

**User Guide**

**VT2542 Voice Gateway**



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## Your Internet Telephone Service and Emergency Medical Services (EMS)

Vonage provides access to public emergency call services to all customers. The details vary depending on the country in which you subscribe to Vonage Internet telephone service:

<b>Country</b>	<b>Refer To</b>
<b>Canada</b>	<a href="#">Your Internet Telephone Service and 911 in Canada</a> (see page iii)
<b>United Kingdom</b>	<a href="#">Your Internet Telephone Service and 999/112 in the United Kingdom</a> (see page iv)
<b>United States of America</b>	<a href="#">Your Internet Telephone Service and 911 in the United States</a> (see page v)

## Your Internet Telephone Service and 911 in Canada

Vonage Canada offers a form of 9-1-1 service (9-1-1 Dialing) that is similar to traditional 9-1-1 (911) service but has some important differences and limitations when compared with enhanced 9-1-1 service (E911) available in most locations in conjunction with traditional telephone service. With both traditional 9-1-1 and E911 service, your call is sent directly to the nearest emergency response centre. In addition, with E911 service, your call back number and address are visible to the emergency response centre call-taker. With Vonage's 9-1-1 service, your call is sent to a national emergency call centre. The call centre operator will confirm your location information and then transfer your 9-1-1 call to the emergency response centre nearest your location. You should be prepared to confirm your address and call-back number with the operator. Do not hang up unless told directly to do so and if disconnected, you should dial 9-1-1 again.

You should ensure your location information, when registered with Vonage Canada, is kept current at all times. In case you are not able to speak during the 911 call, the call taker would dispatch emergency response vehicles to your last registered address. Remember that you need to update your 9-1-1 Dialing information if you move your device to a different location and/or if you add a new line to your account.

Your 9-1-1 Dialing service is activated when you subscribe to Vonage Canada service.

### Caution!



**IMPORTANT:** When using this VT2542 voice gateway, you CANNOT make any calls, including an emergency call, and E911 location services WILL NOT be available, under the following circumstances:

- Your broadband Internet Service Provider (ISP) connection goes down, is lost, or otherwise fails
- You lose electrical power
- Your broadband, ISP, or Vonage service is suspended or terminated

You should inform any household residents, guests and other persons who may be present at the physical location where you utilize the Vonage Canada service, of the important differences in and limitations of VoIP 9-1-1 Dialing service as compared with E911 service, as set out above.

We limit our liability to you in respect of our 911 Dialing service as we do not have any control over whether, or the manner in which, calls using our 911 Dialing service are answered or addressed by any local emergency response centre and we rely on third parties to assist us in routing 911 Dialing calls to local emergency response centres and to a national emergency calling centre. Prior to subscribing to Vonage Canada service, you must review the full text of applicable limitations of liability set out in the Terms of Service available at [http://www.vonage.ca/features\\_terms\\_service.php](http://www.vonage.ca/features_terms_service.php).

Note: Vonage, not Motorola, is responsible for the provision of VoIP telephony services through this equipment. Motorola shall not be liable for, and expressly disclaims, any direct or indirect liabilities, damages, losses, claims, demands, actions, causes of action, risks or harms arising from or related to the services provided through this equipment.

For more information about 911 and Vonage Internet Phone Service, go to <http://www.vonage.ca/911>.

## Your Internet Telephone Service and 999/112 in the United Kingdom

Vonage provides access to public emergency call services to all customers. When you dial **999/112**, your call is routed from the Vonage network to national emergency operators who will handle your call.

### Caution!



**IMPORTANT:** When using this VT2542 voice gateway, you CANNOT make any calls, including an emergency call, and 999 location services WILL NOT be available, under the following circumstances:

- Your broadband Internet Service Provider (ISP) connection goes down, is lost, or otherwise fails
- You lose electrical power
- Your broadband, ISP, or Vonage service is suspended or terminated

When using this voice gateway, you may be able to make an emergency call to an operator, but E999 location services may not be available, under the following circumstances:

- You have changed the physical address of your voice gateway, and you did not update or otherwise advise Vonage of this change.
- You are using a non-U.K. telephone number.
- There are delays in making your location information available in or through the local automatic location information database.

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To learn more about 999 and Vonage Internet Phone Service, go to <http://www.vonage.co.uk/features.php?feature=911>.

## Your Internet Telephone Service and 911 in the United States

### Caution!



**IMPORTANT:** When using this VT2542 voice gateway, you CANNOT make any calls, including an emergency call, and E911 location services WILL NOT be available, under the following circumstances:

- Your broadband Internet Service Provider (ISP) connection goes down, is lost, or otherwise fails
- You lose electrical power
- Your broadband, ISP, or Vonage service is suspended or terminated

When using this voice gateway, you may be able to make an emergency call to an operator, but E911 location services may not be available, under the following circumstances:

- You have changed the physical address of your voice gateway, and you did not update or otherwise advise Vonage of this change.
- You are using a non-U.S. telephone number.
- There are delays in making your location information available in or through the local automatic location information database.

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For more information about 911 and Vonage Internet Phone Service, go to <http://www.vonage.com/911>.

## Important Safety Information

IMPORTANT SAFETY INSTRUCTIONS — when using your telephone equipment, basic safety precautions should always be followed to reduce the risk of fire, electric shock, and injury to persons, including the following:

- Read all of the instructions listed here and/or in the user manual before you operate this device. Give particular attention to all safety precautions. Retain the instructions for future reference.
- This device must be installed and used in strict accordance with manufacturer's instructions as described in the user documentation that is included with the device.
- Comply with all warning and caution statements in the instructions. Observe all warning and caution symbols that are affixed to this device.
- To prevent fire or shock hazard, do not expose this device to rain or moisture. The device must not be exposed to dripping or splashing. Do not place objects filled with liquids, such as vases, on the device.
- To prevent electric shock, this device may require a grounding conductor in the line cord. Connect the device to a grounding type ac wall outlet using the power cord supplied with the device.
- This device was qualified under test conditions that included the use of the supplied cables between systems components. To ensure regulatory and safety compliance, use only the provided power and interface cables and install them properly.
- Different types of cord sets may be used for connections to the main supply circuit. Use only a main line cord that complies with all applicable device safety requirements of the country of use.
- Installation of this device must be in accordance with national wiring codes and conform to local regulations.
- Operate this device only from the type of power source indicated on the device's marking label. If you are not sure of the type of power supplied to your home, consult your dealer or local power company.
- Do not overload outlets or extension cords, as this can result in a risk of fire or electric shock. Overloaded AC outlets, extension cords, frayed power cords, damaged or cracked wire insulation, and broken plugs are dangerous. They may result in a shock or fire hazard.
- Route power supply cords so that they are not likely to be walked on or pinched by items placed upon or against them. Pay particular attention to cords where they are attached to plugs and convenience receptacles, and examine the point where they exit from the device.
- Place this device in a location that is close enough to an electrical outlet to accommodate the length of the power cord.
- Place device to allow for easy access when disconnecting the power cord of the device from the AC wall outlet.
- Do not connect the plug into an extension cord, receptacle, or other outlet unless the plug can be fully inserted with no part of the blades exposed.
- Place this device on a stable surface.
- It is recommended that the customer install an AC surge protector in the AC outlet to which this device is connected. This is to avoid damaging the device by local lightning strikes and other electrical surges.
- Postpone installation until there is no risk of thunderstorm or lightning activity in the area.

- 
- Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electric shock from lightning. For added protection, unplug the device from the wall outlet and disconnect the cables to avoid damage to this device due to lightning and power surges.
  - Do not cover the device, or block the airflow to the device with any other objects. Keep the device away from excessive heat and humidity and keep the device free from vibration and dust.
  - Wipe the device with a clean, dry cloth. Never use cleaning fluid or similar chemicals. Do not spray cleaners directly on the device or use forced air to remove dust.
  - **CAUTION:** To reduce the risk of fire, use only No. 26 AWG or larger (e.g., 24 AWG) UL Listed or CSA Certified Telecommunication Line Cord, or national equivalent.
  - Disconnect TNV circuit connector(s) before disconnecting power.
  - Disconnect TNV circuit connector before removing cover.
  - Do not use this product near water for example, near a bathtub, washbowl, kitchen sink or laundry tub, in a wet basement, or near a swimming pool.
  - Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electric shock from lightning.
  - Do not use the telephone to report a gas leak in the vicinity of the leak.
  - Use only the power cord and batteries indicated in this manual. Do not dispose of batteries in a fire. They may explode. Check with local codes for possible disposal instructions.
  - Upon completion of any service or repairs to this device, ask the service technician to perform safety checks to determine that the device is in safe operating condition.
  - Do not open the device. Do not perform any servicing other than that contained in the installation and troubleshooting instructions. Refer all servicing to qualified service personnel.
  - **SAVE THESE INSTRUCTIONS**

## FCC Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the device and receiver.
- Connect the device into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

**FCC CAUTION:** Any changes or modifications not expressly approved by Motorola for compliance could void the user's authority to operate the equipment.

## FCC Radiation Exposure Statement

### **IMPORTANT NOTE:**

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. To comply with the FCC RF exposure compliance requirements, the separation distance between the antenna and any person's body (including hands, wrists, feet and ankles) must be at least 20 cm (8 inches).

This transmitter must not be co-located or operation in conjunction with any other antenna or transmitter.

The availability of some specific channels and/or operational frequency bands are country dependent and are firmware programmed at the factory to match the intended destinations. The firmware setting is not accessible by the end user.

## Industry Canada (IC) Statement

This device complies with RSS-210 of the Industry Canada Rules. Operation is subject to the following two conditions:

- 1 This device may not cause interference, and
- 2 This device must accept any interference, including interference that may cause undesired operation of the device.

This device has been designed to operate with the antennas listed below, and having a maximum gain of 2 dB. Antennas not included in this list or having a gain greater than 2 dB are strictly prohibited for use with this device. The required antenna impedance is 50 ohms.

This device has been designed to operate with the antenna shipped with the unit, Motorola part number 495088-001.

To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p) is not more than that permitted for successful communication.

## IC Radiation Exposure Statement

### IMPORTANT NOTE:

This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 cm between the radiator and your body.

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

## Wireless LAN Information

- This device is a wireless network product that uses Direct Sequence Spread Spectrum (DSSS) radio technology. The device is designed to be inter-operable with any other wireless DSSS product that complies with:
- "The IEEE 802.11 Standard on Wireless LANs (Revision B and Revision G), as defined and approved by the Institute of Electrical Electronics Engineers
- "The Wireless Fidelity (Wi-Fi) certification as defined by the Wireless Ethernet Compatibility Alliance (WECA).

## Restrictions on the Use of Wireless Devices

In some situations or environments, the use of wireless devices may be restricted by the proprietor of the building or responsible representatives of the organization. For example, using wireless equipment in any environment where the risk of interference to other devices or services is perceived or identified as harmful.

If you are uncertain of the applicable policy for the use of wireless equipment in a specific organization or environment, you are encouraged to ask for authorization to use the device prior to turning on the equipment.

The manufacturer is not responsible for any radio or television interference caused by unauthorized modification of the devices included with this product, or the substitution or attachment of connecting cables and equipment other than specified by the manufacturer. Correction of the interference caused by such unauthorized modification, substitution, or attachment is the responsibility of the user.

The manufacturer and its authorized resellers or distributors are not liable for any damage or violation of government regulations that may arise from failing to comply with these guidelines.

## International Declaration of Conformity

We,

Motorola, Inc.  
Connected Home Solutions  
101 Tournament Drive  
Horsham, PA 19044, USA  
1.215.323.1000

declare under our sole responsibility that the

VT2542 Voice Gateway

To which the declaration relates is in conformity with the following standards:

EN 60950-1  
EN 300 328  
EN 301 489-1/-17  
EN 50371  
EN 61000-3-2  
EN 61000-3-3

The following provisions of the Directive(s) of the Council of the European Union:

EMC Directive 89/336/EEC  
Low Voltage Directive 73/23/EEC  
R&TTE Directive 1999/5/EC  
Waste Electrical and Electronic Equipment (WEEE) Directive 2002/96/EC  
Restriction of the Use of Certain Hazardous Substances in Electrical Equipment (RoHS)  
Directive 2002/95/EC

## Caring for the Environment by Recycling



When you see this symbol on a Motorola product, do not dispose of the product with residential or commercial waste.

### Recycling your Motorola Equipment

Please do not dispose of this product with your residential or commercial waste. Some countries or regions, such as the European Union, have set up systems to collect and recycle electrical and electronic waste items. Contact your local authorities for information about practices established for your region. If collection systems are not available, call Motorola Customer Service for assistance.



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## Overview

Your new VT2542 Voice Gateway enables up to two standard analog telephones to use digital telephone services over a [broadband](#) Internet connection. The broadband connection can be with any high-speed data service using either a cable modem or a DSL (digital subscriber line) modem.



The VT2542 has four ports and wireless capabilities. You can connect up to four devices to your VT2542.

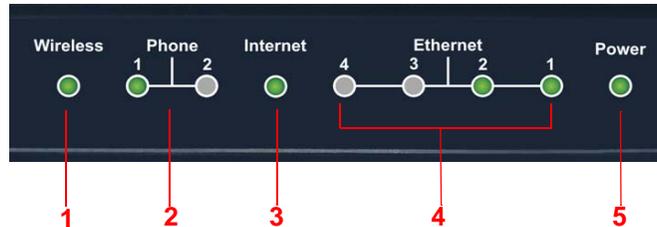
## Features

The VT2542 Voice Gateway provides:

- Four [Ethernet](#) ports
- Built-in [router](#) for a home or small office local area network ([LAN](#))
- Wireless and wired network connectivity
- Up to two lines of robust, full-featured telephone and fax service
- Voice-over-data prioritization so you can speak on the phone while using the Internet with no reduction in voice quality
- VPN passthrough support for remote access to enterprise applications
- Portability to plug into any cable or DSL broadband connection (see "[Your Internet Telephone Service and Emergency Medical Services \(EMS\)](#)" on page ii for important information if you move your voice gateway to another location)
- Plug-and-play installation
- Compact, low-profile design
- Easy Web-based configuration (see "[Basic Configuration](#)" on page 11)
- Support for features such as caller ID, call waiting, three-way calling, and call forwarding
- Firewall to help protect your network against external attacks

## Front Panel

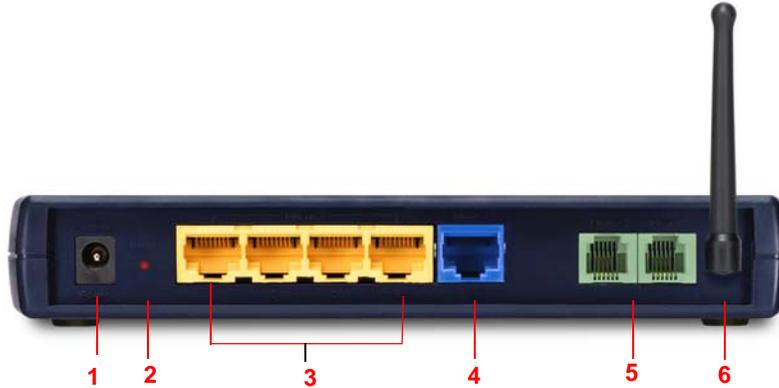
The front panel provides the following lights:  
123



Section	Light	Description
1	<b>Wireless</b>	<p>Indicates the status of the wireless network:</p> <p>If the Wireless LED is</p> <ul style="list-style-type: none"> <li>• Solid green, the wireless network is active.</li> <li>• Green and flashing, there is wireless network activity.</li> <li>• Off, the wireless network is not engaged.</li> </ul>
2	<b>Phone 1, 2</b>	<p>Indicates the status of phone line one and optional line two, respectively:</p> <p>If the Phone (1, 2, or both) LED is</p> <ul style="list-style-type: none"> <li>• Solid green, the phone for that line is on hook, registered with Vonage, and ready for use.</li> <li>• Green and flashing, the phone for that line is ringing or off hook.</li> <li>• Orange, you have voice mail.</li> <li>• Flashing in unison with the <b>Power</b> light, the voice gateway is downloading a firmware upgrade from Vonage. <i>Please do not unplug or disconnect your voice gateway while it is downloading firmware.</i></li> <li>• Off, the phone line is not registered for Vonage service. You cannot use it for phone calls.</li> </ul>
3	<b>Internet</b>	<p>Indicates the Internet connection speed:</p> <p>If the Internet LED is</p> <ul style="list-style-type: none"> <li>• Solid green, your connection speed is 100Base-T</li> <li>• Solid yellow, your connection speed is 10Base-T</li> </ul> <p>The LED flashes when there is activity on the Internet connection.</p>
4	<b>Ethernet 1 - 4</b>	<p>Indicates that a device is connected to the port and the speed of the Ethernet connection:</p> <p>If an Ethernet LED is</p> <ul style="list-style-type: none"> <li>• Off, no device is connected to the port</li> <li>• Solid green, a device is connected to the port (100Base-T)</li> <li>• Solid yellow, a device is connected to the port (10Base-T)</li> </ul> <p>A flashing yellow or green LED indicates that there is activity on the Ethernet connection.</p>
5	<b>Power</b>	<p><i>If the Power LED is red — blinking or solid — restart the voice gateway.</i></p> <p>During the power up, the voice gateway flashes several times while connecting, retrieving the IP address, and downloading configuration information from Vonage.</p> <ul style="list-style-type: none"> <li>• During firmware downloads (optional), the Phone and Power LEDs flash rapidly. <i>Please do not unplug or disconnect your voice gateway while it is downloading firmware.</i></li> <li>• When the Power LED is a solid green, the voice gateway has successfully registered with Vonage. If a firmware upgrade was needed, it has been successfully completed.</li> </ul>

## Rear Panel

The rear panel provides the following ports:



Key	Item	Description
1	<b>Power</b>	Connector for the AC power adapter.
2	<b>Reset</b>	If you lose your internet connection, use the reset button to reestablish communication.
3	<b>Ethernet 1-4</b>	Ethernet ports that let you to connect up to four devices to your voice gateway.
4	<b>Internet</b>	Connect your cable or DSL modem to the VT2542.
5	<b>Phone 1 and 2</b>	Connect one or two phones to one and two (optional). If you subscribe to only one phone line from Vonage, you must connect your phone to the Phone 1 port.
6	<b>Antenna</b>	Rotatable antenna used for wireless connections.

