

*Actiontec*<sup>TM</sup>

# **Wireless-Ready DSL Gateway**

## **User Manual**

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# Introduction

Thank you for purchasing the *Actiontec* Wireless-Ready Gateway. The Gateway is the simplest way to connect a number of 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 *Actiontec* Wireless-Ready DSL Gateway is sure to be one of the keys to your success.

## Package Contents

- Four-port *Actiontec* Wireless-Ready DSL Gateway
- Power adapter
- Phone filters
- DSL cable
- Ethernet cable
- USB cable
- Installation CD
- 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 95, Windows 98, 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

## Technical Support

### Self Help

To obtain answers to DSL configuration questions, visit the Qwest DSL *Actiontec* 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 *Actiontec* 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
- NIC card installation of the Qwest-supplied Realtek NIC Card



**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 *Actiontec* 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 DSL 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 *Actiontec* free of charge if the wired/wireless equipment was purchased from *Actiontec*.

Contact *Actiontec* 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-Actiontec-provided network card/Ethernet cable installation, configuration, or troubleshooting
- Commercial firewall software configuration

contact the **Actiontec Pay For Support Center** at 1-888-825-9025. Actiontec 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 Actiontec wireless cards and peripherals, visit the Actiontec Web site at [www.actiontecstore.com/qwest](http://www.actiontecstore.com/qwest)

# Setting Up the Gateway

# 2

The instructions that follow parallel the steps contained in the *Actiontec 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 57).

## **Warning!**

**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 your 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 installation 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 involves three basic steps: initial setup, plugging in the Gateway's Power Cord, and connecting the Gateway to the computer via Ethernet or USB cable. To connect this initial computer to the Gateway using an Ethernet cable, follow the procedure that begins below. For USB connections, see "Connecting Via USB" on page 14.

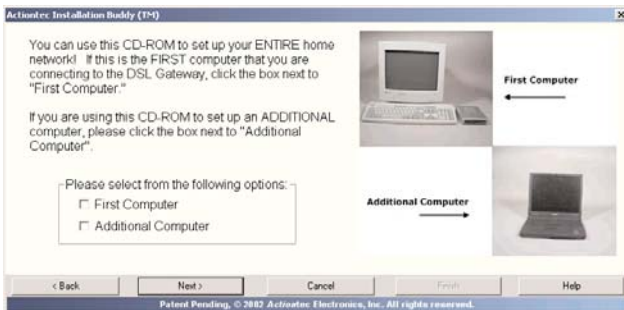
 **Note:** The following procedures are for U.S. installations only.

### Connecting Via Ethernet

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

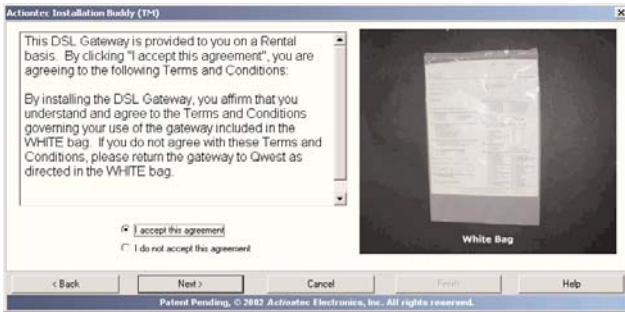


2. The next window appears. Read the instructions, select **First Computer** by clicking on the check box, then click **Next**.



## Chapter 2 Setting Up the Gateway

- The next window appears. Read the onscreen information, then get the “Terms and Agreement” document from the White Bag and read it as well. Then, select **I accept this agreement** and click **Next**.



- The next window appears. Select **Ethernet**, then click **Next**.

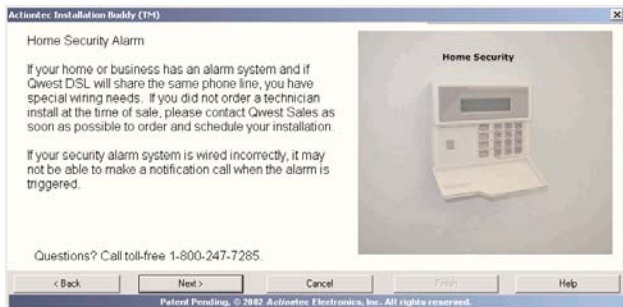


- The next window appears. Read the onscreen instructions, then click **Next**.

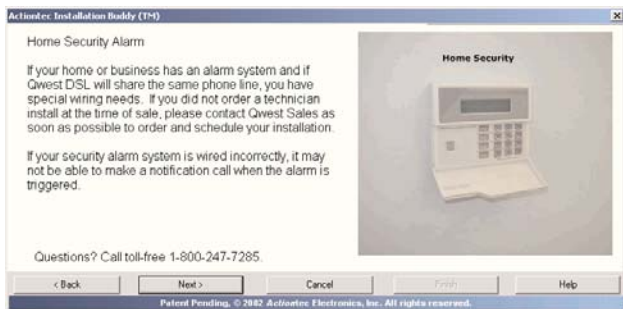


**Note:** You must have your Welcome Letter (ISP Worksheet) to complete this installation. If you have not received this document, contact your ISP immediately.

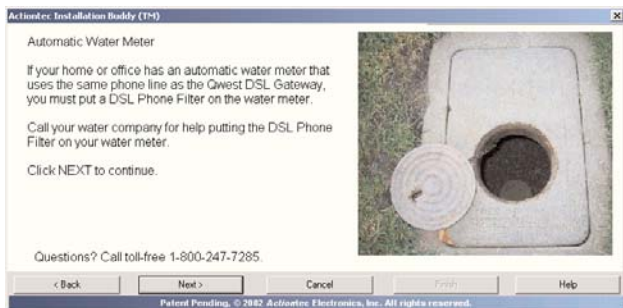
- When the next window appears, read the information concerning home alarm systems, then click **Next**.



- Another window concerning home alarms appears. Read the onscreen information, then click **Next**.

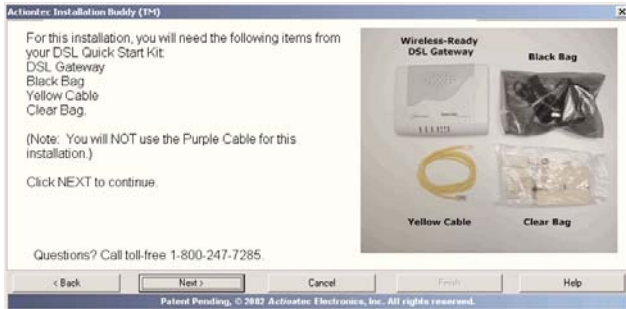


- When the next window appears, read the information concerning automatic water meters, then click **Next**.

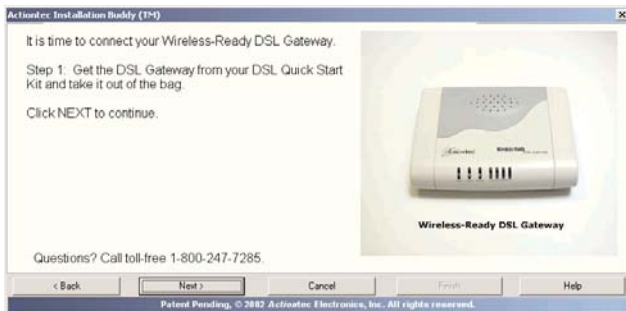


## Chapter 2 Setting Up the Gateway

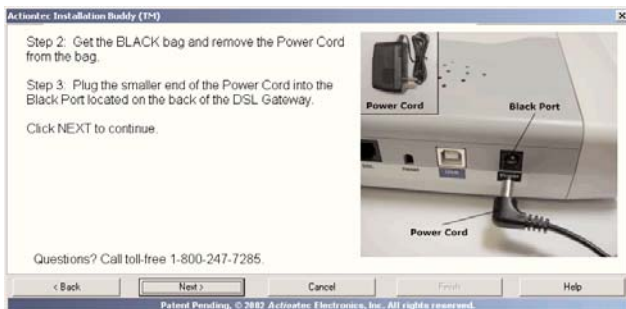
9. In the next window, read the instructions regarding the items needed to set up the Gateway, then click **Next**.



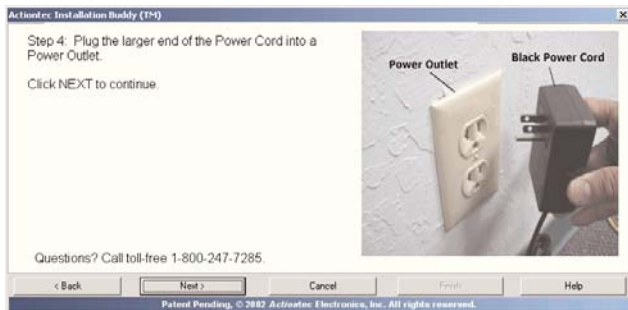
10. As shown in the next window, get the Gateway from the DSL Quick Start Kit, then click **Next**.



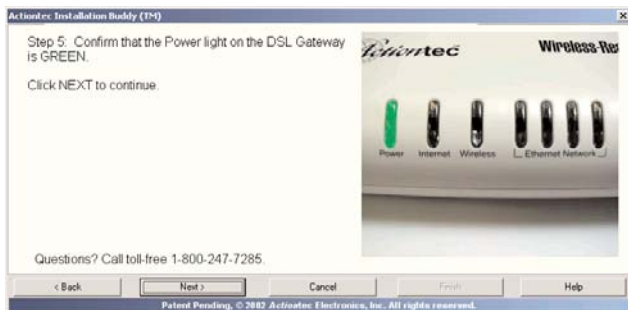
11. The next window appears. Plug the smaller end of the **Power Cord** into the **Black Port** on the back of the Gateway, then click **Next**.



- When the next window appears, plug the larger end of the **Power Cord** into a **Power Outlet**, then click **Next**.



- When the next window appears, confirm the **Power Light** on the Gateway **glows steadily green**. Click **Next**.

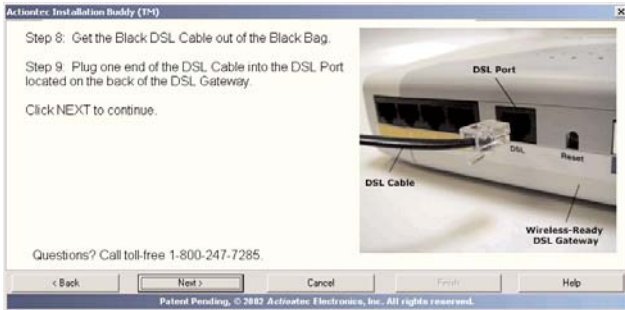


- The following window appears. Get the **Phone Line Splitter** from the DSL Quick Start Kit and plug it into the **Phone Jack** closest to the computer, then click **Next**.

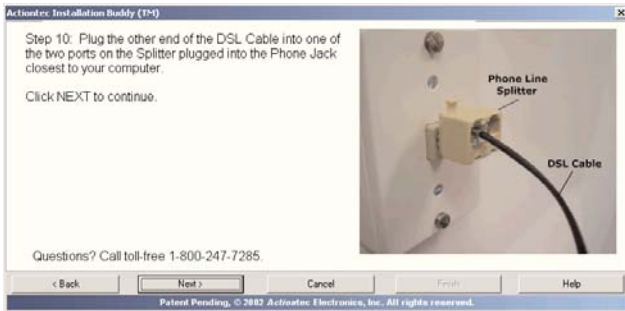


## Chapter 2 Setting Up the Gateway

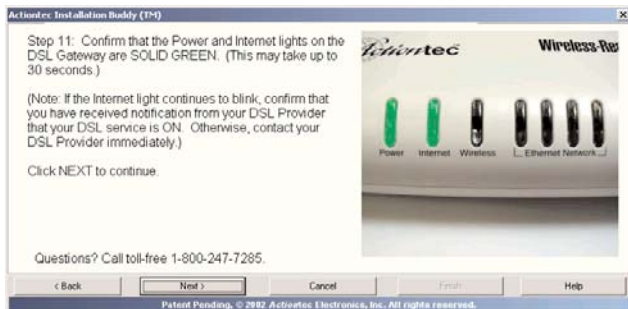
15. When the next window appears, get the **Black DSL Cable** and plug one end of it into the **DSL Port** on the back of the Gateway, then click **Next**.



16. Another window appears. Plug the other end of the **Black DSL Cable** into one of the two ports on the **Splitter**, then click **Next**.

