



Telstra 5G Hotspot 2

User Manual

IMPORTANT

Software updates

We always recommend that you have the latest software update installed on your hotspot - this will ensure that you have the latest features, most stable and secure experience while using this device.

Refer to [Settings > Update](#) for more information.

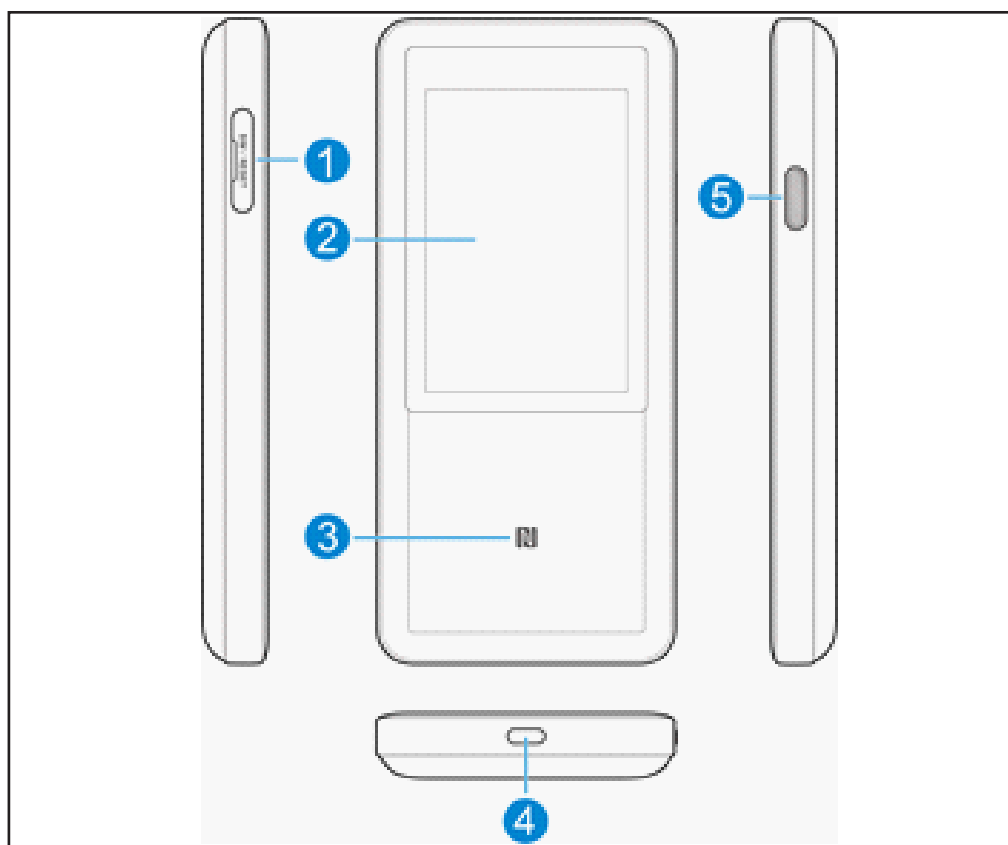
Using the built in web interface

You can configure the modem using the touchscreen and you can also connect to a web interface for extended configuration and more advanced settings for the hotspot.

Connect any device to the hotspot by Wi-Fi or USB cable. Open a browser and put 192.168.0.1 or m.home in the address bar. This opens the hotspot home page.

Use the website management password printed on the back of your hotspot.

Modem Overview / LED Indicators



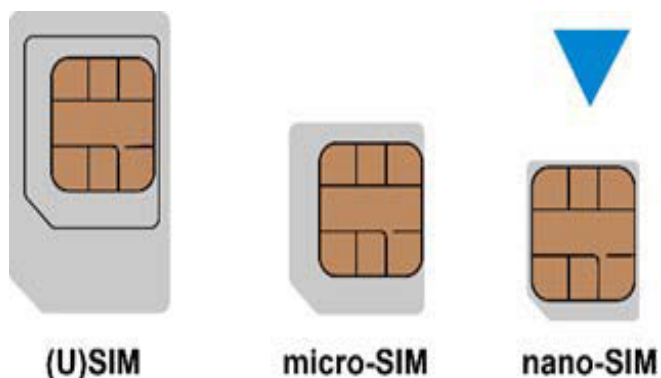
Part Overview

- | | |
|------------------------------|-------------------------------|
| 1. SIM Slot and Reset button | 4. USB C Charging socket |
| 2. LCD Touch panel | 5. Power key, wake up display |
| 3. NFC coupling area | |

Setting up the Device

Step 1 : SIM Type

Make sure you are using a Telstra **nano-SIM** card:



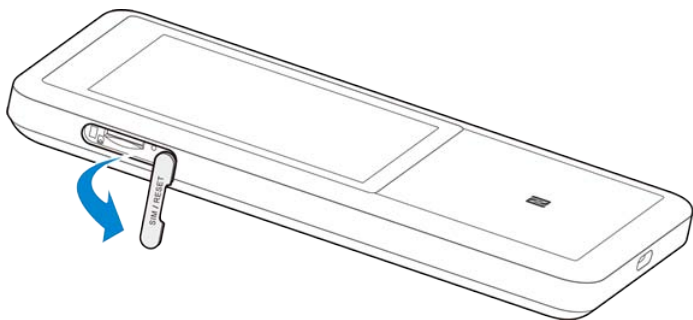
Step 2: Activate SIM

If your SIM is not yet active visit telstra.com/activate

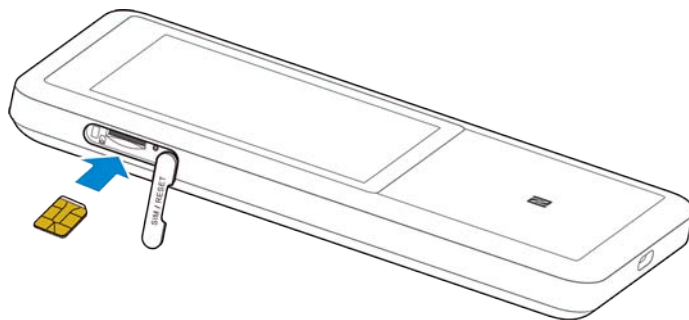
Follow the prompts to activate your SIM.

Step 3: Insert your SIM card

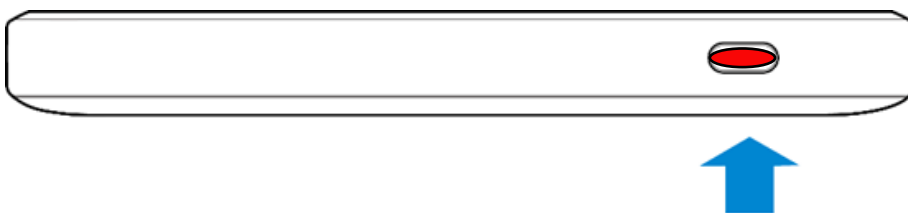
Open the SIM and Reset cover on the side of the device.



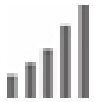
Insert your nano SIM as shown - ensure the metal contacts are facing up.



Close the SIM port cover and press the Power Key to switch on your device.



Display icons



Network Signal Strength

The device is not registered to the mobile network.

4G/5G

Network Type

4G: The device is registered to the 4G network.

5G: The device is registered to the 5G network.



New SMS



Battery charge level indicator



Settings



Wi-Fi On and number of connected users



New Software available

Connecting to Your PC

Connect the modem to your computer's USB port or connect using Wi-Fi. The operating system automatically detects and identifies your modem and creates a new connection.

Connect using Wi-Fi

With reference to the sticker on the back of your 5G Wi-Fi, search for the Wi-Fi network name then enter the Wi-Fi password.

Access the Internet

After the modem is connected to your computer successfully you can now access the Internet.

Check the modem homepage to make any configuration changes.

When you connect via USB it automatically will open your default web browser at the modem's configuration homepage.

You can make any changes to the settings through this homepage.

You can access this configuration homepage by entering either **m.home** or **192.168.0.1** in the web browsers address bar.

International Roaming

- The Roaming icon indicates you are connected to a foreign network.
- If Roaming is enabled on your data plan then roaming data charges will apply when connected via a roaming network.
- Contact Telstra to discuss your data charges and roaming options.

Software Installation / Uninstall

The hotspot is plug and play. There is no user interaction required for installation or uninstallation.

Use the hotspot as a PowerBank

The hotspot has a built in 10,000mAh battery that can charge other devices. Plug your device into the hotspot USB socket and unlock the screen to check the configuration.

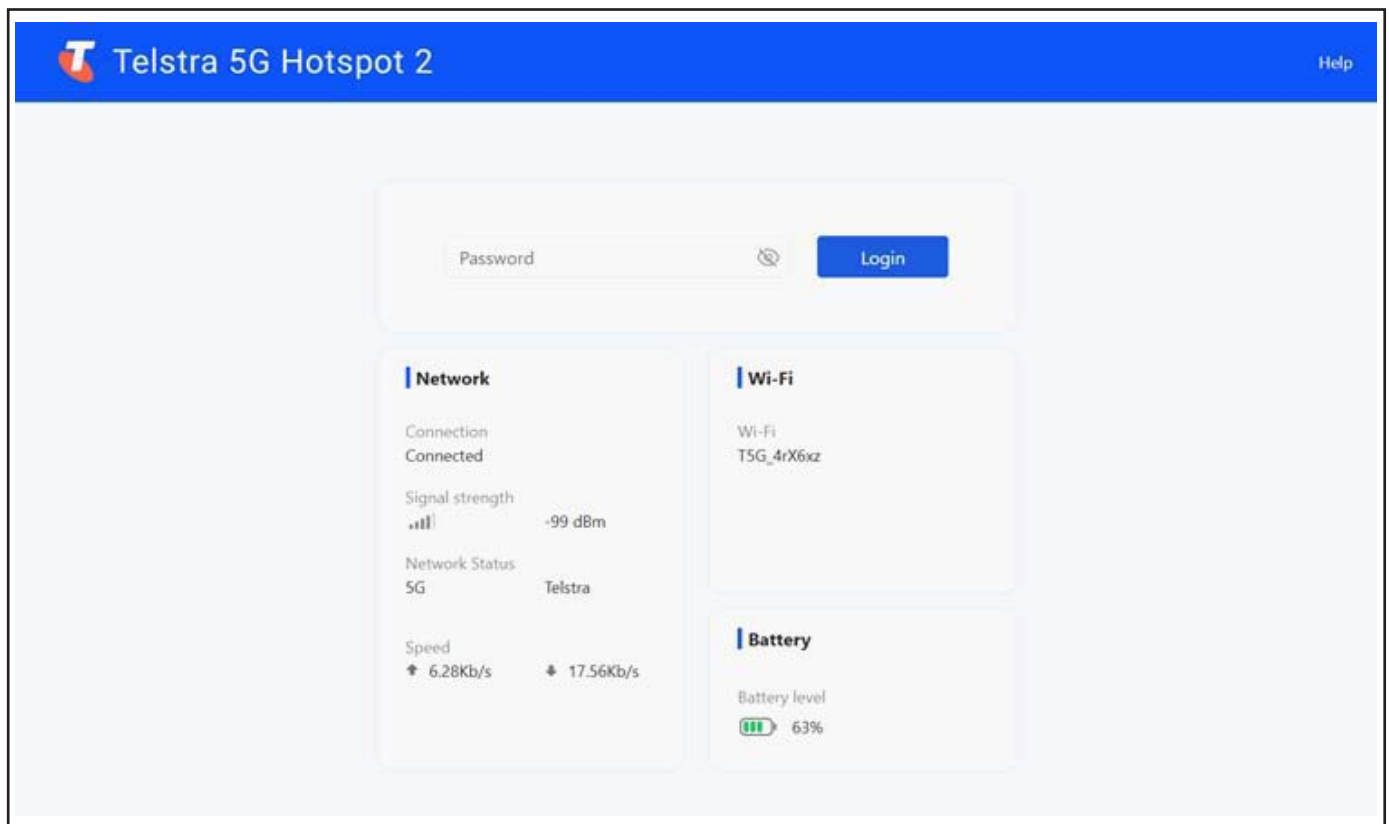
Reverse Charging and USB Tethering - Connected device will be charged and can also access data as a tethered modem over USB.