## ❖ Installation

### Before You Begin

Before you begin installation, check that you received the following items with your VT2542:

Item	Description
<b>AC adapter</b> 	Connects the VT2542 to an AC electrical outlet (the plug shown is for the United States or Canada; yours may look different)
<b>Ethernet cables</b> 	Blue cable connects the <b>Internet</b> port on your VT2542 to your cable or DSL modem Yellow cable connects the <b>Ethernet</b> port on your VT2542 to a computer or other network device
<b>Vertical mounting stand</b>	Provides vertical mounting on a desktop or other flat surface to use less space
<b>VT2542 Voice Gateway Quick Start Guide</b>	Provides instructions to quickly set up and configure your voice gateway
<b>Telephone Jack Adapter (UK only)</b> 	Converts a British BT431 telephone cord to RJ-11 to connect to the voice gateway

**Note:** The Ethernet cables and telephone cord provided are standard and color coordinated to help with installation. You can use substitute with other standard cables and cords to meet your needs.

In addition to your VT2542 voice gateway, you also need:

- An established DSL or cable Internet connection
- One or two touch-tone telephones
- Your computer must meet the minimum requirements listed below:
  - Pentium-class processor or faster
  - 16 MB of memory
  - 10 MB of hard disk space available
  - Windows® 2000, Windows XP™

*If you purchased your VT2542 voice gateway from a retail location, you must first activate your Vonage® Phone Service. You will need to provide the **WAN MAC ID** printed on the bottom of the VT2542.*

- In Canada, visit [www.vonage.ca/activate](http://www.vonage.ca/activate)
- In the United Kingdom, visit [www.vonage.co.uk/activate](http://www.vonage.co.uk/activate)
- In the United States, visit [www.vonage.com/activate](http://www.vonage.com/activate)

### Gather Information

You may need to obtain the following information about your high-speed Internet connection:

- For a DSL connection *only*, your user name and password
- For a cable modem connection using **static** IP addresses *only*, your **IP address**, **subnet mask**, **default gateway**, and **DNS** server IP address or addresses

- If you already have a router, we recommend printing its configuration screens to use for reference during [Basic Configuration](#).

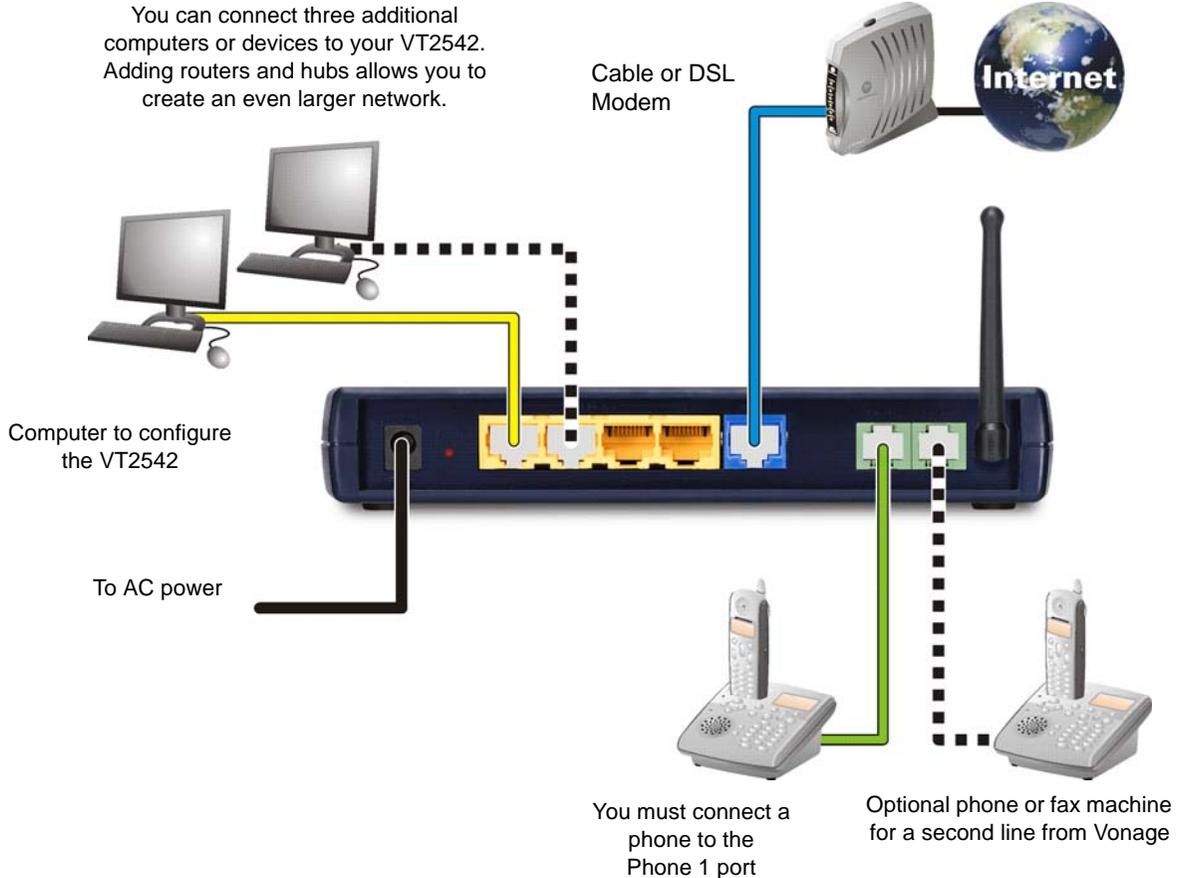
## Positioning Your VT2542 for Optimal Wireless Performance

To achieve the best wireless performance, review these guidelines before deciding where to place your VT2542:

- Connect at least one computer through a wired Ethernet connection.
- Placing your VT2542 in the physical center of your network is best, because its antenna sends out signal in all directions.
- Placing the VT2542 in a higher location, such as on top of a cabinet, helps disperse the signal cleanly, especially to upper floors.
- If possible, position your VT2542 in direct line of sight with other home network devices using a wireless connection.
- Avoid placing the VT2542 next to large, solid objects like computer cases, monitors, walls, fireplaces, etc. This helps the signal penetrate more cleanly.
- Other wireless devices, such as televisions, radios, microwaves, or 2.4 GHz cordless telephones, can interfere with the signal. Keep these devices away from the VT2542.
- Mirrors, especially those that are silver-coated, can reduce transmission performance.

## Connecting the VT2542

### A Installation - Wired Connection



- 1 Shut down your computer and unplug your cable or DSL modem power cord or adapter.
- 2 Disconnect your computer from the modem. Do not disconnect your modem from the cable or phone line that provides your Internet connection.
 

**Note:** Keep your modem off for approximately 10 minutes to clear its memory so it can recognize the VT2542 when you turn it back on.
- 3 Connect one end of the blue Ethernet cable to the Ethernet port on your modem. Plug the other end to the blue Ethernet port (labeled **Internet**) on the rear panel of your voice gateway.
- 4 Connect one end of the yellow Ethernet cable to the yellow **Ethernet** port on your voice gateway, and the other end of the cable to the port on your computer.
- 5 Plug your cable or DSL modem back into an electrical outlet.

- 6 Connect the power adapter to the **Power** port on the rear panel of the voice gateway, and plug the other end into an electrical outlet.

**IMPORTANT:** Before you continue, be sure to allow enough time for your voice gateway to complete its start-up process. VT2542 startup is complete when the Power light on its front panel lights solid green. This usually takes a few minutes.

- 7 Turn on your computer. The Ethernet light on the VT2542 front panel should light.

**IMPORTANT:** Before you continue, be sure the VT2542 Power, Ethernet, and Internet lights are all on.

- 8 Test your connection. Open a web browser and enter any website address (you can try [www.motorola.com](http://www.motorola.com)). If you can access the site, you have successfully installed your voice gateway.
- 9 Repeat step four to connect additional devices.

**If your test (STEP 8) is not successful, and you are a:**

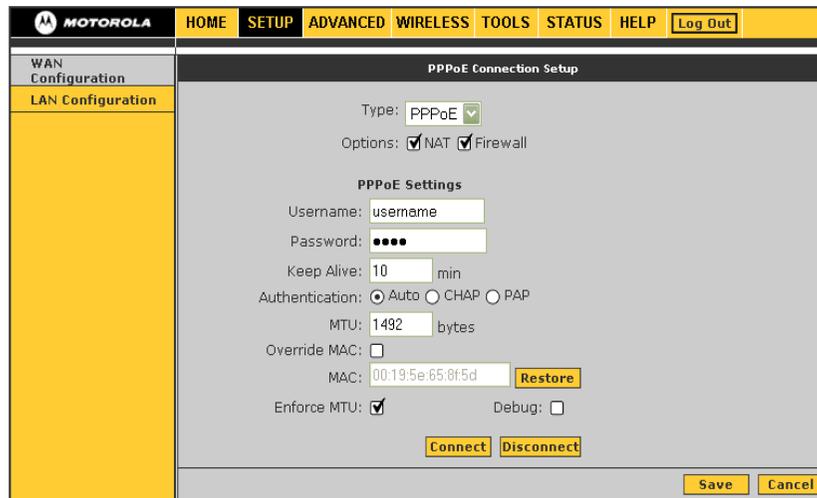
#### **Cable Modem Users**

Turn your cable modem off again for at least 10 minutes. If this does not correct your problem, you may need to register your VT2542 with your cable provider. Please contact them to update your information. Be sure to have the **WAN MAC ID** (located on the bottom of the VT2542) available. When your Internet connection works, go to C **"Connecting Your Telephone"** on page 10.

### DSL Modem Users

If you cannot connect to the voice gateway, and your modem was turned off for at least 10 minutes, you may need to set the PPPoE configurations.

- 1 Open a web browser from a computer connected to one of the VT2542 Ethernet ports.
- 2 Type **http://192.168.15.1** in the address field and press **ENTER** to access the sign in window.
- 3 Type **router** in the Username and Password fields (the default is **router** for both fields).
- 4 Click on **SETUP** (located on the top menu bar), and then click on **WAN Configuration** (located on menu bar at the left side of the screen).
- 5 Select **PPPoE** from the Type drop down menu.
- 6 Type the Username and Password you normally use to log into your DSL service.



The screenshot shows the Motorola web interface for WAN Configuration. The top navigation bar includes HOME, SETUP, ADVANCED, WIRELESS, TOOLS, STATUS, HELP, and Log Out. The left sidebar shows WAN Configuration and LAN Configuration. The main content area is titled "PPPoE Connection Setup" and contains the following fields and options:

- Type: PPPoE (dropdown menu)
- Options:  NAT  Firewall
- PPPoE Settings:
  - Username: username
  - Password: [masked]
  - Keep Alive: 10 min
  - Authentication:  Auto  CHAP  PAP
  - MTU: 1492 bytes
  - Override MAC:
  - MAC: 00:19:5e:65:8f:5d (with a Restore button)
  - Enforce MTU:  Debug:
- Buttons: Connect, Disconnect, Save, Cancel

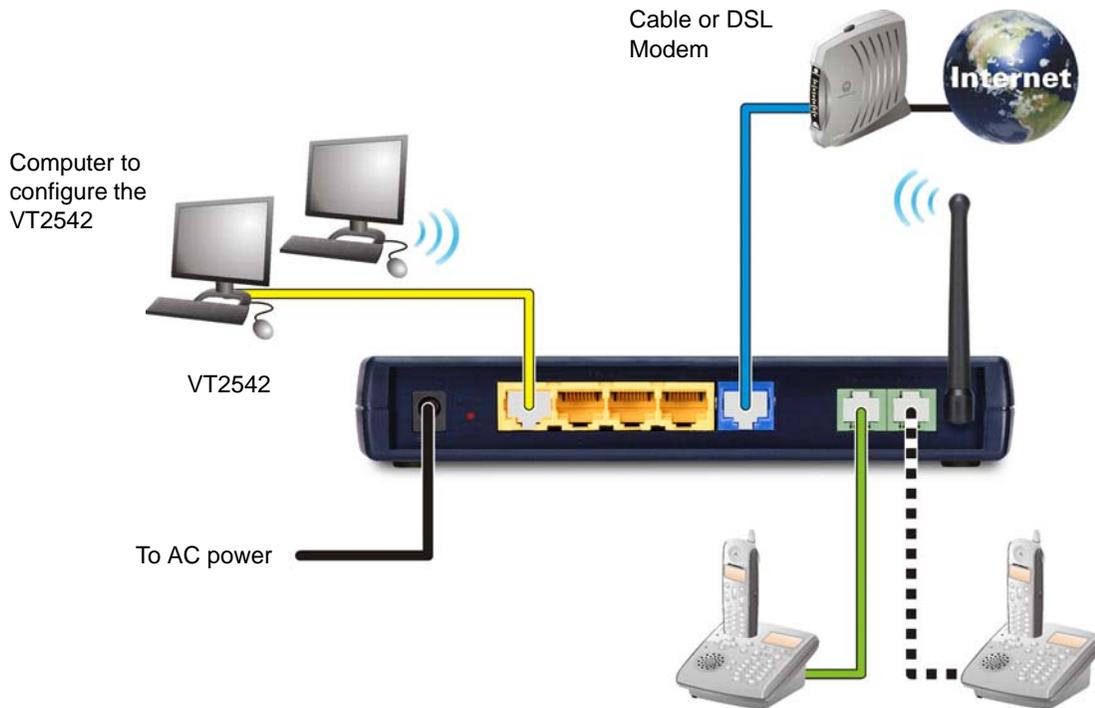
- 7 In the **Keep Alive** field, type 0 to ensure that your DSL link is always active.
- 8 Click **Connect** to start your Internet connection.
- 9 Click Save. Open a web browser and enter a web address (try [www.motorola.com](http://www.motorola.com)). If you can access the site, you have successfully installed your voice gateway. When your Internet connection works, go to ["Connecting Your Telephone"](#) on page 10

## B Installation - Wireless Connection

To connect to the voice gateway wirelessly, your computer must have a 802.11b or 802.11g wireless adapter installed. If all wireless security and encryption are disabled on the adapter and the VT2542, the computer will automatically connect to the voice gateway.

**Note:** Motorola ships the VT2542 with all wireless security functions disabled.

Connect at least one computer to the voice gateway using a wired connection in order to perform the configuration. Do not attempt to configure the VT2542 over a wireless connection. After your wireless LAN is operational, enable security.



## C Connecting Your Telephone

- 1 In the United Kingdom, connect your BT telephone cord to the Telephone Jack Adapter. Connect the adapter to the green **Phone 1** port on the VT2542.

In the United States or Canada, connect a telephone cord to the green **Phone 1** port on the VT2542.

*If you only subscribed to one phone line from Vonage, you must connect your phone to the Phone 1 port.*

- 2 If you subscribed to a second phone or fax line from Vonage, connect a telephone or fax machine to the **Phone 2** port.
- 3 Check for a dial tone. If you hear a recording instructing you to connect your phone to the **Phone 1** port, please do so. If you hear neither this message nor a dial tone, refer to "[Troubleshooting](#)" on page 64.
- 4 If you hear a dial tone:
  - In Canada, you are ready to send and receive calls.
  - In the United Kingdom, call **0207 993 8973** to complete your installation.
  - In the United States, call **1-800-342-1791** to complete your installation.

## Basic Configuration

The VT2542 provides a graphical user interface (GUI) to configure Ethernet, router, DHCP, and security settings. It is much easier to configure your local area network (LAN) using a VT2542 than with traditional networking equipment. *For basic operation, most default settings require no modification.*

The following sections describe:

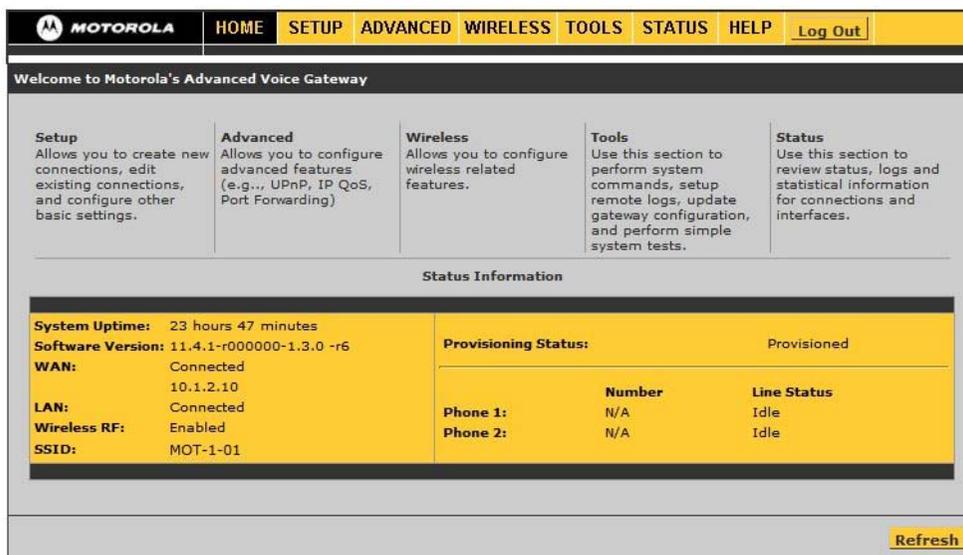
- [Logging In to the VT2542](#) (see page 11)
- [Configuration Overview](#) (see page 12)
- [Restoring Defaults for the VT2542](#) (see page 13)
- [Logging Out](#) (see page 13)
- [WAN Configuration](#) (see page 14)
- [LAN Configuration](#) (see page 19)

*If DHCP is enabled on all of the computers on your network (LAN), you do not need to change any of the default LAN settings. Unless you have sufficient networking knowledge, we recommend not changing any LAN settings.*

For information about advanced configuration, see [“Advanced Configuration”](#) on page 21.

## Logging In to the VT2542

- 1 On a computer connected to the VT2542, open a Web browser.
- 2 In the **Address** or **Location** field, type **http://192.168.15.1** and press **ENTER** to display the Log In page.
- 3 Type **router** in the **Username** field.
- 4 Type **router** in the **Password** field (the default is “**router**” for both fields).
- 5 Click **Log In** to display the **HOME** page:



Status Information		
<b>System Uptime:</b> 23 hours 47 minutes	<b>Provisioning Status:</b> Provisioned	
<b>Software Version:</b> 11.4.1-r000000-1.3.0 -r6		
<b>WAN:</b> Connected 10.1.2.10	<b>Phone 1:</b> N/A	<b>Line Status:</b> Idle
<b>LAN:</b> Connected	<b>Phone 2:</b> N/A	Idle
<b>Wireless RF:</b> Enabled		
<b>SSID:</b> MOT-1-01		

If you have difficulty starting the GUI, see [“Troubleshooting”](#) on page 64.

