USER MANUAL
DSL-2540U
VERSION 1.0

Power DSL Internet ┌──────LAN──────┐ Status

ADSL Router 1 2 3 4 DSL-2540U

D-Link®

BROADBAND

Table of Contents

Package Contents

- DSL-2540U 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-2540U 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

Features

- **PPP (Point-to-Point Protocol) Security –** The DSL-2540U 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 network topology occur.

- **Network Address Translation (NAT) –** For small office environments, the DSL-2540U 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 (Transfer Control Protocol/Internet Protocol) –** The DSL-2540U supports 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-2540U supports both RIP-1 and RIP-2 exchanges with other routers. Using both versions lets 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". 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 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-2540U 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.Hz (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 using the G.dmt standard.

- **Full Network Management –** The DSL-2540U incorporates SNMP (Simple Network Management Protocol) support for web-based management and text-based network management via an RS-232 or Telnet connection.

- **Telnet Connection –** The Telnet enables a network manager to access the Router's management software remotely.

- **Easy Installation –** The DSL-2540U 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)

Power Button
Push in to power-on the Router. Push again to power-off the Router

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

*Reset button at the bottom

Hardware Overview
LEDs

Power
A steady green light indicates the unit is powered on. When the device is powered off it remains dark. Lights steady green during power on self-test (POST) means the power connection works properly.

Internet
A steady green light indicates a valid internet connection.

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 that ADLS is attempting to sync.

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.

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

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 standard telephone cable. Ask your service provider for more information about the use of low pass filters with your installation.

Operating Systems
The DSL-2540U 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 equipment. 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 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/PPoA (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) 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 Settings window of the web management interface.

Information you will need about DSL-2540U

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-2540U
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 DHCP service on the LAN when DHCP is enabled.

LAN Subnet Mask for the DSL-2540U
This is the subnet mask used by the DSL-2540U, 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-2540U to this Ethernet port using an Ethernet cable. You can also use the Ethernet ports on the DSL-2540U to connect to other computer or Ethernet devices.

DHCP Client status
Your DSL-2540U 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-2540U 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 your 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-2540U ADSL Router.

Device Installation

The DSL-2540U 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 DC 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. Depress the Power button into the on position. You should see the Power LED indicator light up and remain lit. The Status LED should light solid green and begin to blink after a few seconds.

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 installing 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. Turn on the power.
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 is **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 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 cable 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 on 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 on 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

The default IP address for ADSL MODEM is: 192.168.1.1; The Subnet Mask is：255.255.255.0. Users can configure ADSL MODEM through an Internet browser. ADSL MODEM can be used as gateway and DNS server; users need to set the computer's TCP/IP protocol as follow:

1. Set the computer IP address at same segment of ADSL MODEM, such as set the IP address of the network card to one of the "192.168.1.2" 〜 "192.168.1.254".
2. Set the computer's gateway the same IP address as the ADSL Modem's.
3. Set computer's DNS server the same as ADSL Modem's IP address or that of an effective DNS server.

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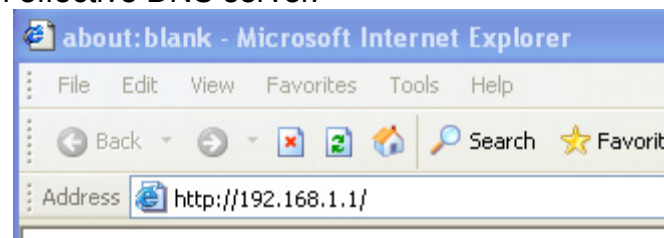
Type **"admin"** for the User Name and "**admin**" in the Password field. If you get a **Page Cannot be Displayed** error, please refer to the **Troubleshooting** section for assistance.

Device Info

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

Summary

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

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

Device Info

BoardID:	DSL-2540U
Software Version:	RU_1.00
Bootloader (CFE) Version:	1.0.37-8.7

This information reflects the current status of your DSL connection.

Line Rate - Upstream (Kbps):	
Line Rate - Downstream (Kbps):	
LAN IPv4 Address:	192.168.1.1
MAC Address:	00-11-22-33-44-54
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** button 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	Igmp	QoS	State	Status	IPv4 Address

Statistics

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

This window displays the Router's LAN statistics. Click the **Reset Statistics** button to refresh these statistics.

Statistics -- LAN

Interface	Received				Transmitted			
	Bytes	Pkts	Errs	Drops	Bytes	Pkts	Errs	Drops
Ethernet eth1	0	0	0	0	0	0	0	0
Ethernet eth0	470376	5246	0	0	1575614	4900	0	0

Reset Statistics

This window displays the Router's WAN statistics. Click the **Reset Statistics** button to refresh these statistics.

Statistics -- WAN

Service	VPI/VCI	Protocol	Interface	Received				Transmitted			
				Bytes	Pkts	Errs	Drops	Bytes	Pkts	Errs	Drops

Reset Statistics

This window displays the Router's ATM statistics. Click the **Reset** button to refresh these statistics.

