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Introduction

Thank you for purchasing the *Action*tec Wireless Cable/DSL Router. The Wireless Cable/DSL Router is the simplest way to connect a small number of PC's to a single high speed Broadband modem. This easy to use product is perfect for the home office or small business. If you would like to take your computing to the next level then the Actiontec Wireless Cable/DSL Router is the key to your success.

Package Contents

One *Action*tec Wireless Cable/DSL Router 4-Port Ethernet/USB

One *Action*tec Wireless Cable/DSL Router 1-Port Ethernet/USB

One power adapter

One RJ-45 Ethernet cable

One USB Cable

Installation CD

This User's Manual and Quick Start Guide

Warranty & Registration Card

Minimum System Requirements

Broadband Internet connection using an external Ethernet modem

PC with an 10Mbps or 10/100Mbps Ethernet connection

Microsoft Windows 95, Microsoft Windows 98, Microsoft Windows Second Edition (SE), Microsoft Windows Millennium (ME), Microsoft Windows NT4, Microsoft Windows 2000, Microsoft Windows XP, MacOS 7.1+, MacOS 8.0+, MacOS 9.0+, or MacOS X+ (***Note:*** **USB LAN port is not supported on Microsoft Windows 95, Microsoft Windows NT 4.0and MacOS**)

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

Contacting Technical Support

*Action*tec Electronics prides itself on making high-quality, durable, high-performance products. If you should need assistance, the *Action*tec Technical Support Department is available 6 am to 11pm Mon - Sun (Mountain Time), to provide professional support.

***Action*tec Electronics, Inc.**
760 N. Mary Avenue
Sunnyvale, CA 94086

Technical Support

Phone: 1-719-884-8300
E-mail: techsupp@actiontec.com
Website: www.actiontec.com/support

Description of the LEDs and Reset Switch for the Wireless Cable/DSL Router 4-Port Ethernet/USB (GE144000-01)

Power LED: The Power LED displays the Gateway's current status. If the LED is solid green the Gateway is powered and fully operational. When the LED is rapidly flashing, the Gateway is initializing. If the LED is not illuminated when the power adapter is plugged in, the Gateway has suffered a critical error and you should contact Technical Support.

Internet LED: When the Internet LED is steadily illuminated, the Gateway is connected to your broadband modem.

Wireless LED: When the Wireless LED is steadily illuminated, the Gateway is ready for wireless networking.

Ethernet Network LED: The Ethernet Network LEDs illuminate when a network link is established with a computer. A flashing LED signifies network traffic across that specific Ethernet connection.

Reset Switch: Depressing the reset switch for 1-2 seconds will reset the Home DSL Gateway. To restore the default configuration settings inside the Gateway, depress and hold the reset switch for 10 seconds.

Description of the LEDs and Reset Switch for the Wireless Cable/DSL Router 1-Port Ethernet/USB (GE344000-01)

Power LED: The Power LED displays the Gateway's current status. If the LED is solid green the Gateway is powered and fully operational. When the LED is rapidly flashing, the Gateway is initializing. If the LED is not illuminated when the power adapter is plugged in, the Gateway has suffered a critical error and you should contact Technical Support.

Internet LED: When the Internet LED is steadily illuminated, the Gateway is connected to your broadband modem.

Wireless LED: When the Wireless LED is steadily illuminated, the Gateway is ready for wireless networking.

LAN LED: The LAN LED will illuminate when a network link is established with a computer. A flashing LED signifies network traffic across the Ethernet connection.

USB LED: The USB LED will illuminate when you connect the router to your computer using a USB cable.

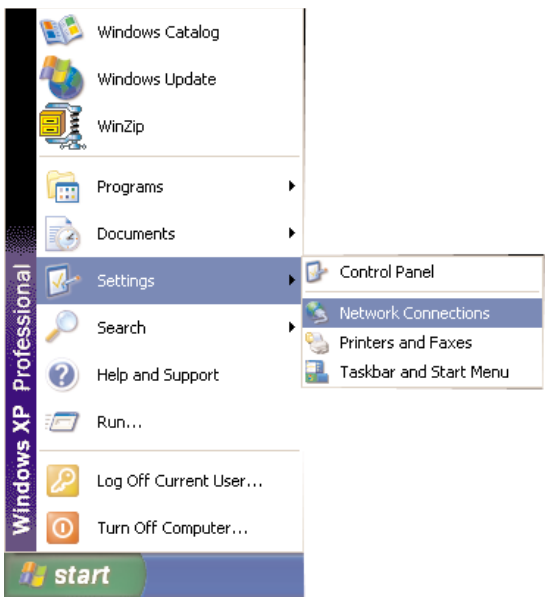
Reset Switch: Depressing the reset switch for 1-2 seconds will reset the Wireless Cable/DSL Router. To restore the default configuration settings inside the Gateway, depress and hold the reset switch for 10 seconds.

Before you Connect the Wireless Cable/DSL Router

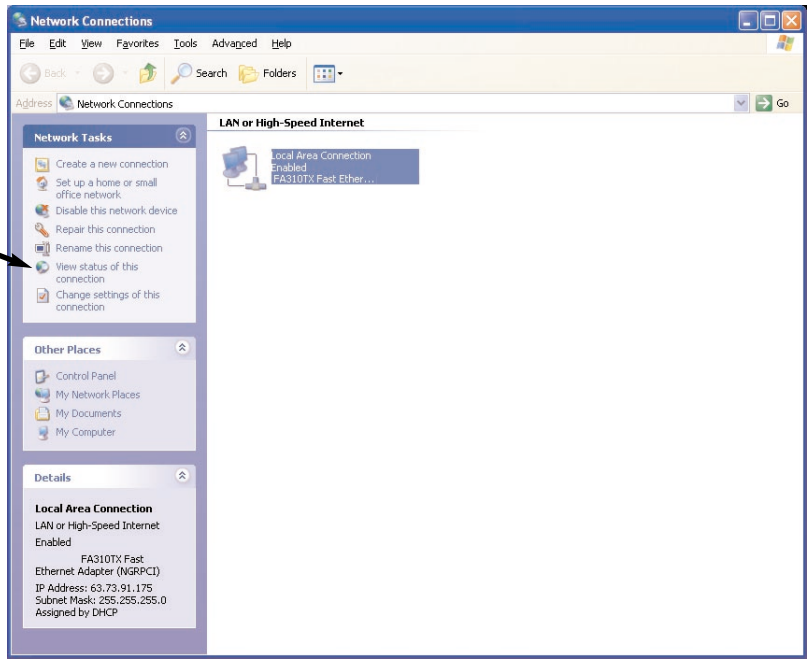
You will need specific information from your ISP to configure the Wireless Cable/DSL Router. You can obtain most of this information from your broadband configured PC by following these 4 steps. (Windows XP instructions shown below. For all other Operating Systems please see Apendix A at the back of this manual)

> *Note:* If you have previously installed Internet Connection Sharing (Ex. Microsoft ICS) or Proxy Server software (Ex. WINPROXY) you will need to uninstall them now.

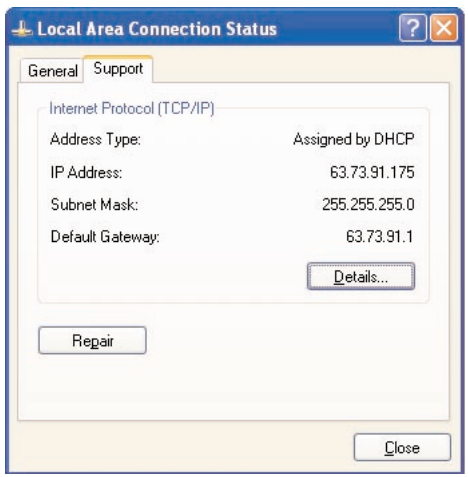
1. Click **Start**, then **Settings** and finally **Network Connections**.



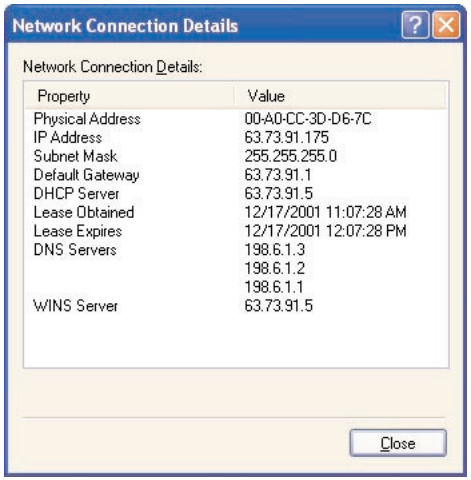
2. On the right hand side of the screen, left click once on you the LAN or high speed interenet connection that is listed. Then on the left hand side of the screen click **View status of this Connection**.



3. The following screen will appear. Click **Details** to continue.



4. The Network Connection Details screen will supply you with neccessary information. Write down this information for installation and future reference:



Your Host/Computer name and Workgroup name (Your ISP may use this information to verify your identity on their network) (Cable only)

_____ _____

Host Name _____

(Example: CY57640-A.cospgs1.co.home.com)

DNS Servers _____._____._____._____

(Example: 24.5.68.33)

Your Secondary DNS server address _____._____._____._____

(Click on the ... button to change the listing)

IP address _____

(Example: 24.253.117.45)

Subnet Mask (If assigned) _____._____._____._____

(Example: 255.255.255.0)

Default Gateway (If assigned) _____._____._____._____

(Example: 24.253.117.1)

Adapter Address _____-_____-_____-_____-_____-_____

(Example: 00-20-78-0F-B8-F0)

Your LOGIN name and PASSWORD (DSL only, provided by your ISP)

_____ _____

Mail and Web Server Information

Some broadband providers use single words to direct the connection to their E-mail or web servers (i.e. web, mail, pop3, www). If your ISP uses single words rather than a whole internet address (pop.mail.actiontec.com), or IP address (24.55.224.34), then you will need the full address information to configure your internet browser and/or E-mail clients.

If this information was not provided during the installation and configuration of your broadband connection, then you will need to contact your ISP and ask for it.

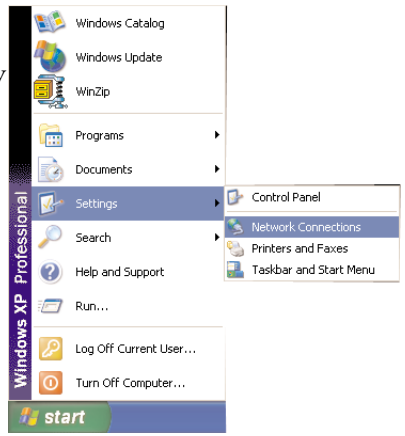
For a listing of the information required for the major broadband ISP's, please visit the following Website and select your specific ISP. Please make sure that you have this information available when you configure the Actiontec Wireless Cable/DSL Router.

HTTP://www.actiontec.com/support/homegateway/index.html

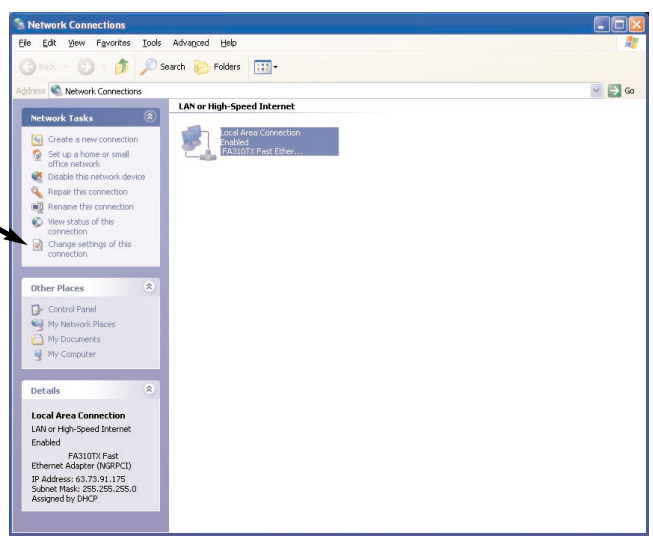
Configuring your Computer for Networking

Before configuring the Wireless Cable/DSL Router, a computer must be configured for standard networking. If you are not running Windows XP, (shown below), then refer to Appendix A for information on configuring other Windows or MacOS based operating systems. It may be necessary to have the Windows CD or Ethernet card driver diskette to complete the configuration.

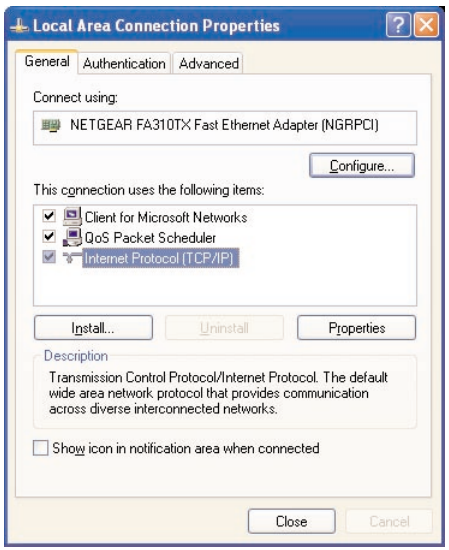
1. Click **Start**, then **Settings** and finally **Network Connections**.



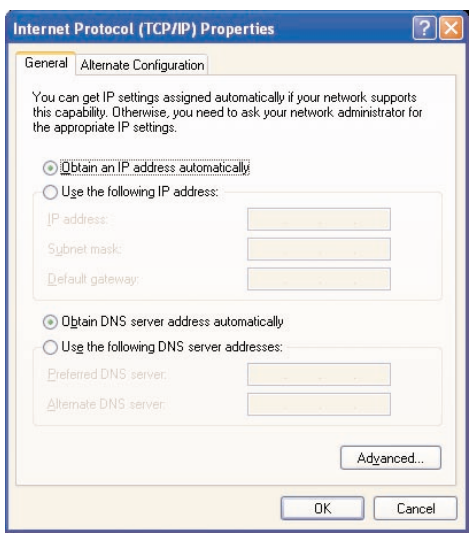
2. On the right hand side of the screen, left click once on you the LAN or high speed interenet connection that is listed. Then on the left hand side of the screen click **Change settings of this Connection**.



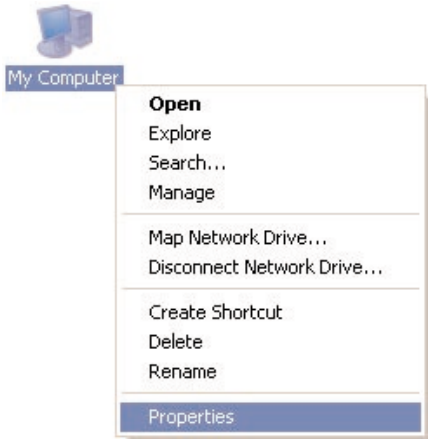
3. In the Local Area Connection Properties window select **TCP/IP** and then click **Properties**. If there is not a listing for TCP/IP then refer to Appendix B for installation instructions now. If there are no Ethernet Adapters listed, then refer to the Ethernet card manufacturer for installation instructions.



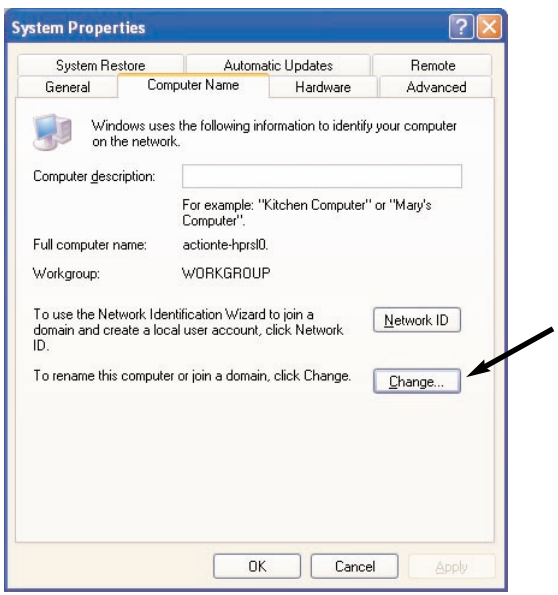
4. Under the General tab select **Obtain an IP address automatically**, then selct **Obtain DNS server automatically**. Click **OK**.



