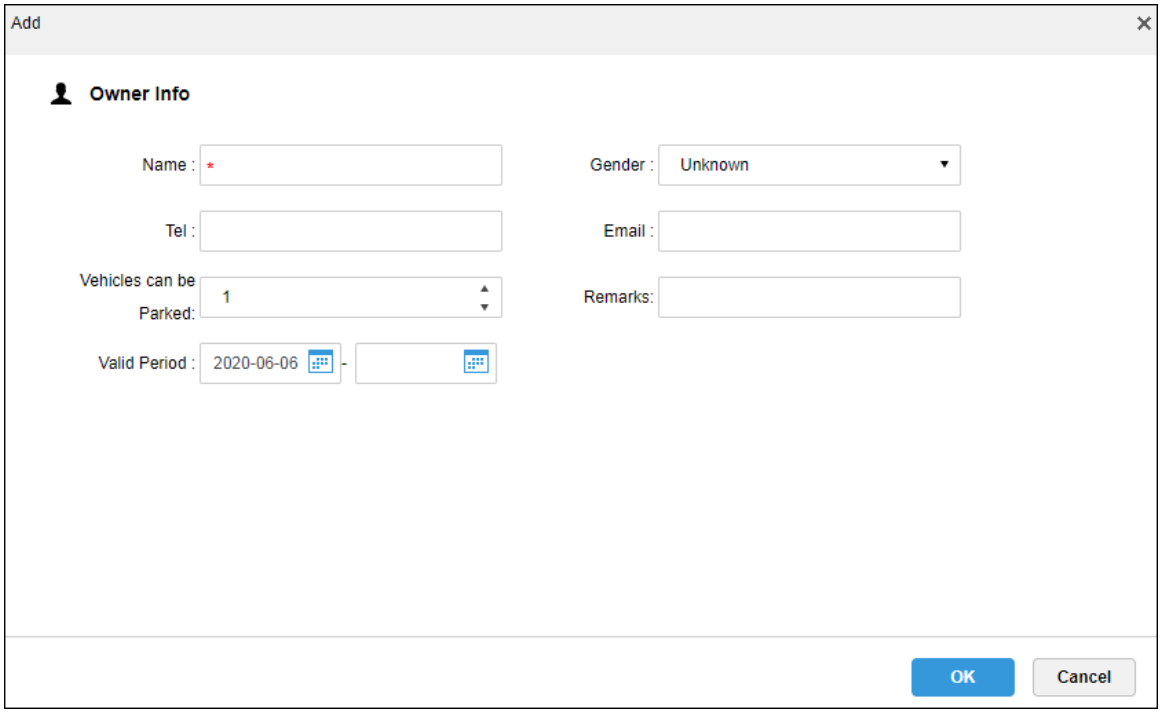
Step 1 Select **Parking Lot > Owner**.

Figure 3-45 Vehicle owner



Step 2 Click **Add**.

Figure 3-46 Add vehicle owner



Step 3 Configure parameters.

Parameters with * are required.

Table 3-16 Description of adding owner

Parameter	Description
Name	Enter the information according to your actual condition.
Gender	
Tel	
Email	
Vehicles can be Parked	The number of vehicles that the owner can park in the parking lot. Click ▲ or ▼ to increase or reduce the number.
Remarks	Enter remarks or notes as needed.
Valid Period	Set the valid period of owner information.

Step 4 Click **OK**.

Other Operations

- Click ✖, or Select ☐, and then click Delete to delete the selected owner.
- Select ☐ on the title line to select all the owners, and then click Delete to delete all of them.
- Click ✎ to edit vehicle owner information.
- Click Download Template to download the template of owner information.
- After filling in the information in the template, click Import to import the owner information to PMS in batches.
- Enter the owner information in Name, and then click Export to export the information.

3.7.3 Vehicle

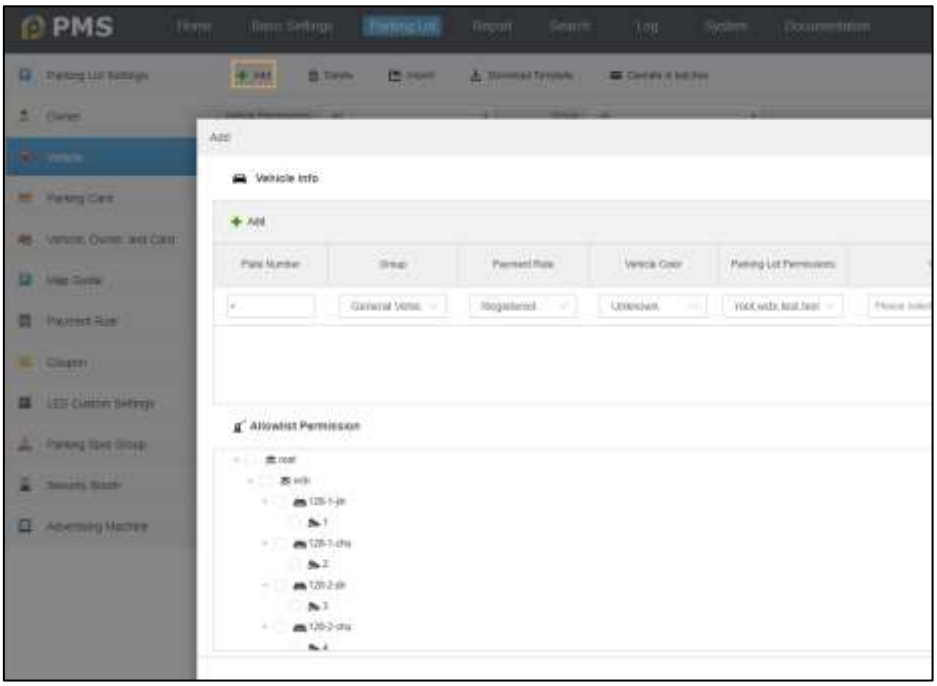
Add vehicle, and then modify vehicle details. You can also import vehicle information to PMS by using the template.

- Add vehicles one by one: Click ✚, and then add device information step by step. See the steps below.
- Add vehicles in batches: Click **Download Template** to download the template, fill in the vehicle information in the template, and then click **Import** to import vehicles to PMS.

Step 1 Select **Parking Lot > Vehicle**.

Step 2 Click ✚.

Figure 3-47 Add vehicle



Step 3 On the **Add** interface, click .

Step 4 Enter vehicle information.

- Parameters with * are required.
- Click to delete vehicle information.

Table 3-17 Description of adding vehicle

Parameter	Description
Plate Number	Enter the license plate number of vehicle.
Group	Select the group that the vehicle belongs to, payment rule, vehicle brand, vehicle color, and the parking lot linked to the vehicle.
Payment Rule	
Vehicle Color	
Parking Lot Permissions	
Valid Period	Set the valid period of the vehicle plate.
Vehicle Permissions	Select from **Allowlist** or **Blocklist** to set the vehicle right. If **Blocklist** is selected, the **Group** and **Payment Rule** of the vehicle cannot be edited.
Remarks	Enter remarks or notes as needed.

Step 5 Select channel from the device tree to grant the vehicle allowlist permissions of the corresponding channel.

Step 6 Click **OK**.

The vehicle is successfully added.

Related Operations

On the **Vehicle** interface, you can:

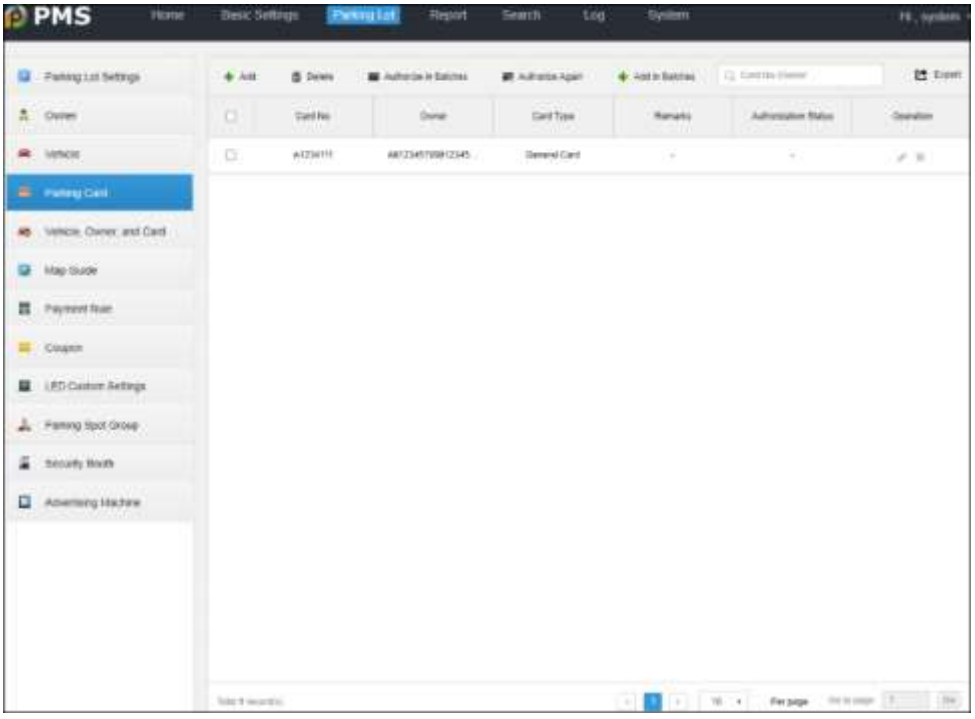
- Select the items that you want to display on the interface: Click **Filter**, and then select the target items.
- Delete a vehicle: .
- Delete multiple devices: Select vehicles, and then click .
- Edit information of a vehicle: .
- Edit information of multiple vehicles: Select vehicles, and then click **Operate in batches**.
- Search vehicle by plate number: Plate Number .
- Export vehicle information: .

3.7.4 Parking Card

You can add parking card linked to vehicle, and set permissions for the card.

Select **Parking Lot > Parking Card**.

Figure 3-48 Parking card



3.7.4.1 Adding Parking Card

Step 1 Select **Parking Lot > Parking Card**.

Step 2 Click Add. You can add card one by one or in batches.

Figure 3-49 Add card one by one

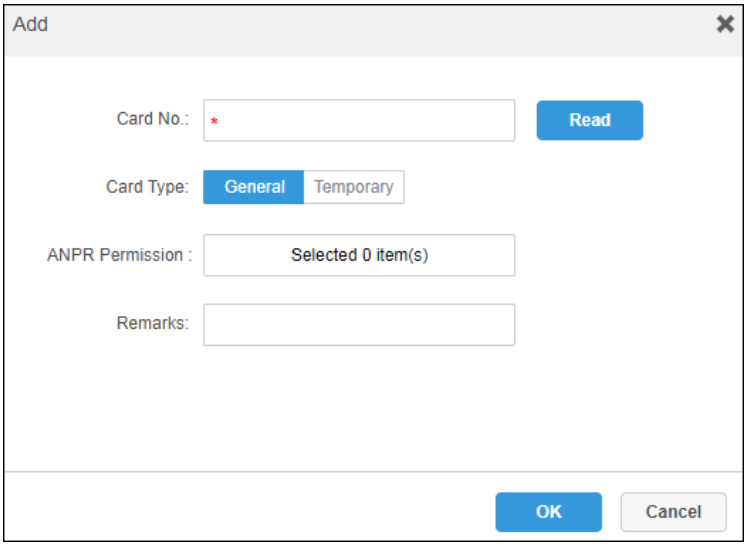
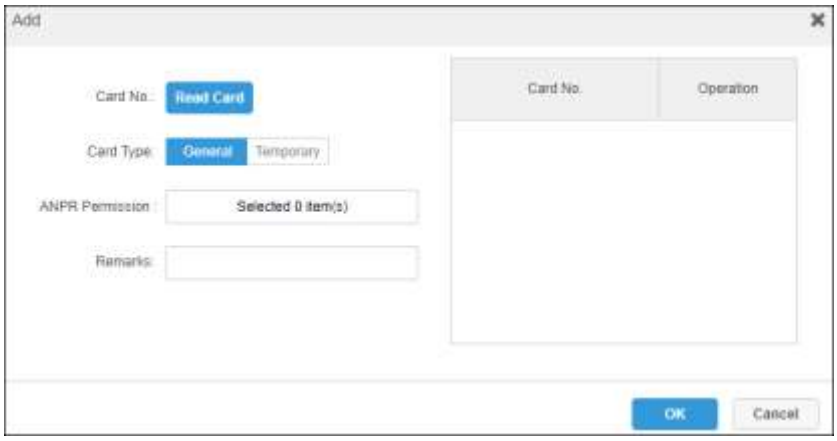


Figure 3-50 Add cards in batches



Step 3 Configure parameters.

Parameters with * are required.

Table 3-18 Descriptions of the card parameters

Parameter	Description
Card No.	Enter card number manually, or click **Read** to read and recognize card information.
Read Card	Click to read cards in batches, which will be displayed on the right side.
Card Type	You can select from **General** card or **Temporary** card. General card allows you to enter or leave the parking lot for multiple times, and for temporary card, you can enter or leave the parking lot for only once.
ANPR Permission	Click to select device channel.
Remarks	Enter remarks or notes as needed.

Step 4 Click **OK**.

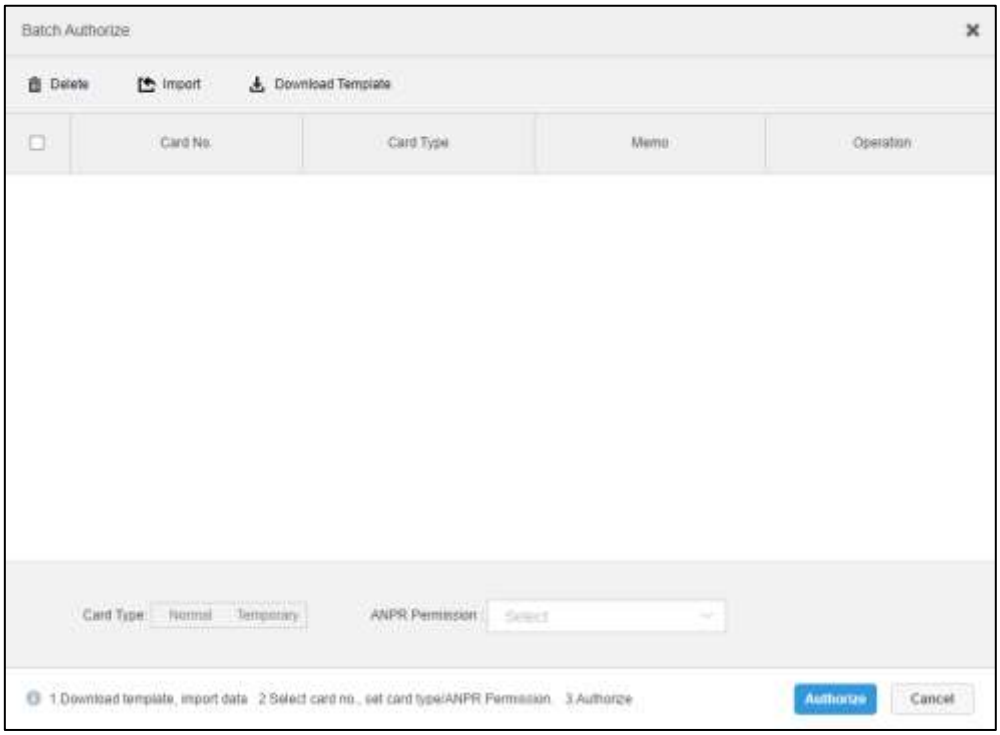
3.7.4.2 Authorizing Parking Card

After adding card, you need to authorize the card, so the card can be used for paying parking fees.

Step 1 Select **Parking Lot > Parking Card.**

Step 2 Click Batch Authorize.

Figure 3-51 Authorize in batches



Step 3 Click Download Template to download the template.

Step 4 After filling in the information in the template, click Import to import the template to PMS.

Step 5 You can select from one or more cards, and set card type: **Normal** or **Temporary** card.

- **Normal** card: With this card, you can enter or leave the parking lot for multiple times.
- **Temporary** card: With this card, you can enter or leave the parking lot for only once.

Step 6 Click the box next to **ANPR Permission** to select ANPR camera.

Step 7 Click **Authorize**, and the card is successfully authorized.

Other Operations

- Select ☐, and then click **Delete** to delete the selected vehicle.
- Select ☐ on the title line to select all the vehicles, and then click **Delete** to delete all of them.
- Select one or more cards, and then click Re-Authorize to authorize the cards again.

- Enter card number or owner information in Card No./User, and then click Export to export the information.
- Click to modify card information. For details, see the steps of adding card.
- Click to delete card.

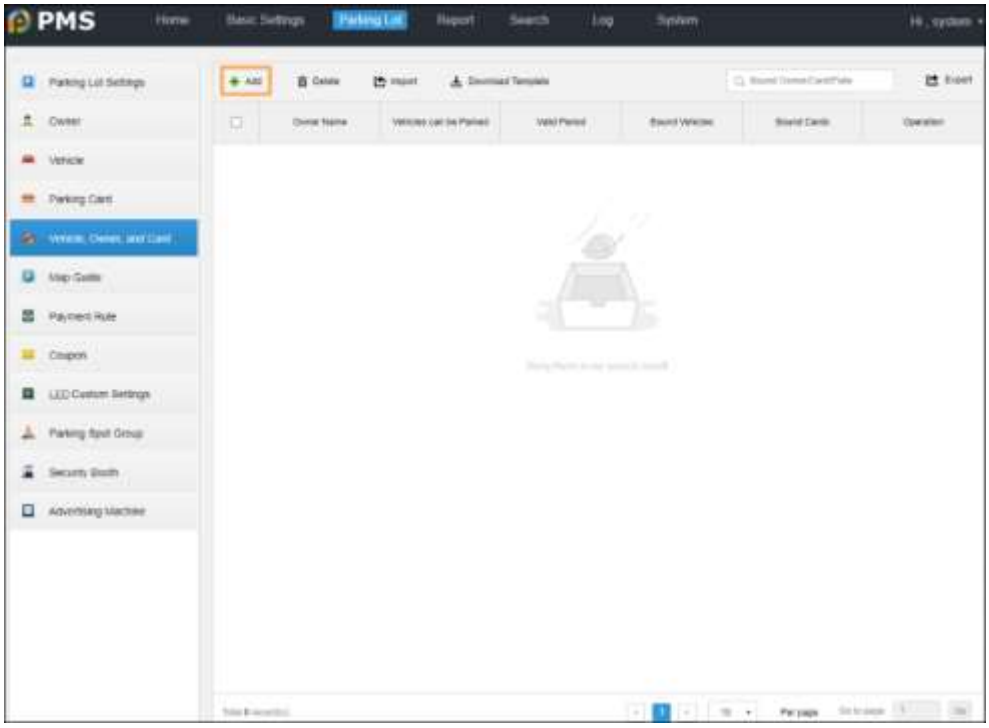
3.7.5 Vehicle, Owner, and Card

Bind vehicle and card to vehicle owner, so PMS can calculate the parking fee according to the entry and exit time of the owner's vehicle.

You need to add vehicle, owner, and parking card first. For details, see "3.7.2 Vehicle Owner", "3.7.3 Vehicle", and "3.7.4 Parking Card".

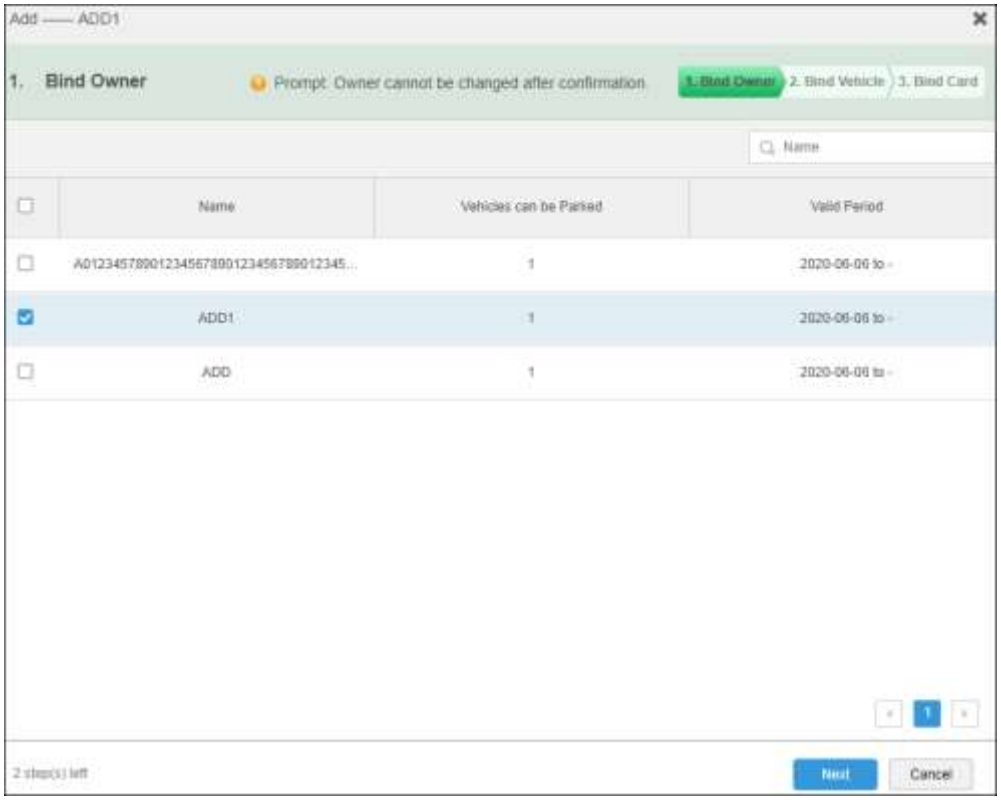
Step 1 Select **Parking Lot > Vehicle, Owner, and Card**.

Figure 3-52 Vehicle, owner, and card



Step 2 Click Add to start binding vehicle, owner, and card.

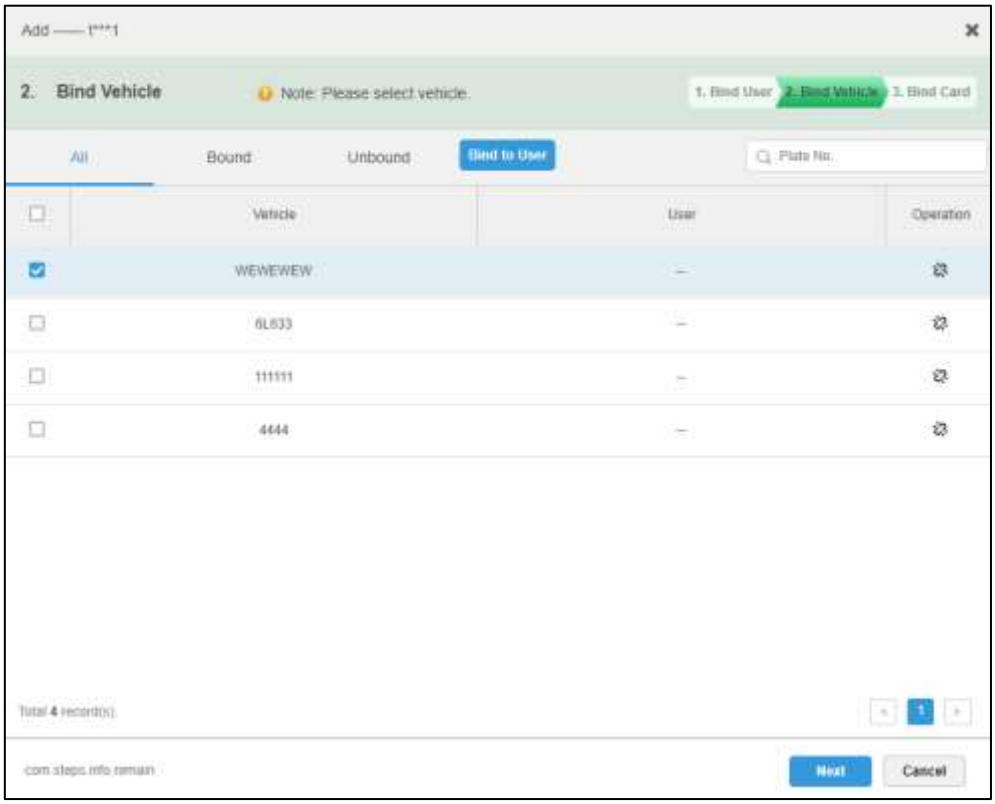
Figure 3-53 Binding user



Step 3 Click ☐ to select owner to be bound. You enter owner name in Name to search owner information.

