OpenATC Traffic Signal Control Platform User Manual

OpenATC Dev Group

Content

0. Home

Welcome to the OpenATC open source platform website openatc.org.cn

Statement

This manual may contain technical inaccuracies, inconsistencies with product functionality and operation, or typographical errors. We will update the contents of this manual based on enhancements in product functionality and will periodically improve or update the products or procedures described in this manual. Updated content will be added to new versions of this manual without notice.

Instructions for accessing via the Internet

The product access to the Internet at your own risk, including but not limited to the product may be subjected to network attacks, hacker attacks, virus infections, etc., the company does not take responsibility for the resulting product work abnormalities, information leakage and other issues, the company will provide you with product-related technical support in a timely manner.

Notes

To improve the security of your product network, it is recommended that you set up a strong password that contains 8-16 characters and is a combination of at least two or more types of numbers, letters, or special characters.

Please change the password of your username regularly, and it is recommended to update it every 3 months. If the device is used in an environment with a high security risk, it is recommended to update it monthly or weekly.

Please keep your username and password safe.

1. Platform Introduction

1.1 Outline

OpenATC open source traffic signal control platform, mainly for urban traffic to provide real-time control of the software and the software-compatible signal machine, the system developed for the domestic large, medium and small cities of all types of traffic control centers.

OpenATC open source traffic signal control platform is a brand new set of software products. In the development, we study the adaptive hybrid traffic control theory on one side, and extensively research similar products at home and abroad on the other side, especially drawing on the experience of SCOOT, SCATS and other advanced systems, and strive to make this product reach the international leading level and fully meet the needs of intelligent transportation in China.

The platform is an open source intelligent intersection traffic control system, so it focuses more on full knowledge sharing, giving other industry developers and researchers in research institutes to learn and creative relay, thus playing a role in promoting the development of the entire intelligent transportation industry.

The main screen of the system client running is as follows:

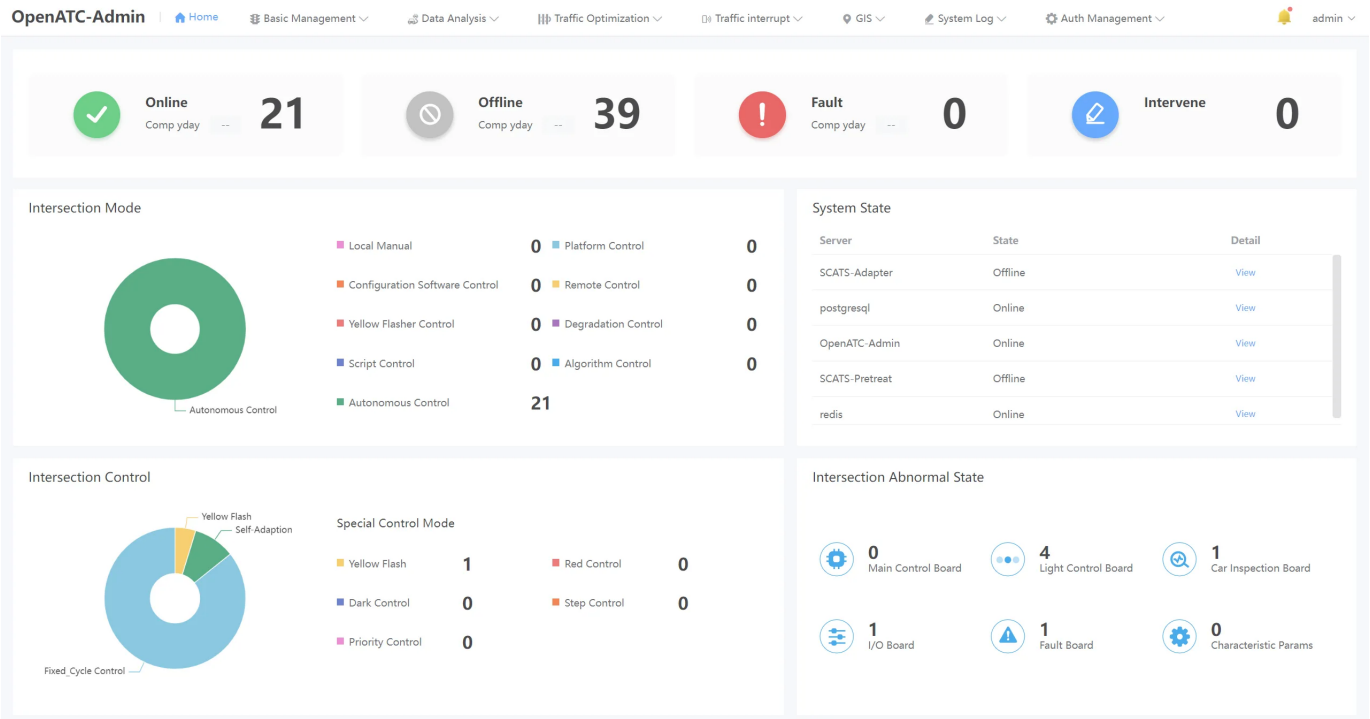

Fig.1-1 Client main interface

The computer configuration requirements are as follows:

- Processor: 3.3 GHz Core® i3 series and above or another brand of processor with the same performance
- RAM memory: 4GB and above
- Operating system: Windows XP operating system or higher
- Browser: Google Chrome kernel browser

Note: Access to the Internet is at your own risk, including but not limited to the possibility of network attacks, hacker attacks, virus infections, etc. The company will not be responsible for the resulting abnormal work of the product, information leakage and other issues, but the company will provide you with product-related technical support in a timely manner.

1.2 Glossary of Terms

(1) control center

In a traffic signal control system, an upper-end device that can communicate with and control and monitor multiple signal machines.

(2) phase

The signal display status of one or more traffic streams that have been granted the right-of-way at the same time during a signal cycle.

(3) offset

In coordinated control, the difference between the start time of a coordinated intersection and a specified reference intersection phase or cycle, or the time difference between the start time of a coordinated intersection phase or cycle and a specified reference time.

(4) cycle

The signal light color displays the time required for a week in the set phase sequence.

(5) ring

The ring consists of two or more conflicting phases, and the phases are arranged in such a way as to ensure that they appear in a prescribed order.

(6) stage

A state in which one or more phases acquire the right-of-way simultaneously during the signal cycle.

(7) barrier

The barrier is the reference point for the phase sequence selected in a multi-loop controller. At this reference point, all rings end their release simultaneously while crossing the barrier to release the phase and signal time on the other side of the barrier. This barrier ensures that conflicting phases in different rings cannot be released at the same time.

(8) minimum green time

The minimum time for the phase to execute the green light.

(9) maximum green time

Maximum time for phase execution green light.

(10) green coflict

It is specified that the green signal of the signal group that is not allowed to be released at the same time is lit at the same time.

(11) split

The ratio of the effective green time of the signal phase to the cycle duration in one signal cycle.

(12) inter-green time

he time between the end of one phase green light time and the start of the next phase green light time.

(13) yellow time

The duration of the yellow light when the right-of-way is about to change.

(14) all red

The red light time executed at the end of the motor vehicle phase release, before the next phase release.

(15) date schedule

Signaler day plan scheduling rules.

(16) green wave

Through the distance between the intersections on the arterial road, the hourly speed of traffic to calculate the green light start time difference, adjust the timing scheme of each intersection, to achieve the effect of vehicles through these intersections, all the way to the green light, this arterial intersection coordination control, known as the green wave belt, commonly known as line control.

(17) isolated control

Single intersection road traffic signal control machine independent operation, and other intersections independent of the traffic signal control mode.

(18) arterial control

It is a traffic signal control method that coordinates the road traffic signals at two or more intersections to control them.

(19) area-wide control

The method of treating intersections within a certain area as a logical region and optimizing the scheme timing, release time and phase difference of these intersections in order to improve the efficiency of the whole area and alleviate and improve urban traffic problems.

(20) flashing yellow control

All phases of the signal machine immediately go into flashing state. All signals at road junctions are in yellow flashing state.

(21) all-red control

All phases of the signal machine immediately go to all-red status. All signal machines at road junctions are all in full red.

(22) light-off control

The signal machine immediately turns off all phase outputs. All signal lights at the intersection are all off.

(23) step control

The traffic signal control method that makes the intersection signals release in sequence by stage by issuing step-by-step instructions to the traffic signal control machine.

(24) fixed-time control

The phase signal is output at a fixed period according to a preset scheme.

(25) vehicle actuated control

The signal machine enters the inductive control mode. The signal is in induction control mode, when the phase time of the signal will increase in real time with the increase of traffic flow at the intersection.

(26) adaptive control

The road traffic signal control machine adjusts the traffic signal control method of each phase signal duration according to the traffic flow information of different phases measured by the detector, and the time duration optimization is reflected in the next cycle.

(27) cableless linking control

There is no communication link established between each road traffic signal control machine at different intersections, and the traffic signal control method of coordinating traffic signals at different intersections is achieved by setting the phase difference according to the clock for synchronization.

(28) pedestrian crossing control

A traffic signal control method that uses pedestrian crossing buttons or inductive pedestrian crossing signal control systems to control pedestrians crossing the intersection.

2. Main interface

2.1 Sign In and Sign Out

- sign in web site

Enter the IP address and port number of the device in the browser address box (for example: http://192.168.14.176:10003/openatc) to enter the web client login interface. Enter the user name and password to enter the client.

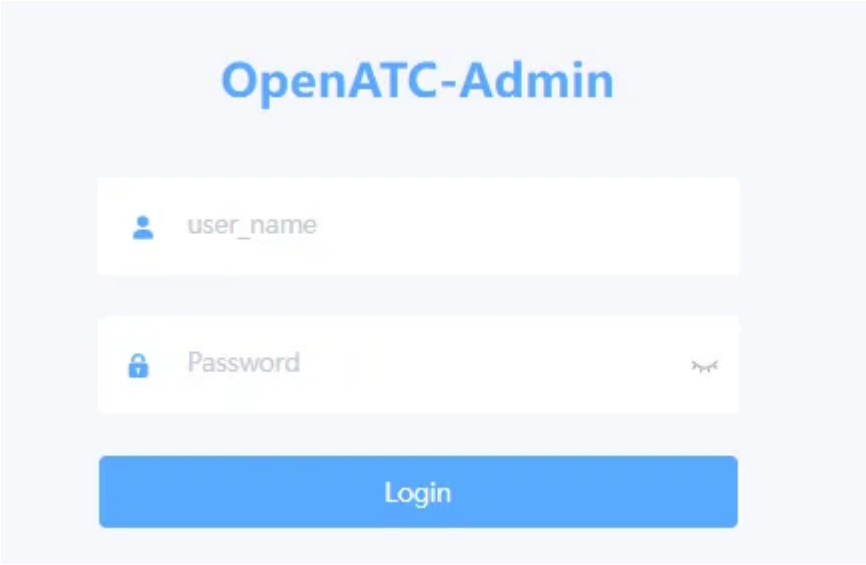

Fig.2-1 sign in

After successfully logging in for the first time, enter the main interface of the system.

- sign out web site

Click the triangle icon button under the user account in the upper right corner of the client operation interface and click "Logout" to log out safely.

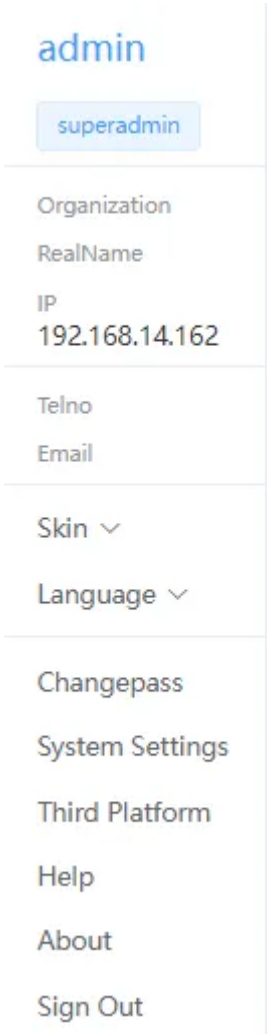

Fig.2-2 Logout

2.2 Changepass

Click the triangle icon button under the user account in the upper right corner of the client operation interface, and select "Modify Password" from the drop-down menu, and the password modification menu will pop up.

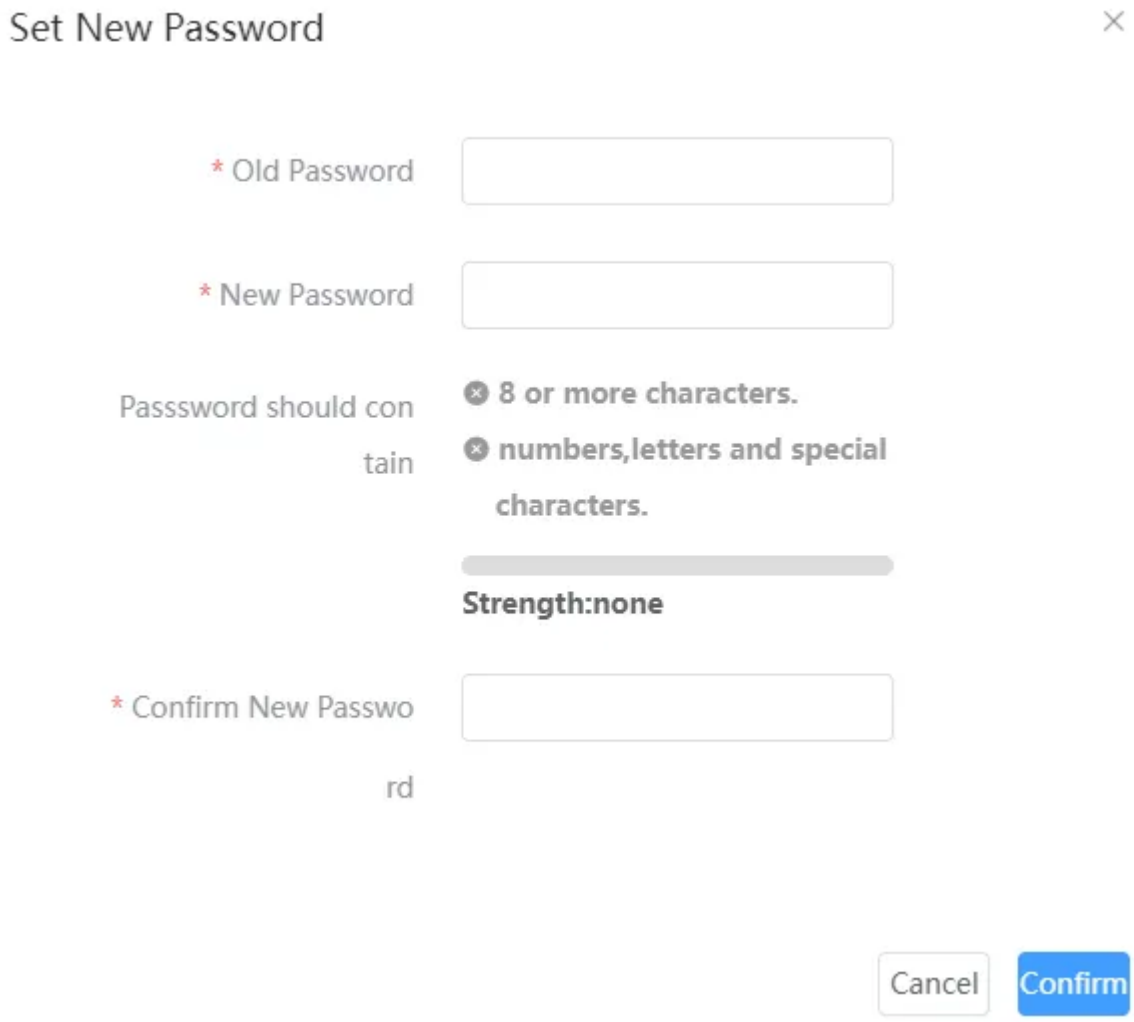

Fig.2-3 Changepass

Notice:

- In order to improve the security of product network usage, it is recommended that you set a strong password. The password must be 8-16 characters long and must be a combination of at least two or more types of numbers and letters or special characters.
- Please change the password of the user name regularly. It is recommended to update the password every 3 months. If the device is used in a higher security risk environment, it is recommended to update it monthly or weekly.
- Please keep your username and password in a safe place.

2.3 Language Switch

Click admin-language triangle icon button in the upper right corner of the client interface to switch to Chinese interface.

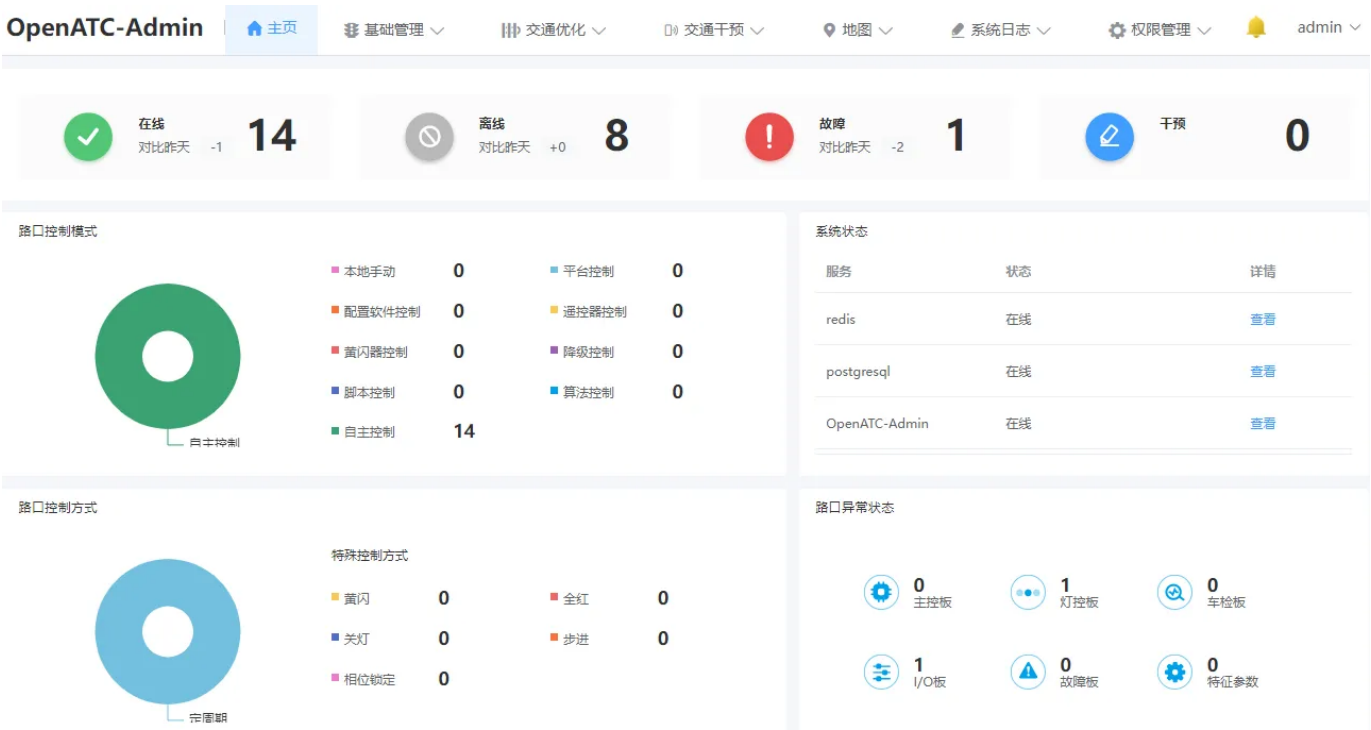

Fig.2-4 Language Switch

2.4 Theme Switching

Click admin-skin triangle icon button in the upper right corner of the client interface to switch to dark color style.

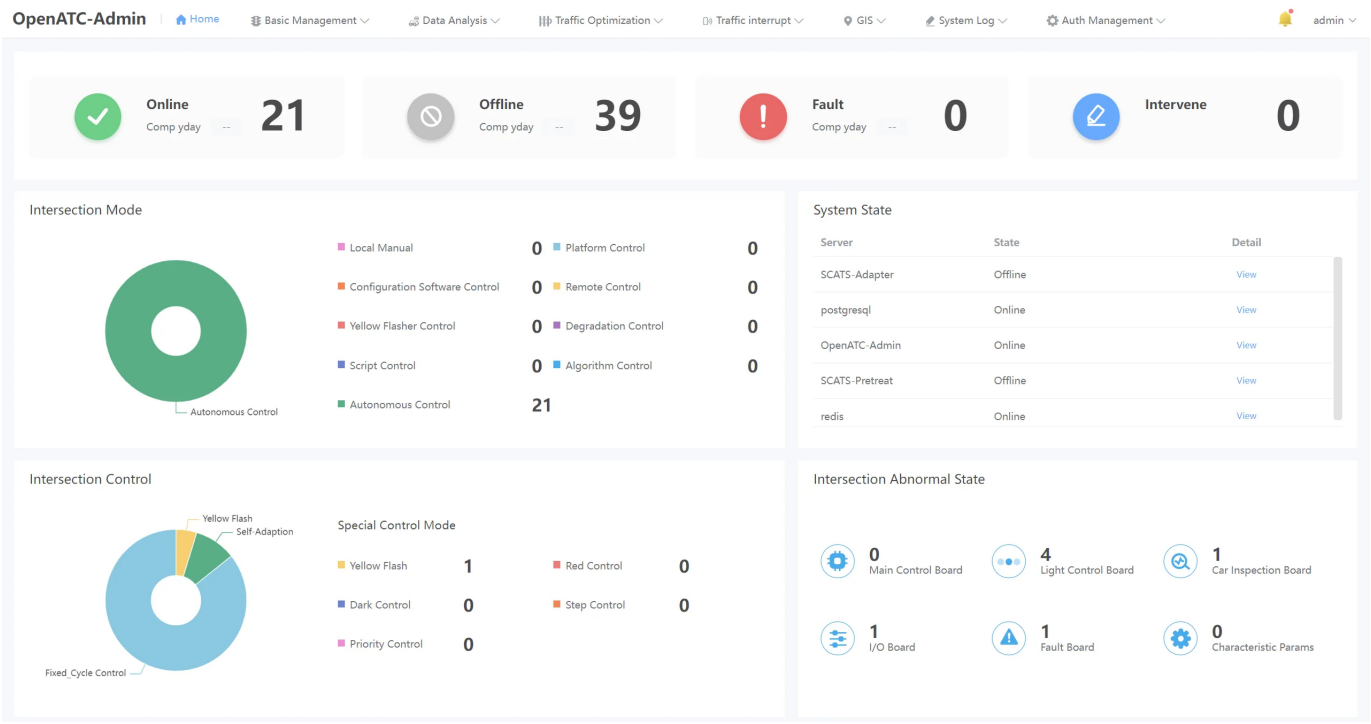

Fig.2-5 Bright Style

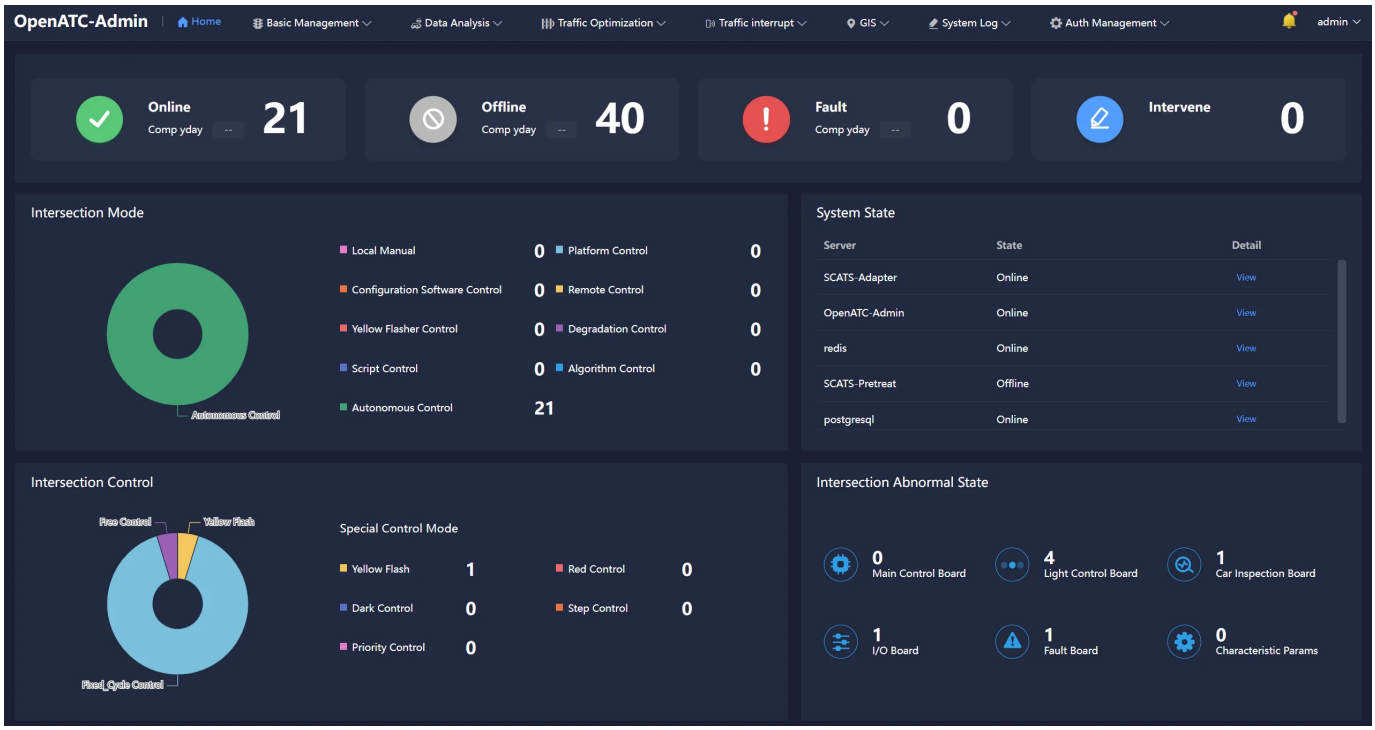

Fig.2-6 Dark Style

2.5 System Settings

Click the admin-system setting button in the upper right corner of the client operation interface. The system setting displays the information of the current module, including module, name, module content and module description.

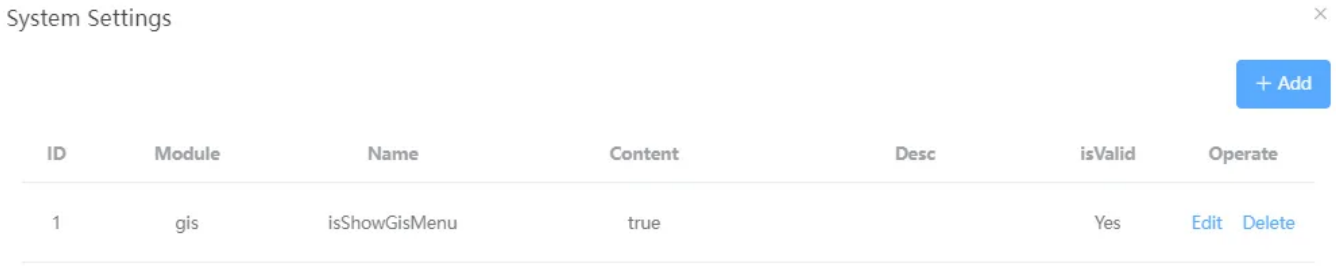

Fig.2-7 Settings

2.5.1 Add Config

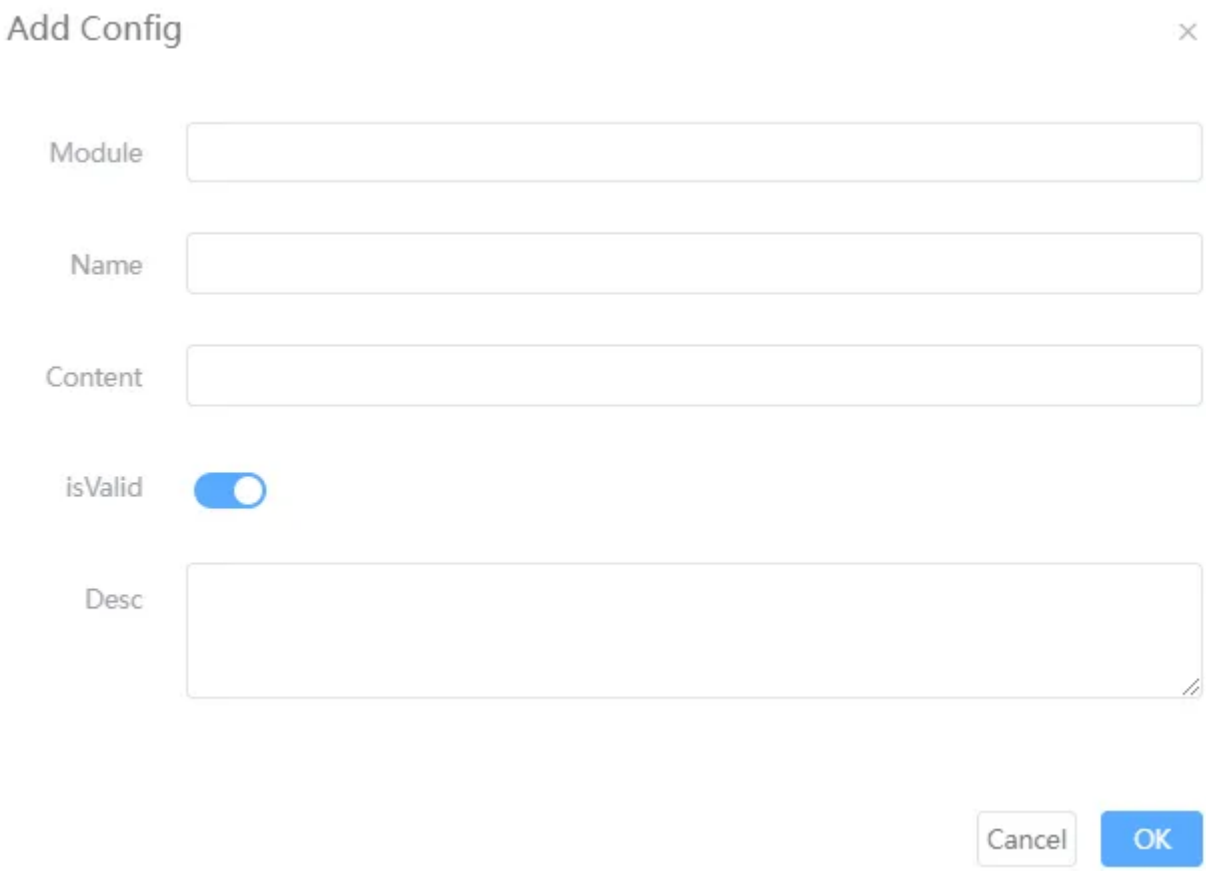

Fig.2-8 Add Config

Enter the module, name, content, and description of the module, select whether the configuration is enabled or not, and then click OK.

2.5.2 Edit Config

Modify module information.

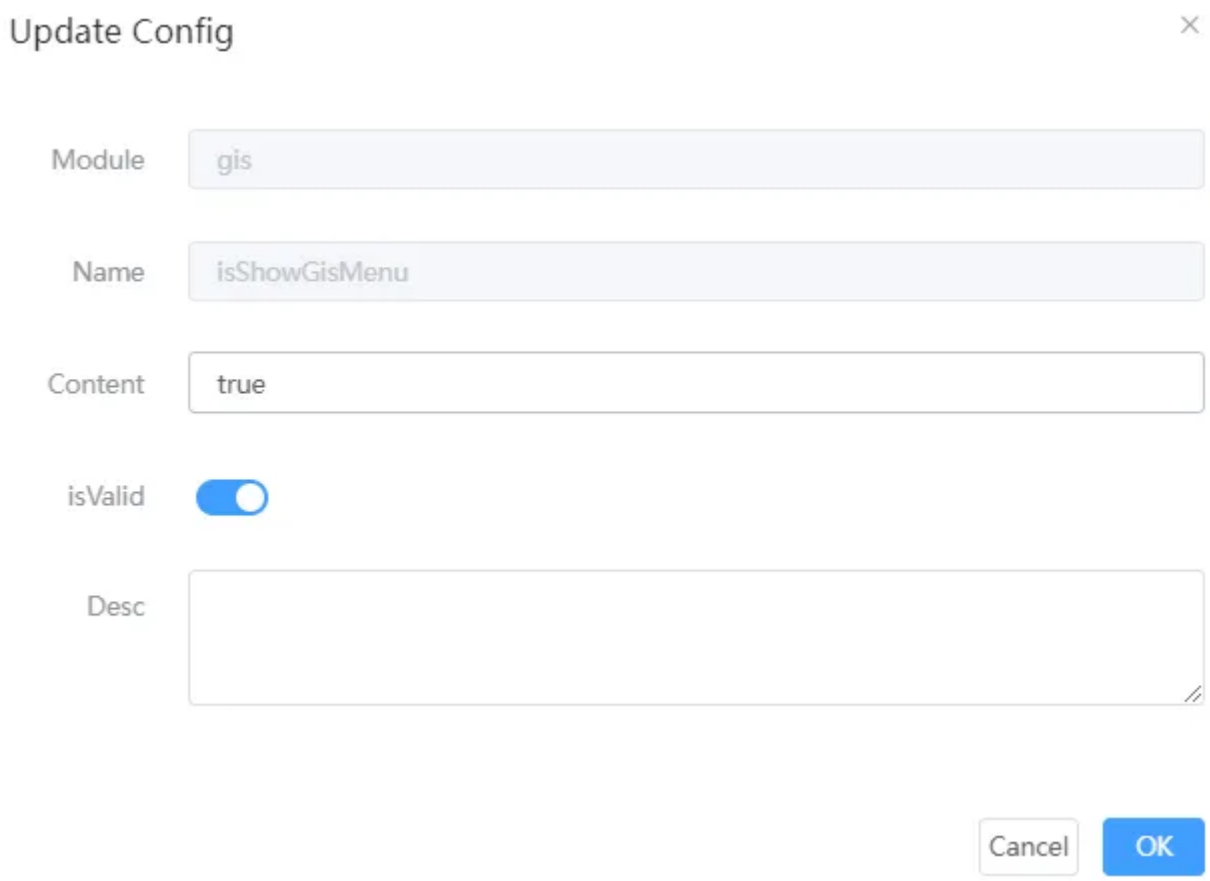

Fig.2-9 Edit Config

2.5.3 Delete Module

Select the corresponding module and click Delete.

2.6 Third Platform

Click admin-third platform in the upper right corner of the client interface interface to view the corresponding IP addresses and ports of each platform, and you can edit and delete operations.

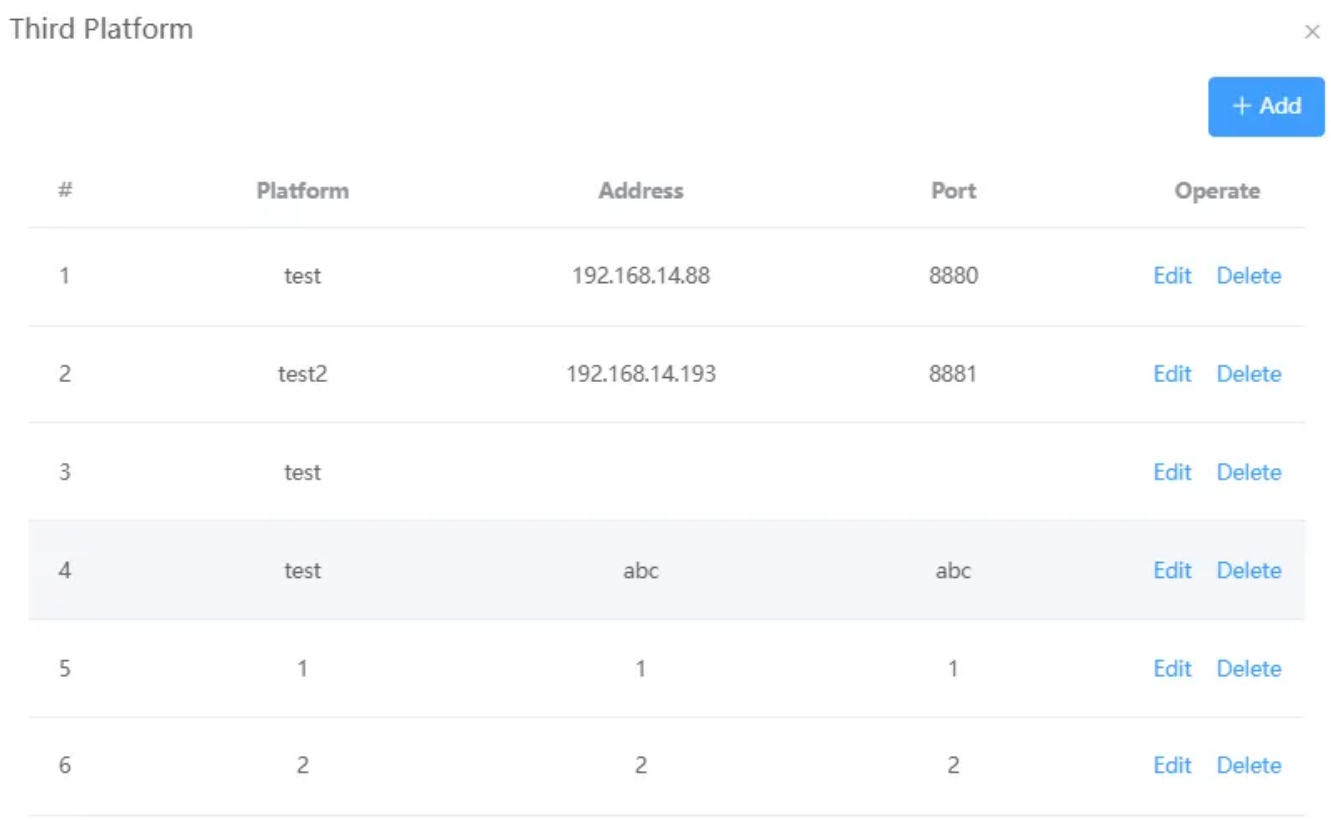

Fig.2-10 Third Platform

2.6.1 Add Module

Click the "Add" button in the upper right corner, enter the name, address and port number of the third-party platform, and click "OK" to add it.

Fig.2-11 Added Third-party Platforms

2.6.2 Edit The Module

Click the "Edit" button on the right side of each platform to modify the corresponding address and port number.

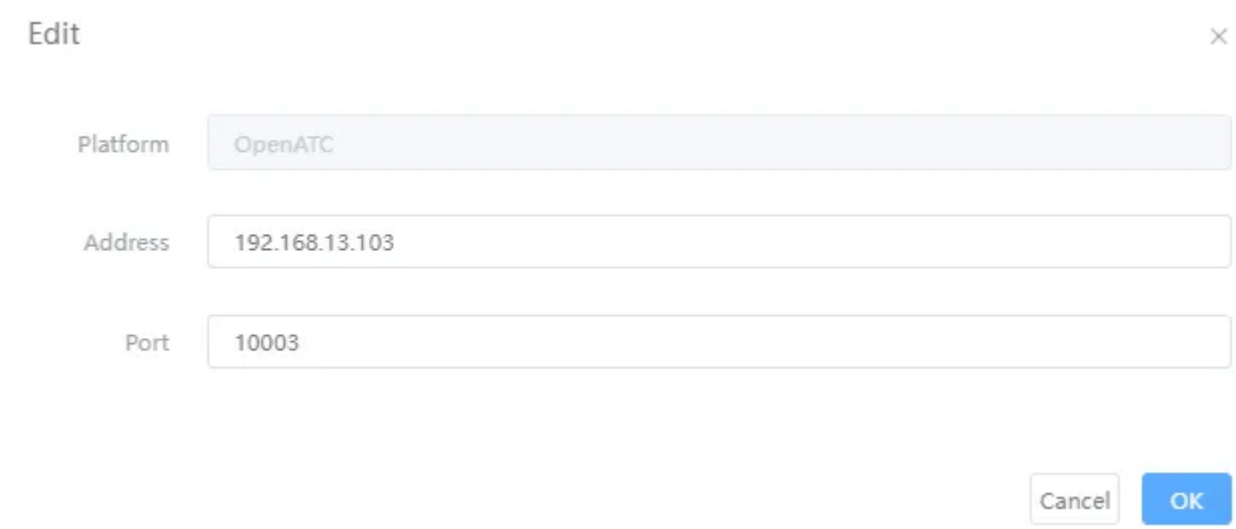

Fig.2-12 Edit Third-party Platforms

2.7 About

Click the admin-about button in the upper right corner of the client operation interface, about the main version of the software, copyright, online time, etc.

