On the ***Internet Access PCs List*** screen, you can select a PC by MAC Address or IP Address. You can also enter a range of IP Addresses if you want this policy to affect a group of PCs. After making your changes, click the **Save Settings** button to apply your changes or **Cancel Changes** to cancel your changes. Click the **Close** button to exit this screen.

To create an Internet Access policy:

1. Select a number from the ***Access Policy*** drop-down menu.
2. Enter a Policy Name in the field provided.
3. To enable this policy, select **Enable** from the ***Status*** drop-down menu.
4. Click the **Edit List** button to select which PCs will be affected by the policy. The ***Internet Access PCs List*** screen will appear. You can select a PC by MAC Address or IP Address. You can also enter a range of IP Addresses if you want this policy to affect a group of PCs. After making your changes, click the **Save Settings** button to apply your changes or **Cancel Changes** to cancel your changes. Then click the **Close** button.
5. Click the appropriate option, **Deny** or **Allow**, depending on whether you want to block or allow Internet access for the PCs you listed on the ***List of PCs*** screen.
6. Decide which days and what times you want this policy to be enforced. Select the individual days during which the policy will be in effect, or select **Everyday**. Then enter a range of hours and minutes during which the policy will be in effect, or select **24 Hours**.
7. You can filter access to various applications accessed over the Internet, such as FTP or telnet, by selecting up to three applications from the drop-down menus next to ***Blocked Application Port***.

   The Block Services menu offers a choice of ten preset applications. For the preset applications you select, the appropriate range of ports will automatically be displayed. Click the **>>** button to add to the Blocked Services list.

   If the application you want to block is not listed or you want to edit an application's settings, then create a new one by entering a Service Name, Protocol, and Port Range. Then, click **Add**.
8. You can also block access by URL address by entering it in the ***Website Blocking by URL*** Address field or by Keyword by entering it in the ***Website Blocking by Keyword*** field.
9. Click the **Save Settings** button to save the policy's settings. To cancel the policy's settings, click the **Cancel Changes** button.

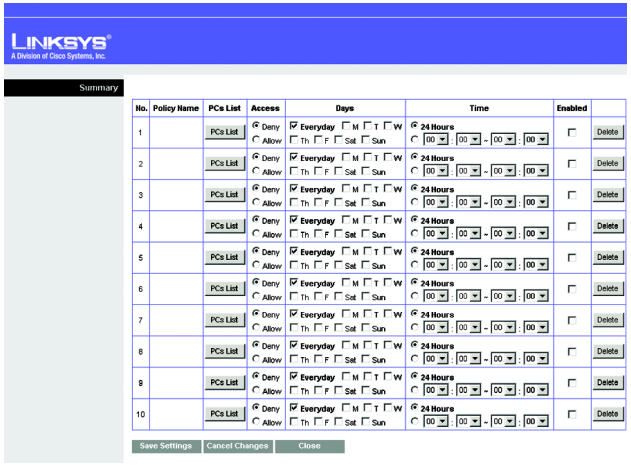

Figure 5-25: Access Restrictions Tab - Summary

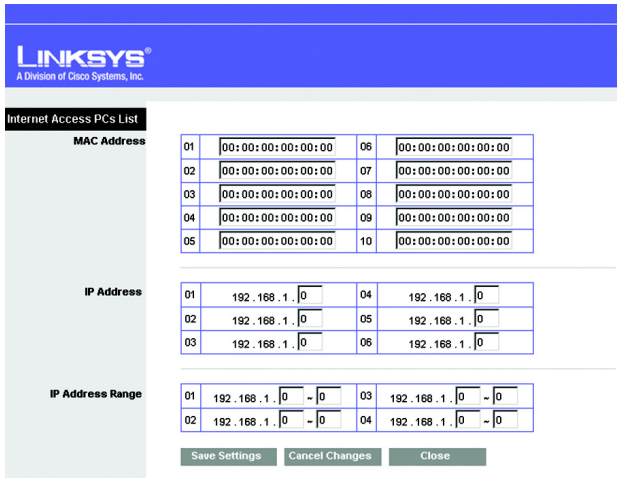

Figure 5-26: Access Restrictions Tab - Internet Access PCs List

The Applications and Gaming Tab - Port Range Forwarding

The *Port Range Forwarding* screen allows you to set up public services on your network, such as web servers, ftp servers, e-mail servers, or other specialized Internet applications. (Specialized Internet applications are any applications that use Internet access to perform functions such as videoconferencing or online gaming. Some Internet applications may not require any forwarding.)

Before using forwarding, you should assign static IP addresses to the designated PCs.

Port Range Forwarding

To forward a port, enter the information on each line for the criteria required. Descriptions of each criteria are described here.

Application Name. Each drop-down menu offers a choice of ten preset applications (select **None** if you do not want to use any of the preset applications). Select up to five preset applications. For custom applications, enter the name of your application in one of the available fields.

The preset applications are among the most widely used Internet applications. They include the following:

DNS (Domain Name System). The way that Internet domain names are located and translated into IP addresses. A domain name is a meaningful and easy-to-remember "handle" for an Internet address.

Finger. A UNIX command widely used on the Internet to find out information about a particular user, such as a telephone number, whether the user is currently logged on, and the last time the user was logged on. The person being "fingered" must have placed his or her profile on the system in order for the information to be available. Fingering requires entering the full user@domain address.