Reverse Charging Only - this mode will charge connected devices at a maximum of 18W

USB to Ethernet Adaptor Mode - Connect a USB to Ethernet adaptor (sold separately) to provide wired ethernet networking.

Screens Overview

Lock-screen



Overview :

The device home page presents a login screen. Please use the Device Manager Password that is printed on the sticker on the back of your device.

The factory set default password is printed on the label on the back of your modem (Caps sensitive). To increase security, we highly recommend changing this default set password.

Instructions :

To change the default set password:

- > Navigate to System > Login Password
- > Enter the current password from the back of your device
- > Enter your new password, confirm and press Apply

TIP: The device password is set under System. The Wi-Fi password is set under Wi-Fi Settings

Important Note :

To reset your modem settings and /or password at any stage, navigate to Device > Factory Reset and follow the prompts or press the Factory Reset button on the right of the SIM slot.

Once reset the password will be set to the factory default password printed on the back of your device.

Home Tab



Overview :

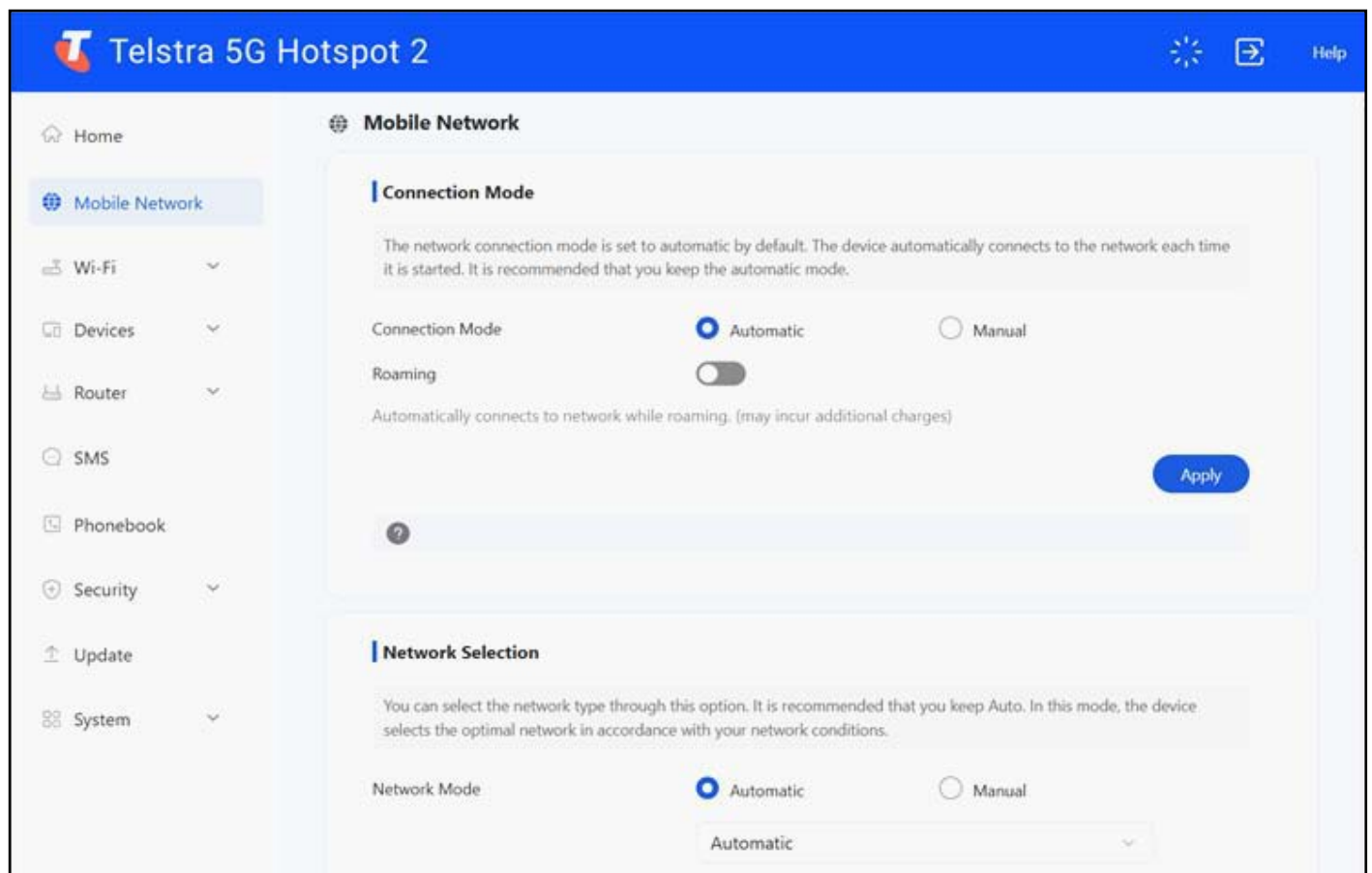
The Home page is the default landing page that presents a quick summary of your devices network connection status, data usage summary, received SMS messages, service number and site navigation.

This device will automatically connect to the Telstra 5G or 4G network. (Some device settings can only be changed when the device is disconnected from the network).

Instructions : To change to manual connection

Select Mobile Network > Connection Mode to set Automatic or Manual connection.
> Click on Connection Mode, Automatic or Manual, then press Apply.

Mobile Network - Connection Mode, Network Selection and APN Settings



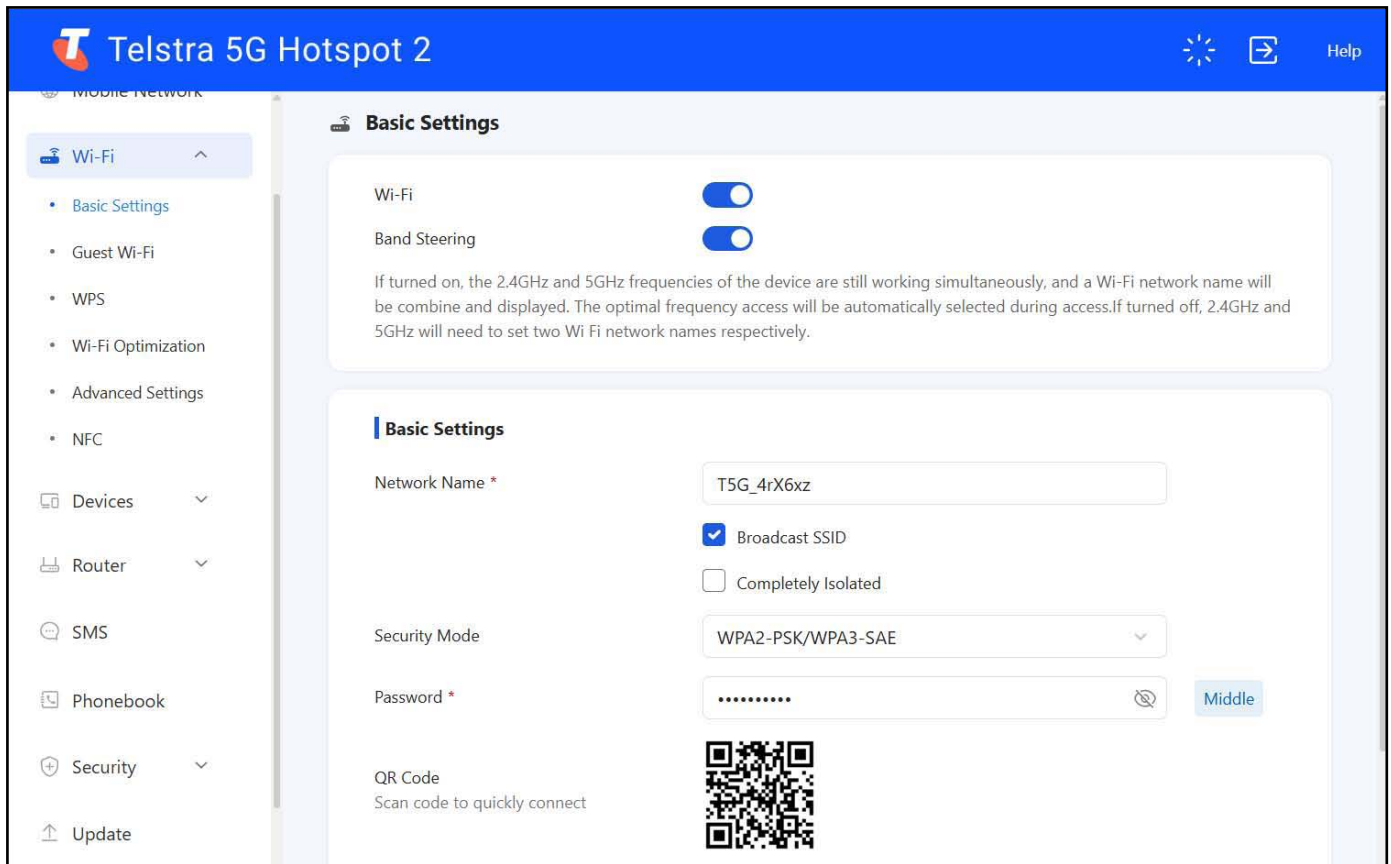
Mobile Network:

Connection Mode - This is used to set whether your Hotspot connects automatically or manually to the mobile network. The default is Automatic and there is usually no need to change this setting.

Network Selection - This is used to manually fix which network band and provider that the hotspot will connect to. Default setting is Automatic and there is usually no need to change this setting.

APN - The Access Point Name is a connection profile that the device uses to connect to the correct data service from your network provider.

