

Airgain®)))

# AIRGAINCONNECT® FLEET™ 5G VEHICLE GATEWAY

User Guide



# Airgain®))

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## 1 Introduction

The AC-Fleet 5G Vehicle Gateway features a 5G modem, Wi-Fi 6 router, Gigabit Ethernet, and a high-performance antenna designed to be mounted to the roof of any vehicle.

Local configuration of AC-Fleet is done using the device's Graphical User Interface (GUI) with a LAN or WLAN connection, while remote configuration and management is available from AC-Cloud. This user guide provides an overview of the features and functionality for both. See the [AC-Fleet Quick Start Guide](#) for recommendations on getting started.

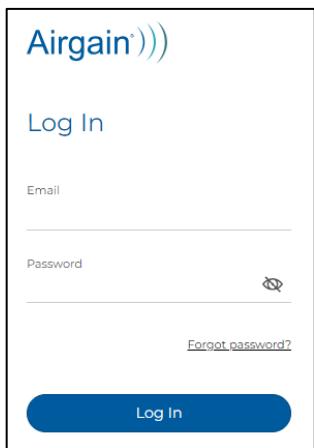
### Notes:

- You must first configure eSIM profiles in AC-Cloud to be activated on a device, see the [AC-Fleet Quick Activation Guide](#) for expedited activation instructions.
- Ensure the device is only installed by a professional using Airgain's installation instructions.

## 2 AC-Cloud

### 2.1 Logging In

Figure 1 shows the Login Screen:



The image shows a screenshot of the AC-Cloud Log In screen. At the top, the Airgain logo is displayed. Below it, the word "Log In" is centered. There are two input fields: "Email" and "Password". The "Email" field is empty. The "Password" field has a small eye icon to its right, indicating it's a password field. Below the password field is a "Forgot password?" link. At the bottom is a large blue "Log In" button.

Figure 1 – AC-Cloud Log In Screen

1. Navigate to <https://ac-cloud.airgain.com/> in an internet browser.
2. Enter the email and password from your AC-Cloud activation email and click **Log In**.
  - a. If your organization does not already have an AC-Cloud account, contact [Customer Support](#) to request one and provide the following:
    - i. Organization name
    - ii. Organization address
    - iii. Admin name
    - iv. Admin email address
    - v. Admin phone number
    - vi. Copy of the AC-Fleet invoice and corresponding CSV file with device serial numbers to be added
- Note:** Airgain support will send a CSV file with all unique device information for future reference.
- b. If your organization already has an AC-Cloud account, request your admin to grant you access.

3. To change the password, click **Forgot password?**

## 2.2 Navigation

1. AC-Cloud is organized into the following menus and configuration options:
  - a. Overview
  - b. Devices
    - i. Devices
    - ii. SIMs
      1. Add/Edit eSIM profiles
    - iii. Service Status
  - c. Groups
    - i. Groups
      1. Schedule firmware and/or config file updates
    - ii. Firmware
    - iii. Config Files
  - d. Cloud Users
    - i. Manage admin and user accounts
    - ii. Notifications
  - e. Logs

## 2.3 Overview

Figure 2 shows the dashboard with access to the various AC-Cloud features.

**Note:** Only information for the most recently used eSIM for each device is displayed.

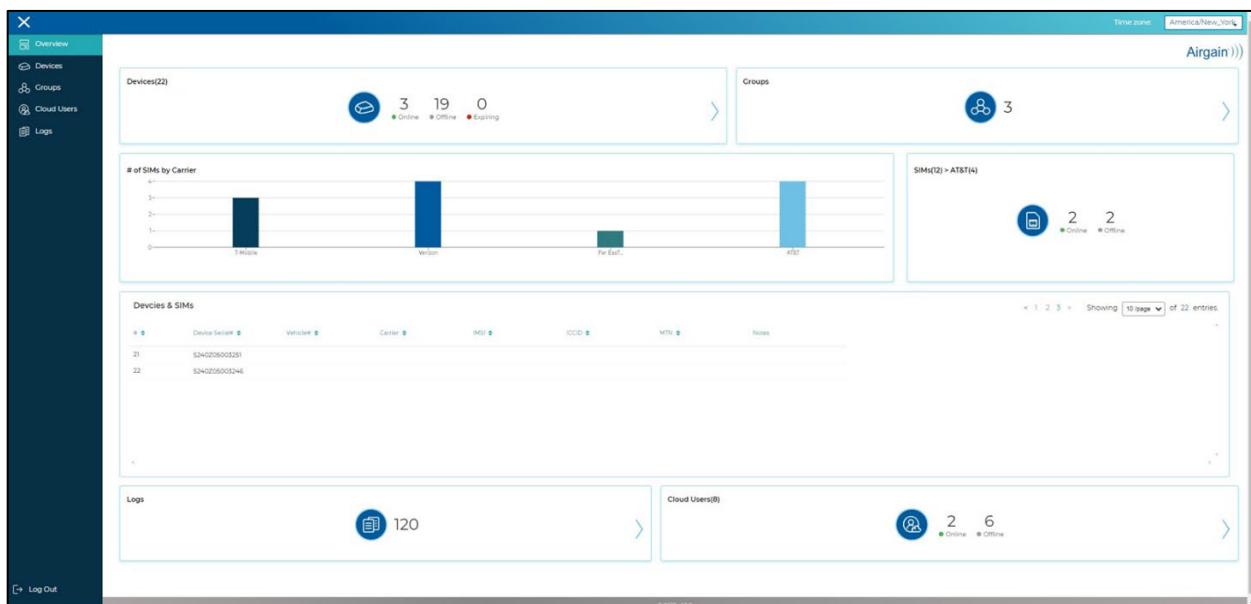


Figure 2 – Dashboard with AC-Cloud features.

## 2.4 Devices

Figure 3 shows the **Devices** screen:

#	Service Status	Online Status	Device Serial ID	Vehicle#	Group	Device Model	Uptime	Firmware	Config File	Notes
41	Subscribed	Offline	031240501Y		default	AC-Fleet	--	v03.01.02.0002_20240626	~(1)	
42	Subscribed	Offline	031240501U		default	AC-Fleet	--	v03.01.02.0002_20240626	--	
43	Subscribed	Offline	031240501F		default	AC-Fleet	--	v03.01.02.0002_20240626	--	
44	Subscribed	Online	031240501D		default	AC-Fleet	12h6m47s	v03.01.02.0003_0828	--	
45	Subscribed	Offline	031240501N		default	AC-Fleet	--	v03.01.02.0003_0805	--	
46	Subscribed	Offline	031240501C		default	AC-Fleet	--	v03.01.02.0003_0805	--	
47	Subscribed	Offline	031240501X		default	AC-Fleet	--	v03.01.02.0003_0805	--	
48	Subscribed	Offline	031240501T		default	AC-Fleet	--	v03.01.02.0003_0805	--	
49	Subscribed	Offline	031240501W		default	AC-Fleet	--	v03.01.02.0002_20240626	--	
50	Subscribed	Offline	031240501V		default		--	--	~(1)	

Figure 3 – Devices screen.

1. Browse AC-Fleet devices that are registered to the organization's AC-Cloud account.
  - a. If you need to have new devices added to your account, please contact [Customer Support](#) with your organization name, copy of the invoice, and corresponding CSV file with device serial numbers.

**Note:** Airgain support will send a CSV file with all unique device information for future reference.

- b. **Service Status** can indicate:
  - i. **Subscribed:** Device has an active AC-Cloud subscription.
  - ii. **Expiring:** AC-Cloud subscription for this device expires in 30 days. Contact [Customer Support](#) to renew.
  - iii. **Not subscribed:** AC-Cloud subscription has expired for this device and cannot be managed remotely. Contact [Customer Support](#) to renew.
- c. **Online Status** can indicate:
  - i. **Online:** Device is connected to AC-Cloud (not if connected with a bootstrap profile).
  - ii. **Offline:** Device is not connected to AC-Cloud.

**Note:** Online status updates in AC-Cloud can take up to 10 minutes.

- d. **Uptime:** How long the device has been online.
2. Click on a device serial number for configuration and remote management options.

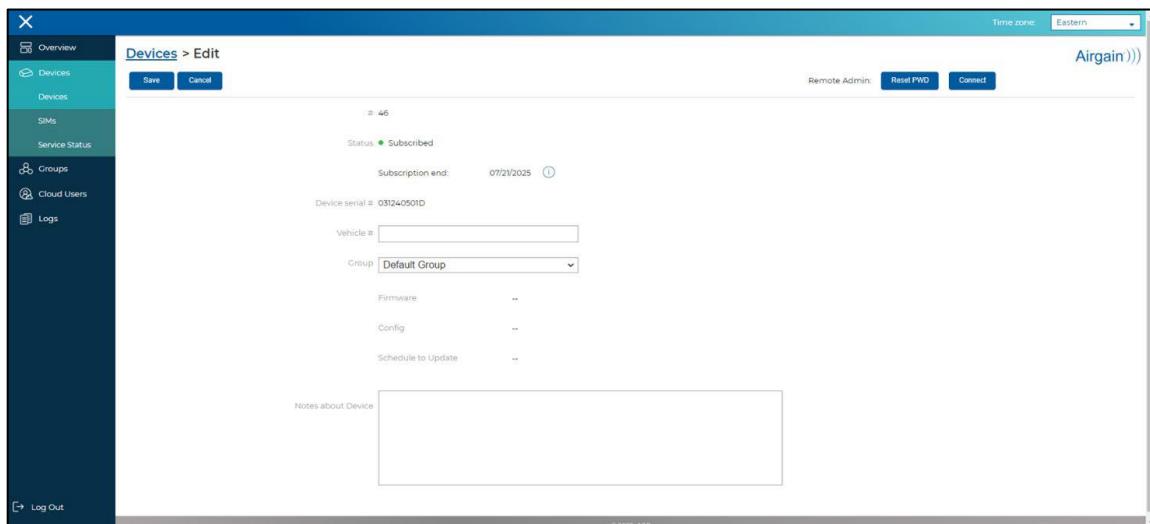


Figure 4 – Device editing screen.

3. Configure **Group**, **Vehicle #**, and **Notes**.
4. Reset the device password or connect to devices for remote access.

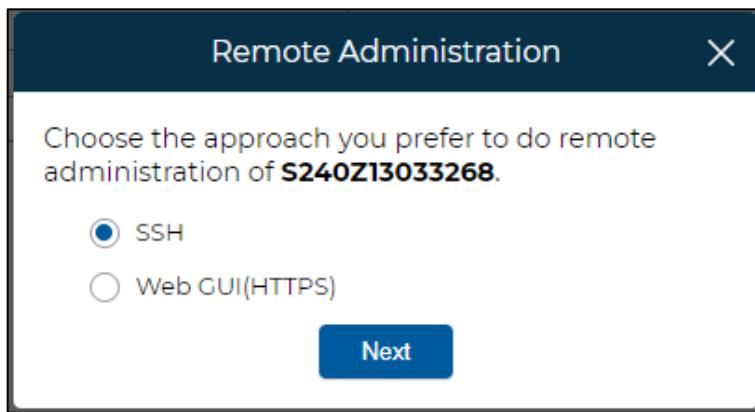


Figure 5 – Remote admin screen.

