User Guide

inseego

Inseego Wavemaker™

FX4100 5G Cellular Router



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1

Introduction and getting started

Overview

Device front

Device back

Indicator LEDs

Device display

Getting started

Caring for your router

Overview

The FX4100 5G Cellular Router provides reliable, high-speed connectivity wherever you need it, making it the ultimate broadband solution.

Inside the box you will find an FX4100 5G Cellular Router, a Get Started Card, a USB-C cable and AC wall adapter power supply.

Key features

- With 5G NR technology, Wi-Fi 7 capability, and simplified device management, the compact FX4100 5G Cellular Router provides reliable, high-speed connectivity wherever you need it.
- The FX4100 ensures seamless, day-one connectivity and easy setup. You can get online instantly without waiting for wireline installations. The digital display shows network status, initiates mesh pairing, and more for maximum performance.
- Supports up to 128 connected devices, two Ethernet WAN/LAN ports, and a USB-C port for data and tethering.
- Offers the flexibility to function as a dependable primary 5G wireless connection with full Wi-Fi 7 access point; or enhance your network's resiliency by seamlessly transitioning to a failover solution for wired networks, delivering consistent performance and reliability.
- Enterprise-grade management with Inseego Connect allows you to remotely manage thousands of devices and mesh networks from one central interface. Ideal for scaling enterprise networks, ensuring uptime, and reducing complexity.

System requirements

- Compatible with all major operating systems.
- Works with the latest versions of browsers.
- To use Wi-Fi, connecting devices need Wi-Fi capability. You can also connect via Ethernet or USB.

Device front



Device back





* Ethernet ports are labeled with their default setting (WAN or LAN). You can configure either port to be WAN or LAN in the admin web UI: **Network > WAN**, or with Inseego Connect: **WAN Settings**.

** When enabled, each external port supports the full cellular frequency range of 0.6-6 GHz. To activate the external antenna ports, turn the switch to **EXT.ANT.ON**.

Indicator LEDs

The front of the router has a device status LED, a cellular status LED, and a Wi-Fi status LED. Each LED changes colors and blinks or glows solid to communicate current states for the device.

NOTE: You can turn off the indicator LEDs in the admin web UI with **Administration > Preferences**.

LED	Color	Operation	Meaning
Device status 	Blue	Solid	Device on 5G
	Green	Solid	Device on LTE
	Yellow	Solid Blinking	Software update is available Software update is downloading/installing
	White	Solid Blinking	Device on, Ethernet WAN Device booting up
	Red	Solid Blinking	Device error Software update failed
Cellular status 	Blue	Solid	Great signal (5 bars)
	Cyan	Solid	Good signal (4 bars)
	Green	Solid	Fair signal (3 bars)
	Yellow	Solid	Poor signal (2 bars)
	Red	Solid Blinking	Very poor signal (1 bar) No signal/no network
	White	Blinking	Searching for signal
Wi-Fi status 	Blue	Solid Blinking	Wi-Fi on, mesh Mesh pairing mode
	Green	Solid	Wi-Fi on, no mesh
	White	Blinking	Wi-Fi initiating/rebooting
	Red	Solid	Wi-Fi error
	Off	Off	Wi-Fi off

The WAN/LAN ports on the back of the router also have indicator LEDs.

LED Color	Operation	Meaning
Green		Indicates Ethernet connection speed
	Solid	1000 Mbps (Gigabit)
	Blinking	Data is being transferred
	Off	10/100 Mbps
Amber		Indicates port status
	Solid	Port is being connected, but no data is being transferred
	Off	Port is being disconnected

Device display

The device display provides device information, alerts, and allows you to perform actions, like pair with a mesh node or check for a firmware update.

NOTE: The device display times out after 60 seconds.

Use the display button to navigate through the display:

- **Short press (<1 second)** - cycles through the display menu or submenu options.
- **Long press (>3 seconds)** - initiates an action or accesses/exits a submenu.

TIPS:

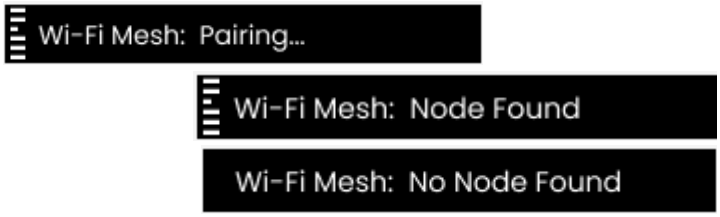
 The menu icon on the left shows you where you are in the main menu.

 The scroll icon on the bottom of a submenu shows you where you are in the submenu.

 An X appears over the signal strength icon when no network is found.

 An X appears on the data arrows icon when there is no data traffic.

 An antenna icon appears when the external antenna switch is on.

Main menu	Submenu
	
	
	
	
	
	
	
	
	
	
	
	
	
	
	
	
	
	
	

Main menu	Submenu
Speed Test: Hold Button To Start	Speed Test: Hold Button 3 2 1
	Do Not Unplug The Device
	Speed Test: Running...
	Speed: ↓257 Mbps ↑257 Mbps
Firmware: 1T	
Update: Hold Button to Check	Update: Hold Button 3 2 1
	Update: Checking...
	Update: 7L PRI v718 is available!
	Update: Downloading...
	Update: Hold Button to Install
	Update: Hold Button 3 2 1
	Update: Installing... Do Not Unplug the Device
	Update: Rebooting... Do Not Unplug the Device
Alerts (4): Hold Button to Review	Alert (1/4): Invalid SIM
	Alert (2/4): No Service
	Alert (3/4): Wi-Fi Is Off
	Alert (4/4): Data Limit Hit, Fees Apply
	Exit Submenu: Hold button 3 2 1

Getting started

This section provides instructions for getting your router up and running, as well as reset and support information.

Placing your router

The location of your router can directly affect performance. Follow these suggestions for placing your router:

- On or above ground level (not in a basement)
- Ideally on an exterior wall closest to the nearest cell tower
- Near a window but not in direct sunlight, with the back of the router facing out
- Clear from obstructions and interference from other electronic devices (maintain at least 2" from metal objects or electronic equipment)
- Outside of cabinets or locations that can get excessively hot

After your router is powered on, if necessary, you can adjust the placement using the device display and LEDs.

Connecting external antennas (optional)

Your FX4100 5G Cellular Router is equipped with four internal antennas. In addition, the device has two external full spectrum cell SMA ports (0.6-6 GHz each) to support two external antennas.

CAUTION! The External Antenna switch must remain set to OFF unless external antennas are in use.

NOTE: The FX4100 integrated internal antennas provide an average 4 dBi peak gain across all frequency ranges. If you are getting 4-5 bars signal strength, external antennas are not necessary and will not add to performance. In fact, adding the wrong external antennas (less than 4 dBi, including cable loss) will decrease your

router's performance. Situations where external antennas are needed are rare. Contact your Account team for more information about external antennas.

To use external antennas:

1. Remove the SIM/EXTERNAL ANTENNAS cover on the back of the router.



2. Finger tighten your external antennas to the CELL1 and CELL2 external antenna ports.



3. Set the switch to **EXT.ANT.ON**. When enabled, each external port supports the full cellular frequency range of 0.6-6 GHz. Two of the internal antennas are disabled. The other two internal antennas remain active. An antenna icon appears on the main screen of the device display.

NOTE: Contact your Account team for more information about external antennas.

Powering on

To power your router on, follow these steps:

1. Plug the USB C cable into the router power port. Plug the other end into any of the following:
   - 24W (12V, 2A) AC power adapter (provided)
   - USB-powered hub
   - USB power delivery (PD) host equipment

   WARNING! Use only the AC wall adapter power supply and cable that are packaged with the FX4100 5G Cellular Router. Using an unapproved wall adapter or cable are done at the risk of the user.

2. Wait for the router to power on. This can take up to three minutes. You'll know it's powered on when the device display shows "T-Mobile" and arrows indicating traffic is active.



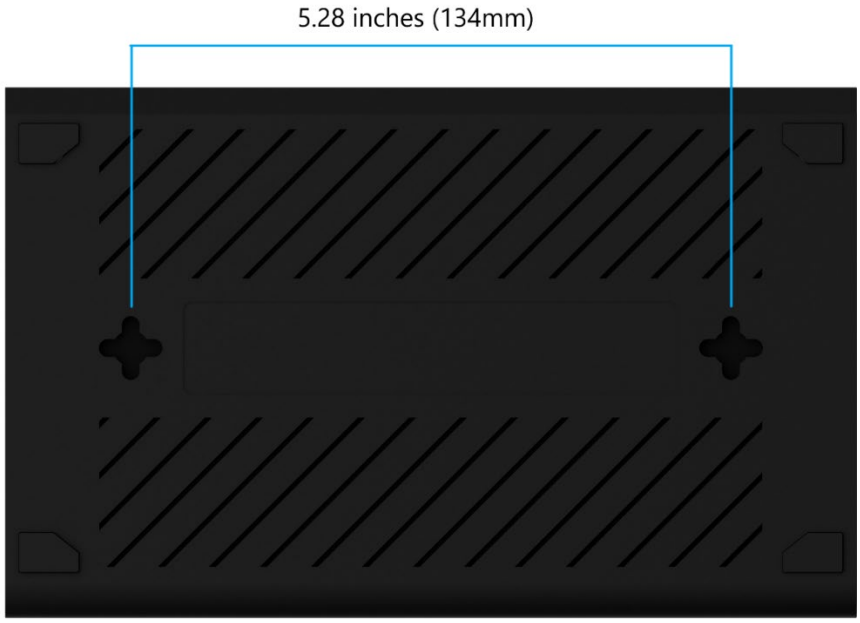
   The display times out after 60 seconds. If it is dark, press the button to the right.

3. If you have fewer than four bars, adjust the location of the router until you have four or five bars and the cellular status LED is cyan (4 bars) or blue (5 bars).

NOTE: To power the router off, simply disconnect it from the power supply.

Mounting your FX4100 (optional)

The FX4100 has two multi-directional keyhole mounting points on the bottom of the device for wall or rack mounting.



Mounting suggestions:

- Use #4 or #6 (M3 or M3.5) screws or anchors.
- Use the appropriate type of screw or anchor:
    - For drywall, plaster, or masonry, use anchor screws.
    - For studs, use wood screws.
    - For metal, use metal screws.

Inseego recommends professional installation to assure safety when drilling near electrical lines, plumbing, or other hazards.

Pairing mesh nodes (optional)

Mesh nodes expand your network coverage and make it more reliable by adding extra paths for data to travel. This provides backups to data flow, creating a stronger, more dependable network that can cover larger areas.

Your FX4100 5G Cellular Router is compatible with the Inseego Wavemaker X700 Mesh Wi-Fi. See Using Inseego Wavemaker X700 Mesh Wi-Fi on page 105 for more information.

Key things to know before connecting a mesh node with a router:

- Both the router and mesh node must be powered on and ready to pair.
- The router and mesh node should be within 10 to 50 feet of each other when connecting via Wi-Fi. You'll position the mesh node after connecting.
- Pairing actions on the router and mesh node must occur within 30 seconds of one another when pairing via Wi-Fi.
- The multicolor LED on the X700, and the device display and Wi-Fi status LED on the FX4100 help guide the pairing process.

To pair an X700 mesh node with your FX4100 5G Cellular Router:

1. Power on the FX4100. When the **FX4100 Wi-Fi status LED is solid green**, it is **ready to pair**.
2. Power on the X700. You can use the provided AC adapter, a USB-powered hub, or USB power delivery (PD) host equipment.

   When the **X700 LED is blinking green**, it is **ready to pair**.
3. Pair the X700. You can pair your X700 with an Inseego FX4100 5G Cellular Router using Wi-Fi or Ethernet.

   Pairing with Wi-Fi

   To initiate Wi-Fi pairing, use the interactive device display on the FX4100 or the admin web UI.

   #### Pair using the FX4100 device display

   - Press the **device display button** repeatedly until you see ***Wi-Fi Mesh: Hold button to add***.
   - Press and hold the **device display button**.
   - When prompted by the display, press the **Mesh button** on the back of the X700 within 30 seconds.

- The LED on the X700 and the Wi-Fi status LED  on the router blink blue while pairing. Pairing typically takes 2-3 minutes.
- When the display shows ***Wi-Fi Mesh: Paired!*** and the **LED on the mesh node is a solid color**, pairing is complete.

OR

Pair using the admin web UI:

- Go to http://192.168.1.1 to access the admin web UI for the FX4100. Navigate to **Wi-Fi > Mesh**.
- Click **Add Node** on the bottom of the UI **Network > Wi-Fi** tab.
- Within 30 seconds, press the **Mesh button** on the back of the X700.
- The LED on the X700 and the Wi-Fi status LED  on the router blink blue while pairing. Pairing typically takes 2-3 minutes.
- When **Wi-Fi status LED on the router is solid blue** and the **LED on the mesh node is a solid color**, pairing is complete.

Pairing with Ethernet

- Connect an Ethernet cable from the X700 to the LAN port on the FX4100.
  NOTE: The router and mesh node must be within 300 feet of each other.
- Pairing is automatic. The LED on the X700 blinks blue while pairing. When pairing is complete, the LED is solid.
- When you disconnect the Ethernet cable, the X700 remains paired via Wi-Fi.

Connecting devices to the router

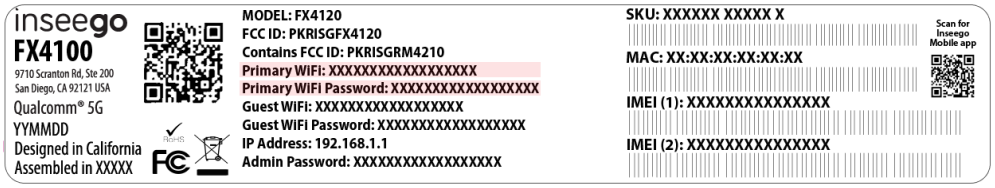
With your FX4100 5G Cellular Router, Wi-Fi devices and wired devices can connect to the mobile broadband network simultaneously.

Connecting devices wirelessly

You can connect to your router with your computer, tablet or other wireless devices that have Wi-Fi and internet browser software.

To connect a Wi-Fi capable device to your router:

1. Make sure the router is powered on, and the Wi-Fi status LED is green (or blue if mesh is enabled).
2. On the device you want to connect to the internet, open the Wi-Fi settings or application, and in the displayed list of available networks find the **Primary Wi-Fi** network name printed on the bottom of your router.



3. Click **Connect** or otherwise select the network name.
4. When prompted, enter the **Primary Wi-Fi Password** printed on the bottom of the router.

Your Wi-Fi capable device is now connected to the internet.

NOTE: See Primary Network on page 48 for instructions on changing your primary Wi-Fi network name and/or password. See Guest Network on page 50 for information on setting up a guest network.

Connecting devices with Ethernet or USB

You can connect wired devices such as laptops, printers, and gaming consoles via Ethernet or USB.



To connect Ethernet devices:

1. Plug one end of an Ethernet cable into a WAN/LAN port on the router.
2. Plug the other end of the cable into the Ethernet port of the device you wish to connect.

To connect USB devices:

1. Plug the USB-C end of a USB cable into the USB port on the router.
2. Plug the other end of the cable into the USB port of the device you wish to connect.

Devices plugged into the router via Ethernet and USB have instant access to the internet.

* Ethernet ports are labeled with their default setting (WAN or LAN). You can configure either port to be WAN or LAN in the admin web UI: **Network > Ethernet**, or with Inseego Connect: **WAN Settings**.

Monitoring and managing your router

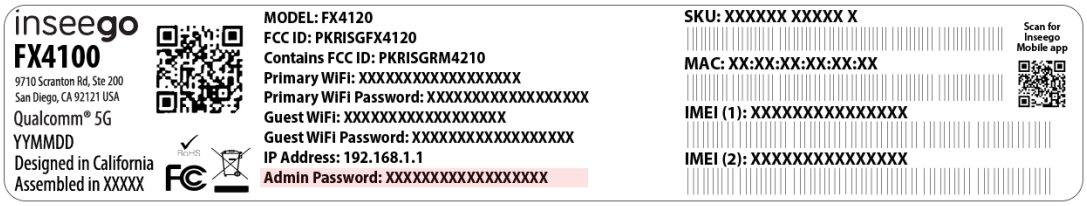
You can use the following options to monitor and manage your router.

Admin web UI

Once your router is connected to a device that supports web browsing, you can use the admin web UI to customize settings, change your passwords, and access information.

On a device connected to the router, open any web browser, and go to http://192.168.1.1 or http://Inseego.local [*].

Select **Log In** (in the top-right corner of the screen) and enter the **Admin Password** printed on the bottom of the router. In order to securely set up the device, you are prompted to change the password upon login, see Changing the Admin password on page 29.



Inseego Connect™

Inseego Connect lets you configure settings, monitor status, and update the firmware on your device remotely from the cloud [†]. All T-Mobile-owned Inseego FX devices come with the option of purchasing the Inseego Connect Add-on. Please work with your Account team to order the Inseego Connect Add-on, which provides Manager access.

Inseego Mobile app

You can use the mobile app to perform basic device monitoring and management.

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[*] The Inseego.local web UI address relies on having IPv6 enabled on your connecting device.
NOTE: Connected devices using IPv6 are not compatible with Fortinet VPN. Disable IPv6 on the connected device to use Fortinet.

[†] When a device is deleted from Inseego Connect, all device-related information and user data associated with the device is removed from the system.

Caring for your router

This section provides information on replacing a SIM card, restoring your FX4100 5G Cellular Router to factory default settings, and general care tips.

Replacing a SIM card

Your SIM card is a small rectangular plastic card that stores your phone number and important information about your wireless service. The FX4100 5G Cellular Router supports only Nano SIM cards. To replace a SIM card, select the correct SIM for this device.

NOTE: Should your SIM card be lost or damaged, contact your service provider.



CAUTION! Always use a factory-made SIM card supplied by the service provider. Do not bend or scratch your SIM card. Avoid exposing your SIM card to static electricity, water, or dirt.

To replace a SIM card:

1. Remove the SIM/EXTERNAL ANTENNAS cover on the back of the router.



2. Remove the existing SIM card.



3. If necessary, remove the SIM card from the protective sleeve, being careful not to touch the gold-colored contacts.
4. Insert the SIM card into the SIM slot ***notch first, with the gold-colored contact points facing down***.
5. Make sure the External Antenna switch is set to OFF unless external antennas are in use and replace the SIM/EXTERNAL ANTENNAS cover.

Resetting your router

You can restart or reset your FX4100 5G Cellular Router to factory settings from the admin web UI, Inseego Mobile app, Inseego Connect or by using the reset button on the router.

- **Restart** – reboots your router.
- **Factory Reset** – resets the router to factory settings

CAUTION! Factory reset returns your router to factory settings, including resetting the Wi-Fi name and password and admin password to the defaults shown on the label. This disconnects all devices.

Resetting from the admin web UI

To reset the router from the admin web UI, select **Administration > Software**, then select **Restart your router** or **Restore Factory Defaults**.

Resetting from the Inseego Mobile app

To reset the router from the Inseego Mobile app, select **General Settings > Device Options**, then select **Restart** or **Factory Reset**.

Resetting from Inseego Connect

To reset the router from Inseego Connect, on the Devices page, check the box next to the device and select **Factory Reset.**

Resetting with the reset button

The reset button is located on the back of the router.

1. Verify that your router is powered on.
2. Locate the reset button on the back of your router.



3. **To reboot the router:**
   Press the reset button for one second.

   To reset the router to factory settings:
   Press the reset button until the device resets, approximately five seconds. The device status LED blinks white, then turns red. When the LED is solid white, green, or blue, your router is ready.

NOTE: The first time you perform a factory reset, it may take over two minutes for your router to restart.

Care tips

Inseego recommends the following care guidelines:

- Avoid locating the router in areas that can get excessively hot, such as in direct sunlight or in a small, enclosed cabinet without ventilation. Excessive heat may impact performance.
- Protect the router from liquids, dust, and excessive temperatures.
- Do not apply adhesive labels to the router as they may cause the router to potentially overheat or alter the performance of the internal antenna.
- Store the router in a dry and secure location when not in use.

2

Configuration

Overview

Admin password

Managing devices

Managing your network

Managing routing

Managing security

Using tools

Setting administration options

Overview

You can configure your FX4100 5G Cellular Router to best suit your needs, including changing your network name and/or passwords, setting up a guest network, viewing all currently connected devices, and setting device preferences.

You can use the following tools for configuring your router:

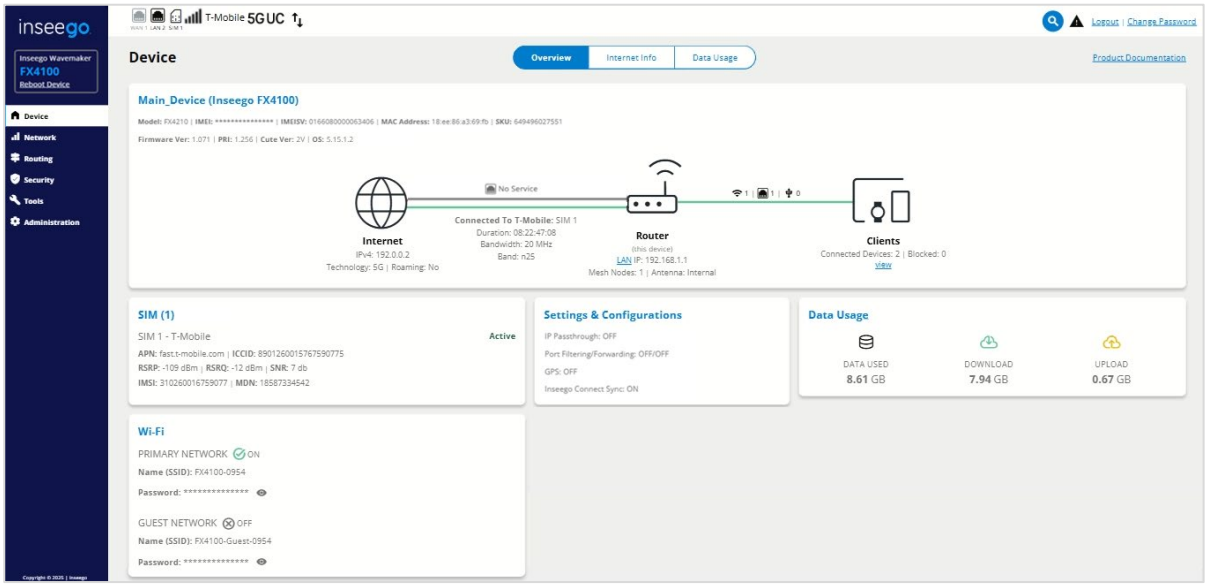
- **Admin web UI** – Provides local access to configure and manage your router. On a device connected to the router, open any web browser, and go to http://192.168.1.1 or http://Inseego.local [*]. Select **Log In** (in the top-right corner of the screen) and enter the **Admin Password** printed on the bottom of the router.
- **Inseego Connect** – Inseego Connect lets you configure settings, monitor status, and update the firmware on your device remotely from the cloud. All T-Mobile-owned Inseego FX devices come with the option of purchasing the Inseego Connect Add-on. Please work with your Account team to order the Inseego Connect Add-on, which provides Manager access.
- **Inseego Mobile app** – Use the mobile app to perform basic device monitoring and management.

This chapter provides the configuration options available for your FX4100 5G Cellular Router. The configurations shown are from the admin web UI, unless otherwise noted. Many of these options are also available with Inseego Mobile app and Inseego Connect. Some configurations are available only with Inseego Connect and are marked as such.

[*] The Inseego.local web UI address relies on having IPv6 enabled on your connecting device.
NOTE: Connected devices using IPv6 are not compatible with Fortinet VPN. Disable IPv6 on the connected device to use Fortinet.

Home page

The home page of the admin web UI is the Device > Overview tab, which displays the device status, SIM information, some common settings, current Wi-Fi networks and passwords, and data usage information. Once you log in, links are available for more information and management options.



Navigation tips

- Each screen in the admin web UI includes a menu on the left that you can use to navigate to other pages. The current page is indicated by a white highlight. A similar side menu is available when configuring devices with Inseego Connect.



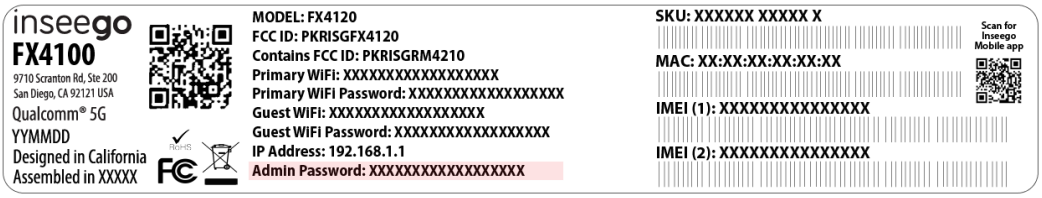
- You can search for a topic by clicking on the search icon in the upper right of any page and selecting a topic from the dropdown list.
- Click on the alert icon in the upper right to view alert messages.

Getting help

Click on Help in the upper right-hand corner of a tab or section to view help on that topic.

Admin password

The admin password is what you use to sign into the admin web UI. A default admin password is assigned to each individual device and is printed on the bottom of the device.



In order to securely set up your router, you are prompted to change the admin password upon login. You can change the admin password to something easier to remember and set up a security question that will help you securely recover your password if you forget it.

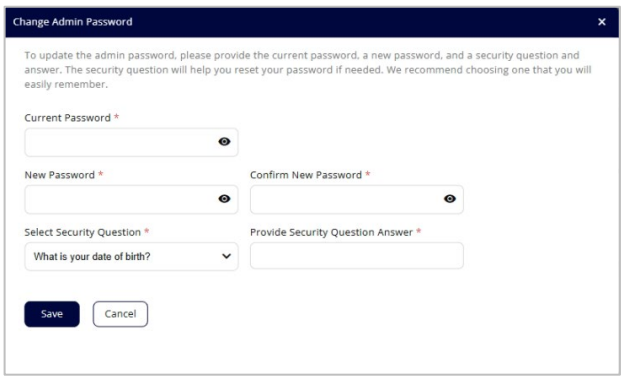
NOTE: You can set up separate Wi-Fi passwords for both primary and guest networks on the **Network > Wi-Fi** tab, but these are different from the admin password, which is for this web user interface.

IMPORTANT: It is critical that you change the admin password from the default to keep the device and your network secure.

Changing the admin password

To change the admin password:

1. **From the admin web UI:** Click **Change Password** in the upper right.



Or,

From Inseego Connect: Select **Device > Admin Password** from the Configure menu.

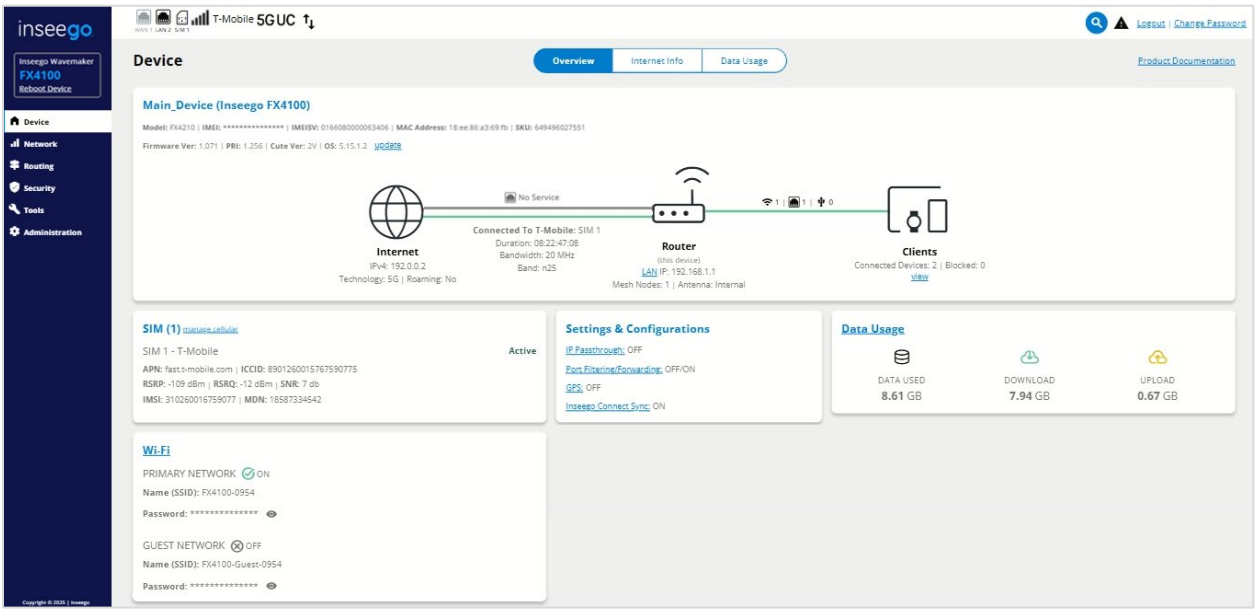
2. Enter your current admin password, then enter a new password and confirm it.
   NOTE: The new password must have a length between 14 and 32 characters and contain at least one special character and number.
3. Select a security question from the dropdown and type an answer to the question.
   NOTE: Answers are case-sensitive.
4. Click **Save**.

The next time you sign in to the admin web UI, use the new admin password. If you cannot remember the password, click **Forgot password** on the **Log In** screen. After you correctly answer the security question you set up, the current password is displayed.

