

User Guide

LTE Home Router

| | |
|-------------------------------------|-----------|
| 1. Inside the box | 1 |
| 2. Your LTE WiFi Gateway | 2 |
| 3. Installation | 5 |
| 3.1 Positioning your gateway..... | 6 |
| 3.2 Setup requirements..... | 6 |
| 4. Login to Your LTE Gateway | 7 |
| 4.1 Connect by Smartphone..... | 7 |
| 4.2 Connect by computer..... | 9 |
| 5. Basic Settings | 11 |
| 5.1 Dashboard..... | 12 |
| 5.2 Network..... | 13 |
| Network Map..... | 14 |
| Status..... | 20 |
| Traffic Query..... | 22 |
| WAN..... | 23 |
| LTE..... | 25 |
| WiFi..... | 26 |
| 5.3 Parental Control..... | 28 |
| 6. Expert Settings | 31 |
| 6.1 Dashboard..... | 32 |
| 6.2 Network..... | 33 |
| Network Map..... | 34 |
| Status..... | 39 |
| Traffic Query..... | 41 |

| | |
|----------------------------------------------------------------------|-----------|
| WAN..... | 42 |
| LTE | 44 |
| LAN..... | 45 |
| WiFi..... | 47 |
| Client List..... | 50 |
| 6.3 Device Settings | 51 |
| Administration | 52 |
| Date & Time | 53 |
| Backup / Restore | 54 |
| Firmware | 56 |
| System Log..... | 57 |
| 6.4 Parental Control | 58 |
| 6.5 Diagnostic..... | 61 |
| 6.6 Security | 62 |
| Firewall | 63 |
| IP / MAC Binding..... | 64 |
| Access Control..... | 66 |
| 6.7 NAT Forwarding..... | 68 |
| DMZ | 69 |
| UPnP | 70 |
| ALG..... | 71 |
| Virtual Servers | 73 |
| 7. Troubleshooting | 75 |
| Phone or computer is disconnected from the gateway..... | 75 |
| Cannot find the Wi-Fi network or cannot connect to the gateway. | 75 |

| | |
|----------------------------------------------------------------|-----------|
| Can't access the Web User Interface to configure settings..... | 75 |
| 8. Tips & tricks | 76 |
| Taking care of your SIM card | 76 |
| Get the best WiFi signal..... | 76 |
| Surf the Internet faster | 76 |
| Network security | 76 |
| 9. Technical Specification | 77 |
| General | 77 |
| Connections | 77 |

1. Inside the box

Contact Verizon if any item is missing or damaged.

- 1) Gateway
- 2) Power Adapter

****PLACEHOLDER ARTWORK: TO BE REVISED AFTER TECHNICAL REVIEW****

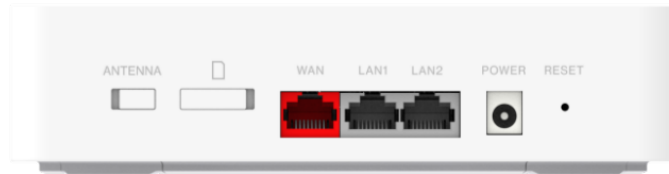
2. Your LTE WiFi Gateway

Front:

Status LED, **WPS LED**, **WPS/LTE?** Button

Back:

Power Port, 2 x LAN Ethernet Ports, 1 x WAN Ethernet Port, SIM Card Slot, Reset Button



Bottom:

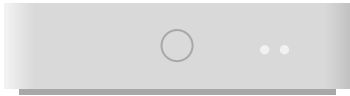
Micro USB



****PLACEHOLDER ARTWORK: TO BE REVISED AFTER TECHNICAL REVIEW****

LEDs

The LEDs indicate the system and connection status, and **WPS activity**.

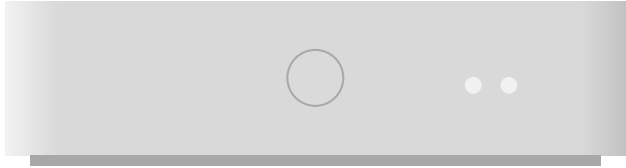


| Indicator/ Scenario | Pattern # | Description | Light type | LED2 (WPS) | LED1 (SYS) |
|---------------------|-----------|-------------------------------|----------------------------------------------------------------------------------------------------------------|------------|-----------------|
| System | 1 | System Off | Off | | |
| | 2 | System Booting | Green, Slow Blinking | | |
| | 3 | System Ready | Show SYS status | | |
| | 4 | Firmware update | Green, Quick blinking <i>(only while firmware is being installed)</i> | | |
| LTE / WiFi | 5 | Excellent LTE Signal Strength | Green | | |
| | 6 | Fair LTE Signal Strength | Yellow/Amber | | |
| | 7 | Poor LTE Signal Strength | Red | | |
| | 8 | WiFi / LTE / FW Error | Red, Slow Blinking | | |
| | 9 | No SIM Card | Red, Quick Blinking | | |
| WPS | 10 | WPS Pairing | Blue, Quick Blinking <i>(blinks until WPS times out)</i> | | Existing Status |
| Factory Reset | 11 | Reset User data | Yellow/Amber Quick Blinking <i>(only for 2~3 seconds after pressing reset button until device restarts)</i> | | |

****PLACEHOLDER: TO BE REVISED AFTER TECHNICAL REVIEW****

WPS/LTE Button

Press the WPS button on the front of the gateway to activate WPS. Refer to XY for more information about WPS.



****PLACEHOLDER: TO BE REVISED AFTER TECHNICAL REVIEW****

3. Installation

Disconnect any existing router or from your network before installation.

1. Plug the gateway into a power outlet with the included power adapter.

****INSTALLATION ARTWORK #1****

2. Wait for a couple of minutes for the gateway to power up, and then head to **4. Login to your LTE WiFi Gateway** to login to your gateway and configure settings such as WiFi security.

****INSTALLATION ARTWORK #2****

3.1 Positioning your gateway

For the best wireless signal transmission from the gateway to your network devices:

- Place the gateway in a central area.
- Keep the gateway away from metal obstructions and away from direct sunlight.
- Keep the gateway away from 802.11g or 20MHz only WiFi devices, 2.4GHz computer peripherals, Bluetooth devices, cordless phones, transformers, heavy-duty motors, fluorescent lights, microwave ovens, refrigerators, and other industrial equipment to prevent signal interference or loss.

3.2 Setup requirements

To configure your wireless network via computer, you need a computer that meets the following system requirements:

- Ethernet RJ-45 (LAN) port (10Base-T/100Base-TX/1000BaseTX)
- IEEE 802.11a/b/g/n/ac wireless capability
- An installed TCP/IP service
- Web browser such as Internet Explorer, Firefox, Safari, or Google Chrome

4. Login to Your LTE Gateway

You can configure your gateway's network settings using the Web User Interface (Web UI) by computer or mobile app. First connect to your gateway, then access the Web UI, as shown below. Your gateway is pre-set with the WPA2 security, but you should immediately change the default WiFi password, as well as the Web UI login password.

4.1 Connect by Smartphone

1. On your smartphone, scan available WiFi networks.



****iOS SCREENSHOT****

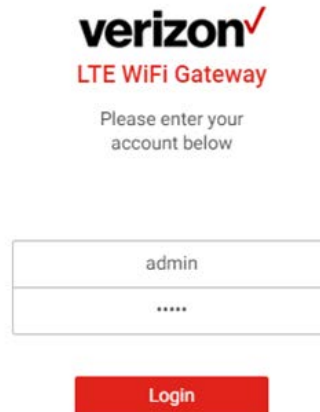
2. Select either of the networks named:

WiFi-2.4G
or
WiFi-5G

3. Enter the unique password found on your gateway's box.

Login to the Web User Interface

1. Open the Verizon Gateway App.
2. Log in using the default username: **admin** and password: **admin**



verizon[✓]
LTE WiFi Gateway

Please enter your account below

admin

Login

3. Go to **Basic > Network > WiFi** to change your WiFi password and **Expert > Device Settings > Administration** to change your Web UI login password, and remember to save your settings.
4. Check **5. Basic Settings** and **6. Expert Settings** in this guide for more information.

4.2 Connect by computer

1. On your computer, scan available WiFi networks.

2. Select either of the networks named:

WiFi-2.4G

or

WiFi-5G

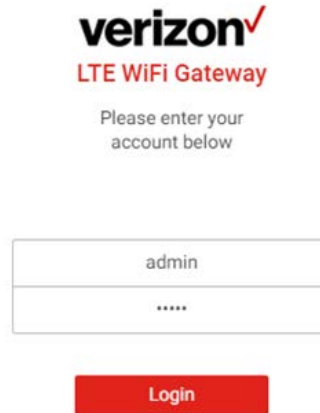
3. Enter the unique password found on your gateway's box.

4. If preferred, you can use an Ethernet cable to connect your computer to the gateway's LAN port for configuration (instead of WiFi).

****PLACEHOLDER ARTWORK: TO BE REVISED AFTER TECHNICAL REVIEW****

Login to the Web User Interface

1. Open a web browser and enter the gateway's default address **http://192.168.1.1** in the address bar.
2. Log in to the Web UI using the default username: **admin** and password: **admin**



verizon
LTE WiFi Gateway

Please enter your account below

admin

Login

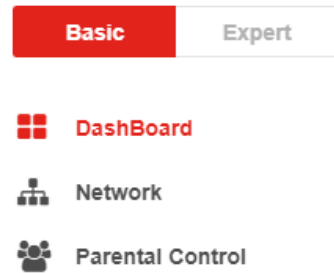
3. Go to **Basic > Network > WiFi** to change your WiFi password and **Expert > Device Settings > Administration** to change your Web UI login password, and remember to save your settings
4. Check **5. Basic Settings** and **6. Expert Settings** in this guide for more information.

5. Basic Settings

Your gateway's Web User Interface (Web UI) allows you to easily setup its Basic & Expert features.

Menu

Select the **Basic** tab in the menu:



Save

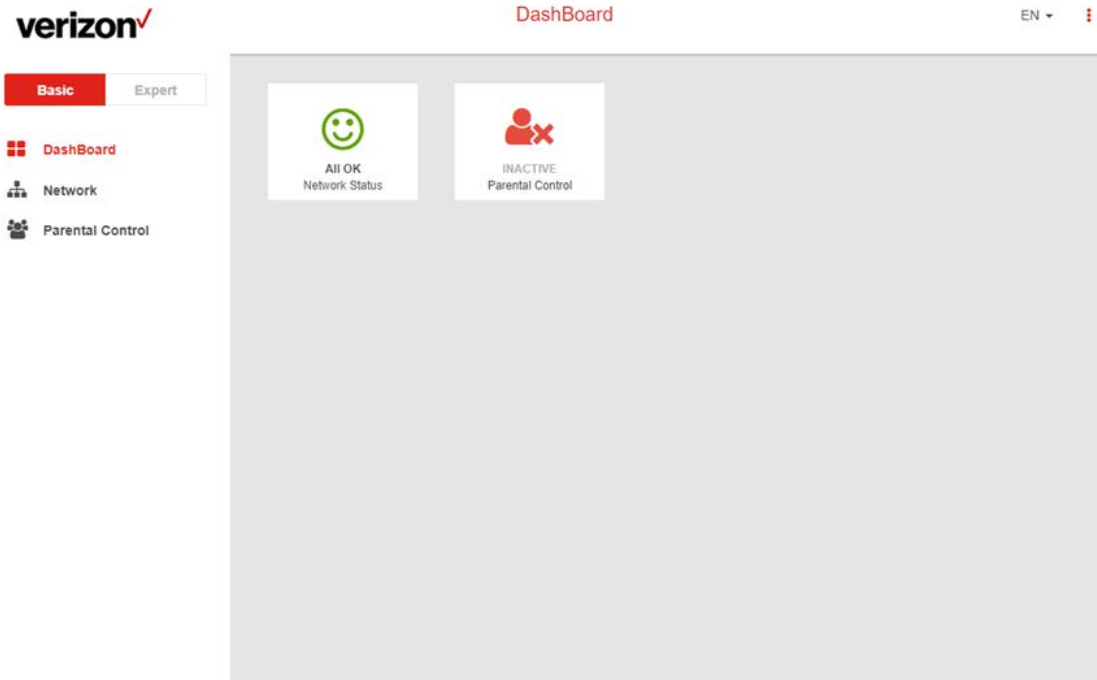
Remember to save your settings with the save button after making changes. The icon takes you back to the Dashboard.



5.1 Dashboard

Basic > Dashboard

The **Dashboard** shows a snapshot of your network status with quick links to key features of your gateway.



Select any icon on the dashboard: **Network Status**, **Parental Control** to access more information and settings.

