Actiontec®

Revision QW-7

R1524SU

User Manual

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Introduction 1

Thank you for purchasing the *Action*tec Wireless-Ready Gateway. The Gateway is the simplest way to connect multiple computers to a single high-speed broadband connection. This easy-to-use product is perfect for the office or small business. If you want to take your computing to the next level, the *Action*tec Wireless-Ready Gateway is sure to be one of the keys to your success.

Package Contents

- Four-Port *Action*tec Wireless-Ready Gateway
- Power adapter
- Phone filters
- DSL cable
- Ethernet cable
- USB cable
- Installation CD-ROM
- Quick start guides

Minimum System Requirements

- Active DSL service
- Computer with an 10 Mbps or 10/100 Mbps Ethernet connection, or USB connection

- Microsoft Windows 98 Second Edition (SE), Windows Millennium Edition (Me), Windows NT 4.0, Windows 2000, Windows XP, Mac OS 7.1+, Mac OS 8.0+, Mac OS 9.0+, or Mac OS X+

☞ ***Note***: USB LAN port is not supported with Microsoft Windows 95, Windows NT 4.0, and Mac OS.

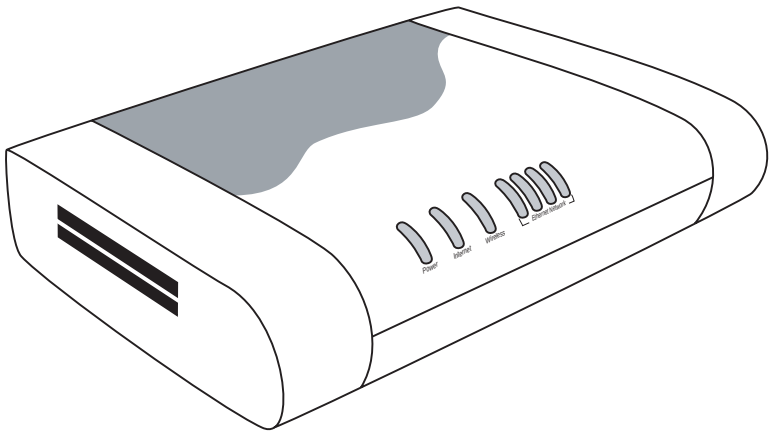
- Internet Explorer 4.0 or higher (5.x recommended) or Netscape Navigator 4.0 or higher (4.7 recommended)
- TCP/IP network protocol installed on each computer

Features

This section contains a quick description of the Gateway's lights, ports, etc. The Gateway has several indicator lights (LEDs) on its front panel, a series of ports on its rear panel, and two PCMCIA card slots on its left panel (when viewed from the front).

Front Panel

The front panel of the Four-Port Gateway features seven lights: Power, Internet, Wireless, and Ethernet Network (4).



Power Light - The Power Light displays the Gateway's current status. If the Power Light glows steadily green, the Gateway is receiving power and fully operational. When the Power Light is rapidly flashing, the Gateway is initializing. If

the Power Light is not illuminated when the power cord is plugged in, the Gateway has suffered a critical error and technical support should be contacted.

Internet Light - When the Internet Light glows steadily, the Gateway is connected to the DSL provider. When it flashes, the Gateway's built-in DSL modem is training for your DSL service..

Wireless Light - When the Wireless Light glows steadily, the Gateway is ready for wireless networking.

Ethernet Network Light(s) - The Ethernet Network Lights glow when a network link is established with a computer. A flashing Light signifies network traffic across the specific Ethernet connection.

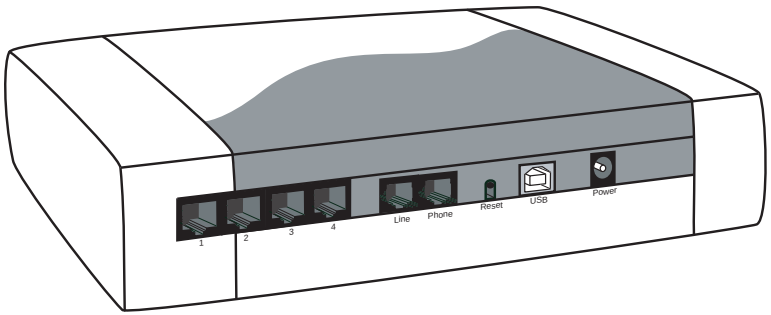
Left Side Panel

The left side panel of the Gateway features two PC Card slots. These slots can be used to enable the Gateway for wireless networking.

☞ ***Note***: The upper PC Card slot is used for the *Action*tec Wireless Networking PC Card. The lower slot is reserved for future products.

Rear Panel

The rear panel of the Gateway contains eight ports (Ethernet [4], Line, Phone, USB, and Power), as well as a Reset switch.



Ethernet Ports - Used to connect computers to the Gateway via Ethernet cable. All four Ethernet ports are 10/100 Mbps auto-sensing ports, and either a straight-through or crossover Ethernet cable can be used when connecting to the ports.

Line Port - Used to connect the Gateway to a DSL (Digital Subcriber Line) connection.

Phone Port - Used to connect a telephone to the Gateway.

USB Port - Used to connect a computer to the Gateway via USB cable.

Power Port - Used to connect the Power Cord to the Gateway.

Reset Switch - Depressing the reset switch for one or two seconds will power cycle (similar to unplugging and then plugging in the Gateway's power cord) the Gateway. To restore the Gateway's factory default settings, depress and hold the Reset Switch for approximately 10 seconds. The reset process will start about 10 seconds after releasing the Reset Switch.

Warning: Do not unplug the power cord from the Gateway during the reset process. Doing so may result in permanent damage to the Gateway.

Technical Support

Self Help

To obtain answers to DSL configuration questions, visit the Qwest DSL *Action*tec support page at this address:

`http://www.qwest.com/dsl/customerservice/Actiontec1520.html`

A help page is also available on the main page of the *Action*tec DSL Gateway Web interface. Enter

`192.168.0.1`

in the browser's address text box, and when the first screen appears, click **HELP**.

Basic Setup Support

If unable to access the Internet, look at the Internet light on the front of the DSL Gateway. If the light is **solid green**, call the ISP immediately. If it is **not solid green**, call Qwest at 1-800-247-7285.

Other Problems

Contact the ISP if experiencing problems with:

- DHCP addressing configuration
- Static IP addressing configuration
- Transparent bridging configuration

Contact Qwest at 1-800-247-7285 for:

- DSL service outage support and repair
- DSL service installation support

☞ ***Note***: Before attempting any of the above, make sure access to the Internet is available.

Advanced Feature Support

Qwest DSL technical support provides the following advanced feature support for the *Action*tec DSL Gateway. Contact Qwest at 1-800-247-7285 for configuration assistance.

- Enabling Website Blocking
- Enabling VPN Pass-Through
- Enabling/Disabling NAT
- Firewall configuration
- Changing the LAN IP address of the DSL Gateway
- Enabling Services Blocking
- Enabling/Disabling DHCP
- VIP feature

These features are supported in the Gateway only. Implementation of the above features within the network (LAN) is not supported.

Wired/Wireless Upgrade

Wired and wireless upgrade installation support is available from *Action*tec free of charge if the wired/wireless equipment was purchased from *Action*tec. Contact *Action*tec at 1-888-436-0675 for installation and configuration support information.

Networking (LAN) Support

If a wired/wireless network has been set up and support is needed in one of the following areas:

- LAN support of multiple computers and peripherals;
- Microsoft Windows Networking;
- Microsoft Internet Connection Sharing (ICS);
- Advanced LAN configuration with multiple computers;
- Non-*Action*tec-provided network card/Ethernet cable installation, configuration, or troubleshooting;
- Commercial firewall software configuration;

contact the ***Action*tec Pay For Support Center** at 1-888-825-9025. *Action*tec networking support is provided for a fee of $29.95 per incident. Other fee-based feature support includes:

- Port Forwarding (Static NAT)
- Static Routing
- MAC Address Cloning
- Third-party vendor wireless equipment configuration
- DMZ Hosting
- NAT Routes
- RIP (Dynamic Routing)

This support service does not include an on-site field technician.

To purchase *Action*tec wireless cards and peripherals, visit the *Action*tec Web site at

www.actiontecstore.com/qwest

Setting Up the Gateway

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The instructions that follow parallel the steps contained in the *Action*tec Installation Buddy™, which provides a visual guide to setting up the Gateway. It is recommended the user run the Installation Buddy first, before attempting any other procedures.

To set up the Gateway, it must be connected to a computer, and then configured. After connecting this first computer, other computers can be added to the network via USB, Ethernet, or wirelessly (see "Building a Network" on page 63).

Attention!

Read the following two sections (Alarm System, Automatic Water Heater) before proceeding with any installation!

Alarm System

If your home or business has an alarm system and Qwest DSL shares the same phone line, you have special wiring needs. If you did not order a technician install at the time of sale, please contact Qwest Sales as soon as possible to order and schedule your installation.
If you security alarm is wired incorrectly, it may not be able to make a notification call when the alarm is triggered. Professional wiring is required to insure interoperability. **Do not attempt the installtion yourself.** Qwest strongly recommends that you contact your security organization for more information about your security alarm system before you attempt to install Qwest DSL. Qwest also strongly recommends that you contact your security organization after installing Qwest DSL to have them conduct a test of your alarm system.

Automatic Water Meter

If your home or office has an automatic water meter that uses the same phone line as the Qwest DSL Gateway, you must put a DSL Phone Filter on the water meter. Call your water company for help when installing the DSL Phone Filter on your water meter.

Connecting a Computer to the Gateway

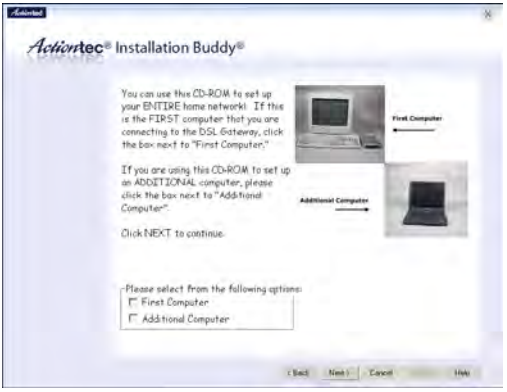
Connecting a computer to the Gateway for setup involves three basic steps: initial setup, plugging in the Gateway's power cord, and connecting the Gateway to the computer.

☞ ***Note***: The following procedures are for U.S. installations only.

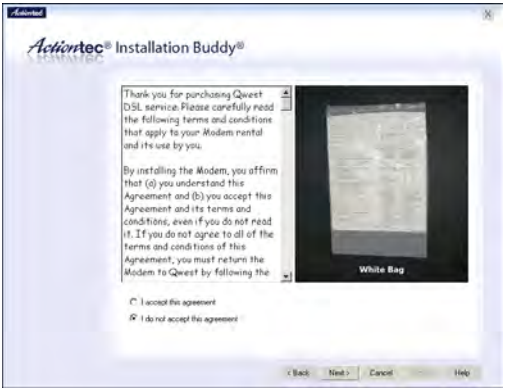
Connecting Via Ethernet

1. Insert the Installation CD in the CD-ROM drive of the computer. The Installaton Buddy will start automatically. Wait until the following screen appears, read the onscreen instructions, then click **Next**.

2. Read the instructions, select **First Computer** by clicking on the appropriate check box, then click **Next**.



3. Read the onscreen instructions regarding the terms and agreements of the rental contract, click in the white circle next to **I accept this agreement**, then click **Next**.



4. Click the check box next to **Ethernet (Recommended)**, then click **Next**.

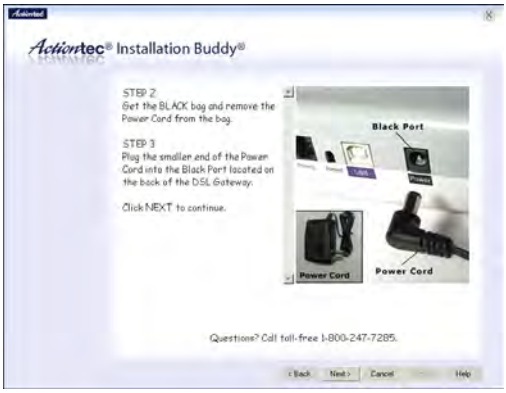
5. Get the Welcome Letter (or ISP Worksheet) provided by the ISP. Click **Next**.

6. Read the onscreen information concerning home security alarms, then click **Next**.

7. Make sure the items needed to connect the Gateway to the first computer on included in the kit, then click **Next**.

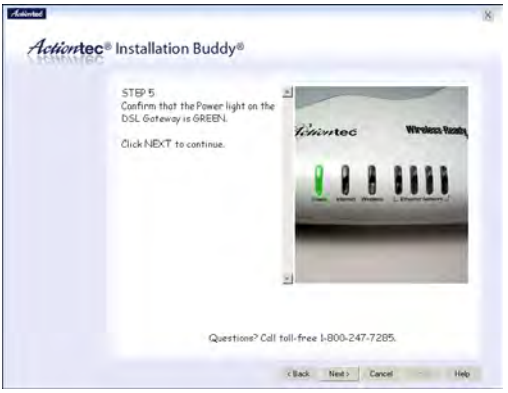
8. Get the **Gateway** from the kit, then click **Next**.

9. Get the **Power cord** from the black bag and plug the smaller end into the **black Power port** on the rear panel of the Gateway, then click **Next**.



10. Plug the larger end of the **Power cord** into a **power outlet**, then click **Next**.

11. Confirm the **Power light** on the front of the Gateway **glows solid green**, then click **Next**.



12. Get the **yellow Ethernet cable** from the kit and plug one end into a **Yellow port** on the back of the Gateway, then click **Next**.

13. Plug the other end of the **yellow Ethernet cable** into an **Ethernet port** on the back of the computer. Click **Next**.

☞ ***Note***: An Ethernet port looks similar to a phone jack, but is slightly larger.

14. Make sure one of the **Ethernet lights** on the front of the Gateway **glows solid green**. Click **Next**.

15. Get the **black or green DSL cable** from the kit and plug one end into the **black Line port** on the rear panel of the Gateway. Click **Next**.

16. Plug the other end of the **black or green DSL cable** into the **phone jack** closest to the computer. Click **Next**.

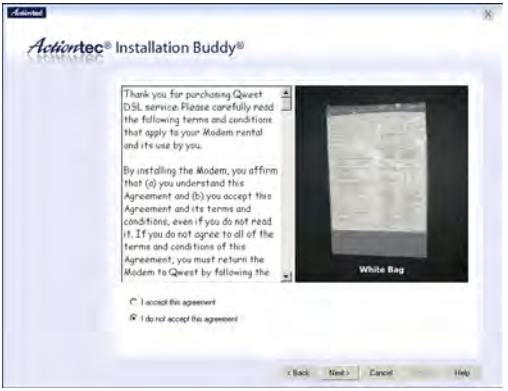
The Gateway is connected to a computer via Ethernet. Next, install the filters as described in "Installing Filters" on page 24.

Connecting Via USB

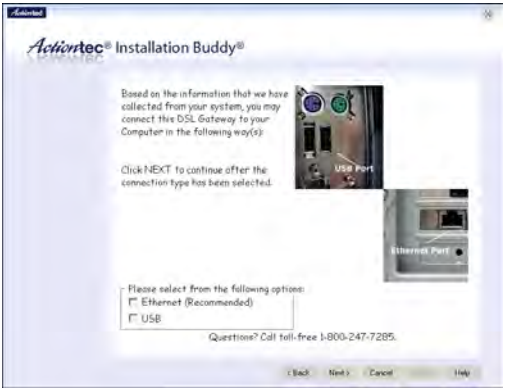
1. Insert the Installation CD in the CD-ROM drive of the computer. The Installaton Buddy will start automatically. Wait until the following screen appears, read the onscreen instructions, then click **Next**.

2. Read the instructions, select **First Computer** by clicking on the appropriate check box, then click **Next**.

3. Read the onscreen instructions regarding the terms and agreements of the rental contract, click in the white circle next to **I accept this agreement**, then click **Next**.



4. Click the check box next to **USB**, then click **Next**.



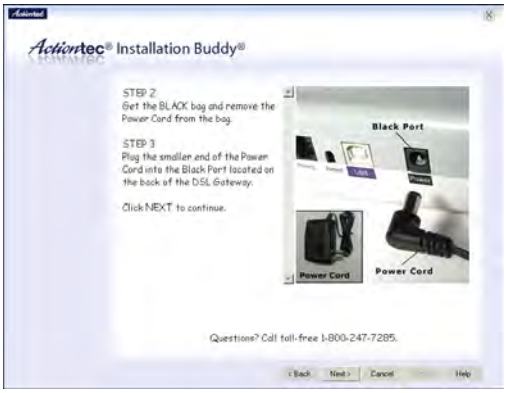
5. Get the Welcome Letter (or ISP Worksheet) provided by the ISP. Click **Next**.

6. Read the onscreen information concerning home security alarms, then click **Next**.

7. Make sure the items needed to connect the Gateway to the first computer on included in the kit, then click **Next**.

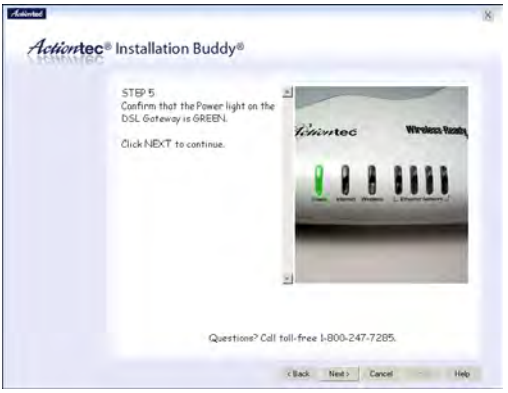
8. Get the **Gateway** from the kit, then click **Next**.

9. Get the **Power cord** from the black bag and plug the smaller end into the **black Power port** on the rear panel of the Gateway, then click **Next**.



