Cassia Network M2000 Compact Cellular Bluetooth Gateway User Manual

Contents

Cassia Network M2000 Compact Cellular Bluetooth Gateway

Overview

M2000 is a compact Bluetooth gateway that supports 4G and Wi-Fi connectivity. It is easy to install and use and has excellent Bluetooth performance. Additionally, it is cost-effective, stable, secure, and scalable. M2000 is part of Cassia Network's enterprise-level Bluetooth gateways and can be managed through the Cassia Network's Access Controller (AC). M2000 is ideal for situations that require mobility and rapid deployment, but do not need high Bluetooth device density. It is commonly used for monitoring mobile vital signs, remote healthcare at home, and for monitoring vehicle assets. Moreover, M2000 has robust applications in supply chain management and for people and asset tracking on campuses and medical institutions.

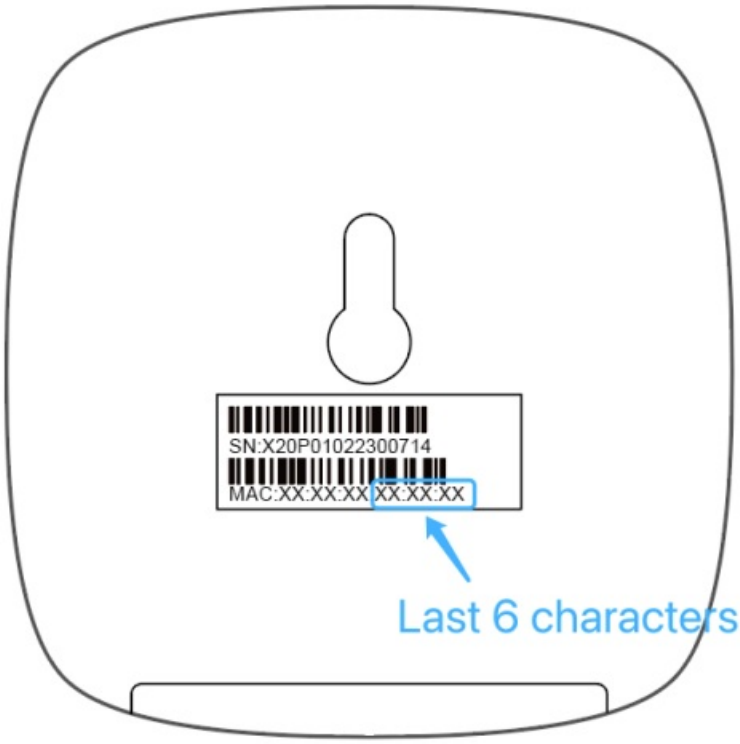
Notes for the M2000 official version:

- SIM card is not included in the M2000.
- The cellular connection with NB-IOT has minimal bandwidth (<5Kbps) and high network latency (1.6s-10s), so M2000 firmware will need to be further customized in the future to work in this case.
- AC software must be upgraded to the Cassia-AC-2.2.0.24 version to support M2000.
- AC software and M2000 firmware are available at: **https://www.cassianetworks.com/support/knowledge-base/**
- M2000 GA firmware cannot be upgraded on M2000 beta hardware.

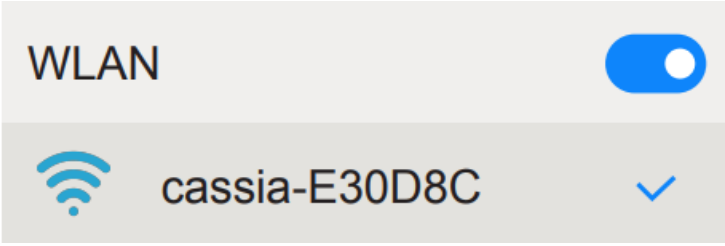
Local Console

Login

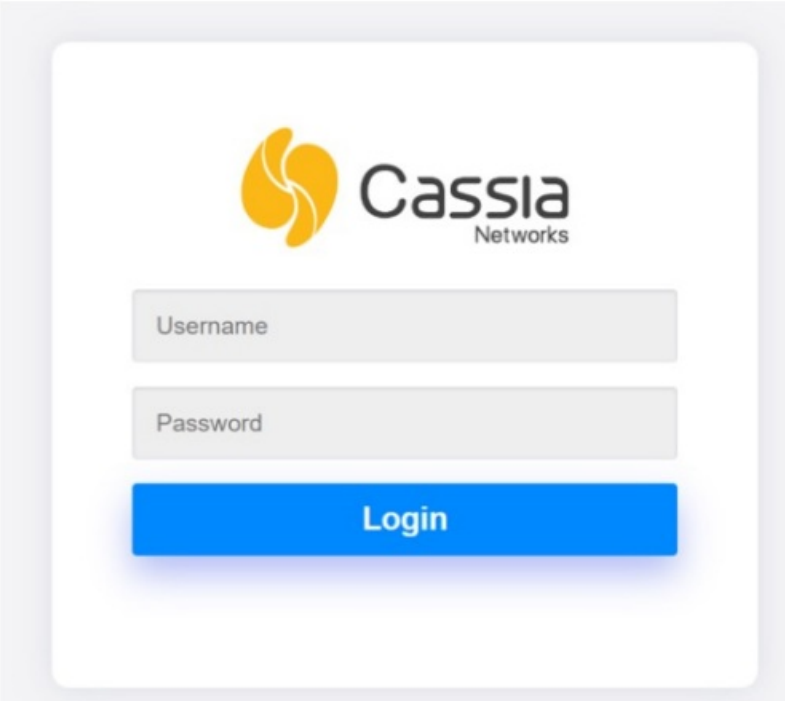
1. Please record the last six digits of the MAC address on the back of the M2000 chassis.



2. Connect to the M2000's Wi-Fi hotspot using a computer or mobile phone.
    - The hotspot's name is cassia-xxxxxx.
    - The password is the same as the name, cassia-xxxxxx xxxxxx is the last six digits of the M2000's MAC address.
    - For instance, if the MAC address of an M2000 is CC:1B: E0:E3:0D:8C, both the Wi-Fi hotspot name and password are cassia-E30D8C.

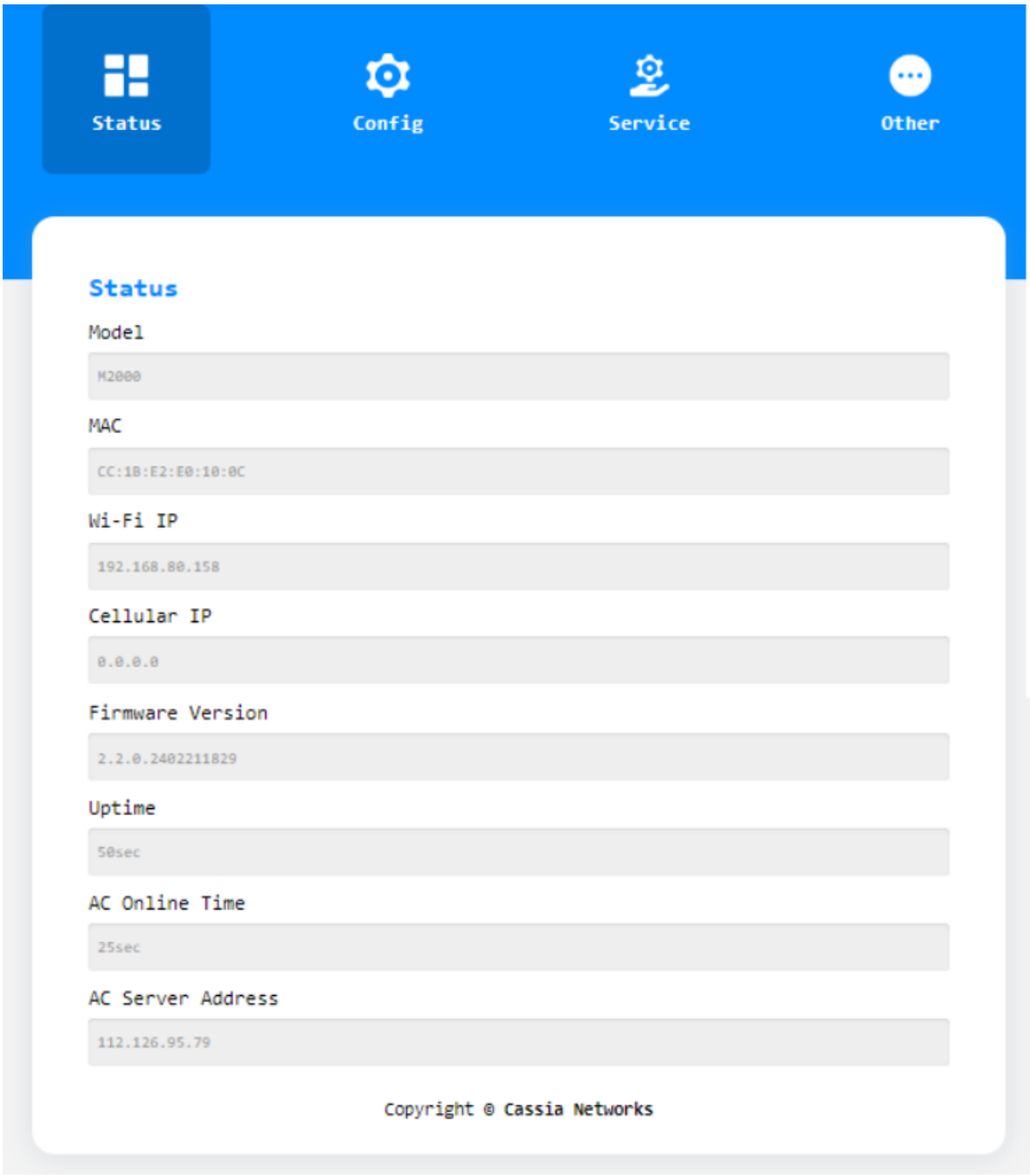


3. After connecting to the M2000's Wi-Fi hotspot, open a web browser and enter 192.168.40.1 into the address bar. You will be prompted to enter a username and password. The default username is admin, and the password is admin.



