

User Guide

4G-AX56

Dual Band 4G LTE Router



ASUS
IN SEARCH OF INCREDIBLE

E23437

Revised Edition v3

March 2024

Copyright © 2024 ASUSTeK Computer Inc. All Rights Reserved.

No part of this manual, including the products and software described in it, may be reproduced, transmitted, transcribed, stored in a retrieval system, or translated into any language in any form or by any means, except documentation kept by the purchaser for backup purposes, without the express written permission of ASUSTeK Computer Inc. ("ASUS").

Product warranty or service will not be extended if: (1) the product is repaired, modified or altered, unless such repair, modification or alteration is authorized in writing by ASUS; or (2) the serial number of the product is defaced or missing.

ASUS PROVIDES THIS MANUAL "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL ASUS, ITS DIRECTORS, OFFICERS, EMPLOYEES OR AGENTS BE LIABLE FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES (INCLUDING DAMAGES FOR LOSS OF PROFITS, LOSS OF BUSINESS, LOSS OF USE OR DATA, INTERRUPTION OF BUSINESS AND THE LIKE), EVEN IF ASUS HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES ARISING FROM ANY DEFECT OR ERROR IN THIS MANUAL OR PRODUCT.

SPECIFICATIONS AND INFORMATION CONTAINED IN THIS MANUAL ARE FURNISHED FOR INFORMATIONAL USE ONLY, AND ARE SUBJECT TO CHANGE AT ANY TIME WITHOUT NOTICE, AND SHOULD NOT BE CONSTRUED AS A COMMITMENT BY ASUS. ASUS ASSUMES NO RESPONSIBILITY OR LIABILITY FOR ANY ERRORS OR INACCURACIES THAT MAY APPEAR IN THIS MANUAL, INCLUDING THE PRODUCTS AND SOFTWARE DESCRIBED IN IT.

Products and corporate names appearing in this manual may or may not be registered trademarks or copyrights of their respective companies, and are used only for identification or explanation and to the owners' benefit, without intent to infringe.

Table of contents

1	Getting to know your wireless router	
1.1	Welcome!	6
1.2	Package contents.....	6
1.3	Your wireless router	7
1.4	Positioning your router.....	9
1.5	Insert a Nano SIM card into 4G-AX56	10
2	Getting started	
2.1	Router Setup.....	11
	A. Wired connection.....	12
	B. Wireless connection	13
2.2	Quick Internet Setup (QIS) with Auto- detection	15
3	Configuring the General and Advanced Settings	
3.1	Using the Network Map	20
	3.1.1 Setting up the wireless security settings.....	21
	3.1.2 System Status	22
	3.1.3 Managing your network clients.....	23
	3.1.4 Monitoring the Internet Status	25
3.2	Administration	26
	3.2.1 Operation Mode	26
	3.2.2 System.....	27
	3.2.3 Firmware Upgrade.....	29
	3.2.4 Restore/Save/Upload Setting	30
3.3	AiProtection	31
	3.3.1 Network Protection	32
	3.3.2 Setting up Parental Controls.....	35

Table of contents

3.4	Ethernet WAN Mobile Broadband Function Support List	37
3.5	Firewall	38
3.5.1	General	38
3.5.2	URL Filter	38
3.5.3	Keyword filter	39
3.11.4	Network Services Filter	40
3.11.5	IPv6 Firewall	40
3.6	Guest Network	41
3.7	IPv6	43
3.8	LAN	44
3.8.1	LAN IP	44
3.8.2	DHCP Server	45
3.8.3	Route	47
3.8.4	IPTV	48
3.8.5	Switch Control	48
3.9	SMS	49
3.9.1	Sending Messages	49
3.9.2	Inbox	50
3.10	System Log	51
3.11	Traffic Manager	53
3.11.1	QoS	53
3.11.2	Traffic Monitor	54
3.12	VPN Server	55
3.13	WAN	56
3.13.1	Internet Connection	56
3.13.2	IPv6 (Internet Settings)	63
3.13.3	Dual WAN	64
3.13.4	Port Trigger	66
3.13.5	Virtual Server/Port Forwarding	68

Table of contents

3.13.6	DMZ.....	71
3.13.7	DDNS	72
3.13.8	NAT Passthrough	73
3.14	Wireless.....	74
3.14.1	General.....	74
3.14.2	WPS	76
3.14.3	WDS.....	78
3.14.4	Wireless MAC Filter	80
3.14.5	RADIUS Setting	81
3.14.6	Professional	82
4	Utilities	
4.1	Device Discovery.....	85
4.2	Firmware Restoration	86
5	Troubleshooting	
5.1	Basic Troubleshooting.....	88
5.2	Frequently Asked Questions (FAQs)	90
	Appendices	
	Safety Notices	107
	Service and Support.....	109

1 Getting to know your wireless router

1.1 Welcome!

Thank you for purchasing an ASUS 4G-AX56 Wireless Router!

The powerful and stylish 4G-AX56 features 2.4GHz and 5GHz dual bands for an unmatched concurrent wireless HD streaming; SMB server, UPnP AV server, and FTP server for 24/7 file sharing; a capability to handle 300,000 sessions; and the ASUS Green Network Technology, which provides up to 70% power-saving solution.

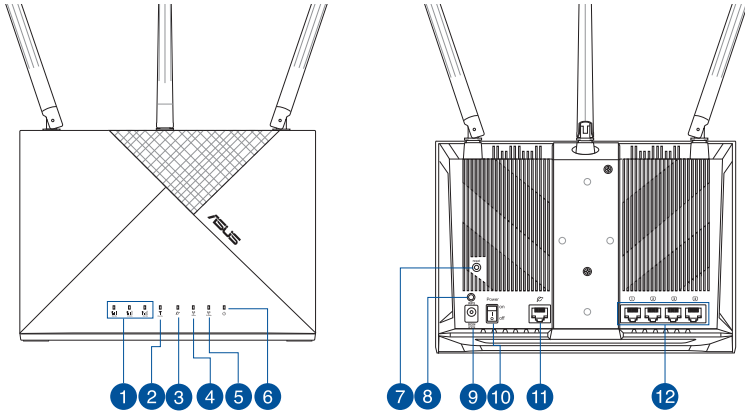
1.2 Package contents

- | | |
|---|---|
| <input checked="" type="checkbox"/> 4G-AX56 Wireless Router | <input checked="" type="checkbox"/> AC adapter |
| <input checked="" type="checkbox"/> Network cable (RJ-45) | <input checked="" type="checkbox"/> Quick Start Guide |
| <input checked="" type="checkbox"/> 2 x 3G/4G antennas | <input checked="" type="checkbox"/> 1 x WiFi antenna |

NOTES:

- If any of the items is damaged or missing, contact your retailer or ASUS for technical inquiries and support, Refer to **Service and Support** at the back of this user manual.
 - Keep the original packaging material in case you would need future warranty services such as repair or replacement.
-

1.3 Your wireless router



1 3G/4G signal strength LED

- 1 lit LED: Weak signal
- 2 lit LEDs: Normal signal
- 3 lit LEDs: Strong signal

2 Mobile Broadband LED

- White: 4G connection is established.
- Blue: 3G connection is established.
- Red: No mobile broadband connection.
- Off: No SIM card is detected.

3 WAN (Internet) LED

- Off: No data activity or no physical connection.
- On: Has physical connection to a wide area network (WAN).

4 5GHz WiFi LED

- Off: No 5GHz signal.
- On: 5GHz wireless is ready.
- Flashing: Transmitting or receiving data via wireless connection.

5 2.4GHz WiFi LED

- Off: No 2.4GHz signal.
- On: 2.4GHz wireless is ready.
- Flashing: Transmitting or receiving data via wireless connection.

6 Power LED

- Off: No power.
 - On: Device is ready.
 - Flashing slowly: Rescue mode
 - Flashing quickly: WPS is processing.
-

7**Reset button**

This button resets or restores the system to its factory default settings.

8**WPS button**

Long press the button to launch the WPS Wizard.

9**Power (DCIN) port**

Insert the bundled AC adapter into this port and connect your router to a power source.

Nano SIM card slot

Install a Nano SIM card into this slot to establish a Mobile Broadband Internet connection.

10**Power switch**

Press this switch to power on or off the system.

11**WAN (Internet) port**

Connect a network cable into this port to establish WAN connection.

12**LAN (1~4) ports**

Connect network cables into these ports to establish LAN connection.

NOTES:

- Use only the adapter that came with your package. Using other adapters may damage the device.
 - Ensure to insert the Nano SIM card into the card slot before powering on the router.
-

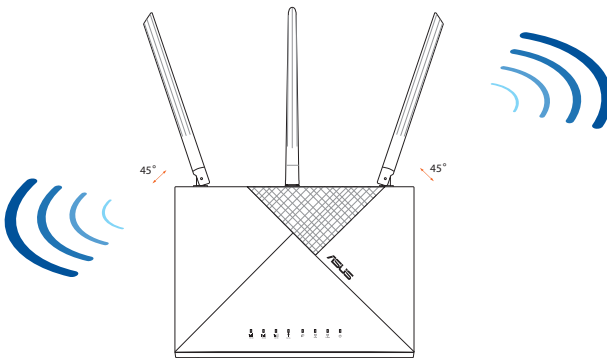
Ambient conditions:

DC Power adapter	DC Output: +12V with 2A current		
Operating Temperature	0~40°C	Storage Temperature	-40~70°C
Operating Humidity	10 ~ 95%	Storage Humidity	5 ~ 95%

1.4 Positioning your router

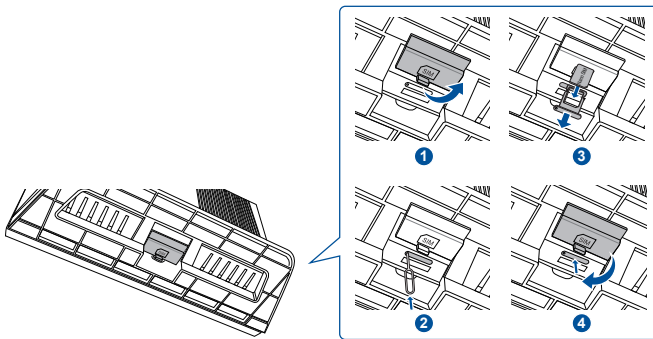
For optimal wireless transmission between the wireless router and connected wireless devices, ensure that you:

- Place the wireless router in a centralized area for a maximum wireless coverage for the network devices.
- Keep the wireless router within the view of sight of a window or clearance, and away from metal or solid obstructions and direct sunlight.
- Keep the wireless router away from conventional radio emission devices operating within the 2.4GHz spectrum. Devices such as Bluetooth, cordless phone, transformer, heavy duty motors, fluorescent lights, microwave oven, refrigerators, and other industrial equipments may interfere with the smooth transmission of 2.4GHz WiFi.
- Always update to the latest firmware. Visit the ASUS website at <http://www.asus.com> to get the latest firmware updates.
- Orient the antennas as shown in the drawing below.



1.5 Insert a Nano SIM card into 4G-AX56

1. Open the Nano SIM cover at the bottom of 4G-AX56 to reveal the Nano SIM slot.
2. Pop open the Nano SIM tray by dipping either a paper clip or a SIM eject tool into the hole beside the tray.
3. Place your Nano SIM card onto the tray.
4. Slide the tray back into the Nano SIM card slot, and close the cover.



2 Getting started

2.1 Router Setup

IMPORTANT!

- Use a wired connection when setting up your wireless router to avoid possible setup problems.
 - Before setting up your ASUS wireless router, do the following:
 - If you are replacing an existing router, disconnect it from your network.
 - Disconnect the cables/wires from your existing modem setup. If your modem has a backup battery, remove it as well.
 - Reboot your cable modem and computer (recommended).
-



WARNING!

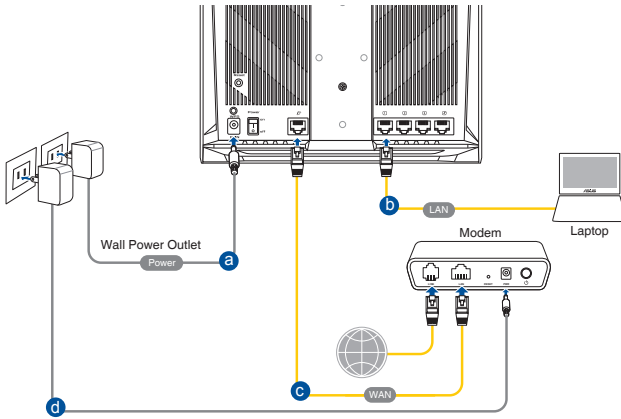
- The power supply cord(s) must be plugged into socket-outlet(s) that is /are provided with a suitable earth ground. Connect the equipment only to a nearby socket outlet that is easily accessible.
 - If the Adapter is broken, do not try to fix it by yourself. Contact a qualified service technician or your retailer.
 - DO NOT use damaged power cords, accessories, or other peripherals.
 - DO NOT mount this equipment higher than 2 meters.
 - Use this product in environments with ambient temperatures between 0°C (32°F) and 40°C (104°F).
-

A. Wired connection

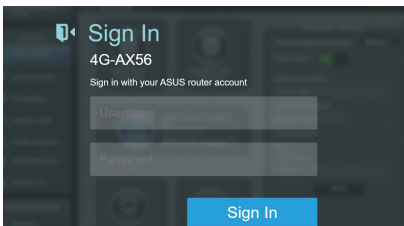
NOTE: You can use either a straight-through cable or a crossover cable for wired connection.

To set up your wireless router via wired connection:

1. Plug your router into a power outlet and power it on. Connect the network cable from your computer to a LAN port on your router.



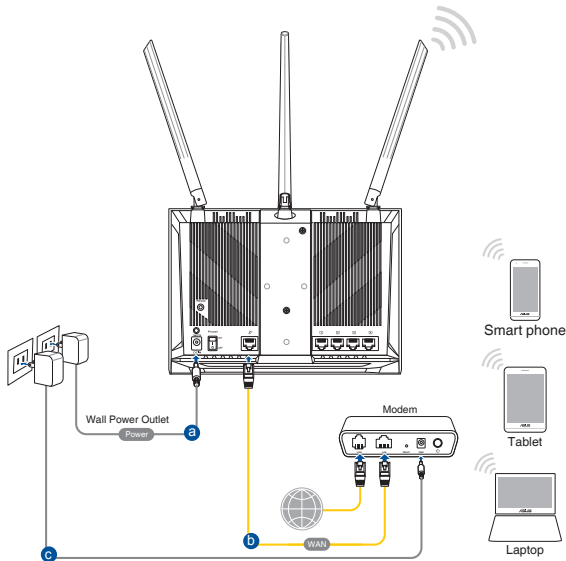
2. The web GUI launches automatically when you open a web browser. If it does not auto-launch, enter <http://www.asusrouter.com>
3. Set up a password for your router to prevent unauthorized access.



B. Wireless connection

To set up your wireless router via wireless connection:

1. Plug your router into a power outlet and power it on.



2. Connect to the network name (SSID) shown on the product label on the back side of the router. For better network security, change to a unique SSID and assign a password.

Wi-Fi Name (SSID):	ASUS_XX
--------------------	---------

* **XX** refers to the last two digits of 2.4GHz MAC address. You can find it on the label on the back of your router.

3. Once connected, the web GUI launches automatically when you open a web browser. If it does not auto-launch, enter <http://www.asusrouter.com>.
4. Set up a password for your router to prevent unauthorized access.

NOTES:

- For details on connecting to a wireless network, refer to the WLAN adapter's user manual.
 - To set up the security settings for your network, refer to **3.1.1 Setting up the wireless security settings** of this user manual.
-

Login Information Setup

Change the router password to prevent unauthorized access to your ASUS wireless router.

Router Login Name	<input type="text" value="admin"/>
New Password	<input type="password"/>
Retype Password	<input type="password"/> <input type="checkbox"/> Show password

2.2 Quick Internet Setup (QIS) with Auto-detection

To set up your router using QIS (Quick Internet Setup):

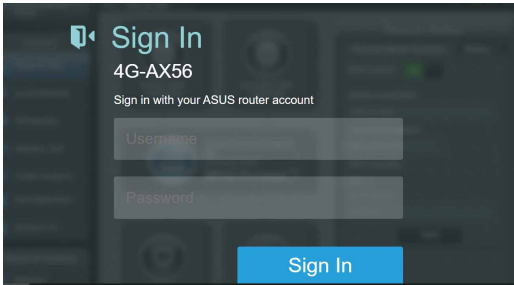
1. Ensure that the following LEDs light up:
 - Power LED
 - 2.4GHz WiFi LED
 - WAN or Mobile Broadband LED
 - 5GHz WiFi LED
2. Launch your web browser such as Internet Explorer, Firefox, Google Chrome, or Safari.