FTP (File Transfer Protocol). A protocol used to transfer files over a TCP/IP network (Internet, UNIX, etc.). For example, after developing the HTML pages for a website on a local machine, they are typically uploaded to the web server using FTP.

POP3 (Post Office Protocol 3). A standard mail server commonly used on the Internet. It provides a message store that holds incoming e-mail until users log on and download it. POP3 is a simple system with little selectivity. All pending messages and attachments are downloaded at the same time. POP3 uses the SMTP messaging protocol.

SMTP (Simple Mail Transfer Protocol). The standard e-mail protocol on the Internet. It is a TCP/IP protocol that defines the message format and the message transfer agent (MTA), which stores and forwards the mail.

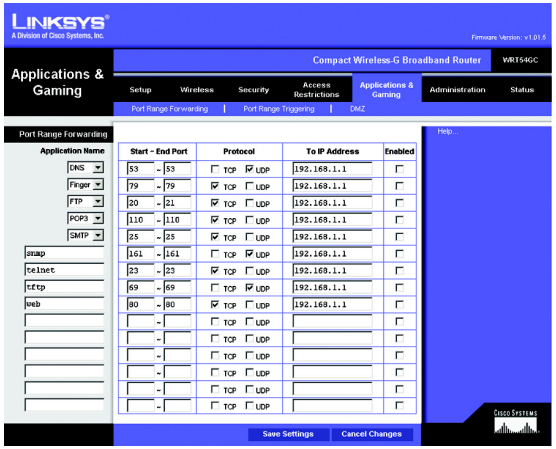

Figure 5-27: Applications and Gaming Tab - Port Range Forwarding

***tcp**: a network protocol for transmitting data that requires acknowledgement from the recipient of data sent.*

***udp**: a network protocol for transmitting data that does not require acknowledgement from the recipient of the data that is sent.*

SNMP (Simple Network Management Protocol). A widely used network monitoring and control protocol. Data is passed from SNMP agents, which are hardware and/or software processes reporting activity in each network device (hub, router, bridge, etc.) to the workstation console used to oversee the network. The agents return information contained in a MIB (Management Information Base), which is a data structure that defines what is obtainable from the device and what can be controlled (turned off, on, etc.).

Telnet. A terminal emulation protocol commonly used on Internet and TCP/IP-based networks. It allows a user at a terminal or computer to log onto a remote device and run a program.

TFTP (Trivial File Transfer Protocol). A version of the TCP/IP FTP protocol that has no directory or password capability.

Web. The Internet.

Start/End. This is the port range. Enter the port number or range of external ports used by the server or Internet application. Check with the software documentation of the Internet application for more information.

Protocol. Select the protocol(s) used for this application, **TCP** and/or **UDP**.

To IP Address. For each application, enter the IP address of the PC running the specific application.

Enabled. Click the **Enabled** checkbox to enable port forwarding for the relevant application.

Change these settings as described here and click the **Save Settings** button to apply your changes or **Cancel Changes** to cancel your changes. Help information is shown on the right-hand side of the screen.

The Applications & Gaming Tab - Port Range Triggering

The *Port Range Triggering* screen allows the Router to watch outgoing data for specific port numbers. The IP address of the computer that sends the matching data is remembered by the Router, so that when the requested data returns through the Router, the data is pulled back to the proper computer by way of IP address and port mapping rules.

Figure 5-28: Applications and Gaming Tab - Port Triggering

Port Range Triggering

Application Name. Enter the application name of the trigger.

Triggered Range. For each application, list the triggered port number range. Check with the Internet application documentation for the port number(s) needed. In the first field, enter the starting port number of the Triggered Range. In the second field, enter the ending port number of the Triggered Range.

Forwarded Range. For each application, list the forwarded port number range. Check with the Internet application documentation for the port number(s) needed. In the first field, enter the starting port number of the Forwarded Range. In the second field, enter the ending port number of the Forwarded Range.

Enabled. Click the **Enabled** checkbox to enable port range triggering for the relevant application.

Change these settings as described here and click the **Save Settings** button to apply your changes or **Cancel Changes** to cancel your changes. Help information is shown on the right-hand side of the screen.

The Applications and Gaming Tab - DMZ

The DMZ feature allows one network user to be exposed to the Internet for use of a special-purpose service such as Internet gaming or videoconferencing. DMZ hosting forwards all the ports at the same time to one PC. The Port Range Forwarding feature is more secure because it only opens the ports you want to have opened, while DMZ hosting opens all the ports of one computer, exposing the computer to the Internet.

Any PC whose port is being forwarded must have its DHCP client function disabled and should have a new static IP address assigned to it because its IP address may change when using the DHCP function.

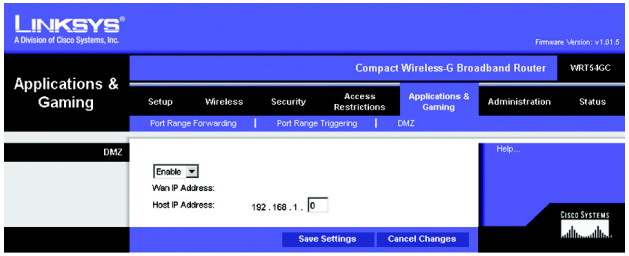

Figure 5-29: Applications and Gaming Tab - DMZ

DMZ

To expose one PC, select **Enable**, then enter a WAN IP Address or Host IP Address in the field.