Status

1. Upon successful login, you will be able to view the basic M2000 information on the ‘Status’ page, including its MAC address and IP address.



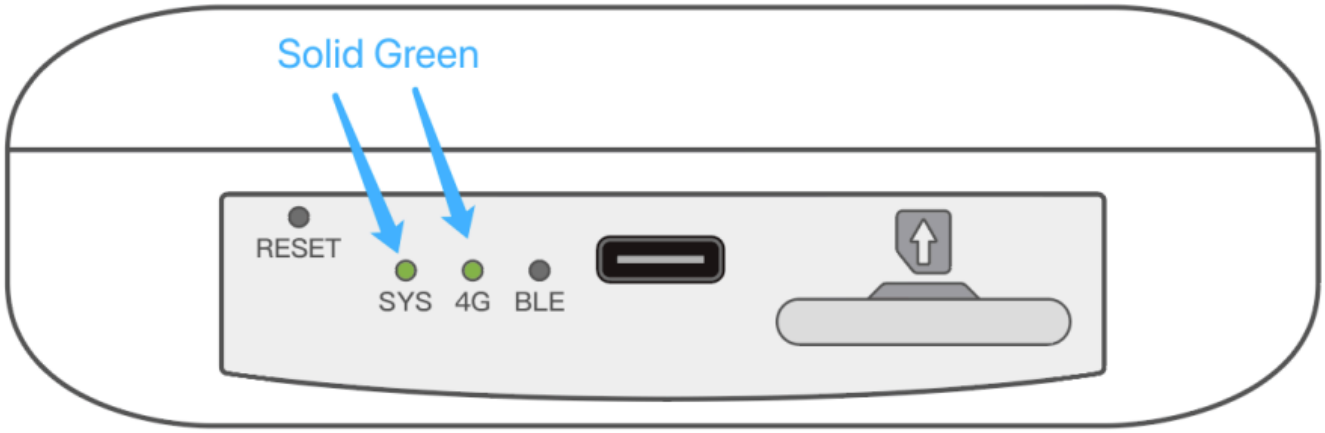
Configuration

Using 4G to connect to the network

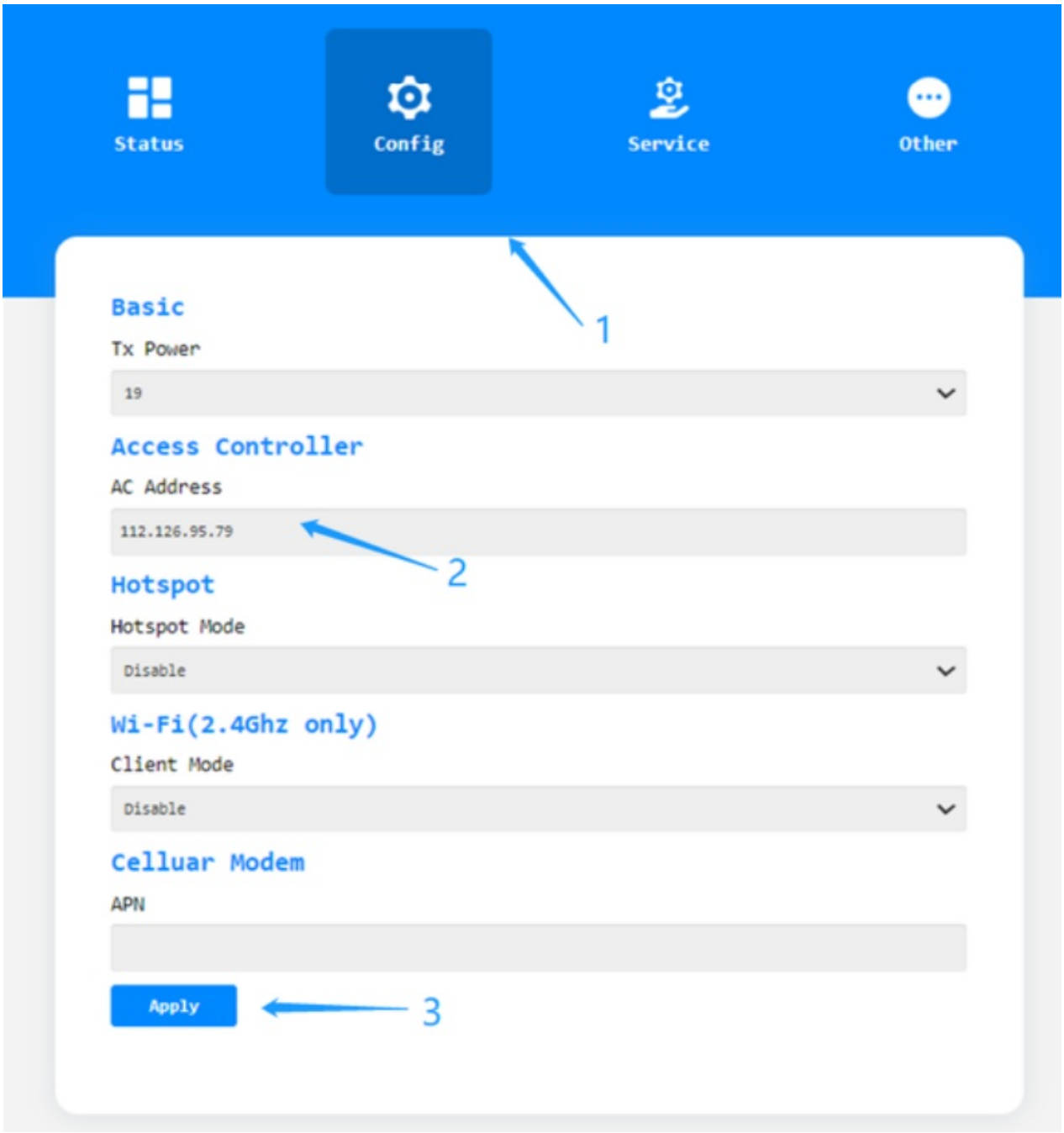
1. **Insert the Micro SIM card into the M2000.**

   Refer to the diagram below. Make sure that the beveled corner of the SIM card is facing the lower left corner.

2. **Connect the USB power supply to the M2000.**
   After 30 seconds, the M2000 will finish booting up and connect to the carrier's 4G network. The SYS light and 4G light will both turn solid.



3. **To connect with the AC server, go to the Configuration page on the M2000 local console.**
   Enter the AC address (only AC version Cassia-AC-2.2.0.24 supports M2000) and click Apply. The AC version is available at: https://www.cassianetworks.com/support/knowledge-base/ac-server-software/



Please get in touch with your AC administrator to check if the M2000 is showing online on the AC.

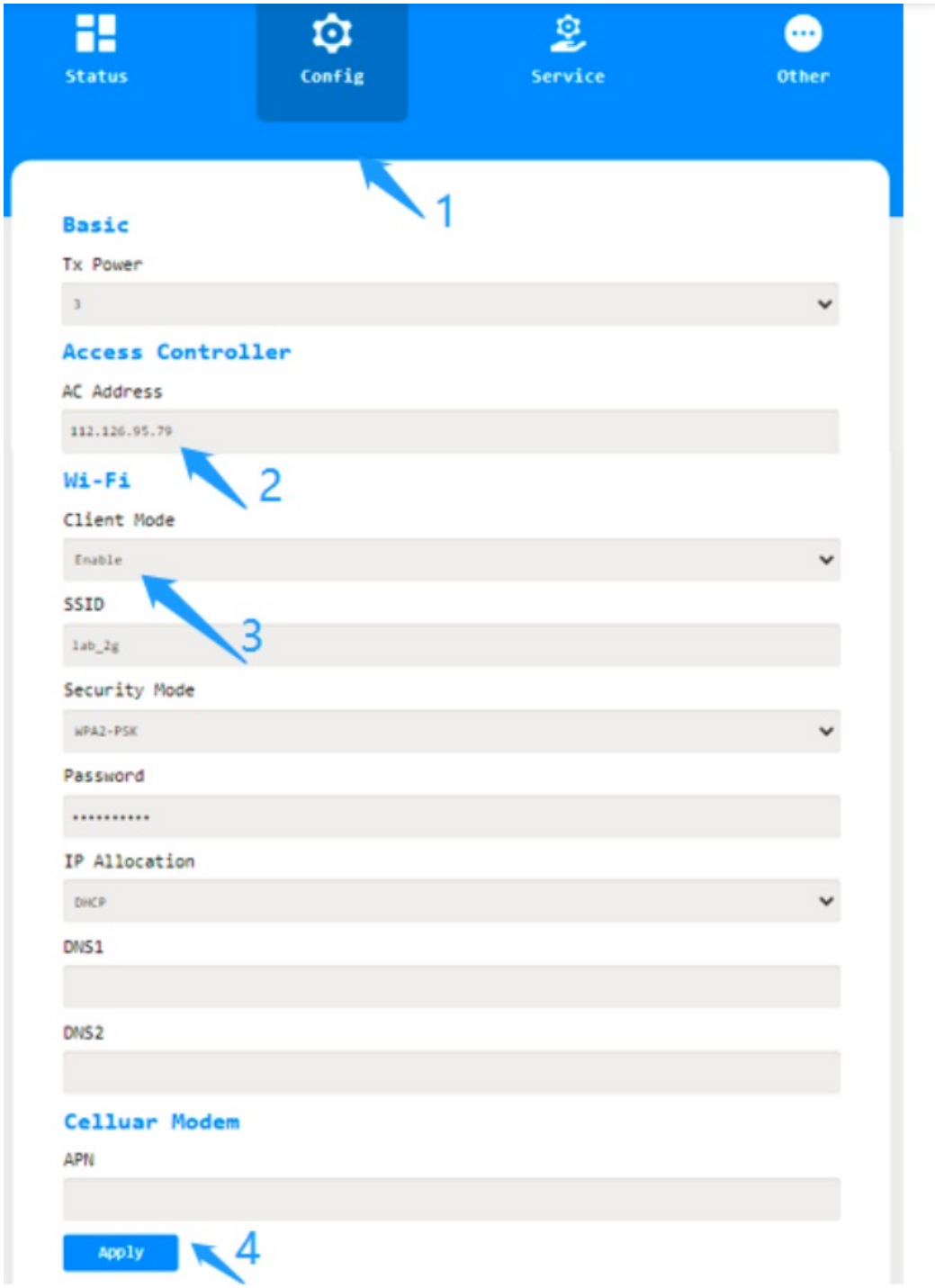
Notes:

- When inserting the SIM card, make sure that the beveled corner of the SIM card is facing the lower left corner, as shown in the diagram above.
- When inserting the SIM card, push it in with your fingernail or the tip of a pen until it is held in place by the slot.
- When removing the SIM card, push it in with your fingernail or the tip of a pen until it pops out.