Network Status takes you to Basic > Network > Status

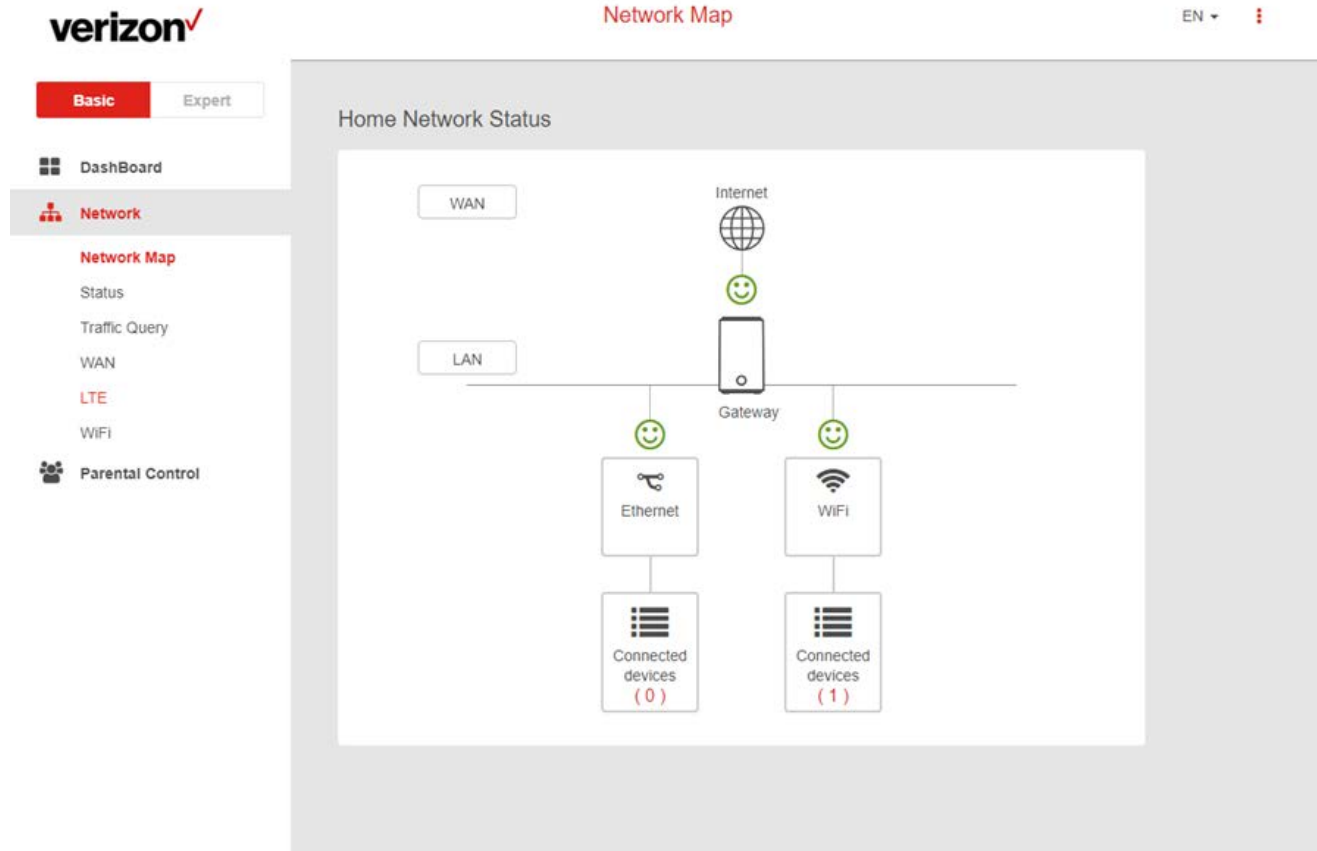
Parental Control takes you to Basic > Network > Parental Control

Network Status should display **All OK** to indicate a functioning LTE network. If you don't see this, check the gateway's LEDs and refer to Troubleshooting to diagnose the problem.

5.2 Network

Basic > Network

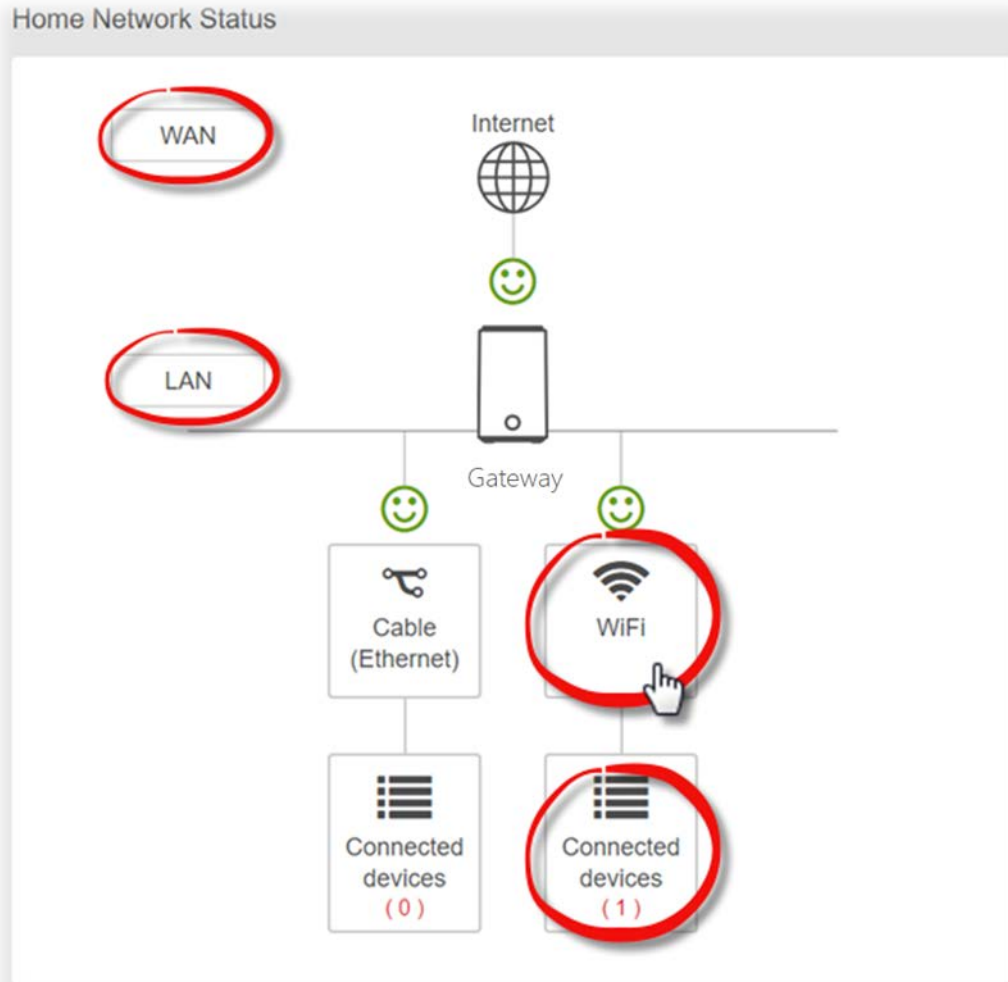
The **Network** menu provides quick links to the basic networking functions of your gateway. When you select the **Network** menu, the **Network Map** page is displayed as below.



Network Map

Basic > Network > Network Map


The network map provides a visual overview and status information of the network and devices on the network, with quick links to wireless security settings and client lists. It's important to check and configure security settings.



Select icons on the dashboard for more information and settings, as displayed below:


WAN

Displays the gateway's Wide Area Network (WAN) IP Address and Connection Type (LTE).

| | |
|-----------------------------------------------------------------------------------------------------|----------------------|
| WAN | |
| IP address: | 10.130.23.116 |
| Connection type: | LTE |
|  WAN SETTINGS | |
| CANCEL | |

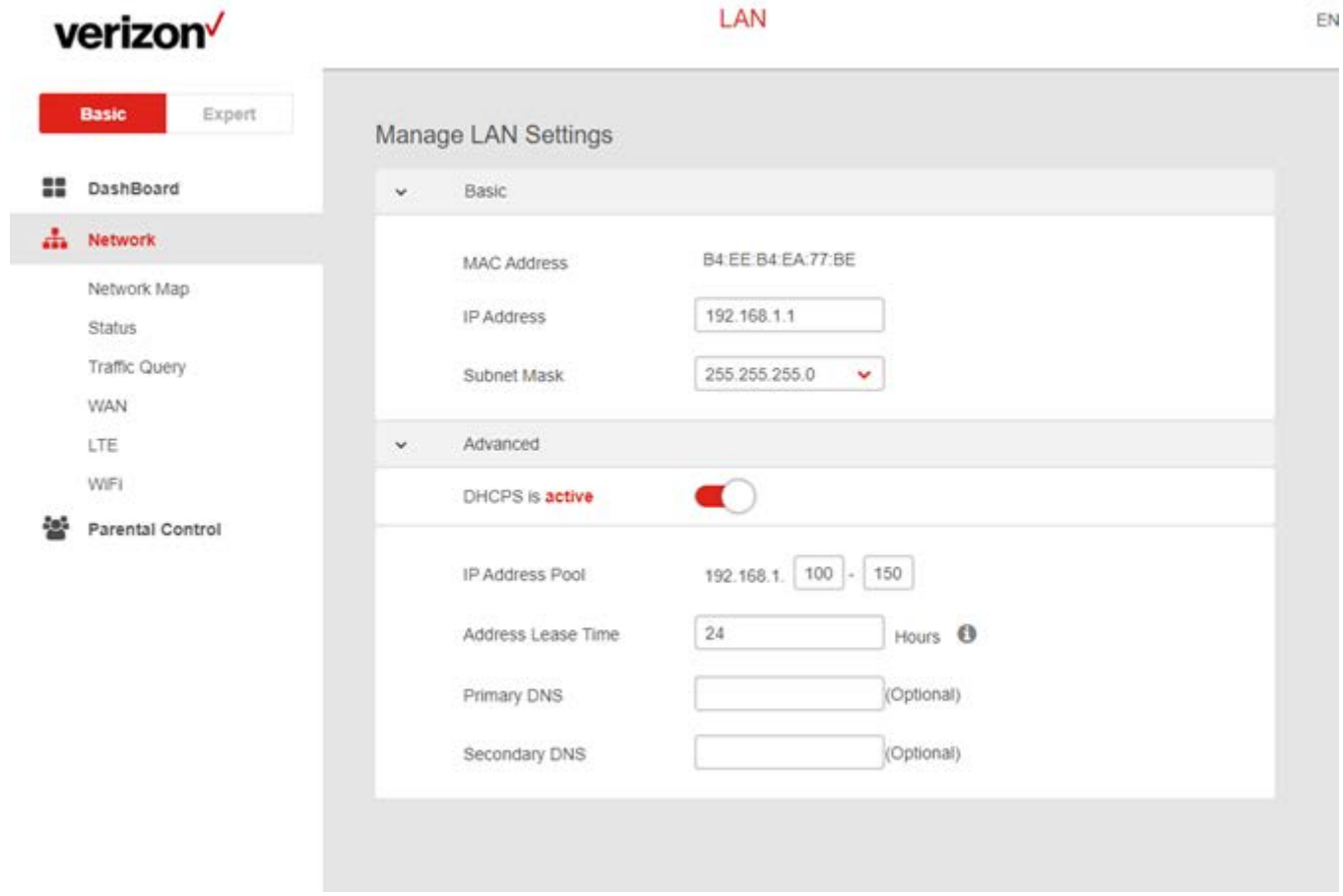
LAN

Displays the gateway's Local Area Network (LAN) IP Address and Subnet Mask. Click LAN Settings to modify the settings.

| | |
|------------------------------------------------------------------------------------------------------|----------------------|
| LAN | |
| IP address: | 192.168.1.1 |
| Subnet mask: | 255.255.255.0 |
|  LAN SETTINGS | |
| CANCEL | |

LAN > LAN Settings

This page allows you to configure your gateway on your Local Area Network (LAN). You can specify a static IP address for your gateway, and configure your gateway as a DHCP server to assign IP addresses to other devices on your LAN.



verizon LAN EN

Basic Expert

Dashboard Network

Network Map
Status
Traffic Query
WAN
LTE
WiFi
Parental Control

Manage LAN Settings

Basic

MAC Address B4 EE B4 EA 77 BE

IP Address 192.168.1.1

Subnet Mask 255.255.255.0

Advanced

DHCP is active

IP Address Pool 192.168.1.100 - 150

Address Lease Time 24 Hours

Primary DNS (Optional)

Secondary DNS (Optional)

Basic

MAC Address

Displays the MAC address of your gateway. A MAC Address is a unique fixed identifier for any device on a network.

| | |
|-------------|------------------------------------------------------------------------------------------------------------------------|
| IP Address | Specify the IP address here. This IP address will be assigned to your gateway and will replace the default IP address. |
| Subnet Mask | Specify a subnet mask. The default value is 255.255.255.0 |

Advanced

| | |
|-------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| DHCP is active/inactive | Toggle the switch to enable or disable DHCP server. |
| IP Address Pool | Enter the start and end IP address of the IP address range which your gateway's DHCP server will assign to devices on the network. |
| Address Lease Time | Enter an address lease time in hours. IP addresses will be assigned for this period of time before being reassigned. |
| Primary DNS Address | Enter a primary DNS address. |
| Secondary DNS Address | Enter a secondary DNS address. |

WiFi

Displays your gateway's 2.4GHz & 5GHz network name (SSID) with switches to quickly enable or disable either WiFi network. Click WiFi Settings to go to Network > WiFi Settings.



