

USER MANUAL

DSL-520B

VERSION 1.0



D-Link[®]

BROADBAND

Table of Contents

PACKAGE CONTENTS	2	QUALITY OF SERVICE.....	41
SYSTEM REQUIREMENTS	2	<i>Queue Config</i>	41
FEATURES	3	<i>QoS Classification</i>	42
HARDWARE OVERVIEW.....	4	ROUTING	43
<i>Connections</i>	4	DNS.....	45
<i>LEDs</i>	5	DSL	48
INSTALLATION	6	DIAGNOSTICS	50
BEFORE YOU BEGIN.....	6	MANAGEMENT	51
INSTALLATION NOTES	7	SETTINGS	51
INFORMATION YOU WILL NEED FROM YOUR ADSL SERVICE PROVIDER	9	SYSTEM LOG.....	53
INFORMATION YOU WILL NEED ABOUT DSL-520B	11	TR-069 CLIENT.....	54
DEVICE INSTALLATION	13	INTERNET TIME.....	55
<i>Power on Router</i>	13	ACCESS CONTROL	56
<i>Factory Reset Button</i>	14	UPDATE SOFTWARE.....	58
<i>Network Connections</i>	15	SAVE/REBOOT.....	59
CONFIGURATION	16	TROUBLESHOOTING.....	60
WEB-BASED CONFIGURATION UTILITY	16	NETWORKING BASICS.....	62
DEVICE INFO	17	CHECK YOUR IP ADDRESS.....	62
SUMMARY.....	18	STATICALLY ASSIGNING AN IP ADDRESS	63
WAN.....	18	TECHNICAL SPECIFICATIONS.....	64
STATISTICS	19		
ROUTE	21		
ARP	21		
DHCP.....	22		
QUICK SETUP.....	23		
ADVANCED SETUP.....	32		
WAN.....	32		
LAN.....	34		
NAT	35		
SECURITY	37		
<i>IP Filtering</i>	37		
<i>MAC Filtering</i>	40		

Package Contents

- DSL-520B ADSL Router
- Power Adapter
- CD-ROM with User Manual
- One twisted-pair telephone cable used for ADSL connection
- One straight-through Ethernet cable
- One Quick Installation Guide



Note: Using a power supply with a different voltage rating than the one included with the DSL-520B will cause damage and void the warranty for this product.

System Requirements

- ADSL Internet service
- Computer with:
 - 200MHz Processor
 - 64MB Memory
 - CD-ROM Drive
 - Ethernet Adapter with TCP/IP Protocol Installed
 - Internet Explorer v6 or later, FireFox v1.5
 - Computer with Windows 2000, Windows XP, or Windows Vista
- D-Link Click'n Connect Utility

Features

- **PPP (Point-to-Point Protocol) Security** – The DSL-520B ADSL Router supports PAP (Password Authentication Protocol) and CHAP (Challenge Handshake Authentication Protocol) for PPP connections. The Router also supports MSCHAP.
- **DHCP Support** – Dynamic Host Configuration Protocol automatically and dynamically assigns all LAN IP settings to each host on your network. This eliminates the need to reconfigure every host whenever changes in the network topology occur.
- **Network Address Translation (NAT)** – For small office environments, the DSL-520B allows multiple users on the LAN to access the Internet concurrently through a single Internet account. This provides Internet access to everyone in the office for the price of a single user. NAT improves network security in effect by hiding the private network behind one global and visible IP address. NAT address mapping can also be used to link two IP domains via a LAN-to-LAN connection.
- **TCP/IP (Transmission Control Protocol/Internet Protocol)** – The DSL-520B supports the TCP/IP protocol, the language used for the Internet. It is compatible with access servers manufactured by major vendors.
- **RIP-1/RIP-2** – The DSL-520B supports both RIP-1 and RIP-2 exchanges with other routers. Using both versions allows the Router to communicate with all RIP enabled devices.
- **Static Routing** – This allows you to select a data path to a particular network destination that will remain in the routing table and never “age out”. Create a static route if you wish to define a specific route that will always be used for data traffic from your LAN to a specific destination within your LAN (for example to another router or a server) or to a specific destination outside your network (to an ISP defined default gateway for instance).
- **Default Routing** – This allows you to choose a default path for incoming data packets for which the destination address is unknown. This is particularly useful when/if the Router functions as the sole connection to the Internet.
- **ATM (Asynchronous Transfer Mode)** – The DSL-520B supports Bridged Ethernet over ATM (RFC1483), IP over ATM (RFC1577), and PPP over ATM (RFC 2364).
- **Precise ATM Traffic Shaping** – Traffic shaping is a method of controlling the flow rate of ATM data cells. This function helps to establish the Quality of Service for ATM data transfer.
- **G.hs (Auto-handshake)** – This allows the Router to automatically choose either the G.lite or G.dmt ADSL connection standards.
- **High Performance** – Very high rates of data transfer are possible with the Router. Up to 8 Mbps downstream bit rate is possible using the G.dmt standard.
- **Telnet Connection** – Telnet enables a network manager to access the Router’s management software remotely.
- **Easy Installation** – The DSL-520B uses a web-based graphical user interface program for convenient management access and easy set up. Any common web browser software can be used to manage the Router.

Hardware Overview Connections

ADSL Port

Use the ADSL cable to connect to the your telephone line (RJ-11 port)

Reset Button

To manually reset, depress button with the power on for at least seven seconds



Ethernet Port

Use the Ethernet port to connect the Router to a computer or an Ethernet LAN

Power Insert

Use the adapter shipped with the Router to connect to power source

Hardware Overview

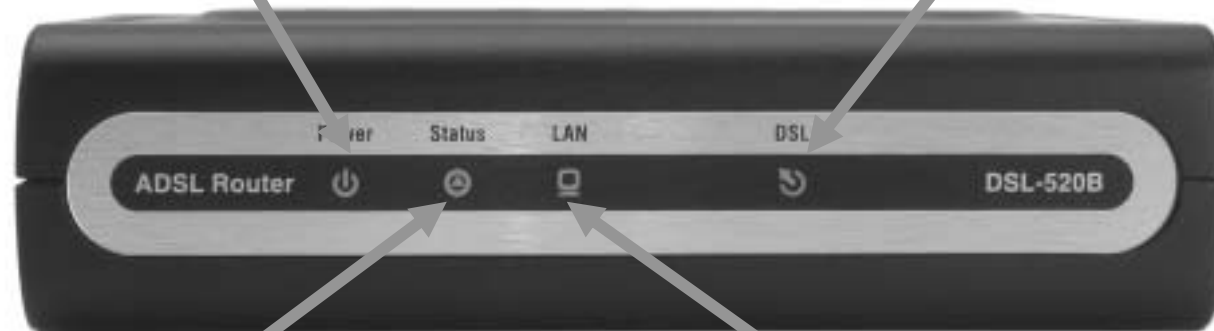
LEDs

Power

A steady green light indicates the unit is powered on. When the device is powered off this remains dark. Lights steady green during Power On Self-Test (POST). Once the connection status has been settled, the light will blink green. If this indicator lights up steady green after POST, the system has failed and the device should be rebooted.

DSL

A steady green light indicates a valid ADSL connection. This will light after the ADSL negotiation process has been settled. A blinking green light indicates activity on the WAN (ADSL) interface.



Status

A blinking green light indicates the system is operating normally. System failure is indicated by either a steady green or dark light.

LAN

A solid green light indicates a valid link on startup. This light will blink when there is activity currently passing through the Ethernet port.

Installation

This section will walk you through the installation process. Placement of the Router is very important. Do not place the Router in an enclosed area such as a closet, cabinet or in the attic or garage.

Before You Begin

Please read and make sure you understand all the prerequisites for proper installation of your new Router. Have all the necessary information and equipment on hand before beginning the installation.

Installation Notes

In order to establish a connection to the Internet it will be necessary to provide information to the Router that will be stored in its memory. For some users, only their account information (Username and Password) is required. For others, various parameters that control and define the Internet connection will be required. You can print out the two pages below and use the tables to list this information. This way you have a hard copy of all the information needed to setup the Router. If it is necessary to reconfigure the device, all the necessary information can be easily accessed. Be sure to keep this information safe and private.

Low Pass Filters

Since ADSL and telephone services share the same copper wiring to carry their respective signals, a filtering mechanism may be necessary to avoid mutual interference. A low pass filter device can be installed for each telephone that shares the line with the ADSL line. These filters are easy to install passive devices that connect to the ADSL device and/or telephone using a standard telephone cable. Ask your service provider for more information about the use of low pass filters with your installation.

Operating Systems

The DSL-520B uses an HTML-based web interface for setup and management. The web configuration manager may be accessed using any operating system capable of running web browser software, including Windows 98 SE, Windows ME, Windows 2000, Windows XP and Windows Vista.

Web Browser

Any common web browser can be used to configure the Router using the web configuration management software. The program is designed to work best with more recently released browsers such as Opera, Microsoft Internet Explorer® version 6.0, Netscape Navigator® version 6.2.3, or later versions. The web browser must have JavaScript enabled. JavaScript is enabled by default on many browsers. Make sure JavaScript has not been disabled by other software (such as virus protection or web user security packages) that may be running on your computer.

Ethernet Port (NIC Adapter)

Any computer that uses the Router must be able to connect to it through the Ethernet port on the Router. This connection is an Ethernet connection and therefore requires that your computer be equipped with an Ethernet port as well. Most notebook computers are now sold with an Ethernet port already installed. Likewise, most fully assembled desktop computers come with an Ethernet NIC adapter as standard. If your computer does not have an Ethernet port, you must install an Ethernet NIC adapter before you can use the Router. If you must install an adapter, follow the installation instructions that come with the Ethernet NIC adapter.

Additional Software

It may be necessary to install software on your computer that enables the computer to access the Internet. Additional software must be installed if you are using the device as a simple bridge. For a bridged connection, the information needed to make and maintain the Internet connection is stored on another computer or gateway device, not in the Router itself.

If your ADSL service is delivered through a PPPoE or PPPoA connection, the information needed to establish and maintain the Internet connection can be stored in the Router. In this case, it is not necessary to install software on your computer. It may however be necessary to change some settings in the device, including account information used to identify and verify the connection.

