ARRIS TG 3442
Touchstone TG3442S Telephony Gateway

User Guide

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Patent Notice

Protected under one or more of the following U.S. patents: *http://www.arris.com/legal*
Other patents pending.

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Chapter 1

Overview

Introduction

Get ready to experience the Internet's express lane! Whether you're checking out streaming media, downloading new software, checking your email, or talking with friends on the phone, the Touchstone TG3442S Telephony Gateway brings it all to you faster and more reliably. All while providing toll quality Voice over IP telephone service and both wired and wireless connectivity.

The Touchstone TG3442S Telephony Gateway provides four Ethernet connections for use as the hub of your home/office Local Area Network (LAN). The TG3442S also provides 802.11a/b/g/n/ac wireless connectivity for enhanced mobility and versatility. In addition, the TG3442S provides for up to two separate lines of telephone service and provides a USB host for external devices.

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Installation is simple and your service provider will provide assistance to you for any special requirements.

Get support

If you need assistance with your ARRIS product, please contact your service provider.

Safety Requirements

The ARRIS Telephony Gateway complies with the applicable requirements for performance, construction, labeling, and information when used as outlined below:

CAUTION
Potential equipment damage
Potential loss of service
Connecting the Telephony Gateway to existing telephone wiring should only be performed by a professional installer. Physical connections to the previous telephone provider must be removed and the wiring must be checked; there must not be any voltages. Cancelation of telephone service is not adequate. Failure to do so may result in loss of service and/or permanent damage to the Telephony Gateway.

CAUTION
Risk of shock
Mains voltages inside this unit. No user serviceable parts inside. Refer service to qualified personnel only!

- Only operate this device in the upright position. If the device is operated while it is lying down, or if the ventilation openings are blocked, the device could be permanently damaged, leading to diminished performance.
- The Telephony Gateway is designed to be connected directly to a telephone.
- Connecting the Telephony Gateway to the home's existing telephone wiring should only be performed by a professional installer.
- Do not use product near water (i.e. wet basement, bathtub, sink or near a swimming pool, etc.), to avoid risk of electrocution.
- Do not use the telephone to report a gas leak in the vicinity of the leak.
- The product shall be cleaned using only a damp, lint-free, cloth. No solvents or cleaning agents shall be used.
- Do not use spray cleaners or aerosols on the device.
- Avoid using and/or connecting the equipment during an electrical storm, to avoid risk of electrocution.
- Do not locate the equipment within 6 feet (1.9 m) of a flame or ignition source (i.e. heat registers, space heaters, fireplaces, etc.).
- Use only the AC power adapter (if provided) and power cord included with the equipment.
- Equipment should be installed near the power outlet and should be easily accessible.

- The shield of the coaxial cable must be connected to earth (grounded) at the entrance to the building in accordance with applicable national electrical installation codes. In the European Union and in certain other countries, CATV installation equipotential bonding requirements are specified in IEC 60728-11, *Cable networks for television signals, sound signals and interactive services*, Part 11: Safety. This equipment is intended to be installed in accordance with the requirements of IEC 60728-11 for safe operation.
- If the equipment is to be installed in an area serviced by an IT power line network, as is found in many areas of Norway, special attention should be given that the installation is in accordance with IEC 60728-11, in particular Annex B and Figure B.4.
- In areas of high surge events or poor grounding situations and areas prone to lightning strikes, additional surge protection may be required (i.e. PF11VNT3 from American Power Conversion) on the AC, RF, Ethernet and Phone lines.
- When the Telephony Gateway is connected to a local computer through Ethernet cables, the computer must be properly grounded to the building/residence AC ground network. All plug-in cards within the computer must be properly installed and grounded to the computer frame per the manufacturer's specifications.
- Ensure proper ventilation. Position the Telephony Gateway so that air flows freely around it and the ventilation holes on the unit are not blocked.
- Do not mount the Telephony Gateway on surfaces that are sensitive to heat and/or which may be damaged by the heat generated by the modem, its power supply, or other accessories.

European compliance

The full text of the EU declaration of conformity is available at the following internet address: *http://www.arris.com/consumers/eudoc*.
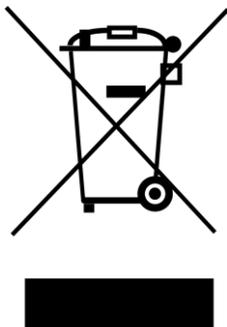
As indicated by this symbol, disposal of this product or battery is governed by Directive 2012/19/EU of the European Parliament and of the Council on waste electrical and electronic equipment (WEEE). WEEE could potentially prove harmful to the environment; as such, upon disposal of the Telephony Gateway the Directive requires that this product must not be disposed as unsorted municipal waste, but rather collected separately and disposed of in accordance with local WEEE ordinances.

Energy Consumption

In accordance with Ecodesign Directive 2009/125/EC, this device is equipped with a power switch. The following energy consumption figures apply (measured with a wattmeter at the outlet):

Switch State	Power Consumption
OFF	0.075 W
ON	17.0 W (idle) 24.0 W (typical)

Note: In most instances, ARRIS recommends that the power switch remain in the ON position at all times. Turning the switch OFF disables the device, including both data service (wireless and wired) and telephone service. Turning the switch OFF is recommended only during vacations or similar extended absences.

