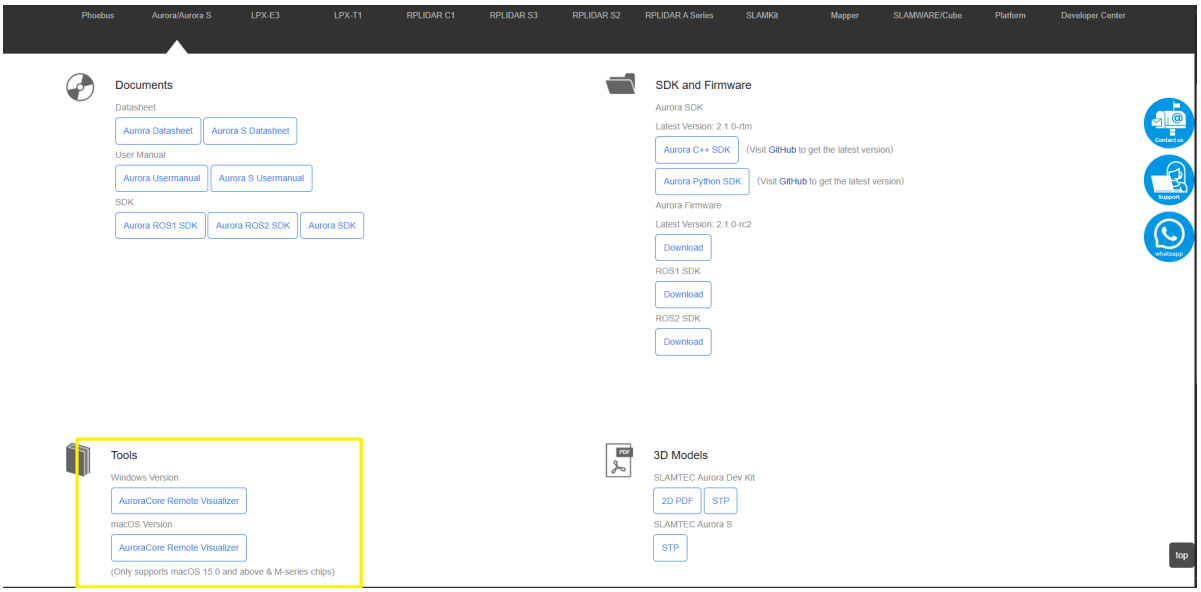
Aurora-Remote Host Computer Usage Tutorial

1. Prerequisites

Download the latest host computer from the official SLAMTE website. You can also download the host computer compressed package from the provided Baidu Cloud Drive.

Link:[Product Documents Download & Technical Support | SLAMTEC]

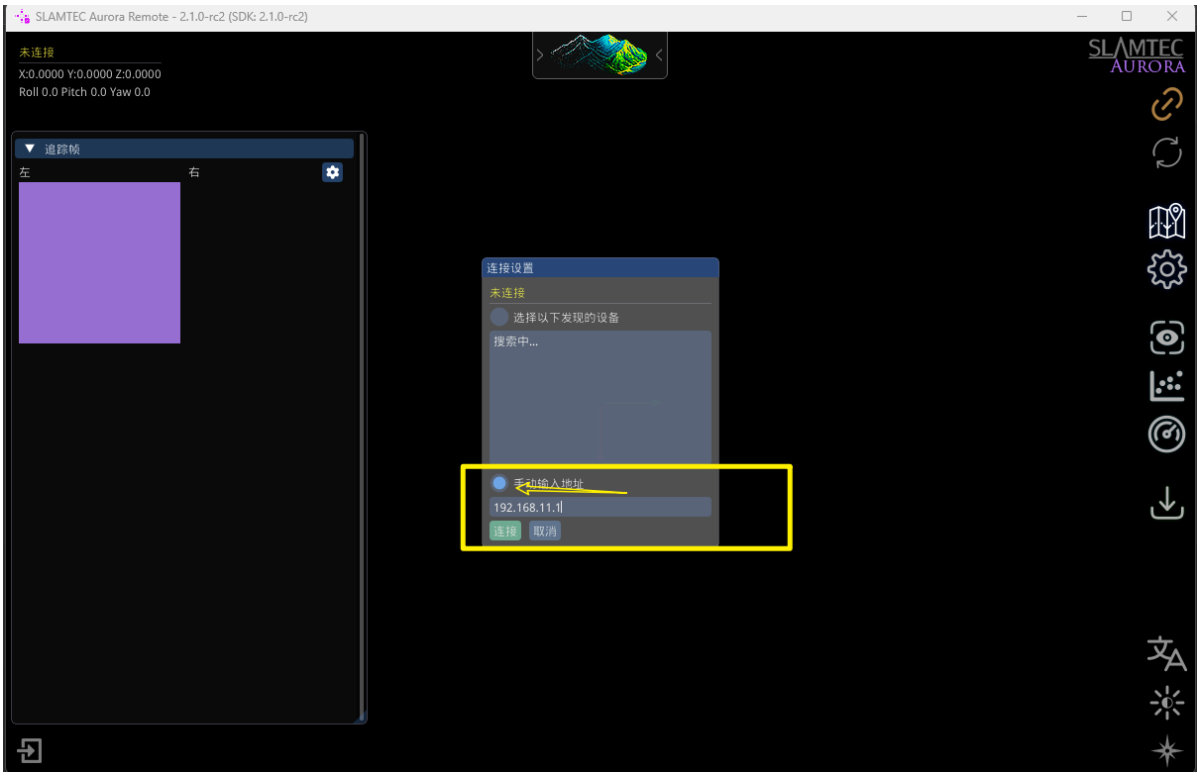


2. Usage Instructions

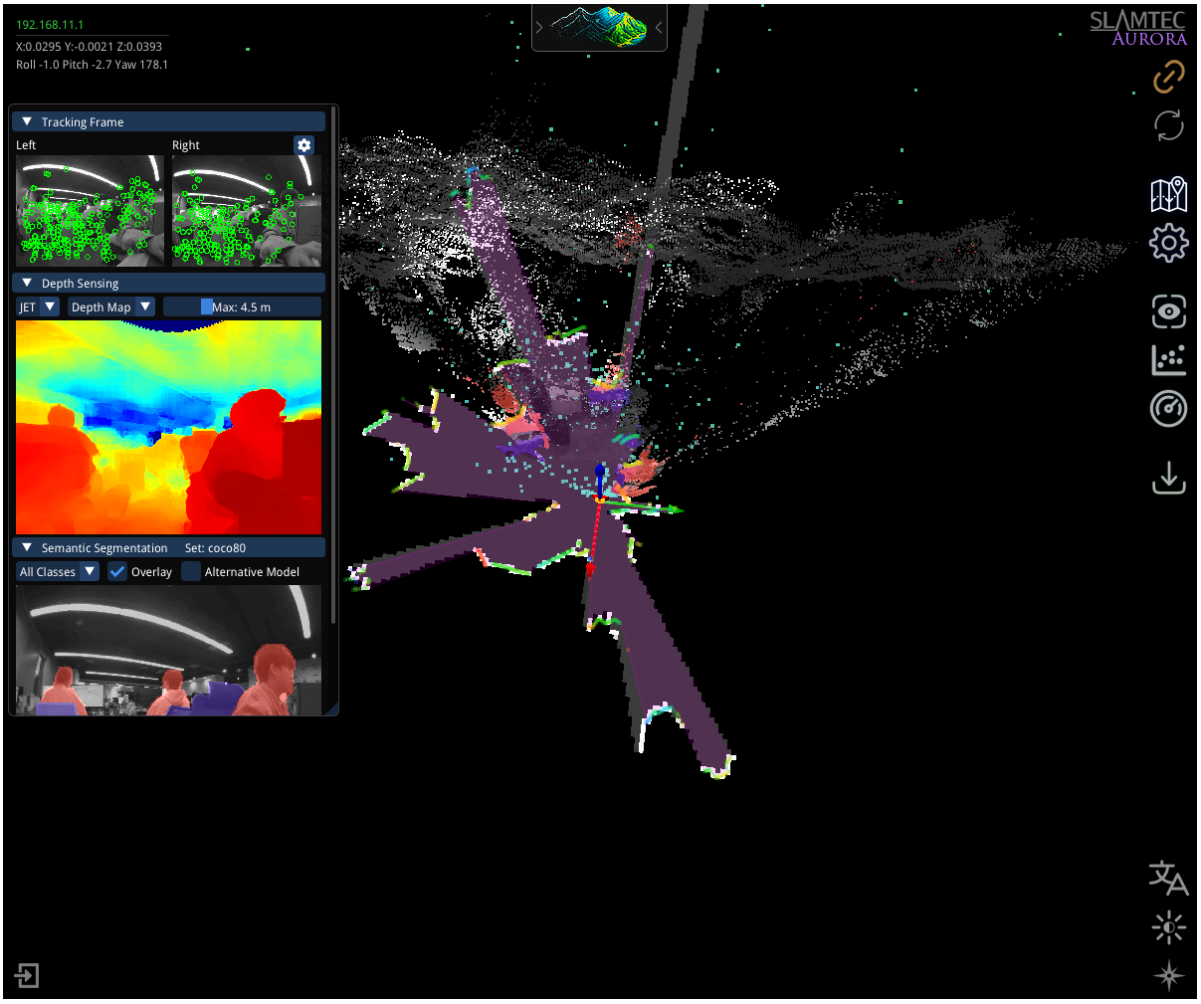
- Install the AuroraCore-Remote Visualizer development software (installation package provided in the attached documentation)
- Connect the tripod to the Aurora and power the device
- Power it with a DC 9-24V 2A power supply and it will work immediately after powering on
- Connect the computer to the Aurora's self-heating point