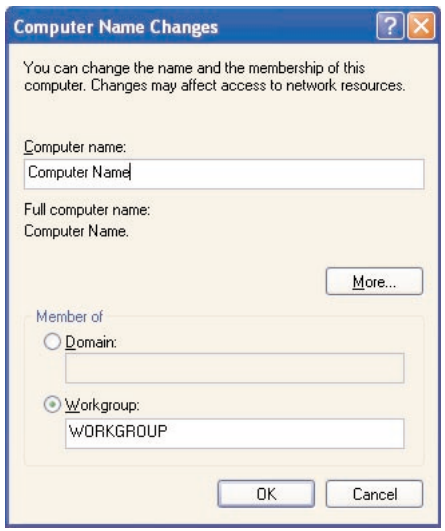
5. On your computer's desktop right click on **My Computer** and select **Properties** from the given list.



6. The System Properties window will appear. Click the **Computer Name** tab. The "Computer Description" field can be anything you want. (A location name or the main user's name is generally used) Click **Change**.



7. Type your chosen computer name in the given field. The "Computer name" field must have a 15 character limit and must be unique. Make sure that **Workgroup** is selected, and then type in the name of your workgroup. The "Workgroup" field must have the same name on all computers attached to your network. Click **OK** when you are finished. You will return to the same screen in step 6, click **OK** again. Please restart your computer even if you are not asked to.



8. Once the computer restarts and Windows has finished loading, you will be prompted for a password. DO NOT PRESS ESCAPE. This is the password that Windows will use to authenticate your permission to be on the network. The password you enter now will become your permanent network password. You may also just press **OK** or <Enter> and your password will be set to blank.

Note: This password will be required each time you restart Windows.

Repeat steps 1 thru 8 for each PC connected to your network. Ensure you use the same Workgroup name on each PC.

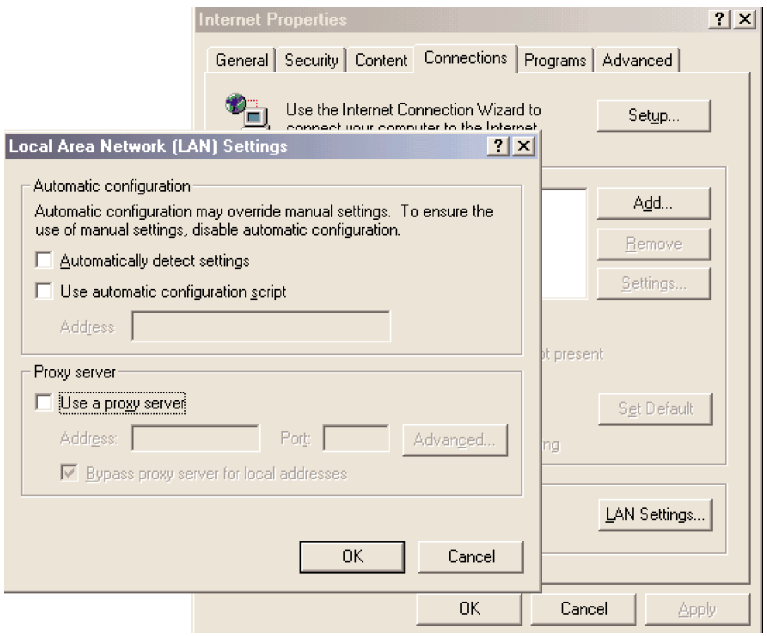
Configuring Your Internet Browser

If "Internet Explorer" is your default browser:

1. Click **Start**, click **Settings**, select **Control Panel**.

2. Double click **Internet Options**, select the **Connections** tab.

3. Click **LAN Settings**. Remove any checks from the 3 boxes and click **OK**.



4. Click **OK** to close the Internet Properties window.

5. Close the Control Panel window.

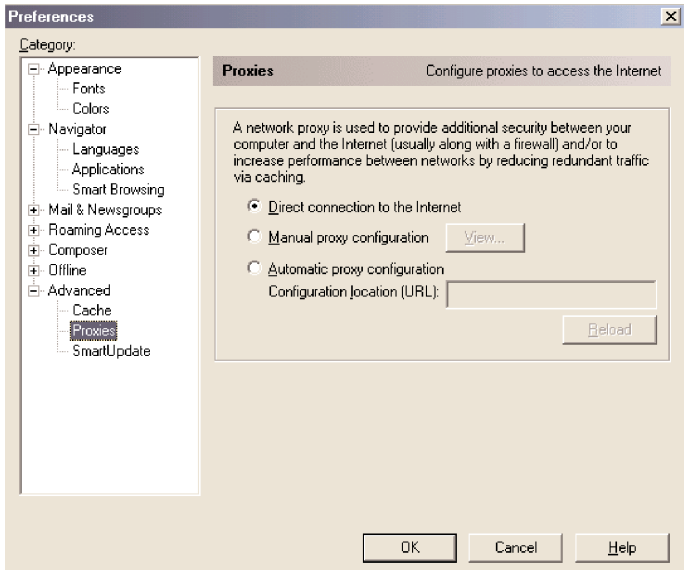
If "Netscape Navigator" is your default browser:

1. Open **Netscape Navigator**.

2. From the top menu bar select **Edit** and then click **Preferences**.

3. Under the Category windows click on the **+ (plus icon)** next to Advanced.

4. Click on **Proxies** and ensure that Direct connection to the Internet is selected.



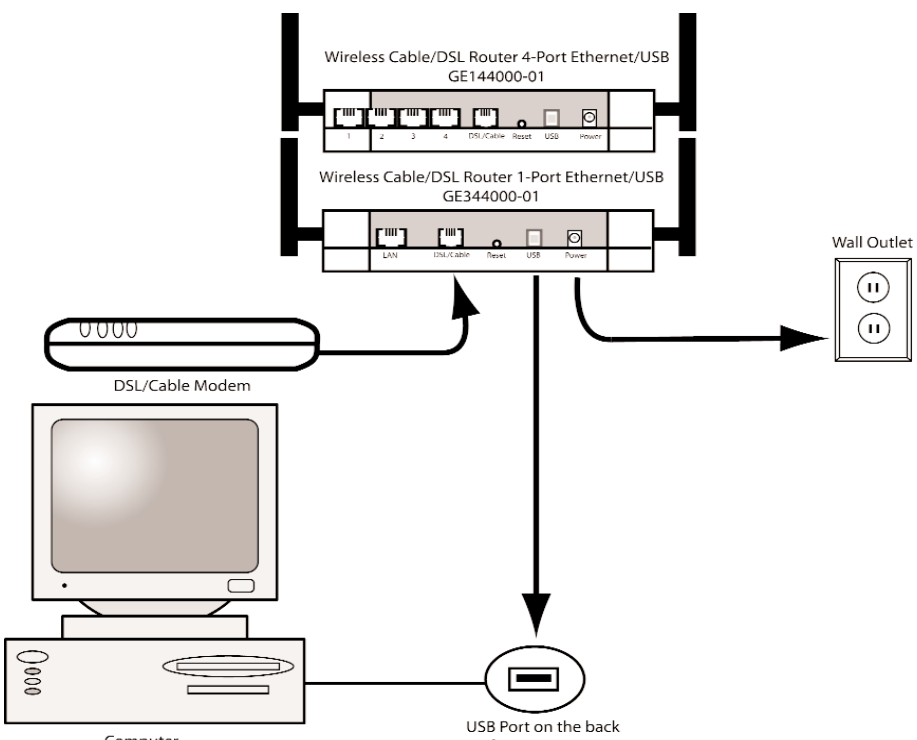
5. Click **OK** to close the Preferences window.

Connecting the Actiontec Wireless Cable/DSL Router

The *Action*tec Wireless Cable/DSL Router allows you to connect to your computer in two (wired) ways, by USB cable or Ethernet cable, and wireless. Follow these instructions for the connection you choose:

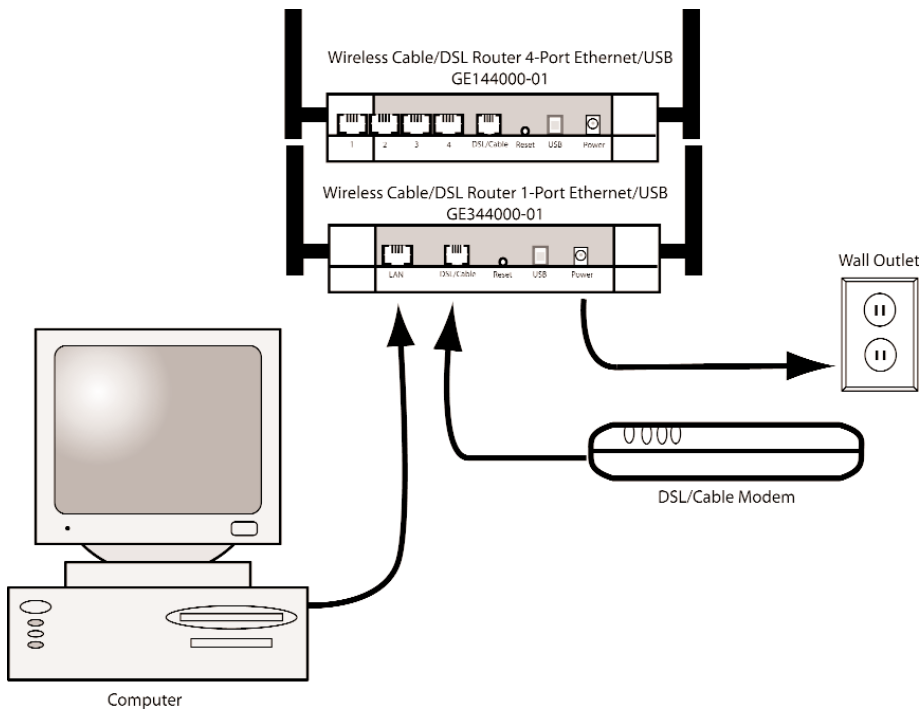
For USB Connection:

1. Please start up your computer.
2. After your computer has started up, locate the USB Cable. Connect the square end to the slot on the *Action*tecWireless Cable/DSL Router labeled "USB". On your PC, connect the other, rectangular end to the appropriate USB slot.
3. Plug the Power Supply into a wall outlet, then plug the other end to the port labeled "Power", on the back of the *Action*tec Wireless Cable/DSL Router.



For Ethernet Connection:

1. Please start up your computer.
2. After your computer has started up, locate the blue Ethernet cable marked "Ethernet cable". Connect the cable to the back of the *Action*tec Wireless Cable/DSL Router and then to your Computer, into the Ethernet slot.
3. Plug the Power Supply into a wall outlet, then plug the other end to the port labeled "Power", on the back of the *Action*tec Wireless Cable/DSL Router.



Installing the USB Drivers

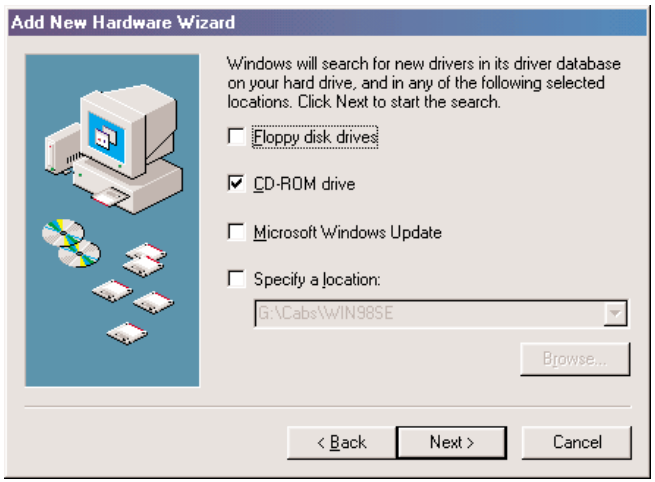
For Windows 98

Note: There are two drivers that will need to be installed, so please follow these instructions

1. After you have connected the Wireless Cable/DSL Router to your computer, the Add New Hardware Wizard screen will appear. Click **Next** to continue.

2. Select the option "Search for the best driver for your device (Recommended)" and then click the **Next** button.

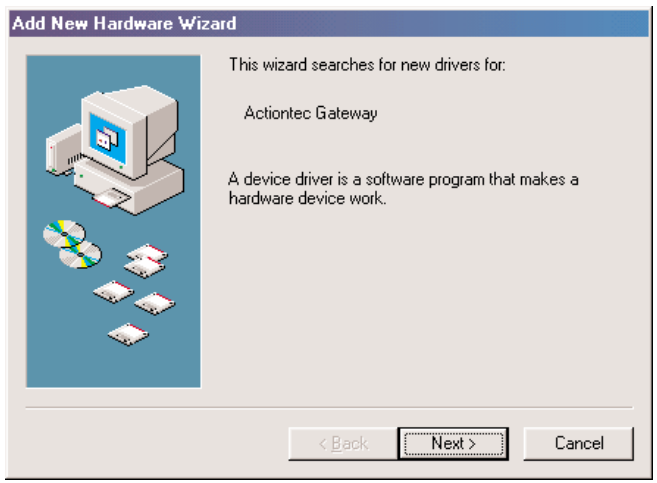
3. Click the box for CD-ROM drive. Before advancing to the next screen, insert the *Action*tec Gateway Installation CD-ROM into the computer's CD-ROM drive. Finally, click the **Next** button.



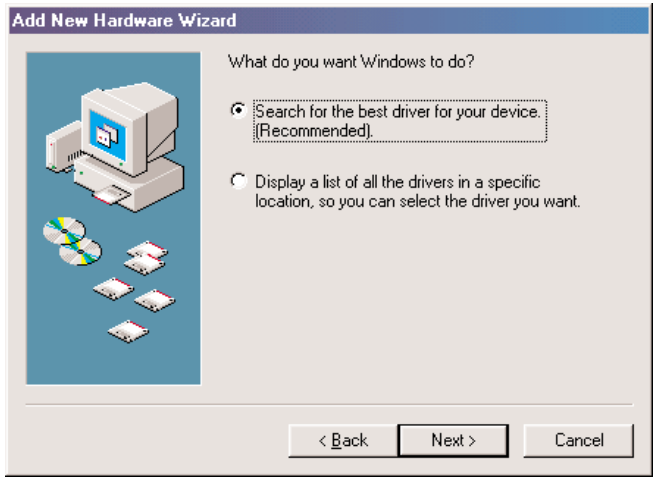
4. Windows will find the appropriate file on the CD-ROM. Click the **Next** button.

5. Windows will install the first drivers needed for your computer. Click the **Finish** button to continue.

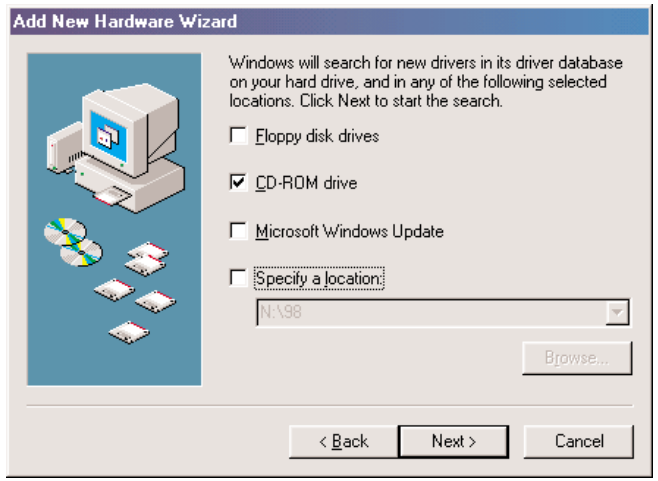
6. The following screen will appear. Click **Next** to install the second driver.