Disabling Wi-Fi

Wi-Fi is automatically enabled on your Telephony Gateway, but you can disable the Wi-Fi operation of your device in your home. If you choose to do so, please complete one the following steps:

1. Via the WebUI of your device, disable the Wi-Fi options.
2. If your service provider operates a community Wi-Fi service that might include your unit, please contact them to disable this service.

Or if you choose, you can simply press the Wi-Fi button on the front of your Telephony Gateway so that the Wi-Fi LED is no longer illuminated.

Wi-Fi can be enabled again by un-doing the foregoing steps.

Chapter 3

Get started

About your new Telephony Gateway

The TG3442S Telephony Gateway is DOCSIS compliant with the following features:

- Speed: much faster than dialup or ISDN service; up to twenty-four times faster than DOCSIS 3.0 cable modems.
- Convenience: supports Ethernet and 802.11a/b/g/n/ac wireless connections; both can be used simultaneously
- Flexibility: provides two independent lines of telephone service as well as high speed data
- Compatibility:

  - Data services: DOCSIS 3.1 compliant and backward-compatible with DOCSIS 3.0, 2.0, or 1.1; supports tiered data services (if offered by your service provider)
  - Telephony services: PacketCable™ 2.0 compliant; SIP and NCS

The TG3442S provides:

- Wireless 802.11a/b/g/n/ac connectivity
- Four Ethernet ports for connections to non-wireless devices
- Up to two lines of telephone service
- Compliancy with DOCSIS 3.1 specifications
- One USB host port

What's in the box

Make sure you have the following items before proceeding. Call your service provider for assistance if anything is missing.

- Telephony Gateway
- Power Adapter and Power Cord
- Ethernet Cable
- EULA (End-User License Agreement)

System requirements

The TG3442S Telephony Gateway operates with most computers. The following describes requirements for each operating system; see the documentation for your system for details on enabling and configuring networking.

To use the Telephony Gateway, you need DOCSIS high-speed Internet service from your service provider. Telephone service requires that the service provider has PacketCable support.

Recommended hardware

The following hardware configuration is recommended. Computers not meeting this configuration can still work with the TG3442S, but may not be able to make maximum use of TG3442S throughput:

- CPU: P4, 3GHz or faster.
- RAM: 1GB or greater.
- Hard drive: 7200 RPM or faster.
- Ethernet: Gig-E (1000BaseT).

Windows

Windows Vista, Windows 7, Windows 8, Windows 10, or Android OS (for mobile devices). A supported Ethernet or wireless LAN connection must be available.

macOS

System 7.5 to Mac OS 9.2 (Open Transport recommended), macOS X, or iOS (for mobile devices). A supported Ethernet or wireless LAN connection must be available.

Linux/Unix

Hardware drivers, TCP/IP, and DHCP must be enabled in the kernel. A supported Ethernet or wireless LAN connection must be available.

About this manual

This manual covers the Touchstone TG3442S Telephony Gateway.

What about security?

Having a high-speed, always-on connection to the Internet requires a certain amount of responsibility to other Internet users—including the need to maintain a reasonably secure system. While no system is 100% secure, you can use the following tips to enhance your system's security:

- Keep the operating system of your computer updated with the latest security patches. Run the system update utility at least weekly.
- Keep your email program updated with the latest security patches. In addition, avoid opening email containing attachments, or opening files sent through chat rooms, whenever possible.
- Install a virus checker and keep it updated.
- Avoid providing web or file-sharing services over your Telephony Gateway. Besides certain vulnerability problems, most service providers prohibit running servers on consumer-level accounts and may suspend your account for violating your terms of service.
- Use the service provider's mail servers for sending email.
- Avoid using proxy software unless you are certain that it is not open for abuse by other Internet users (some are shipped open by default). Criminals can take advantage of open proxies to hide their identity when breaking into other computers or sending spam. If you have an open proxy, your service provider may suspend your account to protect the rest of the network.
- The TG3442S ships with wireless LAN security set by default (for the same reasons that you should run only secured proxies). See the security label on your product for the factory security settings. If you need to modify the default wireless security settings, see Configuring Your Wireless Connection.

Ethernet or wireless?

There are two ways to connect your computer (or other equipment) to the Telephony Gateway. The following will help you decide which is best for you:

Ethernet

Ethernet is a standard method of connecting two or more computers into a Local Area Network (LAN). You can use the Ethernet connection if your computer has built-in Ethernet hardware.

Note: To connect more than four computers to the TG3442S through the Ethernet ports, you need an Ethernet hub (available at computer retailers).

