Nokia FastMile 5G Gateway 2

User Guide

August 2022

Nokia is committed to diversity and inclusion. We are continuously reviewing our customer documentation and consulting with standards bodies to ensure that terminology is inclusive and aligned with the industry. Our future customer documentation will be updated accordingly.

Table of contents

Safety guidelines

Radio frequency safety distance is 20 cm (7.8 inches).

Follow these guidelines when using the FastMile 5G Gateway 2:

Warning: If the gateway is dropped, especially on a hard surface, or in case of suspected damage, contact your service provider or where the device was purchased.

Warning: The FastMile 5G Gateway 2 must be used with power cables supplied with the equipment.

Introduction

Thank you for purchasing the Nokia FastMile 5G Gateway 2.

This guide explains how to set up the FastMile 5G Gateway 2 at home using visual cues from the LED to achieve the best performance from the 4G/LTE or 5G network. The guide also describes how to configure the FastMile 5G Gateway 2 using its web-based graphical user interface (GUI) known as the WebUI.

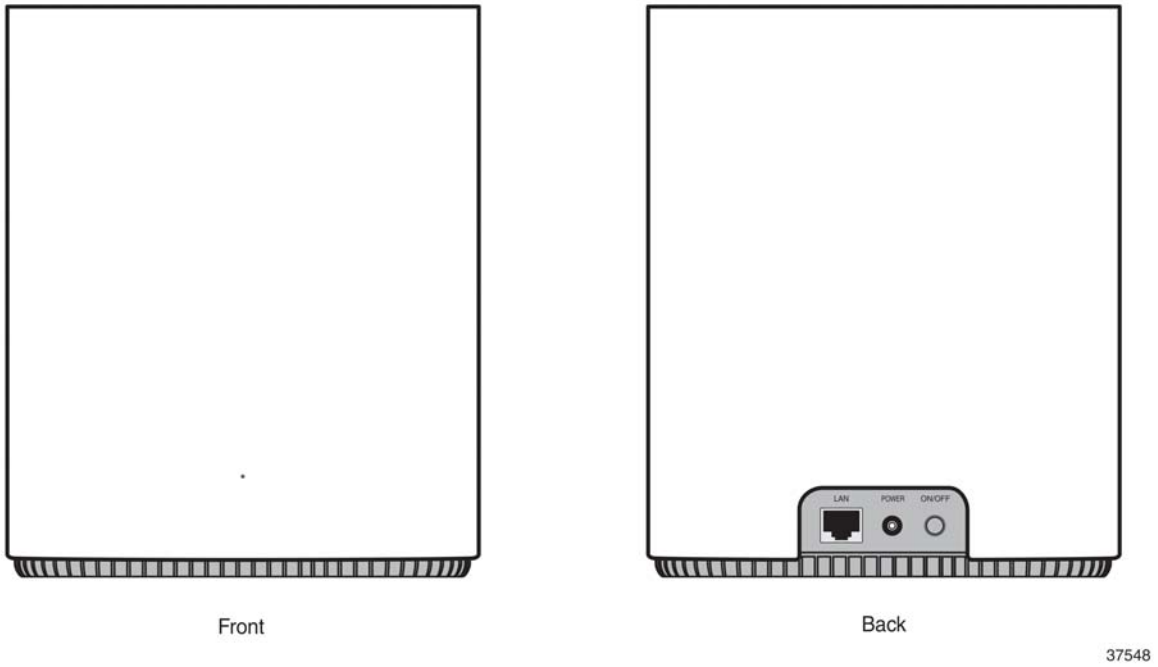
The contents of this guide are subject to change without notice.

Getting to know your FastMile 5G Gateway 2

You will find the following items in the box:

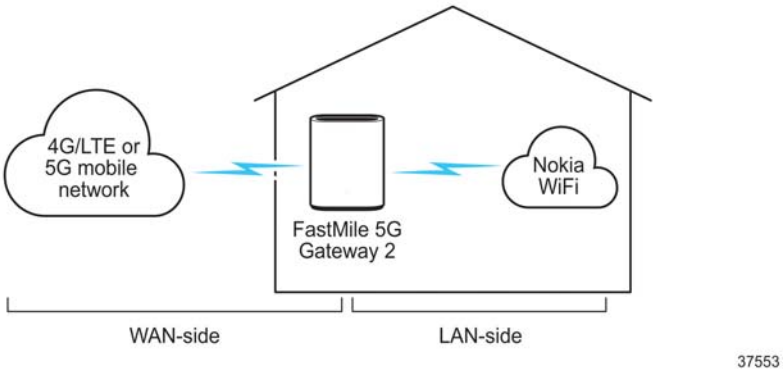
- FastMile 5G Gateway 2
- power adapter
- Quick Start Guide (QSG)
- warranty card
- safety card

Figure 1 **Front and back views of the FastMile 5G Gateway 2**



The FastMile 5G Gateway 2 typically has 4G/LTE and/or 5G mobile network connectivity in the upstream (WAN) direction and Nokia WiFi connectivity in the downstream (LAN) direction as shown in the following figure. The figure does not show that the FastMile 5G Gateway 2 also supports a Gigabit Ethernet connection on the LAN side.

Figure 2 **Network connections of the FastMile 5G Gateway 2**



The FastMile 5G Gateway 2 supports 4G/LTE and 5G NR WAN connectivity. The device integrates chipsets compliant with 3GPP Rel-15 standards. Theoretical peak rates are DL 4.7 Gbps and UL 1.25 Gbps. Actual throughputs will vary based on aggregated bandwidths, network configuration, network load, and radio conditions.

Note: Projected peak throughput for NR TDD 2CA: 100 MHz + 100 MHz 256 QAM with 95% DL duty cycle.

Your device can operate either in 5G NR or in 4G LTE. Where both 4G and 5G are available, the FastMile 5G Gateway 2 supports dual connectivity EN-DC.

5G NR provides best download and upload speeds, thus improved user experience for data services such as Internet browsing and video streaming. In case 5G NR coverage is not available in your area, the device can also operate with 4G LTE only as your WAN connection.

The FastMile 5G Gateway 2 provides the following features:

- 4G/LTE and 5G NR WAN connection
- multi-band omni-directional antenna for 5G NR and 4G/LTE (maximum up to 7.6 dBi)
- self-contained integrated residential gateway with a Gigabit Ethernet LAN port and support for Wi-Fi connectivity
- embedded SIM (eSIM) support (PCB-ready, optional feature that depends on the service provider)
- acts as an access point of an Wi-Fi EasyMesh network of Wi-Fi Beacon 2 units (up to 2 beacons supported)

- Wi-Fi connectivity:
  - 2x2 IEEE 802.11ax 2.4 GHz (40 MHz) WLAN interface, with MU-MIMO
  - 2x2 IEEE 802.11ax 5 GHz (80 MHz) WLAN interface, with MU-MIMO
  - Wi-Fi 4 support
  - Wi-Fi 5 support (IEEE 802.11ac)
  - Wi-Fi 6 support (IEEE 802.11ax) - dual band 2+2 connectivity
  - Backward compatible with 802.11a/b/g/n/ac
- Wi-Fi security:
  - WPA/WPA2: AES encryption
  - WPA2 personal: AES encryption
  - WPA2/WPA3 transition mode
  - WPA3 personal: AES encryption
- customized default WLAN key
- supports PIN-locked SIM cards: a SIM PIN number is required to unblock the SIM card service
- supports a logical temperature sensor
- can operate in the following modes:
  - LTE-only
  - LTE-5G EN-DC
  - 5G SA

About the modes

LTE only

When operating in the LTE-only mode, the FastMile 5G Gateway 2 will only use the 4G/LTE network to connect to the service provider's network.

LTE-5G EN-DC

When operating in the LTE-5G EN-DC mode, the FastMile 5G Gateway 2 uses a 4G/LTE carrier and 5G NSA carrier at the same time to connect to the service provider's network.

5G SA

When operating in the 5G SA mode, the FastMile 5G Gateway 2 uses the 5G network to connect to the service provider's network.

Physical interfaces

The FastMile 5G Gateway 2 physical interfaces include those shown in the following figures.

Figure 3 **Interfaces on the front of the FastMile 5G Gateway 2**

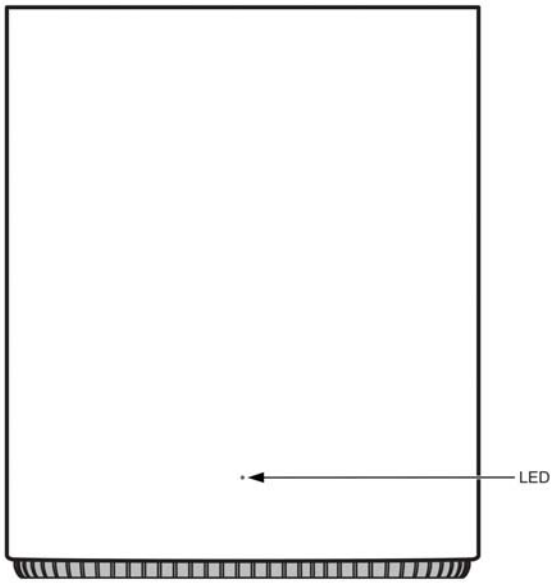
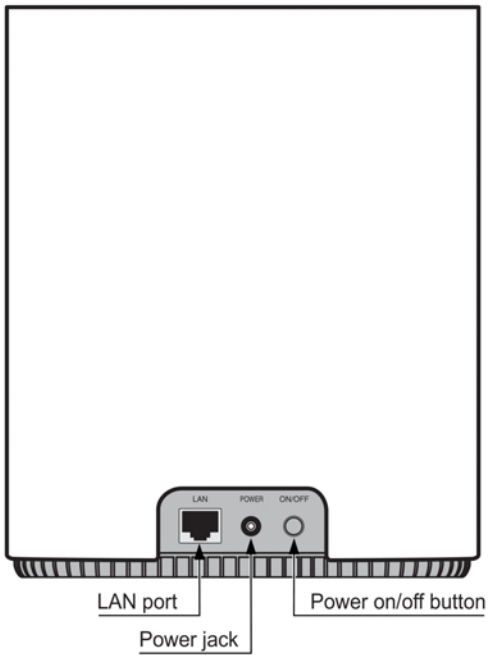


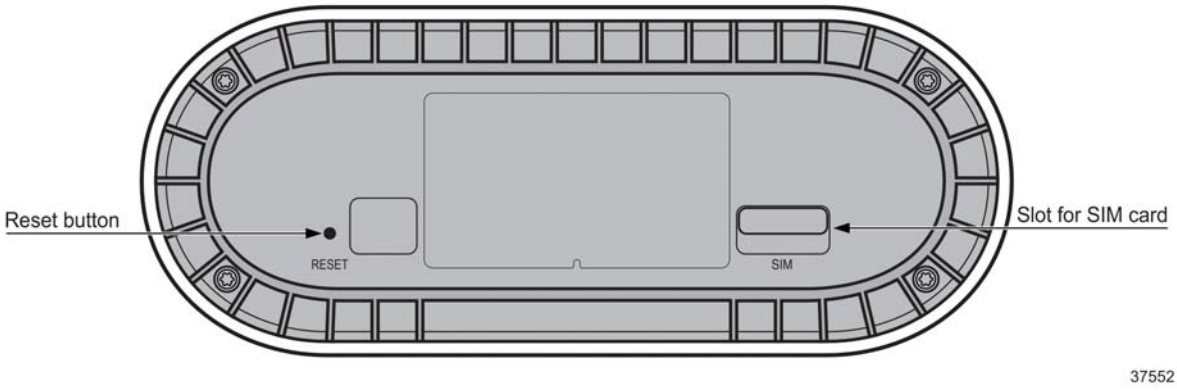
Figure 4 **Interfaces on the back of the FastMile 5G Gateway 2**



The LAN port can be used for the following:

- to connect a Gigabit Ethernet LAN
- for management of the gateway through a locally connected PC or laptop

Figure 5 **Interfaces on the underneath of the FastMile 5G Gateway 2**



The SIM slot supports a 4FF/nano-size SIM card.

Wi-Fi EasyMesh network with the FastMile 5G Gateway 2

A Wi-Fi EasyMesh network can be created by connecting a Wi-Fi Beacon 2 to the FastMile 5G Gateway 2. The FastMile 5G Gateway 2 serves as the access point to the WAN while up to two Wi-Fi beacons aid with extending Wi-Fi coverage to every corner of the home, providing seamless roaming to wireless connections.

Both cloudless and cloud methods are supported; the cloud method is managed by NWCC.

Unlike typical Wi-Fi networks that require unique SSIDs for each of the access points or tedious set-up of Wi-Fi extenders, which complicate the user experience, a Wi-Fi EasyMesh network of Wi-Fi beacons simplifies the end user experience by providing easy device onboarding and automated network optimization.

Adding a Wi-Fi Beacon 2 to create a mesh that has the FastMile 5G Gateway 2 as the access point can be done through the Wi-Fi Mobile App. Contact your Nokia representative for more information about the Wi-Fi Mobile App.

The Wi-Fi Beacon 2 is not included as part of the FastMile 5G Gateway 2.

Setting up the FastMile 5G Gateway 2

Start by unpacking the FastMile 5G Gateway 2 and the power adapter from the box.

Inserting the SIM card

You can skip this procedure if a SIM card has already been installed in the FastMile 5G Gateway 2 by your service provider.