10. Plug the larger end of the **Power cord** into a **power outlet**, then click **Next**.

11. Confirm the **Power light** on the front of the Gateway **glows solid green**, then click **Next**.



12. Get the **purple USB cable** from the kit, then click **Next**.

13. Plug the **square end** of the **purple USB cable** in the **purple USB port** on the back of the Gateway, then click **Next**.

14. Plug the other end of the **purple USB cable** into an **USB port** on the front or back of the computer. Click **Next**.

15. Get the **black or green DSL cable** from the kit and plug one end into the **black Line port** on the rear panel of the Gateway. Click **Next**.

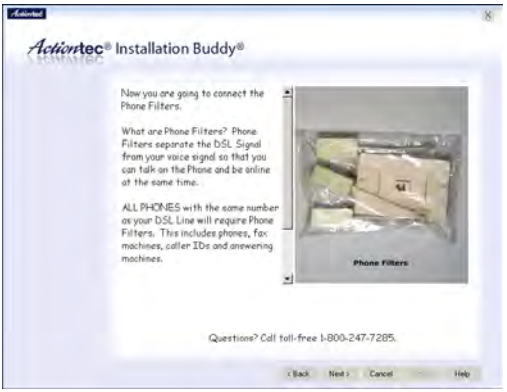
16. Plug the other end of the **black or green DSL cable** into the **phone jack** closest to the computer. Click **Next**.

The Gateway is connected to a computer via USB. Next, install the filters as described in "Installing Phone Filters" on page 24.

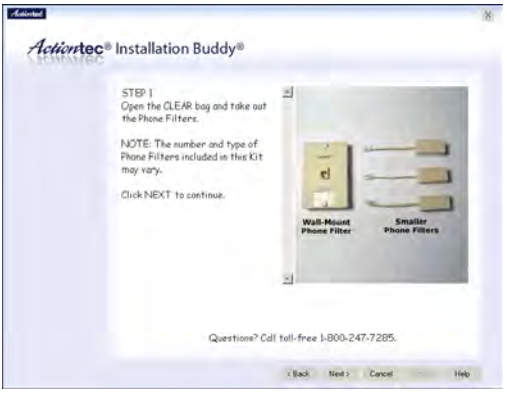
Installing Phone Filters

Phone filters allow the use of the telephone while online. All telephones and other devices (answering machines, fax machines, etc.) using the same phone line (i.e., using the same phone number) as the DSL line must have a phone filter installed. To install a filter, follow these instructions:

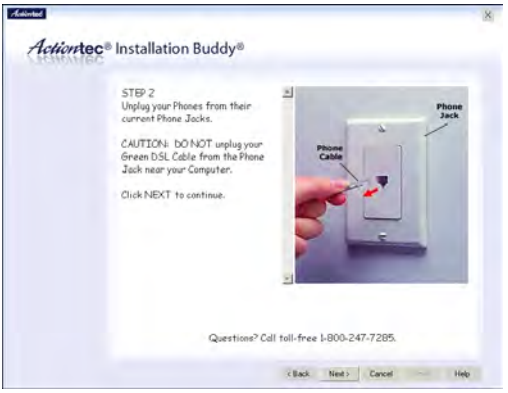
1. Read the onscreen information, get the **Clear Bag**, then click **Next**.



2. Remove the phone filters from the **Clear Bag**. Click **Next**.

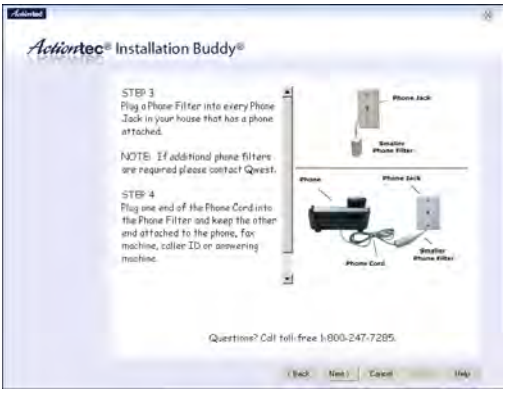


3. Read the onscreen information, then unplug all telephones and other devices from their phone jacks. Click **Next**.



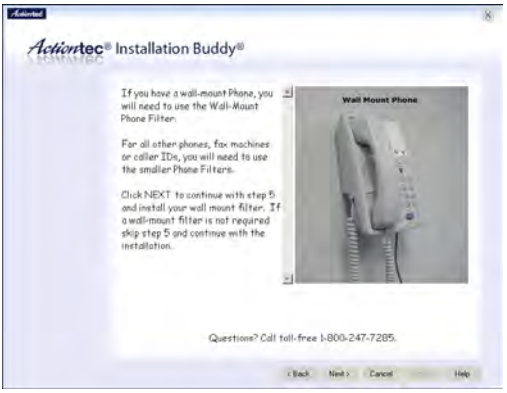
Caution: **Do not** unplug the black or green DSL cable from the phone jack near your computer.

4. Plug a phone filter into every phone jack with a telephone or other device connected to it, then plug the ends of the phone lines disconnected in step 3 into the phone filters plugged into wall jacks. Click **Next**.



Caution: **Do not** plug a phone filter in the phone jack in which the black or green DSL cable is plugged.

5. If using a wall-mount phone, read the onscreen instructions, then click **Next**. If not installing a wall-mount phone filter, go step 7.



6. Install a wall-mount phone filter by removing the wall-mount telephone and opening the top and bottom toggles. Then, push the wall-mount filter onto the wall jack, push the toggles back into the closed position, and remount the wall-mount telephone. Click **Next**.

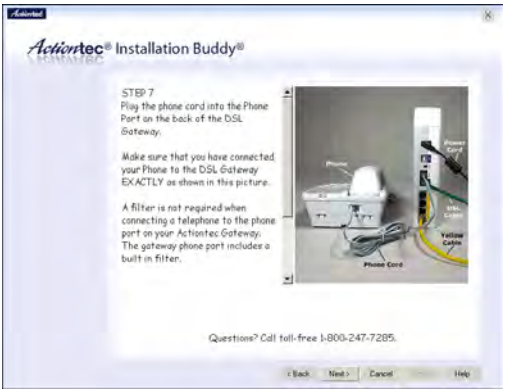
7. Answer the question ("Do you have a phone next to your computer?") by clicking on the appropriate check box, then click **Next**.

8. If you answered "No" in the previous window, go to "Setting up the DSL Connection" on page 31. If you answered "Yes," unplug the phone cord connected to the telephone from its phone jack in the wall, the click **Next**.

☞ ***Note***: You may have already unplugged this phone cord.

Caution: **Do not** unplug the black or green DSL cable from the phone jack near your computer.

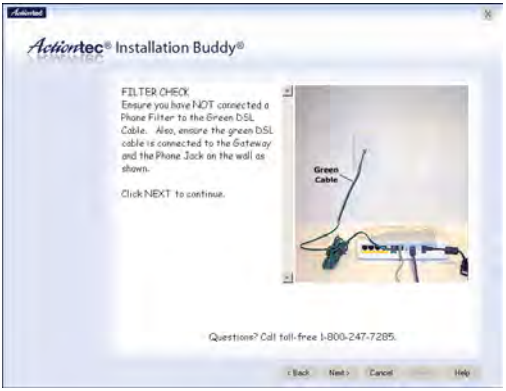
9. Plug the phone cord into the **Phone Jack** on the back of the Gateway. The connections should look like the configuration in the picture, below (if the first computer is connected via Ethernet; if the first computer is connected via USB, the purple cable will be plugged into the purple port). Click **Next.**



10. Read the onscreen information concerning automatic water meters, then click **Next**.

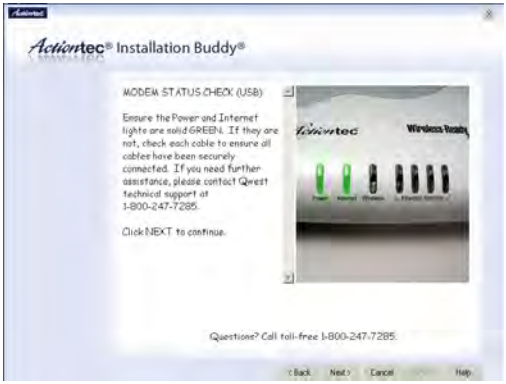
11. Make sure a phone filter is **NOT** connected to the green or black DSL cable, and that the green or black DSL cable is connected as shown onscreen.
Ethernet:

USB:



12. Make sure the appropriate **lights** on the front of the Gateway **glows solid green**. Click **Next**.
Ethernet:

USB:



Next, go to "Setting Up the DSL Connection," on the next page.

Setting Up the DSL Connection

After connecting the Gateway and installing phone filters, the DSL connection must be configured. To do this:

1. Read the onscreen instructions, choose the appropriate ISP option (indicated in the Welcome Letter), then click **Next**.
   If **MSN** is selected, go to step 2.
   If **Other IP** is selected, go to step 3.

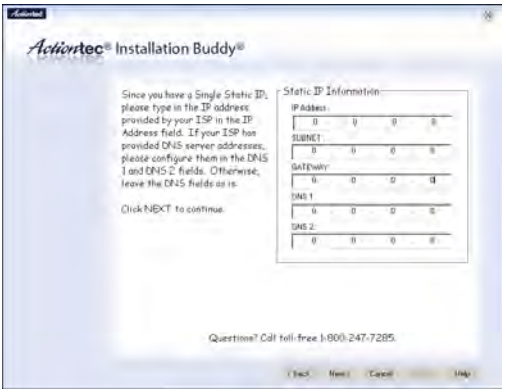
2. Enter the user name and password in the appropriate text boxes (or click the check box next to "My ISP does not require this information."), then click **Next**. Then, go to step 7.

3. If **Other IP** was selected in step 1, select the appropriate ISP protocol (**PPPoE**, **PPPoA**, or **RFC 1483**), as indicated in the Welcome Letter.
If **PPPoE** or **PPPoA** is selected, got to step 4.
If **RFC 1483** is selected, go to step 5.

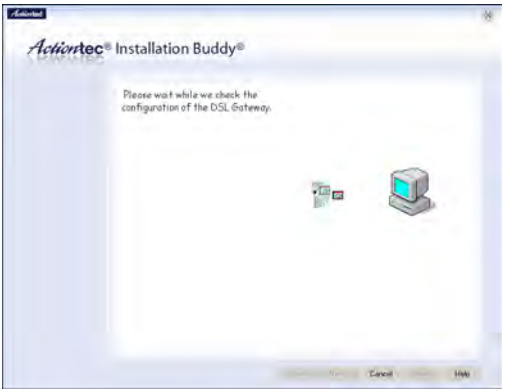
4. Enter the user name and password in the appropriate text boxes (or click the check box next to "My ISP does not require this information."), then click **Next**. Then, go to step 7.

5. If **RFC 1483** was selected in step 3,select the appropriate IP type. This information is available in the Welcome Letter. When finished, click **Next**.
If **Static IP** is selected, go to step 6.
If **Dynamic IP (DHCP)** is selected, got to step 7.

6. Enter the **IP Address**, **Subnet**, **Gateway**, **DNS 1**, and **DNS 2** information (if applicable) in the proper text boxes. This information is available in the Welcome Letter. When finished, click **Next**.



7. The Installation Buddy checks the configuration of the Gateway.



8. The "Congratulations" screen appears. Read the onscreen information, then click through the next few windows to exit the Installation Buddy.

The Gateway is successfully configured and ready for use.

Using Qwest DSL

3

Qwest DSL operates over home or business phone lines equipped with Qwest DSL service. For this reason, the Qwest DSL connection is not portable; it can't be accessed while away from the home or business. To connect while traveling, ask the ISP about a dial-up account. Most Qwest DSL ISPs provide a dial-up account for free, while others charge a minimal fee.

Qwest DSL is a highly reliable service, but it is possible to have a dial-up connection in the unlikely event that problems arise with the DSL service. Most Qwest DSL ISPs provide a dial-up account for free. If not, there are a number of free Internet providers whose products make great backup Internet access in the unlikely event they are ever needed.

Connecting to the Internet

Whether connecting via Point-to-Point Protocol (PPPoE, PPPoA) or Bridging Mode (RFC 1483), after connecting and configuring the Gateway, the Internet connection is always on. Therefore, to connect or reconnect to the Internet, simply turn on your computer, open the Web browser and go to the Web site of your choice. No further set up is needed.

Disconnecting from the Internet

Closing the Web browser does not disconnect you from the Internet. To fully disconnect, turn off your computer.

Basic Setup

4

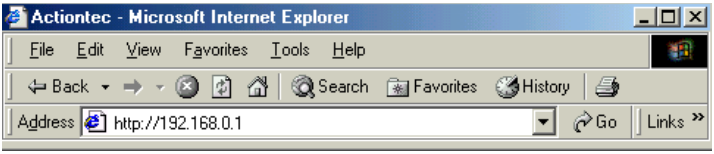
This chapter is a guide through a basic configuration of the Gateway, including how to connect the Gateway to the ISP.

To complete the basic setup, the user will need the Welcome Letter (ISP Worksheet). If the document is not available, contact the ISP immediately.

Basic Setup

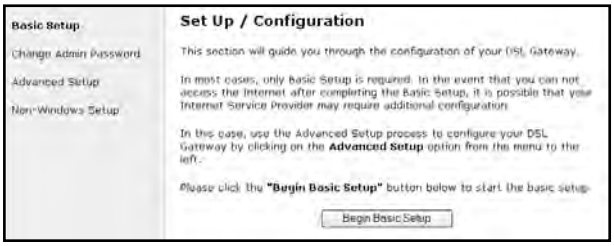
To configure the gateway for basic operation:

1. Open the Web browser. In the address bar, enter
   `http://192.168.0.1`
   then press **Enter** on the keyboard.

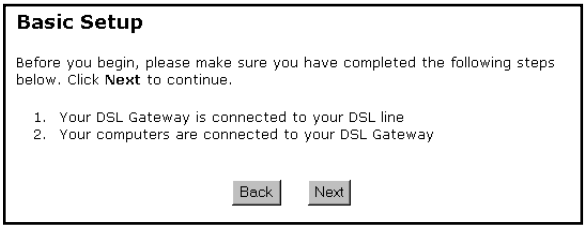


2. The "Main Menu" screen appears. Select **Setup/Configuration**.

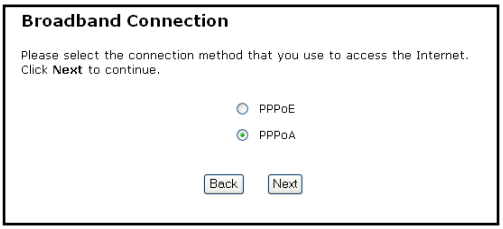
3. Follow the instructions in the "Set Up/Configuration" screen, then click **Begin Basic Setup**.



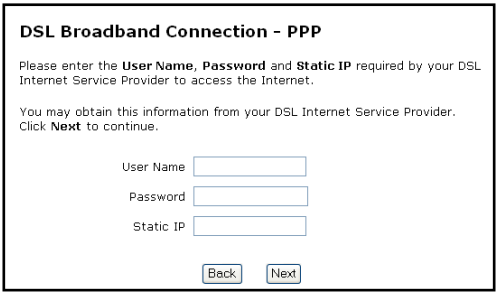
4. In the next window, follow the onscreen instructions, then click **Next**.



5. In the next window, select the type of connection by clicking on the circle next to **PPPoA** or **PPPoE**. If unsure about the selection, contact the ISP.

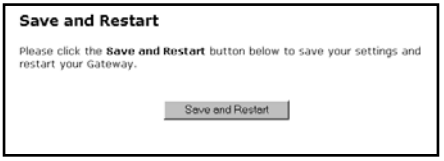


6. Enter the **User Name** and **Password** provided by the ISP in the "DSL Broadband Connection - PPP" screen. If the ISP provided a Static IP address, enter it in the **Static IP** text box. If not, leave it blank. Click **Next**.

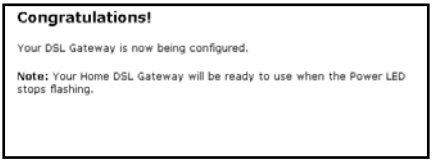


☞ *Note*: If you obtained a block of Static IP addresses, see Chapter 5, "Advanced Setup," on page 35 to configure the Gateway.

7. Click **Save and Restart** in the "Save and Restart" screen.



8. The "Congratulations" screen appears. The Gateway is successfully configured.



The Power Light flashes rapidly while the Gateway restarts, then glows steadily green when fully operational. The Internet Light will also glow steadily green. The Gateway is now configured and users can start surfing the Web.
If an error stating the Web browser was unable to connect to the Internet appears, check the configuration settings. Ensure all the information required by the ISP is entered correctly.

Static IP Address on the Gateway

5

This chapter details how to set up the Gateway with a static IP address. The first section explains the configuration using a single static IP address; the second section explains the configuration using a block of static IP addresses.

Configuring for a Single Static IP Address

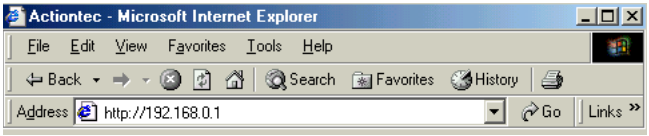
To set up the Gateway to use a single static IP address:

> ***Note***: To complete this procedure, you must have access to the Internet Service Provider (ISP) worksheet. If no worksheet has been provided, contact the ISP.

1. Open the Web browser. In the address bar enter:

`http://192.168.0.1`

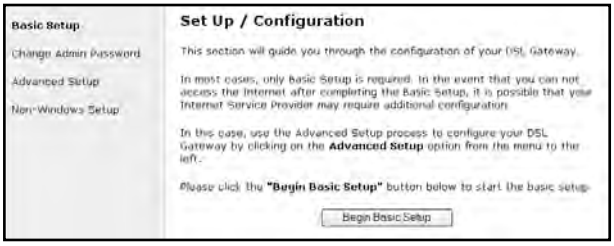
then press **Enter** on the keyboard.