The Telephony Gateway package comes with one 4-foot (1.2m) Ethernet cable (the connectors look like wide telephone connectors); you can purchase more cables if necessary at a computer retailer. If you are connecting the Telephony Gateway directly to a computer,

or to an Ethernet hub with a cross-over switch, ask for Category 5e (CAT5e) straight-through cable. CAT5e cable is required for gigabit Ethernet (Gig-E), not regular CAT5 cable.
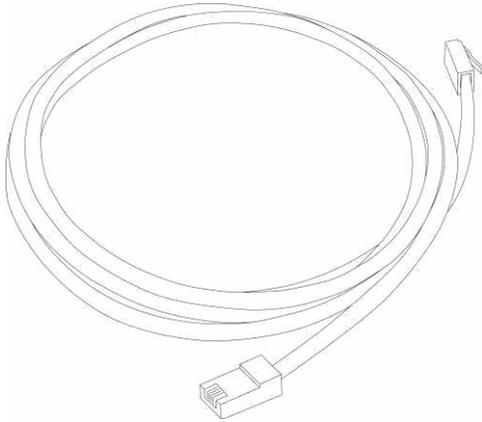
Wireless

Wireless access lets you connect additional (wireless-capable) devices to Telephony Gateway. The 802.11 wireless LAN standard allows one or more computers to access the TG3442S using a wireless (radio) signal. These connections are in addition to the connections supported via Ethernet. Please note the device SSID and Wi-Fi security key can be found on the label which is located underneath the TG3442S device.

Note: You can use the wireless connection if your computer has a built-in or aftermarket plug-in wireless adapter. To learn more about which wireless hardware works best with your computer, see your computer dealer.

Both

If you have two or more computers, you can use Ethernet for up to four devices and wireless for the others. To connect five or more computers to the Ethernet ports, you will need an Ethernet hub (available at computer retailers.)

Connect Your WPS-Enabled Wireless Device

You can use the Wi-Fi Protected Setup (WPS) button on the Telephony Gateway to connect your WPS-enabled wireless devices to your wireless network. WPS automatically assigns a random wireless network name (SSID) and Wi-Fi Security Key (password) to the TG3442S and other WPS-enabled wireless devices to connect to your wireless network. See for more information on setting up WPS on your wireless network.

Note: To use the WPS Pairing button option, your computer hardware must support WPS and also have WPA security compatibility.

1. Power ON the Telephony Gateway and your other WPS-enabled wireless devices that you want to connect to your wireless network.

2. Press and hold the WPS button located on the top of the TG3442S for five to 10 seconds and then release (see Product Overview for the Telephony Gateway front view).

3. If applicable, press the WPS button on your WPS-enabled computer or other WPS-enabled wireless device.

Repeat step 3 for each additional WPS-enabled wireless device that you want to connect to your wireless network.

# Install, connect and configure your Telephony Gateway

> ⚠️ **CAUTION**
> **Risk of equipment damage**
> Only qualified installation technicians should connect the Telephony Gateway to house wiring. Incumbent telephone service must be physically disconnected at the outside interface box before making any connections.

Front panel

The front of the TG3442S has the following indicators.
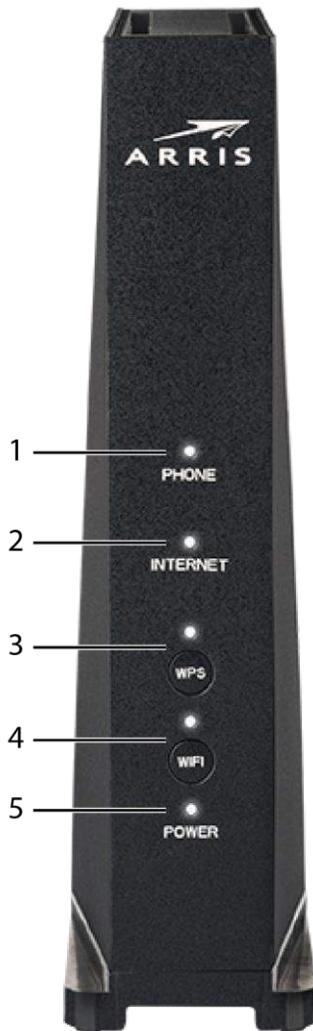
1. **Phone:** indicates the status of the telephone line.
2. **Internet:** indicates internet data transmission status.
3. **WPS button/LED:** begins associating the Telephony Gateway with a wireless device. The LED indicates that Wireless Protected Setup (WPS) is active.
4. **WiFi button/LED:** switches the wireless LAN on or off. The LED indicates the status of the wireless LAN.
5. **Power:** indicates whether power is available to the Telephony Gateway.

Important: When the LEDs sequence one by one to ON and OFF, the Telephony Gateway is performing a software update. Do not remove the mains power during this time.

Note: During normal operation, only the Phone, Internet, Power, and Wi-Fi lights will be lit.

Rear panel

The rear of the Telephony Gateway has the following connectors and controls.
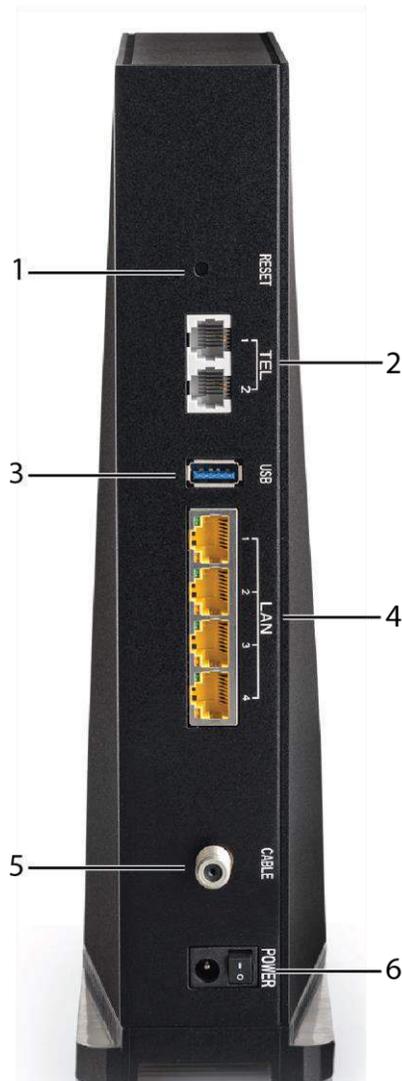
1. **Reset button:** resets the Telephony Gateway as if you power cycled the unit. Use a pointed non-metallic object to press this button.
2. **Tel (1 - 2):** connectors for phone lines.
3. **USB:** USB host connector - future support for external USB devices
4. **Ethernet (1 - 4):** connectors for use with a computer LAN port.
5. **Cable:** connector for the coaxial cable.