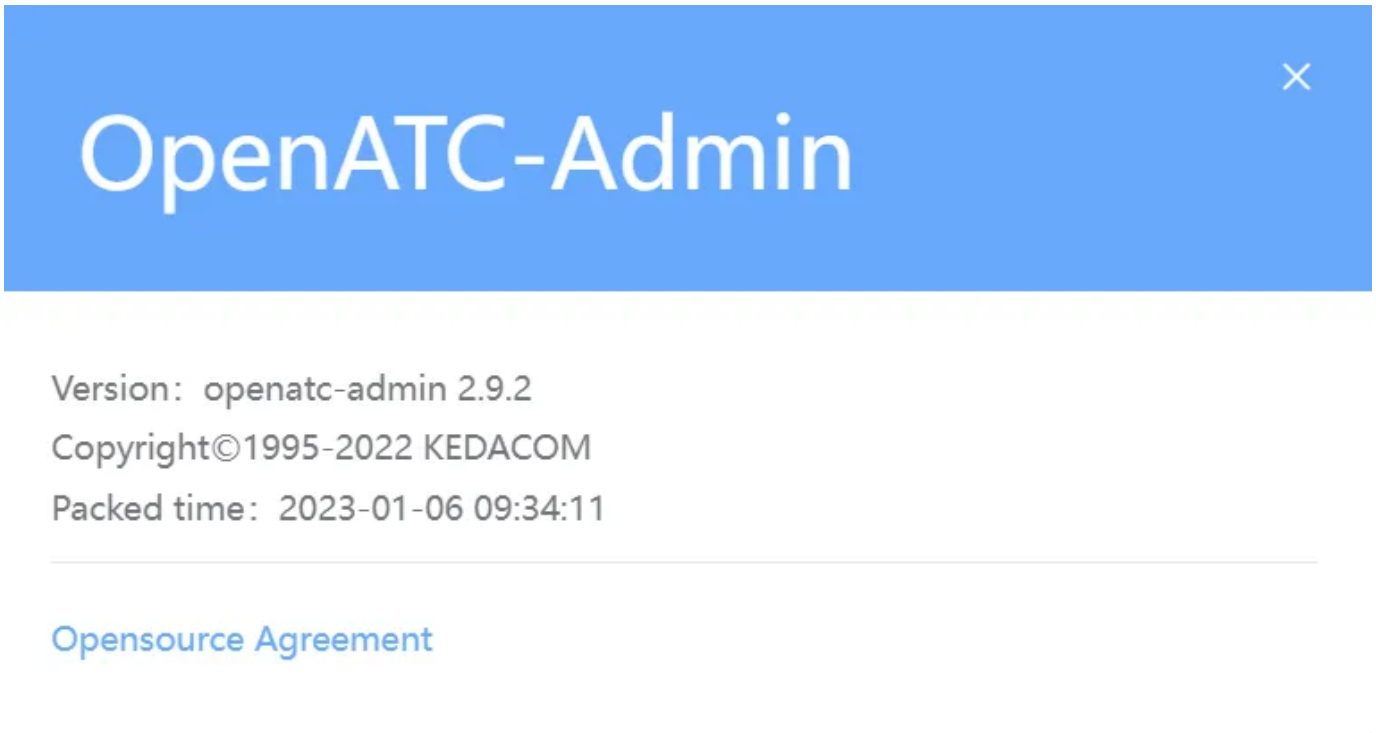

Fig.2-13 About

2.8 Help

Click the admin-Help button in the upper right corner of the operation interface of the client to view the corresponding user manual. If the language is "Chinese", the Chinese user Manual interface will pop up. If English is selected, the English user Manual page is displayed.

2.9 Fault Center

Click the icon  in the upper-right corner to view the list of reported alarm information. Alarm information includes: Reporting Module, Road Name, Event Type, and Detailed Description.

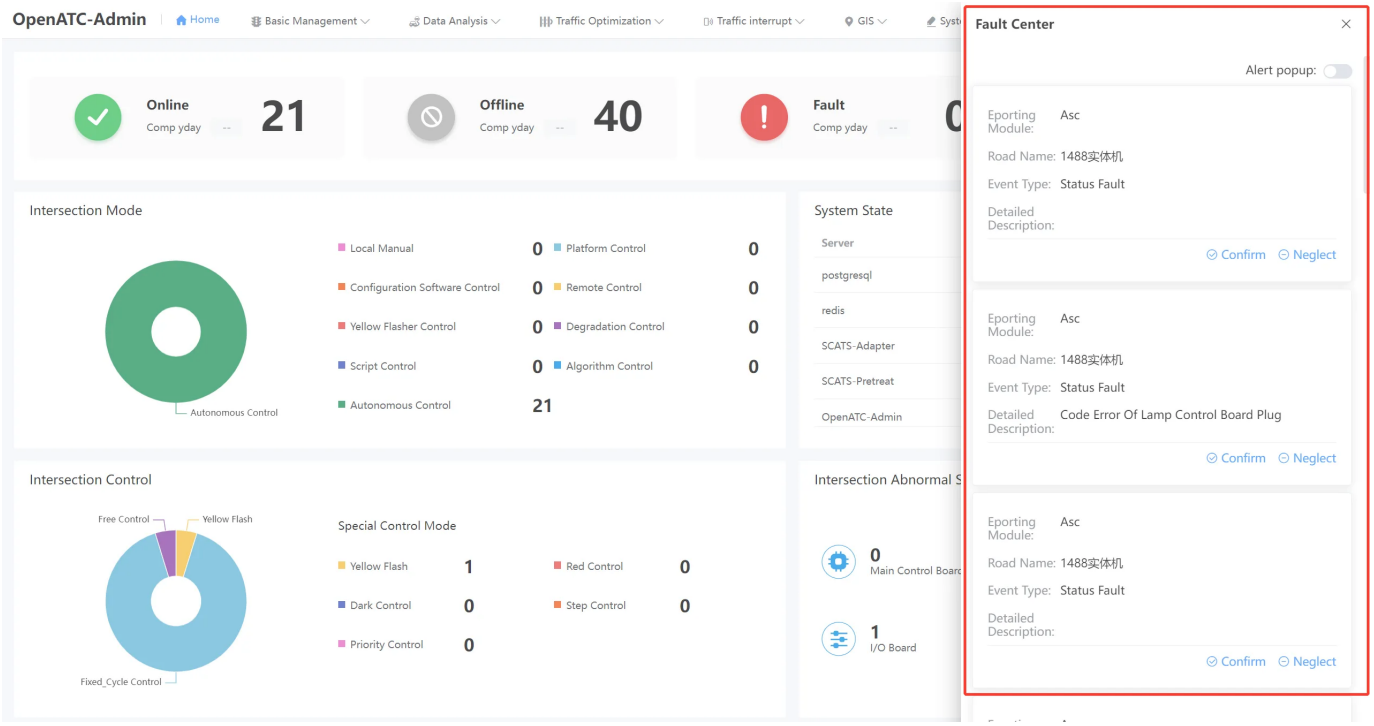

Fig.2-14 Fault Center

Click the pop-up window switch at the top right of the alarm information list to see the real-time alarm pop-up window in the lower right corner of the interface. You can select Confirm or Ignore the alert message.

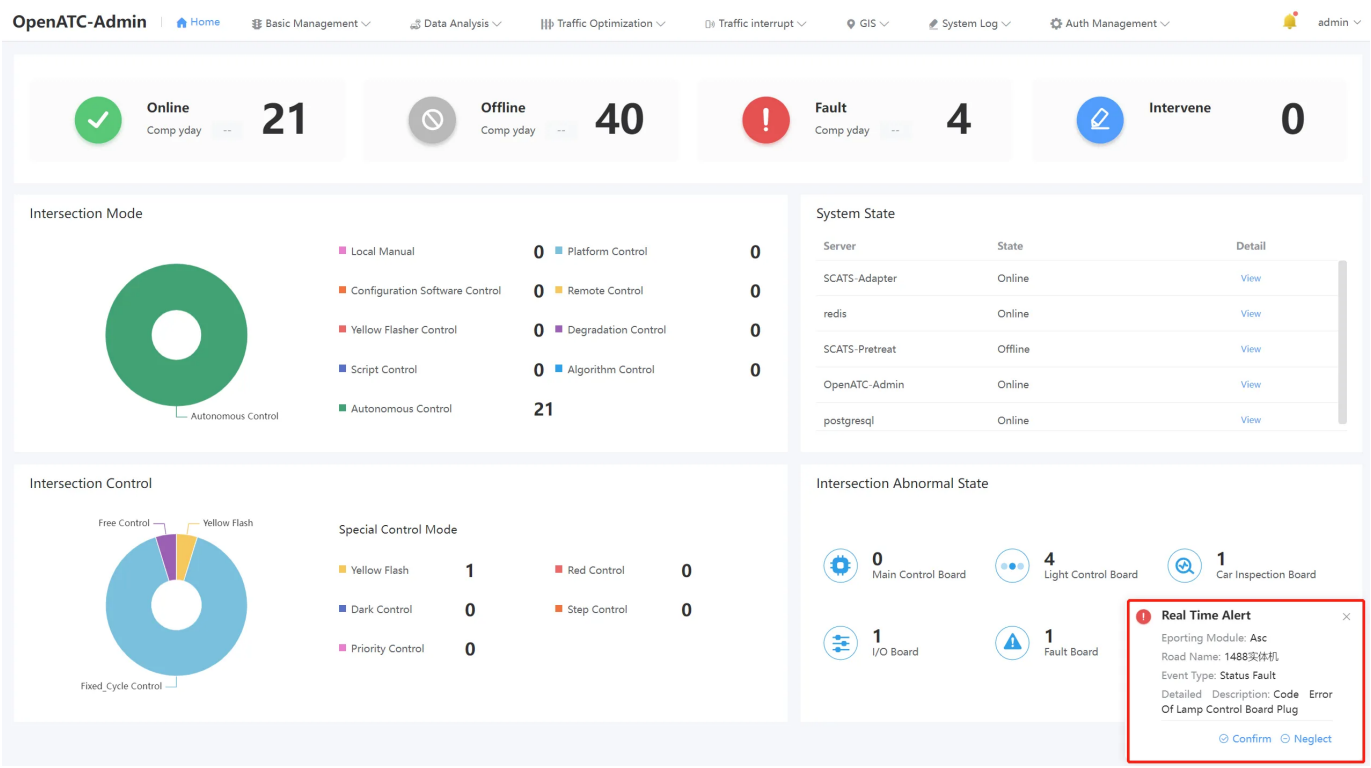

Fig.2-15 Real Time Alert

2.9 Home Page

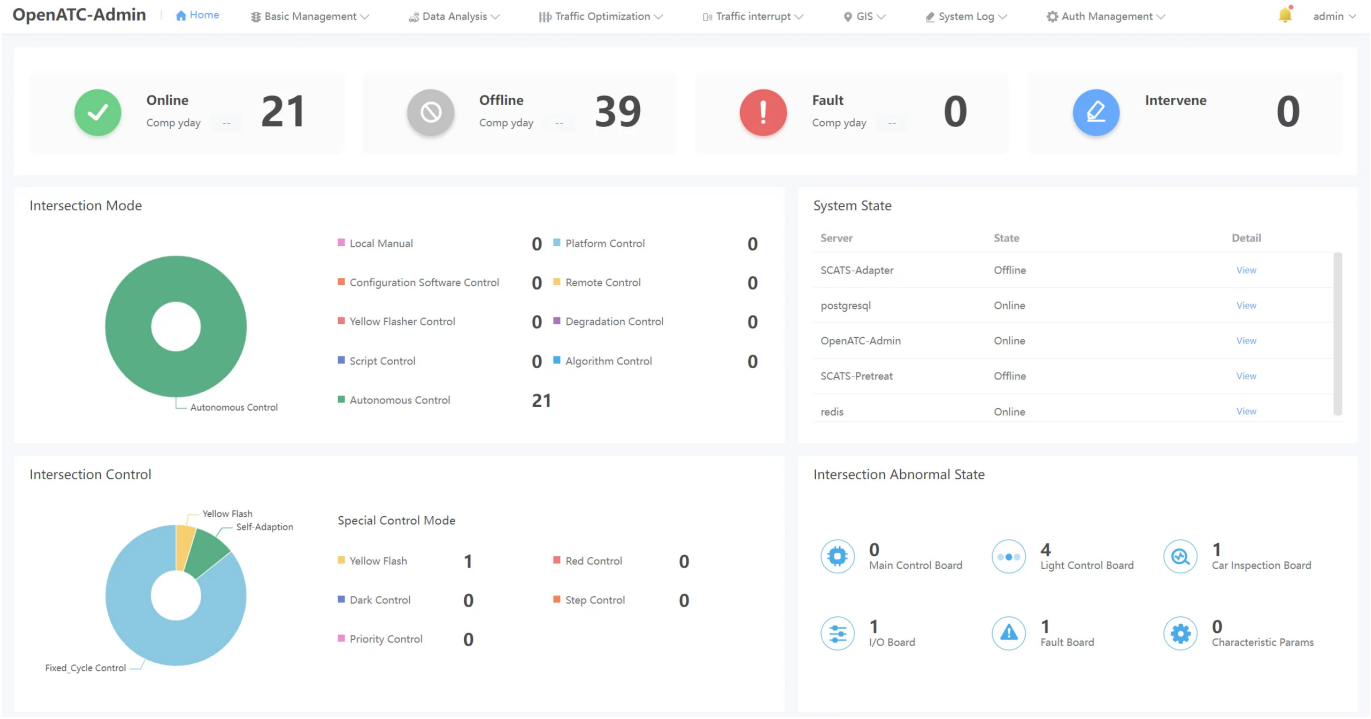

Fig.2-16 home Page

On the home page, you can view the total number, online number, offline number, number of faults, fault information list, device management, user management, and operation records of the current device.

The home page also shows the number of additions and deletions comparing yesterday's online devices, offline devices, faulty devices, and intervention devices. Clicking on the number of devices in the corresponding status, the interface will jump to the intersection management interface, where you can view information such as intersection ID, intersection name, status, control mode and control mode, and perform operations such as editing and deleting.

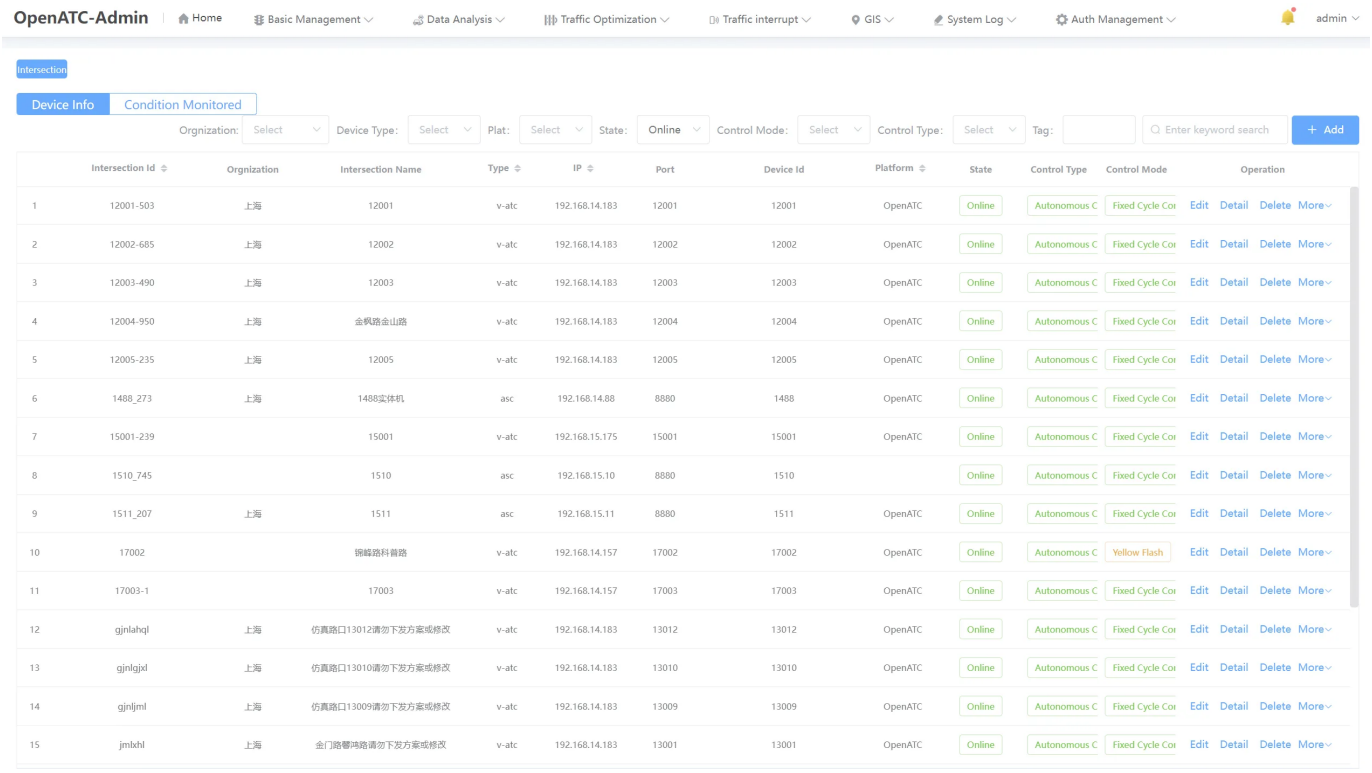

Fig.2-17 Jump to View Online Devices

Click the number of devices corresponding to a certain control mode in the intersection control mode, the interface will jump to the intersection management interface, you can also view the intersection ID, intersection name, status, control mode and control mode information, edit, delete and other operations.

You can view the detailed information of each service in the system status.

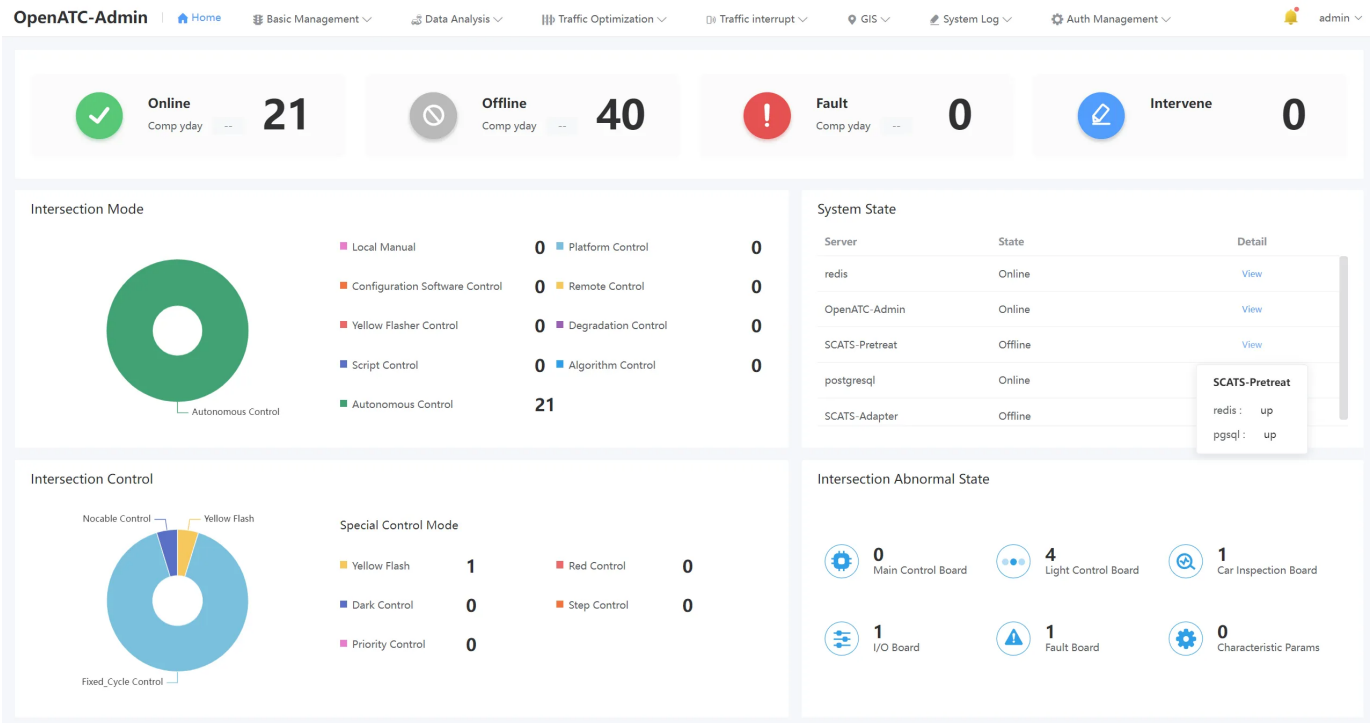

Fig.2-18 View System Service Details

Click the number of Devices corresponding to a certain control mode in the intersection control mode, the interface will jump to the intersection management interface, you can also view the intersection ID, intersection name, status, control mode and control mode information, edit, delete and other operations.

Click the number of devices corresponding to a board type in the abnormal status of the intersection, the interface will jump to the fault record - real-time fault interface, you can view the intersection name, fault ID, board type and time of occurrence, etc. You can view the fault confirmation results and perform deletion operations.

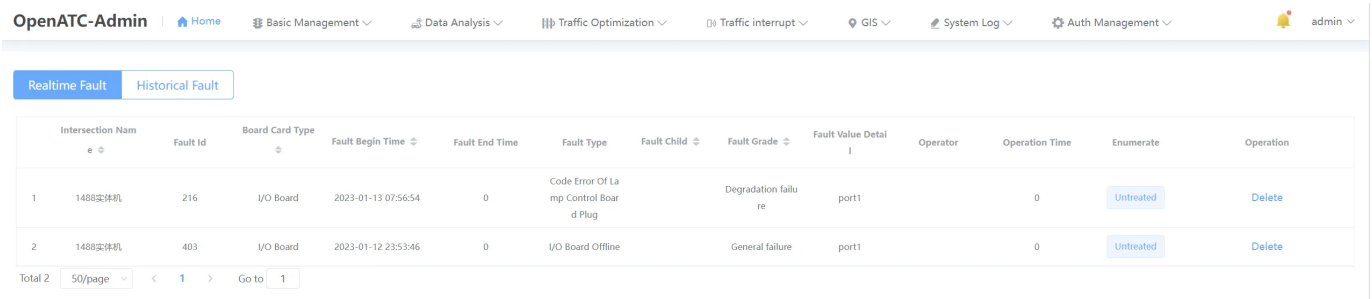

Fig.2-19 View Details of Abnormal Intersections

3. GIS

Click the menu bar "GIS" to enter the map interface, where you can view the Device Status, Duty Route and Coordinate Route in the.

3.1 Equipment Status

The marked points on the map indicate the location of the current device. The blue icon indicates that the current device is online, and the gray icon indicates that the current device is offline.

The ID, names, status, and operations of all intersections are displayed in the display list on the right.

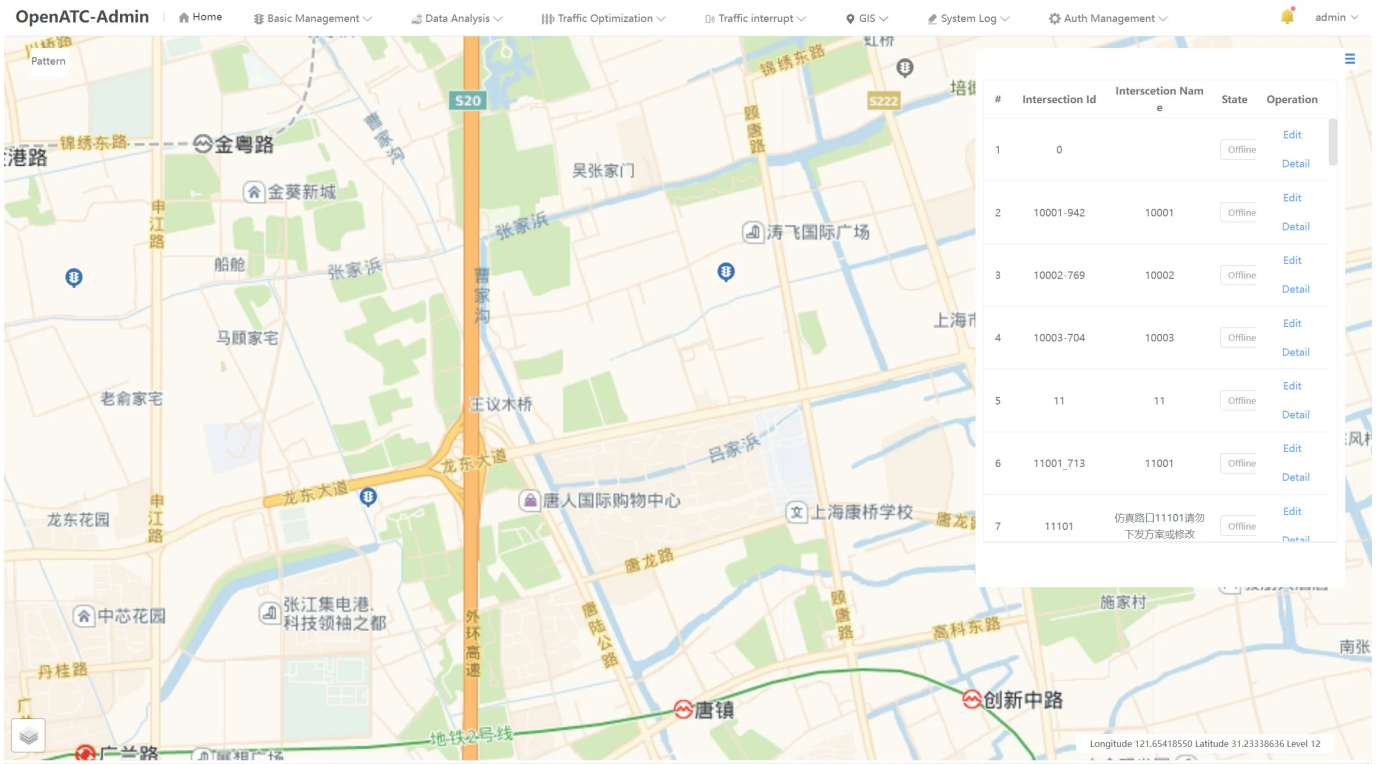

Fig.3-1 Device Status

Click to enter the "Edit" interface, set the ID and name of the intersection, and select the coordinate position of the intersection on the map.

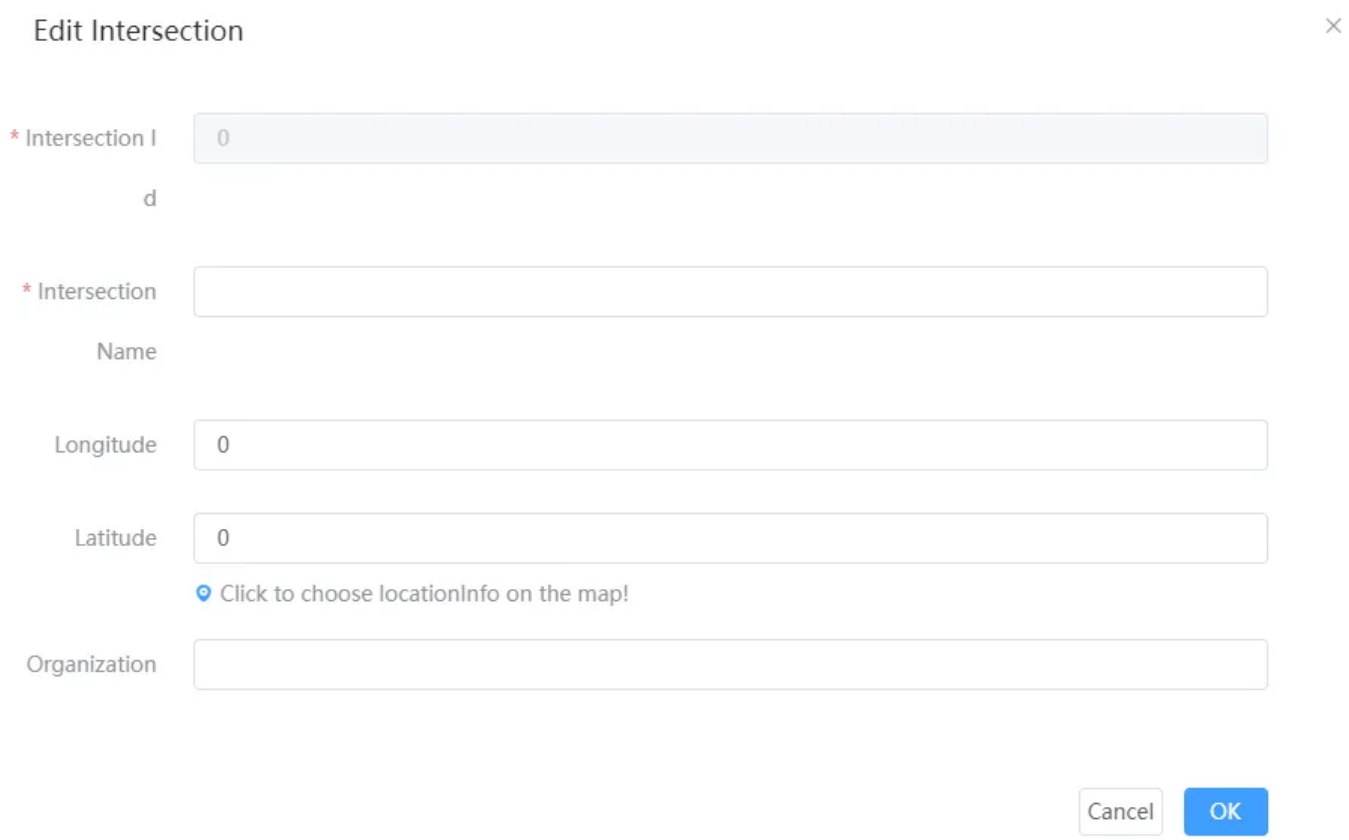

Fig.3-2 Edit Interface

Click "Details" to enter the details interface of the intersection, which displays the real-time signal distribution status of the current intersection. The toolbar on the right side mainly displays the name, device status, signal ID and signal IP of the intersection where the device is located, as well as the control mode of the current device. Control mode, control mode, scheme name, control number, current phase, and request time of the current device.You can check "Follow Phase" in the upper right corner of the View Scheme Status section.

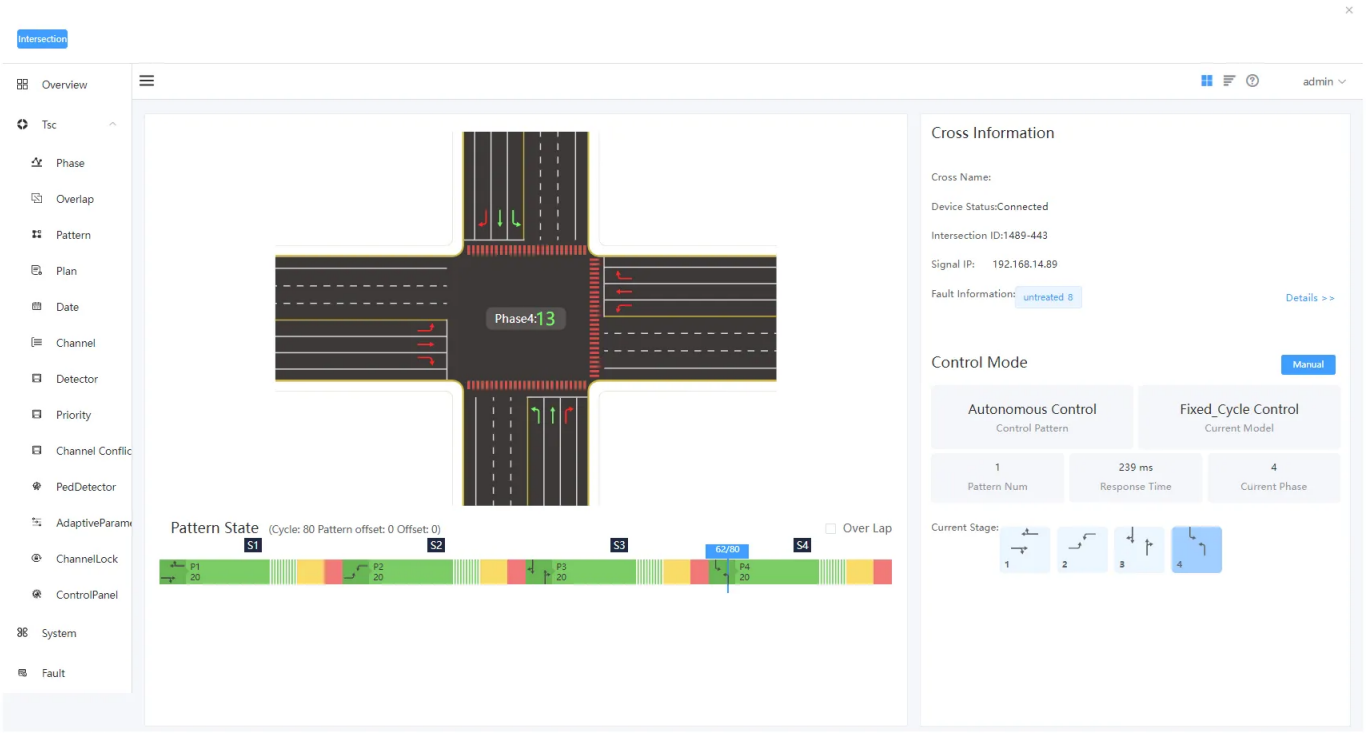

Fig.3-3 Device Details

You can select manual control for the control mode. Click manual control to view the delay time, duration, and control mode and phase (resident) of the current device.

Click the "Manual Control" button, you can see the yellow flashing, all red, turn off the lights, stepping, fixed cycle, induction control, adaptive control, no electric coordination, pedestrian crossing, induction pedestrian crossing and Autonomous control mode.

You can select the corresponding control method to control the equipment according to the needs and for each stage.

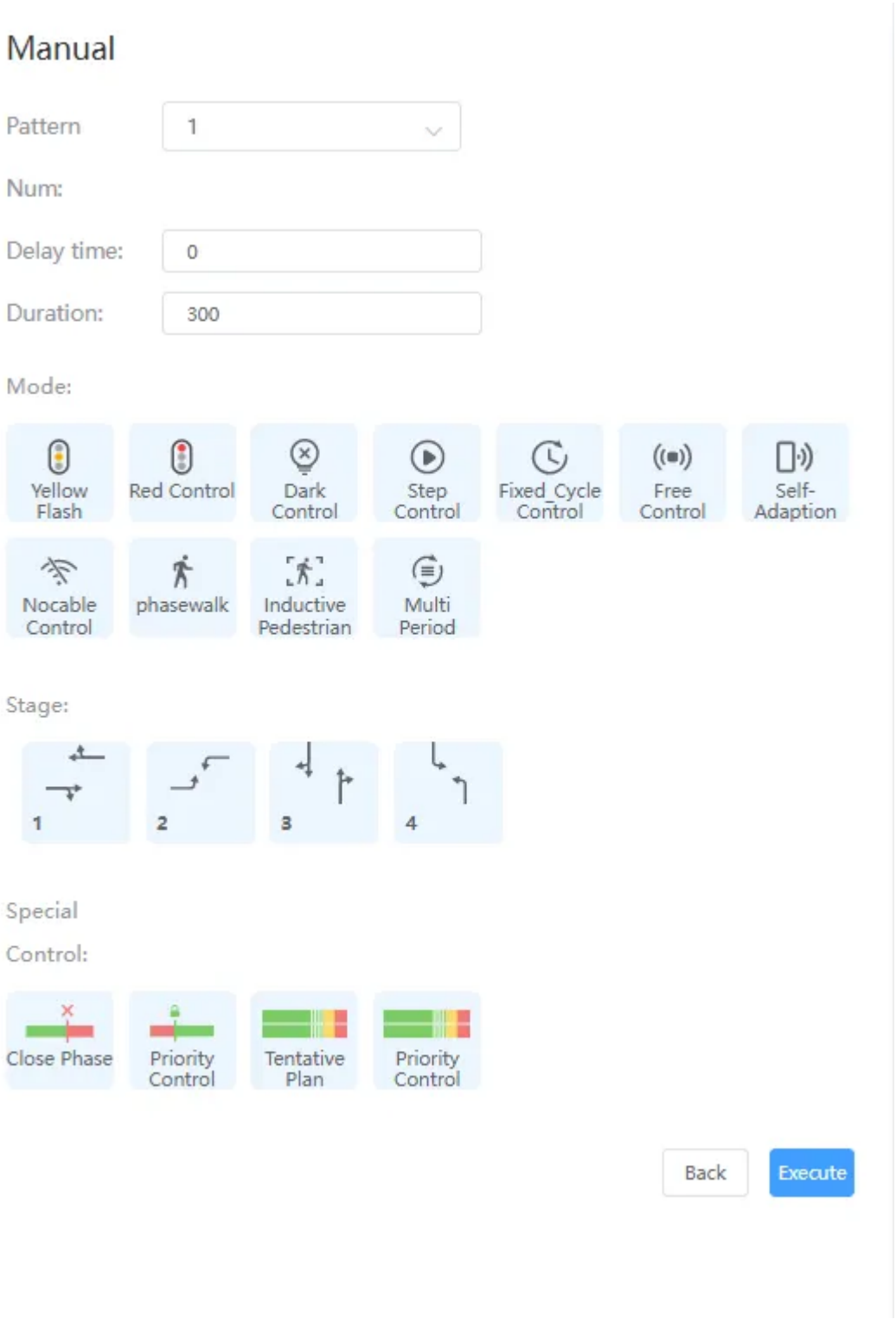

Fig.3-4 Manual Control Interface

The details interface has three styles, including: channelization mode, template pattern and text interface.

The template module is shown in Figure 3-3 above, showing the channelization of standard intersections, in which the number of lanes of each entrance road is a fixed number, if you need to view the channelization information of the actual intersection, you need to click "channelization" in the left menu bar to configure channelization.

(1) Import Images

First, import the actual intersection image in svg, png, and jpg format, and the image size cannot exceed 10MB.

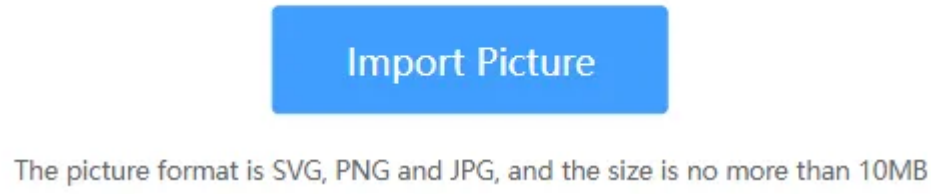

Fig.3-5 Import Images

Select the corresponding local image file.

Fig.3-6 Select Image

After the image is successfully added, you can enter the channelized information configuration interface, and you can choose to re-import the image in the upper left corner of the interface.

