

D-Link *Air Xpert* DI-774

2.4 GHz / 5 GHz Tri-Mode Dualband Wireless Router

Manual

D-Link

Building Networks for People

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Package Contents



Contents of Package:

- **D-Link Air Xpert DI-774 2.4GHz/5GHz Tri-Mode Dualband Wireless Router**
- Power Adapter – 5V DC, 3.0A
- Manual on CD
- Quick Installation Guide
- Ethernet Cable

Note: Using a power supply with a different voltage rating than the one included with the DI-774 will cause damage and void the warranty for this product.

If any of the above items are missing, please contact your reseller.

System Requirements For Configuration:

- Computer with Windows, Macintosh, or Linux-based operating system with an installed Ethernet adapter

Introduction

At up to five times the speed of previous wireless devices, you can work faster and more efficiently, increasing productivity. With the DI-774, bandwidth-intensive applications like graphics or multimedia will benefit significantly because large files are able to move across the network quickly. This versatile wireless router also features four times the number of non-overlapping channels than a device that supports only 802.11g, so more users can access the network.

Support for all three standards (802.11g; 802.11a; 802.11b) means that you can grow your network without having to worry about legacy wireless equipment being incompatible with newer compliant devices from other manufacturers. This also allows network administrators to partition the usage of the dualband by segmenting users and creating special access privilege networks for classified document transfer and communications.

With the DI-774 you can securely connect to wireless clients on the network using 802.1x for wireless user authentication, as well as WPA (Wi-Fi Protected Access™) providing you a much higher level of security for your data and communications than has previously been available.

Through its easy-to-use Web-based user interface, the DI-774 lets you control the information that is accessible to those on the wireless network, whether from the Internet or from your company's server:

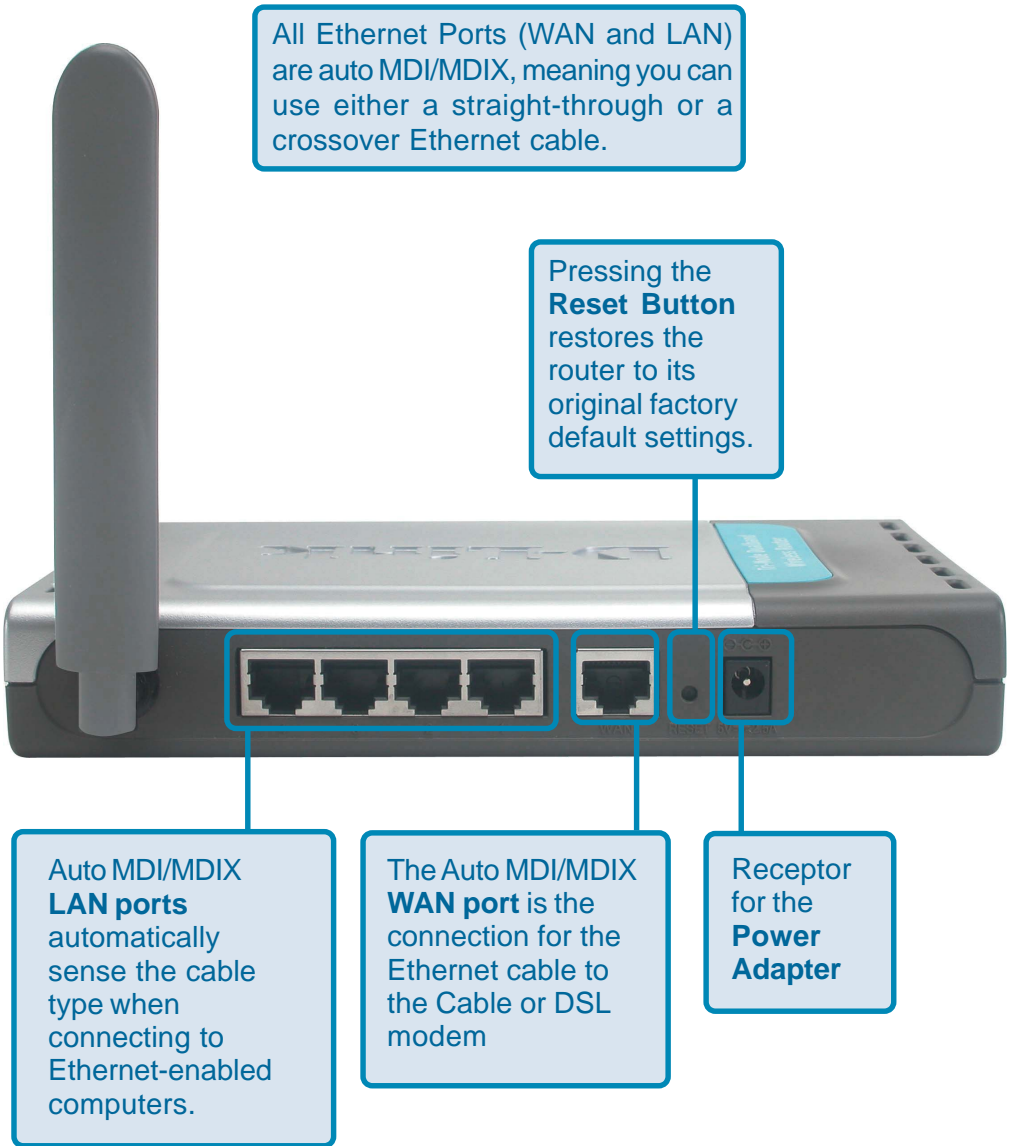
Content Filtering – Easily applied content filtering based on MAC Address, IP Address, URL and /or Domain Name.

Filter Scheduling – Filters can be scheduled to be active on certain days or for a duration of hours or minutes.

Network Address Translation – NAT protects the DI-774 and its users from outside intruders gaining access to your private network

VPN Multiple/Concurrent Sessions – Supports multiple and concurrent IPSec and PPTP sessions, so multiple users behind the DI-774 can access corporate networks through various VPN clients more securely.