Step 4 Click Next.

Figure 3-54 Bind vehicle



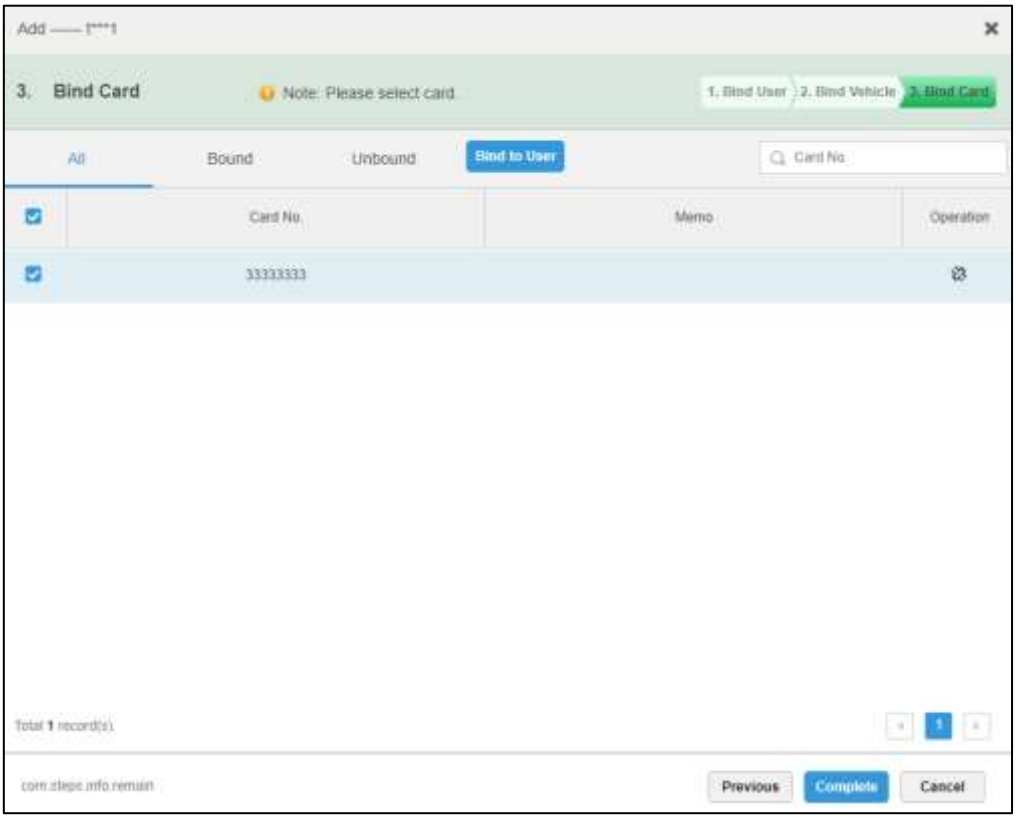
- Select ☐ to select one or more vehicles that will be bound to the owner.

  Bind to User to bind vehicles to owner.

- Bound: You can view the bound vehicles of the current user. Select the ☐ check boxes to select one or more vehicle plates to unbind the vehicles one by one or in batches. Click 🔗 to unbind the selected vehicles.
- Unbound: Click it to view all the unbound vehicle plates.

Step 5 Click Next.

Figure 3-55 Bind card



- Select ☐ to select one or more cards that will be bound to the owner. Click Bind to User to bind card to owner.
- Bound: You can view the bound cards of the current owner. Select ☐ to select one or more cards to unbind the cards one by one or in batches. Click 🔗 to unbind a card.
- Unbound: Click it to view all the unbound cards.

Step 6 Click **Complete**.

Other Operations

- Click ✎ to modify the corresponding information.
- Click ✕ to delete the corresponding information. Select ☐ of multiple information, and then click Delete to delete multiple information at a time.
- Click Import to import the corresponding information to PMS.
- Click Export to export the corresponding information from PMS. You need to enter the login password and encryption password to open the exported Excel file.
- Click Download Template to download the template for importing corresponding information.

3.7.6 Map Guide

See "3.5.3 Configuring Map."

3.7.7 Payment Rule

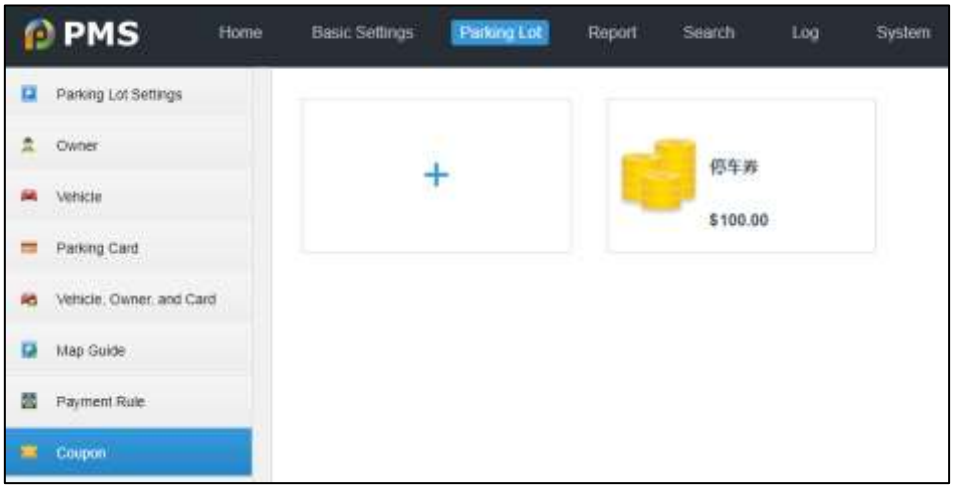
See "3.5.2.3 Configuring Payment Rule".

3.7.8 Coupon

You can set the type and amount of the coupon.

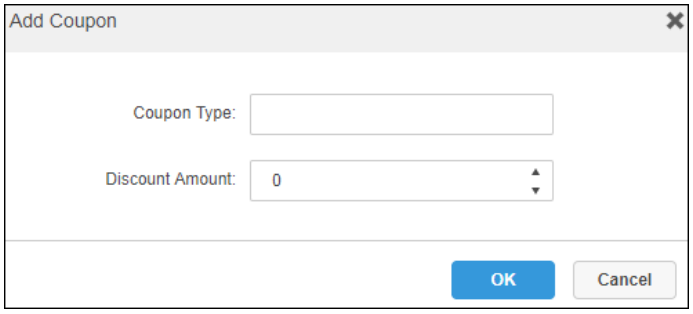
Step 1 Select **Parking Lot > Coupon**.

Figure 3-56 Coupon



Step 2 Click +.

Figure 3-57 Add coupon



Step 3 Enter the coupon type and discount amount of the coupon.

Step 4 Click **OK**.

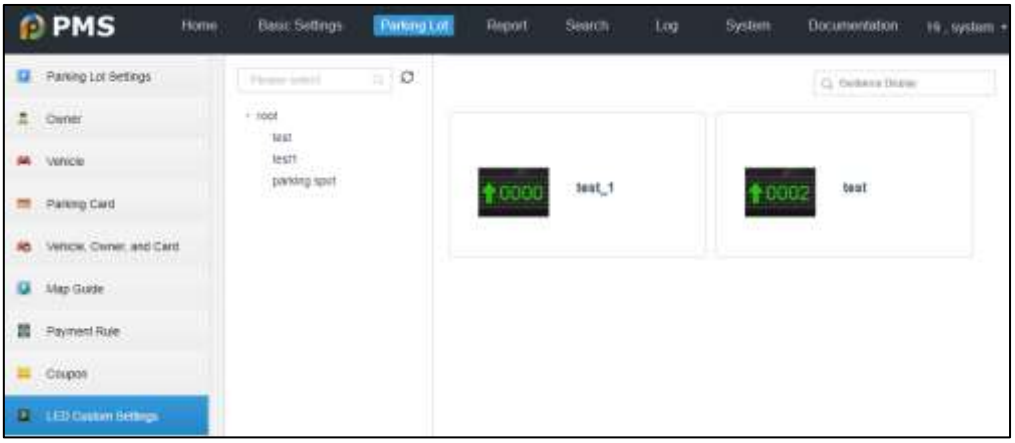
3.7.9 LED Custom Settings

You can make custom settings to LED displays that have not been bound to a parking lot. Bind access control devices to display empty parking spots information in real time.

The LED display can only be shown by setting the **Linked Parking Lot** to **Custom** when binding the LED to parking lots.

Step 1 Select **Parking Lot > LED Custom Settings**.

Figure 3-58 Guidance display



Step 2 Click the LED display and configure parameters.

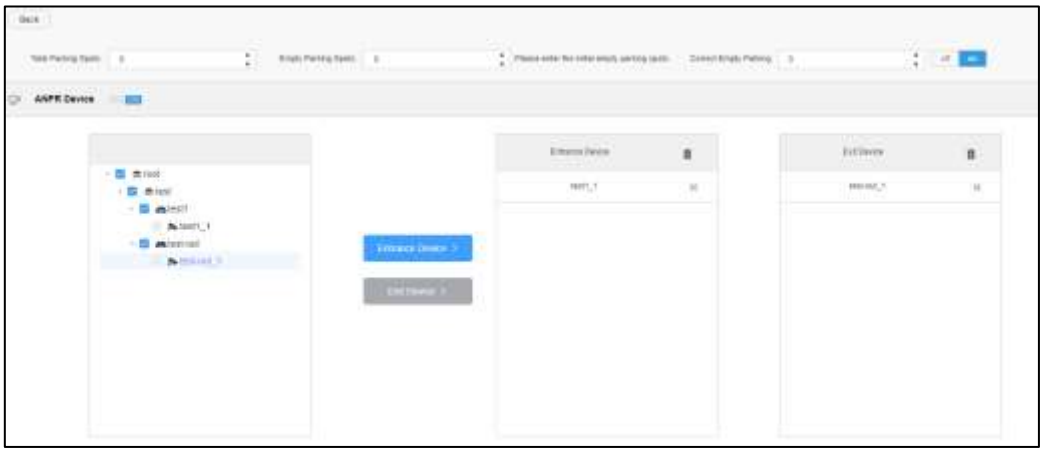
Table 3-19 Description for parameters of the LED binding

Parameter	Description
Total Parking Spots	Set the total number of the parking spots monitored by the LED.
Empty Parking Spots	Set the number of the empty parking spots monitored by the LED.
Correct Empty Parking	Set the number of the empty parking spots, which refreshes the data shown on the LED display at defined time. This helps avoid data error that might happen after long-time operation. This function is available when empty parking spots correction is enabled from **System > Refresh Empty Parking Spots**.
Entrance Device	Click to bind the entrance ANPR camera or I/O Box to the LED.
Exit Device	Click to bind the exit ANPR camera or I/O Box to the LED.
Bind	Click to bind parking spot detector to the LED.
Parking Spot Detector Channel	Displays the bound parking spot detectors.

Step 3 Bind ANPR devices to entrance and exit respectively, so vehicles passing the entrance and exit will be captured and recognized.

1) Click OFF next to **ANPR Device**, and the icon changes to ON.
2) Select the cameras for entrance and exit and then click **Entrance Device** and **Exit Device** to bind respectively.

Figure 3-59 Bind ANPR device

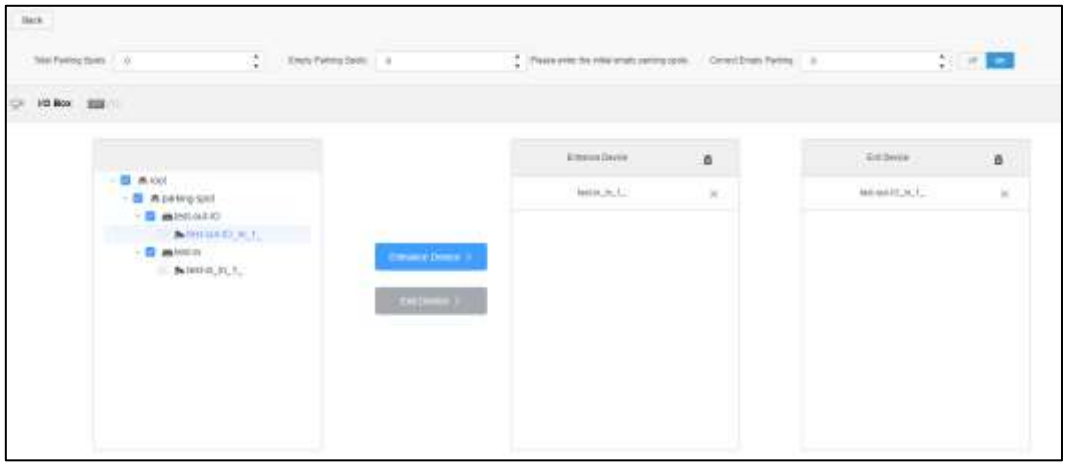


Step 4 Bind I/O Box.

1) Click OFF next to **I/O Box**, and the icon changes to ON.

2) Select the cameras for entrance and exit and then click **Entrance Device** and **Exit Device** to bind respectively.

Figure 3-60 Bind I/O Box

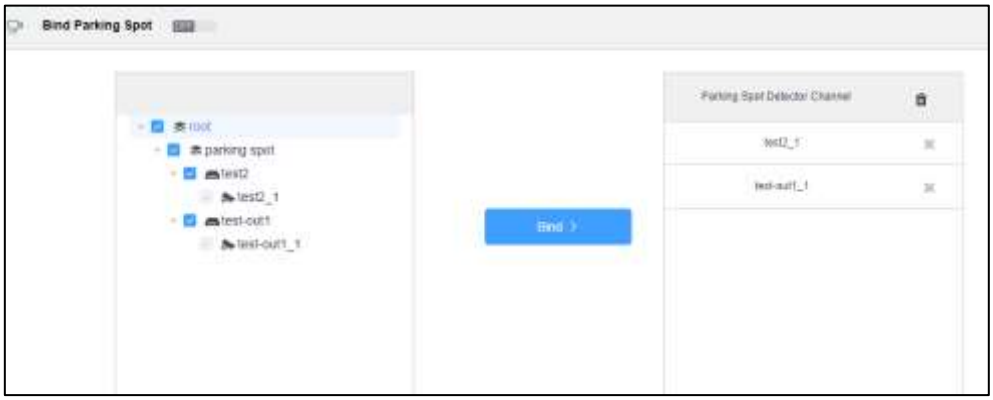


Step 5 Bind parking spot detector.

1) Click OFF next to **Bind Parking Spot**, and the icon changes to ON.

2) Select the parking spot detector and then click **Bind**.

Figure 3-61 Bind parking spot detector



Step 6 Click **Save**.

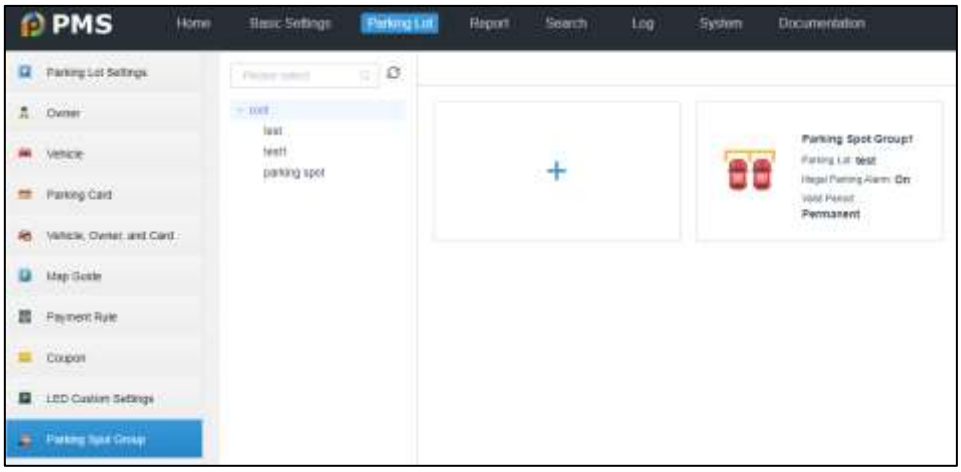
3.7.10 Parking Spot Group

You can manage parking spot groups and vehicles through binding or unbinding vehicles to parking spot.

Make sure that map is added to the parking spot group. To add a map, see "3.5.2.2 Editing Parking Lot".

- Click **root** to display all parking lot groups.
- Enter the name of parking spot group in Parking Group to search for the group easily.

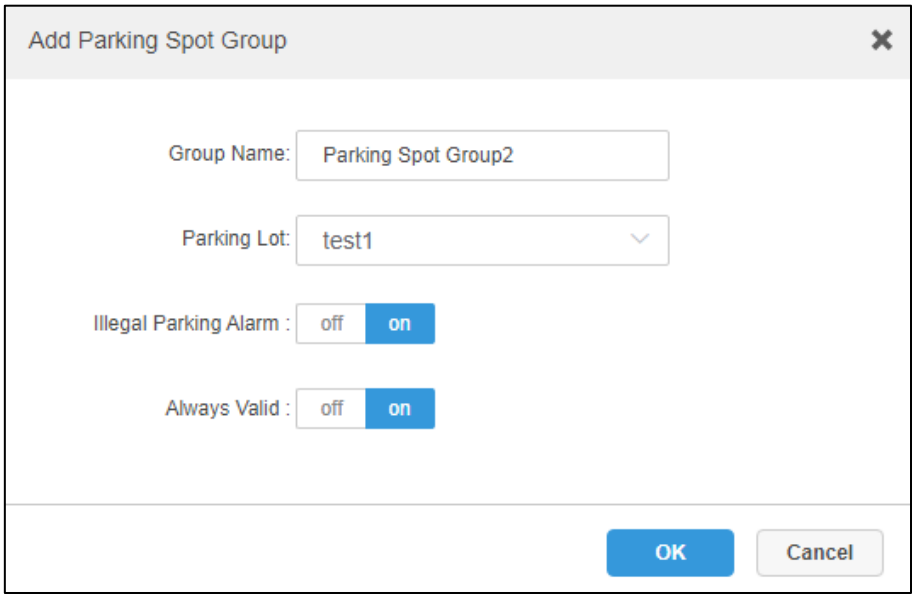
Figure 3-62 Parking spot group



3.7.10.1 Adding Parking Spot Group

Step 1 Click + .

Figure 3-63 Add parking group



Step 2 Enter the name of parking spot group.

Step 3 Click ▼ to select the parking lot that the parking spot group belongs to.

Step 4 Turn **on** or **off** illegal parking alarm.

Step 5 Set the validity period of parking spot group.

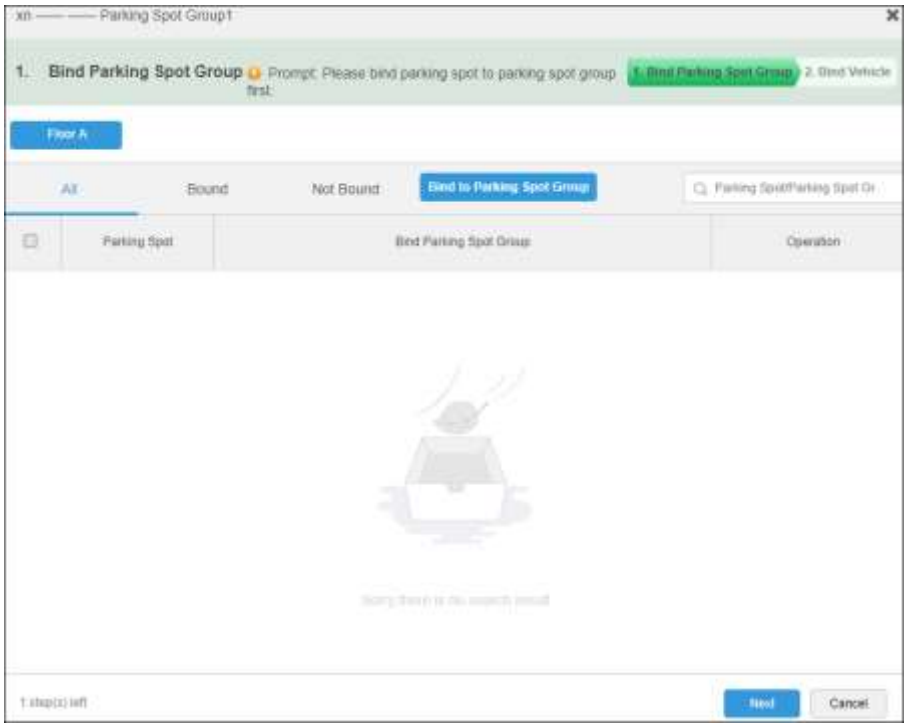
off on means the group is always valid. Click the icon, it changes to off on, then you can set the validity period of the bound parking spot group. When it expires, the group and the parking spot will be unbound.

Step 6 Click **OK**.

3.7.10.2 Binding Parking Spots and Vehicles

Step 1 Click ✎ at the upper-right side of a parking spot group.

Figure 3-64 Bind parking spot group

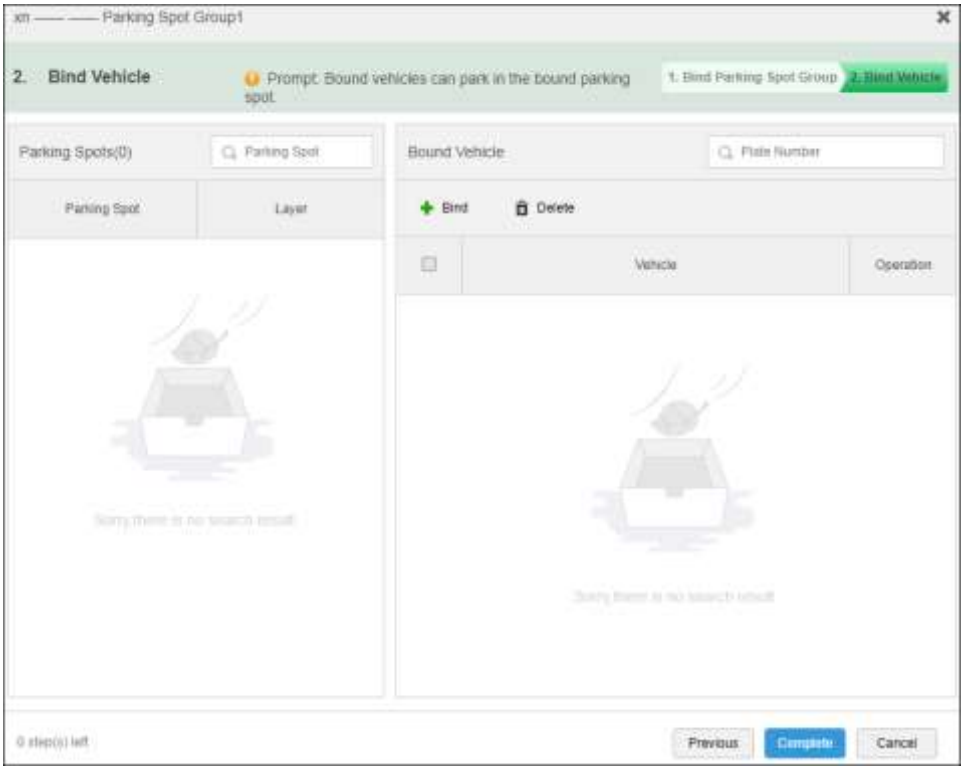


Step 2 Select a parking spot, and then click **Bind to Parking Spot Group**.

- Click to unbind the parking spot and the group.
- Enter the name of parking spot or group in Parking Spot/Parking Spot Gr to search for a parking spot or a group easily.
- Click **Bound** or **Not Bound** to view the parking spot that has been bound or unbound.