Connected Devices

Displays all devices (clients) connected to your gateway, by Ethernet (LAN) or WiFi (wireless) e.g. laptops, smartphones. The device name, MAC address and IP address is listed for each device.



The screenshot shows a 'Client List' interface. At the top, there are two tabs: 'LAN' and 'WIRELESS'. The 'WIRELESS' tab is selected and highlighted with a red underline. Below the tabs, a single client entry is displayed in a white box. The client name is 'KD'. To the left of the name is a wireless signal icon. To the right of the name, the MAC Address is listed as '80:1f:02:9c:8f:ff' and the IP Address is '192.168.1.121'. Below the IP address, the IPv6 Address is listed as '2001:b400:e275:8f6:148e:3e38:3d29:54c9'.

| Client Name | MAC Address | IP Address | IPv6 Address |
|-------------|-------------------|---------------|----------------------------------------|
| KD | 80:1f:02:9c:8f:ff | 192.168.1.121 | 2001:b400:e275:8f6:148e:3e38:3d29:54c9 |

Status

Basic > Network > Status

Network Status displays the status of the network across six categories: Internet v4, Internet v6, LTE, LAN, Wireless & System Information.

Information is listed in Network Status for reference as described below:

Internet v4

Displays IPv4 Wide Area Network WAN information about your gateway's LTE connection. IPv4 is the default Internet protocol widely used across the Internet.

Internet v6

Displays IPv6 Wide Area Network WAN information about your gateway's LTE connection. IPv6 is an alternative Internet protocol which is not yet widely supported. To setup IPv6 go to **Basic > Network > LTE**. Contact your ISP for more information about using IPv6.

LTE

Displays LTE information including signal strength. To edit LTE settings go to **Basic > Network > LTE**.

LAN

Displays the gateway's Local Area Network (LAN) information including MAC Address, IP Address and Subnet Mask, and DHCP Server status. To edit LAN settings go to **Expert > Network > LAN**.

Wireless 2.4GHz & 5GHz

Displays your gateway's WiFi information for both 2.4GHz & 5GHz frequencies. Includes network name (SSID) and radio & channel information. To edit these WiFi settings go to **Expert > Network > WiFi Settings**.

System Information

Displays system identifiers unique to your hardware.

Information

| | |
|-----------------|--------------------|
| ▼ | Internet (v4) |
| IP Address | 10.19.151.194 |
| Subnet Mask | 255.255.255.252 |
| Default Gateway | 10.19.151.193 |
| Primary DNS | 168.95.1.1 |
| Secondary DNS | 168.95.192.1 |
| Connection Type | LTE - Connected |
| ▲ | Internet (v6) |
| ▲ | LTE |
| ▲ | LAN |
| ▲ | Wireless 2.4G |
| ▲ | Wireless 5G |
| ▲ | System Information |

Traffic Query

Basic > Network > Network Map

Traffic Query displays your network data usage, with upload, download and total traffic displayed in MB. Ensure that your gateway's date and time settings are correct in **Expert > Device Settings > Date & Time** for accurate Monthly usage information.

| Manage Traffic Settings | |
|-------------------------|------------------|
| ▼ | Monthly usage |
| Upload | 5.03MB |
| Download | 105.06MB |
| Total Traffic | 110.09MB |
| ▼ | Currently usage |
| Query Range | 2020-02-01 12:16 |
| Upload | 5.03MB |
| Download | 105.06MB |
| Total Traffic | 110.09MB |

WAN

Basic > Network > WAN

The Internet Connection screen allows you to configure the settings of various WAN connection types.

1. From the navigation panel, go to **Basic Settings > Network > WAN**.
2. Configure the following settings below. When done, click **Save**.

The screenshot shows the 'Manage WAN Settings' interface. It is organized into three main sections, each with a dropdown arrow on the left:

- WAN Type:** Contains a 'Connection Type' dropdown menu currently set to 'Dynamic IP'.
- Dynamic IP Information:** Contains input fields for 'IP Address', 'Subnet Mask', 'Default Gateway', 'Primary DNS', and 'Secondary DNS'.
- Dynamic IP Advanced Setup:** Contains a 'DNS Address' section with two radio buttons: 'Get dynamically from ISP' (which is selected) and 'Use the Following DNS Addresses'. Below this are input fields for 'Primary DNS' and 'Secondary DNS'.

WAN Connection Type: Choose your Internet Service Provider type: Dynamic IP or Static IP – and enter the appropriate IP Address, Subnet Mask and Default Gateway if using Static IP.. Consult your ISP if the router is unable to obtain a valid IP address or if you are unsure the WAN connection type.

Manage WAN Settings

▼ WAN Type

Connection Type

▼ Static Setup

IP Address ⓘ ⓘ

Subnet Mask ⓘ ⓘ

Default Gateway ⓘ ⓘ

Primary DNS ⓘ

Secondary DNS ⓘ

Connect to DNS Server: Allows this router to get the DNS IP address from the ISP automatically. A DNS is a host on the Internet that translates Internet names to numeric IP addresses.

▼ Dynamic IP Advanced Setup

DNS Address Get dynamically from ISP
 Use the Following DNS Addresses

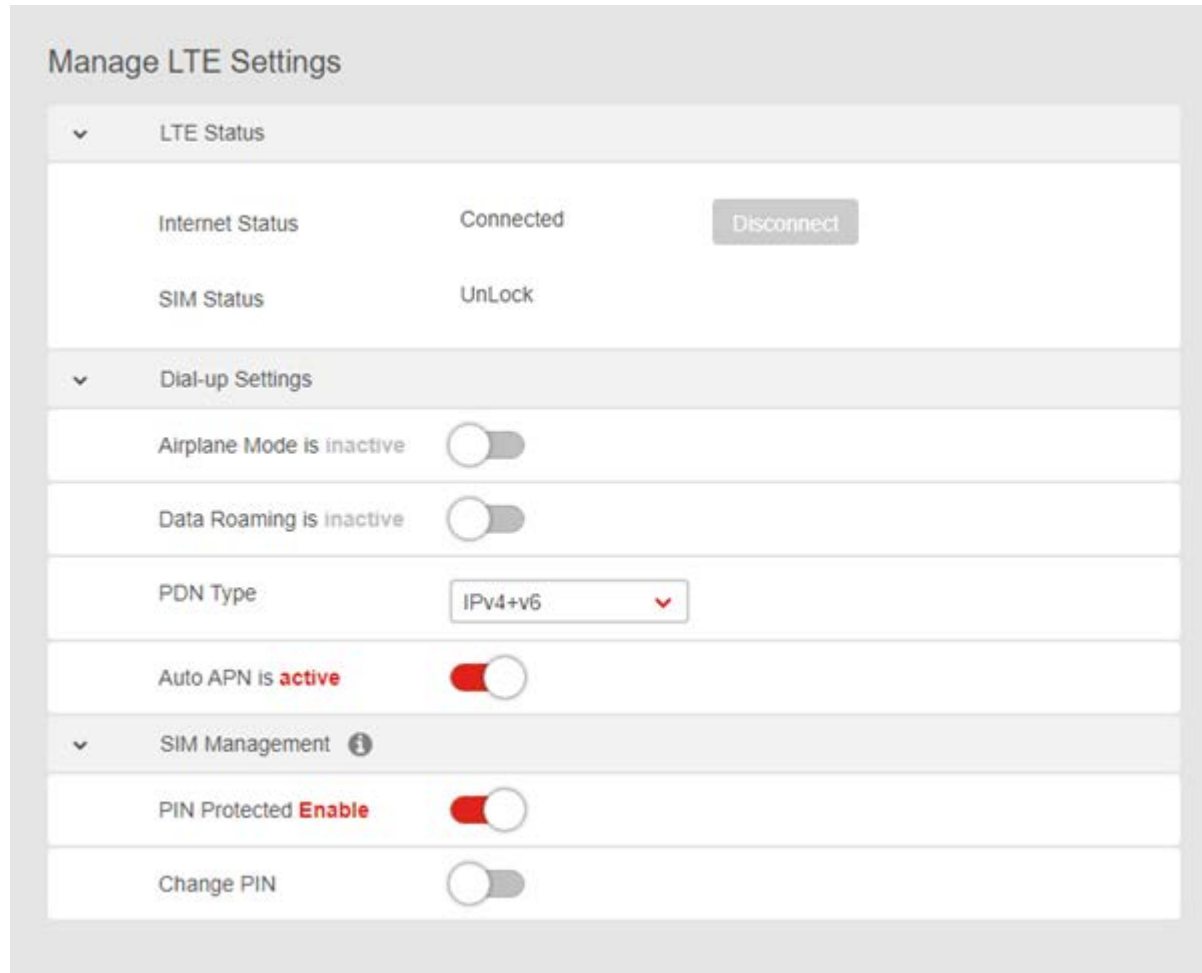
Primary DNS ⓘ

Secondary DNS ⓘ

LTE

Basic > Network > LTE

LTE settings are pre-configured by default. You can disconnect the LTE connection using the Disconnect button if needed, and the connection and SIM status are displayed accordingly.



Data Roaming, APN, PDN and SIM Management PIN settings can be altered using the switch buttons and drop-down menu. These settings are recommended only for expert users.

WiFi

Basic > Network > WiFi

The **WiFi** screen displays the basic settings for your gateway's WiFi. Your gateway is dual-band and uses two Wi-Fi frequencies (2.4GHz & 5GHz) for better wireless performance on your devices. You can edit basic settings for 2.4GHz or 5GHz frequency bands by selecting the respective tab.

The screenshot shows the 'Manage Wireless Settings' interface. At the top, there are two tabs: '2.4 GHz' (selected) and '5 GHz'. Below the tabs, there is a section for '2.4 GHz WiFi Settings'. This section includes a toggle for '2.4 GHz WiFi is active' (turned on), a toggle for 'Guest WiFi is active' (turned on) with the name 'WIFI-2.4GHz-GST', a text field for 'Wireless Name(SSID)' containing 'WIFI-2.4GHz', a checkbox for 'Hide SSID', a text field for 'Wireless Password' with masked characters, a checkbox for 'Show Password', radio buttons for 'Version' (selected 'WPA2'), and radio buttons for 'Encryption' (selected 'AES'). Below this is a section for '2.4 GHz WiFi Channel Settings' with dropdown menus for 'Mode' (802.11g/n mixed), 'Channel' (Auto), and 'Channel Bandwidth' (Auto).

2.4 / 5 GHz WiFi Settings

| | |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| WiFi is active/inactive | Enable or disable this WiFi frequency. |
| Wireless Name (SSID) | This is the name of your Wi-Fi network for identification, also sometimes referred to as "SSID". The SSID can consist of any combination of up to 32 alphanumeric characters. |
| Hide SSID | Check the box to hide your SSID. When hidden, the SSID will not be visible as an available Wi-Fi network to clients – clients must manually enter the SSID in order to connect. A hidden SSID is typically more secure than a visible SSID. |
| Wireless Password | Enter your WiFi password. A complex, hard-to-guess key is recommended. |

5.3 Parental Control

Basic > Parental Control

The **Parental Control** feature allows you to restrict Internet access to selected devices on your network at specified times e.g. disabling Internet access for a child's smartphone.



Basic Expert

Dashboard

Network

Parental Control

Manage Parental Control

SETTINGS

Parental Control is **active**

LIST

+
ADD NEW

🗑️
DELETE ALL

🚫 DemoDevice
MAC Address: 80:1f:02:9c:8f:ff
Description: Demo

🗑️ ✎️ ⌚
REMOVE EDIT SCHEDULE

1. Set the slider to active to enable parental control.
2. Click **ADD NEW** to add and setup a new device for parental controls.
3. Select a device from the Client menu or enter the MAC address manually.
4. Specify a Device Name and Description for the device easy reference.
5. Check the **ENABLE THIS ENTRY** box and click apply to save the device.

← Add New

Enable This Entry

Client

Manually

MAC Address

80:1f:02:9c:8f:ff

Device Name

DemoDevice

Description

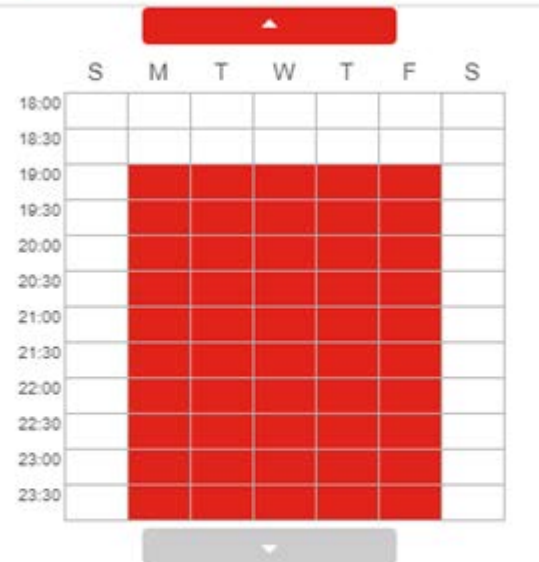
Demo

APPLY CANCEL

6. Click the **SCHEDULE** icon beside the new device to setup the schedule for Internet access:
7. Click and drag to fill in the red blocks on the schedule by day and hour. The red blocks indicate the time blocks during which Internet access is not allowed.
8. Click **SAVE SCHEDULE** to save the schedule and the device's Internet access will now be restricted according to the schedule.