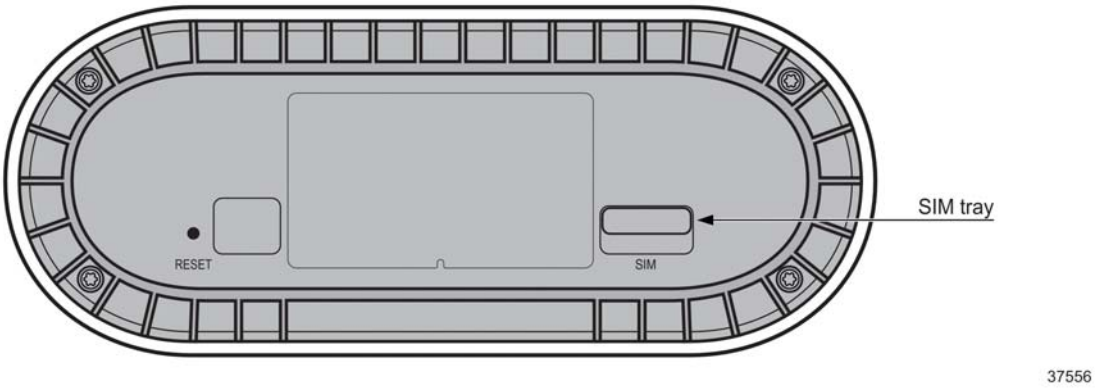
Note: The FastMile 5G Gateway 2 requires an appropriate 4FF/nano-size SIM card to connect to 4G/5G network. The device might also not start as expected without a SIM card.

For PIN-locked SIM cards, you will need to enter a PIN number. For PIN-blocked SIM cards, you will need to enter a PUK and a PIN number. See Unlocking or unblocking your SIM card.

Turn the FastMile 5G Gateway 2 upside down.

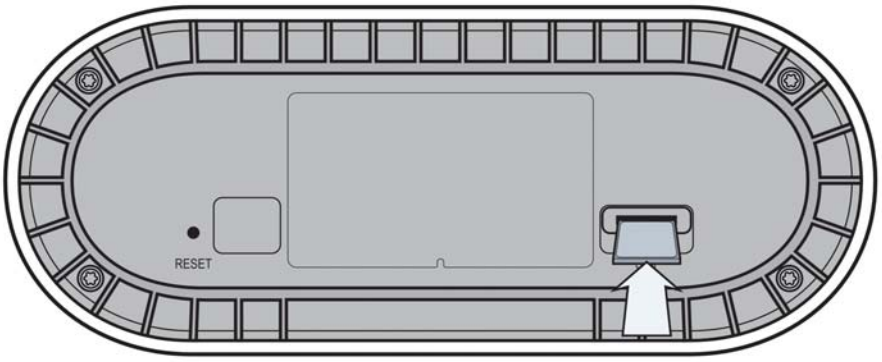
Use the finger grove to remove the SIM tray from the SIM card slot.

Figure 6 **Location of the SIM card slot**



Place the SIM card in the SIM tray, and insert the SIM tray back into the device.

Figure 7 **Inserting the SIM tray**



Identifying the ideal location

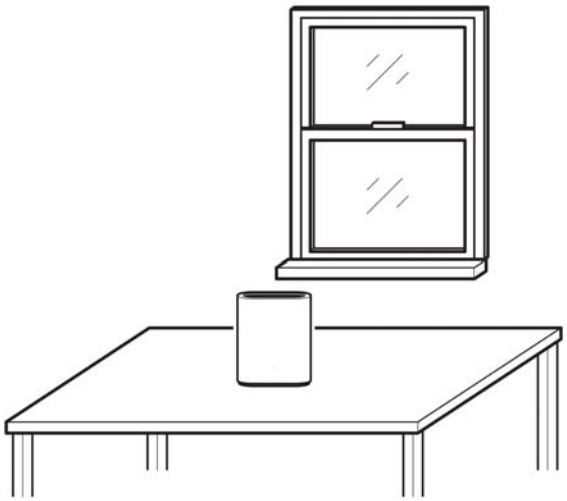
The ideal location for your FastMile 5G Gateway 2 will meet the following criteria:

- near a window where the 5G signal is strongest
- in an open space away from:
  - walls or obstructions
  - heavy-duty appliances or electronics such as microwave ovens and baby monitors
  - metal fixtures, enclosures, cabinets, reinforced concrete, or pipes
- near a power outlet
- on an upper floor of the home or at least 1.8m (6 ft) off the ground floor

Connecting the FastMile 5G Gateway 2 to power

Place the FastMile 5G Gateway 2 on a flat surface, such as a tabletop or similar; close to a window, and near an electrical outlet.

Figure 8 **Placement of the FastMile 5G Gateway 2**



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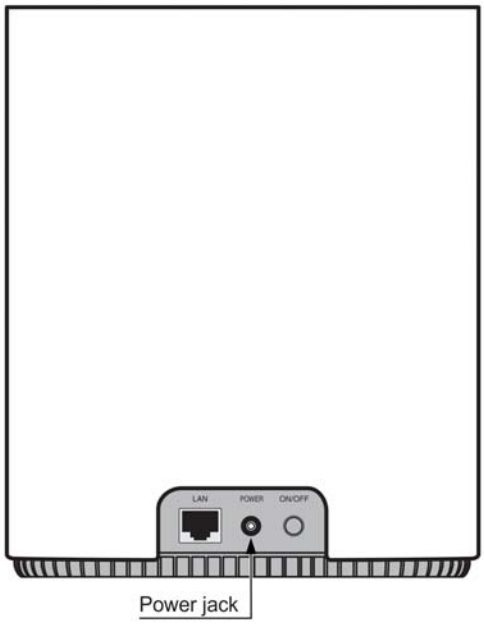
Minimize the number of obstructions as much as possible.

Connect the supplied power adapter to the power jack on the back of the FastMile 5G Gateway 2.

Figure 9 **Location of the power jack**



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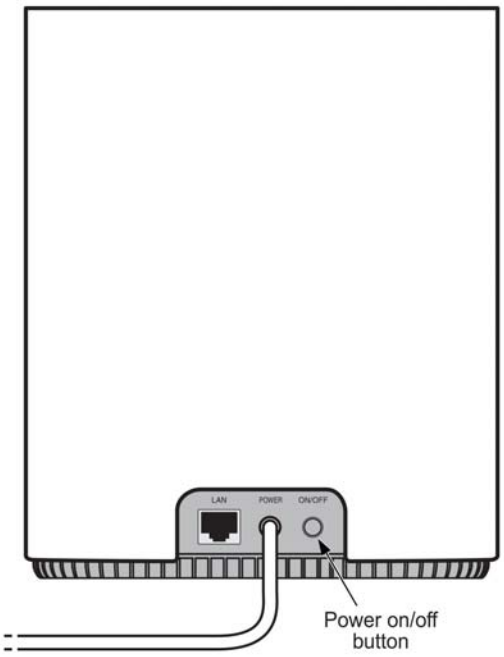
Note: Ensure that no cables are blocking the air flow on the underneath of the FastMile 5G Gateway 2 to avoid overheating.

Connect the other end of the power adapter into an electrical outlet.

Starting the FastMile 5G Gateway 2

After the FastMile 5G Gateway 2 is connected to power, start the device by pressing the power on/off button located on the back of the unit.

Figure 10 **Location of the power on/off button**



The LED on the front of the gateway will soon turn on and start blinking yellow to indicate that the device is booting up. The LED is a multi-color LED that indicates device status as well as signal strength.

When the booting-up phase is completed, the LED turns red to indicate the signal search procedure. The FastMile 5G Gateway 2 starts searching for the best 5G connectivity.

Note: The signal search may take a few minutes.

Wait until the LED is green. This indicates connectivity to a 4G or 5G network.

For more information about the LED, refer to the Understanding the LED colors section.

Note: You may need to try the FastMile 5G Gateway 2 at several locations before the LED indicates a good signal.

Once you find a good signal, do not reposition the device. If the position changes, you may need to verify the signal strength again.

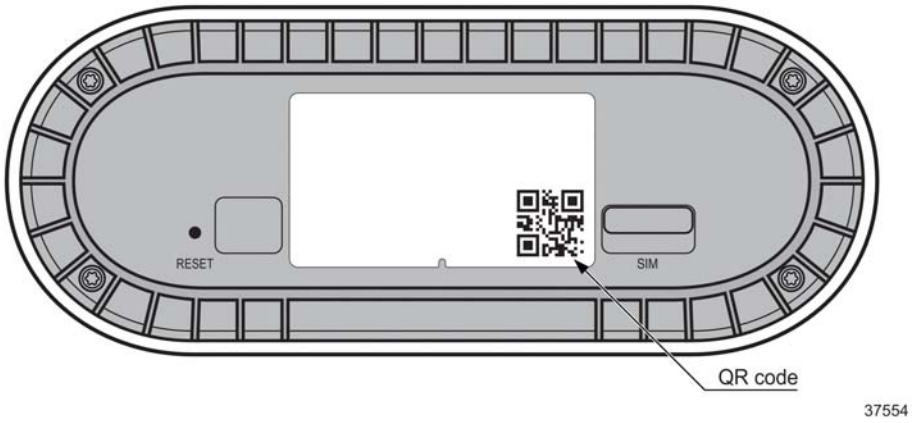
Managing the FastMile 5G Gateway 2 with the Wi-Fi Mobile App

To manage the gateway, use either the WebUI or Wi-Fi Mobile App. The Wi-Fi Mobile App provides information that can help with installation, and provides guidance for tasks such as how to configure Wi-Fi settings and how to add Wi-Fi Beacon 2 devices to the Wi-Fi network. The Wi-Fi Mobile App can be downloaded from Google Play or the Apple App store.

After you have downloaded the app to your smart phone or tablet, use the in-app QR code scanner to read the QR code that is located on the label on the underneath of the FastMile 5G Gateway 2.

A generic sample of the label below shows the location of the QR code. Note that label content may differ per service provider requirements.

Figure 11 **Location of the QR code**



The FastMile 5G Gateway 2 pairs with your phone and performs initial configurations.

The Wi-Fi Mobile App guides you through all the steps necessary to setup your gateway.

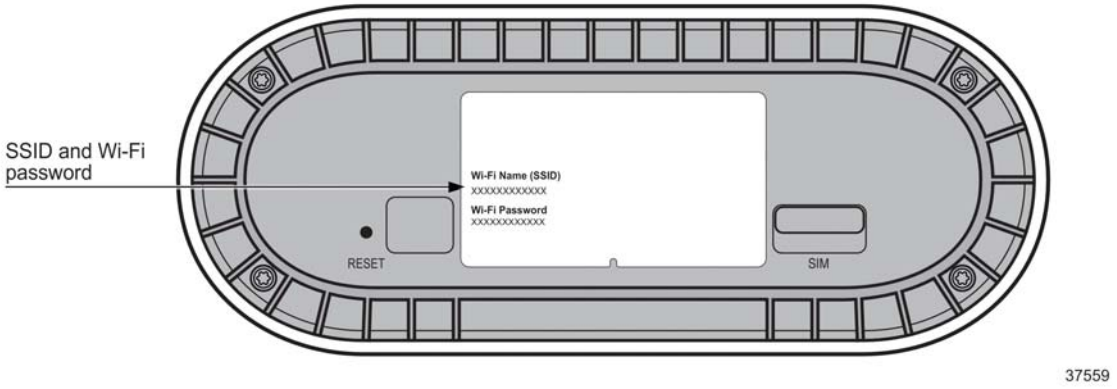
Contact your service provider for more information about the Wi-Fi Mobile App.

Connecting devices to the FastMile 5G Gateway 2

Connecting Wi-Fi devices to the FastMile 5G Gateway 2

Connect Wi-Fi devices to your FastMile 5G Gateway 2 by using the SSID and Wi-Fi password information on the label on the underneath of your FastMile 5G Gateway 2.

Figure 12 **Location of the SSID and WiFi password**

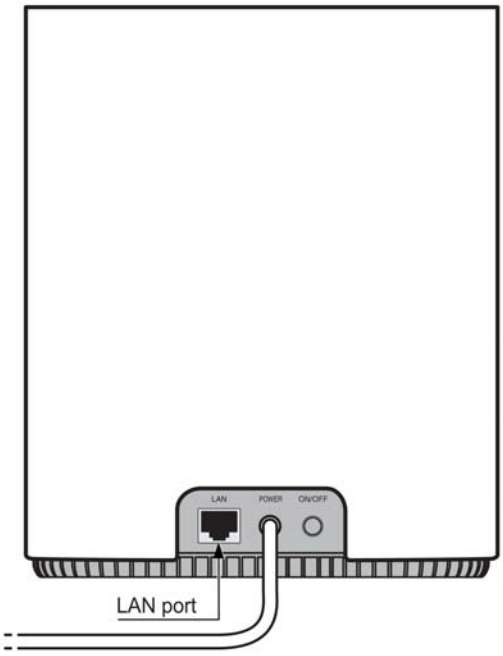


The SSID format may differ per service provider specific requirements.

Connecting an Ethernet LAN to the FastMile 5G Gateway 2

You can connect a Gigabit Ethernet LAN to the FastMile 5G Gateway 2 by connecting the cable from the LAN to the LAN port on the back of the FastMile 5G Gateway 2.

Figure 13 **Location of the LAN port**



What can you do with the WebUI

The FastMile 5G Gateway 2 supports a WebUI, which can be used for configuration, maintenance, and troubleshooting. You can view device status information through the WebUI for information on network connectivity. The WebUI also displays useful information about the FastMile 5G Gateway 2.

You use the WebUI through a PC or laptop that has an Ethernet LAN connection or Wi-Fi connection to the FastMile 5G Gateway 2. The FastMile 5G Gateway 2 is a secure device.

Access to the WebUI is through http or https. The http access mode is pre-configured as the default access mode to the WebUI. The https access mode can only be used if the FastMile 5G Gateway 2 has been pre-configured for https by your service provider.

Accessing the WebUI

You can manage the FastMile 5G Gateway 2 using its WebUI through a PC or laptop that has a Gigabit Ethernet LAN connection or Wi-Fi connection to the FastMile 5G Gateway 2.

Note: The WebUI screens are designed for 1920 * 1080p resolution. The WebUI supported browsers include Chrome, Edge, Mozilla Firefox and Safari.