6. Select the option "Search for the best driver for your device (Recommended)" and then click **Next**.



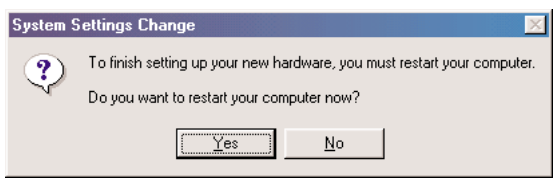
7. Click the box for **CD-ROM drive**. and then click the **Next** button.



8. Windows will find the appropriate file on the CD-ROM. Click the **Next** button.

9. Click **Finish** to end the installation process.

10. When the following screen appears, click **Yes** to restart your computer.



For Windows ME

Note: There are two drivers that will need to be installed, so please follow these instructions

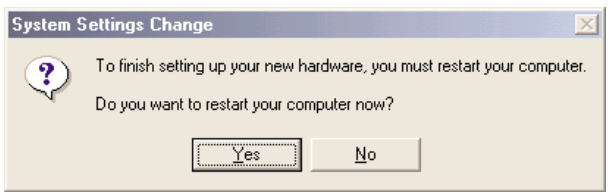
1. After you have connected the Wireless Cable/DSL Router to your computer, the Add New Hardware Wizard screen will appear. Make sure "Automatic search..." is selected and then click **Next** to continue.

2. Windows will install the first drivers needed for your computer. Click the **Finish** button to continue.

3. Make sure "Automatic search..." is selected and then click **Next** to continue.

4. Click **Finish** to end the installation process.

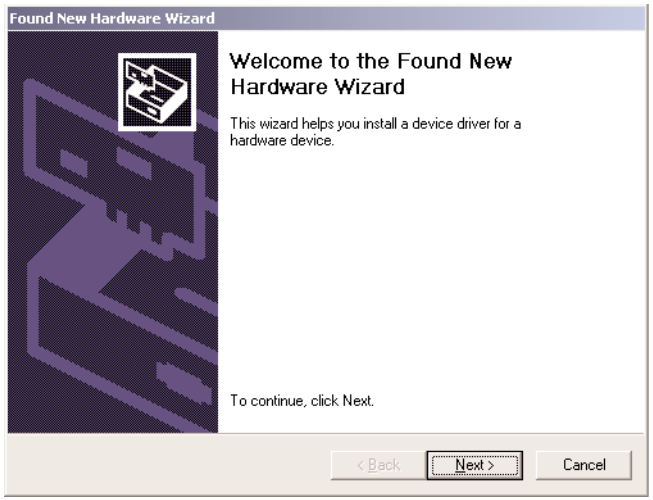
5. When the following screen appears, click **Yes** to restart your computer.



For Windows 2000

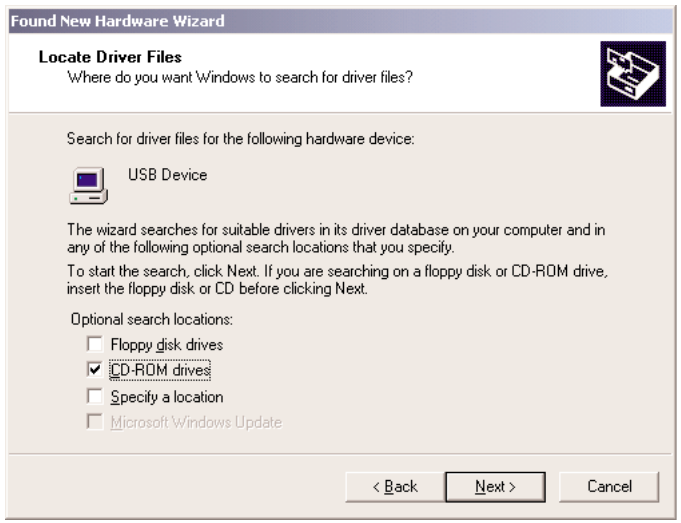
Note: There are two drivers that will need to be installed, so please follow these instructions

1. After you have connected the Wireless Cable/DSL Router to your computer, the Found New Hardware Wizard screen will appear. Click **Next** to continue.

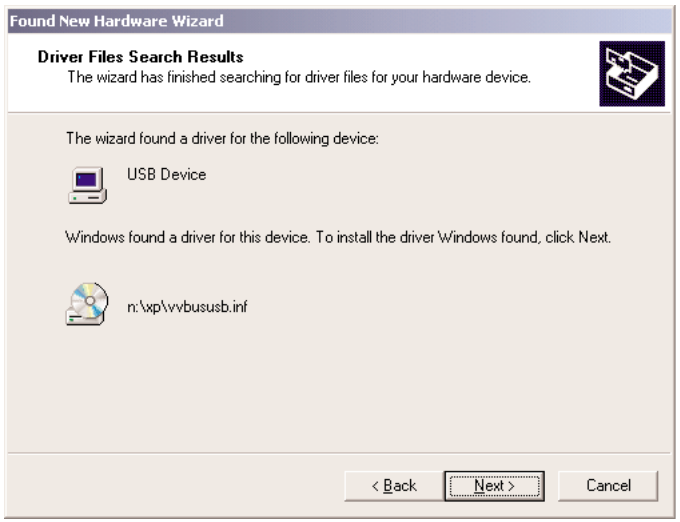


2. Select the option "Search for a suitable driver for my device (Recommended)" and then click the **Next** button.

3. Click the box for CD-ROM drive. Before advancing to the next screen, insert the *Action*tec Gateway Installation CD-ROM into the computer's CD-ROM drive. Finally, click the **Next** button.



4. Windows will find the appropriate file on the CD-ROM. Click the **Next** button.



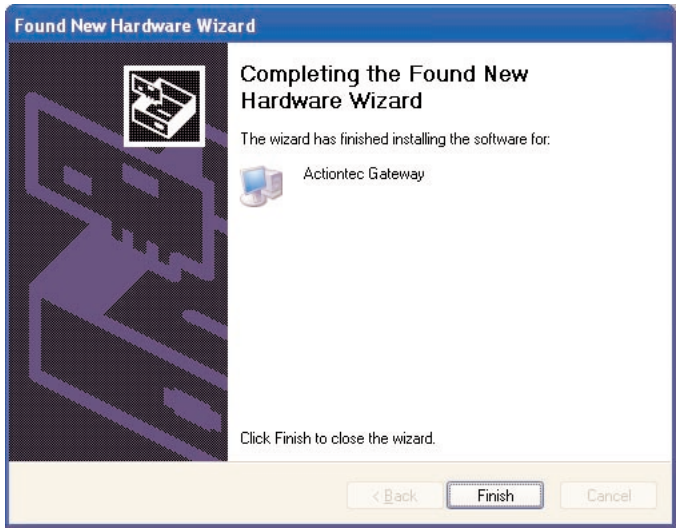
5. Click **Finish** to end the installation process.

For Windows XP

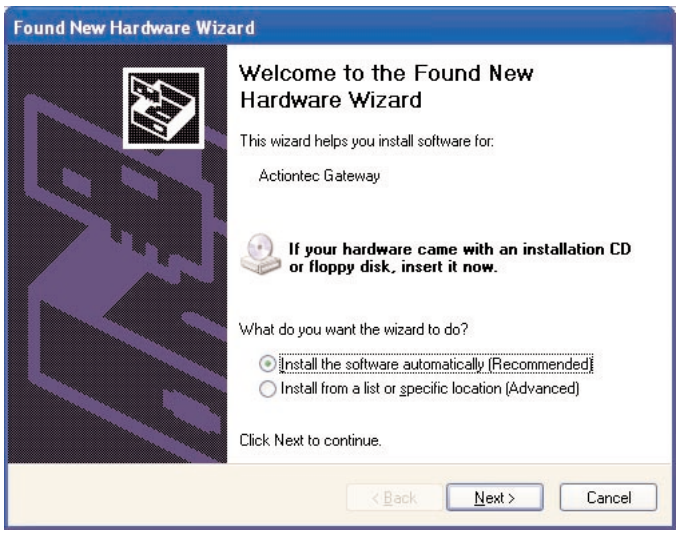
Note: There are two drivers that will need to be installed, so please follow these instructions

1. After you have connected the Wireless Cable/DSL Router to your computer, the Found New Hardware Wizard screen will appear. Make sure "Install software automatically (Recomended)" is selected and then click **Next** to continue.

2. Windows XP will Install the first set of drivers. Click **Next** to continue.



3. The following screen will appear. Make sure "Install software automatically (Recomended)" is selected and then click **Next** to continue.

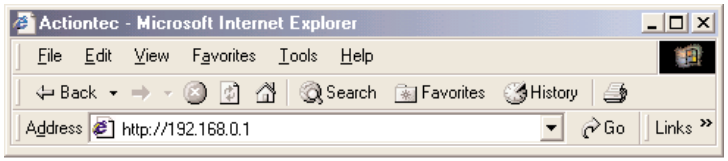


4. Windows XP will Install the final set of drivers. Click **Next** to finish the installation process.

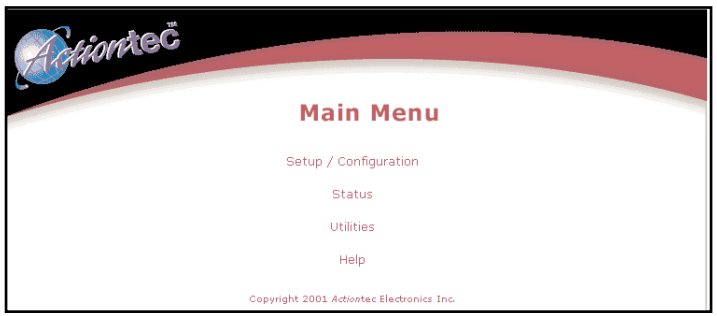
Basic Setup

Follow the step below to configure your Cable/DSL Router:

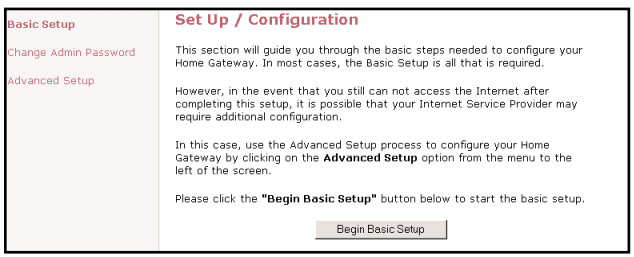
1. Open your Internet Web Browser and in the address bar type: **http://192.168.0.1** and then press the **<Enter>** key.



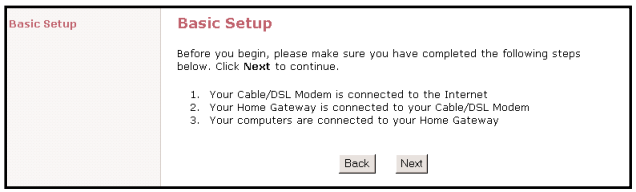
2. When the web page is loaded, the following screen will appear. Click **Setup/Configuration**.



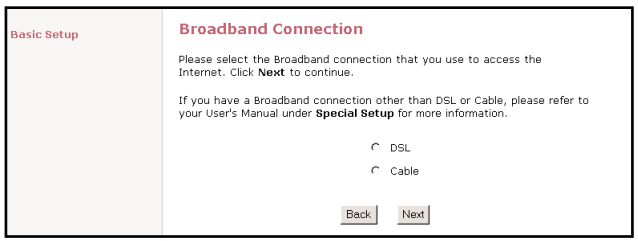
3. Follow the on-screen instructions and then click **Begin Basic Setup**.



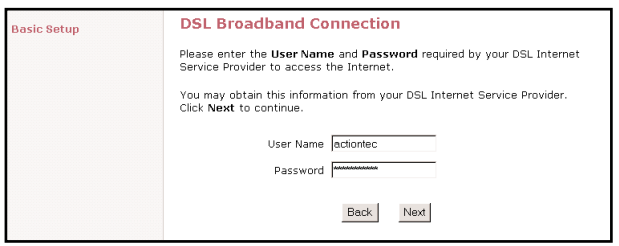
4. Make sure that you have completed the 3 steps listed then click **Next**.



5. Select either **DSL** or **Cable** depending on your broadband service then click **Next**. (If your have a T1 Line or Fixed Point Broadband, click **Cable**.)

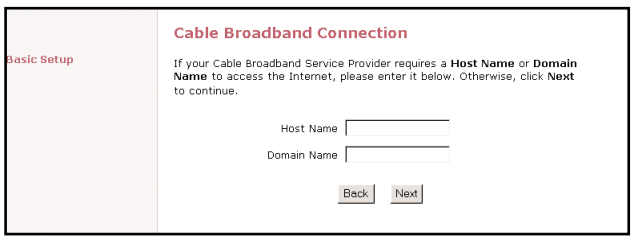


6a. If you selected **DSL** enter your **user name** and **password** provided by your ISP. Click **Next**.



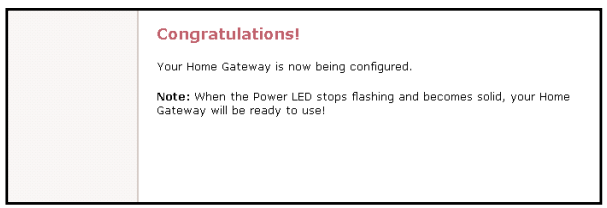
6b. If you selected **Cable** and your ISP requires a Host Name or Domain name to access their network enter it now. Click **Next**.

Note: If your Cable ISP does not require a host or domain name then leave the fields blank.



7. Your *Action*tec Wireless Cable/DSL Router is now finished with the configuration process. Click **Save and Restart**.

8. A congratulations screen will announce the end of the Basic Setup.



The power LED will flash rapidly while the Wireless Cable/DSL Router restarts, before turning a solid green. The Wireless Cable/DSL Router is now ready and you can begin surfing the web.

If you receive an error that your browser was unable to connect to the Internet, check your configuration settings. Please ensure that you entered all the information required by your ISP.

Status Screen

After you have configured your Wireless Cable/DSL Router with the Basic Setup feature, you can check the status of your Wireless Cable/DSL Router. Click **Status** an the main page of the Wireless Cable/DSL Routers' web based utility. (See second screen shot, under step 2, on page 18)

Firmware Version:

This will give you the version number of the current firmware.

MAC Address:

This field will display the MAC address of the Wireless Cable/DSL Router. The MAC address is an identifier that is specific to each device that can connect to any network, sort of a fingerprint for the Internet. Some ISP's use this information to validate the PC's

identification before it will allow you to access its network.

WAN

Connection:

Connected: A valid connection through the Cable/DSL modem to the Internet exists.

Connecting...: The Cable/DSL Router is trying to establish a connection with the ISP.

Disconnected: A valid connection to the Cable/DSL modem exists, but there is no connection to the Internet.

Off: A valid physical connection to the Cable/DSL modem is not present

Mode:

Static: Static IP Address information for the connection that was entered in the setup is being used

DHCP: The Wireless Cable/DSL Router is being assigned an IP address and being sent other connection information each time the connection to the ISP is renewed

PPPoE: The connection is being made through Point to Point Protocol. This is usually the case for DSL broadband.

IP Address

The IP address currently assigned and being used by the Wireless Cable/DSL Router to connect to the ISP

Subnet Mask

The subnet mask being used is normally 255.255.255.0 (Class C IP Address)

Gateway

This is the IP address that the Wireless Cable/DSL Router uses to send all requests to the Internet.

DNS #1

This is the primary Domain Name Server address. This is like a telephone book of all internet addresses.

DNS #2

This is the secondary Domain Name Server address.