## Configuration Overview

The main menu at the top provides:

Item	Click To
<b>HOME</b>	Display the home page
<b>SETUP</b>	Perform <a href="#">WAN Configuration</a> or <a href="#">LAN Configuration</a>
<b>ADVANCED</b>	Enable/configure <a href="#">UPnP</a> , IP <a href="#">QoS</a> , Web filters, multicast, routing, remote Web access, <a href="#">SSH</a> access, port forwarding, IP filters, and other functionality
<b>TOOLS</b>	Restore, import, export, update, or save the configuration, specify log messages, change the password, determine whether a computer can be reached over the network, or restart the VT2542
<b>STATUS</b>	Display network statistical information
<b>HELP</b>	Display links to information about the Firewall, LAN Clients, PPPoE Connection, UPnP, IP QoS, and RIP
<b>Log Out</b>	Log out of the VT2542

The following buttons appear at the bottom right on each configuration page:

Item	Click To
<b>Save</b>	Save your changes. <i>If you restart your voice gateway without saving your changes, all of your changes are lost. After it restarts, the voice gateway uses its last saved configuration.</i>
<b>Cancel</b>	Clear your changes on the current page and return to the main menu. After you click <b>Save</b> , cancel does not clear your changes.

## Exporting the VT2542 Configuration

*Before making changes, we recommend exporting the current configuration to use as a backup.*

To export the VT2542 configuration:

- 1 Click **Tools**.
- 2 Click [Import/Export Configuration](#) to display the Import/Export Configuration page.
- 3 Click **Export**. The VT2542 configuration is saved to a file named **config.bin** on your computer's hard drive.

## Importing the Saved Configuration

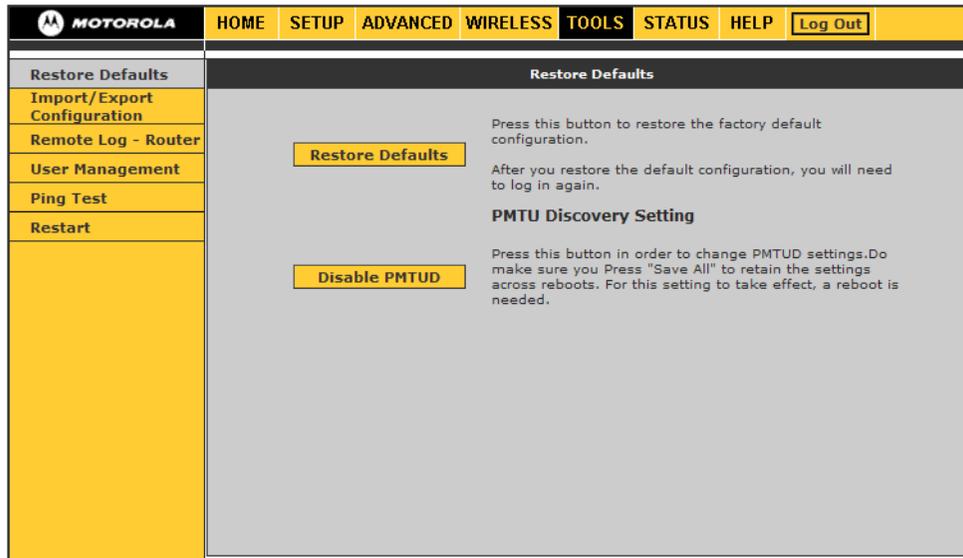
If you have exported the configuration, you can import the saved configuration to return the voice gateway to its state when you exported the configuration.

To import a saved configuration from your computer to the VT2542:

- 1 Click **Tools**.
- 2 Click [Import/Export Configuration](#) to display the Import/Export Configuration page.
- 3 Type the path and filename or click **Browse** to select the desired configuration file.
- 4 Click **Import**. The update status appears at the bottom of the window. When the update is finished, the voice gateway restarts. You will need to log in again.

## Restoring Defaults for the VT2542

- 1 Click **TOOLS**.
- 2 Click **Restore Defaults** on the menu at left:



- 3 Click the **Restore Defaults** button.

If the VT2542 **Power** light is red after you restart the VT2542, refer to “[Troubleshooting](#)” on page 64.

## Logging Out

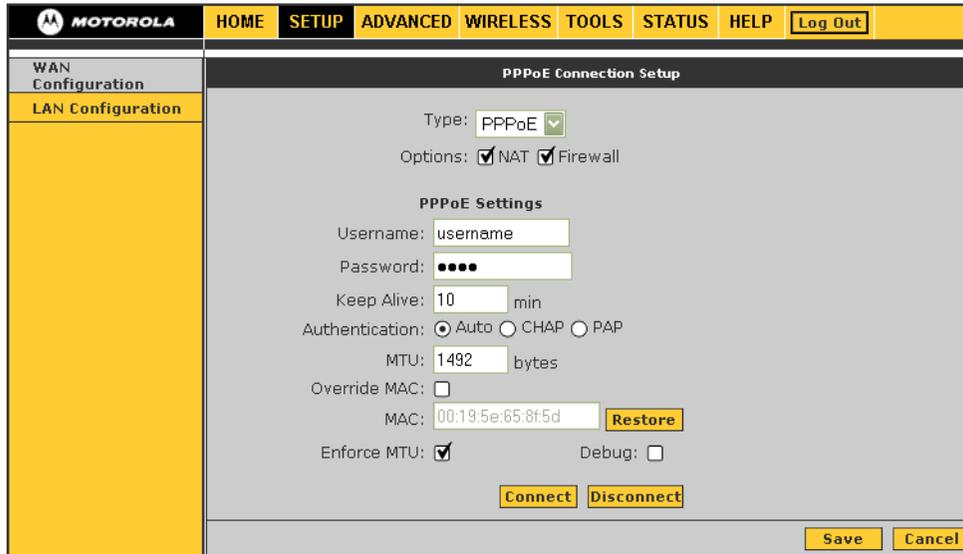
- 1 On the main menu, click **Log Out**. The text Are you sure you want to Log Out? is displayed.
- 2 Click **Log Out**. The VT2542 login screen appears.

## WAN Configuration

- 1 Log in to the VT2542 (see [“Logging In to the VT2542”](#) on page 11).
- 2 Click **SETUP**.
- 3 Click **WAN Configuration**.
- 4 From the **Type** drop-down list, choose *one* of:

<b>PPPoE</b>	PPPoE is used with all DSL modems	See <a href="#">“WAN Setup for PPPoE (DSL)”</a> on page 15
<b>Static</b>	For some cable modems, the cable company assigns the cable modem a static (unchanging) IP address. You must provide the IP address, subnet mask, default gateway, and one to three domain name server (DNS) addresses.	See <a href="#">“WAN Setup for a Static IP Address (Cable Modem)”</a> on page 16
<b>DHCP</b>	Most cable modems have a dynamic IP address assigned by the cable company DHCP server. Typically no additional configuration is needed for the VT2542.	See <a href="#">“PPTP Settings”</a> on page 17

## WAN Setup for PPPoE (DSL)



### PPPoE Connection Setup fields and buttons

Field or Button	Description
<b>Options</b>	<p><i>We recommend leaving the following selected:</i></p> <ul style="list-style-type: none"> <li>NAT — Enables <a href="#">Network Address Translation</a></li> <li>Firewall — Enables the VT2542 firewall</li> </ul>
<b>User name</b>	Your PPPoE user name provided by your DSL provider.
<b>Password</b>	Your PPPoE password provided by your DSL provider.
<b>Authentication</b>	<p>Sets the authentication:</p> <ul style="list-style-type: none"> <li>Auto — Automatic</li> <li>CHAP — Challenge Handshake Authentication Protocol</li> <li>PAP — Password Authentication Protocol</li> </ul> <p>Microsoft CHAP v2 is supported in the Auto and CHAP options. MS CHAP v1 is not supported.</p>
<b>MTU</b>	The maximum transmission unit for the DSL connection. It is a negotiated value that represents the maximum size in bytes of the packets sent over the connection. The default is 1492. The maximum is 1500. The minimum is 64.
<b>Override MAC</b>	If your cable or DSL provider associates a particular service to a specific device, such as your computer, select this field and type that MAC address in the <b>MAC</b> field to use as a "virtual" <a href="#">WAN MAC address</a> instead of the VT2542 MAC address. By default, the MAC address printed on the VT2542 is displayed in this field.
<b>Restore</b>	Restores the actual VT2542 MAC address.
<b>Enforce MTU</b>	If enabled (the default), all <a href="#">TCP</a> segments must have a size within the PPPoE MTU. <i>If you disable this, you may have problems accessing some Internet sites.</i>
<b>Debug</b>	Enables PPPoE debugging for use by technical support personnel <i>only</i> .
<b>Connect</b>	Establishes the DSL connection.
<b>Disconnect</b>	Ends the DSL connection. <i>If you disconnect your DSL connection, your VoIP service cannot work.</i>

## WAN Setup for a Static IP Address (Cable Modem)

The screenshot shows the 'Static Connection Setup' configuration page. The 'Type' is set to 'Static'. Under 'Options', both 'NAT' and 'Firewall' are checked. In the 'Static Settings' section, the 'IP Address' is 0.0.0.0, 'Mask' is empty, 'Gateway' is empty, 'DNS 1' is 172.16.100.5, 'DNS 2' and 'DNS 3' are empty, and 'Override MAC' is unchecked. The 'MAC' field contains 00:19:5e:65:8f:5d and a 'Restore' button is next to it. In the 'PPTP Settings' section, 'Enable' is unchecked, 'Username' is 'username', 'Password' is masked with dots, 'Server IP' is 192.168.15.20, 'MPPC' is unchecked, 'MPPE' has 'No' selected, 'Strength' has '40-bit', '56-bit', and '128-bit' all checked, 'Stateless' is checked, and 'Authentication' has 'Auto' selected. 'Debug' is unchecked. 'Save' and 'Cancel' buttons are at the bottom right.

- Options**      *We recommend leaving the following selected:*
- NAT — Enables [Network Address Translation](#)
  - Firewall — Enables the VT2542 firewall

Type the following in [dotted-decimal format](#) as assigned by your cable provider:

- IP Address**      The static IP address
- Mask**            The *subnet mask*
- Gateway**        The gateway IP address
- Default Gateway**    The default gateway IP address
- DNS 1, 2, and 3**    One to three [domain name server](#) IP addresses

Optional fields and buttons are:

- Override MAC**    If your cable or DSL provider associates a particular service to a specific device, such as your computer, select this field and type that MAC address in the **MAC** field to use as a “virtual” [WAN MAC address](#) instead of the VT2542 MAC address. By default, the MAC address printed on the VT2542 is displayed in this field.
- Restore**            Restores the actual VT2542 MAC address.

## PPTP Settings

If you are connecting to a virtual private network (VPN), consult with your network administrator regarding the appropriate Point-to-Point Tunneling Protocol (PPTP) settings for your VPN. The PPTP settings are:

<b>Enable</b>	Enables PPTP on your VT2542
<b>Username</b>	Provided by your ISP
<b>Password</b>	Provided by your ISP
<b>Server IP</b>	Sets the IP address of the server for the VPN, in <a href="#">dotted-decimal format</a>
<b>MPPC</b>	Enables Microsoft Point-To-Point Compression ( <a href="#">MPPC</a> )
<b>MPPE</b>	Enables Microsoft Point-to-Point Encryption ( <a href="#">MPPE</a> )
<b>Strength</b>	Works with the MPPE feature when the field is checked and enabled Three encryption strengths are supported by the client: <ul style="list-style-type: none"><li>• 40-bit</li><li>• 56-bit</li><li>• 128-bit (highest)</li></ul>
<b>Stateless Authentication</b>	You can choose: <ul style="list-style-type: none"><li>• <b>Auto</b> — System automatically verify information</li><li>• <b>CHAP</b> — Challenge Handshake Authentication Protocol</li><li>• <b>PAP</b> — Password Authentication Protocol</li><li>• <b>MSCHAP</b> — Microsoft Challenge Handshake Authentication Protocol</li><li>• <b>MSCHAP-v2</b> — Microsoft Challenge Handshake Authentication Protocol version 2</li></ul>
<b>Debug</b>	Enable or disable the PPTP client application in order to display debug information

## WAN Setup for DHCP (Cable Modem)

The screenshot shows the 'DHCP Connection Setup' page. At the top, there is a navigation bar with tabs: HOME, SETUP, ADVANCED, WIRELESS, TOOLS, STATUS, HELP, and Log Out. On the left, there is a sidebar with 'WAN Configuration' and 'LAN Configuration' options. The main content area is titled 'DHCP Connection Setup' and contains the following fields and options:

- Type: DHCP (dropdown menu)
- Options:  NAT  Firewall
- DHCP Settings**
  - IP Address: NA
  - Mask: NA
  - Gateway: NA
  - Override MAC:
  - MAC: 00:19:5e:65:8f:5d
- PPTP Settings**
  - Enable:
  - Username: username
  - Password: [masked]
  - Server IP: 192.168.15.20
  - MPPC:
  - MPPE:  No  Req'd  Optional
  - Strength:  40-bit  56-bit  128-bit
  - Stateless:
  - Authentication:  Auto  CHAP  PAP  MSCHAP  MSCHAP-v2
  - Debug:

At the bottom right, there are 'Save' and 'Cancel' buttons.

### Options

We recommend leaving the following selected:

- NAT — Enables [Network Address Translation](#)
- Firewall — Enables the VT2542 firewall

Optional fields and buttons are:

- Override MAC** If your cable or DSL provider associates a particular service to a specific device, such as your computer, select this field and type that MAC address in the **MAC** field to use as a “virtual” [WAN MAC address](#) instead of the VT2542 MAC address. By default, the MAC address printed on the VT2542 is displayed in this field.
- Restore** Restores the actual VT2542 MAC address.
- Renew** Requests a new WAN IP address for your VT2542 from the [DHCP](#) server at Vonage.
- Release** Releases the VT2542 WAN IP address.

## LAN Configuration

If DHCP is enabled on all of the computers on your home network (LAN), you should not need to change any of the default LAN settings. For information about enabling DHCP, see “Configuring TCP/IP” on page 51.

*Unless you have sufficient networking knowledge, we recommend not changing any LAN settings.*

### LAN Configuration fields and buttons

Field or Button	Description
<b>Subnet IP Address</b>	Sets your LAN subnetwork IP address in dotted-decimal format. We recommend not changing the default 192.168.15.0.
<b>Netmask</b>	Sets the VT2542 subnet mask, in dotted-decimal format. The default is 255.255.255.0, which enables the VT2542 router to support up to 253 users connected through multiple hubs, switches, routers, or wireless access points.
<b>Host Name</b>	Sets the voice gateway host name. It can contain any alphanumeric characters, except spaces.
<b>Domain</b>	Sets the domain name. It is used in conjunction with the host name to uniquely identify the voice gateway. To access the web pages of the voice gateway, you can type 192.168.15.1 (the IP address) or mygateway1.Motorola_VT (hostname.domain).

## LAN Configuration fields and buttons (continued)

Field or Button	Description
<b>Enable DHCP Server</b>	<p>If selected, the <a href="#">DHCP</a> server on the voice gateway assigns IP addresses to the computers and other <a href="#">hosts</a> on your network, if they have DHCP enabled (see “<a href="#">Configuring TCP/IP</a>” on page 51). By default, the voice gateway DHCP server is enabled.</p> <p><i>If there is another DHCP server running on your network (on another router), you must disable one of the DHCP servers.</i></p>
<b>Start IP</b>	<p>Sets the first IP address assigned by the DHCP server, in <a href="#">dotted-decimal format</a>. It must be greater than the IP address value of the voice gateway. For example, if the IP address of the voice gateway is 192.168.15.1 (default), the starting IP address must be 192.168.15.2 (or higher).</p>
<b>End IP</b>	<p>Sets the final IP address assigned by the DHCP server, in dotted-decimal format. It cannot exceed the subnet limit of 254. For example, the default is 192.168.15.254. If the DHCP server runs out of DHCP addresses, users cannot access network resources. If this happens, increase the End IP (to the limit of 254) or reduce the Lease Time.</p> <p>If you change Start IP or End IP, be sure they are in the range specified by the Subnet IP Address and Netmask. For example, if the voice gateway IP address is 192.168.15.1 (the default) and you set Start IP and End IP to 192.168.0.2 and 192.168.0.100 respectively, computers with DHCP enabled cannot communicate with the voice gateway.</p>
<b>Lease Time</b>	<p>Sets the time, in seconds, that a network computer remains connected to the voice gateway using its current assigned IP address. At the end of this time, the DHCP server renews the lease or assigns the computer a new IP address. The default is 3600 seconds (1 hour). The maximum is 999999 seconds (about 278 hours).</p>
<b>Enable DHCP Relay</b>	<p>If selected, the voice gateway forwards requests and responses between the computers on your network (the DHCP clients) and the DHCP server you chose to use for your network.</p>
<b>Relay IP</b>	<p>If you select Enable DHCP Relay, type the IP address of the DHCP server in dotted-decimal format.</p>
<b>Server and Relay Off</b>	<p>If selected, you must carefully configure the IP address, Subnet Mask, and DNS settings of every <a href="#">host</a> on your network. Do not assign the same IP address to more than one host. Your voice gateway must be on the same subnet as the other hosts.</p>

## Advanced Configuration

The ADVANCED menu provides the following links:

- [UPnP](#) — Enables UPnP so traffic for applications using UPnP can pass through the voice gateway
- [IP QoS](#) — IP quality of service (QoS) enables you to assign priority to Internet traffic based on the source and destination IP addresses, source and destination ports, packet length, and protocol
- [Port Forwarding](#) — direct incoming traffic to specific computers on your network
- [IP Filters](#) — block applications and services based on the IP address of a LAN device
- [LAN Clients](#) — determine how computers on your network receive an IP address
- [Web Filters](#) — specify whether proxies, cookies, Java applets, ActiveX controls, or pop-ups can pass through your voice gateway
- [Dynamic DNS Client](#) — register your voice gateway with a DNS server to access the voice gateway each time from the WAN using the host name
- [Multicast](#) — enable IGMP Multicast
- [Static Routing](#) — define up to 16 static routes in the voice gateway routing table
- [Dynamic Routing](#) — define dynamic routes using routing information protocol (RIP)
- [Remote Web Access](#) — enable access to the voice gateway remotely over the Web
- [Remote SSH Access](#) — access the voice gateway remotely via secure shell
- [Ethernet Switch](#) — specify ethernet switch settings

### NOTES:

- A red bullet point indicates that the feature is not enabled; a green bullet point indicates that the feature is enabled.
- Universal Plug and Play (UPnP) requires one active WAN connection and the host should support this feature.