NOTE: If QIS does not launch automatically, enter <http://www.asusrouter.com> in the address bar and refresh the browser again.

3. Log into the Web GUI. The QIS page launches automatically.

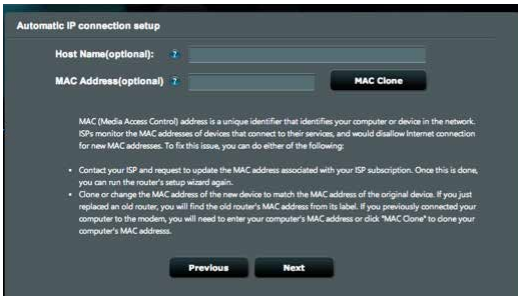


4. Assign your router login name and password and click **Next**. You need this login name and password to log into ASUS router to view or change the router settings. You can take note of your router login name and password for future use.

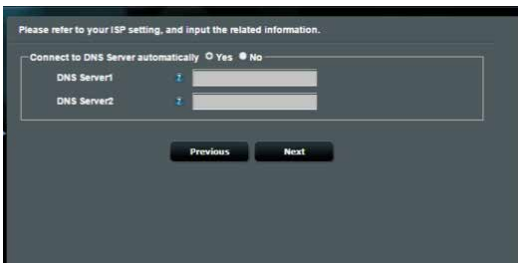


5. If the WAN port is connected, the wireless router's Quick Internet Setup (QIS) feature automatically detects if your ISP connection type is **Dynamic IP, PPPoE, PPTP, L2TP, and Static IP**. Please obtain the necessary information from your Internet Service Provider (ISP). If your connection type is Dynamic IP (DHCP), QIS wizard will automatically direct you to the next step.

for Automatic IP (DHCP)



for PPPoE, PPTP, and L2TP



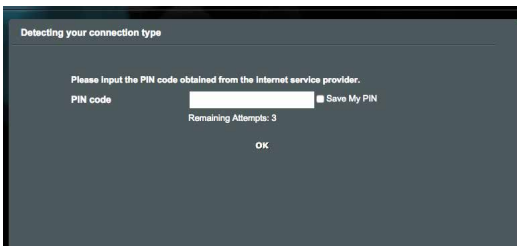
for Static IP



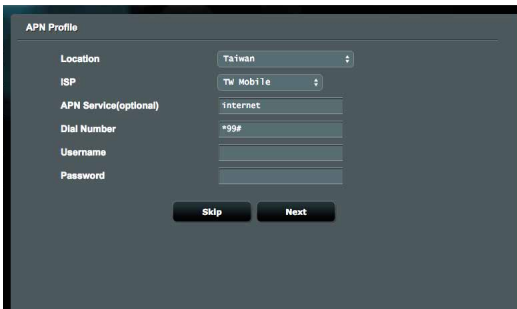
The screenshot shows the 'Account Settings' screen. It features three input fields: 'User Name', 'Password', and 'MAC Address(optional)'. Each field has a help icon to its right. Below the 'Password' field is a checkbox labeled 'Show password'. To the right of the 'MAC Address' field is a blue button labeled 'MAC Clone'. At the bottom of the screen, there are two buttons: 'Previous' and 'Next'. A note at the bottom reads: 'Obtain the account name and password from your ISP.'

6. If a 3G/4G network is connected, the wireless router's Quick Internet Setup (QIS) feature automatically detects and applies the APN setting to connect to the wireless base station. If the QIS wizard failed to automatically apply the APN setting or the SIM card prompts for a PIN code, set up the APN setting manually.

NOTE: The PIN code may vary from different providers.



The screenshot shows the 'Detecting your connection type' screen. It prompts the user to 'Please input the PIN code obtained from the Internet service provider.' There is a text input field for the 'PIN code' and a checkbox labeled 'Save My PIN'. Below the input field, it says 'Remaining Attempts: 3'. At the bottom, there is an 'OK' button.



The screenshot shows the 'APN Profile' screen. It has several fields: 'Location' (dropdown menu set to 'Taiwan'), 'ISP' (dropdown menu set to 'TW Mobile'), 'APN Service(optional)' (text input field set to 'internet'), 'Dial Number' (text input field set to '*99#'), 'Username' (text input field), and 'Password' (text input field). At the bottom, there are two buttons: 'Skip' and 'Next'.

- The dual WAN connection configuration result is displayed. Click **Next** to continue.

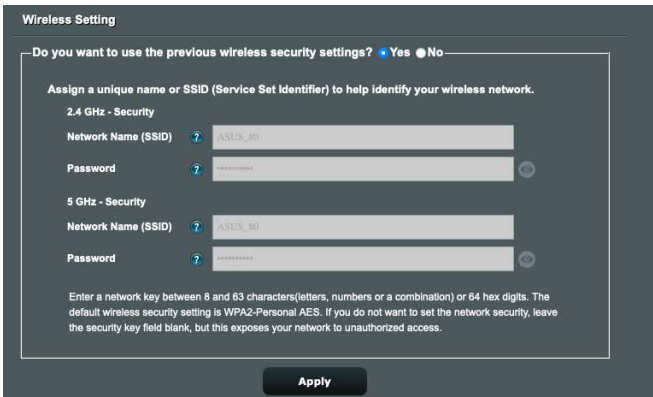
Mobile Broadband Connection is configured successfully



Ethernet WAN Connection is configured successfully



- If both WAN are configured, go to next step to configure the wireless LAN settings.



- Assign the network name (SSID) and security key for your 2.4GHz wireless connection. Click **Apply** when done.
- Your Internet and wireless settings are displayed. Click **Next** to complete the QIS process.

The image shows a 'Wireless Setting' screen with a dark background. At the top, it asks 'Do you want to use the previous wireless security settings?' with 'Yes' selected. Below this, it instructs to 'Assign a unique name or SSID (Service Set Identifier) to help identify your wireless network.' There are two sections: '2.4 GHz - Security' and '5 GHz - Security'. Each section has a 'Network Name (SSID)' field and a 'Password' field. The 2.4 GHz SSID is '000000000005368' and the 5 GHz SSID is '000000000005368_5G'. Both passwords are masked with asterisks. A note at the bottom explains the network key requirements. An 'Apply' button is at the bottom center.

Wireless Setting

Do you want to use the previous wireless security settings? Yes No

Assign a unique name or SSID (Service Set Identifier) to help identify your wireless network.

2.4 GHz - Security

Network Name (SSID)

Password

5 GHz - Security

Network Name (SSID)

Password

Enter a network key between 8 and 63 characters(letters, numbers or a combination) or 64 hex digits. The default wireless security setting is WPA2 Personal AES. If you do not want to set the network security, leave the security key field blank, but this exposes your network to unauthorized access.

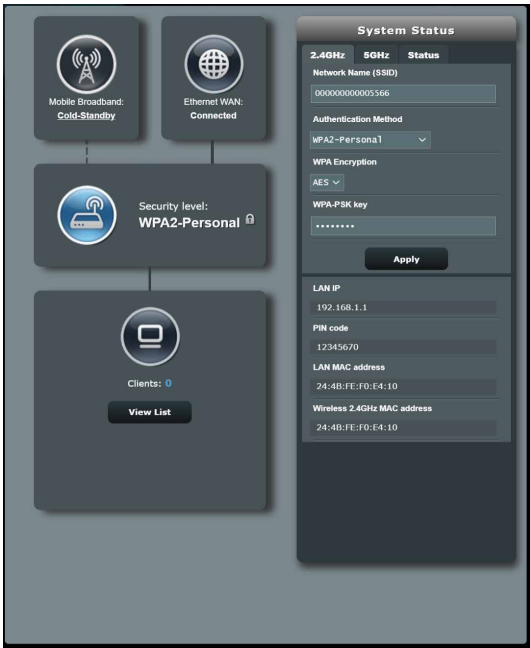
Apply

- The 3G/4G signal strength LED lights up and is steady after completing the 3G/4G network settings via QIS, indicating a successful Internet connection.

3 Configuring the General and Advanced Settings

3.1 Using the Network Map


Network Map allows you to check the Internet connection status, configure your network's security settings and manage your network clients.



3.1.1 Setting up the wireless security settings

To protect your wireless network from unauthorized access, you need to configure its security settings.

To set up the wireless security settings:

1. From the navigation panel, go to **General > Network Map**.
2. On the Network Map screen, click System status icon . You can configure the wireless security settings such as Network Name (SSID), Authentication Method, and encryption settings.

2.4GHz security settings



The screenshot shows the 'System Status' interface for the 2.4GHz network. It features a dark grey background with white text. At the top, there are three tabs: '2.4GHz', '5GHz', and 'Status', with '2.4GHz' selected. Below the tabs, the 'Network Name (SSID)' field contains 'ASUS_80'. The 'Authentication Method' is set to 'WPA2-Personal'. The 'WPA Encryption' is set to 'AES'. The 'WPA-PSK key' field is filled with ten asterisks. An 'Apply' button is located below these settings. At the bottom, there are sections for 'LAN IP' (192.168.50.1), 'PIN code' (31257367), 'Yandex.DNS' (Disabled), 'LAN MAC address' (F0:2F:74:3A:D6:80), and 'Wireless 2.4GHz MAC address' (F0:2F:74:3A:D6:80).

5GHz security settings



The screenshot shows the 'System Status' interface for the 5GHz network. It features a dark grey background with white text. At the top, there are three tabs: '2.4GHz', '5GHz', and 'Status', with '5GHz' selected. Below the tabs, the 'Network Name (SSID)' field contains 'ASUS_80'. The 'Authentication Method' is set to 'WPA2-Personal'. The 'WPA Encryption' is set to 'AES'. The 'WPA-PSK key' field is filled with ten asterisks. An 'Apply' button is located below these settings. At the bottom, there are sections for 'LAN IP' (192.168.50.1), 'PIN code' (31257367), 'Yandex.DNS' (Disabled), 'LAN MAC address' (F0:2F:74:3A:D6:80), and 'Wireless 5GHz MAC address' (F0:2F:74:3A:D6:84).

3. On the **Network Name (SSID)** field, key in a unique name for your wireless network.
4. From the **Authentication Method** dropdown list, select the authentication method for your wireless network.


If you select WPA-Personal or WPA-2 Personal as the authentication method, key in the WPA-PSK key or security passkey.

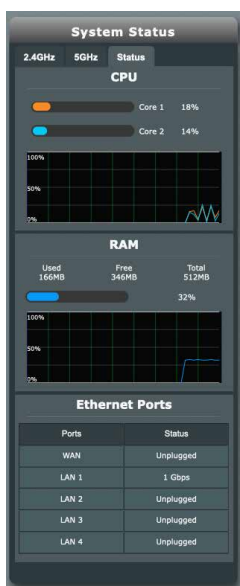
IMPORTANT! The IEEE 802.11n/ac standard prohibits using Low Throughput with WEP or WPA-TKIP as the unicast cipher. If you use these encryption methods, your data rate will drop to IEEE 802.11g 54Mbps connection.

5. Click **Apply** when done.

3.1.2 System Status


To monitor the system resources:

1. From the navigation panel, go to **General > Network Map**.
2. On the Network Map screen, click the System status icon . you can find the information about CPU and memory usage.




3.1.3 Managing your network clients

To manage your network clients:

1. From the navigation panel, go to **General** > **Network Map**.
2. On the **Network Map** screen, select the Client Status icon  to display your network client's information.



3. On Client status table, click the device icon  to show the detailed profile of the device.



The screenshot shows a dark-themed user interface for a device profile. At the top left, it displays 'DECP' and 'Logged-in User'. A blue device icon is in the top right corner. On the left, there is a large device icon and two links: 'Default' and 'Change'. The main area contains a table of device information:



Name	MacBook-Air-M1
IP	192.168.50.209
MAC	00:ED:4C:68:01:A2
Device	REALTEK SEMICONDUCTOR CORP.

Below the table, there are two settings with toggle switches:

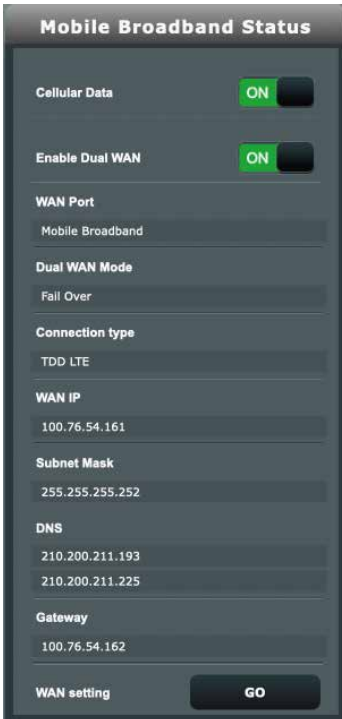
- Block Internet Access: OFF
- Time Scheduling: OFF

3.1.4 Monitoring the Internet Status

To monitor your Internet status:

1. From the navigation panel, go to **General > Network Map**.
2. On the **Network Map** screen, select the Internet icon  to display your Internet configuration. You can also select Mobile Broadband icon  to display Mobile Broadband configuration.
3. To terminate WAN interface from your network, click the switch button on **Cellular Data** and **Internet Connection**.

Mobile Broadband



Mobile Broadband Status

Cellular Data

Enable Dual WAN

WAN Port
Mobile Broadband

Dual WAN Mode
Fail Over

Connection type
TDD LTE

WAN IP
100.76.54.161

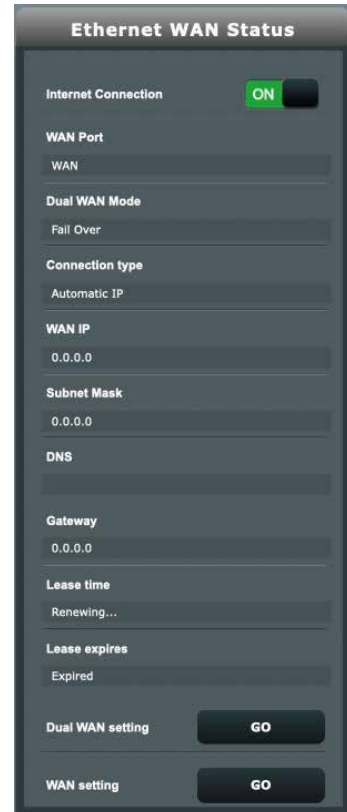
Subnet Mask
255.255.255.252

DNS
210.200.211.193
210.200.211.225

Gateway
100.76.54.162

WAN setting

Ethernet WAN



Ethernet WAN Status

Internet Connection

WAN Port
WAN

Dual WAN Mode
Fail Over

Connection type
Automatic IP

WAN IP
0.0.0.0

Subnet Mask
0.0.0.0

DNS

Gateway
0.0.0.0

Lease time
Renewing...

Lease expires
Expired

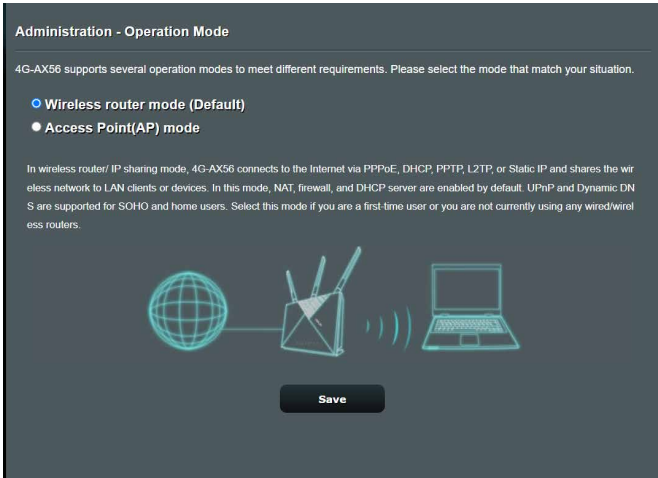
Dual WAN setting

WAN setting

3.2 Administration

3.2.1 Operation Mode

The Operation Mode page allows you to select the appropriate mode for your network.



To set up the operating mode:

1. From the navigation panel, go to **Advanced Settings > Administration > Operation Mode**.
2. Select any of these operation modes:
 - **Wireless router mode (Default):** In wireless router mode, the wireless router connects to the Internet and provides Internet access to available devices on its own local network.
 - **Access Point (AP) mode:** In this mode, the router creates a new wireless network on an existing network.
3. Click **Apply**.