Wan IP Address. The Internet IP address of the computer you want to expose.

Host IP Address. Enter the IP address of the computer you want to expose.

Change these settings as described here and click the **Save Settings** button to apply your changes or **Cancel Changes** to cancel your changes. Help information is shown on the right-hand side of the screen.

The Administration Tab - Management

This section of the Administration tab allows the network's administrator to manage specific Router functions for access and security.

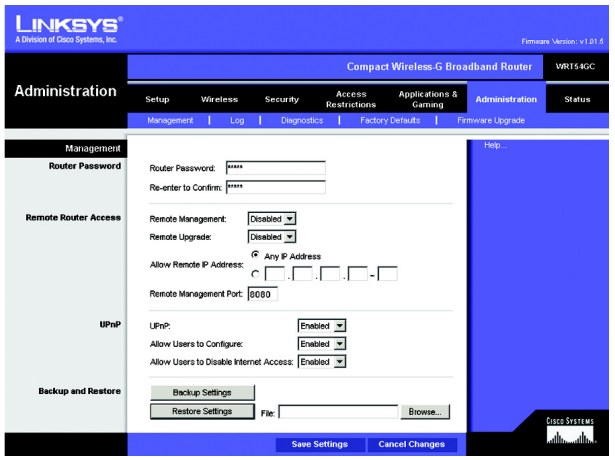

Figure 5-30: Administration Tab - Management

Management

Router Password

Router Password and Re-enter to Confirm. You can change the Router's password from here. Enter a new Router password and then type it again in the ***Re-enter to Confirm*** field to confirm.

Remote Router Access

Remote Management. To access the Router remotely, from outside the local network, select **Enabled**. Otherwise, keep the default setting, **Disabled**.

Remote Upgrade. If you want to be able to upgrade the Router remotely, from outside the local network, select **Enabled**. (You must have the Remote Management feature enabled as well.) Otherwise, keep the default setting, **Disabled**.

Allow Remote IP Address. If you want to be able to access the Router from any external IP address, select **Any IP Address**. If you want to specify an external IP address or range of IP addresses, then select the second option and complete the fields provided.

Remote Management Port. Enter the port number that will be open to outside access.

UPnP

Universal Plug and Play (UPnP) allows Windows Me and XP to automatically configure the Router for various Internet applications, such as gaming and videoconferencing.

UPnP. If you want to use UPnP, keep the default setting, **Enabled**. Otherwise, select **Disabled**.

Allow Users to Configure. Keep the default setting, **Enabled**, if you want to be able to make manual changes to the Router while using the UPnP feature. Otherwise, select **Disabled**.

Allow Users to Disable Internet Access. Keep the default setting, **Enabled**, if you want to be able to prohibit any and all Internet connections. Otherwise, select **Disabled**.

Backup and Restore

Backup Settings. To back up the Router's configuration, click this button and follow the on-screen instructions.

Restore Settings. To restore the Router's configuration, click this button and follow the on-screen instructions. (You must have previously backed up the Router's configuration.)

Change these settings as described here and click the **Save Settings** button to apply your changes or **Cancel Changes** to cancel your changes. Help information is shown on the right-hand side of the screen.

The Administration Tab - Log

The Router can keep logs of all traffic for your Internet connection.

Log

The Router can keep logs of all traffic for your Internet connection. To disable the Log function, keep the default setting, **Disable**. To monitor traffic between the network and the Internet, select **Enable**. When you wish to view the logs, click the **View Log** button, then select **Incoming Log** or **Outgoing Log** from the *Type* drop-down menu.

The Incoming Log will display a temporary log of the Source IP Addresses and Destination Port Numbers for the incoming Internet traffic.

The Outgoing Log will display a temporary log of the LAN IP Addresses, Destination URLs or IP Addresses, and Service or Port Numbers for the outgoing Internet traffic.

The DHCP Client Log will display a temporary log of the Date and Time, DHCP IP Address, and MAC Address for the DHCP client traffic.

The Security Log will display a temporary log of the Date and Time, Direction, Packets (to and from), Action, and the Reason for the selected security options.

Click the **Refresh** button to update the log. Click the **Clear Log** button to clear all the information that is displayed. Click the **Close** button to close the screen.

Change these settings as described here and click the **Save Settings** button to apply your changes or **Cancel Changes** to cancel your changes. Help information is shown on the right-hand side of the screen.

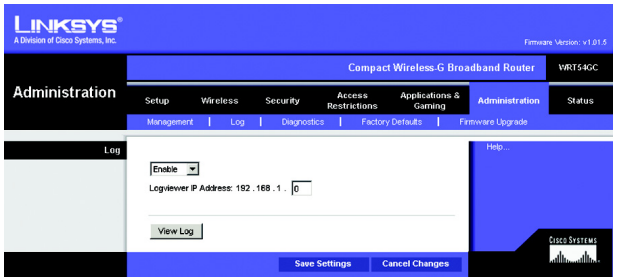

Figure 5-31: Administration Tab - Log

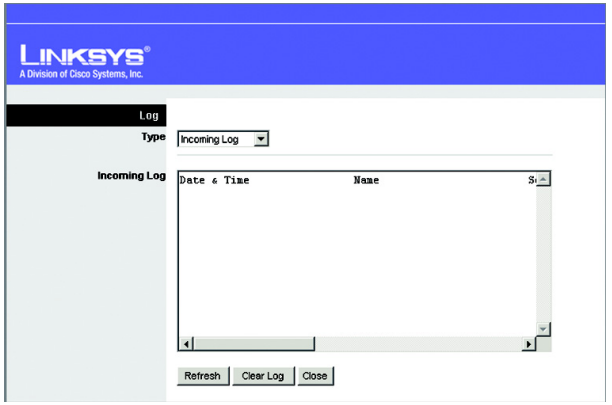

Figure 5-32: Incoming Log

The Administration Tab - Diagnostics

The Ping test allows you to check the status of your Internet connection.