ATM Interface Statistics

In Octets	Out Octets	In Errors	In Unknown	In Hec Errors	In Invalid Vpi Vci Errors	In Port Not Enable Errors	In PTI Errors	In Idle Cells	In Circuit Type Errors	In OAM RM CRC Errors	In GFC Errors
0	0	0	0	0	0	0	0	0	0	0	0

AAL5 Interface Statistics

In Octets	Out Octets	In Ucast Pkts	Out Ucast Pkts	In Errors	Out Errors	In Discards	Out Discards
0	0	0	0	0	0	0	0

AAL5 VCC Statistics

VPI/VCI	CRC Errors	SAR Timeouts	Oversized SDUs	Short Packet Errors	Length Errors
7/35	0	0	0	0	0
8/35	0	0	0	0	0

Reset   Close

This window displays the 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:
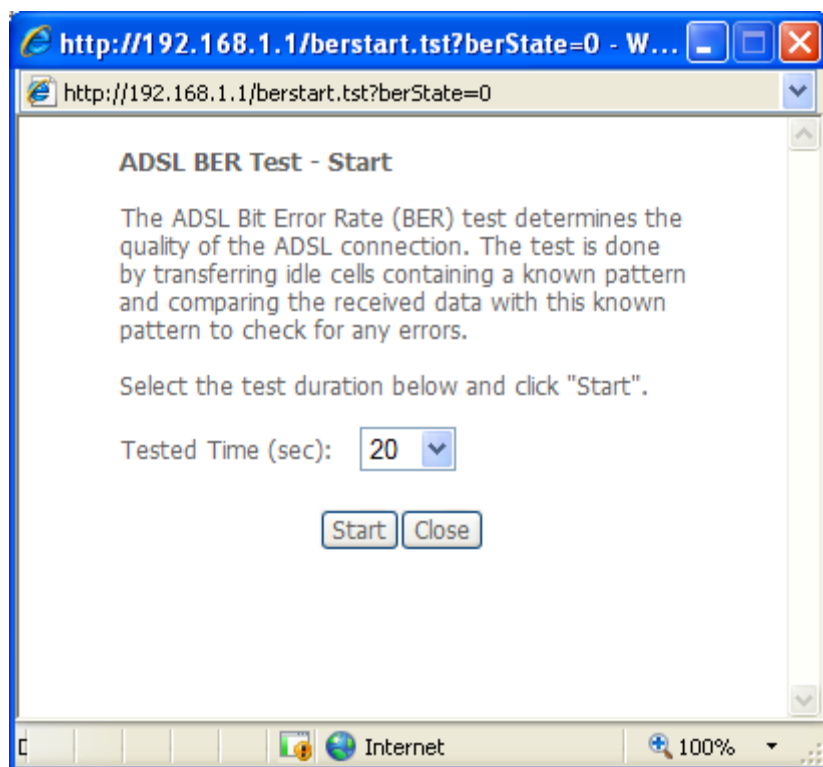
Statistics -- ADSL

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

ADSL BER Test - Start

The ADSL Bit Error Rate (BER) test determines the quality of the ADSL connection. The test is done by transferring idle cells containing a known pattern and comparing the received data with this known pattern to check for any errors.

Select the test duration below and click "Start".

Tested Time (sec): 20

Start   Close

Route

To access the **Device Info – Route** window, click the **Route** button 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
192.168.1.0	0.0.0.0	255.255.255.0	U	0		br0

ARP

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

This read-only window displays Address Resolution Protocol info.

Device Info -- ARP

IP address	Flags	HW Address	Device
192.168.1.17	Complete	00:1A:A0:22:30:10	br0

DHCP

To access the **Device Info – DHCP Leases** window, click the **DHCP** button in the **Device Info** directory.

This read-only window displays DHCP lease info.

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 IP settings and DHCP server setup.

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.
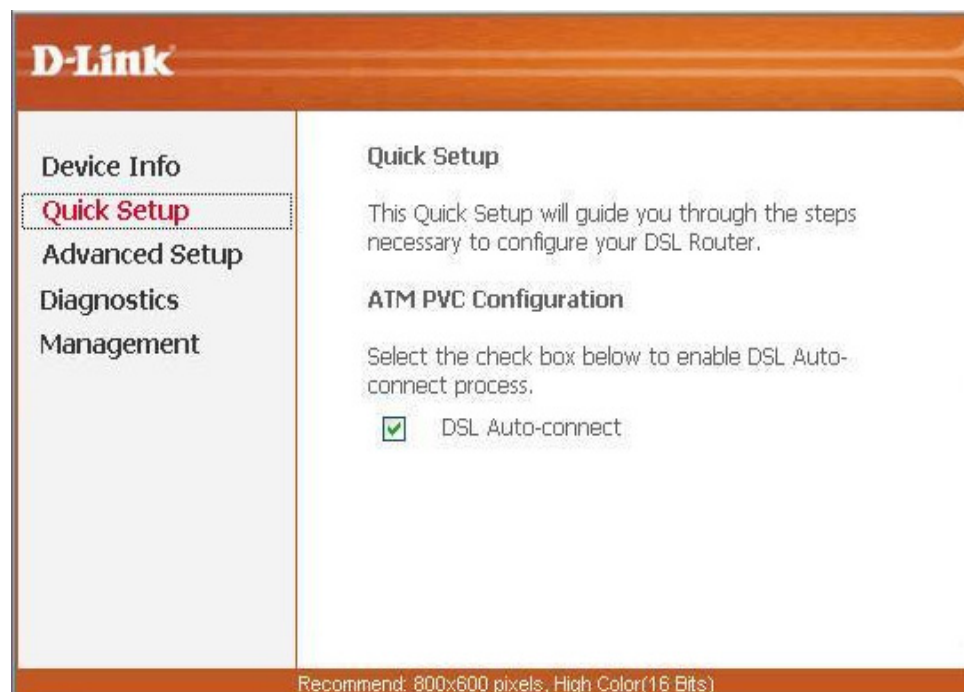
QUICK SETUP

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

This 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 (PORT) 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.

PORT: [0-3]   0
VPI: [0-255]   0
VCI: [32-65535] 35

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 priorities for the applications.

Enable Quality Of Service ☐

[Next]

QUICK SETUP – CONNECTION TYPE

This window allows you to select the appropriate connection type. The choices include PPP over ATM (PPPoA), PPP over Ethernet (PPPoE), MAC Encapsulation Routing (MER), IP over ATM (IPoA), 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.