Wi-Fi - Basic Settings, Guest Wi-Fi



Basic Settings:

Wi-Fi Switch: Turn your Wi-Fi network On or Off .

Band Steering: Your hotspot supports 2.4 and 5GHz Wi-Fi networks.

Band Steering automatically connects your devices to the best available Wi-Fi frequency in your home. When enabled both networks are combined into a single Wi-Fi SSID. If you disable Band Steering then you will see both network SSID's.

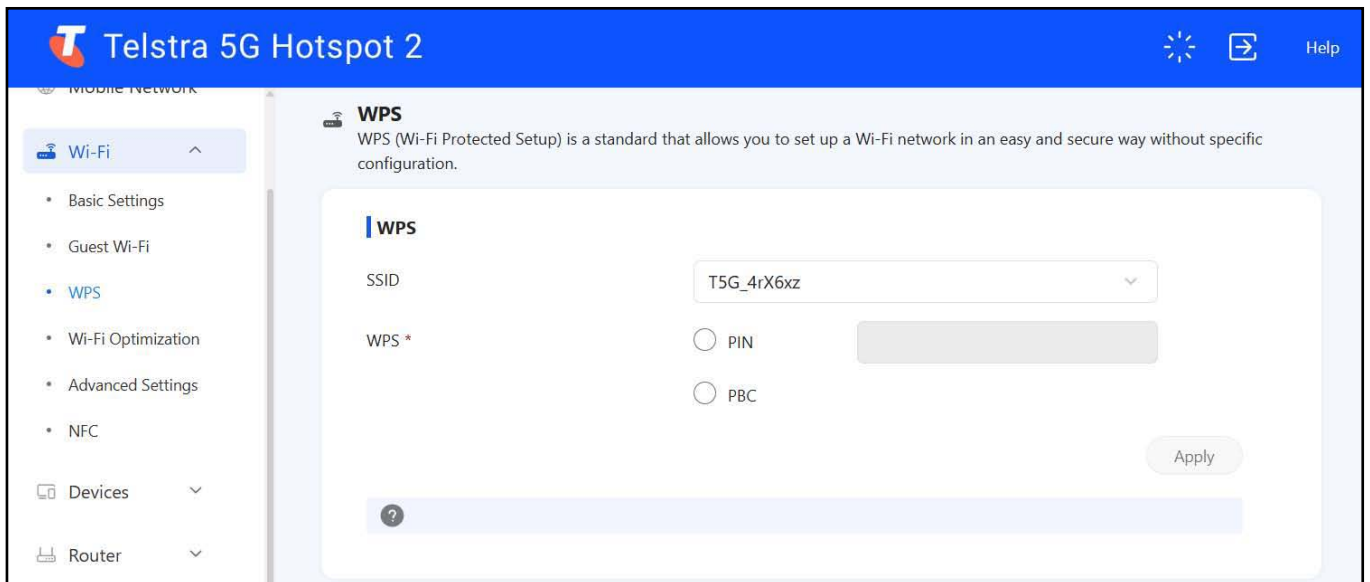
Scan the QR code on your smart devices to quickly connect to your Wi-Fi network.

Guest Wi-Fi

The Guest Wi-Fi network can be enabled to allow guests to connect to your network with some limitations that you can customise.

Change settings to prevent Guests from connecting to the web interface and to set a time limit for the guest to be allowed on the network.

When you enable the Guest network there is an additional SSID presented to the clients with the suffix _Guest. You can use the same default password or you can set a separate Guest network password so you don't need to share your main password.



WPS - Wi-Fi Protected Setup Overview :

WPS allows other devices to connect to your Wi-Fi network without using a password.

Select WPS - PIN to use a simple PIN to connect.

Select WPS - PBC (Push Button Control) to enable connection by PBC.

Make your chosen selection then go to the other device and enter the PIN or press the WPS button to seamlessly connect.

Wi-Fi Optimisation

NOTE: Once enabled the WPS PBC feature is active for 2 minutes.

Wi-Fi Optimisation will scan the local Wi-Fi channels and select channels with the least other traffic. If you prefer to fix your devices to a known channel then don't use this feature as it will reset the allocated channel to the best possible clear channel.

NFC - Near Field Communication for Tap and Go



NFC enables the Tap to Connect feature on the device. At the moment this is only supported by Android devices with NFC built in. Enable NFC then tap your phone onto the front of the Wi-Fi hotspot adjacent to the NFC logo. Confirm the connection on the handset.

Devices > Connected devices



Connected Devices

All of wireless devices connected to this router will show on the page, including device name and MAC address

Wireless Devices

	Focus-5G  Main 5GHz Wi-Fi	IP Address: 192.168.0.58	MAC Address: 66:A9:9F:87:64:41	Address Type: DHCP
---	--	--------------------------	--------------------------------	--------------------

Wired Devices

	A25803730 	IP Address: 192.168.0.136	MAC Address: 5C:4D:BF:94:24:60	Address Type: DHCP
---	---	---------------------------	--------------------------------	--------------------

Overview

Connected devices shows you all devices connected to your WI-Fi hotspot. You can click on Block to block any device from your network.

Wireless Filter - Manage blocked and filtered Wi-Fi devices.

Offline Devices - Devices that have previously registered but currently Offline.

Router > DHCP

DHCP

IP Address *

LAN IP address of the router. You can access the device management page via this IP address.

Subnet Mask *

DHCP Server

DHCP IP Pool * -

Starting and Ending IP address specifies IP address range which is assigned by DHCP server to access devices. The IP address out of this range cannot be assigned by DHCP server.

DHCP Lease Time * hour(s)

Lease Time specifies how long a computer can use IP address. If the device will continue to use IP address, it must initiate request again before lease time expires. This IP address will not assign to other device until the old device initiates no request when its lease time expires.

LAN DNS Proxy Enable Disable

LAN DNS IPv6 Proxy Enable Disable

[Apply](#)

Overview :

DHCP sets the TCP/IP address pool for all your connected devices. The default IP address and IP pool can be configured to your preferences.

Usually there is no need to make any changes and this is recommended for advanced users only.

NOTE if you enable Bridge Mode then all traffic is passed straight through the modem. This also means that you will lose the ability to get to the web interface. The only way to recover from this setting is to perform a Factory Default.

Router > MAC-IP Bind

MAC-IP Bind will provide a fixed and known IP address to any connected device using its MAC address. This means that the connected object will always have the same IP address on your network.

Router > DDNS Settings

Dynamic Domain Name Service uses an external provider to allocate a domain name to a dynamic IP address. The IP address can change dynamically where the connected device will automatically update the DNS provider with the correct Domain Name.

Router > VPN Client

VPN Client	PPTP
Service IP/URL *	<input type="text"/>
Username *	<input type="text"/>
Password *	<input type="password"/>
	<input checked="" type="checkbox"/> Auto Connect It will take effect after manual reconnect.
VPN Connect Status	Disconnected
VPN Remote IP	
VPN Local IP	

Overview :

The VPN Client will establish a secure encrypted connection between your device and an internet service VPN provider.

Router > Network Tools

Ping and Traceroute can be used in network troubleshooting but are normally not needed for casual end users.

Network Tool Settings	
IP Address/URL *	<input type="text"/>
Action Selection	<input checked="" type="radio"/> PING <input type="radio"/> TRACEROUTE

Physical Reset button >



SMS

Use the SMS interface to send and receive text messages to all your Contacts.

Phonebook

Use the Phone book interface to save and manage your contacts

Security

Most security functions are for advanced users who may need to change the configuration of their network. See the Advanced Section for step by step details on the Security Settings.

Update

Check your system is up to date. Download and manage system updates.

Automatic updates are enabled by default and will periodically download system updates to the device.

The manufacturer releases updates for bug fixes, security patches and system improvements so remember to activate any System updates that have been downloaded.

System Menu

System > Device Information

Display device information such as the current network, Wi-Fi SSID overview, your device IMEI, software version and other useful information,

System > SIM Management

Set and manage the SIM PIN if required.

System > Diagnosis

Summary device information with available settings and current configuration.

System > Login Password

Change the device password if required.

System > Device Sleep

Set the sleep timeout periods. If there are no active connections the device will go into Sleep mode to reduce power consumption.

System > Backup & Restore

Create a backup file of your current settings. Load a previously saved Backup file.

System > Power Save Mode

Power save mode will restrict data speed, reduce consumption and extend the battery life.

System > WAN DNS

Manually set the Domain Name Server address if required.

System > System Settings

Shutdown, Restart, set a scheduled Restart time and perform a factory Reset.

Precautions & Safety Information

1. The modem is a transmitting device and may cause interference to sensitive electronic equipment such as audio systems, vehicle systems and medical equipment. Please consult the manufacturer of the other device before using the modem.
2. Operating of laptop or desktop PCs with the modem may interfere with medical devices like hearing aids and pacemakers. Please keep the modem more than 20 centimetres away from such medical devices. Turn the modem off if necessary. Consult a physician or the manufacturer of the medical device before using the modem near such devices.
3. Be aware of regulations when using the modem at places such as oil refineries or chemical factories, where there are explosive gases or explosive products being processed. Turn off your modem as instructed.
4. Do not leave the modem in direct sun. Don't cover the modem or leave on soft furnishings or surfaces that retain heat. It is normal for the unit to run warm but do not allow to overheat. If the unit is above 40C it will not charge the battery. Higher temperatures increase the risk of failure or the battery being damaged.
5. Store the modem out of reach of children. This device may contain button cells which can be fatal if swallowed.
6. The modem contains sensitive electronic circuitry. Do not expose the modem to any liquids, high temperatures or shock.
7. Only use original accessories or accessories that are authorised by the manufacturer. Using unauthorised accessories may affect your modem's performance or damage your modem.
8. Avoid using the modem in areas that emit electromagnetic waves or in enclosed metallic structures e.g. lifts.
9. The modem is not waterproof. Please keep it dry and store in dry conditions.
10. Always handle the modem with care. Be careful not to drop or bend the modem.
11. There are no user serviceable parts inside the modem. Unauthorised dismantling or repair will void the warranty.
12. Do not dispose of the unit in a fire, the battery may explode.
13. At the end of life of the equipment, return the product to a suitable recycling agent such as Mobile Muster.

RF Safety Information

For optimum performance with minimum power consumption do not shield the device or cover with any object. Covering the antenna affects signal quality and may cause the modem to operate at a higher power level than needed.

Radio Frequency Energy

The USB modem is a low-power radio transmitter and receiver. When switched on it intermittently transmits radio frequency (RF) energy (radio waves).

The transmit power level is optimized for best performance and automatically reduces when there is good quality reception.

Maximum power is only used at the edge of network coverage so under most circumstances the power output is very low.

Under poor network conditions the modem transmits at a higher power level and may get hot.

