

# **54 Mbps Wireless DSL Gateway**

**Model #: GT724-WG**

## **User Manual**

**Version: 0.0 (Draft to be review)**

# Table of Contents

## **1 Introduction 1**

- Package Contents 1
- Minimum System Requirements 2
- Features 2
- Getting to Know the Gateway 4

## **2 Setting Up the Gateway 7**

- Connecting a Computer to the Gateway 7
- Installing Phone Filters 22
- Setting Up the DSL Connection 26

## **3 Performing a Basic Setup 33**

- Basic Setup 33
- Changing the User Name and Password 35

## **4 Using Advanced Setup 37**

- Accessing Advanced Setup 37
- WAN IP Address 38
- LAN IP Address 42
- DHCP Server 42
- Services Blocking 44
- Website Blocking 45
- Remote Management 46
- Application Layer Gateway and Port Forwarding 47
- DMZ Hosting 48
- Firewall 49
- Dynamic Routing 51
- NAT (Network Address Translation) 52
- Static Routing 52
- UPnP (Universal Plug and Play) 53
- Time Zone 53
- Remote Syslog Capture 54
- Wireless Settings 54
- Wireless MAC Authentication 58
- Wireless Advanced Settings 59

## **5 Viewing the Gateway's Status 61**

- General Status 61
- Routing Table 63
- ARP Table 63
- WAN Status 64
- LAN Status 65
- Active User List 65

**6 Using Utilities 67**

- Web Activity Log 67
- System Log 68
- DSL Settings 69
- Restore Default Settings 70
- Upgrade Firmware 70

**7 Setting Up a Network 71**

- Ethernet 71
- USB 76
- Wireless 80

**8 Troubleshooting 81**

- Troubleshooting 81
- Frequently Asked Questions 82

**a Reference 87**

- Locating Computer Information 87
- Locating Windows Operating System Files 88

**b Setting Up Static IP on the Computer 91**

- Windows 98 SE 91
- Windows Me 94
- Windows 2000 97
- Windows XP 101

**c Computer Security 105**

- Comparing DSL Service with a Dial-Up Modem 105
- Gateway Security 106
- Computer Security 106
- Electronic Security 107

**d Specifications 109**

- General 109
- Wireless Operating Range 110
- LED Indicators 110
- Environmental 110

**e Glossary 111**

**f Non-Windows System Setup 115**

- Classic 115
- OS X 117

**Notices 119**

- Regulatory Compliance Notices 119
- Modifications 119
- Miscellaneous Legal Notices 120

**Limited Warranty 121**

# Introduction

Thank you for purchasing the Actiontec 54 Mbps Wireless DSL Gateway. The Gateway is the simplest way to connect computers to a high-speed broadband connection. This easy-to-use product is perfect for the home office or small business. If you want to take your computing to the next level, the Actiontec 54 Mbps Wireless DSL Gateway is sure to be one of the keys to your success.

## Package Contents

- Actiontec 54 Mbps Wireless DSL Gateway
- Power cord
- Phone filters
- DSL cable
- Yellow (Ethernet) cable
- Blue (USB) cable
- Installation CD
- Quick start guide
- Start here guide
- Wireless start here guide
- Technical support card

1

Actiontec 54 Mbps Wireless DSL Gateway User Manual

2

## Minimum System Requirements

- Active DSL service
- Computer with a 10/100 Mbps Ethernet connection, or USB connection
- Microsoft Windows 98 Second Edition (SE), Windows Millennium Edition (Me), Windows NT 4.0, Windows 2000, Windows XP, Mac OS 7.1 and above

? **Note:** USB LAN port is not supported with Microsoft Windows NT 4.0 or any Mac OS.

- Internet Explorer 4.0 or higher (5.x recommended) or Netscape Navigator 4.0 or higher (4.7 recommended)

- TCP/IP network protocol installed on each computer

## Features

- Plug-and-Play installation support for systems with Windows operating systems (98, 98SE, Me, 2000, and XP)
- ADSL WAN port (RJ-11)
- Compliant with full-rate ANSI T1.413 Issue 2, ITU G.992.1 (G.dmt) and G.992.2 (G.lite) standard
- Auto-handshake for different ADSL flavors
- USB 1.1 device specification compliance
- 12 Mbps USB data rate (full speed)
- Multiprotocol Encapsulation over ATM, PPP over ATM, PPP over Ethernet
- Precise ATM traffic shaping
- IP packet routing and transparent bridging
- Routing protocol supports RIP-1, RIP-2, static routing
- Built-in NAT, DHCP server

### 3 Chapter 1 Introduction

- DNS relay support
- PAP/CHAP authentication, administrative passwords through Telnet and HTTP
- 64-, 128-, and 256-bit WEP/WPA wireless LAN security
- Compliant with IEEE 802.3 Ethernet standard
- 10/100 Base-T Ethernet ports (4)
- Flow control support for Fast Ethernet
- Web-based configuration setup
- Default configuration backup restore
- FTP upgradeable
- Web download support
- 802.11b/g support

### 4 Actiontec 54 Mbps Wireless DSL Gateway User Manual

## Getting to Know the Gateway

This section contains a quick description of the Gateway's lights, ports, etc. The Gateway contains several indicator lights (LEDs) on its front panel and a series of ports on its rear panel.

### Front Panel

The front panel of the Gateway features nine lights: Power, DSL, Internet, Ethernet (4), USB, and Wireless.

### 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 flashes rapidly, the Gateway is initializing. If the Power light is not illuminated when the Power cord is plugged in and the Power switch is turned on, the Gateway has suffered a critical error and technical support should be contacted.

### DSL Light

The DSL light illuminates when the Gateway is connected to a DSL (Digital Subscriber Line) line. When it flashes, the Gateway's built-in DSL modem is training for DSL service.

### 5 Chapter 1 Introduction

### Internet Light

When the Internet light glows steadily, the Gateway is connected to the DSL provider.

### Ethernet Lights

The Ethernet lights illuminate when the Gateway is connected via one or more of its Ethernet ports.

### USB Light

The USB light illuminates when the Gateway is connected via its USB port.

### Wireless Light

The Wireless light illuminates when the Gateway is activated for wireless use.

## Rear Panel

The rear panel of the Gateway contains seven ports (Ethernet [4], Phone, USB, and Power), as well as Reset and Power switches.

### Phone Port

The Phone port is used to connect the Gateway to a DSL connection.

### 6 Actiontec 54 Mbps Wireless DSL Gateway User Manual

### USB Port

The USB port is used to connect a computer to the Gateway via USB cable.

### Ethernet Ports

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

### Reset Switch

Depressing the Reset switch for one or two seconds will power cycle the Gateway (similar to unplugging and then plugging in the Gateway's Power cord). 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 switch.

#### Power Port

The Power port is used to connect the Power cord to the Gateway.