Connection Type

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

○ PPP over ATM (PPPoA)

○ PPP over Ethernet (PPPoE)

○ MAC Encapsulation Routing (MER)

○ IP over ATM (IPoA)

⊙ Bridging

Encapsulation Mode

LLC/SNAP-BRIDGING ▼

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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.

Unselect the check box below to disable this WAN service

Enable Bridge Service: ☑

Service Name: br_0_0_35

Back Next

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.

Device Setup

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

IP Address: 192.168.1.1

Subnet Mask: 255.255.255.0

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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.

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

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 – PPPoA

Click the PPP over ATM (PPPoA) 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 ATM (PPPoA)
- ◯ PPP over Ethernet (PPPoE)
- ◯ MAC Encapsulation Routing (MER)
- ◯ IP over ATM (IPoA)
- ◯ Bridging

Encapsulation Mode

VC/MUX

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QUICK SETUP – PPPoA

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.

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:

Authentication Method: AUTO

- ☐ Dial on demand (with idle timeout timer)

MTU [1000~1500]: 1492

- ☐ PPP IP extension
- ☐ Use Static IP Address
- ☑ Retry PPP password on authentication error
- ☐ Enable PPP Debug Mode
- ☑ Enable KeepAlive
- ☐ Bridge PPPoE Frames Between WAN and Local Ports (Default Disable)

[Back] [Next]

QUICK SETUP - PPPoA

This window allows you to enable IGMP multicasting and WAN service. Most users will want to leave the MTU value at the default setting unless your ISP advises you to change it. 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   pppoa_0_0_35_1

Back Next

QUICK SETUP - PPPoA

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.

Device Setup

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

IP Address: 192.168.1.1

Subnet Mask: 255.255.255.0

○ Disable DHCP Server
◉ Enable DHCP Server

Start IP Address: 192.168.1.2

End IP Address: 192.168.1.254

Subnet Mask: 255.255.255.0

Leased Time (hour): 24

☐ Configure the second IP Address and Subnet Mask for LAN interface

Back Next

QUICK SETUP – PPPoA

This summary window allows you to confirm the settings you have just made. Click the **Save/Reboot** button to save your new PPP over ATM 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:	PPPoA
Service Name:	pppoa_0_0_35_1
Service Category:	UBR
IP Address:	Automatically Assigned
Service State:	Enabled
NAT:	Enabled
Firewall:	Enabled
IGMP Multicast:	Disabled
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.

Connection Type

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

○ PPP over ATM (PPPoA)

◉ PPP over Ethernet (PPPoE)

○ MAC Encapsulation Routing (MER)

○ IP over ATM (IPoA)

○ Bridging

Encapsulation Mode
LLC/SNAP-BRIDGING

Back Next

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.

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: AUTO

☐ Dial on demand (with idle timeout timer)

MTU [1000-1500]: 1492

☐ PPP IP extension

☐ Use Static IP Address

☑ Retry PPP password on authentication error

☐ Enable PPP Debug Mode

☑ Enable KeepAlive

☐ Bridge PPPoE Frames Between WAN and Local Ports (Default Disable)

Back Next

QUICK SETUP – PPPoE
This window allows you to enable IGMP multicasting and WAN service. Most users will want to leave the MTU value at the default setting unless your ISP advises you to change it. 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   pppoe_0_0_35_1

[Back] [Next]

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.

Device Setup

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

IP Address: 192.168.1.1
Subnet Mask: 255.255.255.0

○ Disable DHCP Server
◉ Enable DHCP Server
    Start IP Address: 192.168.1.2
    End IP Address: 192.168.1.254
    Subnet Mask: 255.255.255.0
    Leased Time (hour): 24

☐ Configure the second IP Address and Subnet Mask for LAN interface

[Back] [Next]

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_1
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 ATM (PPPoA)

○ PPP over Ethernet (PPPoE)

◉ MAC Encapsulation Routing (MER)

○ IP over ATM (IPoA)

○ 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.
Notice: DHCP can be enabled for PVC 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 effects the whole system. Configuring them with static values will disable the automatic assignment from DHCP or other WAN connection.
If you configure static default gateway over this PVC in MER 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: mer_0_0_35/

◉ 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.

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: mer_0_0_35

[Back] [Next]

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.

Device Setup

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

IP Address: 192.168.1.1
Subnet Mask: 255.255.255.0

○ Disable DHCP Server
◉ Enable DHCP Server
Start IP Address: 192.168.1.2
End IP Address: 192.168.1.254
Subnet Mask: 255.255.255.0
Leased Time (hour): 24

☐ Configure the second IP Address and Subnet Mask for LAN interface

[Back] [Next]

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

QUICK SETUP – IPoA

Click the IP over ATM (IPoA) 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 ATM (PPPoA)

○ PPP over Ethernet (PPPoE)

○ MAC Encapsulation Routing (MER)

◉ IP over ATM (IPoA)

○ Bridging

Encapsulation Mode

LLC/SNAP-ROUTING ▾

[Back] [Next]

QUICK SETUP – IPoA

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.

Notice: DHCP is not supported in IPoA mode. Changing the default gateway or the DNS effects the whole system. Configuring them with static values will disable the automatic assignment from other WAN connection.

WAN IP Address: 192.168.1.1
WAN Subnet Mask: 255.255.255.0

☐ Use the following default gateway:
  ☐ Use IP Address:
  ☐ Use WAN Interface: ipoa_0_0_35/ipa_0_0_35 ▾

☐ Use the following DNS server addresses:
Primary DNS server:
Secondary DNS server:

[Back] [Next]

QUICK SETUP – IPoA

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.

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: ipoa_0_0_35

[Back] [Next]

QUICK SETUP – IPoA

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.