(2) Add Motorways

According to the actual intersection situation, add motor lanes in each entrance direction. Select the "Motor Lane" option above, left-click on a specific lane to complete the addition, you need to select the lane steering, orientation and lane type of the lane, modify basic information such as coordinates and rotation angle, and drag the motorway icon. At the same time, you can view the designation of the motorway, and you can select "Delete" or "Clone" to copy the lane configuration.

Lane Steering: go straight, turn left, turn right and turn around, and the steering can be selected in multiple ways.

Directions: East, West, South, and North.

Lane Type: main road, motor vehicle bypass road, non-motorized road, bus lane, BRT lane and tram, with optional flip display.

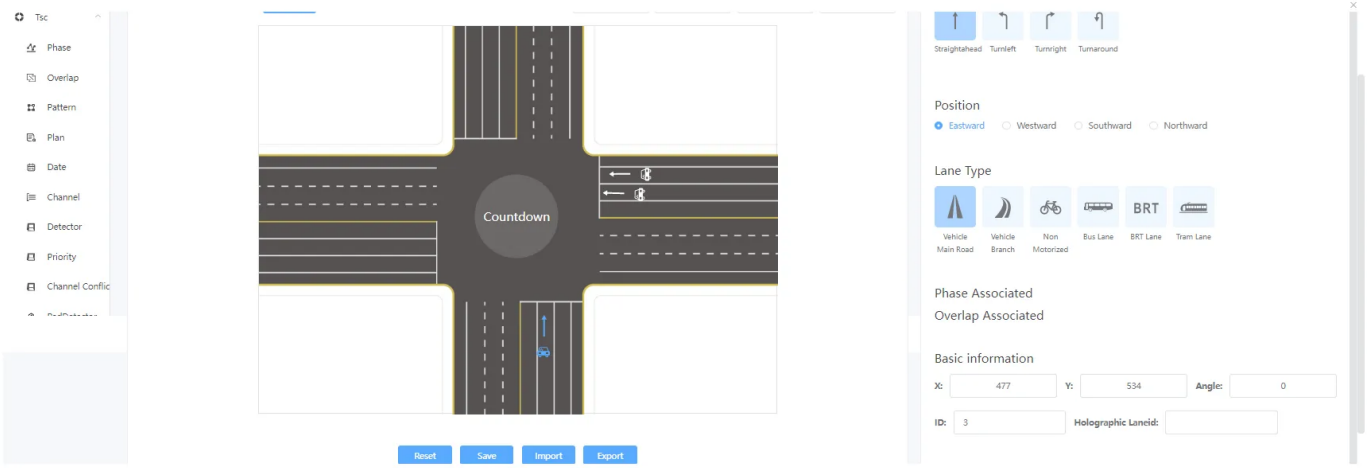

Fig.3-7 Configure Motorways

(3) Add ped crossings

According to the actual intersection, add ped crossings in all directions. Select the "ped crossings" option above, left-click in the specific position to complete the addition, you need to select the pedestrian type and orientation of the crosswalk, you can modify the basic information such as coordinates and rotation angle, and drag the ped crossings icon. At the same time, you can view the label of the ped crossings, and you can select Delete or Clone to copy the ped crossings configuration.

Pedestrian types: pedestrian, secondary crossings, pedestrians and section pedestrians.

Positions:

1) Directions under pedestrian, including: east, west, south and north.

2) The orientation under the secondary crossing, including: east-top, east-buttom, west-top, west-buttom, south-left, south-right, north-left, and north-right.

3) Orientation under the X pedestrian, including: X-/ and X-.

4) Directions under section pedestrians, including: north-south and east-west.

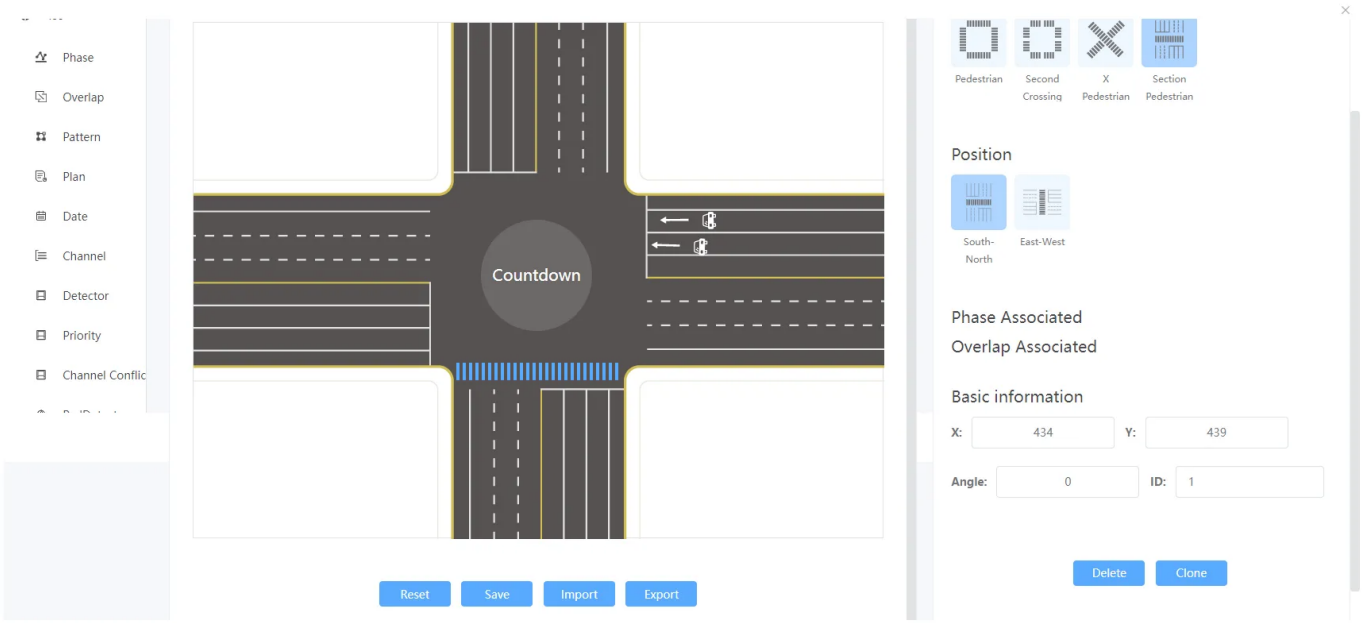

Fig.3-8 Configure ped crossings

(4) Add a countdown

Select the "Countdown" option above, left-click in the specific position to complete the addition, you can drag the countdown icon. You can optionally delete the countdown.

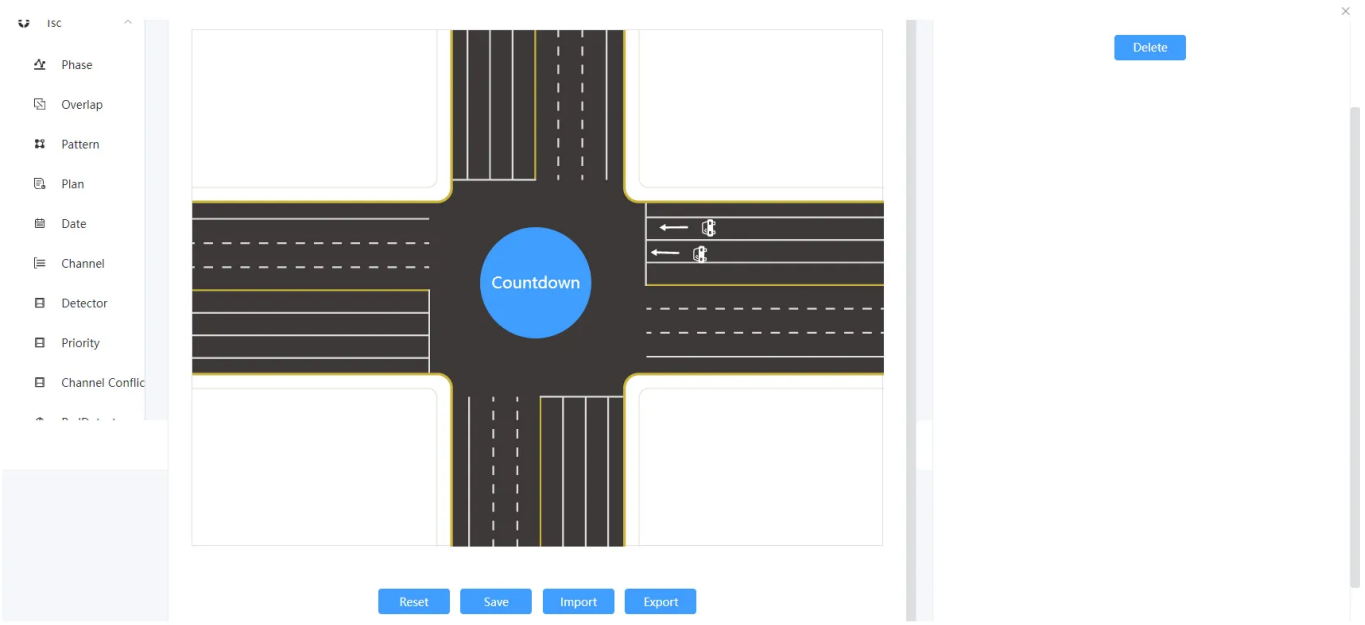

Fig.3-9 Configure a countdown

(5) Add detectors

According to the actual intersection situation, add detectors on each lane. Select the "Detector" option above, left-click in the specific location to complete the addition, you need to select the type, threshold and associated lane of the detector, modify basic information such as coordinates and rotation angle, and drag the detector icon. At the same time, you can view the label of the crosswalk, and you can select "Delete" or "Clone" to copy the detector configuration.

Detector threshold: Green light utilization threshold and flow saturation threshold range.

Lane association: Associate the motor vehicle lane ID tag added above.

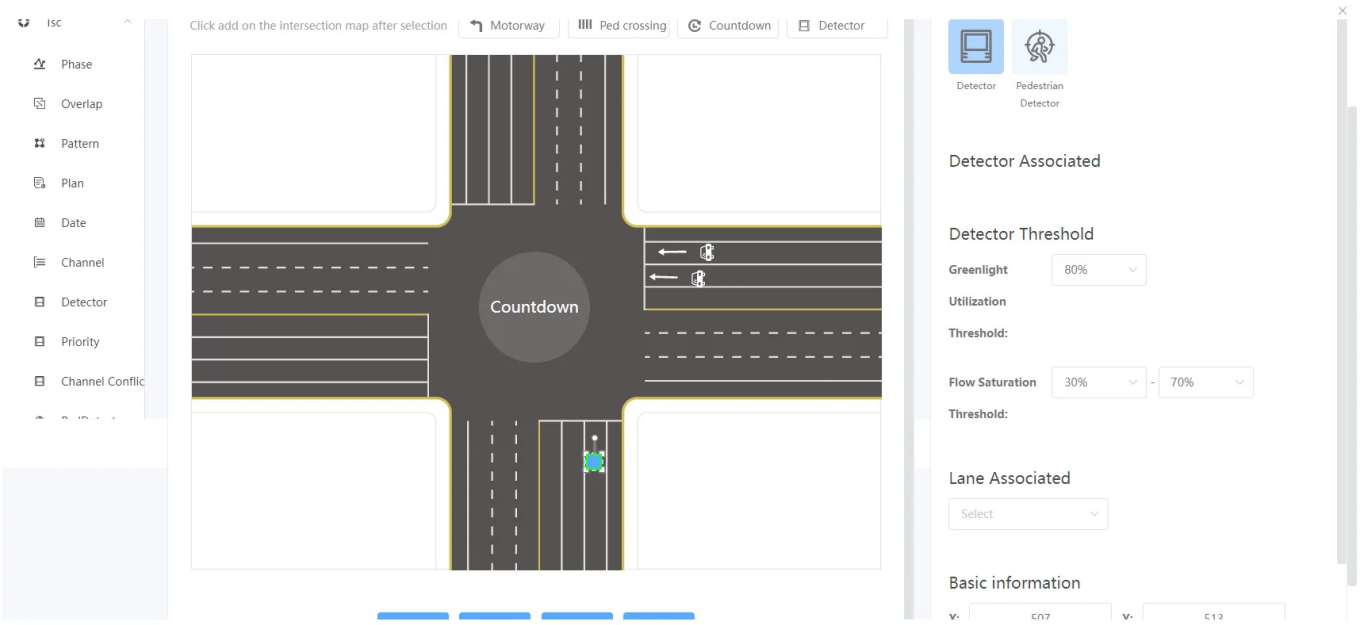

Fig.3-10 Configure detectors

After configuration, you can click the "Save" button below. You can select Reset to reconfigure.

Click the "Import from File" button and select a local JSON configuration file to directly import the relevant configuration. Click the "Export from File" button to export the JSON format configuration file to the local computer, and then directly import it to the channelization configuration of other intersections.

Click the Replace button in the upper right corner of the overview screen , which can be directly replaced by the actual channelization interface of the intersection, which can view channelization configuration information, including motorways, pedestrian crossings, countdowns, and detectors, as shown in the following figure:

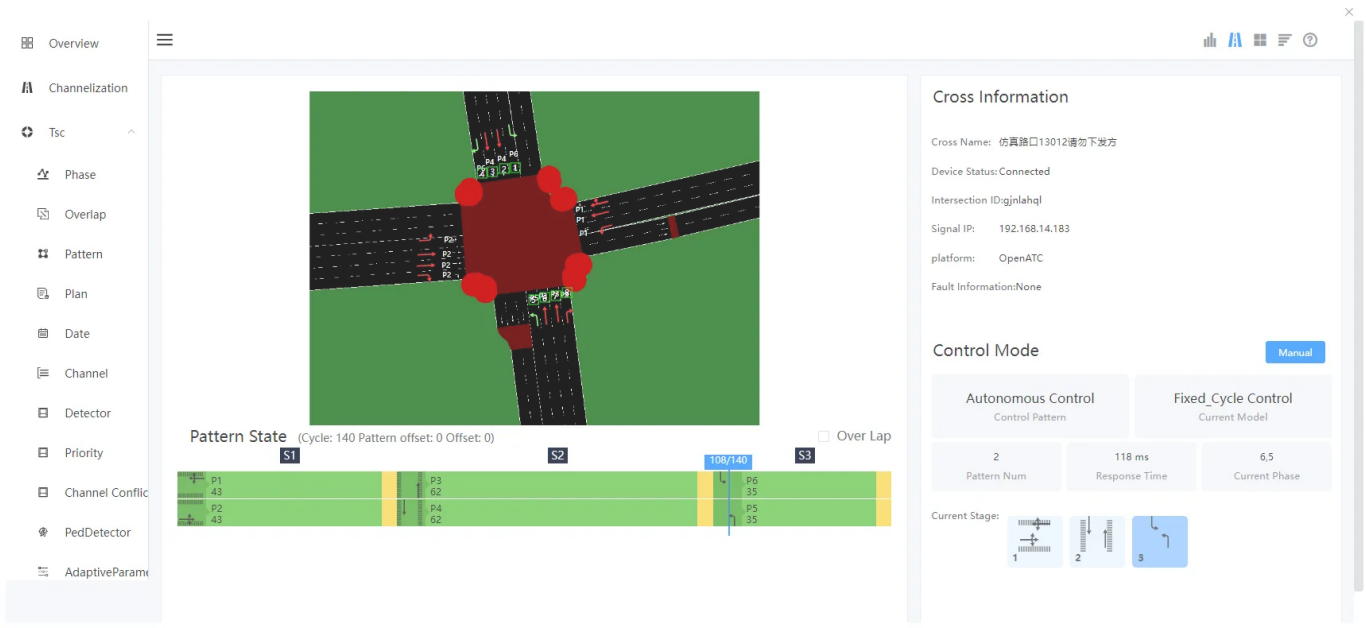

Fig.3-11 Channelization Module Interface

Click the Replace button in the upper right corner of the overview screen , you can view the traffic statistics of the intersection, including: total traffic, average flow, average green light utilization, average traffic saturation, corresponding traffic in all directions, green light utilization, saturation and congestion index, as shown in the following figure:

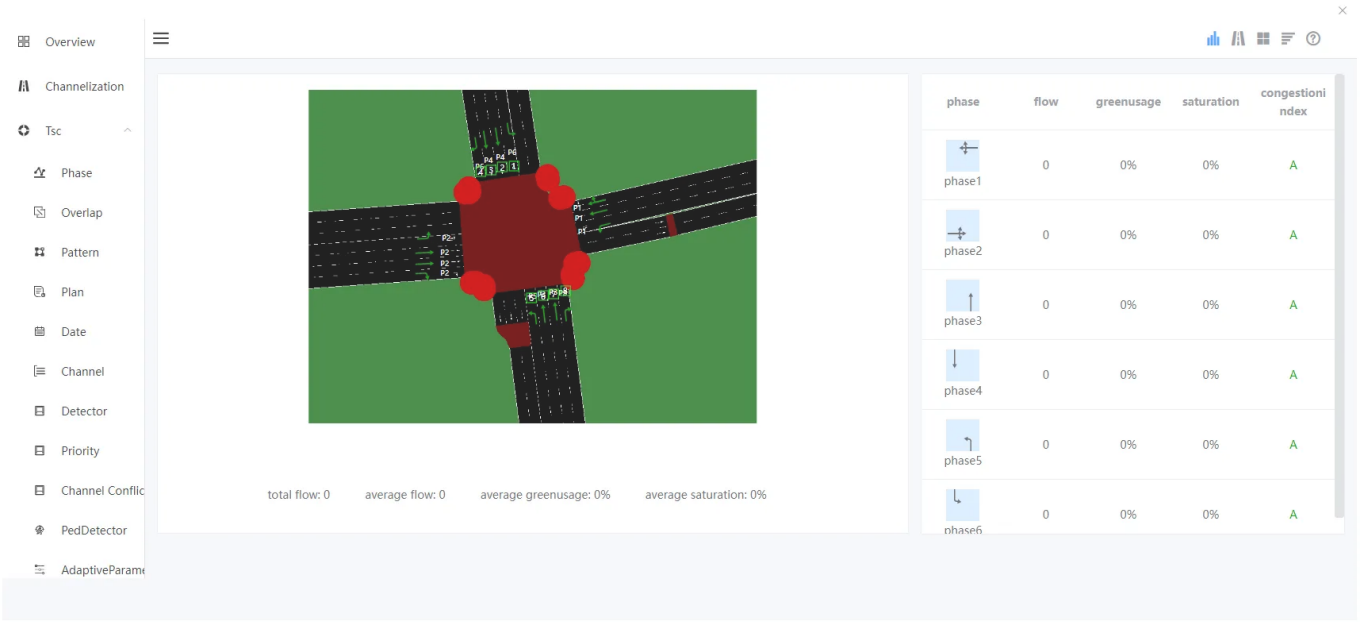

Fig.3-12 Traffic Statistics Interface

Click the interface replacement button in the lower right corner , Can be directly replaced with a simple style interface based on text, as shown in the figure below:

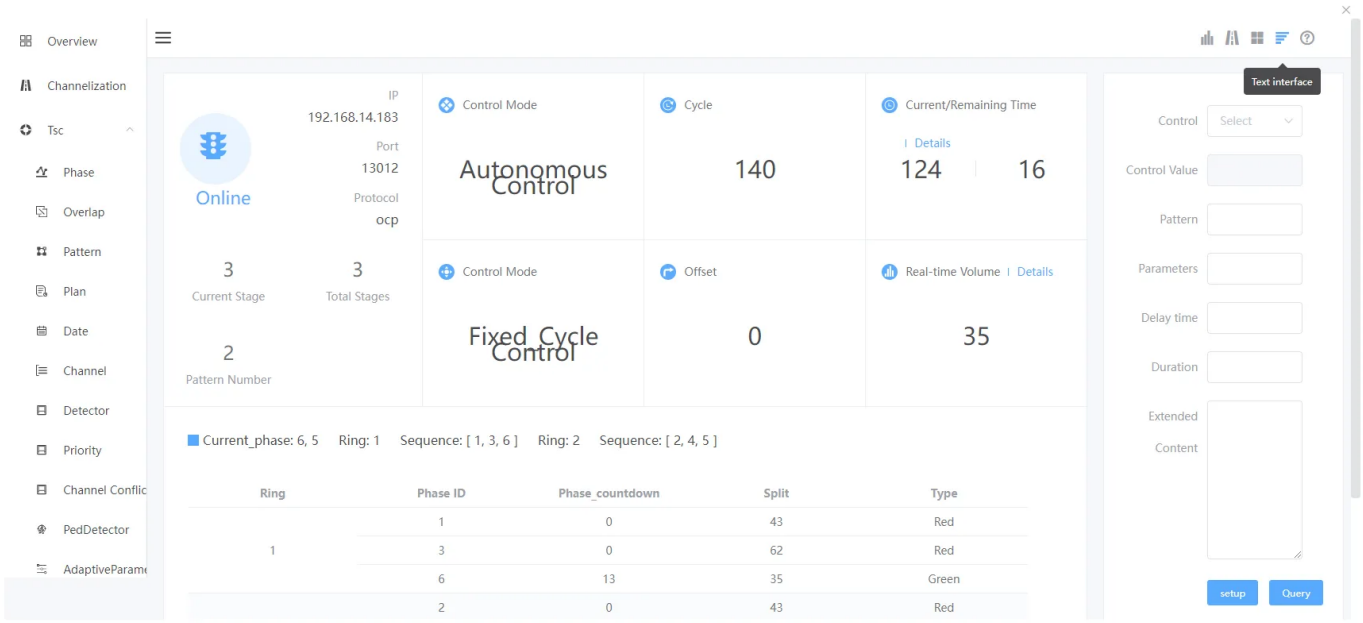

Fig.3-13 Switch Interface

Toolbar:

1) Click on the toolbar on the right side of the page button to hide the toolbar, as shown in the figure below:

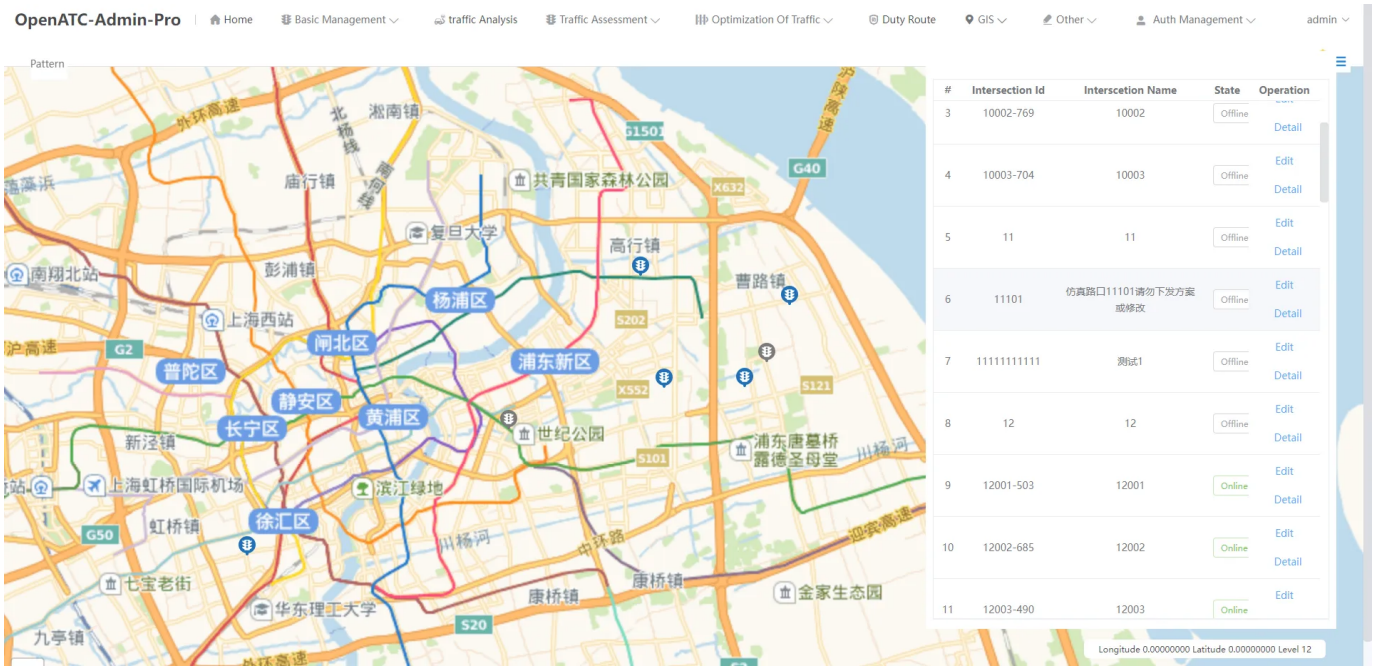

Fig.3-14 Device Status

2) Click on the toolbar on the right side of the page button to expand the toolbar.

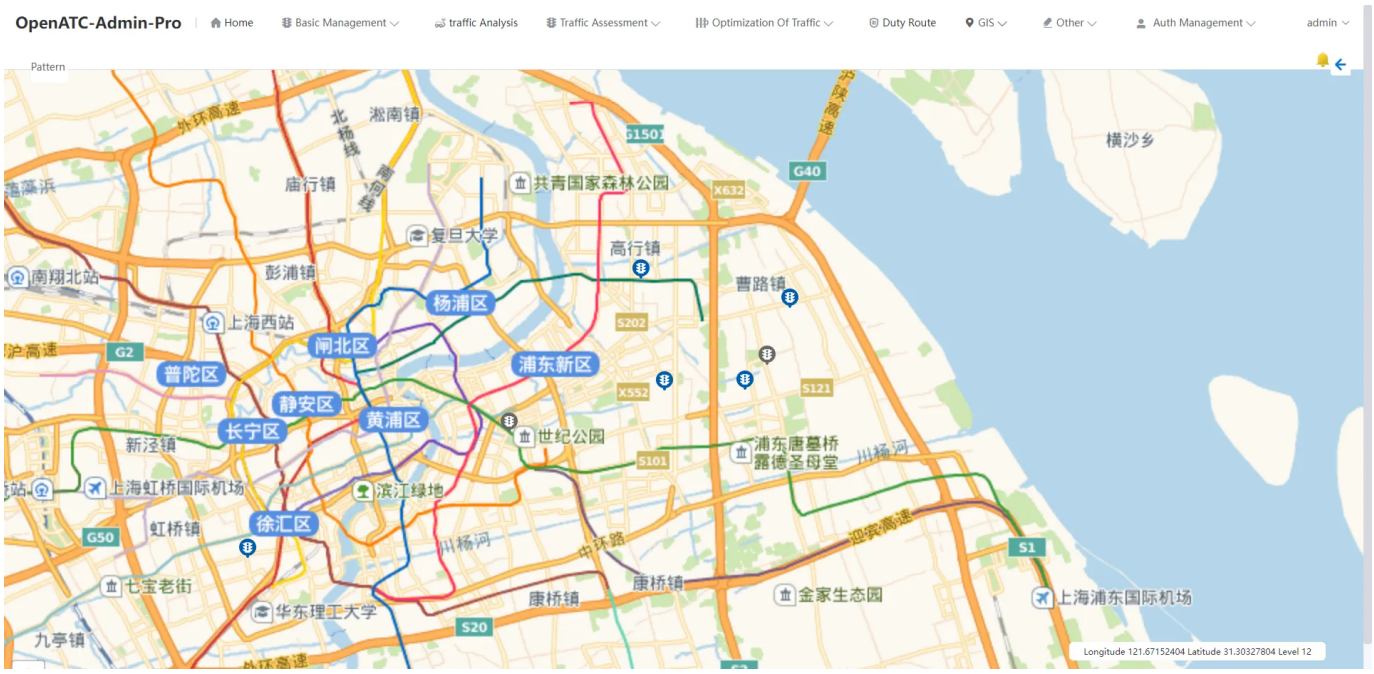

Fig.3-15 Hide the Toolbar

Click "Pattern" in the upper left corner, and the interface will display the scheme of the online device, including information such as current phase, green signal ratio, countdown, phase difference, period, and control mode.

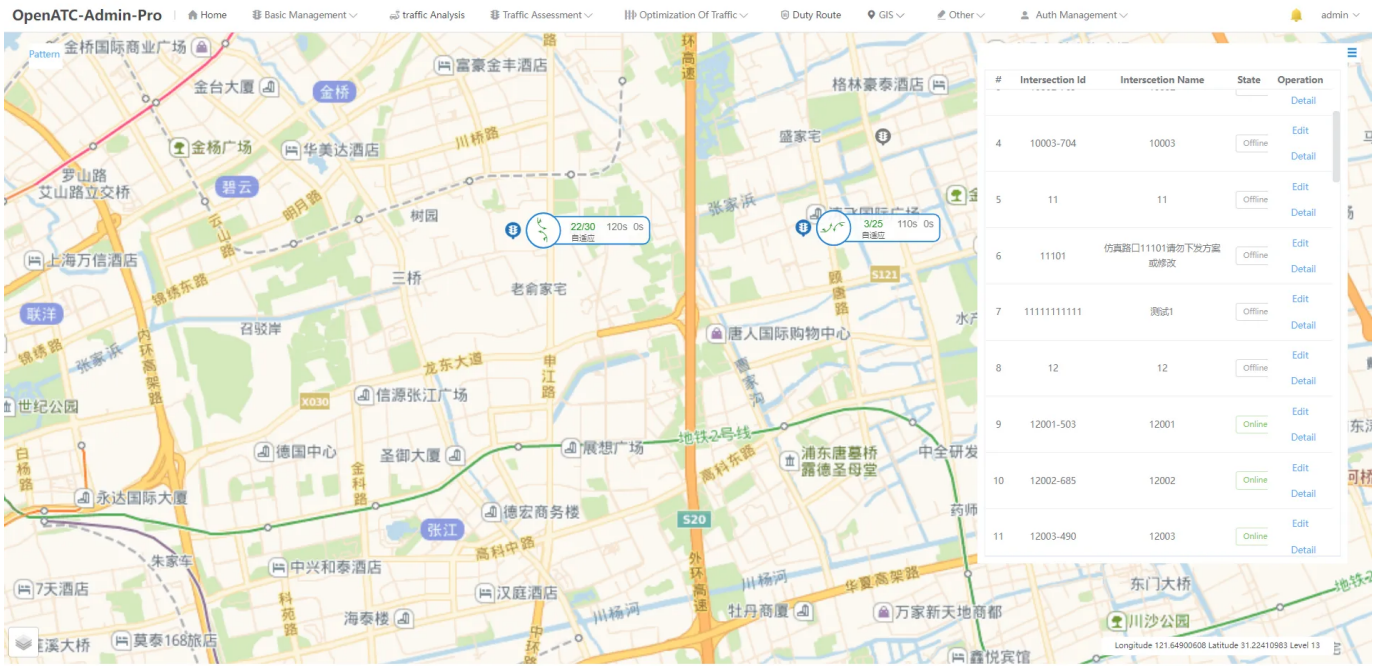

Fig.3-16 Displays Scenario Information

3.2 Duty Route

Click "Duty Route" in the top menu bar and select any special service route to view the details corresponding to each device of the special service route, including: execution mode, duration, remaining time on duty and execution plan. Click "Execute Now" and the junction device performs a secret service mission.

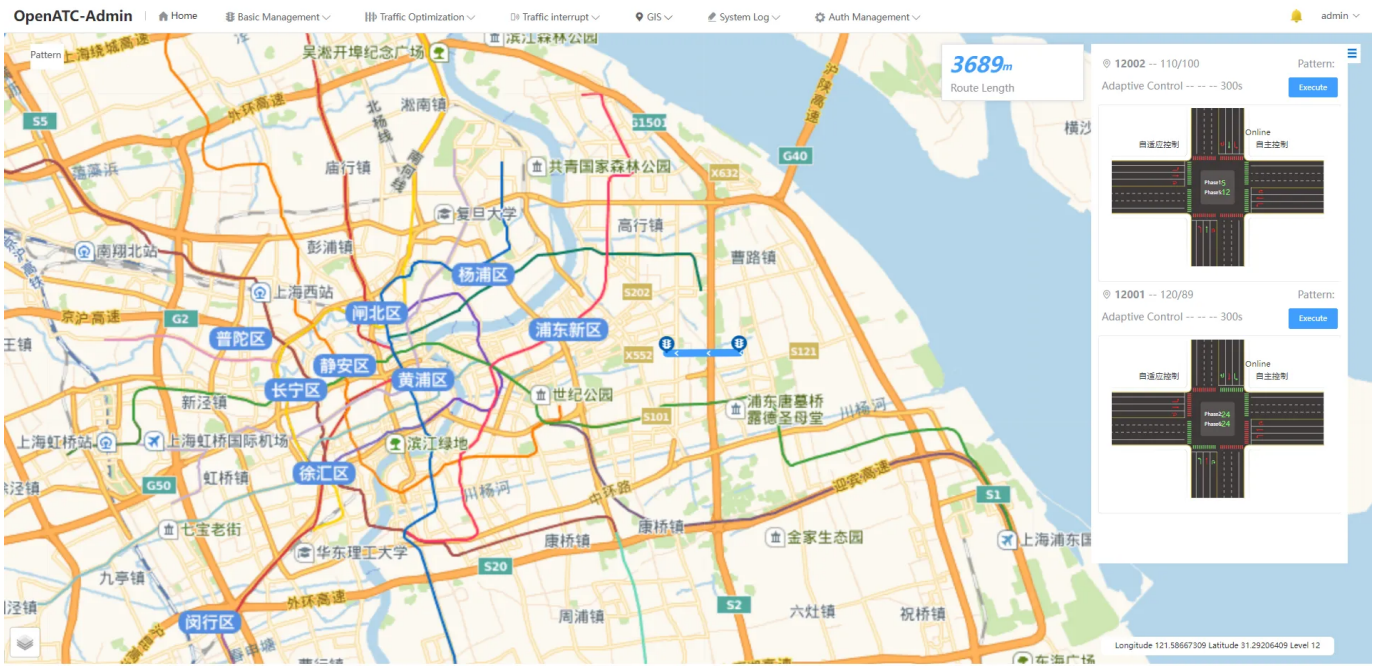

Fig.3-17 Duty Route

Toolbar:

1) Click on the toolbar on the right side of the page  button to hide the toolbar, as shown in the figure below:

Fig.3-18 Details of Intersection

2) Click on the toolbar on the right side of the page button to expand the toolbar.

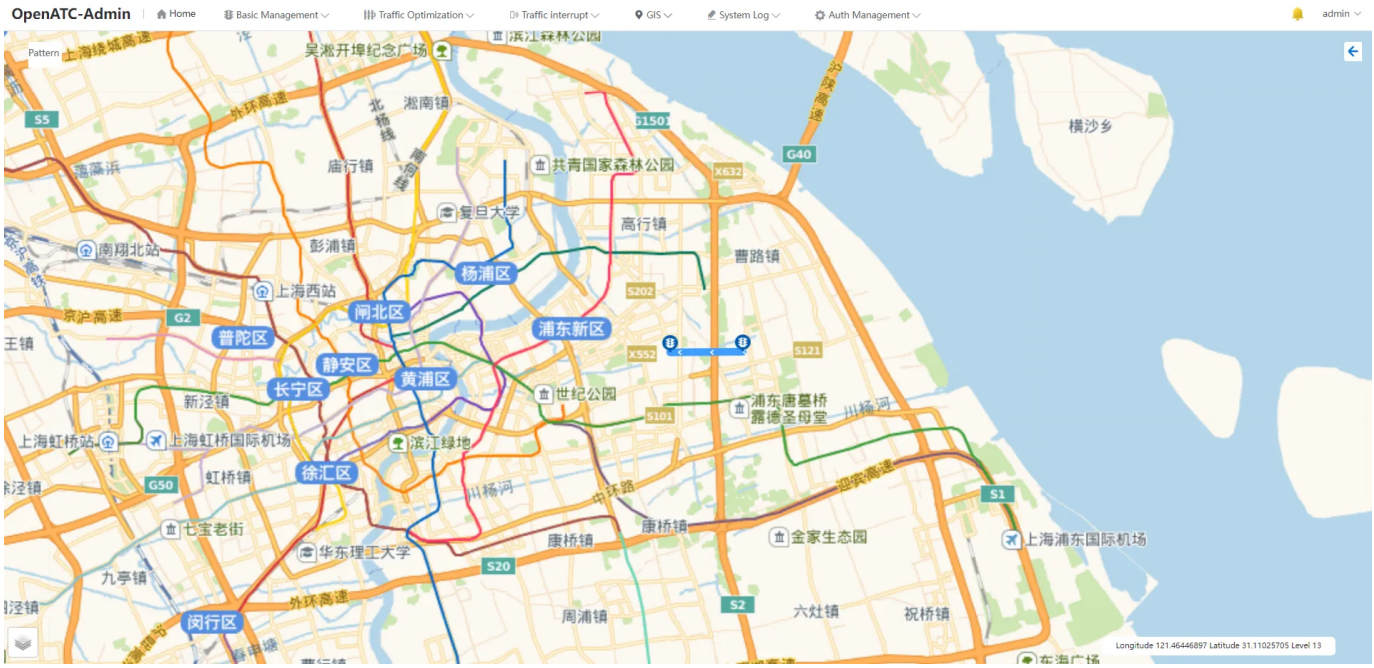

Fig.3-19 Hide the Toolbar

3) Click on the bottom right corner of the interface  button to select "GIS" or "Image".

3.3 Coordinate Route

Click "Coordinate Route" on the top menu bar and select any coordinated route to view the real-time time-distance map corresponding to the coordinated route group.