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

#### Power Switch

The Power switch is used to power the Gateway on and off.

# 2

## Setting Up the Gateway

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 “Setting Up a Network” on page 71).

### Connecting a Computer to the Gateway

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

#### Connecting Via Ethernet

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

7

Actiontec 54 Mbps Wireless DSL Gateway User Manual

8

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

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

9 Chapter 2 Setting Up the Gateway

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

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

10 Actiontec 54 Mbps Wireless DSL Gateway User Manual

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

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

11 Chapter 2 Setting Up the Gateway

8. Click the **On/Off switch** to its on position (as shown in the picture on-screen), then click **Next**.

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

12 Actiontec 54 Mbps Wireless DSL Gateway User Manual



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

**11.** 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.

13 Chapter 2 Setting Up the Gateway

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

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

14 Actiontec 54 Mbps Wireless DSL Gateway User Manual

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

The Gateway is connected to a computer via Ethernet. Next, install the filters as described in “Installing Filters” on page 22.

### Connecting Via USB

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

15 Chapter 2 Setting Up the Gateway

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

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

16 Actiontec 54 Mbps Wireless DSL Gateway User Manual

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

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

17 Chapter 2 Setting Up the Gateway

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

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

18 Actiontec 54 Mbps Wireless DSL Gateway User Manual

**8.** Click the **On/Off switch** to its on position (as shown in the picture on-screen), then click **Next**.

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

19 Chapter 2 Setting Up the Gateway

**10.** Get the **blue USB cable** from the kit and plug the square end into the **blue USB port** on the back of the Gateway, then click **Next**.

**11.** Plug the rectangular end of the **blue USB cable** into an **USB port** on the front or back of the computer. Click **Next**.

**12.** Make sure the **USB light** on the front of the Gateway **glows solid green**. Click **Next**.

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

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

The Gateway is connected to a computer via USB. Next, install the filters as described in “Installing Filters,” below.


### Installing Phone Filters

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

**1.** Read the on-screen information, then click **Next**.


**2.** Read the on-screen information, then unplug all telephones and other devices from their respective phone jacks. Click **Next**.

**3.** Get the **phone filters**. Click **Next**.

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

**4.** Plug a **phone filter** into every **phone jack** with a telephone or other device connected to it, then click **Next**.

**5.** Plug the ends of the phone lines disconnected in step 2 into the phone filters plugged into phone jacks. Click **Next**.

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

**6.** Read the on-screen instructions, and make sure the Gateway is connected exactly as shown, depending on whether the Gateway is connected via Ethernet or USB. **Ethernet connection setup:**

#### **USB connection setup:**

Click **Next**.

**7.** Make sure the DSL light on the Gateway **glows solid green** (this may take a few moments), then click **Next**. **Ethernet:**

#### **USB:**

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

## Setting Up the DSL Connection

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

1. Select one of the options in the “Select Connection” box: **Auto Detect**, **Select from the list**, or **Manual Setup**. **Auto Detect** - if selected, click **Next**. The DSL connection is automatically detected, and a series of informational screens will be displayed while the Gateway searches for the connection. If successful, go to step 2. If unsuccessful, go to **Select from the list**, below.

**Select from the list** - If Auto Detect is not successful, or the user knows which ISP to connect to, click in the “Select from the list” box, then click **Next**.

### 27 Chapter 2 Setting Up the Gateway

In the next window, select the ISP being used from the list box on the left (scroll down for more choices), then click **Next**. A series of informational screens will display while the Gateway searches for the connection. If the connection is successful, go to step 2. If not, go to “Manual Setup,” below.

**Manual Setup** - If the Auto Detect and Select from a list are not successful, or the user knows how to configure VPI/VCI and Encapsulation settings, click in the “Manual Setup” box, then click **Next**.

### 28 Actiontec 54 Mbps Wireless DSL Gateway User Manual

In the next window, enter the VPI/VCI and Encapsulation settings (the ISP should provide these) then click **Next**.

2. If PPPoE or PPPoA was selected, enter the user name and password in the appropriate text boxes (or click the check box next to “My ISP does not require this information.”), then click **Next**.

### 29 Chapter 2 Setting Up the Gateway

3. Select the appropriate IP type. This information should be provided by the ISP. When finished, click **Next**. If **Static IP** is selected, go to step 4. If **Dynamic IP (DHCP)** is selected, go to step 5.

4. In the next window, enter the **IP Address**, **Subnet**, **Gateway**, **DNS 1**, and **DNS 2** information (if applicable) in the proper text boxes. When finished, click **Next**.

### 30 Actiontec 54 Mbps Wireless DSL Gateway User Manual

5. When the configuration is complete, a series of congratulations windows appears. Read the on-screen information, then click through the next few windows to exit the Installation Buddy.

### 31 Chapter 2 Setting Up the Gateway

The Gateway is successfully configured and ready for use.

To make changes to the Gateway’s Advanced Configuration settings, see Chapter 4, “Using Advanced Setup.”

To create a network by connecting more computers to the Gateway, see Chapter 7, “Setting Up a Network.”

### 32 Actiontec 54 Mbps Wireless DSL Gateway User Manual

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## Performing a Basic Setup

This chapter is a guide through a basic configuration setup of the Gateway for users who did NOT use the Actiontec Installation Buddy® to setup the Gateway. The basic setup includes instructions on how to connect the Gateway to the ISP and change the user name and password. To complete a basic setup, the user will need information provided by the ISP and access the Gateway's Web Configurator. This information from the ISP is sometimes contained in a welcome letter or ISP worksheet. If this document is not available, contact the ISP immediately and request one.

### Basic Setup

? **Note:** If you already set up the Gateway using the Installation Buddy (as described in Chapter 2, "Setting Up the Gateway"), the settings described in this section have already been configured. Please continue to chapter 4, "Using Advanced Setup," to configure the advanced settings of the Gateway.

1. Open a Web browser. In the "Address" text box, type `http://192.168.0.1` then press **Enter** on the keyboard.
2. The Web Configurator's "Main Menu" screen appears. Select **Setup/Configuration**.

3

Actiontec 54 Mbps Wireless DSL Gateway User Manual

3

3. Follow the instructions in the "Set Up/Configuration" screen, then click **Begin Basic Setup**.
4. In the next screen, follow the on-screen instructions, then click **Next**.
5. In the next screen, select the type of connection provided by the ISP by clicking in the circle next to **PPPoA** or **PPPoE**. If unsure about the selection, check the information provided by the ISP. Then, enter the **User Name** and **Password** provided by the ISP in the appropriate text boxes. If no user name or password is needed, click in the box next to "My ISP does not require a username and password." Click **Next**.

35 Chapter 3 Performing a Basic Setup

6. Click the **Save and Restart** button in the "Save and Restart" screen.
7. The "Congratulations" screen appears. The Gateway is successfully configured.

