

2023

AOVX



G Series User Manual

V1.0



www.aovx.com

History







Revision	Date	Author	Description
V1.0	2023/3/21	Barry	Initial GX100,"GX" includes GL100 GM100 and GG100

SAFETY INFORMATION

In this document, you will be introduced to how to use an G series tracker safely. We suggest you adhere to the following recommendations in order to avoid personal injuries and or property damage.

You have to be familiar with the safety requirements before using the device!

To avoid burning and voltage-caused traumas, of the personnel working with the device, please follow these safety requirements.

-  **WARNING! Do not use GX100 device if it distracts driver or causes inconvenience due to GX100 placement. Device must not interfere with driver.**
-  **Battery should not be disposed of with general household waste. Bring damaged or worn-out batteries to your local recycling center or dispose them to battery recycle bin found in stores.**
-  **The device can be used with the Personal Computer (first safety class) or Notebook (second safety class).Associated equipment: PSU (power supply unit) (LPS) and personal computer (PC) shall comply with the requirements of standard EN 60950-1.**
-  **Do not mount or service the device during a thunderstorm.**
-  **To avoid mechanical damages to the device it is recommended to transport it packed in a damage-proof pack.**
-  **Protection in primary circuits of associated PC and PSU(LPS) against short circuits and earth faults of associated PC shall be provided as part of the building installation.**

To avoid mechanical damages to the device it is recommended to transport it packed in a damage-proof pack.While using the device , it should be placed so, that its indicating LEDs would be visible as they inform in which working mode the device is and if it has any working problems.

Signal level of the device depends on the environment in which it is working. In case the device starts working in sufficiently, please refer to qualified personnel in order to repair this product.We recommend forwarding it to a repair center or the manufacturer.There are no exchangeable parts inside the device.

Content

1. Introduction	1
2. Product Overview	2
2.1. GX100 Series Overview	2
2.2. Package Contents	3
2.3. General Specification	4
2.4. Global Deploy	4
2.5. Hardware Features	5
2.6. Data Protocol	5
2.7. Buffer Storage	6
2.8. Main Functions	2
3. Work mode	7
3.1. Work mode	7
3.2. Conditional trigger mode	7
3.3. Sleep mode	8
4. Configuration	8
4.1. LED light indications	8
4.2. Install USB driver	9
4.3. Set your device	9
4.3.1. Steps for set up	9
4.3.2. Main menu of configuration tool	10
4.3.3. Default configuration	11
4.4. APN configuration	11
4.4.1. Configure APN by config tool	11
4.4.2. Configure APN by AT Command	13
4.4.3. Configure APN by SMS Command	错误！未定义书签。
4.5. IP configuration	15
4.5.1. Configure IP by AT Command	15
4.5.2. Configure IP by SMS command	16
4.6. Report Interval Configuration	18
4.6.1. Configure Report Interval by config tool	18

4.6.2. Configure Report Interval by AT Command	20
4.6.3. Configure Report Interval by SMS Command	21
4.7. Light parameter configuration	22
3.7.1. Configure light parameter by Config Tool	22
3.7.2. Configure Light by AT Command	23
3.7.3. Configure Light by SMS Command	24
4.8. G-sensor parameter configuration	25
3.8.1 Configure G-sensor parameter by Config Tool	25
3.8.2 Configure G-Sensor by AT Command	26
4.8.4. Configure G-Sensor by SMS Command	28
4.9. TempHumi parameter configuration	29
3.9.1 Configure TempHumi parameter by Config Tool	29
3.8.2 Configure TempHumi by AT Command	31
4.9.5. Configure TEMPHUMI by SMS Command	32
5. Firmware Upgrade	34
5.1. OTA Upgrade	34
5.1.1. Third Party or Customer Owned Platform	34
5.1.2. Aovx Platform	34
5.2. Local Upgrade	37
5.2.1. The device and fittings	37
5.2.2. Upgrade Steps	37
6. Installation	38
7. FAQ	39
7.1. Unable to Register	39
7.2. Unable to use the config tool	40
7.3. Config tool connect Fail	40

1. Introduction

Aovx G series tracker devices are ideally for tracking and temperature monitoring of cold chain , food and fruits storage and transportation, ultra thin 8mm, just put it with goods requires monitoring .

Integrates global connectivity by cellular network 2G,4G Cat.1 , NB-IoT and Cat.M1 without data plan contract .

Aovx G series tracker devices have integrated multiple sensors for monitoring movement, light, temperature, humidity and geofence . Indoor and outdoor positioning supported by WIFI ,LBS and GPS ,GLONASS ,GALILEO and BEIDOU . Short range wireless BLE [Bluetooth Low Energy] is flexible for easy configuration , pair with external BLE sensors or accessories , which makes G series tracker device working as BLE gateway .

Aovx data is always crucial for assets management , which has been encrypted , data buffer capacity and uploaded via TCP/MQTT protocols ,make it easy to deploy in the cloud platform. Firmware over the air OTA is always important for after sale maintenance .

2. Product Overview

2.1. GX100 Series Overview

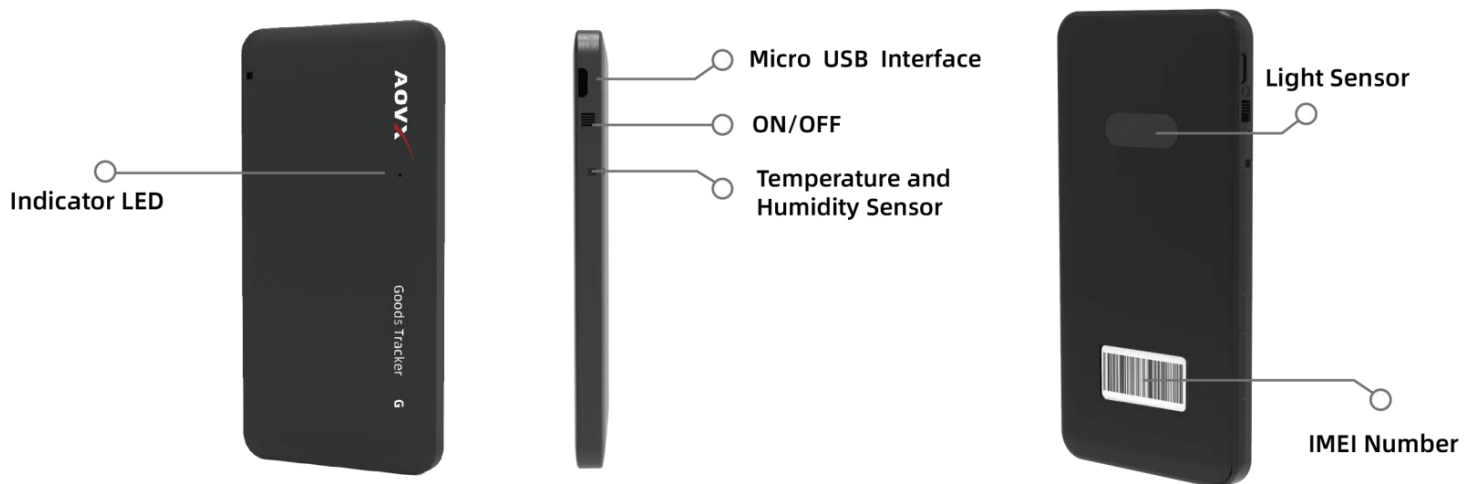


Figure1 GX100 Overview

2.2. Main Functions

❖ Light Monitoring Technology

24H real-time monitoring and recording the change of light. When an asset is abnormally unboxed, it will trigger an alarm to the platform.

❖ Temperature and Humidity Monitoring Technology

Integrated with high-precision and wide-range temperature and humidity sensor. 24H real-time monitoring and recording the change of temperature and humidity.

❖ Comprehensive Monitoring Technology

The device monitors the assets in an all aspects. In case of severe vibration, Abnormal temperature and humidity, abnormal light, alarms will be generated automatically.

❖ Support buffer data

When the device enters an area with no network signal, the device stores the location information temporally, and uploads the historical location information to the platform when the device is back online.

❖ **Multiple Positioning Technology**

Integrate GNSS positioning (GPS, Beidou, GLONASS), LBS base station positioning, WiFi and other positioning technologies to fix the location of assets in real-time. Support electronic fences*, transportation route planning* and location deviation alarms*.

❖ **Data Visibility Technology**

We provide web-based visualized management platform. This kind of insight enables you to be smarter in your planning and make more proactive, data-based decisions.

❖ **OTA Technology and Configuration Flexibility**

Parameter configuration and firmware maintenance can be done locally and remotely (Servers and SMS).

❖ **Dual Server**

The device supports dual IP simultaneous reporting.

❖ **Data encryption ***

808 protocol data encryption supports RSA/AES/TEA*.

❖ **Network and Band Configuration**

Support network and band configuration.

❖ **Bluetooth**

The device supports the pairing of Bluetooth devices and supports scanning and broadcasting functions.

2.3. Package Contents

The G series device will send to customers with a cardboard box. The package contains:

Device

USB to serial port cable

2.4. General Specification

Table1.General Specification

Type	GX100
Material	ABS(Food grade plastic is optional)
Operating Temperature	-20°C ~ +70°C
Dimensions	121mm × 61mm × 8mm
Weight	Approx. 85g (GG100), 90g (GL100), 88g (GM100)
Firmware Upgrade	USB interface, OTA
Data Encryption*	TEA, AES or RSA(optional)*
Supply Voltage	3.7V Rechargeable
Stand-by Current	≤80uA
Battery Life	1 Year @ 1 report per day

2.5. Global Deploy

Table2.Global deploy

Variant for the Global	
GM100-GL(Cat M1)	LTE FDD: B1/B2/B3/B4/B5/B8/B12/B13/B14/B18/B19/B20/B25/B26*/ B27/B28/B66/B71/B85 GSM: 850/900/1800/1900MHz
GL100-GL* (Cat 1)	LTE FDD: B1/B2/B3/B4/B5/B7/B8/B12/B13/B18/B19/B20/B25/B26/ B28 GSM: 850/900/1800/1900MHz
GG100-GL*(GSM only)	GSM: 850/900/1800/1900MHz
Variant for China/India	
GL100-CN* (Cat 1)	LTE FDD: B1/B3/B5/B8 LTE TDD: B34/B38/B39/B40/B41 GSM: 900/1800MHz

Variant for EMEA

GL100-EM (Cat 1) LTE FDD: B1/B3/B5/B7/B8/B20/B28
GSM: 850/900/1800/1900MHz

Variant for Latin America

GL100-LA (Cat 1) LTE FDD: B2/B3/B4/B5/B7/B8/B28/B66
GSM: 850/900/1800/1900MHz

Variant for North America

GL100-NA* (Cat 1)	LTE FDD: B2/B4/B5/B12/B13/B25/B26
GM100-NA* (Cat M1)	LTE FDD: B1/B2/B3/B4/B5/B8/B12/B13/B14/B18/B19/B20/B25/B26*/B27/B28/B66/B71/B85

2.6. Hardware Features

Table3.Hardware features

Hardware Features	
USB	× 1, Micro
(U)SIM Interface	Nano SIM card
Cellular Antenna	internal
GNSS Antenna	internal, GPS/GLONASS/BeiDou
LED	× 2, Power Light, Status Light
WLAN	2.4G (GG100-GL*)
Bluetooth	5.0 (GG100-GL*)
Motion Sensor	Gravity Measurement Range: ±2g/±4g/±8g/±16g ODR Bandwidths: 1Hz ~ 400Hz
Light Sensor	Measuring Range: 1~ 1000 levels
Battery Capacity	2500mAh(Li-ion Polymer Battery, USB 5.0 V charging)

2.7. Data Protocol

Table4.Air Protocol

Air protocol

LTE (Cat 1)	LTE FDD: Max 10Mbps (DL)/Max 5Mbps (UL) LTE TDD: Max 8.96Mbps (DL)/Max 3.1Mbps (UL)
LTE (Cat M1)	LTE FDD: Max 588Kbps (DL)/Max 1119Kbps (UL)
GSM	GPRS: Max 107Kbps (DL)/Max 85.6Kbps (UL) EDGE: Max 296Kbps (DL)/Max 236.8Kbps (UL)
Command Set	Track protocol command
Transmit Protocol	TCP, MQTT
Scheduled Timing Report	Report position and status at preset time intervals
Geo-fences*	Support up to 5 internal geo-fence regions
Low Power Alarm	Alarm when internal battery is low
Wakeup Report	Report when the device wakes up
Motion Detection	Motion detection based on internal 3-axis accelerometer
Working Modes	Power saving mode for long standby time Continuous mode for emergency tracking

2.8. Buffer Storage

Table5.Buffer storage

Buffer storage	
Product	Max storage quantity
GM100	50000 message
GL100	27000 message

3. Work mode

3.1. Work mode

The G-series device has two working modes:

3.1.1.Tracking mode + Trigger mode

When the AT command "AT + WORKMODE=2" is used, the device will enter "tracking mode + Trigger mode", and the minimum cycle reporting and sampling time of the device can be configured as 10s, and the network module will not enter hibernation after the reporting.

