User Guide

DSL-AC87VG

Dual-band Wi-Fi ADSL/VDSL DSL-AC87VG

/SUS®
IN SEARCH OF INCREDIBLE

E11833
September 2016
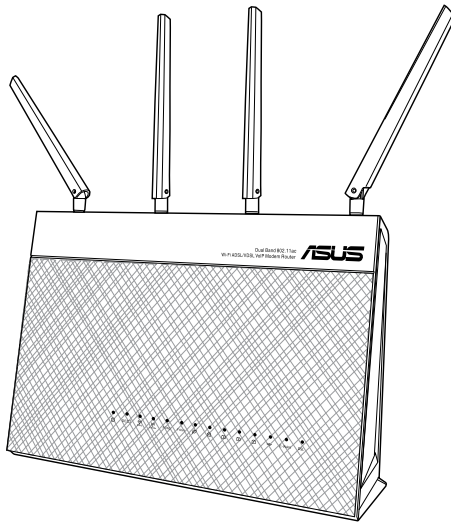
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1 Getting to know your wireless router

1.1 Welcome!

Thank you for purchasing an ASUS DSL-AC87VG Wi-Fi Router!

ASUS DSL-AC87VG features up to 2334 Mbps of concurrent wireless performance on its dual-band rate, providing you with up to 4K ultra-high definition video playback, ultra-fast large file sharing, and low latency online gaming. It features DECT support and built-in telephone softswitch (PBX) that allows you to connect to compatible devices such as common analog phones, DECT phones, FAX machines, and IP phones.

1.2 Package contents

- ☑ VDSL/ADSL DSL-AC87VG
- ☑ Network cable (RJ-45)
- ☑ Power adapter
- ☑ DSL cable (1x TAE-F plug / 1x RJ-45 8p2c plug)
- ☑ Warranty card
- ☑ Quick Start Guide

NOTES:

- If any of the items is damaged or missing, contact ASUS for technical inquiries and support, Refer to the ASUS Support Hotline list 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
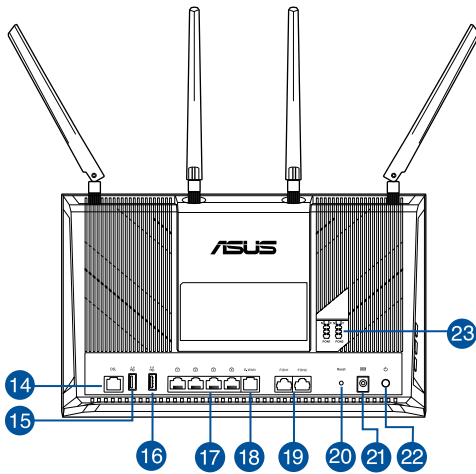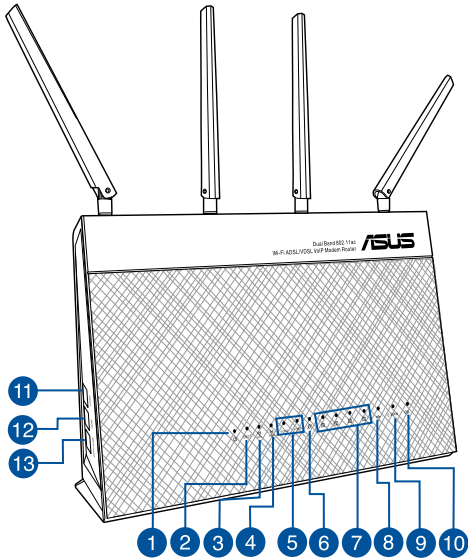
1   **Power LED**
      Off: No power.
      On: Device is ready.
      Flashing slow: Rescue mode
      Flashing quick: WPS is processing.

2   **DECT LED**
      Off: Cordless phone is not connected.
      On: Cordless phone is connected.

3   **5 GHz LED**
      Off: No 5GHz signal.
      On: Wireless system is ready.
      Flashing: Transmitting or receiving data via wireless connection.

4   **2.4 GHz LED**
      Off: No 2.4GHz signal.
      On: Wireless system is ready.
      Flashing: Transmitting or receiving data via wireless connection.

5   **FON2 / FON1 LED**
      Off: Analog phone or terminal device is not connected.
      On: Analog phone or terminal device is connected.

6   **WAN (Internet) LED**
      Red: No IP or no physical connection.
      On: Has physical connection to a wide area network (WAN).

7   **LAN 1~4 LED**
      Off: No power or no physical connection.
      On: Has physical connection to an Ethernet network.

8   **USB LED**
      Off: No power or no physical connection.
      On: Has physical connection to USB devices.

9   **Ethernet WAN LED**
      Off: Ethernet WAN is not connected.
      On: Ethernet WAN is connected.

10   **DSL LED**
      Off: No DSL link or unable to establish DSL link.
      On: DSL link is established.
      Flashing: DSL is attempting to connect to a DSLAM.

11   **DECT button**
      Press this button for more than three (3) seconds to register a DECT phone.
      Press this button for less than three (3) seconds to search for a DECT phone.

	WPS button
12	This button launches the WPS Wizard.

	Wi-Fi On/Off button
13	Press this button to turn on /off the Wi-Fi connection.

	DSL (RJ-45) port
14	Use an RJ-45 cable to connect your router to a splitter or a telephone outlet.

	USB 2.0 port
15	Insert USB 2.0 devices such as USB hard disks or USB flash drives into these ports.

	USB 3.0 port
16	Insert USB 3.0 devices such as USB hard disks or USB flash drives into this port.

	LAN 1 ~ 4 ports
17	Connect network cables into these ports to establish LAN connection.

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

	FON2 / FON1 ports
19	Insert RJ-11 cables into these ports to connect analog phones or terminal devices.

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

	Power (DC-IN) port
21	Insert the bundled AC adapter into this port and connect your router to a power source.

	Power button
22	Press this button to power on or off the system.

	TAE ports (available in some areas/regions)
23	Use RJ-11 to TAE adapters to connect your phones or terminal devices to these ports

1.4   Positioning your router

For the best wireless signal transmission between the wireless router and the network devices connected to it, ensure that you:

- Place the wireless router at the center of your network for maximum wireless coverage.

- Keep the device away from metal obstructions and away from direct sunlight.

- Keep the device away from 802.11g or 20MHz only Wi-Fi devices, 2.4GHz computer peripherals, Bluetooth devices, cordless phones, transformers, heavy-duty motors, fluorescent lights, microwave ovens, refrigerators, and other industrial equipment to prevent signal interference or loss.

- To ensure the best wireless signal, orient the four detachable antennas as shown in the drawing below.

- Always update to the latest firmware. Visit the ASUS website at **http://www.asus.com** to get the latest firmware updates.
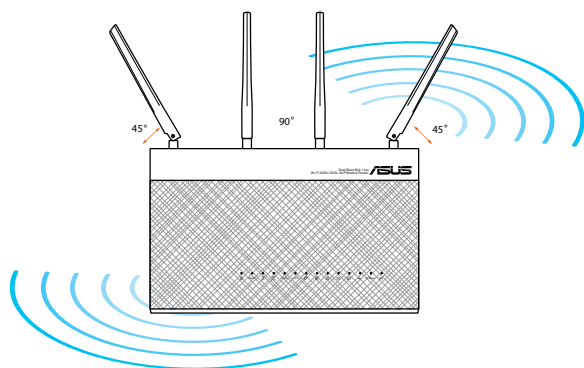
1.5   Setup Requirements

- Latest version of a web browser such as Internet Explorer, Firefox, Google Chrome
- For connecting computers:
    - Ethernet RJ-45 (LAN) port (10Base-T/100Base-TX/1000BaseTX)
- For landline telephony:
    - Analog telephone line compliant with local regulations
- Internet connection via:
    - DSL line (with or without splitter)
    - Cable modem
    - USB modem for mobile Internet access (UMTS/HSPA)
- Mobile devices, such as tablets or smartphones, that are compliant with IEEE 802.11a/b/g/n/ac standards.

NOTES:

- If your computer does not have built-in wireless capabilities, you may install an IEEE 802.11a/b/g/n/ac WLAN adapter to your computer to connect to the network.
- The Ethernet RJ-45 cables that will be used to connect the network devices should not exceed 100 meters.

1.6   DSL-AC87VG Setup
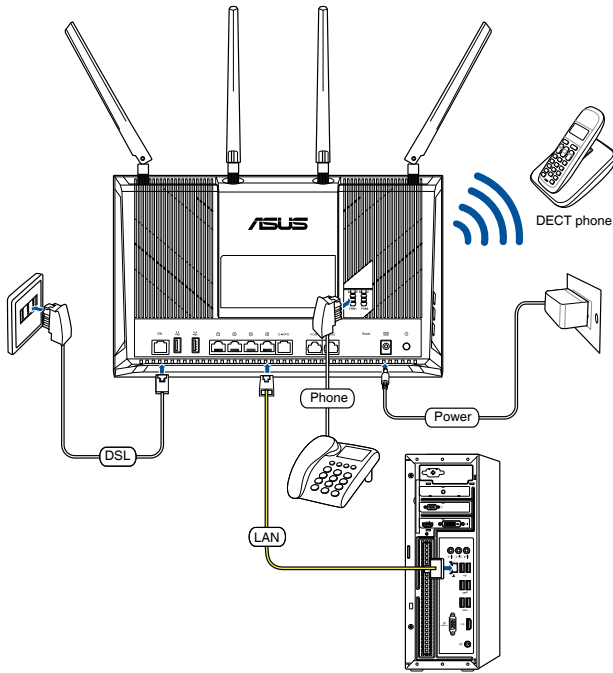
To set up your DSL-AC87VG via wired connection:

1. Insert your DSL-AC87VG 's power adapter to the DC-IN port
    and plug it to a power outlet.

2. Connect one end of the bundled DSL cable (1x TAE-F plug /
    1x RJ-45 8p2c plug) to the DSL port of your DSL-AC87VG, and
    connect the other end to the DSL or VDSL line.

3. Using RJ-11 cables, connect your phones to FON1/FON2 ports
    on your DSL-AC87VG. When available, you may also connect
    your phones to the TAE ports.

NOTE: The TAE ports are available on the ASUS DSL-AC87VG in some
areas/regions.

4. Using a network cable, connect your computer to your DSL-
    AC87VG 's LAN port

2   Getting started

2.1   Logging into the Web GUI

Your ASUS DSL-AC87VG comes with an intuitive web graphical user interface (GUI) that allows you to easily configure its various features through a web browser such as Internet Explorer, Firefox, Safari, or Google Chrome.

NOTE: The features may vary with different firmware versions.

To log into the web GUI:

1.   On your web browser, manually key in the wireless router's default IP address: http://router.asus.com.

2.   On the login page, key in the default user name (**admin**) and password (**admin**).

3.   You can now use the Web GUI to configure various settings of your ASUS DSL-AC87VG.

Quick Internet Setup Wizard

Navigation panel

Right column

Middle column
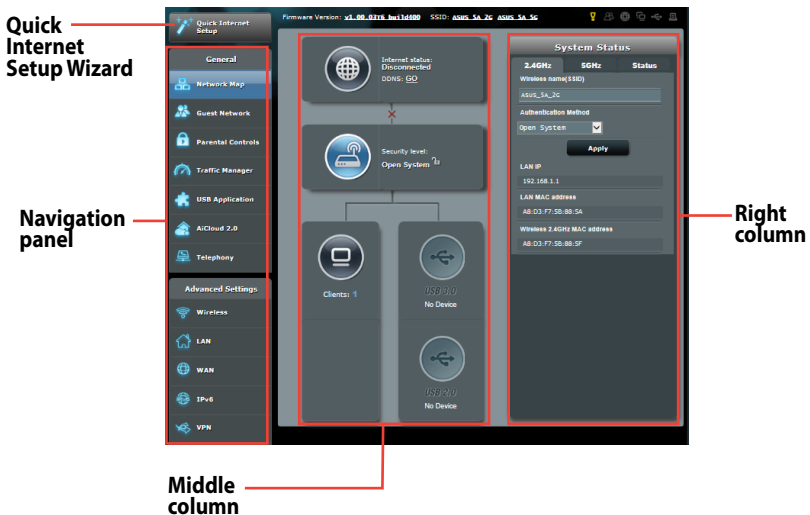
NOTE: If you are logging into the Web GUI for the first time, you will be directed to the Quick Internet Setup (QIS) page automatically.

2.2   Quick Internet Setup (QIS) with Auto-detection

The Quick Internet Setup (QIS) function guides you in quickly setting up your Internet connection.

NOTE: When setting the Internet connection for the first time, press the Reset button on your wireless router to reset it to its factory default settings.

To use QIS with auto-detection:

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

NOTES:

- By default, the login username and password for your wireless router's Web GUI is **admin**. For details on changing your wireless router's login username and password, refer to section **4.6.2 System**.

- The wireless router's login username and password is different from the 2.4GHz/5GHz network name (SSID) and security key. The wireless router's login username and password allows you to log into your wireless router's Web GUI to configure your wireless router's settings. The 2.4GHz/5GHz network name (SSID) and security key allows Wi-Fi devices to log in and connect to your 2.4GHz/5GHz network.

2.   The wireless router automatically detects if your ISP connection type is **Dynamic IP** and **PPPoE**. Key in the necessary information for your ISP connection type.

IMPORTANT! Obtain the necessary information from your ISP about the Internet connection type.

for Automatic IP (DHCP)

for PPPoE

NOTES:

- The auto-detection of your ISP connection type takes place when you configure the wireless router for the first time or when your wireless router is reset to its default settings.
- If QIS failed to detect your Internet connection type, click **Skip to manual setting** and manually configure your connection settings.

3. Assign the wireless network name (SSID) and security key for your 2.4GHz and 5 GHz wireless connection. Click **Apply** when done.
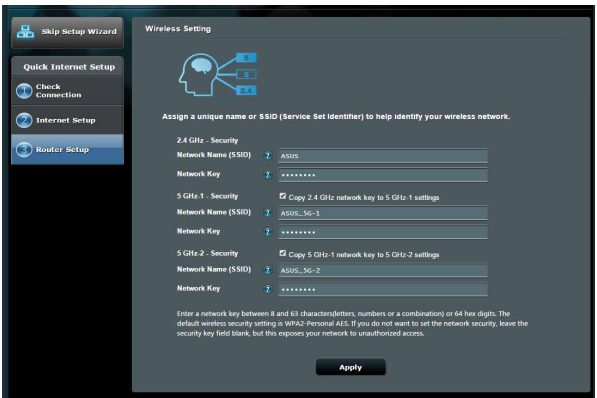
4. Your Internet and wireless settings are displayed. Click **Next** to continue.

