User Guide

VT1000v Series
Voice Terminal

MOTOROLA
intelligence everywhere™

Important

This guide contains information related to product warranty, regulatory matters, and software licenses.

Safety and Regulatory Information

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS DEVICE TO RAIN OR MOISTURE. THE DEVICE SHALL NOT BE EXPOSED TO DRIPPING OR SPLASHING AND NO OBJECTS FILLED WITH LIQUIDS, SUCH AS VASES, SHALL BE PLACED ON THE DEVICE.

CAUTION: TO ENSURE REGULATORY AND SAFETY COMPLIANCE, USE ONLY THE PROVIDED POWER AND INTERFACE CABLES. TO PREVENT ELECTRICAL SHOCK, DO NOT USE THIS PLUG WITH AN EXTENSION CORD, RECEPTACLE, OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

CAUTION: DO NOT OPEN THE UNIT. DO NOT PERFORM ANY SERVICING OTHER THAN THAT CONTAINED IN THE INSTALLATION AND TROUBLESHOOTING INSTRUCTIONS UNLESS YOU ARE QUALIFIED TO DO SO. REFER ALL SERVICING TO QUALIFIED SERVICE PERSONNEL.

It is recommended that the customer install an AC surge arrestor in the AC outlet to which this device is connected. This is to avoid damaging the equipment by local lightning strikes and other electrical surges.

This product was qualified under test conditions that included the use of the supplied cable between system components. To be in compliance with regulations, the user must use this cable and install it 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 product safety requirements of the country of use.

Installation of this product must be in accordance with national wiring codes.

To prevent overheating, do not block the ventilation holes on the sides of the Motorola voice terminal.

Wipe the Motorola voice terminal with a clean, dry cloth. Never use cleaning fluid or similar chemicals. Do not spray cleaners directly on the unit or use forced air to remove dust.

FCC Compliance

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 when the equipment is operated 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 of the following measures:

■ Re-orient or relocate the receiving antenna

■ Increase the separation between the equipment and receiver

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

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

Changes or modification not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Canadian Compliance

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations. Cet appareil numérique de la classe B respects toutes les exigences du Règlement sur le matériel brouilleur du Canada.

FCC Declaration of Conformity

According to 47CFR, Parts 2 and 15 for Class B Personal Computers and Peripherals; and/or CPU Boards and Power Supplies used with Class B Personal Computers, Motorola BCS, 101 Tournament Drive, Horsham, PA 19044, 1-215-323-1000, declares under sole responsibility that the product identifies with 47CFR Part 2 and 15 of the FCC Rules as a Class B digital device. Each product marketed is identical to the representative unit tested and found to be compliant with the standards. Records maintained continue to reflect the equipment being produced can be expected to be within the variation accepted, due to quantity production and testing on a statistical basis as required by 47CFR 2.909. Operation is subject to the following condition: This device must accept any interference received, including interference that may cause undesired operation. The above named party is responsible for ensuring that the equipment complies with the standards of 47CFR, Paragraph 15.101 to 15.109.

International Declaration of Conformity

We, Motorola, Inc. Broadband Communications Sector
101 Tournament Drive
Horsham, PA, U.S.A.

declare under our sole responsibility that the:

Motorola VT1003v and VT1005v voice terminals

to which this declaration relates is in conformity with one or more of the following standards:

EN55022	EN55024	ETSI EN300 386	CISPR-22	CISPR-24
EN60065	EN60825	EN60950	IEC 60950	

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	Directive 93/68/EEC

Contents

Introduction

A Motorola® VT1000v series voice terminal adds Voice over Internet Protocol (VoIP) connections for one or two telephones to any broadband Internet connection. The connection can be through either:

■ A cable modem high-speed data service from a cable television company

■ A digital subscriber line (DSL) service from a telephone company

■ Other high-speed Internet connection

The VT1000v product line includes the following models, which collectively are referred to as a "Motorola voice terminal" in this guide.