5. Remote access options are **SSH** (for use only by Airgain Support) and **HTTPS**.

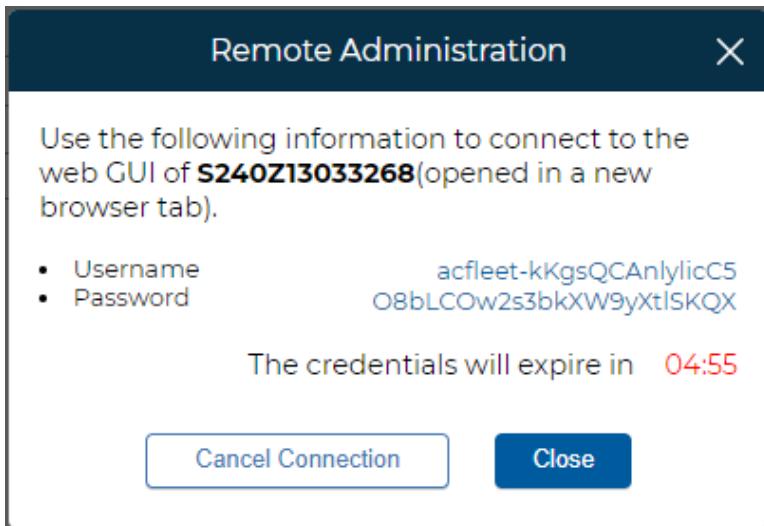


Figure 6 – Remote admin credentials screen.

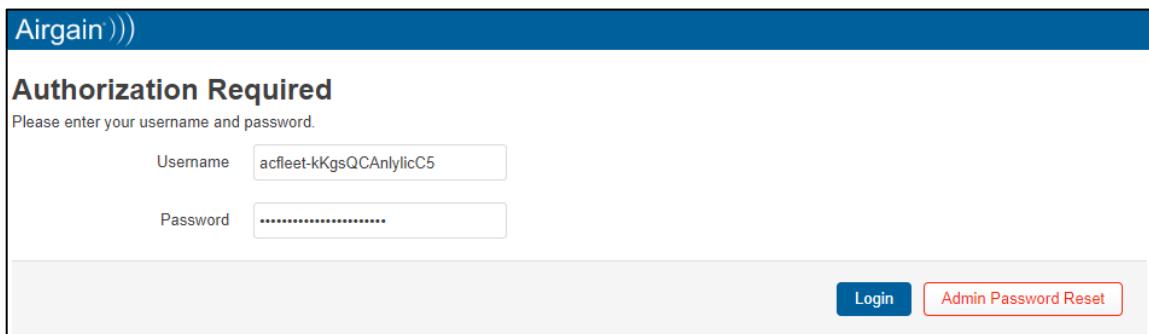


Figure 7 – Remote login screen.

6. HTTPS automatically opens a new browser window with credentials entered for logging into the local GUI remotely.
  - a. Click **Cancel Connection** to end session.
  - b. The session expires automatically with inactivity.

## 2.5 SIMS

Figure 8 shows the **SIMs** screen:

Device Serial #	eSIM Status	eSIM Name	Carrier	ICCID	APN 1	APN 2
031240500A	Activated	preloaded_eSIM	Verizon		V5GA01INTERNET	
031240500A	Activated	ATT_provided_by_AG	AT&T		broadband	
031240501C	In Use	FirstNet	FirstNet		firstnet-broadband	
031240501D	In Use	FirstNet	FirstNet		firstnet-broadband	
031240501E	Activated	FirstNet	FirstNet		firstnet-broadband	
031240501E	In Use	preloaded_eSIM	Verizon		v5ga01internet	
031240501E	Downloading...	T-Mobile			lott-mobile.com	
031240501F	In Use	FirstNet	FirstNet		firstnet-broadband	
031240501G	In Use	FirstNet	FirstNet		firstnet-broadband	
031240501L	In Use	FirstNet	FirstNet		firstnet-broadband	

Figure 8 – SIMs screen.

1. Browse eSIM profiles that have been activated for each device.
  - a. **eSIM Status** can indicate:
    - i. **In Use:** Device is currently connected with this profile.
 

**Note:** AC-Cloud retains the last value reported by the device, so some profiles appear as **In Use** even when the device is offline.
    - ii. **Activated:** Profile is available for attempting a cellular connection.
 

**Note:** This does NOT mean the profile has been activated with an MNO, which is required for connectivity.
    - iii. **Assigning:** Profile has been submitted and is pending device reboot for download/activation.
    - iv. **Downloading:** Download/activation process has started for this profile.
 

**Note:** The entire process of downloading and activating can take around three minutes.
    - v. **Retry Downloading:** Previous download attempt failed and requires a device reboot to try again.

- vi. **Fail To Download:** Profile has reached its limit of three failed download attempts and needs to be resubmitted for download/activation.
- vii. **Activating:** Specific to the preloaded Verizon profile since downloading is not relevant and indicates the activation process has started.
- viii. **Fail To Activate:** Preloaded Verizon profile activation failed and needs to be resubmitted.
- ix. **Updating:** Configuration changes have been made to this profile which require device reboot for implementation.
- x. **Deleting:** Profile will be deleted from AC-Fleet upon next reboot.

2. Click **Add** to configure a new device eSIM.
3. Click on a device SN for eSIM configuration options.

**Note:** You can manually add additional eSIM profiles.

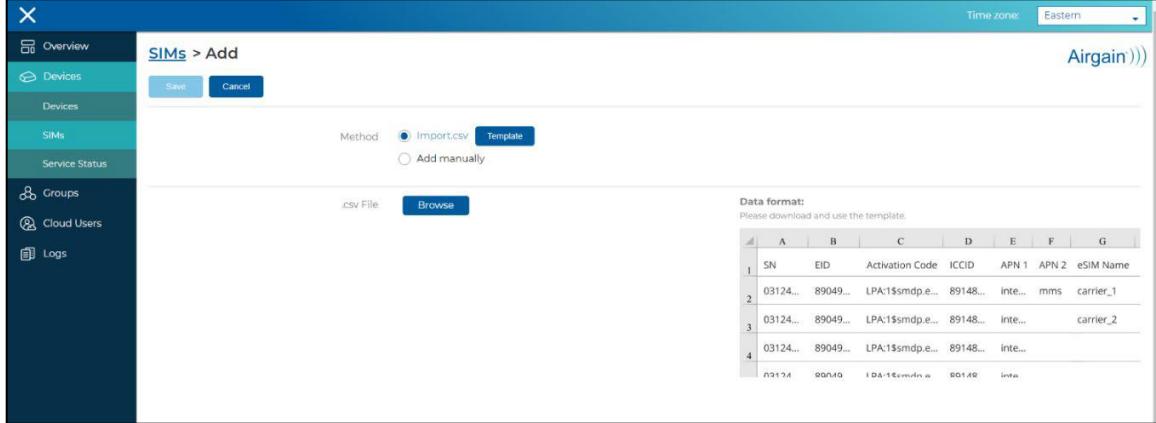


Figure 9 – Adding an eSIM profile.

4. Upon clicking **Add**, there is an option for bulk upload using a CSV template.

- a. Click on **Template** to download the **Import.csv** template and then **Browse** to upload.

**Note:** Bulk upload is only for adding new eSIM profiles, not for editing existing profiles. The default priority list reflects the order of entries in the CSV file.

- b. To activate a preloaded Verizon profile, enter the serial number (SN), EID, “preload” for Activation Code, ICCID and APN 1.
  - i. For bulk uploads Airgain recommends you copy the SN, EID and Verizon (VZ) ICCID information from the device CSV file provided by Airgain Support.

- ii. Ensure the VZ ICCID has an active data plan with Verizon beforehand.
- Note:** There is a known bug where the ICCID cannot be fixed if entered incorrectly.

  - iii. The default APN **v5ga01internet** is typically used, but please confirm with Verizon.
- c. To download and activate all other profiles, enter the SN, EID, Activation Code, and APN 1.
  - i. For bulk uploads, Airgain recommends you copy the SN and EID information from the device CSV file provided by Airgain support.
  - ii. Please ensure an eSIM profile with active data plan has been assigned to the EID and confirm with T-Mobile which APN to connect with:
    1. If connecting with APN **fast.t-mobile.com** then the activation code for downloading eSIM profiles is **LPA:1\$T-MOBILE.GDSB.NET\$**
    2. If connecting with APN **iot.t-mobile.com** then the activation code for downloading eSIM profiles is **LPA:1\$T-MOBILE.IDEMIA.IO\$**
  - iii. AT&T and FirstNet send a physical QR card for extracting the Activation Code.
    1. You cannot extract it using smart phone camera, you must use a web QR reader tool such as <https://webqr.com/>.
    2. The default APN **broadband** is typically used for AT&T and **firstnet-broadband** for FirstNet, but please confirm with AT&T.
  - iv. ICCID is optional as it is pulled from the activated profile.
- d. APN 2 is only be entered for split/dual APN scenarios which are not yet supported.
- e. eSIM Name is to help with identification of the profile if desired.

5. To manually add new eSIMs, enter the SN and EID, and click **Check Its SIMs**.

- a. This displays the available eSIM profiles on your device. The first slot is reserved for the preloaded Verizon profile and cannot be deleted. Enter the mandatory fields (**ICCID** and **APN 1**) indicated by the red asterisks (\*) to activate.

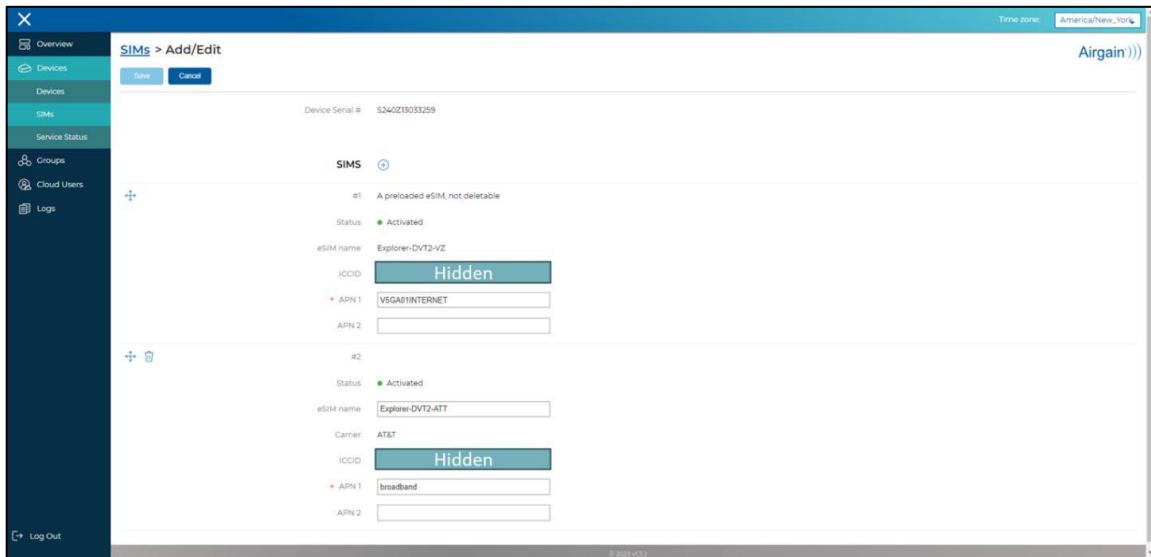


Figure 10 – Edit eSIM profiles.