Managing devices

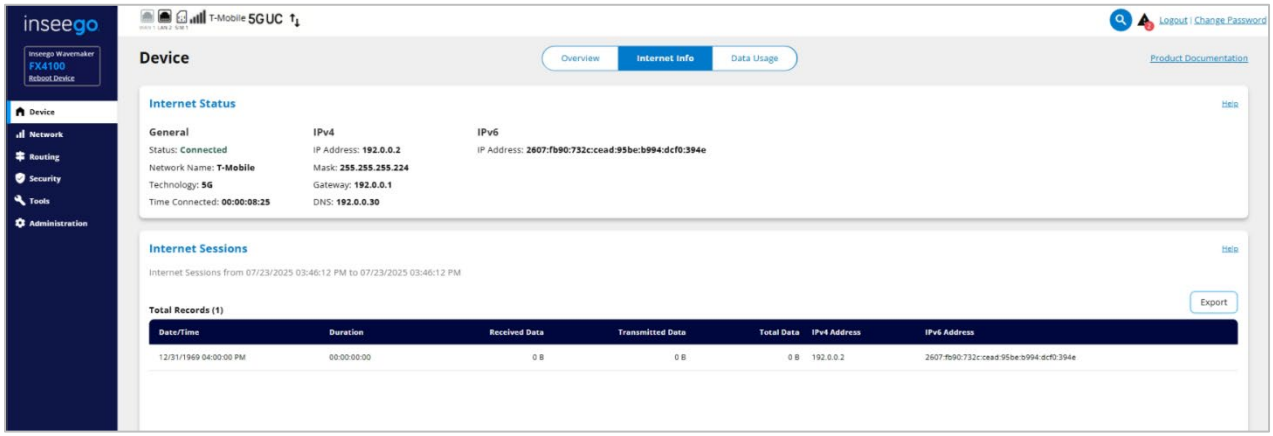
Overview tab

The Device Overview tab is the home page of the admin web UI. Use it to view information about your router at a glance. You can see an overview of your router and network, SIM information, some common settings, data usage stats, and current Wi-Fi networks and passwords. Use the links to jump to a specific topic for more details and configuration options or navigate using the side menu.



Internet Info tab

The Internet Info tab provides internet status and internet session information.



Internet Status

Use this section to view general internet connection and system information.



General

Status: The current status of the router connection.

Network Name: The name of the network for the current internet session.

Technology: Indicates the current type of cellular data connection, for example, 5G.

Time Connected: The amount of time that has elapsed since the connection for the current internet session was established.

IPv4

IP Address: The internet IP address assigned to the router.

Mask: The network mask associated with the IPv4 address.

Gateway: The gateway IP address associated with the IPv4 address.

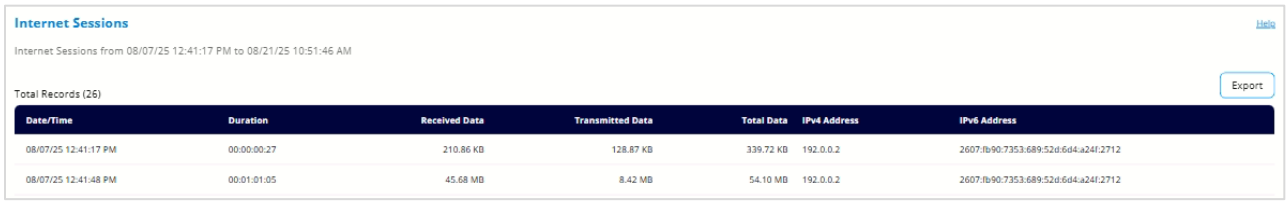
DNS: The Domain Name Server currently used by the router.

IPv6

IP Address: The global IPv6 address for the router (blank if IPv6 is turned off or is not supported by the current network connection or operator).

Internet Sessions

Use this section to export and view internet session data.



Total Records

NOTE: Internet sessions are presented in date order.

Date/Time: The date and time the internet session began.

Duration: The total amount of time for the internet session.

Received Data: The amount of data received for the internet session. This counter starts at zero when the connection is established.

Transmitted Data: The amount of data transmitted for the internet session. This counter starts at zero when the connection is established.

Total Data: The total amount of data for the internet session. This is the sum of Received Data and Transmitted Data.

IPv4 Address: The IP address for the session.

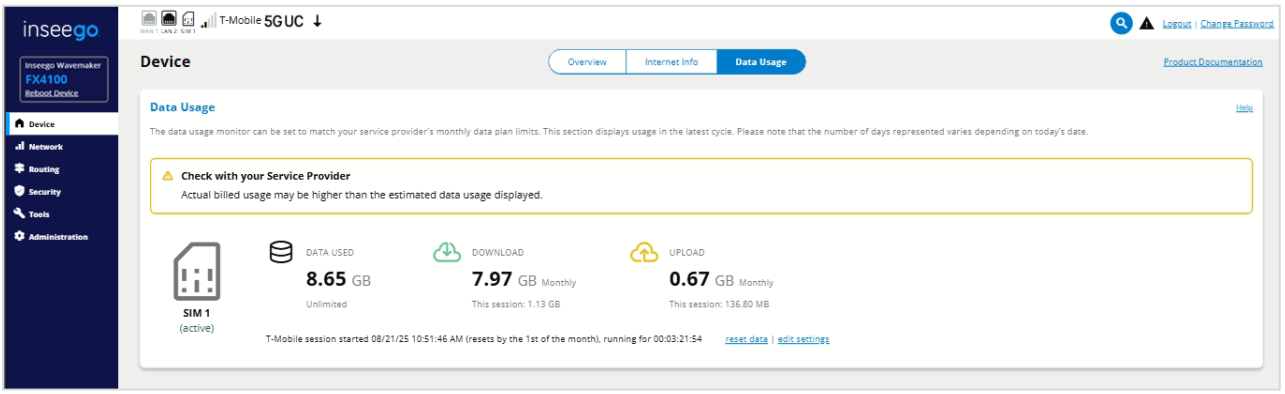
IPv6 Address: The global IPv6 address for the session (blank if IPv6 is turned off or is not supported by the current network connection or service provider).

Click the **Export** button to export internet session data.

Data Usage tab

Use the Data Usage tab to view details and manage your router's data usage.

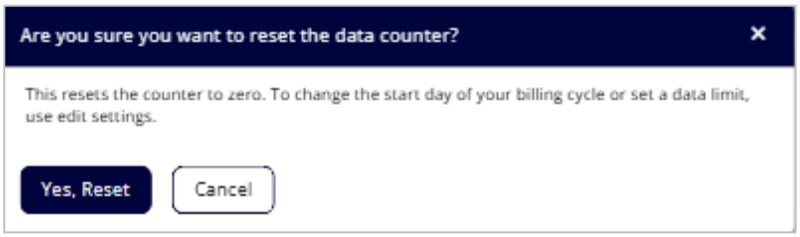
NOTE: Your FX4100 provides only a rough estimate of data usage. Always check with your service provider for exact usage.



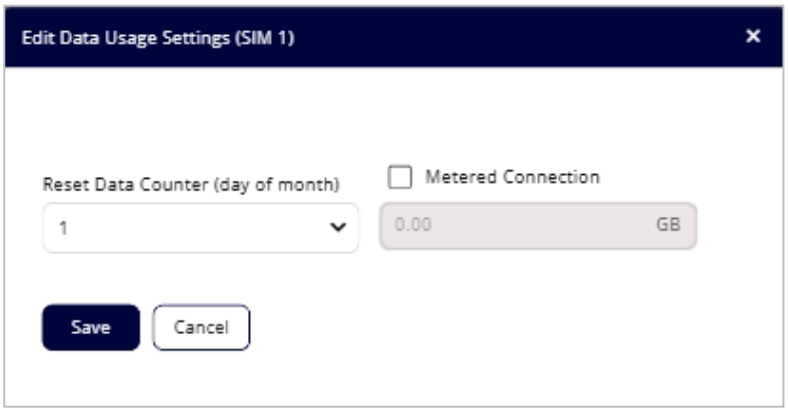
The data usage tab displays:

- **DATA USED:** An estimate of the amount of data used in the current billing cycle.
- **DOWNLOAD:** An estimate of the amount of data downloaded in the current billing cycle, as well as the amount of data downloaded during the current internet session.
- **UPLOAD:** An estimate of the amount of data uploaded in the current billing cycle, as well as the amount of data uploaded during the current internet session.
- A timestamp of when the current internet session started, how long it has been running, and when the data counter is set to restart.

Click **reset data** to restart the data counter. **NOTE:** This only resets the display; to change the start day of your billing cycle or set a data limit, use **edit settings**.



Click **edit settings** to configure settings to reflect your monthly data plan.



Reset Data Counter (day of the month): Use the dropdown to select a day of the month for the usage data to reset.

Metered Connection: Check this box if there is a data limit on your plan, then enter a maximum data limit in the box below.

Click **Save** to enact changes.

Managing your network

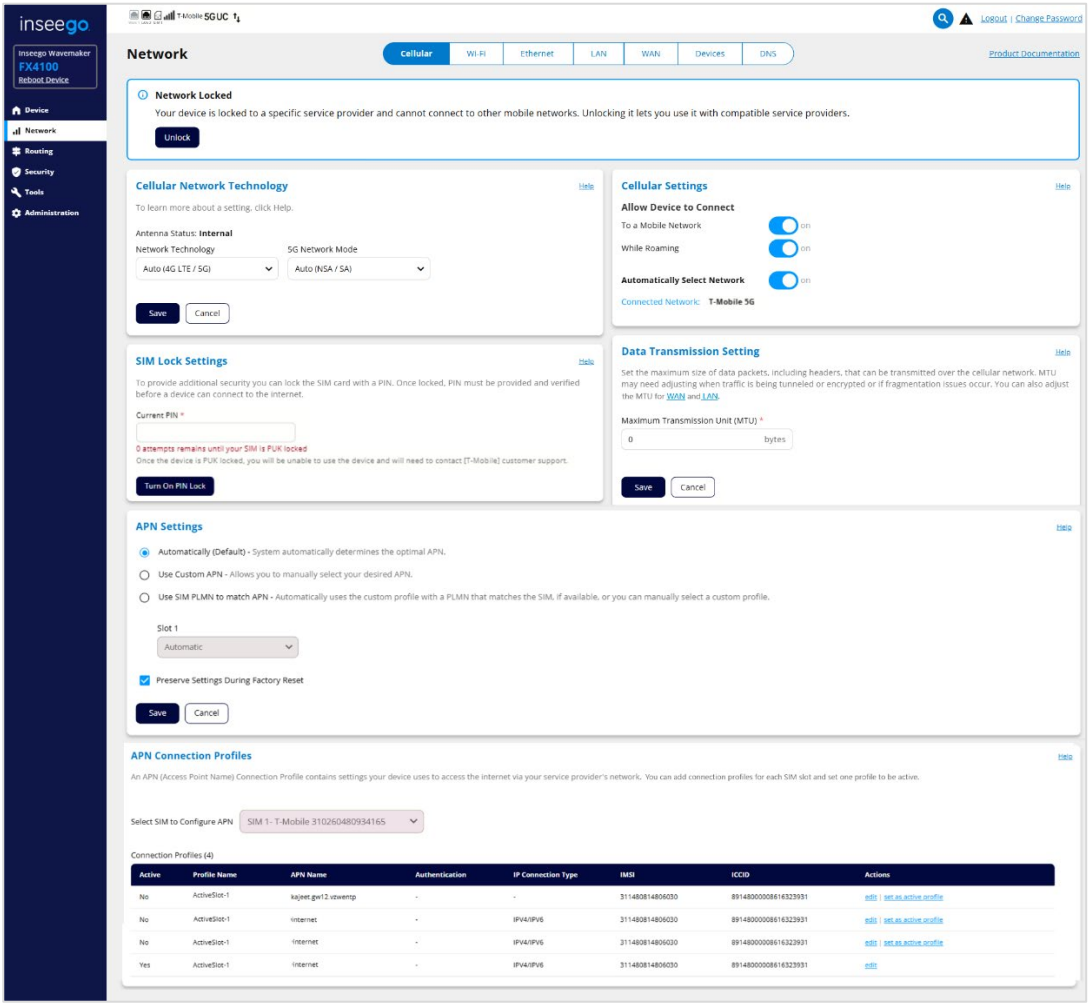
Use Network tabs to view and configure settings for your router's network.

The Network page includes the following tabs:

- Cellular
- Wi-Fi
- Ethernet
- LAN
- WAN
- Devices
- DNS

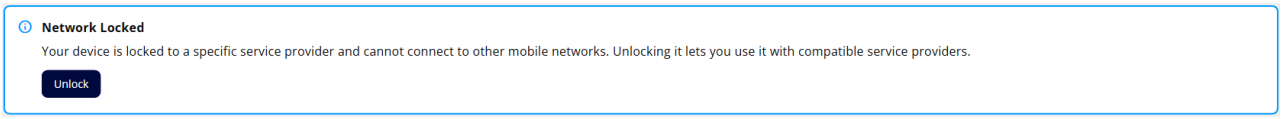
Cellular tab

Use this tab to set options for the cellular network.

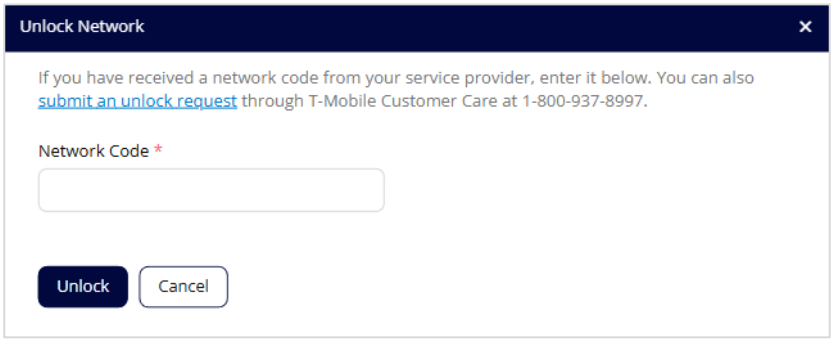


Network Locked

Locked devices can only use the network currently provided by the service provider. Use this section if you want to unlock your router to use with a different service provider.



To unlock a locked device, click **Unlock**. The Unlock Network popup appears.

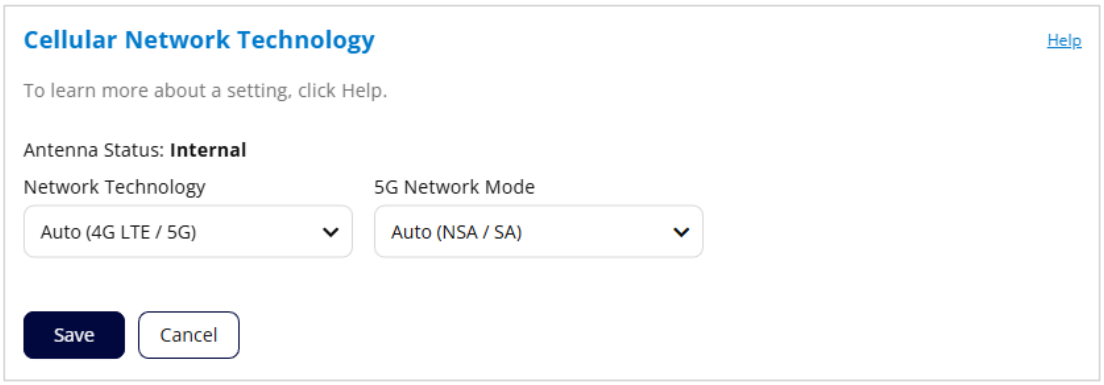


To obtain a network code, click the **submit an unlock request** link, or follow the directions to contact T-Mobile Customer Care. Enter the code in the **Network Code** text box and click **Unlock**.

NOTE: If your device is unlocked, this section does not appear.

Cellular Network Technology

Use this section to configure the network technology and 5G network mode for your router. You can also view whether external antennas are enabled.



Antenna State: Internal indicates the external antenna switch is set to **EXT.ANT. OFF** and all four internal antennas are enabled. **External** indicates the switch is set to **EXT.ANT.ON**.

Network Technology: Your router is set to Auto (4G LTE/5G) by default, which prioritizes 5G but allows 4G and other non-5G technologies to be used. If you select 4G LTE or 5G from the dropdown, your router is restricted from connecting to networks not using that technology, for example, if you select 4G LTE, your router will be unable to connect to 5G networks.

5G Network Mode: Your router is set to Auto(NSA/SA) by default, allowing it to use both standalone 5G and non-standalone 5G, which utilizes 4G anchor bands. You can use the dropdown to select standalone (SA) or non-standalone (NSA) 5G network modes.

Click **Save**.

Cellular Settings

Use this section if you want to temporarily turn off your network completely or turn it off while roaming. You can also turn off automatic network selection to manually select a network.



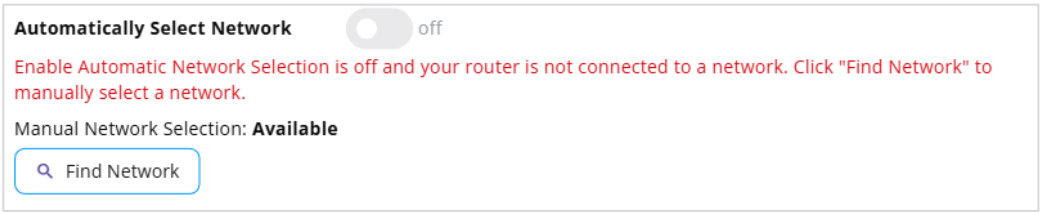
Allow Device to Connect

To a Mobile Network: Use the slider when necessary to turn off cellular data and prevent access to the mobile network. **NOTE:** This prevents connected devices from connecting to the internet and using your router's mobile data plan. **For normal operation, this setting must be left on**.

While Roaming: Use the slider to turn international and domestic roaming on or off as needed. Additional data charges may apply when roaming.

Automatically Select Network: When **on**, your router automatically selects the best available 5G network and you cannot manually select a network.

When **off**, you must manually select a network by clicking **Find Network** and choosing a network.



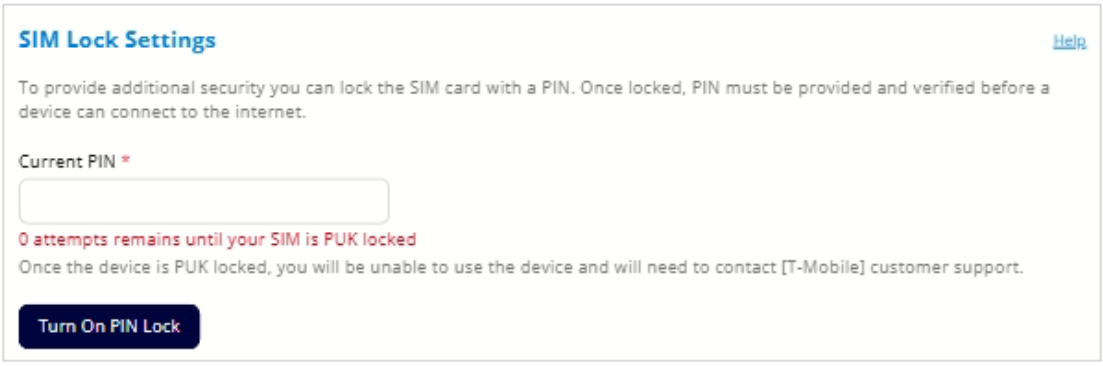
Find Network: You may wish to manually select a network if multiple networks are available and you have a preference. Click the button to scan for available networks, then choose the preferred network and click **Select Network**.
NOTE: This option is available only if **Automatically Select Network** is **off**.

Connected Network: The name of the network to which the router is currently connected.

SIM Lock Settings

The SIM card in your router can be locked using a PIN. If the SIM card is locked, you must enter the PIN before connecting to the mobile network. Once entered, the PIN is remembered until the next shutdown. You may also need to provide the existing PIN to change a SIM. The default PIN is available from your service provider.

Use this section to lock or unlock your SIM or enter a SIM PIN.



Current PIN: Enter the current PIN.

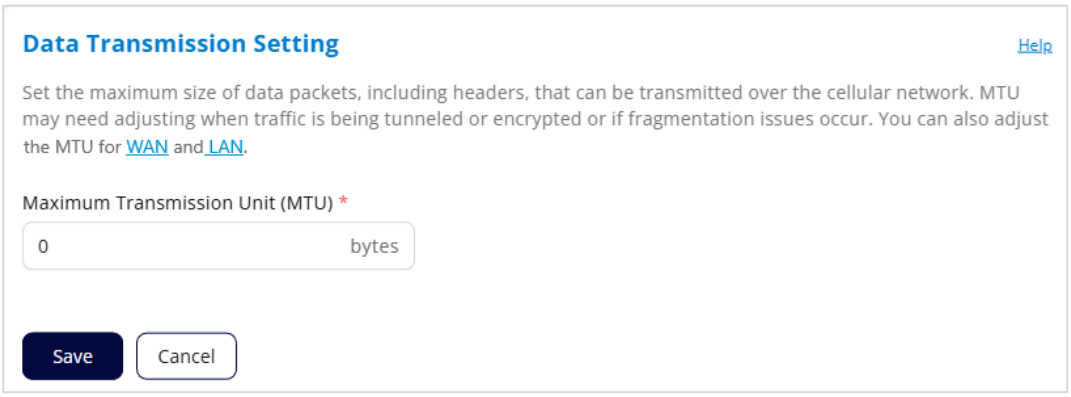
The button shows one of the following options.

- **Turn On PIN Lock** - Sets the SIM so that entry of a PIN is required upon startup to connect to the mobile network. To perform this operation, you must enter the current PIN.
- **Turn Off PIN Lock** - Turns off a PIN lock that was previously turned on so that entry of a PIN is no longer required to connect to the mobile network. To perform this operation, you must enter the current PIN.
- **PIN Lock** - If the SIM is currently PIN locked, you are prompted to enter the PIN. **NOTE:** If an incorrect PIN is entered too many times, the SIM becomes PUK locked. A counter indicates how many incorrect entries will cause PUK lock. Once PUK-locked, the PUK must be obtained from your service provider.
- **PUK Lock** - If the SIM is currently PUK locked, the only possible operation is to enter the PUK. **NOTE:** If an incorrect PUK is entered too many times, the SIM becomes permanently unusable. You will need to obtain a new SIM.

Data Transmission Setting

Use this section to set the maximum transmission unit (MTU) for the cellular network. This is the maximum size of data packets, including headers, that can be transmitted. You might want to adjust the MTU when traffic is being tunneled or encrypted, or if you are noticing fragmentation issues.

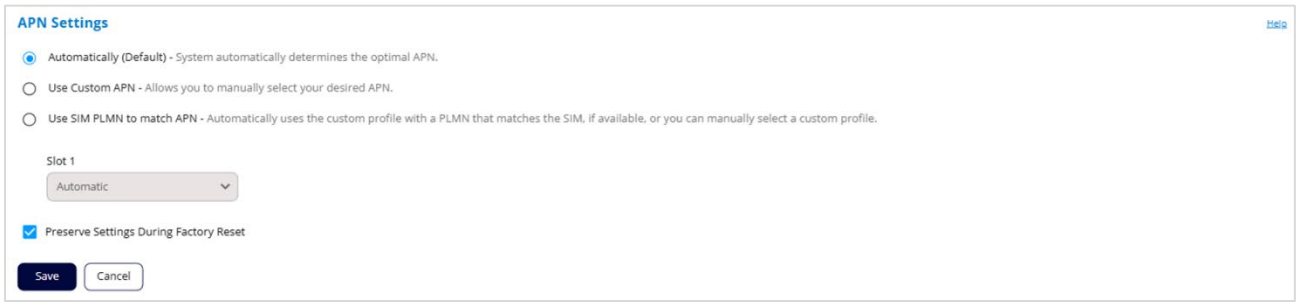
NOTE: You can also adjust the MTU for your WAN Ethernet connection on the WAN tab, and for your LAN network on the LAN tab.



Maximum Transition Unit (MTU): The default (1420 bytes) is the recommended MTU for your cellular network. You can enter a different value between 1280 and 1500 bytes.

APN Settings

By default, the system automatically determines the connection profile and APN for the SIM. Use this section to change how the APN is selected.



Automatically (Default) – The system automatically determines the optimal APN.

Use Custom APN – You can manually assign a connection profile from the custom connection profiles in the **APN Connection Profiles** section below.

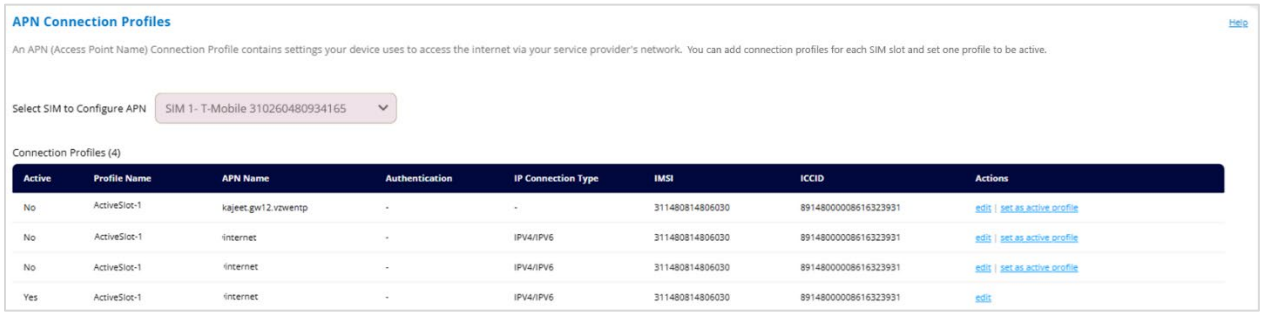
Use SIM PLMN to match APN –The system automatically sets the profile for the SIM based on a PLMN match between the SIM and the custom connection profiles in the **APN Connection Profiles** section below. If there is no PLMN match, the system selects a profile without a PLMN. You can also manually select profiles.

Preserve Settings During Factory Reset: When this box is checked, your APN settings will remain even after a factory reset of the device.

Click **Save**.

APN Connection Profiles

In most configurations, the FX4100 is used with a dynamic IP and SIM, and the Access Point Name (APN) is available from the network, for example: *internet*. However, if you are on a private network, you may need to configure connection profiles for your APN in this section for the network to communicate with the router.



Select SIM to Configure APN: Displays your SIM information.

Connection Profiles

This table lists all the APN connection profiles that have been defined. The number of profiles appears next to the title. **NOTE:** Initially, the default APN profile is displayed. You cannot delete this profile, but you can edit it and/or add additional profiles.

Priority: The order in which the profile logic checks the connection profiles. **NOTE:** This column is not available when Automatically (Default) is selected in APN Settings.

Active: Indicates whether a profile is currently set as the active profile. **NOTE:** Click on **set as active profile** on the right to select the connection profile you want to be active.

Profile Name: The name that identifies the connection profile.

APN Name: The access point name.

Authentication: The authentication method for the connection profile.

IP Connection Type: The IP connection type for the connection profile.

IMSI: The International Mobile Subscriber Identity (IMSI) for the SIM. This is a unique number, usually fifteen digits, that identifies a Global System for Mobile Communications (GSM) subscriber. **NOTE:** This column is not visible if you have selected **Use SIM PLMN to Match APN** in APN Settings.

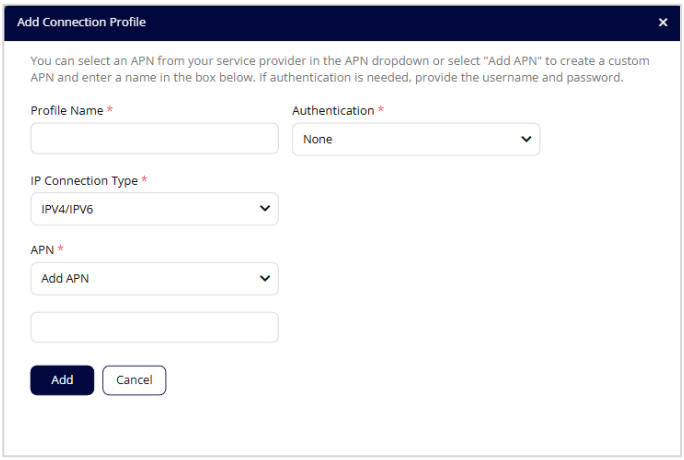
ICCID: The unique ID number assigned to the SIM. **NOTE:** This column is not visible if you have selected **Use SIM PLMN to Match APN** in APN Settings.

PLMN: The Public Land Mobile Network (PLMN) for the connection profile. **NOTE:** This column is only available if you have selected **Use SIM PLMN to Match APN** in APN Settings.

Actions:

- Click **edit** to edit a profile.
- Click **delete** to delete a profile.
- Click **set as active** to set a profile as the active profile.
  CAUTION! Changing the APN may cause a loss of data connectivity.

Add Connection Profile: Click this button to add an additional APN connection profile.