Diagnostics

Ping Test

To IP or URL Address. Enter the IP address or URL that you want to ping.

Packet Size. Enter the size of the packet you want to use.

Times to Ping. Select the number of times you wish to ping: **2**, **4**, **8**, or **16**.

Ping. Click this button to begin the test. A new screen will appear and display the test results. Click the **Close** button to return to the *Diagnostics* screen.

Traceroute Test. To test the performance of a connection, enter the address of the PC whose connection you wish to test and click the **Traceroute** button. Click the **Close** button to return to the *Diagnostics* screen.

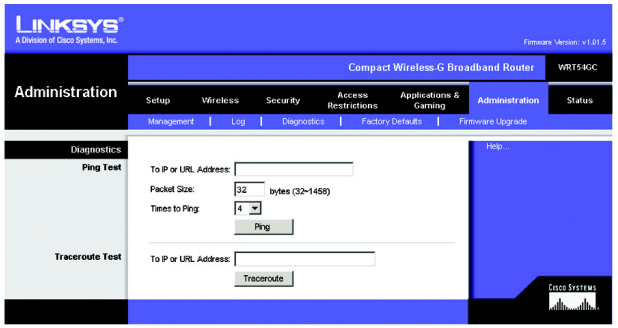

Figure 5-33: Administration Tab - Diagnostics

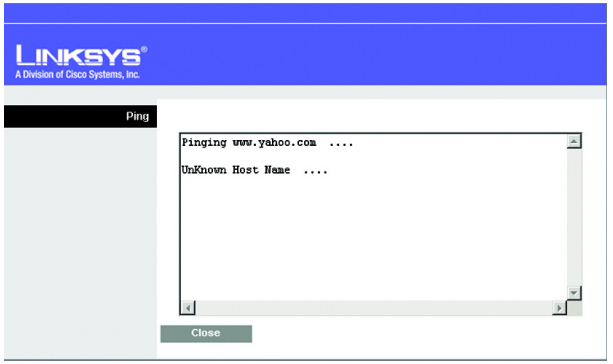

Figure 5-34: Ping Test

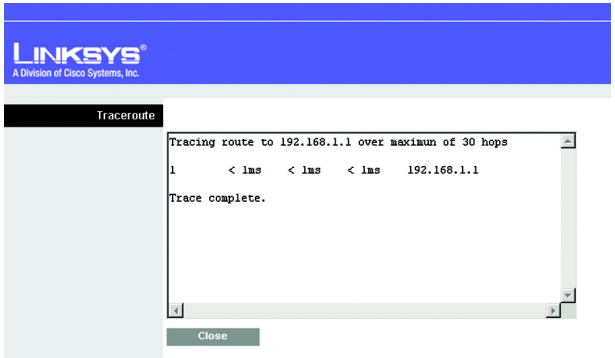

Figure 5-35: Traceroute Test

The Administration Tab - Factory Defaults

This screen allows you to restore the Router's configuration to its factory default settings.

Note: Do not restore the factory defaults unless you are having difficulties with the Router and have exhausted all other troubleshooting measures. Once the Router is reset, you will have to re-enter all of your configuration settings.

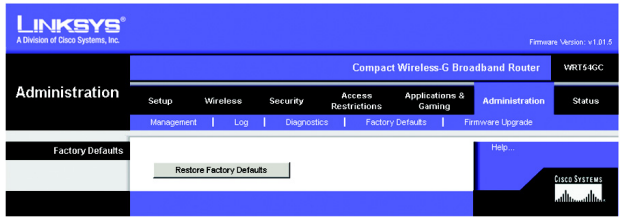

Figure 5-36: Administration Tab - Factory Defaults

Factory Defaults

Restore Factory Defaults. Click this button to reset all configuration settings to their default values. Any settings you have saved will be lost when the default settings are restored.

Help information is shown on the right-hand side of the screen.

The Administration Tab - Firmware Upgrade

This screen allows you to upgrade the Router's firmware. Do not upgrade the firmware unless you are experiencing problems with the Router or the new firmware has a feature you want to use.

Note: The Router will lose all of the settings you have customized. Before you upgrade its firmware, write down all of your custom settings. After you upgrade its firmware, you will have to re-enter all of your configuration settings.

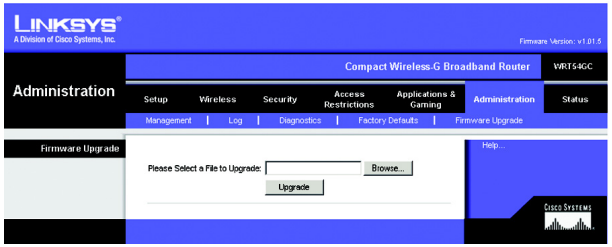

Figure 5-37: Administration Tab - Firmware Upgrade

Firmware Upgrade

Before upgrading the firmware, download the Router's firmware upgrade file from the Linksys website, *www.linksys.com*. Then extract the file.