6. To download eSIM profiles for other carriers, click the **+** icon next to SIMS and enter the mandatory fields (**Activation Code** and **APN 1**), indicated by the red asterisks (\*).

**Note:** Only four eSIM profiles are allowed at a time, including the preloaded Verizon profile.

7. If a profile fails download/activation it can be updated and resubmitted.
8. Delete eSIM profiles if they're no longer needed to make space for other eSIM profiles.

#### Notes:

- Preloaded Verizon profiles cannot be deleted.
- Not available during Assigning, Downloading, or Retry Downloading states.

9. Activated eSIM profiles allow for configuring APN(s) and desired eSIM name.
10. Prioritize eSIM profile connectivity by dragging to desired position.
11. Remember to click **Save** and then reboot the device for any changes to take full effect.
  - a. AC-Fleet requires rebooting twice for eSIM profile priority changes.

## 2.6 Service Status

Figure 11 shows the **Service Status** screen where you can browse AC-Fleet devices for their subscription status and expiration date:

#	Service Status	Expiration Date	Device Serial #	Vehicle #	Device Model	Group
31	● In Warranty	04/26/2025	52402731033258			default
32	● In Warranty	07/02/2025	03124050146			default
33	● In Warranty	04/25/2025	52402050033246			default
34	● In Warranty	04/26/2025	52402731033241			default
35	● In Warranty	07/02/2025	03124050131			default
36	● In Warranty	04/25/2025	52402050033263			default
37	● In Warranty	07/02/2025	03124050177			default
38	● In Warranty	07/02/2025	03124050160			default
39	● In Warranty	07/02/2025	03124050156			default
40	● In Warranty	07/02/2025	03124050145			default

Figure 11 – Service Status screen.

## 2.7 Groups

Figure 12 shows the **Groups** screen where you can browse and manage groups of AC-Fleet devices:

#	Group	Firmware	Config File	Schedule to Update	Postpone Update Until	Update Status	Description
1	Default Group	--	--	--	--	--	default group
2	Test Group	--	--	--	--	--	
3	Test Group 2	--	--	--	--	--	

Figure 12 – Groups screen.

1. Click on a **Group** for configuration options.

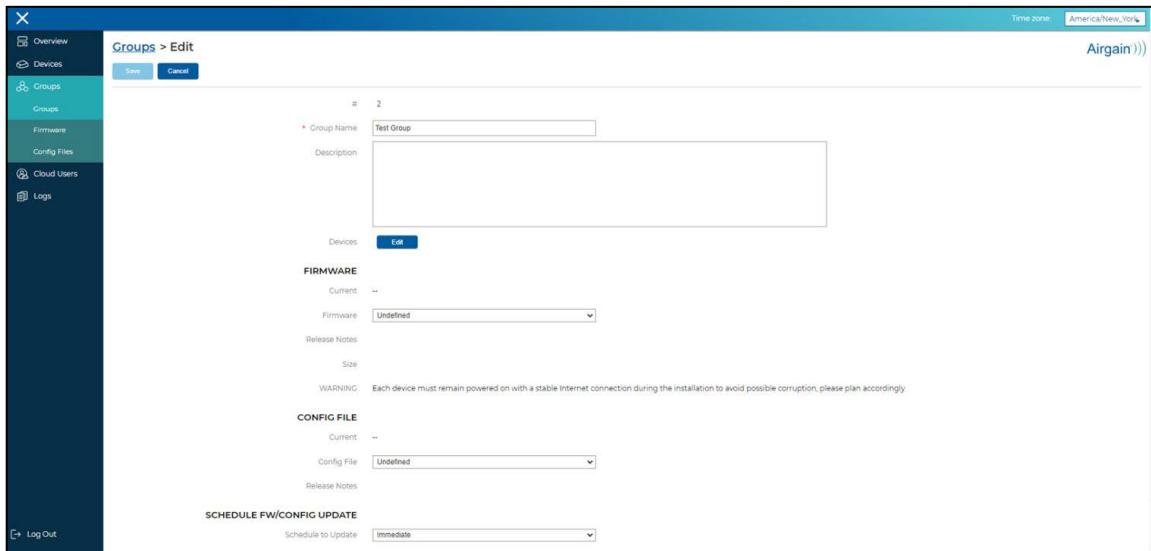


Figure 13 – Group configuration options.

2. Modify the **Group Name** and **Description**.
3. Select and schedule firmware and configuration file updates.

**Note:** For firmware updates, each device must remain powered on with a stable internet connection during the installation to avoid possible corruption, so please plan accordingly.

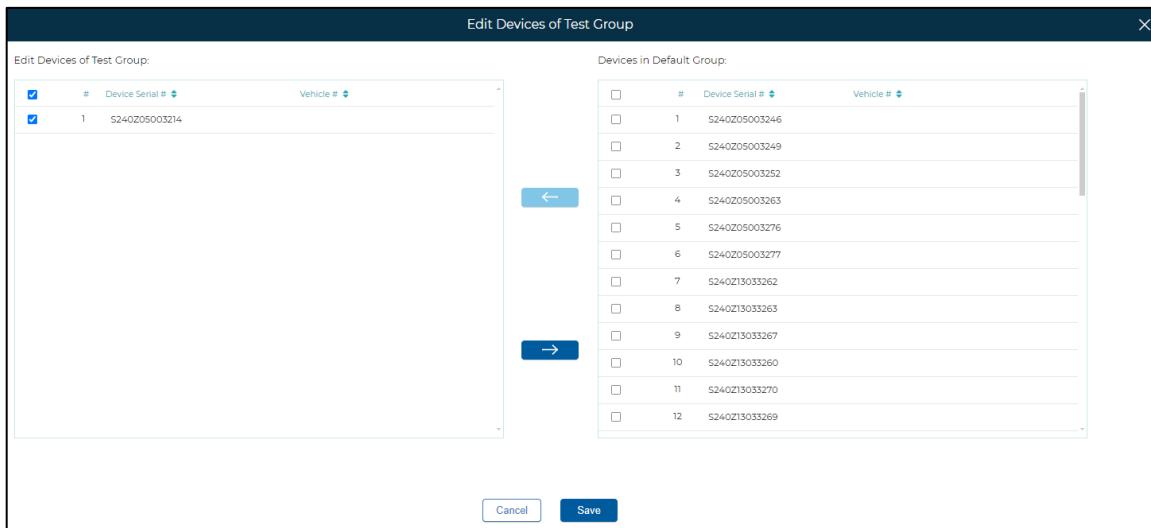


Figure 14 – Edit Group devices.

4. Move devices between the **Default Group**.

## 2.8 Firmware

Figure 15 shows the **Firmware** screen where you can browse available AC-Fleet firmware with links to release notes on the [AC-Fleet product page](#):

	Firmware	Release Date	Size	Release Notes
1	v03.01.02.00002	06/04/2024 01:20:27	37.50 MB	b5 FW
2	v03.01.02.00002	06/04/2024 01:55:35	37.50 MB	b5 FW dummy
3	v03.01.02.00002d	06/04/2024 04:45:10	37.50 MB	b5 FW dummy

Figure 15 – Firmware screen.

## 2.9 Config Files

Figure 16 shows the **Config Files** screen where you can browse AC-Fleet configuration files:

	Config File	Size	Description
1	Config-176570971	2.6kB	uploaded by sh 5240213033260 on Fri May 24 00:36:11 2024

Figure 16 – Config Files screen.

## 2.10 Cloud Users

Figure 17 shows the **Cloud Users** screen where you can browse and manage AC-Cloud admin and user accounts.

	Username	Email	Role	Privilege
1	Shane Moser		admin	<input checked="" type="checkbox"/> View/Manage devices <input checked="" type="checkbox"/> View/Manage groups <input checked="" type="checkbox"/> Upload config <input checked="" type="checkbox"/> Download log
2	Yi Wang		admin	<input checked="" type="checkbox"/> View/Manage devices <input checked="" type="checkbox"/> View/Manage groups <input checked="" type="checkbox"/> Upload config <input checked="" type="checkbox"/> Download log
3	Patrick Hibbs		admin	<input checked="" type="checkbox"/> View/Manage devices <input checked="" type="checkbox"/> View/Manage groups <input checked="" type="checkbox"/> Upload config <input checked="" type="checkbox"/> Download log
4	Mark Hsu		admin	<input checked="" type="checkbox"/> View/Manage devices <input checked="" type="checkbox"/> View/Manage groups <input checked="" type="checkbox"/> Upload config <input checked="" type="checkbox"/> Download log
5	Randy Cozzolino		admin	<input checked="" type="checkbox"/> View/Manage devices <input checked="" type="checkbox"/> View/Manage groups <input checked="" type="checkbox"/> Upload config <input checked="" type="checkbox"/> Download log
6	Deirroy Rebello		admin	<input checked="" type="checkbox"/> View/Manage devices <input checked="" type="checkbox"/> View/Manage groups <input checked="" type="checkbox"/> Upload config <input checked="" type="checkbox"/> Download log
7	Davin Rodriguez		admin	<input checked="" type="checkbox"/> View/Manage devices <input checked="" type="checkbox"/> View/Manage groups <input checked="" type="checkbox"/> Upload config <input checked="" type="checkbox"/> Download log
8	Test		user	<input checked="" type="checkbox"/> View devices <input checked="" type="checkbox"/> View groups <input checked="" type="checkbox"/> Download device/group list <input checked="" type="checkbox"/> Download log

Figure 17 – Cloud Users screen.

1. Click on a username for configuration options.

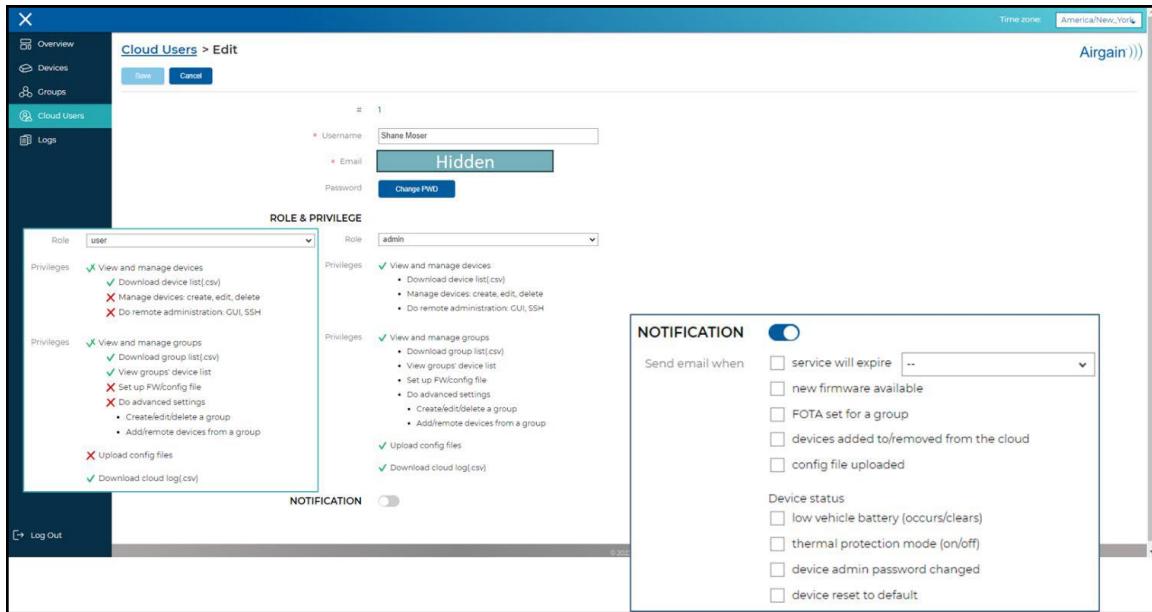


Figure 18 – User configuration options.