NOTE: The router will reboot when you change the modes.

3.2.2 System

The **System** page allows you to configure your wireless router settings.

Administration - System

Change the router login password, time zone, and NTP server settings.

Change the router login password

Router Login Name	<input type="text" value="admin"/>
New password	<input type="password"/>
Retype Password	<input type="password"/> <input type="checkbox"/> Show password
Enable Login Captcha	<input checked="" type="radio"/> Yes <input type="radio"/> No

Basic Config

Time Zone	<input type="text" value="(GMT) Greenwich Mean Time"/> <input type="button" value="↑"/> <small>* Reminder: The System time zone is different from your locale setting.</small>
NTP Server	<input type="text" value="pool.ntp.org"/> <input type="button" value="NTP Link"/>
Network Monitoring	<input checked="" type="checkbox"/> DNS Query <input type="checkbox"/> Ping
Auto Logout	<input type="text" value="30"/> <input type="button" value="minute(s) (Disable : 0)"/> <input type="button" value="↑"/>
Enable WAN down browser redirect notice	<input checked="" type="radio"/> Yes <input type="radio"/> No
WPS Button behavior	<input checked="" type="radio"/> Activate WPS <input type="radio"/> Toggle Radio <input type="radio"/> Turn LED On/Off
Enable Reboot Scheduler	<input type="radio"/> Yes <input checked="" type="radio"/> No

Service

Enable Telnet	<input checked="" type="radio"/> Yes <input type="radio"/> No <small>* Due to security concerns, we suggest using SSH instead of Telnet. SSH provides an encrypted network communication.</small>
Enable SSH	<input type="text" value="No"/> <input type="button" value="↑"/>
Idle Timeout	<input type="text" value="20"/> <input type="button" value="minute(s) (Disable : 0)"/> <input type="button" value="↑"/>

Local Access Config

Authentication Method	<input type="text" value="HTTP"/> <input type="button" value="↑"/>
-----------------------	--

Remote Access Config

Enable Web Access from WAN	<input type="radio"/> Yes <input checked="" type="radio"/> No
Enable Access Restrictions	<input type="radio"/> Yes <input checked="" type="radio"/> No

To set up the System settings:

1. From the navigation panel, go to **Advanced Settings > Administration > System**.
2. You can configure the following settings:
 - **Change the router login password:** You can change the password and login name for the wireless router by entering a new name and password.
 - **Time Zone:** Select the time zone for your network.
 - **NTP Server:** The wireless router can access a NTP (Network time Protocol) server in order to synchronize the time.
 - **Auto Logout:** System will auto log out the administration page after an idle period. To disable Auto logout, set the value in 0.
 - **Enable Telnet:** Click **Yes** to enable Telnet services on the network. Click **No** to disable Telnet.
 - **Authentication Method:** You can select HTTP, HTTPS, or both protocols to secure router access.
 - **Enable Web Access from WAN:** Select **Yes** to allow devices outside the network to access the wireless router GUI settings. Select **No** to prevent access.
 - **Enable Access Restrictions:** Select Yes to set a whitelist which allows administrator to limit and control access only to trusted IP address.
 - a). **Allow only specified IP address:** Click Yes if you want to specify the IP addresses of devices that are allowed access to the wireless router GUI settings from WAN.
 - b). **Specified IP Address:** Enter the WAN IP addresses of networking devices allowed to access the wireless router settings. This Client list allows you to add the maximum IP addresses of 4.
3. Click **Apply**.

3.2.3 Firmware Upgrade

NOTE: Download the latest firmware from the ASUS website at <http://www.asus.com>

Administration - Firmware Upgrade

Note:

1. The latest firmware version includes updates from the previous version.
2. Configuration parameters will keep their settings during the firmware update process.
3. In case the upgrade process fails, 4G-AX56 enters the emergency mode automatically. The LED signals at the front of 4G-AX56 will indicate such a situation. Please visit [ASUS Download Center](https://www.asus.com/support/) to download ASUS Device Discovery utility.
4. Get the latest firmware version from the ASUS Support site: <https://www.asus.com/support/>

Firmware Version	
Product ID	4G-AX56
Signature version	2.272 <input type="button" value="Check"/>
Firmware Version	3.0.0.4.382_41285-gb1e1170 <input type="button" value="Check"/>
New Firmware File	<input type="button" value="選擇檔案"/> 未選擇任何檔案 <input type="button" value="Upload"/>

4G Modem Firmware	
Modem Firmware Version	16121.1000.00.01.01.32
New Modem Firmware	<input type="button" value="選擇檔案"/> 未選擇任何檔案 <input type="button" value="Upload"/>

To upgrade the router or 4G modem firmware:

1. From the navigation panel, go to **Advanced Settings > Administration > Firmware Upgrade**.
2. In the **New Firmware File** or **New Modem Firmware** field, click **Browse** to locate the downloaded file.
3. Click **Upload**.

NOTES:

- When the upgrade process is complete, wait for some time for the system to reboot.
- If the upgrade process fails, the wireless router automatically enters rescue mode and the power LED indicator on the front panel starts flashing slowly. To recover or restore the system, refer to section **4.2 Firmware Restoration**.

3.2.4 Restore/Save/Upload Setting



To restore/save/upload wireless router settings:

1. From the navigation panel, go to **Advanced Settings > Administration > Restore/Save/Upload Setting**.
2. Select the tasks that you want to do:
 - To restore to the default factory settings, click **Restore**, and click **OK** in the confirmation message.
 - To save the current system settings, click **Save setting**, navigate to the folder where you intend to save the file and click **Save**.
 - To restore from a saved system settings file, click **Browse** to locate your file, then click **Upload**.

IMPORTANT! If issues occur, upload the latest firmware version and configure new settings. **Do not** restore the router to its default settings.

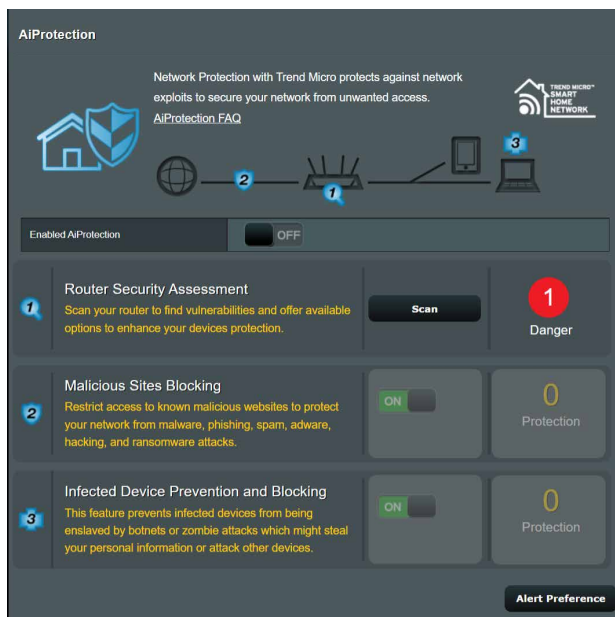
3.3 AiProtection

AiProtection provides real-time monitoring that detects malware, spyware, and unwanted access. It also filters unwanted websites and apps and allows you to schedule a time that a connected device is able to access the Internet.



3.3.1 Network Protection

Network Protection prevents network exploits and secures your network from unwanted access.

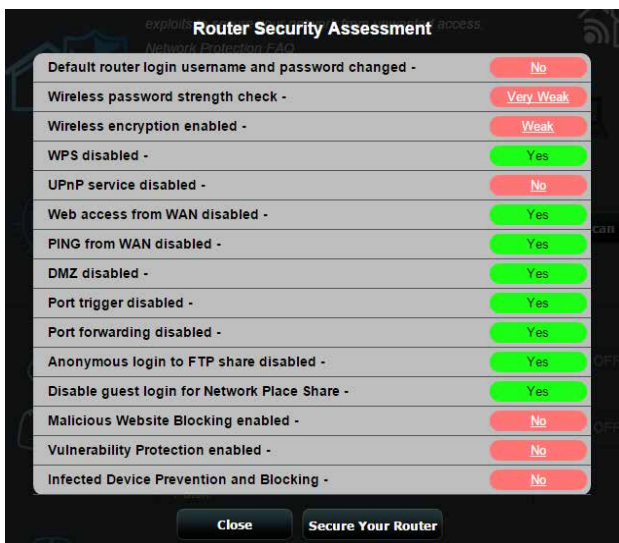


Configuring Network Protection

To configure Network Protection:

1. From the navigation panel, go to **General > AiProtection**.
2. From the **AiProtection** main page, click on **Network Protection**.
3. From the **Network Protection** tab, click **Scan**.

When done scanning, the utility displays the results on the **Router Security Assessment** page.



IMPORTANT! Items marked as **Yes** on the **Router Security Assessment** page is considered to be at a **safe** status. Items marked as **No**, **Weak**, or **Very Weak** is highly recommended to be configured accordingly.

4. (Optional) From the **Router Security Assessment** page, manually configure the items marked as **No**, **Weak**, or **Very Weak**. To do this:
 - a. Click an item.

NOTE: When you click an item, the utility forwards you to the item's setting page.

- b. From the item's security settings page, configure and make the necessary changes and click **Apply** when done.
 - c. Go back to the **Router Security Assessment** page and click **Close** to exit the page.
5. To automatically configure the security settings, click **Secure Your Router**.
6. When a message prompt appears, click **OK**.

Malicious Sites Blocking

This feature restricts access to known malicious websites in the cloud database for an always-up-to-date protection.

NOTE: This function is automatically enabled if you run the **Router Weakness Scan**.

To enable Malicious Sites Blocking:

1. From the navigation panel, go to **General > AiProtection**.
2. From the **AiProtection** main page, click on **Network Protection**.
3. From the **Malicious Sites Blocking** pane, click **ON**.

Infected Device Prevention and Blocking

This feature prevents infected devices from communicating personal information or infected status to external parties.

NOTE: This function is automatically enabled if you run the **Router Weakness Scan**.

To enable Infected Device Prevention and Blocking:

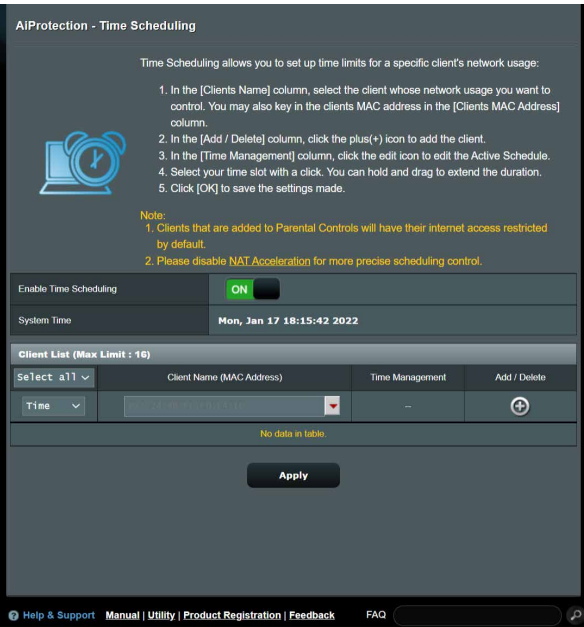
1. From the navigation panel, go to **General > AiProtection**.
2. From the **AiProtection** main page, click on **Network Protection**.
3. From the **Infected Device Prevention and Blocking** pane, click **ON**.

3.3.2 Setting up Parental Controls

Parental Control allows you to control the Internet access time or set the time limit for a client's network usage.

To go to the Parental Controls main page:

1. From the navigation panel, go to **General > AiProtection**.
2. From the **AiProtection** main page, click on the **Parental Controls**.



Time Scheduling

Time Scheduling allows you to set the time limit for a client's network usage.


NOTE: Ensure that your system time is synchronized with the NTP server.

To configure Time Scheduling:

1. From the navigation panel, go to **General > AiProtection > Parental Controls**.

2. From the **Enable Time Scheduling** pane, click **ON**.
3. From the **Client Name (MAC Address)** column, select or key in the client's name from the drop down list box.

NOTE: You may also key in the client's MAC address in the **Client Name (MAC Address)** column. Ensure that the client name does not contain special characters or spaces as these may cause the router to function abnormally.

4. Click  to add the client's profile.
5. Click **Apply** to save the settings.

3.4 Ethernet WAN Mobile Broadband Function Support List

The wireless router supports wired WAN and Mobile broadband WAN in failover and failback modes. The Mobile broadband WAN is used both as Internet access and WAN backup interface. LAN, WAN, VPN, and Firewall support different functions. See the comparison table below.

	Wired WAN	LAN as WAN	Mobile broadband
LAN			
IPTV	V	N/A	N/A
Switch Control > NAT Acceleration (IPv4 Only)	V	N/A	N/A
Switch Control > Jumbo Frame	V	N/A	N/A
WAN			
IPv6	V	V	V (1)
Port Trigger	V	V	V (2)
Virtual Server / Port Forwarding	V	V	V (2)
DMZ	V	V	V (2)
DDNS	V	V	V (2)
NAT Passthrough	V	V	V (2)
Traffic Manager			
QoS	V	V	V
Firewall			
General	V	V	V
URL Filter	V	V	V
Keyword Filter	V	V	V
Network Services Filter	V	V	V
IPv6 Firewall	V	V	N/A
Administration			
System > Enable Web Access from WAN	V	V	V (2)

3.5 Firewall

The wireless router can serve as a hardware firewall for your network.

NOTE: The Firewall feature is enabled by default.

3.5.1 General

To set up basic Firewall settings:


1. From the navigation panel, go to **Advanced Settings > Firewall > General**.
2. On the **Enable Firewall** field, select **Yes**.
3. On the **Enable DoS protection**, select **Yes** to protect your network from DoS (Denial of Service) attacks though this may affect your router's performance.
4. You can also monitor packets exchanged between the LAN and WAN connection. On the Logged packets type, select **Dropped, Accepted, or Both**.
5. Click **Apply**.

3.5.2 URL Filter

You can specify keywords or web addresses to prevent access to specific URLs.

NOTE: The URL Filter is based on a DNS query. If a network client has already accessed a website such as <http://www.abcxxx.com>, then the website will not be blocked (a DNS cache in the system stores previously visited websites). To resolve this issue, clear the DNS cache before setting up the URL Filter.

To set up a URL filter:

1. From the navigation panel, go to **Advanced Settings > Firewall > URL Filter**.
2. On the **Enable URL Filter** field, select **Enabled**.
3. Enter a URL and click the  button.
4. Click **Apply**.

3.5.3 Keyword filter

Keyword filter blocks access to webpages containing specified keywords.

To set up a keyword filter:

1. From the navigation panel, go to **Advanced Settings > Firewall > Keyword Filter**.
2. On the **Enable Keyword Filter** field, select **Enabled**.
3. Enter a word or phrase and click the **Add** button.
4. Click **Apply**.


NOTES:

- The Keyword Filter is based on a DNS query. If a network client has already accessed a website such as <http://www.abcxxx.com>, then the website will not be blocked (a DNS cache in the system stores previously visited websites). To resolve this issue, clear the DNS cache before setting up the Keyword Filter.
 - Web pages compressed using HTTP compression cannot be filtered. HTTPS pages also cannot be blocked using a keyword filter.
-

3.11.4 Network Services Filter

The Network Services Filter blocks LAN to WAN packet exchanges and restricts network clients from accessing specific web services such as Telnet or FTP.

To set up a Network Service filter:

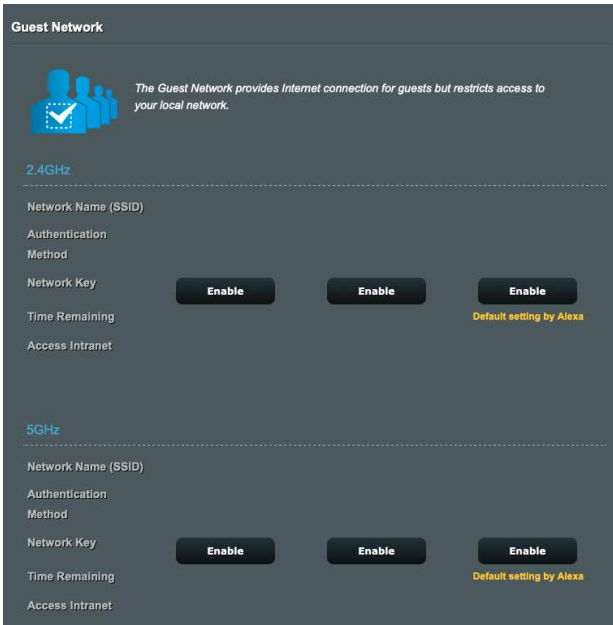
1. From the navigation panel, go to **Advanced Settings > Firewall > Network Service Filter**.
2. On the **Enable Network Services Filter** field, select **Yes**.
3. Select the Filter table type. **Black List** blocks the specified network services. **White List** limits access to only the specified network services.
4. Specify the day and time when the filters will be active.
5. To specify a Network Service to filter, enter the Source IP, Destination IP, Port Range, and Protocol. Click the  button.
6. Click **Apply**.