## IP QoS

### IP QoS fields and buttons

Field or Button	Description
<b>Enable IPQoS</b>	If selected, traffic prioritization is enabled (the default).
<b>Trusted Mode</b>	If enabled (the default), all IP QoS traffic rules are applied first, regardless of the TOS bit settings. After the rules are exhausted, the existing TOS bit settings are honored. If disabled, all rules are also applied, except if there is no match, a default rule of queuing priority Low is used.
<b>Add</b>	Displays the <a href="#">IP QoS Traffic Rule</a> window, where you can define rules.

## IP QoS Traffic Rule

This window displays when you click **Add** on the **IP QoS** window. Use it to define rules for filtering packets.

### IP QoS Traffic Rule fields

Field	Description
<b>Rule Name</b>	The rule name
<b>Source IP</b>	Sets the source IP address for the rule
<b>Source Start Port</b>	Sets the source start port
<b>Destination IP</b>	Sets the destination IP address
<b>Destination Start Port</b>	Sets the destination start port
<b>Packet Length Start</b>	Sets the minimum packet size for the rule
<b>Protocol</b>	Sets the protocol — TCP, UDP, ICMP, or Any
<b>Traffic Priority</b>	Sets the priority for traffic matching these characteristics — High or Low
<b>Source Netmask</b>	Sets the source subnet mask, which along with the Source IP specifies a range of source IP addresses
<b>Source End Port</b>	Sets the source end port
<b>Destination Netmask</b>	Sets the destination subnet mask, which along with the Destination IP specifies a range of destination IP addresses
<b>Destination End Port</b>	Sets the destination end port
<b>Packet Length End</b>	Sets the maximum packet size allowed by the rule
<b>Physical Port</b>	Can be none, Port 1, Port 2, Port 3, Port 4, or WLAN

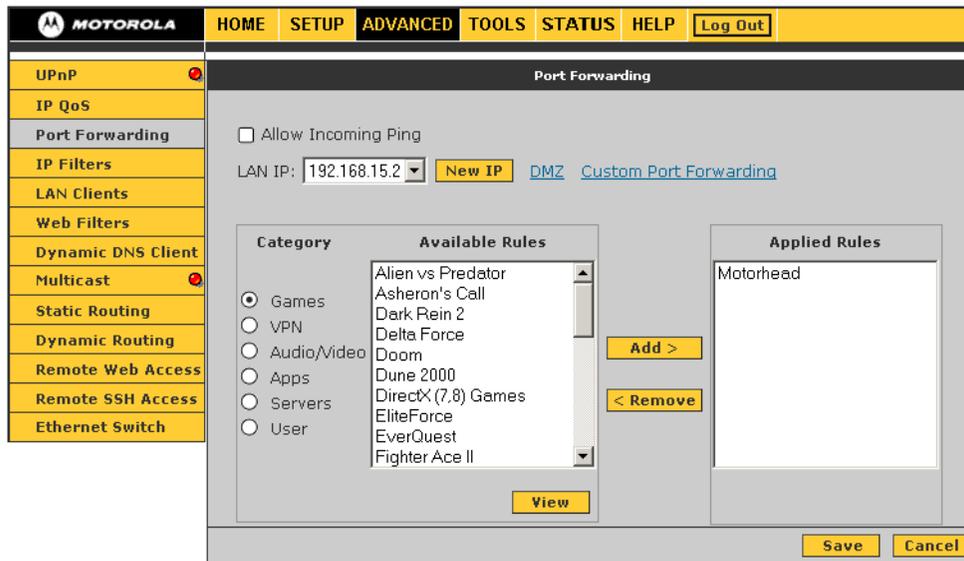
## IP QoS Traffic Rule fields (continued)

Field	Description
<b>Normal Service</b>	Packets matching the rule are treated as normal packets requiring no special treatment along the path. Normal packets have TOS byte 0 in the IP Header.
<b>TOS Marking</b>	Enables you to assign a TOS value to this traffic — No Change, Normal Service, Minimize monetary cost, Maximize reliability, Maximize throughput, or Minimize delay. The priority bits in the TOS byte are set to zero upon marking and derived based on priority queues. The priority bit value for each priority queue is: <ul style="list-style-type: none"><li>• Voice (EF1): 5</li><li>• High (EF2): 4</li><li>• Medium: 3</li><li>• Low: 1</li></ul>

## Port Forwarding

Port forwarding enables you to direct incoming traffic to specific LAN hosts (computers on your network) based on the protocol and port number. It is used to play Internet games or provide local services (such as web hosting) for a LAN group. Port forwarding is also referred to as “virtual servers.” You can:

- Apply predefined port forwarding rules to one or more computers
- If you have the necessary networking knowledge, create, edit, or delete your own port forwarding rules
- Add a computer to the [DMZ](#)



### Port Forwarding fields and buttons

Field or Button	Description
<b>Allow Incoming Ping</b>	Enables the voice gateway to respond to a ping from the Internet.
<b>LAN IP</b>	Selects the IP address to host the service.
<b>New IP</b>	Displays the LAN Clients window to reserve an IP address.
<b>DMZ</b>	Displays the <a href="#">IP Filters</a> page.
<b>Custom Port Forwarding</b>	Displays the <a href="#">DMZ Settings</a> page.
<b>Category</b>	Sets the category for which rules are displayed in the Available Rules list — Games, VPN, Audio/Video, Apps (applications), Servers, or User (custom rules you can define and edit).
<b>Available Rules</b>	Lists the available rules in the selected Category.

## Port Forwarding fields and buttons (continued)

### Field or Button

### Description

#### View

Displays the protocols and port ranges for the selected Available Rule. For example, if you select Alien vs. Predator and click **View**, the following is displayed:

Rule Management			
Rule Name: Alien vs Predator			
<b>Cancel</b>			
Protocol	Port Start	Port End	Port Map
UDP	80	80	80
UDP	2300	2400	2300
UDP	8000	8900	8000

Click **Cancel** to return to the Port Forwarding page.

#### Add

Adds the selected Available Rule to the Applied Rules list.

#### Remove

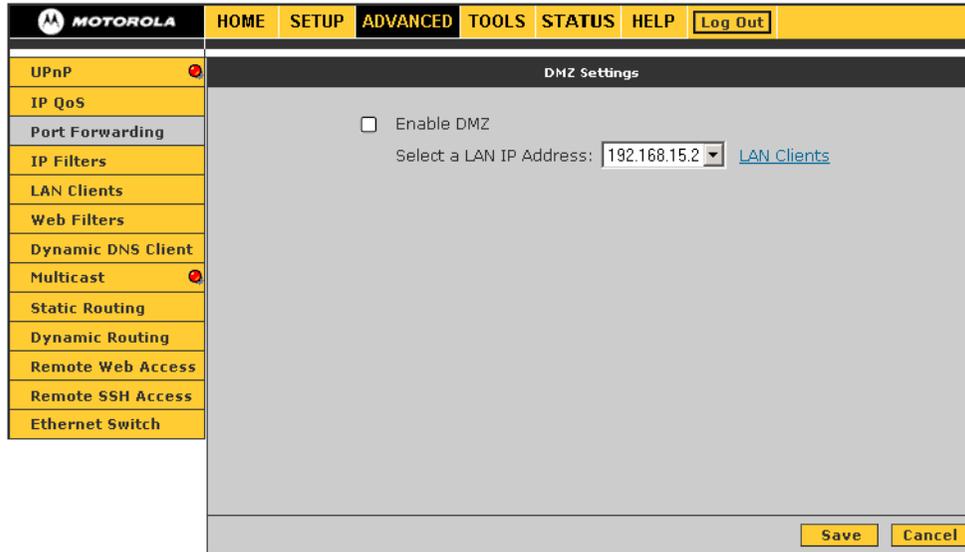
Deletes the selected rule from the Applied Rules list.

#### Applied Rules

Lists the IP filtering rules you selected to apply for each given category.

## DMZ Settings

Configuring a computer as a demilitarized zone (DMZ) forwards any network traffic that is not redirected to another computer through port forwarding to the IP address of the computer. This allows access to the DMZ host from the Internet.



### DMZ Settings fields

Field	Description
Enable DMZ	Enables or disables the DMZ feature. It is disabled by default.
Select a LAN IP Address	Selects the LAN IP address of the DMZ computer to expose to the Internet with no protection from the VT2542 firewall. <i>This may expose your network to security risks.</i>
LAN Clients	Displays the <a href="#">LAN Clients</a> page to configure the DMZ computer.

## Custom Port Forwarding

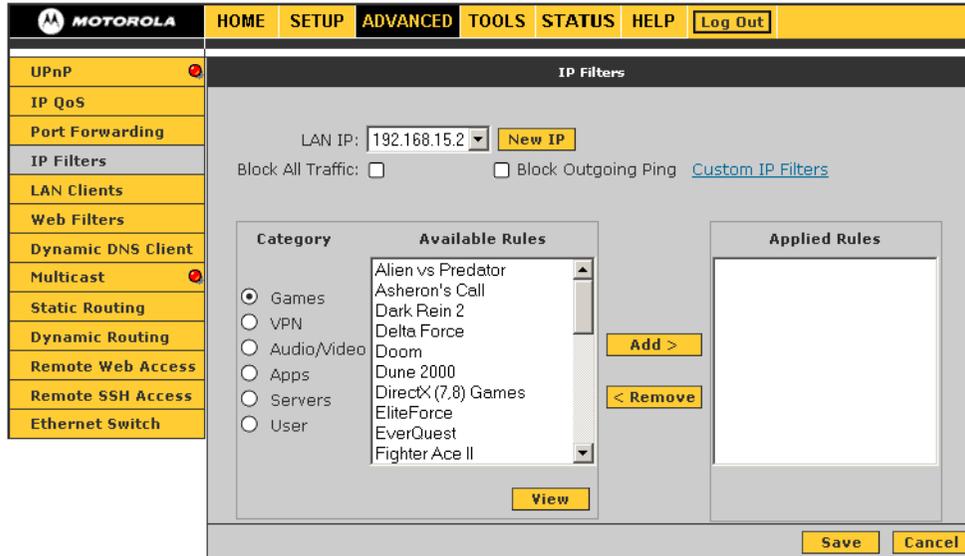
You can create up to 20 custom port forwarding entries to support specific services or applications, such as concurrent NAT/NAPT operation.

### Custom Port Forwarding fields

Field	Description
<b>Enable</b>	It is selected by default and automatically applies when you click <b>Apply</b> .
<b>Application</b>	The name of the application for which ports are opened.
<b>Protocol</b>	Can be TCP, UDP and TCP, or UDP.
<b>Source IP Address</b>	Sets the source IP address from which incoming traffic is allowed.
<b>Source Netmask</b>	Sets a subnet mask used in conjunction with the Source IP Address to set a range of IP addresses. Enter <b>0.0.0.0</b> for all.
<b>Destination IP Address</b>	The LAN's destination IP address for incoming traffic.
<b>Destination Netmask</b>	Subnet mask used in conjunction with the Destination IP Address to set a range of IP addresses. The default is 255.255.255.255.
<b>Destination Port Start</b>	The starting port number that is opened for this application.
<b>Destination Port End</b>	The ending port number that is opened for this application.
<b>Destination Port Map</b>	Destination port mapped on the LAN (destination) side to which packets are forwarded. There are two types of port mapping: <ul style="list-style-type: none"> <li>• One-to-one (one port mapped to one) (WAN = 500 to 600; LAN = 500 to 600)</li> <li>• Multiple-to-one (several ports mapped to one) (WAN = 500 to 600; LAN = 700)</li> </ul> Wildcard (*) entries are allowed for the IP Address, Netmask, and Port range fields.

## IP Filters

IP filtering enables you to block applications and services based on the IP address of a LAN device. You can apply one or more predefined IP filtering rules to one or more LAN computers. You can view the rules associated with a predefined filter and add the available rules for a given category. You can also create, edit, or delete your own IP filter rules.



### IP Filters fields and buttons

Field or Button	Description
<b>LAN IP</b>	The IP address in the LAN group to which the IP filters are applied.
<b>New IP</b>	Displays the <a href="#">LAN Clients</a> page.
<b>Block All Traffic</b>	If selected, network access is blocked for the IP address.
<b>Block Outgoing Ping</b>	If selected, outgoing pings are blocked for the IP address. Blocking outgoing pings can be useful if a computer has a virus that attempts a Ping-of-Death denial of service attack.
<b>Custom IP Filters</b>	Displays the <a href="#">Custom IP Filters</a> page
<b>Category</b>	Sets the category for which rules are displayed in the Available Rules list — Games, VPN, Audio/Video, Apps (applications), Servers, or User (custom rules you can define and edit).
<b>Available Rules</b>	Predefined and user-defined IP filtering rules for each category.
<b>View</b>	Displays the settings for the selected Available Rule.
<b>Add</b>	Adds the selected Available Rule to the Applied Rules list.
<b>Remove</b>	Removes the selected rule from the Applied Rules list.
<b>Applied Rules</b>	Lists the IP filtering rules selected for the category.

## Custom IP Filters

You can define up to 20 custom filters to block services or applications based on the source and destination IP address, subnet mask, TCP port, and protocol.

### Custom IP Filters fields

Field	Description
<b>Filter Name</b>	The IP filter rule name
<b>Enable</b>	Selected by default and automatically applied when you click <b>Save</b>
<b>Source IP</b>	The LAN source IP address assigned to outgoing traffic on which filtering is applied
<b>Source Netmask</b>	Subnet mask of the source IP address
<b>Destination IP</b>	Sets the destination IP address to which your source IP address is denied access
<b>Destination Netmask</b>	Subnet mask of the destination IP address. Enter <b>0.0.0.0</b> for all
<b>Port Start</b>	The starting port number that will be blocked for this application
<b>Port End</b>	The ending port number that will be blocked for this application
<b>Protocol</b>	The options are TCP, UDP, TCP and UDP, ICMP, or Any

## LAN Clients

The LAN Clients window displays all computers on your network. For each computer on your LAN, you can do one of:

- Allow it to dynamically (automatically) obtain its IP address from the voice gateway through a DHCP lease from the DHCP server on the VT2542 (the default)
- Allow it to dynamically obtain its IP address from a DHCP server on another router on the network
- Manually assign it a static IP address in the voice gateway LAN subnet address range

**LAN Clients**

To reserve a LAN IP address, enter the reserved IP address, hostname, and MAC address, then select Apply.

Enter IP Address:

Hostname:

MAC Address:

**Dynamic Addresses**

Reserve	IP Address	Hostname	MAC	Type
<input type="checkbox"/>	192.168.15.2	mg	00:01:02:cf:5b:3f	Dynamic
<input type="checkbox"/>	192.168.15.3	mg	00:b1:02:cf:51:68	Dynamic

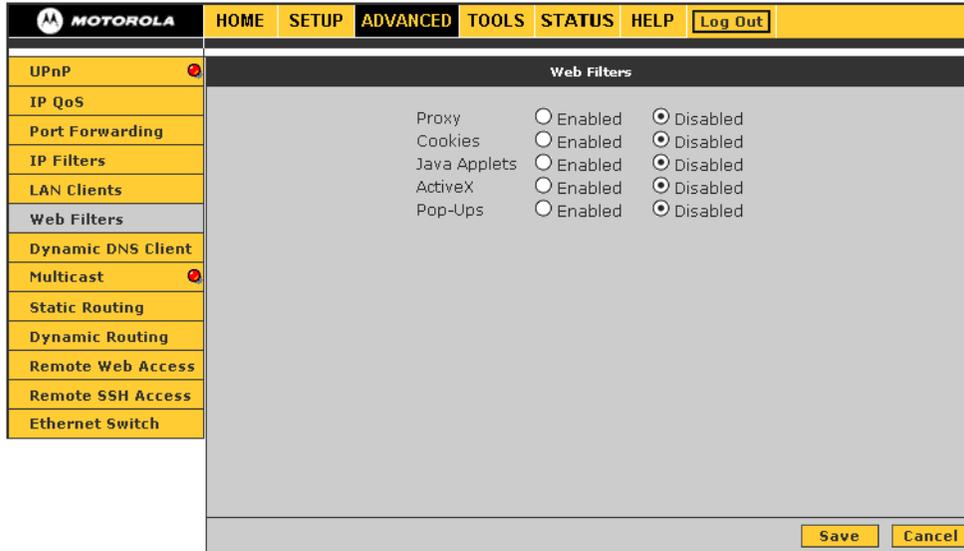
Save Cancel

### LAN Clients fields

Field	Description
<b>Enter IP Address</b>	Type the static IP address to assign to the computer or other host. For that host, type its <b>Hostname</b> (optional) and <b>MAC address</b> (required).
<b>Dynamic Addresses</b>	Lists the currently assigned dynamic IP addresses and the hostname, MAC address, and address Type (always Dynamic in this table) of the assigned computer. To assign a dynamic IP address to the computer as a static IP address, select <b>Reserve</b> .
<b>Static Addresses</b>	(Not shown above.) If any static IP addresses are reserved, lists them and the host name, MAC address, and address Type (always Static in this table) of the assigned computer. To remove a static IP address assignment from a computer, select <b>Delete</b> . If you delete a static IP address entry, it is made available for future allocation.

## Web Filters

Web Filters enable you to manage the type of web content that passes through your voice gateway:



### Web Filters fields

Field	Description
<b>Proxy</b>	Disabled by default.
<b>Cookies</b>	Disabled by default.
<b>Java Applets</b>	Disabled by default.
<b>ActiveX</b>	Disabled by default.
<b>Pop-Ups</b>	Disabled by default.

## Dynamic DNS Client

You can register your voice gateway with a DNS server to access the voice gateway from the Internet using its host name.

