# Administrator's Handbook

Motorola Netopia® Embedded Software
Version 9.0.1

MOTOROLA

## Motorola Netopia® Gateways
## September 2010

## Copyright



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# Table of Contents

# CHAPTER 1 Setting up Your Motorola Netopia® Modem or Gateway

This Administrator's Handbook covers the advanced features of the Motorola Netopia® Modem and Gateway families.

Your Motorola Netopia® equipment offers advanced configuration features accessed through the Web-based interface screens and the Command Line Interface (CLI). This Administrator's Handbook documents the advanced features, including advanced testing, security, monitoring, and configuration. This Administrator's Handbook should be used as a companion to the User Manual. You should read the User Manual before reading this Administrator's Handbook.

This guide is targeted primarily to residential service subscribers.

Expert Mode sections and the Command Line Interface may also be of use to the support staffs of broadband service providers and advanced residential service subscribers. (See "Expert Mode" on page 43" and "Command Line Interface" on page 51.")

Most users will find that the basic Quickstart configuration is all that they ever need to use. This section may be all that you ever need to configure and use your Motorola Netopia® Gateway. The following instructions cover installation in Router Mode.

# Important Safety Instructions

## POWER SUPPLY INSTALLATION

Connect the power supply cord to the power jack on the Motorola Netopia® Gateway. Plug the power supply into an appropriate electrical outlet.

**WARNING:**

**The power supply must be connected to a mains outlet with a protective earth connection. Do not defeat the protective earth connection.**

**CAUTION:**
Depending on the power supply provided with the product, either the direct plug-in power supply blades, power supply cord plug or the appliance coupler serves as the mains power disconnect. It is important that the direct plug-in power supply, socket-outlet or appliance coupler be located so it is readily accessible.
**(Sweden)** Apparaten skall anslutas till jordat uttag när den ansluts till ett nätverk
**(Norway)** Apparatet må kun tilkoples jordet stikkontakt.
**USB-powered models:** For Use with Listed I.T.E. Only

## TELECOMMUNICATION INSTALLATION

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:

- Do not use this product near water, for example, near a bathtub, wash bowl, 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 electrical shock from lightning.
- Do not use the telephone to report a gas leak in the vicinity of the leak.
- CAUTION: The external phone should be UL Listed and the connections should be made in accordance with Article 800 of the NEC.

## PRODUCT VENTILATION

The Motorola Netopia® Gateway is intended for use in a consumer's home. Ambient temperatures around this product should not exceed 104°F (40°C). It should not be used in locations exposed to outside heat radiation or trapping of its own heat. The product should have at least one inch of clearance on all sides except the bottom when properly installed and should not be placed inside tightly enclosed spaces unless proper ventilation is provided.

**SAVE THESE INSTRUCTIONS**

# Wichtige Sicherheitshinweise

## NETZTEIL INSTALLIEREN

Verbinden Sie das Kabel vom Netzteil mit dem Power-Anschluss an dem Motorola Netopia® Gateway. Stecken Sie dann das Netzteil in eine Netzsteckdose.

**Warnung:**

**Das Netzteil muss an eine Steckdose, die mit einem Schutzleiter verbunden ist, angeschlossen werden. Die Schutzleiterverbindung darf in keinem Fall unterbrochen werden.**

**Achtung:**
Abhängig von dem mit dem Produkt gelieferten Netzteil, entweder die direkten Steckernetzgeräte, Stecker vom Netzkabel oder der Gerätekoppler dienen als Hauptspannungsunterbrechung. Es ist wichtig, dass das Steckernetzgerät, Steckdose oder Gerätekoppler frei zugänglich sind.
**(Sweden)** Apparaten skall anslutas till jordat uttag när den ansluts till ett nätverk
**(Norway)** Apparatet må kun tilkoples jordet stikkontakt.
**USB-powered models:** For Use with Listed I.T.E. Only

## INSTALLATION DER TELEKOMMUNIKATION

Wenn Ihre Telefonausrüstung verwendet wird, sollten grundlegende Sicherheitsanweisungen immer befolgt werden, um die Gefahr eines Feuers, eines elektrischen Schlages und die Verletzung von Personen, zu verringern. Beachten Sie diese weiteren Hinweise:

- Benutzen Sie dieses Produkt nicht in Wassernähe wie z.B. nahe einer Badewanne, Waschschüssel, Küchenspüle, in einem nassen Keller oder an einem Swimmingpool.
- Vermeiden Sie das Telefonieren (gilt nicht für schnurlose Telefone) während eines Gewitters. Es besteht die Gefahr eines elektrischen Schlages durch einen Blitz.
- Nicht das Telefon benutzen um eine Gasleckstelle zu Melden, wenn Sie sich in der Nähe der Leckstelle befinden.

**Bewahren Sie diese Anweisungen auf**

## Set up your Gateway

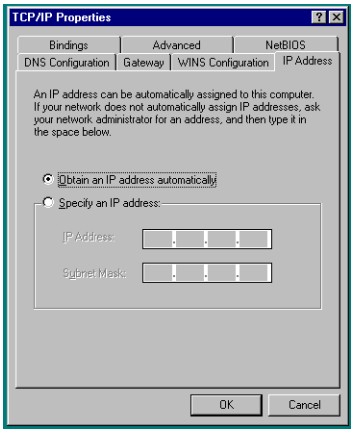
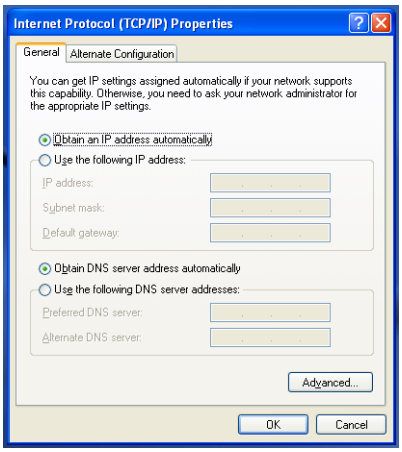
Refer to your User Manual for instructions on how to connect your Motorola Netopia® Gateway to your power source, PC or local area network, and your Internet access point, whether it is a dedicated DSL outlet or a DSL or cable modem. Different Motorola Netopia® Gateway models are supplied for any of these connections. Be sure to enable Dynamic Addressing on your PC. See "Configure Your PC for Dynamic Addressing".

## Configure Your PC for Dynamic Addressing

The following instructions assume that you want to use the automatic configuration and address sharing features of the Gateway to provide IP information to devices on your Local Area Network. To connect additional computers that will use the Gateway's address sharing feature repeat these steps for each computer.

### Microsoft Windows:

1. **Navigate to the TCP/IP Properties Control Panel.**

| | | |
|---|---|---|
| **a.** Some Windows versions follow a path like this: | **Start** menu -> **Settings** -> **Control Panel** -> **Network** (or **Network and Dial-up Connections** -> **Local Area Connection** -> **Properties**) -> **TCP/IP [your_network_card]** or **Internet Protocol [TCP/IP]** -> **Properties** |  |
| **b.** Some Windows versions follow a path like this: | **Start** menu -> **Control Panel** -> **Network and Internet Connections** -> **Network Connections** -> **Local Area Connection** -> **Properties** -> **Internet Protocol [TCP/IP]** -> **Properties** |  |

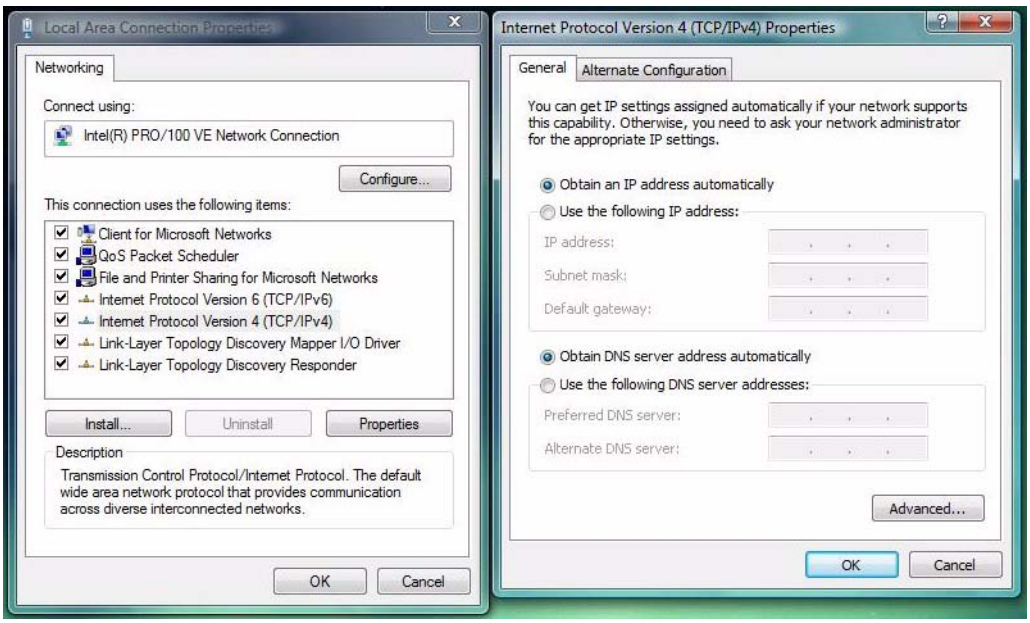
Then go to Step 2.

2. **Select *Obtain an IP address automatically*.**
3. **Select *Obtain DNS server address automatically*, if available.**
4. **Remove any previously configured gateways, if applicable.**
5. **Click the OK button. Restart if prompted.**

Proceed to the next section "Motorola Netopia® Gateway Quickstart" on page 14.

**c.** Windows Vista and Windows 7 are set to obtain an IP address automatically by default. You may not need to configure them at all.

To check, open the **Networking** Control Panel and select **Internet Protocol Version 4 (TCP/IPv4)**. Click the **Properties** button.



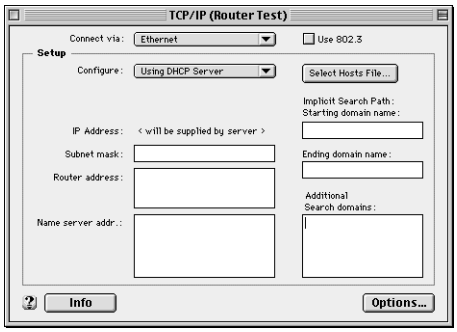

The **Internet Protocol Version 4 (TCP/IPv4) Properties** window should appear as shown.

If not, select the radio buttons shown above, and click the **OK** button.

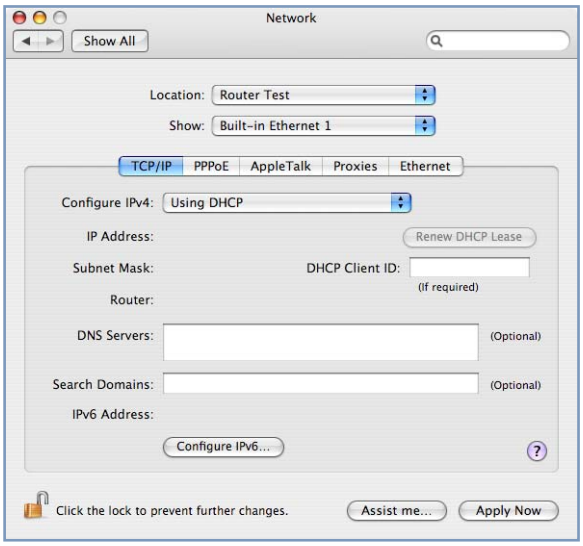
**Macintosh MacOS 9.2 and higher or Mac OS X 10.1.5 or higher:**

1. **Access the TCP/IP or Network control panel.**

**a.** MacOS follows a path like this: **Apple** Menu -> **Control Panels** -> **TCP/IP** Control Panel




**b.** Mac OS X follows a path like this: **Apple** Menu -> **System Preferences** -> **Network** -> **Configure**



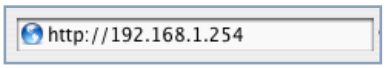

Then go to Step 2.

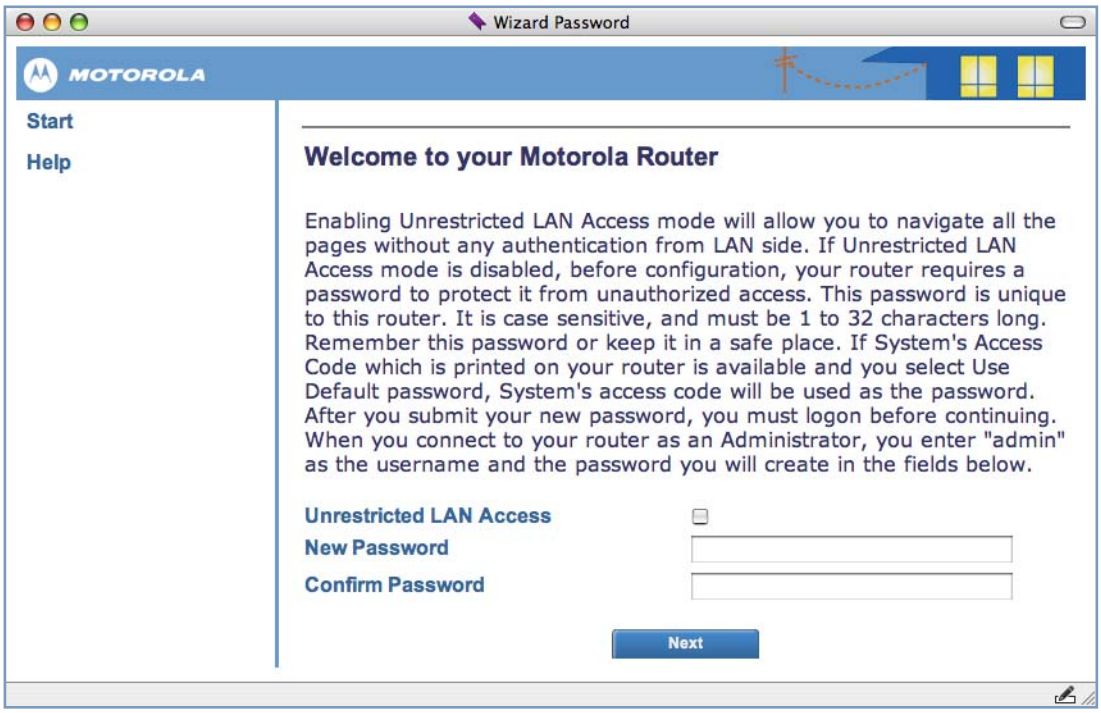
2. **Select *Built-in Ethernet***
3. **Select *Configure IPv4: Using DHCP***
4. **Close and Save, if prompted.**

Proceed to the next section "Motorola Netopia® Gateway Quickstart" on page 14.

# Motorola Netopia® Gateway Quickstart

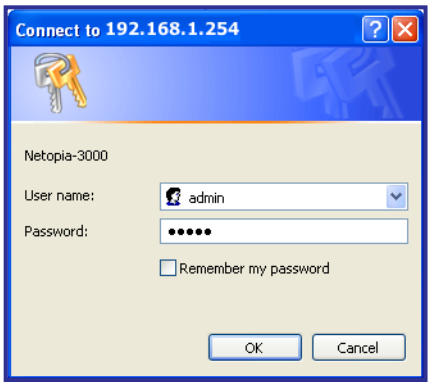
1. **Run a Web browser, such as Mozilla Firefox or Microsoft Internet Explorer.**
   Enter ***http://192.168.1.254*** in the URL Address text box.

   
   
   Press Return.
   (If your ISP's Configuration Worksheet tells you to use an IP address other than 192.168.1.254 to log in, enter http://< ip-address>.)
2. **The browser displays the Welcome page.**




- You can choose **Unrestricted LAN Access**.
  If you choose Unrestricted LAN Access, any user connected to your network can access and administer the Motorola Netopia® Gateway's configuration pages.
  Or,
- For security, you may create and enter an Administrative password for accessing the Motorola Netopia® Gateway.
  • The administrative User name is **admin**.
  • The initial Password can be whatever you choose, from one to 32 characters long.
  This user name and password are separate from the user name and password you might use to access the Internet. You may change them later. You will be challenged for this Admin username and password any time that you attempt to access the Motorola Netopia® Gateway's configuration pages.

If you have chosen to create an Administrative password, when you connect to your Gateway as an Administrator, you enter "**admin**" as the UserName and the Password you just created.




3. **Click OK.**

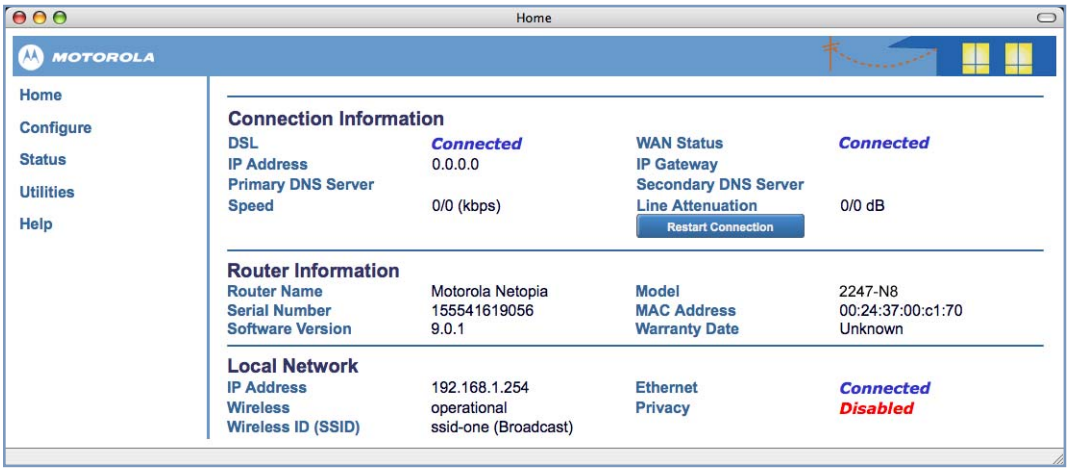
**Congratulations!** Your installation is complete. You can now surf to your favorite Web sites by typing an URL in your browser's location box or by selecting one of your favorite Internet bookmarks. Optional services that you may have contracted with your provider are also available.