All connections to the Internet require a unique global IP address. For bridged connections, the global IP settings must reside in a TCP/IP enabled device on the LAN side of the bridge, such as a PC, a server, a gateway device, such as a router, or similar firewall hardware. The IP address can be assigned in a number of ways. Your network service provider will give you instructions about any additional connection software or NIC configuration that may be required.

Information you will need from your ADSL service provider

Username

This is the Username used to log on to your ADSL service provider's network. Your ADSL service provider uses this to identify your account.

Password

This is the Password used, in conjunction with the Username above, to log on to your ADSL service provider's network. This is used to verify the identity of your account.

WAN Setting / Connection Type

These settings describe the method your ADSL service provider uses to transport data between the Internet and your computer. Most users will use the default settings. You may need to specify one of the following WAN Setting and Connection Type configurations (Connection Type settings listed in parenthesis):

- PPPoE/PPPoA (PPPoE LLC, PPPoA LLC or PPPoA VC-Mux)
- Bridge Mode (1483 Bridged IP LLC or 1483 Bridged IP VC Mux)
- IPoA/MER (Static IP Address) (Bridged IP LLC, 1483 Bridged IP VC Mux, 1483 Routed IP LLC, 1483 Routed IP VC-Mux or IPoA)
- MER (Dynamic IP Address) (1483 Bridged IP LLC or 1483 Bridged IP VC-Mux)

Modulation Type

ADSL uses various standardized modulation techniques to transmit data over the allotted signal frequencies. Some users may need to change the type of modulation used for their service. The default DSL modulation (ADSL2+ Multi-Mode) used for the Router automatically detects all types of ADSL, ADSL2 and ADSL2+ modulation.

Security Protocol

This is the method your ADSL service provider will use to verify your Username and Password when you log on to their network. Your Router supports the PAP and CHAP protocols.

VPI

Most users will not be required to change this setting. The Virtual Path Identifier (VPI) is used in conjunction with the Virtual Channel Identifier (VCI) to identify the data path between your ADSL service provider's network and your computer. If you are setting up the Router for multiple virtual connections, you will need to configure the VPI and VCI as instructed by your ADSL service provider for the additional connections. This setting can be changed in the WAN Settings window of the web management interface.

VCI

Most users will not be required to change this setting. The Virtual Channel Identifier (VCI) is used in conjunction with the VPI to identify the data path between your ADSL service provider's network and your computer. If you are setting up the Router for multiple virtual connections, you will need to configure the VPI and VCI as instructed by your ADSL service provider for the additional connections. This setting can be changed in the WAN Setup window of the web management interface.

Information you will need about DSL-520B

Username

This is the Username needed to access the Router's management interface. When you attempt to connect to the device through a web browser you will be prompted to enter this Username. The default Username for the Router is "admin". The user cannot change this.

Password

This is the Password you will be prompted to enter when you access the Router's management interface. The default Password is "admin". The user may change this.

LAN IP addresses for the DSL-520B

This is the IP address you will enter into the Address field of your web browser to access the Router's configuration graphical user interface (GUI) using a web browser. The default IP address is 192.168.1.1. This may be changed to suit any IP address scheme the user desires. This address will be the base IP address used for the DHCP service on the LAN when DHCP is enabled.

LAN Subnet Mask for the DSL-520B

This is the subnet mask used by the DSL-520B and will be used throughout your LAN. The default subnet mask is 255.255.255.0. This can be changed later.

Information you will need about your LAN or computer:

Ethernet NIC

If your computer has an Ethernet NIC, you can connect the DSL-520B to the Ethernet port using an Ethernet cable. You can also use the Ethernet ports on the DSL-520B to connect to other computers or Ethernet devices.

DHCP Client status

Your DSL-520B ADSL Router is configured, by default, to be a DHCP server. This means that it can assign an IP address, subnet mask and a default gateway address to computers on your LAN. The default range of IP addresses the DSL-520B will assign are from 192.168.1.2 to 192.168.1.254. Your computer (or computers) needs to be configured to obtain an IP address automatically (that is, they need to be configured as DHCP clients.)

It is recommended that you collect and record this information here, or in some other secure place, in case you have to re-configure your ADSL connection in the future.

Once you have the above information, you are ready to setup and configure your DSL-520B ADSL Router.

Device Installation

The DSL-520B connects two separate physical interfaces, an ADSL (WAN) and an Ethernet (LAN) interface. Place the Router in a location where it can be connected to the various devices as well as to a power source. The Router should not be located where it will be exposed to moisture or excessive heat. Make sure the cables and power cord are placed safely out of the way so they do not create a tripping hazard. As with any electrical appliance, observe common sense safety procedures.

The Router can be placed on a shelf or desktop, ideally you should be able to see the LED indicators on the front if you need to view them for troubleshooting.

Power on Router

The Router must be used with the power adapter included with the device.

1. Insert the AC Power Adapter cord into the power receptacle located on the rear panel of the Router and plug the adapter into a suitable nearby power source.
2. The Power LED indicator should light up and remain lit and the Status LED should light solid green and begin to blink after a few seconds as soon as the AC Power Adapter cord is plugged into a suitable nearby power source.
3. If the Ethernet port is connected to a working device, check the Ethernet Link/Act LED indicators to make sure the connection is valid. The Router will attempt to establish the ADSL connection, if the ADSL line is connected and the Router is properly configured this should light up after several seconds. If this is the first time you have installed the device, some settings may need to be changed before the Router can establish a connection.

Factory Reset Button

The Router may be reset to the original factory default settings by using a ballpoint or paperclip to gently push down the reset button in the following sequence:

1. Press and hold the reset button while the device is powered off.
2. Insert the AC Power Adapter cord into the power receptacle located on the rear panel of the Router and plug the adapter into a suitable nearby power source.
3. Wait for 5~8 seconds and then release the reset button.

Remember that this will wipe out any settings stored in flash memory including user account information and LAN IP settings. The device settings will be restored to the factory default IP address **192.168.1.1** and the subnet mask **255.255.255.0**, the default management Username is “admin” and the default Password is “admin”.

Network Connections

Connect ADSL Line

Use the ADSL cable included with the Router to connect it to a telephone wall socket or receptacle. Plug one end of the cable into the ADSL port (RJ-11 receptacle) on the rear panel of the Router and insert the other end into the RJ-11 wall socket. If you are using a low pass filter device, follow the instructions included with the device or the instructions given to you by your service provider. The ADSL connection represents the WAN interface, the connection to the Internet. It is the physical link to the service provider's network backbone and ultimately to the Internet.

Connect Router to Ethernet

The Router may be connected to a single computer or Ethernet device through the 10BASE-TX Ethernet port on the rear panel. Any connection to an Ethernet concentrating device such as a switch or hub must operate at a speed of 10/100 Mbps only. When connecting the Router to any Ethernet device that is capable of operating at speeds higher than 10Mbps, be sure that the device has auto-negotiation (NWay) enabled for the connecting port. Use standard twisted-pair cabling with RJ-45 connectors. The RJ-45 port on the Router is a crossed port (MDI-X). Follow standard Ethernet guidelines when deciding what type of cable to use to make this connection. When connecting the Router directly to a PC or server use a normal straight-through cable. You should use a crossed cable when connecting the Router to a normal (MDI-X) port on a switch or hub. Use a normal straight-through cable when connecting it to an uplink (MDI-II) port on a hub or switch. The rules governing Ethernet cable lengths apply to the LAN to Router connection. Be sure that the cable connecting the LAN to the Router does not exceed 100 meters.

Hub or Switch to Router Connection

Connect the Router to an uplink port (MDI-II) on an Ethernet hub or switch with a straight-through cable. If you wish to reserve the uplink port on the switch or hub for another device, connect to any of the other MDI-X ports (1x, 2x, etc.) with a crossed cable.

Computer to Router Connection

You can connect the Router directly to a 10/100BASE-TX Ethernet adapter card (NIC) installed in a PC using the Ethernet cable provided.

Configuration

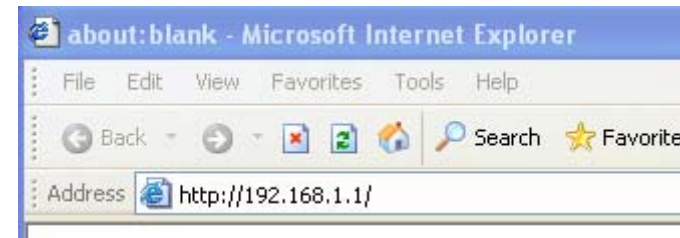
This section will show you how to configure your new D-Link Router using the web-based configuration utility.

Web-based Configuration Utility

Connect to the Router

To configure the WAN connection used by the Router it is first necessary to communicate with the Router through its management interface, which is HTML-based and can be accessed using a web browser. The easiest way to make sure your computer has the correct IP settings is to configure it to use the DHCP server in the Router. The next section describes how to change the IP configuration for a computer running a Windows operating system to be a DHCP client.

To access the configuration utility, open a web-browser such as Internet Explorer and enter the IP address of the router (**192.168.1.1**).



Type "**admin**" for the User Name and "**admin**" in the Password field. If you get a **Page Cannot be Displayed** error, please refer to the **Troubleshooting** section for assistance.



Device Info

To access the **Device Info** window, click either the **Device Info** or **Summary** link in the **Device Info** directory. The following page opens:

This window displays different information about the Router, including Summary, WAN, Statistics, Route and ARP information.

D-Link

Device Info

- Summary
- WAN
- Statistics
- Route
- ARP
- DHCP
- Quick Setup
- Advanced Setup
- Diagnostics
- Management

Board ID:	96332CG
Software Version:	DSL-520B-SE_1.00_04172008
Bootloader (CFE) Version:	(before 1.0.37-5.12)

This information reflects the current status of your DSL connection.

Line Rate - Upstream (Kbps):	
Line Rate - Downstream (Kbps):	
LAN IP Address:	192.168.1.1
Default Gateway:	
Primary DNS Server:	192.168.1.1
Secondary DNS Server:	192.168.1.1

Summary

This window displays the current status of your DSL connection, including the software version, LAN IP address and DNS server address.

Device Info

Board ID:	96332CG
Software Version:	DSL-520B-SE_1.00_04172008
Bootloader (CFE) Version:	(before 1.0.37-5.12)

This information reflects the current status of your DSL connection.

