AZTECH FG7009GR(AC)

Singtel - Gigabit Ethernet DUAL-BAND 2400 Mbps Wireless AC Residential Gateway

SINGAPORE | May 2015

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CONTENTS

Hardware Features

WAN Connection

- 1-Port Gigabit Ethernet WAN Port for ONT (FTTH) Connection

LAN Connection

- 4-Port Gigabit Ethernet LAN
- Built-in Wireless a/b/g/n/ac Dual Band Access Point (2.4GHz and 5GHz)

Others

- WPS – Wi-Fi Protected Setup button support
- LED Indicators for all interfaces and services

Firmware Features

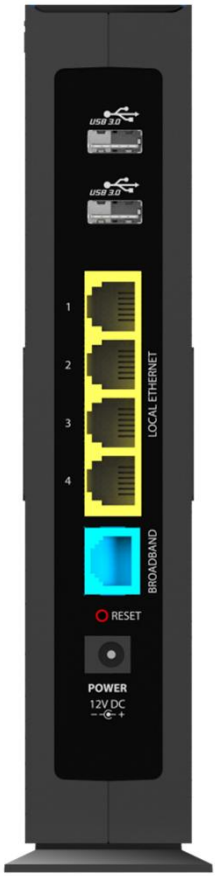
- Out of the box pre-configuration to support Singtel TV and Singtel Broadband
- TR069 Compliant Residential Gateway (auto configuration, remote monitoring/troubleshooting, remote firmware upgrade etc.)
- Zero configuration Internet installation for FTTH
- Unique Wireless SSID and Wireless Key for each of the unit (default wireless credentials are printed on the casing label sticker)
- Dynamic LAN Port mapping for the IPTV – STB
- Port Forwarding and DMZ support, configurable from the user mode pages
- Standard support for Wireless Security / Encryption

Front Panel Indicators and Button

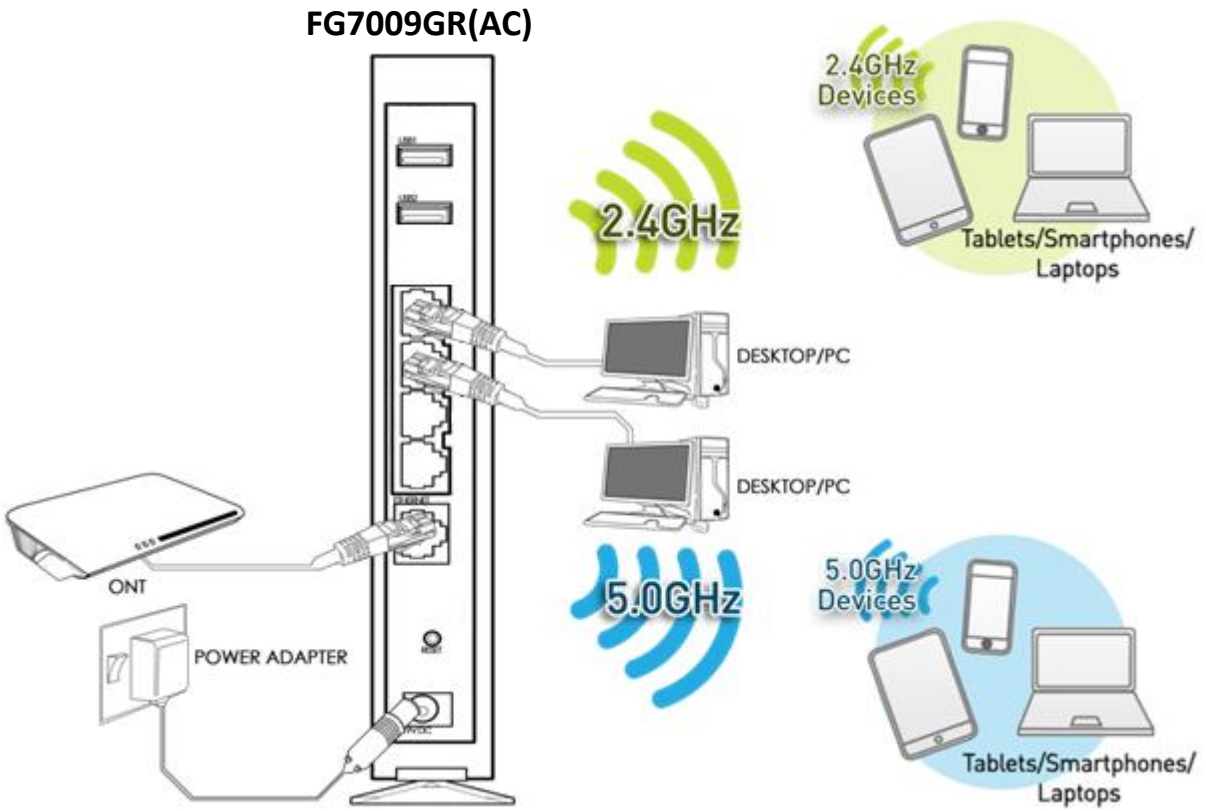
- Power
- Ethernet LAN Ports 1 to 4
- Wifi (2.4GHz and 5GHz)
- USB
- IPTV
- Broadband (Ethernet WAN)
- Internet
- WPS Indicator and button
- LED ON/OFF Indicator and button

Back Panel Ports and Button

- USB 1
- USB 2
- Ethernet LAN Ports 1 to 4
- Ethernet WAN Port
- Reset button
- Power Adapter Jack



Recommended Hardware Setup (FTTH)

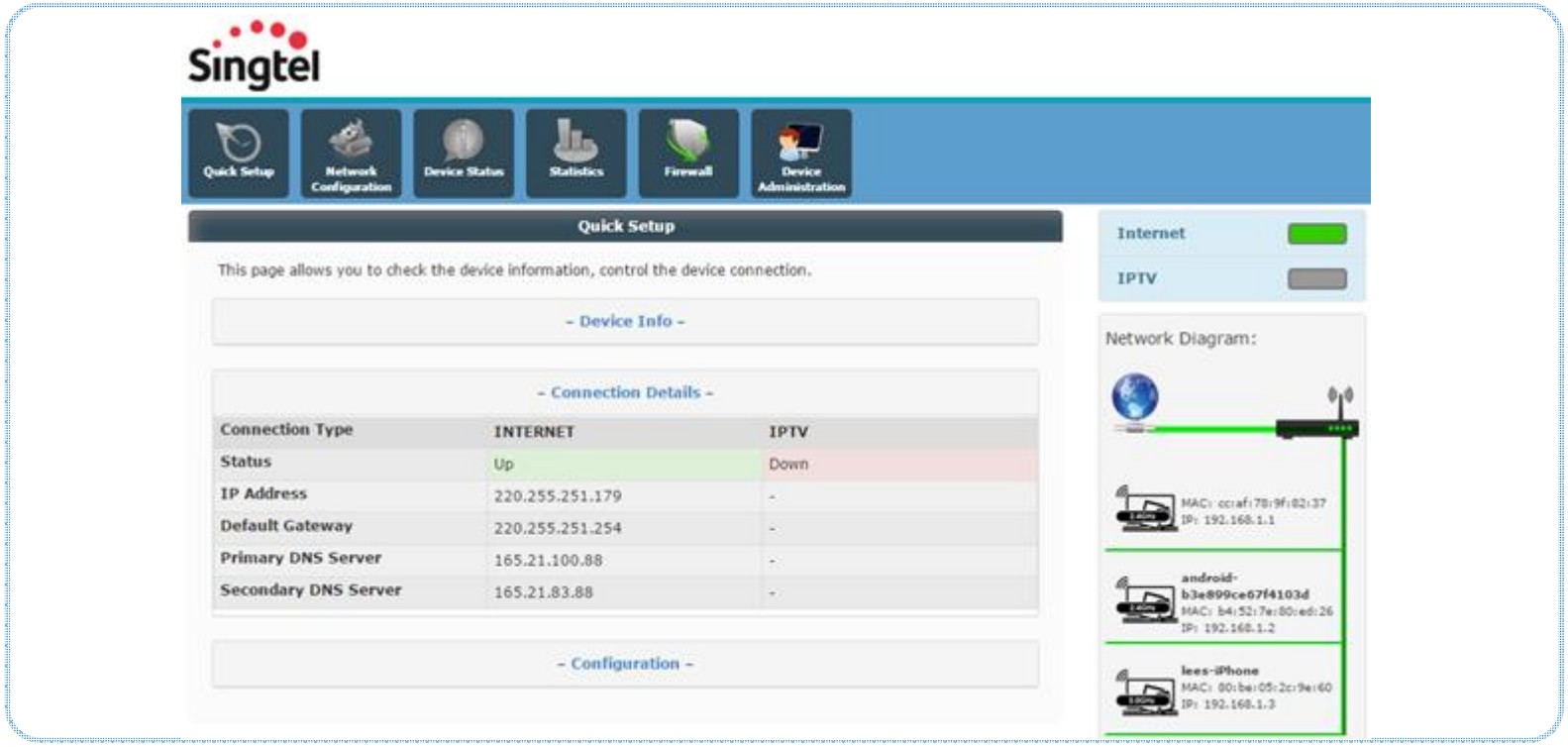


Notes:

1. 5GHz connectivity is recommended for more bandwidth intensive activities such as video streaming within shorter range.
2. 2.4GHz connectivity is recommended for normal surfing activities within a larger area.

FTTH

To check the Internet connection for FTTH , go to http://192.168.1.254, scroll down to Connection Details



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The Default Wireless Configuration

Each unit is preconfigured with a unique wireless network name and a unique password. The information on the default wireless can be found on the casing label sticker.

- The default wireless authentication is Mixed WPA2/WPA-PSK
- The wireless encryption is TKIP + AES
- Wireless channel is set to Auto
- The WPS is enabled by default.
- Both 2.4GHz and 5GHz SSIDs share the same network key by default.

Changing the Wireless Settings

Open your web-browser (e.g. Internet Explorer)

- go to http://192.168.1.254,
- hover your mouse over the **Quick Setup**, click on **Wireless**

- Note by default, it will go to 2.4GHz Wireless settings

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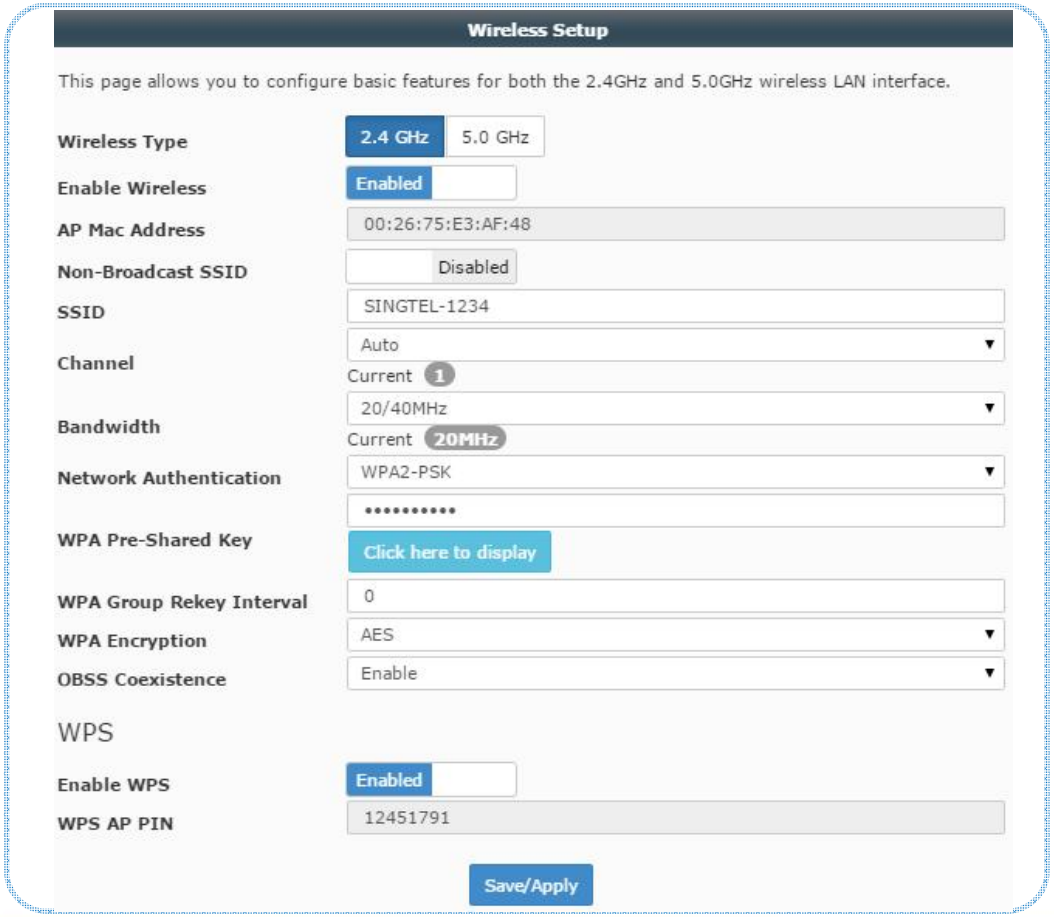
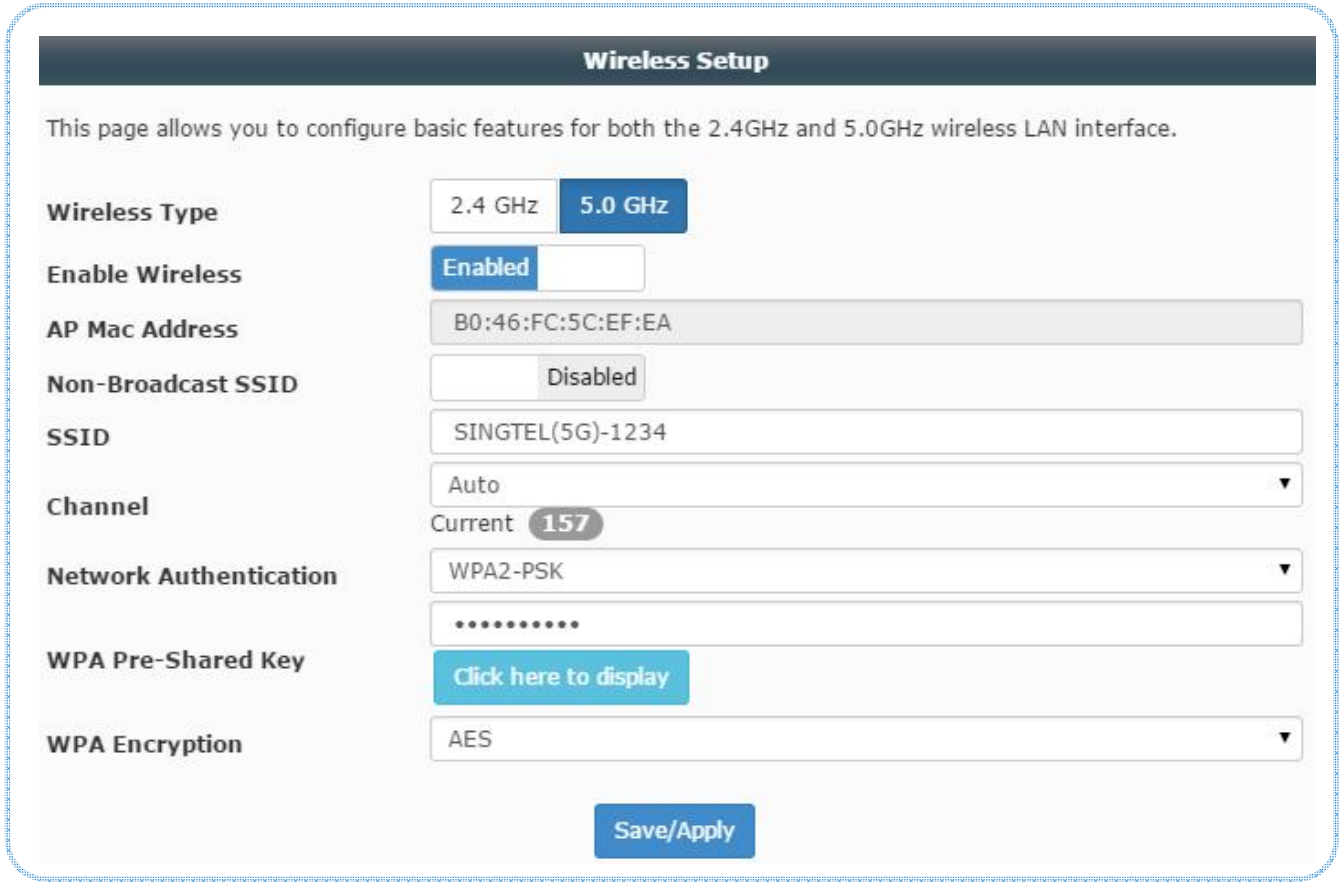
Changing the Wireless Settings