The following procedure describes:

- how to establish a connection from the device on which you will access the WebUI for the FastMile 5G Gateway 2
- how to log into the WebUI when needed to view and configure parameters

Connecting to the WebUI and logging in

1. Ensure the Local Area Connection setting on your PC or laptop is configured as “obtain an IP address automatically”.

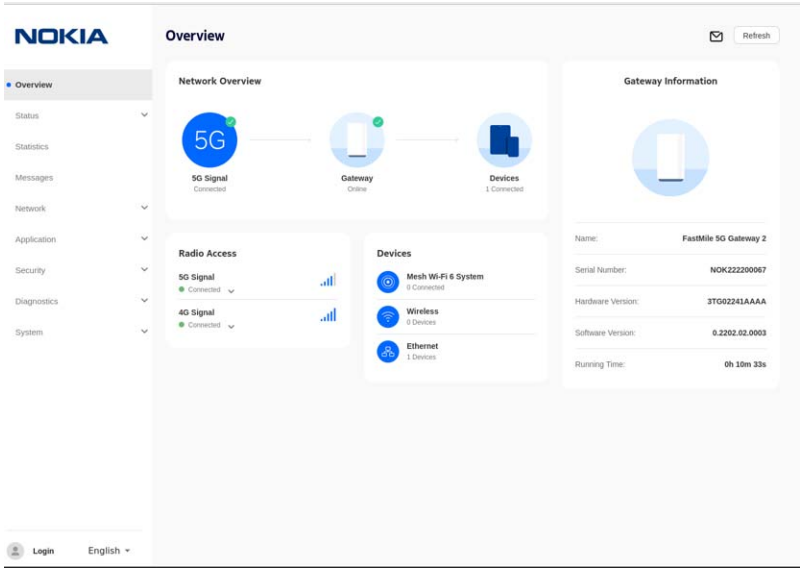
Note: The FastMile 5G Gateway 2 must be powered up, see Starting the FastMile 5G Gateway 2.

2. Do one of the following:
   a. Establish a Wi-Fi connection
   b. Connect your PC or laptop through the LAN port on the back of FastMile 5G Gateway 2
3. On your device, open a web browser, and enter the IP that is provided on the label on the underneath of the gateway, for example:

   http://192.168.1.1 (default) or https: //192.168.1.1 (if pre-configured)

   The WebUI screen appears. The left side of the screen provides the main menu for the WebUI and the right side of the screen provides overview information for the FastMile 5G Gateway 2.

Figure 14 **WebUI main menu and the overview screen**



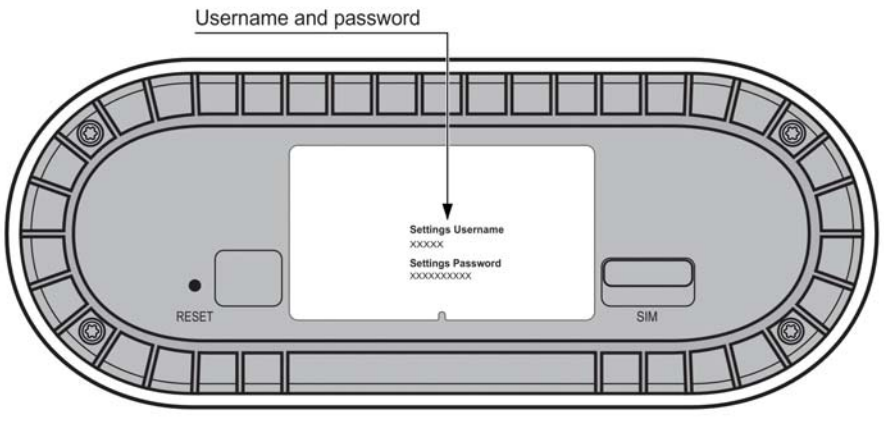
4. To log in, click Login or click on any of the menu items.

   The login pop-up window appears and you are prompted to log in.

   Type the username and password in the respective fields and then click Login. The username and password, sometimes referred to as “Settings username” and “Settings password” respectively, are provided on the label on the underneath of the FastMile 5G Gateway 2.

The generic sample below shows the location of the username and password on the label. Note that label content may differ per service provider requirements.

Figure 15 **Location of the username and password**



Note: After predefined consecutive unsuccessful login attempts, you will be locked out for a specific amount of time.

To improve security, it is recommended that you change the default password. You can do this by going to the Changing the password procedure.

WebUI screen hierarchy

The figures in this chapter illustrate the WebUI hierarchy to help you quickly navigate to the WebUI screen that has a configuration task or other task that you may need to complete for the FastMile 5G Gateway 2.

Figure 16 **Main menu hierarchy**

Logging in allows you to access and use the following screens from the WebUI main menu:

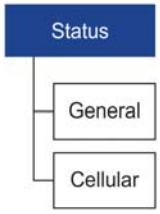
- status
- statistics
- messages
- network
- application
- security
- diagnostics
- system

All of the above screens have menu options, which are illustrated in the following sections that have figures that show the hierarchy for each of the above screens.

Status screen hierarchy

The status screen provides the following menu options:

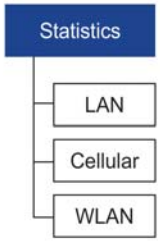
Figure 17 **Status screen menu options**



Statistics screen hierarchy

The statistics screen provides the following menu options:

Figure 18 **Statistics screen menu options**



Messages screen hierarchy

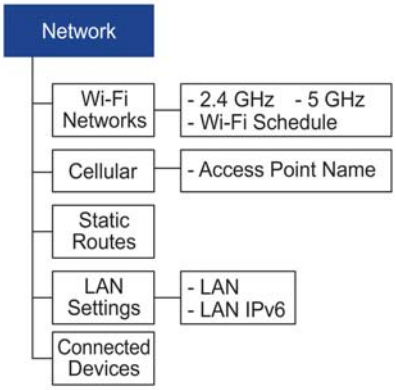
The messages screen will display all messages sent by the service provider. The screen provides the following menu options:

Figure 19 **Messages screen menu options**

Network screen hierarchy

The network screen provides the following menu options. Clicking on the arrow beside Wi-Fi Networks, cellular and LAN settings displays additional menu options as shown in the figure.

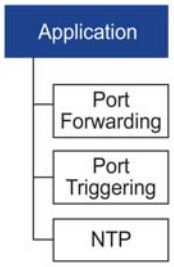
Figure 20 **Network screen menu options**



Application screen hierarchy

The application screen provides the following menu options:

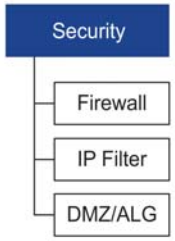
Figure 21 **Application screen menu options**



Security screen hierarchy

The security screen provides the following menu options:

Figure 22 **Security screen menu options**



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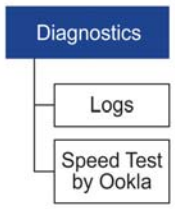
Diagnostics screen hierarchy

The diagnostics screen provides the following menu options to view log files and perform speed tests by Ookla.

Figure 23 **Diagnostics screen menu options**



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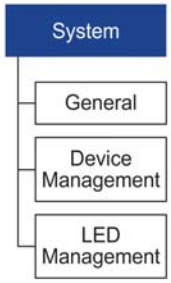
System screen hierarchy

The system screen provides the following menu options:

Figure 24 **System screen menu options**



WebUI screens

This chapter describes the WebUI screens for the FastMile 5G Gateway 2:

- overview
- status
- statistics
- messages
- network
- application
- security
- diagnostics
- system

Overview screen

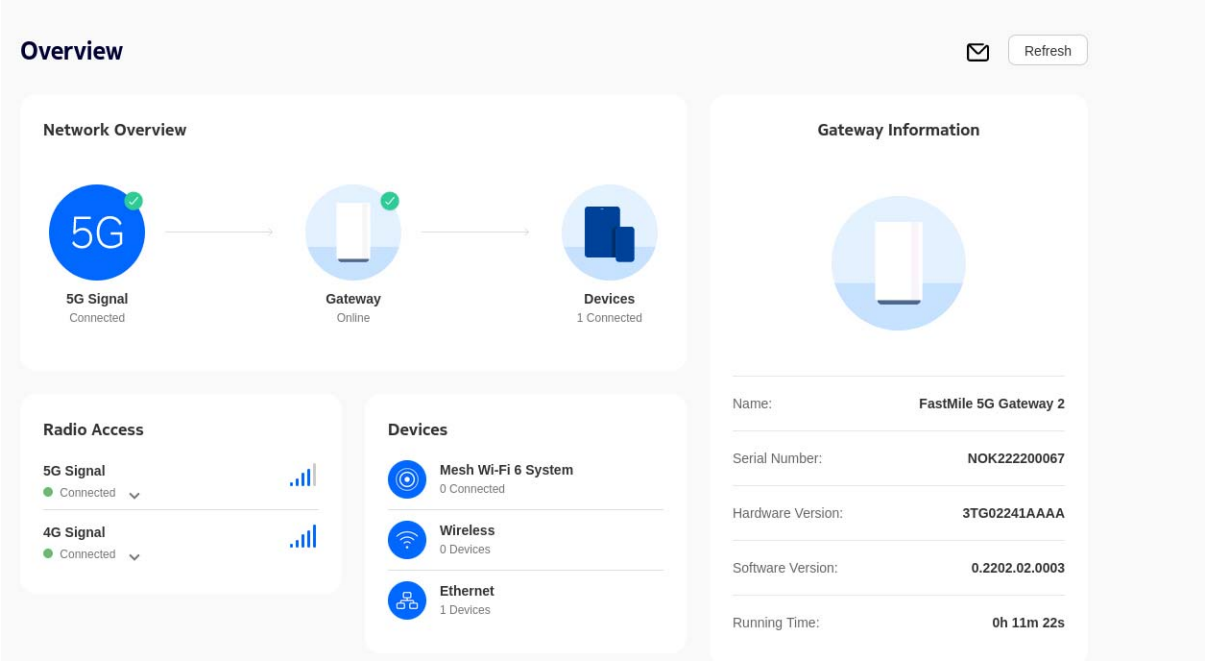
The overview screen has the following sections:

- network overview
- gateway information
- radio access
- devices

Click Refresh at any time to update the displayed information.

The overview screen also has a messages icon allowing you to check unread messages, if any.

Figure 25 **Overview screen example**



Network overview

The network overview section shows the connection status of 5G, FastMile 5G Gateway 2, and the number of connected devices.

Gateway information

The gateway information section of the overview screen shows the following:

- name: the name and version of the gateway
- serial number
- hardware version
- software version
- running time: how long since the last FastMile 5G Gateway 2 reset/power cycle

Use the above information when contacting the service provider for customer service.

Radio access

The radio access section shows 5G signal strength represented by the number of bars, and the following parameters:

- RSRP
- SNR
- RSRQ

The radio access section shows 4G signal strength represented by the number of bars and the following parameters:

- RSRP
- SNR
- RSRQ
- RSSI

Devices

The devices section shows the number of devices connected to the FastMile 5G Gateway 2: Wi-Fi EasyMesh 6 System, Wireless and Ethernet.

Status screen

From the WebUI left-side menu, selecting Status will show you information regarding:

Under the Status / General page, you can find sections for the following:

- data usage
- SIM
- LAN
- Wi-Fi
- IMEI (International Mobile Equipment Identity)
- cellular WAN

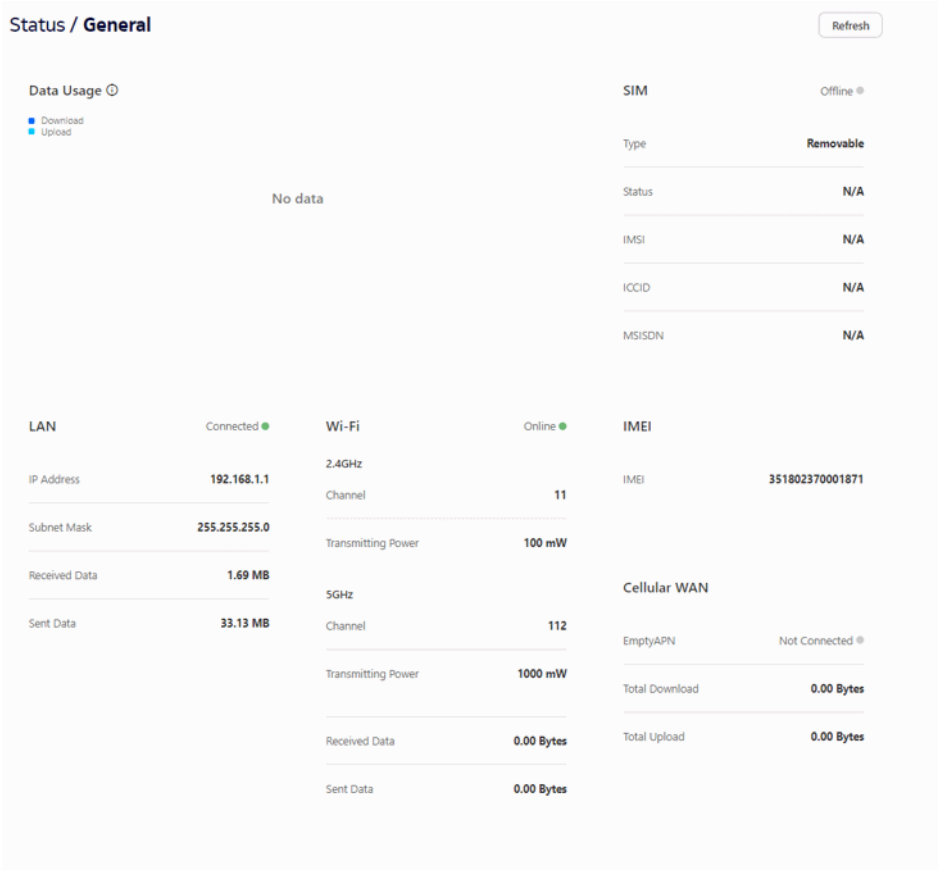
Under the Status / Cellular page, you can find the following:

- 4G: status, PCI, band, EARFCN, ECI, and carrier aggregation
- 5G: status, PCI, supported bands, NR-ARFCN, NCI, and carrier aggregation

Click Refresh at any time to update the displayed information.