Device Setup

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

IP Address: 192.168.1.1

Subnet Mask: 255.255.255.0

○ Disable DHCP Server

◉ Enable DHCP Server

Start IP Address: 192.168.1.2

End IP Address: 192.168.1.254

Subnet Mask: 255.255.255.0

Leased Time (hour): 24

☐ Configure the second IP Address and Subnet Mask for LAN interface

[Back] [Next]

QUICK SETUP – IPoA
This summary window allows you to confirm the settings you have just made. Click the **Save/Reboot** button to save your new IP over ATM 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:	IPoA
Service Name:	ipoa_0_0_35
Service Category:	UBR
IP Address:	192.168.1.1
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 include the more advanced features used for network management and security as well as administrative tools to manage the Router, view status and other information used to examine performance and for troubleshooting.

WAN

To access the **Wide Area Network (WAN) Setup** window, click the **WAN** button 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 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.

This window allows you to select the appropriate connection type. The choices include PPP over ATM (PPPoA), PPP over Ethernet (PPPoE), MAC Encapsulation Routing (MER), IP over ATM (IPoA), 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 five connection types available on the Router, please go to the Quick Setup section earlier in this manual as all of the windows are identical.

Connection Type

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

○ PPP over ATM (PPPoA)

○ PPP over Ethernet (PPPoE)

○ MAC Encapsulation Routing (MER)

○ IP over ATM (IPoA)

⦿ Bridging

Encapsulation Mode
LLC/SNAP-BRIDGING ▾

Back Next

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 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** button 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.

NAT

To access the **Network Address Translation (NAT) Setup** window, click the **NAT** button in the **Advanced Setup** directory. The **NAT** button appears when configuring WAN interface in PPPoA, PPPoE, MER or IPoA.

Virtual Servers

This window is used to configure virtual server. You can add, delete, and modify virtual server on this window.

If you are setting up the virtual server, click the **Add** button.

NAT -- Virtual Servers Setup

Virtual Server allows you to direct incoming traffic from WAN side (identified by Protocol and External port) to the Internal 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 32 entries can be configured.

Add   Remove

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

You can configure the service settings on this window by clicking the **Select a Service** radio button and then using the drop-down list to choose an existing service, or by clicking the **Custom Server** radio button and entering your own Application Rule in the field provided.

Click **Save/Apply** when you are finished with the virtual server configuration.

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: Select One
○ Custom Server:

Server IP Address: 192.168.1.

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			
		TCP			
		TCP			

Save/Apply

Port Triggering

Some applications such as games, video conferencing, remote access applications and others require that specific ports in the Router's firewall be opened for access by the applications. You can configure the port settings from this screen by selecting an existing application or creating your own (Custom application).

Click the **Add** button to configure port triggering.

NAT -- Port Triggering Setup

Some applications require that specific ports in the Router's firewall be opened for access by the remote parties. Port Trigger dynamically opens up the 'Open Ports' in the firewall when an application on the LAN initiates a TCP/UDP connection to a remote party using the 'Triggering Ports'. The Router allows the remote party from the WAN side to establish new connections back to the application on the LAN side using the 'Open Ports'. A maximum 32 entries can be configured.

Add   Remove

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

You can configure the port settings on this window by clicking the **Select an application** radio button and then using the drop-down list to choose an existing application, or by clicking the **Custom application** radio button and entering your own Application Rule in the field provided.

Click **Save/Apply** when you are finished with the port setting configuration. The new Application Rule will appear in the Port Triggering table.

NAT -- Port Triggering

Some applications such as games, video conferencing, remote access applications and others require that specific ports in the Router's firewall be opened for access by the applications. You can configure the port settings from this screen by selecting an existing application or creating your own (Custom application)and click "Save/Apply" to add it.
Remaining number of entries that can be configured:32

Application Name:
○ Select an application: Select One
○ Custom application:

Save/Apply

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

Save/Apply

DMZ Host

Since some applications are not compatible with NAT, the Router supports use of a DMZ IP address for a single host on the LAN. This IP address is not protected by NAT and will therefore be visible to agents on the Internet with the right type of software. Keep in mind that any client PC in the DMZ will be exposed to various types of security risks. If you use the DMZ, take measures (such as client-based virus protection) to protect the remaining client PCs on your LAN from possible contamination through the DMZ.

To designate a DMZ IP address, type in the IP Address of the server or device on your LAN, and click the **Save/Apply** button.

NAT -- DMZ Host

The DSL router will forward IP packets from the WAN that do not belong to any of the applications configured in the Virtual Servers table to the DMZ host computer.

Enter the computer's IP address and click "Apply" to activate the DMZ host.

Clear the IP address field and click "Apply" to deactivate the DMZ host.

DMZ Host IP Address:

Save/Apply

Security

To access the **Security** window, click the **Security** button in the **Advanced Setup** directory. The **Security** button appears after configuring WAN interface in PPPoA, PPPoE, MER or IPoA.

IP Filtering

The **IP Filtering** button appears when configuring WAN interface in PPPoA, PPPoE, MER or IPoA.

IP Filtering - Outgoing

This window allows you to create a filter rule of **Outgoing**.

Click **change default policy** to change the mode of policy.

Now default policy is **ACCEPT**, it means all outgoing IP traffic from LAN is allowed, but some IP traffic can be Blocked by setting up filters.

If you are setting up the outgoing IP filtering, click the **Add** button.

Now default policy is **BLOCK**, it means all outgoing IP traffic from LAN is blocked, but some IP traffic can be accepted by setting up filters.

If you are setting up the outgoing IP filtering, 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.

Add IP Filter -- Outgoing

The screen allows you to create a filter rule to identify outgoing IP traffic by specifying a new filter name and at least one condition below. All of the specified conditions in this filter rule must be satisfied for the rule to take effect. Click 'Save/Apply' to save and activate the filter.