- Note by default, it will go to 2.4GHz Wireless settings, *with 2.4 GHz button highlighted*



Changing the Wireless Settings

- To change 5 GHz Wireless settings, *click on 5.0 GHz button*



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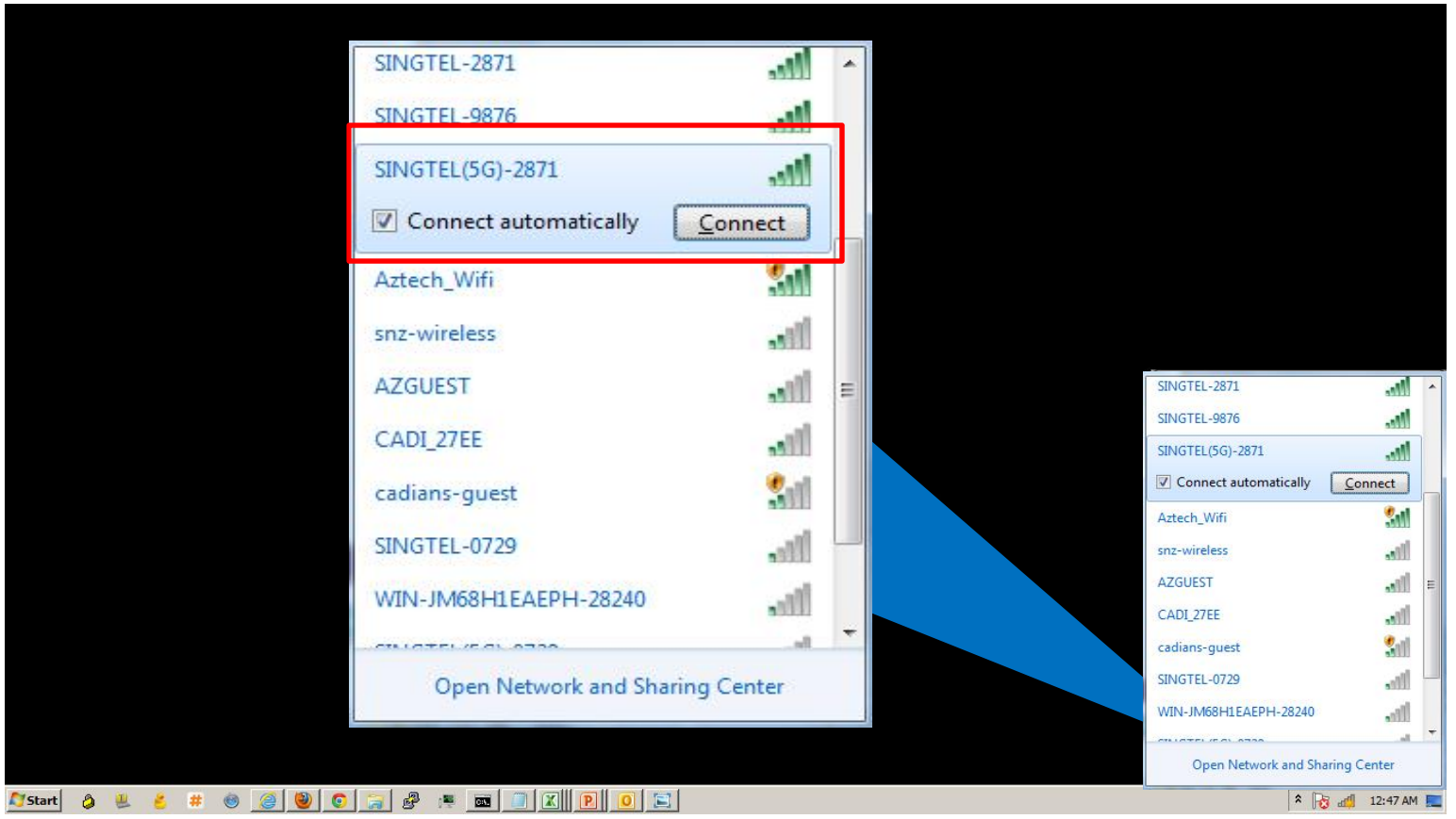
Connecting to 2.4GHz and 5GHz Band



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How to do WPS Pairing

Step 1. Press the WPS button on the RG once,

- upon pressed, WPS LED will start blinking green

Step 2. Press the WPS button on client device within 120 seconds from step 1 above.

- Once the connection is authenticated and established, WPS LED will be solid green, followed by OFF within the next few seconds.

Known wireless devices that supports 5GHz band

- iPhone 5
- iPhone 5S
- iPad 2
- iPad 3
- iPad 4
- iPad mini
- iPad Air
- HTC One
- HTC One S
- HTC One X
- Sony Xperia Z Ultra
- Sony Xperia Z1
- HTC Evo 4G LTE
- Samsung Galaxy S3
- Samsung Galaxy S4
- Samsung Galaxy Note 10.1
- Samsung Galaxy Tab 2 7.0 (GT-P3113)
- Samsung Galaxy Note 1
- Samsung Galaxy Note 2
- Samsung Galaxy Note 3
- Samsung Galaxy Note 8.0 with LTE
- Samsung Galaxy Note 10.1 2014 Edition (LTE)
- iPhone 6
- iPhone 6+
- Samsung Galaxy Note 4
- Samsung Galaxy S5
- Samsung Galaxy S6
- LG G Flex
- LG G Flex 2

Note: This list of devices that supports 5G does not necessarily support wireless AC.

How to enjoy wireless AC

- Wireless Client: Wireless client need to be able to support wireless AC.

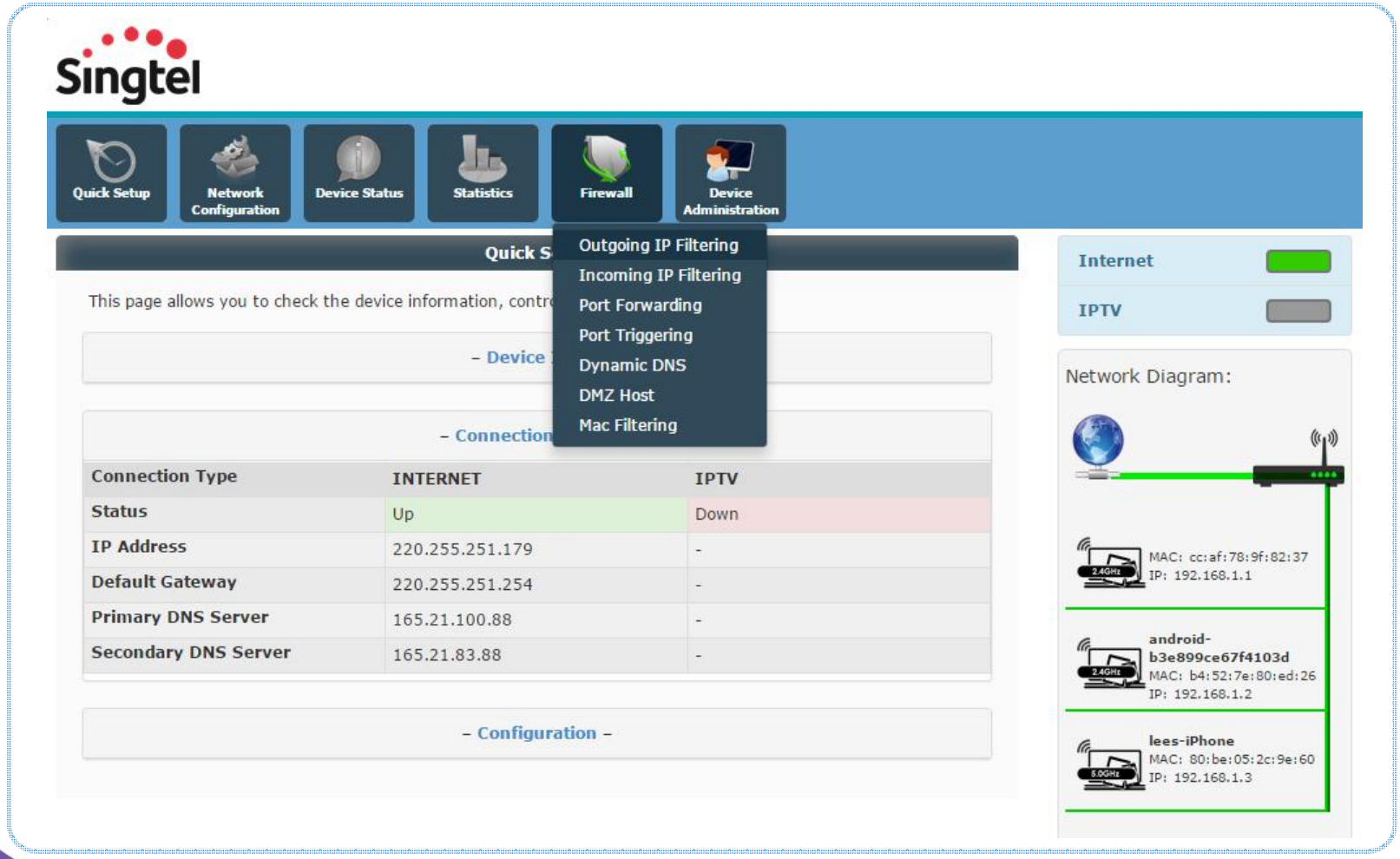
- List of wireless client adapters that support wireless AC:
  - Aztech WL592USB, WL593USB
  - Asus USB-AC53, USB-AC56, PCE-AC68

- List of mobile devices that supports wireless AC:
  - Sony Xperia Z1, Xperia Z Ultra
  - Samsung Galaxy Note 10.1 2014 Edition (LTE), Galaxy S4 with LTE (GT-I9505)
  - Samsung Galaxy Note 4 (LTE), Galaxy S5, Galaxy S6, iPhone 6, iPhone6+

Notes:

1. This list of devices that supports wireless AC is not exhaustive.
2. Wireless performance is also dependant on the client
3. For end devices which do not support wireless AC, it can still connect to the RG using other wireless mode e.g. a/b/g/n but will not be able to achieve the wireless AC speed.

Incoming and Outgoing Firewall Settings

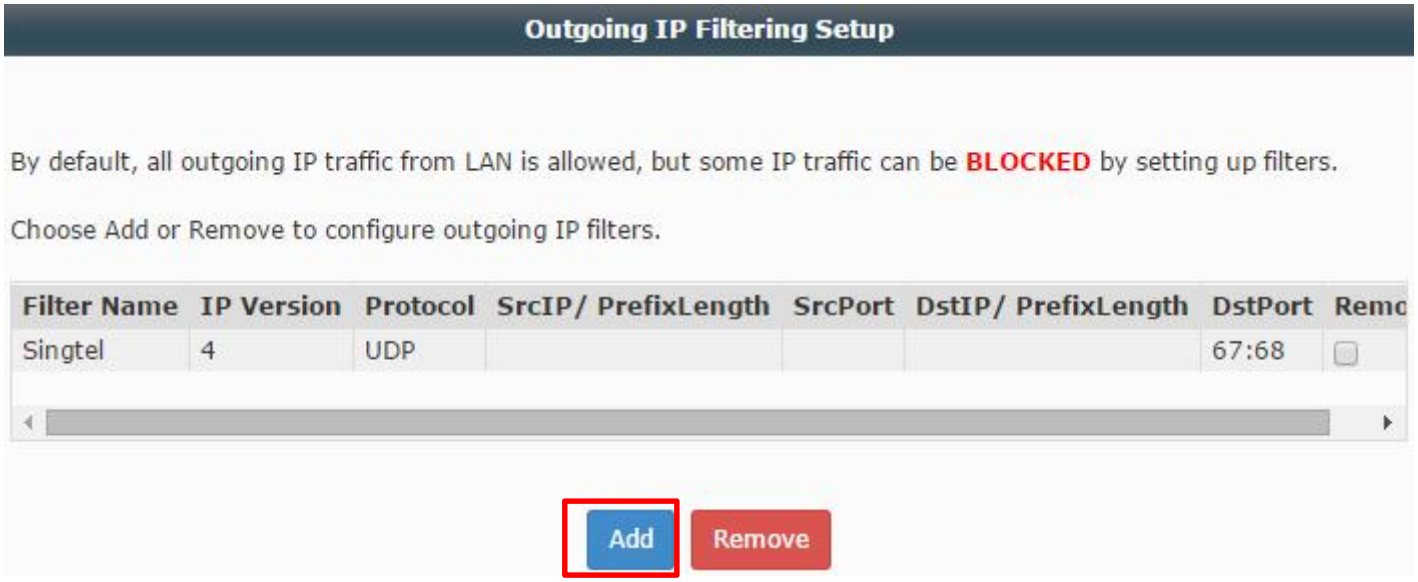


How To Set IP Filtering (Outgoing)

Step 1. Launch an internet browser and go to http://192.168.1.254

Step 2. Hover mouse over **Firewall Configuration**, click on **Outgoing IP Filtering** link

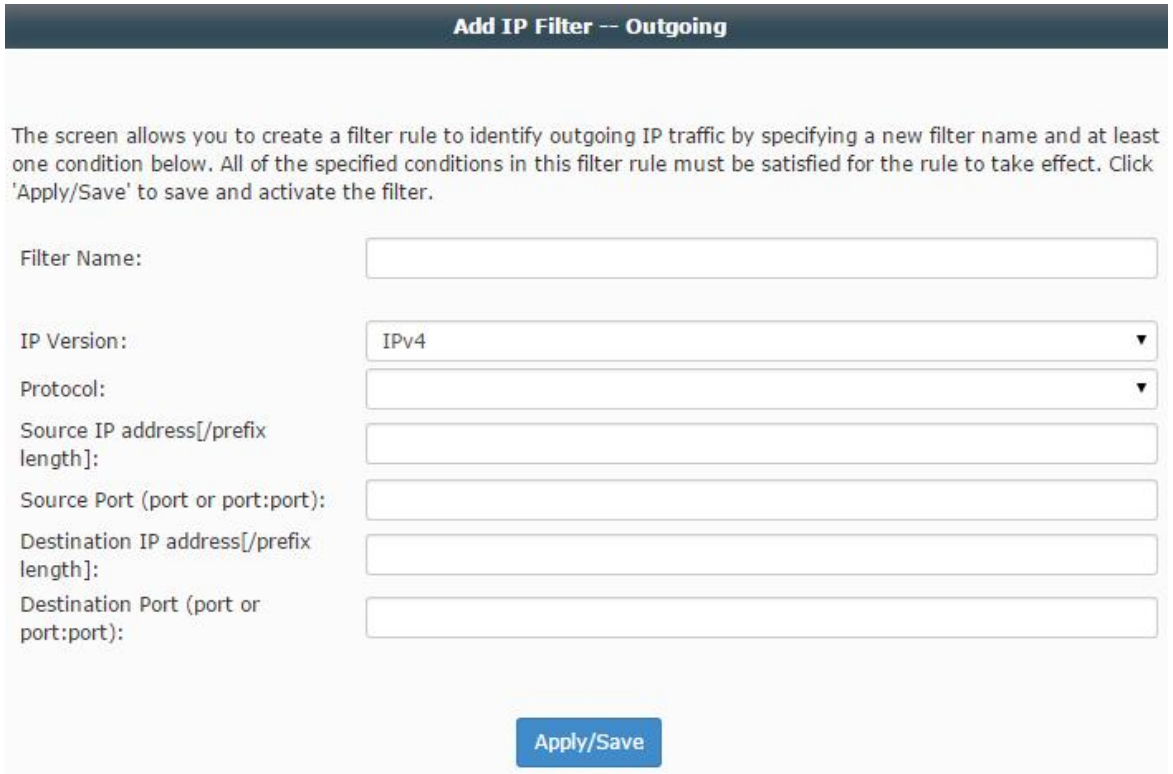
Step 3. Click on **Add** button



How To Set IP Filtering (Outgoing)

Step 4. Fill in the fields required (Filter Name, Protocol, Source IP Address and its port number information as well as Destination IP Address and its port number information).