The following figure shows an example of the Status/General page.

Figure 26 **Status / General screen example**



Data usage

Data usage represents the amount of data that is downloaded and uploaded from the FastMile 5G Gateway 2 since its latest reset/power-cycle.

SIM

The SIM status will be either online or offline.

A green dot, indicating the online status, indicates your SIM is activated and working well. A gray dot indicates the SIM card is missing (see Inserting the SIM card), or may not be working, or it was installed incorrectly, or you will need to enter your PIN number (see Unlocking or unblocking your SIM card). Contact your service provider if you have checked that the SIM card is properly installed but it is still not working.

Note: For uSIM cards, when status shows *Available* it means PIN number verification is needed. When status shows *Blocked* it means the SIM PIN is locked and you need to input a PUK number and a new PIN number. When status shows *Error* it means the SIM card is destroyed because of a PUK error, or a modem failure, or a broken SIM card, or a specific PIN lock acceptance feature is not active but the SIM card PIN number is locked.

After another SIM card B with PIN enabled is inserted to the CPE and its PIN is verified, the SIM card A PIN number will be needed when it is inserted.

LAN

The LAN information status indicates whether a device is connected to the Ethernet connection:

- green: there is an Ethernet connection
- gray: there is no Ethernet connection

You may view the following Ethernet connectivity information:

- IP address: local address
- subnet mask: default subnet mask
- received data: the amount of data received via the Ethernet connection
- sent data: the amount of data sent via the Ethernet connection

Wi-Fi

The Wi-Fi status (online/offline) indicates whether the Wi-Fi is active, regardless of whether a device is wirelessly connected:

- green: Wi-Fi is enabled

- gray: Wi-Fi is disabled

You may view Wi-Fi connectivity information:

- 2.4 GHz information includes: the channel number and transmission power (mW)
- 5 GHz information includes: the channel number and transmission power (mW)
- received data: the amount of data received via the Wi-Fi connection
- sent data: the amount of data sent via the Wi-Fi connection

IMEI (International Mobile Equipment Identity)

IMEI information represents an identifier for each mobile device.

Cellular WAN

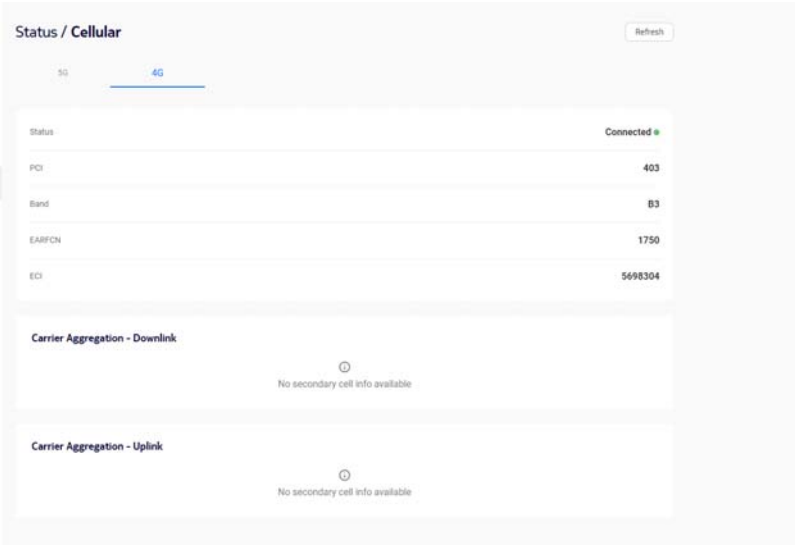
Cellular WAN information includes the following:

- connection status:
  - green dot: connected
  - gray dot: not connected
- download totals
- upload totals

Status 4G

The Status / Cellular page for the 4G status tab displays PCI, band, EARFCN, ECI, and carrier aggregation downlink / uplink status. In carrier aggregation, one or more carriers are combined to increase the capacity of the link, thereby increasing the bandwidth for the user.

Figure 27 **Status / Cellular/ 4G tab**

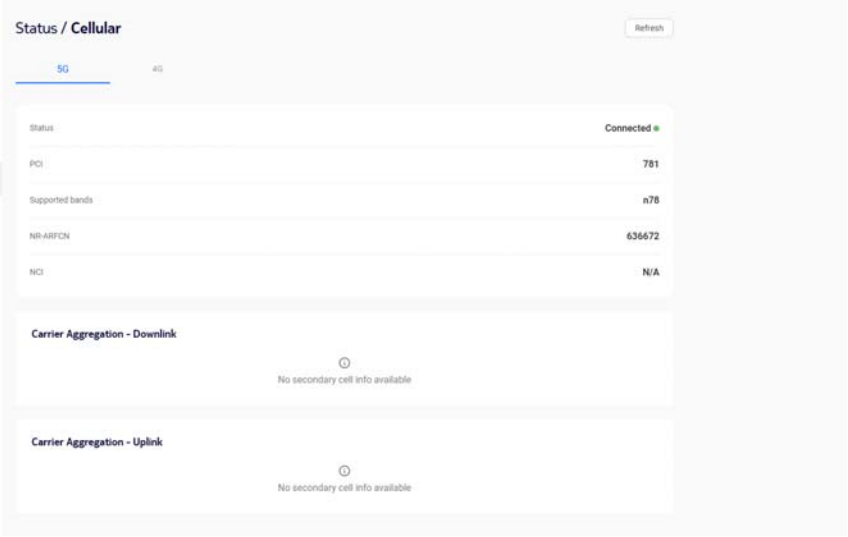


Note: When downlink or uplink carrier aggregation information is available, it will be displayed.

Status 5G

The Status/ Cellular page for 5G status tab shows the detail information for status, PCI, supported bands, NR-ARFCN status, NCI, and carrier aggregation downlink / uplink status. In carrier aggregation, one or more carriers are combined to increase the capacity of the link, thereby increasing the bandwidth for the user.

Figure 28 **Status / Cellular /5G tab**



Note: When downlink or uplink carrier aggregation information is available, it will be displayed.

Statistics screen

From the WebUI left-side menu, selecting Statistics will let you view the amount of data that has crossed the following FastMile 5G Gateway 2 interfaces

- LAN
- cellular
- WLAN

Click Refresh at any time to update the displayed information.

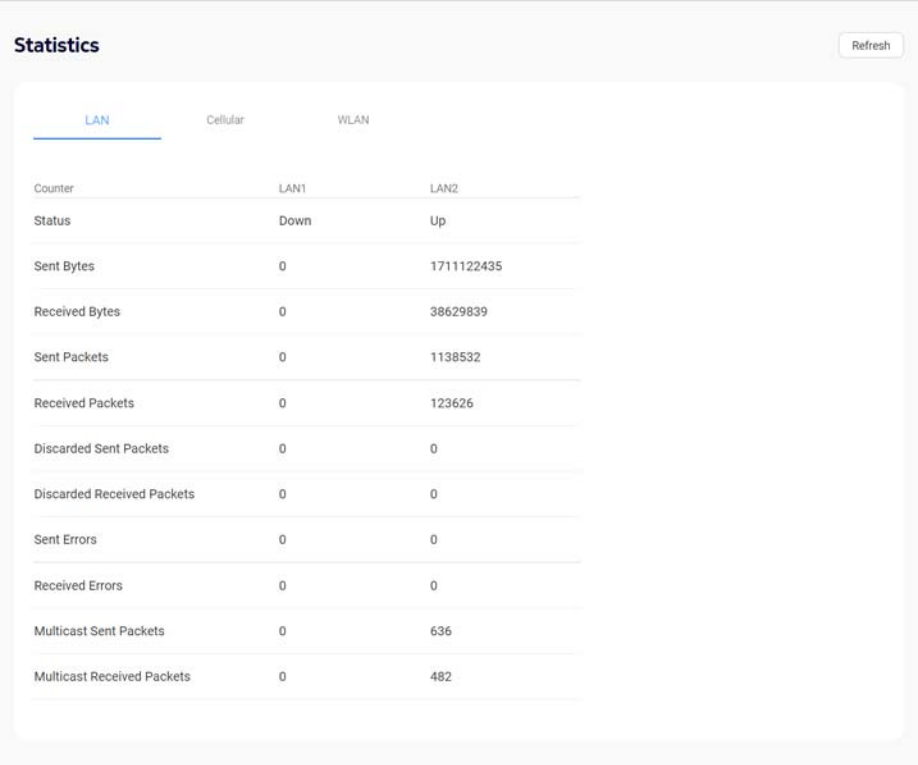
LAN statistics

By default, you will see the following statistics, per LAN port tab, upon accessing the statistics screen:

- status

- sent bytes
- received bytes
- sent packets
- received packets
- discarded sent packets
- discarded received packets
- sent errors
- received errors
- multicast sent packets
- multicast received packets

Figure 29 **Statistics: LAN tab**

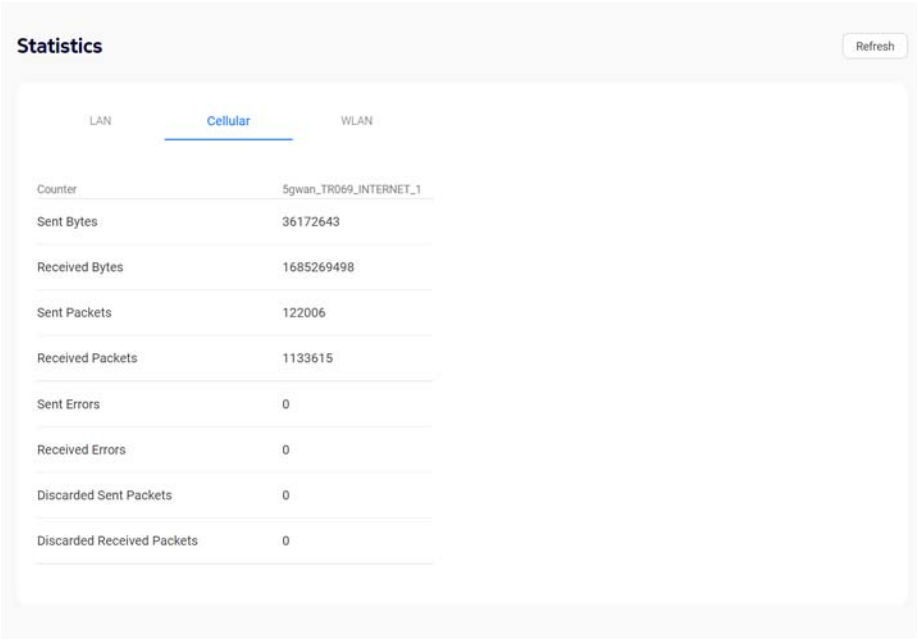


Cellular statistics

From the statistics screen, select the Cellular tab; you will see the following statistics (per configured Access Point Name and Service):

- sent bytes
- received bytes
- sent packets
- received packets
- sent errors
- received errors
- discarded sent packets
- discarded received packets

Figure 30 **Statistics: Cellular tab**



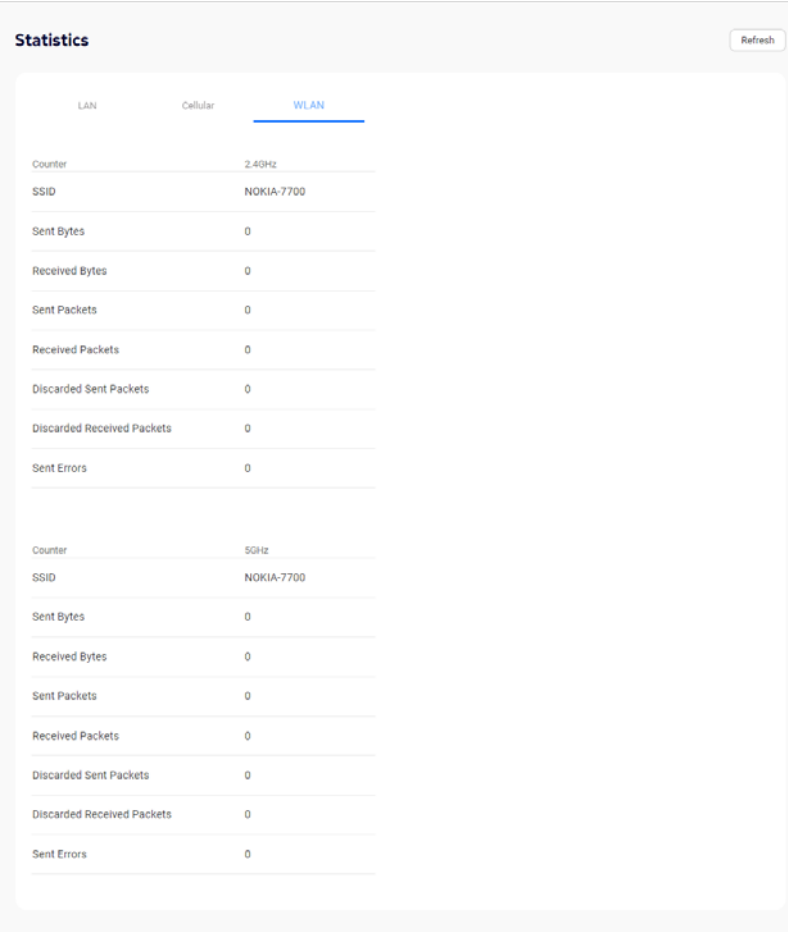
WLAN statistics

From the statistics screen, select the WLAN tab; you will see the following statistics for 2.4 GHz and 5 GHz frequencies:

- SSID
- sent bytes
- received bytes
- sent packets
- received packets

- discarded sent packets
- discarded received packets
- sent errors

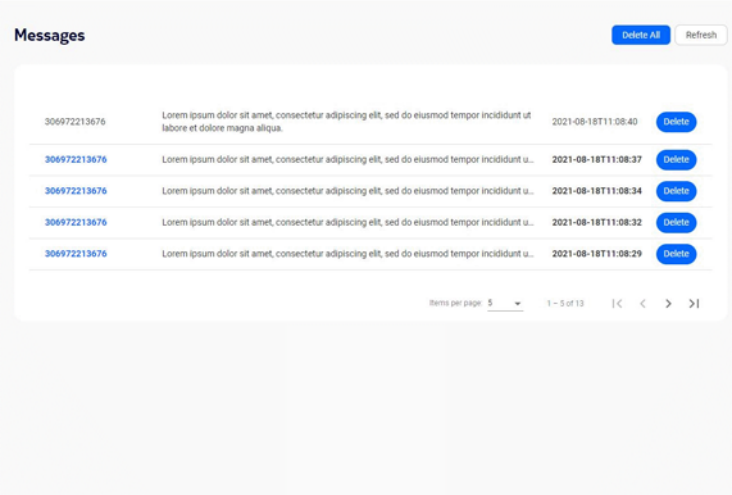
Figure 31 **Statistics: WLAN tab**



Messages screen

From the WebUI left-side menu, selecting Messages will let see if you have any messages. Messages sent from the service provider can be viewed and deleted.