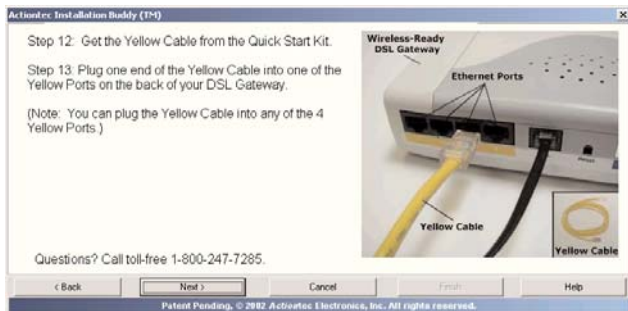


17. When the next window appears, confirm the **Power** and **Internet Lights** on the Gateway **glow steadily green**. Click **Next**.



☞ **Note:** If the Power and Internet Lights on the Gateway are not solid green, check all connections to the Gateway. If all connections are plugged in properly, call Qwest DSL Technical Support at 1-800-247-7285.

18. In the next window, get the **Yellow Ethernet Cable** from the Quick Start Kit and plug one end of it in one of the **Yellow Ports** on the back of the Gateway. Click **Next**.

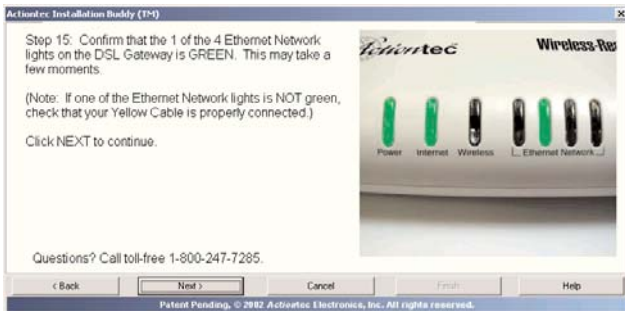


- When the next window appears, plug the other end of the **Yellow Ethernet Cable** into an **Ethernet Port** on the back of the computer. Click **Next**.



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

- When the next window appears, make sure one of the four **Ethernet Network Lights** glows solid green.



The Gateway is connected to a computer via Ethernet. Click **Next** to install the filters as described in “Installing the Filters” on page 21.

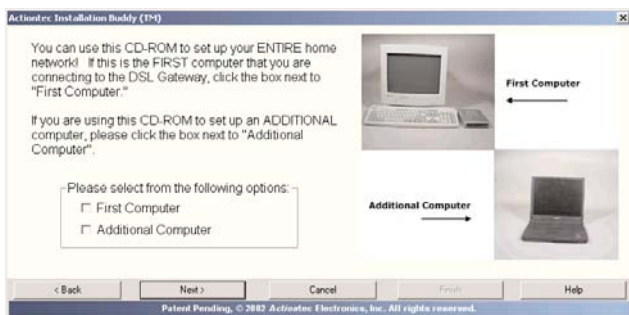


## Connecting Via USB

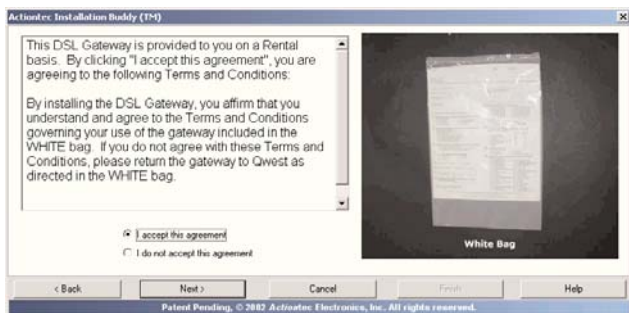
1. Insert *Actiontec* Installation Buddy CD-ROM in the CD-ROM drive of the computer. The Installation Buddy will start automatically. Wait until the following screen appears, read the onscreen instructions, then click **Next**.



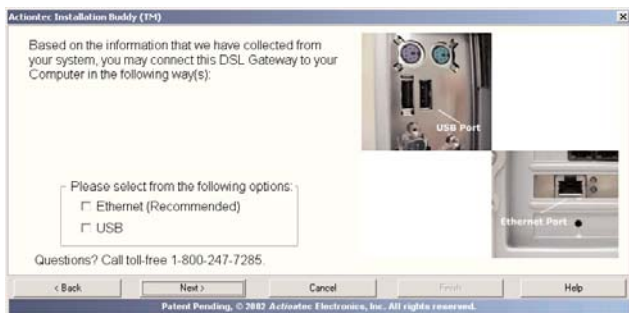
2. The next window appears. Read the instructions, select **First Computer** by clicking on the check box, then click **Next**.



3. The next window appears. Read the onscreen information, then get the “Terms and Agreement” document from the White Bag and read it as well. Then, select **I accept this agreement** and click **Next**.




- The next window appears. Select **USB**, then click **Next**.

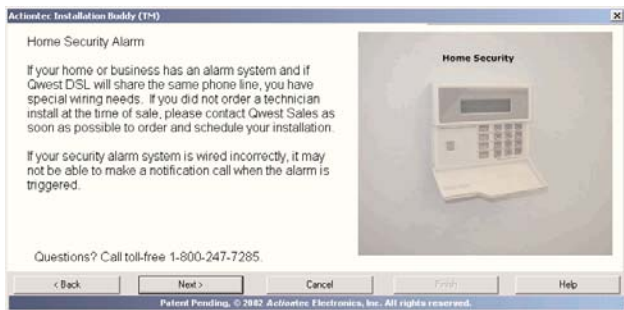


- The next window appears. Read the onscreen instructions, then click **Next**.

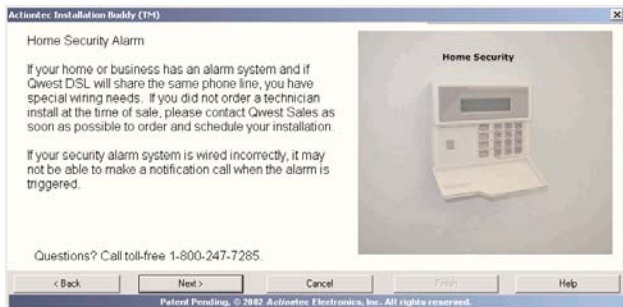


 **Note:** You must have your Welcome Letter (ISP Worksheet) to complete this installation. If you have not received this document, contact your ISP immediately.

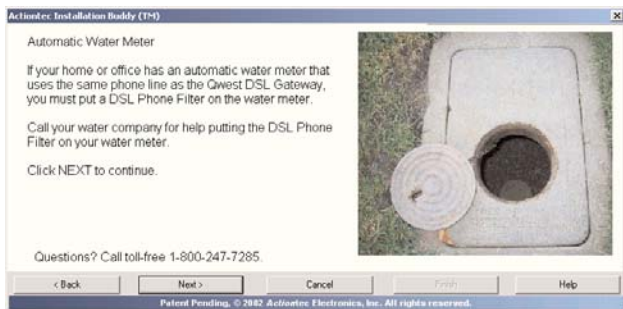
- When the next window appears, read the information concerning home alarm systems, then click **Next**.



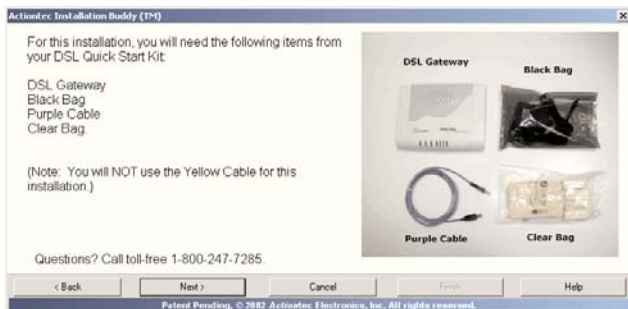
- Another window concerning home alarm systems appears. Read the onscreen information, then click **Next**.



- When the next window appears, read the information concerning automatic water meters, then click **Next**.

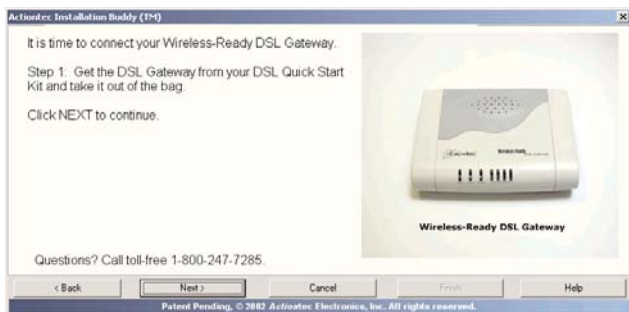


- In the next window, read the instructions regarding the items needed to set up the Gateway, then click **Next**.

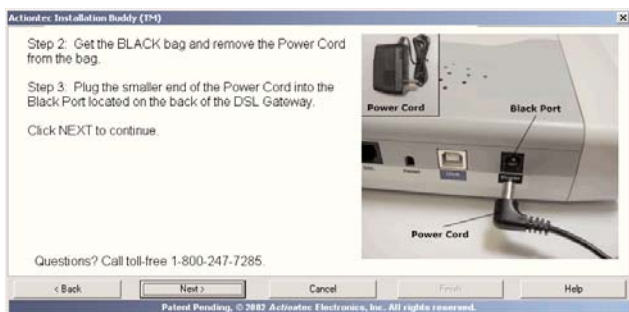


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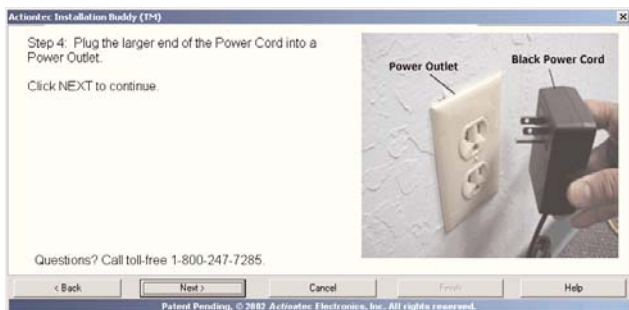
10. As shown in the next window, get the Gateway from the DSL Quick Start Kit, then click **Next**.



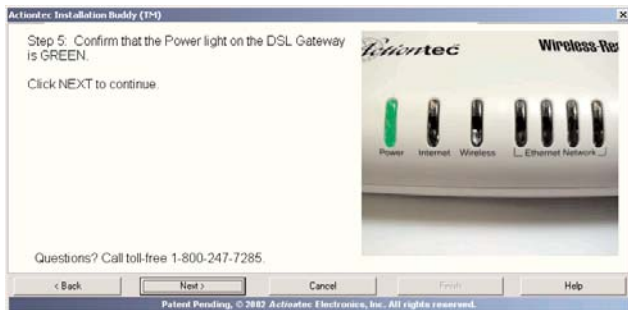
11. The next window appears. Plug the smaller end of the **Power Cord** into the **Black Port** on the back of the Gateway, then click **Next**.



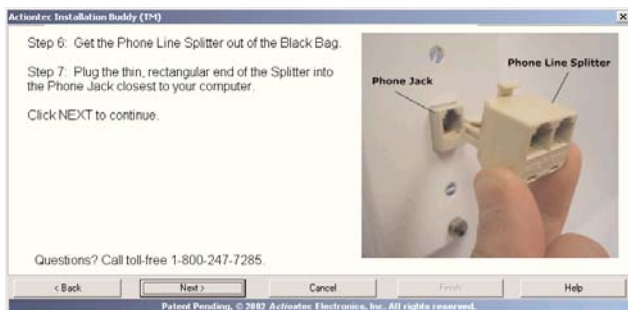
12. When the next window appears, plug the larger end of the **Power Cord** into a **Power Outlet**, then click **Next**.



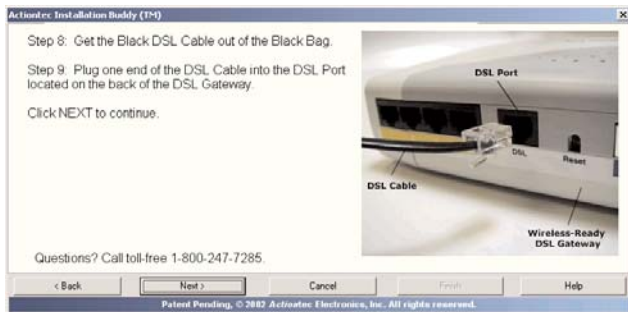
- When the next window appears, confirm the **Power Light** on the Gateway **glows steadily green**. Click **Next**.



- The following window appears. Get the **Phone Line Splitter** from the DSL Quick Start Kit and plug it into the **Phone Jack** closest to the computer, then click **Next**.