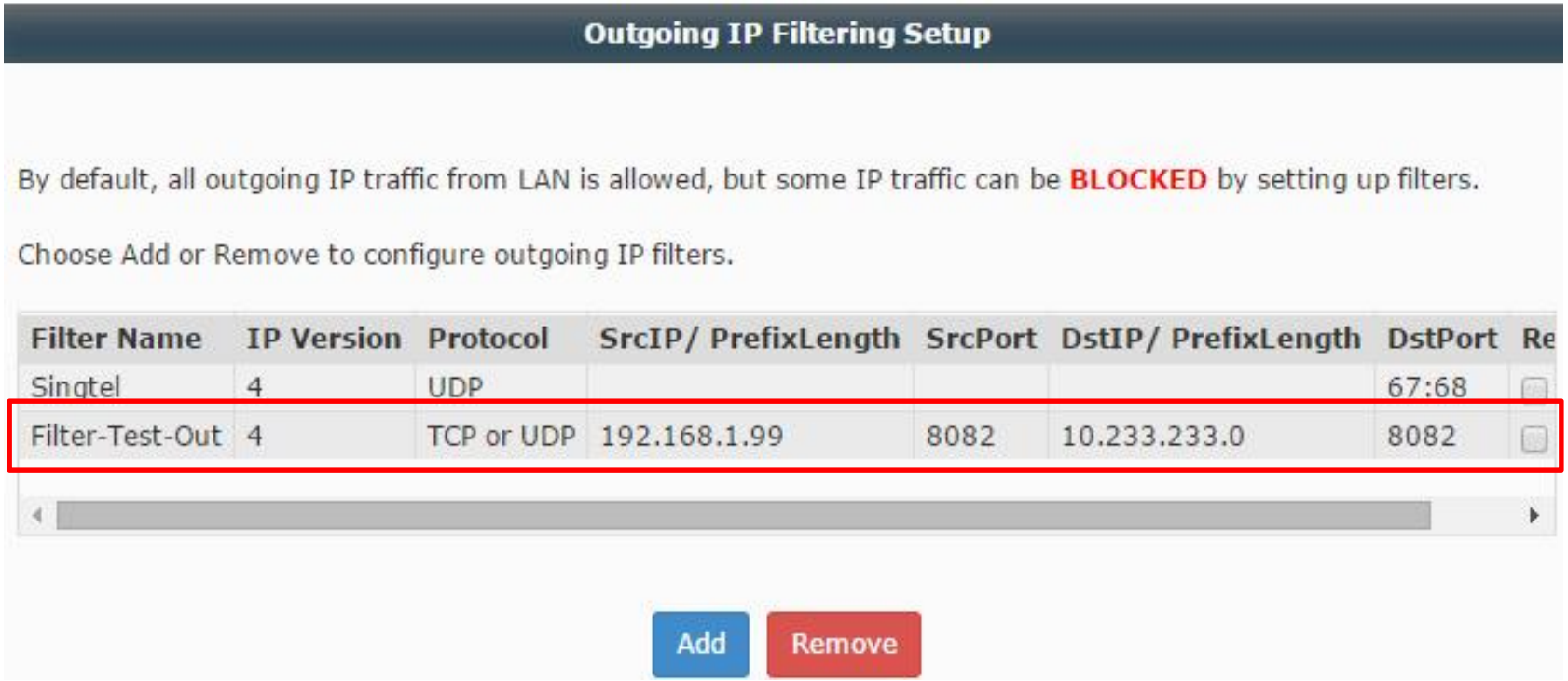
Step 4. Click on Apply/Save button.



How To Set IP Filtering (Outgoing)

Step 5. The rule keyed in will be added in the list

Note: There is a default SingTel rule created in the list, please do not remove.

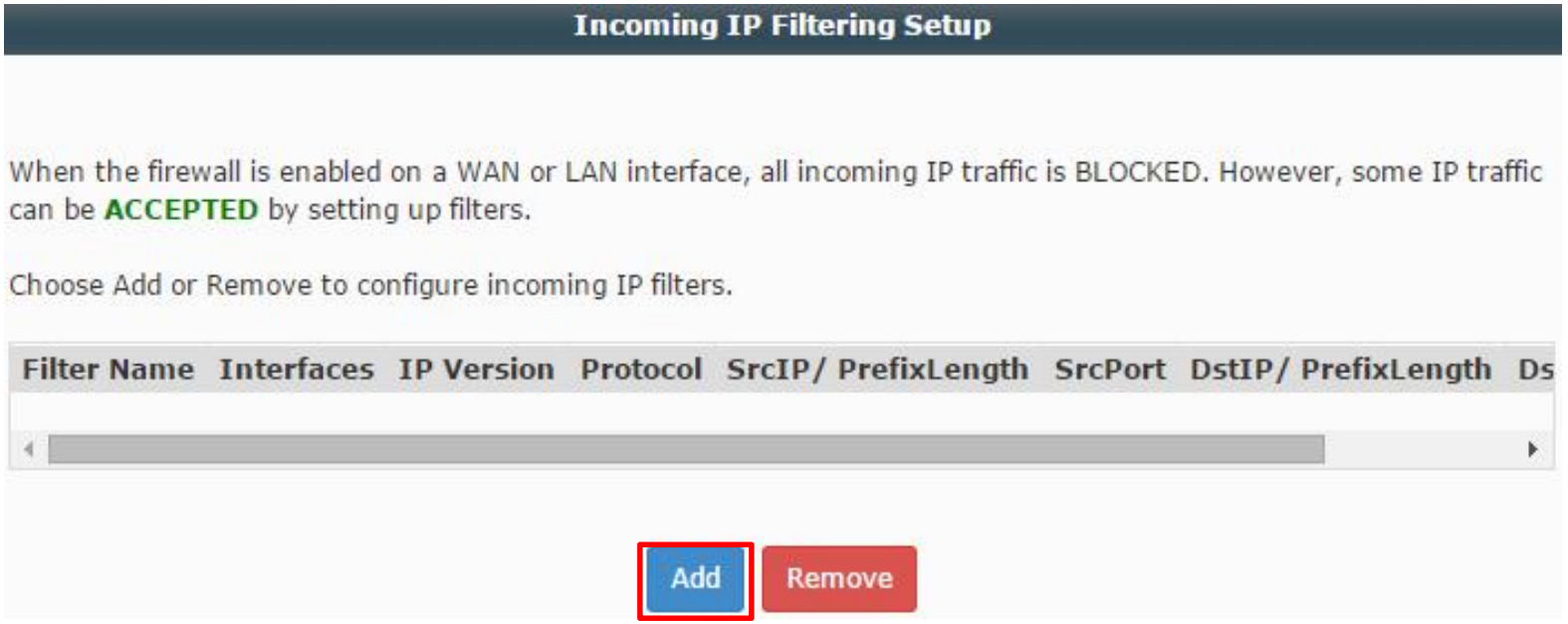


How To Set IP Filtering (Incoming)

Step 1. Launch an internet browser and go to http://192.168.1.254

Step 2. Hover mouse over **Firewall Configuration**, click on **Incoming IP Filtering** link

Step 3. Click on **Add** button



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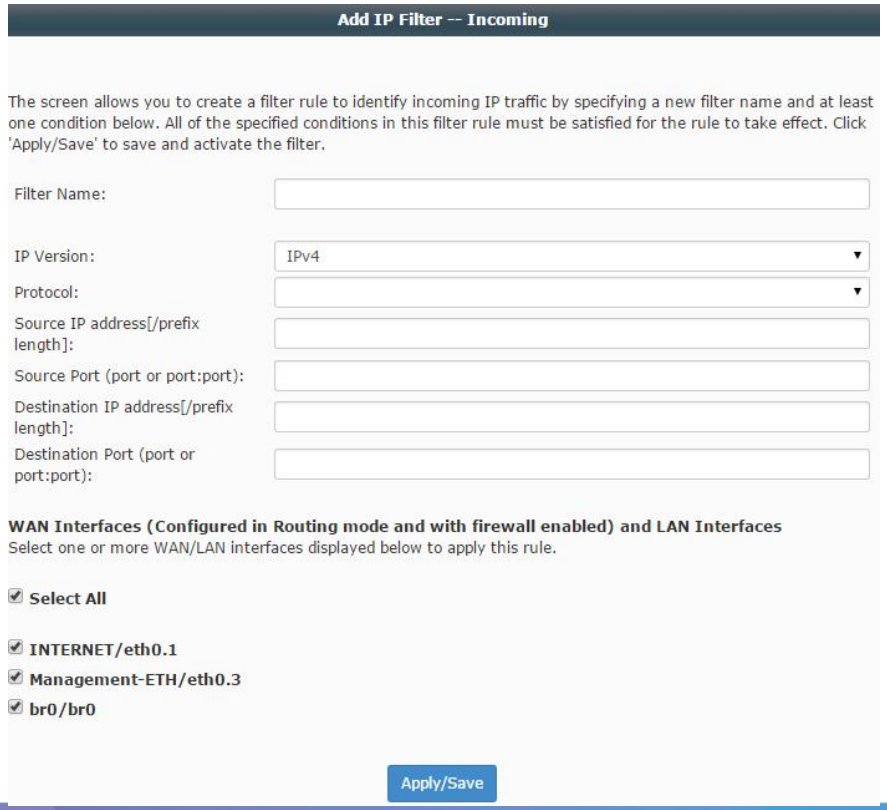
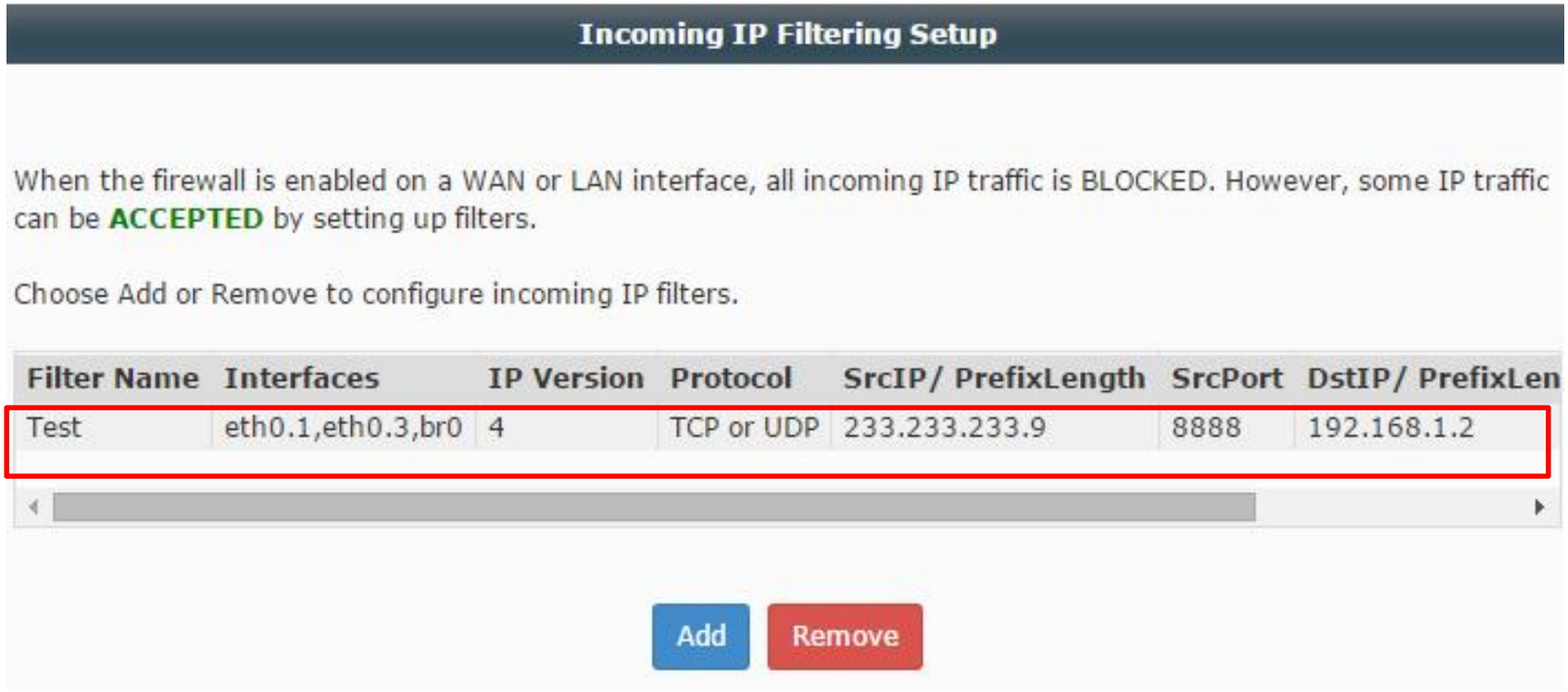
Step 4. Click on Apply/Save button.