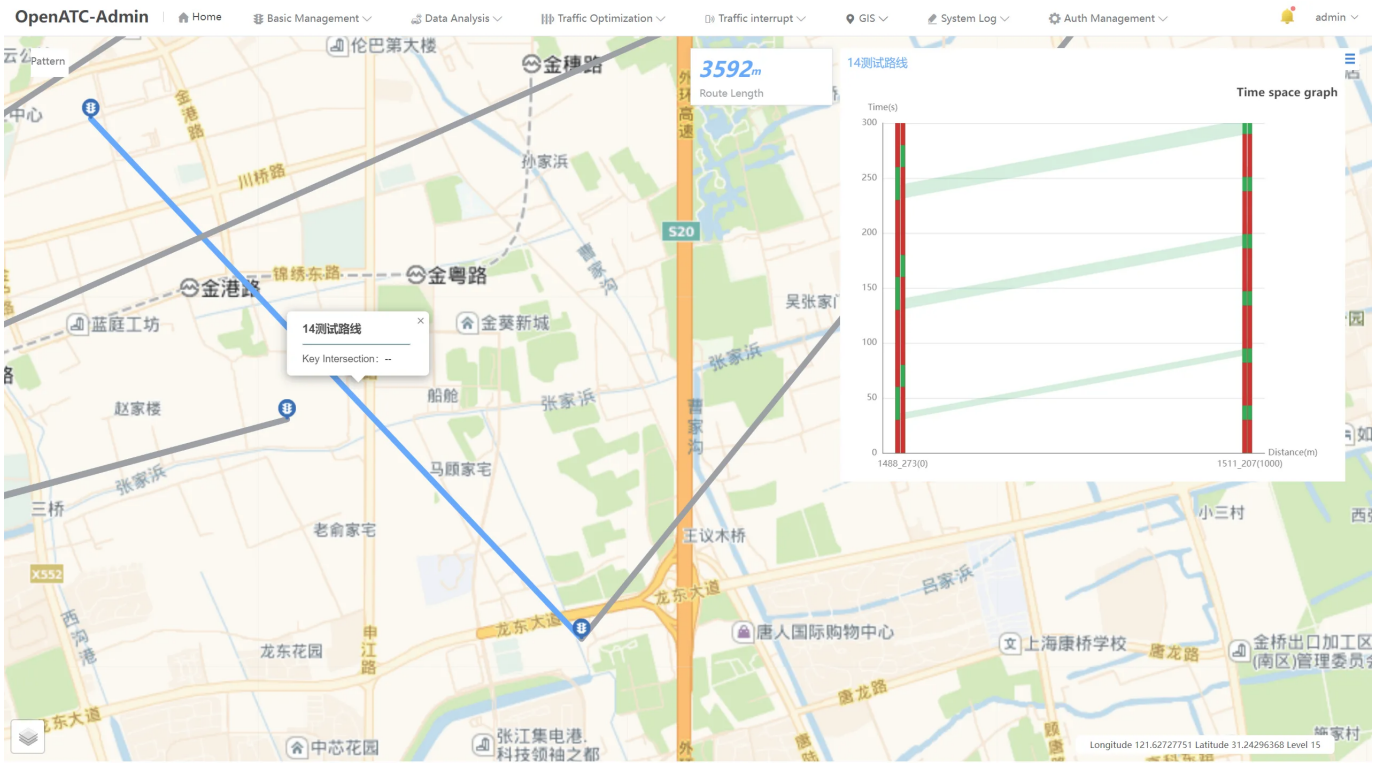

Fig.3-20 Coordinate Route

Toolbar:

1) Click on the toolbar on the right side of the page button to hide the toolbar, as shown in the figure below:

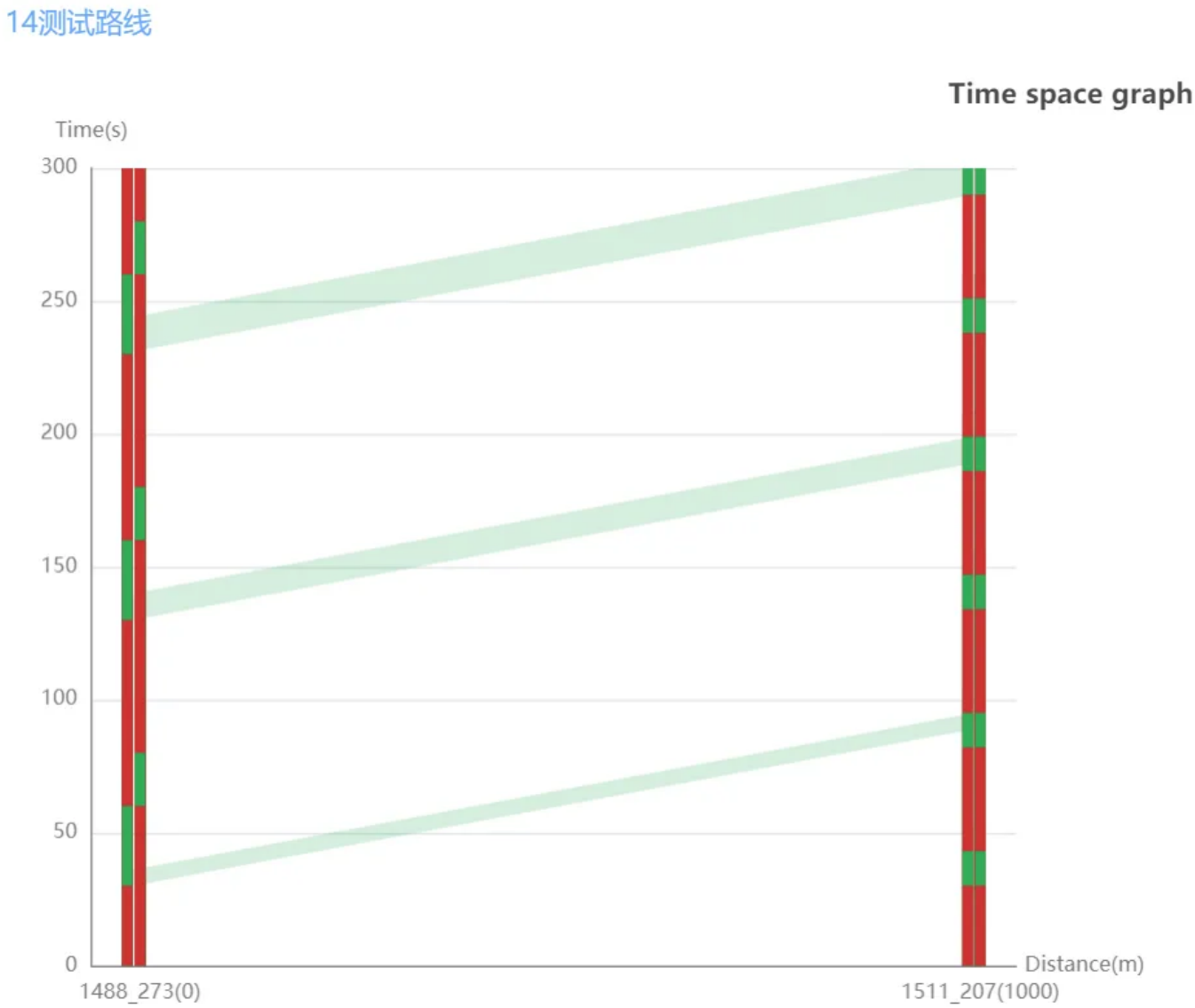

Fig.3-21 Real-time Time-distance Diagram

2) Click on the toolbar on the right side of the page button to expand the toolbar.

4. Intersection manager

4.1 Features

Click the menu bar "Basic Management - Intersection Manager" to enter the intersection management interface, the tab bar can open multiple devices, the current interface displays the intersection ID, intersection name, type, IP, port and other information, you can add, modify, delete, search, fault information view, status monitoring, control and other functions of equipment. Intersection management is the core functional module of OpenATC. It can be filtered and viewed according to the type, platform, status, control mode and control mode to which each intersection belongs.

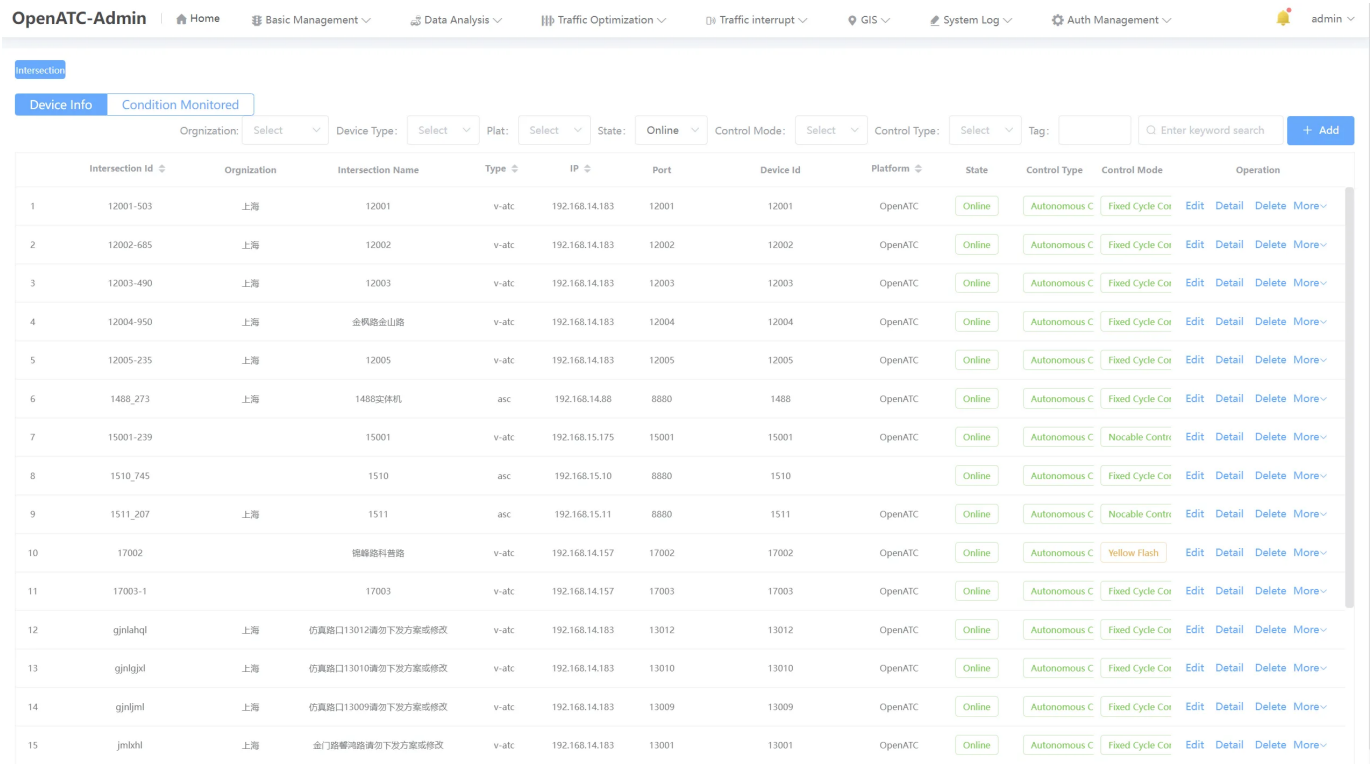

Fig.4-1 The main Page of Device Management

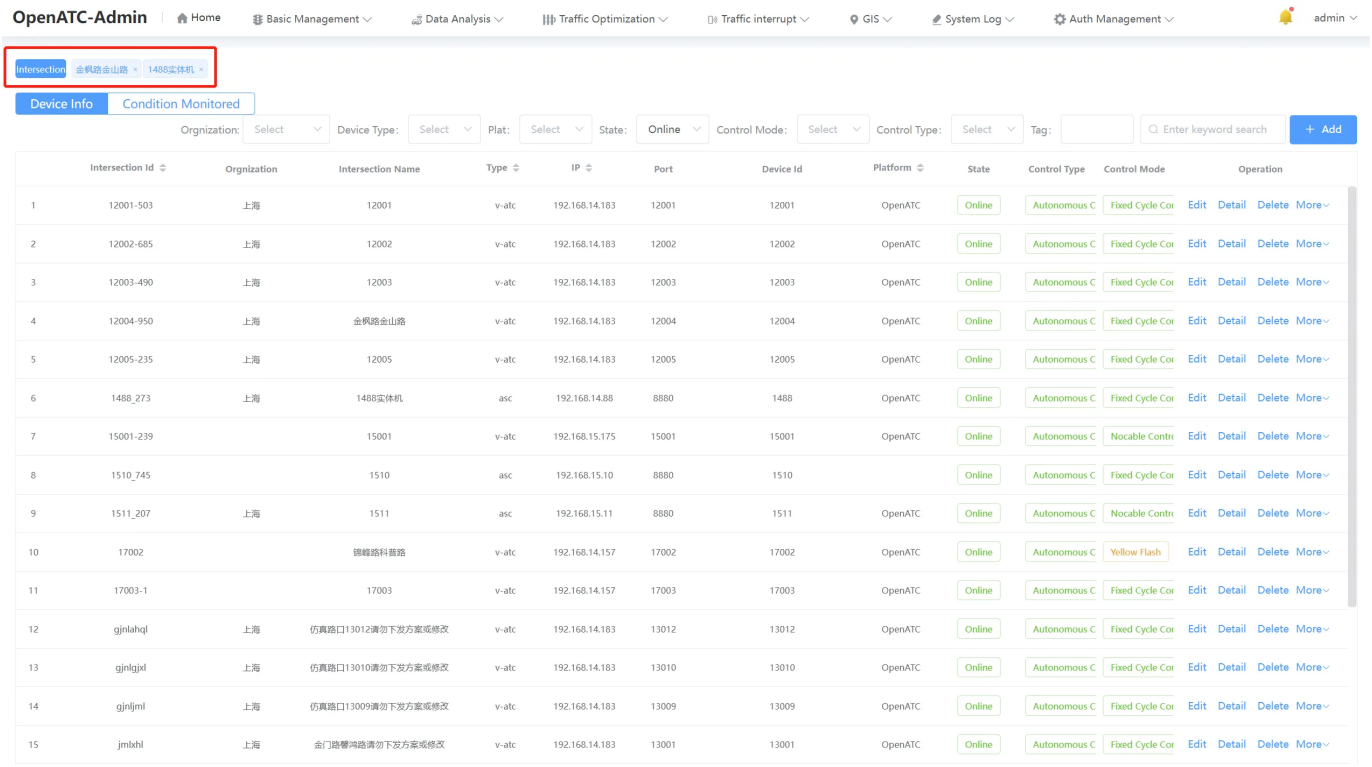

Fig.4-2 Open Multiple Device Diagrams In the Tab Bar

Click More - Fault Information. The fault information dialog box is displayed, which contains fault information such as fault occurrence time, card type, main fault type, sub-fault type, fault value, and fault level.

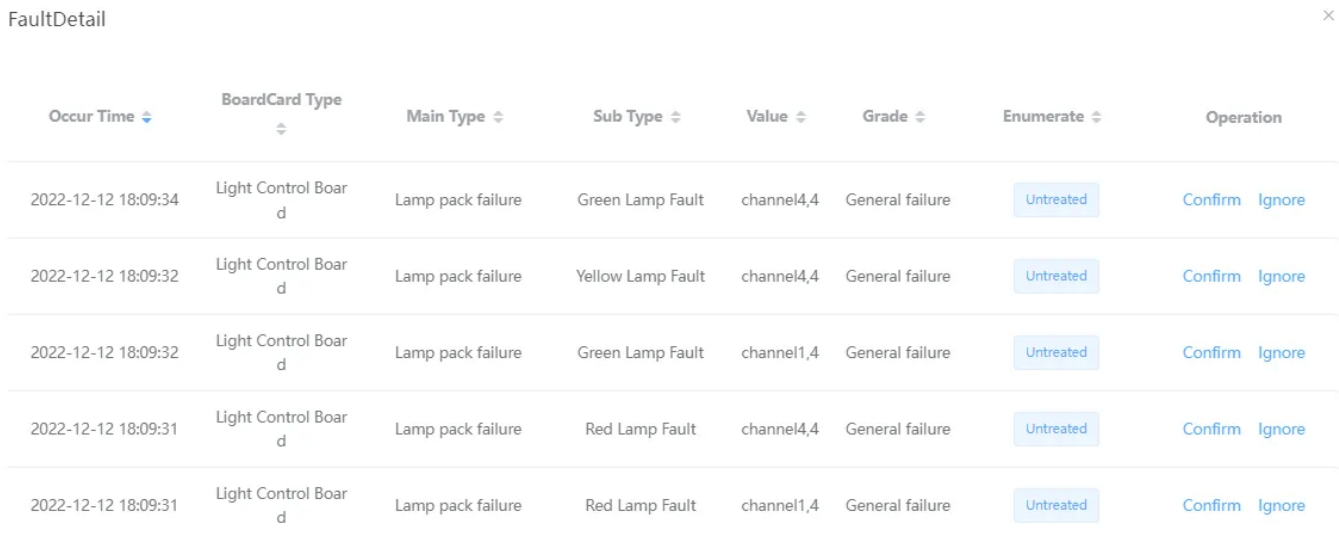

Fig.4-3 Fault Information Diagram

Click Ignore,the operation succeeds. The confirmation result of the fault information in the fault dialog box is Ignored. Click OK. The operation succeeds. The confirmation result of the fault information in the fault dialog box is Confirmed.

4.2 Intersection Information

4.2.1 Add Intersection

Click the "Add" button on the main page of intersection management to pop up the dialog box of new intersection. You need to enter the intersection ID, intersection name, type (ASC, SIMU, V-ATC), protocol (OCP, SCP), IP, and port (8880 by default, the port number is the port number assigned to the device, and the port number must be changed when the device changes). The intersection name is the description of the intersection where the device resides, and the type is ASC by default. By default, the protocol is OCP, the IP address is the IP address of the current host, and the port number is 8880. After filling in the device parameters, click Confirm. A new device is displayed in the list.

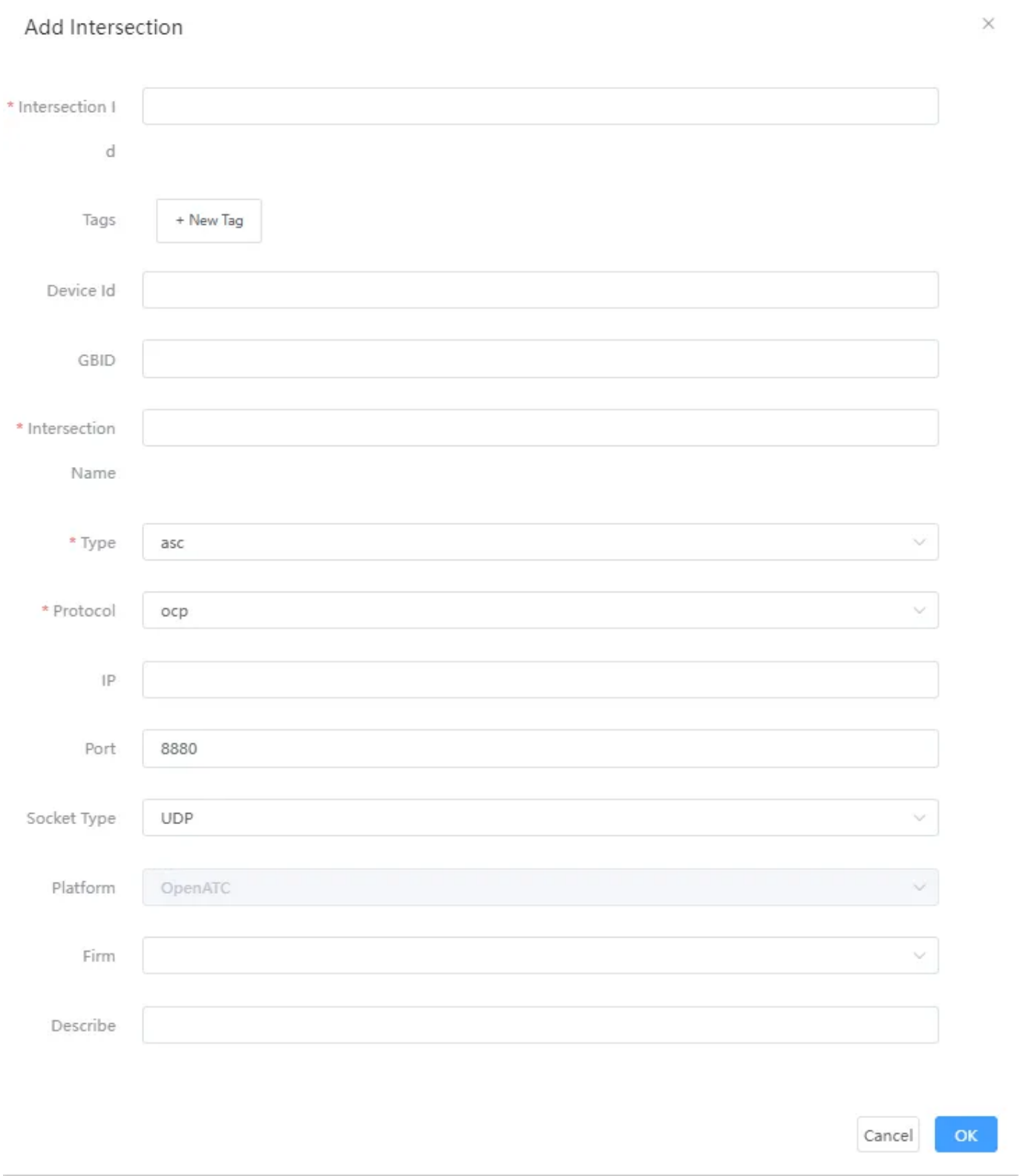

Fig.4-4 Add Intersection Diagram

4.2.2 Edit Intersection

Click the "Edit" button on the main page of intersection management, and the edit intersection dialog box pops up. After filling in the intersection parameters, click "Confirm" to change the data in the list to the changed information.

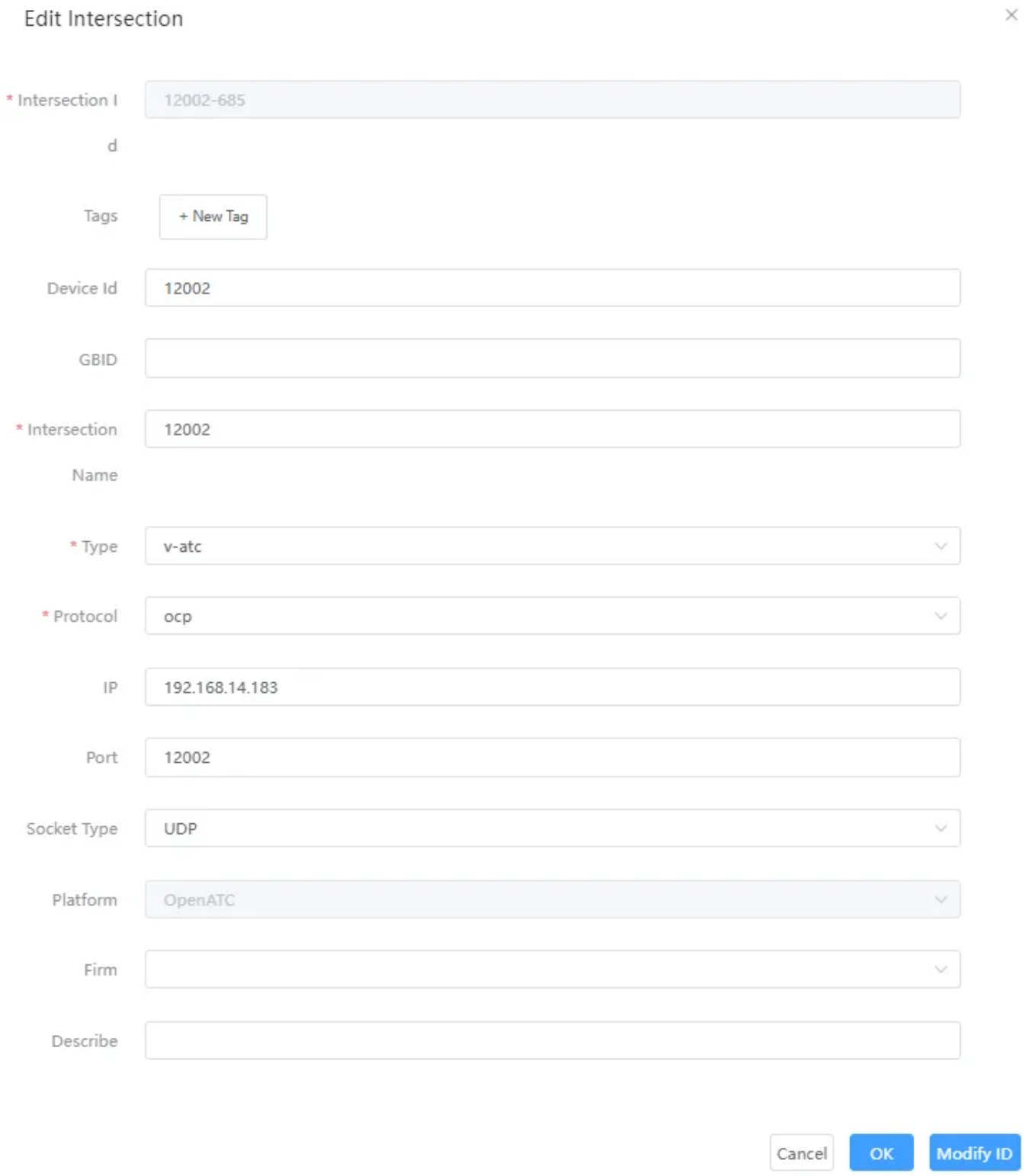

Fig.4-5 Editing Intersection Diagram

4.2.3 Delete Intersection

Click the "Delete" button on the main page of intersection management to pop up the pop-up box whether to delete this intersection. Click "Ok" to delete the current intersection, and the corresponding intersection in the list will be deleted.

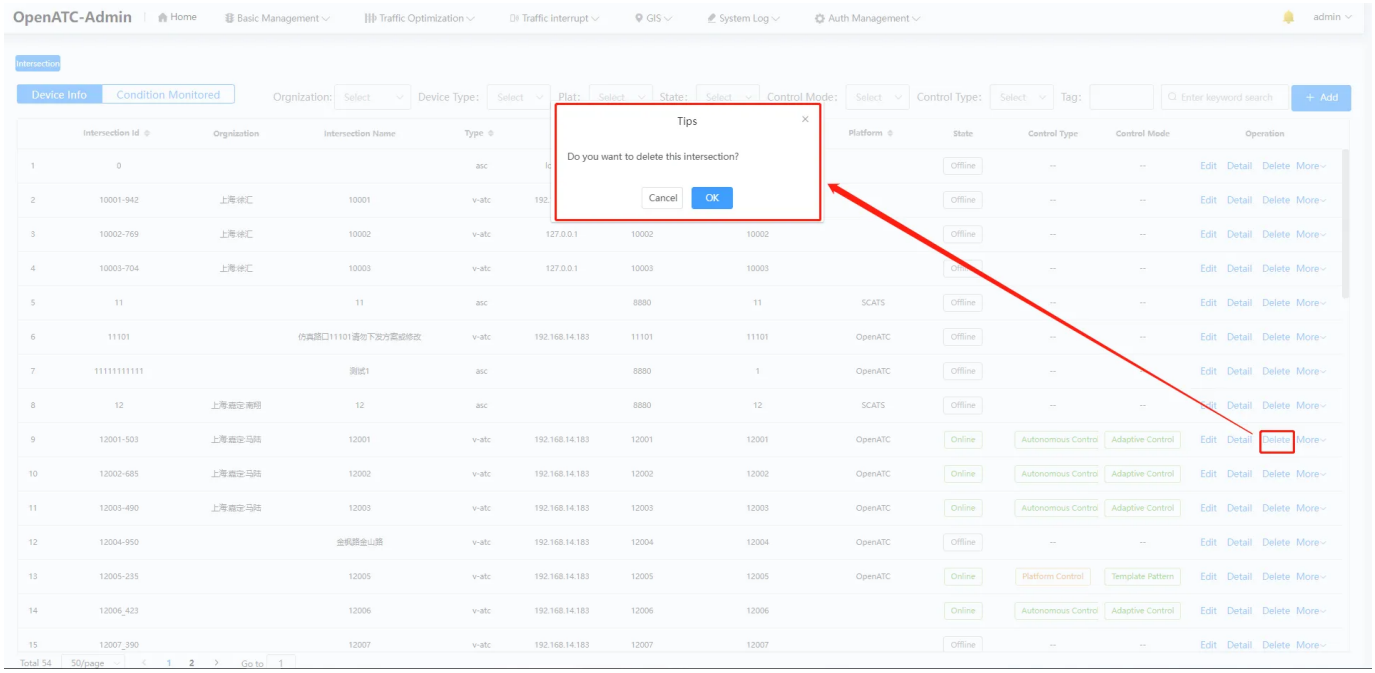

Fig.4-6 Delete Intersection Diagram

4.2.4 Search Intersection

In the search box at the upper right corner of the intersection management homepage, enter the intersection ID, intersection name, and IP for fuzzy query.

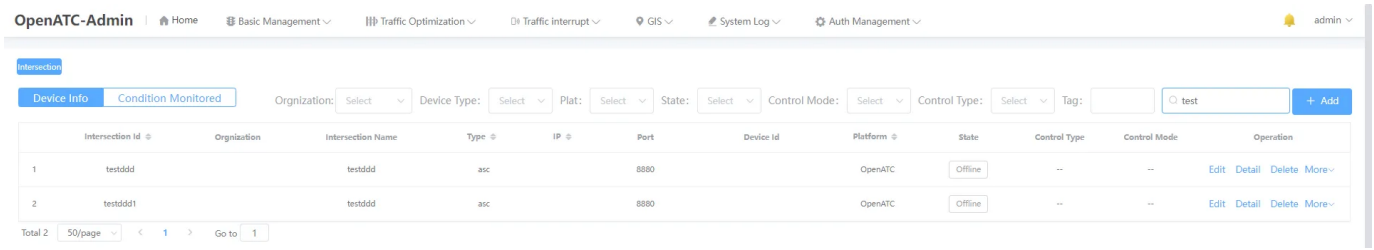

Fig.4-7 Search Intersection Diagram

4.3 Condition Monitored

Click "Condition Monitored" to view the intersection ID, intersection name, period, phase difference, current status (online/offline), control mode, control mode, as well as the corresponding scheme diagram, the phase of the current operation and other information.

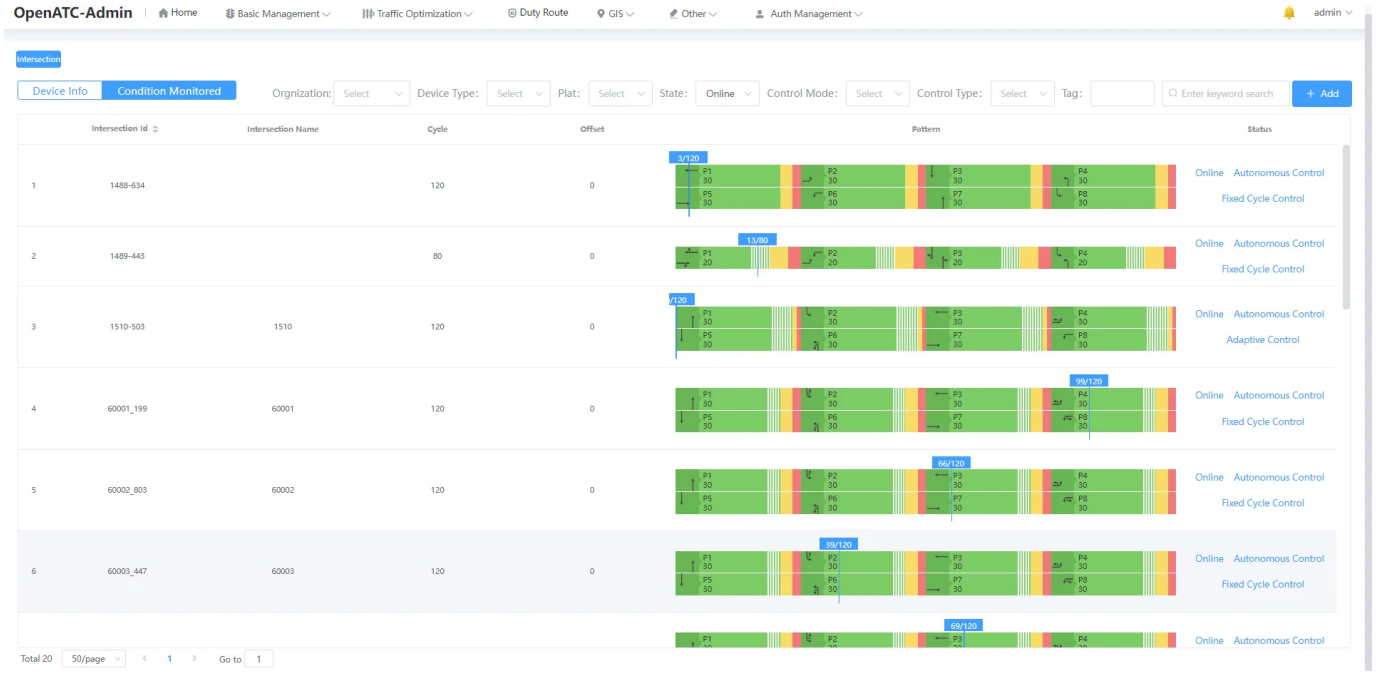

Fig.4-8 Condition Monitored

5. Duty Route

Click the menu bar "Traffic Interrupt-Duty Route" to enter the corresponding interface. The duty route list is displayed.

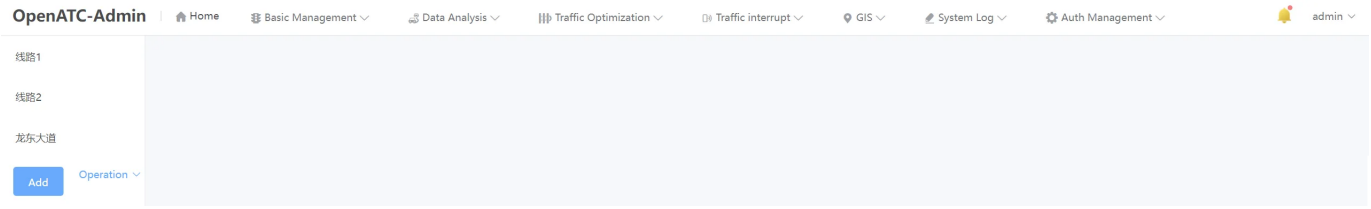

Fig.5-1 Duty Route

Click on a specific route to see all intersection-related attributes involved in this duty route, including intersection ID, intersection status, control mode, control mode, scheme, execution content and duration.

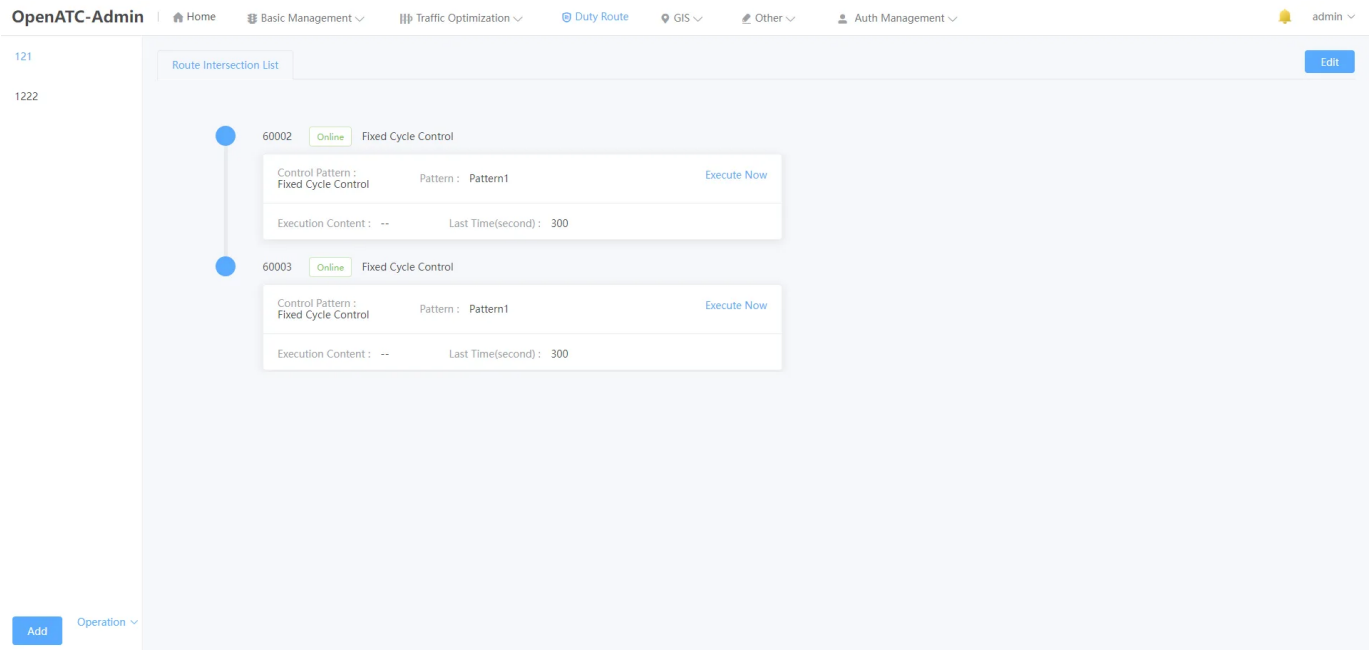

Fig.5-2 Current Route List

5.1 Route Management

At the bottom left of the service route interface, you can add, edit, delete and other functions for the plan.

5.1.1 Add Route

At the bottom left of the service route interface, click "Add" to pop up the new duty route plan dialog box.

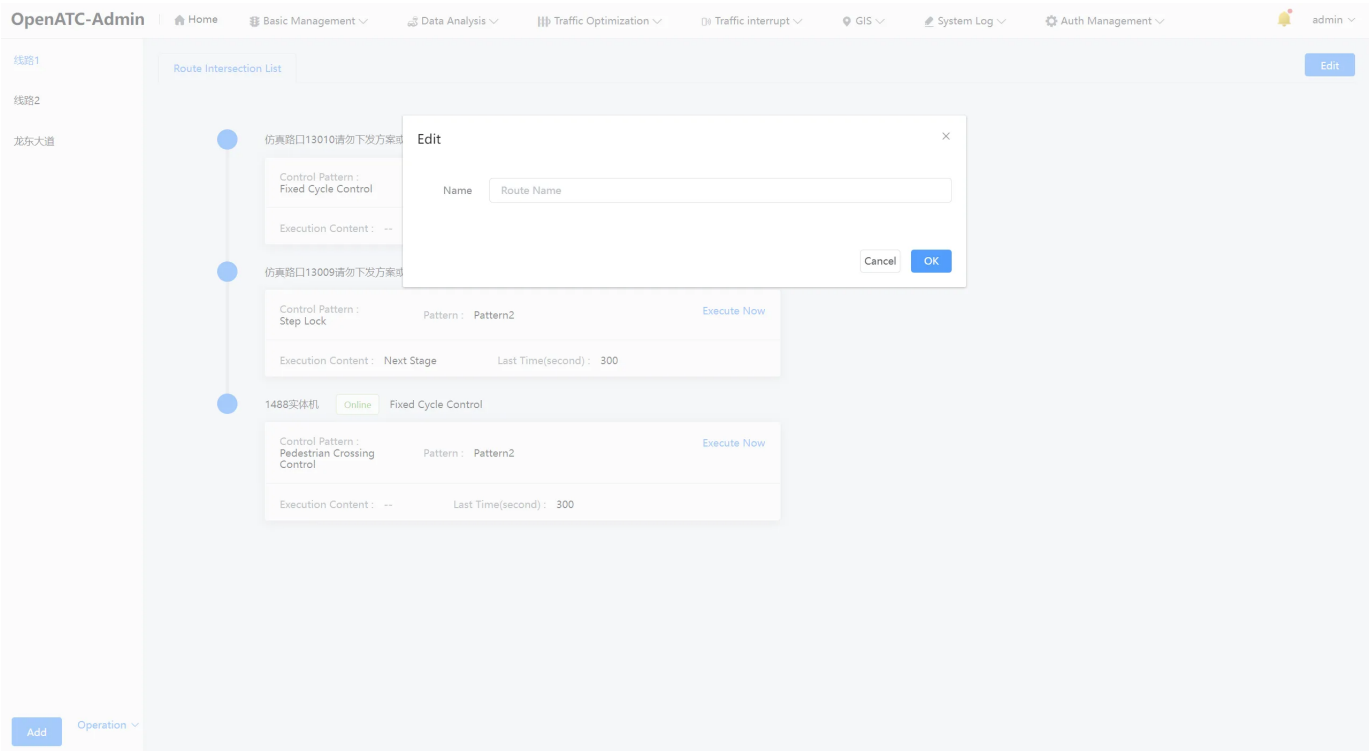

Fig.5-3 Add Route

5.1.2 Edit Route

Click "Operation-Edit" in the lower left of the duty route, and the dialog box for editing the duty route scheme pops up. Enter the name and click OK.