Figure 32 **Messages screen example**



Network screen

From the WebUI left-side menu, select Network to manage the following:

- Wi-Fi networks (2.4 GHz and 5 GHz networks) and Wi-Fi schedule
- cellular (APN - Access Point Name)
- static routes
- LAN settings (LAN and LAN IPv6)
- connected devices

Wi-Fi networks

From the network menu, select Wi-Fi networks.

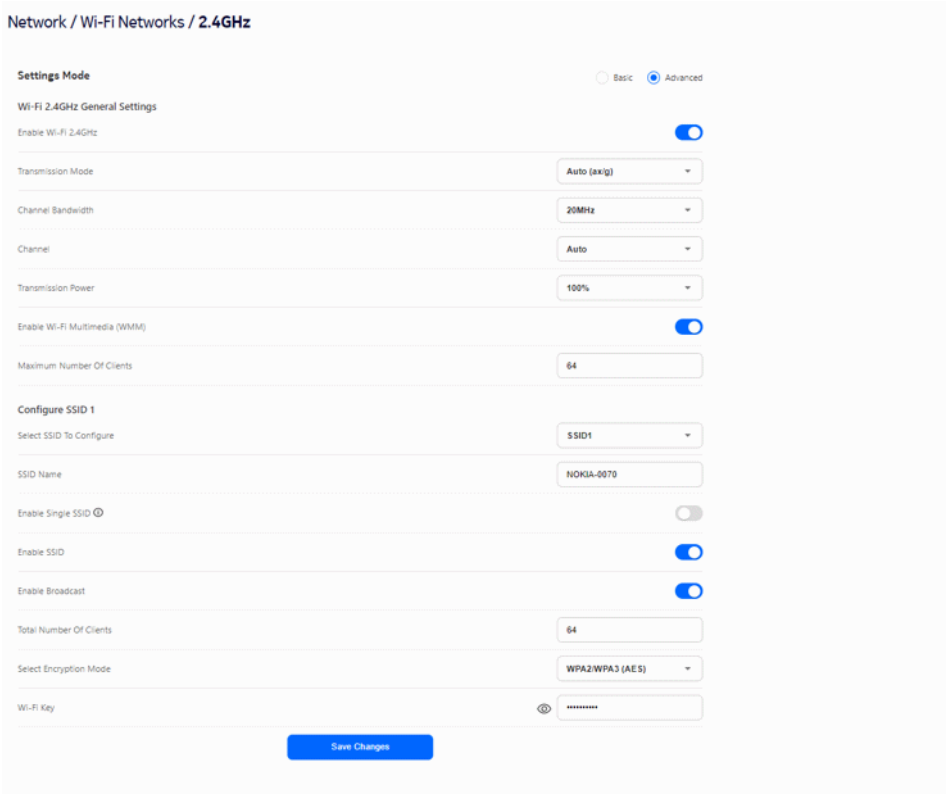
The 2.4 GHz, 5 GHz, and Wi-Fi schedule menu options appear in the FastMile 5G Gateway 2 WebUI menu.

2.4 GHz (network settings)

Click 2.4 GHz.

The Network/Wi-Fi Networks/2.4 GHz screen appears.

Figure 33 **Example of the Network/Wi-Fi Networks/2.4 GHz screen**



You can configure the following parameters for Wi-Fi 2.4 GHz general settings in advanced settings mode:

- enable/disable Wi-Fi 2.4 GHz
- transmission mode
- channel bandwidth
- channel
- transmission power
- enable Wi-Fi Multimedia (WMM)
- maximum number of clients

You can configure the following SSID parameters in advanced settings mode after selecting the SSID to configure:

- SSID name

- enable single SSID
- enable SSID
- enable broadcast
- total number of clients
- select encryption mode
- Wi-Fi key

Click Save Changes.

5 GHz (network settings)

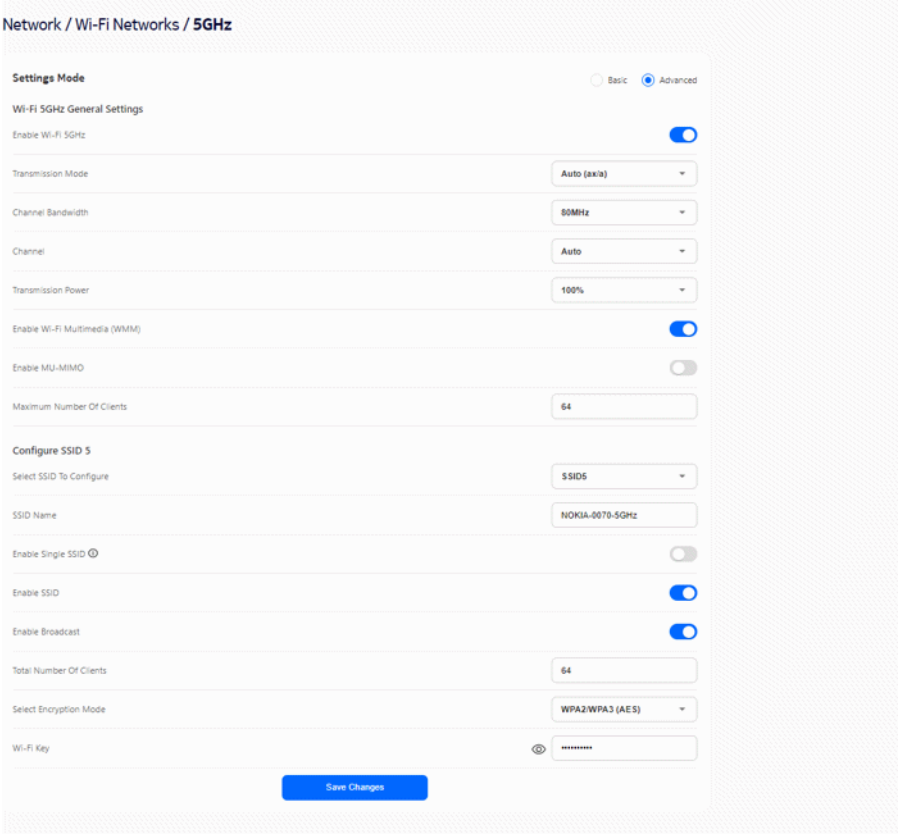
From the network menu, select Wi-Fi networks.

The 2.4 GHz, 5 GHz, and Wi-Fi schedule menu options appear in the FastMile 5G Gateway 2 WebUI menu.

Click 5 GHz.

The Network/Wi-Fi Networks/5 GHz screen appears.

Figure 34 **Example of the Network/Wi-Fi Networks/5 GHz screen**



You can configure the following parameters for the Wi-Fi 5 GHz general settings in advanced mode:

- enable/disable Wi-Fi 5 GHz
- transmission mode
- channel bandwidth
- channel
- transmission power
- enable Wi-Fi Multimedia (WMM)
- enable MU-MIMO
- maximum number of clients

You can configure the following SSID parameters in advanced settings mode after selecting the SSID to configure:

- SSID name

- enable single SSID
- enable SSID
- enable broadcast
- total number of clients
- select encryption mode
- Wi-Fi key

Click Save Changes.

Wi-Fi schedule settings

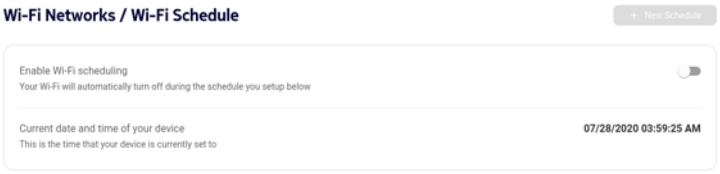
From the network menu, select Wi-Fi networks.

The 2.4 GHz, 5 GHz, and Wi-Fi schedule menu options appear in the FastMile 5G Gateway 2 WebUI menu.

Click Wi-Fi Schedule.

The Wi-Fi Networks/Wi-Fi Schedule screen appears.

Figure 35 **Wi-Fi Networks / Wi-Fi Schedule screen**



1. Enable the Wi-Fi Scheduling to turn the wireless signal off for the configured period.
2. Click the + New Schedule button to add a rule.

   A panel appears for configuring wireless schedule rules.
3. Enter a start and end time for the period for which you want the wireless signal to be off.
4. Choose Everyday or a Specific day(s) of the week.

   If you choose specific day(s), select the check boxes for the desired days.

   The Recurrence Pattern shows the rules created to date.
5. Click Add.

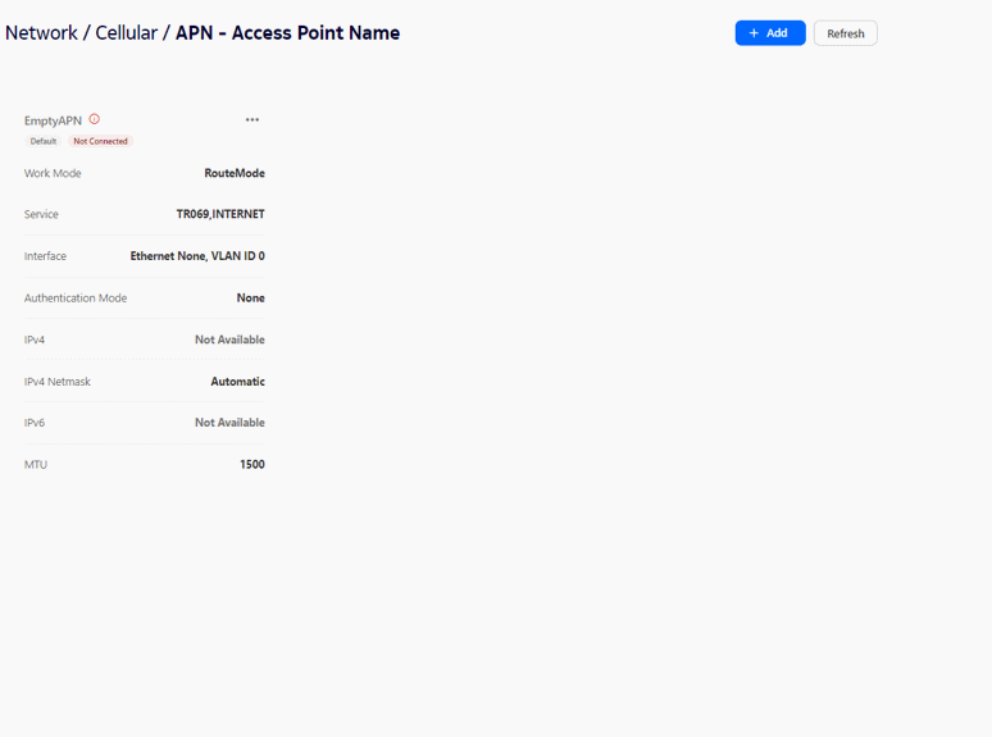
6. View the current date and time of your device.

Access Point Name parameters

From the network / cellular menu, select APN - Access Point Name.

The Network / Cellular / APN - Access Point Name screen appears.

Figure 36 **Network/Cellular/APN - Access Point Name screen**



Edit and delete access points by clicking the options icon (three dots in the top right corner of each access point box). You can configure up to five access points using Route mode.

You can configure the following APN parameters:

- work mode
- service
- interface
- authentication mode

- IPv4
- IPv4 netmask
- IPv6
- MTU

Note: You are not able to delete the default access point.

Valid first APN configurations are as follows:

1. TR-069 and INTERNET
2. TR-069: INTERNET and other service types defined in the secondary APNs
3. INTERNET: only one APN defined with INTERNET service type (Internet only configuration is not allowed using the WebUI but is possible by pre-configuration).

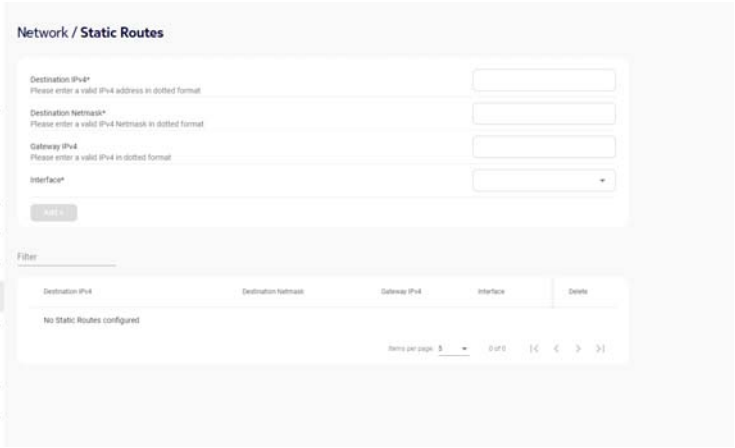
Click Update.