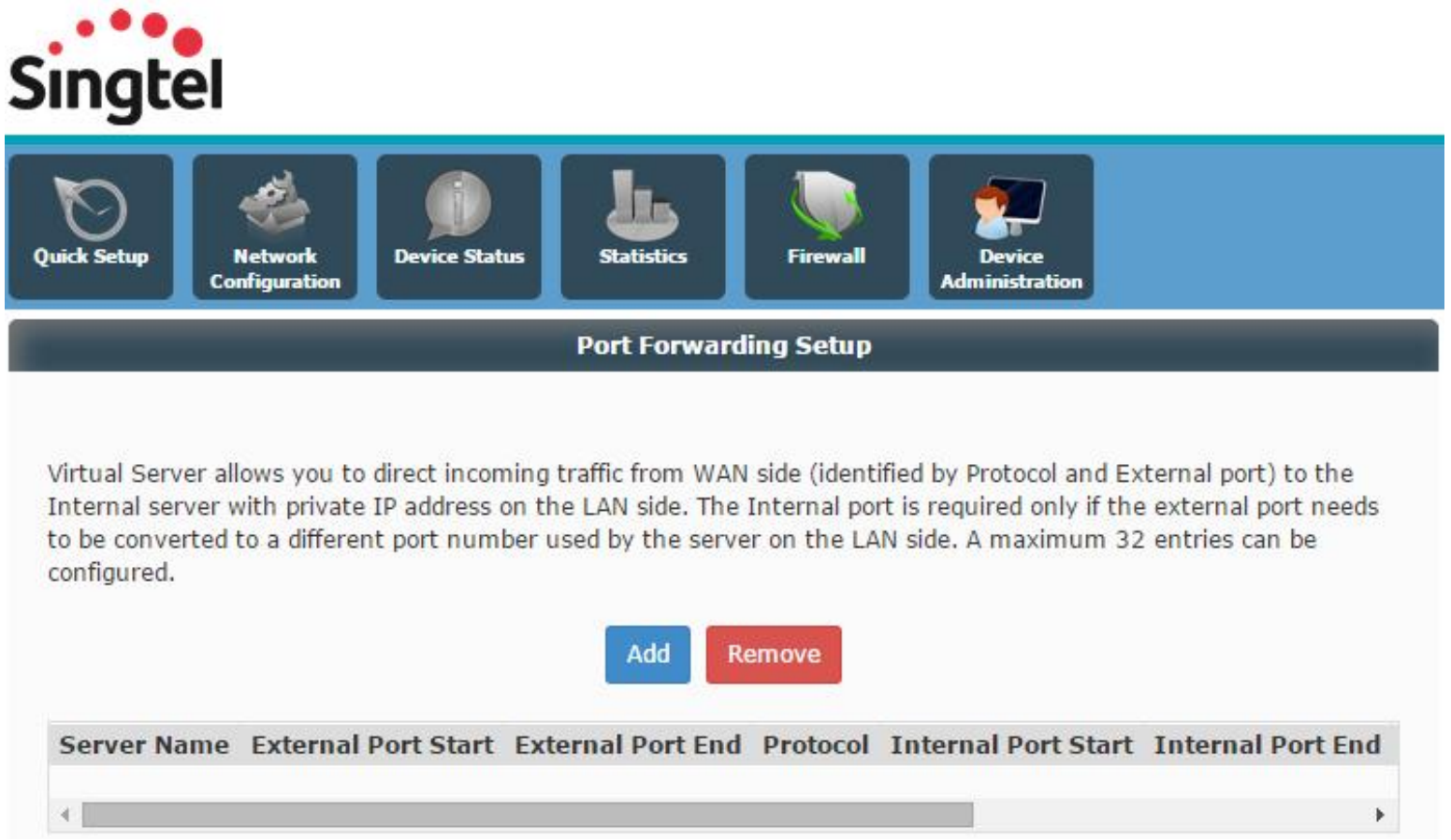


How To Set IP Filtering (Incoming)

Step 5. The rule keyed in will be added in the list



Port Forwarding

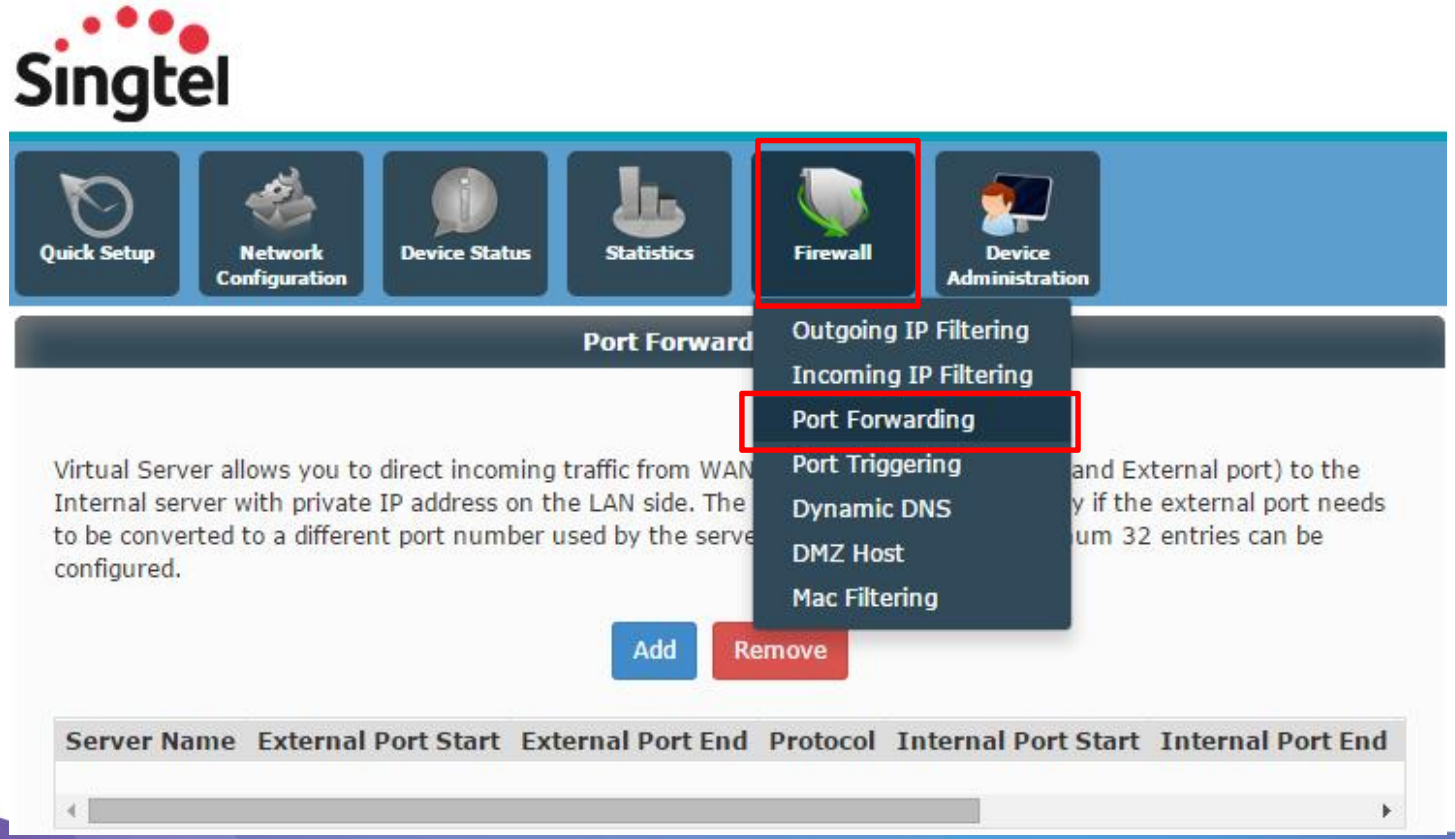


How To Set Port Forwarding

Step 1. Launch an internet browser and go to http://192.168.1.254

Step 2. Hover over on **Firewall**

Step 3. Click on **Port Forwarding** Button



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How To Set Port Forwarding

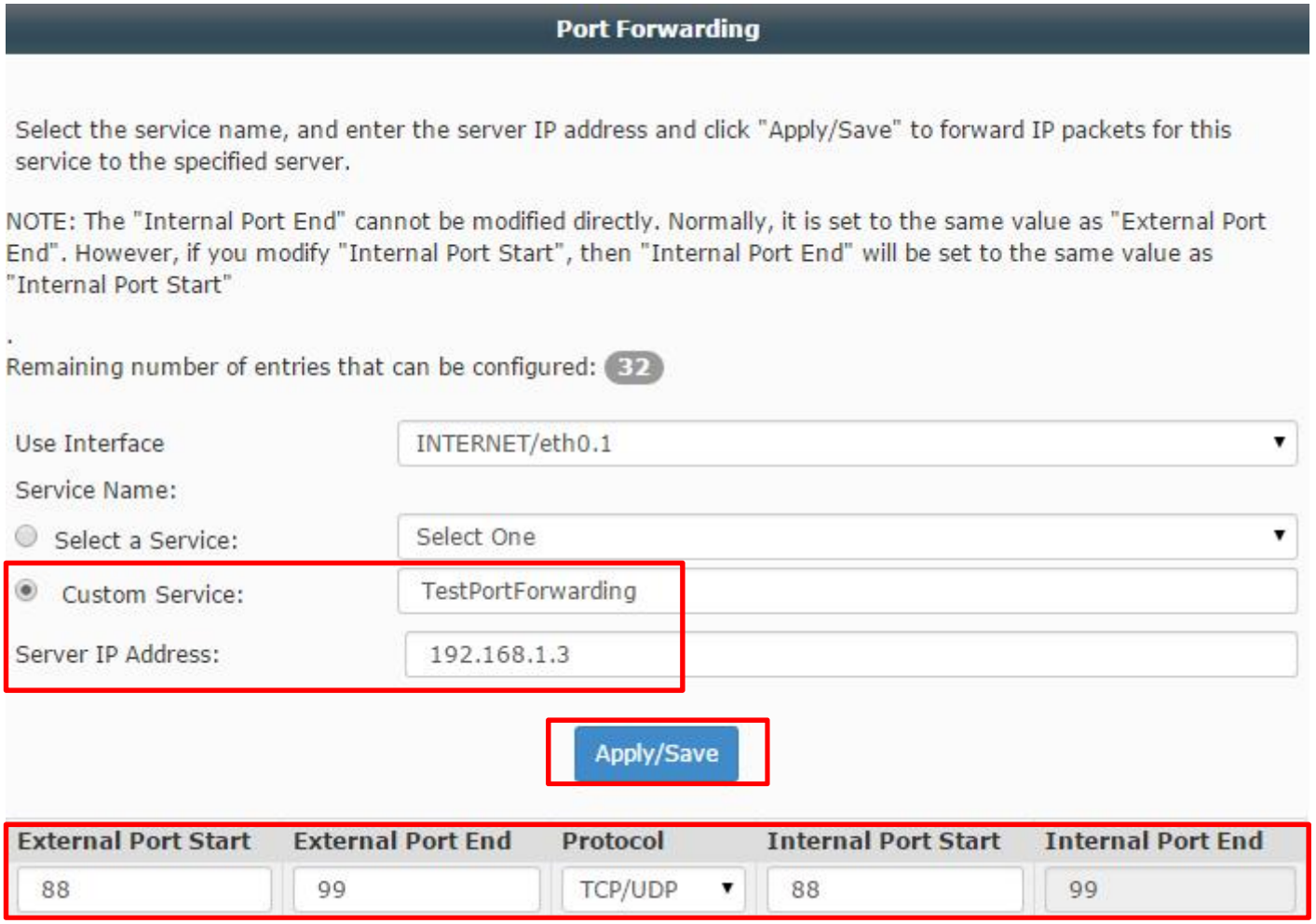
Step 4. Check and confirm the IP Address of the device where the port forwarding rule will be pointed to. Fill in the filed Server IP Address field.

Step 5. Check Custom Server radio button and fill in the application name for easy reference.

Step 6. Fill in the respective port numbers to be forwarded to the server.

Step 7. Click on Apply/Save button.