### Dynamic DNS Client fields

Field	Description
<b>DDNS Server</b>	Selects a DDNS service provider from the list. A charge may occur, depending on the service selected.
<b>DDNS Client</b>	Enables or disables the DDNS client feature for the WAN connection. It is disabled by default.
<b>User Name</b>	The user name assigned by the DDNS service provider.
<b>Password</b>	The password assigned by the DDNS service provider.
<b>Domain Name</b>	The dynamic domain name to be registered with the DDNS server.

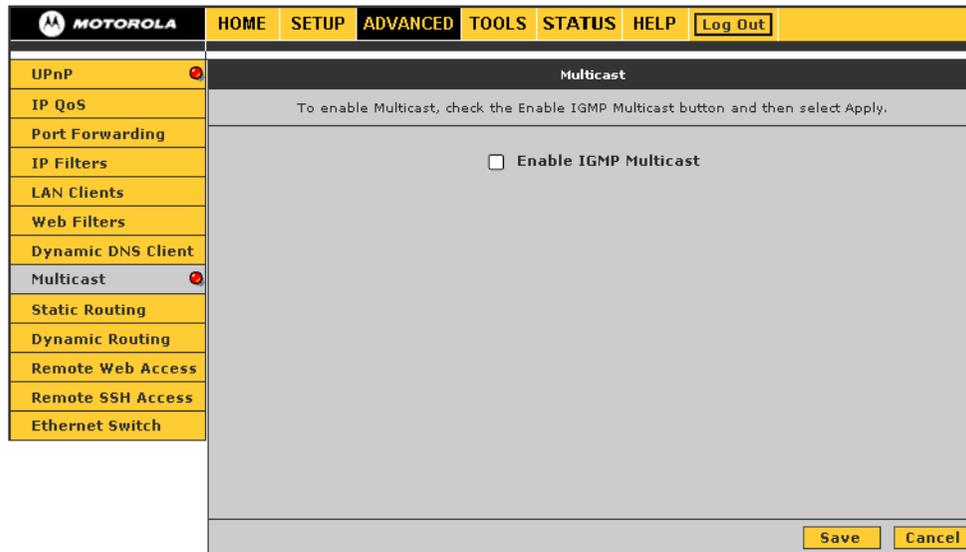
## Multicast

Multicasting is a form of limited broadcast. UDP is used to send datagrams to all computers in a host group, one or more hosts identified by the same destination IP address. The following statements apply to host groups:

- Anyone can join or leave a host group.
- There are no restrictions on the host location.
- There are no restrictions on the number of members that may belong to a host group.
- A host may belong to multiple host groups.
- Non-members can send UDP datagrams to the host group.

Multicasting is useful when the same data needs to be sent to more than one device; for example, if one device is responsible for acquiring data that many other devices need. Using multicasting uses less network bandwidth than sending the same data to individual devices.

Multicasting also enables you to receive multicast video streams from multicast servers. The voice gateway supports an Internet Group Management Protocol (IGMP) proxy that handles IGMP messages. When enabled, the voice gateway acts as a proxy for a LAN host making requests to join and leave multicast groups.



### Multicast fields

Field	Description
<b>Enable IGMP Multicast</b>	Enables an IGMP proxy for multicast messages. The voice gateway acts as a proxy for a LAN computer requesting to join or leave multicast groups.

## Static Routing

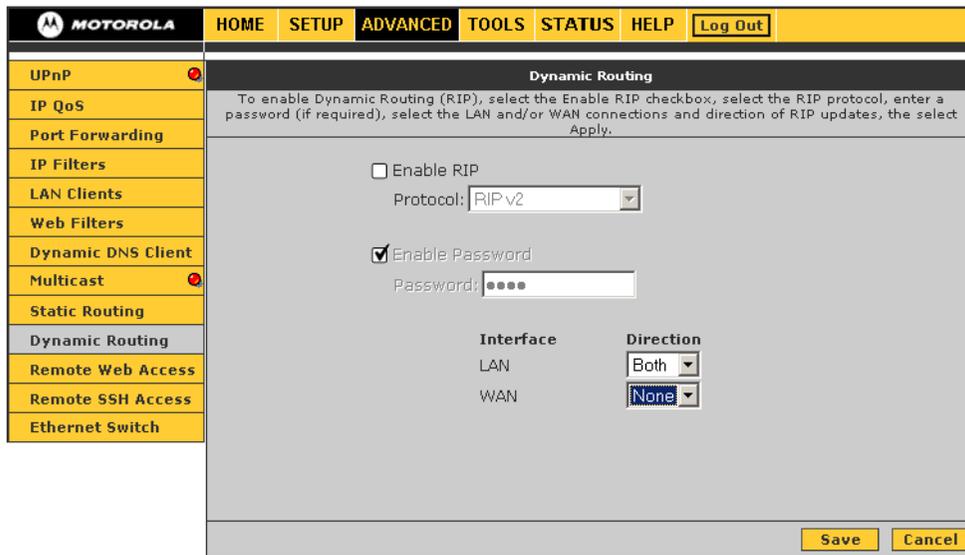
You can define up to 16 static routes in the voice gateway routing table for specific WAN and LAN subnets.

### Static Routing fields

Field	Description
<b>New Destination IP</b>	The network IP address of the subnet. (You can also enter the IP address of each individual station in the subnet.)
<b>Mask</b>	The network mask of the destination subnet.
<b>Gateway</b>	The IP address of the next hop through which traffic will flow towards the destination subnet.
<b>Metric</b>	Defines the number of hops between the network nodes through which data packets travel. The default is 0, which means the subnet is directly one hop away on the LAN.

## Dynamic Routing

Dynamic routing enables you to define dynamic routes using Routing Information Protocol (RIP) to exchange routing information with other network routers across the WAN (Internet) and LAN interfaces.

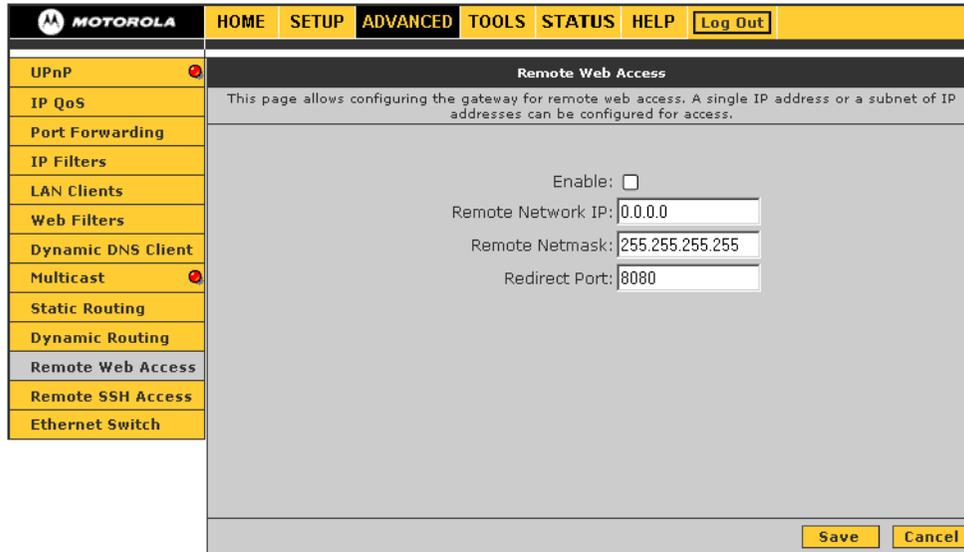


### Dynamic Routing fields

Field	Description
<b>Enable RIP</b>	Enables RIP. Any RIP-enabled router: <ul style="list-style-type: none"> <li>• Sends automatic update packets containing its routing table periodically (every 30 seconds)</li> <li>• Adds, deletes, or modifies routes in its routing table based on periodic updates from other routers</li> <li>• Responds to requests for its routing table</li> </ul>
<b>Protocol</b>	Sets the RIP version: <ul style="list-style-type: none"> <li>• RIP v1 (UDP protocol)</li> <li>• RIP v2 (multicast protocol)</li> <li>• RIP v1 compatible (UDP protocol with multicast format)</li> </ul> Routers using RIP v1 or a compatible protocol can communicate with each other, but not to routers using RIP v2.
<b>Enable Password</b>	(Optional) RIP v2 enables simple plain-text password-based authentication for RIP packets. It is disabled if RIP v1 is selected.
<b>Password</b>	The password can have up to 16 characters.
<b>Interface</b>	Normally, when it is enabled on a router, RIP dynamically provides routes on all configured interfaces. On the VT2542, you can select which routes are distributed through the network: <ul style="list-style-type: none"> <li>• <b>LAN</b> — Sets the direction in which RIP messages are sent on the LAN interface</li> <li>• <b>WAN</b> — Sets the direction in which RIP messages are sent on the WAN interface</li> </ul> The options for LAN and WAN are: <ul style="list-style-type: none"> <li>• <b>Both</b> — receive and send updates to the routing table to other routers on the interface</li> <li>• <b>In</b> — receive but do not send routing updates on that interface</li> <li>• <b>Out</b> — send but do not receive routing updates on the interface</li> <li>• <b>None</b> — do not send or receive routing updates through the interface</li> </ul>

## Remote Web Access

Web access control enables you to access the voice gateway remotely over the Web.



Field	Value
Enable	<input type="checkbox"/>
Remote Network IP	0.0.0.0
Remote Netmask	255.255.255.255
Redirect Port	8080

### Remote Web Access fields

Field	Description
<b>Enable</b>	Enables and disables the remote web access feature.
<b>Remote Network IP</b>	Enter the IP address of the remote host (for example, 10.10.10.1).
<b>Remote Netmask</b>	Enter the subnet mask of the remote host.
<b>Redirect Port</b>	You can enter a port in this field that is different from port 8080. The port you enter is viewed externally and mapped to port 8080 internally on the voice gateway.

## Remote SSH Access

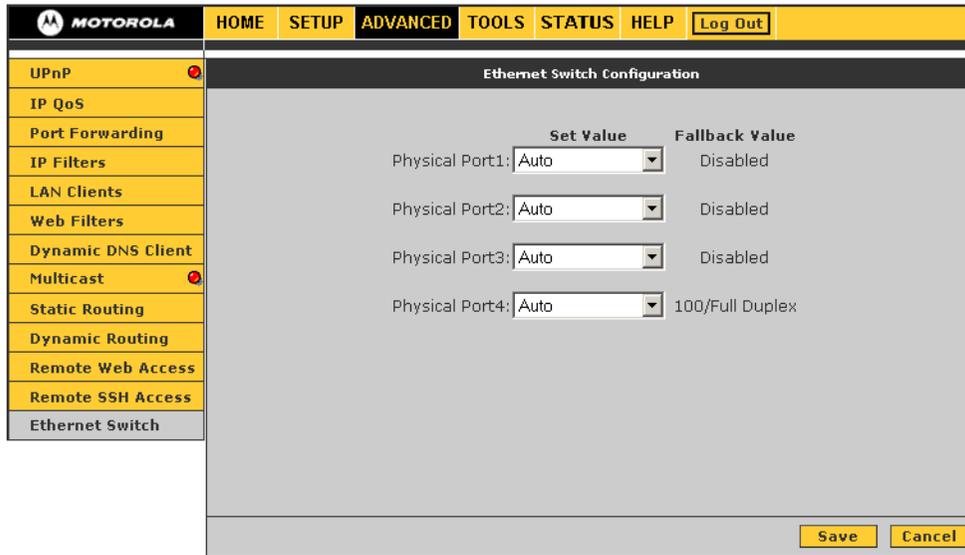
You can access the voice gateway remotely through secure shell (SSH) over the Internet.

### Remote SSH Access fields

Field	Description
Enable	Enables or disables remote SSH access.
Remote Host IP	Sets the IP address of the remote SSH host.
Remote Netmask	Sets the subnet mask of the remote SSH host.

## Ethernet Switch

If automatic detection does not work for some reason, you can configure Ethernet switch settings to meet your requirements.



	Set Value	Fallback Value
Physical Port1:	Auto	Disabled
Physical Port2:	Auto	Disabled
Physical Port3:	Auto	Disabled
Physical Port4:	Auto	100/Full Duplex

### Ethernet Switch fields

#### Field

#### Description

#### Physical Ports 1 to 4

Sets the speed for Ethernet ports 1 to 4. It can be Auto detect (the default), 10 Mbps half duplex, 10 Mbps full duplex, 100 Mbps half duplex, or 100 Mbps full duplex.

## TOOLS

The TOOLS menu provides the following links:

- [Restore Defaults](#) — resets the voice gateway to the default configurations
- [Import/Export Configuration](#) — import or export the voice gateway configuration
- [Remote Log – Router](#) — specify the log messages the voice gateway sends to remote computers
- [User Management](#) — change the voice gateway password
- [Ping Test](#) — determine whether a computer can be reached over the network
- [Restart](#) — save the configuration or restart the VT2542

### Restore Defaults



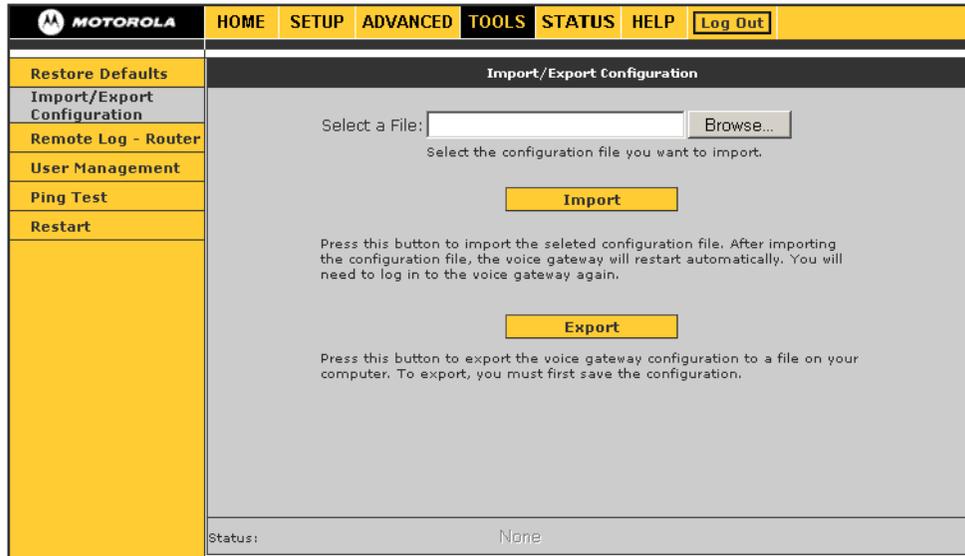
#### Button

#### Description

**Restore Defaults**

Restores the factory default configuration. After you restore the defaults, you must log in again to the voice gateway.

## Import/Export Configuration



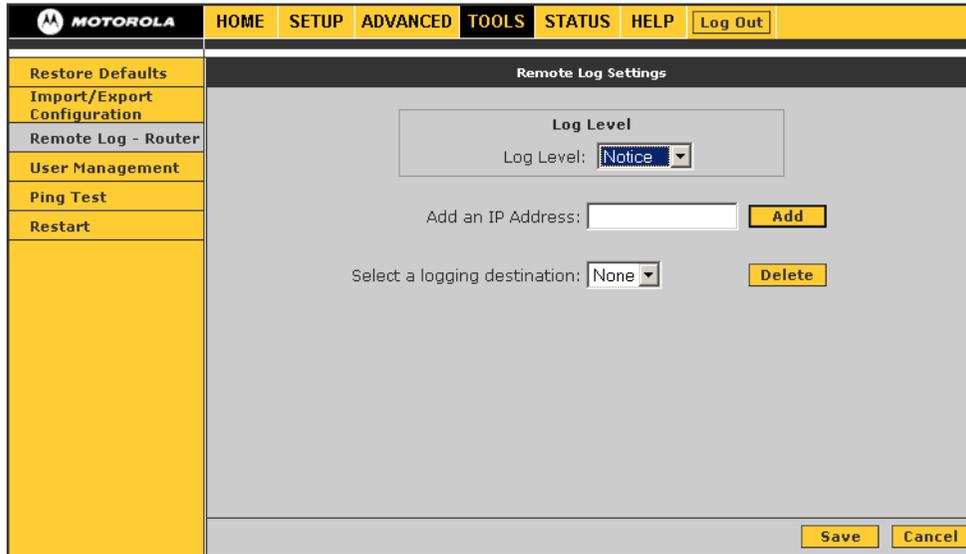
### Import/Export Configuration fields and buttons

Field or Button	Description
-----------------	-------------

<b>Select a File</b>	Click <b>Browse</b> to select the configuration file to import to the voice gateway.
<b>Import</b>	Imports the selected configuration file. The update status appears at the bottom of the window. When the update is finished, the voice gateway restarts and you will need to log in again.
<b>Export</b>	Downloads a copy of the configuration file (config.bin) saved in the voice gateway flash memory to your hard drive.

## Remote Log – Router

You can forward logged events of a specified severity level or higher to a remote computer. Each log message is assigned a severity level, which indicates how seriously the triggering event affects voice gateway functions.