Schedule



i If the grid is red, the device is blocked from using the internet.



SAVE



CLEAR ALL



ENABLE ALL








6. Expert Settings

Your gateway's Web User Interface (Web UI) allows you to easily setup its Basic & Expert features.

Menu

Select the **Expert** tab in the menu:



-  **DashBoard**
-  Network
-  Device Settings
-  Parental Control
-  Diagnostic
-  Security
-  NAT Forwarding

Save

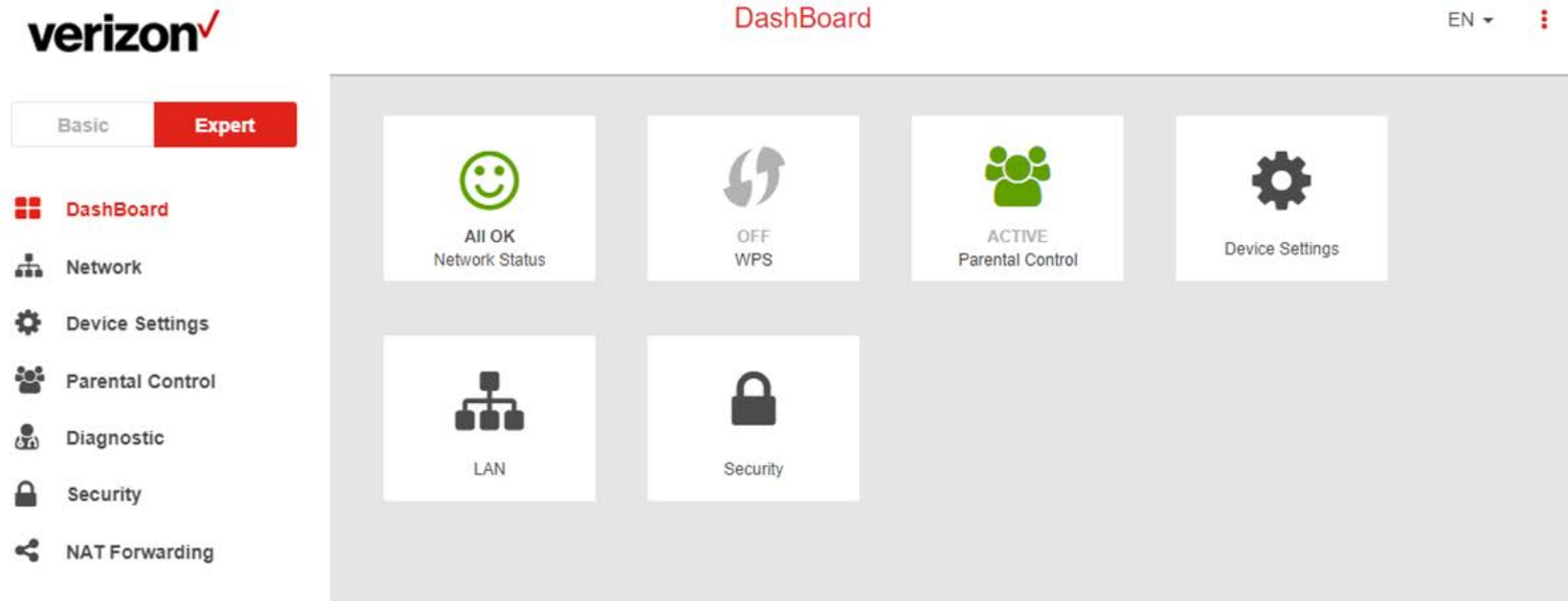
Remember to save your settings with the save button after making changes. The icon takes you back to the Dashboard.



6.1 Dashboard

Expert > Dashboard

The Dashboard shows a snapshot of your network status with quick links to key features of your gateway.



Select any icon on the dashboard: **Network Status, Parental Control, Device Settings, LAN, & Security** to access more information and settings.

Network Status takes you to Expert > Network > Status

WPS allows you to switch on WPS. Refer to Expert > Network > WiFi > WPS

Parental Control takes you to Expert > Network > Parental Control

Device Settings takes you to Expert > Network > Device Settings > Administration

LAN takes you to Expert > Network > LAN

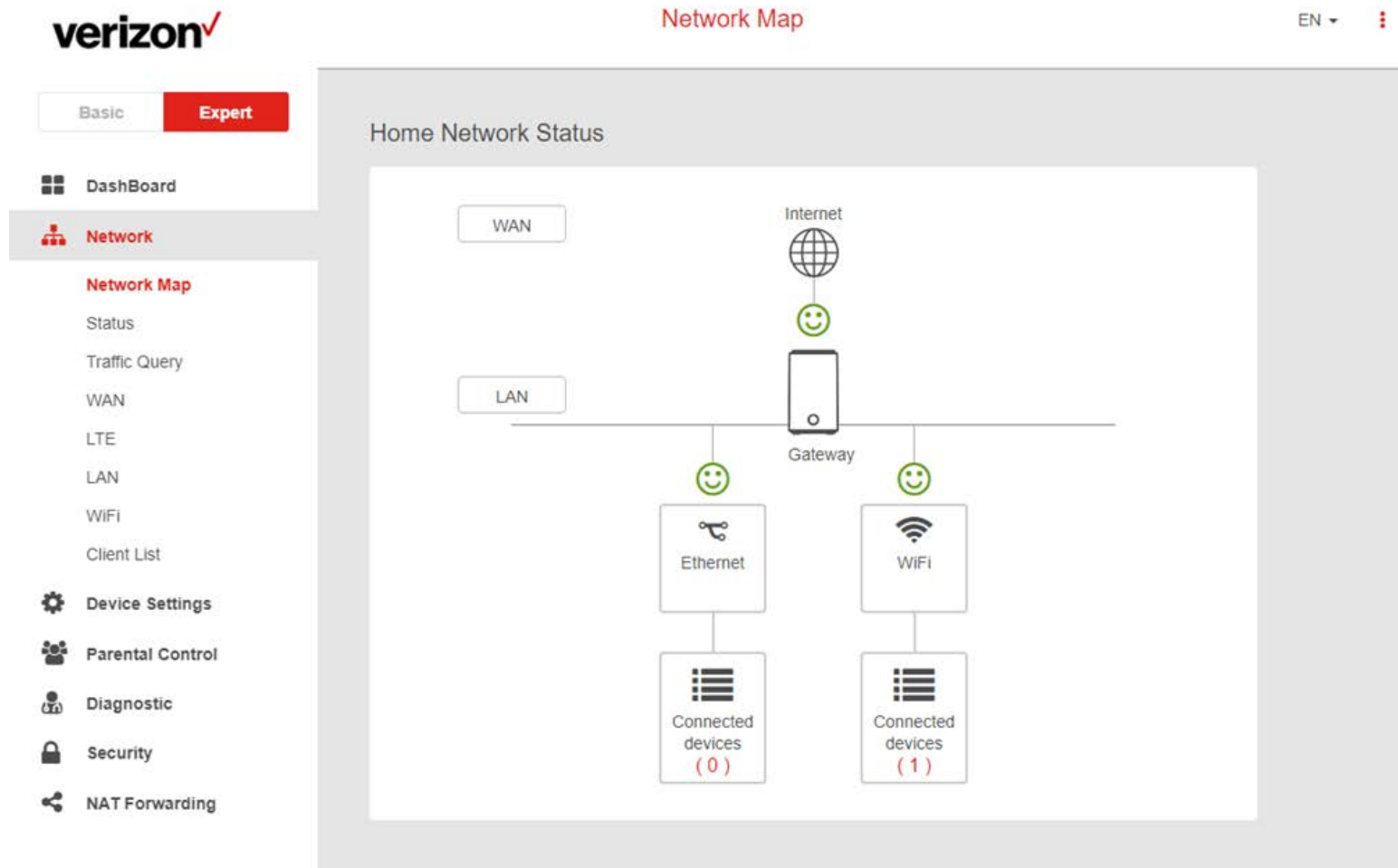
Security takes you to Expert > Security > Firewall

Network Status should display **All OK** to indicate a functioning LTE network. If you don't see this, check the gateway's LEDs and refer to Troubleshooting to diagnose the problem.

6.2 Network

Expert > Network

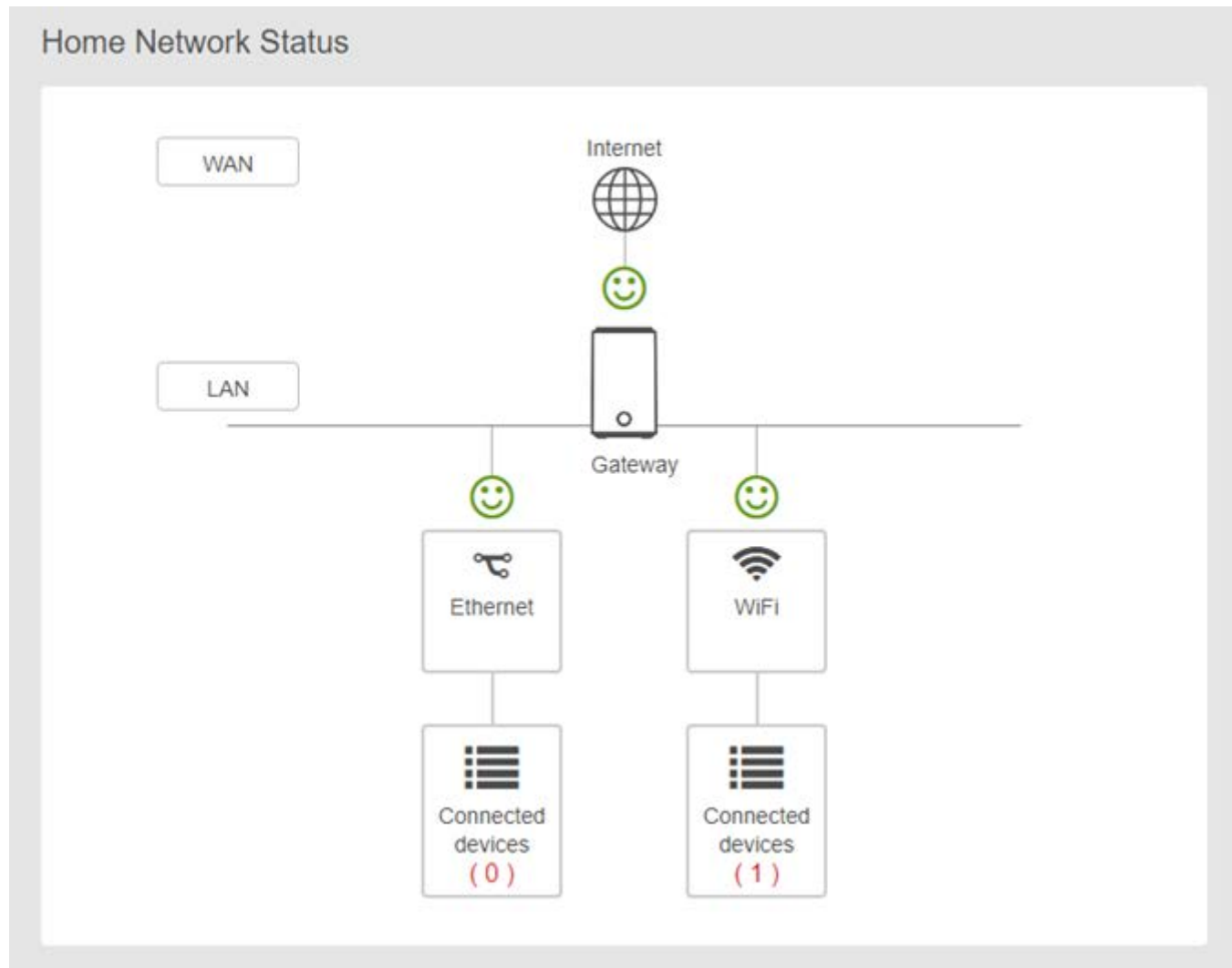
The Network menu provides quick links to the basic networking functions of your gateway. When you select the Network menu, the Network Map page is displayed as below.



Network Map

Expert > Network > Network Map


The network map provides a visual overview and status information of the network and devices on the network, with quick links to wireless security settings and client lists. It's important to check and configure security settings.



