Generation ROBOTS

NAVIS

WEB Side

Navigation System Software Operation Guide

智能移动承载术米

About Documentation

Version

Version Number	Release Note	Remark
	1. Added automatic recharge instructions. 2. Added the emergency stop mode of emergency stop for different models.	

1. Scope of document application

This user manual mainly introduces the usage method of NAVIS system software in an all-round way, and aims to guide users to use the WEB client correctly to operate and control the robot based on Agilex automatic positioning and navigation solution.

The intended target readers are developers who will be involved in robot testing and development, and operation and maintenance personnel responsible for daily maintenance of robots.

We suggest: Before using the robot, please read the entire content of this manual carefully so that you can get started with the operation method of the WEB client safely and quickly.

2. Terms and Definitions

- **SLAM:**Simultaneous Localization and Mapping, Real-time positioning and map construction, or concurrent mapping and positioning;
- **Free Area:**If there are no obstacles in the area where the robot is located and can move freely, then this area is called a free area;
- **Initialization:**Manually select the approximate location of a robot on the map, and the robot performs environment matching in the above approximate location by rotating a circle, so that the robot can accurately locate its own position on the map and confirm that the posture is correct;Realize that the state of the robot changes from being uncertain about its own positioning information to clarifying its own positioning information. This process is called initialization;
- **Virtual wall:** The virtual wall is the lines and various shapes used to draw the area where the robot is prohibited from entering. After the area is successfully drawn, the robot will avoid the no-go area marked on the map in the actual use scene;
- **Navigation:** The robot arrives at the task point from the initial positioning point through an autonomously planned path or a specified path according to the set task;

- **Lidar:** A radar system that detects the position, speed, and other characteristics of targets by emitting laser beams.
- **Robot Pose:** The position and orientation of the robot in the map, typically represented by (x, y, w), where x and y are the coordinate information in the 2D map coordinate system constructed by the robot, and w is the angle information relative to the origin in the map.
- **Positioning Data:** The robot sends laser data through sensors (such as lidar), establishes the current environment model, matches with the already built environment, evaluates the approximate position of the robot in the known environment model, and can stably output the process of positioning data . The positioning data is the position and attitude data of the robot in the known map;
- **Autonomous obstacle avoidance:** The robot interrupts the original trajectory planning and actively avoids obstacles during its travel. After avoiding, continue to plan the movement according to the original trajectory;
- **Obstacle stop:** The robot automatically stops when it encounters an obstacle during its travel. After the obstacle disappears, plan the movement according to the original trajectory;
- **Path tracking:** the robot moves from the starting point to the end point along the set task path;
- **Free navigation:** The robot uses built-in sensors to determine its approximate location within a known model of the environment. Then through independent planning, the movement and obstacle avoidance functions are realized.

1. Product Introduction

1.1 product description

AgileX NAVIS autonomous navigation product is a full-scene autonomous navigation system product designed for semi-enclosed and fully enclosed scenarios. The product uses solid-state Lidar, depth cameras, and IMU as the main sensors to achieve environmental perception and scene construction. It combines NAVIS Brain (navigation brain), NAVIS Bridge (data bridge), and multi-platform intelligent interaction NAVIS Board system to achieve data visualization, scene map construction and management, task system management, and system management.

- The embedded multi-Lidar solution realizes a stitching perception scheme, achieving free space on the top.
- Visual and Lidar construction achieves comprehensive positioning and safety protection, ensuring the safe operation of unmanned devices.
- The free interaction form across all platforms supports web-based map management and editing, task scheduling and execution, and customizable dashboards. The simple operation brings a new deployment and usage experience.
- The fusion of 3D Lidar and multiple sensors enables excellent and stable positioning ability in three-dimensional space.

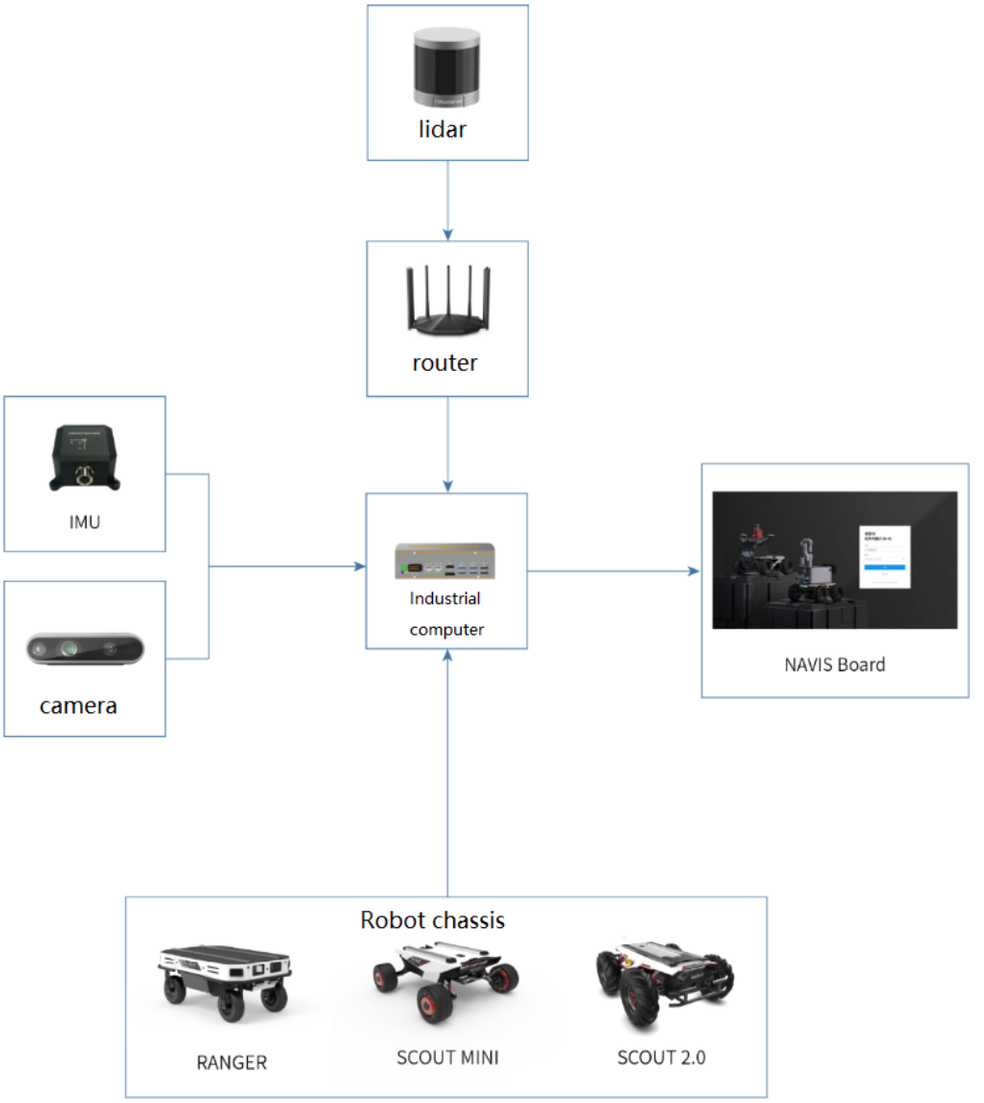
1.2Product core advantage

- Embedded solid-state Lidar, free space on the top (this description only applies to the multi-solid-state Lidar stitching version).
- Comprehensive safety protection through the fusion of multiple sensors such as laser and vision.
- More stable positioning based on 3D Lidar positioning.
- Cross-platform, customizable UI interface, better and simpler interactive experience.

1.3 Description of product usage conditions

- Mainly designed for fully enclosed and semi-enclosed full-scene environments, it can be applied to both indoor and outdoor fusion scenarios. Typical scenarios include industrial parks, underground parking lots, parks, residential areas, etc. Specific scenarios need to be evaluated by professional staff from Agilex Robotics, and different scenarios have different limitations.
- Works in non-rainy (not tested in rainy weather, no promise of normal use in rainy weather) and non-snowy (not tested in snowy weather, no promise of normal use in snowy weather) weather.
- The maximum supported speed is currently set at 9KM/h (2.5m/s) (depending on the physical performance of the vehicle model itself).
- Other basic capabilities are related to the chassis movement ability.

1.4 System overview



2. Safety Instructions

2.1 Preface

This chapter contains important safety information that must be read and understood by the operator before the robot is powered on for the first time.

2.2 User Responsibility

Safe operation of NAVIS is the responsibility of the user, which includes:

- Before operating the robot, carefully read the "NAVIS User Guide" and follow the operating instructions.
- Ensure that the working environment meets the safe operating environment conditions of the robot.
- Ensure that all personnel working with the robot have received sufficient training, can comply with operating standards, and can safely operate the robot.
- Ensure that the goods carried by the robot and the loading and unloading operations comply with local safety standards.
- egularly maintain and service the robot to ensure that all control and safety functions can work properly.

2.2.1 Precautions

WARNING: ELECTRICAL HAZARD
Failure to safely use the electronic components on the robot in accordance with the specifications may result in equipment damage or personal injury.

- Do not use any chargers other than those provided by Agilex Robotics to charge the robot.
- Do not perform any operations on the internal components of the robot while it is charging.

CAUTION: FALL HAZARD
The robot cannot detect descending stairs or ground depressions, which may cause a risk of falling when passing through this area.

- Please set it as a prohibited area on the map in areas where the robot cannot detect.

Operating precautions:

- Before starting the system and equipment for the first time, check whether the equipment and system are complete, the operation is complete, and whether the robot and other equipment systems are damaged.
- Before using the robot and putting it into production, preliminary testing and inspection of the robot and surrounding protection systems are required.
- When using the NAVIS navigation system, the operator must undergo corresponding training and ensure that the input parameters and operations are correct.
- In case of accidents or abnormal operation during the operation of the robot, press the emergency stop button.
- During the operation of the robot, no one or other equipment should appear within the operating range.
- The rear and side are blind spots during the operation of the robot, and collision risks may occur if people appear and cannot avoid it.

- Do not extend your fingers to the end effector connection.
- Ensure that there are no obstacles in the robot's workspace.
- During operation, if an emergency stop is required, ensure that the robot in that posture will not collide with obstacles when restarting or resetting to zero.
- Do not modify the internal systems of the robot, including software and hardware systems. If it is necessary to integrate the mobile robot system with a new system, evaluate the impact of the new system on the original system. Since the original system includes perception sensors, changes in appearance and sensor systems may have new impacts on the performance and reliability of the original system. Therefore, when building a new system, carefully evaluate the impact of the changes on the original system.
- Take collision and waterproof measures during robot transportation or handling.
- Protect the corresponding sensors during robot transportation or handling, and ensure that the installation position and posture of the sensors have not been adjusted.
- When the robot cooperates with other machinery, a comprehensive safety assessment should be conducted for the entire assistance system.
- Do not change any information in the controller's safety configuration. If the configuration file parameters are changed, the entire robot system should be treated as a new system, which means that all safety review processes, such as risk assessments, must be updated.

2.3 work safety environment

- Ground: Hard and flat ground (no water/oil/dust), flatness error ±10mm, ground friction coefficient ≥0.4.
- Clearance and slope: Can climb steps of 10mm, can cross gaps of 20mm, climbing angle <5% (only for the chassis).
- Temperature and humidity: temperature 5~40°C (average ambient temperature 25°C), relative humidity 10~95RH%, no condensation, no corrosive or explosive gas.

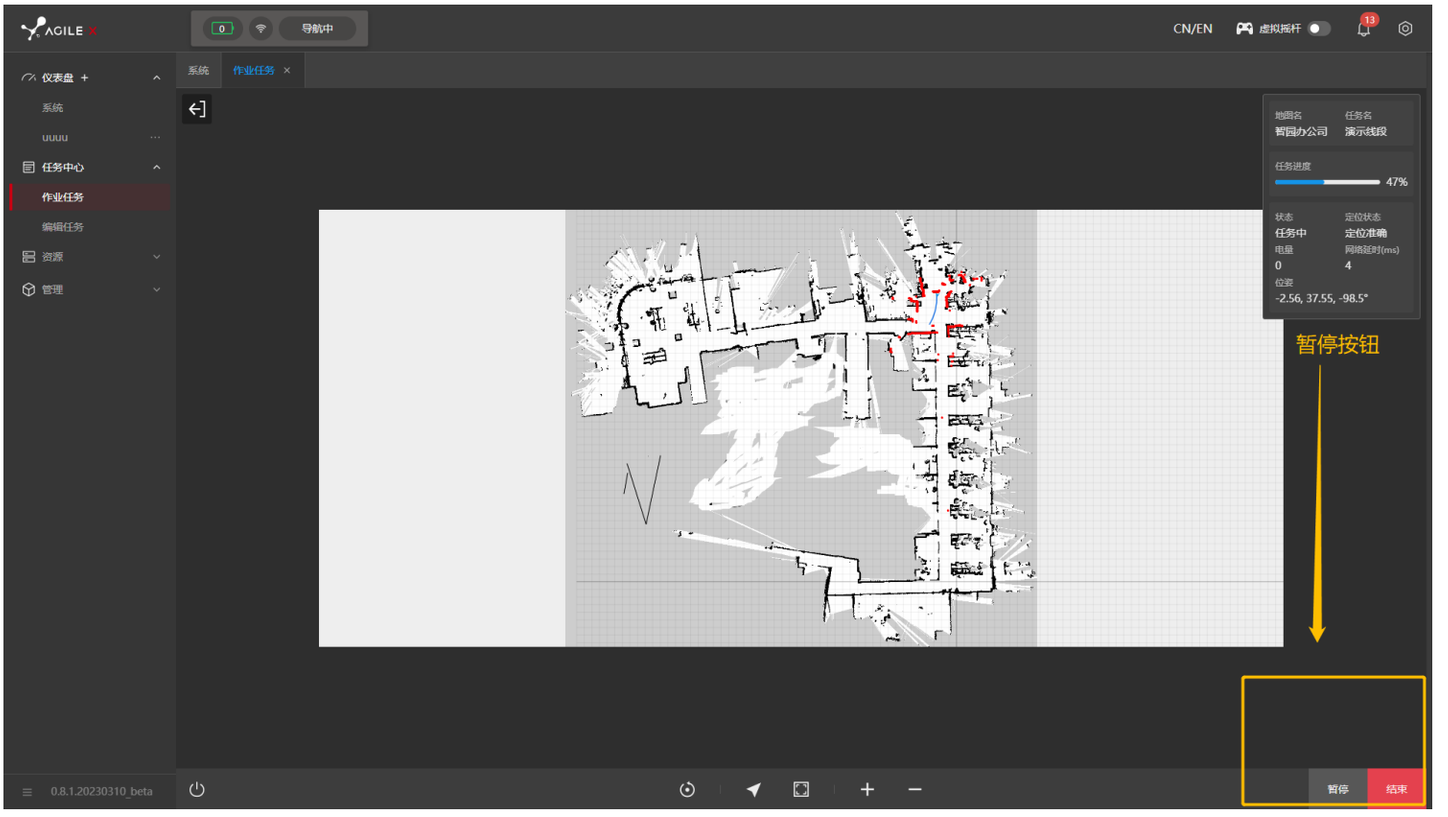
Isolation measures:
Please take the following isolation measures for unsafe areas in the environment (see **section 5.3.1 for environmental analysis**):
1. Increase physical barriers:
Place obstacles in unsafe areas so that the robot does not attempt to approach this area.
2. Set map prohibited areas:
Set the unsafe area as a "prohibited area" on the map so that the robot always works within the designated area.

2.4 Emergency stop:

Note: The emergency stop button is located in different positions for different chassis, and the SCOUT MINI chassis does not have an emergency stop button.

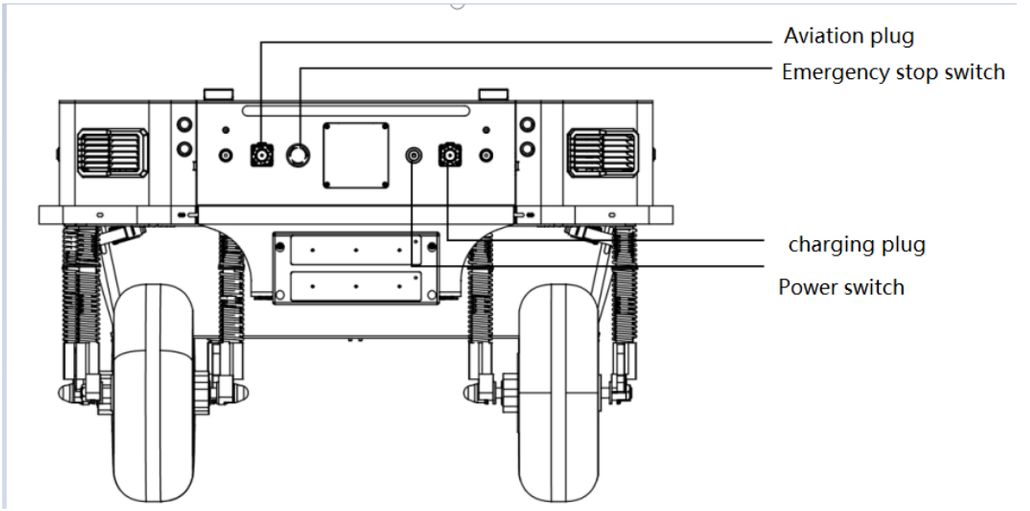
2.4.1 Emergency stop button on the WEB side

When an abnormal situation occurs, please press the emergency stop button to stop the robot.
When an abnormal situation occurs during scout mini navigation, please press the pause or end button on the navigation page.



RANGER- MINI:

The Ranger chassis of Agilex Robot is equipped with an emergency stop button. In case of sudden emergencies, press the button firmly, and the robot will stop under control. After the emergency is resolved, rotate the button clockwise to release the emergency stop. The following figure shows the location of the emergency stop button on the Ranger chassis. (Emergency stop can also be achieved through the WEB emergency stop button.)