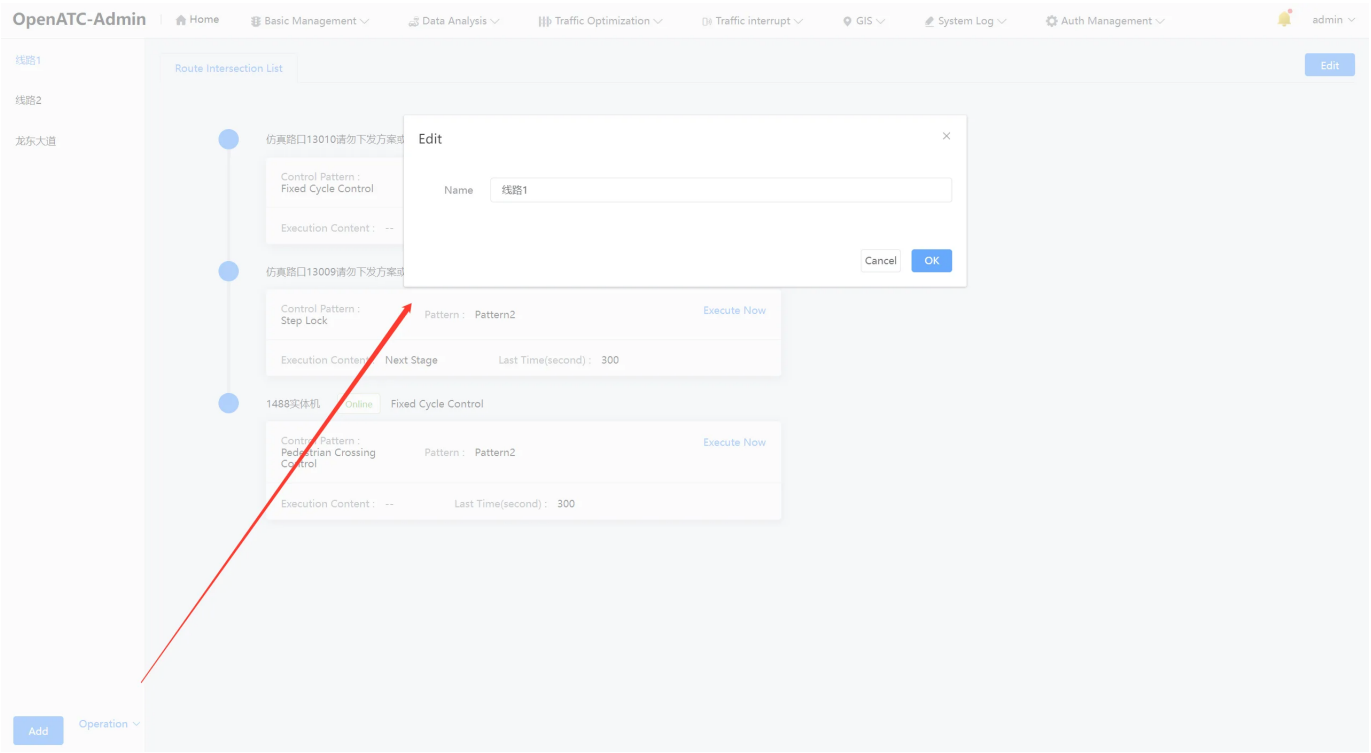

Fig.5-4 Edit Route

5.1.3 Delete Route

Click "Operation-Delete" in the lower left of the duty route interface to delete the plan.

5.2 Duty Route Configuration

You can view and edit the intersections involved in the duty route, displaying the names of all intersections under that duty route, control methods, schemes, control contents and duration, etc.

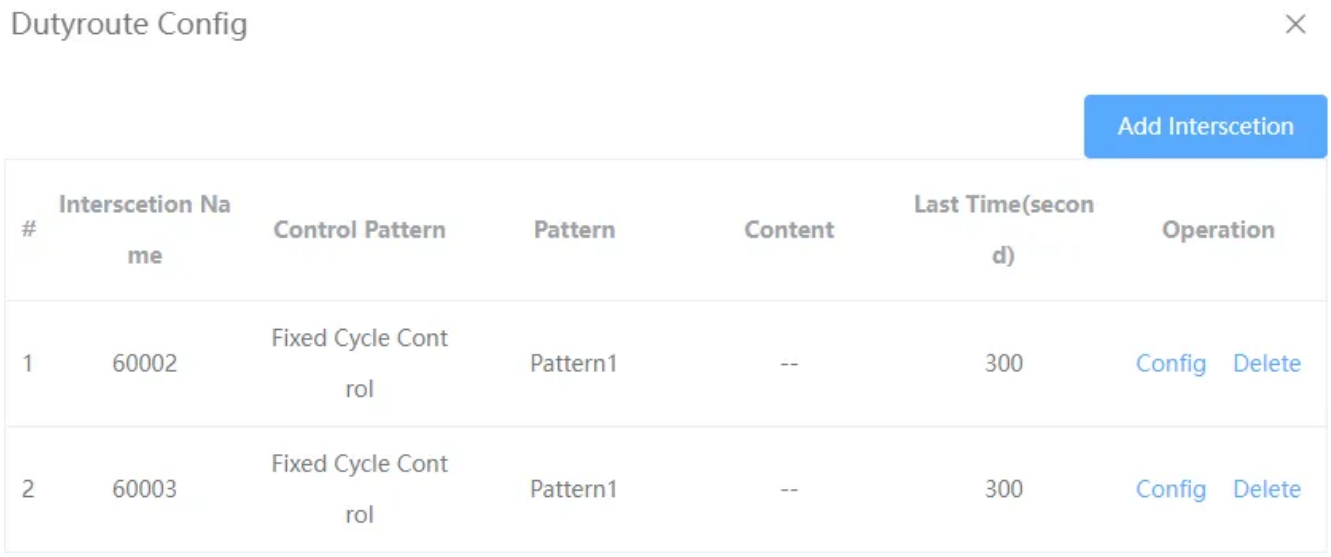

Fig.5-5 Route Configuration

Click the "Add Intersection" button to bring up the Add Intersection dialog box, select the intersection you want to add and OK it.

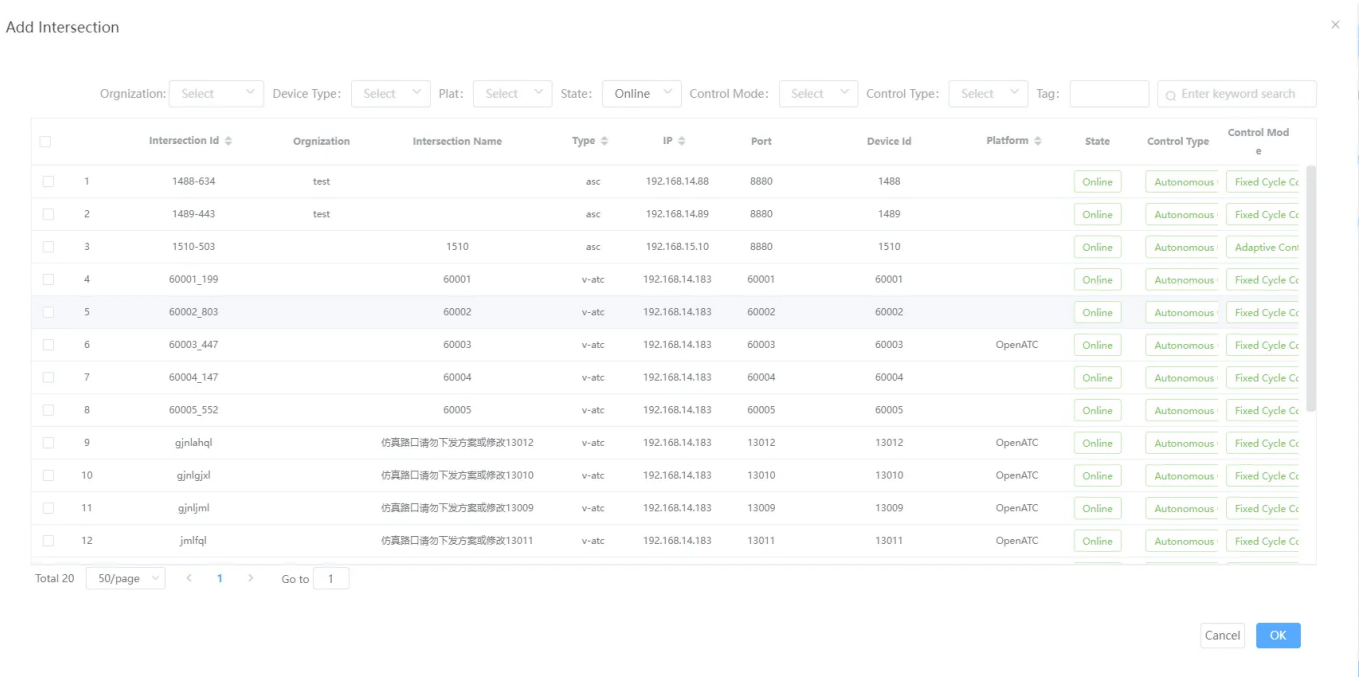

Fig.5-7 Add Intersection

Click "Operation-Configuration" in the specific intersection to manually control, modify the scheme number, control mode, stage and special control, etc., and also enter the delay time and duration, and click OK to submit.

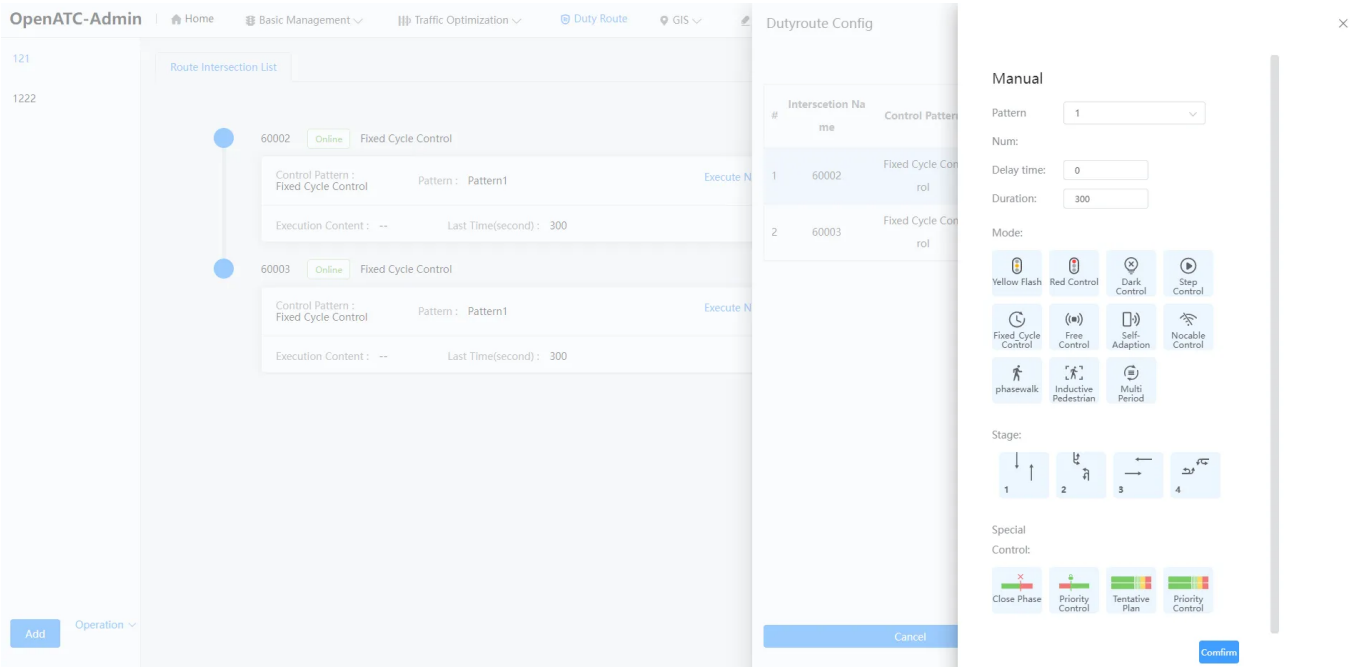

Fig.5-6 Configuration Options

5.3 Preplan Control List

Select a route to view attributes related to the equipment involved in the route, including: intersection ID, control mode, status (online/offline/faulty), scenario, execution content, and duration.Tap the "Execute Now" button of the associated intersection of the duty route, the device turns to the duty status and displays the remaining time of duty at the same time.

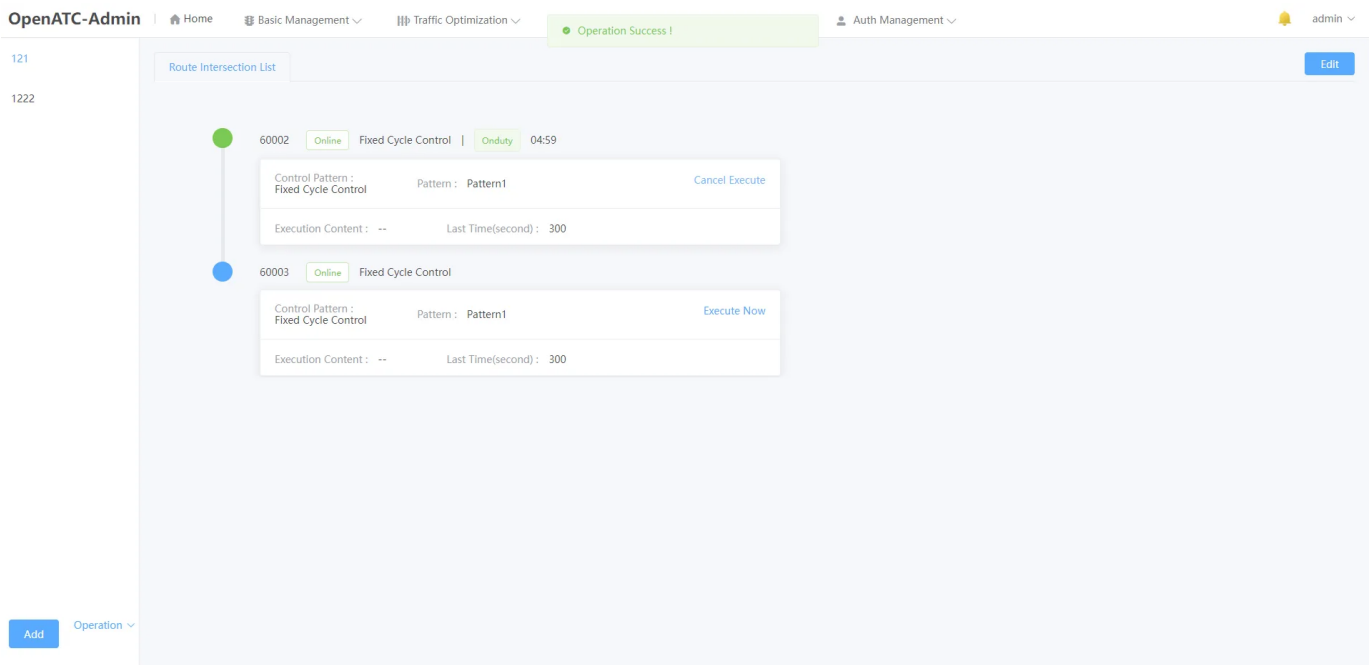

Fig.5-8 Preplan Control List

When execution is complete, tap "Cancel Execution" and the intersection will return to the initial pending status.

6. Route Management

6.1 Function Description

Click "Basic Management-Route Management" in the menu bar to enter the corresponding interface, you can view the details of the management coordination route, time distance map, and each intersection scheme.

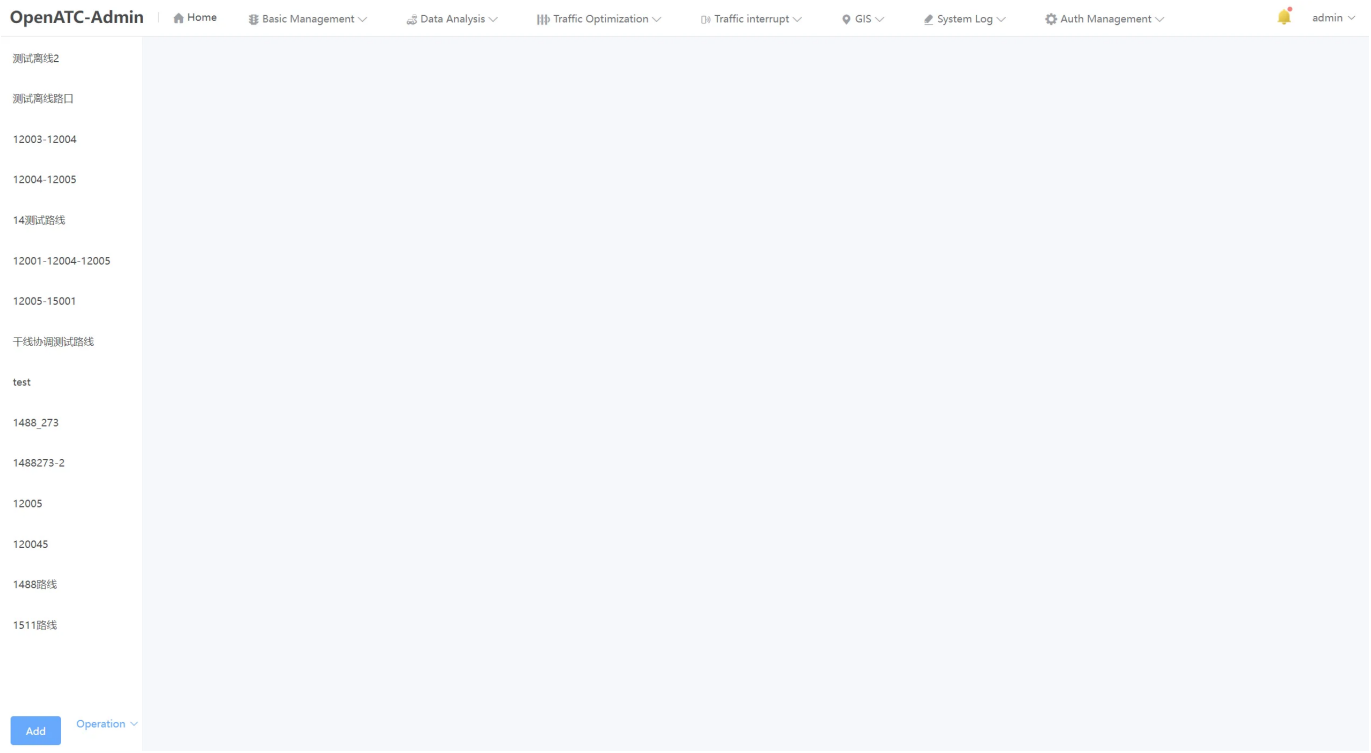

Fig.6-1 Route Management

6.1.1 Route List

Click the "Add" button below to add a new coordination scheme. Click the "Operation" button to edit and delete the existing coordination scheme.

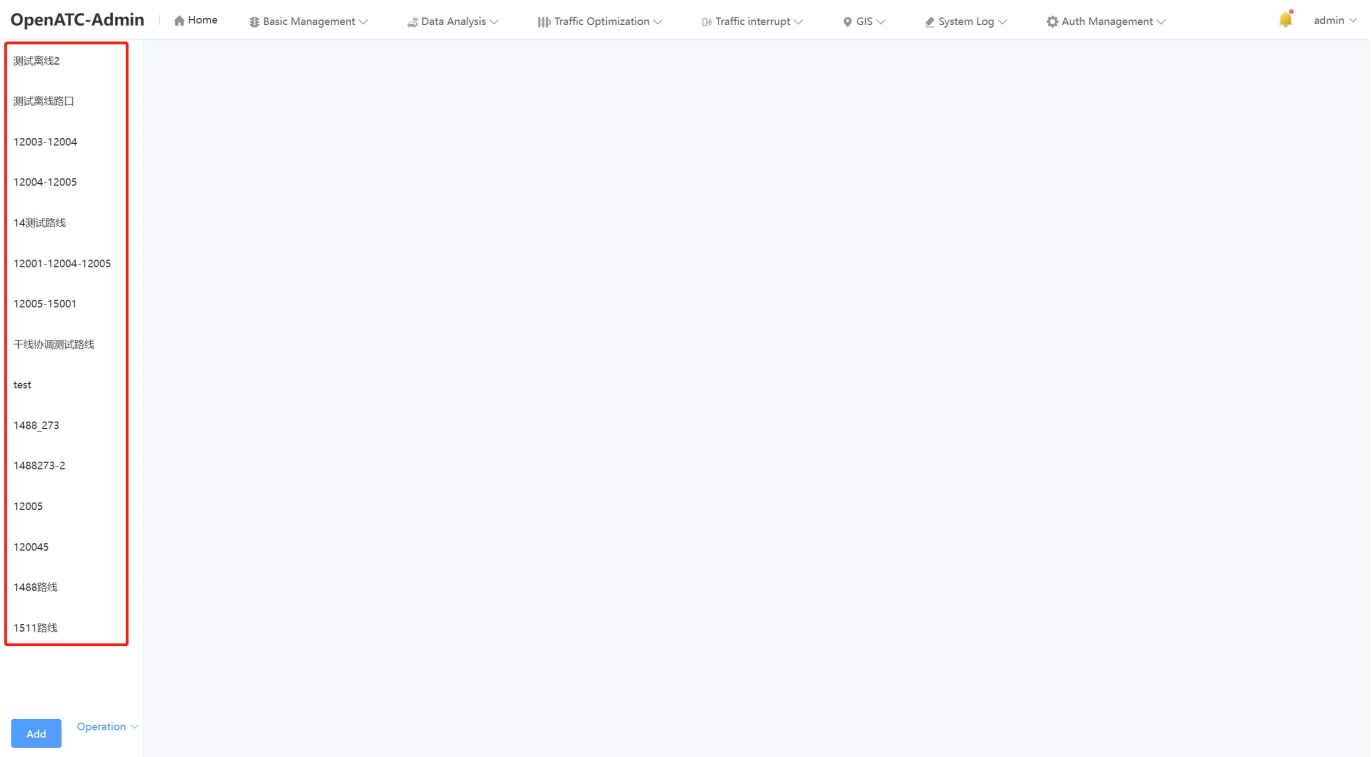

Fig.6-2 Route List

6.1.2 Pattern Interface

The Scheme Parameters screen allows you to view and edit scheme information for each intersection. This screen displays the intersection ID, selected scheme type, phase difference and period of the existing coordination scheme.

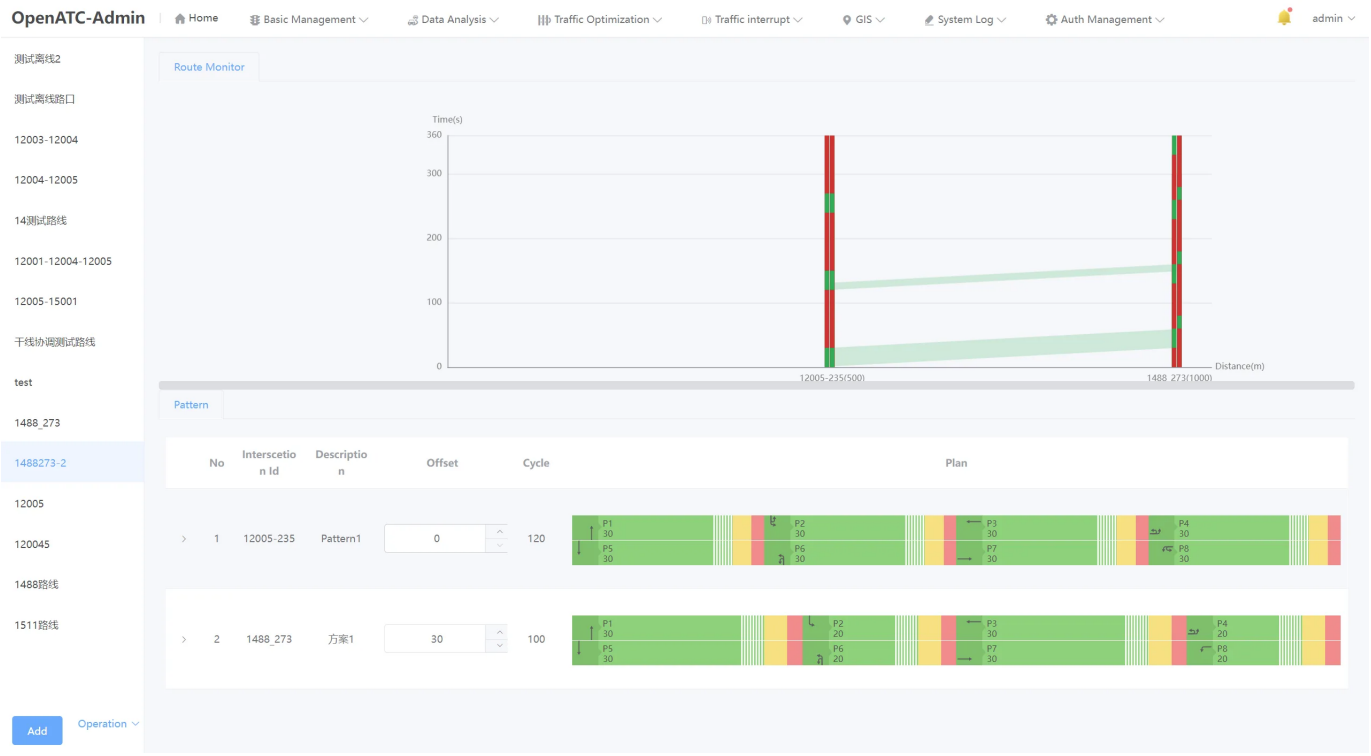

Fig.6-3 Pattern Interface

Click on button,expand the green letter ratio information of each intersection equipment plan.

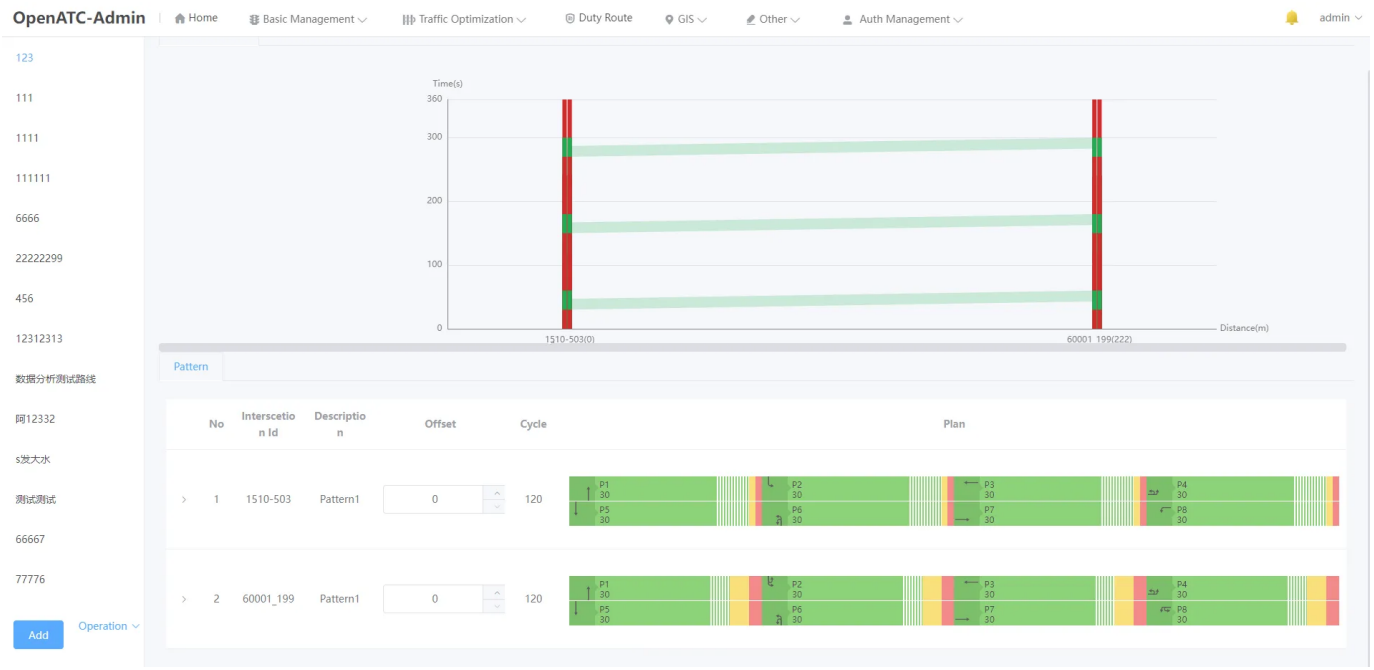

Fig.6-4 View the Scheme Green Signal

6.1.3 Route Monitor

Select a coordination scheme and view the parameters of the configured time distance map on the trunk real-time monitoring interface.

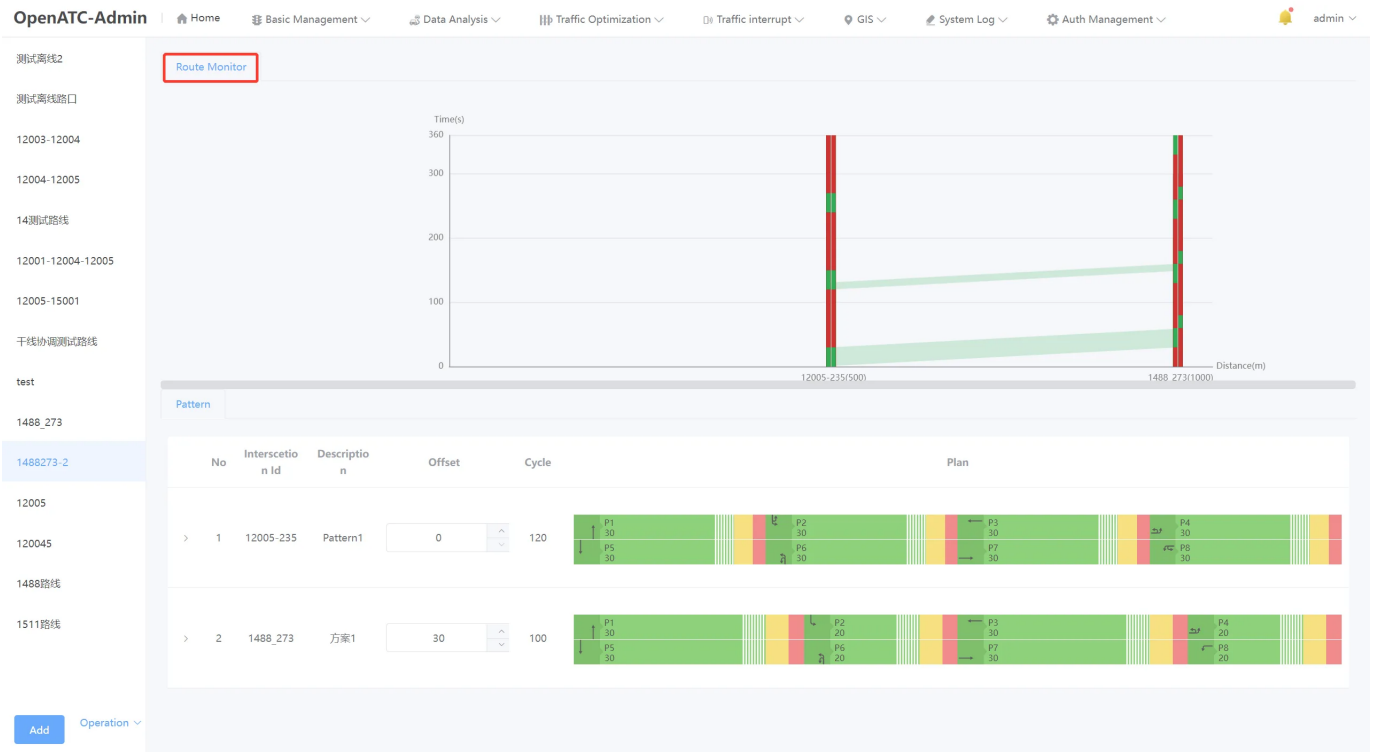

Fig.6-5 Route Monitor

6.2 Route Management

In the bottom left of the route management interface, you can add, modify, edit and delete coordination schemes.

6.2.1 Add Route

At the bottom left of the route management interface, click "Add" to bring up the New Coordination Scheme dialog box, enter the coordination scheme name, and click the "OK" button.

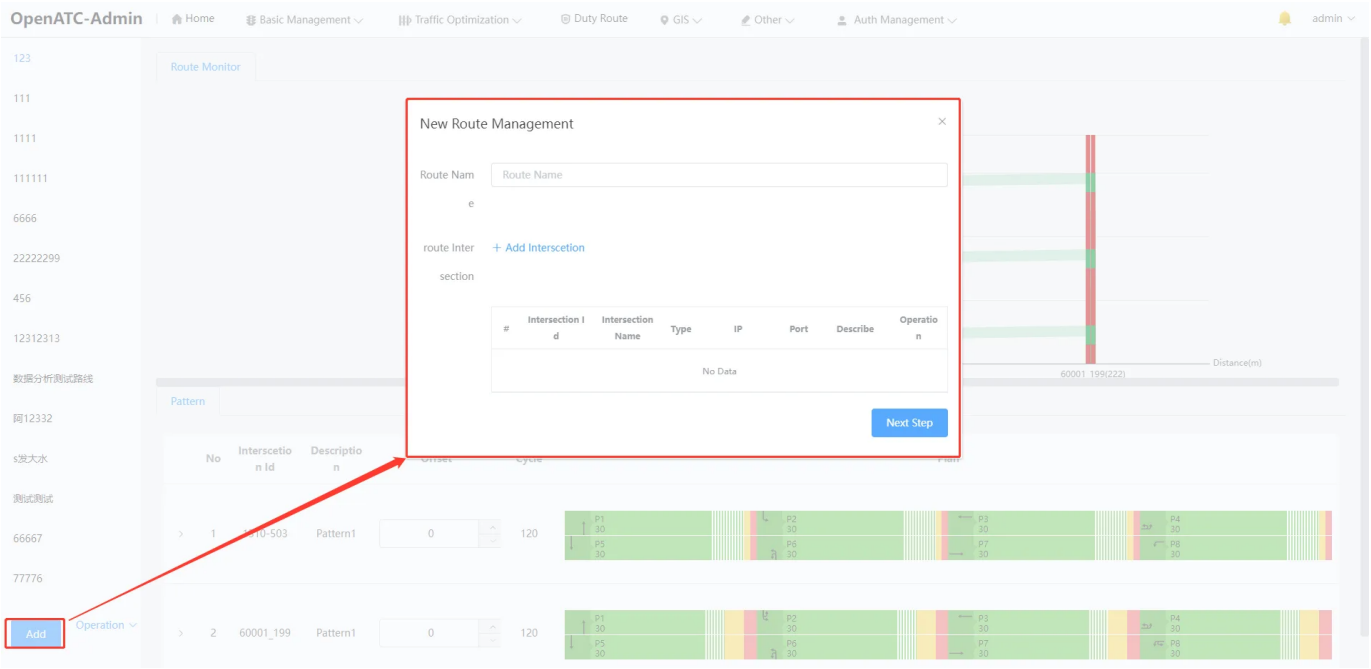

Fig.6-6 Add plan

(1) Add Intersection

Click the "Add Intersection" button to pop up the Add Intersection dialog box, select the intersection that needs to be added, and OK. Multiple intersections can be added at the same time.

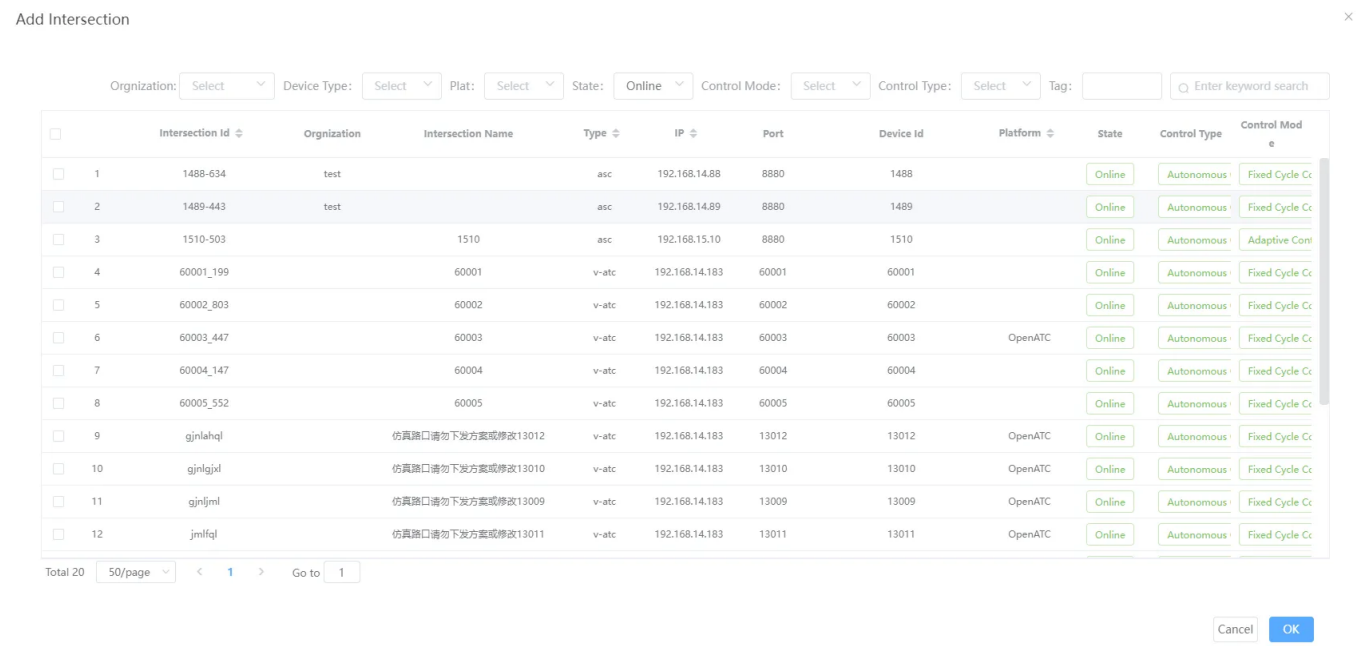

Fig.6-7 Add Intersection

After adding the intersection, click "Next" to set the phase.

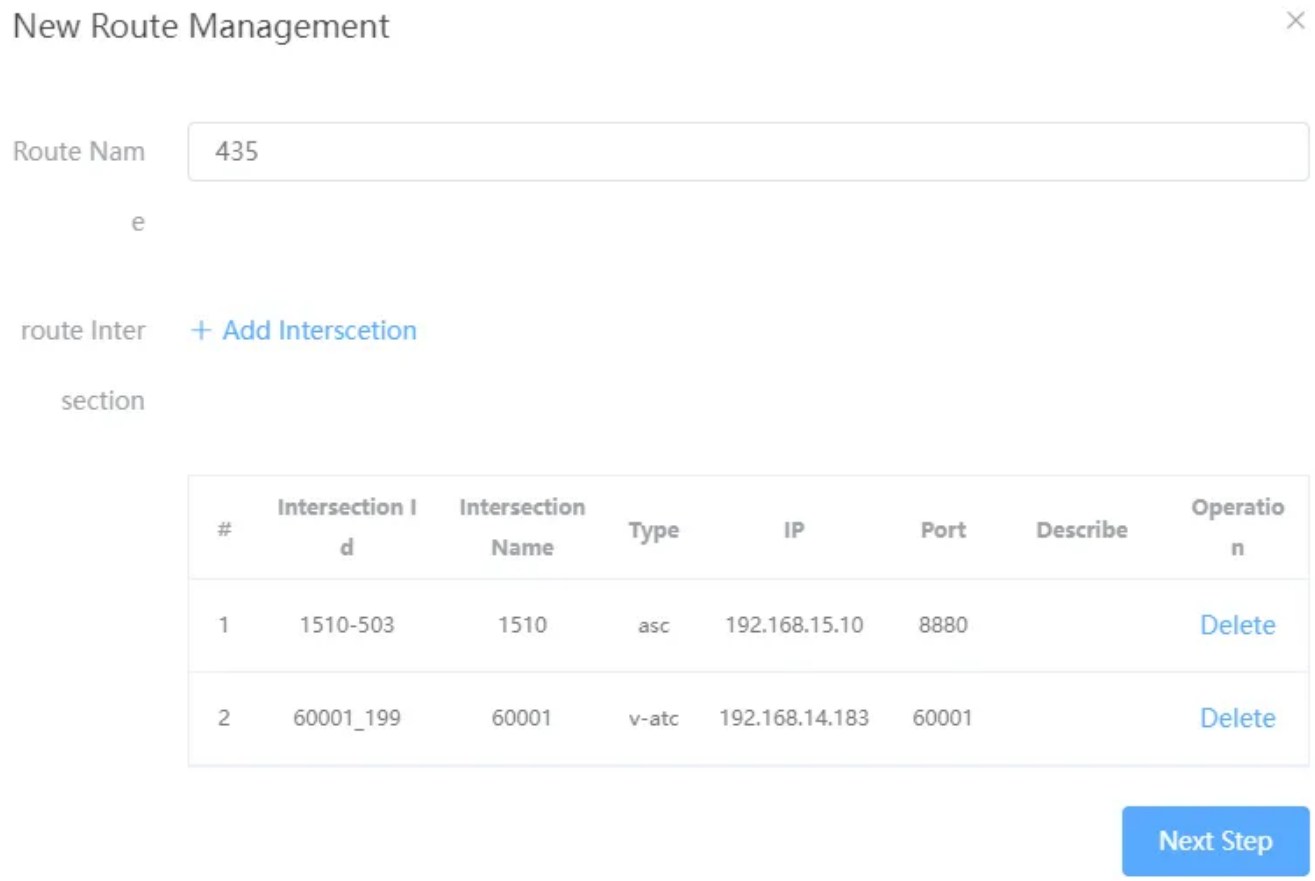

Fig.6-8 Add Intersection successfully

(2) Set the Phase

It can be associated with the phase numbers of different intersections up and down. You can select the desired phase in the upper and lower lists.