Select icons on the dashboard for more information and settings, as displayed below:


WAN

Displays the gateway's Wide Area Network (WAN) IP Address and Connection Type (LTE).

| | |
|-----------------------------------------------------------------------------------------------------|----------------------|
| WAN | |
| IP address: | 10.130.23.116 |
| Connection type: | LTE |
|  WAN SETTINGS | |
| CANCEL | |

LAN

Displays the gateway's Local Area Network (LAN) IP Address and Subnet Mask. Click LAN Settings to modify the settings.

| | |
|------------------------------------------------------------------------------------------------------|----------------------|
| LAN | |
| IP address: | 192.168.1.1 |
| Subnet mask: | 255.255.255.0 |
|  LAN SETTINGS | |
| CANCEL | |

LAN > LAN Settings

This page allows you to configure your gateway on your Local Area Network (LAN). You can specify a static IP address for your gateway and configure your gateway as a DHCP server to assign IP addresses to other devices on your LAN.

Manage LAN Settings

Basic

MAC Address B4:EE:B4:EA:77:BE

IP Address 192.168.1.1

Subnet Mask 255.255.255.0

Advanced

DHCP is active

IP Address Pool 192.168.1.100 - 150

Address Lease Time 24 Hours ⓘ

Primary DNS (Optional)

Secondary DNS (Optional)

Basic

MAC Address

Displays the MAC address of your gateway. A MAC Address is a unique fixed identifier for any device on a network.

IP Address

Specify the IP address here. This IP address will be assigned to your gateway and will replace the default IP address.

Subnet Mask

Specify a subnet mask. The default value is 255.255.255.0

Advanced

DHCP is active/inactive
IP Address Pool

Toggle the switch to enable or disable DHCP server.
Enter the start and end IP address of the IP address range which your gateway's DHCP server will assign to devices on the network.

Address Lease Time

Enter an address lease time in hours. IP addresses will be assigned for this period of time before being reassigned.

Primary DNS Address
Secondary DNS
Address

Enter a primary DNS address.
Enter a secondary DNS address.

WiFi

Displays your gateway's 2.4GHz & 5GHz network name (SSID) with switches to quickly enable or disable either WiFi network. Click WiFi Settings to go to Network > WiFi Settings.



Connected Devices

Displays all devices (clients) connected to your gateway, by Ethernet (LAN) or WiFi (wireless) e.g. laptops, smartphones. The device name, MAC address and IP address is listed for each device.



Status

Expert > Network > Status

Network Status displays the status of the network across six categories: Internet v4, Internet v6, LTE, LAN, Wireless & System Information.

Information is listed in Network Status for reference as described below:

Internet v4

Displays IPv4 Wide Area Network WAN information about your gateway's LTE connection. IPv4 is the default Internet protocol widely used across the Internet.

Internet v6

Displays IPv6 Wide Area Network WAN information about your gateway's LTE connection. IPv6 is an alternative Internet protocol which is not yet widely supported. To setup IPv6 go to **Expert > Network > LTE**. Contact your ISP for more information about using IPv6.

LTE

Displays LTE information including signal strength. To edit LTE settings go to **Expert > Network > LTE**.

LAN

Displays the gateway's Local Area Network (LAN) information including MAC Address, IP Address and Subnet Mask, and DHCP Server status. To edit LAN settings go to **Expert > Network > LAN**.

Wireless 2.4GHz & 5GHz

Displays your gateway's WiFi information for both 2.4GHz & 5GHz frequencies. Includes network name (SSID) and radio & channel information. To edit these WiFi settings go to **Expert > Network > WiFi Settings**.

System Information

Displays system identifiers unique to your hardware.

Information

| | |
|-----------------|--------------------|
| ▼ | Internet (v4) |
| IP Address | 10.19.151.194 |
| Subnet Mask | 255.255.255.252 |
| Default Gateway | 10.19.151.193 |
| Primary DNS | 168.95.1.1 |
| Secondary DNS | 168.95.192.1 |
| Connection Type | LTE - Connected |
| ▲ | Internet (v6) |
| ▲ | LTE |
| ▲ | LAN |
| ▲ | Wireless 2.4G |
| ▲ | Wireless 5G |
| ▲ | System Information |

Traffic Query

Expert > Network > Network Map

Traffic Query displays your network data usage, with upload, download and total traffic displayed in MB. Ensure that your gateway's date and time settings are correct in **Expert > Device Settings > Date & Time** for accurate Monthly usage information.

| Manage Traffic Settings | |
|-------------------------|------------------|
| ▼ | Monthly usage |
| Upload | 5.03MB |
| Download | 105.06MB |
| Total Traffic | 110.09MB |
| ▼ | Currently usage |
| Query Range | 2020-02-01 12:16 |
| Upload | 5.03MB |
| Download | 105.06MB |
| Total Traffic | 110.09MB |

WAN

Expert > Network > WAN

The Internet Connection screen allows you to configure the settings of various WAN connection types.

1. From the navigation panel, go to **Basic Settings > Network > WAN**.
2. Configure the following settings below. When done, click **Save**.

The screenshot shows the 'Manage WAN Settings' interface. It is organized into three main sections, each with a dropdown arrow on the left:

- WAN Type:** Contains a 'Connection Type' dropdown menu currently set to 'Dynamic IP'.
- Dynamic IP Information:** Contains input fields for 'IP Address', 'Subnet Mask', 'Default Gateway', 'Primary DNS', and 'Secondary DNS'.
- Dynamic IP Advanced Setup:** Contains a 'DNS Address' section with two radio button options: 'Get dynamically from ISP' (which is selected) and 'Use the Following DNS Addresses'. Below this are input fields for 'Primary DNS' and 'Secondary DNS'.

WAN Connection Type: Choose your Internet Service Provider type: Dynamic IP or Static IP – and enter the appropriate IP Address, Subnet Mask and Default Gateway if using Static IP.. Consult your ISP if the router is unable to obtain a valid IP address or if you are unsure the WAN connection type.

Manage WAN Settings

▼ WAN Type

Connection Type

▼ Static Setup

IP Address ⓘ ⓘ

Subnet Mask ⓘ ⓘ

Default Gateway ⓘ ⓘ

Primary DNS ⓘ

Secondary DNS ⓘ

Connect to DNS Server: Allows this router to get the DNS IP address from the ISP automatically. A DNS is a host on the Internet that translates Internet names to numeric IP addresses.

▼ Dynamic IP Advanced Setup

DNS Address Get dynamically from ISP
 Use the Following DNS Addresses

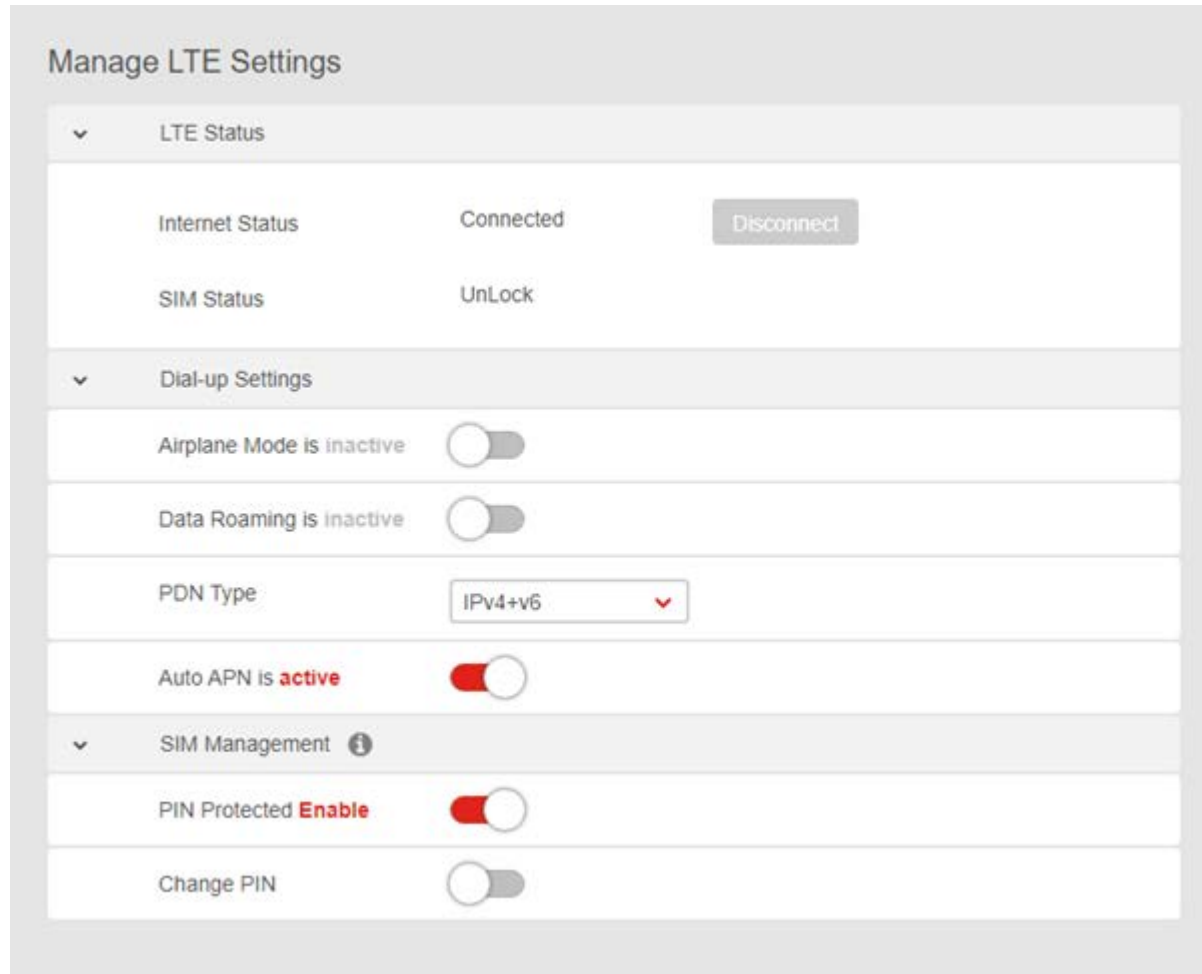
Primary DNS ⓘ

Secondary DNS ⓘ

LTE

Expert > Network > LTE

LTE settings are pre-configured by default. You can disconnect the LTE connection using the Disconnect button if needed, and the connection and SIM status are displayed accordingly.



Data Roaming, APN, PDN and SIM Management PIN settings can be altered using the switch buttons and drop-down menu. You can also setup, enter or change a PIN to use the LTE data connection.

LAN

Expert > Network > LAN

The **LAN** page allows you to configure your gateway on your Local Area Network (LAN). You can specify a static IP address for your gateway, and configure your gateway as a DHCP server to assign IP addresses to other devices on your LAN.

The screenshot shows the Verizon LAN configuration interface. At the top, the Verizon logo is on the left, and 'LAN' is centered. On the right, there are language and menu icons. Below the logo, there are two tabs: 'Basic' and 'Expert', with 'Expert' selected. A sidebar on the left contains navigation options: Dashboard, Network (selected), Network Map, Status, Traffic Query, WAN, LTE, LAN, WiFi, Client List, Device Settings, Parental Control, Diagnostic, Security, and NAT Forwarding. The main content area is titled 'Manage LAN Settings' and is divided into two sections: 'Basic' and 'Advanced'. The 'Basic' section shows the MAC Address as B4:EE:B4:EA:77:BE, the IP Address as 192.168.1.1, and the Subnet Mask as 255.255.255.0. The 'Advanced' section shows 'DHCP is active' with a red toggle switch, and fields for IP Address Pool (192.168.1.100 - 150), Address Lease Time (24 Hours), Primary DNS, and Secondary DNS.

Basic

MAC Address

Displays the MAC address of your gateway. A MAC address is a unique fixed identifier for every device on a

| | |
|-------------|------------------------------------------------------------------------------------------------------------------------------------|
| IP Address | network. Specify the IP address here. This IP address will be assigned to your gateway and will replace the default IP address. |
| Subnet Mask | Specify a subnet mask. The default value is 255.255.255.0 |

| | |
|-------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| Advanced | |
| DHCP is active/inactive | Toggle the switch to enable or disable DHCP server. |
| IP Address Pool | Enter the start and end IP address of the IP address range which your gateway's DHCP server will assign to devices on the network. |
| Address Lease Time | Enter an address lease time in hours. IP addresses will be assigned for this period of time before being reassigned. |
| Primary DNS Address | Enter a primary DNS address. |
| Secondary DNS Address | Enter a secondary DNS address. |

WiFi

Expert > Network > WiFi

The **WiFi** screen displays advanced settings for your gateway's WiFi as well as WPS settings. Your gateway is dual-band and uses two Wi-Fi frequencies (2.4GHz & 5GHz) for better wireless performance on your devices. You can edit advanced settings for 2.4GHz or 5GHz frequency bands by selecting the respective tab.

The screenshot shows the 'Manage Wireless Settings' interface for the 2.4 GHz band. At the top, there are two tabs: '2.4 GHz' (selected) and '5 GHz'. Below the tabs, there are two expandable sections. The first section, '2.4 GHz WiFi Settings', contains: a toggle for '2.4 GHz WiFi is active' (turned on), a toggle for 'Guest WiFi is active' (turned on) with the label 'WIFI-2.4GHz-GST', a 'Wireless Name(SSID)' field with 'WIFI-2.4GHz' and a 'Hide SSID' checkbox, a 'Wireless Password' field with masked characters and a 'Show Password' checkbox, a 'Version' section with radio buttons for 'Mixed WPA/WPA2' and 'WPA2' (selected), and an 'Encryption' section with a radio button for 'AES' (selected). The second section, '2.4 GHz WiFi Channel Settings', contains: a 'Mode' dropdown menu set to '802.11g/n mixed', a 'Channel' dropdown menu set to 'Auto', and a 'Channel Bandwidth' dropdown menu set to 'Auto'.

