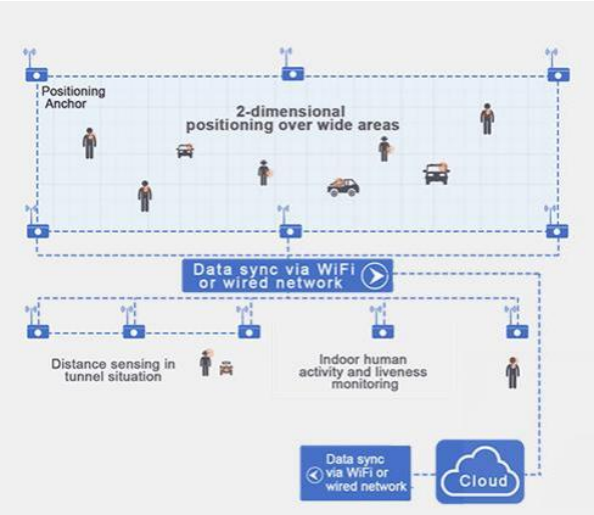
UbiTrack UWB RTLS

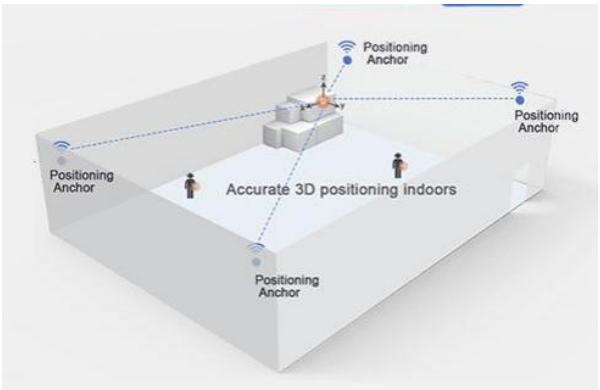
UbiTrack® is an integrated multi-dimensional indoor positioning solution, featuring high accuracy, flexibility and low cost.The system enables access to functions such as real-time positioning, tracking playback, high-speed camera linkage, accurate face recognition, electronic fence alarm and so on. Configuration and deployment takes just four steps: deploying the positioning anchors, configuring the software, uploading the floor plan, and setting up the positioning tags.

The products include positioning anchors and positioning tags (customisable form). The centimetre-level positioning standard is achieved by combining UWB (Ultra Wide-band) wireless communication with multiple algorithms. The product has the advantages of high accuracy positioning, low power consumption, high anti-interference capability, low cost and small size. Easy to deploy and highly reliable. The product format is not limited and can be designed flexibly for different applications and additional functions can be added.

To meet different needs of system integration and end users , a number of data analysis and processing algorithms are used, and also a mixture of algorithms. Users can choose from a variety of positioning modes such as spatial positioning (3D), area positioning (2D) and track positioning (1D). Based on TWR and TDOA positioning methods, the system can accurately locate the position of people, vehicles, assets and surrounding environment information in real time without interruption.

UbiTrack Starter Kit is the minimum combination of hardware and software that can realize high precision positioning. The positioning range can be extended by increasing the number of anchors and tags.





Key Features

- Support for a maximum area of 900 square meters positioning
- Optional 0D, 1D, 2D, 3D positioning
- Real-time accurate position display
- Historical track playback
- Electronic Fence Alert
- Multi-algorithm Hybrid Processing
- Open API/SDK
- Multi-Level Permission Management

Content of the kit

- 4 x Indoor Anchor UbiTrack-A1
- 2 x Positioning Badge II (With Screen) UbiTrack-TB3
- 2 x Civilian Wristband UbiTrack-TWC1
- 2 x Goods Positioning Tag II-TG2(Demolition Alert) UbiTrack-TG2
- 6 x Magnetic charging cable
- 1 xUbiTrack platform software

Specifications

Indoor Anchor UbiTrack-A1

UbiTrack-A1 provides high accuracy measurements. With its high performance MCU, it is capable of supporting large number of tags at the same time. The physical appearance of the anchor can be customized if wanted.

Power Supply: PoE or DC12V /1A
Network: Supports Ethernet(PoE)
Positioning System Frequency: 3.5GHz-6.5GHz
Operating Temperature: -20ºC to 60ºC
Dimensions: 7.87"× 7.87"× 1.77" (200mmx200mmx45mm)

Positioning Badge II UbiTrack-TB3

UbiTrack-TB3 is a second generation positioning badge which is small and handy. It is used for personnel positioning and it supports UWB positioning communication. The badge supports tracking, motion detection and SOS one-click alarm, and it can also be equipped with an optional e-ink screen to display detailed personnel information, notification information and so on.

UWB Operating Frequency: 3.5GHz-6.5GHz
UWB Transmitting Power: 0-33.5dB (Adjustable)
NFC Operating Frequency*: 13.56MHz
Additional Sensors: Acceleration Sensor
Optional E-Ink Screen*: 1.14”×1.14”(29mmx29mm)
Stand-by Power Consumption: 0.19mW
Optional Functions: Messages, vibration , RFID*, SOS, etc.
Power Supply: Rechargeable 400mAh lithium battery
Battery Life: 1-2 months（1Hz）
Dimensions: 3.50”×2.28”×0.27”(89mmx58mmx6.9mm)
Operating Temperature: -20ºC to 55ºC
Operating Humidity: 10-90%

Civilian Wristband UbiTrack-TWC1

UbiTrack-TWC1 is a smart watch positioning tag, it is mainly used for people positioning, such as the elderly or special groups. It supports UWB positioning communication. The watch has physiological monitoring, electronic fence, alarm, step counting and other functions. Its’ OLED display screen can display time, heart rate, notification and other information.

UWB Operating Frequency: 3.5GHz-6.5GHz
UWB Transmitting Power: 0-33.5dB (Adjustable)
Additional Sensors: Heart rate (photoelectric), Acceleration Sensor
Power Supply: Rechargeable 400mAh lithium battery
Dimensions: 1.67"× 1.67"× 0.64" (42.5mm x42.5mmx16.3mm)
OLED Screen: 1.15"×0.58" (29.4mm×14.7mm)

Operating Temperature: -20ºC to 55ºC
Operating Humidity： 10-90%
Battery Life:1-3 months

Positioning Tag II-TG2(Demolition Alert) UbiTrack-TG2

UbiTrack-TG2 is a small and lightweight positioning tag with multiple installation modes, it can be attached to a helmet or other objects and enable you to accurately track people or goods.It also be equipped with an optional demolition prevention alert function to help you with device management.

UWB Operating Frequency: 3.5GHz-6.5GHz
UWB Transmitting Power: 0-33.5dB (Adjustable)
Power Supply: Rechargeable 1000mAh lithium battery
Battery Life: 1-4 months(1Hz)
Operating Temperature: -20℃ to 55℃
Operating Humidity： 10-90%
Dimensions: 3.27"× 1.97"× 0.87" (83mmx50mmx22mm)
Optional Functions: Messages, voice, SOS, demolition prevention alert, etc

Please see the Manual below.

UbiTrack Manual

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1. Summary

1.1 Terms and Definitions

① **Anchor:** The main function is to receive the signal sent by the tag and sent the platform command to the tag. The anchor needs to develop different installation schemes indoors or outdoors according to the site and other situations.
(**Blue light flashing** is in normal operation, **white light** is upgrade the firmware, **red and purple light flashing** is no server IP address configured or no network connection, **green light flashing** is that the anchor is rebooted or powered on)

② **Tag:** Device that need to be monitored for real-time positioning, can be worn on people or goods and other items. The tag itself sends UWB signals to communicate with the anchor to complete the purpose of being calibrated and exchanging information.

③ **Server:** The terminal equipment used to carry the positioning system, part of the computing power of the equipment will run the positioning algorithm, and then calculate the real-time positioning of the tag to be located; No other privatized software can exist in the terminal itself, otherwise conflicts will arise.

④ **UbiTrack OPP Manager:** The software installed on the server, the software environment used on the server is more complex, sometimes some third-party plug-ins or libraries are used, and they are problems with the support of the Chinese path, so the OPP must be installed in English-only path.

⑤ **Platform:** The real-time positioning results calculated by the feedback server provide the entrance of the user to operate the device, and the relevant requirements for completing the addition, deletion and modification of anchors, tags, member, warning rules, etc.

⑥ **Zone Plan:** The picture used to simulate the real positioning area on the positioning platform needs to set the plotting scale, associated anchor, etc., and after completion, you can view the real-time movement of the tag on the floor plan, and then understand the goods, person, etc. in the real scene.

⑦ **E-Fence:** Based on the floor plan, draw a specific range, user can set an warning rule for the fence, or can check whether a tag is in a fence in the tag list.

⑧ **Warning Rule:** Users set offside, offline, and other rules for tags on the positioning platform, and the platform displays an alert message after the tag triggers the rules.

⑨ **Track Playback:** View data related to the server's positioning of motion trajectories based on pre-stored tags.

⑩ **PC Tools:** After the tag is connected to the terminal, and the terminal can view the parameter values of the tag through the PC tools, as well as modify the active/static frequency and time.

1.2 Basic Configuration Requirements

1.2.1 Server Configuration

Minimum configuration:

① Operation System: Windows10 +;
② CPU: dual-core 2.0GHz or above, supports virtualization;
③ Memory: 4G or above;
④ Solid state disk: 20G or above.

Recommended configuration:

① Operation System: Windows10 +;
② CPU: dual-core 3.0GHz or above, supports virtualization;
③ Memory: 8G or above;
④ Solid state disk: 20G or above.

1.2.2 Platform Operating Environment

The positioning platform supports a variety of browsers, but mainly supports Google Chrome browser, in addition to the use of Google Chrome we can not guarantee that other browsers can fully operate all the functions of this product positioning platform, please try to use Google Chrome browser.

1.2.3 Notes

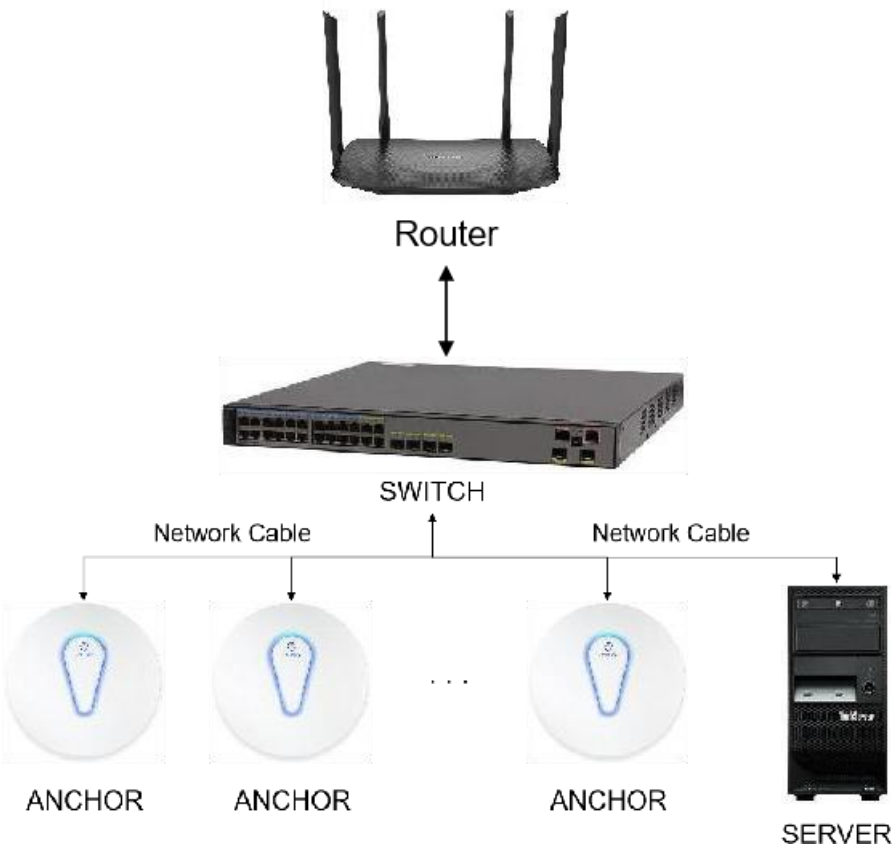
OPP may have conflicts when the server has the following software or ports occupied:

① Softwares: Apache、 mysql、 mosquitto、 redis、 UbiBot OPP (Temporary conflicts will be optimised later)
② Ports: 80、81、8080、3000、3006、3306、1883

2. Basic installation and configuration

2.1 Hardware Configuration

The hardware network connection is shown in the figure below.The server and anchor should be connected with the switch, and the switch connects to the router (DHCP enabled) to form a network. If the switch is an ordinary switch, the anchor needs a separate power supply after connecting with the network cable. If it is a PoE switch, the anchor can be directly connected with a network cable above class 5, without separate power supply. After connected to the network, the anchor will be automatically connected to the platform.



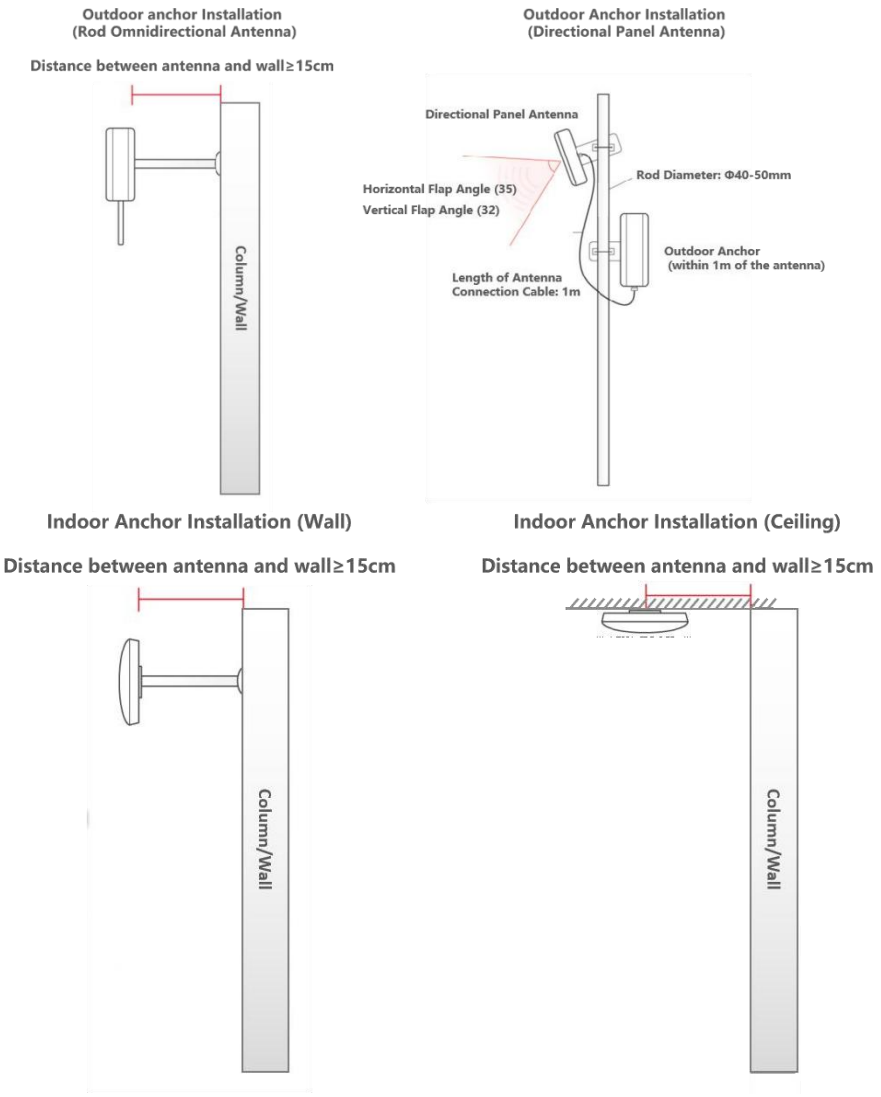
Note:

① When new anchors are configured through the web page, they need to be configured one by one, not simultaneously. Otherwise, there an IP address conflict will occur and the anchors will not be able to join the network automatically.

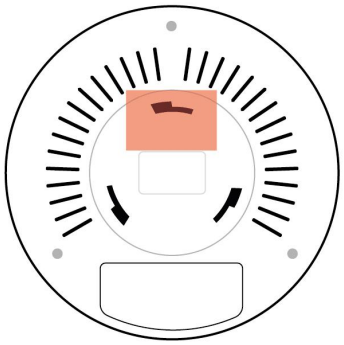
② Before installation, please record the last four digits of the product serial number and the deployment location for the better configuration.

2.1.1 Installation

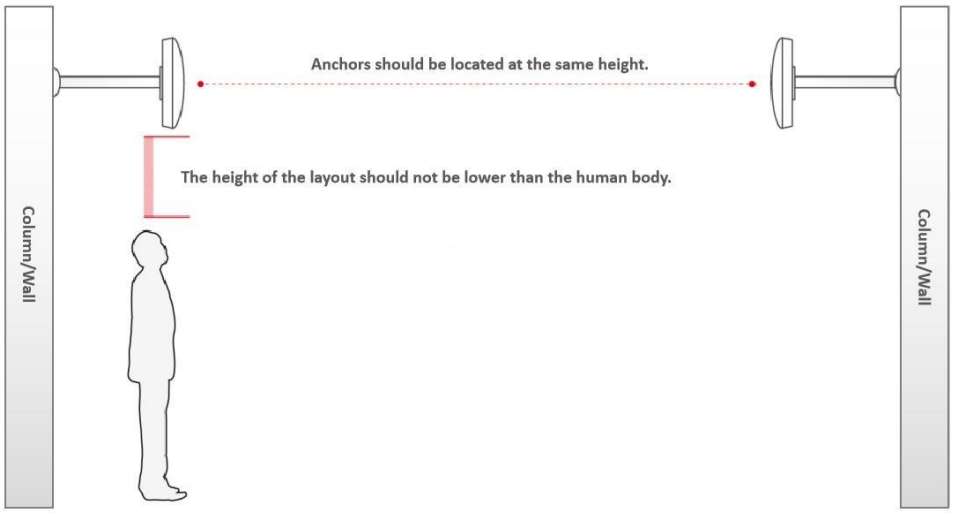
The antenna of the anchor should be at least 15cm away from the wall. This requirement is to reduce the signal interference to the antenna. (Except plate directional antenna)



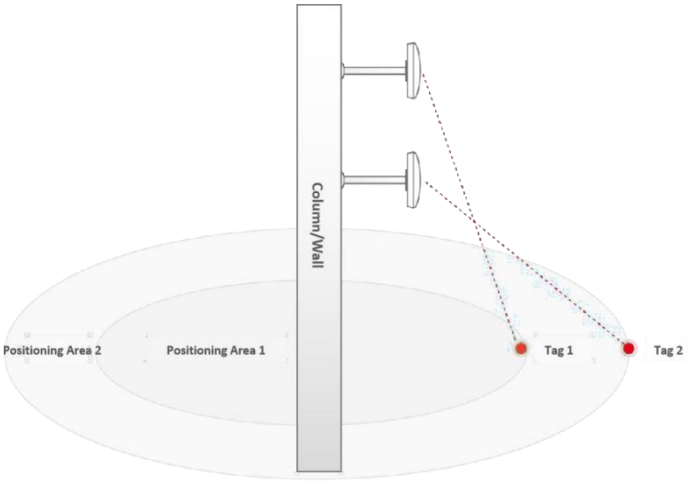
The indoor anchor has a built-in antenna, which is located on the back of the center, and this part should not be in direct contact with the metal support.



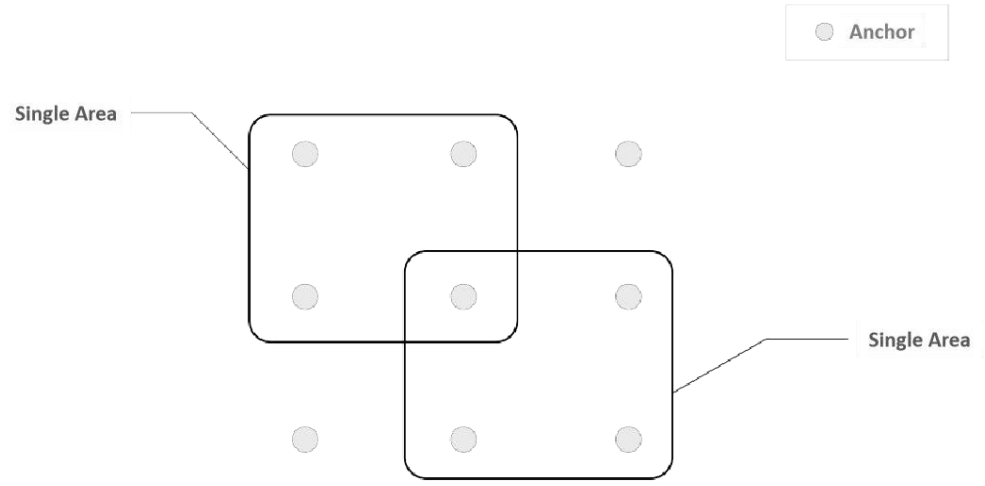
The anchors should be located at the same height, the height of the The anchors should be located at the same height, the height of the layout should not be lower than the human body.
It is recommended that the indoor anchor could be installed with a height of 3-10m and a horizontal distance of 15m to meet the communication accuracy (no occlusion).



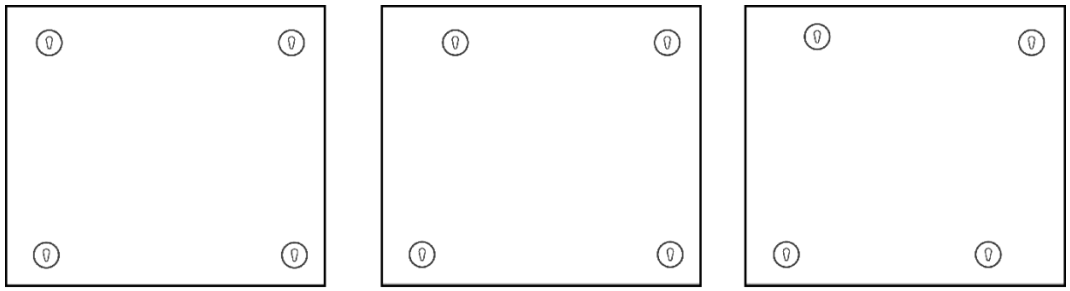
By increasing the height of the anchor, the occlusion effect between the anchor and the tags can be reduced appropriately and the positioning accuracy can be improved. It should be noted that since the communication distance between the tag and the anchor is relatively fixed, the corresponding positioning range area will decrease when the anchor height increases.



When the TDOA algorithm is used for positioning, the minimum number of anchors is 4, and the anchor layout is expanded with rectangle as the basic unit. When the TWR algorithm is used for positioning, the location of the anchor is free and depends on the specific situation.

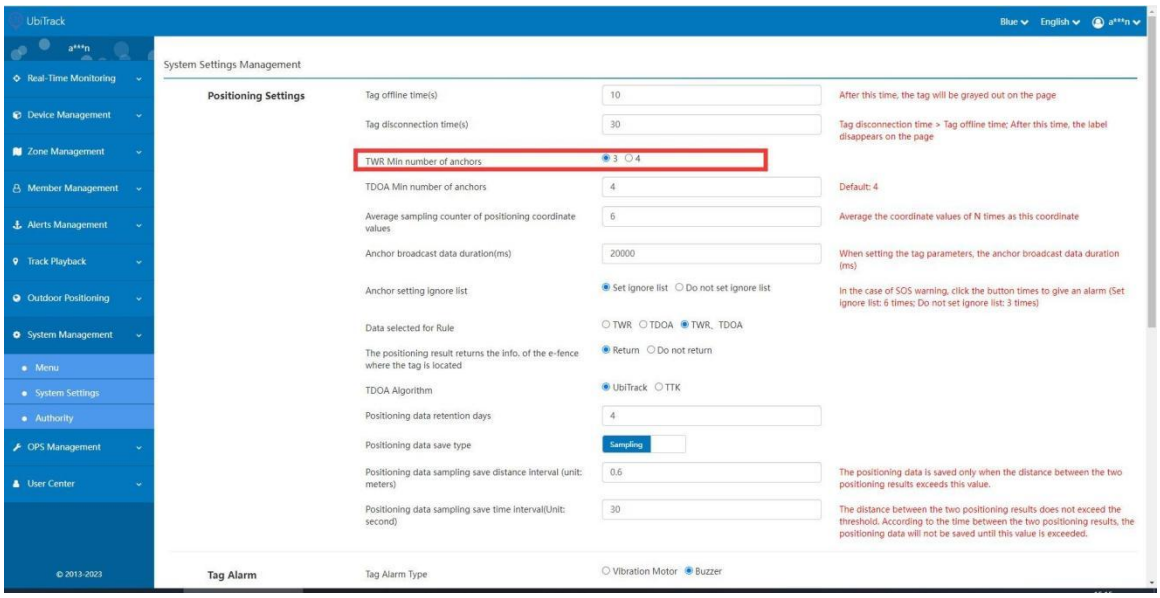


Example:

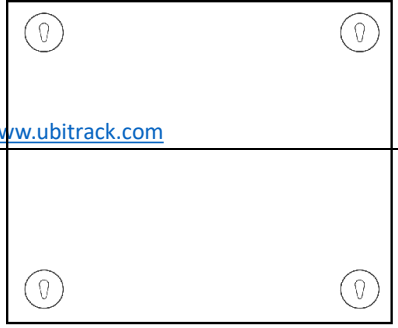


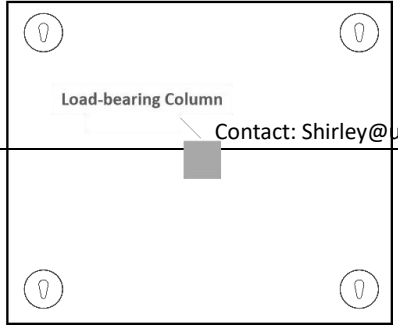
Affects Positioning Accuracy

Note: If there are only 3 anchors, please use TWR algorithm and change the "TWR Min number of anchors" to 3 in [System Management] - [System Settings].



The anchor in a single area are visible from each other (no occlusion in the middle).