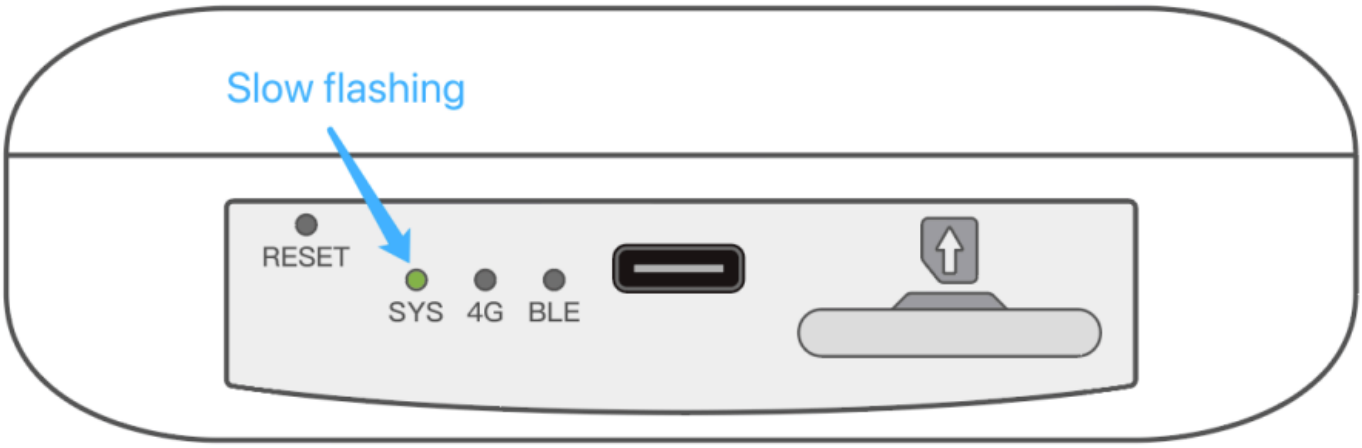
Using Wi-Fi to connect to the network

1. Click on the Configuration page first, enable Wi-Fi client mode, and complete SSID and other settings based on your Wi-Fi router information. For example, set the Security Mode to WPA2-PSK, enter the password, and click save.
2. To connect with the AC server, enter the AC address (only the 2.2.0 AC version supports M2000) and click

Apply.



After 30 seconds, the M2000 will finish booting up and connect to the AC server. Please get in touch with your AC administrator to check if the M2000 is showing online on the AC.

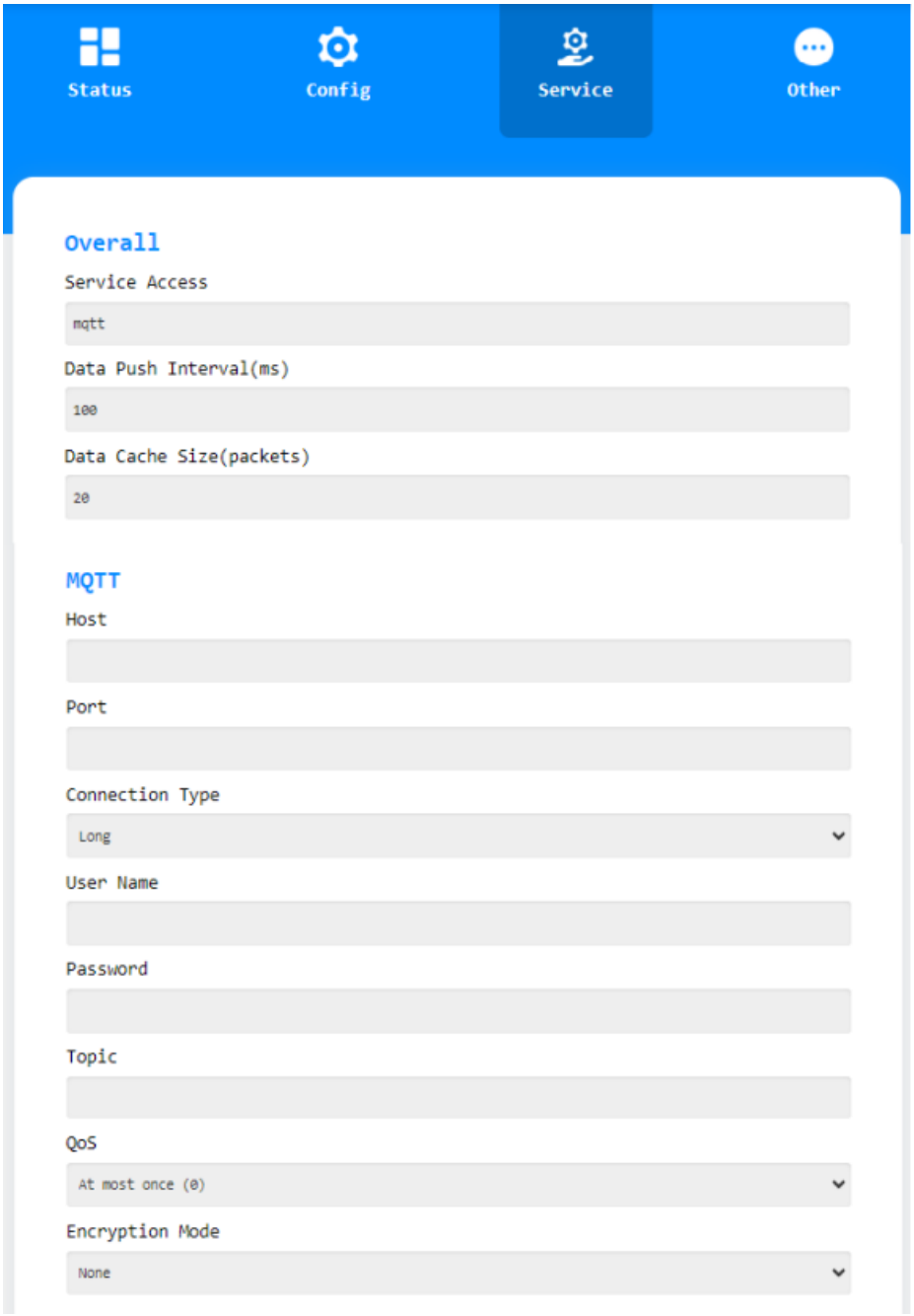


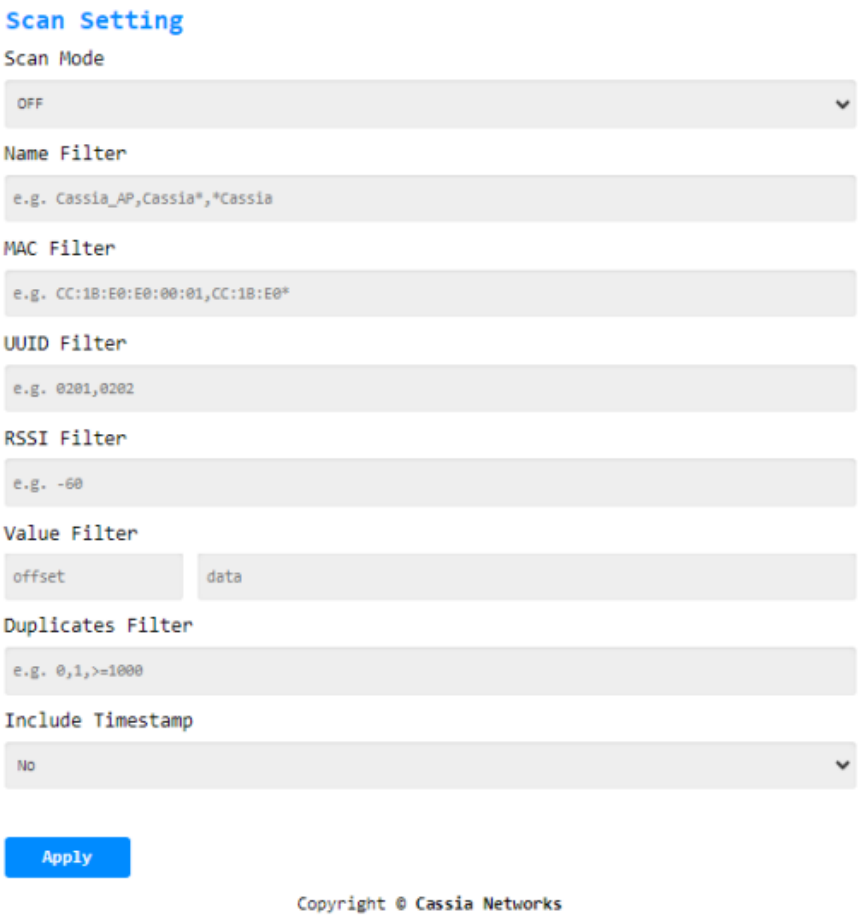
Notes:

- M2000 can only connect to the internet through the 2.4Ghz Wi-Fi router and does not support a 5Ghz Wi-Fi router.