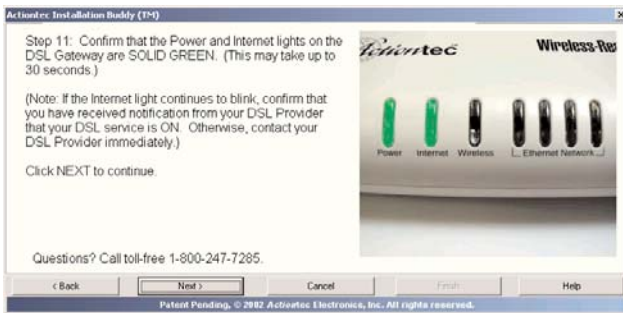
- When the next window appears, get the **Black DSL Cable** and plug one end of it into the **DSL Port** on the back of the Gateway, then click **Next**.




- Another window appears. Plug the other end of the **Black DSL Cable** into one of the two ports on the **Splitter**, then click **Next**.

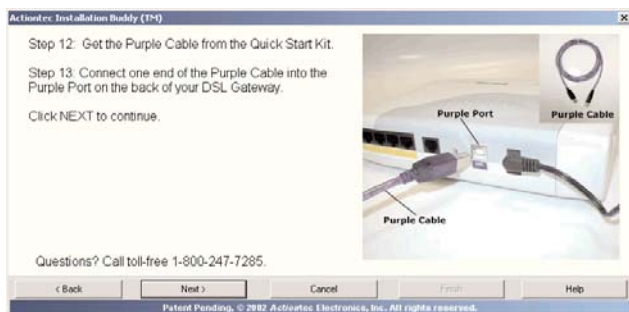


- When the next window appears, confirm the **Power** and **Internet Lights** on the Gateway **glow steadily green**. Click **Next**.

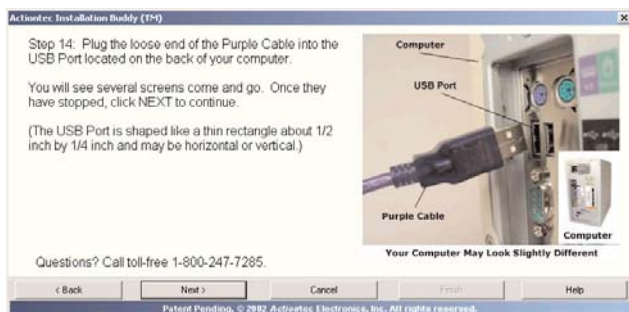



 **Note:** If the Power and Internet Lights on the Gateway are not solid green, check all connections to the Gateway. If all connections are plugged in properly, call Qwest DSL Technical Support at 1-800-247-7285.

18. In the next window, get the **Purple USB Cable** from the Quick Start Kit and plug the square end of it in the **Purple Port** on the back of the Gateway. Click **Next**.



18. When the next window appears, plug the rectangular end of the **Purple USB Cable** into a **USB Port** on the front or back of the computer. Click **Next**.



 **Note:** A USB port is shaped like a thin rectangle about 1/4 inch by 1/2 inch, and may be vertically or horizontally oriented.

The Gateway is connected to a computer via USB. Click **Next** to install the filters as described in “Installing the Filters” on page 21.

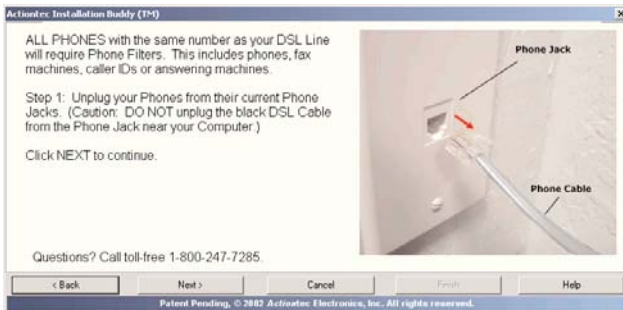
### Installing Filters

Filters allow the user to talk on the phone while online. All phones and other devices (answering machines, fax machines, etc.) using the same line (i.e., using the same phone number) as the DSL line must have a filter installed. To install a filter, follow these instructions:

1. When the following window appears, read the onscreen instructions, then click **Next** to continue.



2. When the next window appears, unplug all phone cords from their respective phone jacks, then click **Next**.



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

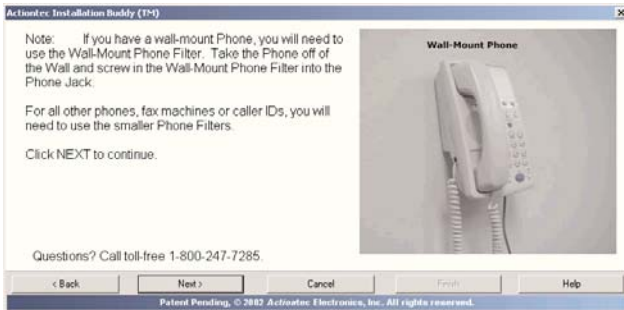


- When the following window appears, get the Clear Bag, take out the phone filters, then click **Next**.



**Caution:** Do not install a filter in the phone jack used by the black DSL cable.

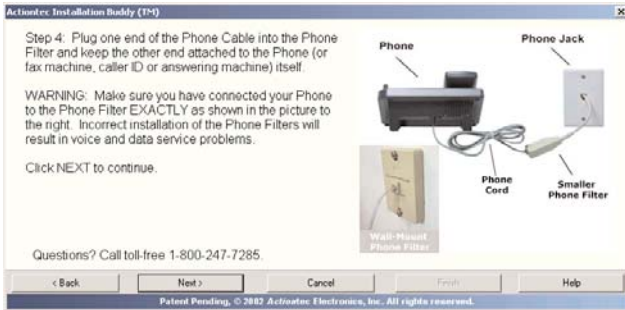
- In the next window, read the onscreen instructions concerning wall-mount phones. Click **Next**.



- After the next window appears, plug a **Phone Filter** into every Phone Jack that has a device (phone, fax machine, answering machine, etc.), then click **Next**.



- When the next window appears, read the onscreen instructions on how to connect the phone filters, then click **Next**.



The phone filters are installed. Click **Next** to go to “Setting Up the DSL Connection,” as described below.

### Setting Up the DSL Connection

After connecting the Gateway and installing phone filters, the DSL connection must be configured. Use the following procedure:

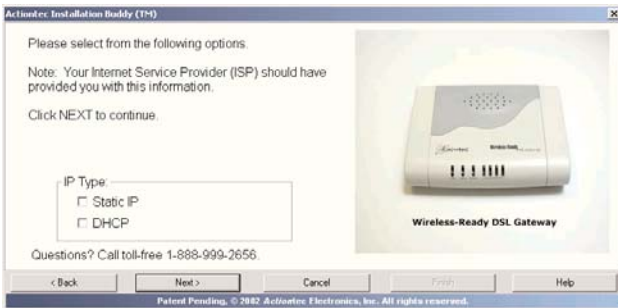
- When the window below appears, read the onscreen instructions and, if the information needed is available, select the type of ISP Protocol to be used. Click **Next**.



- If PPPoE or PPPoA was selected, the following window appears. Enter the **User Name** and **Password** in the proper text boxes, or, if the ISP does not require them, click the box next to “My ISP does not require a User Name or Password.” Click **Next**.  
If RFC 1483 was selected, go directly to step 3.



- The next window appears. Select the IP type used by the ISP. Click **Next**.  
If DHCP was selected, go directly to step 6

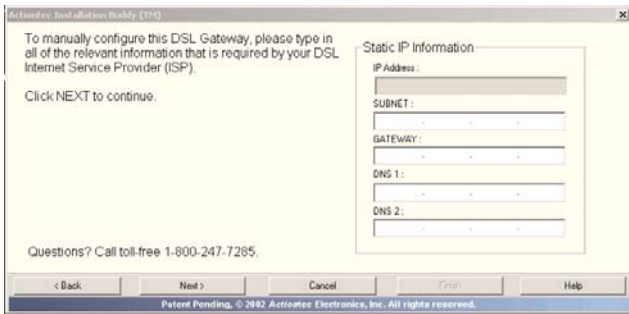


- The next window appears. Read the onscreen instructions concerning purchased blocks of Static IP addresses, select the proper option, then click **Next**.

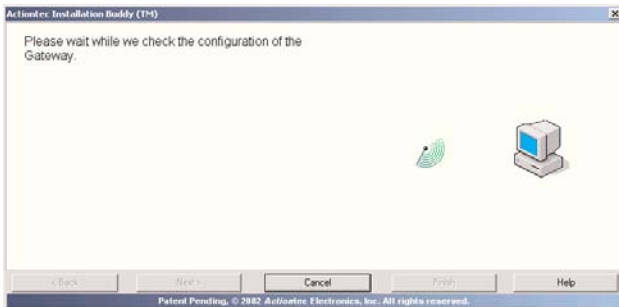


## Chapter 2 Setting Up the Gateway

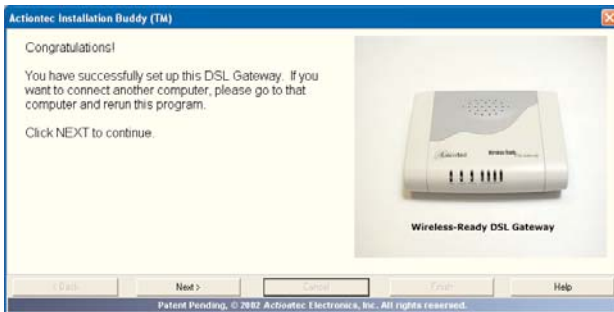
- When the next window appears, enter the IP Address, Subnet, Gateway, DNS 1, and DNS 2 information in the proper text boxes. This information should be provided by the ISP. When finished, click **Next**.



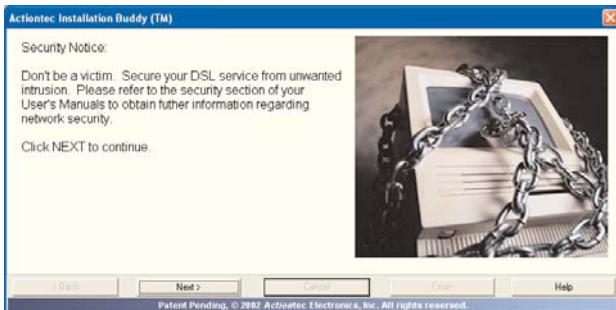
- In the next window, the Installation Buddy checks the configuration of the Gateway.



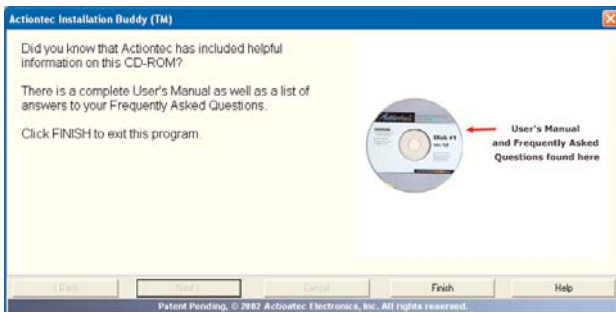
- A "Congratulations!" window appears. Read the onscreen instructions, then click **Next**.



8. In the next window, read the onscreen information about computer security, then click **Next**.



9. In the last window, read the onscreen information regarding additional reference material on the CD-ROM, then click **Finish**.



The Gateway has been successfully configured.

# 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 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**

To disconnect from the Internet, close the Web browser. To completely disengage, turn off the 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, as well as an overview of the Gateway's LEDs and switches.

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

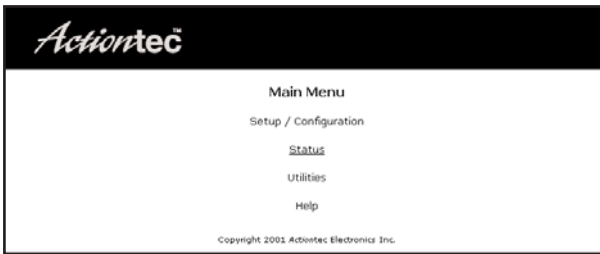
## Basic Setup

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**.

<b>Basic Setup</b> Change Admin Password Advanced Setup Non-Windows Setup	<b>Set Up / Configuration</b> This section will guide you through the configuration of your DSL Gateway.  In most cases, only Basic Setup is required. In the event that you can not access the Internet after completing the Basic Setup, it is possible that your Internet Service Provider may require additional configuration.  In this case, use the Advanced Setup process to configure your DSL Gateway by clicking on the <b>Advanced Setup</b> option from the menu to the left.  Please click the <b>"Begin Basic Setup"</b> button below to start the basic setup.  <input type="button" value="Begin Basic Setup"/>
--	---

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

<b>Basic Setup</b> Before you begin, please make sure you have completed the following steps below. Click <b>Next</b> to continue.  <ol style="list-style-type: none"><li>1. Your DSL Gateway is connected to your DSL line</li><li>2. Your computers are connected to your DSL Gateway</li></ol> <input type="button" value="Back"/> <input type="button" value="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.