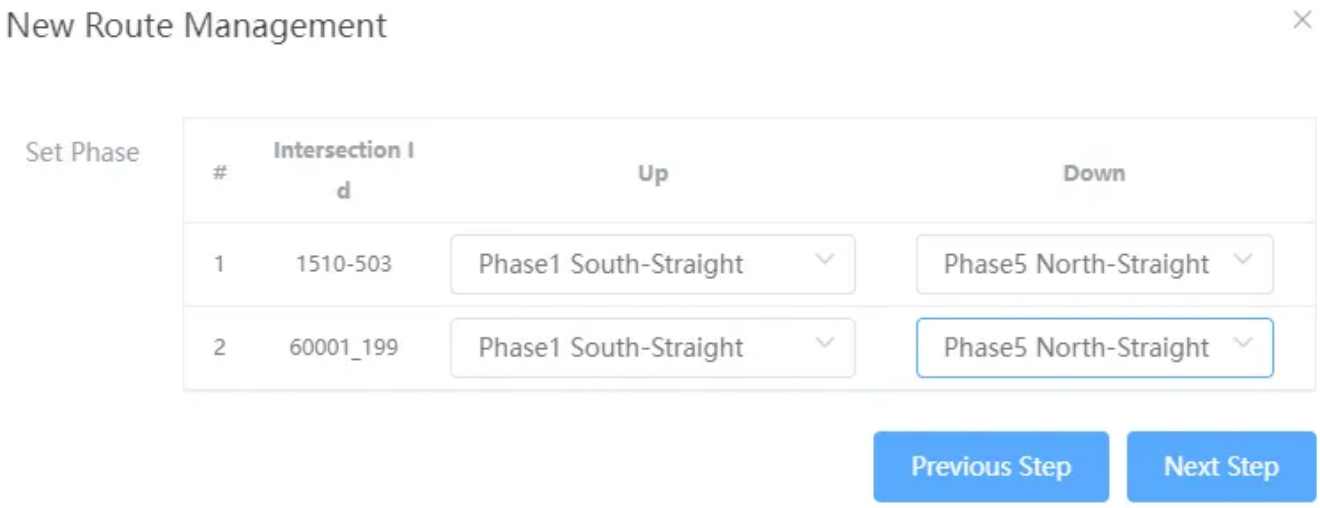

Fig.6-9 Set the Phase

After setting the phase, click "Next" to set the distance, or go back to the previous step and edit again.

(3) Set the Distance

You can set the distance and width between different intersections. Distance is the horizontal distance to the previous intersection, and width is the width of the road in the coordinated direction.

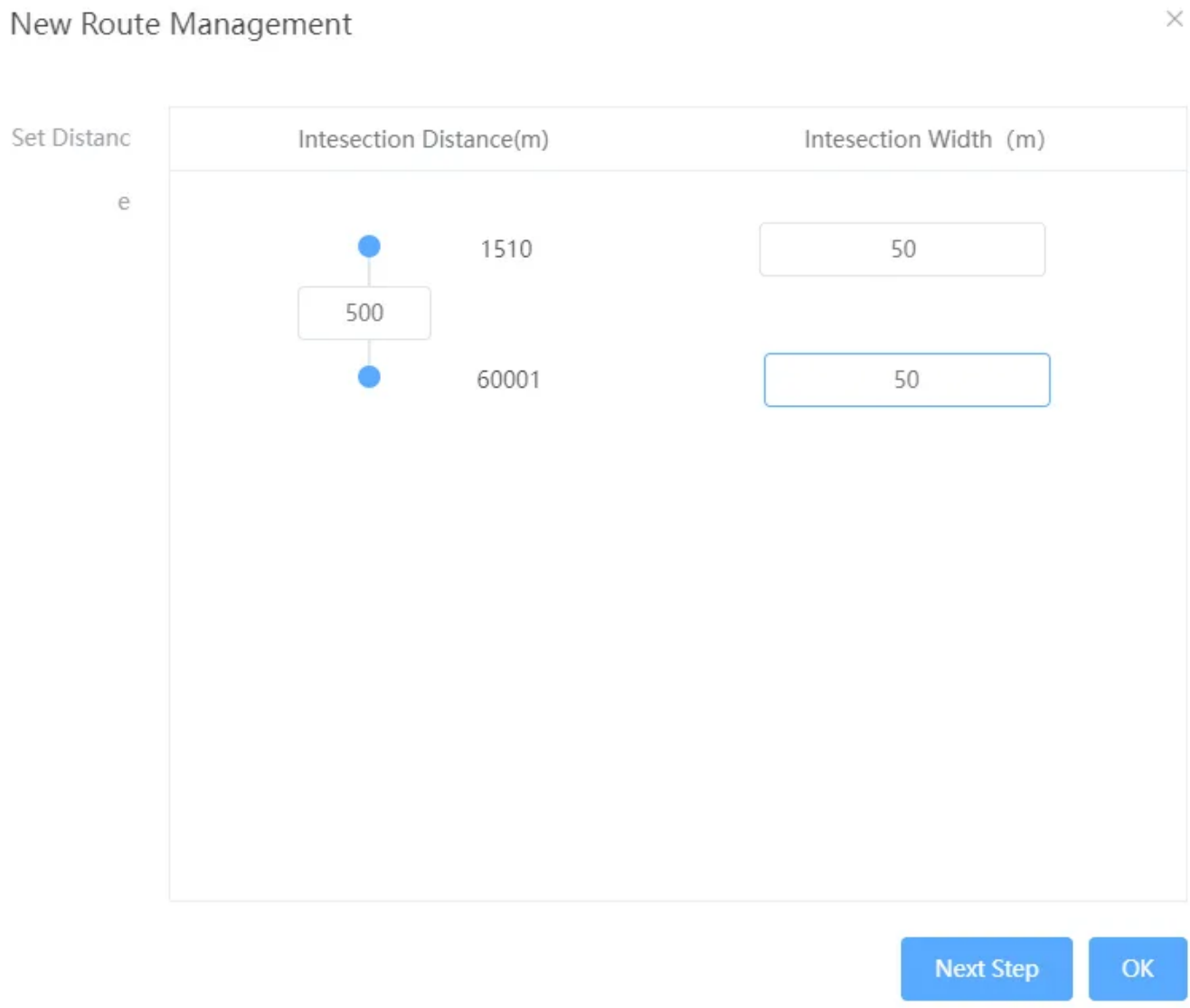

Fig.6-10 Set the Distance

Once set, click OK to view the route's information in the route list.

6.2.2 Edit Route

In the lower left part of the route management interface, click "Operation-Edit" to pop up the dialog box for editing and coordinating plans.

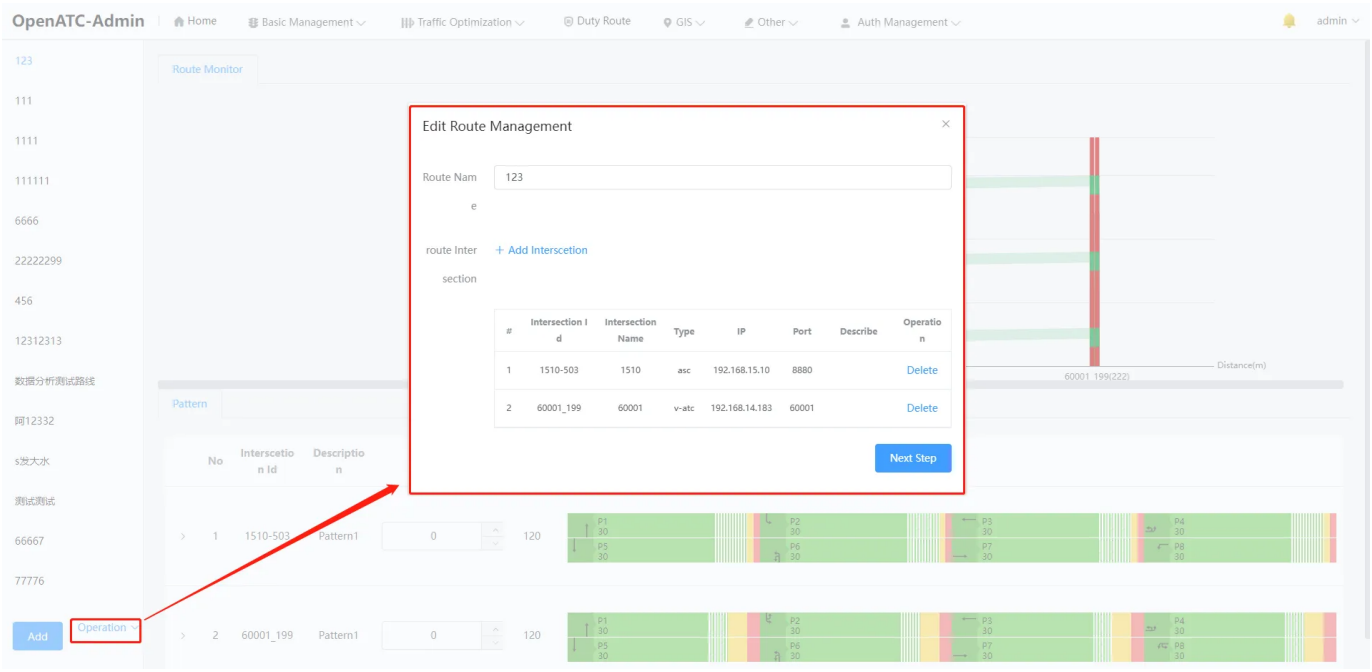

Fig.6-11 Edit plan

6.2.3 Delete Route

Click "Operation-Delete" in the lower left corner of the route management interface to delete the scheme.

7. Route Optimize

7.1 Function Description

Click "Traffic Optization-Route Optimize" in the menu bar to enter the corresponding interface to view detailed information such as management coordination route, time distance map, and intersection plan.

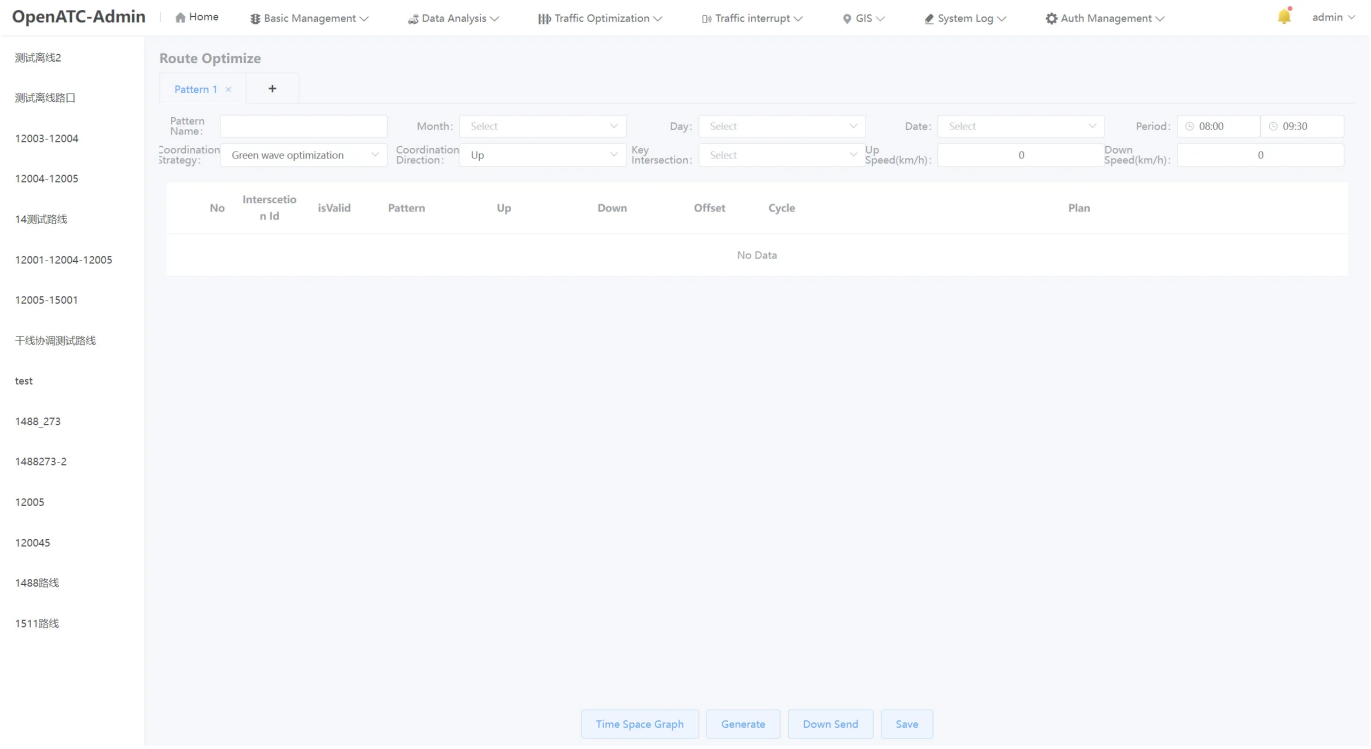

Fig.7-1 Route Optimize

7.2 Route Optimize scheme

On the left side of the route management interface, the current coordination scheme is displayed, click a specific plan to view the intersections, plans and coordination strategies involved in the route.

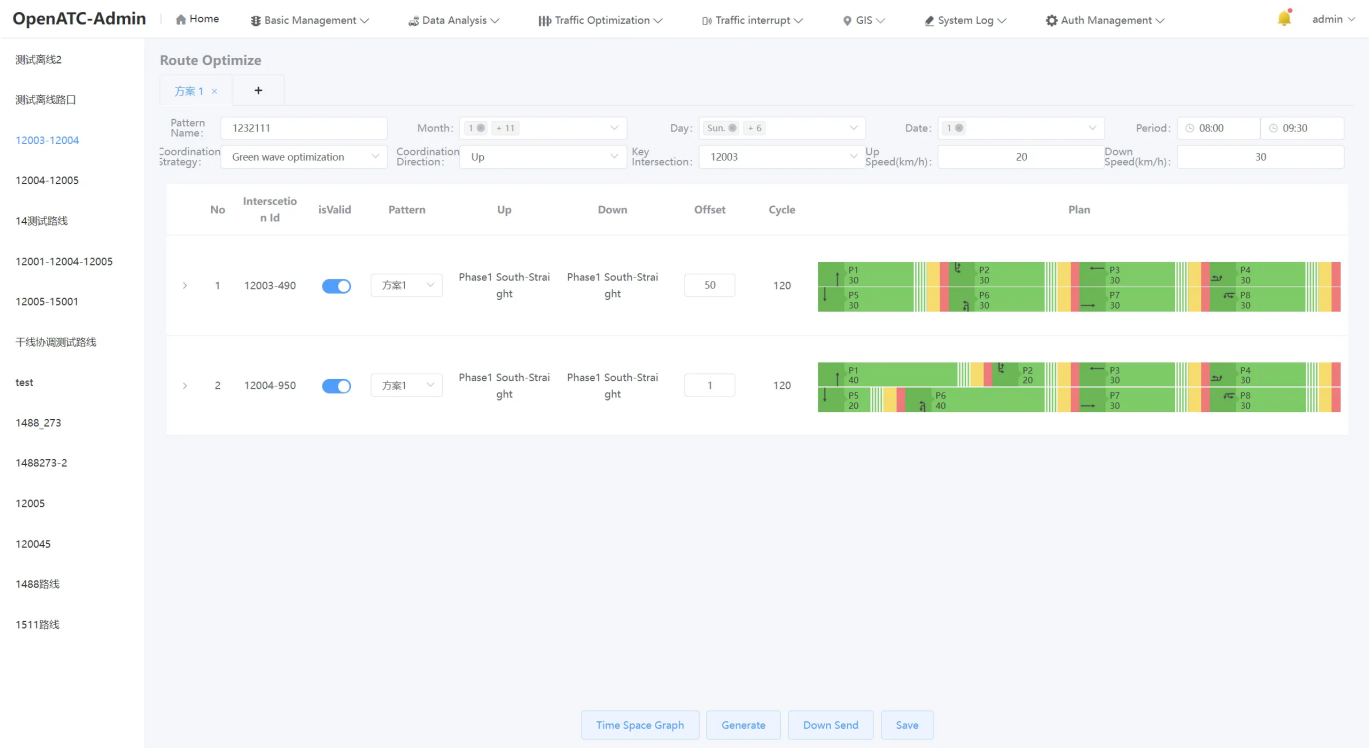

Fig.7-2 Route Optimize scheme

Click "+" above to add a new trunk coordination scheme.

You can enter or select parameter information related to the route, including: plan name, month, week, date, time period, coordination strategy, coordination direction, key intersections, uplink speed (km/h), and downward speed (km/h).

Related settings:

- Coordination strategy: the coordination scheme adopted for signal timing, the system automatically defaults to green wave optimization, and can also choose red wave optimization or motorcade-end;
- Coordination direction: You can choose up, down or two-way, upward refers to the direction coordination from the end of the road to the starting point, downward refers to the direction coordination from the beginning of the road to the end point, and the two-way route refers to the direction coordination from the beginning of the road to the end point and the end point to the starting point;
- Critical intersection: Select an intersection as a critical intersection in order to determine the signal period;
- Upward speed: the speed at which the vehicle travels in the direction of the road from the end of the road to the starting point, unit: km/h;
- Downward speed: the speed at which the vehicle travels in the direction of the road from the beginning to the end of the road, unit: km/h;

The Scheme Parameters interface can view and edit the scheme information for each intersection. The interface displays the intersection ID, description, phase difference, period, and scheme of the existing coordination scheme. You can choose whether to enable the coordinated route.

Click  button to expand the green signal ratio information of each intersection scheme.

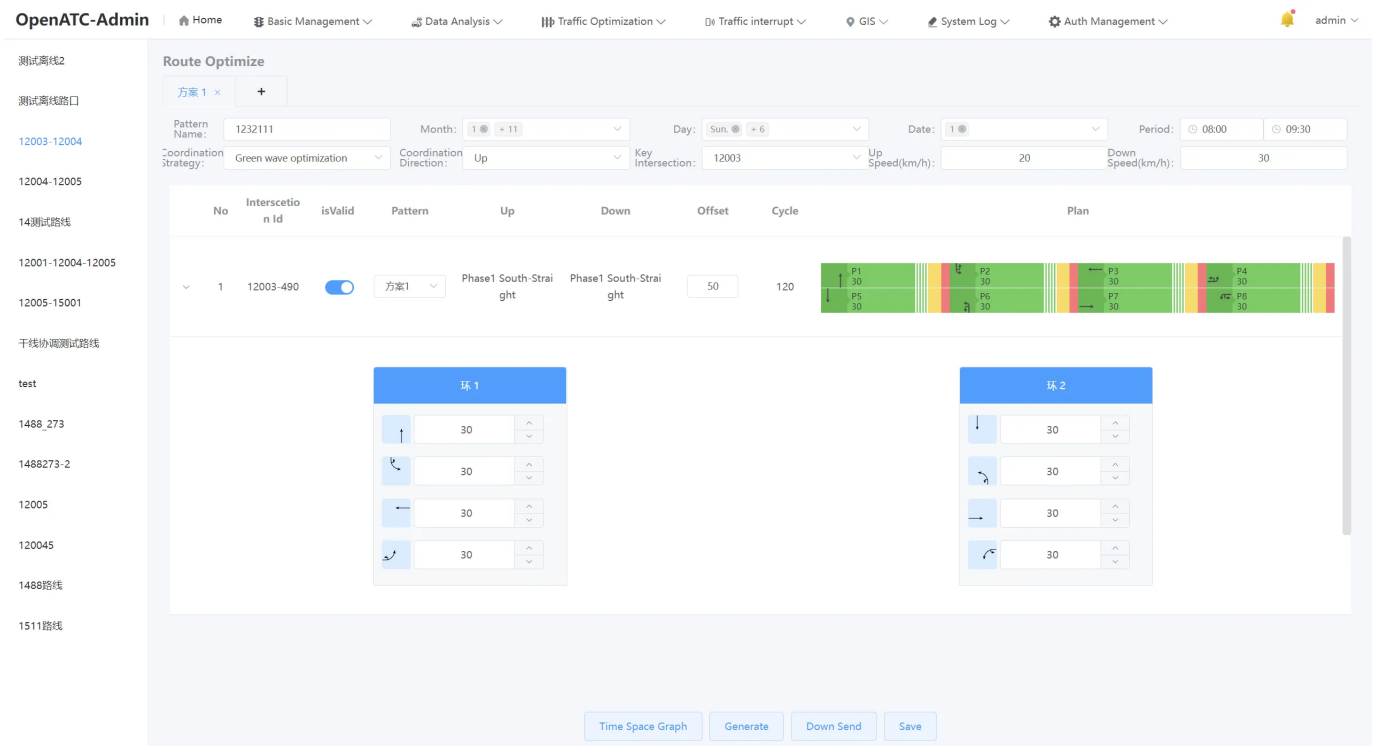

Fig.7-3 Scenario Edit

Click the "Generate" button to automatically generate the coordinated phase difference of each intersection.

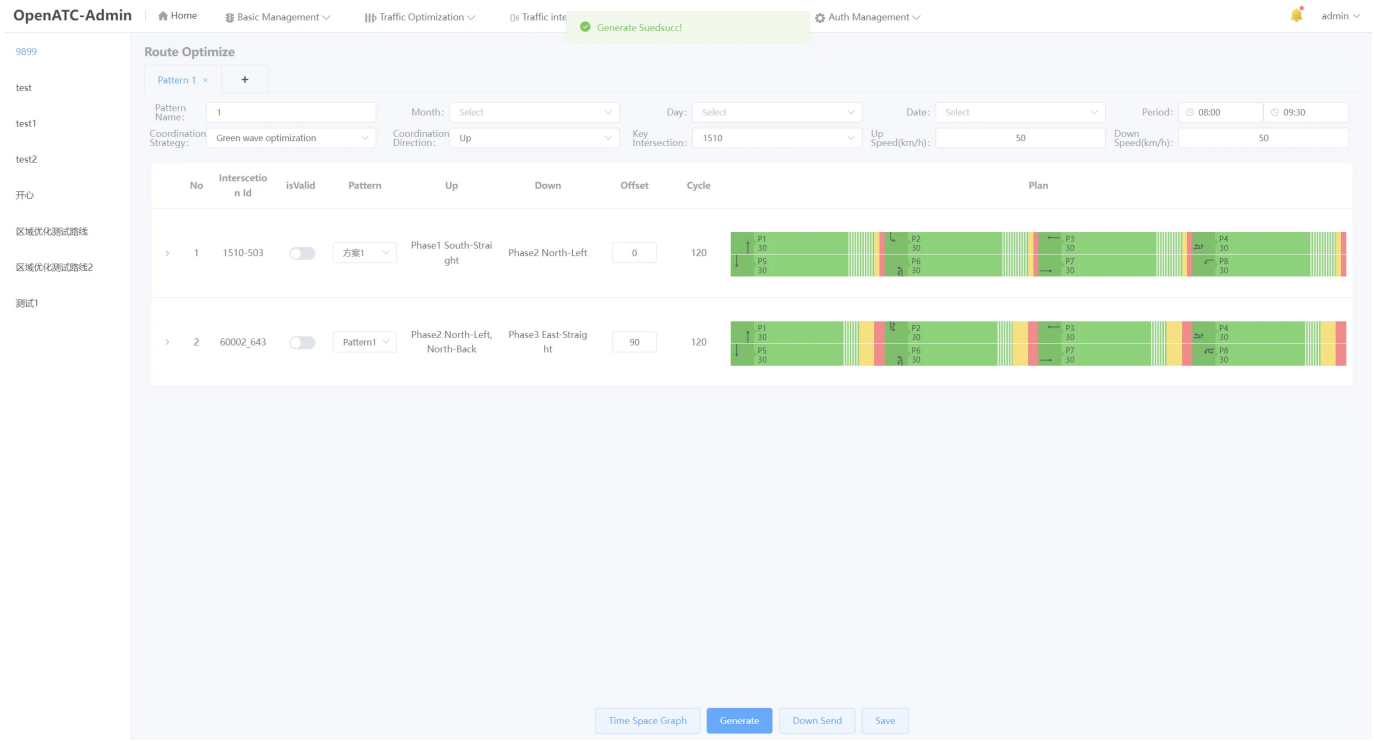

Fig.7-4 Generate offset

Click the "Time Distance Map" button to view the real-time time distance map.

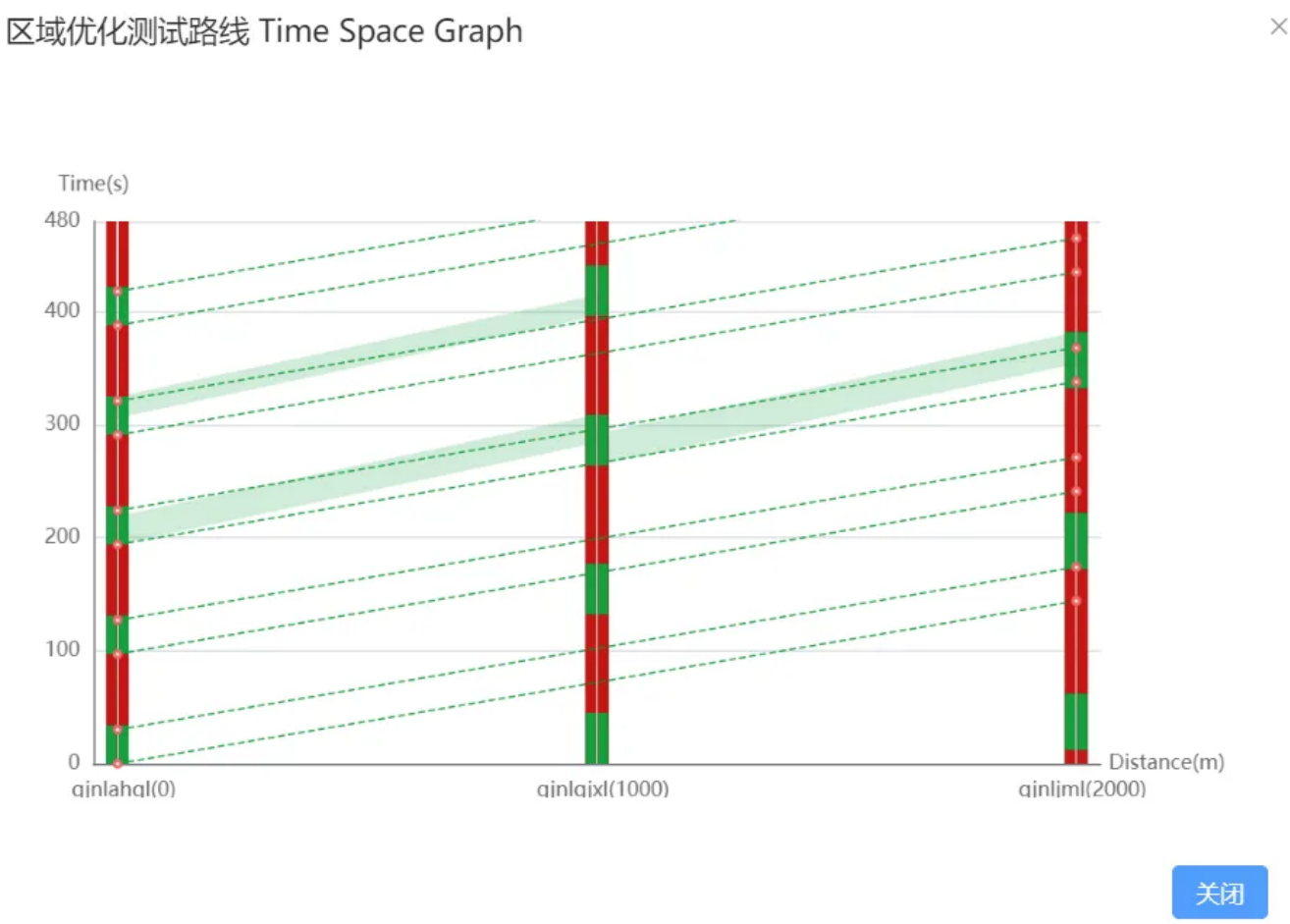

Fig.7-5 Generate real-time distance graphs

Click the "Save" and "Issue" buttons to save and distribute the coordination plan to the signal machine.

8. Data Analysis

8.1 Basic Data Statistics

Click "Data Analysis - Basic Data Statistics" in the menu bar to enter the corresponding interface, you can view the intersection name, organization, and phase num, overlap num, pattern num, plan num, date num, vehicle light num and people light num corresponding to each intersection ID.

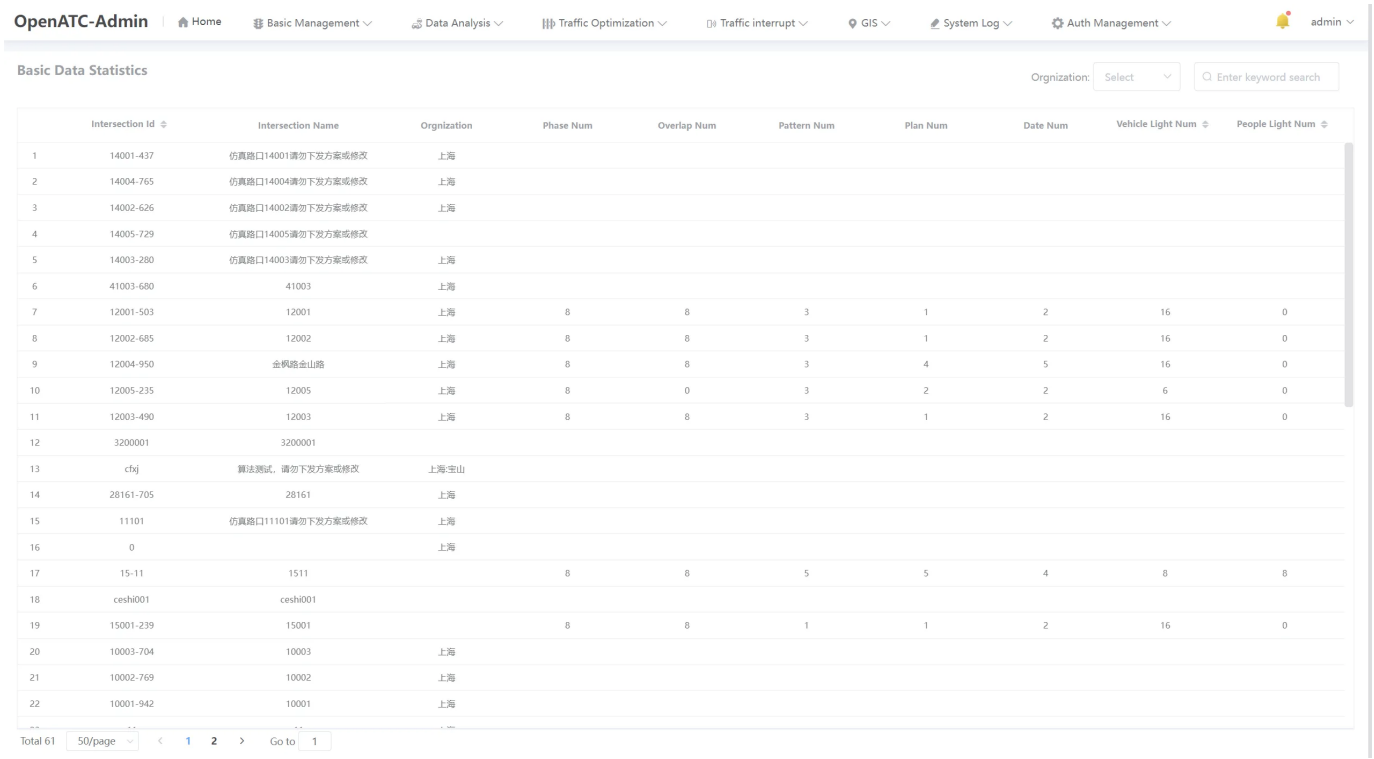

Fig.8-1 Basic Data Statistics

(1) Search Function

Filter to view the corresponding data statistics by selecting the root organization under Organizations in the top right, or by entering keywords.

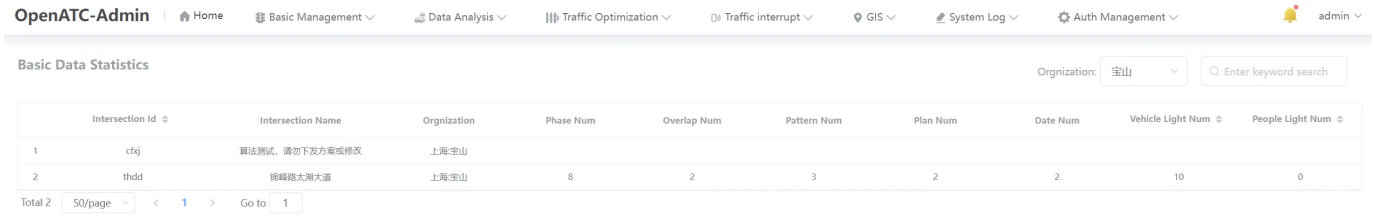

Fig.8-2 Search Function

(2) Pagination Function

The pagination function can set the number of records displayed per page, and at the same time, you can enter the page number to jump directly to the specified page.

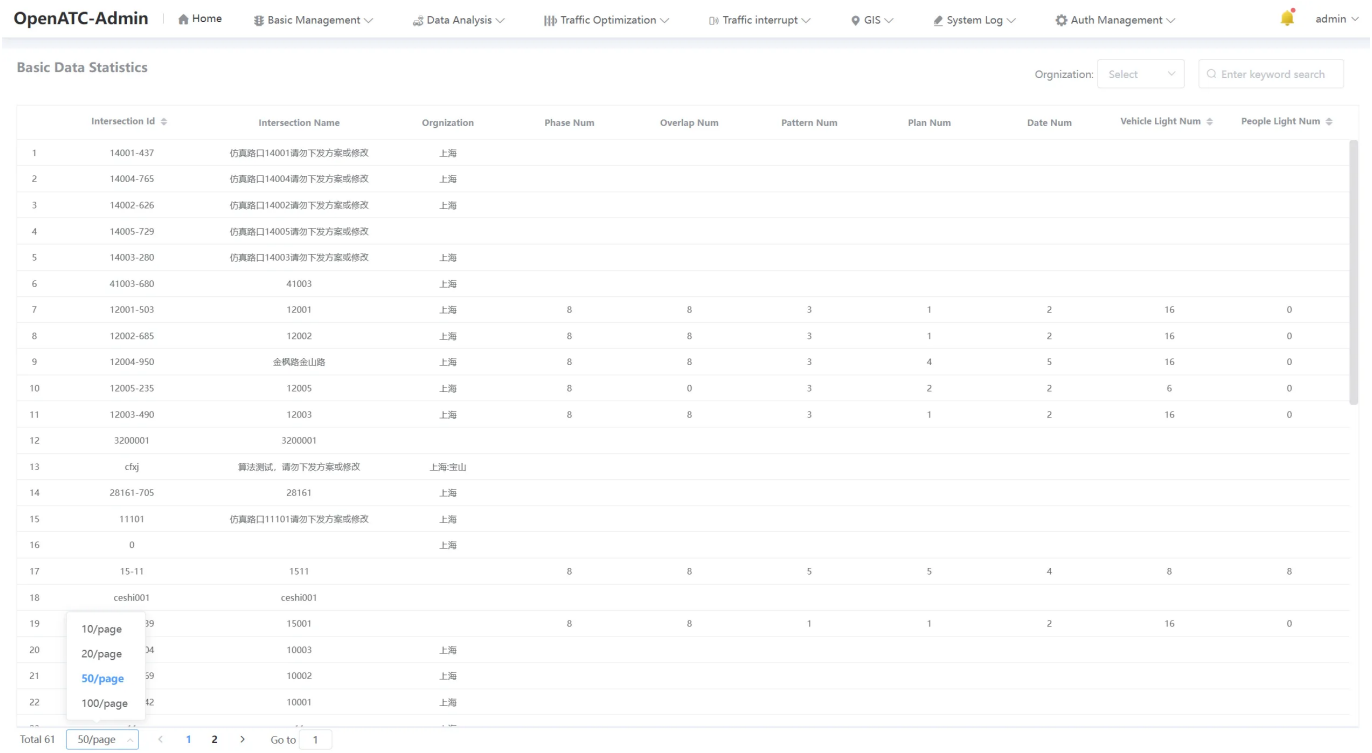

Fig.8-3 Modify the number of displays per page

8.2 Operation Frequency Analysis

Click on the menu bar "Data Analysis-Operation Frequency Analysis", select the root organization, specific intersection, type, time, and statistical interval type, and click the icon  , you can query the corresponding scheme number of the intersection, and export the relevant format files (.csv、.html and .pdf) .