2. Modify **Username**, **Email**, and **Password**.
3. Select admin or user privileges.

**Note:** The User role only enables users to update their own password.

4. Configure email notification settings.

## 2.11 Logs

Figure 19 shows the **Logs** screen where you can browse available AC-Cloud event logs.

Logs				
Date/Time	Cloud User	IP Address	Action	
11	06/06/2024 14:27:10			
12	06/06/2024 18:29:42			
13	06/06/2024 18:31:51			
14	06/10/2024 16:58:44			
15	06/10/2024 19:17:29			
16	06/10/2024 19:17:56			
17	06/10/2024 19:22:03			
18	06/10/2024 19:41:03			
19	06/10/2024 19:43:49			
20	06/10/2024 19:52:35			

Figure 19 – Logs screen.

### 3 Local GUI

#### 3.1 Logging In

1. Refer to the product label attached to the Ethernet cable or device package label for relevant information (you can also request it from [Customer Support](#)):

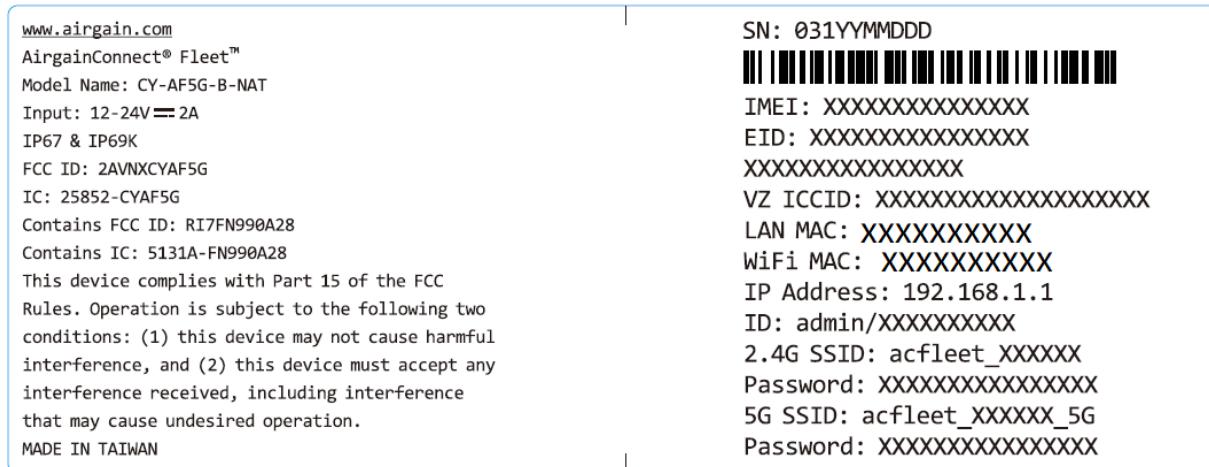


Figure 20 – Product Label



Figure 21 – Device Package Label

- a. IP address for accessing local GUI is **192.168.1.1**.
- b. Username is **admin**.
- c. Default admin password is listed after admin/ (**fmgbct7tkf7** in the example device package label above).
- d. SSID and corresponding password for 2.4G and 5G Wi-Fi are on consecutive lines.

2. Establish a LAN or WLAN connection after booting up the device.
  - a. LAN connection is available through ethernet cable exiting the device.
  - b. WLAN connection is available over 2.4G or 5G Wi-Fi.

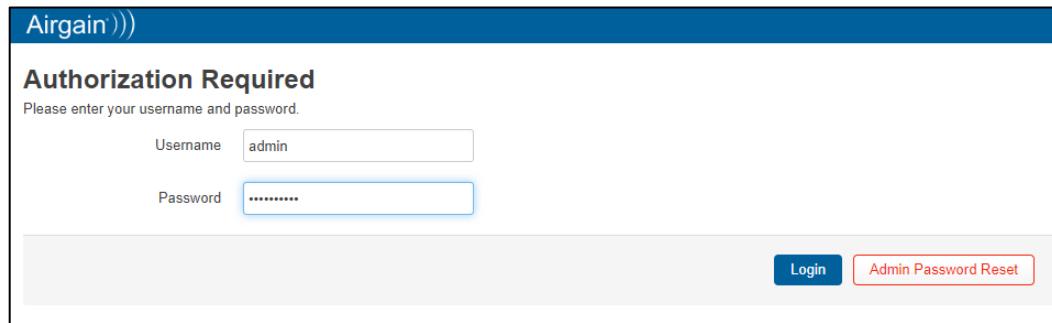


Figure 22 – Device login screen.

3. Enter the IP address in an internet browser to access the local GUI and log in.
  - a. Username is set to admin by default.
  - b. Enter the default admin password and click **Login**.
  - c. **Admin Password Reset** is for resetting to default admin password.

## 3.2 Syncing with AC-Cloud

1. AC-Fleet automatically syncs with AC-Cloud after booting up, as long as the device is added to the customer organization account and has an active subscription.
  - a. If booting up for the first time, AC-Fleet needs to download/activate an eSIM profile using the preloaded bootstrap profile or by connecting to Wi-Fi through Depot Mode.
    - i. If the device is not added to the customer organization account or not subscribed when syncing with AC-Cloud, the bootstrap profile becomes inactive until a *Reset to default* is performed.
    - ii. Depot Mode can only be enabled if the bootstrap profile fails to establish a connection as indicated by below pop-up notification.

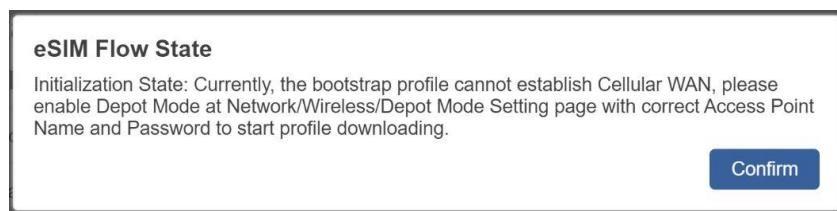


Figure 23 – Popup shown when the bootstrap profile fails to connect.

**Note:** There is a known bug where the bootstrap can sometimes get stuck in a *Loading* status. Typically a reboot or *Reset to default* settings resolves the issue, or you can enable Depot Mode instead.

- iii. Please allow up to 10 minutes for this initial syncing process to complete.
- iv. The bootstrap profile goes dormant once an eSIM profile is connected.
- v. Downloaded/activated eSIM profiles are visible in **Network > Cellular Settings**.

2. If updates are made to a device's eSIM configuration in AC-Cloud, a reboot is required for them to take effect.
  - a. The device will continue cycling through all available eSIM profiles in order of priority until cellular connectivity is confirmed.

## 3.3 Navigation

The local GUI is organized into the following menus and configuration options:

- 1. Status
  - a. Overview
    - i. GPS Log
    - ii. System Log
- 2. System
  - a. System Properties
    - i. General Settings
      - 1. Local Time
      - 2. Timezone
      - 3. Hostname
    - ii. Logging
      - 1. External system log server
    - iii. Time Synchronization
      - 1. NTP/GPS
    - iv. Power Management
      - 1. Minimum Battery Voltage
      - 2. Ignition Off Timer
  - b. Administration
    - i. Router Password
    - ii. User Account
    - iii. Advanced Mode
  - c. Backup / Flash Firmware
    - i. Backup
    - ii. Restore
    - iii. Flash new firmware
  - d. Reboot

3. Network
  - a. IP Interfaces
  - b. Wireless
    - i. SSID
      1. General Setup
      2. Wireless Security
      3. MAC-Filter
    - ii. Depot Mode Setting
  - c. Routing (visible in Advanced Mode)
    - i. Static IPv4 Route
    - ii. Static IPv6 Route
    - iii. IPv4 Policy Route
    - iv. IPv6 Policy Route
  - d. GPS
    - i. Remote Server
    - ii. Sentence Type
  - e. Diagnostics
    - i. Speedtest
    - ii. Modem (visible in Advanced Mode)
  - f. Cellular Settings
  - g. Firewall (visible in Advanced Mode)
    - i. General Settings
      1. Enable SYN-flood protection
      2. Drop invalid packets
      3. Zones
    - ii. Port Forwards
    - iii. Traffic Rules
  - h. eSIM Setup Flow
    - i. AC-Cloud Subscription
    - ii. Ping Test After Activation/Device Reboot
    - iii. Profile Switching Conditions
  - i. eSIM Profile Manage (visible in Advanced Mode)
  - j. QoS (visible in Advanced Mode)
    - i. Classification Rules

## 3.4 Status

### 1. Overview

Airgain®))		Status	System	Network	Logout
<b>Cellular Status</b>					
Profile	eSIM Profile 2				
Status	Active				
IMSI	Hidden				
ICCID	Hidden				
EID	Hidden				
IMEI	Hidden				
Network Mode	AT&T				
Country/Region	United States of America				
Network	5G NSA				
Band	LTE Band 14 (700/800 MHz) RSSI: -81 dBm SINR: 9 dB RSRP: -110 dBm RSRQ: -11 dB				
Secondary Band(SCC1)	N/A				
Secondary Band(SCC2)	N/A				
<b>System</b>					
Hostname	ACfleet-S240Z13033268				
Model	AC-Fleet				
Firmware Version	v13.01.02.0005				
Local Time	2024-09-23 20:42:05				
GPS Log (Last 7 days)	<a href="#">Download</a>				
System Log (Last 7 days)	<a href="#">Download</a>				

Figure 24 – Status Overview screen.

### 2. Cellular Status:

- Profile:** Current eSIM profile, with more details in **Cellular Settings**.
- Status:** Current eSIM profile connectivity with corresponding details underneath.
  - Active:** Specified eSIM profile is in use.
  - Loading:** Device is in the process of switching to a new eSIM profile.
  - Inactive:** Device failed to establish a cellular connection.

### 3. System:

- Relevant device information and options for downloading GPS and System logs.