<b>Broadband Connection</b> Please select the connection method that you use to access the Internet. Click <b>Next</b> to continue.  <p><input type="radio"/> PPPoE <input checked="" type="radio"/> PPPoA</p> <input type="button" value="Back"/> <input type="button" value="Next"/>
---

6. Enter the **User Name**, **Password**, and **Static IP** provided by the ISP in the “DSL Broadband Connection - PPP” screen. Click **Next**.

**DSL Broadband Connection - PPP**


Please enter the **User Name**, **Password** and **Static IP** required by your DSL Internet Service Provider to access the Internet.

You may obtain this information from your DSL Internet Service Provider. Click **Next** to continue.

User Name

Password

Static IP

 **Note:** If the ISP uses a connection method other than PPPoE (DHCP or Static IP, for example) see “Advanced Setup” to connect the Gateway.

7. Click **Save and Restart** in the “Save and Restart” screen.

**Save and Restart**

Please click the **Save and Restart** button below to save your settings and restart your Gateway.

8. The “Congratulations” screen appears. The Gateway is successfully configured.

**Congratulations!**

Your DSL Gateway is now being configured.

**Note:** Your Home DSL Gateway will be ready to use when the Power LED stops flashing.

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.

## **Gateway Features**

This section contains a quick description of the Gateway's lights and switches.

**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, data is being sent via the WAN port.

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

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

**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.

# 5

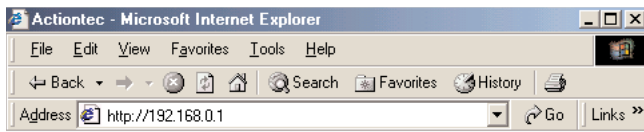
## Advanced Setup

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

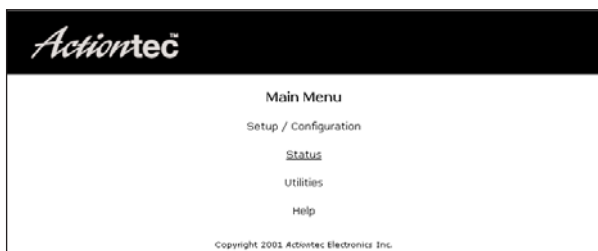
### Accessing Advanced Setup

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.



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

### Setup / Configuration

We strongly recommend that you keep the current default settings in this section for your Gateway.

However, if you would like to review and/or adjust these settings, please click the "**Begin Advanced Setup**" button below to start the advanced setup.

[Begin Advanced Setup](#)

- 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.

### Advanced Setup

- WAN IP Address
- Wireless Settings
- LAN IP Address
- DHCP Server
- Services Blocking
- Website Blocking
- VPN Pass Through
- Remote Management
- Port Forwarding
- DMZ Hosting
- Firewall
- Dynamic Routing
- NAT
- Static Routing
- MAC Address Cloning

**Save and Restart**

### Configuring the Advanced Settings

The following settings will be configured in the order below. To skip ahead, please click on the selected setting from the menu to the left. Click **Next** to continue.


- WAN IP Address
- Wireless Settings
- LAN IP Address
- DHCP Server
- Website Blocking
- VPN Pass Through
- Services Blocking
- Remote Management
- Port Forwarding
- DMZ Hosting
- Firewall
- Dynamic Routing
- NAT
- Static Routing
- MAC Address Cloning

[Back](#)   [Next](#)

## Using Advanced Setup


To select a particular setting, click on it in the gray menu on the left side of the Configuring the Advanced Settings screen. When the setting has been changed, click **Save and Restart** at the bottom of the gray menu to save the setting. However, if more than one setting needs to be changed, click Save and Restart after all changes have been made.

Clicking **Next** in an Advanced Setup screen generates the next Advanced Setup screen, in the order they appear in the gray menu. Changes in the previous Advanced Setup screen will be saved temporarily. When finished, click Save and Restart.

 **Note:** If changes have been made to one or more Advanced Setup settings and Save and Restart has not been clicked before leaving the Advanced Setup screens (i.e., switching to Utilities or Basic Setup), all Advanced Setup settings changes will be lost.

### 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 four ways to do this: **Transparent Bridging**, **Obtain an IP Address through PPPoE/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, while others use static IP. Some 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.

#### WAN IP Address

Please make the appropriate selection for your Broadband connection.

Transparent Bridging

Obtain an IP Address through PPPoE

Obtain an IP Address through PPPoA

Obtain an IP Address through DHCP

Specify a Static IP Address

Unnumbered Mode

VIP Mode

**Unnumbered IP Address:**

(Unnumbered IP Address)

(Unnumbered Subnet Mask)

### Transparent Bridging

Select this option to use the Gateway as a transparent bridge only if directed to do so by your ISP. 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 this option to allow the Gateway to use the Point-to-Point over Ethernet (PPPoE) or Point-to-Point over ATM (PPPoA) protocol.

**Broadband Connection via PPPoE/PPPoA**

Please enter the username, password and static IP required by your DSL Internet Service Provider to access the Internet.

User Name

Password

Static IP

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 your Internet Service Provider (ISP).

### Obtain an IP Through DHCP

Select this option to allow the modem to query the Internet Service Provider (ISP) and receive IP address and routing information. 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:** Host and domain name information may also be accessed from the computer originally connected to the DSL modem.

### Broadband Connection via DHCP

If your Broadband Service Provider requires a Host Name or Domain Name to access the Internet, please enter it below. Otherwise, click **Next** to continue.

Host Name

Domain Name

### Specify a Static IP Address

Select this option if assigned a static (specific) IP Address by the Internet Service Provider (ISP). Enter the **IP Address**, along with the **Subnet Mask** and **Default Gateway Address** (also provided by the ISP), in the “Broadband Connection via Static IP Address” screen. If required to provide a **Host Name** and **Domain Name**, enter them here as well.

### Broadband Connection via Static IP Address

Please enter your **Static IP Address** and **Default Gateway Address** provided to you by your Internet Service Provider.

Click **Next** to continue.

**IP Address:**

**Subnet Mask:**

**Default Gateway Address:**



### Unnumbered/VIP Mode

If the user has purchased a block of static IP addresses, select **Unnumbered Mode** by clicking on the box. Then, enter the IP address and Subnet Mask assigned to the Gateway in the “Gateway Address” and “Unnumbered Subnet Mask” text boxes below “Unnumbered IP Address.” This information should be sent to the user when purchasing a block of static IP addresses.

VIP mode reserves the DHCP server for any computer connected to the Gateway configured to use a DHCP server. When VIP mode is activated, all computers using static IP addresses must be configured separately to use a static IP address.

After changing settings, click **Next** or **Back** to continue, or **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.

#### Wireless Settings

We recommend that you keep the current default wireless settings for your Gateway. The default ESSID is **ACTIONTEC**, the Channel is **1** and the default WEP encryption selection value is **Off**. The values defined on this screen must also be used for all your wireless computers.

Click **Next** to continue.

ESSID:

Channel:

WEP:  Off  64-bit  128-bit

NOTE: WEP (Wired Equivalent Privacy) encryption is an optional security measure for your wireless network.

### ESSID

ESSID is the network name assigned to the wireless network. The factory default setting is “ACTIONTEC.” Although *Actiontec* 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 *Actiontec* 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 provide limited data security over wireless networks. The Gateway offers three levels of WEP: Off, 64-bit, and 128-bit. Qwest recommends setting up WEP to offer some security to your wireless connection.

#### Off

Selecting **Off** disables encryption. Selecting this option offers minimal protection and 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. 64-bit WEP offers more security than **Off** under most circumstances

**Wireless Settings: 64-Bit WEP Key**

Key 1:

Key 2:

Key 3:

Key 4:

NOTE: A hexadecimal digit consists of alphanumeric characters in the range 0-9 or A-F. A 64-bit encryption value should appear like this: 4D-33-EF-C6-1A

### 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. 128-bit WEP offers greater security than 64-bit WEP under most circumstances


 **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.

**Wireless Settings: 128-Bit WEP Key**

Key :

**NOTE:** A hexadecimal digit consists of alphanumeric characters in the range 0-9 or A-F. A 128-bit encryption value should appear like this: 3D-44-FE-6C-A1-EF-2E-D3-C4-21-74-5D-B1.

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

 **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.

### LAN IP Address

Selecting **LAN IP Address** in the “Advanced Configuration” screen generates the “LAN IP Address” screen. The value in the **LAN IP Address** text box is the IP address of the Gateway as seen on the network.

The LAN IP address of the Gateway can be modified, but *Actiontec* recommends keeping the default factory setting (192.168.0.1).



**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.”

#### LAN IP Address

We recommend that you keep the current default LAN IP Address of the Router as 192.168.0.1.

To make changes, enter in the new IP Address value below. Click **Next** to continue.

**LAN IP Address:**

(Device IP Address)

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**.

#### DHCP Server

Your Gateway will automatically assign an IP Address to each computer in your network.

We recommend that you keep the current default DHCP Server setting. If you already have a DHCP server in your network, you may need to turn this function off.

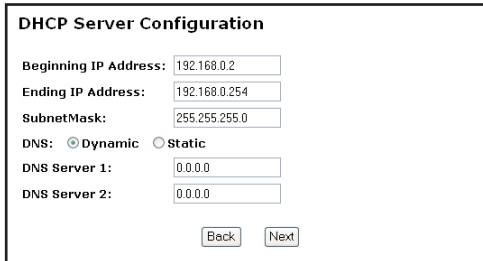
Click **Next** to continue.

**On**    **Off**

Actiontec 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” on page 42.

### 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.



**DHCP Server Configuration**

Beginning IP Address: 192.168.0.2

Ending IP Address: 192.168.0.254

SubnetMask: 255.255.255.0

DNS:  Dynamic  Static

DNS Server 1: 0.0.0.0

DNS Server 2: 0.0.0.0

Back Next

**Beginning IP Address** - the IP address at which the DHCP server starts assigning IP addresses. Actiontec 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. Actiontec 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.

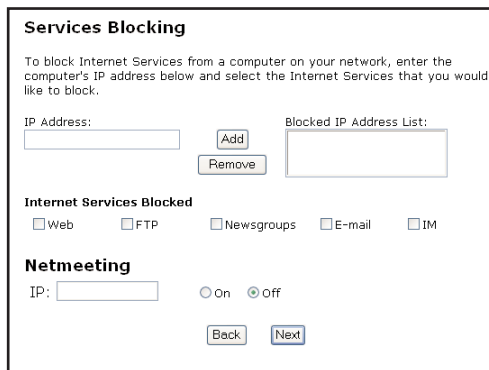
**DNS Server 1** - the primary DNS server provided by the Internet Service Provider (ISP). If the ISP provided DNS server information, enter it here. If not, leave the text box intact.

**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.

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

## Services Blocking

Selecting **Services Blocking** in the “Advanced Configuration” screen generates the “Services Blocking” screen.



The screenshot shows the "Services Blocking" configuration window. At the top, it says "Services Blocking" and provides instructions: "To block Internet Services from a computer on your network, enter the computer's IP address below and select the Internet Services that you would like to block." Below this, there is an "IP Address:" text box, an "Add" button, and a "Remove" button. To the right is a "Blocked IP Address List:" text box. Underneath, there is a section titled "Internet Services Blocked" with five checkboxes: "Web", "FTP", "Newsgroups", "E-mail", and "IM". Below that is a "Netmeeting" section with an "IP:" text box and two radio buttons: "On" and "Off" (which is selected). At the bottom, there are "Back" and "Next" buttons.

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

1. Enter the computer's IP address in the **Enter 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

To allow the computers on the Gateway's network to access Netmeeting, enter the Netmeeting IP address (LAN IP address using Netmeeting) in the **IP** text box, then select **On**. If Netmeeting is not needed, select **Off**.

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

### Website Blocking

Selecting **Website Blocking** in the "Advanced Configuration" screen generates the "Website Blocking" screen. This feature, which works only with NAT IP addressing, 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**.

#### Website Blocking

To block a specific website, please enter the name of the website such as **www.actiontec.com** in the space below. Then click the **Add** button to activate.

To remove a website from the Blocked Websites List, please select the website and click the **Remove** button. Click **Next** to continue.

Website:

Blocked Website List:

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

### 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 multiple, client-initiated VPN pass-through sessions), select **On**. Four VPN connections can be used at one time. Note that VPN via PPTP pass through is always active.

### VPN Pass Through

The default setting for IPSec/L2TP pass through is **Off**. Please turn it **On** to support IPSec/L2TP Virtual Private Networks.

IPSec/L2TP:  On  Off

(PPTP pass through for use with PPTP Virtual Private Networks is always on by default.)