Connections - Back Panel of Unit

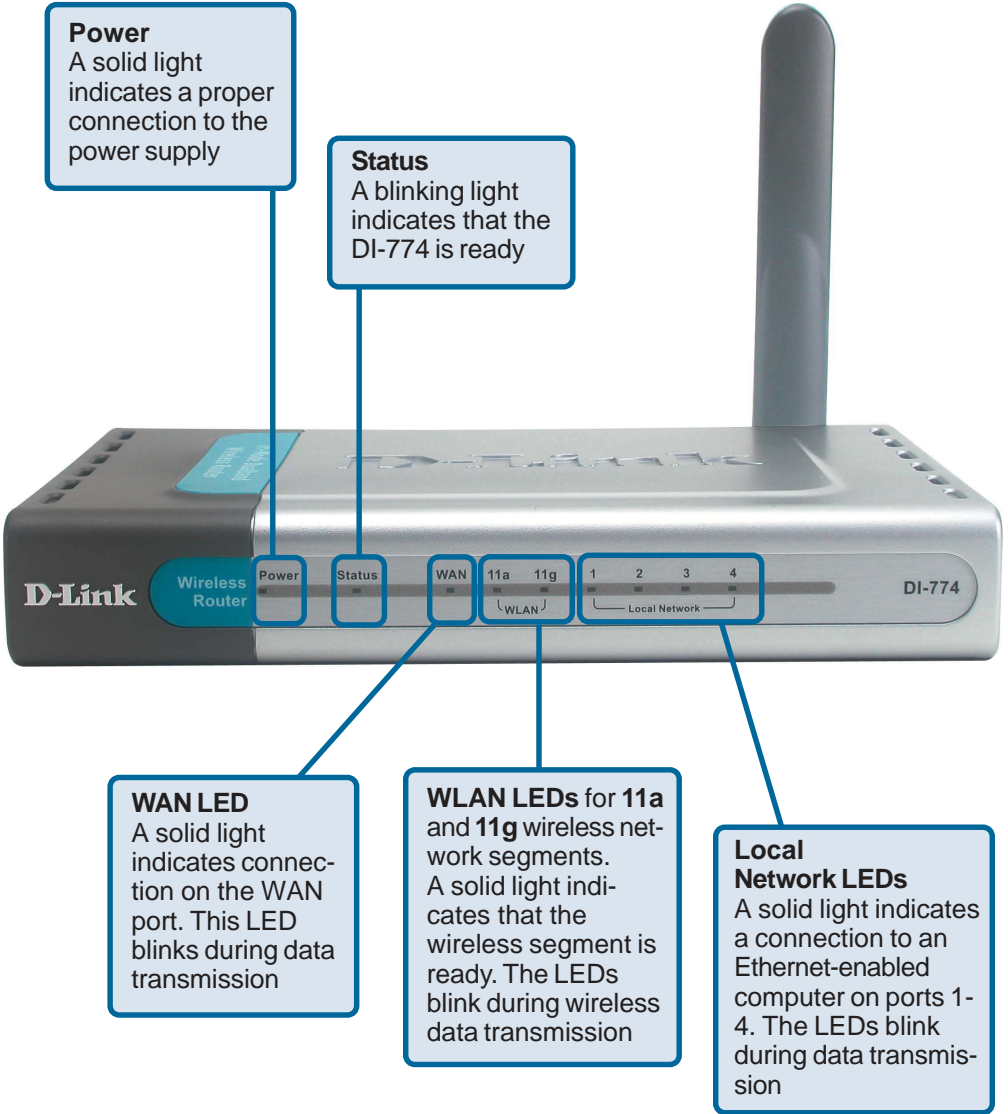


Features

- Fully compatible with the 802.11g standard to provide a wireless data rate of up to 54Mbps
- Backwards compatible with the 802.11b standard to provide a wireless data rate of up to 11Mbps
- **WPA** (Wi-Fi Protected Access™) authorizes and identifies users based on a secret key that changes automatically at a regular interval, for example:
 - **TKIP** (Temporal Key Integrity Protocol), in conjunction with a RADIUS server, changes the temporal key every 10,000 packets, ensuring greater security
 - **Pre-Shared Key** mode means that the home user, without a RADIUS server, will obtain a new security key every time he or she connects to the network, vastly improving the safety of communications on the network.
- 802.1x **Authentication** in conjunction with the RADIUS server verifies the identity of would be clients
- Utilizes **OFDM** technology (**O**rtogonal **F**requency **D**ivision **M**ultiplexing) to ensure strong wireless signals for both 802.11g and 802.11a
- User-friendly configuration and diagnostic utilities
- Operates in the 2.4GHz frequency range
- Connects multiple computers to a Broadband (Cable or DSL) modem to share the Internet connection
- Advanced Firewall features
 - Supports NAT with VPN pass-through, providing added security
 - MAC Filtering
 - IP Filtering
 - URL Filtering
 - Domain Blocking
 - Scheduling
- DHCP server supported enables all networked computers to automatically receive IP addresses
- Web-based interface for Managing and Configuring
- Access Control to manage users on the network
- Supports special applications that require multiple connections
- Equipped with 4 10/100 Ethernet ports, 1 WAN port, Auto MDI/MDIX

LEDs - Front Panel of Unit

LED stands for Light-Emitting Diode. The DI-774 has the following LEDs:



Wireless Basics

D-Link wireless products are based on industry standards to provide easy-to-use and compatible high-speed wireless connectivity within your home, business or public access wireless networks. D-Link wireless products will allow you access to the data you want, when and where you want it. You will be able to enjoy the freedom that wireless networking brings.

A WLAN is a cellular computer network that transmits and receives data with radio signals instead of wires. WLANs are used increasingly in both home and office environments, and public areas such as airports, coffee shops and universities. Innovative ways to utilize WLAN technology are helping people to work and communicate more efficiently. Increased mobility and the absence of cabling and other fixed infrastructure have proven to be beneficial for many users.

Wireless users can use the same applications they use on a wired network. Wireless adapter cards used on laptop and desktop systems support the same protocols as Ethernet adapter cards.

People use wireless LAN technology for many different purposes:

Mobility - Productivity increases when people have access to data in any location within the operating range of the WLAN. Management decisions based on real-time information can significantly improve worker efficiency.

Low Implementation Costs – WLANs are easy to set up, manage, change and relocate. Networks that frequently change can benefit from WLANs ease of implementation. WLANs can operate in locations where installation of wiring may be impractical.

Installation and Network Expansion - Installing a WLAN system can be fast and easy and can eliminate the need to pull cable through walls and ceilings. Wireless technology allows the network to go where wires cannot go - even outside the home or office.

Scalability – WLANs can be configured in a variety of topologies to meet the needs of specific applications and installations. Configurations are easily changed and range from peer-to-peer networks suitable for a small number of users to larger infrastructure networks to accommodate hundreds or thousands of users, depending on the number of wireless devices deployed.

Inexpensive Solution - Wireless network devices are as competitively priced as conventional Ethernet network devices.

Wireless Basics (continued)

Standards-Based Technology

The DI-774 Wireless Broadband Router utilizes the new **802.11g** standard, in addition to the 802.11a and 802.11b standards.

The IEEE **802.11g** standard is an extension of the 802.11b standard. It increases the data rate up to 54 Mbps within the 2.4GHz band, utilizing **OFDM technology**.

This means that in most environments, within the specified range of this device, you will be able to transfer large files quickly or even watch a movie in MPEG format over your network without noticeable delays. This technology works by transmitting high-speed digital data over a radio wave utilizing **OFDM (Orthogonal Frequency Division Multiplexing)** technology. **OFDM** works by splitting the radio signal into multiple smaller sub-signals that are then transmitted simultaneously at different frequencies to the receiver. **OFDM** reduces the amount of **crosstalk** (interference) in signal transmissions.