3. Start Using

3.1 Preparation

Work and equipment preparation:

1. Navis Board information disclosure:
   (1) Default use of WIFI SSID
   (2) Default password information
2. Navis Board connection requirements:
   (3) Recommended computer system: Windows 8/10/11/Linux 18.04
   (4) Computer resolution requirement: 1920*1080
   (5) Directly connected device network requirements: equipped with wireless network card or connected to device LAN
   (6) Browser requirements and recommendations:

Browser Name	Recommended Browser Version
Google Chrome	108.0.5359.125 and above
Microsoft Edge	108.0.1462.76 and above
Firefox	108.0.2and above

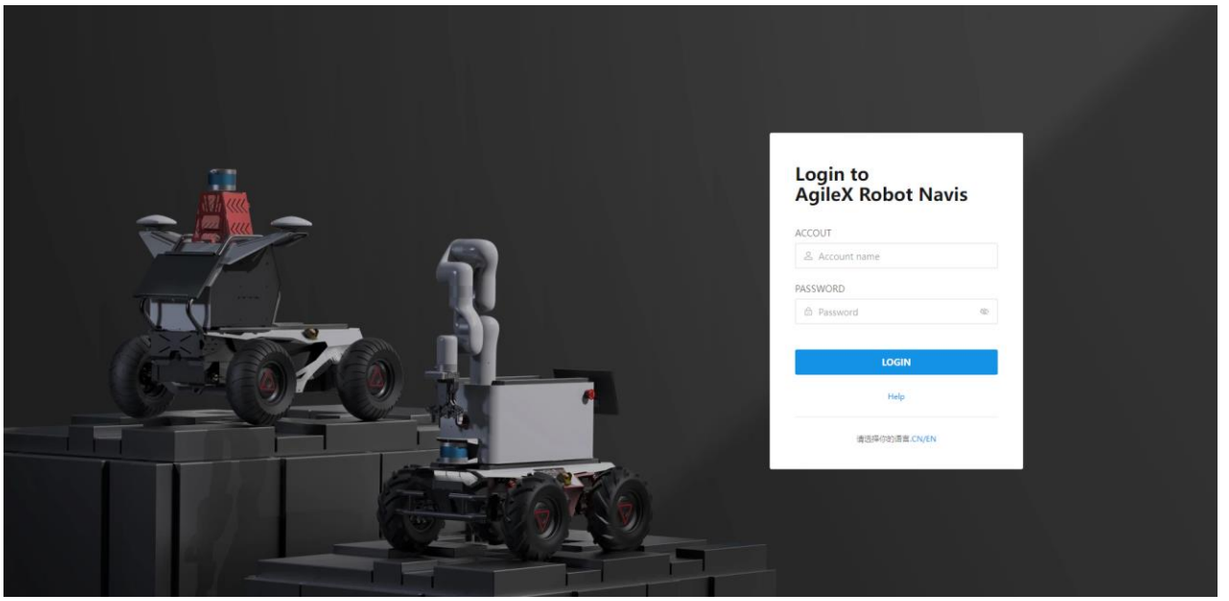
3.2 Connection and Use

The NAVIS system is a control and scheduling system for robots, which runs through the WEB end and supports operating systems such as Mac, Linux, and Windows. Through it, functions such as map recording, robot free navigation, and autonomous obstacle avoidance can be realized. The following are the steps to log in to the NAVIS system:

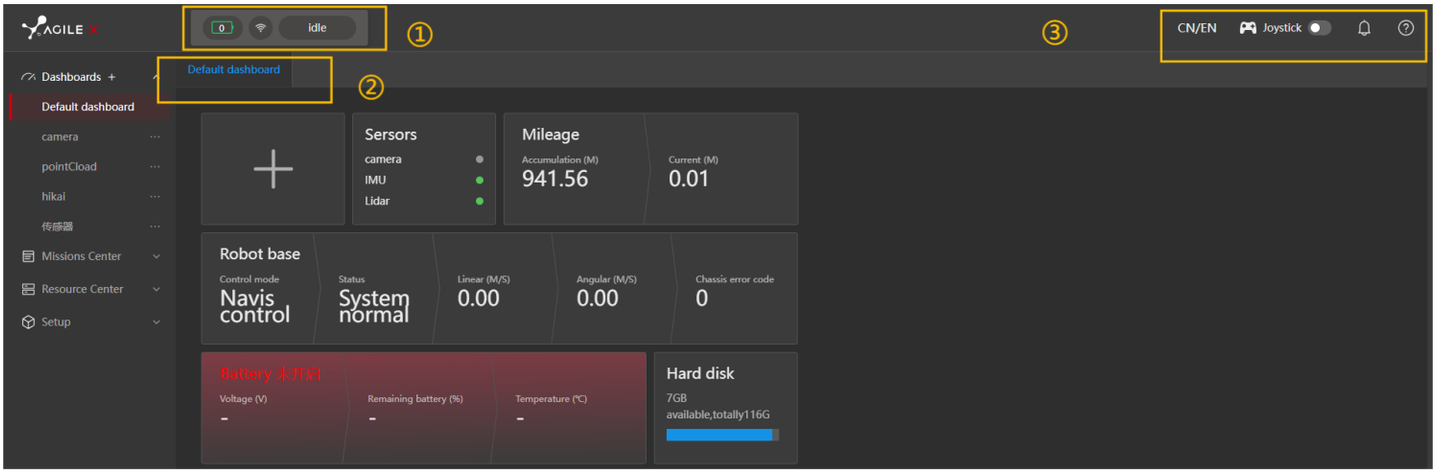
1. Connect the laptop to the router's WIFI and enter the default WIFI password;

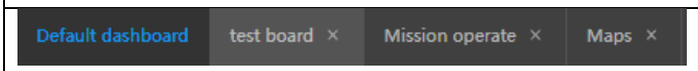
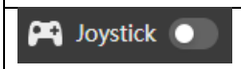
After logging in, use the command to check the network connection status: **ping 192.168.1.102**

2. Log in to the webpage 192.168.1.102 with a browser and enter the AGILEX account password;
3. Login successful.



After successfully logging into the system, introduce the function bar at the top of the web page:



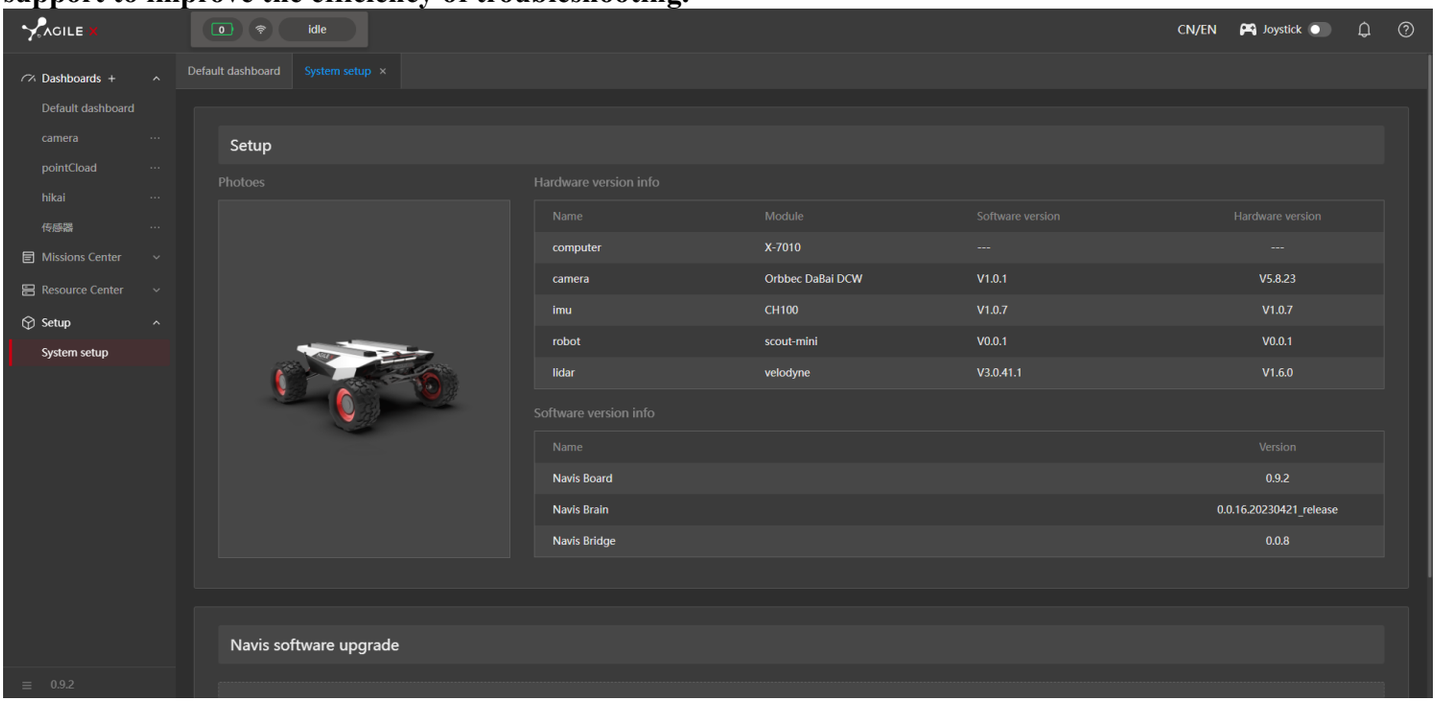
Function	description
	Display the remaining power of the robot, the WiFi signal strength between the mobile device and the robot, and the working status of the robot.
	Clicking on each tab can switch to different windows.
	Click to switch the default language of the WEB client.
	Start the virtual joystick to control the movement of the robot.
	Click the log button to display the robot's work log.
	Click to open the help document.

4. Function Introduction

4.1 Device management

After logging in, the management page can view the hardware and software information of the robot, and also provide the function of upgrading the software version.

[Note] When the robot fails and needs maintenance, you can provide the device information to Agilex technical support to improve the efficiency of troubleshooting.



Hardware platform

■ Mobile platform: Displays the name, model, and version information of the Agilex mobile chassis carried by Navis.

■ LiDAR sensor: Displays the name, model, and version information of the LiDAR sensor carried by Navis.

■ Inertial sensor: Displays the name, model, and version information of the inertial sensor carried by Navis.

■ Vision sensor: Displays the name, model, and version information of the vision sensor carried by Navis.

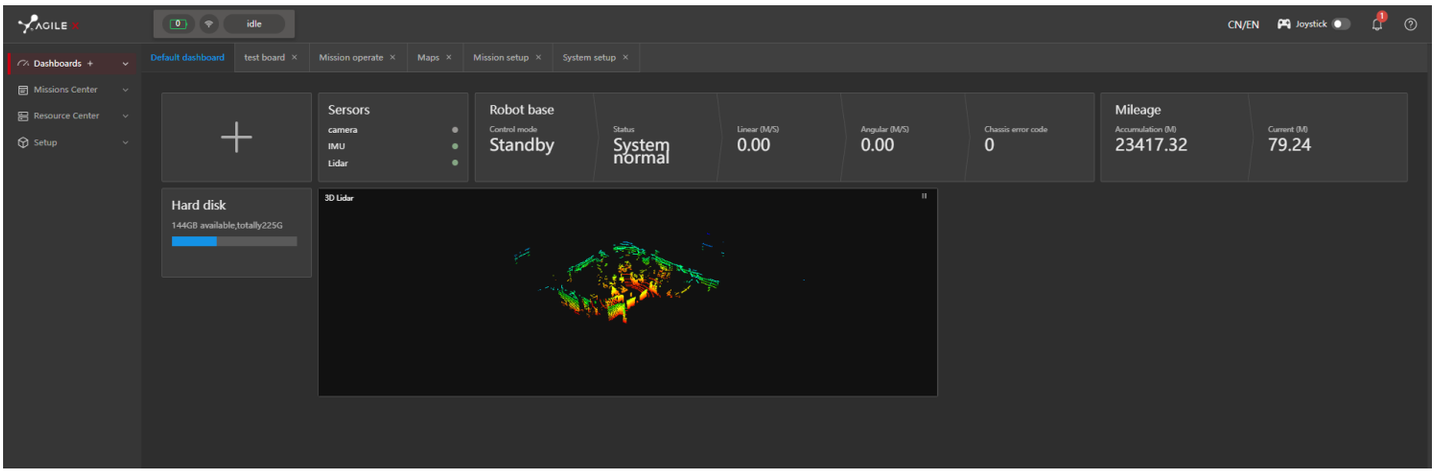
■ Core computing unit: Displays the name, model, and version information of the core computing unit carried by Navis.

Software platform

Name	Function	Upgrade Version Operation
Navis Board	Realize the intelligent interactive system for data visualization, scene map construction and management, task system management, and system management	Drag the Navis Board upgrade package to the upgrade Navis Board area
Navis Brige	Link the data bridge between Navis Brain (smart navigation system) and Navis Board (intelligent interactive system)	Drag the Navis Bridge upgrade package to the upgrade Navis Bridge area
Navis Brain	Control the robot to autonomously plan routes and avoid obstacles, and realize the smart navigation system for free navigation	Drag the Navis Brain upgrade package to the upgrade Navis Brain area.

4.2 Dashboard

The **dashboard** is used to display all hardware information of the robot and the real-time status of each sensor. Through it, we can clearly understand the real-time status of the robot.

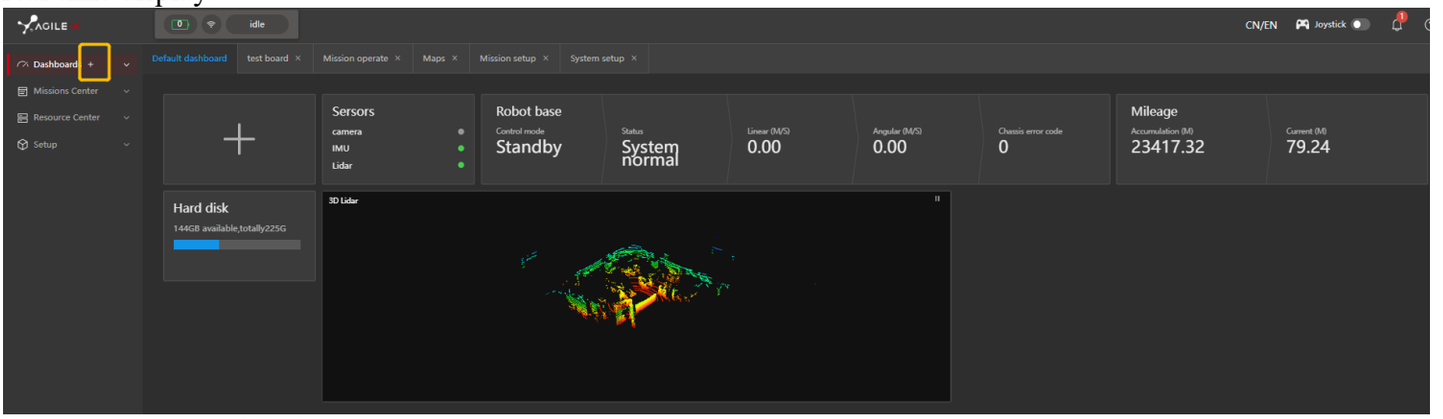


The individual display items on this page are described below:

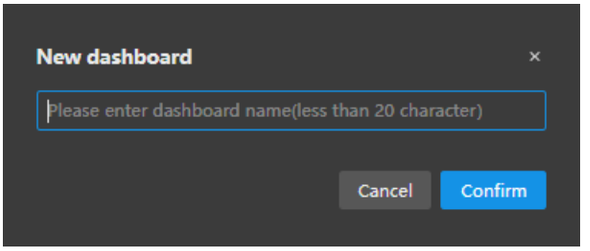
- Charging information: Displays the robot's charging status, single charging time, total charging time, and number of charges.
- Sensors: The sensors included in this device.
- Travel mileage: Displays the cumulative travel mileage and the mileage of this boot.
- Chassis information: Displays the chassis control mode and the status of the chassis.
- Battery information: Displays the voltage of the battery, the real-time power status, and temperature.
- Disk T7: The hard disk used for recording maps, which displays the memory size of the hard disk in real-time.
- Disk system: The robot system disk, which displays the storage space size of the hard disk in real-time.
- 3D LiDAR: Displays the data scanned by the 3D LiDAR in real-time.

4.2.1 Custom panel

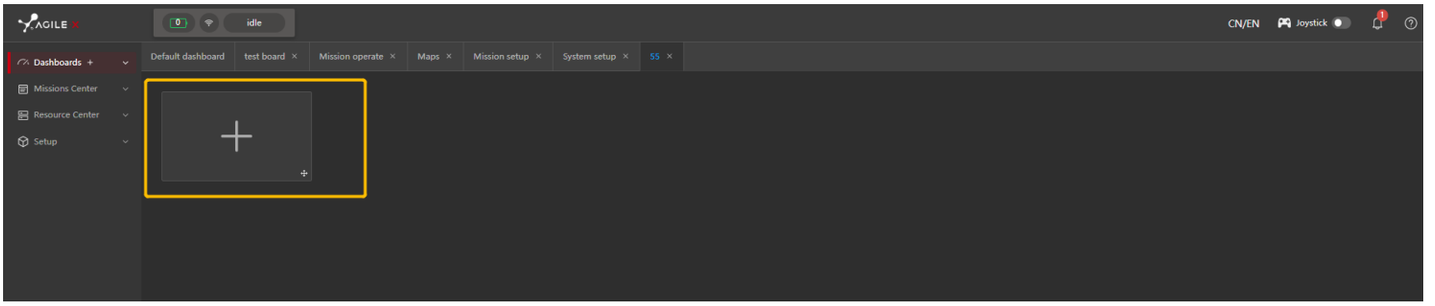
1.Click the "+" sign next to the dashboard to add custom boards and subscribe to the most important information for real-time display.