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

## 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. *Actiontec* recommends leaving the Remote Management **Off** (the factory default setting).

### Remote Management

The default Remote Management setting is **Off** for security reasons. If you want to access your Gateway remotely, please select **On**.

Remote Management:  On  Off

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 Basic Setup screen and select Change Admin Password. Follow the instructions in the subsequent screens

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



## 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, *Actiontec* 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. For a list of programs that use port forwarding, as well as port numbers used, see “Appendix C - Program and Port List.”

To remove forwarded ports, highlight them, then click **Remove**.

The screenshot shows a web-based configuration interface titled "Port Forwarding". At the top, there is a heading "Port Forwarding" and a sub-heading "Please enter ports and port ranges, that some internet applications require to be forwarded, in the spaces below." Below this, there are three input fields: "IP Port Range" (two boxes separated by "to"), "Protocol" (a dropdown menu with "TCP" selected), and "IP Address" (a single box). Underneath these fields are two buttons: "Add" and "Remove". Below the buttons is a large empty rectangular box labeled "List of Forwarded Ports". To the right of this box is a button labeled "Advanced ...". At the bottom of the form are two buttons: "Back" and "Next".

Clicking **Advanced** brings up the “Advanced Port Forwarding” screen.

### Advanced Port Forwarding

Please enter ports and port ranges, that some internet applications require to be forwarded, in the spaces below.

<b>IP Port Range</b> <input type="text"/> to <input type="text"/>	<b>Protocol</b> TCP	<b>IP Address</b> <input type="text"/>
<b>Remote IP Port Range</b> 0 to 65535	<input checked="" type="checkbox"/> Any IP /	<b>Remote IP Address</b> anyIP
<input type="button" value="Add"/>	<input type="button" value="Remove"/>	

**List of Forwarded Ports**

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.”

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

## 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

Your Gateway can be configured to support Online Gaming and Internet Conferencing services on a network computer. To use this feature, enter the IP Address of the computer in the DMZ Host field below.

DMZ Host IP Address

On  Off

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. *Actiontec* 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.

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

## 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.

### Firewall Security Level

The default Firewall Security Level is set to "Basic". You can change the Firewall Security Level to suit your networking needs.

(Note: Once you have selected a security level, all IP traffic except the default policies specified will be blocked by the Firewall. Refer to the User Manual Appendix C for detailed information on Firewall policies.)

High  
 Medium  
 Low  
 Basic

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

## Dynamic Routing

Selecting **Dynamic Routing** in the “Advanced Configuration” screen generates the “Dynamic Routing” screen. Dynamic routing allows the exchange of routing tables between routers. This relieves the user of having to set up static routes for each router.

**Dynamic Routing**

RIP (Routing Information Protocol) Settings: Select Version 1, Version 2, or Both to enable Dynamic Routing. The default setting “off”, disables Dynamic Routing.

Version 1

Version 2

Both

Off

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.

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

## 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. This protocol allows computers to use different IP addresses when connected to the Gateway, and prevents outside users from easily accessing computers on the network.


**NAT**

**Warning:** Please do not disable NAT unless instructed to do so by your ISP. Turning off NAT will open your modem to outside intrusion, creating a security risk.

**NOTE:** If you turn NAT off, you MUST specify a static route for your local subnet.

Click **Next** to continue.

On  Off

 **Warning:** 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).

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

### Static Routing

Selecting **Static Routing** in the “Configuring the Advanced Settings” screen generates the “Static Routing” screen. Static Routing allows the user to manually create routes to other networks connected to the Gateway. Other networks may include routers or computers connected to the Gateway which are configured to reside in a network other than the Gateway’s default network.

#### Static Routing

Please enter static routes. "Subnet IP" is the IP address of the subnet being defined. "Subnet Mask" is the subnet mask of the subnet being defined. "Gateway IP" is the IP address of the gateway and can be empty for local subnet.

**Subnet IP**  **Subnet Mask**  **Gateway IP**

**Static Routing Table**

--

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**.

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

## 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.

**MAC Address Cloning**

This feature is designed for ISPs that require MAC address authentication. If you do not need to have MAC address authentication to access your ISP, please do not change this field.

Please refer to your User's Manual for more information.

**User Select WAN MAC Address**

.  .  .  .  .

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

## 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.

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.

<p><b>General Status</b></p> <ul style="list-style-type: none"> <li>Routing Table</li> <li>WAN Status</li> <li>LAN Status</li> <li>Active User List</li> </ul>	<h3>Current Status</h3> <p><b>Firmware Version:</b> 1.60.10.0.30-R1520SU</p> <p><b>MAC Address:</b> 00:20:E0:35:26:E1</p> <p><b>WAN</b></p> <p>Connection: <span style="color: blue;">Connected</span> <span style="float: right;">Connect Disconnect</span></p> <p>Mode: <span style="color: blue;">PPPoA</span></p> <p>IP Address: 190.18.20.1</p> <p>Subnet Mask: 255.255.0.0</p> <p>Gateway: 190.18.20.254</p> <p>DNS #1: 198.6.1.3</p> <p>DNS #2: 38.8.82.2</p> <p><b>LAN</b></p> <p>IP Address: 192.168.0.1</p> <p>Net Mask: 255.255.255.0</p> <p>DHCP Server: on</p> <p style="text-align: right;"><a href="#">Main</a></p>
--	--

### Connect/Disconnect

Pressing **Connect** in the Status screen (if the Gateway is disconnected) reestablishes the Gateway’s connection to the Internet.

Pressing **Disconnect** in the Status Screen (if the Gateway is connected) breaks the Gateway’s connection to the Internet.

## Routing Table

Selecting **Routing Table** generates the “Routing Table” screen. This screen displays an overview of the Gateway’s routes. These routes are the pathways used to transfer information to and from the Internet. When disconnected from the Internet, only one route is displayed; when connected, at least two routes (for incoming and outgoing information) are displayed.

<b>Routing Table</b>			
<b>Existing Routes</b>			
Valid	Destination	Gateway	Netmask
✓	<input type="text" value="0.0.0.0"/>	<input type="text" value="190.18.20.254"/>	<input type="text" value="0.0.0.0"/>
✓	<input type="text" value="192.168.0.0"/>	<input type="text" value="0.0.0.0"/>	<input type="text" value="255.255.255.0"/>



## WAN Status

Selecting **WAN Status** generates a “Current Status” screen. This screen displays an overview of the Gateway’s WAN (Wide Area Network) connection.

### Current Status

**PPP Status**

Status:	connected
User Name:	actiontec@local
Session Time:	0 days 02:24:57
Packets Sent:	1026
Packets Received:	919

**DSL Status**

VPI:	0
VCI:	32
DSL Mode:	T1.413
Connection Status:	Showtime
Speed (down/up):	8000kbps/1024kbps
ATM QoS class:	ubr
Near End CRC Errors (I/F):	0/0
Far End CRC Errors (I/F):	0/0

[Main](#)

### PPP Status

There are five PPP Status categories: Status, User Name, Session Time, Packets Sent, and Packets Received.

**Status** - Displays the PPP connection status. When “connected” is displayed, the Gateway can access to the Internet. When “connecting” or “authenticating” is displayed, the Gateway is attempting to connect to the Internet. When “unconfigured” is displayed, the Gateway has been disconnected from the Current Status window (see “Current Status” on page 52).

**User Name** - Displays the user name.

**Session Time** - Displays how long the Gateway has been connected to the Internet.

**Packets Sent** - Displays the number of PPP packets sent through the WAN port of the Gateway.

**Packets Received** - Displays the number of PPP packets received through the WAN port of the Gateway.

### **DSL Status**

There are eight DSL Status categories: VPI, VCI, DSL Mode, Connection Status, Speed, ATM QoS class, Near End CRC Errors (I/F), and Far End CRC Errors (I/F).

**VPI** - Displays current Virtual Path Identifier (VPI) setting of the Gateway. The VPI is a channel configured to communicate with the DSL network. It can be set from the DSL Settings screen (see “DSL Setting” on page 60.)

**VCI** - Displays the current Virtual Channel Identifier. The VCI is a channel configured to communicate with the DSL network. It can be set from the DSL Settings screen (see “DSL Setting” on page 60.)

**DSL Mode** - Displays the type of DSL modulation used to communicate with the DSL network. It can be set from the DSL Settings screen (see “DSL Setting” on page 60.)

**Connection Status** - Displays the state of the DSL port connection. When connecting to the Internet, this field will display “Handshake,” “Training,” and “Showtime.” Handshake and Training are pre-connection states the Gateway must go through before establishing a link to the Internet; “Showtime” signifies that the connection has been made.

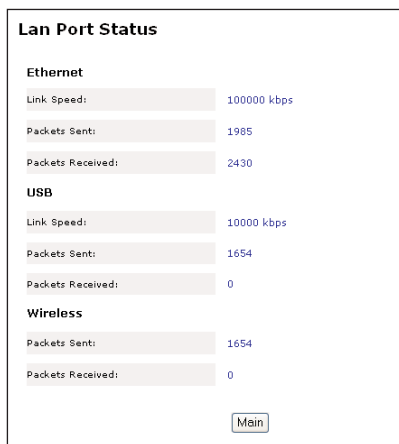
**Speed** - Displays the downstream (information coming in from the Internet) and upstream (information going out to the Internet) connection rates of the DSL link, in kilobits per second.

**ATM QoS class** - Displays the Gateway’s QoS (Quality of Service) setting. The Gateway supports six modes of QoS: UBR, CBR, VBR-nrt, VBR-rt, ABR, and QFC. QoS can be set from the DSL Settings screen (see “DSL Setting” on page 60.)

**Near End CRC Errors (I/F), Far End CRC Errors (I/F)** - Displays the number of interleaved (I) and fast path (F) cell errors occurring on the DSL line. Near end errors occur on the DSL network side; far end errors originate from the DSL modem. These numbers can be used to diagnose network problems, such as slow response times.

## LAN Status

Selecting **LAN Status** generates the “Lan Port Status” screen. This screen displays an overview of the Gateway’s LAN (Local Area Network) port connections.



### **Ethernet**

There are three Ethernet categories: Link Speed, Packets Sent, Packets Received

**Link Speed** - Displays the link speed of the Ethernet connection.

**Packets Sent** - Displays the number of packets (amount of data) sent over the Ethernet connection.

**Packets Received** - Displays the number packets (amount of data) received over the Ethernet connection.

### **USB**

There are three USB categories: Link Speed, Packets Sent, Packets Received

**Link Speed** - Displays the link speed of the USB connection.

**Packets Sent** - Displays the number of packets (amount of data) sent over the USB connection.

**Packets Received** - Displays the number packets (amount of data) received over the USB connection.

### Wireless

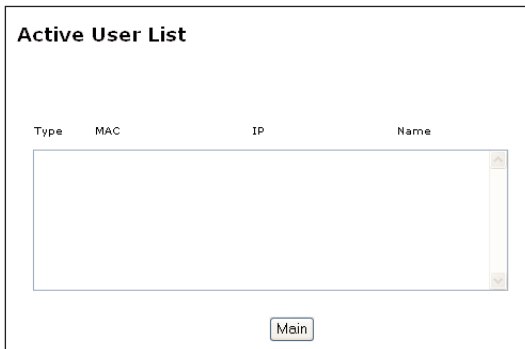
There are two Wireless categories: Packets Sent and Packets Received

**Packets Sent** - Displays the number of packets (amount of data) sent over the Wireless connection.

**Packets Received** - Displays the number packets (amount of data) received over the Wireless connection.

### 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.





# Utilities

# 6

To access the Gateway's utilities select **Utilities** from the "Main Menu" screen. The "Utilities" screen appears.

Utilities	
<b>Web Activity Log</b>	Will provide you information of the most current web activity on your network.
<b>DSL Settings</b>	Will allow you to modify the DSL settings.
<b>Restore Default Settings</b>	Will remove all current settings and restore your DSL Gateway to the default settings.
<b>Upgrade Firmware</b>	Will allow you to download the latest firmware from Actiontec Website.

From here, 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.

### Web Activity Log

View the most current web activity log.

Auto Refresh Every

## DSL Settings

To access DSL Settings, select **DSL Settings** from the “Utilities” screen. The Gateway’s VPI, VCI, and Mode settings can be changed from here. *Actiontec* recommends not changing these values without consulting the Internet Service Provider (ISP).

### DSL Settings

This screen is designed to allow modifying the default DSL settings for connection to your Broadband Service Provider. It is recommended to change these values only after consultation with your Broadband Service Provider.

VPI(0 - 255):

VCI(0 - 65535):

Mode:

## 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 will be lost and the factory default settings will be restored. During this process, the Gateway’s power LED 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 LED stops flashing and glows steadily green, the Gateway is fully operational.