Static routes parameters

From the network menu, select Static Routes.

The Network/Static Routes screen appears.

Figure 37 **Network/Static Routes screen**



You can add a static route by clicking Add+ after configuring the applicable parameters:

- destination IPv4

- destination netmask
- gateway IPv4
- interface

You can delete a static route by selecting it from the list and clicking Delete.

LAN settings

From the network menu, select LAN Settings.

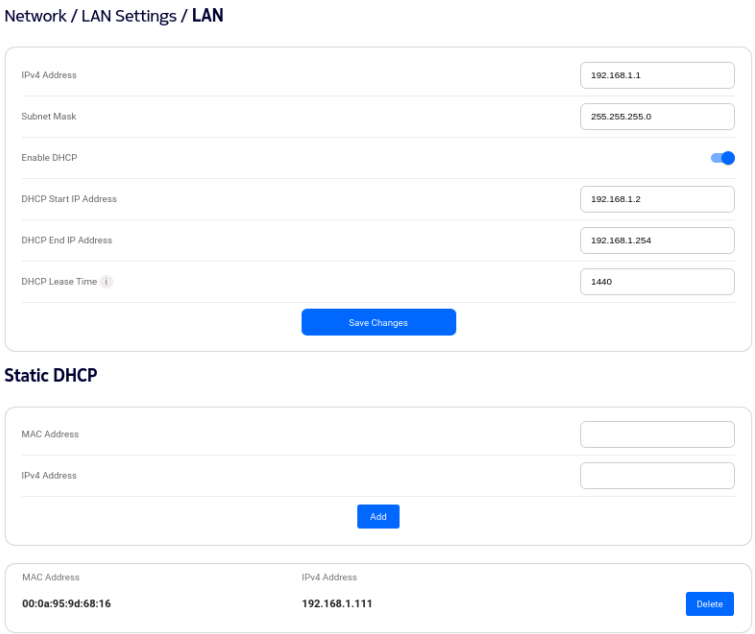
The LAN and LAN IPv6 menu options appear in the FastMile 5G Gateway 2 WebUI menu.

LAN

Click LAN

The Network/LAN Settings/LAN and Static DHCP screen appears.

Figure 38 **Network/LAN settings/LAN and static DHCP screen**



You can configure the following LAN settings:

- IPv4 address
- subnet mask
- enable DHCP
- DHCP start IP address
- DHCP end IP address
- DHCP lease time
- static DHCP

Click Save Changes.

Note: Check the DHCP range before you change the LAN IP. If you want to use the LAN IP, which is included in the previous DHCP range, change the DHCP range first. Click Save. Then, change the LAN IP.

Configure a static route and bind a MAC address to a specific local LAN/IP address by entering the MAC and IP address in the static DHCP text boxes.

Click Add.

Your values appear in the table below.

Repeat for all MAC addresses to be bound.

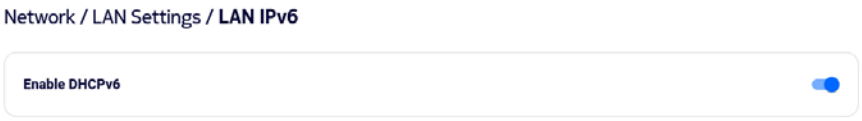
The configured MAC and IPv4 address appear in the table below. Click Delete to remove any of the MAC address configurations.

LAN IPv6

Click LAN IPv6.

The Network/LAN settings/LAN IPv6 screen appears.

Figure 39 **Network/LAN Settings/LAN IPv6 screen**



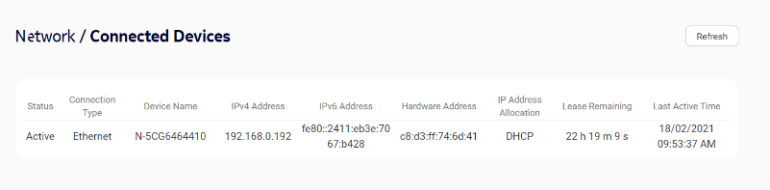
Click the switch button to enable or disable the IPv6 DHCP LAN.

Connected devices

From the network menu, select Connected Devices.

The Network/Connected Devices screen appears.

Figure 40 **Network/Connected Devices screen**



Note: To delete a device, disconnect the Gigabit Ethernet cable from the FastMile 5G Gateway 2. After a while, the Devices screen will update the number of connected devices.

Application screen

From the WebUI left-side menu, selecting Application allows you to configure parameters for the following:

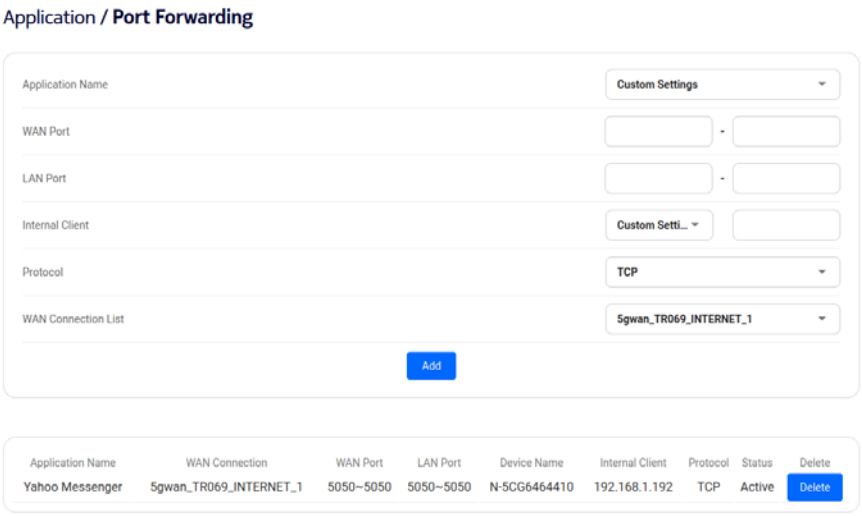
- port forwarding
- port triggering
- NTP

Port forwarding

Click Port Forwarding.

The Application/Port Forwarding screen appears.

Figure 41 **Application/Port Forwarding screen**



You can configure the following settings:

- application name
- WAN Port
- LAN Port
- internal client
- protocol
- WAN connection list

Click Add.

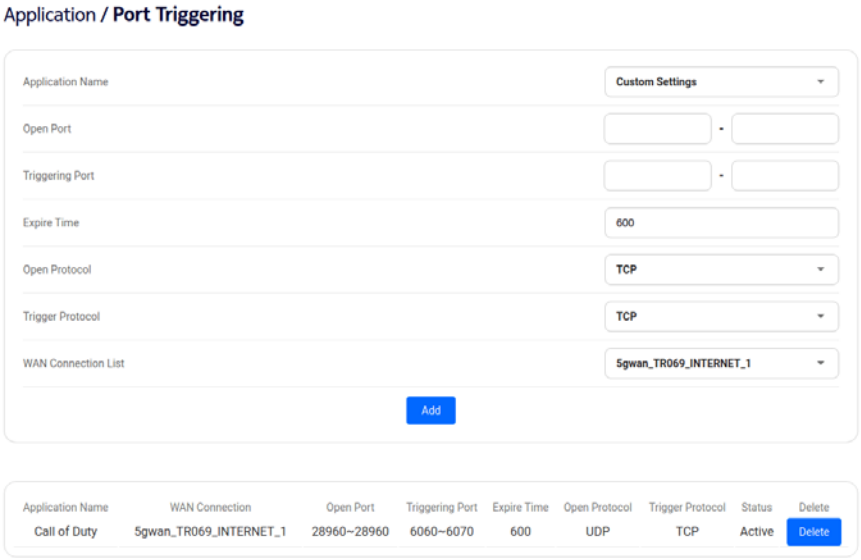
Click Delete to remove any configuration from the table.

Port triggering

Click Port Triggering.

The Application/Port Triggering screen appears.

Figure 42 **Application/Port Triggering screen**



You can configure the following settings:

- application name
- open port
- triggering port
- expire time
- open protocol
- triggering protocol
- WAN connection list

Click Add.

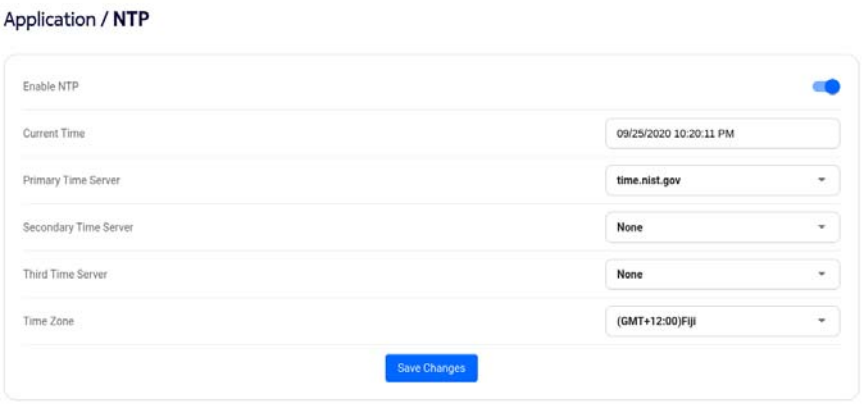
Click Delete to remove any configuration from the table.

NTP

Click NTP.

The Application/NTP screen appears.

Figure 43 **Application/NTP screen**



You can configure the following settings:

- enable NTP
- primary time server
- secondary time server
- third time server
- time zone

You can view the following settings:

- current time

Click Save Changes.

Security screen

From the WebUI left-side menu, selecting Security allows you to configure the following:

- firewall security level
- IP filter
- ALG/DMZ

Firewall security level

The firewall security level only applies to services provided by the FastMile 5G Gateway 2.

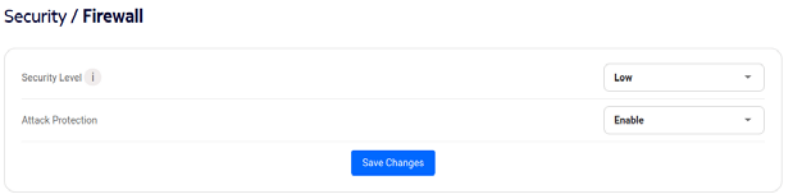
The following firewall security levels can be configured for the FastMile 5G Gateway 2:

- off: all inbound and outbound traffic is allowed
- low: all outbound traffic and pinhole-defined inbound traffic is allowed
- high: all inbound traffic is denied and only minimal common outbound services are permitted

Click Firewall.

The Security/Firewall screen appears.

Figure 44 **Security/Firewall screen**



You can configure the following firewall settings:

- security level (off, low, or high)
- attack protection (enable/disable)

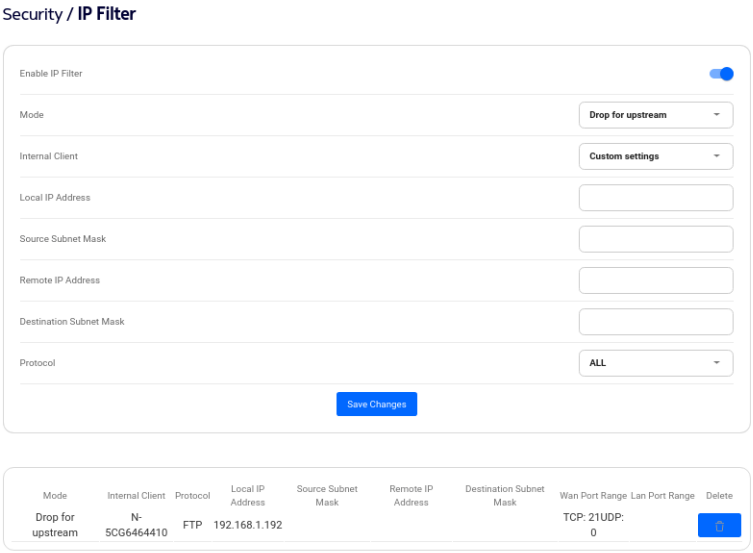
Click Save Changes.

IP filter

Click IP Filter.

The Security/IP Filter screen appears.

Figure 45 **Security/IP Filter screen**



You can configure the following IP filter settings:

- enable IP filter
- mode
- internal client
- local IP address
- source subnet mask
- remote IP address
- destination subnet mask
- protocol

Click Save Changes.

Click Delete to remove any configuration from the table.

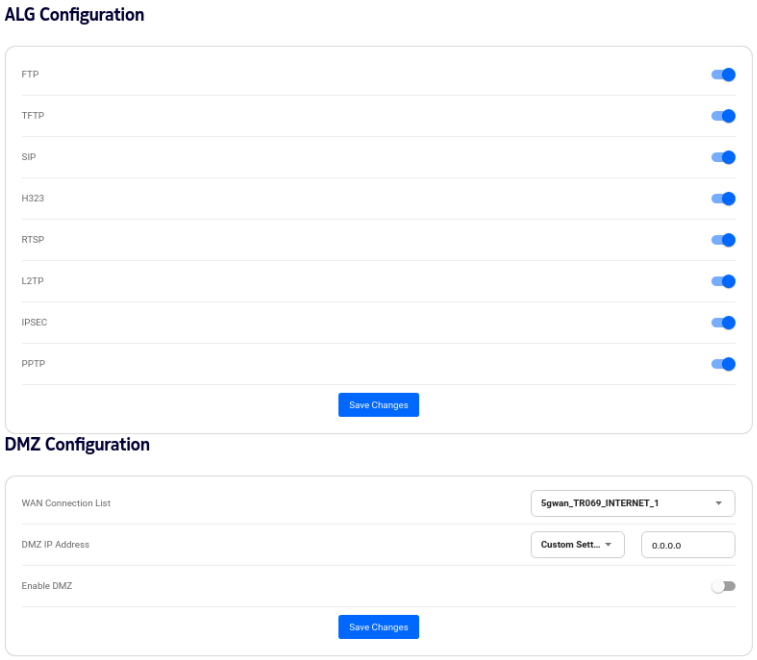
ALG and DMZ screen

Selecting DMZ/ALG allows you to configure Application-Level Gateway (ALG) and Demilitarize Zone (DMZ) parameters.