Line Rate - Upstream (Kbps):	
Line Rate - Downstream (Kbps):	
LAN IP Address:	192.168.1.1
Default Gateway:	
Primary DNS Server:	192.168.1.1
Secondary DNS Server:	192.168.1.1

WAN

To access the **WAN Info** window, click the **WAN** link in the **Device Info** directory.

This window displays the current status of your WAN connection.

WAN Info

Port/VPI/VCI	Con. ID	Category	Service	Interface	Protocol	Icmp	QoS	State	Status	IP Address
0/0/35	1	UBR	br_0_0_35	nas_0_0_35	Bridge	N/A	Disabled	Enabled	ADSL Link Down	
0/8/35	1	UBR	br_0_8_35	nas_0_8_35	Bridge	N/A	Disabled	Enabled	ADSL Link Down	

Statistics

To access the Router's first **Statistics** window, click the **Statistics** link in the **Device Info** directory.

Click the **LAN** link to view the Router's LAN statistics. Click the **Reset Statistics** button to refresh these statistics.

Click the **WAN** link to view the Router's WAN statistics. Click the **Reset Statistics** button to refresh these statistics.

Click the **ATM** link to view Router's ATM statistics. Click the **Reset** button to refresh these statistics.

Statistics -- LAN

Interface	Received				Transmitted			
	Bytes	Pkts	Errs	Drops	Bytes	Pkts	Errs	Drops
Ethernet	332245	2942	0	0	1382868	2135	0	0

Reset Statistics

Statistics -- WAN

Service	VPI/VCI	Protocol	Interface	Received				Transmitted			
				Bytes	Pkts	Errs	Drops	Bytes	Pkts	Errs	Drops
br_0_0_35	0/0/35	Bridge	nas_0_0_35	0	0	0	0	0	0	0	1278
br_0_8_35	0/8/35	Bridge	nas_0_8_35	0	0	0	0	0	0	0	1276

Reset Statistics

ATM Interface Statistics

In Stats	In Pkts	In Bytes	In Discards	In Errs	In Discards	In Pkts	In Bytes	In Discards	In Errs	In Discards	In Pkts	In Bytes	In Discards	In Errs
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

ATM VCI Statistics

In Pkts	In Bytes	In Discards	In Errs	In Discards	In Pkts	In Bytes	In Discards	In Errs	In Discards
0	0	0	0	0	0	0	0	0	0

ATM VCI Statistics

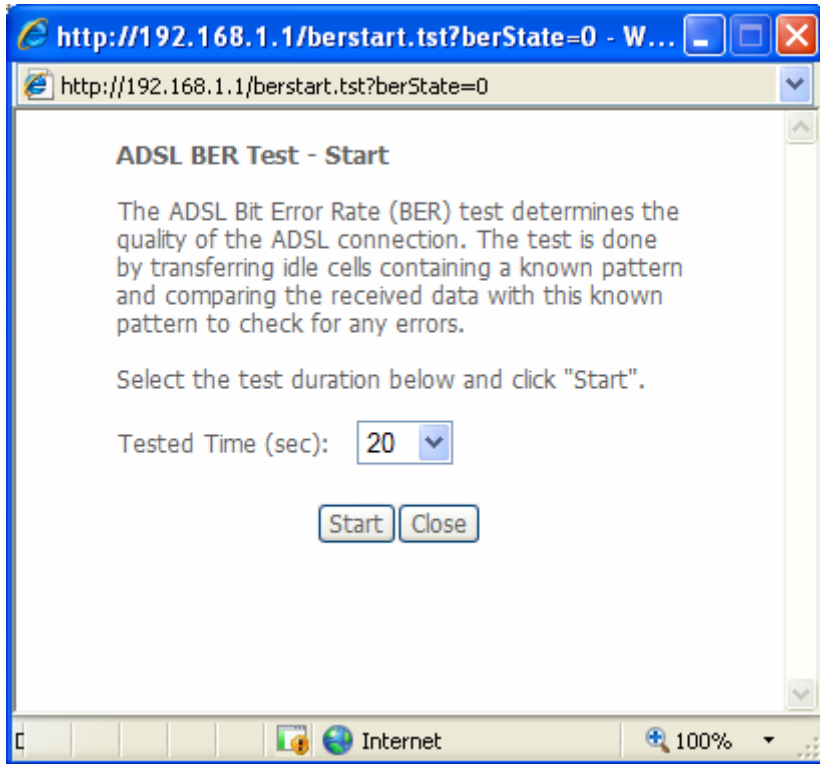
VPI/VCI	In Pkts	In Bytes	In Discards	In Errs	In Discards
0/35	0	0	0	0	0
0/35	0	0	0	0	0

Reset

Section 3 – Configuration

Click the **ADSL** link to view Router’s ADSL statistics. Click the **Reset Statistics** button to refresh these statistics.

Click the **ADSL BER Test** button to access the ADSL Bit Error Rate Test window displayed below:



Statistics -- ADSL

Mode:		
Type:		
Line Coding:		
Status:		Link Down
Link Power State:		L0
	Downstream	Upstream
SNR Margin (dB):		
Attenuation (dB):		
Output Power (dBm):		
Attainable Rate (Kbps):		
Rate (Kbps):		
Super Frames:		
Super Frame Errors:		
RS Words:		
RS Correctable Errors:		
RS Uncorrectable Errors:		
HEC Errors:		
OCD Errors:		
LCD Errors:		
Total Cells:		
Data Cells:		
Bit Errors:		
Total ES:		
Total SES:		
Total UAS:		

ADSL BER Test Reset Statistics

Route

To access the **Route** window, click the **Route** link in the **Device Info** directory.

This read-only window displays routing info.

Device Info -- Route

Flags: U - up, ! - reject, G - gateway, H - host, R - reinstate
D - dynamic (redirect), M - modified (redirect).

Destination	Gateway	Subnet Mask	Flag	Metric	Service	Interface
10.0.0.0	0.0.0.0	255.0.0.0	U	0		br0

ARP

To access the **ARP** window, click the **ARP** link in the **Device Info** directory.

This read-only window displays Address Resolution Protocol info.

Device Info -- ARP

IP address	Flags	HW Address	Device
10.24.22.26	Complete	00:15:F2:09:9C:DE	br0

DHCP

To access the **DHCP** window, click the **DHCP** link in the **Device Info** directory.

This read-only window displays the DHCP leases on the Router.

Device Info -- DHCP Leases

Hostname	MAC Address	IP Address	Expires In
----------	-------------	------------	------------

Quick Setup

This chapter is concerned with using your computer to configure the WAN connection. The following chapter describes the various windows used to configure and monitor the Router including how to change the IP settings and configuring the DHCP server function.

QUICK SETUP

Click the **Quick Setup** link on the left panel of the opening page to launch a series of setup windows.

Tick the DSL Auto-connect check box and then click the **Next** button.

If the ADSL connection is down, unselect the DSL Auto-connect checkbox and then click the **Next** button to manually assign VPI and VCI values.



QUICK SETUP

This window allows you to set up ATM PVC configuration. Enter a Port Identifier, Virtual Path Identifier, and Virtual Channel Identifier. The VPI and VCI values should be provided by your ISP. This window also allows you to enable QoS by ticking the Enable Quality of Service check box. Click the **Next** button to continue.

QUICK SETUP – CONNECTION TYPE

This window allows you to select the appropriate connection type. The choices include **PPP over Ethernet (PPPoE)**, **MAC Encapsulation Routing** and **Bridging** (default).

This window also allows you to use the drop-down menu to select the desired Encapsulation Mode. Click the **Next** button to continue.

Quick Setup
The Quick Setup will guide you through the steps necessary to configure your DSL Router.

ATM PVC Configuration
Select the check box below to enable DSL Auto-connect process.

DSL Auto-connect

The Port Identifier (POT) Virtual Path Identifier (VPI) and Virtual Channel Identifier (VCI) are needed for setting up the ATM PVC. Do not change VPI and VCI numbers unless your ISP instructs you otherwise.

POT: [0-255]

VPI: [0-255]

VCI: [32-65535]

Enable Quality of Service
Enabling QoS for a PVC improves performance for selected classes of applications. However, since QoS also consumes system resources, the number of PVCs will be reduced consequently. Use **Advanced Setup/Quality of Service** to assign profiles for the applications.

Enable Quality of Service

Next

Connection Type

Select the type of network protocol for IP over Ethernet as WAN interface

- PPP over Ethernet (PPPoE)
- MAC Encapsulation Routing (MER)
- Bridging

Encapsulation Mode

LLC/SNAP-BRIDGING ▼

Back **Next**

QUICK SETUP – BRIDGING

To enable bridging, tick the **Enable Bridge Service** check box and enter a Service Name.

To disable WAN service, unselect the check box.

Click the **Next** button to continue.

QUICK SETUP – BRIDGING

This window allows you to configure the Router IP address and subnet mask for your LAN. Once you have entered an IP address and subnet mask, click the **Next** button to continue.

QUICK SETUP – BRIDGING

This summary window allows you to confirm the bridging settings you have just made. Click the **Save/Reboot** button to save your new bridging settings and restart the Router.

Unselect the check box below to disable this WAN service

Enable Bridge Service:

Service Name:

[Back](#) [Next](#)

Device Setup

Configure the DSL Router IP Address and Subnet Mask for your Local Area Network (LAN).

IP Address:

Subnet Mask:

[Back](#) [Next](#)

WAN Setup - Summary

Make sure that the settings below match the settings provided by your ISP.

PORT / VPI / VCI:	0 / 0 / 35
Connection Type:	Bridge
Service Name:	br_0_0_35
Service Category:	UBR
IP Address:	Not Applicable
Service State:	Enabled
NAT:	Disabled
Firewall:	Disabled
IGMP Multicast:	Not Applicable
Quality Of Service:	Disabled
MTU:	1492

Click "Save/Reboot" to save these settings and reboot router. Click "Back" to make any modifications.
NOTE: The configuration process takes about 1 minute to complete and your DSL Router will reboot.

[Back](#) [Save/Reboot](#)

QUICK SETUP – PPPoE

Click the PPP over Ethernet (PPPoE) radio button on this window. This window also allows you to use the drop-down menu to select the desired Encapsulation Mode. Click the **Next** button to continue.