### Restore Default Settings

To restore your Gateway to default settings click on the “**Restore Default Settings**” button below.

### Upgrade Firmware

Selecting **Upgrade Firmware** in the “Utilities” screen generates the “Upgrade Firmware” screen. *Actiontec* periodically posts firmware upgrades to enhance the Gateway’s capabilities.



To upgrade the Gateway’s firmware:

1. Click **Upgrade Here** in the “Upgrade Firmware” window.
2. The QWEST upgrade Web page will appear. Follow the onscreen instructions to download and install the *Actiontec* 1520 Gateway firmware.



**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 adapter from the Gateway, then plug it back in again.
5. When the power LED stops flashing and glows steadily green, the Gateway is fully operational.
6. Reconfigure the Gateway settings.





# Building a Network

# 7

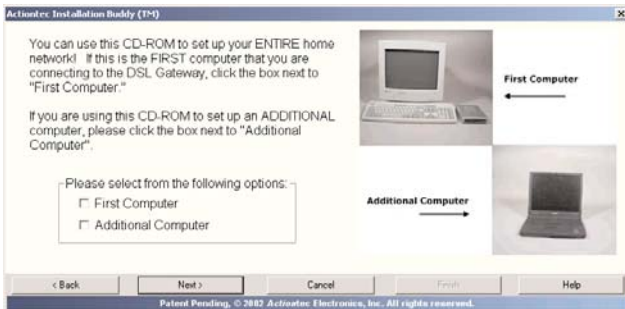
Other computers can be connected to the Gateway to form a network. The network computers can be connected to the Gateway in three ways: Ethernet, USB, or wirelessly.

## Ethernet

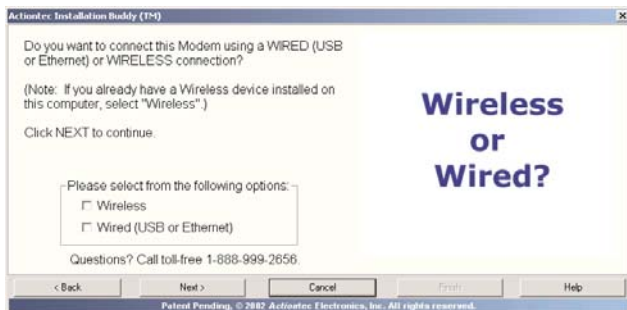
1. Insert the *Actiontec* Installation Buddy CD-ROM in the CD-ROM drive of the computer. The Installation Buddy will start automatically. Wait until the following screen appears, read the onscreen instructions, then click **Next**.



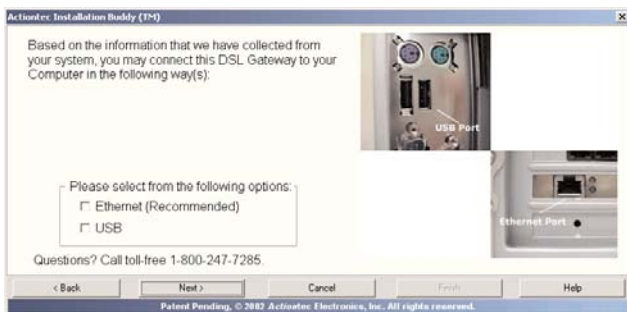
2. The next window appears. Read the instructions, select **Additional Computer** by clicking on the check box, then click **Next**.



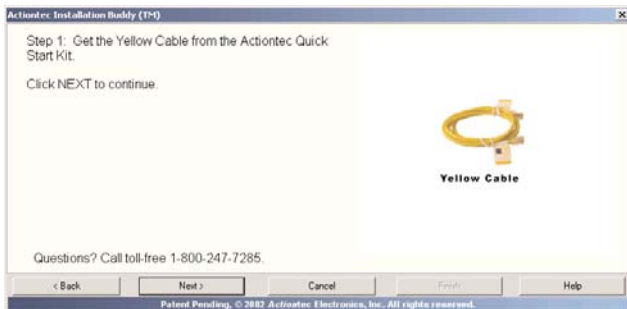
3. The next window appears. Select **Wired**, then click **Next**.



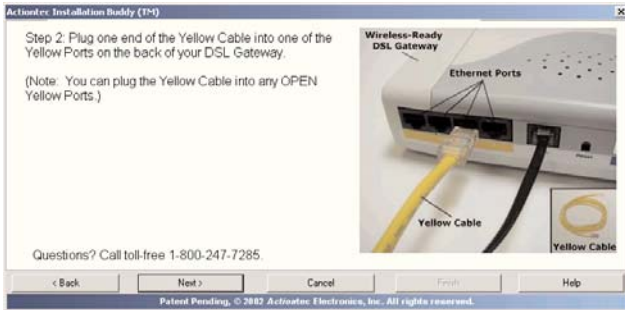
4. The next window appears. Select **Ethernet**, then click **Next**.



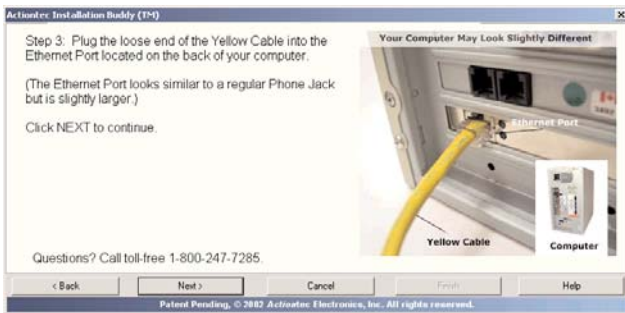
5. When the next window appears, get the **Yellow Ethernet Cable** from the Quick Start Kit, then click **Next**.



- When the next window appears, plug one end of the **Yellow Ethernet Cable** into one of the **Yellow Ethernet Ports** on the back of the Gateway, then click **Next**.

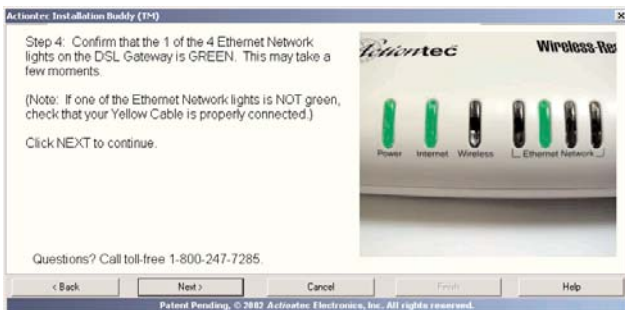


- Another window appears. Plug the other end of the **Yellow Ethernet Cable** into an **Ethernet port** on the back of the computer, then click **Next**.

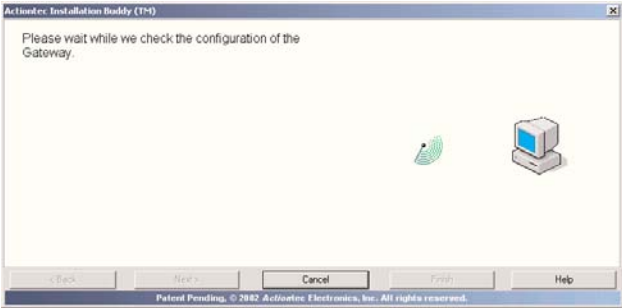


☞ **Note:** An Ethernet port looks similar to a phone port, but is slightly bigger.

- When the next window appears, make sure one of the **Ethernet Network Lights** glow steadily green, then click **Next**.



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



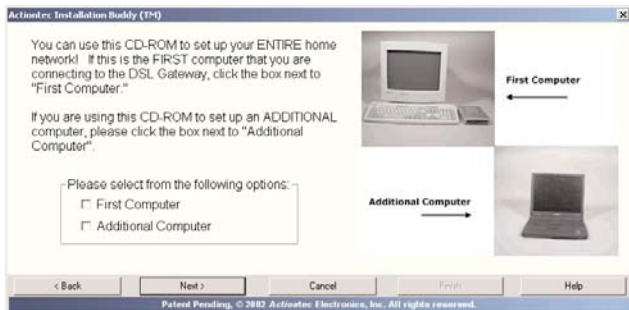
A congratulations window appears. The Gateway is connected to a computer via Ethernet.

## USB

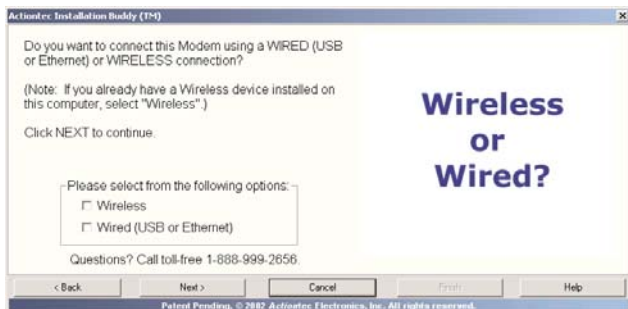
1. Insert **Disk 1** (Installation Buddy CD) in the CD-ROM drive of the computer. The Installation Buddy will start automatically. Wait until the following screen appears, read the onscreen instructions, then click **Next**.



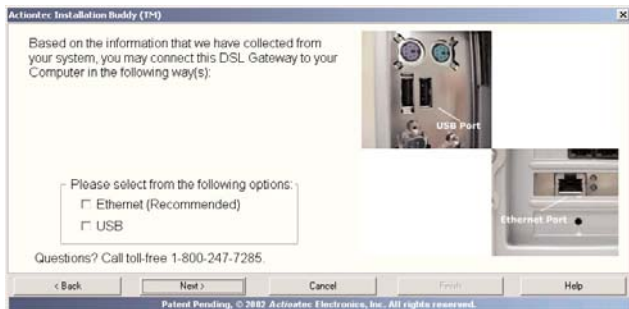
- The next window appears. Read the instructions, select **Additional Computer** by clicking on the check box, then click **Next**.



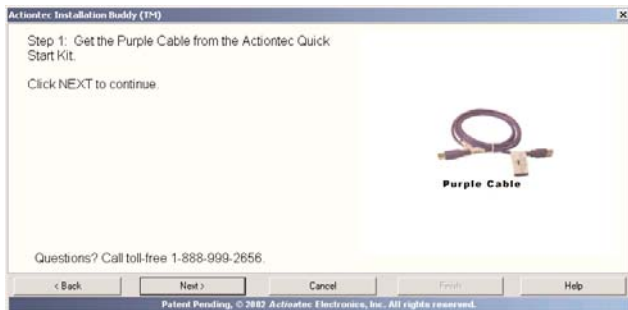
- The next window appears. Select **Wired**, then click **Next**.



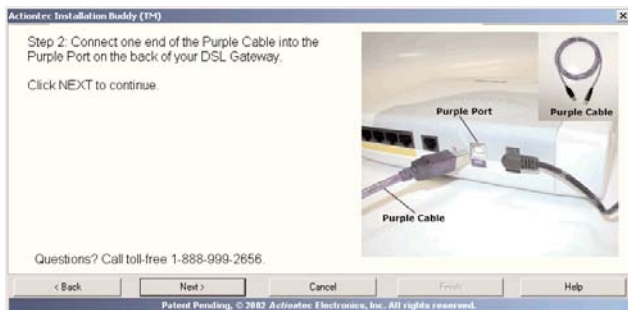
- The next window appears. Select **USB**, then click **Next**.



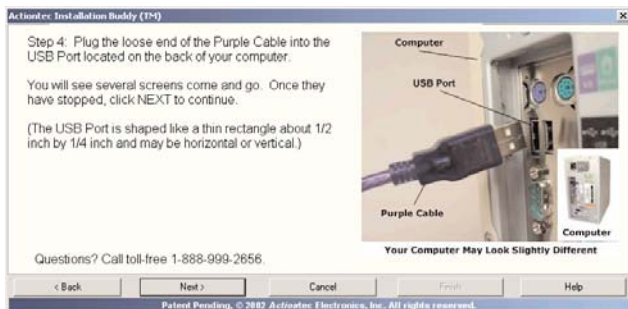
- When the next window appears, get the **Purple USB Cable** from the Quick Start Kit, then click **Next**.



- When the next window appears, plug the square end of the **Purple Cable** into the **Purple USB Port** on the back of the Gateway, then click **Next**.

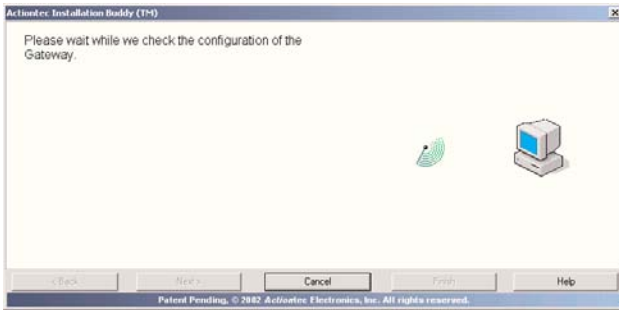


- Another window appears. Plug the rectangular end of the **Purple USB Cable** into a **USB port** on the front or back of the computer, then click **Next**.