VT1003v   Provides one telephone line

VT1005v   Provides two telephone lines

You can use a Motorola voice terminal with any:

■ Cable modem or DSL modem (broadband modem)

■ Microsoft Windows®, Macintosh®, or UNIX® computer with a 10Base-T or 10/100Base-T Ethernet adapter

■ Ethernet router

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Sample Configuration Without A Home Network

You can connect a Motorola voice terminal to any cable modem or DSL modem:

For simplicity, not all cables are shown.

Broadband modem

Motorola voice terminal

Ethernet cables

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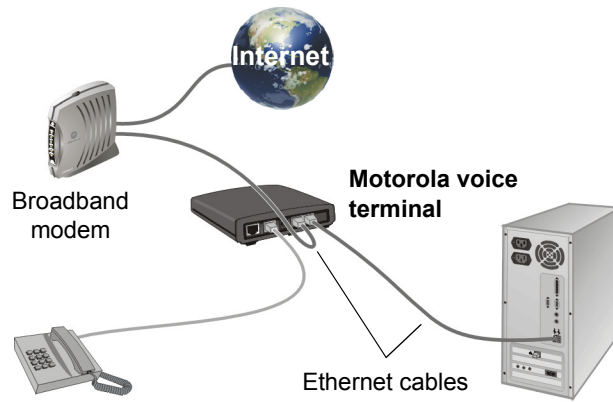
Sample Configuration With A Home Network

You can connect a Motorola voice terminal to any Ethernet router on a network having a high-speed Internet connection:
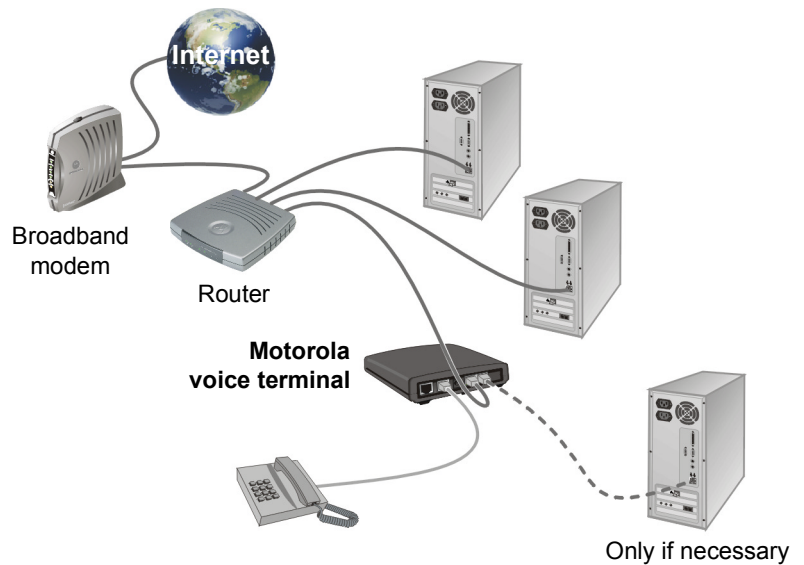
You may need to connect a computer to the Motorola voice terminal rear panel to configure the Motorola voice terminal. See "Connecting a Computer to Display the Configuration Pages" on page 12.

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Your Motorola voice terminal may appear slightly different than in the illustrations in this guide. Some models do not have every connector illustrated.

LINE 2   LINE 1   POWER   WAN   PC
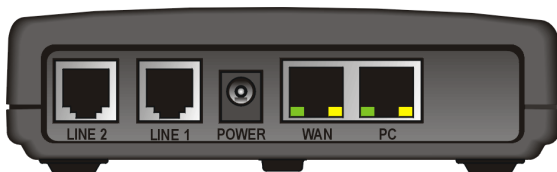
Front and Rear Panel

The POWER light on the front panel lights solid green when the power is on.