3. Using Aurora-Remote on a Host Computer

- Double-click aurora_remote.exe to run Aurora-Remote. In the pop-up window, enter the IP address 192.168.11.1 in the "Manually Enter Address" field, then click "Connect" to connect to the device.



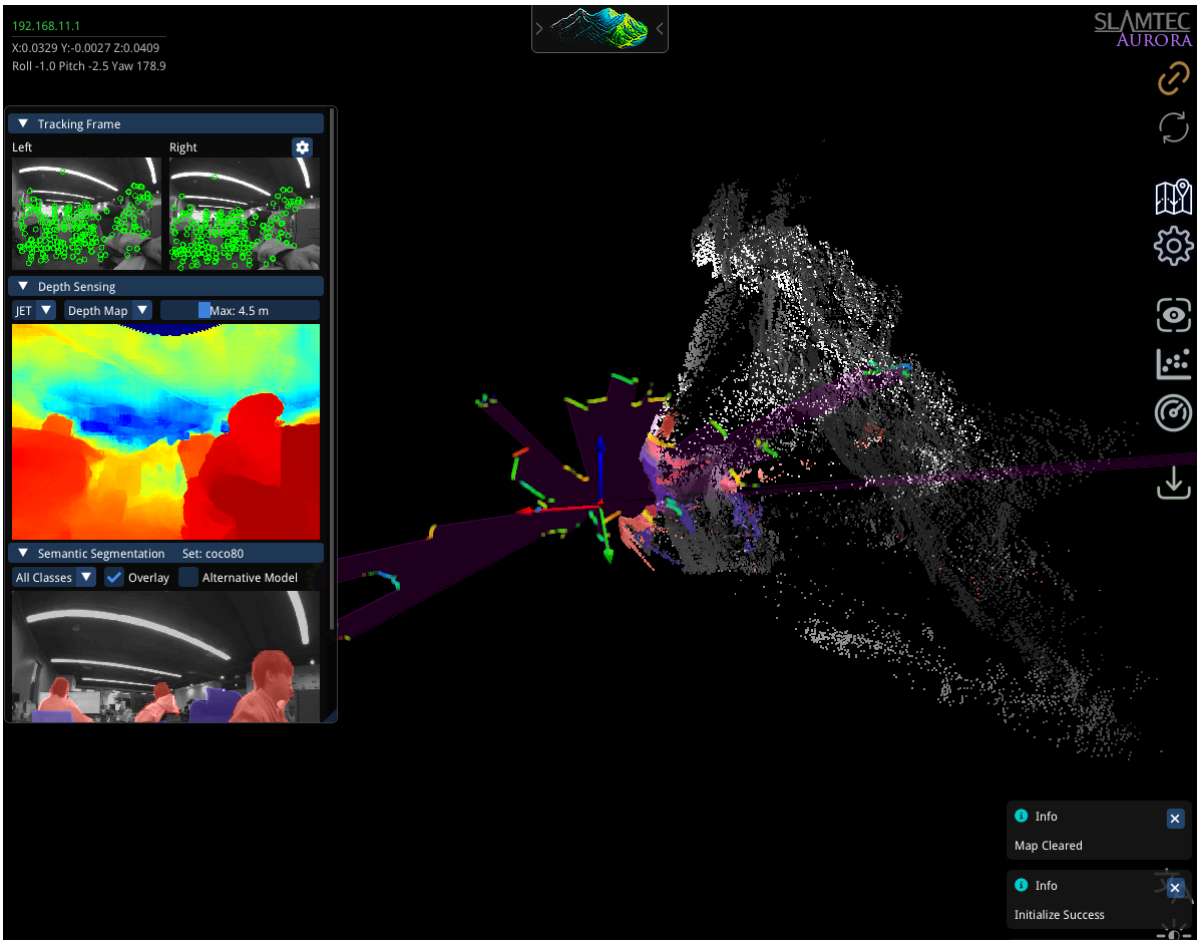
- After the connection is successful, the map building screen is displayed.



- Aurora Initialization

    1. Aim the Aurora at an area with many features, within a distance of 2 meters. Avoid environments with few features, such as open plains, areas with reflective surfaces like large areas of glass, and areas with many dynamic objects. This ensures sufficient initialization features and produces better data results.

2. Keep the device still.
3. On the Aurora Remote home screen, click "Device Operations" --> "Reset Map." The device will begin initializing.
4. After initialization is complete, the Aurora Remote will display the mapping screen shown above, and the Aurora indicator light will turn from red to green.