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

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

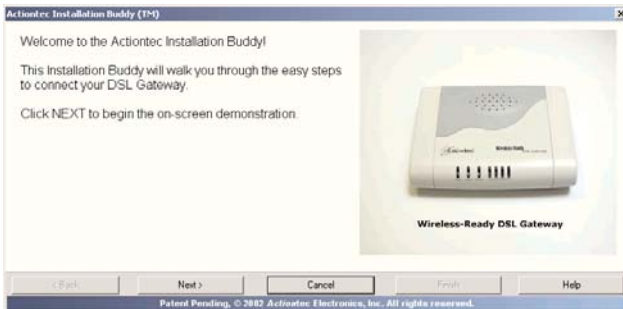


A congratulations window appears. The Gateway is connected to a computer via USB.

## Wireless

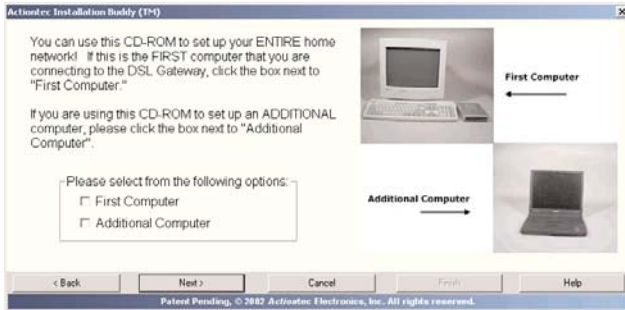
 **Note:** Computers to be added to the network wirelessly must have wireless capabilities (PCI wireless adapter, USB wireless adapter, etc.).

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

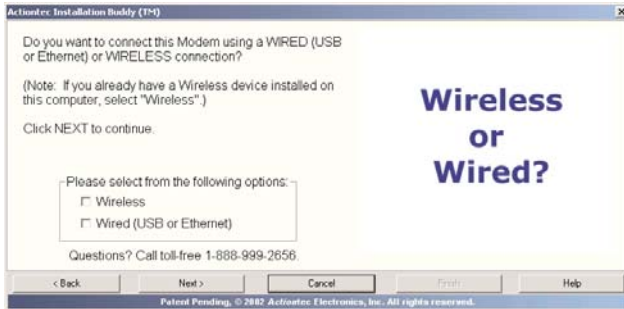




- The next window appears. Read the instructions, select **Additional Computer** by clicking on the check box, then click **Next**.



- The next window appears. Select **Wireless**, then click **Next**.



- 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.



The computer is now connected to the network wirelessly.

# Troubleshooting

# 8

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 95, 98, 98 SE, or Me, check the computer’s TCP/IP settings. Select **Start, Run**, enter

**winpcfg**

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 through 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 95, 98, 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 through 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, 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, 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 your 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 installation 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.

# Setting Up Static IP Address

# B

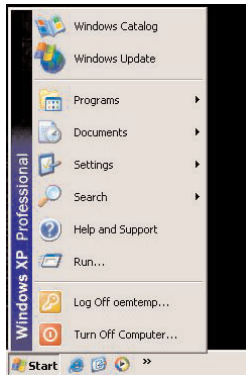
To communicate with the Gateway from a computer on the network (to use the Web Configuration Utility, for example), the user may have to switch the IP address settings from DHCP-enabled to static IP, so that the computer and the Gateway are on the same subnet.

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

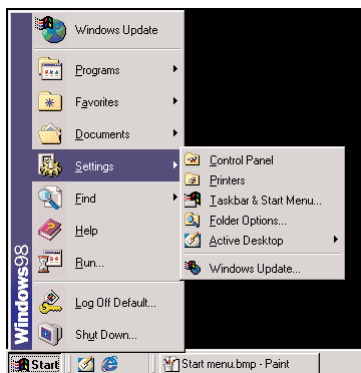
 **Note:** The following procedures are based on the Gateway's factory default IP address. If the Gateway's IP address has been changed, enter the new IP address when instructed to enter an IP address.

## Windows 98 and 98 SE

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



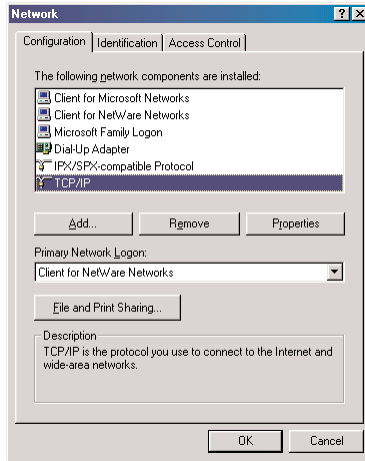
3. Another menu appears. Select **Control Panel**.



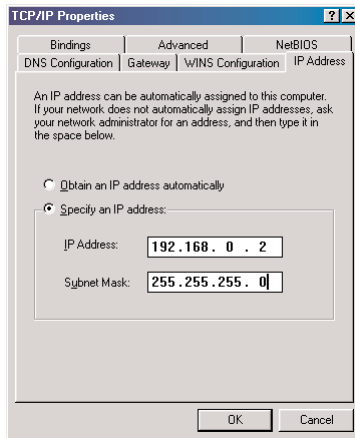
4. When the “Control Panel” window appears, double-click **Network**.



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



- The “TCP/IP Properties” window appears. Select IP Address.



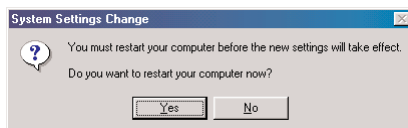
- In the IP Address tab, make sure the the circle next to “Specify an IP Address” is selected. When active, a black dot appears in the circle. If the circle already contains a black dot, leave it alone.
- Enter the following numbers in the “IP Address” text box:  
**192.168.0.2**  
Do not include the 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.

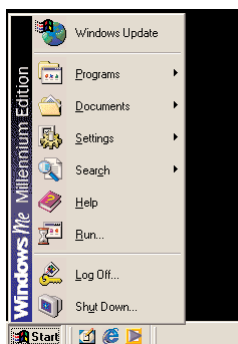
10. Click **OK**. The TCP/IP Properties window disappears.
11. In the Network window, click **OK**. The Network window disappears.
12. The “System Settings Change” window appears, asking whether the computer should be restarted. Click **Yes**.



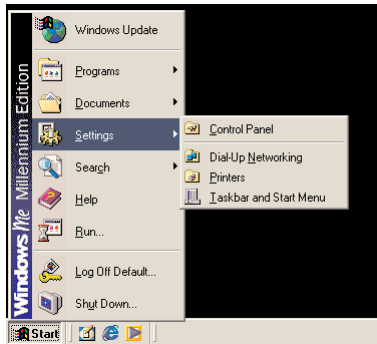
The computer restarts. It is now set up with a static IP address, allowing the user to access the Modem’s Advanced Setup utility.

## Windows Me

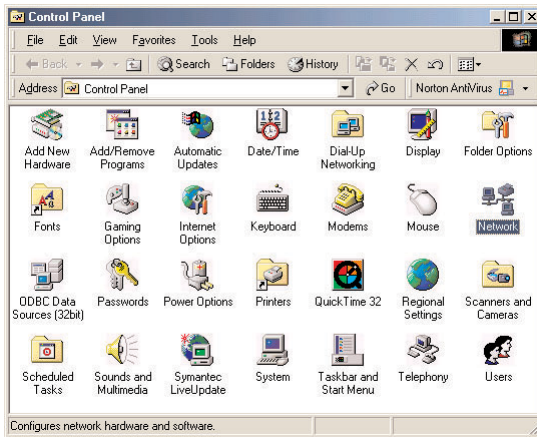
1. From the desktop, click on the **Start** button in the lower left corner.
2. From the menu that appears, select **Settings**.



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

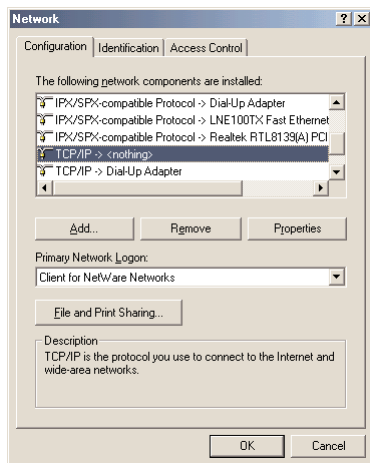


4. When the “Control Panel” window appears, double-click **Network**.

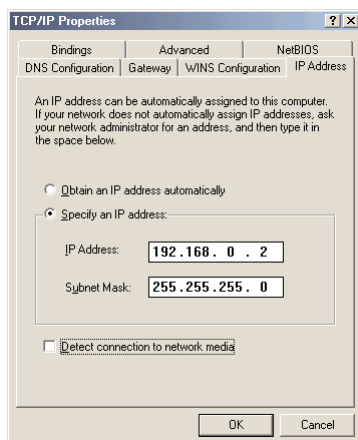




- The “Network” window appears. In the “The following network components are installed” list box, locate and double-click TCP/IP.



- The “TCP/IP Properties” window appears. Click **IP Address**.



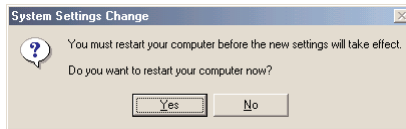
- In the IP Address tab, make sure the the circle next to “Specify an IP Address” is selected. When active, a black dot appears in the circle. If the circle already contains a black dot, leave it alone.
- Enter the following numbers in the “IP Address” text box:  
**192.168.0.2**  
Do not include the 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.

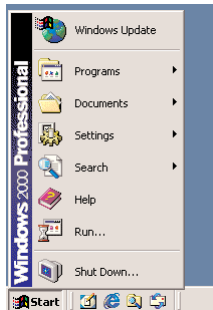
10. Click **OK**. The TCP/IP Properties window disappears.
11. If there is a check in the box next to “Detect connection to network media,” click on it to uncheck the box.
12. In the Network window, click **OK**. The Network window disappears.
13. The “System Settings Change” window appears, asking whether the computer should be restarted. Click **Yes**.



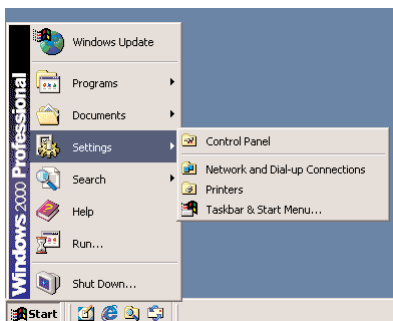
The computer restarts. It is now set up with a static IP address, allowing the user to access the Modem’s Advanced Setup utility.

## Windows 2000

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



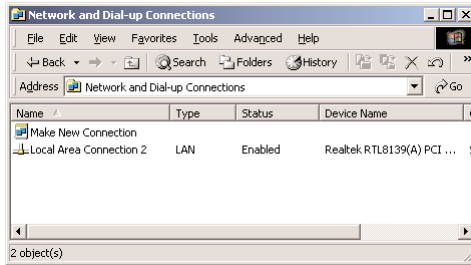
3. Another menu appears. Select **Control Panel**.



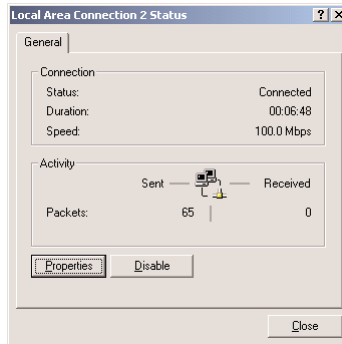
4. When the “Control Panel” window appears, double-click **Network and Dial-up Connections**.



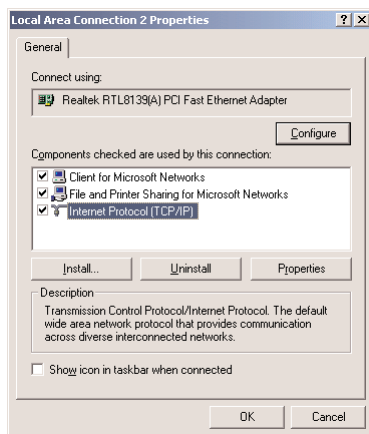
- In the “Network and Dial-up Connections” window, double-click **Local Area Connection**. A number may be displayed after the Local Area Connection. If there is more than one Local Area Connection listed, locate the one that corresponds to the network card installed in the computer by finding the name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



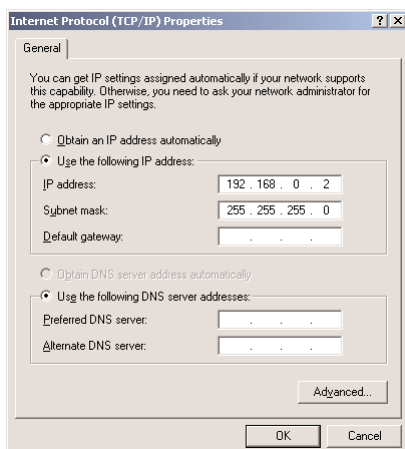
- The “Local Area Connection Status” window appears. Select **General**, then click **Properties**.