Please select a file to upgrade. In the field provided, enter the name of the extracted firmware upgrade file, or click the **Browse** button to find this file.

Upgrade. After you have selected the appropriate file, click this button, and follow the on-screen instructions.

Help information is shown on the right-hand side of the screen.

***firmware**: the programming code that runs a networking device.*

***download**: to receive a file transmitted over a network.*

***upgrade**: to replace existing software or firmware with a newer version.*

The Status Tab - Router

The *Router* screen on the Status Tab displays information about the Router and its current settings. The on-screen information will vary depending on the Internet Connection Type you use.

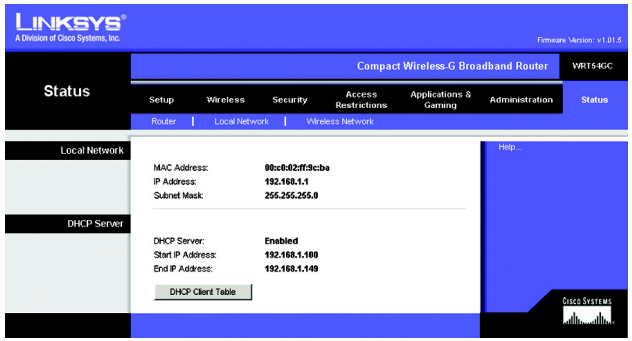

Figure 5-38: Status Tab - Router

Router Information

Firmware Version. This is the Router's current firmware.

Current Time. This shows the time, based on the time zone you selected on the Setup Tab.

MAC Address. This is the Router's MAC Address, as seen by your ISP.

Host Name. If required by your ISP, this would have been entered on the Setup Tab.

Domain Name. If required by your ISP, this would have been entered on the Setup Tab.

Internet Connection

Connection Type. This indicates the type of Internet connection you are using.

IP Address. The Router's Internet IP Address is displayed here.

Subnet Mask and Default Gateway. The Router's Subnet Mask and Default Gateway address are displayed here for DHCP and static IP connections.

DNS1-3. Shown here are the DNS (Domain Name System) IP addresses currently used by the Router.

IP Release. Available for a DHCP connection, click this button to release the current IP address of the device connected to the Router's Internet port.

IP Renew. Available for a DHCP connection, click this button to replace the current IP address—of the device connected to the Router's Internet port—with a new IP address.

Click the **Refresh** button to update the on-screen information. Help information is shown on the right-hand side of the screen.

The Status Tab - Local Network

The *Local Network* screen on the Status Tab displays the status of your network.

Figure 5-39: Status Tab - Local Network

Local Network

MAC Address. This is the Router's MAC Address, as seen on your local, Ethernet network.

IP Address. This shows the Router's IP Address, as it appears on your local, Ethernet network.

Subnet Mask. When the Router is using a Subnet Mask, it is shown here.

DHCP Server

DHCP Server. The status of the Router's use as a DHCP server is displayed here.

Start IP Address. For the range of IP Addresses used by devices on your local, Ethernet network, the beginning of that range is shown here.

End IP Address. For the range of IP Addresses used by devices on your local, Ethernet network, the end of that range is shown here.

DHCP Client Table. Clicking this button will open a screen showing you which PCs are utilizing the Router as a DHCP server. On the *DHCP Client Table* screen, you will see a list of DHCP clients (PCs and other network devices) with the following information: Client Names, Interfaces, IP Addresses, MAC Addresses, and the length of time before their assigned IP addresses expire. From the *To Sort by* drop-down menu, you can sort the table by Client Name, Interface, IP Address, or MAC Address.To view the most up-to-date information, click the **Refresh** button. To exit this screen, click the **Close** button.

Help information is shown on the right-hand side of the screen.

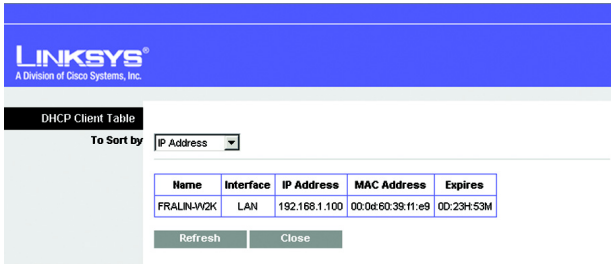

Figure 5-40: DHCP Client Table

The Status Tab - Wireless

The *Wireless* screen on the Status Tab displays the status of your Wireless-A and/or Wireless-G networks.

Wireless Network

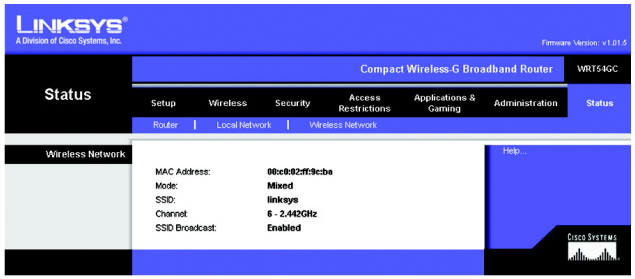

Figure 5-41: Status Tab - Wireless

MAC Address. This is the Router's MAC Address, as seen on your local, wireless network.

Mode. As selected from the Wireless tab, this displays the status of the Router's Wireless-G networking mode.

SSID. As entered on the Wireless tab, this displays the wireless network name or SSID of your Wireless-G network.