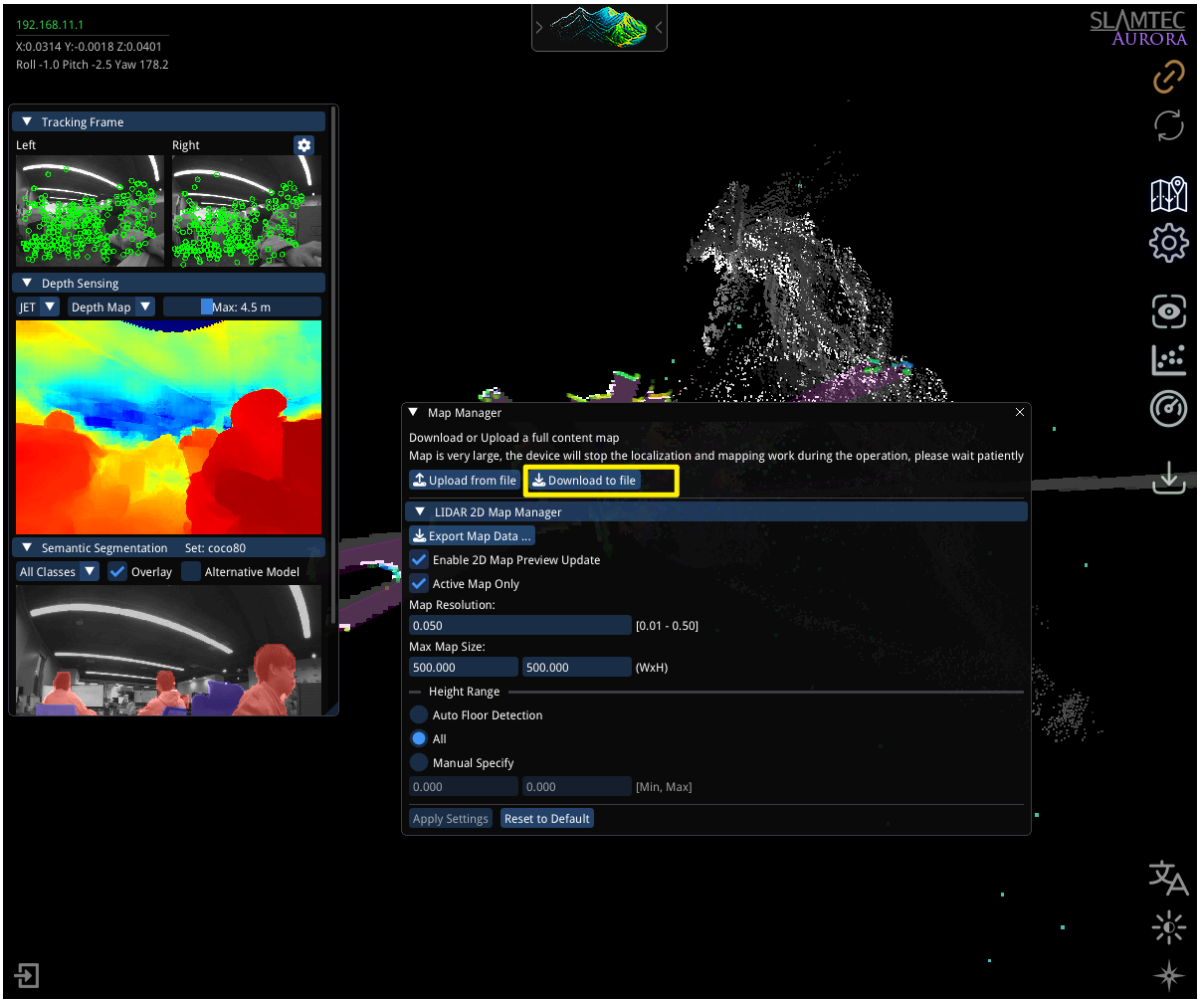
- Start Mapping

1. **Route Planning and Recommendations**
    - Ensure as many observations as possible during the scanning process.
    - Avoid scanning new areas constantly; loops are recommended.
    - Minimize the impact of dynamic objects.
    - Perform as many closed loops as possible.
    - Avoid repeating closed areas to reduce memory usage.
2. **Mapping Notes**
    - Clear the map before creating a complete new map; otherwise, the map optimization engine will not be effective.
    - Keep the device level. Generally, tilt the device no more than 20°.
    - Keep the device stable and avoid large movements. Sudden stops or sudden movements will affect mapping accuracy and performance.
    - After the loop returns to the origin, keep the robot moving, covering overlapping paths as much as possible, and do not stop immediately.

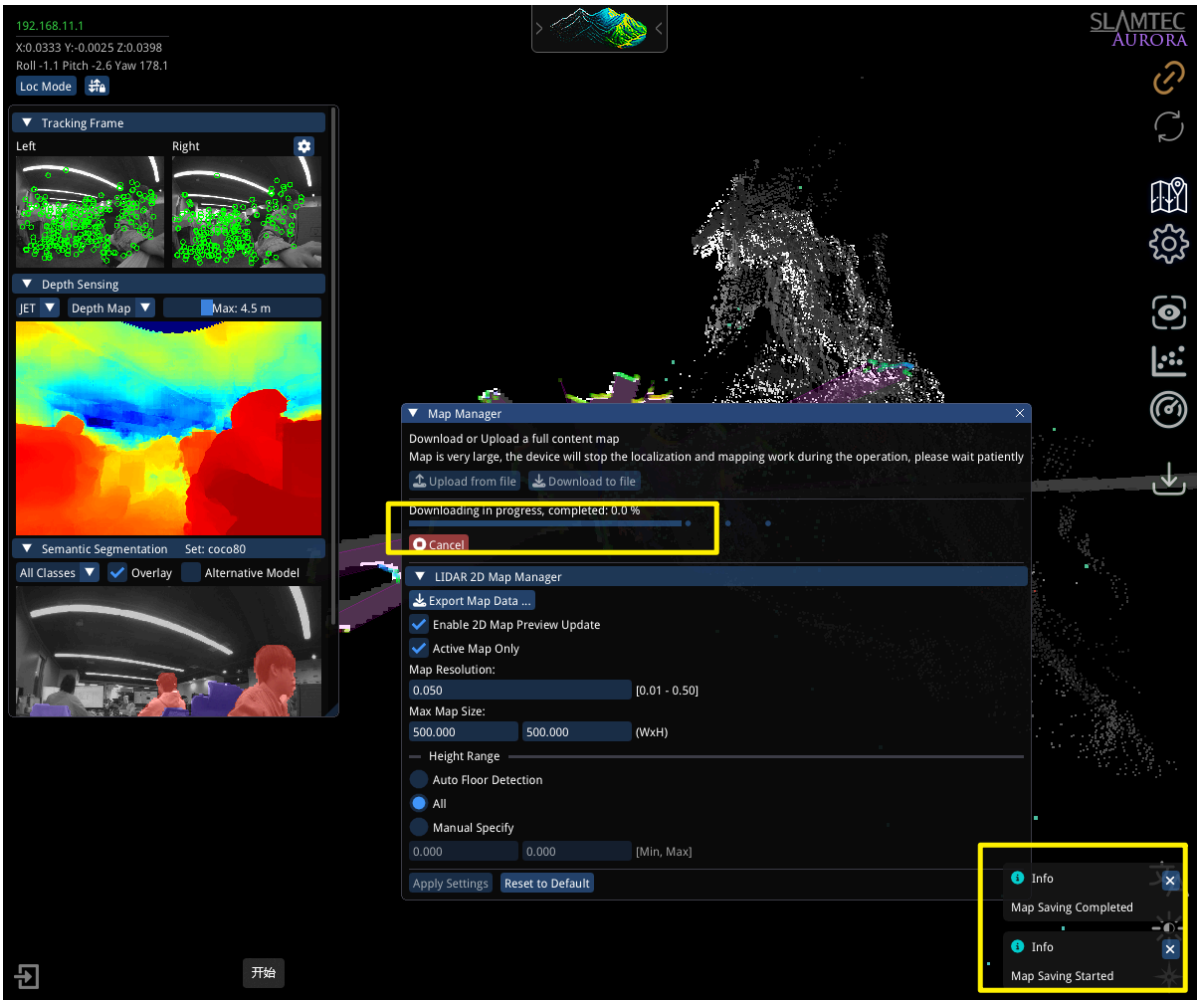
- After the loop returns to the origin, if the map is not closed, continue moving until the loop is closed. - When mapping with the handheld scanner, walk at a normal walking speed. When encountering narrow spaces with few features, or around turns, it's recommended to slow down.
- When scanning indoor scenes involving multiple rooms or floors, open all doors in advance. Scan slowly when passing through them, pausing briefly at the doorway to ensure you can scan features on both sides. If a door isn't open, turn slowly before approaching it, turn the scanner away from the door, open the doorway with your back turned, and slowly enter.
- Entering and exiting a door
- Entering and exiting a door requires walking sideways to ensure the laser and vision systems have a common field of view, ensuring better data integration.
- Entering and exiting a narrow space: When exiting a narrow space after scanning, ensure that reference objects are sufficient and that structural features are clearly visible.
- If the above two conditions are not met, when exiting a narrow space, focus your view on areas with good structural features as much as possible, and avoid excessive camera switching.

- Saving a Map

On the Aurora Remote main screen, click "Map Manager" -> "Download to File" to save the map as a file in stcm format.