5. Read the wireless network connection tutorial. When done, click **Finish**.
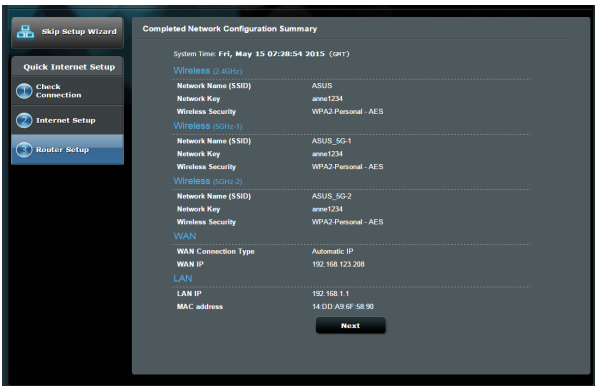
2.3 Connecting to your wireless network

After setting up your wireless router via QIS, you can connect your computer or other smart devices to your wireless network.

To connect to your network:

1. On your computer, click the network icon in the notification area to display the available wireless networks.

2. Select the wireless network that you want to connect to, then click **Connect**.

3. You may need to key in the network security key for a secured wireless network, then click **OK**.

4. Wait while your computer establishes connection to the wireless network successfully. The connection status is displayed and the network icon displays the connected status.

NOTES:

- Refer to the next chapters for more details on configuring your wireless network's settings.

- Refer to your device's user manual for more details on connecting it to your wireless network.

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3 Configuring the General settings

3.1 Using the Network Map

Network Map allows you to configure your network's security settings, manage your network clients, and monitor your USB device.

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 and under **System status**, you can configure the wireless security settings such as SSID, security level, and encryption settings.

NOTE: You can set up different wireless security settings for 2.4GHz and 5GHz bands.

3. On the **Wireless 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 High 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 Managing your network clients
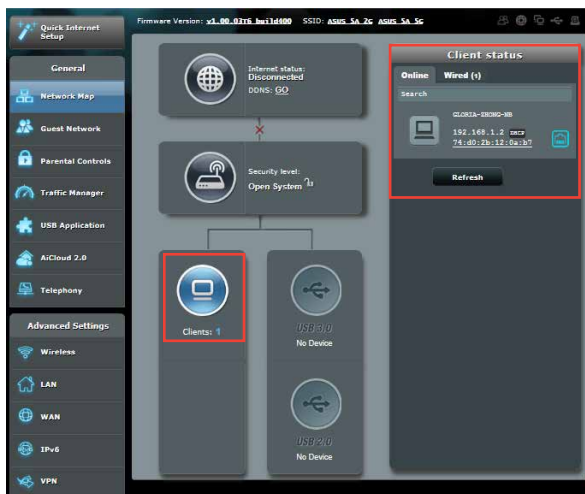
To manage your network clients:

1. From the navigation panel, go to **General** > **Network Map** tab.

2. On the **Network Map** screen, select the **Clients** icon to display your network client's information.

3. Click View List below the **Clients** icon to display all the clients.

4. To block a client's access to your network, select the client and click the open lock icon.

3.1.3 Monitoring your USB device

The ASUS DSL-AC87VG provides two USB ports for connecting USB devices or USB printer to allow you to share files and printer with clients in your network.

NOTES:

- To use this feature, you need to plug a USB storage device, such as a USB hard disk or USB flash drive, to the USB 3.0/2.0 ports on the rear panel of your wireless router. Ensure that the USB storage device is formatted and partitioned properly. Refer to the Plug-n-Share Disk Support List at **http://event.asus.com/networks/disksupport**
- The USB ports support two USB drives or one printer and one USB drive at the same time.

IMPORTANT!   You first need to create a share account and its permission /access rights to allow other network clients to access the USB device via an FTP site/third-party FTP client utility, Servers Center, Samba, or AiCloud. For more details, refer to the section **3.5 Using the USB Application** and **3.6 Using AiCloud** in this user manual.

To monitor your USB device:

1. From the navigation panel, go to **General** > **Network Map**.

2. On the Network Map screen, select the **USB Disk Status** icon to display your USB device's information.

3. On the AiDisk Wizard field, click **GO** to set up an FTP server for Internet file sharing.

NOTES:

- For more details, refer to the section **3.5.2 Using Media Services and Servers** in this user manual.
- The wireless router works with most USB HDDs/Flash disks (up to 4TB size) and supports read-write access for FAT16, FAT32, NTFS, and HFS+.

Safely removing the USB disk

IMPORTANT: Incorrect removal of the USB disk may cause data corruption.

To safely remove the USB disk:
1. From the navigation panel, go to **General** > **Network Map**.
2. In the upper right corner, click ⟨icon⟩ > **Eject USB disk**. When the USB disk is ejected successfully, the USB status shows **Unmounted**.

3.2   Creating a 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.

NOTE: DSL-AC87VG supports up to six SSIDs (three 2.4GHz and three 5GHz).

To create a guest network:
1. From the navigation panel, go to **General** > **Guest Network**.
2. On the Guest Network screen, select 2.4GHz or 5GHz frequency band for the guest network that you want to create.
3. Click **Enable**.
4. Assign a wireless name for your temporary network on the **Network Name (SSID)** field.
5. Select the **Authentication Method**.
6. When done, click **Apply**.

3.3 Setting up Parental Control

Parental Control allows you to control the Internet access time.
Users can set the time limit for a client's network usage.
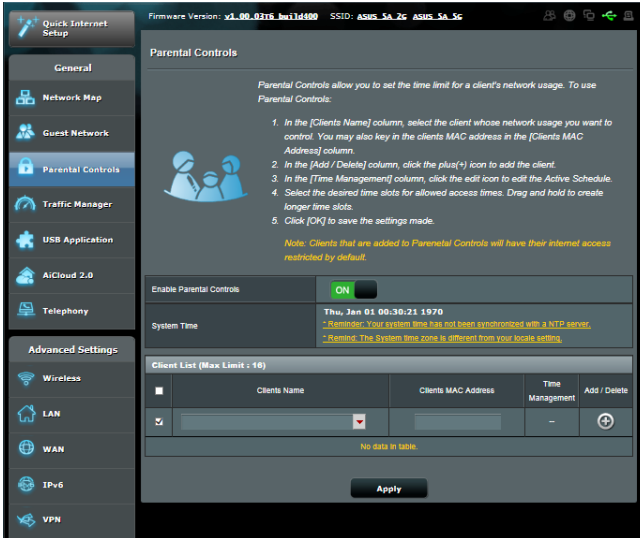
To use the parental control function:

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

2. Click **ON** to enable Parental Control.

3. Select the client whose network usage you want to control. You may also key in the client's MAC address in the **Client MAC Address** column.

NOTE: Ensure that the client name does not contain special characters or spaces as this may cause the router to function abnormally.

4. Click ⊕ or ⊖ to add or delete the client's profile.

5. In the Time Management column, click ⊘ to select your preferred time slots for allowed access time. Drag and hold to create longer time slots.

6. Click **Apply** to save the settings.

3.4 Using the Traffic Manager

3.4.1 Managing QoS (Quality of Service) Bandwidth

Quality of Service (QoS) allows you to set the bandwidth priority and manage network traffic.

To set up bandwidth priority:

1. From the navigation panel, go to **General** > **Traffic Manager**.

2. Click **ON** to enable QoS. Fill in the upload and download bandwidth fields.

NOTE: Get the bandwidth information from your ISP.

3. Click **Save**.

NOTE: The User Specify Rule List is for advanced settings. If you want to prioritize specific network applications and network services, select **User-defined QoS rules** or **User-defined Priority** from the drop-down list on the upper-right corner.

3.5   Using the USB Application

The USB Applications function provides AiDisk, Servers Center, Network Printer Server and Download Master submenus.

IMPORTANT! To use the server functions, you need to insert a USB storage device, such as a USB hard disk or USB flash drive, in the USB 2.0 port on the rear panel of your wireless router. Ensure that the USB storage device is formatted and partitioned properly. Refer to the ASUS website at http://event.asus.com/2009/networks/disksupport/ for the file system support table.

3.5.1 Using AiDisk

AiDisk allows you to share files stored on a connected USB device through the Internet. AiDisk also assists you with setting up ASUS DDNS and an FTP server.

To use AiDisk:

1.   From the navigation panel, go to **General** > **USB Application**, then click the **AiDisk** icon.

2.   From the Welcome to AiDisk wizard screen, click **Go**.
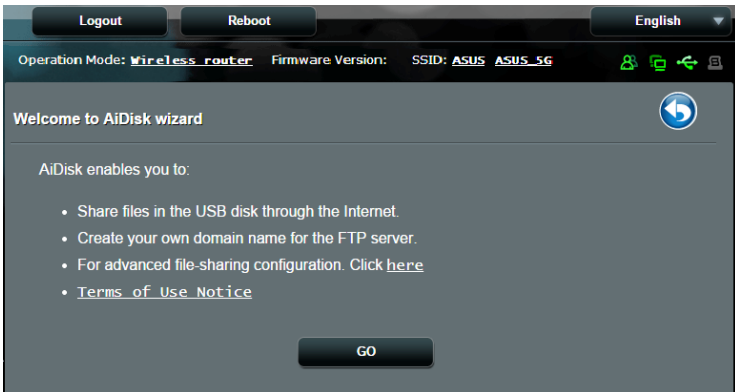
3. Select the access rights that you want to assign to the clients accessing your shared data.
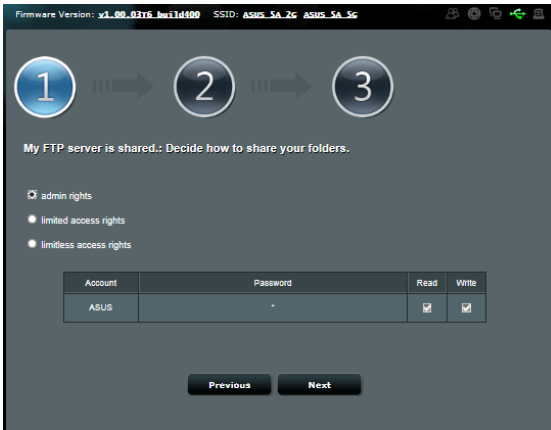
4. Tick **I will use the service**, assign a unique name for your domain name, then click **Next**.

5. Click **Finish** to complete the setting.

6. To access the FTP site that you created, launch a web browser or a third-party FTP client utility and key in the ftp link (**ftp://<domain name>.asuscomm.com**) you have previously created.

3.5.2 Using Media Services and Servers

Media Services and Servers allows you to share the media files from the USB disk via a Media Server directory, Samba share service, or FTP share service. You can also configure other settings for the USB disk in the Servers Center.

Using Media Server

Your wireless router allows DLNA-supported devices to access multimedia files from the USB disk connected to your wireless router.

NOTE: Before using the DLNA Media Server function, connect your device to the DSL-AC87VG's network.
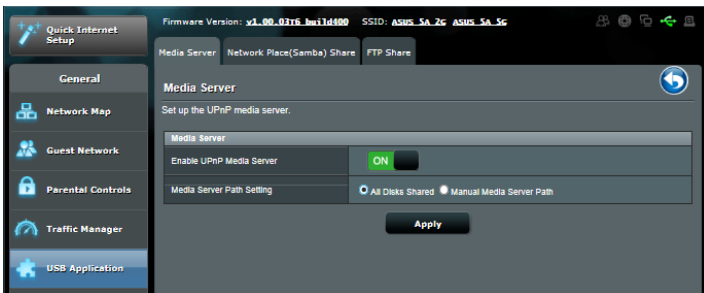
To launch the Media Server setting page, go to **General** > **USB Application** > **Media Services and Servers** > **Media Server** tab. Refer to the following for the descriptions of the fields:

- **Enable UPnP Media Server**: Select ON/OFF to enable/disable the UPnP Media Server.
- **Media Server Path Setting**: Select **All Disks Shared** or **Manual Media Server Path**.

Using Network Place (Samba) Share service

Network Place (Samba) Share allows you to set up the accounts and permissions for the Samba service.
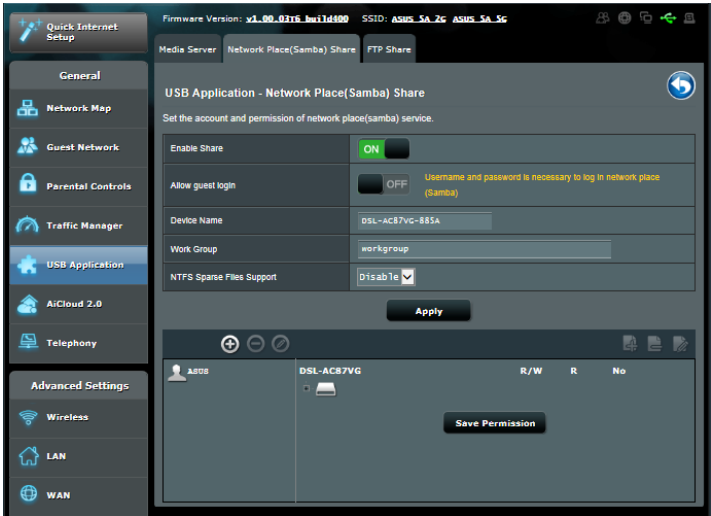
To use Samba share:

1. From the navigation panel, go to **General** > **USB Application** > **Media Services and Servers** > **Network Place (Samba) Share** tab.

NOTE: Network Place (Samba) Share is enabled by default.

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2. Follow the steps below to add, delete, or modify an account.

To create a new account:

a) Click ⊕ to add new account.

b) In the **Account** and **Password** fields, key in the name and password of your network client. Retype the password to confirm. Click **Add** to add the account to the list.
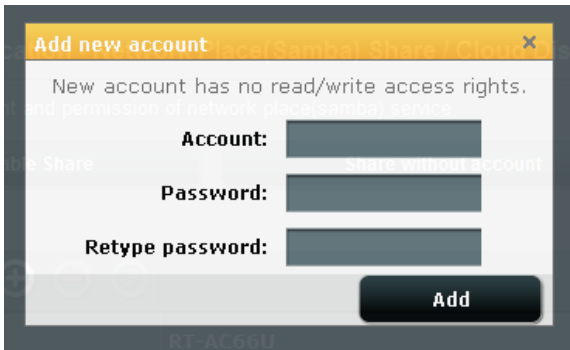
To delete an existing account:

a) Select the account that you want to delete.

b) Click ⊖.

c) When prompted, click **Delete** to confirm the account deletion.

