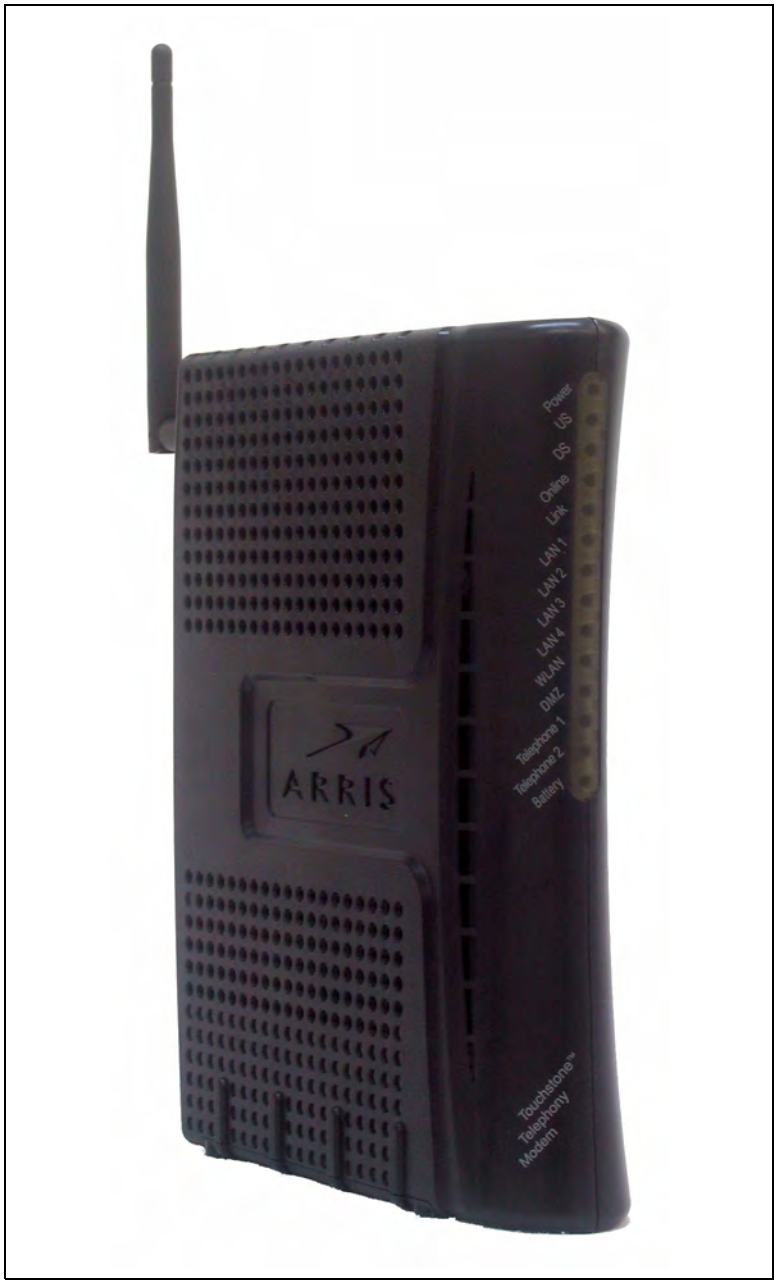
ARRIS



Touchstone® WTM552 Telephony Modem User's Guide

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 WTM552 Telephony Modem 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. Some models even provide a Lithium-Ion battery backup to provide continued telephone service during power outages.

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

Installation is simple and your cable company will provide assistance to you for any special requirements. The links below provide more detailed instructions.

Export Regulations

This product may not be exported outside the U.S. and Canada without U.S. Department of Commerce, Bureau of Export Administration authorization. Any export or re-export by the purchaser, directly or indirectly, in contravention of U.S. Export Administration Regulation is prohibited.

Release 5 Standard 1.1 April 2007

Safety Requirements

ARRIS Telephony Modems comply 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 Modem 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. Cancellation of telephone service is not adequate. Failure to do so may result in loss of service and/or permanent damage to the Telephony Modem.

CAUTION

Potential equipment damage

Do not locate the equipment within 6 feet (1.9m) of a flame or ignition source (e.g. heat registers, space heaters, fireplaces, etc.), to avoid damage or injury from battery explosion.

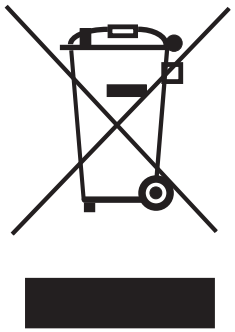
- The Telephony Modem is designed to be connected directly to a telephone.
- Connecting the Telephony Modem to the home's existing telephone wiring should only be performed by a professional installer.
- Do not use product near water (i.e. wet basement, bathtub, sink or near a swimming pool, etc.), to avoid risk of electrocution.
- Avoid using and/or connecting the equipment during an electrical storm, to avoid risk of electrocution.
- Use only power supply 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 U.S., this is required by NFPA 70 (National Electrical Code) Article 820. 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 Modem is connected to a local computer through USB or 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.

European Compliance

This product complies with the provisions of the Electromagnetic Compatibility (EMC) Directive (89/336/EEC), the Amending Directive (92/31/EEC), the Low Voltage Directive (73/23/EEC), and the CE Marking Directive (93/68/EEC). As such, this product bears the CE marking in accordance with the above applicable Directive(s).

A copy of the Declaration of Conformity may be obtained from: ARRIS International, Inc., 3871 Lakefield Drive, Suite 300, Suwanee, GA 30024.



As indicated by this symbol, disposal of this product or battery is governed by Directive 2002/96/EC 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 Modem 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.

This product complies with directive 2002/95/EC of the European Parliament and of the Council of 27 January 2003 on the restriction of the use of certain hazardous substances (RoHS) in electrical and electronic equipment.

ARRIS
RoHS Compliant
GREEN

Getting Started

About Your New Telephony Modem

The Touchstone WTM552 Telephony Modem is DOCSIS or Euro-DOCSIS compliant with the following features:

- Speed: much faster than dialup or ISDN service
- Convenience: supports Ethernet and 802.11b/g wireless connections; both can be used simultaneously
- Flexibility: provides two independent lines of telephone service as well as high speed data
- Compatibility: supports tiered data services (if offered by your cable company)

All WTM552 models provide:

- Wireless 802.11b/g connectivity
- Four Ethernet ports for connections to non-wireless devices
- Up to two lines of telephone service

Your WTM552 model is one of the following:

- WTM552A: DOCSIS compliant
- WTM552B: Euro-DOCSIS compliant
- WTM552G: DOCSIS compliant with Li-Ion backup battery
- WTM552H: Euro-DOCSIS compliant with Li-Ion backup battery

What's in the Box?

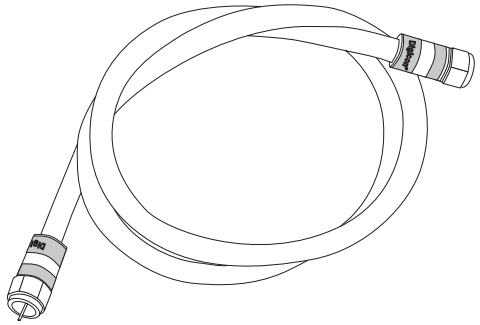
Make sure you have the following items before proceeding. Call your cable company for assistance if anything is missing.

- Telephony Modem
- Antenna
- Power Cord
- Quick Installation Guide
- Ethernet Cable
- CD-ROM
- Screws for wall-mounting the unit
- End User License Agreement

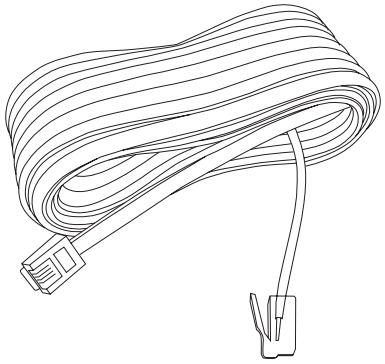
What's on the CD?

The CD provides the following items:

- Quick Install Guide
- User's Guide



Coax Cable



Phone Cable

Items You Need

If you are installing the Telephony Modem yourself, make sure you have the following items on hand before continuing:

- **Telephony modem package**: see What's in the Box? for a list of items in the package.
- **Coaxial cable (coax)**: as shown in the image to the left, this is a thin cable with a connector on each end. It is the same kind of wire used to connect to your television for cable TV. You can buy coax from any electronics retailer and many discount stores; make sure it has connectors on both ends. There are two types of connectors, slip-on and screw-on; the screw-on connectors are best for use with your Telephony Modem. The coax should be long enough to reach from your Telephony Modem to the nearest cable outlet.
- **Phone Cable**: as shown in the image to the left, this is a standard phone cable with standard phone connectors (RJ11 type) on both ends. You can buy phone cables from any electronics retailer and many discount stores.
- **Splitter (optional)**: provides an extra cable connection by splitting a single outlet into two. You may need a splitter if you have a TV already connected to the cable outlet that you want to use. You can buy a splitter from any electronics retailer and most discount stores; you may also need a short piece of coax cable (with connectors); use it to connect the splitter to the cable outlet and then connect the Telephony Modem and TV to the splitter.

  Note: A splitter effectively cuts the signal in half and sends each half to its two outputs. Using several splitters in a line may deteriorate the quality of your television, telephone, and/or internet connection.
- **Information packet**: your cable company should furnish you with a packet containing information about your service and how to set it up. Read this information carefully and contact your cable company if you have any questions.

Getting Service

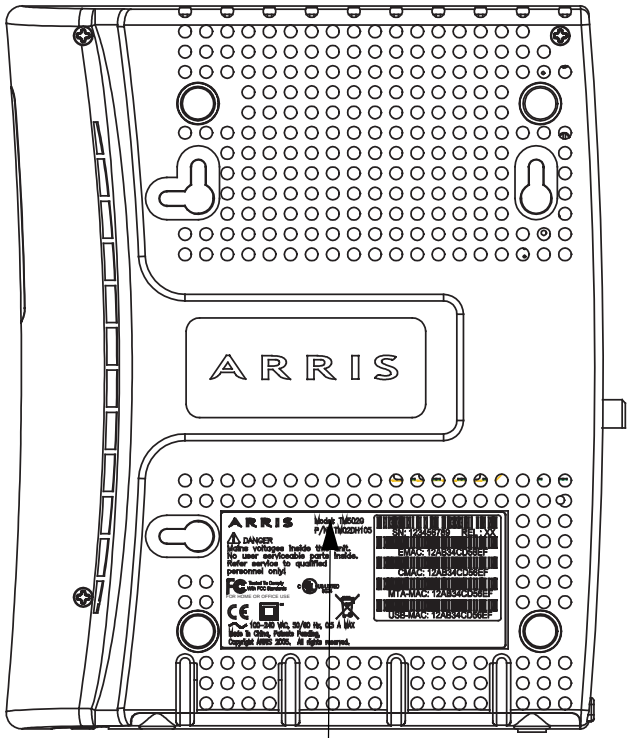
Before trying to use your new Telephony Modem, contact your local cable company to establish an Internet account and telephone service. When you call, have the following information ready:

- the Telephony Modem serial number and cable MAC addresses of the unit (printed on a sticker on the bottom of the Telephony Modem, as shown on the next page)
- the model number of the Telephony Modem

If the Telephony Modem was provided by your cable company, they already have the required information.

In addition, you should ask your cable company the following questions:

- Do you have any special system requirements or files that I need to download after I am connected?
- When can I start using my Telephony Modem?
- Do I need a user ID or password to access the Internet or my e-mail?
- Will my phone number(s) change?
- What new calling features will I have and how do I use them?



Model Number

System Requirements

The Touchstone Telephony Modem 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 Modem, you need DOCSIS high-speed Internet service from your cable company.

Windows

Windows 95, Windows 98, Windows 98 SE (Second Edition), Windows ME, Windows 2000, or Windows XP. A supported Ethernet or wireless LAN connection must be available.

MacOS

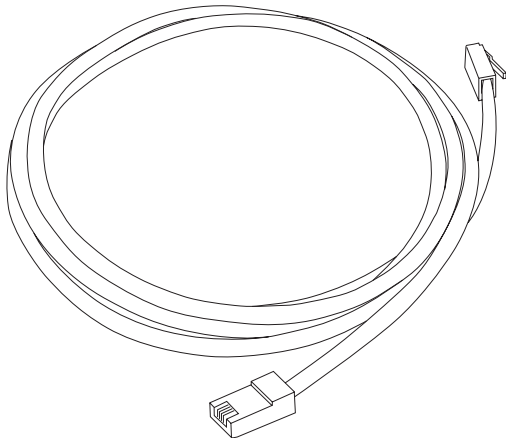
System 7.5 to MacOS 9.2 (Open Transport recommended) or MacOS X. A supported Ethernet or wireless LAN connection must be available.

Linux/other 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 is written to cover all of the different WTM552 models. Your model may or may not have all of the capabilities outlined in this manual. To determine which model you have purchased, refer to the image at the left. The model number is on the label affixed to the Telephony Modem.



Ethernet Cable

Ethernet or Wireless?

There are two ways to connect your computer (or other equipment) to the Telephony Modem. 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 WTM552 through the Ethernet ports, you will need an Ethernet hub (available at computer retailers).

The Telephony Modem package comes with one 6-foot (1.9m) 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 Modem directly to a computer, or to an Ethernet hub with a cross-over switch, ask for Category 5 (CAT5) straight-through cable. If you are connecting the Telephony Modem to an Ethernet hub without a crossover switch, ask for a Category 5 crossover cable.

Wireless

The 802.11 wireless LAN standard allows one or more computers to access the WTM552 using a wireless (radio) signal. You can use the wireless connection if your computer has a built-in or aftermarket wireless card.