- The “Local Area Connection Properties” window appears. Click **General**.
- In the “Components checked are used by this connection” list box, double-click **Internet Protocol (TCP/IP)**.



- The “Internet Protocol (TCP/IP) Properties” window appears.



- 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.
- 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

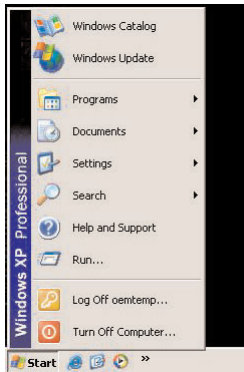
Do not include the periods; they are automatically entered.

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.

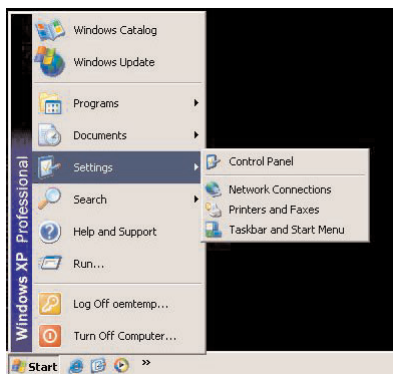
The computer is now set up with a static IP address, allowing the user to access the Modem’s Advanced Setup utility.

## Windows XP

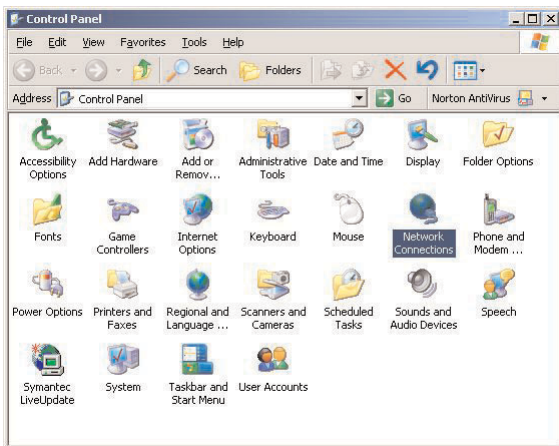
1. From the desktop, click on the **Start** button in the lower left corner.
2. From the menu that appears, select **Settings**.



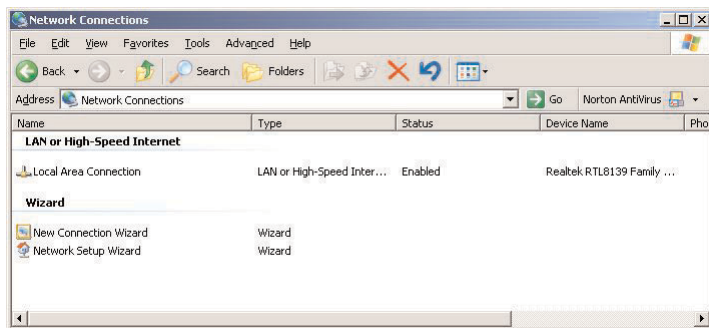
3. Another menu appears. Select **Control Panel**.



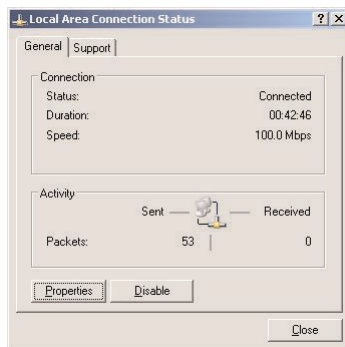
4. When the “Control Panel” window appears, double-click **Network Connections**.



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.

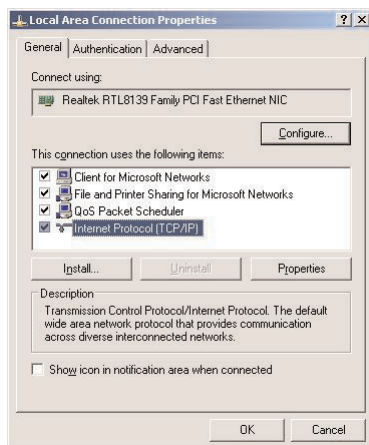


6. The “Local Area Connection Status” window appears. Select **General**, then click **Properties**.

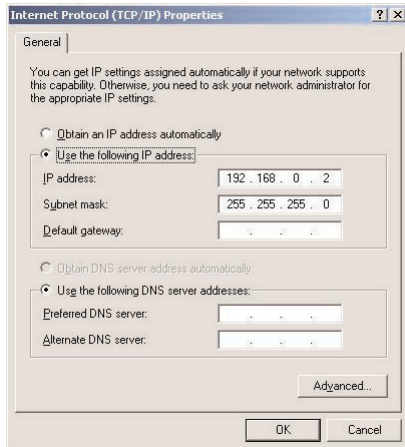




7. The “Local Area Connection Properties” window appears. Select **General**.
8. In the “Components checked are used by this connection” list box, double-click **Internet Protocol (TCP/IP)**.



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

# C

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.

## 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 on.” 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, 98 SE, Me, NT 4.0, or 2000, 98, or NT 4.0 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



## 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  
**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

0° C to 40° C (32°F to 104°F)

### Storage Temperature

-20°C to 70°C (-4°F to 158°F)

### Operating Humidity

10% to 85% non-condensing

### Storage Humidity

5% to 90% non-condensing

# Glossary



## **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.

## **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 a 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**

Provides security for wireless data transmissions.

## **ESSID (Extended Service Set Identifier)**

A unique identifier for a wireless network.

## **Ethernet Network**

A standard wired network configuration using cables and hubs.

### **Firewall**

Prevents users outside the network from accessing and/or damaging files or computers on the network.

### **Gateway**

A device that manages the data traffic of a 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 gateway. This address is only required when using a cable or DSL modem.

### **ISP (Internet Service Provider)**

A business that connects individuals or businesses 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)**

Allows all computers on a network to use one IP address, enabling access to the Internet from any computer on the network without purchasing more IP addresses from an ISP.

### **PC Card**

An Ethernet adapter connected to the PCMCIA slot in a computer, enabling the communication with the Gateway.

### **PPPoE (Point-to-Point Protocol over Ethernet)**

A method of secure data transmission.

**Subnet Mask**

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

**TCP/IP (Transmission Control Protocol/Internet Protocol)**

The standard protocol for data transmission over the Internet.

**WAN (Wide Area Network)**

A network connecting 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***

**H**yper**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***

**D**omain **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***

**F**ile **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***

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

### ***pop3***

**P**ost **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***

**N**etwork **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 Control Message Protocol. 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 Shell.** A method for the secure transfer of files from another computer. Also enables remote capabilities (terminal, log in).



# Non-Windows System Setup

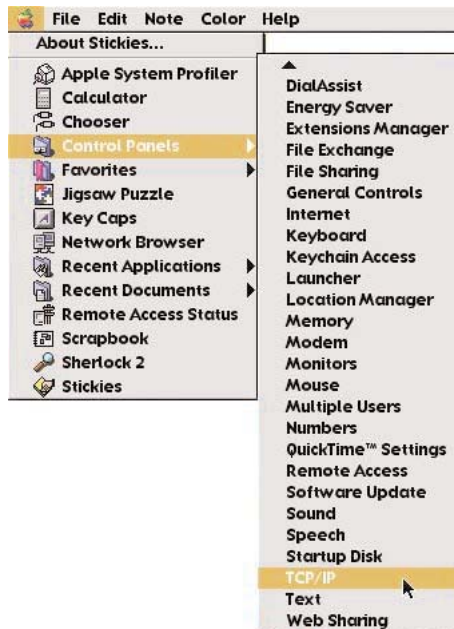
The Gateway supports both the Classic Macintosh operating systems (9.2.1 and below), as well as OS X.

 **Note:** When installing any software, consult the user manual and help files supplied with the software for detailed information. Actiontec 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**.

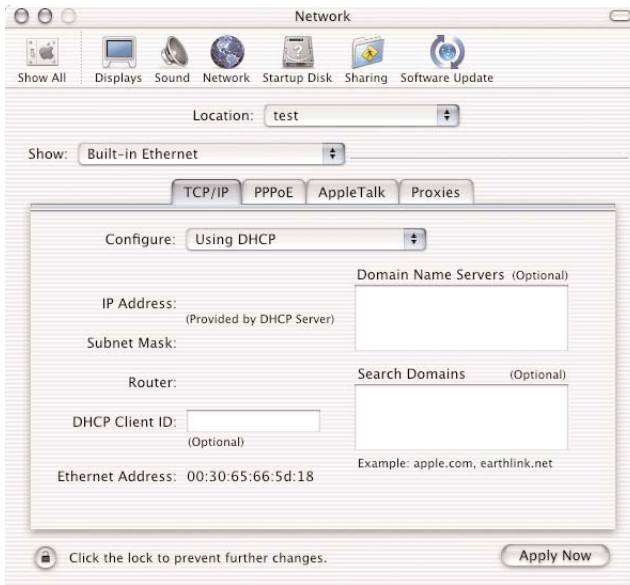


2. When the “TCP/IP” window appears, select **Edit** from menu bar, then select **User Mode**.
3. When the “User Mode” window appears, select **Advanced**, then click **OK**.
4. In the “TCP/IP” window, select **Ethernet** from the “Connect via” drop-down list.
5. Select **Using DHCP Server** from the “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 86.

### OS X

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

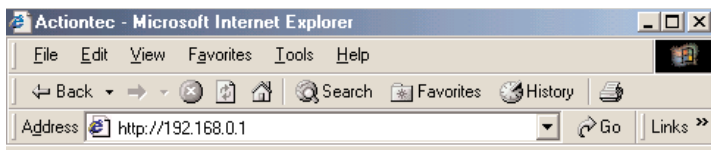


2. Select **Built-In Ethernet** from the “Show” drop-down list.
3. Select **TCP/IP** and, from the “Configure” drop-down list, select **Using DHCP**.
4. Click **Apply Now** and close the “System Preferences” application. The TCP/IP settings are configured.

Next, go to “Connecting to the ISP” on page 86.

## 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.



- 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.

**Actiontec DSL Modem Setup Page**  
The following will setup the router to work with your DSL provider.

Please locate you Internet Service Provider(ISP) worksheet. The ISP worksheet is required to complete the following. The ISP worksheet is sent separate from your DSL fulfillment package diretly from your ISP of choice. If you do not have an ISP worksheet, please contact your ISP directly.

**ISP Protocol**  
Please select the protocol below listed on your ISP worksheet.

Bridged

PPPoA

ISP Username

ISP Password

PPPoE

ISP Username

ISP Password

**IP Configuration**  
Please select your ISP addressing scheme listed on your ISP worksheet.

Dynamic

Static

IP

Subnet

Gateway

- 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 LEDs stop blinking.

For other configuration options, see “Using Advanced Setup” on page 33.



# 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 *Actiontec 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:

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

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*Actiontec* Electronics’ sole obligation under this express warranty shall be, at *Actiontec*’s option and expense, to repair the defective product or part, deliver to Customer an equivalent product or part to replace the defective item, or if neither of the two foregoing options is reasonably available, *Actiontec* Electronics may, in its sole discretion, refund to Customer the purchase price paid for the defective product. All products that are replaced will become the property of *Actiontec* Electronics, Inc. Replacement products may be new or reconditioned. *Actiontec* Electronics warrants any replaced or repaired product or part for ninety (90) days from shipment, or the remainder of the initial warranty period, whichever is longer.

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

*Actiontec Electronics* shall not be responsible for any software, firmware, information, memory data, or Customer data contained in, stored on, or integrated with any products returned to *Actiontec Electronics* for repair, whether under warranty or not.

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**Dispute Resolution:** The customer may contact the Director of Technical Support in the event the Customer is not satisfied with *Actiontec* Electronics' response to the complaint. In the event that the Customer is still not satisfied with the response of the Director of Technical Support, the Customer is instructed to contact the Director of Marketing. In the event that the Customer is still not satisfied with the response of the Director of Marketing, the Customer is instructed to contact the Chief Financial Officer and/or President.

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