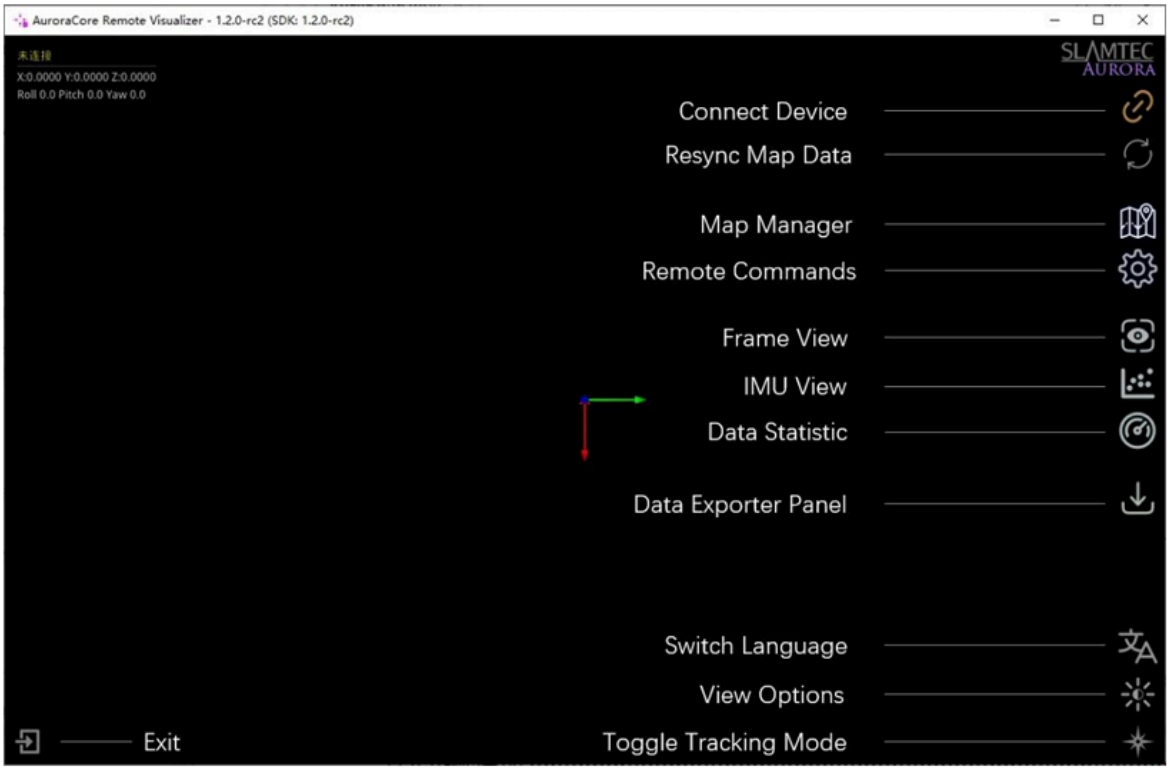


Successfully saved, a successful save message appears in the lower right corner



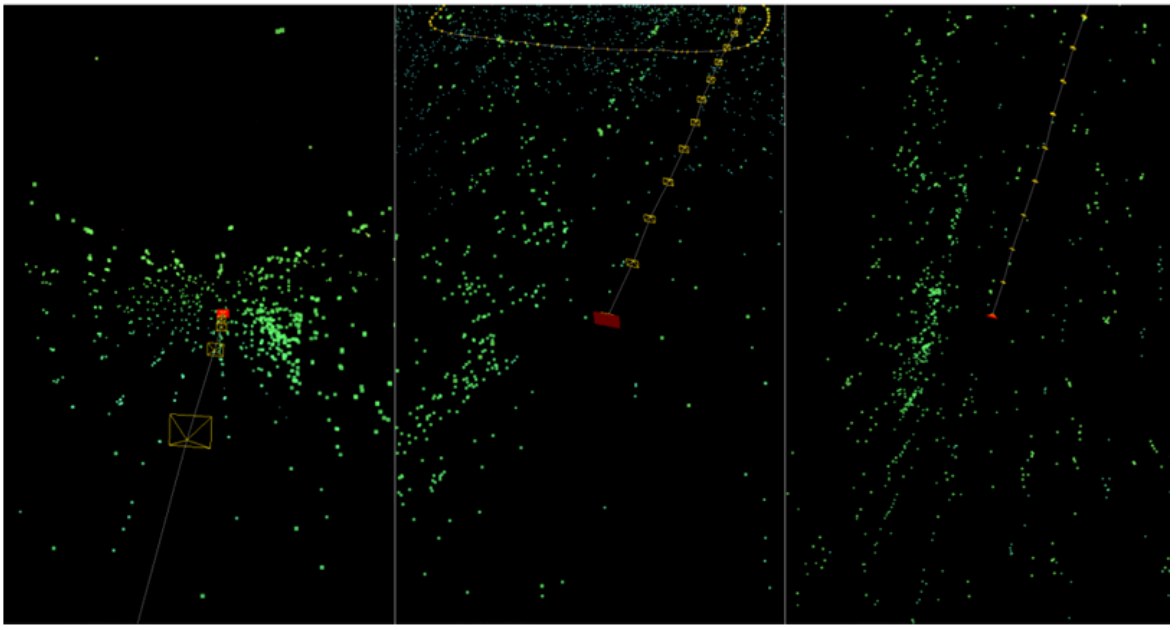
4. Basic User Instructions for the Host Computer

4.1 Main Interface



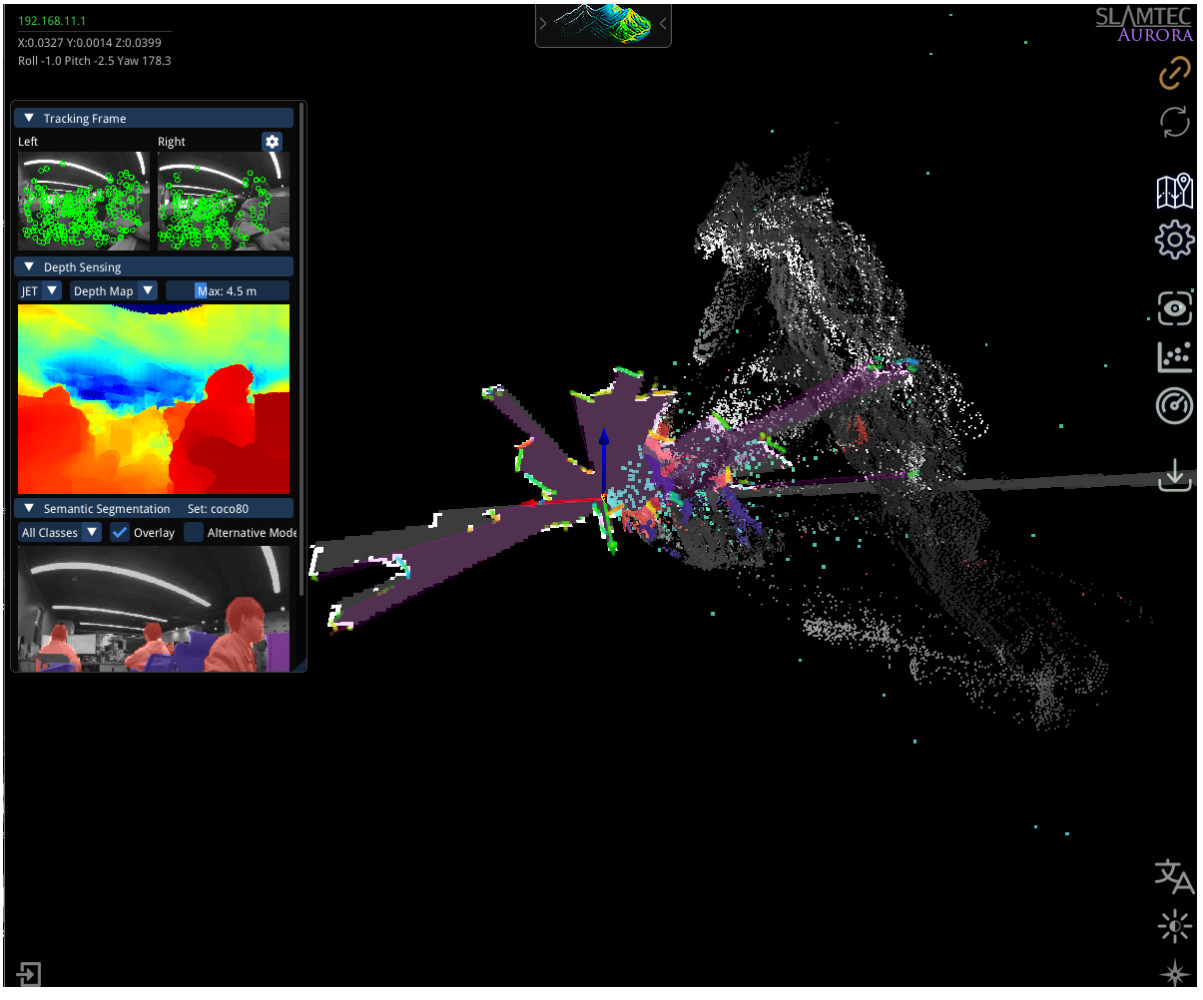
4.2 Switching Viewpoints

Aurora Remote provides three viewing angles for you to choose from. Simply click the "Switch View" button on the main interface to switch between different viewing angles.