Note: 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 others. To connect five or more computers to the Ethernet ports, you will need an Ethernet hub (available at computer retailers).

For more information about connecting two or more computers, contact your cable service provider.

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 your operating system 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 Modem. Besides certain vulnerability problems, most cable companies prohibit running servers on consumer-level accounts and may suspend your account for violating your terms of service.
- Use the cable company'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 cable company may suspend your account to protect the rest of the network.
- If you use the wireless LAN, make sure you enable wireless security on the Telephony Modem (for the same reasons that you should run only secured proxies). See "Wireless Configuration" for help.

Battery Installation and Replacement (WTM552G/H Models Only)

2.2 Ah Battery

4.4 Ah Battery

WTM552G and WTM552H Telephony Modems may optionally include one of two types of Lithium-Ion batteries: a 2.2 Amp-hour (Ah) battery or a 4.4 Ah battery. For safety and regulatory purposes, the battery is shipped outside of the Telephony Modem and must be installed.

Identify the battery type using the photos to the left and use the proper installation procedure:

- 2.2 Ah Battery Installation and Replacement
- 4.4 Ah Battery Installation and Replacement

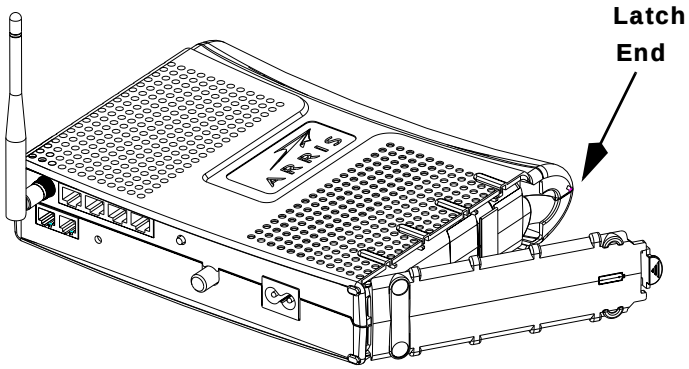
Note: The 4.4 Ah battery is longer and has a strap between the guides.

To order new or replacement batteries, visit http://www.yourbroadbandstore.com/. Product IDs are:

- 2.2 Ah battery: 718003
- 4.4 Ah battery: 718005

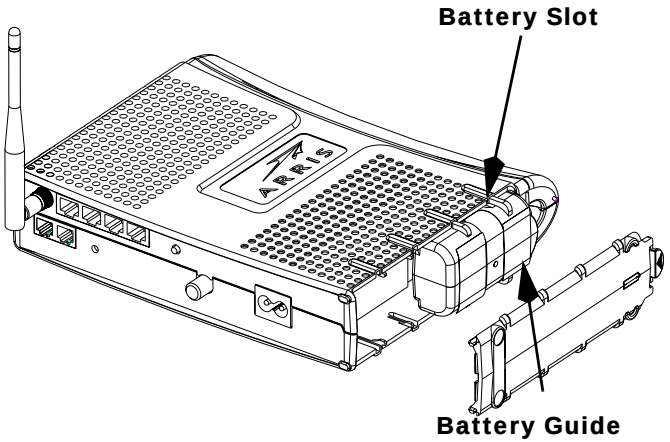
2.2 Ah Battery Installation and Replacement

This model of the Telephony Modem has the ability to provide battery backup in the event of a local power loss. The battery backup is not intended to take the place of AC power. The 2.2Ah Lithium-Ion battery pack can be inserted into the Telephony Modem. Use this procedure to install and to replace the backup battery.

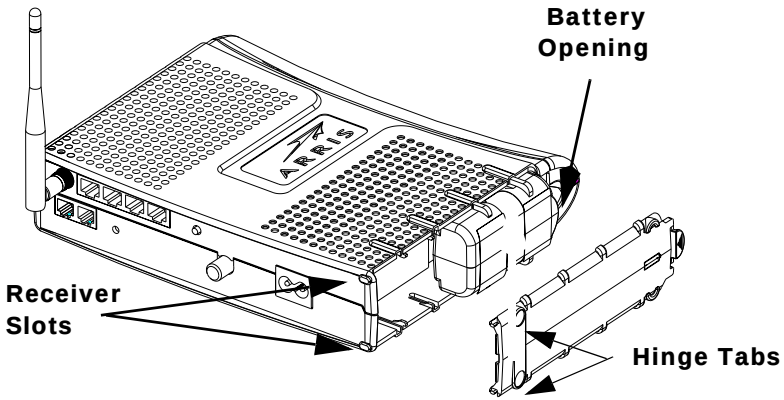


Action

1 Insert a finger into the latch opening, press down and pull back on the latch holding the battery door (on the bottom of the Telephony Modem). Pull the door toward you. Set the door aside in a safe place.

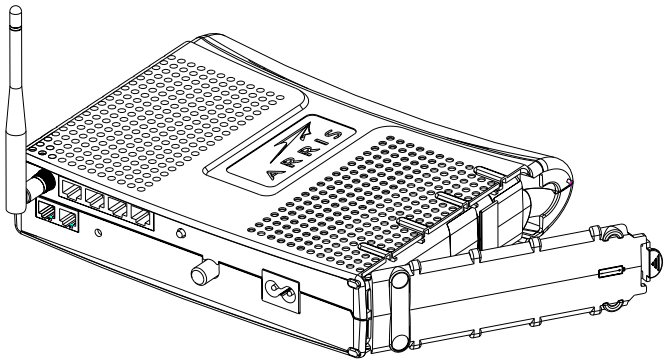


2 Hold the battery pack so that the guides on the battery align with the slots on the Telephony Modem and slide the battery into the bay. The diagram on the left shows the proper orientation. The battery will not insert completely into the Telephony Modem if not oriented correctly.



3 Push the battery pack into the bay until it seats into place. The following diagram shows a Telephony Modem with a 2.2Ah battery pack installed. **If you are taking the battery out of the unit, position your finger in the battery opening area and use leverage to dislodge the battery while pulling it straight back.**

Note: The Telephony Modem will not begin operating until you apply AC power.

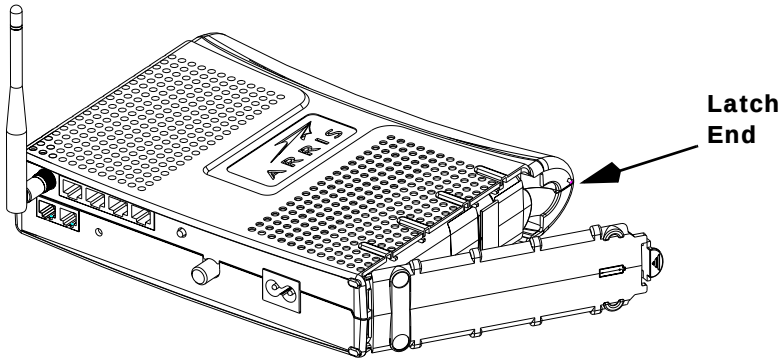


4 Replace the door. To do so, place the hinge tabs of the battery door into the receiver slots inside the Telephony Modem battery compartment on the opposite end of the battery opening slot. Rotate the door toward the unit until the latch snaps back into place.

Note: The Lithium-Ion battery pack contains precious material, so there may be some benefit in recycling. Please dispose of the battery responsibly and in accordance with local ordinances.

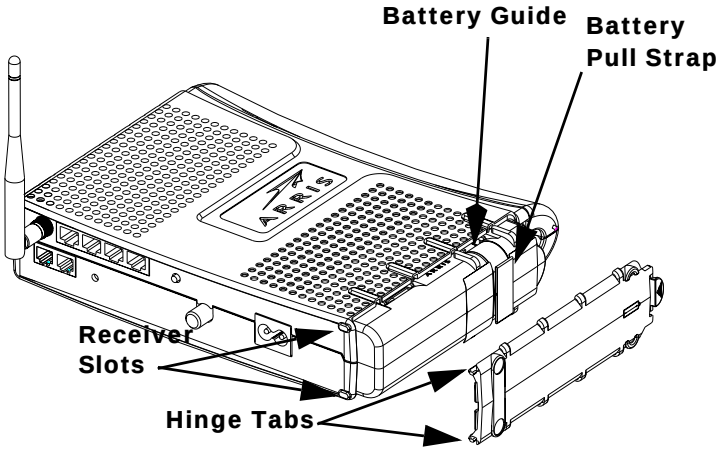
4.4 Ah Battery Installation and Replacement

The 4.4 Ah Lithium-Ion battery pack can be inserted into the Telephony Modem. Use this procedure to install and to replace the backup battery.



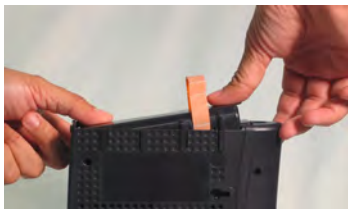
Action

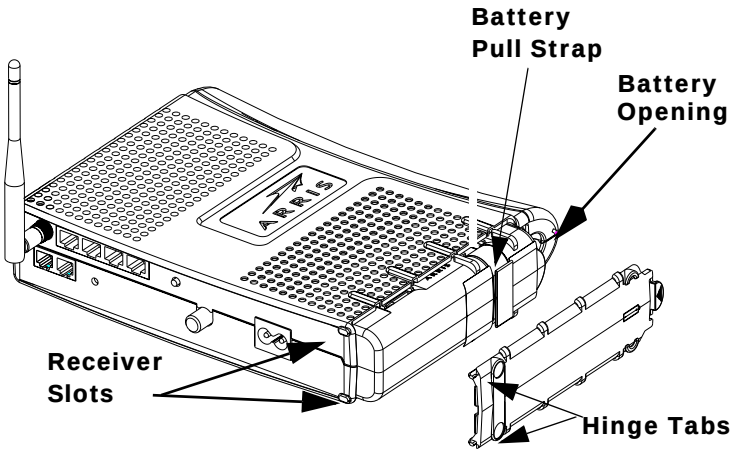
1 Insert a finger into the latch opening, press down and pull back on the latch holding the battery door (on the bottom of the Telephony Modem). Pull the door toward you. Set the door aside in a safe place.



2 Hold the battery pack so that the guides on the battery align with the slots on the Telephony Modem and slide the battery into the bay. The diagram on the left shows the proper orientation.

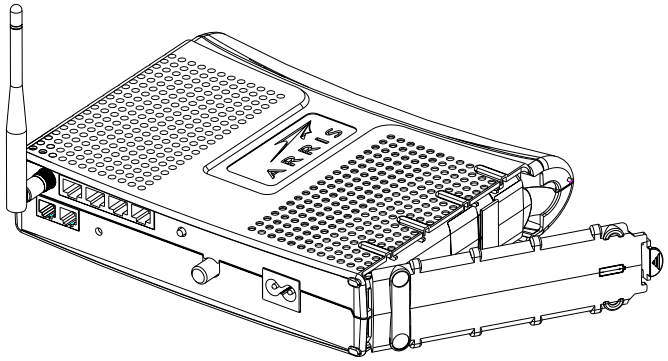
Note: The battery will not insert completely into the Telephony Modem if not oriented correctly. The battery should slide into the bay without significant force. Line up the slots in the battery bay with the guides on the battery and apply even pressure on both ends of the battery.

WRONG	WRONG	RIGHT
		



3 Push the battery pack into the bay until it latches into place. The diagram shows a Telephony Modem with a 4.4 Ah Lithium-Ion battery pack installed. **If you are taking the battery out of the unit, make sure to use the battery pull strap to dislodge the battery.**

Note: The Telephony Modem will not begin operating until you apply AC power.



4 Replace the door. To do so, place the tabs of the battery door into the slot on the Telephony Modem battery compartment. Rotate the door toward the unit until the latch snaps back into place.

Note: The Lithium-Ion battery pack contains precious material, so there may be some benefit in recycling. Please dispose of the battery responsibly and in accordance with local ordinances.

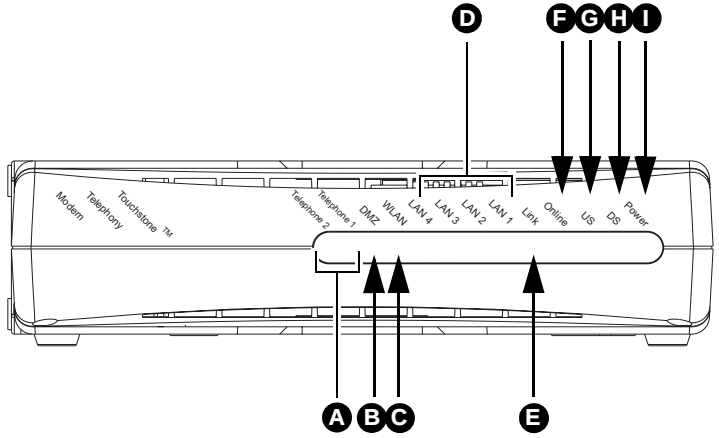
Installing and Connecting Your Telephony Modem

Before you start, make sure that:

- You have contacted your cable company and verified that they provide data and telephone service using standard DOCSIS technology.
- You have all the Items You Need.
- Cable, phone, and power outlets are available near the computer. If a cable outlet is not conveniently located, your cable company can install a new one.