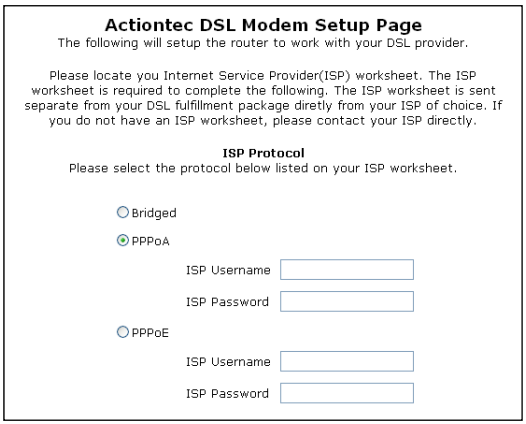
2. The "Main Menu" screen appears. Select **Setup/Configuration**.

Note: If the Main Menu screen does not appear, make sure the Ethernet cable is properly connected.

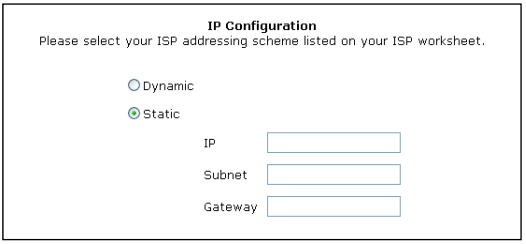
3. In the "Set Up/Configuration" screen, select **Non-Windows Setup** from the menu on the left side.



4. The "Actiontec DSL Modem Setup Page" screen appears. Using the Internet Service Provider (ISP) worksheet, enter the following information: ISP Protocol (select **Bridged**, **PPPoA**, or **PPPoE** by clicking in the appropriate circle), ISP Username, ISP Password (in the appropriate text boxes).

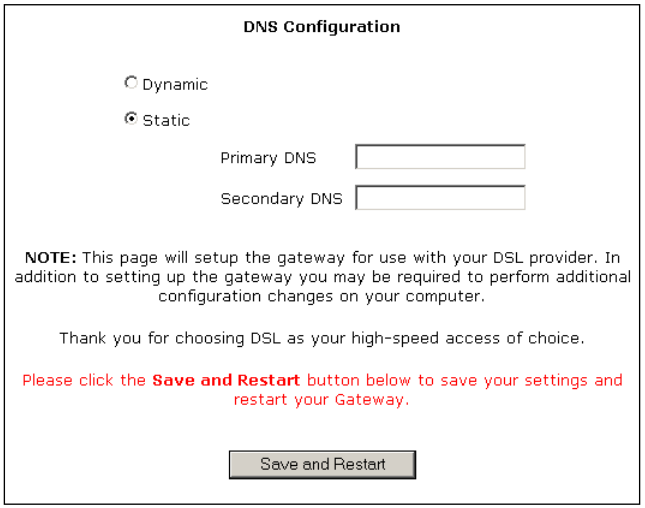


5. Scroll down to the IP Configuration section on the existing page, click on the circle next to "Static," and enter the IP address obtained from the ISP worksheet in the IP text box.



Note: The "Subnet" and "Gateway" text boxes are not used during this installation.

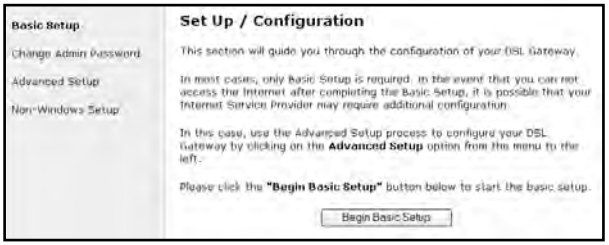
6. If provided with DNS settings on the ISP worksheet, click the circle next to "Static" and enter the DNS addresses in the "DNS Configuration" section at the bottom of the Actiontec DSL Modem Setup Page screen.
If no DNS settings were provided, go to step 7.



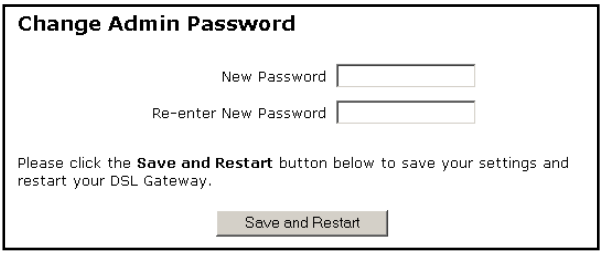
7. Click "Save and Restart" at the bottom of the screen.

8. The "Save and Restart" page appears. Click "Save and Restart" to save the settings changed in the Actiontec DSL Modem Setup Page screen.

9. Once the Gateway restarts, return to the Setup/Configuration screen and select **Change Admin Password** from the menu on the left side.



10. The "Change Admin Password" screen appears. Enter a new password in the "New Password" text box, and re-enter the password in the "Re-enter New Password" text box. Make sure to write this password down and keep it in a secure location. This password will be needed to access to the Gateway's Web setup screens.



11. Click "Save and Restart" at the bottom of the screen.

12. The "Save and Restart" page appears. Click "Save and Restart" to save the settings changed in the Change Admin Password screen.

The Gateway has been configured to support a single static IP address. Once the Power light stops blinking, the Gateway is ready for use.

Configuring for a Block of Static IP Addresses

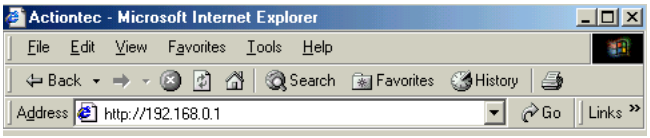
To set up the Gateway to use a block of static IP addresses:

Note: To complete this procedure, you must have access to the Internet Service Provider (ISP) worksheet. If no worksheet has been provided, contact the ISP.

1. Open the Web browser. In the address bar enter:

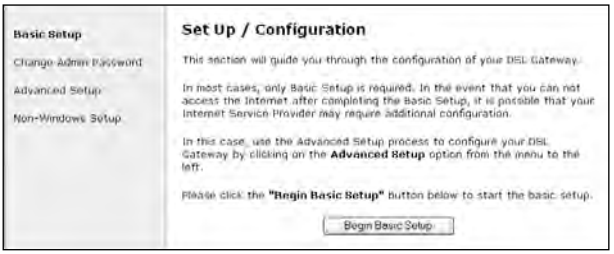
`http://192.168.0.1`

then press **Enter** on the keyboard.

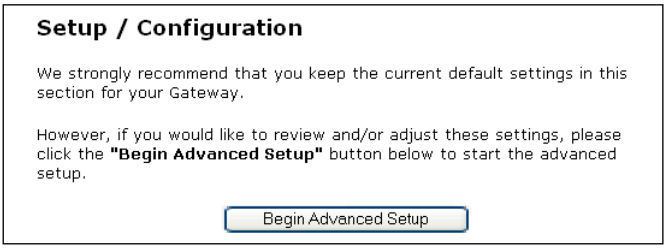


2. The "Main Menu" screen appears. Select **Setup/Configuration**.

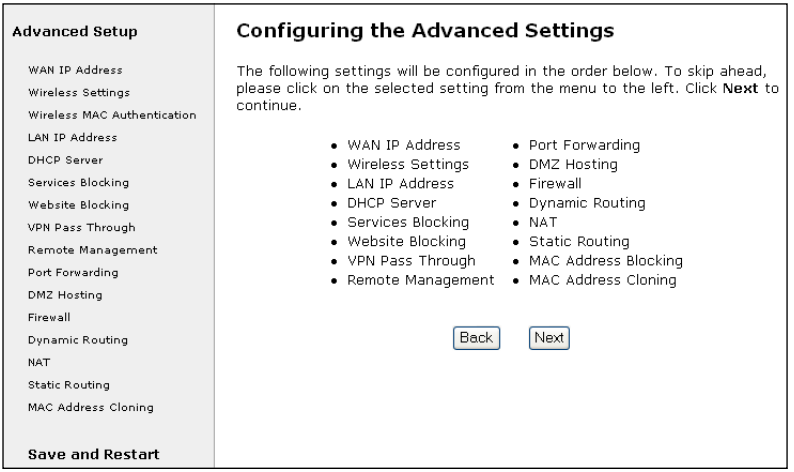
3. In the "Set Up/Configuration" screen, read the instructions, then select **Advanced Setup** from the menu on the left side.



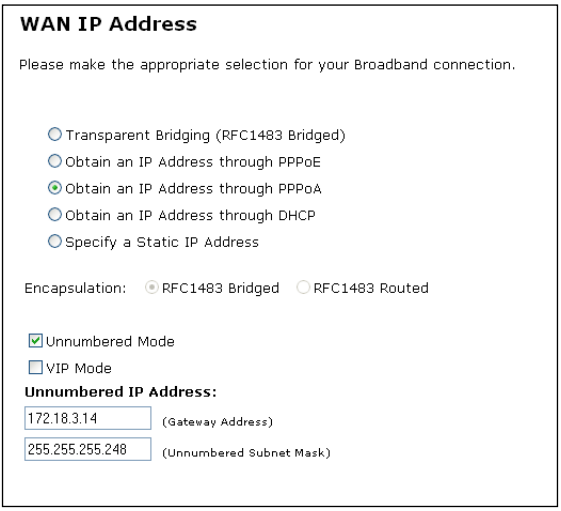
4. Click **Begin Advanced Setup**.



5. The "Configuring the Advanced Settings" screen appears. Select **WAN IP Address** from the menu on the left side.

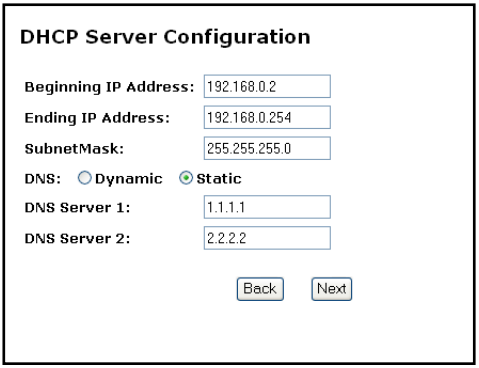


6. Select "Obtain an IP Address through PPPoA," select "Unnumbered Mode," then enter the gateway and subnet mask addresses assigned by the ISP in the "Gateway Address" and "Unnumbered Subnet Mask" text boxes, respectively. These addresses should be included on the ISP worksheet. Click **Next**.



7. In the "Broadband Connection via PPPoE/PPPoA" screen, enter the user name and password assigned by the ISP in the appropriate text boxes, then click **Next** four times.

8. In the "DHCP Server Configuration" screen, select "Static" from the "DNS" options near the center of the screen, then enter the DNS Server IP addresses assigned by the ISP in the appropriate text boxes.

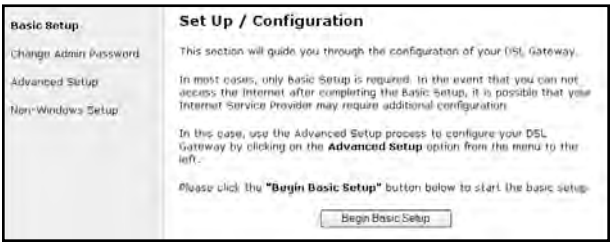


Note: If the ISP did not provide static DNS addresses, leave the DNS option at "Dynamic." Also, if the DHCP server option is turned off, this screen will not appear. The Gateway will obtain dynamically assigned DNS addresses if supported by the ISP with static IP addresses.

9. Click "Save and Restart" from the menu on the left side.

10. The "Save and Restart" page appears. Click "Save and Restart" to save the settings.

11. Once the Gateway restarts, return to the Setup/Configuration screen and select **Change Admin Password** from the menu on the left side.



12. The "Change Admin Password" screen appears. Enter a new password in the "New Password" text box, and re-enter the password in the "Re-enter New Password" text box. Make sure to write this password down and keep it in a secure location. The password will be needed to access to the Gateway's Web setup screens.

13. Click "Save and Restart" at the bottom of the screen.

14. The "Save and Restart" page appears. Click "Save and Restart" to save the settings changed in the Change Admin Password screen.

The Gateway has been configured to support a block of static IP addresses. Once the Power light stops blinking, the Gateway is ready for use.

Advanced Setup

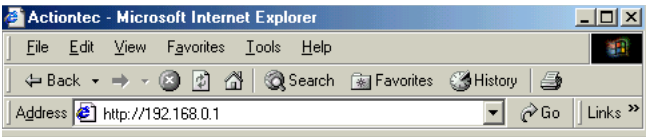
6

This section contains information concerning advanced configuration, such as wireless settings, remote management, and Web site blocking.

Accessing Advanced Setup

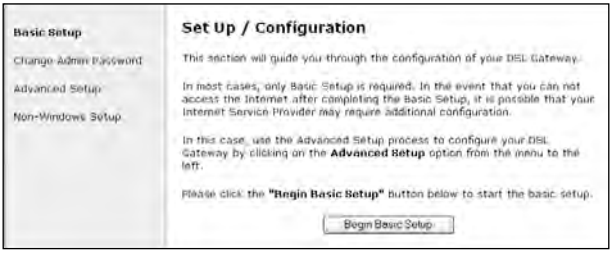
To access the Advanced Setup configuration screens, follow these instructions:

1. Open the Web browser. In the address bar enter:
   `http://192.168.0.1`
   then press **Enter** on the keyboard.

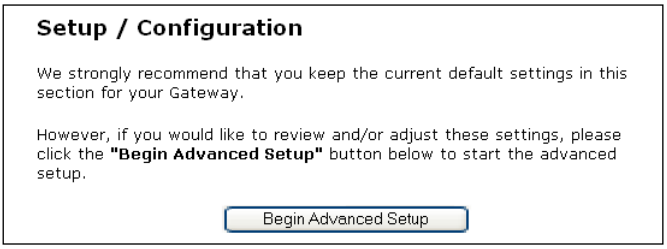


2. The "Main Menu" screen appears. Select **Setup/Configuration**.

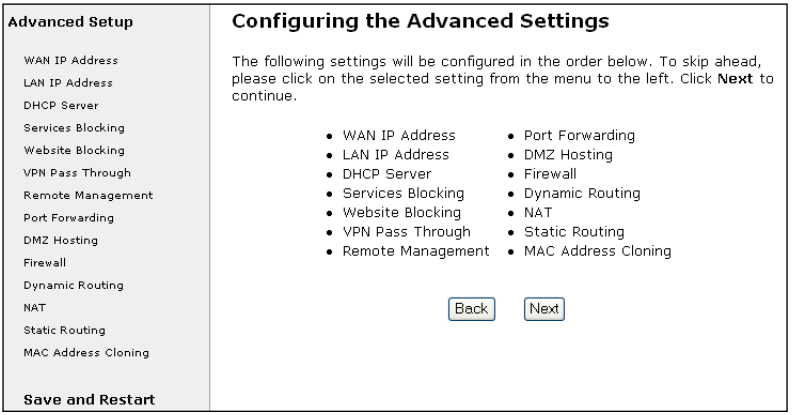
3. In the "Set Up/Configuration" screen, read the instructions, then select **Advanced Setup** from the menu on the left side.



4. In the next screen, read the recommendations. To perform an advanced setup on the Gateway, click **Begin Advanced Setup**.



5. The "Configuring the Advanced Settings" screen appears. To check all the settings, or if unsure of which settings to modify, select **Next**. To modify a specific configuration, click on its name in the menu bar on the left.



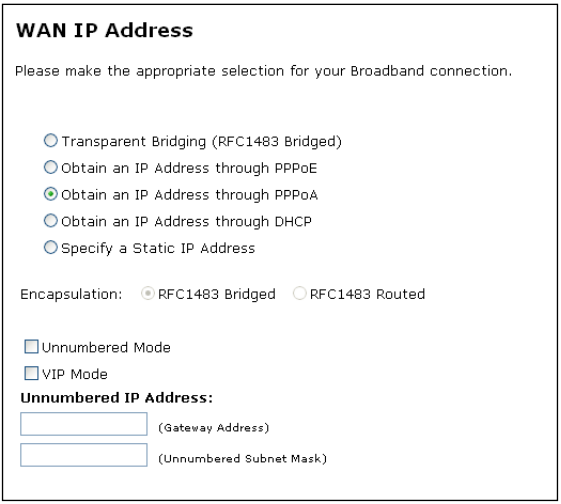
Note: To save changes made in any of the Advanced Setup screens, click **Save and Restart** at the bottom of the gray menu on the left side of the screen..

WAN IP Address

Selecting **WAN IP Address** in the "Advanced Configuration" screen generates the "WAN IP Address" screen. WAN IP Address allows manual set up of the IP address of the Gateway. There are five ways to do this: **Transparent Bridging, Obtain an IP Address through PPPoE**, **Obtain an IP Address Through PPPoA**, **Obtain an IP Address through DHCP**, and **Specify a Static IP Address**.

Note: Some DSL providers use PPPoE/PPPoA to establish communication with an end user. Other types of broadband Internet connections (such as fixed point wireless) may use either DHCP or Static IP address. If unsure about which connection is present, check with the Internet Service Provider (ISP) before continuing.

After selecting a connection type, click **Next** to continue configuring the connection.



Transparent Bridging

Select this option to use the Gateway as a transparent bridge. This option should only be used if the Gateway is being used as a Modem to connect one computer to the Internet via a DSL connection. When the Gateway is being used as a transparent bridge, it does not provide any firewall security.

Obtain an IP Address through PPPoE or PPPoA

Select one of these options to allow the Gateway to use the Point-to-Point over Ethernet (PPPoE) or Point-to-Point over ATM (PPPoA) protocol.

If a **User Name**, **Password** and/or **Static IP** was entered during Basic Setup, it should be displayed in the "Broadband Connection via PPPoE/PPPoA" screen. If not, enter the information now. If the information is unavailable, contact the Internet Service Provider (ISP).