To add a folder:

a) Click 🔼.

b) Enter the folder name, and click **Add**. The folder that you created will be added to the folder list.

3. From the list of folders, select the type of access permission that you want to assign for specific folders:

   • **R/W:** Select this option to assign read/write access.

   • **R:** Select this option to assign read-only access.

   • **No**: Select this option if you do not want to share a specific file folder.

4. Click **Apply** to apply the changes.

Using the FTP Share service

FTP share enables an FTP server to share files from USB disk to other devices via your local area network or via the Internet.

IMPORTANT!

- Ensure that you safely remove the USB disk. Incorrect removal of the USB disk may cause data corruption.
- To safely remove the USB disk, refer to the section **Safely removing the USB disk** under **3.1.3 Monitoring your USB device**.
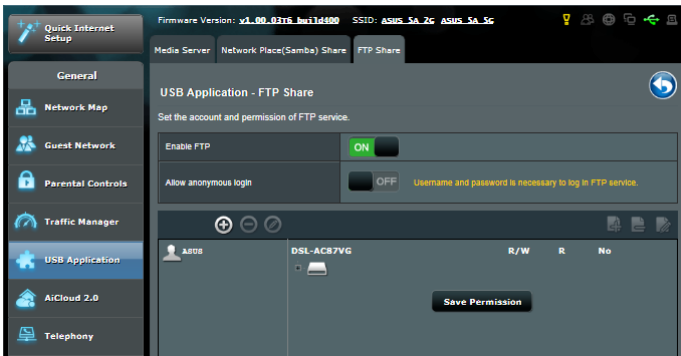
To use FTP Share service:

NOTE: Ensure that you have set up your FTP server through AiDisk. For more details, refer to the section **3.5.1 Using AiDisk**.

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1. From the navigation panel, click **General** > **USB Application** > **Media Services and Servers** > **FTP Share** tab.

2. From the list of folders, select the type of access rights that you want to assign for specific folders:

   - **R/W**: Select to assign read/write access for a specific folder.
   - **R**: Select to assign read only access for a specific folder.
   - **No**: Select this option if you do not want to share a specific folder.

3.	If you prefer, you can set the **Allow anonymous login** field to **ON**.

4.	In the **Maximum number of concurrent connections** field, key in the number of devices that can simultaneously connect to the FTP share server.

5.	Click **Apply** to confirm the changes.

6.	To access the FTP server, key in the ftp link **ftp://<hostname>.asuscomm.com** and your user name and password on a web browser or a third-party FTP utility.

3.5.3 3G/4G

3G/4G USB modems can be connected to DSL-AC87VG to allow Internet access.

NOTE: For a list of verified USB modems, please visit: https://www.asus.com/event/networks_3G4G_support/

To set up 3G/4G internet access:

1.	From the navigation panel, click **General** > **USB Application** > **3G/4G**.

2.	From the Internet Connection screen, configure the settings for your USB modem. Obtain the data about your USB modem from your Internet service provider (ISP).

3.	Click **Apply** to save the settings made.
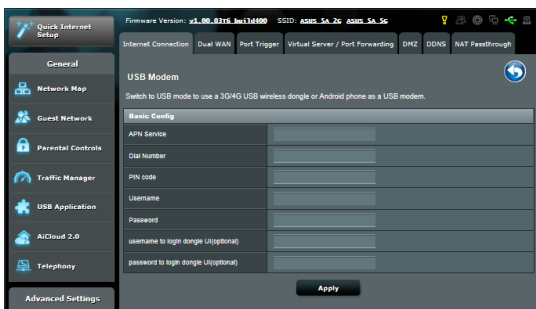
3.6 Using AiCloud 2.0

AiCloud 2.0 is a cloud service app that allows you to save, sync, share, and access your files.
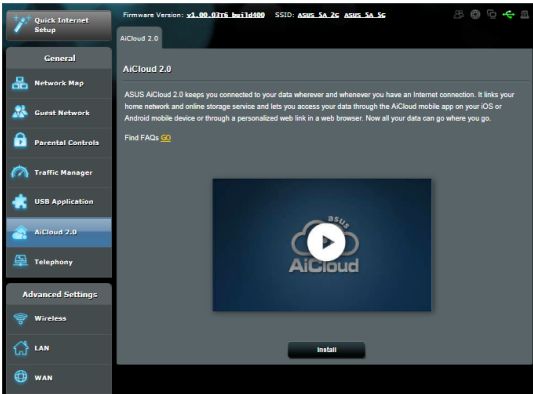
To use AiCloud 2.0:

1. From Google Play Store or Apple Store, download and install the ASUS AiCloud app to your smart device.

2. Connect your smart device to your network. Follow the instructions to complete the AiCloud setup process.

3.6.1 Cloud Disk

To create a cloud disk:

1. Insert a USB storage device into the wireless router.

2. Turn on **Cloud Disk**.
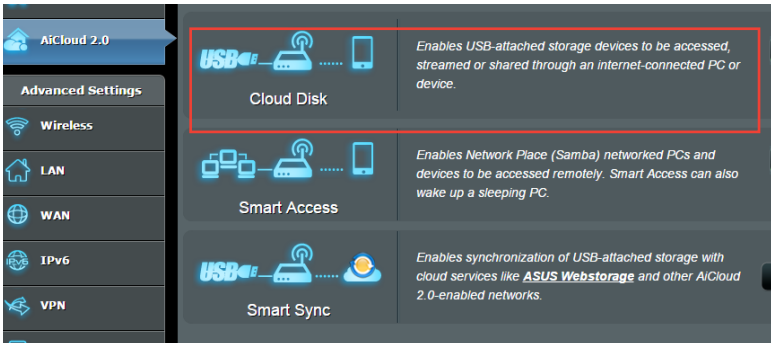
3. Go to **https://router.asus.com** and enter the router login account and password. For better user experience, we recommend that you use **Google Chrome** or **Firefox**.
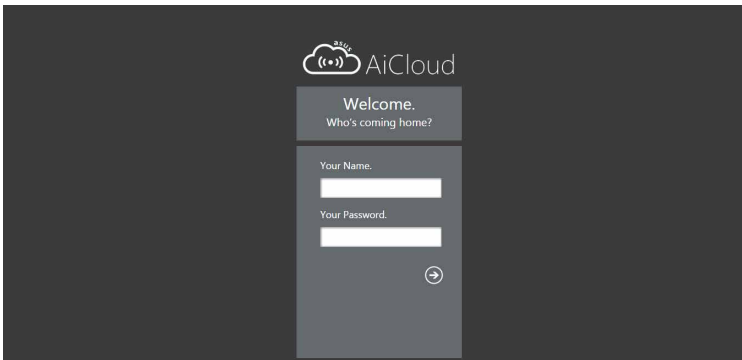
4. You can now start accessing Cloud Disk files on devices connected to the network.

NOTE: When accessing the devices that are connected to the network, you need to enter the device's user name and password manually, which will not be saved by AiCloud for security reason.
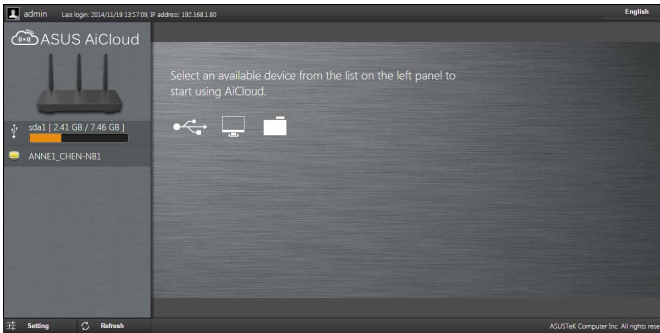
3.6.2 Smart Access

The Smart Access function allows you to easily access your home network via your router's domain name.
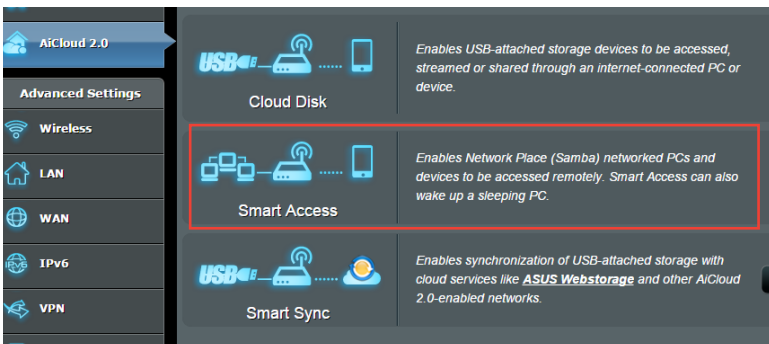
NOTES:

*   You can create a domain name for your router with ASUS DDNS. For more details, refer to section **4.3.5 DDNS**.
*   By default, AiCloud provides a secure HTTPS connection. Key in https://[yourASUSDDNSname].asuscomm.com for a very secure Cloud Disk and Smart Access usage.

3.6.3 Smart Sync
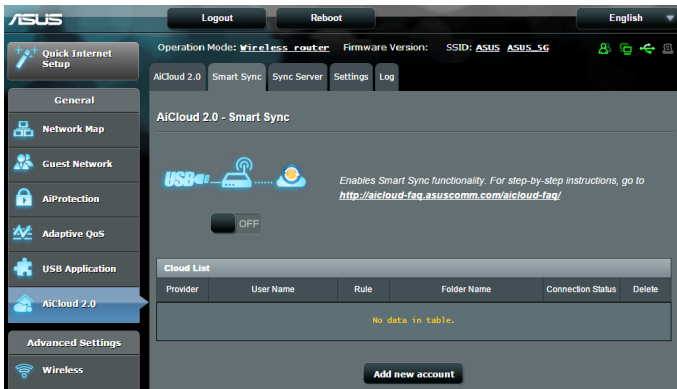
To use Smart Sync:

1. Launch AiCloud, click **Smart Sync** > **Go**.

2. Select **ON** to enable Smart Sync.

3. Click **Add new account**.

4. Enter your ASUS WebStorage account password and select the directory that you want to sync with WebStorage.

5. Click **Apply**.

3.7 Using Telephony

The Telephony function allows you to connect compatible devices such as common analog phones, DECT phones, FAX machines, and IP phones to your DSL-AC87VG.

3.7.1 Setting up your phones

Configuring an internal phone

To configure an internal phone:

1. From the navigation panel, click **Telephony** > **Phone Device**.

2. Click ⊕ to add a new phone.
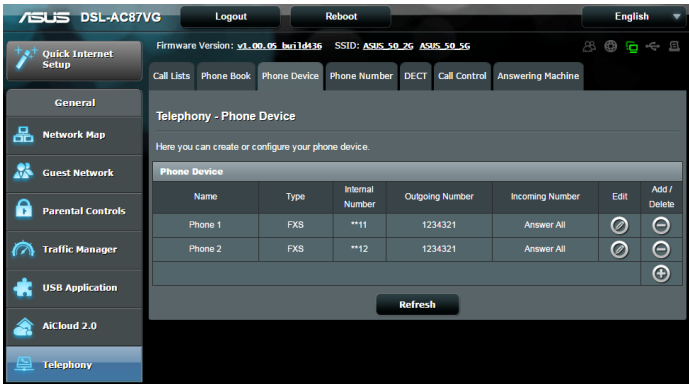
NOTES:

- When using the Telephony function for the first time, the outgoing number field is empty.
- When you also want to use an IP phone for outgoing calls, assign the outgoing number. For details, refer to the section **Assigning an outgoing number**.

3. Tick **IP Phone**.

4. Fill in the necessary information.

5. When done, click **Apply**. The internal number is assigned by the phone.
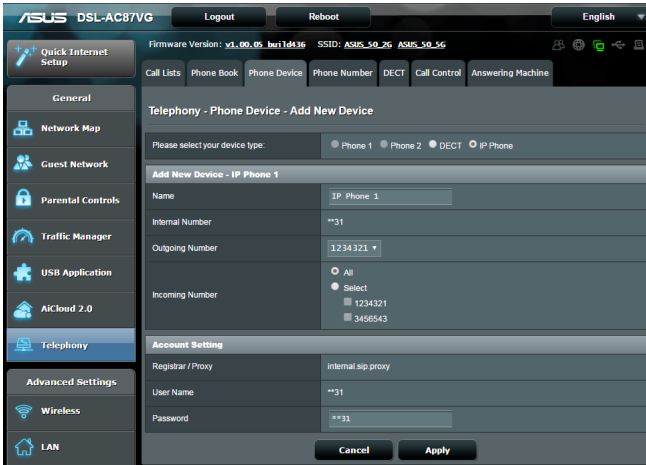
NOTES:

•   To check for the internal number of an internal phone, go to **Telephony** > **Phone Device**.

•   For details on using the internal phone, refer to the section **Making internal calls**.

Registering your DECT phone

To register your DECT phone:

1. From the navigation panel, click **Telephony** > **Phone Device**.
2. Click ⊕ to add a new phone.
3. Tick **DECT**, then click **Register**.
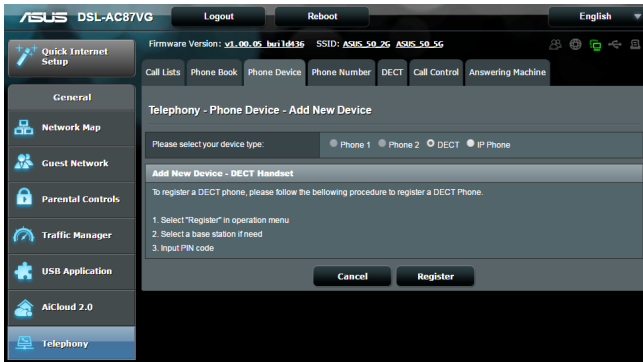
4. Wait until the registration process is completed.
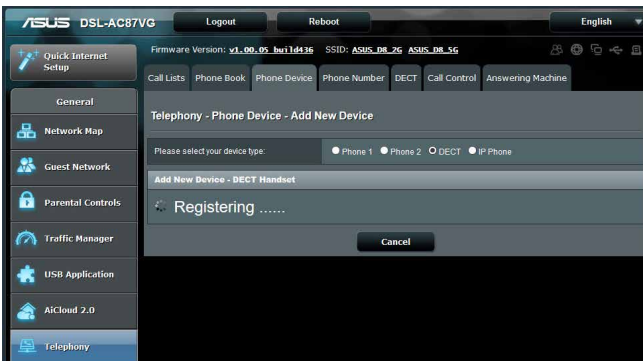
5.   Fill in the necessary information.