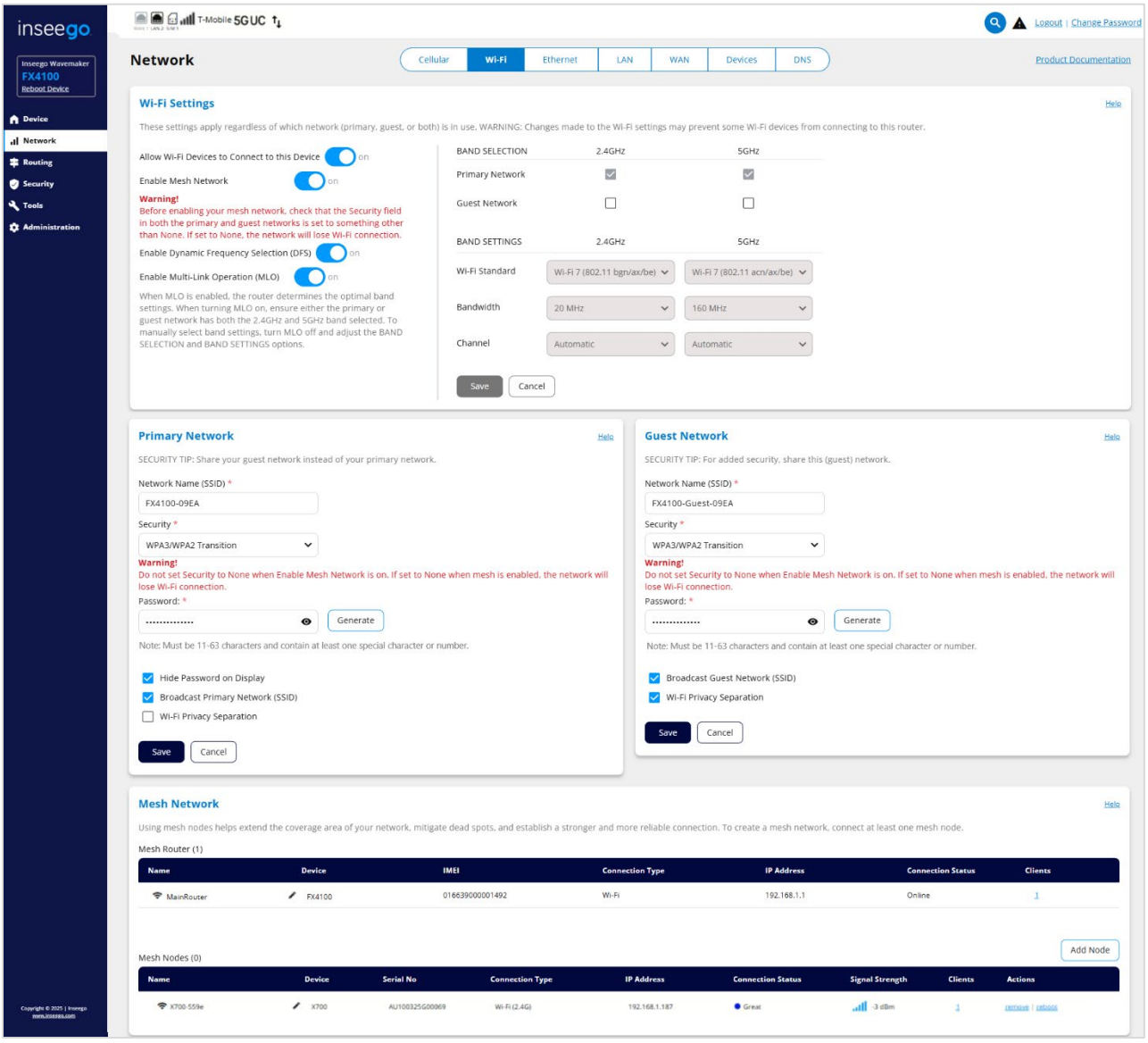


- **Profile Name:** Enter a name to identify this connection profile.
- **IP Connection Type:** Select an IP connection type from the dropdown (IPv4, IPv6, or IPv4/IPv6).
- **APN:** Select an APN supplied by your service provider from the dropdown or select **Add APN** and enter the APN for your private network in the text box that appears below.
- **PLMN:** The Public Land Mobile Network (PLMN) for the connection profile. **NOTE:** This option is only available if you have selected **Use SIM PLMN to Match APN** in APN Settings.
- **Authentication:** Select the authentication method for your private network from the dropdown (None, PAP, CHAP, or PAP and CHAP).
- **Username:** Enter the username for your private network.
  NOTE: This option is not visible when **Authentication** is set to **None**.
- **Password:** Enter the password for your private network.
  NOTE: This option is not visible when **Authentication** is set to **None**.

Click **Add**.

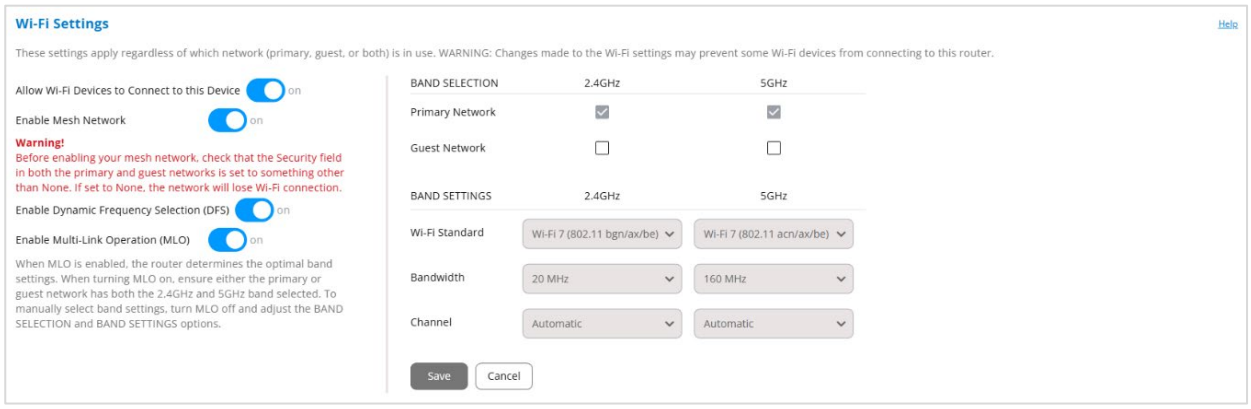
Wi-Fi tab

You can use the default values as they appear on this tab or adjust them for your environment.



Wi-Fi Settings

You can use this section to turn Wi-Fi off, disable a mesh network, turn off DFS, or disable MLO in order to select bands and band settings manually.



Allow Wi-Fi Devices to Connect to this Device: Wi-Fi is **on** by default. If it is turned **off**, all Wi-Fi connected devices, including mesh nodes, are disconnected from your FX4100 and all other setting options on this page disappear. The only way to connect devices will be with an Ethernet cable or USB. You will need to pair each node again once you turn Wi-Fi back on.
NOTE: This selection affects both the primary and guest network.

Enable Mesh Network: The mesh network is **on** by default, allowing you to use mesh nodes to expand your network coverage. If it is turned **off**, all mesh nodes are disconnected from the network, and you cannot add new nodes. Client devices should automatically reconnect directly to the router. You will need to pair each node again once you turn mesh back on.
NOTES:

- Both the 2.4GHz and 5GHz band must be selected for your Primary Network in BAND SELECTION to enable mesh.
- Use the **Mesh Network** section below to add and manage mesh nodes.

Enable Dynamic Frequency Selection (DFS): DFS is **on** by default. DFS enables the use of DFS bands alongside non-DFS bands, thereby increasing available channels and reducing interference.

Enable Multi-Link Operation (MLO): MLO is **on** by default. MLO allows the device to simultaneously utilize multiple frequency bands, ensuring seamless data flow. When enabled, the system automatically determines the best bands and settings, and the BAND SELECTION and BAND SETTINGS sections to the right are read-only.
NOTE: When enabling MLO, ensure that either the primary and/or guest network has both bands (2.4 GHz and 5 GHz) enabled.

BAND SELECTION

NOTE: This section is read-only by default. To select bands, the **Enable Multi-Link Operation (MLO)** slider must be **off**.

Each network can be accessed over two bands: 2.4 GHz and 5 GHz:

- The 2.4 GHz band is supported by all devices with Wi-Fi and should be used by devices that are a few years old or older. This band passes through walls better and propagates over longer distances, so it may have a longer range.
- The 5 GHz band is best for newer devices. It offers better throughput, reduced interference, and faster data speeds, but does not pass through walls as well as the 2.4 GHz band.

NOTE: The guest network must be assigned at least one band before it can be turned on.

BAND SETTINGS

Wi-Fi Standard: Use the dropdown to select a Wi-Fi standard.

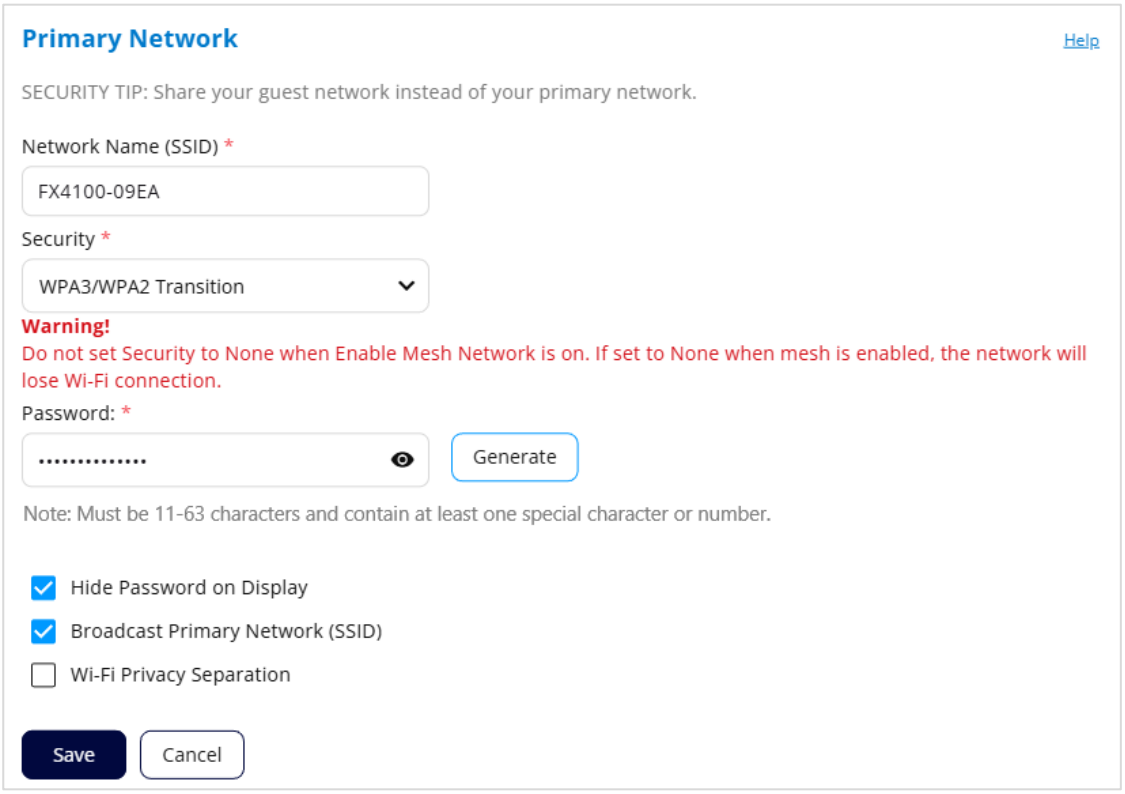
Bandwidth: Leave bandwidth at the default setting unless you experience interference with other Wi-Fi devices.

Channel: Leave the channel set to **Automatic** unless you need to choose a particular channel for your environment.

Click **Save** to enact new settings.

Primary Network

Use this section to change settings for your primary Wi-Fi network, including changing the name and password. Connected devices use the settings shown in this section to connect to the primary Wi-Fi network.



WARNING! If you change these settings, existing connected devices may lose their connection.

Network Name (SSID): To set up or change your primary network name, enter a name (up to 32 characters long).

Security: Select an option for Wi-Fi security:

- **WPA3/WPA2 Transition** is the most secure method of Wi-Fi Protected Access and should be used, if possible, for WPA2 and WPA3 compliant devices.
- **WPA3 Only** can be used for WPA3 devices.
- **WPA2 Personal PSK (AES)** can be used for WPA2 devices.
- **None** allows others to monitor your Wi-Fi traffic and use your data plan to access the internet. **NOTE: Do not** select None when **Enable Mesh Network** is on. **If you select None while mesh is enabled, the network will lose Wi-Fi connection.**

Password: Enter a Wi-Fi password, ***or*** you can use the **Generate** button.
NOTE: The password must have a length of at least 11 characters and contain at least one letter, and at least one number and/or special character. You can click the eye icon to view the password.

IMPORTANT: In order to securely set up your network, it is critical that you change the password from the default. Use a different password from your admin password to keep the device and your network secure.

Generate: This button inserts a strong random password in the Password field. You can click the eye icon to view the password.

Hide Password on Display: This option is checked by default, so that the primary Wi-Fi network password is not shown on the device display. If you choose to uncheck this option, the primary network password is visible on the device display (see Device display on page 11).

Broadcast Primary Network (SSID): This option is checked by default, allowing the primary Wi-Fi network to be displayed in the list of available Wi-Fi networks on connecting client devices. If you choose to uncheck this option, this network is not visible to connecting client devices.

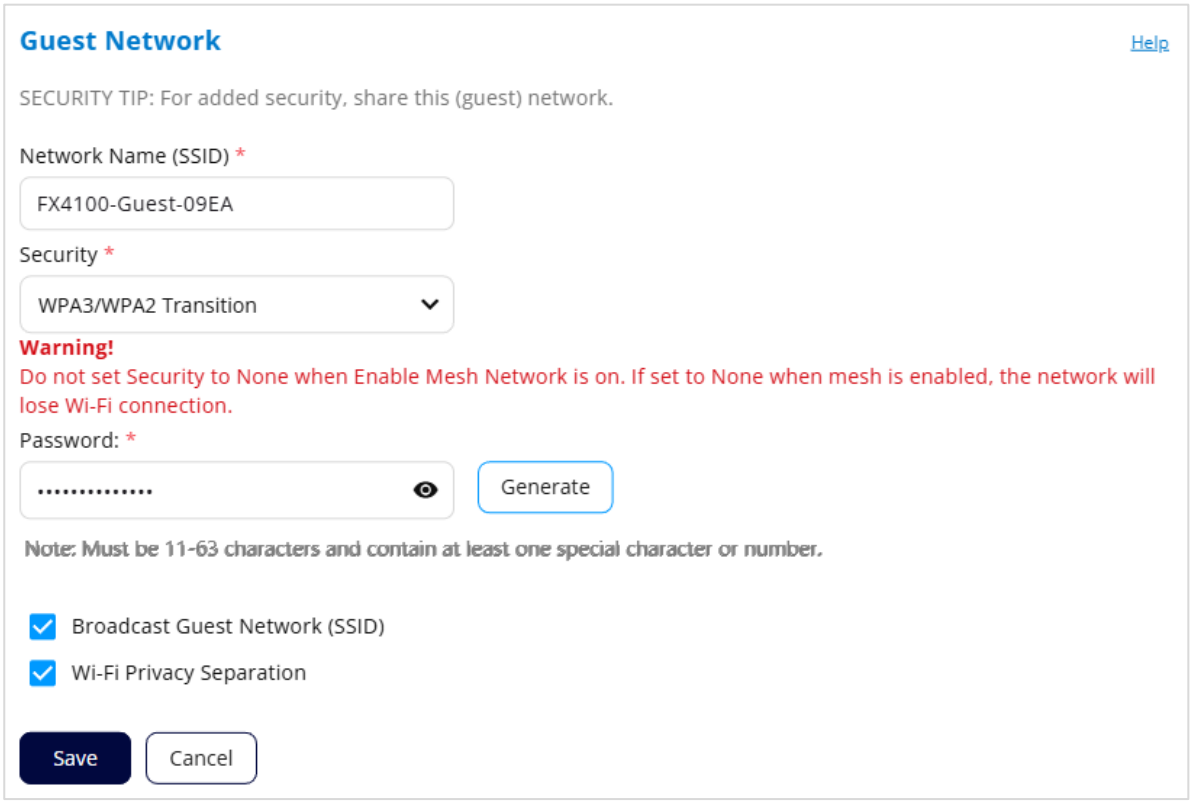
Wi-Fi Privacy Separation: Check this box to keep each connected client device on this network isolated from all other connected client devices. This provides additional security if some connected client devices are unknown or not completely trusted.
NOTE: For normal operation, this should be unchecked.

Select **Save**.

Guest Network

The guest Wi-Fi network allows you to segregate traffic to a separate network rather than share access to your primary Wi-Fi network. Use settings in this section to set up or change guest Wi-Fi network information. Connected devices must use the Wi-Fi settings shown in this section to connect to the guest Wi-Fi network.

NOTE: To turn the guest network on, you must select at least one band for the guest network under **BAND SELECTION** in the **Wi-Fi Settings** section and then select **Save**.



Network Name (SSID): To set up or change your guest network name, enter a name (up to 32 characters long).

Security: Select an option for Wi-Fi security:

- **WPA3/WPA2 Transition** is the most secure method of Wi-Fi Protected Access and should be used, if possible, for WPA2 and WPA3 compliant devices.
- **WPA3 Only** can be used for WPA3 devices.
- **WPA2 Personal PSK (AES)** can be used for WPA2 devices.
- **None** allows others to monitor your Wi-Fi traffic and use your data plan to access the internet. **NOTE: Do not** select None when **Enable Mesh Network** is on. **If you select None while mesh is enabled, the network will lose Wi-Fi connection.**

Password: Enter a Wi-Fi password, ***or*** you can use the **Generate** button.
NOTE: The password must have a length of at least 11 characters and contain at least one letter, and at least one number and/or special character. You can click the eye icon to view the password.

IMPORTANT: It is critical that you use a different password from your admin and primary Wi-Fi network password to keep the device and your network secure.

Generate: This button inserts a strong random password in the Password field. You can click the eye icon to view the password.

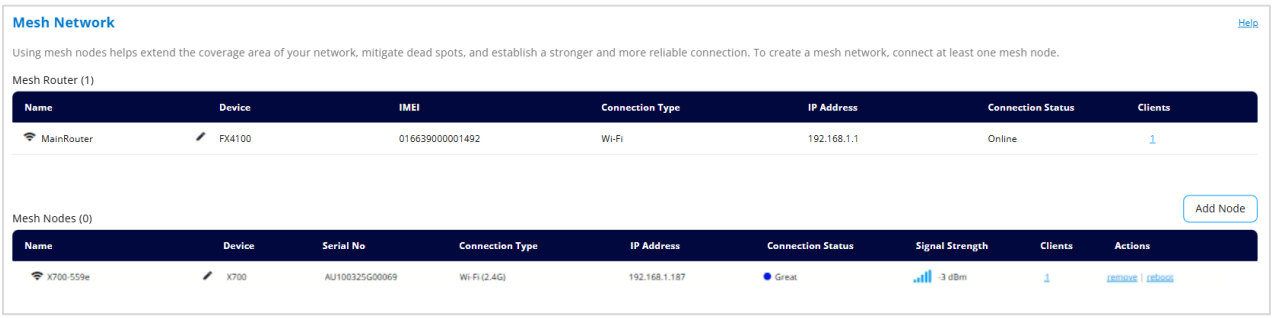
Broadcast Primary Network (SSID): This option is checked by default, allowing the guest network to be displayed in the list of available Wi-Fi networks on connecting client devices. If you choose to uncheck this option, this network is not visible to connecting client devices.

Wi-Fi Privacy Separation: Check this box to keep each connected client device on this network isolated from all other connected client devices. This provides additional security if some connected client devices are unknown or not completely trusted.
NOTE: For normal operation, this should be unchecked.

Select **Save**.

Mesh Network

Use this section to pair with a mesh node and monitor the mesh nodes in your Wi-Fi network.



Mesh Router

This table provides information on your FX4100(s).

Name: The name of the router and an icon for the type of connection. You can edit the name using the pencil icon ✎. (This only changes the name in this UI. To change the name as it appears to connecting client devices, use the **Administration > Preferences** tab.)

Device: The model of the router.

IMEI: The International Mobile Equipment Identity (IMEI) for the router. This is a 15-digit code used to uniquely identify an individual mobile station. The IMEI does not change when the SIM is changed.

Connection Type: The type of connection the router is using to connect with the admin web UI.

IP Address: The internet IP address assigned to the router.

Connection Status: The connection status of the router.

Clients: The number of client devices connected to the router. Click on the number to view detailed information on connected client devices.

Mesh Nodes

This table provides information on the mesh nodes in your network.

Name: The name of the mesh node and an icon for the type of connection. You can edit the name using the pencil icon ✎. (This only changes the name in this UI.)

Device: The model of the mesh node.

Serial No: The serial number of the mesh node.

Connection Type: The type of connection the mesh node is using to connect with the router.

IP Address: The internet IP address assigned to the mesh node.

Connection Status: The connection status of the mesh node.

Signal Strength: The strength of the network signal. **NOTE:** Ethernet and USB connections display a line instead of a value.

Clients: The number of client devices connected through the mesh node. Click on the number to view detailed information on connected client devices.

Actions: Click **remove** to remove the mesh node from your network. Click **reboot** to restart the mesh node.

Adding a mesh node

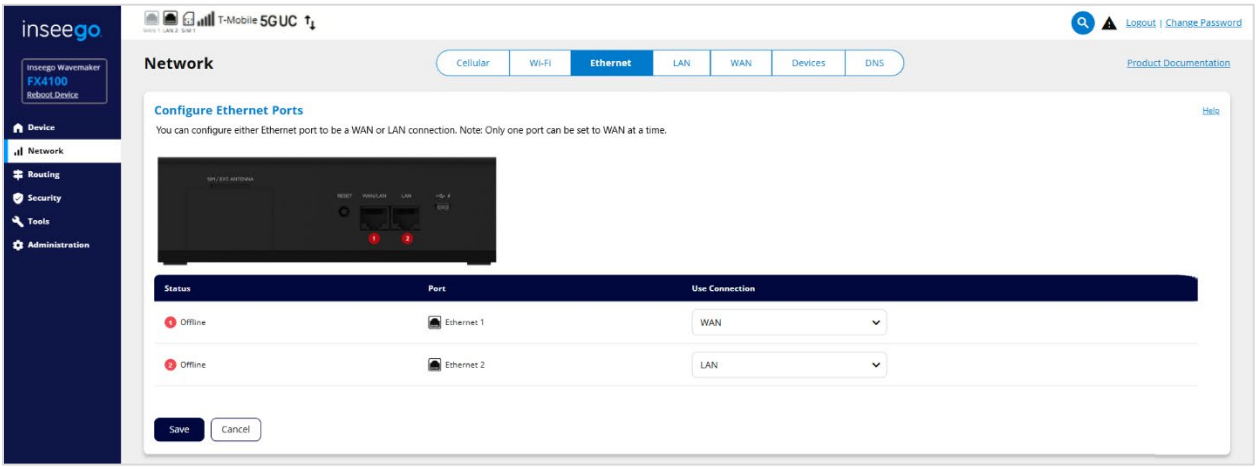
You can add a mesh node using the **Add Node** button in this section:

1. Power on the **X700**. You can use the provided AC adapter, a USB-powered hub, or USB powered delivery (PD) host equipment.
2. When the **X700 LED is blinking green**, it is **ready to pair**. Make sure the router and mesh node are within 10 to 50 feet of each other and click the **Add Node** button on this web UI page.
3. Within 30 seconds, press the **Mesh button** on the back of the X700.
4. The LED on the X700 and the Wi-Fi status LED on the router blink blue while pairing. Pairing typically takes 2-3 minutes.
5. When the **Wi-Fi status LED**  **on the router is solid blue** and the **LED on the mesh node is a solid color**, pairing is complete.

NOTE: You can also add a mesh node using the device display button on the FX4100, or by connecting to the mesh node via Ethernet. See Pairing your X700 mesh node on page 106 for more information.

Ethernet tab

Use this tab to configure Ethernet ports. Although Ethernet ports are labeled as WAN/LAN or LAN on the device, you can set either of them to be a WAN or LAN connection. **NOTE:** Only one port can be set to WAN at a time.



Status: The status of the interface (Connected, Online, Offline).

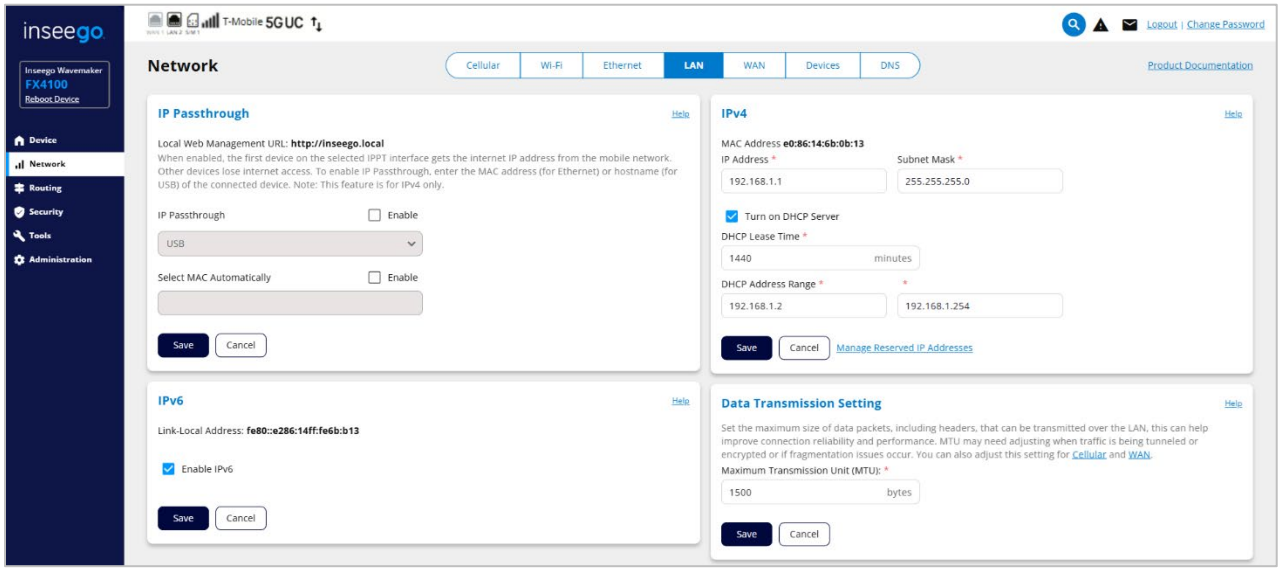
Port: Ethernet 1 is the port on the left labeled WAN/LAN on the router; Ethernet 2 is the port on the right labeled LAN.

Use Connection: Use the dropdown to select WAN or LAN for the type of Ethernet connection you want on each port.
NOTE: When IP Passthrough is turned on, you cannot configure Ethernet ports as WAN.

Click **Save**.

LAN tab

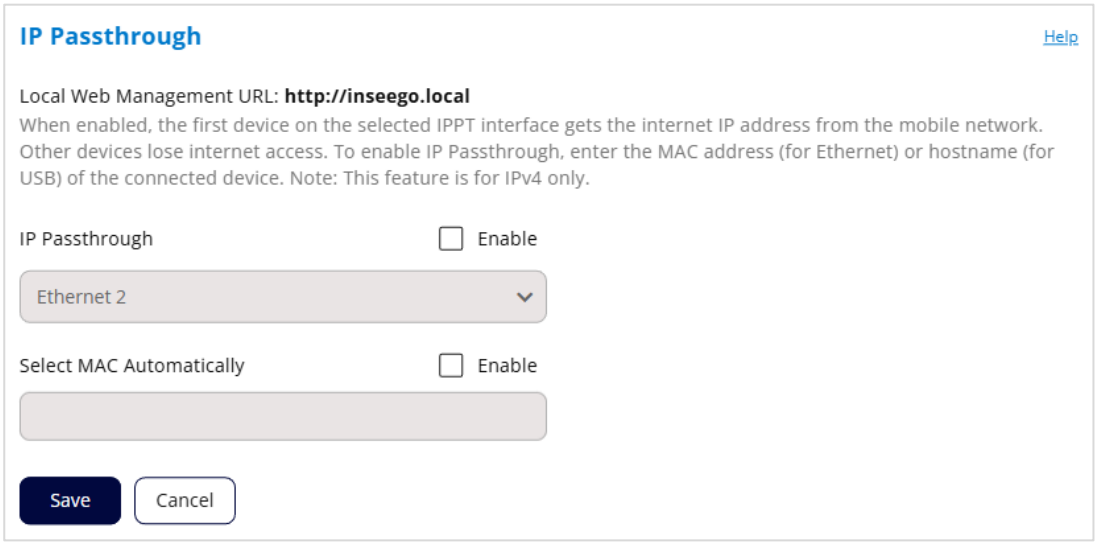
This tab provides settings and information about the FX4100 local area network (LAN). The LAN consists of the device and all connected devices.



IP Passthrough

IP Passthrough (IPPT) enables the first device detected on the specified interface to obtain the IP address assigned by the mobile network. IPPT allows you to enable a one-to-one connection to a host routing system. **NOTE:** When IP Passthrough is on, only one device has internet access. All other connected devices are disconnected and lose internet access. The following capabilities are set through the host routing system and web UI settings are not available:

- Wi-Fi (including Mesh)
- DMZ (Firewall)
- Port Filtering
- Port Forwarding



Local Web Management URL: The URL name used to access the FX4100 local web UI (read-only).

IP Passthrough: Check the **Enable** box to enable IP Passthrough and select the interface you want to use for IPPT from the dropdown.

NOTES:

- Enabling IPPT disables Wi-Fi from the router and disconnects all mesh nodes. You will need to pair each node again once you turn IPPT off.
- When Ethernet WAN is connected, IP Passthrough cannot be configured. To allow configuration, go to **Network > Ethernet** and change Ethernet WAN to LAN, or on **Network > WAN**, set Ethernet WAN to a lower priority than Priority 1.

Select MAC Automatically: (visible If you select an Ethernet interface for IPPT). You can either enter the MAC address of the device connected for IPPT or check the **Enable** box to find the MAC address automatically. This is the MAC address of the only device connected to the selected Ethernet port that can obtain the IP address assigned to the mobile network.

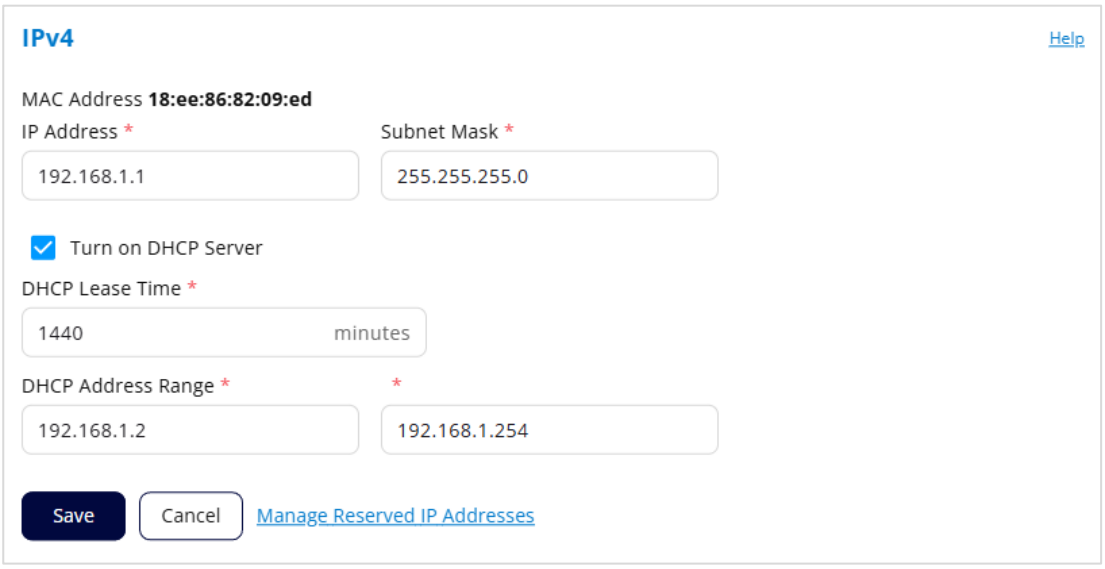
NOTE: You can find the MAC address of connected devices on the **Network > Devices** tab.