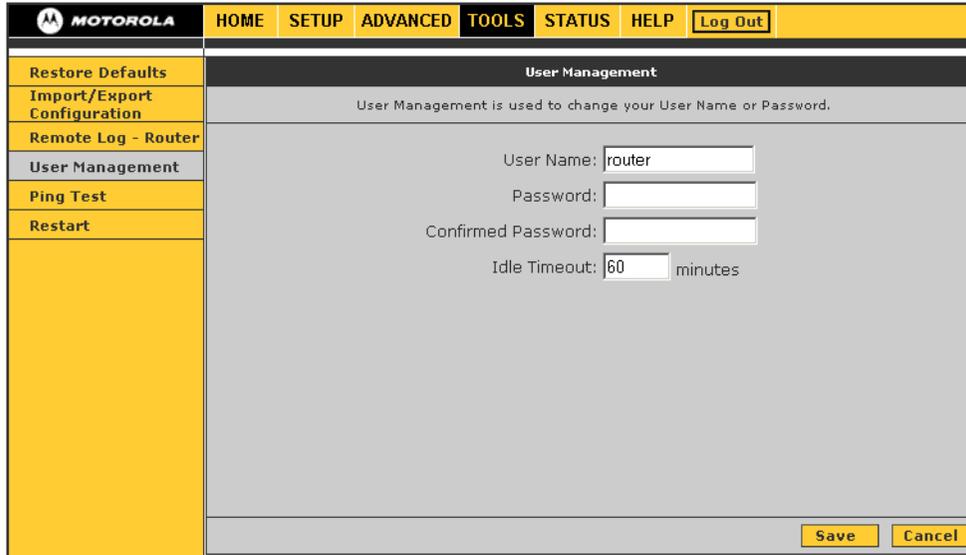


### Remote Log – Router fields

Field	Description
<b>Log Level</b>	<p>Messages having the severity level you specify, or higher, are logged to the logging destination you select. The levels are, in order of severity:</p> <ul style="list-style-type: none"> <li>• Panic — system panic or other condition that causes the voice gateway to stop functioning</li> <li>• Alert — conditions that require immediate correction, such as a corrupted system database</li> <li>• Critical — critical conditions, such as hard drive errors</li> <li>• Error — error conditions that generally have less serious consequences than panic, alert, or critical errors</li> <li>• Warning — conditions that warrant monitoring</li> <li>• Notice — conditions that are not errors but might warrant special handling; this is the default Log Level setting</li> <li>• Info — events or non-error conditions of interest</li> <li>• Debug — software debugging messages; <i>specify this level only when directed by a technical support representative</i></li> </ul>
<b>Add an IP Address</b>	<p>Type the IP address of the remote host where you want log information sent and click <b>Add</b>. You can add multiple IP addresses using the Add button. Any IP address you add here appears in the Select a logging destination drop-down list.</p>
<b>Select a logging destination</b>	<p>From the list, select the IP address to which you want the log information sent.</p>

## User Management

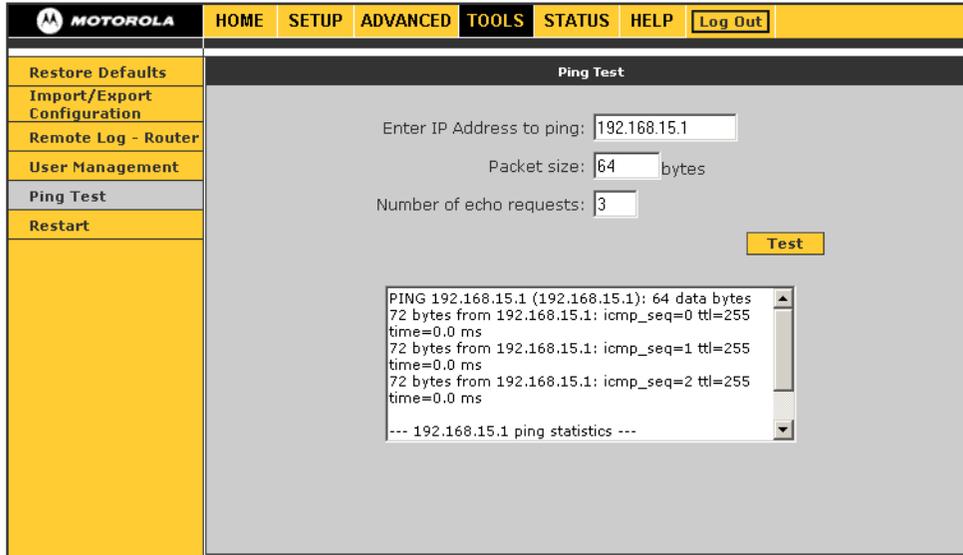
Use this window to change the password for the User Name router.



The screenshot shows the Motorola web interface for User Management. At the top, there is a navigation bar with the Motorola logo and the word "MOTOROLA". Below this is a menu with tabs: HOME, SETUP, ADVANCED, TOOLS, STATUS, HELP, and a Log Out button. The main content area is titled "User Management" and contains the text: "User Management is used to change your User Name or Password." Below this text are four input fields: "User Name:" with the value "router", "Password:", "Confirmed Password:", and "Idle Timeout:" with the value "60" and the unit "minutes". At the bottom right of the form are "Save" and "Cancel" buttons. On the left side of the interface, there is a vertical menu with the following items: Restore Defaults, Import/Export Configuration, Remote Log - Router, User Management (highlighted), Ping Test, and Restart.

## Ping Test

Use this page to determine whether you can access an IP address from your computer.



### Ping Test fields and buttons

Field or Button	Description
Enter IP Address to ping	Sets the IP address to ping; the default is the VT2542 default IP address 192.168.15.1.
Packet size	Sets the packet size of the ping test. The default is 64 bytes.
Number of echo requests	Sets how many times the IP address is pinged. The default is 3.
Test	Starts the test. The results display in the scroll window: <ul style="list-style-type: none"> <li>• If the test is successful, you can access the IP address.</li> <li>• If the test is unsuccessful, you should restart the VT2542 (see <a href="#">"Restoring Defaults for the VT2542"</a> on page 13).</li> </ul>

## Restart



### Restart fields

Field	Description
Restart	<p>Restarts the voice gateway.</p> <p><i>Be sure to save the configuration before you restart.</i> If you restart the voice gateway without saving your changes, it reverts to the previously saved configuration. Your changes are lost.</p> <p>After you restart the voice gateway, you must log in again.</p>

## STATUS

The STATUS menu provides links to view the [Network Statistics](#), [Connection Status](#), [DDNS Update Status](#), [DHCP Clients](#), [Product Information](#), and [System Log – Router](#).

The **Refresh** button on every STATUS page, except for Product Information, refreshes the information so it is up to date.

## Network Statistics

Use this page to view transmit and receive statistics for the **Ethernet** (local network), WAN, or wireless (Internet) interfaces.



Network Statistics	
Choose an interface to view your network statistics:	
<input checked="" type="radio"/> Ethernet <input type="radio"/> WAN <input type="radio"/> Wireless	
Transmit	
Good Tx Frames	1145
Good Tx Broadcast Frames	43
Good Tx Multicast Frames	0
Tx Total Bytes	993683
Collisions	0
Error Frames	0
Carrier Sense Errors	0
Receive	
Good Rx Frames	799
Good Rx Broadcast Frames	8
Good Rx Multicast Frames	0
Rx Total Bytes	171485
CRC Errors	0
Undersized Frames	0
Overruns	0

## Connection Status

Use this page to view the WAN connection status.

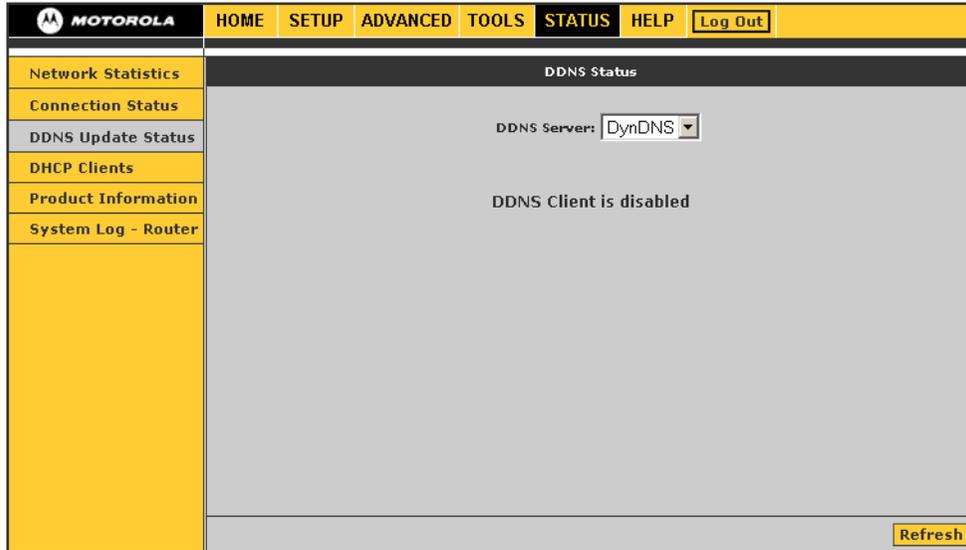
MOTOROLA		HOME	SETUP	ADVANCED	TOOLS	STATUS	HELP	Log Out
Network Statistics	Connection Status							
Connection Status	<u>Description</u>	<u>Type</u>	<u>IP</u>	<u>State</u>	<u>Online</u>	<u>Disconnect Reason</u>		
DDNS Update Status	WAN	dhcpc	NA	Not Connected	0hr 0min 0sec	NA		
DHCP Clients								
Product Information								
System Log - Router								
								Refresh

### Connection Status fields

Field	Description
<b>Description</b>	A description of the connection component
<b>Type</b>	The type of component
<b>IP</b>	The IP address of the component
<b>State</b>	The component state — connected or disconnected
<b>Online</b>	The amount of time it has been connected
<b>Disconnect Reason</b>	The reason it was disconnected

## DDNS Update Status

The voice gateway DDNS client is disabled by default. When the DDNS client is enabled, it updates every time the voice gateway gets a new IP address.



### DDNS Status fields

Field	Description
-------	-------------

<b>DDNS Server</b>	Sets the DDNS server — DynDNS or TZO
--------------------	--------------------------------------

<b>Status</b>	<p>It can be <i>one</i> of:</p> <ul style="list-style-type: none"> <li>• Updated — the IP address of the client has been changed and an update has been sent to the DDNS server</li> <li>• No change — the IP address of the client has not been changed</li> <li>• Error — there is an error with the DDNS update</li> </ul>
---------------	---

<b>Error</b>	If the Status is Error, displays a description of the error.
--------------	--

## DHCP Clients

Use this page to view the list of LAN DHCP client devices.

MOTOROLA	HOME	SETUP	ADVANCED	TOOLS	STATUS	HELP	Log Out								
Network Statistics	<b>DHCP Clients</b>														
Connection Status	<table border="1"> <thead> <tr> <th>MAC Address</th> <th>IP Address</th> <th>Host Name</th> <th>Lease Time</th> </tr> </thead> <tbody> <tr> <td>00:01:02:cf:5b:3f</td> <td>192.168.15.2</td> <td>mg</td> <td>0 days 0:45:44</td> </tr> </tbody> </table>							MAC Address	IP Address	Host Name	Lease Time	00:01:02:cf:5b:3f	192.168.15.2	mg	0 days 0:45:44
MAC Address	IP Address	Host Name	Lease Time												
00:01:02:cf:5b:3f	192.168.15.2	mg	0 days 0:45:44												
DDNS Update Status															
DHCP Clients															
Product Information															
System Log - Router															
							Refresh								

## Product Information

Use this page to view product hardware and software information, such as model number, hardware revision, and the software and boot loader versions.

MOTOROLA	HOME	SETUP	ADVANCED	TOOLS	STATUS	HELP	Log Out
Network Statistics	<b>Product Information</b>						
Connection Status							
DDNS Update Status							
DHCP Clients							
Product Information	<p><b>Product Information</b></p> <p>           Model Number TNETV1060SDB_WR            HW Revision Unknown            Serial Number 159303521702370401010000            Ethernet MAC 00:12:25:D5:C9:C2         </p> <p><b>Software Versions</b></p> <p>           Gateway 11.1.0-r050919            Boot Loader 1.3.3.1101         </p>						
System Log - Router							
							Refresh



## ❖ Configuring TCP/IP

All client computers on your network must be configured for **TCP/IP** (the protocol that controls communication among computers). Perform *one* of:

- [Configuring TCP/IP in Windows 2000](#)
- [Configuring TCP/IP in Windows XP](#)
- Follow the instructions in your Macintosh or UNIX user manual

After configuring TCP/IP, on all computers, perform *one* of the following to verify its **IP address**:

- [Verifying the IP Address in Windows 2000 or Windows XP](#)
- Follow the instructions in your Macintosh or UNIX user manual

### Configuring TCP/IP in Windows 2000

- 1 On the Windows Desktop, click **Start**.
- 2 Select **Settings** and then **Control Panel** from the pop-up menus to display the Control Panel window:

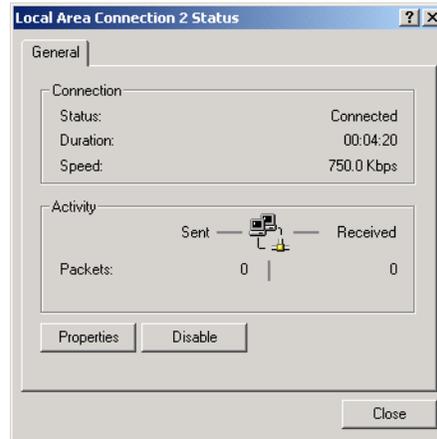


- 3 Double-click the **Network and Dial-up Connections** icon to display the Network and Dial-up Connections window:

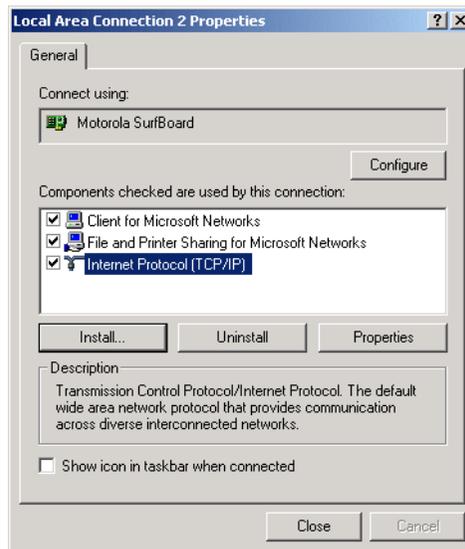


In the steps that follow, a connection *number* like 1, 2, 3, etc., is a reference that is displayed on computers with multiple network interfaces. Computers with only one network interface may only see the label: Local Area Connection.

- 4 Click **Local Area Connection number**. The value of *number* varies from system to system. The Local Area Connection *number* Status window is displayed:

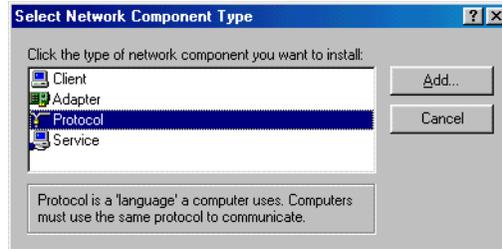


- 5 Click **Properties**. Information similar to the following window is displayed:

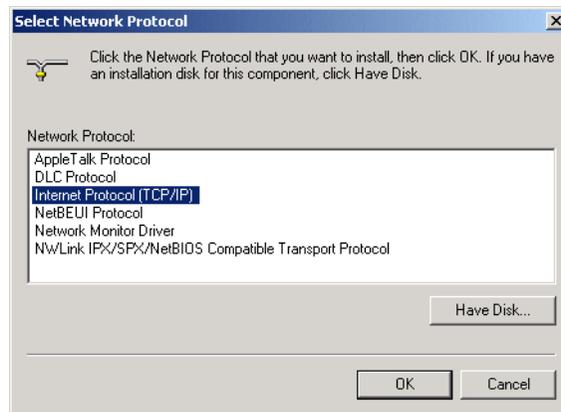


- 6 If Internet Protocol (TCP/IP) is in the list of components, TCP/IP is installed. You can skip to step 10.

If Internet Protocol (TCP/IP) is not in the list, click **Install**. The Select Network Component Type window is displayed:

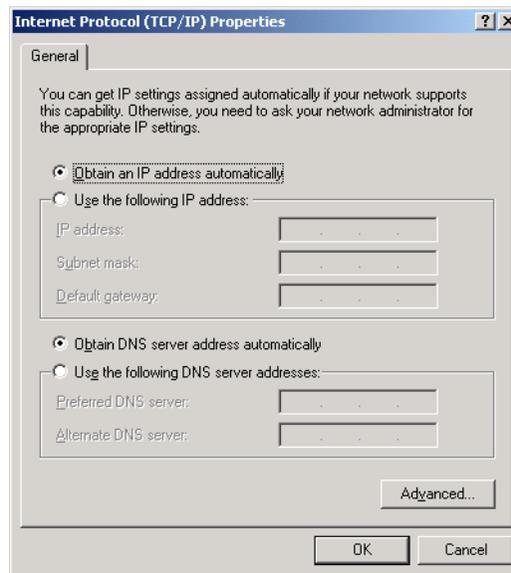


- 7 Click **Protocol** on the Select Network Component Type window and click **Add**. The Select Network Protocol window is displayed:



- 8 Click **Internet Protocol (TCP/IP)**.
- 9 Click **OK**. The Local Area Connection *number* Properties window is re-displayed.
- 10 Be sure the box next to Internet Protocol (TCP/IP) is checked.

- 11 Click **Properties**. The Internet Protocol (TCP/IP) Properties window is displayed:



- 12 Be sure **Obtain IP address automatically** and **Obtain DNS server address automatically** are selected.
- 13 Click **OK** to accept the TCP/IP settings.
- 14 Click **Close** to close the Local Area Connection *number* Properties window.
- 15 Click **OK** when prompted to restart the computer and click **OK** again.

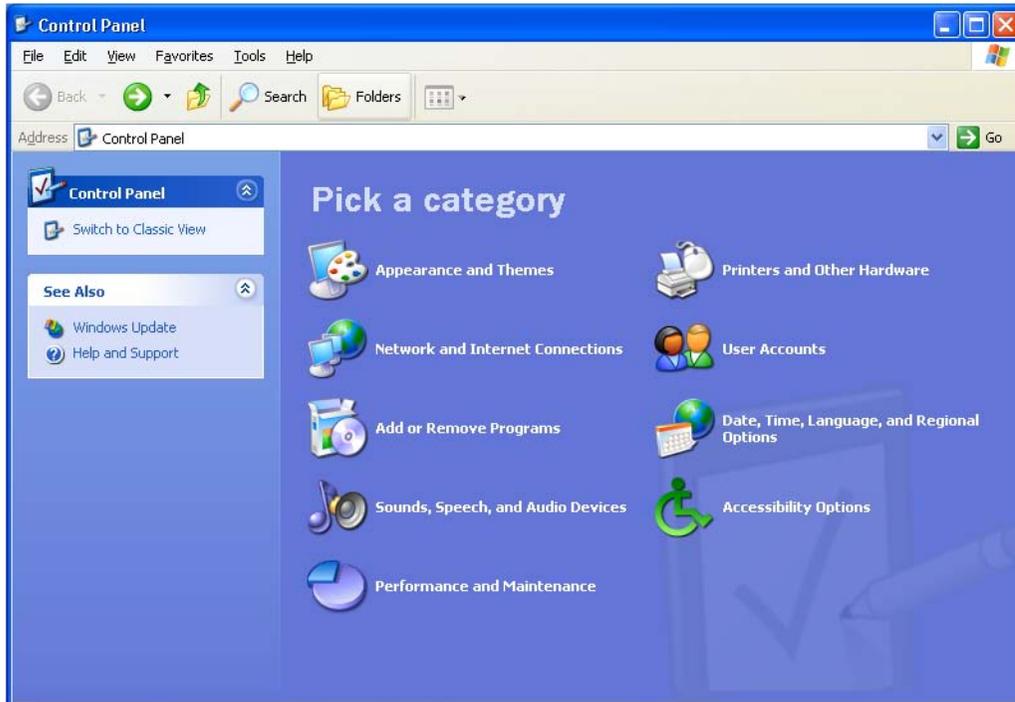
When you complete the TCP/IP configuration, go to [“Verifying the IP Address in Windows 2000 or Windows XP”](#) on page 58.