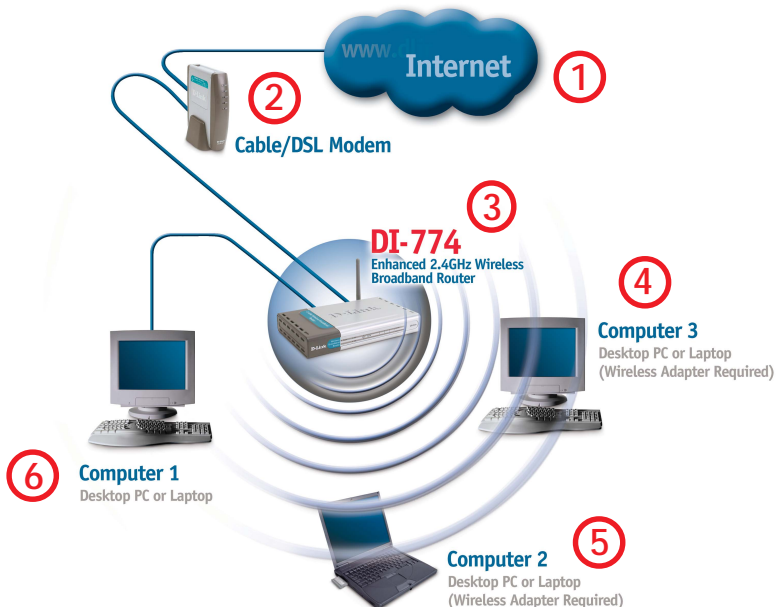
Installation Considerations

The D-Link *Air Xpert* DI-774 lets you access your network, using a wireless connection, from virtually anywhere within its operating range. Keep in mind, however, that the number, thickness and location of walls, ceilings, or other objects that the wireless signals must pass through, may limit the range. Typical ranges vary depending on the types of materials and background RF (radio frequency) noise in your home or business. The key to maximizing wireless range is to follow these basic guidelines:

- 1 Keep the number of walls and ceilings between the DI-624 and other network devices to a minimum - each wall or ceiling can reduce your D-Link wireless product's range from 3-90 feet (1-30 meters.) Position your devices so that the number of walls or ceilings is minimized.
- 2 Be aware of the direct line between network devices. A wall that is 1.5 feet thick (.5 meters), at a 45-degree angle appears to be almost 3 feet (1 meter) thick. At a 2-degree angle it looks over 42 feet (14 meters) thick! Position devices so that the signal will travel straight through a wall or ceiling (instead of at an angle) for better reception.
- 3 Building Materials can impede the wireless signal - a solid metal door or aluminum studs may have a negative effect on range. Try to position wireless devices and computers with wireless adapters so that the signal passes through drywall or open doorways and not other materials.
- 4 Keep your product away (at least 3-6 feet or 1-2 meters) from electrical devices or appliances that generate extreme RF noise.

Getting Started

Setting up a Wireless Infrastructure Network



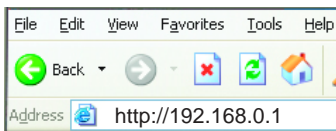
For a typical wireless setup at home (as shown above), please do the following:

- 1** You will need broadband Internet access (a Cable or DSL-subscriber line into your home or office)
- 2** Consult with your Cable or DSL provider for proper installation of the modem
- 3** Connect the Cable or DSL modem to the DI-774 Wireless Router (*see the printed Quick Installation Guide included with your router.*)
- 4** If you are connecting a desktop computer to your network, install the D-Link Air Xpert DWL-AG520 wireless PCI adapter into an available PCI slot on your desktop computer.
(*See the printed Quick Installation Guide included with the network adapter.*)
- 5** Install the D-Link DWL-AG650 wireless Cardbus adapter into a laptop computer.
(*See the printed Quick Installation Guide included with the DWL-AG650.*)
- 6** Install the D-Link DFE-530TX+ wireless Cardbus adapter into a desktop computer. The four Ethernet LAN ports of the DI-774 are Auto MDI/MDIX and will work with both Straight-through and Crossover cable.
(*See the printed Quick Installation Guide included with the DFE-530TX+.*)

Using the Configuration Menu

Whenever you want to configure your network or the DI-774, you can access the Configuration Menu by opening the web-browser and typing in the IP Address of the DI-774. The DI-774 default IP Address is shown here:

- Open the web browser
- Type in the **IP Address** of the Router (<http://192.168.0.1>)



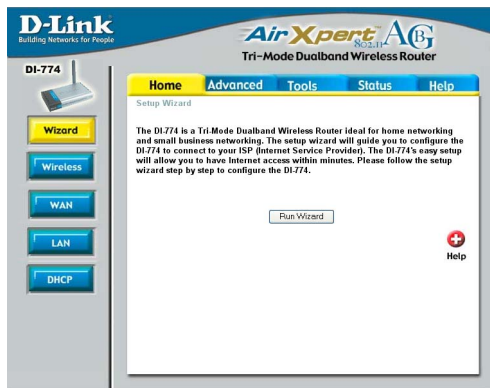
Note: if you have changed the default IP Address assigned to the DI-774, make sure to enter the correct IP Address.

- Type **admin** in the **User Name** field
- Leave the **Password** blank
- Click **OK**







The Home>Wizard screen will appear. Please refer to the *Quick Installation Guide* for more information regarding the Setup Wizard.

Home > Wizard

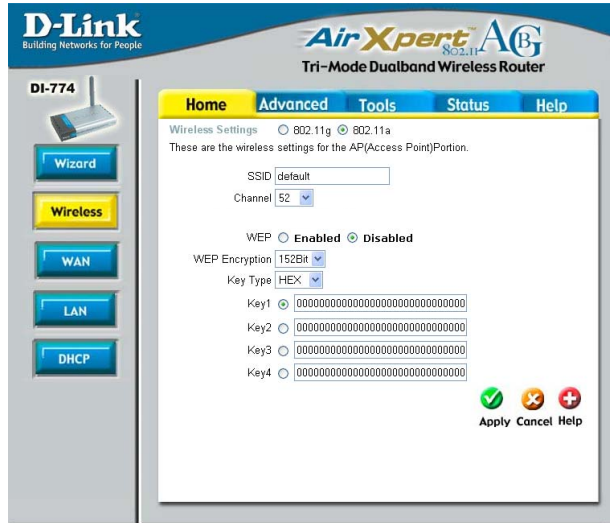


These buttons appear on most of the configuration screens in this section. Please click on the appropriate button at the bottom of each screen after you have made a configuration change.

-  **Apply** Clicking **Apply** will save changes made to the page
-  **Cancel** Clicking **Cancel** will clear changes made to the page
-  **Help** Clicking **Help** will bring up helpful information regarding the page
-  **Restart** Clicking **Restart** will restart the router. (Necessary for some changes.)