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

### Changing the User Name and Password

To create or change the user name and password, controlling access to the Gateway's Web Configurator screens, follow these instructions:

1. From the Setup/Configuration screen, select **Admin Username/Password** from the menu on the left side.

36 Actiontec 54 Mbps Wireless DSL Gateway User Manual

2. The "Change Admin Username/Password" screen appears. Enter a new user name (optional) in the "New Username" text box, then a password in the "New Password" text box. Re-enter the password in the "Re-enter New Password" text box. Make sure to write the user name and password down and keep them in a secure location. They will be needed to access to the Gateway's Web Configurations screens in the future.
3. Click **Save and Restart** at the bottom of the screen.
4. The "Save and Restart" page appears. Click the **Save and Restart** button to save the settings changed in the Change Admin Username/Password screen.

Once the Gateway has rebooted, the password is active. To access the Gateway's Web Configuration screens, the username and password must be entered.

# 4

## Using Advanced Setup

This section contains information concerning setting up the advanced features of the Gateway, such as wireless settings, remote management, and Web site blocking, using the Gateway's Web Configurator.

### Accessing Advanced Setup

To access the Web Configurator's Advanced Setup screens:

1. Open a Web browser. In the "Address" text box type: `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.

Actiontec 54 Mbps Wireless DSL Gateway User Manual

3

4. In the next screen, read the recommendations. To perform an advanced setup on the Gateway, click **Begin Advanced Setup**.
5. The "Configuring the Advanced Settings" screen appears. To check all the settings, or if unsure of which settings to modify, select **Next**. To modify a specific configuration, click on its name in the menu bar on the left.



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

### WAN IP Address

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



**Note:** If unsure about which connection is present, check with the Internet Service Provider (ISP) before continuing.

39 Chapter 4 Using Advanced Setup

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

## Transparent Bridging

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

## Obtain an IP Address through PPPoE or PPPoA

Select one of these options to allow the Gateway to use the Point-to-Point over Ethernet (PPPoE) or Point-to-Point over ATM (PPPoA) protocol. **“Broadband Connection via PPPoE” screen:**

40 Actiontec 54 Mbps Wireless DSL Gateway User Manual

### **“Broadband Connection via PPPoA” screen:**

If a **User Name** and **Password** was entered in the Installation Buddy or during Basic Setup, it should be displayed in the “Broadband Connection via PPPoE/PPPoA” screen. If not, enter the information now. If the information is unavailable, contact the ISP.

#### PPP Auto Connect

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

#### Encapsulation (PPPoA only)

Select one of the encapsulation options, based on information received from the ISP.

## Obtain an IP Through DHCP

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

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

41 Chapter 4 Using Advanced Setup



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

## Specify a Static IP Address

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



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

42 Actiontec 54 Mbps Wireless DSL Gateway User Manual

## LAN IP Address

Selecting **LAN IP Address** in the “Configuring the Advanced Settings” screen generates the “LAN IP Address” screen.

The values in the “Device IP Address” and “Device LAN Netmask” text boxes are the IP address and Subnet mask of the Gateway as seen on the network. These values can be modified for your LAN network, but Actiontec recommends keeping the default factory settings (IP address 192.168.0.1 Subnet mask 255.255.255.0).



**Note:** If the Gateway’s LAN IP Address is modified, ensure the DHCP Server range is within the same subnet. For more information, see “DHCP Server Configuration.”

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

## DHCP Server

Selecting **DHCP Server** in the “Configuring the Advanced Settings” 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**.

43 Chapter 4 Using Advanced Setup

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.”

## DHCP Server Configuration

Clicking **Next** in the “DHCP Server” screen (if the DHCP server is activated) generates the “DHCP Server Configuration” screen. Change IP address range and DNS server information here.

### Beginning IP Address

The “Beginning IP Address” is 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 “Ending IP Address” is 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.

44 Actiontec 54 Mbps Wireless DSL Gateway User Manual

### Lease Time

“Lease Time” is the amount of time, in seconds, the DHCP server will lease a particular IP address. Default is 86400 seconds (24 hours), after which a new IP address must be released. To extend the lease time, enter a larger number.



### Domain Name

“Domain Name” allows a network administrator to enter a domain name if the network is being used in a domain environment.

### DNS (Dynamic or Static)

These options designate the type of DNS server provided by the ISP. If the ISP provided DNS server information, select the type here. If not, leave as is.

### DNS Server 1

“DNS Server 1” is the primary DNS server provided by the ISP. If the ISP provided DNS server information, enter it here. If not, leave the text box intact.

### DNS Server 2

“DNS Server 2” is the secondary DNS provided by the ISP. If the ISP provided secondary DNS server information, enter it here. If not, leave the text box intact.

## Services Blocking

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

### 45 Chapter 4 Using Advanced Setup

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

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

## Website Blocking

Selecting **Website Blocking** in the “Configuring the Advanced Settings” screen generates the “Website Blocking” screen. This feature enables the Gateway to block Web sites to all computers on the network. To block a Web site, enter the address of the Web site in the “Website” text box and click **Add**. The blocked Web site address is 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 supports blocking up to 50 Web sites.

### 46 Actiontec 54 Mbps Wireless DSL Gateway User Manual

## Remote Management

Selecting **Remote Management** in the “Configuring the Advanced Settings” 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).

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. A username and password prompt appears in the browser window. Enter the username and password in the appropriate text boxes to access the Gateway.



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

47 Chapter 4 Using Advanced Setup

## Application Layer Gateway and Port Forwarding

Selecting **Application Layer Gateway** in the “Configuring the Advanced Settings” screen generates the “Application-Level Gateway (ALG) and 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, select the host name of a computer on the network from the “LAN Device” drop-down list (click the down arrow), then click **Add**. Next, select a “Category” by clicking the appropriate radio button. In the “Available Rules” list box, select a game, application, server, etc., then click **Add>>**. The selected item appears in the “Applied Rules” list box. Repeat for each item needed. To remove an item from the Applied Rules list, highlight it, then click **Remove**. To view an item’s rules (forwarded ports, etc.), highlight it, then click **View Rule**.

To create a custom set of rules, click the “User” radio button, then click **New**. The “Rule Management” screen appears.

48 Actiontec 54 Mbps Wireless DSL Gateway User Manual

In this screen, the user can create a custom set of rules for a game or application not listed in the Application Level Gateway screen. Enter the “Rule Name,” “Protocol,” “Port Start,” “Port End,” and “Port Map” in the appropriate text boxes, then click **Apply**. The rules are summarized at the bottom of the screen, and the rule set will appear in the Application Level Gateway screen after clicking **Back**.

## DMZ Hosting

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

DMZ hosting is used to support online gaming and Internet conferencing services. These programs usually require multiple open ports, making the network accessible from the Internet. DMZ hosting symbolically places the DMZ host computer outside of the Gateway’s network. 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.