Declaration of Conformity : Specific Absorption Rate (SAR)

The USB modem is designed to be used in close proximity to the body. We declare that the product detailed in this manual, and in combination with our accessories, conform with the essential requirements of The Radio Communications Standard (Electromagnetic Radiation Human Exposure) 2003 and the Australian Communications and Media Authority Section 376 of the Telecommunications Act 1997 when used at a distance of not less than 5mm from the body. The worst case simultaneous RF SAR result for this device is published on **ztemobiles.com.au**

* Download speeds will vary due to distance from the cell, local conditions, user numbers, file source, hardware, software and other factors.

** Operation and Standby times depend on a number of conditions and are measured in ideal conditions.

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Telstra SIM required.

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Troubleshooting

Issue	Possible cause	Possible Solution
No Network Access	A missing, faulty or incorrectly inserted SIM.	Check you have inserted your SIM card the right way and pushed inside the slot until it clicks into place.
No Network Access	A Non-Telstra SIM card.	<p>If you use an alternative Mobile Network Providers SIM card, you may need to set a new APN for your carrier.</p> <p>See - Settings > Network Settings > APN : for more details.</p>
No Network Access	PIN locked SIM card.	Log into the USB web interface (Home > Settings > Device settings > USIM PIN Management - page 16) then enter the PIN code for your SIM card.
No Network Access	PUK locked SIM	<p>You may have entered the wrong SIM PIN code too many times, your SIM will be PUK locked.</p> <p>Please contact Telstra (on 13 22 00 and follow the voice prompts) to obtain your 8-digit Personal Unlocking Key (PUK) code.</p> <p>Log into the web interface (Home > Settings > Device settings > USIM PIN Management - page 16) to enter the provided PUK code.</p>
No Network Access	PUK blocked SIM card.	<p>When you enter the PUK code incorrectly too many times, your SIM card will be PUK blocked.</p> <p>You will need to contact Telstra (on 13 22 00 and follow the voice prompts) to replace your physical SIM.</p>
The user interface doesn't start after the modem is plugged in.	PC configuration is not correct. (No autorun)	Start the program manually by going Start > Program Files or use the shortcut on the desktop.
The modem has no signal.	You have no network coverage.	Try moving location until you get good reception. Move the modem to a higher position or different orientation.

Specifications

Network	5G: N1, N3, N5, N7, N8, N26, N78 4G: Bands 1, 3, 5, 7, 8, 26, 28
Wi-Fi	Wi-Fi 7, 802.11a/b/g/n/ac/ax/be 2.4G and 5G, dual band 2x2 MiMo, 4K QAM, 160MHz bandwidth up to 3600Mbps
Chipset	Qualcomm SDX 72-1 Release 17
Dimensions	158 x 73 x 16mm
Battery	10,000mAh, 27W Quick Charge, 18W reverse charging
Connectivity	Wi-Fi, USB C charging and tethering, compatible with Ethernet adaptor
SIM Card	4FF
Display	3.5" touch screen

U60 Pro Advanced Features User Guide

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Introduction

The U60 Pro has many functions that most users will never need to access or use, but here we will explain each of these functions in lay terms and how they are typically configured and applied. Many of the functions below require the SIM card used to have access to a Public IP Address that can be accessed from the internet. This sort of SIM card is typically only available to Business to Enterprise customers of Telstra, not Small Business or normal users of the Telstra mobile network.

Throughout this document we will only describe the configuration specific to the Telstra mobile network as this is what has been used to test and approve all the following functionality. Any of the following functionality that requires a Public IP Address to function will reference the prerequisite configuration requirements which will be detailed first.

We will start with the Web User Interface (WebUI) and where to find required information / details that we will need to use in configuring the functions. Then we will look at the functions that are advanced in nature but do not require a Public IP Address to be provided by the mobile network. Finally we will move into the advanced functions that do require access to a SIM card with access to a Public IP Address which will mean that we have to configure a couple of items before the functions themselves.

Enjoy...



Pic 1. U60 Pro Hotspot device

Functions Covered

Listed below are all the requirements and advanced functions that we explain in detail.

Requirement – WebUI & First Steps

Optional Accessory – USB-C to Ethernet Adapter

Function – Network Tools – Ping & Traceroute

Function – MAC / IP Bind

Function – Bridge Mode

Requirement - Public IP Addressing with Telstra

Function - APN Setup

Requirement – DDNS

Function – Router – DDNS

Function – Router – VPN Client

Function – Security – Port Filtering

Function – Security – Port Mapping

Function – Security – Port Forwarding

Function – System Security – Remote Management

Function – System Security – Ping from WAN

Function – Security – uPNP

Function – Security – DMZ

Function – Security – NAT

Function – Security – SIP ALG

Web UI and First Steps

The U60 Pro has two interfaces for accessing the device information and controls – Touch Screen on the device itself and the Web based User Interface (WebUI). The Touch Screen is limited configuration wise and does not provide any access to the functions that we will be dealing with here.

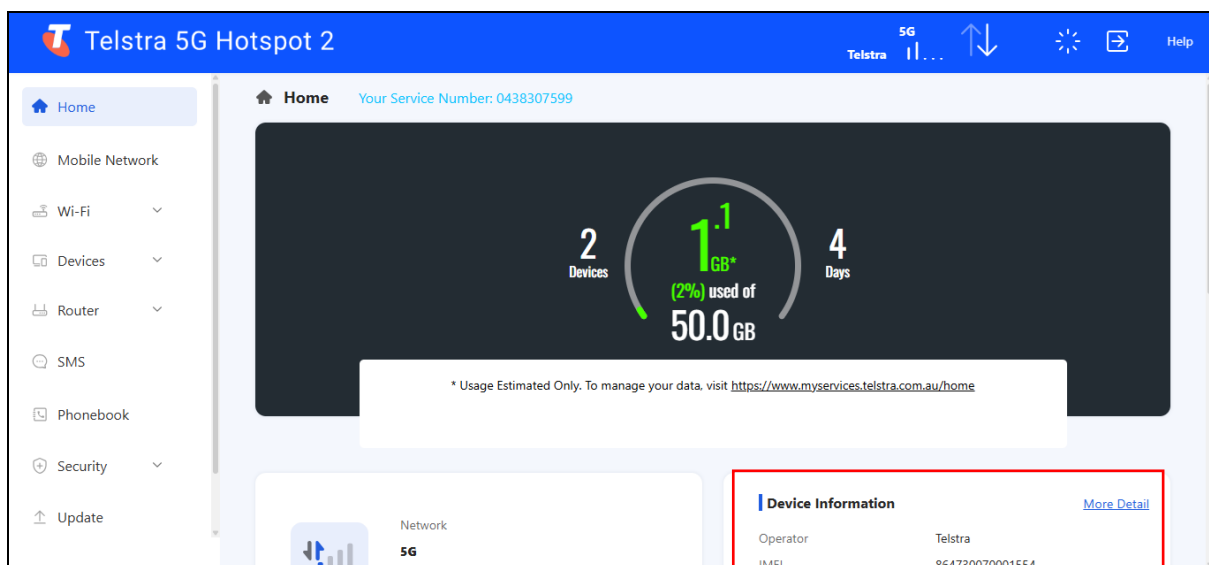
Our focus will be on the WebUI, as this interface allows us to quickly access all the information required and functional menus to configure the advanced features supported by the U60 Pro.

WebUI

We will be working from here on in, within the U60 Pro WebUI. The WebUI is hosted on the default gateway address of the modem which is 192.168.0.1 and the login password which is unique to each device is printed on the sticker on the back of the device.

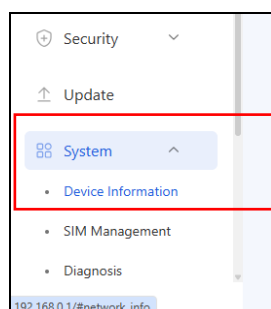
Our starting point will always be the Home screen of the WebUI after you have successfully logged in.

The WebUI provides access to all the information that we require and all the configuration menus for the functions.



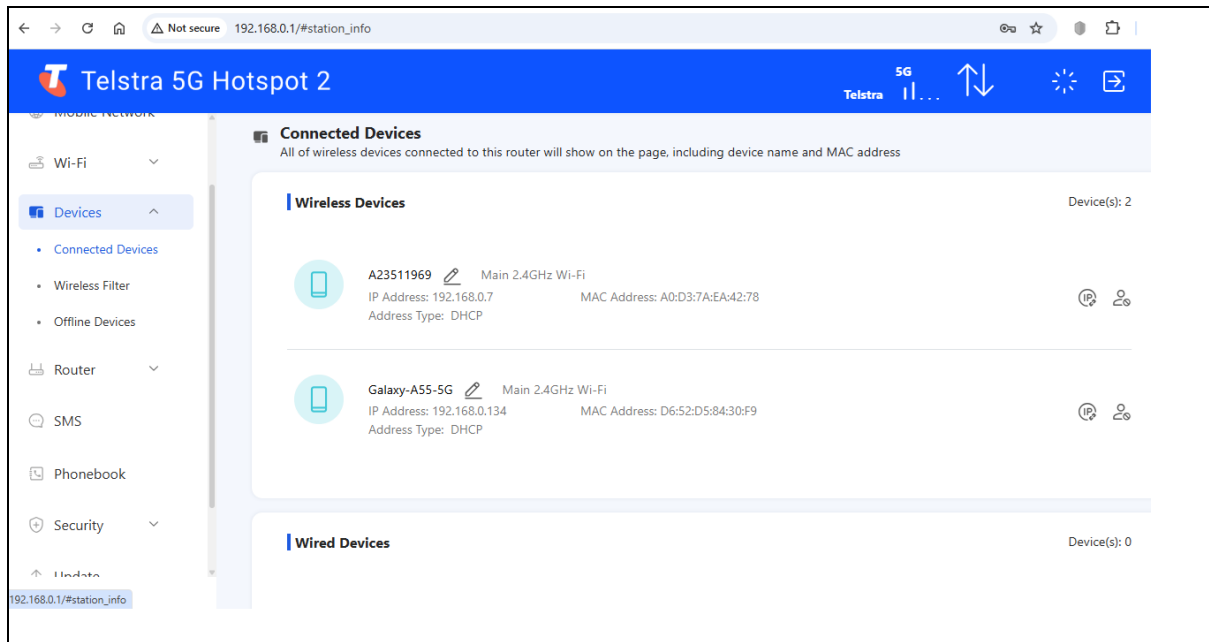
Pic 2. Home screen after you have logged into the U60 Pro

Information wise, the most important page in the U60 Pro WebUI is the Device Information Detail page that can be found by following System > Device Information from the left hand side menu panel (below) or from the Home page Detail link on the right side of the page as highlighted above.



Pic 3. Detailed information links

Important information that can be located here include the Status of the device connection to the mobile network and the WAN IP Address currently in use. Other information that we will need to know are what devices are currently connected to the hotspot, how they are connected and what is the IP Address that has been allocated to them.