Click DMZ/ALG.

The Security/ALG Configuration and DMZ Configuration screen appears.

Figure 46 **Security/ALG Configuration and DMZ Configuration screen**



You can enable or disable the following ALG settings:

- FTP
- TFTP
- SIP
- H323
- RTSP
- L2TP
- IPSEC
- PPTP

Click Save Changes.

You can configure the following DMZ settings:

- WAN connection list
- DMZ IP address

- enable DMZ

Click Save Changes.

Diagnostics screen

From the WebUI left-side menu, selecting Diagnostics allows you to:

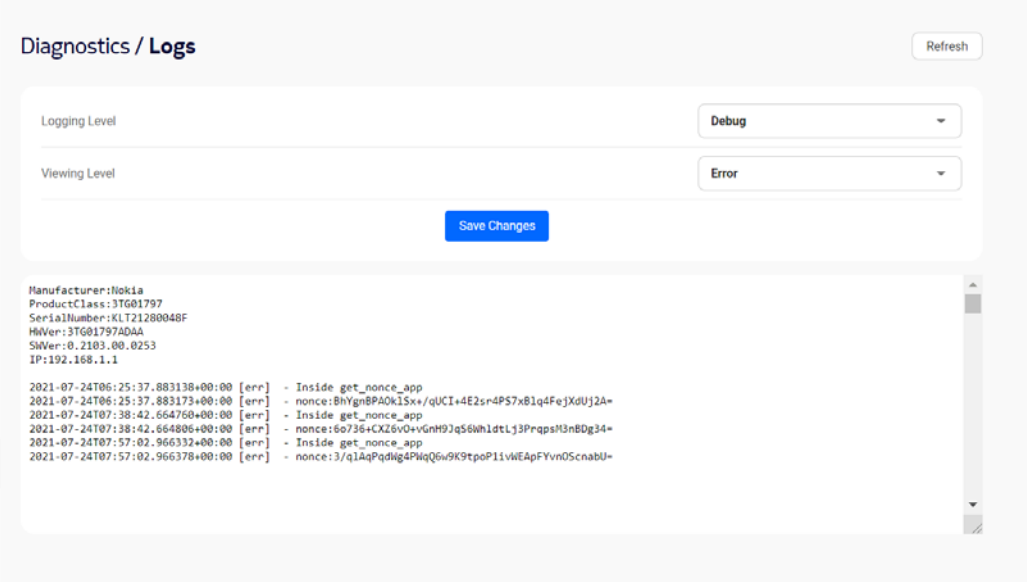
- configure log settings
- perform speed tests by Ookla

Logs

Click Logs.

The Diagnostics/Logs screen appears.

Figure 47 **Diagnostics/Logs screen example**



Choose a logging level from the drop-down menu to determine the types of events that are recorded in the log file.

Choose the viewing level from the drop-down menu to determine the types of events that are shown in the log file.

Click Save Changes. The log file is displayed at the bottom of the screen.

Speed test by Ookla

Click Speed Test by Ookla.

The Diagnostics/Speed Test by Ookla screen appears.

Figure 48 **Diagnostics/Speed Test by Ookla screen**

Click Start Speed Test. You should be prompted to agree to use this speed test service by Ookla as per their privacy policy.

The Speed Test screen appears.

Click the Start Speed Test button. The test may take up to 45 seconds to complete.

The Speed Test results will display the following parameter information:

- acquired time
- download speed (Mbps)
- upload speed (Mbps)
- latency (ms)
- jitter (ms)
- server location

System screen

From the WebUI left-side menu, selecting System shows a screen with the following tabs:

- General
- Device Management
- LED Management

General

From the WebUI left-side menu, selecting System and then General will show you these options:

- enter PIN to unlock your SIM card
- enter PUK and PIN to unblock your SIM card
- reboot device: the device restarts and keeps existing configuration
- factory reset: the device restarts and erases existing configuration
- change password

Note: For a PIN-locked SIM card after reboot, or factory reset, a PIN number will be needed. Also, if a second SIM card B is used with PIN enabled and inserted to the CPE and its PIN is verified, the SIM card A PIN number will be needed when it is inserted.

For uSIM cards, when status shows *Available* it means PIN number verification is needed. When status shows *Blocked* it means the SIM PIN is blocked and you need to input a PUK number and a new PIN number. When status shows *Error* it means the SIM card is disabled because of a PUK error, or a modem failure, or a broken SIM card, or a specific PIN lock acceptance feature is not active but the SIM card PIN number is locked.

Unlocking or unblocking your SIM card

A SIM PIN number is defined by default and provided in a SIM plastic envelope.

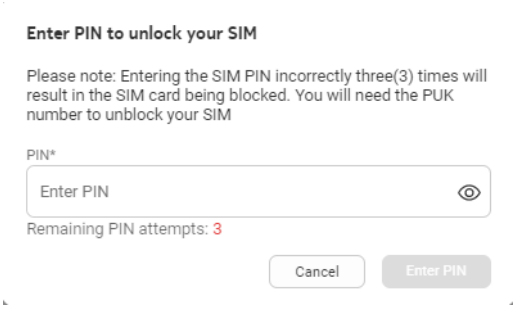
You will need the SIM PIN to unlock a SIM card; you will need the PUK SIM PIN to unblock a SIM card.

If your PIN is locked, from the System General screen, click Enter PIN to unlock your SIM card.

Figure 49 **Unlock your SIM card**

The Enter PIN to unlock SIM entry box will appear. Enter your PIN number.

Figure 50 **Enter PIN to unlock your SIM card**



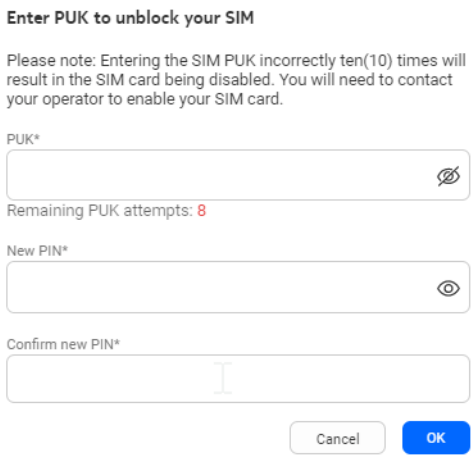
Entering the SIM PIN incorrectly three times will result in the SIM card being blocked.

If your SIM card is blocked, from the System General screen click Enter PUK to unblock your SIM card.

Figure 51 **Unblock your SIM card**

The Enter PUK to unblock your SIM card entry box will appear. Enter your PUK and PIN numbers.

Figure 52 **Enter PUK and PIN to unblock your SIM card**



Entering the SIM PUK number incorrectly 10 times will result in the SIM card being disabled. You will need to contact your service provider to enable the SIM card.

Rebooting the FastMile 5G Gateway 2 through the WebUI

Rebooting the FastMile 5G Gateway 2 cycles power to the device and keeps all configurations made to date.

From the System, General screen, click Reboot.

The FastMile 5G Gateway 2 reboots and keeps existing configuration parameters.

Resetting the FastMile 5G Gateway 2 to factory default through the WebUI

Resetting the FastMile 5G Gateway 2 to factory default removes all configurations made to date.

From the System, General screen, click Reset.

The FastMile 5G Gateway 2 restarts and erases existing configuration.

Changing the password

Note: For security reasons, it is recommended to change the default password once you have logged into the WebUI.

Passwords must contain 10 to 64 characters. Supported character combinations include the following:

- numbers/lowercase letters/uppercase letters
- numbers/lowercase letters/special characters
- numbers/uppercase letters/ special characters
- lowercase letters/uppercase letters/special characters

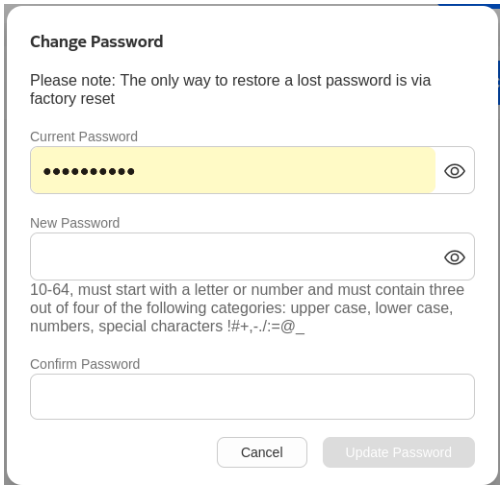
Special characters include the following: !#+,-/:=@_

Passwords cannot start with special characters.

From the System screen, General screen, click Change Password.

The Change Password screen appears.

Figure 53 **System: Change Password**



Enter the current password, located on the product label.

Enter the new password again to confirm.

Click Update Password.

Your password is changed.

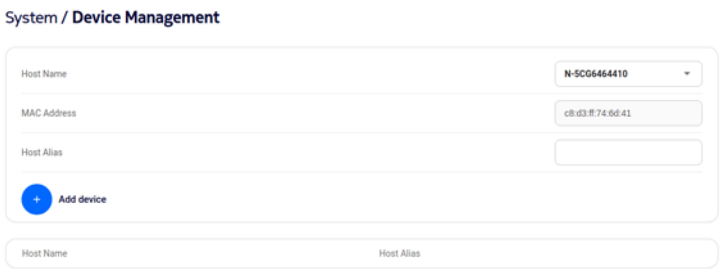
Device management

From the WebUI left-side menu, selecting System will let you configure device management settings.

Click Device management.

The System/Device Management screen appears.

Figure 54 **System/Device Management screen example**



You can configure the following device management settings:

- host name
- MAC address
- host alias

Click Add device.

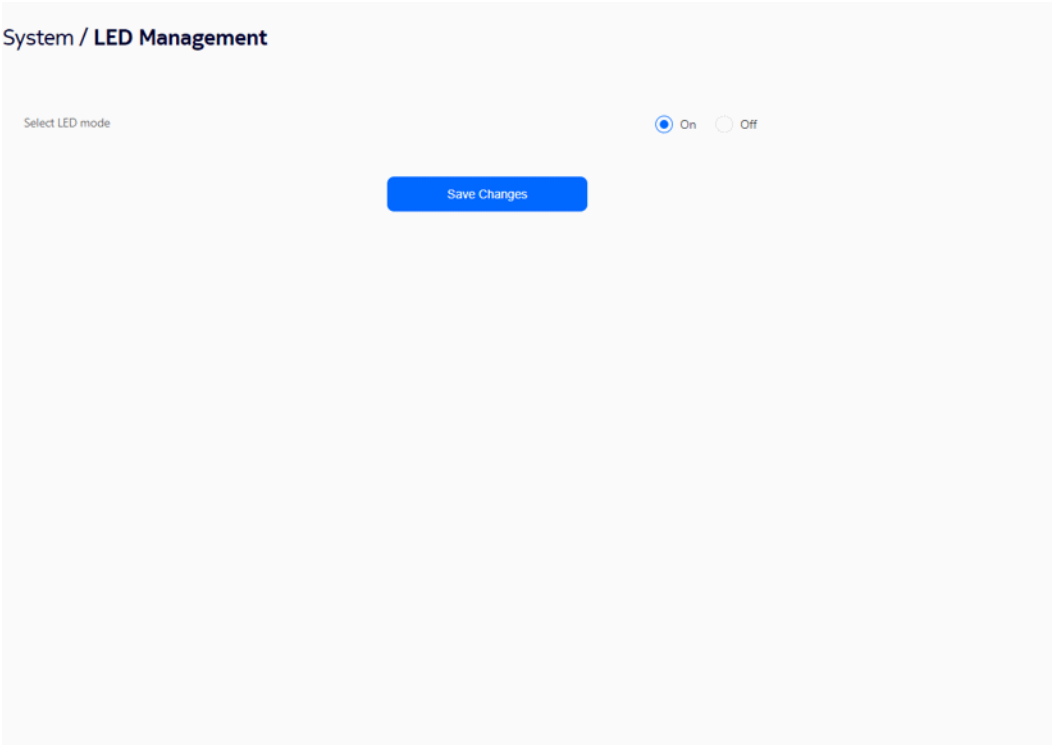
LED management

From the WebUI left-side menu, selecting System will let you configure LED management.

Click LED management.

The System/LED Management screen appears.

Figure 55 **System/LED Management screen**



You can configure the following LED management settings:

- LED on or off

Click Save Changes.

Logging out of the WebUI

Click Logout from the bottom of the WebUI main menu.