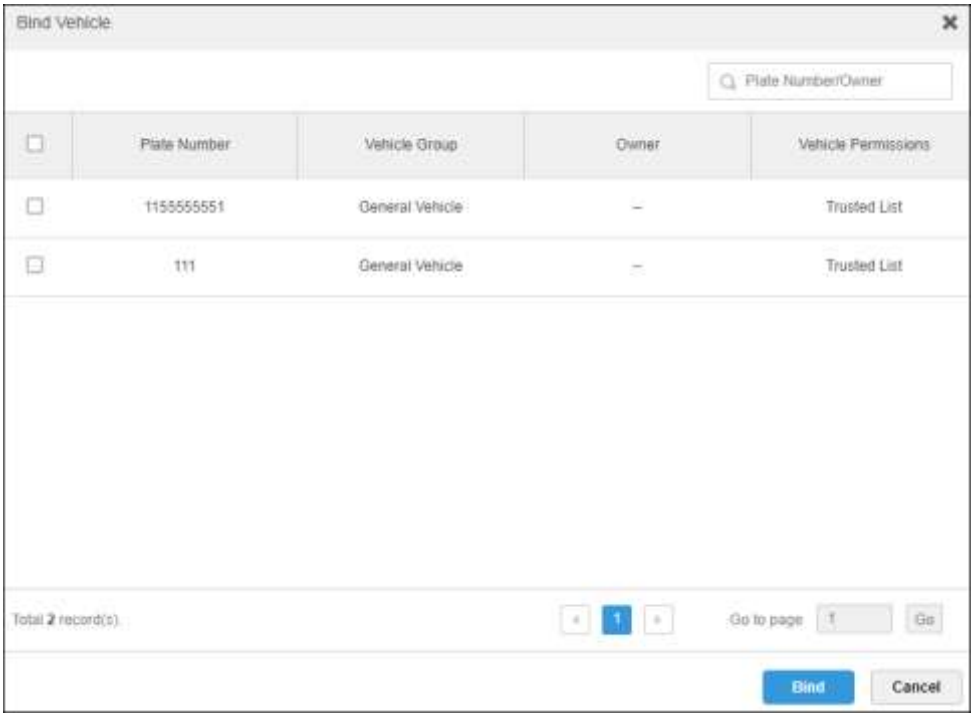
Step 3 Click **Next**.

Figure 3-65 Bind vehicle



Step 4 Click ✚.

Figure 3-66 Vehicle list



Step 5 Select one or more vehicles, and then click **Bind**.

The interface of bound vehicle is displayed.

You can select a vehicle and click Delete to delete the bound vehicle.

Step 6 Click **Complete**.

3.7.11 Security Booth

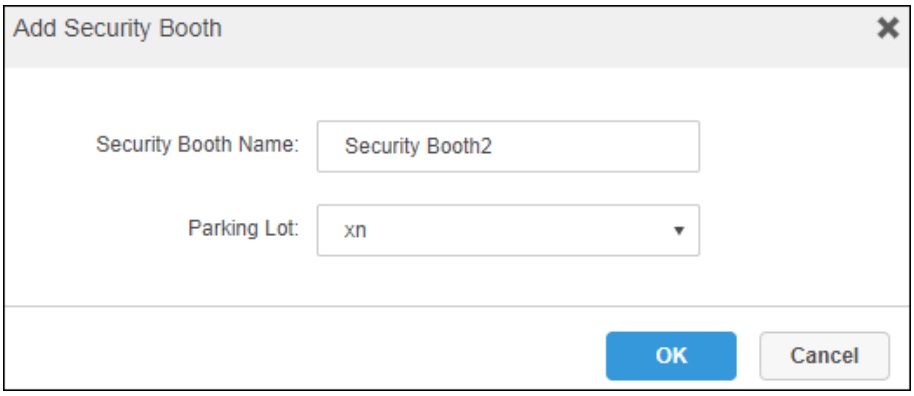
Set security booth corresponding to the parking lot.

Step 1 Select **Parking Lot > Security Booth**.

Step 2 Click +.

Step 3 Enter the name of security booth, and select the parking lot that the security booth belongs to from the **Zone** drop-down list.

Figure 3-67 Add security booth

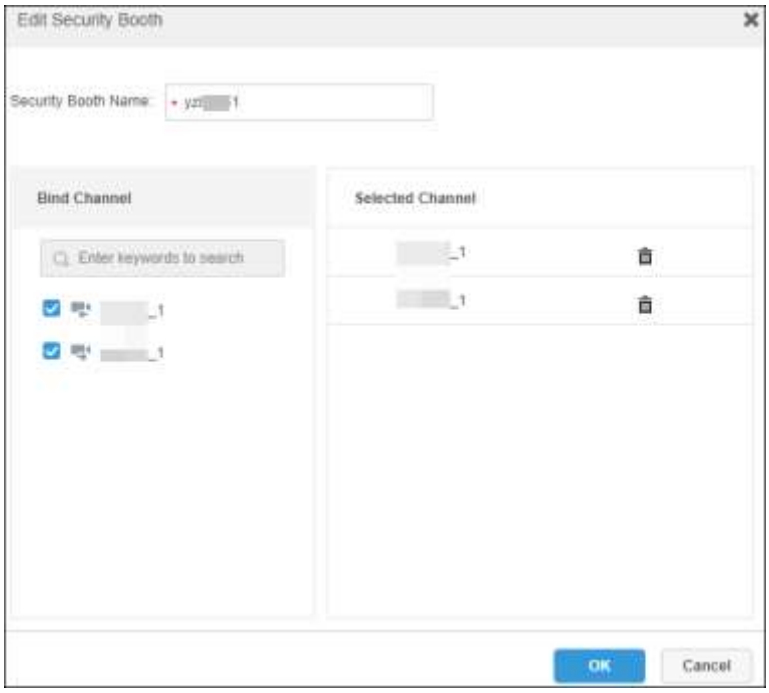


Step 4 Click **OK**.

The system goes back to the **Security Booth** interface.

Step 5 (Optional) Click of the added security booth to go to the **Edit Security Booth** interface.

Figure 3-68 Edit security booth



Step 6 Select the channel that you want to bind to the security booth.

Step 7 Click **OK**.

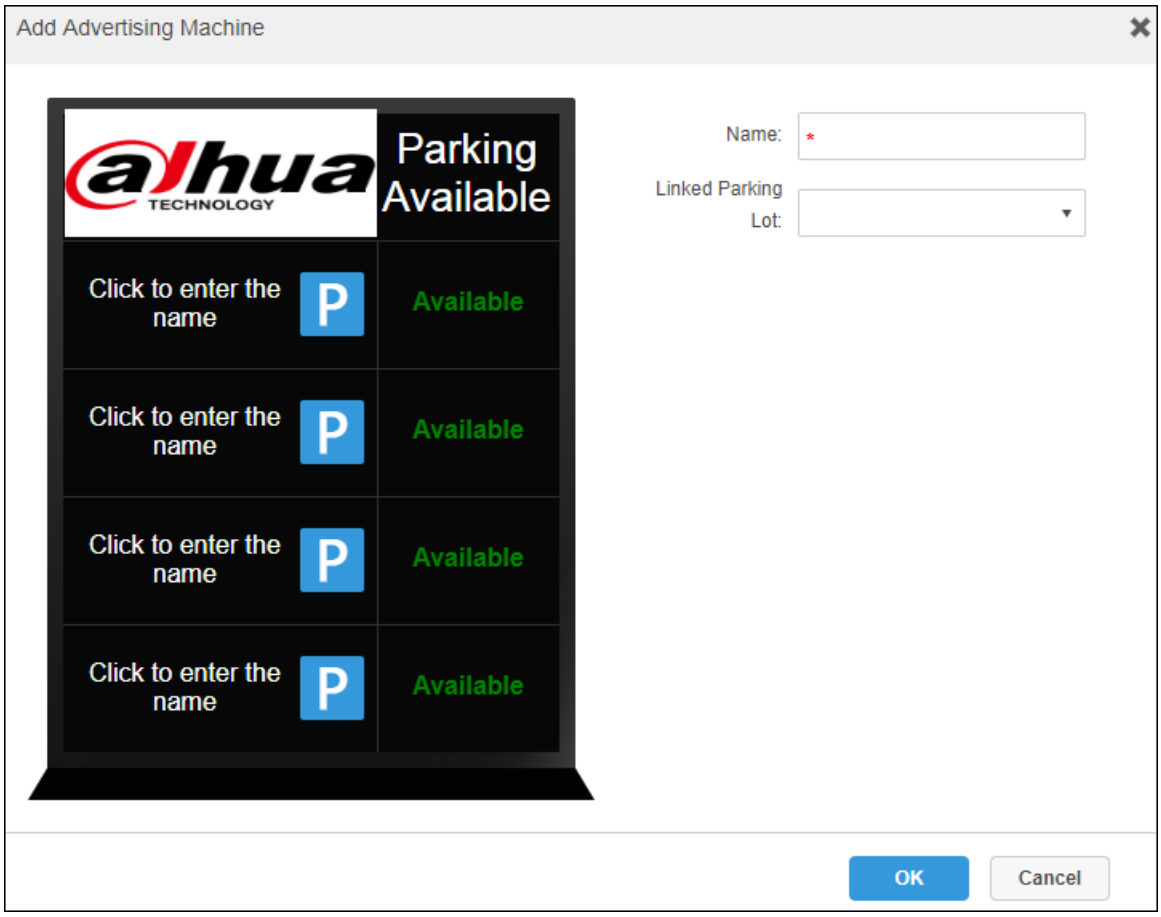
3.7.12 Advertising Machine

Add advertising machine to the parking lot, so it is possible to display the parking spot information on the advertising machine.

Step 1 Select **Parking Lot > Advertising Machine**.

Step 2 Click +.

Figure 3-69 Add advertising machine



Step 3 Enter the machine name and the **Linked Parking Lot**.

Step 4 Click Click to enter the name to define names for different parking lots.

Step 5 Click P to select from one of the pictures shown in the following figure.

Figure 3-70 Logo

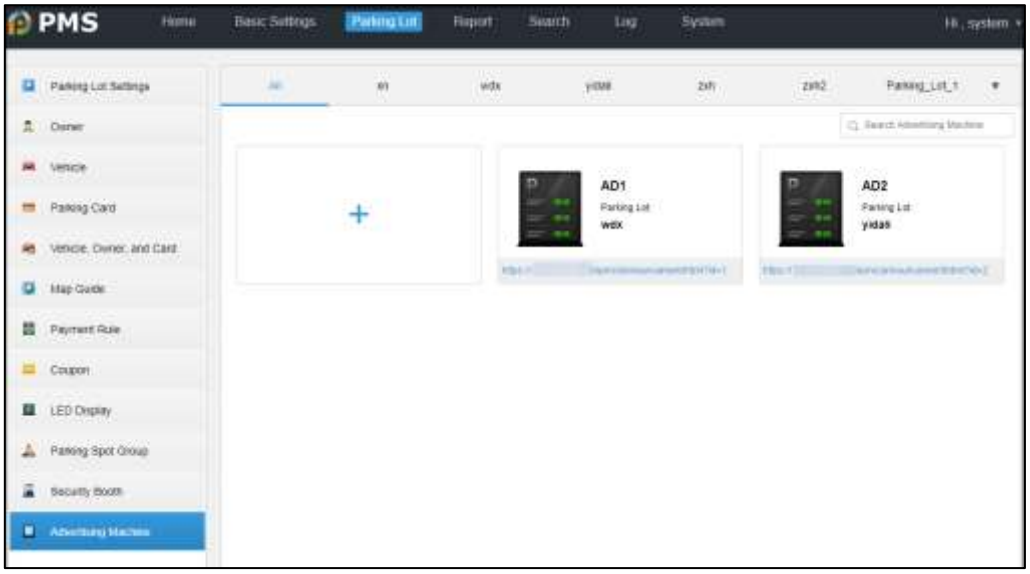
Step 6 Click Available to select the parking spot group that has been created.

Step 7 Click **OK**.

The logo and title can be customized.

You can click the link to view the detailed information displayed on the advertising machine.

Figure 3-71 Advertising machine is added



3.8 Report

PMS supports statistics of payment, coupons, and shift.

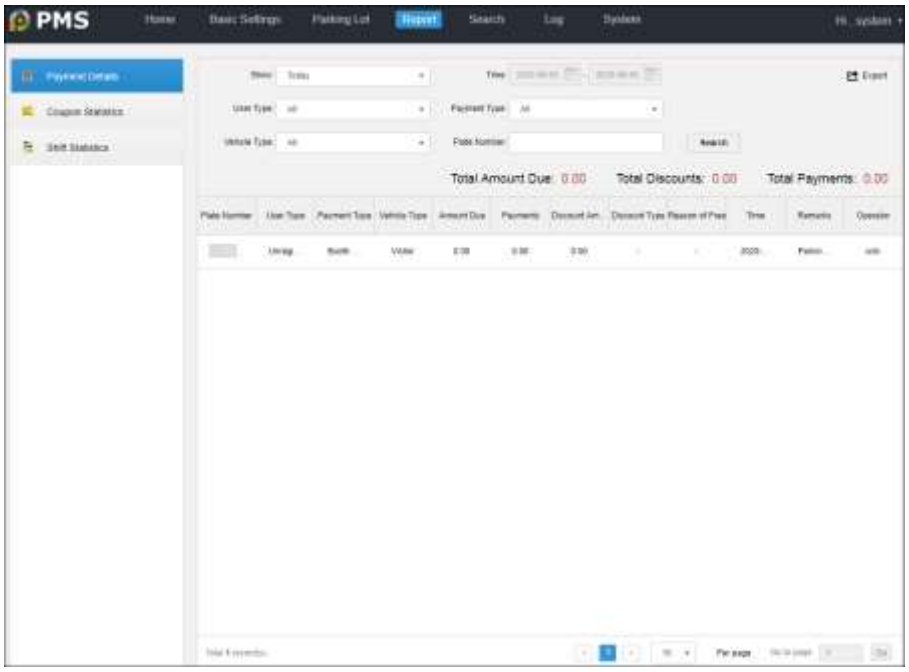
This function is only available when a paid license is applied.

3.8.1 Payment Details

Select **Report > Payment Details**, and then you can:

- Search and view the payment details by day/week/month/year/customized period.
- Search payment details according to **Time**, **User Type**, **Payment Type**, **Vehicle Type**, and **Plate Number**. The details include information such as plate number, user type, payment type, vehicle type, payment amount, amount paid, discount amount, discount type, payment time, and operator.
- Export the search results in Excel.

Figure 3-72 Payment details

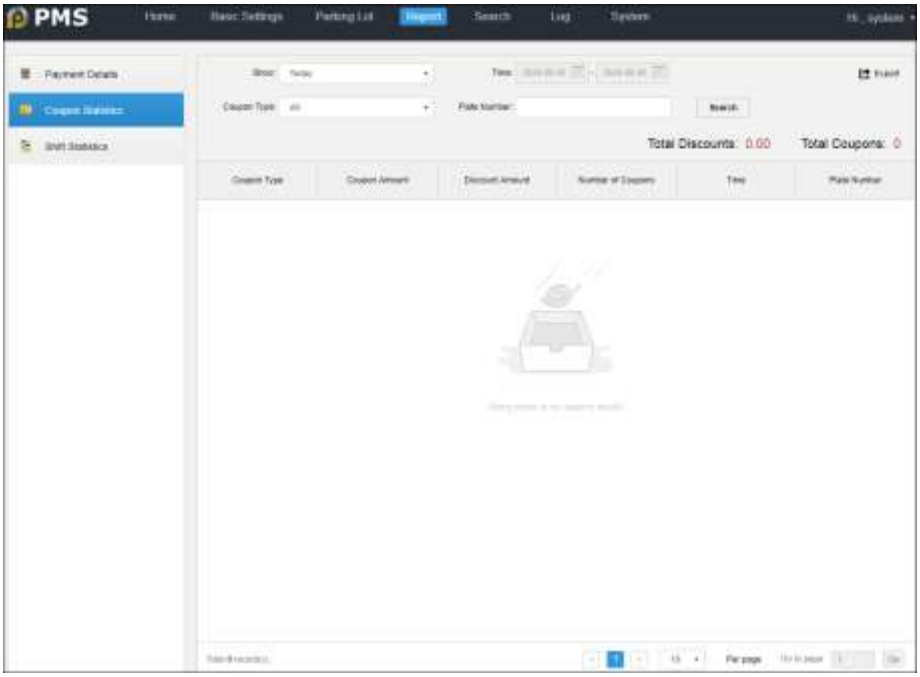


3.8.2 Coupon Statistics

Select **Report > Coupon Statistics**, and then you can:

- Search and view the coupon statistics by day/week/month/year/customized period.
- Search coupon details according to **Time**, **Coupon Type**, and **Plate Number**. Coupon statistics include information such as coupon type, coupon amount, discount amount, number of coupons, payment time, and plate number.
- Export the search results in Excel.

Figure 3-73 Coupon statistics

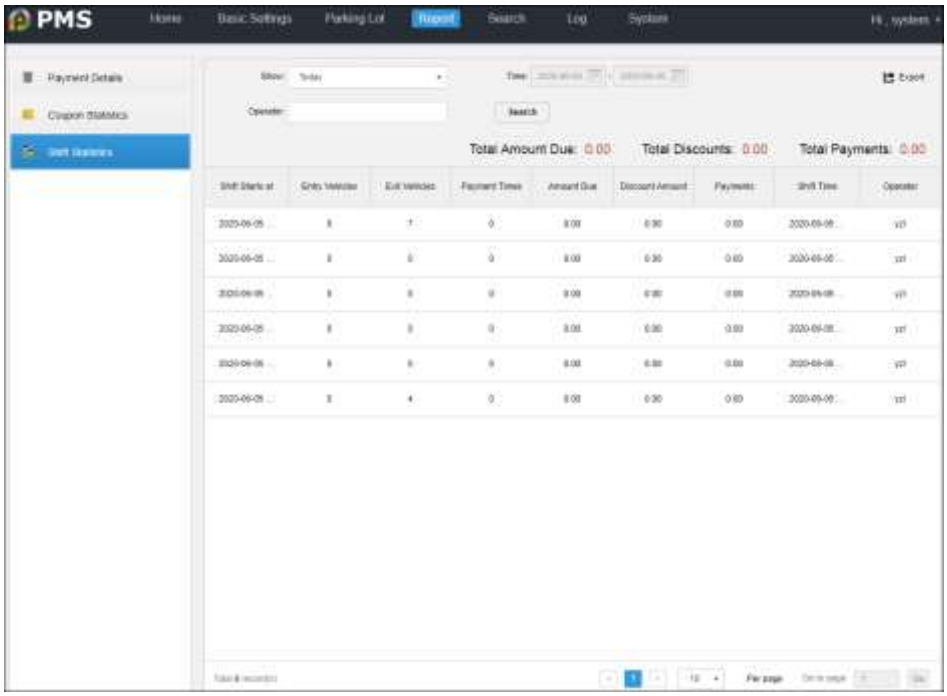


3.8.3 Shift Statistics

Select **Report > Shift Statistics**, and then you can:

- Search and view the shift statistics by day/week/month/year/customized period.
- Search shift details according to **Time** and **Operator**. Shift statistics include information such as work start time, vehicles that enter/leave the parking lot, payment times, amount due, discount amount, payments, shift time, and operator.
- Export the search results in Excel.

Figure 3-74 Shift statistics



3.9 Search

You can search information such as vehicles that enters/leaves the parking lot, vehicles in the parking lot, records of vehicles, records of undercarriage checks.

3.9.1 Vehicles Entry/Exit

You can search the information of vehicles that enter or leave, and export the search results in Excel.

Select **Search > Vehicle Entry/Exit**, and then you can:

- Search: Select devices that detect vehicles, enter the plate number, click to set the period, and then click **Search** to search for the records of vehicles that enter or leave.
- Export: Click Export to export the search results.

- Delete: Click **Delete** to delete the entry and exit records of vehicles. Records of vehicles without exit data cannot be deleted.

Figure 3-75 Vehicle entry/exit

3.9.2 Existing Vehicles

You can search vehicles in the parking lot according to vehicle plate number and the time that the vehicle enters the parking lot.

Select **Search > Existing Vehicle**, and then you can:

- Click **Search** to search the vehicles in the parking lot within the defined period.
- Click Export to export the search results in Excel.
- Click **Force to Exit**, and the vehicle will be cleared from the parking lot.

Figure 3-76 Existing vehicles

3.9.3 Capture Records

Capture records provide information of vehicles detected by the ANPR camera within defined period, and you can export the capture records in Excel.

Select **Search > Capture Records**, and then you can:

- Search: Set the search conditions (such as ANPR channel, vehicle movement direction, plate recognition, plate number, vehicle brand, vehicle color, and time) to search for vehicle capture records.
- Export: Click Export to export the capture records, and click Export Picture to export the captured pictures.
- Delete: The capture records can only be deleted by system user. By deleting the records, the corresponding pictures will also be deleted.

Figure 3-77 Capture records

3.9.4 Reverse Vehicle Search Device

The system supports statistics of the use frequency of reverse vehicle search device.

Select **Search > Reverse Vehicle Search Device**, and then you can set the search conditions (such as parking lot and time) to search for the use frequency results of the device.

Figure 3-78 Reverse vehicle search device

3.10 Log

You can search and view logs of device, alarm, management, system, and parking alarm.

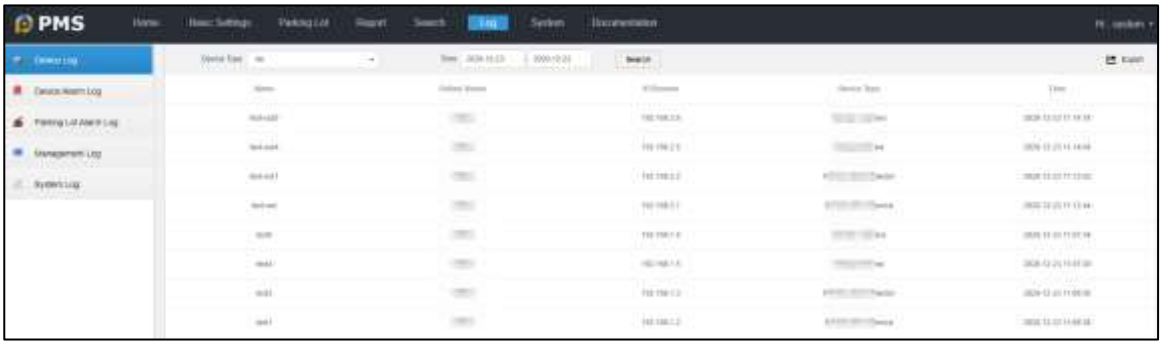
3.10.1 Device Log

You can view device information such as online and offline status, IP address, and device type.

Select **Log > Device Log**, and then you can:

- Select device type.
- Set period.
- Click **Search** to view the information of selected devices within the defined period.
- Click Export to export the search results.

Figure 3-79 Device log



3.10.2 Alarm Log

You can view the alarm records. Select **Log > Alarm Log**, and then you can:

- Select alarm type.
- Select device type.
- Set period.

- Click **Search** to search and view alarm log.
- Click Export to export the search results.

Figure 3-80 Alarm log

3.10.3 Parking Lot Alarm Log

The parking lot alarm log mainly displays the overtime alarm logs of the parking lots. Select **Log > Parking Lot Alarm Log**, and then you can:

- Select alarm type.
- Select parking lot.
- Set period.
- Enter plate number.
- Click **Search** to search and view alarm log.
- Click Export to export the search results.