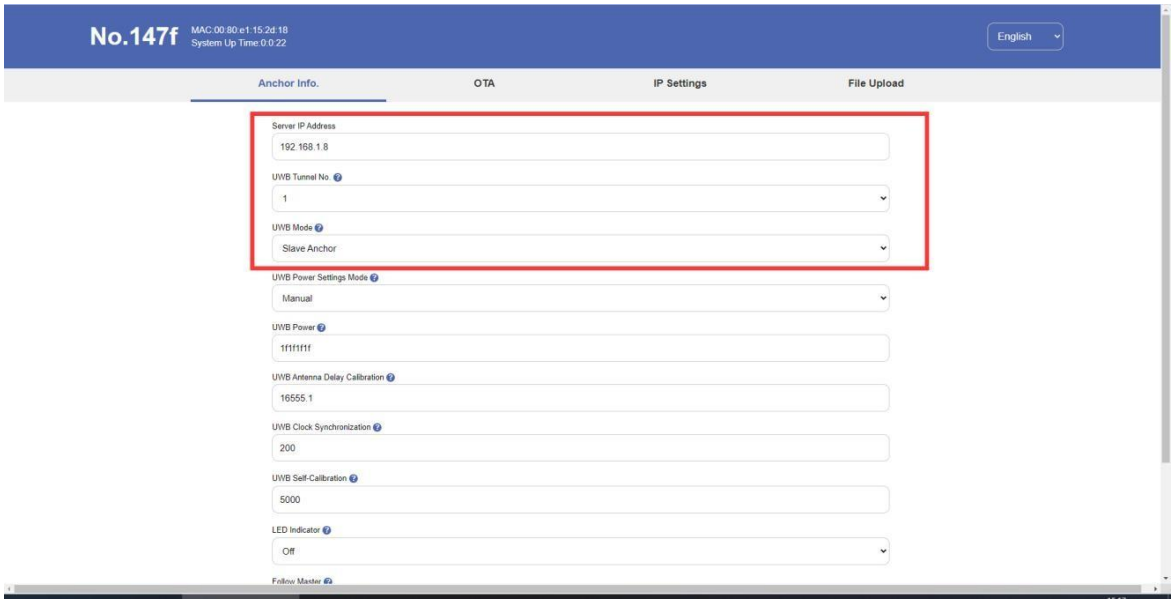
Affects Positioning Accuracy

2.1.2 Network Configuration

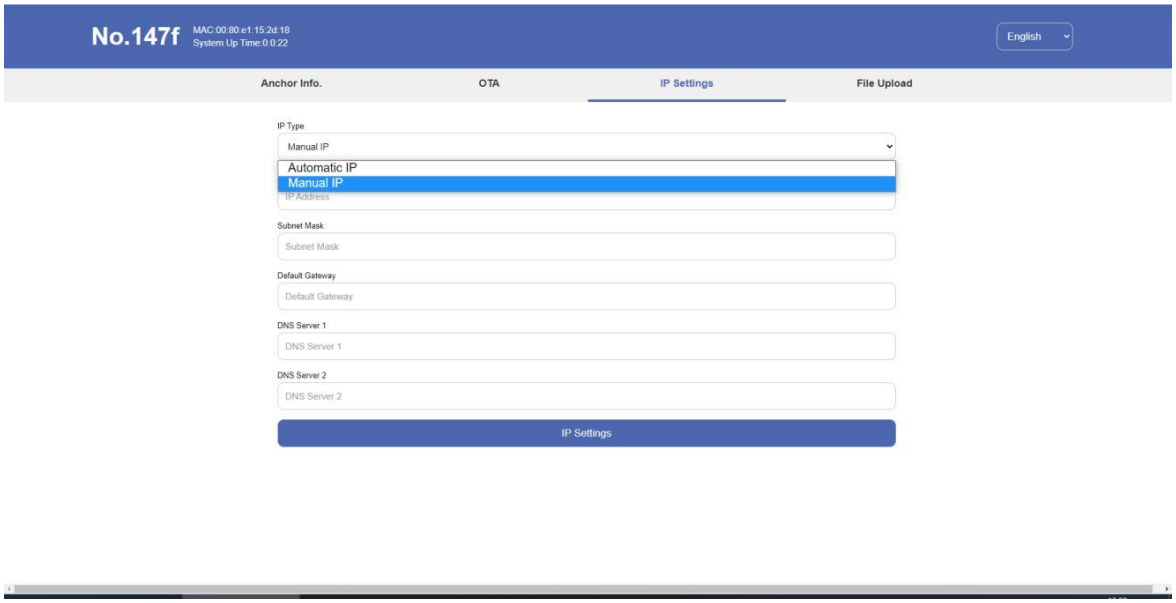
① Enter the initial access address 192.168.1.10. Then enter the default user name (admin) and password (admin), and click **[Sign in]**. (Configure the anchors one by one, not simultaneously, otherwise they will not be recognized.)

② Enter the following information and click **[Save]**. The anchor will restart automatically.

- Server IP Address：
- UWB Tunnel No.：Input any value from 1 to 4, and the signal tunnels of two adjacent anchors should not be the same.
- UWB mode：Primary Anchor /Slave Anchor / Second Primary Anchor (The Second Primary Anchor is generally used in scenarios with more than 8 anchors)
- UWB Power Settings Mode: It is recommended to select "Manual".
- UWB Power/UWB Antenna Delay Calibration/UWB Clock Synchronization/UWB self-calibration/Lag Delay: It is recommended to use the default values.
- Follow Master: The primary anchor does not need to set this item, slave anchor sets the last four digits of the primary anchor.
- LED Indicator: It is recommended to turn it on, and the LED color switch will play a role as a prompt.



③ IP Settings: It can be set to automatic ip or manual IP (default is manual IP). After setting, wait for 2-3 minutes, the device can automatically access the platform. (If the anchor is connected to the platform, the initial IP address will not be accessible, and the details of the anchor can be viewed on the platform; The anchor blue light flashing is in normal, otherwise please move to "1.1 Terms and Definitions" in this document to see definitions of different lamp colors.)

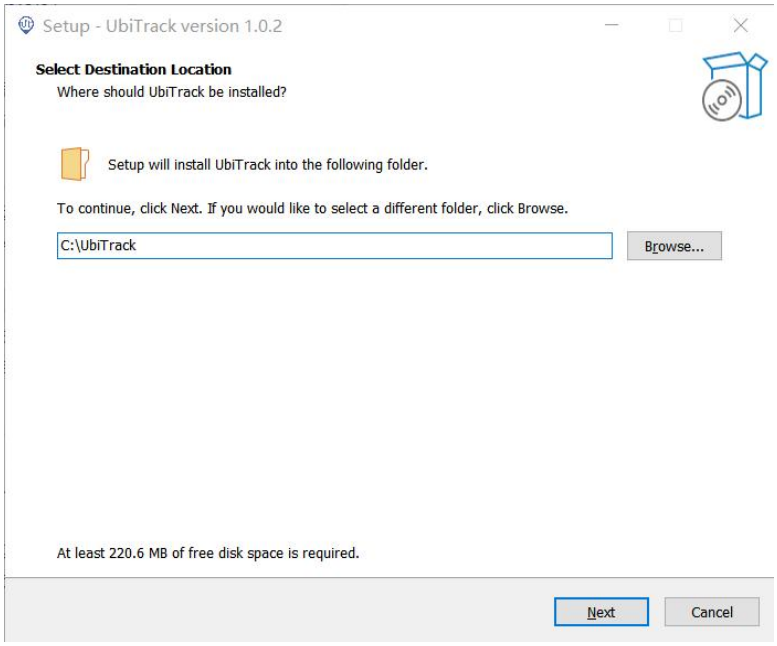


2.2 System Installation

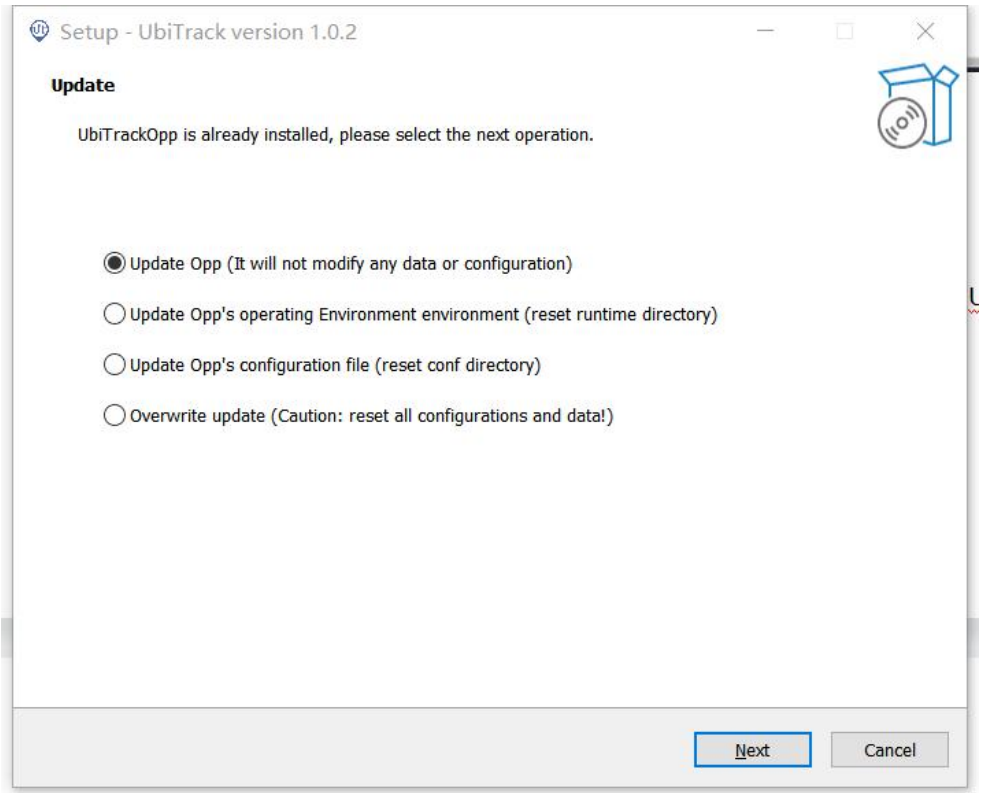
① Contact sales or after-sales staff to get the latest installation package of UbiTrack OPP (as shown below), and double-click to enable the installer.

② Select the language that will be displayed during installation and click **[OK]**.

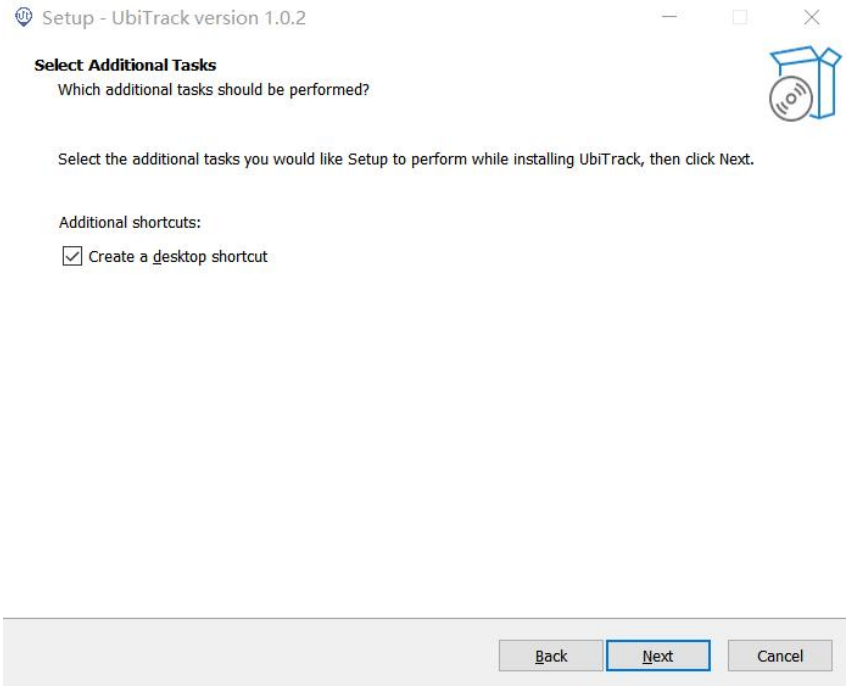
③ When the server has installed UbiTrack OPP for the first time, the following interface will be displayed, select the installation path and click **[Next]**. (Note: OPP must be installed in English-only path)



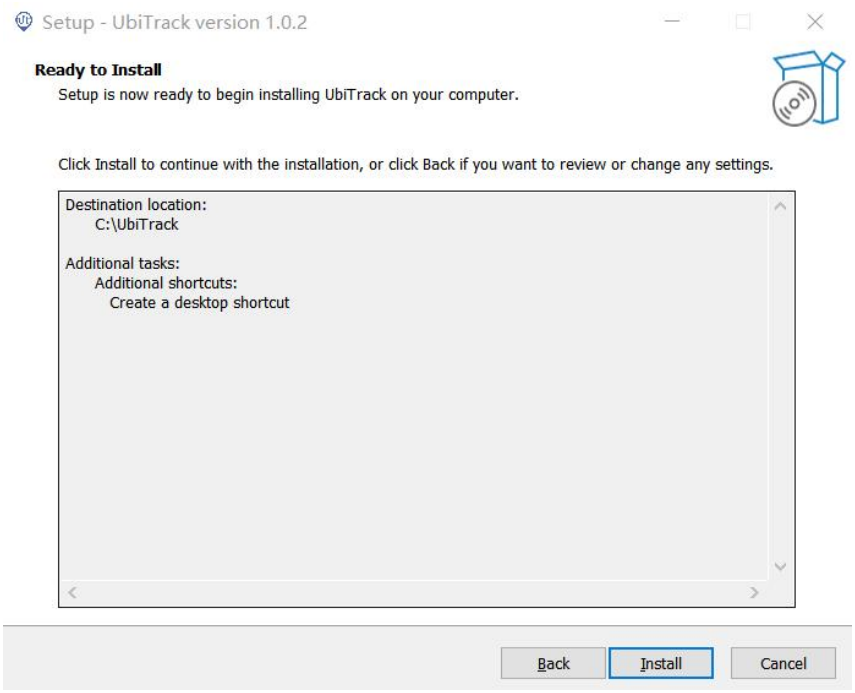
④ When UbiTrack OPP has been install on the server and intends to install the latest installation package, the following interface will be displayed, click **[Next]**.



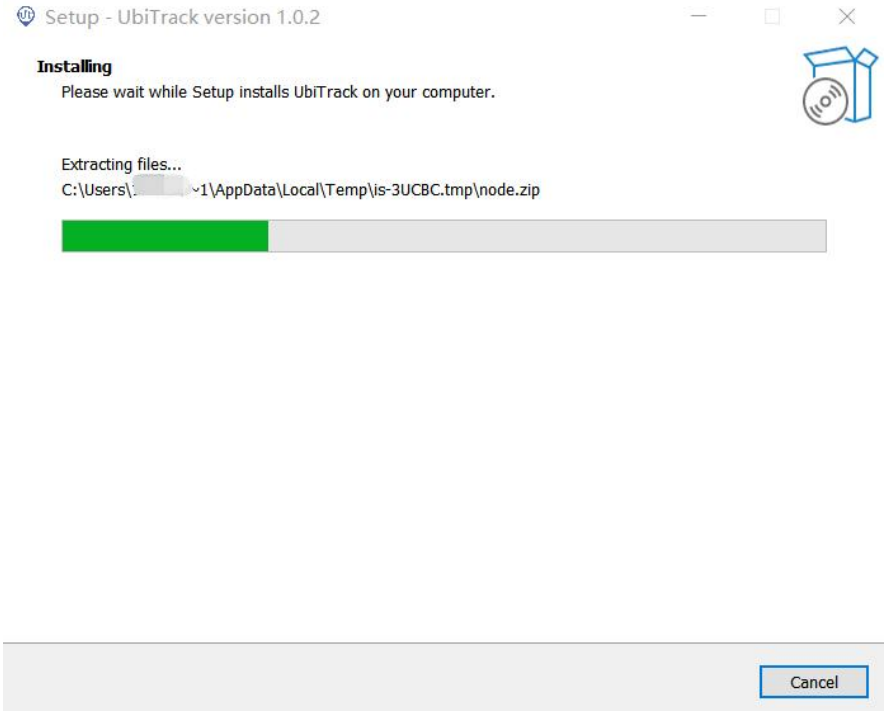
⑤ Select whether you want to create a desktop shortcut and click **[Next]**.



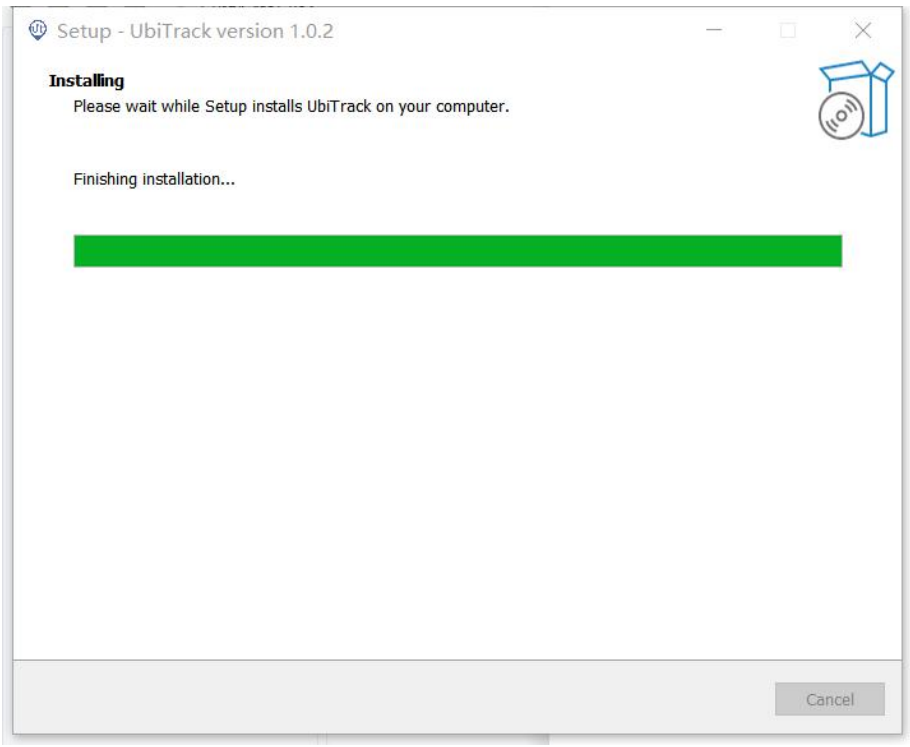
⑥ After confirming that the previous operations are correct, click **[Install]**, and the system will be installed on the server as required.

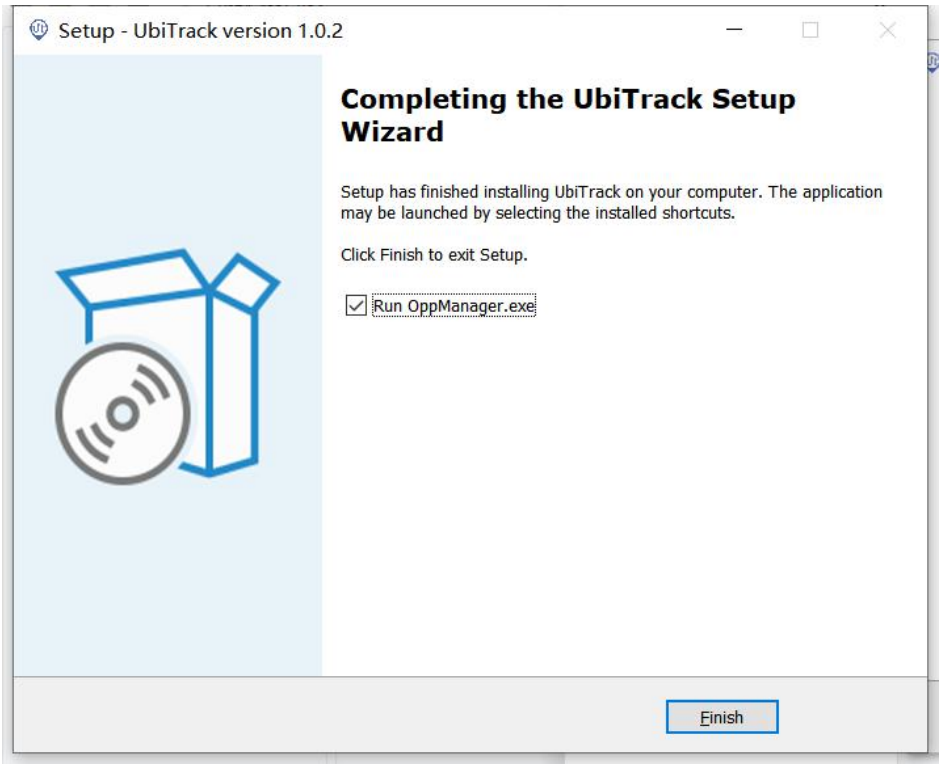


⑦ You can cancel the installation during the installation process.

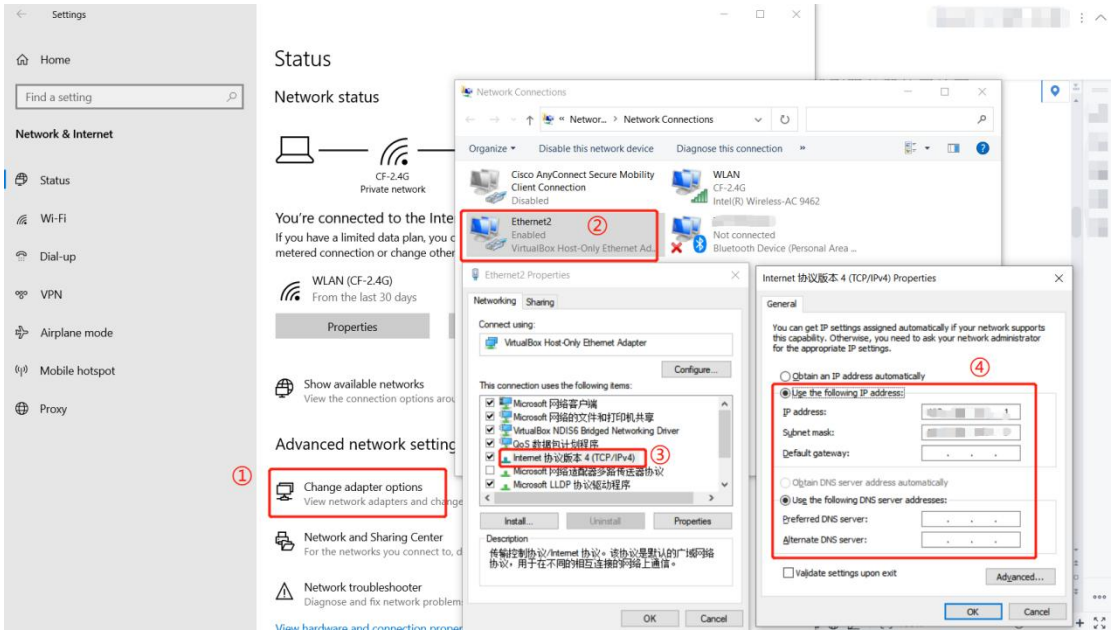


⑧ When the installation progress has been completed, it cannot be canceled, and do not close the installation process by shutting down, forcing the program to close by Task Manager, etc., which may cause the file to be missing and the installation will fail or the program cannot be used normally.

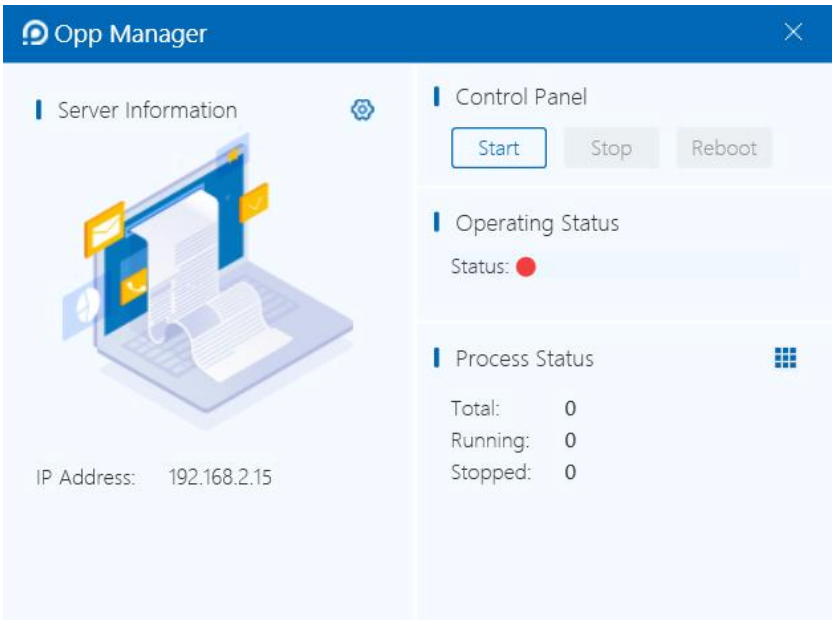

Setup - UbiTrack version 1.0.2
Installing
Please wait while Setup installs UbiTrack on your computer.
Finishing installation...
Cancel


Setup - UbiTrack version 1.0.2
Completing the UbiTrack Setup Wizard
Setup has finished installing UbiTrack on your computer. The application may be launched by selecting the installed shortcuts.
Click Finish to exit Setup.
Run OppManager.exe
Finish

⑨ Fix the server IP address: ①Open **[Network Status - Change Adapter Options]**; ②Find the network used by the server and right-click **[Properties]**; ③Room up the **[Properties]** button of the protocol in the picture; ④Switch to fixed IP mode and save it for sure. (fixed IP depends on the user's personal situation)



⑩ After running UbiTrack OPP, click **[Start]**.

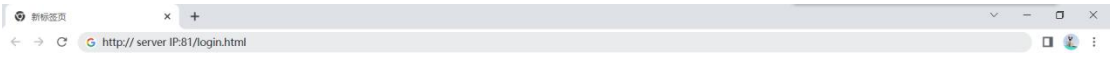


2.3 Platform Basic Configuration

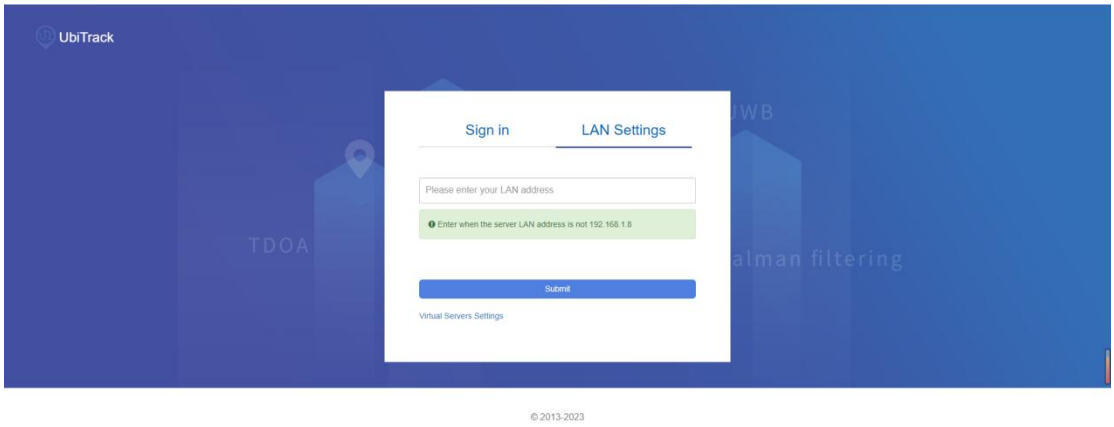
2.3.1 Log in to the platform

① After starting the server and opening OPP Manager, open Google Chrome browser, enter the

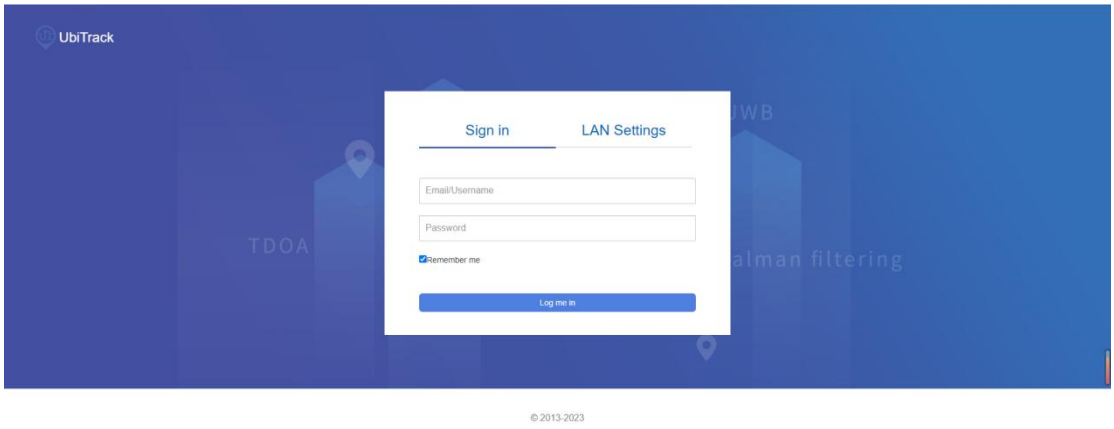
http:// server IP:81/login.html in the address bar, and enter the login interface of the positioning platform. ("server IP" please manually modify according to the user's device situation)



② On the server management interface, enter the IP address of the corresponding server and click [OK].

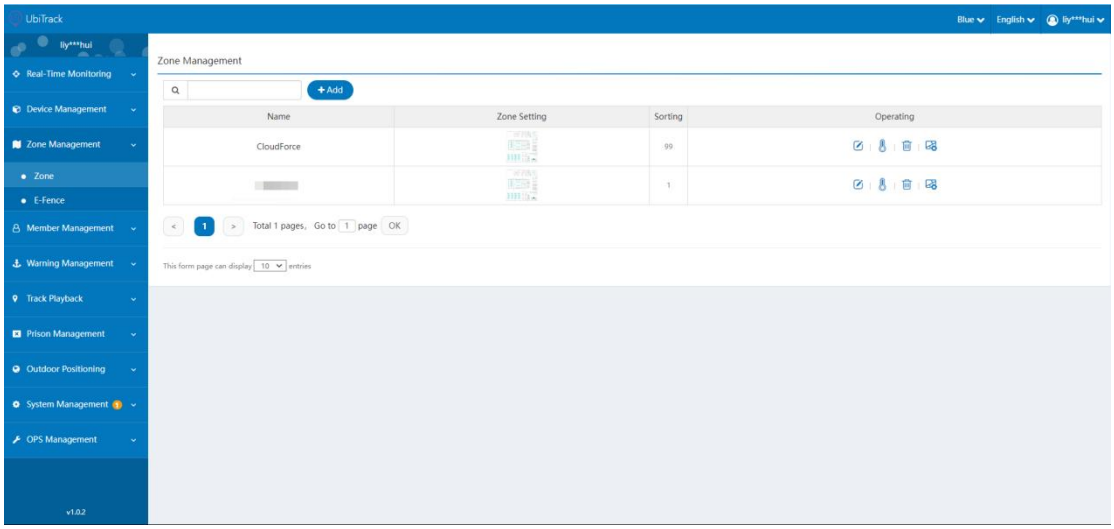


③ Enter the default user name (admin) and password (admin) on the user login interface, and click **[Log me in]** to enter the home page of the positioning platform.