3.11.5 IPv6 Firewall

By default, your ASUS wireless router blocks all unsolicited incoming traffic. The IPv6 Firewall function allows incoming traffic coming from specified services to go through your network.

3.6 Guest Network

The **Guest Network** provides temporary visitors with Internet connectivity via access to separate SSIDs or networks without providing access to your private network.




To create a guest network:

1. From the navigation panel, go to **General > Guest Network**.
2. On the **Guest Network** screen, select 2.4GHz and 5GHz frequency band for the guest network that you want to create.
3. Click **Enable**.
4. Configure a guest's settings on pop-up screen
5. Assign a Network Name (SSID) for identify your guest network.
6. Select an Authentication Method.
7. If you select a WPA authentication method, select a WPA Encryption.
8. Specify the **Access time** or choose **Limitless**.

9. Select **Disable** or **Enable** on the **Access Intranet** item.
10. Select **Disable** or **Enable** on **Enable MAC Filter** item for your guest network.

Guest Network

 *The Guest Network provides Internet connection for guests but restricts access to your local network.*

Guest Network Index	1
Hide SSID	<input type="radio"/> Yes <input checked="" type="radio"/> No
Network Name (SSID)	ASUS_80_2G_Guest
Authentication Method	WPA2_Personal
WPA Encryption	AES
WPA Pre-Shared Key	brown_4739
Access time	<input type="radio"/> 0 days <input type="text"/> hour(s) <input type="text"/> minute(s) <input checked="" type="radio"/> Unlimited access
Bandwidth Limiter	<input type="radio"/> Yes <input checked="" type="radio"/> No
Access Intranet	Disable
Enable MAC Filter	Disable

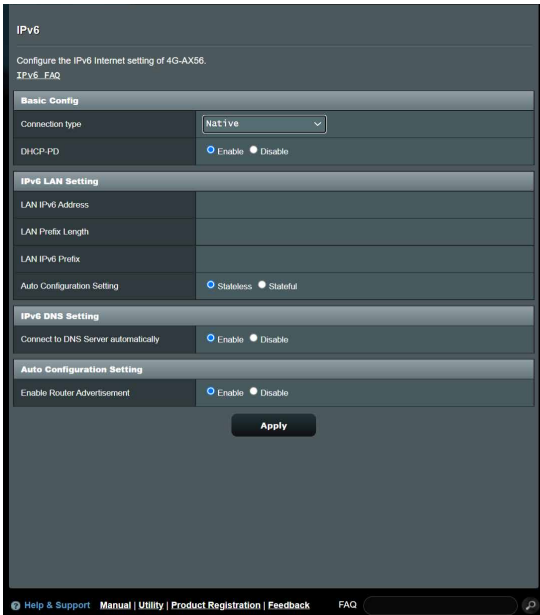
11. When done, click **Apply**.

NOTES:

- Visit <https://www.asus.com/support/FAQ/1034977/> to see **How to set up Captive Portal**.
 - Visit <https://www.asus.com/support/FAQ/1034971/> to see **How to set up Free WiFi**.
-

3.7 IPv6

This wireless router supports IPv6 addressing, a system that supports more IP addresses. This standard is not yet widely available. Contact your ISP if your Internet service supports IPv6.



The screenshot shows the IPv6 configuration page for a 4G-AXS6 router. The page is titled "IPv6" and includes a sub-header "Configure the IPv6 Internet setting of 4G-AXS6." and a link for "IPv6_FAQ". The configuration is organized into several sections:

- Basic Config:** Includes a "Connection type" dropdown menu set to "Native" and a "DHCPv6" section with radio buttons for "Enable" (selected) and "Disable".
- IPv6 LAN Setting:** Includes fields for "LAN IPv6 Address", "LAN Prefix Length", and "LAN IPv6 Prefix". The "Auto Configuration Setting" section has radio buttons for "Stateless" and "Stateful" (selected).
- IPv6 DNS Setting:** Includes a "Connect to DNS Server automatically" section with radio buttons for "Enable" (selected) and "Disable".
- Auto Configuration Setting:** Includes an "Enable Router Advertisement" section with radio buttons for "Enable" (selected) and "Disable".

An "Apply" button is located at the bottom of the configuration area. At the very bottom of the page, there is a navigation bar with links for "Help & Support", "Manual", "Utility", "Product Registration", "Feedback", and "FAQ".

To set up IPv6:

1. From the navigation panel, go to **Advanced Settings** > **IPv6**.
2. Select your **Connection type**. The configuration options vary depending on your selected connection type.
3. Enter your IPv6 LAN and DNS settings.
4. Click **Apply**.

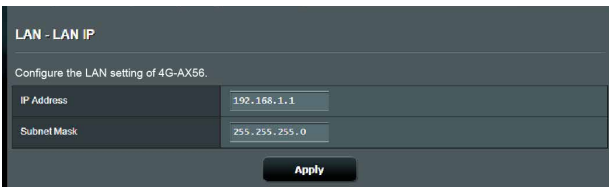
NOTE: Please refer to your ISP regarding specific IPv6 information for your Internet service.

3.8 LAN

3.8.1 LAN IP

The LAN IP screen allows you to modify the LAN IP settings of your wireless router.

NOTE: Any changes to the LAN IP address will be reflected on your DHCP settings.



LAN - LAN IP

Configure the LAN setting of 4G-AX56.

IP Address	192.168.1.1
Subnet Mask	255.255.255.0

Apply

To modify the LAN IP settings:

1. From the navigation panel, go to **Advanced Settings > LAN > LAN IP**.
2. Modify the **IP Address** and **Subnet Mask**.
3. When done, click **Apply**.

3.8.2 DHCP Server

Your wireless router uses DHCP to assign IP addresses automatically on your network. You can specify the IP address range and lease time for the clients on your network.

LAN - DHCP Server

DHCP (Dynamic Host Configuration Protocol) is a protocol for the automatic configuration used on IP networks. The DHCP server can assign each client an IP address and informs the client of the DNS server IP and default gateway IP. 4G-AX56 supports up to 253 IP addresses for your local network.
[Manually Assigned IP around the DHCP list FAQ](#)

Basic Config

Enable the DHCP Server Yes No

4G-AX56's Domain Name

IP Pool Starting Address

IP Pool Ending Address

Lease time

Default Gateway

DNS and WINS Server Setting

DNS Server

WINS Server

Manual Assignment

Enable Manual Assignment Yes No

Manually Assigned IP around the DHCP list (Max Limit : 64)

Client Name (MAC Address)	IP Address	DNS Server (Optional)	Add/Delete
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="button" value="⊕"/>

No data in table.

[Help & Support](#) [Manual](#) | [Utility](#) | [Product Registration](#) | [Feedback](#) [FAQ](#)

To configure the DHCP server:

1. From the navigation panel, go to **Advanced Settings > LAN > DHCP Server**.
2. In the **Enable the DHCP Server** field, tick **Yes**.
3. In the **4G-AX56's Domain Name** text box, enter a domain name for the wireless router.
4. In the **IP Pool Starting Address** field, key in the starting IP address.
5. In the **IP Pool Ending Address** field, key in the ending IP address.
6. In the **Lease time** field, specify in seconds when an assigned IP address will expire. Once it reaches this time limit, the DHCP

server will then assign a new IP address.

NOTES:

- We recommend that you use an IP address format of 192.168.1.xxx (where xxx can be any number between 2 and 254) when specifying an IP address range.
 - An IP Pool Starting Address should not be greater than the IP Pool Ending Address.
-
7. In the **DNS and WINS Server Settings** section, key in your DNS Server and WINS Server IP address if needed.
 8. Your wireless router can also manually assign IP addresses to devices on the network. On the **Enable Manual Assignment** field, choose **Yes** to assign an IP address to specific MAC addresses on the network. Up to 32 MAC Addresses can be added to the DHCP list for manual assignment.

3.8.3 Route

If your network makes use of more than one wireless router, you can configure a routing table to share the same Internet service.

NOTE: We recommend that you do not change the default route settings unless you have advanced knowledge of routing tables.

LAN - Route

This function allows you to add routing rules into 4G-AX56. It is useful if you connect several routers behind 4G-AX56 to share the same connection to the Internet.

Basic Config

Enable static routes Yes No



Static Route List (Max Limit : 32)

Network/Host IP	Netmask	Gateway	Metric	Interface	Add / Delete
				LAN	+

No data in table.

Apply

To configure the LAN Routing table:

1. From the navigation panel, go to **Advanced Settings > LAN > Route**.
2. On the **Enable static routes** field, choose **Yes**.
3. On the **Static Route List**, enter the network information of other access points or nodes. Click the **Add**  or **Delete**  button to add or remove a device on the list.
4. Click **Apply**.

3.8.4 IPTV

The wireless router supports connection to IPTV services through an ISP or a LAN. The IPTV tab provides the configuration settings needed to set up IPTV, VoIP, multicasting, and UDP for your service. Contact your ISP for specific information regarding your service.

LAN - IPTV	
To watch IPTV, the WAN port must be connected to the Internet. Please go to WAN - Dual WAN to confirm that WAN port is assigned to primary WAN.	
Port	
Select ISP Profile	None
Choose IPTV STB Port	None
Special Applications	
Use DHCP routes	Microsoft
Enable multicast routing (IGMP Proxy)	Disable
Enable efficient multicast forwarding (IGMP Snooping)	Disable
UDP Proxy (Udpxy)	0
Apply	

3.8.5 Switch Control

Switch Control tab enables you to configure NAT Acceleration and Jumbo frame to improve network performance. We recommend that you do not change the default route settings unless you have advanced knowledge.

LAN - Switch Control	
Setting 4G-AX56 switch control.	
Jumbo Frame	Enable
NAT Acceleration	Auto


3.9 SMS

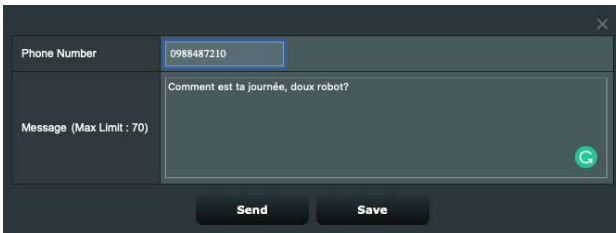
Short Message Service (SMS) is a text messaging service that allows you to send or receive messages from or on your wireless router.

3.9.1 Sending Messages

This function allows you to send short messages from your wireless router.



To send a new SMS message:

1. Click the **New** button .
2. Enter the recipient's phone number.
3. Compose your message.
4. Click **Send** to send the message.



The screenshot shows a dark-themed interface for composing an SMS. At the top right is a close button (X). Below it, the 'Phone Number' field contains '0988487210'. The 'Message (Max Limit : 70)' text area contains the text 'Comment est ta journée, doux robot?'. At the bottom, there are two buttons: 'Send' and 'Save'. A green circular icon with a white 'G' is visible in the bottom right corner of the message text area.

To save a draft message:

1. You can also save the draft message by clicking **Save**.
2. You will see the message listed in the table in **Draft**.
3. Click the edit icon  to edit and send the message, or tick it and click  to delete the draft message.





The screenshot shows a table titled 'SMS - Send Message' with a 'Draft (Max Limit : 5)' header. A 'New' button is in the top right. The table has two columns: 'Phone Number' and 'Message'. One row is visible with the phone number '0988487210' and the message 'Comment est ta journée, doux robot?'. There are icons for editing and deleting each row.

Phone Number	Message
0988487210	Comment est ta journée, doux robot?

3.9.2 Inbox

Inbox allows you to view the received short messages saved in your device.

Click  to view more information, or tick a message and click  to delete it.



<input type="checkbox"/>	Time	Phone Number	Message	
<input type="checkbox"/>	2021/03/07 12:47:34	0906180674	【亞太電信貼心提醒】您目前帳單【應繳金額】：176元【繳款...	▼
<input type="checkbox"/>	2021/03/07 12:47:34	0906180674	本通知，謝謝您。	▼
<input type="checkbox"/>	2021/03/07 12:47:34	0906180674	.tw/Qk8O (四大超商/亞太門市/線上繳款) @超商補單繳費：「7-11 ...	▼
<input type="checkbox"/>	2021/03/07 21:44:20	923	親愛的用戶，您的數據用量已達70%，約剩下2.34 GB，建議您可...	▼
<input type="checkbox"/>	2021/03/07 21:44:20	923	9元4GB或5元1GB加購其他用量補充包，加購完成後繼續使用4G...	▼
<input type="checkbox"/>	2021/02/06 14:35:58	0906180066	【牛年開運上將優惠 亞太用戶權益通知】2/6-2/9登錄只要 \$ 88 + ...	▼
<input type="checkbox"/>	2021/02/06 14:35:58	0906180066	，給你神取超好康！亞太電信限定此門號優惠，轉發無效。登錄...	▼
<input type="checkbox"/>	2021/02/09 14:35:15	0906180066	【牛年開運上將優惠 亞太用戶最後4天權益通知】2/9前登錄只要...	▼

3.10 System Log

System Log contains your recorded network activities.

NOTE: System log resets when the router is rebooted or powered off.

To view your system log:

1. From the navigation panel, go to **Advanced Settings > System Log**.
2. You can view your network activities in any of these tabs:
 - General Log
 - Wireless Log
 - DHCP leases
 - IPv6
 - Routing Table
 - Port Forwarding
 - Connections

System Log - General Log

This page shows the detailed system's activities.