Using the Configuration Menu (continued)

Home > Wireless > 802.11a



Wireless Settings- Choose 802.11a or 802.11g. Here, 802.11a is selected.

SSID- “default” is the default setting. All devices on the network must share the same SSID. If you change the default setting, the SSID may be up to 32 characters long.

Channel- **52** is the default channel for 802.11a. All devices on the network must share the same channel.

WEP- Select **Enabled** or **Disabled**. **Disabled** is the default setting.

WEP Encryption- Select the level of encryption desired: 64, 128 or 152-bit



WEP (Wired Equivalent Privacy) If you enable encryption on the DI-774 make sure to also enable encryption on all 802.11a wireless clients or wireless connection will not be established.

Key Type- Select **HEX** or **ASCII**

Hexadecimal digits consist of the numbers 0-9 and the letters A-F
ASCII (American Standard Code for Information Interchange) is a code for representing English letters as numbers from 0-127

Keys 1-4- Input up to 4 WEP keys; select the one you wish to use.

Using the Configuration Menu (continued)

Home > Wireless > 802.11g

The screenshot shows the configuration interface for a D-Link DI-774 router. The page title is "AirXpert AG 802.11 Tri-Mode Dualband Wireless Router". The navigation menu includes "Home", "Advanced", "Tools", "Status", and "Help". The "Wireless Settings" section is active, showing options for "802.11g" (selected) and "802.11a". The settings include: SSID: default; Channel: 1; WEP: Disabled; WEP Encryption: 64Bit; Key Type: HEX; and four WEP keys (Key1-4) all set to 0000000000. At the bottom right, there are "Apply", "Cancel", and "Help" buttons.

Wireless Settings- Choose 802.11a or 802.11g. Here, 802.11g is selected.

SSID- "default" is the default setting. All devices on the network must share the same SSID. The SSID may be up to 32 characters long.

Channel- 1 is the default channel for 802.11g. All devices on the network must share the same channel.

WEP- Select **Enabled** or **Disabled**. **Disabled** is the default setting.

WEP Encryption- Select the level of encryption desired: 64, 128 or 152-bit



WEP (Wired Equivalent Privacy) If you enable encryption on the DI-774 make sure to also enable encryption on all 802.11g wireless clients or wireless connection will not be established.

Key Type- Select **HEX** or **ASCII**

Keys 1-4- Input up to 4 WEP keys; select the one you wish to use.

Using the Configuration Menu (continued)

Home > WAN > Dynamic IP Address

The screenshot shows the configuration page for a D-Link DI-774 router. The page is titled "WAN Settings" and has a navigation bar with "Home", "Advanced", "Tools", "Status", and "Help". The "Advanced" tab is selected. On the left side, there is a vertical menu with buttons for "Wizard", "Wireless", "WAN" (highlighted in yellow), "LAN", and "DHCP". The main content area is titled "WAN Settings" and contains the following text: "Please select the appropriate option to connect to your ISP." Below this are four radio button options: "Dynamic IP Address" (selected), "Static IP Address", "PPPoE", and "Others". Each option has a brief description. Under the "Dynamic IP Address" section, there are several input fields: "Host Name" (with "DI-774" entered), "MAC Address" (with a segmented input for 00-11-22-33-44-56), a "Clone MAC Address" button, "Primary DNS Address" (0.0.0.0), "Secondary DNS Address" (0.0.0.0), and "MTU" (1500). At the bottom right, there are three icons: a green checkmark, a red X, and a red plus sign, with the text "Apply Cancel Help" below them.

Dynamic IP Address-

Most Cable modem users will select this option to obtain an IP Address automatically from their ISP (Internet Service Provider).

Host Name-

This is optional, but may be required by some ISPs. The host name is the device name of the Router.

MAC Address-

The default MAC Address is set to the WAN's physical interface MAC address on the Router.

Clone MAC Address-

Copy the MAC address of the Ethernet card installed by your ISP, and replace the WAN MAC address with this Ethernet card MAC address. It is not recommended that you change the default MAC address unless required by your ISP.

Primary/Secondary DNS-

Enter a DNS Address if you do not wish to use the one provided by your ISP. (*DNS is short for Domain Name System. It translates domain names into IP Addresses*).

MTU-

Enter an MTU value only if required by your ISP. Otherwise, leave this section to its default setting of 1500. (*MTU is short for Maximum Transfer Unit. Messages longer than the MTU will be divided into smaller units for transmission*).

Using the Configuration Menu (continued)

Home > WAN > Static IP Address

The screenshot shows the configuration page for a D-Link DI-774 router. The page title is "Home > WAN > Static IP Address". The router model is "DI-774" and the firmware is "AirXpert AG v2.11 Tri-Mode Dualband Wireless Router". The page has a navigation menu with "Home", "Advanced", "Tools", "Status", and "Help". The "Static IP Address" option is selected under "WAN Settings". The "Static IP" section contains input fields for IP Address, Subnet Mask, ISP Gateway Address, Primary DNS Address, Secondary DNS Address, and MTU. The IP Address field is pre-filled with "0.0.0.0" and labeled "(assigned by your ISP)". The Subnet Mask field is pre-filled with "0.0.0.0". The ISP Gateway Address field is pre-filled with "0.0.0.0". The Primary DNS Address field is pre-filled with "0.0.0.0". The Secondary DNS Address field is pre-filled with "0.0.0.0" and labeled "(optional)". The MTU field is pre-filled with "1500". At the bottom right, there are three buttons: "Apply" (green checkmark), "Cancel" (red X), and "Help" (red plus).

Static IP Address-

Select this option to set static IP information provided to you by your ISP.

IP Address-

Input the IP Address provided by your ISP

Subnet Mask-

Input your Subnet mask. (All devices in the network must have the same subnet mask.)

ISP Gateway Address-

Input the Gateway address

Primary/ Secondary DNS-

Enter a DNS Address if you do not wish to use the one provided by your ISP. (DNS is short for Domain Name System. It translates domain names into IP Addresses).