Select Hostname Automatically: (visible If you select USB as the interface for IPPT). You can either enter the hostname of the device connected for IPPT or check the Enable box to find the hostname automatically. This is the hostname of the only USB-connected device that can obtain the IP address assigned to the mobile network.

Click **Save**.

IPv4

Use this section if you need to make changes to your router's IPv4 address or subnet mask, or if you want to adjust DHCP server settings.



MAC Address: The Media Access Controller (MAC) Address for the Wi-Fi interface on your router (read-only). The MAC address is a unique network identifier assigned when a network device is manufactured.

IP Address: The IP address for your router, as seen from the local network. Normally, you can use the default value *.

Subnet Mask: The subnet mask network setting for the router. The default value 255.255.255.0 is standard for small (class "C") networks. If you change the LAN IP address above, make sure to use the correct subnet mask for the IP address range of the LAN IP address*.

Turn on DHCP server: The DHCP server is **on** by default. The DHCP server allocates an IP address to each connected device. **NOTE:** If the DHCP Server is turned **off**, each connected device must be assigned a fixed IP address.

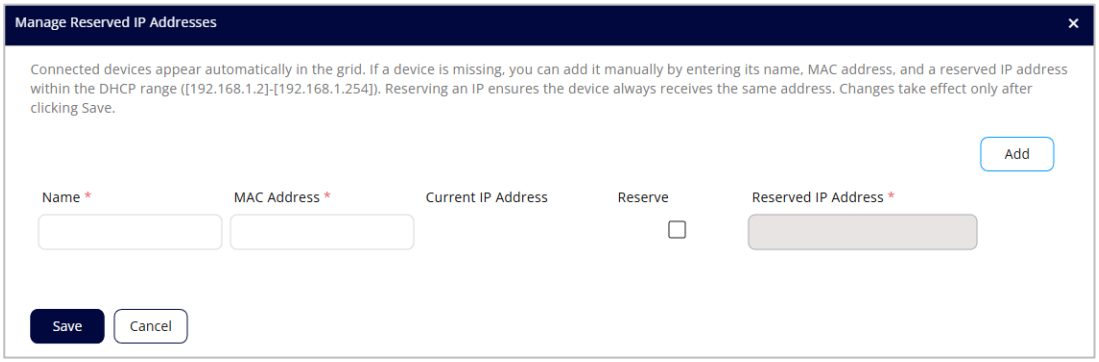
DHCP Address Range: The start and end of the IP address range used by the DHCP server. If the IP address is set on the client device, use an IP address outside of this DHCP range; if the IP address is set using an IP reservation, it will usually be inside this range. **NOTE:** Only expert users should change this setting.

---

* If you are using a 255.0.0.0 (class "A"), or 255.255.0.0 (class "B") network, the 3rd octet of the IP address must be an even number (for example: x.x.2.x/10.5.2.1).

DHCP Lease Time: The number of minutes in which connected devices must renew the IP address assigned to them by the DHCP server. Normally, this can be left at the default value, but if you have special requirements, you can change it.

Manage Reserved IP Addresses: Use this button to set up reserved IP addresses. Reserved IP addresses ensure that a connected device will always be allocated the same IP address.



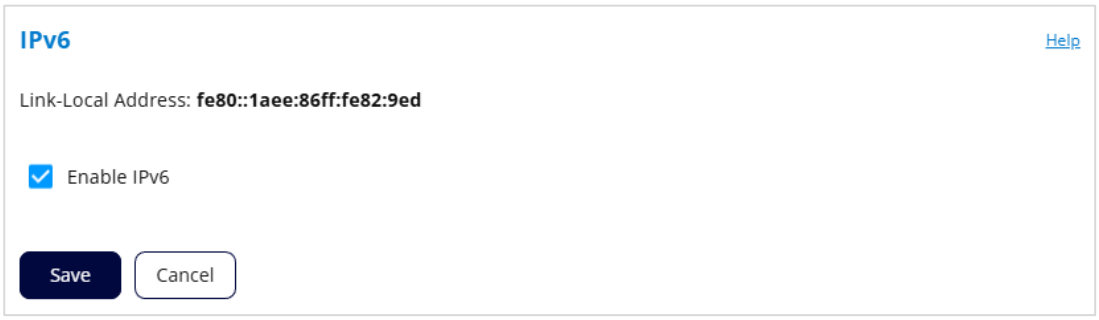
Connected devices display automatically. To manually add a device:

1. Click the **Add** button to start a new row.
2. Enter a name, MAC address and a reserved IP address that falls between the values set in **DHCP Address Range**.
3. Check the **Reserve** checkbox if you want to reserve the address.
4. Click **Save**.

Click **Save** to activate and save IPv4 settings.

IPv6

Use this section to enable IPv6 so that IPv6 connected devices can make IPv6 connections to the internet.



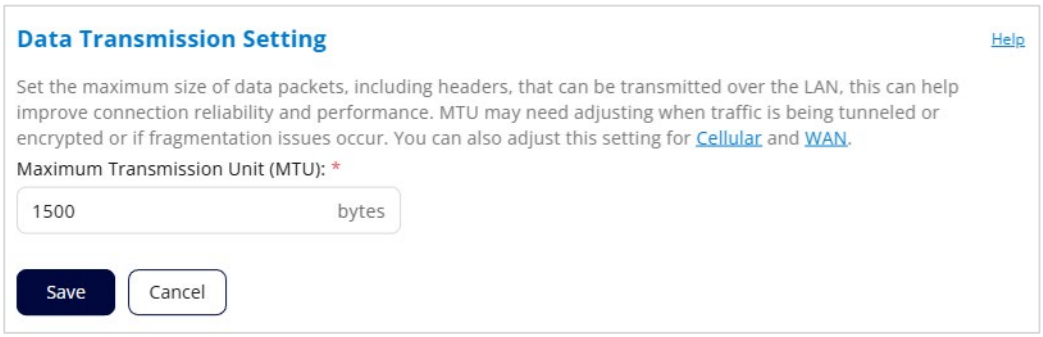
Link-Local Address: The Link-Local IPv6 address if the connected device supports IPv6 (read-only).

Enable IPv6: Check the box if the connected device supports IPv6 [*].

Click **Save**.

Data Transmission Setting

Use this section to set the maximum transmission unit (MTU) for your LAN network. This is the maximum size of data packets, including headers, that can be transmitted. You might want to adjust the MTU when traffic is being tunneled or encrypted, or if you are noticing fragmentation issues.
NOTE: You can also adjust the MTU for Cellular on the Cellular tab and for the WAN connection on the WAN tab.



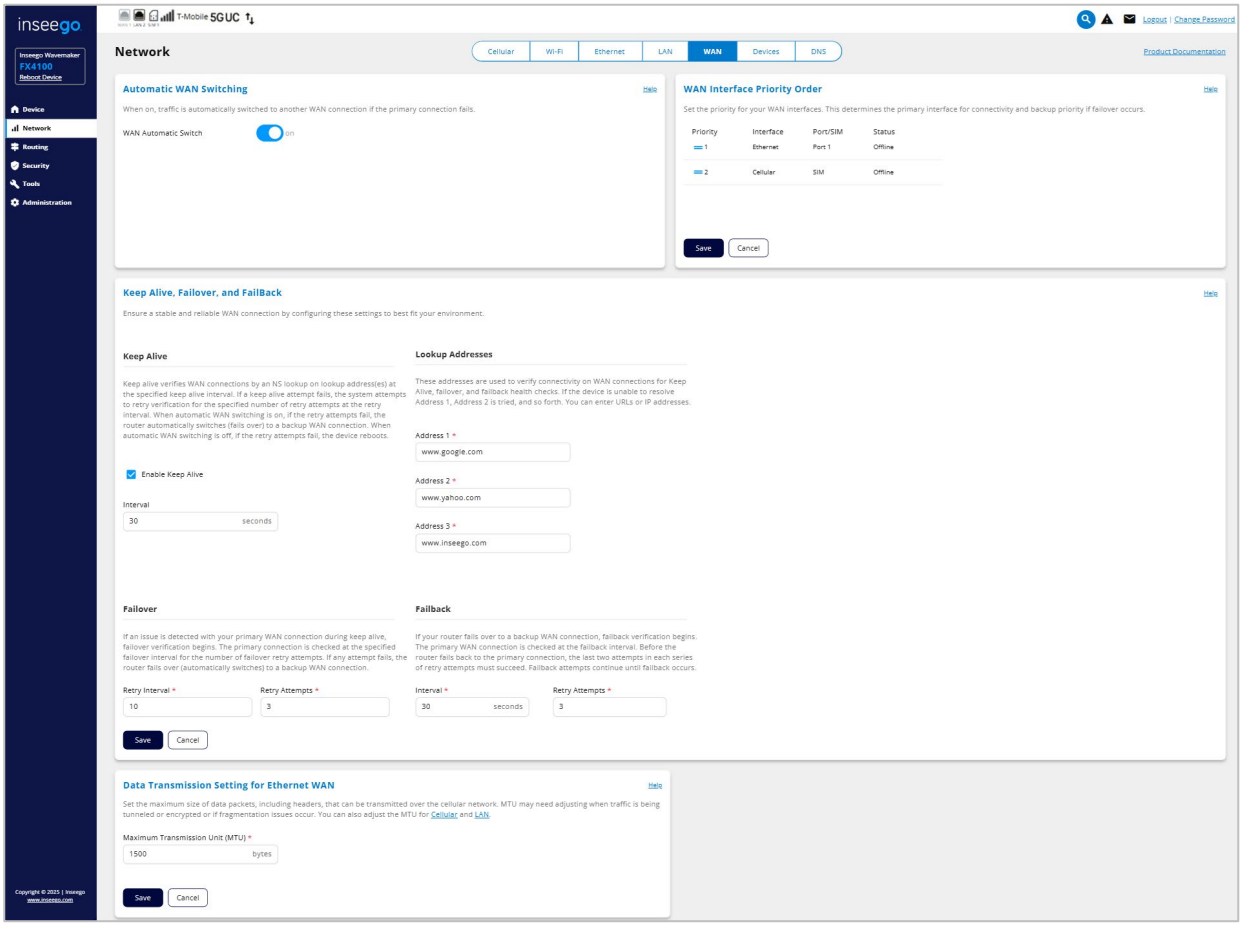
Maximum Transition Unit (MTU): The default (1500 bytes) is the recommended MTU for your FX4100 LAN network. You can enter a different value between 1280 and 1500 bytes.

Click **Save**.

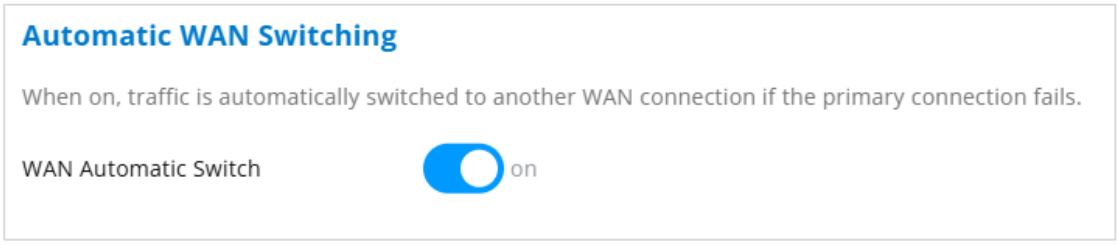
[*] Connected devices using IPv6 are not compatible with Fortinet VPN. Disable IPv6 on the connected device to use Fortinet.

WAN tab

Use this tab to enable WAN automatic switching, set WAN priorities, configure keep alive, failover, failback, and lookup addresses, as well as set the MTU for your Ethernet WAN.



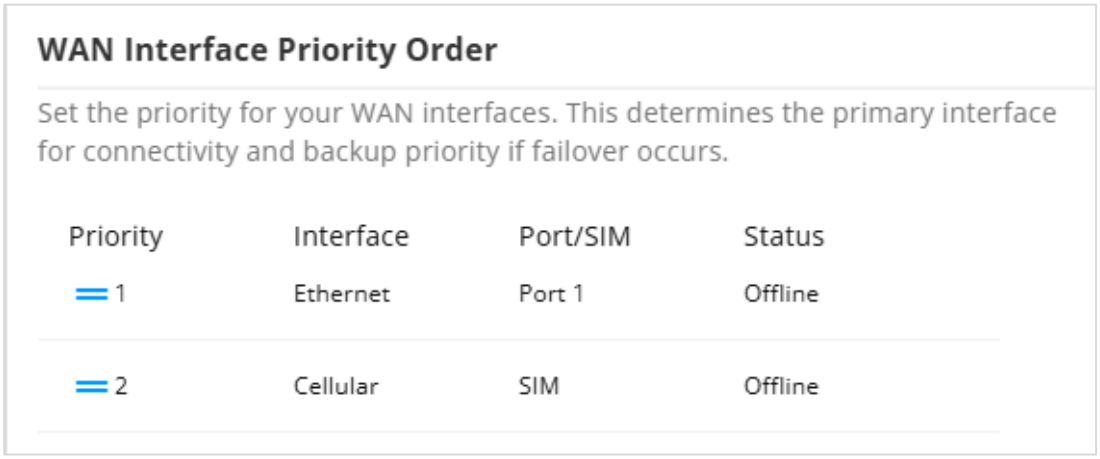
Automatic WAN Switching



WAN Automatic Switch: Automatic WAN switching is **on** by default. This allows rerouting of network traffic to your backup connection if the primary WAN connection fails.

WAN Interface Priority Order

Use this section to set the priority for your WAN interfaces. Priority 1 is your primary connection. When automatic WAN switching is enabled, if connectivity is lost on the priority 1 connection, the connection switches (fails over) to the priority 2 interface, and switches back (fails back) to the priority 1 connection when connectivity is restored.



Priority: Drag the two blue lines up and down to change the priority of the interfaces.

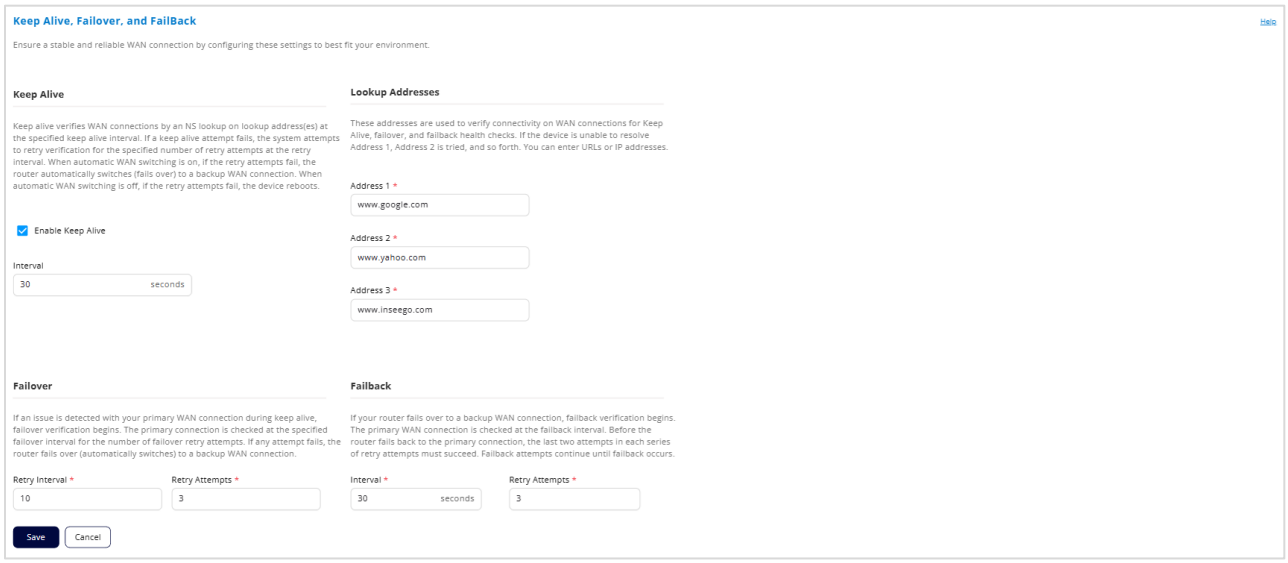
Interface: The type of interface (Cellular or Ethernet).

Port/SIM: For Ethernet interfaces, this is Port 1 or Port 2, whichever you have set for WAN on the Ethernet tab (Port 1 is labeled WAN/LAN and is on the left on the router, Port 2 is labeled LAN.).

Status: The status of the interface (Connected, Online, Offline).

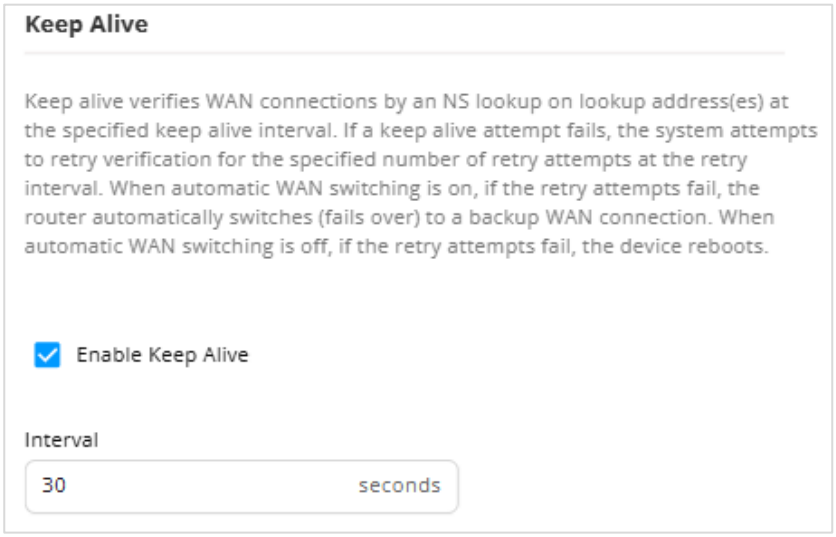
Click **Save** to save your priority order.

Keep Alive, Failover, and Failback



Keep Alive

Keep alive verifies your primary WAN connection by performing nslookups or ICMP pings on lookup addresses at the keep alive interval.

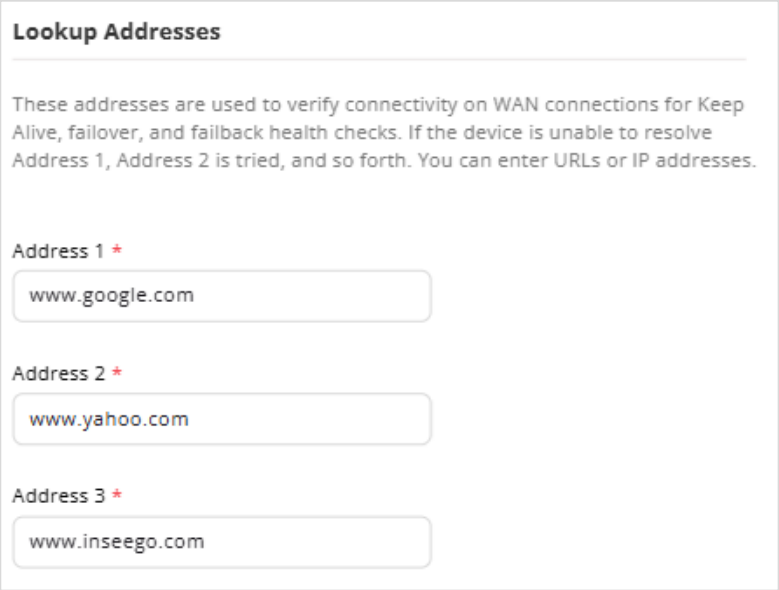


Enable Keep Alive: Keep alive is **on** by default and your primary WAN connection is verified at the keep alive interval. **Caution!** If you uncheck this box, you are turning off verification attempts to ensure your WAN connection is stable. If WAN automatic switch is on and keep alive is off, WAN switching occurs only in the case of a hardware event, such as SIM card removal, cable disconnection, etc.

Interval: The number of seconds between regular keep alive checks on your WAN connection.

Lookup Addresses

Lookup addresses are used to verify connectivity on WAN connections. If the router is unable to resolve nslookups or ICMP pings on the first address, the second address is tried, and so forth. You can use the default addresses or enter new ones.



Address 1: The first IP address to verify the WAN connection.

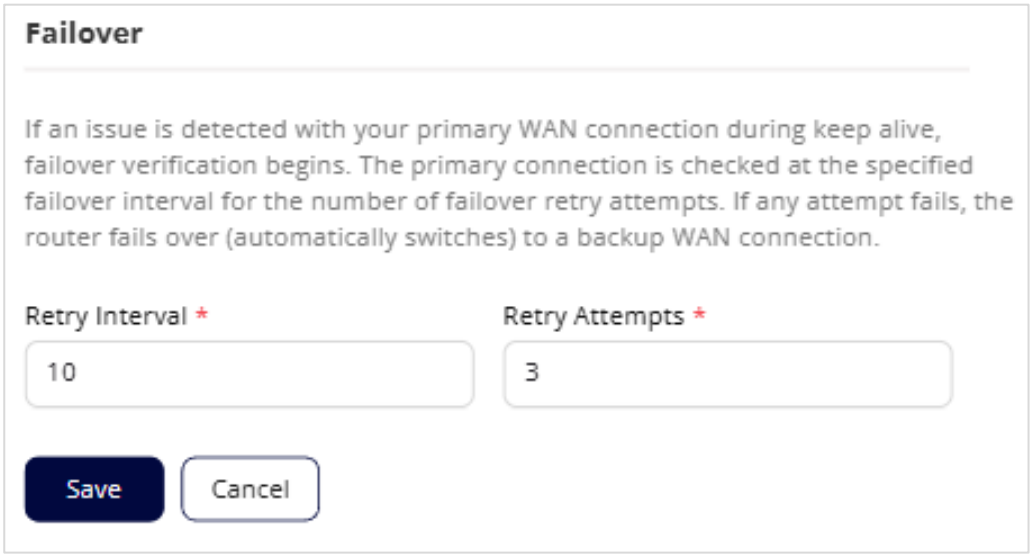
Address 2: The second IP address to verify if Address 1 does not respond.

Address 3: Enter the third IP address to verify if Address 2 does not respond.

Failover

If a keep alive attempt fails (the router is unable to resolve an nslookup or ICMP ping on any of the three lookup addresses), the system retries the connection at the failover retry interval for the set number of retry attempts.

When automatic WAN switching is **on**, if the retry attempts fail, the connection switches (fails over) to your backup WAN connection. When automatic WAN switching is **off** and the retry attempts fail, the router reboots.

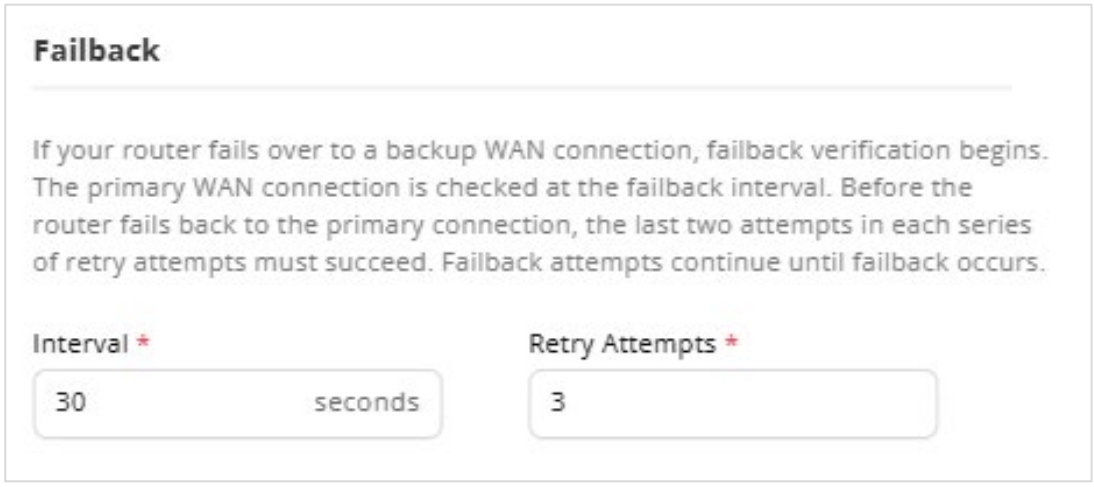


Retry Interval: The number of seconds between retry attempts to verify your WAN connection. Retry attempts occur after the router is unable to resolve an DNS lookup on any of the three lookup addresses during a regular keep alive attempt.

Retry Attempts: The number of times to retry verification of your WAN connection after a regular keep alive attempt has failed. If all of the retry attempts fail, the WAN either switches over to the backup WAN (when automatic WAN switching is on), or the router reboots (when automatic WAN switching is off).

Failback

If your router has automatically switched (failed over) from your primary WAN connection to a backup connection, failback is automatically initiated. Failback checks connectivity on your primary connection at the specified interval and continues until connectivity is verified and the router automatically switches (fails back) to your primary WAN connection.



Interval: The number of seconds between failback verification attempts.

Retry Attempts: The number of times to retry failback verification in each series of attempts.

NOTES:

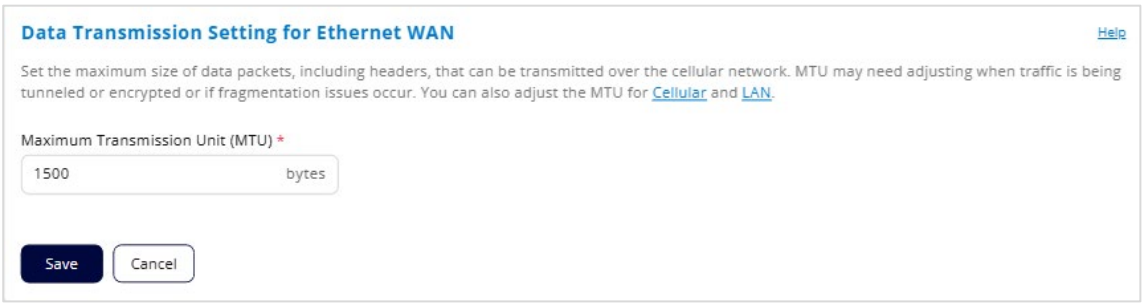
- For failback to the primary WAN connection to occur, the ***last two*** attempts in this number of attempts must succeed. For example, if set to 5 and attempts 1-4 succeed, but attempt 5 fails, failback does not occur.
- Failback attempts continue until failback occurs. This setting determines how many attempts to try in a series of attempts, the last two of which must succeed for failback to occur.

Click **Save** to save your configurations.

Data Transmission Setting for Ethernet WAN

Use this section to set the maximum transmission unit (MTU) for your Ethernet WAN network. This is the maximum size of data packets, including headers, that can be transmitted. You might want to adjust the MTU when traffic is being tunneled or encrypted, or if you are noticing fragmentation issues.

NOTE: You can also adjust the MTU for Cellular on the Cellular tab and for the LAN connection on the LAN tab.

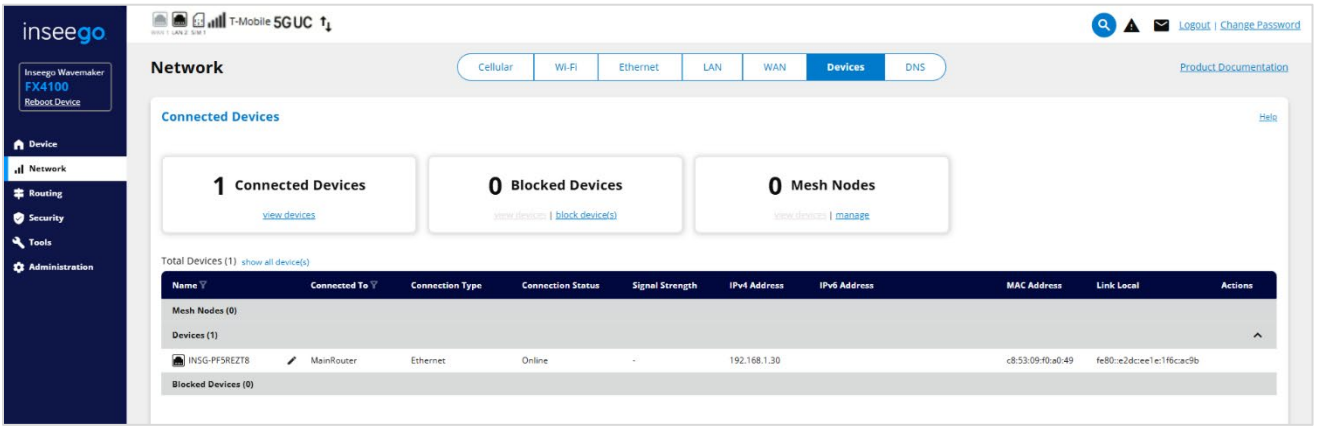


Maximum Transition Unit (MTU): The default (1500 bytes) is the recommended MTU for your FX4100 Ethernet WAN network. You can enter a different value between 1280 and 1500 bytes.

Click **Save**.

Devices tab

This tab provides details about each device connected to your router and any mesh nodes in your network. It allows you to edit how device names appear in the UI. You can also block or unblock devices from internet access.



The top section shows the number of connected client devices, blocked devices and mesh nodes.

- Click **view devices** in each section for details on that topic.
- Click **block devices** under **Blocked Devices** to disconnect client devices from accessing your network and prevent them from reconnecting. Blocked devices are removed from the **Devices** section of the table below and appear in the **Blocked Devices** section.
  NOTE: This option is available for each client device connected through Wi-Fi but is not available for your own device or devices connected via Ethernet or USB.
- Click **manage** under **Mesh Nodes** to go to the Wi-Fi tab where you can add nodes.