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

WTM552A/B

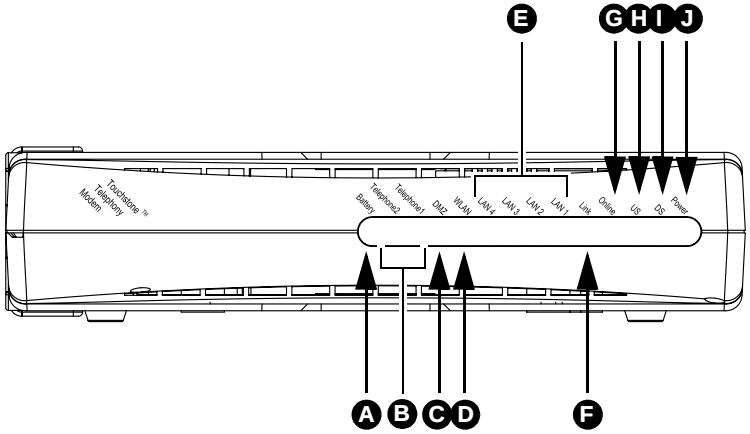


Front Panel WTM552A/B

The front of the Telephony Modem has the following indicators:

- **A** **Telephone 1/2**: indicates the status of each telephone line
- **B** **DMZ**: indicates the status of the DMZ connection (a computer outside the firewall)
- **C** **WLAN**: indicates the status of the wireless LAN
- **D** **LAN 1–4**: indicates the status of each Ethernet port
- **E** **Link**: indicates Ethernet or wireless connectivity between the Telephony Modem and computers
- **F** **Online**: indicates internet data transmission status
- **G** **US**: indicates upstream connectivity
- **H** **DS**: indicates downstream connectivity
- **I** **Power:** indicates whether AC power is available to the unit

WTM552G/H



Front Panel WTM552G/H

The front of the Telephony Modem has the following indicators:

- **A** **Battery**: indicates status of the battery in the Telephony Modem
- **B** **Telephone 1/2**: indicates the status of each telephone line
- **C** **DMZ**: indicates the status of the DMZ connection (a computer outside the firewall**)**
- **D** **WLAN**: indicates the status of the wireless LAN
- **E** **LAN 1–4**: indicates the status of each Ethernet port
- **F** **Link**: indicates Ethernet or wireless connectivity between the Telephony Modem and computer
- **G** **Online**: indicates internet data transmission status
- **H** **US**: indicates upstream connectivity
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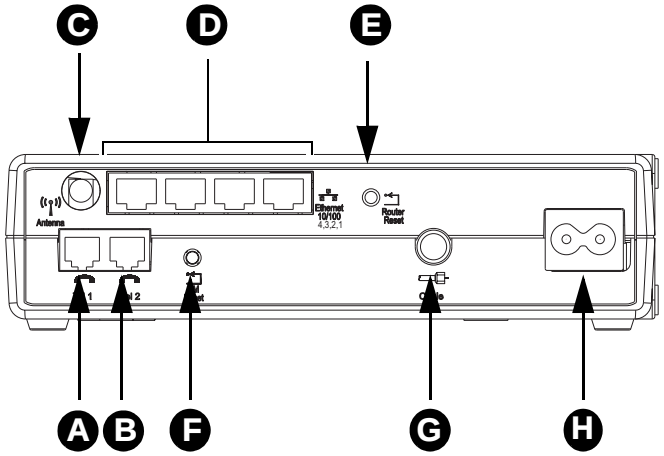
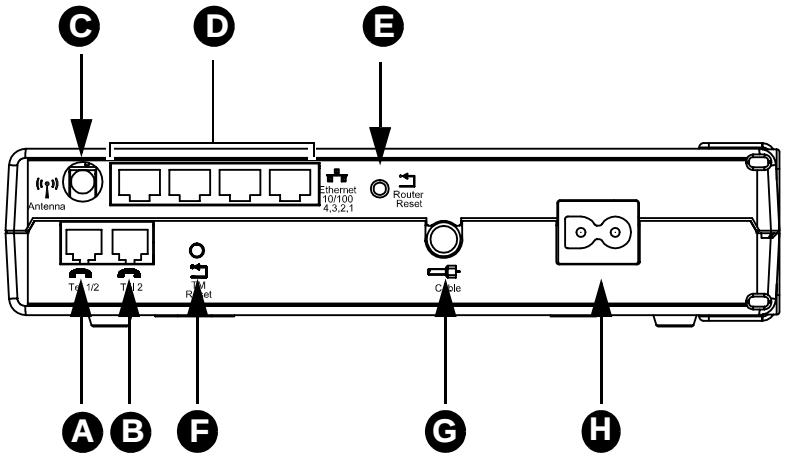
WTM552A/B



WTM552G/H



Rear Panel

The rear of the Telephony Modem has the following connectors and controls:

A **Tel 1** (A/B/H models): connector for the first phone line
Tel 1/2 (G models): connector for the first phone line (or both lines of a 2-line phone)

B **Tel 2**: connector for the second phone line

C **Antenna**: connector for the wireless antenna

D **Ethernet connectors**: for use with a computer LAN port

E **Router Reset** button: resets the Ethernet and wireless ports without affecting telephony service.

F **TM Reset** button: resets the Telephony Modem as if you power cycled the unit. Use a pointed **non-metallic** object to press this button.

G **Cable**: connector for the coax cable

H **Power**: connector for the power cord

Selecting an Installation Location

There are a number of factors to consider when choosing a location to install your Telephony Modem:

- Is an AC outlet available nearby? For best results, the outlet should not be switched and should be close enough to the Telephony Modem that extension cords are not required.
- Is a cable jack available? For best performance, keep the number of splitters between the jack and cable drop to a minimum. Each splitter attenuates (reduces) the signal available to the Telephony Modem. A large number of splitters can slow down the Internet connection and even affect your telephone service.
- Can you easily run cables between the Telephony Modem's location and the phones?
- If you are connecting devices to the Ethernet ports, can you easily run cables between the Telephony Modem's location and those devices?
- If you want to mount the Telephony Modem on a wall, does the location provide a solid surface for secure attachment? For best results when mounting the Telephony Modem on drywall, position the Telephony Modem so at least one of the screws are fastened to a stud. This may prevent the Telephony Modem from pulling out of the wall in the future.
- If you want to install the Telephony Modem on a desktop, is there enough space on either side to keep the vents clear? Blocking the vents may cause overheating.
- How close are your wireless devices? The Telephony Modem wireless connection range is typically 100–200 feet (30m–65m). A number of factors can affect connection range, as described below.

Factors Affecting Wireless Range

A number of factors can affect the usable range for wireless connections.

Increases range:

- Raising the antenna above the devices (for example, installing the Telephony Modem in the upper floor of a multi-story dwelling or using an aftermarket omnidirectional antenna)
- Using an aftermarket directional antenna (increases range in one direction while decreasing range in other directions)
- Adding wireless hubs in a bridge (WDS) network

Decreases range:

- Lowering the antenna below the devices (for example, installing the Telephony Modem in a basement)
- Removing the antenna
- Metal or concrete walls between the Telephony Modem and other devices
- Large metal appliances, aquariums, or metal cabinets between the Telephony Modem and other devices
- Interference and RF noise (2.4 GHz wireless phones, microwave ovens, or other wireless networks)

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.

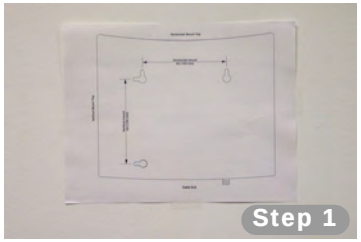
Mounting the Telephony Modem

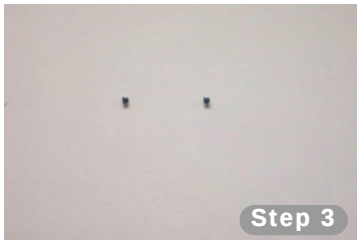
You can either mount the Telephony Modem on a wall or place it on a desktop. For wall-mount applications, you can mount the Telephony Modem with the indicators facing upward (vertical) or to the side (horizontal).

Tools and Materials

For wall-mounted installations, make sure you have the following tools and materials before proceeding:

- for mounting on drywall: Two 1/4” (6mm) drywall anchors and a drill with 1/4” (6mm) bit (not included)
- for mounting on plywood or studs: two #6 x 1.5” (38.1 mm) self tapping screws (included)
- screwdriver (flat-blade or Phillips, depending on what kind of screws you use)
- wall-mount template (included with the Telephony Modem Quick Installation Guide)
- transparent tape (for temporarily securing the mounting template to the wall)





Instructions

Wall-mounting instructions

1 Position the mounting template on the surface where you intend to mount the Telephony Modem and secure in place with transparent tape.

2 Drill holes through the template in the specified locations for the mounting screws. After drilling holes, remove the template from the surface.

3 If using drywall anchors, set them into the wall. Then, drive the screws into the wall leaving a gap of about 1/8” (3 mm) between the screw head and the wall. If not using anchors, just drive the screws.

4 Orient the Telephony Modem with the indicator lights facing up or right, as desired. Slip both mounting slots (in the back of the Telephony Modem) over the screws, then slide the case down until the narrow end of the keyhole slot contacts the screw shaft.

5 Proceed to Connecting the Telephony Modem.

Desktop mounting instructions

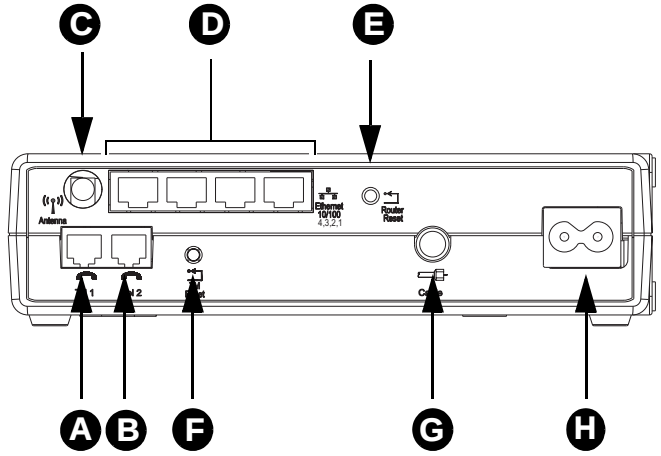
1 Position the Telephony Modem so that:

- air flows freely around it
- the back faces the nearest wall
- it will not fall to the floor if bumped or moved

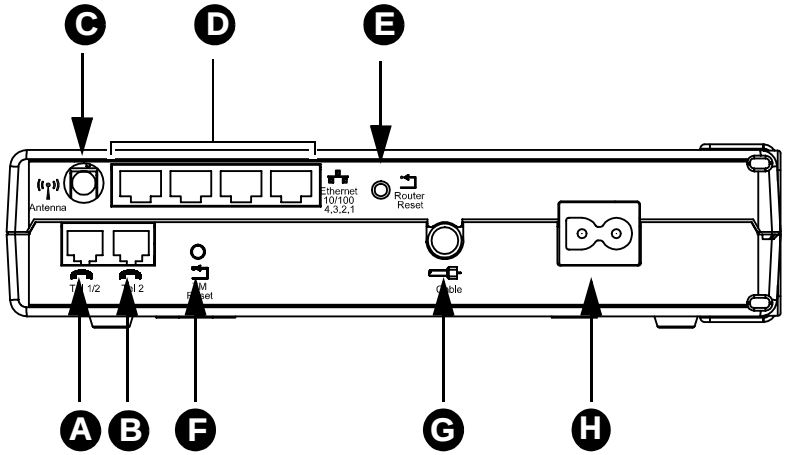
2 Proceed to Connecting the Telephony Modem.

Connecting the Telephony Modem

WTM552A/B/C



WTM552G/H



WARNING: Connecting the Telephony Modem to the home's 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. Cancellation of telephone service is not adequate. Failure to do so may result in loss of service and/or permanent damage to the Telephony Modem.

1. Thread the antenna onto the Antenna connector on the back of the Telephony Modem (**C**). Tighten only by hand. Turn the antenna so that it points straight up, if possible.

2. Connect one end of the coax cable to the cable outlet or splitter, and the other end to the Telephony Modem's Cable connector (**G**). Tighten the connections by hand, then tighten an additional 1/8 turn with a wrench.

   Note: For best performance, use high-quality coax cable and minimize or eliminate splitters between the cable jack and the Telephony Modem.

3. Insert the plug from the power cord into the Power connector on the back of the Telephony Modem (**H**) and insert the power cord into a convenient AC outlet.

   The Power light on the front of the Telephony Modem lights up, then flashes once (refer to the LED table on page 44). See Troubleshooting if the Power light does not turn on.

4. Connect one end of the Ethernet cable to any Ethernet port on the back of the Telephony Modem, (**D**) and the other end to the Ethernet port on a computer, hub, or broadband router.

   Note: If you are connecting to a computer, use the Ethernet cable included in the Telephony Modem package.

5. Connect one end of the telephone cable to the telephone port on the back of the Telephony Modem (**A** or **B**). Connect the other end to the telephone.

Configuring Your Wireless Connection

Jump directly to one of the following topics:

The WTM552 ships with a basic factory default configuration that should allow you to immediately access the Internet with a wireless connection. If your computer is equipped with a 802.11b/g wireless LAN card, you may wish to configure the WTM552 wireless settings. At a minimum, ARRIS suggests that you configure security settings.

Requirements

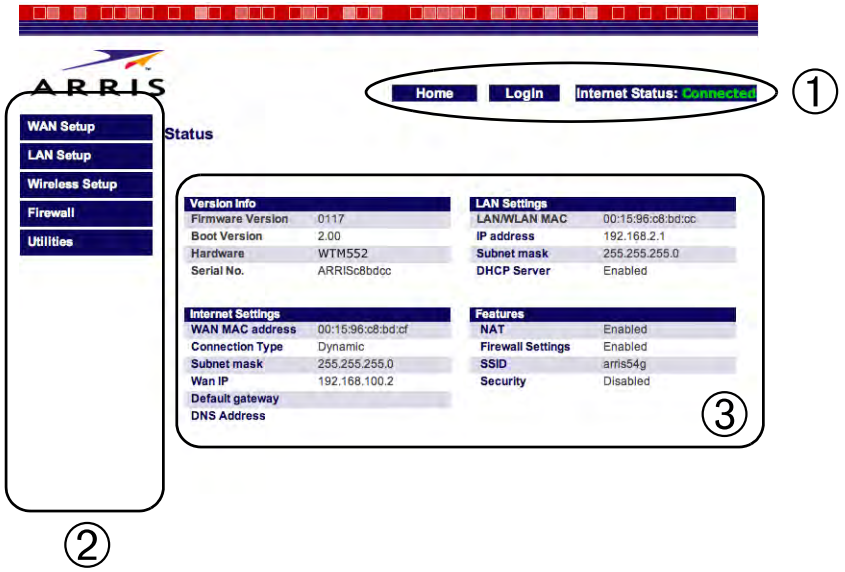
Make sure you have the following before attempting to configure your Ethernet connection:

- Computer with:
  - Ethernet interface or wireless interface
  - Ethernet cable, if using Ethernet interface (supplied)
- Web browser

Jump directly to one of the following topics:

Configuration Basics

The WTM552 uses a web-based interface to configure wireless settings. The following screen shows the various components of the interface.