3.1.2.Periodic mode mode + trigger mode

When the AT command "AT + WORKMODE=4" is used, the device will enter "Cycle mode + trigger mode". The minimum cycle reporting and sampling time of the device can be configured as 600s. At this time, the network module will enter hibernation after the reporting.

3.2. Conditional trigger mode

When a trigger alarm (configurable) occurs during the normal reporting period, the device can change the working mode and the time of periodic reporting and sampling over a period of time.

How to use the conditional trigger reporting mode:

"AT+TRIGGERMODE=<duration>,<condition>,<report>,<sampling>,<workmode>"

<duration>: The time that the condition trigger can be maintained, during which both the reporting and sampling periods change after the trigger condition.(Disabled when the value is set to 0.)

<condition>: trigger condition parameters, 1: LOW_POWER, 2: MOTION, 3: CRASH, 4: LIGHT, 5: TEMP_HUMI, 6: TEMP, 7: HUMI(Default value: 0)

<report>:Periodic reporting time

<sampling>: Periodic sampling time

<workmode>: Working mode configuration

For example:

We set the reporting period to 3600s and the sampling period to 3600s.

AT+TRIGGERMODE=3600,1,600,600,4

When LOW_POWER is triggered, the periodic reporting time is changed to 600 and the periodic sampling time is changed to 600 within one hour.WorkMode=4. After one hour, the periodic reporting time and sampling time of the device return to the previous Settings 3600 seconds.

3.3. Sleep mode

Sleep mode are only valid when the tracking mode + trigger mode and the conditional trigger mode are used.

Its AT command is "AT+SLEEPMODE=<mode>",

<mode>:

0.The power consumption of this network module is low. (After the device report is complete, the network module sleeps.)

1.The network module is working properly. (After the device report ends, the network module does not sleep.)

For example:

When workmode=2, sleepmode=0, the minimum value is 60s. When workmode=2, sleepmode=1, the minimum value is 10s.

4. Configuration

All devices will have default factory settings. These settings should be changed according to the user's needs.If you need to be change the parameters, please configure them through the latest [configuration tool](#).

4.1. LED light indications

Table6. LED indication

COLOR	DESCRIPTION	STATE	MEANING
RED	Charge indicator	On	Charging
		Flash	Battery is absent
		Off	Full charging or disconnect with USB cable
Blue	System indicator	Flash slowly	Work normally
		Flash quickly	Work abnormally
		Off	Switch off or in sleep mode

4.2. Install USB driver

- ① Please download the USB-to-Serial cable driver [here](#).
- ② Install the driver according to the prompt on the screen.
- ③ After installation, go to **Device Manager** and check for the “**Prolific USB-to-Serial Com Port**” device and the **COM port** number assigned by Windows.
- ④ You are now ready to use the device on your computer.

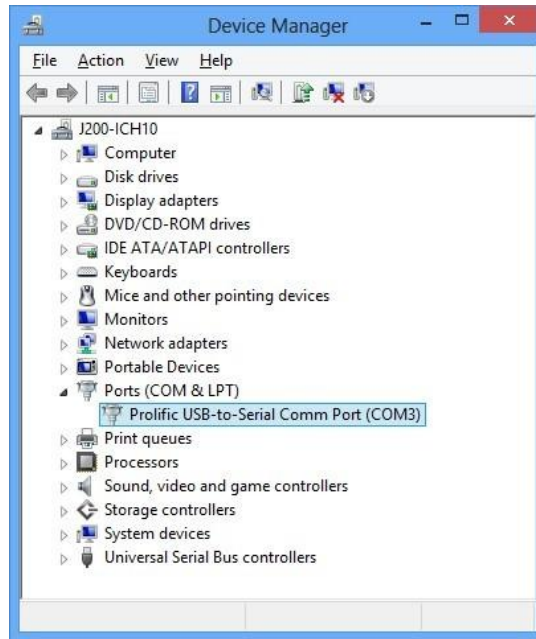
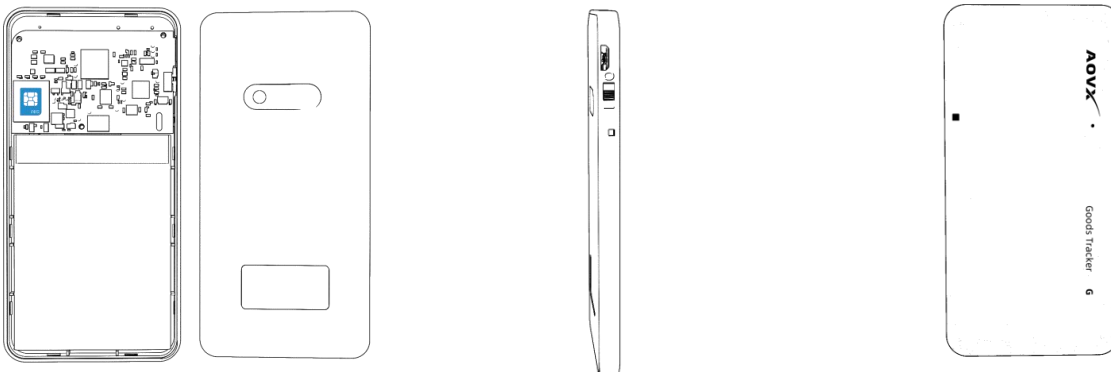


Figure2 Device Manager Inte

4.3. Set your device

4.3.1. Steps for set up

- ① Remove the back cover.
- ② Then insert the **Nano SIM card**;
- ③ Turn the switch to I. Then check the LED light is in normal state. See [LED indicators](#).



4.3.2. Main menu of configuration tool

Open the configuration tool; Select the corresponding COM port; **DeviceInfo** is in the lower left corner of the tool, it shows the **Type**, **IMEI**, **ICCID** and **Version** of the device. Main buttons offer following functionality:

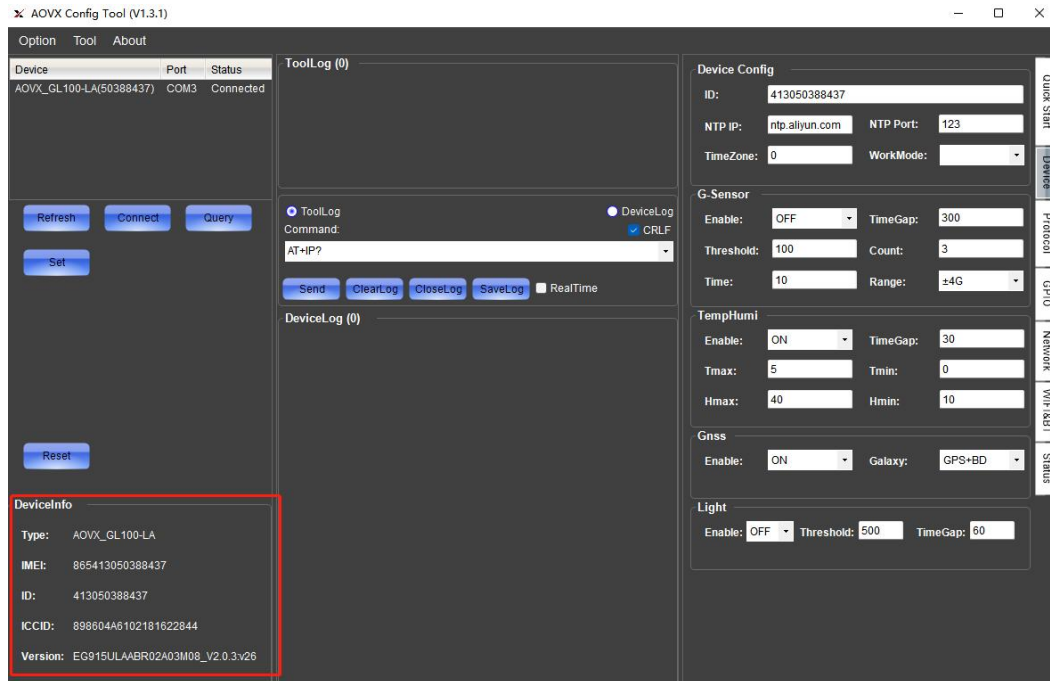













Figure3 Config tool interface

- ①  **Option- Language-** Languages supported by the tool.
View- Check device log or tool log.
Property- Settings of the tool.
- ②  **Tool- Protocol Analyze-** Analyze JT808/T808 protocol.
Power consumption evaluate- Evaluate usage time based on battery capacity, or evaluate battery capacity based on usage time
Download- Loads upgrade package from file..
Import config Information- Import the parameter configuration information of the device
Export config Information- Export device parameter configuration information
- ③  **About- Version-** The version of the tool.
Help- If you need more information contact us here..
- ④  **Refresh-** Refresh the COM port and device information.
- ⑤  **Connect-** Connect/disconnect the COM port.

- ⑥  **Query**- Query the device information.
- ⑦  **Set**- Save configuration to device.
- ⑧  **Reset**- Reset the device.
- ⑨  **Quick start**- Configure Network and Report interval.
- ⑩  **Device config**-configure the device information
- ⑪  **Network config**-configure band and LTE FDD.

4.3.3. Default configuration

Report Interval



ReportInterval:Report:Report every 3600s by default.



Sample:Sampling every 3600s by default.

Device configuration



Work mode*:Optional*



G sensor:Enable:ON TimeGap: 300 Threshold:100 Count:3 Time:10 Range: $\pm 4G$ by default.



Timezone: UTC+0 by default.



GNSS Galaxy: Disable by default.



TempHumi:Enable:ON TimeGap: 60 Tmax:40 Tmin:0 Hmax:50 Hmin:10 by default.



Light: Enable:ON Threshold:500 TimeGap:60s by default.

4.4. APN configuration

Chinese users do not need to configure APN and can directly use the device after insert the nano SIM card.

For overseas customers please confirm the APN with telecommunication operator.

4.4.1. Configure APN by config tool

Configuration process begins by the device to DC power supply and connect to computer via cable.

① Open the **Configure Tool** ,select the right COM port.The device information can be find in the rear left of the tool.

② Configure APN/username/password in the right of the tool, then click **set**.