The rear panel provides the following connectors:

Item	Type	Connects To
LINE 2	RJ-11	Telephone line two (on the VT1005v *only*)
LINE 1	RJ-11	Telephone line one
POWER	12 V	An adapter that you plug into an AC power outlet
WAN	RJ-45	Ethernet connector to your broadband modem, router, switch, or hub. ("WAN" means "wide area network")
PC	RJ-45	Ethernet connector to a computer

The WAN and PC connectors each have two adjacent lights:

■ The green light is on when the Ethernet connection is available. It blinks during data transfer over the port.

■ The yellow light is on if there is a 100Base-T link and off for a 10Base-T link.

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Before You Begin

Before you begin the installation, check that you received the following items with your Motorola voice terminal:

Item		Description
AC power adapter and line cord		Connects the Motorola voice terminal to an AC electrical outlet
Ethernet cable		Connects the Ethernet port on the Motorola voice terminal to a computer, if necessary

You also need:

■ DSL, cable modem, broadband gateway, or other high-speed Internet connection

■ One or two touch-tone telephones

You may need an additional 10/100Base-T category 3 or better straight-through Ethernet cable with RJ-45 terminators.

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Precautions

Caution!

Contact your VoIP provider before connecting your Motorola voice terminal to your existing telephone wiring. Connect each LINE port to a telephone *only*; never to a traditional telephone service.

Postpone installation until there is no risk of thunderstorm or lightning activity in the area.

To prevent overheating the Motorola voice terminal, do not block the ventilation holes on its sides.

Do not open the Motorola voice terminal. *Refer all service to your VoIP provider.*

Wipe the Motorola voice terminal with a clean, dry cloth. Never use cleaning fluid or similar chemicals. Do not spray cleaners directly on the unit or use forced air to remove dust.

Signing Up for Service

To activate voice service, you need to provide the MAC address printed on the bar code label marked **MTA MAC ID** *on the bottom of the Motorola voice terminal to your VoIP provider.*

If you have a DSL modem, you need to obtain the Service Name, User Name, and Password from your DSL provider.

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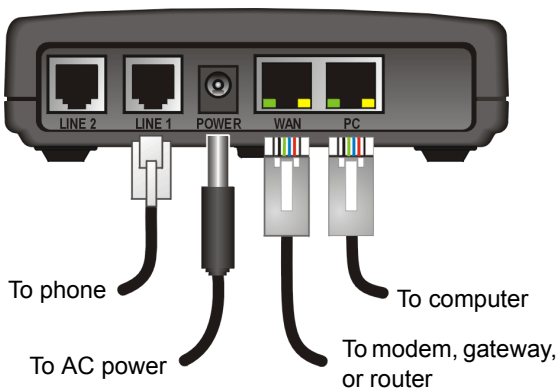
Installation

Depending on whether you have a single computer or a home network with multiple computers and a broadband access router, perform *one* of the following:

■ Installation With A Single Computer

■ Installation With A Home Network

Caution!

> ⚠ Contact your VoIP provider before connecting your Motorola voice terminal to existing phone wiring. Connect each LINE port to a telephone *only*; never to a traditional telephone service.
>
> Be sure the LINE connectors are neither connected together nor connected to wall jacks on the same network.

LINE 2   LINE 1   POWER   WAN   PC

To phone

To AC power

To computer

To modem, gateway, or router

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Installation With A Single Computer

Broadband
Modem

Ethernet port

WAN

**Motorola voice
terminal**

LINE 1   **PC**

Ethernet port
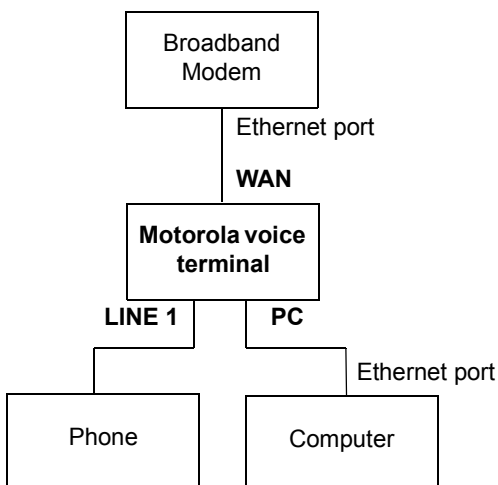
Phone   Computer

1   Be sure the Motorola voice terminal is unplugged. Be sure power is off to your broadband modem (cable or DSL) and computer.