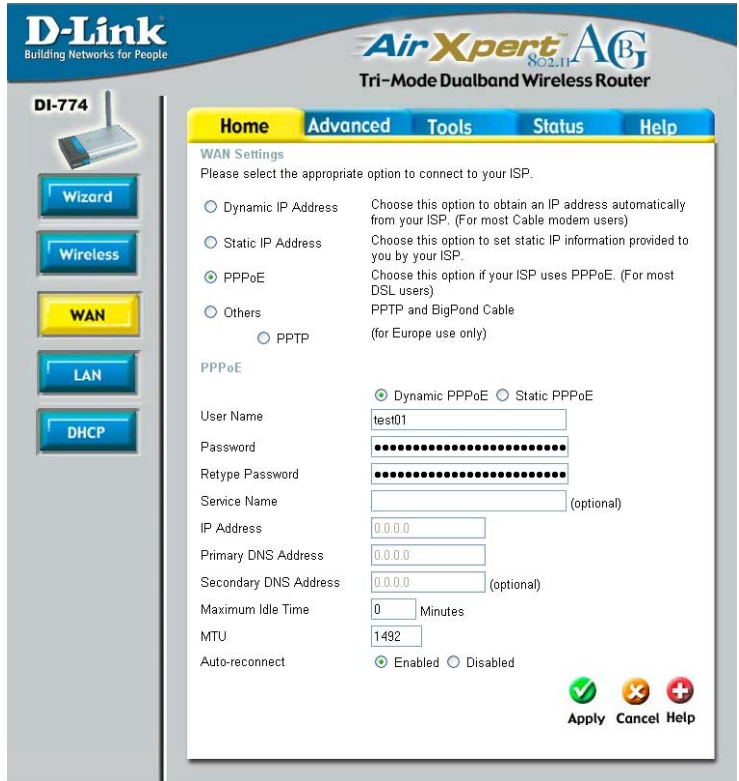
MTU-

Enter an MTU value only if required by your ISP. Otherwise, leave this section to its default setting of 1500. (MTU is short for Maximum Transfer Unit. Messages longer than the MTU will be divided into smaller units for transmission).

Using the Configuration Menu (continued)

Home > WAN > PPPoE

Please be sure to remove any existing PPPoE client software installed on your computers.



PPPoE-

Choose this option if your ISP uses PPPoE. (Most DSL users will select this option).

Dynamic PPPoE- receive an IP Address automatically from your ISP.

Static PPPoE- you have an assigned (static) IP Address.

User Name-

Your PPPoE username provided by your ISP.

Password-

Your PPPoE password provided by your ISP.

Retype Password-

Re-enter the PPPoE password

Service Name-

Enter the Service Name provided by your ISP (optional).

IP Address-

This option is only available for Static PPPoE. Enter the static IP Address for the PPPoE connection.

Using the Configuration Menu (continued)

Home > WAN > PPPoE *continued*

Primary/Secondary DNS- Enter a DNS Address if you do not wish to use the one provided by your ISP. (*DNS is short for Domain Name System. It translates domain names into IP Addresses*).

Maximum Idle Time- Enter a maximum idle time during which Internet connection is maintained during inactivity. To disable this feature, enter zero or enable *Auto-reconnect*.

MTU- Maximum Transmission Unit-1472 is default-you may need to change the MTU to conform with your ISP.

Auto-reconnect- If enabled, the DI-774 will automatically connect to your ISP after your system is restarted or if the connection is dropped.

Home > LAN

LAN is short for Local Area Network. This is considered your internal network. These are the IP settings of the LAN interface for the DI-774. These settings may be referred to as Private settings. You may change the LAN IP Address if needed. The LAN IP Address is private to your internal network and cannot be seen on the Internet.

The screenshot shows the configuration interface for a D-Link DI-774 router. The page title is "D-Link Building Networks for People" and "AirXpert AG Tri-Mode Dualband Wireless Router". The navigation menu includes "Home", "Advanced", "Tools", "Status", and "Help". The "LAN Settings" section is active, showing the IP address of the DI-774. The IP Address is set to 192.168.0.1, and the Subnet Mask is 255.255.255.0. The Local Domain Name field is empty, with "(optional)" text to its right. At the bottom right, there are three buttons: "Apply" (green checkmark), "Cancel" (orange X), and "Help" (red plus).

IP Address- The IP Address of the LAN interface. The default IP Address is: **192.168.0.1**

Subnet Mask- The subnet mask of the LAN interface. The default subnet mask is **255.255.255.0**

Local Domain Name- The domain name assigned to the router

Using the Configuration Menu (continued)

DHCP stands for *Dynamic Host Control Protocol*. The DI-774 has a built-in DHCP server. The DHCP Server will automatically assign an IP Address to the computers on the LAN/private network. Be sure to set your computers to be DHCP clients by setting their TCP/IP settings to "Obtain an IP Address Automatically." When you turn your computers on, they will automatically load the proper TCP/IP settings provided by the DI-774. The DHCP Server will automatically allocate an unused IP Address from the IP Address pool to the requesting computer.

You must specify the starting and ending address of the IP Address pool.

Home > DHCP

The screenshot shows the DHCP configuration page for a D-Link DI-774 router. The page has a navigation bar with tabs for Home, Advanced, Tools, Status, and Help. The DHCP Server section is active, showing options to enable or disable the server, set starting and ending IP addresses, and choose a lease time. Below this is the Static DHCP section, which allows assigning a specific IP to a MAC address. At the bottom, there are two tables: Static DHCP Client List and Dynamic DHCP Client List.

D-Link Building Networks for People

AirXpert No.2.11 **AG**
Tri-Mode Dualband Wireless Router

DI-774

Wizard
Wireless
WAN
LAN
DHCP

Home Advanced Tools Status Help

DHCP Server
The DI-774 can be setup as a DHCP Server to distribute IP addresses to the LAN network.

DHCP Server Enabled Disabled

Starting IP Address 192.168.0.100

Ending IP Address 192.168.0.199

Lease Time 1 Week

Static DHCP
Static DHCP is used to allow DHCP server to assign same IP to specific MAC address

Enabled Disabled

Name

IP 192.168.0.

MAC Address

DHCP Client winxp.00-50-BA-FF-FF-FE Clone

Apply Cancel Help

Static DHCP Client List

Host Name	IP Address	MAC Address
-----------	------------	-------------

Dynamic DHCP Client List

Host Name	IP Address	MAC Address	Expired Time
winxp	192.168.0.100	00-50-BA-FF-FF-FE	Apr/08/2003 00:00:17

DHCP Server-

Select **Enabled** or **Disabled**

Starting IP Address-

The starting IP Address for the DHCP server's IP assignment

Ending IP Address-

The ending IP Address for the DHCP server's IP assignment

Lease Time-

The length of time of the DHCP lease

Static DHCP-

Enable the Static DHCP server to assign the same IP Address to a MAC Address that you specify here. This prevents the problems sometimes encountered with changing IP Addresses

Static & Dynamic DHCP Client Table-

Displays a list of Static and Dynamic DHCP clients assigned by the router

Using the Configuration Menu (continued)

Advanced > Virtual Server

The screenshot shows the configuration interface for a D-Link DI-774 router. The top navigation bar includes 'Home', 'Advanced' (selected), 'Tools', 'Status', and 'Help'. The 'Virtual Server' section is active, displaying a form to configure virtual servers. The form includes fields for Name, Private IP, Protocol Type (set to TCP), Private Port, and Public Port. A 'Schedule' section allows selection of 'Always' or a specific time range (From time 00:00 AM to 00:00 AM on Sun to Sun). Below the form is a 'Virtual Servers List' table with columns for Name, Private IP, Protocol, and Schedule. The table lists various services like FTP, HTTP, HTTPS, DNS, SMTP, POP3, Telnet, IPsec, PPTP, and NetMeeting, all currently set to 'always' and with checkboxes for enabling/disabling. Action icons (check, cancel, help) are provided for each entry.