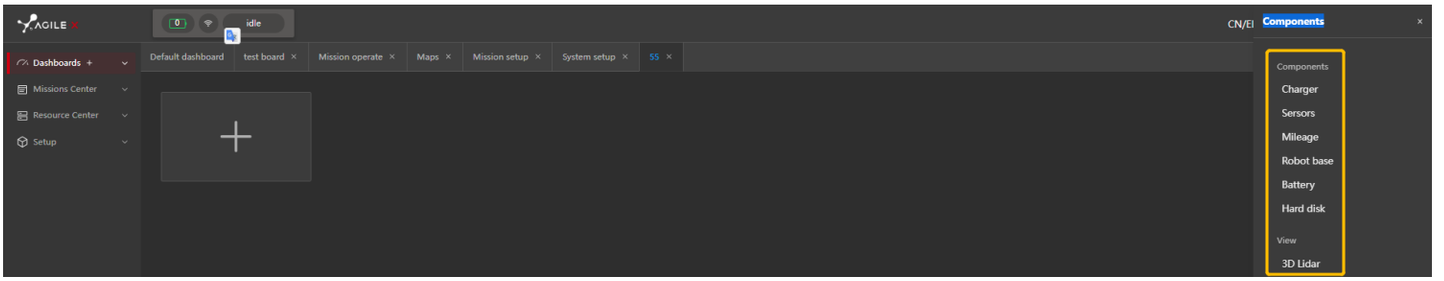
2.Enter the name of the board.



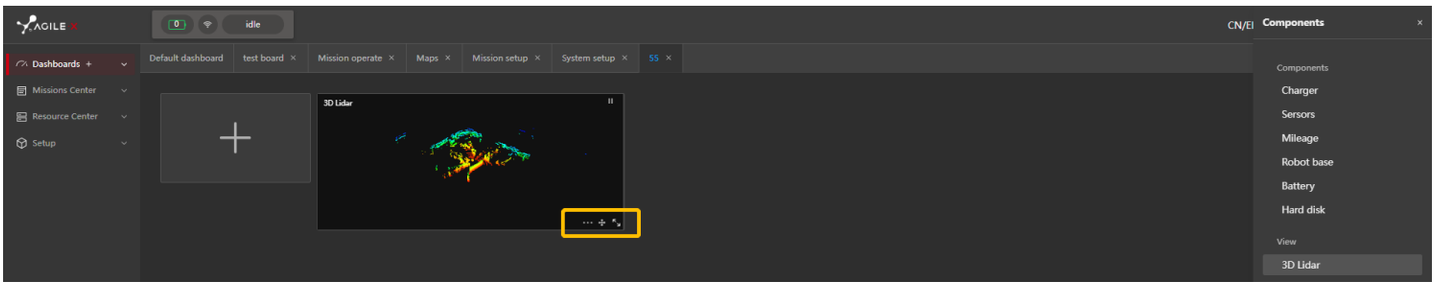
3.Click the "+" sign to add other hardware boards, as shown in the figure below.



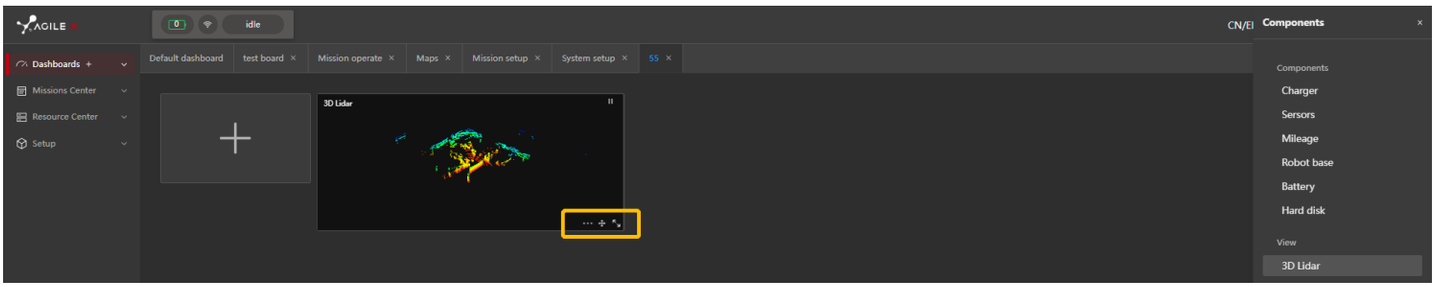
4.Add hardware boards to the newly added list on the right.



5. Move or delete hardware boards:



- Move the mouse to the lower right corner of the hardware board, click the icon , and delete the hardware window.
- Move the mouse to the lower right corner of the hardware board, click the icon , and move the hardware window to a new position.
- After adding 3D LiDAR data, as shown in the figure below, click  to zoom in or out the window size.



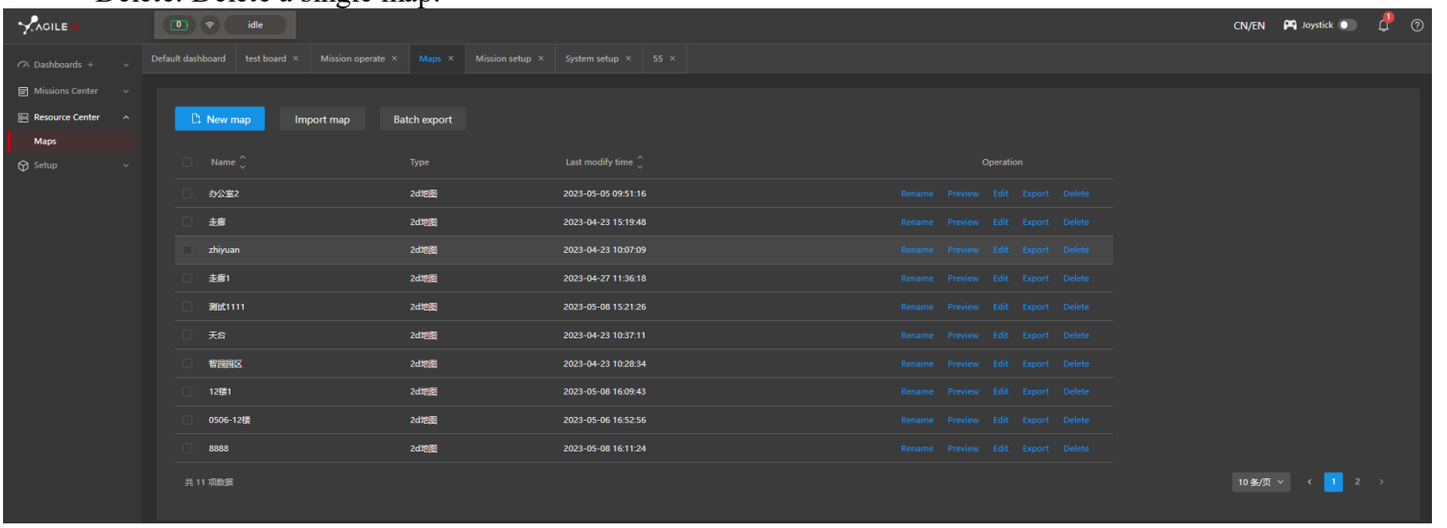
4.3 Resources

The main function of the **resources page** is map management, which includes recording new maps, editing maps, importing and exporting maps, and other functions.

Map Resources

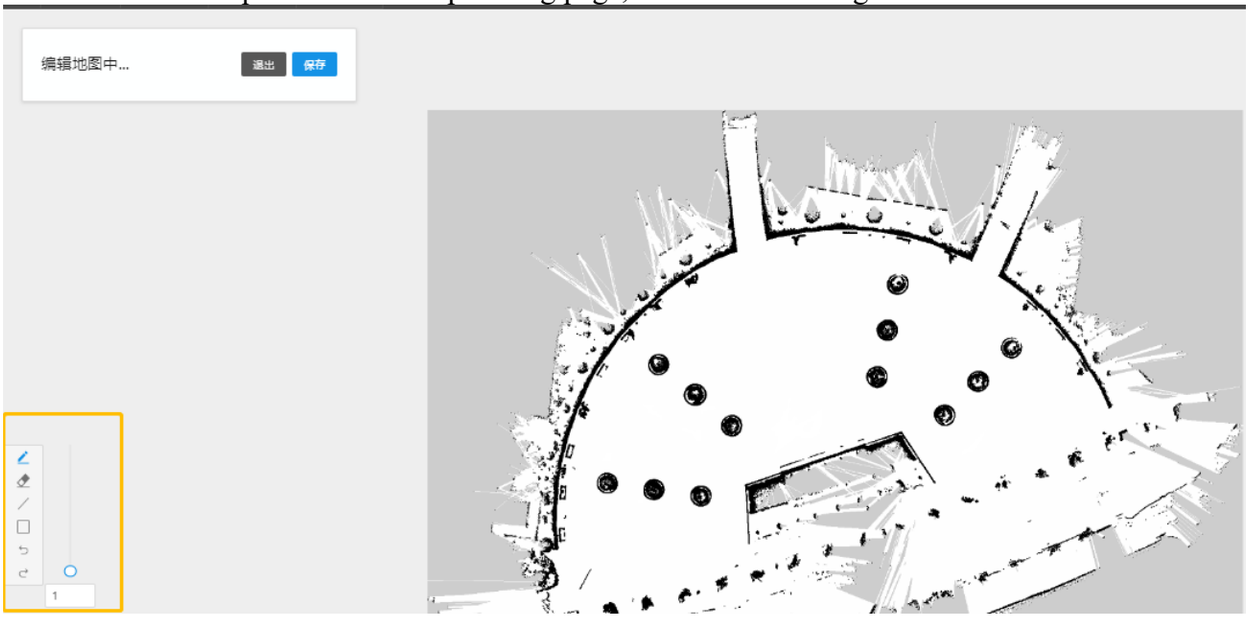
The functional buttons on this page include:

- New Map: Start recording map data to create a new map.
- Import Map: Import recorded map data packages.
- Batch Export to Local: Export map data packages in batches to the local device.
- Rename: Rename the map.
- Preview: Preview the map.
- Edit: Open the map editing page.
- Export: Export a single map.
- Delete: Delete a single map.



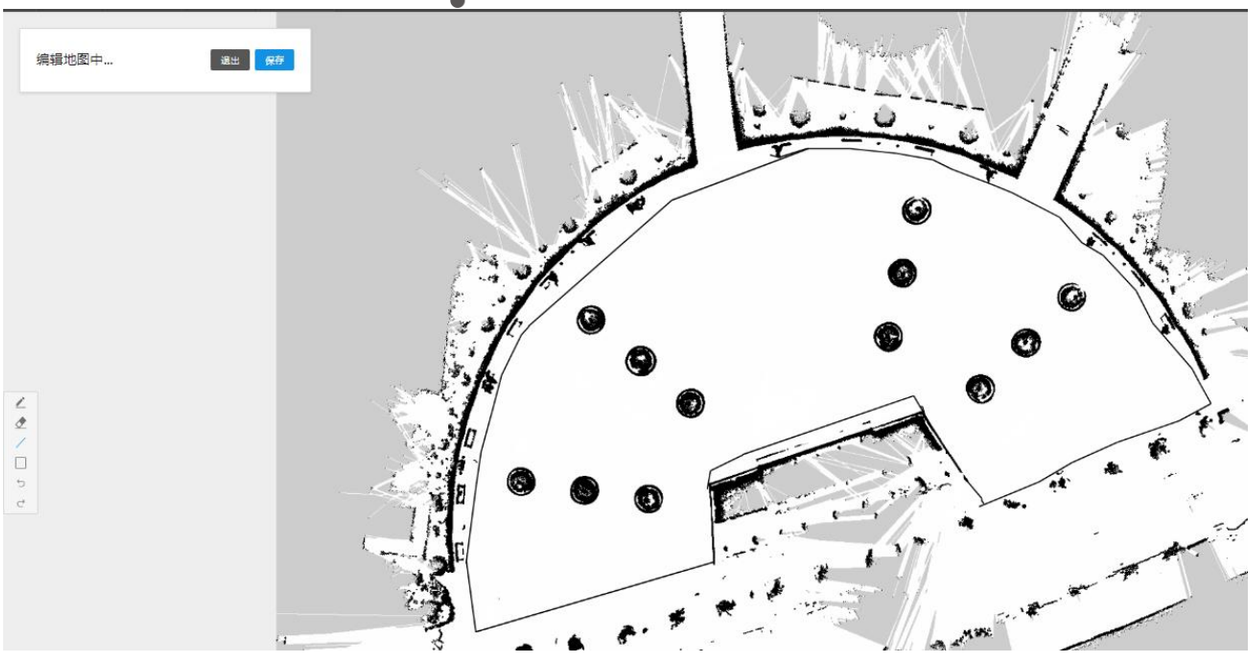
Edit Map

Click "Edit" next to the map to enter the map editing page, as shown in the figure below.



The general editing steps are as follows:

1. Click the icon and drag the button next to the pen to adjust the thickness of the pen tip. Based on the actual environment of the map, consider potential obstacles, falling environments, and other unsafe factors, and set virtual walls in the map. The robot will set the area surrounded by virtual walls as a forbidden zone and will not pass through it.
2. Click the icon and drag the button next to the eraser to adjust the size of the eraser tool. Based on the actual environment of the map, erase temporary obstacles, such as pedestrians, cars, and temporary debris.
3. Click the icon and drag the button next to the eraser to adjust the thickness of the line. Based on the actual environment of the map, consider potential obstacles and set virtual walls in unsafe areas using straight lines, as shown in the figure below.

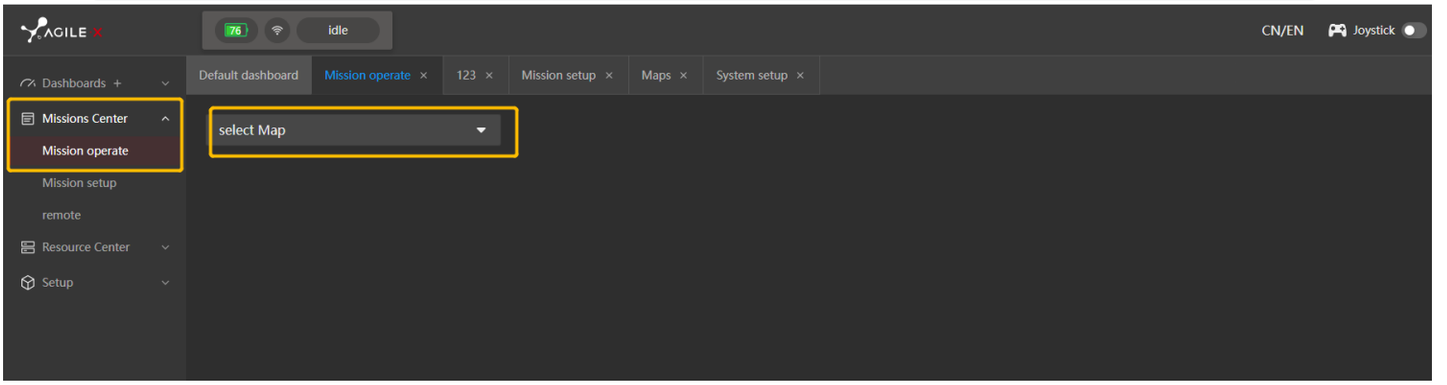


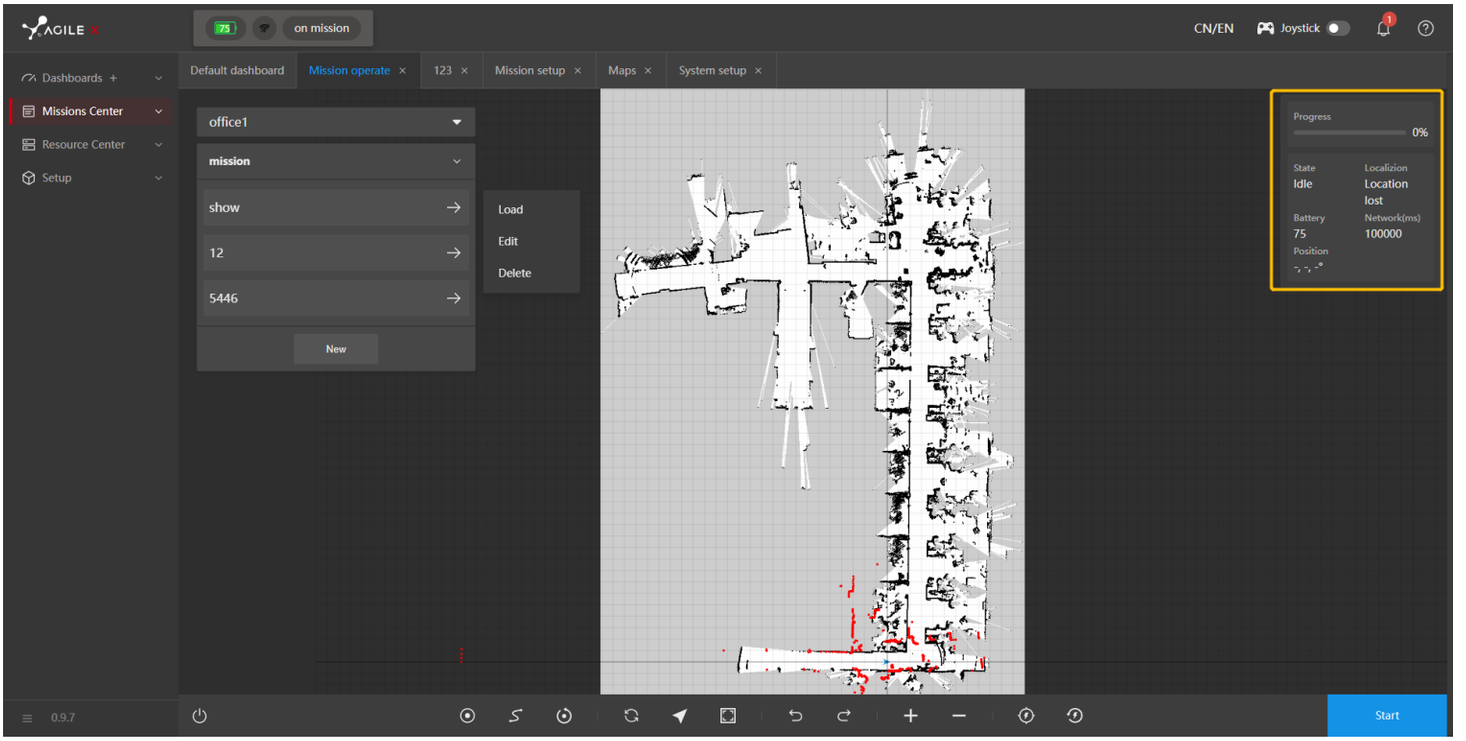
4. If you make a mistake with the pen, you can use the undo operation in the toolbar or use the eraser to clear it.
5. After editing, click "**Save**" and then click "**Exit**".