49 Chapter 4 Using Advanced Setup

## Firewall

Selecting **Firewall** in the “Configuring the Advanced Settings” screen generates the “Firewall Security Level” screen. Select the level of security needed for the network.

### High

If **High** is selected in the “Firewall Security Level” screen, the services listed at the bottom of the screen (HTTP, FTP, POP3, SMTP, IMAP, IMAPv3, DNS, IPSEC IKE, IPSEC ESP, HTTPS, and NNTP) are the only ones allowed to pass through the firewall. All other services will be blocked.

50 Actiontec 54 Mbps Wireless DSL Gateway User Manual

## Medium

If **Medium** is selected in the “Firewall Security Level” screen, the services listed at the bottom of the screen (HTTP, FTP, POP3, SMTP, IMAP, IMAPv3, DNS, IPSEC IKE, IPSEC ESP, HTTPS, and NNTP) are allowed to pass through the firewall. Additionally, the user can click in the appropriate check box to allow or deny access for a particular service (check mark in the check box to allow; blank check box to deny). All services not listed are denied access.

## Low

If **Low** is selected in the “Firewall Security Level” screen, the services listed at the bottom of the screen (NETBIOS-SSN, DNS, EPMAP, PROFILE, NETBIOS-NS, NETBIOS-DGM, MICROSOFT-DS, SNMP, LDAP, and MICROSOFT-GC,) are blocked by the firewall. Additionally, the user can click in the appropriate check box to allow or deny access for a particular service (check mark in the check box to allow; blank check box to deny). All services not listed are denied access.

51 Chapter 4 Using Advanced Setup

## Off

If **Off** is selected in the “Firewall Security Level” screen, firewall filtering is based solely on the basic NAT firewall.

## Dynamic Routing

Selecting **Dynamic Routing** in the “Configuring the Advanced Settings” screen generates the “Dynamic Routing” screen.

If another router or gateway is set up behind the Gateway in the network configuration, consult the documentation that came with the other router/gateway to see what kind of Dynamic Routing is required operate it with the Gateway, then select the appropriate option.

52 Actiontec 54 Mbps Wireless DSL Gateway User Manual

## NAT (Network Address Translation)

Selecting **NAT** in the “Configuring the Advanced Settings” screen generates the “NAT” screen. The Gateway’s basic firewall security is based on NAT. Disabling NAT allows the computers connected to the Gateway to be accessed by outside parties. Do not turn NAT off unless instructed to do so by the ISP.

## Static Routing

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

53 Chapter 4 Using Advanced Setup

## UPnP (Universal Plug and Play)

Selecting **UPnP** in the “Configuring the Advanced Settings” screen generates the “UPnP” screen. In this screen, the Universal Plug and play option is turned on or off by activating the appropriate circle.

Universal Plug and Play is a zero-configuration networking protocol that allows hardware and software (such as Netmeeting) to operate more efficiently. If Netmeeting is not running properly, activate UPnP.



**Note:** Activating UPnP presents a slight security risk. After finishing with the hardware or software using UPnP, Actiontec recommends deactivating UPnP.

## Time Zone

Selecting **Time Zone** in the “Configuring the Advanced Settings” screen generates the “Time Zone” screen. In this screen, select the time zone in which the Gateway is being used.

54 Actiontec 54 Mbps Wireless DSL Gateway User Manual

## Remote Syslog Capture

Selecting **Remote Syslog Capture** in the “Configuring the Advanced Settings” screen generates the “Remote Syslog Capture” screen. In this screen, the user can configure the Gateway to allow a remote computer to access the Gateway’s system logs.

## Wireless Settings

To access the Gateway’s wireless configuration screens, select **Wireless Settings** from the menu on the left side of the “Set Up/Configuration” screen.

This generates the “Wireless Settings” screen.

55 Chapter 4 Using Advanced Setup

## Wireless

To activate the Gateway’s wireless radio, click in the circle next to **On**. To turn off wireless radio, click in the circle next to **Off**.

## 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/g 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 9.)

## Security

There are four wireless security options: **Off**, **WEP**, **WEP+802.1x**, and **WPA**. The latter three options are different types of wireless security.

56 Actiontec 54 Mbps Wireless DSL Gateway User Manual

### Off

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

### WEP

Selecting the security option “WEP” in the Wireless Settings screen generates the “WEP Key” screen. Here, the authentication type, encryption level, and WEP keys are entered to activate WEP (Wired Equivalent Privacy) security encryption for the wireless network.

**Authentication Type** - There are three authentication types: Open, Shared, and Both. Open authentication allows any wireless-enabled device to recognize the network, even if the WEP key is invalid. Shared allows only wireless-enabled devices with the correct WEP key to recognize the network.

**64-bit WEP** - 64-bit WEP requires one or more keys, each key comprising five hexadecimal 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, activate one or more keys by clicking in the appropriate circles, then enter five hexadecimal digit pairs in each activated **Key** text box (**Key 1**-, **Key 2**-, **Key 3**-, **Key 4**-). After activating 64-bit WEP on the Gateway, a computer with wireless capability can join the network only if these same keys are entered in the computer’s wireless encryption scheme.

**128-bit WEP** - 128-bit WEP requires one or more keys, comprising 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, activate **Key 1** by clicking in the appropriate circle, then 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.

#### 57 Chapter 4 Using Advanced Setup

**256-bit WEP** - 256-bit WEP requires one or more keys, each key comprising 29 hexadecimal pairs. A hexadecimal digit consists of alphanumeric characters ranging from 0-9 or A-F. To create a 256-bit WEP key, activate **Key 1** by clicking in the appropriate circle, then enter 29 hexadecimal digit pairs in the **Key** text box. After activating 256-bit WEP on the Gateway, a computer with wireless capability can join the network only if this key is entered in the computer’s wireless encryption scheme.



**Note:** Not all wireless PC Cards support 128- or 256-bit WEP. Ensure that all PC Cards installed in the networked computers support 128- or 256-bit WEP before activating.

#### WEP+802.1x

Activating **WEP+802.1x** in the Wireless Settings screen generates the “Wireless 802.1x Security Settings” screen. This setting is for enterprise networks only, and should be accessed by an experienced information systems specialist.

To set up WEP+802.1x security, enter the IP address of the RADIUS server in the “Server IP Address” text box, and the “Secret” key (for communication between the RADIUS server and the Gateway) in the “Secret” text box. The “Port” and “Group Key Interval” values should remain the same

#### WPA

Activating **WPA** (Wi-Fi Protected Access) in the Wireless Settings screen generates the “Wireless WPA Settings” screen.