If you have any questions or encounter problems with your Motorola Netopia® Gateway, refer to "Basic Troubleshooting" on page 45, the context-sensitive help in your Gateway's web pages, or contact your service provider's technical support helpdesk.

Answers to many frequently asked product-related questions are also available on-line at:

http://broadband.motorola.com/consumers/support/default.asp?supportSection=blank

If you click the Back button on your web browser, the browser displays the Basic Home Page.

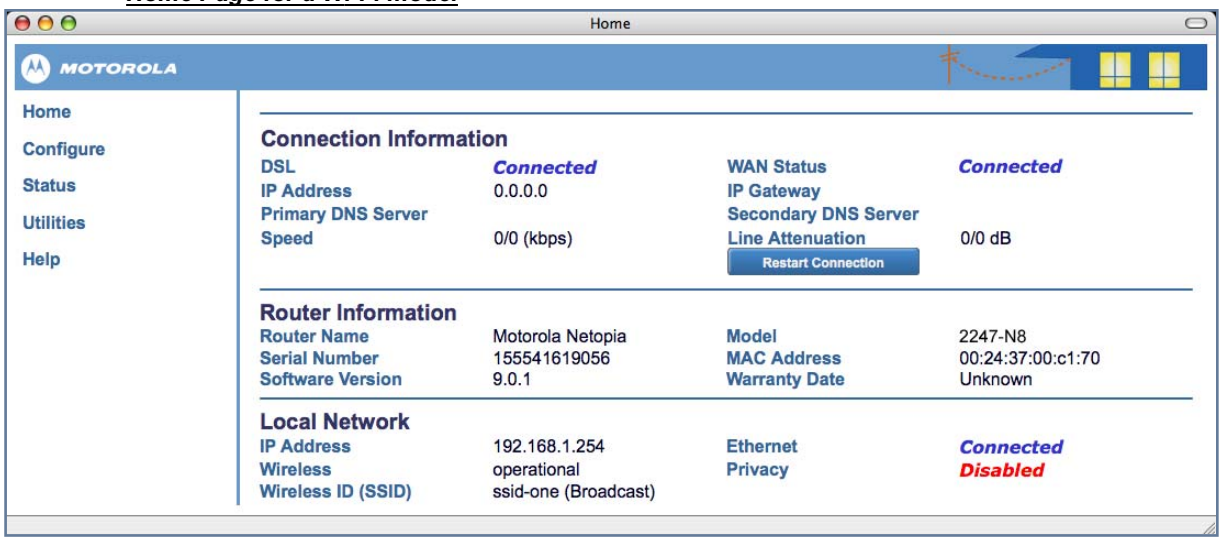


# CHAPTER 2 Web-based Device Management

Using the Web-based user interface for the Motorola Netopia® Gateway you can configure, troubleshoot, and monitor the status of your Gateway.

# The Home Page

***Home Page for a Wi-Fi model***




## Home Page Information

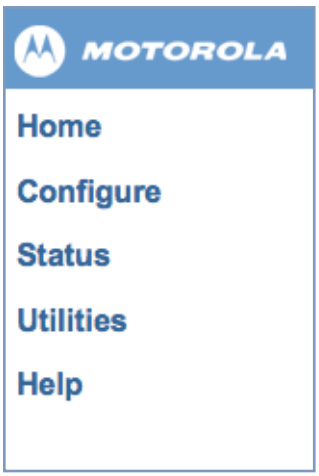
The Home page displays information about the following categories:

- **Connection Information**
- **Router Information**
- **Local Network**
- **Restart Connection** – For a PPPoE connection, clicking this button will bring down any PPPoE WAN connection that is up and resend your current PPPoE login credentials and reestablish your Internet connection. For a DHCP connection, clicking this button will release and renew the DHCP lease from your service provider's DHCP server, which assigns your local WAN IP address.
- **Connect** – Only displays if you are not connected. For a PPPoE connection, clicking this button will allow you to attempt to login using a different User ID and Password.
- **Disconnect** – Only for a PPPoE connection, clicking this button will disconnect you from the Internet until you choose to reestablish your connection manually.

Click the **Help** link in the left-hand column of links to display a page of explanatory information. Help is available for every page in the Web interface. See "Help" on page 44.

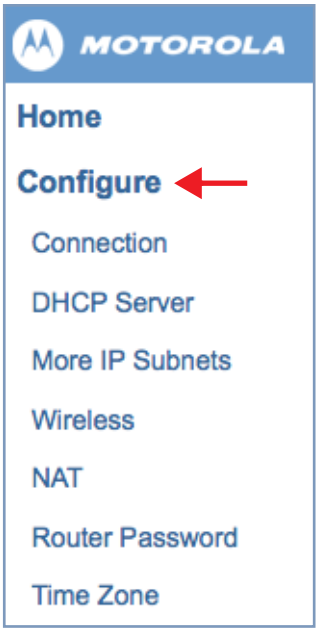
## Links Bar

The links in the left-hand column of the Home page access a series of pages to allow you to monitor, diagnose, and update your Gateway. The following sections give brief descriptions of these pages.




- "The Home Page" on page 18
- "Configure" on page 20
- "Status" on page 35
- "Utilities" on page 39
- "Help" on page 44

## Configure



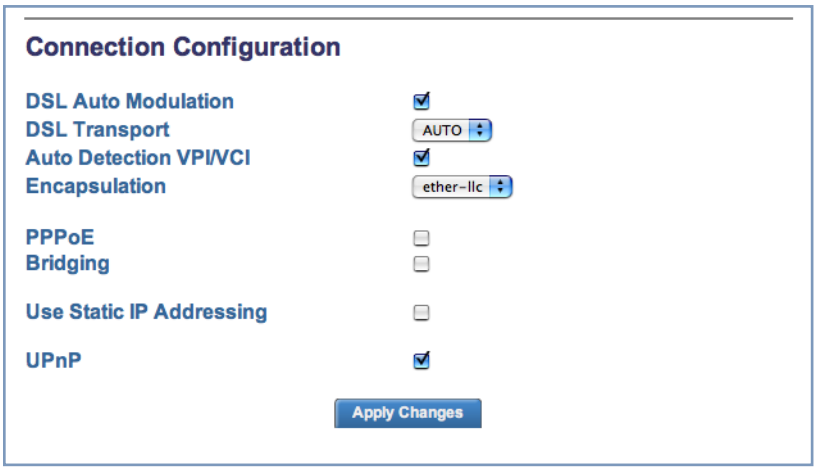

When you click **Configure** in the left hand column of links, the links bar expands.


- "Connection" on page 21
- "DHCP Server" on page 23
- "More IP Subnets" on page 24
- "Wireless" on page 25
- "NAT" on page 31
- "Router Password" on page 33
- "Time Zone" on page 34

## Connection

When you click **Connection**, the **Connection Configuration** page appears. This screen's appearance will vary depending on your type of connection to the Internet.

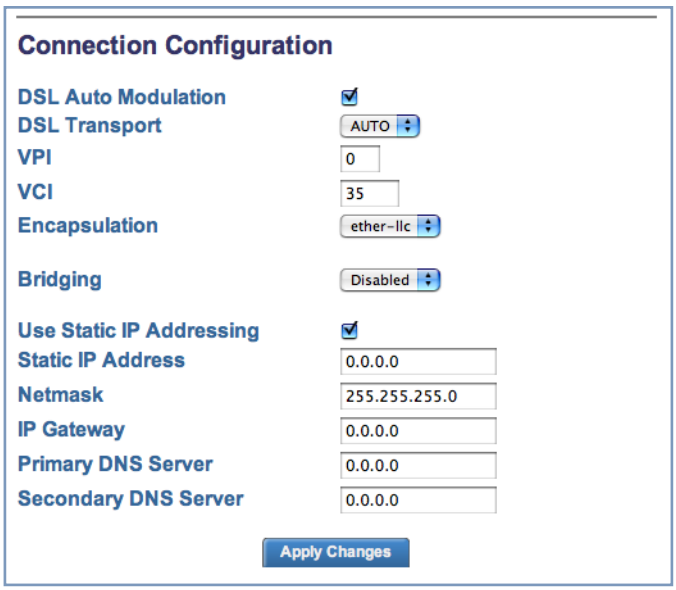
Here is an example.




Here you can set up or change the way you connect to your ISP. You should only change these settings at your ISP's direction, or by agreement with your ISP.

- **DSL Auto Modulation:** provides automatic rate adaptation which tries to sync at the fastest possible modulation.
- **DSL Transport:** Select ATM (Asynchronous Transfer Mode), PTM (Packet Transfer Mode), AUTO, or NONE from the pull-down menu. These modes depend on the equipment used by your ISP. Many providers now support dual mode IP DSLAM line cards that default to PTM, with ATM as a fallback. The default AUTO allows the best compatibility.
- **Auto Detection VPI/VCI**: If this checkbox is checked, your Gateway will attempt to detect the virtual circuit pairs in use by trying the most common ones in succession until one is found. Thereafter, the Gateway will always attempt to use that pair. If it cannot detect the VPI/VCI set in use, you can uncheck the checkbox, and enter the values manually.
- **VPI/VCI:** These values depend on the way your ISP's equipment is configured. 0/35 and 8/35 are the most common virtual circuit pairs, but others are also used.
- **Encapsulation:** The authentication and encapsulation protocol is determined by your ISP by the type of account that you have signed up for and the model of your Motorola device. Choose from the pull-down menu: pppoe-llc, pppoe-vcmux, ether-llc, ip-llc, pppoa-llc, or pppoa-vcmux
- **Bridging:** Your Gateway can be turned into a simple bridge, if desired. Select **Enabled** from the pull-down menu. However, it will no longer provide routing or security features in this mode.
- **Use Static IP Addressing:** Your service provider may tell you that the WAN IP Address for your Gateway is static. In this case, check the checkbox.

- The screen expands to allow you to enter the **Static IP Address** and **Netmask** from your Service Provider in the appropriate fields.

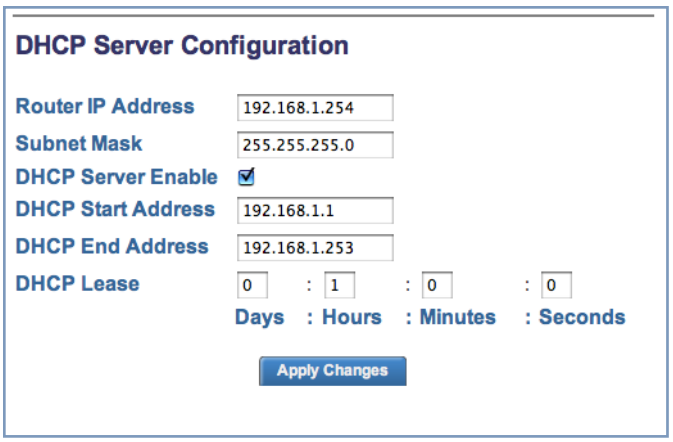



- **IP Gateway:** The IP Address of the default gateway, or peer address if using PPP. This is normally set to 0.0.0.0 for PPP connections.
- **Primary DNS Server:** The IP Address of the Primary Domain Name Server
- **Secondary DNS Server:** The IP Address of the backup Domain Name Server

When all of your entries are made, click the **Apply Changes** button.

## DHCP Server

When you click **DHCP Server**, the **DHCP Server Configuration** page appears.

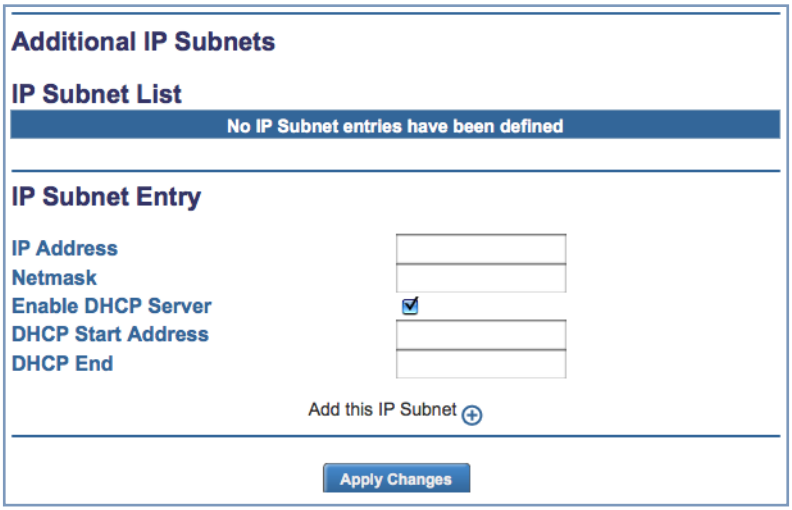



The Server configuration determines the functionality of your DHCP Settings. This functionality enables the Gateway to assign your LAN computer(s) a “private” IP address and other parameters that allow network communication. This feature simplifies network administration because the Gateway maintains a list of IP address assignments. Additional computers can be added to your LAN without the hassle of configuring an IP address. This is the default mode for your Gateway.

- **Router IP Address:** Specifies the IP address of the Gateway itself.
- **Subnet Mask:** Specifies the subnet for DHCP clients on the LAN side of the gateway. Defaults to the common Class C subnet.
- **DHCP Server Enable:** Uncheck this setting if you already have a DHCP server on your LAN. This enables the DHCP server in this Gateway.
- **DHCP Start Address:** Specifies the first address in the DHCP address range. You can reserve a sequence of up to 253 IP addresses within a subnet, beginning with the specified address, for dynamic assignment.
- **DHCP End Address:** Specifies the last address in the DHCP address range.
- **DHCP Lease:** Specifies the default length for DHCP leases issued by the Gateway. Enter lease time in dd:hh:mm:ss (days/hours/minutes/seconds) format.

## More IP Subnets

When you click the **More IP Subnets** link, the **Additional IP Subnets** screen appears.

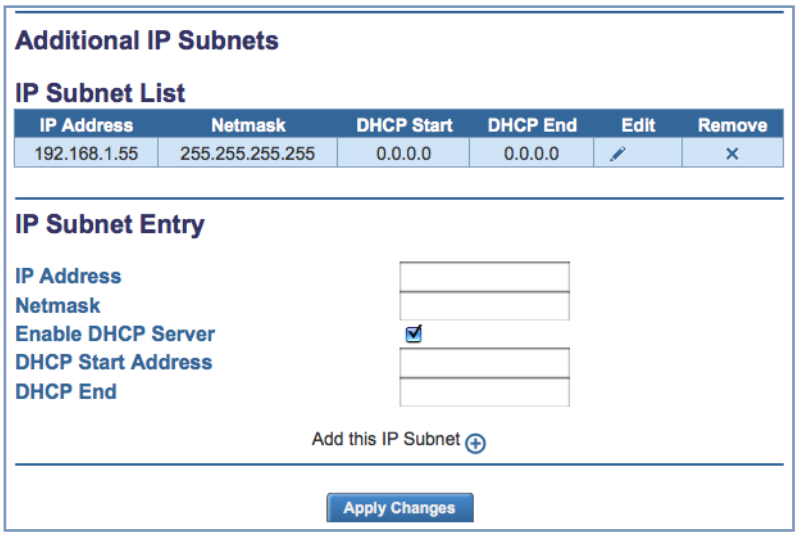



One subnet is preconfigured by default. The Additional IP Subnets screen allows you to configure up to seven secondary subnets and their DHCP ranges, by entering IP address/subnet mask pairs:

**Note:**

You need not use this screen if you have only a single Ethernet IP subnet.

- To add an IP subnet, enter the Gateway's IP address on the subnet in the **IP Address** field and the subnet mask for the subnet in the **Netmask** field.
- Enter the **DHCP Start Address** and **End Address** of the subnet range in their respective fields.
  Ranges cannot overlap and there may be only one range per subnet.
  If **DHCP Server** (see "DHCP Server" on page 23) is not enabled, the DHCP Start Address and DHCP End Address fields do not appear.
- Click the **Add this IP Subnet** button. Your entries will be added to the **IP Subnet List**.




To **Edit** or **Remove** a configured subnet, click the respective icon in the list item. When you are finished, click the **Apply Changes** button.

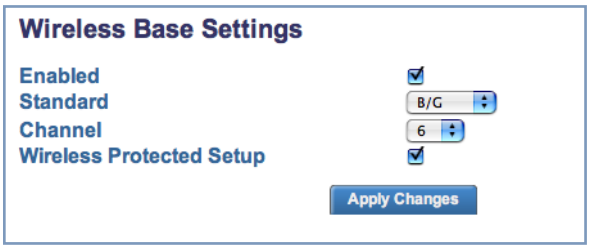
## Wireless

**(supported models)**

When you click the **Wireless** link in the links bar, the menu expands.


### Wireless Configuration

When you click the **Base Settings** link, the **Wireless Base Settings** page appears.




- The wireless function is automatically enabled by default. If you uncheck the **Enabled** checkbox, the wireless options are disabled, and the Gateway will not provide or broadcast its wireless LAN services.
- The pull-down menu allows you to select and lock the Gateway into the wireless transmission mode you want:

| | |
|---|---|
| **B/G** | **B-only** |
| **G-only** | **B/G/N** |
| **N-only** | **A/N** |
| **A-only** | |

For compatibility with clients using 802.11b (up to 11 Mbps transmission), 802.11g (up to 20+ Mbps), 802.11a (up to 54 Mbit/s using the 5 GHz band), or 802.11n (from 54 Mbit/s to 600 Mbit/s with the use of four spatial streams at a channel width of 40 MHz), select **B/G/N**. To limit your wireless LAN to one mode or the other, select **G-only**, **N-only**, **A-only**, or **B-only**, or some combination that applies to your setup.