Pic 4. Connected devices menu

First Steps

The IP Addresses of your connected devices, either by Wi-Fi, USB or USB-C to Ethernet Adapter are required when configuring many of the following functions, so note them down and while doing that you should also find and record their MAC Addresses as well just in case you want to Bind or filter based on that.

The simplest approach to this is to create a table on paper and record all the following details for quick reference.

U60 Pro WAN IP Address:

U60 Pro Default APN:

Connected Device #1 – IP Address: MAC Address: Device Ports:

Connected Device #2 – IP Address: MAC Address: Device Ports:

Connected Device #3 – IP Address: MAC Address: Device Ports:

Connected Device #4 – IP Address: MAC Address: Device Ports:

Connected Device #5 – IP Address: MAC Address: Device Ports:

Services I use:

SSH	Telnet	WWW	SMTP
POP	DDNS	FTP	SFTP

DDNS Setup:

Provider: Account: Password:

DDNS Domain:

Bindings I need to setup:

MAC ADD: IP ADD:

MAC ADD: IP ADD:

MAC ADD: IP ADD:

MAC ADD: IP ADD:

MAC ADD: IP ADD:

Ports I need to setup:

Name: Ext. Port: LAN IP: LAN Port:

Name: Ext. Port: LAN IP: LAN Port:

Name:	Ext. Port:	LAN IP:	LAN Port:
Name:	Ext. Port:	LAN IP:	LAN Port:
Name:	Ext. Port:	LAN IP:	LAN Port:

Port Mappings:

Service:	Int Port:	Ext Port:	IP Address:
Service:	Int Port:	Ext Port:	IP Address:
Service:	Int Port:	Ext Port:	IP Address:
Service:	Int Port:	Ext Port:	IP Address:
Service:	Int Port:	Ext Port:	IP Address:

Use this example as just an idea as you will most likely already have an approach to working out how you record and design your network configurations and writing it down allows for quick reference without having to leave a function configuration page midway through the configuration and losing that progress.

USB-C to Ethernet Adapter

One interesting feature of the U60 Pro is that it supports the connection of a USB-C to Ethernet Adapter accessory that you can purchase from online or some stores such as Officeworks. This is a generic accessory that is readily available and I purchased a UGreen branded USB-C to Ethernet Adapter from Amazon and the benefit provided for these advanced functions was immediate.



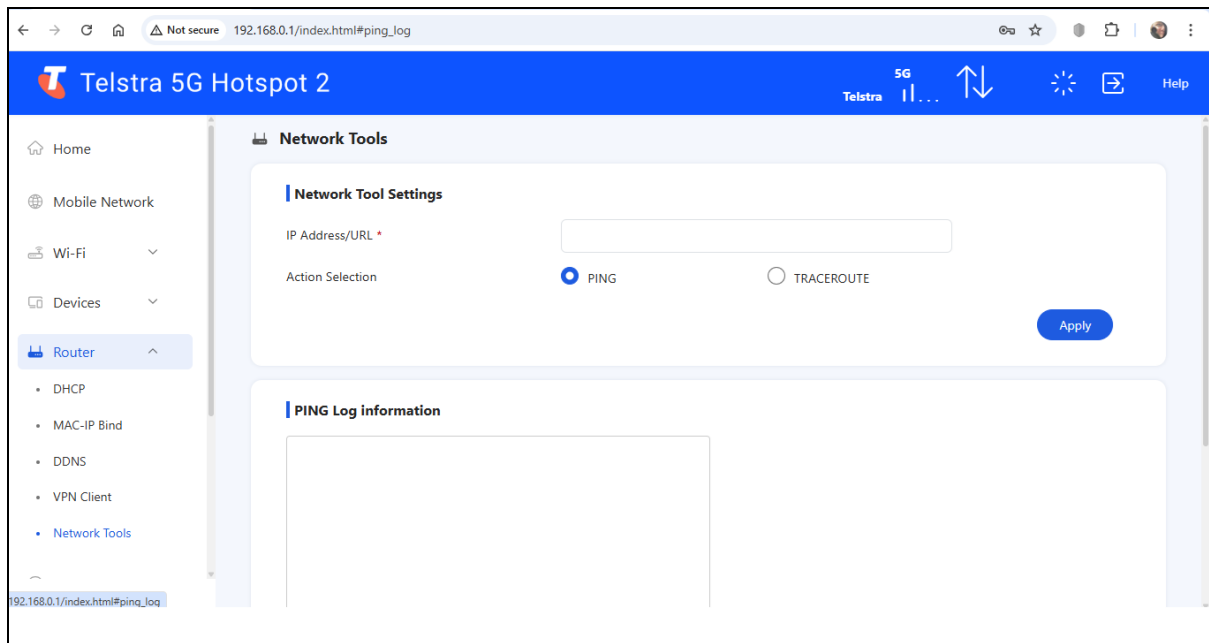
Having an Ethernet port means that suddenly we are now open to connect to real world networks easily and the types of devices that you can connect with multiplies.

Pic 5. USB-C to Ethernet Adapter plugged into U60 Pro

To use the accessory you just need to plugin adapter to the USB-C port on the U60 Pro and then select the USB Port Work Mode option labelled USB- to Ethernet Adapter Mode (bottom one) that is displayed on the U60 Pro LCD Touch Screen and then press the OK button.

Network Tools

The U60 Pro has only two network tool options built in – Ping and Traceroute. These are the most basic diagnostic tools used in networking and can be useful.



Pic 6. Network Tools menu

Ping

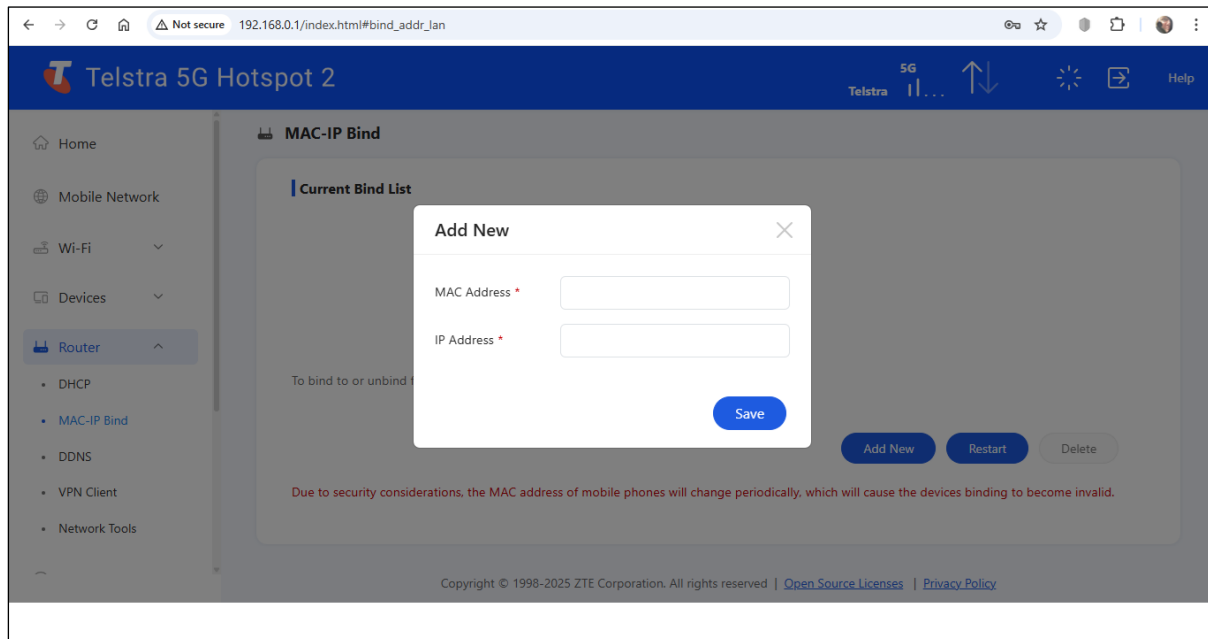
Ping allows you to confirm that the U60 Pro is connected to a device by sending 5 test packet messages to any IP Address defined by the user.

Traceroute

Traceroute uses a similar mechanism but displays every hop or device from the U60 Pro to the device with the IP Address you have entered.

MAC / IP Bind

Since the U60 Pro typically provides IP Addresses to connected devices from its DHCP IP Address pool, you sometimes need to be sure that a particular device is always going to using a particular IP Address. This function basically allows you to ensure that a particular IP address is always going to the specific device by binding the IP Address to the connected device MAC Address.



Pic 7. MAC / IP Bind menu

Just enter the MAC Address of the device you are binding to a particular internal IP Address and then enter the internal IP Address that you want to always allocate to that device and press Apply. To bind to or unbind from an address successfully you will need to restart the U60 Pro. It is possible to do this for 10 devices.

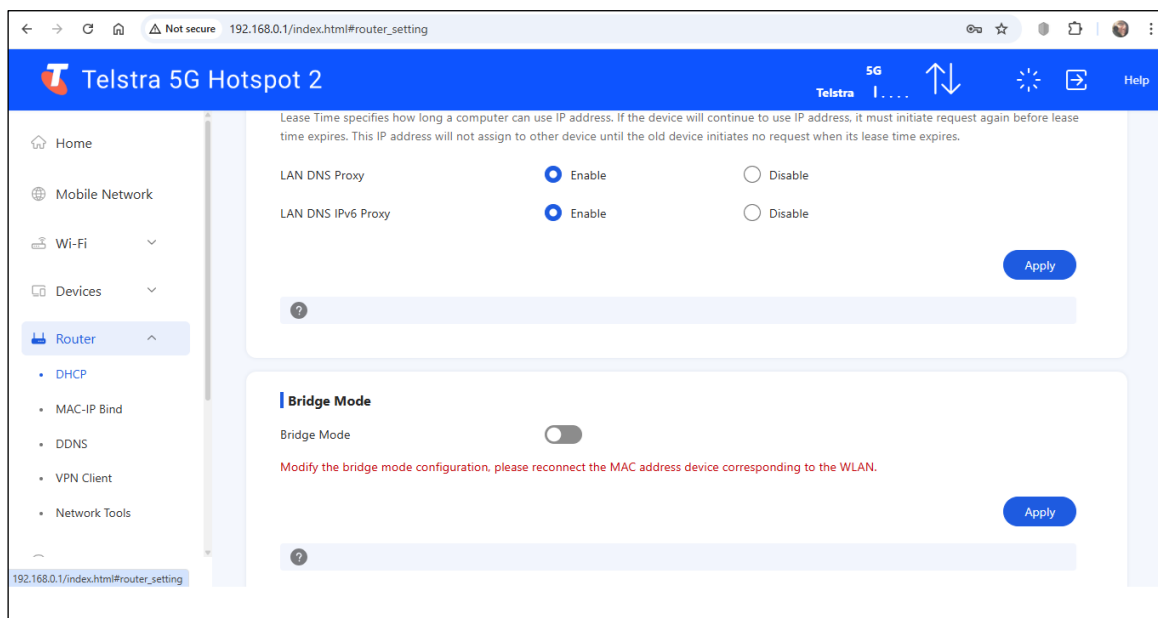
TIP If you set a MAC address / IP bind then you must Restart the modem to apply these settings.