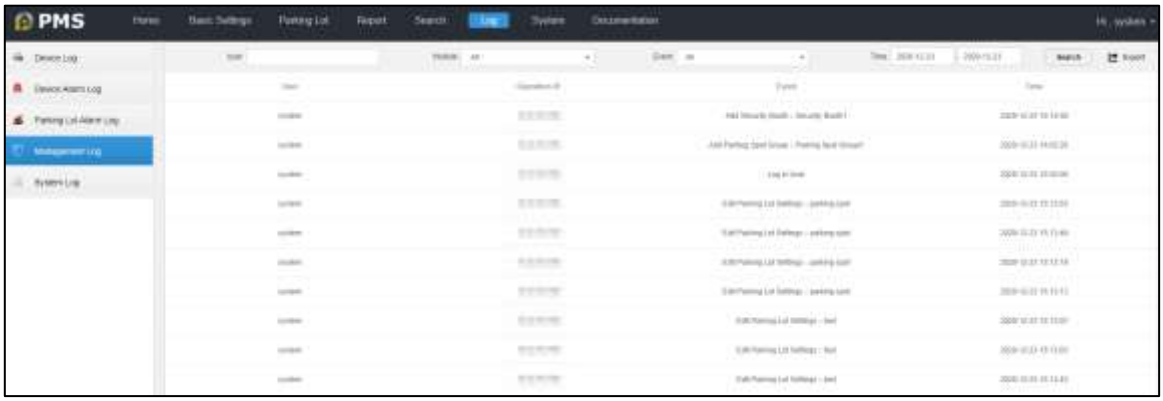
Figure 3-81 Parking lot alarm log

3.10.4 Management Log

You can view the operation information of users. Select **Log > Management Log**. Enter the username in the **User** box to search and view the operation details in respect of the user.

- Click ▼ of the **Module** list to select the operations of module that you want to search.
- Click ▼ of the **Event** list to select the event that you want to search.
- Set period.
- Click **Search** to view the information of selected device(s) within the defined period.
- Click Export to export the search results.

Figure 3-82 Management log



3.10.5 System Log

The system log displays the information of system events. Select **Log > System Log**, and then you can:

- Set period.
- Click **Search** to view the information of selected device(s) within the defined period.
- Click Export to export the search results.

Figure 3-83 System log

3.11 System

System parameters are designed with default value. If you change the default value, click **Save** to make the settings take effect.

3.11.1 System Parameters

You can view system information including version and server time, and set the interval of synchronizing time.

Step 1 Select **System > System Parameters**.

Step 2 Select **Sync Settings**, and then enter the interval of synchronization.

Figure 3-84 System parameters

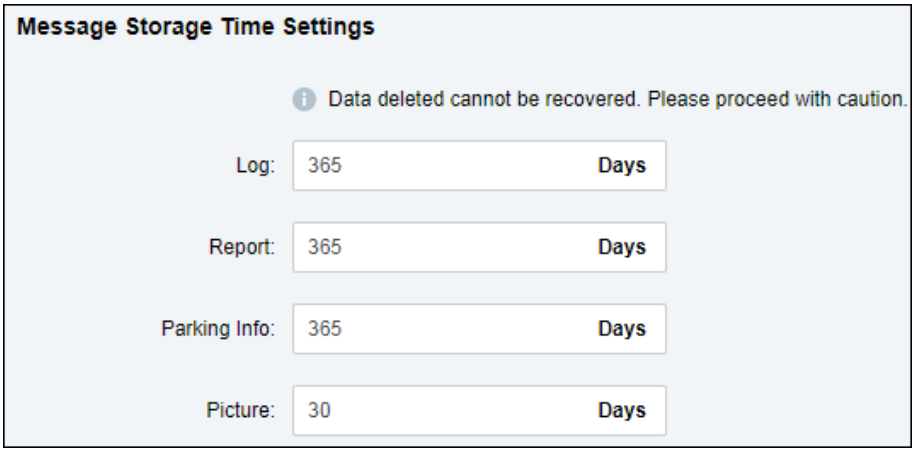
3.11.2 Message Storage Time

Set the time that the logs, reports, parking information, and snapshots will be saved on the server.

Step 1 Select **System > Message Storage Time**.

Step 2 Enter the days that you want to save the information.

Figure 3-85 Message storage time



3.11.3 HTTPS Settings

Enable the HTTPS protocol of system to ensure system security.

Step 1 Select **System > HTTPS Settings**.

Step 2 Select the **Enable** check box.

Step 3 Click **Browse** to select SSL certificate, and enter the password.

Figure 3-86 HTTPS settings

3.11.4 Guidance Display Threshold

Different colors will be shown on the guidance display according to the number of empty parking spots.

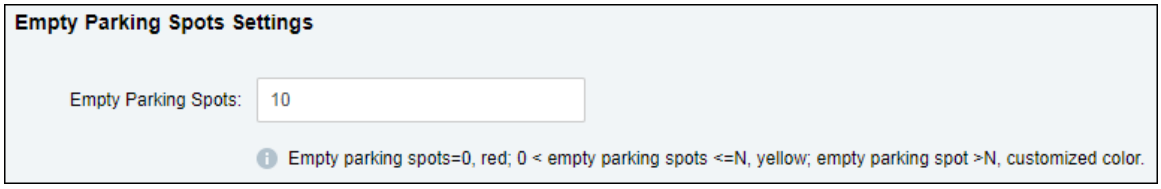
- Red will be shown when there is no empty parking spot
- Yellow will be shown when the number of empty parking spots is between 0 and the defined threshold.
- Customized color will be shown when the number of empty parking spots is greater than the defined threshold.

This configuration only works for Jiuzhou and Dahua LED displays.

Step 1 Select **System > Guidance Display Threshold**.

Step 2 Enter the value of empty parking spots.

Figure 3-87 Set empty parking spots



3.11.5 Record Settings

Set the duration of playing back recorded video. You can also bind NVR to play back the recorded video stored on NVR.

Step 1 Select **System > Record Settings**.

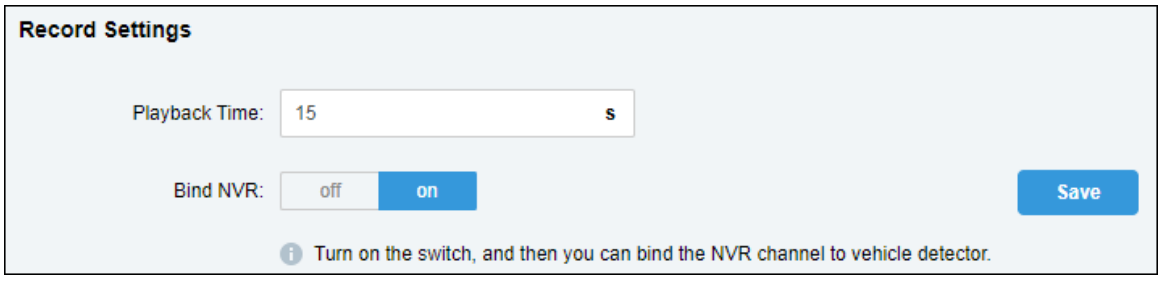
Step 2 Enter the duration in the **Playback Time** box.

Step 3 Turn **on** or **off** binding NVR.

By turning on binding NVR, video stored on NVR can be played back. You need to add the device to NVR and enable record plan on NVR first. For details, see NVR user's manual.

Step 4 Click **Save**.

Figure 3-88 Record settings



3.11.6 Currency

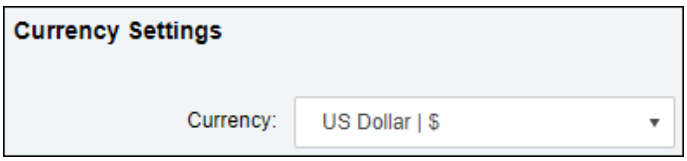
Set the currency that will be displayed on the system when charging parking fees.

Step 1 Select **System > Currency**.

Step 2 Click ▼ to select the currency.

If the currency is not included in the list, click ✚ to add the currency that you want to use.

Figure 3-89 Currency settings



3.11.7 Refreshing Empty Parking spots

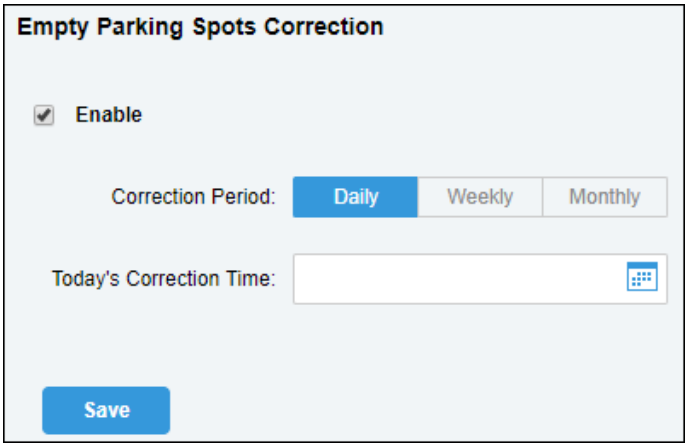
Set the period and the time that the system refreshes the number of empty parking spots to the value defined when setting the parking lot or the LED display.

Step 1 Select **System > Refresh Empty Parking Spots**.

Step 2 Select **Enable**, and then set the period and the time that the system refreshes the number of empty parking spots.

Step 3 Click **Save**.

Figure 3-90 Empty parking spots correction



3.11.8 Public IP Settings

Set the WAN IP address of PMS, so you can access the PMS when it is connected to network through this WAN.

Step 1 Select **System > Public IP Settings**.

Step 2 Select **Enable**, and then configure IP address.

Step 3 Click **Save**.

Figure 3-91 Public IP settings

3.11.9 Clearing Existing Vehicles

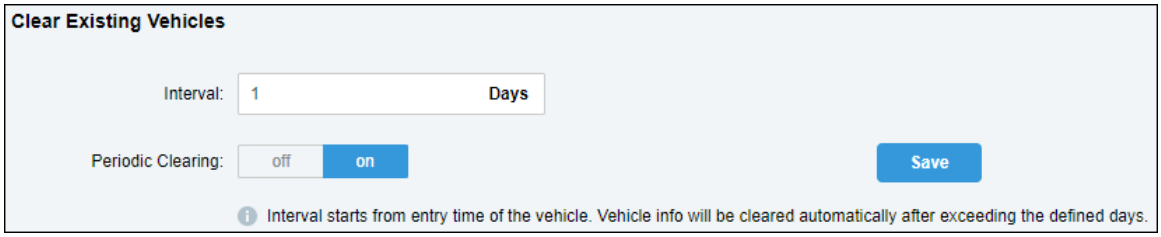
Vehicle information will be cleared automatically after exceeding the defined days.

Step 1 Select **System > Clear Existing Vehicles**.

Step 2 Click **on** corresponding to **Periodic Clearing**, and then set the interval of clearing vehicle information. Click **off** to disable this function.

Step 3 Click **Save**.

Figure 3-92 Clear existing vehicles



3.11.10 APP Settings

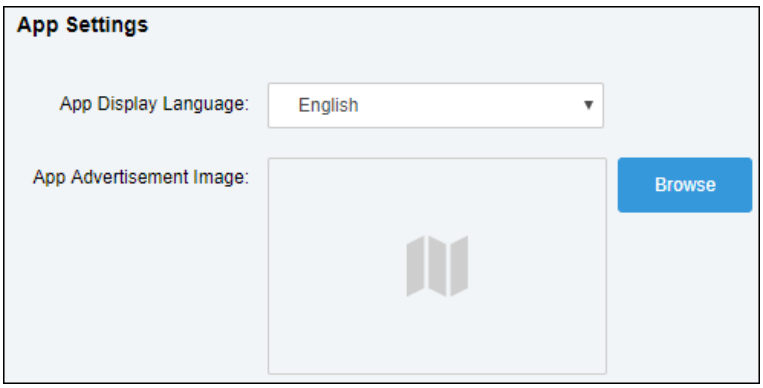
You can set the display language of the reverse vehicle search app and app advertisement picture. If there is no operation within 30 s, the screen saver picture will be displayed. Click any position of the screen to return to the operation status.

Step 1 Select **System > App Settings**.

Step 2 Select app display language. Currently, it supports English, French, Dutch, Italian, Spanish, German, and Portuguese.

Step 3 Click **Browse** to import the app advertisement picture.

Figure 3-93 App settings

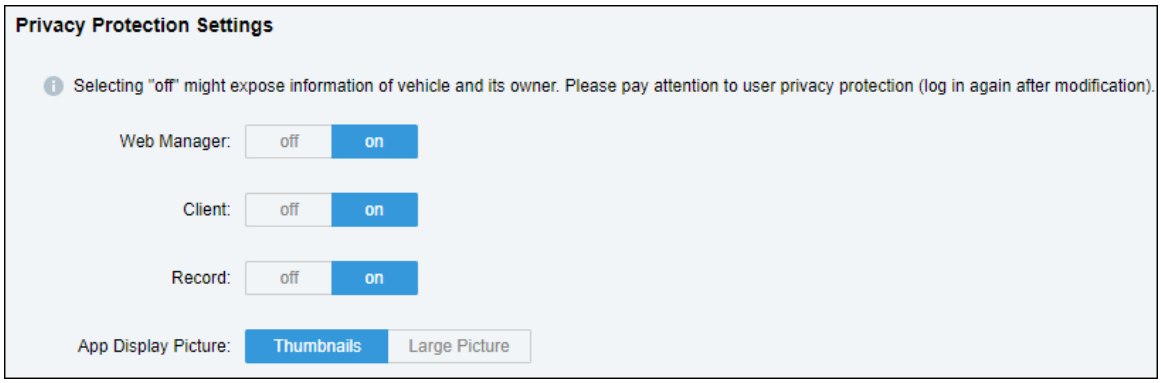


3.11.11 Privacy Protection

You can select turning on or off privacy protection of web manager, client, and recording. In addition, you can select displaying the pictures on the reverse vehicle search app in thumbnails (license plate picture) or large picture (the entire vehicle).

Step 1 Select **System > Privacy Protection**.

Figure 3-94 Privacy protection settings



Step 2 Turn **on** or **off** privacy protection.

Privacy protection is turned on by default. If turned off, information of vehicle and its owner might be exposed. Please operate with care.

When privacy protection is turned on, some part of your information will not be displayed to protect your privacy.

Table 3-20 Privacy protection

Name	Description
Web Manager	After being turned on (default), the 3rd and 4th digits of the license plate, and the 4 digits in the middle of a phone number will not be displayed. In addition, the vehicle picture and frequency of the vehicle entering or leaving the parking lot (**Search > Vehicle Enter/Exit**) will not be displayed. For vehicle owner, only the 1st and the last characters of the name will be displayed (other characters are displayed as *). For email address, characters before "@" are displayed as *.
Client	Turned on by default. For Central Payment, you need to enter at least 3 characters of the plate number to search for the target plate on PMS Payment client.
Recording	After being turned on (default), **Playback** and **Download Center** menus will not be displayed on the PMS Client, and the icon of viewing videos in **Event Center**, **Map**, and **Search > Snapshot Record** on the PMS Client will not be displayed.
Add Display Picture Type	Select displaying the pictures on the reverse vehicle search app in **Thumbnails** (license plate picture) or **Large Picture** (picture of the entire vehicle). It is **Thumbnails** by default.

3.11.12 Security Mode Config

Set the security mode when logging in to PMS.

Step 1 Select **System > Security Mode Settings**.

Step 2 Select **Compatibility Mode** or **Security Mode** (recommend).

Compatibility mode might make your system expose to potential security risk.

Figure 3-95 Security mode settings

3.11.13 Email Server Settings

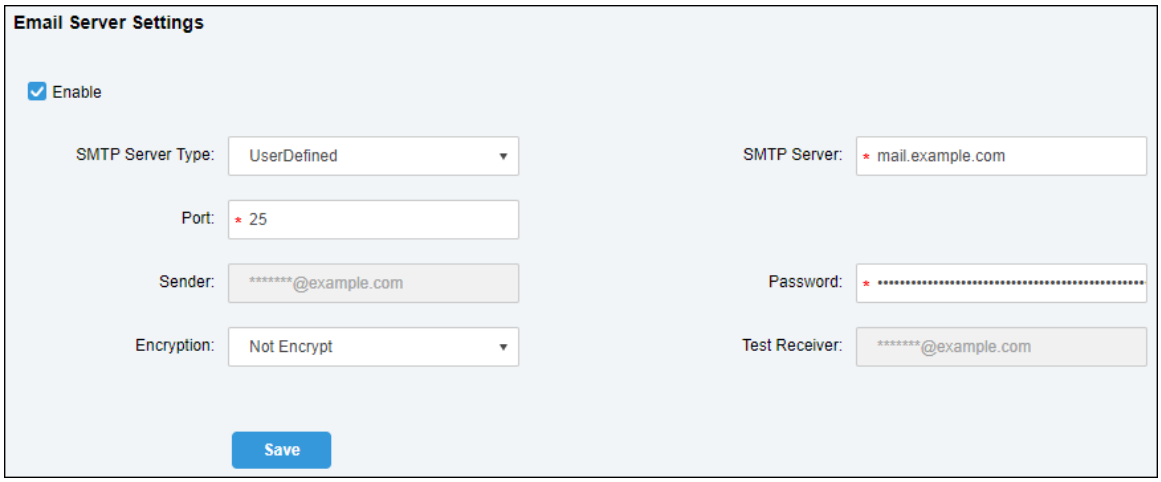
Set the email server, and when a vehicle parks at the no-parking zone, the system sends an email to all current administrators in the title of *alarm time_parking spot_parking at no-parking zone*.

Step 1 Select **System > Email Server Settings**.

Step 2 Set the SMTP server type, IP address and port number of server, password of the sender, and whether to encrypt the email or not.

Step 3 Click **Save**.

Figure 3-96 Email server settings



3.11.14 Syslog Server Settings

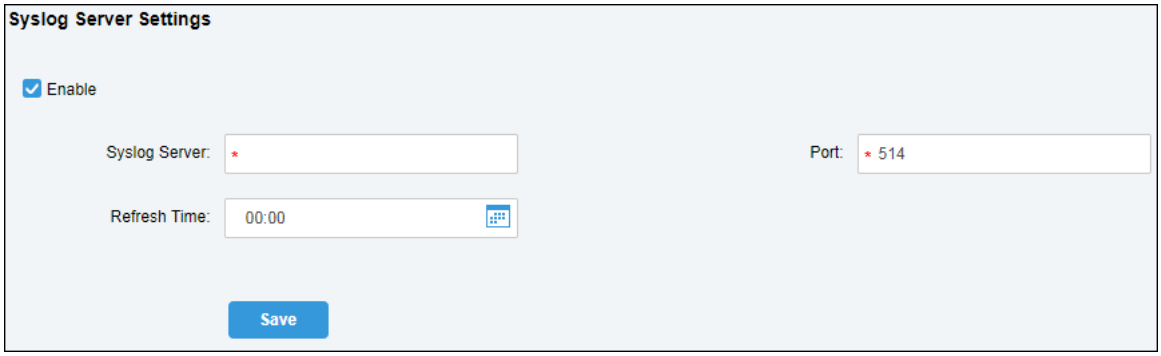
Set the Syslog server, and the system automatically uploads logs to the Syslog server periodically.

Step 1 Select **System > Email Server Settings**.

Step 2 Set the IP address and the port number of the Syslog server, and the refresh time of uploading logs to Syslog server.

Step 3 Click **Save**.

Figure 3-97 Syslog server settings



3.11.15 Copyright Setting

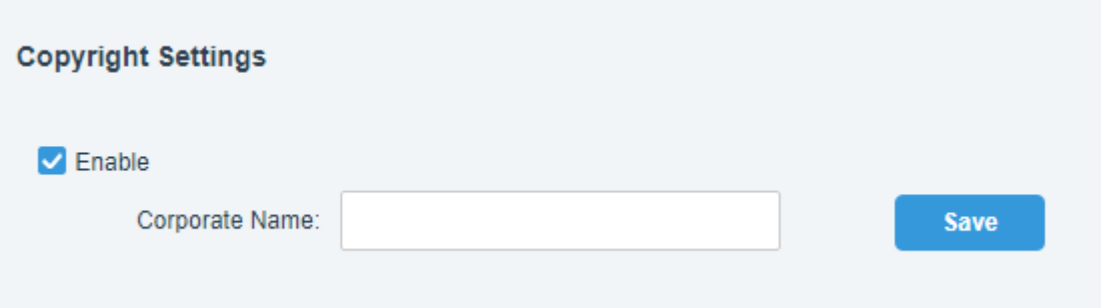
Set the corporate name for the system copyright information which shows on the login page..

Step 1 Select **System > Copyright Settings**.

Step 2 Set the **Corporate Name**.

Step 3 Click **Save**.

Figure 3-98 Copyright setting



3.12 Documentation

You can read help document in this section when using PMS.

4 PMS Client

4.1 Install and Uninstall

4.1.1 Installing Client

You can install PMS client on the web interface of PMS.

Figure 4-1 Web login

Step 1 Click to download PMS client.

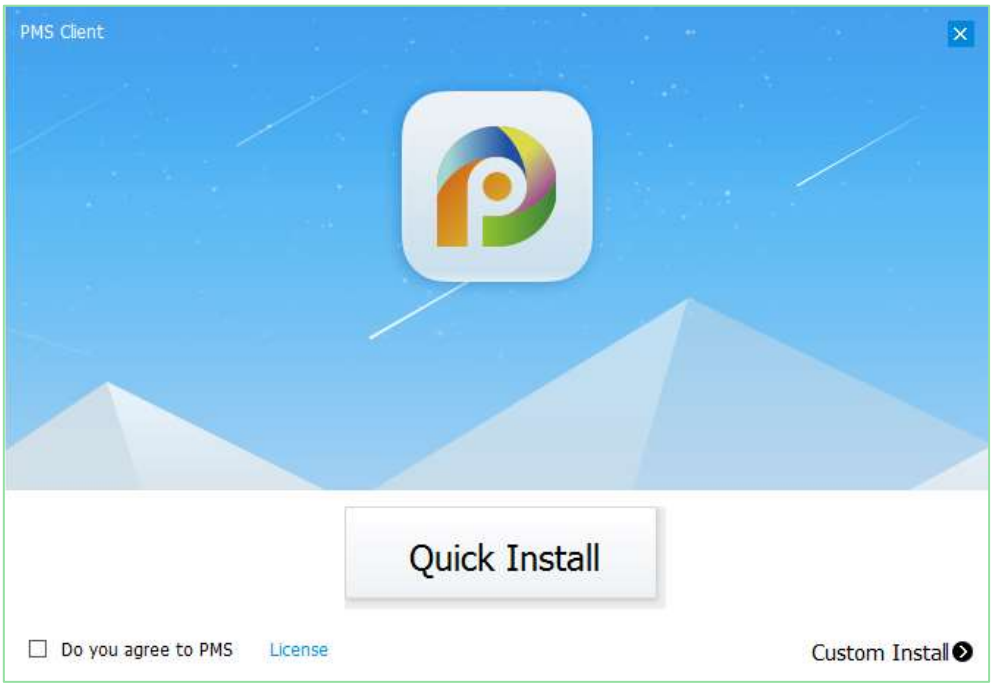
A dialog box that prompts file download is displayed.

Step 2 Click **Save**, and download and save the PMS client to your PC.

Step 3 Double-click "General_PMS_Professional_Control_Client_Eng_V1.01.000.exe."

