Milesight Quick Installation Guide

4G Solar-powered Traffic Sensing Camera

V 1.0

Contents

Thank you for purchasing Milesight products. Please follow the instructions to install this product. Proper installation is crucial for optimal image performance. We appreciate your cooperation!

I. Preparation

After unpacking, please inspect all contents of the package to ensure that there are no missing parts or accessories. Please keep all items properly stored during the installation process.

Contents of the package

4G Solar-powered Traffic Sensing Camera x 1

Solar Panel Modules (Optional)

Solar Panel Cable (0.5m) x 1

USB Type-C Charging Cable x 1

Screwdriver x 1

3-Axis Ball Mounting Bracket x 1
Screw of Bracket x 1

Strap x 2

Screw Packet x 1

Warranty Card x 1

Quick Start Guide x 1

SIM Card Ejector Tool x 1
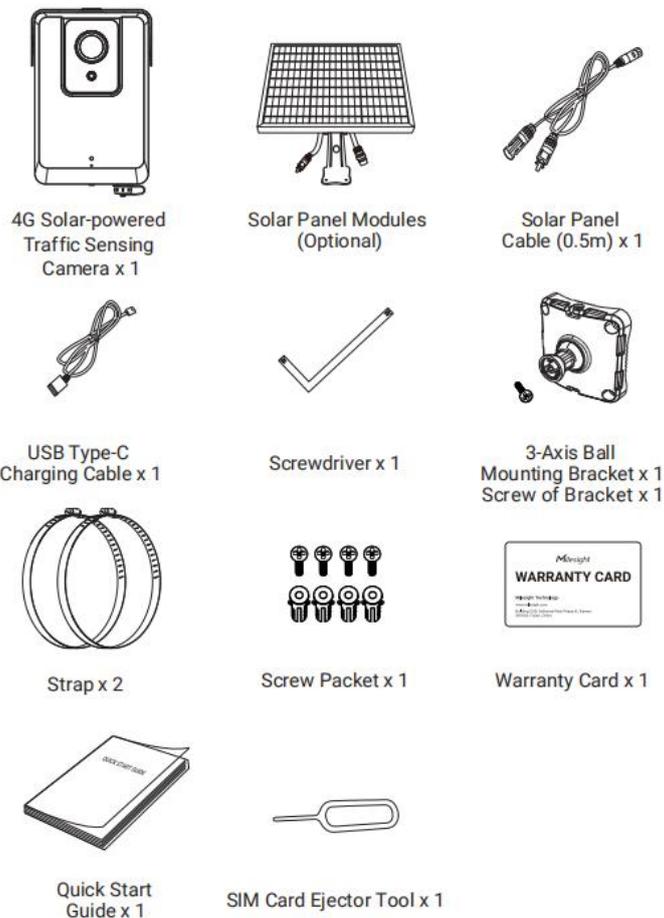
In addition to the materials mentioned above, there are also installation tools that need to be prepared.

A mobile phone or laptop

A ladder of approximately 3 meters in height
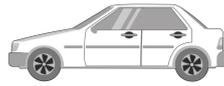
A vehicle (if there is minimal traffic within the viewing area, you can park the vehicle within a safe range of the capture field to determine if the camera installation position and angle are appropriate based on captured images)

Lumos app (for iOS)   SunPosition app (for Android)

To assist in determining the optimal orientation of the solar panel for maximum charging efficiency, you can choose to use the Lumos app (for iOS) or the SunPosition app (for Android).

II. Planning and Measurement

Determine the position and layout of the camera based on the installation location requirements and perform necessary measurements.

1. Confirm the location and direction of camera installation. The preset installation direction should be synchronized with the direction of vehicles driving away to ensure that the camera captures the **rear** instead of the front of the vehicle.