Note: Due to security considerations, the MAC address of mobile phones will change periodically, which will cause the devices binding to become invalid.

Bridge Mode

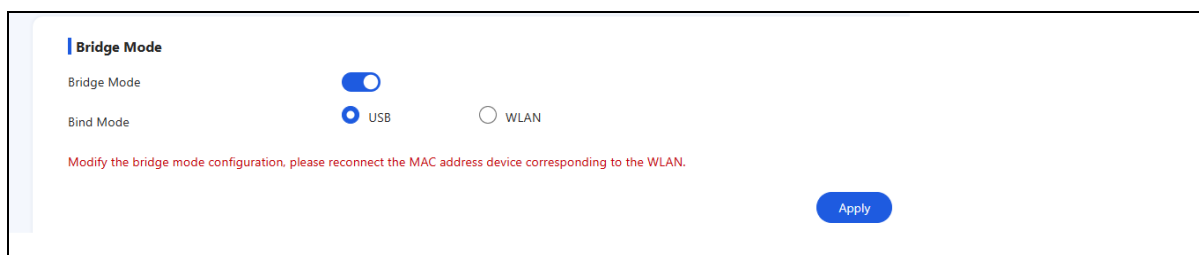
This mode is only used when you have another router or device that will be handling all the network communications and connection itself. It will basically disable the NAT function on the U60 Pro and then bridge all the incoming traffic to the assigned device. Configuration for this function is simple and it only allows for a single device connected by either the Wi-Fi network or USB port connection.

As this function takes everything other than the basic mobile network connection configuration away from the U60 Pro we will keep the coverage of this function brief.



Pic 8. Bridge function menu

It is recommended to avoid using Wi-Fi for anything critical communications wise, so in the case of Bridge mode you should use USB port for the data connection.



Pic 9. Bridge mode configuration – USB connection

Enable the Bridge mode function and then select USB and Save / Apply. You will now have the WAN IP Address from the mobile network presented to the USB network connection and all protection and security for your application will be the responsibility of your own router or device and not the U60 Pro which is now acting as a simple modem only.

Public IP Addressing with the Telstra mobile Network

Public IP Addresses in the mobile network environment are not common. They are reserved for Business and Enterprise use only in the Telstra mobile network. That excludes to the best of our knowledge Small Business users as well as normal users of the Telstra mobile network.

So before any of the following is possible you would need to have either a signed Telstra Business user account or be signed as a Telstra Enterprise user account holder. The two options then not only allow access to a way to obtain access to the Public IP Address Pool, but also other services and offerings that Telstra Enterprise has available for larger users.

We are only looking at the Public IP Address offering in this document since that only requires you to be a Telstra Enterprise or Business account holder and then you can get a SIM card setup as required and configure the rest yourself on the U60 Pro.

The reason this is all necessary is if you are using the U60 Pro to host a server or IP Security camera or NVR or some other device that you want to access from another device via the internet, then you have to be working with a Public IP Address on the device you are trying to reach and in this case the device is located behind the U60Pro.

Carriers such as Telstra typically use Carrier Grade Network Address Translation (CGNAT) to switch from public IP addresses, which are in short supply, to private 10.x.x.x ones. The issue here is that all those private IP Addresses in use by our mobile phones are not routable or accessible from the internet which is great for security and being able to support millions of devices on a network, but if you want to access a device then you have to have a Public IP Address.

This is where Telstra Enterprise (& Business) users can ask Telstra Enterprise to enable a SIM card to allow access to the telstra.extranet APN and the Public IP Address Pool. The Important thing to note is the word Pool, as this is not a STATIC Public IP Address that is specifically assigned to your service / SIM card, but it is an Public IP address that is allocated to your service from the available Pool of Public IP Addresses at that given moment and it will change after the allocation time has passed or your U60 Pro requests a new one.

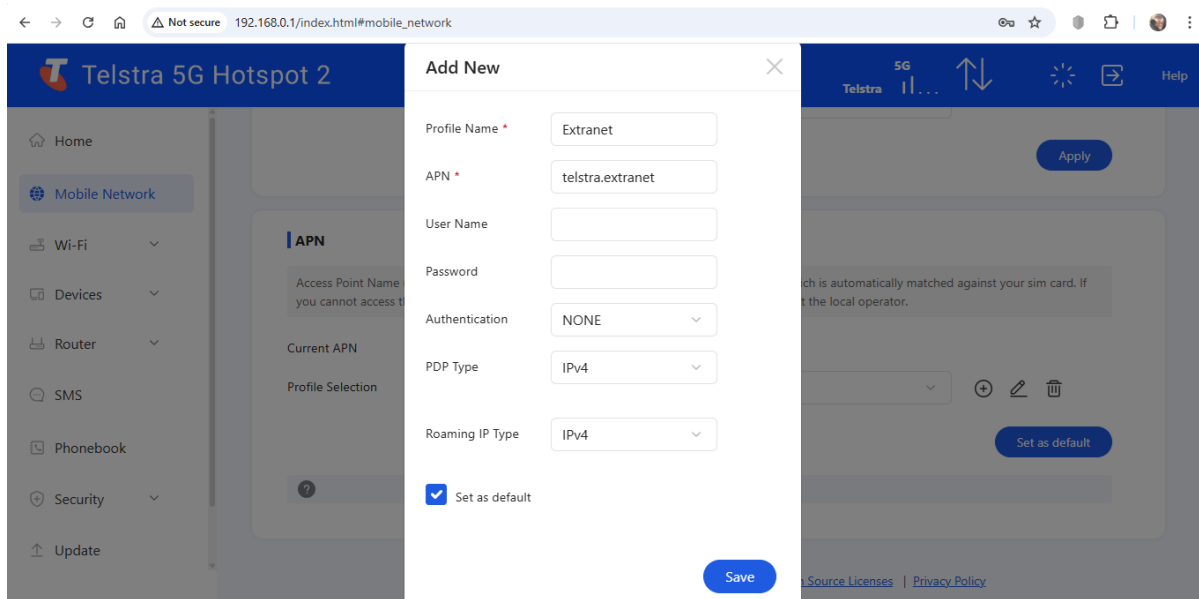
If you require a Static Public IP Address contact Telstra Enterprise. A Static Public IP Address is not necessary in most cases as we will make use of DDNS to keep track of how to reach our U60 Pro when the Public IP Address changes, more on that later.

So let's assume that you have signed up as a Telstra Enterprise user. You can now call the Telstra Enterprise Call centre (ph) and once you have been authenticated and validated and ask for the code GPTEXB3 to be assigned to a SIM that you own / manage. Once this code has been applied you should now be able to change the U60 Pro Default APN to the telstra.extranet APN and then be able to obtain a Public IP Address from the Telstra Enterprise Public IP Address Pool.

The following section will outline the APN setup and how to check that you now have a Public IP Address.

APN Setup

Once you have had your SIM card configured with the required code by Telstra Enterprise, you can then setup the telstra.extranet APN which is a very simple to complete.



Pic 10. APN setup

For the telstra.extranet APN you only need to setup the following fields as shown above.

Profile name – Extranet

APN – telstra.extranet

All the other fields leave them as they are and be sure to Select the check box for the “Set as Default” option. Then click Save.

You can now check on the home screen of the WebGUI for the network status and also by clicking on the “More Detail” link on the Home page and then scroll down to see the WAN IP Address to confirm that it is a Public IP Address.

A screenshot of the 'Basic Information' menu in the WebGUI. The menu is a table with two columns: the field name and its value. The 'WAN IP Address' row is highlighted with a red border. The values are: IMEI (864730070001554), IMSI (505013492714764), LAN Domain (m.home), Gateway IP Address (192.168.0.1), WAN IP Address (120.157.223.220), WAN IPv6 Address (---), Software Version (U60 Pro_T03), Market Name (Telstra 5G Hotspot 2), and Device Model (U60 Pro).

Basic Information	
IMEI	864730070001554
IMSI	505013492714764
LAN Domain	m.home
Gateway IP Address	192.168.0.1
WAN IP Address	120.157.223.220
WAN IPv6 Address	---
Software Version	U60 Pro_T03
Market Name	Telstra 5G Hotspot 2
Device Model	U60 Pro

Pic 11. More Details information menu showing a Public IP Address from the Extranet Pool

DDNS – Makes Life Easier

Dynamic Domain Name Service (DDNS) is an enhancement to DNS in that it allows for a domain to be updated when the IP Address changes. So since the U60 Pro when used with the telstra.extranet APN is allocated a Public IP Address that changes either due to allocation timeout or request from the hotspot itself due to restart etc, then DDNS is the solution that allows us to always be able to reach our U60 Pro from anywhere on the internet.

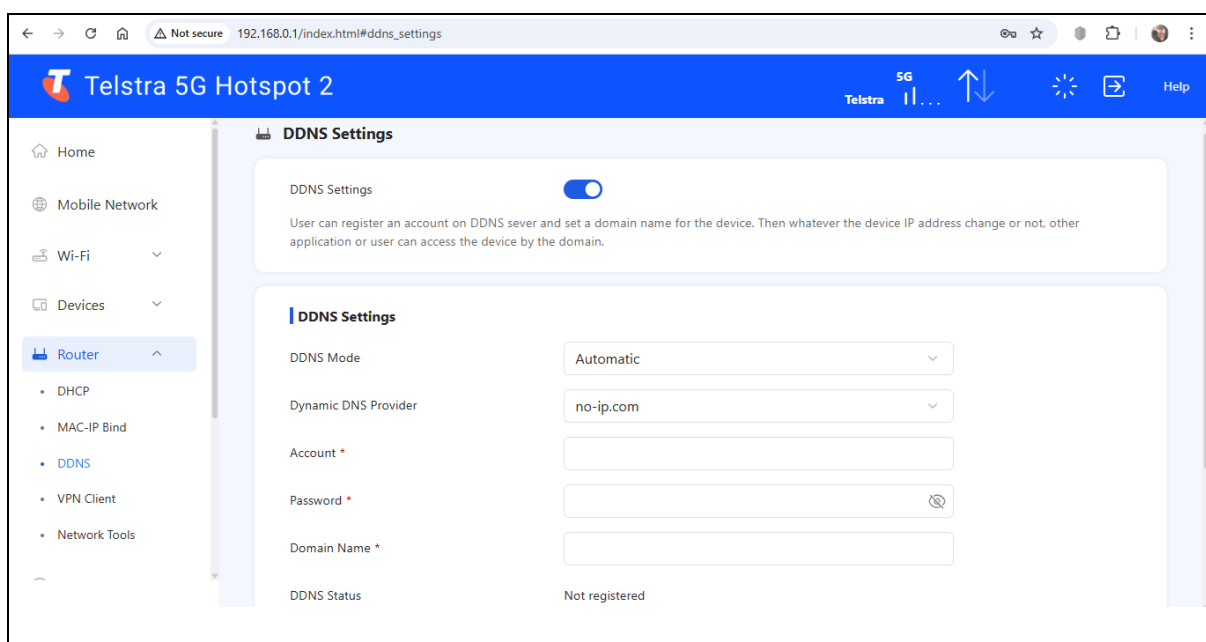
The DDNS service providers let you use one of their domains and you set the service name and you can then use that domain to get to your device. The U60 Pro has DDNS function support that allows you to add your DDNS provider account details and so every time the U60 Pro gets a new Public IP Address allocated it updates the DDNS provider with the change and you can still use the Domain name you setup to always access the link.