2.4 / 5 GHz WiFi Settings

WiFi is active/inactive
Wireless Name (SSID)

Enable or disable this WiFi frequency.
This is the name of your Wi-Fi network for identification, also sometimes referred to as "SSID". The SSID can

| | |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Hide SSID | <p>consist of any combination of up to 32 alphanumerical characters.</p> <p>Check the box to hide your SSID. When hidden, the SSID will not be visible as an available Wi-Fi network to clients – clients must manually enter the SSID in order to connect. A hidden SSID is typically more secure than a visible SSID.</p> |
| Wireless Password | <p>Enter your WiFi password. A complex, hard-to-guess key is recommended.</p> |
| Security | <p>Select a WiFi security type from the drop-down menu. WPA/WPA2 is the default setting and the most secure. Security can be disabled by selecting None but this is not recommended.</p> |
| Version | <p>Select which version of security type to use. WPA2 is the most secure but not supported by all wireless clients. Selecting Mixed WPA/WPA2 ensures wireless client compatibility.</p> |
| Encryption | <p>Displays encryption type according to version. AES encryption is the default setting for WPA2, while Mixed TKIP+AES is default for Mixed WPA/WPA2.</p> |

2.4 / 5 GHz Channel Settings

| | |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Mode | <p>Select the wireless standard used for the gateway's WiFi. 802.11b/g mixed means 802.11b and 802.11g wireless clients can connect to the gateway, 802.11g/n mixed means 802.11g and 802.11n wireless clients can connect to the gateway.</p> |
| Channel | <p>Select a wireless radio channel or use the default "Auto" setting from the drop-down menu. Changing radio channel can improve WiFi signal depending on how crowded the channel is with other radio signals and interference.</p> |
| Channel Bandwidth | <p>Set the channel bandwidth: 20MHz (lower performance</p> |

but less interference), 40MHz (better performance but likely more interference), or Auto (automatically select based on interference level).

WPS

Displays the gateway's WPS Settings.
(How can it be Enrollee?)

The screenshot displays the 'Manage Wireless Settings' interface. At the top, there are three tabs: '2.4 GHZ', '5 GHZ', and 'WPS', with 'WPS' being the active tab. Below the tabs is a 'Settings' section with a dropdown arrow. The main content area shows 'WPS is active' with a red toggle switch. In the center, there is a large grey circle labeled 'PBC'. Below this, the 'PIN Mode' is set to 'Registrar' with a selected radio button, and 'Enrollee' is unselected. At the bottom, there is a 'Current PIN' field and a 'Generate' button.

Client List

Expert > Network > Client List

Displays all devices (clients) connected to your gateway, by Ethernet (LAN) or WiFi (wireless) e.g. laptops, smartphones. The device name, MAC address and IP address is listed for each device.



6.3 Device Settings

Expert > Device Settings

Various administrative functions of your gateway can be configured from the **Device Settings** menu, including the Web UI login password, gateway date & time settings, backup, gateway firmware and system logs.

The screenshot shows the Verizon gateway Administration interface. At the top left is the Verizon logo. The page title is "Administration" in red. In the top right corner, there is a language dropdown set to "EN" and a menu icon. On the left side, there is a navigation menu with two tabs: "Basic" and "Expert" (which is selected). Below the tabs are several menu items: "DashBoard", "Network", "Device Settings" (highlighted in red), "Administration" (sub-menu), "Date & Time", "Backup / Restore", "Firmware", "System Log", "Parental Control", "Diagnostic", "Security", and "NAT Forwarding". The main content area is titled "Manage Administration Settings" and contains a "Settings" dropdown menu. Underneath, there are three input fields: "Current password", "New password" (with a placeholder "4 to 30 characters"), and "Confirm new password". To the right of the "Current password" field is a checkbox labeled "Show Password".

Administration

Expert > Device Settings > Administration

The **administration** function allows you to change the login password for the gateway's Web UI. It's essential to change this password for the security of your gateway. Use hard-to-guess password which include combinations of numbers, letters and symbols, and change your password regularly.

Manage Administration Settings

Settings

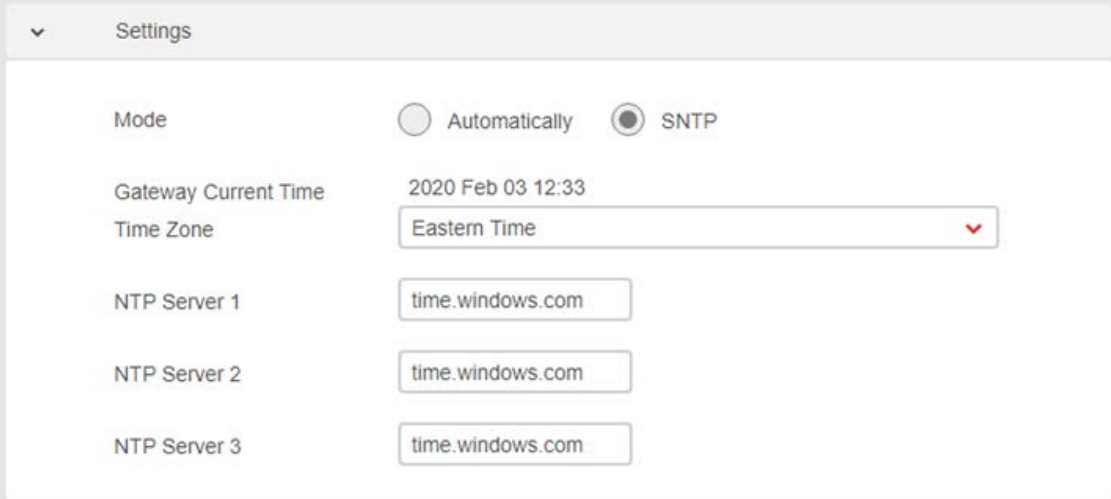
| | | |
|----------------------|------------------------------------------|---------------------------------------------------|
| Current password | <input type="text" value="abcd"/> | <input checked="" type="checkbox"/> Show Password |
| New password | <input type="text" value="newpassword"/> | |
| Confirm new password | <input type="text" value="newpassword"/> | |

1. Enter the current password for authentication.
2. Enter your name password in the New Password field and again to confirm, and choose **Save** to save the new settings.

Date & Time

Expert > Device Settings > Date & Time

Set the **date and time** for your gateway. You can use a Simple Network Time Protocol (SNTP) which synchronizes the date and time with public time servers, or the gateway can get the date and time automatically based on your selected time zone.



Manage Date & Time Settings

Settings

Mode Automatically SNTP

Gateway Current Time 2020 Feb 03 12:33

Time Zone Eastern Time

NTP Server 1 time.windows.com

NTP Server 2 time.windows.com

NTP Server 3 time.windows.com

1. Select SNTP from the Version options.
2. Select your time zone from the drop-down menu.
3. If you want to use SNTP to synchronize date and time with public time servers, enter the NTP Servers and Save settings.
4. Set the Version back to Automatic to use the selected time zone automatically, and Save the settings.

Examples of commonly used NTP Servers include time.microsoft.com or time.google.com.

Backup / Restore

Expert > Device Settings > Backup & Restore

The Backup & Restore page enables you to save/backup the gateway's current settings as a file to your local computer, or restore your gateway to previously saved settings by loading a backed up file. You can also reset the gateway back to factory default settings. If the gateway malfunctions or is not responding, then it is recommended that you first reboot the device, and if still experiencing problems reset the device back to its factory default settings. You can reset the gateway back to its default settings using the Reset button on the back of the gateway (press and hold for 2+ seconds).

Manage Backup / Restore Settings

Backup

Save a copy of your current settings.

Restore

Restore saved settings from a file

No file selected

Factory Default Restore

Revert all the settings to their default values.

Backup

Save a copy of your current settings

Click the Backup button to save the settings file to your local computer.

Restore

Restore saved settings from a file

Choose Select File to locate a previously saved settings file on your computer and select it to load the

Factory Default Restore
Revert all the settings to
their default values.

file to your gateway.

Select Factory Restore to revert your gateway to its
original factory default state. This resets all settings.

Firmware

Expert > Device Settings > Firmware

The **Firmware** page displays your gateway's firmware version and hardware version information. You can enter a server path to manually check for a new version or upload a firmware file from your local drive. Contact your ISP or check their website for correct Server Path or to download files manually.

You can also schedule automatic updates according to set time periods by clicking the Automatic Updates switch to Active.

Manage Firmware Settings

Manually

Firmware version installed: **200221**

Server Path

Update from file

No file selected

Automatic Updates

Automatic Updates is inactive

Mode

Time Mode

- Daily
- Weekly
- Monthly

System Log

Expert > Device Settings > System Log

System Log is useful information for network administrators or for potentially troubleshooting gateway/network issues. The page displays a detailed information log of network activities under different categories. You can select a category using the drop-down menu or view all categories, as well as clear log entries using the **DELETE ALL** icon.

Manage System Log Settings

SETTINGS

Connection Type: All

DELETE ALL

| |
|----------------------------------------------|
| SYSTEM |
| Date: 2020-01-07 Time: 00:22:24 |
| Description: HAL ready to launch!!! |
| SYSTEM |
| Date: 2020-01-07 Time: 00:22:24 |
| Description: System ready to launch!!! |
| FIREWALL |
| Date: 2020-01-07 Time: 00:22:25 |
| Description: Update Access Control Rules. |
| SYSTEM |
| Date: 2020-01-07 Time: 00:22:25 |
| Description: Restart DHCP Server. |
| SYSTEM |
| Date: 2020-01-07 Time: 00:22:25 |
| Description: Restart WIFI Guest DHCP Server. |

6.4 Parental Control

Expert > Parental Control

The **Parental Control** feature allows you to restrict Internet access to selected devices on your network at specified times e.g. disabling Internet access for a child's smartphone.

The screenshot shows the Verizon Parental Control interface. At the top left is the Verizon logo. The page title is "Parental Control" in red. In the top right corner, there is a language dropdown set to "EN" and a menu icon. On the left side, there is a navigation menu with "Basic" and "Expert" tabs, and "Expert" is selected. The menu items are: Dashboard, Network, Device Settings, Parental Control (highlighted in red), Diagnostic, Security, and NAT Forwarding. The main content area is titled "Manage Parental Control" and has two sections: "SETTINGS" and "LIST". In the "SETTINGS" section, there is a toggle switch for "Parental Control is active" which is currently turned on. In the "LIST" section, there are two buttons: "ADD NEW" and "DELETE ALL". Below these buttons is a table with one entry: "DemoDevice" with a checked "ENABLE THIS ENTRY" box, "MAC Address: 80:1f:02:9c:8f:ff", and "Description: Demo". To the right of the entry are three icons: "REMOVE", "EDIT", and "SCHEDULE".

1. Set the slider to active to enable parental control.
2. Click **ADD NEW** to add and setup a new device for parental controls.
3. Select a device from the Client menu or enter the MAC address manually.
4. Specify a Device Name and enter a Description of the device for easy reference.
5. Check the **ENABLE THIS ENTRY** box and click apply to save the device.
6. Click the **SCHEDULE** icon beside the new device to setup the schedule for Internet access:

← Add New

Enable This Entry

Client

Manually

MAC Address

80:1f:02:9c:8f:ff

Device Name

DemoDevice

Description

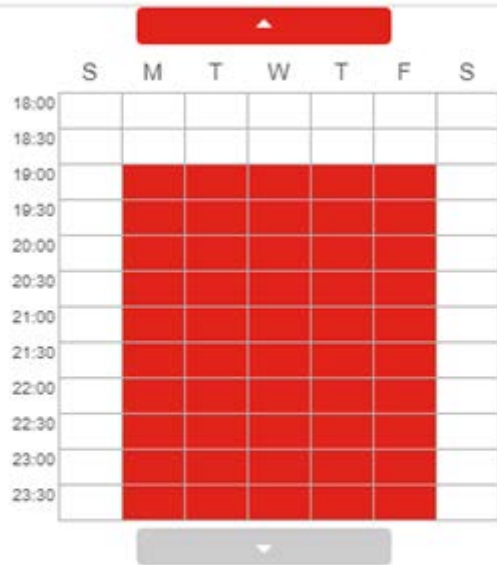
Demo

APPLY CANCEL

7. Click and drag to fill in the red blocks on the schedule by day and hour. The red blocks indicate the time blocks during which Internet access is not allowed.
8. Click **SAVE SCHEDULE** to save the schedule and the device's Internet access will now be restricted according to the schedule.



Schedule



i If the grid is red, the device is blocked from using the internet.