QUICK SETUP – PPPoE

This window allows you to set the username and the password for your PPP connection. This information is obtained from your ISP. Additional settings on this window will also depend on your ISP. Click the **Next** button to continue.

The screenshot shows a configuration window for PPPoE. It has a title bar with 'Back' and 'Next' buttons. The main content area is titled 'Connection Type' and contains three radio buttons: 'PPP over Ethernet (PPPoE)' (selected), 'MAC Encapsulation Routing (MER)', and 'Bridging'. Below this is the 'Encapsulation Mode' section with a dropdown menu set to 'LLC/SNAP-BRIDGING'. At the bottom right of this section are 'Back' and 'Next' buttons.

PPP Username and Password:
PPP usually requires that you have a user name and password to establish your connection. In the boxes below, enter the user name and password that your ISP has provided to you.

PPP Username:
PPP Password:
PPPoE Service Name:
Authentication Method:

Enable Fulltime NAT
 Dial on Demand (with idle timeout time)

PPP IP extension
 Use Static IP Address

Retry PPP password on authentication error
 Enable PPP Debug Mode
 Bridge PPPoE frames between WAN and LAN Ports (Default Disabled)

At the bottom right of the window are 'Back' and 'Next' buttons.

QUICK SETUP – PPPoE

This window allows you to enable IGMP multicasting and WAN service. Click the **Next** button to continue.

QUICK SETUP – PPPoE

This window allows you to enter an IP address and subnet mask for the LAN interface. In addition, you can either enable or disable the DHCP server.

To enable the DHCP server, enter a starting IP address, an ending IP address and a subnet mask. You may also choose to change the default value of the leased time. Click the **Next** button to continue.

Enable IGMP Multicast, and WAN Service

Enable IGMP Multicast

Enable WAN Service

Service Name

Device Setup

Configure the DSL Router IP Address and Subnet Mask for LAN interface.

IP Address:

Subnet Mask:

Disable DHCP Server

Enable DHCP Server

Start IP Address:

End IP Address:

Subnet Mask:

Leased Time (hour):

Configure the second IP Address and Subnet Mask for LAN interface

QUICK SETUP – PPPoE

This summary window allows you to confirm the settings you have just made. Click the **Save/Reboot** button to save your new PPP over Ethernet settings and restart the Router.

WAN Setup - Summary

Make sure that the settings below match the settings provided by your ISP.

PORT / VPI / VCI:	0 / 0 / 35
Connection Type:	PPPoE
Service Name:	pppoe_0_0_35_2
Service Category:	UBR
IP Address:	Automatically Assigned
Service State:	Enabled
NAT:	Enabled
Firewall:	Enabled
IGMP Multicast:	Disabled
Quality Of Service:	Disabled

Click "Save/Reboot" to save these settings and reboot router. Click "Back" to make any modifications.
NOTE: The configuration process takes about 1 minute to complete and your DSL Router will reboot.

[Back](#) [Save/Reboot](#)

QUICK SETUP – MER

Click the MAC Encapsulation Routing (MER) radio button on this window. This window also allows you to use the drop-down menu to select the desired Encapsulation Mode. Click the **Next** button to continue.

Connection Type

Select the type of network protocol for IP over Ethernet as WAN interface

PPP over Ethernet (PPPoE)

MAC Encapsulation Routing (MER)

Bridging

Encapsulation Mode

LLC/SNAP-BRIDGING ▾

Back Next

QUICK SETUP – MER

This window allows you to configure the WAN IP settings. This information is obtained from your ISP. Click the **Next** button to continue.

WAN IP Settings

Enter information provided to you by your ISP to configure the WAN IP settings.
Note: DHCP can be enabled for PFC in MER mode or IP over Ethernet as WAN interface if "Obtain an IP address automatically" is chosen. Changing the default gateway or the DNS affects the whole system. Configuring them with static values will disable the automatic assignment from DHCP to other WAN connections.
If you configure static default gateway over the PFC in WAN mode, you must enter the IP address of the remote gateway in the "Use IP Address". The "Use WAN interface" is optional.

Obtain an IP address automatically

Use the following IP address:

WAN IP Address:

WAN Subnet Mask:

Obtain default gateway automatically

Use the following default gateway:

Use IP Address:

Use WAN Interface:

Obtain DNS server addresses automatically

Use the following DNS server addresses:

Primary DNS server:

Secondary DNS server:

Back Next

QUICK SETUP – MER

This window allows you to enable or disable Network Address Translation and a firewall for your Router. In addition, you can enable or disable IGMP multicasting and WAN service. Click the **Next** button to continue.

QUICK SETUP – MER

This window allows you to enter an IP address and subnet mask for the LAN interface. In addition, you can either enable or disable the DHCP server.

To enable the DHCP server, enter a starting IP address, an ending IP address, and a subnet mask. You may also choose to change the default value of the leased time. Click the **Next** button to continue.

Network Address Translation Settings
Network Address Translation (NAT) allows you to share one Wide Area Network (WAN) IP address for multiple computers on your Local Area Network (LAN).

Enable NAT

Enable Firewall

Enable IGMP Multicast, and WAN Service

Enable IGMP Multicast

Enable WAN Service

Service name:

Device Setup
Configure the DSL Router IP Address and Subnet Mask for LAN interface.

IP Address:

Subnet Mask:

Disable DHCP Server

Enable DHCP Server

Start IP Address:

End IP Address:

Subnet Mask:

Leased Time (hour):

Configure the second IP Address and Subnet Mask for LAN interface

QUICK SETUP – MER

This summary window allows you to confirm the settings you have just made. Click the **Save/Reboot** button to save your new MAC Encapsulation Routing settings and restart the Router.

WAN Setup - Summary

Make sure that the settings below match the settings provided by your ISP.

PORT / VPI / VCI:	0 / 0 / 35
Connection Type:	MER
Service Name:	mer_0_0_35
Service Category:	UBR
IP Address:	Automatically Assigned
Service State:	Enabled
NAT:	Disabled
Firewall:	Disabled
IGMP Multicast:	Disabled
Quality Of Service:	Disabled

Click "Save/Reboot" to save these settings and reboot router. Click "Back" to make any modifications.
NOTE: The configuration process takes about 1 minute to complete and your DSL Router will reboot.

[Back](#) [Save/Reboot](#)

Advanced Setup

This chapter includes the more advanced features used for network management and security as well as administrative tools to manage the Router, view the Router’s status and other information that can be used to examine performance and for troubleshooting.

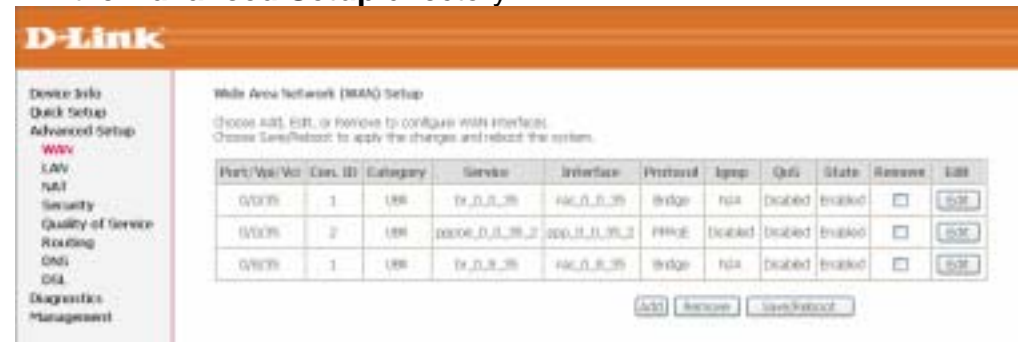
WAN

To access the **Wide Area Network (WAN) Setup** window, click the **WAN** link in the **Advanced Setup** directory.

This window is used to configure the WAN interface. You can add, delete, and modify WAN interfaces on this window.

Once the desired changes to the WAN interface are complete, click the **Save/Reboot** button.

If you are setting up the WAN interface for the first time, click the **Add** button.



The **ATM PVC Configuration** window allows you to set up an ATM PVC configuration. Enter a Port Identifier, Virtual Path Identifier, and Virtual Channel Identifier. The VPI and VCI values should be provided by your ISP. This window also allows you to enable QoS by ticking the Enable Quality of Service check box. Click the **Next** button to continue.

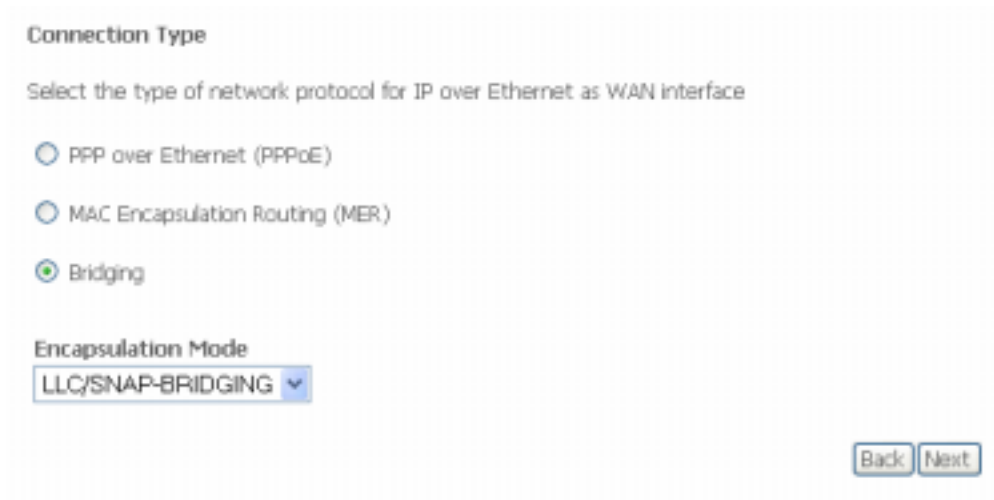


Section 3 – Configuration

This window allows you to select the appropriate connection type. The choices include **PPP over Ethernet (PPPoE)**, **MAC Encapsulation Routing (MER)** and **Bridging** (default).

This window also allows you to use the drop-down menu to select the desired **Encapsulation Mode**. Click the **Next** button to continue.