6.   When done, click **Apply**.

Configuring your DECT phone

To configure your DECT phone:

1.   From the navigation panel, click **Telephony** > **DECT**.

2.   Configure your preferred DECT settings.
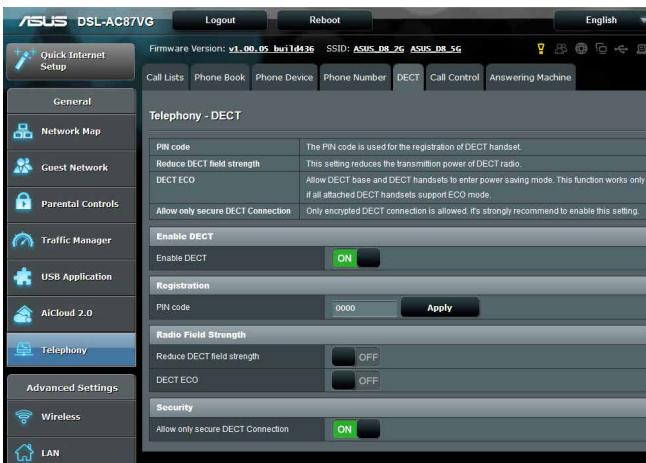
NOTE: By default, the PIN code of the base station is **0000**.

Assigning an outgoing number

Assign outgoing phone numbers to your phones to make outgoing calls from phones connected to your DSL-AC87VG.

To assign an outgoing number:

1. From the navigation panel, click **Telephony** > **Phone Number**.

2. Click ⊕ to add a new phone.
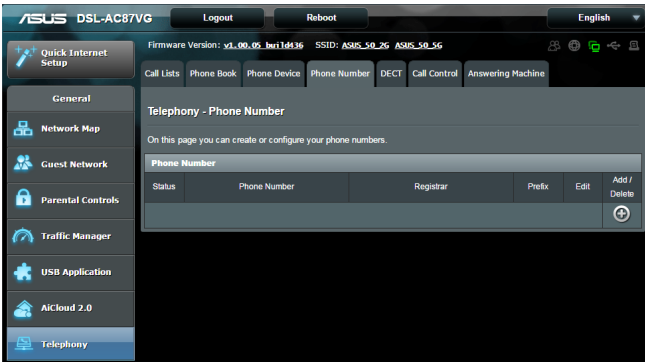
3. Fill in the information for these required fields: **Phone Number**, **User Name**, **Password**, **User Domain**, **Registrar,** and **Proxy***.
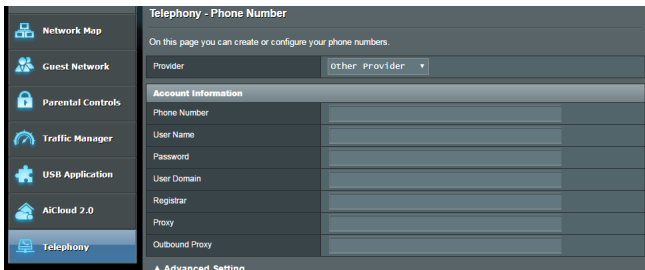
4. Click **Advanced Setting** to configure the advanced settings of your phone.
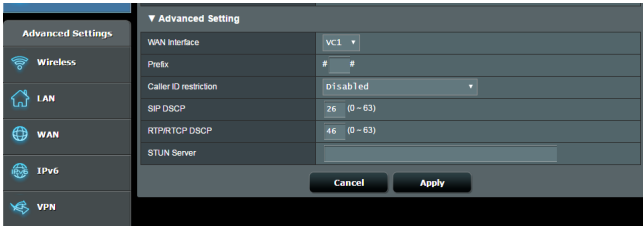
5. Configure the following advanced settings:

    • **WAN Interface:** Select the WAN interface that you want to use for your phone.

    • **Prefix:** Assign the prefix number that you want to assign for outgoing calls.

    • **Caller ID restriction:** Select the caller ID type.

    • **SIP DSCP*:** Enter the SIP DSCP.

    • **RTP/RTCP DSCP*:** Enter the RTP/RTP DSCP.

NOTE: * Obtain the necessary information from your VoIP service provider.

6. When done, click **Apply**. A checkmark in the Status column indicates that you have successfully assigned a phone number to your phone.

7. Follow steps 1 to 6 to assign more phone numbers to more phones.
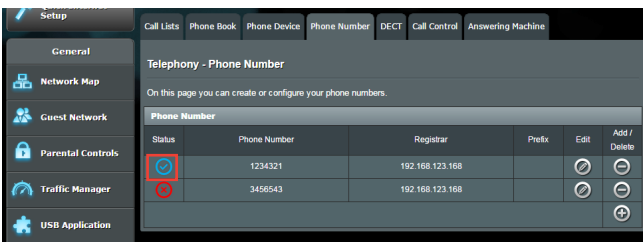
Modifying or deleting a phone number

To modify or delete a phone number:

1. From the navigation panel, click **Telephony** > **Phone Number**.

2. Click ⊘ to edit the settings of your selected device. Click ⊖ to delete your selected device.
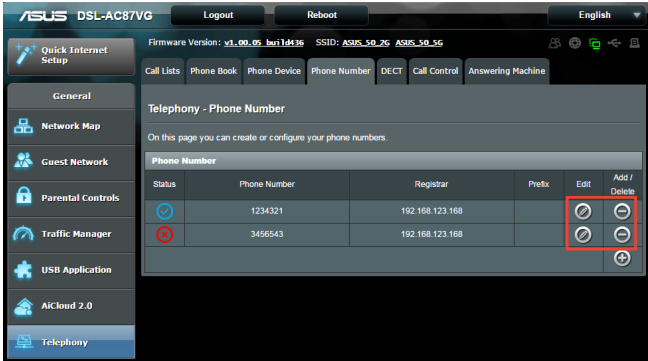
3.7.2 Using the answering machine

Configuring the answering machine

NOTES:

- By default, calls that are not answered after 40 seconds are automatically forwarded to the answering machine.

- Ensure that you have recorded your voice mail greeting for the answering machine. For more details, refer to **Recording your voicemail greeting**.

IMPORTANT!

- The answering machine only supports G.711 a-law (PCMA) codec.

- If you are using a softphone, enable the telephone-event (RFC-2833) on your softphone.
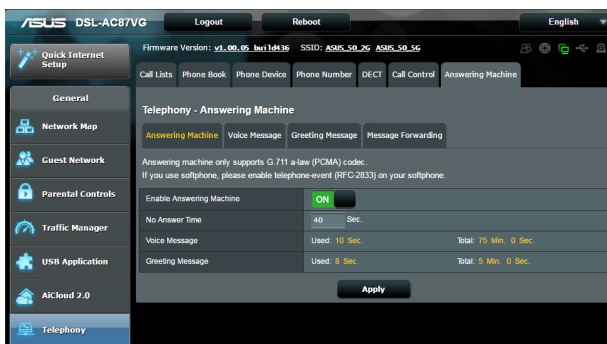
To configure the answering machine:

1. From the navigation panel, click **Telephony** > **Answering machine** > **Answering machine**.

2. On the **Enable Answering Machine** field, ensure that the slider is set to **ON**.

3. On the **No Answer Time** field, set the time (in seconds) that incoming calls are automatically forwarded to the answering machine.

4. When done, click **Apply**.

Recording your voicemail greeting

To record your voice mail greeting:

1. On your phone, dial ***992#**, then speak your message after the beep. After you hang up, your recorded message appears on the Greeting Message list.

2. You can play, edit, or delete your recorded message from **Telephony** > **Answering machine** > **Greeting Message**.

Listening to or deleting your voicemails

To listen to or delete your voice mails:

1. From the navigation panel, click **Telephony** > **Answering machine** > **Voice Message**.
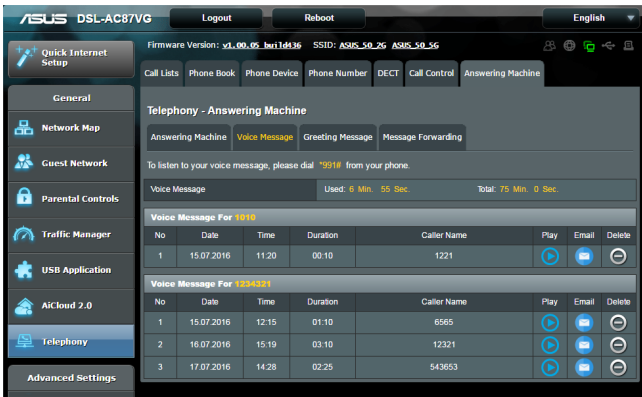
2. Click ▶ to listen to a voicemail. Click ⊖ to delete a voicemail.

NOTE: You can also dial ***911#** on your internal phone to listen to your voicemail.

Emailing your voicemails

To email your voicemails:

1. From the navigation panel, click **Telephony** > **Answering machine** > **Message Forwarding**.
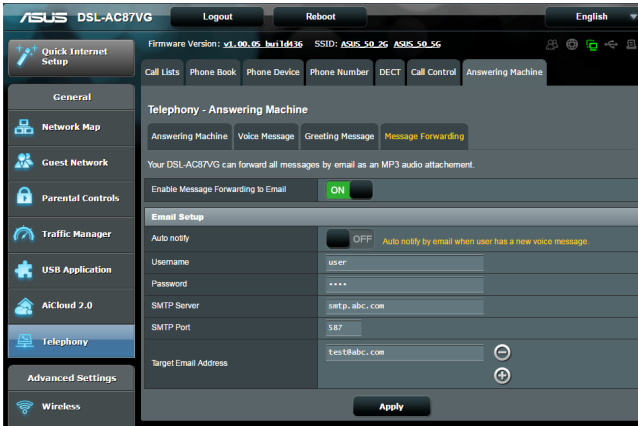
2. On the **Enable Message Forwarding to Email** field, ensure that the slider is set to **ON**.

3. Fill in the necessary information.

4. When done, click **Apply**.

5. Your voicemails will be forwarded to your target email address as MP3 audio attachments.

3.7.3 Creating your contact list

To create your contact list:

1. From the navigation panel, click **Telephony** > **Phone Book**.
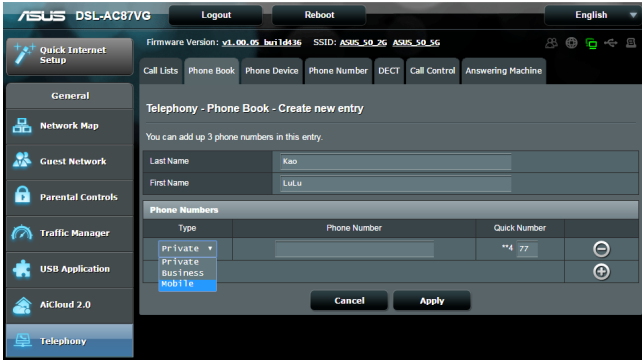
2. Click [icon] to add a new contact. You can add up to three (3) phone numbers to a contact.

3. Fill in the necessary information.

4. When done, click **Apply**.

3.7.4 Making an internal call

To make an internal call:

1. Ensure that you have the correct internal number for the internal phone that you want to call.

NOTE: To check for the internal number of an internal phone, go to **Telephony** > **Phone Device**.

---

2. From an internal phone, dial asterisk (*) twice, then the internal number of the other internal phone.

   For example, you want to call Phone 2 (internal number is 12) from Phone 1. From Phone 1, dial [**] + [**12**].

3.7.5 Making an outgoing call

To make an outgoing call:

1. Ensure that you have assigned a phone number to your phone.

NOTE: For more details, refer to **Assigning a phone number**.

---

2. Dial the number/pound sign (#), phone's prefix number, number/pound sign (#), and the number you want to call.
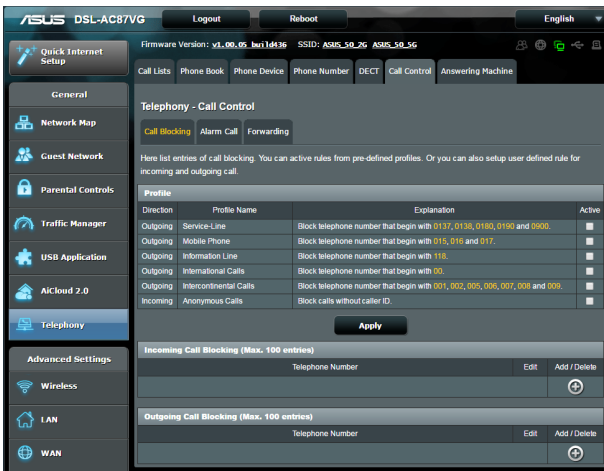
    For example, the prefix number for phone 2 is 81, you would need to dial: [**#81#**] + [**callee's phone number**].