**NOTE:**

If you choose to limit the operating mode to **G-only**, **N-only**, **A-only**, or **B-only**, clients using the mode(s) you excluded will not be able to connect.

- **Channel** – (1 through 11, for North America) on which the network will broadcast. This is a frequency range within the 2.4Ghz band. Channel selection depends on government regulated radio frequencies that vary from region to region. The widest range available is from 1 to 14. Europe, France, Spain and Japan differ. Channel selection can have a significant impact on performance, depending on other wireless activity close to this Router. Channel selection is not necessary at the client computers; the clients will scan the available channels seeking access points using the same SSID as the client.
- **Wireless Protected Setup (WPS)** is a not a new security protocol. It is simply an easier way to use existing protocols to provide greater security for your wireless network connections.

  By default, Privacy is set to Wireless Protected Access (WPA-PSK). WPS allows you to automatically generate a new strong WPA key for your Gateway and any client devices on your wireless network.

**Note:**

Not all client wireless devices support WPS. Refer to their documentation.

### Wireless Security

When you click the **Security** link, the **Wireless Security** page appears.


YOU ARE STRONGLY ENCOURAGED TO IMPLEMENT SOME FORM OF PRIVACY ON YOUR WIRELESS LAN. You can specify the Privacy mode for each SSID that you define. Options from the pull-down menu are:

- **OFF– No Privacy**
- **WEP–Manual** - see "WEP Manual" on page 27
- **WPA-PSK** - see "WPA-PSK" on page 28

**Hide SSID.** If you check this checkbox, the Gateway hides the wireless network from the scanning features of wireless client computers. Unless both the wireless clients and the Gateway share the same Wireless ID in this mode, the Gateway's wireless LAN will not appear as an available network when scanned for by wireless-enabled computers. Members of this "Closed System" WLAN must log onto the Gateway's wireless network with the identical SSID as that configured in the router.

Closed System mode is an ideal way to increase wireless security and to prevent casual detection by unwanted neighbors, office users, or malicious users such as hackers.

If you do not enable this mode, it is more convenient, but potentially less secure, for clients to access your WLAN by scanning available access points. You must decide based on your own network requirements.

Enabling Closed System Mode on your wireless Gateway provides another level of security, since your wireless LAN will no longer appear as an available access point to client PCs that are casually scanning for one.

Your own wireless network clients, however, must log into the wireless LAN by using the exact SSID of the Motorola Netopia® Gateway.

In addition, if you have enabled WEP or WPA encryption on the Motorola Netopia® Gateway, your network clients must also have WEP or WPA encryption enabled, and must have the same WEP or WPA encryption key as the Motorola Netopia® Gateway.

Once the Motorola Netopia® Gateway is located by a client computer, by setting the client to a matching SSID, the client can connect immediately if WEP or WPA is not enabled. If WEP or WPA is enabled then the client must also have WEP or WPA enabled and a matching WEP or WPA key.

Wireless client cards from different manufacturers and different operating systems accomplish connecting to a wireless LAN and enabling WEP or WPA in a variety of ways. Consult the documentation for your particular wireless card and/or operating system.

**Block Wireless Bridging.** Check the checkbox to block wireless clients from communicating with other wireless clients on the LAN side of the Gateway.

### WEP Manual

WEP (Wired Equivalent Privacy) Security is a Privacy option that is based on encryption between the Router and any PCs (“clients”) you have with wireless cards. If you are not using WPA-PSK Privacy, you can use WEP encryption instead. For this encryption to work, both your Router and each client must share the same Wireless ID, and both must be using the same encryption keys.


You can provide a level of data security by enabling WEP (Wired Equivalent Privacy) for encryption of network data. You can enable 40-, 128-, or 256-bit WEP Encryption (depending on the capability of your client wireless card) for IP traffic on your LAN.

**WEP - Manual** allows you to enter your own encryption keys manually. This is a difficult process, but only needs to be done once. Avoid the temptation to enter all the same characters.

- **Key Length**: Selects the length of each encryption key. The longer the key, the stronger the encryption and the more difficult it is to break the encryption.
- **Key**: The encryption keys. You enter keys using hexadecimal digits. For 40/64bit encryption, you need ten digits; 26 digits for 128bit WEP. Hexadecimal characters are 0 – 9, and a – f.

  **Examples:**

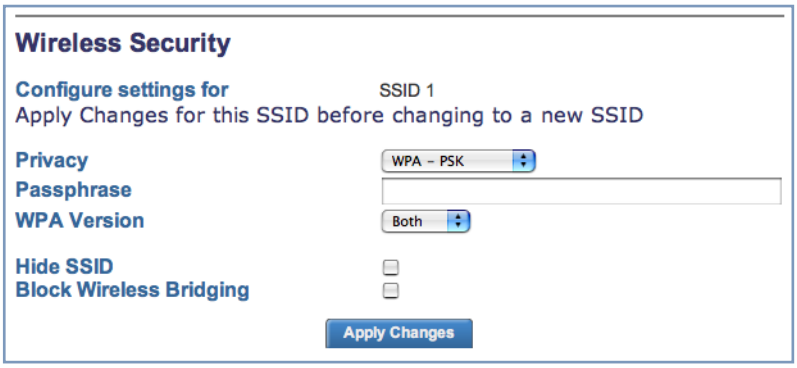
  - 40bit: 02468ACE02
  - 128bit: 0123456789ABCDEF0123456789

Click the click **Apply Changes** button.

Any WEP-enabled client must have an identical key of the same length as the Gateway, in order to successfully receive and decrypt the traffic. Similarly, the client also has a 'default' key that it uses to encrypt its transmissions. In order for the Gateway to receive the client's data, it must likewise have the identical key of the same length.

### WPA-PSK

One of the easiest ways to enable Privacy on your Wireless network is by selecting **WPA-PSK** (Wi-Fi Protected Access) from the pull-down menu.



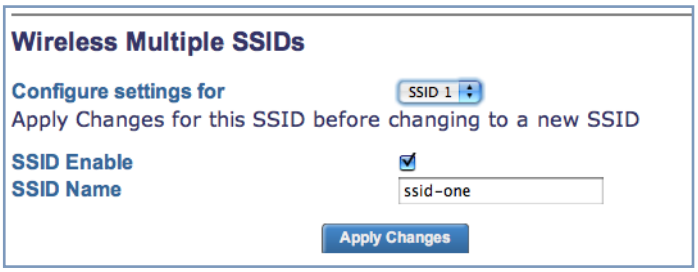

- Enter a **Passphrase**. The key can be between 8 and 63 characters, but for best security it should be at least 20 characters.
- You also have the choice of applying **Both WPA Version 1 and 2**, **WPA Version 1 Only**, or **WPA Version 2 Only** from the pull-down menu. These can be applied to each SSID individually.

When you have finished, click the **Apply Changes** button.

### Wireless Multiple SSIDs

This feature allows you to add additional network identifiers (SSIDs or Network Names) for your wireless network. To enable Multiple SSIDs, click the **Multiple SSID** link.

The **Wireless Multiple IDs** screen appears to allow you to add up to three additional Wireless IDs.




- When the Multiple Wireless SSIDs screen appears, check the **SSID Enable** checkbox for each SSID you want to enable.
- The screen allows you to name each additional Wireless ID.

When you have finished, click the **Apply Changes** button.

## Wireless Multi-media Configuration

Wireless Multi-media is an advanced feature that allows you to prioritize various types of data travelling over the wireless network. Certain types of data that are sensitive to delays, such as voice or video, must be prioritized ahead of other, less delay-sensitive types, such as email.

Wireless Multi-media currently implements wireless Quality of Service (QoS) by transmitting data depending on Diffserv priority settings. These priorities are mapped into four Access Categories (AC), in increasing order of priority:

- Background (BK),
- Best Effort (BE),
- Video (VI), and
- Voice (VO).

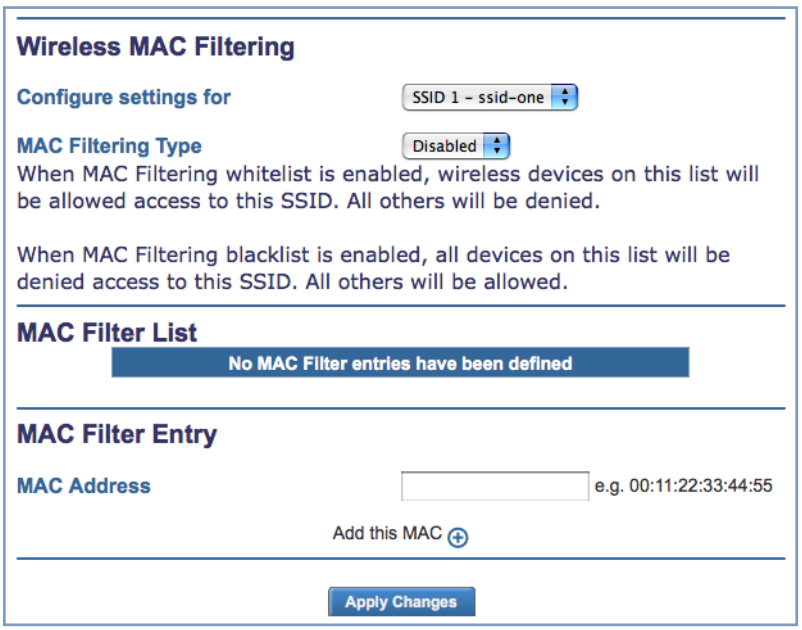
It requires WiFi Multimedia (WMM)-capable clients, usually a separate feature enabled at the client network settings, and client PC software that makes use of Differentiated Services (Diffserv). Refer to your operating system instructions for enabling Diffserv QoS.

When you click the **WiFi Multimedia** link the **Wireless Multi-media Configuration** page appears.


Check the **Enabled** checkbox and click the **Apply Changes** button.

## Wireless MAC Filtering

When you click the **MAC Filtering** link the **Wireless MAC Filtering** page appears.



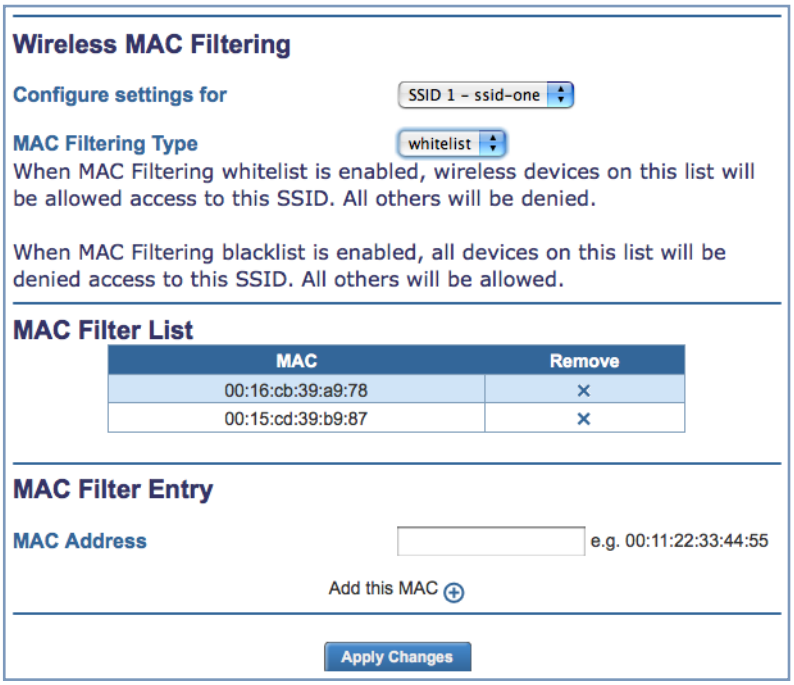

MAC Filtering allows you to specify which client PCs are allowed to join the wireless LAN by unique hardware (MAC) address.

- To enable this feature, select either **whitelist** or **blacklist** from the **MAC Filtering Type** pull-down menu.

- You add wireless clients that you want to either authorize or exclude for your wireless LAN by entering the MAC addresses in the **MAC Address** field provided.

Click the **Add this MAC** button.

Your entries will be added to a client **MAC Filter List**.

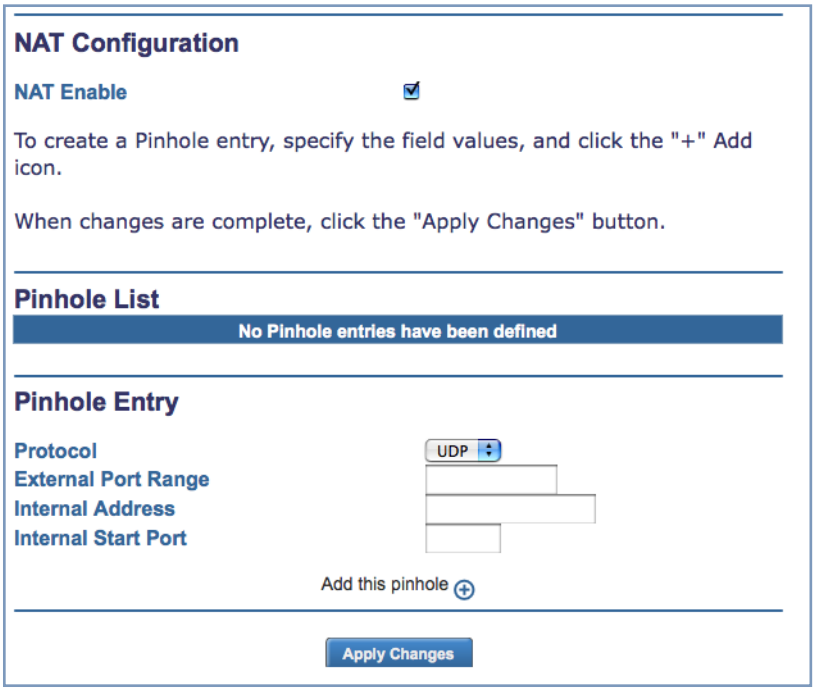



Click the **Apply Changes** button.

You can **Add** more entries or **Remove** any of your entries later by returning to this page.

## NAT

When you click **NAT**, the **NAT Configuration** page appears.

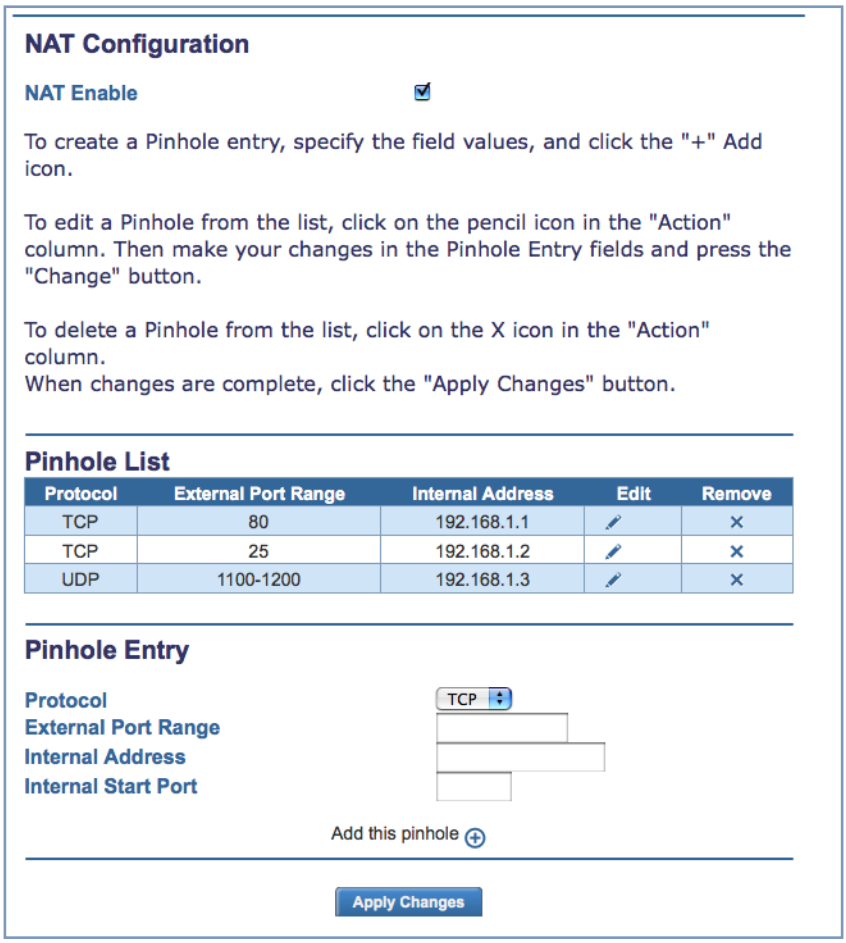



- **NAT Configuration** allows you to host internet applications when NAT is enabled. You can host different games and software on different PCs.
- **Pinhole Entry** allows you to transparently route selected types of network traffic, such as FTP requests or HTTP (Web) connections, to a specific host behind the Gateway. Creating a pinhole allows access traffic originating from a remote connection (WAN) to be sent to the internal computer (LAN) that is specified in the Pinhole page.

  Pinholes are common for applications like multiplayer online games. Refer to software manufacturer application documentation for specific traffic types and port numbers.
- Determine if any of the service applications that you want to provide on your LAN stations use **TCP** or **UDP** protocols. If an application does, then you must configure a pinhole to implement port forwarding.
  - **Protocol**: UDP or TCP
  - **External Port Range**: This is the range of ports on which you expect incoming traffic to be received.
  - **Internal Address**: This is the internal host IP address to which you want the traffic to be directed.
  - **Internal Start Port**: This is the port number at the start of the port range that you want your Gateway to use when forwarding traffic of the type(s) you have selected to the internal IP address.