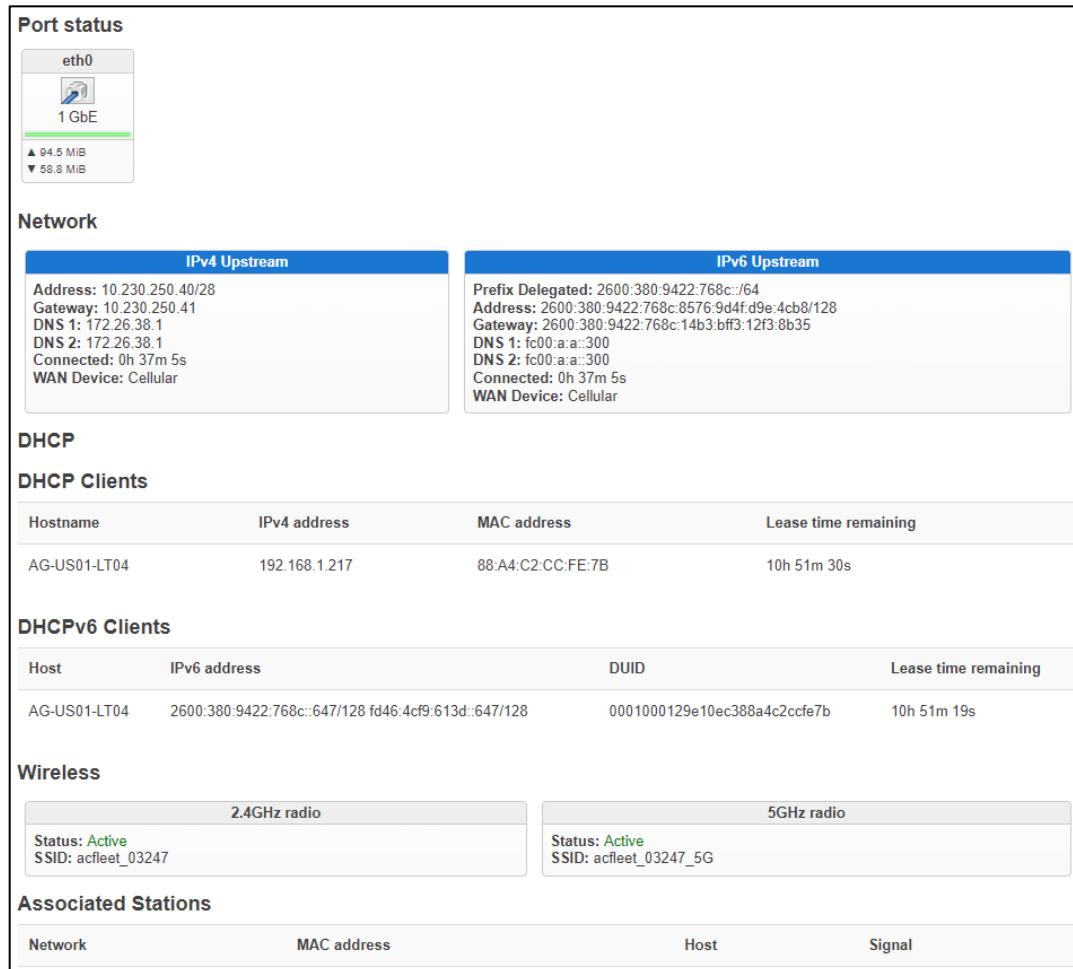


Figure 25 – Status Overview screen continued.

- Port status:** Relevant LAN information; hover the mouse over the bottom of the box for additional data.
- Network:**
  - Internet Protocol (IP) address info for IPv4 and IPv6.
  - WAN Device indicates if connected over cellular or WLAN if in Depot Mode.
- Dynamic Host Configuration Protocol (DHCP):** Relevant information for device clients.
- Wireless:**
  - Active:** AC-Fleet is broadcasting as an Access Point.



Figure 26 – SSID not available when in Depot Mode.

- a. **Inactive:** AC-Fleet is behaving as a client in Depot Mode.

8. **Associated Stations:** Relevant information for active clients.

## 3.5 System

### 1. System Properties

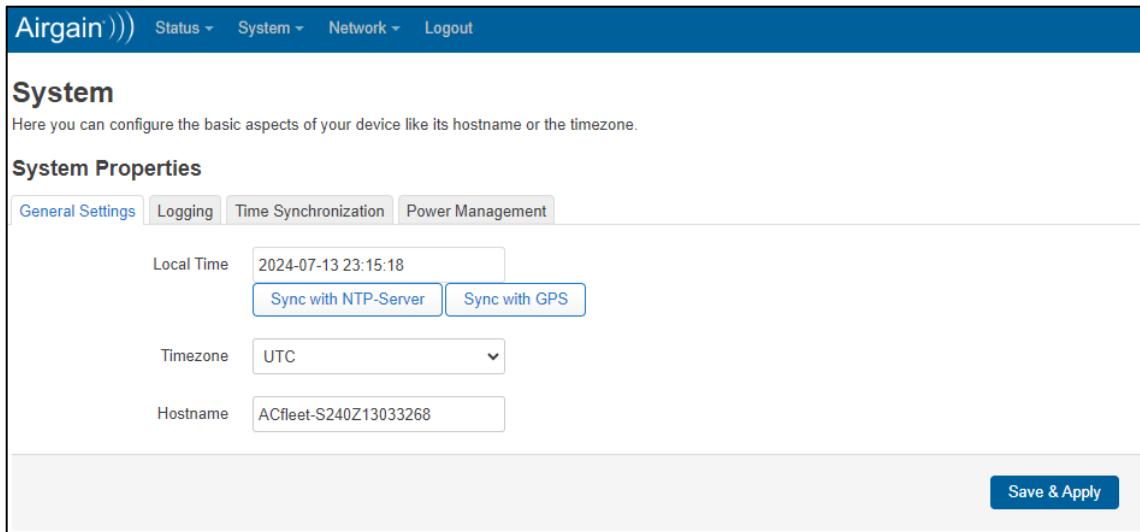


Figure 27 – System Properties screen.

- a. **General Settings:**
  - i. Select **Timezone** to configure the local time.  
Click **Sync with NTP-Server** or **Sync with GPS** to manually sync UTC time.
  - ii. Option for configuring Hostname.

Airgain))) Status System Network Logout

## System

Here you can configure the basic aspects of your device like its hostname or the timezone.

### System Properties

General Settings **Logging** Time Synchronization Power Management

External system log server: 0.0.0.0  
 ⓘ The format of external log will be the same as local side.  
 ⓘ System log messages will be streamed to a specific IP address, which will be determined by this field.

External system log server port: 514

External system log server protocol: UDP  
UDP  
**UDP**  
TCP

**Save & Apply**

Figure 28 – Export system logs.

- b. **Logging:** Automatically export system logs to an external server when updated.

Airgain))) Status System Network Logout

## System

Here you can configure the basic aspects of your device like its hostname or the timezone.

### System Properties

General Settings Logging **Time Synchronization** Power Management

Time Sync: NTP  
NTP  
**NTP**  
GPS  
NTP/GPS

NTP server candidates: 1.pool.ntp.org

**Save & Apply**

Figure 29 –System Time Synchronization.

- c. **Time Synchronization:** Configure automatic UTC time synchronization to NTP or GPS.

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**System**

Here you can configure the basic aspects of your device like its hostname or the timezone.

**System Properties**

General Settings Logging Time Synchronization **Power Management**

Minimum Battery Voltage  ⑦ Range: 9V~26V  
⑦ If the battery voltage suddenly falls below the threshold, any data log (include GNSS data) that has not been stored to flash will not be saved before entering standby.

Ignition Off Timer  ⑦ Range: 30(s)~14400(s)  
⑦ The device will continue to serve for several seconds after the vehicle is turned off. The duration of service is determined by the setting value here.

**Save & Apply**

Figure 30 – System Power Management.

d. **Power Management:**

- i. **Minimum Battery Voltage:** Minimum voltage before AC-Fleet enters standby mode to avoid draining a low vehicle battery.
- ii. **Ignition Off Timer:** Length of time after the vehicle is turned off before AC-Fleet enters standby mode.

2. **Administration**

Airgain)) Status System Network Logout

Router Password User Account Advanced Mode

**Router Password**

Changes the administrator password for accessing the device

Password  \*

Confirmation  \*

**Save**

Figure 31 – Router Password customization.

- a. **Router Password:** Customize the admin password for accessing the local GUI.

Airgain®)) Status ▾ System ▾ Network ▾ Logout

Router Password User Account Advanced Mode

### User Login Permission

Login permission for user account

Enable   Enable user account

Account user

Password  \*

Confirmation  \*

Save & Apply

Figure 32 – Enable User Account.

b. **User Account:** Configure a user account which only has access to **Status Overview** and **Reboot**.

Airgain®)) Status ▾ System ▾ Network ▾ Logout

Router Password User Account Advanced Mode

### Advanced Mode

Switch to advanced Mode

Enable Advanced Mode   Advanced Mode will provide more device information and setting to configure

Save & Apply

Figure 33 – Enable Advanced Mode

c. **Advanced Mode:** For accessing the following advanced gateway settings:

- i. Routing
- ii. Modem information and logs (under Diagnostics)
- iii. Firewall
- iv. eSIM Profile Manage
- v. Quality of Service

Figure 34 – Firmware and Configuration File options.

### 3. Backup / Flash Firmware

- a. **Backup:** Download config files locally or to AC-Cloud.
- b. **Restore:** Upload config files or reset device to default settings.

**Note:** Reset to defaults activates the bootstrap profile for the initial sync with AC-Cloud. It doesn't delete existing eSIM profiles, they can only be deleted from the device using AC-Cloud.

- c. **Flash new firmware image.**
  - i. **Upgrade Now:** Installs the latest version from AC-Cloud.

**Note:** There is a known bug where this option might be missing; enable **Advanced Mode** to make it visible.

ii. **Select image:** Upload the desired firmware locally.

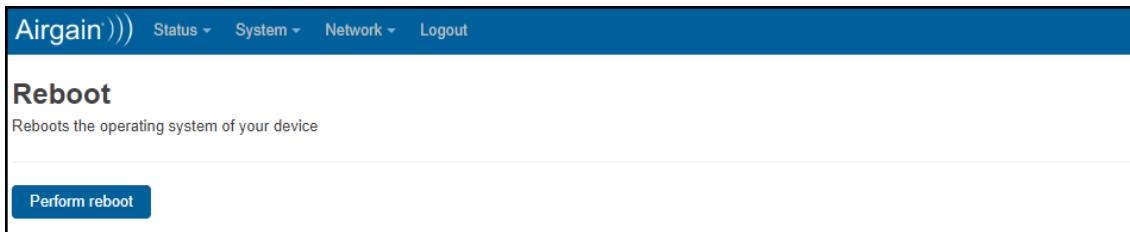


Figure 35 – Reboot screen.

#### 4. Reboot

a. **Perform reboot:** Reboots the device.