Channel. As entered on the Wireless tab, this displays the channel on which your wireless network is broadcasting.

SSID Broadcast. As selected on the Wireless tab, this displays the status of the Router's SSID Broadcast feature.

Help information is shown on the right-hand side of the screen.

Appendix A: Troubleshooting

This appendix consists of two parts: "Common Problems and Solutions" and "Frequently Asked Questions." Provided are possible solutions to problems that may occur during the installation and operation of the Router. Read the descriptions below to help you solve your problems. If you can't find an answer here, check the Linksys website at ***www.linksys.com***.

Common Problems and Solutions

1. ***I'm trying to access the Router's Web-based Utility, but I do not see the login screen. Instead, I see a screen saying, "404 Forbidden."***
   If you are using Windows Explorer, perform the following steps until you see the Web-based Utility's login screen (Netscape Navigator will require similar steps):
   1. Click **File**. Make sure *Work Offline* is NOT checked.
   2. Press **CTRL + F5**. This is a hard refresh, which will force Windows Explorer to load new webpages, not cached ones.
   3. Click **Tools**. Click **Internet Options**. Click the **Security** tab. Click the **Default level** button. Make sure the security level is Medium or lower. Then click the **OK** button.

2. ***I need to set a static IP address on a PC.***
   You can assign a static IP address to a PC by performing the following steps:
   - For Windows 98SE and Me:
     1. Click **Start**, **Settings**, and **Control Panel**. Double-click **Network**.
     2. In The following network components are installed box, select the TCP/IP-> associated with your Ethernet adapter. If you only have one Ethernet adapter installed, you will only see one TCP/IP line with no association to an Ethernet adapter. Highlight it and click the **Properties** button.
     3. In the TCP/IP properties window, select the **IP address** tab, and select **Specify an IP address**. Enter a unique IP address that is not used by any other computer on the network connected to the Router. Make sure that each IP address is unique for each PC or network device.
     4. Click the **Gateway** tab, and in the New Gateway prompt, enter **192.168.1.1**, which is the default IP address of the Router. Click the **Add** button to accept the entry.
     5. Click the **DNS** tab, and make sure the DNS Enabled option is selected. Enter the Host and Domain names (e.g., John for Host and home for Domain). Enter the DNS entry provided by your ISP. If your ISP has not provided the DNS IP address, contact your ISP to get that information or go to its website for the information.
     6. Click the **OK** button in the TCP/IP properties window, and click **Close** or the **OK** button for the Network window.
     7. Restart the computer when asked.

- For Windows 2000:
  1. Click **Start**, **Settings**, and **Control Panel**. Double-click **Network and Dial-Up Connections**.
  2. Right-click the Local Area Connection that is associated with the Ethernet adapter you are using, and select the **Properties** option.
  3. In the Components checked are used by this connection box, highlight **Internet Protocol (TCP/IP)**, and click the **Properties** button. Select **Use the following IP address** option.
  4. Enter a unique IP address that is not used by any other computer on the network connected to the Router.
  5. Enter the Subnet Mask, **255.255.255.0**.
  6. Enter the Default Gateway, **192.168.1.1** (Router's default IP address).
  7. Toward the bottom of the window, select **Use the following DNS server addresses**, and enter the Preferred DNS server and Alternative DNS server (provided by your ISP). Contact your ISP or go on its website to find the information.
  8. Click the **OK** button in the Internet Protocol (TCP/IP) Properties window, and click the **OK** button in the Local Area Connection Properties window.
  9. Restart the computer if asked.
- For Windows XP:

  The following instructions assume you are running Windows XP with the default interface. If you are using the Classic interface (where the icons and menus look like previous Windows versions), please follow the instructions for Windows 2000.
  1. Click **Start** and **Control Panel**.
  2. Click the **Network and Internet Connections** icon and then the **Network Connections** icon.
  3. Right-click the **Local Area Connection** that is associated with the Ethernet adapter you are using, and select the **Properties** option.
  4. In the This connection uses the following items box, highlight **Internet Protocol (TCP/IP)**. Click the **Properties** button.
  5. Enter a unique IP address that is not used by any other computer on the network connected to the Router.
  6. Enter the Subnet Mask, **255.255.255.0**.
  7. Enter the Default Gateway, **192.168.1.1** (Router's default IP address).
  8. Toward the bottom of the window, select **Use the following DNS server addresses**, and enter the Preferred DNS server and Alternative DNS server (provided by your ISP). Contact your ISP or go on its website to find the information.
  9. Click the **OK** button in the Internet Protocol (TCP/IP) Properties window. Click the **OK** button in the Local Area Connection Properties window.

3. I want to test my Internet connection.

A Check your TCP/IP settings.

For Windows 98SE, Me, 2000, and XP:

- Make sure Obtain IP address automatically is selected in the settings. Refer to Windows Help for details.

B Open a command prompt.

For Windows 98SE and Me:

- Click **Start** and **Run**. In the Open field, type **command**. Press the **Enter** key or click the **OK** button.

For Windows 2000 and XP:

- Click **Start** and **Run**. In the Open field, type **cmd**. Press the **Enter** key or click the **OK** button. In the command prompt, type **ping 192.168.1.1** and press the **Enter** key.
- If you get a reply, the computer is communicating with the Router.
- If you do NOT get a reply, please check the cable, and make sure Obtain an IP address automatically is selected in the TCP/IP settings for your Ethernet adapter.