1 **Access bar**: Shows the WTM552 connection status and provides the following links:
   - — **Home** — returns to the Status page (shown above) from any screen.
   - — **Help** — displays help for the current screen.
   - — **Login/Logout** — allows access to screens other than the Status screen.

2 **Navigation menu**: Select any of the items in this list to display an associated submenu. Selecting submenu items displays the associated screen. If you are not logged in, the WTM552 displays the login screen before allowing you to proceed.

3 **Display area**: Enter or view configuration information in this area. A **?** link may be available to explain the purpose of the screen or individual items on the screen.

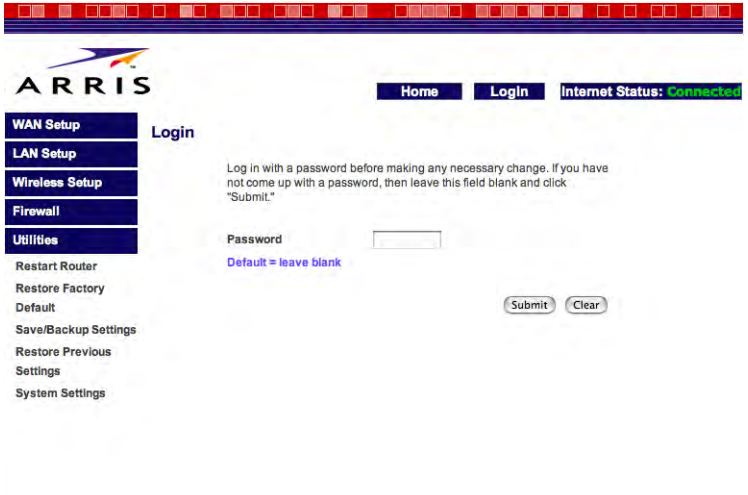
Jump directly to one of the following topics:

Accessing the Configuration Interface

Follow these steps to access the configuration interface. You should have already set up the WTM552 as described in Installing and Connecting Your Telephony Modem.

1. Use the connection utility for your operating system to connect to the wireless LAN **arris54g** (this is the Telephony Modem's factory default SSID).
2. In your web browser, open the page **http://192.168.2.1/** to display the Status screen:

3 Click the **Login** link in the Access bar to display the Login screen:



Note: The Telephony Modem ships with no password configured. When you log in for the first time, leave the Password field blank.

4 Click the **Submit** button to return to the Status screen.

Note: The Access bar should now show **Logout** in place of **Login**.

5 Proceed to Configuring System Settings.

Jump directly to one of the following topics:

Configuring System Settings

1 Click the Utilities link (at the bottom of the Navigation menu) to open the Utilities menu, then click **System Settings** to access the System Settings screen:

2 Make changes as follows:

— Enter Current Password: If you have already created a password, and you want to change settings on this screen, enter the password here.

— Enter New Password: Enter a password that you will remember but is not easy to guess.

— Confirm new Password: Enter the same password again.

— Time Zone: Select the proper time zone for your location. The Telephony Modem uses an Internet time server to set its internal clock.

3 Scroll down to the bottom of the page and click the **Save** button. If you are prompted to log in again, type your new password and click the **Submit** button.

4 Proceed to Setting Up Your WAN Connection.

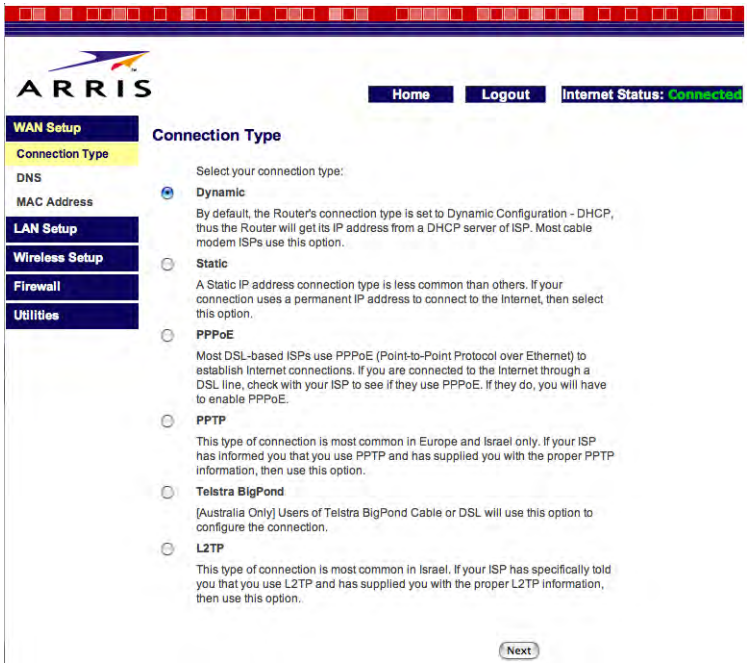
Jump directly to one of the following topics:

Setting Up Your WAN Connection

Follow these steps to set up your WAN connection.

1 Click the **WAN Setup** link in the navigation menu, then click **Connection Type**.

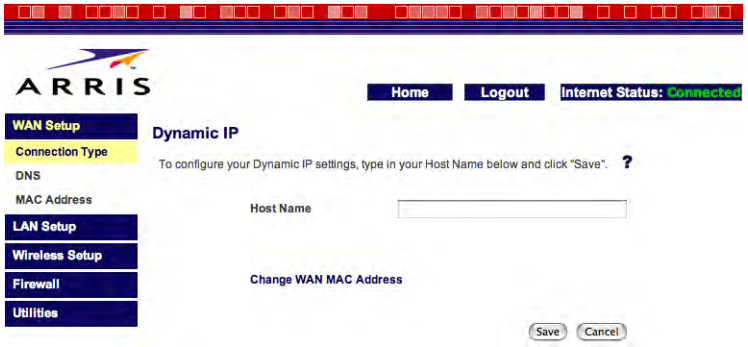
The Connection Type screen appears:



2 Choose the correct connection type in the Connection Type screen. Most cable companies require the Dynamic connection type. If your cable company requires a different connection type, you should have an information sheet that shows the proper connection type to select and other information needed to set up the connection.

3 Click the **Next** button at the bottom of the screen (you may have to scroll down in the browser to see the Next button). The Telephony Modem displays a screen showing further settings for your connection type. Follow the appropriate link for your connection type:

- Dynamic
- Static
- PPPoE
- PPTP
- Telstra BigPond
- L2TP



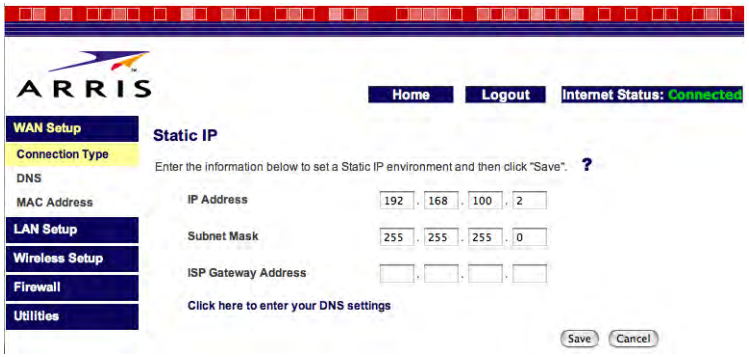
Dynamic

a. Fill in the **Host Name** field, using any name you want.

b. If you need to clone your computer's MAC address, click the Change WAN MAC Address link and proceed to XXX.

c. Click the **Save** button.

d. Proceed to Configuring the LAN Channel and Name.



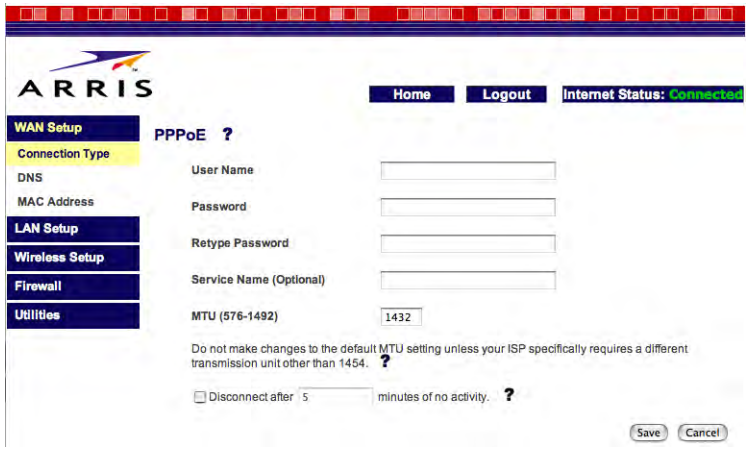
Static

a. Fill in the IP Address, Subnet Mask, and ISP Gateway address fields with the information provided by your cable company.

b. If you need to enter DNS settings, click the link and proceed to Setting Up DNS.

c. Click the **Save** button.

d. Proceed to Configuring the LAN Channel and Name.

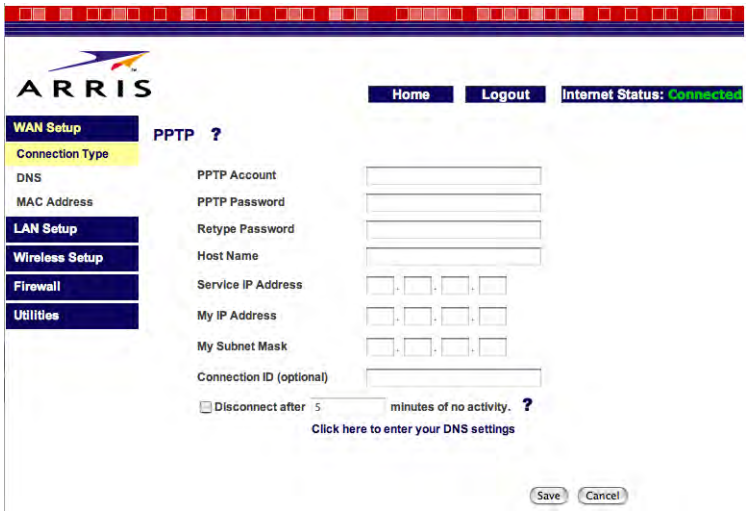


PPPoE

a. Fill in the fields with the information provided by your cable company.

b. Click the **Save** button to return to the Status screen.

c. Proceed to Configuring the LAN Channel and Name.



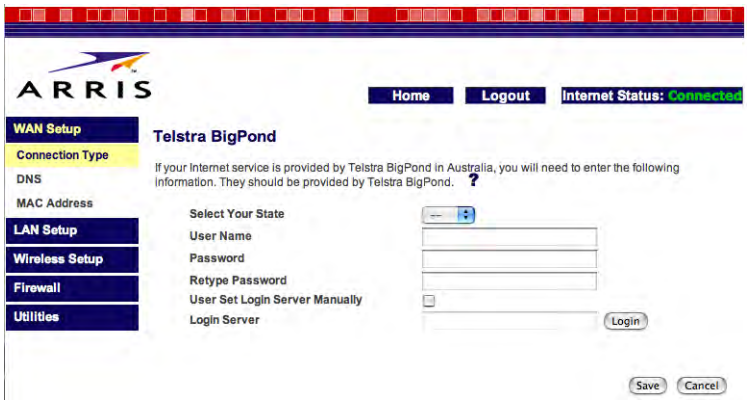
PPTP

a. Fill in the fields with the information provided by your cable company.

b. If you need to enter DNS settings, click the link and proceed to Setting Up DNS.

c. Click the **Save** button to return to the Status screen.

d. Proceed to Configuring the LAN Channel and Name.

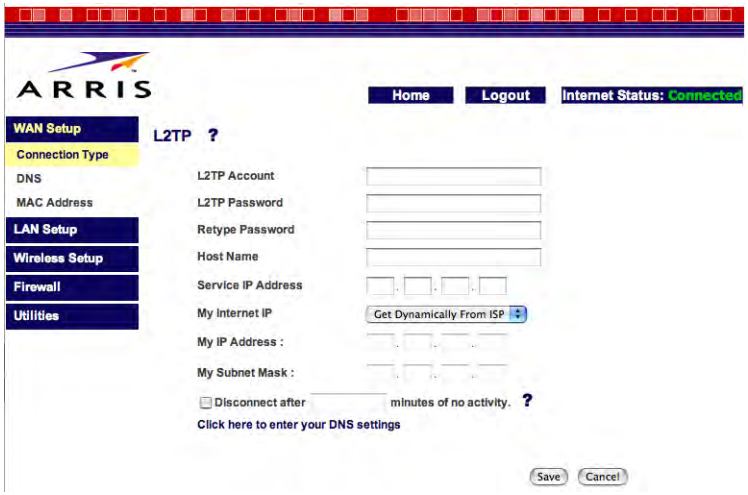


Telstra BigPond

a. Fill in the fields with the information provided by your cable company.

b. Click the **Save** button to return to the Status screen.

c. Proceed to Configuring the LAN Channel and Name.