PPP Auto Connect

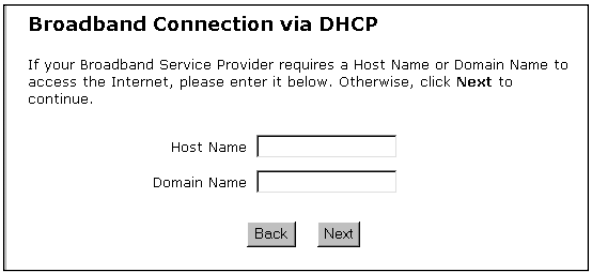
If **PPP auto connect** is activated (by clicking in the appropriate check box), the Gateway will attempt to automatically redial the PPP connection if it is dropped or disconnected during an online session.

Obtain an IP Through DHCP

Select this option if the IP service is configured to use RFC 1483 Bridged or Routed (used for configurations without a Static IP assigned by an ISP). In this mode, the Gateway will query the Internet Service Provider (ISP) to receive the IP address and routing information, which will terminate at the Gateway, as opposed to the IP address and routing information being bridged to terminate at the computer. This allows the use of the router capabilities for the Local Area Network (LAN).

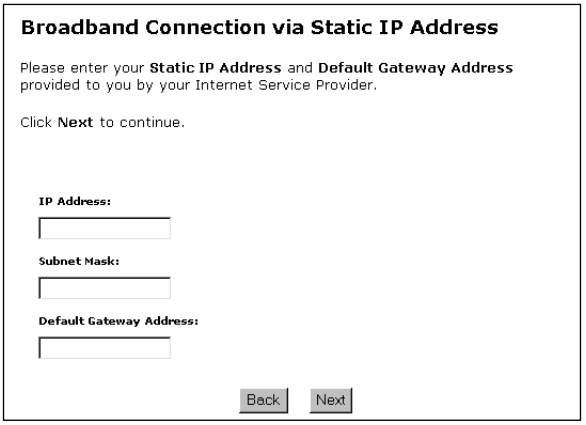
Some ISPs need to authenticate their end users with a **Host Name** and/or **Domain Name**. If this is the case, check with the ISP for a host name and domain name and enter them in the "Broadband Connection via DHCP" screen. If the ISP does not require these settings, leave the text boxes blank.

Note: Contact the ISP if unsure of the proper configuration.



Specify a Static IP Address

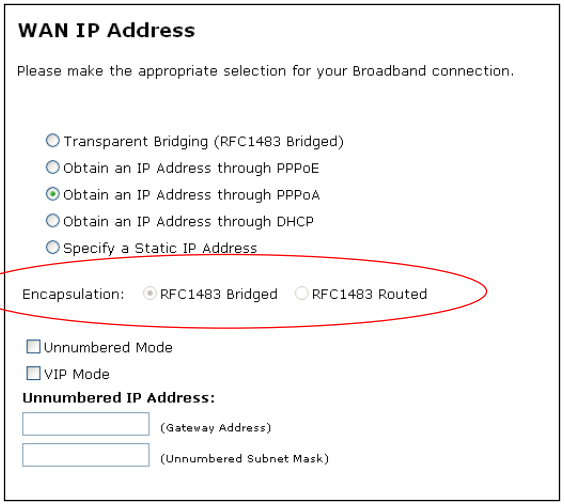
Select this option if the ISP service is configured to use RFC 1483 Bridged or Routed using a Static IP Address. Enter the **IP Address**, **Subnet Mask**, and **Default Gateway Address** provided by the ISP in the "Broadban Connection via Static IP Address" screen, which causes the IP address and routing information to terminate at the Gateway, as opposed to the IP address and routing information being bridged to terminate at the computer. This allows the use of the router capabilities for the Local Area Network (LAN).



Note: Contact the ISP if unsure of the proper configuration.

Encapsulation

If the Gateway is configured to obtain an IP address through DHCP or to specify a static IP address, select the appropriate encapsulation option used by the ISP (**RFC 1483 Bridged** or **RFC 1483 Routed**).



Note: Contact the ISP if unsure of the proper configuration.

Unnumbered Mode/VIP Mode

If a block of public static IP addresses was purchased from the ISP, select **Unnumbered Mode** by clicking in the appropriate check box. Then, enter the **IP Address** and **Subnet Mask** in the "Gateway Address" and "Unnumbered Subnet Mask" text boxes below the "Unnumbered IP Address." Click **Next**, then click **Save and Restart** to make all changes permanent.
The Unnumbered Mode feature automatically configures the appropriate IP routing for the IP Address block. The IP route will bypass NAT, enabling the public IPs to be routed WAN-to-LAN, as well as LAN-to-WAN.

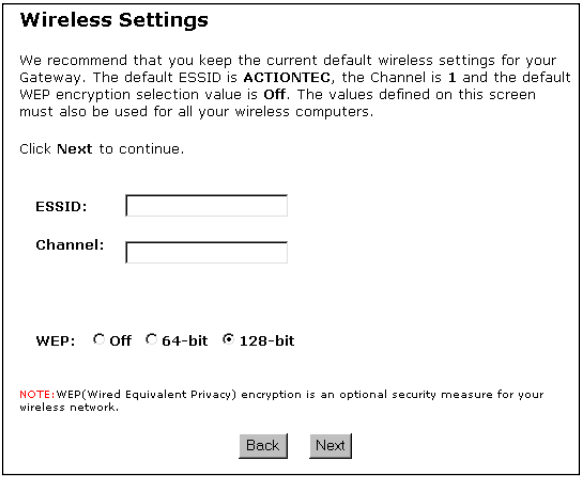
Note: The IP Address information should be obtained from the ISP when purchasing a block of public static IP address. Contact the ISP if this information was not received.

VIP Mode - This feature is used in conjunction with Unnumbered Mode. When VIP Mode is activated, the Gateway uses NAT for private IP Addressing for the Local Area Network (LAN), allowing both Public IP Addressing and Private IP Addressing to be configured to the LAN simultaneously, while the DHCP server is reserved for Private IP Addressing. All computers using Public IP Addresses with Unnumbered Mode must have the Public IP Addresses statically assigned.

After configuring your settings, click **Next**, then click **Save and Restart** to make all changes permanent.

Wireless Settings

Selecting **Wireless Settings** in the "Advanced Configuration" screen generates the "Wireless Settings" screen. Modify the wireless capabilities of the Gateway here.



ESSID

ESSID is the network name assigned to the wireless network. The factory default setting is "ACTIONTEC." Although *Action*tec recommends keeping the default value intact, the ESSID value can be modified, using any combination of alphanumeric characters (i.e., A-Z, a-z, 0-9). All wireless-capable computers included on the Gateway's wireless network must have this same ESSID value. (For the *Action*tec 802.11b Wireless PC Card, the ESSID value must be the same as the SSID value.)

Channel

Channel assigns the frequency band at which the Gateway communicates. In the United States, use channels 1-11. (The factory default value is set to 1.)

Wireless Equivalent Privacy

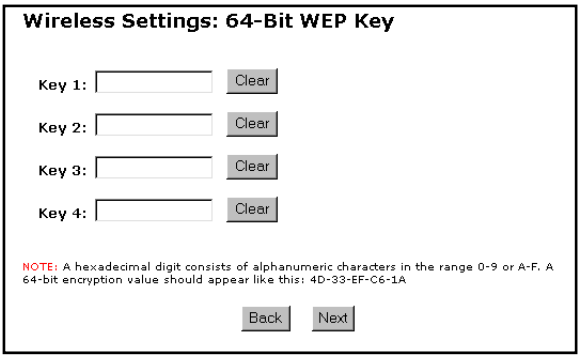
Wireless Equivalent Privacy (WEP) is an encryption method used with the 802.11b standard to ensure data security over wireless networks. The Gateway offers three levels of WEP: Off, 64-bit, and 128-bit. Qwest recommends setting up WEP to secure your wireless connection.

Off

Selecting **Off** disables encryption. Selecting this option allows any computer with wireless capability and the correct ESSID value to join the wireless network.

64-bit WEP

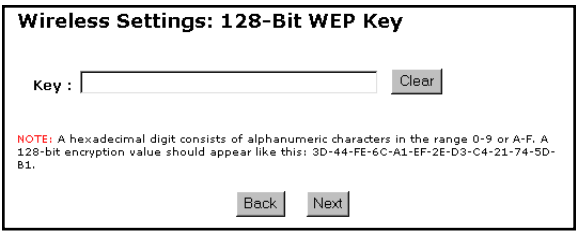
64-bit WEP requires four separate keys. Each key comprises five hexadecimal digit pairs. A hexadecimal digit consists of an alphanumeric character ranging from 0-9 or A-F. An example of a 64-bit WEP key is: 4E-A3-3D-68-72. To create a set of 64-bit WEP keys, enter five hexadecimal digit pairs in each **Key** text box (**Key 1-**, **Key 2-**, **Key 3-**, **Key 4-**). After activating 64-bit WEP on the Gateway, a computer with wireless capability can join the network only if these same keys are entered in the computer's wireless encryption scheme.



128-bit WEP

128-bit WEP requires one key of 13 hexadecimal pairs. A hexadecimal digit consists of alphanumeric characters ranging from 0-9 or A-F. An example of a 128-bit WEP key is: 3D-44-FE-6C-A1-EF-2E-D3-C4-21-74-5D-B1. To create a 128-bit WEP key, enter 13 hexadecimal digit pairs in the **Key** text box. After activating 128-bit WEP on the Gateway, a computer with wireless capability can join the network only if this key is entered in the computer's wireless encryption scheme.

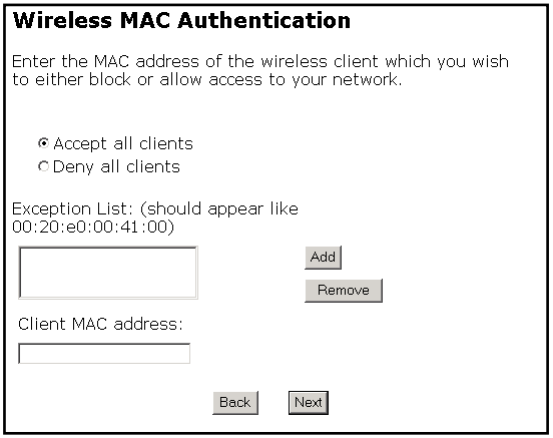
Note: Not all wireless PC Cards support 128-bit WEP. Ensure that all PC Cards installed in the networked computers support 128-bit WEP before activating.



Important: Wireless networking devices use public radio channels to transmit voice and data communications. Although WEP is the standard security technology used today and offers some degree of security, Qwest cannot guarantee the security, privacy, or confidentiality of any transmissions made via such devices, and Qwest makes no assurances or warranties relating to their use by you. You are responsible for all use of your Qwest DSL service, regardless of the source of a transmission, whether by you or an authorized third party, over your Qwest DSL service.

Wireless MAC Authentication

Selecting **Wireless MAC Authentication** in the "Advanced Configuration" screen generates the "Wireless MAC Authentication" screen.



This feature allows the user to control their Wireless LAN Network by denying or allowing wireless access by specifying the MAC Address of the wireless client(s) allowed or denied on the wireless network

After changing settings, click Next or Back to continue, or Save and Restart to make all changes permanent.

LAN IP Address

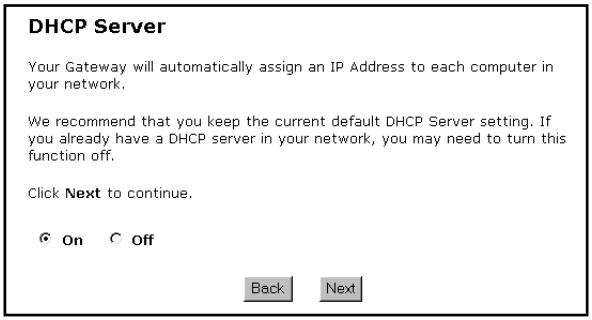
Selecting **LAN IP Address** in the "Advanced Configuration" screen generates the "LAN IP Address" screen.

The values in the "LAN IP Address" and "Netmask" text boxes are the IP address and Subnetmask of the Gateway as seen on the network. These values can be modified for your LAN network, but Actiontec recommends keeping the default factory settings (IP Address192.168.0.1 Subnetmask 255.255.255.0). ***Note***: If the Gateway's LAN IP Address is modified, verify the DHCP Server range is within the same subnet. For more information, see "DHCP Server Configuration."

After changing settings, click Next or Back to continue, or Save and Restart to make all changes permanent.

DHCP Server

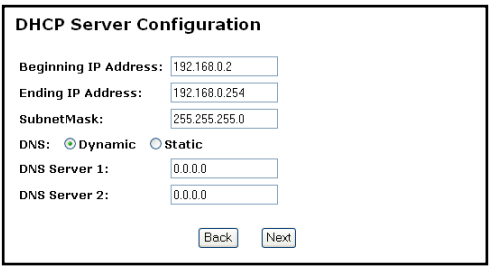
Selecting **DHCP Server** in the "Advanced Configuration" screen generates the "DHCP Server" screen. The Gateway has a built-in DHCP (Dynamic Host Configuration Protocol) server that automatically assigns a different IP address to each computer on the network, eliminating IP address conflicts.
The factory default setting is **On**. To disable the DHCP Server, select **Off**.



*Action*tec strongly recommends leaving the DHCP Server option **On**. If the DHCP Server option is **Off**, ensure the IP addresses of the networked computers are on the same subnet as the IP address of the Gateway. For more information, see "DHCP Server Configuration."

DHCP Server Configuration

Clicking **Next** in the "DHCP Server" screen generates the "DHCP Server Configuration" screen. Change IP address range and DNS server information here.



Beginning IP Address - the IP address at which the DHCP server starts assigning IP addresses. *Action*tec recommends keeping the factory default setting (192.168.0.2).

Ending IP Address - the IP Address at which the DHCP Server stops assigning IP addresses. *Action*tec recommends keeping the factory default settings (192.168.0.254).

The beginning and ending IP addresses define the IP address range of the Gateway. If the default values are left intact, the Gateway supplies a unique IP address between 192.168.0.2 and 192.168.0.254 to each computer on the network. Note that the first three groups of numbers of the addresses are identical; this means they are on the same subnet. The IP address of the Gateway must be on the same subnet as the IP address range it generates. For instance, if the Gateway's IP address is changed to 10.33.222.1, set the beginning IP address to 10.33.222.2, and the ending IP address to 10.33.222.254.

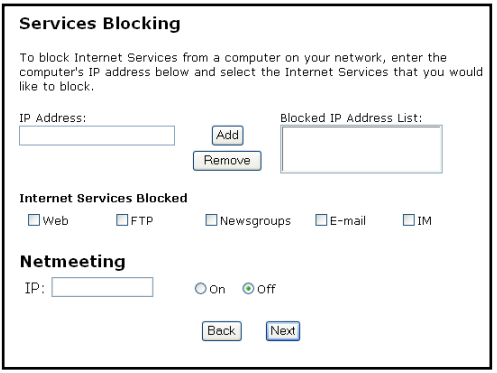
DNS (Dynamic or **Static)** - the type of DNS server provided by the Internet Service Provider (ISP). If the ISP provided DNS server information, select the type here. If not, leave as is.

DNS Server 1 - the primary DNS server provided by the Internet Service Provider (ISP). If the ISP provided DNS server information, enter it here. If not, leave the text box intact.

DNS Server 2 - the secondary DNS provided by the Internet Service Provider (ISP). If the ISP provided secondary DNS server information, enter it here. If not, leave the text box intact.

Services Blocking

Selecting **Services Blocking** in the "Advanced Configuration" screen generates the "Services Blocking" screen.



To modify Internet privileges (Web, FTP, Newsgroups, etc.) for the computers on the network:

1. Enter the computer's IP address in the **IP Address:** text box.
2. Select the Internet service(s) to be blocked.
3. Click **Add** to enter the computer's IP address in the "Blocked IP Address List" text box.
4. To remove blocked services, select the computer's IP address in the "Blocked IP Address List" text box and click **Remove**.

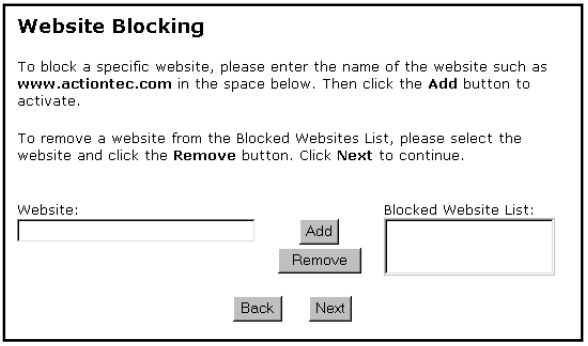
Netmeeting

If a computer on the network uses Netmeeting, enable Netmeeting, by clicking the circle next to "On" and entering the IP address of the computer. Click **Next**, then click **Save and Restart** to apply the settings. If Net meeting is not needed, click the circle next to "Off."

Note: Netmeeting is used for NAT/Private IP addressing only. If the computer is configured for Unnumbered Mode and has a Public IP Address, Netmeeting does not have to be enabled.

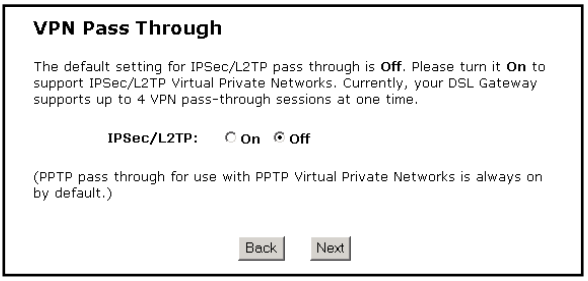
Website Blocking

Selecting **Website Blocking** in the "Advanced Configuration" screen generates the "Website Blocking" screen. This feature enables the Gateway to block Web sites to all computers on the network. To block a Web site, enter the address of the Web site in the "Website" text box and click **Add**. The blocked Web site address will be displayed in the "Blocked Website List" text box, and will not be available to computers on the network. To remove a blocked Web site, click on it in the "Blocked Website List," then click **Remove**.