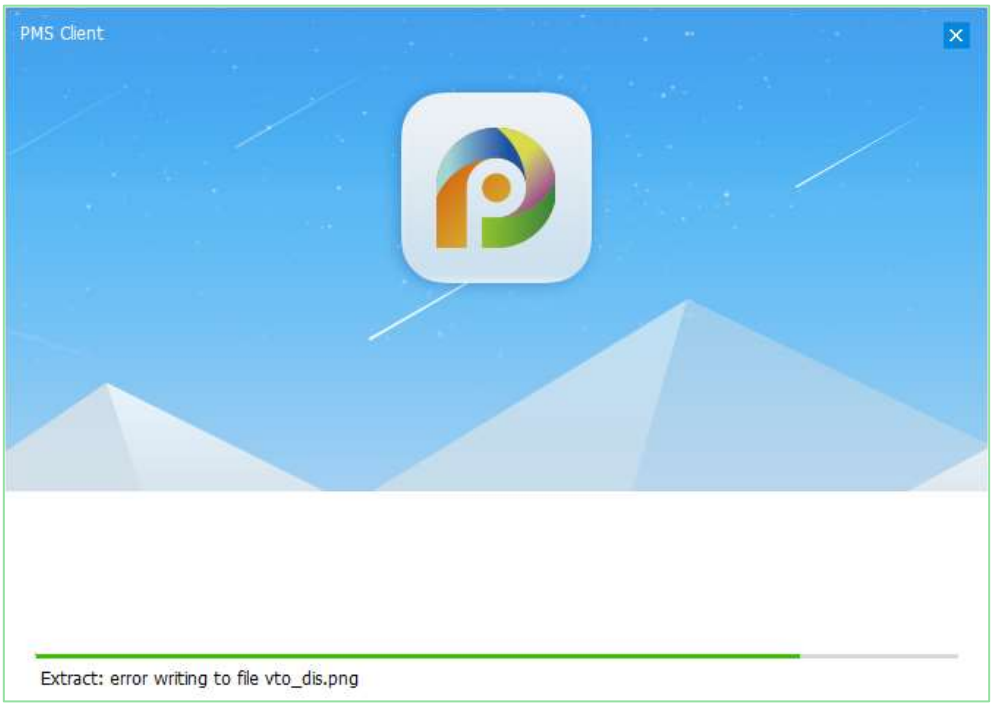
The name of installation package might vary depending on the software version, and the actual package shall prevail.

Figure 4-2 Quick install



Step 4 Click **License** to read the agreement. After reading and understanding the agreement, select the **Do you agree to PMS License** check box, and click **Quick Install**. You can also click **Custom Install** to select the installation path before installation starts.

Figure 4-3 Installation progress



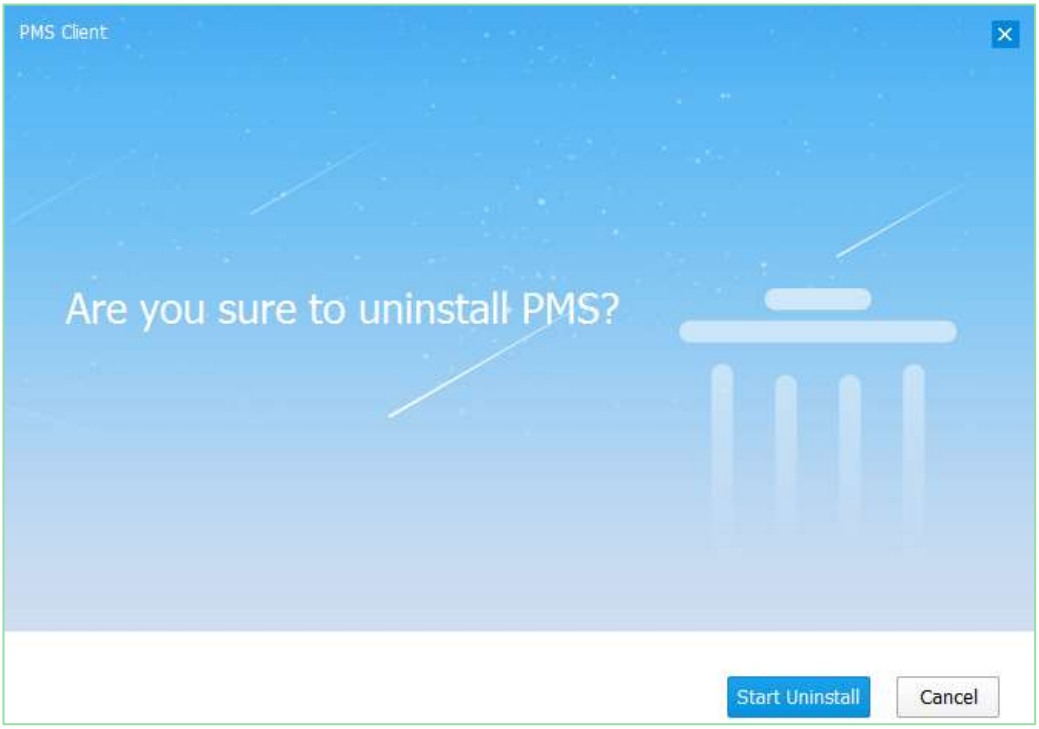
Step 5 After installation, click **Run** to start.

4.1.2 Uninstalling Client

Step 1 Click **All Programs** from your PC start menu to find the PMS Client folder, and then click **Uninstall PMS Client**.

Step 2 Click **Start Uninstall** to uninstall the PMS client.

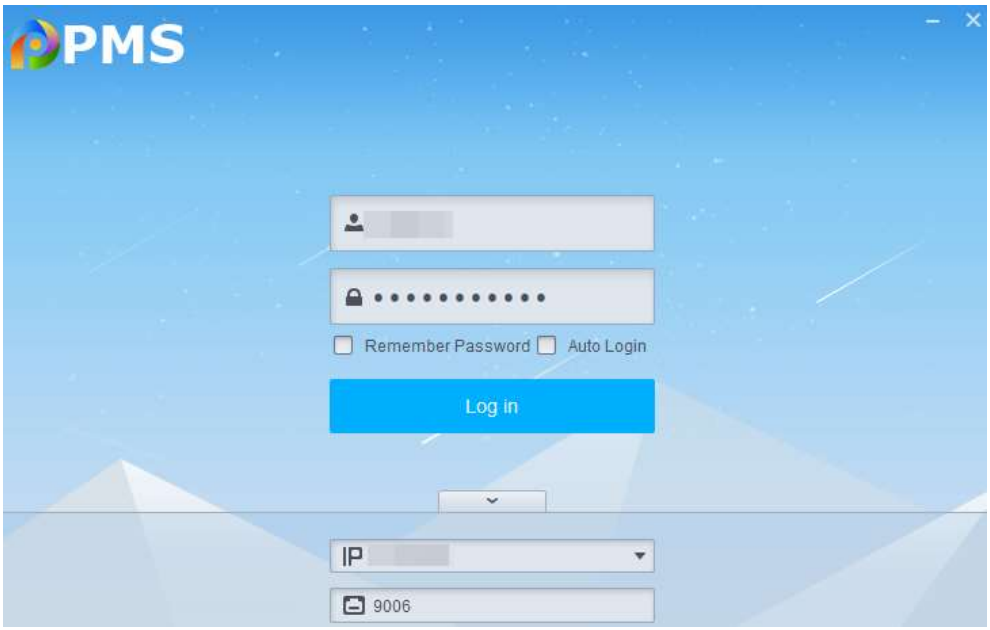
Figure 4-4 Uninstall



4.2 Logging in to Client

Step 1 Double-click the shortcut of PMS Client on your desktop.

Figure 4-5 Logging in to PMS client



Step 2 Enter the username and password.

Step 3 Click to enter server IP address and port.

The server IP address is the same IP for logging in to PMS web interface. The port is 9006 by default.

Step 4 Click **Log in**.

Figure 4-6 Home

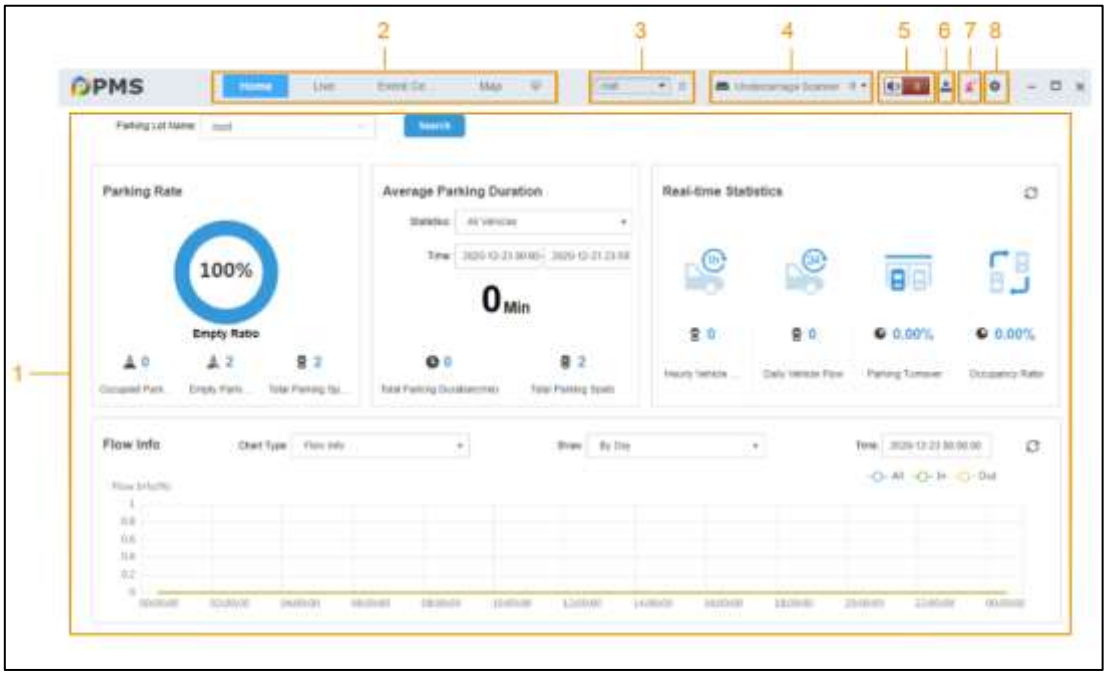


Table 4-1 Description of home interface

No.	Description
1	Main interface. See "3.2 Home."
2	Function bar. You can click different tabs to realize functions such as viewing real-time videos, playing back and downloading video records, viewing events, vehicle information, and undercarriage scanning reports, and setting map.
3	Displays the number of empty parking spots in the selected parking lot.
4	Click ▼ next to **Undercarriage Scanner** to select undercarriage scanner, click **Apply**, and then **OK**.
5	Displays the unprocessed alarms, click to view the details.
6	Click to log out and obtain the help document.
7	In emergency situation, click to open or close the boom barrier.
8	Set the language of client, file save path, VTO (door station) ringtone, enable or disable the barrier opening result notice, and more.

4.3 Live View

Click **Live**, and the **Live** interface is displayed. Double-click channel from the device tree at the left side, or drag the channel to the video window, then you can view the real-time video of the channel.

Figure 4-7 Live

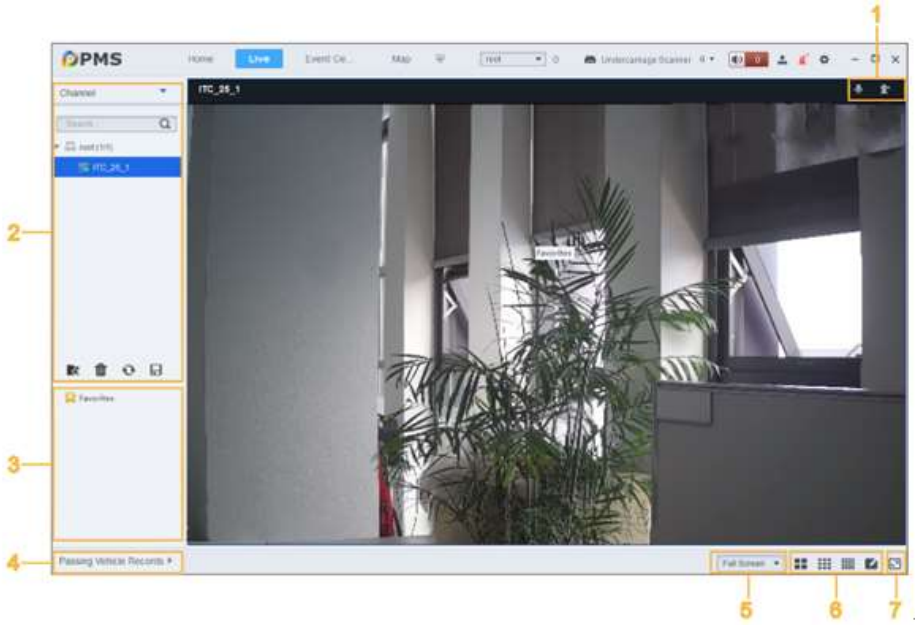
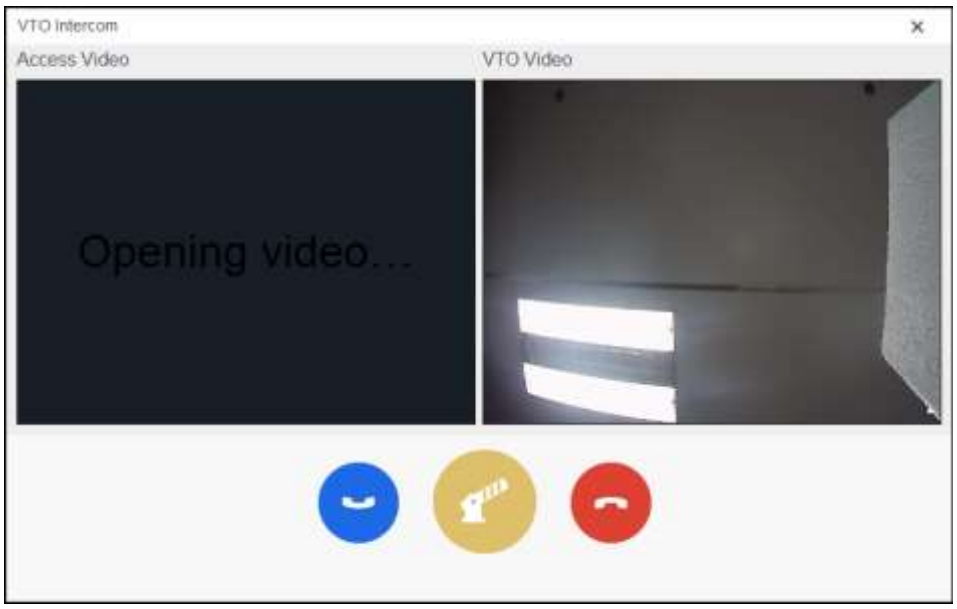


Table 4-2 Description of live interface

No.	Description
1	• : Click it to start call with VTO (door station). During remote call, only videos of channels that have been bound to VTO (door station) will be played. • : Click it to remotely open the boom barrier. It is available when boom barrier is connected to the camera.
2	Device tree that displays channels. • : Device channel is offline or abnormal. • : Device channel is normal, but no video is played. • : Video is played.
3	**Favorites**: Right-click a channel, and then click **Add to Favourites** to add the channel to your favorites.
4	**Passing Vehicle Records**: Records of vehicles that pass the entrance/exit. Supports comparing snapshots of passing vehicles and license plate. You can also view the video when the vehicle passes.
5	Screen display: Select a window, and then select **Full Screen** or **Original.**
6	Window split: Select the number of windows that display the video image. You can select 4, 9, or 16 windows, or click to select custom mode.
7	Full screen: Click to enter full screen mode. To exit full screen, press Esc key, or right-click **Exit Full Screen**.

If a call is made from device, the system displays a message box shown in Figure 4-8. You can view video image, answer or hang up the call, and open the boom barrier. After opening the boom barrier, you can enter the records according to system message.

Figure 4-8 Live



4.4 Playback

Playback tab will not be displayed on the client unless privacy protection of **Record** is turned **off** from **System > Privacy Protection** on the web interface of PMS.

Click **Playback**, select video channel from the device tree at the left side, set the period and stream, and then click **Search**. The video playback interface is shown in the following figure.

Figure 4-9 Playback

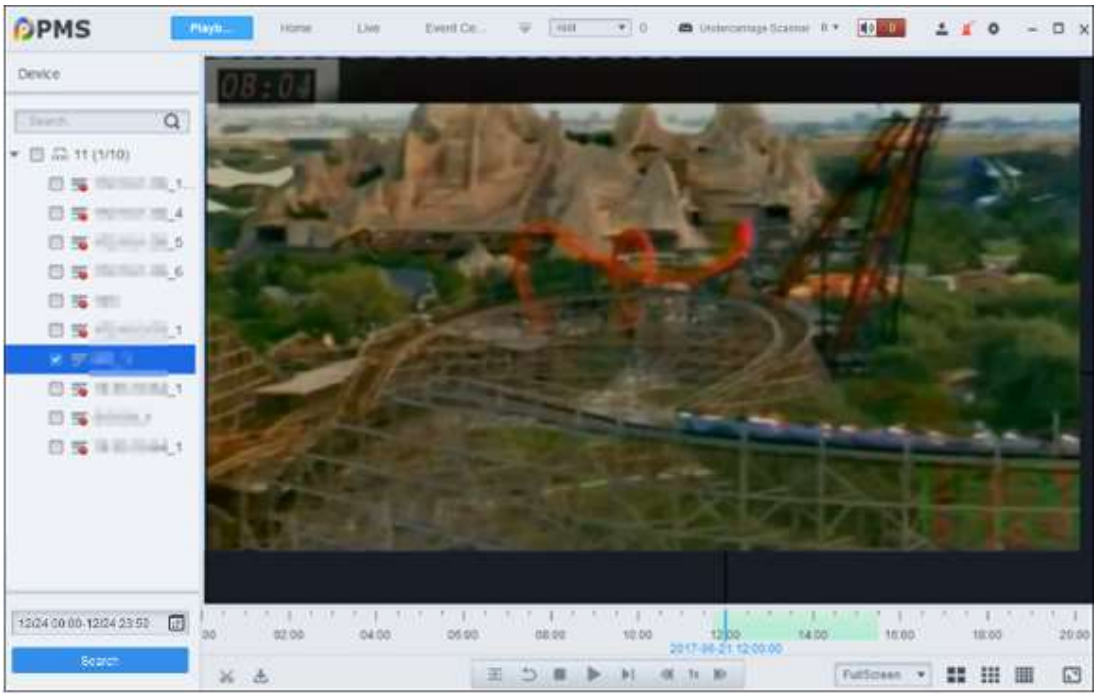


Table 4-3 Icon description

Icon	Description	Icon	Description
	Video clip		Download
	Sync play		Play video in reverse
	Single-frame play		Stop
	Speed up playing		Play/Pause
	Slow down playing	—	—

4.5 Download Center

The **Download Center** tab will not be displayed on the client unless privacy protection of **Record** is **off** from **System > Privacy Protection** on the web interface.

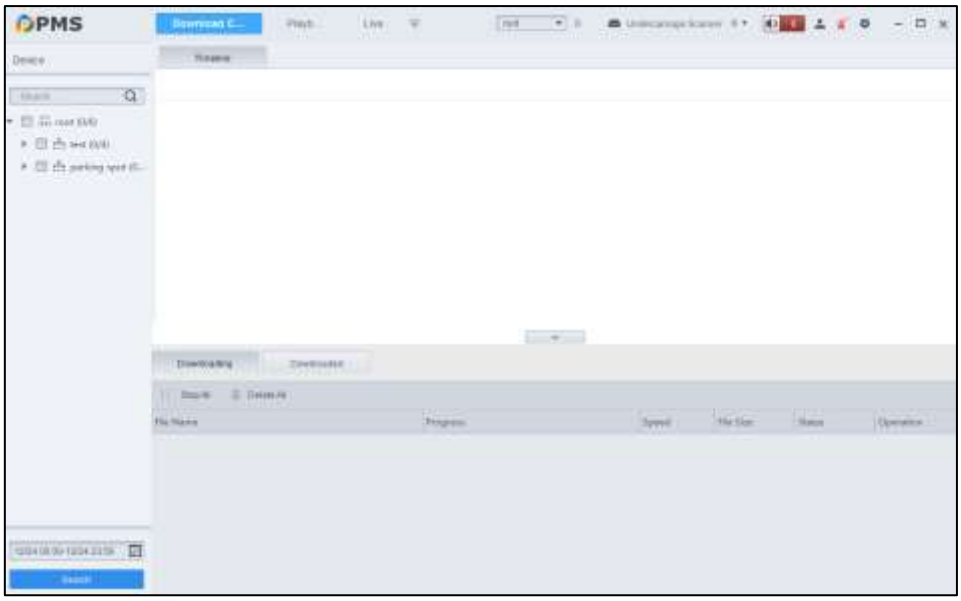
Step 1 Click **Download Center**.

Step 2 Select channel from the device tree at the left side, click , set period, and then click **Search** to view video records within the selected time period.

Step 3 Select the video record you want to download, and the system start downloading.

Click Stop All to stop downloading all download tasks, and click Delete All to delete all the tasks.

Figure 4-10 Download center



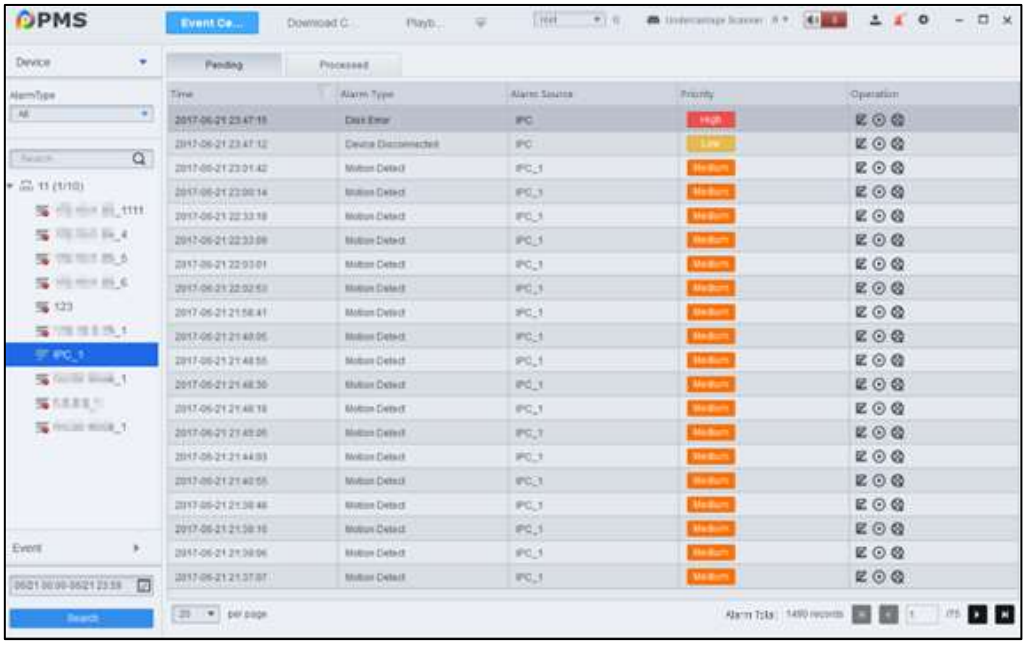
4.6 Event Center

Step 1 Click , and then select **Event Center** from the list.

Step 2 Select **Alarm Type**, video channel, and set period, and then click **Search**.

The search results are displayed.