For further information about each of the three connection types available on the Router, please go to the Quick Setup section earlier in this manual as all of the windows are identical.



The screenshot shows a configuration window with the following elements:

- Connection Type**: A heading followed by the instruction "Select the type of network protocol for IP over Ethernet as WAN interface".
- Radio Buttons**: Three options are listed with radio buttons:
 - PPP over Ethernet (PPPoE)
 - MAC Encapsulation Routing (MER)
 - Bridging (This option is selected, indicated by a green dot in the radio button).
- Encapsulation Mode**: A heading followed by a dropdown menu currently showing "LLC/SNAP-BRIDGING".
- Buttons**: "Back" and "Next" buttons are located in the bottom right corner.

LAN

You can configure the LAN IP address to suit your preference. Many users will find it convenient to use the default settings together with the DHCP service to manage the IP settings for their private network. The IP address of the Router is the base address used for DHCP. In order to use the Router for DHCP on your LAN, the IP address pool used for DHCP must be compatible with the IP address of the Router. The IP addresses available in the DHCP IP address pool will change automatically if you change the IP address of the Router.

To access the **Local Area Network (LAN) Setup** window, click the **LAN** link in the **Advanced Setup** directory.

This window allows you to set up a LAN interface. When you are finished, click either the **Save** or **Save/Reboot** button.

The screenshot shows the 'Local Area Network (LAN) Setup' window. At the top, it says 'Configures the DSL Router IP Address and Subnet Mask for LAN interfaces. Save button only saves the LAN configuration data. Save/Reboot button saves the LAN configuration data and reboots the router to make the new configuration effective.' Below this, there are input fields for 'IP Address' (192.168.1.1) and 'Subnet Mask' (255.255.255.0). There are three checkboxes: 'Enable UPnP' (unchecked), 'Enable IGMP Snooping' (unchecked), and 'Standard Mode' (checked). Below these are radio buttons for 'Disable DHCP Server' (checked) and 'Enable DHCP Server' (unchecked). Under 'Enable DHCP Server', there are fields for 'Start IP Address' (192.168.1.2), 'End IP Address' (192.168.1.254), 'Subnet Mask' (255.255.255.0), and 'Lease Time (hour)'. At the bottom, there is a checkbox 'Configure the second IP Address and Subnet Mask for LAN interfaces' which is unchecked. At the very bottom right, there are two buttons: 'Save' and 'Save/Reboot'.

NAT

The NAT setup window allows you to configure Virtual Server settings, Port Triggering and a DMZ host.

To configure virtual server settings, click the **Virtual Servers** link.

Click the **Add** button to add a new virtual server service.

Select a Service from the drop-down menu or click the **Custom Server** radio button to create a custom service.

You can also configure the **External Port Start**, **External Port End**, **Protocol**, **Internal Port Start**, **Internal Port End** and **Remote IP** settings for the service you want to setup on your Router.

When you have finished configuring the virtual server click the **Save/Apply** button.

NAT - Virtual Servers Setup

Virtual Server allows you to direct incoming traffic from outside (identified by Protocol and External port) to the Server of server with private IP address on the LAN side. The Internal port is required only if the external port needs to be converted to a different port number used by the server on the LAN side. A maximum of 32 servers can be configured.

Save/Apply

Server Name | External Port Start | External Port End | Protocol | Internal Port Start | Internal Port End | Server IP Address | Remote IP | Remove

NAT - Virtual Servers

Select the service name, and enter the server IP address and click "Save/Apply" to forward IP packets for this service to the specified server. NOTE: the "Internal Port End" cannot be changed. It is the same as "External Port End" normally and will be the same as the "Internal Port Start" or "External Port End" if either one is modified. Remaining number of entries that can be configured:32

Server Name:

Select a Service:

Custom Server

Server IP address:

Save/Apply

External Port Start	External Port End	Protocol	Internal Port Start	Internal Port End	Remote IP
		TCP			
		TCP			
		TCP			
		TCP			
		TCP			
		TCP			
		TCP			
		TCP			
		TCP			
		TCP			

Save/Apply

Section 3 – Configuration

Click the **Port Triggering** link to Add or Remove Port Triggers.

Click the **Add** button to add a new Port Trigger.

Click the **Select an application** drop-down menu to choose the application you want to setup for port triggering. When you have chosen an application the default Trigger settings will populate the table below.

If the application you want to setup isn't listed, click the **Custom application** radio button and type in a name for the trigger in the Custom application field. Configure the **Trigger Port Start**, **Trigger Port End**, **Trigger Protocol**, **Open Port Start**, **Open Port End** and **Open Protocol** settings for the port trigger you want to configure.

When you have finished click the **Save/Apply** button.

Click the **DMZ Host** link in the **NAT** directory to add a new DMZ host entry in your Router.

Enter the IP address of the host you want to put in the DMZ in the **DMZ Host IP Address** textbox.

Press the **Save/Apply** button when you have finished.

The first screenshot shows the 'NAT - Port Triggering table' with an 'Add' button and a table with columns for Application, Trigger (Protocol, Port Range), Open (Protocol, Port Range), and Reverse. The second screenshot shows the 'NAT - Port Triggering' configuration page with an 'Application Name' dropdown set to 'Select One', a 'Custom application' radio button, and a table for configuring triggers. The third screenshot shows the 'NAT - DMZ Host' configuration page with a 'DMZ Host IP Address' input field and a 'Save/Apply' button.

Application	Trigger	Open	Reverse	
Name	Protocol	Port Range	Protocol	Port Range
	Start	End	Start	End

Trigger Port Start	Trigger Port End	Trigger Protocol	Open Port Start	Open Port End	Open Protocol
		TCP			TCP
		TCP			TCP
		TCP			TCP
		TCP			TCP
		TCP			TCP
		TCP			TCP
		TCP			TCP
		TCP			TCP

DMZ Host IP Address:

Security

The Security setup window allows you to configure your Router to restrict access to the Internet based on the IP or MAC address of the device trying to access the Internet via the Router.

IP Filtering

To access the **IP Filtering** window, click the **IP Filtering Link**.

This window allows you to create a filter rule to block outgoing IP traffic by specifying a filter name and at least one condition in this window. All of the specified conditions in this filter rule must be satisfied for the rule to take effect. Filters are used to allow or deny LAN or WAN users from accessing the Internet or your internal network.

If you are setting up the Outgoing Filtering click the **Outgoing** link, then click the **Add** button.

Enter the information in the section. Explanations of parameters are described below. Click the **Save/Apply** button to add the entry in the Active Outbound IP Filtering table.



Filters Parameter	Description
Filter Name	Enter a name for the new filter.
Protocol	Select the transport protocol from the drop-down menu (TCP/UDP, TCP, UDP or ICMP) that will be used for the filter rule.
Source IP Address	Enter the source IP address which you are creating the filter rule for.
Source Subnet Mask	Enter the subnet mask for the source IP address you are creating the filter rule for.
Source Port (port or port:port)	The Source Port is the TCP/UDP port on either the LAN or WAN depending on if you are configuring an Outbound or Inbound Filter rule.
Destination IP Address	Enter the destination IP address which you are creating the filter rule for.
Destination Subnet Mask	Enter the subnet mask for the destination IP address you are creating the filter rule for.
Destination Port	The Destination Port is the TCP/UDP port on either the LAN or WAN depending on if you are configuring an Outbound or Inbound Filter rule.

IP Filtering – Incoming

The Inbound Filter allows you to create a filter rule to allow incoming IP traffic by specifying a filter name and at least one condition on this window. All of the specified conditions in this filter rule must be satisfied for the rule to take effect. By default, all incoming IP traffic from the Internet is blocked when the firewall is enabled.

If you are setting up the incoming IP filtering, click the **Incoming** link, then click the **Add** button.



Section 3 – Configuration

Enter the information in the section. Explanations of parameters are described below. Click the Save/Apply button to add the entry in the Active Inbound IP Filtering table.

Filters Parameter	Description
Filter Name	Enter a name for the new filter.
Protocol	Select the transport protocol from the drop-down menu (TCP/UDP, TCP, UDP or ICMP) that will be used for the filter rule.
Source IP Address	Enter the source IP address which you are creating the filter rule for.
Source Subnet Mask	Enter the subnet mask for the source IP address you are creating the filter rule for.
Source Port (port or port:port)	The Source Port is the TCP/UDP port on either the LAN or WAN depending on if you are configuring an Outbound or Inbound Filter rule.
Destination IP Address	Enter the destination IP address which you are creating the filter rule for.
Destination Subnet Mask	Enter the subnet mask for the destination IP address you are creating the filter rule for.
Destination Port	The Destination Port is the TCP/UDP port on either the LAN or WAN depending on if you are configuring an Outbound or Inbound Filter rule.

MAC Filtering

The Router MAC Filtering function is only effective on ATM PVCs configured in Bridge mode. The Router supports two policies for MAC Filtering, Forwarded or Blocking. Setting a Forwarded policy means that all MAC layer frames will be forwarded except the MAC layer frames that are listed in the MAC Filtering table. Setting a Blocked policy means that all MAC layer frames will be blocked except the MAC layer frames that are listed in the MAC Filtering table.

To access the **MAC Filtering** window, click the **MAC Filtering Link**.

This window allows you to set up MAC Filtering on the Router.

Click the **Change Policy** button to change between a Forwarded or Blocked MAC Filtering Global Policy.

Click the **Add** button to add a new MAC filter. Choose the Protocol type from the drop-down menu, type the Destination MAC Address, type the Source MAC Address and choose the Frame Direction from the drop-down menu. Tick the WAN interfaces you want to apply the policy to. When you have finished configuring the MAC filter, click the **Save/Apply** button.

To remove a MAC filter tick the check box next to the MAC filter rule you want to remove and click on the **Remove** button.



Quality of Service

QoS or Quality of Service allows your Router to help prioritize the data packet flow in your Router and network. This is very important for time sensitive applications such as VoIP where it may help prevent dropped calls. Large amounts of non-critical data can be scaled so as not to affect these prioritized sensitive real-time programs.