System Time	Tue, Mar 16 10:59:11 2021
Uptime	0 days 0 hour(s) 49 minute(s) 58 seconds
Remote Log Server	<input type="text"/>
Remote Log Server Port	514 <small>* The default port is 514. If you reconfigured the port number, please make sure that the remote log server or IoT devices' settings match your current configuration.</small>

Apply

```
Mar 16 10:24:29 kernel: [ 916.551820] MtCmdChannelSwitch: control_ch1 = 9, scan(1)
Mar 16 10:24:29 kernel: [ 916.560873] BW = 0, TXStream = 4, RXStream = 4, scan(1)
Mar 16 10:24:29 kernel: [ 916.570743] MtCmdChannelSwitch: control_ch1 = 10, control_ch2=0, central_ch1 = 10 DBDCId
Mar 16 10:24:29 kernel: [ 916.719283] BW = 0, TXStream = 4, RXStream = 4, scan(1)
Mar 16 10:24:29 kernel: [ 916.867777] MtCmdChannelSwitch: control_ch1 = 11, control_ch2=0, central_ch1 = 11 DBDCId
Mar 16 10:24:29 kernel: [ 916.876909] BW = 0, TXStream = 4, RXStream = 4, scan(1)
Mar 16 10:24:30 kernel: [ 917.023715] MtCmdChannelSwitch: control_ch1 = 12, control_ch2=0, central_ch1 = 12 DBDCId
Mar 16 10:24:30 kernel: [ 917.032666] BW = 0, TXStream = 4, RXStream = 4, scan(1)
Mar 16 10:24:30 kernel: [ 917.179715] MtCmdChannelSwitch: control_ch1 = 13, control_ch2=0, central_ch1 = 13 DBDCId
Mar 16 10:24:30 kernel: [ 917.188860] BW = 0, TXStream = 4, RXStream = 4, scan(1)
Mar 16 10:24:30 kernel: [ 917.335788] scan_ch_restore: restore channel done in non-offchannel scan path
Mar 16 10:24:30 kernel: [ 917.344890] MtCmdChannelSwitch: control_ch1 = 8, control_ch2=0, central_ch1 = 10 DBDCId
Mar 16 10:24:30 kernel: [ 917.353932] BW = 1, TXStream = 4, RXStream = 4, scan(0)
Mar 16 10:24:30 kernel: [ 917.362366] [DfsCaNormalStart] Normal start. Enable MAC TX
Mar 16 10:32:30 rc_service: Ntpd:2101:notify_rc start_lockpin 0 0000
Mar 16 10:41:10 kernel: [ 917.437051] scan_ch_restore:central_ch10,bw=1
Mar 16 10:41:10 kernel: [ 917.437055] *M
Mar 16 10:43:28 kernel: [ 2055.628793] entry wcid 1 QoSMapSupport=0
Mar 16 10:43:28 kernel: [ 2055.764733] AP_SHTKEYS DONE - ANNsMap=WPA2-Personal, FairwiseCipher=AES, GroupCipher=AES
Mar 16 10:43:28 kernel: [ 2055.788733]
Mar 16 10:43:28 kernel: [ 2055.788881] PTK:871acc61947aeec6ec12bda5d207683ac7193ca1844016cdf84d52381099b7f4d000
Mar 16 10:43:28 kernel: [ 2055.857106] Rcv Wcid(1) AddBAReq
Mar 16 10:43:28 kernel: [ 2055.862358] Start Seq = 00000000
Mar 16 10:43:32 dnsmasq[2091]: failed to execute /sbin/dhcpp_lease: No such file or directory
Mar 16 10:43:43 kernel: [ 2070.455804] Rcv Wcid(1) AddBAReq
Mar 16 10:43:43 kernel: [ 2070.459109] Start Seq = 00000000
```

Clear **Save**

Applications			
VPN Server	V	V	V (2)
FTP Server	V	V	V (2)

NOTES:

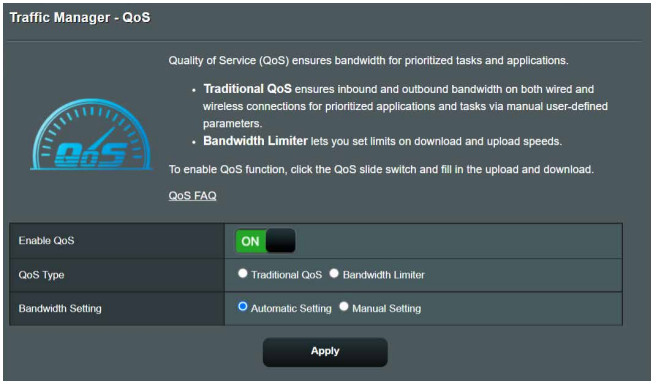
V (1): Mobile WAN has separated configuration on its configuration page

V (2): In most of using case, Internet service provide dispatch the mobile broadband a private IP, that will cause the WAN service failed to access from WAN side.

3.11 Traffic Manager

3.11.1 QoS

This feature ensures bandwidth for prioritized tasks and applications.



To enable the QoS function:

1. From the navigation panel, go to **General > Traffic Manager > QoS**.
2. From the **Enable QoS** pane, click **ON**.
3. Fill in the upload and download bandwidth fields.

NOTE: Get the bandwidth information from your ISP. You can also go to <http://speedtest.net> to check and get your bandwidth.

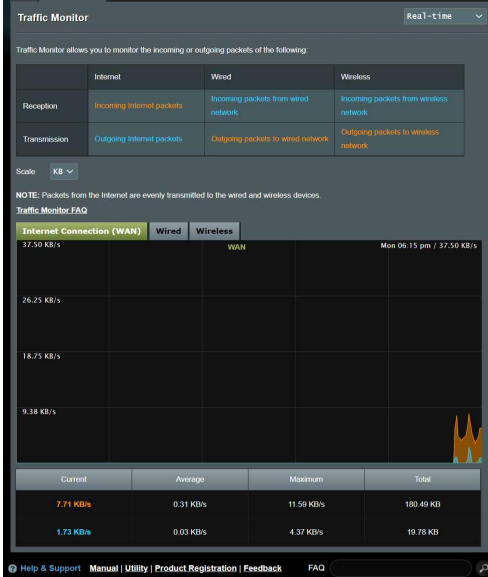
4. Select the QoS Type (Traditional QoS or Bandwidth Limiter) for your configuration.

NOTE: The definition of the QoS Type is displayed on the QoS tab for your reference.

5. Click **Apply**.

3.11.2 Traffic Monitor

The traffic monitor feature allows you to access the bandwidth usage and speed of your Internet, wired, or wireless networks. It allows you to monitor network traffic in real-time or on a daily basis. It also offers an option to display the network traffic within the last 24 hours.



3.12 VPN Server

VPN (Virtual Private Network) provides a secure communication to a remote computer or remote network using a public network such as the Internet.

NOTE: Before setting up a VPN connection, you would need the IP address or domain name of the VPN server you are trying to access.

VPN Server - PPTP

The wireless router currently uses a private WAN IP address (192.168.x.x, 10.x.x.x or 172.16.x.x). Please refer to the [FAQ](#) and set up the port forwarding.

Basic Config

Enable PPTP VPN Server ON

VPN Details

Network Place (Samba) Support Yes No

The VPN server allows you to access your home network anytime, anywhere.

To use the VPN server. Please follow these steps.

- (1) Enable the PPTP VPN server
- (2) Set the IP pool for client IP. (Maximum 10 clients)
- (3) Set up the username and password for VPN client.
- (4) Open the VPN connection program on your computer or smartphone.
- (5) Add a new PPTP VPN connection and the VPN server address is 192.168.123.128
- (6) If your WAN IP address is dynamic, [please click here to set the DNS](#).
- (7) If you cannot use ASUS DDNS services, please go to <http://iplookup.asus.com/nslookup.php> to reach your internet IP address to use this service.

+ [VPN_Server_FAQ](#)

Username and Password (Max Limit : 16)

Connection Status	Username	Password	Add / Delete	Edit
-				-

No data in table.

Apply

To set up access to a VPN server:

1. From the navigation panel, go to **Advanced Settings > VPN Server**.
2. On the **Enable PPTP VPN Server** field, select **ON** to enable PPTP VPN Server.
3. On the **VPN Details** dropdown list, select **Advanced Settings** if want to configure advanced VPN settings such as broadcast support, authentication, MPPE Encryption, and Client IP address range.
4. On the **Network Place (Samba) Support** field, select **Yes**.
5. Enter the user name and password for accessing the VPN server. Click the button.
6. Click **Apply**.

3.13 WAN

3.13.1 Internet Connection

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

3.13.1.1 WAN

To configure the WAN connection settings:

1. From the navigation panel, go to **Advanced Settings > WAN > Internet Connection**.
2. Configure the following settings below. When done, click **Apply**.
 - **WAN Connection Type:** Choose your Internet Service Provider type. The choices are **Automatic IP**, **PPPoE**, **PPTP**, **L2TP** or **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.
 - **Enable WAN:** Select **Yes** to allow the router Internet access. Select **No** to disable Internet access.
 - **Enable NAT:** NAT (Network Address Translation) is a system where one public IP (WAN IP) is used to provide Internet access to network clients with a private IP address in a LAN. The private IP address of each network client is saved in a NAT table and is used to route incoming data packets.
 - **Enable UPnP:** UPnP (Universal Plug and Play) allows several devices (such as routers, televisions, stereo systems, game consoles, and cellular phone), to be controlled via an IP-based network with or without a central control through a gateway. UPnP connects PCs of all form factors, providing a seamless network for remote configuration and data transfer. Using UPnP, a new network device is discovered automatically. Once connected to the network, devices can be remotely configured to support P2P applications, interactive gaming, video conferencing, and web or proxy servers. Unlike Port forwarding, which involves manually configuring port settings, UPnP automatically configures the router to accept incoming connections and direct requests to a specific PC on the local network.

- **Connect to DNS Server automatically:** 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.
- **Authentication:** This item may be specified by some ISPs. Check with your ISP and fill them in if required.
- **Host Name:** This field allows you to provide a host name for your router. It is usually a special requirement from your ISP. If your ISP assigned a host name to your computer, enter the host name here.
- **MAC Address:** MAC (Media Access Control) address is a unique identifier for your networking device. Some ISPs monitor the MAC address of networking devices that connect to their service and reject any unrecognized device that attempt to connect. To avoid connection issues due to an unregistered MAC address, you can:
 - Contact your ISP and update the MAC address associated with your ISP service.
 - Clone or change the MAC address of the ASUS wireless router to match the MAC address of the previous networking device recognized by the ISP.
- **DHCP query frequency:** Changes the DHCP Discovery interval settings to avoid overloading the DHCP server.

3.13.1.2 Mobile Broadband

4G-AX56 has built in 3G/4G modem that allows you to use a Mobile Broadband connection for Internet access.

To set up your Mobile broadband Internet access:

1. From the navigation panel, go to **Advanced Settings > WAN > Internet Connection**, select the **Mobile Broadband** in **WAN Interface** field.

WAN - Mobile Broadband

4G-AX56 can establish Internet connection via Ethernet WAN, Mobile Broadband or LAN as WAN. Select the interface for your Internet connection from the WAN Interface dropdown list. You can enable the dual WAN connection and change the priorities of the WAN interfaces from the [Dual WAN] tab.

WAN Index	
WAN Interface	Mobile Broadband ▾
Enable Mobile Broadband	Enable ▾
Mobile Broadband Modem Information	
Modem software version	16121.1000.00.01.01.32 Reset Modem Reboot Modem
IMEI	863359040013027
Configure the Mobile Broadband settings of 4G-AX56.	
SIM PIN Management	
USIM Card Status	Failed to read the SIM card

Apply

2. In the **Enable Mobile Broadband** field, select **Enable**.
3. Check that you have properly inserted the SIM card, and configure the mobile settings of your router.
4. Internet Connection Configuration:
 - 1) On **Network Type** field, select your preferred network:
 - **Auto** (Default): Select **Auto** to allow the wireless router to automatically select the channel that has the available connection from 4G or 3G network.
 - **4G only**: Select this option to automatically connect the wireless router to a 4G network only.
 - **3G only**: Select this option to automatically connect the wireless router to a 3G network only.
 - 2) **PDP Type**: The wireless router support several PDP Types, PPP, IPv4, IPv6, IPv6 to IPv4.
 - 3) **LTE Band**: This field allows you to select the LTE band.

4) **Roaming** : When you travel to another country, you may use original SIM to access the local network if your ISP provider roaming service in the country. Enable this functions to allow you to access the local network.

- Click **Scan** to show all the available mobile networks.
- Select available mobile network and click **Apply** to connect to it.

NOTES:

- The LTE Router can detect your ISP based on the IMSI information of your SIM card. If the mobile network from your ISP is not found, connect to a roaming network of other ISPs.
- Using a roaming service will incur additional charges. Inquire from your mobile service provider before using the roaming service.



Data Usage Limitation	
Data Usage	9.64 MBytes (Starting Day : 1) Clear
Cycle Start Day	1
Data Usage Limit	0 Gbytes (Disable : 0)
Data Usage Alert	0 Gbytes (Disable : 0)
Send SMS Notification	Disable

5. Data Usage Limitation

- **Data Usage:** Show the data usage.
- **Cycle Start Day:** Select the day you wish the data usage to begin to accumulate. The data usage will be reset at the end of each cycle.
- **Data Usage Limit:** Set the monthly maximum volume of traffic (in GB) for Internet usage. When this limit is reached, an exclamation mark and pop-up alert message will show up when you login administration page, and Internet access is blocked.
- **Data Usage Alert:** Set the maximum volume of Internet traffic at which an exclamation mark and pop-up alert message will show up when you login administration page. When your Internet usage reaches this limit, Internet access is not blocked until the Usage Limit is reached.
- **Send SMS Notification:** Enable this function to send an SMS notification from your router to your mobile device

once the Data Usage limit for Internet usage is reached.

The image displays two screenshots of the APN Profile configuration interface. The top screenshot shows the 'Auto' configuration, and the bottom screenshot shows the 'Manual Setting' configuration.

APN Profile	
APN Configuration	Auto
APN Service(optional)	Gent
Dial Number	*99#
Username	
Password	
Authentication	None

APN Profile	
APN Configuration	Manual Setting
Location	Taiwan
ISP	Far EastOne
APN Service(optional)	Internet
Dial Number	*99#
Username	
Password	
Authentication	None

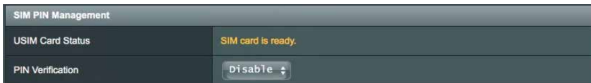
6. APN Configuration

- 1) **Auto** (Default): The system selects Auto APN setting by default.
- 2) **Manual**: If the automatic dial-up connection fails, select Manual to configure APN setting manually.
 - A. **Location**: Select your 3G/4G service provider's location from the dropdown list.
 - B. **ISP**: Select your Internet Service Provider (ISP) from the dropdown list.
 - C. **APN (Access Point Name) service (optional)**: Contact your 3G/4G service provider for detailed information.
 - D. **Dial number**: The 3G/4G provider's access number
 - E. **Username / Password**: Enter the username and password that your 3G/4G network provider has provided.

7. PIN Configuration


PIN code: Enter the 3G/4G provider's PIN code for connection on SIM PIN Management if the SIM card is required.

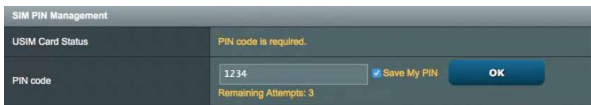
- The default PIN code may vary with different providers. If your ISP has disabled the PIN code verification by default, you can skip the setting.



SIM PIN Management

USIM Card Status	SIM card is ready.
PIN Verification	Disable

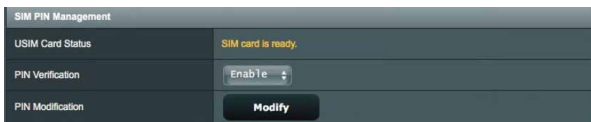
- If your ISP has enabled PIN code verification by default, you will see the SIM lock status icon  on the status icon area and are required to enter the PIN code.



SIM PIN Management

USIM Card Status	PIN code is required.
PIN code	1234 <input checked="" type="checkbox"/> Save My PIN <input type="button" value="OK"/>
	Remaining Attempts: 3

- You can manually enable the PIN code verification from your router's web GUI or your mobile phone. You are also required to enter the PIN code.



SIM PIN Management

USIM Card Status	SIM card is ready.
PIN Verification	Enable
PIN Modification	<input type="button" value="Modify"/>



SIM PIN Management - PIN Verification

Please Input the PIN code obtained from the Internet service provider.

PIN code	<input type="text"/>
PIN Remaining Attempts	2

Mobile Connection Status

To find Mobile broadband Information:

1. Click  to find the detailed information.

Internet Connection	
Connection status	Connected 
Network Type	Auto
PDP Type	IPv4
LTE Band	Auto
Roaming	Disable

2. The **Mobile Connection Status** screen displays the detailed Mobile Broadband connection status.

WAN - Mobile Broadband

4G-AXS6 can establish Internet connection via Ethernet WAN, Mobile Broadband or LAN as WAN. Select the interface for your Internet connection from the WAN Interface dropdown list. You can enable the dual WAN connection and change the priorities of

WAN - Mobile Connection Status

This page displays basic device information, Internet connection status and Internet usage.

Product Information	
Model Name	4G-AXS6
IMSI	
ICCID	
Phone Number	+886975516905

Wireless Status	
Cell ID	4C8E420
Connection Type	LTE
Band	3, 0
RSRP	50 dBm
RSRQ	23 dBm
LAC	3585

Internet Usage	
Connection Status	Connecting...
SIM Provider	
Network Provider	LTE
Data Usage	
Data Sent	
Data Received	
Connection Time	0 days 0 hour(s) 0 minute(s) 0 seconds

Close

SIM PIN Management	
USIM Card Status	SIM card is ready
PIN Verification	Enable

Apply

3.13.2 IPv6 (Internet Settings)

This wireless router supports IPv6 addressing, a system that supports more IP addresses. This standard is not yet widely available. Contact your ISP if your Internet service supports IPv6.

The screenshot shows the IPv6 configuration interface. At the top, it says 'IPv6' and 'Configure the IPv6 Internet setting of 4G-AX56. IPv6_FAQ'. Below this is the 'Basic Config' section with a 'Connection type' dropdown menu set to 'Static IPv6'. The 'IPv6 WAN Setting' section includes fields for 'WAN IPv6 Address', 'WAN Prefix Length', and 'WAN IPv6 Gateway'. The 'IPv6 LAN Setting' section includes fields for 'LAN IPv6 Address', 'LAN Prefix Length', and 'LAN IPv6 Prefix', along with 'Auto Configuration Setting' radio buttons for 'Stateless' (selected) and 'Stateful'. The 'IPv6 DNS Setting' section has three fields for 'IPv6 DNS Server 1', 'IPv6 DNS Server 2', and 'IPv6 DNS Server 3'. The 'Auto Configuration Setting' section has a radio button for 'Enable Router Advertisement' set to 'Enable' and 'Disable'. An 'Apply' button is at the bottom. The footer contains links for 'Help & Support', 'Manual', 'Utility', 'Product Registration', 'Feedback', and 'FAQ'.