LAN

IP Address

The IP Address of the Wireless Cable/DSL Router as seen by the PC's within your LAN.

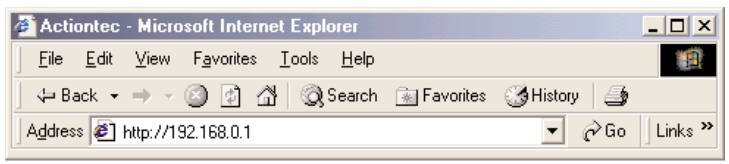
DHCP Server

On: This means that all of your PC's will receive their IP address and other configuration data from the Wireless Cable/DSL Router each time they connect.

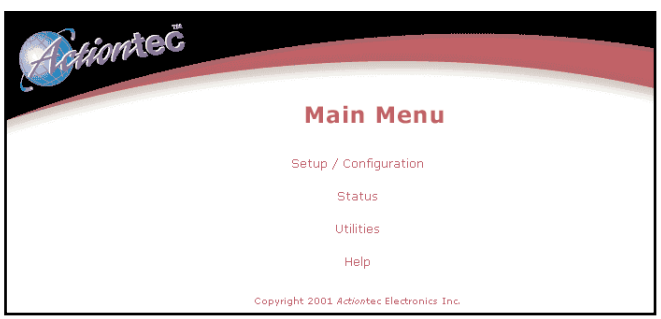
Off: This means that each machine is configured individually with an IP, subnet mask, gateway and DNS server information.

The Advanced Setup section allows advanced users to configure such features as the wireless settings. The following sections explain each feature you can configure in the advanced setup section.

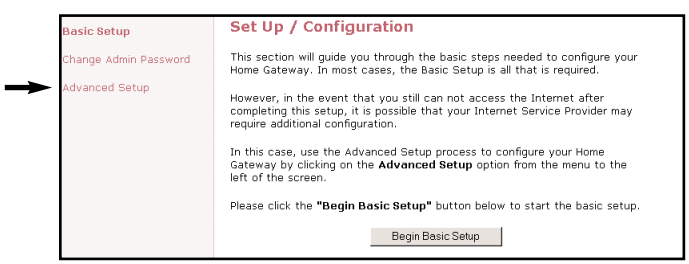
1. Open your Internet Web Browser and in the address bar type: **http://192.168.0.1** and then press the **<Enter>** key.



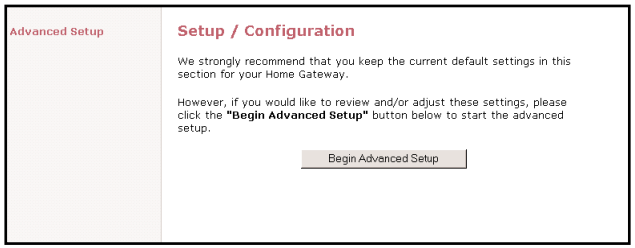
2. When the web page is loaded, the following screen will appear. Click **Setup/Configuration**.



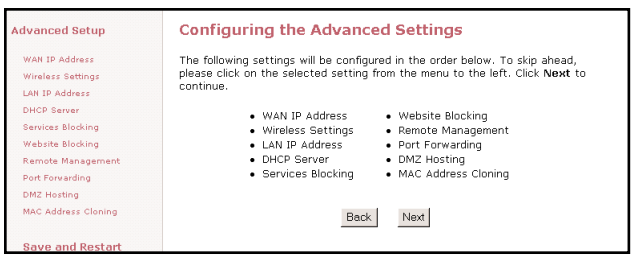
3. Follow the on-screen instructions and then click **Advanced Setup**.



4. Click on **Begin Advanced Setup**.



5. You will see the following screen showing all the options available in Advanced Setup. If you want to check all the settings, or are unsure of which setting you want to modify, select **Next**. If you want to modify a specific configuration, simply click on its name in the left menu bar.

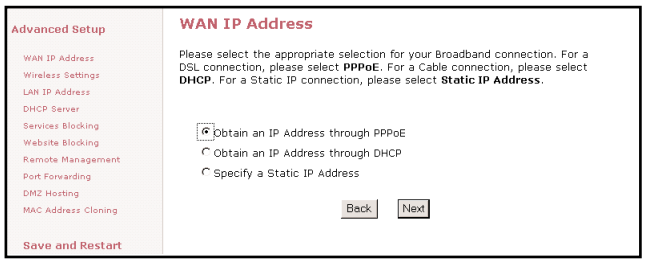


Note: You may click **Save and Restart** on the bottom left hand side of the screen when you have finished configuring any one or more of the advance settings.

Wan IP Address

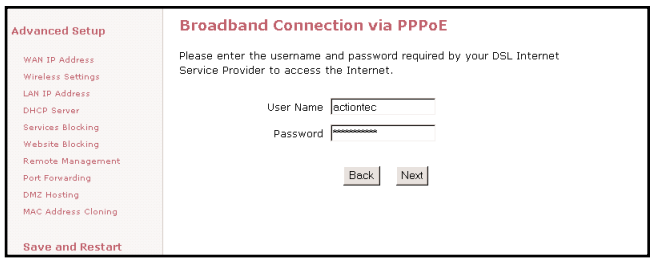
This screen allows you to manually set up your Wireless Cable/DSL Router. The following are three methods by which your ISP will assign an IP Address to your Wireless Cable/DSL Router.

> ***Note:*** Some DSL providers use PPPoE to establish communication with an end user, while others use static IP. Cable modem providers and other broadband Internet access such as fixed point wireless may use either DHCP or Static IP address. If you are unsure, please check with your ISP.



Obtain and IP Address through PPPoE

This setting is used for DSL connections and it allows the modem to use the Point-to-Point over Ethernet (PPPoE) protocol. If you already entered the user name and password in the Basic Setup, then it should be displayed now. Click **Next** to continue.

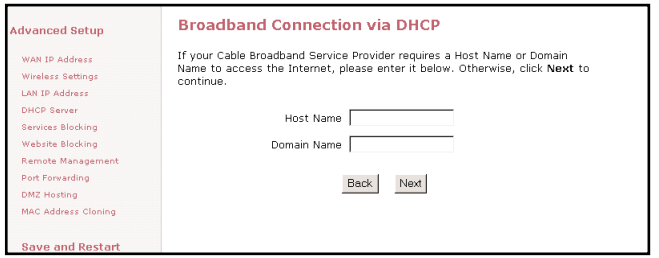


User Name: User name given to you by your DSL provider to access the Internet.

Password: Password given to you by your DSL provider to access the Internet.

Obtain an IP through DHCP

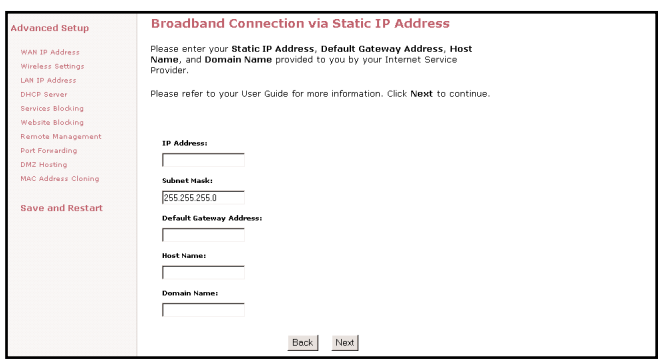
This setting is used for Cable modem configurations that do not have a Static IP assigned by the ISP. This allows the modem to query the ISP and receive an IP address and routing information. Some cable modem providers need to authenticate the users with their host name and/or domain name. Please check with your ISP for what host name and domain name you have to use in the following fields.



> ***Note:*** For the Host Name and Domain Name you may also find this information from your PC which was originally connected to the cable modem. Please see the Before you Begin section on pages 6-7. If your cable modem ISP does not require these settings, then you may leave them blank.

Specify a Static IP Address

This setting is used if you have been assigned a static (Specific) IP Address by your ISP. You will need to enter the IP Address and Default Gateway provided by your ISP. You may also need to enter your Host Name and Domain Name if required.



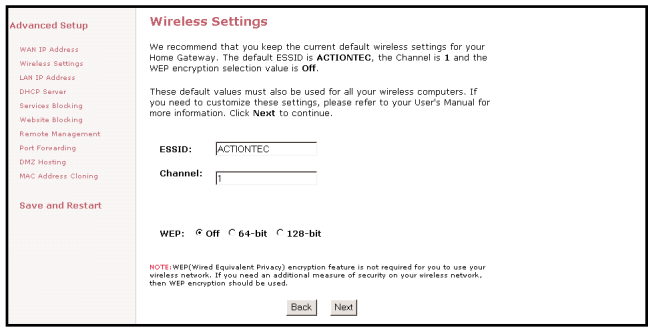
IP Address: IP Address of your Wireless Cable/DSL Router as seen by external users on the Internet.

Subnet Mask: This will be provided by your ISP.

Default Gateway: This will be provided by your ISP.

Wireless Settings

The Wireless Settings screen allows you to take advantage of the Wireless Cable/DSL Router's wireless capabilities.



ESSID

(Default value set to ACTIONTEC) This is an arbitrary network name that you assign to your wireless network. You may use alphanumeric characters (i.e.: A-Z, a-z, 0-9). It is important that you set your Wireless PC Cards to the same ESSID value. (For the *Action*tec 802.11b Wireless PC Card the ESSID value should be the same as the SSID value) This will enable the Wireless PC Cards to communicate with your Wireless Cable/DSL Router.

Channel

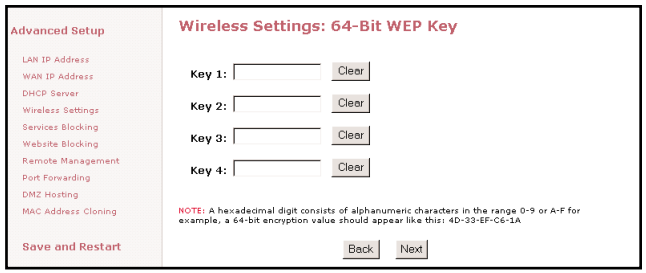
This assigns the frequency band in which the Wireless Cable/DSL Router can communicate at. In the United States you may use channels 1-11. (Default value set to 1)

Wireless Equivalent Privacy (WEP)

This is an encryption method used in the 802.11b standard, to ensure data security over your wireless network. The *Action*tec Wireless Cable/DSL Router offers three levels of encryption.If you do not require the encryption, it is recommended that you keep this feature disabled (off). It is not required for wireless operation, and can reduce network performance since each piece of data must be encrypted and decrypted.

64-bit Wireless Equivalent Privacy (WEP)

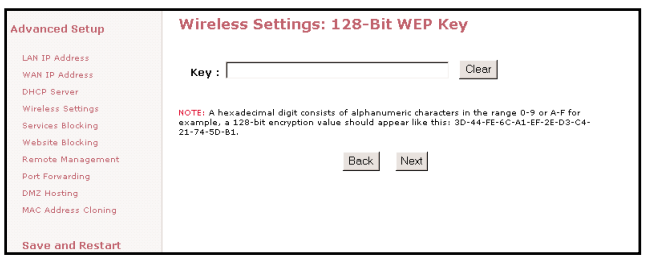
The 64-bit eencryption requires 4 fields of 5 hexadecimal pairs. (A hexadecimal digit consists of alphanumeric characters in the range of 0-9 or A-F). An example of 64-bit encryption would be: 4E-23-3D-68-72. If you do create this key, make sure you enter it in your Wireless PC Card exactly as you have it in the Wireless Cable/DSL Router.



128-bit Wireless Equivalent Privacy (WEP)

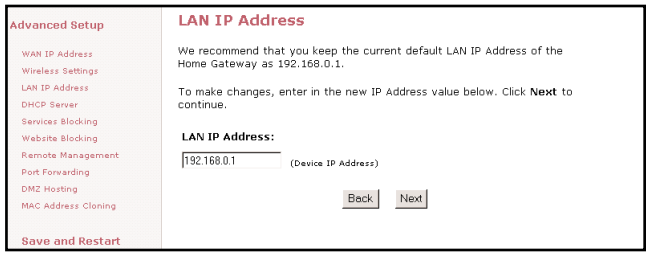
The 128-bit encryption requires a single field of 13 hexadecimal pairs (A hexadecimal digit consists of alphanumeric characters in the range 0-9 or A-F). An example of 128-bit encryption would be: 3D-44-FE-6C-A1-EF-2E-D3-C4-21-74-5D-B1.If you do create this key, make sure you enter it in your Wireless PC Card exactly as you have it in the Wireless Cable/DSL Router.

Note: Do not use the 128-BIT WEP Key if your PC Card does not support it.



LAN IP Address

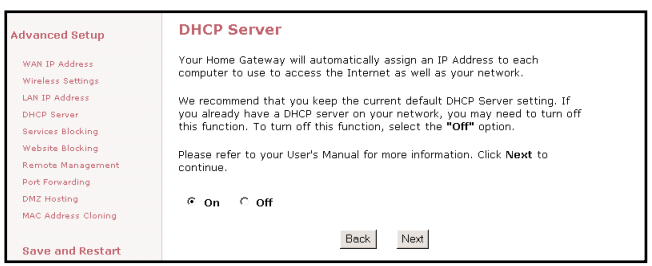
This is the IP Address of the Wireless Cable/DSL Router as seen on the internal LAN.



It is recommended that you keep the default settings, but if you need to change them then be sure to verify the DHCP Server range is within the same subnet.

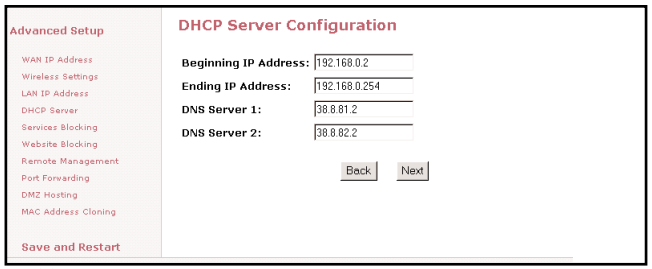
DHCP Server

Your Wireless Cable/DSL Router has a built-in Dynamic Host Configuration Protocol (DHCP) Server that can automatically assign an IP Address to each computer on your network.



It is highly recommended that you keep the default DHCP Server settings. If you wish to disable your DHCP Server, select **Off**. You will need to ensure that the IP Address of your computers are in the same subnet as that of the Wireless Cable/DSL Router. To be in the same subnet, the IP address must begin with the same numbers for the first 3 fields. (Example: 192.168.0.1 would mean your IP address would have to be 192.168.0.x, with x being 2 - 254.)

DHCP Server Configuration



Beginning IP Address

Enter the IP Address for the DHCP Server to start when assigning IP Address. It is recommended that you keep the default settings of 192.168.0.2

Ending IP Address

Enter the IP Address for the DHCP Server to end when assigning IP Address. It is recommended that you keep the default settings of 192.168.0.254

DNS Server 1

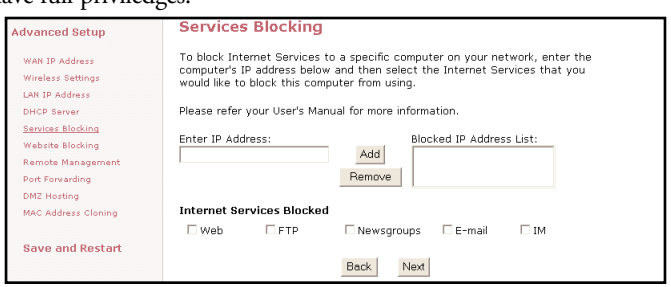
Enter the primary DNS provided by your ISP. You may keep the default settings if you wish.

DNS Server 2

Enter the secondary DNS provided by your ISP. You may keep the default settings if you wish.

Services Blocking

This screen enables you to create Client or Internet privileges for certain computers' on your network. If you do not specify any settings then all of the computers on your network will have full priviledges.