L2TP

a. Fill in the fields with the information provided by your cable company.

b. If you need to enter DNS settings, click the link and proceed to Setting Up DNS.

c. Click the **Save** button to return to the Status screen.

d. Proceed to Configuring the LAN Channel and Name.

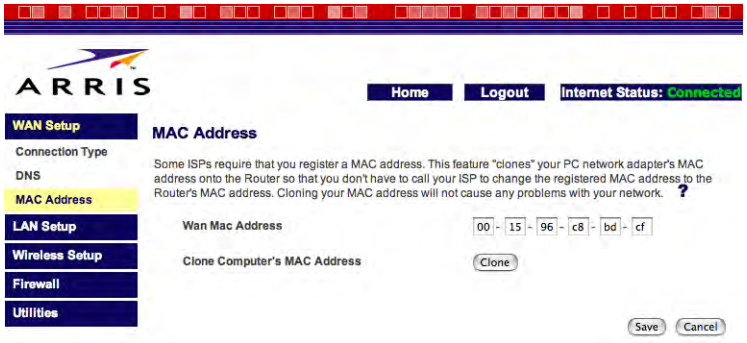
Jump directly to one of the following topics:

Setting the MAC Address

Most cable companies authenticate customers by the MAC address of your computer. In some cases, you may need to change the MAC address of the Telephony Modem's WAN port. Follow these steps only if your cable company requires this change.

1 Click the **WAN Setup** link in the navigation menu, then click **MAC Address**.

The MAC address window appears:



2 If the MAC address required is that of the computer you are using to set up the Telephony Modem, click the **Clone** button.

The Telephony Modem updates the WAN MAC Address field with the MAC address of your computer.

3 If you need to enter a MAC address manually, enter the hex digits (0-9, a-f) in the **WAN MAC Address** field. If you need help determining the MAC address, see Finding the MAC Address of a computer.

4 Click the **Save** button to continue.

5 To configure DNS settings, proceed to Setting Up DNS. Otherwise, proceed to Configuring the LAN Channel and Name.

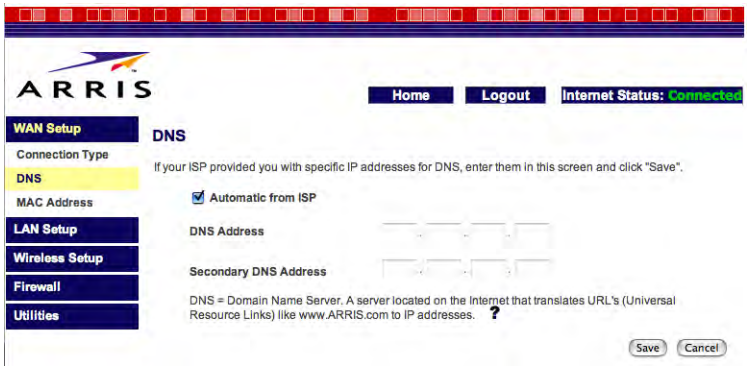
Jump directly to one of the following topics:

Setting Up DNS

Follow these steps to set up DNS.

1 Click the **WAN Setup** link in the navigation menu, then click DNS.

The DNS screen appears:



2 If your cable company has provided you with the IP addresses for their DNS servers, enter the IP addresses in the **DNS Address** and **Secondary DNS Address** fields.

3 If you have not received DNS server information, check **Automatic from ISP**.

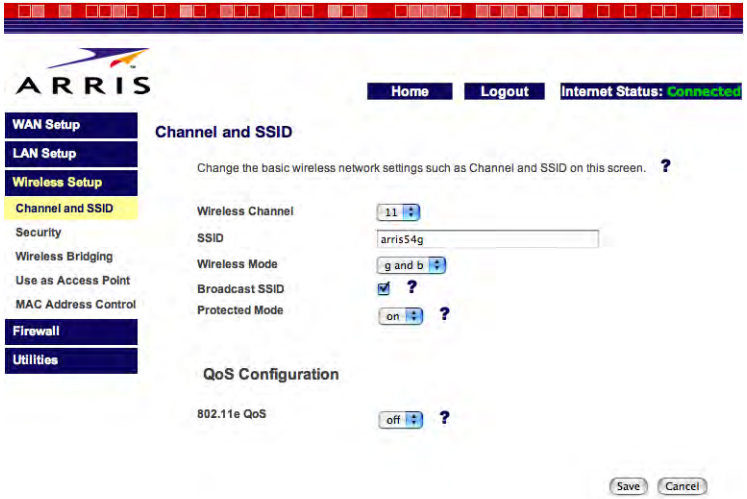
4 Click the **Save** button to return to the Status screen.

5 Proceed to Configuring the LAN Channel and Name.

Jump directly to one of the following topics:

Configuring the LAN Channel and Name

1 Click the **Wireless Setup** link to open the Wireless menu, then click the **Channel and SSID** link to open the Channel and SSID screen:



2 Make the following changes to this screen as desired:

- Wireless Channel: Use the default shown in most cases. You may need to change the channel if neighbors have wireless routers, or if you lose your connection while using certain remote telephones.
- SSID: Give your wireless LAN any name you desire. For best security, do not use your name or address. The default SSID is **arris54g**.
- Broadcast SSID: Uncheck to prevent passers-by from seeing your wireless LAN name in their connection utility. This provides only a small amount of extra security, since many wireless utilities can learn an SSID by listening to wireless traffic.
- Protected Mode: Set to **On** only if needed to overcome interference.

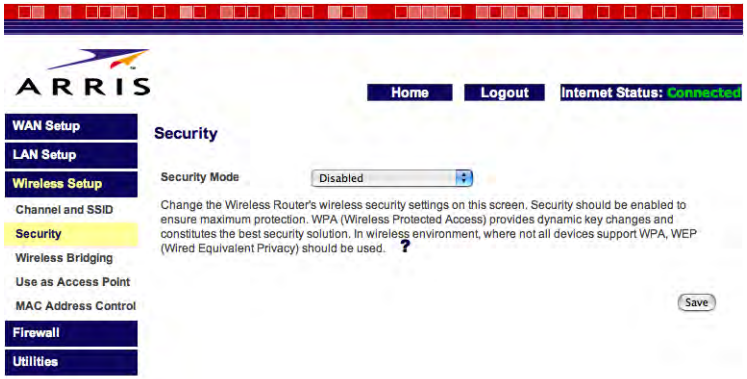
3 Click the **Save** button.

4 Proceed to Configuring Wireless Security.

Jump directly to one of the following topics:

Configuring Wireless Security

1 Click the Security link under the Wireless menu to open the Security screen:



2 In the Security Mode menu, choose WPA unless you have wireless equipment that does not support WPA; in that case, choose 128-bit WEP (more secure) or 64-bit WEP (more compatible with older wireless equipment).

Depending on the security mode chosen, the WTM552 displays one of the following screens to allow you to configure a key.

3 Enter a password or pass phrase in the text box. For WEP security, click the **Generate** button to the right of the text box to create the hex key.

Note: Do not make changes to the other items unless required by your other wireless equipment.

4 Click the **Save** button.

You have completed the basic configuration steps. Unless your cable operator requires additional configuration, which would be described in the information packet, you should now be able to access the Internet. If you want to further customize your configuration, proceed as follows:

- Configuring the Firewall
- Configuring DDNS
- Configuring Wireless Bridging

If you have any problems, proceed to Troubleshooting.

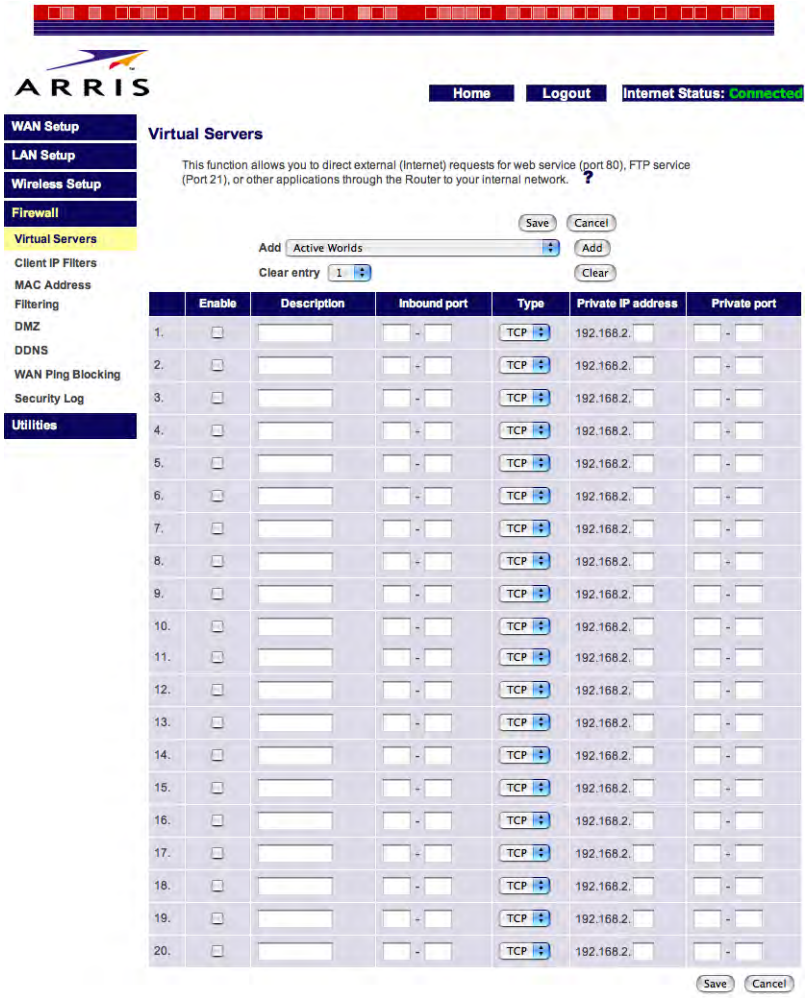
Jump directly to one of the following topics:

Configuring the Firewall

The WTM552 provides a firewall to protect the computers on your home network from unwanted access. The firewall provides the following features:

- Virtual Server Support: if you have a server on your home network that you want to make available to the general Internet, you can configure a virtual server. The firewall passes requests from the Internet to the designated computer on your home network.
- DMZ: if you need to access a service that cannot pass through the firewall, the DMZ allows a single computer on the home network to appear as if it were connected directly to the Internet. A computer in the DMZ is completely exposed to the Internet as if there were no router or firewall, so it is best to activate the DMZ only when necessary.
- Client filters: you can use client filters to block computers on your network from accessing the Internet (or certain services) during specific days and times.
- MAC Address filtering: allows access to the wireless network only by computers specifically authorized to connect.
- Ping blocking: ignores ICMP (Ping) requests from the Internet.

Proceed to the next page to begin configuring the firewall.



Configuring Virtual Servers

Follow these steps to allow outside access to servers on your internal network.

1 Click the Firewall link in the navigation menu, then click Virtual Servers.

The Virtual Servers window appears.

2 Proceed as follows:

If you want to…	**Then** …
Add a well-known service	Choose the desired service from the **Add** drop-down menu and then click the **Add** button.
Add a custom service	Fill in a row as follows: • Description: the service name. • Inbound port: the beginning and ending ports of the range required to support this service. These are the ports that outside clients use to access your server. • Type: Choose TCP or UDP. If the service requires passing both TCP and UDP packets, you must create a second row. • Private IP address: the IP address of the server on your internal network. • Private port: the beginning and ending ports of the range required by this service. The private ports may be different from the Inbound ports.
Enable or disable a service	Check (or clear) the box in the **Enable** column next to the service.
Remove a service	Choose the row to remove in the **Clear Entry** drop-down menu and click the **Clear** button.

3 Click the **Save** button at the bottom of the page (you may need to scroll down) to save your changes.

4 Proceed to Configuring Client IP Filters.

Configuring Client IP Filters

Follow these steps to configure client IP filters.

1. Click the Firewall link in the navigation menu, then click Client IP Filters.

   The Client IP Filters window appears.

2. Fill in the fields as follows:

   a. IP: the beginning and ending address in a range of IP addresses. To block only one address, use the same address twice.

   b. Port: the beginning and ending port in a range of ports. To block only one port, enter the same port twice.

   c. Type: choose one of TCP, UDP, or BOTH.

   d. Block Time: choose Always to set up a permanent block, or Block to specify days and times to block access.

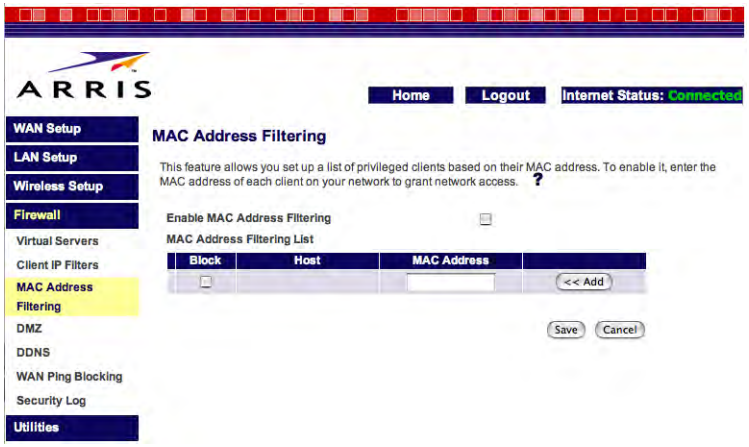
   e. Day: choose the beginning and ending day of the week that this block is effective.

   f. Time: choose the beginning and end time of day that this block is effective.

   g. Enable: check this box to activate the block, or clear the check to disable the block.

3. Click the **Save** button to save your changes.

4. Proceed to Configuring MAC Address Filtering.



Finding the MAC Address of a computer
Locate the operating system of the computer that you want to add to the list and follow the instructions to find its wireless MAC address.