6.

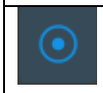
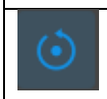
4.4 Task Center

The main function of the task center is task management and execution of navigation tasks.
After entering the task, you need to click "**select map**" to choose a map. After selecting the map, the webpage will display the map, and the real-time status bar of the robot will be displayed on the far right. After loading the map, you can click the bottom function bar to add temporary tasks for testing.





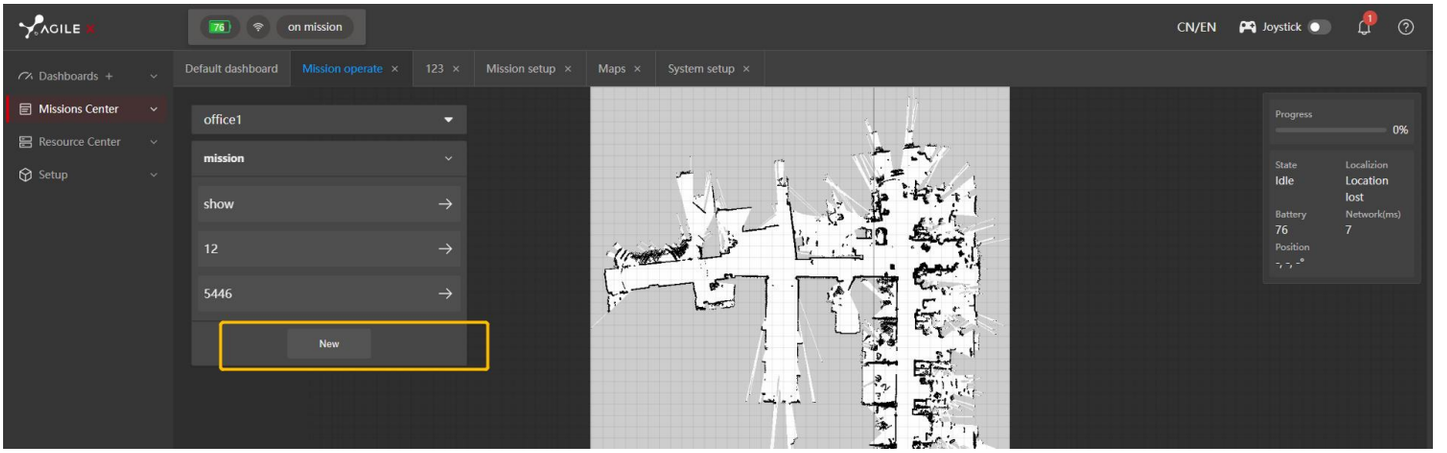
The following are the functional buttons at the bottom of the task center:

Button	Function
	Close the navigation function and exit the task interface.
	Add a task point to the map.
	Add a straight line to the map. Right-click the mouse to start a new line segment from a new starting point.
	Similar to a straight line, click to add a line to the map. Right-click the mouse to start a new line segment from a new starting point. The difference is that when you click on the line, a dot will appear in the middle of the line, and dragging it will change the curvature of the line.
	Initialize the location and manually calibrate the robot's position to make it accurately positioned.
	Clear all temporary path points and curves.
	Make the robot's positioning coordinates in the center of the webpage.
	Scale the map to center it.
	Undo the last action of drawing a point/line segment.
	Restore the action before undoing.
	Zoom in on the map.
	Zoom out of the map.
	Set the charging point.
	Charge: Click to automatically return to the charging point for charging.

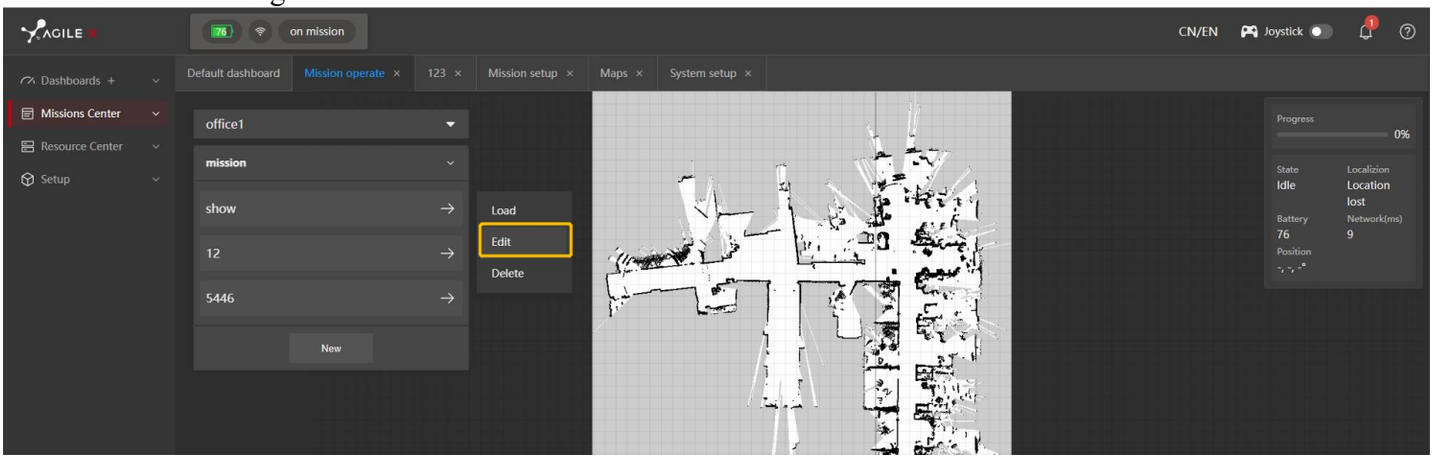
Edit Task

This interface is mainly used for creating and editing task information. (For editing tasks, please refer to 5.6 Creating Target Point Tasks and 5.7 Creating Curve Tasks)

1.Create Task: Click "New" to create a new task.



2.Edit Task: If you are not satisfied with the position of the task point, you can select the task in the task list and **edit** the task information again.



Job task

The job task interface can execute temporary tasks and tasks in the task list.

Task	Function
Temporary Task	Task Only used for temporary testing, cannot be saved, and disappears when the webpage is refreshed.
Task in the Task List	Can be saved for a long time, called up at any time, and the task point information can be changed.

1.Execute Temporary Tasks

The steps for creating a temporary task are as follows:

1. Select "Add Task Point" or "Add Line Segment".
2. After adding, if you want to delete, you can select "Undo" to delete the point or line.
3. Take the target point in the test area.
4. Click "Start ", and the robot will perform a temporary navigation task.

2.Execute Saved Tasks

The steps for executing a saved task are as follows:

1. First, click "Select Map" to choose a map.
2. Select the task in the task list.
3. Click "Start ".
4. Select the number of times to perform the task.
5. Click "Confirm", and the robot will start performing the navigation task.

5.Commissioning and Maintenance

This section introduces the basic operations of WEB debugging, such as recording map data, position calibration, and task creation. Please make sure you are familiar with the introduction of each window in WEB and understand the basic information of the robot hardware.

5.1 Safety Check

Before starting the robot, please carefully read and complete the following deployment and checks to prepare for safe and stable autonomous operation of the robot.

1. Unlock the emergency stop button

Check: Check whether the emergency stop buttons on both sides of the robot are in the unlocked state.

Measure: If the emergency stop is pressed, rotate the button clockwise to unlock it.

2. Clean the surface of the robot

Check: Check whether there are foreign objects or adhesives on the surface of the robot shell.

Measure: If there are any, use a damp cloth to wipe the surface of the robot to remove foreign objects.

3. Wipe the mirror of the depth camera

Check: Check whether there are visible foreign objects on the depth camera at the front of the robot at close range.

Measure: If there is oil or dust, use an eyeglass cloth and lens cleaning solution to gently wipe away the foreign objects.

4. Wipe the mirror of the laser radar

Check: Check whether there are visible foreign objects on the laser radar of the robot at close range.

Measure: If there is oil or dust, use an eyeglass cloth and lens cleaning solution to gently wipe away the foreign objects.

5. Clean the wheels

Check: Check whether there are foreign objects entangled in the four wheels of the robot.

Measure: If there are foreign objects such as wires, use a small shovel to remove them.

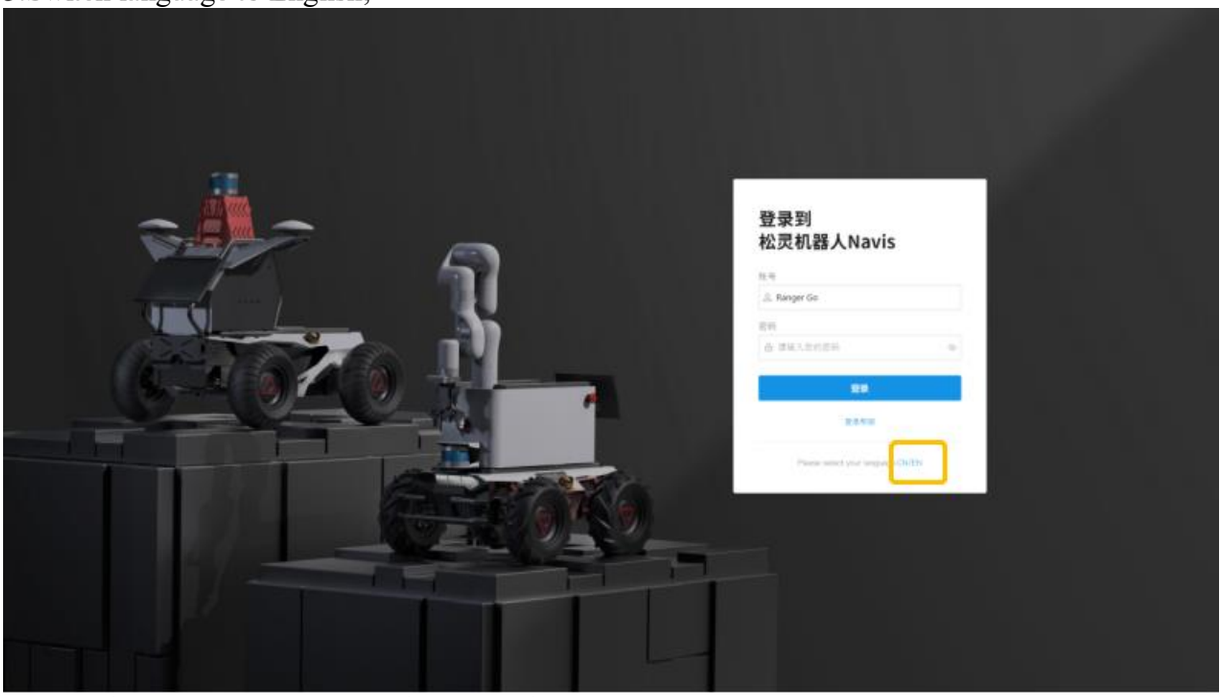
6. Clean the operation channel

Check: Check whether there are obstacles blocking the passage in the operation channel of the robot.

Measure: If there are obstacles, please clean them in time to avoid affecting the robot's work. If there are newly added fixed obstacles in the environment, please record a new map immediately.

5.2 Network Configuration

1.Connect the laptop to the router's WIFI.
2.Open the corresponding robot's WEB link with a browser: 192.168.x.xxx;
3.Switch language to English;



4.Enter the AGILEX account and password.

5.3 Map Recording

5.3.1 Analyzing the Environment

Special Obstacles

Please pay special attention to whether there are special obstacles that the robot cannot detect in the environment:

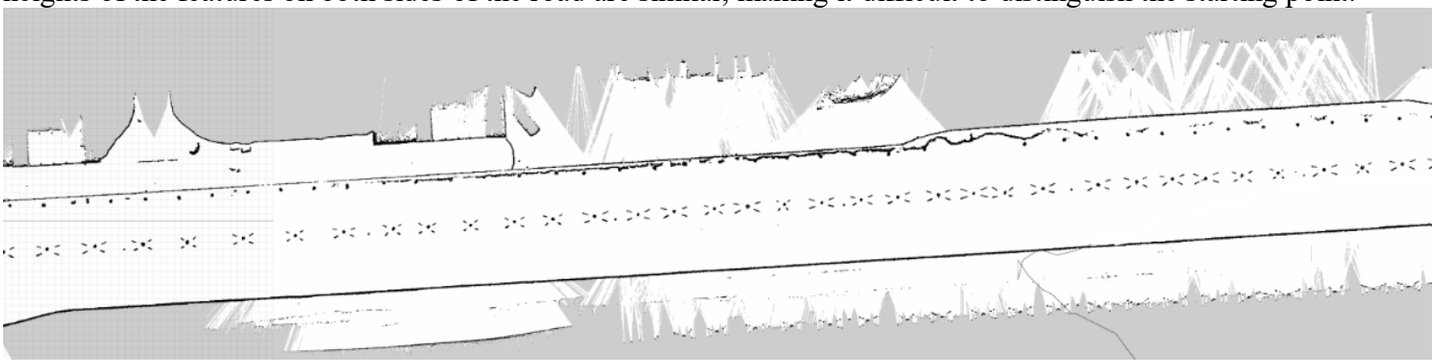
- Going downstairs: The robot cannot recognize going downstairs and ground depressions.
- Areas with frequent human activity: In areas with frequent human activity, the robot will frequently avoid obstacles, which will greatly reduce the efficiency of the robot's work.

Solutions

- Increase physical barriers: Place obstacles in dangerous areas so that the robot does not attempt to approach special obstacle areas.
- Set map markers: In the recorded map, set the area with special obstacles as a forbidden zone so that the robot always works in a safe area, or stagger the robot's work with the obstacle objects by dividing the area.

5.3.2 Map Recording Suggestions

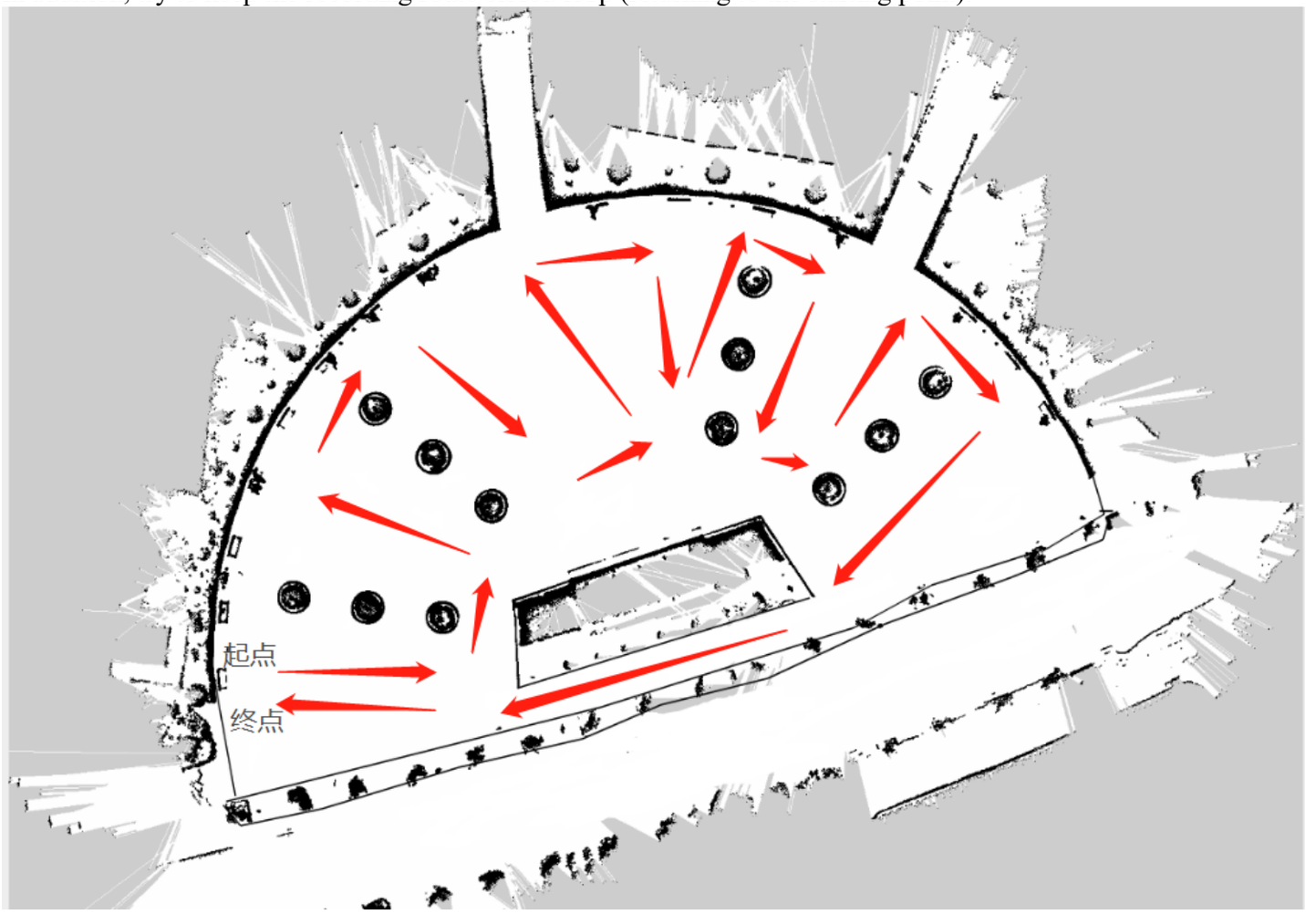
1.Before recording the map, remove any temporarily placed objects in the recording area.
2.When recording the map, try to choose a time when there are few or no people present.
3.Map recording selection: When recording the map, avoid having multiple sections of the road with similar heights, which can make it difficult for the robot to accurately locate and work properly. As shown in the figure below, the heights of the features on both sides of the road are similar, making it difficult to distinguish the starting point.