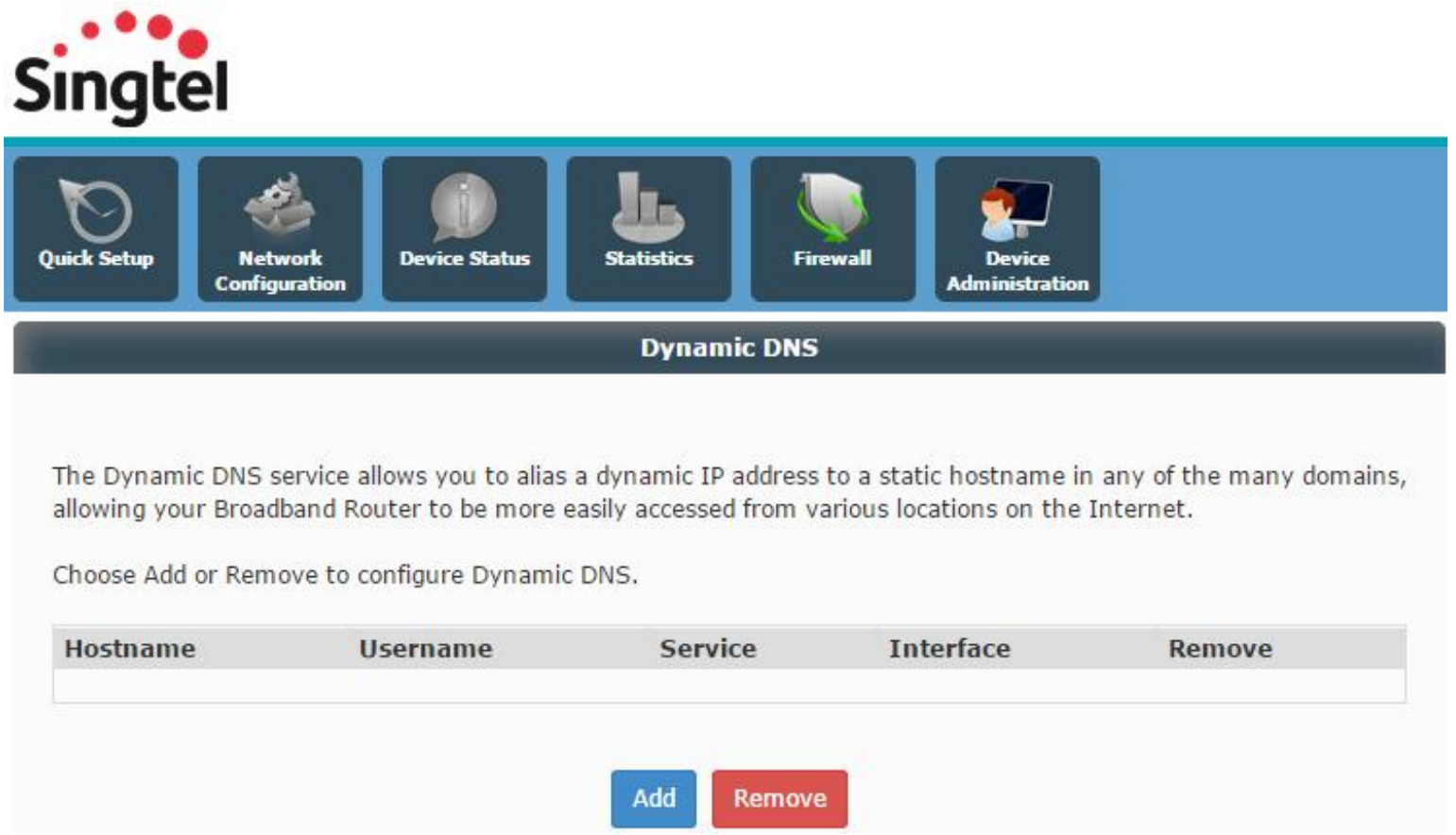
How To Set Port Forwarding



How To Set Port Forwarding

Step 8. Added rule will be shown

DDNS Settings



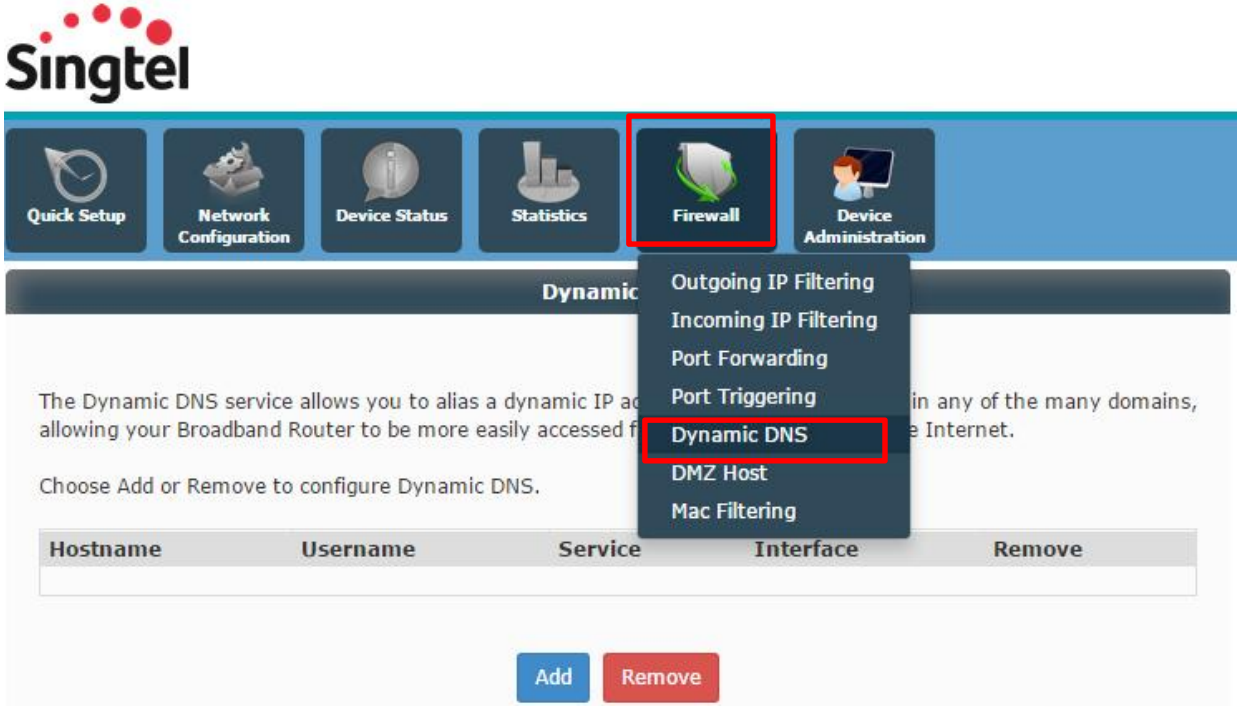
How to Set DDNS

Step 1. Launch an internet browser and go to http://192.168.1.254

Step 2. Hover mouse over **Firewall** Button

Step 3. Click on **Dynamic DNS** button

Step 4. Click on **Add** button



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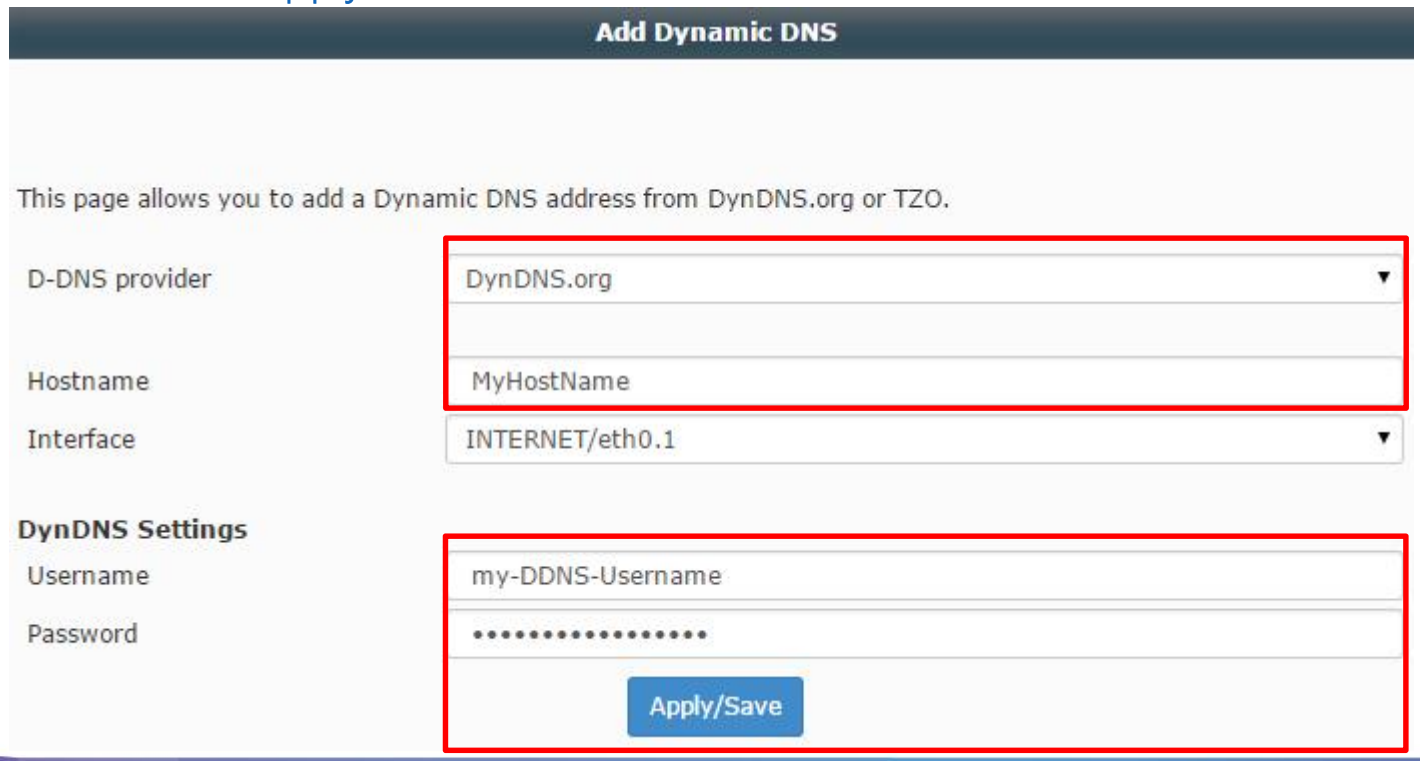
How to Set DDNS

Step 5. Select the DDNS provider available (DDNS, TZO) from the drop down menu.

Step 6. Fill in the Hostname field with the registered hostname to the DDNS provider.

Step 7. Fill in the respective Username and Password fields accordingly.

Step 8. Click on the Apply/Save button.



How to Set DDNS

Step 9. Added Hostname will be shown

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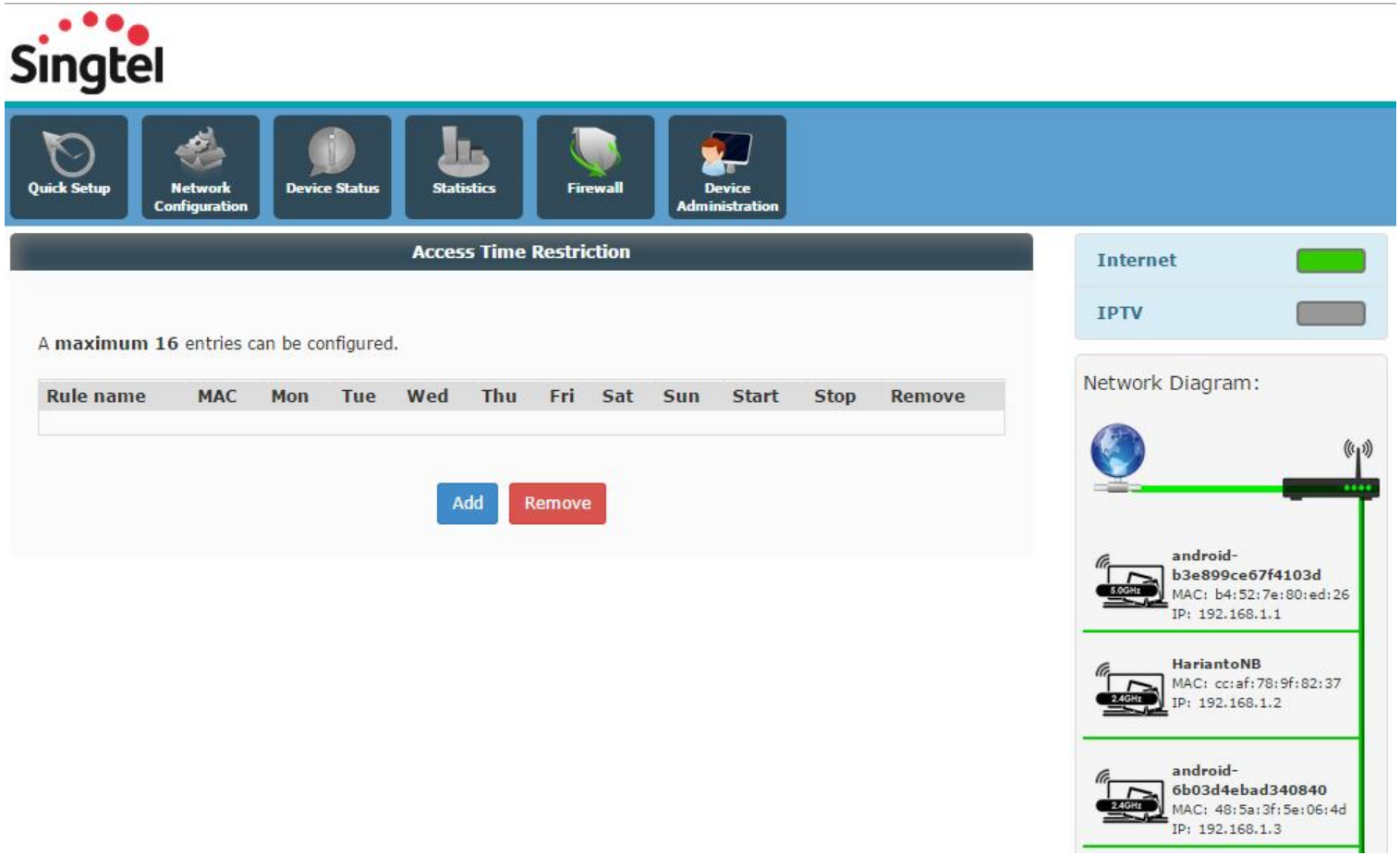
MAC Filtering Settings



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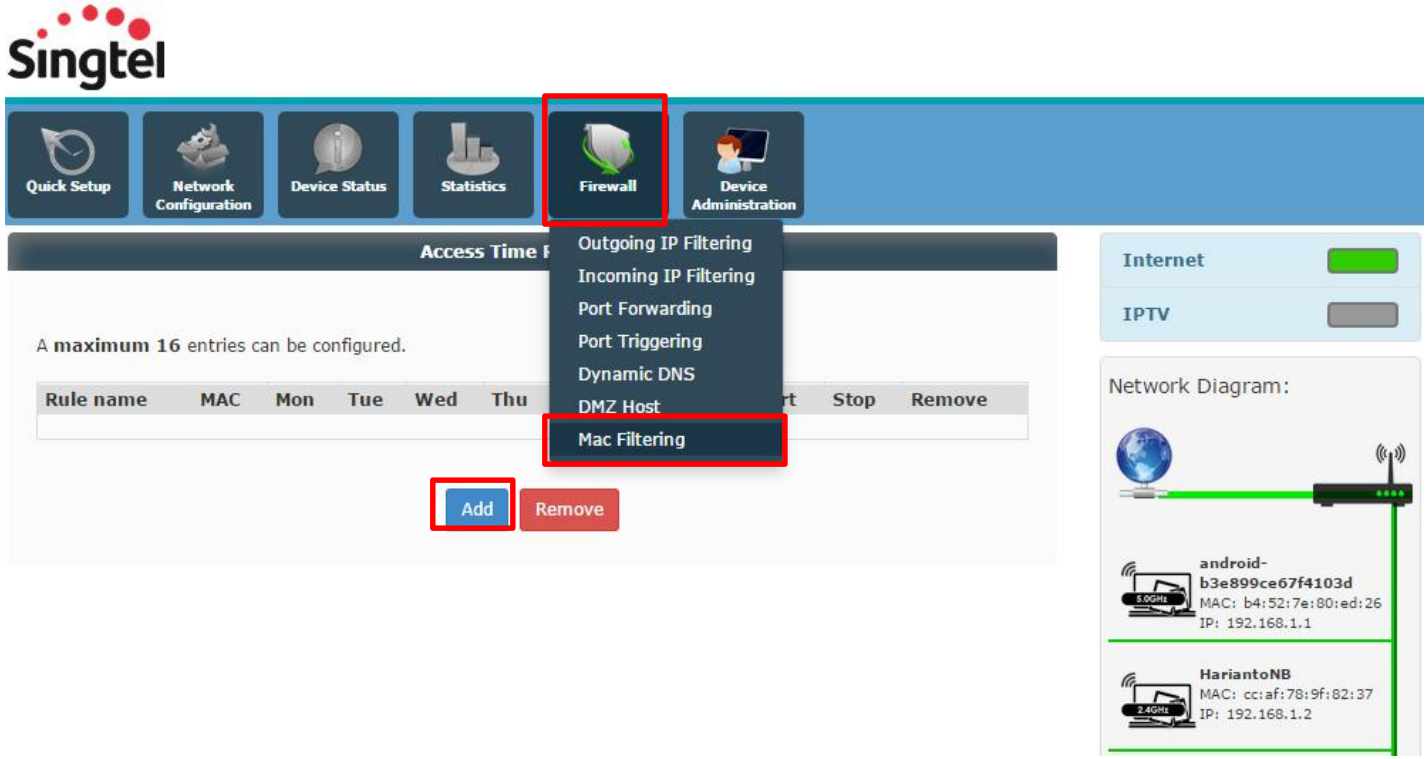
How to Set Mac Filtering

Step 1. Launch an internet browser and go to http://192.168.1.254

Step 2. Hover over **Firewall** button

Step 3. Click on **Mac Filtering** , followed by **Add** button



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How to Set Mac Filtering

Step 4. Provide a Rule Name of which will let you identify whom you will be blocking.

Step 5. Tick on Other MAC Address radio button,

A. If the device is already connected to the RG, you can copy and paste the MAC Address from the right hand side (at the Network Diagram)

B. If the device is not yet connected to the RG, fill in the MAC Address value to be filtered in aa:bb:cc:dd:ee:ff format

Step 6. Check the day and fill in the 24-hr time format.

Step 7. Click on the Apply button.

How to Set Mac Filtering

Access Time Restriction

This page adds time of day restriction to a special LAN device connected to the Router. The 'Browser's MAC Address' automatically displays the MAC address of the LAN device where the browser is running. To restrict other LAN device, click the "Other MAC Address" button and enter the MAC address of the other LAN device. To find out the MAC address of a Windows based PC, go to command window and type "ipconfig /all".