## 3.6 Network

### 1. IP Interfaces

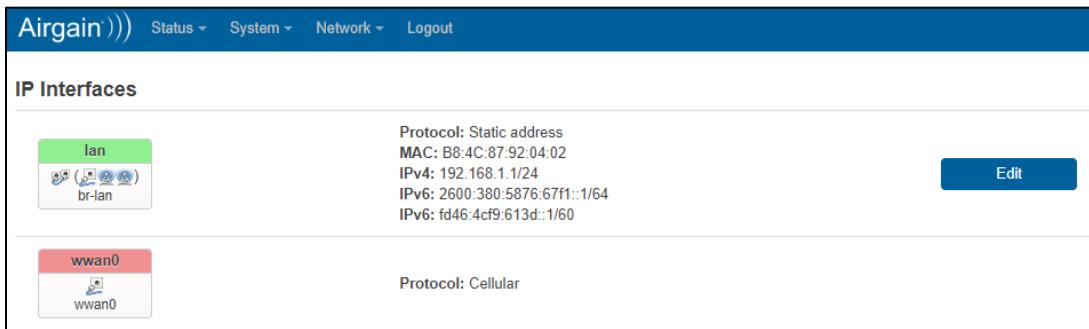


Figure 36 – IP Interfaces screen.

a. Relevant IP interface information and option for editing settings.

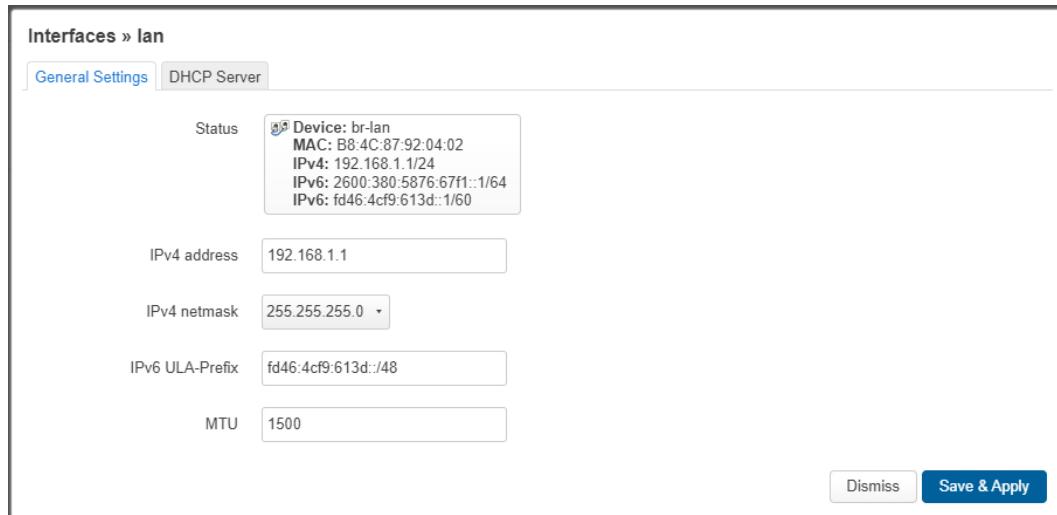


Figure 37 –IP interface settings.

b. **General Settings:** Edit general settings.

The screenshot shows the 'Interfaces > lan' configuration page. The 'DHCP Server' tab is active. The 'Start' field is set to 100, with a note: 'Starting address of the DHCPv4 pool. Please make sure lan IPv4 address not inside of pool range.' The 'Limit' field is set to 150, with a note: 'Maximum number of leased addresses.' The 'Lease time' field is set to 12h, with a note: 'Expiry time of leased addresses, maximum is 52 weeks, minimum is 2 mins. Ex. 2w, 10d, 12h, 40m, 960s.' At the bottom are 'Dismiss' and 'Save & Apply' buttons.

Figure 38 –DHCP Server settings

c. **Dynamic Host Configuration Protocol (DHCP) Server:** Specify DHCP server settings for automatically assigning IP addresses to clients.

## 2. Wireless

The screenshot shows the 'Wireless Overview' screen. It lists three wireless interfaces:
 

- 2.4GHz:** Generic MAC80211 802.11b/g/n/ax, Channel: 6 (2.437 GHz). Action: **Edit**
- 5GHz:** Generic MAC80211 802.11n/ac/ax, Channel: 149 (5.745 GHz). Action: **Edit**
- unknown:** Multiple BSSID. Action: **Add**

Figure 39 – Wireless Overview screen.

a. **SSID:**

- Configure existing SSID settings or additional SSID options.

Wireless Network: "acfleet\_03247"

**Device Configuration**

[General Setup](#)

Status **SSID: acfleet\_03247**

Wireless network is enabled **Disable**  
? The button is NOT working when Depot Mode is enabled.

Operating frequency **Mode: AX, Band: 2.4 GHz, Channel: auto, Width: 40 MHz**

**Interface Configuration**

[General Setup](#) [Wireless Security](#) [MAC-Filter](#)

Mode **Access Point**

ESSID **acfleet\_03247**

[Dismiss](#) [Save & Apply](#)

Figure 40 –SSID configuration settings.

ii. **General Setup:** Customize SSID and operating frequency.

Wireless Network: "acfleet\_03247"

**Device Configuration**

[General Setup](#)

Status **SSID: acfleet\_03247**

Wireless network is enabled **Disable**  
? The button is NOT working when Depot Mode is enabled.

Operating frequency **Mode: AX, Band: 2.4 GHz, Channel: auto, Width: 40 MHz**

**Interface Configuration**

[General Setup](#) [Wireless Security](#) [MAC-Filter](#)

Encryption **WPA2-PSK (strong security)**

Cipher **Force CCMP (AES)**

Key **\*\*\*\*\***

[Dismiss](#) [Save & Apply](#)

Figure 41 – Wireless Security settings.

iii. **Wireless Security:** Customize SSID password and security settings.

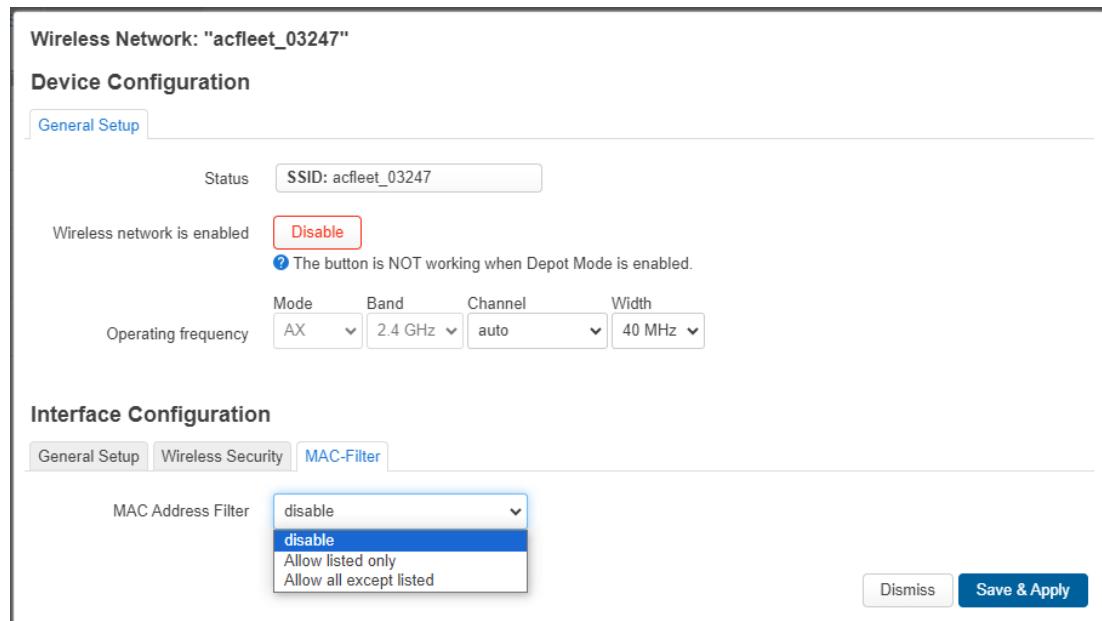


Figure 42 – MAC-Filter settings.

iv. **MAC-Filter:** Configure MAC address filtering.

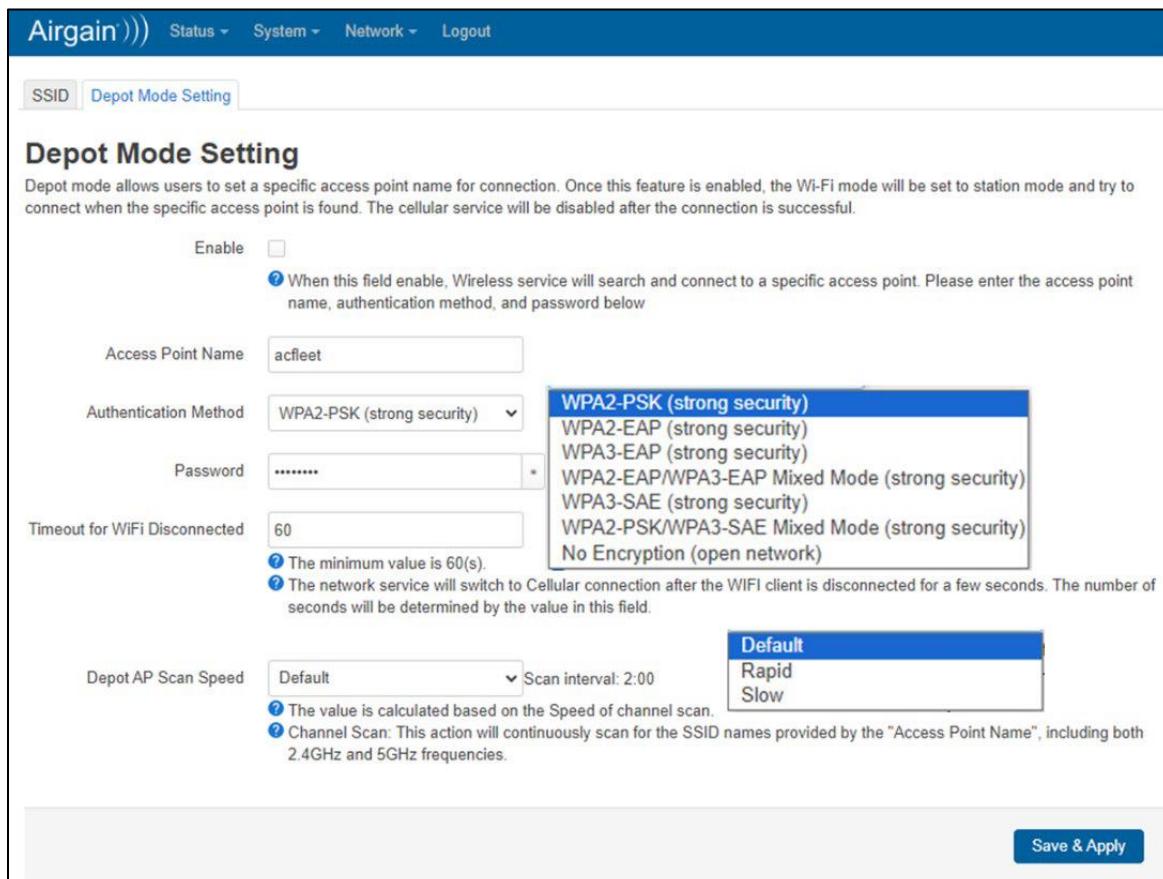


Figure 43 – Depot Mode settings.

b. **Depot Mode Setting:**

- i. Enable Depot Mode for AC-Fleet to automatically connect to a desired Wi-Fi Access Point (AP) once in range and disconnect once out of range.
  1. AC-Fleet will temporarily lose WAN connectivity as it switches between cellular and Depot Mode.
  2. SSID from AC-Fleet is disabled while in Depot Mode, except during initial syncing process.