To set up IPv6:

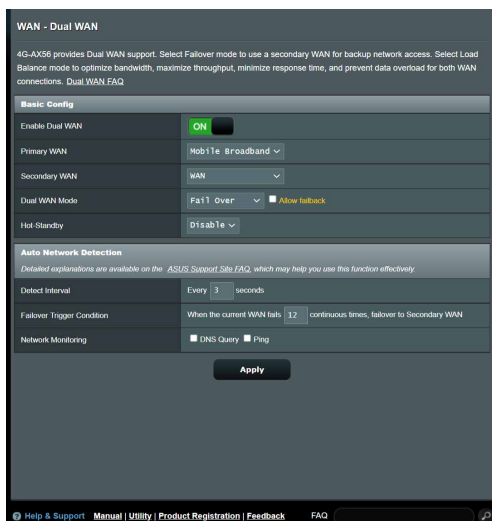
1. From the navigation panel, go to **Advanced Settings** > **IPv6**.
2. Select your **Connection type**. The configuration options vary depending on your selected connection type.
3. Enter your IPv6 LAN and DNS settings.
4. Click **Apply**.

NOTE: Please refer to your ISP regarding specific IPv6 information for your Internet service.

3.13.3 Dual WAN

Your ASUS wireless router provides dual WAN support. You can set the dual WAN feature to any of these two modes:

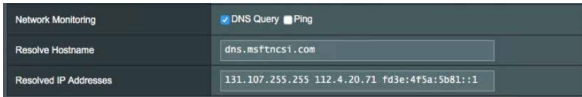
- **Fail Over:** Select this mode to use the secondary WAN as the backup network access.
- **Load Balance:** Select this mode to allow concurrent use of dual WAN connections for improved bandwidth and reliability.
- **Allow failback:** Tick the checkbox to allow Internet connection switch back to primary WAN automatically when primary WAN becomes available.



- **Detect Interval:** Set the time interval (in seconds) between two ping packets.
- **Failover Trigger Condition:** Set the continuous times when the system triggers the failover or failback action after reaching the ping test counter and getting no response from the target IP address.

- **Network Monitoring**

- 1) **DNS Query:** Select this option if you want to periodically resolve target FQDN (Fully Qualified Domain Name).



- 2) **Ping:** Select this option if you want to periodically ping test packet domain or IP address.

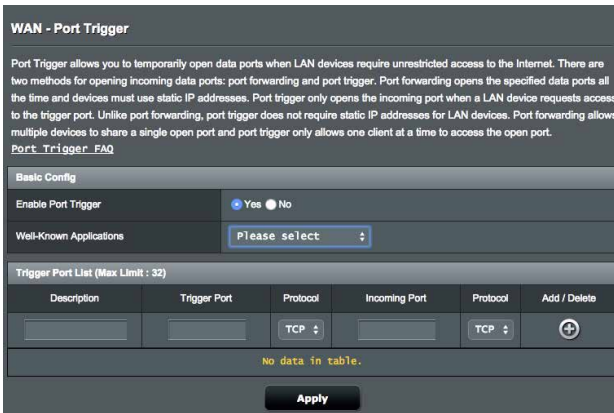


If internet connection issue occurs due to DHCP lease problem such as IP address being expired, you can enable DNS Query or Ping to alleviate the problem.

3.13.4 Port Trigger



Port range triggering opens a predetermined incoming port for a limited period of time whenever a client on the local area network makes an outgoing connection to a specified port. Port triggering is used in the following scenarios:

- More than one local client needs port forwarding for the same application at a different time.
- An application requires specific incoming ports that are different from the outgoing ports.



To set up Port Trigger:

1. From the navigation panel, go to **Advanced Settings > WAN > Port Trigger**.
2. On the **Enable Port Trigger** field, tick **Yes**.
3. On the **Well-Known Applications** field, select the popular games and web services to add to the Trigger Port List.
4. On the **Trigger Port List** table, key in the following information:
 - **Description:** Enter a short name or description for the service.

- **Trigger Port:** Specify a trigger port to open the incoming port.
 - **Protocol:** Select the protocol, TCP, or UDP.
 - **Incoming Port:** Specify an incoming port to receive inbound data from the Internet.
 - **Protocol:** Select the protocol, TCP, or UDP.
5. Click the **Add**  button to enter the port trigger information to the list. Click the **Delete**  button to remove a port trigger entry from the list.
 6. When done, click **Apply**.

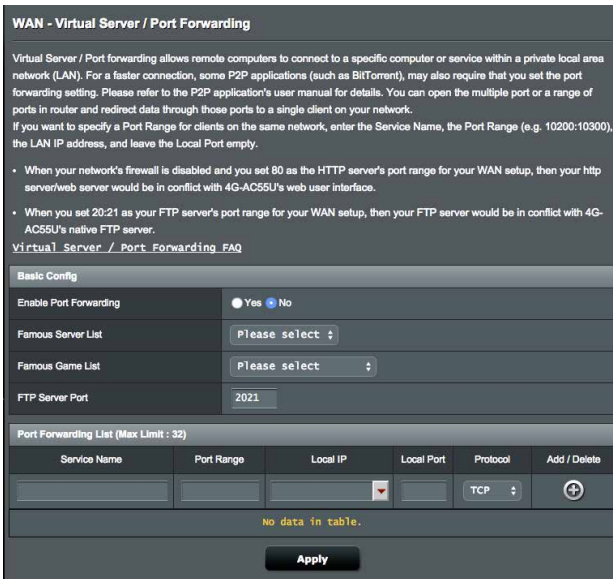
NOTES:

- When connecting to an IRC server, a client PC makes an outgoing connection using the trigger port range 66660-7000. The IRC server responds by verifying the username and creating a new connection to the client PC using an incoming port.
 - If Port Trigger is disabled, the router drops the connection because it is unable to determine which PC is requesting for IRC access. When Port Trigger is enabled, the router assigns an incoming port to receive the inbound data. This incoming port closes once a specific time period has elapsed because the router is unsure when the application has been terminated.
 - Port triggering only allows one client in the network to use a particular service and a specific incoming port at the same time.
 - You cannot use the same application to trigger a port in more than one PC at the same time. The router will only forward the port back to the last computer to send the router a request/trigger.
-

3.13.5 Virtual Server/Port Forwarding

Port forwarding is a method to direct network traffic from the Internet to a specific port or a specific range of ports to a device or number of devices on your local network. Setting up Port Forwarding on your router allows PCs outside the network to access specific services provided by a PC in your network.

NOTE: When port forwarding is enabled, the ASUS router blocks unsolicited inbound traffic from the Internet and only allows replies from outbound requests from the LAN. The network client does not have access to the Internet directly, and vice versa.



To set up Port Forwarding:

1. From the navigation panel, go to **Advanced Settings > WAN > Virtual Server / Port Forwarding**.
2. On the **Enable Port Forwarding** field, tick **Yes**.

3. On the **Famous Server List** field, select the type of service you want to access.
4. On the **Famous Game List** field, select the popular game that you want to access. This item lists the port required for your selected popular online game to work properly.
5. On the **Port Forwarding List** table, key in the following information:
 - **Service Name:** Enter a service name.
 - **Port Range:** If you want to specify a Port Range for clients on the same network, enter the Service Name, the Port Range (e.g. 10200:10300), the LAN IP address, and leave the Local Port empty. Port range accepts various formats such as Port Range (300:350), individual ports (566,789) or Mix (1015:1024,3021).



NOTES:

- When your network's firewall is disabled and you set 80 as the HTTP server's port range for your WAN setup, then your http server/web server would be in conflict with the router's web user interface.
- A network makes use of ports in order to exchange data, with each port assigned a port number and a specific task. For example, port 80 is used for HTTP. A specific port can only be used by one application or service at a time. Hence, two PCs attempting to access data through the same port at the same time would fail. For example, you cannot set up Port Forwarding for port 100 for two PCs at the same time.

-
- **Local IP:** Key in the client's LAN IP address.

NOTE: Use a static IP address for the local client to make port forwarding work properly. Refer to section **3.8 LAN** for information.

-
- **Local Port:** Enter a specific port to receive forwarded packets. Leave this field blank if you want the incoming packets to be redirected to the specified port range.
 - **Protocol:** Select the protocol. If you are unsure, select **BOTH**.

6. Click the **Add**  to enter the port trigger information to the list. Click the **Delete**  button to remove a port trigger entry from the list.
7. When done, click **Apply**.

To check if Port Forwarding has been configured successfully:

- Ensure that your server or application is set up and running.
- You will need a client outside your LAN but has Internet access (referred to as “Internet client”). This client should not be connected to the ASUS router.
- On the Internet client, use the router’s WAN IP to access the server. If port forwarding has been successful, you should be able to access the files or applications.

Differences between port trigger and port forwarding:

- Port triggering will work even without setting up a specific LAN IP address. Unlike port forwarding, which requires a static LAN IP address, port triggering allows dynamic port forwarding using the router. Predetermined port ranges are configured to accept incoming connections for a limited period of time. Port triggering allows multiple computers to run applications that would normally require manually forwarding the same ports to each PC on the network.
- Port triggering is more secure than port forwarding since the incoming ports are not open all the time. They are opened only when an application is making an outgoing connection through the trigger port.

3.13.6 DMZ

Virtual DMZ exposes one client to the Internet, allowing this client to receive all inbound packets directed to your Local Area Network.

Inbound traffic from the Internet is usually discarded and routed to a specific client only if port forwarding or a port trigger has been configured on the network. In a DMZ configuration, one network client receives all inbound packets.

Setting up DMZ on a network is useful when you need incoming ports open or you want to host a domain, web, or e-mail server.

CAUTION: Opening all the ports on a client to the Internet makes the network vulnerable to outside attacks. Please be aware of the security risks involved in using DMZ.

WAN - DMZ

Virtual DMZ allows you to expose one computer to the Internet, so that all the inbounds packets will be redirected to the computer you set. It is useful while you run some applications that use uncontained incoming ports. Please use it carefully.
Special Applications: Some applications require special handler against NAT. These special handlers are disabled in default.
[DMZ_FAQ](#)

Enable DMZ Yes No

IP Address of Exposed Station

Apply

To set up DMZ:

1. From the navigation panel, go to **Advanced Settings > WAN > DMZ**.
2. Configure the setting below. When done, click **Apply**.
 - **IP Address of Exposed Station:** Key in the client's LAN IP address that will provide the DMZ service and be exposed on the Internet. Ensure that the server client has a static IP address.

To remove DMZ:

1. Delete the client's LAN IP address from the **IP Address of Exposed Station** text box.
2. When done, click **Apply**.

3.13.7 DDNS

Setting up DDNS (Dynamic DNS) allows you to access the router from outside your network through the provided ASUS DDNS Service or another DDNS service.

WAN - DDNS

DDNS (Dynamic Domain Name System) is a service that allows network clients to connect to the wireless router, even with a dynamic public IP address, through its registered domain name. The wireless router is embedded with the ASUS DDNS service and other DDNS services.

The wireless router currently uses a private WAN IP address (192.168.x.x, 10.x.x.x, or 172.16.x.x). This router may be in the multiple-NAT environment and DDNS service cannot work in this environment.

Enable the DDNS Client: Yes No

Server:

Host Name:

Apply

To set up DDNS:

1. From the navigation panel, go to **Advanced Settings > WAN > DDNS**.
2. Configure the following settings below. When done, click **Apply**.
 - **Enable the DDNS Client:** Enable DDNS to access the ASUS router via the DNS name rather than WAN IP address.
 - **Server and Host Name:** Choose ASUS DDNS or other DDNS. If you want to use ASUS DDNS, fill in the Host Name in the format of xxx.asuscomm.com (xxx is your host name).
 - If you want to use a different DDNS service, click FREE TRIAL and register online first. Fill in the User Name or E-mail Address and Password or DDNS Key fields.
 - **Enable wildcard:** Enable wildcard if your DDNS service requires one.

NOTES:

DDNS service will not work under these conditions:

- When the wireless router is using a private WAN IP address (192.168.x.x, 10.x.x.x, or 172.16.x.x), as indicated by a yellow text.
 - The router may be on a network that uses multiple NAT tables.
-

3.13.8 NAT Passthrough

NAT Passthrough allows a Virtual Private Network (VPN) connection to pass through the router to the network clients. PPTP Passthrough, L2TP Passthrough, IPsec Passthrough and RTSP Passthrough are enabled by default.

To enable / disable the NAT Passthrough settings:

1. Go to the **Advanced Settings > WAN > NAT Passthrough**.
2. Select **Enable** or **Disable** for specific traffic pass through the NAT firewall.
3. When done, click **Apply**.

WAN - NAT Passthrough	
Enable NAT Passthrough to allow a Virtual Private Network (VPN) connection to pass through the router to the network clients.	
PPTP Passthrough	Enable ▾
L2TP Passthrough	Enable ▾
IPsec Passthrough	Enable ▾
RTSP Passthrough	Enable ▾
H.323 Passthrough	Enable ▾
SIP Passthrough	Enable ▾
PPPoE Relay	Disable ▾
FTP_ALG Port	2021

Apply

3.14 Wireless

3.14.1 General

The General tab allows you to configure the basic wireless settings.

Wireless - General	
Set up the wireless related information below.	
Band	2.4GHz
SSID	ASUS
Hide SSID	<input type="radio"/> Yes <input checked="" type="radio"/> No
Wireless Mode	Auto big Protection
Channel bandwidth	40 MHz
Control Channel	3
Extension Channel	Above
Authentication Method	WPA2-Personal
WPA Encryption	AES
WPA Pre-Shared Key	99999999
Network Key Rotation Interval	3600

Apply

To configure the basic wireless settings:

1. From the navigation panel, go to **Advanced Settings > Wireless > General**.
2. Configure wireless basic configuration for 2.4GHz or 5GHz frequency band.
3. In the **SSID** field, assign a unique name containing up to 32 characters for your SSID (Service Set Identifier) or network name to identify your wireless network. WiFi devices can identify and connect to the wireless network via your assigned SSID. The SSIDs on the information banner are updated once new SSIDs are saved to the settings.
4. In the **Hide SSID** field, select **Yes** to prevent wireless devices from detecting your SSID. When this function is enabled, you would need to enter the SSID manually on the wireless device to access the wireless network.

5. In the **Wireless Mode** field, select any of these wireless mode options to determine the types of wireless devices that can connect to your wireless router:
 - **Auto:** Select **Auto** to allow 802.11ac, 802.11n, 802.11g, 802.11b and 802.11a devices to connect to the wireless router.
 - **Legacy:** Select **Legacy** to allow 802.11b/g/n devices to connect to the wireless router. Hardware that supports 802.11n natively, however, will only run at a maximum speed of 54Mbps.
 - **b/g Protection:** Tick b/g Protection to allow wireless router protect 802.11n transmissions performance from legacy devices with 802.11g, 802.11b connection.
6. In the **Control Channel** field, select the operating channel for your wireless router. Select **Auto** to allow the wireless router to automatically select the channel that has the least amount of interference.
7. In the **Channel bandwidth** field, select any of these channel bandwidth to accommodate higher transmission speeds:
 - **20/40MHz** (default): Select this bandwidth to automatically select the best bandwidth for your wireless environment. In 5GHz band, the default bandwidth **20/40/80MHz** is selected.
 - **80MHz:** Select this bandwidth to maximize the wireless throughput of 5GHz radio.
 - **40MHz:** Select this bandwidth to maximize the wireless throughput of 2.4GHz radio.
 - **20MHz:** Select this bandwidth if you encounter some issues with your wireless connection.
8. If **20/40/80MHz**, **20/40MHz**, **40MHz** or **80MHz** is selected, you can define a upper or lower adjacent channel in the **Extension Channel** field to be accommodated
9. In the **Authentication Method** field, select any of these authentication methods:
 - **Open System:** This option provides no security.
 - **WPA2-Personal / WPA Auto-Personal:** This option provides strong security. You can use either WPA2-Personal (with AES) or WPA Auto-Personal (with AES or

TKIP + AES). If you select this option, you must enter the WPA Pre-Shared Key (network key).