Service

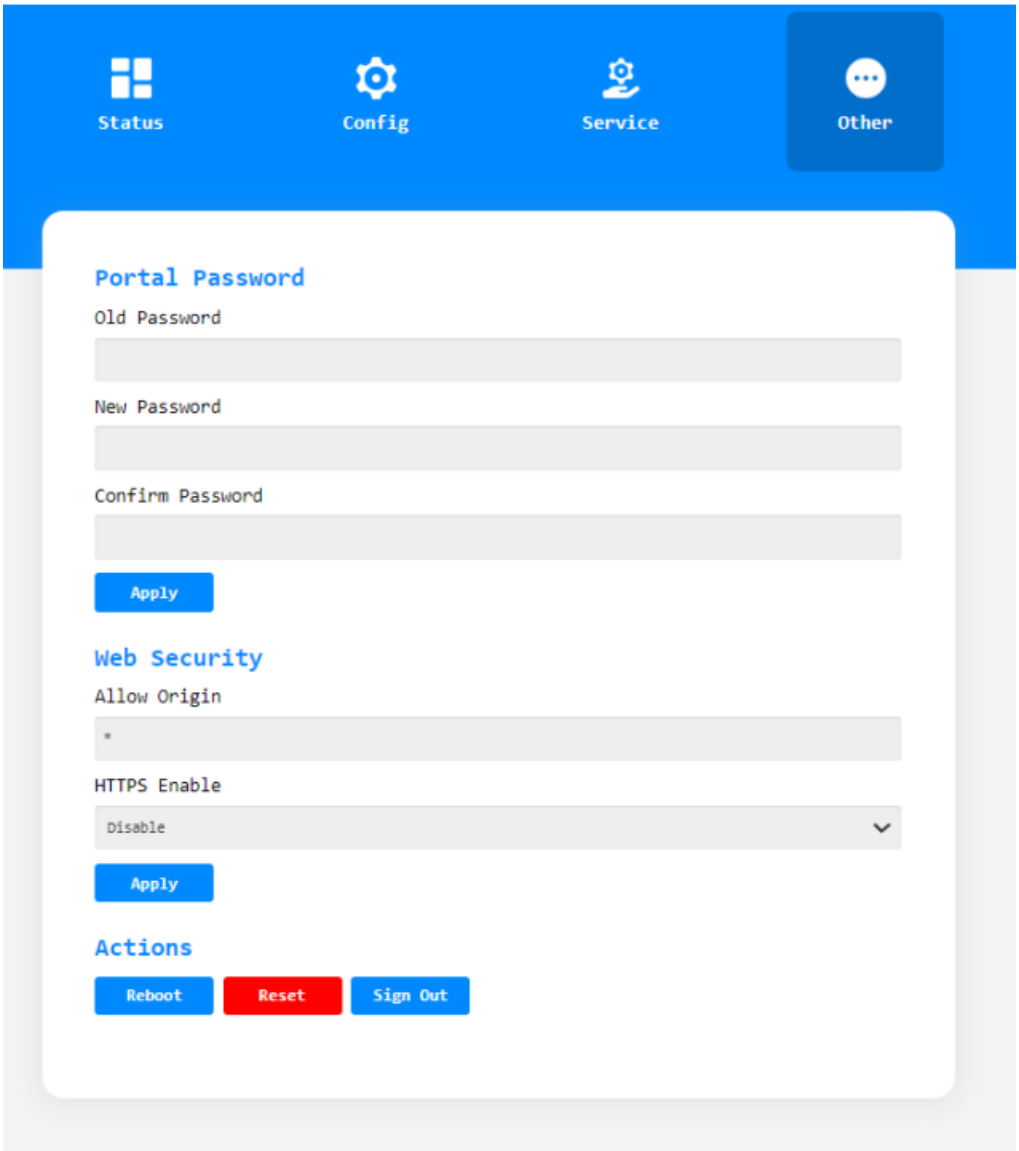
The M2000 MQTT Bypass Service can route BLE advertising packets directly to the MQTT server by configuring MQTT and scanning setting information in the Service tab.





Others

Users can perform various operations on the “Others” page, such as modifying their login password, rebooting, resetting, and signing out.



Parameter Description

Status Tab (Not Changeable)

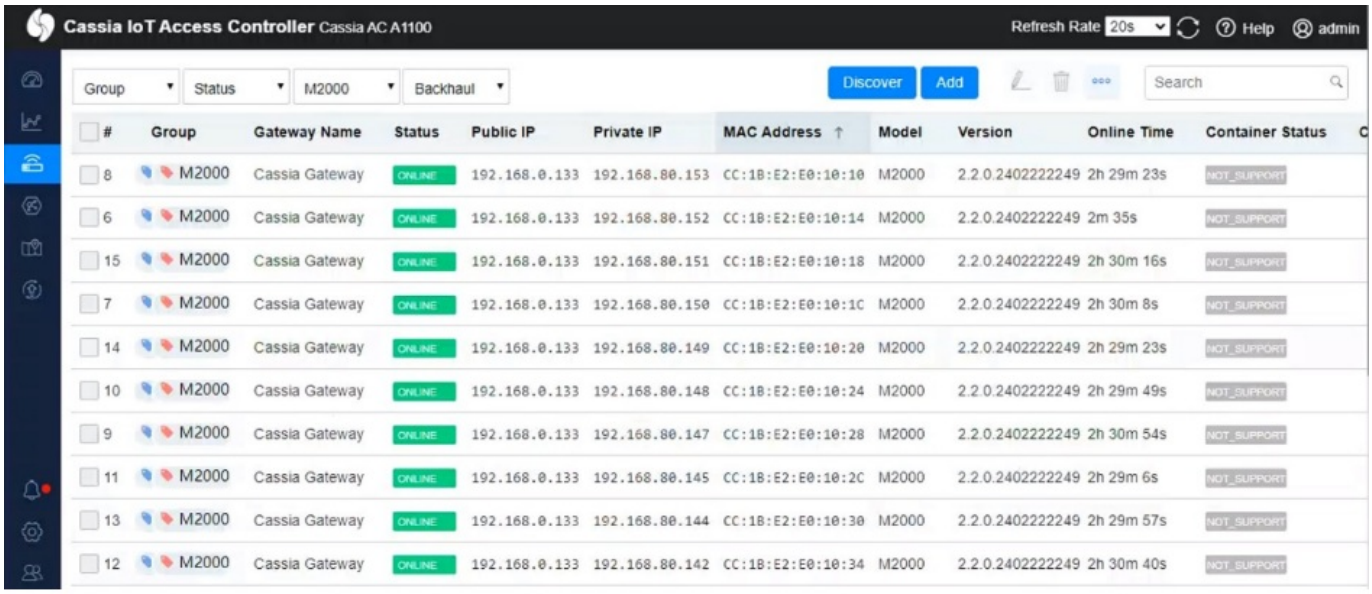
meter	Description
Model	M2000
MAC	Gateway MAC Address – printed on the bottom of the M2000
Wi-Fi IP	Gateway IP address for Wi-Fi connection
Cellular IP	Gateway IP address for cellular connection
Firmware Version	Firmware version
Uptime	The gateway up time in hours since the last reboot
AC Online Time	The time of the gateway connected with the AC. If not connected, it sho ws offline.
AC Server Address	AC Server Address