Filter Name:

Protocol: ALL

Source IP address:

Source Subnet Mask(or end ip address):

Source Port (port or port:port):

Destination IP address:

Destination Subnet Mask(or end ip address):

Destination Port (port or port:port):

Save/Apply

Filters Parameter	Description	
Filter Name	Enter a name for the new filter.	
Protocol	Select the transport protocol (Any, TCP/UDP, TCP, UDP or ICMP) that will be used for the filter rule.	
Select IP Range by	Select either **IP address** or **Netmask** to show different items.	
	Source IP Address	Enter the start and end IP address for the range of IP addresses which you are creating the filter rule.
	Source IP Address & Source Subnet Mask	This is the IP address and their associated subnets for which you are creating the filter rule.
Source 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 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

This window allows you to create a filter rule of **Incoming**.

Click **change default policy** to change the mode of policy.

Now default policy is **ACCEPT**, it means all incoming IP traffic from WAN is accepted, but some IP traffic can be blocked by setting up filters.

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

Now default policy is **BLOCK**, it means all incoming IP traffic from WAN is blocked, but some IP traffic can be accepted by setting up filters.

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

Incoming IP Filtering Setup

Choose Add or Remove to configure incoming IP filters.

Now default policy is ACCEPT

change default policy

Filter Name	VPI/VCI	Protocol	Source Address / Mask	Source Port	Dest. Address / Mask	Dest. Port	Remove

Add   Remove

Incoming IP Filtering Setup

Choose Add or Remove to configure incoming IP filters.

Now default policy is BLOCK

change default policy

Filter Name	VPI/VCI	Protocol	Source Address / Mask	Source Port	Dest. Address / Mask	Dest. Port	Remove

Add   Remove

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.

Add IP Filter -- Incoming

The screen allows you to create a filter rule to identify incoming IP traffic by specifying a new filter name and at least one condition below. All of the specified conditions in this filter rule must be satisfied for the rule to take effect. Click 'Save/Apply' to save and activate the filter.

Filter Name:

Protocol: ALL

Source IP address:

Source Subnet Mask(or end ip address):

Source Port (port or port:port):

Destination IP address:

Destination Subnet Mask(or end ip address):

Destination Port (port or port:port):

WAN Interfaces (Configured in Routing mode and with firewall enabled only)
Select at least one or multiple WAN interfaces displayed below to apply this rule.

☑ Select All
☑ pppoa_0_0_35_1/ppp_0_0_35_1

Save/Apply

Filters Parameter	Description	
Filter Name	Enter a name for the new filter.	
Protocol	Select the transport protocol (Any, TCP/UDP, TCP, UDP or ICMP) that will be used for the filter rule.	
Select IP Range by	Select either **IP address** or **Netmask** to show different items.	
	Source IP Address	Enter the start and end IP address for the range of IP addresses which you are creating the filter rule.
	Source IP Address & Source Subnet Mask	This is the IP address and their associated subnets for which you are creating the filter rule.
Source 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 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.	

Parental Control

Use this window to deny access to specified MAC address.

If you are setting up the MAC address blocking, click the **Add** button.

Time of Day Restrictions -- A maximum 16 entries can be configured.

Username	MAC	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Start	Stop	Remove

Add Remove

MAC address is a specially formatted text string (xx:xx:xx:xx:xx:xx) that uniquely identification of a device. This section will allow users to block devices with certain MAC addresses on the LAN.

To configure for MAC address blocking, enter the username into the **Username** field, click **Browser's MAC Address** to have MAC address of the LAN device, or click **Other MAC Address** and enter a MAC address manually. Tick the checkboxes for the desired individual days of the week and enter desired **Start Blocking Time** and **End Blocking Time**.

Click the **Save/Apply** button to save the configuration

Time of Day Restriction

This page adds time of day restriction to a special LAN device connected to the Router. The 'Browser's MAC Address' automatically displays the MAC address of the LAN device where the browser is running. To restrict other LAN device, click the "Other MAC Address" button and enter the MAC address of the other LAN device. To find out the MAC address of a Windows based PC, go to command window and type "ipconfig /all".

User Name

⦿ Browser's MAC Address   00:0C:6E:AA:B9:C0
◯ Other MAC Address
(xx:xx:xx:xx:xx:xx)

Days of the week	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Click to select	☐	☐	☐	☐	☐	☐	☐

Start Blocking Time (hh:mm)
End Blocking Time (hh:mm)

Save/Apply

URL Filter

This window allows you to set up **URL Filter** on the Router.

Choose URL List Type **Exclude** or **Include** first and click **Add** button.

URL Filter -- A maximum 100 entries can be configured.

URL List Type: ◯ Exclude ⦿ Include

Address	Port	Remove

Add   Remove

Enter the URL address and port number then click **Save/Apply** to add the entry to the URL filter.

Parental Control -- URL Filter Add

Enter the URL address and port number then click "Save/Apply" to add the entry to the URL filter.

URL Address:

Port Number: (Default 80 will be applied if leave blank.)

Save/Apply

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** button 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

Click the **Add** button to add a 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

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

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.

Routing

To access the **Routing** windows, click the **Routing** button in the **Advanced Setup** directory.

Default Gateway

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).
If this checkbox is not ticked, enter the static default gateway and/or a WAN interface. Click the **Save/Apply** button when you are finished.

Routing -- Default Gateway

If Enable Automatic Assigned Default Gateway checkbox is selected, this router will accept the first received default gateway assignment from one of the PPPoA, PPPoE or MER/DHCP enabled PVC(s). If the checkbox is not selected, enter the static default gateway AND/OR a WAN interface. Click 'Save/Apply' button to save it.

NOTE: If changing the Automatic Assigned Default Gateway from unselected to selected, You must reboot the router to get the automatic assigned default gateway.

☑ Enable Automatic Assigned Default Gateway

☐ Use PPTP Connection as Default Gateway

Save/Apply

Static Route

Click the **Add** button on the **Routing – Static Route** window to access the following window displayed on the next page.