#### 58 Actiontec 54 Mbps Wireless DSL Gateway User Manual

There are two levels of WPA. The “Group Key Interval,” “Server IP Address,” “Port,” and “Secret” text boxes, along with the “802.1x” radio button, are enterprise network specific, and should only be accessed by an information systems professional. See “WEP+802.1x” on the previous page for more information. “PSK String” is for home network security. To set up a PSK (Pre-Shared Key), click in the circle next to **PSK String**, then enter 8-63 alphanumeric characters in the text box. All wireless-enabled devices must support WPA and know the PSK to join the network.

## **Wireless MAC Authentication**

Selecting **Wireless MAC Authentication** in the “Wireless Settings” screen generates the “Wireless MAC Authentication” screen.

This feature allows the user to control the wireless LAN network by denying or allowing wireless access by specifying the MAC address of the wireless client(s) allowed or denied access on the wireless network. After changing settings, click Next or Back to continue, or Save and Restart to make all changes permanent.

59 Chapter 4 Using Advanced Setup

## **Wireless Advanced Settings**

Selecting **Wireless Advanced Settings** in the “Wireless Settings” screen generates the “Wireless Advanced Settings” screen.

### **SSID Broadcast**

To prevent unknown users from associating with the Gateway’s network (by using “ANY” as an SSID, for example), disable the Gateway’s SSID broadcast by clicking in the circle next to “Disable.”

### **802.11b/g Mode**

Access to the Gateway’s network can be restricted to wireless clients using either the 802.11b or 802.11g wireless adapters. Click on the down arrow next to the text box and select the desired option. Actiontec recommends using the “Mixed” mode (the default option), which enables both 802.11b and 802.11g wireless clients to join the network.

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

60 Actiontec 54 Mbps Wireless DSL Gateway User Manual

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# 5

## Viewing the Gateway's Status

After configuring the Gateway, settings can be viewed by selecting **Status** in the Web Configurator's Main Menu. In the menu on the left side, there are other Status options available: **Routing Table**, **ARP Table**, **WAN Status**, **LAN Status**, and **Active User List**. No settings (other than connecting or disconnecting from the Internet) can be changed from the Current Status screen.

### General Status

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

### Firmware Version

Displays the firmware version the Gateway is currently running.

### MAC Address

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

6

Actiontec 54 Mbps Wireless DSL Gateway User Manual

6

### WAN - Connection

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

### WAN - Mode

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

### WAN - IP Address

Displays the IP address the ISP assigned to the Gateway.

### WAN - Subnet Mask

Displays the subnet mask address the ISP assigned to the Gateway.

### WAN - Gateway

Displays the Gateway address (for the IP address and subnet mask) the ISP assigned to the Gateway.

### WAN - DNS #1 & #2

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

### **LAN - IP Address**

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

### **LAN - Net Mask**

Displays the subnet mask address configured for the LAN IP address.

### **LAN - DHCP Server**

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

63 Chapter 5 Viewing the Gateway's Status

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

## **Routing Table**

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

## **ARP Table**

Selecting **ARP Table** generates the "ARP Table" screen. This screen displays the IP address, MAC address and interface type of locally connected computers and devices.

64 Actiontec 54 Mbps Wireless DSL Gateway User Manual

## **WAN Status**

Selecting **WAN Status** generates the "WAN Status" screen. This screen displays an overview of the Gateway's WAN (Wide Area Network) connection, including information concerning the WAN and DSL connection, as well as OAM statistics.

65 Chapter 5 Viewing the Gateway's Status

## **LAN Status**

Selecting **LAN Status** generates the "LAN Status" screen. This screen displays an overview of the Gateway's LAN (Local Area Network) port connections, including information concerning any Ethernet, USB, and/or wireless connections.

## **Active User List**

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

66 Actiontec 54 Mbps Wireless DSL Gateway User Manual

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# 6

## Using Utilities

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

From this screen, the Web activity and system 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.

6

Actiontec 54 Mbps Wireless DSL Gateway User Manual

6

### Auto Refresh

To set the Web Activity Log screen to automatically refresh at certain intervals, activate the circle next to "Auto Refresh Every" at the bottom of the Web Activity Log screen, then enter a time value (in seconds) in the text box, or click on the down arrow and select a time value from the menu that appears. The Web Activity Log will refresh at the selected interval.

### Manual Refresh

To set the Web Activity Log screen to manually refresh, activate the circle next to "Manual Refresh" at the bottom of the Web Activity Log screen. To refresh the Web Activity Log screen, click **Refresh**.

### System Log

The System Log provides information about the Gateway's activity. To access the Web Activity Log, select **Web Activity Log** from the "Utilities" screen.

### System Log (Size)

Select the size of the system log displayed here. The smaller the size, the shorter the length of the system log saved.

69 Chapter 6 Using Utilities

### Display

View other saved logs by selecting a log from this drop-down list.

### Save & Restart

Pressing this button saves any changes to the System Log screen and causes the Save and Restart screen to appear.

### **Save Log As**

Pressing this button allows the user to save a log as a file.

### **DSL Settings**

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

70 Actiontec 54 Mbps Wireless DSL Gateway User Manual

### **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 restored. During this process, the Gateway’s Power light flashes and the Gateway is disabled.



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

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

### **Upgrade Firmware**

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

# 7

## Setting Up a Network

Other computers can be connected to the Gateway to form a network, which allows the computers to transfer files, communicate with each other, and share an Internet connection. The networked computers can be connected to the Gateway in three ways: Ethernet, USB, or wirelessly.

### Ethernet

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

7

Actiontec 54 Mbps Wireless DSL Gateway User Manual

7

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

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

73 Chapter 7 Setting Up a Network

4. When the next window appears, get the **yellow Ethernet cable** from the Quick Start Kit, then click **Next**.

5. Plug one end of the **yellow Ethernet cable** into one of the open **yellow ports** on the back of the Gateway, then click **Next**.

74 Actiontec 54 Mbps Wireless DSL Gateway User Manual

6. 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.

7. Make sure one of the **Ethernet lights** glows steadily green, then click **Next**.

75 Chapter 7 Setting Up a Network

8. A series of congratulations windows appears. Click through them to exit the Installation Buddy.

The computer is connected to the Gateway via Ethernet. To connect more computers to the Gateway via Ethernet, repeat this procedure.

76 Actiontec 54 Mbps Wireless DSL Gateway User Manual

### USB

? **Note:** If the first computer connected to the Gateway is connected via USB, no other computers can be connected in this manner. Connect additional computers via Ethernet (see page 71).

1. Insert the Installation CD in the CD-ROM drive of the computer. The Installation Buddy starts automatically. Wait until the following screen appears, read the on-screen instructions, then click **Next**.
2. Read the instructions, select **Additional Computers** by clicking on the appropriate check box, then click **Next**.

77 Chapter 7 Setting Up a Network

3. Select **USB**, then click **Next**.
4. When the next window appears, get the **blue USB cable** from the Quick Start Kit, then click **Next**.