2.3.2 Plan Ratio Configuration

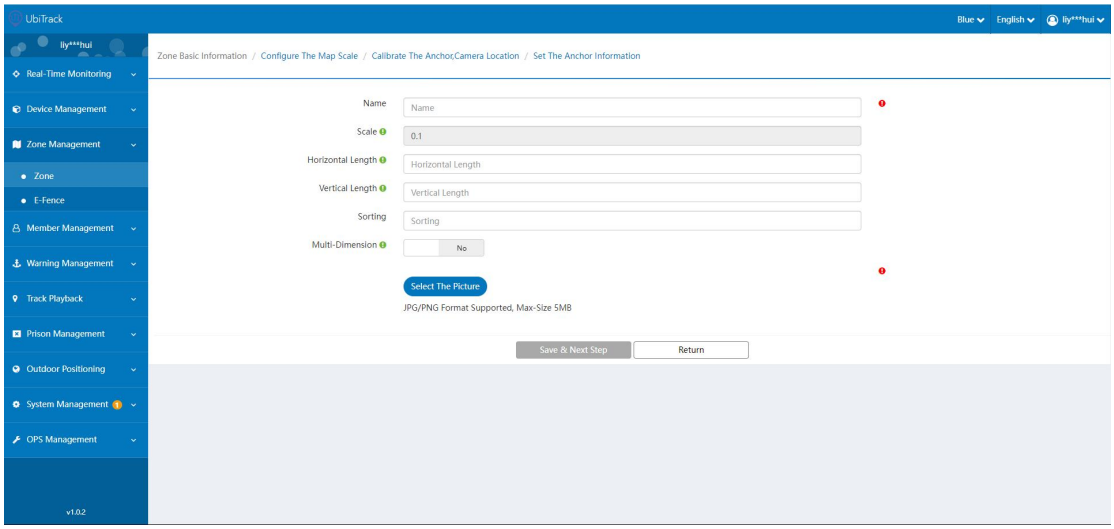
① Click **[Zone Management - Zone - Add]** to enter the "Zone Basic Information" interface.



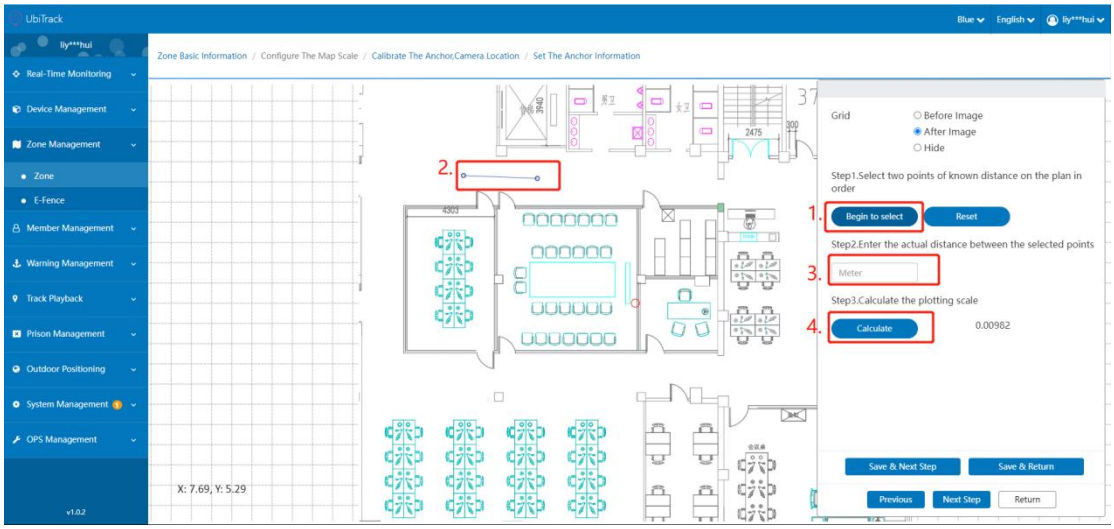
② Fill in the name of the zone, click **[Select The Picture]**, select the image to be uploaded, and click the **[Save & Next Step]** to enter the “Calculate the plotting scale” interface.

Note:

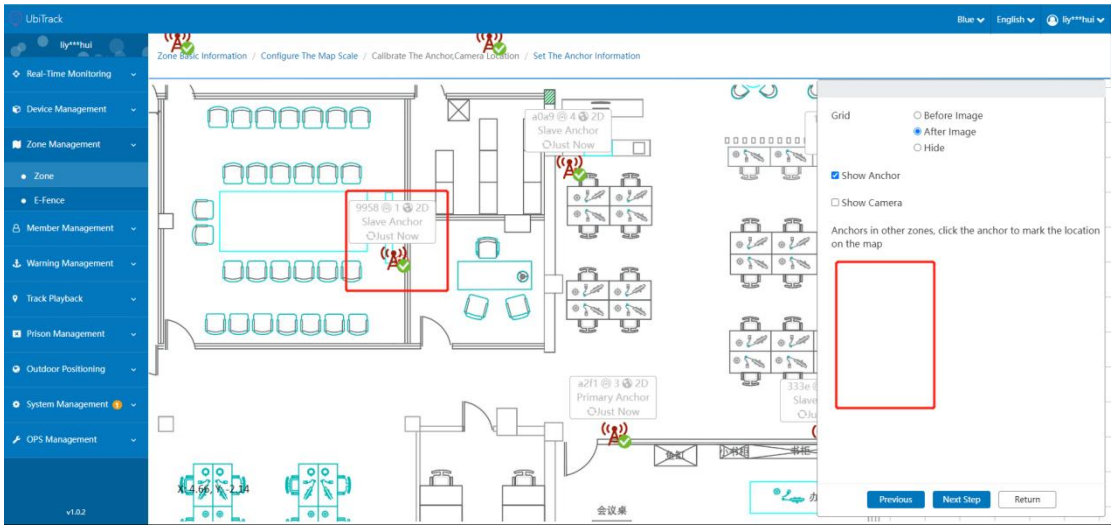
- All dimensions and layouts in the picture must be in proportion to the actual situation, otherwise the positioning accuracy will be affected.
- The image format only supports jpg/png format, and the Max-Size is 5MB.
- "Multi-Dimension" is to determine whether different types of anchors (2D/ 1D/ 0D) are displayed in the same zone.



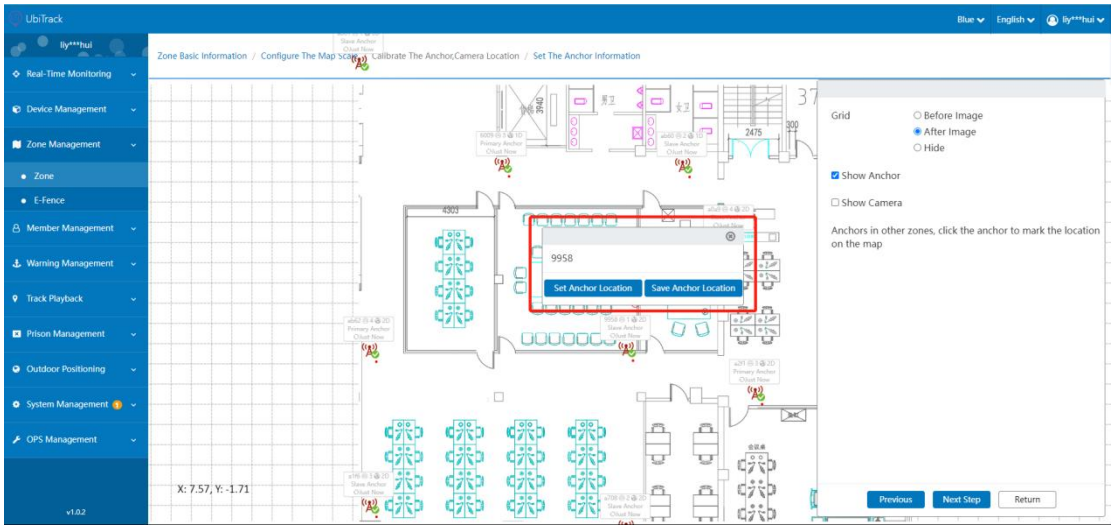
③ Click the **[Begin to select]**, select two points of known distance on the plan, after the confirmation, enter the actual distance between the selected points, finally click the **[Calculate]** calculate the plotting scale and then click **[Save & Return]** enter the Set anchors and cameras location interface.



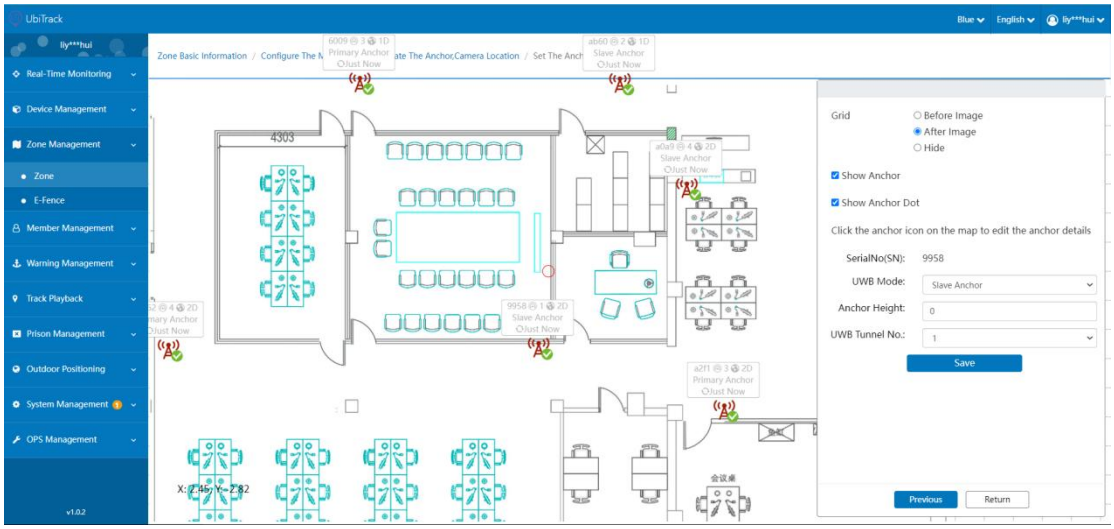
④ In **[Device Management - Anchor]**, the anchor associated to the current zone will be displayed at the (0,0) coordinate point waiting for calibration, or the anchors not associated to the current zone will be displayed on the right side waiting for association.



⑤ Click the anchor that needs to be calibrated, the platform will prompt the corresponding pop-up window (as shown in the figure), click **[Set Anchor Location]** and slide the controller (mouse, etc.) to move to the position you want to calibrate, click the platform again will display the prompt pop-up window again, click [Save Anchor Location] to successfully calibrate a anchor location, and so on for the rest of the anchor calibration methods. After the calibration is completed, if you want to modify the anchor information simply, click **[Next]** to enter the "Set Anchor Information" interface, if you do not want to modify, the current step completes the association of the anchors with the plan.



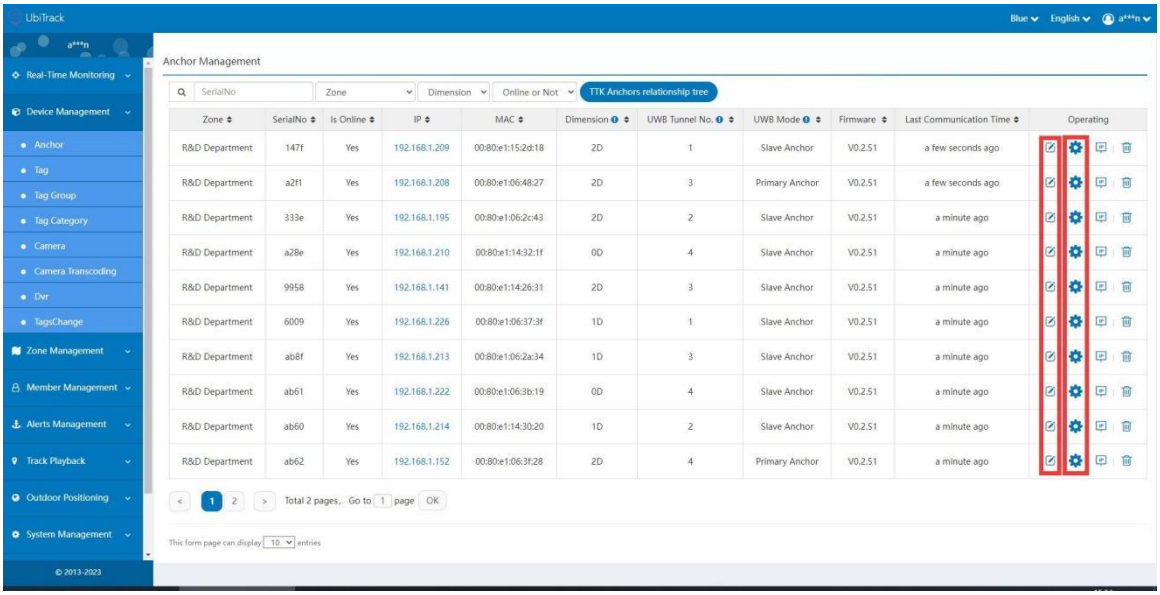
⑥ Click the anchor you want to modify the information, the modified information will be displayed on the right, click **[Save]** after the modification is completed to update the anchor settings, set other anchors, and so on.



2.3.3 Anchor Configuration

According to the positioning requirements, 2D, 1D and 0D positioning methods can be selected. Among them, 2D method can achieve accurate positioning, supporting TWR and TDOA two algorithms. 1D method only supports TWR algorithm, which is suitable for positioning requirements of long and narrow spaces, such as corridors. 0D method also only supports TWR algorithm, which can be used to determine whether the tag is in the positioning area or not.

Click **[Device Management - Anchor]**, based on the last four digits of the serial number, find the anchor to be provisioned. Click **[Edit]** and **[advanced Settings]** to make the relevant settings.



1) 2D method

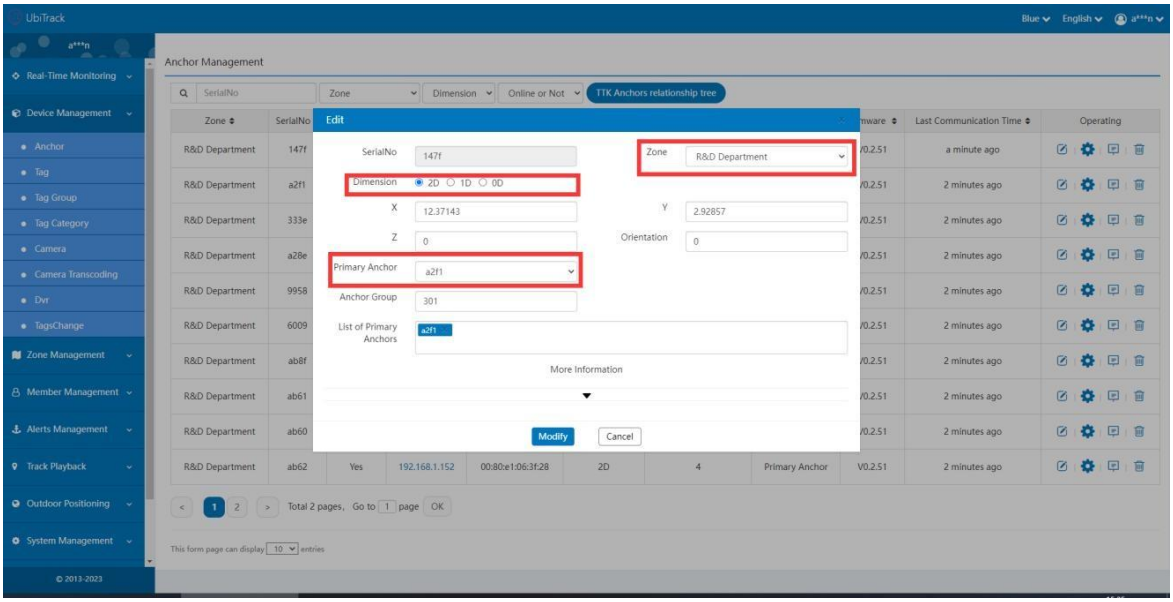
Choose 2D method, please set on the **[Edit]** as below:

① Zone: select the area which the anchor belongs to.

② Primary Anchor: the last four digits of the corresponding primary anchor serial number.

③ Dimension: 2D (can only be selected individually).

Note: There can only be one primary anchor in each area. When configuring each anchor, the last four numbers of the main anchor serial number must be filled in the "Primary Anchor". For example, the anchor serial number is “1234ABCD”, then “ABCD” must be filled in the "Primary Anchor" tag.



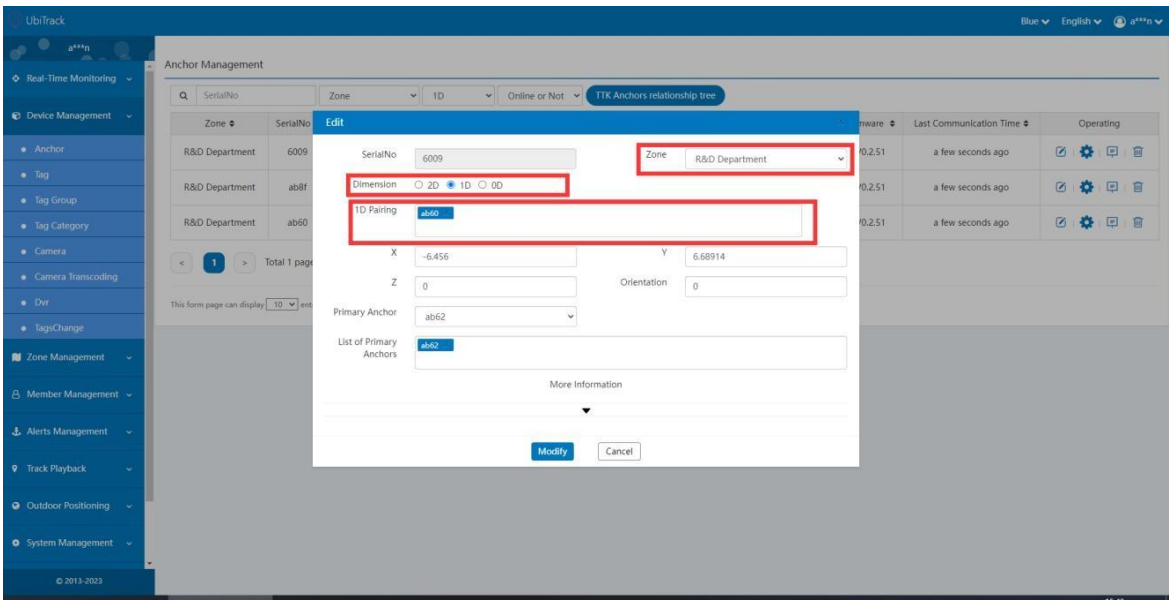
2) 1D method

Choose 1D method, please set on the **[Edit]** as below:

① Zone: select the area which the anchor belongs to.

② Dimension: 1D (can only be selected individually).

③ 1D Pairing: last four digits of the serial number of the matching anchor. (Multiple 1D paired anchors can be selected for use in the middle of a long corridor, pairing anchors on both sides)



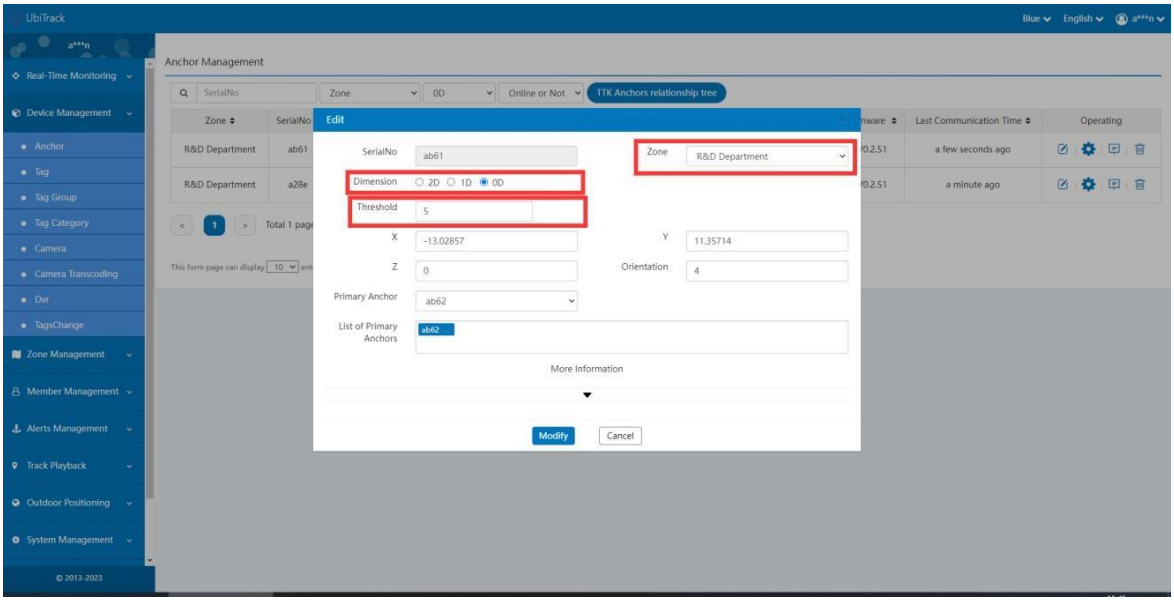
3) 0D method

Choose 0D method, please set on the **[Edit]** as below:

① Zone: select the area which the anchor belongs to.

② Dimension: 0D (can only be selected individually).

③ Threshold: the maximum radius of the positioning area.

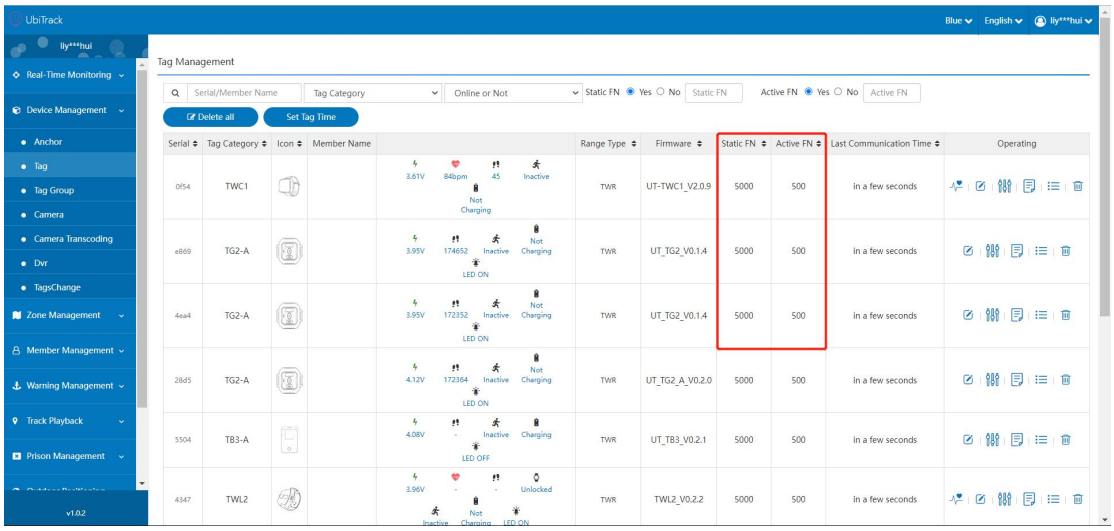


2.3.4 Tag Configuration

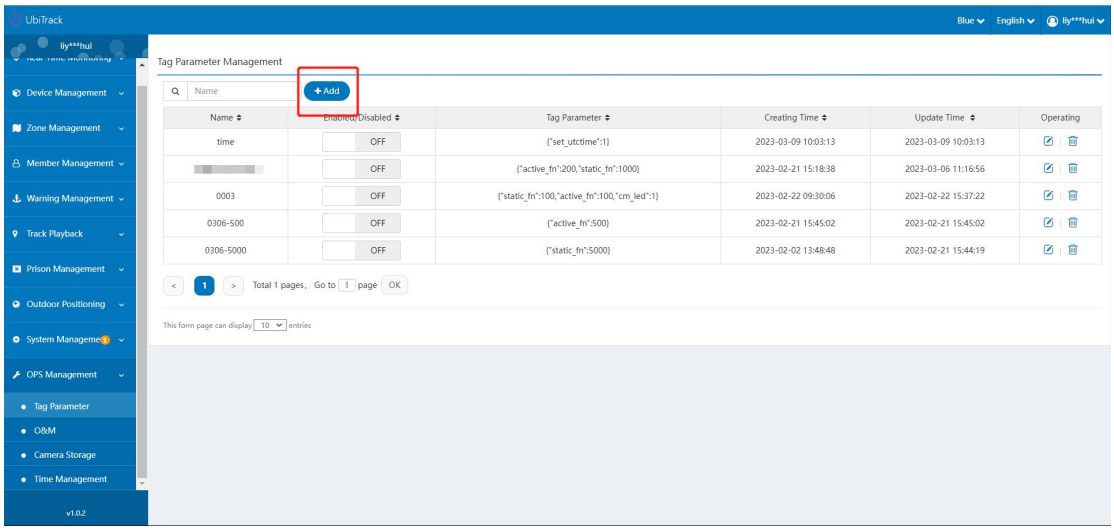
Start the tag normally and move it into the configured area and anchor, and the tag will be

automatically associated to the platform **[Device Management - Tag]**. Click **[Real-Time Monitoring - 2D View]** to see whether the tag is displayed normally in the plan and accurately positioned in real time (Figure 1 below), if not, please check whether the active/static frequency of the tag in **[Device Management - Tag]** is too high.

Default value: static 5000, active 500; Recommended normal value: static 1000, active 200.



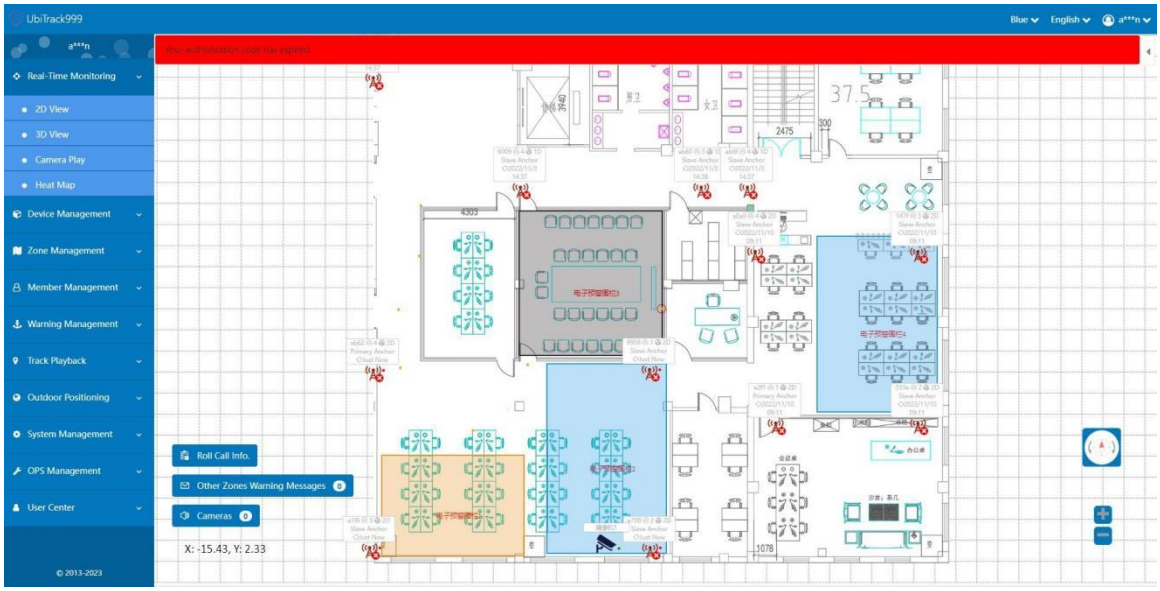
If it is too high, click **[OPS Management - Tag Parameter - Add]** to set the command to modify the active/static frequency of the tag, move the tag to the anchor that sends the signal, and wait for the tag to execute the modification command. (For detailed operation steps, please refer to **[3.9.1 Tag Parameter Management]**), or use the UbiTrack PC tool to directly modify the tag active/static frequency.