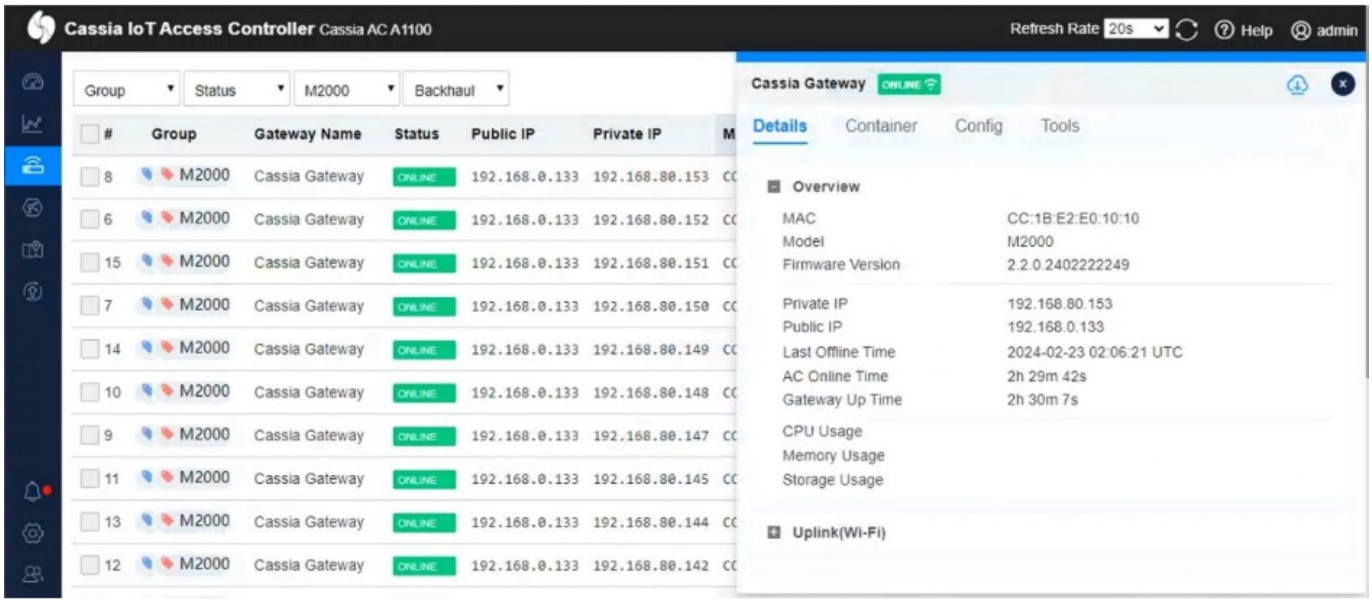
Config Tab

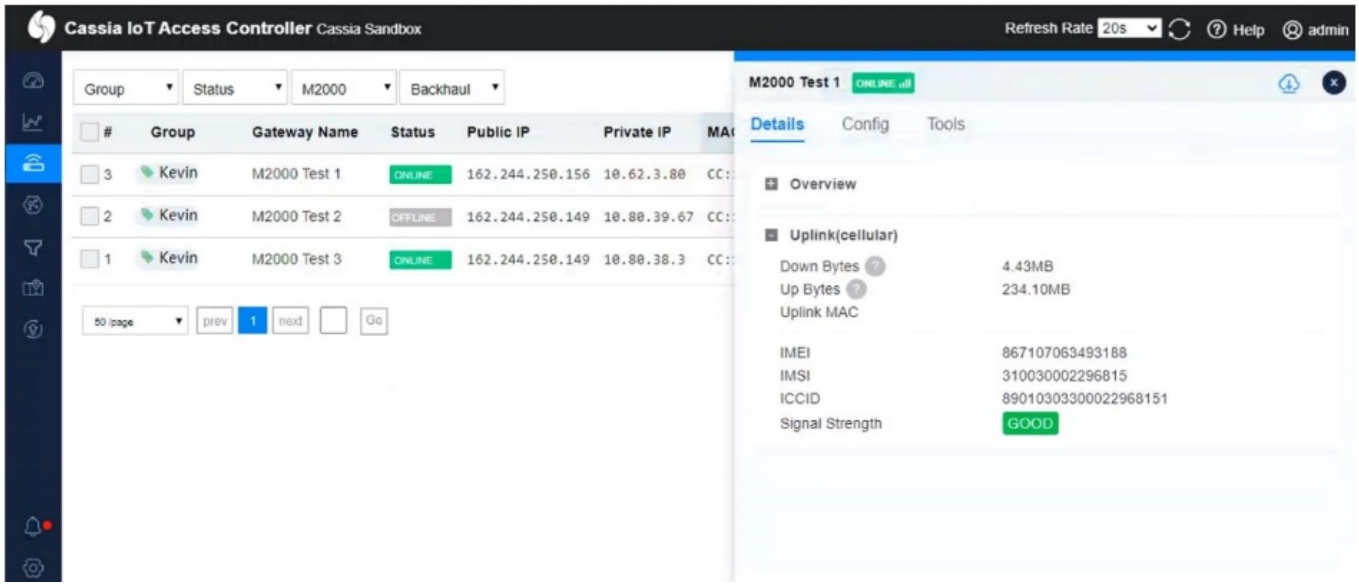
Parameter	Description
Tx Power	Transmit power for Bluetooth. The default value is 19dbm (or 8dbm for J apan). To change this, follow local regulations for the maximum transmit power for 2.4 GHz devices.
AC Server Address	AC Server IP address or domain name. Note: Remove http:// or https:// header or port number
Country Code	Country code configuration for the Wi-Fi function. The default value is U S. This option can only be set from the AC server by the administrator.
Client Mode	Wi-Fi Client Enable (default) or Disable
SSID	SSID of Wi-Fi AP
Security Mode	Wi-Fi Security Mode: None (no password or encryption, default value), WPA2-PSK WPA[TKIP]+WPA2[AES]
Password	The password of Wi-Fi AP’s SSID.
IP Allocation	DHCP (default) or Static IP
IP	Static IP address
Netmask	Static IP network mask
Gateway	Static IP network gateway
DNS1	DNS server address 1
DNS2	DNS server address 2

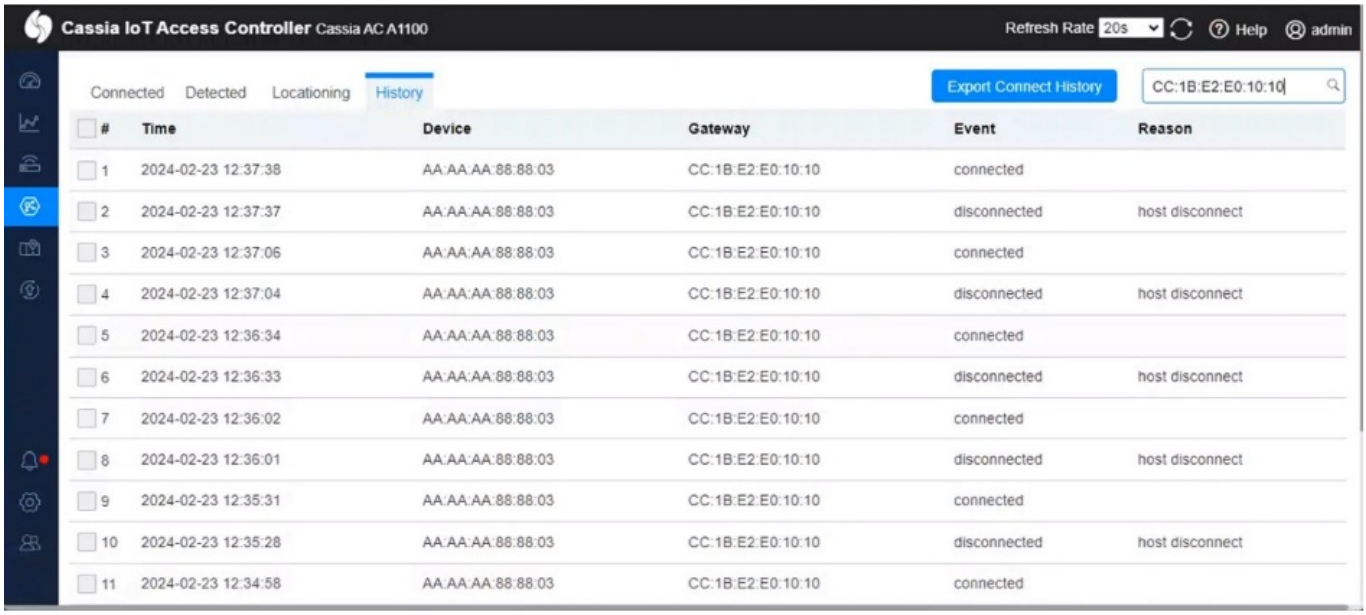
AC Operations

Check M2000 information details

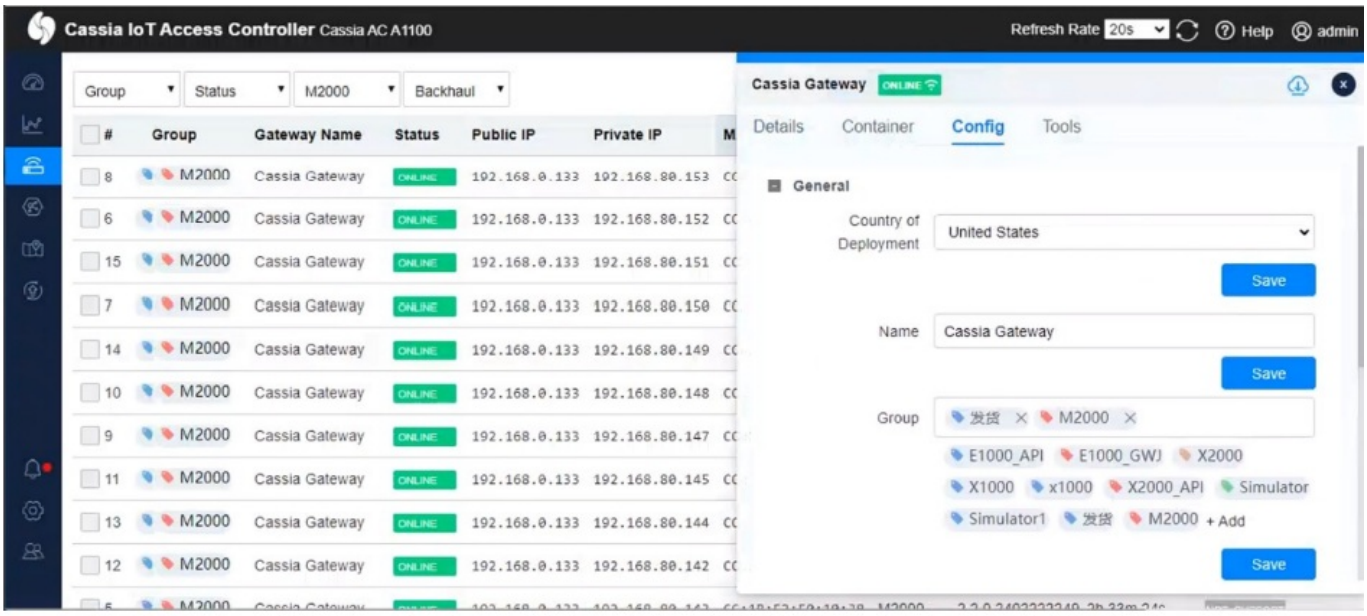

Cassia IoT Access Controller Cassia AC A1100
Refresh Rate 20s
Help
admin
Group
Status
M2000
Backhaul
Discover
Add
Search
Group Gateway Name Status Public IP Private IP MAC Address Model Version Online Time Container Status
8 M2000 Cassia Gateway ONLINE 192.168.0.133 192.168.80.153 CC:1B:E2:E0:10:10 M2000 2.2.0.2402222249 2h 29m 23s NOT_SUPPORT
6 M2000 Cassia Gateway ONLINE 192.168.0.133 192.168.80.152 CC:1B:E2:E0:10:14 M2000 2.2.0.2402222249 2m 35s NOT_SUPPORT
15 M2000 Cassia Gateway ONLINE 192.168.0.133 192.168.80.151 CC:1B:E2:E0:10:18 M2000 2.2.0.2402222249 2h 30m 16s NOT_SUPPORT
7 M2000 Cassia Gateway ONLINE 192.168.0.133 192.168.80.150 CC:1B:E2:E0:10:1C M2000 2.2.0.2402222249 2h 30m 8s NOT_SUPPORT
14 M2000 Cassia Gateway ONLINE 192.168.0.133 192.168.80.149 CC:1B:E2:E0:10:20 M2000 2.2.0.2402222249 2h 29m 23s NOT_SUPPORT
10 M2000 Cassia Gateway ONLINE 192.168.0.133 192.168.80.148 CC:1B:E2:E0:10:24 M2000 2.2.0.2402222249 2h 29m 49s NOT_SUPPORT
9 M2000 Cassia Gateway ONLINE 192.168.0.133 192.168.80.147 CC:1B:E2:E0:10:28 M2000 2.2.0.2402222249 2h 30m 54s NOT_SUPPORT
11 M2000 Cassia Gateway ONLINE 192.168.0.133 192.168.80.145 CC:1B:E2:E0:10:2C M2000 2.2.0.2402222249 2h 29m 6s NOT_SUPPORT
13 M2000 Cassia Gateway ONLINE 192.168.0.133 192.168.80.144 CC:1B:E2:E0:10:30 M2000 2.2.0.2402222249 2h 29m 57s NOT_SUPPORT
12 M2000 Cassia Gateway ONLINE 192.168.0.133 192.168.80.142 CC:1B:E2:E0:10:34 M2000 2.2.0.2402222249 2h 30m 40s NOT_SUPPORT