Routing -- Static Route (A maximum 32 entries can be configured)

Destination	Subnet Mask	Gateway	Interface	Remove

Add   Remove

Enter the static routing information for an entry to the routing table.

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

Save/Apply

DSL

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

This window allows you to select the desired modulation, phone line pair, and capability. Click the **Save/Apply** button when you are finished.

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

DSL Settings

Select the modulation below.

☑ G.Dmt Enabled

☑ G.lite Enabled

☑ T1.413 Enabled

☑ ADSL2 Enabled

☑ AnnexL Enabled

☑ ADSL2+ Enabled

☐ AnnexM Enabled

Select the phone line pair below.

⦿ Inner pair

◯ Outer pair

Capability

☑ Bitswap Enable

☐ SRA Enable

[Save/Apply]   [Advanced Settings]

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

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

DSL Advanced Settings

Select the test mode below.

- ⦿ Normal
- ○ Reverb
- ○ Medley
- ○ No retrain
- ○ L3

[Apply] [Tone Selection]

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

☑0 ☑1 ☑2 ☑3 ☑4 ☑5 ☑6 ☑7 ☑8 ☑9 ☑10 ☑11 ☑12 ☑13 ☑14 ☑15
☑16 ☑17 ☑18 ☑19 ☑20 ☑21 ☑22 ☑23 ☑24 ☑25 ☑26 ☑27 ☑28 ☑29 ☑30 ☑31

Downstream Tones

☑32 ☑33 ☑34 ☑35 ☑36 ☑37 ☑38 ☑39 ☑40 ☑41 ☑42 ☑43 ☑44 ☑45 ☑46 ☑47
☑48 ☑49 ☑50 ☑51 ☑52 ☑53 ☑54 ☑55 ☑56 ☑57 ☑58 ☑59 ☑60 ☑61 ☑62 ☑63
☑64 ☑65 ☑66 ☑67 ☑68 ☑69 ☑70 ☑71 ☑72 ☑73 ☑74 ☑75 ☑76 ☑77 ☑78 ☑79
☑80 ☑81 ☑82 ☑83 ☑84 ☑85 ☑86 ☑87 ☑88 ☑89 ☑90 ☑91 ☑92 ☑93 ☑94 ☑95
☑96 ☑97 ☑98 ☑99 ☑100 ☑101 ☑102 ☑103 ☑104 ☑105 ☑106 ☑107 ☑108 ☑109 ☑110 ☑111
☑112 ☑113 ☑114 ☑115 ☑116 ☑117 ☑118 ☑119 ☑120 ☑121 ☑122 ☑123 ☑124 ☑125 ☑126 ☑127
☑128 ☑129 ☑130 ☑131 ☑132 ☑133 ☑134 ☑135 ☑136 ☑137 ☑138 ☑139 ☑140 ☑141 ☑142 ☑143
☑144 ☑145 ☑146 ☑147 ☑148 ☑149 ☑150 ☑151 ☑152 ☑153 ☑154 ☑155 ☑156 ☑157 ☑158 ☑159
☑160 ☑161 ☑162 ☑163 ☑164 ☑165 ☑166 ☑167 ☑168 ☑169 ☑170 ☑171 ☑172 ☑173 ☑174 ☑175
☑176 ☑177 ☑178 ☑179 ☑180 ☑181 ☑182 ☑183 ☑184 ☑185 ☑186 ☑187 ☑188 ☑189 ☑190 ☑191
☑192 ☑193 ☑194 ☑195 ☑196 ☑197 ☑198 ☑199 ☑200 ☑201 ☑202 ☑203 ☑204 ☑205 ☑206 ☑207
☑208 ☑209 ☑210 ☑211 ☑212 ☑213 ☑214 ☑215 ☑216 ☑217 ☑218 ☑219 ☑220 ☑221 ☑222 ☑223
☑224 ☑225 ☑226 ☑227 ☑228 ☑229 ☑230 ☑231 ☑232 ☑233 ☑234 ☑235 ☑236 ☑237 ☑238 ☑239
☑240 ☑241 ☑242 ☑243 ☑244 ☑245 ☑246 ☑247 ☑248 ☑249 ☑250 ☑251 ☑252 ☑253 ☑254 ☑255

[Check All] [Clear All] [Apply] [Close]

PPTP

To access the **PPTP Setting** window, click the **PPTP** button in the **Advanced Setup** directory.

To set up Point-to-Point Tunnel Protocol, tick the Enable check box, enter the appropriate information in the fields offered, and then click the **Save/Apply** button when you are finished.

PPTP Setting

Set Point to Point Tunnel Protocol (VPN)

Enable	☐
Tunnel Name	
PPTP Server IP Address	0.0.0.0
User Name	
Password	
Default Route	☐
Peer IP Address	0.0.0.0
Peer Subnet Mask	0.0.0.0

Save/Apply

Interface Group

Interface Group supports multiple ports to PVC and bridging groups. Each group will perform as an independent network.

To support this feature, you must create mapping groups with appropriate LAN and WAN interfaces using the Add button. The Remove button will remove the grouping and add the ungrouped interfaces to the Default group. Only the default group has IP interface.

Choose **Enable virtual ports on eth0** button and click **Add** to do advanced settings.

Interface Group -- A maximum 16 entries can be configured

Interface Group supports multiple ports to PVC and bridging groups. Each group will perform as an independent network. To support this feature, you must create mapping groups with appropriate LAN and WAN interfaces using the Add button. The Remove button will remove the grouping and add the ungrouped interfaces to the Default group. Only the default group has IP interface.

☐ Enable virtual ports on eth0

Group Name	Remove	Edit	Interfaces
Default			eth0

Add   Save/Apply

This window allows you to create a new interface group.