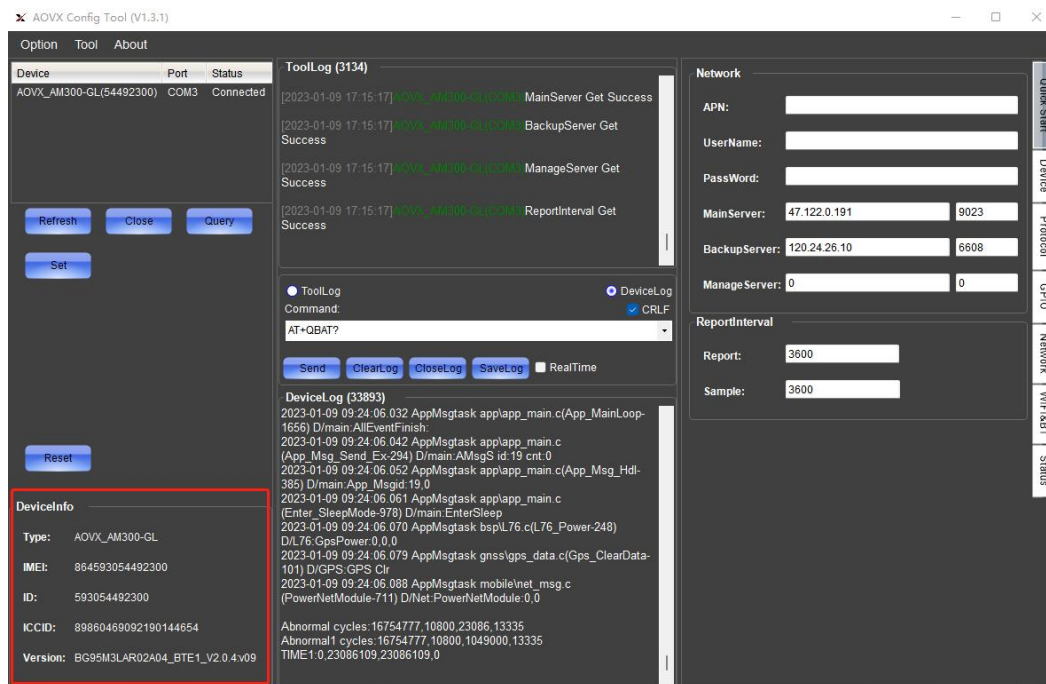


Figure4 Check APN by sending AT command

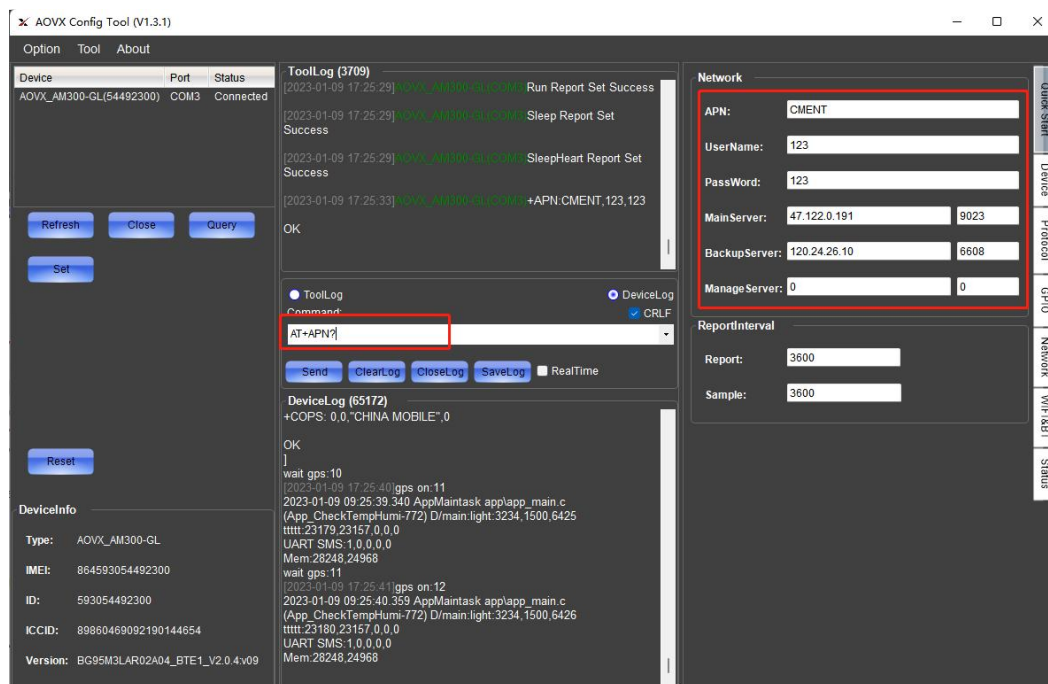


Figure5 Config APN by sending AT commands

③ Send **AT+APN?**, And check the APN.

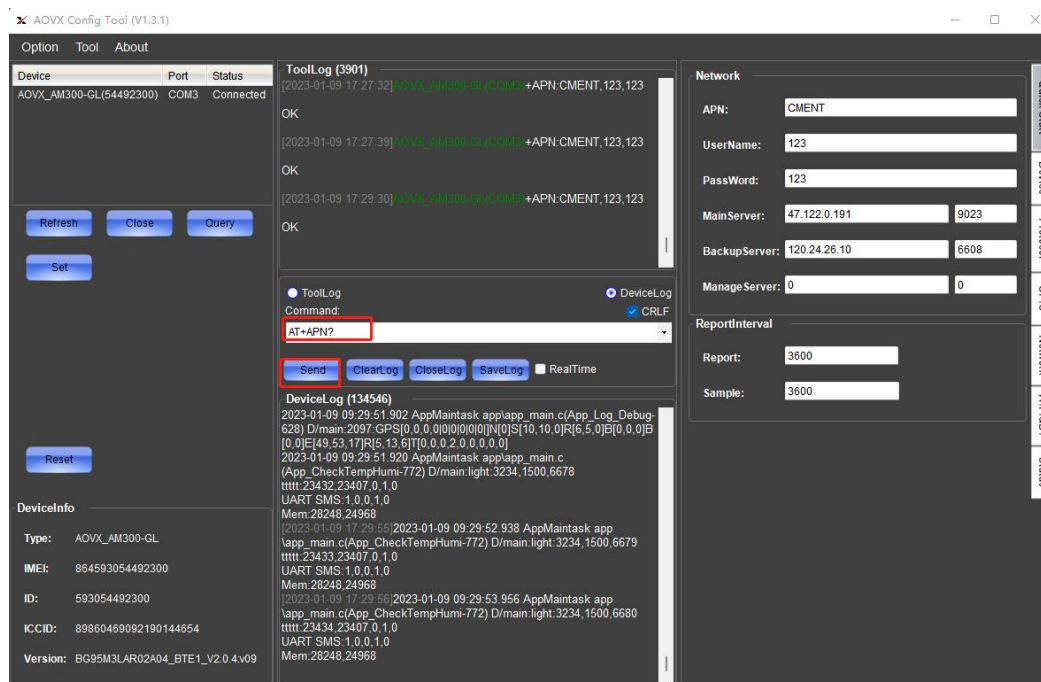


Figure6 Check APN by sending AT command

4.4.2. Configure APN by AT Command

Configuration process begins by the device to DC power supply and connect to computer via cable.

- ① Open the **Configure Tool**, select the right COM port.
- ② Send **AT+APN=<apn>,<name>,<password>**, to the device.

For example:

AT+APN=CMEN,123,123

Then received the reply:

+APN:CMEN,123,123

OK

Configuration explanation:

<apn>:Access point name **<name>**:user name

<password>:usder password

- ③ Send **AT+APN?** to check the APN.

4.4.3. Configure APN by SMS Command



Figure7 Configure APN by sending SMS command

① Make sure the device is online.

② Send **APN=<apn>,<name>,<password>** to the device.

For example:

APN=apn,123,123

Then received the reply:

+

APN=apn,123,123 Configure APN by sending SMS command

③ Send **APN?** to check the APN.



Figure8 Check APN by sending SMS command

4.5. IP configuration

Our devices support JTT/T808 protocol. More details can be found [here](#).

4.5.1. Configure IP by AT Command

① Open configuration tool, make sure the device connects the DC power supply and PC.

② Send **AT+IP=<index>,<ip>,<port>** to the device.

For example:

AT+IP=0,124.223.60.234,60000

Then received the reply:

+IP:0,124.223.60.234,60000

OK

Configuration explanation:

<index>: 0.MainServer 1.BackupServer

<ip>: The IP address of the server <port>:port number

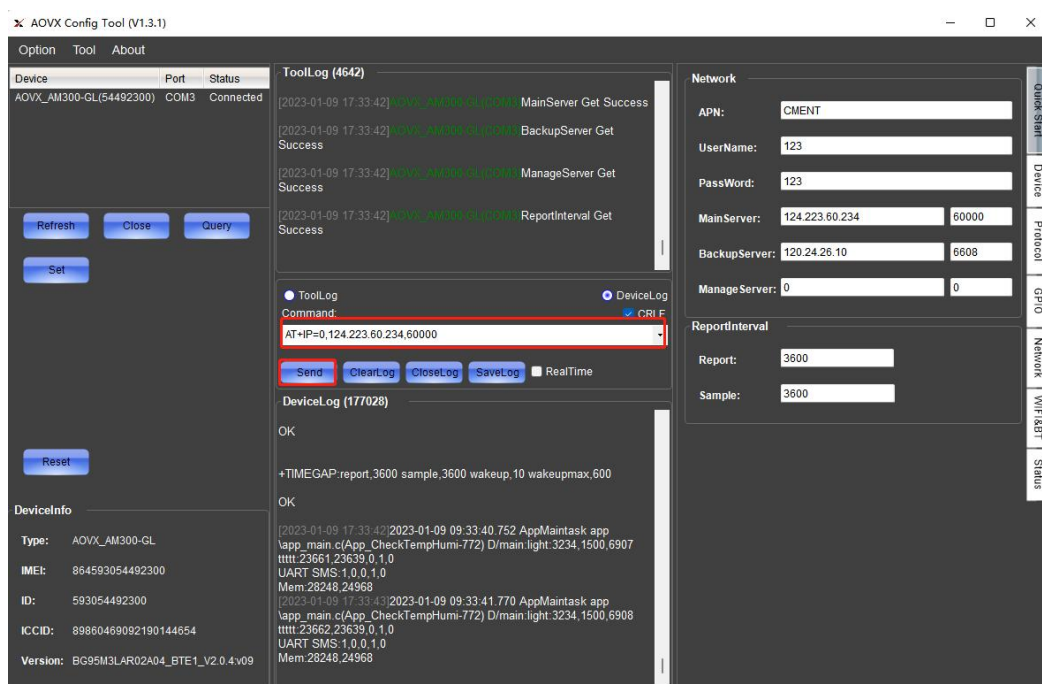


Figure9 Configure IP by sending AT command

③ Send **AT+IP?** to check the IP and port

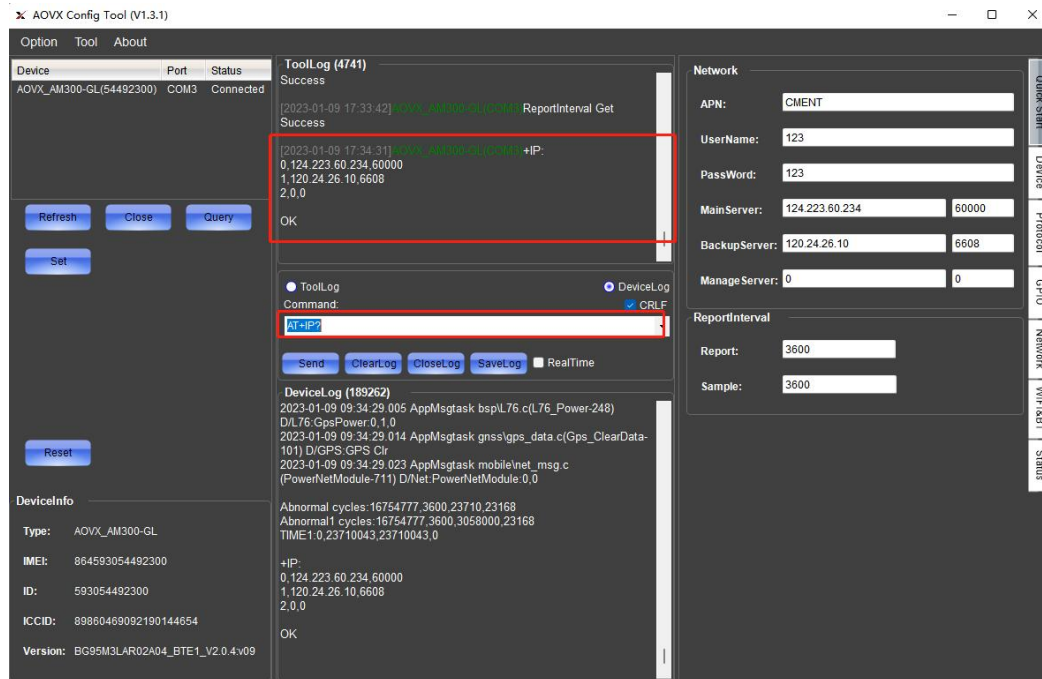


Figure10 Check IP by sending AT command

4.5.2. Configure IP by SMS command

- ① Make sure the device is online.
- ② Send **IP=<index>,<ip>,<port>** to the device.

For example:

IP=0,124.223.60.234,60000

Then received the reply:

+

IP:0,124.223.60.234,60000



Figure11 Configure IP by sending SMS command

③Send **IP=?** to check the IP of the device now.



Figure12 Check IP by sending SMS command

4.6. Report Interval Configuration

4.6.1. Configure Report Interval by config tool

Configuration process begins by the device to DC power supply and connect to computer via cable.

①Open the **Configure Tool**, select the right COM port. The device information can be find in the rear right of the tool.

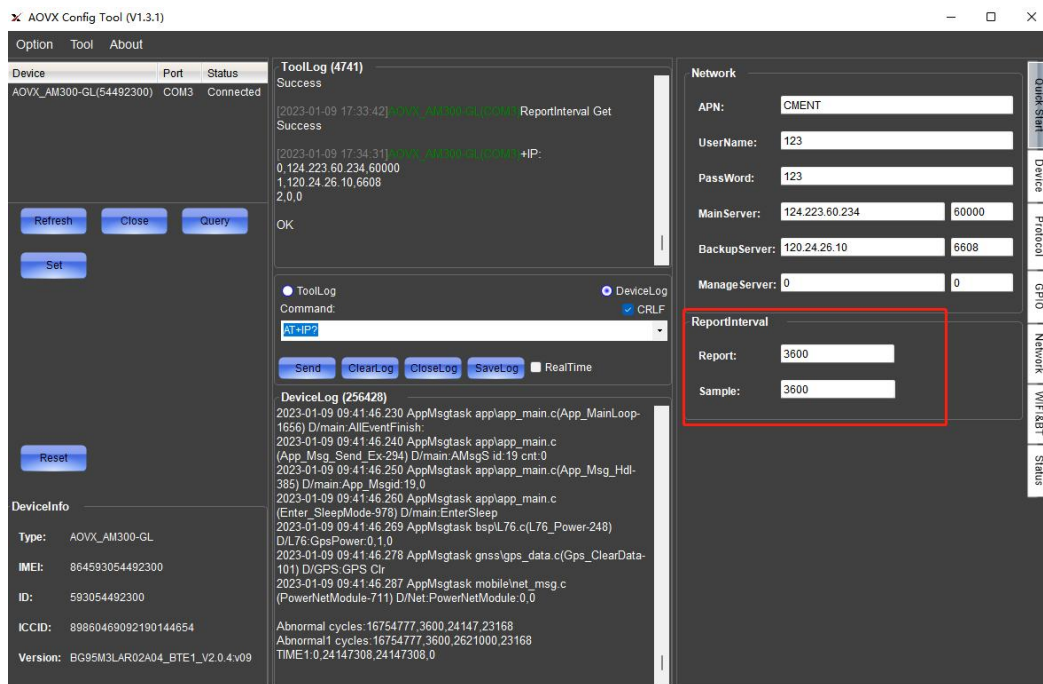


Figure13 Check device information

②Configure the report interval .The unit is seconds.The click **set**.