3.7.6 Managing your calls

Defining the call blocking rules

To define the call blocking rules:

1. From the navigation panel, click **Telephony** > **Call Control > Call Blocking**.

2. Click ⊕ to set the blocking rule for incoming or outgoing calls.

3. Define the call blocking rule, then click **Apply**.
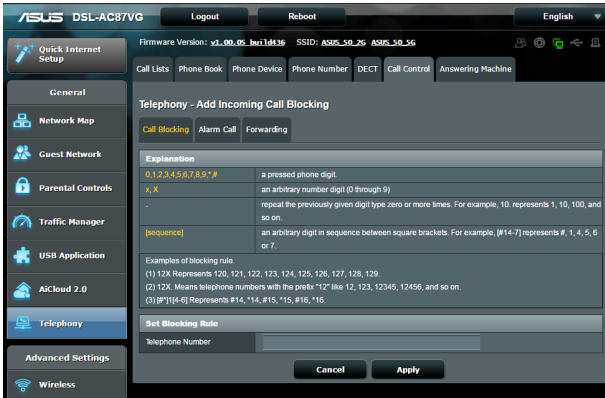
4. Select the call blocking rule that you want to activate, then click **Apply**.
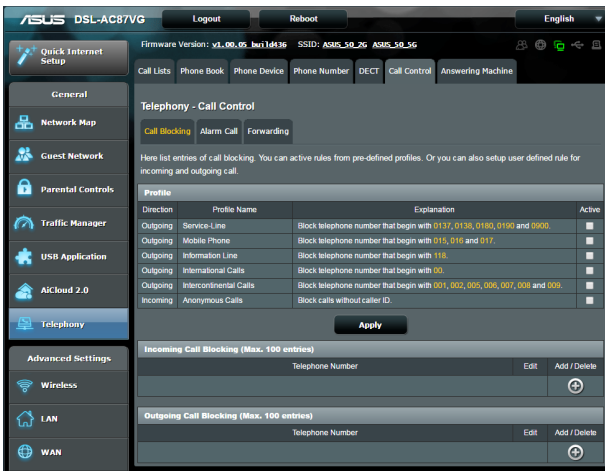
NOTE: When you activate the **Anonymous Calls** profile, all incoming calls without caller IDs are blocked.

Defining the call forwarding rules

To define the call forwarding rules:

1. From the navigation panel, click **Telephony** > **Call Control > Forwarding**.

2. Click ⊕ to set the call forwarding rule.
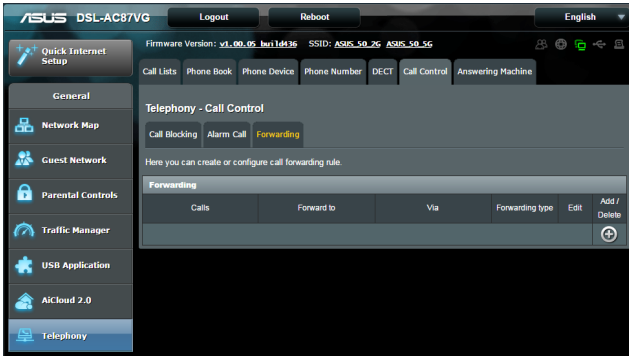
3. Configure the call forwarding rules, then click **Apply**.
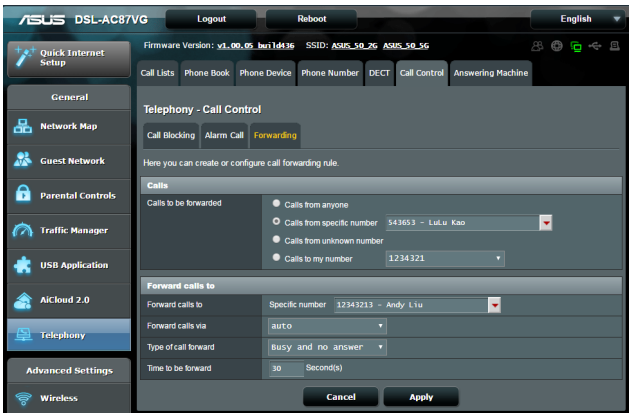
4 Configuring the Advanced Settings

4.1 Wireless

4.1.1 General

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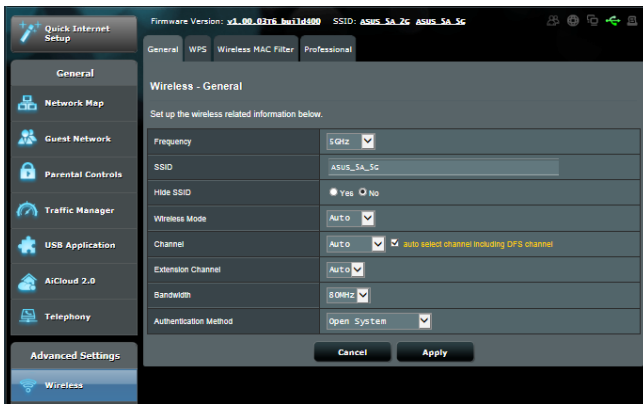
To configure the basic wireless settings:

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

2. Select 2.4GHz or 5GHz as the frequency band for your wireless network.

3. Assign a unique name containing up to 32 characters for your SSID (Service Set Identifier) or network name to identify your wireless network. Wi-Fi 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.

NOTE: You can assign unique SSIDs for the 2.4 GHz and 5GHz frequency bands.

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. 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, and 802.11b devices to connect to the wireless router.

    • **N only**: Select **N only** to maximize wireless N performance. This setting prevents 802.11g and 802.11b devices from connecting to the wireless router.

6. Select the channel/extension 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. Select the channel bandwidth to accommodate higher transmission speeds.

8. Select the authentication method.

9. When done, click **Apply**.

4.1.2 WPS

WPS (Wi-Fi 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.
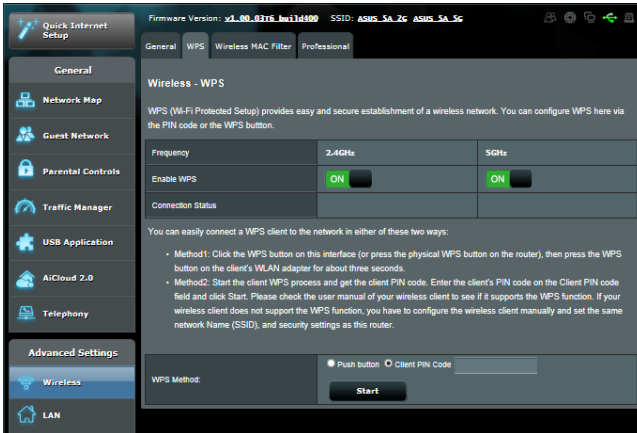
To enable WPS on your wireless network:

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

2. In the **Enable WPS** field, move the slider to **ON** for the 2.4GHz or 5GHz frequency band.

NOTE: WPS supports authentication using Open System, WPA-Personal, and WPA2-Personal. WPS does not support a wireless network that uses a Shared Key, WPA-Enterprise, WPA2-Enterprise, and RADIUS encryption method.

3. In the WPS Method field, select **Push Button** or **Client PIN** code. If you select **Push Button**, go to step 4. If you select **Client PIN** code, go to step 5.

4. To set up WPS using the router's WPS button, follow these steps:

   a. Click **Start** or press the WPS button found at the rear of the wireless router.

   b. Press the WPS button on your wireless device. This is normally identified by the WPS logo.

NOTE: Check your wireless device or its user manual for the location of the WPS button.

---

   c. The wireless router will scan for any available WPS devices. If the wireless router does not find any WPS devices, it will switch to standby mode.

5. To set up WPS using the Client's PIN code, follow these steps:

   a. Locate the WPS PIN code on your wireless device's user manual or on the device itself.

   b. Key in the Client PIN code on the text box.

   c. Click **Start** to put your wireless router into WPS survey mode. The router's LED indicators quickly flash three times until the WPS setup is completed.

4.1.3 Wireless MAC Filter

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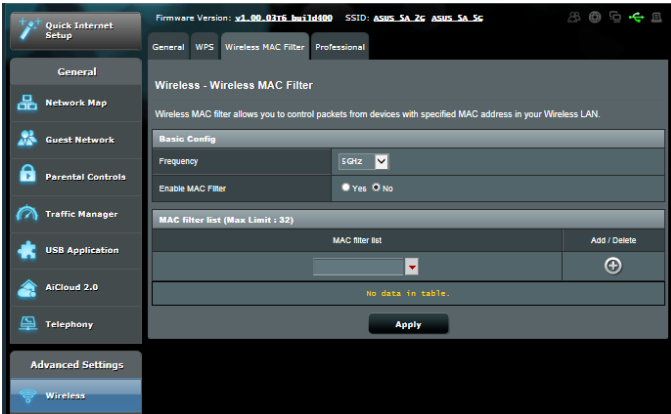
To set up the Wireless MAC filter:

1. From the navigation panel, go to **Advanced Settings** > **Wireless** > **Wireless MAC Filter** tab.

2. From the **Frequency** list, select the frequency band that the settings will be applied to.

3. Tick **Yes** in the **Enable Mac Filter** field.

4. 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.

5. On the MAC filter list, click the **Add** ⊕ button and key in the MAC address of the wireless device.

6. Click **Apply**.

4.1.4 Professional

The Professional screen provides advanced configuration options.

NOTE: We recommend that you use the default values on this page.
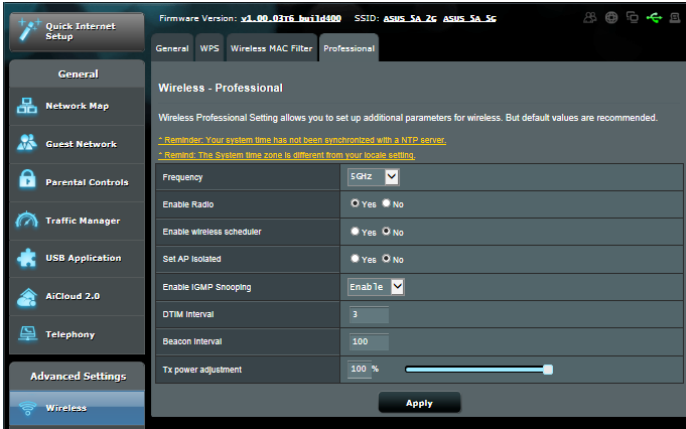
In the **Professional Settings** screen, you can configure the following:

- **Frequency**: 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 the wireless scheduler function. When enabled, the following items appear:
    - **Date to Enable Radio (week days)**: 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.
    - **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 many guests frequently join or leave your network. Select **Yes** to enable this feature or select **No** to disable.

- **Enable IGMP Snooping:** Enable this function allows the IGMP (Internet Group Management Protocol) to be monitored among devices and optimizes wireless multicast traffic.

- **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.

- **TX Power adjustment**: TX Power adjustment refers to the milliWatts (mW) needed to power the radio signal output of the wireless router. Enter a value between 0 to 100.

NOTE: Increasing the TX Power adjustment values may affect the stability of the wireless network.

4.2   LAN

4.2.1 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.

To modify the LAN IP settings:

1.   From the navigation panel, go to **Advanced Settings** > **LAN** > **LAN IP** tab.

2.   Modify the **IP address** and **Subnet Mask**.

3.   When done, click **Apply**.

4.2.2 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.
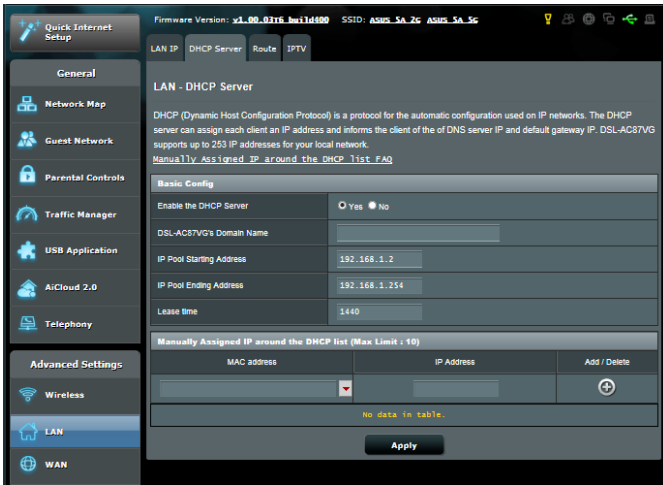
To configure the DHCP server:

1.   From the navigation panel, go to **Advanced Settings** > **LAN** > **DHCP Server** tab.

2.   In the **Enable the DHCP Server** field, tick **Yes**.

3.   In the **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. When done, click **Apply**.

4.2.3 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.
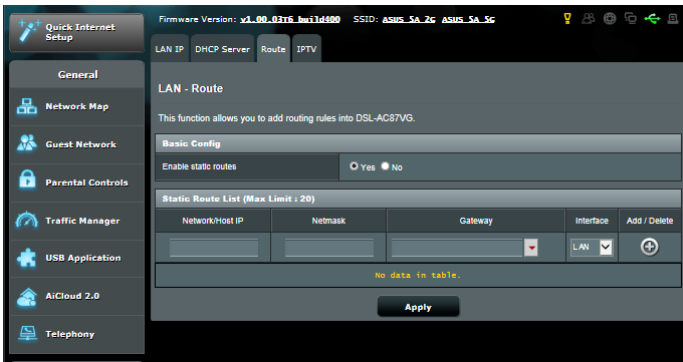
To configure the LAN Routing table:

1. From the navigation panel, go to **Advanced Settings** > **LAN** > **Route** tab.

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**.

4.2.4 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.
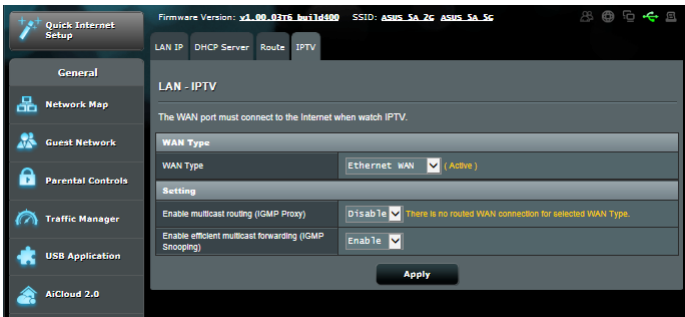
4.3   WAN

4.3.1 Internet Connection

The Internet Connection screen allows you to configure the settings of your USB 3G/4G modem.
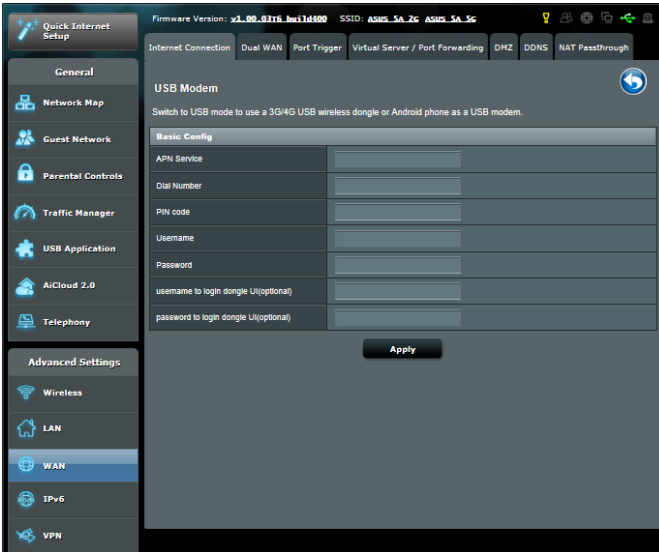
NOTES:

- Obtain the information about your USB modem from your Internet service provider (ISP).
- For more details about the 3G/4G function of your DSL-AC87VG, please refer to the section **3.5.3. 3G/4G**.