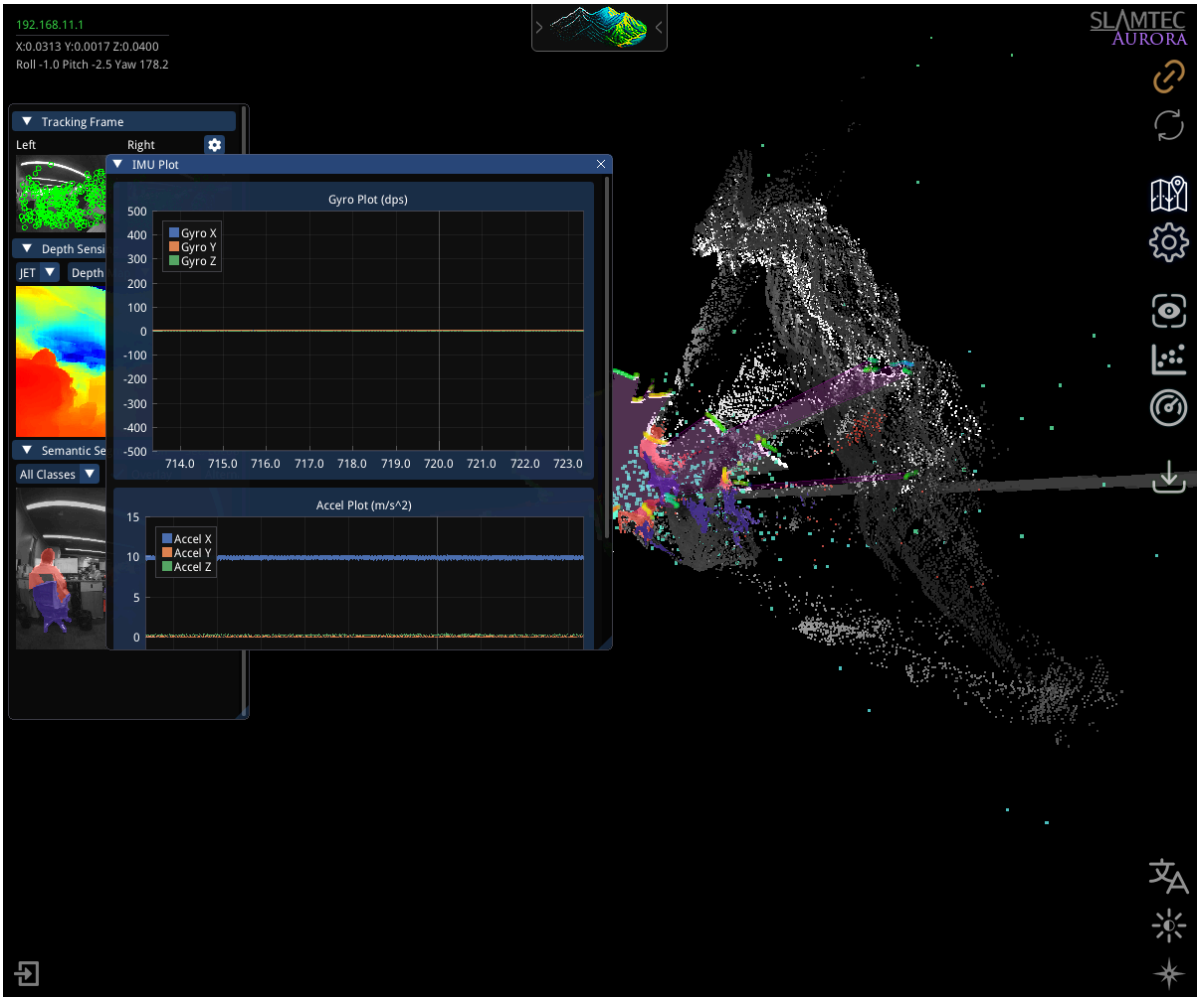
4.3 Camera View

Tap the "Camera View" icon on the main interface to preview the camera feed in real time.



4.4 IMU View

Click the "IMU View" icon on the main interface to view real-time gyroscope and accelerometer data.

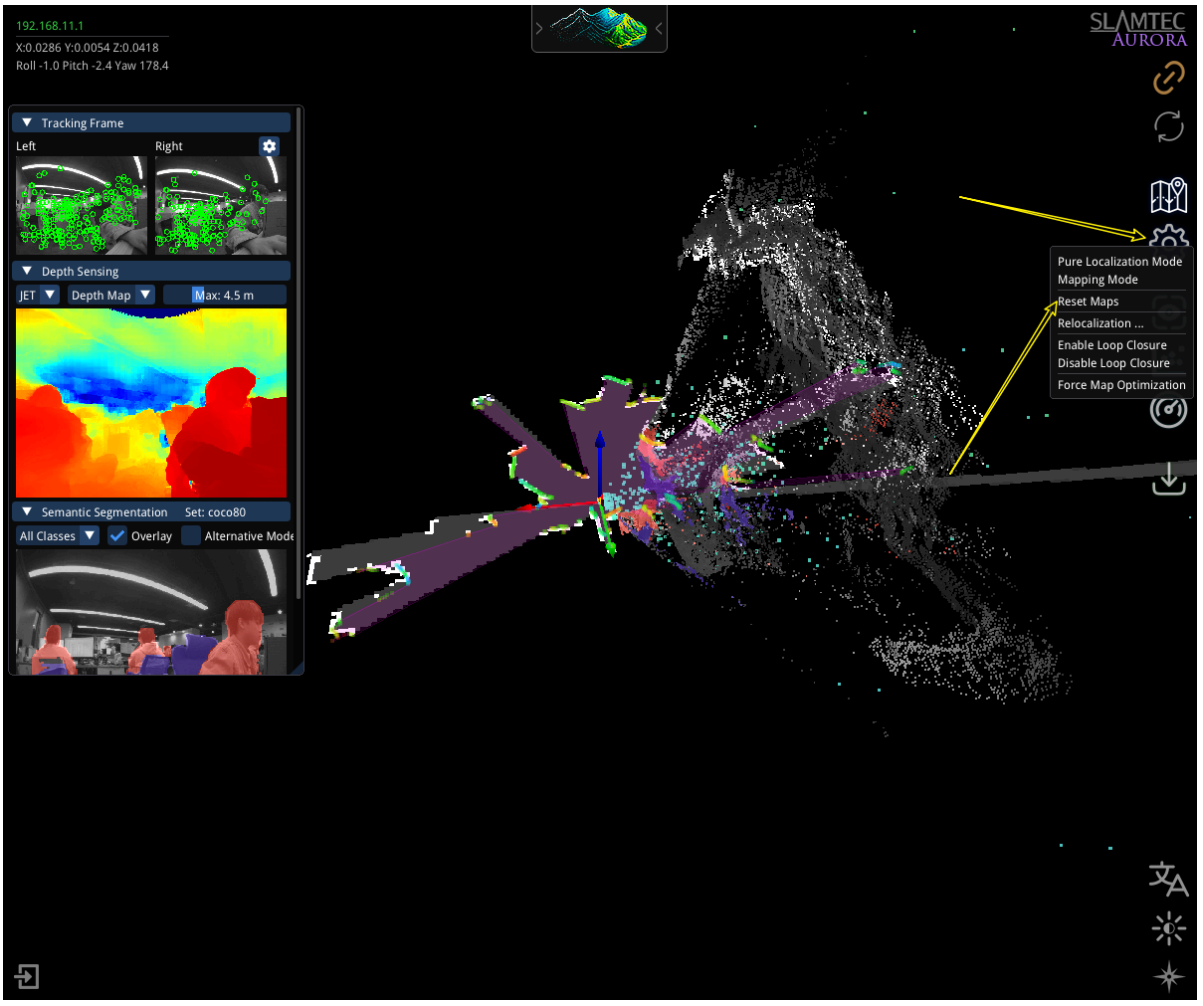


4.5 Zooming/Dragging the Map

- Use the mouse wheel to zoom the map.
- Press and hold the right mouse button while moving the mouse to drag the map.
- Press and hold the left mouse button while moving the mouse to rotate the map.