It is recommended to choose an environment with clear features, as shown in the figure below:

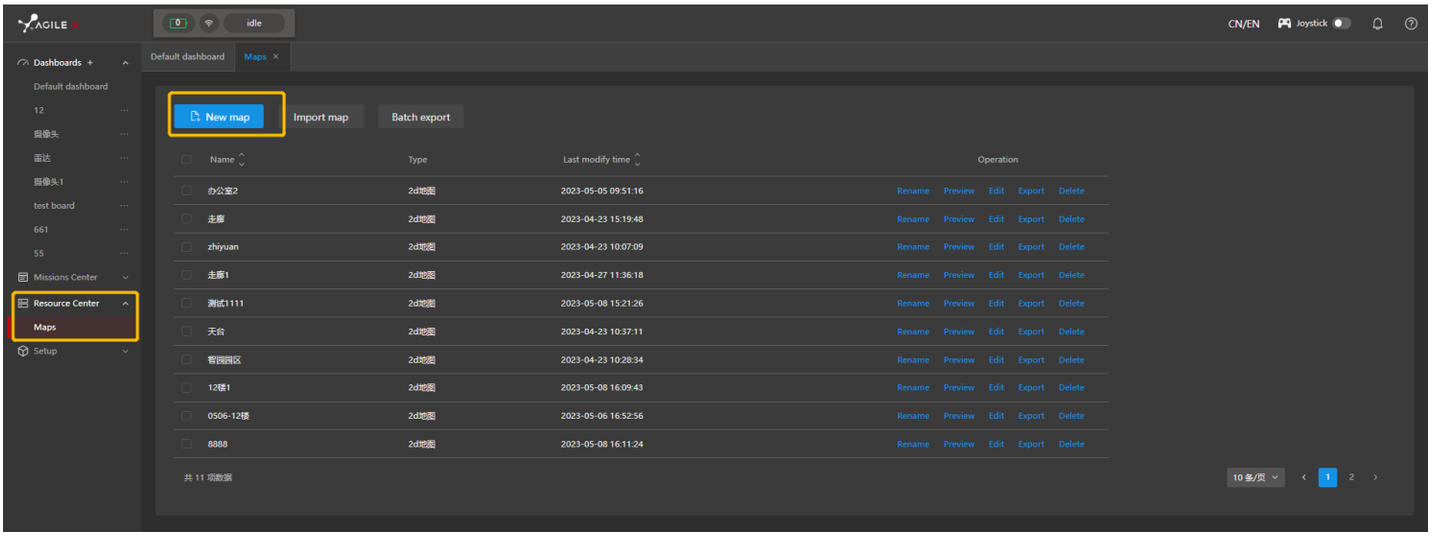


4.Planning the Path of Map Collection: When collecting the map, the moving path should be planned in advance. When recording the map, walk a little more to allow the radar to scan more details and collect a more complete map. In addition, try to keep the recording route closed loop (returning to the starting point).

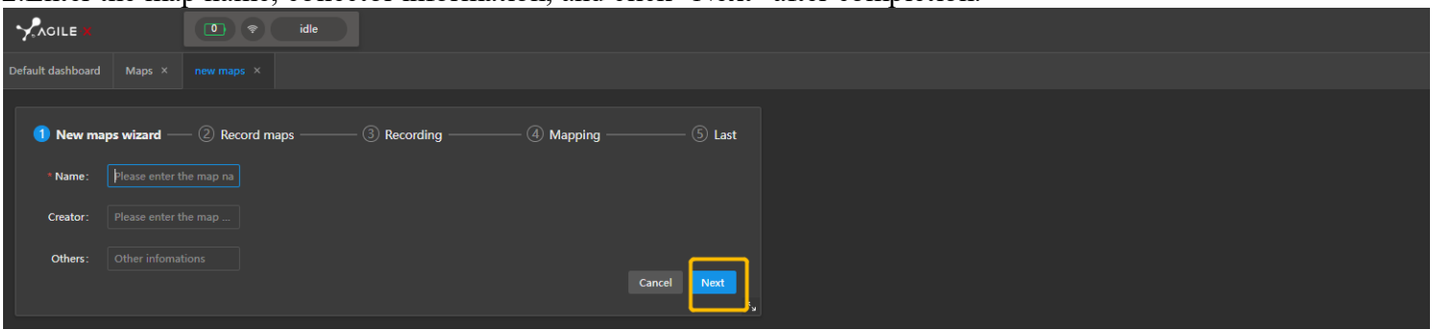


5.3.3 Map Recording

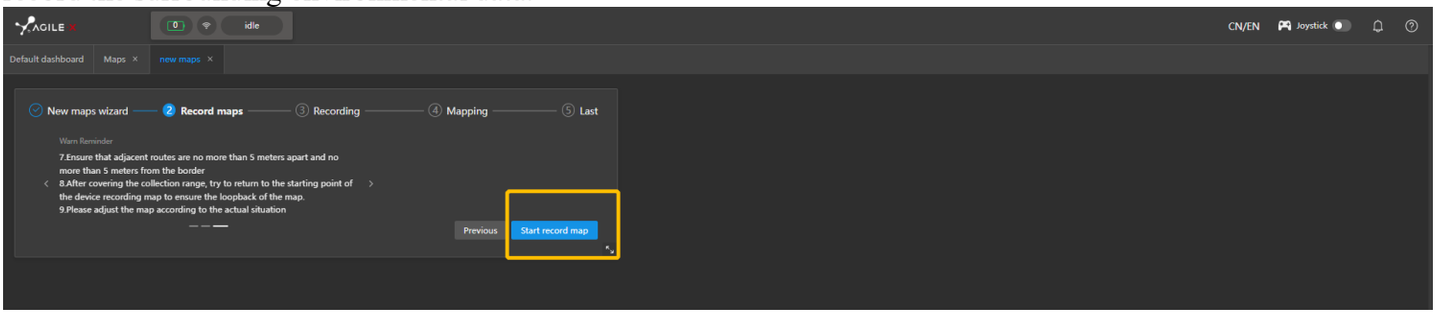
Before recording the map, the robot should be remotely controlled to the starting point of the recording.
1.Enter the WEB client, click on "Resources", then click on "Map Resources", and then click on "New Map".



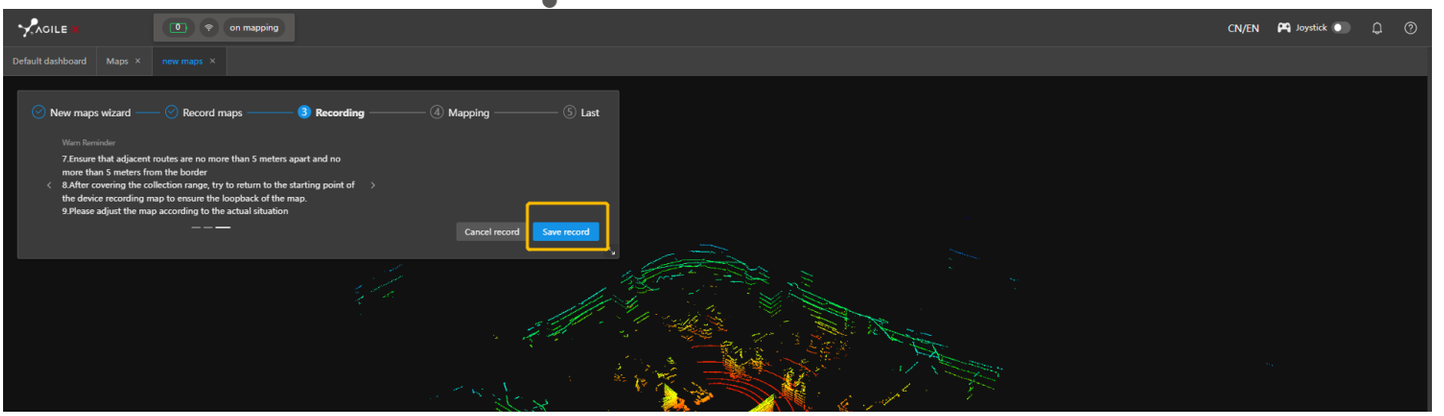
2.Enter the map name, collector information, and click "Next" after completion.



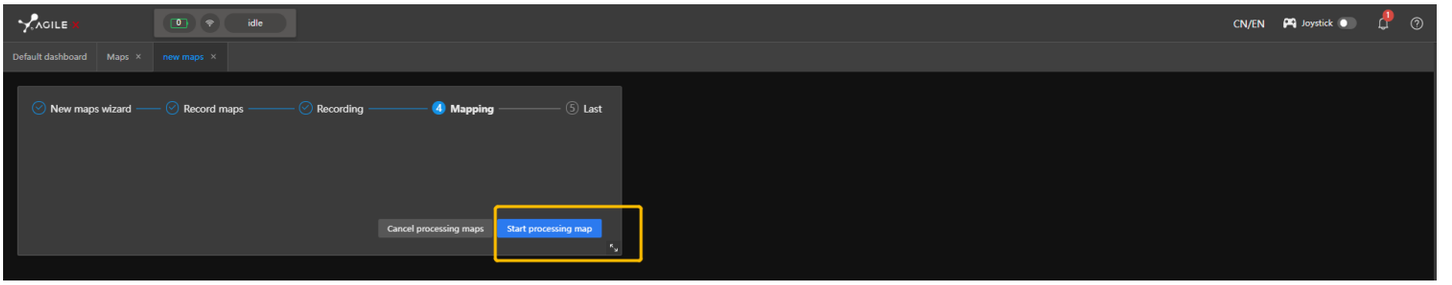
3.Record the map environment data according to the prompts, and click “**Start record map**".
4.At this point, starting from the recording point, use a remote control to manipulate the robot to move and record the surrounding environmental data.



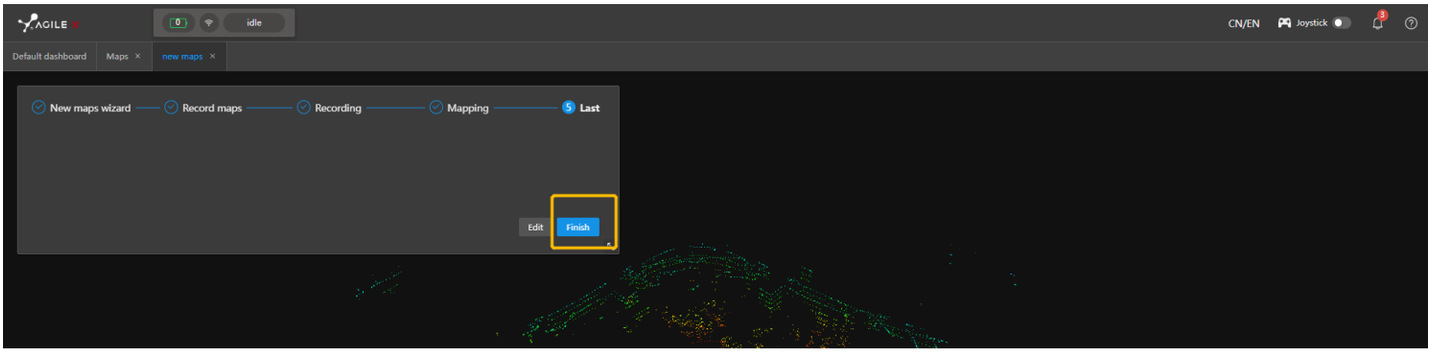
5.When you have finished collecting the surrounding environmental data, click "Save record”. After clicking save, the robot will **stop recording map data.**



6.Click "Start processing map", and the robot will start processing map and display the processing progress.

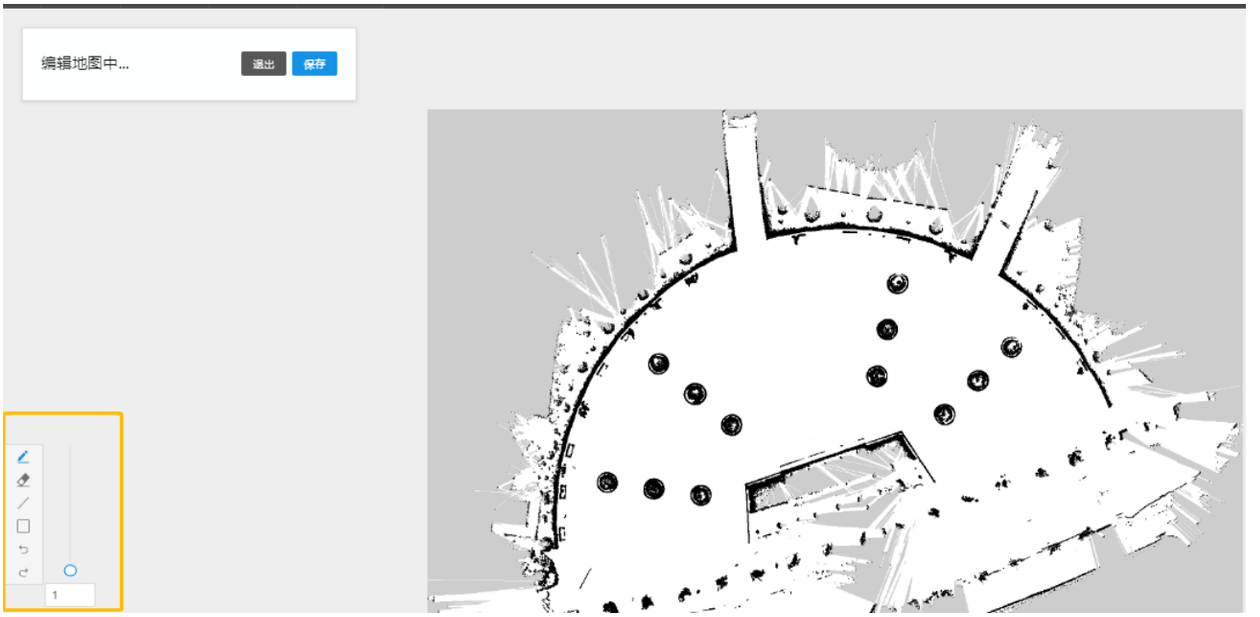


7.Wait for the mapping progress to reach 100%, click "Finish",and you can click “edit”to start edit the map.



5.4 Edit Map

The left column is the toolbar, and the tool size can be selected next to the toolbar. As shown in the figure below, black represents obstacles scanned by the radar, and white areas represent passable areas.

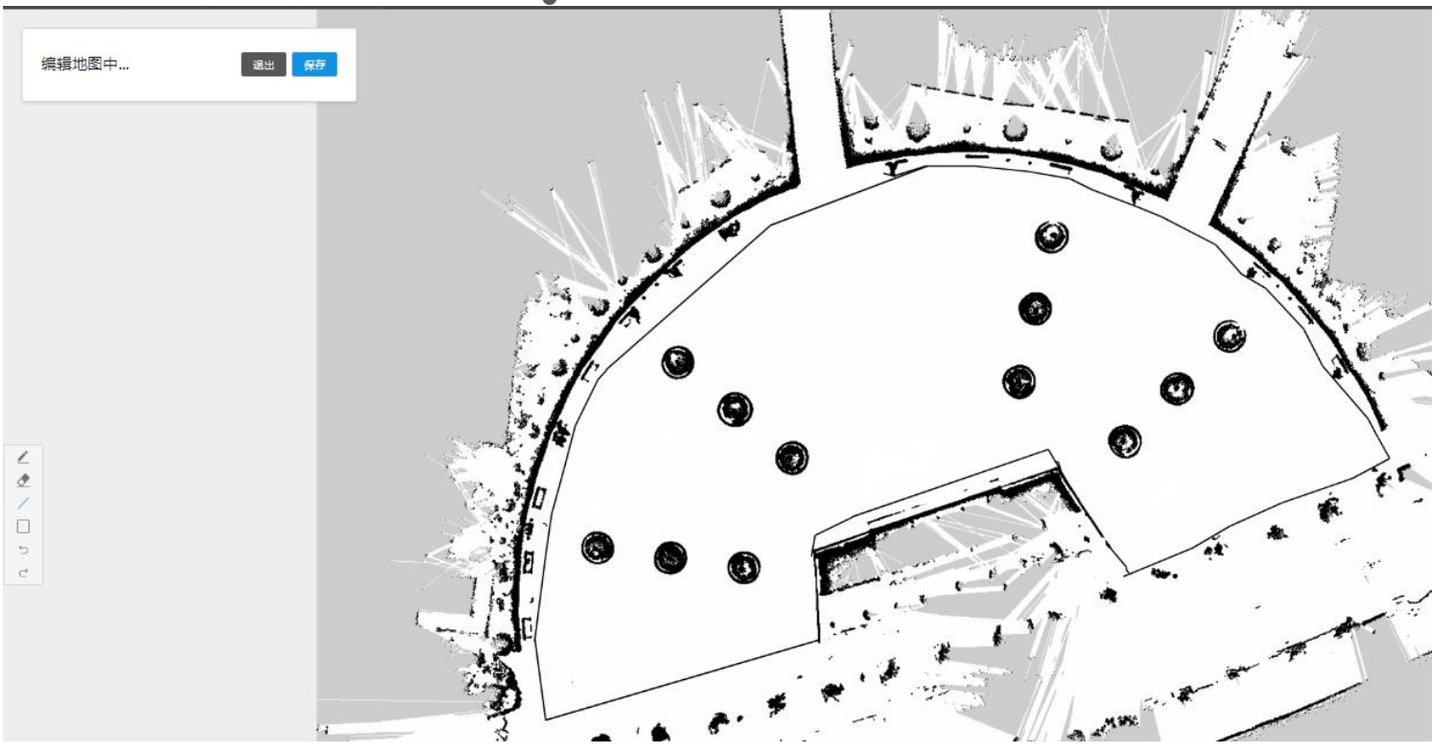


The general editing steps are as follows:

1. Click the icon and drag the button next to the brush to adjust the thickness of the brush head. Based on the actual environment of the map, consider potential obstacles, falling environments, and other unsafe factors, and add solid lines to the map. The robot will set the area enclosed by the solid line as a forbidden zone and will not pass through it.