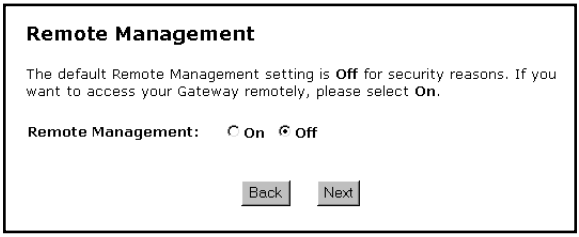
VPN Pass Through

Selecting **VPN Pass Through** in the "Advanced Configuration" screen generates the "VPN Pass Through" screen. To set up Virtual Private Networking (VPN) using IPSec/L2TP (which allows four client-initiated VPN pass-through sessions at one time), select **On**. Note that VPN via PPTP pass through is always active.



Remote Management

Selecting **Remote Management** in the "Advanced Configuration" screen generates the "Remote Management" screen. Remote Management allows access to the Gateway through the Internet via another computer. *Action*tec recommends leaving the Remote Management **Off** (the factory default setting).

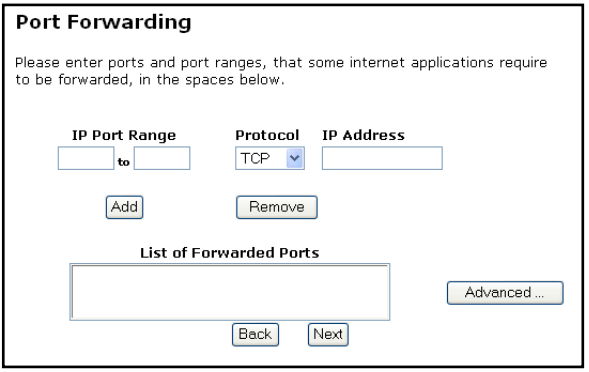


To access the Gateway from the Internet, activate Remote Management by selecting **On** and writing down the WAN IP address of the Gateway (see "WAN IP Address"). On a computer outside of the network, open a Web browser and enter the Gateway's WAN IP address in the address text box. The Gateway's Main Menu (or a password prompt, if a password has been set) appears in the browser window.

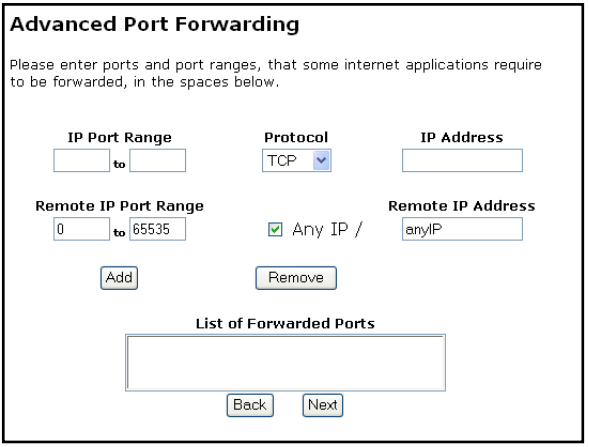
☞ ***Note***: Before Remote Management can be activated, the administrator password must be set. To do this, go to the Setup screen and select Change Admin Password. Follow the instructions in the subsequent screens

Port Forwarding

Selecting **Port Forwarding** in the "Advanced Configuration" screen generates the "Port Forwarding" screen. Port forwarding allows certain programs to bypass the Gateway's built-in firewall, allowing access to parts of the network (for hosting a Web or ftp server, for example). To use port forwarding, enter the IP port range in the "IP Port Range" text boxes. (If more than 10 ports are needed, *Action*tec recommends using DMZ Hosting. See "DMZ Hosting," below, for more information.) Choose the protocol type from the "Protocol" list box, then enter the IP address of the computer on the network to be used as a host. Click **Add**. The forwarded ports appear in the "List of Forwarded Ports" text box.
To remove forwarded ports, highlight them, then click **Remove**.



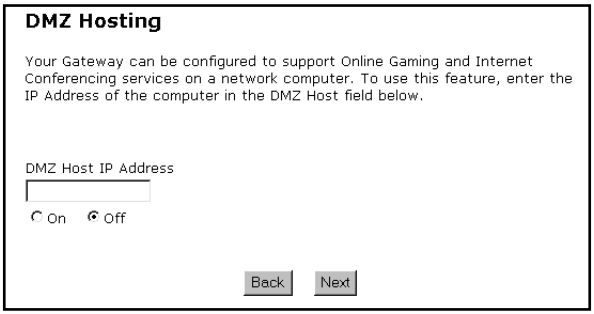
Clicking **Advanced** brings up the "Advanced Port Forward" screen.



In this screen, the user can allow only certain IP addresses to access forwarded ports. Enter the port range of the forwarded ports in the "Remote IP Port Range" text boxes, enter the IP address to be allowed access in the "Remote IP Address" text box, then click "Add." The active forwarded ports will appear in the "List of Forwarded Ports" text box.
To deactivate a forwarded port, select it from the "List of Forwarded Ports" text box, then click "Remove."

DMZ Hosting

Selecting **DMZ Hosting** in the "Advanced Configuration" screen generates the "DMZ Hosting" screen. To use DMZ hosting, enter the IP address of the computer on the network to be used as a DMZ host in the "DMZ Host IP Address" text box, then click **On**.

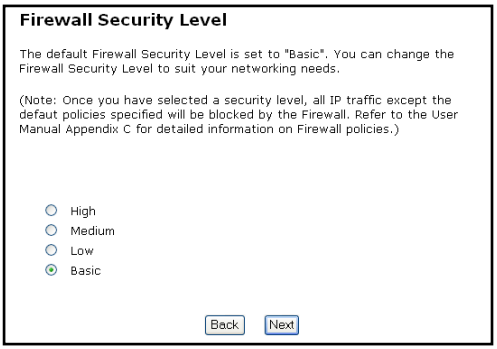


DMZ hosting is used to support online gaming and Internet conferencing services. These programs usually require multiple open ports, making the network accessible from the Internet. DMZ hosting symbolically places the DMZ host computer outside of the Gateway's network. Access to the network resources while DMZ hosting is active is blocked. *Action*tec recommends activating DMZ hosting only as long as necessary.

Warning: The DMZ Host computer will be vulnerable to computer hackers on the Internet while in DMZ mode.

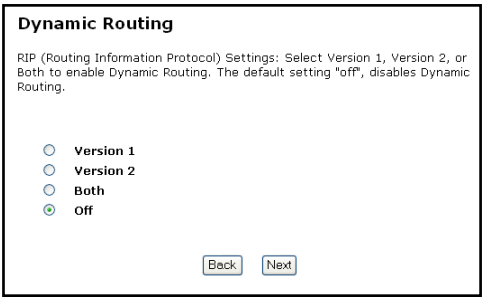
Firewall

Selecting **Firewall** in the "Advanced Configuration" screen generates the "Firewall Security Level" screen. Select the level of security needed for the network. See Appendix E for details concerning each level of security.



Dynamic Routing

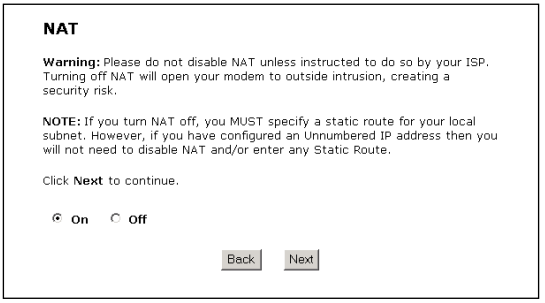
Selecting **Dynamic Routing** in the "Advanced Configuration" screen generates the "Dynamic Routing" screen.



If a router is set up behind the Gateway in the network configuration, consult the documentation that came with the router to see what kind of Dynamic Routing is required, then select the needed option.

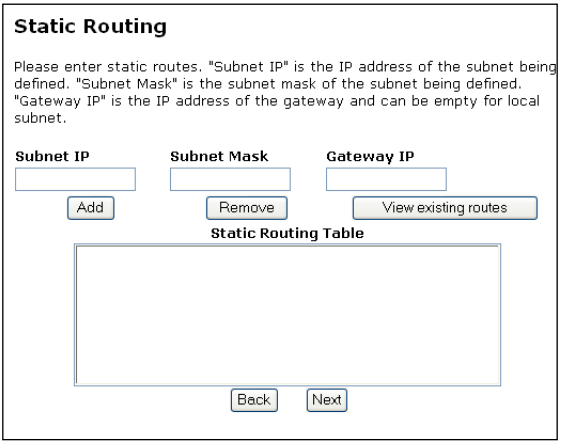
NAT (Network Address Translation)

Selecting **NAT** in the "Configuring the Advanced Settings" screen generates the "NAT" screen. The Gateway's basic firewall security is based on NAT. Disabling NAT allows the computers connected to the Gateway to be accessed by outside parties. Do not turn NAT off unless instructed to do so by the Internet Service Provider (ISP).



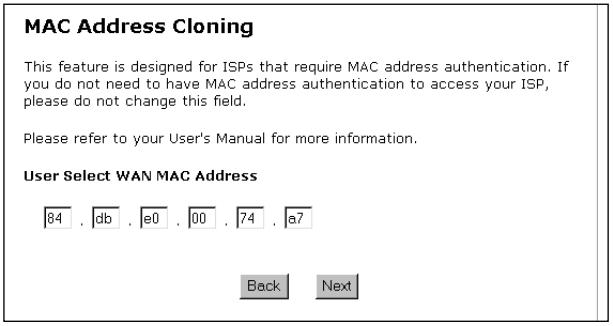
Static Routing

Selecting **Static Routing** in the "Advanced Settings" screen generates the "Static Routing" screen. Enter the addresses in their respective text boxes, then click **Add**. The address will appear in the "Static Routing Table." To remove an address, highlight it by clicking on it in the Static Routing Table, then click **Remove**.



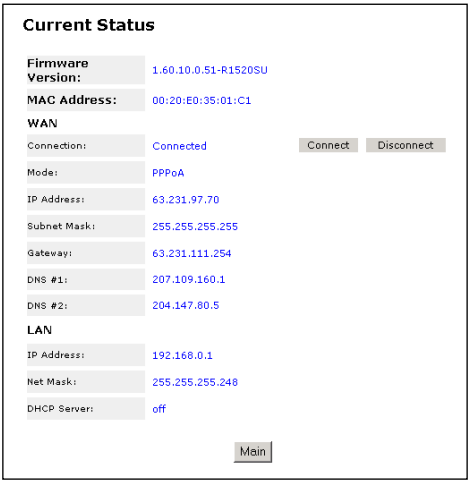
MAC Address Cloning

Selecting **MAC Address Cloning** in the "Advanced Configuration" screen generates the "MAC Address Cloning" screen. A MAC (media access control) address is an identifier unique to every networkable device. Some Internet Service Providers (ISP) require a MAC address to validate a computer's permission to be on their network. If the ISP requires this information, obtain the MAC address of the computer originally configured for the ISP (see Appendix D for instructions to determine the computer's MAC address). Enter the MAC address in the "User Select WAN MAC Address" text boxes in the "MAC Address Cloning" screen.



Status

After configuring the Gateway, settings can be viewed by selecting **Status** in the Main Menu. The "Current Status" screen appears, displaying many of the Gateway's settings. No settings (other than connecting or disconnecting from the Internet) can be changed from the Current Status screen.



Firmware Version

Displays the firmware version the Gateway is currently running.

MAC Address

Displays the MAC (Media Access Control) address of the Gateway.

WAN - Connection

Displays the state of the connection to the ISP service (Connected or Disconnected).

WAN - Mode

Displays the type of connection used to communicate with the ISP.

WAN - IP Address

Displays the IP Address the ISP assigned to the Gateway.

WAN - Subnet Mask

Displays the Subnet Mask address the ISP assigned to the Gateway.

WAN - Gateway

Displays the Gateway address (for the IP Address and Subnet Mask) the ISP assigned to the Gateway.

WAN - DNS #1 & #2

Displays the Domain Name Server address(es) the ISP assigned to the Gateway.

LAN - IP Address

Displays the Local Area Network's (LAN) IP address.

LAN - Net Mask

Displays the Subnet Mask address configured for the LAN IP address.

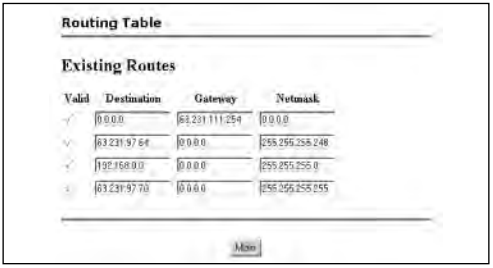
LAN - DHCP Server

Displays the state of the DHCP Server (On or Off).

In the left hand column, there are other Status options available: **Routing Table**, **WAN Status**, **LAN Status**, and **Active User List**. Click to generate the option of choice.

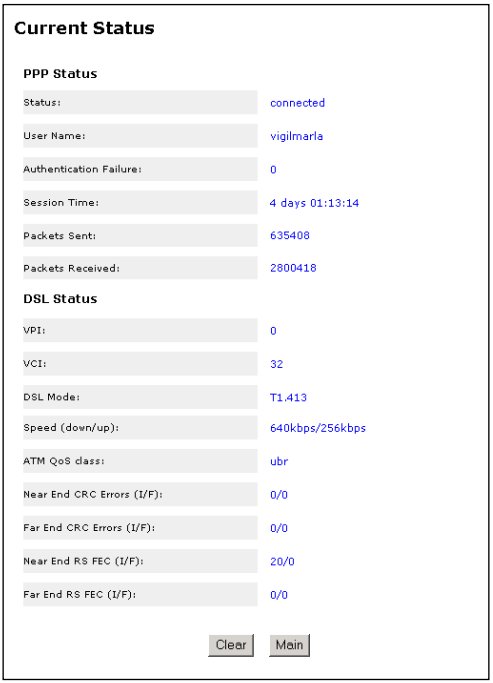
Routing Table

Selecting **Routing Table** generates the "Routing Table" screen. This screen displays on overview of the Gateway's routes.



WAN Status

Selecting **WAN Status** generates a "Current Status" screen. This screen displays on overview of the Gateway's WAN (Wide Area Network) connection.

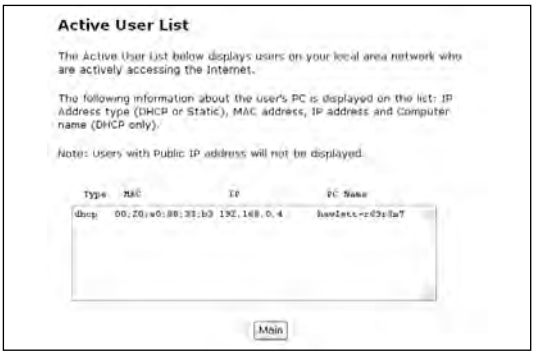


LAN Status

Selecting **LAN Status** generates the "Lan Port Status" screen. This screen displays on overview of the Gateway's LAN (Local Area Network) port connections.

Active User List

Selecting **Active User List** generates the "Active User List" screen. This screen displays a list of the users currently connected to the Gateway accessing the Internet with Network Address Translation (NAT) security activated.



Using Utilities

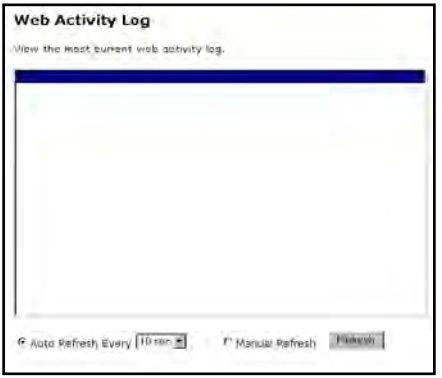
7

To access the Gateway's Web-based Utilities, select **Utilities** from the "Main Menu" screen. The "Utilities" screen appears.

From this screen, the Web activity log can be viewed, the DSL settings changed, the Gateway's factory default settings restored, and the Gateway's firmware upgraded.

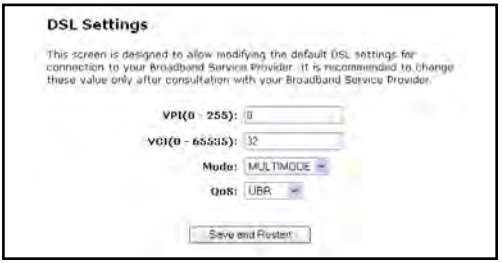
Web Activity Log

The Web Activity Log provides information about the Web sites each computer on the Gateway's network has visited. To access the Web Activity Log, select **Web Activity Log** from the "Utilities" screen.



DSL Settings

To access DSL Settings, select **DSL Settings** from the "Utilities" screen. The Gateway's VPI, VCI, Mode, and QoS (Quality of Service) settings can be changed from this screen. *Action*tec recommends not changing these values without consulting the ISP.



Restore Default Settings

To restore the Gateway to its factory default settings, select **Restore Default Settings** from the "Utilities" screen. When the "Restore Default Settings" screen appears, click **Restore Default Settings**. Any changes made to the Gateway's settings in the Custom Setup screens will be lost and the factory default settings will be restored. During this process, the Gateway's Power Light flashes and the Gateway is disabled.

Warning: Do not unplug the power cord from the Gateway during the Restore Default Settings process. Doing so may result in permanent damage to the Gateway.

When the Power Light stops flashing and glows steadily green, the Gateway is fully operational.

Upgrade Firmware

Selecting **Upgrade Firmware** in the "Utilities" screen generates the "Upgrade Firmware" screen. *Action*tec periodically posts firmware upgrades to enhance the Gateway's capabilities.

Windows Computer

If the Gateway is connected to a computer running Windows OS:

1. Click **Upgrade Here** in the Upgrade Firmware screen and download the upgrade files to the hard drive of the computer.
2. Double-click on the upgrade file (upgrade.exe).
3. Click **Start**. The upgrade process begins.

   Warning: Do not unplug the power cord from the Gateway during the Upgrade Firmware process. Doing so may result in permanent damage to the Gateway.