4.6 Resetting the Map

Once you've created a map, or want to reset it while it's still being created, you can use "Device Operations" --> "Reset Map." Resetting the map will clear the existing map and reinitialize the device.



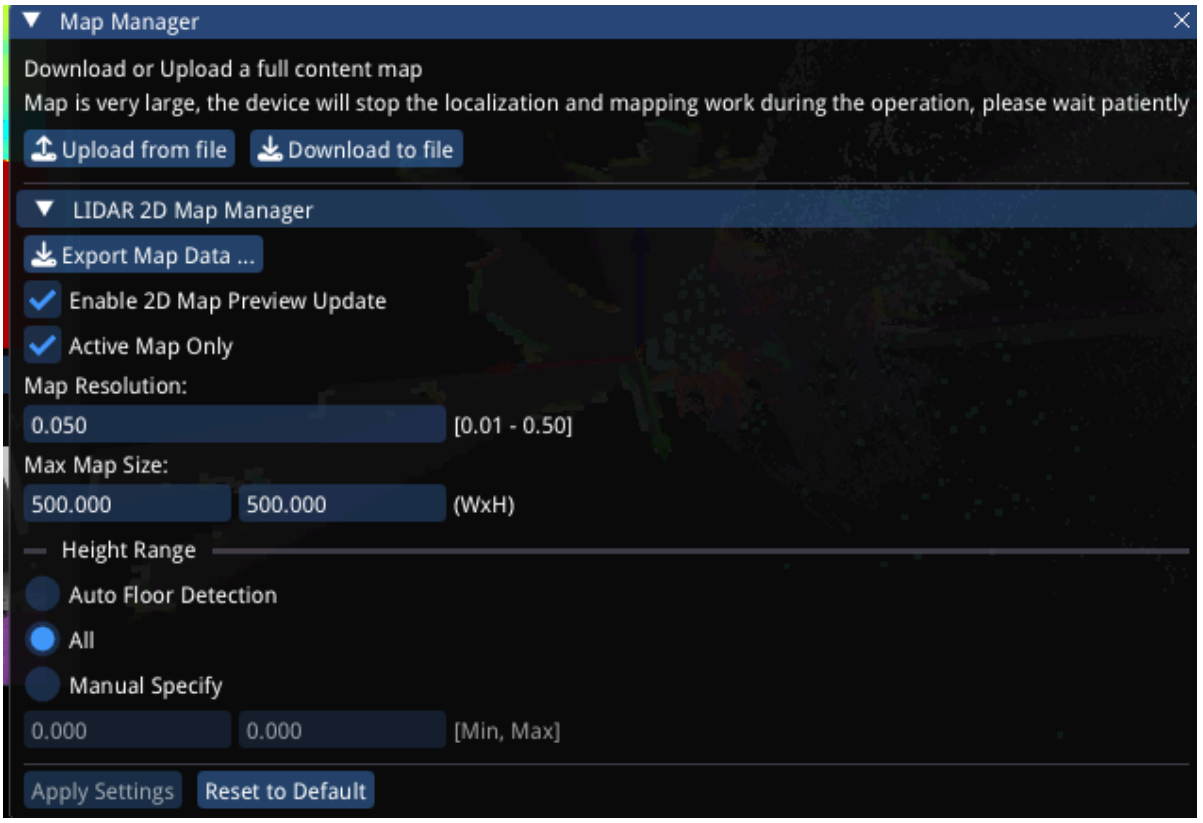
4.7 Map Synchronization

The "Synchronize Map" button synchronizes all backend map updates to the interface. Because global updates are time-consuming, during the map creation process, we only perform incremental updates near Aurora and perform full updates only when a closed loop is detected.

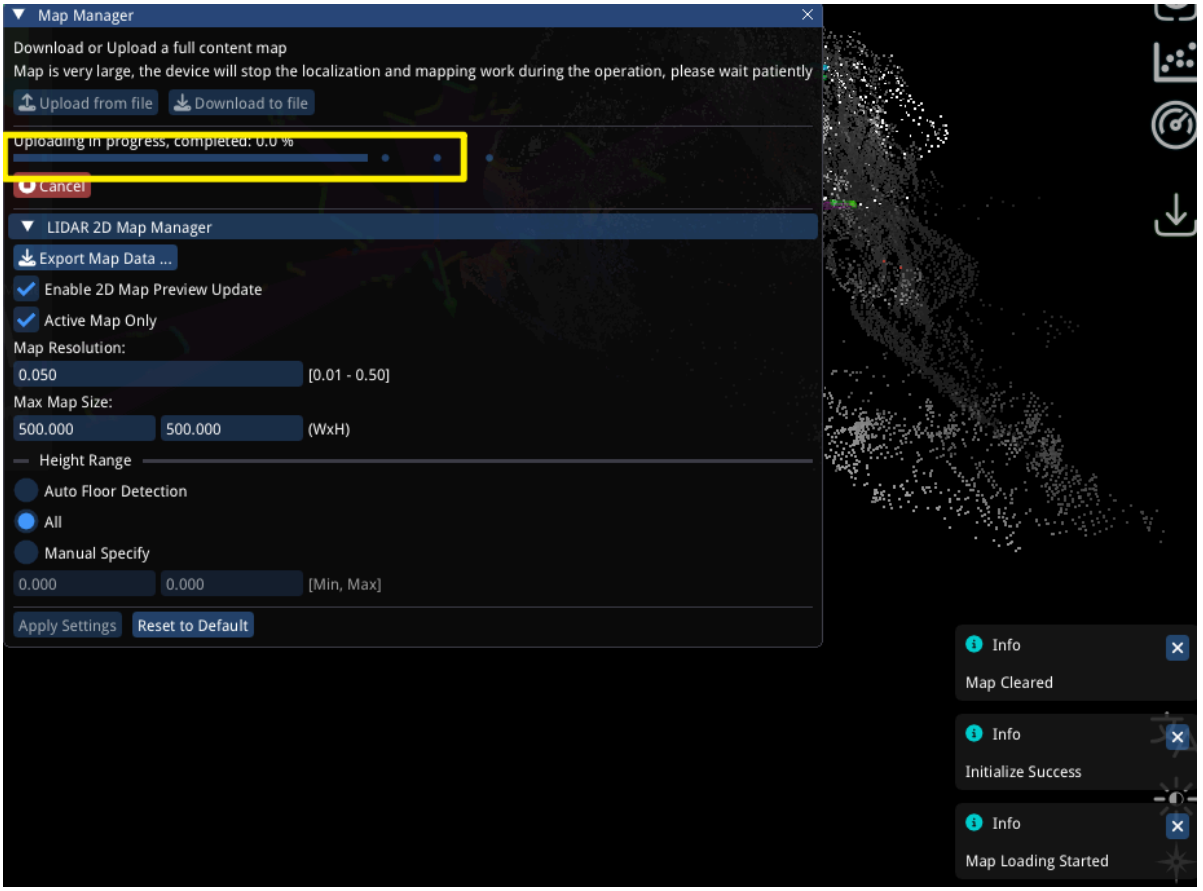
4.8 Saving/Uploading Maps

Maps can be saved as files in stcm format, which contains both 2D and 3D map information, or as files in bmp format, which only contains 2D map information.