The **Total Devices** table displays details for all mesh nodes, connected client devices, and blocked devices.

Name: The name of the device or mesh node. You can edit the name using the pencil icon ✎. (This only changes the name in this UI. To change the name of the router as it appears to connecting client devices, use the **Administration > Preferences** tab.)

Connected To: The mesh node or router the device is connected to.

Connection Type: Indicates whether the device is connected through Wi-Fi, Ethernet, or USB.

Connection Status: The status of the connection.

Signal Strength: The strength of the network signal. **NOTE:** Ethernet and USB connections display a line instead of a value.

IPv4 Address: The IPv4 address of the connected device.

IPv6 Address: The IPv6 address of the connected device.

MAC Address: The MAC Address (unique network identifier for the device).

Link Local: The Link-Local IPv6 address if the connected device supports IPv6.

Actions:

- **block** - Click **block** next to a device to disconnect it from accessing your network and prevent it from reconnecting. Click **Block Device(s)** when asked. The device is removed from the **Devices** list and appears in the **Blocked Devices** list below.
  NOTE: This option is available for each device connected through Wi-Fi but is not available for your own device or devices connected via Ethernet or USB.
- **unblock –** To unblock a blocked device, click **unblock** and confirm. The device is removed from the **Blocked Devices** list and appears in the **Devices** list above.

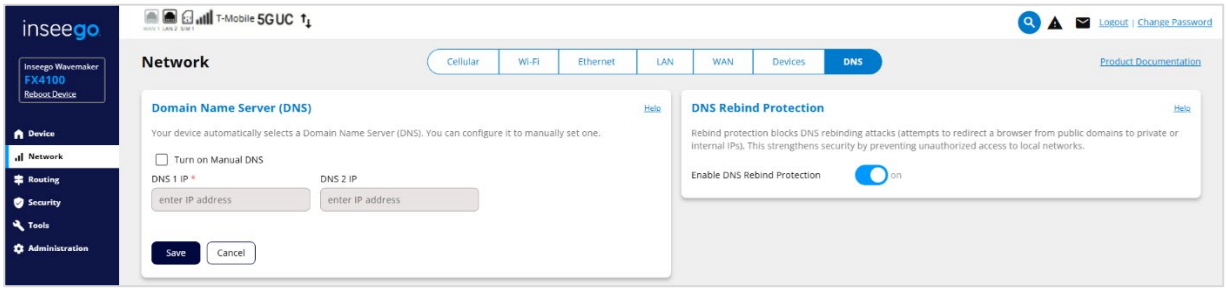
Tips:

- Use the **Filter** icon in the **Name** or **Connected To** columns to filter the table data.
- Click the **down arrow** on the right to expand a section. Click the up arrow to collapse.

DNS tab

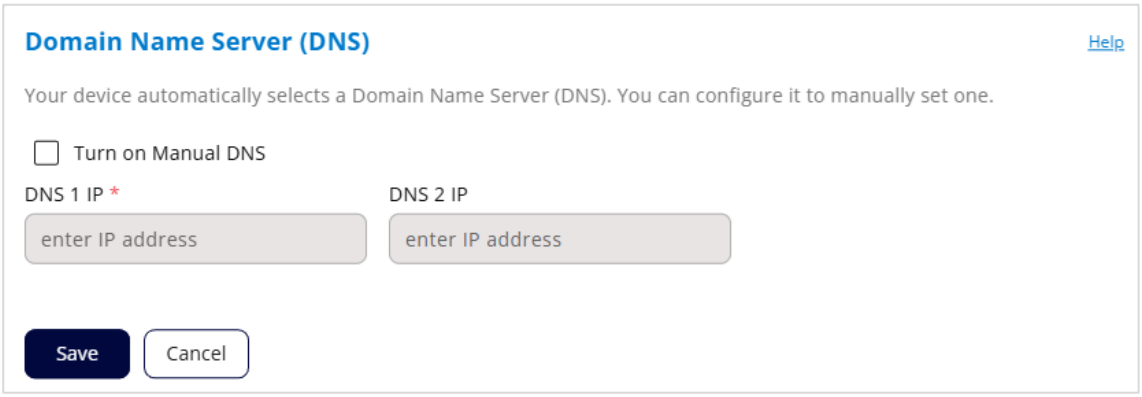
This tab allows you to manually assign DNS IP addresses and enable or disable DNS rebind protection.

NOTE: You can use Inseego Connect to enable and configure DNS content filtering. See DNS Content Filtering (Inseego Connect).



Domain Name Server (DNS)

The FX4100 automatically selects a Domain Name Server (DNS). This section allows you to manually assign up to two DNS IP addresses.



Turn on Manual DNS: Click the checkbox to manually select a DNS.

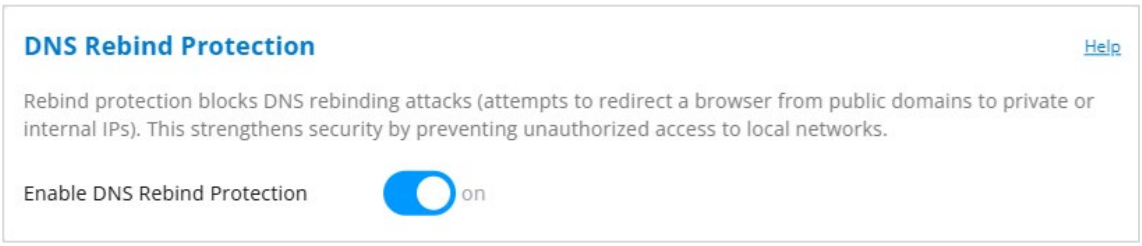
DNS 1 IP: Enter the IP address for the primary DNS. This address is required to use the Manual DNS feature.

DNS 2 IP: Enter the IP address for the secondary (backup) DNS. This address is optional and may be left blank if desired.

Click **Save**.

DNS Rebind Protection

DNS rebind protection blocks rebinding attacks (malicious attempts to redirect browsers from public domains to private or internal IPs.)

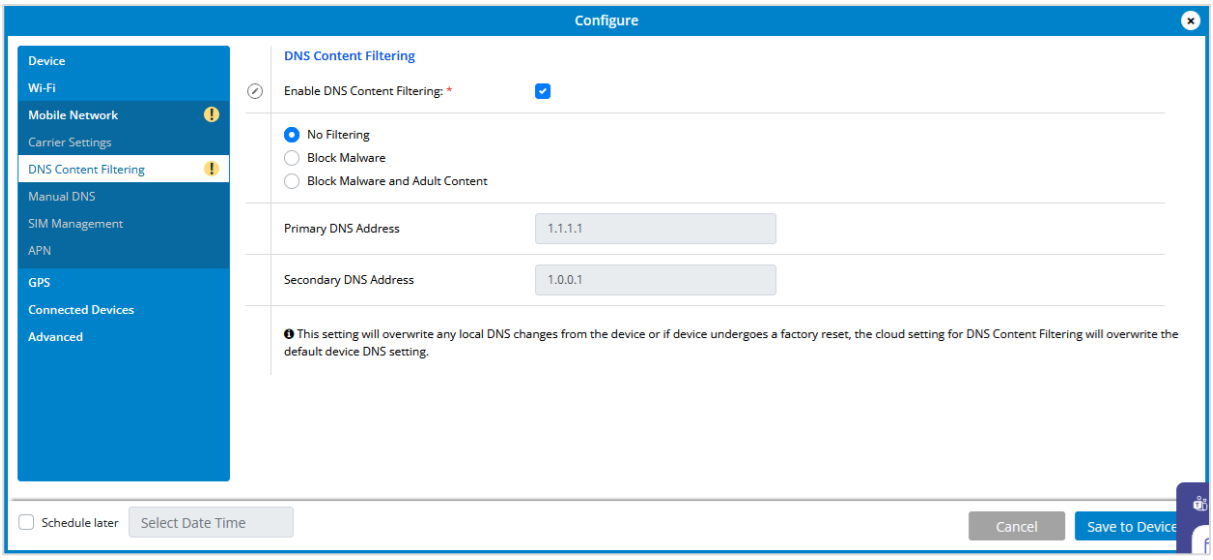


Enable DNS Rebind Protection: Keep DNS rebind on to prevent malicious websites from using DNS rebinding to access, scan, or control devices on your local network (LAN).

DNS Content Filtering (Inseego Connect)

DNS content filtering uses DNS (Domain Name System) to block harmful malware inappropriate content.

You can configure DNS content filtering with Inseego Connect. All T-Mobile owned Inseego FX devices come with the option of purchasing the Inseego Connect Add-on. Please work with your Account team to order the Inseego Connect Add-on, which provides Manager access.



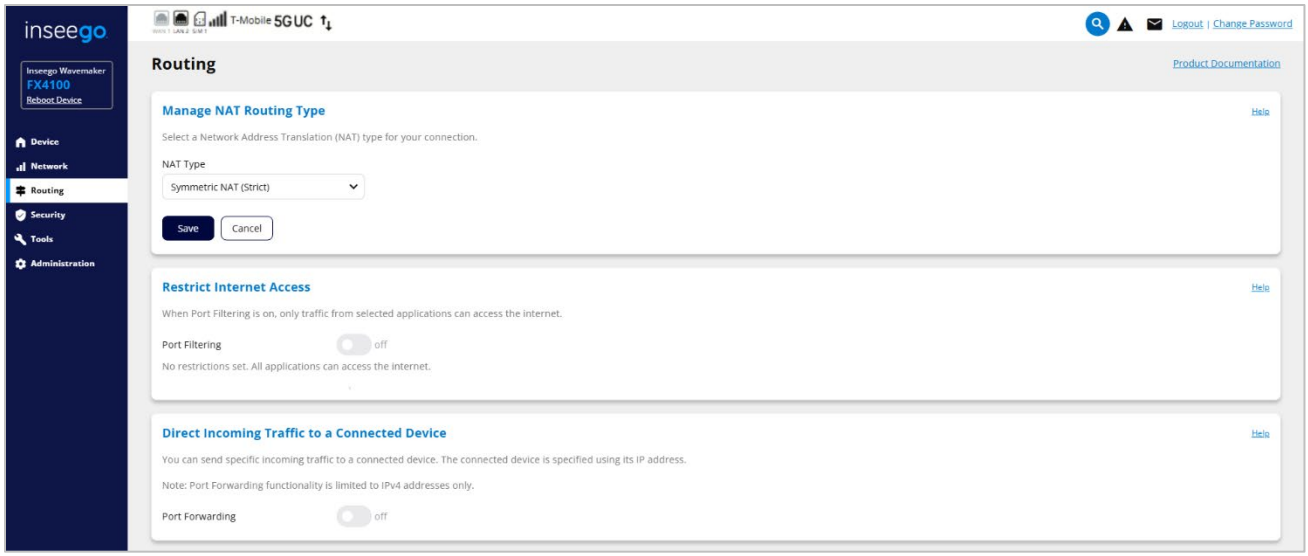
Enable DNS Content Filtering: Check this box to enable DNS content filtering.

Select the filter level (No Filtering, Block Malware, or Block Malware and Adult Content).

If you want changes to go into effect at a later time, check the **Schedule later** box and select a date and time from the calendar. Once all your changes are made, select **Save to Device**.

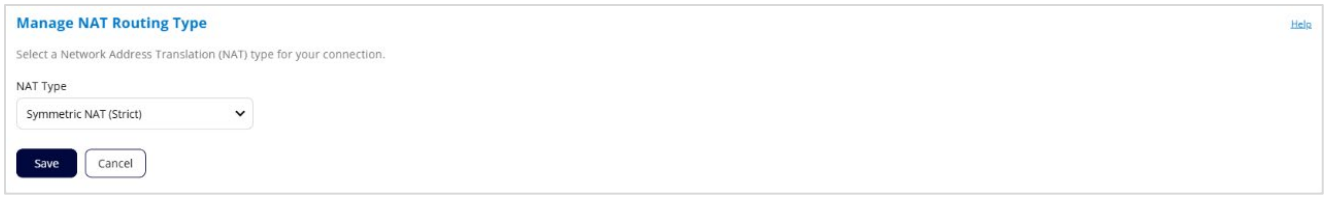
Managing routing

Use this page to set routing options.



Manage NAT Routing Type

Your FX4100 uses Symmetric Network Address Translation (NAT) routing by default. Use this section to select the type of NAT for your connection.



NAT Type: Use the dropdown to select the type of Network Address Translation (NAT) for your connection.

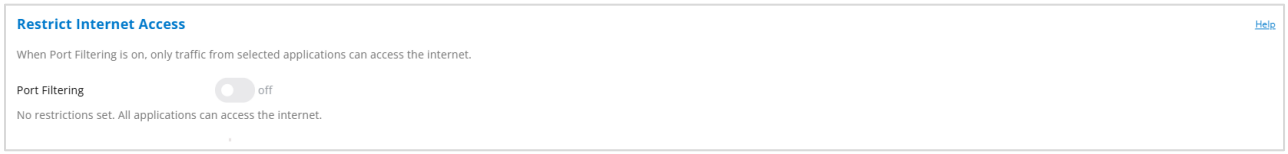
- **Symmetric NAT (Strict)** is more restrictive. It maps requests with the same source IP address and port number to a unique external IP and port, based on the destination IP and port of the outgoing connection.
- **Port-Restricted Cone NAT (PRC)** maps all requests from the same source IP address and port to the same public IP address and port, regardless of destination.
- **Full Cone NAT (PC)** is the most open NAT type but is less secure than restricted types. It maps an internal IP/port to a specific external IP/port, allowing any external host to send packets to the internal host once the mapping is established.

Click **Save**.

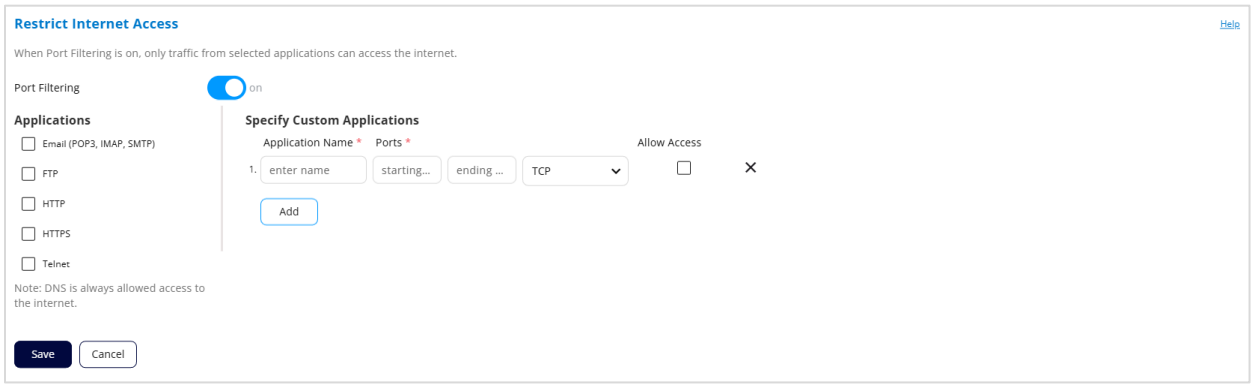
Restrict Internet Access For Applications

This section allows you to block outgoing internet connections and permit only selected applications to access the internet using port filtering.

NOTE: When IP Passthrough is turned on, port filtering capabilities are set through the connected host routing system, and you cannot enable port filtering. Go to **Network > LAN** to turn IP Passthrough off.



Port Filtering: To enable port filtering and select which applications can access the internet, move the slider to **on**.



Applications

Only traffic from applications you select can access the internet. Some applications are pre-defined. Select the applications you want to be able to access the internet.

The following table provides port numbers and protocol information for each pre-defined application listed.

Application Name	Port	TCP *	STCP*	UDP*
Email				
POP3 POP3S	110 995	Yes Yes	No No	Assigned Yes
IMAP IMAPS	143 993	Yes Yes	No No	Assigned Assigned

* **Yes** indicates the protocol is standardized for the port number.
No indicates the protocol is not standardized for the port number.
Assigned indicates the port number is assigned by IANA (Internet Assigned Numbers Authority) for protocol use but may not be standardized.

Application Name	Port	TCP *	STCP*	UDP*
SMTP SecureSMTP	25 465	Yes Yes	No No	Assigned No
FTP control (command) FTP data transfer	21 20	Yes Yes	Yes Yes	Assigned Assigned
HTTP	80	Yes	Yes	Assigned
HTTPS	443	Yes	Yes	Assigned
Telnet	23	Yes	No	Assigned

Specify Custom Applications

You can define your own applications (up to 25) and then turn them on or off as needed.

Application Name: Enter a name for the custom application.

Ports:

- **starting -** Enter the beginning of the range of port numbers used by outgoing traffic for the custom application being added.
- **ending -** Enter the end of the range of port numbers used by the application.

  NOTE: If the application uses a single port instead of a range, type the same value in both the **starting** and **ending** text boxes.

Protocol: Select the protocol used by the port range from the dropdown list (TCP, UDP, or both).

Allow Access: Check the box if you want the new application to be able to access the internet.

Click the **X** to delete a custom application.

Use the **Add** button to add a new row to the custom application list.

Click **Save** to save your changes.

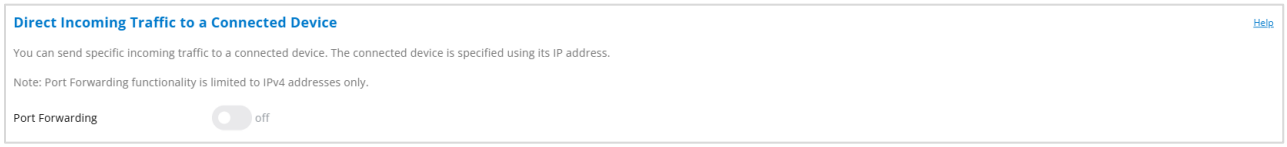
Direct Incoming Traffic to a Connected Device

You can allow specific applications to be forwarded to a particular device connected to your network by enabling port forwarding. Normally, the built-in firewall blocks incoming traffic from the internet. Port forwarding allows internet users to access any server you are running on your computer, such as a web, FTP, or Email server.

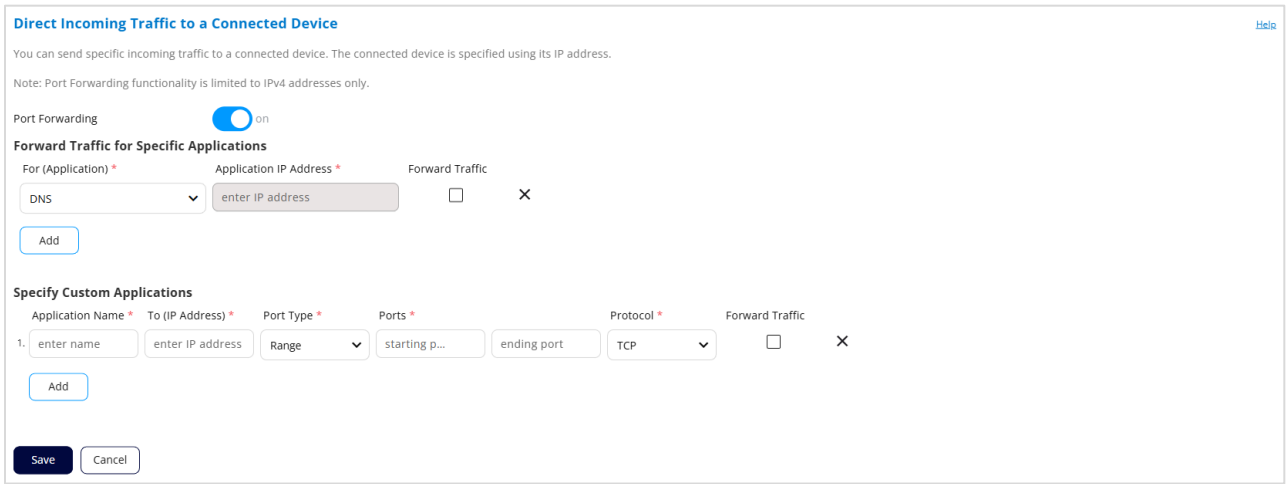
IMPORTANT: Port forwarding creates a security risk and should not be turned on unless it is required.

NOTES:

- To configure Port Forwarding, you need a static IP address assigned to your line of service. Contact your service provider to set up a line of service for static IP.
- Some mobile networks provide you with an IP address on their own network rather than an internet IP address. In this case, Port Forwarding cannot be used, because internet users cannot reach your IP address.
- When IP Passthrough is turned on, port forwarding capabilities are set through the connected host routing system. Settings on this page are not available. Go to **Network > LAN** to turn IP Passthrough off.



Port Forwarding: To direct incoming traffic to a connected device, enable port forwarding.



Forward Traffic for Specific Applications

For (Application): Select an application from the dropdown that you want to be forwarded.

To forward all inbound WAN traffic on a specific port to a single LAN client, enter the IP address of the target device in the **Application IP address** field.

Forward Traffic: Check this box if you want the application to be forwarded.

Click the **X** to delete an application.

Use the **Add** button to add a new row to the application list.

The following table provides port numbers and protocol information for each port forwarding application listed.

Application Name	Port	TCP *	STCP*	UDP*
DNS	53	Yes	No	Yes
FTP control (command) FTP data transfer	21 20	Yes Yes	Yes Yes	Assigned Assigned
HTTP HTTPS	80 443	Yes Yes	Yes Yes	Assigned Assigned
NNTP	119	Yes	No	Assigned
POP3 POP3S	110 995	Yes Yes	No No	Assigned Yes
SMTP SecureSMTP	25 465	Yes Yes	No No	Assigned No
SNMP	161	Assigned	No	Yes
Telnet	23	Yes	No	Assigned
TFTP	69	Assigned	No	Yes

* **Yes** indicates the protocol is standardized for the port number.
No indicates the protocol is not standardized for the port number.
Assigned indicates the port number is assigned by IANA (Internet Assigned Numbers Authority) for protocol use but may not be standardized.

Specify Custom Applications

Use the **Add** button to add a new row to the custom application list. You can add up to 26 custom applications. Once defined, these applications can be turned on and off the same way as pre-defined applications.

Application Name: Enter a name for the custom application.

To (IP Address): If you want to limit service for the application to a single connected device, enter the IP address of the target device. To find the IP address of a device, refer to the Devices tab. **NOTE:** To ensure the device you are forwarding to does not have a different IP address after a reboot, either statically assign the IP address on the client device or set up a DHCP reservation.

Port Type: You can use the dropdown to select **Range** if you want to enable a range of one or more ports for forwarding or select **Translate** for single port forwarding.

Ports:

For Range ports -

- **starting -** Enter the beginning of the range of port numbers for the custom application being added.
- **ending -** Enter the end of the range of port numbers used by the application.
  NOTE: If the application uses a single port instead of a range, type the same value in both the **starting** and **ending** text boxes.

For Translate ports -

- Use **external port** and **internal port** to specify ports to be forwarded. **NOTE:** To forward inbound traffic to the same port on a client device, enter the same port number in both **external port** and **internal port**.
- You can also use translate ports to send traffic to a different port on the client device. For example, instead of having inbound traffic on port 1234 forward to port 1234 of the client device, you can have it forward to port 5678.

Protocol: Select the protocol used by the port range from the dropdown list (TCP, UDP, or both).

Forward Traffic: Check this box if you want the custom application to be forwarded.

Click the **X** to delete a custom application.

Click **Save**.

Managing security

Use Security tabs to view and configure settings for your router's security.

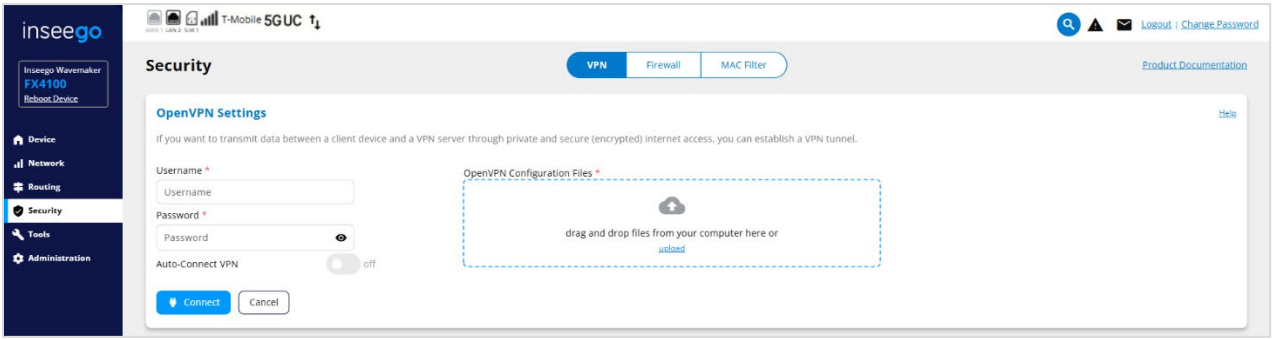
The Security page includes the following tabs:

- VPN
- Firewall
- MAC Filter

VPN tab

Your FX4100 allows you to establish secure connections to remote networks over a public network using OpenVPN through the admin web UI or IPSec VPN with Inseego Connect.

The VPN tab on the admin web UI is for OpenVPN. See IPSec VPN (Inseego Connect) for IPSec VPN.



NOTE: When an OpenVPN connection is established, Port Filtering and Port Forwarding settings are not effective, as traffic from all connected devices goes through the OpenVPN tunnel.

To configure a VPN connection:

1. Drag and drop the OpenVPN configuration files from your OpenVPN provider in the file upload area or click **upload** to browse for the files.
2. Enter your OpenVPN connection **username**.
3. Enter your OpenVPN connection **password**.
4. If you want the VPN tunnel to automatically be established whenever an internet connection is made, move the Auto-Connect VPN slider to **on**.
5. Click **Connect** to connect to the VPN server.

VPN Connection

This section is visible once you have configured your router for OpenVPN.

Connection status: Indicates the status of the OpenVPN connection.

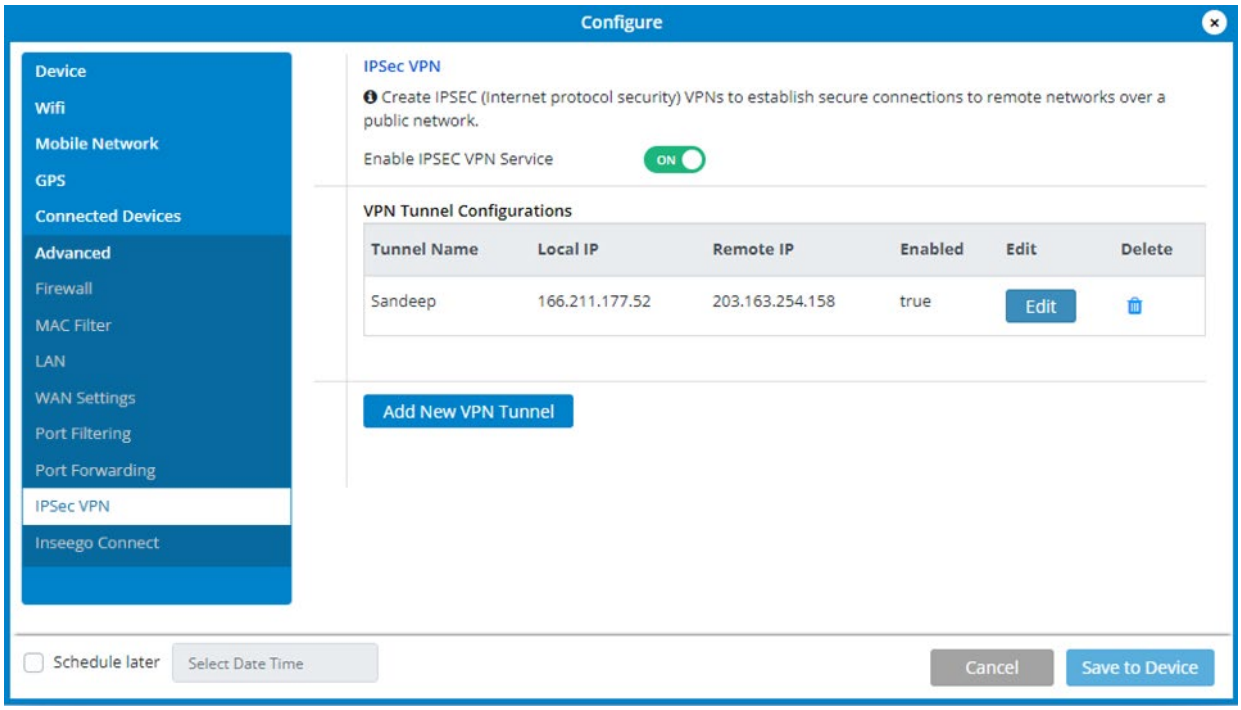
Connection time: The duration of the current OpenVPN connection.

View Logs: Use this button to view OpenVPN log files.

Connect: Use this button to connect the OpenVPN.