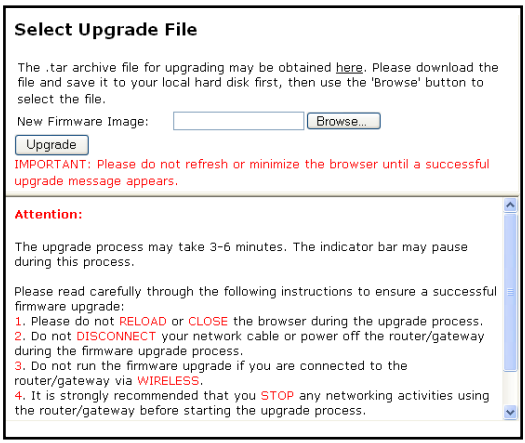
4. After the upgrade is complete, unplug the power cord from the Gateway, then plug it back in again.
5. When the Power Light stops flashing and glows steadily green, the Gateway is fully operational.
6. Reconfigure the Gateway settings.

Non-Windows Computer

If the Gateway is connected to a computer running an operating system other than Windows:

1. Click **here** (at the end of the phrase "…please click here") in the Upgrade Firmware window.

2. The "Select Upgrade File" screen appears. Click **here** (in the first paragraph of the Select Upgrade File screen) to go to the Web page containing the link to the upgrade file.



3. From the Web page, download the .tar archive file to the hard drive of the computer.

4. In the Select Upgrade File screen, click **Browse** to locate the downloaded file on the hard drive.

5. When the location of the downloaded file appears in "New Firmware Image" text box, click **Upgrade**.

6. Read and follow the onscreen instructions.

Warning: Do not unplug the power cord from the Gateway during the Upgrade Firmware process. Doing so may result in permanent damage to the Gateway.

7. After the upgrade is complete, unplug the power cord from the Gateway, then plug it back in again.

8. When the Power Light stops flashing and glows steadily green, the Gateway is fully operational.

9. Reconfigure the Modem settings.

Building a Network

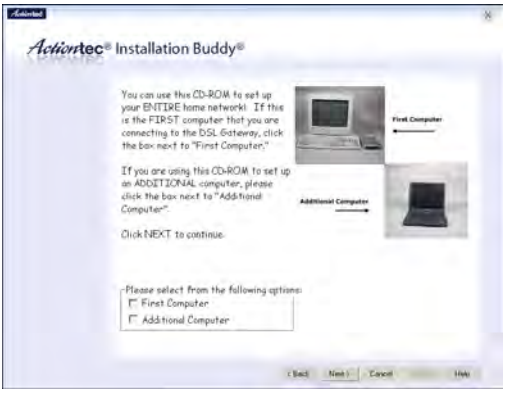
8

Other computers can be connected to the Gateway to form a network. The network computers can be connected to the Gateway in three ways: Ethernet, USB, or wirelessly.

Ethernet

1. Insert the Installation CD in the CD-ROM drive of the computer. The Installaton Buddy will start automatically. Wait until the following screen appears, read the onscreen instructions, then click **Next**.

2. Read the instructions, select **Additional Computer** by clicking on the appropriate check box, then click **Next**.



3. Select **Wired**, then click **Next**.

4. Select **Ethernet**, then click **Next**.

5. When the next window appears, select the ISP service provided, then click **Next**.

6. When the next window appears, get the **Yellow Ethernet Cable** from the Quick Start Kit, then click **Next**.

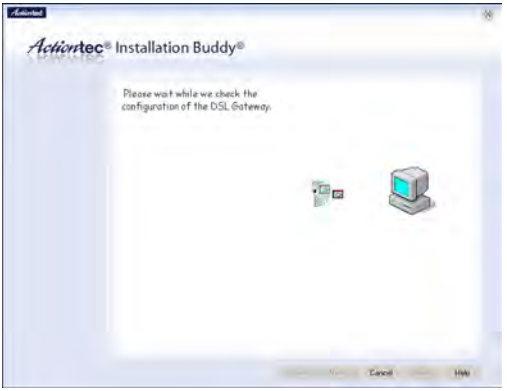
7. Plug one end of the **Yellow Ethernet Cable** into one of the **Yellow Ports** on the back of the Gateway, then click **Next**.

8. Plug the other end of the **Yellow Ethernet Cable** into an **Ethernet port** on the back of the computer, then click **Next**.

☞ ***Note***: An Ethernet port looks similar to a phone port, but is slightly bigger.

9. Make sure one of the **Ethernet Network Lights** glow steadily green, then click **Next**.

10. In the next window, the Installation Buddy checks the configuration of the Gateway.

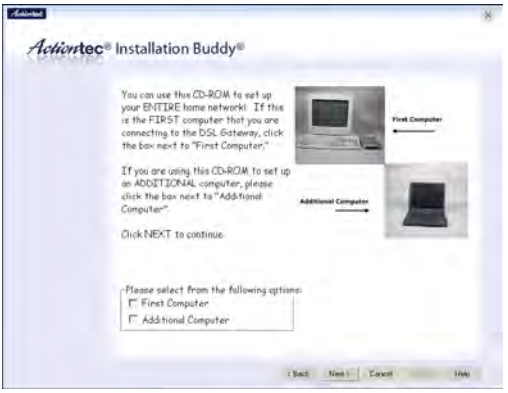


11. A congratulations window appears. The computer is connected to the network via Ethernet.

USB

1. Insert the Installation CD in the CD-ROM drive of the computer. The Installaton Buddy will start automatically. Wait until the following screen appears, read the onscreen instructions, then click **Next**.

2. Read the instructions, select **Additional Computer** by clicking on the appropriate check box, then click **Next**.



3. Select **Wired**, then click **Next**.

4. Select **USB**, then click **Next**.

5. When the next window appears, select the ISP service provided, then click **Next**.

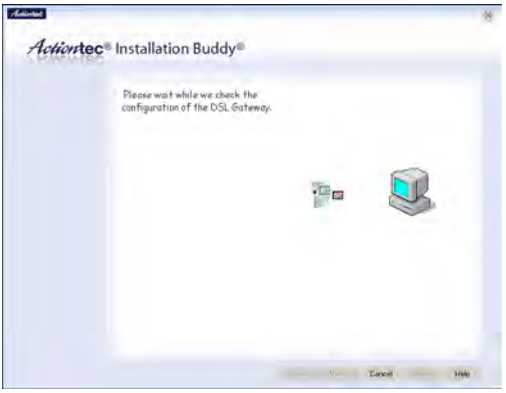
6. When the next window appears, get the **purple USB Cable** from the Quick Start Kit, then click **Next**.

7. Plug the square end of the **purple USB Cable** into the **Purple Port** on the back of the Gateway, then click **Next**.

8. Plug the other end of the **purple USB Cable** into an **USB port** on the front or back of the computer, then click **Next**.

9. Make sure the **Power** and **Internet Lights** glow steadily green, then click **Next**.

10. In the next window, the Installation Buddy checks the configuration of the Gateway.



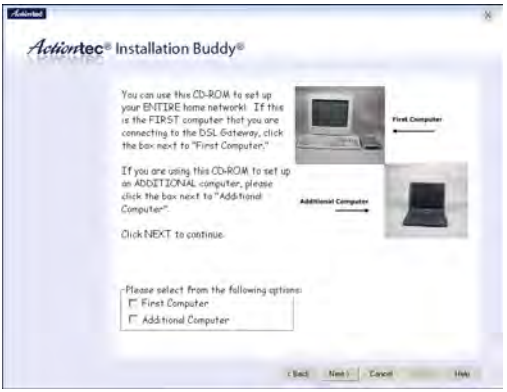
11. A congratulations window appears. The computer is connected to the network via USB.

Wireless

Note: Computers to be added to the network wirelessly must have wireless capabilities (PCI wireless adapter, USB wireless adapter, etc.).

1. Insert the Installation CD in the CD-ROM drive of the computer. The Installaton Buddy will start automatically. Wait until the following screen appears, read the onscreen instructions, then click **Next**.

2. Read the instructions, select **Additional Computer** by clicking on the appropriate check box, then click **Next**.



3. Select **Wireless**, then click **Next**.

4. Read the onscreen Rental Agreement, then click **Next**.

5. The next window appears. Follow the instructions and insert the Connection 1-2-3 CD into the computer's CD-ROM drive to set up the wireless connection.

When the procedure on the Connection 1-2-3 CD is complete, the computer will be connected to the network wirelessly.

Troubleshooting 9

This chapter contains a list of problems that may be encountered while using the Gateway, and techniques to try and overcome the problem. Note that these techniques may not solve the problem. If you need additional help, contact the ISP or Qwest DSL Technical Support at 1-800-247-7285.

LAN Connection Failure

- Ensure the Gateway is properly installed, the LAN connections are correct, and the power is on.
- Confirm the computer and Gateway are on the same network segment. If unsure, let the computer get the IP address automatically by initiating the DHCP function (see "DHCP Server"), then verify the computer is using an IP address within the default range (192.168.1.2 through 198.168.1.254). If the computer is not using an IP address within the range, it will not connect to the Gateway.
- Ensure the Subnet Mask address is set to 255.255.255.0 by clicking **Status** in the "Main Menu" screen.

Cannot Connect to the Internet

- Ensure both ends of the power cord and all network cables are properly connected.
- Ensure the Subnet Mask address is set to 255.255.255.0 by clicking **Status** in the "Main Menu" screen.
- Verify the Gateway's settings are the same as the computer by clicking **Status** in the "Main Menu" screen.
- If running Windows 98 SE or Me, check the computer's TCP/IP settings. Select **Start**, **Run**, enter

  `winipcfg`

  in the"Open" text box, then press **OK**. The "IP Configuration" window appears. Ensure the text box at the top of the window contains the name of the Ethernet adapter installed in the computer. If not, click on the down arrow next to the text box. When the list appears, click on the proper Ethernet adapter.
  In the fields below, the Ethernet adapter's various addresses appear. There should be an entry for IP address, Subnet Mask, and Default Gateway.

Additionally, the "IP Address" entry should be on the 192.168.0.X network (with "x" defining a range from 2 though 255).
If the Ethernet adapter is showing an incorrect IP address, click **Release**, which sets all values back to 0 (zero). Then, click **Renew** (this process may take a few seconds). The renewed IP address should be on the 192.168.0.X network.
If an error occurs, or the IP address renews with an address outside the 192.168.0.X network, contact the ISP immediately

- If running Windows 98 SE or Me, check the computer's TCP/IP settings. Select **Start**, **Run**, enter

  CMD

  in the"Open" text box, then press **OK**. A "DOS" window appears, with a blinking cursor (prompt). Enter

  ipconfig

  at the prompt, then press **Enter** on the keyboard.
  The IP address of the Ethernet adapter should appear in the DOS window. Ensure the IP address in the 192.168.0.X network (with "x" defining a range from 2 though 255).
  If the Ethernet adapter is showing an incorrect IP address, enter

  ipconfig/release

  at the prompt, then press **Enter** on the keyboard, which sets all values back to 0 (zero). Next, enter

  ipconfig/renew

  at the prompt, then press **Enter** on the keyboard (this process may take a few seconds). The renewed IP address should be on the 192.168.0.X network.
  If an error occurs, or the IP address renews with an address outside the 192.168.0.X network, contact the ISP immediately

- Ensure the browser is not set to "Never dial a connection" and there are no previous LAN settings.
  To check this, go to **Start**, **Settings**, **Control Panel**. In the Control Panel, double-click **Internet Options**. When the "Internet Properties" window appears, ensure that the "Never dial a connection" option is not activated, then click **LAN Settings**. When the "Local Area Network (LAN) Settings" window appears, ensure that no settings are activated. If there are settings activated, deactivate them.

- Shutdown and restart the computer. After the computer restarts, unplug the power cord from the Gateway and plug it back in. When the lights glow solid green, try accessing the Internet.

Time out error occurs when entering a URL or IP Address

- Verify all the computers are working properly.
- Ensure the IP settings are correct.
- Ensure the Gateway is on and connected properly.
- Verify the Gateway's settings are the same as the computer by clicking **Status** in the "Main Menu" screen.
- Check the cable/DSL modem by attempting to connect to the Internet.

Reference

A

This appendix contains information about various topics, including accessing information about your Windows computer and wiring under special circumstances.

Locating Computer Information

The following procedure is valid for Windows 98 SE, Me, NT 4.0, 2000 and XP.

1. From the desktop, right-click on **My Computer**.
2. Select **Properties** from the menu that appears.
3. When the "System Properties" window appears, select **General**.
   The version of the operating system, processor type, and amount of RAM installed in the computer are listed here.
4. Close the System Properties window.
5. From the desktop, double-click on **My Computer**.
6. Right-click the icon representing your hard disk. For example: Local Disk (C:).
   Some computers have multiple hard disks.
7. From the menu that appears, select **Properties**.
8. When the window appears, select **General**.
9. The Free space value is the available space on the hard disk.
10. Close all windows.

Locating Windows Operating System Files

If the operating system files reside on the hard drive of the computer, follow the instructions below to locate them. If the files are not on the hard drive, they must be loaded from the installation disks.

Windows 98 SE

1. From the desktop, click **Start**.
2. When the menu appears, select **Find,** then **Files or Folders**.
3. When the "Find: All Files" window appears, select **Name & Location**.
4. In the "Named" text box, enter:
   `*.cab`
5. Click the **down arrow** next to the "Look In" text box and select **My Computer** from the list that appears.
6. Click **Find Now**.
7. When the search is complete, note the directory path that appears most often in the "In Folder" column. For example: C:\WINDOWS \SYSTEM.
8. The Windows operating system files are located in this directory. Write down the directory path for future reference.
9. Close the Find: All Files window.

Windows Me, 2000

1. From the desktop, click **Start**.
2. Select **Search**, then **For Files and Folders**.

3a. ***Windows Me***: The "Search Results" window appears. In the "Search for files or folders named" text box, enter:
`*.cab`

3b. ***Windows 2000***: The "Search Results" window appears. In the "Search for files or folders named" text box, enter:
`i386`

4. Click the **down arrow** next to the "Look in" text box and select **My Computer** from the list that appears.

5. Click **Search Now**.

6a. ***Windows Me***: When the search is complete, note the directory path that appears most often in the "In Folder" column. For example: C:\WINDOWS \OPTIONS\INSTALL.

6b. ***Windows 2000***: When the search is complete, note the directory path that appears most often in the "In Folder" column. For example: C:\WINNT \Driver Cache.

7. The Windows operating system files are located in this directory. Write down the directory path for future reference.

8. Close the Search Results window.

Windows NT 4.0

1. From the desktop, click **Start**.

2. When the menu appears, select **Find,** then **Files or Folders**.

3. When the "Find: All Files" window appears, select **Name & Location**.

4. In the "Named" text box, enter:

`i386`

5. Click the **down arrow** next to the "Look In" text box and select **My Computer** from the list that appears.

6. Click **Find Now**.

7. When the search is complete, note the directory path that appears most often in the "In Folder" column. For example: C:\.

8. The Windows operating system files are located in this directory. Write down the directory path (followed by "i386") for future reference.

9. Close the Find: All Files window.

Windows Me, 2000

1. From the desktop, click **Start**.
2. Select **Search**, then **For Files and Folders**.
3. The "Search Results" window appears. In the panel at left titled "What do you want to search for?", click **All files and folders**.
4. Another panel, titled "Search by any or all of the criteria below" appears. In the "Look in" text box, click the **down arrow** and select **My Computer** from the menu that appears.
5. In the "All or part of the file name" text box, enter:
   i386
6. Click **Search**.
7. When the search is complete, note the directory path that appears most often in the "In Folder" column. For example: C:\WINDOWS \Driver Cache\.
8. The Windows operating system files are located in this directory. Write down the directory path (followed by "\i386") for future reference.
9. Close the Search Results window.

Wiring Information

This section contains information about how to connect the Gateway to a two-line phone, a security alarm system, an automatic water meter, and a PBX or key phone system sharing a line with Qwest DSL.

Two-Line Phone

If Qwest DSL is connected in a location with two phone lines using two separate phone numbers, the DSL phone filters must be installed on the correct phone line.

In most two-line phone setups, the red and green lines connect Line 1, while the yellow and black lines connect Line 2. If a phone filter is installed between a two-line phone jack and a telephone with two-line capability, only Line 1 will be filtered and operational (because the phone filter connects the red and green wires only), while Line 2 will be completely disconnected.

The solution is twofold: 1) the phone filter must be installed to filter the line with Qwest DSL; and 2) the second line must be wired to bypass the phone filter. The

easiest way to do this is to purchase a pair of two-line modular adapters, a line-cord coupler, and some short lengths of phone cable, available at any telephone supply retailer.

> ***Note***: Do not purchase a 1-line modular adapter or line splitter. Installing either of these items results in two phone jacks on Line 1, and no access to Line 2.

1. Disconnect the telephone from the two-line phone jack.
2. Install one of the two-line modular adapters (modular adapter #1) in the phone jack
3. If Qwest DSL is on Line 1, install the phone filter in the Line 1 jack of modular adapter #1.
4. Install a short length of phone cable between the phone filter and the Line 1 jack of the other two-line modular adapter (modular adapter #2).
5. Install a short length of phone cable between the Line 2 jacks of modular adapters #1 and #2.
6. Connect the line-cord coupler to 2-line modular adapter #2.
7. Install a short length of phone cable between the line-cord coupler and the telephone.

If Qwest DSL is on Line 2, use the same procedure, but install the phone filter on Line 2.

Security Alarm System

If your home or business has an alarm system and Qwest DSL shares the same phone line, you have special wiring needs. If you did not order a technician install at the time of sale, please contact Qwest Sales as soon as possible to order and schedule your installation.
If you security alarm is wired incorrectly, it may not be able to make a notification call when the alarm is triggered. Professional wiring is required to insure interoperability. **Do not attempt the installtion yourself.** Qwest strongly recommends that you contact your security organization for more information about your security alarm system before you attempt to install Qwest DSL. Qwest also strongly recommends that you contact your security organization after installing Qwest DSL to have them conduct a test of your alarm system.

Automatic Water Meter

If your home or office has an automatic water meter that uses the same phone line as the Qwest DSL Gateway, you must put a DSL Phone Filter on the water meter. Call your water company for help when installing the DSL Phone Filter on your water meter.