For example:

Report:3600, Sample:600

Then received the reply:

Run report set success.

Sleep report set success.

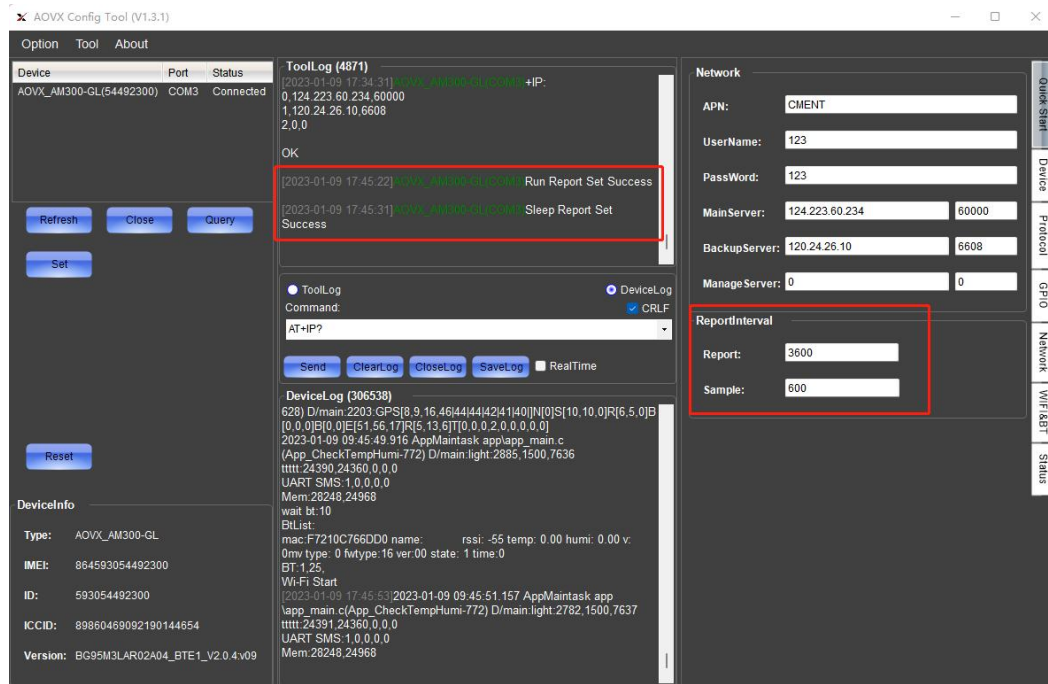


Figure14 Configure report interval by config tool

③ Send **AT+TIMEGAP?** to check the report interval of the device now.

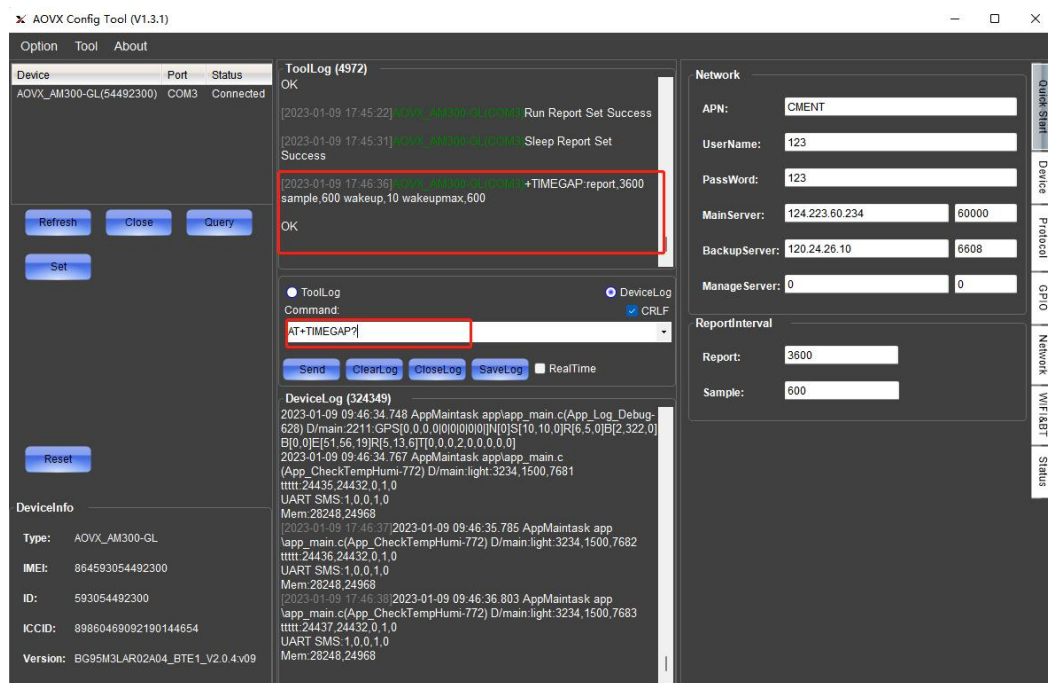


Figure15 Check report interval

4.6.2. Configure Report Interval by AT Command

① Open configuration tool, make sure the device connects the DC power supply and PC.

② Send **AT+TIMEGAP=<index>,<time>**.

For example:

AT+TIMEGAP=0,3600

Then received the reply:

+TIMEGAP report,3600

OK

Configuration explanation:

<Index>: 0:Reporting cycle. 1:Sampling period.

<time>:Sampling or reporting time of the data

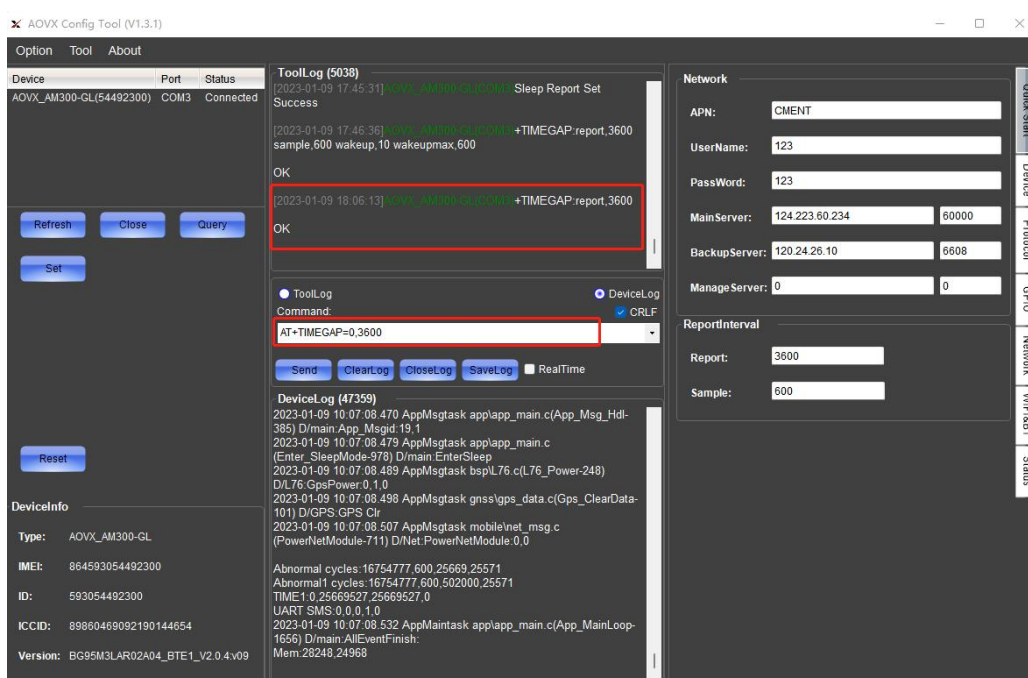


Figure16 Configure report interval by sending AT command

③ Send **AT+TIMEGAP?** to check the report interval of the device now.

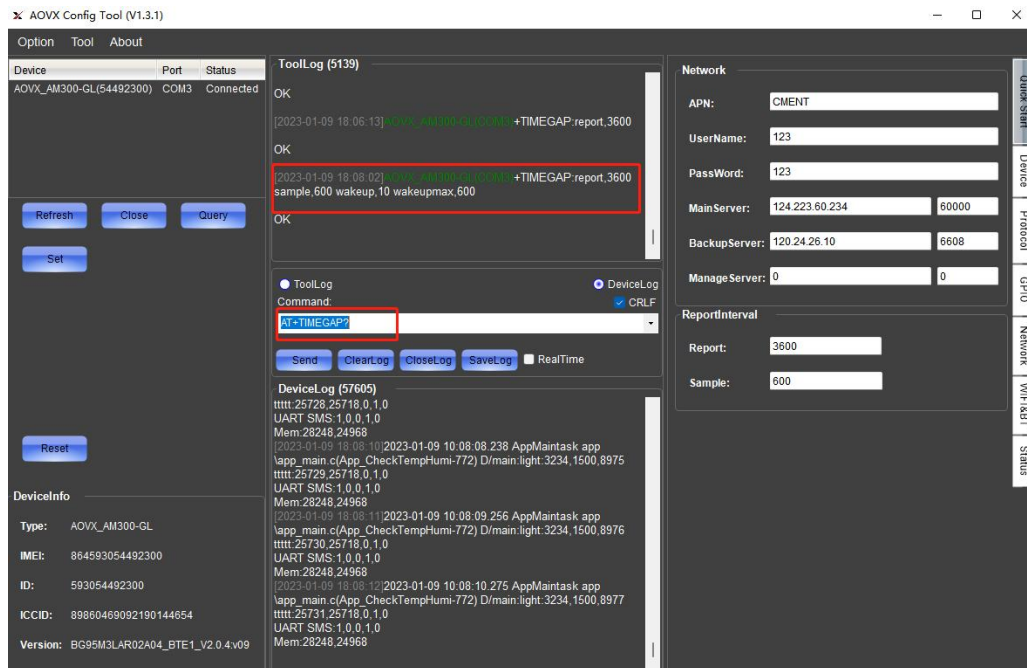


Figure17 Check report interval

4.6.3. Configure Report Interval by SMS Command

- ① Make sure the device is online.
- ② Send **TIMEGAP=<index>,<time>**. Index: 0:Reporting cycle. 1:Sampling period.

For example:

TIMEGAP=0,3600

Then received the reply:

+TIMEGAP:report,3600



Figure18 Configure report interval by sending SMS command

③Send **TIMEGAP?** to check the report interval of the device now.



Figure19 Configure report interval by sending SMS command

4.7. Light parameter configuration

3.7.1. Configure light parameter by Config Tool

Configuration process begins by the device to DC power supply and connect to computer via cable.

①Open the **Configure Tool**, select the right COM port. The device information can be find in the rear right of the tool.