2. The installer should stand in the preset installation direction, with a clear view of license plates at a distance of **10-20 meters (16mm lens) / 3-10 meters (6mm lens)** being optimal. The smaller the angle formed between the camera's direction and the license plate on the rear of the vehicle, as shown in the illustration below with b<a, the better the IR illumination effect for nighttime license plate capture. Therefore, it is recommended to install the camera at curved road turning points for better license plate capture results.
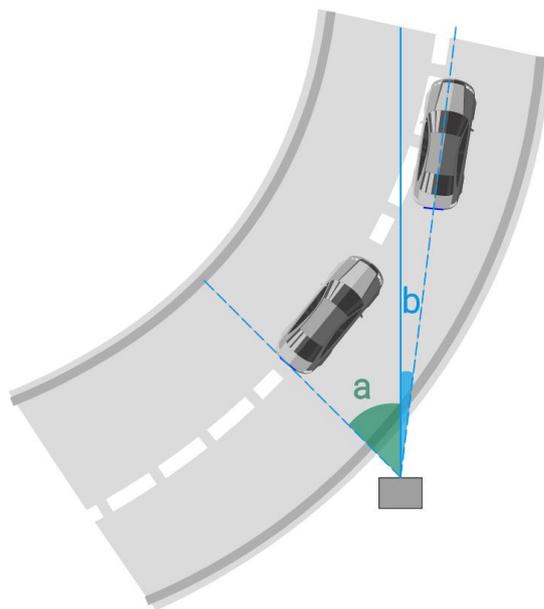
3. Below are angle recommendations for the camera installation.
Angle A represents the angle between the camera's direction and the road, while L denotes the distance from the camera's installation position to the outermost lane.

For a 16mm lens camera: It is suggested to maintain an angle A of approximately **14 degrees** (i.e., the distance from the camera to the outermost lane should not exceed 8 meters, L ≤ 8m). The camera can accommodate angles within the range of A ≤ 30 degrees.

For a 6mm lens camera: It is recommended to keep angle A at around **15-25 degrees**

(i.e., the distance from the camera to the outermost lane should not exceed 8 meters, L ≤ 8m). The camera can support angles within the range of A ≤ 25 degrees.
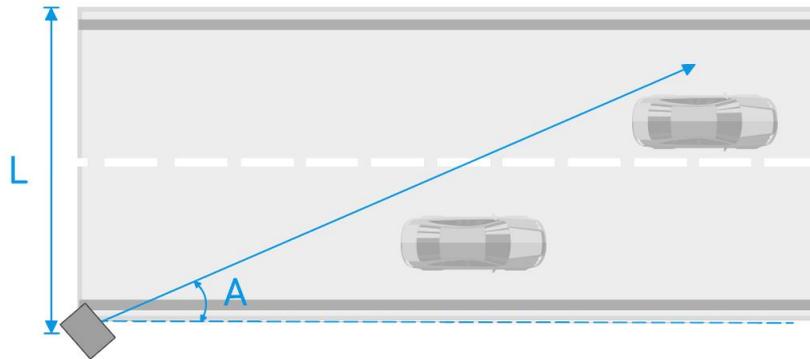
The camera should be tilted downwards, as shown in the diagram below.
A represents the pitch angle, and **L** represents the optimal monitoring distance.

For a 16mm lens camera: It is recommended to set A at 10 degrees, with a maximum of 15 degrees. The optimal monitoring distance, L, is between 10 to 20 meters.

For a 6mm lens camera: It is suggested to set A between 15 to 25 degrees, with a maximum of 25 degrees. The optimal monitoring distance, L, is between 3 to 10 meters.
Please note that these angles are provided as suggested references, and final adjustments should be made based on the actual image results.
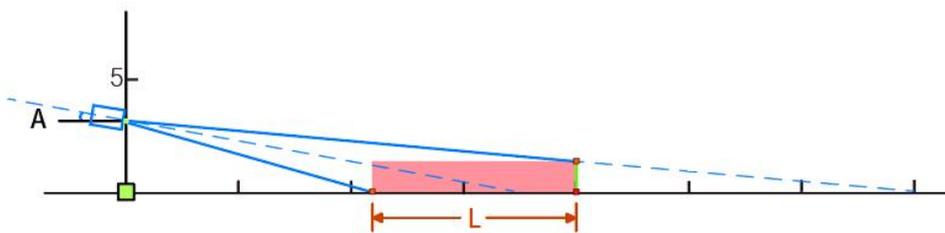
4. Please ensure that the installation point receives ample sunlight without obstruction from trees or buildings, as this may affect the solar panel's charging efficiency.
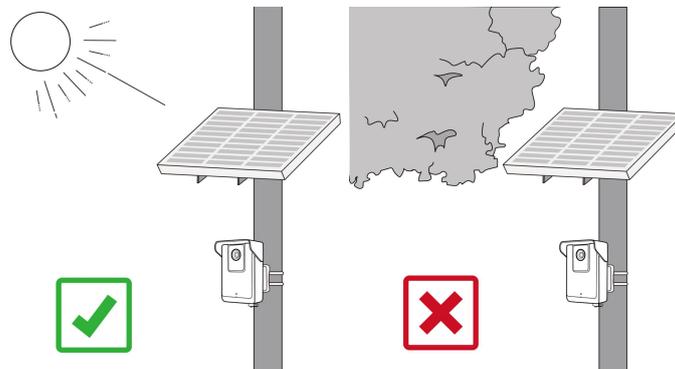
5. Please confirm that there are **no text banners, bright lights, or highly reflective street signs** within the camera's field of view, as they may impact recognition accuracy.