## Configuring TCP/IP in Windows XP

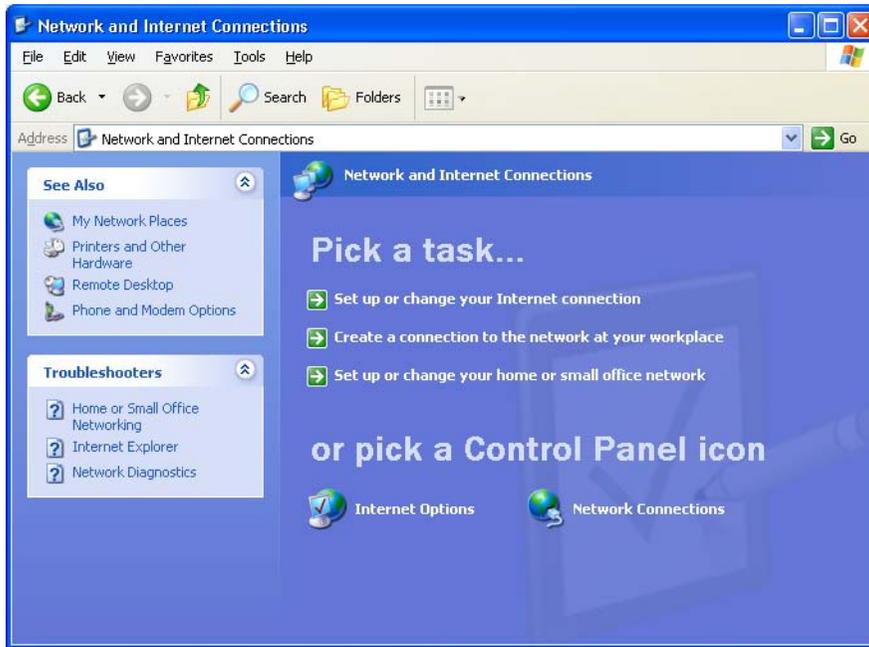
- 1 On the Windows desktop, click **Start** to display the Start window:



- 2 Click **Control Panel** to display the Control Panel window. The display varies, depending on your Windows XP view options. If the display is a Category view as shown below, continue with step 3. Otherwise, skip to step 5.



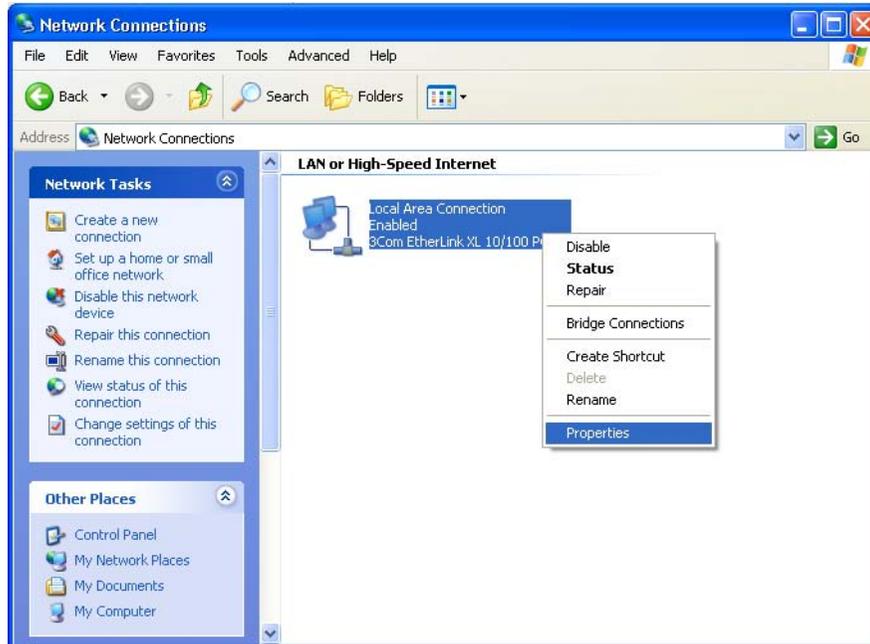
- 3 Click **Network and Internet Connections** to display the Network and Internet Connections window:



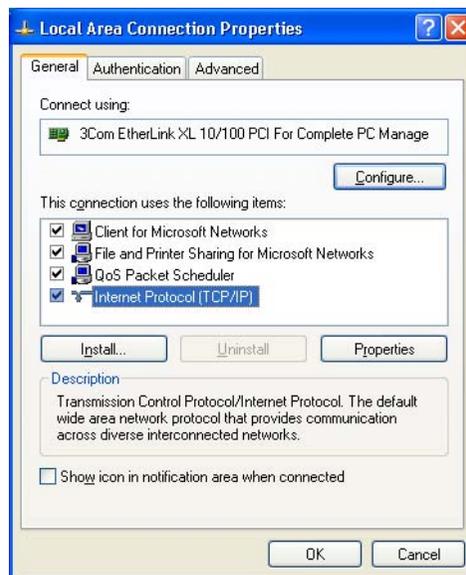
- 4 Click **Network Connections**. Skip to step 6.
- 5 If a classic view similar to below is displayed, double-click **Network Connections** to display the LAN or High-speed Internet connections.



- 6 Right-click the Local Area Connection. If more than one connection is displayed, be sure to select the one for your network interface.

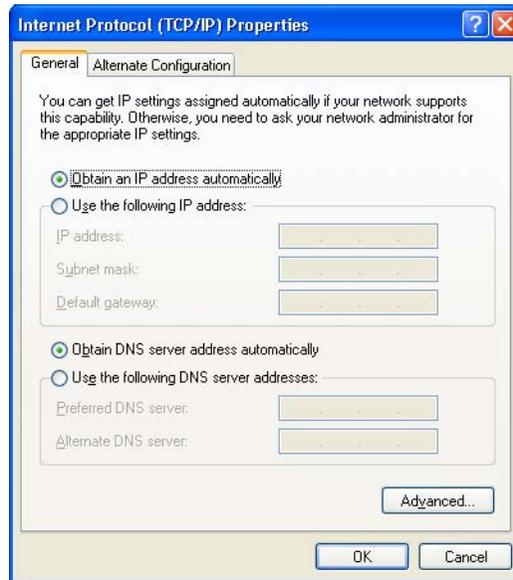


- 7 Select **Properties** from the pop-up menu to display the Local Area Connection Properties window:



- 8 On the Local Area Connection Properties window, select **Internet Protocol (TCP/IP)** if it is not selected.

9 Click **Properties** to display the Internet Protocol (TCP/IP) Properties window:



10 Be sure **Obtain IP address automatically** and **Obtain DNS server address automatically** are selected.

11 Click **OK** to close the TCP/IP Properties window.

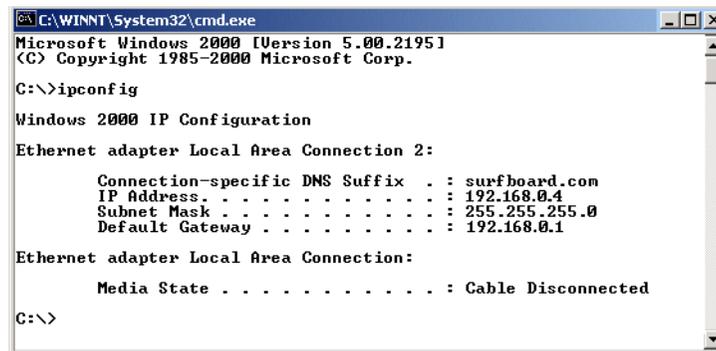
12 Click **OK** to close the Local Area Connection Properties window.

When you complete the TCP/IP configuration, go to “[Verifying the IP Address in Windows 2000 or Windows XP](#)” on page 58.

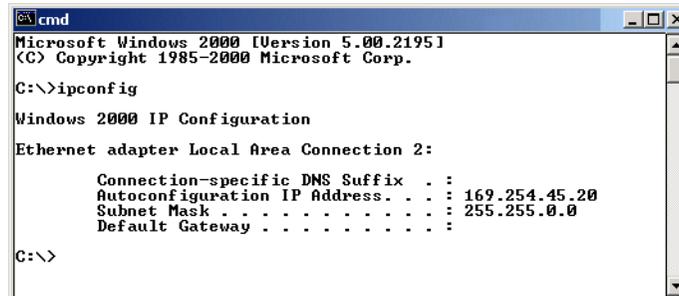
## Verifying the IP Address in Windows 2000 or Windows XP

To check the IP address:

- 1 On the Windows Desktop, click **Start**.
- 2 Select **Run**. The Run window is displayed.
- 3 Type **cmd** and click **OK** to display a command prompt window.
- 4 Type **ipconfig** and press **ENTER** to display the IP configuration. A display similar to the following indicates a normal configuration:



If an Autoconfiguration IP Address is displayed as in the following window, there is an incorrect connection between the PC, the VT2542, and the Internet:



```
cmd
Microsoft Windows 2000 [Version 5.00.2195]
(C) Copyright 1985-2000 Microsoft Corp.

C:\>ipconfig

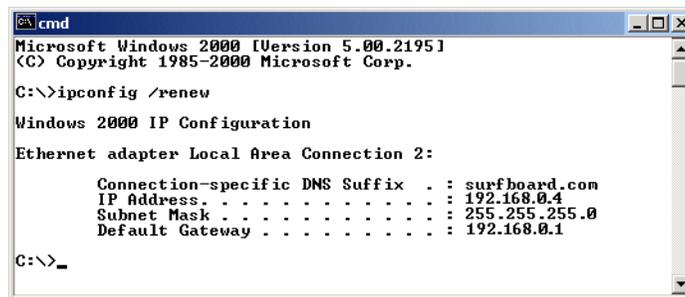
Windows 2000 IP Configuration

Ethernet adapter Local Area Connection 2:

    Connection-specific DNS Suffix  . : 
    Autoconfiguration IP Address. . . : 169.254.45.20
    Subnet Mask . . . . . : 255.255.0.0
    Default Gateway . . . . . : 

C:\>
```

- 5 After verifying your connections, type **ipconfig /renew** and press **ENTER** to renew the IP address. If a valid IP address is displayed as shown, Internet access should be available.



```
cmd
Microsoft Windows 2000 [Version 5.00.2195]
(C) Copyright 1985-2000 Microsoft Corp.

C:\>ipconfig /renew

Windows 2000 IP Configuration

Ethernet adapter Local Area Connection 2:

    Connection-specific DNS Suffix  . : surfboard.com
    IP Address. . . . . : 192.168.0.4
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.0.1

C:\>_
```

- 6 Type **exit** and press **ENTER** to return to Windows.

If after performing this procedure the computer cannot access the Internet, call your cable or DSL provider for help.



## Establishing Security for Your Wireless LAN

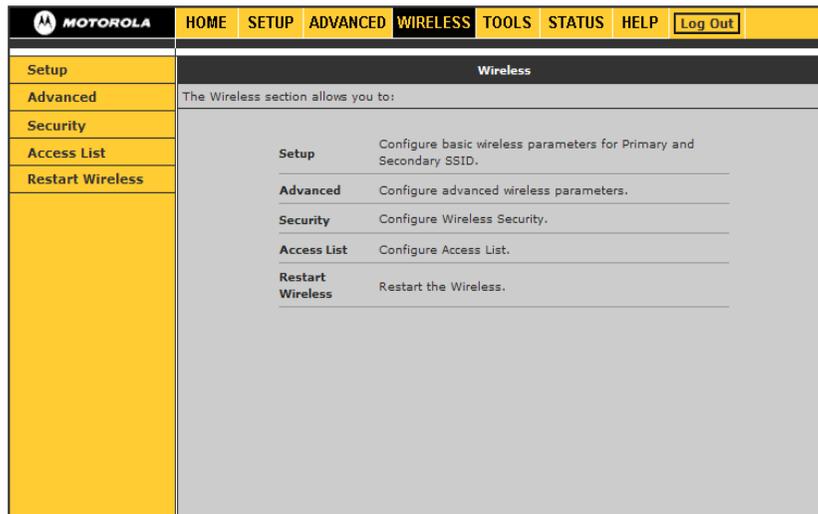
To prevent unauthorized viewing of data transmitted over your WLAN, you must encrypt your wireless transmissions.

If all of your wireless clients support WPA encryption, we recommend using WPA instead of WEP. The benefits of using WPA:

- Provides a much stronger encryption and is more secure
- Provides authentication to ensure that *only* authorized users can log on to your WLAN
- It is much easier to configure
- It uses a standard algorithm on all compliant products to generate a key from a textual passphrase

### Configuring WPA on the VT2542

- 1 Select the WPA option on the Wireless Security page.



- 2 Select the encryption type (WPA, WPA2, WPA/WPA2).
- 3 Enter the **Group Key Interval**.
- 4 Select the **Radius Server** if the authentication type is remote; if it is local, select **Pre-Shared Key**.
- 5 Enter the **IP Address**, **Port**, **Secret** (code), and **PSK String**.
- 6 Click **Save**.

## Configuring WEP on the VT2542

Use Wired Equivalent Privacy ([WEP](#)) if you have wireless clients that do not support WPA.

### Caution!



If you use WEP encryption, you must configure the same WEP key on the [VT2542 access point](#) and all wireless clients (stations). *Never provide your WEP key or passphrase to anyone who is not authorized to use your WLAN.*

- 1 Check the **Enable WEP Wireless Security** box to enable the setting.
- 2 Select the **Authentication Type** (Open, Shared, Both) from the pull down menu.
- 3 Click the **SECURITY** tab to display the page.
- 4 Check the key field (0 — 3).
- 5 Enter the encryption key.
- 6 Select the cipher (64, 128, 256) size from the pull down menu.

**WEP Authentication** Sets whether shared key authentication is enabled to provide data privacy on the WLAN:

- Open System — Any WLAN [client](#) can transmit data to any other client without authentication. It is the default, if the Security Mode is set to WEP.
- Shared Key — The [VT2542](#) authenticates and transfers data to and from all clients having shared key authentication enabled. *We recommend this setting.*

**Encryption** Use a WEP key length that is compatible with your wireless client adapters. Choose *one* of:

- Enable 64-Bit — Use only if you have wireless clients that do not support 128-bit encryption
- Enable 128-Bit — We recommend this setting for stronger encryption; it is supported by the Motorola WN825G and WPCI810G wireless adapters and most current wireless adapters

**Key Type** Select the active key (0 to 3). Only *one* key can be active.

(Key 0 to Key 3)

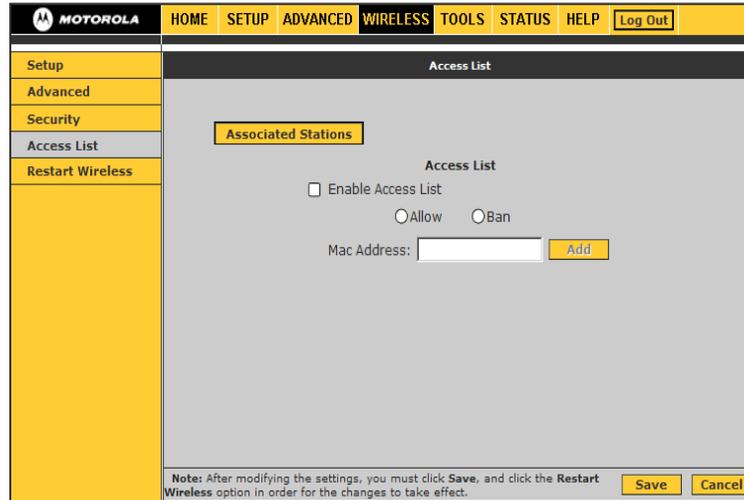
- Four 10-character long key 64-bit WEP keys
- Four 26-character long 128-bit WEP keys

*We recommend changing the WEP keys frequently. Never provide the WEP key to anyone who is not authorized to use your WLAN.*

- 7 Click **Save**. You must restart the wireless system in order for the changes to take affect.

## Creating an Access List for Your Wireless LAN

The default [VT2542](#) wireless settings enable any computer with a compatible wireless adapter to access your WLAN. To protect your network from unauthorized intrusions, you can restrict access to your WLAN to a limited number of computers using the **Access List** feature.



The screenshot shows the Motorola configuration web interface. The top navigation bar includes: HOME, SETUP, ADVANCED, WIRELESS, TOOLS, STATUS, HELP, and Log Out. A left sidebar menu contains: Setup, Advanced, Security, Access List (highlighted), and Restart Wireless. The main content area is titled "Access List" and features a section for "Associated Stations". Below this, there are controls for "Enable Access List" (a checkbox), "Allow" and "Ban" radio buttons, and a "Mac Address:" input field with an "Add" button. At the bottom, a note states: "Note: After modifying the settings, you must click Save, and click the Restart Wireless option in order for the changes to take effect." There are "Save" and "Cancel" buttons at the bottom right.

- Only wireless clients configured with your network name can communicate with the [VT2542](#)
- It is more difficult for unauthorized individuals who scan for unsecured WLANs to access your WLAN

## Troubleshooting

If the solutions listed here do not solve your problem, for more troubleshooting help contact Vonage as described in [“Contact Us”](#) on page 66.