4.3.2 Dual WAN

Your ASUS DSL-AC87VG provides dual WAN support. You can set the dual WAN feature to this mode:

- **Failover Mode:** Select this mode to use the secondary WAN as the backup network access.
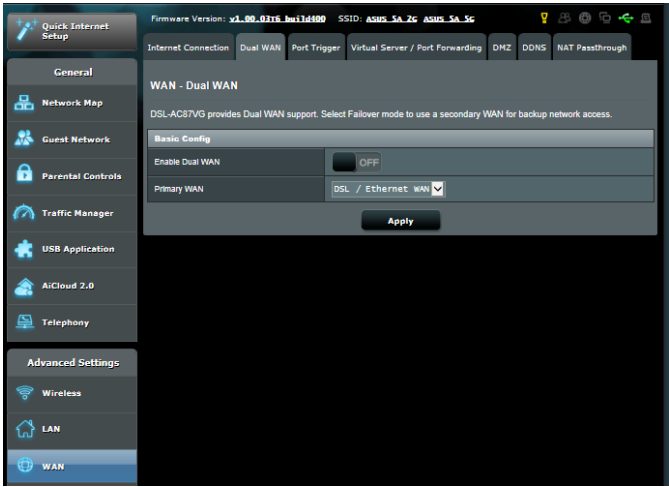
4.3.3 Port Trigger

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.
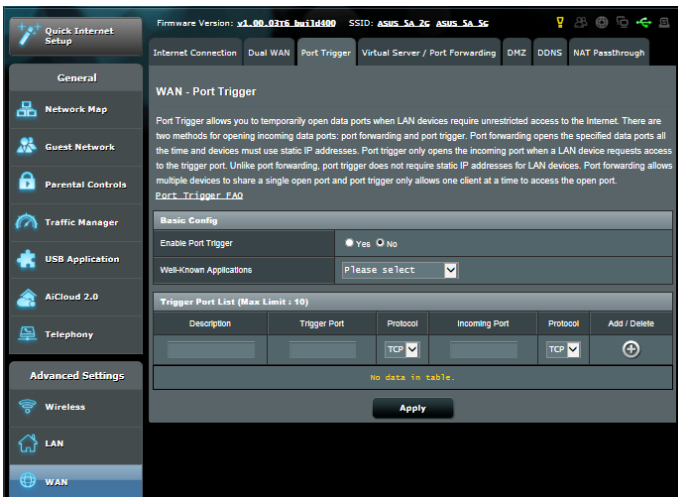
To set up Port Trigger:

1. From the navigation panel, go to **Advanced Settings** > **WAN** > **Port Trigger** tab.

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 Port Trigger 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** ⊕ 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 1~65535. 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.

4.3.4 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.
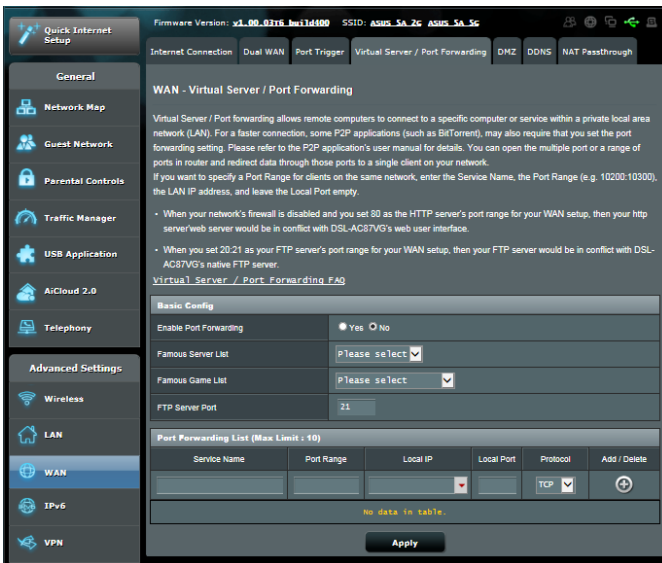
To set up Port Forwarding:

1. From the navigation panel, go to **Advanced Settings** > **WAN** > **Virtual Server / Port Forwarding** tab.

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 **4.2 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**.

5. 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.

6. 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.

4.3.5 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.

To set up DMZ:

1. From the navigation panel, go to **Advanced Settings** > **WAN** > **DMZ** tab.

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**.

4.3.6 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.

To set up DDNS:

1. From the navigation panel, go to **Advanced Settings** > **WAN** > **DDNS** tab.

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).

- **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.

4.3.7 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, go to the **Advanced Settings** > **WAN** > **NAT Passthrough** tab. When done, click **Apply**.
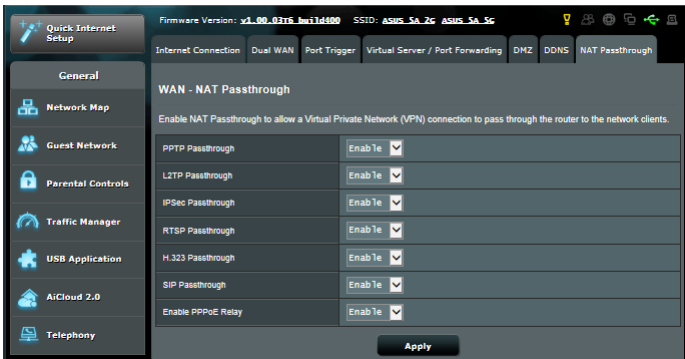
4.4   IPv6

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.
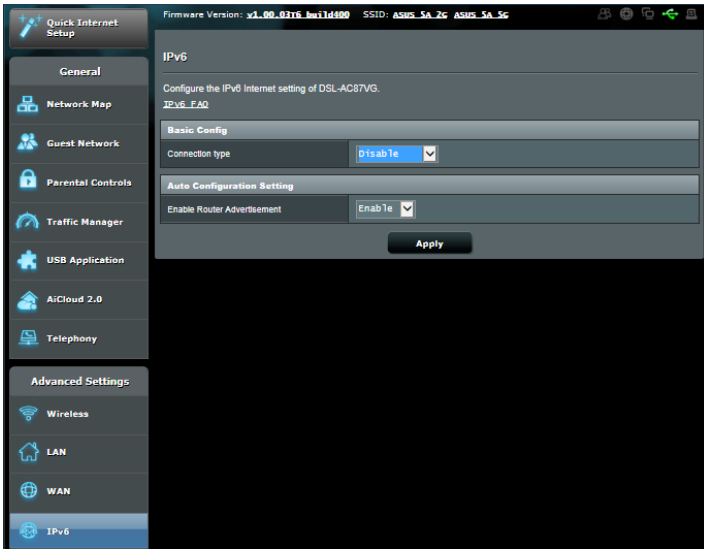
To set up IPv6:

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.

4.5   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.
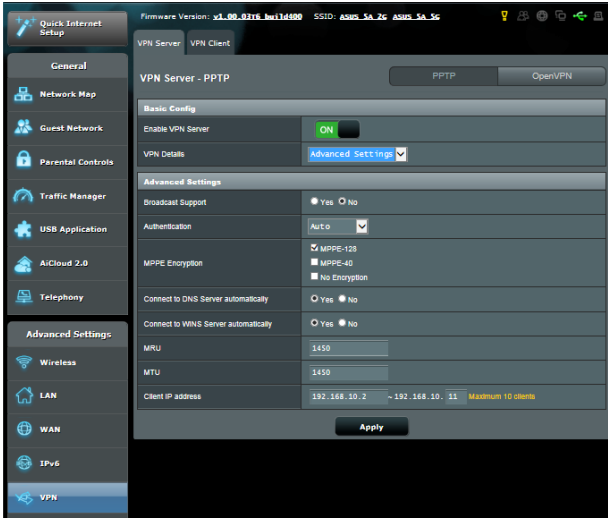
To set up access to a VPN server:

1.   From the navigation panel, go to **Advanced Settings** > **VPN Server**.

2.   On the **Enable VPN Server** field, select **Yes**.

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**.

4.6   Firewall

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

NOTE: The Firewall feature is enabled by default.

4.6.1 General
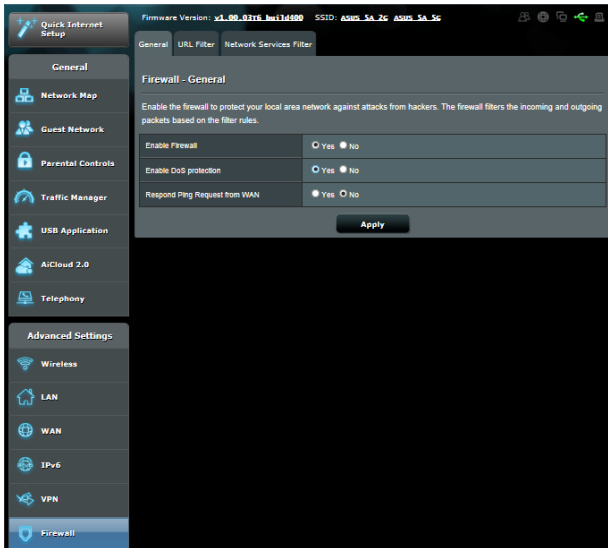
To set up basic Firewall settings:

1.   From the navigation panel, go to **Advanced Settings** >
      Firewall > **General** tab.

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.   On the **Respond Ping Request from Wan** field, select **Yes.**

5.   Click **Apply**.

4.6.2 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.
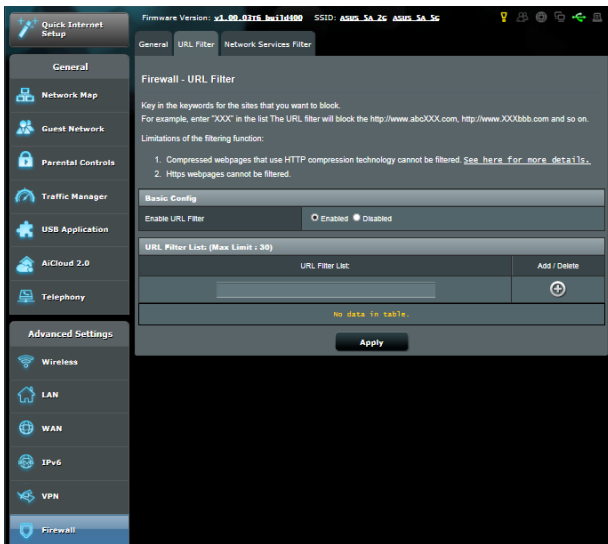
To set up a URL filter:

1. From the navigation panel, go to **Advanced Settings** > **Firewall** > **URL Filter** tab.

2. On the **Enable URL Filter** field, select **Enabled**.

3. Enter a URL and click the ⊕ button.

4. Click **Apply**.

4.6.3 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.
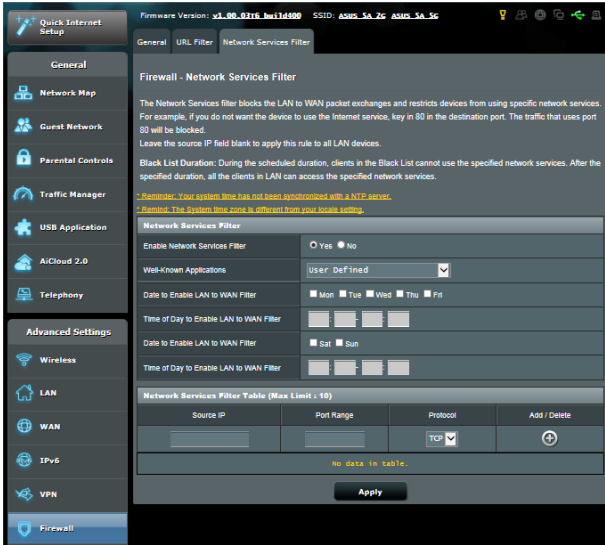
To set up a Network Service filter:

1. From the navigation panel, go to **Advanced Settings** > **Firewall** > **Network Service Filter** tab.

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**.

4.7 Administration

4.7.1 System

The **System** page allows you to configure your wireless router settings.
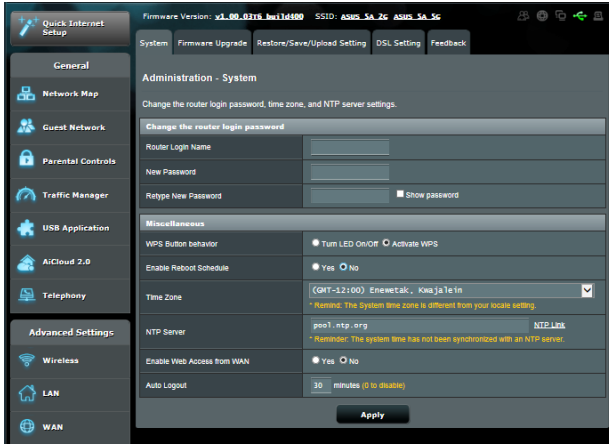
To set up the System settings:

1. From the navigation panel, go to **Advanced Settings** > **Administration** > **System** tab.

2. You can configure the following settings:

    - **Change router login password**: You can change the password and login name for the wireless router by entering a new name and password.
    - **WPS Button behavior**: You can select **Turn LED On/Off** or **Activate WPS**.
    - **Enable Reboot Schedule**: Select **Yes** to set the reboot schedule.
    - **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.
    - **Enable Web Access from WAN**: Select **Yes** to allow devices outside the network to access the wireless router GUI settings. Select **No** to to prevent access.

- **Enable Web Access from WAN**: Select **Yes** to allow devices outside the network to access the wireless router GUI settings. Select **No** to to prevent access.

- **Auto Logout**: Set the time (in minutes) that you want to automatically logout from the web GUI after some period of inactivity.