6. **Power:** connector for the power cord.

Access the configuration interface

Before you begin, you should set up the TG3442S as described in Install and connect your Telephony Gateway.

1. If security has been properly set up on your computer to access the wireless LAN on the TG3442S, use the connection utility for your operating system to connect to the wireless LAN using its network name (SSID).

2. If you cannot access the wireless LAN, you must first establish a wired Ethernet connection between your computer and the TG3442S.

3. Open a web browser and navigate to **http://192.168.0.1/** to access the wireless router setup.

   The Login screen appears.

Note: The configuration interface enters a username automatically. You will be able to choose a password the first time that you access the configuration interface.

4. Follow the instructions on the screen to enter a password

   The System Basic Setup screen appears.

Note: Most configuration parameters that you may want to set can be accessed on the System Basic Setup screen, including the security mode and setting a system password.

Web UI Login

ARRIS TG3442S uses a wizard to help end-users configure the device UI password and Wi-Fi Network (such as SSID, Security, etc). The below steps and UI pictures can help guide end-users to how setup the Wi-Fi Network.

This wizard provides recommendations towards the end-user on how to configure the New Password.

To proceeded, the end-user shall enter the code and press "Next Step". Please note the code as shown below is illustrative. Please enter the code as shown on the wizard of your own TG3442S device.

To configure the Wi-Fi network, complete the wizard below:

Next, click the "Next Step" button. The user can configure the TG3442S manually to a specific time zone or automatic. When set to automatic, the TG3442S will synchronize time and date automatically through the network.

Next, click on "Finish" and the home page UI will open which enables the end-user to login through the WebUI.

Parental Control (URL/Content filtering)

The TG3442S provides parental control capability by enabling the user to block content-based URL and or prohibit searches for specific Keywords. URL and keywords searches can be set permanently or be time based.

Edit Site to be Blocked

URL: http://facebook.com

Always Block?   No   **Yes**

Set Blocked Time

Start from: 12 ▾ 00 ▾ AM ▾

End on: 12 ▾ 00 ▾ AM ▾

Set Blocked Days   Select All | Select None

☐ Monday
☐ Tuesday
☐ Wednesday
☐ Thursday
☐ Friday
☐ Saturday
☐ Sunday

SAVE   CANCEL

Edit Site to be Blocked

URL: http://facebook.com

Always Block?   **No**   Yes

Set Blocked Time

Start from: 12 ▾ 00 ▾ AM ▾

End on: 4 ▾ 00 ▾ PM ▾

Set Blocked Days   Select All | Select None

☐ Monday
☑ Tuesday
☐ Wednesday
☑ Thursday
☐ Friday
☐ Saturday
☐ Sunday

SAVE   CANCEL

The examples below show how to block searches based on a specific keyword:

Add Keyword to be Blocked

Keyword: food

Always Block?   No   **Yes**

Set Blocked Time

Start from: 12 ▾ 00 ▾ AM ▾
End on: 11 ▾ 59 ▾ PM ▾

Set Blocked Days   Select All | Select None
☑ Monday
☑ Tuesday
☑ Wednesday
☑ Thursday
☑ Friday
☑ Saturday
☑ Sunday

SAVE   CANCEL

Add Keyword to be Blocked

Keyword: food

Always Block?   **No**   Yes

Set Blocked Time

Start from: 12 ▾ 00 ▾ AM ▾
End on: 2 ▾ 59 ▾ PM ▾

Set Blocked Days   Select All | Select None
☑ Monday
☐ Tuesday
☑ Wednesday
☐ Thursday
☑ Friday
☐ Saturday
☑ Sunday

SAVE   CANCEL

Port Forwarding

Port forwarding is an application of network address translation (NAT) that redirects a communication request from one address and port number combination to another while the packets are traversing a network gateway, such as the TG3442S. The examples as below show how port forwarding can be setup on the TG3442S.

Once the pre-defined or customized service (by setting a specific protocol port range) has been configured, the end-user should next physically connect the LAN device to the TG3442S port and click on "ADD" button.

NTP

TG3442S supports NTP (Network Time Protocol) which enables the TG3442S to synchronise time with a network based NTP source. Up to 3 timeservers can be configured.

UPnP

UPnP is networking functionality, often used by gamers and online gaming applications, which automatically opens or closes specific ports.

DMZ

DMZ is a physical or logical subnetwork that contains and exposes an organization's external-facing services to the Internet. The purpose of a DMZ is to add an additional layer of security to an organization's local area network (LAN). An external network can access those IPv4 or IPv6 hosts exposed in the DMZ, while the rest of the organization's network is firewalled.