2   Connect one end of an Ethernet cable (RJ-45) to the Ethernet connector on your broadband modem. Connect the other end of this Ethernet cable to the **WAN** connector on the Motorola voice terminal.

3   Connect one end of another Ethernet cable to the **PC** connector on the Motorola voice terminal. Connect the other end of this Ethernet cable to the Ethernet connector on the computer.

4   Connect a telephone to the **LINE 1** connector using a phone wire (RJ-11). For a VT1005v *only*, you can connect a second telephone to the **LINE 2** connector.

5   Power on the broadband modem, following the instructions provided with your modem. Wait about two minutes for it to boot.

6   Plug the AC power adapter to the **POWER** connector on your Motorola voice terminal and the electrical outlet. *This turns your Motorola voice terminal on. You do not need to unplug it when not in use.*

7   Check that the POWER light on your Motorola voice terminal turns on solid green. Wait about two minutes for the Motorola voice terminal to boot.

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8 Power up your computer. If your broadband Internet service does not work as it did before you installed your Motorola voice terminal, please refer to "Troubleshooting" on page 21.

   If you have a cable modem, skip to step 10.

9 If you have a DSL modem, enable PPPoE on your Motorola voice terminal as described in "Basic Configuration" on page 13.

10 Pick up your telephone hand set and listen for a dial tone. If you hear a dial tone, you can now call anyone as you would with any telephone.

   If you have any problems, please refer to "Troubleshooting" on page 21 or call your VoIP provider.

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Broadband
Modem

Router

LAN ports

WAN

Computer

**Motorola
voice
terminal**

Computer

LINE 1   **PC**

Ethernet port

Phone

Computer
(only if
necessary)
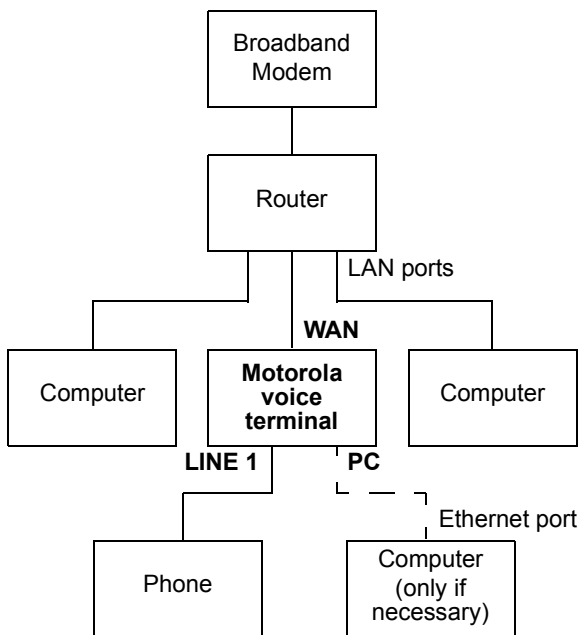
See "Connecting a Computer to
Display the Configuration Pages"

Installation With A Home Network

1 Be sure your Motorola voice terminal is unplugged. Be sure power is off to your broadband modem (cable or DSL) and router.

2 Connect one end of an Ethernet cable (RJ-45) to an open Ethernet LAN port on your router. Follow the instructions provided with your router. Connect the other end of this Ethernet cable to the **WAN** connector on your Motorola voice terminal.

3 Connect a telephone to your **LINE 1** connector using a phone wire (RJ-11). For a VT1005v *only*, you can connect a second telephone to the **LINE 2** connector.

4 Power on your broadband modem, following the instructions provided with the modem. Wait about two minutes for it to boot.