2. Click the icon and drag the button next to the eraser to adjust the size of the eraser. Based on the actual environment of the map, erase temporary obstacles, such as pedestrians, vehicles, and temporarily placed debris.

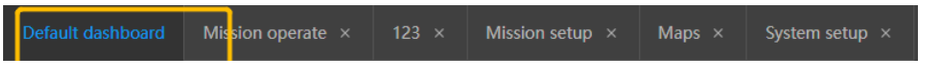
3. Click the icon and drag the button next to the eraser to adjust the thickness of the straight line. Based on the actual environment of the map, consider potential obstacles and enclose unsafe areas with straight lines, as shown in the figure below.



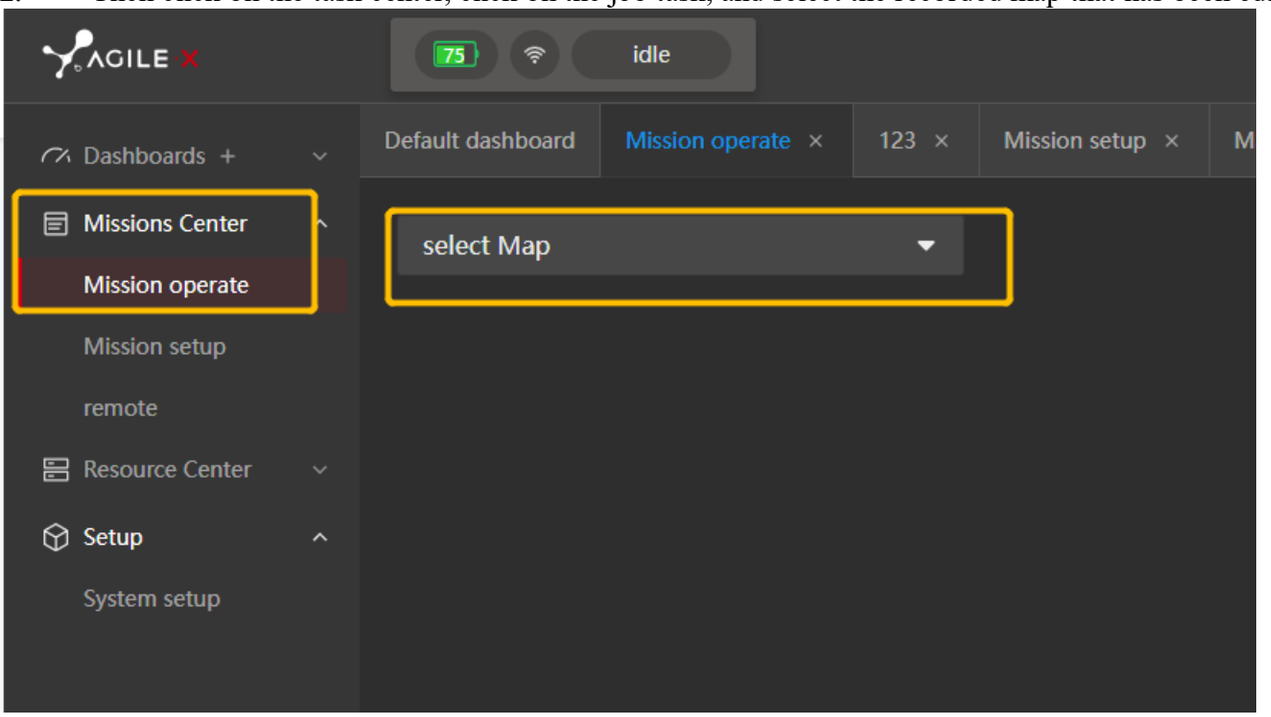
4.If a mistake is made with the brush, use the undo operation in the toolbar or use the eraser to clear it.
5.After editing is complete, click "**Save**" and then click "**Exit**".

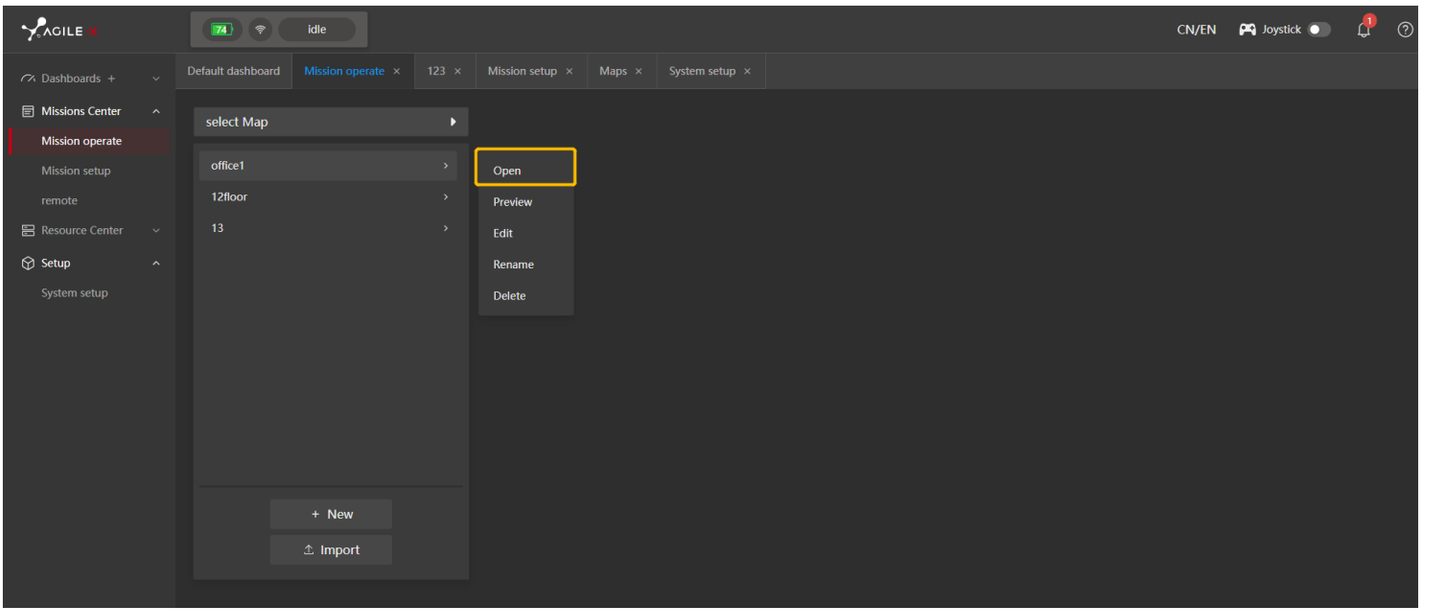
5.5 Initialize Positioning

1. Click "Default dashboard" to switch windows.

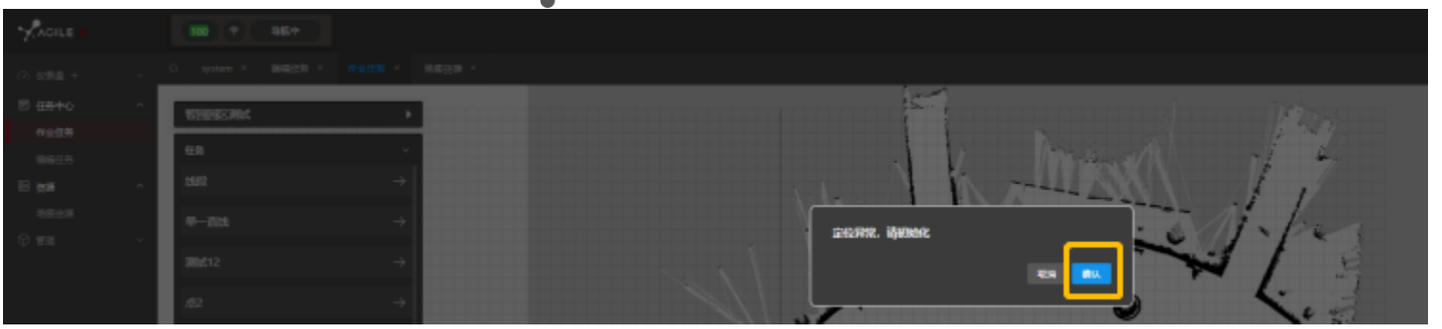


2. Then click on the task center, click on the job task, and select the recorded map that has been edited.

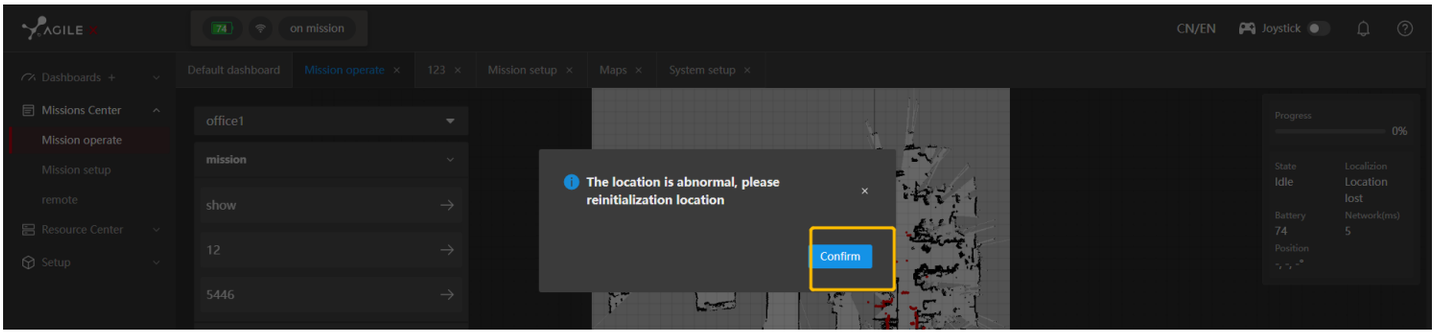




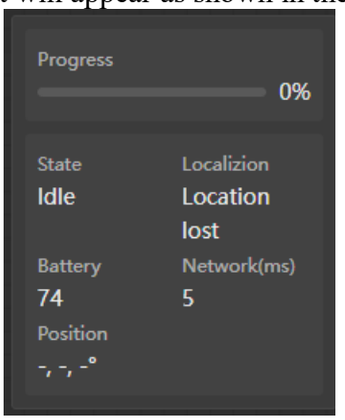
3. Initialize positioning: When the map is loaded, there will be a prompt for positioning abnormality. Please initialize it by clicking "OK".



Then click the "Initialize" button at the bottom to manually calibrate the position of the robot and make the robot's positioning accurate.



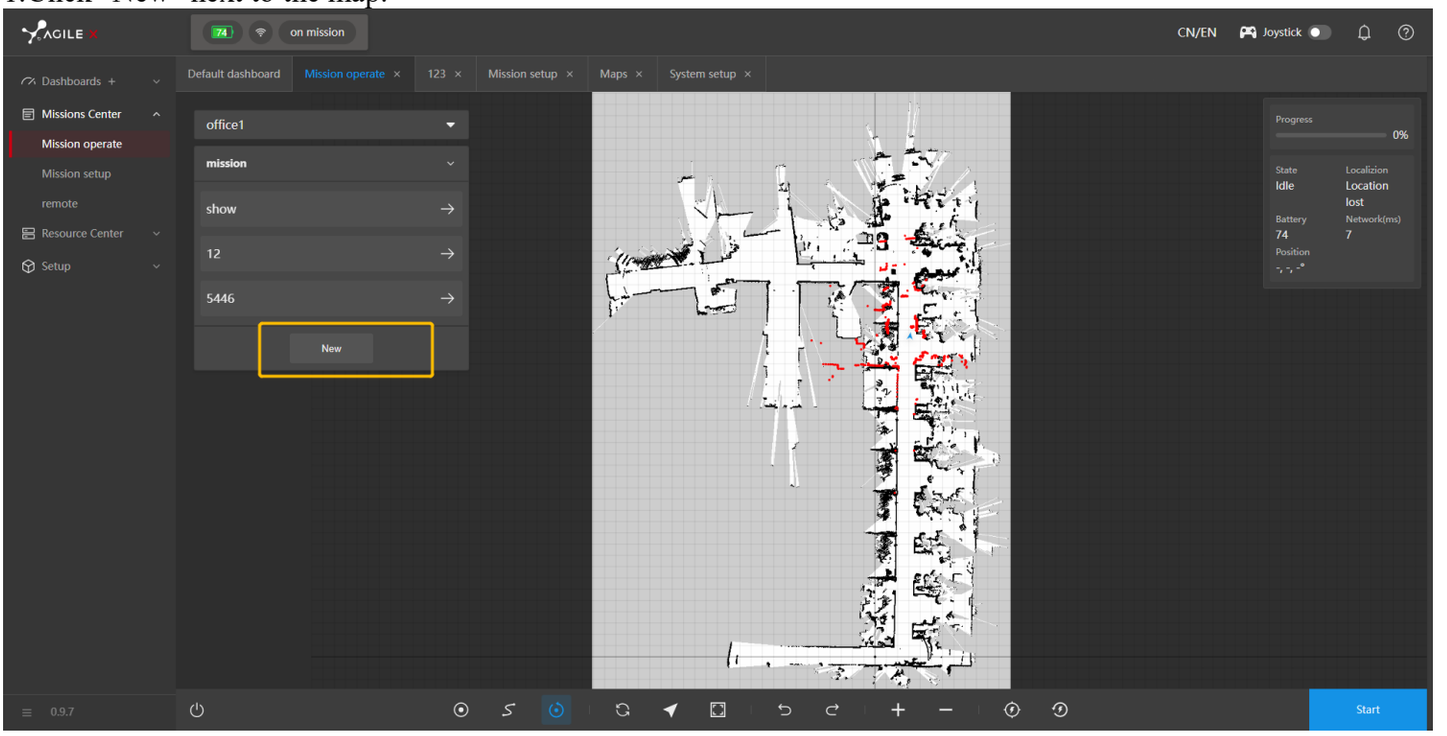
If multiple initializations are unsuccessful, first check if the environment is accurate. Alternatively, try initializing in a different environment. A successful prompt will appear as shown in the figure below.



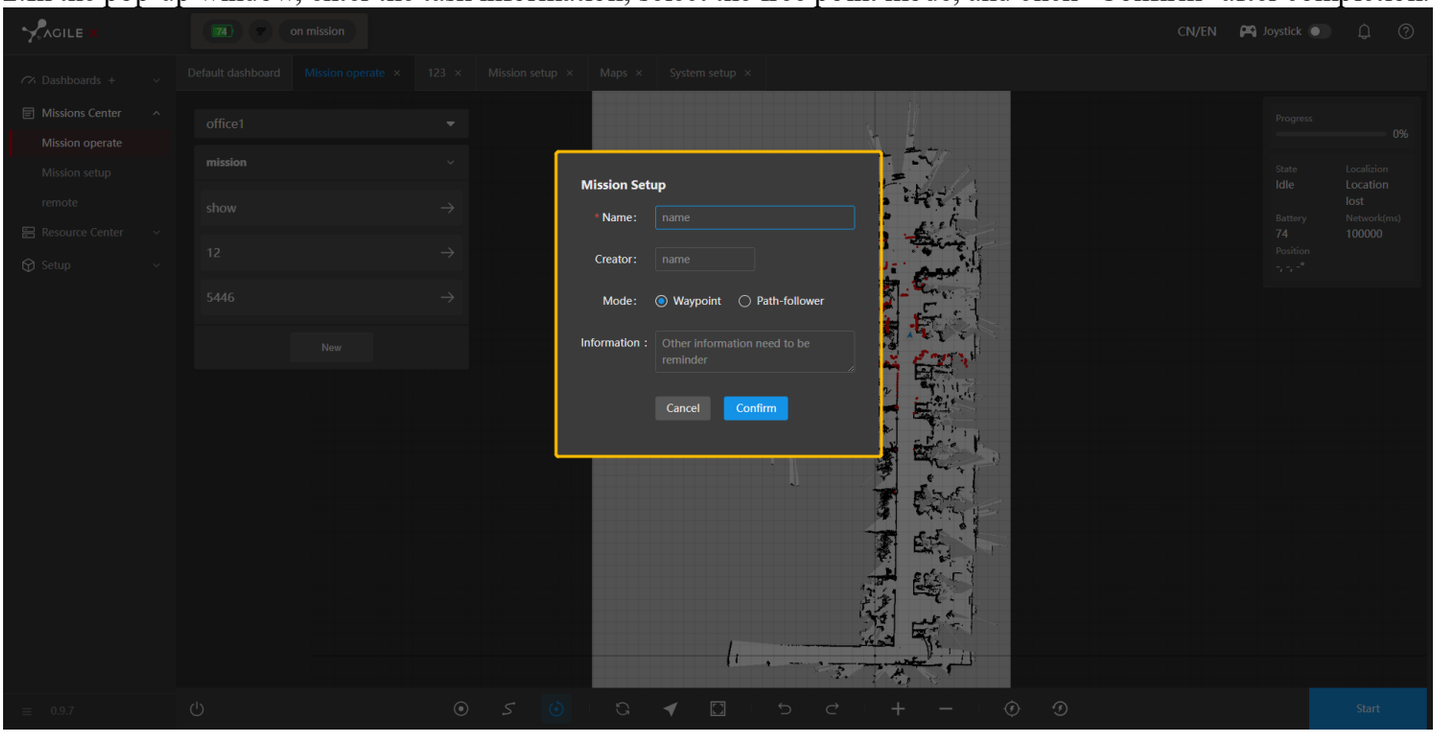
5.6 Create Target Point Task

Note: The task point should not be too close to obstacles.

1.Click "New" next to the map.