1. Enter the clients IP address in the given field.

2. At the bottom of the page select the Internet services that you want blocked for that particular client PC.

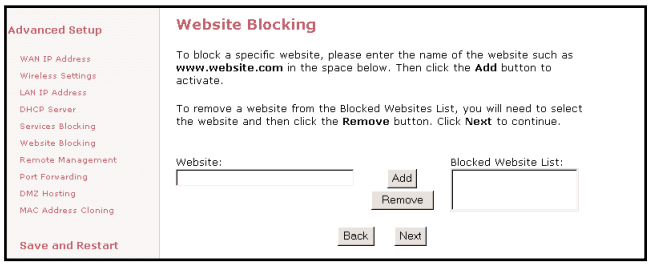
3. Click **Add** to place your choice in the "Blocked IP Address List".

4. If you would like to remove any of the blocked services, click on the **IP Address** in the "Blocked IP Address List" and click **Remove**.

Website Blocking

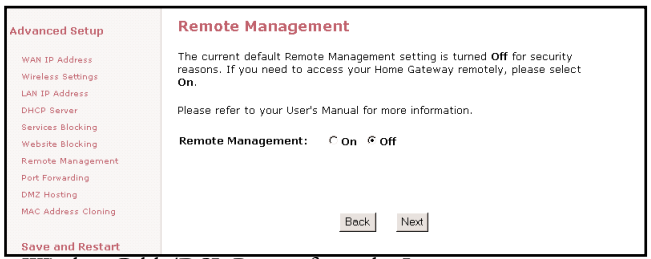
This feature enables you to block specific websites. Simply enter the name of the website into the appropriate field and click **Add**. When the user tries to access a blocked website, the website will not be displayed. If you would like to remove a blocked website, click on it in the "Blocked Website List" and then click **Remove**.

Note: Once a blocked website is selected, no user on the network will be able to access that site



Remote Management

The Remote Management feature allows users to access the Wireless Cable/DSL Router through the Internet. It is recommended that you do not alter the Remote Management properties. For security reasons, it is disabled by default.



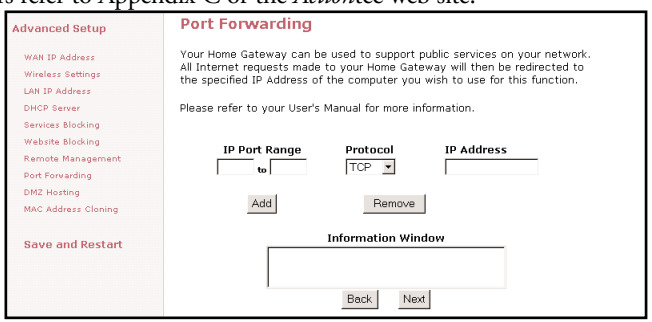
To access the Wireless Cable/DSL Router from the Internet:

1. Find out the WAN IP Address of your Wireless Cable/DSL Router from the Status page.

2. From a location outside of your network, open your Internet browser. In the address field type your WAN IP address (i.e. http//192.123.4.1) and press **<Enter>**. This will bring up your Wireless Cable/DSL Router menu or password prompt (if a password has been set.

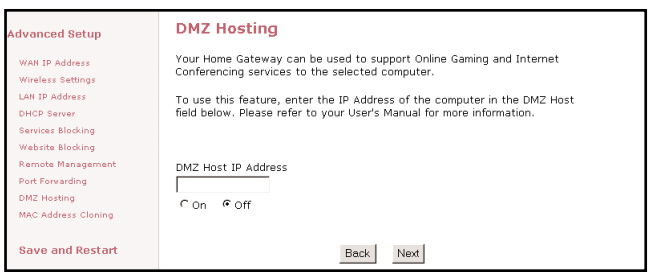
Port Forwarding

Because the Wireless Cable/DSL Router is acting as a firewall for your network, some programs may not be able to communicate over the Internet without some additional configuration. This feature is useful if you want to host a webserver or ftp server on your private LAN. You will need to open each port that your programs need and specify to a specific IP (Computer). It is recommended that if you need to open more than 10 ports at once to use DMZ hosting instead. For a listing of commonly used programs and their port numbers refer to Appendix C or the *Action*tec web site.



DMZ Hosting

DMZ hosting is used to support online gaming and Internet confrencing services. These programs usually require multiple ports to be open on the Wireless Cable/DSL Router, making the rest of your network vulnerable to the Internet. DMZ hosting will symbolically place the designated computer (By IP address) outside of the Wireless Cable/DSL

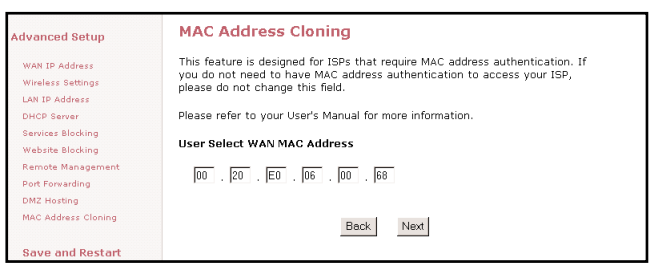


Router. You will be unable to access your network resources while in the DMZ. It is recommended to place the computer in the DMZ mode only as long as it is necessary. You will also be unable to access your network resources.

> *WARNING:* This computer will be vulnerable to outside hackers while in the DMZ mode.

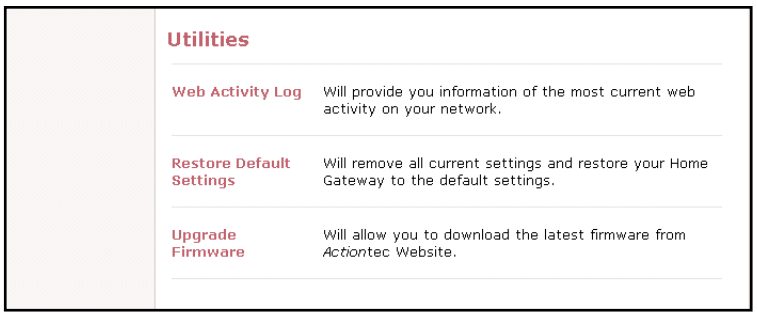
MAC Address Cloning

The MAC address is an identifier that is specific to each device that connects to any network, simular to a fingerprint for the Internet. Some ISP's require this information to validate a computers permission to be on the network. If your ISP requires this information, you will need to determine the MAC address of the computer that was originally configured for your service (Appendix D has instructions to determine the MAC address).



Utilities

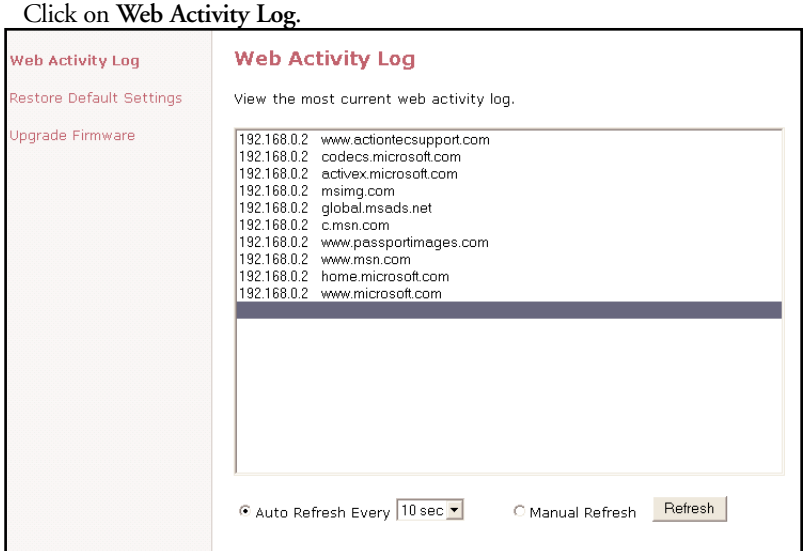
On the main screen of your Wireless Cable/DSL Router you will find a section called Utilities. This section allows you to view your Web Activity Log, Restore Default Settings and Upgrade your Firmware. Follow the steps in each section below to use these features:



Web Activity Log

This allows you to view the websites that each computer connected to your Wireless Cable/DSL Router, has viewed.

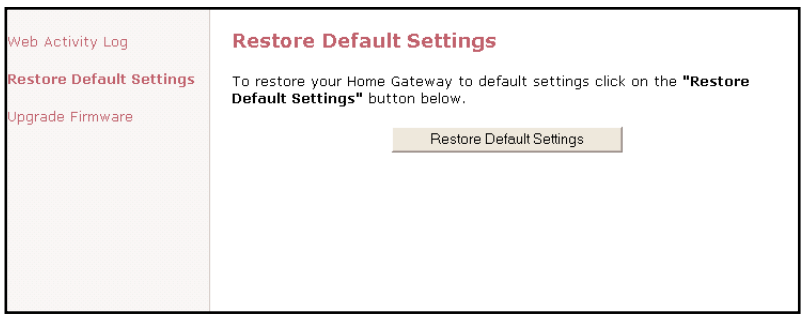
1. Click on **Utilities**
2. Click on **Web Activity Log.**



Restore Default Settings

This allows you to restore your Wireless Cable/DSL Router to its original default settings.

1. Click on **Utilities**
2. Click on **Restore Default Settings**.



3. Click the **Restore Default Settings** button.

Upgrading your Firmware

From time to time, *Action*tec will post firmware upgrades to enhance your Wireless Cable/DSL Router's usability. To upgrade your Wireless Cable/DSL Router's firmware:

1. Click on **Utilities**
2. Click on **Upgrade Firmware**. Follow the onscreen instructions.
3. After downloading the upgrade files and extracting it to a folder on your hard drive, double click on **upgrade.exe**.
4. Input the IP address of your Wireless Cable/DSL Router (typically it will be 192.168.0.1), and click **Start**. The upgrade progress will begin.
5. After the Upgrade is complete, unplug the power from the Wireless Cable/DSL Router then re-plug it.
6. Wait for the power LED to stop blinking and become a steady green.
7. You will need to reconfigure your Wireless Cable/DSL Router settings.

Troubleshooting

There is a LAN connection failure to the Wireless Cable/DSL Router.

Make sure that the Wireless Cable/DSL Router is properly installed, the LAN connections are correct and the power is on. Next, confirm that your PC and the Wireless Access Point and Gateway are on the same network segment. If you are not sure, let the PC get the IP address automatically by initiating the DHCP function. Then, verify that your PC is using an IP address within the default range of 192.168.1.2 to 198.168.1.XXX. If your PC is not using an IP address within the range then it will not be compatible with the Gateway. Finally, the Subnet Mask must be set to 255.255.255.0 to match the Gateway. In the Gateway you can check this by clicking on **Status** on the Wireless Cable/DSL Routers start page.

I am unable to browse through the Wireless Cable/DSL Router.

First, make sure that both ends of the power adapter and network cables are properly connected and the status LEDs on the front panel are infact working properly. Then, if you are using Windows 95 or 98, check your computer's TCP/IP setup: On your desktop click **Start**, then select **Run**, type **winpcfg** in the given box and then hit **Enter**. Your computer should have an IP address of 192.168.XXX (the "XXX" value could be from 2 to 254.) Also the Subnet Mask should be 255.255.255.0. Then, check the Wireless Cable/DSL Router settings to verify that they are the same as your computer. You can do this by clicking on **Status** on the Wireless Cable/DSL Routers start page.

I get a time out error when I enter a URL or IP Address,

First, verify that all your computers are working properly. Then make sure that all your IP settings are correct. If you are still having trouble make sure that the Wireless Cable/DSL Router is on and connected properly. If it is connected properly open up your web browser and access the Wireless Cable/DSL Router's start page. Verify that the Wireless Cable/DSL Router settings are correct by clicking on **Status**. If this too is properly configured then check your Cable or DSL modem by attempting to connect to the Internet.

I am unable to get an IP Address from my Cable or DSL Modem.

First, make sure that your Wireless Cable/DSL Router is properly connected to your computer and is plugged in. Then, shut off your Cable or DSL modem and wait a few seconds. Turn it back on, wait for it to go through its self test and then check for the IP Address. Then, verify that your modem is DHCP compatible. Go to the Wireless Cable/DSL Router's web based utility and make sure you entered the user name and password for either your DSL or Cable modem.

Glossary

Access Point

An access point is a device that allows wireless clients to connect to other wireless clients and it acts as a bridge between wireless clients and a wired network' like Ethernet. Wireless clients can be moved anywhere within the coverage area of the access point and still connect with eachother. 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 client radio traffic and forwarding wireless client messages to the Ethernet LAN.

Channel

The home wireless gateway allows you to choose different radio channels in the wireless spectrum. A gateway operates within the 2.4 GHz spectrum and a channel is within a FCC specified range, simular to any radio channel.

Client

A client is the desktop or mobile PC that is connected to your network.

DHCP (Dynamic Host Configuration Protocol)

This automatically assigns an IP address for every computer on your network.

DNS Server Address (Domain Name System)

DNS 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 the internet browser, the user is sent to the proper IP address. The DNS server address used by the computers on your home network is the location of the DNS server your ISP has assigned.

DSL Modem (Digital Subscriber Line)

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

Encryption

This provides wireless data transmissions with a level of security.

ESSID (Extended Service Set Identifier)

You must have the same ESSID entered into the gateway and each of its wireless clients. The ESSID is a unique identifier for your wireless network.

Ethernet

Ethernet networks are connected by cables and hubs, and move data around. This is a standard for computer networks.

Firewall

A Firewall prevents anyone outside of your network from accessing your computer and possibly damaging or viewing your files.

Gateway

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

IP Address (Internet Protocol)

An IP address consists of a series of four numbers separated by periods, that identifies a unique Internet computer host.

ISP Gateway Address (see ISP for definition)

The ISP Gateway Address is an IP address for the Internet router. This address is only required when using a cable or DSL modem.

ISP (Internet Service Provider)

An ISP is a business that allows individuals or businesses to connect to the Internet.

LAN (Local Area Network)

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

MAC Address (Media Access Control)

A MAC address is the hardware address of a device connected to a network.

NAT (Network Address Translation)

This process allows all of the computers on your home network to use one IP address. This will enable access to the Internet from any computer on your home network without having to purchase more IP addresses from your ISP.

PC Card

This is an ethernet card that connects to the PCMCIA slot on your lap top or desktop PC. This enables the computer to communicate with with the Wireless Cable/DSL Router.

PPPoE (Point-to-Point Protocol over Ethernet.)

Point-to-Point Protocol is a method of secure data transmission.

Subnet Mask

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

TCP/IP (Transmission Control Protocol/Internet Protocol)

This is 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 wide area network.

WECA (Wireless Ethernet Compatibility Alliance)

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

WLAN (Wireless Local Area Network)

This is a group of computers and other devices connected wirelessly in a small area. A wireless network is referred to as LAN or WLAN.