DI-774

Virtual Server

Virtual Server is used to allow Internet users access to LAN services.

Enabled Disabled

Name:

Private IP:

Protocol Type:

Private Port:

Public Port:

Schedule: Always

From time : AM to : AM

day to

Virtual Servers List

Name	Private IP	Protocol	Schedule	
<input type="checkbox"/> Virtual Server FTP	0.0.0.0	TCP 21/21	always	
<input type="checkbox"/> Virtual Server HTTP	0.0.0.0	TCP 80/80	always	
<input type="checkbox"/> Virtual Server HTTPS	0.0.0.0	TCP 443/443	always	
<input type="checkbox"/> Virtual Server DNS	0.0.0.0	UDP 53/53	always	
<input type="checkbox"/> Virtual Server SMTP	0.0.0.0	TCP 25/25	always	
<input type="checkbox"/> Virtual Server POP3	0.0.0.0	TCP 110/110	always	
<input type="checkbox"/> Virtual Server Telnet	0.0.0.0	TCP 23/23	always	
<input type="checkbox"/> IPsec	0.0.0.0	UDP 500/500	always	
<input type="checkbox"/> PPTP	0.0.0.0	TCP 1723/1723	always	
<input type="checkbox"/> NetMeeting	0.0.0.0	TCP 1720/1720	always	

Apply **Cancel** **Help**

The DI-774 can be configured as a virtual server so that remote users accessing Web or FTP services via the public IP Address can be automatically redirected to local servers in the LAN (Local Area Network).

The DI-774 firewall feature filters out unrecognized packets to protect your LAN network so all computers networked with the DI-774 are invisible to the outside world. If you wish, you can make some of the LAN computers accessible from the Internet by enabling *Virtual Server*. Depending on the requested service, the DI-774 redirects the external service request to the appropriate server within the LAN network.

Using the Configuration Menu (continued)

Advanced > Virtual Server *continued*

The DI-774 is also capable of port-redirection meaning incoming traffic to a particular port may be redirected to a different port on the server computer.

Each virtual service that is created will be listed at the bottom of the screen in the Virtual Servers List. There are pre-defined virtual services already in the table. You may use them by enabling them and assigning the server IP to use that particular virtual service.

Virtual Server-	Select Enabled or Disabled
Name-	Enter the name referencing the virtual service
Private IP-	The server computer in the LAN (Local Area Network) that will be providing the virtual services.
Protocol Type-	The protocol used for the virtual service
Private Port-	The port number of the service used by the Private IP computer
Public Port-	The port number on the WAN (Wide Area Network)side that will be used to access the virtual service.
Schedule-	The schedule of time when the virtual service will be enabled. The schedule may be set to Always , which will allow the particular service to always be enabled. If it is set to Time , select the time frame for the service to be enabled. If the system time is outside of the scheduled time, the service will be disabled.

Example #1:

If you have a Web server that you wanted Internet users to access at all times, you would need to enable it. Web (HTTP) server is on LAN (Local Area Network) computer 192.168.0.25. HTTP uses port 80, TCP.

Name: Web Server

Private IP: 192.168.0.25

Protocol Type: TCP

Private Port: 80

Public Port: 80

Schedule: always

Using the Configuration Menu (continued)

Advanced > Virtual Server *continued*

Virtual Servers List

Name	Private IP	Protocol	Schedule	
<input checked="" type="checkbox"/> Virtual Server HTTP	192.168.0.25	TCP 80/80	always	 



Click on this icon to edit the virtual service



Click on this icon to delete the virtual service

Example #2:

If you have an FTP server that you wanted Internet users to access by WAN port 2100 and only during the weekends, you would need to enable it as such. FTP server is on LAN computer 192.168.0.30. FTP uses port 21, TCP.

Name: FTP Server
Private IP: 192.168.0.30
Protocol Type: TCP
Private Port: 21
Public Port: 2100

Schedule: From: 01:00AM to 11:00PM, Sat to Sun

All Internet users who want to access this FTP Server must connect to it from port 2100. This is an example of port redirection and can be useful in cases where there are many of the same servers on the LAN network.

Using the Configuration Menu (continued)

Advanced > Applications

D-Link
Building Networks for People

AirXpert AG
802.11n
Tri-Mode Dualband Wireless Router

DI-774

Virtual Server
Applications
Filters
Firewall
DMZ
Performance

Home Advanced Tools Status Help

Special Application
Special Application is used to run applications that require multiple connections.

Enabled Disabled

Name

Trigger Port -

Trigger Type

Public Port

Public Type

Special Applications List

NAME	Trigger	Public		
<input type="checkbox"/> Battle.net	6112	6112	<input type="button" value="edit"/>	<input type="button" value="delete"/>
<input type="checkbox"/> Dialpad	7175	51200-51201,51210	<input type="button" value="edit"/>	<input type="button" value="delete"/>
<input type="checkbox"/> ICUF II	2019	2000-2038,2050-2051,2069,2085,3010-3030	<input type="button" value="edit"/>	<input type="button" value="delete"/>
<input type="checkbox"/> MSN Gaming Zone	47624	2300-2400,28800-29000	<input type="button" value="edit"/>	<input type="button" value="delete"/>
<input type="checkbox"/> PC-to-Phone	12053	12120,12122,24150-24220	<input type="button" value="edit"/>	<input type="button" value="delete"/>
<input type="checkbox"/> QuickTime 4	554	6970-6999	<input type="button" value="edit"/>	<input type="button" value="delete"/>

Some applications require multiple connections, such as Internet gaming, video conferencing, Internet telephony and others. These applications have difficulties working through NAT (Network Address Translation). Special Applications makes some of these applications work with the DI-774. If you need to run applications that require multiple connections, specify the port normally associated with an application in the "Trigger Port" field, select the protocol type as TCP or UDP, then enter the public ports associated with the trigger port to open them for inbound traffic.

The DI-774 provides some predefined applications in the table on the bottom of the web page. Select the application you want to use and enable it.

Note! Only one PC can use each Special Application tunnel.

Name: This is the name referencing the special application.

Trigger Port: This is the port used to trigger the application. It can be either a single port or a range of ports.

Trigger Type: This is the protocol used to trigger the special application.

Public Port: This is the port number on the WAN side that will be used to access the application. You may define a single port or a range of ports. You can use a comma to add multiple ports or port ranges.

Public Type: This is the protocol used for the special application.