78 Actiontec 54 Mbps Wireless DSL Gateway User Manual

5. Plug one end of the **blue USB cable** into the **blue USB port** on the back of the Gateway, then click **Next**.
6. Plug the other end of the **blue USB cable** into a **USB port** on the front or back of the computer, then click **Next**.

79 Chapter 7 Setting Up a Network

7. Make sure the **USB light** glows steadily green, then click **Next**.
8. A series of congratulations windows appears. Click through them to exit the Installation Buddy.

80 Actiontec 54 Mbps Wireless DSL Gateway User Manual

The computer is connected to the Gateway via USB.

## Wireless

To create a wireless network with the Gateway, see “Wireless Settings” on page 54 of this manual. After setting up a wireless network, consult the manual of the wireless adapter connected to the computer to connect to the Gateway’s wireless network. Computers wirelessly connected to the Gateway must have wireless capabilities (via a PCI wireless adapter, USB wireless adapter, built-in wireless adapter, etc.).

# Troubleshooting

This chapter contains a list of problems that may be encountered while using the Gateway, and techniques to solve them. Note that these techniques may not be successful in all cases. Also included is a list of frequently asked questions.

## Troubleshooting

### Cannot Use the Internet

#### Physical Connections

Ensure the Gateway's Power light is on, as well as the appropriate lights for any active connections (Ethernet, USB, Wireless). If the connection is not active, reconnect the appropriate cable or adapter.

#### Connection to the Router

Check that the default IP address the computer is receiving is correct by selecting **Start, Run**, typing `cmd` in the "Open" text box, and then typing `ipconfig`. The IP address should be 192.168.0.x (with "x" representing a number from 2 through 254), and the Default Gateway address should be 192.168.0.1. If not, restart the computer to allow the Gateway to assign a IP address. If a static IP address was previously assigned to the computer, it will need to be removed before the Gateway can dynamically assign a new IP address. After the computer restarts, check the IP address of the computer again. If it is still not correct, type `ipconfig /?` (note the space after `ipconfig`) to receive an explanation on how to release and renew the IP address. Once the IP address has been verified as correct, open a Web browser. In the "Address" text box, type `192.168.0.1` and click **Go**. The Gateway's Web Configurator Main Menu screen appears, verifying the Gateway's active connection.

8

Actiontec 54 Mbps Wireless DSL Gateway User Manual

8

#### Connection to the Internet

To verify the Gateway's connection to the Internet, open a Web browser. In the "Address" text box, type `192.168.0.1` and click **Go**. The Gateway's Web Configurator Main Menu appears. Select **Status**, and once the "Status" screen appears, verify that "Connected" is displayed in the "WAN" section of the screen. If not, power cycle the Gateway by unplugging and then replugging the Power cord. After power cycling the Gateway, check the connection status again. If still disconnected, go to the Main Menu, select **Setup**, and go through a Basic Setup procedure, making sure to enter all correct selections for your connection. After saving all settings and restarting the Gateway, check the connection status again. If still disconnected, unplug the Gateway's Power cord and leave it unplugged for at least 10 minutes. Replug the Power cord, restart the Gateway, and check the connection again.

## Frequently Asked Questions

This section contains a list of questions concerning the Gateway, and answers to the questions.

## General

I have run out of Ethernet ports on my Gateway. How do I add more computers?

Plugging in an Ethernet hub or switch can expand the number of ports on the Gateway. Connect a standard Ethernet cable from the “Uplink” port of the new hub or switch to an Ethernet port on the Gateway, then connect additional computers to the Ethernet hub or switch.

Which protocols does the Gateway support?

The internal LAN connections support multiple protocols (e.g. TCP/IP, NetBEUI, IPX/SPX, and AppleTalk). The External WAN connection supports only TCP/IP.

Which connection speeds does the Gateway support?

The LAN connections on the Gateway support 10/100 Mbps. The WAN connection supports 8 Mbps because of the physical restrictions placed on broadband connections. The 802.11g wireless connection supports up to 54 Mbps connection speeds (depending on signal quality, environmental factors, and physical distance).

83 Chapter 8 Troubleshooting

Will my Xbox work with the Gateway?

Yes, the Gateway is compatible with the Xbox. You will need to set a static IP on the Xbox in the Xbox live network settings, and forward ports 3074 (both UDP and TCP), 53 (both UDP and TCP), and 88 (UDP) if you run into DSL resolution errors.

Is the Gateway flash-upgradeable? How do I do it?

Yes, the firmware is upgradeable. You can find a link to the firmware site under “Utilities” in the Web-based configurator (see page 67).

Does the Gateway function as a DSL modem?

Yes, the Gateway has a built-in DSL Modem.

## Wireless

Can I use an 802.11b wireless card to connect to the Gateway?

Yes, the Gateway can handle 802.11b cards or 802.11g cards. The 802.11g standard is backward compatible with the 802.11b standard. The Gateway can be setup to handle just “g” wireless cards, just “b” wireless cards, or both.

If I install several Gateways in different locations in my building, will they be able to talk to each other? Will I be able to stay connected as I move between them?

The Gateway does not communicate with other access points, since it is a single access point system. If you install several Gateway devices and move between coverage areas, your wireless device would actually have to reconnect to a separate network.

Which wireless cards will work with the Gateway?

The Gateway will connect with any wireless card supporting the 802.11g or 802.11b wireless standards.

84 Actiontec 54 Mbps Wireless DSL Gateway User Manual

Can my wireless signal pass through floors, walls, and glass?

The physical environment around the Gateway can have a varying effect on wireless signal strength and quality. The more dense an object, the greater the interference. Concrete or metal reinforced structures will cause a higher degree of signal loss than those made of wood, plaster, or glass.

I have an Apple computer that uses the Airport wireless device. Is this device compatible with the Gateway?

Yes, the Apple Airport system complies with the 802.11b and 802.11g standards. If you use the WEP security feature, refer to the Apple Airport documentation for information on the proper method to enter the WEP key for compatibility with the Gateway's hexadecimal WEP entry.

## Network

I use my laptop at work and at home. Is there something special I need to do to make it work in both places?

Yes. You must reconfigure your network settings, including Workgroup, Domain, Password, User name, IP addressing, and any other specific settings used by your company. You may also use third-party software like NetSwitcher to automatically switch between different configurations.

What is the valid IP range I can use for my home network?

The valid IP range for the Gateway is 192.168.0.2 to 192.168.0.254 by default.

How do I find out which IP address my computer is using?

Windows 98, 98SE, and Me - Select **Start, Run**, and type `winipcfg`. Press **Enter**. When the "Winipcfg" window appears, ensure your network device is selected.

Windows NT, 2000, and XP - Select **Start, Run** and type `cmd`. Press **Enter**. When the command screen is displayed, type `ipconfig` and press **Enter**.

85 Chapter 8 Troubleshooting

I used DHCP to configure my network. Do I need to restart my computer to refresh my IP address?