III. Installation Preparation

You may need to inspect or confirm the installation environment to ensure that there is sufficient space and support for installation.
You can:
- ✓ Verify if the installation pole is sturdy enough.
- ✓ Remove any items in the surrounding area that may obstruct the camera's field of view, such as weeds, garbage cans, signs, etc.
- ✓ Clean the surface of the installation pole from any impurities or rust that may be present.

IV. Assembling the Equipment

Before installation, we can make some preparations by partially assembling the equipment. This involves installing brackets, connecting components, and other related operations.

1. Take out the camera and screwdriver.

2. Use the screwdriver to remove the screws located at the bottom of the camera back panel, as shown in the diagram. The back panel can then be freely removed.

‼ Note: Please store the removed screws and back panel properly! They will be needed for fixing the camera later on.

3. Take out the 3-axis ball bracket. Align the three points on the bracket center with the corresponding three points on the ball axis, then use screws to secure the back panel to the bracket.

! Note: Please make sure that the protruding part below the back panel (the part previously secured by the removed screws) is facing outward. Refer to the diagram for the specific direction, and ensure proper alignment before securing the back panel and the bracket.

4. Use a screwdriver to unscrew the screws at the bottom of the camera.

a. SD card installation: Insert the SD card directly, ensuring that it is inserted correctly.
b. SIM card installation: Use the sharp end of the SIM Card Ejector Tool to press the

small circular hole on the SIM card slot, and the slot will pop out. Confirm that the SIM card is placed correctly on the slot, then place the slot back into the camera.

5. Assemble the solar panel by lifting it upward as shown in the diagram. Use screws to secure both ends in place.
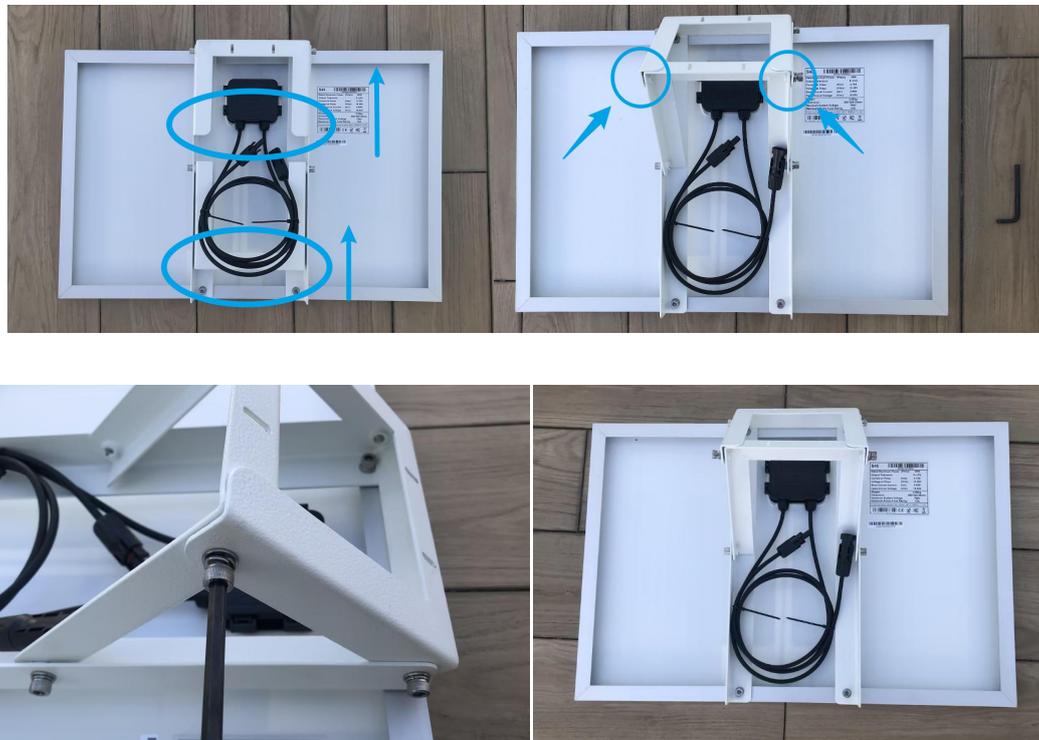
V. Installation