Specifications

Model Number:	GE344000-01 Wireless Cable/DSL Router 1-Port
	GE144000-01 Wireless Cable/DSL Router 4-Port
Standards:	IEEE 802.3 (10BaseT), IEEE 802.3u (100BaseTX), IEEE 802.11b (Wireless)
Protocol:	CSMA/CD
WAN:	One 10Base-T RJ-45 Port for Cable/DSL Modem
LAN:	(GE144000-01) Four 10/100 RJ-45 Switched Ports, One USB port
	(GE344000-01) One 10/10100 RJ-45One Shared Uplink Port, One USB port
Expansion:	One PCMCIA expansion slot
Speed:	WAN - 10Mbps, LAN Ethernet - 10/100Mbps Wireless (See Below)
Cabling Type:	10BaseT: UTP/STP Category 3 or 5
	100BaseTX: UTP/STP Category 5
Button:	Reset
Operation Range:	
	(Wireless)
Indoors:	Up to 30M (100 ft.) @ 11 Mbps
	Up to 50M (165 ft.) @ 5.5 Mbps
	Up to 70M (230 ft.) @ 2 Mbps
	Up to 91M (300 ft.) @ 1 Mbps
Outdoors:	Up to 152M (500 ft.) @ 11 Mbps
	Up to 270M (885 ft.) @ 5.5 Mbps
	Up to 396 (1300 ft.) @ 2 Mbps
	Up to 457M (1500 ft.) @ 1 Mbps
Topology:	Star (Ethernet)
LED Indicators:	1-Port Router: Power, Internet, Wireless, LAN, USB
	4-Port Router: Power, Internet, Wireless, Ethernet Network
WAN:	Link
LAN:	Link/Activity

Power Input:	External, 5V DC, 2.5 A
Certifications:	FCC Class B, FCC Class C, CE Mark Commercial, UL, Wi-Fi
Operating Temperature:	0º C to 40º C (32ºF to 104ºF)
Storage Temperature:	-20ºC to 70ºC (-4ºF to 158ºF)
Operating Humidity:	10% to 85% Non-Condensing
Storage Humidity:	5% to 90%, Non-Condensing

Configuring TCP/IP For Windows NT 4.0

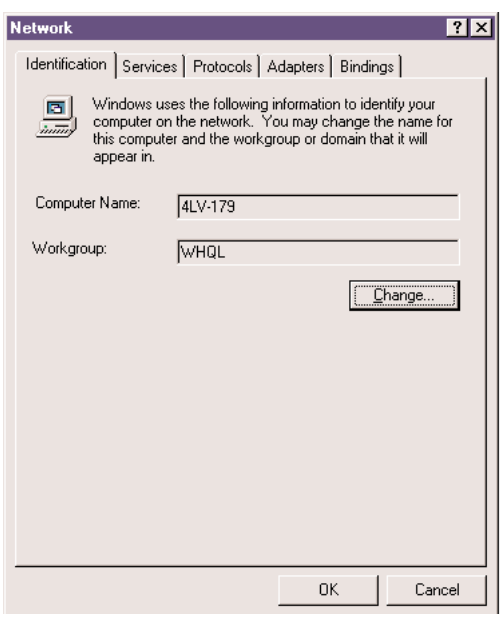
Please make sure you have your Windows NT Workstation 4.0 installation disks or CD-ROM handy before beginning. Windows NT Workstation 4.0 may need to copy some driver information during the configuration process. If your Ethernet card was supplied with a driver diskette, be sure to have that available as well.

> ***Note:*** As with all software, you should consult your users manual or the help files for detailed information. *Action*tec provides the information that follows as a guideline only.

Network, Username, Computer Name Identification

To configure your NT Workstation v 4.0 click **Start**, go to **Settings** and then to **Control Panel**. In Control Panel, double-click the **Network** icon. In the Network dialog box, click the **Identification** tab and enter a Computer Name if needed and a Work Group.

> ***Note:*** Do not change both Computer name and Workgroup at the same time. Change one first and then restart. Then change the other and restart a second time.



Services Configuration

Click the **Services** tab, and make sure the following default services are listed. These are installed by default when you initially installed TCP/IP. Note that not all of the services listed below are required for the *Action*tec Wireless Cable/DSL Router. For additional information, refer to your NT Workstation documentation or Microsoft support services.

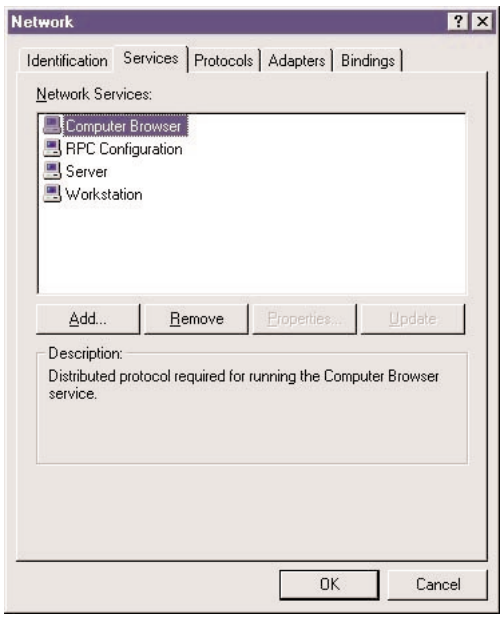
Computer Browser

RPC Configuration

Server

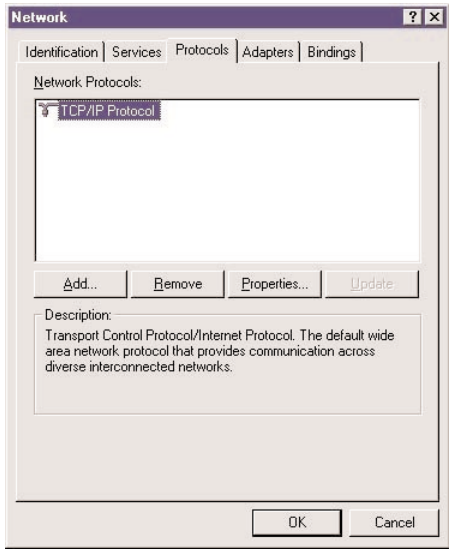
Workstation

If you need to add a Service, click **Add** and do so.



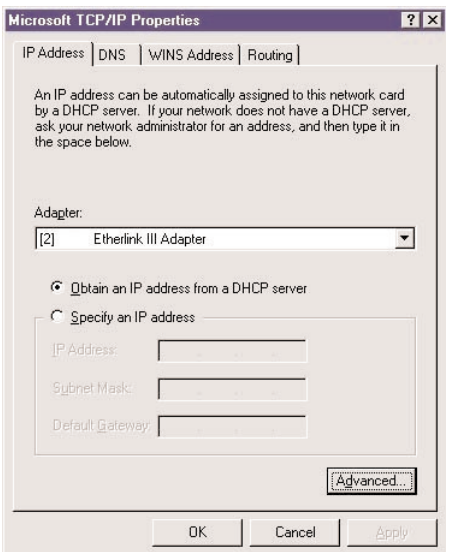
Protocol Configuration

Click the PROTOCOLS tab, and then verify that the TCP/IP Protocol is listed. If it is not, add it.



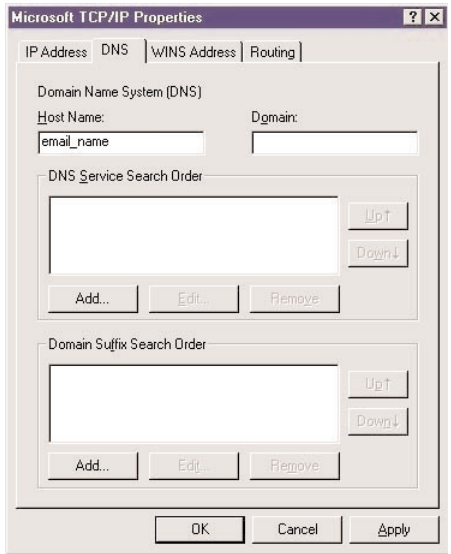
TCP/IP Properties, IP Addressing, DHCP

With the TCP/IP Protocol highlighted, click **Properties**, and then click the **IP Address** tab and click **Obtain an IP Address from a DHCP Server**. Click the **Advanced** tab to verify that DHCP is enabled.



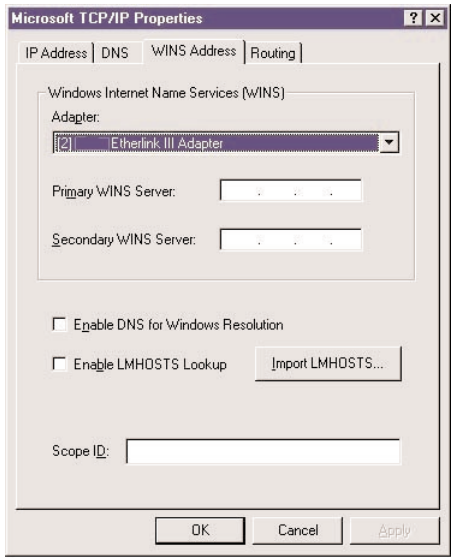
DNS and Host Name Settings

Click the **DNS** tab to display the host name properties.



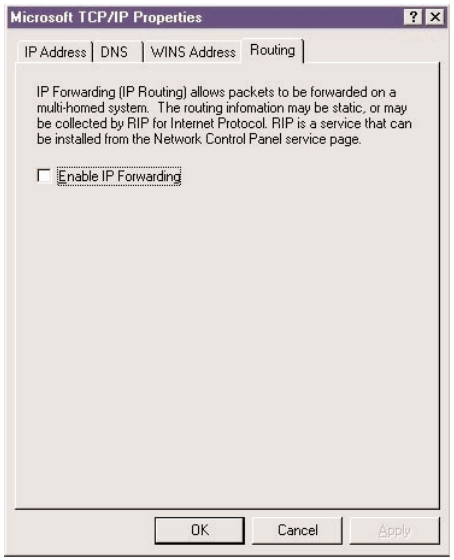
WINS Address Configuration

Click the **WINS Address** tab. Verify that the only entry here is your Ethernet card. (Please see the screen image on the next page.)



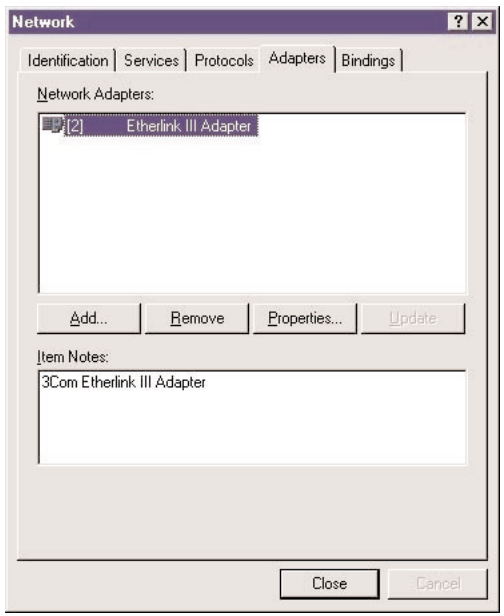
Routing Configuration

Click the **Routing** tab, and then verify that the **Enable IP Forwarding** is not checked. Click **OK** to return to the Network dialog box.



Adapter Settings

Click the **Adapters** tab, and then verify that your Ethernet Card is listed. If your card is not listed, please add it.

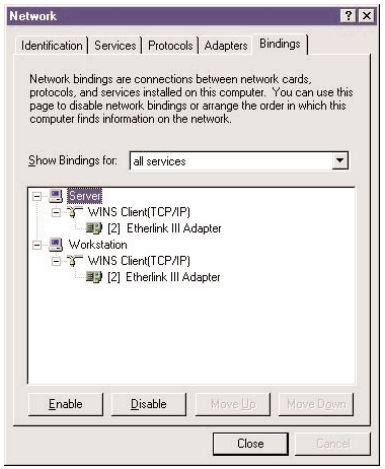


Bindings Configuration: Protocols, Services, Adapters

The Bindings tab contains a drop down list box that allows you to display different views of your networking configuration.

Services

Click the **Bindings** tab, select **All Services** from the drop down list, and verify that you have at a minimum, TCP/IP bound to the Ethernet Card.



Click **OK**, then click **Close** and restart your computer when prompted.

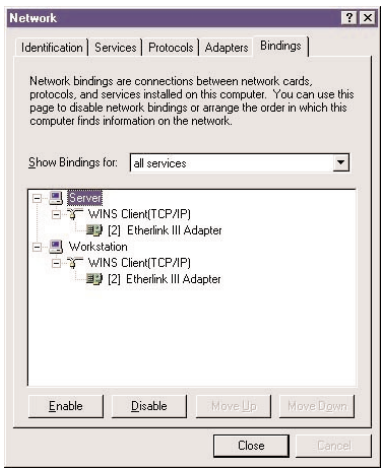
Protocols

Select **All Protocols** from the drop down list in the Bindings tab. (This is not the same as the Protocols tab)

Expand all entries by clicking on plus (+) signs

TCP/IP Protocol should be bound to the adapter

WINS Client (TCP/IP) should be bound to the adapter



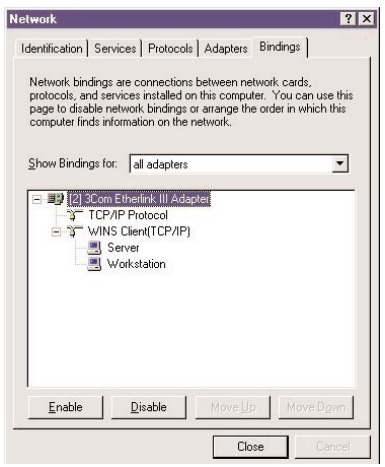
Adapters

Select **All Adapters** from the drop down list in the Bindings tab.

Expand all entries by clicking on plus (+) signs

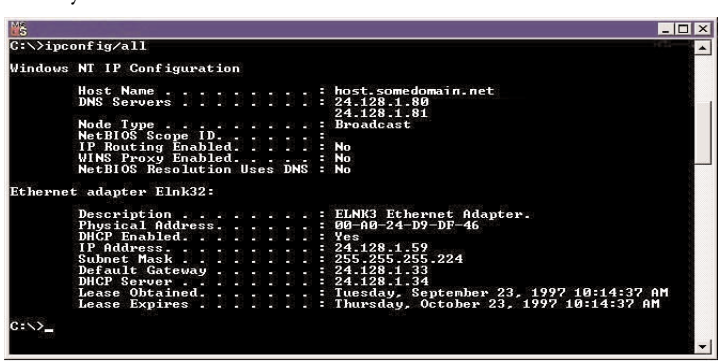
The adapter should be bound to the TCP/IP Protocol

WINS Client (TCP/IP) should be bound to Server and Workstation



Verifying Settings

After you have restarted your computer, verify your settings. Click **Start**, select **Programs** and then select **Command Prompt**. At the command prompt, type "ipconfig/all" to verify that you received an IP address. You may close this window once you have verified your IP address.



Configuring TCP/IP for Windows 2000

Please make sure you have your Windows 2000 installation disks or CD-ROM handy before beginning. Windows 2000 may need to copy some driver information during the configuration process. If your Ethernet card was supplied with a driver diskette, be sure to have that available as well.

> ***Note:*** As with all software, you should consult your users manual or the help files for detailed information. *Action*tec provides the information that follows as a guideline only.

Windows 2000 installs with the default TCP/IP configuration. If you have a new machine with Windows 2000, or have just installed the Operating System, you simply need to connect your machine to your Wireless Cable/DSL Router.

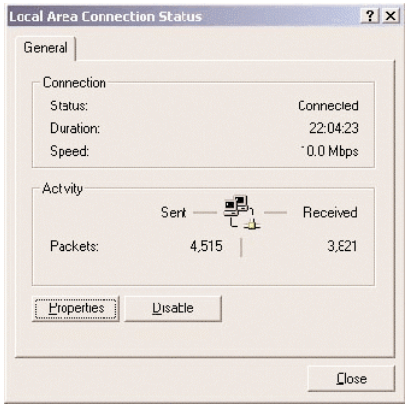
If your Windows 2000 TCP/IP settings have been changed since installation, please follow the following directions. Also, make sure you have your Windows installation disks or CD handy before beginning. If your Ethernet card was supplied with a driver diskette, be sure to have that available as well. (Note that Windows 2000 includes built-in drivers for some Ethernet cards)

> ***Note:*** As with all software, you should consult your users manual or the help files for detailed information. *Action*tec provides the information that follows as a guideline only.