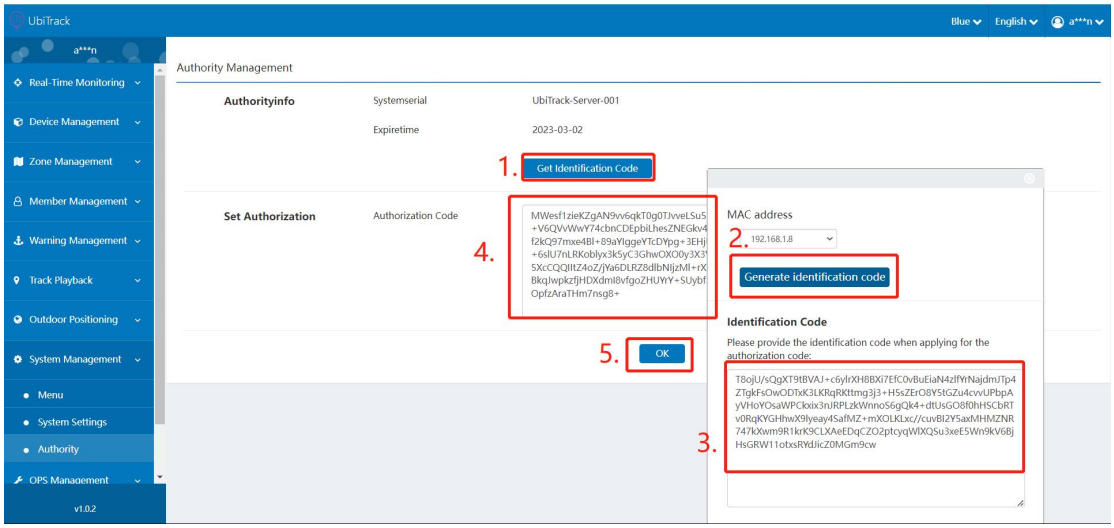
2.3.5 Authorization Code Expiration

When the above operations are completed, click to view **[Real-Time Monitoring - 2D View]** to

display the “Your authorization code has expired.”



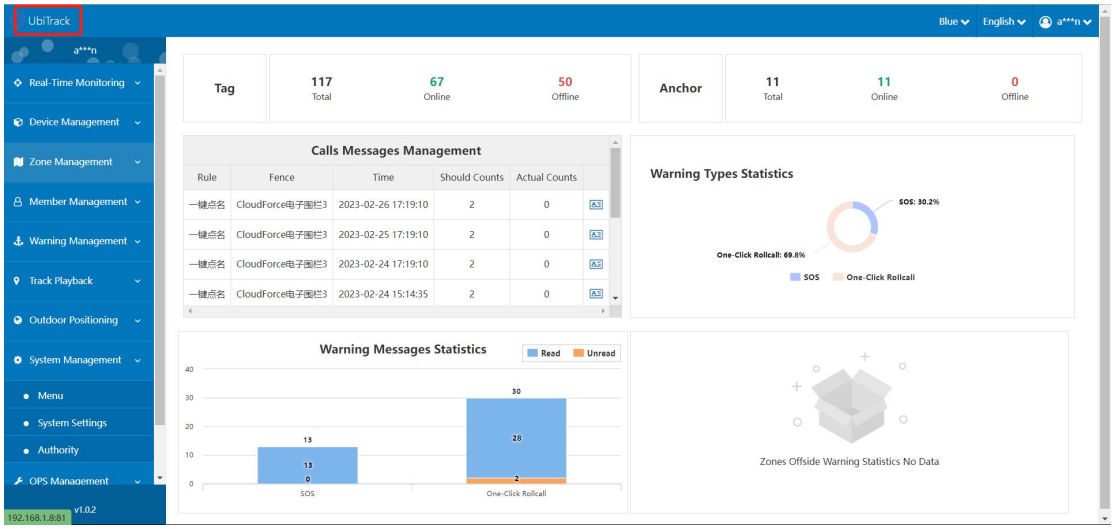
Click **[System Management - Authority - Get Identification Code]**, click **[Generate identification code]** and provide the identification code to the sales or after-sales staff. We will send you a new authorization code generated by the system. Please enter the new authorization code and click **[OK]**.



3. Platform function

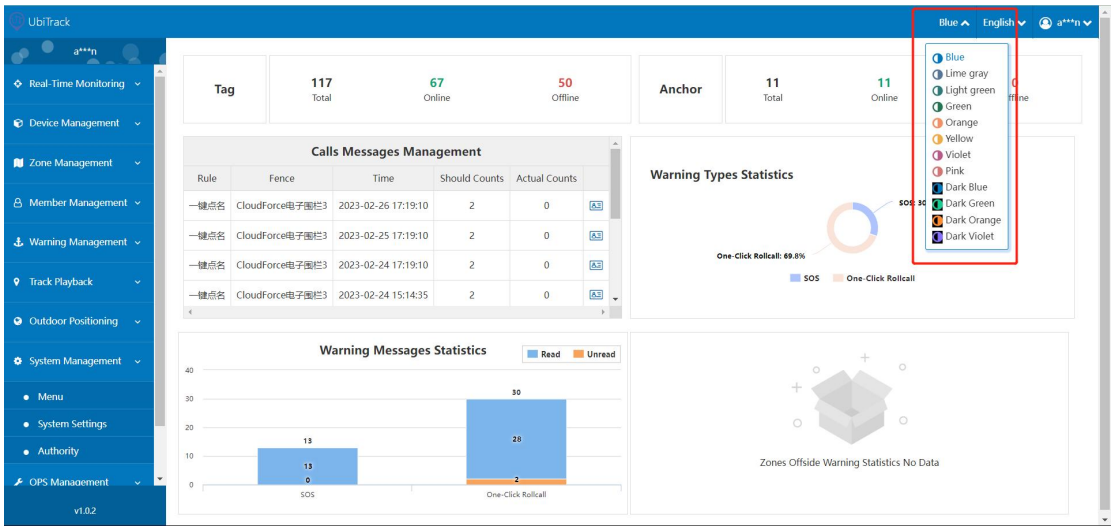
3.1 Home Function

Click the platform icon and name button in the upper left corner to enter the platform **[Home]**.



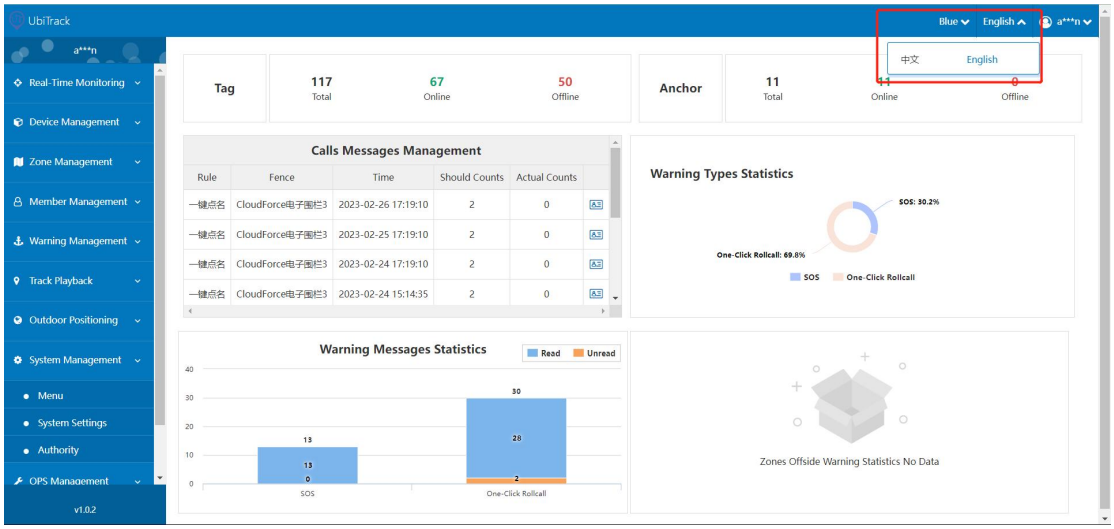
3.1.1 Switch Style Mode

Click the style button in the red box, the system will display the list, select the option to switch the style.



3.1.2 Switch Language Mode

Click the style button in the red box, the system will display the list, select the option to switch the language.



3.2 Real-time Monitoring

3.2.1 2D View

3.2.1.1 Plan

- Click the tag and anchor icon to view the detailed information window of the device.
- The controller (mouse, etc.) holds down the control key and drags the plan, and the plan will follow the movement; The controller (mouse, etc.) hovers over the plan to scroll through the scroll wheel and the plan will zoom in/out, or click the  button to achieve the same effect;

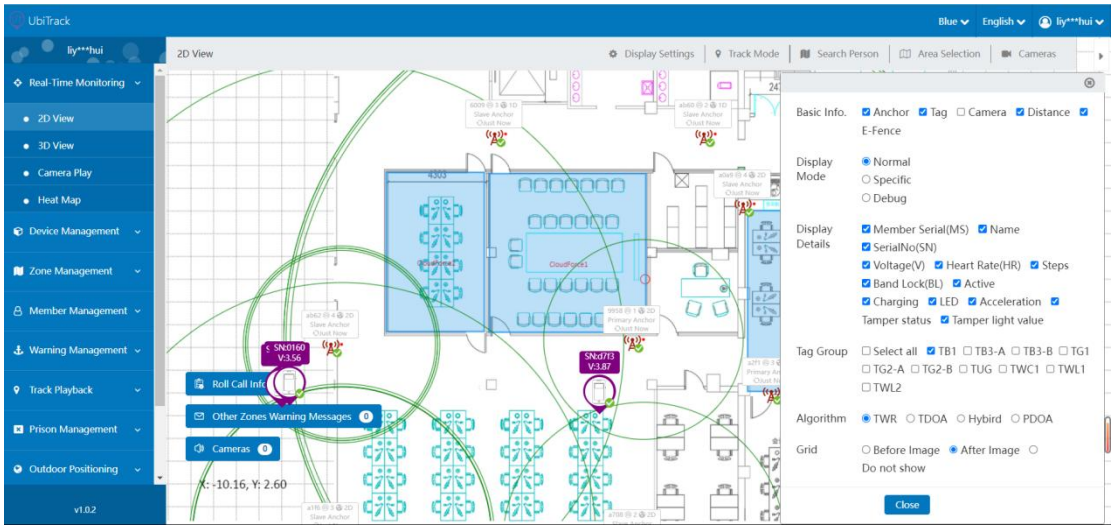
Click the  button to rotate/correct the current plan. (only the current display is rotated, not modified from the original data)

- 

click to view alert data.

3.2.1.2 Display Settings

Users can set the view to only display device information such as anchors and tags, and can also modify the displayed personnel information, algorithm configuration, etc., and set the "distance" information to see how nearby anchors calibrate a certain tag. (if there are many tags, it is recommended to use it with "**Member Management**" to reduce the mutual interference of the calibrated coils between the tags)

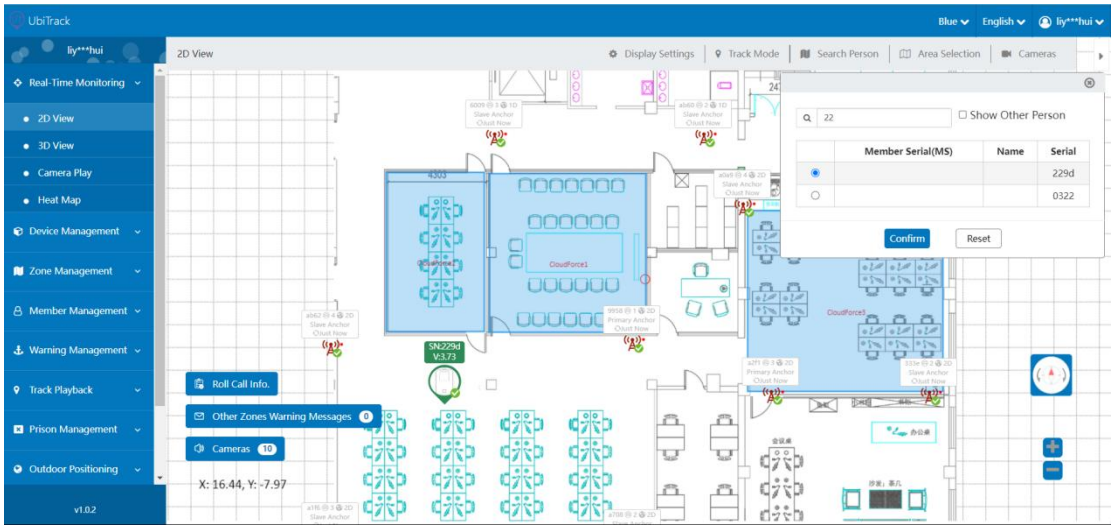


3.2.1.3 Track Mode

After setting the track mode, you can choose the number of track points you want to display, and you also need to select the number of track points you want to display on the plan in the form of "point" or "line", after configuration, the tag moving on the plan again will show the tailing effect, and the tailing situation is determined according to the number of points set.

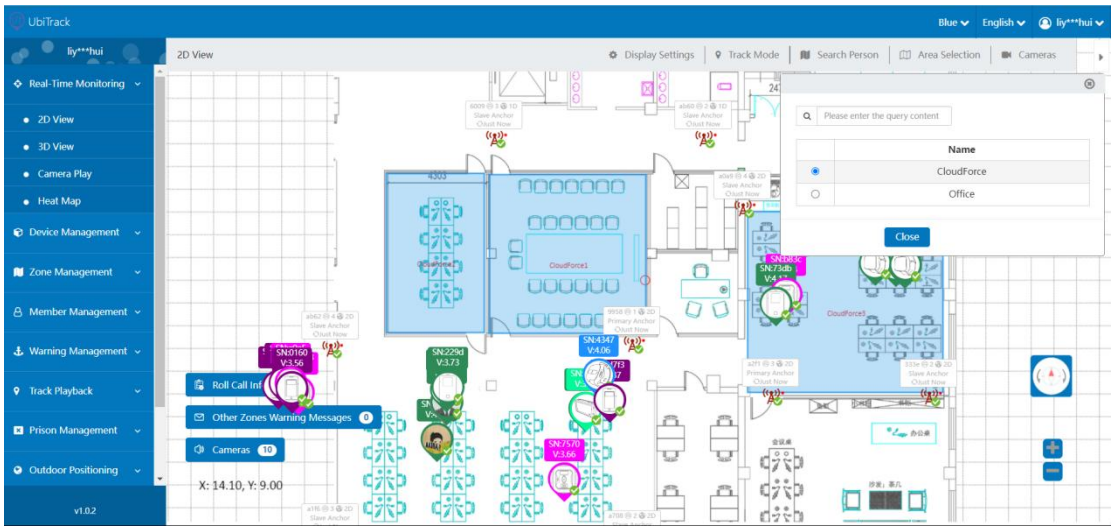
3.2.1.4 Search Person

You can find the person or device located under the plan of the zone based on the member serial, name or tag serial, and uncheck "Show Other Person" when selected to observe only the selected person or device.



3.2.1.5 Area Selection

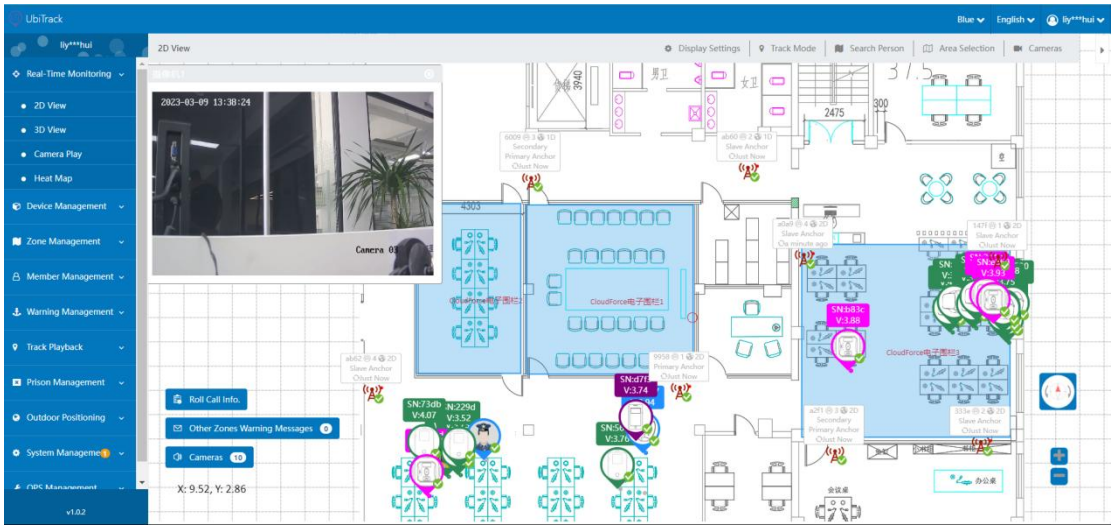
Multiple zone plan information is configured in **[Zone Management - Zone]**, toggle the display of related content in different areas here.



3.2.1.6 Cameras

The camera added in **[Device Management - Camera]** will be displayed here, and the real-time

video window on the left will pop up after checking, if there is no relevant camera data, it will be empty data here.



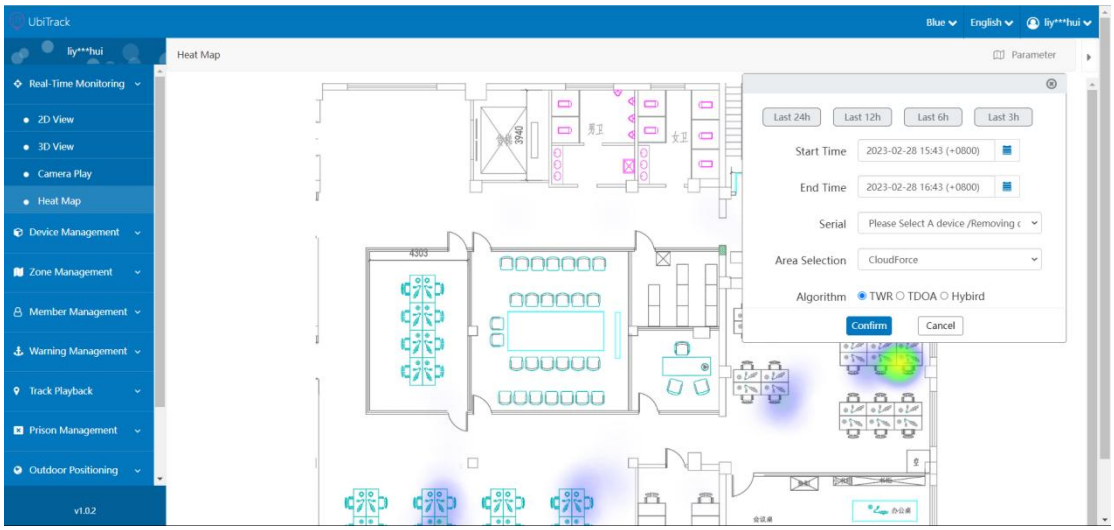
3.2.2 3D View

- Multiple zone plan information is configured in **[Zone Management - Zone]**, toggle the display of related content in different areas here.
- Users can set the 3D view to display only the anchor, tag and other information, and can also modify the positioning method, tag status and size through the configuration.

3.2.3 Heat Map

Click **[Parameters]** in **[Real-Time Monitoring - Heat Map]** to prompt the filter window, and users can view all tags or individual tag stays in a certain period of time and area through configuration

items such as filter time, tag, and area.



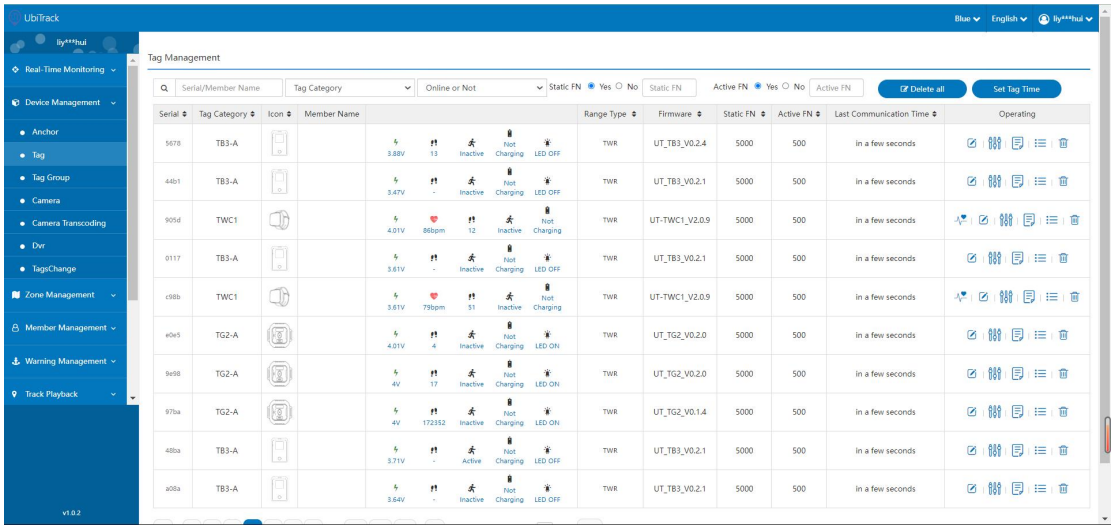
3.3 Device Management

3.3.1 Anchor

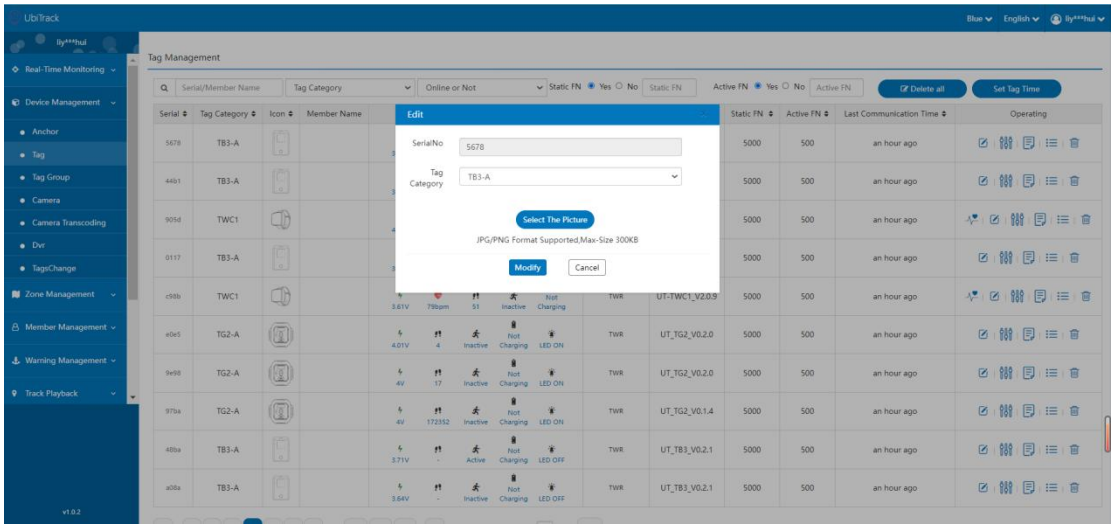
[Device Management - Anchor] can change the anchor's zone, primary/ slave anchor, clock synchronization and other configuration items according to user needs. The **[Edit]**, please refer to **[2.3.3 Anchor Configuration]**; **[Advanced Settings] [IP Settings]** please refer to **[2.1.2 Network Configuration]**.

3.3.2 Tag

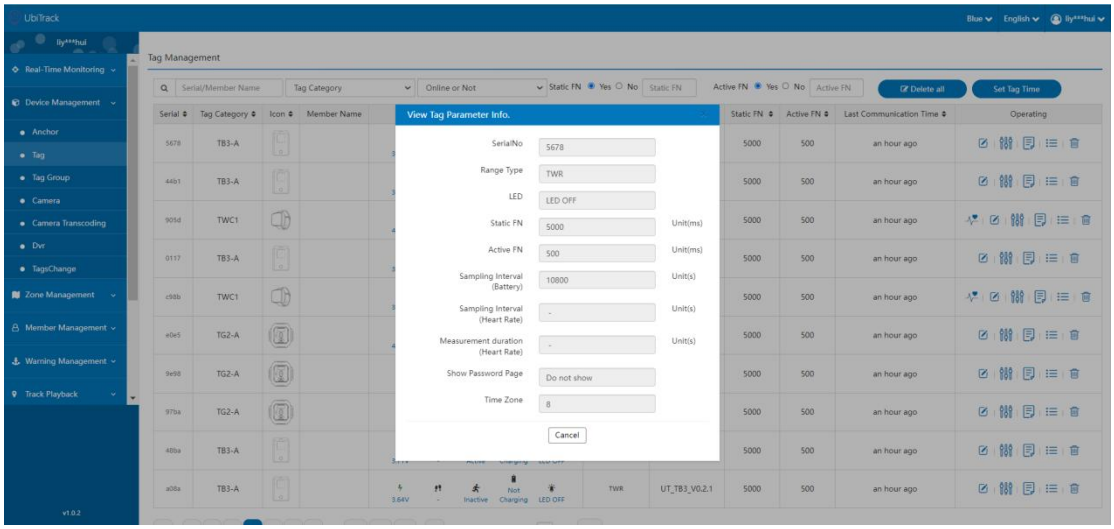
- In **[Device Management - Tag]**, users can find a certain or type of tag through filter items such as tag serial, member name, range type, etc., and can delete the current display result and set the tag time;



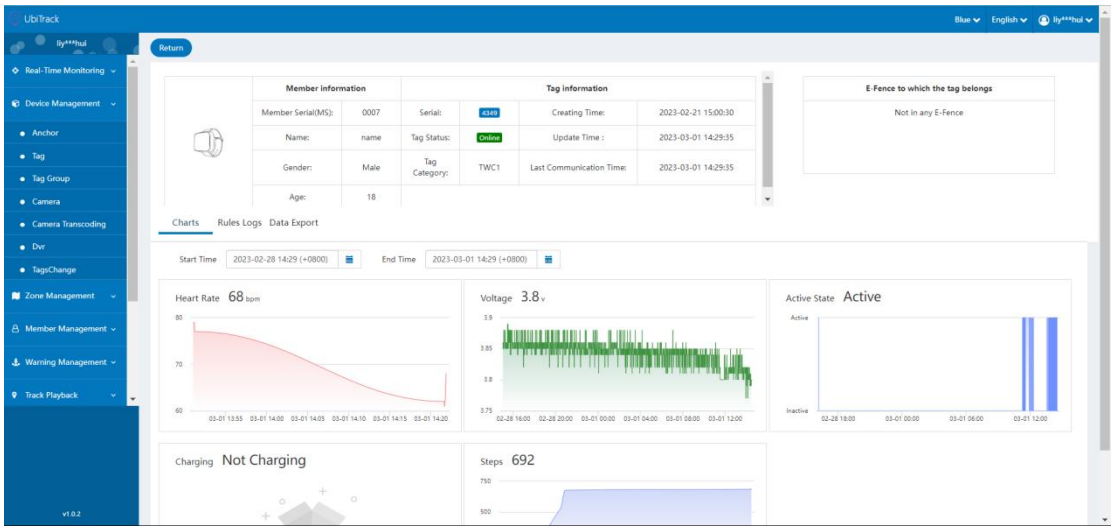
- Click the **[Device Management - Tag - Measure Heart Rate]**. The platform will send the command to measure heart rate to the tag, and the test results will be fed back to the positioning platform. (This function is limited to Wristband)
- Click the **[Device Management - Tag - Edit]** to open the edit window, which allows you to change the tag category and add a tag image.