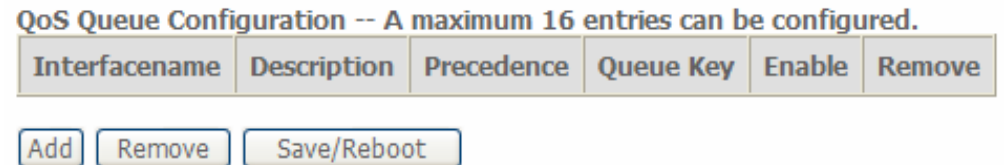
To access the **QoS – Queue Management Configuration** window, click the **Quality of Service** link in the **Advanced Setup** directory. This window allows you to set up QoS on the Router. When you are finished, click on the **Save/Apply** button.



Queue Config

To add a new QoS Queue configuration, click the **Queue Config** link.

Click the **Add** button to add a new QoS Queue Configuration table entry.



This window allows you to configure a QoS queue entry and assign it a specific network interface.

Click the **Save/Apply** button to save and activate the filter.



QoS Classification

To configure QoS Classification, click the **QOS Classification** link.

Choose **Add** or **Remove** to configure network traffic classes.

Click **Add** to add a new traffic class rule.

Use this window to create a traffic class rule to classify the upstream traffic, assign a queue that defines the precedence and the interface, and optionally overwrite the IP header DSCP byte. A rule consists of a class name and at least one condition. Please remember that all of the specified conditions on this window must be met for the rule to take effect.

Click the **Save/Apply** button to save and activate this rule.

Quality of Service Setup

Choose Add or Remove to configure network traffic classes.

RULE				TRAFFIC CLASSIFICATION RULES													
Class Name	DSCP Mark	Queue ID	Queue Mask	Line Port	Protocol	DSCP	Source Addr./Mask	Source Port	Dest. Addr./Mask	Dest. Port	Source MAC Addr./Mask	Destination MAC Addr./Mask	DSCP	Order	Enable/Disable	Remove	Edit

[Add] [Save/Apply]

Add Network Traffic Class Rule

The screen creates a traffic class rule to classify the upstream traffic, assign queues which define the precedence and the interface, and optionally overwrites the IP header DSCP byte. A rule consists of a class name and at least one condition below. All of the specified conditions in the classification rule must be applied for the rule to take effect. Click 'Save/Apply' to save and activate the rule.

Traffic Class Name:

Rule Order:

Rule Status:

Assign DSCP Priority and/or DSCP Mark for the class
 If non-zero value is selected for 'Assign Differentiated Services Code Point (DSCP) Mark', the corresponding DSCP byte in the IP header of the upstream packet is overwritten by the selected value.

Assign Classification Queue:

Assign Differentiated Services Code Point (DSCP) Mark:

Mark ACL to F. SBL is enabled:

Specify traffic classification rules
 Enter the following conditions either for IP level, SET 1, or for IEEE 802.1p, SET 2.

SET 1

Protocol:

Differentiated Services Code Point (DSCP) Check:

IP Address:

Source Subnet Mask:

IP/TCP Source Port (port or port:port):

Destination IP Address:

Destination Subnet Mask:

IP/TCP Destination Port (port or port:port):

Source MAC Address:

Source MAC Mask:

Destination MAC Address:

Destination MAC Mask:

SET 2

802.1p Priority:

[Save/Apply]

Routing

To access the **Routing** windows, click the **Routing** button in the **Advanced Setup** directory. If the **Enable Automatic Assigned Default Gateway** checkbox is ticked, the Router will accept the first default gateway assignment received from one of the enabled PPPoA, PPPoE, or MER/DHCP enabled PVC(s).

Untick the **Enable Automatic Assigned Default Gateway** checkbox if you want to configure the default gateway manually. Tick the **Use Default Gateway IP Address** checkbox and type in the Default Gateway you want to use. If you want to use an Interface as your default gateway tick the **Use Interface** checkbox and choose an interface from the drop-down menu.

When you have finished configuring the Default Gateway click the **Save/Apply** button.

To access the **Static Route** window click the **Static Route** link in the **Routing** directory. Click the **Add** button on the **Static Route** window to access the following window:



Section 3 – Configuration

Enter the static routing information for an entry to the routing table.
Click the **Save/Apply** button when you are finished.

Click the **RIP** link to configure RIP on our router. Select the **Enabled** radio button to enable RIP on the Router.

Configure the interfaces you want to enable RIP on and choose the **Version** and **Operation** modes from the appropriate drop-down menus. Tick the appropriate **Enabled** check boxes to enable RIP on the interfaces.

Click the **Save/Apply** button when you are finished.

Routing -- Static Route Add

Enter the destination network address, subnet mask, gateway AND/OR available WAN interface then click "Save/Apply" to add the entry to the routing table.

Destination Network Address:

Subnet Mask:

Use Gateway IP Address

Use Interface:

Routing -- RIP Configuration

To activate RIP for the device, click the "Enabled" radio button for Global RIP Mode. To configure an individual interface, select the desired RIP version and operation, followed by placing a check in the "Enabled" checkbox for the interface. Click the "Save/Apply" button to save the configuration, and to start or stop RIP based on the Global RIP mode selected.

Global RIP Mode: Disabled Enabled

Interface	Version	System	Operation	Enabled
int0	EIGRP	2	Active	<input type="checkbox"/>
WAN_INTERFACE	RIP	2	Passive	<input type="checkbox"/>

DNS

To access the **DNS Settings** window, click the **DNS** link in the **Advanced Setup** directory.

Tick the **Enable Automatic Assigned DNS** checkbox if you want the Router to accept the first received DNS assignment from one of the enabled PVC's during the connection established.

To manually specify your own DNS server IP addresses, deselect the **Enable Automatic Assigned DNS** checkbox and type in a **Primary DNS server** IP address and **Secondary DNS server** IP address in the appropriate boxes.

The DSL-526B router supports Dynamic DNS from two providers, DynDNS.org and TZO. This feature allows you to alias a dynamic IP address to a static hostname, allowing your DSL router to be more easily accessed from various locations on the Internet. To configure Dynamic DNS click the Dynamic DNS link in the DNS directory.

Press the Add button to add a new Dynamic DNS entry.



Section 3 – Configuration

Select DynDNS.org or TZO from the D-DNS provider drop-down menu.

Type in the Hostname that you have registered with your D-DNS provider in the Hostname textbox.

Select the Interface you want to enable DDNS from the Interface drop-down menu.

Select **DynDNS.org** or **TZO** from the **D-DNS provider** drop-down menu.

Type in the **Hostname** that you have registered with your D-DNS provider in the **Hostname** textbox.

Select the **Interface** you want to enable DDNS on from the **Interface** drop-down menu.

Add dynamic DDNS

This page allows you to add a Dynamic DNS address from DynDNS.org or TZO.

D-DNS provider	<input type="text" value="DynDNS.org"/>
Hostname	<input type="text"/>
Interface	<input type="text" value="mer_0_0_35/nas_0_0_35_1"/>
DynDNS Settings	
Username	<input type="text"/>
Password	<input type="text"/>

Save/Apply

Add dynamic DDNS

This page allows you to add a Dynamic DNS address from DynDNS.org or TZO.

D-DNS provider	<input type="text" value="DynDNS.org"/>
Hostname	<input type="text"/>
Interface	<input type="text" value="mer_0_0_35/nas_0_0_35_1"/>
DynDNS Settings	
Username	<input type="text"/>
Password	<input type="text"/>

Save/Apply

Section 3 – Configuration

If your Dynamic DNS service provider is **DynDNS.org** type in your **DynDNS.org Username** and **Password** in the appropriate boxes.

Press the **Save/Apply** button when you have finished.

If your Dynamic DNS service provider is **TZO** type in the e-mail address you have registered with **TZO** in the **Email** textbox. Type in the **Key** you have registered with **TZO** in the **Key** textbox.

Press the **Save/Apply** button when you have finished.

Add dynamic DDNS

This page allows you to add a Dynamic DNS address from DynDNS.org or TZO.

D-DNS provider: DynDNS.org

Hostname: []

Interface: mer_0_0_35/nas_0_0_35_1

DynDNS Settings

Username: []

Password: []

Save/Apply

Add dynamic DDNS

This page allows you to add a Dynamic DNS address from DynDNS.org or TZO.

D-DNS provider: TZO

Hostname: []

Interface: mer_0_0_35/nas_0_0_35_1

TZO Settings

Email: []

Key: []

Save/Apply

DSL

To access the **DSL Settings** window, click the **DSL** option in the **Advanced Setup** directory.

Select the **Modulation Type** from the drop down menu and choose a phone line pair and capability by clicking the appropriate radio buttons. Click the **Save/Apply** button when you are finished.

Click the **Advanced Settings** button to select a DSL test mode.

Select the desired DSL test mode and then click the **Apply** button.

Click the **Tone Selection** button to modify the upstream and downstream tones.

The image shows two screenshots of a web-based configuration interface for DSL settings. The top screenshot is titled "DSL Settings" and contains the following elements: a label "Select the modulation below." followed by a dropdown menu set to "Autosense"; a label "Select the phone line pair below." followed by two radio buttons, "Inner pair" (which is selected) and "Outer pair"; a label "Capability" followed by two checkboxes, "Bitswap Enable" (checked) and "SRA Enable" (unchecked). At the bottom right of this window are two buttons: "Save/Apply" and "Advanced Settings". The bottom screenshot is titled "DSL Advanced Settings" and contains: a label "Select the test mode below." followed by five radio buttons: "Normal" (selected), "Reverb", "Medley", "No retrain", and "L3". At the bottom right of this window are two buttons: "Apply" and "Tone Selection".

Section 3 – Configuration

Select the appropriate upstream and downstream tones for your ADSL connection. Click the **Apply** button to let your settings take effect.