Service/Mac Filtering

ARRIS TG3442S enables end-users to manage services and devices connected to the LAN Network.

Within the "Managed Devices" section of the UI end-users can allow or block broadband service for all or selective devices permanently or for a configurable time window.

Managed Devices

Managed Devices:	Enable Disable
Access Type:	Allow All Block All

Blocked Devices   +ADD BLOCKED DEVICE

Device Name	MAC Address	When Blocked

Add Device to be Blocked

Set Blocked Device

Auto-Learned Devices:

Device Name	MAC Address
○ ARRIS_VAP4402	0c:ea:c9:e1:09:3e
○ SAL-CY9X262	AC:FD:CE:E6:54:A6

Custom Device:

Device Name	MAC Address
⦿	

Always Block?:   No **Yes**

Set Blocked Time

Start from: 12 ▾   00 ▾   AM ▾

End on: 11 ▾   59 ▾   PM ▾

Set Blocked Days   Select All | Select None

☑ Monday
☑ Tuesday
☑ Wednesday
☑ Thursday
☑ Friday
☑ Saturday
☑ Sunday

SAVE   CANCEL

LAN Configuration

This section outlines how to configure the DHCP Server IPv4 and IPv6 configuration. In includes IP subnet range, default GW and DNS server IP address configurations.

IPv6

Link-Local Gateway Address: fe80 : 0 : 0 : 0 : 361f : e4ff : fedc : dc0f

Global Gateway Address: ⬚ : ⬚ : ⬚ : ⬚ : ⬚ : ⬚ : ⬚ : ⬚

LAN IPv6 Address Assignment

☑ Stateless (Auto-Config) ☑ Stateful (Use DHCP Server)

DHCPv6 Beginning Address: ⬚ : 0 : 0 : 0 : 0 : 0 : 0 : 0002 / 64

DHCPv6 Ending Address: ⬚ : 0 : 0 : 0 : 0 : 0 : 0 : fffe / 64

DHCP Lease Time: 1 Weeks ▼

Enable DNS Relay: ☑ Enabled

LAN DNS: ⦿ Obtained automatically ○ Statically configured

Primary DNS Server: ⬚ ⬚ ⬚ ⬚ ⬚ ⬚ ⬚ ⬚

Secondary DNS Server: ⬚ ⬚ ⬚ ⬚ ⬚ ⬚ ⬚ ⬚

SAVE SETTINGS

The TG3442S supports the option to limit the LAN port connection speed and duplex mode.

Dynamic DNS

One common feature is Dynamic DNS. ARRIS TG3442S supports both a pre-defined list of DynDNS servers and enables users to configure a customized DNS hostname.

Factors that affect wireless range

Several factors can affect the usable range for wireless connections.

Increases range	■ Raising the unit above the devices (for example, installing the Telephony Gateway in the upper floor of a multi-story dwelling)
	■ Adding a wireless extender to the network
Decreases range	■ Lowering the unit below the devices (for example, installing the Telephony Gateway in a basement)
	■ Metal or concrete walls between the Telephony Gateway and other devices
	■ Large metal appliances, aquariums, or metal cabinets between the Telephony Gateway and other devices
	■ Interference and RF noise (2.4 GHz wireless phones, microwave ovens, or other wireless networks)

Note: Note that decreasing the range of your wireless network may be beneficial, as long as the decreased range is sufficient for your needs. By limiting your network's range, you reduce interference with other networks and make it harder for unwanted users to find and connect to your network.

Note: Setting the transmit power level to High increases the range. Setting it to Medium or Low decreases the range proportionately.

Configuring your wireless connection

The TG3442S ships with wireless LAN security set by default. See the security label on your product for the factory security settings.

Note: You must set up your computer and other client devices to work with the security settings on the TG3442S. Refer to the documentation for your client device for instructions on setting security. On most computer systems you only need to select the network name (SSID) device and enter the encryption key.

If you need to modify the Telephony Gateway's default wireless security settings, or if you want to configure any other wireless LAN settings, refer to the following instructions.

Configure your Ethernet connection

If your computer has a LAN card that provides an Ethernet connection, you may have to configure your computer's TCP/IP settings. The following steps will guide you through setting your computer's TCP/IP settings to work with the Telephony Gateway.

Requirements

Make sure you have the following before attempting to configure your Ethernet connection:

- Computer with Ethernet interface.
- Ethernet cable (supplied).
- IP address, subnet, gateway, and DNS information for installations not using DHCP.

How to use this section

The following list shows the procedures for modifying the TCP/IP settings on the computer. The procedure is slightly different depending on the operating system that you are using. Please ensure you are using the correct steps for the operating system on your computer. Follow the links below for instructions to configure your Ethernet connection on your operating system.

- *Configure TCP/IP for Windows Vista* (page 36)
- *Configure TCP/IP for Windows 7, Windows 8, or Windows 10* (page 37)
- *Configure TCP/IP for macOS* (page 37)

Configure TCP/IP for Windows Vista

1. Open the Vista Control Panel.
2. Double-click **Network and Sharing Center** to display the Network and Sharing Center Window.
3. Click **Manage network connections**. If prompted for a connection, choose **Local Area Connection**.