5 Power on your router, following the instructions provided with the router. Wait about two minutes for it to boot.

6 Plug the AC power adapter to the **POWER** connector on your Motorola voice terminal and the electrical outlet. *This turns your Motorola voice terminal on. You do not need to unplug it when not in use.*

7 Check that the POWER light on your Motorola voice terminal turns on solid green. Wait about two minutes for the Motorola voice terminal to boot.

8 Pick up the telephone hand set and listen for a dial tone

- If you hear a dial tone, you can now call anyone as you normally would on any telephone.

- If you do not hear a dial tone, check that all connections described in this procedure are correct. If you still do not hear a dial tone, you may need to connect a computer to your Motorola voice terminal and perform Basic Configuration. If after performing Basic Configuration, you still do not hear a dial tone, see "Troubleshooting" on page 21 or call your VoIP provider.

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Connecting a Computer to Display the Configuration Pages

For an Installation With A Home Network *only*, you need to connect a computer with DHCP enabled to the Motorola voice terminal to display the configuration pages. For information about enabling DHCP, refer to your operating system documentation.

If you performed an Installation With A Single Computer, a computer is already connected to the Motorola voice terminal.

To connect a computer to the back of the Motorola voice terminal:

1 Connect one end of an Ethernet cable to the **PC** connector on the Motorola voice terminal.

2 Connect the other end of the Ethernet cable to the Ethernet connector on a computer.

3 Power up the computer.
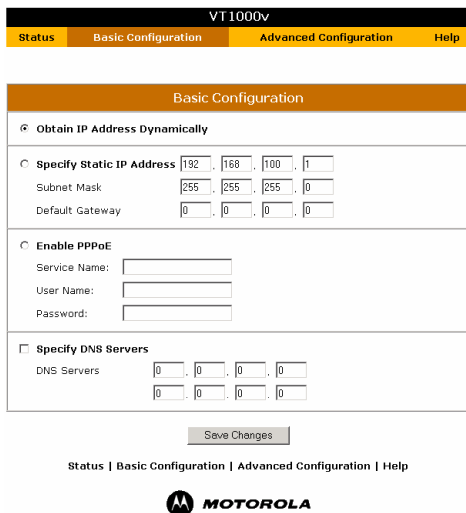
Basic Configuration

To perform basic configuration:

1 On the computer connected to the voice terminal **PC** port, start a web browser such as Microsoft® Internet Explorer or Netscape Navigator®.

2 In the **Address** or **Location** field, type **http://192.168.102.1** and press ENTER to display the Status page, which displays the Motorola voice terminal settings.

3 Click **Basic Configuration** to display the Basic Configuration window. Its fields are:

Obtain IP Address Dynamically	This setting is enabled by default. *If either of the following is true, no configuration on this page is required:* ■ If you have a cable modem with no router and your cable provider assigns IP addresses dynamically, the Motorola voice terminal obtains its IP address dynamically from your cable provider. ■ If you have a router with DHCP enabled, the Motorola voice terminal obtains its IP address dynamically from your router.
Specify Static IP Address	If your broadband provider requires a static IP address, enable Specify Static IP Address. Type the **Static IP Address** and IP addresses for the **Subnet Mask**, **Default Gateway** they provide.
Enable PPPoE	If you have a DSL modem and no router, enable PPPoE and type the **Service Name**, **User Name**, and **Password** provided by your DSL provider.

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Specify DNS Servers	Enables you to specify Domain Name System (DNS) servers, if necessary:

- If Obtain IP Address Dynamically or Enable PPPoE are checked, Specify DNS Servers is unchecked by default. If required by your broadband provider *only*, check this box and type the DNS server IP addresses provided by your broadband provider.
- If Specify Static IP Address is checked, Specify DNS Servers is checked by default. Because no DNS server is automatically assigned, you need to type the DNS server IP addresses provided by your broadband provider.

4   Verify that all fields are correctly filled in and click **Save Changes**. The message
```
This will require a reboot of the unit. Are you sure?
```
is displayed.