The following example shows three pinholes:

- a web server (using TCP on port 80, the standard HTTP protocol web port) on a host at the internal IP address 192.168.1.1
- a mail server (using TCP on port 25, the standard SMTP protocol email port) at the internal IP address 192.168.1.2
- a games server (using UDP on a port range 1100 – 1200) at the internal IP address 192.168.1.3



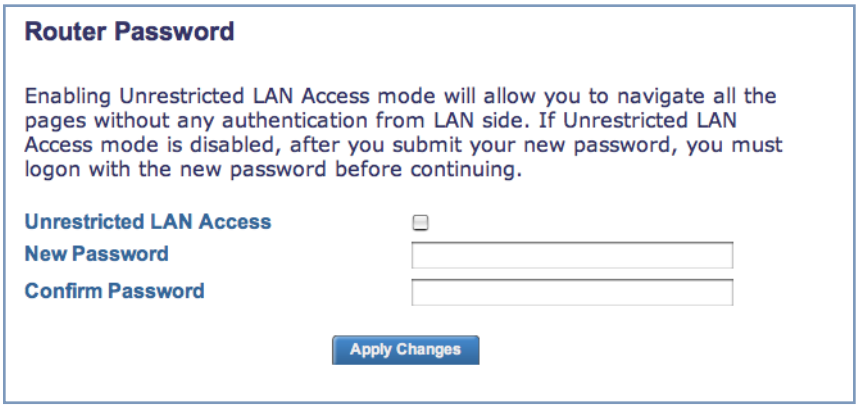

You can edit or delete any of your entries from the Pinhole List by clicking the **Edit** or **Remove** icons.

You can add more entries to the Pinhole List by clicking the **Add this pinhole** button.

When you are finished, click the **Apply Changes** button.

## Router Password

When you click **Router Password**, the **Router Password** page appears.



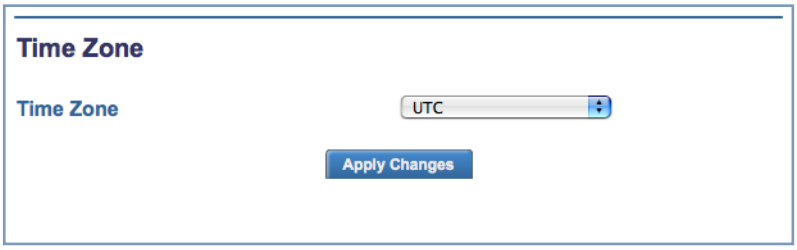

Here you can change the administrative password that you use when logging onto the Gateway as **admin**. Passwords are case sensitive fields, and must be 1 to 32 characters long. Store your password in a safe place. Enter your new password, and confirm it.

- You can choose **Unrestricted LAN Access**.
  If you choose Unrestricted LAN Access, any user connected to your network can access and administer the Motorola Netopia® Gateway's configuration pages.
  Or,
- For security, you may create and enter an Administrative password for accessing the Motorola Netopia® Gateway.
  • The administrative User name is **admin**.
  • The Password can be whatever you choose, from one to 32 characters long.
  You will be challenged for this Admin username and password any time that you attempt to access the Motorola Netopia® Gateway's configuration pages.

Click the **Apply Changes** button.

## Time Zone

When you click the **Time Zone** link, the **Time Zone** page appears.

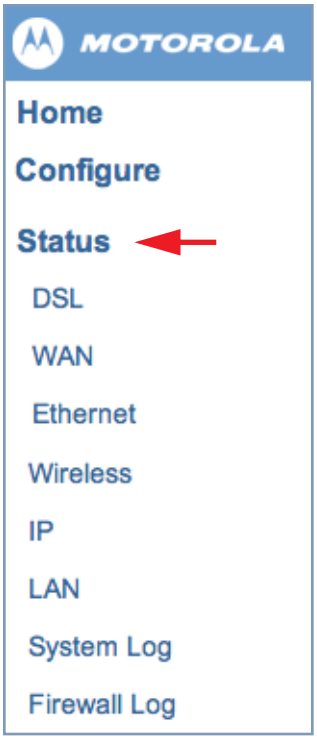



You can set your local time zone by selecting your time zone from the pull-down menu. This allows you to set the time zone for general time stamp purposes.

Click the **Apply Changes** button.

Changes are saved immediately.

# Status




When you click **Status** in the left hand column of links, the links bar expands.

Available Status links vary by platform.

## DSL

When you click **DSL**, the DSL Statistics page appears.

The DSL Statistics page displays information about the Gateway's WAN connection to the Internet.

- **Line State:** May be Up (connected) or Down (disconnected).
- **Modulation:** Method of regulating the DSL signal. DMT (Discrete MultiTone) allows connections to work better when certain radio transmitters are present.
- **Data Path:** Type of path used by the device's processor.

### Downstream and Upstream statistics

- **Max Allowed Speed (kbps):** Your maximum speeds for downloading (receiving) and uploading (sending) data on the DSL line, in kilobits per second.
- **SN Margin (db):** Signal to noise margin, in decibels. Reflects the amount of unwanted “noise” on the DSL line.
- **Line Attenuation:** Amount of reduction in signal strength on the DSL line, in decibels.
- **CRC Errors:** Number of times data packets have had to be resent due to errors in transmission or reception.

## WAN

When you click **WAN**, the WAN Statistics page appears.

The WAN Statistics page:

- displays detailed statistics about your WAN data traffic, upstream and downstream.
- displays the Server MAC address for the PPPoE session (if applicable)

This information is useful for troubleshooting and when seeking technical support.

## Ethernet

When you click **Ethernet**, the Ethernet Statistics page appears.

The Ethernet Statistics page:

- displays your Gateway's unique hardware (MAC) address.
- displays detailed statistics about your LAN data traffic, upstream and downstream.

## Wireless

When you click **Wireless**, the Wireless Statistics page appears.

- **Wireless Status**: displays the enabled wireless SSIDs and their security (privacy) settings
- **Wireless Statistics**: displays both bytes and packets received and transmitted.

## IP

When you click **IP**, the IP Statistics page appears. The IP Statistics page displays the IP interfaces and routing table information about your network.

### General

- **IP WAN Address:** The public IP address of your Gateway, whether dynamically or statically assigned.
- **IP Gateway:** Your ISP's gateway Gateway IP address
- **Primary DNS:** The IP address of the Primary Domain Name Server
- **Primary DNS name:** The name of the Primary Domain Name Server
- **Secondary DNS:** The IP address of the backup Domain Name Server (if any)
- **Secondary DNS name:** The name of the backup Domain Name Server

### IP interfaces

- **Address:** Your Gateway's IP address as seen from your internal network (LAN), and from the public Internet (WAN)
- **Netmask:** The subnet mask for the respective IP interfaces (LAN and WAN)
- **Name:** The name of each IP interface (example:Eth0, WAN2)

### Network Routing Table and Host Routing Table

The Routing tables display all of the IP routes currently known to your Gateway

## LAN

When you click **LAN**, the LAN Statistics page appears.

The LAN Statistics page displays detailed information about your LAN IP configuration and names and IP addresses of devices on your LAN.

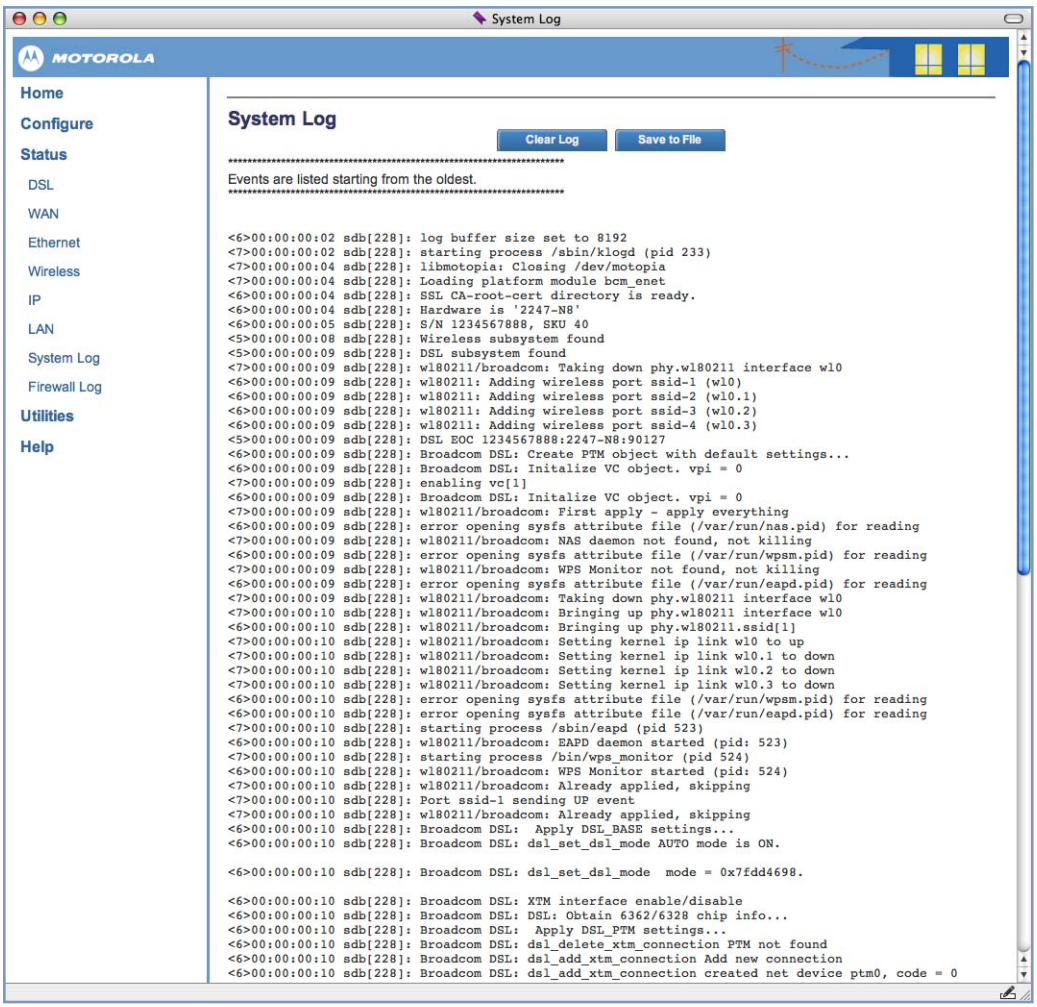
- **Gateway IP Address:** The IP address of your Gateway as seen from the LAN
- **DHCP Netmask:** Subnet mask of your LAN
- **DHCP Start Address:** First IP address in the range being served to your LAN by the Gateway's DHCP server
- **DHCP End Address:** Last IP address in the range being served to your LAN by the Gateway's DHCP server
- **DHCP Server Status:** May be On or Off
- **DNS Server:** The IP address of the default DNS server

### Devices on LAN

Displays the IP Address, MAC (hardware) Address, and network Name for each device on your LAN connected to the Gateway.

## System Log

When you click **System Log**, the System Log page appears.




The current status of the Gateway is displayed for all logs.

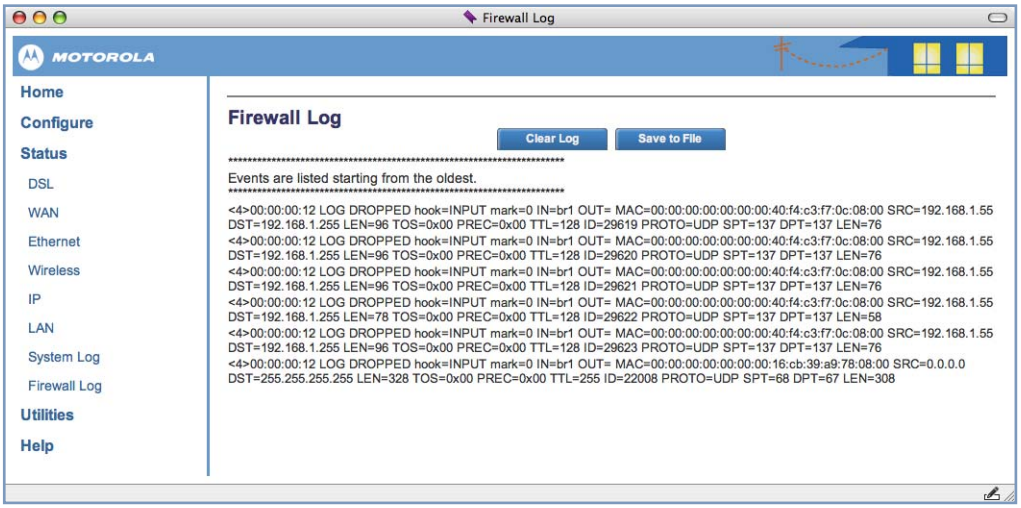
- You can clear all log entries by clicking the **Clear Log** button.
- You can save logs to a text (.TXT) file by clicking the **Save to File** button. This will download the file to your browser's default download location on your hard drive. The file can be opened with your favorite text editor.

Note:

Some browsers, such as Internet Explorer for Windows XP, require that you specify the Motorola Netopia® Gateway's URL as a "Trusted site" in "Internet Options: Security". This is necessary to allow the "download" of the log text file to the PC.

## Firewall Log

When you click **Firewall Log**, the Firewall Log page appears.



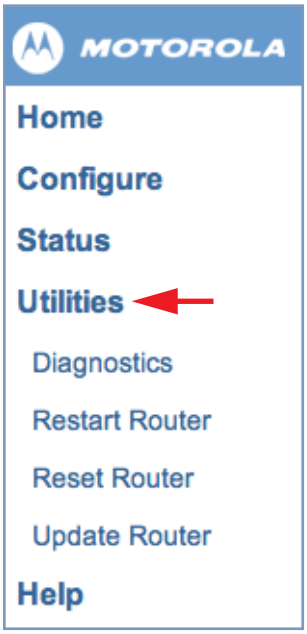

The Gateway detects security related events including common types of malicious attacks and writes them to a dedicated Firewall log file. You view this log file from either:

- Motorola Netopia® Web interface
- Text-based command line interface using telnet

The log provides information useful in identifying a specific type of attack and tracing its origin. The log maintains 100 entries, and requires a manual reset once full. This preserves for troubleshooting purposes the acquired information about specific attacks, their frequency and tracing information.

## Utilities

When you click the **Utilities** link, the linksbar expands to display the Gateway's diagnostic and update utilities.





- "Diagnostics" on page 40
- "Restart Router" on page 42
- "Reset Router" on page 42
- "Update Router" on page 43

## Diagnostics

When you click **Diagnostics**, the Diagnostics page appears.

This automated multi-layer test examines the functionality of the Gateway from the physical connections to the data traffic being sent by users through the Gateway.


The **Run Full Diagnostics** section tests a number of different things at the same time, including the DSL line, the Ethernet interface and the PPPoE session.

This sequence of tests takes approximately one minute to generate results. Please wait for the test to run to completion.

### Test Web Access

You enter a web address URL or an IP address in the Web Address field and click the **Test** button. Results will be displayed in the **Progress Window** as they are generated.

Example:

```
==== Checking LAN Interfaces
Check Ethernet LAN connect                              : PASS
 Check IP connect to Ethernet (LAN)                     : PASS
  Pinging Gateway                                       : PASS
 Check MAC-Bridge connect to Ethernet  (LAN)            : PASS
==== Checking DSL (WAN) Interfaces
Check DSL Synchronization                               : PASS
 Check ATM Cell-Delineation                             : PASS
  ATM OAM Segment Ping through  (vcc1)                  : WARNING
    *** Don't worry, your service provider may not support this test
  ATM OAM End-To-End Ping through  (vcc1)               : WARNING
    *** Don't worry, your service provider may not support this test
  Check Ethernet connect to AAL5  (vcc1)                : PASS
   Check PPPOE connect to Ethernet (vcc1)               : PASS
    Check PPP connect to PPPOE (vcc1)                   : PASS
     Check IP connect to PPP (vcc1)                     : PASS
      Pinging Gateway                                   : PASS
==== Checking Miscellaneous
Check DNS- Query for netopia.com                        : SKIPPED
Ping DNS Server Primary IP Address                      : SKIPPED
TEST DONE
```

Each test generates one of the following result codes:

| Result | Meaning |
|---|---|
| * PASS: | The test was successful. |
| * FAIL: | The test was unsuccessful. |
| * SKIPPED: | The test was skipped because a test on which it depended failed. |
| * PENDING: | The test timed out without producing a result. Try running Diagnostics again. |
| * WARNING: | The test was unsuccessful. The Service Provider equipment your Gateway connects to may not support this test. |

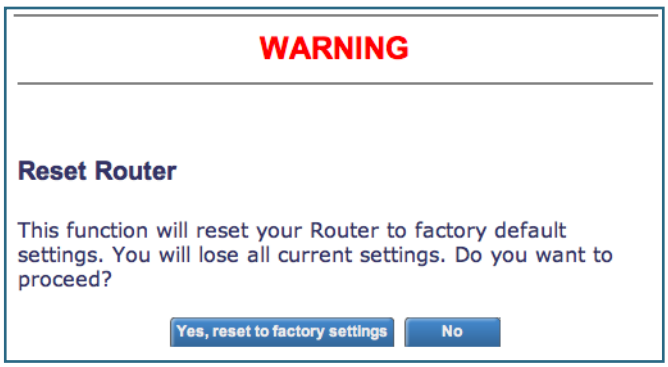
## Restart Router

When the Gateway is restarted, it will disconnect all users, initialize all its interfaces, and copy the Operating System Software from its internal storage.

When you make configuration changes, you must restart for the changes to take effect.


## Reset Router

You might need to reset your Gateway to its factory default state, and clear all of your previous settings. The **Reset Router** link allows you to do that. When you click the link, you will be challenged to confirm that this is what you want to do.