No. Select the appropriate operating system, below, and follow the steps to refresh your IP address.

Windows 98, 98SE, and Me - Go to **Start, Run**, type `winipcfg`, and press **Enter**. Ensure the Ethernet adapter is selected in the device box. Press the **Release\_all** button, then press the **Renew\_all** button.

Windows NT 4.0 and 2000 - Go to **Start, Run**, type `cmd`, and press **Enter**. At the DOS prompt type `ipconfig /release`, then type `ipconfig /renew`. (Note the space after `ipconfig`.)

Windows XP - Unplug the Ethernet cable or wireless card and plug it back in.

Can I run an application located on another computer over the network?

Yes, if the application is designed to run over a network.

Can I play games between computers on my network, or on the Internet?

Yes, if the games were designed for multi-player or LAN play. For specific information about whether a game is capable of Internet or LAN play, refer to the game documentation. Some games require ports to be forwarded to host or join games over the Internet.

I have an FTP or Web server on my network. How can I make it available to users on the Internet?

For a Web server, enable port forwarding for port 8080 to the IP address of the server and set up the Web server to receive on that port, as well. (Configuring the server for static IP address use is recommended.)  
For an FTP server, enable port forwarding for port 21 to the IP address of the server. (Configuring the server for static IP address use is recommended.)

86 Actiontec 54 Mbps Wireless DSL Gateway User Manual

## Connections

How many computers can be connected through the Gateway?

The Gateway is capable of 253 connections, but having no more than 45 connections is recommended. As the number of connections increases, the available speed for each computer decreases.

## Security

What is the default username for the Gateway?

The default username for the Gateway is **admin** (all lower case). To activate the password to protect the Gateway, change the default password, which is blank by default. Remote management is not available on the Gateway until the default password is changed.

Does the Gateway function as a firewall?

Yes. The Gateway provides its security through the use of a NAT and SPI (Stateful Packet Inspection) firewall, which acts as a physical barrier between your network and the Internet.

What is NAT and how does it protect my network?

NAT (Network Address Translation) is a type of security that masks the private IP addresses of the computers on your network with a single public IP address. With NAT, the private IP address of the computers on your network is never transmitted over the Internet.

Which Virtual Private Networking (VPN) protocols are supported?

The Gateway supports pass-through for PPTP, L2TP, and IPSec.

Can I use Internet firewall or security programs with my network?

Because the Gateway has firewall security, it is not necessary to use any other program for security. The use of third-party firewall or Internet security software is not recommended, since certain programs create problems on a private network (BlackIce Defender, Norton Internet Security, and ZoneAlarm, for example).



## Reference

This appendix contains information about various topics, including accessing information about your Windows computer.

### Locating Computer Information

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

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

8

Actiontec 54 Mbps Wireless DSL Gateway User Manual

8

### Locating Windows Operating System Files

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

#### Windows 98 SE

1. From the desktop, click **Start**.
2. When the menu appears, select **Find**, then **Files or Folders**.
3. When the “Find: All Files” window appears, select **Name & Location**.

4. In the “Named” text box, enter: **\*.cab**
5. Click the **down arrow** next to the “Look In” text box and select **My Computer** from the list that appears.
6. Click **Find Now**.
7. When the search is complete, note the directory path that appears most often in the “In Folder” column. For example: C:\WINDOWS\SYSTEM.
8. The Windows operating system files are located in this directory. Write down the directory path for future reference.
9. Close the Find: All Files window.

### **Windows Me, 2000**

1. From the desktop, click **Start**.
2. Select **Search**, then **For Files and Folders**.
3. Windows Me: The “Search Results” window appears. In the “Search for files or folders named” text box, enter: **\*.cab**

Windows 2000: The “Search Results” window appears. In the “Search for files or folders named” text box, enter: **i386**

89 Appendix a Reference

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**.
  6. 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.
- 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.

90 Actiontec 54 Mbps Wireless DSL Gateway User Manual

### **Windows XP**

**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.

# b

## Setting Up Static IP on the Computer

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 network subnet.

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

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

### Windows 98 SE

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

9

Actiontec 54 Mbps Wireless DSL Gateway User Manual

9

3. Another menu appears. Select **Control Panel**.
4. When the "Control Panel" window appears, double-click **Network**.

93 Appendix b Setting Up Static IP on the Computer

5. The "Network" window appears. In the "The following network components are installed" list box, locate and double-click **TCP/IP**.
6. The "TCP/IP Properties" window appears. Select **IP Address**.
7. In the IP Address tab, make sure the circle next to "Specify an IP Address" is selected. When active, a black dot appears in the circle. If the circle already contains a black dot, leave it alone.
8. Enter the following address in the "IP Address" text box: **192.168.0.2** Enter the periods in the address by pressing the space bar on the keyboard.

94 Actiontec 54 Mbps Wireless DSL Gateway User Manual

9. Enter the following address in the "Subnet mask" text box: **255.255.255.0** Enter the periods in the address by pressing the space bar on the keyboard.
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 access to the Gateway’s Web Configurator utility (as shown in chapters 3, 4, 5, and 6).

## Windows Me

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

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

95 Appendix b Setting Up Static IP on the Computer

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

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

96 Actiontec 54 Mbps Wireless DSL Gateway User Manual

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

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

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

8. Enter the following address in the “IP Address” text box: **192.168.0.2** Enter the periods in the address by pressing the space bar on the keyboard.

97 Appendix b Setting Up Static IP on the Computer

9. Enter the following address in the “Subnet mask” text box: **255.255.255.0** Enter the periods in the address by pressing the space bar on the keyboard.

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 access to the Gateway’s Web Configurator utility (as shown in chapters 3, 4, 5, and 6).

## Windows 2000

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

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

98 Actiontec 54 Mbps Wireless DSL Gateway User Manual

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

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

99 Appendix b Setting Up Static IP on the Computer

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

100 Actiontec 54 Mbps Wireless DSL Gateway User Manual

7. The “Local Area Connection Properties” window appears. Click **General**.
8. In the “Components checked are used by this connection” list box, double-click **Internet Protocol (TCP/IP)**.
9. The “Internet Protocol (TCP/IP) Properties” window appears.
10. In the **General** tab, make sure the circle next to “Use the following IP Address ” 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 address in the “IP Address” text box: **192.168.0.2** Enter the periods in the address by pressing the space bar on the keyboard.

101 Appendix b Setting Up Static IP on the Computer

12. Enter the following address in the “Subnet mask” text box: **255.255.255.0** Enter the periods in the address by pressing the space bar on the keyboard.
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 restarts. It is now set up with a static IP address, allowing access to the Gateway’s Web Configurator utility (as shown in chapters 3, 4, 5, and 6).