Using the Configuration Menu (continued)

Advanced > Filters > IP Filters

D-Link
Building Networks for People

AirXpert 802.11n **AG**
Tri-Mode Dualband Wireless Router

DI-774

Home Advanced Tools Status Help

Filters
Filters are used to allow or deny LAN users from accessing the Internet.

IP Filters URL Blocking
 MAC Filters Domain Blocking

IP Filters
Use IP Filters to deny LAN IP addresses access to the Internet.

Enabled Disabled

IP -

Port -

Protocol Type **TCP**

Schedule Always

From time : : AM to : : AM
day to

IP Filter List			
	IP Range	Protocol	Schedule
<input type="checkbox"/>	*	TCP 20-21	always
<input type="checkbox"/>	*	TCP 80	always
<input type="checkbox"/>	*	TCP 443	always
<input type="checkbox"/>	*	UDP 53	always
<input type="checkbox"/>	*	TCP 25	always
<input type="checkbox"/>	*	TCP 110	always
<input type="checkbox"/>	*	ICMP 8	always
<input type="checkbox"/>	*	TCP 23	always

Filters are used to deny or allow LAN (Local Area Network) computers from accessing the Internet. The DI-774 can be setup to deny internal computers by their IP or MAC addresses. The DI-774 can also block users from accessing restricted web sites.

IP Filters-

Use IP Filters to deny LAN IP Addresses from accessing the Internet. You can deny specific port numbers or all ports for the specific IP Address.

IP-

The IP Address of the LAN computer that will be denied access to the Internet.

Port-

The single port or port range that will be denied access to the Internet.

Protocol Types-

Select the protocol type

Schedule-

This is the schedule of time when the IP Filter will be enabled.

Using the Configuration Menu

Advanced > Filters > URL Blocking

The screenshot shows the D-Link configuration interface for a DI-774 router. The top navigation bar includes 'Home', 'Advanced' (selected), 'Tools', 'Status', and 'Help'. The left sidebar contains buttons for 'Virtual Server', 'Applications', 'Filters' (highlighted in yellow), 'Firewall', 'DMZ', and 'Performance'. The main content area is titled 'Filters' and explains that filters are used to allow or deny LAN users from accessing the Internet. It offers three options: IP Filters, URL Blocking (selected with a radio button), and Domain Blocking. Below this, the 'URL Blocking' section is active, with instructions to 'Block those URLs which contain keywords listed below.' It features radio buttons for 'Enabled' and 'Disabled' (selected), a text input field, and a 'Delete' button. At the bottom right, there are three icons: a green checkmark for 'Apply', an orange 'X' for 'Cancel', and a red plus sign for 'Help'.

URL Blocking is used to deny LAN computers from accessing specific web sites. A URL is a specially formatted text string that defines a location on the Internet. If any part of the URL contains the blocked word, the site will not be accessible and the web page will not display.

Filters-

Select the filter you wish to use; in this case, **URL Blocking** was chosen.

URL Blocking-

Select Enabled or Disabled.

Keywords-

Block URLs which contain the keywords listed below. Enter the keywords in this space.

Using the Configuration Menu

Advanced > Filters > MAC Filters



Use MAC (Media Access Control) Filters to allow or deny LAN (Local Area Network) computers by their MAC addresses from accessing the Internet. You can either manually add a MAC address or select the MAC address from the list of clients that are currently connected to the Broadband Router.

Filters-

Select the filter you wish to use; in this case, **MAC filters** was chosen.

MAC Filters-

Choose to **Disable** MAC filters, or choose to **allow** or **deny** MAC addresses listed below.

Name-

Enter the name here.

MAC Address-

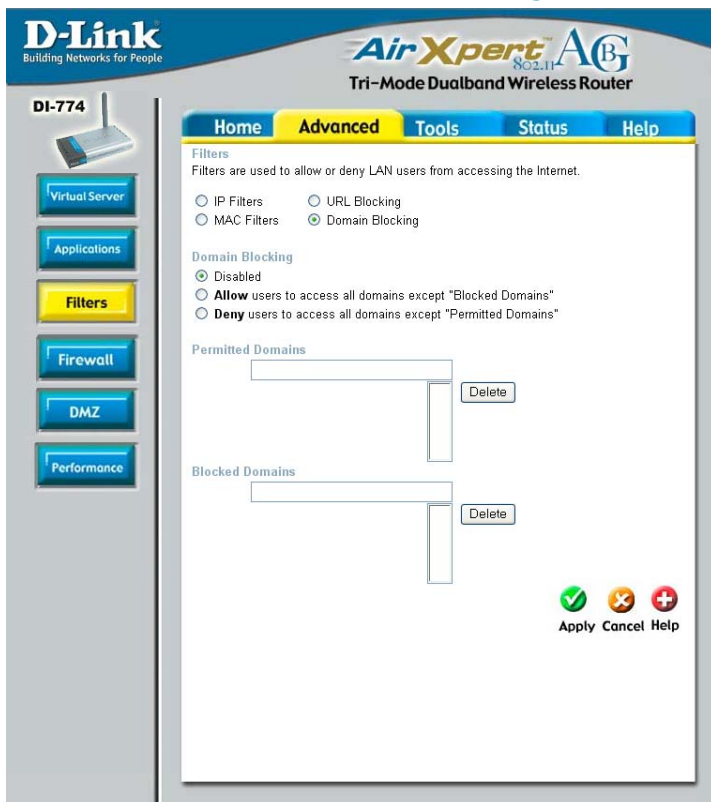
Enter the MAC Address of the client that will be allowed or denied access.

DHCP Client-

Select a DHCP client from the pull-down list; click **Clone** to copy that MAC Address.

Using the Configuration Menu (continued)

Advanced > Filters > Domain Blocking



Domain Blocking is used to allow or deny LAN (Local Area Network) computers from accessing specific domains on the Internet. Domain blocking will deny all requests to a specific domain such as http and ftp. It can also allow computers to access specific sites and deny all other sites.

Filters-

Select the filter you wish to use; in this case, **Domain Blocking** was chosen.

Domain Blocking

Disabled-

Select **Disabled** to disable **Domain Blocking**

Allow-

Allows users to access all domains except **Blocked Domains**

Deny-

Denies users access to all domains except **Permitted Domains**

Permitted Domains-

Enter the **Permitted Domains** in this field

Blocked Domains-

Enter the **Blocked Domains** in this field

Using the Configuration Menu (continued)

Advanced > Firewall

DI-774

Virtual Server
Applications
Filters
Firewall
DMZ
Performance

Home Advanced Tools Status Help

Firewall Rules
Firewall Rules can be used to allow or deny traffic from passing through the DI-774.