1. Determine the orientation of the solar panel to ensure it receives the majority of sunlight from 10 AM to 6 PM, maximizing charging efficiency.
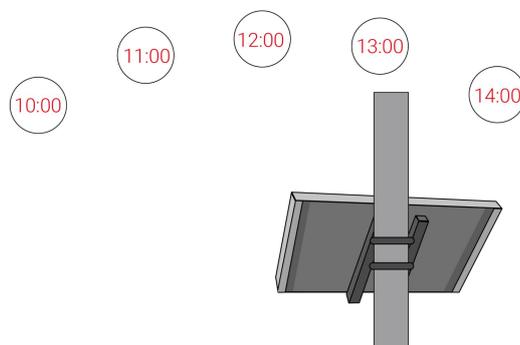
! Note: You can use auxiliary tools such as the Lumos app (for iOS) or the SunPosition app (for Android) to view the position and capture multiple screenshots displaying the sun's position from 10 AM to 6 PM.

2. Install the solar panel at an appropriate height and orientation, ensuring a secure

fixation.
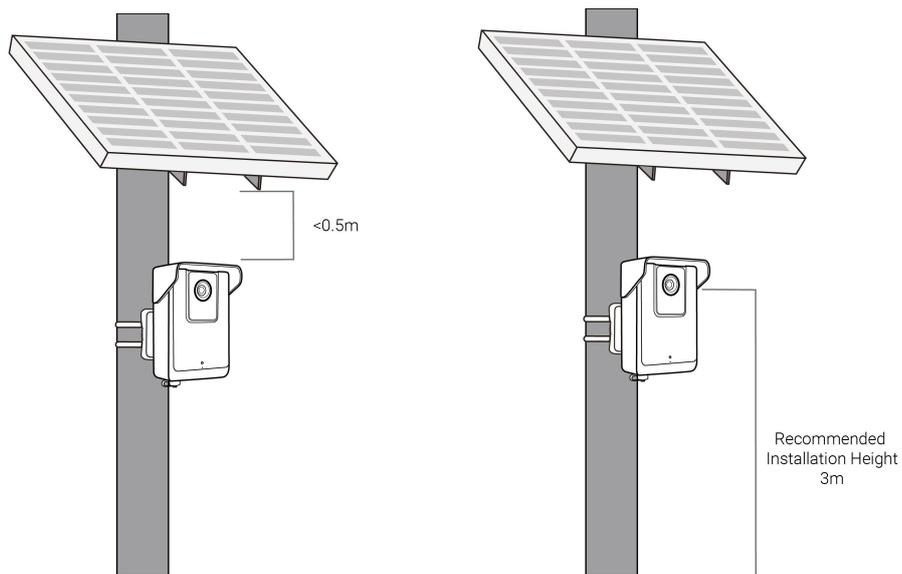
3. Securely fix the bracket at a height of **2 to 4 meters (16mm lens)/2.5 to 3 meters (6mm lens)**, with a recommended height of 3 meters, ensuring correct orientation and a sturdy fixation.

! Note: Please ensure that there are screws in the vertical direction of the bracket.

4. Align the camera with the four mounting holes on the bracket and hang the camera on top of the bracket.

5. Reattach the previously removed screws to ensure the camera is secure and firmly fixed.

6. You can adjust the angle of the bracket by tightening or loosening the screws at the top. Please ensure that the angle and direction are approximately aligned.

! Note: The bracket fixation at this point is only to temporarily secure the camera at a reasonably suitable angle. The final fixation angle should be adjusted based on the image results.

VI. Connecting the Solar Panel

1. Unscrew the protective cover of the solar charging cable interface on the camera. Align the solar charging cable and insert it into the interface. Connect the solar charging cable to the cable of the solar panel.

! Note:

Regarding the above mentioned shooting scenarios, these are for testing and installation purposes only. Please do not consider them as reference standards for scene and angle.

VII. Adjustment and Configuration

1. Adjust the switch button to On to start the device.

! Note:

1. When the device is being powered on, the indicator in front of the device will blink green until the device is powered on. And When the device is turned off, the indicator in front of the device will blink green twice to indicate. The Wi-Fi of device is automatically enabled when the device is powered on.