## Windows XP

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

102 Actiontec 54 Mbps Wireless DSL Gateway User Manual

3. When the “Control Panel” window appears, double-click **Network Connections**.
4. In the “Network Connections” window, double-click **Local Area Connection**. A number may be displayed after the Local Area Connection. If more than one Local Area Connection is 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.

103 Appendix b Setting Up Static IP on the Computer

5. The “Local Area Connection Properties” window appears. Select **General**.

6. In the “This connection uses the following items” list box, double-click **Internet Protocol (TCP/IP)**.
  7. The “Internet Protocol (TCP/IP) Properties” window appears.
- 104 Actiontec 54 Mbps Wireless DSL Gateway User Manual
8. In the **General** tab, make sure the circle next to “Use the following IP Address” is selected. When active, a black dot appears in the circle. If the circle already contains a black dot, leave it alone.
  9. Enter the following address in the “IP Address” text box: **192.168.0.2** Enter the periods in the address by pressing the space bar on the keyboard.
  10. Enter the following address in the “Subnet mask” text box: **255.255.255.0** Enter the periods in the address by pressing the space bar on the keyboard.
  11. Click **OK**. The Internet Protocol (TCP/IP) Properties window disappears.
  12. In the Local Area Connection Properties window, click **Close**. The Local Area Connection Properties window disappears.
  13. Click **Close** in the Local Area Connection Status window. The window disappears.
  14. Close the Network and Dial-up Connections window by clicking on the “x” button at the upper right corner of the window.

The computer restarts. It is now set up with a static IP address, allowing access to the Gateway’s Web Configurator utility (as shown in chapters 3, 4, 5, and 6).

# C

## Computer Security

The Internet is a giant network of computers located all over the world. When a computer is connected to the Internet, it can exchange information with any other computer on the Internet. This allows a computer user to 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 harm. Unless access to the computer is controlled, someone on the Internet can access the information on the computer and steal, damage, or destroy that information.

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

### 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 not connected to the Internet.

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

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

105

Actiontec 54 Mbps Wireless DSL Gateway User Manual

106

### Gateway Security

Be sure to provide the Gateway with an administrative password. If a password is not set, someone on the Internet can access the Gateway and change its configuration or steal information from your computers. For instructions on setting the password, see page 35.

### 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 "back door" software application that lets people on the Internet gain access to the computer without permission.

### **Internet Browsers**

Always exit the Internet browser (Internet Explorer or Mozilla Firefox, for example). 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.

107 Appendix c Computer Security

## **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.

### **Firewalls**

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

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

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

108 Actiontec 54 Mbps Wireless DSL Gateway User Manual

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# Specifications

## General

### Model Number

GT704-WG (54 Mbps Wireless DSL Gateway)

### Standards

IEEE 802.3 (10BaseT) IEEE 802.3u (100BaseTX) IEEE 802.11g (Wireless) G.dmt G.lite 1.413 RFC 1483, 2364, 2516

### Protocol

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

### WAN

Full-rate ADSL Interface

### LAN

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

### Speed

**LAN Ethernet:** 10/100 Mbps auto-sensing **Wireless:** 802.11g 54 Mbps optimal (see “Wireless Operating Range” for details)

### Cabling Type

**Ethernet 10BaseT:** UTP/STP Category 3 or 5 **Ethernet 100BaseTX:** UTP/STP Category 5 **USB**

109

Actiontec 54 Mbps Wireless DSL Gateway User Manual

110

## Wireless Operating Range

### Indoors

Up to 91 M (300 ft.)

### Outdoors

Up to 533 M (1750 ft.)

### Topology

Star (Ethernet)

## **LED Indicators**

Power, DSL, Internet, Ethernet (4), USB, Wireless

## **Environmental**

### **Power**

External, 12V DC, 600mA

### **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)

? **Note:** Specifications are subject to change without notice.



# 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.

## **ATM (Asynchronous Transfer Mode)**

A networking technology based on transferring data in fixed-size cells.

## **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 the network.

## **DNS (Domain Name System) Server Address**

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

## **DSL (Digital Subscriber Line) Modem**

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

## **Encryption**

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

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

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

111

Actiontec 54 Mbps Wireless DSL Gateway User Manual

112

## **Ethernet Network**

A standard wired networking configuration using cables and hubs.

## **Firewall**

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

**Gateway**

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

**IP (Internet Protocol) Address**

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

**ISP Gateway Address**

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

**ISP (Internet Service Provider)**

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

**LAN (Local Area Network)**

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

**MAC (Media Access Control) Address**

The unique hardware address of a device connected to a network.

**NAT (Network Address Translation)**

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

**PC Card**

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

113 Appendix e Glossary

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

Methods of secure data transmission.

**Router**

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

**Subnet Mask**

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

**SSID**

See "ESSID."

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

The standard protocol for data transmission over the Internet.

**WAN (Wide Area Network)**

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

**WiFi Alliance (Wireless Fidelity Alliance)**

An industry group that certifies cross-vender interoperability and compatibility of IEEE 802.11b/g 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.

114 Actiontec 54 Mbps Wireless DSL Gateway User Manual

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## Non-Windows System Setup

The Gateway supports both the Classic Macintosh operating systems (9.2.2 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 Gateway, 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.

To finish setting up the computer to connect with the Gateway, follow the instructions in chapter 3, “Performing a Basic Setup,” on page 33.

117 Appendix f Non-Windows Setup

## OS X

1. From the Apple Menu, select **System Preferences**.
  2. When the “System Preferences” window appears, click **Network**.
- 118 Actiontec 54 Mbps Wireless DSL Gateway User Manual
3. The Network window appears. Select **Built-In Ethernet** from the “Show” drop-down list.
  4. Select **TCP/IP** and, from the “Configure” drop-down list, select **Using DHCP**.
  5. Click **Apply Now** and close the “System Preferences” application. The TCP/IP settings are configured.

To finish setting up the computer to connect with the Gateway, follow the instructions in chapter 3, “Performing a Basic 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, and
2. This device must accept any interference received, including interference that may cause unwanted operation.

### **Important Note**

#### **FCC Radiation Exposure Statement**

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

This transmitter 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

### **Miscellaneous Legal Notices**

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**Hardware:** Actiontec Electronics, Inc., warrants to the end user (“Customer”) that this hardware product will be free from defects in workmanship and materials, under normal use and service, for twelve (12) months from the date of purchase from Actiontec Electronics or its authorized reseller.

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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121

Actiontec 54 Mbps Wireless DSL Gateway User Manual

122

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(In the United States)

Actiontec Electronics, Inc.  
760 North Mary Avenue  
Sunnyvale, CA 94086

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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.

Limited Warranty  
123

124 Actiontec 54 Mbps Wireless DSL Gateway User Manual

**Governing Law:** This Limited Warranty shall be governed by the laws of the State of California, U.S.A., excluding its conflicts of laws and principles, and excluding the United Nations Convention on Contracts for the International Sale of Goods.