C In the command prompt, type **ping** followed by your Internet or WAN IP address and press the **Enter** key. The Internet or WAN IP Address can be found on the Status screen of the Router's web-based utility. For example, if your Internet or WAN IP address is 1.2.3.4, you would enter **ping 1.2.3.4** and press the **Enter** key.

- If you get a reply, the computer is connected to the Router.
- If you do NOT get a reply, try the ping command from a different computer to verify that your original computer is not the cause of the problem.

D In the command prompt, type **ping www.yahoo.com** and press the **Enter** key.

- If you get a reply, the computer is connected to the Internet. If you cannot open a webpage, try the ping command from a different computer to verify that your original computer is not the cause of the problem.
- If you do NOT get a reply, there may be a problem with the connection. Try the ping command from a different computer to verify that your original computer is not the cause of the problem.

4. I am not getting an IP address on the Internet with my Internet connection.

- Refer to "Problem #2, I want to test my Internet connection" to verify that you have connectivity.
- If you need to register the MAC address of your Ethernet adapter with your ISP, please see "Appendix E: Finding the MAC address and IP Address for Your Ethernet Adapter." If you need to clone the MAC address of your Ethernet adapter onto the Router, see the System section of "Chapter 5: Configuring the Compact Wireless-G Broadband Router" for details.
- Make sure you are using the right Internet connection settings. Contact your ISP to see if your Internet connection type is DHCP, Static IP Address, or PPPoE (commonly used by DSL consumers). Please refer to the Setup section of "Chapter 5: Configuring the Compact Wireless-G Broadband Router" for details on Internet connection settings.
- Make sure you have the right cable. Check to see if the Internet column has a solidly lit LED.
- Make sure the cable connecting from your cable or DSL modem is connected to the Router's Internet port. Verify that the Status page of the Router's web-based utility shows a valid IP address from your ISP.
- Turn off the computer, Router, and cable/DSL modem. Wait 30 seconds, and then turn on the Router, cable/DSL modem, and computer. Check the Status tab of the Router's web-based utility to see if you get an IP address.

5. I am not able to access the Setup page of the Router's web-based utility.

- Refer to "Problem #2, I want to test my Internet connection" to verify that your computer is properly connected to the Router.
- Refer to "Appendix E: Finding the MAC Address and IP address for Your Ethernet Adapter" to verify that your computer has an IP Address, Subnet Mask, Gateway, and DNS.
- Set a static IP address on your system; refer to "Problem #1: I need to set a static IP address."
- Refer to "Problem #10: I need to remove the proxy settings or the dial-up pop-up window (for PPPoE users)."

6. I need to set up a server behind my Router and make it available to the public.

To use a server like a web, ftp, or mail server, you need to know the respective port numbers they are using. For example, port 80 (HTTP) is used for web; port 21 (FTP) is used for FTP, and port 25 (SMTP outgoing) and port 110 (POP3 incoming) are used for the mail server. You can get more information by viewing the documentation provided with the server you installed.

Follow these steps to set up port forwarding through the Router's web-based utility. We will be setting up web, ftp, and mail servers.

1. Access the Router's web-based utility by going to http://192.168.1.1 or the IP address of the Router. Go to the Applications & Gaming => Port Range Forwarding tab.
2. Enter any name you want to use for the custom Application.
3. Enter the External Port range of the service you are using. For example, if you have a web server, you would enter the range 80 to 80.
4. Check the protocol you will be using, TCP and/or UDP.
5. Enter the IP address of the PC or network device that you want the port server to go to. For example, if the web server's Ethernet adapter IP address is 192.168.1.100, you would enter 100 in the field provided. Check "Appendix E: Finding the MAC Address and IP Address for Your Ethernet Adapter" for details on getting an IP address.
6. Check the **Enabled** option for the port services you want to use. Consider the example below:

Application	Start ~ End Port	Protocol	IP Address	Enabled
Web server	80 to 80	Both	192.168.1.100	X
FTP server	21 to 21	TCP	192.168.1.101	X
SMTP (outgoing)	25 to 25	Both	192.168.1.102	X
POP3 (incoming)	110 to 110	Both	192.168.1.102	X

When you have completed the configuration, click the **Save Settings** button.

7. I need to set up online game hosting or use other Internet applications.

If you want to play online games or use Internet applications, most will work without doing any port forwarding or DMZ hosting. There may be cases when you want to host an online game or Internet application. This would require you to set up the Router to deliver incoming packets or data to a specific computer. This also applies to the Internet applications you are using. The best way to get the information on what port services to use is to go to the website of the online game or application you want to use. Follow these steps to set up online game hosting or use a certain Internet application:

1. Access the Router's web interface by going to http://192.168.1.1 or the IP address of the Router. Go to the Applications & Gaming => Port Range Forwarding tab.
2. Enter any name you want to use for the custom Application.
3. Enter the External Port range of the service you are using. For example, if you want to host Unreal Tournament (UT), you would enter the range 7777 to 27900.
4. Check the protocol you will be using, TCP and/or UDP.
5. Enter the IP address of the PC or network device that you want the port server to go to. For example, if the web server's Ethernet adapter IP address is 192.168.1.100, you would enter 100 in the field provided. Check "Appendix E: Finding the MAC Address and IP Address for Your Ethernet Adapter" for details on getting an IP address.
6. Check the **Enabled** option for the port services you want to use. Consider the example below:

Application	Start ~ End Port	Protocol	IP Address	Enabled
UT	7777 to 27900	Both	192.168.1.100	X
Halflife	27015 to 27015	Both	192.168.1.105	X
PC Anywhere	5631 to 5631	UDP	192.168.1.102	X
VPN IPSEC	500 to 500	UDP	192.168.1.100	X

When you have completed the configuration, click the **Save Settings** button.