5   Click **OK**. Wait about two minutes. You cannot display the configuration pages while the Motorola voice terminal reboots. After the Motorola voice terminal reboots, click the web browser **Refresh** button to display the configuration pages.

6   Pick up the telephone hand set and listen for a dial tone. If you hear a dial tone, you can now place a phone call as you would with any telephone.

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If you cannot a hear a dial tone, try the following:

■   Check that all cabling is correctly connected as described in "Installation With A Single Computer" on page 8 or "Installation With A Home Network" on page 10.

■   Repeat this Basic Configuration procedure. Be sure you enter the correct information for your service.

■   Refer to "Troubleshooting" on page 21.

■   Contact your VoIP provider.

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Advanced Configuration

Do not change these settings unless you have the necessary expertise and the need to do so.

Field or Button	Description
Enable DHCP/NAT on LAN Port	If this is enabled, the Motorola voice terminal automatically distributes an IP address to a computer connected to its PC port. It is enabled by default.
Virtual Servers	Configures logical data ports for applications requiring multiple data ports. Because NAT assumes that data sent through one port will return to the same port, you may need to configure virtual servers to run certain applications:

- **IP** is the IP address of the computer connected to the Motorola voice terminal
- **Port** sets the port to open. *The ports assigned to Motorola voice terminal voice functions are displayed. If you forward any of these ports, you may disrupt your voice service. The ports shown in the illustration are examples only.*
- **Transport** sets the protocol — Disabled, TCP, IP, or UDP.

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Field or Button	Description
Host Name	Sets the host name, if required by your broadband service provider.
MAC Address Override	If your broadband provider associates a particular service to a specific device, such as your computer, type its MAC address here to use instead of the Motorola voice terminal MAC address.
	By default, the MAC address printed on the Motorola voice terminal is displayed in this field.
Restore MAC Address	If you type a value in the MAC Address Override field, click to use the actual Motorola voice terminal MAC address instead.
Save Changes	After verifying that all fields are correctly filled in, click to save your changes. The message `This will require a reboot of the unit. Are you sure?` is displayed. Click **OK**.
Reboot	Click to restart the Motorola voice terminal. Rebooting takes about two minutes.

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Status	Basic Configuration	Advanced Configuration	Help

Parameter	Status
WAN IP Address Assignment	Dynamic
IP Address	192.168.20.7
Subnet Mask	255.255.255.0
Default Gateway	192.168.20.1
DNS Servers	xxx.xxx.xx.xxx xx.xxx.xxx.xx xxx.xxx.xx.x
DHCP Server/NAT	Enabled
WAN MAC Address	00:0C:E5:89:BA:DA
Phone Number Line 1	xxxxxxxxxx
Phone Number Line 2	xxxxxxxxxx

Status | Basic Configuration | Advanced Configuration | Help

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Status

The Status window displays the Motorola voice terminal configuration.

Field	Description
WAN IP Address Assignment	Displays the method chosen on the Basic Configuration page — Dynamic, Static, or PPPoE.
IP Address **Subnet Mask** **Default Gateway**	These fields display the Motorola voice terminal IP address, subnet mask, and default gateway IP address: ■ For a cable modem with no router where the cable provider assigns IP addresses dynamically, these are obtained dynamically from the cable provider. ■ For static assignment, these are defined on the Basic Configuration page.
DNS Servers	Displays the DNS servers assigned to your computer.
DHCP Server/NAT	Displays whether Enable DHCP/NAT on LAN Port is enabled on the Advanced Configuration page.

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Field	Description
WAN MAC Address	Displays the Motorola voice terminal MAC address. By default, it displays the MAC address written to read-only memory (ROM) at the factory and printed in the MTA MAC ID field on the bottom of the unit. If you use the MAC Address Override field on the Advanced Configuration page, the MAC address you typed there is displayed in this field.
User Phone Number	Displays the telephone number(s) assigned by your VoIP provider.