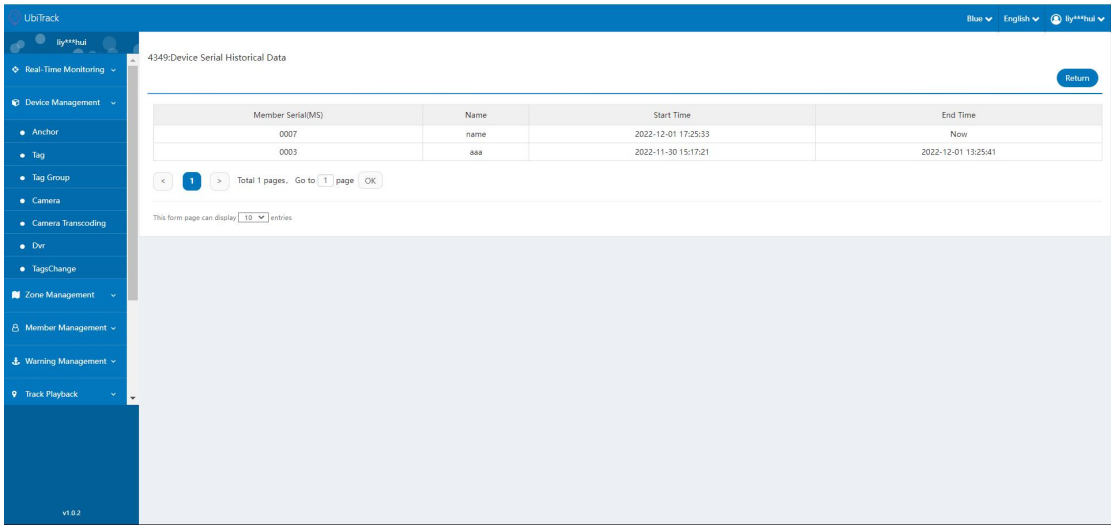
- Click **[Device Management - Tag - View Tag Parameter Info]** to view the inherent parameter information of the tag itself, such as the serial , range type, and LED status of the tag.



- Click **[Device Management - Tag - View Tag Details]**, you can view the basic information of the tag, member information and other content, and switch to **[Rules Logs]** to view which warning messages have been triggered by the tag, and **[Data Export]** can export all the data under the set time period of the tag.

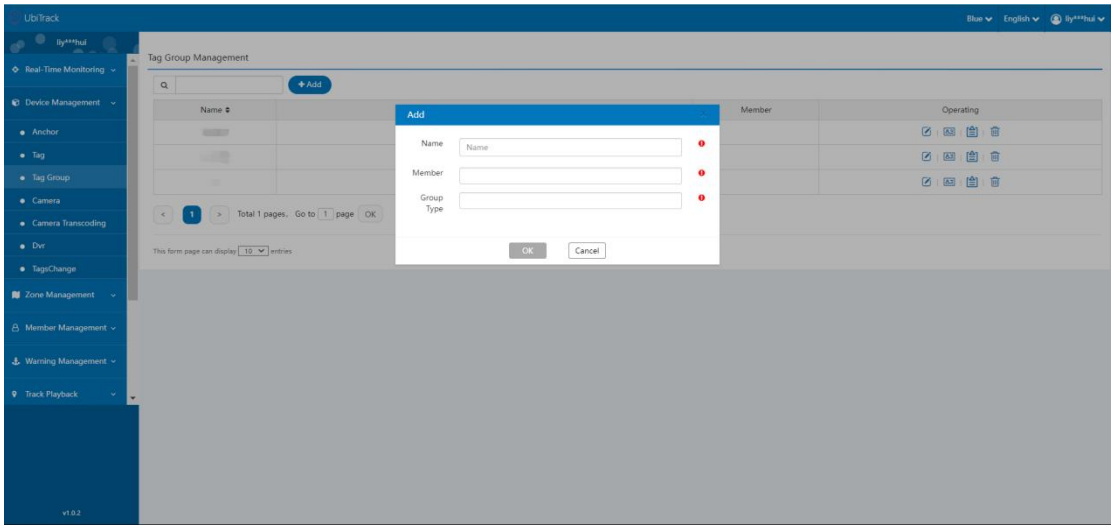


- Click **[Device Management - Tag - Device Serial Historical Data]** to view who has worn the tag.

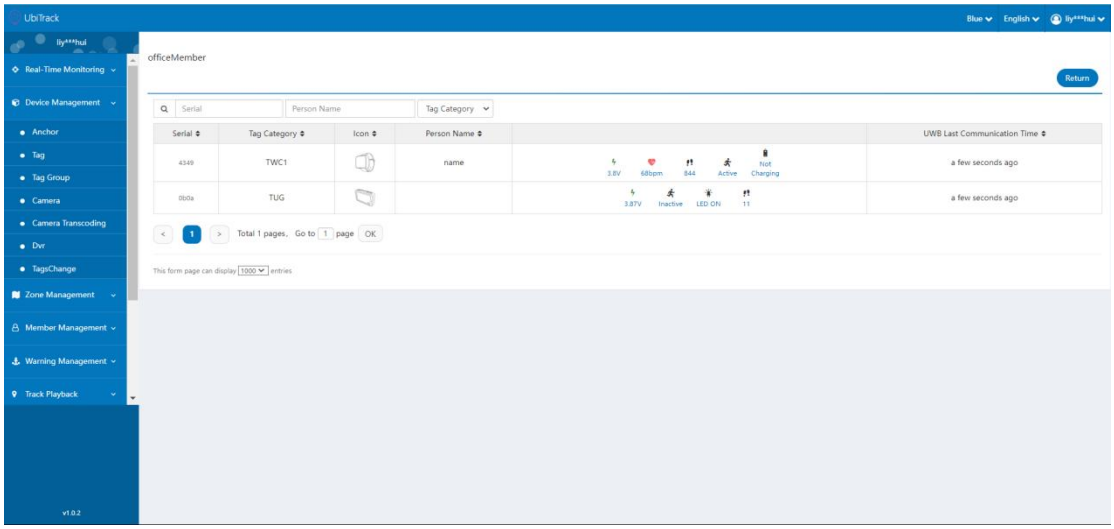


3.3.3 Tag Group

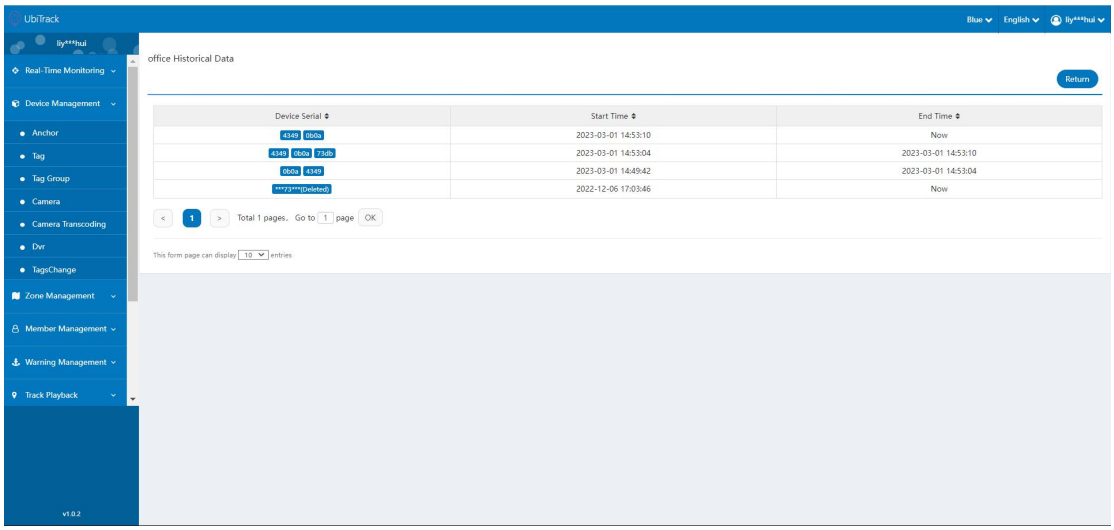
- Click **[Device Management - Tag Group - Add]** to display the following interface, fill in the name, member, and group type and click **[OK]** to add a new set of tag groups, which can be used to distinguish the warning objects when alerting



- Click **[Device Management - Tab Group -**  **Member]** to view the simple basic data of each tag under the tag group.



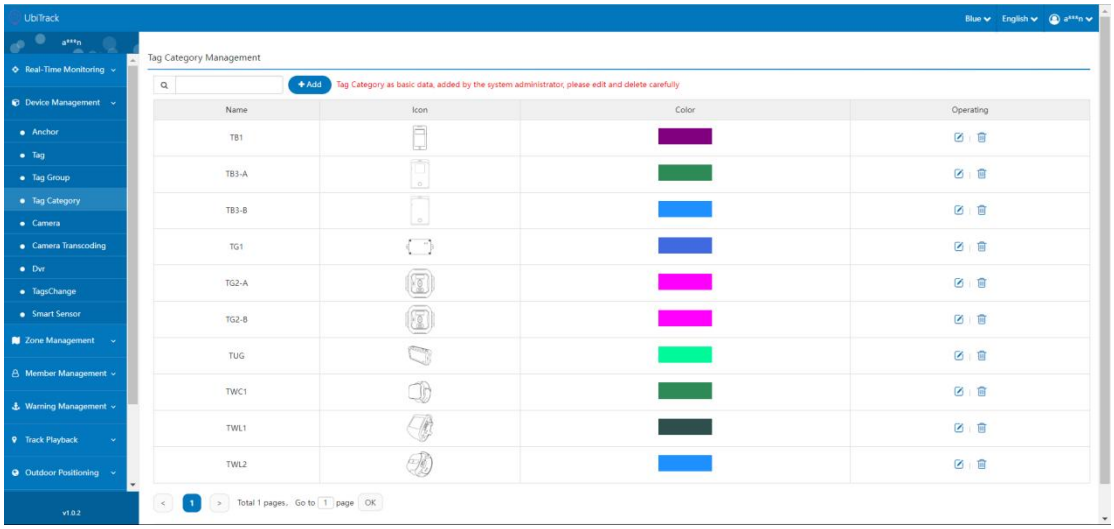
- Click **[Device Management - Tag Group -**  **Historical Data]** to view the existing tag members and past tag members information of the tag group.



3.3.4 Tag Category

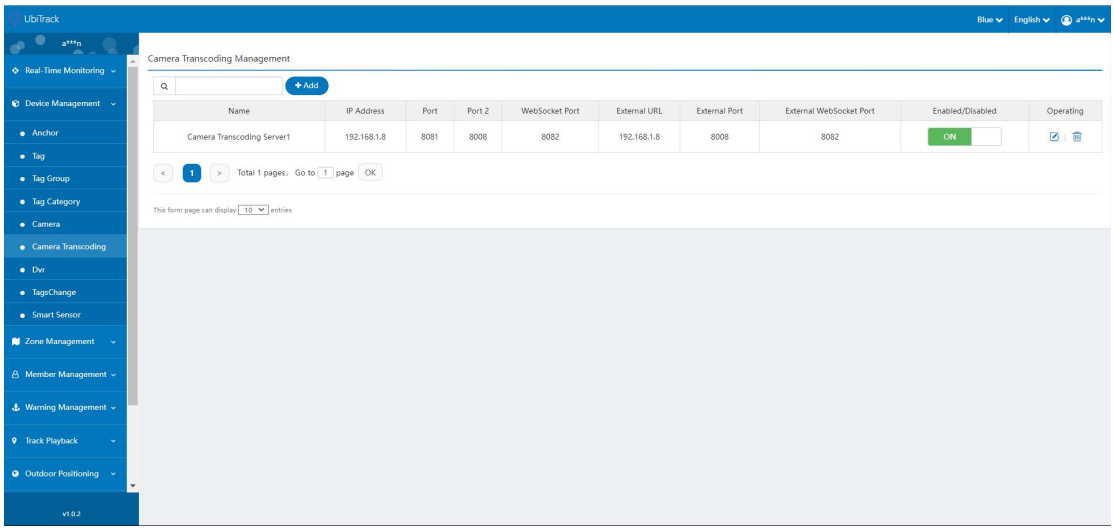
[Device Management - Tag Category] can add, delete, modify and check different tag category, the system will give the existing hardware tag category by default, it is recommended not to modify the default category, because after turning on "Automatically modify Tag Category" in **[System Management - System Settings]**, the tag is associated to the platform, and the system will screen according to the tag firmware information and the default category here.

If users need to distinguish the tag category by themselves, they can disable "Automatically modify Tag Category" in **[System Management - System Settings]**, and add a category to [Device Management - Tag Category Management] for independent management.

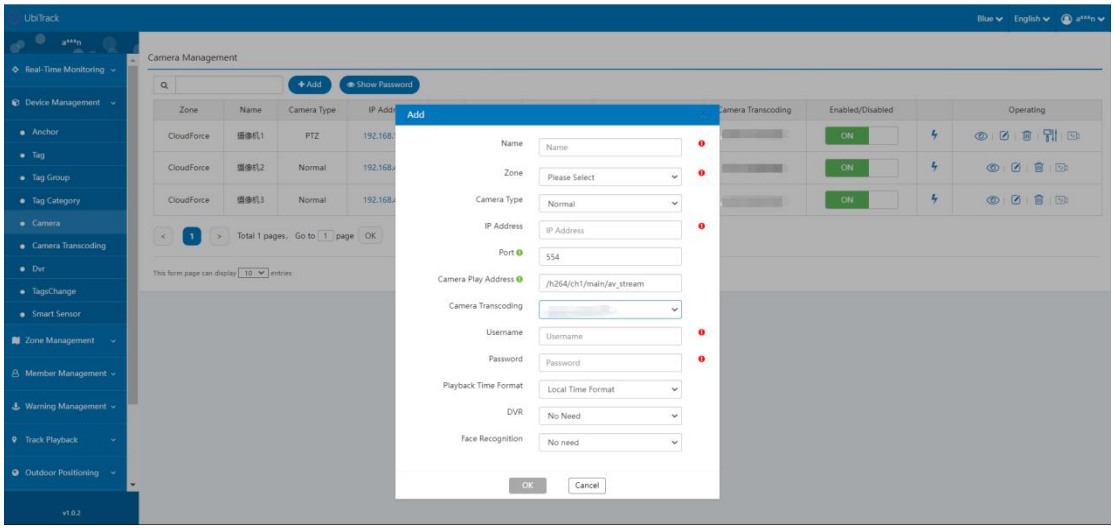


3.3.5 Camera, Camera Transcoding and Dvr (Only support some Hikvision products)

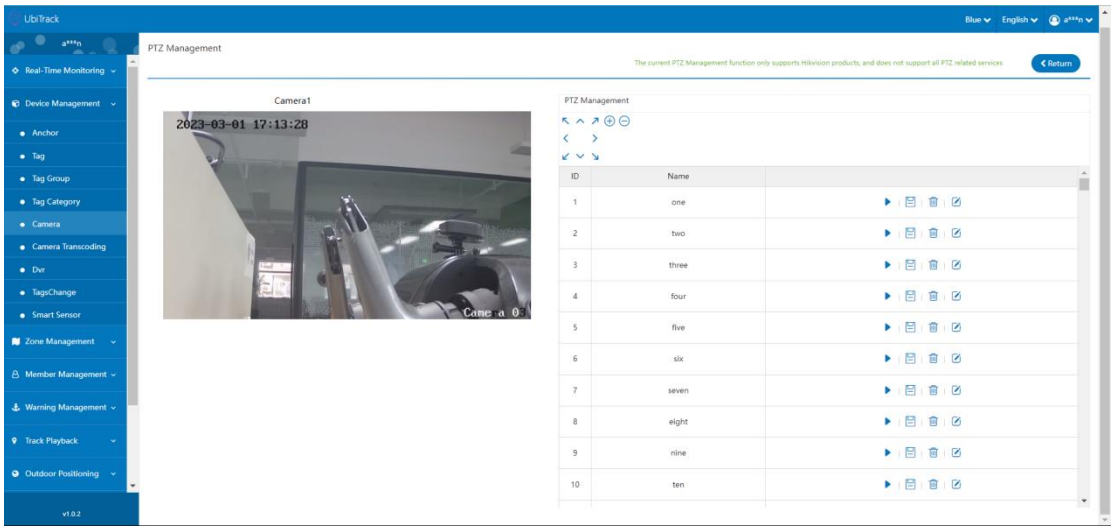
① Enable the default transcoding service in **[Device Management - Camera Transcoding]**, or click Add to add the user's own transcoding service according to the rules and enable it.



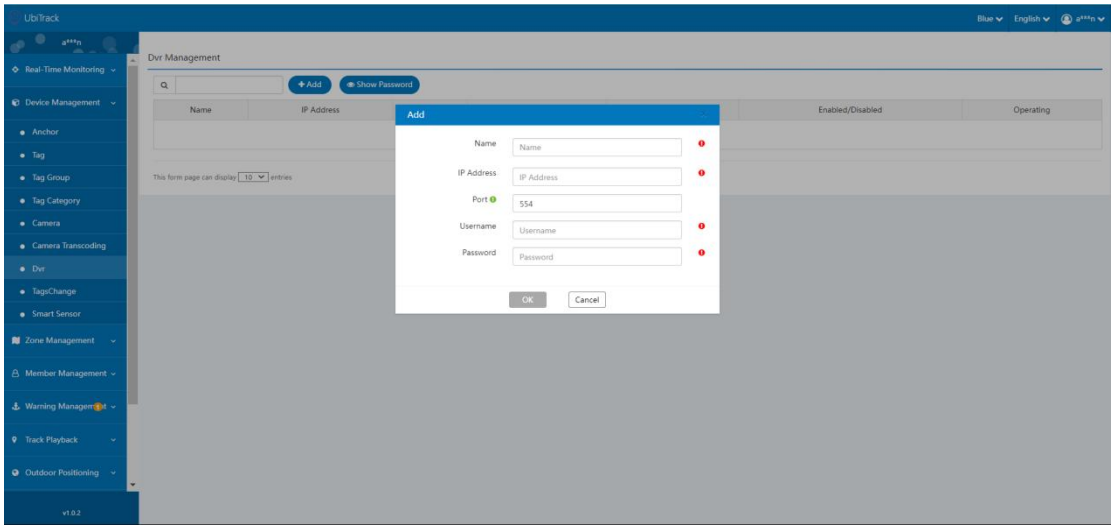
② Click **[Device Management - Camera - Add]**, Fill in the required fields such as name and zone, and associate the enabled transcoding service to the new camera, if you want to save the camera data content, you can add a hard disk recorder and link it to the specified camera (see step 4 for details), if the camera does not need the storage function can be used normally.



③ Click **[Device Management - Camera - PTZ Management]**, you can view the real-time picture of the camera, operate the camera to rotate the lens, etc. (The camera needs to have PTZ function)

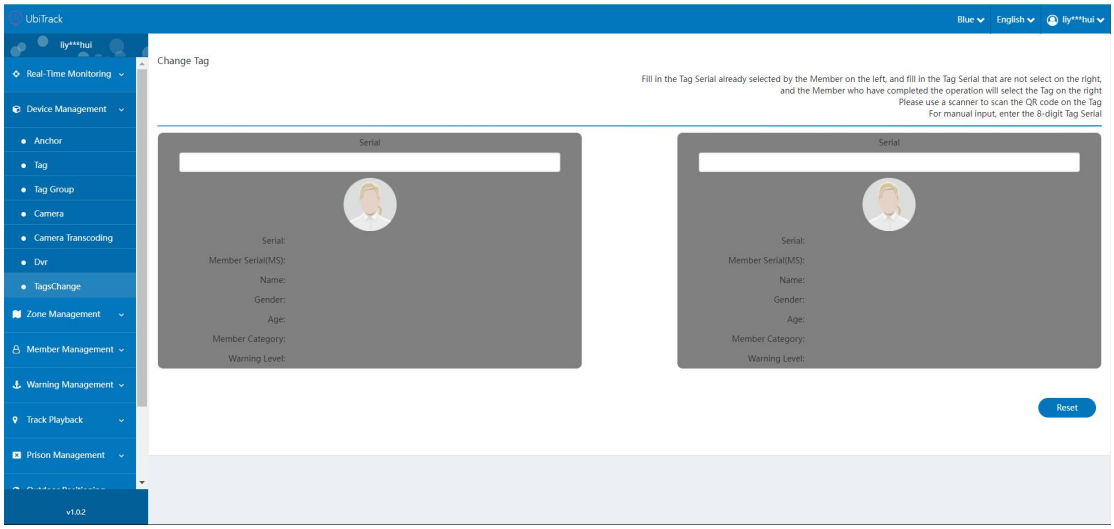


④ Click **[Device Management - Dvr - Add]**, fill in the required fields such as name and IP address and then add the function to the camera management.



3.3.6 Change Tag

① Open **[Device Management - TagsChange]**, and enter the tag number of the person tag you want to replace on the left side (The four-digit tag serial is entered repeatedly, a total of 8 digits need to be entered as shown in the picture or scanned directly with a code gun)



② Enter the tag serial on the right side that is not worn by personnel, the number of digits and other rules are the same as above, after entering, it will be replaced successfully and the following prompt will pop up. (Click **[Reset]** will clear the content of the input box on both sides)

3.3.7 Smart Sensor

[Device Management - Smart Sensor] can view the data of the smart sensor related to the UbiBot platform associated with the positioning platform and click the **[Edit]** to modify the area to which the sensing device belongs.

3.4 Zone Management

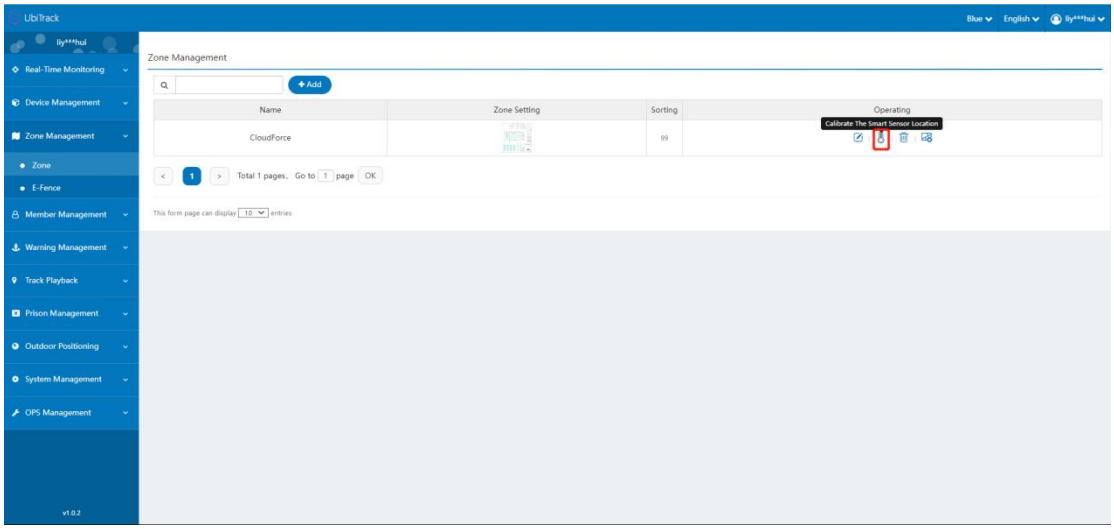
3.4.1 Zone Management

3.4.1.1 Add New Zone

Click **[Zone Management - Zone - Add]**, for related functions, please refer to **[2.3.2 Plan Ratio Configuration]**.

3.4.1.2 Calibrate The Smart Sensor Location

① Click **[Zone Management - Zone - Calibrate The Smart Sensor Location]**.

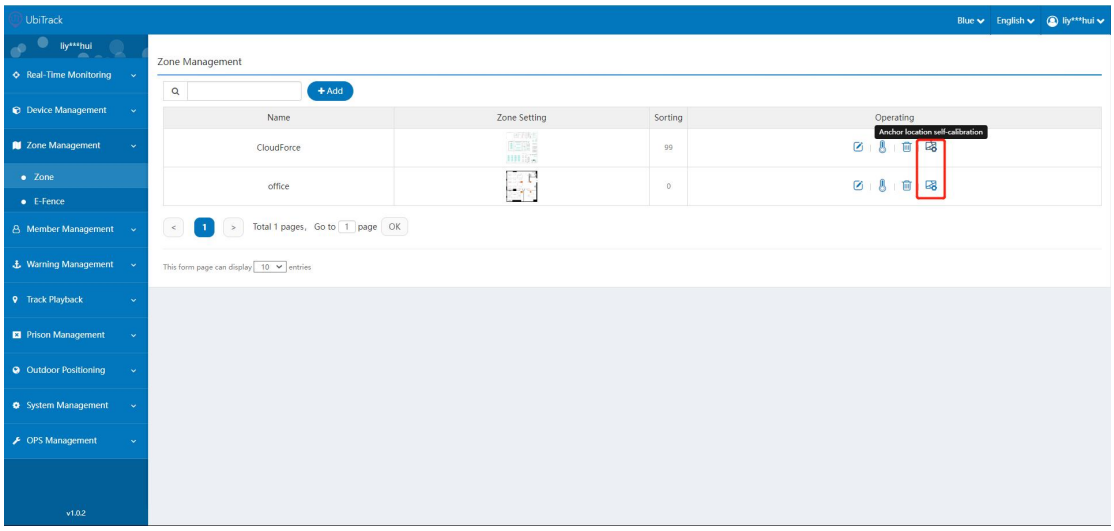


② In **[Device Management - Smart Sensor]**, the smart sensor associated to the current zone will be displayed at the (0,0) coordinate point waiting for calibration, or the smart sensor that is not associated to the current zone will be displayed on the right side waiting for association.

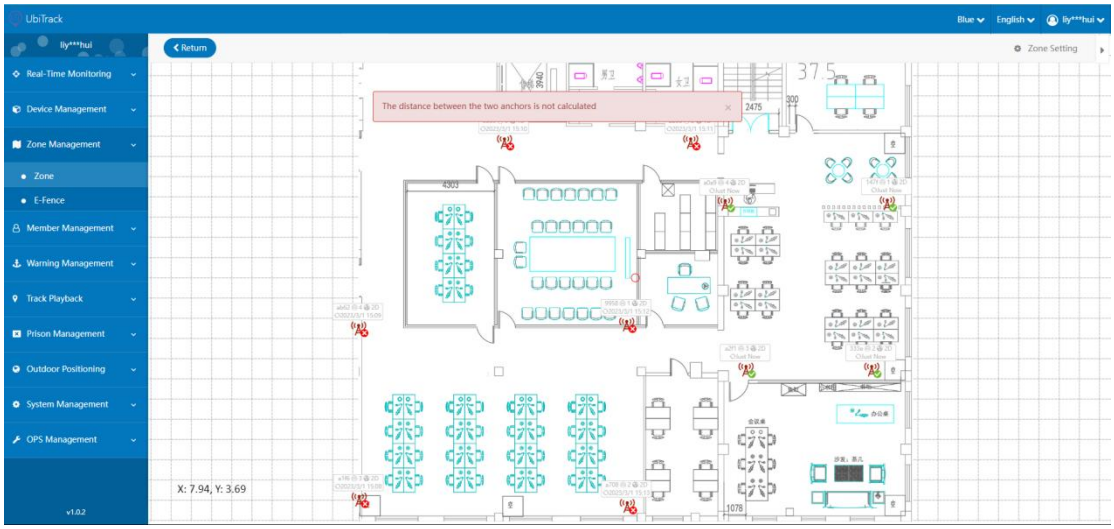
③ Click the smart sensor that needs to be calibrated, the platform will prompt the corresponding window (as shown in the figure), click **[Set Smart Sensor Location]** and slide the controller (mouse, etc.) to move to the location you want to calibrate, click the platform again will display the prompt window again, click **[Save Smart Sensor Location]** to successfully calibrate a smart sensor location, and so on for the rest of the smart sensor location.

3.4.1.3 Anchor Location self-calibration

① Click **[Zone Management - Zone - Anchor location self-calibration]**.