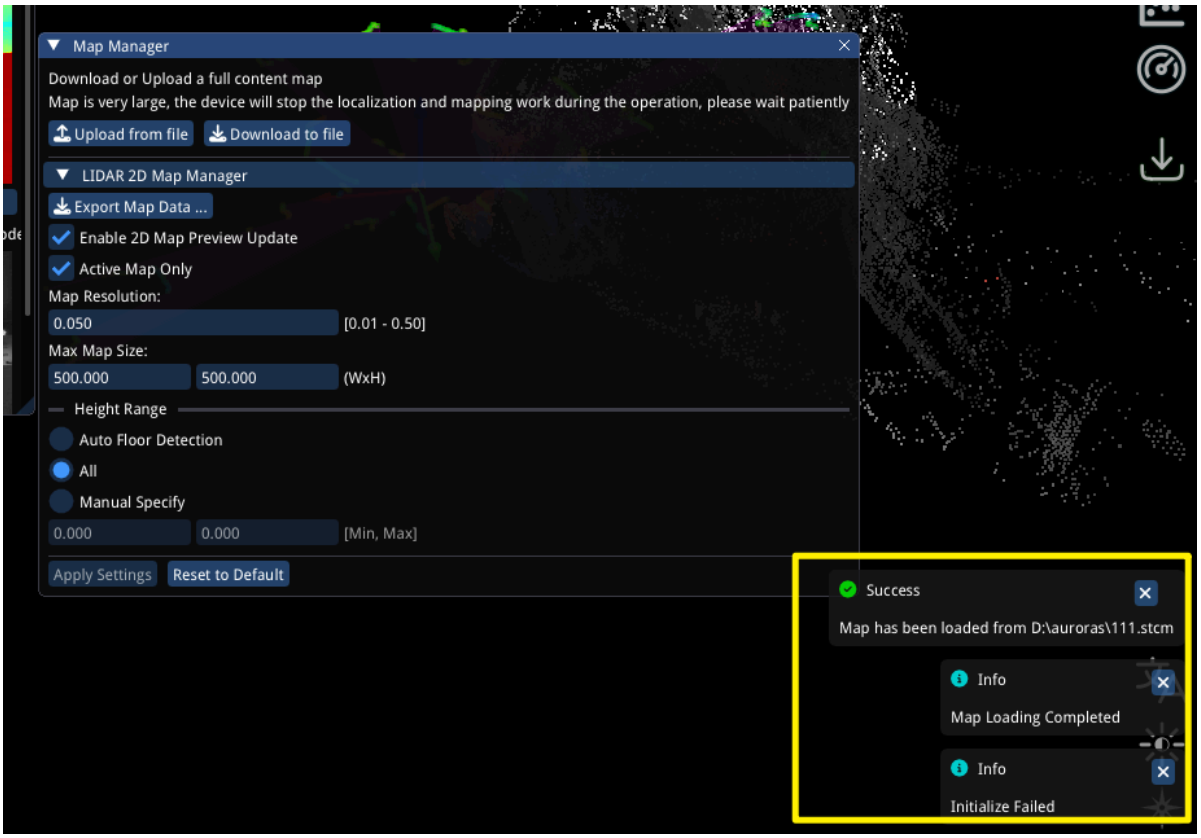
On the main interface, click "Map Manager." Select "Download to File" to save the map in stcm format, or "Export Map Data" to save the map in bmp format.