- Type: Multi period, yellow flash, all red, turn off light, step lock, fixed cycle control, single point induction control, coordinated induction control, scheme selection control, adaptive control, nocable control, cable control, pedestrian crossing control, pattern recovery, phase dwell, channel detector, direction lock, Webster single point coordination, inductive pedestrian crossing, phase lock, phase release control, emergency control, device maintenance, template pattern and scheme update frequency.
- Interval Type: Day or Hour。

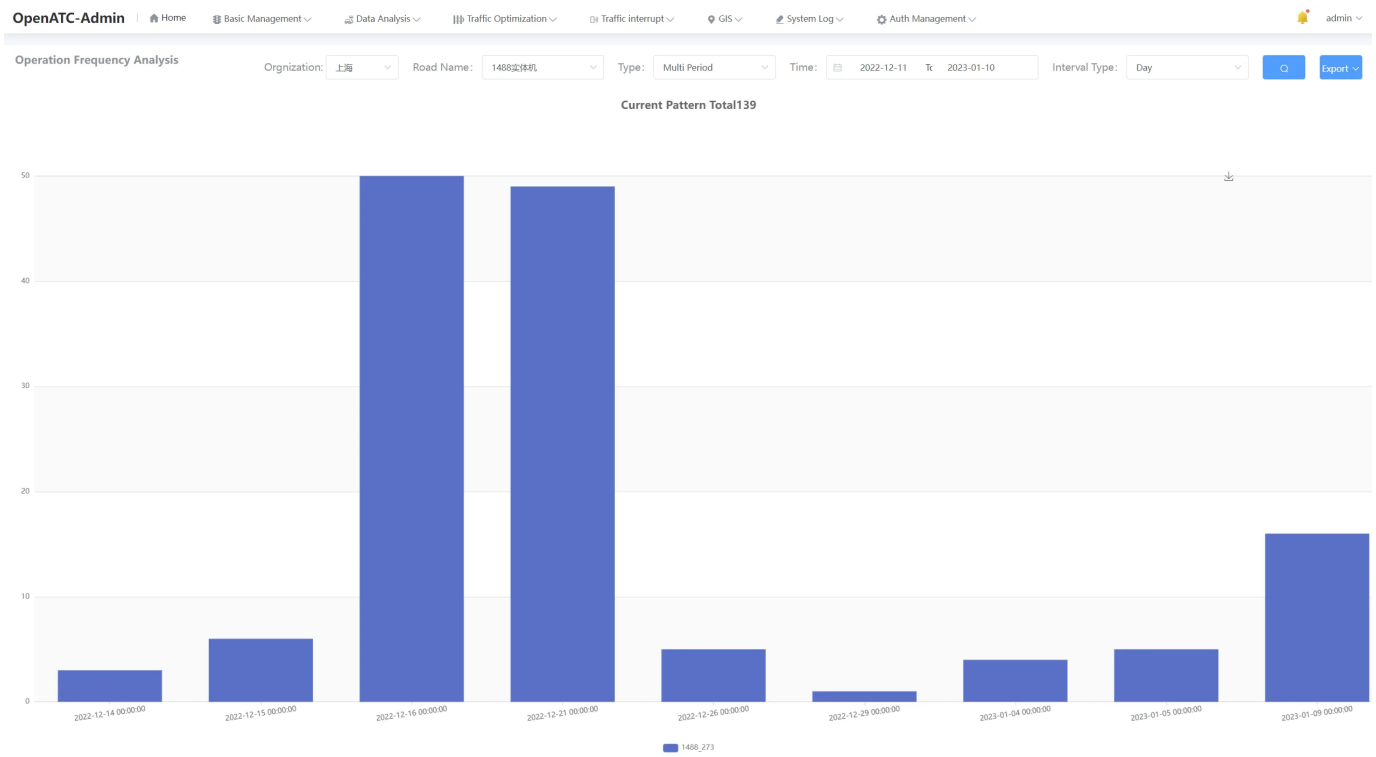

Fig.8-4 Operation Frequency Analysis

9. Operation Record

Click on the menu bar "System Log-Operation Record" to enter the corresponding interface. The operation log records all user operations on the intersection, including the last operation time, the type of message operated, and the signal machine's response, etc.

9.1 Operation Record Overview

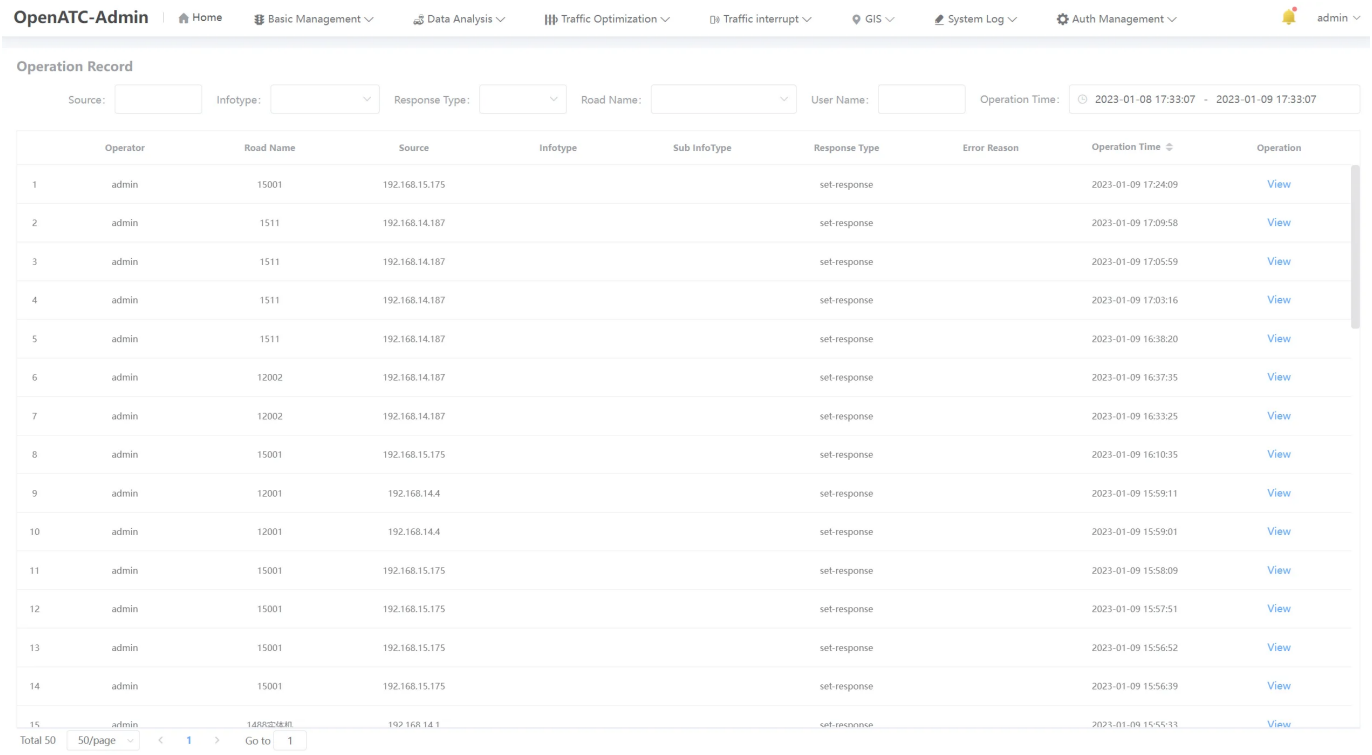

Fig.9-1 Operation Record

9.2 View Operation Record

Click View in actions to see the code.

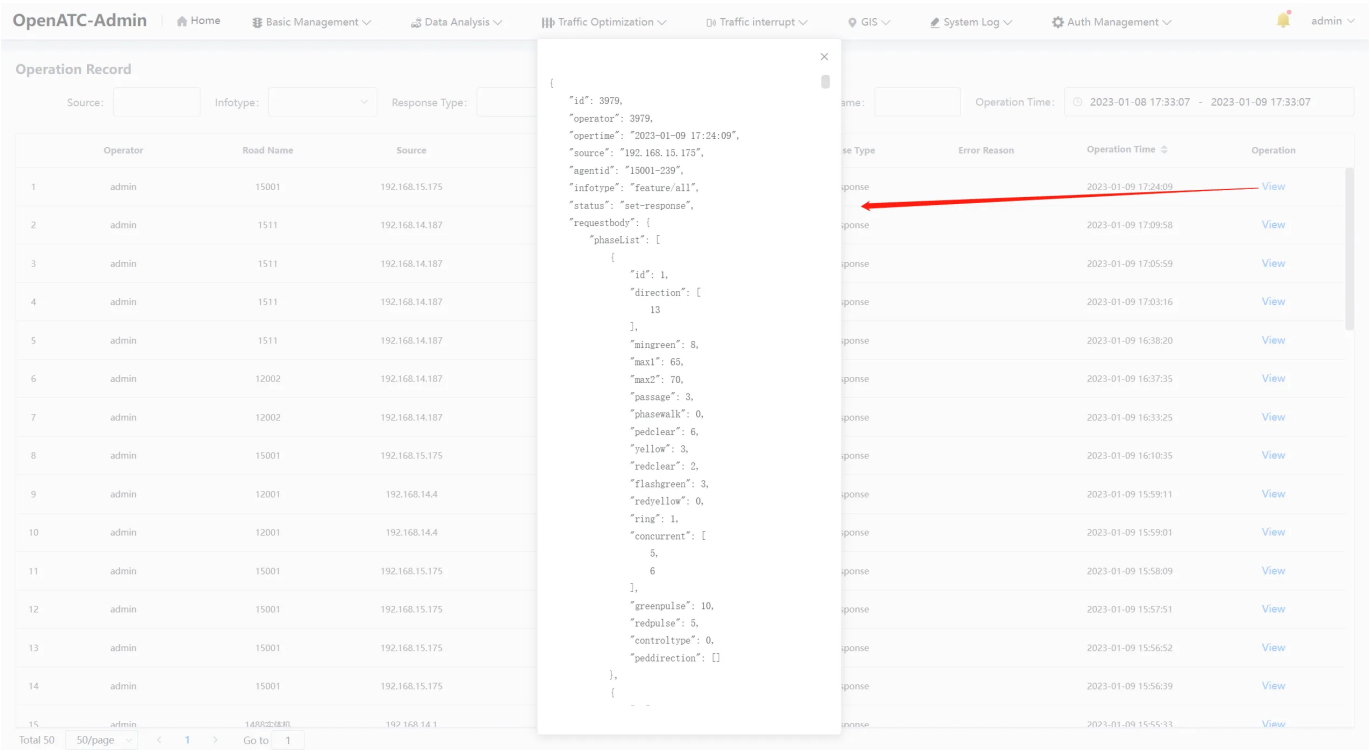

Fig.9-2 View Operation

9.3 Paging Function

The pagination function can set the number of records displayed per page, and at the same time, it can enter the page number to jump directly to the specified page.

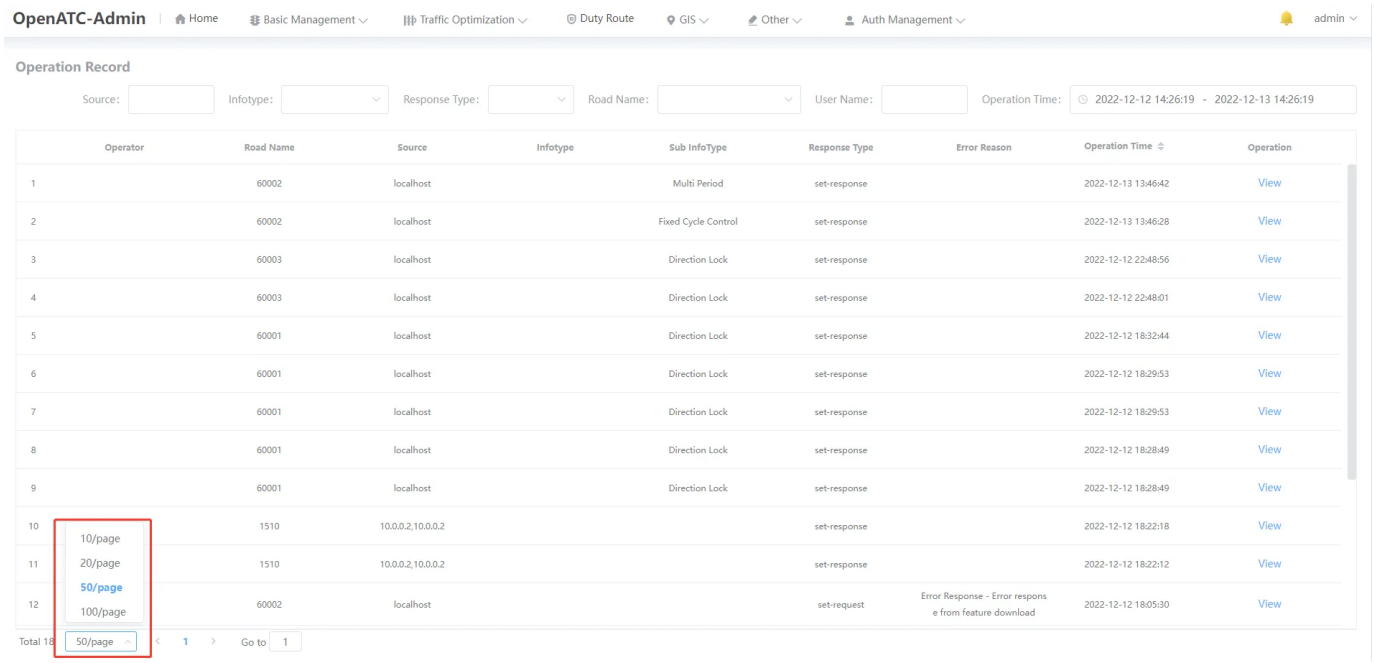

Fig.9-3 Paging Function

9.4 Search Function

In the main page of operation records, you can perform a fuzzy query based on the filtering criteria.

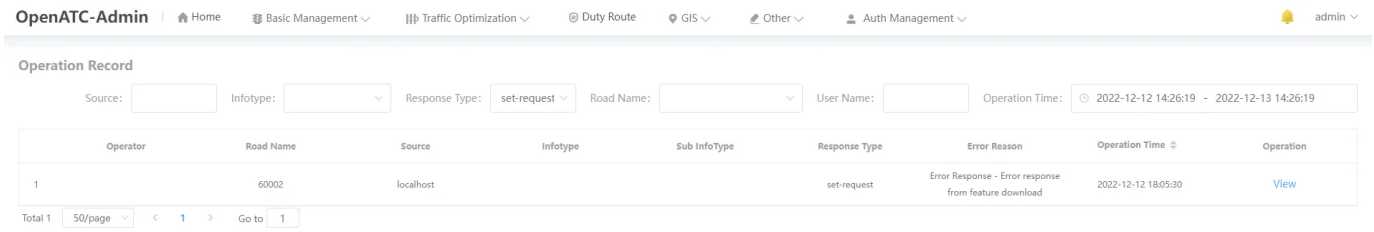

Fig.9-4 Search Operation Records

10. Organization

Click "Auth Management-Organization" in the menu bar to enter the corresponding interface, there is a global fuzzy search box in the upper right corner of the interface, click Search after typing.

10.1 Overview

The overall view is the name of the institution, its path, its description, and how it operates.

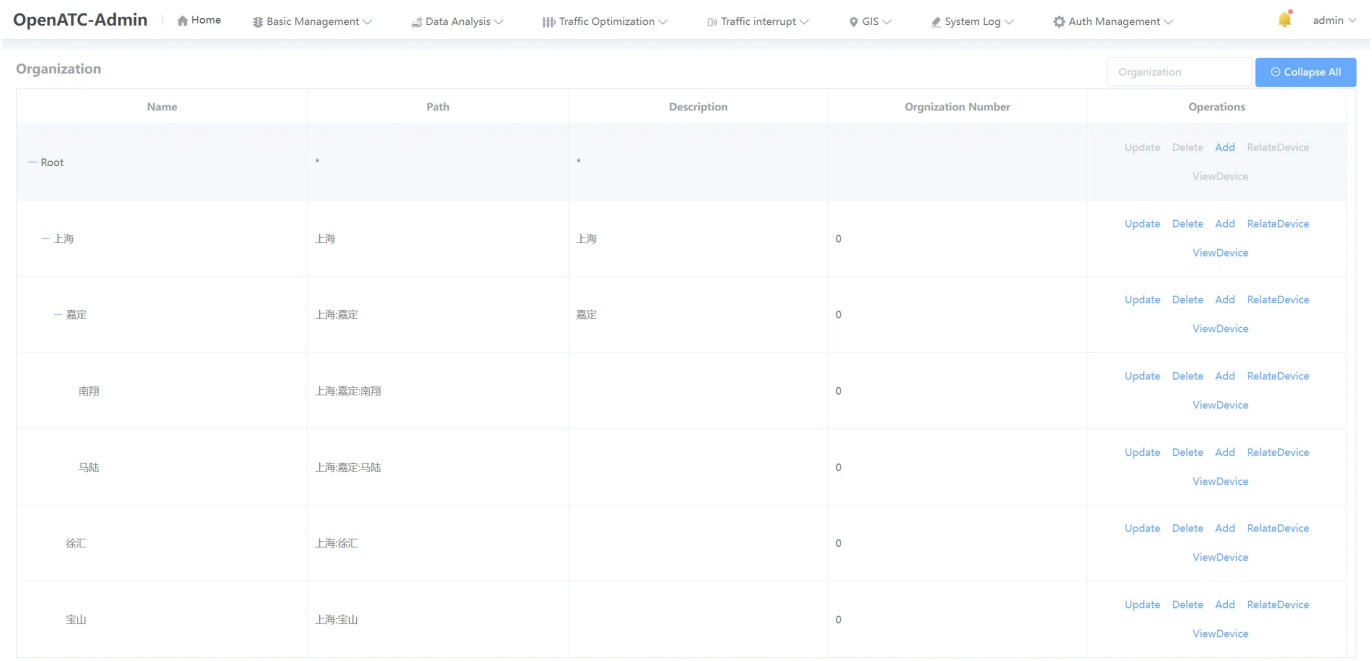

Fig.10-1 Overview

10.2 Organization Operation

10.2.1 Add Ogranization

Enter the organization name and confirm the description of the organization to add, which is to add the subordinate organization of the currently selected organization.

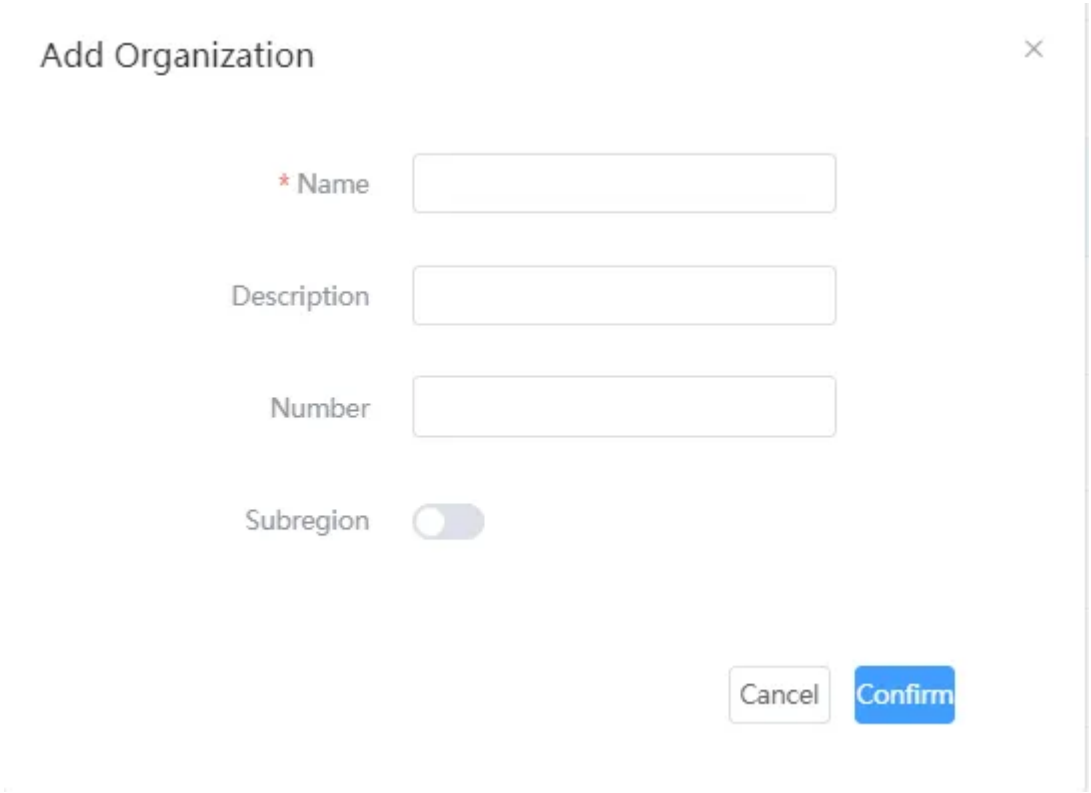

Fig.10-2 Add Organization

10.2.2 Update Organization

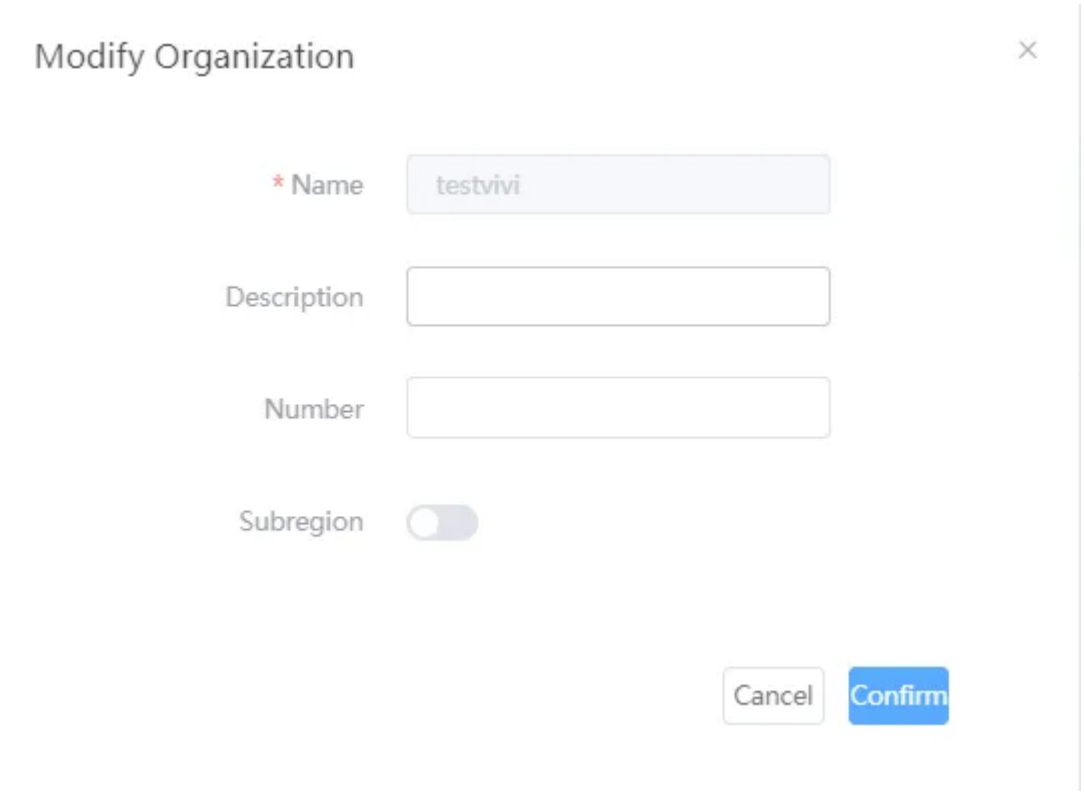

Fig.10-3 Edit Organization

10.2.3 Delete Organization

Click Delete next to the organization to delete the corresponding organization, and the organizations under that organization will also be deleted.

10.2.4 View Device

View devices can query all devices associated with the organization

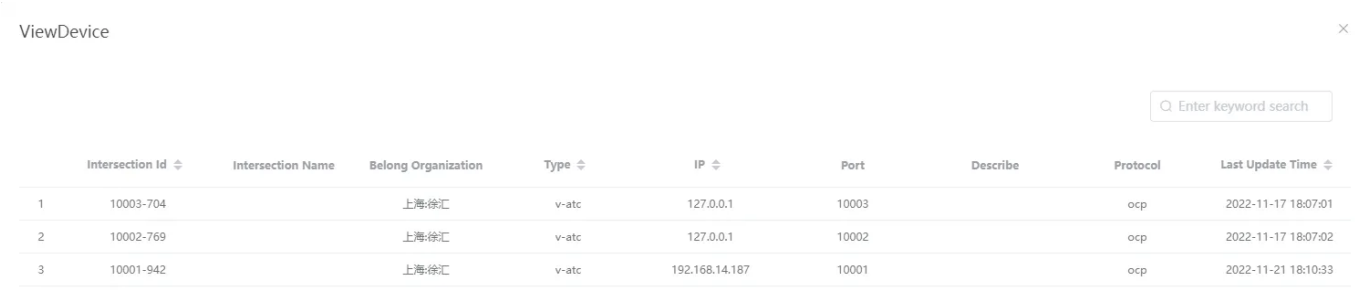

Fig.10-4 View Device

10.2.5 Associated Device

Associated devices can associate devices with an organization, and the organization can only see the device information associated with it.

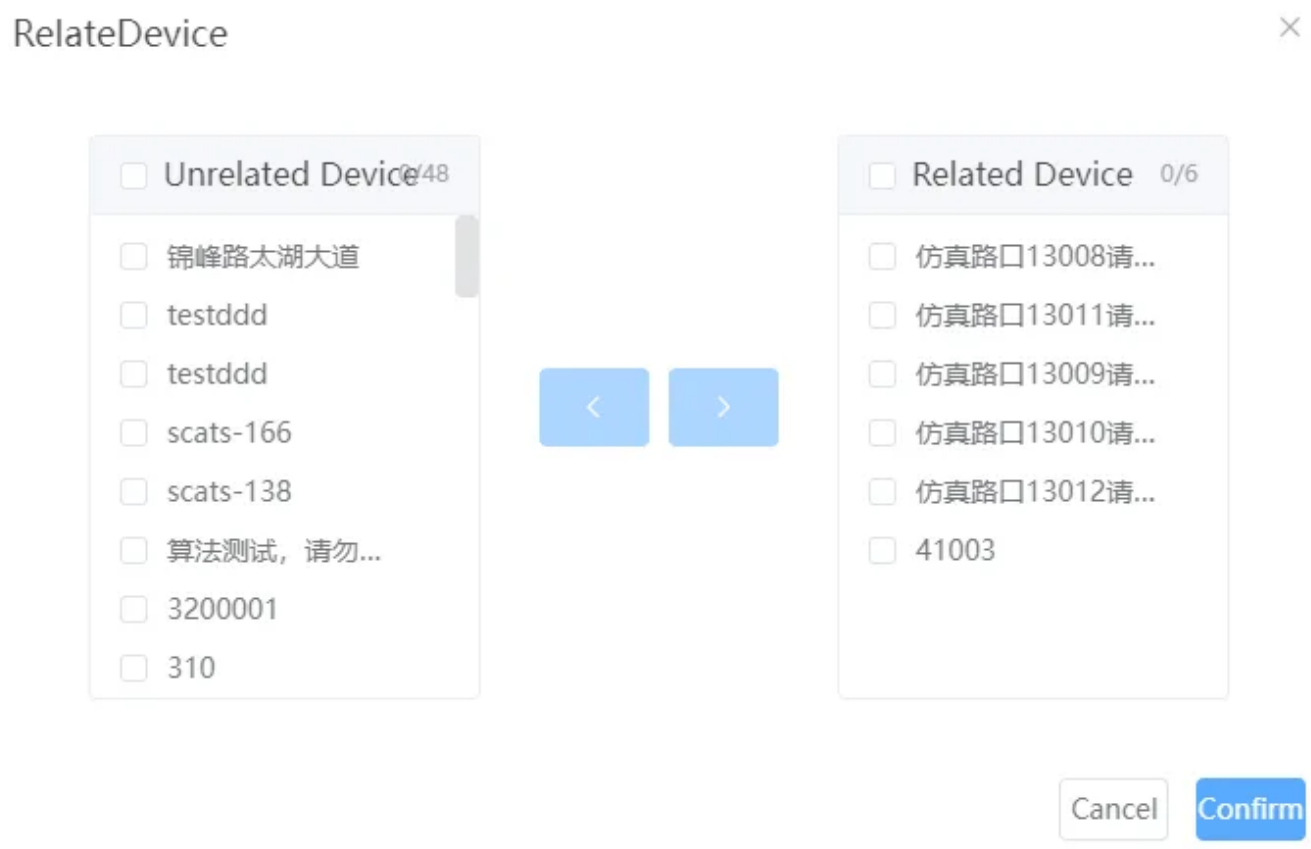

Fig.10-5 Add Associated Device

10.2.6 Search

Enter the value to be searched in the search box. After clicking search, the value containing the specified search appears, and the query is a global fuzzy query.

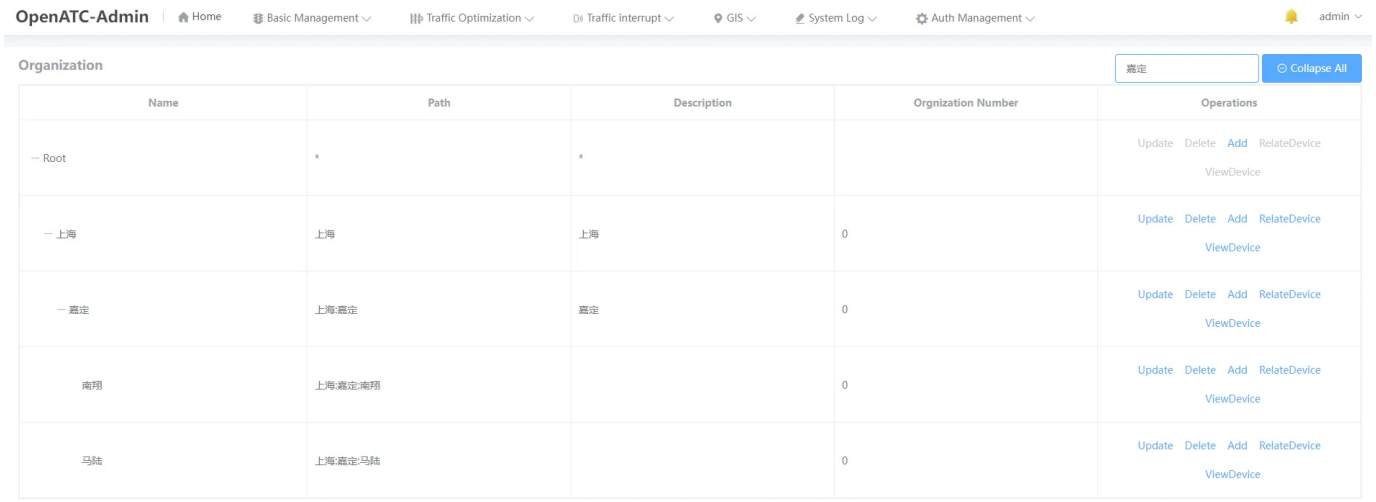

Fig.10-6 Search

11. User Management

11.1 Overview

Click "Auth Management-User Manager" in the menu bar to enter the user management interface, you can add, authorize (no authorization to call the interface data), edit, delete and search for users.

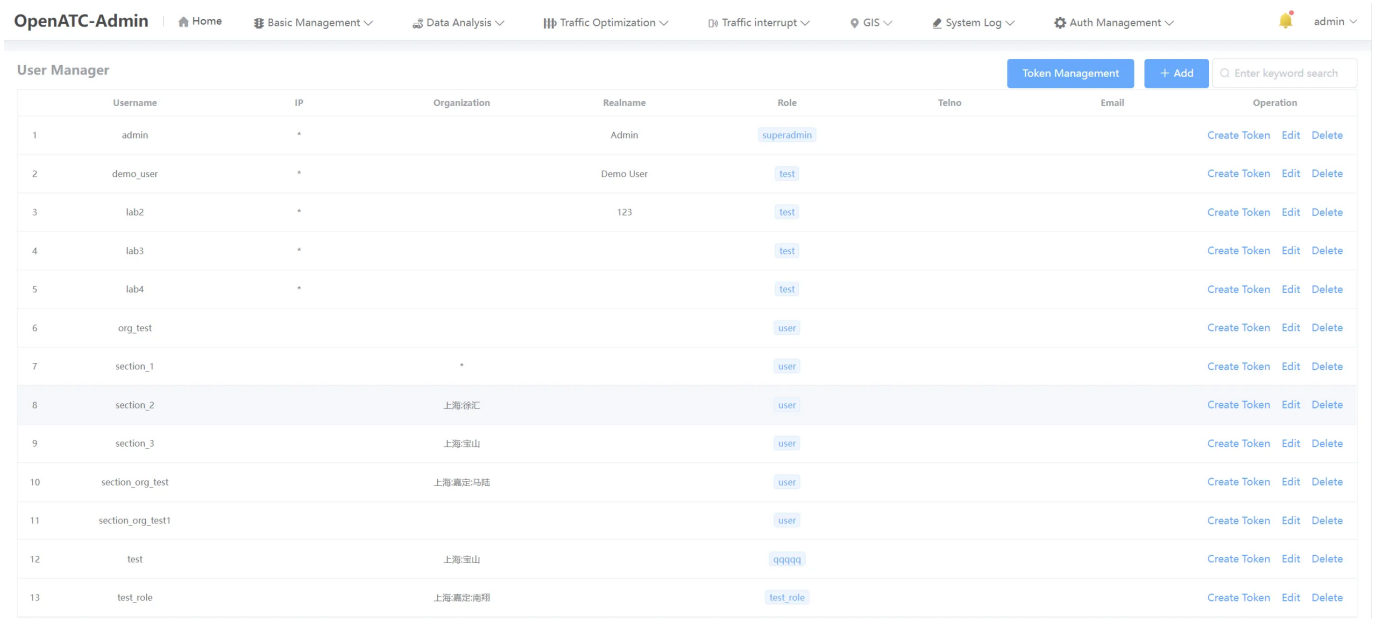

Fig.11-1 User Management Interface

11.2 User Operations

11.2.1 Add User

Click Add, fill in parameters such as user name, password, confirm password and role, and then click OK button to add a new user, which will be displayed in the list.

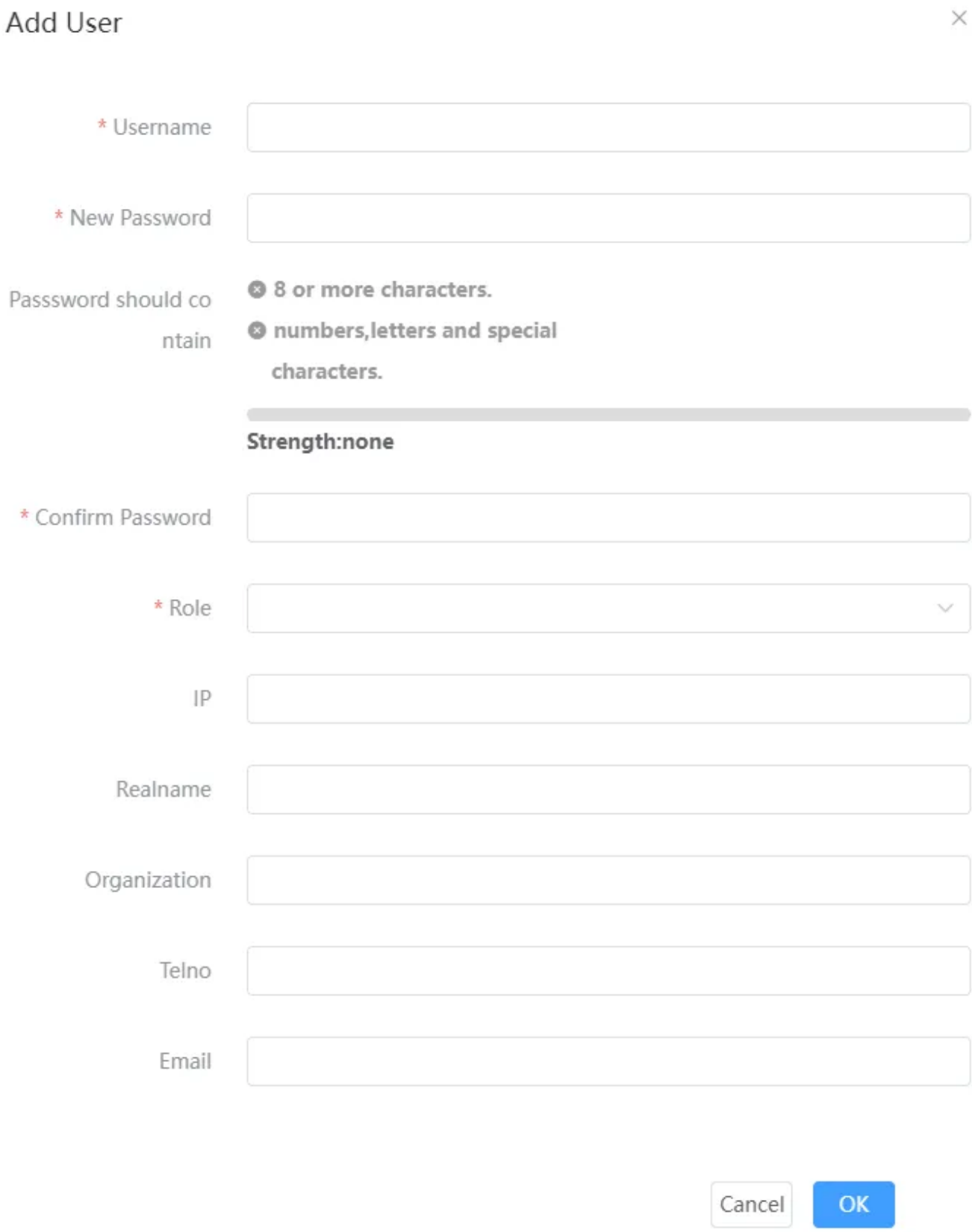

Fig.11-2 Add User

11.2.2 User Authorization

Click "Create Token", you can choose the start and end time of authorization, generate authorization (no authorization to call the interface data).

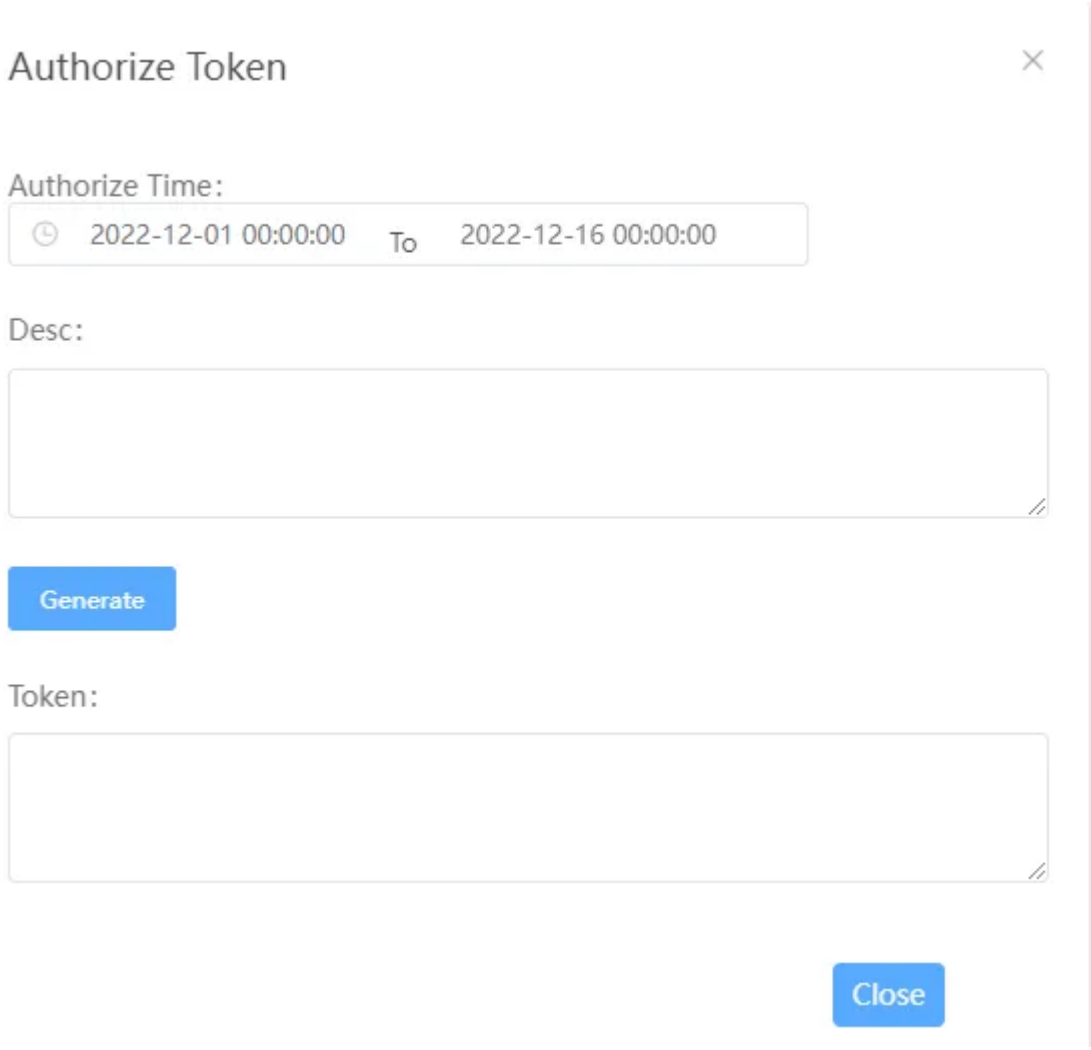

Fig.11-3 Authorization Interface

11.2.3 Edit User

Click "Edit" to configure user-related information, including: password, role (superadmin, admin, user, testuser, expert, guest), real name, IP, organization, phone and email.