2. The indicator light will be red to indicate when the device cannot be started due to low power.

2. Use mobile devices or laptop to connect to the device's Wi-Fi.

! Note: The Wi-Fi name is SC211_xxxxxx (xxxxxx is the last six bits of the MAC address).
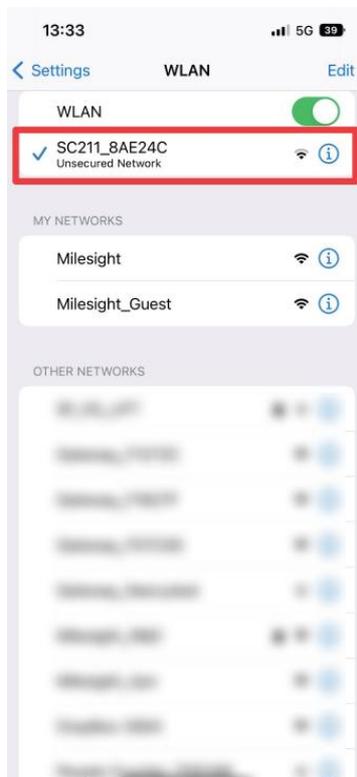
3. Enter the IP address 192.168.1.1 in the browser to log in to the web page of the device and configure the device.

! Note:

1. Default Username/Password: admin/ms123456.

2. The IP address of the device cannot be modified.

3. For more information about how to configure the device, please refer to the User Manual:

https://resource.milesight.com/milesight/security/document/user-manual/milesight-4g-solar-powered-traffic-sensing-camera-user-manual.pdf
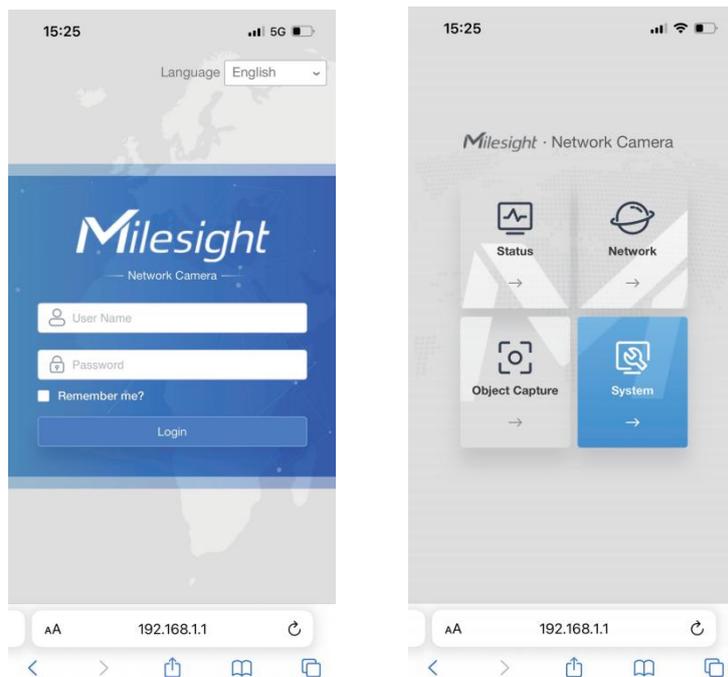
4. Enter Object Capture and click on the full-screen button to display the real-time video feed in full screen. It is strongly recommended to adjust the camera installation angle while the Image Type parameter is set to Full Image by default.
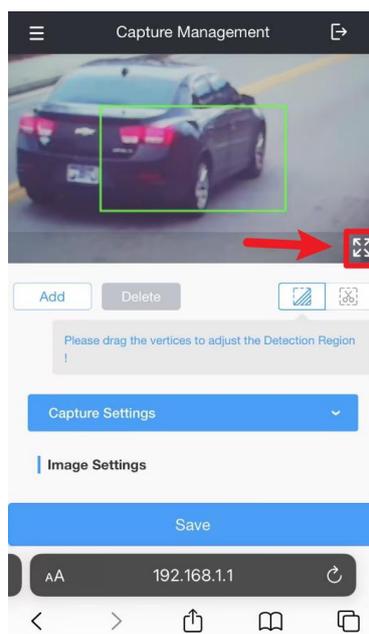
! Note: Please confirm that your software version has been upgraded to the latest version.