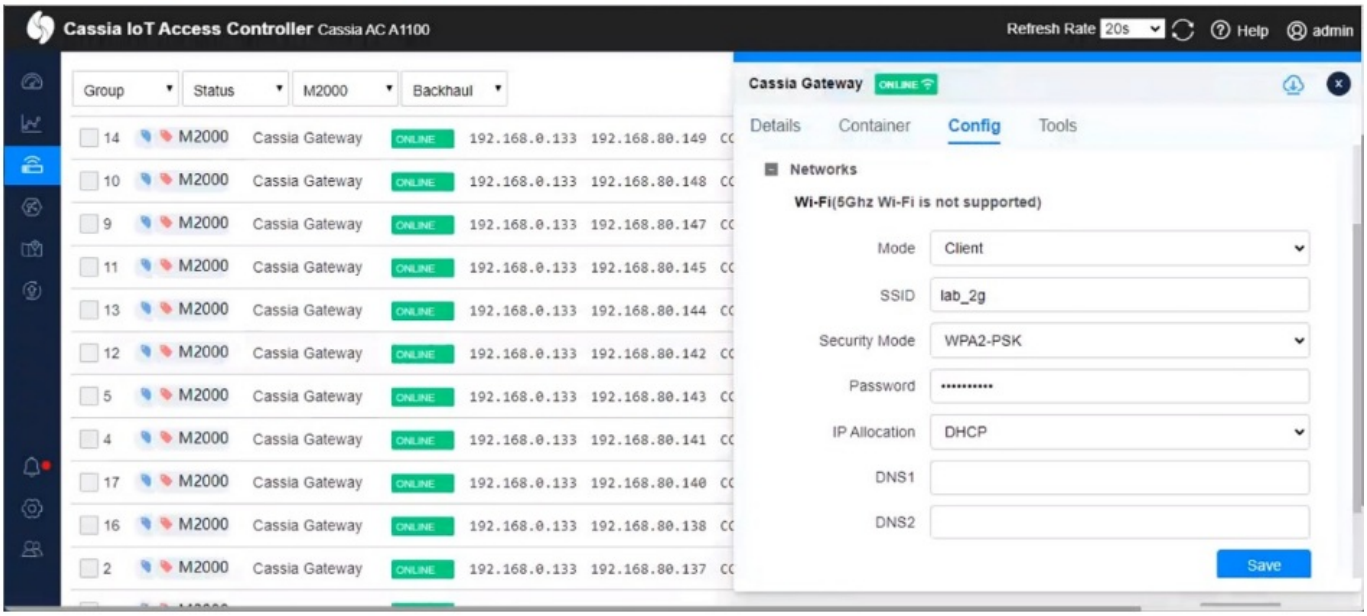

Cassia IoT Access Controller Cassia AC A1100
Refresh Rate 20s
Help
admin
Group
Status
M2000
Backhaul
Group Gateway Name Status Public IP Private IP
8 M2000 Cassia Gateway ONLINE 192.168.0.133 192.168.80.153
6 M2000 Cassia Gateway ONLINE 192.168.0.133 192.168.80.152
15 M2000 Cassia Gateway ONLINE 192.168.0.133 192.168.80.151
7 M2000 Cassia Gateway ONLINE 192.168.0.133 192.168.80.150
14 M2000 Cassia Gateway ONLINE 192.168.0.133 192.168.80.149
10 M2000 Cassia Gateway ONLINE 192.168.0.133 192.168.80.148
9 M2000 Cassia Gateway ONLINE 192.168.0.133 192.168.80.147
11 M2000 Cassia Gateway ONLINE 192.168.0.133 192.168.80.145
13 M2000 Cassia Gateway ONLINE 192.168.0.133 192.168.80.144
12 M2000 Cassia Gateway ONLINE 192.168.0.133 192.168.80.142
Cassia Gateway ONLINE
Details
Container
Config
Tools
Overview
MAC CC:1B:E2:E0:10:10
Model M2000
Firmware Version 2.2.0.2402222249
Private IP 192.168.80.153
Public IP 192.168.0.133
Last Offline Time 2024-02-23 02:06:21 UTC
AC Online Time 2h 29m 42s
Gateway Up Time 2h 30m 7s
CPU Usage
Memory Usage
Storage Usage
Uplink(Wi-Fi)


Cassia IoT Access Controller Cassia Sandbox
Refresh Rate 20s
Help
admin
Group
Status
M2000
Backhaul
Group Gateway Name Status Public IP Private IP
3 Kevin M2000 Test 1 ONLINE 162.244.250.156 10.62.3.80
2 Kevin M2000 Test 2 OFFLINE 162.244.250.149 10.80.39.67
1 Kevin M2000 Test 3 ONLINE 162.244.250.149 10.80.38.3
50 /page
prev
1
next
Go
M2000 Test 1 ONLINE
Details
Config
Tools
Overview
Uplink(cellular)
Down Bytes 4.43MB
Up Bytes 234.10MB
Uplink MAC
IMEI 867107063493188
IMSI 310030002296815
ICCID 89010303300022968151
Signal Strength GOOD