IPSec VPN (Inseego Connect)

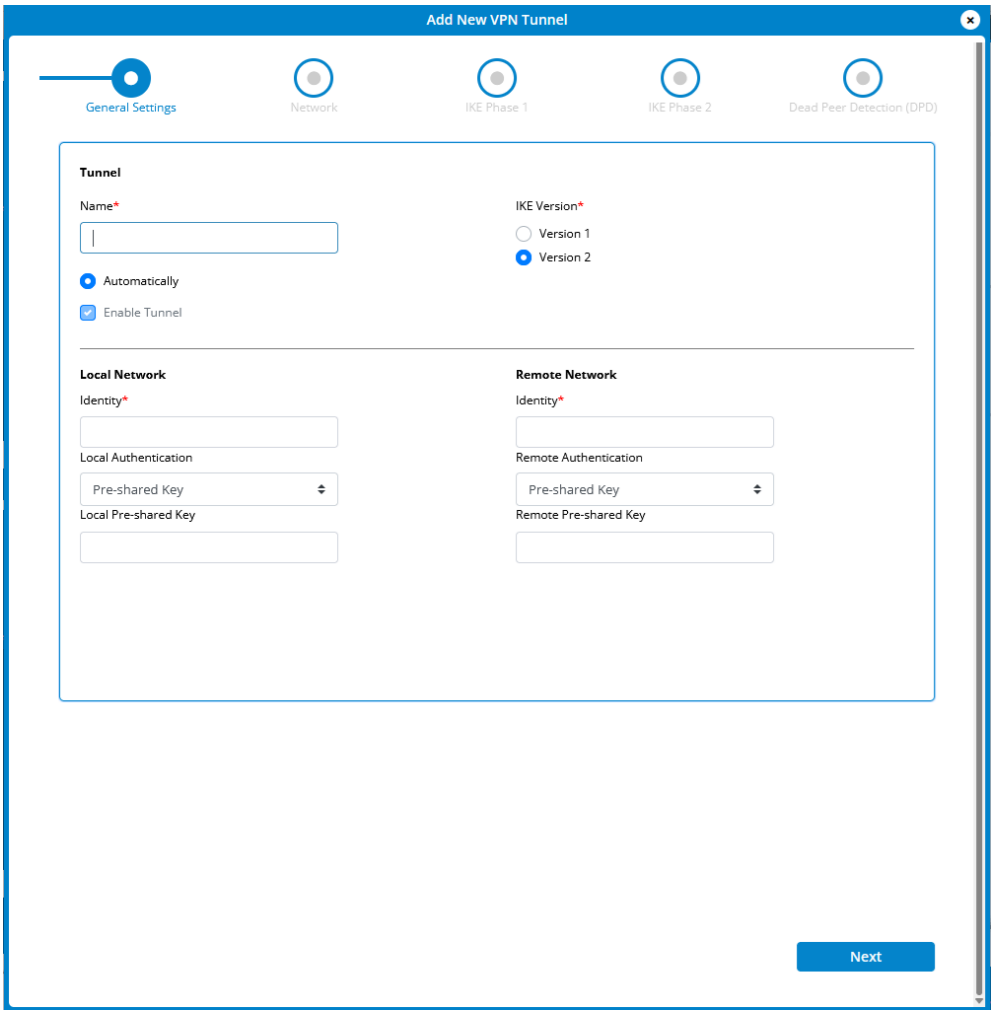
You can create IPSec VPNs using Inseego Connect. All T-Mobile owned Inseego FX devices come with the option of purchasing the Inseego Connect Add-on. Please work with your Account team to order the Inseego Connect Add-on, which provides Manager access.



Move the **Enable IPSEC VPN Service** slider to **ON** to enable IPSec VPN service.

When IPSec VPN service is enabled, established tunnel information displays. You edit or delete existing tunnels.

Click **Add New VPN Tunnel** to add a new VPN tunnel. The Add New VPN Tunnel Dialog appears.



General Settings

Tunnel

- **Name** — Enter a unique name to identify this VPN.
- **IKE Version** — Choose an Internet Key Exchange (IKE) version. Version 1 is older. Version 2 (default) uses fewer messages, better supports network switching, and handles NAT-T natively.
- **Enable Tunnel** — Check this box to enable the tunnel. When selected, the tunnel starts automatically upon start up. When not selected, you must start the tunnel manually.

Local Network

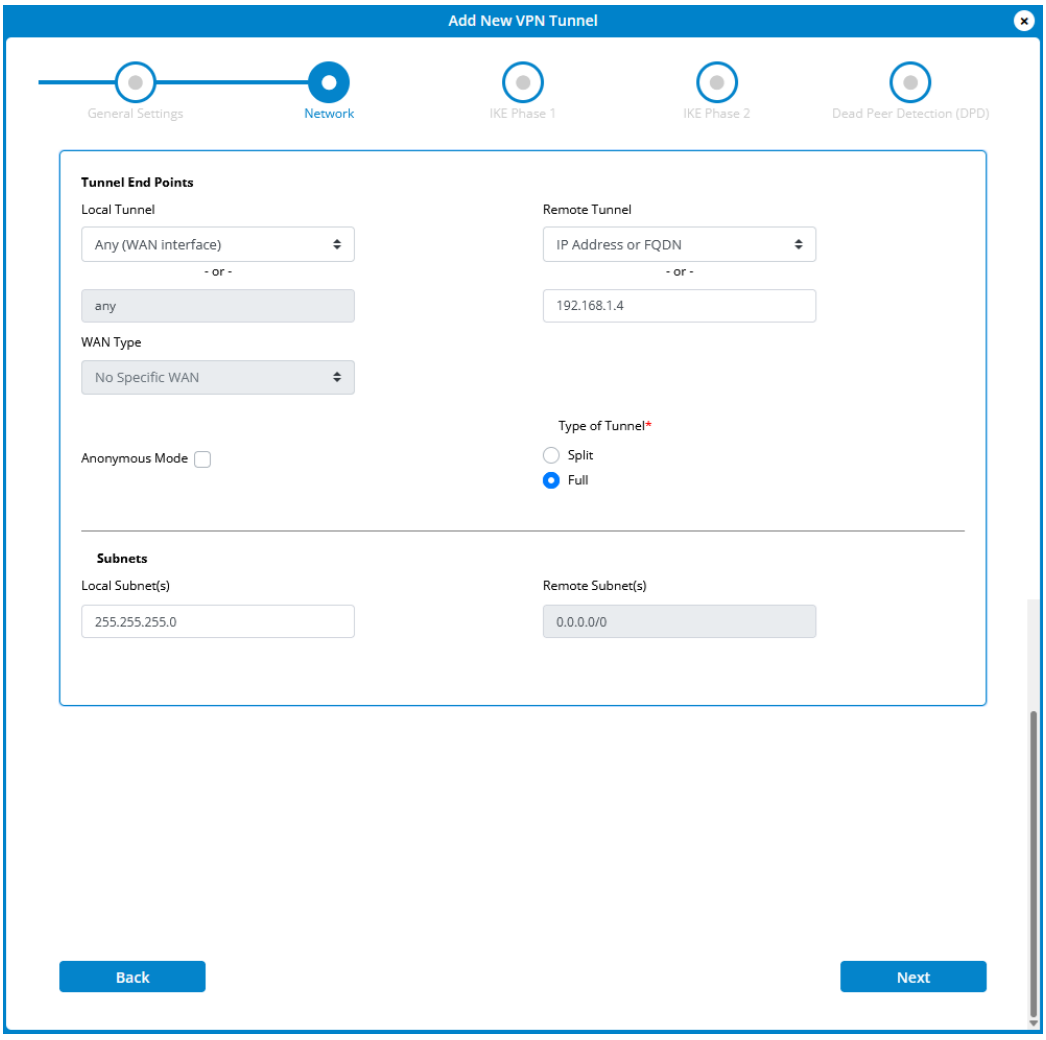
- **Identity** — Enter a unique name to identify the local point of the tunnel.
- **Local Authentication** — Select a type of authentication from the drop-down list (Pre-shared Key, Certificate/Public Key, or None). You are prompted for further information based on your selection.

Remote Network

- **Identity** — Enter a unique name to identify the remote point of the tunnel.
- **Remote Authentication** — Select a type of authentication from the drop-down list (Pre-shared Key, Certificate/Public Key, or None). You are prompted for further information based on your selection.

Click **Next**.

Network



Tunnel End Points

- **Local Tunnel** – Select an option from the dropdown:

Any (WAN interface): Allows the use of any WAN interface for the local tunnel.

IP Address or FQDN: Enter the IP Address or Fully Qualified Domain Name (FQDN) in the Local IP text box.

Specific WAN: Select a WAN type from the dropdown (WWAN or Ethernet WAN).

- **Remote Tunnel** – Enter the IP address or FQDN of the remote tunnel. **NOTE:** This field is not available if **Anonymous Mode** is checked.
- **Anonymous Mode** — When selected, remote devices with valid credentials can connect without providing network details. This allows for site-to-site or remote access VPNs where endpoints are not fixed by a static IP address.
- **Type of Tunnel** — Select whether the tunnel is split or full. A split tunnel only encrypts specific traffic while allowing other traffic to bypass the tunnel, which offers better speed and local network access but less security. A full tunnel encrypts and routes all traffic through the VPN.

Subnets

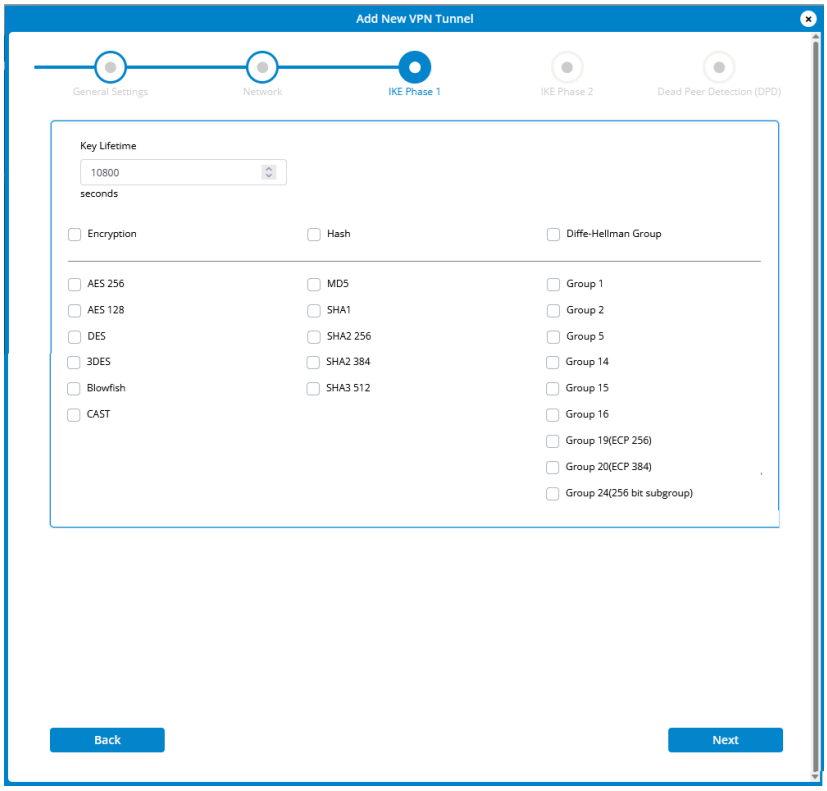
- **Local Subnet(s)** — Enter the subnet of the local device, for example: If your local IP is 192.168.0.100 and your subnet is 255.255.255.0 this should be **192.168.0.0/24**.

  NOTES:
  - This should mirror what the subnet displays in the local device, for example: **192.168.0.0 / 255.255.255.0**.
  - The local device should be on a different subnet from remote, for example: If the Remote Subnet is **192.168.1.0/24**, the Local Subnet might be **192.168.0.0/24**. This is usually based off the DHCP settings of the devices.
- **Remote Subnet(s)** — Enter the subnet of the remote device, for example: If your remote IP is 192.168.1.100 and your subnet is 255.255.255.0 this should be **192.168.1.0/24**.

  NOTES:
  - This should mirror what the subnet displays in the local device, for example: **192.168.1.0 / 255.255.255.0**.
  - The remote device should be on a different subnet from local, for example: If the Local Subnet is **192.168.0.0/24**, the Remote Subnet might be **192.168.1.0/24**. This is usually based off the DHCP settings of the devices.

Click **Next**.

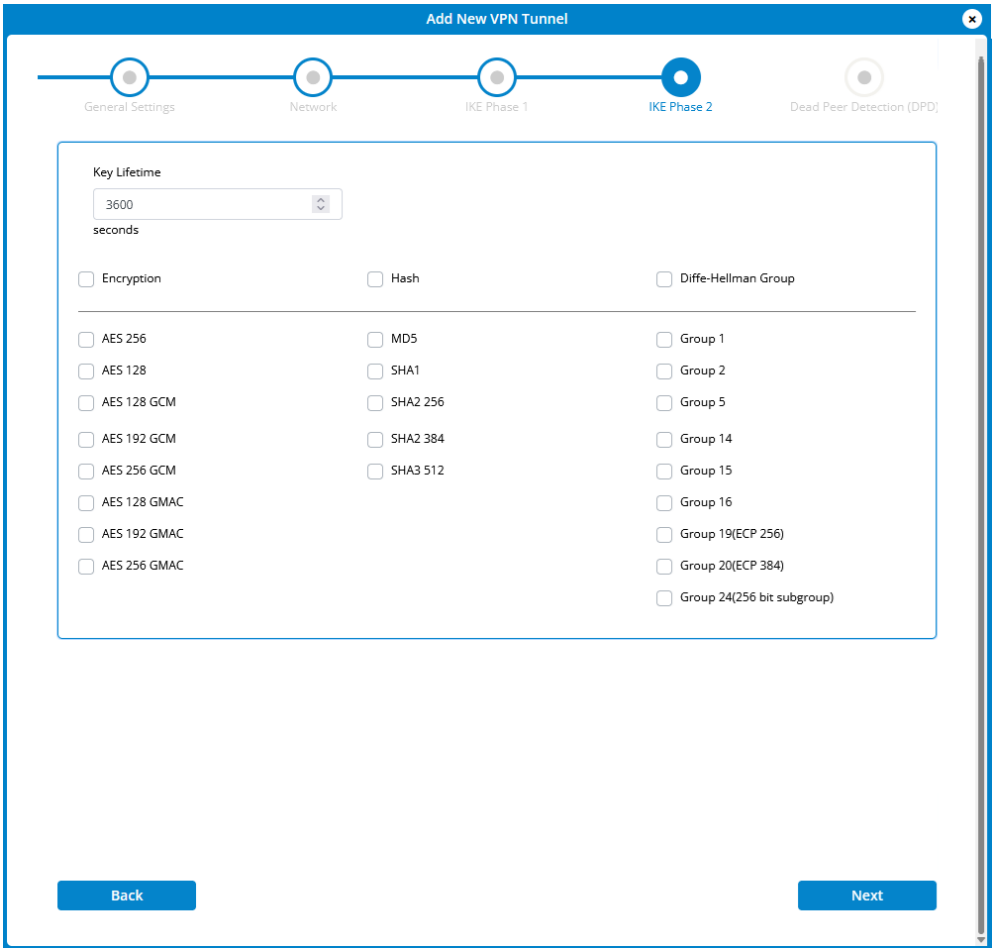
IKE Phase 1



- **Key Lifetime** — The lifetime of the phase 1 key, in seconds.
- **Encryption/Hash/Diffe-Hellman Group** — Select desired items from each column or select the checkbox at the top to select all items in the column. **NOTE:** Each phase should support at least one matching option in each column. For example, if Phase 1 on this page is configured to support Hash SHA2 512, SHA2 384, and SHA2 256, then at least one of those selections must be selected in Phase 2 on the next page in order to be a common hash.

Click **Next**.

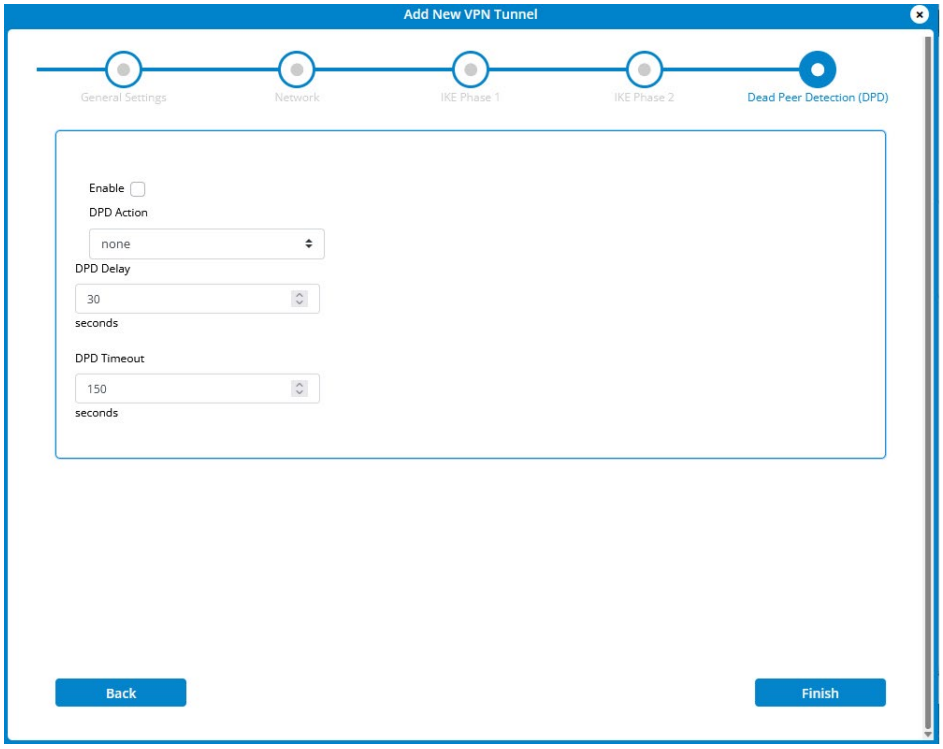
IKE Phase 2



- **Key Lifetime** — The lifetime of the phase 2 key, in seconds.
- **Encryption/Hash/Diffe-Hellman Group** — Select desired items from each column or select the checkbox at the top to select all items in the column. **NOTE:** Each phase should support at least one matching option in each column. For example, if Phase 1 on the previous page is configured to support Hash SHA2 512, SHA2 384, and SHA2 256, then at least one of those selections must be selected on this page to be a common hash.

Click **Next**.

Dead Peer Detection (DPD)



Dead Peer Detection (DPD) is a keep-alive method that ensures the tunnel is up and takes action if it is not able to reach the remote side of the tunnel, depending on what DPD action you select. You can use the default values, if desired.

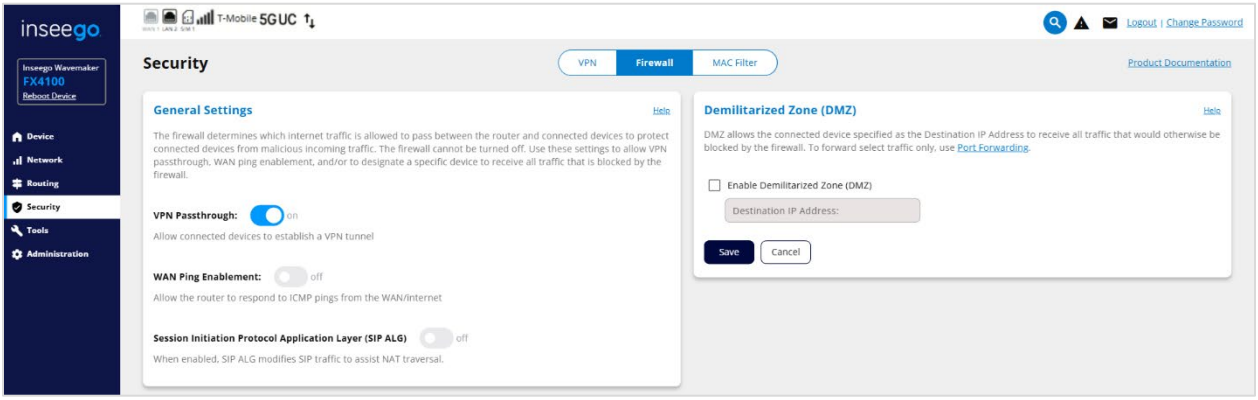
- **Enable** — Check this box to enable DPD.
- **DPD Action** — Use the drop-down to select a DPD action.
- **DPD Delay** — The number of seconds between DPD packets.
- **DPD Timeout** — The number of seconds the router will allow an IPSec session to be idle before beginning to send DPD packets to the peer machine.

Click **Finish**. The new VPN tunnel is displayed on the IPSec VPN page.

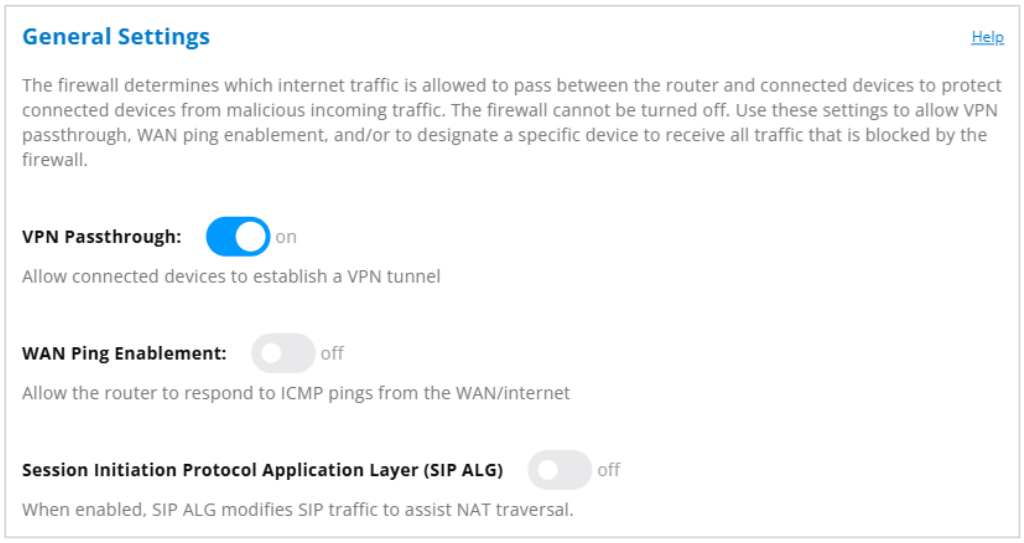
If you want changes to go into effect at a later time, check the **Schedule later** box and select a date and time from the calendar. Once all your changes are made, select **Save to Device**.

Firewall tab

The FX4100 firewall determines which internet traffic is allowed to pass between your router and connected devices and protects your connected devices from malicious incoming traffic from the internet. The firewall cannot be turned off. Use the Firewall tab to allow VPN Passthrough, enable WAN ping requests, and/or enable SIP ALG to support older VoIP devices. You can also designate a specific device to receive all traffic (DMZ).



General Settings



VPN Passthrough

To allow connected devices to establish a VPN tunnel, ensure the slider is on.

WAN Ping Enablement

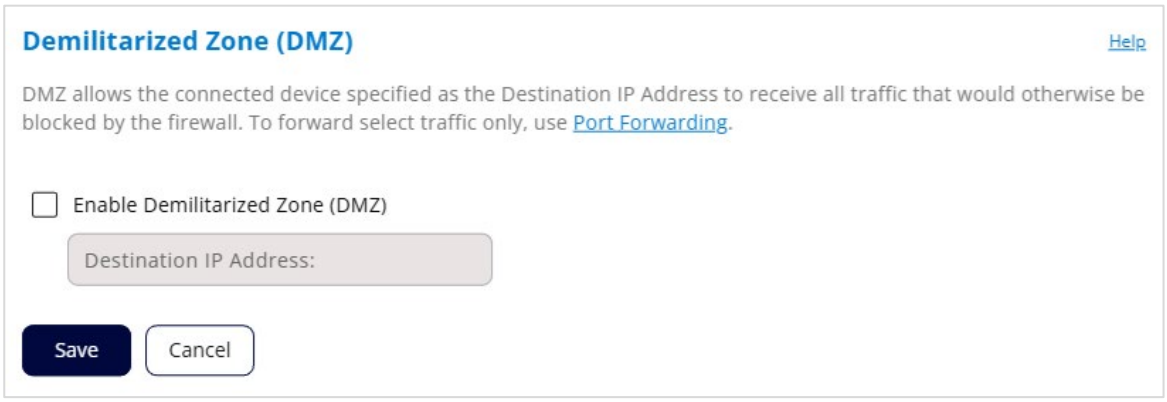
By default, the router ignores ping requests received on the WAN interface. To enable your router to respond to ping requests received on the WAN interface (IPv4 only), move the slider to on.

Session Initiation Protocol Application Layer

Check the box to enable SIP ALG. **NOTE:** SIP ALG supports older VoIP devices and implementations where VoIP endpoints do not natively handle NAT traversal. Newer SIP/VoIP providers handle NAT traversal internally, and do not require SIP ALG.

Demilitarized Zone (DMZ)

DMZ allows the connected device specified as the destination IP address to receive all traffic that would otherwise be blocked by the firewall.



NOTES:

- When IP Passthrough is turned on, DMZ capabilities are set through the connected host routing system. Settings in this section are not available. Go to **Network > LAN** to turn IP Passthrough off.
- To allow DMZ, you need a static IP address assigned to your line of service. Contact your service provider to set up a line of service for static IP.
- Allowing DMZ may assist some troublesome network applications to function properly, but the DMZ device should have its own firewall to protect itself against malicious traffic.

Enable Demilitarized Zone (DMZ): Check this box to allow DMZ.

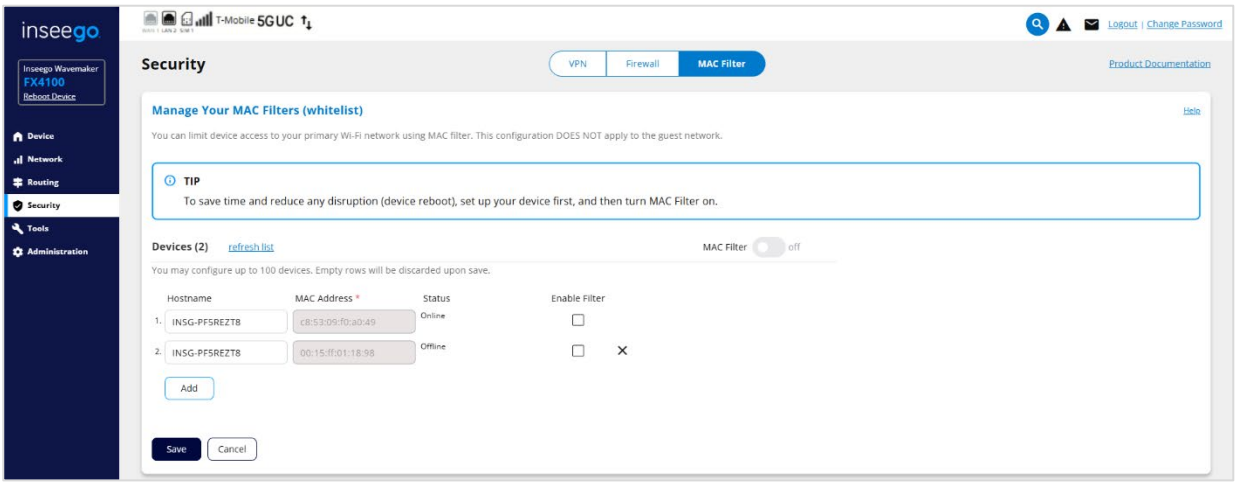
Destination IP Address: Enter the IP address of the connected device you wish to become the DMZ device (the DMZ destination). **NOTE:** You can see the IP address of each connected device on the Network > Devices tab.

Click **Save**.

MAC Filter tab

The MAC filter only allows selected devices to access the FX4100 network through DHCP. By default, MAC filter is turned off.

Use this tab to turn the MAC Filter on and specify device access.



The devices list includes all client devices currently connected to the router.

To use the MAC filter:

1. Check **Enable Filter** for the device(s) in the device list that you want to be allowed to connect to the network through DHCP.
2. Turn **MAC Filter** on.
3. Click **Save**.

CAUTION! Turning on MAC filtering immediately disconnects all devices that are not included in the filter from the network.

To add devices to the Devices list:

1. Click the **Add** button.
2. Enter the device **hostname** and **MAC address**.
3. You can choose whether to **enable MAC filter** for the device.
4. Click **Save**.

To discard any unsaved changes and refresh the list, click **refresh list**.

Click the **X** next to a device to delete it from the list.

Using Tools

Use the Tools tabs to view or run speed tests and view logs.

The Tools page includes the following tabs:

- Speed Test
- Logs

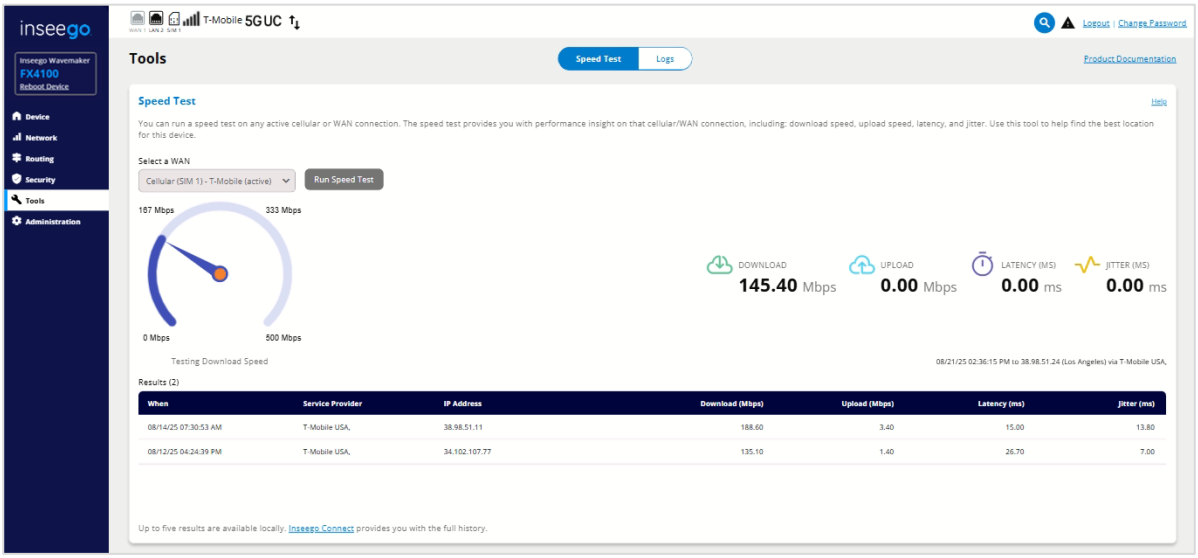
NOTE: Inseego Connect offers a Diagnostics tool tab that allows you to securely run basic network diagnostic tools (ping, traceroute, nslookup, tcpdump, and ifconfig) remotely from Inseego Connect without exposing the full device Command Line Interface (CLI) or compromising system security. You can find more information in the Inseego Connect User Guide.

Speed Test tab

You can run a speed test on any active WAN/cellular connection. The speed test provides you with performance insight on that connection, including download speed, upload speed, latency, and jitter. You can use this tool to help find the best location for your router.