- **WPA2 Enterprise / WPA Auto-Enterprise:** This option provides very strong security. It is with integrated EAP server or an external RADIUS back-end authentication server.

11. When done, click **Apply**.

3.14.2 WPS

WPS (WiFi Protected Setup) is a wireless security standard that allows you to easily connect devices to a wireless network. You can configure the WPS function via the PIN code or WPS button.

NOTE: Ensure that the devices support WPS.

Wireless - WPS

WPS (Wi-Fi Protected Setup) provides easy and secure establishment of a wireless network. You can configure WPS here via the PIN code or the WPS button.

Enable WPS	<input type="checkbox"/> OFF
Current Frequency	2.4GHz Switch Frequency
Connection Status	Not used
Configured	Yes
AP PIN Code	<input type="text" value="31257367"/>

Wireless - WPS

WPS (Wi-Fi Protected Setup) provides easy and secure establishment of a wireless network. You can configure WPS here via the PIN code or the WPS button.

Enable WPS	<input type="checkbox"/> OFF
Current Frequency	5GHz Switch Frequency
Connection Status	Not used
Configured	Yes
AP PIN Code	<input type="text" value="31257367"/>

To enable WPS on your wireless network:

1. From the navigation panel, go to **Advanced Settings > Wireless > WPS**.
2. In the **Enable WPS** field, move the slider to **ON**.
3. WPS uses 2.4GHz and 5GHz radio separately.
4. You can use any of the following WPS methods for wireless connection pairing:
 - **PBC (Push Button Configuration) Mode:**
 - Hardware PBC on the router: Press the physical WPS button on wireless router, and then press WPS button on wireless client in three (3) minutes.
 - Software PBC on the router: Tick <Push button> on **WPS Method** field, click **Start**, and then press the WPS button on the wireless client in three (3) minutes.
 - **PIN Code Mode:**
 - Pairing from the wireless client: Press the WPS button on the wireless router, and then perform WPS connection process in PIN code mode and enter the **AP PIN Code** on the client device.
 - Pairing from the wireless router: Press the WPS button on wireless client, and then perform the WPS connection process in PIN code mode and enter the **Client PIN Code** on the **WPS Method > Client PIN Code** field. Check if the PIN code is correct and then click **Start** to pair with wireless client.

NOTES:

- WPS supports authentication using Open System and WPA2-Personal. WPS does not support a wireless network that uses a Shared Key, WPA-Personal, WPA-Enterprise, WPA2-Enterprise, and RADIUS encryption method.
- Check your wireless device or its user manual for the location of the WPS button.
- During the WPS process, the wireless router scans for any available WPS devices. If the wireless router does not find any WPS devices, it switches to idle mode.
- The router's power LED indicators quickly flash three minutes until the WPS setup is completed.

3.14.3 WDS

Bridge or WDS (Wireless Distribution System) allows your ASUS wireless router to connect to another wireless access point exclusively, preventing other wireless devices or stations to access your ASUS wireless router. It can also be considered as a wireless repeater where your ASUS wireless router communicates with another access point and other wireless devices.

To set up the wireless bridge:

1. From the navigation panel, go to **Advanced Settings > Wireless > WDS**.

Wireless - Bridge

Bridge (or named WDS - Wireless Distribution System) function allows your 4G-AC55U to connect to an access point wirelessly. WDS may also be considered a repeater mode. But with this method, the devices connected to the access point will only be able to use half of the access point's original wireless speed.

Note: The function only support [Open System/NONE, Open System/WEP] security authentication method.

To enable WDS to extend the wireless signal, please follow these steps :

1. Select [WDS Only] or [Hybrid] mode and add MAC address of APs in Remote AP List.
2. Ensure that this wireless router and the AP you want to connect to use the same channel.
3. Key in the remote AP mac in the remote AP list and open the remote AP's WDS management interface, key in the this router's MAC address.
4. To get the best performance, please go to Advanced Settings > Wireless > General and assign the same channel bandwidth, control channel, and extension channel to every router in the network.

Basic Config	
2.4GHz MAC	AC:9E:17:56:6F:48
5GHz MAC	AC:9E:17:56:6F:4C
Band	2.4GHz
AP Mode	AP Only
Connect to APs in list	<input checked="" type="radio"/> Yes <input type="radio"/> No

Remote AP List (Max Limit : 4)

Remote AP List	Add / Delete
<input type="text"/>	<input type="button" value="⊕"/>
No data in table.	

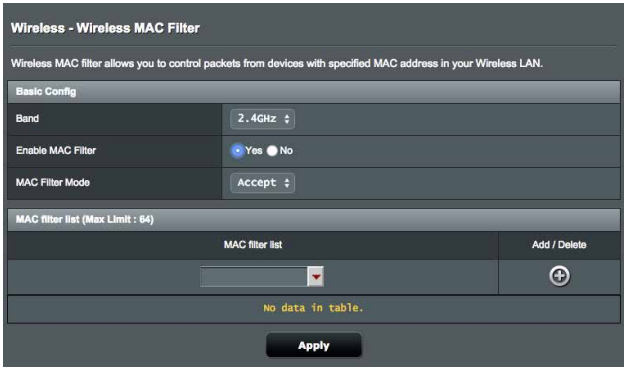
2. Select the band for the wireless bridge.
3. In the **AP Mode** field, select any of these options:
 - **AP Only**: Disables the WDS function.
 - **WDS Only**: Enables the WDS feature but prevents other wireless devices/stations from connecting to the router.
 - **HYBRID**: Enables the Wireless Bridge feature and allows other wireless devices/stations to connect to the router.
4. In the **Connect to APs in list** field, click **Yes** if you want to connect to an Access Point listed in the Remote AP List.
5. On the **Remote AP List**, key in a MAC address and click the **Add** button to enter the MAC address of other available Access Points
6. Click **Apply**.

NOTES:

- In Hybrid mode, wireless devices connected to the ASUS wireless router only receives half the connection speed of the Access Point.
 - Any Access Point added to the list should be on the same Control Channel and the same fixed Channel bandwidth as the local ASUS wireless router. You can modify the Control Channel from **Advanced Settings > Wireless > General**.
-

3.14.4 Wireless MAC Filter

Wireless MAC filter provides control over packets transmitted to a specified MAC (Media Access Control) address on your wireless network.



To set up the Wireless MAC filter:

1. From the navigation panel, go to **Advanced Settings > Wireless > Wireless MAC Filter**.
2. Tick **Yes** in the **Enable MAC Filter** field.
3. In the **MAC Filter Mode** dropdown list, select either **Accept** or **Reject**.
 - Select **Accept** to allow devices in the MAC filter list to access to the wireless network.
 - Select **Reject** to prevent devices in the MAC filter list to access to the wireless network.
4. On the **MAC filter list**, click the **Add** button and key in the MAC address of the wireless device.
5. Click **Apply**.

3.14.5 RADIUS Setting

RADIUS (Remote Authentication Dial In User Service) Setting provides an extra layer of security when you choose WPA-Enterprise, WPA2-Enterprise, or Radius with 802.1x as your Authentication Mode.

Wireless - RADIUS Setting

This section allows you to set up additional parameters for authorizing wireless clients through RADIUS server. It is required while you select "Authentication Method" in "Wireless - General" as "WPA-Enterprise/ WPA2-Enterprise/ Radius with 802.1x".

Band	2.4GHz
Server IP Address	
Server Port:	1812
Connection Secret	

Apply

To set up the wireless RADIUS settings:

1. Ensure that the wireless router's authentication mode is set to **WPA-Auto-Enterprise** or **WPA2-Enterprise**.

NOTE: Please refer to section **3.14.1 General** for configuring your wireless router's Authentication Mode.

2. From the navigation panel, go to **Advanced Settings > Wireless > RADIUS Setting**.
3. Select the frequency band.
4. In the **Server IP Address** field, key in your RADIUS server's IP address.
5. In the **Server Port** field, key in the server port.
6. In the **Connection Secret** field, assign the password to access your RADIUS server.
7. Click **Apply**.

3.14.6 Professional

The Professional screen provides advanced configuration options.

NOTE: We recommend that you use the default values on this page.

Wireless - Professional

Wireless Professional Setting allows you to set up additional parameters for wireless. But default values are recommended.

*Reminder: The System time zone is different from your locale setting.

Band	5GHz
Enable Radio	<input checked="" type="radio"/> Yes <input type="radio"/> No
Enable wireless scheduler	<input checked="" type="radio"/> Yes <input type="radio"/> No
Set AP Isolated	<input checked="" type="radio"/> Yes <input type="radio"/> No
Enable IGMP Snooping	Disable
Multicast Rate(Mbps)	Auto
Preamble Type	Long
RTS Threshold	2347
DTIM Interval	1
Beacon Interval	100
Enable TX Bursting	Disable
Enable Packet Aggregation	Enable
Enable WMM	Enable
Enable WMM No-Acknowledgement	Disable
Enable WMM APSD	Enable
Enable WMM DLS	Disable
Airtime Fairness	Disable
Multi-User MIMO	Enable
802.11ac Beamforming	Enable
Universal Beamforming	Disable
Tx power adjustment	<input type="range"/> Performance

Apply

In the **Professional Setting** screen, you can configure the following:

- **Band:** Select the frequency band that the professional settings will be applied to.
- **Enable Radio:** Select **Yes** to enable wireless networking. Select **No** to disable wireless networking.
- **Enable wireless scheduler:** Select **Yes** to enable wireless networking by the following schedule rules. Select **No** to disable the schedule rules.

- **Date to Enable Radio (weekdays):** You can specify which days of the week wireless networking is enabled.
- **Time of Day to Enable Radio:** You can specify a time range when wireless networking is enabled during the week.
- **Date to Enable Radio (weekend):** You can specify which days of the weekend wireless networking is enabled.
- **Time of Day to Enable Radio:** You can specify a time range when wireless networking is enabled during the weekend.
- **Set AP isolated:** The Set AP isolated item prevents wireless devices on your network from communicating with each other. This feature is useful if you want to create a public wireless network that only allow guests to access the Internet. Select **Yes** to enable this feature or select **No** to disable.
- **Roaming Assistant:** When your wireless environment has provisioned a several APs (access point) or wireless repeaters to cover all wireless dead zones. When a client that connected on AP1 moves from one place with better signal to another with poor signal, but there is an another signal from AP2. To prevent the client stick on AP1, you can enable Roaming Assistant, and set a minimal RSSI value as threshold. When the connection quality lower than the threshold, AP1 disconnect the wireless client so that it can reevaluate the wireless environment to select a AP with the best signal quality, such as AP2.
- **Enable IGMP Snooping:** When IGMP snooping is enabled, multicast traffic is only forwarded to wireless clients that are members of a specific multicast group.
- **Multicast Rate (Mbps):** Select the multicast transmission rate or click **Disable** to switch off simultaneous single transmission.
- **Preamble Type:** Preamble Type defines the length of time that the router spent for CRC (Cyclic Redundancy Check). CRC is a method of detecting errors during data transmission. Select **Short** for a busy wireless network with high network traffic. Select **Long** if your wireless network is composed of older or legacy wireless devices.

- **AMPDU RTS:** In 802.11n or 802.11ac using a method, A-MPDU, to aggregate short packet into a longer packet for the same MAC address. When a wireless device ready for transmission sends a RTS (Request to Send). After enabling AMPDU RTS, every AMPDU frame send with RTS process.
- **RTS Threshold:** Select a lower value for RTS (Request to Send) Threshold to improve wireless communication in a busy or noisy wireless network with high network traffic and numerous wireless devices.
- **DTIM Interval:** DTIM (Delivery Traffic Indication Message) Interval or Data Beacon Rate is the time interval before a signal is sent to a wireless device in sleep mode indicating that a data packet is awaiting delivery. The default value is three milliseconds.
- **Beacon Interval:** Beacon Interval is the time between one DTIM and the next. The default value is 100 milliseconds. Lower the Beacon Interval value for an unstable wireless connection or for roaming devices.
- **Enable TX Bursting:** Enable TX Bursting improves transmission speed between the wireless router and 802.11g devices.
- **Enable WMM APSD:** WMM APSD (Automatic Power Save Delivery) is the enhancement to the legacy power saver mode. Enable WMM APSD, the wireless AP manages radio usage to help increase battery life for battery-powered wireless clients, such as smartphone and laptop. APSD automatically changes to use a longer beacon interval when the traffic does not require a short packet exchange interval.

4 Utilities

NOTE: Download and install the wireless router's utilities from the ASUS website: <https://www.asus.com/support/Download-Center/>

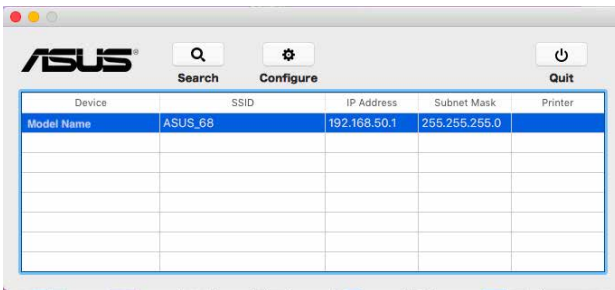
4.1 Device Discovery

Device Discovery is an ASUS WLAN utility that detects an ASUS wireless router device, and allows you to configure the wireless networking settings.

Windows:



Mac OS:

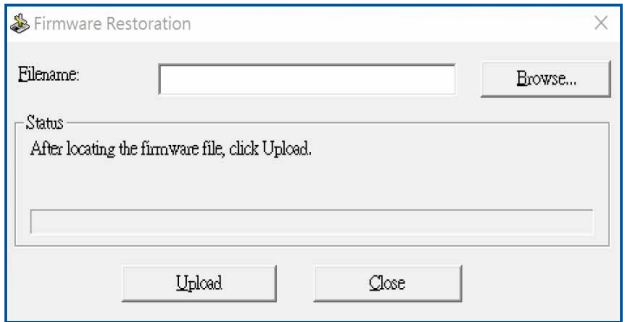


NOTE: When you set the router to Access Point mode, you need to use Device Discovery to get the router's IP address.

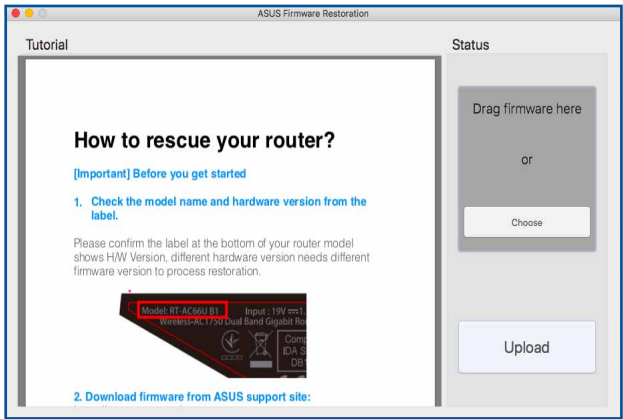
4.2 Firmware Restoration

Firmware Restoration is used on an ASUS Wireless Router that failed during its firmware upgrading process. It uploads the firmware that you specify. The process takes about three to four minutes.

Windows:



Mac OS:



IMPORTANT! Launch the rescue mode on the router before using the Firmware Restoration utility.

To launch the rescue mode and use the Firmware Restoration utility:

1. Unplug the wireless router from the power source.
2. Hold the Reset button at the rear panel and simultaneously replug the wireless router into the power source. Release the Reset button when the Power LED at the front panel flashes slowly, which indicates that the wireless router is in the rescue mode.
3. Set a static IP on your computer and use the following to set up your TCP/IP settings:
IP address: 192.168.1.x
Subnet mask: 255.255.255.0
4. From your computer's desktop, click **Start > All Programs > ASUS Utility > Wireless Router > Firmware Restoration.**
5. Specify a firmware file, then click **Upload.**

NOTE: This is not a firmware upgrade utility and cannot be used on a working ASUS Wireless Router. Normal firmware upgrades must be done through the web interface. Refer to **Chapter 3: Configuring the General and Advanced Settings** for more details.

5 Troubleshooting

This chapter provides solutions for issues you may encounter with your router. If you encounter problems that are not mentioned in this chapter, visit the ASUS support site at:

<https://www.asus.com/support> for more product information and contact details of ASUS Technical Support.

5.1 Basic Troubleshooting

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

Upgrade Firmware to the latest version.