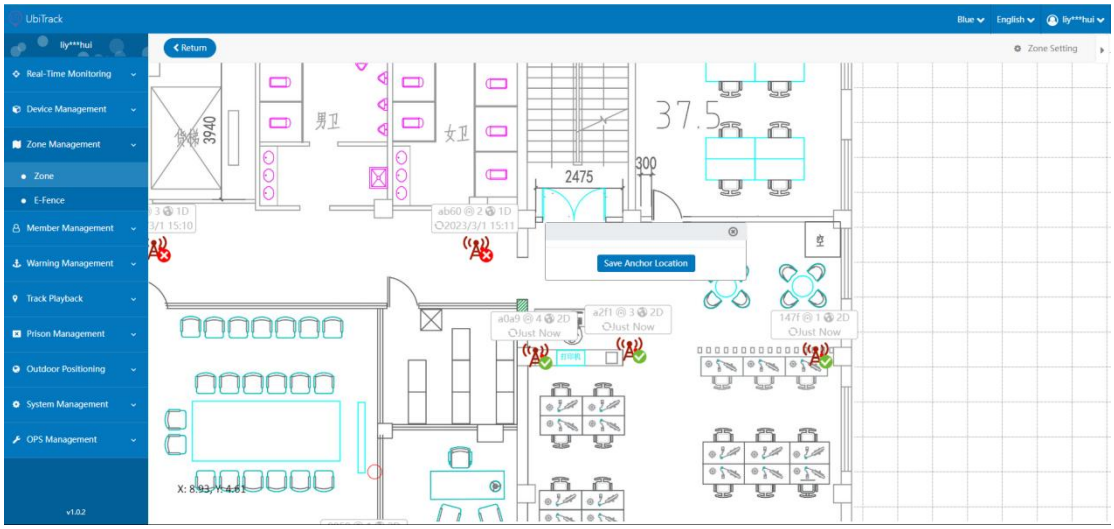


② Select a anchor in the plan as the parent anchor, and the platform will pop up as shown below. (This anchor will become the origin anchor, please ensure the accuracy of the position of the anchor on the plan.)



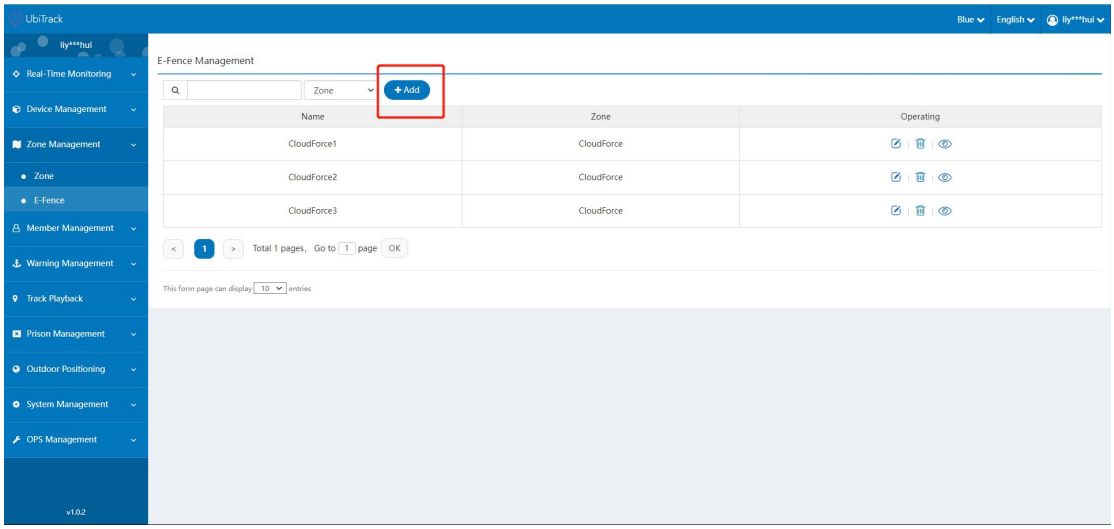
③ Then select a anchor that is not the parent anchor for click operation, the platform will pop up the following prompt, and the controller (mouse, etc.) will become a fixed-length line segment. (Self-calibration requires the firmware versions of both anchors to support this function to be applied normally.)

④ After control the line segment points to a certain party on the plan, click then the anchor icon will be calibrated to the end of the line segment and the platform will prompt the window as shown below, click **[Save Anchor Location]** to complete a self-calibration.

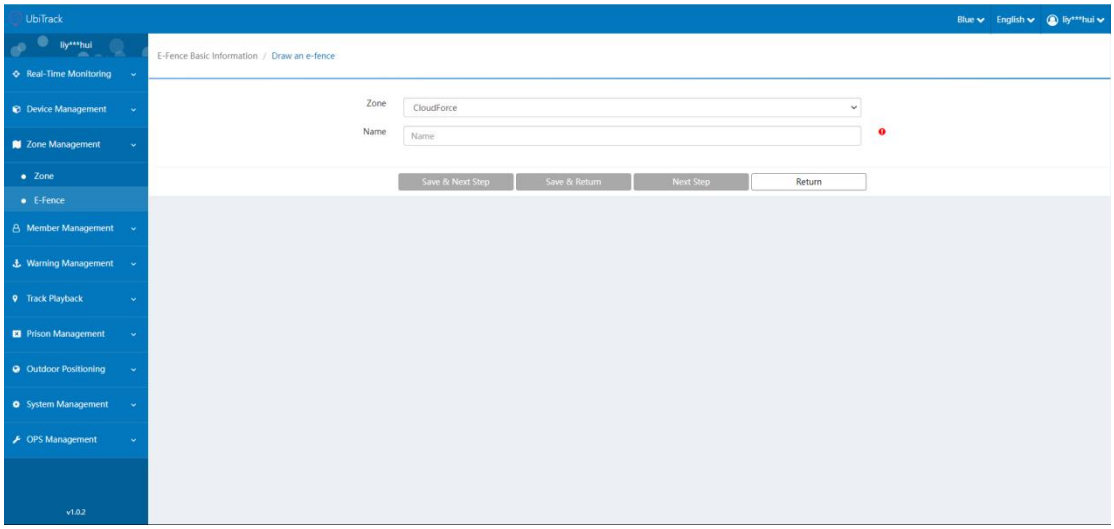


3.4.2 E-Fence Management

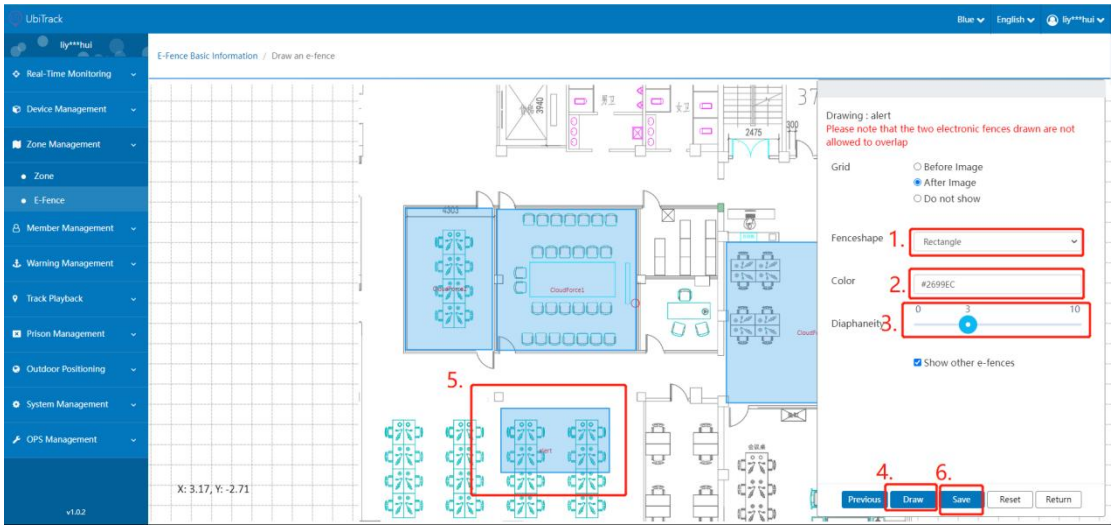
① Click **[Zone Management - E-Fence - Add]** to enter the "E-Fence Basic Information" interface.



② Select the zone, fill in the name, and click **[Save & Next Step]**.



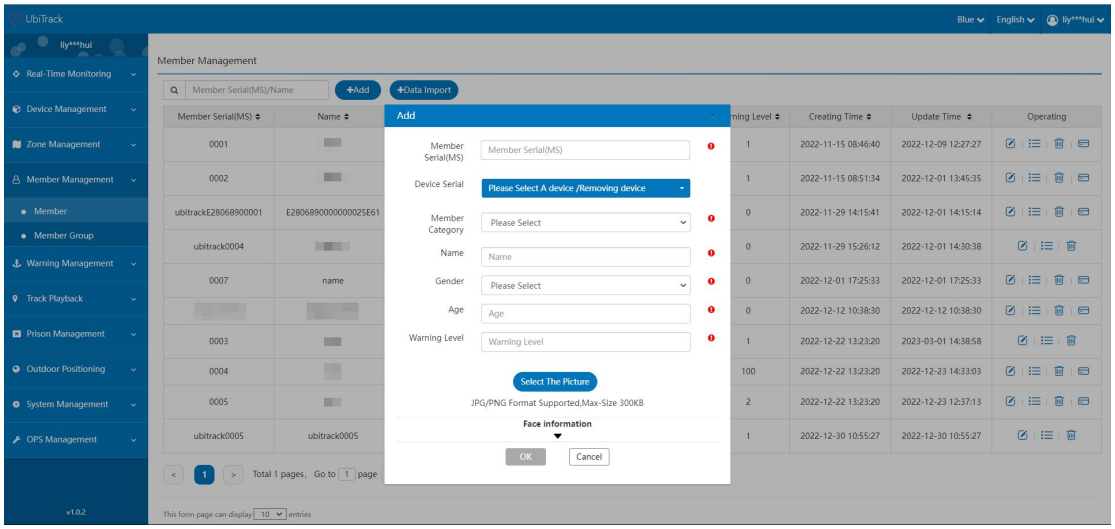
③ First select the fenceshape, "Rectangle" and "Circle" are provided by default, and irregular shapes can choose "Polygon" to draw; Secondly, select the color and diaphaneity of the fence, click **[Draw]**, the controller (mouse, etc.) will change into the cross style as shown below, you can start drawing in the plan (During the drawing process or without saving, click **[Reset]** to restart the drawing); Finally, click **[Save]** to finish.



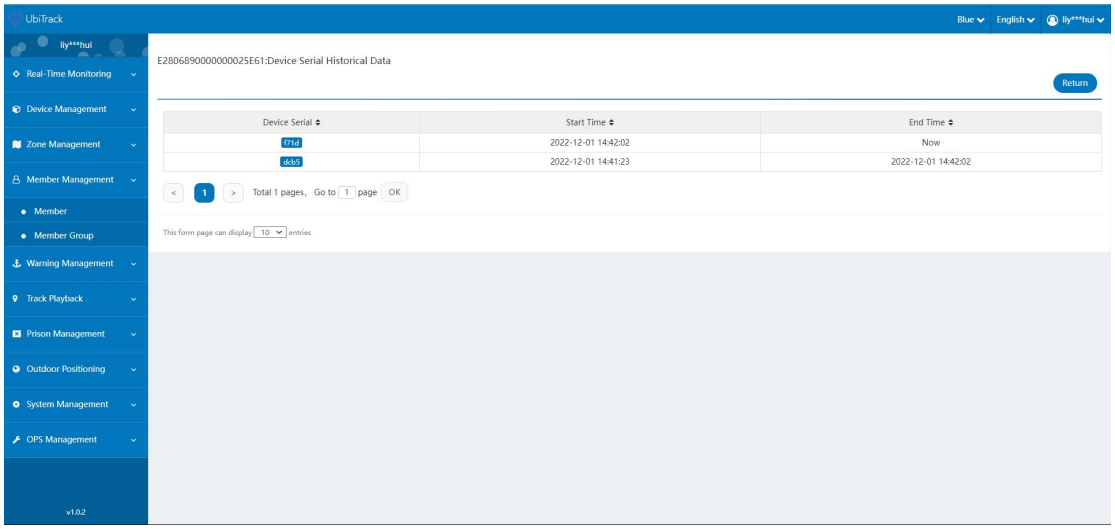
3.5 Member Management

3.5.1 Member

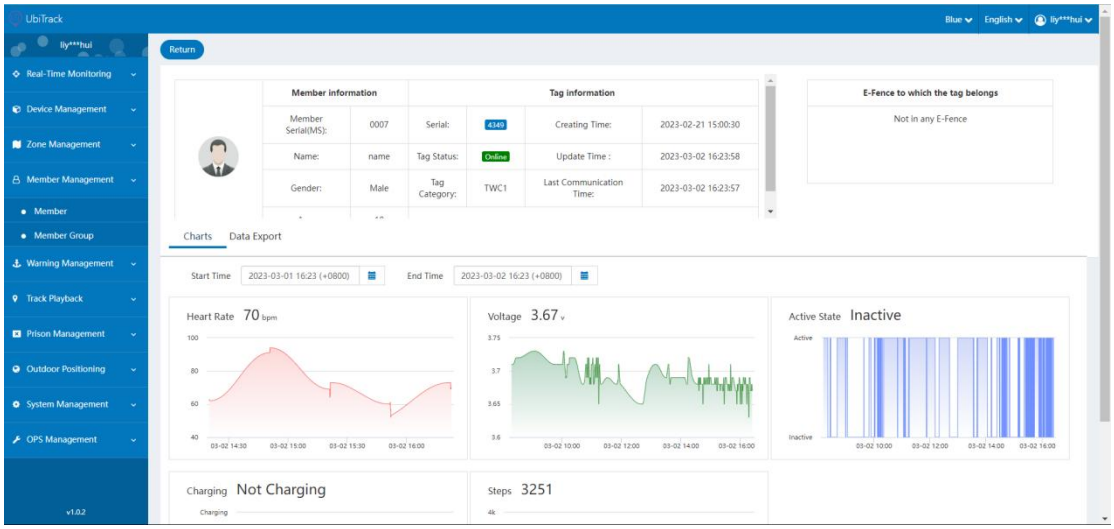
- Click **[Member Management - Member - Add]**, fill in the required items member serial and member category etc., you can add a new member information, and member can be associated with tags, associated with warning objects, etc.



- Click **[Member Management - Member - Device Serial Historical Data]** to see what tags the member has worn and when.



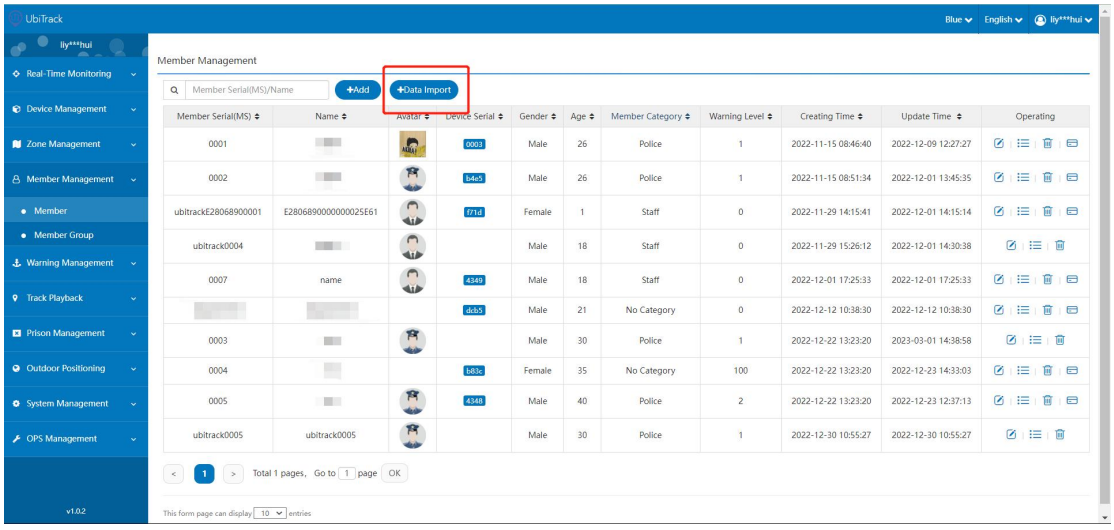
- Click **[Member Management - Member - Tag Information]** to view the tag information, member information, etc., and switch to the **[Data Export]** interface to export all the data under the set time period of the tag.



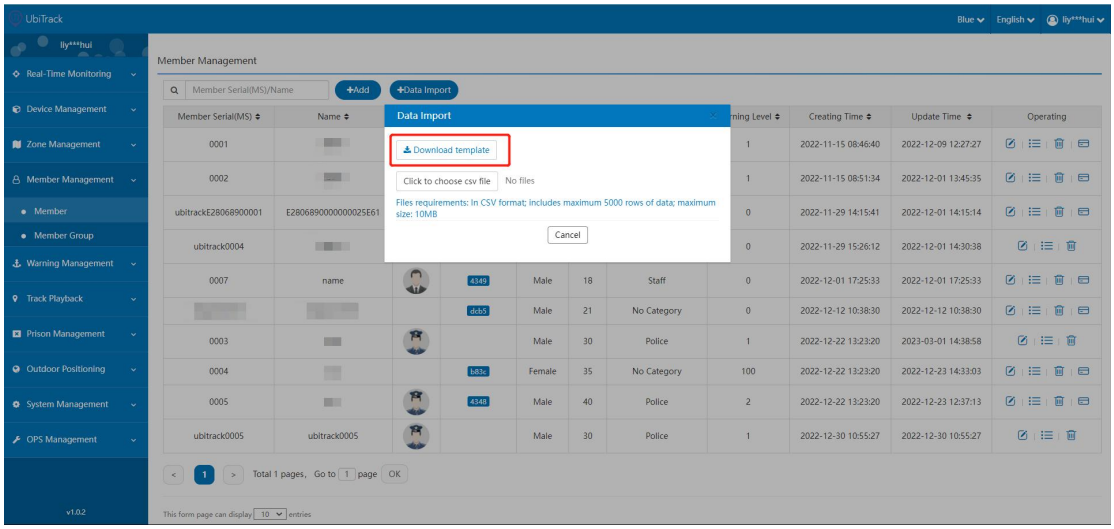
3.5.2 Member Group

3.5.3 Member/Member Group Template Import

① Click **[Member Management - Member/ Member Group - Data Import]**

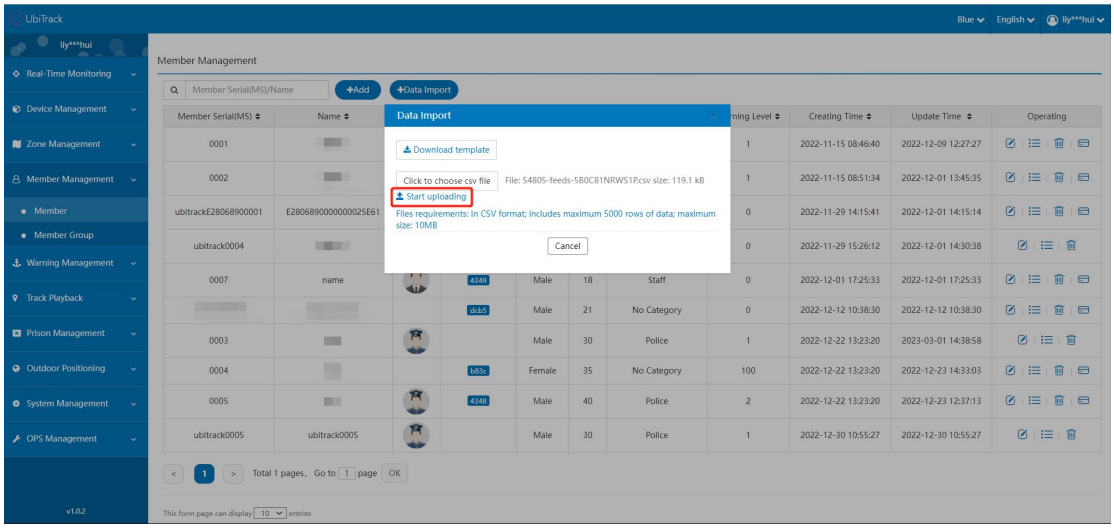


② Click **[Download template]**, download the template locally.



③ Fill in the local template file according to the relevant rules described in the document and save it.

④ Click **[Member Management - Member/ Member Group - Data Import - Click to choose csv file]** upload the saved file, click **[Start uploading]** after the upload is successful, and the number of data will be prompted after the upload is successful.

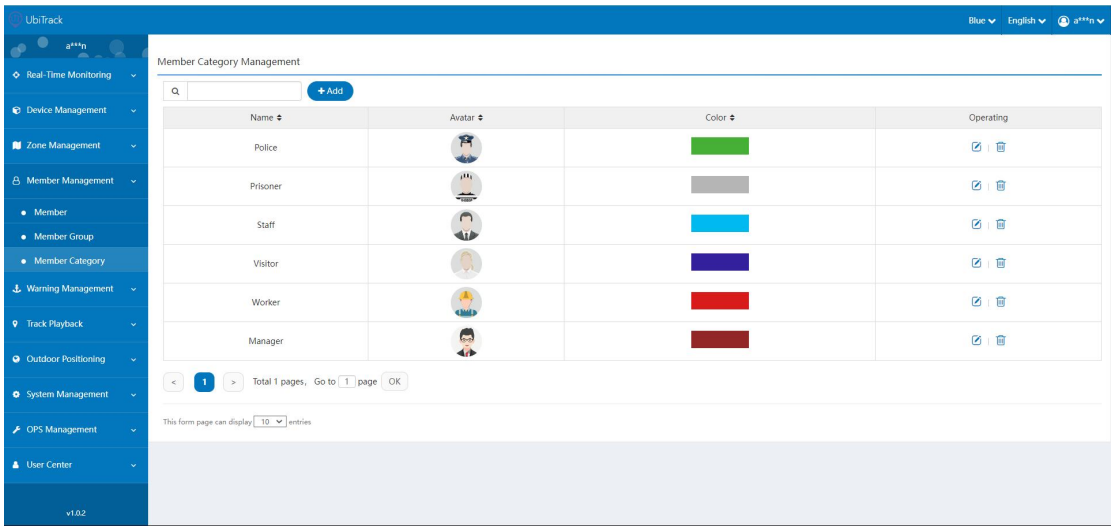


⑤ Note: When you close the template, click [Save] when you encounter the situation that Figure as below you to save as. First of all, please change the "save type" to "CSV (comma delimited)", secondly, find the original template file in the local folder and replace the "file name" saved as with the same name as the original template file to achieve the purpose of replacing the original file, and the replacement will solve the problem that the template cannot be used normally.

3.5.4 Member Category

[Member Management - Member Category] can add, delete, modify and check different

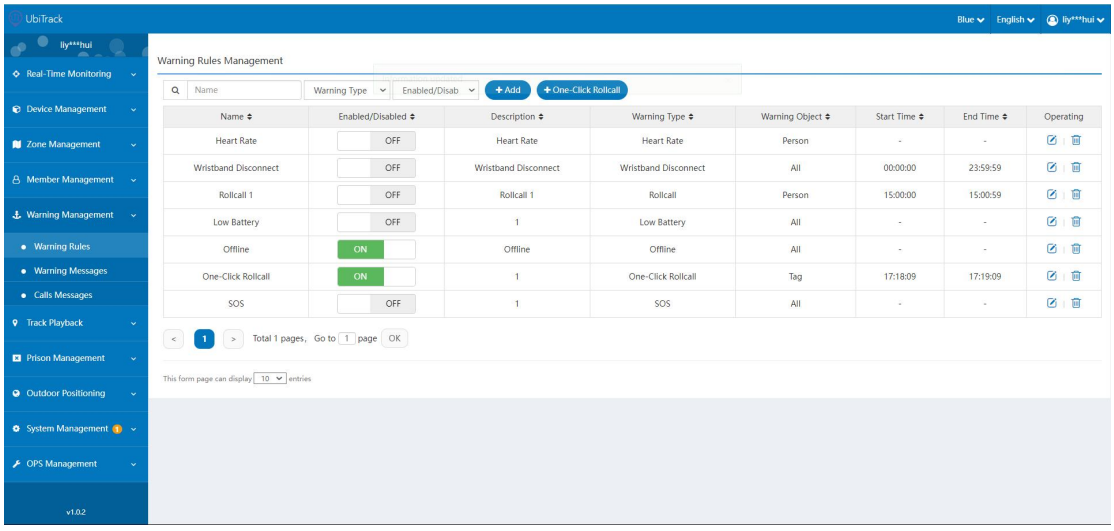
member category management, the system will give several member category management by default, in **[Member Management - Member Category Management]** can be given member related classifications to achieve the purpose of classifying personnel.



3.6 Warning Management

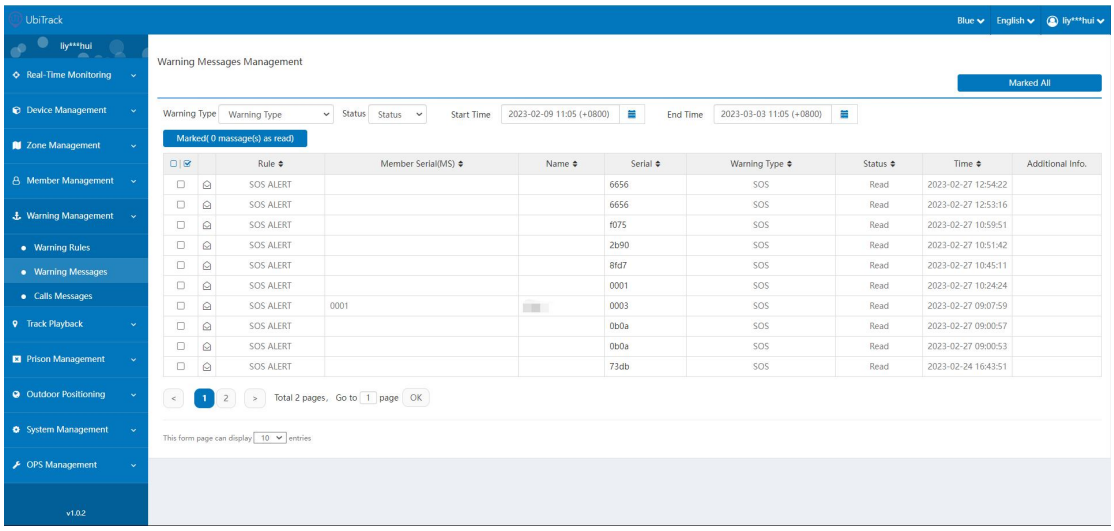
3.6.1 Warning Rules

[Warning Management - Warning Rules] can add, delete, modify and check the operation of setting early warning rules such as heart rate and low voltage for the tag carrier or itself.
After the user sets an warning rule and enables it, the platform will alert the tag carrier when trigger the rule.



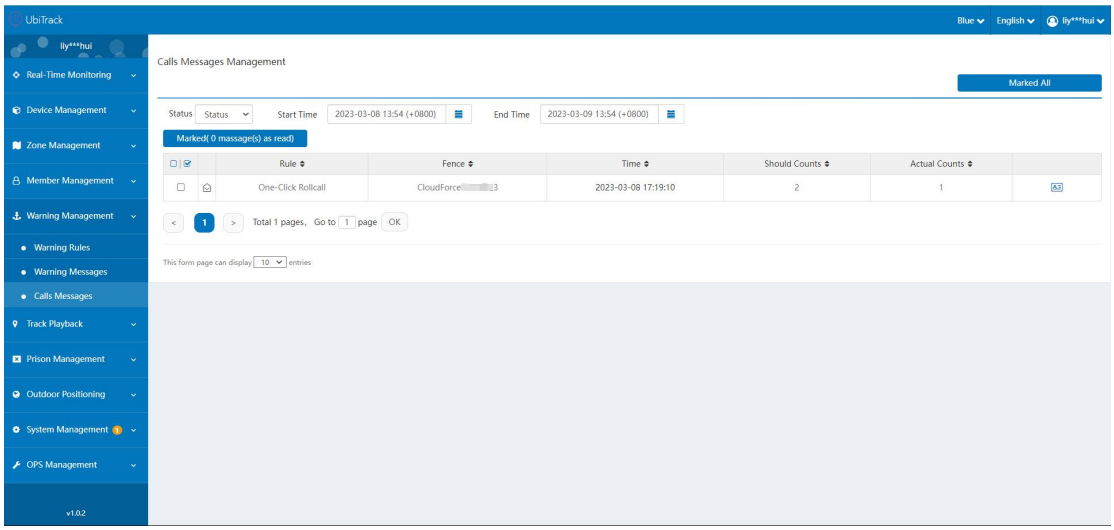
3.6.2 Warning Messages

[Warning Management - Warning Messages] displays information about which rules have been triggered by the tag or member, when it was triggered, and so on.



3.6.3 Calls Messages

[Warning Management - Calls Messages] displays the arrival status of the tag or tag carrier within the specified roll call time, and can view the number of people who should arrive and the actual arrival, as well as detailed member information.