Windows: open a Command Prompt window and type **ipconfig /all** (and press Return). Locate the line that begins with “Description” and contains the word “Wireless.” The next line, which starts with “Physical Address,” contains a string of six hex numbers, separated by dashes. This is the MAC address.

MacOS X: open a Terminal window and type **ifconfig** (and press Return). Find the line that begins with “en1” — this is the wireless adapter. The next line that begins with “ether” contains the MAC address of the wireless interface.

Linux: open a shell window and type **ifconfig** (and press Return). The wireless interface is eth1 (unless there is no Ethernet adapter, in which case the interface is eth0).

Configuring MAC Address Filtering

Follow these steps to configure MAC Address filtering.

1. Click the Firewall link in the navigation menu, then click MAC Address Filtering.

   The MAC Address Filtering window appears.

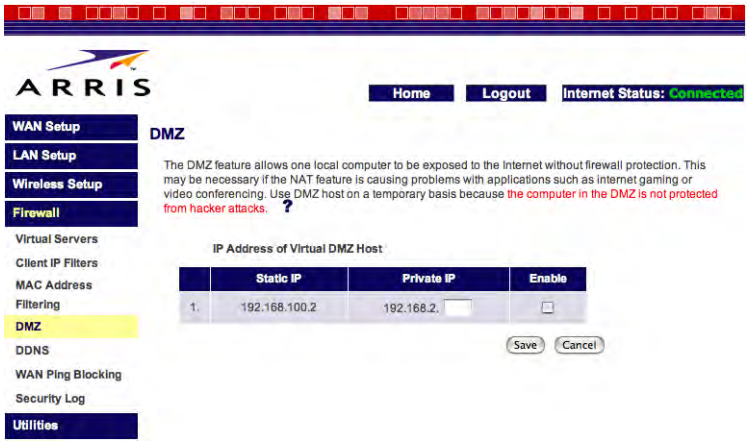
2. Click the Add button to add a blank row to the filter list.

3. Enter the MAC address of the computer you want to add to the filter. Do not enter colons or dashes in between the hex digits. See the sidebar for information about finding the MAC address of a computer.

   Note: Make sure you enter the MAC address correctly. The Telephony Modem may completely block access if you enter an incorrect address.

4. Click the **Save** button to save your changes.

5. Proceed to Configuring the DMZ.



Configuring the DMZ

Certain Internet applications, such as gaming or video conferencing, may not work properly with computers behind a firewall. For these situations, the Telephony Modem supports a "DMZ" feature that lets you place a single PC outside the firewall.

Note: A computer placed in the DMZ is not protected from attackers. Enable the DMZ only when necessary and make sure the computer in the DMZ has the latest security updates installed.

Follow these steps to place a computer in the DMZ.

1. Click the Firewall link in the navigation menu, then click DMZ.

   The DMZ window appears.

2. Enter the IP address of the computer that you want to place in the DMZ in the **Private IP** field.

3. Check the **Enable** box.

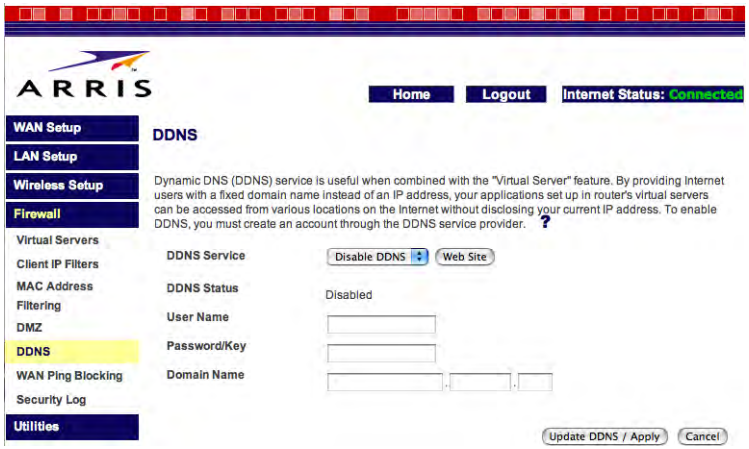
4. Click the **Save** button to save your changes.

   The DMZ light on the Telephony Modem front panel lights up to remind you that your computer is operating without firewall protection.

5. When you are finished using the DMZ, return to this screen, remove the check from the Enable box, and click the **Save** button.

   The DMZ light on the Telephony Modem front panel turns off.

6. Proceed to Configuring DDNS.



Jump directly to one of the following topics:

Configuring DDNS

The public IP addresses assigned to your Telephony Modem can change from time to time. If you are providing services from your private network (using the Virtual Servers feature), you should use Dynamic DNS (DDNS) to associate your current IP address with a domain name. The Telephony Modem directly supports several major DDNS providers.

After setting up a DDNS account, follow these steps to configure the Telephony Modem to contact the DDNS provider.

1. Click the Firewall link in the navigation menu, then click DDNS.

   The DDNS window appears.

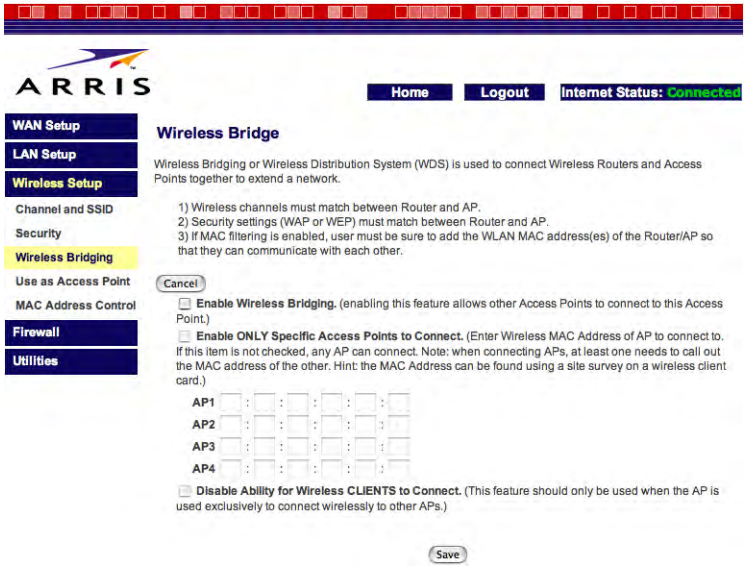
2. Choose your DDNS provider from the **DDNS Service** drop-down menu.

3. Enter your DDNS account name, password, and DDNS domain name in the appropriate fields.

4. Click the **Update DDNS** button.

   Note: Your domain name may not be immediately associated with your current IP address. Updated DNS information takes some time to propagate across the Internet.

5. Proceed to Configuring Wireless Bridging.



Jump directly to one of the following topics:

Configuring Wireless Bridging

The Telephony Modem supports the Wireless Distribution System (WDS), a common bridging standard that allows you to extend the range of a wireless network by connecting several wireless routers.

Keep the following in mind when setting up wireless bridging:

- One device (in this case, the Telephony Modem) acts as the router. Other wireless routers must be configured as Access Points. See the documentation for your additional devices for instructions for using them as Access Points.
- While the Telephony Modem has the ability to be configured as an Access Point, doing so disables the router function and therefore disables Internet access through the Telephony Modem.
- Each wireless router must support WDS.
- The Router and each Access Point must use the same channel number and security settings.
- If MAC address filtering is enabled, the router and each Access Point must have the MAC addresses of the other devices in their access lists.

Follow these steps to set up wireless bridging. The steps assume you have already configured the devices as described above.

1. In the Telephony Modem, click the Wireless Setup link in the navigation menu, then click Wireless Bridging.

   The Wireless Bridging window appears.

2. Check the **Enable Wireless Bridging** box.

3. (recommended) If you want to specify which Access Points are allowed to connect to your network, check the Enable ONLY Specific Access Points to Connect box and enter the MAC address of each Access Point in the AP1 through AP4 fields. You can enter up to four Access Points.

   Note: Most wireless devices have their MAC addresses printed on a label attached to the back or bottom of the unit. Make sure you enter the wireless (WLAN) MAC address; the Ethernet and WAN connections have different MAC addresses.

4. Click the **Save** button to save your changes.

Configuring Your Ethernet Connection

If your computer is equipped with a LAN card providing an Ethernet connection, you may have to configure your computer's TCP/IP settings. The steps that follow will guide you through setting your computer's TCP/IP settings to work with the Telephony Modem.

Requirements

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

- Computer with:
  - — one of: Windows 98SE, Windows 2000, Windows ME, or Windows XP (Windows 95 and Windows NT are not supported)
  - — Ethernet interface
- Ethernet cable (supplied)
- IP address, subnet, gateway, and DNS information for installations not using DHCP

How to use this chapter

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.

- TCP/IP Configuration for Windows 98SE
- TCP/IP Configuration for Windows 2000
- TCP/IP Configuration for Windows ME
- TCP/IP Configuration for Windows XP

TCP/IP Configuration for Windows 98SE

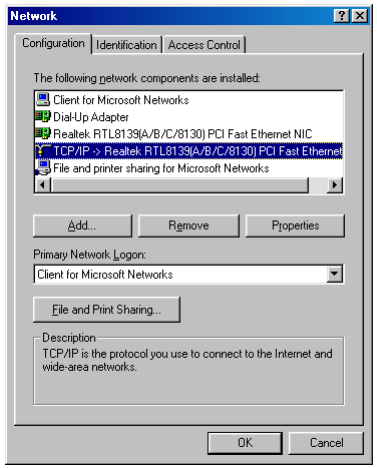
Follow these steps to configure the TCP/IP settings on a Windows 98SE operating system.

Note: Dialog boxes shown on your computer may differ slightly from those shown in this procedure.

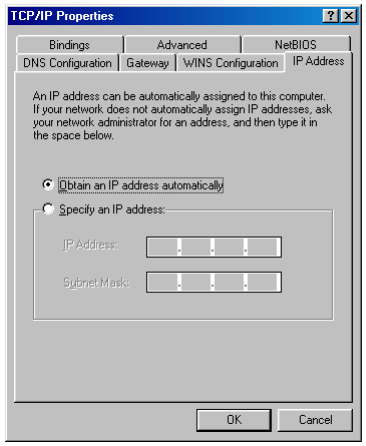
1. From the computer, select **Start > Settings > Control Panel.**
2. Double click on the **Network** icon in the Control Panel.

3. Click the **Configuration** tab in the Network window to display the list of Network Adapters.

4 Highlight **TCP/IP** by clicking on it one time, then click on **Properties.**



5 Click the **IP Address** tab, click **Obtain an IP address automatically**, then click **OK**.



6 Click **OK** to accept the new settings, and **OK** again to close the Configuration window.

7 You may have to restart your computer in order for your computer to obtain a new IP address from the network.

—end—

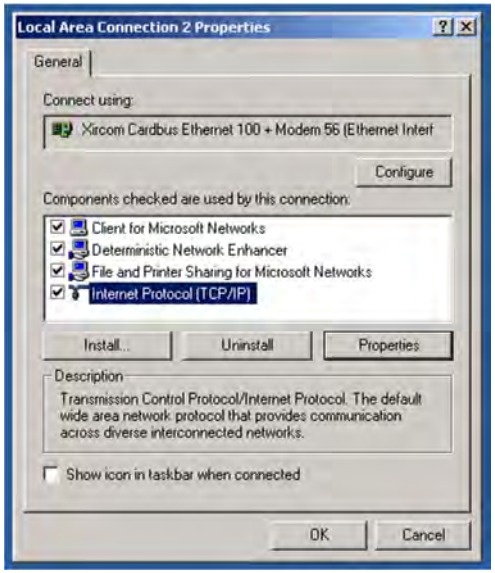
TCP/IP Configuration for Windows 2000

Follow these steps to configure the TCP/IP settings on a Windows 2000 operating system.

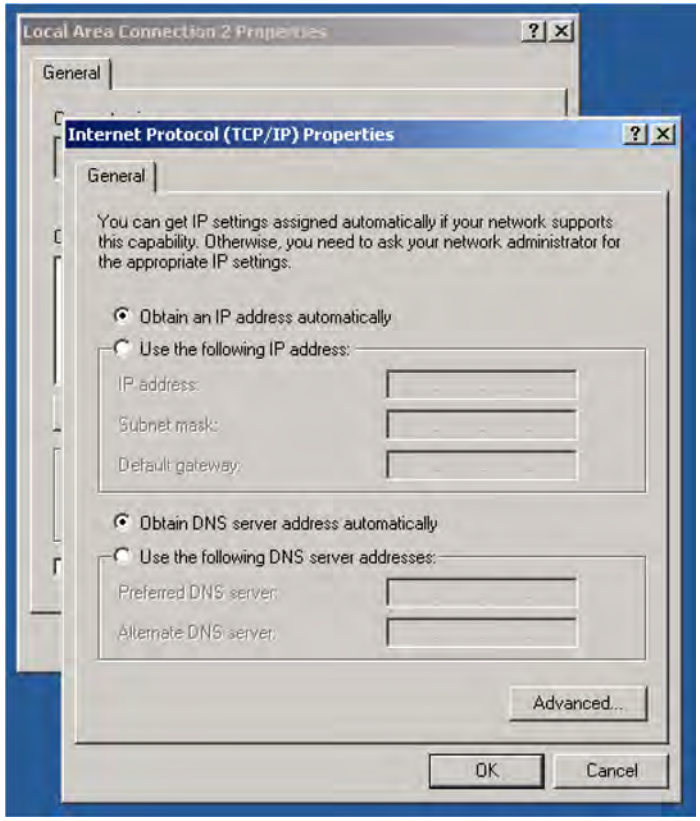
Note: Dialog boxes shown on your computer may differ slightly from those shown in this procedure.