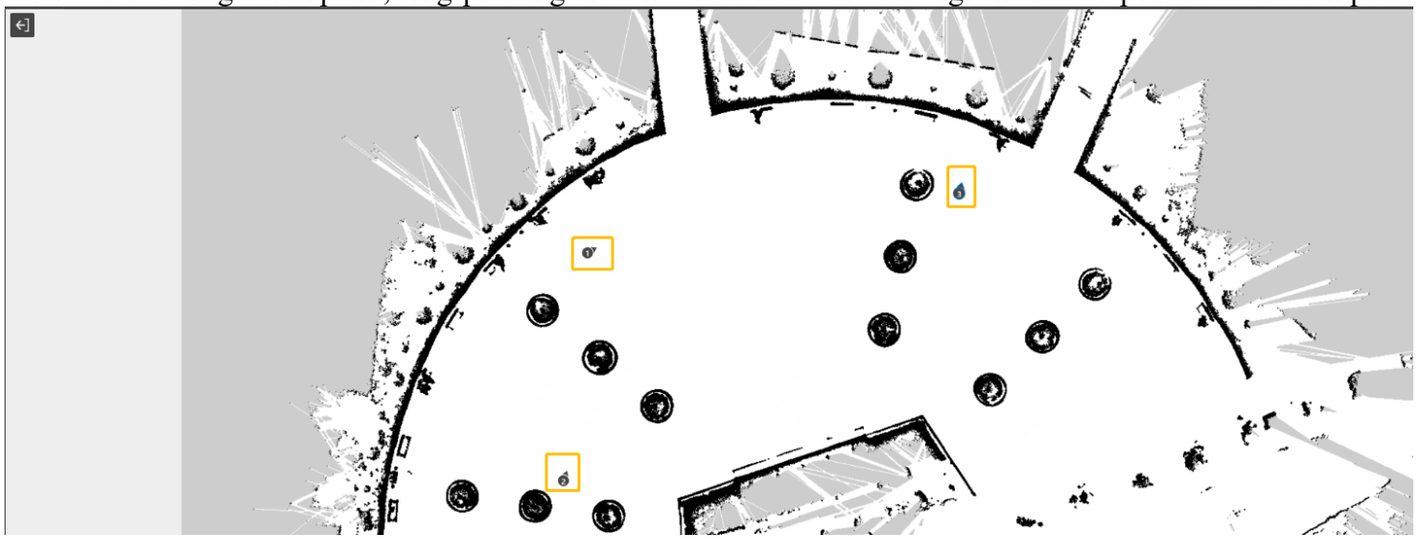
2.In the pop-up window, enter the task information, select the free point mode, and click "Confirm" after completion.



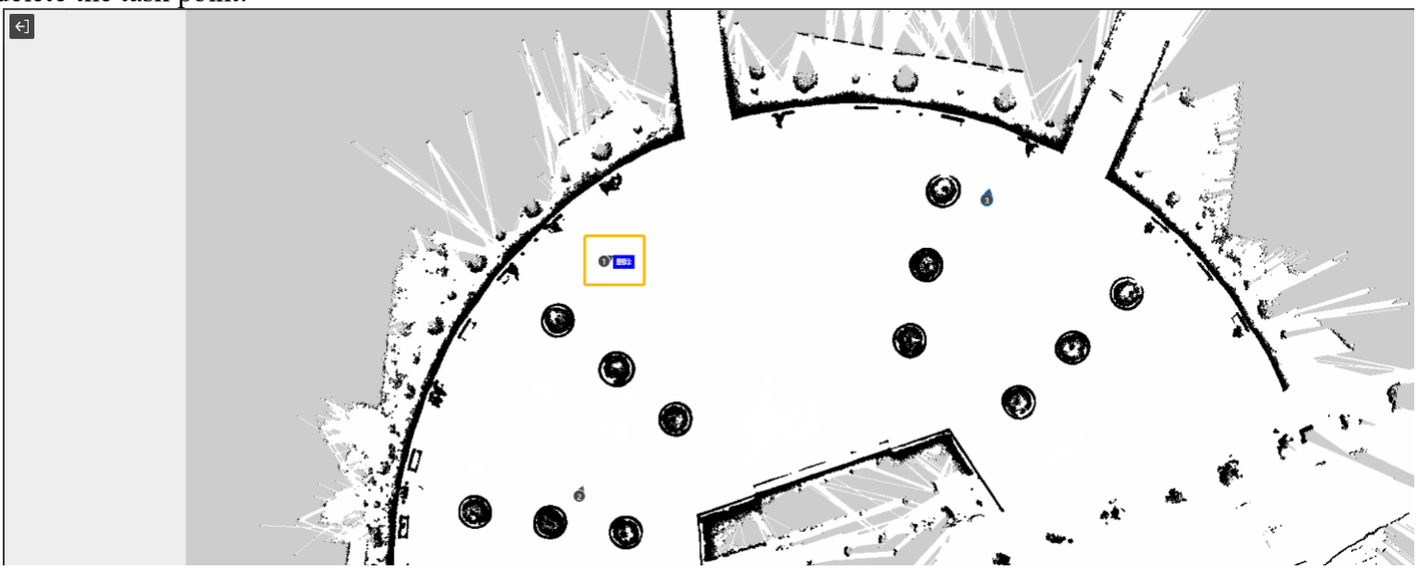
3.Select the first option "Add Task Point" in the bottom toolbar.



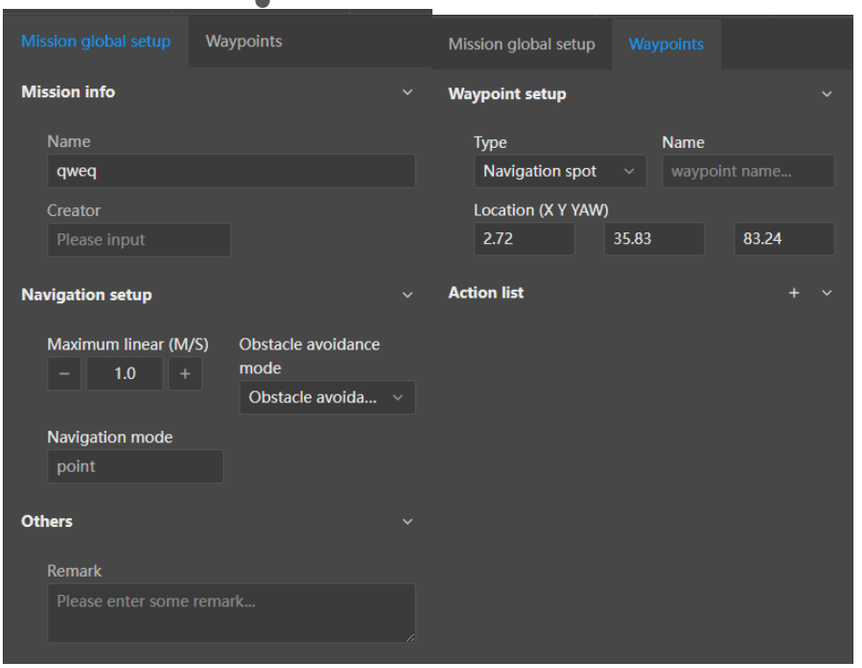
4.Click the left mouse button once at the desired location to add the task point.
Note: When adding a task point, long-pressing the left mouse button can change the robot's posture at the task point.



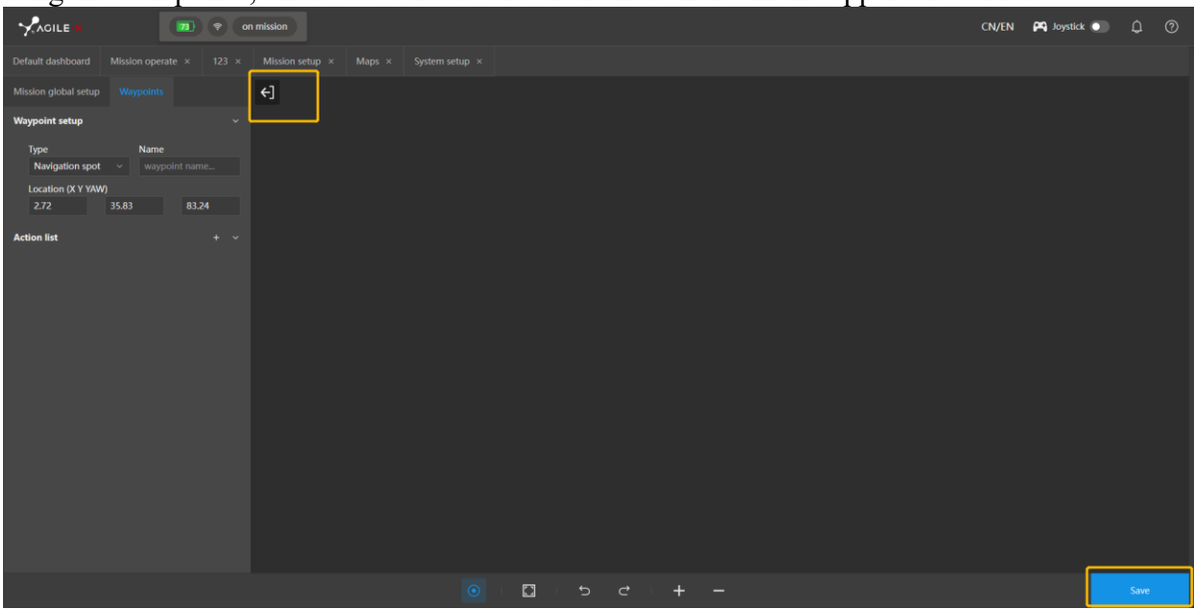
5.When in the "Add Task Point" state, right-clicking on the task point will display a "Delete" button. Click it to delete the task point.



6.On the left side of the task editing page, you can customize global settings and waypoint settings.

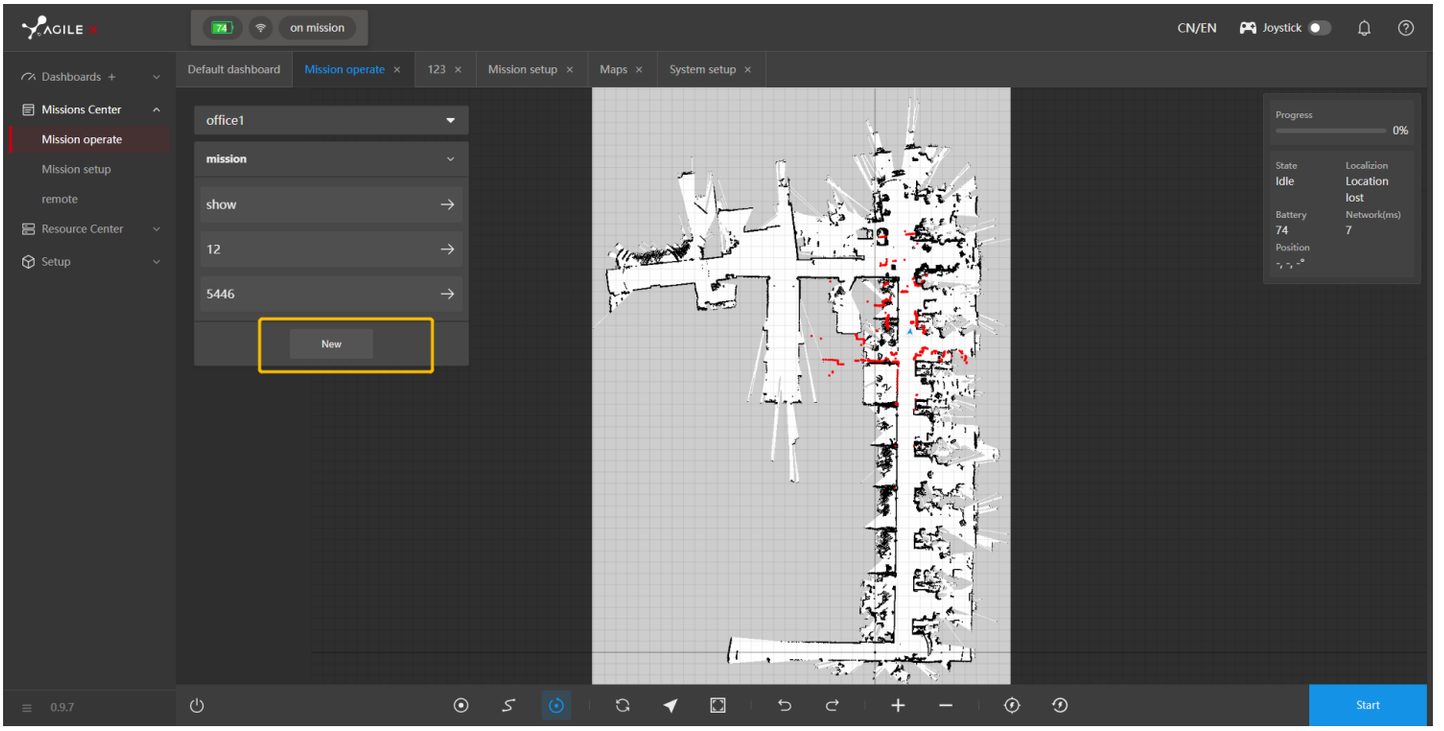


7.After editing the task points, click "Save Task" and then click "Exit" in the upper left corner.

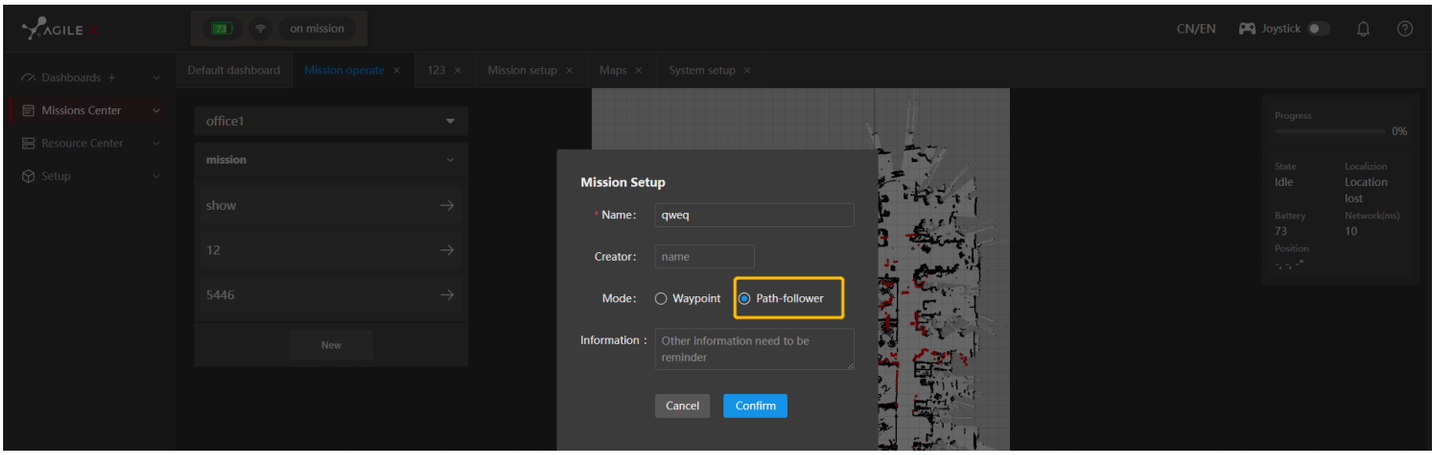


5.7 Create Curve Task

1.Create Curve Task



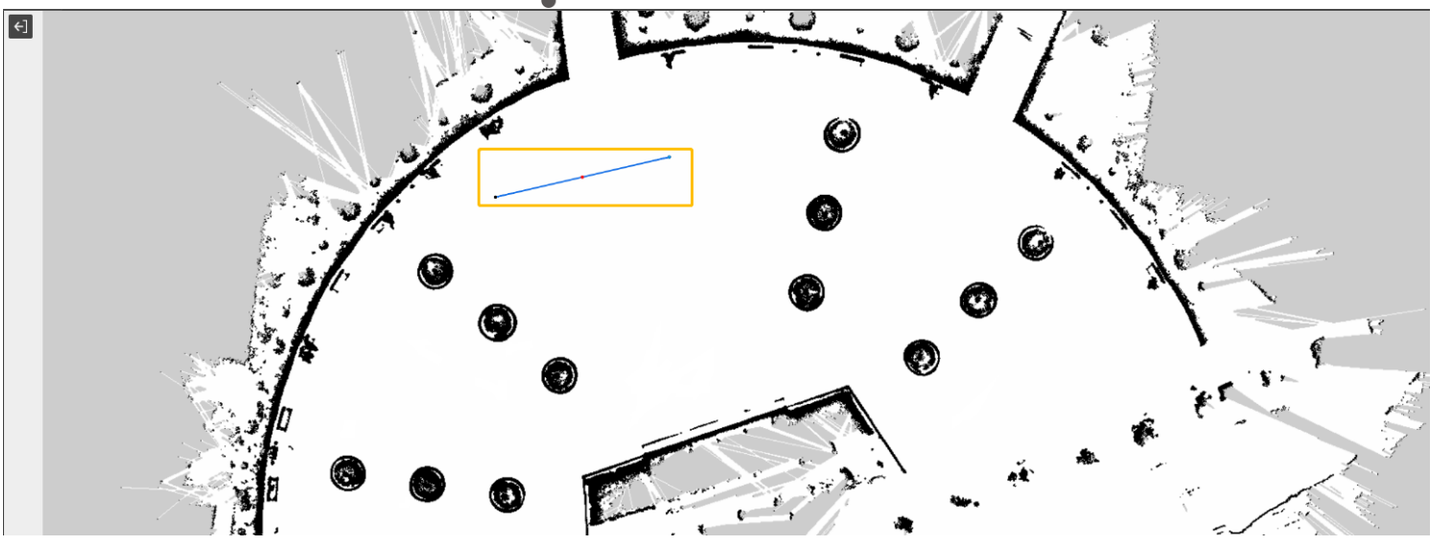
2.Enter the task information, select the path mode, and click "Confirm".