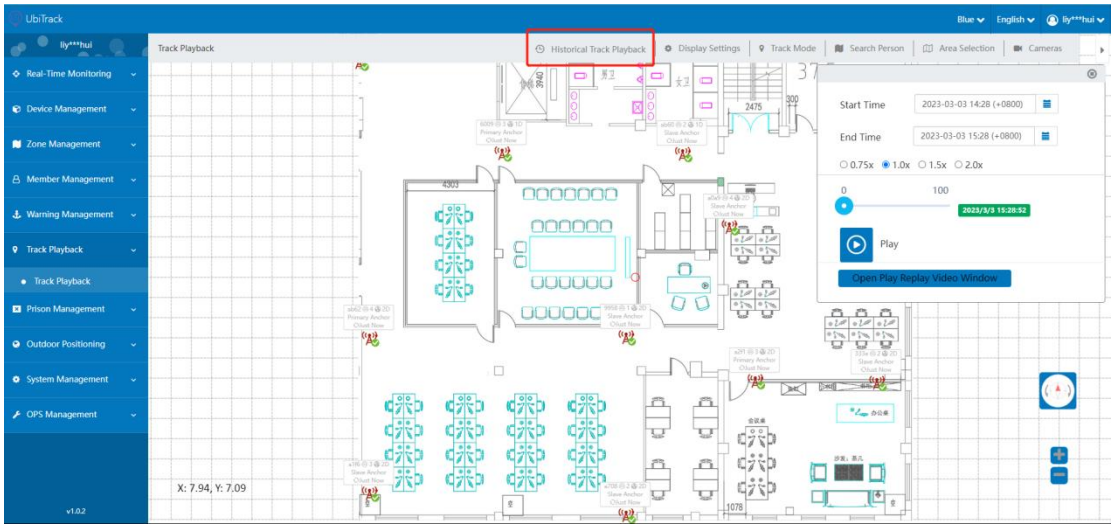


3.7 Track Playback

Click **[Track Playback - Track Playback - Historical Track Playback]**, select the time and speed, click [Play], the platform will start playing the tag, tag motion and other data in the time period

according to the filter rules, and users can also use the display settings, track mode and other settings to more accurately filter the playback results they want. (For specific instructions, please refer to **[3.2.1.1 Plan]**)

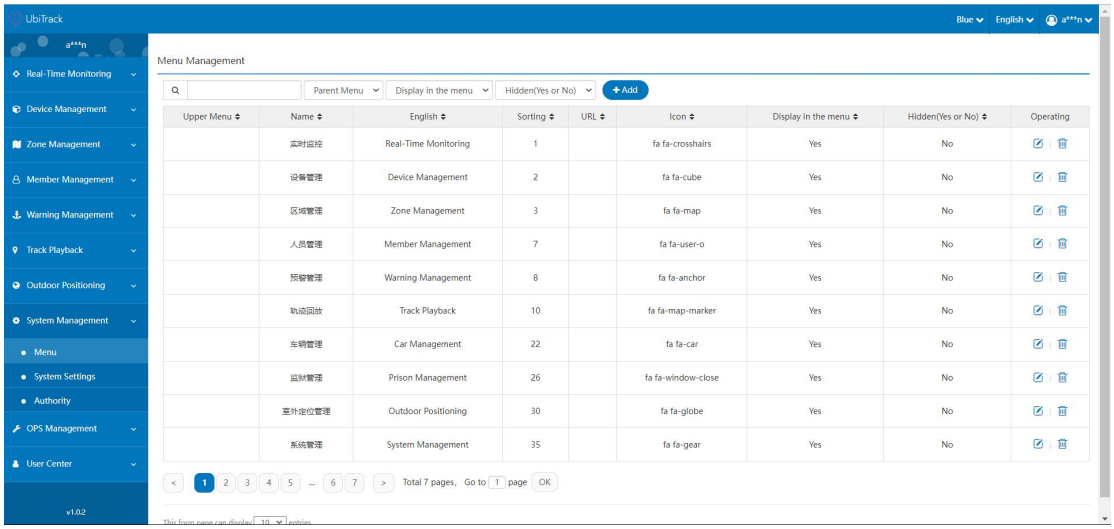
If the platform has camera playback capability and is equipped with a related hardware recorder, you can click **[Open Play Replay Video Window]**, at the same time, check the plan tag status and the camera recording status. (For specific instructions, please refer to **[3.3.5 Camera, Camera Transcoding and Dvr]**)



3.8 System Management

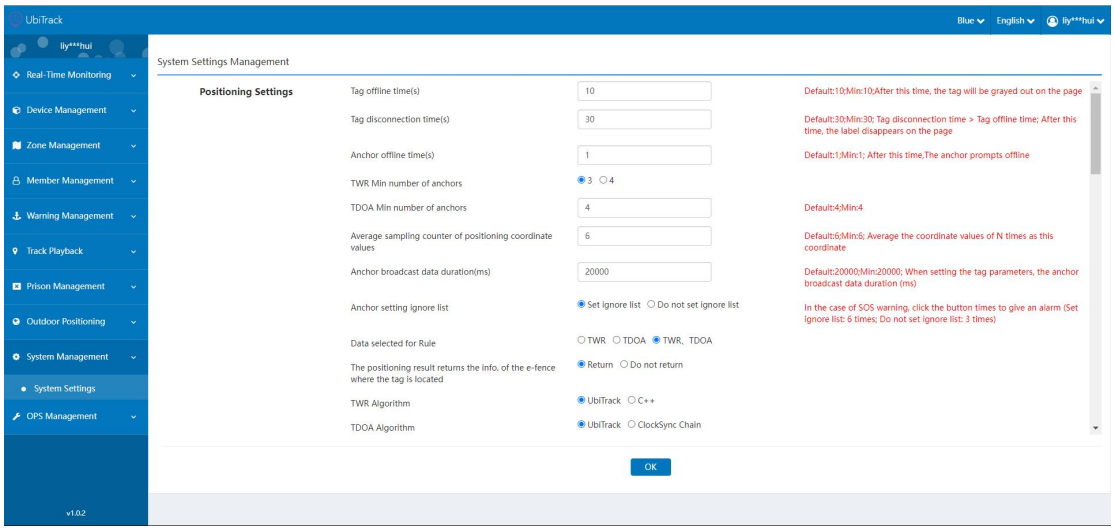
3.8.1 Menu

[System Management - Menu] can add, delete, modify and check the left navigation menu related display, sub-parent level and other configurations, the system will give all existing menu functions by default, without self-development capabilities are not recommended to modify all the content of the function at will, if you want to self-development, you can contact sales or after-sales personnel to ask for relevant development rule documents.

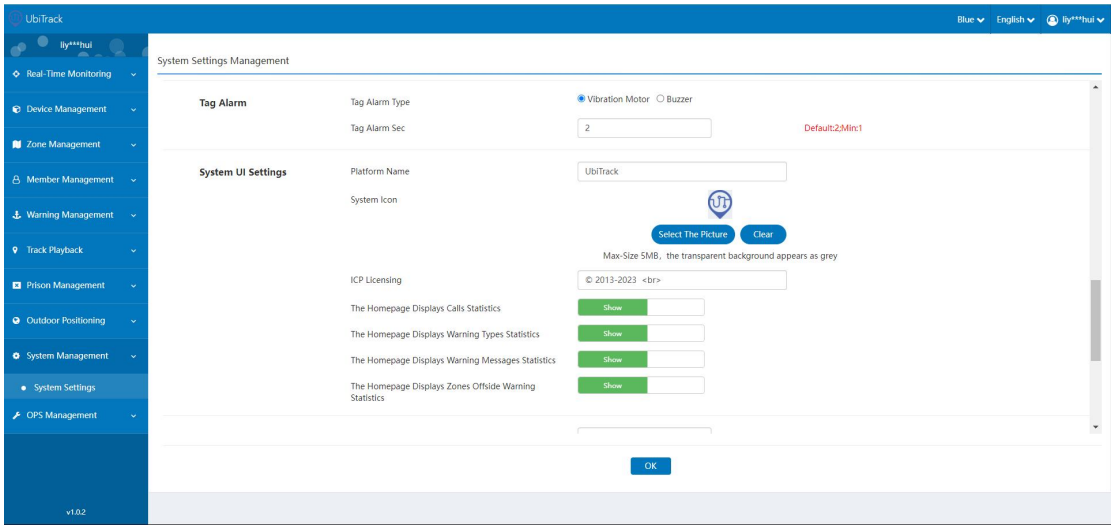


3.8.2 System Settings

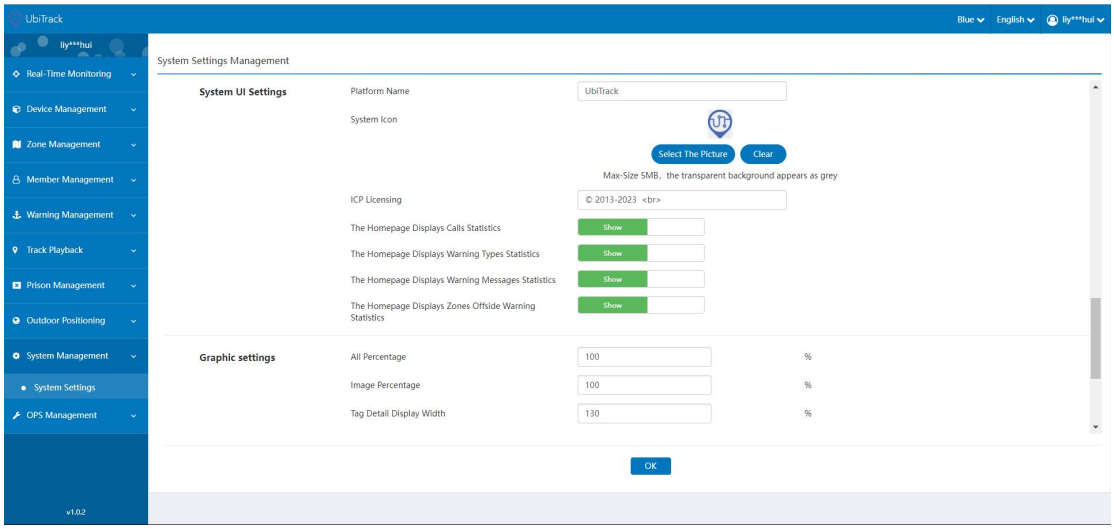
- **[System Management - System Settings - Positioning Settings]** can control the offline or disconnection time of the tag, the Min number of anchors of the positioning algorithm, the time to control the time when the anchor sends a modified signal to the tag at a single time, and other functions, mainly controlling the platform display, the linkage settings of platform-related functions and several basic configurations of the anchor.



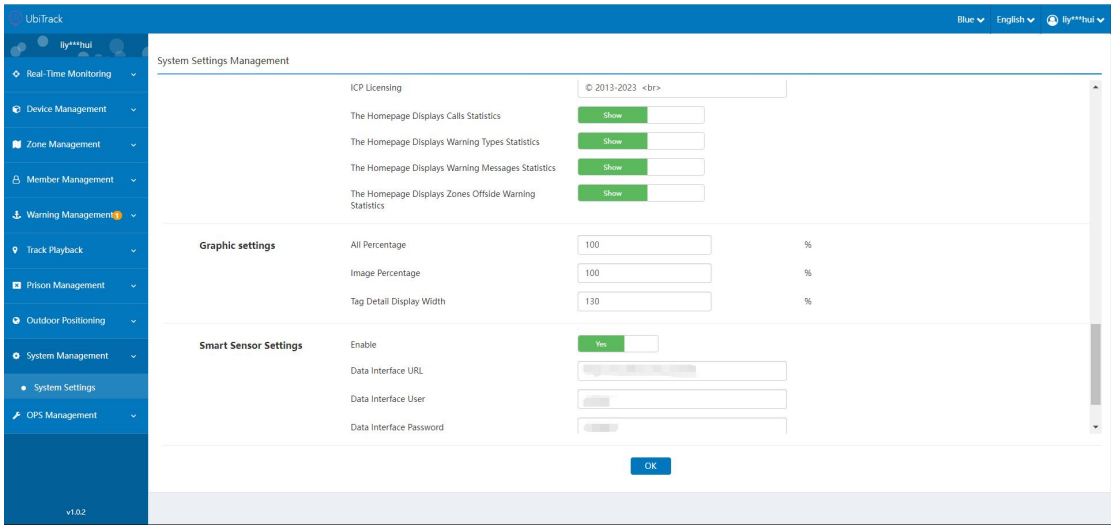
- **[System Management - System Settings - Tag Alarm]** can modify the alarm type and sec of the tag, after the modification, the tag needs to be moved to the anchor associated with the platform to receive the relevant command after the tag will be modified, and it takes a certain amount of time to receive and process the signal data sent by the anchor, do not modify it repeatedly at a high frequency, there may be a failure to modify the data.



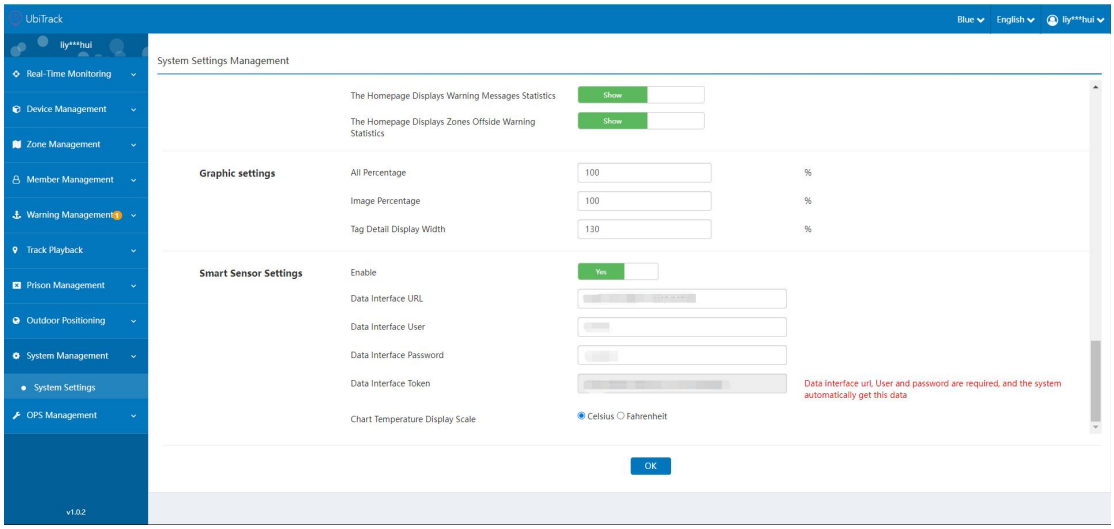
- **[System Management - System Settings - System UI Settings]** can modify the system icon, name, etc. of the platform, and also control several statistics in the "Home".



- **[System Management - System Settings - Graphic settings]** can modify the percentage of the initial size of images and tags, and you can view the corresponding effect in the plan.



- **[System Management - System Settings - Smart Sensor Settings]** can connect the smart sensor of the UbiBot platform to this positioning platform, you can find sales or after-sales personnel to understand UbiBot related products, and after understanding, you can obtain the corresponding interface, user name and other information from relevant personnel. The sensor associated with the positioning platform can be calibrated to the plan of a certain zone like the anchor calibration, and the user can view the real-time data of the smart sensor at any time.



3.8.3 Authority

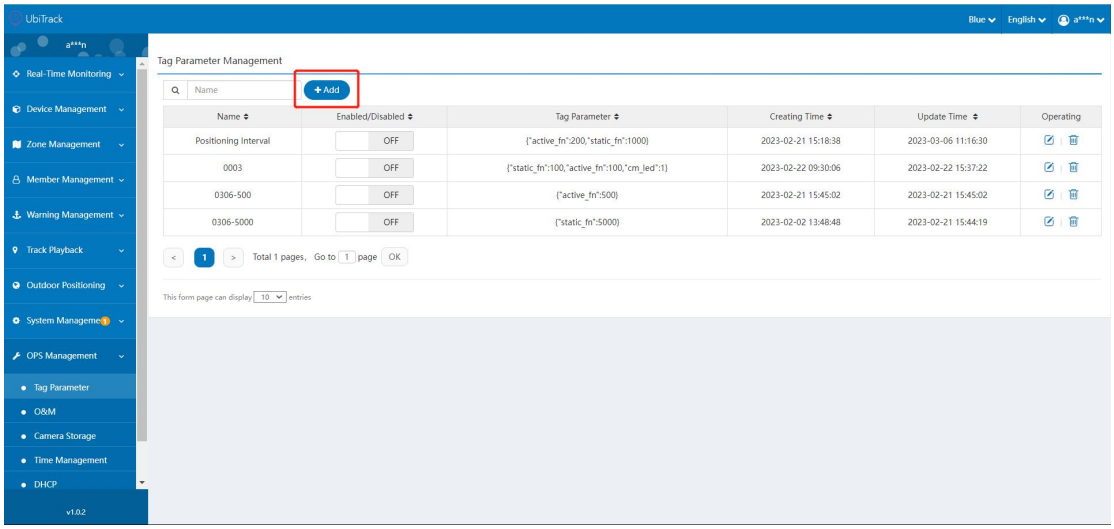
[System Management - Authorization] mainly controls the Authorityinfo of the positioning platform, and the relevant positioning functions cannot be used normally after the time expires, please refer to the **[2.3.5 Authorization Code Expiration]** for specific instructions.

3.9 OPS Management

3.9.1 Tag Parameter

[OPS Management - Tag Parameter] can modify the active/static frequency, heart rate sampling interval, tamper status for tags and tag groups within a certain period of time. **After the platform adds the modification information, you need to enable the parameter command, and the tag can only start receiving the modification signal after it is moved into the anchor that sends the specified data.**

① Click **[OPS Management - Tag Parameter - Add]**.



② 1. Enter the name for the new command.

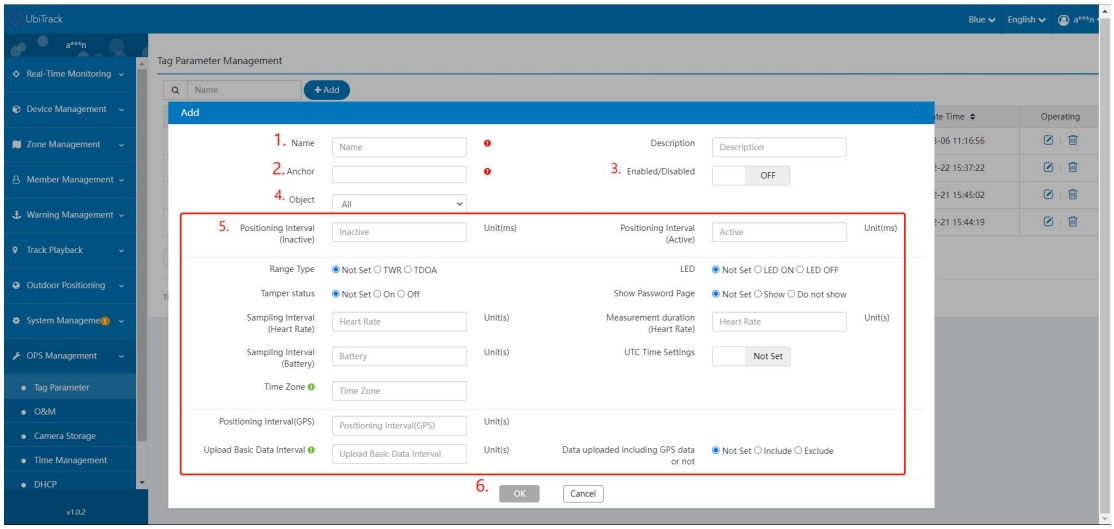
2. Select the anchor that sends the command (Multiple anchors can be selected), and the anchor needs to have the ability to transmit the signal (The firmware version needs to be upgraded to the specified version) to complete the signal transmission behavior normally.

3. Set the command to the “Enabled”.

4. Set the tags that need to receive commands.

5. Set the tag parameters that need to be modified.

6. Click [OK].

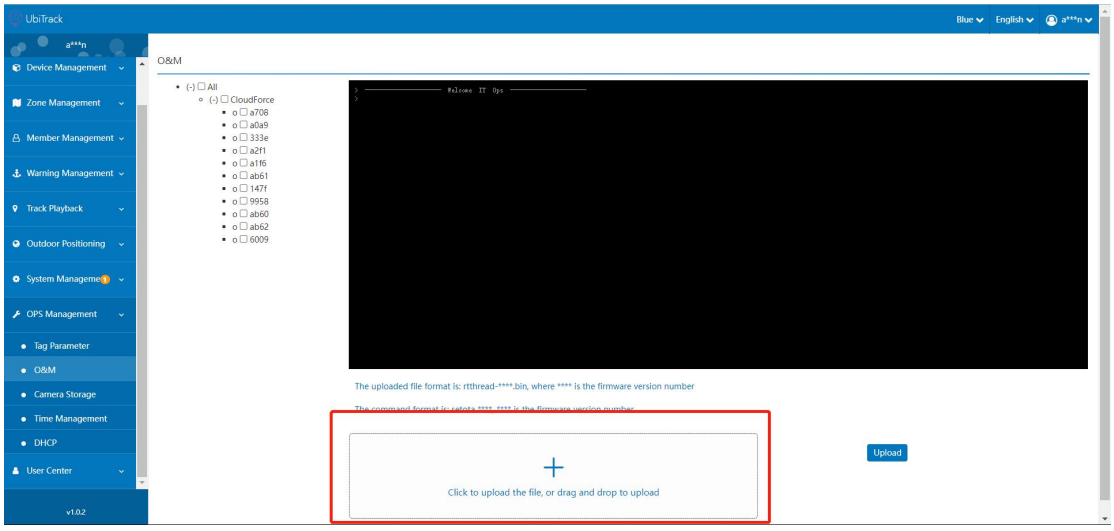


Note:

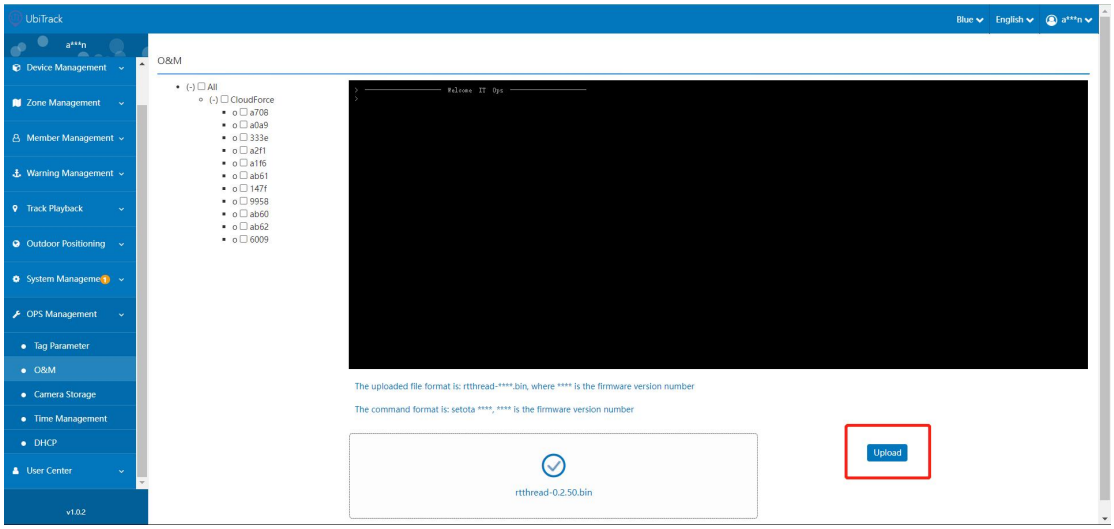
When there are too many modified configuration items, it takes a certain amount of time for the tag to receive the command, do not move the tag out of the specified anchor during this time, and do not repeatedly modify the same parameter command on the platform at high frequency, which may cause the tag not to execute the command due to conflicts or incomplete reception. Do not let different anchors send different parameter modification commands to the same tag, in which case the tag will only execute the parameter command sent by the latter anchor.

3.9.2 O&M

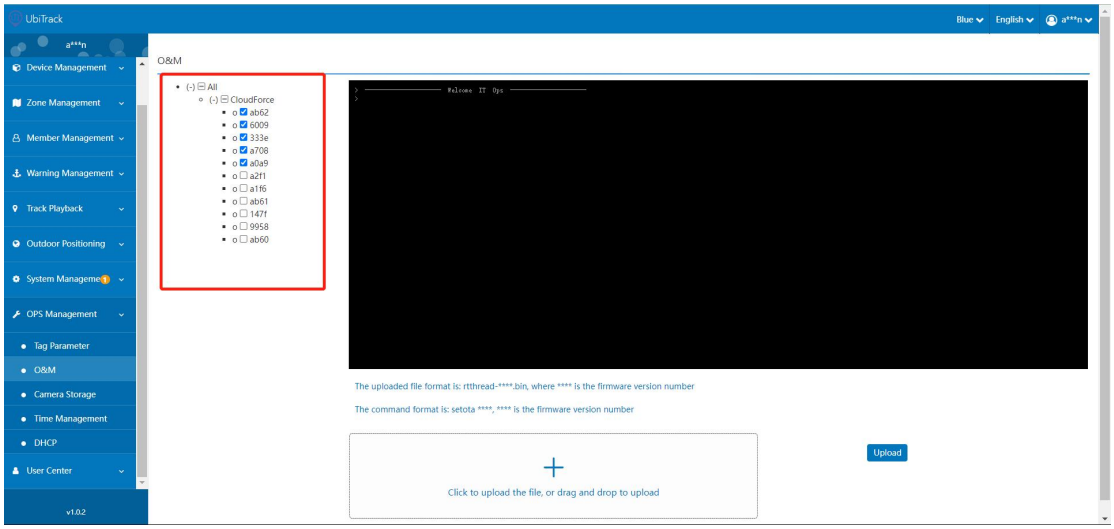
① Enter **[OPS Management - O&M]**, click the **[+]**, will pop up the selection window, select the ".bin" upgrade file provided. (The upgrade file can be consulted with sales or after-sales staff)



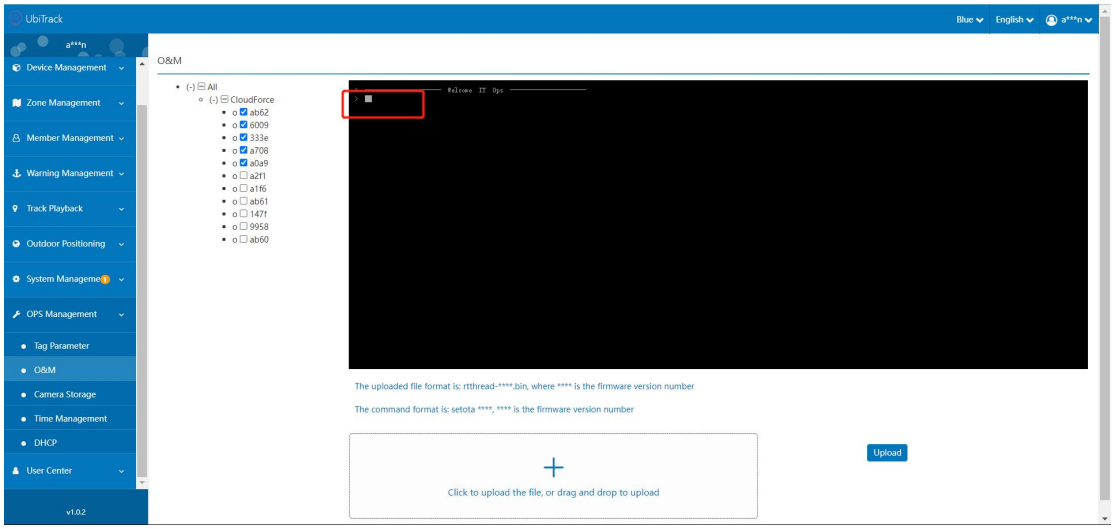
② Click **[Upload]**, upload the upgrade file to the server.



③ Select the anchors need to be upgraded on the left.