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VT1000v

| Status | Basic Configuration | Advanced Configuration | Help |

Version Information

Software Version: VT20_01.1.03
Hardware Version: Model: VT1000 Revision: 0 BSP: 1.2/0
Config File Version: 3.0

Page	Purpose
Status	The Status Page provides information about various operational parameters of the VT1000v. When you first access the VT1000v, this page is displayed.
Basic Configuration	The Basic Configuration Page provides controls for entering parameters for operation.
Advanced Configuration	The Advanced Configuration Page provides controls for entering advanced parameters for operation.
Help	The Help Page provides an overview of the user interface functions.

Status | Basic Configuration | Advanced Configuration | Help

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Help

The Help window displays:

■ Software, hardware, and VoIP provider configuration file versions

■ Brief descriptions of the Motorola voice terminal configuration pages

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Troubleshooting

If the solutions listed here do not solve your problem, check your broadband modem user guide or contact your VoIP provider.

Problem	Possible Solutions
Green POWER light is off	Check that the AC power adapter is properly plugged into the electrical outlet and the Motorola voice terminal. Check that the electrical outlet is working.
Cannot send or receive data or calls; no dial tone	Check whether the telephone line cord is connected to the Motorola voice terminal. Check all other cabling between the modem, Motorola voice terminal, computer, and if applicable, routers. Be sure you used the cables provided with the Motorola voice terminal. All Ethernet cables must be straight-through cables. Check the lights on the modem front panel. For example, on the Motorola SURFBoard cable modem, the first light from top to bottom that is off indicates the error. For information, see your broadband modem user guide. To establish network connectivity, it is often helpful to follow the correct sequence. Be sure you complete the installation steps in the order specified in "Installation With A Single Computer" on page 8 or "Installation With A Home Network" on page 10.

Contact Information

For technical support, contact your VoIP provider.

For information about Motorola consumer broadband products, education, and support, visit http://broadband.motorola.com.

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Glossary

broadband	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 home and small-office users are cable modem or DSL. Both cable modem and DSL are much faster than a traditional dial-up Internet connection.
broadband service provider	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 company from which you subscribe to DSL service.
cable modem	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 broadband service provider.
coaxial cable (coax)	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.
digital subscriber line (DSL) modem	A device enabling a broadband connection to the Internet over traditional telephone lines that support DSL. It requires a subscription for DSL service from your local telephone company.
Domain Name System (DNS)	The DNS 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 world-wide 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 name to IP address matches.
download	To copy a file from one computer to another. You can use the Internet to download files from a server to your home computer.
downstream	In a cable data or DSL network, downstream describes the direction of data received by your computer from the Internet.
Dynamic Host Configuration Protocol (DHCP)	A DHCP 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.

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Ethernet	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.
IP address	An Internet Protocol address is an identifier for a computer or device on a TCP/IP network. Networks using the TCP/IP protocol route messages based on the destination IP address. Your broadband service provider assigns your cable modem an IP address to provide a continuous Internet connection.
MAC address	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 Motorola voice terminal.
MHz	Mega Hertz. A measure of radio frequency - millions of cycles per second. One MHz means one million cycles per second.
Network Address Translation (NAT)	NAT is an Internet standard for a LAN to use one set of IP addresses for internal traffic and a second set of IP addresses for external traffic.
port	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.
PPPoE	Point-to-Point Protocol over Ethernet specification for connecting to the Internet with DSL modems.
RJ-11	The most common type of connector for household or office phones.
RJ-45	The most common type of connector for Ethernet networks.
TCP/IP	Transmission Control Protocol/Internet Protocol is a set of protocols that provides rules for communication between networks.
upstream	In a cable data or DSL network, upstream describes the direction of data sent from your computer to the Internet.
VoIP	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 packets on shared lines.
VoIP provider	The company from which you purchase VoIP telephone service. It may be different from your broadband service provider.

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Software License and Warranty

Motorola, Inc., Broadband Communications Sector ("Motorola")
Cable Data Division
101 Tournament Drive
Horsham, PA 19044

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