   The Network Connections window appears.
4. Double-click the **Local Area Connection** to open the Properties window:

Note: If Windows requests permission to continue, click **Continue**.

5. Double-click **Internet Protocol Version 4 (TCP/IPv4)** to configure TCP/IPv4.

Note: If your service provider requires TCP/IP version 6, double-click **Internet Protocol Version 6 (TCP/IPv6)** to configure TCP/IPv6.

The TCP/IP properties window for the version you selected appears.

6. For either TCP/IPv4 or TCP/IPv6, select **Obtain an IP address automatically** and **Obtain DNS server address automatically**, unless instructed otherwise by your service provider.

7. Click **OK** to accept the new settings and close the Properties window.

Configure TCP/IP for Windows 7, Windows 8, or Windows 10

1. Click the **Start** menu and type **network and sharing** into the Search box.

2. Select **Network and Sharing Center** when it appears.

3. Click **Change adapter settings** from the left-side menu.

4. Right-click on your local area connection icon and select **Properties** to open the Properties window.

5. Select **Internet Protocol Version 4 (TCP/IPv4)** and click **Properties** to configure TCP/IPv4.

Note: If your service provider requires TCP/IP version 6, select **Internet Protocol Version 6 (TCP/IPv6)** and click **Properties** to configure TCP/IPv6.

The TCP/IP properties window for the version you selected appears.

6. For either TCP/IPv4 or TCP/IPv6, select **Obtain an IP address automatically** and **Obtain DNS server address automatically**, unless instructed otherwise by your service provider.

7. Click **OK** to accept the new settings and close the Properties window. Then click **Close** to back out of the remaining setup screens.

Configure TCP/IP for macOS

1. Open System Preferences, either by choosing **System Preferences** from the Apple menu or by clicking the System Preferences icon in the dock.

2. Click the **Network** icon.

3. Choose **Automatic** from the Location drop-down menu, and **Built-in Ethernet** from the Show menu.

4. Choose the TCP/IP tab, if necessary.

   If you are using **TCP/IPv4**, go to **step 5**.
   If your service provider requires **TCP/IPv6**, go to **step 8**.

5. Choose **Using DHCP** from the Configure IPv4 menu.

6. If necessary, click the **Renew DHCP Lease** button.

7. Close the System Properties application.

   TCP/IPv4 configuration is completed.

8. If you are using TCP/IPv6, click **Configure IPv6** near the bottom of the previous window.

9. Choose **Automatically** from the Configure IPv6 drop-down menu and click **OK**.

10. Close the System Properties application.

Operate the Telephony Gateway

This chapter describes the controls and features available on the Telephony Gateway and covers basic troubleshooting procedures.

- *Set up your computer to use the Telephony Gateway* (page 39)
- *Indicator Lights for the TG3442S* (page 39)
- *Using the Reset Button* (page 40)
- *Resetting the Telephony Gateway to factory defaults* (page 40)

Set up your computer to use the Telephony Gateway

- Follow the instructions in the information packet supplied by your service provider. Contact your service provider if you need help setting up your computer.

Indicator Lights for the TG3442S

The Telephony Gateway has LED indicator lights to assist in troubleshooting.

Phone LED

The following table shows light patterns for the Phone LED during normal operation.

Event	LED Status
Telephony was registered	White (steady)
Telephony registration in process	Red (slow blink)
Telephone set is off-hook (phone call in progress)	White (slow blink)
Telephony failed to register	Red (steady)

Internet LED

The following table shows light patterns for the Internet LED during normal operation.

Event	LED Status
Downstream scanning in process	Red (slow blink)
Upstream ranging in process	Red (fast blink)
Ranging completed; registration in process	White (slow blink)
Cable modem was successfully registered	White (steady)
Cable modem failed to register	Red (steady)

WPS LED

The following table shows light patterns for the WPS LED during normal operation.

Event	LED Status
WiFi switched off	Off
Synchronizing WPS	White (fast blink)

WiFi LED

The following table shows light patterns for the WiFi LED during normal operation.

Event	LED Status
WiFi switched off	Off
WiFi switched on	White (Steady)
WiFi data is being transmitted	White (blinking)
WiFi disabled due to scheduling	Off

Power LED

The following table shows light patterns for the Power LED during normal operation.

Event	LED Status
Telephony Gateway is booting up	White (slow blink)
Telephony Gateway has booted up successfully	White (steady)
Telephony Gateway failed to boot up	Red and white (flashing)

Troubleshooting

The Telephony Gateway is plugged in, but the power light is off

Check all power connections. Is the power cord plugged in firmly at both ends?

If you plugged the power cord into a power strip, make sure the strip is switched on.

Try to plug the power cord into a different outlet. If the outlet is controlled by a wall switch, make sure the switch is on.

Finally, check the fuse or circuit breaker panel.

I'm not getting on the Internet (all connections)

It may take over 30 minutes to establish a connection the first time you power up your Telephony Gateway, especially when many people are online. Always leave your Telephony Gateway plugged into AC power and connected to the cable system.

Check the front panel lights:

- The **Power** and **Online** lights should be on.
- If the **Power** light blinks for more than 30 minutes, call your service provider for assistance.