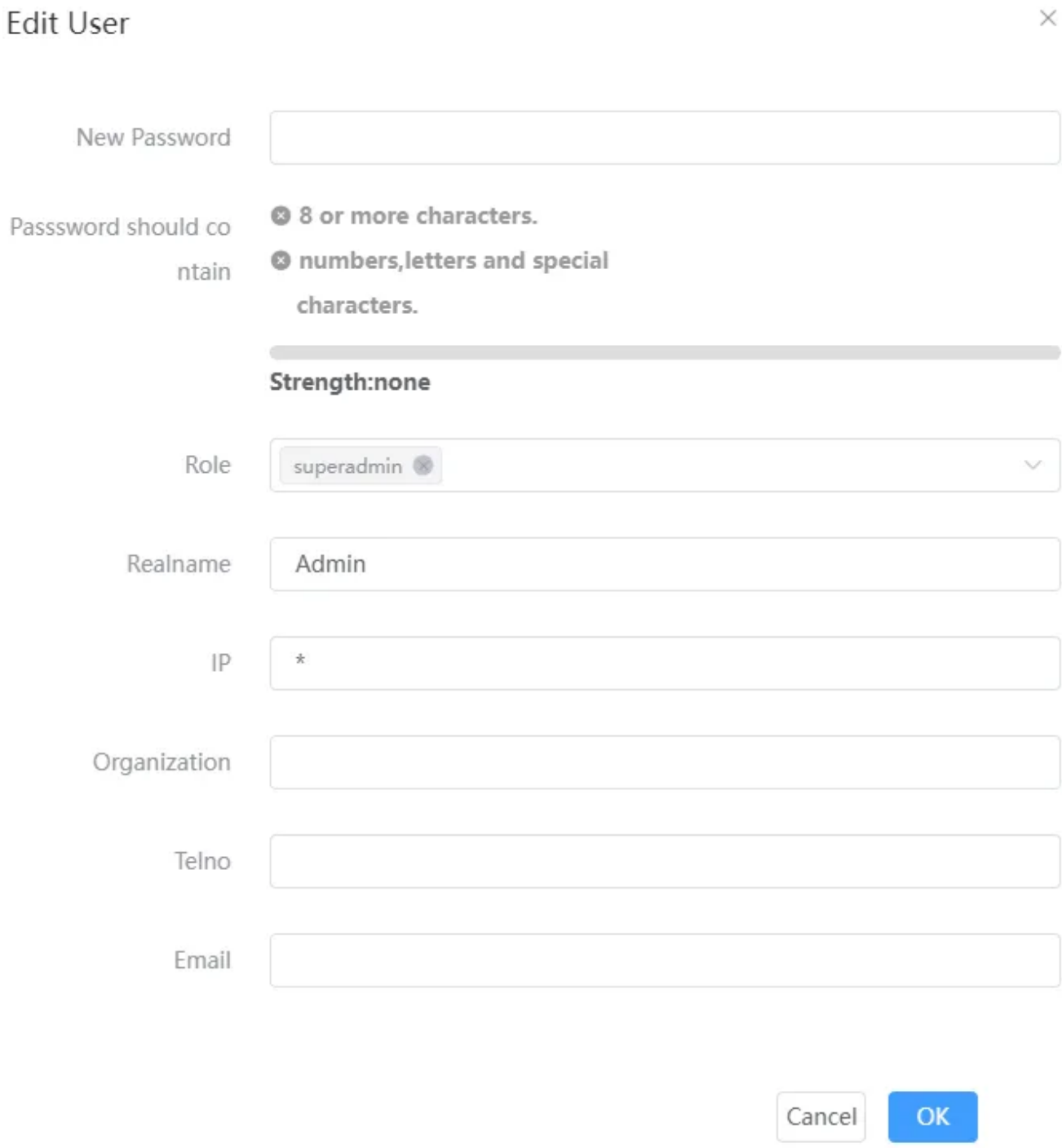

Fig.11-4 Edit User Interface

11.2.4 Delete User

Click Delete to prompt whether to confirm the deletion of this user, click OK to delete this user, the data corresponding to the list is deleted.

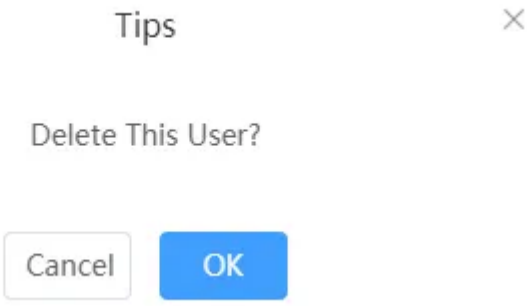

Fig.11-5 Delete User Interface

11.3 Search Users

Search for users, enter the user name in the search box for a fuzzy query.

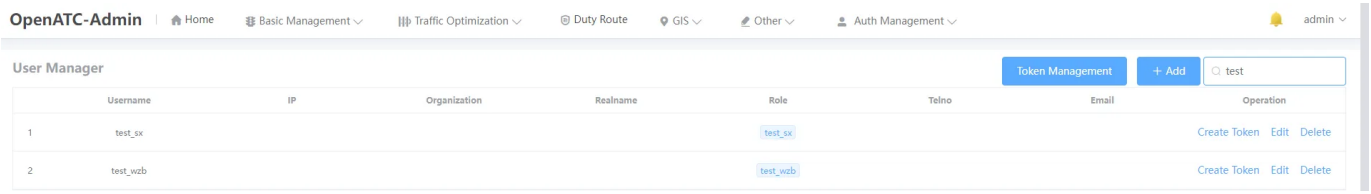

Fig.11-6 Search User Interface

11.4 Token Management

Click Token Management in the upper right corner to view the start and end times of authorized tokens, select whether to enable tokens, and copy, edit, and delete operations.

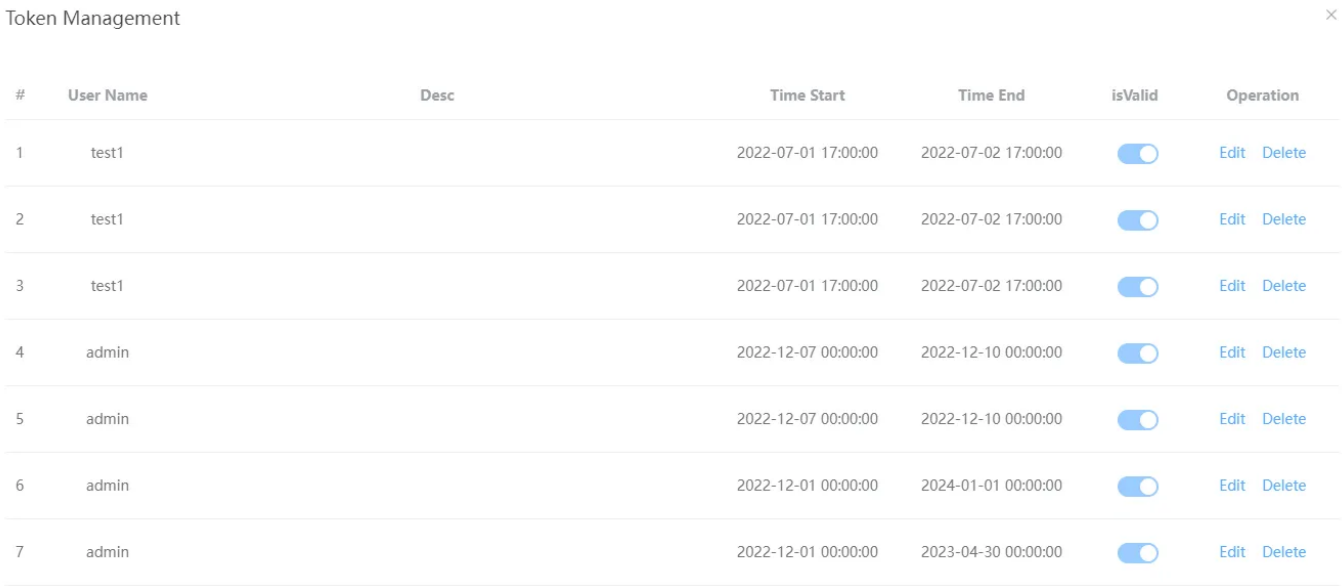

Fig.11-7 Token Management

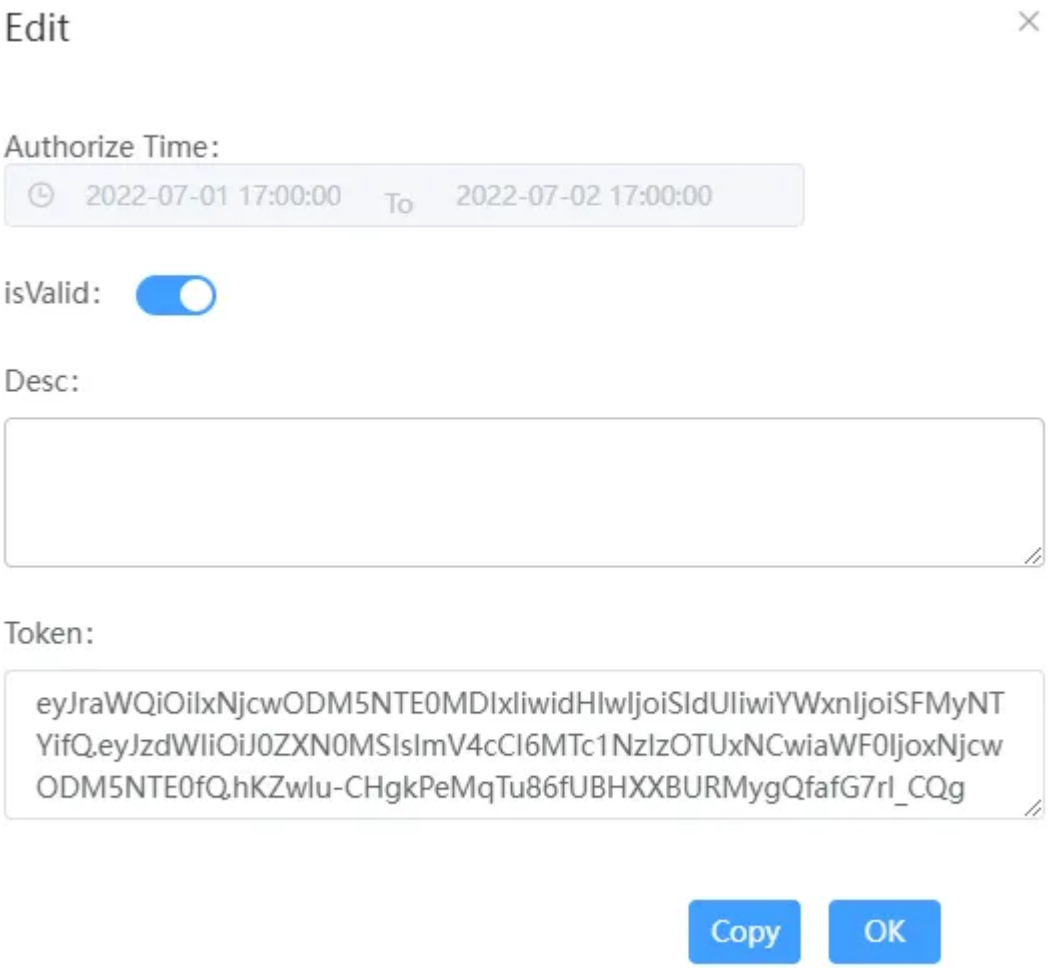

Fig.11-8 Edit Token

12. Fault Record

Click "System Log-Fault Record" in the menu bar to enter the corresponding interface, and the real-time fault and historical fault can be viewed in the operation record.

12.1 Realtime Fault

12.1.1 Overview

You can view the real-time fault, and the interface information includes: intersection name, fault ID, board type, fault type, confirmer, confirmation time, confirmation result (ignored or confirmed) and other information.

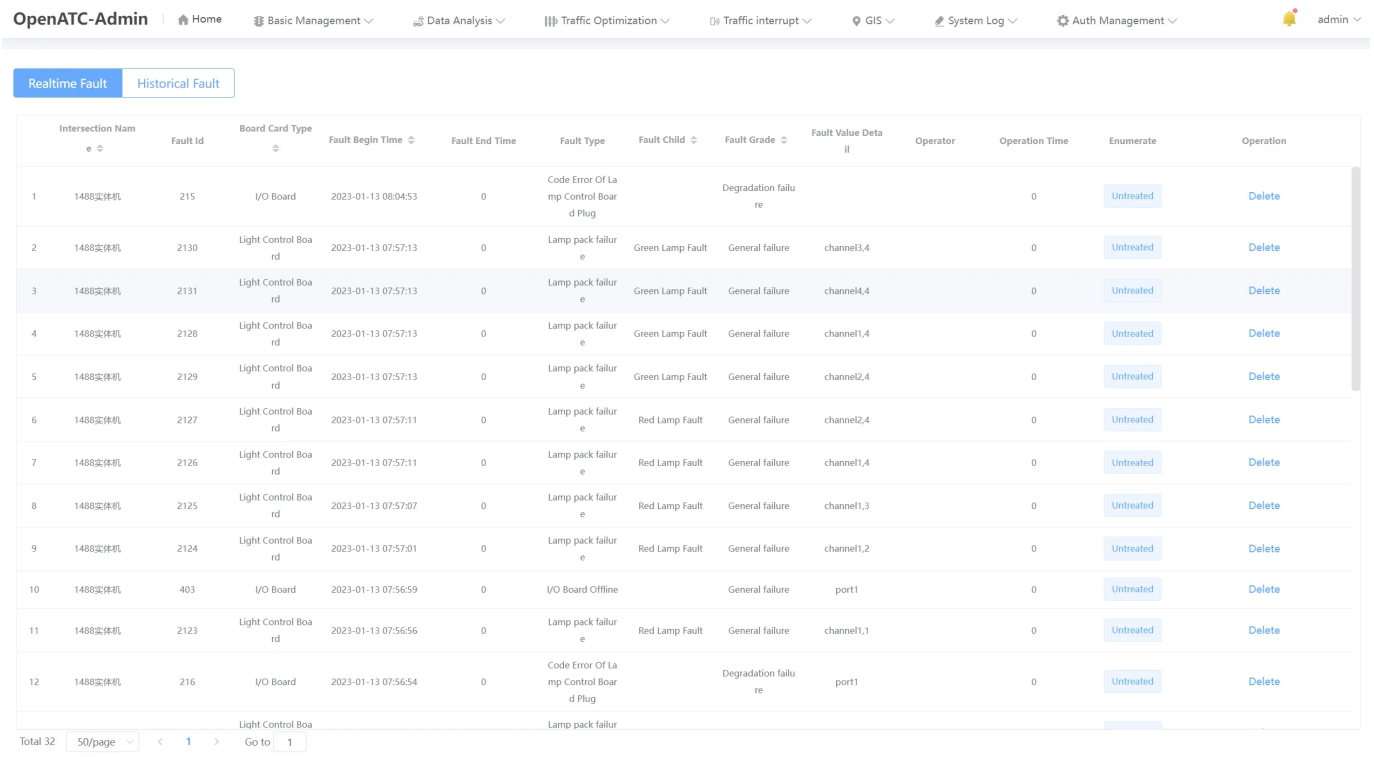

Fig.12-1 Realtime Fault Overview

12.1.2 Pagination Function

The pagination function can set the number of records displayed per page, and at the same time, it can enter the page number to jump directly to the specified page.

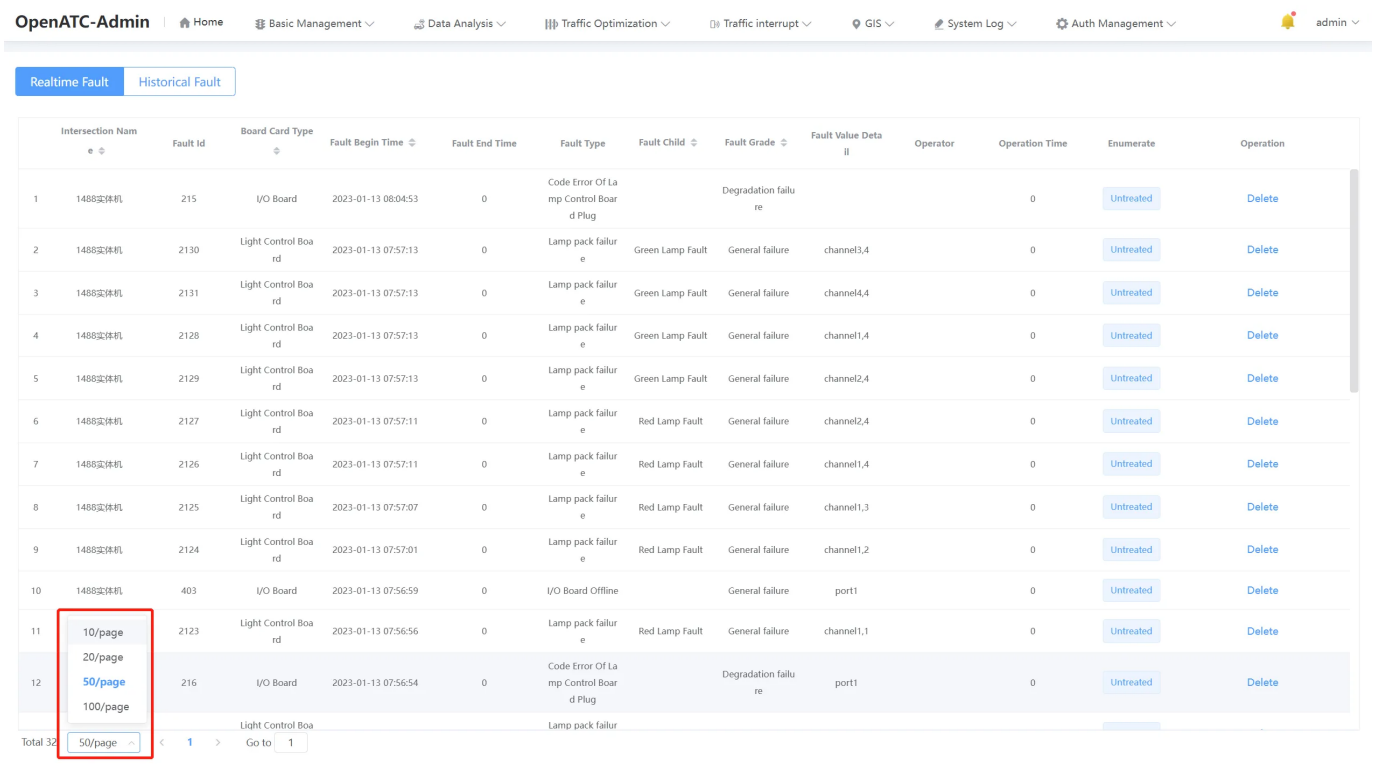

Fig.12-2 Modify the Number of Displays Per Page

12.2 Historical Fault

12.2.1 Overview

You can view the history of faults, the interface information includes: intersection name, fault ID, board type, fault type, confirmer, confirmation time, confirmation result (Unprocessed or confirmed), etc., the interface can select the board type, fault master type, confirmation result (unprocessed / confirmed / ignored), intersection name and the start time of the fault.

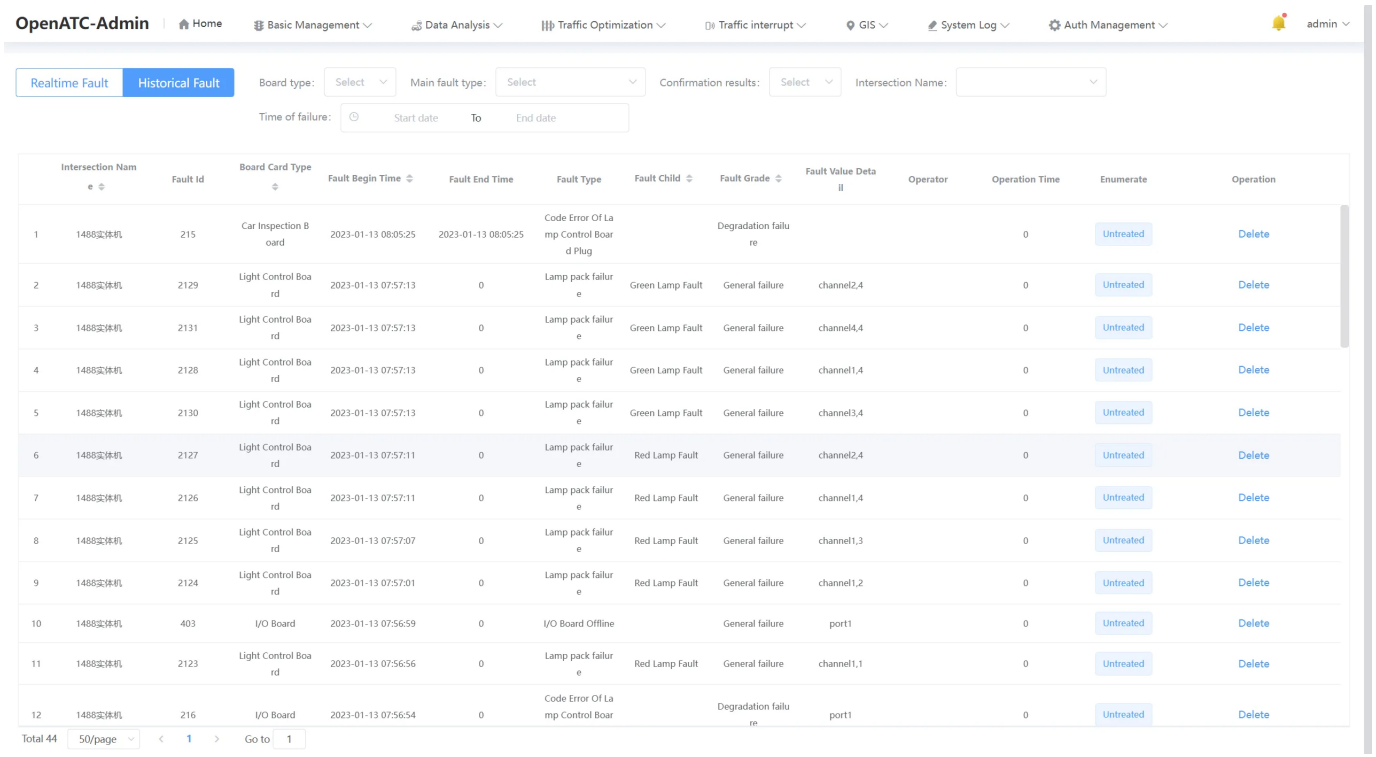

Fig.12-3 Historical Fault Overview

12.2.2 Pagination Function

The pagination function can set the number of records displayed per page, and at the same time, it can enter the page number to jump directly to the specified page.

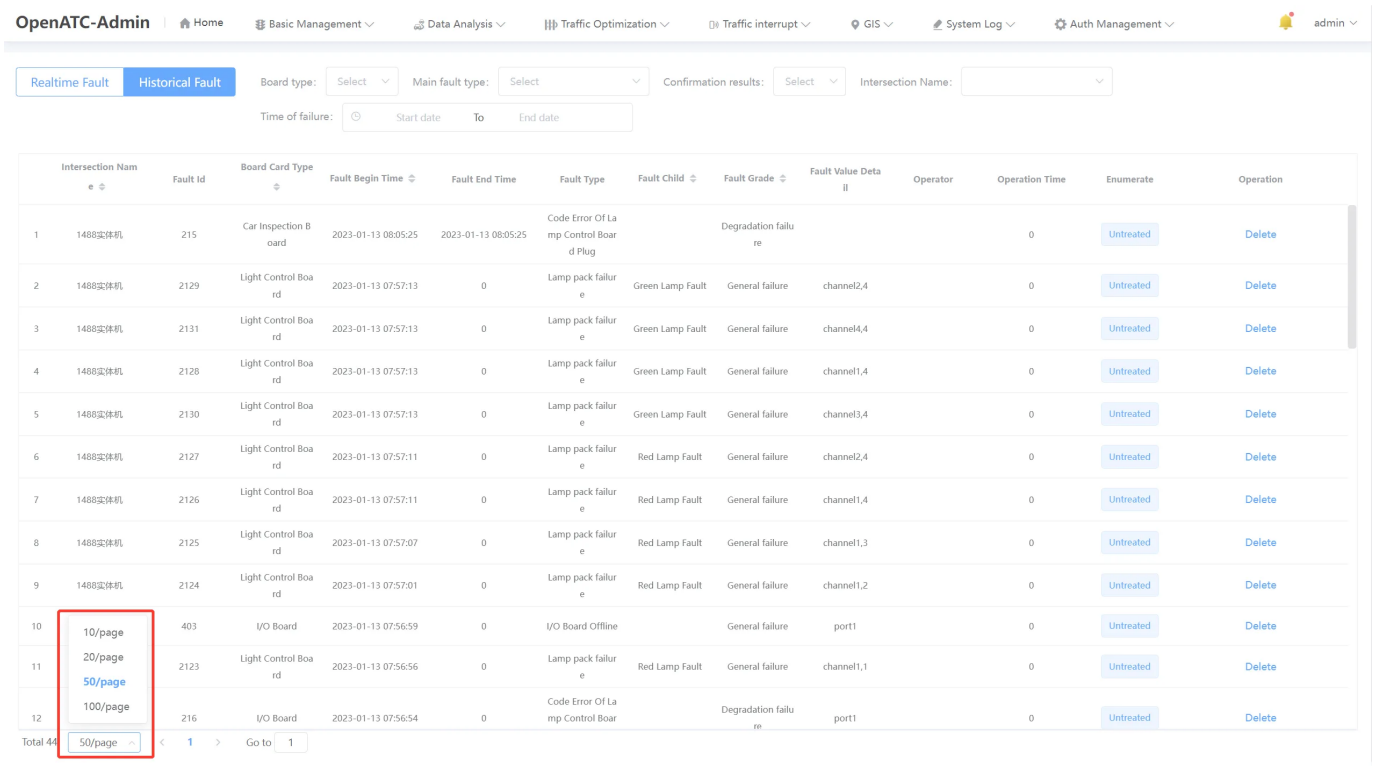

Fig.12-4 Modify the Number of Displays Per Page

12.2.3 Search for Failures

Select the board type, fault master type, confirmation result (unhandled/confirmed/ignored), intersection name and start time of fault occurrence, you can search for specific historical fault information, view fault confirmation time and confirmation result and other information.

13. Permission config

Click "Auth Management-Permission config" in the menu bar to enter the permission setting interface, and you can view the permission name, path, description, and corresponding number.

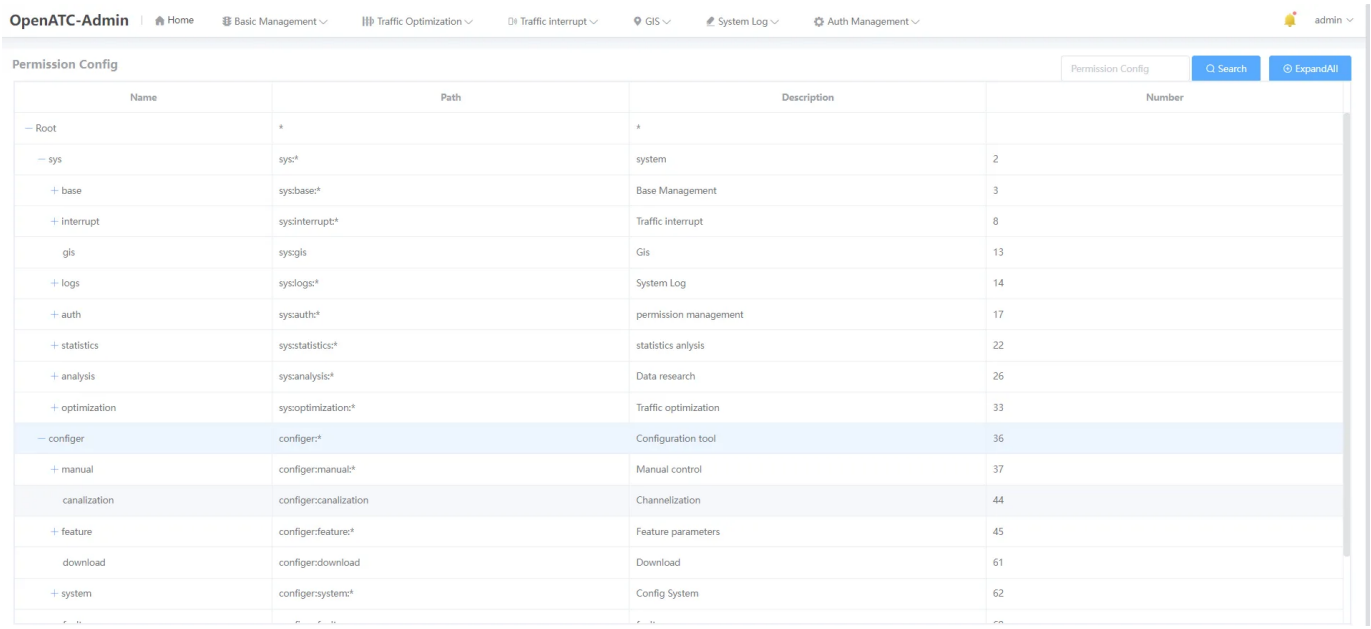

Fig.13-1 Permission config

14. Role Config

14.1 Overview

Click "Auth Management-Role Settings" in the menu bar to enter the role setting interface, and you can add, edit, delete, and search for roles.

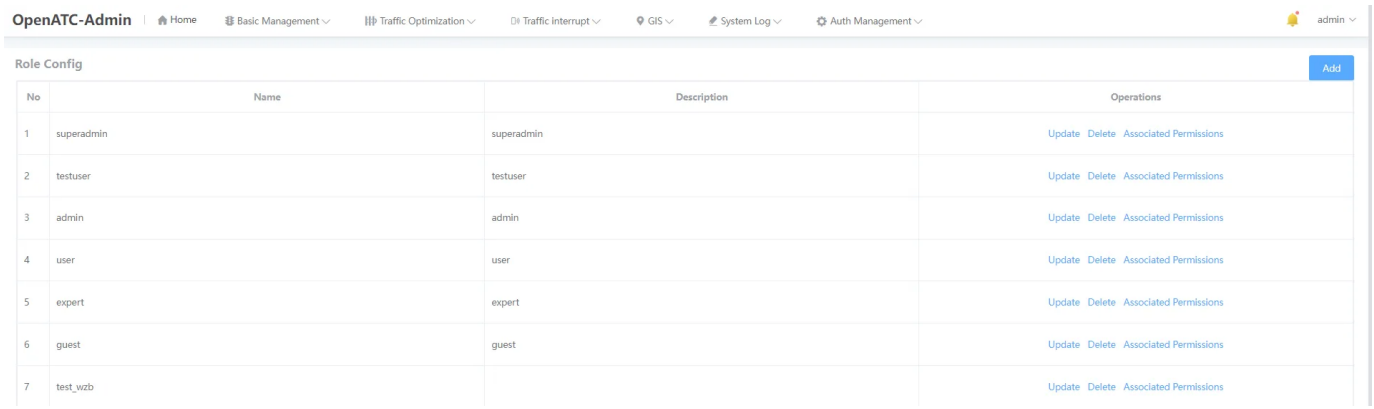

Fig.14-1 Overview of Role Config

14.2 Related Actions

14.2.1 Add Roles

Click Add, fill in the parameters such as the role name and description, and click the OK button to add a role, which will be displayed in the list.

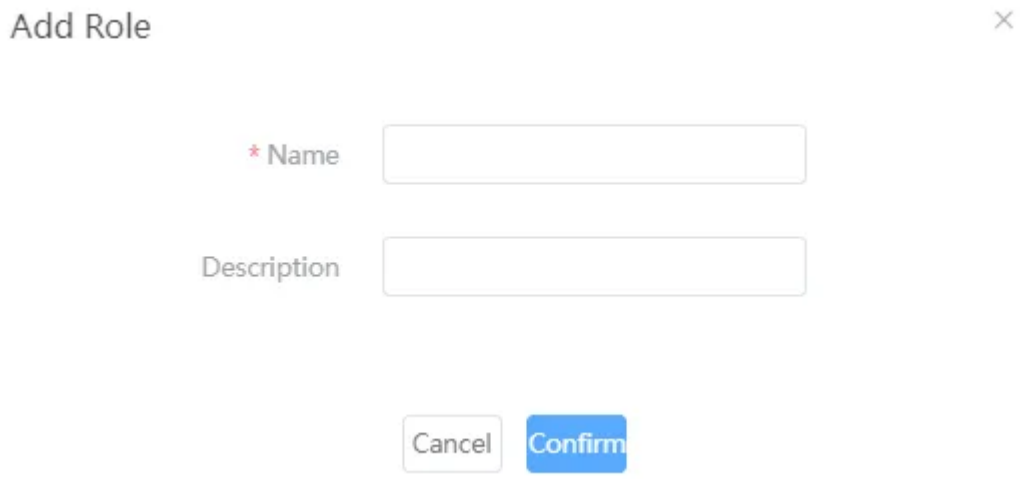

Fig.14-2 Add Roles

14.2.2 Edit Roles

Click "Operation-Update" to configure the role-related information, including the name and description.

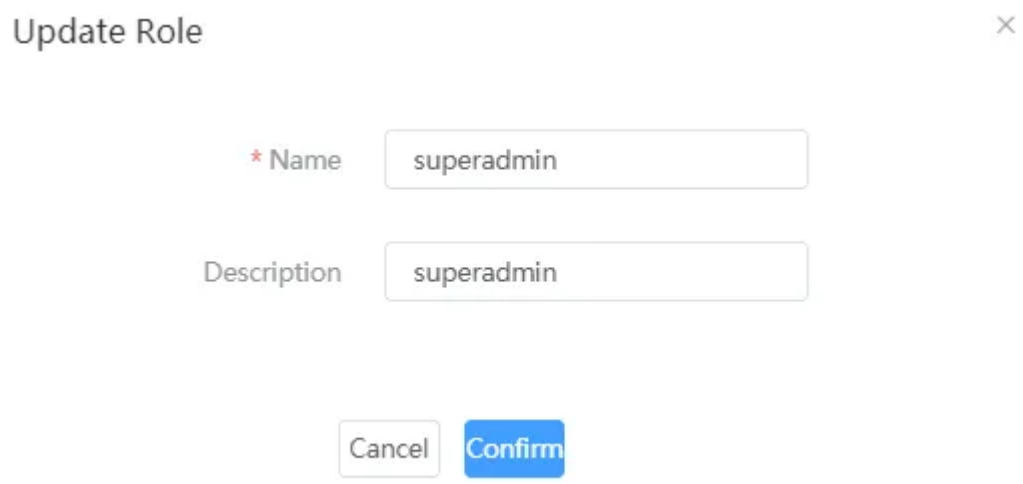

Fig.14-3 Edit Roles

14.2.3 Delete Roles

Click Delete to prompt whether to confirm the deletion of this user, click OK to delete this user, and the data corresponding to the list is deleted.

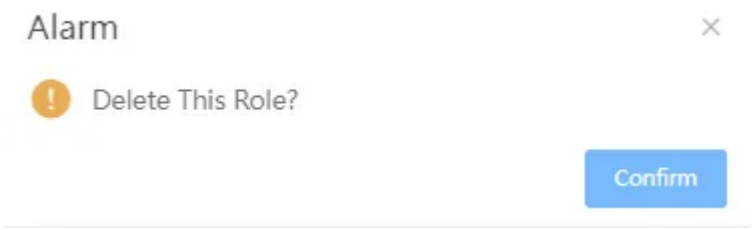

Fig.14-4 Delete Roles

14.2.4 Associate Permissions

Associating permissions associates permissions to roles, and the organization can only see information about the devices associated with them.

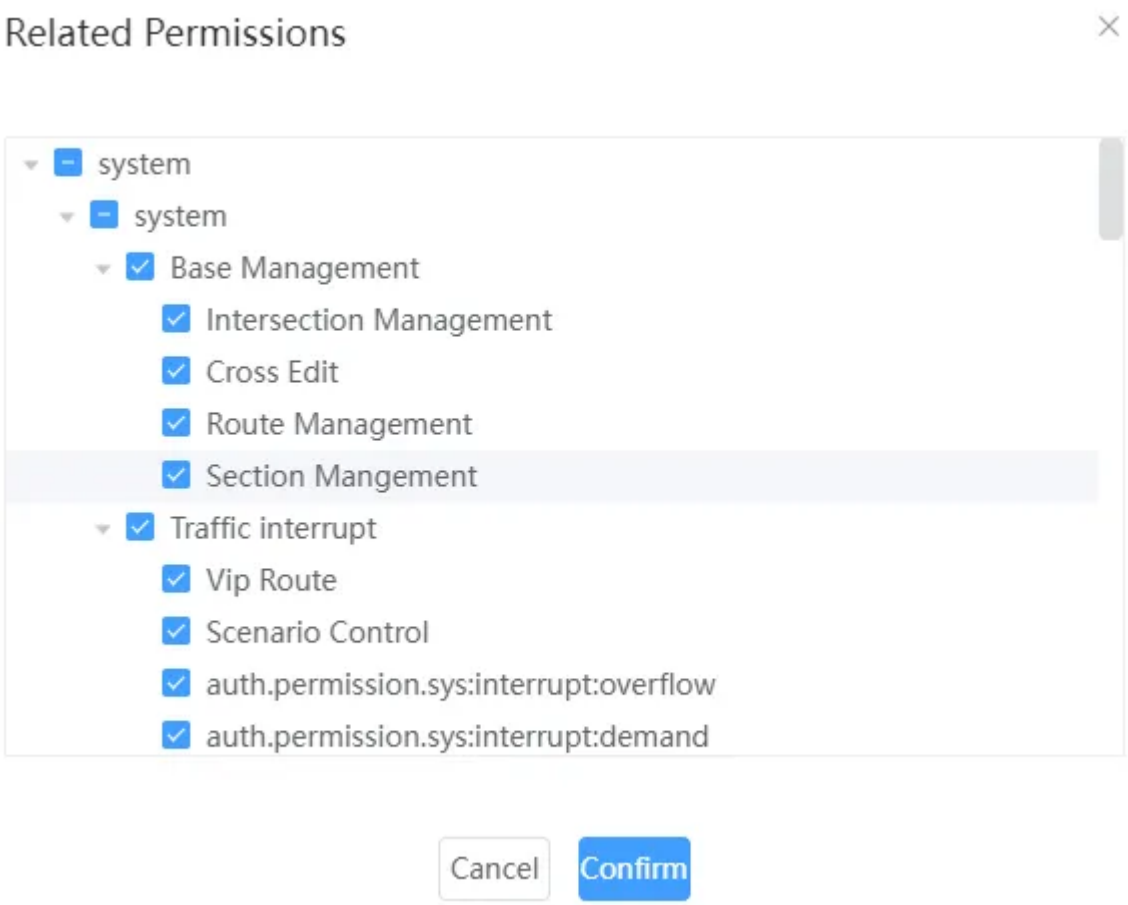

Fig.14-5 Associate Permissions