1. From the computer, select **Start > Settings > Network and Dial-up Connections > Local Area Connection**.
2. In the Local Area Connections Properties window, highlight **TCP/IP** by clicking on it one time, then click on **Properties**.

   Note: If your computer has more than one Ethernet card, you may have to select the appropriate Ethernet card in the **Connect using:** area of the Local Area Connection Properties window.



3 Click **Obtain an IP address automatically** and **Obtain DNS server address automatically**, then click **OK**.



4 Click **OK** to accept the new settings, and **OK** again to close the Configuration window.

5 You may have to restart your computer in order for your computer to obtain a new IP address from the network.

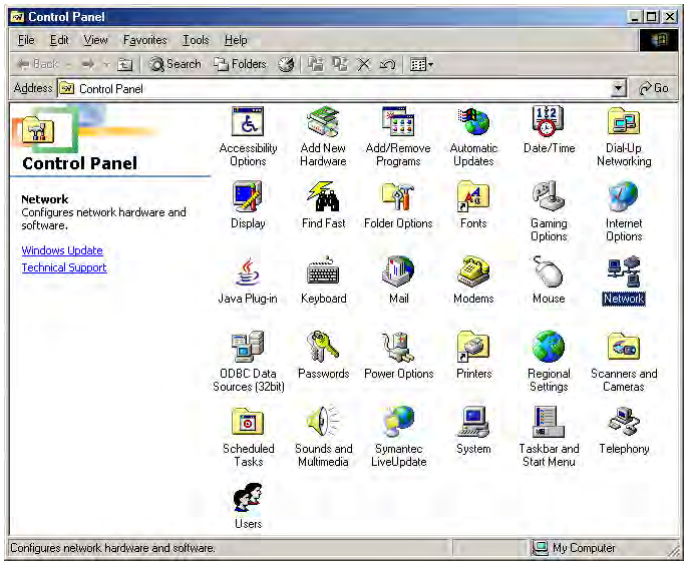
—end—

TCP/IP Configuration for Windows ME

Follow these steps to configure the TCP/IP settings on a Windows ME operating system.

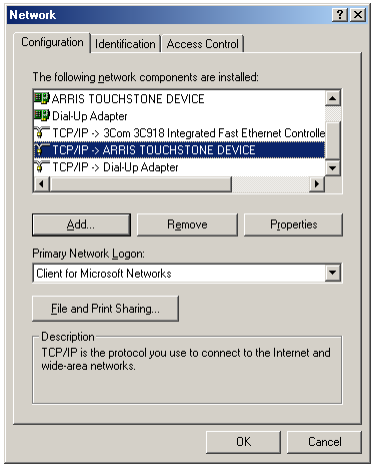
Note: Dialog boxes shown on your computer may differ slightly from those shown in this procedure.

1. From the computer, select **Start > Settings > Control Panel.**
2. Double click on the **Network** icon in the Control Panel.

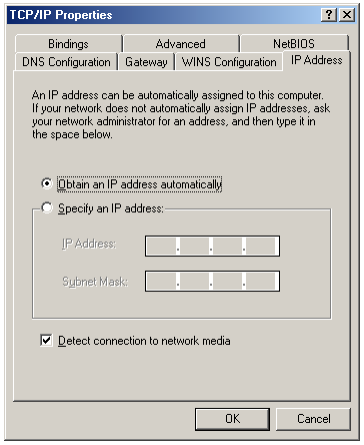


3. Click the **Configuration** tab in the Network window to display the list of Network Adapters.

4 Highlight **TCP/IP** by clicking on it one time, then click on **Properties.**



5 Click the **IP Address** tab, then click **OK**.



6 Click **OK** to accept the new settings, and **OK** again to close the Configuration window.

7 You may have to restart your computer in order for your computer to obtain a new IP address from the network.

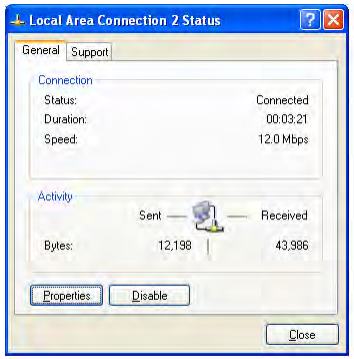
—end—

TCP/IP Configuration for Windows XP

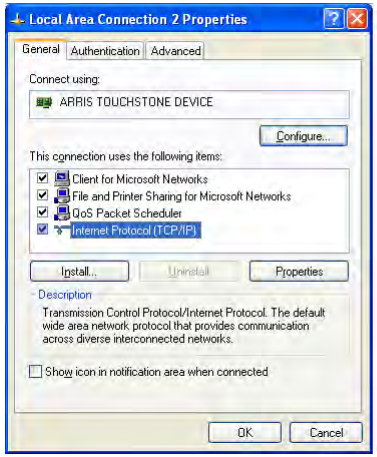
Follow these steps to configure the TCP/IP settings on a Windows XP operating system.

Note: Dialog boxes shown on your computer may differ slightly from those shown in this procedure.

1. From the computer, select **Start > Settings > Control Panel** and double click on the **Network Connections** icon in the Control Panel.
2. Click the **Configuration** tab in the Network window to display the list of Network Adapters.



3 Highlight **TCP/IP** by clicking on it one time, then click on **Properties.**



4 Click the **IP Address** tab, click **Obtain an IP address automatically**, then click **OK**.

5 Click **OK** to accept the new settings, and **OK** again to close the Configuration window.

6 You may have to restart your computer in order for your computer to obtain a new IP address from the network.

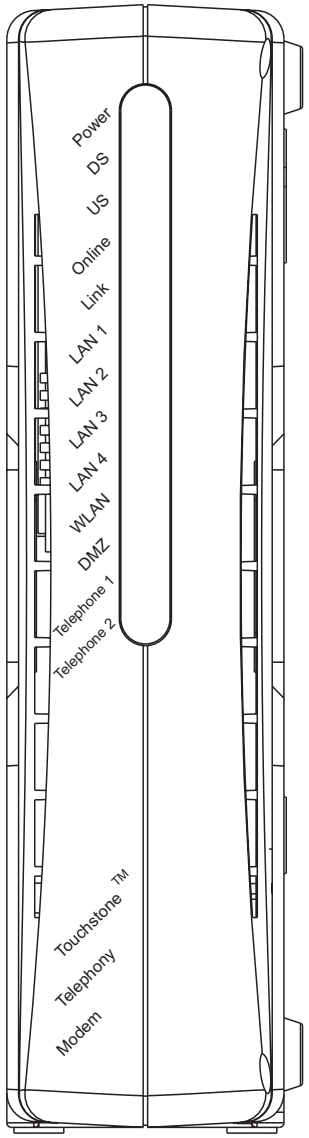
—end—

Using the Telephony Modem

This chapter describes the controls and features available on the Touchstone Telephony Modem, and covers basic troubleshooting procedures.

Setting up Your Computer to Use the Telephony Modem

Follow the instructions in the information packet supplied by your cable company. Contact your cable company if you need help setting up your computer.



Indicator Lights for the WTM552A/B Models

The Touchstone Telephony Modem has 13 LEDs to assist in troubleshooting.

Wiring Problems

If the Telephony Modem begins flashing all its lights for more than 10 seconds, this indicates a problem with the telephone wiring — the red and green wires may be shorted (touching), or there may be undesired voltage on the lines. If this pattern persists for more than 10 seconds, disconnect the telephone lines from the Telephony Modem, then call a wiring technician for assistance.

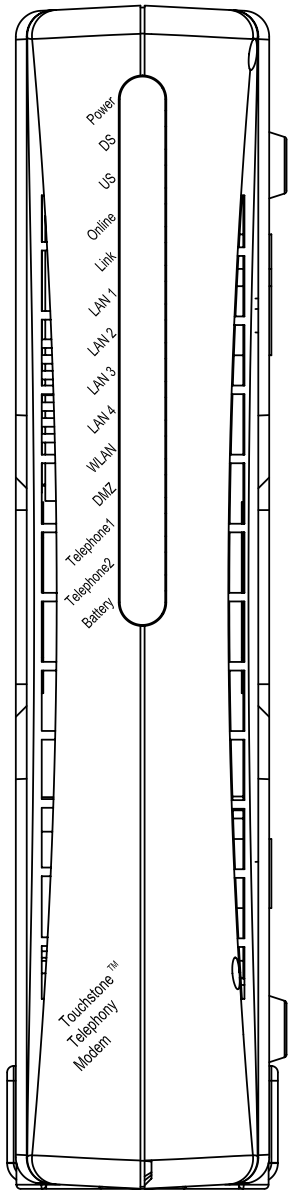
Patterns: Normal Operation (WAN)

The following table shows light patterns for the cable connection during normal operation.

Mode	Power	DS	US	Online	Link
AC Power	**On**	**On** = Connected to the Internet Flash = Not connected to the Internet	**On** = Connected to the Internet Flash = Not connected to the Internet	**On** = Internet Available Off = Internet not available	**On** = Computer Connected Off = Computer not connected Flash = Computer Activity
No AC Power	Off	Off	Off	Off	Off
Firmware Upgrade	**On**	Flash	Flash	**On**	(normal operation)

Patterns: Normal Operation (LAN and telephone)
The following table shows light patterns for the Ethernet and wireless LANs, and the telephones, during normal operation.

Mode	LAN1 - LAN4	WLAN	DMZ	Tel. 1 / Tel. 2
AC Power	**On** = Computer Connected Off = Computer not connected Flash = Computer Activity	**On** = Computer Connected Off = Computer not connected Flash = Com-puter Activity	**On** = DMZ enabled Off = DMZ not enabled	**On** = On-hook Flash = Off-hook Off = disabled
No AC Power	Off	Off	Off	Off
Firmware Upgrade	(normal operation)	(normal operation)	(normal operation)	(normal operation)



Indicator Lights for the WTM552G/H Models

The Touchstone Telephony Modem has fourteen indicator lights to assist in trouble-shooting.

Wiring Problems

If the Telephony Modem begins flashing all its lights for more than 10 seconds, this indicates a problem with the telephone wiring — the red and green wires may be shorted (touching), or there may be undesired voltage on the lines. If this pattern persists for more than 10 seconds, disconnect the telephone lines from the Telephony Modem, then call a wiring technician for assistance.

Patterns: Normal Operation (LAN and Telephone)

The following table shows light patterns for the Ethernet and wireless LANs, and the telephones, during normal operation.

Mode	LAN1 - LAN4	WLAN	DMZ	Tel. 1/Tel. 2
AC Power	**On** = Computer Connected Off = Computer not connected Flash = Computer Activity	**On** = Computer Connected Off = Computer not connected Flash = Computer Activity	**On** = DMZ enabled Off = DMZ not enabled	**On** = On-hook Flash = Off-hook Off = disabled
No AC Power	Off	Off	Off	**On** = On-hook Flash = Off-hook Off = disabled
Firmware Upgrade	(normal operation)	(normal operation)	(normal operation)	Off

Indicator Lights: Normal Operation (WAN and Battery)
The following table shows light patterns during normal operation.

Mode	Power	DS	US	Online	Link	Battery
AC Power Good	**On**	**On** = Connected to the Internet Flash = Not connected to the Internet	**On** = Connected to the Internet Flash = Not connected to the Internet	**On** = Internet available Off = Internet not available	**On** = Computer connected Off = Computer not connected Flash = Computer activity	**On** = Battery good or low **Off** = Battery missing Flash = Battery bad
No AC Power Battery Installed	Flash	Off	Off	Off	Off	Off = Battery power Flash = Battery bad
No AC Power No Battery	Off	Off	Off	Off	Off	Off
Firmware Upgrade	**On**	Flash	Flash	**On**	(normal operation)	(normal operation)

Indicator Lights: Startup Sequence

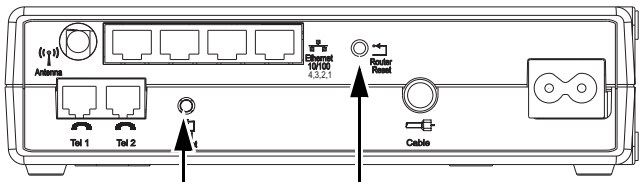
The following table shows the Telephony Modem light patterns during each phase of the startup sequence. There are two phases of startup; the Telephony phase and the cable modem phase. Both are outlined below.

Power, DS, US, Online	Link	Telephone		Battery*	Description
		1	2		
Off	Off	Off	Off	Off	No power to Cable Modem
Flash	Flash	Flash	Flash	Flash	Power-on Self Test
See “Cable Modem Start Up Sequence” Below					
On	**On**	Flash	Off	Off	Retrieving telephone network information
On	**On**	Off	Flash	Off	Retrieving telephone line information
On	**On**	Flash	Flash	Off	Activating telephone service
Normal Operation * = Battery LED only applies to those models with battery backup					

Cable Modem Start Up Sequence

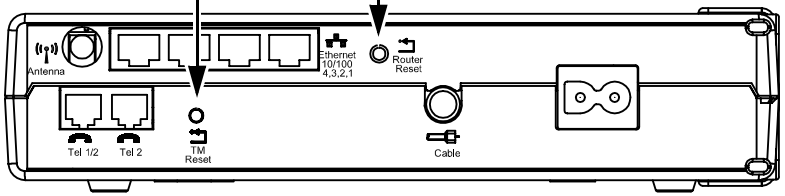
DS	US	Online	Link	Description
Flash	Off	Off	Off	Downstream search
On	Flash	Off	Off	Downstream found; upstream search
On	**On**	Flash	Off	Downstream and Upstream found; retrieving setup information from cable operator

WTM552A/B



Router Reset

TM Reset



WTM552G/H

Using the Reset Buttons

Use the **Router Reset** button to reset the Ethernet and wireless connections without affecting the cable or telephony connections. You may need to reset the router if you are having problems connecting to the Internet, but the phones are working. To reset the Telephony Modem to factory defaults, hold the **Router Reset** button for about 8 seconds.