**Notes:**

- Airgain recommends configuring Wi-Fi clients to also switch to the Depot Mode AP.
- AC-Fleet cannot connect to a hidden AP.

- ii. Configure the amount of time after losing connection to the Depot Mode AP before switching to cellular network.
- iii. Select how frequent AC-Fleet scans for the Depot Mode AP:
  1. Default interval is every two minutes.
  2. Rapid interval is every one minute.
  3. Slow interval is every three minutes.

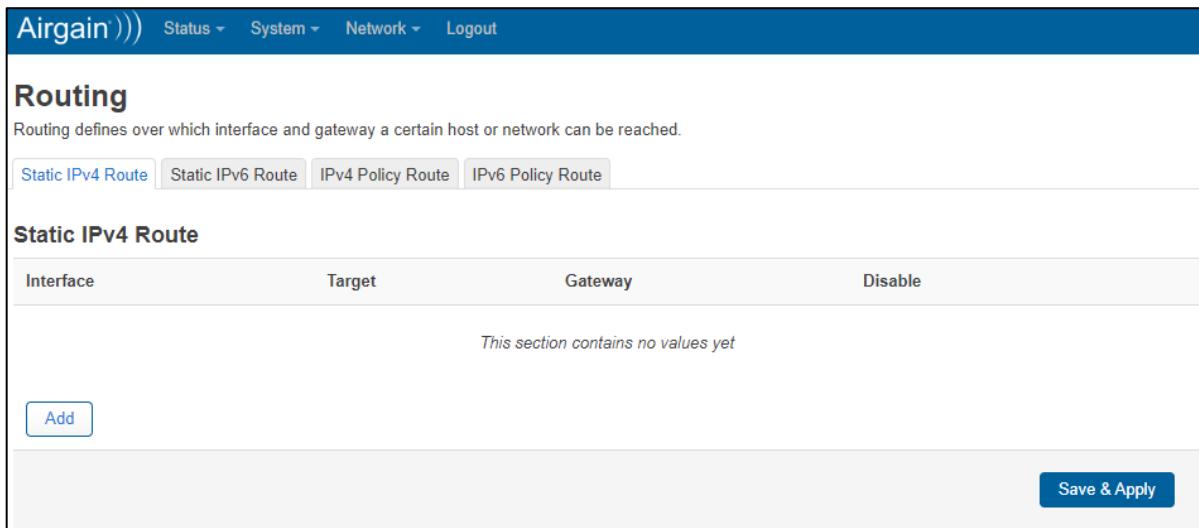


Figure 44 – Routing configuration options.

3. **Routing** (visible in Advanced Mode): Define IPv4 and IPv6 routing options.

Routing

General Settings

Interface: unspecified

lan:

wwan0:

Specifies the logical interface name of the parent (or master) interface this route belongs to

Target: 0.0.0.0/0

Network address

Gateway: 192.168.0.1

Specifies the network gateway. If omitted, the gateway from the parent interface is taken if any, otherwise creates a link scope route. If set to 0.0.0.0 no gateway will be specified for the route

Dismiss Save & Apply

Figure 45 – Static route settings.

- Add a static route.

Routing

General Settings

Incoming interface: unspecified

lan:

wwan0:

Specifies the incoming logical interface name

Source: 0.0.0.0/0

Specifies the source subnet to match (CIDR notation)

Outgoing interface: unspecified

Specifies the outgoing logical interface name

Destination: 0.0.0.0/0

Specifies the destination subnet to match (CIDR notation)

Dismiss Save & Apply

Figure 46 – Policy route settings.

- Add a policy route.

**GPS Forwarding**

**Remote Server**

Enable :

Host Name/IP: 172.0.0.1.80

Protocol: UDP

Report interval (s): 5

GPS Report Format: NMEA

**Sentence Type**

Configuration of the GNSS Sentence Type

NMEA: GGA+VTG

**Save & Apply**

Figure 47 – GPS Forwarding screen.

4. **GPS:** Stream GPS data to external platforms that support NMEA format.
  - a. Host Name/IP for destination server is in the format IP Address:Port.
  - b. NMEA requires a static IP address to identify the device.
  - c. [Track Star](#) supports a custom AC-Fleet NMEA without need for static IP address.

**Diagnostics**

Execution of various network commands to check the connection and name resolution to other systems.

IPv4 Ping

IPv6 Ping

Figure 48 – Diagnostics screen.

5. **Diagnostics:**
  - a. Confirm connectivity of AC-Fleet.

DATE/TIME	PING(ms)	Download rate(Mbps)	Upload rate(Mbps)	Location/Server	Service Provider	GPS record	Band
2024/07/10 18:01	84.207	59.50	16.24	Rochester, NY/University of Rochester	AT&T Wireless	2707.543436N/08010.369276W	5G Band n5 (850 MHz) RSSI:-79 dBm SINR:11.5 dB RSRP:-91 dBm RSRQ:-11 dB

Figure 49 – Speedtest screen.

## b. Speedtest

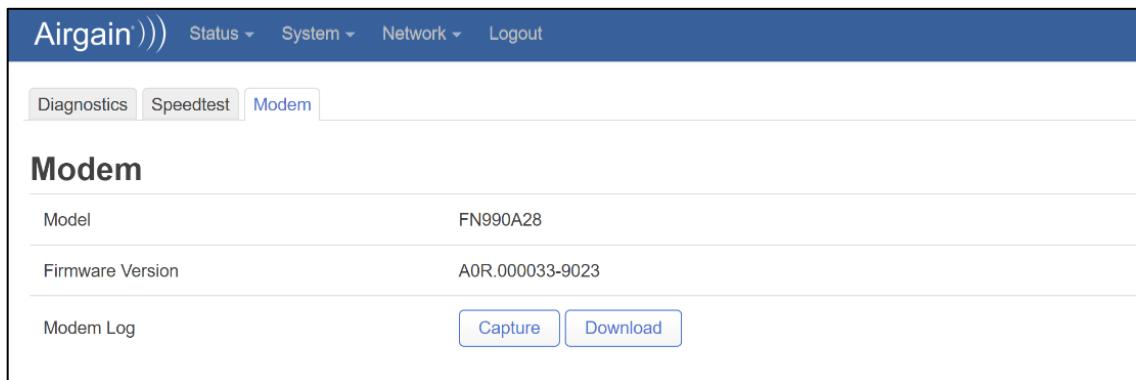
- Automatically collects performance and location data at desired intervals.

**Note:** This is limited to 20 entries in the local GUI.

```
Speed test start.
Speedtest DATE/TIME:2024/07/10 21:41,PING:79.047,
Speedtest DATE/TIME:2024/07/10 21:43,PING:68.621,
Speed test end.
```

Figure 50 – Example of Speedtest output in system log.

- Search for **Speedtest** in system log to see the full results.



The screenshot shows a web-based interface for an Airgain device. At the top, there is a blue header bar with the Airgain logo on the left and navigation links: Status, System, Network, and Logout. Below the header, there is a navigation bar with three tabs: Diagnostics, Speedtest, and Modem. The Modem tab is currently selected and highlighted in blue. The main content area is titled "Modem". It displays two pieces of information: "Model" (FN990A28) and "Firmware Version" (A0R.000033-9023). At the bottom of this section, there is a "Modem Log" button, followed by two buttons: "Capture" and "Download".

Figure 51 – Modem information screen.

- c. **Modem** (visible in Advanced Mode): Modem information as well as options for capturing and downloading Modem Logs.

The screenshot shows the 'Cellular Settings' page of the Airgain interface. At the top, there are checkboxes for 'IP Passthrough' and 'Reply to ICMP Ping'. Below these are dropdowns for 'DNS Servers' (set to 'Static') and 'MTU (Maximum Transmission Unit)' (set to 1500). A large button labeled 'eSIM Profile 1' is visible. To the right, there are fields for 'IPv4 Primary DNS Server' and 'IPv4 Secondary DNS Server'. Below this, there are fields for 'Priority' (set to 1), 'ICCID' (89148000010397431271), 'Carrier' (Verizon), 'Name' (preloaded\_eSIM), and 'Authentication' (a dropdown menu showing 'Auto', 'CHAP Only', 'PAP Only', and 'NONE', with 'NONE' selected). Further down are fields for 'Cellular Operation' (Auto(LTE/NR5G-NSA/NR5G-S)), 'APN Operator Setting' (Custom), and 'Data Roaming' (unchecked). Below these are fields for 'APN' (V5GA01INTERNET), 'SIM PIN' (a field with an asterisk), and 'Confirm PIN' (a field with an asterisk). At the bottom right is a 'Save & Apply' button.

Figure 52 – Cellular Settings screen.

## 6. Cellular Settings

- Certain settings are universal and are applied for all cellular connectivity:
  - IP Passthrough** can be enabled for assigning to the first IP-requesting host.
  - Reply to Internet Control Message Protocol (ICMP) Ping** can be enabled for reporting errors and performing network diagnostics.

- iii. **Domain Name System (DNS) Servers** is set to **Dynamic** by default to keep the domain name associated with an ever-changing IP address.
- iv. Change to **Static** if using a static IP address and enter DNS server(s).
- v. **Maximum Transmission Unit (MTU)** size of WAN interface is fixed at 1500 bytes.

b. Each downloaded/activated eSIM profile has its own tab and settings.

- i. **Priority, Name** and **APN** can only be updated from syncing with AC-Cloud.
- ii. **ICCID, Carrier** and **APN Operator Setting** are fixed.
- iii. **Authentication** can be enabled for extra security.
- iv. **Cellular Operation** is set to **Auto** by default with options for 5G only and LTE only.
- v. **Data Roaming** can be enabled for roaming to other network operators.
- vi. **SIM PIN** can be entered if needed.

c. After rebooting the device, changes cannot be made to cellular settings until after the syncing process with AC-Cloud is completed.

- i. If changes are needed to establish a cellular connection, then try enabling Depot Mode to complete the syncing process.

**General Settings**

Enable SYN-flood protection  Enable this option to defend against SYN flood denial-of-service attacks

Drop invalid packets

Input	reject
Output	accept
Forward	reject

**Zones**

Zone ⇒ Forwardings	Input	Output	Forward
ipp ⇒ wan	ACCEPT	ACCEPT	ACCEPT
lan ⇒ wan	ACCEPT	ACCEPT	ACCEPT
wan ⇒ wan	REJECT	ACCEPT	REJECT

**Save & Apply**

Figure 53 – Firewall Zone settings.

## 7. **Firewall** (visible in Advanced Mode)

### a. **General Settings:**

- i. Enable protection from SYN flood denial-of-service attacks.
- ii. Configure invalid packet drop parameters.
- iii. Define Zones.

Airgain)) Status System Network Logout

General Settings Port Forwards Traffic Rules

### Firewall - Port Forwards

Port forwarding allows remote computers on the Internet to connect to a specific computer or service within the private LAN.