<b>Problem</b>	<b>Possible Solutions</b>
<b>Power light is off</b>	<p>Check that the AC power adapter is properly plugged into the electrical outlet and the VT2542.</p> <p>Check that the electrical outlet is working.</p>
<b>Cannot send or receive data or phone calls or No dial tone</b>	<p>If you subscribed to just one phone line from Vonage, be sure your phone is connected to the <b>Phone 1</b> port on the VT2542.</p> <p>Check all other cabling between the modem, the VT2542, and the computer. Be sure you used the cables provided with the VT2542. All Ethernet cables must be straight-through cables.</p> <p>Check the lights on the <a href="#">Front Panel</a> (see page 2).</p> <p>Check the lights on the modem front panel. For information, see your cable or DSL modem user guide.</p> <p>If you have only one phone line, be sure your phone is plugged into the green phone port 1 on the VT2542.</p> <p>Can you access Web pages? If not, check to see whether your ISP (cable or DSL) is having connection issues in your area.</p> <p>Be sure the telephone connected to the VT2542 is disconnected from the wall jacks that traditional phone companies use. If not, the VT2542 cannot connect with the Vonage server and you will not get a dial tone.</p> <p>Compare your device connections to those shown in <a href="#">“Connecting the VT2542”</a> on page 6 or <a href="#">“Connect the power adapter to the Power port on the rear panel of the voice gateway, and plug the other end into an electrical outlet.”</a> on page 7.</p> <p>The order in which you turn the devices on is very important. Try the procedure for <a href="#">“Resetting All of Your Equipment”</a> on page 65.</p>
<b>A computer cannot send or receive data</b>	<p>Check that the Ethernet cable is properly connected to the VT2542 and the computer.</p> <p>If you have a cable modem <i>only</i>, check that your TV is working and the picture is clear. If you cannot receive TV channels, your cable data service will not function. Contact your cable provider.</p> <p>If you have a DSL modem <i>only</i>, check that your DSL service is working. Contact your DSL provider.</p>
<b>My high-speed Internet connection uses a USB port, not an Ethernet port</b>	<p>You need to switch your high-speed Internet connection from USB to Ethernet to use Vonage Internet Phone Service. If your computer does not have an Ethernet <a href="#">adapter</a>, you can purchase an Ethernet adapter or a USB to Ethernet Converter to connect your computer to the VT2542, and ultimately the Internet.</p>

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## Resetting All of Your Equipment

You can resolve many installation issues by resetting all of your equipment.

To reset all of your equipment:

- 1 Turn off your computer, VT2542 voice gateway, router (if you have one), and DSL or cable modem.
- 2 Turn the devices back on, one at a time, in this order:
  - Modem
  - Router (if present)
  - VT2542
  - Computer

## Contact Us

If you have questions about your Vonage Internet phone service:

- In Canada, visit <http://www.vonage.ca/help>
- In the United States, visit [www.vonage.com/help](http://www.vonage.com/help)
- In the United Kingdom, visit [www.vonage.co.uk/help](http://www.vonage.co.uk/help)

For information about customer service, technical support, or warranty claims, see the Motorola *Regulatory, Safety, Software License, and Warranty Information* card provided with the VT2542.

For answers to typical questions, see “[Frequently Asked Questions](#)” on page 67.

For more information about Motorola consumer cable products, education, and support, visit [broadband.motorola.com/consumers](http://broadband.motorola.com/consumers).

## Frequently Asked Questions

If you do not understand a term or abbreviation, check the [Glossary](#).

**Q What does the Motorola VT2542 Voice Gateway do?**

- A** The VT2542 Voice Gateway is a stand-alone media terminal adapter (S-MTA) containing a home router:
- As an S-MTA, it converts analog voice signals to and from a standard telephone to digital data that can be transmitted through a broadband connection across the Internet. It provides an alternate means to make voice calls.
  - Its built-in router provides full network connectivity, a firewall, and VPN passthrough.

**Q Will the VT2542 Voice Gateway work with a cable modem or DSL modem?**

- A** Yes. The VT2542 Voice Gateway supports [DHCP](#), which is specified for [DOCSIS](#)<sup>®</sup> cable modems, and [PPPoE](#), which is used by most DSL providers.

**Q Can I operate a virtual private network (VPN) application behind the VT2542?**

- A** Yes. The VT2542 Voice Gateway supports [IPSec](#) and [PPTP](#), the most common VPN protocols.

**Q Can I play online games through my VT2542?**

- A** By default, the voice gateway blocks all unsolicited messages to the computer or local network as a standard security measure. However, for online games that require some unsolicited messages to be transmitted through the voice gateway, you can specify ports and IP addresses on which to allow unsolicited messages. The VT2542 enables you to set up virtual servers or a [DMZ](#).

**Q How do I configure the VT2542?**

- A** Most people can send and receive calls immediately after completing [Installation](#)! You can configure your home or office network through a GUI using a connected computer configured to obtain its IP address using DHCP. Or, you can configure the computer statically to 192.168.15.xxx (xxx is from 2 to 254), subnet mask 255.255.255.0, and default gateway 192.168.15.1.

**Q What is included with the built-in router?**

- A** The VT2542 supports a firewall, RIP, port triggers, advanced ALGs such as RSVP, POP3, SNMP, and streaming media. No separate routers are needed.

**Q Is any Quality of Service (QoS) implemented on the VT2542 Voice Gateway?**

- A** Although VoIP service is typically best-effort, the VT2542 provides upstream voice prioritization to ensure that upstream voice data has priority over other Web data. This ensures good voice quality even during heavy upstream data transfers, such as e-mail synchronization or file sharing.

## Glossary

This glossary defines terms and abbreviations used in this manual.

<b>10/100Base-T</b>	See <i>Ethernet</i> .
<b>adapter</b>	A device or card that connects a computer, printer, or other peripheral device to the network or to some other device. An Ethernet adapter connects a computer to the LAN.
<b>broadband</b>	High-speed telecommunication over a wide range of frequencies, typically 256 Kbps or faster. Broadband enables more information to be transmitted in less time. The most common broadband service types available to homes and small-offices are cable modem and DSL. Both cable modem and DSL are much faster than a traditional dial-up Internet connection.
<b>broadband provider</b>	If you have a cable modem, the cable company from which you subscribe to high-speed data service. If you have a DSL modem, the telephone company from which you subscribe to DSL service.
<b>cable modem</b>	A device enabling a broadband connection to the Internet over cable television lines. It requires a subscription for high-speed data service from your local cable provider.
<b>coaxial cable (coax)</b>	A type of wire consisting of a center wire surrounded by insulation and a grounded shield of braided wire traditionally used mainly to carry cable television signals. The shield minimizes electrical and radio frequency interference.
<b>default gateway</b>	A designated router that forwards all traffic not addressed to a host on the local subnet.
<b>DHCP</b>	<p>A Dynamic Host Configuration Protocol server dynamically assigns IP addresses to client hosts on an IP network. DHCP eliminates the need to manually assign static IP addresses by “leasing” an IP address and subnet mask to each client. It enables the automatic reuse of unused IP addresses.</p> <p><i>The VT2542 can simultaneously be a DHCP client and a DHCP server:</i></p> <ul style="list-style-type: none"><li>• A DHCP server at Vonage headend assigns a WAN IP address to your VT2542.</li><li>• The VT2542 contains a built-in DHCP server that assigns private IP addresses to each computer on its LAN.</li></ul>
<b>DMZ</b>	A “de-militarized zone” is one or more <a href="#">hosts</a> logically located between a private LAN and the Internet. A DMZ prevents direct access by outside users to private data. (The term comes from the geographic buffers located between some conflicting countries such as North and South Korea.) In a typical small DMZ configuration, the DMZ host receives requests from private LAN users to access external web sites and initiates sessions for these requests. The DMZ host cannot initiate a session back to the private LAN. Internet users outside the private LAN can access only the DMZ host. You can use a DMZ to set up a web server or for gaming without exposing confidential data.
<b>DOCSIS</b>	The Data-Over-Cable Service Interface Specification define a standard interface for cable modems to deliver data between a cable network and computer systems. Euro-DOCSIS is DOCSIS adapted for use in Europe.
<b>DNS</b>	The Domain Name System is the Internet system for converting domain names to IP addresses. A DNS server contains a table matching domain names such as Internetname.com to IP addresses such as 192.169.9.1. When you access the Web, a DNS server translates the URL displayed on the browser to the destination website IP address. The DNS lookup table is a distributed Internet database; no one DNS server lists all domain-to-IP address matches.
<b>domain name</b>	A unique name, such as motorola.com, that maps to an IP address. Domain names are typically much easier to remember than IP addresses.
<b>dotted-decimal format</b>	<p>Method of representing an IP address or subnet mask using four decimal numbers called octets. Each octet represents eight bits.</p> <p>In a class C IP address, the octets are “network.network.network.host.” The first three octets together represent the network address and the final octet is the host address. In the VT2542 LAN default configuration, 192.168.15 represents the network address. In the final octet, the host address can be from 2 to 254.</p>
<b>download</b>	To copy a file from one computer or other network device to another. You can use the Internet to download files from a server to your home computer. Your voice gateway downloads its configuration file and firmware from Vonage.

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<b>downstream</b>	In a cable data or DSL network, the direction of data received by your computer from the Internet.
<b>driver</b>	Software that enables a computer to interact with a network or other device. For example, there are drivers for printers, monitors, graphics adapters, modems, Ethernet, USB, and many others.
<b>DSL</b>	A digital subscriber line enables a broadband connection to the Internet over traditional telephone lines that support DSL. You need a subscription for DSL service from your local telephone company.
<b>dynamic IP address</b>	An IP address that is temporarily leased to a host by a DHCP server. The opposite of <i>static IP address</i> .
<b>Ethernet</b>	The most widely used type of local area network (LAN). The most commonly installed Ethernet networks are called 10Base-T. 10Base-T provides transmission speeds up to 10 megabits per second (Mbps), usually over twisted-pair wire. Fast Ethernet (100Base-T) provides transmission speeds up to 100 Mbps.
<b>F-type connector</b>	A type of connector used to connect coaxial cable to equipment such as the VT2542.
<b>firewall</b>	A security software system on the VT2542 that enforces an access control policy between the Internet and the VT2542 LAN.
<b>flow</b>	A data path moving in one direction.
<b>GUI</b>	graphical user interface
<b>HFC</b>	A hybrid fiber/coaxial cable network uses fiber-optic cable as the trunk and coaxial cable to the subscriber premises.
<b>host</b>	Any computer or similar device supporting end-user applications or services with full two-way network access. Each host has a unique host number that combined with the network number forms its IP address.
<b>hub</b>	On a LAN, a device that connects multiple hosts to the LAN. A hub performs no data filtering. See also <i>router</i> .
<b>IGMP</b>	Internet Group Management Protocol
<b>Internet</b>	A worldwide collection of interconnected networks, all using TCP/IP.
<b>IP</b>	Internet Protocol is a set of standards that enable different types of computers to communicate with one another and exchange data through the Internet. IP provides the appearance of a single, seamless communication system and makes the Internet a virtual network.
<b>IP address</b>	An Internet Protocol address identifies a computer or other device on a TCP/IP network. Networks using the TCP/IP protocol route messages based on the destination IP address.
<b>IPSec</b>	The Internet Protocol Security protocols are authentication and encryption standards for secure data exchange over the Internet.
<b>ISP</b>	Internet service provider
<b>LAN</b>	A local area network provides a full-time, high-bandwidth connection over a limited area, such as a building, campus, office, or home. The computers and other devices you connect to your voice gateway, except for the telephones, form a LAN. Ethernet is the most widely used LAN standard.
<b>MAC address</b>	The Media Access Control address uniquely identifies each device that can be connected to an Ethernet network. It is permanently written to read-only memory (ROM) at the factory and printed on your VT2542.
<b>MHz</b>	Mega hertz. A measure of frequency; one MHz means one million cycles per second.
<b>MPPC</b>	Microsoft Point-To-Point Compression protocol is a method for compressing PPP packets to optimize processor and bandwidth usage for many simultaneous connections. MPPC is patented in the United States by Hifn Inc.
<b>MPPE</b>	Microsoft Point-to-Point Encryption is a protocol for encrypting data across PPP and VPNs. It is frequently used in conjunction with MPPC.
<b>NAT</b>	Network Address Translation is a standard for a LAN to use one set of IP addresses for internal traffic and a second set of IP addresses for external traffic.
<b>NAPT</b>	Network Address Port Translation is the most common form of translation between public and private IP addresses.
<b>network</b>	Two or more computers connected to communicate with each other. Networks have traditionally been connected using some kind of wiring.

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<b>NIC</b>	Network interface card is another name for network adapter. A NIC is installed in an expansion slot or can be built-in. Every Ethernet NIC has a MAC address permanently saved in its ROM.
<b>OOB DTMF</b>	Out-of-Band Dual-Tone Multi-Frequency protocol for voice traffic.
<b>PING</b>	A network utility that tests host reachability by sending a small packet to the host and waiting for a reply. If you PING a computer IP address and receive a reply, you know the computer is reachable over the network. It also stands for "Packet InterNet Groper."
<b>port</b>	On a computer or other electronic device, a port is a socket or plug used to physically connect it to the network or to other devices. In TCP/IP, a port is a number from 0 to 65536 used logically by a client program to specify a server program. Ports 0 to 1024 are reserved.
<b>port triggering</b>	A mechanism that enables incoming communication with specified applications. Primarily used for gaming applications.
<b>POTS</b>	"Plain old telephone service;" basic analog telephone service. POTS uses the lowest 4 kHz of bandwidth on twisted pair wiring.
<b>PPP</b>	Point-to-Point Protocol is a method to establish a network connection or session between hosts.
<b>PPPoE</b>	Point-to-Point Protocol over Ethernet is a specification for connecting to the Internet used with DSL modems.
<b>PPTP</b>	Point-to-Point Tunneling Protocol encapsulates other protocols to create VPNs. It is developed jointly by several vendors.
<b>private IP address</b>	An IP address assigned to a computer on the VT2542 LAN by the DHCP server on the VT2542 for a specified lease time. Private IP addresses are used by the VT2542 LAN only; they are invisible to devices on the Internet. See also <i>public IP address</i> .
<b>PSTN</b>	The public switched telephone network is the traditional circuit-switched, voice-oriented telephone network. See also <i>POTS</i> .
<b>public IP address</b>	A public IP address is visible to devices on the Internet. See also <i>private IP address</i> .
<b>QoS</b>	quality of service
<b>RIP</b>	Routing Information Protocol enables routers to exchange routing information with other network routers. Any RIP-enabled router: <ul style="list-style-type: none"><li>• Sends automatic update packets containing its routing table periodically (every 30 seconds)</li><li>• Accepts periodic updates from other routers and adds, deletes, or modifies routes in its routing table accordingly</li><li>• Responds to requests for its routing table</li></ul>
<b>RTP</b>	Real Time Protocol for voice traffic.
<b>RJ-11</b>	The most common type of connector for household or office phones.
<b>RJ-45</b>	The most common type of port for Ethernet networks.
<b>router</b>	On IP networks, a device connecting at least two networks, which may or may not be similar. A router filters data based on the IP address, examining the source and destination IP addresses to determine the best route on which to forward it.
<b>server</b>	A dedicated computer that supplies files, data, or services to other "client" computers or devices.
<b>SIP</b>	Session Initiation Protocol for voice traffic.
<b>S-MTA</b>	A standalone media terminal adapter converts analog voice signals to and from a standard telephone to digital data that can be transmitted through a broadband connection over the Internet.
<b>SSH</b>	secure shell

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<b>stateful inspection</b>	<p>A type of firewall that tracks each connection traversing all firewall interfaces to ensure validity. In addition to examining the source and destination in the packet header based on static rules, a stateful inspection firewall:</p> <ul style="list-style-type: none"><li>• Examines packet headers on context established by previous packets that traversed the firewall</li><li>• Monitors the connection state and saves it in a table</li><li>• Closes ports until a connection to a specific port is requested</li><li>• May examine the packet contents up through the application layer to determine more than just the source and destination</li></ul> <p>A stateful-inspection firewall is more advanced than a static filter firewall.</p>
<b>static filter</b>	<p>A type of firewall that examines the source and destination in the packet header based on administrator-defined rules <i>only</i>.</p>
<b>static IP address</b>	<p>An IP address that is permanently assigned to a host. Normally, a static IP address must be assigned manually. The opposite of dynamic IP address.</p>
<b>subnet mask</b>	<p>A bit mask that is logically ANDed with the destination IP address of a packet to determine the network address. A router routes packets using the network address.</p>
<b>subnetwork</b>	<p>A part of a network; commonly abbreviated “subnet.” When subnetting is used, the host portion of the IP address is divided into a subnet and host number. Hosts and routers use the subnet mask to identify the bits used for the network and subnet number.</p>
<b>TCP</b>	<p>Transmission Control Protocol provides reliable transport over the network for data transmitted using IP. It defines rules and procedures for data exchange.</p>
<b>TCP/IP</b>	<p>The Transmission Control Protocol/Internet Protocol is a set of protocols that provides rules for communication between networks. It is the worldwide internetworking standard and the basic communications protocol of the Internet.</p>
<b>TFTP</b>	<p>Trivial File Transfer Protocol is a very simple protocol used to transfer files.</p>
<b>UPnP</b>	<p>Universal Plug and Play protocol.</p>
<b>UPS</b>	<p>An uninterruptible power supply provides battery back-up for a specified time during a power outage.</p>
<b>upstream</b>	<p>In a cable data or DSL network, the direction of data sent from your computer to the Internet.</p>
<b>USB</b>	<p>Universal Serial Bus</p>
<b>wireless access point (WAP)</b>	<p>A device that provides network connectivity to one or more client computers using radio signals over a wireless connection. One example you could use with your voice gateway is the <a href="#">Motorola Wireless Access Point WA840G</a>.</p>
<b>VoIP</b>	<p>Voice over Internet Protocol is a method to exchange voice, fax, and other information over the Internet. Voice and fax have traditionally been carried over telephone lines using a dedicated circuit for each line. VoIP enables calls to travel as discrete data on shared lines.</p>
<b>VoIP provider</b>	<p>The company from which you purchase VoIP telephone service.</p>
<b>VPN</b>	<p>A virtual private network is a private network that uses “virtual” connections (tunnels) routed over a public network (usually the Internet) to provide a secure and fast connection, usually to users working remotely at home or in small branch offices. A VPN connection provides security and performance similar to a dedicated link (for example, a leased line), but at much lower cost.</p>
<b>WAN</b>	<p>A wide-area network provides a connection over a large geographic area, such as a country or the whole world. The bandwidth depends on need and cost, but is usually much lower than for a LAN. For the voice gateway, “WAN” refers to the VoIP and broadband provider networks.</p>
<b>World Wide Web</b>	<p>An interface to the Internet that you use to navigate and hyperlink to information.</p>

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##### VT2542 Voice Gateway

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