3.Select the first option "Add Curve Task" in the bottom toolbar.



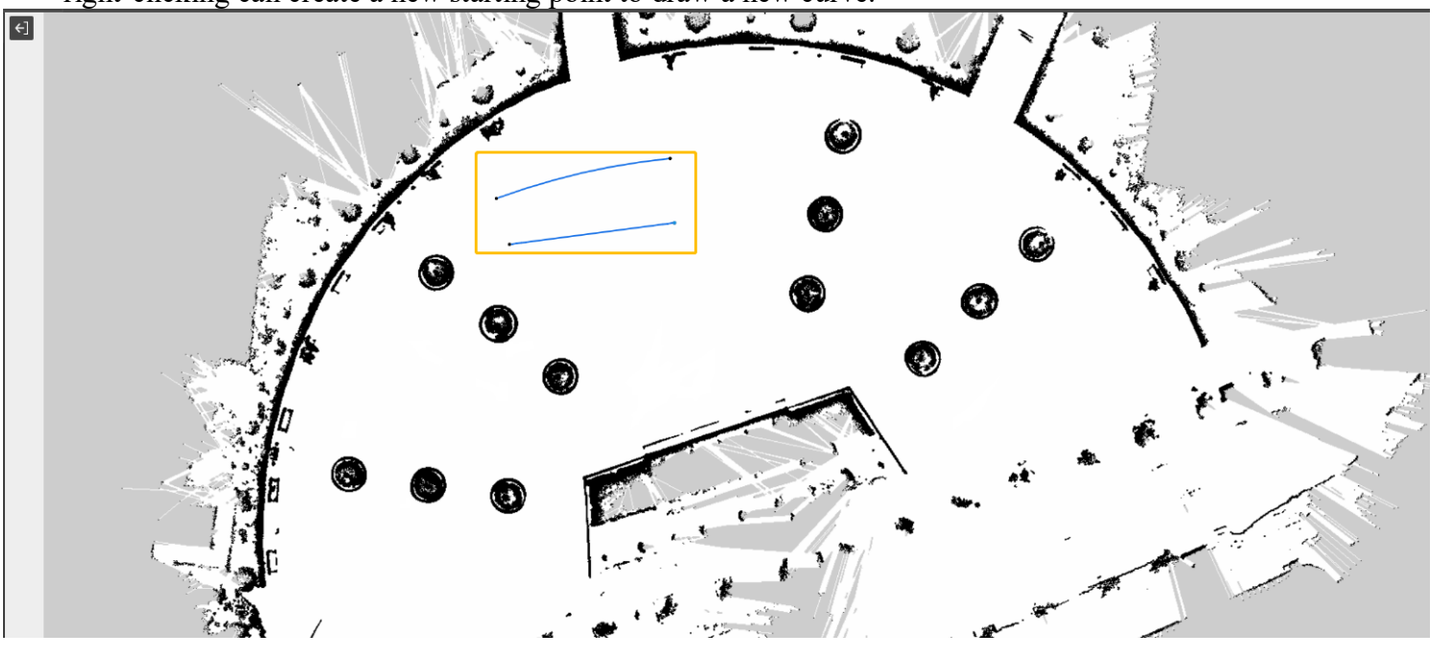
4.Click the left mouse button once at the desired location to add the starting point of the curve, and then click the left mouse button again to add the end point of the curve.



Note: When adding a curve, clicking the left mouse button on the curve will create a point. Dragging the point can change the curvature of the curve  ;

clicking the starting point/end point with the left mouse button can drag and change the position and length of the curve;

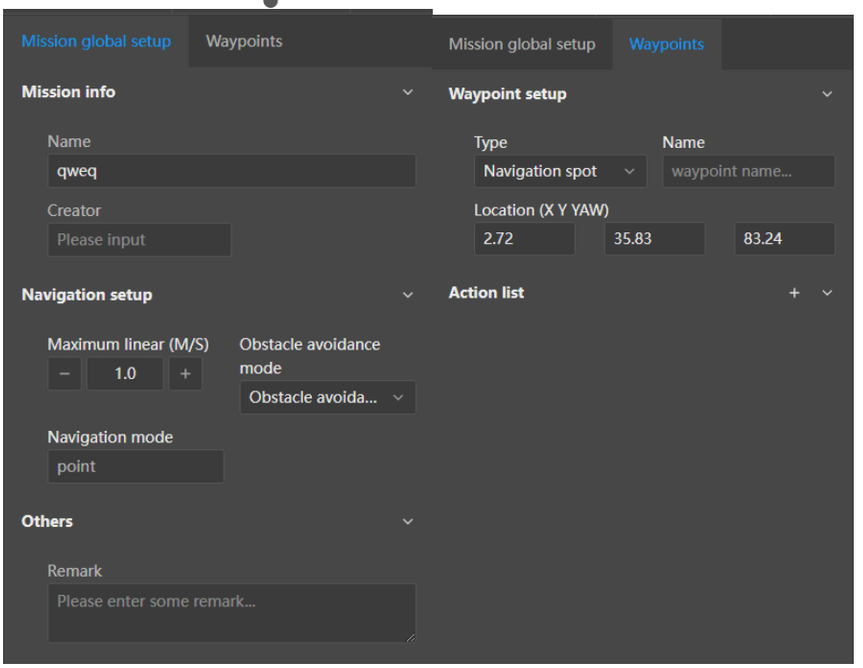
right-clicking can create a new starting point to draw a new curve.



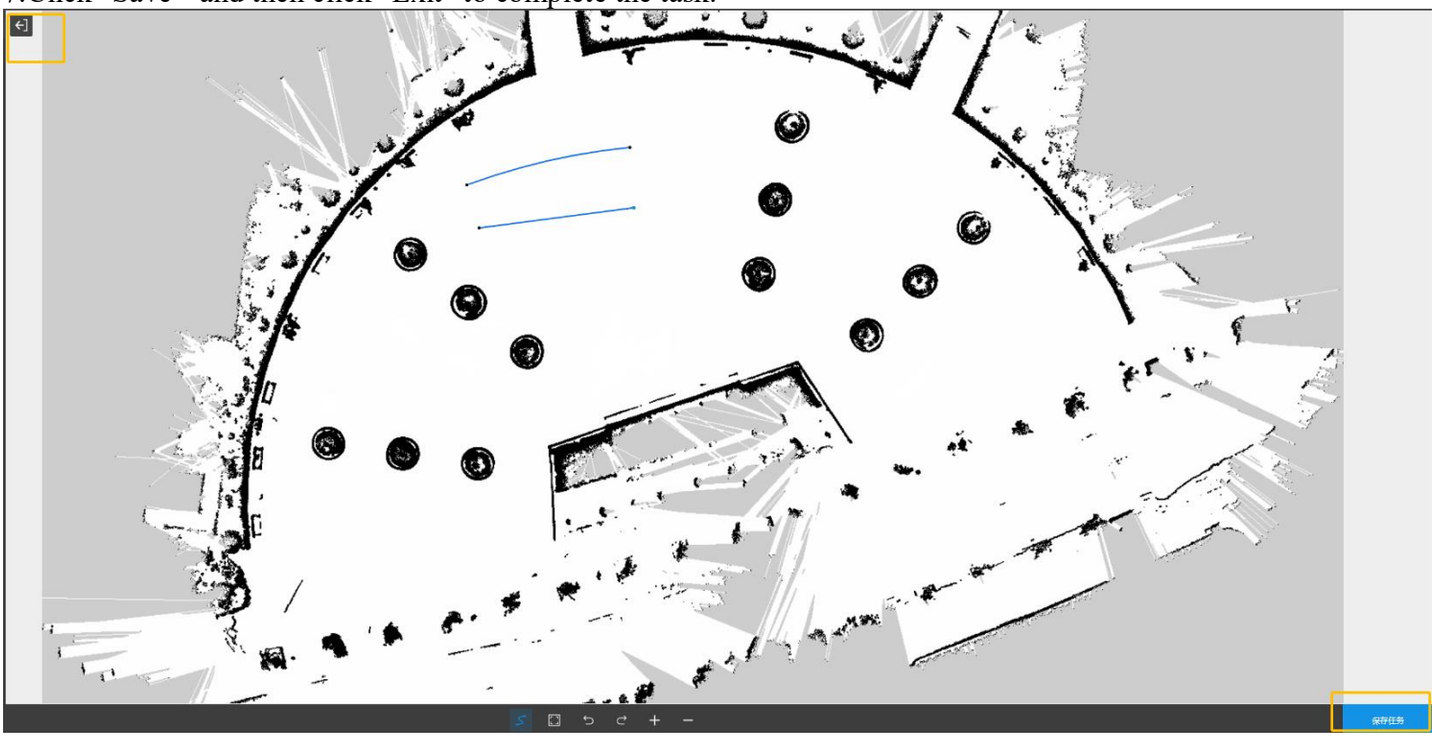
5.If you want to undo the curve, you can click "Undo" in the toolbar.



6.On the left side of the task editing page, you can customize navigation settings and waypoint settings.



7.Click "Save " and then click "Exit" to complete the task.



5.8 Autonomous Charging Function

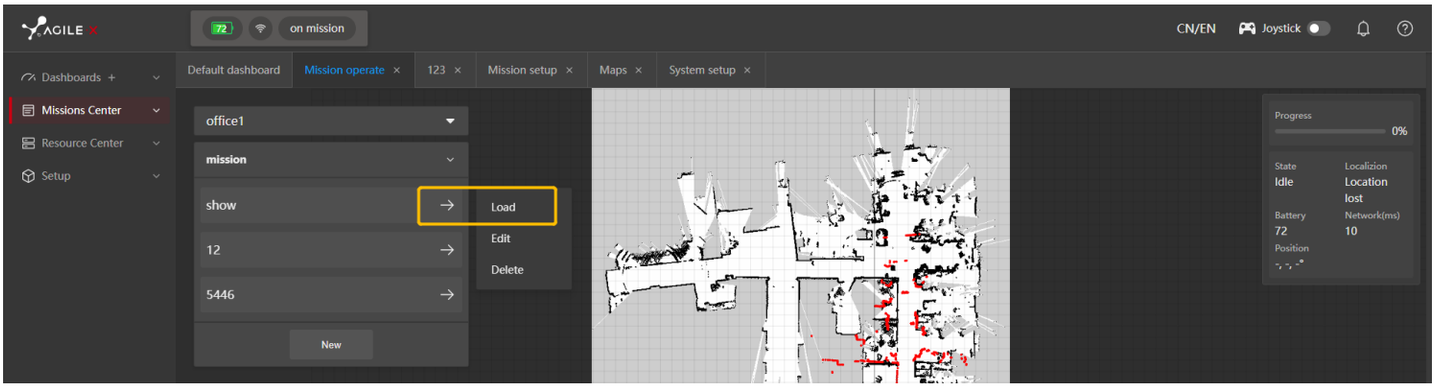
First, use the remote control to move the robot to the charging point and align the charging connector with the robot's charging port. After the robot is powered on, the charging station signal light will turn green. Then, switch to the "**Task Center**" window, and click "**Set Charging Point**" in the bottom toolbar to set the charging point.



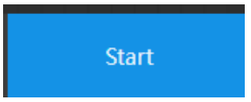
Active charging: When the robot needs to be charged, click "Charge", and the robot will move to the charging position and start charging autonomously. During the charging process, you can click "Cancel" to cancel the charging. (Note: the charging function can only be executed when the battery level is below 90%.)
Autonomous return charging: When the battery level is below 20%, the robot will stop the current task and return to the charging point for autonomous charging. After the battery level reaches 90%, the robot will continue to execute the unfinished task before charging.

5.9 Executing Navigation Tasks

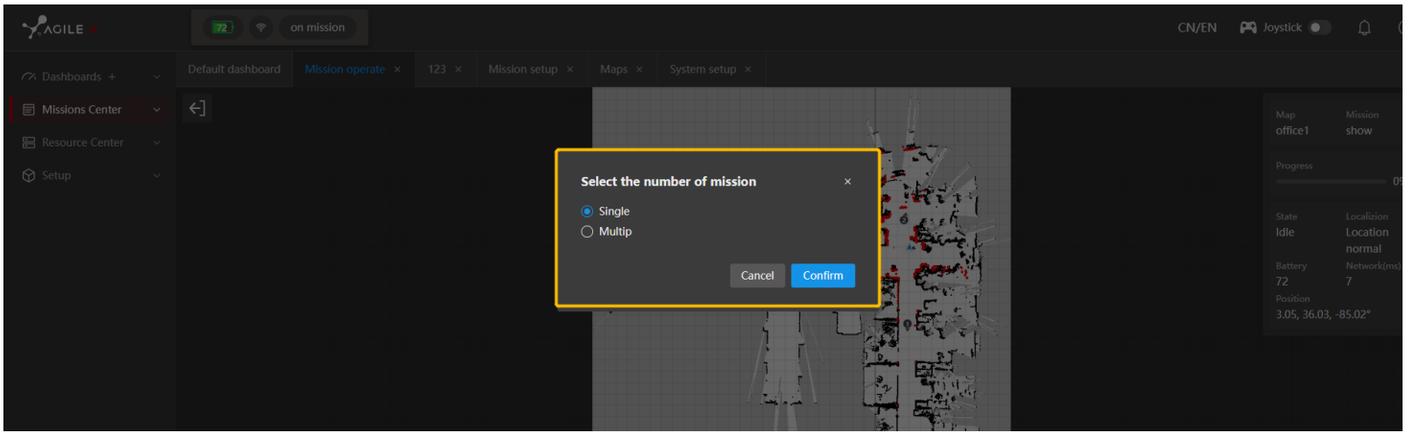
1.In the task list, select the task that has just been edited, click it , and then click "Load Task". The task points (task curves) will be loaded on the map.



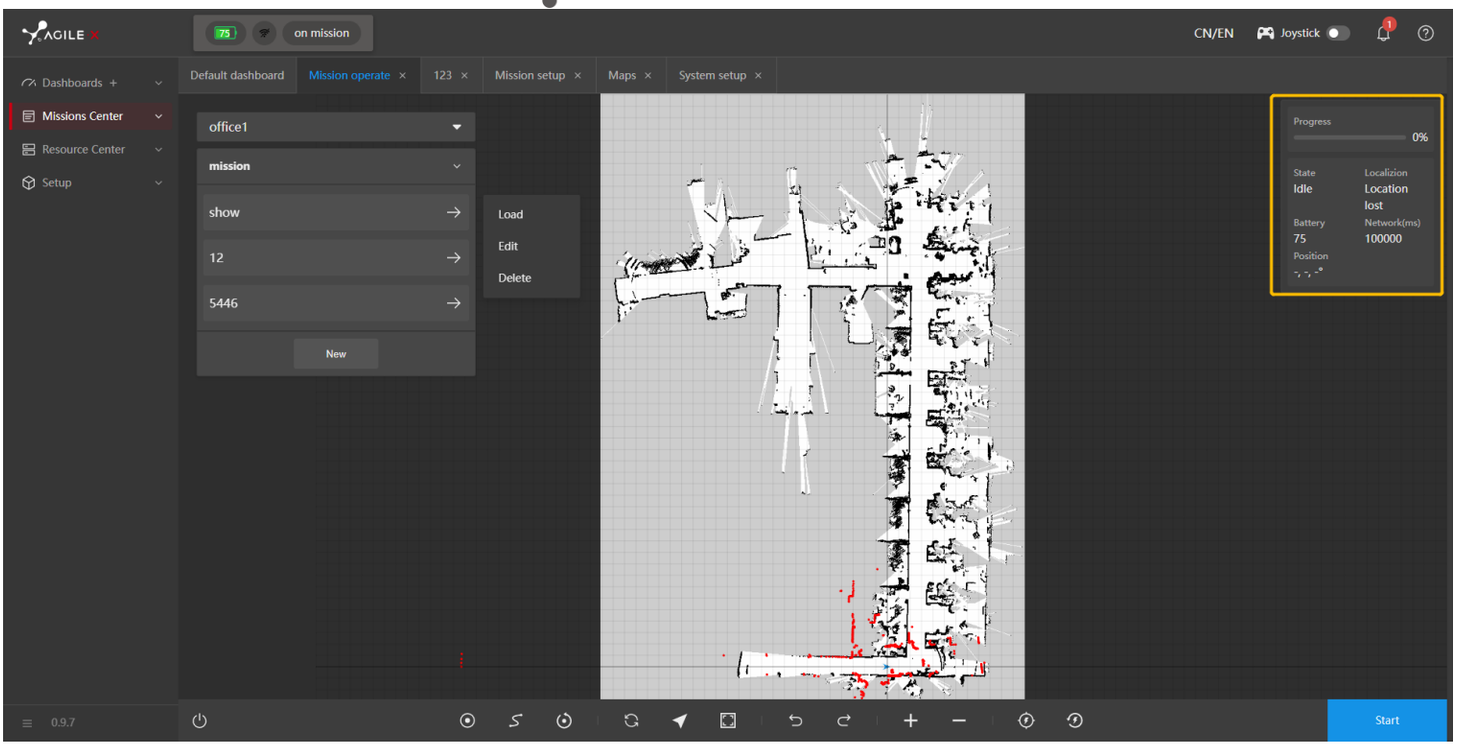
2.Click "Start" in the lower right corner.



3.In the pop-up window, select the number of times for the task to be executed, and then click "Confirm". The robot will move autonomously along the task points (task curves).



4.The task status of the robot can be viewed in the small box on the right side of the page.


on mission
CN/EN
Joystick
Dashboards
Missions Center
Resource Center
Setup
Default dashboard
Mission operate
123
Mission setup
Maps
System setup
office1
mission
show
12
5446
New
Load
Edit
Delete
Progress
0%
State
Idle
Localizion
Location lost
Battery
75
Network(ms)
100000
Position
Start
0.9.7

6.0 FAQ

Q: The points set on the navigation page disappear after refreshing the webpage.
A: The points added on the navigation page are temporary and will not be saved. If you need to save the task points, click "Create Task", then edit the task, and finally click "Save". This will save the task.

7.0 Appendix

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