Configure M2000 from AC

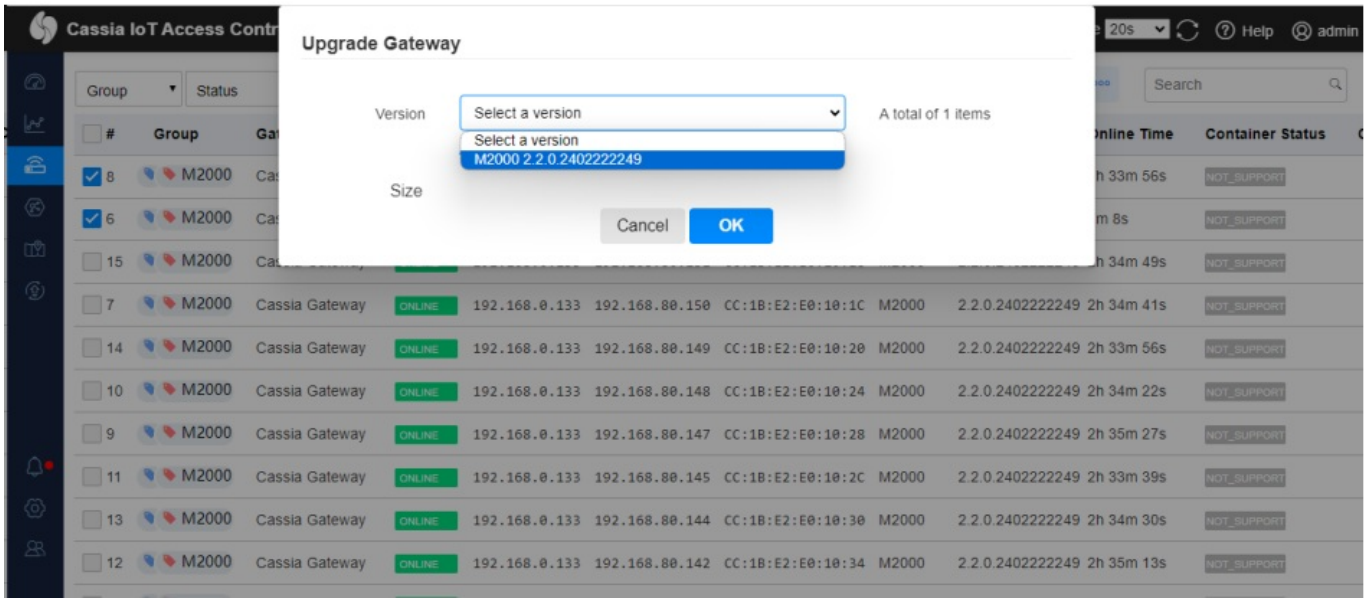




OTA firmware update

1. Upload M2000 firmware to the AC server from the AC Maintenance Tab -> Gateway's Firmware Update section

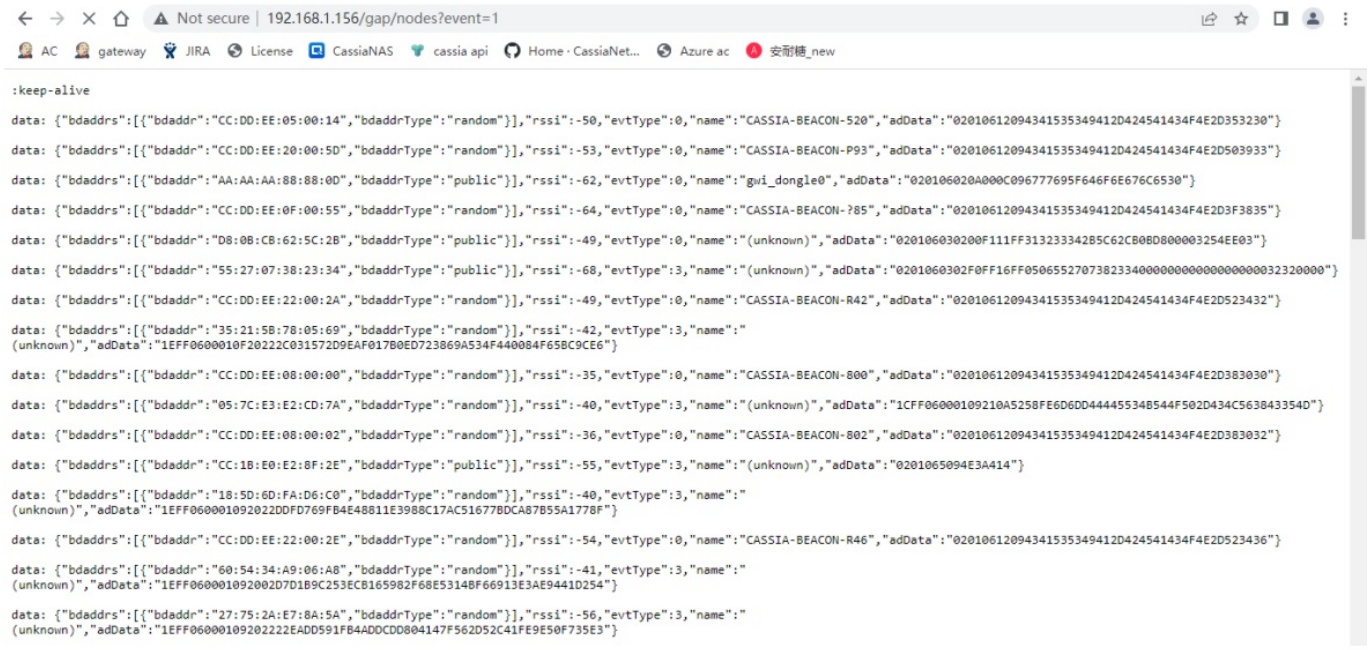
02. Select M2000 to upgrade to this firmware version.



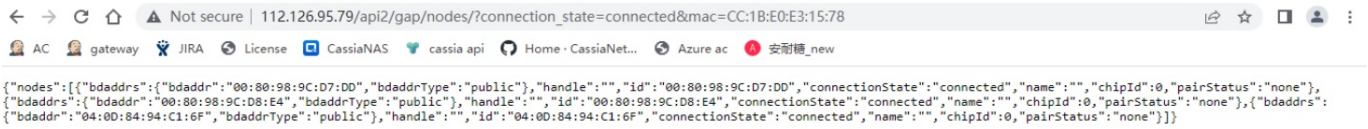
Cassia RESTful API

M2000 supports the Cassia RESTful API, which can be called from the AC server or the local network. Please refer to the following link for details of the "Cassia SDK Implementation Guide."
https://github.com/CassiaNetworks/CassiaSDKGuide/wiki