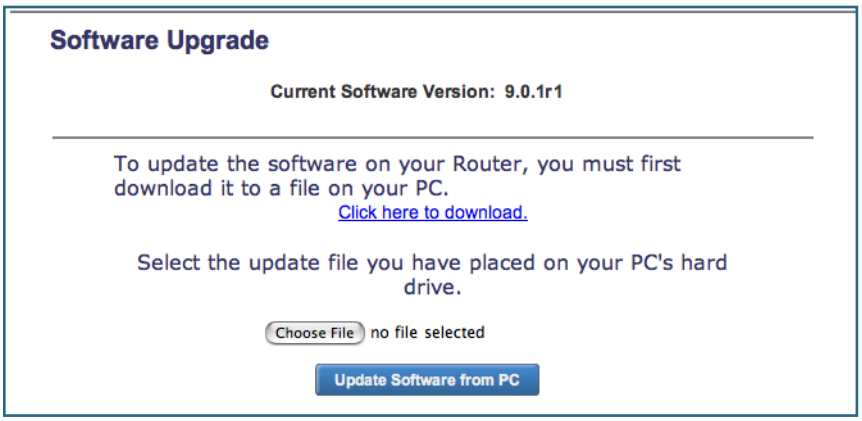



If you want to clear your settings, click the **Yes, reset to factory settings** button. The Gateway configuration will be reset to the factory default. Any configuration information you have entered will be lost and will have to be re-entered. The Gateway will automatically restart.

## Update Router

When you click **Update Router**, the **Software Upgrade** page appears.

Operating System Software is what makes your Gateway run and occasionally it needs to be updated. Your **Current Software Version** is displayed at the top of the page.



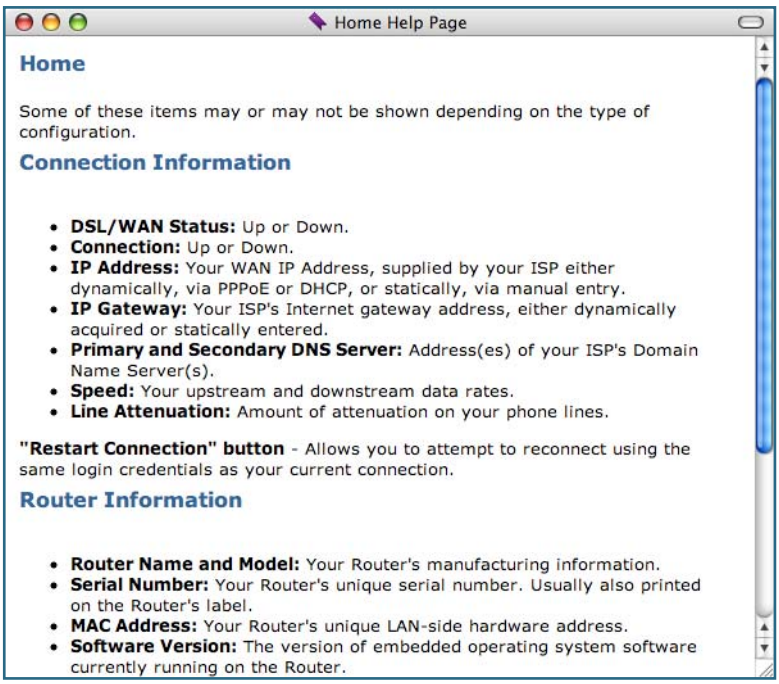

To update your software from a file on your PC, you must first download the software.

1. **Click the Click here to download link.**
   You will be taken to the Motorola website for software upgrades.
2. **If an upgrade exists, download it to your computer.**
3. **Browse your computer for the operating system file you downloaded.**
4. **Click the Update Software from PC button.**
5. **The install may take a few minutes; wait for it to complete.**
6. **Restart your Gateway and your new operating system will be running.**

## Help

Click the **Help** link in the left-hand column of links to display a page of explanatory information. Help is available for every page in the Web interface.

Here is an example:



# CHAPTER 3 Basic Troubleshooting

This section gives some simple suggestions for troubleshooting problems with your Gateway's initial configuration.

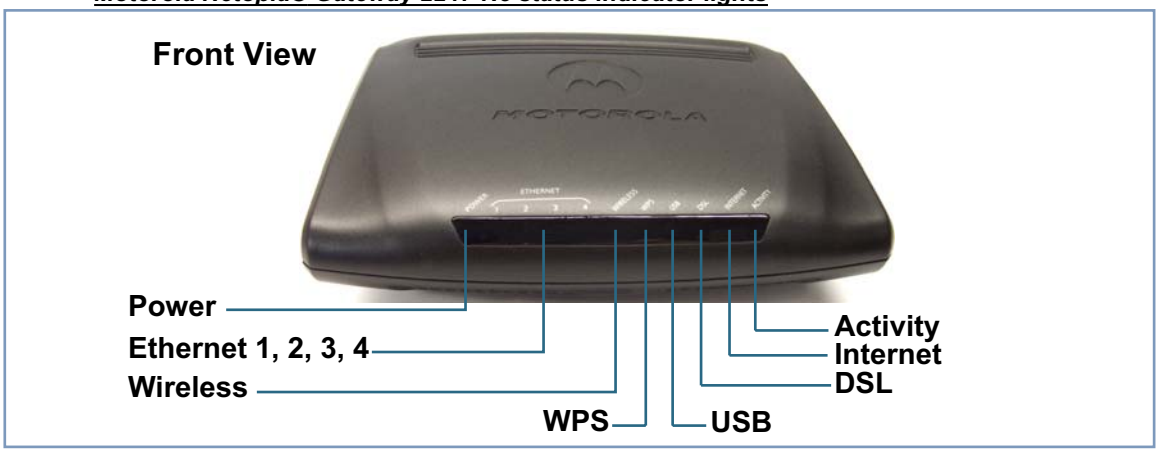
Before troubleshooting, make sure you have

- read the User Manual;
- plugged in all the necessary cables; and
- set your PC's TCP/IP controls to obtain an IP address automatically.

## Status Indicator Lights

The first step in troubleshooting is to check the status indicator lights (LEDs) in the order outlined in the following section.

***Motorola Netopia® Gateway 2247-N8 status indicator lights***




| LED | Behavior |
|---|---|
| **Power** | **Green** when power is on. **Red** if device malfunctions; flashes **red** when updating embedded software. |
| **Ethernet 1, 2, 3, 4** | Solid **green** when connected. Flash **green** when there is activity on the LAN. |
| **Wireless** | Flashes **green** when there is activity on the wireless LAN. |
| **WPS** | Solid **green** when WPS is successful. |
| **USB** | Not currently used. |
| **DSL** | Flashes **green** when training. Solid **green** when trained. |
| **Internet** | **Green** when device is connected. Flashes **green** for activity on WAN port. |
| **Activity** | ***Off*** = The device is not powered or the broadband connection is not present;<br>**Flashing green** = Inbound Internet activity seen from the broadband connection |

## LED Function Summary Matrix

| | Power | DSL | Internet |
|---|---|---|---|
| Unlit | No power | No signal | Not connected |
| Solid Green | Power on | DSL line synched with the DSLAM | Connected to the Internet |
| Flashing Green | N/A | Activity on the DSL cable | Transmitting or receiving data on the WAN port |
| Solid Red | System malfunction | N/A | N/A |
| Flashing Red | Updating embedded software | N/A | N/A |

| | Ethernet 1, 2, 3, 4 | WPS | Wireless |
|---|---|---|---|
| Unlit | No signal | No wireless signal | No wireless signal |
| Solid Green | Synched with Ethernet card | WPS exchange with client is successful | N/A |
| Flashing Green | Activity on the Ethernet cable | N/A | Activity on the wireless LAN |
| Solid Red | N/A | N/A | N/A |
| Flashing Red | N/A | N/A | N/A |

If a status indicator light does not look correct, look for these possible problems:

| If LED is not Lit | Possible problems |
|---|---|
| **Power** | ◆ Make sure the power switch is in the ON position.<br>◆ Make sure the power adapter is plugged into the DSL Gateway properly.<br>◆ Try a known good wall outlet.<br>◆ Replace the power supply and/or unit. |
| **DSL** | ◆ Make sure that any telephone has a microfilter installed.<br>◆ Make sure that you are using the correct cable. The DSL cable is the thinner standard telephone cable.<br>◆ Make sure the DSL cable is plugged into the correct wall jack.<br>◆ Make sure the DSL cable is plugged into the DSL port on the DSL Gateway.<br>◆ Make sure the DSL line has been activated at the central office DSLAM.<br>◆ Make sure the DSL Gateway is not plugged into a micro filter. |

| | |
|---|---|
| **Ethernet** | ◆ Make sure the you are using the Ethernet cable, not the DSL cable. The Ethernet cable is thicker than the standard telephone cable.<br>◆ Make sure the Ethernet cable is securely plugged into the Ethernet jack on the PC.<br>◆ Make sure the Ethernet cable is securely plugged into the Ethernet port on the DSL Gateway.<br>◆ Try another Ethernet cable if you have one available.<br>◆ Make sure you have Ethernet drivers installed on the PC.<br>◆ Make sure the PC's TCP/IP Properties for the Ethernet Network Control Panel is set to obtain an IP address via DHCP.<br>◆ Make sure the PC has obtained an address in the 192.168.1.x range. (You may have changed the subnet addressing.)<br>◆ Make sure the PC is configured to access the Internet over a LAN.<br>◆ Disable any installed network devices (Ethernet, HomePNA, wireless) that are not being used to connect to the DSL Gateway. |

## Factory Reset Switch

Lose your password? This section shows how to reset the Motorola Netopia® so that you can access the configuration screens once again.

**NOTE:** Keep in mind that all of your settings will need to be reconfigured.

If you don't have a password, the only way to access the Motorola Netopia® is the following:

1. **Referring to the following diagram, find the round Reset Switch opening.**


2. **Carefully insert the point of a pen or an unwound paperclip into the opening.**
   - If you press the factory default button for less than 1/2 a second, the unit will continue to run as normal.
   - If you press the factory default button for 1 – 3 seconds, when you release it, the Gateway will perform a factory reset, clear all settings and configurations, and reboot. Do not hold the button down too long (5 – 10 seconds). This will destroy any saved default settings as well.

# CHAPTER 4 Command Line Interface

The Motorola Netopia® Gateway operating software includes a command line interface (CLI) that lets you access your Motorola Netopia® Gateway over a telnet connection. You can use the command line interface to enter and update the unit's configuration settings, monitor its performance, and restart it.

This chapter covers the following topics:



**CONFIG Commands**

## Overview

The CLI has two major command modes: **SHELL** and **CONFIG**. **Summary tables** that list the commands are provided below. Details of the entire command set follow in this section.

**SHELL Commands**

| Command | Status and/or Description |
|---|---|
| arp | to send ARP request |
| atmping | to send ATM OAM loopback |
| clear | to erase all stored configuration information |
| clear_certificate | to remove an SSL certificate that has been installed |
| clear_log | to erase all stored log info in flash memory |
| configure | to configure unit's options |
| diagnose | to run self-test |
| download | to download config file |
| exit | to quit this shell |
| help | to get more: “help all” or “help help” |
| install | to download and program an image into flash |
| log | to add a message to the diagnostic log |
| loglevel | to report or change diagnostic log level |
| netstat | to show IP information |
| nslookup | to send DNS query for host |
| ping | to send ICMP Echo request |
| quit | to quit this shell |
| reset | to reset subsystems |
| restart | to restart unit |
| show | to show system information |
| start | to start subsystem |
| status | to show basic status of unit |
| telnet | to telnet to a remote host |
| traceroute | to send traceroute probes |
| upload | to upload config file |
| view | to show configuration information |
| who | to show who is using the shell |

| CONFIG Commands | |
|---|---|
| **Command Verbs** | **Status and/or Description** |
| delete | Delete configuration list data |
| help | Help command option |
| save | Save configuration data |
| script | Print configuration data |
| set | Set configuration data |
| validate | Validate configuration settings |
| view | View configuration data |
| **Keywords** | |
| conn | Connection options |
| ip | TCP/IP protocol options |
| dns | Domain Name System options |
| igmp | IGMP configuration options |
| ntp | Network Time Protocol options |
| gateway | Gateway options |
| link | WAN link options |
| mgmt | System management options |
| phy | Physical interface options |
| dsl | DSL configuration options |
| enet | Ethernet options |
| pinhole | Pinhole options |
| system | Gateway's system options |
| log | System activity logging options |
| **Command Utilities** | |
| top | Go to top level of configuration mode |
| quit | Exit from configuration mode; return to shell mode |
| exit | Exit from configuration mode; return to shell mode |

## Starting and Ending a CLI Session

Open a telnet connection from a workstation on your network.

You initiate a telnet connection by issuing the following command from an IP host that supports telnet, for example, a personal computer running a telnet application such as NCSA Telnet.

```
telnet <ip_address>
```

You must know the IP address of the Motorola Netopia® Gateway before you can make a telnet connection to it. By default, your Motorola Netopia® Gateway uses 192.168.1.254 as the IP address for its LAN interface. You can use a Web browser to configure the Motorola Netopia® Gateway IP address.

### Logging In

The command line interface log-in process emulates the log-in process for a UNIX host. To logon, enter the username and your password.

Entering the administrator password lets you display and update all Motorola Netopia® Gateway settings.

When you have logged in successfully, the command line interface lists the username and the security level associated with the password you entered in the diagnostic log.

### Ending a CLI Session

You end a command line interface session by typing **`quit`** from the SHELL node of the command line interface hierarchy.

## Using the CLI Help Facility

The **help** command lets you display on-line help for SHELL and CONFIG commands. To display a list of the commands available to you from your current location within the command line interface hierarchy, enter **`help`** or type a question mark (**`?`**).

To obtain help for a specific CLI command, type **`help <command>`**. You can truncate the ***help*** command to ***h*** or a question mark when you request help for a CLI command.

## About SHELL Commands

You begin in SHELL mode when you start a CLI session. SHELL mode lets you perform the following tasks with your Motorola Netopia® Gateway:

- Monitor its performance
- Display and reset Gateway statistics
- Issue administrative commands to restart Motorola Netopia® Gateway functions

### SHELL Prompt

When you are in SHELL mode, the CLI prompt is the name of the Motorola Netopia® Gateway followed by a right angle bracket (>). For example, if you open a CLI connection to the Motorola Netopia® Gateway named "Netopia-3000/9437188," you would see ***Netopia-3000/9437188>*** as your CLI prompt.

### SHELL Command Shortcuts

You can **truncate** most commands in the CLI to their shortest unique string. For example, you can use the truncated command ***q*** in place of the full ***quit*** command to exit the CLI. However, you would need to enter ***rese*** for the ***reset*** command, since the first characters of ***reset*** are common to the ***restart*** command.

The only commands you cannot truncate are ***restart*** and ***clear***. To prevent accidental interruption of communications, you must enter the ***restart*** and ***clear*** commands in their entirety.

You can use the Up and Down arrow keys to scroll backward and forward through recent commands you have entered. Alternatively, you can use the ***!!*** command to repeat the last command you entered.

# SHELL Commands

## Common Commands

### arp *nnn.nnn.nnn.nnn*

Sends an Address Resolution Protocol (ARP) request to match the *nnn.nnn.nnn.nnn* IP address to an Ethernet hardware address.

### clear [ yes ]

Clears the configuration settings in a Motorola Netopia® Gateway. You are prompted to confirm the clear command by entering **yes**.

### clear_certificate

Removes an SSL certificate that has been installed.

### configure

Puts the command line interface into Configure mode, which lets you configure your Motorola Netopia® Gateway with Config commands. Config commands are described starting on page 67.

### download [ *server_address* ] [ *filename* ] [ confirm ]

This command installs a file of configuration parameters into the Motorola Netopia® Gateway from a TFTP (Trivial File Transfer Protocol) server. The TFTP server must be accessible on your Ethernet network.

You can include one or more of the following arguments with the download command. If you omit arguments, the console prompts you for this information.

- The *server_address* argument identifies the IP address of the TFTP server from which you want to copy the Motorola Netopia® Gateway configuration file.
- The *filename* argument identifies the path and name of the configuration file on the TFTP server.
- If you include the optional **confirm** keyword, the download begins as soon as all information is entered.

You can also download an SSL certificate file from a trusted Certification Authority (CA), on platforms that support SSL, as follows:

download [-cert] [server_address ] [filename] [confirm]

### install [ *server_address* ] [ *filename* ] [ confirm ]

Downloads a new version of the Motorola Netopia® Gateway operating software from a TFTP (Trivial File Transfer Protocol) server, validates the software image, and programs the image into the Motorola Netopia® Gateway memory. After you install new operating software, you must restart the Motorola Netopia® Gateway.

The *server_address* argument identifies the IP address of the TFTP server on which your Motorola Netopia® Gateway operating software is stored. The *filename* argument identifies the path and name of the operating software file on the TFTP server.

If you include the optional keyword *confirm*, you will not be prompted to confirm whether or not you want to perform the operation.

## **log** *message_string*

Adds the message in the *message_string* argument to the Motorola Netopia® Gateway diagnostic log.

## **loglevel [** *level* **]**

Displays or modifies the types of log messages you want the Motorola Netopia® Gateway to record. If you enter the **loglevel** command without the optional *level* argument, the command line interface displays the current log level setting.

You can enter the **loglevel** command with the *level* argument to specify the types of diagnostic messages you want to record. All messages with a level number equal to or greater than the level you specify are recorded. For example, if you specify loglevel 3, the diagnostic log will retain high-level informational messages (level 3), warnings (level 4), and failure messages (level 5).

Use the following values for the *level* argument:

- **1** or **low** – Low-level informational messages or greater; includes trivial status messages.
- **2** or **medium** – Medium-level informational messages or greater; includes status messages that can help monitor network traffic.
- **3** or **high** – High-level informational messages or greater; includes status messages that may be significant but do not constitute errors.
- **4** or **warning** – Warnings or greater; includes recoverable error conditions and useful operator information.
- **5** or **failure —** Failures; includes messages describing error conditions that may not be recoverable.

## **netstat -i**

Displays the IP interfaces for your Motorola Netopia® Gateway.

## **netstat -r**

Displays the IP routes stored in your Motorola Netopia® Gateway.

## **nslookup [** *hostname* **|** *ip_address* **]**

Performs a domain name system lookup for a specified host.

- The *hostname* argument is the name of the host for which you want DNS information; for example, ***nslookup klaatu***.
- The *ip_address* argument is the IP address, in dotted decimal notation, of the device for which you want DNS information.