Use the **TM Reset** button, on the back of the Telephony Modem, to reset the modem as if you power cycled the entire unit. The phones will be out of service until the Telephony Modem finishes reconnecting to the cable system. You may need to reset the Telephony Modem if you are having problems connecting to the Internet or with the phones. This button should be used rarely.

The **TM Reset** button is recessed to prevent accidental resets. Use a pointed **non-metallic** object to press this button.

The diagram to the left shows the location of the Reset buttons.

Troubleshooting

The information in this chapter may help you to clear up common problems.

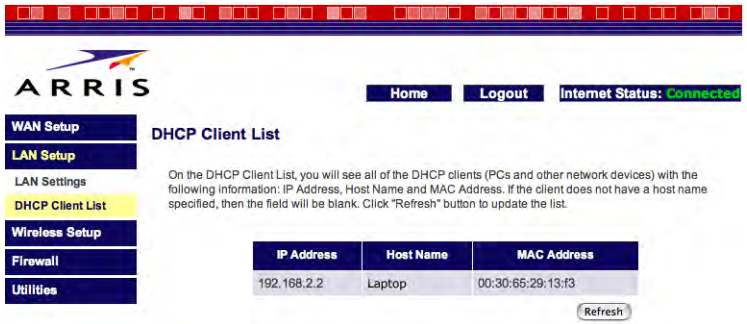
Viewing Connection Information

The web-based configuration interface provides screens that can help to troubleshoot connectivity problems. The default IP address of the Telephony Modem is **192.168.2.1** — if you have changed the IP address, remember to enter the changed address in your browser.

Viewing the DHCP Client List

The DHCP client list shows all computers that are currently connected to the Telephony Modem and have received an IP address from the router. This information can help you to troubleshoot connectivity problems or to see whether other people have connected to an unsecured network.

To view the list, choose **LAN Setup** from the navigation menu and then **DHCP Client List**.



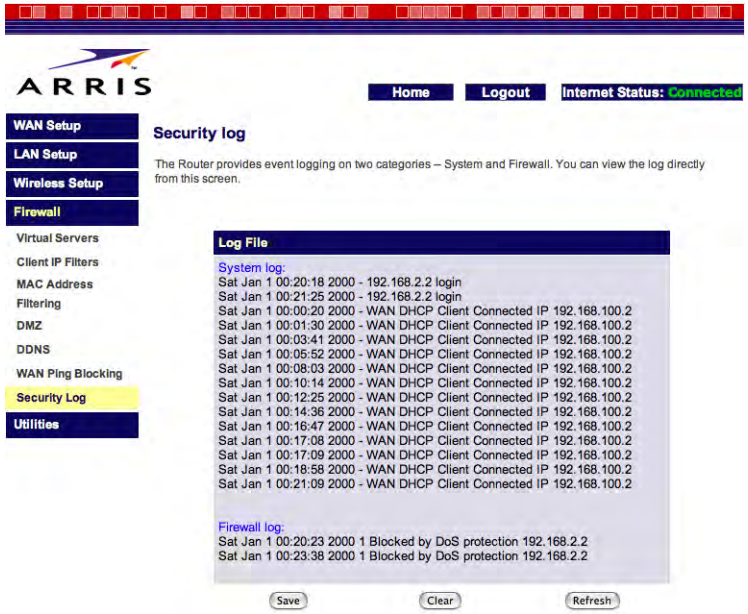
The list shows the IP address assigned to each computer, the host name (the name given by the computer's owner), and the MAC address of that computer. Click the **Refresh** button to update the listing.

Note: The DHCP client list does not show devices that have manually assigned IP addresses.

Viewing the Security Log

The security log keeps a list of system- and firewall-related events. You can use the security log to troubleshoot connectivity problems and to view possible intrusion attempts.

To view the security log, choose **Firewall** from the navigation menu and then **Security Log**.

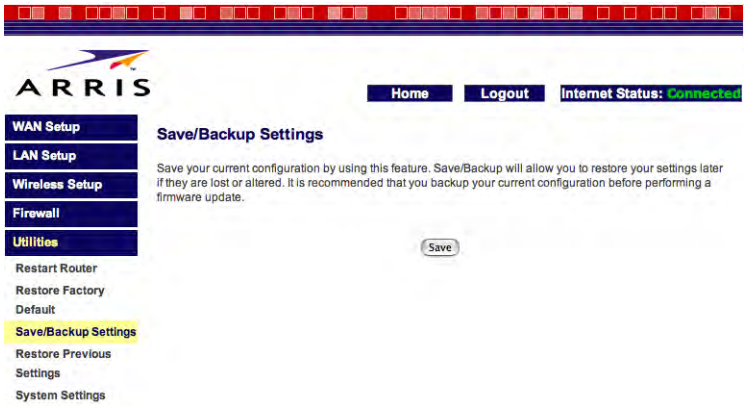


Click the **Refresh** button to update the listing. Click the **Save** button to download the current log to your computer (the file is named **log_web.txt**). Click the **Clear** button to clear both the system and firewall logs.

Note: You may have to scroll down to access the buttons.

Backing Up and Restoring the Configuration

You can save a copy of the current Telephony Modem router configuration to a local computer. Once you have configured the Telephony Modem as desired, you should back up the configuration so that you can restore it later if needed.



Backing Up

Follow these steps to back up the configuration.

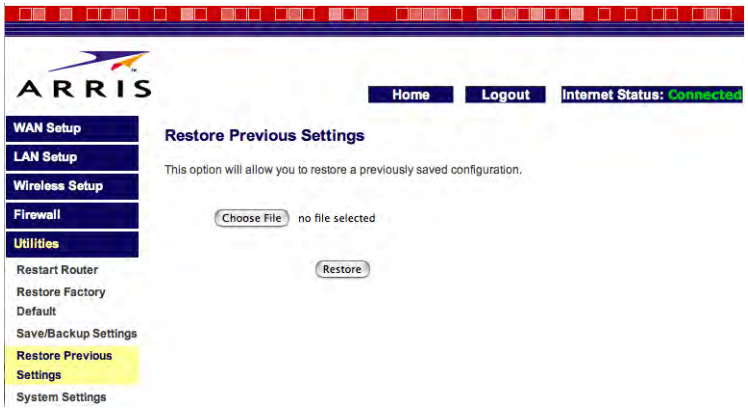
1. Click the Utilities link in the navigation menu, then click Save/Backup Settings.

   The Save/Backup Settings window appears.

2. Click the **Save** button.

   *The Telephony Modem downloads a file called **admcfg.cfg** to your computer.*

3. Copy the **admcfg.cfg** file to a safe location. You can rename the file, if desired, to help you find it in the future.



Restoring

Follow these steps to back up the configuration.

1. Click the Utilities link in the navigation menu, then click Restore Previous-Settings.

   The Restore Previous Settings window appears.

2. Click the **Choose File** button.

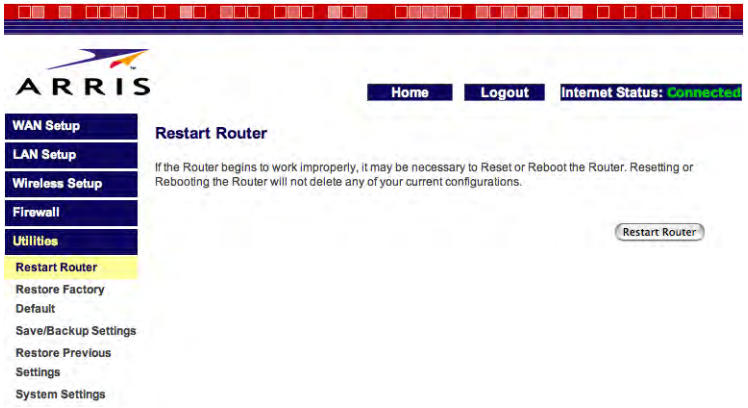
   Your browser prompts you to find the saved configuration file.

3. After locating the saved configuration file, click the **Restore** button.

   The Telephony Modem restarts the router with the restored configuration.

Resetting the Telephony Modem Router

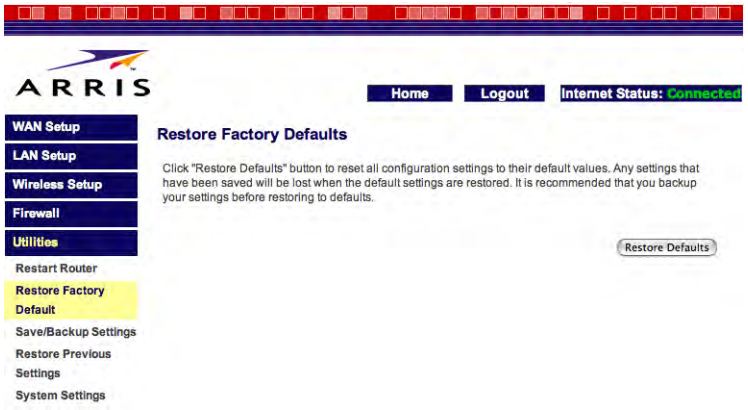
The router can be reset in two ways: a “normal” reset that simply restarts the router (without affecting any phone calls in progress), and a “factory” reset that erases the current configuration to the factory defaults.



Restarting the Router

To restart the router, you can push the Router Reset button on the back of the Telephony Modem. If your Telephony Modem is mounted in an inconvenient location, or you need to restart it remotely, you can use the Restart Router page.

To restart the router remotely, click the **Utilities** link in the navigation menu, then click **Restart Router**. When the page appears, click the **Restart Router** button. The Telephony Modem shows a confirmation dialog; click **OK** to restart the router.



Resetting the Router to Factory Defaults

To reset the router to factory defaults, you can press and hold the Router Reset button on the back of the Telephony Modem for about eight seconds. You may need to do this if a misconfiguration has locked out all access. If you can access the router and want to restart it remotely, you can use the Restore Factory Defaults page.

To restore factory defaults remotely, click the **Utilities** link in the navigation menu, then click **Restore Factory Defaults**. When the page appears, click the **Restore Defaults** button. The Telephony Modem shows a confirmation dialog; click **OK** to erase the configuration to factory defaults.

The router resets itself after erasing the current configuration.

Note: If you want to restore the current configuration after restoring factory defaults, see Backing Up and Restoring the Configuration first.

General Problems and Solutions

The Telephony Modem 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.

Avoid using an outlet controlled by a wall switch, if possible.

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 Modem, especially when many people are online. Always leave your Telephony Modem plugged into AC power and connected to the cable system.

Check the front panel lights:

- The **Power** and **Online** lights should be on.
- The **Link** light should be either on or blinking.
- If the **Power** light blinks for more than 30 minutes, call your cable company for assistance.

Check your cable connections. Connectors should be finger-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 Modem and CATV outlet, remove the splitters and connect the Telephony Modem directly to the outlet.

Proceed to the Ethernet or wireless solutions (next page) 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 **Router Reset** button on the back of the Telephony Modem.

A misconfiguration could lock out all access to the Telephony Modem router. If you think this has happened, see Resetting the Router to Factory Defaults.

I'm not getting on the Internet. (Wireless)

Check the indicator lights (see Using the Telephony Modem) — the WLAN light should be on.

Does your connection utility discover your wireless LAN? If you turned off "Broadcast SSID" (see Configuring the LAN Channel and Name) you need to manually enter the name of your wireless LAN in the connection utility.

Change your security mode to "WEP" or "disabled" (see Configuring Wireless Security). If you use "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 Modem router. If you think this has happened, see Resetting the Router to Factory Defaults.

My wireless Internet connection stops working sometimes.

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 (see Configuring the LAN Channel and Name for both features).

I can get on the Internet, but everything is slow.

If the Web site 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 your connection.

I don't have dial tone when I pick up my phone, why?

In order for telephone service to be functional on the Telephony Modem, telephone service must have been purchased from the service provider and configured on your Telephony Modem. 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 Modem is plugged in and the outlet has power.
- If the LED is lit, go to the next step.

2 Is the Online LED lit?

- If not, check the coax connection at the Telephony Modem 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 Telephone (Telephone 1 or Telephone 2) 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 Modem?

- Make sure the phone is plugged into the port on the back of the Telephony Modem 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 Modem plugged into a wall outlet?

- If so, unplug the RJ-11 connector at the back of the Telephony Modem and plug in a known working phone. If you now have dial tone, the problem is with the house wiring. Contact your cable company or a qualified wiring technician to correct the house wiring. If you still do not have dial tone, contact your service provider.

Glossary

The following is a list of common cable and networking terms.

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

Category 5 (Cat5)
A high-quality type of cable, used for Fast Ethernet (100BaseT) connections. When purchasing Ethernet cables, always look for Category 5 cable.

Coaxial cable (coax)
A thin wire, used to connect your television and Telephony Modem 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 Modem; 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).

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 cable company 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.

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.

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

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-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 Modem.

Firewall
A hardware or software device that prevents unauthorized access to a private network from the Internet. The WTM552 provides a built-in firewall.

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

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 or USB connectors. Ethernet hubs provide a common point of contact for all connected devices; USB hubs allow you to add peripherals without installing a USB card in your computer.

IP address

A number assigned to your computer by your cable company, 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.

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.

MAC address

A number that uniquely identifies any device connected to a network. Your cable company uses your Telephony Modem's MAC address to authorize access to the Internet. The MAC address is printed on a label on the bottom of your Telephony Modem.

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 cable company 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.

RF

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

RJ-11

A standard 4-pin modular connector, commonly used in North America for connecting telephones.

RJ-45

A standard 6-pin modular connector, commonly used on Ethernet cable. An RJ-45 connector looks like a wide RJ-11 (telephone) connector.

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 Modem. 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 Modem into a switched outlet to avoid disruptions.

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.

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.

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.

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