SAVE



CLEAR ALL



ENABLE ALL

6.5 Diagnostic

Expert > Diagnostic

You can run **Ping & Traceroute diagnostic** tests with the gateway. Enter the IP address to use for the test and click Start, results are displayed in the box.

Manage Diagnostic Setting

▼ Ping & Traceroute

Diagnostic Tool Ping Traceroute

IP Address/Domain Name

Results

```
PING 8.8.8.8 (8.8.8.8) 56(84) bytes of data.  
64 bytes from 8.8.8.8: icmp_req=1 ttl=119 time=21.1 ms  
64 bytes from 8.8.8.8: icmp_req=2 ttl=119 time=497 ms  
64 bytes from 8.8.8.8: icmp_req=3 ttl=119 time=250 ms  
--- 8.8.8.8 ping statistics ---  
3 packets transmitted, 3 received, 0% packet loss, time  
2004ms  
rtt min/avg/max/mdev = 21.113/256.327/497.000/194.318 ms
```

6.6 Security

Expert > Security

Use the **Security** menu to configure various security functions if needed, including Firewall, IP/MAC Binding and Access Control.

The screenshot shows the Verizon router's web interface. At the top left is the Verizon logo. The page title is "Firewall". In the top right corner, there is a language dropdown set to "EN" and a menu icon. On the left side, there is a navigation menu with two tabs: "Basic" and "Expert" (which is selected). The menu items are: Dashboard, Network, Device Settings, Parental Control, Diagnostic, Security (highlighted), Firewall (sub-highlighted), IP / MAC binding, Access Control, and NAT Forwarding. The main content area is titled "Manage Firewall Settings" and contains a list of four settings, each with a toggle switch:

- Firewall (dropdown arrow)
- SPI Firewall is **active** (toggle switch is on)
- DoS Protection is **active** (toggle switch is on)
- WAN Block Ping is **active** (toggle switch is on)
- LAN Block Ping is **inactive** (toggle switch is off)

Firewall

Expert > Security > Firewall

The gateway features a built-in firewall that provides protection to your network from unauthorized intrusions from the Internet. The firewall features four modules which can be enabled or disabled using the switches.

SPI Firewall

Stateful Packet Inspection (SPI) firewall protection means only packets matching a known active connection will be allowed by the firewall, and others will be rejected. An SPI firewall goes beyond stateless filtering and checks an entire packet's content rather than only packet headers. This is a security feature to help distinguish between legitimate packets of information and potentially harmful packets, and provides greater security for your network.

DoS Protection

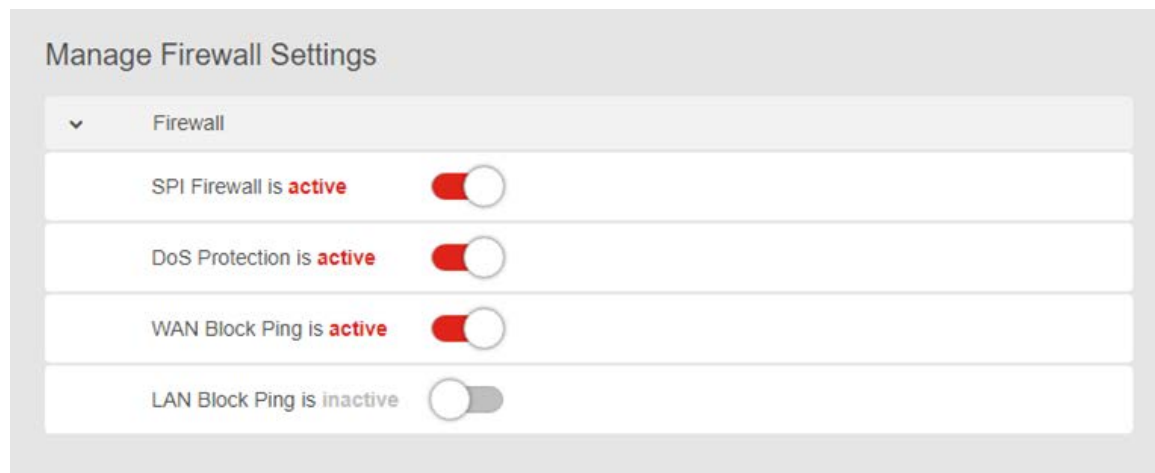
Denial-of-Service (DoS) is a common form of malicious attack against a network. The gateway's firewall can protect against such attacks by filtering unreasonable packets that could flood and disable network with large amounts of traffic.

WAN Block Ping

When active the gateway will not answer ping requests from the Internet. This can increase security as pinging is a common method used by hackers to test networks.

LAN Block Ping

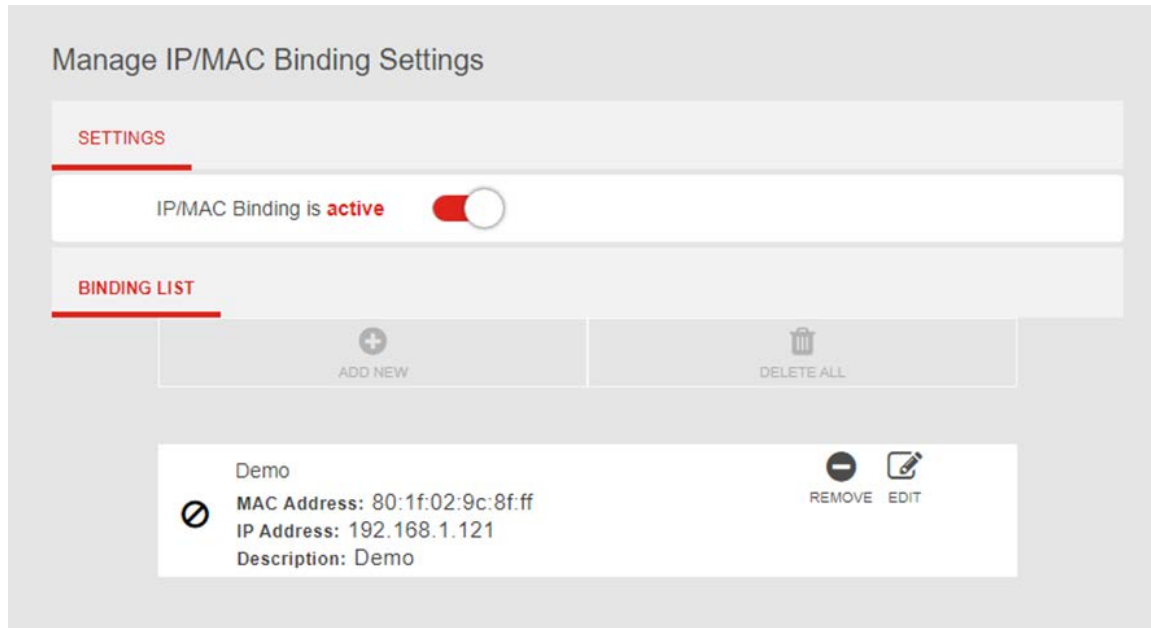
When active the gateway will not answer ping requests from the local network. This can increase security as pinging is a common method used by hackers to test networks.



IP / MAC Binding

Expert > Security > IP / MAC Binding

IP/MAC Binding allows you to reserve a static IP address for a device on the network, rather than being assigned a new (dynamic) IP address by the gateway's DHCP Server every time the device connects to the gateway. Static IP addresses can be useful for using various services on the local network. Every device is identified by a unique MAC address, and the IP address can be bound to the MAC address.



1. Switch **IP/MAC** Binding on using the switch.
2. Click **ADD NEW** to setup a new client for IP/MAC Binding.
3. Select a device from the Client menu or enter the MAC address manually.
4. Specify the IP Address the client will use, and enter a Description of the device for easy reference.
5. Check the **ENABLE THIS ENTRY** box and click apply to save the device.
6. Click the **REMOVE** or **EDIT** icon beside any entry in the Binding List to remove or edit the entry.



Add New

Enable This Entry

Client

Manually 

MAC Address

80:1f:02:9c:8f:ff

IP Address

192.168.1.121

Description

Demo



APPLY

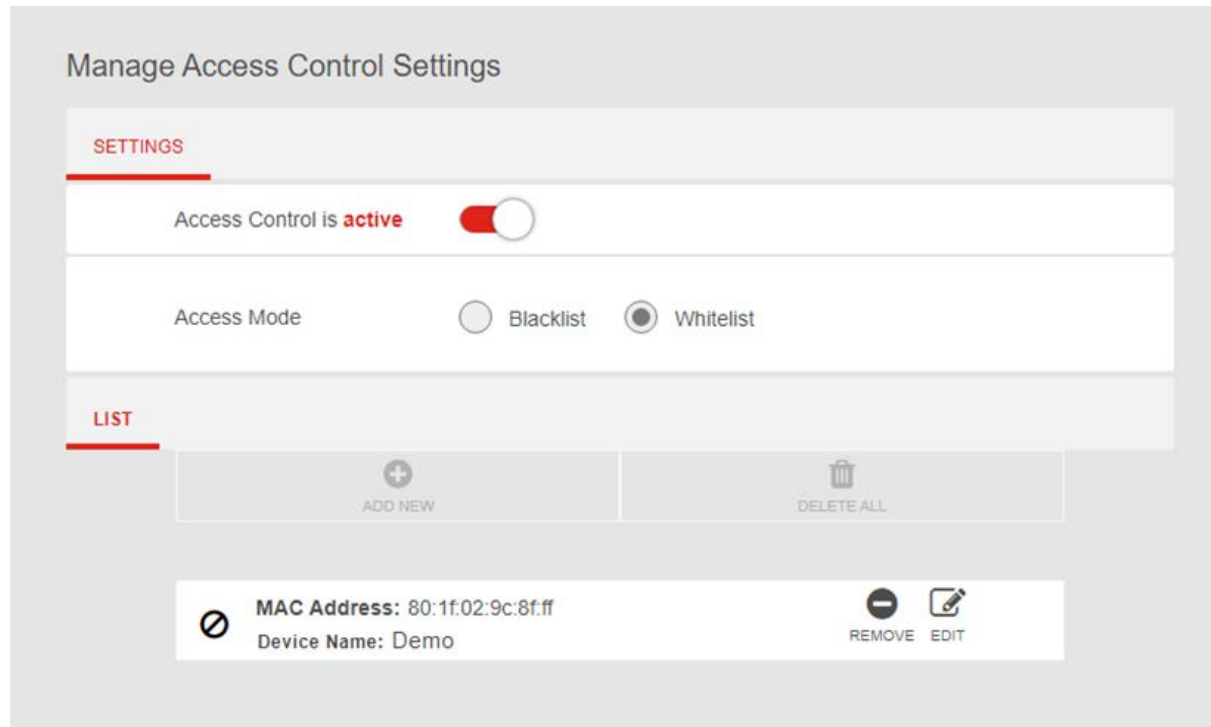


CANCEL

Access Control

Expert > Security > Access Control

Access Control is a security feature that can help to prevent unauthorized users from connecting to your gateway. You can define a list of network devices permitted (whitelist) or denied (blacklist) to connect to the gateway. Devices are each identified by their unique MAC address or IP address.



1. Switch Access Control on using the switch.
2. Select Blacklist (not permitted) or Whitelist (permitted), and click **ADD NEW**.
3. Select a device from the Client menu or enter the MAC address manually.
4. Enter the Name of the device for easy reference.
5. Check the **ENABLE THIS ENTRY** box and click apply to save the device.
6. Click the **REMOVE** or **EDIT** icon beside any entry in your Blacklist or Whitelist to remove or edit the entry.



Add New



Enable This Entry

Client

Manually



MAC Address

80:1f:02:9c:8f:ff

Device Name

Demo



APPLY



CANCEL

6.7 NAT Forwarding

Expert > NAT Forwarding

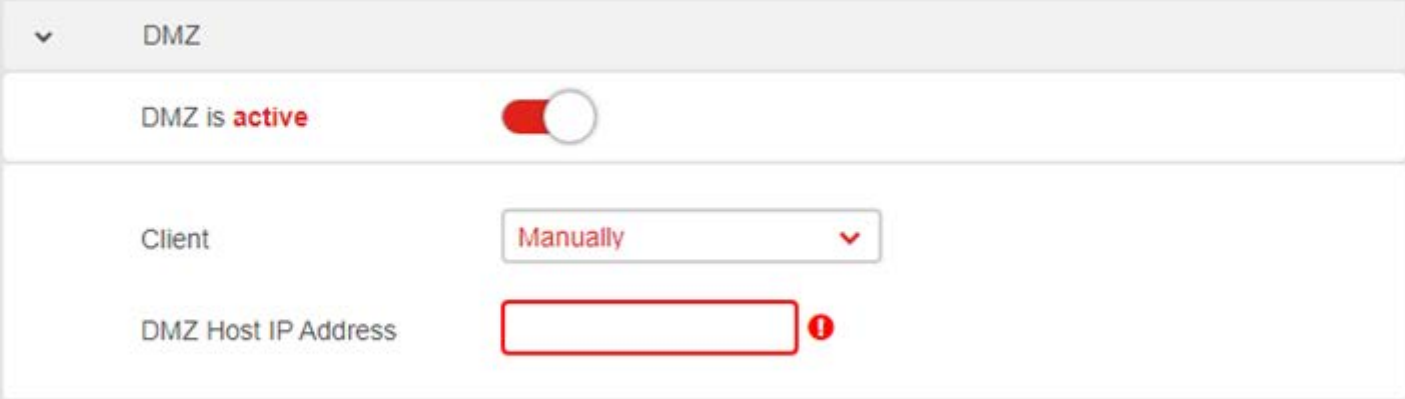
Functions in the **Network Address Translation (NAT) Forwarding** menu can improve network performance and security.