上传地图只可上传 stcm格式的3D地图。点击“从文件上传”，选择上传 的地图文件即可。 上传过程中会显示上传进度，

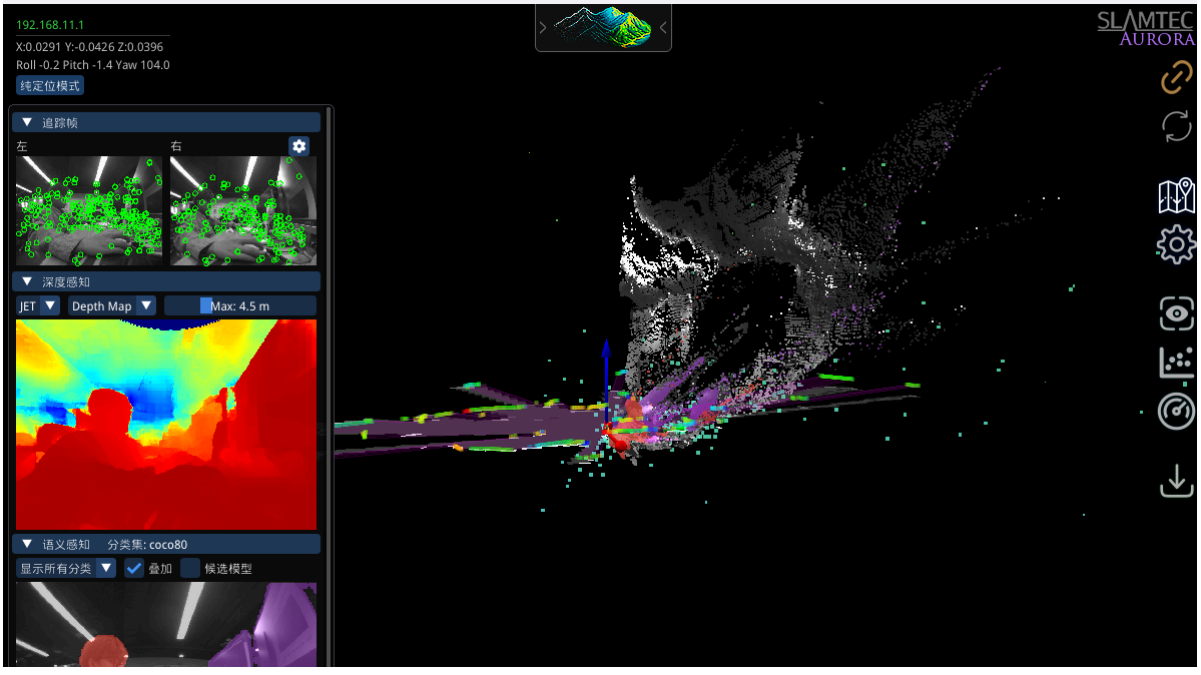


上传完成后右下角提示上传成功

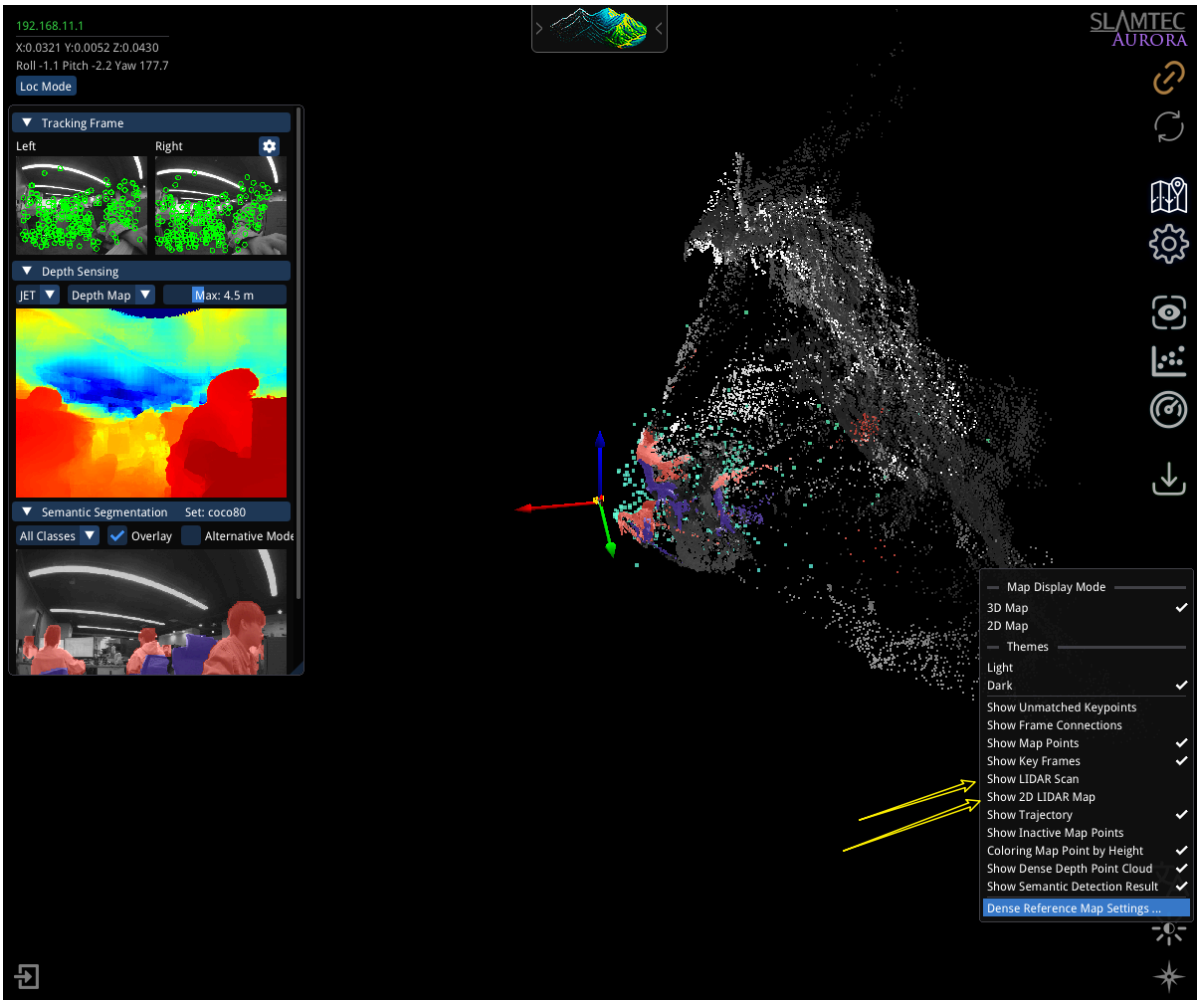


5.9 2D/3D Map Switching

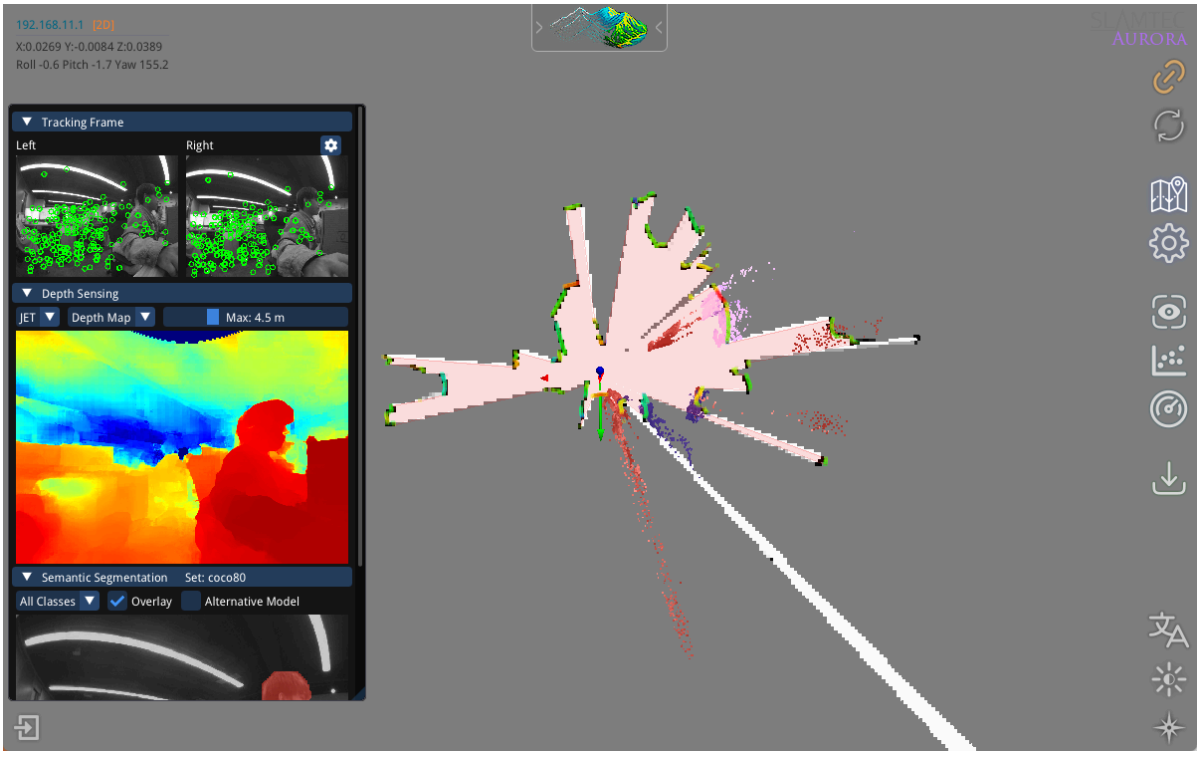
Aurora Remote defaults to 3D map display mode, which displays both the 3D and 2D maps simultaneously. See Figure 18. The gray portion represents the 2D map.



Click "Display Options" on the main interface and uncheck "Show Synchronous 2D Map" to display only the 3D map.

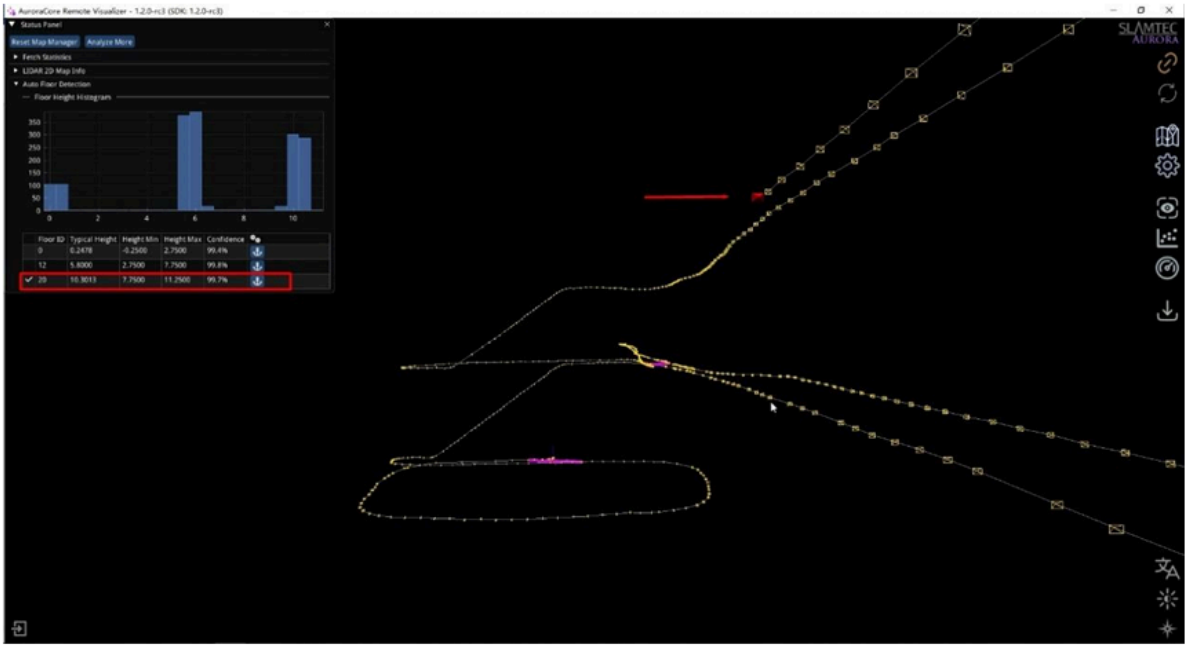


Click "Display Options" -> "Map Display Mode" -> "2D Map" on the main interface to switch to 2D map display mode



4.10 Automatic Floor Detection

Click "Statistics" on the main interface --> "Automatic Floor Detection" to view your current relative floor. While taking the escalator to create a map, your current location is the third floor.



4.11 Pop-up Messages

While Aurora Remote is running, messages may occasionally pop up in the lower right corner of the main interface. The following table lists the main pop-up messages for Aurora Remote.

Message	Description
Initialize Success	Aurora camera initialization successful, ready to start mapping.
Initialize Failed	Aurora camera initialization failed, unable to start mapping.
Map Optimization Completed	Loop closure condition detected, successfully closed the loop.
Tracking Lost	No feature points detected in the camera feed.
Tracking Recovered	Feature points re-detected in the camera feed.
Map Loading Started	Map loading has started.
Map Loading Completed	Map loading is complete.
Map Saving Started	Map saving has started.
Map Saving Completed	Map saving is successful.

5. Precautions

- Avoid impact. Dropping or collisions may damage the device, causing malfunction or even complete failure.
- Keep the radar and lens clean and tidy. Avoid touching them directly. Use a cleaning cloth to clean the device.
- Ensure good heat dissipation. Use a tripod during use and avoid covering the heat dissipation area.