## **ping [-s *size*] [-c** *count* **] [** *hostname* **|** *ip_address* **]**

Causes the Motorola Netopia® Gateway to issue a series of ICMP Echo requests for the device with the specified name or IP address.

- The *hostname* argument is the name of the device you want to ping; for example, ***ping ftp.motorola.com***.
- The *ip_address* argument is the IP address, in dotted decimal notation, of the device you want to locate. If a host using the specified name or IP address is active, it returns one or more ICMP Echo replies, confirming that it is accessible from your network.
- The ***-s*** *size* argument lets you specify the size of the ICMP packet.
- The ***-c*** *count* argument lets you specify the number of ICMP packets generated for the ping request. Values greater than 250 are truncated to 250.

You can use the **`ping`** command to determine whether a hostname or IP address is already in use on your network. You cannot use the **`ping`** command to ping the Motorola Netopia® Gateway's own IP address.

### quit

Exits the Motorola Netopia® Gateway command line interface.

### reset arp

Clears the Address Resolution Protocol (ARP) cache on your unit.

### reset crash

Clears crash-dump information, which identifies the contents of the Motorola Netopia® Gateway registers at the point of system malfunction.

### reset dhcp server

Clears the DHCP lease table in the Motorola Netopia® Gateway.

### reset enet [ all ]

Resets Ethernet statistics to zero. Resets individual LAN switch port statistics as well as wireless and WAN Ethernet statistics (where applicable).

### reset firewall-log

Rewinds the firewall log to the first entry.

### reset ipmap

Clears the IPMap table (NAT).

### reset log

Rewinds the diagnostic log display to the top of the existing Motorola Netopia® Gateway diagnostic log. The **`reset`** log command does not clear the diagnostic log. The next **`show log`** command will display information from the beginning of the log file.

### reset wan

This function resets WAN interface statistics.

### reset wepkeys

This function allows you to force your wireless WEP key settings back to the default values, if there are default values. For example, on some models, the WEP keys are based on the serial number. This allows you to get back those default settings if you have changed them without the need to reset the entire configuration of the unit.

### restart [ *seconds* ]

Restarts your Motorola Netopia® Gateway. If you include the optional *`seconds`* argument, your Motorola Netopia® Gateway will restart when the specified number of seconds have elapsed. You must enter the complete **`restart`** command to initiate a restart.

## show all-info

Displays all settings currently configured in the Motorola Netopia® Gateway.

## show bridge interfaces

Displays bridge interfaces maintained by the Motorola Netopia® Gateway.

## show bridge table

Displays the bridging table maintained by the Motorola Netopia® Gateway.

## show config

Dumps the Motorola Netopia® Gateway's configuration script just as the **`script`** command does in config mode.

## show crash

Displays the most recent crash information, if any, for your Motorola Netopia® Gateway.

## show daylight-savings

Displays the auto-daylight savings time settings information.

## show dhcp agent

Displays DHCP relay-agent leases.

## show dhcp server leases

Displays the DHCP leases stored in RAM by your Motorola Netopia® Gateway.

## show diffserv

Displays the Differentiated Services and QoS values configured in the Motorola Netopia® Gateway.

## show dslf device-association

Displays LAN devices that conform with the TR111 Gateway requirement. It displays - IP Address, Manufacture OUI and Serial number.

## show enet [ all ]

Displays Ethernet interface statistics maintained by the Motorola Netopia® Gateway. Supports display of individual LAN switch port statistics as well as WAN Ethernet statistics (where applicable).

**Example:**

```
Ethernet driver full statistics - 10/100 Ethernet

Port Status:  Link up
Type: 100BASET  Duplex: Full

General:
 Transmit OK           : 434
```

```
 Receive OK            : 267
 Tx Errors             : 0
 Rx Errors             : 0

Receiver:
 Incompl Packet Errors : 0
 No RBD's For Packet   : 0
 Carrier Sense Lost    : 0
 Deferred Replen       : 0

Transmitter:
 TX Retries            : 0
 Single Collisions     : 0
 No Buf For Packet     : 0

Upper Layers:
 Rx No Handler         : 0
 Rx No Message         : 0
 Rx Octets             : 30773
 Rx Unicast Pkts       : 267
 Rx Multicast Pkts     : 0
 Tx Discards           : 0
 Tx Octets             : 31692

10/100 Ethernet phy.enet.port

Port Status:  Link up
Duplex:  Full-duplex active
Speed:  100BASE-T
 Transmit OK           : 434
 Transmit unicastpkts  : NA
 Receive  OK           : 267
 Receive unicastpkts   : 267
```

## show group-mgmt

Displays the IGMP Snooping Table. See "IP IGMP commands" on page 69 for detailed explanation.

## show ip arp

Displays the Ethernet address resolution table stored in your Motorola Netopia® Gateway.

## show ip igmp

Displays the contents of the IGMP Group Address table and the IGMP Report table maintained by your Motorola Netopia® Gateway.

## show ip interfaces

Displays the IP interfaces for your Motorola Netopia® Gateway.

## show ip firewall

Displays firewall statistics.

## show ip lan-discovery

Displays the LAN Host Discovery Table of hosts on the wired or wireless LAN, and whether or not they are currently online.

## show ip routes

Displays the IP routes stored in your Motorola Netopia® Gateway.

## show ipmap

Displays IPMap table (NAT).

## show log

Displays blocks of information from the Motorola Netopia® Gateway diagnostic log. To see the entire log, you can repeat the **`show log`** command or you can enter **`show log all.`**

## show memory [ all ]

Displays memory usage information for your Motorola Netopia® Gateway. If you include the optional ***all*** argument, your Motorola Netopia® Gateway will display a more detailed set of memory statistics.

## show pppoe

Displays status information for each PPPoE socket, such as the socket state, service names, and host ID values.

## show rootcert [ all | supplicant | openssl ]

Dumps the Subject line for the list of all the trusted root certificates for the supplicant, which is currently a superset of the OpenSSL trusted root certificates.

This syntax is for the 802.1x-supplicant-supported builds only. The openssl trust list is used in all TLS/SSL situations *except* the 802.1X supplicant.

The default, if you don't append a qualifier, is **all**. **all** will show both 802.1x **supplicant** and **openssl** trust list root certs; **supplicant** will show the supplicant trust list root certs; **openssl** will show **openssl** trust list root certs

## show rtsp

Displays RTSP ALG session activity data.

## show status

Displays the current status of a Motorola Netopia® Gateway, the device's hardware and software revision levels, a summary of errors encountered, and the length of time the Motorola Netopia® Gateway has been running since it was last restarted. Identical to the **`status`** command.

## show summary

Displays a summary of WAN, LAN, and Gateway information.

## show vlan

Displays detail of VLAN status and statistics.

### show wireless [ all ]

Shows wireless status and statistics.

### show wireless clients [ *MAC_address* ]

Displays details on connected clients, or more details on a particular client if the MAC address is added as an argument.

### telnet [ *hostname* | *ip_address* ] [ *port* ]

Lets you open a telnet connection to the specified host through your Motorola Netopia® Gateway.

- The *hostname* argument is the name of the device to which you want to connect; for example, ***telnet ftp.netopia.com***.
- The *ip_address* argument is the IP address, in dotted decimal notation, of the device to which you want to connect.
- The *port* argument is the number of t he port over which you want to open a telnet session.

### traceroute ( *ip_address* | *hostname* )

Traces the routing path to an IP destination.

### upload [ *server_address* ] [ *filename* ] [ confirm ]

Copies the current configuration settings of the Motorola Netopia® Gateway to a TFTP (Trivial File Transfer Protocol) server. The TFTP server must be accessible on your Ethernet network. The *server_address* argument identifies the IP address of the TFTP server on which you want to store the Motorola Netopia® Gateway settings. The *filename* argument identifies the path and name of the configuration file on the TFTP server. If you include the optional **confirm** keyword, you will not be prompted to confirm whether or not you want to perform the operation.

### view config

Dumps the Motorola Netopia® Gateway's configuration just as the **view** command does in config mode.

### who

Displays the names of the current shell and PPP users.

## WAN Commands

### atmping vccn [ *segment* | *end-to-end* ]

Lets you check the ATM connection reachability and network connectivity. This command sends five Operations, Administration, and Maintenance (OAM) loopback calls to the specified vpi/vci destination. There is a five second total timeout interval.

Use the **segment** argument to ping a neighbor switch.
Use the **end-to-end** argument to ping a remote end node.

### reset dhcp client release [ *vcc-id* ]

Releases the DHCP lease the Motorola Netopia® Gateway is currently using to acquire the IP settings for the specified DSL port. The ***vcc-id*** identifier is an "index" letter in the range B-I, and does not directly map to the

VCC in use. Enter the **`reset dhcp client release`** command without the variable to see the letter assigned to each virtual circuit.

### reset dhcp client renew [ *vcc-id* ]

Renews the DHCP lease the Motorola Netopia® Gateway is currently using to acquire the IP settings for the specified DSL port. The ***`vcc-id`*** identifier is an “index” letter in the range B-I, and does not directly map to the VCC in use. Enter the **`reset dhcp client release`** without the variable to see the letter assigned to each virtual circuit.

### reset dsl

Resets any open DSL connection.

### reset ppp *vccn*

Resets the point-to-point connection over the specified virtual circuit. This command only applies to virtual circuits that use PPP framing.

### show atm [all]

Displays ATM statistics for the Motorola Netopia® Gateway. The optional **`all`** argument displays a more detailed set of ATM statistics.

### show dsl [ all ]

Displays DSL port statistics, such as upstream and downstream connection rates and noise levels.

### show ppp [{ stats | lcp | ipcp }]

Displays information about open PPP links. You can display a subset of the PPP statistics by including an optional **`stats`**, **`lcp`**, or **`ipcp`** argument for the **`show ppp`** command.

### start ppp vccn

Opens a PPP link on the specified virtual circuit.

# About CONFIG Commands

You reach the configuration mode of the command line interface by typing ***configure*** (or any truncation of ***configure***, such as ***con*** or ***config***) at the CLI SHELL prompt.

## CONFIG Mode Prompt

When you are in CONFIG mode, the CLI prompt consists of the name of the Motorola Netopia® Gateway followed by your current **node** in the hierarchy and two right angle brackets (>>). For example, when you enter CONFIG mode (by typing ***config*** at the SHELL prompt), the **`Netopia-3000/9437188 (top)>>`** prompt reminds you that you are at the top of the CONFIG hierarchy. If you move to the **`ip`** node in the CONFIG hierarchy (by typing **`ip`** at the CONFIG prompt), the prompt changes to **`Netopia-3000/9437188 (ip)>>`** to identify your current location.

Some CLI commands are not available until certain conditions are met. For example, you must enable IP for an interface before you can enter IP settings for that interface.

## Navigating the CONFIG Hierarchy

- **Moving from CONFIG to SHELL** — You can navigate from anywhere in the CONFIG hierarchy back to the SHELL level by entering quit at the CONFIG prompt and pressing Return.

```
Netopia-3000/9437188 (top)>> quit
Netopia-3000/9437188 >
```

- **Moving from *top* to a subnode** — You can navigate from the top node to a subnode by entering the node name (or the significant letters of the node name) at the CONFIG prompt and pressing RETURN. For example, you move to the IP subnode by entering **`ip`** and pressing RETURN.

```
Netopia-3000/9437188 (top)>> ip
Netopia-3000/9437188 (ip)>>
```

As a shortcut, you can enter the significant letters of the node name in place of the full node name at the CONFIG prompt. The significant characters of a node name are the letters that uniquely identify the node. For example, since no other CONFIG node starts with b, you could enter one letter ("**`b`**") to move to the bridge node.

- **Jumping down several nodes at once** — You can jump down several levels in the CONFIG hierarchy by entering the complete path to a node.
- **Moving up one node** — You can move up through the CONFIG hierarchy one node at a time by entering the **`up`** command.
- **Jumping to the top node** — You can jump to the top level from anywhere in the CONFIG hierarchy by entering the **`top`** command.
- **Moving from one subnode to another** — You can move from one subnode to another by entering a partial path that identifies how far back to climb.
- **Moving from any subnode to any other subnode** — You can move from any subnode to any other subnode by entering a partial path that starts with a top-level CONFIG command.
- **Scrolling backward and forward through recent commands** — You can use the Up and Down arrow keys to scroll backward and forward through recent commands you have entered. When the command you want appears, press Enter to execute it.

## Entering Commands in CONFIG Mode

CONFIG commands consist of keywords and arguments. Keywords in a CONFIG command specify the action you want to take or the entity on which you want to act. Arguments in a CONFIG command specify the values appropriate to your site. For example, the CONFIG command

### set ip ethernet A *ip_address*

consists of two keywords (***ip*** , and ***ethernet A***) and one argument (*ip_address*). When you use the command to configure your Gateway, you would replace the argument with a value appropriate to your site.

For example:

```
set ip ethernet A 192.31.222.57
```

## Guidelines: CONFIG Commands

The following table provides guidelines for entering and formatting CONFIG commands.

| Command component | Rules for entering CONFIG commands |
|---|---|
| Command verbs | CONFIG commands must start with a command verb (set, view, delete). |
| | You can truncate CONFIG verbs to three characters (set, vie, del). |
| | CONFIG verbs are case-insensitive. You can enter “SET,” “Set,” or “set.” |
| Keywords | Keywords are case-insensitive. You can enter “Ethernet,” “ETHERNET,” or “ethernet” as a keyword without changing its meaning. |
| | Keywords can be abbreviated to the length that they are differentiated from other keywords. |
| Argument Text | Text strings can be as many as 64 characters long, unless otherwise specified. In some cases they may be as long as 255 bytes. |
| | Special characters are represented using backslash notation. |
| | Text strings may be enclosed in double (“) or single (‘) quote marks. If the text string includes an embedded space, it must be enclosed in quotes. |
| | Special characters are represented using backslash notation. |
| Numbers | Enter numbers as integers, or in hexadecimal, where so noted. |
| IP addresses | Enter IP addresses in dotted decimal notation (0 to 255). |

If a command is ambiguous or miskeyed, the CLI prompts you to enter additional information. For example, you must specify which virtual circuit you are configuring when you are setting up a Motorola Netopia® Gateway.

## Displaying Current Gateway Settings

You can use the ***view*** command to display the current CONFIG settings for your Motorola Netopia® Gateway. If you enter the ***view*** command at the top level of the CONFIG hierarchy, the CLI displays the settings for all enabled functions. If you enter the ***view*** command at an intermediate node, you see settings for that node and its subnodes.

## Step Mode: A CLI Configuration Technique

The Motorola Netopia® Gateway command line interface includes a step mode to automate the process of entering configuration settings. When you use the CONFIG step mode, the command line interface prompts you for all required and optional information. You can then enter the configuration values appropriate for your site without having to enter complete CLI commands.

When you are in step mode, the command line interface prompts you to enter required and optional settings. If a setting has a default value or a current setting, the command line interface displays the default value for the command in parentheses. If a command has a limited number of acceptable values, those values are presented in brackets, with each value separated by a vertical line. For example, the following CLI step command indicates that the default value is **off** and that valid entries are limited to **on** and **off**.

```
option (off) [on | off]: on
```

You can accept the default value for a field by pressing the Return key. To use a different value, enter it and press Return.

You can enter the CONFIG step mode by entering ***set*** from the top node of the CONFIG hierarchy. You can enter step mode for a particular service by entering ***set*** *service_name*. In stepping set mode (press Control-X <Return/Enter> to exit. For example:

```
Netopia-3000/9437188 (top)>> set system
...
system
   name ("Netopia-3000/9437188"): Mycroft
   Diagnostic Level (High): medium
Stepping mode ended.
```

## Validating Your Configuration

You can use the **validate** CONFIG command to make sure that your configuration settings have been entered correctly. If you use the **validate** command, the Motorola Netopia® Gateway verifies that all required settings for all services are present and that settings are consistent.

```
Netopia-3000/9437188 (top)>> validate
Error: Subnet mask is incorrect
Global Validation did not pass inspection!
```

You can use the **validate** command to verify your configuration settings at any time. Your Motorola Netopia® Gateway automatically validates your configuration any time you save a modified configuration.

# CONFIG Commands

This section describes the keywords and arguments for the various CONFIG commands.

## Connection commands

**conn**s are used to create connections, for example, a WAN or LAN **conn.** There may be more than one of each depending on your model. **name**s correspond to the system object IDs (OIDs) but you can name them yourself.

### set conn name *name* link-oid *value*

Sets the connection named *name* to point to an associated link specified by the **link-oid** value.

### set conn name *name* type [ static | dhcpc ]

Specifies whether the **type** of the connection named *name* is static or dhcpc.

### set conn name *name* side [ lan | wan ]

Specifies whether this conn is LAN- or WAN-side. A **conn** can be either **lan** or **wan**.

### set conn name *name* dhcp-server-enable [ on | off ]

Turns the DHCP server for this connection **on** or **off**. The DHCP server can be enabled per connection. The default is **on**.

### set conn name *name* mcast-forwarding [ off | on ]

Turns IP IGMP multicast forwarding for this connection **off** or **on**. The default is **off**.

### set conn name *name* static ipaddr *ipaddr*

Specifies a **static** IP address when the connection **type** has been set to **static**. The default is 192.168.1.254

### set conn name *name* static netmask *netmask*

Specifies a **static** netmask when the connection **type** has been set to **static**. The default is 255.255.255.0.

### set conn name *name* dhcp-server start-addr *ipaddr*

If **dhcp-server-enable** is set to **on**, specifies the first address in the DHCP address range. The Motorola Netopia® Gateway can reserve a sequence of up to 253 IP addresses within a subnet, beginning with the specified address for dynamic assignment. The default is 192.168.1.200

### set conn name *name* dhcp-server end-addr *ipaddr*

If **dhcp-server-enable** is set to **on**, specifies the last address in the DHCP address range. The default is 192.168.1.240

### set conn name *name* dhcp-server lease-time *seconds*

If **dhcp-server-enable** is set to **on**, specifies the default length for DHCP leases issued by the Motorola Netopia® Gateway. Lease time is in seconds. Default is **3600**.