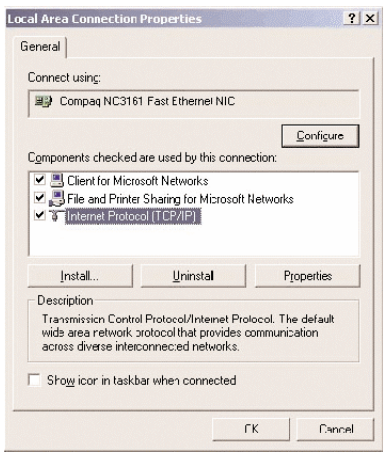
To configure TCP/IP for Windows 2000:

1. Click on **Start**, and then select **Settings** and then **Control Panel**. Double click the **Network and Dial-Up Connections** icon.

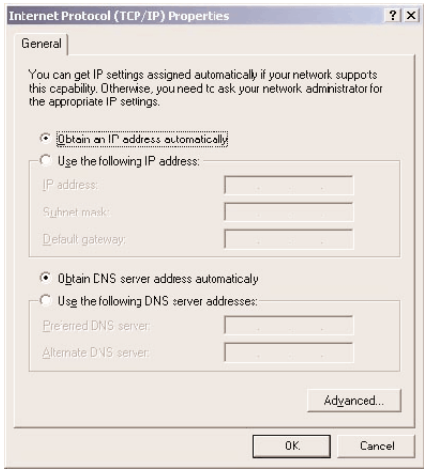
2. If the Ethernet card in your computer is installed correctly, the Local Area Connection icon will be present. Double-click on the icon. Click **Properties** in the Local Area Connection Status window.



3. Under Connect Using, the Ethernet card to which the Local Area Connection in question is pointing is displayed. Underneath, the components that are bound to the card are shown, with a check box next to them if they are currently active. Verify that there is a check next to TCP/IP, and place one there if it is not checked. Highlight the **Internet Protocol** (TCP/IP) option, and click **Properties**.



4. The Internet Protocol (TCP/IP) Properties window will open. There is only one tab. Obtain an IP address automatically should be selected in the first section, and Obtain DNS server address automatically should be selected in the second section.



5. Click **OK** to finish

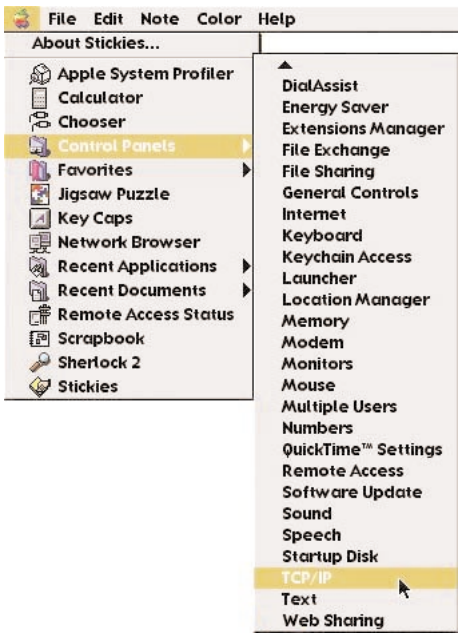
Configuring TCP/IP For Mac OS

As with all software, you should consult your users manual or the Macintosh help files for detailed information. *Action*tec provides the information that follows as a guideline only.

Configuring Open Transport 2.5.2

To configure Open Transport:

1. From the top toolbar, click the **Apple** icon. Select **TCP/IP** from the Control Panels menu.

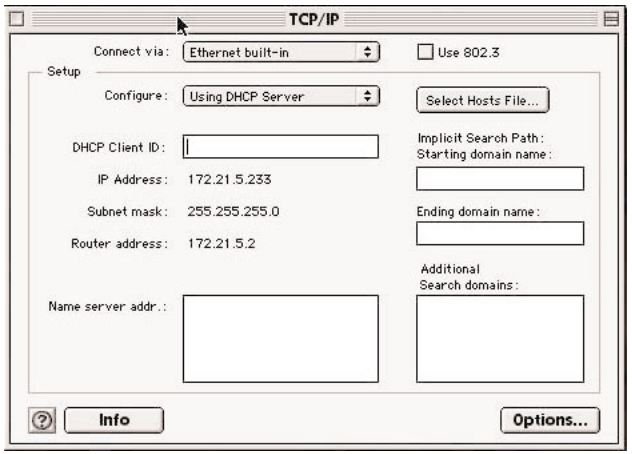


2. Once the TCP/IP control panel is open, on the top toolbar click **User Mode** from the **Edit** menu, and set the mode to **Advanced**. When done, click **OK**.

3. In the Connect via selection, select Ethernet.

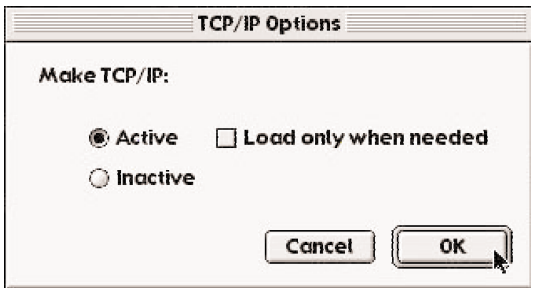
4. In the Configure selection, select **Using DHCP Server**.

5. Make sure the Use 802.3 option is unchecked.



6. Disregard any # in the IP Address field. This will be correct after your first connection.

7. Click the **Options** button and set TCP/IP to **Active**. Uncheck the option **Load only when needed**, and click **OK** when finished.



8. No entries should be made in any of the other fields (which are shown as blank in the sample image above).

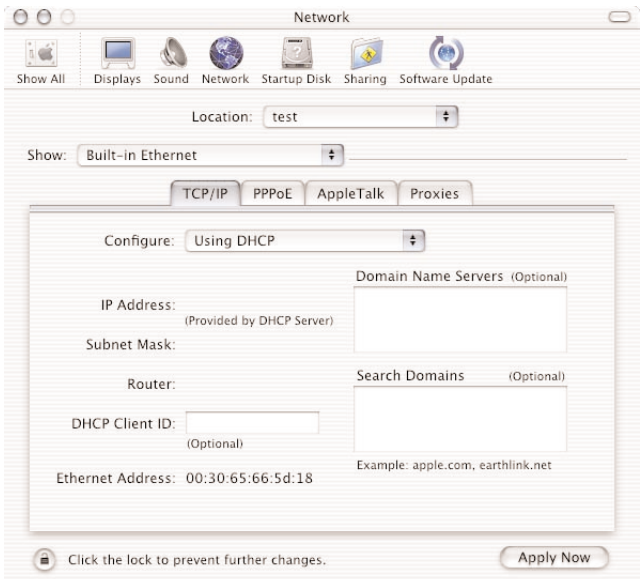
9. Click Close Box in the upper left hand corner of the TCP/IP window, and then select **Save** to save your settings.

10. Go to the toolbar and select **Restart** from the Special menu to restart your computer.

Configuring MacOS X:

To configure MacOS X for DHCP:

1. Open the System Preference application via the Dock or Apple Menu.



2. Select **Built-In Ethernet** from the Show menu.

3. In the TCP/IP tab, select **Using DHCP from the Configure** menu.

4. Click **Apply Now** and quit the System Preferences application.

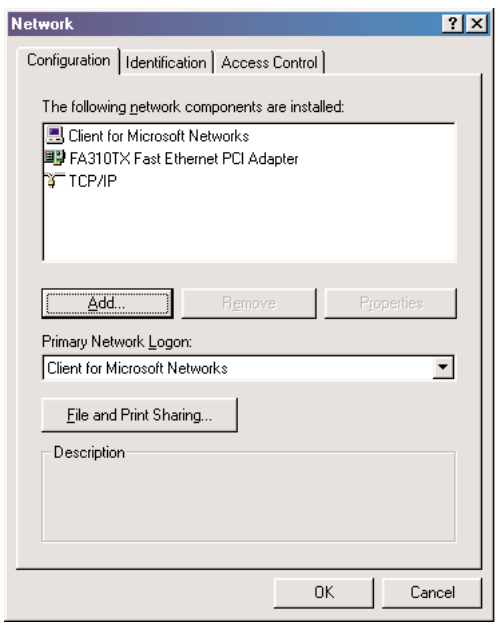
Appendix B

Configuring File and Print Sharing For Windows 95, 98 and ME

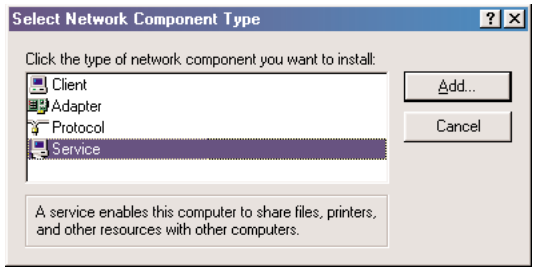
With your Wireless Cable/DSL Router you can establish a network that will allow you to share files and printers. This is an easy method to set up a network in your home or small office. Please follow these steps to setup file and print sharing:

1. On your computer's desktop click **Start**, then select **Settings** and then select **Control Panel**. In the "Control Panel" window double click the **Network** icon.

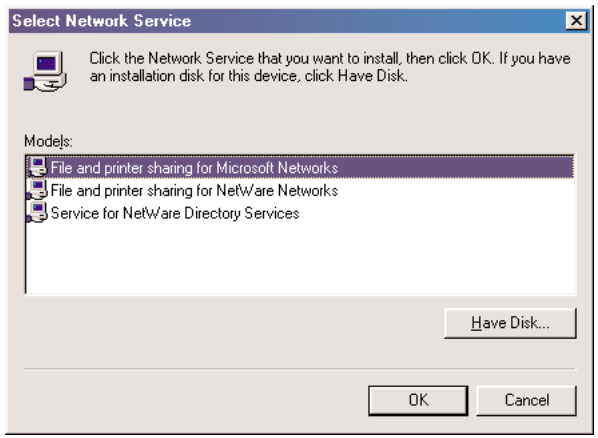
2. The following "Network" screen should appear. If File and Print Sharing is not present, then click the **Add** button.



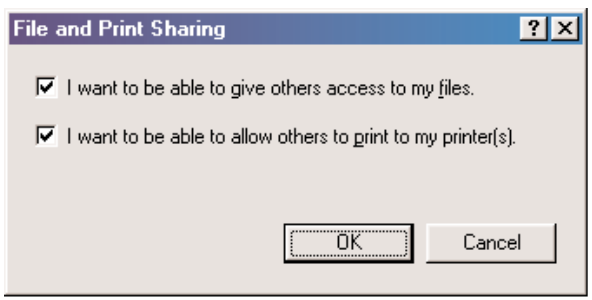
3. In the "Select Network Component Type" screen, click **Service** and then click the **Add** button.



4. In the following screen please select **File and printer sharing for Microsoft Networks** from the given list. Click **OK**.



5. In the "File and Print Sharing" screen make sure that both of the selections have a check mark beside them. If they do not, please click on the box next to each statement and then click **OK**.

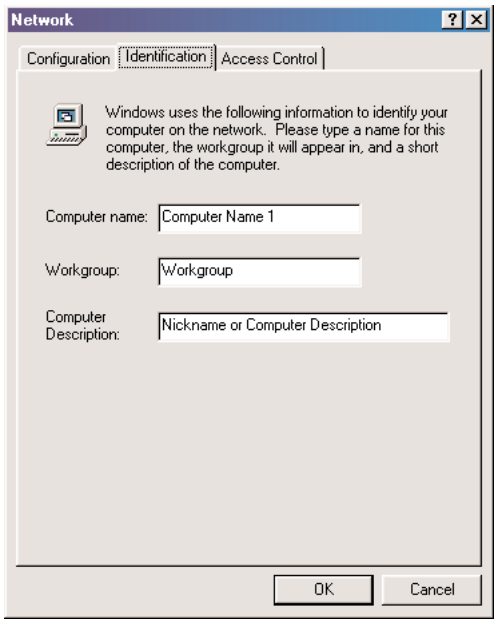


6. After you have clicked OK you will return to the network screen from step 2. Please click on the **Identification** tab (see the first image on page 26).

Computer Name: In this field you can type any name you want. (i.e. My Computer, John, CPU654) Do not use the same name for each computer you wish to have on your network, and we do not recommend including spaces in the computer name.

Workgroup: This field enables you to set a unique name for your network. This name must be set up on every other computer you wish to have on your network.

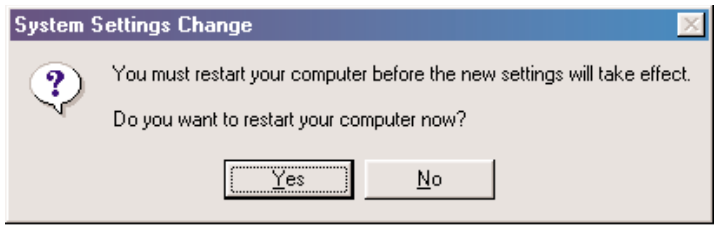
Computer Description: You can enter anything you wish. Traditionally, the location name or main user's name is used in this field.



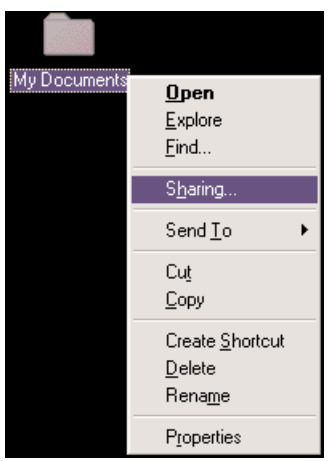
7. Click on the **Configuration** tab. This will take you back to the screen from step 2. In the "Primary Network Logon:" box, located just above the "File and Print Sharing" button, make sure that **Client for Microsoft Networks** is selected. If it is not then click the down arrow and select it from the given list. Click **OK**.

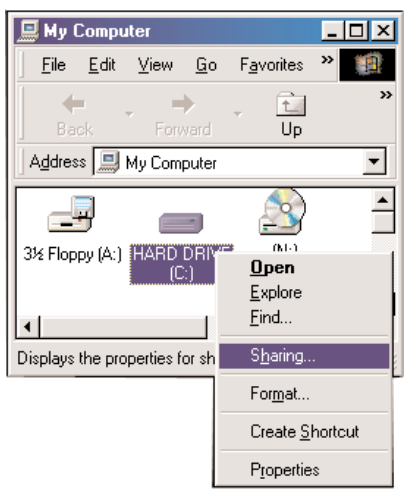
8. A screen will appear asking you to restart your computer. Click **Yes** to restart the computer. If you do not see this screen please restart your computer manually. After

your computer restarts you will be asked to supply a User Name and Password. Enter whatever you would like but be sure to write down these values, as they will enable you to access your network.

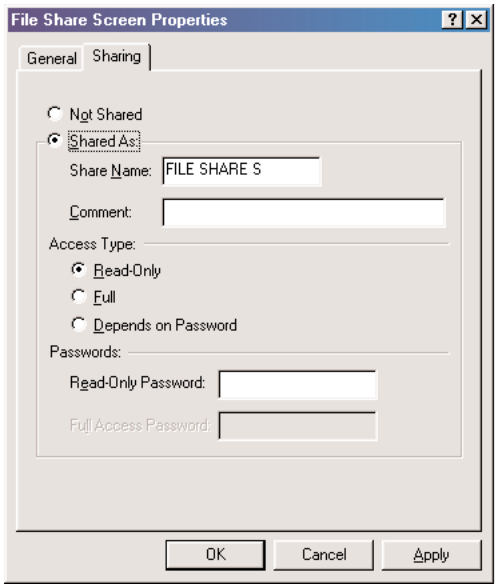


9. After your computer has restarted and you entered a password and user name, you must enable a file or drive for sharing. Locate the file or drive you wish to share. (The easiest way to achieve this is through your Windows Explorer, located in the start menu) Right click on the **File** or **Drive** you wish to share. In the given menu select **Sharing**.