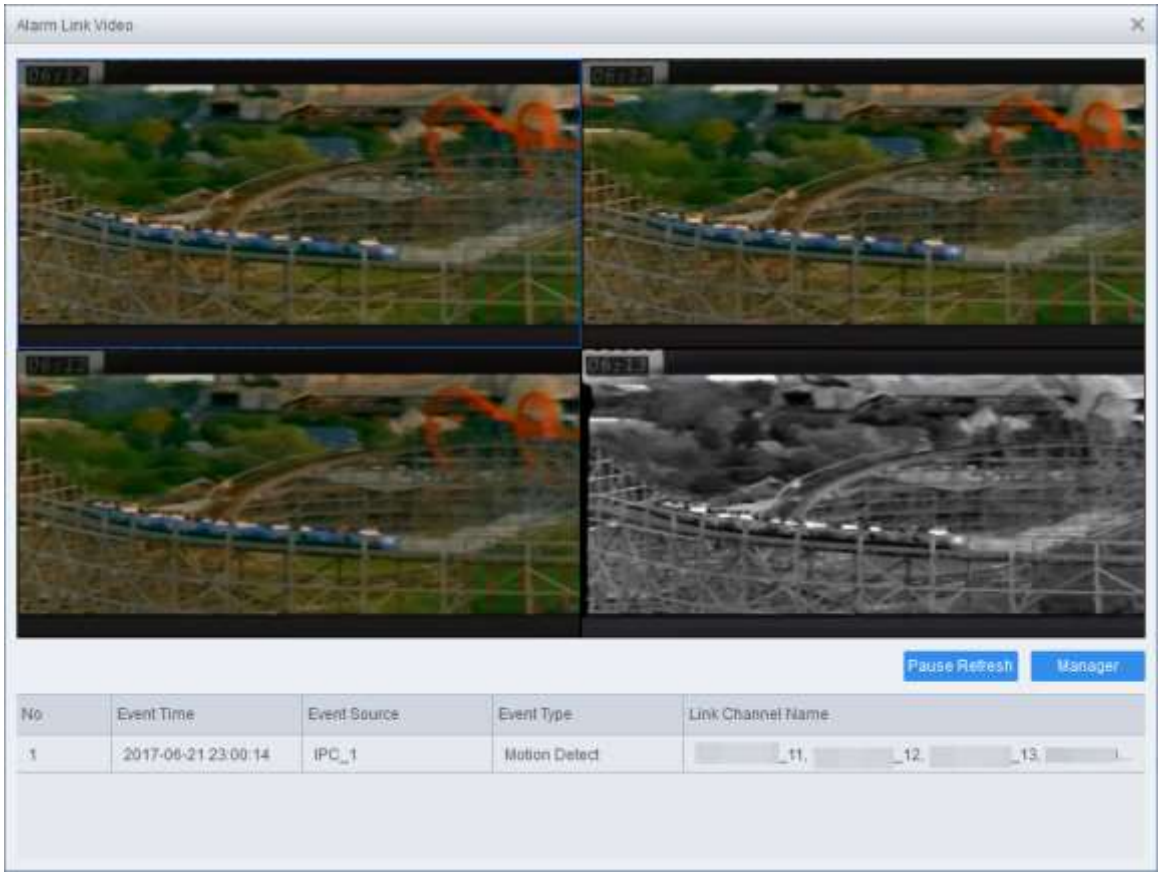
Figure 4-11 Alarm search



Step 3 You can process the alarm events, play real-time video, and play back video records.

- Click to process the alarm events.
- Click to play real-time video.

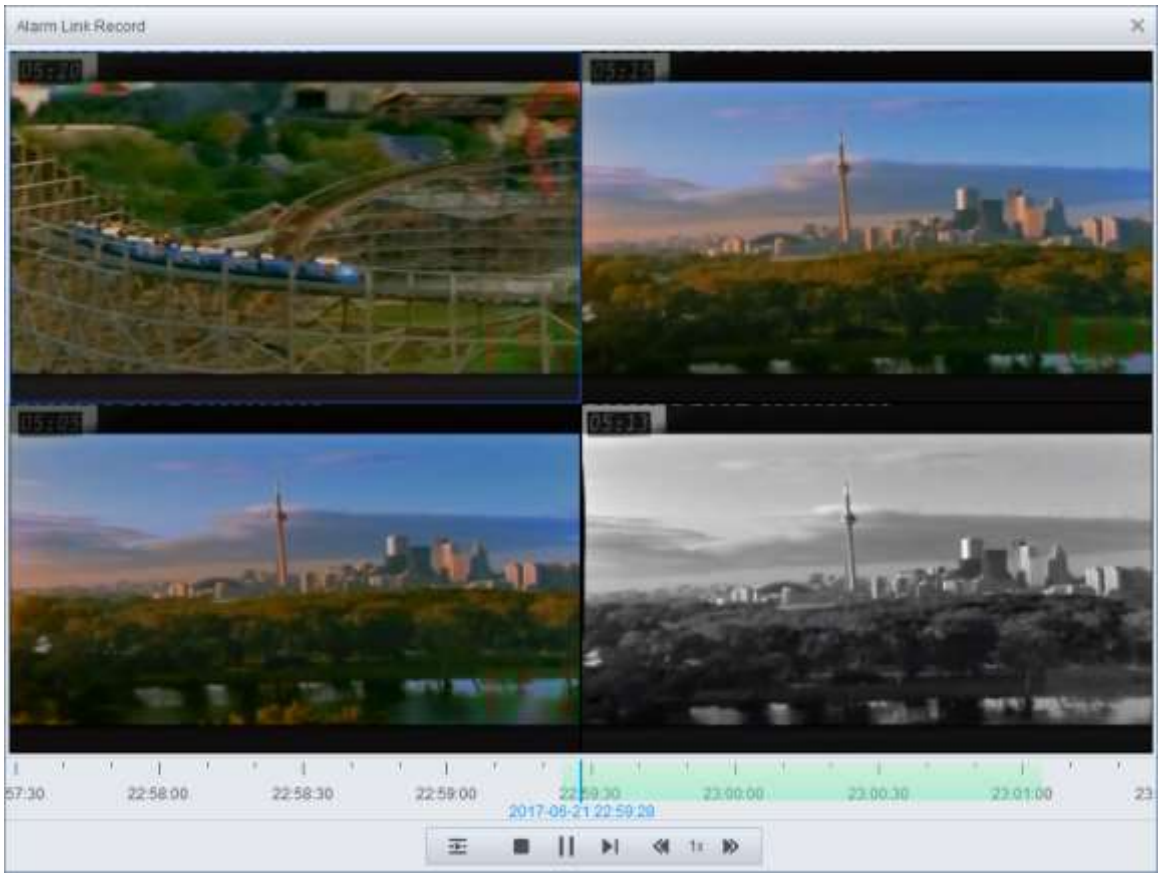
Figure 4-12 Real-time video



- Click to play back video record linked to alarm event.

  Alarm events that have been processed are displayed in the **Processed** tab.

Figure 4-13 Play back video record



Step 4 Click **Event** at the lower-left side, and then select **Parking Overtime** from **Alarm Type**.

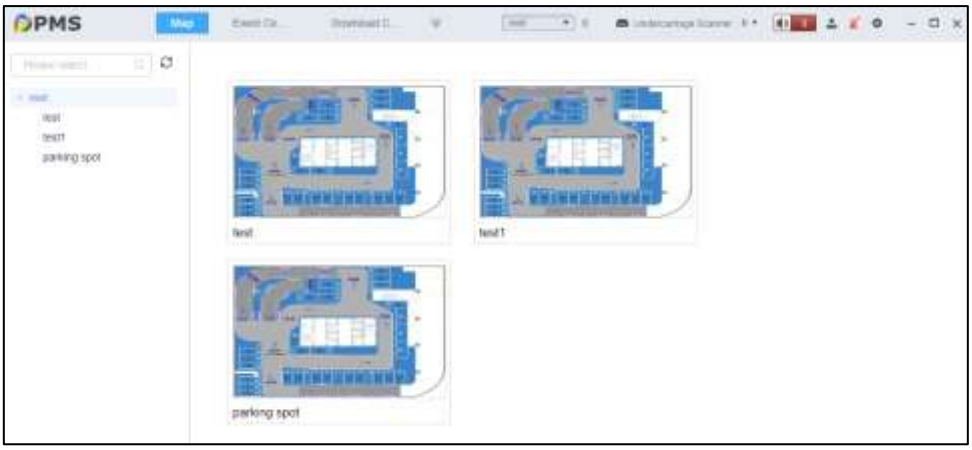
Step 5 Set the period, and then click **Search**.

You can view information such as the entry time, parking duration, plate number, and vehicle owner, process the alarm, and view the map.

4.7 Map

Step 1 Click , and then select **Map** from the list.

Figure 4-14 Map



Step 2 Click a map.

Figure 4-15 Parking lot map

- View parking lot information.

1) Click the **Parking Lot** tab, and then you can view the parking lot name, total and empty parking spots.

Table 4-4 Map icon description

Icon	Description	Icon	Description
	Layer		Zoom out
	Clear traces on the map		Zoom in
	Refresh		Click it to display on the map the plate number recognized by the parking spot detector
	Select		Click it to display on the map the parking spot available

2) Click a parking spot detector on the map, and the detector information is displayed.

Figure 4-16 Parking spot detector information

◇ Click to view real-time video.

◇ Click to view video playback.

◇ Click to view snapshots.

3) Click device channel on the map, and the channel name and IP address are displayed.

4) Click , select online devices.

Figure 4-17 Device list

5) Click to play real-time video.

Figure 4-18 Play real-time video

- View parking information.

1) Click the **Parking Records** tab.
2) Set period, enter plate number or parking spot, select parking spot detector, and then click **Search**.

Figure 4-19 Parking record

3) Click the picture of vehicle plate to view the large picture. You can also view information such as entry plate, parking spot, and entry or exit picture and time.
4) View video.

◇ Click to view videos of vehicles entering the parking spot.

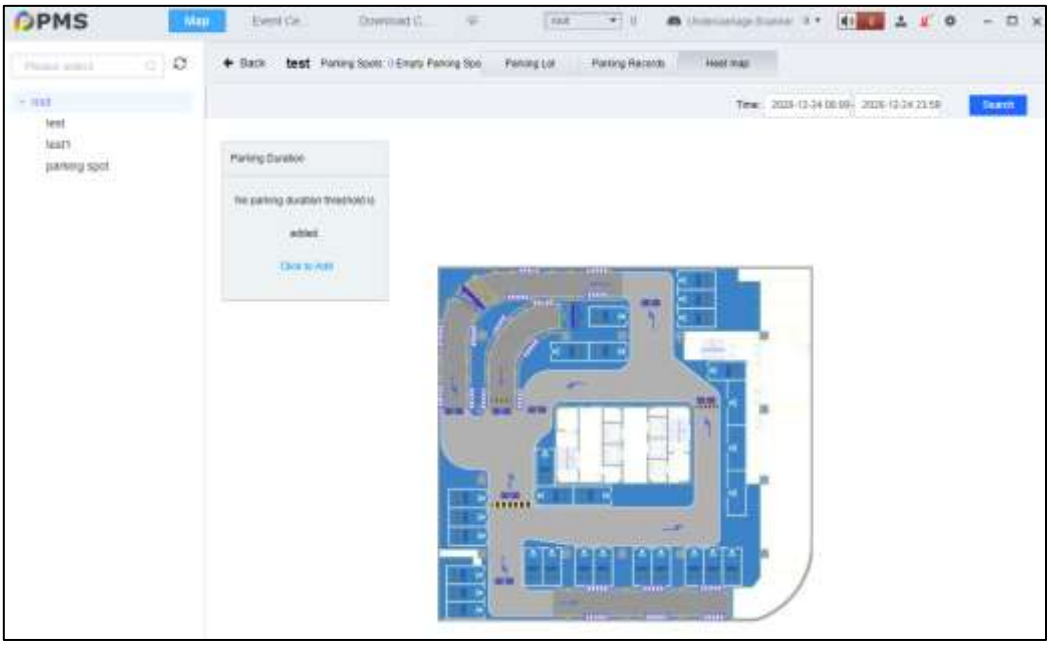
◇ Click to view videos of vehicles leaving the parking spot.

◇ Click to view videos of vehicles entering and leaving the parking spot.

- View parking heat map.

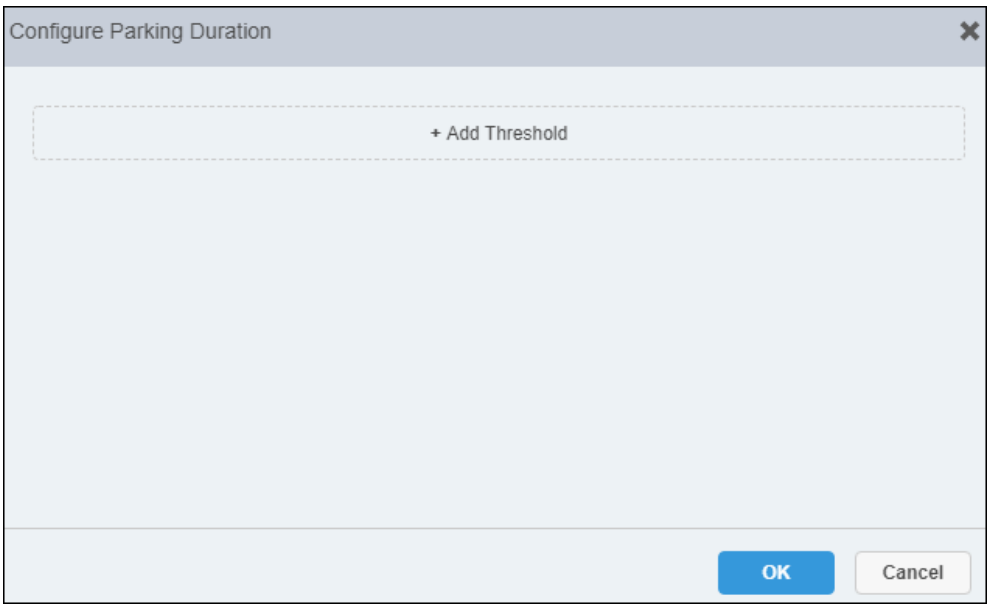
1) Click the **Heat map** tab.

Figure 4-20 Parking heat map settings



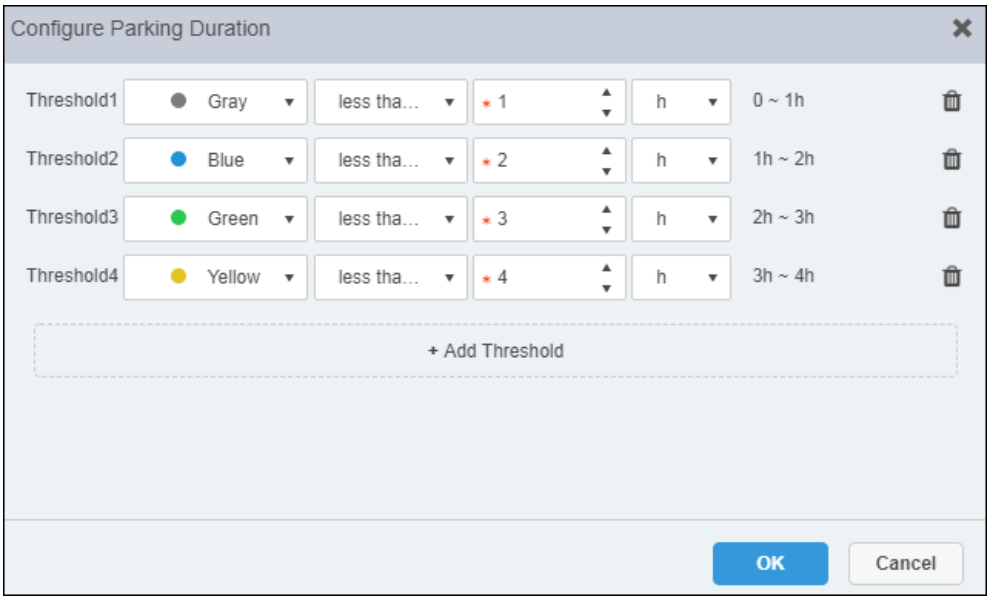
2) Click Click to add.

Figure 4-21 Configure parking duration



3) Click + Add Threshold, and then you can configure different colors for different parking durations.

Figure 4-22 Configure parking duration



4) Click **OK**.
You can view the parking heat map based on the parking duration.

4.8 Search

4.8.1 Vehicle Entry/Exit

You can search the information of vehicles that enter or leave the parking lot, such as entrance channel, exit channel, plate number, and time. Click , select **Search >** , and then you can:

- Click the vehicle snapshot to view the large picture.
- **Delete**: System user can delete vehicle records. Records of vehicles without exit data cannot be deleted.
- **Export**: Export the vehicle information. You can encrypt the export information to ensure data security.

Figure 4-23 Records of passing vehicles

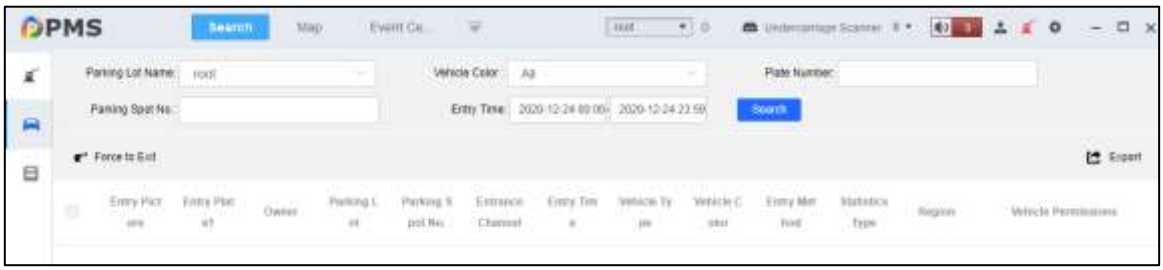
4.8.2 Existing Vehicles

You can search for vehicles in the parking lot according to vehicle plate number and the time that the vehicle enters the parking lot. You can also export the search results in Excel. For vehicle that has left the parking lot but its information is still displayed on the interface, click Force to Exit, and the vehicle information will be cleared.

Click , select **Search >** , and then you can:

- Click the vehicle picture to view a large picture.
- Select multiple vehicles, and then click Force to Exit to clear the vehicle information from PMS.

Figure 4-24 Existing vehicles



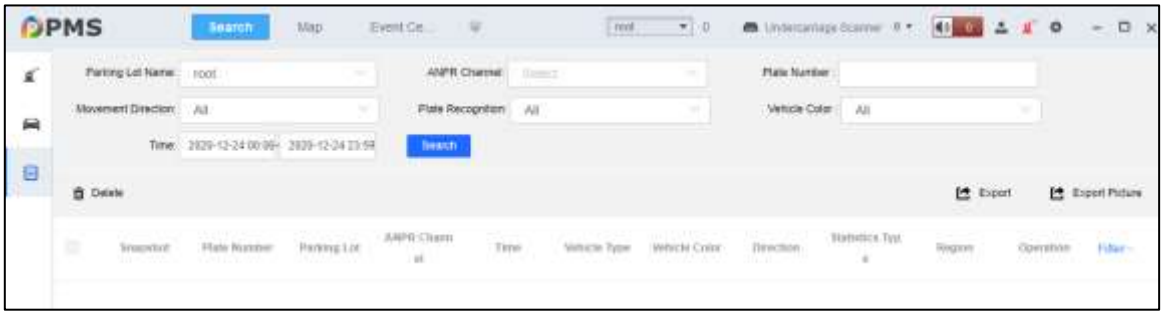
4.8.3 Capture Record

You can search for the snapshots captured by ANPR channel, and also view the information such as plate number, parking lot, and time that a vehicle enter or leaves.

Click , select **Search >** , and then you can search for and export the capture records.

- Click to view video image of linked video channel.
- **Delete**: System user can delete capture records. By deleting the records, the corresponding pictures will also be deleted.
- **Export**: Export the records. You can encrypt the export information to ensure data security.
- **Export Picture**: Export the captured vehicle pictures.

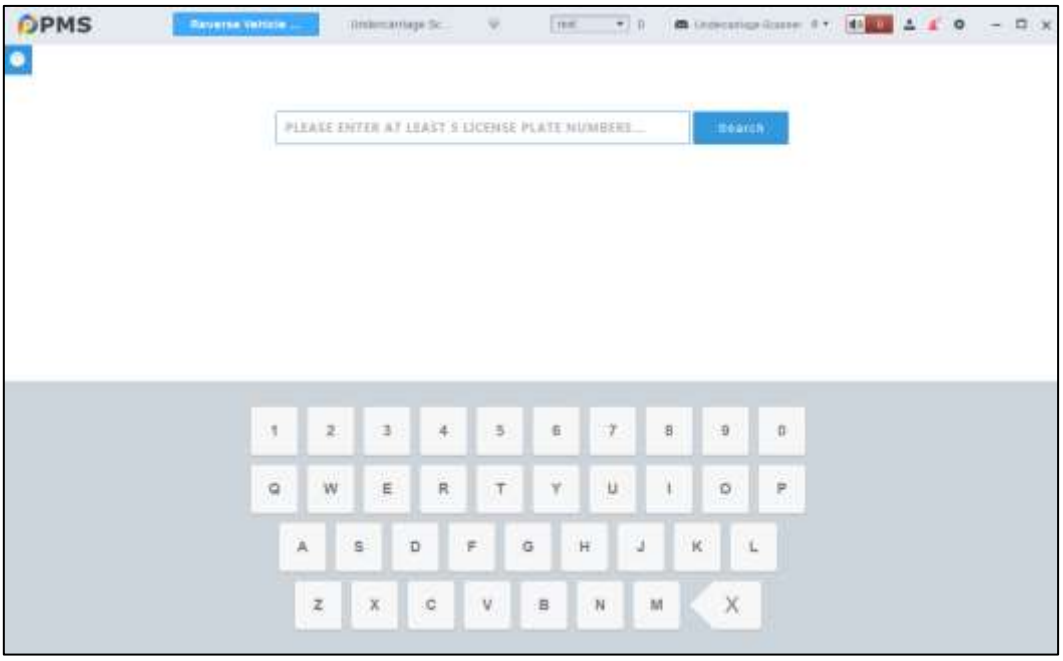
Figure 4-25 Capture records



4.9 Reverse Vehicle Search

You can search for the route of finding your vehicle with reverse vehicle search device or by entering your plate number. You need to search for your parking record first.

Figure 4-26 Search parking record

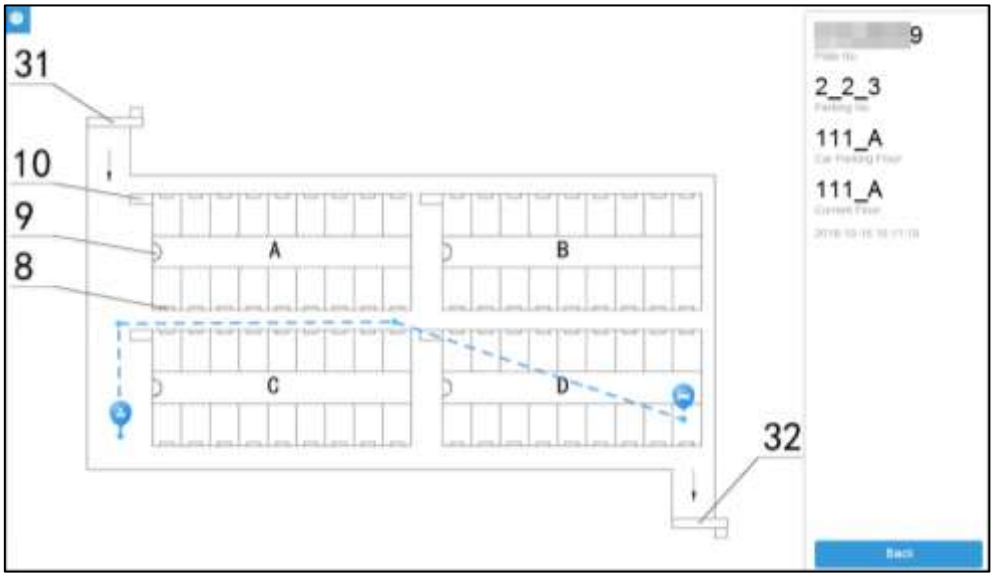


- Click **Search** to search for the parking records.

Figure 4-27 Reverse vehicle search

- Click **Location** to view the route of finding your vehicle.