Check your cable connections. Connectors should be tight. The coax cable should not be pinched, kinked, or bent sharply—any of these can cause a break or short in the cable (you may have to replace the cable). If you have one or more splitters between the Telephony Gateway and CATV outlet, remove the splitters and connect the Telephony Gateway directly to the outlet.

Proceed to the Ethernet or wireless solutions if necessary.

I'm not getting on the Internet (Ethernet)

If you are using a hub, is the hub turned on?

Are you using the right type of Ethernet cable? Use the supplied cable for direct connection to a computer; use a cross-over cable for connection to a hub.

Press the **Reset** button on the back of the Telephony Gateway.

A misconfiguration could lock out all access to the Telephony Gateway router. If you think this has happened, see *Resetting the Telephony Gateway to factory defaults* (page 40).

I'm not getting on the Internet (wireless)

Check the indicator lights, see *Operate the Telephony Gateway* (page 39) — the Wi-Fi light should be on.

Does your connection utility discover your wireless LAN? If you turned off "Broadcast SSID" you need to manually enter the name of your wireless LAN in the connection utility.

Change your security mode to "disabled". Enable one of the other security modes as soon as you find the problem.

A misconfiguration could lock out all access to the Telephony Gateway router. If you think this has happened, see *Resetting the Telephony Gateway to factory defaults* (page 40).

My wireless Internet connection stops working occasionally

This is usually caused by interference. Two common sources are 2.4GHz "remote" telephones and microwave ovens. If you cannot remove the interfering product, try using a different channel or setting Protected Mode. In the UI page you can start a Wifi Scanning to see if there is many other Wifi NWs in the same channel. If this is the case ARRIS recommends changing it manually for a cleaner one.

Wi-Fi Spectrum Analyzer Data							
Band	**Channel**	**MAC**	**SSID**	**Signal Level**	**Mode**	**Security**	**MaxR**
2.4GHz	1	D8:38:FC:2B:6A:A8	HIE Johns Creek	-53 dBm	b,,,g,,,n	OPEN	
		D8:38:FC:2B:3E:68	HIE Johns Creek	-67 dBm	b,,,g,,,n	OPEN	
	6	00:71:C2:F8:B9:10	CBCI-2257-2.4	-69 dBm	b,,,g,,,n	WPAPSKWPA2PSK	9,18
		8C:0F:6F:BE:80:68	PMSMED	-90 dBm	b,,,g,,,n	WPAPSKWPA2PSK	9,18
		FA:DA:0C:43:DC:DE	DIRECT-de-HP M452 LaserJet	-88 dBm	g,,,n	WPA2PSK	9,18,3
		88:AD:43:CC:FE:A8	opsga-2.4	-82 dBm	b,,,g,,,n	WPAPSKWPA2PSK	9,18
		D8:38:FC:2B:5F:08	HIE Johns Creek	-48 dBm	b,,,g,,,n	OPEN	
		88:AD:43:CC:FE:A9	SSID2-2.4	-82 dBm	b,,,g,,,n	OPEN	9,18
	7	D8:38:FC:2B:4C:D8	HIE Johns Creek	-89 dBm	b,,,g,,,n	OPEN	
	8	D8:38:FC:2B:64:D8	HIE Johns Creek	-87 dBm	b,,,g,,,n	OPEN	
	9	D8:38:FC:2B:3D:C8	HIE Johns Creek	-54 dBm	b,,,g,,,n	OPEN	

I can get on the Internet, but everything is slow

If the website you are visiting is very popular, that site may be having trouble servicing all the requests. If other sites download quickly, wait for a few minutes and try again. Usage during peak hours may also affect the connection speed.

Other communications on the LAN, or interference with wireless connections, may slow down the connection.

Using the TG3442S UI for Debugging Issues

The TG3442S UI supports troubleshooting capability when experiencing Internet connectivity issues using network diagnostics tools such as Ping and Traceroute. These features enable the user to locate the cause of the issue (residing with the TG3442S Home Gateway or service provider network).

Some examples:

Different network service and interface functions of the TG3442S can be restarted by the user within the "Restart/Restore" UI:

No Dial Tone

In order for telephone service to be functional on the Telephony Gateway, telephone service must have been purchased from the service provider and configured on your Telephony Gateway. The following steps should help in identifying the source of the problem.

1. Is the Power LED lit?

   - If not, check to make sure the Telephony Gateway is plugged in and the outlet has power. Use only the external AC power adapter (if provided) and power cord included with the equipment.
   - If the LED is lit, go to the next step.

2. Is the Internet LED lit?

   - If not, check the coax connection at the Telephony Gateway and the wall. Ensure they are connected and tight. If they are and you do not have dial tone, contact your service provider.
   - If the Online LED is lit, go to the next step.

3. Is the Phone LED lit?

   - If not, phone service has not been set up on that line. Contact your service provider.
   - If it is blinking, there is a phone off hook somewhere in the house. Find that phone and hang it up.
   - If it is lit, go to the next step.

4. Is the phone plugged directly into the Telephony Gateway?

    - Make sure the phone is plugged into the port on the back of the Telephony Gateway labeled "Tel 1" for line 1, and "Tel 2" for line 2.
    - If so, try a different phone. Make sure the new phone is a working phone.
    - If a known good phone is used and you still don't have dial tone, try a different phone cable. If a new phone and cable do not restore dial tone, call your service provider.