PBX or Key System

To share Qwest DSL with telephone line in an office PBX or key system:

1. In the building's phone closet, splice (into two lines) the telephone line on which Qwest DSL is installed.
2. On one of the spliced lines, connect the Gateway. The Gateway should be connected as close as possible to the telephone network to assure a strong signal.
3. Connect the Gateway to a computer or LAN hub via Ethernet cable.
4. On the other spliced line, install the DSL phone filter, then wire normally through the PBX or key system unit to the telephone.

Static IP Address on the Computer

B

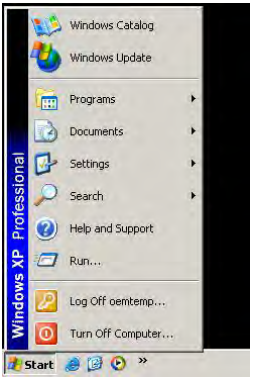
To communicate with the Gateway from a computer on the network (to use the Web Configuration Utility, for example), the user may have to switch the IP address settings from DHCP-enabled to static IP, so that the computer and the Gateway are on the same subnet.

To set up static IP on a computer, select the operating system and follow the instructions.

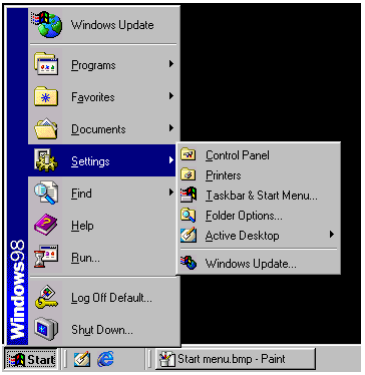
Note: The following procedures are based on the Gateway's factory default IP address. If the Gateway's IP address has been changed, enter the new IP address when instructed to enter an IP address.

Windows 98 SE

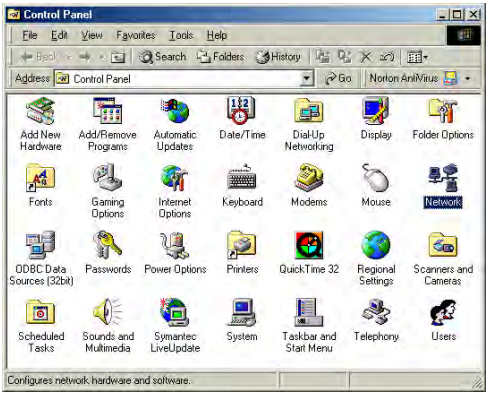
1. From the desktop, click on the **Start** button in the lower left corner.
2. From the menu that appears, select **Settings**.



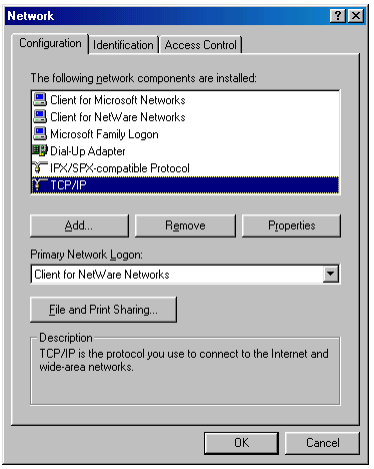
3. Another menu appears. Select **Control Panel**.



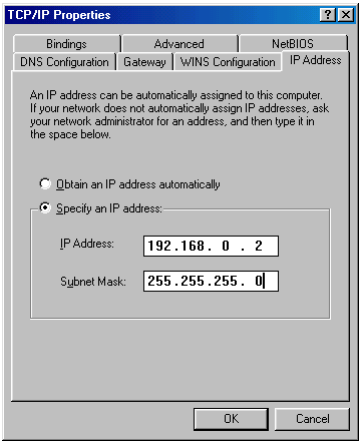
4. When the "Control Panel" window appears, double-click **Network**.



5. The "Network" window appears. In the "The following network components are installed" list box, locate and double-click **TCP/IP**.



6. The "TCP/IP Properties" window appears. Select **IP Address**.



7. In the IP Address tab, make sure the the circle next to "Specify an IP Address" is selected. When active, a black dot appears in the circle. If the circle already contains a black dot, leave it alone.

8. Enter the following numbers in the "IP Address" text box:

`192.168.0.2`

Do not include the periods; they are automatically entered.

9. Enter the following numbers in the "Subnet mask" text box:

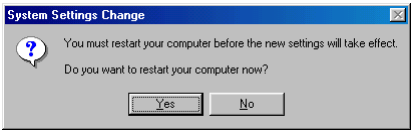
255.255.255.0

Do not include the periods; they are automatically entered.

10. Click **OK**. The TCP/IP Properties window disappears.

11. In the Network window, click **OK**. The Network window disappears.

12. The "System Settings Change" window appears, asking whether the computer should be restarted. Click **Yes**.

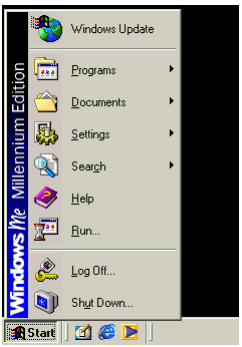


The computer restarts. It is now set up with a static IP address, allowing the user to access the Modem's Advanced Setup utility.

Windows Me

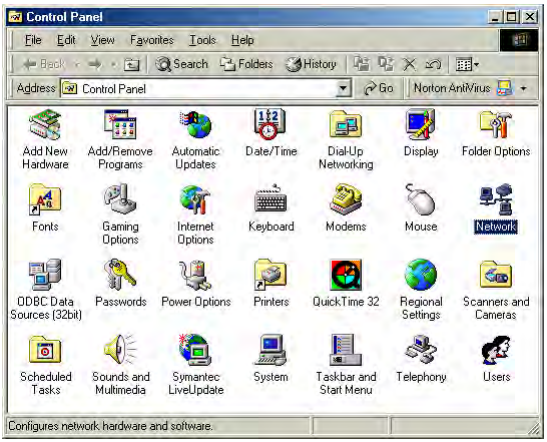
1. From the desktop, click on the **Start** button in the lower left corner.

2. From the menu that appears, select **Settings**.

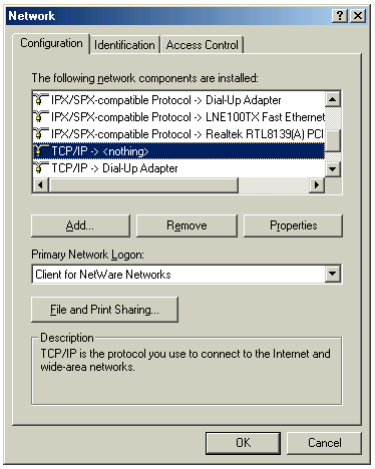


3. Another menu appears. Select **Control Panel**.

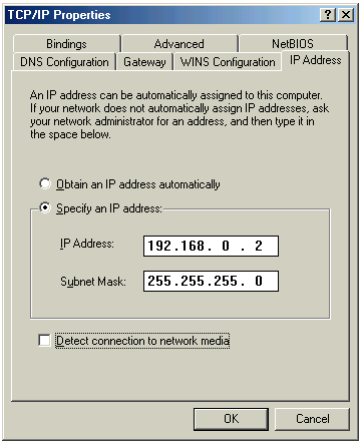
4. When the "Control Panel" window appears, double-click **Network**.



5. The "Network" window appears. In the "The following network components are installed" list box, locate and double-click **TCP/IP**.



6. The "TCP/IP Properties" window appears. Click **IP Address**.



7. In the IP Address tab, make sure the the circle next to "Specify an IP Address" is selected. When active, a black dot appears in the circle. If the circle already contains a black dot, leave it alone.

8. Enter the following numbers in the "IP Address" text box:

192.168.0.2

Do not include the periods; they are automatically entered.

9. Enter the following numbers in the "Subnet mask" text box:

`255.255.255.0`

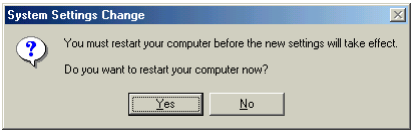
Do not include the periods; they are automatically entered.

10. Click **OK**. The TCP/IP Properties window disappears.

11. If there is a check in the box next to "Detect connection to network media," click on it to uncheck the box.

12. In the Network window, click **OK**. The Network window disappears.

13. The "System Settings Change" window appears, asking whether the computer should be restarted. Click **Yes**.

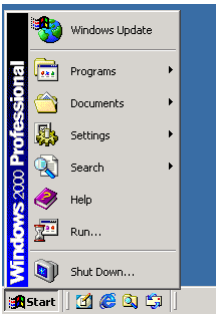


The computer restarts. It is now set up with a static IP address, allowing the user to access the Modem's Advanced Setup utility.

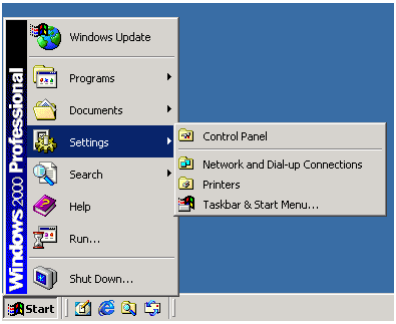
Windows 2000

1. From the desktop, click on the **Start** button in the lower left corner.

2. From the menu that appears, select **Settings**.

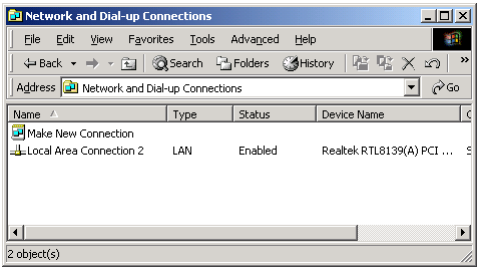


3. Another menu appears. Select **Control Panel**.

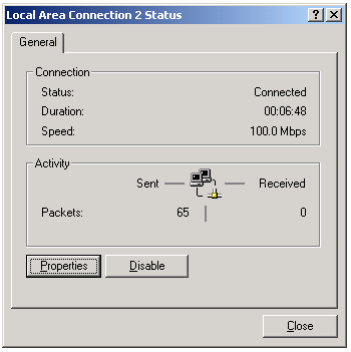


4. When the "Control Panel" window appears, double-click **Network and Dial-up Connections**.

5. In the "Network and Dial-up Connections" window, double-click **Local Area Connection**. A number may be displayed after the Local Area Connection. If there is more than one Local Area Connection listed, locate the one that corresponds to the network card installed in the computer by finding the name of the network card in the **Device Name** column.

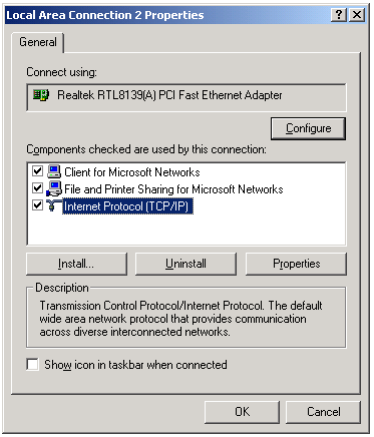


6. The "Local Area Connection Status" window appears. Select **General**, then click **Properties**.

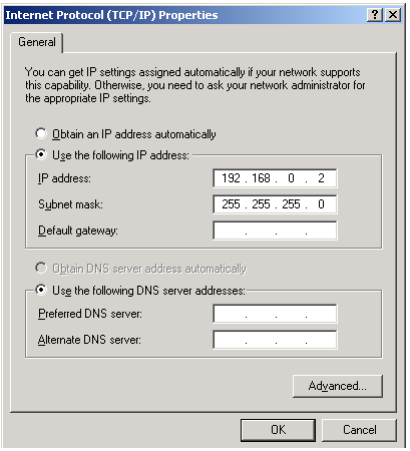


7. The "Local Area Connection Properties" window appears. Click **General**.

8. In the "Components checked are used by this connection" list box, double-click **Internet Protocol (TCP/IP)**.



9. The "Internet Protocol (TCP/IP) Properties" window appears.



10. In the **General** tab, make sure the the circle next to "Obtain an IP Address automatically" is selected. When active, a black dot appears in the circle. If the circle already contains a black dot, leave it alone.

11. Enter the following numbers in the "IP Address" text box:

`192.168.0.2`

Do not include the periods; they are automatically entered.

12. Enter the following numbers in the "Subnet mask" text box:

`255.255.255.0`

Do not include the periods; they are automatically entered.

13. Click **OK**. The "Internet Protocol (TCP/IP) Properties" window disappears.

14 In the "Local Area Connection Properties" window, click **OK**. The Local Area Connection Properties window disappears.

15. Click **Close** in the Local Area Connection Status window. The window disappears.

16. Close the Network and Dial-up Connections window by clicking on the "**x**" button at the upper right corner of the window.

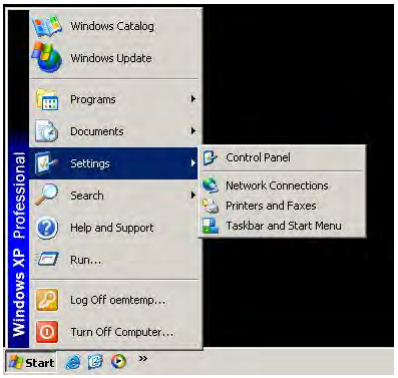
The computer is now set up with a static IP address, allowing the user to access the Modem's Advanced Setup utility.

Windows XP

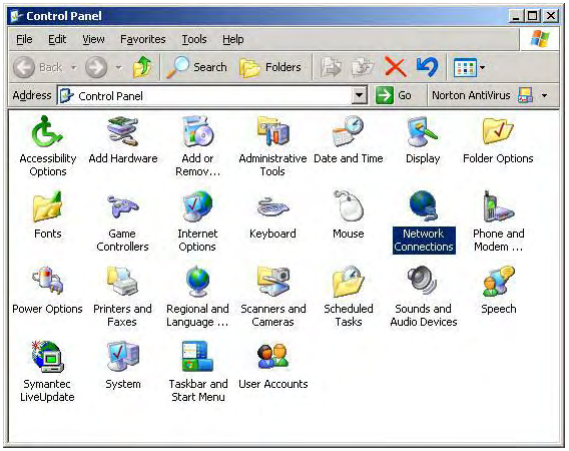
1. From the desktop, click on the **Start** button in the lower left corner.

2. From the menu that appears, select **Settings**.

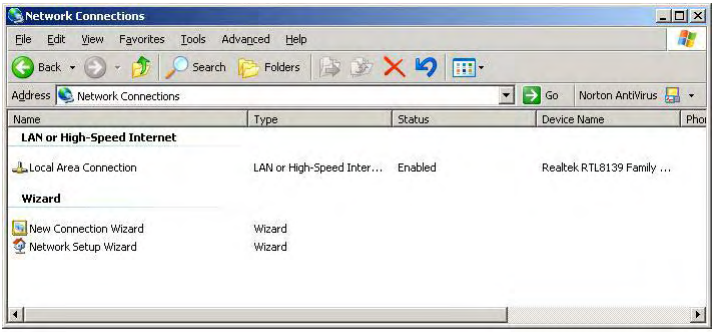
3. Another menu appears. Select **Control Panel**.



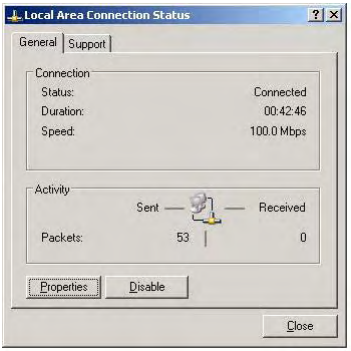
4. When the "Control Panel" window appears, double-click **Network Connections**.



5. In the "Network Connections" window, double-click **Local Area Connection**. A number may be displayed after the Local Area Connection. If there is more than one Local Area Connection listed, locate the one that corresponds to the network card installed in your computer by finding the name of the network card in the **Device Name** column.

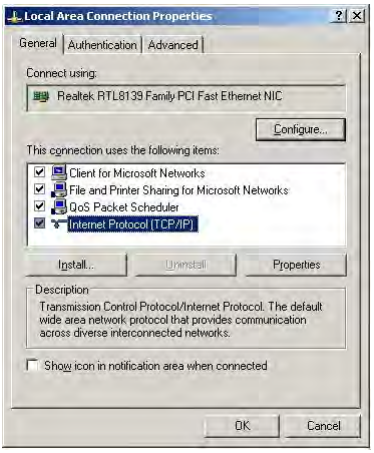


6. The "Local Area Connection Status" window appears. Select **General**, then click **Properties**.

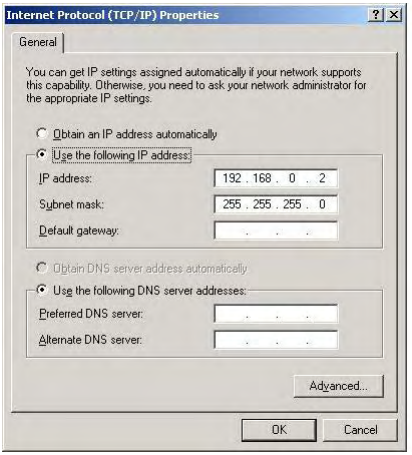


7. The "Local Area Connection Properties" window appears. Select **General**.

8. In the "Components checked are used by this connection" list box, double-click **Internet Protocol (TCP/IP)**.



9. The "Internet Protocol (TCP/IP) Properties" window appears.



10. In the **General** tab, make sure the the circle next to "Obtain an IP Address automatically" is selected. When active, a black dot appears in the circle. If the circle already contains a black dot, leave it alone.

11. Enter the following numbers in the "IP Address" text box:

198.162.0.2

Do not include the periods; they are automatically entered.

12. Enter the following numbers in the "Subnet mask" text box:

255.255.255.0

Do not include the periods; they are automatically entered.