3.   Click **Apply**.

4.7.2 Firmware Upgrade

NOTE: Download the latest firmware from the ASUS website at **http://www.asus.com**
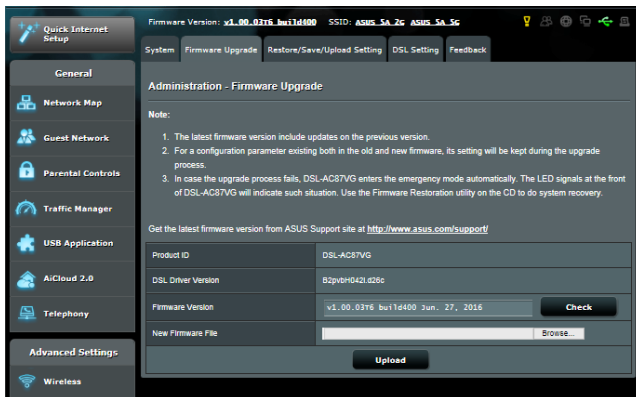
To upgrade the firmware:

1.   From the navigation panel, go to **Advanced Settings** > **Administration** > **Firmware Upgrade** tab.

2.   In the **New Firmware File** 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, follow the Rescue mode process. For more details, refer to **Restoring the firmware via the Rescue mode** under **5.1 Basic Troubleshooting**.

4.7.3 Restore/Save/Upload Setting
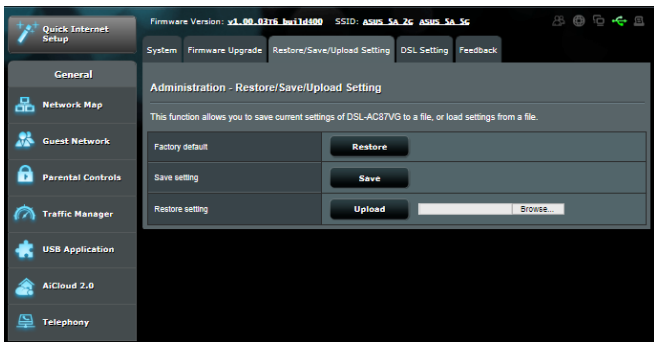
To restore/save/upload wireless router settings:

1. From the navigation panel, go to **Advanced Settings** > **Administration** > **Restore/Save/Upload Setting** tab.

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**, 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**.

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

4.7.4 DSL Setting

Modify your DSL settings from this page.

IMPORTANT! Obtain your DSL settings from your Internet service provider (ISP) before doing any changes.
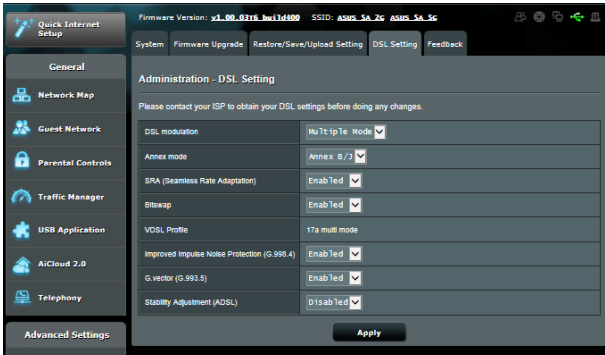
4.7.5 Feedback

You can send your comments, suggestions, issues, or feedbacks to the ASUS Support Team.
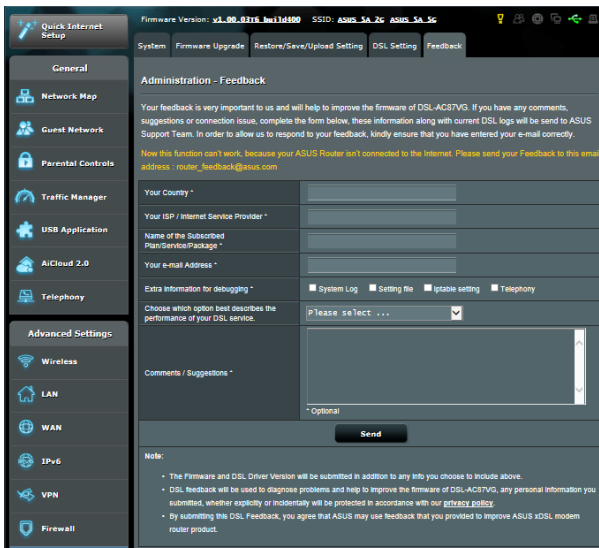
4.8   System Log

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
    - DHCP Leases
    - Wireless Log
    - Port Forwarding
    - Routing Table
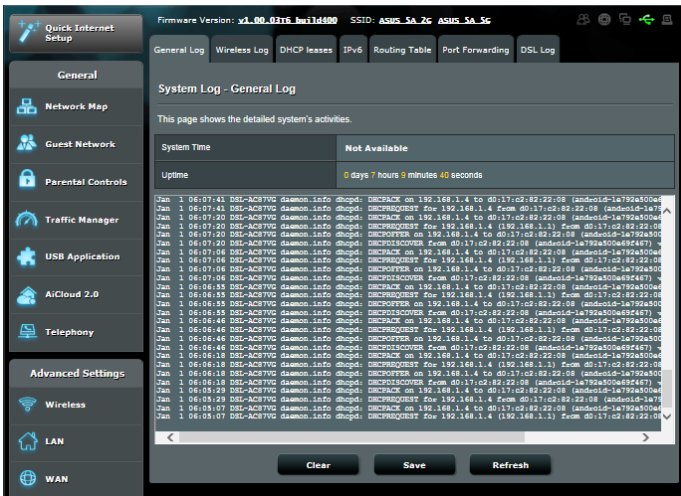
5   Troubleshooting

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:
http://support.asus.com/ 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** tab. 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/Networks/Wireless_Routers/RTAC5300/#download 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.

Restoring the firmware via the Rescue mode.

If the firmware upgrade fails, do the Rescue mode process. Please follow these steps:

1.   Ensure that your computer has a static IP address such as 192.168.1.xx (xx can be any number between 2 and 254).

2.   Turn off your DSL-AC87VG. Hold the Reset button then power on your device for five seconds. When the power LED blinks, release the Reset button.

3.   On your web browser, enter http://192.168.1.1

3. On your web browser, enter **http://192.168.1.1**. The interface below appears.
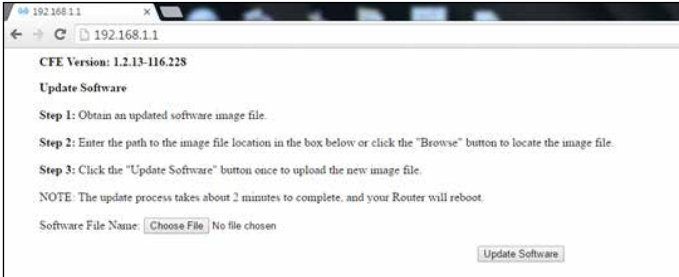
3. From the interface, click **Choose File**, and browse for your firmware file.

NOTE: You can download the latest firmware file from the ASUS Support site at **http://www.asus.com/support**

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4. Click **Update Software**. The process takes about two minutes to complete.

5. After the process is completed, the login page appears. If it does not appear, enter **http://192.168.1.1** on your web browser.
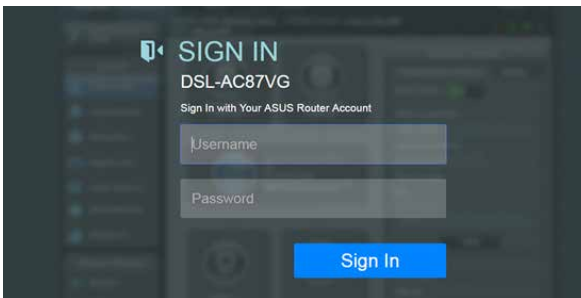
Restart your network in the following sequence:

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 computer.

- 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)

Can I change my internal number?

No, it cannot be changed. The phone device assigns the internal number.

Can I make an internal call?

You can make internal calls. Calls can be made between phone devices connected to DSL-AC87CG such as regular phones, VoIP, or DECT phones via the internal numbers.

The outgoing number does not appear.

The outgoing number appears only when the phone number setup is completed.

Can I assign several outgoing numbers?

*   You can assign several different outgoing numbers to phone devices from **Telephony** > **Phone Number**. For details, refer to the section **Assigning an outgoing number**.

*   When you make an outgoing call, the outgoing number appears on the callee's phone.

*   You will only be able to make outgoing calls when you assign outgoing numbers.

Can I edit the the outgoing and incoming numbers?

*   You can edit the outgoing and incoming numbers. To do this, go to **Telephony** > **Phone Device**, and click 🚫 beside the number you want to edit.

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. The default factory login name and password is "admin/admin". 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 8, follow these steps:

   1. Launch Internet Explorer 8, then click **Tools** > **Internet Options**.

   2. In the **General** tab, under **Browsing history**, click **Delete…**, select **Temporary Internet Files** and **Cookies** then click **Delete**.
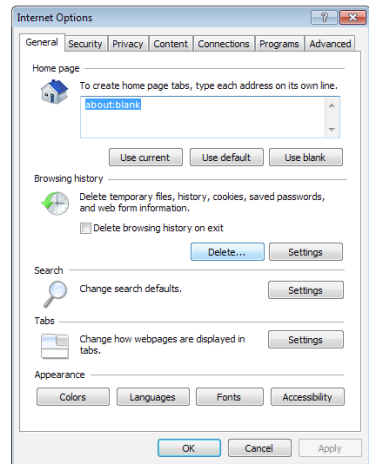
NOTES:

• 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**.
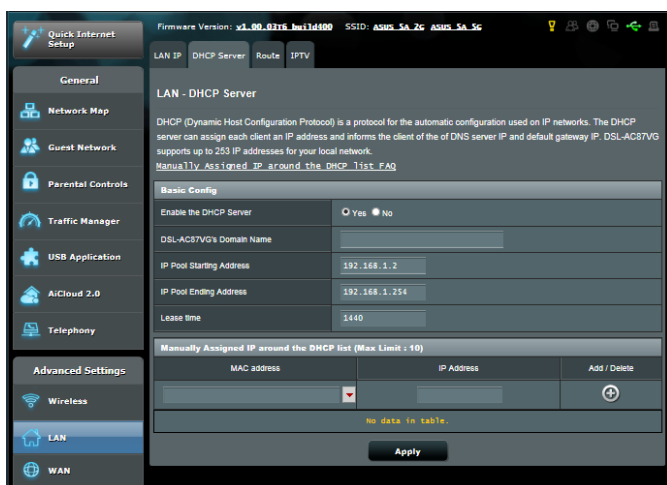
- SSID has been hidden. If your device can find SSIDs from other routers but cannot find your router's SSID, go to **Advanced Settings** > **Wireless** > **General**, select **No** on **Hide SSID**, and select **Auto** on **Channel**.
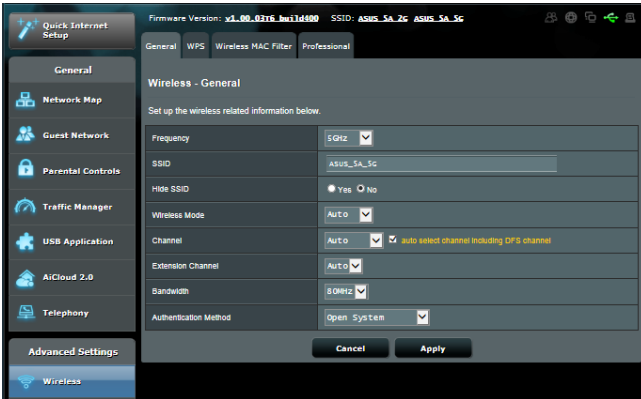
- If you are using a wireless LAN adapter, check if the wireless channel in use conforms to the channels available in your country/area. If not, adjust the channel, channel bandwidth, and wireless mode.

- 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**.
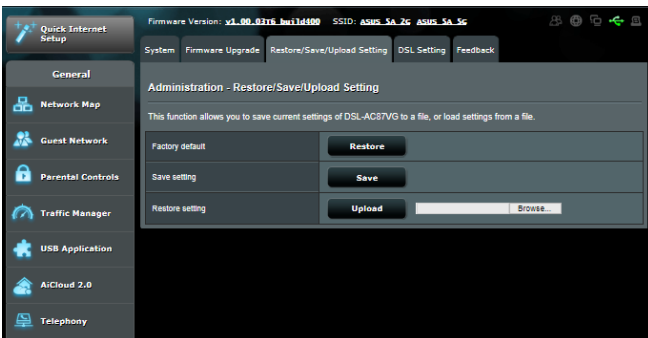
Internet is not accessible.

- 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**.

Internet status:
Connected
WAN IP: **192.168.0.146**
DDNS: **GO**
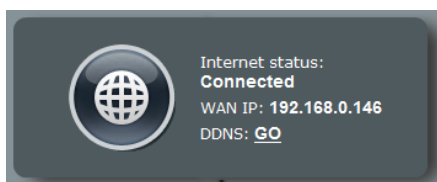
- The device has been blocked via the Parental Control function. Go to **General** > **Parental Control** and see if the device is in the list. If the device is listed under **Client Name**, remove the device using the **Delete** button or adjust the Time Management Settings.

- 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.

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**. The default login account and password are both "admin".

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:

User Name:	admin
Password:	admin
Enable DHCP:	Yes (if WAN cable is plugged in)
IP address:	http://router.asus.com (or 192.168.1.1)
Domain Name:	(Blank)
Subnet Mask:	255.255.255.0
DNS Server 1:	(Blank)
DNS Server 2:	(Blank)
SSID (2.4GHz):	ASUS_[Last two bytes of Mac]_2G
SSID (5GHz):	ASUS_[Last two bytes of Mac]_5G

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® 7

1.   Click **Start > Internet Explorer** to launch the browser.

2.   Click **Tools** > **Internet options** > **Connections** tab > **LAN settings**.
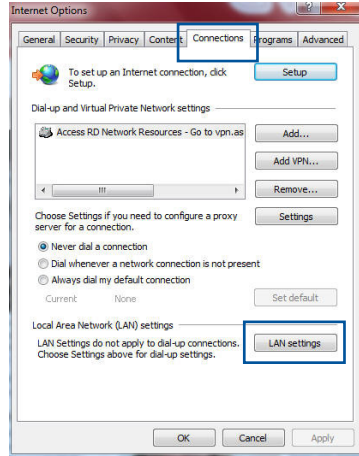
3.   From the Local Area Network (LAN) Settings screen, untick **Use a proxy server for your LAN**.