NOTES:

- You can run up to 20 speed tests on a device within a 30-minute period, and up to 40 speed tests on a device within a 12-hour period. These numbers reflect the combined number of speed tests initiated from the web UI, device display, and Inseego Connect on a single device.
- You can run speed test using the device display button on your FX4100.
- You can also run speed tests with Inseego Connect and view a graphical display of results over time.
- If you're concerned about your speed, contact your service provider to confirm the typical speeds for your account type and location.


inseego
Inseego Wavemaker
FX4100
Reboot Device
Device
Network
Routing
Security
Tools
Administration
T-Mobile 5GUC
Logout | Change Password
Tools
Speed Test
Logs
Product Documentation
Speed Test
Help
You can run a speed test on any active cellular or WAN connection. The speed test provides you with performance insight on that cellular/WAN connection, including: download speed, upload speed, latency, and jitter. Use this tool to help find the best location for this device.
Select a WAN
Cellular (SIM 1) - T-Mobile (active)
Run Speed Test
167 Mbps
333 Mbps
0 Mbps
500 Mbps
Testing Download Speed
DOWNLOAD
145.40 Mbps
UPLOAD
0.00 Mbps
LATENCY (MS)
0.00 ms
JITTER (MS)
0.00 ms
08/21/25 02:36:15 PM to 38.98.51.24 (Los Angeles) via T-Mobile USA,
Results (2)
When
Service Provider
IP Address
Download (Mbps)
Upload (Mbps)
Latency (ms)
Jitter (ms)
08/14/25 07:30:53 AM
T-Mobile USA,
38.98.51.11
188.60
3.40
15.00
13.80
08/12/25 04:24:39 PM
T-Mobile USA,
34.102.107.77
135.10
1.40
26.70
7.00
Up to five results are available locally. Inseego Connect provides you with the full history.

Select a WAN: Use the dropdown to select a WAN connection to test.

Run Speed Test: Click the button to start the speed test. When the test is complete, the results of the current speed test are displayed on the right and added to the table below.

DOWNLOAD: The number of megabits the connection can download from the internet to your router per second.

UPLOAD: The number of megabits the connection can upload from your router to the internet per second.

LATENCY (ms): The number of milliseconds it takes a data packet to travel from the router to a server and back on the connection.

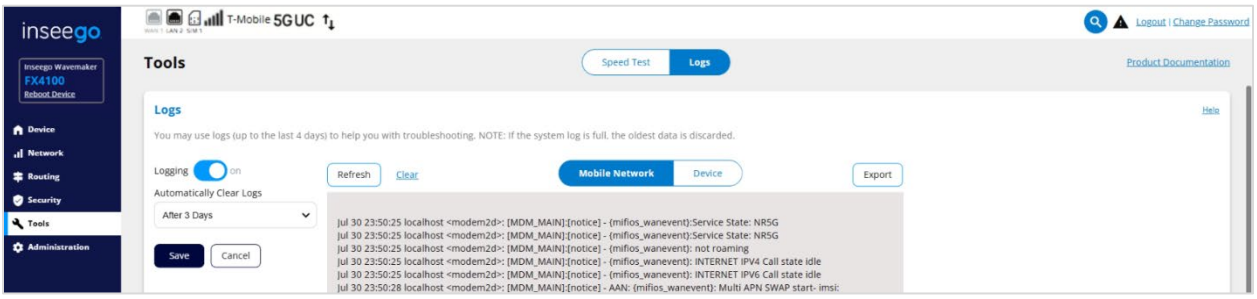
JITTER (ms): The amount that latency fluctuates over time, measured in milliseconds.

Results: A row in this table displays for each speed test.

- **When:** The date and time of the test.
- **Service Provider:** The service provider associated with the connection.
- **IP Address:** The IP address of the connection.
- **Download (Mbps):** The number of megabits the connection can download from the internet to your router per second.
- **Upload (Mbps):** The number of megabits the connection can upload from your router to the internet per second.
- **Latency (ms):** The number of milliseconds it takes a data packet to travel from the router to a server and back on the connection.
- **Jitter (ms):** The amount that latency fluctuates over time, measured in milliseconds.

Logs tab

Use this tab to view log information for troubleshooting.



Logging: Turn on when logs are needed.

Automatically Clear Logs: Use the dropdown list to select when logs are cleared.
NOTE: If the log is full, the oldest data is deleted regardless of this setting.

Click **Save**.

When logs are turned on, a list of logs is visible:

Mobile Network: Displays log data of connections to the mobile network.

Device: Displays log data of events that occurred on this device other than mobile data connections.

Refresh: Updates the displayed log data.

Clear: Deletes all existing log data. This makes new data easier to read.

Click **Export** to export log data.

Setting administration options

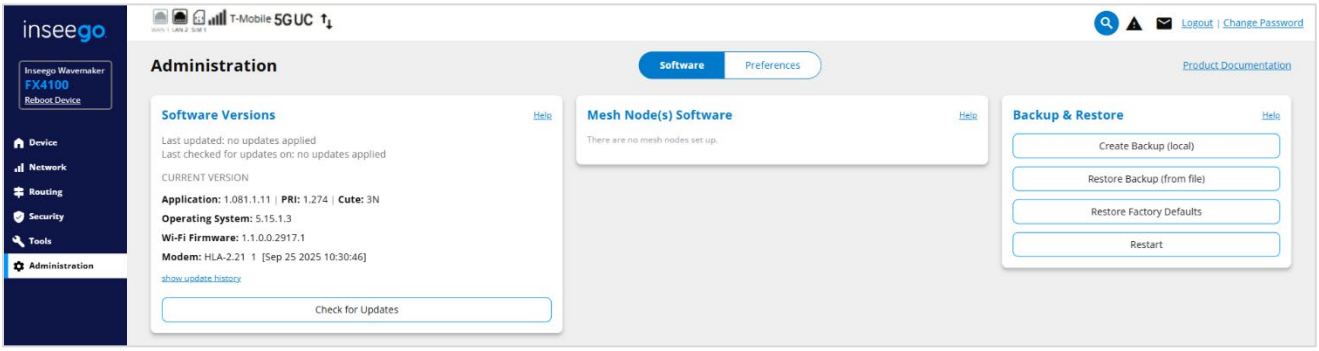
Use the Administration tabs to manage your router's software and device preferences.

The Administration page includes the following tabs:

- Software
- Preferences

Software tab

Use this tab to check or update software for your router or mesh nodes in your network, and to backup and/or restore settings.

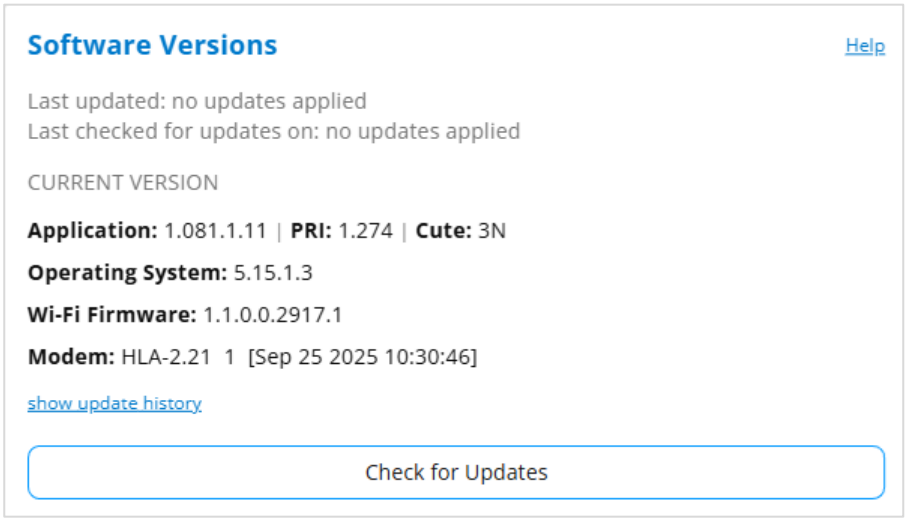


Software Versions

Software updates are delivered to your FX4100 automatically over the mobile network. This section displays current software version information, software update history, and allows you to check for new software updates for your router.

For more information on software updates, see

If your router is used on a private APN or cellular network, or if access is limited to specific sites, you must include the following URL in the access list so that automatic software updates can be delivered and you can check for updates: https://fota.production.nvtl.mifiupdates.com (TCP 443).



Last updated: The date and time the software was last updated.

Last checked for updates: The date and time the router last checked to see if an update was available.

Current Version

Application: The configuration version currently applied to your router.

PRI: The configuration version currently applied to your router.

Cute: The cute version of the software currently installed on your router.

Operating System: The version number for the Operating System and its components.

Wi-Fi Firmware: The version of Wi-Fi firmware currently installed.

Modem: The version of modem software currently installed.

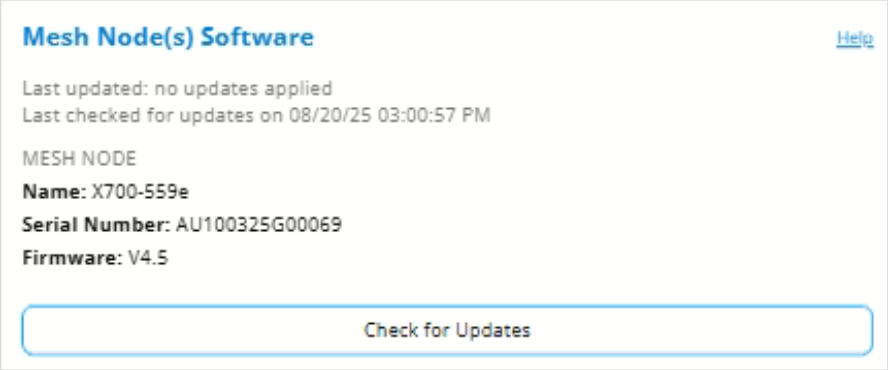
Click **show update history** to view the history of previous software updates.

Check for Updates: Click this button to manually check for available software updates. If a new software update is available, it is automatically downloaded. You are prompted to install with a message that your router will be unavailable for about 18 minutes during the update.

Mesh Node(s) Software

Software updates are delivered to your X700 Mesh Wi-Fi nodes automatically over the mobile network. This section displays current software version information and allows you to check for new software updates for the mesh nodes in your network.

If your router is used on a private APN or cellular network, or if access is limited to specific sites, you must include the following URL in the access list so that automatic software updates can be delivered and you can check for updates: https://fota.production.nvtl.mifiupdates.com (TCP 443).



Last updated: The date and time the software was last updated.

Last checked for updates: The most recent date and time mesh nodes were last checked for an update.

Mesh Node

Name: The name of the mesh node.

Serial Number: The serial number of the mesh node.

Firmware: The version of firmware currently installed.

Check for Updates: Click this button to manually check for available software updates. If a new software update is available, it is automatically downloaded. You are prompted to install with a message that your mesh node will be unavailable for about 18 minutes during the update.

Notes on software updates

Software updates are delivered to your FX4100 automatically over the mobile network. You can also initiate updates through the web UI or Inseego Connect.

Automatic updates (device initiated)

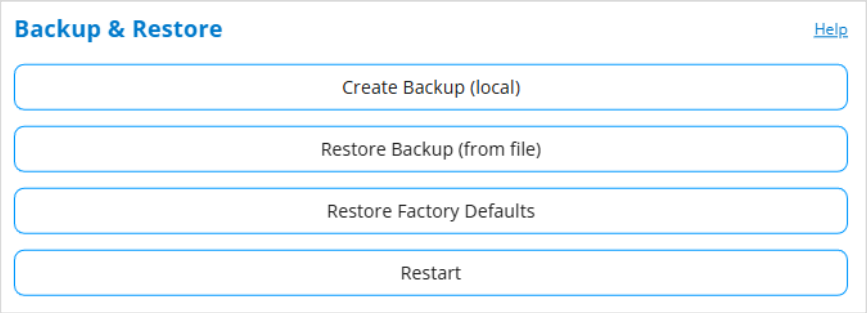
- The device looks for updates once every 24 hours.
- If an update is available, it is downloaded to the device.
- The update is installed on the device within 48 hours of being downloaded, between 2 - 4 AM local time, or immediately upon reboot.

User-initiated updates

- **From admin web UI**
  - Check for updates from the **Administration > Software** tab.
  - If an update is available, it is downloaded to the device.
  - Choose to install the update immediately, or it will be installed within 48 hours of being downloaded, between 2 - 4 AM local time (or immediately upon reboot).
- **From Inseego Connect**
  - Update a single device, multiple devices or groups of devices using the **Update Firmware** button.
  - If an update is available, choose whether to install it immediately or use **Schedule Later** to select a time.
  - Track updates on the **Operations** page.

Backup and Restore

Use this section to back up your current router settings to a file on your computer, restore (upload) a previously saved configuration file, reset the router to factory defaults, or restart the router.



Creating a backup file

To create a local backup of current router settings to a file on your computer:

1. Click the **Create Backup (local)** button.
2. Enter your admin password in the **Admin Password** field.

   The default admin password is printed on the bottom of the router. If you have changed the admin password and don't remember it, select **Log In** in the top-right corner, click **Forgot Password**, and answer the displayed security question. The current admin password is displayed.

   NOTE: If you enter an incorrect password five times in a row, you will be locked out of the admin web UI. To unlock it, restart your router and use the admin password printed on the bottom label.
3. Click the **Create Backup File** button. The file is automatically downloaded to the default Downloads folder on the device connected to the admin web UI. This configuration file contains all settings for your router.

NOTE: The backup file cannot be edited or viewed on the downloaded system or on any other device. This file can only be restored for this model of router, and settings can only be viewed or changed using the admin web UI.

Restoring from a backup file

CAUTION! Restoring settings (uploading a configuration file) changes ALL the existing settings to match the configuration file. This may change the current Wi-Fi settings, breaking all existing connections to the router and disconnecting you from the admin web UI.

To restore system settings from a backup settings file:

1. Click the **Restore Backup (from file)** button
2. Enter your admin password in the **Admin Password** field.
3. Drag and drop a backup settings file to restore or click **upload** to browse for the file.

   NOTE: You can only restore a file that was created for this model of router.
4. Click the **Yes, Restore Settings** button.

Restoring to factory defaults

CAUTION! This initiates a restart and may change the current Wi-Fi settings, breaking all existing connections to your router and disconnecting you from the admin web UI.

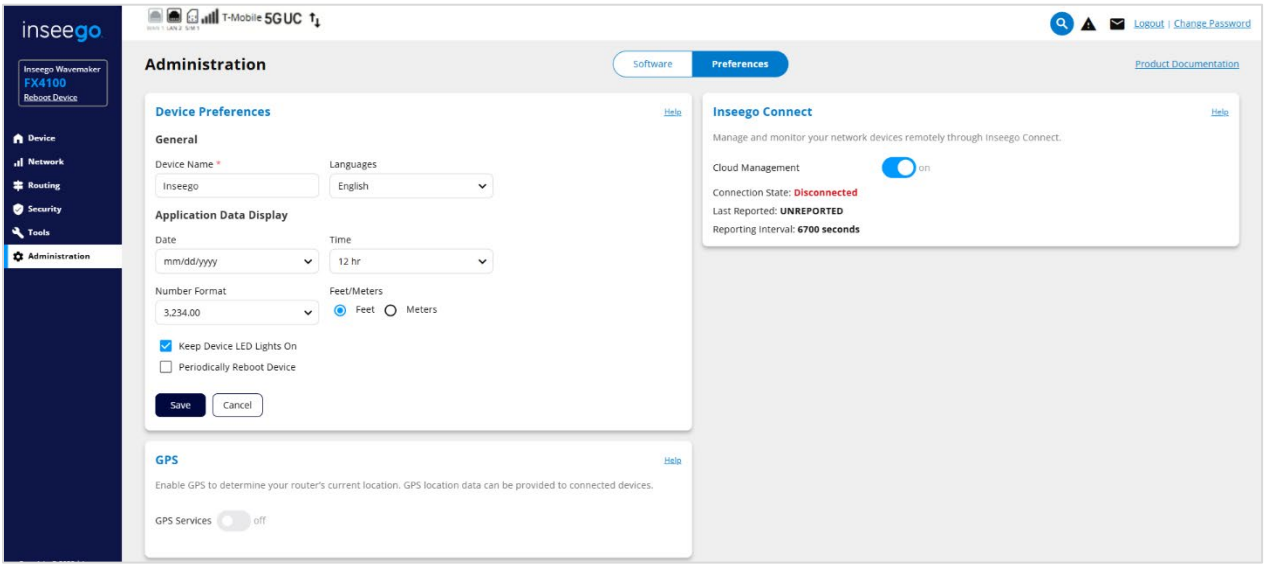
To reset all settings to their factory default values, click the **Restore Factory Defaults** button, then confirm by clicking **Yes, Restore Factory Defaults**.

Restarting your router

To restart your router (turn it off and on again), click the **Restart** button: then confirm by clicking **Yes, Reboot Device**.

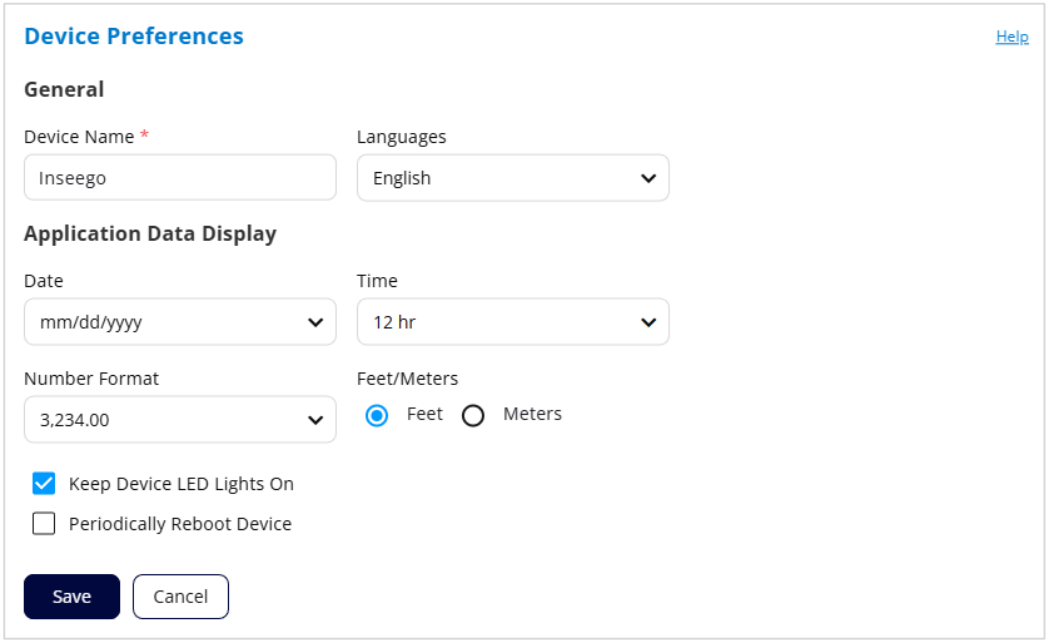
Preferences tab

Use this tab to set device preferences such as language, enable/disable Inseego Connect, and enable GPS to view current device location information.



Device Preferences

Use this section to change the router name visible to connecting devices, change the language, turn off the LED lights, and enable periodic reboot. You can also change how dates, time, distance, and numbers are displayed in the web UI.



General

Device Name: The name of the FX4100 that appears when connecting with client devices. If desired, enter a different name.

Languages: Select a language for the admin web UI.

Application Data Display

NOTE: The following settings affect packets sent to remote servers. For example, if you select a 24-hour time format, the admin web UI, and any packets reporting time somewhere else, will display time in 24-hour format.

Date: Select the date format to be used throughout the web UI (mm/dd/yyyy or dd/mm/yyyy).

Time: Select the time format to be used throughout the web UI (12 or 24 hour).

Number Format: Choose the format for decimal numbers displayed in the web UI (using a period or comma as the decimal point).

Feet/Meters: Select the format for distance displayed in the web UI (feet or meters).

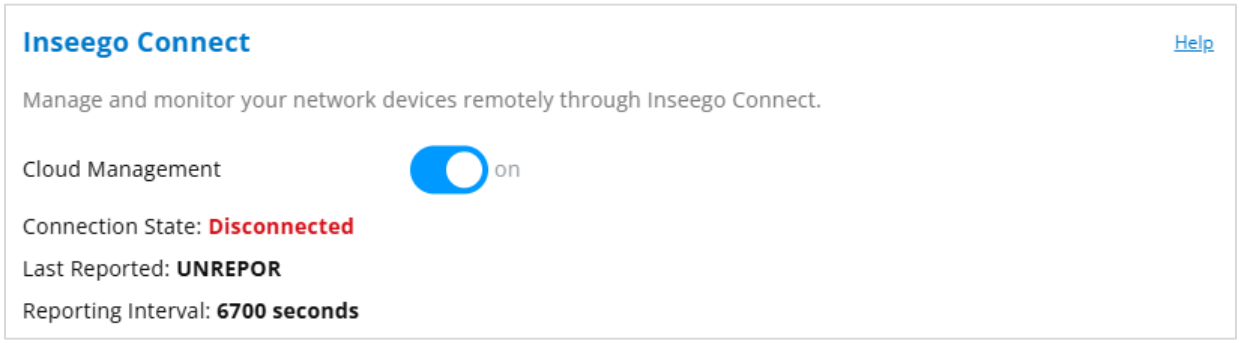
Keep Device LED Light On: When checked the LED lights on the front left of your router remain on. To turn these lights off, uncheck the box.
NOTE: This does not affect the device display on the front right of the router, which times out after 60 seconds.

Periodically Reboot Device: This checkbox enables a periodic reboot feature that allows the device to automatically restart every two weeks.
NOTE: By default, the reboot occurs at 2:00 AM on Sunday. You can change the schedule in Inseego Connect preference settings.

Click **Save**.

Inseego Connect

Inseego Connect enables you to configure settings, monitor status, and update the firmware on your device remotely from the cloud. All T-Mobile-owned Inseego FX devices come with the option of purchasing the Inseego Connect Add-on. Please work with your Account team to order the Inseego Connect Add-on, which provides Manager access.



Cloud Management: By default, the connection to Inseego Connect is **on**.

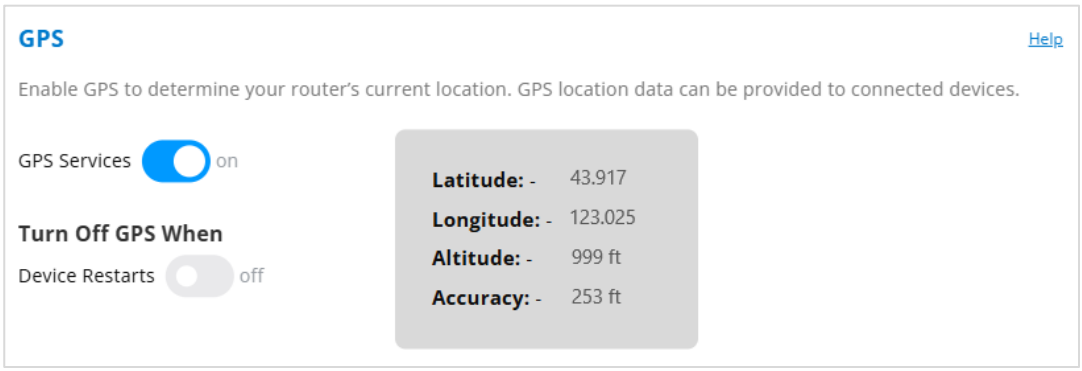
Connection State: The status of the Inseego Connect connection.

Last Reported: The time when the router last sent a packet to Inseego Connect servers.

Reporting Interval: This is the interval at which your router will send packets to the Inseego Connect server. **NOTE:** A shorter interval means more data usage.

GPS

Your router incorporates a GPS receiver. The GPS receiver can determine your current location. Use this feature to enable GPS and view current location information.



GPS Services: This setting enables or disables the GPS radio on your router. When turned **on**, a GPS Agreement appears, click **Yes, Enable GPS** to proceed. The FX4100 acquires GPS and makes GPS location data available.

Latitude: Latitude for the last location fix.

Longitude: Longitude for the last location fix.

Altitude: Altitude for the last location fix.

Accuracy: A measure of the accuracy of the horizontal position obtained by the GPS receiver.

Turn Off GPS When

Device Restarts: When GPS is **on**, the GPS receiver turns off when the router turns off and does not automatically restart when the router restarts - you will need to enable GPS again.

3

Accessories

Overview

Using external antennas

Using Inseego Wavemaker X700 Mesh Wi-Fi

Overview

The following accessories are available for use with your FX4100 5G Cellular Router. Contact your reseller for more information about accessories.

- External antennas
- PoE to USB-C adapter
- Inseego Wavemaker X700 Mesh Wi-Fi

Using external antennas

Your FX4100 5G Cellular Router is equipped with four internal antennas. In addition, the device has two external full spectrum cell SMA ports (0.6-6 GHz each) to support two external antennas.

NOTE: The FX4100 integrated internal antennas provide an average 4 dBi peak gain across all frequency ranges. If you are getting 4-5 bars signal strength, external antennas are not necessary and will not add to performance. In fact, adding the wrong external antennas (less than 4 dBi, including cable loss) will decrease your router's performance. Situations where external antennas are needed are rare. Contact your Account team for more information about external antennas.



Connecting external antennas (optional)

To use external antennas:

1. Remove the SIM/EXTERNAL ANTENNAS cover on the back of the router.

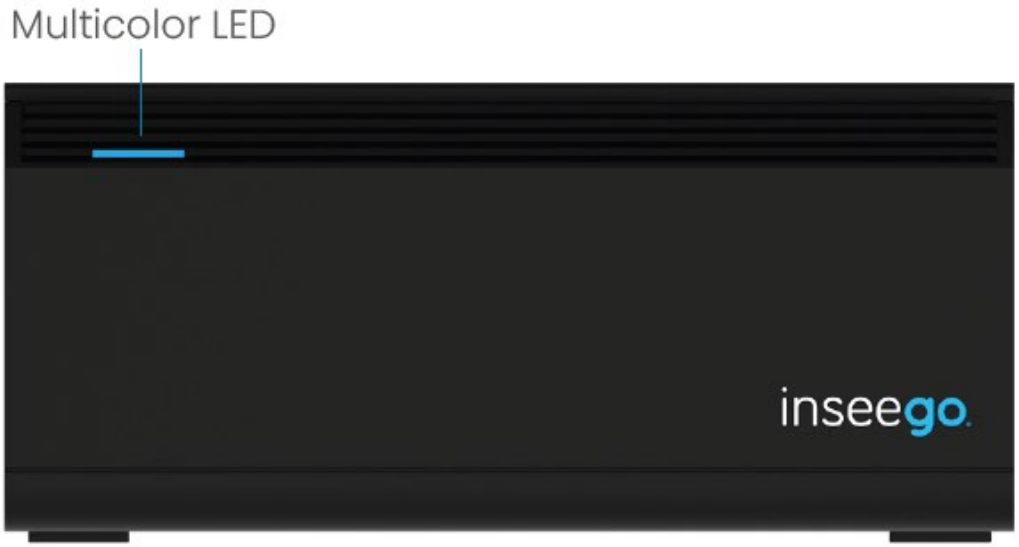


2. Finger tighten your external antennas to the CELL1 and CELL2 external antenna ports.
3. Set the switch to **EXT.ANT.ON**. When enabled, each external port supports the full cellular frequency range of 0.6-6 GHz. Two of the internal antennas are disabled. The other two internal antennas remain active. An antenna icon appears on the main screen of the device display.

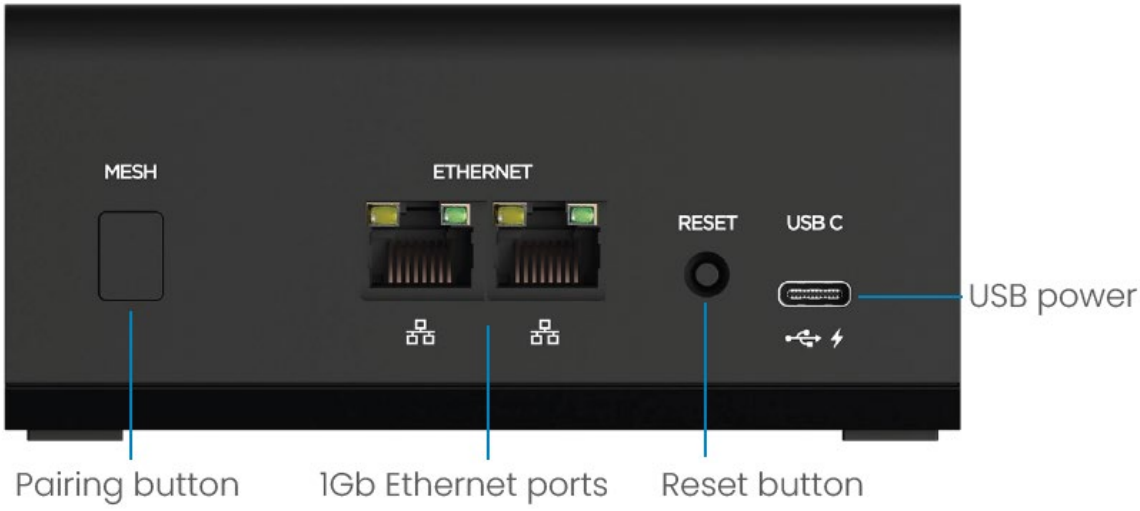
Using Inseego Wavemaker X700 Mesh Wi-Fi

Mesh nodes expand your network coverage and make it more reliable by adding extra paths for data to travel. This provides backups to data flow, creating a stronger, more dependable network that can cover larger areas. Your FX4100 5G Cellular Router is compatible with Inseego Wavemaker X700 Mesh Wi-Fi. You can connect up to three mesh nodes to one FX4100, pairing one at a time.

Device front



Device back



Indicator LEDs

The front of the X700 Mesh Wi-Fi has a device status LED that changes colors and blinks or glows solid to communicate current states for the mesh node.