The screenshot shows the Verizon web interface for configuring DMZ settings. The Verizon logo is in the top left. The page title is "DMZ" in red. In the top right, there is a language dropdown set to "EN" and a menu icon. On the left side, there is a navigation menu with two tabs: "Basic" and "Expert" (which is selected and highlighted in red). Below the tabs are several menu items: "DashBoard", "Network", "Device Settings", "Parental Control", "Diagnostic", "Security", "NAT Forwarding" (highlighted in red), "DMZ" (highlighted in red), "UPnP", "ALG", and "Virtual Servers". The main content area is titled "Manage DMZ Settings" and contains a form with the following elements: a dropdown menu set to "DMZ", a toggle switch for "DMZ is active" which is currently turned on (red), a "Client" dropdown menu set to "Manually", and a "DMZ Host IP Address" text input field which is empty and has a red border and a red information icon to its right.

DMZ

Expert > NAT Forwarding > DMZ

A Demilitarized Zone (DMZ) is an isolated area in your local network where a computer runs outside the firewall and receives/intercepts all incoming Internet traffic. This can provide an extra layer of security to the rest of the network, or can be useful if a network client PC cannot run an application properly from behind an NAT firewall. However since it opens the client up to unrestricted two-way access this computer is vulnerable. DMZ should be configured only by expert network users aware of the security risks.



Manage DMZ Settings

DMZ

DMZ is **active**

Client

DMZ Host IP Address

1. Use the switch to set DMZ to **active**.
2. Enter the IP Address of the computer to provide the DMZ service (ensure this computer is using a Static IP Address)

UPnP

Expert > NAT Forwarding > UPnP

Universal plug-and-play (UPnP) is a set of networking protocols which enables network devices to communicate and automatically establish working configurations with each other, such as computers, printers, mobile devices etc.

It's typically used for data sharing, communications and entertainment purposes, although sometimes not preferred due to security concerns. Some devices may require UPnP to be enabled to function properly. Use the switch to set UPnP to active or inactive, according to your requirements.

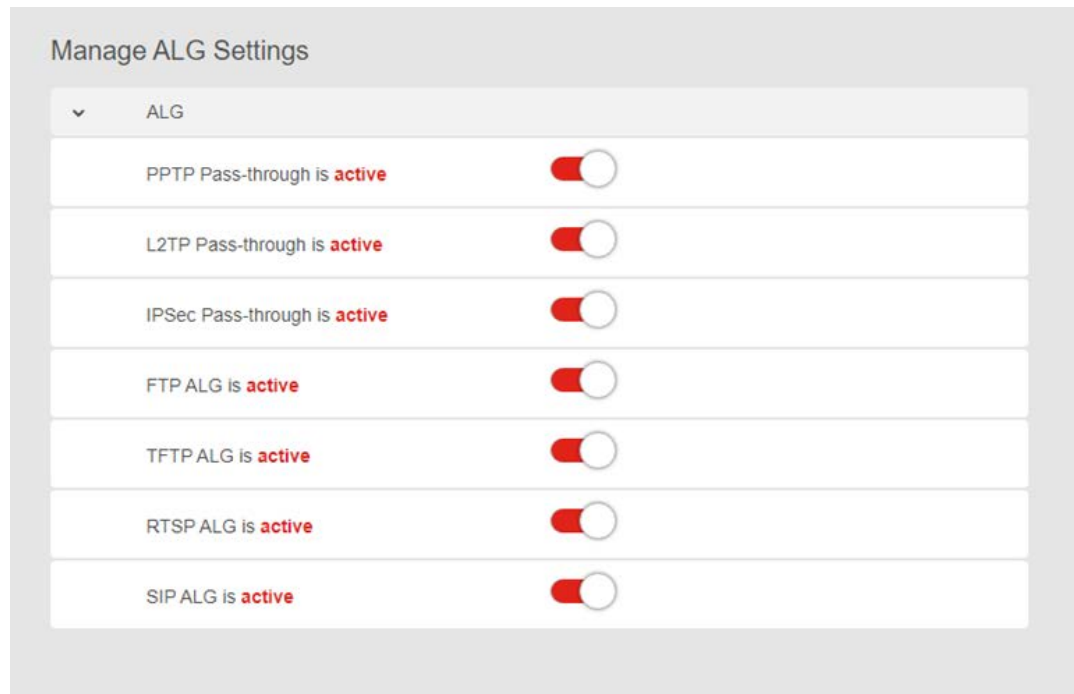


ALG

Expert > NAT Forwarding > ALG

Application Level Gateway (ALG) settings are advanced functions that can resolve issues where services are disrupted by the firewall. Each ALG module is a security component that augments the firewall. Services such as VPNs or Virtual Servers may require ALG modules enabled. By default all ALG modules are active. Use the switches to disable any ALG module required. ALG Settings are recommended for expert users only.

SIP ALG may disrupt WiFi calling for cellphones connected to the network.



Manage ALG Settings

PPTP Passthrough

Point-to-Point Tunneling Protocol (PPTP) is a module for implementing virtual private networks.

L2TP Passthrough

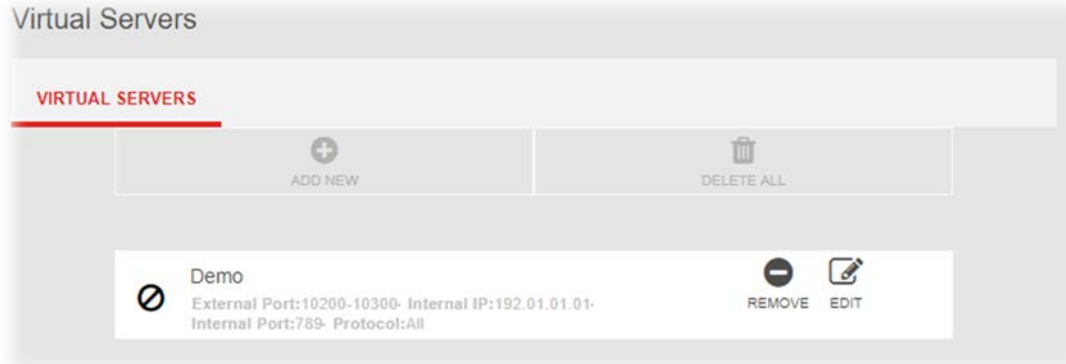
Layer 2 Tunneling Protocol (L2TP) is a tunneling protocol used to support virtual private networks (VPNs)

| | |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IPSec Passthrough | <p>or as part of the delivery of services by ISPs.</p> <p>Internet Protocol Security (IPsec) is a protocol suite for securing Internet Protocol (IP) communications by authenticating and encrypting each IP packet of a communication session.</p> |
| FTP ALG | <p>File Transfer Protocol is a widely and commonly used method of exchanging files over IP networks. The FTP ALG monitors PORT, PASV, and 227 commands. It performs NAT on the IP, port, or both in the message and gate opening on the device as necessary</p> |
| TFTP ALG | <p>Trivial File Transfer Protocol (TFTP) is a simple protocol used for files transfer (<i>RFC 1350</i>). TFTP is implemented on top of UDP, with destination port 69 as the well-known port. The TFTP Application Layer Gateway (ALG) processes TFTP packets that initiate the request.</p> |
| RTSP ALG | <p>The Real Time Streaming Protocol (RTSP) is a network control protocol designed for use in entertainment and communications systems to control streaming media servers.</p> |
| SIP ALG | <p>The Session Initiation Protocol (SIP) is a communications protocol for signaling and controlling multimedia communication sessions. The most common applications of SIP are in Internet telephony for voice and video calls, as well as instant messaging all over Internet Protocol (IP) networks.</p> |

Virtual Servers

Expert > NAT Forwarding > Virtual Servers

This function allows you to set up an internet service on a local computer, without exposing the local computer to the internet. Internet traffic is directed to a specific port or range of ports on a device or devices on your local network. You can also build various sets of port redirection, to provide various internet services on different local computers via a single Internet IP address. It also allows PCs outside the network to access services provided by a computer in the local network.



1. Click **ADD NEW** and enter the parameters to setup a virtual server:

← Add New

Enable This Entry

Service Type
Demo

External Port Start
10200

External Port End
10300

Client
Manually

Internal IP
192.168.1.121

Internal Port
789

Protocol
 All TCP UDP

| | |
|---------------------|------------------------------------------------------------------------------------------|
| Service Type | Specify the service type e.g. HTTP, FTP etc. |
| External Port Start | Specify the external/public port to access the computer on your local network. |
| External Port End | Select the type of Internet Protocol. |
| Internal IP | Enter the IP address of the computer on your local network. |
| Client | Select whether to manually assign Internal (Private) IP & Port. |
| Internal Port | Specify the internal/private port you wish to use on the computer in your local network. |
| Protocol | Select the connection protocol: TCP, UDP or All. |

2. Check **ENABLE THIS ENTRY** and click **APPLY** to save and enable the settings for your virtual server. You can remove or edit any Virtual Server entry using the icons.

7. Troubleshooting

If you are having problems with your gateway, try these basic steps in this section before looking for further solutions.

Phone or computer is disconnected from the gateway.

Your phone or computer might have lost the connection to the gateway due to interference, system updates, or any number of reasons. If you're not connected, reconnect to the gateway's WiFi and make sure the password is correct, or use an Ethernet cable to connect directly to the gateway's LAN port. Follow the steps in [4. Login to your LTE WiFi Gateway](#) for more help.

Cannot find the Wi-Fi network or cannot connect to the gateway.

If you can't see your gateway's WiFi when scanning available networks, or if you can't establish a connection, try the following:

- Refresh the list of available WiFi networks on your device.
- Switch the gateway off and back on again with the power switch.
- Move the gateway closer to your device or move your device closer to the gateway.
- Restart your device or computer.

If you still can't find the WiFi network or establish a connection, then try resetting your gateway back to factory default settings. To do this, press and hold the reset button on the back of the gateway for at least 2 seconds and wait for the gateway to restart. Then repeat the connection process as described in [4. Login to your LTE WiFi Gateway](#).

Can't access the Web User Interface to configure settings.

If you can't access the Web UI, it might be an issue with your device or computer's proxy or IP address settings. Make sure that proxy settings are disabled and that your device or computer can be allocated an IP address on the network by the gateway's DHCP server. You'll need to check the support for your device or computer's operating system e.g. Windows, macOS, for detailed instructions how to do this.

8. Tips & tricks

Taking care of your SIM card

- You should not remove your SIM card from the gateway unless asked to do so by customer service.
- Keep your SIM card dry and clean
- Avoid extreme temperatures and magnetic fields
- Do not bend, cut, trim or modify the SIM card in any way.
- Avoid touching the SIM card's gold contacts.

Get the best WiFi signal

Where you place the gateway can affect your wireless coverage. For the best WiFi performance, your gateway needs open spaces, away from walls, obstructions and heavy-duty appliances or electronics.

Surf the Internet faster

Have you thought of changing your network frequency band to enjoy a faster connection? Your gateway is dual-band (2.4GHz & 5GHz), so you'll likely get better speed by switching to the 5GHz band instead of the more commonly used and congested 2.4GHz band. Make sure your 5GHz WiFi is active at **Basic > Network > WiFi** in the gateway's Web UI, and connect your WiFi device or computer to the 5GHz band instead of 2.4GHz.

Network security

Your gateway is pre-set with the recommended WPA2 security type, but you should immediately change the default WiFi password, as well as the Web UI login password. You can do so at **Expert > Network > WiFi** and **Expert > Device Settings > Administration** in the Web UI. It's not recommended to change WiFi security type: WPA2 with AES is the most secure. And it's **never recommended** to disable WiFi security (no security type), this means your network is open and anybody within range can connect by WiFi.

9. Technical Specification

General

| | |
|-----------------------------|------------------------------------|
| Technical Standard | 3GPP LTE, LTE Category 12 |
| Frequency band | LTE FDD: B2, B4, B5, B13, B48, B66 |
| Wi-Fi Standard | 802.11 a/b/g/n/ac |
| Dimensions (L x W x H) | 170mm x 124mm x 43.4mm |
| Operating temperature range | -20 – 45 °C |
| Storage temperature range | -40 – 85 °C |

Connections

| | |
|----------------|------------------------|
| DC input | 12V 2A |
| Ethernet plugs | RJ45 LAN*2, RJ45 WAN*1 |

Federal Communication Commission Interference Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the 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 in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and 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/TV technician for help.

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

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Operations in the 5.15-5.25GHz band are restricted to indoor usage only.

Radiation Exposure Statement

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.