5. Here are some recommended angle adjustments:

a. Lane Coverage:

Approximately **1.5 to 2 car lengths** should be visible in the field of view, with some buffer space both in front and behind the vehicles. The path of the license plates should preferably follow the diagonal line.

b. Dual Lane Coverage:

For dual-lane license plate tracking, try to evenly distribute the paths of the license plates on both sides of the diagonal line.

c. Incorrect Installation Illustration:
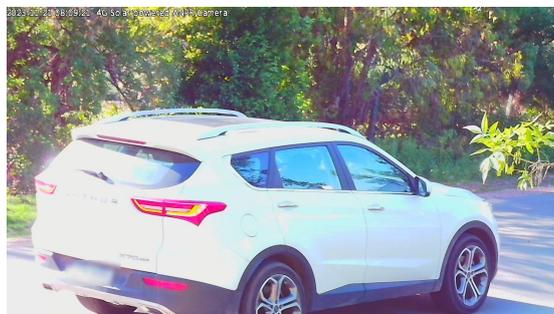
the angle between the camera and the road is too large

the distance within the field of view is less than the length of 1.5 to 2 cars

the distance within the field of view is greater than the length of 1.5 to 2 cars

the camera's height is too low

characters are appearing within the field of view and the camera is facing towards the front of the vehicle

VIII. Testing and Validation

1. Draw a detection area to test the snapshot effect. When the green detection box intersects with the vehicle target in the frame, it will trigger a snapshot. Please draw the detection box based on the snapshot scene. The interval between two snapshots can be set in Capture Management -> Capture Settings -> Trigger Capture -> Capture Interval, with a default value of 100ms.
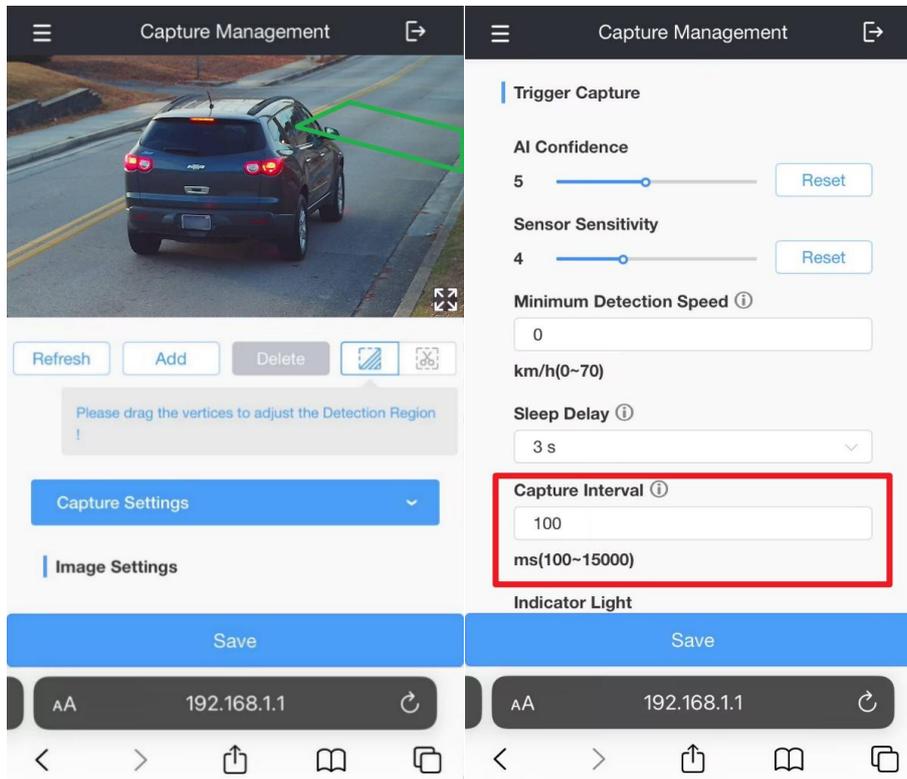
2. Check the snapshot results.