Interface Group Configuration

To create a new interface group:
1. Enter the Group name and select interfaces from the available interface list and add it to the grouped interface list using the arrow buttons to create the required mapping of the ports. The group name must be unique.

2. If you like to automatically add LAN clients to a PVC in the new group add the DHCP vendor ID string. By configuring a DHCP vendor ID string any DHCP c request with the specified vendor ID (DHCP option 60) will be denied an IP address from the local DHCP server.
Note that these clients may obtain public IP addresses

3. Click Save/Apply button to make the changes effective immediately

Note that the selected interfaces will be removed from their existing groups and added to the new group.

IMPORTANT If a vendor ID is configured for a specific client device, please REBOOT the client device attached to the modem to allow it to ob an appropriate IP address.

Group Name: [ ]

Grouped Interfaces   Available Interfaces

[   ]   ->   [eth0   ]
[   ]   <-   [   ]

Automatically Add
Clients With the
following DHCP Vendor
IDs

[   ]
[   ]
[   ]
[   ]
[   ]

[Save/Apply]

Diagnostics

Your modem is capable of testing your DSL connection with access to **Diagnostics.**

This window is used to test connectivity of the Router.

Diagnostics

Your modem is capable of testing your DSL connection. The individual tests are listed below. If a test displays a fail status, click "Rerun Diagnostic Tests" at the bottom of this page to make sure the fail status is consistent. If the test continues to fail, click "Help" and follow the troubleshooting procedures.

Test the connection to your local network

Test your ENET(1-3) Connection:	FAIL
Test your ENET4 Connection:	PASS

Test the connection to your DSL service provider

Test ADSL Synchronization:	FAIL

Rerun Diagnostic Tests

Management

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

Settings

To access the **Settings - Backup** window, click the **Settings** button in the **Management** directory.

This window allows you to backup your DSL Router configurations.

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

Settings - Backup

Backup DSL router configurations. You may save your router configurations to a file on your PC.

[Backup Settings]

This window allows Update DSL router settings. You may update your router settings using your saved files.

Click the **Update Settings** button to update your Router configurations with a file on your computer.

Tools -- Update Settings

Update DSL router settings. You may update your router settings using your saved files.

Settings File Name: [   ] [浏览...]

[Update Settings]

This window allows Restore DSL router settings to the factory defaults.

Click the **Restore DSL Settings** button to restore DSL router settings to the factory defaults.

Tools -- Restore Default Settings

Restore DSL router settings to the factory defaults.

[Restore 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.

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 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.

SNMP Agent

To access the **SNMP – Configuration** window, click the **SNMP Agent** button in the **Management** directory.

Simple Network Management Protocol allows a management application to retrieve statistics and status from the SNMP agent in the Router. When you are finished, click the **Save/Apply** button.

SNMP - Configuration

Simple Network Management Protocol (SNMP) allows a management application to retrieve statistics and status from the SNMP agent in this device.

Select the desired values and click "Apply" to configure the SNMP options.

SNMP Agent   ⦿ Disable ○ Enable

Read Community:	public
Set Community:	private
System Name:	Broadcom
System Location:	unknown
System Contact:	unknown
Trap Manager IP:	0.0.0.0

Save/Apply

Access Control

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

Services

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

Access Control -- Services

A Service Control List ("SCL") enables or disables services from being used.

Services	LAN
FTP	☑ Enable
HTTP	☑ Enable
ICMP	Enable
SNMP	☑ Enable
TELNET	☑ Enable
TFTP	☑ Enable

Save/Apply

IP Address

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

Access Control -- IP Address

The IP Address Access Control mode, if enabled, permits access to local management services from IP addresses contained in the Access Control List. If the Access Control mode is disabled, the system will not validate IP addresses for incoming packets. The services are the system applications listed in the Service Control List

Access Control Mode: ⊙ Disable ○ Enable

IP Address	Remove

[Add] [Remove]

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

Access Control

Enter the IP address of the management station permitted to access the local management services, and click 'Save/Apply.'

IP Address: [_____]

[Save/Apply]

Passwords

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

Access Control -- Passwords

Access to your DSL router is controlled through three user accounts: admin, support, and user.

The user name "admin" has unrestricted access to change and view configuration of your DSL Router.

The user name "support" is used to allow an ISP technician to access your DSL Router for maintenance and to run diagnostics.

The user name "user" can access the DSL Router, view configuration settings and statistics, as well as, update the router's software.

Use the fields below to enter up to 16 characters and click "Apply" to change or create passwords. Note: Password cannot contain a space.

Username: [_____ ▼]
Old Password: [_____]
New Password: [_____]
Confirm Password: [_____]

[Save/Apply]

Update Software

To access the **Tools - Update Software** window, click the **Update Software** button in the **Management** directory.
This window allows you to update the Router's software.

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: [_____] [Browse...]

[Update Software]

Save/Reboot

To access this window, click the **Save/Reboot** button 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.

[Save/Reboot]

Troubleshooting

This chapter provides solutions to problems that might occur during the installation and operation of the DSL-2540U. 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-2540U 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 30~60 seconds.

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 installation CD?