### set conn name *name* nat-enable [ on | off ]

Specifies whether you want the Motorola Netopia® Gateway to use network address translation (NAT) when communicating with remote Gateways. NAT lets you conceal details of your network from remote Gateways. It also permits all LAN devices to share a single IP address. By default, address NAT is turned **on**.

### set conn name *name* dhcp-client discover-time *seconds*

The DHCP client parameters appear when the connection **type** has been set to **dhcpc**. **discover-time** is in seconds; the default is **30**.

### set conn name *name* dhcp-client dns-enable [ on | off ]

This allows you to enable or disable the default behavior of acting as a DNS proxy. The default is **on**.

### set conn name *name* dhcp-client dns-override [ off | on ]

This allows you to enable or disable overriding default DNS behavior. The default is **off**.

### set conn name *name* dhcp-client vendor-class *string*

The **vendor-class** default information varies by model and components. This is information that identifies the unit.

## IP DNS commands

### set ip dns domain-name *domain_name*

Specifies the default domain name for your network. When an application needs to resolve a host name, it appends the default domain name to the host name and asks the DNS server if it has an address for the "fully qualified host name."

### set ip dns primary-address *ip_address*

Specifies the IP address of the primary DNS name server.

### set ip dns secondary-address *ip_address*

Specifies the IP address of the secondary DNS name server. Enter **0.0.0.0** if your network does not have a secondary DNS name server.

### set ip dns proxy-enable [ on | off ]

This allows you to disable the default behavior of acting as a DNS proxy. The default is **on**.

## IP IGMP commands

**Multicasting** is a method for transmitting large amounts of information to many, but not all, computers over an internet. One common use is to distribute real time voice, video, and data services to the set of computers which have joined a distributed conference. Other uses include updating the address books of mobile computer users in the field, or sending out company newsletters to a distribution list.

Since a router should not be used as a passive forwarding device, Motorola Netopia® Gateways use a protocol for forwarding multicasting: Internet Group Management Protocol (IGMP).

Motorola Netopia® Gateways support IGMP Version 1, Version 2, or Version 3.

**IGMP "Snooping"** is a feature of Ethernet layer 2 switches that "listens in" on the IGMP conversation between computers and multicast routers. Through this process, it builds a database of where the multicast routers reside by noting IGMP general queries used in the querier selection process and by listening to other router protocols.

From the host point of view, the snooping function listens at a port level for an IGMP report. The switch then processes the IGMP report and starts forwarding the relevant multicast stream onto the host's port. When the switch receives an IGMP leave message, it processes the leave message, and if appropriate stops the multicast stream to that particular port. Basically, customer IGMP messages although processed by the switch are also sent to the multicast routers.

In order for IGMP snooping to function with IGMP Version 3, it must always track the full source filter state of each host on each group, as was previously done with Version 2 only when Fast Leave support was enabled.

**IGMP Version 3** supports:

IGMP Source Filtering: the ability for group memberships to incorporate source address filtering. This allows "Source-Specific Multicast" (SSM). By adding source filtering, a Gateway that proxies IGMP can more selectively join the specific multicast group for which there are interested LAN multicast receivers.

These features require no user configuration on the Gateway.

You can set the following options:

- **IGMP Snooping** – enables the Motorola Netopia® Gateway to "listen in" to IGMP traffic. The Gateway discovers multicast group membership for the purpose of restricting multicast transmissions to only those ports which have requested them. This helps to reduce overall network traffic from streaming media and other bandwidth-intensive IP multicast applications.
- **Robustness** – a way of indicating how sensitive to lost packets the network is. IGMP can recover from robustness minus 1 lost IGMP packet. The default value is 2.
- **Query Interval**– the amount of time in seconds between IGMP General Query messages sent by the querier gateway. The default query interval is 125 seconds.
- **Query Response Interval** – the maximum amount of time in tenths of a second that the IGMP Gateway waits to receive a response to a General Query message. The default query response interval is 10 seconds and must be less than the query interval.
- **Unsolicited Report Interval** – the amount of time in seconds between repetitions of a particular computer's initial report of membership in a group. The default unsolicited report interval is 10 seconds.
- **Querier Version** – select a version of the IGMP Querier: version **1**, version **2**, or version 3. If you know you will be communicating with other hosts that are limited to v1 or v2, for backward compatibility, select accordingly; otherwise, allow the default v3.

**NOTE:**

IGMP Querier version is relevant only if the Gateway is configured for IGMP forwarding. If any IGMP v1 routers are present on the subnet, the querier **must** use IGMP v1. The use of IGMP v1 must be administratively configured, since there is no reliable way of dynamically determining whether IGMP

v1 routers are present on a network. IGMP forwarding is enabled per IP Profile and WAN Connection Profile.

- **Last Member Query Interval** – the amount of time in tenths of a second that the IGMP gateway waits to receive a response to a Group-Specific Query message. The last member query interval is also the amount of time in seconds between successive Group-Specific Query messages. The default last member query interval is 1 second (10 deci-seconds).
- **Last Member Query Count** – the number of Group-Specific Query messages sent before the gateway assumes that there are no members of the host group being queried on this interface. The default last member query count is 2.
- **Fast Leave** – set to **off** by default, fast leave enables a non-standard expedited leave mechanism. The querier keeps track of which client is requesting which channel by IP address. When a leave message is received, the querier can check its internal table to see if there are any more clients on this group. If there are none, it immediately sends an IGMP leave message to the upstream querier.
- **Log Enable** – If set to on, all IGMP messages on both the LAN and the WAN will be logged.
- **Wireless Multicast to Unicast conversion** – Only available if **IGMP Snooping** is enabled. If set to **on**, the Gateway replaces the multicast MAC-address with the physical MAC-address of the wireless client. If there is more than one wireless client interested in the same multicast group, the Gateway will revert to multicasting the stream immediately. When one or more wireless clients leave a group, and the Gateway determines that only a single wireless client is interested in the stream, it will once again unicast the stream.

### set ip igmp querier-version [ 1 | 2 | 3 ]

Sets the IGMP querier version: version **1**, version **2**, or version **3**. If you know you will be communicating with other hosts that are limited to v1, for backward compatibility, select **1**; otherwise, allow the default **3**.

### set ip igmp robustness *value*

Sets IGMP robustness range: from 2 – 255. The default is 2.

### set ip igmp query-interval *value*

Sets the query-interval range: from 10 seconds – 600 seconds, The default is 125 seconds.

### set ip igmp query-response-interval *value*

Sets the query-response interval range: from 5 deci-seconds (tenths of a second) – 255 deci-seconds. The default is 100 deci-seconds.

### set ip igmp unsolicited-report-interval *value*

Sets the unsolicited report interval: the amount of time in seconds between repetitions of a particular computer's initial report of membership in a group. The default is 10 seconds.

### set ip igmp last-member-interval *value*

Sets the last member query interval: the amount of time in tenths of a second that the IGMP gateway waits to receive a response to a Group-Specific Query message. The last member query interval is also the amount of time in seconds between successive Group-Specific Query messages. The default is 1 second (10 deci-seconds).

### set ip igmp last-member-count *value*

Sets the last member query count: the number of Group-Specific Query messages sent before the gateway assumes that there are no members of the host group being queried on this interface. The default is 2.

### set ip igmp snoop-entry-time *seconds*

The **snoop-entry-time** is the amount of time an entry will remain in the snooping table (in seconds) after being added. An entry is added when a "JOIN" is seen from a multicast client. Any new joins (triggered by upstream queries) will reset the timeout back to *seconds*. If no additional joins are seen, the entry will expire after seconds. Default is **130**.

### set ip igmp snooping-unreg-mode [ block | flood ]

The **snooping-unreg-mode** can be set to **block** or **flood**. This indicates what should happen to unregistered multicast traffic – traffic that hasn't been subscribed to by any clients. If set to **flood**, the traffic will be sent to all LAN ports. If set to **block**, the traffic will not be sent to any LAN ports; it will be dropped. Default is **block**.

## NTP commands

### set ip ntp enable [ on | off ]

Enables or disables acquiring the time of day from an NTP (Network Time Protocol) server.

### set ip ntp server-address *server_address*

### set ip ntp alt-server-address *alt_server_address*

Specify the NTP server(s) to use for time updates. The NTP **server-address** and **alt-server-address** can be entered as DNS names as well as IP addresses.

### set ip ntp update-period *minutes*

**update-period** specifies how often, in minutes, the Gateway should update the clock. Default is **60**.

## IP Gateway commands

### set ip gateway enable [ on | off ]

Specifies the **conn** of the gateway. Normally, this would be the WAN connection.

### set ip gateway conn-oid 2

### set ip gateway address "0.0.0.0"

## Application Layer Gateway (ALG) commands

These commands allow you to enable or disable the router's support for a variety of Application Layer Gateways (ALGs). An application layer gateway (ALG) is a NAT component that helps certain application sessions to pass cleanly through NAT. Each ALG has a slightly different function based on the particular application's protocol-specific requirements.

An internal client first establishes a connection with the ALG. The ALG determines if the connection should be allowed or not and then establishes a connection with the destination computer. All communications go through two connections – client to ALG and ALG to destination. The ALG monitors all traffic against its rules before deciding whether or not to forward it. The ALG is the only address seen by the public Internet so the internal network is concealed. In some situations, it may be desirable to disable some of the ALGs.

### set ip alg ftp [ on | off ]

Turns the FTP (File Transfer Protocol) ALG for file transfers **on** or **off**. Default is **on**.

### set ip alg h323 [ on | off ]

Turns the H323 ALG for audio, video, and data communications across IP-based networks **on** or **off**. Default is **on**.

### set ip alg pptp [ on | off ]

Turns the PPTP (Point-to-Point Transfer Protocol) ALG for authentication **on** or **off**. Default is **on**.

### set ip alg sip [ on | off ]

Turns the SIP (Session Initiation Protocol) ALG for voice communication initiation **on** or **off**. Default is **on**.

### set ip alg tftp [ on | off ]

Turns the TFTP (Trivial File Transfer Protocol) ALG for simple file transfers and firmware updates **on** or **off**. Default is **on**.

## Link commands

**link**s represent physical connections. Currently, port-based VLAN support is provided at this level.

### set link name *name* type [ ethernet... ]

Specifies whether the **type** of the **link** named *name* is **ethernet** or some other.

(**ethernet** is the only **type** currently. Subsequent releases will support various PPP cases.)

### set link name *name* igmp-snooping [ off | on ]

Turns **igmp-snooping off** or **on** on the **link** named *name*.

### set link name *name* port-vlan ports [ lan | ptm | vc-1 | vc-2 ]

Specifies a port-based VLAN on the selected ports on the **link** named *name*.

### set link name *name* port-vlan priority [ 0 - 7 ]

Specifies the 802.1p priority bit. If you set this to a value greater than 0, all packets of this VLAN with unmarked priority bits (pbits) will be re-marked to this priority.

## Management commands

All management related items are grouped in this section.

### set management account administrator username *username*

Specifies the **username** for the administrative user – the default is **admin**.

### set management account user username *username*

Specifies the **username** for the non-administrative user – the default is **user**.

### set management cwmp enable [ off | on ]

Turns **cwmp** (TR-069 CPE WAN Management Protocol) **on** or **off**. TR-069 allows a remote Auto-Config Server (ACS) to provision and manage the Motorola Netopia® Gateway. TR-069 protects sensitive data on the Gateway by not advertising its presence, and by password protection.

### set management cwmp acs-url *acs_url:port_number*

### set management cwmp acs-username *acs_username*

### set management cwmpacs-password *acs_password*

If TR-069 WAN side management services are enabled, specifies the auto-config server URL and port number. A username and password must also be supplied, if TR-069 is enabled.

The auto-config server is specified by URL and port number. The format for the ACS URL is as follows:

`http://some_url.com:port_number`

or

`http://123.45.678.910:port_number`

On units that support SSL, the format for the ACS URL can also be:

`https://some_url.com:port_number`

or

`https://123.45.678.910:port_number`

### set management shell idle-timeout [ 1...120 ]

Specifies a timeout period of inactivity for telnet access to the Gateway, after which a user must re-login to the Gateway. Default is **15** minutes for telnet.

### set management shell telnet-port [ 1 - 65534 ]

Specifies the port number for telnet (CLI) communication with the Motorola Netopia® Gateway. Because port numbers in the range 0-1024 are used by other protocols, you should use numbers in the range 1025-65534 when assigning new port numbers to the Motorola Netopia® Gateway telnet configuration interface. A setting of **0** (zero) will turn the server off.

### set management web http-port [ 1 - 65534 ]

Specifies the port number for HTTP (web) communication with the Motorola Netopia® Gateway. Because port numbers in the range 0-1024 are used by other protocols, you should use numbers in the range 1025-65534 when assigning new port numbers to the Motorola Netopia® Gateway web configuration interface. A setting of **0** (zero) will turn the server off.

### set management web idle-timeout [ 1...120 ]

Specifies a timeout period of inactivity for HTTP access to the Gateway, after which a user must re-login to the Gateway. Default is **5** minutes for HTTP.

**NOTE:**

You cannot specify a port setting of **0** (zero) for both the web and telnet ports at the same time. This would prevent you from accessing the Gateway.

## Physical interfaces commands

### set physical dsl enable [ off | on ]

Turns the physical DSL interface **off** or **on**. Default is **on**.

### set physical dsl loopback [ off | on ]

Turns the DSL loopback mode **off** or **on**. Default is **off**.

### set physical dsl modulation auto [ off | on ]

Turns automatic DSL modulation **off** or **on**. Default is **on**.

### set physical dsl profile-8a [ off | on ]

Default is **on**.

### set physical dsl profile-8b [ off | on ]

Default is **on**.

### set physical dsl profile-8c [ off | on ]

Default is **on**.

### set physical dsl profile-8d [ off | on ]

Default is **on**.

### set physical dsl profile-12a [ off | on ]

Default is **on**.

### set physical dsl profile-12b [ off | on ]

Default is **on**.

### set physical dsl profile-17a [ off | on ]

Default is **on**.

### set physical dsl profile-30a [ off | on ]

Default is **off**.

### set physical dsl us0 [ off | on ]

Default is **on**.

### set physical dsl transport [ atm | ptm | auto | off ]

Sets the DSL transport mode: Asynchronous (**atm**), Packet (**ptm**), Automatic (**auto**), or none (**off**). Default is **auto**.

### set physical dsl atm vcc 1 enable [ off | on ]

Turns **atm** on or off on vcc 1. Default is **on**.

### set physical dsl atm vcc 1 aal-type [ aal5 | aal0pkt | aal0cell ]

Sets the ATM Adaptation Layer type (**aal-type**): AAL5, AAL0-packet, or AAL0-cell. Default is **aal5**.

### set physical dsl atm vcc 1 datapath [ phy0fast | phy0interleaved ]

Sets the ATM datapath, Fast Path or Interleaved. Default is **phy0fast**.

### set physical dsl atm vcc 1 encap-type [ llcsnap-eth | llcsnap-rtip | llcencaps-ppp | vcmux-eth | vcmux-ipoa | vcmux-pppoa ]

Specifies the data link encapsulation type. Default is **llcsnap-eth**.

### set physical dsl atm vcc 1 vpi [ 0 - 255 ]

Sets the Virtual Path Identifier (**vpi**) for the circuit. Default is **0**.

### set physical dsl atm vcc 1 vci [ 32 - 65535 ]

Sets the Virtual Channel Identifier (**vci**) for the circuit. Default is **35**.

### set physical dsl atm vcc 2 enable [ off | on ]

Turns **atm** on or off on vcc 2. Default is **on**.

### set physical dsl atm vcc 2 aal-type [ aal5 | aal0pkt | aal0cell ]

Sets the ATM Adaptation Layer type (**aal-type**): AAL5, AAL0-packet, or AAL0-cell. Default is **aal5**.

### set physical dsl atm vcc 2 datapath [ phy0fast | phy0interleaved ]

Sets the ATM datapath, Fast Path or Interleaved. Default is **phy0fast**.

### set physical dsl atm vcc 2 encap-type [ llcsnap-eth | llcsnap-rtip | llcencaps-ppp | vcmux-eth | vcmux-ipoa | vcmux-pppoa ]

Specifies the data link encapsulation type. Default is **llcsnap-eth**.

### set physical dsl atm vcc 2 vpi [ 0 - 255 ]

Sets the Virtual Path Identifier (**vpi**) for the circuit. Default is **8**.

### set physical dsl atm vcc 2 vci [ 32 - 65535 ]

Sets the Virtual Channel Identifier (**vci**) for the circuit. Default is **35**.

### set physical dsl ptm datapath [ phy0fast | phy0interleaved ]

Sets the ATM datapath, Fast Path or Interleaved. Default is **phy0fast**.

### set physical dsl ptm priority [ low | high ]

Sets the Packet Transfer Mode (**ptm**) priority. Default is **low**.

### set physical enet 1 mac-addr-override *mac_addr*

You can override your Gateway's Ethernet MAC address with any necessary setting. Some ISPs require your account to be identified by the MAC address, among other things. Enter your 12-character Ethernet MAC override address as instructed by your service provider, for example: 12 34 AB CD 19 64

### set physical enet 1 port media [ auto | 100-fd | 100-hd | 10-fd | 10-hd ]

Sets the Ethernet port's media flow control: Automatic, 100 Mbps Full-Duplex, 100 Mbps Half-Duplex, 10 Mbps Full-Duplex, or 10 Mbps Half-Duplex. Default is **auto**.

### set physical enet 1 port mdix [ auto | on | off ]

Sets the Ethernet port's crossover detection. Default is **off**.

## PPPoE relay commands

### set pppoe-relay enable [ on | off ]

Allows the Gateway to forward PPPoE packets. Default is **on**.

### set pppoe-relay max-sessions [ 0... 4 ]

Specifies the maximum number of PPPoE relay sessions. Default is **4**.