②Configure the Enable Threshold and TimeGap for Light

For example:

Enable:ON, Threshold:500, TimeGap:60

Then received the reply:

LightThreshold Set Success

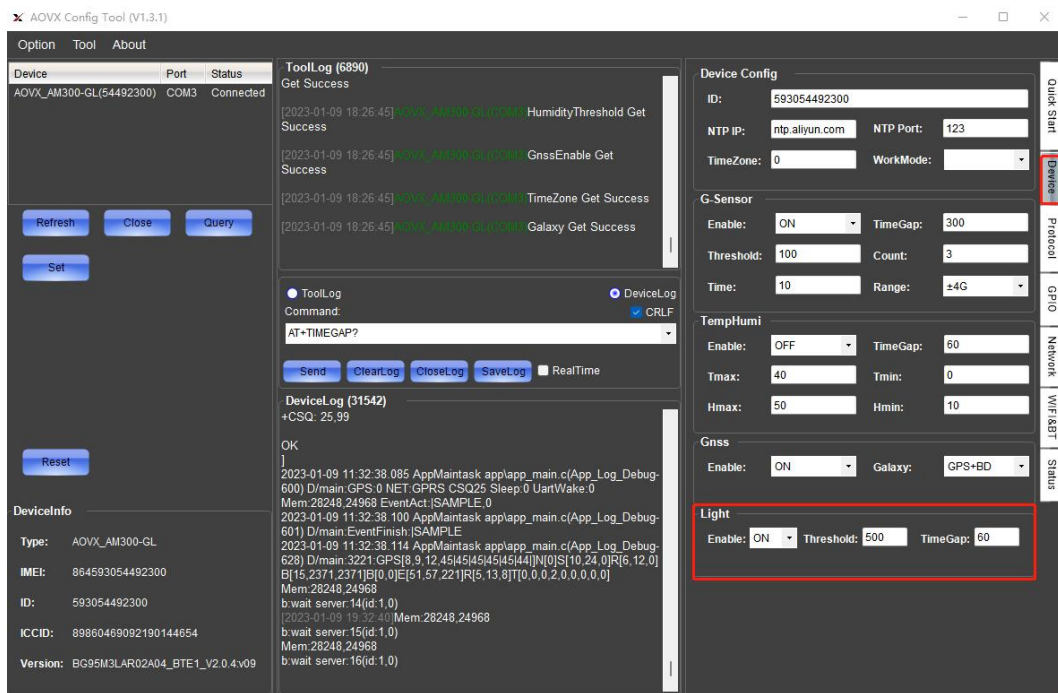


Figure20 Check device information

③Send **AT+LIGHT?** to check the light .

3.7.2. Configure Light by AT Command

①Open configuration tool,make sure the device connect the DC power supply and PC.

②Send **AT+LIGHT=<enable>,<threshold>,<timegap>**.

For example:

AT+LIGHT=1,500,60

Then received the reply:

+LIGHT:1,500,60

OK

Configuration explanation:

<enable>:0.OFF 1.ON (Light sensor switch)

<threshold>:Light threshold (0-1000) (The smaller the threshold, the easier it is to trigger the light alarm)

<timegap>:Light reporting interval (Light alarm trigger interval)

③Send **AT+LIGHT?** to check the light .

3.7.3. Configure Light by SMS Command

- ① Make sure the device is online.
- ② Send **AT+LIGHT=<enable>,<threshold>,<timegap>**.

For example:

LIGHT=1,500,60

Then received the reply:

+

LIGHT:1,500,60



Figure21 Configure Light by sending SMS command

- ③ Send **LIGHT?** to check the light .



Figure22 Configure Light by sending SMS command

4.8. G-sensor parameter configuration

3.8.1 Configure G-sensor parameter by Config Tool

Configuration process begins by the device to DC power supply and connect to computer via cable.

①Open the **Configure Tool**,select the right COM port.The device information can be find in the right of the tool.

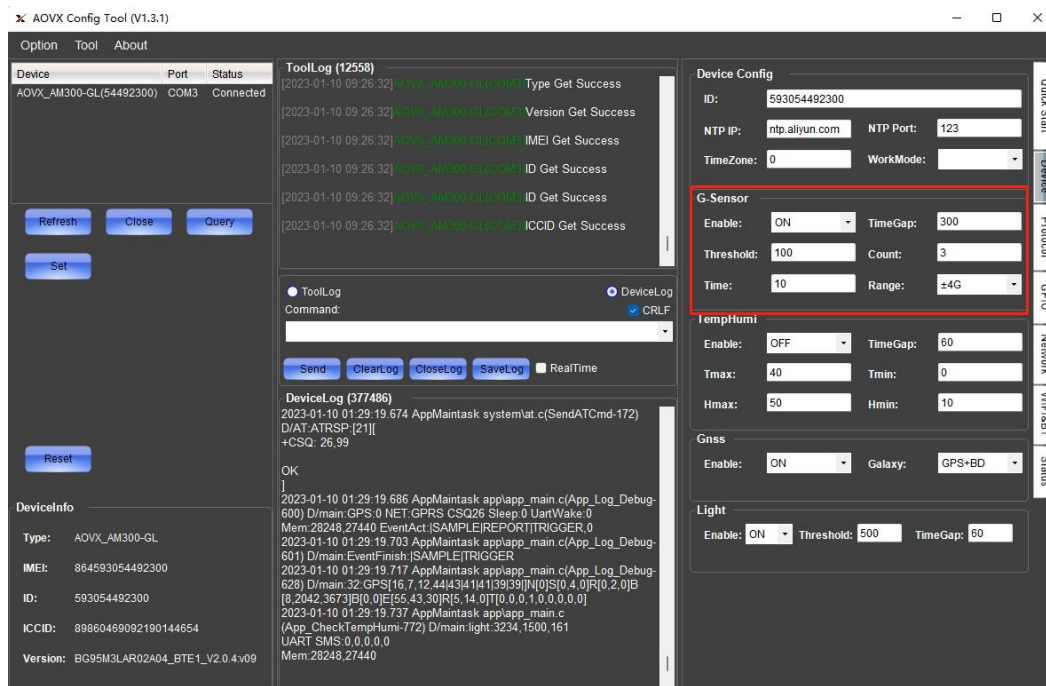


Figure23 Check device information

②Configure the Enable and parameter for G-Sensor

For example:

Enable:ON,Range:2G, Threshold:100

Count:3,Time:10,TimeGap:300

Then received the reply:

(Please click Set on the left after configuring the parameters)

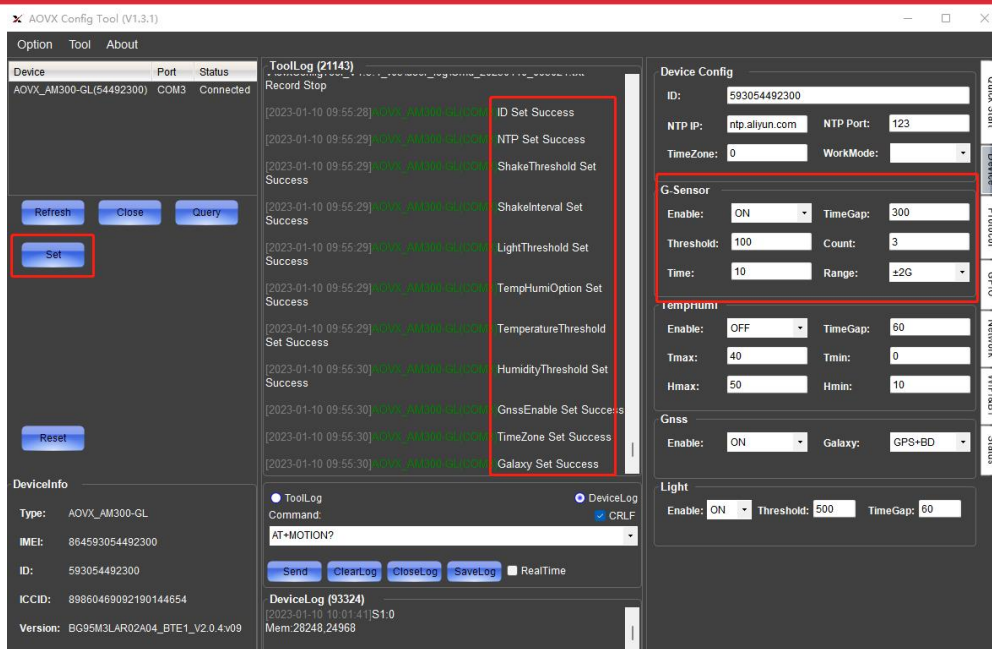


Figure24 Configure G-Sensor by config tool

③Send **AT+MOTION?** And **AT+VIBPARAM?** to check the G-Sensor

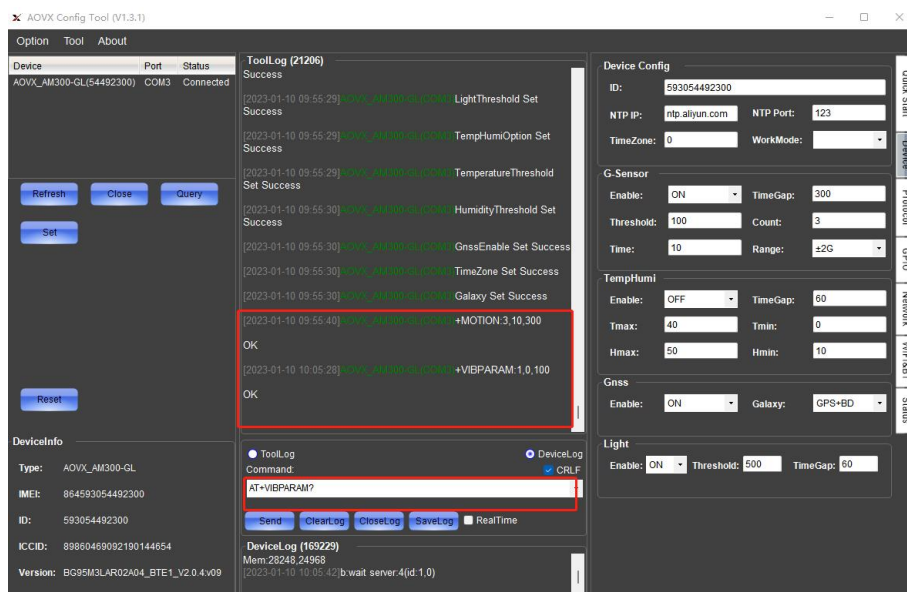


Figure25 Check G-Sensor interval

3.8.2 Configure G-Sensor by AT Command

①Open configuration tool,make sure the device connect the DC power supply and PC.

②Send **AT+MOTION=<count>,<time>,<timegap>**.

AT+VIBPARAM=<enable>,<range>,<sensitivity>

For example:

AT+VIBPARAM=1,0,100

Then received the reply:

VIBPARAM:1,0,100

OK

For example:

AT+MOTION=3,10,300

Then received the reply:

MOTION:3,10,300

OK

Configuration explanation:

<enable>:0.OFF 1.ON (OFF/ON G-Sensor acceleration)

<range>:0.2G 1.4G 2.8G 3.16G(Gravitational

<sensitivity>:0-255(Sensitivity of equipment to vibration)