8. I can't get the Internet game, server, or application to work.

If you are having difficulties getting any Internet game, server, or application to function properly, consider exposing one PC to the Internet using DeMilitarized Zone (DMZ) hosting. This option is available when an application requires too many ports or when you are not sure which port services to use. Make sure you disable all the forwarding entries if you want to successfully use DMZ hosting, since forwarding has priority over DMZ hosting. (In other words, data that enters the Router will be checked first by the forwarding settings. If the port number that the data enters from does not have port forwarding, then the Router will send the data to whichever PC or network device you set for DMZ hosting.)

Follow these steps to set DMZ hosting:

1. Access the Router's web-based utility by going to http://192.168.1.1 or the IP address of the Router. Go to the Applications & Gaming => Port Range Forwarding tab.
2. Disable or remove the entries you have entered for forwarding. Keep this information in case you want to use it at a later time.
3. Go to the Applications & Gaming => DMZ tab.
4. Select **Enabled** next to DMZ. In the ***Host IP Address*** field, enter the IP address of the computer you want exposed to the Internet. This will bypass the NAT technology for that computer. Please refer to "Appendix E: Finding the MAC Address and IP Address for Your Ethernet Adapter" for details on getting an IP address.
5. Once completed with the configuration, click the **Save Settings** button.

9. I forgot my password, or the password prompt always appears when I am saving settings to the Router.

Reset the Router to factory default by pressing the Reset button for 10 seconds and then releasing it. If you are still getting prompted for a password when saving settings, then perform the following steps:

1. Access the Router's web-based utility by going to http://192.168.1.1 or the IP address of the Router. Enter the default password admin, and click the Administrations => Management tab.
2. Enter a different password in the ***Router Password*** field, and enter the same password in the second field to confirm the password.
3. Click the **Save Settings** button.

10. I am a PPPoE user, and I need to remove the proxy settings or the dial-up pop-up window.

If you have proxy settings, you need to disable these on your computer. Because the Router is the gateway for the Internet connection, the computer does not need any proxy settings to gain access. Please follow these directions to verify that you do not have any proxy settings and that the browser you use is set to connect directly to the LAN.

- For Microsoft Internet Explorer 5.0 or higher:
  1. Click **Start, Settings**, and **Control Panel**. Double-click Internet Options.
  2. Click the **Connections** tab.
  3. Click the **LAN settings** button and remove anything that is checked.
  4. Click the **OK** button to go back to the previous screen.
  5. Click the option **Never dial a connection**. This will remove any dial-up pop-ups for PPPoE users.
- For Netscape 4.7 or higher:
  1. Start **Netscape Navigator**, and click **Edit**, **Preferences**, **Advanced**, and **Proxies**.
  2. Make sure you have Direct connection to the Internet selected on this screen.
  3. Close all the windows to finish.

11. To start over, I need to set the Router to factory default.

Hold the **Reset** button for 8 seconds and then release it. This will return the password, forwarding, and other settings on the Router to the factory default settings. In other words, the Router will revert to its original factory configuration.

12. I need to upgrade the firmware.

In order to upgrade the firmware with the latest features, you need to go to the Linksys website and download the latest firmware at ***www.linksys.com***.

Follow these steps:

1. Go to the Linksys website at ***www.linksys.com*** and download the latest firmware.
2. To upgrade the firmware, follow the steps in "Appendix C: Upgrading Firmware."

13. The firmware upgrade failed, and/or the Power LED is flashing.

The upgrade could have failed for a number of reasons. Follow these steps to upgrade the firmware and/or make the Power LED stop flashing:

- If the firmware upgrade failed, use the TFTP program (it was downloaded along with the firmware). Open the pdf that was downloaded along with the firmware and TFTP program, and follow the pdf's instructions.
- Set a static IP address on the PC; refer to "Problem #1, I need to set a static IP address." Use the following IP address settings for the computer you are using:
  IP Address: 192.168.1.50
  Subnet Mask: 255.255.255.0
  Gateway: 192.168.1.1
- Perform the upgrade using the TFTP program or the Administration tab of the Router's web-based utility.

14. My DSL service's PPPoE is always disconnecting.

PPPoE is not actually a dedicated or always-on connection. The DSL ISP can disconnect the service after a period of inactivity, just like a normal phone dial-up connection to the Internet.

- There is a setup option to "keep alive" the connection. This may not always work, so you may need to re-establish connection periodically.
  1. To connect to the Router, go to the web browser, and enter **http://192.168.1.1** or the IP address of the Router.
  2. Enter the password, if asked. (The default password is admin.)
  3. On the Setup screen, select the option **Keep Alive**, and set the Redial Period option at 20 (seconds).
  4. Click the **Save Settings** button.
  5. Click the **Status** tab, and click the **Connect** button.
  6. You may see the login status display as Connecting. Press the F5 key to refresh the screen, until you see the login status display as Connected.
- Click the **Save Settings** button to continue.
- If the connection is lost again, follow steps 1- 6 to re-establish connection.