Troubleshooting

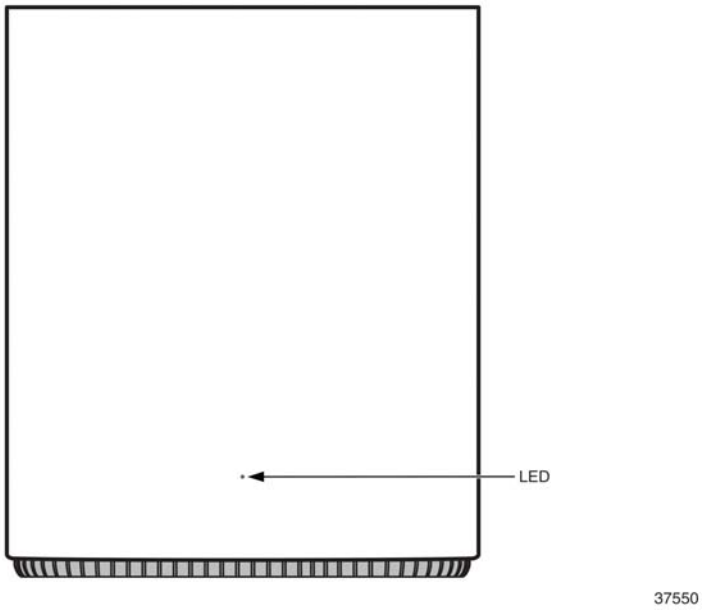
This section provides information about:

- understanding the LED colors
- repositioning for a better signal
- rebooting with the power button
- rebooting or resetting with the reset button

Understanding the LED colors

The LED on the front of the gateway is a multi-color LED that allows you to set up the FastMile 5G Gateway 2 in the best location for 4G/LTE or 5G signal reception.

Figure 56 **Location of the LED**



In addition to indicating signal strength, the LED also indicates device status. Use the following table to check the LED behavior and perform the suggested actions to resolve issues.

Note: LED indications can change over time due to variable 4G/LTE and or 5G signal conditions.

If thresholds have been changed during pre-configuration by your service provider, the LED indications might be different.

Table 1 **LED behavior**

LED color	LED behavior	What it means	What you may consider doing
No color	Off	No power	Connect the FastMile 5G Gateway 2 to power
White	Fast blinking	Signal test in progress (cell measurement is triggered via the Wi-Fi Mobile App)	Do nothing
		Factory reset will start when the reset button is released	Do nothing
Green	Solid	Good 4G/LTE or 5G connection	Finish off the installation process if applicable
Yellow	Blinking	Part of the start up sequence	Do nothing
	Solid	Medium 4G or 5G connection	Reposition the FastMile 5G Gateway 2
Red	Blinking	Reset to factory settings in progress	Do nothing, as the FastMile 5G Gateway 2 is being reset
		One or more critical alarms	Resolve the alarm condition: do a reboot to clear the alarm
	Solid	Missing or incorrect SIM card	Insert the SIM card or replace it
		Poor 4G or 5G connection	Reposition the FastMile 5G Gateway 2

Repositioning for a better signal

If you need to reposition the FastMile 5G Gateway 2 for a better signal, do the following:

- power off the FastMile 5G Gateway 2
- disconnect the power adapter from the electrical outlet

- move the FastMile 5G Gateway 2 (with the power adapter) to a different location, for example, the other side of the room or a higher position
- connect the power adapter to an electrical outlet at the new location and power the FastMile 5G Gateway 2 on
- check the LED as described in Understanding the LED colors to determine the signal quality in the new location and follow the recommended actions in the section

Note: You may need to repeat the above steps several times before finding the final location for the FastMile 5G Gateway 2.

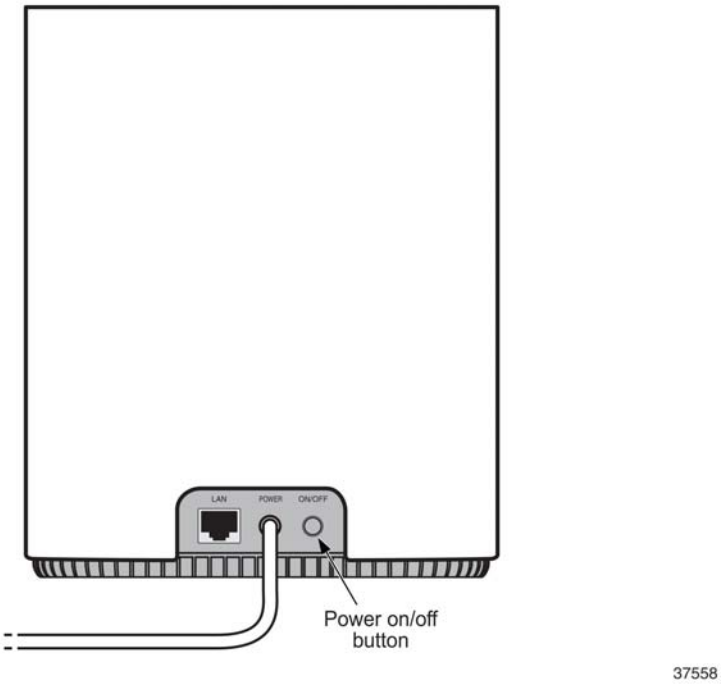
Once you have a good signal, it is important that you do not reposition or rotate the FastMile 5G Gateway 2.

Reboot by using the power button

You can reboot the FastMile 5G Gateway 2 through its power button or through its reset button. Configured settings are preserved for a reboot.

The power on/off button is located on the back of the FastMile 5G Gateway 2.

Figure 57 **Location of the power on/off button**



To reboot the FastMile 5G Gateway 2 through its power on/off button, press the button for one second (off), wait one second, and then press the button again (on).

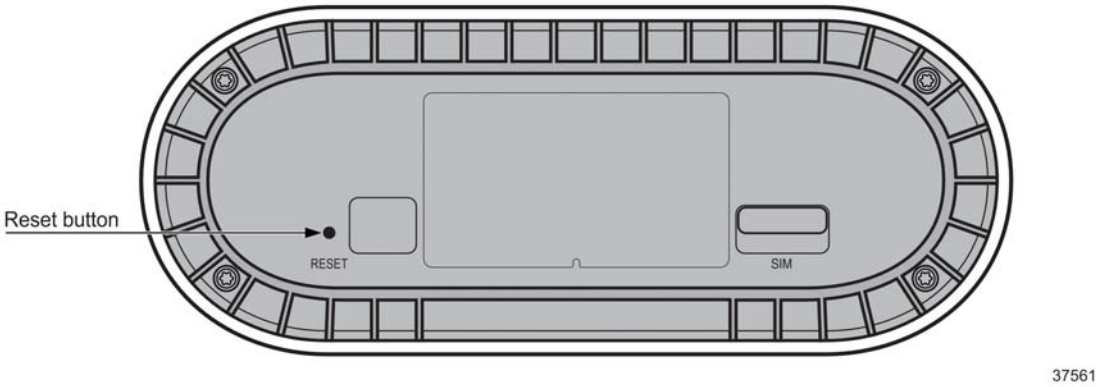
Reboot or reset by using the reset button

You can reboot the FastMile 5G Gateway 2 or reset it to its factory default settings through its reset button:

- configured settings are preserved for a reboot
- configured settings are erased for a reset

The reset button is located on the underneath of the FastMile 5G Gateway 2.

Figure 58 **Location of the reset button**



To reboot the FastMile 5G Gateway 2 through its reset button, press the reset button for less than five seconds.

To reset the FastMile 5G Gateway 2 to factory default settings through its reset button, press the reset button for five seconds or more.

Note: During factory reset, the FastMile 5G Gateway 2 could restart twice. This is normal behavior.

Glossary

This glossary provides the explanation and optional descriptions of most acronyms and initialisms that appear in this document.

3GPP	3rd Generation Partnership Project
4FF	4th Form Factor
AC	Alternating Current
ALG	Application-level Gateway
AP	Access Point
APN	Access Point Name
CA	Carrier Aggregation
CB	Certification Body
CE	Conformité Européanne (European Health and Safety product label)
DMZ/ALG	Demilitarized Zone/Application-Level Gateway
DHCP	Dynamic Host Configuration Protocol
EN-DC	E-UTRAN New Radio - Dual Connectivity
EARFCN	E-UTRA Absolute Radio Frequency Channel Number
GCF	The Global Certification Forum
GITEKI	Japan's Ministry of Internal Affairs and Communications (MIC) for the Radio Act and for the Electronic Communications Business Act. (also known as the Telecom Engineering Center certification (TELEC)
IMSI	International Mobile Subscriber Identity
IP	International Protection or Internet Protocol
IPv6	Internet Protocol version 6
ISED	Innovation, Science and Economic Development regulations
JATE	Japan Approvals Institute for Telecommunications Equipment
LED	Light Emitting Diode
LTE	Long Term Evolution
MIMO	Multiple-Input Multiple-Output
MU-MIMO	Multi-User Multiple-Input Multiple Output
NR	New Radio
NR-ARFCN	New Radio Absolute radio-frequency channel number
NSA	Non-Standalone
NTP	Network Time Protocol
NWCC	Nokia Wi-Fi Cloud Controller
PCI	Peripheral Component Interconnect

PSE	Japan Product Safety Electrical Appliance and Material
QSG	Quick Start Guide
RF	Radio Frequency
RRM	Radio Resource Management
RSRP	Reference Signal Received Power
RSRQ	Reference Signal Received Quality
SA	Service Affecting or Standalone
SIM	Subscriber Identify Module
SNR	Signal to Noise Ratio
SSID	Service Set identifier
UL	Up link
USB	Universal Serial Bus
VDC	Volts Direct Current
WAN	Wide Area Network
WebUI	Graphic User Interface
WLAN	Wireless Local Area Network

Technical specifications

The following models are available for the FastMile 5G Gateway 2:

- 5G19-01W-A

General specifications for model 5G19-01W-A

Part numbers	Kit 3TG-02205-ABAA/3TG-02205-ABBA: Europe, Middle East, Africa, and Brazil; EU plug; device part number 3TG-02241-AAAA/3TG-02241-AABA Kit 3TG-02205-AEAA/3TG-02205-AEBA: Europe, Middle East, and Africa; UK plug; device part number 3TG-02241-AAAA/3TG-02241-AABA
Dimensions	181 mm (8.1 in) high by 150 mm (5.9 in) wide by 60 mm (2.4 in) deep Weight: 0.7 kg (1.5 lb)
Certifications	CE, CB, ANATEL, and WFA
Operating environment	-0˚C to 40˚C (32˚F to 104˚F) Indoor use only. Device is capable of operation up to 45°C (113°F) with reduced performance
Operating humidity	5% to 85%, non-condensing
Short-term humidity	5% to 93%, non-condensing
Storage temperature	-40°C to 70°C (-40°F to 158°F)
SIM card	4FF/nano-sized SIM slot
Power	12 VDC via supplied AC power adapter; power consumption: 17.2 W typical

Interior antennas	Omni-directional 4G/LTE antenna gains: • B42: 4.5-7.6 dBi • B7/B38/B41: 3.0-4.5 dBi • B1/B3: 3.0-4.5 dBi • B32: 3.0-4.0 dBi • B8/B20/B28: 0.8-3.5 dBi 5G NR antenna gains: • n77/n78: 4.0-7.6 dBi • n7/n38/n41: 3.0-4.5 dBi • n1/n3: 3.0-4.5 dBi • n8/n20/n28: 0.8-3.5 dBi

4G / LTE radio frequency specifications

The supported 4G/LTE radio bands and frequencies for Model 5G19-01W-A are provided in Table 2.

Table 2 **Supported 4G/LTE radio bands for Model 5G19-01W-A**

4G/LTE radio band		Frequency
FDD	B1	2100 MHz
	B3	1800 MHz
	B7	2600 MHz
	B8	900 MHz
	B20	800 MHz
	B28	700 MHz
	B32	1500 MHz
TDD	B38	2600 MHz
	B41	2500 MHz
	B42	3500 MHz

5G NR radio frequency specifications

Note: Compliant with 3GPP Release 15 - 5G NR NSA: Option 3X, Option 3A and SA: Option 2.

The supported 5G NR radio bands and frequencies for Model 5G19-01W-A are provided in Table 3.

Table 3 **Supported 5G NR radio bands for Model 5G19-01W-A**

5G NR radio band		Supported 5G NR radio frequency
sub-6 GHz (FDD)	n1	UL: 1920-1980 MHz DL: 2110-2170 MHz
	n3	UL: 1710-1785 MHz DL: 1805-1880 MHz
	n7	UL: 2500-2570 MHz DL: 2620-2690 MHz
	n8	UL: 880-915 MHz DL: 925-960 MHz
	n20	UL: 832-862 MHz DL: 791-821 MHz
	n28	UL: 703-748 MHz DL: 758-803 MHz
sub-6 GHz (TDD)	n38	2570-2620 MHz
	n41	2496-2690 MHz
	n77	3300-4200 MHz
	n78	33300-3800 MHz

Note: Actual supported radio frequency (RF) bands may vary in different regions due to certifications.

Antenna gains

Antenna gains for Model 5G19-01W-A are provided under General specifications for model 5G19-01W-A.

Wi-Fi

The FastMile 5G Gateway 2 is compliant with 802.11b/g/n/ax 2.4 GHz, and 802.11a/n/ac/ax 5 GHz.

The FastMile 5G Gateway 2 supports up to 64 clients per Wi-Fi band.

LTE CA 5G NR EN-DC mode

The FastMile 5G Gateway 2 implements the 5G NSA (Option 3x, Option 3) configuration, meaning it uses a 4G/LTE carrier and 5G NSA carrier at the same time to connect to the service provider's network. The control plane is carried over the LTE network and the user plane is carried over both the LTE and 5G NSA networks.

5G SA

When operating in the 5G SA mode (Option 2), the FastMile 5G Gateway 2 uses the 5G network to connect to the service provider's network.

Warranty and safety

For information on the hardware limited warranty, please go to www.nokia.com/fastmile.

The following is included with the safety and regulatory information provided in the box with FastMile 5G Gateway 2:

- safety warnings (risk of electrical shock or fire)
- caution (potential equipment damage)

- environmental and regulatory requirements
- end of life collection and treatment
- simplified EC declaration or conformity
- specific precautions for EMS warnings

Manufacturer information

Table 4

Manufacturer	Nokia Solutions & Networks Oyj www.nokia.com
Address	Karakaari 7, 02610 Espoo, Finland
Document number	3TG-02464-AAAA-TCZZA-01
Customer support	Contact your service provider where you purchased the device.

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