- Ensure the Router is powered on.
- Check that all the cables are firmly connected at both ends and all LEDs work correctly.
- Ensure only one network interface card on your PC is activated.
- Click on **Start** > **Control Panel** > **Security Center** to disable the setting of **Firewall**.
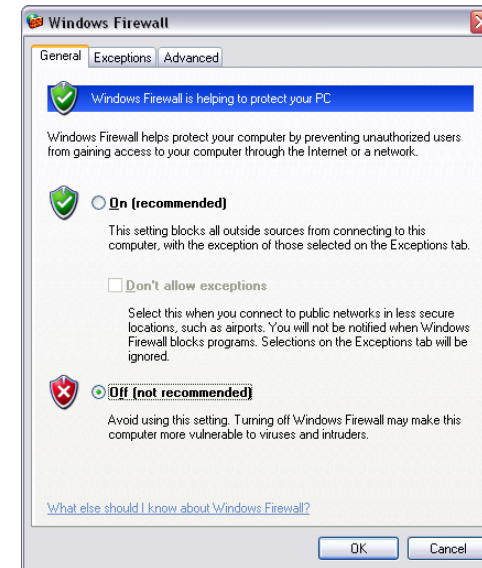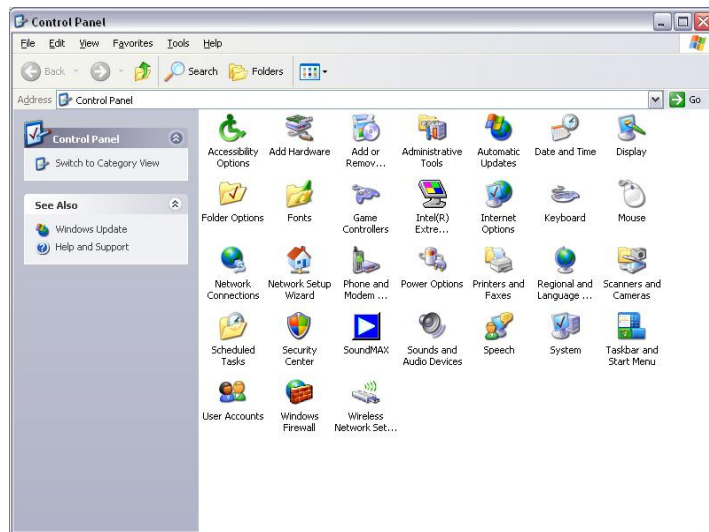
Note: There might be a potential security issue if you disable the setting of Firewall on your PC. Please remember to turn it back on once you have finished the whole installation procedure and can surf on Internet without any problem.

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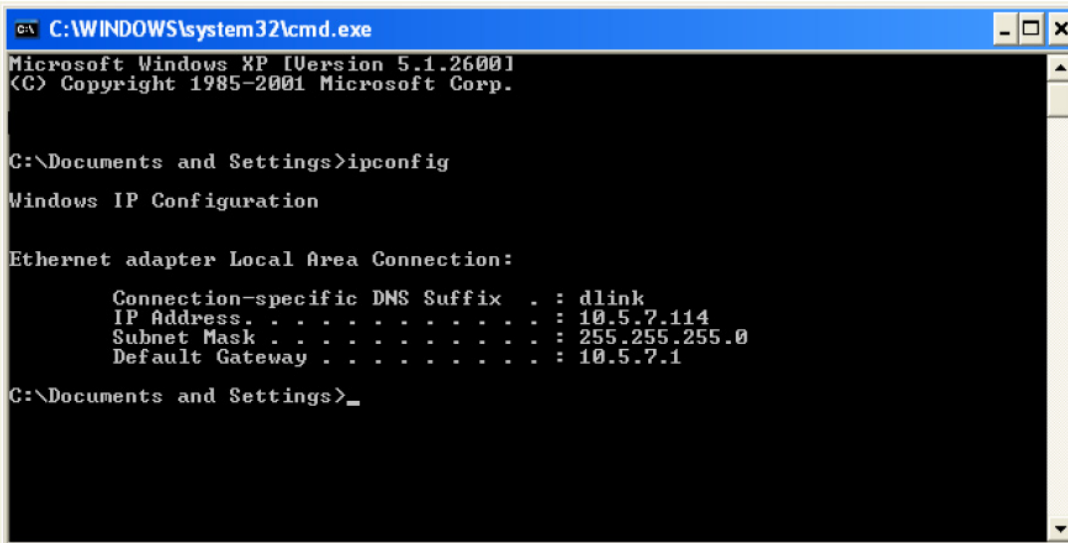
Click on **Start** > **Run**. In the run box type *cmd* and click on the **OK**.

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.

Statically Assign an IP Address

If your DHCP is disabled, 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 99. Make sure that the number you choose is not in use on the network. Set Default Gateway the same as the LAN IP address of your router (192.168.1.1).

Set Primary DNS 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** twice to save your settings.
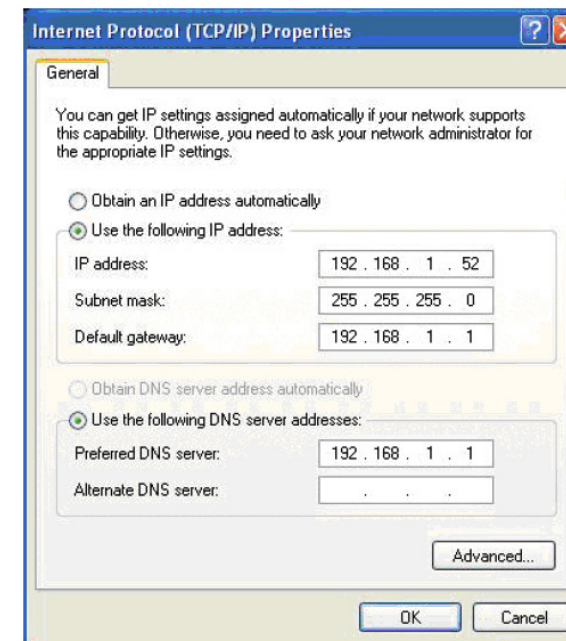
Technical Specification

ADSL Standards

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

ADSL2 Standards

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

ADSL2+ Standards

- ITU G.992.5 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 1 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

Certification:

- This device complies with Part15 of the FCC Rules. Operation is subject to the following conditions:
  (1) This device may not cause harmful interference, and
  (2) This device must accept any interference received, including interference that may cause undesired operation