ADSL Tone Settings

Upstream Tones																															
<input checked="" type="checkbox"/> 0	<input checked="" type="checkbox"/> 1	<input checked="" type="checkbox"/> 2	<input checked="" type="checkbox"/> 3	<input checked="" type="checkbox"/> 4	<input checked="" type="checkbox"/> 5	<input checked="" type="checkbox"/> 6	<input checked="" type="checkbox"/> 7	<input checked="" type="checkbox"/> 8	<input checked="" type="checkbox"/> 9	<input checked="" type="checkbox"/> 10	<input checked="" type="checkbox"/> 11	<input checked="" type="checkbox"/> 12	<input checked="" type="checkbox"/> 13	<input checked="" type="checkbox"/> 14	<input checked="" type="checkbox"/> 15	<input checked="" type="checkbox"/> 16	<input checked="" type="checkbox"/> 17	<input checked="" type="checkbox"/> 18	<input checked="" type="checkbox"/> 19	<input checked="" type="checkbox"/> 20	<input checked="" type="checkbox"/> 21	<input checked="" type="checkbox"/> 22	<input checked="" type="checkbox"/> 23	<input checked="" type="checkbox"/> 24	<input checked="" type="checkbox"/> 25	<input checked="" type="checkbox"/> 26	<input checked="" type="checkbox"/> 27	<input checked="" type="checkbox"/> 28	<input checked="" type="checkbox"/> 29	<input checked="" type="checkbox"/> 30	<input checked="" type="checkbox"/> 31

Downstream Tones																															
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Diagnostics

To access the **Diagnostics** window, click the **Diagnostics** link.

This window is used to test connectivity of the Router.

Click the **Test** button to test the network connection to your local network and your DSL service provider.

The **Diagnostics** window also allows you to test the network connection with OAM F4. Click the **Test with OAM F4** button to carry out this type of test.

To test another connection on the Router click the **Next/Previous Connection** button.



Management

The Management directory features an array of options designed to help you get the most out of your Router.

Settings

The Settings window allows you to backup the Router configuration, update the router configuration and restore the router to default settings.

The **Backup** window allows you to backup your DSL Router configuration

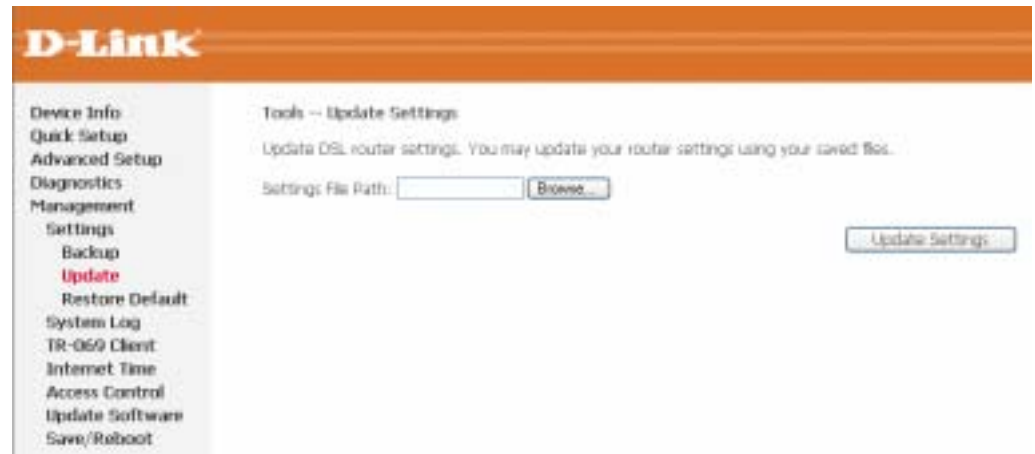
Click the **Backup Settings** button to save your Router configuration to a file on your computer.



Section 3 – Configuration

The **Update** window allows you to update your DSL Router configuration

Click the **Browse** button to browse to the location where the settings file is saved on your PC. Click the **Update Settings** button to update your Router configuration.



The **Restore Default** window allows you to restore your DSL Router to factory defaults/

Click the **Restore Default Settings** button to restore your Router to factory default settings.



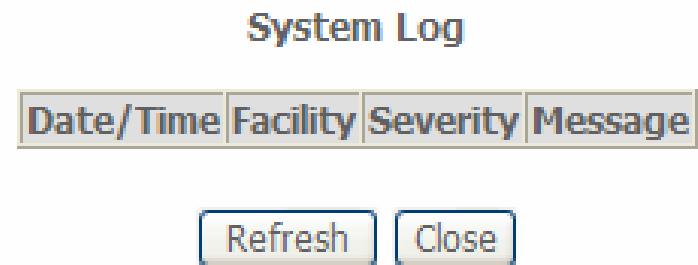
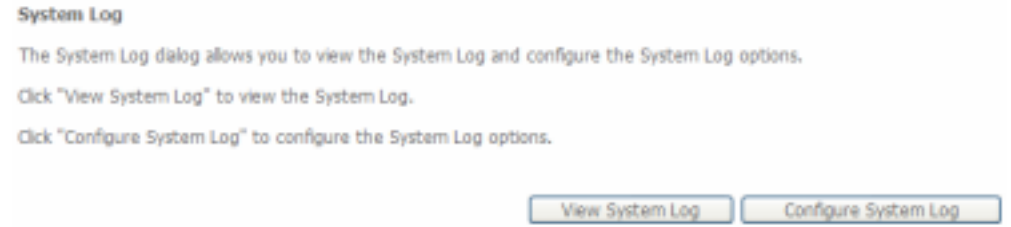
System Log

These windows allow you to view the System Log and configure the System Log options. To access the **System Log** window, click the **System Log** button in the **Management** directory.

Click the **View System Log** button to view the System Log.

Click the **Configure System Log** button to configure the System Log options.

In the System Log window, click on the **Refresh** button to refresh the system log settings.



System Log – Configuration

The system log displays chronological event log data. The event log can be read from the local host or sent to a System Log server. The available event severity levels are: **Emergency**, **Alert**, **Critical**, **Error**, **Warning**, **Notice**, **Informational**, and **Debugging**.

This window allows you to log selected events. When you are finished, click the **Save/Apply** button.



TR-069 Client

TR069 is a WAN Management Protocol that allows an Auto-Configuration Server (ACS) to perform auto-configuration, provision, collection and diagnostics to the router. To access the **TR-069** window, click the **TR-069** link in the **Management** directory.

To configure TR-069 carry out the following:

- Select whether to Enable or Disable the Inform message by clicking the **Enable** or **Disable** radio button.
 - Type in the amount of time in seconds for the interval you want to be informed about TR069 messages in the **Inform Interval** field.
 - Type in the URL of the ACS server you want to use to carry out the auto-configuration, provision, collection and diagnostics to the device in the **ACS URL** field.
 - Type in the User Name you will use to log onto the ACS server, into the **ACS User Name** field.
 - Type in the Password you will use to log onto the ACS server, into the **ACS Password** field.
 - If you require the ACS server to authenticate to your Router, tick the **Connection Request Authentication** checkbox.
-
- Two text boxes will appear
 - Type in the User Name you want the Auto Configuration Server to login with in the **Connection Request User Name** field.
 - Type in the Password you want the Auto Configuration Server to login with in the **Connection Request Password** field.

The screenshot shows the 'TR-069 client - Configuration' page. The 'Inform' section has 'Disable' selected. The 'ACS URL' is 'http://acs.tot.com.tr'. The 'ACS User Name' is 'totacs1' and the 'ACS Password' is masked with asterisks. The 'Connection Request Authentication' checkbox is unchecked. At the bottom right, there are 'Save/Apply' and 'GetRPCMethods' buttons.

The screenshot shows the 'TR-069 client - Configuration' page. The 'Inform' section has 'Enable' selected. The 'ACS URL' is 'http://acs.tot.com.tr'. The 'ACS User Name' is 'totacs1' and the 'ACS Password' is masked with asterisks. The 'Connection Request Authentication' checkbox is checked. Below it, 'Connection Request User Name' is 'admin' and 'Connection Request Password' is masked with asterisks. At the bottom right, there are 'Save/Apply' and 'GetRPCMethods' buttons.

Click the **GetRPCMethods** button to populate the TR-069 settings automatically from the tot ISP.

When you have finished configuring the TR-069 settings, click the **Save/Apply** button.

Internet Time

To access the **Internet Time** window, click the **Internet Time** link in the **Management** directory.

Click the **Automatically synchronize with Internet time servers** checkbox to setup automatic synchronization with Internet time servers.

Select a primary time server from the **First NTP time server** drop-down menu.

Select a secondary time server from the **Second NTP time server** drop-down menu.

Select the time zone you are in from the **Time Zone offset** drop-down menu.

When you have finished configuring the Time Settings click the **Save/Apply** button.

Time settings

This page allows you to the modem's time configuration.

Automatically synchronize with Internet time servers

Save/Apply

Time settings

This page allows you to the modem's time configuration.

Automatically synchronize with Internet time servers

First NTP time server:

Second NTP time server:

Time zone offset:

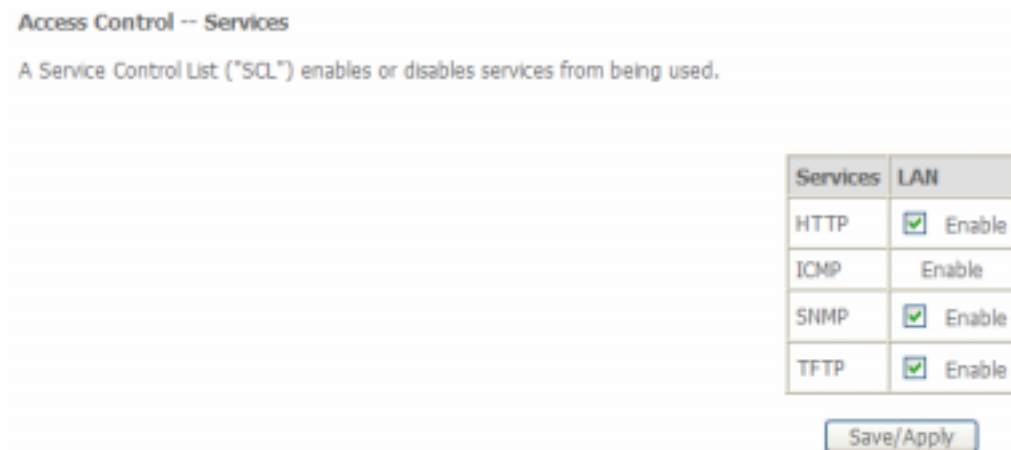
Save/Apply

Access Control

To access the **Access Control** windows, click the **Access Control** link in the **Management** directory.

Access Control – Services

Enable or disable the desired LAN services. When you are finished, click the **Save/Apply** button.



Access Control – IP Addresses

This window allows you to enable or disable Access Control Mode. To add an IP address management station, click the **Add** button.