<count>: Vibration frequency of equipment monitors the number of vibrations

<time>: The time range over which the device

<timegap>:The period during which the device is triggered by vibration

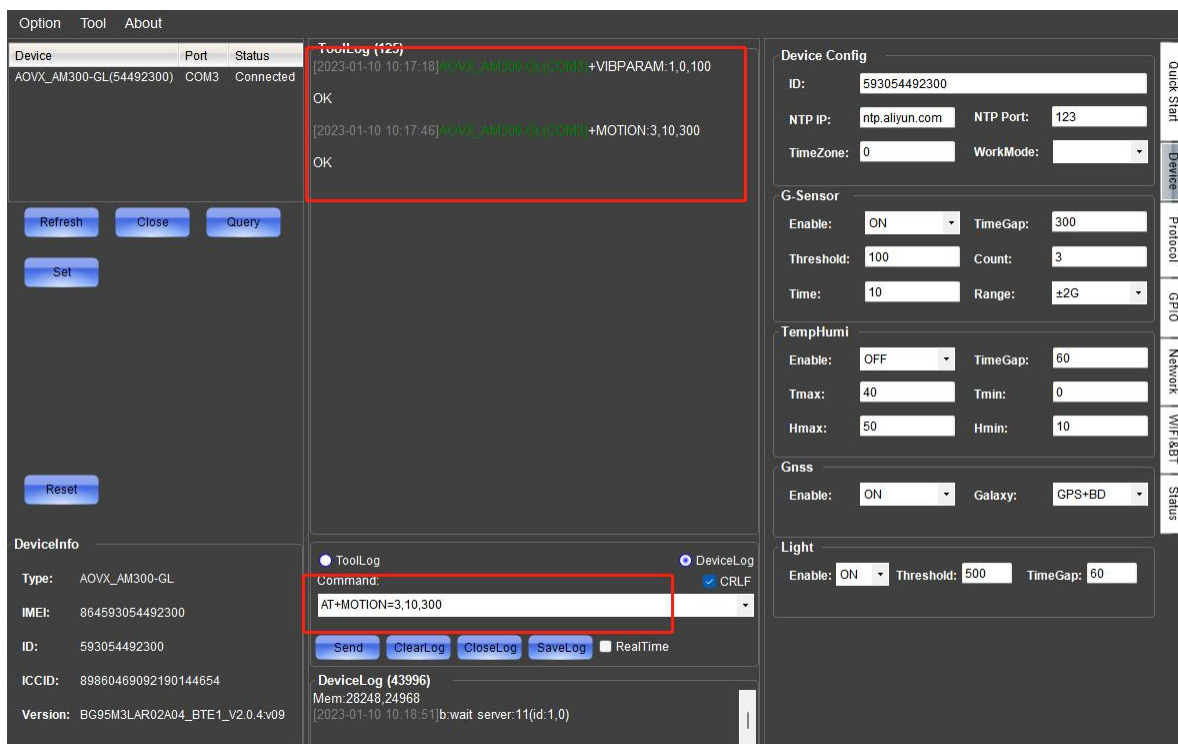


Figure26 Configure G-Sensor by sending AT command

③Send **AT+MOTION?** And **AT+VIBPARAM?** to check the G-Sensor

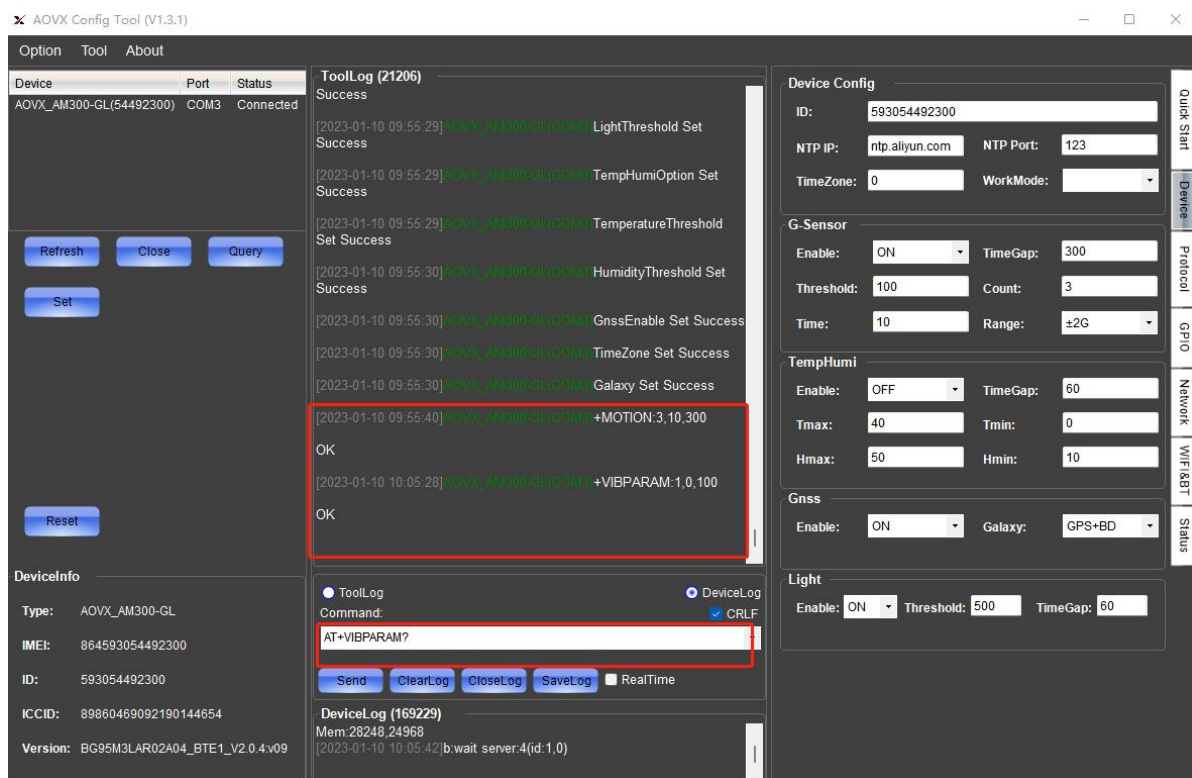


Figure27 Check G-Sensor interval

4.8.1. Configure G-Sensor by SMS Command

- ① Make sure the device is online.
- ② Send **AT+MOTION=<count>,<time>,<timegap>**.

AT+VIBPARAM=<enable>,<range>,<sensitivity>

For example:

VIBPARAM=1,0,100

MOTION=3,10,300

Then received the reply:

+

VIBPARAM:1,0,100

+

MOTION:3,10,300

- ③ Send **MOTION?** and **VIBPARAM?** to check the G-Sensor



Figure28 Configure G-Sensor by sending SMS command



Figure29 Configure G-Sensor by sending SMS command

4.9. TempHumi parameter configuration

3.9.1 Configure TempHumi parameter by Config Tool

Configuration process begins by the device to DC power supply and connect to computer via cable.

①Open the **Configure Tool**,select the right COM port.The device information can be find in the right of the tool.

②Configure the Enable and parameter for TemoHumi

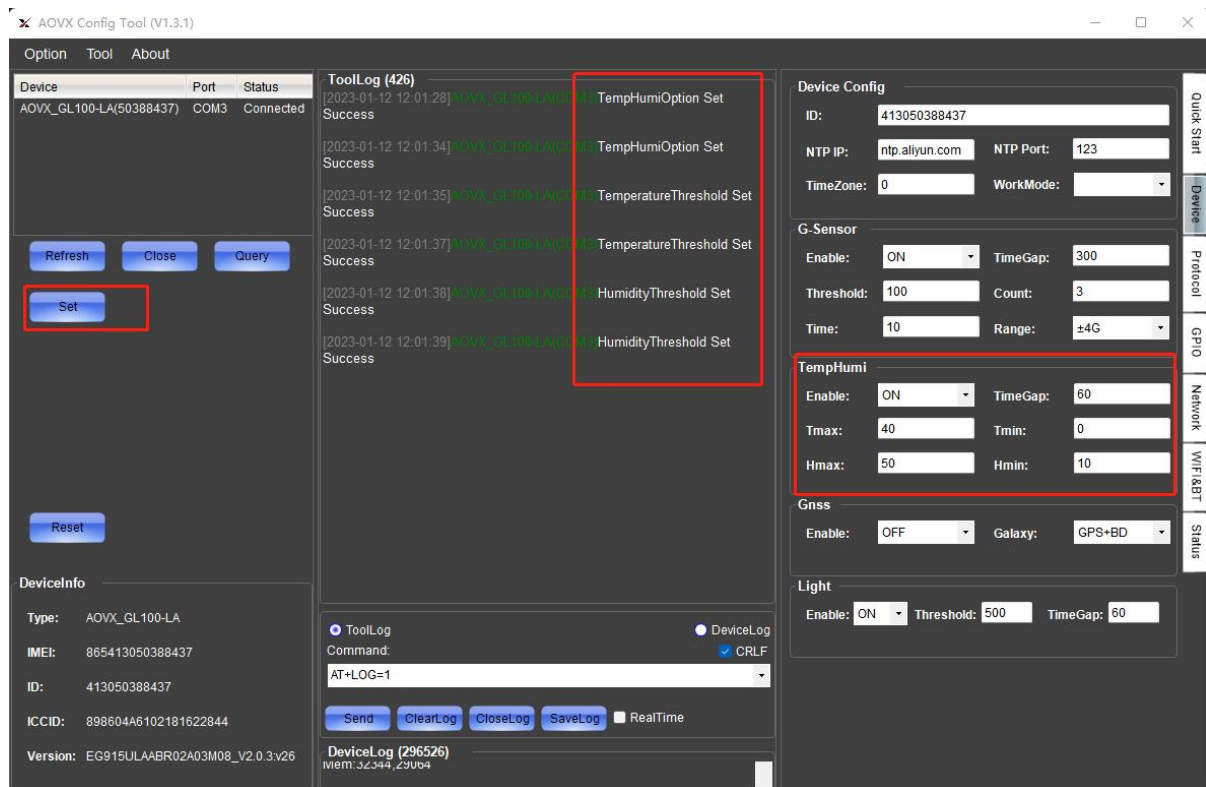


Figure30 Check TempHumi interval

For example:

Enable:ON,TimeGap:60

Tmax:40,Tmin:0

Hmax:50,Hmin:10

Then received the reply:

(Please click Set on the left after configuring the parameters)

③Send **AT+TEMPHUMI? AT+TEMPRANGE? And AT+HUMIRANGE?** to check the TEMPHUMI

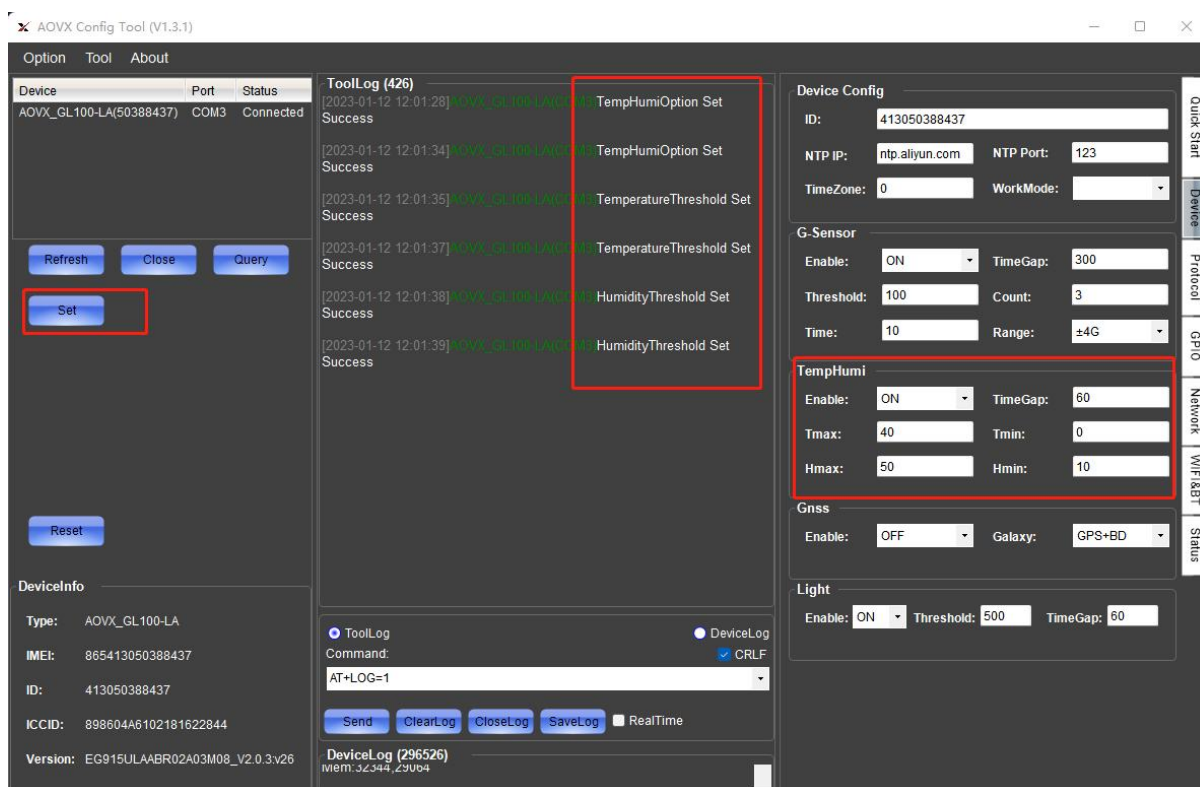


Figure31 Check TempHumi interval

3.8.2 Configure TempHumi by AT Command

①Open configuration tool,make sure the device connect the DC power supply and PC.

②Send **AT+TEMPHUMI=<enable>,<timegap>**

AT+TEMPRANGE=<tmax>,<tmin>

AT+HUMIRANGE=<hmax>,<hmin>

For example:

AT+TEMPHUMI=1,120

Then received the reply:

+TEMPHUMI:1,120

OK

For example:

AT+TEMPRANGE=50,0

Then received the reply:

+TEMPRANGE:50,0

OK

For example:

AT+HUMIRANGE=80,10

Then received the reply:

+HUMIRANGE:80,10

OK

Configuration explanation:

<enable>:0.OFF 1.ON (OFF/ON TEMPHUMI)

<timegap>:The interval at which temperature or humidity is triggered

<Tmax>: Maximum temperature

<Tmin>:Minimum temperature

<Hmax>: Maximum humidity

<Hmin>:Minimum humidity

③Send **AT+TEMPHUMI?**、**AT+TEMPRANGE?** And **AT+HUMIRANGE?** to check the TEMPHUMI

4.9.2. Configure TEMPHUMI by SMS Command

①Make sure the device is online.