DDNS

Configuring DDNS on the U60 Pro requires you to have setup an account with a DDNS service provider. There are Free ones and Paid for services available online and in this instance we will just start with a free one like noip.com that offer all the options.

You will need to setup an account on the noip.com site and once you have setup you will need to go to the DDNS & Remote Access / No-IP Hostnames and create a new Hostname record. This will provide you with a host name and a domain name that you will have to select from a list, an example of which is “myu60pro.ddns.net”. You will need to enter this on the U60 Pro DDNS settings later.

Follow the directions of the noip.com site for this but in the end you will be able to obtain the account details required to setup you DDNS connection as follows.



Pic 12. DDNS Setup menu

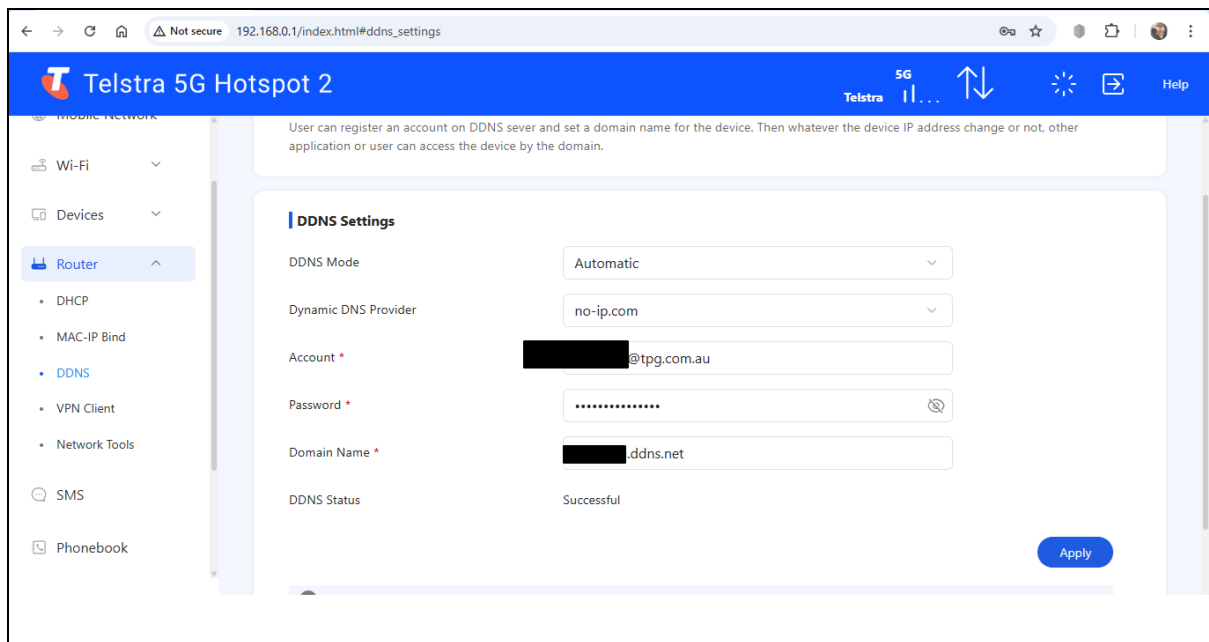
Required Details for DDNS Setup

Account – Typically the email you signed up with or the one provided by the DDNS provider

Password – Either the one you signed up with or the one provided by the DDNS provider

Domain name – This is the domain that you have selected and setup for your DDNS service

Once you have entered these details click on Apply and watch the DDNS Status line as it will indicate if the U60 Pro has been successful in contacting the DDNS provider and forming the connection.



Pic 13. DDNS Success Status

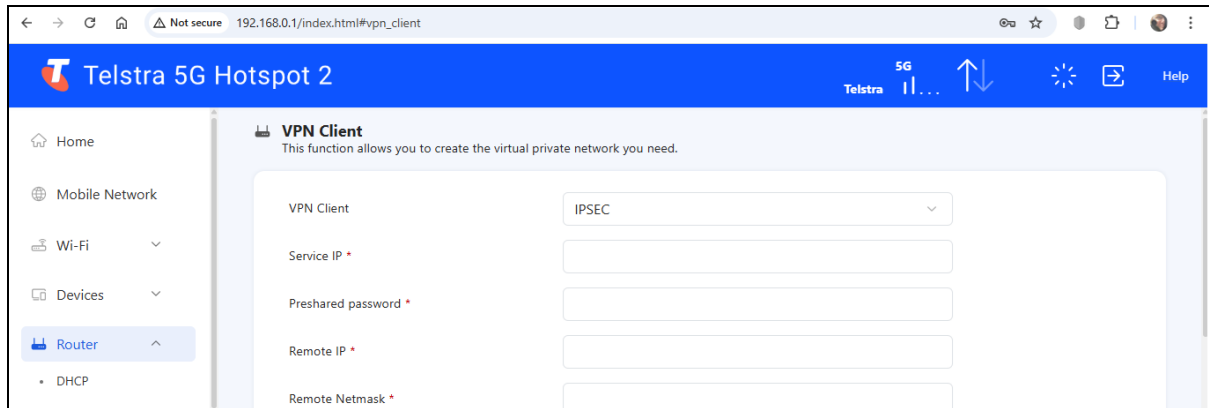
You can now configure any of the following Port forwarding, mapping, DMZ etc functions that allow access from the Internet to your U60 Pro or device(s) behind the U60 Pro.

DDNS Status Codes:

- Successfully – IP address update successful
- Login error – Account validate on DDNS server is failed
- Network error – The network is abnormal
- Updating – IP address is updating
- Not registered – The account is not registered on DDNS server
- Error registering – other error for this function.

VPN Client

The VPN Client function is for simple single Virtual Private Network connection from the U60 Pro to a VPN server under your control. It is for basic remote connection. IPSEC is the best option provided and this function needs to have Public IP Address access to be able to work. Configuration for the IPSEC connection uses the following menu.



The screenshot shows the 'VPN Client' configuration page in the Telstra 5G Hotspot 2 interface. The page title is 'VPN Client' and it includes the text: 'This function allows you to create the virtual private network you need.' The configuration form has the following fields:

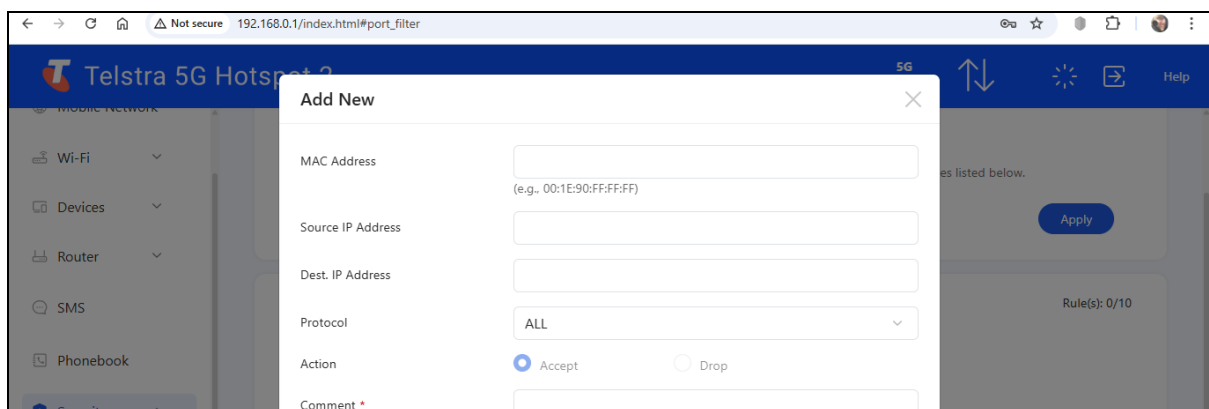
- VPN Client: A dropdown menu with 'IPSEC' selected.
- Service IP: An empty text input field.
- Preshared password: An empty text input field.
- Remote IP: An empty text input field.
- Remote Netmask: An empty text input field.

Pic 14. VPN Client Configuration for IPSEC

Port Filtering

Port Filtering is a security measure where you can select specific ports and their associated traffic to be blocked. An example would be if you wanted to block FTP, Torrents, Telnet etc from a specific IP or MAC address. The choices available for the setup of Port Filtering are as listed below. You can filter on source IP or MAC address, or you can filter on the destination IP address and then set the port or protocol to be filtered / blocked.

As with many rules based functions, each rule that you set is processed in the order that they have been created. So you may need to think about the order that you enter each of your rules to best optimise the load placed on the U60 Pro processing all the traffic.



The screenshot shows the 'Add New' dialog box for Port Filtering in the Telstra 5G Hotspot 2 interface. The dialog box has the following fields and options:

- MAC Address: A text input field with a placeholder '(e.g., 00:1E:90:FF:FF:FF)'. There is a blue 'Apply' button to the right.
- Source IP Address: An empty text input field.
- Dest. IP Address: An empty text input field.
- Protocol: A dropdown menu with 'ALL' selected.
- Action: Two radio buttons, 'Accept' (selected) and 'Drop'.
- Comment: An empty text input field.

Pic 15. Port Filtering menu

Explanations of settings

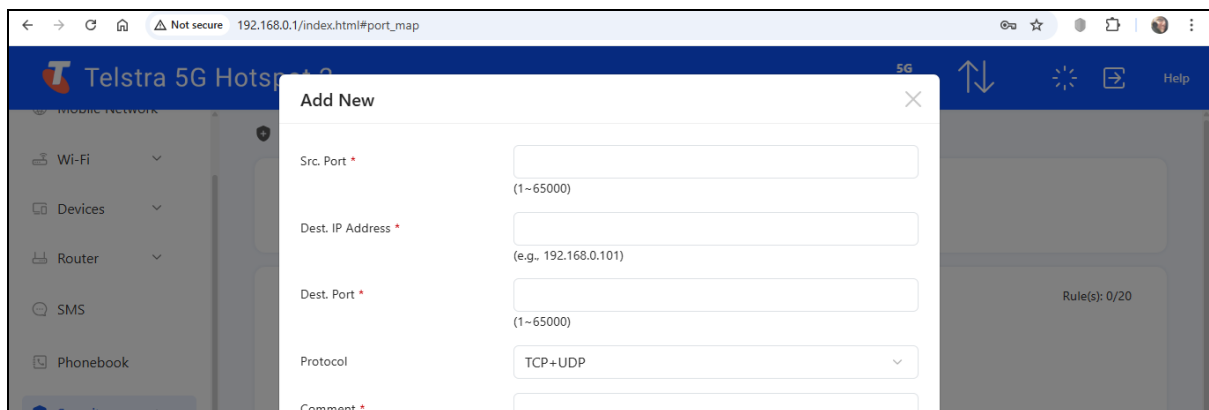
- MAC Address: Set MAC address to be filtered.
- Source IP Address: Set source IP address to be filtered.
- Dest IP Address: Set dest IP address to be filtered.
- Protocol: Set protocol to be used for filtering.