Scan



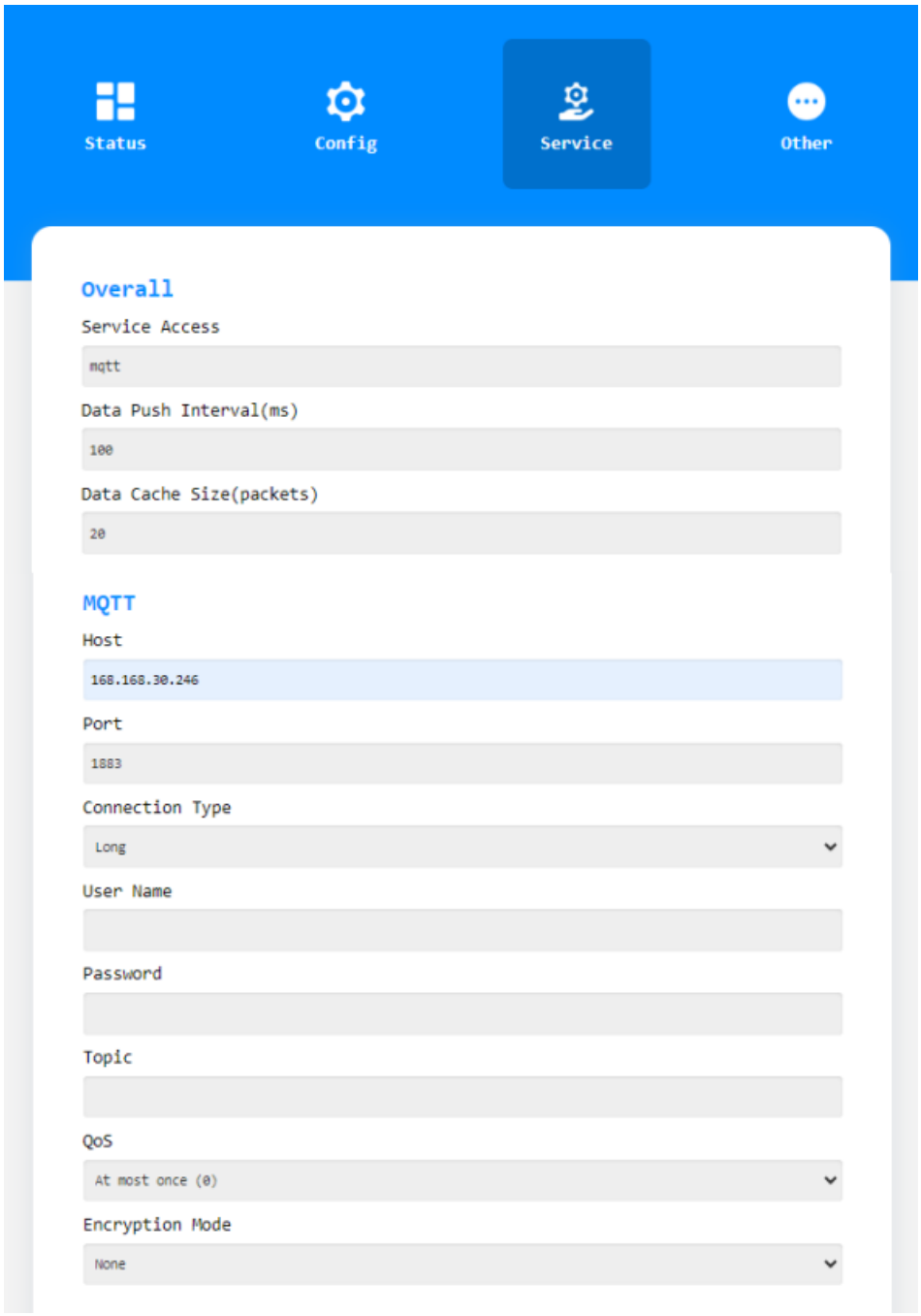
Connect device

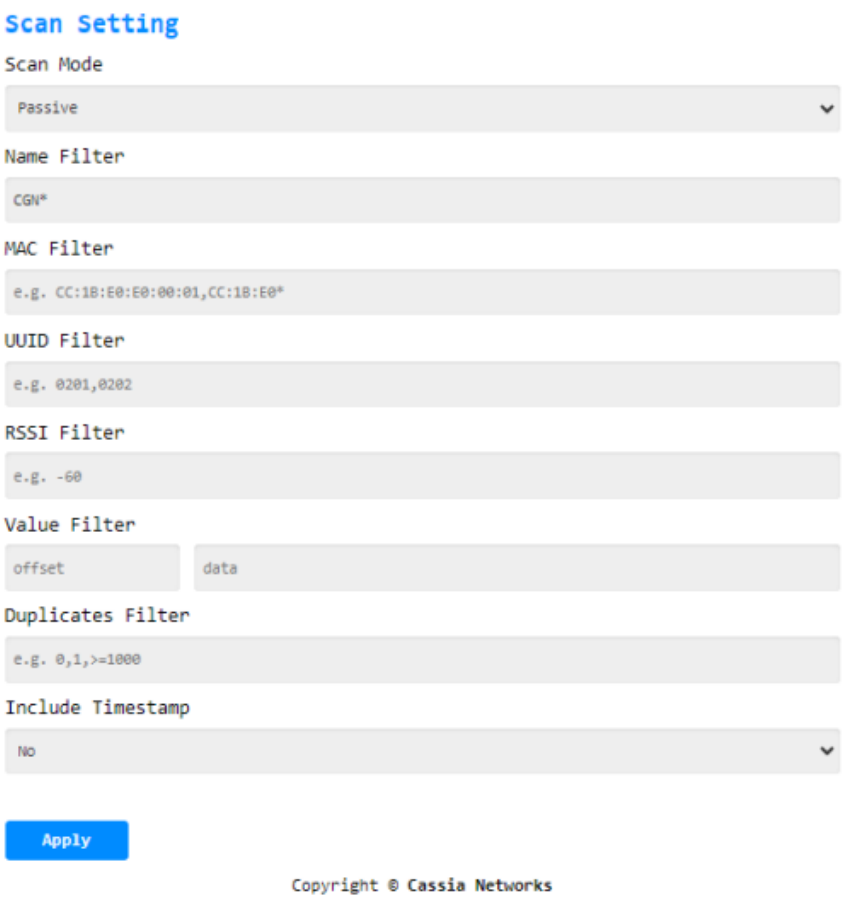


Cassia MQTT API

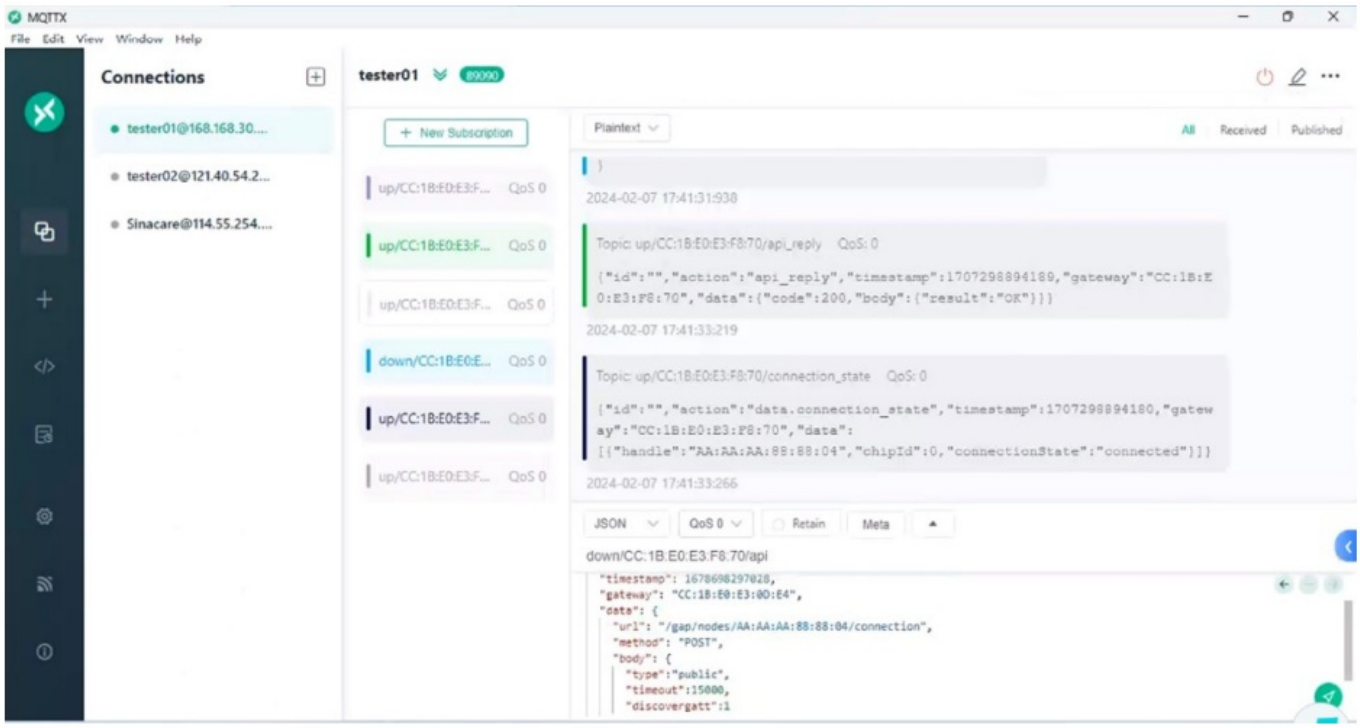
M2000 supports bi-directional communication with BLE devices via the gateway MQTT interface. Please refer to http://docs.ble.xin/latest/en/api/mqtt/overview.html for API details.

Input Service information


Status
Config
Service
Other
Overall
Service Access
mqtt
Data Push Interval(ms)
100
Data Cache Size(packets)
20
MQTT
Host
168.168.30.246
Port
1883
Connection Type
Long
User Name
Password
Topic
QoS
At most once (0)
Encryption Mode
None



MQTT server sends API to the gateway to make a BLE connection MQTT API sample code is available at https://github.com/CassiaNetworks/CassiaSDKGuide/tree/master/node_examples/MQTT

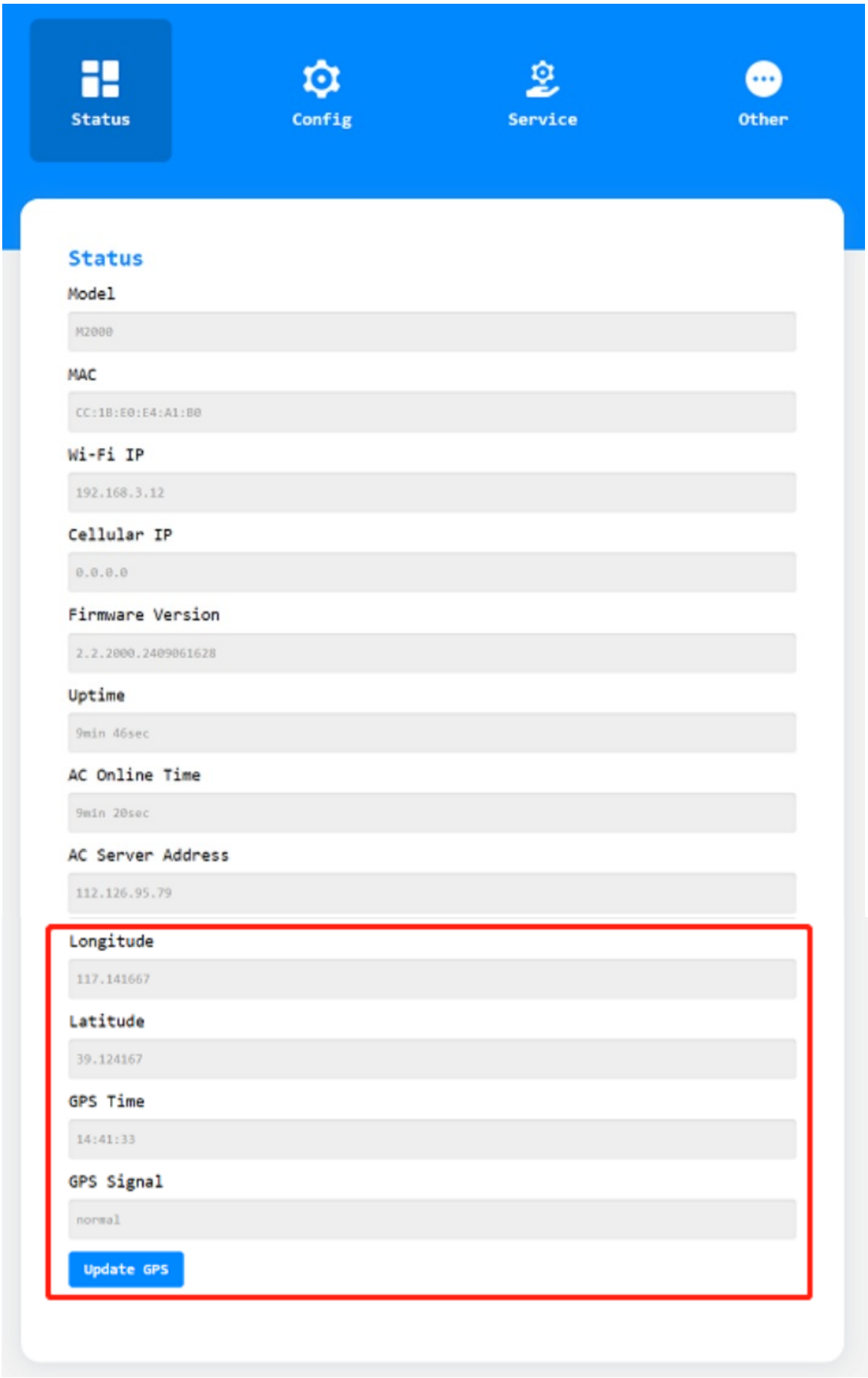


LED Status

LED	Status	Description
SYS	Off	Power off
	Fast flashing	The system is starting
	Solid on	The system is operating normally. Wi-Fi connection is NOT established.
	Slow flashing	The system is operating normally. A Wi-Fi connection is established.
4G	Slow flashing (200ms High/1800ms Low)	Network searching.
	Slow flashing (1800ms High/200ms Low)	Idle
	Fast flashing (125ms High/125 Low)	Data transfer is ongoing.
BLE	Off	The Bluetooth chip didn’t start
	Solid on	Bluetooth is operating normally.
	Flashing	Flash twice when the Bluetooth connection is established

Obtain GPS Location

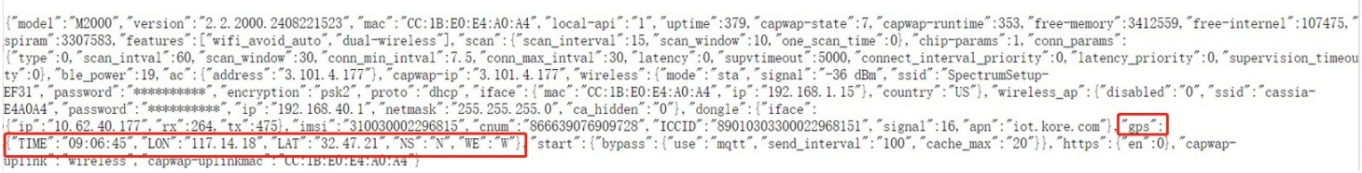
1. **To acquire the GPS location from the local console:**



2. To acquire the GPS location from the AC Server

- Obtain a token for the Cassia RESTful API from the AC Server.
- Initiate the GPS service by using the following API call:
- GET AC_IP/api2/cassia/GPS/start?mac=CC:1B:E0:E4:A0:A4

- Wait for 2 to 4 minutes for the gateway to cycle offline and online.
- Retrieve the GPS information from the gateway status webpage or by calling: GET AC_IP/api2/cassia/info?mac=CC:1B: E0:E4:A0:A4



To acquire the GPS location with local API:

- Log in with the API.

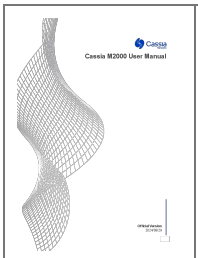
Trigger the GPS service by calling:

- GET gateway_IP/cassiGPSps/start
- Wait for 2 to 4 minutes for the gateway to gather GPS data.
- Retrieve the GPS information from the gateway status webpage or by calling: GET gateway_IP/cassia/info.

Notes:

- In the current iteration of M2000, it is recommended that GPS data be acquired no more frequently than every 5 minutes. Work is underway to further optimize the system and reduce the time taken to acquire GPS data.
- It is recommended to stop BLE API requests when acquiring GPS information, as GPS operation interrupts LTE service and temporarily disables the network.

Documents / Resources

	Cassia Network M2000 Compact Cellular Bluetooth Gateway [pdf] User Manual M2000, M2000 Compact Cellular Bluetooth Gateway, M2000, Compact Cellular Bluetooth Gateway, Cellular Bluetooth Gateway, Bluetooth Gateway, Gateway

References

- CassiaSDKGuide/node_examples/MQTT at master · CassiaNetworks/CassiaSDKGuide · GitHub
- Home · CassiaNetworks/CassiaSDKGuide Wiki · GitHub
- Support | Connect with Cassia Networks
- AC Server Software * - Cassia Networks
- User Manual