a. If MQTT or HTTP upload is not configured, the files will be stored locally on the SD card. You can directly view the snapshot results through the web interface.
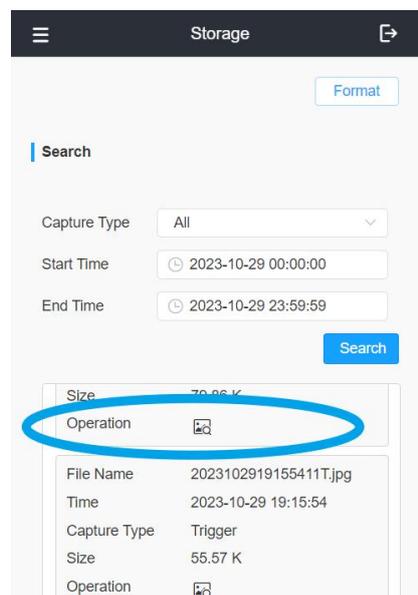
b. If MQTT or HTTP upload is configured, the snapshot data will be automatically uploaded to the configured server. You can view the snapshot results on the server.

You may have the following questions regarding the configuration of the detection area:

Question:
How can I make the license plate position more centered in the snapshots?

Answer:
If you want the captured license plate position to be more centered, you can draw the detection box closer to the upper right corner.
a. For single lane coverage:
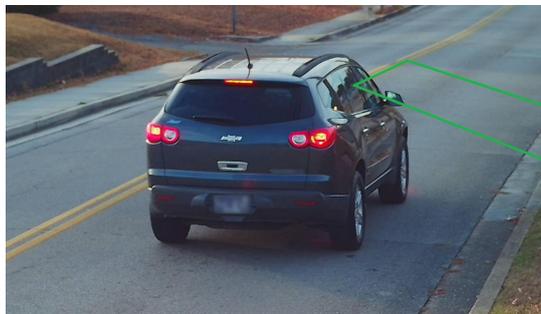
b. For dual lane coverage:
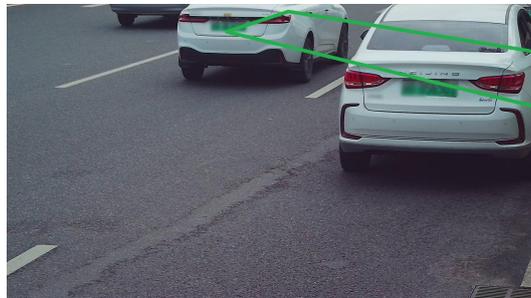
Question:
How to reduce the number of snapshots taken for the same vehicle?

Answer:
If the vehicle is traveling at a high speed, usually there won't be many snapshots captured. Typically, when the vehicle speed is slower (e.g., community roads, traffic intersections), there is a higher chance of capturing multiple snapshots. To address this, you can adjust the settings based on the actual road conditions using the following recommendations:

✧ For congested and slow-speed road sections (where vehicles are closely packed and follow each other closely), it is suggested to minimize the height of the

detection box (as shown in the green box in the image below).
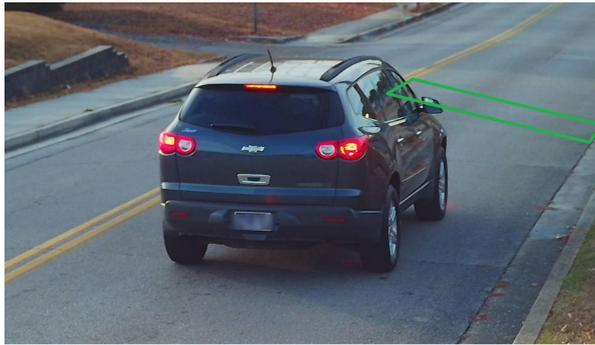
✧ This will help avoid continuous overlap between the detection box pixels and the same vehicle within the set Capture Interval, thereby reducing the number of snapshots taken for the same vehicle. Increasing the Capture Interval time interval can also be helpful but it is not recommended to set it too high as it might miss capturing the next following vehicle.

✧ For roads with sparse vehicles (where the vehicle speed is consistently slow but the distance between two vehicles is large), in addition to narrowing the height of the detection box, you can increase the Capture Interval time interval (e.g., 20 km/h, which is 5.5 m/s, set the Capture Interval to 2 seconds). This will ensure that the number of snapshots taken is not excessive while also preventing the risk of missing the next vehicle.

3. After completing the device configuration, click the Wi-Fi button to disable the device Wi-Fi and cover back the interface panel to ensure data security.

! Note:
1. Short press the reset button (for about 1s) to restart the device.
2. Long press the reset button (for about 8s or less) until the red light is steady on and release it to reset the device.
3. Long press the reset button (for about 15s or more) until the red light flashes and release it to overwrite the existing firmware with the original firmware.