Rule Name: Test

Browser's MAC Address: cc:af:78:9f:82:37

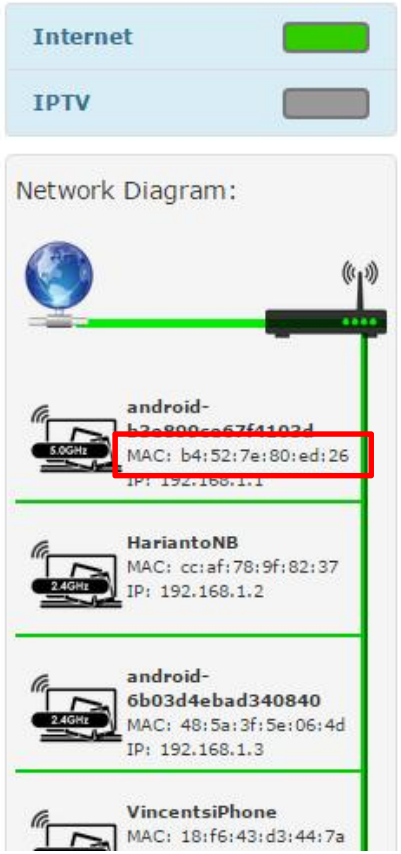
Other MAC Address (xx:xx:xx:xx:xx:xx): b4:52:7e:80:ed:26

Days of the week	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Click to select	☐	☐	☐	☐	☑	☐	☐

Start Blocking Time (hh:mm): 00:00

End Blocking Time (hh:mm): 23:59

Apply/Save



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How to Set MAC Filtering

Step 8. Added filtered MAC Address will be shown

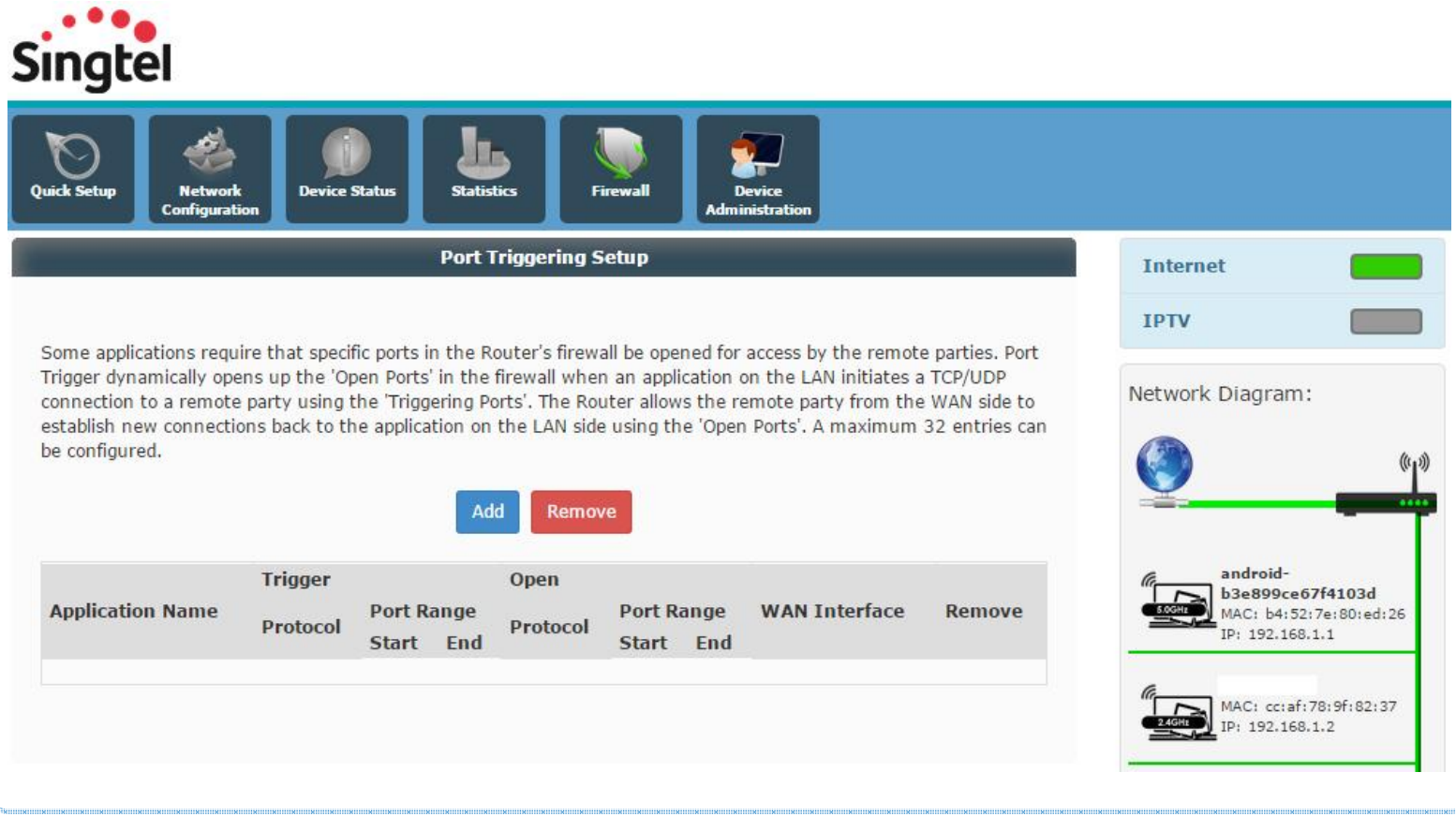
Access Time Restriction

A **maximum 16** entries can be configured.

Rule name	MAC	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Start	Stop	Remove
Test	b4:52:7e:80:ed:26					x			0:0	23:59	☐

Add Remove

Port Triggering Settings



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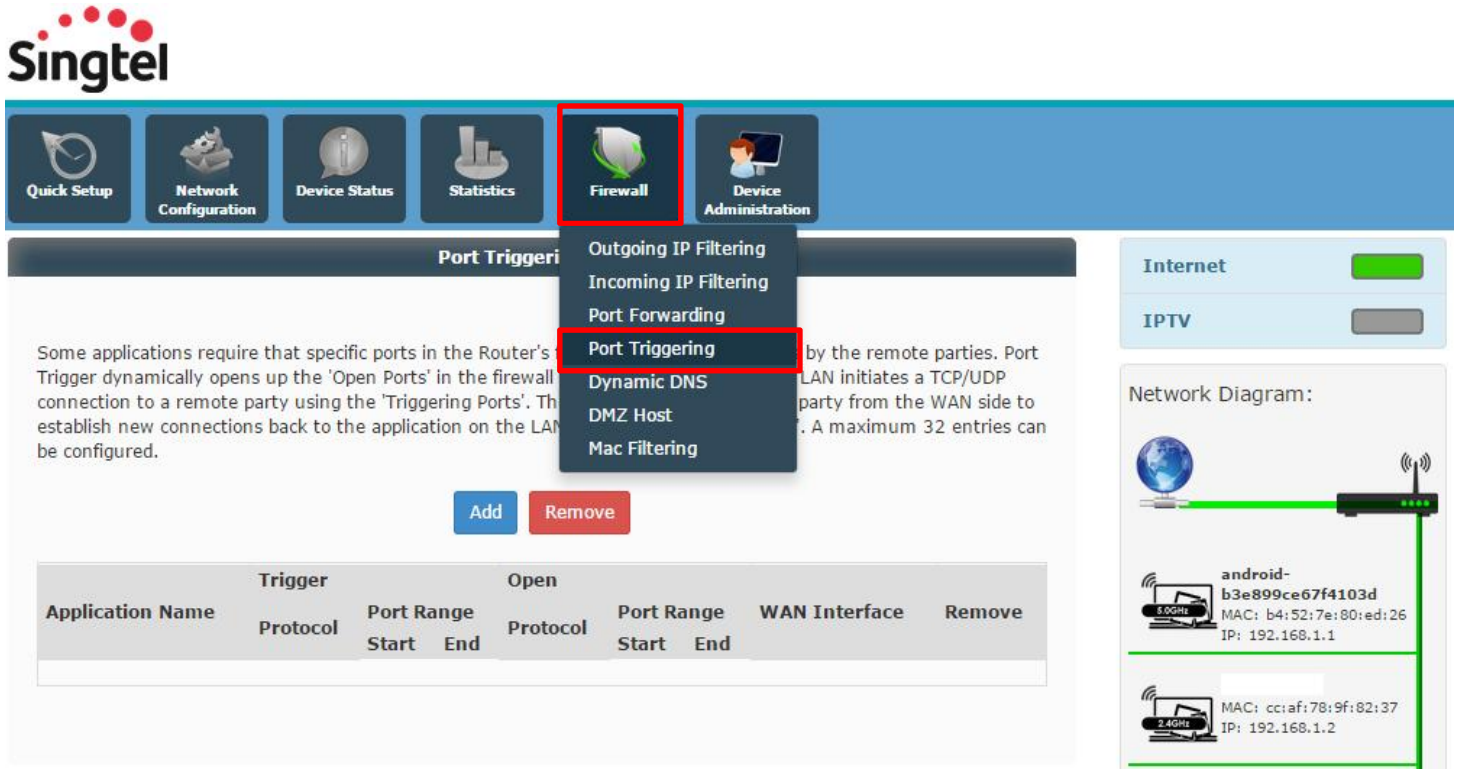
How To Set Port Triggering

Step 1. Launch an internet browser and go to http://192.168.1.254

Step 2. Hover over **Firewall** Button

Step 3. Click on **Port Triggering**, followed by **Add** button



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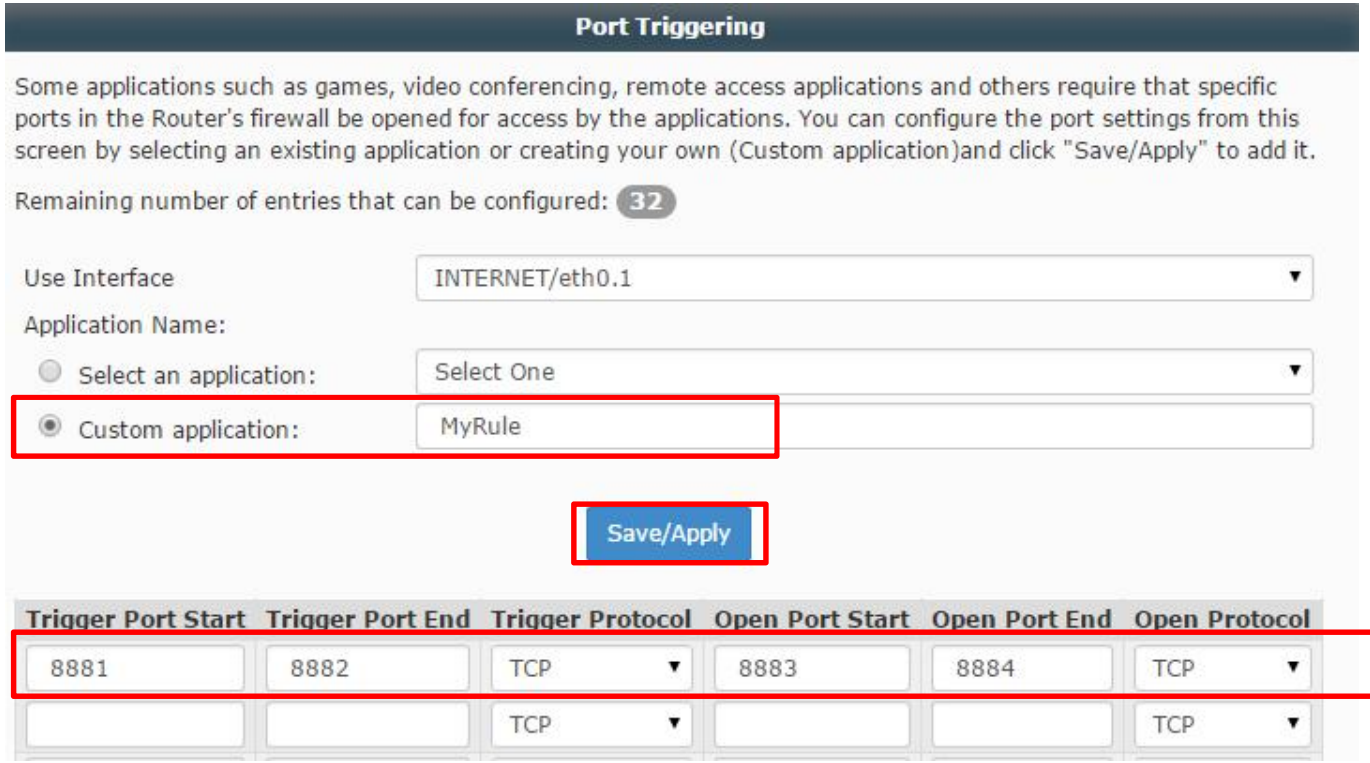
How To Set Port Triggering

Step 4. Check Custom Application radio button and fill in the application name for easy reference.

Step 5. Fill in the respective port numbers and protocol type and click Save/Apply button.



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How To Set Port Triggering

Step 7. Created rule will be shown in the list

Port Triggering Setup

Some applications require that specific ports in the Router's firewall be opened for access by the remote parties. Port Trigger dynamically opens up the 'Open Ports' in the firewall when an application on the LAN initiates a TCP/UDP connection to a remote party using the 'Triggering Ports'. The Router allows the remote party from the WAN side to establish new connections back to the application on the LAN side using the 'Open Ports'. A maximum 32 entries can be configured.