#### Port Forwards

Name	Match	Action	Enable
This section contains no values yet			

**Add** **Save & Apply**

Figure 54 – Firewall Port Forwards screen.

**b. Port Forwards:**

- Configure port forwarding.

Firewall - Port Forwards - Unnamed forward

General Settings

Name: Unnamed forward

Protocol: TCP  UDP

External port:

Match incoming traffic directed at the given destination port or port range on this host

Internal IP address: any

Redirect matched incoming traffic to the specified internal host

Internal port: any

Redirect matched incoming traffic to the given port on the internal host

Dismiss **Save & Apply**

Figure 55 – Port Forward settings.

- Add/Edit port forwarding.

**Firewall - Traffic Rules**

Traffic rules define policies for packets traveling between different zones, for example to reject traffic between certain hosts or to open WAN ports on the router.

**Traffic Rules**

Name	Match	Action	Enable
Allow-DHCP-Renew	Incoming <b>IPv4</b> , protocol <b>UDP</b> From <b>wan</b> To <b>this device</b> , port <b>68</b>	<a href="#">Accept</a> input	<input checked="" type="checkbox"/> <a href="#">Edit</a> <a href="#">Delete</a>
Allow-Ping	Incoming <b>IPv4</b> , protocol <b>ICMP</b> From <b>wan</b> To <b>this device</b>	<a href="#">Drop</a> input	<input checked="" type="checkbox"/> <a href="#">Edit</a> <a href="#">Delete</a>
Allow-IGMP	Incoming <b>IPv4</b> , protocol <b>IGMP</b> From <b>wan</b> To <b>this device</b>	<a href="#">Accept</a> input	<input checked="" type="checkbox"/> <a href="#">Edit</a> <a href="#">Delete</a>
Allow-DHCPv6	Incoming <b>IPv6</b> , protocol <b>UDP</b> From <b>wan</b> To <b>this device</b> , port <b>546</b>	<a href="#">Accept</a> input	<input checked="" type="checkbox"/> <a href="#">Edit</a> <a href="#">Delete</a>

[Add](#) [Save & Apply](#)

Figure 56 – Firewall Traffic Rules screen.

**C. Traffic Rules:**

i. Configure traffic rules.

**Firewall - Traffic Rules - Unnamed rule**

[General Settings](#)

Name: Unnamed rule

Protocol: TCP | UDP

Source zone: Device (output)

Source address: – add IP –

Source port: any

Output zone:

Destination address: – add IP –

Destination port: any

Action: accept

Any

TCP

UDP

ICMP

IGMP

IPSEC-ESP

– custom –

Device (output)

Any zone (forward)

ipp (empty)

lan lan:

wan wwan0:

drop

accept

reject

[Dismiss](#) [Save & Apply](#)

Figure 57 – Adding a traffic rule.

- ii. Add/Edit traffic rules.
- d. The following are default network communication services on the device:
  - i. DNS outbound and inbound (53/UDP, 53/TCP): lookup of domain names to IP addresses.
  - ii. NTP outbound (123/UDP): obtain date and time.
  - iii. HTTP(S) inbound (80/TCP, 443/TCP): local user interface service. Blocked from the WAN side by default traffic rules.
  - iv. AC-Cloud outbound (997/TCP, 443/TCP): remote device management.
  - v. AC-Cloud inbound (42138/TCP): remote device management.

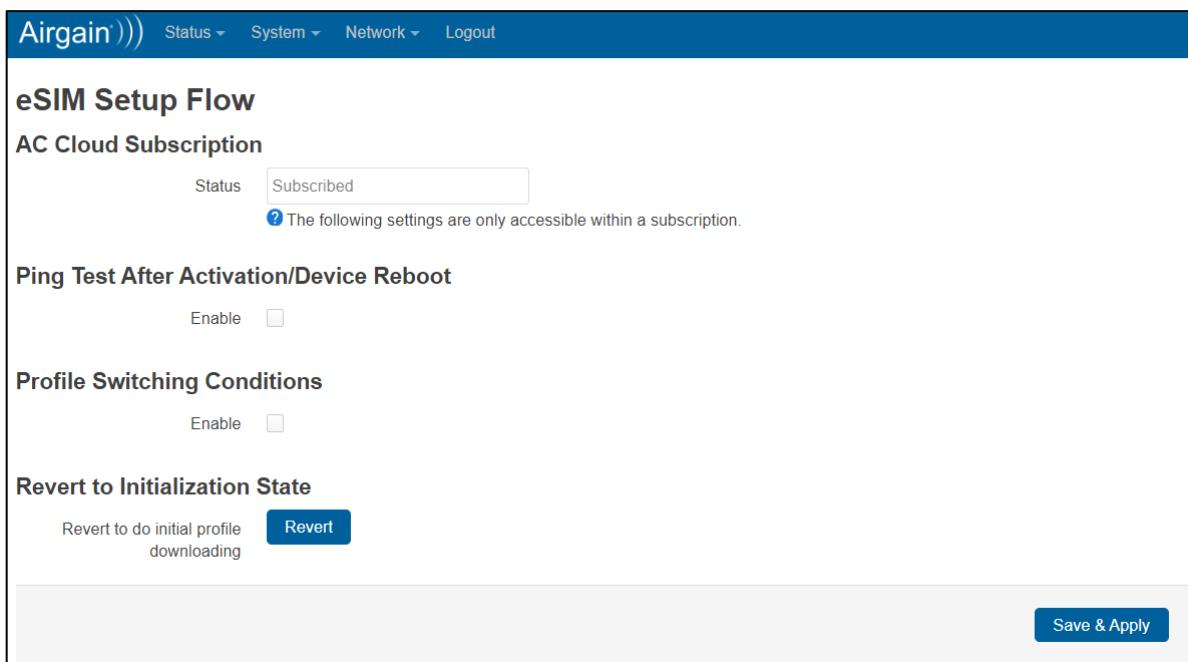


Figure 58 – eSIM Setup Flow screen.

## 8. eSIM Setup Flow

- a. AC-Cloud Subscription indicates the device's subscription status.

**Note:** The bootstrap profile is disabled when the device is **Unsubscribed**.

- b. Enable **Ping Test** for additional confirmation the eSIM profile is connected to the cellular network.
  - i. The device always checks for an IP address by default, which is displayed under **Network** on the **Overview** screen.

- c. Enable **Profile Switching Conditions** for configuring how long after the current eSIM profile loses connectivity before automatically switching to the next priority.
- d. The **Revert** button activates the bootstrap profile for syncing with AC-Cloud if a connection cannot be established with existing eSIM profiles or while in Depot Mode.

**Note:** The bootstrap profile has limited data so it should only be used if necessary.

**Ping Test After Activation/Device Reboot**

Enable

Test host option(s)    ⓘ A maximum of 3 hosts may be permitted.

Number of test packet(s)   ⓘ The range from 1 to 5 packets. A response from any packet means success, otherwise it means failure.

Figure 59 – Ping Test settings.

- e. Enabling **Ping Test After Activation/Device Reboot** requires that an eSIM profile must satisfy the ping test settings to confirm cellular connectivity after booting up.
  - i. Test host option(s): Accepts IPv4, IPv6, or a hostname such as google.com.
  - ii. Number of test packet(s): Defines the number of ping test requests that can respond within two seconds.

**Profile Switching Conditions**

Enable

Lose connection for (seconds)   ⓘ The range is from 5 to 120 seconds.

Ping test enable

Ping latency exceeds (ms)   ⓘ The range is from 500 to 1500 milliseconds.

Ping test host

Figure 60 – Profile Switching settings.

- f. Enabling **Profile Switching Conditions** allows the device to automatically switch to the next priority eSIM profile if cellular connectivity is lost.

- i. Lose connection for (seconds)
  - 1. Device checks for a loss of IP every five seconds and triggers a switch if the configured time limit is reached.
- ii. Ping test enable requires an eSIM profile that satisfies the ping test settings to confirm cellular connectivity.
  - 1. The Ping test host accepts IPv4, IPv6, or a hostname such as google.com.

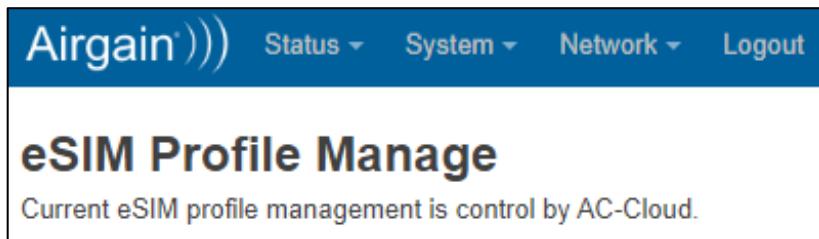


Figure 61 – eSIM Profile Manage screen.

9. **eSIM Profile Manage** (not applicable with an active AC-Cloud subscription).

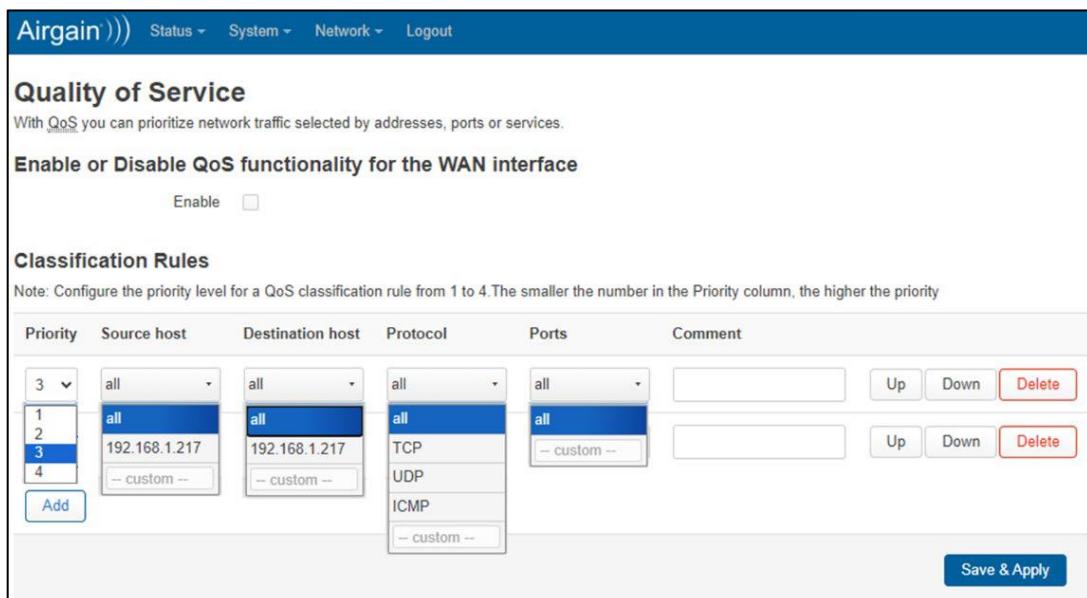


Figure 62 – QoS settings screen.

10. **QoS:** configure Quality of Service settings.

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## 4 Customer Support

For any questions, please contact Airgain Support:  
[connectivity.support@airgain.com](mailto:connectivity.support@airgain.com).