13. Click **OK**. The Internet Protocol (TCP/IP) Properties window disappears.

14 In the Local Area Connection Properties window, click **OK**. The Local Area Connection Properties window disappears.

15. Click **Close** in the Local Area Connection Status window. The window disappears.

16. Close the Network and Dial-up Connections window by clicking on the "**x**" button at the upper right corner of the window.

The computer is now set up with a static IP address, allowing the user to access the Modem's Advanced Setup utility.

Computer Security

The Internet is a giant network of computers all over the world. When a computer is connected to the Internet, it can exchange information with any other computer on the Internet. This lets the user send e-mail, surf the World Wide Web, download files, and buy products and services online, but it also makes the computer vulnerable to attack from persons intent on doing malicious mischief. Unless access to the computer is controlled, someone on the Internet can access the information on the computer, and they can damage or destroy that information.

Qwest does recommend securing your computer from unwanted intrusion. Security is ultimately the end user's responsibility. Please secure your computer, and don't be a victim.

Securing the Gateway and Computer

The Qwest DSL web site explains how to secure your computer and modem from attack. Go to

http://www.qwest.com/dsl/

then click **Security**.

The topics featured include:

- Modem security
- Computer operating system security
- Physical system security

The following sections briefly discuss some major security concerns and explain the risks involved. Please go to the Qwest DSL web site for full explanations and instructions.

Comparing DSL Service with a Dial-Up Modem

With a dial-up modem, a computer user makes an Internet connection by dialing a telephone number, surfs the Internet for a period of time, and then disconnects the dial-up modem. No one on the Internet can access a computer that is not connected to the Internet.

Unlike a dial-up modem, DSL service is "always connected." The connection is always available – there is no need to dial a phone number to access the Internet. The computer can be connected to the Internet all the time.

With both types of Internet connections, access to the computer must be controlled to make sure someone on the Internet doesn't access the information on the computer. The longer the computer is connected to the Internet, the easier it is for someone on the Internet to find the computer and attempt to access it without permission. DSL service also provides fast Internet connections. This not only improves Internet performance, it also improves Internet performance for anyone attempting to access the computer.

Gateway Security

If connecting to the ISP through Point-to-Point Protocol (PPP), be sure to provide the Gateway an administrative password. If a password is not set, someone on the Internet can access the Gateway and change its configuration or steal your PPP login name and password. For instructions on setting the password, see the "Advanced Setup chapter.

If connecting to the ISP through bridging mode, the Gateway should be safe from unwarranted and illegal intrusion.

Computer Security

To protect the valuable information on the computer, review the following topics. These topics cover software programs and operating system features affecting the security of the computer's data.

Anti-Virus Programs

The computer should have an anti-virus program, and the virus definitions should be updated on a regular basis – at least once a month.

E-Mail Attachments

Never run a program received as an attachment to an e-mail message unless the

program is known to be safe. A program from an unknown source can delete all the files on the computer's hard disk or install a "backdoor" software application that lets people on the Internet gain access to the computer without permission.

Internet Browsers

Always exit the Internet browser (for example, Internet Explorer or Netscape Navigator). Never "minimize" the browser or leave it open in the background. Breaking into a computer is easier when an Internet browser is running.

Network Applications

Network applications (such as software programs) that allow remote access to the computer also make the computer vulnerable to access from other people on the Internet. If using a network application that allows remote access, consider installing a firewall.

Electronic Security

Here are two methods to secure your computer electronically.

Network Address Translation

If a local area network and a PPP connection to the ISP using dynamic IP addresses through a DHCP server are being used, Network Address Translation (NAT) is being used. NAT provides a very basic level of security. See the Qwest DSL LAN book for more information about NAT.

Firewalls

The safest way to prevent attacks on the computer is through a firewall – a hardware device or software program that protects the computer from unauthorized access by controlling who can access your computer and by monitoring the transmissions between the computer and the Internet

Windows XP has a built-in firewall. For more information, select **Help and Support Center** from the Help menu. Search for **Internet Connection Firewall**.

If Windows 98 SE, Me, NT 4.0, or 2000 is running on the computer, consider installing a firewall. Hardware and software firewall products are changing rapidly as more homes and businesses establish high-speed digital connections between their local area networks and the Internet.

For more information about firewalls, including vendors who sell firewall products, go to the Qwest DSL Web site and click the Security topic. Firewall products are available from computer and networking equipment retailers.

Specifications

D

General

Model Number

GS204AD9-01 (Four-Port Wireless-Ready DSL Gateway)

Standards

IEEE 802.3 (10BaseT)
IEEE 802.3u (100BaseTX)
IEEE 802.11b (Wireless)
G.dmt
G.lite
t1.413
RFC 1483, 2364, 2516

Protocol

LAN - CSMA/CD
WAN - PPP, DHCP, Static IP

WAN

Full-rate ADSL Interface

LAN

GS204AD9-01

10/100 RJ-45 switched ports (4)
USB port (1)

Expansion

PCMCIA expansion slot (2)

Speed

LAN Ethernet: 10/100Mbps auto-sensing
Wireless: 802.11b 11Mbps optimal (see "Wireless Operating Range" for details)

Cabling Type

Ethernet 10BaseT: UTP/STP Category 3 or 5
Ethernet100BaseTX: UTP/STP Category 5
USB

Wireless Operating Range

Indoors

Up to 30M (100 ft.) @ 11 Mbps
Up to 50M (165 ft.) @ 5.5 Mbps
Up to 70M (230 ft.) @ 2 Mbps
Up to 91M (300 ft.) @ 1 Mbps

Outdoors

Up to 152M (500 ft.) @ 11 Mbps
Up to 270M (885 ft.) @ 5.5 Mbps
Up to 396 (1300 ft.) @ 2 Mbps
Up to 457M (1500 ft.) @ 1 Mbps

Topology

Star (Ethernet)

LED Indicators

Power, Internet, Wireless, Ethernet Network (4)

Environmental

Power Input

External, 12V DC, 1.2 A

Certifications

FCC Class B, FCC Class C (part 15, 68), CE Mark Commercial, UL

Operating Temperature

0º C to 40º C (32ºF to 104ºF)

Storage Temperature

-20ºC to 70ºC (-4ºF to 158ºF)

Operating Humidity

10% to 85% non-condensing

Storage Humidity

5% to 90% non-condensing

Glossary

E

Access Point

A device that allows wireless clients to connect to one another. An access point can also act as a bridge between wireless clients and a "wired" network, such as an Ethernet network. Wireless clients can be moved anywhere within the coverage area of the access point and remain connected to the network. If connected to an Ethernet network, the access point monitors Ethernet traffic and forwards appropriate Ethernet messages to the wireless network, while also monitoring wireless traffic and forwarding wireless client messages to the Ethernet network.

ATM (Asynchronous Transfer Mode)

A networking technology based on transferring data in fixed-size packets

Client

A desktop or mobile computer connected to a network.

DHCP (Dynamic Host Configuration Protocol)

A protocol designed to automatically assign an IP address to every computer on your network.

DNS (Domain Name System) Server Address

Allows Internet host computers to have a domain name and one or more IP addresses. A DNS server keeps a database of host computers and their respective domain names and IP addresses so that when a user enters a domain name into a Web browser, the user is sent to the proper IP address. The DNS server address used by computers on the home network corresponds to the location of the DNS server the ISP has assigned.

DSL (Digital Subscriber Line) Modem

A modem that uses existing phone lines to transmit data at high speeds.

Encryption

A method to allow wireless data transmissions a level of security.

ESSID (Extended Service Set Identifier)

A unique identifier for a wireless network. Also known as "SSID."

Ethernet Network

A standard wired networking configuration using cables and hubs.

Firewall

A method preventing users outside the network from accessing and/or damaging files or computers on the network.

Gateway

A central device that manages the data traffic of your network, as well as data traffic to and from the Internet.

IP (Internet Protocol) Address

A series of four numbers separated by periods identifying a unique Internet computer host.

ISP Gateway Address

An IP address for the Internet router. This address is only required when using a cable or DSL modem.

ISP (Internet Service Provider)

A business that allows individuals or businesses to connect to the Internet.

LAN (Local Area Network)

A group of computers and devices connected together in a relatively small area (such as a house or an office). A home network is considered a LAN.

MAC (Media Access Control) Address

The hardware address of a device connected to a network.

NAT (Network Address Translation)

A method allowing all of the computers on a home network to use one IP address, enabling access to the Internet from any computer on the home network without having to purchase more IP addresses from the ISP.

PC Card

An adapter that inserts in the PCMCIA slot of a computer, enabling the communication with the Router.

PPPoE (Point-To-Point Protocol over Ethernet)/
PPPoA (Point-To-Point Protocol over ATM)

Methods of secure data transmission.

Router

A central device that manages the data traffic of your network.

Subnet Mask

A set of four numbers configured like an IP address used to create IP address numbers used only within a particular network.

SSID

See "ESSID."

TCP/IP (Transmission Control Protocol/Internet Protocol)

The standard protocol for data transmission over the Internet.

WAN (Wide Area Network)

A network that connects computers located in separate areas, (i.e., different buildings, cities, countries). The Internet is a WAN.

WECA (Wireless Ethernet Compatibility Alliance)

An industry group that certifies cross-vender interoperability and compatibility of IEEE 802.11b wireless networking products and promotes the standard for enterprise, small business, and home environments.

WLAN (Wireless Local Area Network)

A group of computers and other devices connected wirelessly in a small area.

Security Level Services Table

F

The following information is related to the Firewall options (High, Medium, and Low) in the "Advanced Services" chapter of this manual (page 35). The types of services and their respective ports are listed in the two right-hand columns; the "In" column details if a particular service can be accessed by a user outside of the network; and the "Out" column informs whether a computer on the Gateway's network can access a particular incoming service.
For example, in the "High Security Level" section below, the **http** service uses **port 80**. Since **no** is listed in the **In** column, a user outside the Gateway's network cannot access a computer on the network via the http service; in this case, no computers on the network can be used as a Web server (i.e., hosting a Web site accessible to outside users). However, since **yes** is listed in the **Out** column, all computers on the Gateway's network can access the Internet via the http port.
If Basic Security is selected in the "Firewall" screen, firewall filtering is based on the basic NAT firewall.

☞ ***Note***: This stateful packet inspection firewall is based on the Globespan-Virata implementation and specification for release 8.2.

High Security Level

Service	Port	In	Out
http	80	no	yes
dns	53	no	yes
ftp	21	no	no
telnet	23	no	yes
smtp	25	no	yes
pop3	110	no	yes
nntp	119	no	no
real audio/video	7070	no	yes
icmp	n/a	no	yes
H.323	1720	no	no
T.120	1503	no	no
SSH	22	no	no

Medium Security Level

Service	Port	In	Out
http	80	no	yes
dns	53	no	yes
ftp	21	no	yes
telnet	23	no	yes
smtp	25	no	yes
pop3	110	no	yes
nntp	119	no	yes
real audio/video	7070	yes	no
icmp	n/a	no	yes
H.323	1720	no	yes
T.120	1503	no	yes
SSH	22	no	yes

Low Security Level

Service	Port	In	Out
http	80	no	yes
dns	53	yes	yes
ftp	21	no	yes
telnet	23	no	yes
smtp	25	no	yes
pop3	110	no	yes
nntp	119	no	yes
real audio/video	7070	yes	no
icmp	n/a	yes	yes
H.323	1720	yes	yes
T.120	1503	yes	yes
SSH	22	yes	yes

Basic Security Level

NAT (Network Address Translation) only.

Acronym Definitions

http

Hyper**T**ext **T**ransfer **P**rotocol This protocol delivers information over the Internet, and is used when a home computer connects to a Web site via an Internet browser

dns

Domain **N**ame **S**ystem. A date query system used to translate host names into Internet addresses (i.e., www.somewebsite.com translates to 888.999.000.111)

ftp

File **T**ransfer **P**rotocol. A protocol used to transfer files over the Internet.

telnet

An Internet communications protocol enabling one computer to function as a terminal working from another (remote) computer.

smtp

Simple **M**ail **T**ranfer **P**rotocol. A protocol used to transfer email between computers over the Internet. Can be used to send and receive mail.

pop3

Post **O**ffice **P**rotocol 3. Another protocol used to transfer email between computers. Usually employs a pop3 server, and is used to receive mail only.

nntp

Network **N**ews **T**ransfer **P**rotocol. A protocol used to distribute and retrieve news articles over the Internet.

real audio/video

A protocol used to transfer Real Audio or Real Video files.

icmp

Internet **C**ontrol **M**essage **P**rotocol. Allows error messages, text packages, and informational messages to be transferred over the Internet.

H.323

A standard protocol for sending audio and video over the Internet.

T.120

A standard protocol for multimedia teleconferencing over the Internet.

SSH

Secure **Sh**ell. A method for the secure transfer of files from another computer. Also enables remote capabilities (terminal, log in).

Non-Windows System Setup

G

The Gateway supports both the Classic Macintosh operating systems (9.2.1 and below), as well as OS X.

> ***Note***: When installing any software, consult the user manual and help files supplied with the software for detailed information. *Action*tec provides the following information as a guideline only.

Classic

To configure the Router, Open Transport 2.5.2 or above must be loaded on the computer.

1. Click **Apple, Control Panels**, then **TCP/IP**.

2. When the "TCP/IP" window appears, select **Edit** from menu bar, then select **User Mode**.

3. When the "User Mode" window appears, select **Advanced**, then click **OK**.

4. In the "TCP/IP" window, select **Ethernet** from the "Connect via" drop-down list.

5. Select **Using DHCP Server** from the "Configure" drop-down list.

6. Ensure the "Use 802.3" option is **not** checked.

7. Disregard any addresses in the IP Address text boxes. They will be reacquired when the first connection is made.

8. Click **Options** and when the "TCP/IP Options" window appears, select **Active**. Ensure the "Load only when needed" option is **not** checked, then click **OK**.

9. Close the "TCP/IP" window and when prompted to save changes, click **Save**.

10. Restart the computer. The TCP/IP settings are configured.

Next, go to "Connecting to the ISP" on page 136.

OS X

1. Open the "System Preferences" application via the Dock or Apple Menu. The "Network" window appears.

2. Select **Built-In Ethernet** from the "Show" drop-down list.

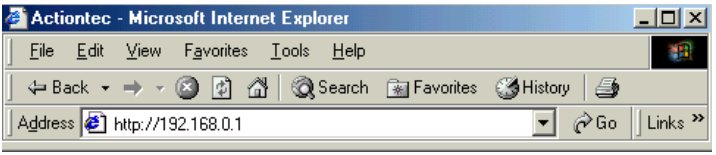
3. Select **TCP/IP** and, from the "Configure" drop-down list, select **Using DHCP**.

4. Click **Apply Now** and close the "System Preferences" application. The TCP/IP settings are configured.

Next, go to "Connecting to the ISP" on page 136.

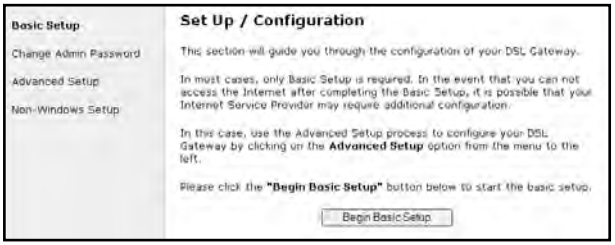
Connecting to the ISP

1. Open the Web browser. In the address bar, enter
   `http://192.168.0.1`
   then press **Enter** on the keyboard.

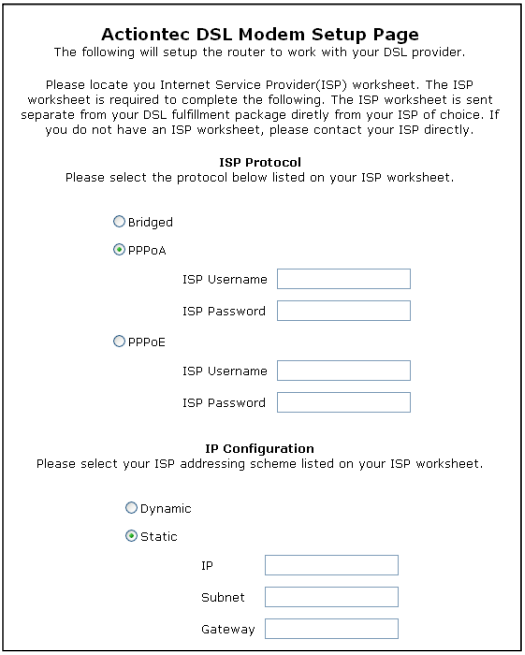


2. The "Main Menu" screen appears. Select **Setup/Configuration**.

3. In the "Set Up/Configuration" screen, select **Non-Windows Setup** from the menu on the left side.



4. The "Actiontec DSL Modem Setup Page" screen appears. In this screen, the user can configure the the ISP Protocol (Bridged, PPPoA, or PPPoE) and the IP configuration (Dynamic or Static). Using the Internet Service Provider (ISP) Worksheet provided by the ISP, enter the information in the appropriate text boxes.
If no worksheet has been provided, contact the ISP.



5. Click **Save and Restart** at the bottom of the Actiontec DSL Modem Setup Page screen.

The Gateway will be ready to use when the Power and Internet Lights stop blinking.

For other configuration options, see "Using Advanced Setup" on page 51.

Notices

Regulatory Compliance Notices

Class B Equipment

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 implementing one or more of the following measures:

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

Modifications

The FCC requires the user to be notified that any changes or modifications made to this device that are not expressly approved by A*ction*tec Electronics, Inc., may void the user's authority to operate the equipment.

Declaration of conformity for products marked with the FCC logo – United States only.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference;

2. This device must accept any interference received, including interference that may cause unwanted operation.

☞ ***Note***: To comply with FCC RF exposure compliance requirements, the antenna used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

For questions regarding your product or the FCC declaration, contact:

*Action*tec Electronics, Inc.
760 North Mary Ave.
Sunnyvale, CA 94086
United States
Tel: (408) 752-7700
Fax: (408) 541-9005

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Return the product to:
(In the United States)
*Action*tec Electronics, Inc.
760 North Mary Avenue
Sunnyvale, CA 94085

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