Figure 4-28 Reverse vehicle search

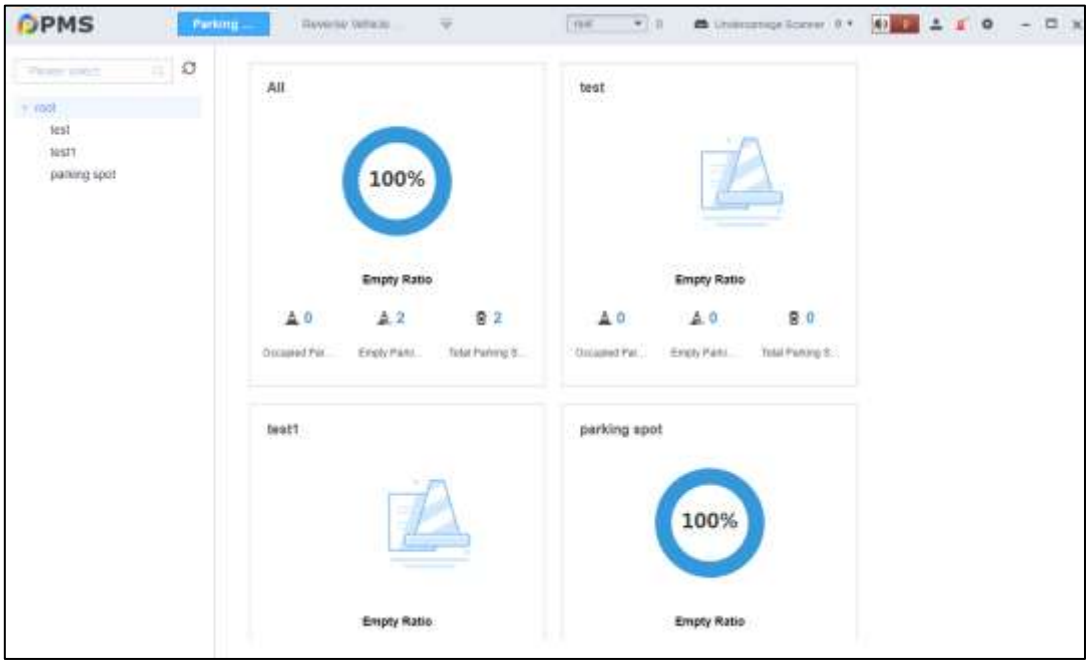


4.10 Parking Lot Overview

You can view the parking details of each parking lot by clicking the **Parking Lot** tab.

System user and users created by system have the permission of viewing parking lot overview.

Figure 4-29 Parking lot overview



5 PMS Payment

5.1 Install and Uninstall

5.1.1 Installing Payment Client

You can install PMS Payment client on the web interface of PMS.

Figure 5-1 Web login

Step 1 Click to download PMS Payment client.

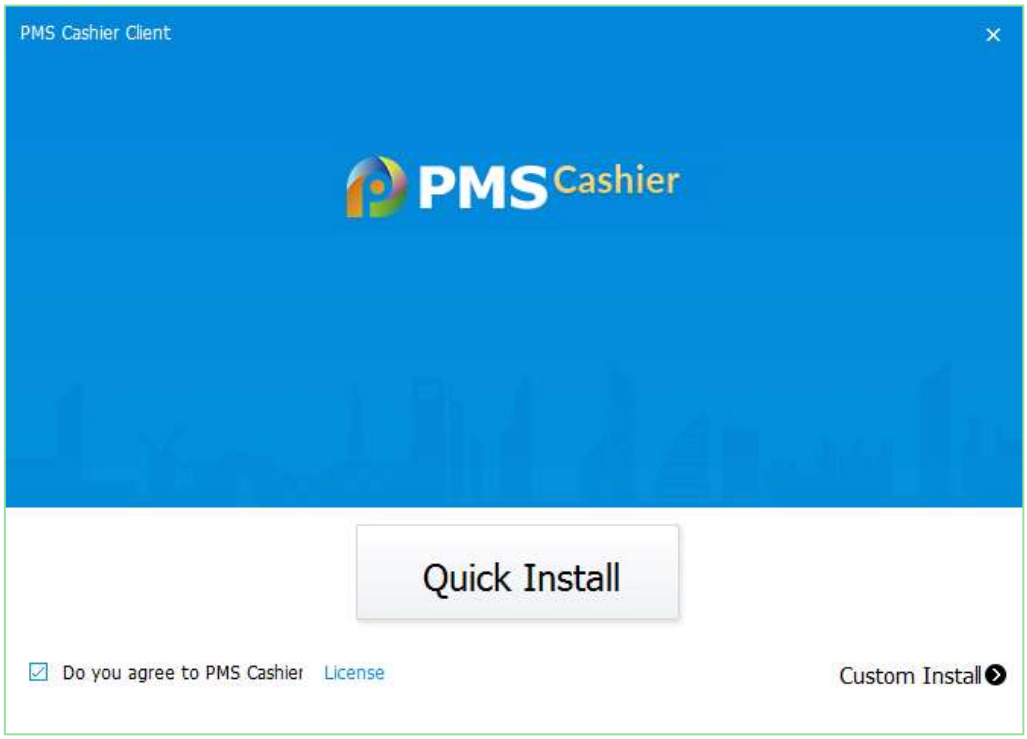
A dialog box that prompts file download is displayed.

Step 2 Click **Save**, and download and save the client to your PC.

Step 3 Double-click the installation package (the .exe file).

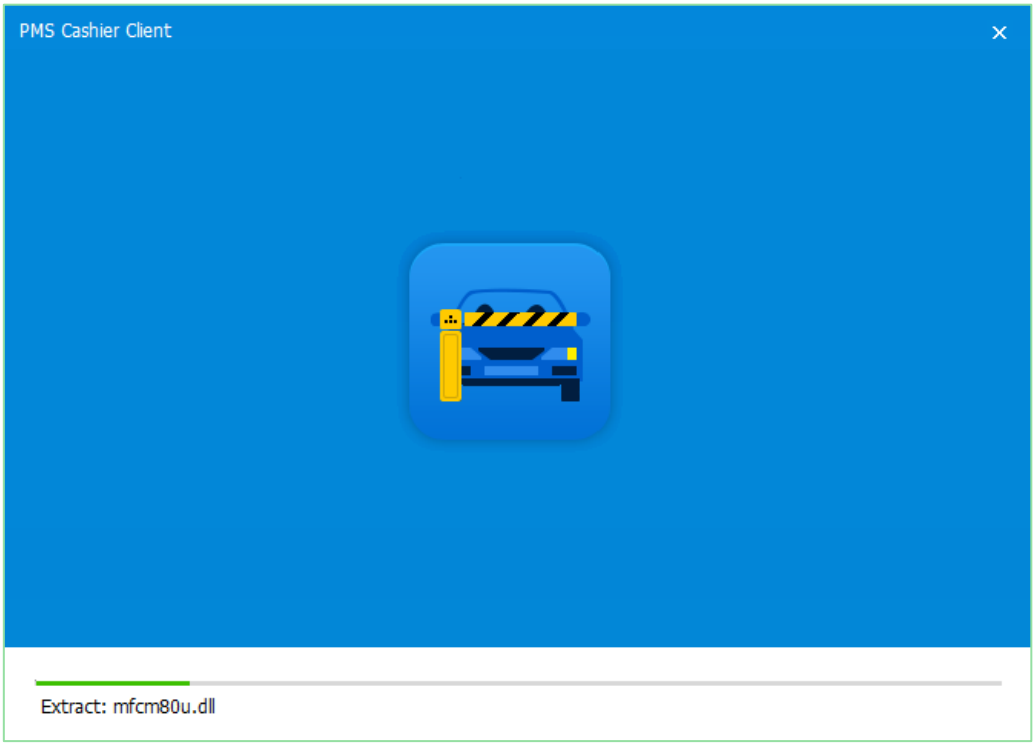
The name of installation package might vary depending on the software version, and the actual package shall prevail.

Figure 5-2 Quick install



Step 4 Click **License** to read the agreement. After reading and understanding the agreement, select the check box before **Do you agree to PMS License**, and click **Quick Install**. You can also click **Custom Install** to select the installation path before installation starts.

Figure 5-3 Installation progress



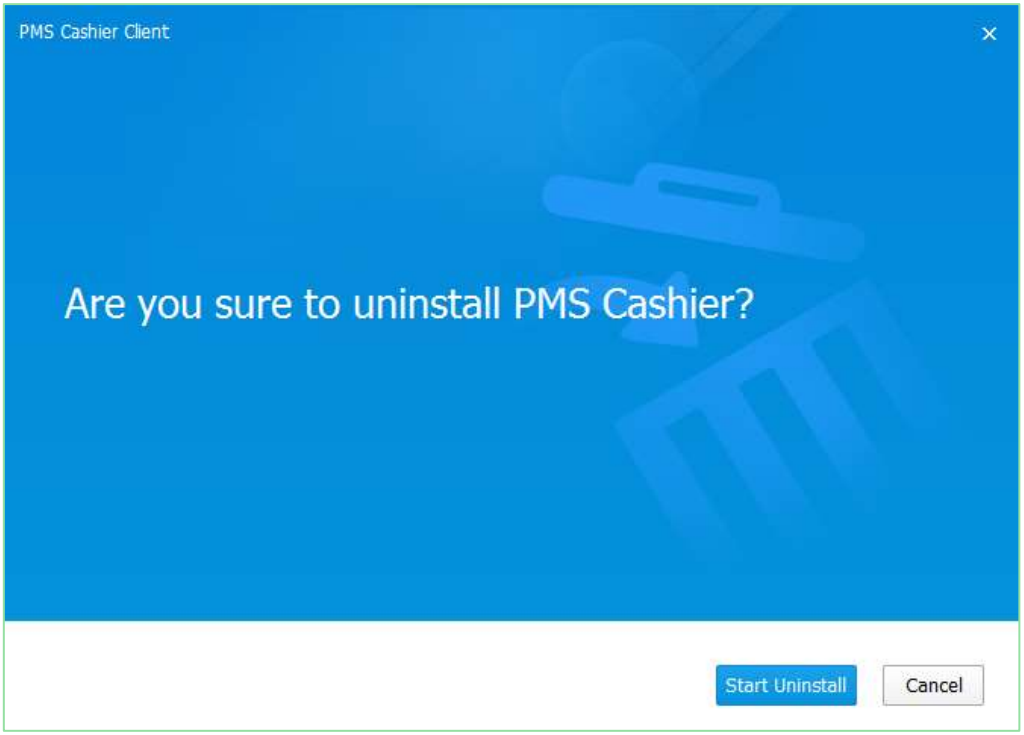
5.1.2 Uninstalling Client

Step 1 Click **All Programs** from your PC's start menu to find the PMS Payment client folder.

Step 2 Click Uninstall PMS Cashier Client.

Step 3 Click **Start Uninstall** to uninstall the PMS Payment client.

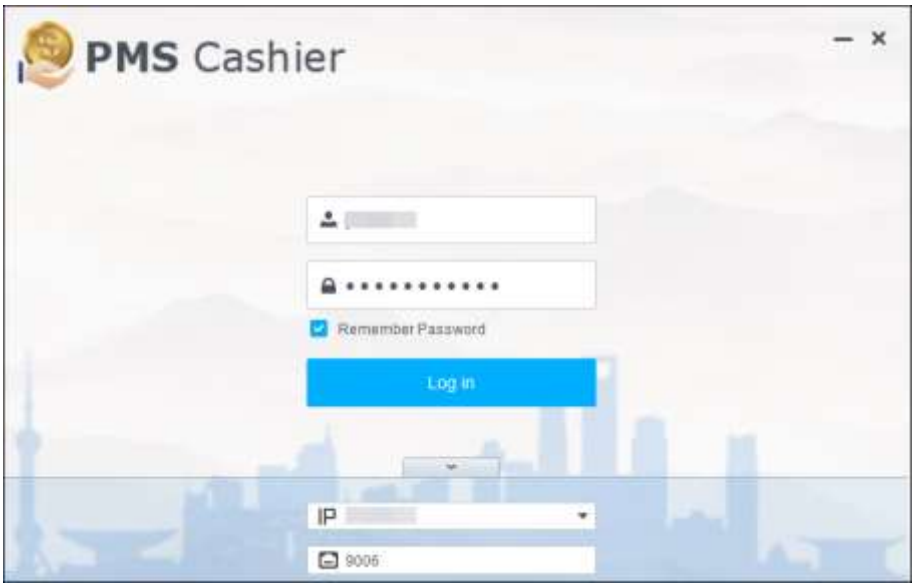
Figure 5-4 Uninstall



5.2 First-time Login

Step 1 Double-click the shortcut of PMS Cashier client (namely, the PMS Payment client) on your desktop.

Figure 5-5 Log in to PMS Cashier client

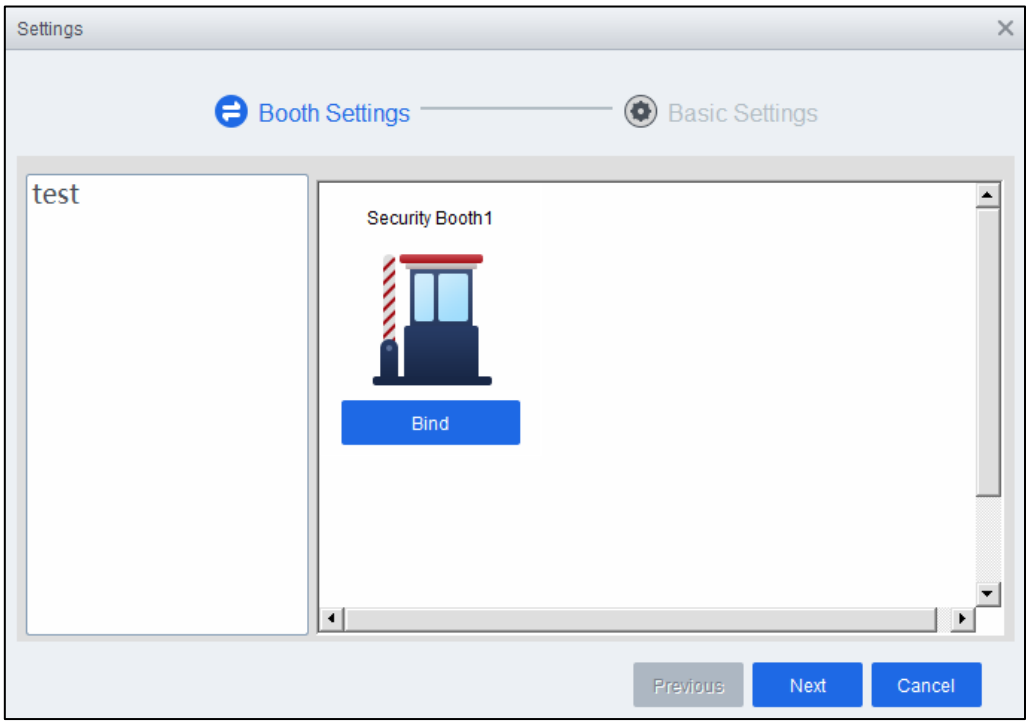


Step 2 Enter the username and password.

Step 3 Click , and enter the IP address, which is the same as the one for logging in to PMS web interface, and port (9006 by default).

Step 4 Click **Log in**.

Figure 5-6 Bind security booth



Step 5 Configure parameters.

You can also click at the upper-right side to configure parameters.

- Booth payment settings

You can switch to central payment by turning on **Central Payment Permissions** when adding a user from **Basic Settings > User**.

1) Select the booth, and click **Bind** to bind it, and then click **Next**.

Figure 5-7 Basic Settings

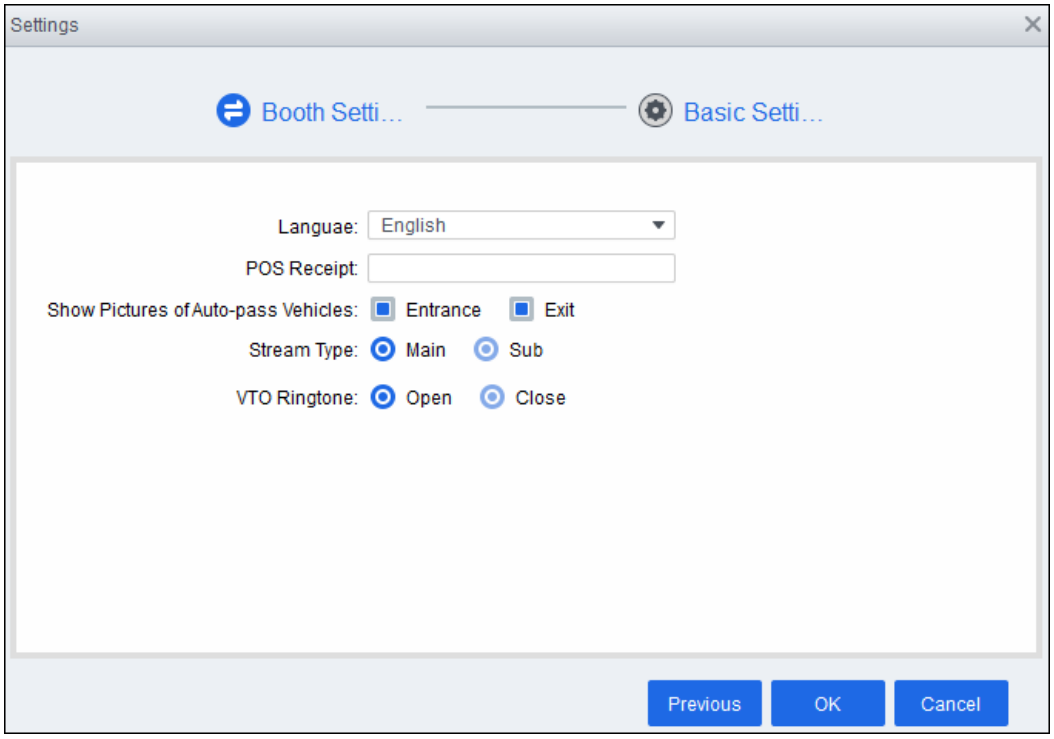


Table 5-1 Basic Settings description

Parameter	Description
Language	Set the language of the client. Only **Chinese** and **English** are available.
POS Receipt	Set the title of POS text, generally, the name of the parking lot.
Show Pictures of Auto-pass Vehicles	Set whether display snapshots on the client interface when charging parking fees at **Entrance** or **Exit**.
Stream Type	Select the stream of the payment interface. Mainstream provides smoother video image but requires higher bandwidth. If no sufficient bandwidth, select substream.
VTO Ring Tone	Select **Open** or **Close** to enable or disable ring tone when receiving call from VTO (door station).

2) Click **OK**.

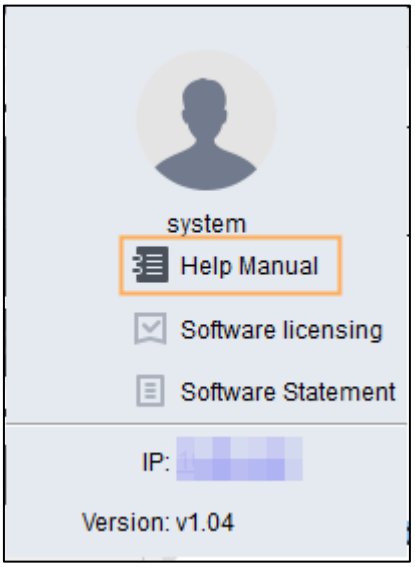
- Central payment settings

You can switch to booth payment by turning off **Central Payment Permissions** when adding a user from **Basic Settings > User**.

Configure parameters. See Figure 5-7 and Table 5-1. After settings, click **OK**.

Click the user profile at the upper-right side and then click **Help Manual** to view the user's manual.

Figure 5-8 Help manual



5.3 Payment rule Management

5.3.1 Central Payment

Search for the vehicle plate on the **Central Payment** interface, and then confirm whether charge the vehicle according to the parking conditions of the vehicle.

Step 1 Log in to PMS Cashier client.

Step 2 Enter the plate number, and then click **Search**.

Step 3 Confirm the parking fee.

- If parking fee needs to be paid, click **Pay** to collect the parking fee.
- If no parking fee needs to be paid, click **Free**.

After clicking **Pay** to take parking fee, or clicking **Free**, no parking fee will be collected within the defined parking time, and when the vehicle comes to the security booth, the boom barrier will automatically open.

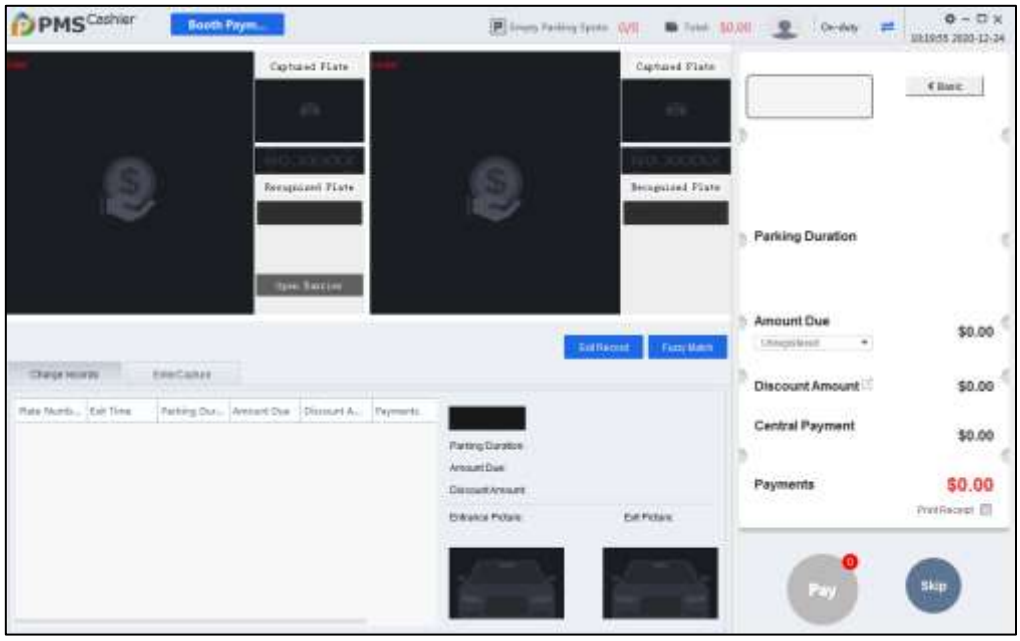
Figure 5-9 Central payment

5.3.2 Booth Payment

On the **Booth payment** interface, you can open the boom barrier manually, view entry and exit records of vehicles, do fuzzy search, and process the parking fee.

Step 1 Log in to PMS Cashier client.

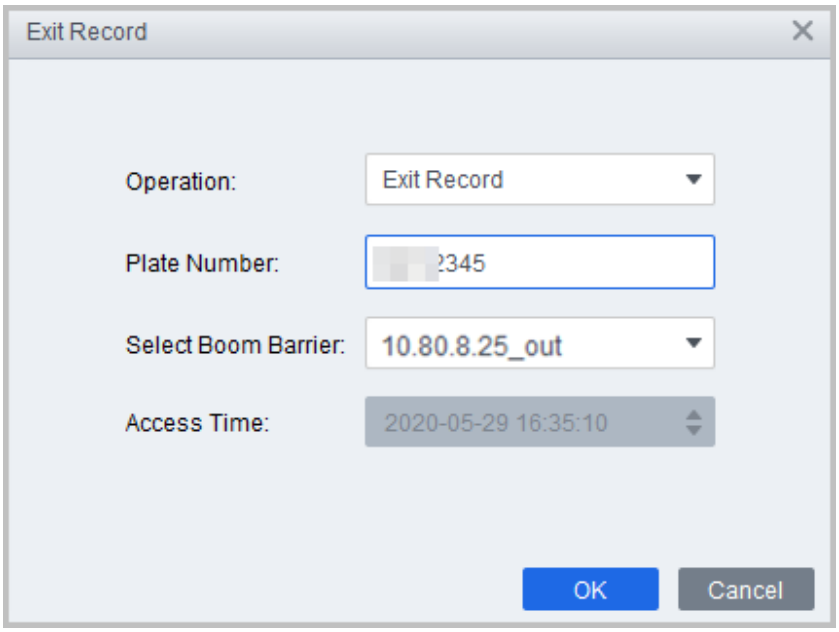
Figure 5-10 Booth payment



Step 2 You can do the following operations.

- Open barrier: If the barrier does not open when vehicle passes the entrance/exit, click **Open Barrier**, and the barrier opens.
- Search for plate number: If no vehicle entry record is found, enter the plate number of the vehicle that will leave, click **Enter Fuzzy Search** to search for the vehicle.
- Manually enter the record: If there is no relevant license plate record after search, click **OutRecord** to manually enter the entry and exit time of the vehicle, as well as license plate.