Enabled Disabled

Name:

Action: Allow Deny

Interface: IP Range Start: IP Range End: Protocol: Port Range:

Source: *

Destination: * TCP -

Schedule: Always
 From time : : AM to : : AM
day to

Apply Cancel Help

ActionName	SourceDestination	Protocol
<input checked="" type="checkbox"/> Allow Allow to Ping WAN port	WAN,*LAN,192.168.0.1	ICMP 8
<input checked="" type="checkbox"/> Allow msmgs (192.168.0.100:8572) 452	WAN,*LAN,192.168.0.100	UDP 8572-45281
<input checked="" type="checkbox"/> Allow msmgs (192.168.0.100:10120) 17	WAN,*LAN,192.168.0.100	TCP 10120-17639
<input checked="" type="checkbox"/> Deny Default	*,* LAN,*	IP (0),*
<input checked="" type="checkbox"/> Allow Default	LAN,* *,*	IP (0),*

Firewall Rules is an advanced feature used to deny or allow traffic from passing through the DI-774. It works in the same way as IP Filters with additional settings. You can create more detailed access rules for the DI-774. When virtual services are created and enabled, it will also display in Firewall Rules. Firewall Rules contains all network firewall rules pertaining to IP (Internet Protocol).

In the Firewall Rules List at the bottom of the screen, the priorities of the rules are from top (highest priority) to bottom (lowest priority.)

Note: The DI-774 MAC Address filtering rules have precedence over the Firewall Rules.

- Firewall Rules-** Enable or disable the Firewall Rules
- Name-** Enter a name for the rule
- Action-** Allow or deny IP traffic through the router
- Source-** Enter the IP Address range
- Destination-** Enter the IP Address range; the Protocol; and the Port Range
- Schedule-** Select Always or enter the Time.

Using the Configuration Menu (continued)

Advanced > DMZ

The screenshot shows the D-Link DI-774 router's configuration interface. The top navigation bar includes 'Home', 'Advanced' (selected), 'Tools', 'Status', and 'Help'. The left sidebar contains a list of configuration options: Virtual Server, Applications, Filters, Firewall, DMZ (highlighted in yellow), and Performance. The main content area is titled 'DMZ' and contains the following text: 'DMZ (Demilitarized Zone) is used to allow a single computer on the LAN to be exposed to the Internet.' Below this text are two radio buttons: 'Enabled' (unselected) and 'Disabled' (selected). An 'IP Address' field is shown with the value '192.168.0.0' and a small input box for the last octet. At the bottom right of the main area are three buttons: 'Apply' (with a green checkmark), 'Cancel' (with an orange X), and 'Help' (with a red plus sign).

If you have a client PC that cannot run Internet applications properly from behind the DI-774, then you can set the client up to unrestricted Internet access. It allows a computer to be exposed to the Internet. This feature is useful for gaming purposes. Enter the IP Address of the internal computer that will be the DMZ host. Adding a client to the DMZ (Demilitarized Zone) may expose your local network to a variety of security risks, so only use this option as a last resort.

DMZ-

Enable or **disable** the DMZ. The DMZ (Demilitarized Zone) allows a single computer to be exposed to the Internet.

IP Address-

Enter the **IP Address** of the computer to be in the **DMZ**

Using the Configuration Menu (continued)

Wireless

Performance-

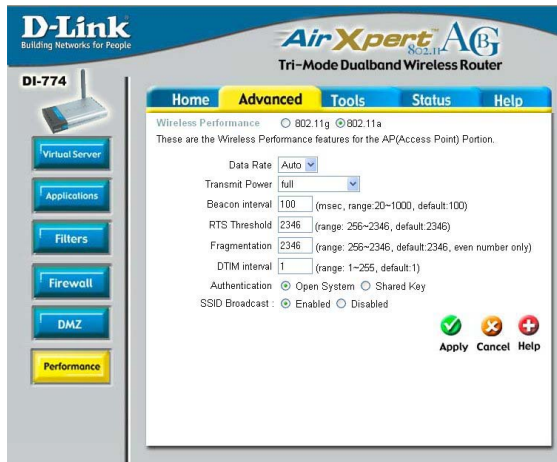
Select **802.11a** or **802.11g**. Here, **802.11a** has been chosen. This screen displays the wireless performance features of the Access Point portion of the DI-774.

Data Rate-

Auto is the default selection. Select from the drop down menu for your selection.

Transmit Power-

Advanced > Performance > 802.11a



Full is the default selection. Select from the drop down menu for your selection.

Beacon interval-

Beacons are packets sent by the DI-774 to synchronize a wireless network. Specify a value. **100** is the default setting and is recommended.

RTS Threshold-

This value should remain at its default setting of **2346**. If inconsistent data flow is a problem, only a minor modification should be made.

Fragmentation-

This value should also remain at its default setting of **2346**. If you experience a high packet error rate, you may slightly increase your Fragmentation value within the range of 256-2346. Setting the Fragmentation value too low may result in poor performance.

DTIM interval-

(**D**elivery **T**raffic **I**ndication **M**essage) **1** is the default setting. A DTIM is a countdown informing clients of the next window for listening to broadcast and multicast messages.

Authentication-

Select **Open system** or **Shared Key**

Open System - The DI-774 will be visible to all devices on the network. This is the default setting

Shared Key - In this mode, in order to access the DI-774 on the network, the device must be listed in the MAC Address Control List

SSID Broadcast-

Choose **Enabled** to broadcast the SSID across the network. All devices on a network must share the same SSID (Service Set Identifier) to establish communication. Choose **Disabled** if you do not wish to broadcast the SSID over the network.

Using the Configuration Menu (continued)

Wireless Performance-

Select **802.11a** or **802.11g**. **802.11g** is selected here. Displayed in this window are the Wireless Performance features for the Access Point portion of the DI-774.

TX Rates-

Auto is the default selection. Select from the drop down menu for your selection.

Transmit Power-

Advanced > Performance > 802.11g



Full is the default selection. Select from the drop down menu for your selection.

Beacon interval-

Beacons are packets sent by the DI-774 to synchronize a wireless network. Specify a value. **100** is the default setting and is recommended.

RTS Threshold-

This value should remain at its default setting of **2346**. If inconsistent data flow is a problem, only a minor modification should be made.

Fragmentation-

This value should also remain at its default setting of **2346**. If you experience a high packet error rate, you may slightly increase your Fragmentation value within the range of 256-2346. Setting the Fragmentation value too low may result in poor performance.

DTIM interval-

(**Delivery Traffic Indication Message**) **1** is the default setting. A DTIM is a countdown informing clients of the next window for listening to broadcast and multicast messages.

Authentication-

Select **Open system** or **Shared Key**

Open System -

The DI-774 will be visible to all devices on the network. This is the default setting

Shared Key -

In this mode, in order to access the DI-774 on the network, the device must be listed in the MAC Address Control List

SSID Broadcast-

Choose **Enabled** to broadcast the SSID across the network. All devices on a network must share the same SSID (Service Set Identifier) to establish communication. Choose **Disabled** if you do not wish to broadcast the SSID over the network.