4.   Click **OK** when done.
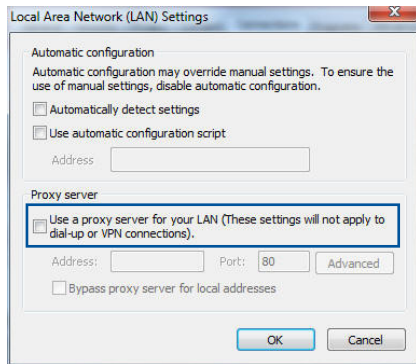
MAC OS

1. From your Safari browser, click **Safari** > **Preferences** > **Advanced** > **Change Settings...**

2. From the Network screen, deselect **FTP Proxy** and **Web Proxy (HTTP)**.

3. Cllick **Apply Now** when done.
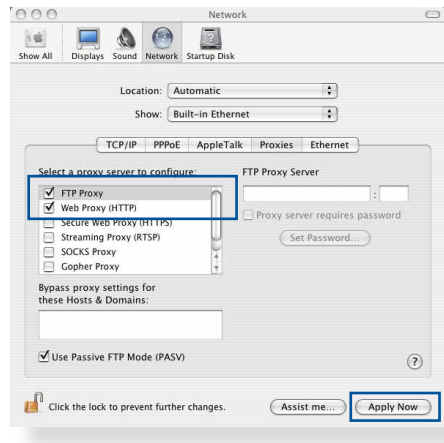
NOTE: Refer to your browser's help feature for details on disabling the proxy server.

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

Windows® 7

1. Click **Start** > **Control Panel** > **Network and Internet** > **Network and Sharing Center** > **Manage network connections.**

2. Select **Internet Protocol Version 4 (TCP/IPv4)** or **Internet Protocol Version 6 (TCP/IPv6)**, then click **Properties**.
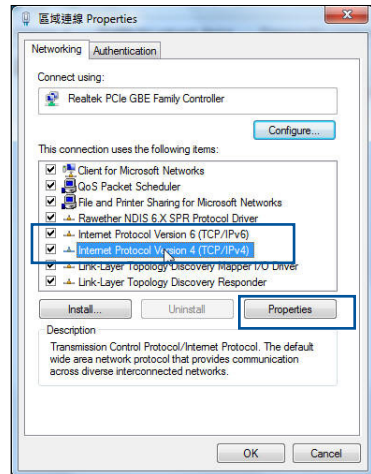
3. To obtain the IPv4 IP settings automatically, tick **Obtain an IP address automatically**.

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

4. Click **OK** when done.
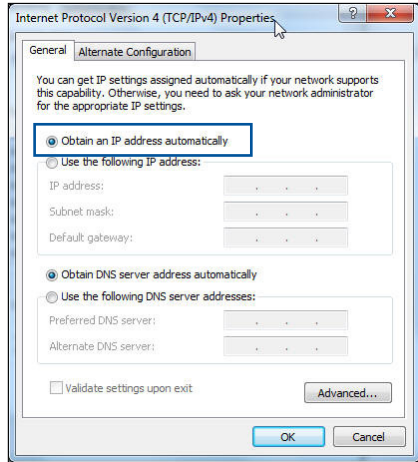
MAC OS

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. Cllick **Apply Now** when done.
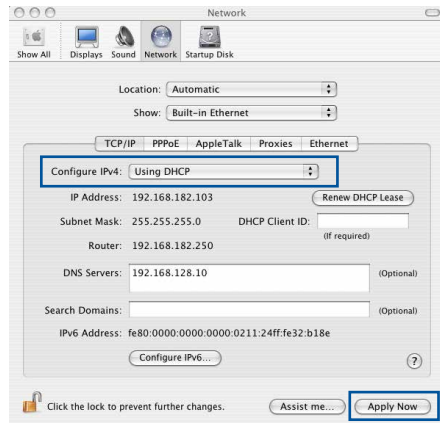
NOTE: Refer to your operating system's help and support feature for details on configuring your computer's TCP/IP settings.

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

Windows® 7

1. Click **Start** > **Internet Explorer** to launch the browser.

2. Click **Tools** > **Internet options** > **Connections** tab.

3. Tick **Never dial a connection**.

4. Click **OK** when done.
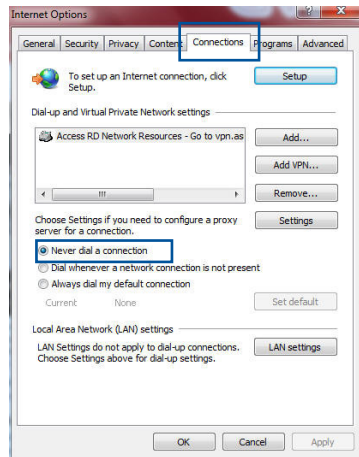
NOTE: Refer to your browser's help feature for details on disabling the dial-up connection.

Appendices

Notices

ASUS Recycling/Takeback Services

ASUS recycling and takeback programs come from our commitment to the highest standards for protecting our environment. We believe in providing solutions for you to be able to responsibly recycle our products, batteries, other components, as well as the packaging materials. Please go to http://csr.asus.com/english/Takeback.htm for the detailed recycling information in different regions.

REACH

Complying with the REACH (Registration, Evaluation, Authorisation, and Restriction of Chemicals) regulatory framework, we published the chemical substances in our products at ASUS REACH website at

http://csr.asus.com/english/index.aspx

Federal Communications Commission Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

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

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

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

- Reorient or relocate the receiving antenna.

- Increase the separation between the equipment and receiver.

- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

- Consult the dealer or an experienced radio/TV technician for help.

FCC Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 31cm between the radiator & your body.

IMPORTANT!   This device is restricted for indoor use.

WARNING!

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

- Users must not modify this device. Modifications by anyone other than the party responsible for compliance with the rules of the Federal Communications Commission (FCC) may void the authority granted under FCC regulations to operate this device.

- For product available in the USA/Canada market, only channel 1~11 can be operated. Selection of other channels is not possible.

Prohibition of Co-location

This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter except in accordance with FCC multi-transmitter product procedures.

Safety Information

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 31cm between the radiator and your body.

Declaration of Conformity for R&TTE directive 1999/5/EC

Essential requirements – Article 3

Protection requirements for health and safety – Article 3.1a

Testing for electric safety according to EN 60950-1 has been conducted. These are considered relevant and sufficient.

Protection requirements for electromagnetic compatibility – Article 3.1b

Testing for electromagnetic compatibility according to EN 301 489-1 and EN 301 489-17 has been conducted. These are considered relevant and sufficient.

Effective use of the radio spectrum – Article 3.2

Testing for radio test suites according to EN 300 328 & EN 301 893 have been conducted. These are considered relevant and sufficient.

Operate the device in 5150-5250 MHz frequency band for indoor use only.

CE Mark Warning

This is a Class B product, in a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

This equipment may be operated in AT, BE, CY, CZ, DK, EE, FI, FR, DE, GR, HU, IE, IT, LU, MT, NL, PL, PT, SK, SL, ES, SE, GB, IS, LI, NO, CH, BG, RO, RT.

Canada, Industry Canada (IC) Notices

This device complies with Industry Canada license-exempt RSS standard(s).

Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Radio Frequency (RF) Exposure Information

This equipment complies with IC RSS-102 radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 31cm between the radiator & your body.

Cet équipement est conforme aux limites d'exposition aux rayonnements IC établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 31cm de distance entre la source de rayonnement et votre corps.

Canada, avis d'Industry Canada (IC)

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

WARNING!

- This radio transmitter (3568A-RTGZ00) has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

- Le présent émetteur radio (3568A-RTGZ00) a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal et l'impédance requise pour chaque type d'antenne. Les types d'antenne non inclus dans cette liste, ou dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

Table for filed antenna

Antenna	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	
					2.4GHz	5GHz
1	PSA	RFDPA131000SBLB805	Dipole Antenna	Reversed-SMA	2.32	3.47
2	PSA	RFDPA131000SBLB805	Dipole Antenna	Reversed-SMA	2.32	3.47
3	PSA	RFDPA131000SBLB805	Dipole Antenna	Reversed-SMA	2.32	3.47
4	PSA	RFDPA131000SBLB805	Dipole Antenna	Reversed-SMA	2.32	3.47
5	PSA	RFDPA131000SBLB805	Dipole Antenna	Reversed-SMA	2.32	3.47
6	PSA	RFDPA131000SBLB805	Dipole Antenna	Reversed-SMA	2.32	3.47
7	PSA	RFDPA131000SBLB805	Dipole Antenna	Reversed-SMA	2.32	3.47
8	PSA	RFDPA131000SBLB805	Dipole Antenna	Reversed-SMA	2.32	3.47

- For product available in the USA/Canada market, only channel 1~11 can be operated. Selection of other channels is not possible.

- Pour les produits disponibles aux États-Unis / Canada du marché, seul le canal 1 à 11 peuvent être exploités. Sélection d'autres canaux n'est pas possible.

- This device and it's antennas(s) must not be co-located or operating in conjunction with any other antenna or transmitter except in accordance with IC multi-transmitter product procedures.

- Cet appareil et son antenne (s) ne doit pas être co-localisés ou fonctionnement en association avec une autre antenne ou transmetteur.

- The device for the band 5150-5250 MHz is only for indoor usage to reduce potential for harmful interference to co-channel mobile satellite systems.

- Les dispositifs fonctionnant dans la bande 5150-5250 MHz sont réservés uniquement pour une utilisation à l'intérieur afin de réduire les risques de brouillage préjudiciable aux systèmes de satellites mobiles utilisant les mêmes canaux.

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Version 2, June 1991

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Region	Country	Hotline Number	Service Hours
Europe	Cyprus	800-92491	09:00-13:00 ; 14:00-18:00 Mon-Fri
	France	0033-170949400	09:00-18:00 Mon-Fri
	Germany	0049-1805010920 0049-1805010923 (component support) 0049-2102959911 (Fax)	09:00-18:00 Mon-Fri 10:00-17:00 Mon-Fri
	Hungary	0036-15054561	09:00-17:30 Mon-Fri
	Italy	199-400089	09:00-13:00 ; 14:00-18:00 Mon-Fri
	Greece	00800-44142044	09:00-13:00 ; 14:00-18:00 Mon-Fri
	Austria	0043-820240513	09:00-18:00 Mon-Fri
	Netherlands/ Luxembourg	0031-591570290	09:00-17:00 Mon-Fri
	Belgium	0032-78150231	09:00-17:00 Mon-Fri
	Norway	0047-2316-2682	09:00-18:00 Mon-Fri
	Sweden	0046-858769407	09:00-18:00 Mon-Fri
	Finland	00358-969379690	10:00-19:00 Mon-Fri
	Denmark	0045-38322943	09:00-18:00 Mon-Fri
	Poland	0048-225718040	08:30-17:30 Mon-Fri
	Spain	0034-902889688	09:00-18:00 Mon-Fri
	Portugal	00351-707500310	09:00-18:00 Mon-Fri
	Slovak Republic	00421-232162621	08:00-17:00 Mon-Fri
	Czech Republic	00420-596766888	08:00-17:00 Mon-Fri
	Switzerland-German	0041-848111010	09:00-18:00 Mon-Fri
	Switzerland-French	0041-848111014	09:00-18:00 Mon-Fri
	Switzerland-Italian	0041-848111012	09:00-18:00 Mon-Fri
	United Kingdom	+44-1442265548	09:00-17:00 Mon-Fri
	Ireland	0035-31890719918	09:00-17:00 Mon-Fri
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	Ukraine	0038-0445457727	09:00-18:00 Mon-Fri

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Asia-Pacific	Australia	1300-278788	09:00-18:00 Mon-Fri
	New Zealand	0800-278788	09:00-18:00 Mon-Fri
	Japan	0800-1232787	09:00-18:00 Mon-Fri 09:00-17:00 Sat-Sun
		0081-570783886 (Non-Toll Free)	09:00-18:00 Mon-Fri 09:00-17:00 Sat-Sun
	Korea	0082-215666868	09:30-17:00 Mon-Fri
	Thailand	0066-24011717 1800-8525201	09:00-18:00 Mon-Fri
	Singapore	0065-64157917 0065-67203835 (Repair Status Only)	11:00-19:00 Mon-Fri 11:00-19:00 Mon-Fri 11:00-13:00 Sat
	Malaysia	0060-320535077	10:00-19:00 Mon-Fri
	Philippine	1800-18550163	09:00-18:00 Mon-Fri
	India India(WL/NW)	1800-2090365	09:00-18:00 Mon-Sat 09:00-21:00 Mon-Sun
	Indonesia	0062-2129495000 500128 (Local Only)	09:30-17:00 Mon-Fri 9:30 – 12:00 Sat
	Vietnam	1900-555581	08:00-12:00 13:30-17:30 Mon-Sat
	Hong Kong	00852-35824770	10:00-19:00 Mon-Sat
Americas	USA Canada	1-812-282-2787	8:30-12:00 EST Mon-Fri 9:00-18:00 EST Sat-Sun
	Mexico	001-8008367847	08:00-20:00 CST Mon-Fri 08:00-15:00 CST Sat
Middle East + Africa	Egypt	800-2787349	09:00-18:00 Sun-Thu
	Saudi Arabia	800-1212787	09:00-18:00 Sat-Wed
	UAE	00971-42958941	09:00-18:00 Sun-Thu
	Turkey	0090-2165243000	09:00-18:00 Mon-Fri
	South Africa	0861-278772	08:00-17:00 Mon-Fri
	Israel	*6557/00972-39142800	08:00-17:00 Sun-Thu
		*9770/00972-35598555	08:30-17:30 Sun-Thu

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	Bulgaria	00359-70014411	09:30-18:30 Mon-Fri
		00359-29889170	09:30-18:00 Mon-Fri
	Croatia	00385-16401111	09:00-17:00 Mon-Fri
	Montenegro	00382-20608251	09:00-17:00 Mon-Fri
	Serbia	00381-112070677	09:00-17:00 Mon-Fri
	Slovenia	00368-59045400	08:00-16:00 Mon-Fri
		00368-59045401	
	Estonia	00372-6671796	09:00-18:00 Mon-Fri
	Latvia	00371-67408838	09:00-18:00 Mon-Fri
	Lithuania-Kaunas	00370-37329000	09:00-18:00 Mon-Fri
	Lithuania-Vilnius	00370-522101160	09:00-18:00 Mon-Fri

NOTE: For more information, visit the ASUS support site at:
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