LED color	Operation	Meaning
Blue	Solid Blinking	Mesh on, great signal Pairing
Green	Solid Blinking	Mesh on, good signal Ready to pair
Yellow	Solid	Mesh on, poor signal
White	Solid Blinking	Firmware update is in progress Mesh is booting up
Red	Solid Blinking	Mesh issue/not connected Firmware update failed

The Ethernet ports on the back of the mesh node also have indicator LEDs.

LED Color	Operation	Meaning
Green	Solid Blinking Off	Indicates Ethernet connection speed 1000 Mbps (Gigabit) Data is being transferred 10/100 Mbps
Amber	Solid Off	Indicates port status Port is being connected, but no data is being transferred Port is being disconnected

Pairing your X700 mesh node

Key things to know before connecting a mesh node with a router:

- Both the router and mesh node must be powered on and ready to pair.
- The router and mesh node should be within 10 to 50 feet of each other when connecting via Wi-Fi. You'll position the mesh node after connecting.
- Pairing actions on the router and mesh node must occur within 30 seconds of one another when pairing via Wi-Fi.
- The multicolor LED on the X700, and the device display and Wi-Fi status LED on the FX4100 help guide the pairing process.

To pair an X700 mesh node with your FX4100 5G Cellular Router:

1. Power on the FX4100. When the **FX4100 Wi-Fi status LED**  **is solid green**, it is **ready to pair**.
2. Power on the X700. You can use the provided AC adapter, a USB-powered hub, or USB power delivery (PD) host equipment.

   When the **X700 LED is blinking green**, it is **ready to pair**.
3. Pair the X700. You can pair your X700 with an Inseego FX4100 5G Cellular Router using Wi-Fi or Ethernet.

   Pairing with Wi-Fi

   To initiate Wi-Fi pairing, use the interactive device display on the FX4100 or the admin web UI.

   Pair using the FX4100 device display

   - Press the **device display button** repeatedly until you see **Wi-Fi Mesh: *Hold button to add***.
   - Press and hold the **device display button**.
   - When prompted by the display, press the **Mesh button** on the back of the X700 within 30 seconds.
   - The LED on the X700 and the Wi-Fi status LED  on the router blink blue while pairing. Pairing typically takes 2-3 minutes.
   - When the display shows ***Wi-Fi Mesh: Paired!*** and the **LED on the mesh node is a solid color**, pairing is complete.

   OR

   Pair using the admin web UI:

   - Go to http://192.168.1.1 to access the admin web UI for the FX4100. Navigate to **Wi-Fi > Mesh**.
   - Click **Add Node** on the bottom of the UI **Network > Wi-Fi** tab.
   - Within 30 seconds, press the **Mesh button** on the back of the X700.
   - The LED on the X700 and the Wi-Fi status LED  on the router blink blue while pairing. Pairing typically takes 2-3 minutes.
   - When **Wi-Fi status LED on the router is solid blue** and the **LED on the mesh node is a solid color**, pairing is complete.

Pairing with Ethernet

- Connect an Ethernet cable from the X700 to the LAN port on the FX4100.
  NOTE: The router and mesh node must be within 300 feet of each other.
- Pairing is automatic. The LED on the X700 blinks blue while pairing. When pairing is complete, the LED is solid.
- When you disconnect the Ethernet cable, the X700 remains paired via Wi-Fi.

Find a location for your X700 mesh node

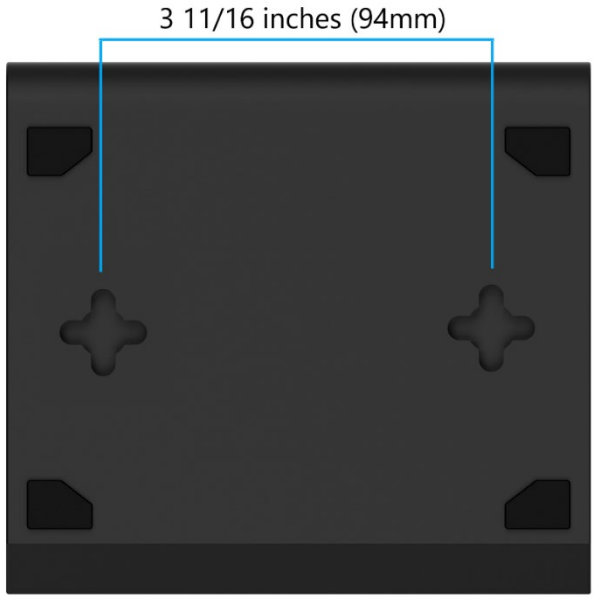
Adjust the location of the X700 using the LED color as a guide. Solid blue indicates a great signal. Solid green indicates a good signal.

Tips for getting the best signal with mesh:

- Use the FX4100 admin web UI **Network > Wi-Fi** tab to ensure X700 nodes are using **5GHz** as the **Connection Type**.
- With 5GHz coverage, mesh range is up to 50 feet.
- Walls, floors, appliances, furniture, pets, and people between the X700 and FX4100 reduce range.
- 1 wall = roughly 10 feet reduction in range.

Mounting your X700 (optional)

The X700 has two multi-directional keyhole mounting points on the bottom of the device for wall or rack mounting.



Mounting suggestions:

- Use #4 or #6 (M3 or M3.5) screws or anchors.
- Use the appropriate type of screw of anchor:
  - For drywall, plaster, or masonry, use anchor screws.
  - For studs, use wood screws.
  - For metal, use metal screws.

Inseego recommends professional installation to assure safety when drilling near electrical lines, plumbing, or other hazards.

Connecting wireless devices

Connecting wireless devices to your FX4100 5G Cellular Router through the X700 Mesh Wi-Fi node looks and feels the same as connecting directly to the router. Follow the instructions for connecting a device for the first time on page 20.

Managing your X700 mesh node

You can manage your X700 mesh node(s) through the FX4100's admin web UI or Inseego Connect settings.

Use **Network > Wi-Fi > Mesh Network** to view all mesh nodes paired with your FX4100, add or remove a mesh node, or reboot a mesh node. You can edit how the mesh node name appears in the UI and view more details on connected devices.

Use **Network > Devices** to view all mesh nodes paired with your FX4100, edit how the mesh node name appears in the UI, and view more details on connected devices. You can also block or unblock client devices from internet access.

You can monitor mesh nodes with the Inseego Mobile app.

Resetting your X700 mesh node

To **reboot** your X700:

- Press the **reset** button for one second.

To perform a **factory reset** (removes pairing):

- Press and hold the **reset** button for five seconds.

4

Troubleshooting and support

Overview

Troubleshooting

Technical support

Overview

When properly installed, the FX4100 5G Cellular Router is a highly reliable product.

The following tips can help solve many common problems encountered while using the router:

- Ensure that your wireless coverage extends to your current location.
- If you do not receive a strong data signal, move the device to a different location.
- Ensure that you have an active plan with your service provider.
- You can resolve many issues by restarting your connected device and your router.

Troubleshooting

This section can help solve many common problems and answer questions encountered while using the FX4100 5G Cellular Router.

Will I always get 5G? Can I use the router outside of 5G coverage?

While this router is marketed as a 5G cellular router, it supports both 5G and 4G and connects to the strongest signal available.

Check your service provider's coverage map to see what type of signal you can expect.

The device status LED is switching from blue to green

- **Reason:** In rare cases when the device is near the edge of 5G coverage and frequently switching from 4G to 5G coverage, it may temporarily drop service.

  Solution: If this is an ongoing issue, go to **Network > Cellular** and change **Network Technology** to **4G LTE**.

Can I set my router to use a specific cellular band?

No, the FX4100 5G Cellular Router is designed to connect to the strongest signal available. You can set the network technology and 5G network mode using **Network > Cellular**.

I cannot access the admin web UI

- **Reason:** You are on the guest network. The web UI is not accessible from the guest Wi-Fi network by design.

  Solution: Connect to the web UI through the primary Wi-Fi network, USB, or Ethernet.

- **Reason:** You are not accessing the correct URL.

  Solution: On a device connected to the router, open any web browser, and go to http://192.168.1.1 or http://Inseego.local.

- **Reason:** You are trying to connect to http://Inseego.local, and have Fortinet VPN on your connecting device. The Inseego.local web UI address relies on having IPv6 enabled on your connecting device, but devices using IPv6 are not compatible with Fortinet VPN.

  Solution: Use the http://192.168.1.1 URL.

My router is not booting up

- **Issue:** The FX4100 is not booting up (the device display does not show your service provider's name, even after pushing the button next to the display).

  Solution: Power cycle the router by unplugging and plugging it back in.

- **Issue:** The FX4100 appears non-functional despite having a valid SIM.

  Solution: Check that the External Antenna switch (under the SIM cover on the back of the router) is set to OFF unless external antennas are in use.

- **Issue:** The router is on, and the Wi-Fi status LED is green or blue, but you can't see a Wi-Fi name (SSID) to connect to.

  Solution: Power cycle the router by unplugging and plugging it back in.

- **Issue:** The router is on, but the Wi-Fi status LED indicates no Wi-Fi.

  Solution: Press the reset button on the back of the device until the device resets (approximately five seconds.) The device status LED on the far left blinks white, then turns red. When the LED is solid white, green, or blue, your router is ready. **NOTE:** The first time you perform a factory reset, it may take over two minutes for your router to restart.

If you are still having issues, contact your service provider for assistance.

The cellular status LED is blinking red

- **Reason:** The cellular status LED  blinks red when there is a SIM error, no service, or in rare cases, the SIM card is locked.

  Solutions:

  Try the following:

  - Unplug the router, then remove and reinsert the SIM card. Do not touch the gold-colored contacts. Make sure the card is inserted with the contacts facing down, notch facing in, and that it clicks into place. Also make sure the External Antenna switch is off unless external antennas are in use. Restart your router.
  - Ask your service provider:
    - Is your SIM active and on a plan compatible with your router?
    - Are there any service outages in your area?
  - Perform a factory reset.
  - Log in to the admin web UI and check the following:
    - On the **device display**, check if there is a SIM error message, or on the web UI **Device > Overview** (home) screen, check if there are any values in the SIM section. If the SIM card is properly inserted and the device does not recognize the SIM, the SIM slot may be defective. Contact your service provider to replace the device.
    - On the **Device > Overview** (home) screen, check that the **APN** is correct. Check with your service provider if you are unsure.
    - In the **top banner** of any page, check the **signal strength**.
      If you see, "No service," the device cannot see any towers or is in a hung state.
      If you know you are in range, try removing the SIM and rebooting the device with a SIM from a different service provider. The SIM does NOT need to be active. Reinsert the original SIM and restart the device. This prompts the device to reload modem configuration details and should resolve the hung state. If this does not work or another SIM is not available, contact your service provider to replace the device.
    - On **Network > Cellular**, check for a locked SIM.

My older device cannot connect

If you can see other networks, but not the network name for your FX4100 5G Cellular Router:

- **Reason:** The default multi-mode settings on your router work for most Wi-Fi clients, however, some older devices require that you set one of the Wi-Fi bands to support older BGN standards.

  Solution: Set your 2.4 GHz band to **Wi-Fi 4 802.11 bgn**:

  1. Access the admin web UI and navigate to **Network >Wi-Fi**. Disable **MLO**, and under **2.4 GHz Band Settings**, use the dropdown to change the **Wi-Fi Standard** to **Wi-Fi 4 802.11 bgn**.
     NOTE: This allows older devices to connect on the 2.4 GHz band but leaves the 5 GHz band in multi-mode to allow newer devices the fastest available connection.
  2. Click **Save**. Your router will reboot, and the network name should be visible on all devices.

If you can see the network name, but cannot connect a device to your FX4100:

- **Reason:** The default network security settings on your router work for most Wi-Fi clients, however, some older devices may not have access.

  Solution: Contact your service provider for assistance. If you are entering the correct password and still unable to connect, change the network security setting to **WPA2 Personal PSK (AES)**:

  1. Access the admin web UI and navigate to **Network > Wi-Fi > Primary Network**. In the **Security** dropdown, select **WPA2 Personal PSK (AES)**.
  2. Click **Save**. Your router will reboot, and all devices should be able to connect.

If the solutions above do not resolve the issue, try the following:

- **Reason:** Some Wi-Fi devices cannot properly store long passwords.

  Solution: Change your Wi-Fi password.

  1. Access the admin web UI and navigate to **Network > Wi-Fi > Primary Network**, or **Network > Wi-Fi > Guest Network**, depending on the network to which you are trying to connect. Change the Wi-Fi password to between 11 and 16 characters.

2. Click **Save**. Your router will reboot, and all devices should be able to connect.

- **Reason:** In rare cases, a Wi-Fi device may have issues with the same SSID being used on both 5GHz and 2.4 GHz bands.

  Solution: Disable the 5 GHz band.

  1. Access the admin web UI and navigate to **Network > Wi-Fi > Settings**. Disable MLO and in BAND SELECTION, uncheck **5 GHz** and use only **2.4 GHz**. **NOTE:** If you have a mesh network, both 5GHz and 2.4 GHz must be selected.
  2. Click **Save**. Your router will reboot, and your device should be able to connect.

My connected device cannot connect to Fortinet VPN

- **Reason:** Connected devices using IPv6 are not compatible with Fortinet VPN.

  Solution: Disable IPv6 on the connected device to use Fortinet.

My router is getting slow speeds/low throughput

- **Reason:** Signal strength is the most likely cause of slow speeds/low throughput. **NOTE:** The FX4100 5G Cellular Router is configured by default to use the best connection available, so low throughput is rarely related to configuration.

  Solution: Check the signal strength reported by your router:

  - Check the **Cellular Status LED**  on the device and/or **number of bars** on the device display.

    If the signal is poor (LED is yellow, white, or red, or there are less than three bars), relocate your router to improve signal conditions.

I cannot get streaming platforms to work with my router

- **Reason:** Some service provider plans include content filtering that prevents streaming over the internet connection.

  Solution: Contact your service provider for assistance.

My connecting device is not obtaining a valid IP address

There are several possible reasons your connecting device is not obtaining a valid IP address:

- **Reason:** The DHCP server has been turned off.
  If IPPT is not enabled, the DHCP server provides IP addresses. If the DHCP server is turned off, no IP addresses can be provided.

  Solutions:

  Reset your router to factory settings, see “Resetting your router” on page 24.
  or
  Use Inseego Mobile app LAN settings to turn the DHCP server on.

- **Reason:** The DHCP server has used all its IP addresses.
  This is unlikely to happen with the FX4100, but if you have connected a succession of devices to your router in a short period of time, you may have used up all the IP addresses available.

  Solution: Disconnect your connected device and power cycle the router before reconnecting a device.

- **Reason:** There is an issue with your router.

  Solution: Contact your service provider for assistance.

Devices connected via Ethernet are not getting internet

- **Reason:** If your FX4100 router has been connected to another router (such as in a backup configuration), the routers may be using the same IP address.

  Solution: Ensure that the IP address of the FX4100 and the IP address of the other router are different. In the FX4100 admin web UI, go to **Network > LAN** and change the IP address to something other than 192.168.1.1, for example: 192.168.3.1.

- **Reason:** You are not plugged into the correct Ethernet port. By default, the Ethernet ports on the back of the FX4100 are configured as labeled (WAN on the left, LAN on the right). However, both Ethernet ports can be configured to LAN or WAN in the FX4100 admin web UI: **Network > WAN**.

  Solution: When using the FX4100 to provide internet connectivity to a wired client or to your network through a router or switch, use a port configured for LAN. When connecting the FX4100 to a wired WAN/internet connection for failover, use a port configured for WAN.

Do I need external antennas?

In most cases, external antennas are not needed with the FX4100. The integrated internal antennas provide an average 4 dBi peak gain across all frequency ranges. If you are getting 4-5 bars signal strength, external antennas will not add to performance. In fact, adding the wrong external antennas (less than 4 dBi, including cable loss) will decrease your router's performance.

Situations where external antennas are needed are rare, and may include:

- Poor signal quality
- Challenging location (basement, thick building walls, scenarios where there is a strong 5G signal outside, but only 4G inside, etc.)
- The need to boost higher frequency bands

When using external antennas, consider the reliability of the manufacturer, correct connectors, bands/frequencies, and cable loss.

Contact your Account team for more information about external antennas.

Do I need a signal amplifier or booster?

Signal amplifiers or boosters are used at the user's risk and may not provide improved coverage, signal, or performance.

Cellular signal amplifiers/boosters typically work by receiving and re-transmitting specific frequencies. This can increase the amount of signal noise, which has a negative effect on connectivity. In addition, when specific frequencies are targeted, other frequencies can be effectively filtered or blocked. If not all your needed bands are supported, you may experience a worse connection.

Does the USB port support RNDIS?

The FX4100 has one USB port, which is used for power. You can use a USB hub or splitter that supports USB 3.1 to provide a network connection via Remote Network Driver Interface Specification (RNDIS). Most major operating systems support RNDIS. There are no device-specific drivers for the USB port, so any drivers needed are related to the PC operating system. PCs with Thunderbolt Networking can expect speeds up to 2.5Gbps.

Does the USB port support USB-C to Ethernet adapters?

The USB port does not support USB-C to Ethernet adapters. If you require additional Ethernet ports, Inseego recommends using an Ethernet switch connected to an Ethernet port.

NOTE: The USB-C port does not support charging of other devices.

Technical support

IMPORTANT: Before reaching out for support, be sure to restart both your connected device and your router and ensure that your SIM card is inserted correctly.

Customer service and troubleshooting
Contact your service provider for assistance.

More information
Documentation for your FX4100 5G Cellular Router is available online. Go to go.inseego.com/fx4100.

Vulnerability disclosure policy

Inseego is committed to acting on reported vulnerabilities in a timely manner, and to prioritize critical issues appropriately.

Inseego is able to send Firmware Over-the-Air (FOTA) updates to resolve most issues.

To submit a vulnerability issue, email: technicalsupportus@inseego.com.

- Inseego will respond within five business days to acknowledge receipt of the suspected vulnerability.
- Inseego will provide a status update within a reasonable time based on severity and impact, after an assessment is made.

5

Product specifications and regulatory information

FX4100 product specifications

X700 product specifications

Regulatory information

Product certifications and supplier's declarations of conformity

Wireless communications

Limited warranty and liability

Safety hazards

FX4100 product specifications

Device

Name:	FX4100 5G Cellular Router
Model:	FX4120
Regulatory:	FCC (US)
Certifications:	GCF, PTCRB, FIPS 140-3 *, Wi-Fi Alliance, REACH, RoHS, UL 2710 †
Power:	- 24W (12V, 2A) AC power adapter (provided) - USB-powered hub - USB-powered delivery device
Dimensions:	6.6" x 4.1" x 2.0" (167mm x 104mm x 52mm)
Weight:	23oz (650g)
Operating temperature:	32°F to 104°F (0°C to +40°C)
Operating temperature with limitations:	14°F to 122°F (-10°C to +50°C)
Storage temperature:	-22°F to 158°F (-30°C to +70°C)
Ports:	2x LAN/WAN (1 GbE) 1x USB 3.1 Type C (data and power) 2x external full spectrum cell SMA ports (0.6-6 GHz each)
SIM:	1x 4FF Nano SIM
Module:	Inseego RM4210
Chipset:	Qualcomm® Dragonwing™ FWA Gen 3 Platform
Location:	Standalone GPS Internal antenna
Indicator LEDs:	Device status Cellular status Wi-Fi status
Device display:	Interactive device display for info, alerts, mesh pairing, and FOTA

* See https://inseego.com/resources/blog/what-is-fips-140-3-and-how-does-it-secure-sensitive-data/.

† See https://inseego.com/resources/blog/ecologo-and-ul-2710-certified-devices/.

Network connectivity *

5G NR with SA/NSA	
5G sub-6 GHz	
4x4 MIMO 5G sub-6 GHz	
4G LTE Cat 20	
4x4 MIMO 4G LTE	
256 QAM sub-6 GHz	
Bands	**5G sub-6:** n2, n5, n12, n25, n26, n41, n48, n66, n71, n77 **4G LTE Cat 20:** 2, 4, 5, 12, 25, 26, 41, 48, 66, 71

Wi-Fi

Wi-Fi 7 with 2x2 MU-MIMO
802.11be with EasyConnect standards
Simultaneous dual-band Wi-Fi
Full power AP Wi-Fi (~30dBm) with mesh
Primary and guest networks
Supports up to 128 simultaneous Wi-Fi enabled devices

Remote management

Inseego Mobile app (when registered with Inseego Connect)
Inseego Connect device management
Cloud API support through Inseego Connect Advanced
FOTA management and scheduling

* Data plan required. Coverage subject to network availability.

Software and security

On-device speed test
IPv4 and IPv6 support
IPsec VPN and OpenVPN
VPN passthrough
IPPT and NAT mode
Port forwarding and filtering
MAC filtering
Content filtering
Periodic reboot
Seamless failover
WAN management
Secure boot/root of trust
WPA2/WPA3 authentication
Encrypted configuration backup/restore
Advanced firewall
Anti CSRF (OWASP)
Multi-link operation (MLO)
Wireless and wired mesh pairing
Wireless and wired mesh backhaul

X700 product specifications

Device

Name:	X700 Mesh Wi-Fi
Model:	X702
Regulatory:	FCC (US)
Certifications:	GCF, PTCRB, Wi-Fi Alliance, REACH, RoHS
Power:	12V@2.5A (+/- 5%)
Dimensions:	4.6" x 4.1" x 2.0" (117 x 104 x 52 mm)
Weight:	16.4oz (465g)
Operating temperature:	32°F to 104°F (0°C to +40°C)
Operating temperature with limitations:	14°F to 122°F (-10°C to +50°C)
Storage temperature:	-22°F to 158°F (-30°C to +70°C)
Processor:	Multi-core processor with 1GB RAM + 1GB Flash or more
Ports:	2x LAN/WAN (1 GbE) 1x USB 3 Type C (data and power)
Indicator LED:	Device/signal status

Wi-Fi

2 x 2 dual-band Wi-Fi 6
2 x 2 2GHz 2 x 2 5GHz
Full power AP Wi-Fi (~30dBm, including antenna gain)
160 MHz bandwidth for 5GHz radio (80 MHz for router link and 80 MHz for client link)
Options for shared or different SSIDs with primary router
Support for 64 clients per radio

Regulatory information

Federal Communications Commission Notice (FCC – United States)

FCC ID: PKRISGFX4120, Contains FCC ID: PKRISGRM4210
FCC ID: PKRISGX702

Electronic devices, including computers and wireless modems, generate RF energy incidental to their intended function and are therefore subject to FCC rules and regulations.

This equipment has been tested to, and found to be within, the acceptable limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential environment.

This equipment generates radio frequency energy and is designed for use in accordance with the manufacturer's user manual. However, there is no guarantee that interference will not occur in any particular installation. If this equipment causes harmful interference to radio or television reception, which can be determined by turning the equipment off and on, you are encouraged to try to correct the interference by one or more of the following measures.

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television technician for help.

This device complies with Part 15 of the Federal Communications Commission (FCC) Rules. Operation is subject to the following two conditions.

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

WARNING: DO NOT ATTEMPT TO SERVICE THE WIRELESS COMMUNICATION DEVICE YOURSELF. SUCH ACTION MAY VOID THE WARRANTY. THIS DEVICE IS FACTORY TUNED. NO CUSTOMER CALIBRATION OR TUNING IS REQUIRED. CONTACT INSEEGO CORP TECHNICAL SUPPORT FOR INFORMATION ABOUT SERVICING YOUR WIRELESS COMMUNICATION DEVICE.

FCC CAUTION: Any changes or modification not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

MODIFICATIONS: The FCC requires that you be notified that any changes or modifications made to this device that are not expressly approved by Inseego Corp. may void your authority to operate the equipment.

NOTE: The Radio Frequency (RF) emitter installed in your modem must not be located or operated in conjunction with any other antenna or transmitter, unless specifically authorized by INSEEGO CORP.

FCC RF EXPOSURE GUIDANCE STATEMENT: This device complies with FCC Radiation Exposure Limits set forth for Uncontrolled Environment. To ensure compliance with the FCC Radio Frequency Exposure Guidelines, this device must be installed to provide at least 20cm separation from the human body at all times.

Cellular external antenna considerations for FX4120:

1. External Antenna(s): Not Included
2. To comply with RF Exposure Requirements, the Maximum Cellular Antenna Gain Must Not Exceed:

External antenna port	4G band	5G band	Max allowable antenna gain (dBi)
CELL1	B71	n71	6.9
CELL1	B12	n12	7.6
CELL1	B17	-	7.6
CELL1	B5	n5	8.4
CELL1	B26	n26	8.4
CELL1, CELL2	B4	-	4.5
CELL1, CELL2	B66	n66	4.5
CELL1, CELL2	B2 B25	n2 n25	6.5
CELL1, CELL2	B38	n38	8.0
CELL1, CELL2	B41	n41	5.5
CELL1, CELL2	-	n77	3.0
CELL1, CELL2	-	n78	3.0
CELL1, CELL2	B48	n48	3.0

Product certifications and supplier's declarations of conformity

Product certifications and supplier's declarations of conformity documentation may be consulted at Inseego Corp., 9710 Scranton Road Suite 200, San Diego CA 92121, USA. https://www.inseego.com/support/.

Wireless communications

IMPORTANT: Due to the transmission and reception properties of wireless communications, data occasionally can be lost or delayed.

This can be due to the variation in radio signal strength that results from changes in the characteristics of the radio transmission path. Although data loss is rare, the environment where you operate the modem might adversely affect communications.

Variations in radio signal strength are referred to as fading. Fading is caused by several different factors including signal reflection, the ionosphere, and interference from other radio channels.

Inseego Corp. or its partners will not be held responsible for damages of any kind resulting from the delays or errors in data transmitted or received with the FX4100 device, or failure of the FX4100 device to transmit or receive such data.

Limited warranty and liability

THIS LIMITED WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY HAVE OTHER RIGHTS THAT VARY FROM STATE TO STATE (OR BY COUNTRY OR PROVINCE). OTHER THAN AS PERMITTED BY LAW, INSEEGO CORP DOES NOT EXCLUDE, LIMIT OR SUSPEND OTHER RIGHTS YOU MAY HAVE, INCLUDING THOSE THAT MAY ARISE FROM A PARTICULAR SALES CONTRACT.

INSEEGO CORP warrants for the 12-month period (or 24-month period if required by statute where you purchased the Product) immediately following your receipt of the Product that the Product will be free from defects in material and workmanship under normal use. TO THE EXTENT PERMITTED BY LAW, THESE WARRANTIES ARE EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

The exclusive remedy for a claim under this warranty shall be limited to the repair or replacement, at INSEEGO CORP'S option, of defective or non-conforming materials, parts, components, or the device. The foregoing warranties do not extend to (I) non conformities, defects or errors in the Products due to accident, abuse, misuse or negligent use of the Products or use in other than a normal and customary manner, environmental conditions not conforming to INSEEGO CORP'S specification, of failure to follow prescribed installation, operating and maintenance procedures, (II) defects, errors or nonconformities in the Product due to modifications, alterations, additions or changes not made in accordance with INSEEGO CORP'S specifications or authorized by INSEEGO CORP, (III) normal wear and tear, (IV) damage caused by force of nature or act of any third person, (V) shipping damage, (VI) service or repair of Product by the purchaser without prior written consent from INSEEGO CORP, (VII) products designated by INSEEGO CORP as beta site test samples, experimental, developmental, reproduction, sample, incomplete or out of specification Products, or (VIII) returned products if the original identification marks have been removed or altered. There is no warranty that information stored in the Product will be retained following any Product repair or replacement.

EXCEPT AS PROVIDED IN THIS WARRANTY AND TO THE MAXIMUM EXTENT PERMITTED BY LAW, INSEEGO CORP IS NOT RESPONSIBLE FOR DIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM ANY BREACH OF WARRANTY OR CONDITION, OR UNDER ANY OTHER LEGAL THEORY.

THE FOREGOING LIMITATION SHALL NOT APPLY TO DEATH OR PERSONAL INJURY CLAIMS, OR ANY STATUTORY LIABILITY FOR INTENTIONAL AND GROSS NEGLIGENT ACTS AND/OR OMISSIONS. SOME STATES (COUNTRIES AND PROVINCES) DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

Safety hazards

Do not operate the FX4100 5G Cellular Router in an environment that might be susceptible to radio interference resulting in danger, specifically:

- Areas where prohibited by the law
- Follow any special rules and regulations and obey all signs and notices. Always turn off the host device when instructed to do so, or when you suspect that it might cause interference or danger.
- Where explosive atmospheres might be present
- Do not operate your device in any area where a potentially explosive atmosphere might exist. Sparks in such areas could cause an explosion or fire resulting in bodily injury or even death. Be aware and comply with all signs and instructions.
- Users are advised not to operate the device while at a refueling point or service station. Users are reminded to observe restrictions on the use of radio equipment in fuel depots (fuel storage and distribution areas), chemical plants or where blasting operations are in progress.
- Areas with a potentially explosive atmosphere are often but not always clearly marked. Potential locations can include gas stations, below deck on boats, chemical transfer or storage facilities, vehicles using liquefied petroleum gas (such as propane or butane), areas where the air contains chemicals or particles, such as grain, dust or metal powders, and any other area where you would normally be advised to turn off your vehicle engine.
- Near medical and life support equipment
- Do not operate your device in any area where medical equipment, life support equipment, or near any equipment that might be susceptible to any form of radio interference. In such areas, the host communications device must be turned off. The device can transmit signals that could interfere with this equipment.
- On an aircraft, either on the ground or airborne
- In addition to FAA requirements, many airline regulations state that you must suspend wireless operations before boarding an airplane. Please ensure that the modem is turned off prior to boarding aircraft in order to comply with these regulations. The modem can transmit signals that could interfere with various onboard systems and controls.
- While operating a vehicle
- The driver or operator of any vehicle should not operate a wireless data device while in control of a vehicle. Doing so will detract from the driver or operator's

control and operation of that vehicle. In some countries, operating such communications devices while in control of a vehicle is an offense.

- Electrostatic Discharge (ESD)
- Electrical and electronic devices are sensitive to electrostatic discharge (ESD). Macintosh native connection software might attempt to reinitialize the device should a substantial electrostatic discharge reset the device. If the software is not operational after an ESD occurrence, then restart your computer.