- Source Port Range: Set source port numbers to be filtered.
- Dest Port Range: Set dest port numbers to be filtered.
- Action: Set to handle the packet if it matches with the rule.
- Comment: Enter comment for filter settings. It contains 0-9 a-z A-Z ! # () + - . / % = ? @ ^ _ { | } ~ .
- The filter policies are matched one by one with the rules. And if met this provision, it won't continue to match the rules listed below.
- The maximum of rules for IPv4 and IPv6 is 10 respectively.

Port Mapping

Port Mapping allows you to alter the port that is being used and redirect to another port number. So if you had a webserver that you needed to access from the Internet through the U60 Pro, then you could set it up to use a different port such as 8080.

You could map any port number to any other port number using this function, but you should remember that the U60 Pro uses port 80 for its WebGUI, meaning that this and other base protocol protocols / ports should be avoided such as those related to Web and DNS to start with.



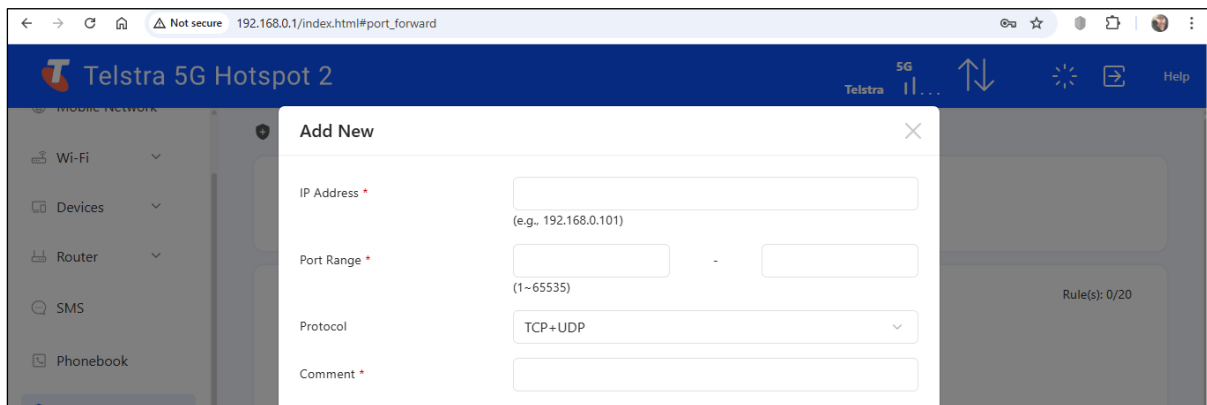
Pic 16. Port Mapping Setting menu

Explanation of settings

- Src. Port/Dest Port: The port of the computer that provides services.
- Dest. IP Address: Specify a computer located at LAN to provide services.
- Protocol: Protocols applied by services.
- Comment: Type comment for Port Mapping rule. It contains 0-9 a-z A-Z ! # () + - . / % = ? @ ^ _ { | } ~ .
- The maximum number of rules is 20.

Port Forwarding

Port Forwarding is simply the redirection of specific WAN side protocols and their assigned ports to a specific LAN assigned IP Address.



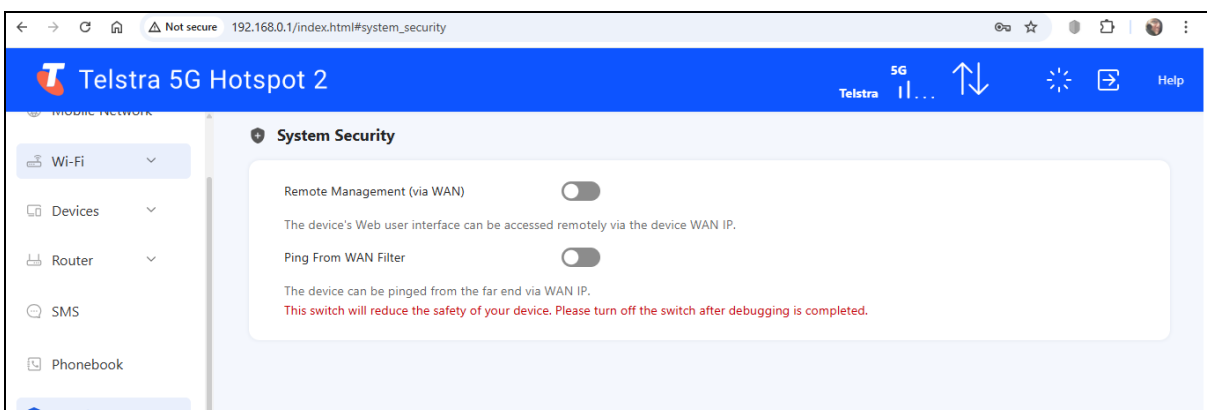
Pic 17. Port Forwarding settings menu

Explanation of settings

- IP Address: Specify a computer located at LAN to provide services.
- Port Range: Set port numbers to be filtered.
- Protocol: Protocols applied by services.
- Comment: Type comment for Port Mapping rule. It contains 0-9 a-z A-Z ! # () + - . / % = ? @ ^ _ { | } ~ .
- The maximum number of rules is 20.

System Security

The System Security menu provides access to two options that are disabled by default and should be left this way unless necessary for your testing and/or requirements.



Pic 18. System Security menu

Remote Management

The Remote Management function if enabled opens access to the U60 Pro WebGUI on the WAN interface. This is a security risk so do so at your own risk.

Ping from WAN

The Ping from WAN function if enabled allows the U60 Pro to respond to Ping requests on the WAN interface. It is best practice to not allow this for security reasons, but it can be useful for testing purposes while getting setup.

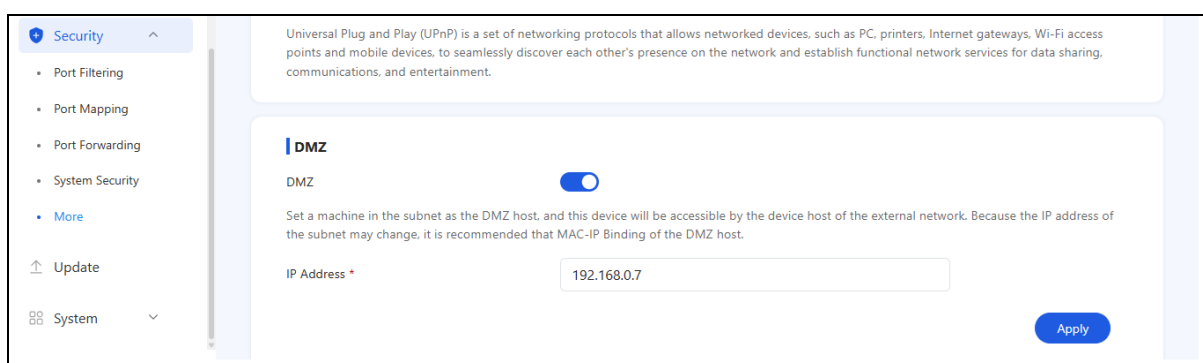
uPNP

Universal Plug and Play (UPnP) is a set of networking protocols that allows networked devices, such as PC, printers, Internet gateways, Wi-Fi access points and mobile devices, to seamlessly discover each other's presence on the network and establish functional network services for data sharing, communications, and entertainment.

Given that is the case it is also recommended that this remains disabled as it can pose a security risk in today's networking environment as bad actors and their applications can also make use of this function to learn more about your network and systems.

DMZ

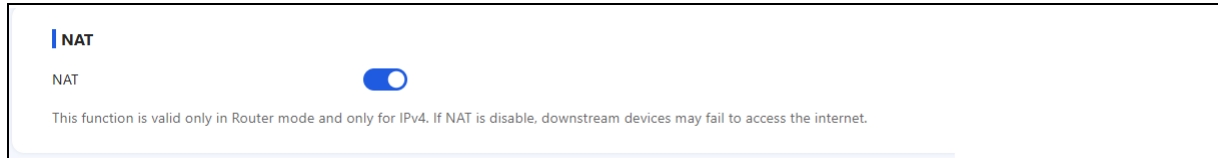
DMZ refers to "De-Militarised Zone" and if you have only one device or system that you want to access remotely from the Internet / WAN side of the network, then this is the quickest option as all incoming ports will be directed to this LAN based IP Address. Again common protocol ports should be altered for WWW etc and it is recommended that MAC-IP Binding of the DMZ host is configured so that the LAN IP Address never changes.



Pic 19. DMZ Setting menu

NAT

NAT refers to “Network Address Translation” and this is used to protect and separate the WAN from the LAN side of devices for security. It is only disabled when Bridge Mode is used typically and this is performed by enabling Bridge Mode itself. There is no application we can think of where you would disable NAT yourself like this, but the ability to do so is available.

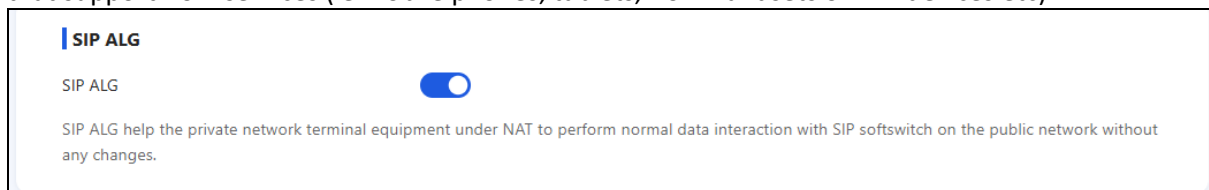


Pic 20. NAT Setting

This function is valid only in Router mode and only for IPv4. If NAT is disable, downstream devices may fail to access the internet.

SIP ALG

SIP ALG is an “Application Layer Gateway” for the SIP protocol used by VoIP devices. The SIP ALG function helps the LAN based devices under the NAT environment to perform normal data interaction with a SIP softswitch on the public network without any changes. It is enabled by default and should be left enabled unless you are sure that you will not be using or connecting any devices that support VoIP services (ie mobile phones, tablets, VoIP handsets or IAD devices etc).



Pic 21. SIP ALG function