Add Remove

Application Name	Trigger			Open			WAN Interface	Remove
	Protocol	Port Range		Protocol	Port Range			
		Start	End		Start	End		
MyRule	TCP	8881	8882	TCP	8883	8884	eth0.1	☐

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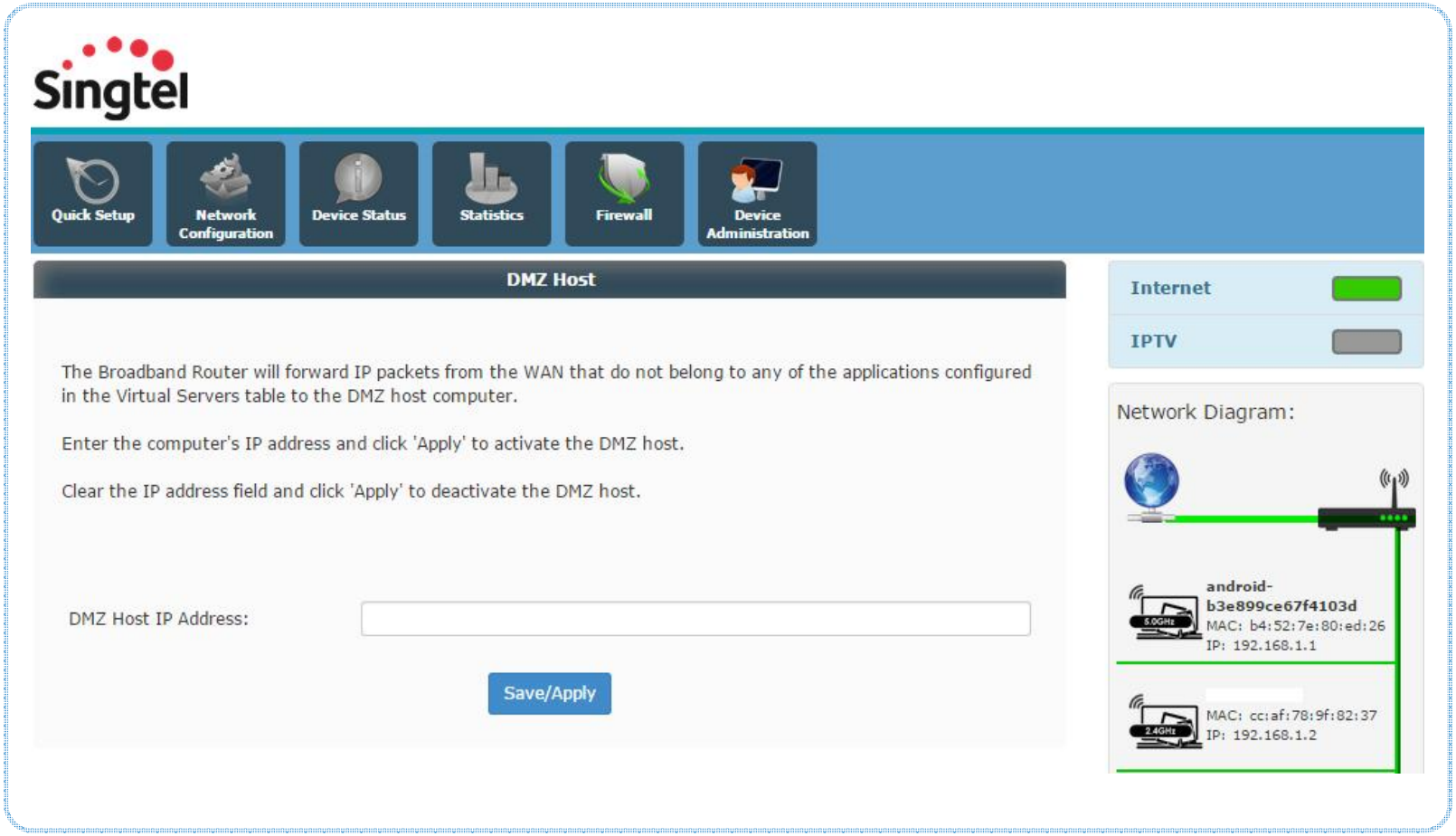
DMZ

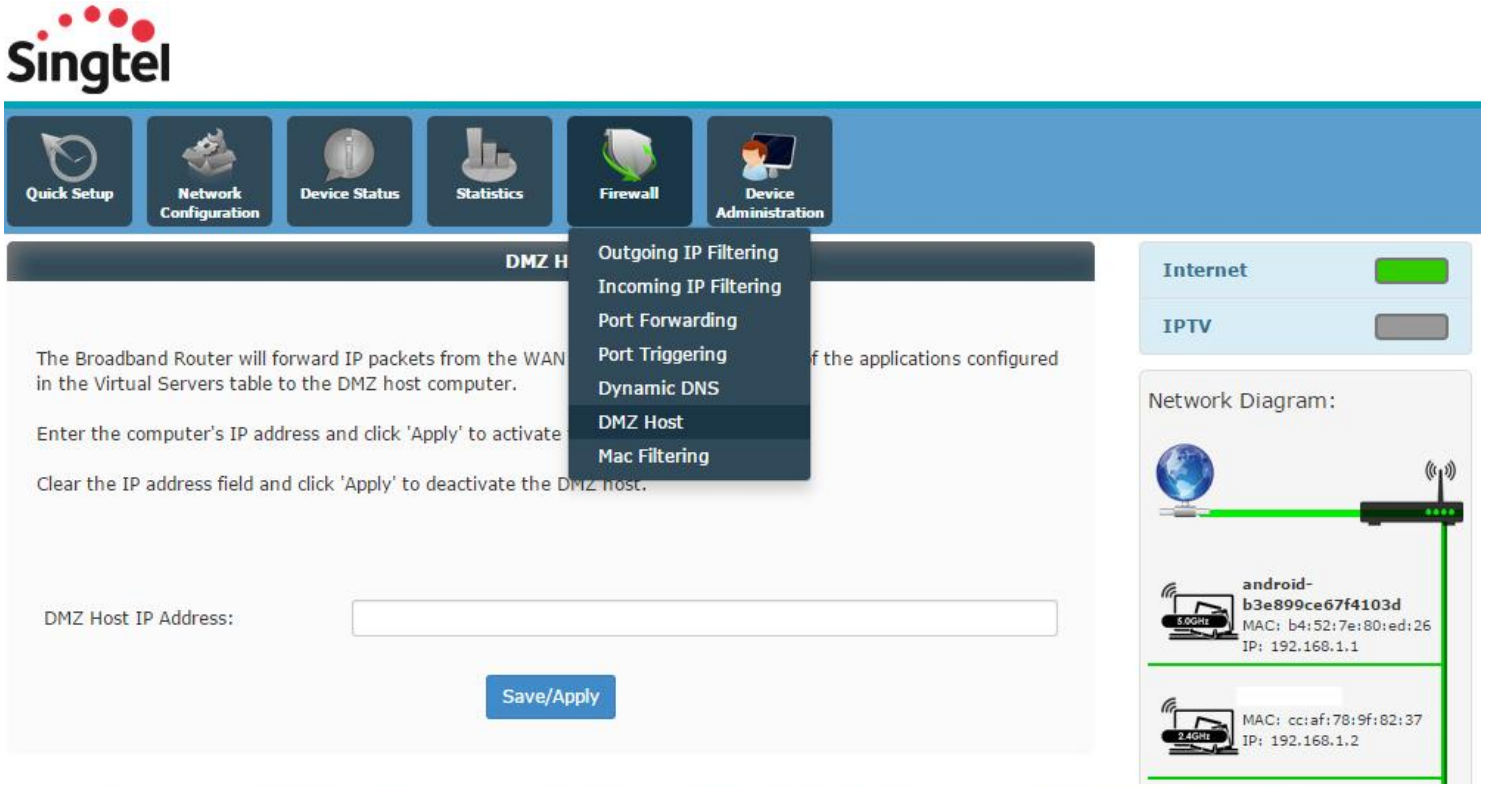

Singtel
Quick Setup
Network Configuration
Device Status
Statistics
Firewall
Device Administration
DMZ Host
The Broadband Router will forward IP packets from the WAN that do not belong to any of the applications configured in the Virtual Servers table to the DMZ host computer.
Enter the computer's IP address and click 'Apply' to activate the DMZ host.
Clear the IP address field and click 'Apply' to deactivate the DMZ host.
DMZ Host IP Address:
Save/Apply
Internet
IPTV
Network Diagram:
android-b3e899ce67f4103d
MAC: b4:52:7e:80:ed:26
IP: 192.168.1.1
MAC: cc:af:78:9f:82:37
IP: 192.168.1.2

How To Set DMZ

Step 1. Launch an internet browser and go to http://192.168.1.254

Step 2. Hover over Firewall

Step 3. Click on DMZ Host button



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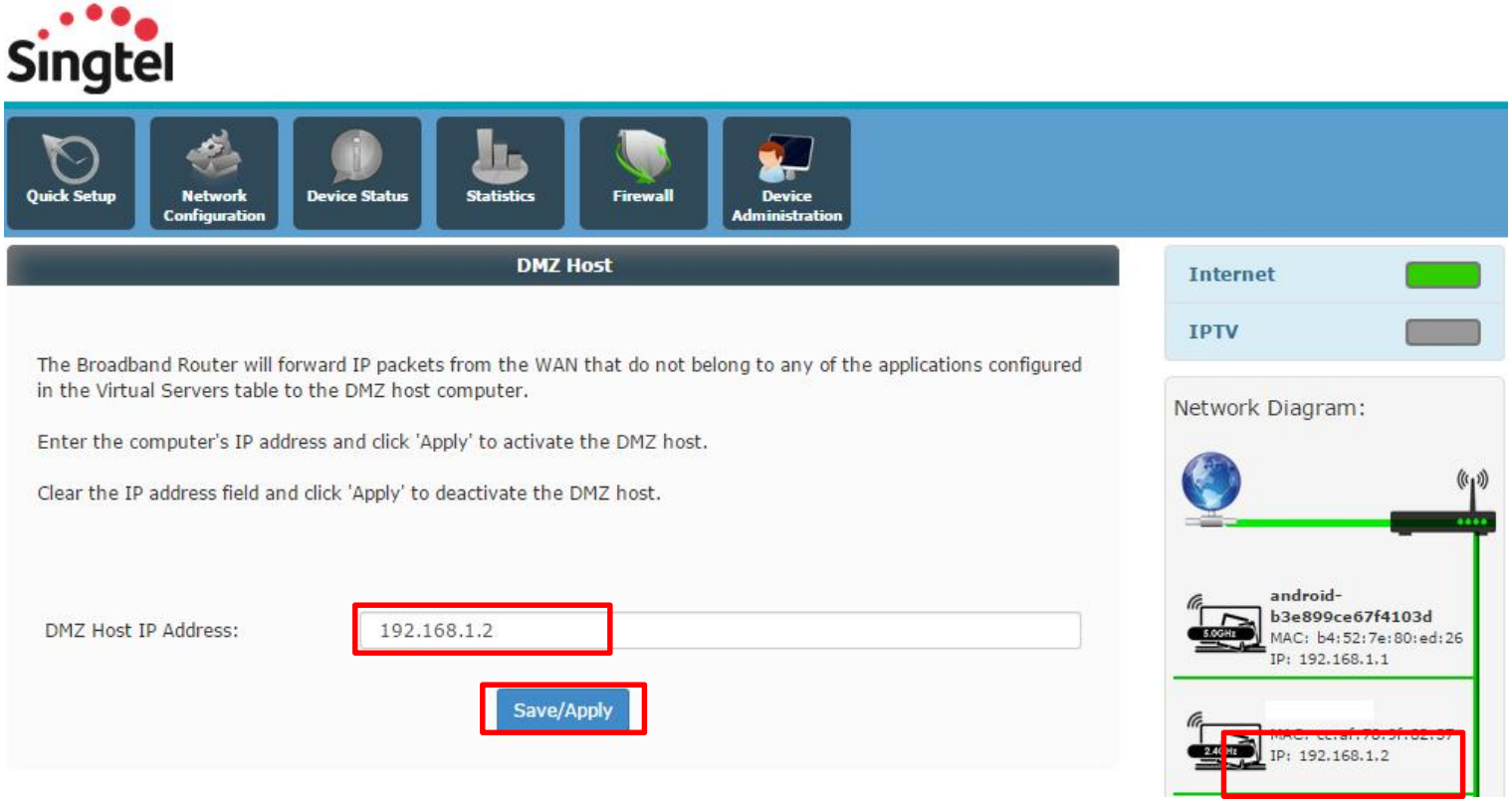
How To Set DMZ

Step 4. Copy the IP Address value from list of clients connected, at Network Diagram.

Step 5. Paste on the DMZ Host IP Address field.

Step 6. Click on Save/Apply button



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LED Troubleshooting

Power

- Steady Red – reset button is pressed
- Steady Red – unit is booting up or unit failed to boot
- Green – firmware is loaded to the RAM / unit has successfully booted up
- Off – no power or PSU faulty

Ethernet LAN 1-4

- Blinking Green – indicates activity on the port
- Steady Green – Ethernet device is connected to he port
- Off – there is no Ethernet device plugged in to the port or the cable is faulty

LED Troubleshooting

Wireless - 5GHz

- Steady Green – wireless device(s) associated to the wireless AP
- Blinking Green – indicates wireless activity
- Off – no wireless device associated with the AP or AP is not activated

Wireless - 2.4GHz

- Steady Green – wireless device(s) associated to the wireless AP
- Blinking Green – indicates wireless activity
- Off – no wireless device associated with the AP or AP is not activated

LED Troubleshooting

USB

- Steady Green – USB device is connected to the port
- Off – no device is connected

IPTV

- Steady Green – IPTV service is working, STB is plugged in and streaming
- Steady Red – STB is not connected to the RG or
  STB in on DRA mode (if STB is connected to the RG) or
  STB is rebooting (if STB is connected to the RG) or
  IPTV service failed (if STB is connected to the RG) or
  no multicast streams coming (if STB is connected to the RG)
- Off – no service or service is down

LED Troubleshooting

Broadband on FTTH

- Steady Green – WAN ethernet port is connected to the ONT or an active ethernet device
- Off – No active connection to the WAN ethernet port

Internet on FTTH

- Steady Green – connection is up and the interface is with an IP address
- Red – DNS resolution failed
- Off - no internet connection

LED Troubleshooting

WPS

- Steady Green – WPS is activated and a client is authenticated
- Blinking Green – WPS is ready to connect
- Off - WPS not activated

LED ON/OFF

- Steady Green – function is active
- Off – function is not active

Notes:

- When this function is active, all other LEDs from **POWER** to **INTERNET** will be turned **OFF**.
- The LED for this function is intended to be slightly dimmer as compared to others.

Wireless Troubleshooting

1. Always start with checking the wireless credentials, SSID and wireless security, if the wireless clients cannot connect to the AP
2. Place the RG vertically, on a flat surface, properly ventilated place, and away from:
   - ¤ Blockage such as artificial barriers
   - ¤ Electronic devices such at blue-tooth devices, microwave ovens and cordless telephones
   - ¤ Water containing equipment filled with water
3. Think of the possibility of wireless channel congestion
   - ¤ Please ensure wireless channel setting is set as "Auto" at all times. Should channel congestion is suspected, it is recommended to reboot the RG.
   - ¤ If the wireless channel is so congested, the wireless client may get an IP address but might not be able to, from time to time, surf the internet or use the wireless network resource

Where to Check Firmware Version

Step 1. Launch an Internet Browser

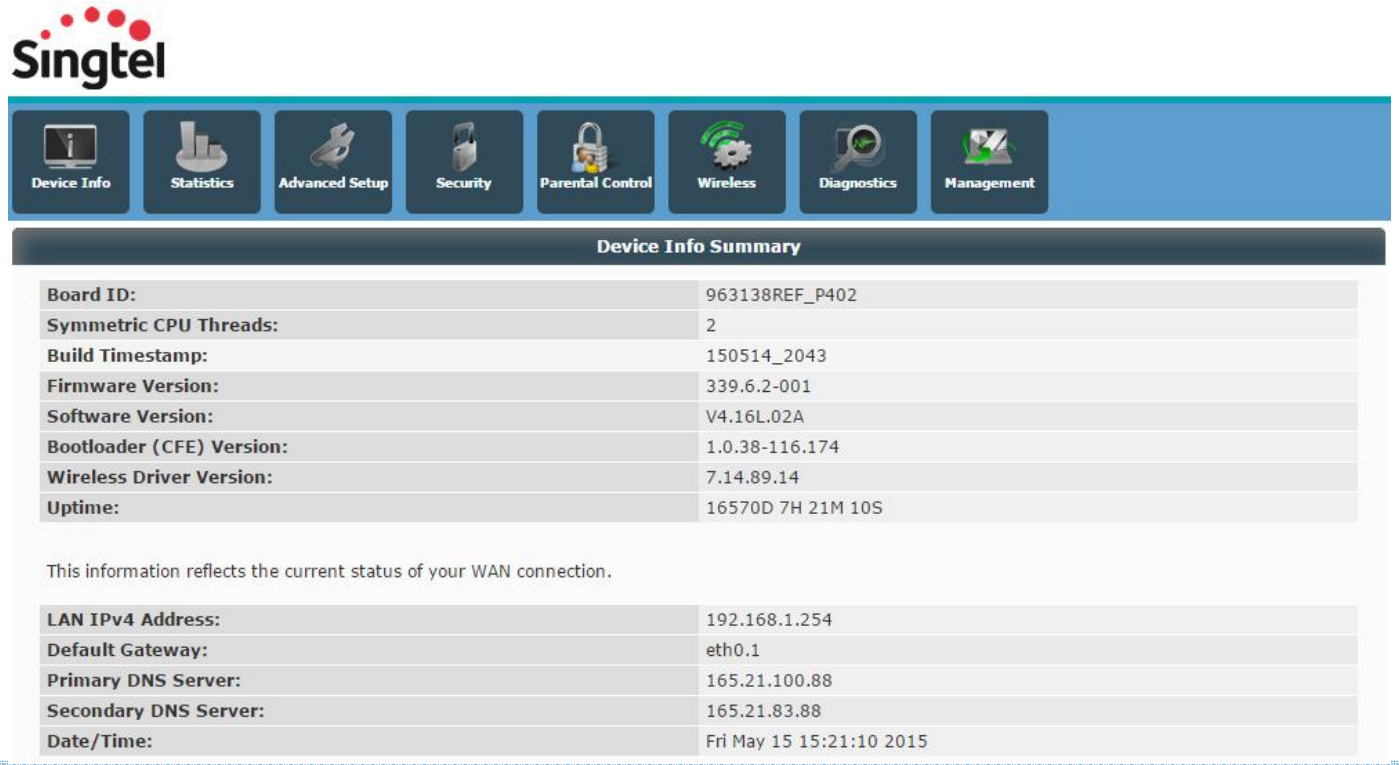
Step 2. Fill in the Address bar http://192.168.1.254 and enter

Step 3. Click on Device Info link, Firmware version information is located in the table

Accessing the Admin GUI

http://192.168.1.254/singtel

Username: admin | Password: H3ll0t3ch



Frequently Asked Questions

CAN I USE BOTH 2.4GHz AND 5GHz BAND AT THE SAME TIME?