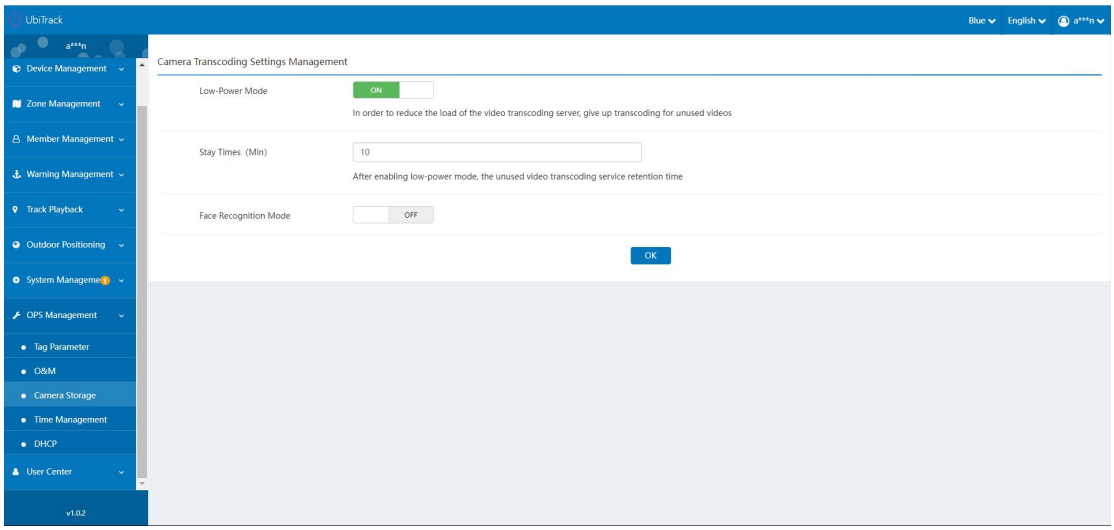


④ Enter "setota ****" in the black command box and click Enter key to execute the command will successfully modify the anchor firmware version, if it is not successfully modified, please refresh the current interface, and repeat the above steps for the anchor that has not been successfully modified. (**** is the firmware version number of the upgrade file)



3.9.3 Camera Storage

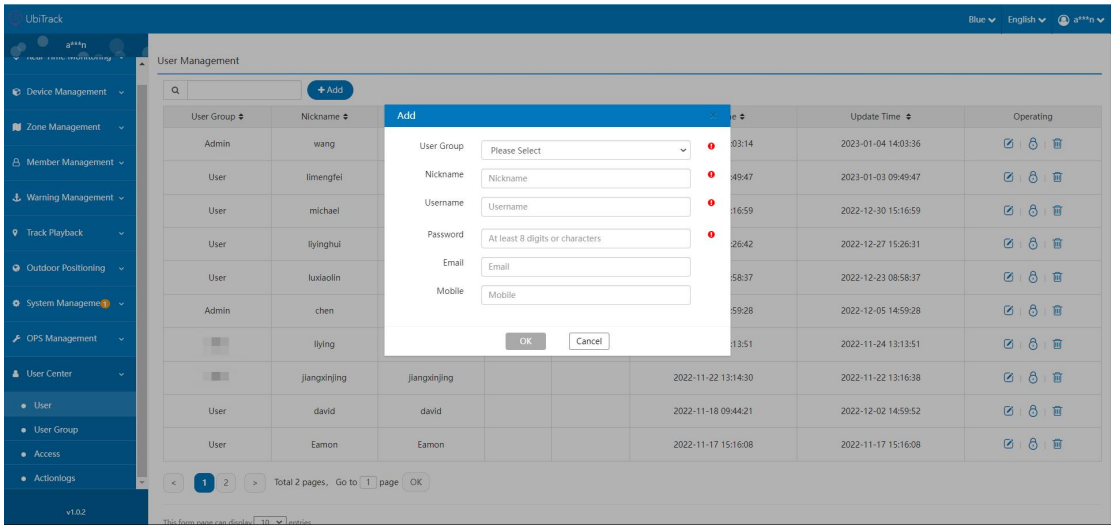
[OPS Management - Camera Storage] can set the camera low-power mode, because the camera needs to run the transcoding server to display the real-time picture on the platform, and the server will be under excessive pressure to keep multiple cameras working at the same time for a long time, so you can set how many minutes the camera will stop transcoding to reduce the pressure on the server.



3.10 User Center

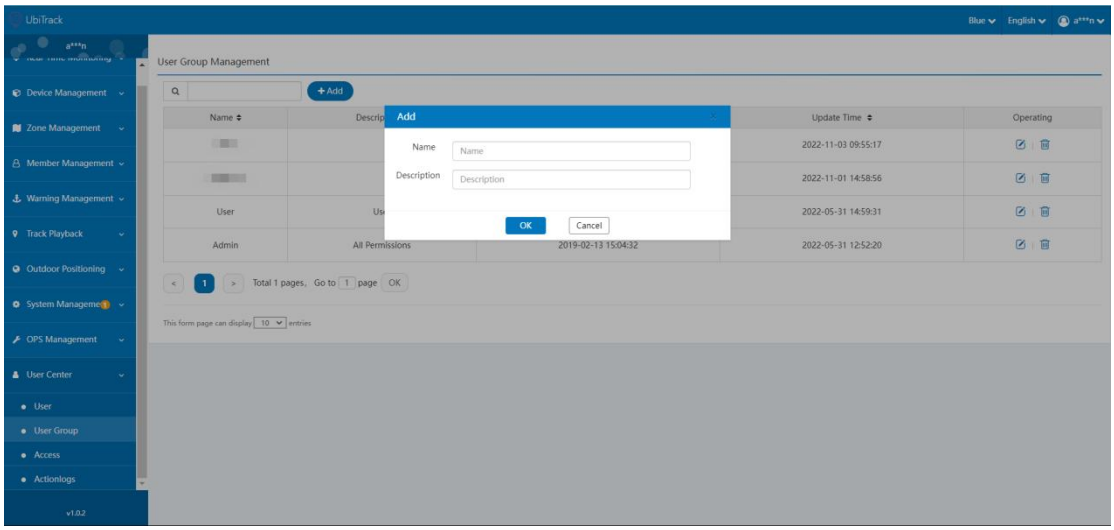
3.10.1 User

Click **[User Center - User - Add]**, fill in the required fields such as user group and nickname to add a new user data, and the user name and password can log in to the positioning platform normally and operate the functions assigned to the user.



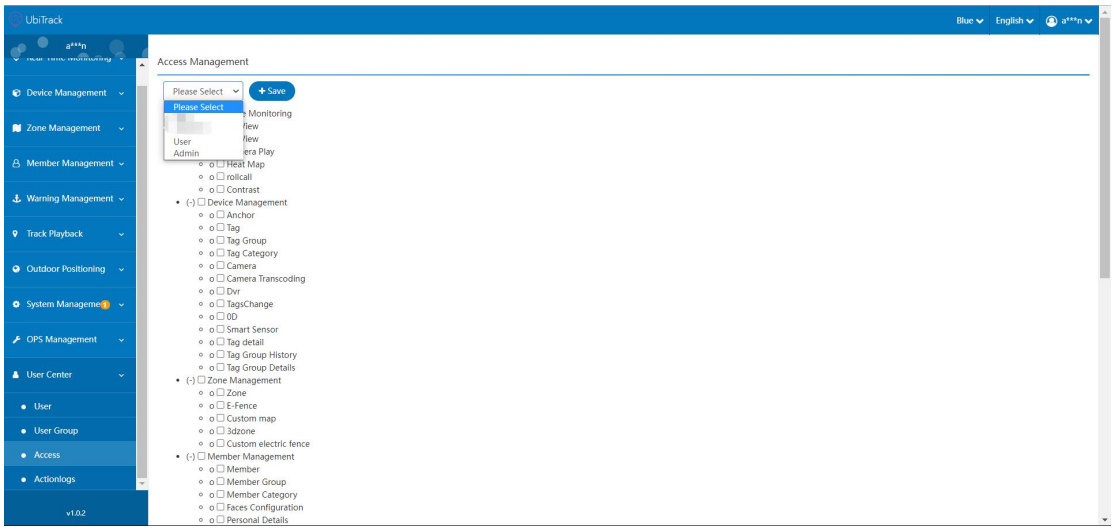
3.10.2 User Group

Click **[User Center - User Group - Add]**, fill in the name and description to add a user group data, assign different users to different groups, and achieve the purpose of assigning different permissions to users.



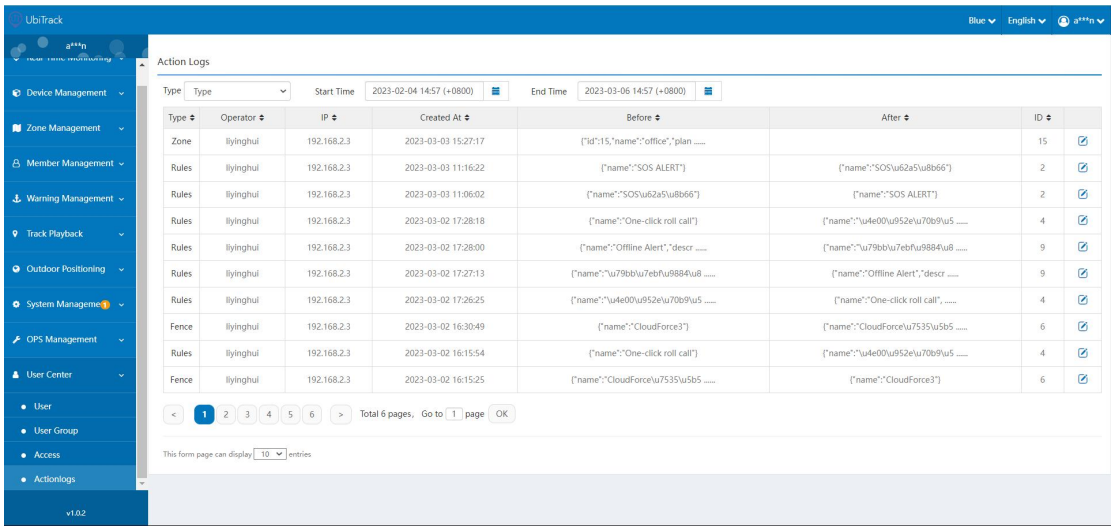
3.10.3 Access

In **[User Center - Access]**, select the user group you want to configure, check the functional permissions assigned to the user group, and then click **[Save]** to complete the configuration.



3.10.4 Action Logs

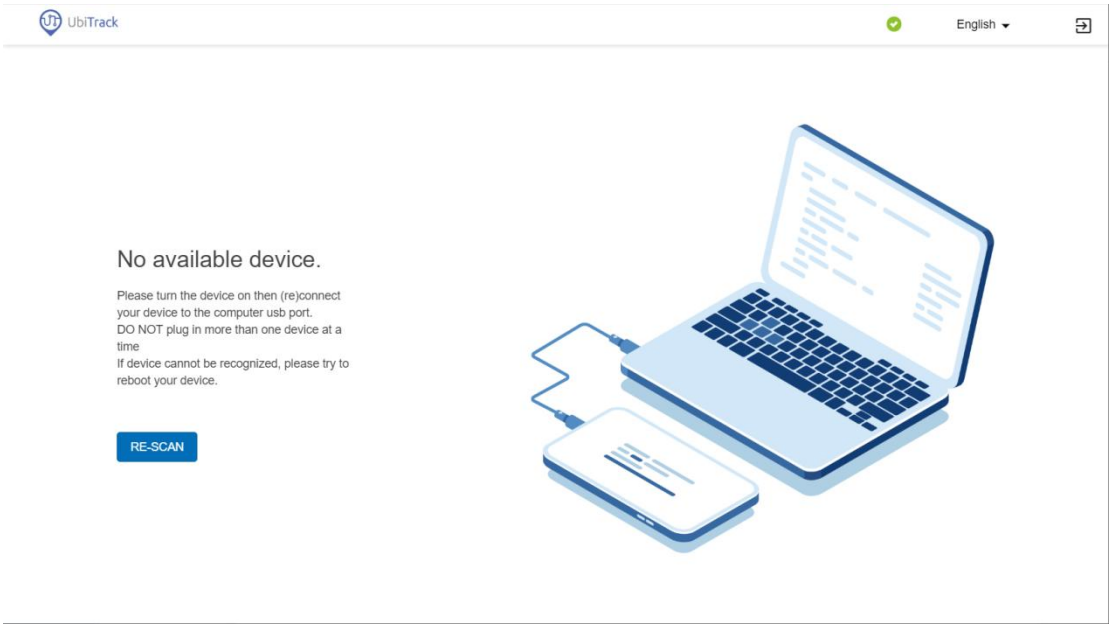
[User Center - Action Logs] can view the operation records of modifications and additions made by users for the positioning platform.



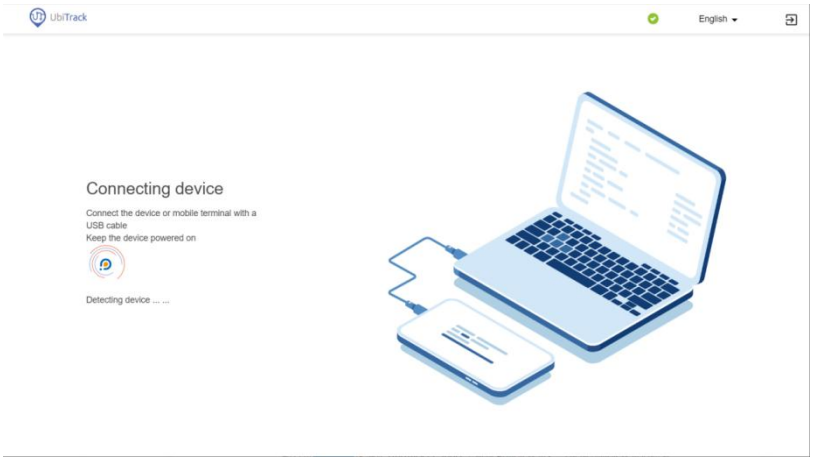
4. UbiTrack PC Tools

① The official website or contact sales and after-sales staff to obtain the download installation package, install it on the terminal device as required, and a quick start icon will be generated on the desktop after installation.

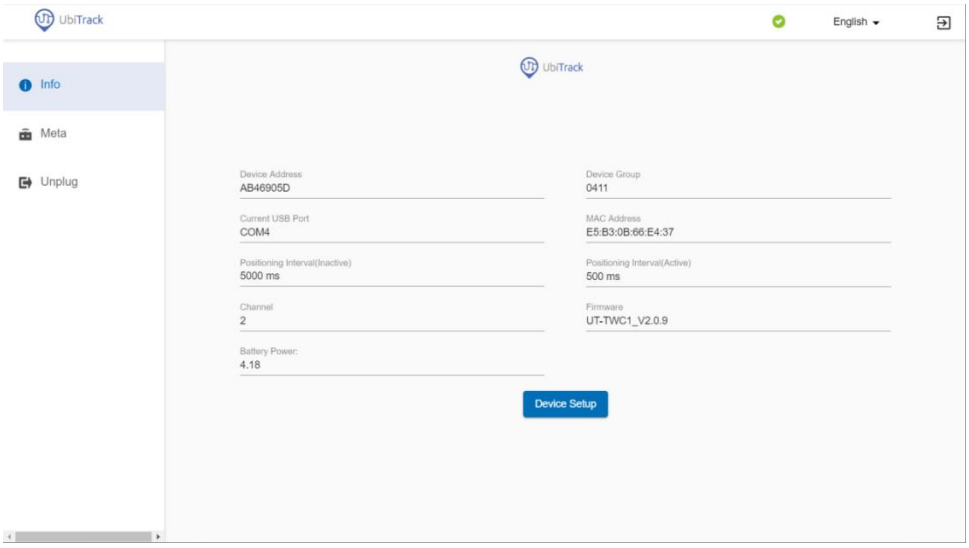
② Double-click the start icon to run UbiTrack Desktop.



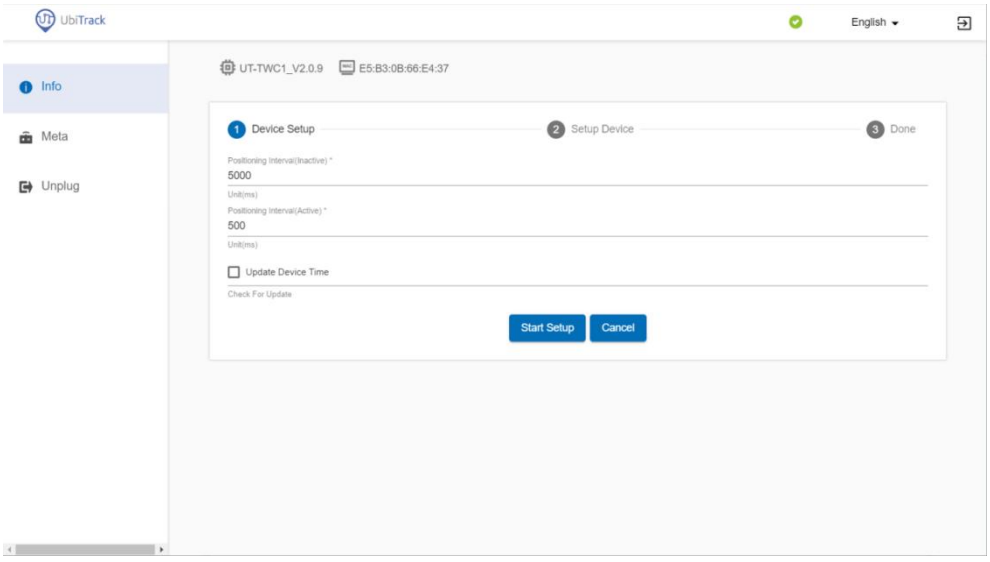
③ After the tag is connected to the USB port of the terminal device through the exclusive charging cable interface, the software will begin to detect the device information, as shown below. (The tag needs to turn on and cannot be connected to the same terminal device with UbiTrack PC Tools installed at the same time)



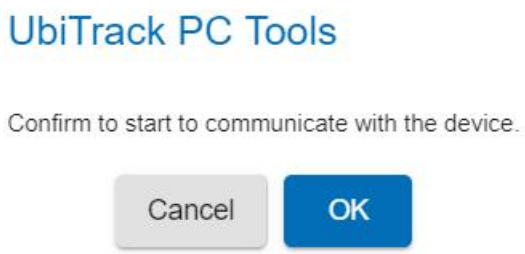
④ UbiTrack PC Tools will automatically identify the connected tag normally, if the software does not recognize the tag, you can manually click RE-SCAN to let UbiTrack PC Tools retrieve the tag again, when the tag is recognized, the following interface will be displayed. (Re-scan checks every available USB port, so it will take longer than reconnect the tag. However, some tags may take a little longer to boot, in which case you can use the re-scan feature to force a scan after the tag boots up)

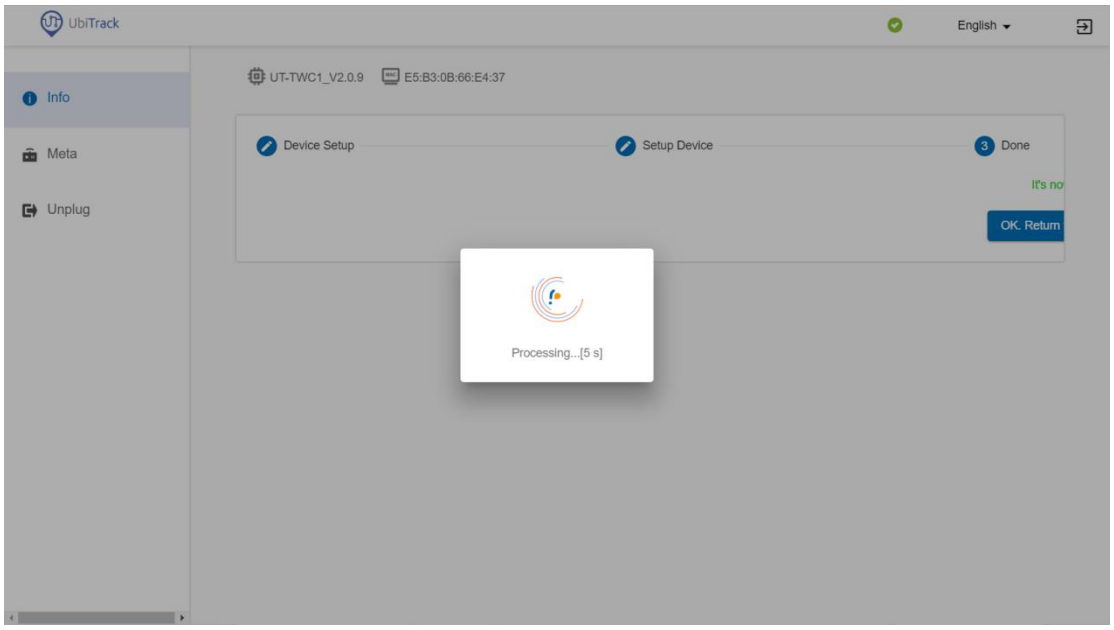


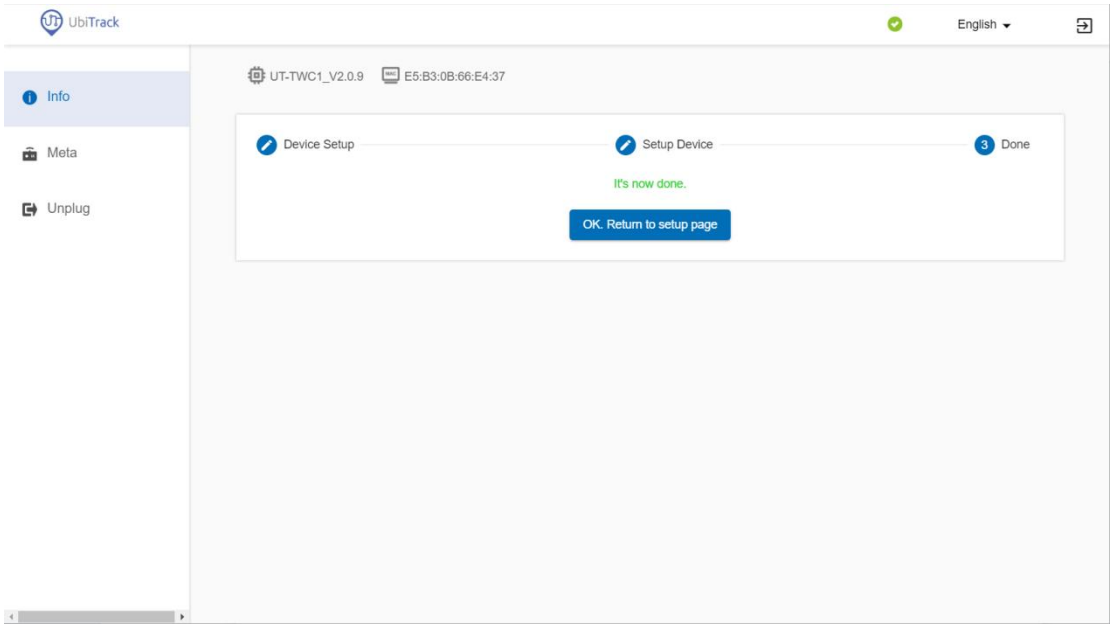
⑤ After successful scanning, the software interface will display the basic information of the tag, if you need to modify the active/static frequency of the tag or the tag time (the tag time update will be synchronized with the clock of the terminal device), you can click Device Setup to enter the following interface, if you do not need it, you can click Unplug to exit the current tag.



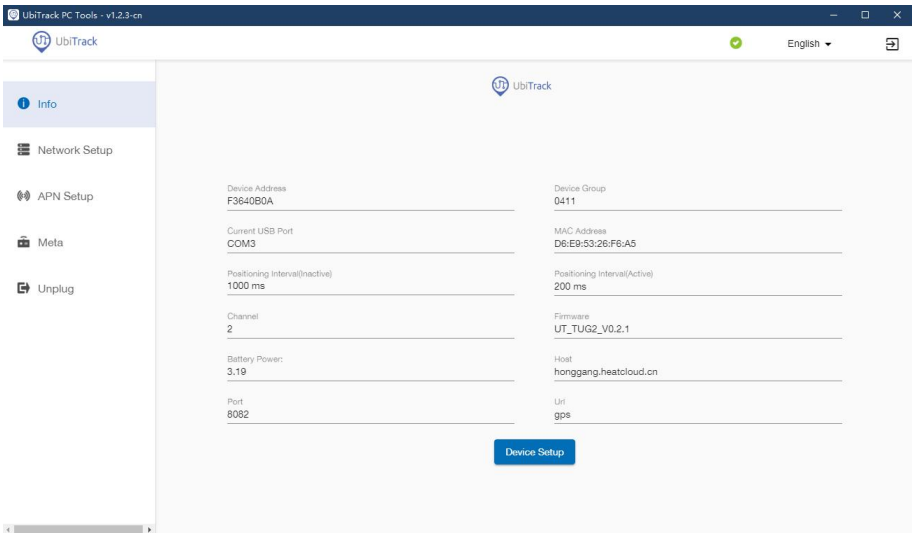
⑥ After modifying the value, click Start Setup to prompt the followingwindow, click the [OK] button will enter the configuration interface and display the configuration success after the configuration is completed.

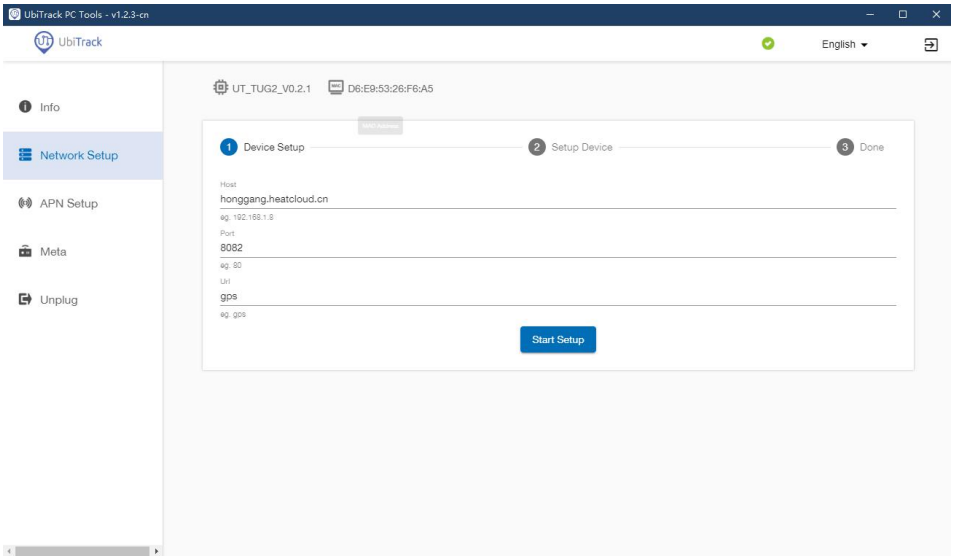


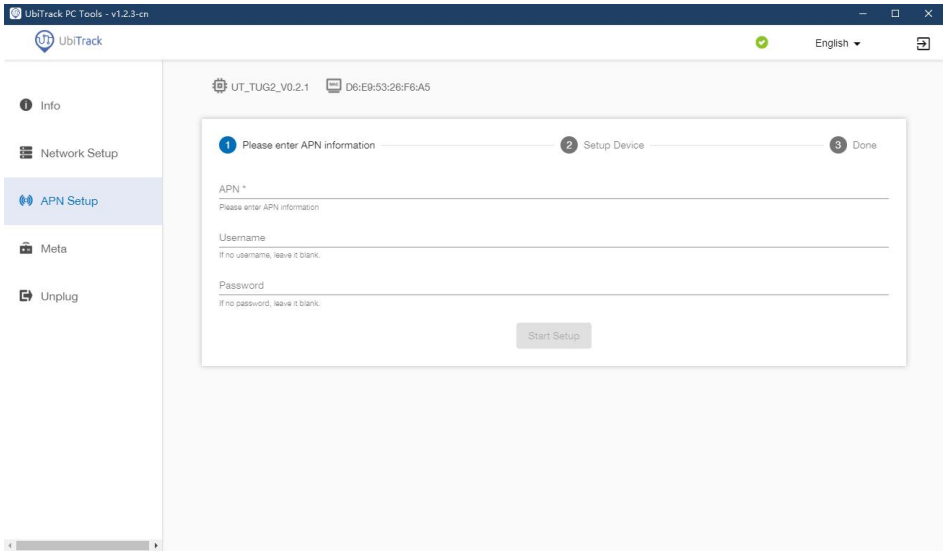




⑦ You can view and modify the server network configuration, APN settings of Hybrid UWB-GNSS Positioning Tag.







⑧ PC tool also allows to modify and view information and configurations related to the anchor in a similar way to the tag.