②Send **TEMPHUMI=<enable>,<timegap>**

TEMPRANGE=<tmax>,<tmin>

HUMIRANGE=<hmax>,<hmin>

For example:

TEMPHUMI=1,60

Then received the reply:

+

TEMPHUMI:1,60

For example:

TEMPRANGE=40,0

Then received the reply:

+

TEMPRANGE:40,0

For example:

HUMIRANGE=50,10

Then received the reply:

+

HUMIRANGE:50,10

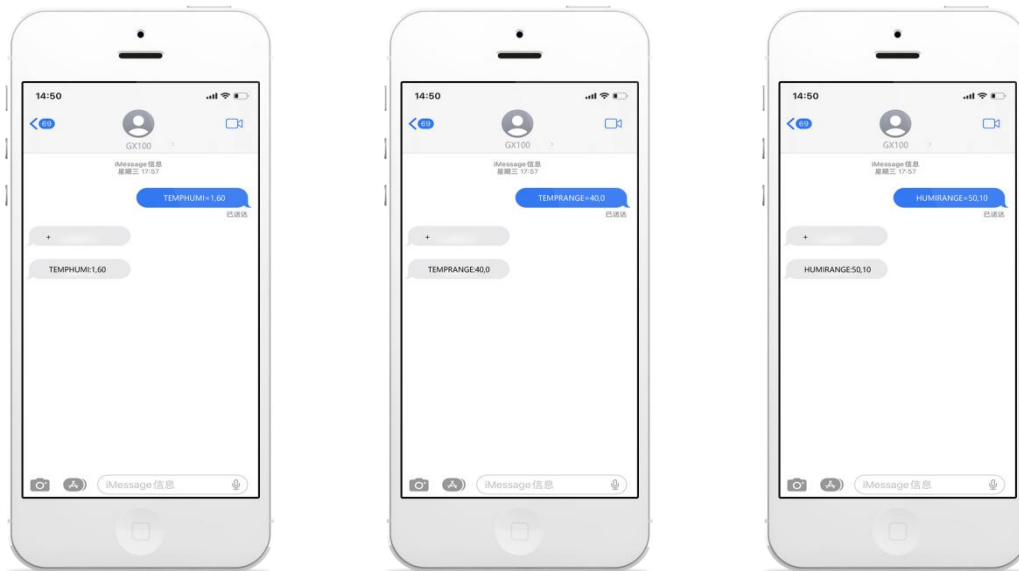


Figure32 Configure TempHumi by sending SMS command

③ Send **TEMPHUMI?** **TEMPRANGE?** And **HUMIRANGE?** to check the TEMPHUMI

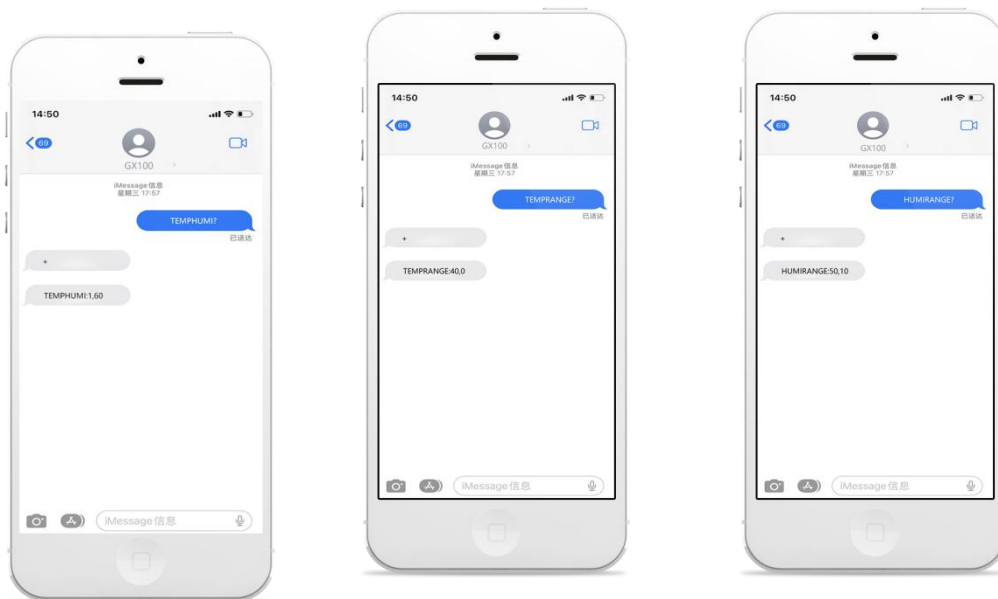


Figure33 Configure TempHumi by sending SMS command

5. Firmware Upgrade

5.1. OTA Upgrade

5.1.1. Third Party or Customer Owned Platform

For third-party or customer owned platforms, please refer to **Product protocol integration guidance**

5.1.2. Aovx Platform

If you need to use the Aovx platform for OTA upgrade, You can use the AT instruction to upgrade.

Open a link: <https://icloud.jointcontrols.com>

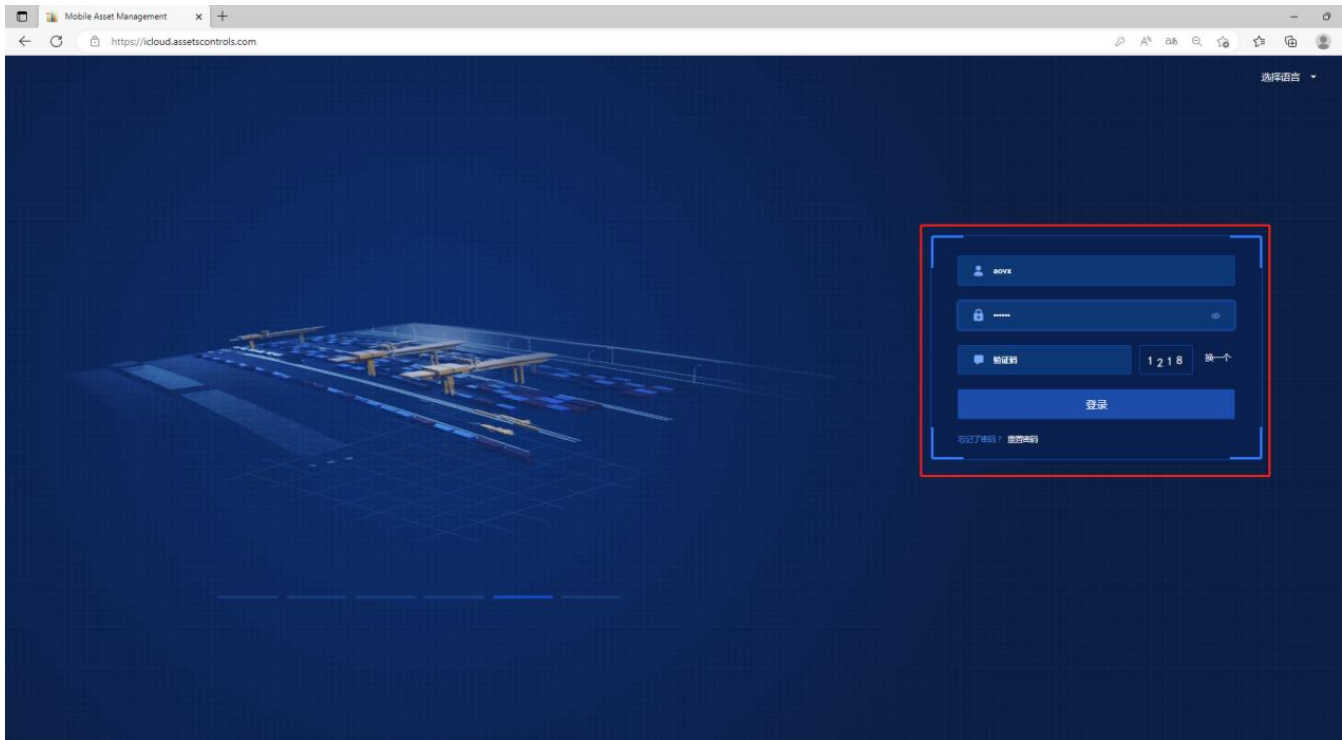


Figure34 Platform login interface

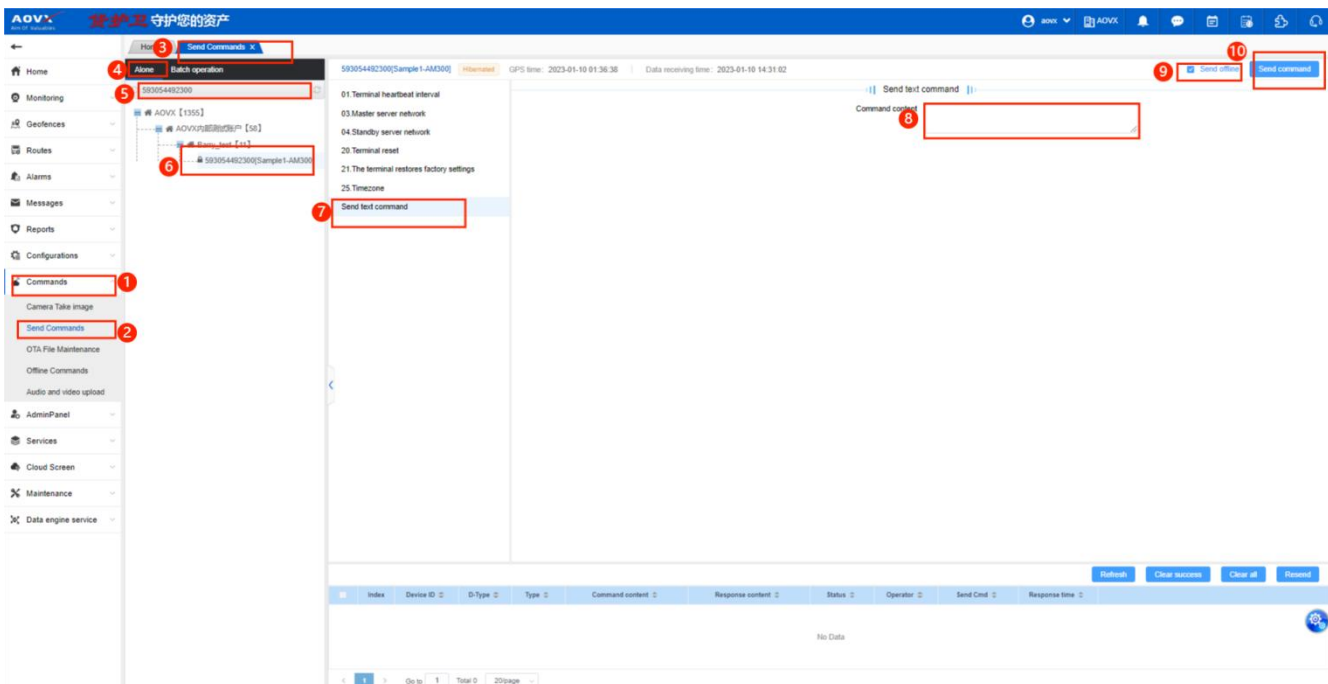


Figure35 AT command configuration interface

1. Select Commands
2. Select Send Commands
3. Select the Send Commands window on the right
4. Choose Alone

5. Enter the device ID
6. Select the device to be upgraded
7. Select Send text command on the right
8. Enter the AT command to configure the firmware upgrade:

AT+FOTA=[type],[version],[url]

type: 0:update app 1:update core

version:It can be ignore if the “url”include the version.

url:full http url for fota

Eg:

AT+FOTA=0,AOVX_GX100-XX_H2.0_V2.0.3_v26.bin,http://47.122.0.191:8080/file/Firmware_Jt808_AOVX/20230105/AOVX_GX100-XX_H2.0_V2.0.3_v26.bin

9. Select Send offline
10. 10. Send command

Note: If you need to use this server for remote instruction configuration, just replace the AT command in Step 8 with the command you need to use