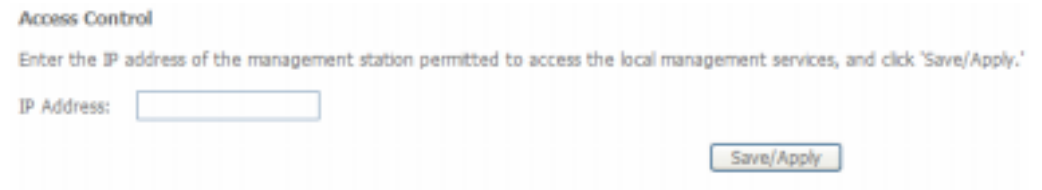
Section 3 – Configuration

Enter the IP address of the management station permitted to access the local management services. When you are finished, click the **Save/Apply** button.

When you have added all the IP addresses of the hosts you want to give remote management to, click the **Enable** radio button.

Access Control – Passwords

This window allows you to change the password on the Router. When you are finished, click the **Save/Apply** button.



Update Software

To access the **Update Software** window, click the **Update Software** link in the **Management** directory. This window allows you to update the Router's software. Click the **Browse** button to navigate to the location where the updated software file is located. Once you have located the file click the **Update Software** button to update the software on the Router.

Tools -- Update Software

Step 1: Obtain an updated software image file from your ISP.

Step 2: Enter the path to the image file location in the box below or click the "Browse" button to locate the image file.

Step 3: Click the "Update Software" button once to upload the new image file.

NOTE: The update process takes about 2 minutes to complete, and your DSL Router will reboot.

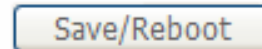
Software File Name:

Save/Reboot

To access this window, click the **Save/Reboot** link in the **Management** directory.

To save your settings and reboot the system, click the **Save/Reboot** button.

Click the button below to save and reboot the router.

A rectangular button with rounded corners, a light gray background, and a thin blue border. The text "Save/Reboot" is centered on the button in a dark gray font.

Troubleshooting

This chapter provides solutions to problems that might occur during the installation and operation of the DSL-520B. Read the following descriptions if you are having problems. (The examples below are illustrated in Windows® XP. If you have a different operating system, the screenshots on your computer will look similar to the following examples.)

1. How do I configure my DSL-520B Router without the CD-ROM?

- Connect your PC to the Router using an Ethernet cable.
- Open a web browser and enter the address `http://192.168.1.1`
- The default username is 'admin' and the default password is 'admin'.
- If you have changed the password and cannot remember it, you will need to reset the Router to the factory default setting (see question 2), which will set the password back to 'admin'.

Note: Please refer to the next section "Networking Basics" to check your PC's IP configuration if you can't see the login windows.

2. How do I reset my Router to the factory default settings?

- Ensure the Router is powered on.
- Press and hold the reset button on the back of the device for approximately 5 to 8 seconds.
- This process should take around 1 to 2 minutes.

Note: Resetting the Router to the factory default settings will erase the current configuration settings. To reconfigure your settings, login to the Router as outlined in question 1, then run the Quick Setup wizard.

3. What can I do if my Router is not working correctly?

There are a few quick steps you can take to try and resolve any issues:

- Follow the directions in Question 2 to reset the Router.
- Check that all the cables are firmly connected at both ends.
- Check the LEDs on the front of the Router. The Power indicator should be on, the Status indicator should flash, and the DSL and LAN indicators should be on as well.
- Please ensure that the settings in the Web-based configuration manager, e.g. ISP username and password, are the same as the settings that have been provided by your ISP.

4. Why can't I get an Internet connection?

For ADSL ISP users, please contact your ISP to make sure the service has been enabled/connected by your ISP and that your ISP username and password are correct.

5. What can I do if my Router can't be detected by running the installation CD?

- Ensure the Router is powered on.
- Check that all the cables are firmly connected at both ends and all LEDs are working correctly.
- Ensure only one network interface card on your PC is activated.
- Click on **Start > Control Panel > Security Center** to disable the firewall.

Note: There is a potential security issue if the firewall is disabled on your PC. Please remember to turn it back on once you have finished the whole installation procedure. This will enable you to surf the Internet without any problems.

Networking Basics

Check Your IP Address

After you install your new D-Link adapter, by default, the TCP/IP settings should be set to obtain an IP address from a DHCP server (i.e. wireless router) automatically. To verify your IP address, please follow the steps below.

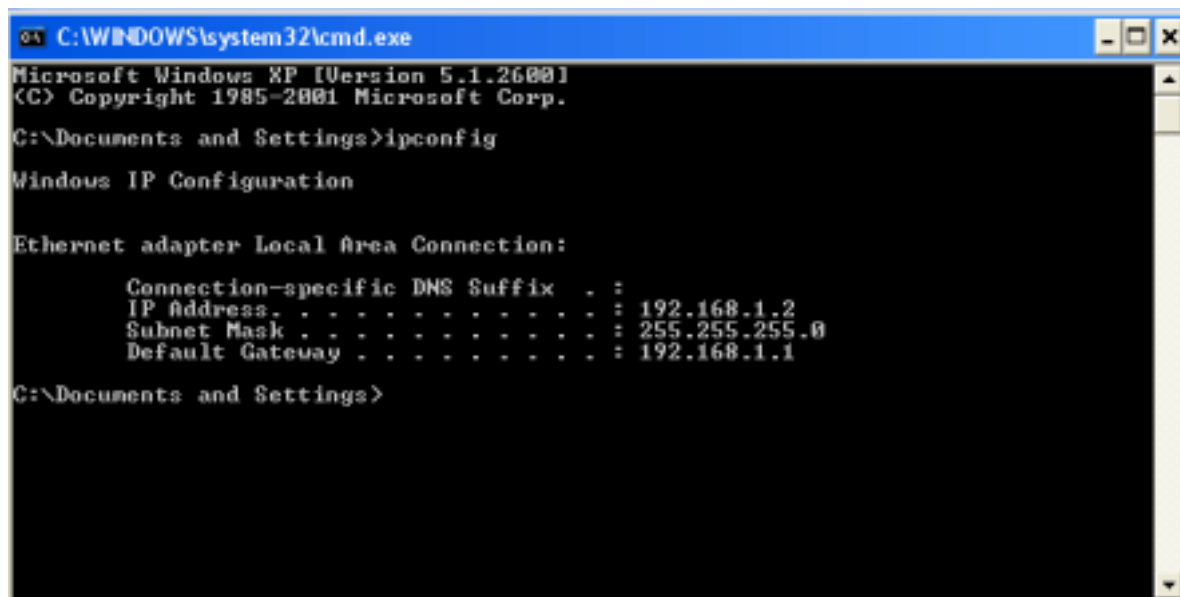
Click on **Start** → **Run**. In the run box type **cmd** and click on the **OK** button.

At the prompt, type **ipconfig** and press **Enter**.

This will display the IP address, subnet mask and the default gateway of your adapter.

If the address is 0.0.0.0, check your adapter installation, security settings and the settings on your router. Some firewall software programs may block a DHCP request on newly installed adapters.

If you are connecting to a wireless network at a hotspot (e.g. hotel, coffee shop, airport), please contact an employee or administrator to verify their wireless network settings.



```
C:\WINDOWS\system32\cmd.exe
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.
C:\Documents and Settings>ipconfig

Windows IP Configuration

Ethernet adapter Local Area Connection:

    Connection-specific DNS Suffix  . :
    IP Address. . . . .               : 192.168.1.2
    Subnet Mask . . . . .             : 255.255.255.0
    Default Gateway . . . . .         : 192.168.1.1

C:\Documents and Settings>
```

Statically Assigning an IP Address

If you are not using a DHCP capable gateway/router, or you need to assign a static IP address, please follow the steps below:

Step 1

Windows® XP - Click on **Start > Control Panel > Network Connections**.

Windows® 2000 - From the desktop, right-click on the **My Network Places > Properties**.

Step 2

Right-click on the **Local Area Connection** which represents your D-Link network adapter and select **Properties**.

Step 3

Highlight **Internet Protocol (TCP/IP)** and click on the **Properties**.

Step 4

Click on the **Use the following IP address** and enter an IP address that is on the same subnet as your network or the LAN IP address on your router.

Example: If the router's LAN IP address is 192.168.1.1, make your IP address 192.168.1.X where X is a number between 2 and 254. Make sure that the number you choose is not in use on the network. Set the Default Gateway to be the same as the LAN IP address of your router (192.168.1.1).

Set the Primary DNS to be the same as the LAN IP address of your router (192.168.1.1). The Secondary DNS is not needed or you may enter a DNS server from your ISP.

Step 5

Click on the **OK** button twice to save your settings.



Technical Specifications

ADSL Standards

- ANSI T1.413 Issue 2
- ITU G.992.1 (G.dmt) Annex A
- ITU G.992.2 (G.lite) Annex A
- ITU G.994.1 (G.hs)
- ITU G.992.5 Annex A

ADSL2 Standards

- ITU G.992.3 (G.dmt.bis) Annex A
- ITU G.992.4 (G.lite.bis) Annex A

Protocols

- IEEE 802.1d Spanning Tree
- TCP/UDP
- ARP
- RARP
- ICMP
- RFC1058 RIP v1
- RFC1213 SNMP v1 & v2c
- RFC1334 PAP
- RFC1389 RIP v2
- RFC1577 Classical IP over ATM
- RFC1483/2684 Multiprotocol Encapsulation over ATM Adaptation Layer 5 (AAL5)
- RFC1661 Point to Point Protocol
- RFC1994 CHAP
- RFC2131 DHCP Client / DHCP Server
- RFC2364 PPP over ATM
- RFC2516 PPP over Ethernet

Data Transfer Rate

- G.dmt full rate downstream: up to 8 Mbps / upstream: up to 1 Mbps
- G.lite: ADSL downstream up to 1.5 Mbps / upstream up to 512 Kbps
- G.dmt.bis full rate downstream: up to 12 Mbps / upstream: up to 12 Mbps
- ADSL full rate downstream: up to 24 Mbps / upstream: up to 1 Mbps

Media Interface

- ADSL interface: RJ-11 connector for connection to 24/26 AWG twisted pair telephone line
- LAN interface: RJ-45 port for 10/100BASE-T Ethernet connection