## NAT Pinhole commands

NAT pinholes let you pass specific types of network traffic through the NAT interfaces on the Motorola Netopia® Gateway. NAT pinholes allow you to route selected types of network traffic, such as FTP requests or HTTP (Web) connections, to a specific host behind the Motorola Netopia® Gateway transparently.

To set up NAT pinholes, you identify the type(s) of traffic you want to redirect by port number, and you specify the internal host to which each specified type of traffic should be directed.

The following list identifies protocol type and port number for common TCP/IP protocols:

- FTP (TCP 21)
- telnet (TCP 23)
- SMTP (TCP 25),
- TFTP (UDP 69)

### set pinhole name *name* protocol [ tcp | udp ]

Specifies the identifier for the entry in the Gateway's pinhole table. You can name pinhole table entries sequentially (1, 2, 3), by port number (21, 80, 23), by protocol, or by some other naming scheme. Specifies the type of protocol being redirected.

### set pinhole name *name* ext-port-range [ 0 - 49151 ]

Specifies the first and last port number in the range being translated.

### set pinhole name *name* int-addr *ipaddr*

Specifies the IP address of the internal host to which traffic of the specified type should be transferred.

### set pinhole name *name* int-start-port [ 0 - 65535 ]

Specifies the port number your Motorola Netopia® Gateway should use when forwarding traffic of the specified type. Under most circumstances, you would use the same number for the external and internal port.

## System commands

### set system name *name*

Specifies the name of your Motorola Netopia® Gateway. Each Motorola Netopia® Gateway is assigned a name as part of its factory initialization. The default name for a Motorola Netopia® Gateway consists of the word "Netopia-7000/XXX" where "XXX" is the serial number of the device; for example, Netopia-7000/9437188. A system name can be 1 – 255 characters long. Once you have assigned a name to your Motorola Netopia® Gateway, you can enter that name in the Address text field of your browser to open a connection to your Motorola Netopia® Gateway.

**NOTE:**

Some broadband cable-oriented Service Providers use the **System Name** as an important identification and support parameter. If your Gateway is part of this type of network, do **NOT** alter the System Name unless specifically instructed by your Service Provider.

### set system time-zone [ UTC | HST10 | AKST9AKDT | YST8 | PST8PDT | MST7MDT | MST7 | CST6CDT | CST6 | EST5EDT | AST4ADT | NST3:30NDT ]

**time-zone** of 0 is Coordinated Universal Time (UTC); options are -12 through 12 (+/- 1 hour increments from UTC time).

### set system auto-daylight-savings [ on | off ]

Time zones honoring Daylight Saving Time may be automatically designated.

### set system firewall-log enable [ on | off ]

Turns firewall logging on or off. The firewall log tracks attempted violations of the firewall rules. Default is **on**.

### set system firewall-log file-size [ 4096... 65536 ]

Specifies a size for the firewall logs. The most recent entries are posted to the beginning of the log. When the log becomes full, the oldest entries are dropped. The default is 16384.

### set system firewall-log file-count [ 2... 8 ]

Specifies the number of possible log files. The default is 4.

### set system log buffer-size [ 4096... 65536 ]

Specifies a size for the system log. The most recent entries are posted to the beginning of the log. When the log becomes full, the oldest entries are dropped. The default is 16384.

### set system log level [ low | medium | high | alerts | failures ]

Specifies the types of log messages you want the Motorola Netopia® Gateway to record. All messages with a level equal to or greater than the level you specify are recorded. For example, if you specify set system diagnostic-level **medium**, the diagnostic log will retain medium-level informational messages, alerts, and failure messages.

Use the following guidelines:

- **low** - Low-level informational messages or greater; includes trivial status messages.

- **medium** - Medium-level informational messages or greater; includes status messages that can help monitor network traffic.
- **high** - High-level informational messages or greater; includes status messages that may be significant but do not constitute errors. The default.
- **alerts** - Warnings or greater; includes recoverable error conditions and useful operator information.
- **failures** - Failures; includes messages describing error conditions that may not be recoverable.

# CHAPTER 5 Technical Specifications and Safety Information

## Description

**Communications interfaces:** The Motorola Nteopia® Gateways have an RJ-11 jack for DSL line connections or an RJ-45 jack for cable/DSL modem connections and 1 or 4–port 10/100Base-T Ethernet switch for your LAN connections..Some models contain an 802.11b/g/n wireless LAN transmitter.

### Power requirements

12V,1.5A

### Environment

**Operating temperature:** 0° to +40° C

**Storage temperature:** 0° to +70° C

**Relative storage humidity:** 20 to 80% noncondensing

### Software and protocols

**Software media:** Software preloaded on internal flash memory; field upgrades done via download to internal flash memory via TFTP or web upload.

**Routing:** TCP/IP Internet Protocol Suite, RIP

**WAN support:** PPPoE, DHCP, static IP address

**Security:** PAP, CHAP, UI password security, IPsec, Secure Sockets Layer (SSL) certificate (supported models)

**Management/configuration methods:** HTTP (Web server), Telnet, SNMP, TR-069 DSL Forum CPE WAN Management Protocol

**Diagnostics:** Ping, event logging, routing table displays, statistics counters, web-based management, tracer-oute, nslookup, and diagnostic commands.

# Agency approvals

## North America

Safety Approvals:

United States – UL 60950, Third Edition

- Canada – CSA: CAN/CSA-C22.2 No. 60950-00
- EMC:
- United States – FCC Part 15 Class B
- Canada – ICES-003

Telecom:

- United States – 47 CFR Part 68
- Canada – CS-03

## International

Safety Approvals:

- Low Voltage (European directive) 73/23
- EN 60950-1 (Europe)

EMI Compatibility:

- 89/336/EEC (European directive)
- EN55022:1994 CISPR22 Class B
- EN300 386 V1.2.1 (non-wireless products)
- EN 301-489 (wireless products)

# Regulatory notices

**European Community.** This Motorola product conforms to the European Community CE Mark standard for the design and manufacturing of information technology equipment. This standard covers a broad area of product design, including RF emissions and immunity from electrical disturbances.

The Motorola Netopia® Gateway complies with the following EU directives:

- Low Voltage, 73/23/EEC
- EMC Compatibility, 89/336/EEC, conforming to EN 55 022

CE This Motorola product is in conformity with the essential requirements and other relevant requirements of the Radio Equipment and Telecommunications Terminal Equipment Directive (R&TTE) 1999/5/EC, following the provision of the Electromagnetic Compatibility Directive (EMC) No. 89/336/EEC and Low Voltage Directive (LVD) No. 73/23/EEC.
The product is compliant with the following standards and other normative documents:
LEMC – Emissions and Immunity: EN 301 489-1 V1.2.1 (2002-08), EN 301 489-17 (2002-08), EN 55022 Class B (1998)
EMC – Radio Data Transmission: EN 300 328 V1.4.1 (2003-04)
EMC - Resistibility: ITU-T K.21 (1996)
LVD - Safety: EN 60950 (2000) + A1 + A2 + A3 + A4 + A11

## Manufacturer's Declaration of Conformance

**Warnings:**

This is a Class B product. In a domestic environment this product may cause radio interference, in which case the user may be required to take adequate measures. Adequate measures include increasing the physical distance between this product and other electrical devices.
Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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

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

**Service requirements.** In the event of equipment malfunction, if under warranty we will exchange a product deemed defective.

Under FCC rules, no customer is authorized to repair this equipment. This restriction applies regardless of whether the equipment is in or our of warranty. It is the responsibility of users requiring service to report the need for service to our Company or to one of our authorized agents.

**Contact Us for US**

Technical Support for Hardware Products
1-877-466-8646
http://broadband.motorola.com/consumers/support/default.asp?supportSection=blank

**Important**

This product was tested for FCC compliance under conditions that included the use of shielded cables and connectors between system components. Changes or modifications to this product not authorized by the manufacturer could void your authority to operate the equipment.

**Canada.** This Class B digital apparatus meets all requirements of the Canadian Interference -Causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Réglement sur le matériel brouilleur du Canada.

### Declaration for Canadian users

**NOTICE: The Canadian Industry Canada label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operation, and safety requirements. The Department does not guarantee the equipment will operate to the user's satisfaction.**

**Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the company's inside wiring associated with a single line individual service may be extended by means of a certified connector assembly (telephone extension cord). The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.**

**Repairs to the certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.**

**Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines, and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.**

### Caution

Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

The Ringer Equivalence Number (REN) assigned to each terminal device provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Numbers of all the devices does not exceed 5.

# Important Safety Instructions

## Australian Safety Information

The following safety information is provided in conformance with Australian safety requirements:

### Caution

DO NOT USE BEFORE READING THE INSTRUCTIONS: Do not connect the Ethernet ports to a carrier or carriage service provider's telecommunications network or facility unless: a) you have the written consent of the network or facility manager, or b) the connection is in accordance with a connection permit or connection rules.

Connection of the Ethernet ports may cause a hazard or damage to the telecommunication network or facility, or persons, with consequential liability for substantial compensation.

### Caution

- The direct plug-in power supply serves as the main power disconnect; locate the direct plug-in power supply near the product for easy access.
- For use only with CSA Certified Class 2 power supply, rated 12VDC.

### Telecommunication installation cautions

- Never install telephone wiring during a lightning storm.
- Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
- Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
- Use caution when installing or modifying telephone lines.
- 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.

# 47 CFR Part 68 Information

## FCC Requirements

1. The Federal Communications Commission (FCC) has established Rules which permit this device to be directly connected to the telephone network. Standardized jacks are used for these connections. This equipment should not be used on party lines or coin phones.
2. If this device is malfunctioning, it may also be causing harm to the telephone network; this device should be disconnected until the source of the problem can be determined and until repair has been made. If this is not done, the telephone company may temporarily disconnect service.
3. The telephone company may make changes in its technical operations and procedures; if such changes affect the compatibility or use of this device, the telephone company is required to give adequate notice of the changes. You will be advised of your right to file a complaint with the FCC.
4. If the telephone company requests information on what equipment is connected to their lines, inform them of:
   a. The telephone number to which this unit is connected.
   b. The ringer equivalence number. [0.XB]
   c. The USOC jack required. [RJ11C]
   d. The FCC Registration Number. [XXXUSA-XXXXX-XX-E]
   Items (b) and (d) are indicated on the label. The Ringer Equivalence Number (REN) is used to determine how many devices can be connected to your telephone line. In most areas, the sum of the REN's of all devices on any one line should not exceed five (5.0). If too many devices are attached, they may not ring properly.

## FCC Statements

a) This equipment complies with Part 68 of the FCC rules and the requirements adopted by the ACTA. On the bottom of this equipment is a label that contains, among other information, a product identifier in the format US:AAAEQ##TXXXX. If requested, this number must be provided to the telephone company.

b) List all applicable certification jack Universal Service Order Codes ("USOC") for the equipment: RJ11.

c) A plug and jack used to connect this equipment to the premises wiring and telephone network must comply with the applicable FCC Part 68 rules and requirements adopted by the ACTA. A compliant telephone cord and modular plug is provided with this product. It is designed to be connected to a compatible modular jack that is also compliant. See installation instructions for details.

d) The REN is used to determine the number of devices that may be connected to a telephone line. Excessive RENs on a telephone line may result in the devices not ringing in response to an incoming call. In most but not all areas, the sum of RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to a line, as determined by the total RENs, contact the local telephone company. For products approved after July 23, 2002, the REN for this product is part of the product identifier that has the format US:AAAEQ##TXXXX. The digits represented by ## are the REN without a decimal point (e.g., 03 is a REN of 0.3). For earlier products, the REN is separately shown on the label.

e) If this equipment, the Motorola Netopia® Modem or Gateway, causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice isn't practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

f) The telephone company may make changes in its facilities, equipment, operations or procedures that could affect the operation of the equipment. If this happens the telephone company will provide advance notice in order for you to make necessary modifications to maintain uninterrupted service.

g) If trouble is experienced with this equipment, the Motorola Netopia® Gateway, for warranty information, please contact:

Technical Support for Hardware Products
1-877-466-8646
http://broadband.motorola.com/consumers/support/default.asp?supportSection=blank

If the equipment is causing harm to the telephone network, the telephone company may request that you disconnect the equipment until the problem is resolved.

h) This equipment not intended to be repaired by the end user. In case of any problems, please refer to the troubleshooting section of the Product User Manual before calling Motorola Technical Support.

i) Connection to party line service is subject to state tariffs. Contact the state public utility commission, public service commission or corporation commission for information.

j) If your home has specially wired alarm equipment connected to the telephone line, ensure the installation of this Motorola Netopia® Gateway does not disable your alarm equipment. If you have questions about what will disable alarm equipment, consult your telephone company or qualified installer.

### RF Exposure Statement:

**NOTE: Installation of the wireless models must maintain at least 20 cm between the wireless Gateway and any body part of the user to be in compliance with FCC RF exposure guidelines.**

### PRODUCT VENTILATION

The Motorola Netopia® Gateway is intended for use in a consumer's home. Ambient temperatures around this product should not exceed 104°F (40°C). It should not be used in locations exposed to outside heat radiation or trapping of its own heat. The product should have at least one inch of clearance on all sides except the bottom when properly installed and should not be placed inside tightly enclosed spaces unless proper ventilation is provided.

## Electrical Safety Advisory

Telephone companies report that electrical surges, typically lightning transients, are very destructive to customer terminal equipment connected to AC power sources. This has been identified as a major nationwide problem. Therefore it is advised that this equipment be connected to AC power through the use of a surge arrestor or similar protection device.

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Als u dit symbool op een Motorola-product ziet, gooi het dan niet bij het huishoudelijk afval of het bedrijfsafval.

### Uw Motorola-materiaal recycleren.

Gooi dit product niet bij het huishoudelijk afval het of bedrijfsafval. In sommige landen of regio's zoals de Europese Unie, zijn er bepaalde systemen om elektrische of elektronische afvalproducten in te zamelen en te recycleren. Neem contact op met de plaatselijke overheid voor informatie over de geldende regels in uw regio. Indien er geen systemen bestaan, neemt u contact op met de klantendienst van Motorola.

## Dbałość o środowisko - recykling

Produktów Motorola oznaczonych tym symbolem nie należy wyrzucać do komunalnych pojemników na śmieci.

### Recykling posiadanego sprzętu Motorola

Produktu nie należy wyrzucać do komunalnych pojemników na śmieci. W niektórych krajach i regionach, np. w Unii Europejskiej, istnieją systemy zbierania i recyklingu sprzętu elektrycznego i elektronicznego. Informacje o utylizacji tego rodzaju odpadów należy uzyskać od władz lokalnych. Jeśli w danym regionie nie istnieją systemy zbierania odpadów elektrycznych i elektronicznych, informacje o utylizacji należy uzyskać od biura obsługi klienta firmy Motorola (Motorola Customer Service).

## Cuidando do meio ambiente através da reciclagem

Quando você ver este símbolo em um produto Motorola, não descarte o produto junto com lixo residencial ou comercial.

### Reciclagem do seu equipamento Motorola

Não descarte este produto junto com o lixo residencial ou comercial. Alguns países ou regiões, tais como a União Européia, criaram sistemas para colecionar e reciclar produtos eletroeletrônicos. Para obter informações sobre as práticas estabelecidas para sua região, entre em contato com as autoridades locais. Se não houver sistemas de coleta disponíveis, entre em contato com o Serviço ao Cliente da Motorola para obter assistência.

## Var rädd om miljön genom återvinning

När du ser den här symbolen på en av Motorolas produkter ska du inte kasta produkten tillsammans med det vanliga avfallet.

### Återvinning av din Motorola-utrustning

Kasta inte denna produkt tillsammans med det vanliga avfallet. Vissa länder eller regioner, som t.ex. EU, har satt upp ett system för insamling och återvinning av el- och elektronikavfall. Kontakta dina lokala myndigheter för information om vilka regler som gäller i din region. Om det inte finns något insamlingssystem ska du kontakta Motorolas kundtjänst för hjälp.

## リサイクルによる環境保護

モトローラ製品にこの記号が表示されている場合、製品を家庭または商業廃棄物として処分しないでください。

### モトローラ装置のリサイクル

本製品を家庭または商業廃棄物として処分しないでください。欧州連合などの国または地域によっては、電気的・電子的廃棄物を収集およびリサイクルするシステムがあります。お住まいの地域で決められている方法についての情報は、地方自治体にお問い合わせください。収集システムがない場合、モトローラ・カスタマーサービスまでお問い合わせください。

## 재활용으로 환경 보호하기

Motorola제품에 이 표시가 있는 경우, 가정 또는 상업 폐기물과 함께 버리지 마십시오.

### Motorola 기기 재활용

이 제품을 가정용 또는 사업용 폐기물과 함께 버리지 마십시오. 유럽 유니온과 같은 일부 국가 또는 지역에서는 재활용 전기 전자 폐기물 항목을 수집하는 시스템이 구축되어 있습니다. 해당 지역에 구축되어 있는 절차에 관한 정보는 지역 관할당국에 연락하십시오. 수집 시스템이 존재하지 않는 경우, 도움을 받기 위해 Motorola 고객서비스부로 연락하십시오.

## 重复利用，保护环境

如果 Motorola 产品上具有这个标识，请勿将产品丢弃到家庭或商业垃圾中。

### Motorola 设备的重复利用

请勿将本产品丢弃到家庭或商业垃圾中。某些国家或地区，例如欧盟，已经建立起回收和重复利用电气与电子废弃物的体系。请与当地相关机构联系，获取有关所在地区相关规定的信息。如果当地尚未建立回收体系，请致电 Motorola 客户服务以寻求帮助。

## 注意環保問題

在你看到產品上有Motorola的標誌時，請勿以住家或商用的廢棄物方式處置。

### Motorola 設備的回收

請勿以住家或商用的廢棄物方式處置。某些國家或地區，如歐盟，已對廢棄的電器和電子產品制訂回收以及再?用體制。請與您所在地的管?機構諮詢相關規定。

?您所在的地區並未設置回收機制，請電Motorola客服部諮詢相關事宜。

Please visit http://www.motorola.com/recycle for instructions on recycling.

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