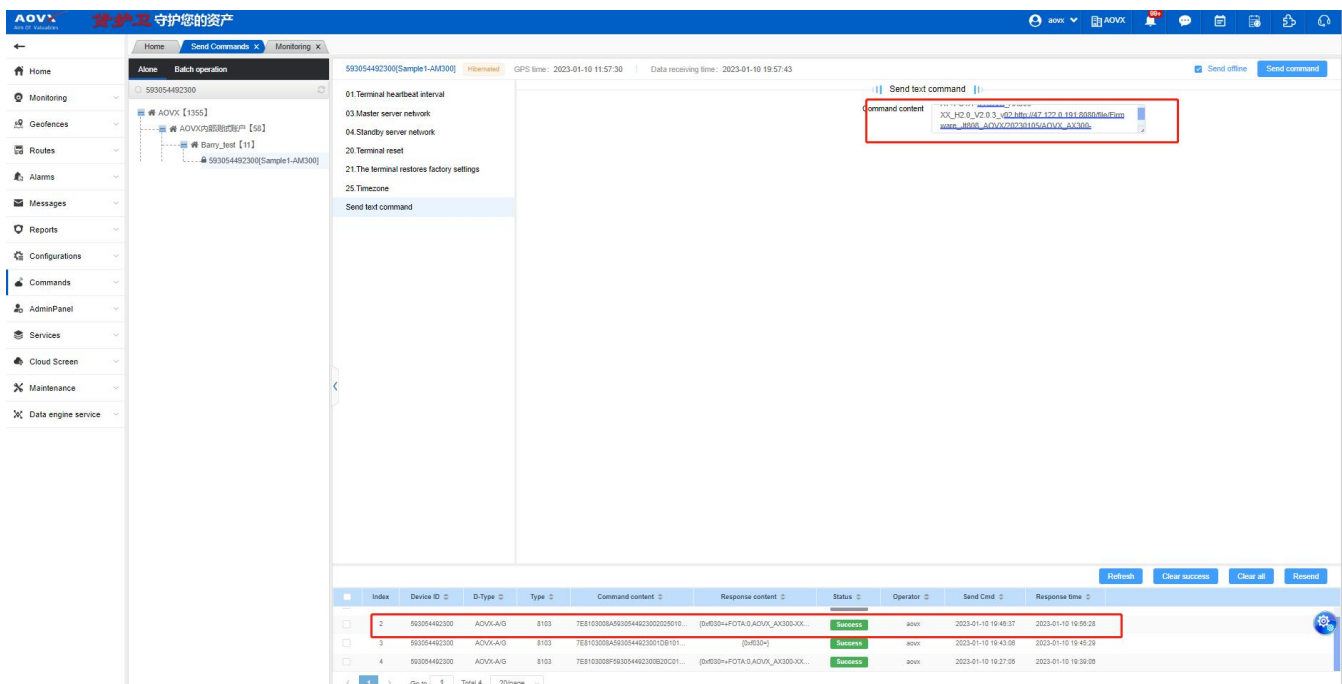


Figure36 OTA upgrade success page

5.2. Local Upgrade

5.2.1. The device and fittings



GM100/GL100

GG100*

USB to serial
port cable**Config Tool**

5.2.2. Upgrade Steps

- ① Power on the device and connect to computer via USB cable.
- ② Open the **Config Tool** and choose the right port.
- ③ Click **Tool-Download** in the top left corner of the tool.

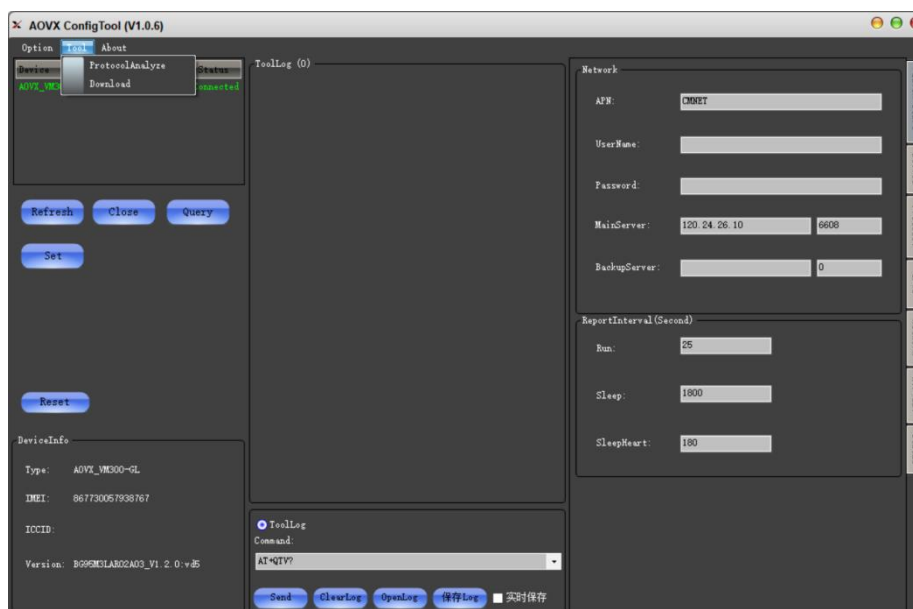


Figure37 Firmware upgrade interface

- ④ Click **here** to find the latest firmware. Click Browse and choose the latest upgrade package, then click **Download**.

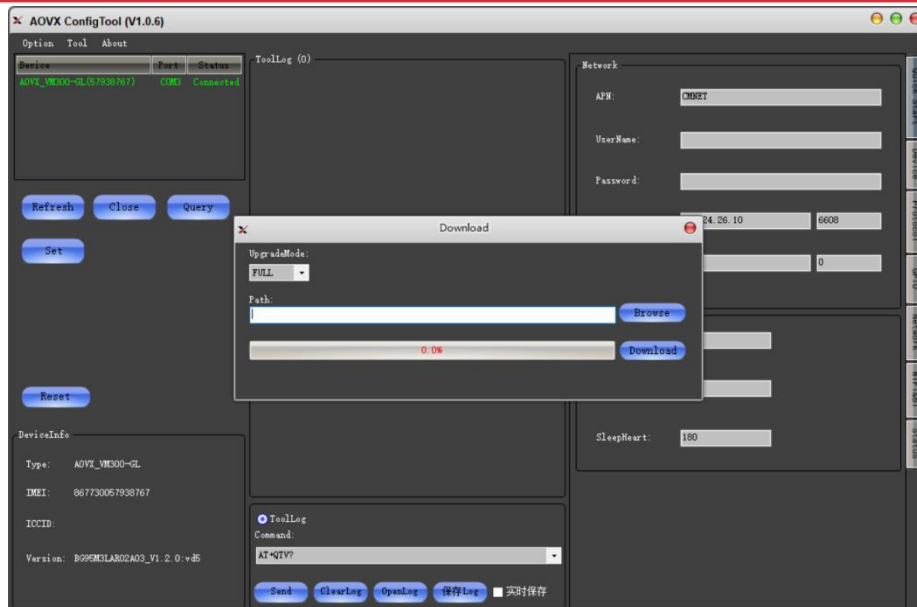


Figure38 Download firmware

⑤Wait for the progress becomes 100% and says **Download success**. It means the upgrade is complete.

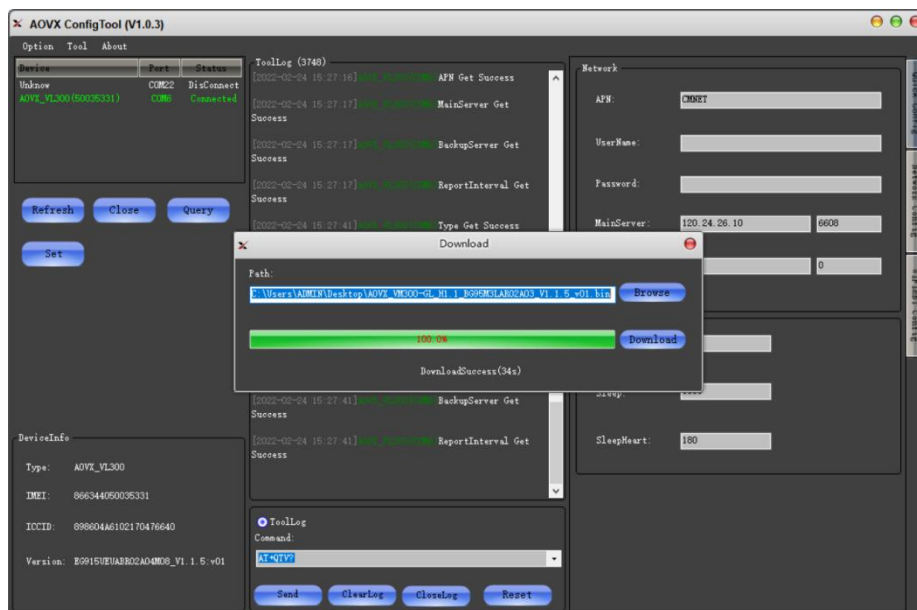


Figure39 Upgraded success interface

⑥Reset the device.

⑦Check the version of the device. The version is in the left corner of the tool. It also can be checked by sending AT+QTV?

6. Installation

G Series devices can be placed in the goods that need to be tracked.

7. FAQ

7.1. Unable to Register

Question1: The SIM card is not installed properly or loose / there is dirt on the metal surface of the SIM card / the SIM card is damaged or invalid

Solution1: Check SIM card, and reinstall / please wipe it with a clean cloth / replace the valid SIM card.

Question2: Beyond the operator's service area

Solution2: Please move the device to the service area of the network service provider or change local SIM card.

Question3: No APN configured or APN configured incorrectly

Solution3: Ask the operator about the APN, username and password of the SIM card then configured them by config tool.

Question4: Determine whether there is a problem with the SIM.

Solution4: You can replace your own mobile phone card for verification.

Question5: Test if the SIM card is identified.

Solution5:AT+CMD=AT+CPIN?

If identified, the device will reply with :

+CPIN: READY

OK

Question6: Determine if the SIM has a user name and a password.

Solution6:Check with your carrier.

Question7: Determine the SIM card operator and ask if it is a directional card.

Solution7:If it is a directional card, you need to add our website to the whitelist of the SIM card.

Question8:View the SIM card injection network situation.

Solution8:AT+CMD=AT+CGREG? or AT+CMD=AT+CEREG?

If identified, the device will reply with :

+CGREG: 0,1 or +CEREG: 0,1

OK

7.2. Unable to use the config tool



Figure40 USB serial cable

1. It is recommended to use the USB serial port cable provided by our company. Please confirm the line sequence is correct when you are using other USB cable.
2. If you still cannot display any devices after waiting for one minute, click refresh.
- 3 Install USB driver, more details please find here.

7.3. Config tool connect Fail

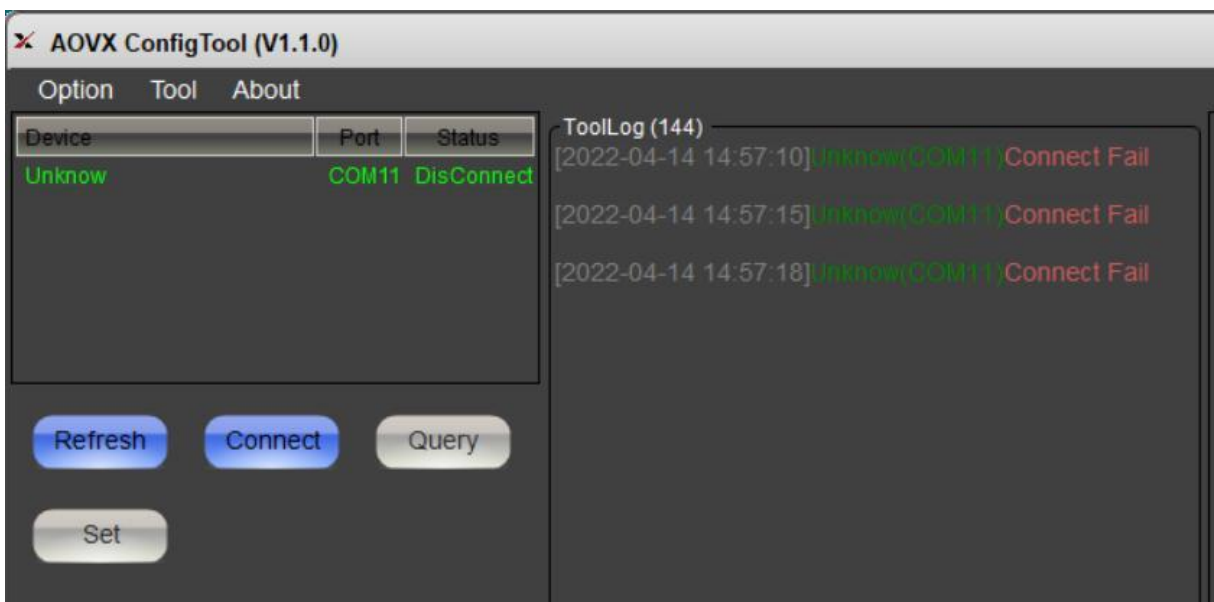


Figure41 Connect fail interface

There should be disconnect the device or the COM port has been occupied. Please reconnected the device or

closed all other com port related applications.

7.4. Device status

Question1:When is a message transmitted, if the device moves, if the device does not move ?

Solution1:When the device is at rest, it will report the information of the device according to the configured reporting period and sampling period,

For example:

The reporting period of the device is one hour, and the sampling period is 10 minutes. When the device is abled, the device reports six samples of device information every hour.When the device detects illumination or vibration beyond the threshold, a conditional trigger is generated and reported to the server.When the device is moving, the reporting cycle/sampling cycle and trigger condition are the same as that of the stationary one (it is recommended to turn off the enable of the G-sensor at this time, otherwise the vibration trigger will occur frequently).

Question2:What is the use of the WiFi ?

Solution2:It's used to locate the device.

Question3:Can we change the priority of WiFi vs GNSS for geolocation?

Solution3:GNSS location information is more accurate when the device is outdoors, WiFi and GNSS have no priority, their location information is not in the same field.