1. Launch the Web GUI. Go to **Advanced Settings** > **Administration** > **Firmware Upgrade**. Click **Check** to verify if the latest firmware is available.



2. If the latest firmware is available, visit the ASUS global website at <http://www.asus.com/support> to download the latest firmware.
3. From the **Firmware Upgrade** page, click **Browse** to locate the firmware file.
4. Click **Upload** to upgrade the firmware.

Restart your network in the following sequence:

1. Turn off the modem.
2. Unplug the modem.
3. Turn off the router and computers.
4. Plug in the modem.
5. Turn on the modem and then wait for 2 minutes.
6. Turn on the router and then wait for 2 minutes.
7. Turn on computers.

Check if your Ethernet cables are plugged properly.

- When the Ethernet cable connecting the router with the modem is plugged in properly, the WAN LED will be on.
- When the Ethernet cable connecting your powered-on computer with the router is plugged in properly, the corresponding LAN LED will be on.

Check if the wireless setting on your computer matches that of your router.

- When you connect your computer to the router wirelessly, ensure that the SSID (wireless network name), encryption method, and password are correct.

Check if your network settings are correct.

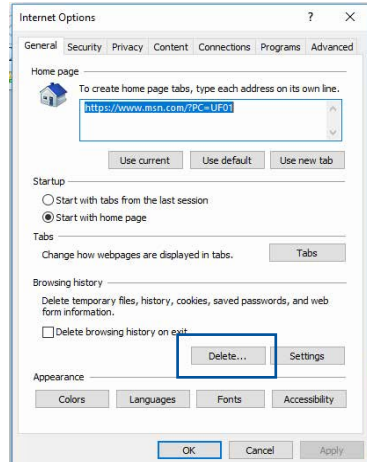
- Each client on the network should have a valid IP address. ASUS recommends that you use the wireless router's DHCP server to assign IP addresses to computers on your network.
- Some cable modem service providers require you to use the MAC address of the computer initially registered on the account. You can view the MAC address in the web GUI, **Network Map > Clients** page, and hover the mouse pointer over your device in **Client Status**.

5.2 Frequently Asked Questions (FAQs)

I cannot access the router GUI using a web browser

- If your computer is wired, check the Ethernet cable connection and LED status as described in the previous section.
- Ensure that you are using the correct login information. Ensure that the Caps Lock key is disabled when you enter the login information.
- Delete the cookies and files in your web browser. For Internet Explorer, follow these steps:

1. Launch Internet Explorer, then click **Tools > Internet Options**.
2. In the **General** tab, under **Browsing history**, click **Delete...**, select **Temporary Internet files and website files** and **Cookies and website data** then click **Delete**.



NOTES:

- The commands for deleting cookies and files vary with web browsers.
- Disable proxy server settings, cancel the dial-up connection, and set the TCP/IP settings to obtain IP addresses automatically. For more details, refer to Chapter 1 of this user manual.
- Ensure that you use CAT5e or CAT6 ethernet cables.

The client cannot establish a wireless connection with the router.

NOTE: If you are having issues connecting to 5GHz network, make sure that your wireless device supports 5GHz or features dual band capabilities.

- **Out of Range:**
 - Move the router closer to the wireless client.
 - Try to adjust antennas of the router to the best direction as described in section **1.4 Positioning your router**.
- **DHCP server has been disabled:**
 1. Launch the web GUI. Go to **General > Network Map > Clients** and search for the device that you want to connect to the router.
 2. If you cannot find the device in the **Network Map**, go to **Advanced Settings > LAN > DHCP Server, Basic Config** list, select **Yes** on the **Enable the DHCP Server**.
- SSID has been hidden. If your device can find SSIDs from other routers but cannot find your router's SSID, go to **Advanced Settings > Wireless > General**, select **No** on **Hide SSID**, and select **Auto** on **Control Channel**.
- If you are using a wireless LAN adapter, check if the wireless channel in use conforms to the channels available in your country/area. If not, adjust the channel, channel bandwidth, and wireless mode.
- If you still cannot connect to the router wirelessly, you can reset your router to factory default settings. In the router GUI, click **Administration > Restore/Save/Upload Setting** and click **Restore**.

Wired Internet is not accessible.

- Check if your router can connect to your ISP's WAN IP address. To do this, launch the web GUI and go to **General > Network Map**, and check the **Internet Status**.
- If your router cannot connect to your ISP's WAN IP address, try restarting your network as described in the section **Restart your network in following sequence** under **Basic Troubleshooting**.
- The device has been blocked via the Parental Control function. Go to **General > Parental Controls** and see if the device is in the list. If the device is listed under **Client Name**, remove the device using the **Delete** button or adjust the Time Management settings.
- If there is still no Internet access, try to reboot your computer and verify the network's IP address and gateway address.
- Check the status indicators on the ADSL modem and the wireless router. If the WAN LED on the wireless router is not ON, check if all cables are plugged properly.

Mobile broadband Internet is not accessible.

- Insert a SIM that with data plan subscription into the USIM card slot. The 3G/4G Mobile Broadband LED lights up, indicating that the SIM card is properly installed.
- The APN settings are not applied automatically. Obtain the APN service settings from your ISP, then follow the steps below to manually configure the APN settings.
 - Go to **Advanced Settings > WAN > Internet Connection**.
 - In the **WAN Interface** field, select **Mobile Broadband**.
- If APN is configured correctly and Internet connection still fails, ensure that:
 - The frequency band is compatible with your ISP.
 - The wireless router is placed close to the window for a strong 3G/4G signal.

- Port trigger, port forwarding, DDNS or DMZ service cannot work. Most ISPs provide a private IP address for a mobile broadband device. Hence some services, such as iCloud, are not accessible. Please contact your ISP for assistance.

You forgot the SSID (network name) or network password

- Setup a new SSID and encryption key via a wired connection (Ethernet cable). Launch the web GUI, go to **Network Map**, click the router icon, enter a new SSID and encryption key, and then click **Apply**.
- Reset your router to the default settings. Launch the web GUI, go to **Administration > Restore/Save/Upload Setting**, and click **Restore**.

How to restore the system to its default settings?

- Go to **Administration > Restore/Save/Upload Setting**, and click **Restore**.

The following are the factory default settings:

Router's LAN IP address: 192.168.50.1/ www.asusrouter.com

WiFi Settings:

SSID: ASUS_XX

NOTE: XX refers to the last two digits of 2.4GHz MAC address. You can find it on the label on the back of your router.

Firmware upgrade failed.

Launch the rescue mode and run the Firmware Restoration utility. Refer to section **4.2 Firmware Restoration** on how to use the Firmware Restoration utility.

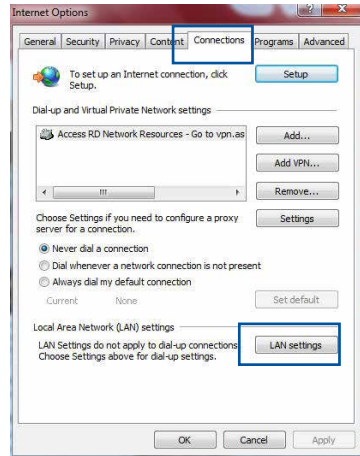
Cannot access Web GUI

Before configuring your wireless router, do the steps described in this section for your host computer and network clients.

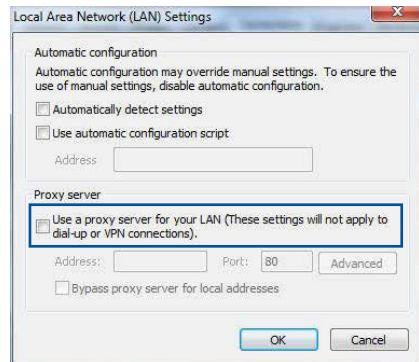
A. Disable the proxy server, if enabled.

Windows®

1. Click **Start > Internet Explorer** to launch the browser.
2. Click **Tools > Internet options > Connections > LAN settings**.

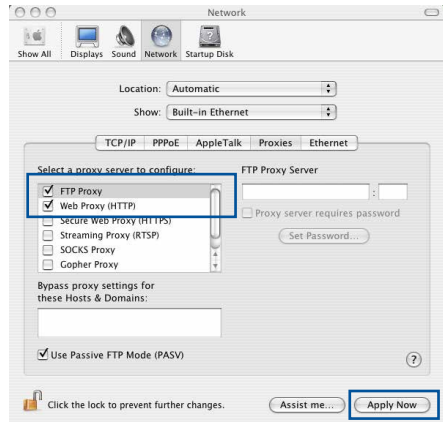


3. From the Local Area Network (LAN) Settings screen, untick **Use a proxy server for your LAN**.
4. Click **OK** when done.



MAC OS

1. From your Safari browser, click **Safari > Preferences > Advanced > Change Settings...**
2. From the Network screen, deselect **FTP Proxy** and **Web Proxy (HTTP)**.
3. Click **Apply Now** when done.

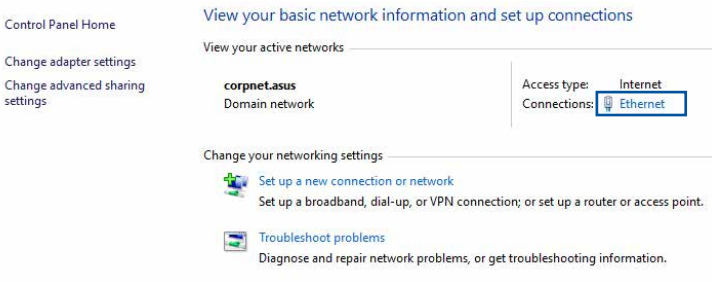


NOTE: Refer to your browser's help feature for details on disabling the proxy server.

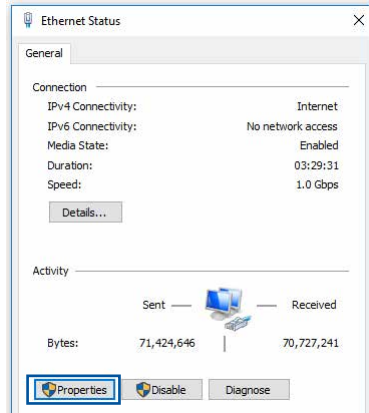
B. Set the TCP/IP settings to automatically obtain an IP address.

Windows®

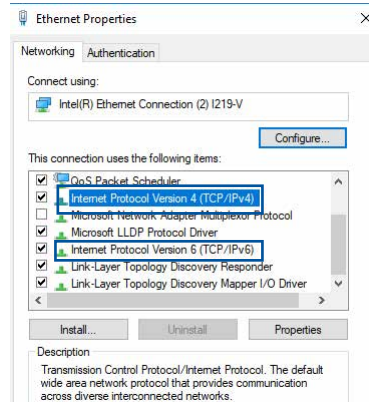
1. Click **Start > Control Panel > Network and Sharing Center**, then click the network connection to display its status window.



2. Click **Properties** to display the Ethernet Properties window.



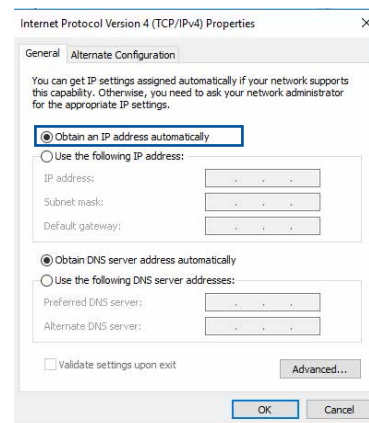
3. Select **Internet Protocol Version 4 (TCP/IPv4)** or **Internet Protocol Version 6 (TCP/IPv6)**, then click **Properties**.




4. To obtain the IPv4 IP settings automatically, tick **Obtain an IP address automatically**.

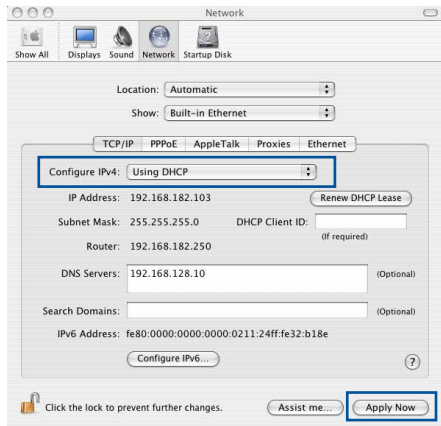
To obtain the IPv6 IP settings automatically, tick **Obtain an IPv6 address automatically**.

5. Click **OK** when done.



MAC OS

1. Click the Apple icon  located on the top left of your screen.
2. Click **System Preferences > Network > Configure...**
3. From the **TCP/IP** tab, select **Using DHCP** in the **Configure IPv4** dropdown list.
4. Click **Apply Now** when done.

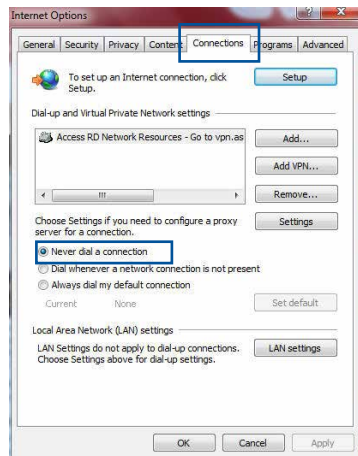


NOTE: Refer to your operating system's help and support feature for details on configuring your computer's TCP/IP settings.

C. Disable the dial-up connection, if enabled.

Windows®

1. Click **Start > Internet Explorer** to launch the browser.
2. Click **Tools > Internet options > Connections**.
3. Tick **Never dial a connection**.
4. Click **OK** when done.



NOTE: Refer to your browser's help feature for details on disabling the dial-up connection.

Appendices

GNU General Public License

Licensing information

This product includes copyrighted third-party software licensed under the terms of the GNU General Public License. Please see The GNU General Public License for the exact terms and conditions of this license. We include a copy of the GPL with every CD shipped with our product. All future firmware updates will also be accompanied with their respective source code. Please visit our web site for updated information. Note that we do not offer direct support for the distribution.

GNU GENERAL PUBLIC LICENSE

Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use

pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

Terms & conditions for copying, distribution, & modification

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may

be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:
 - a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.
 - b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:
 - a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

- b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,
- c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.
5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to

modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License.

Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.
7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide

range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.
9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission.

For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

- 11 BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

- 12 IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

Safety Notices

When using this product, always follow the fundamental safety precautions, including, but not limited to the following:



WARNING!

- The power supply cord(s) must be plugged into socket-outlet(s) that is /are provided with a suitable earth ground. Connect the equipment only to a nearby socket outlet that is easily accessible.
 - If the Adapter is broken, do not try to fix it by yourself. Contact a qualified service technician or your retailer.
 - DO NOT use damaged power cords, accessories, or other peripherals.
 - DO NOT mount this equipment higher than 2 meters.
 - Use this product in environments with ambient temperatures between 0°C (32°F) and 40°C (104°F).
 - Read the operational guidelines and the temperature range provided before using the product.
 - Pay particular attention to the personal safety when using this device in airports, hospitals, gas stations and professional garages.
 - Medical device interference: Maintain a minimum distance of at least 15 cm (6 inches) between implanted medical devices and ASUS products to reduce the risk of interference.
 - Kindly use ASUS products in good reception conditions to minimize the radiation's level.
 - Keep the device away from pregnant women and the lower abdomen of the teenager.
 - DO NOT use this product if visible defects can be observed or it has been wet or damaged or modified. Seek servicing for assistance.
-



WARNING!

- DO NOT place on uneven or unstable work surfaces.
-

- DO NOT place or drop objects on the top of the product. Avoid exposing the product to mechanical shock such as crushing, bending, puncturing or shredding.
 - DO NOT disassemble, open, microwave, incinerate, paint, or shove any foreign objects into this product.
 - Refer to the rating label on the bottom of your product and ensure your power adapter complies with this rating.
 - Keep the product away from fire and heat sources.
 - DO NOT expose to or use near liquids, rain, or moisture. DO NOT use the product during electrical storms.
 - Connect the PoE output circuits of this product exclusively to PoE networks, without routing to external facilities.
 - To prevent electrical shock hazard, disconnect the power cable from the electrical outlet before relocating the system.
 - Only use accessories that have been approved by the device manufacturer to work with this model. The use of other types of accessories may invalidate the warranty or violate local regulations and laws, and may pose safety risks. Contact your local retailer for the availability of authorized accessories.
 - Use of this product in a way not recommended in the provided instructions may result in a risk of fire or personal injury.
-

Service and Support

Visit our multi-language website at <https://www.asus.com/support>.