10. The following screen will appear. Please select **Shared As**. This will enable other users on your network to see the file or drive you selected. Then you can chose the Access Type:

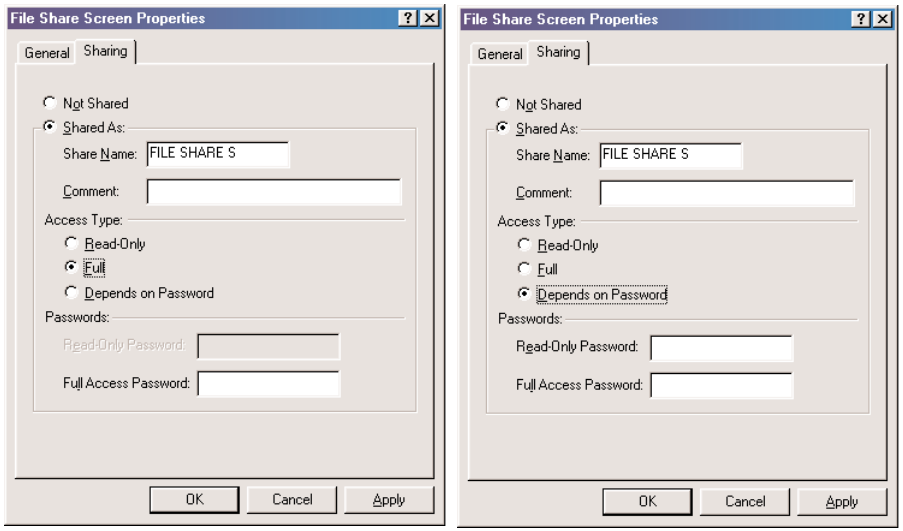


Read Only: This will allow other users on your network to view and read the file or drive you selected. They will not be able to modify it in any way. You can further restrict their privileges by entering a password in the appropriate field.

Full: This will allow other users on your network to read, modify, move and delete any information in the shared drive or file. You can further restrict their privileges by entering a user name and password.

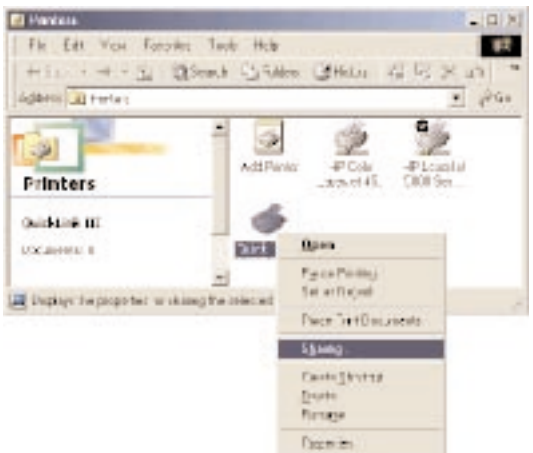
Depends on Password: This will allow you to set both Read Only and Full access on the shared file or drive. The level of access will depend on the passwords you enter in the appropriate field.

When you are finished click **Apply** and then **OK**.



11. Next you need to share your printer. On your desktop, click **Start**, click **Settings**, and then select **Printers**.

12. Right click on the printer you want to share. Select "Sharing" from the given list.

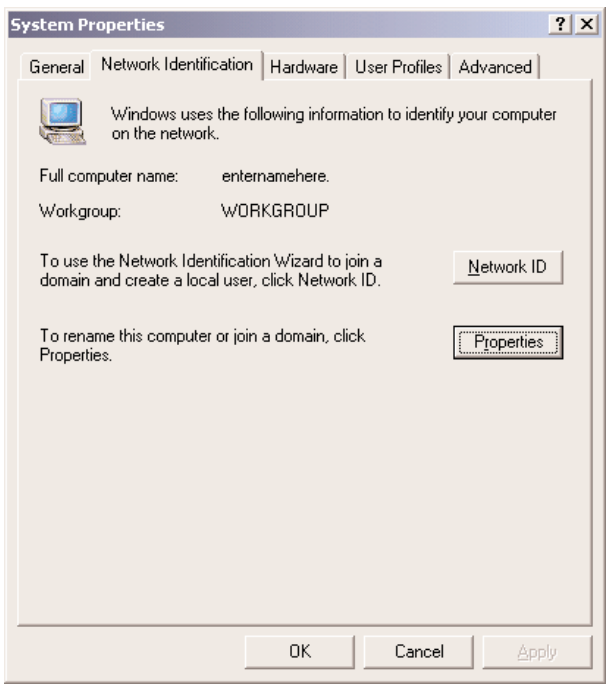


13. The next step will be to enable the sharing by selecting the "Share As" button. It will automatically insert a default name for the Share Name. You may set a password for the printer at this time if you want to restrict who on the network can use this resource. You may also set the default printer settings by modifying information on the other tabs of this window.

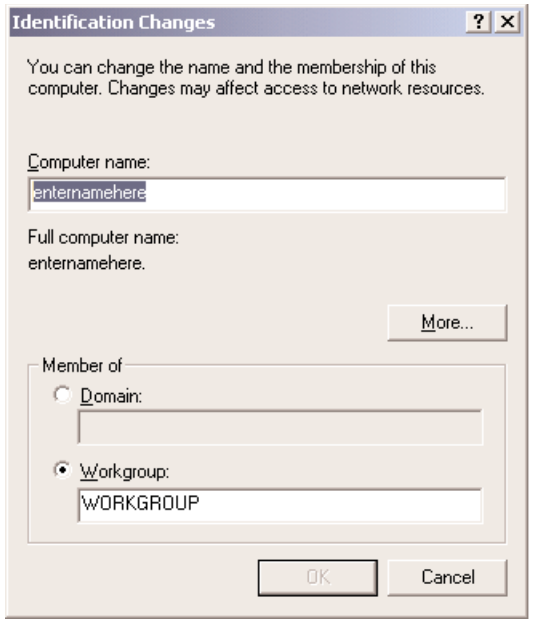
For Windows 2000

1. After you have installed and configured your PC Card, Windows 2000 will automatically enable file and print sharing for your computer. The only item that needs to be altered is your workgroup settings. All the computers on your network must have the same workgroup name but different computer names. To check or change this locate the "My Computer" icon on your desktop. Right click on it and select **Properties** from the given list.

2. In the "System Properties" click on the **Network Identification** tab. If the "Workgroup" name is already the same as all the other computers on your network, then you do not need to change it. Click **OK**. If it is not the same then click **Properties**.



3. In the "Computer Name:" box type a name that is different from your other PC's on your network. Then, in the "Workgroup" box type the name that you are using to identify your network. This will be the same on each computer on your network. Click **OK** and you will return to the "Network Properties" screen. Click **OK** again and even if you are not asked to do so, please restart your computer.



Configuring File and print sharing for MAC

There are other, much more secure ways to share your files with other Internet users. For example, you can simply e-mail files you want to share with someone else directly to that person or you can require a password to access your files.

Following are instructions for disabling and more securely enabling file and print sharing.

To disable file sharing:

1. Click the **Apple** menu in the upper left corner. Select **Control Panels** and then select **File Sharing**.

2. The default selections should be "File Sharing Off" and "Program Linking Off", and the buttons underneath should both say "Start". If this is the case, file sharing is disabled. Exit the File Sharing window.

3. If "File Sharing Off" and "Program Linking Off" is selected and the buttons underneath indicate "Stop", click the **Stop** button to disable sharing and linking. Enter **0** in the dialog box that prompts you to indicate how many minutes until file sharing is turned off or how long before you want to disconnect other users connected to your computer.

4. Click **OK**

5. Exit the File Sharing window.

If you need to enable file sharing on your computer, you can reduce your susceptibility to hackers by setting a password for access to all of your shared files and directories.

To set a password:

1. Click the **Apple** menu in the upper left corner. Select **Control Panels** and then select **File Sharing**.

2. Under "Network Identity", enter an owner name and owner password. To deter potential hackers from being able to guess your password, we recommend that your password contain a minimum of eight characters and a mix of upper- and lowercase letters and numbers.

3. The two sections toward the bottom should say "File Sharing Off" and "Program Linking Off", and the buttons underneath should both say "Start". Click **Start** to enable file sharing and/or program linking.

4. The indication above the Start button(s) will change from "Off" to "Starting Up" to "On".

5. Close the File Sharing window by clicking the small box in the upper left corner.

6. File sharing and/or program linking are now enabled. However, users will need to know your Owner Name and Owner Password in order to access files or programs on your Macintosh.

To allow others to use the printer attached to your computer:

1. Click the **Apple** menu in the upper left corner and scroll down to **Control Panels**; then scroll right and up to **Appletalk**.

2. In the drop-down menu after Connect via, choose **Ethernet** or **Ethernet Built-In**.

3. Close the Appletalk window by clicking the small box in the upper left corner.

4. You may be asked to save changes to your Appletalk setting. If so, click the **OK** button.

5. Click the **Apple** menu in the upper left corner and scroll down to **Chooser**; then, after the word Appltalk toward the bottom right, click the radio button before the word "Active".

6. You'll be asked to make sure you are connected to an Appletalk network. Click the **OK** button.

7. Close the Chooser window by clicking the small box in the upper left corner.

Note: When print sharing is enabled, you cannot use a password to protect your printer. Therefore, we strongly recommend that your leave this option enabled only during the time you wish to share your printer with other users. When the other users have finished printing their files on your printer, we recommend you reverse the above process. To do so, you need not change your Appletalk settings again. All you need to do is call up **Chooser** and disable Appletalk by clicking the radio button before Inactive in the lower right corner.

Appendix C

Standard Program and Port List:

Application Type	Application Notes*	Required Settings for Port Forwarding	
SERVICES	**NOTES**	**Outgoing Connection**	**Incoming Connection**
HTTP	Netscape, IE	None	80 /client IP
FTP	Windows FTP, Cuteftp	None	21 /client IP
TELNET	Windows Telnet, Neterm	None	23 /client IP
POP3	Eudora	None	110 /client IP
SMTP	Eudora	None	25 /client IP
mIRC	mIRC	None	
Network Time Protocol (NTP)		123	123 /client IP
PPTP	Windows PPTP	None	1723 /client IP
APPLICATIONS	**NOTES**	**Outgoing Connection**	**Incoming Connection**
BAYVPN		500 /client IP	
CarbonCopy32			1023 - 1680 /client IP
CITRIX			1494 /client IP
Cu-SeeMe[2]	Cornell 1.1	None	7648 /client IP
	White Pine 3.1.2	7648 /client IP & 24032 /client IP	Default /client IP
	White Pine 4.0 (CuSeeMe Pro)	7648 /client IP & 24032 /client IP	Default /client IP
Direct Connect			375 - 425 /client IP
FW1VPN		259 /client IP	
ICQ	For file transfer, we must enable: ICQ -> preference -> connections -> firewall and set the firewall time out to 80 seconds in firewall setting.	None for Chat.	Default /client IP

IP/TV	Cisco IP/TV 2.0.0	None	
Laplink			1547 /client IP
Lotus Notes			1352 /client IP
NetMeeting[3]	Microsoft NetMeeting 2.1 & 2.11	None	1720 /client IP 1503 /client IP
PC Anywhere	Host must be on the LAN side and client IP set.		22 /client IP 5631 - 5632 /client IP
RealPlayer	RealPlayer G2	None	
Remote Anything			3996 - 4000 /client IP
Shiva VPN	Need to set the mobile option to be your public IP address.	2233 /client IP	2233 /client IP
Virtual Network Computing (VNC)			5500 /client IP 5800 /client IP 5900 /client IP
VDOLive		None	
GAMES	**NOTES**	**Outgoing Connection**	**Incoming Connection**
Aliens vs. Predator			80 /client IP 2300 - 2400 /client IP 8000 - 8999 /client IP
Asheron's Call	May need to open MSN / DX ports.	9000 - 9013 /client IP	9000 - 9013 /client IP
Black and White			2611 - 2612 /client IP 6500 /client IP 6667 /client IP 27900 /client IP

Dark Reign 2			26214/client IP
Delta Force		3100 /client IP 3568 /client IP 3999 /client IP	3100 /client IP 3568 /client IP 3999 /client IP
Dune 2000		1140 - 1234 /client IP 4000 /client IP	1140 - 1234 /client IP 4000 /client IP
Elite Force			26000 /client IP 27500 /client IP 27910 /client IP 27960 /client IP
Everquest			1024 - 6000 /client IP 7000 /client IP
F-22 Lightning 3			4533 - 4660 /client IP
Fighter Ace II			50000 - 50100 /client IP
Fighter Ace II (DX)			2300 - 2400 /client IP 47624 /client IP 50000 - 50100 /client IP
Half Life			27015 /client IP
Heretic II			28910 /client IP
Hexen II	Each computer must use a different port number. Add 1 for each player starting with 26900.		26900 (+1 for each player)
KALI	Each computer must use a different port number. Add 1 for each player starting with 2213.		2213 (+1 for each player) /clien IP 6666 /client IP

MSN Game Zone			6667 /client IP 28800 - 29000 /client IP
MSN Game Zone (DX)			2300 - 2400 /client IP 47624 /client IP
Myth			3453 /client IP
Need for Speed			9442 /client IP
Need for Speed 3			1030 /client IP
Outlaws			5310 /client IP
Quake I[4]		None	Default /client IP
QuakeII[5]		None	27910 /client IP
QuakeIII	Each computer must use a different port number. Add 1 for each player starting with 27660.	None	27660 (+1 for each player) /cl IP
Rainbow Six		2346 /client IP	2346 /client IP
Rogue Spear		2346 /client IP	2346 /client IP
StarCraft			6112 /client IP
Tiberian Sun		1140 - 1234 /client IP 4000 /client IP	1140 - 1234 /client IP 4000 /client IP
Ultima			5001 - 5010 Game 7775 - 7777 Login 8888, 9999 Patch 8800 - 8900 Messenger 7875 Monitor
Unreal Tournament	Need to modify the [UWeb.WebServer] section of the server.ini file: Set ListenPort to 8080; Set ServerName to the Public IP of your router.		7777 (game) 7778 (server) 7779 - 7783 (UdpLink) 27900 (server query) 8080 (UT Server Admin)

To determine the MAC address of an installed Ethernet card on Windows 95/98:

1. Click the **Start** menu
2. Select **Run**
3. In the text field type: **winipcfg**
4. Click **OK**
5. An IP Configuration window will appear
6. Carefully make note of the Adapter Address as it is the same as you MAC address

To determine the MAC address of an installed Ethernet card on Windows ME:

1. Click the **Start** menu
2. Select **Run**
3. In the text field type: **winipcfg**
4. Click **OK**
5. An IP Configuration window will appear
6. Carefully make note of the Adapter Address as it is the same as you MAC address

To determine the MAC address of an installed Ethernet card on Windows 2000:

1. Click the **Start** menu
2. Select **Programs**, and then **Accessories**
3. Select **Command Prompt**
4. Type: **ipconfig/all**
5. Press **Enter**
6. A window will display, with information pertaining to the Ethernet Adapter
7. Make note of the Physical Address of the Ethernet Adapter (labeled 'Physical Address') as it is the same as you MAC address

To determine the MAC address of an installed Ethernet card on Windows NT:

1. Click the **Start** menu
2. Select **Programs**
3. Select **Command Prompt**
4. Type: **ipconfig/all**
5. Press **Enter**
6. A window will display, with information pertaining to the Ethernet Adapter
7. Make note of the Physical Address of the Ethernet Adapter (labeled 'Physical Address') as it is the same as you MAC address

To determine the MAC address of an installed Ethernet card on a Macintosh:

1. Select the **Apple** menu.
2. Select **Control Panels**
3. Select **TCP/IP**
4. Select the **Info** button (If the Info button does not appear, select the **Edit** menu, then **User Mode** and then select **Advanced**)
5. A window will display showing the hardware address
6. Carefully make note of this Hardware address as it is the same as the MAC address

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 one or more of the following measures:

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.

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

Consult the dealer or an experienced radio 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 undesired operation.

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

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