Both bands are enable by default. Please note that the same client can only connect to either one of the band available at any point of time.

WHAT IS THE MAXIMUM NUMBER OF CLIENT IT CAN SUPPORT FOR WIRELESS?

30 for 2.4GHz band and 30 for 5GHz band.

CAN I CONFIGURE MAC FILTERING 0N FG7009GR(AC)?

Yes

Frequently Asked Questions

HOW CAN I TELL IF MY WIRELESS CLIENT (i.e. the mobile / wireless device) SUPPORTS 5GHZ BAND?

- By doing wireless SSID scanning, if the client supports 5GHz band, you will be able to see the default 5GHz SSID, with prefix of SINGTEL(5G)-xxxx.

Please note that if the wireless client/adapter is able to see the 5GHz SSID, it does not necessarily mean that it is a Wireless AC client. There is a need to check against the hardware specifications if it really is a wireless AC client.

IS THIS FG7009GR(AC) VLAN TAG OR non VLAN TAG?

- The firmware loaded on FG7009GR(AC) is VLAN tagged

Frequently Asked Questions

WHAT IS LED ON/OFF FEATURE?

- LED On/Off feature allows end-users who prefers not to see a lot of lit-up LEDs able to turn OFF.

  Please note:

  a. when this feature is active, its indicator will lit up and the rest of the LEDs will be OFF.

  b. for troubleshooting purpose, do pay attention if this feature is not active / active.

WHAT IS THE EXPECTED AVERAGE WIRED AND WIRELESS AC PERFORMANCE?

- Over a 1Gbps plan, tested wired speed is average at 900Mbps;
- For wireless AC on the same 1Gbps plan, tested speed is average at 400Mbps.
- Do Note that result is subject to test environment and test equipment.

Frequently Asked Questions

RG COMPARISON

Main Features	Feature	Aztech DSL7002GRV(S) (Current)	Aztech FG7003GRV(AC) (Current)	Aztech FG7009GR(AC) (New)
Services Supported	ADSL	Yes	Not Available	Not Available
	FTTH	Yes	Yes	Yes
	Home Digital Line	Yes	Yes	Not Available
	Singtel TV	Yes	Yes	Yes
Operating Frequency	2.4 GHz	Yes	Yes	Yes
	5.0 GHz	Yes	Yes	Yes
Wireless Connection Mode		Wireless a/b/g/n	Wireless a/b/g/n/ac	Wireless a/b/g/n/ac
Wireless 5GHz Antenna (internal)		3	3	4
MAC Filtering		Not Supported	Yes[1]	Yes
WPS Push Button (2.4GHz only)		Yes[1]	Yes (enabled by default)	Yes (enabled by default for both 2.4GHz and 5GHz bands)
Gigabit Ethernet LAN		4	4	4
Voice Ports (FXS)		2	2	Not Available
USB Host Support		2 Disabled by default	2 Disabled by default	2 Disabled by default
DDNS		Not Supported	Yes[1]	Yes

Notes:

1. Firmware dependant

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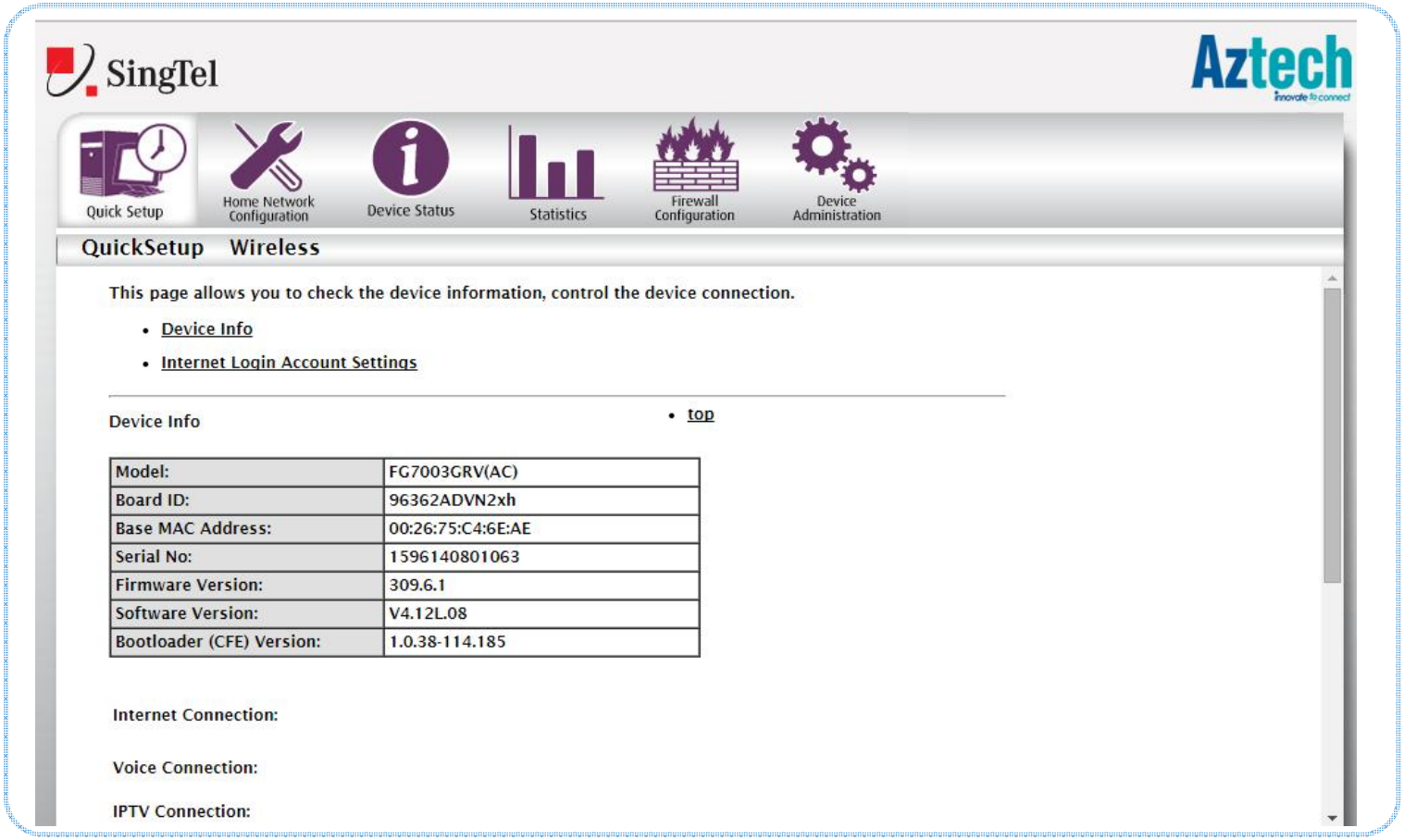
Frequently Asked Questions

Graphical User Interface Look & Feel for previous RG:

First landing page from http://192.168.1.254



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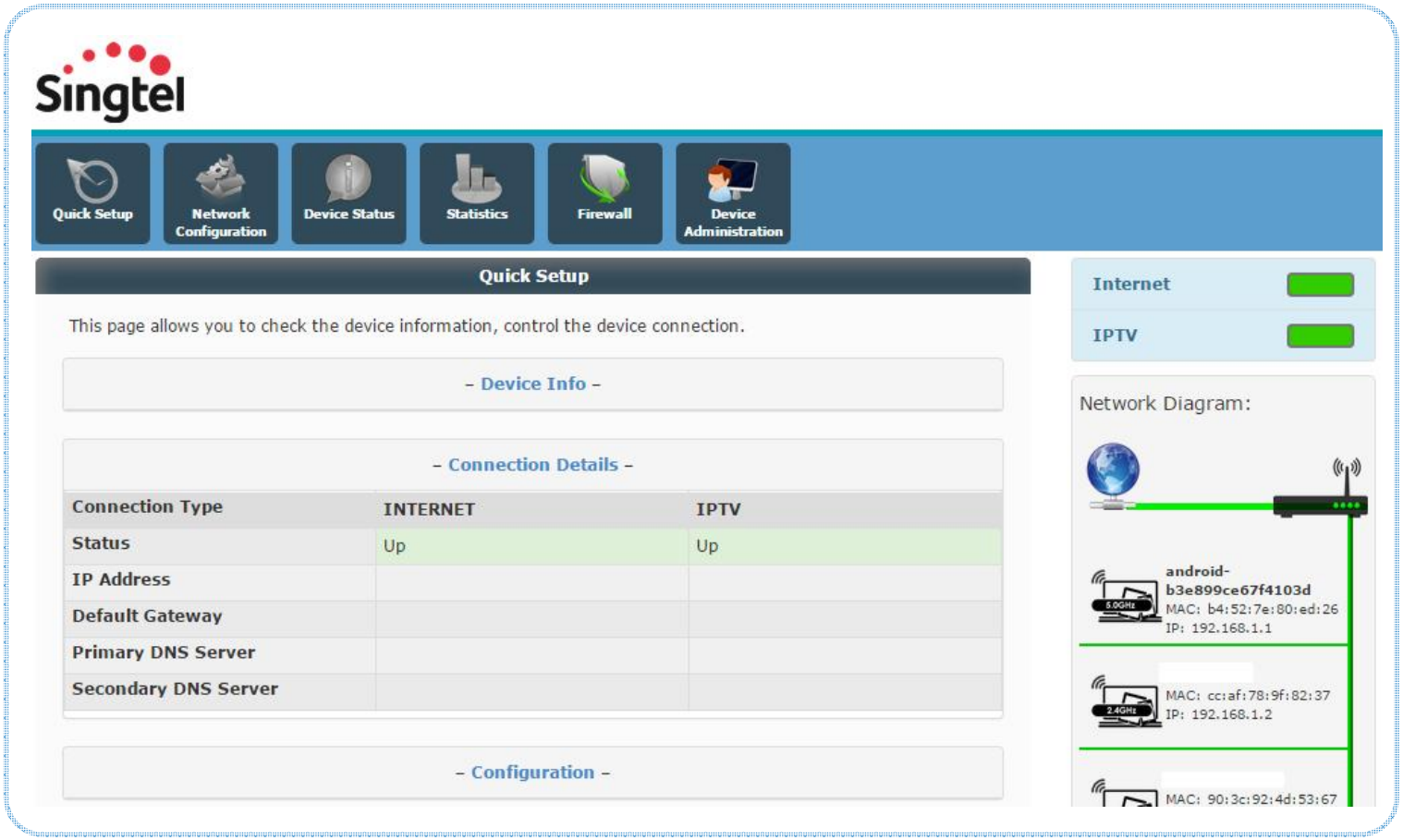
Frequently Asked Questions

Graphical User Interface Look & Feel for FG7009GR(AC):

First landing page from http://192.168.1.254



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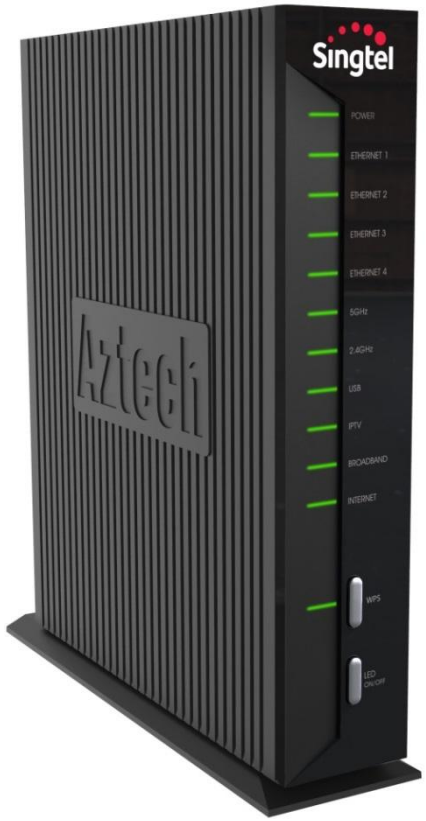
Frequently Asked Questions

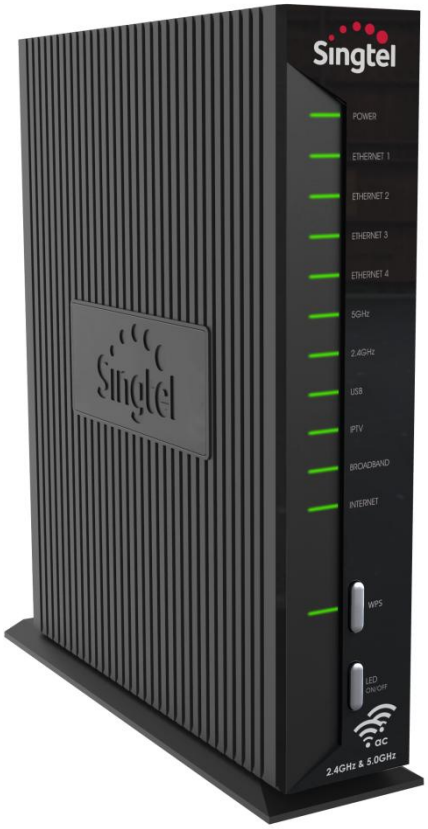
How to Identify retail Aztech FG7008GR(AC) and Singtel FG7009GR(AC)

Aztech FG7008GR(AC)

Singtel FG7009GR(AC)



Singtel FG7009GR(AC)



support contact info

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Thank You

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