5. Is the Telephony Gateway plugged into a wall outlet?

    - If so, unplug the phone connector at the back of the Telephony Gateway and plug in a known working phone. If you now have dial tone, the problem is with the house wiring. Contact your service provider or a qualified wiring technician to correct the house wiring. If you still do not have dial tone, contact your service provider.

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Glossary

A

Amp-Hour

A measure of battery capacity. For example, a 1.0Ah battery can nominally supply one Ampere of current for one hour.

C

Category 5e (Cat5e)

A high-quality type of cable, used for gigabit Ethernet (1000BaseT) connections. When purchasing Ethernet cables, always look for Category 5e cable or higher.

Coaxial cable (coax)

A thin wire, used to connect your television and Telephony Gateway to the cable TV system. You can buy coax from any electronics retailer and many discount stores.

CPE

Customer Premise Equipment. This is the equipment that is plugged in to the Telephony Gateway; typically a computer or hub.

Cross-over

An Ethernet cable used to connect two hubs (or a hub and a cable modem) together. Also, some Ethernet hubs may have built-in cross-over on one or more ports (which eliminates the need for a cross-over cable).

D

DHCP

Dynamic Host Configuration Protocol. An IP protocol used to provide an IP address and location of services (such as DNS and TFTP) needed by a device connecting to the network. DHCP allows the service provider to configure your computer's networking software for you.

DNS

Domain Name Service (Server). An IP service that associates a domain name (such as www.example.com) with an IP address.

DOCSIS

Data Over Cable System Interface Specification. The interoperability standards used for data communications equipment on an HFC network.

Downstream

In an HFC network, the direction from the head-end to the subscriber. Some older cable documentation may refer to this as the forward path.

E

EMTA

Embedded Multimedia Terminal Adapter. An MTA device that is integrated with a cable modem.

Ethernet

A standard method of connecting two or more computers into a Local Area Network (LAN).

EuroDOCSIS

The European version of DOCSIS.

Event

An informational message used for monitoring network status.

F

F-connector

The type of connector used on coax cable. There are two common types of F-connector, slip-on and screw-on. Use coax with screw-on connectors for connecting your Telephony Gateway.

Firewall

A hardware or software device that prevents unauthorized access to a private network from the Internet. The TG3442S provides a built-in firewall.

G

Gateway

The device, usually a router, that connects devices on a given IP subnet to other IP subnets.

H

Headend

The "central office" in an HFC network. The headend houses both video and data equipment. In larger cable networks, a "master" headend often feeds several "remote" headends to provide distributed services.

HTTP

HyperText Transfer Protocol.

Hub

A box with several Ethernet connectors. Ethernet hubs provide a common point of contact for all connected devices.

I

IP address

A number assigned to your computer by your service provider, used to identify your computer to other systems on the Internet.

ISDN

Integrated Services Digital Network. A digital telephony standard that provides communication speeds about twice as fast as standard dialup.

L

LAN

Local Area Network. A network that allows computers in a single location (such as a building) to communicate with one another.

LED

Light Emitting Diode. A semi-conductor diode that emits light when current is passed through it.

M

MAC address

A number that uniquely identifies any device connected to a network. Your service provider uses your Telephony Gateway's MAC address to authorize access to the Internet. The MAC address is

printed on a label affixed to your
Telephony Gateway.

P

Protocol

A set of rules and formats that determines
the communication behavior of network
entities at a given layer.

Proxy

A device or program that stands in
between a server (for example, a web site)
and a client (your browser), providing a
way to relieve some of the burden from
the server. For example, your service
provider may have a web proxy that keeps
copies of popular web pages; the proxy can
send you those pages instead of fetching
them directly from the web site, resulting
in faster page loading and less network
congestion.

R

RF

Abbreviation for Radio Frequency. Some
literature refers to coax as "RF cable" and
the connectors as "RF connectors."

RJ-11

A standard 2-conductor modular
connector, commonly used in North
America for connecting telephones.

RJ-45

A standard 8-conductor modular
connector, commonly used on Ethernet
cable. An RJ-45 connector looks like a wide
RJ-11 (telephone) connector.

S

Splitter

A small box with three cable connectors:
one input and two outputs. You may need
a splitter if you have a TV already
connected to the cable outlet that you
want to use for your Telephony Gateway.
You can buy a splitter from any electronics
retailer and most discount stores.

SSID

Service Set IDentifier. A string of text (up to
32 characters long) that uniquely identifies
a wireless LAN.

Switched outlet

A power outlet that may be turned on and
off using a wall switch. Usually intended
for lamps. Avoid plugging your computer
or Telephony Gateway into a switched
outlet to avoid disruptions.

T

TCP/IP

Transmission Control Protocol/Internet
Protocol. The protocols used to facilitate
communications across one or more
connected networks.

TDMA

Time Division Multiple Access. A method
used by DOCSIS-compliant cable modems
for sending upstream data with minimal
interference.

U

Upstream

The path from a subscriber device to the
headend. Some older cable documentation
may refer to this as the return path or
reverse path.

W

WEP

Wired Equivalent Privacy. A common standard for encrypting data sent over a wireless LAN.

WPA

Wi-fi Protected Access. A standard for encrypting data sent over a wireless LAN. WPA offers improved security over WEP.