Figure 5-11 Exit records



- Set entry and exit time: If no entry record is found after automatic match and fuzzy search, you can set the entry and exit time in **Parking Duration** on the right, to search for vehicles parked within the defined duration.
- Discount amount: Click next to **Discount Amount** to select the coupon and its number, or select free of charge.
- Pay: Click to collect the parking fees according to the amount displayed on the interface.
- Skip: Click to ignore this parking record. It is applicable when the capture data is incorrect.

Step 3 View relevant information.

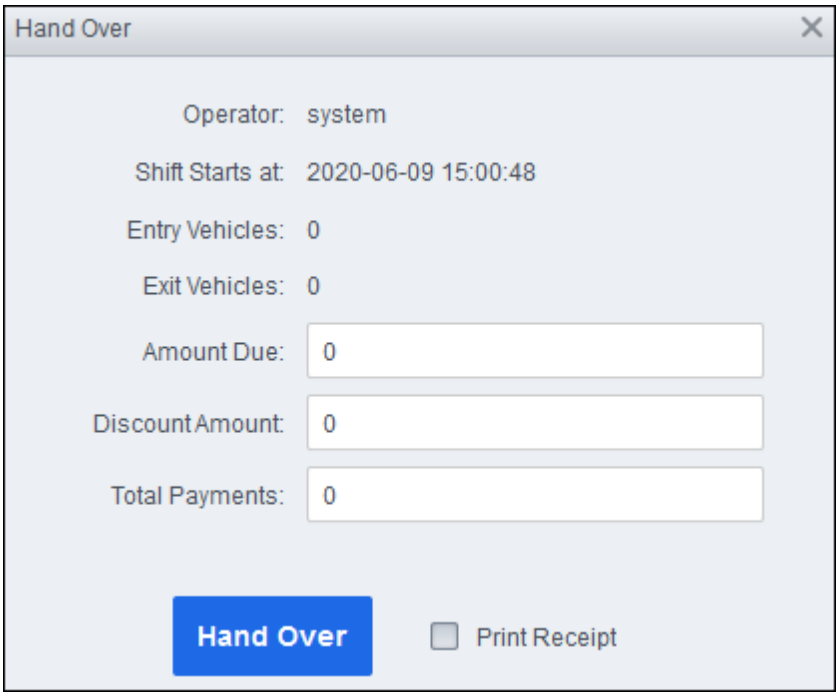
- View payment information: Click the **Fee** tab to view the plate number, entry and exit time, parking duration, and payments.
- View entry records: Click the **EnterCapture** tab to view booth name, plate number, capture time, and more.

5.4 Shift Handover

When the parking fee collector gets off work or changes shifts, he/she needs to complete the off-duty handover on the client.

Step 1 Click on the upper-right side.

Figure 5-12 Handover



Step 2 Click **Hand Over**.

The system automatically logs out.

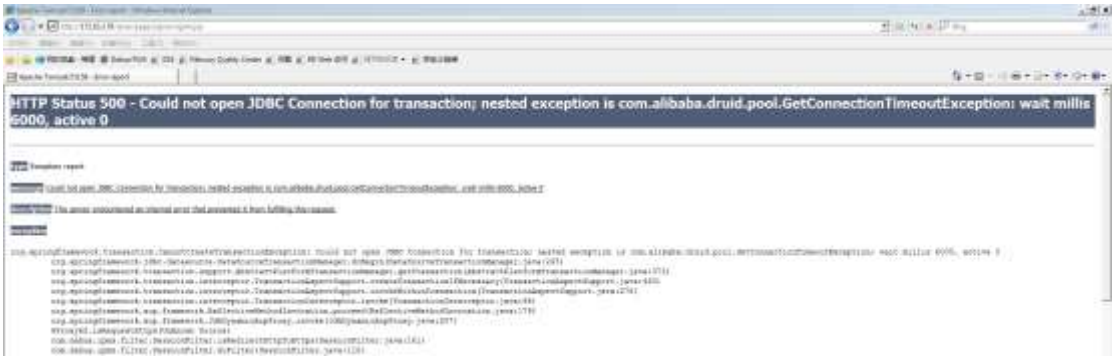
You can view the shift statistics by selecting **Report > Shift Statistics** on the web interface of PMS. For details, see "3.8.3 Shift Statistics."

6 FAQ

6.1 Service Installation and Deployment

1. After installation, I cannot access PMS with server IP address, and the system displays the interface shown in Figure 6-1.

Figure 6-1 Error



Check whether PMS server is enabled. If yes and PMS still cannot be accessed, uninstall the program, and then install it again.

2. I still cannot access PMS after reinstalling the program.

Restart your PC, disable antivirus program such as McAfee, and install the program again.

3. It fails to uninstall the program on Windows 10 system.

Stop the uninstall progress, and then restart the uninstall progress.

4. Firewall settings to make PMS operate normally.

Keep the default settings of firewall.

5. The page is not fully displayed when accessing the PMS web interface on my laptop.

Use laptop of at least 14 inches. If the page still cannot be fully displayed, reduce the aspect ratio of the browser.

6. The interface is displayed in Chinese.

Set the language of browser as English by selecting **Settings** of the browser, followed by selecting **Advanced** > **Languages** (here takes Google Chrome for example, and the actual interface shall prevail).

7. Extra space exists in the PMS installation directory, which might cause installation failure.

Update the old version of installation package to the latest one. No space is allowed in the installation directory.

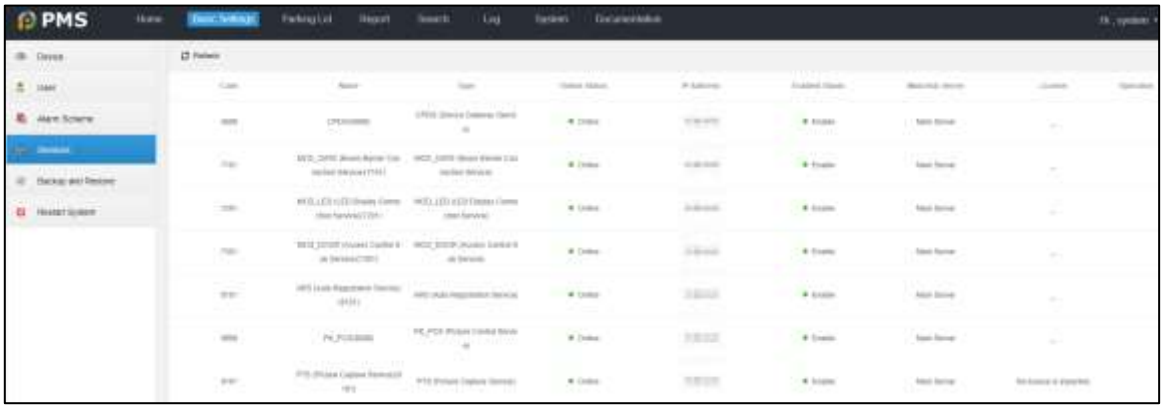
8. How to stop running the PMS progress in the background.

Open Windows Task Manager and end the process.

9. Where can I view the running status of the distributed server.

Log in to PMS web interface, select **Basic Settings > Services**, and view the **Main/Sub Server** column.

Figure 6-2 Services



10. Do I need to re-apply for the license after uninstalling and then installing the server on the same PC.

Generally, you don't need to re-apply for the license. If it fails to import the license, contact our sales people to re-apply for the license.

11. It fails to import the backup data from PMS installed on server A to PMS on server B.

Check whether the two PMS versions are consistent. Version inconsistency might result in failure of backup and restoring. If the versions are consistent, check whether the number of license devices requested by server B meets the requirements. If it still fails, please contact our technical support.

12. Vehicle is captured when it enters a parking lot, but the barrier does not open, and the vehicle information cannot be found in the parking lot.

Check whether the vehicle is set to **Trusted List** in the **Vehicle Permissions** column from **Parking Lot > Vehicle > Add**. If the vehicle is set to **Restricted List**, the barrier will not open automatically.

6.2 PMS Client

1. ANPR channel video cannot be viewed on the client.

1) Check whether you have logged in to the client with system (default) account, which enjoys permissions of all the parking lots.

2) If you log in to the client with a new user account, make sure that the parking lots are linked to the user by logging in to the web interface, and then selecting from **Basic Settings > User > Add > Parking Lot Permissions**.

2. I cannot view the real-time records of passing vehicles on the client.

On the **Live** interface of client, select **Channel > Pass Vehicle Records** at the left side.

3. The client cannot receive snapshots by the camera, but the web interface of the camera can.

You need to enable snapshot function on the network video recorder (NVR) interface by selecting from **SETTING > STORAGE > Schedule > Snapshot**, and then selecting the **IVS** check box.

4. No video can be viewed on the Playback interface of the client.

1) Make sure that the NVR program version is compatible with that of PMS.

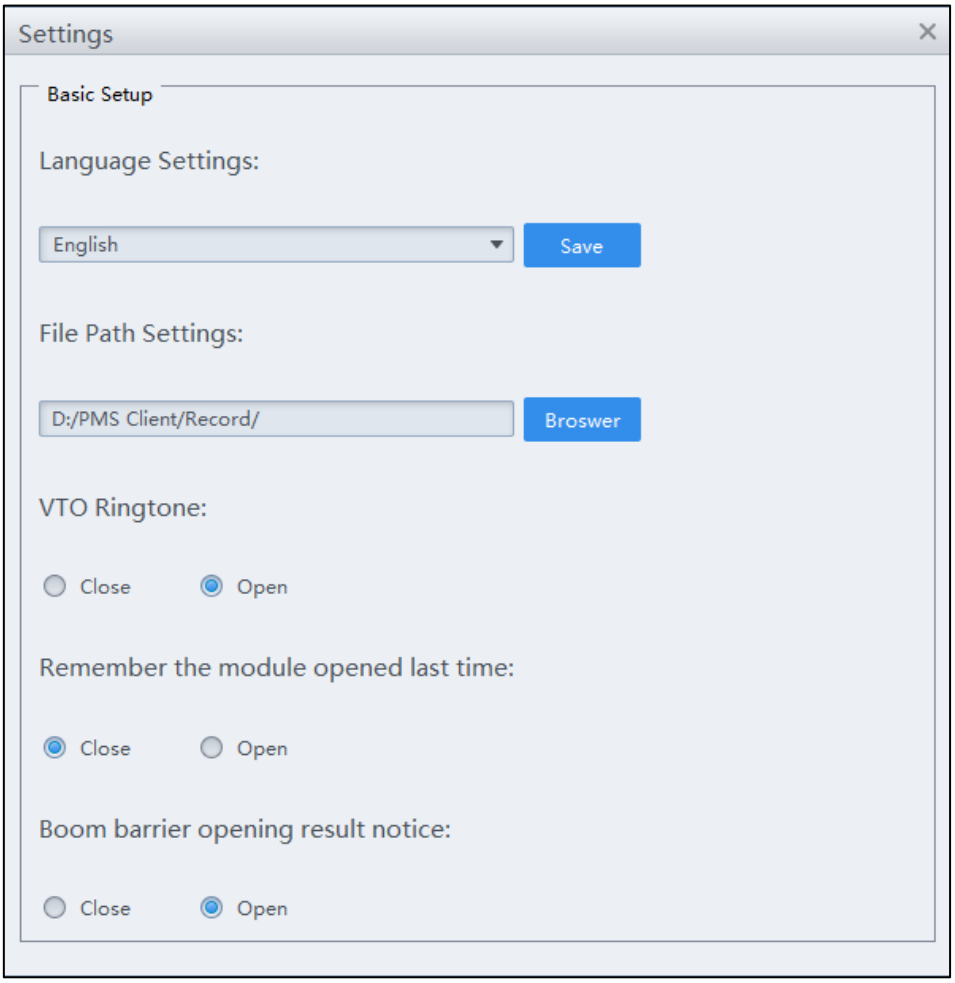
2) After updating NVR to the compatible version, clear relevant settings on the local and web interfaces. For first-time settings, format the hard disk drive (HDD).

3) Check whether the time of the device (ANPR camera/NVR) is consistent with the time of PMS. If not, sync the time of device with the time of PC installed with PMS.

5. How to set system language.

Click at the upper-right interface of the client, and then select **Basic Settings > Language Setting** to set the language. See Figure 6-3.

Figure 6-3 Basic settings



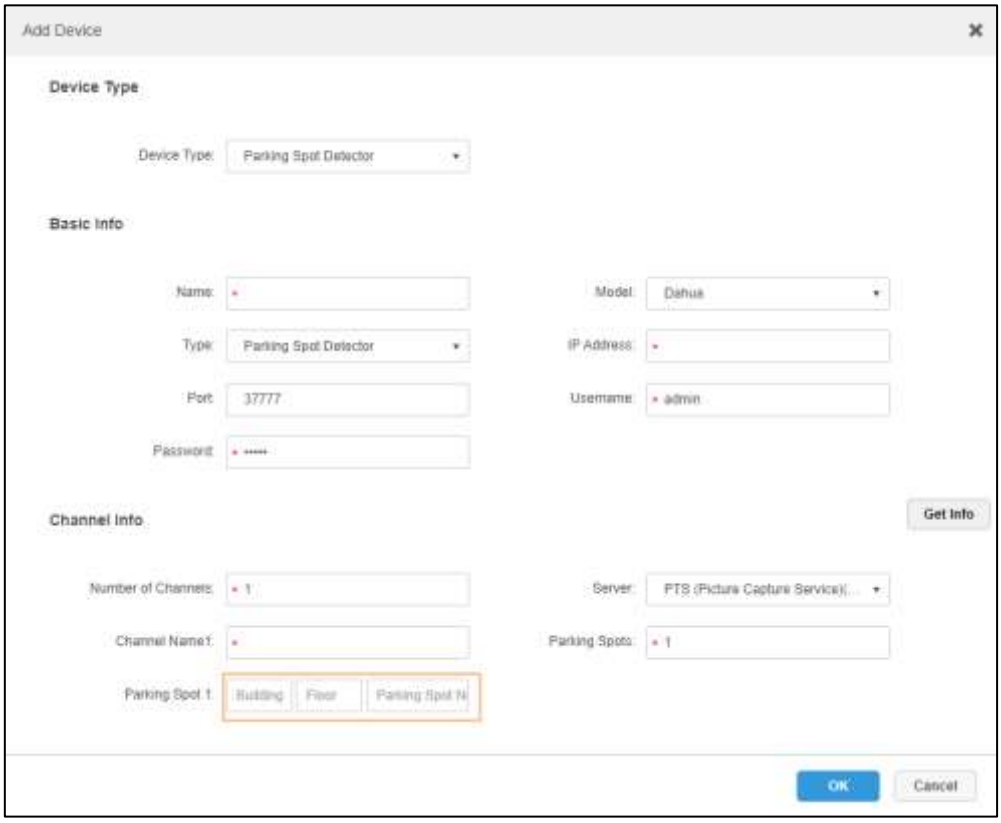
6. Where can the PMS video records be stored.

The video records can be stored on NVR or embedded video storage server (EVS).

7. The vehicle detector works normally, but parking spot status on the map does not change when parking spot information changes.

Check whether the parking spot No. of the vehicle detector and PMS are configured the same. For the settings of parking spot No. on PMS, see Figure 6-4.

Figure 6-4 Edit device



8. The client prompts failed to open the barrier.

Check whether any barrier is connected to the ANPR camera, or the barrier is properly connected.

9. The indicator color of parking spot detector on the map is different from the color of the actual detector indicator.

Check whether the parking spots and parking spot No. detected by the actual detector are the same as the settings on PMS.

10. When the computer screen is small, the prompt message at the lower right corner often blocks some function buttons of the PMS Payment client.

Currently, the PMS Payment client cannot be adjusted according to the resolution. If the prompt message blocks the buttons, properly move the position of the client.

11. I want to view the details of all entrance (exit) channels on the PMS Payment client.

For a PMS Payment client, it is necessary to bind entrance channels and exit channels (the number of entrance channels and exit channels are not necessarily the same). To view the live video information of all the entrances and exits, go to the PMS client.

12. Picture is uploaded to the map on PMS, but no message is displayed on the browser page.

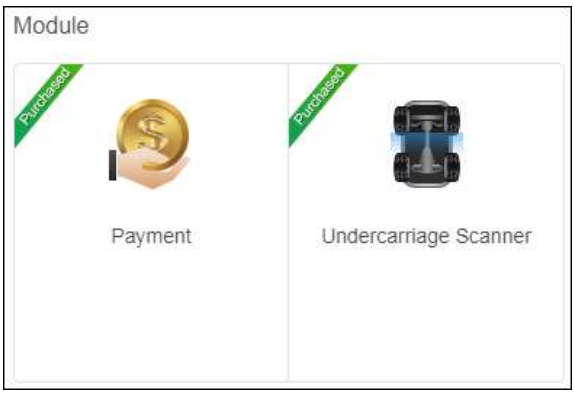
Check the address entered in the browser address bar for accessing the PMS. If access PMS with local host, please enter the IP address to log in to PMS.

6.3 Others

1. License for undercarriage detector.

One undercarriage detector requires one license. See the figure below.

Figure 6-5 License



2. How does PMS obtain the parking spot information.

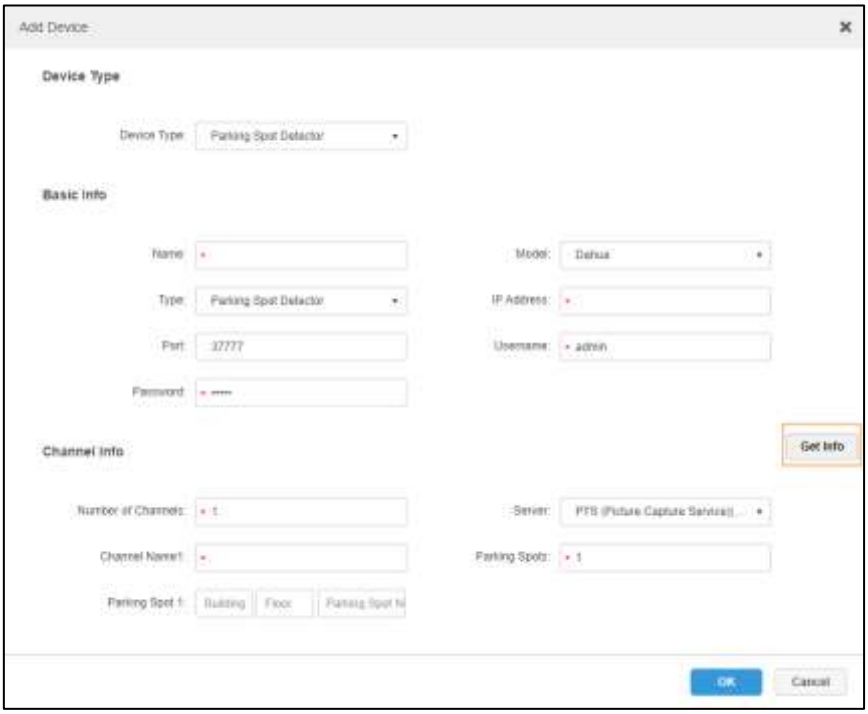
PMS obtains parking spot information when the parking spot detector detects parking spot changes and reports relevant information (such as the number of parking spots) to PMS.

Step 1 Select Basic Settings > Device, and then click Add.

Step 2 Set the Device Type as Parking Spot Detector.

Step 3 Click **Get Info**, and then click **OK**.

Figure 6-6 Edit device



For questions not covered in the FAQ, please contact our technical support.

Appendix 1 Cybersecurity Recommendations

Cybersecurity is more than just a buzzword: it's something that pertains to every device that is connected to the internet. IP video surveillance is not immune to cyber risks, but taking basic steps toward protecting and strengthening networks and networked appliances will make them less susceptible to attacks. Below are some tips and recommendations on how to create a more secured security system.

Mandatory actions to be taken for basic equipment network security:

1. **Use Strong Passwords**

   Please refer to the following suggestions to set passwords:

   - The length should not be less than 8 characters;
   - Include at least two types of characters; character types include upper and lower case letters, numbers and symbols;
   - Do not contain the account name or the account name in reverse order;
   - Do not use continuous characters, such as 123, abc, etc.;
   - Do not use overlapped characters, such as 111, aaa, etc.;

2. **Update Firmware and Client Software in Time**

   - According to the standard procedure in Tech-industry, we recommend to keep your equipment (such as NVR, DVR, IP camera, etc.) firmware up-to-date to ensure the system is equipped with the latest security patches and fixes. When the equipment is connected to the public network, it is recommended to enable the "auto-check for updates" function to obtain timely information of firmware updates released by the manufacturer.
   - We suggest that you download and use the latest version of client software.

"Nice to have" recommendations to improve your equipment network security:

1. **Physical Protection**

   We suggest that you perform physical protection to equipment, especially storage devices. For example, place the equipment in a special computer room and cabinet, and implement well-done access control permission and key management to prevent unauthorized personnel from carrying out physical contacts such as damaging hardware, unauthorized connection of removable equipment (such as USB flash disk, serial port), etc.

2. **Change Passwords Regularly**

   We suggest that you change passwords regularly to reduce the risk of being guessed or cracked.

3. **Set and Update Passwords Reset Information Timely**

   The equipment supports password reset function. Please set up related information for password reset in time, including the end user's mailbox and password protection questions. If the information changes, please modify it in time. When setting password protection questions, it is suggested not to use those that can be easily guessed.

4. **Enable Account Lock**

   The account lock feature is enabled by default, and we recommend you to keep it on to guarantee the account security. If an attacker attempts to log in with the wrong password several times, the corresponding account and the source IP address will be locked.

5. **Change Default HTTP and Other Service Ports**

   We suggest you to change default HTTP and other service ports into any set of numbers between 1024~65535, reducing the risk of outsiders being able to guess which ports you are using.

6. **Enable HTTPS**

   We suggest you to enable HTTPS, so that you visit Web service through a secure communication channel.

7. **Enable Allowlist**

   We suggest you to enable allowlist function to prevent everyone, except those with specified IP addresses, from accessing the system. Therefore, please be sure to add your computer's IP address and the accompanying equipment's IP address to the allowlist.

8. **MAC Address Binding**

   We recommend you to bind the IP and MAC address of the gateway to the equipment, thus reducing the risk of ARP spoofing.

9. **Assign Accounts and Privileges Reasonably**

   According to business and management requirements, reasonably add users and assign a minimum set of permissions to them.

10. **Disable Unnecessary Services and Choose Secure Modes**

    If not needed, it is recommended to turn off some services such as SNMP, SMTP, UPnP, etc., to reduce risks.

    If necessary, it is highly recommended that you use safe modes, including but not limited to the following services:

    - SNMP: Choose SNMP v3, and set up strong encryption passwords and authentication passwords.
    - SMTP: Choose TLS to access mailbox server.
    - FTP: Choose SFTP, and set up strong passwords.
    - AP hotspot: Choose WPA2-PSK encryption mode, and set up strong passwords.

11. **Audio and Video Encrypted Transmission**

    If your audio and video data contents are very important or sensitive, we recommend that you use encrypted transmission function, to reduce the risk of audio and video data being stolen during transmission.

    Reminder: encrypted transmission will cause some loss in transmission efficiency.

12. **Secure Auditing**

    - Check online users: we suggest that you check online users regularly to see if the device is logged in without authorization.
    - Check equipment log: By viewing the logs, you can know the IP addresses that were used to log in to your devices and their key operations.

13. **Network Log**

    Due to the limited storage capacity of the equipment, the stored log is limited. If you need to save the log for a long time, it is recommended that you enable the network log function to ensure that the critical logs are synchronized to the network log server for tracing.

14. **Construct a Safe Network Environment**

    In order to better ensure the safety of equipment and reduce potential cyber risks, we recommend:

    - Disable the port mapping function of the router to avoid direct access to the intranet devices from external network.

- The network should be partitioned and isolated according to the actual network needs. If there are no communication requirements between two sub networks, it is suggested to use VLAN, network GAP and other technologies to partition the network, so as to achieve the network isolation effect.
- Establish the 802.1x access authentication system to reduce the risk of unauthorized access to private networks.
- It is recommended that you enable your device's firewall or Restricted List and allowlist feature to reduce the risk that your device might be attacked.

ENABLING A SAFER SOCIETY AND SMARTER LIVING

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