

Table of Contents

TABLE OF CONTENTS.....	1	<i>MAC Filtering.....</i>	<i>56</i>
PACKAGE CONTENTS	2	<i>Parental Control.....</i>	<i>57</i>
SYSTEM REQUIREMENTS	2	QUALITY OF SERVICE.....	59
FEATURES	3	<i>Queue Config.....</i>	<i>60</i>
HARDWARE OVERVIEW.....	4	<i>QoS Classification</i>	<i>61</i>
<i>Connections</i>	<i>4</i>	<i>QoS Downstream</i>	<i>63</i>
<i>LEDs.....</i>	<i>5</i>	ROUTING	64
INSTALLATION	6	<i>Default Gateway.....</i>	<i>64</i>
BEFORE YOU BEGIN.....	6	<i>Static Route</i>	<i>64</i>
INSTALLATION NOTES	7	DNS.....	65
DEVICE INSTALLATION	13	<i>DNS Server.....</i>	<i>65</i>
<i>Power on Router</i>	<i>13</i>	<i>Dynamic DNS</i>	<i>66</i>
<i>Factory Reset Button.....</i>	<i>14</i>	DSL	67
<i>Network Connections</i>	<i>14</i>	PORT MAPPING	69
CONFIGURATION	16	PPTP.....	71
WEB-BASED CONFIGURATION UTILITY	16	WIRELESS.....	72
QUICK SETUP	17	DIAGNOSTICS	75
DEVICE INFO	40	MANAGEMENT	76
SUMMARY.....	41	SETTINGS	76
WAN.....	41	SYSTEM LOG.....	78
STATISTICS	42	SNMP AGENT.....	79
ROUTE	44	INTERNET TIME.....	79
ARP	44	ACCESS CONTROL	80
DHCP.....	44	UPDATE SOFTWARE.....	81
ADVANCED SETUP	45	SAVE/REBOOT.....	82
WAN.....	45	TROUBLESHOOTING.....	83
LAN.....	48	NETWORKING BASICS.....	85
NAT	49	CHECK YOUR IP ADDRESS.....	85
<i>Virtual Servers.....</i>	<i>49</i>	STATICALLY ASSIGN AN IP ADDRESS	86
<i>Port Triggering.....</i>	<i>51</i>	TECHNICAL SPECIFICATIONS.....	87
<i>DMZ Host</i>	<i>53</i>		
SECURITY.....	53		
<i>IP Filtering.....</i>	<i>53</i>		

Package Contents

- DSL-2642B Wireless 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-2642B will cause damage and void the warranty for this product.



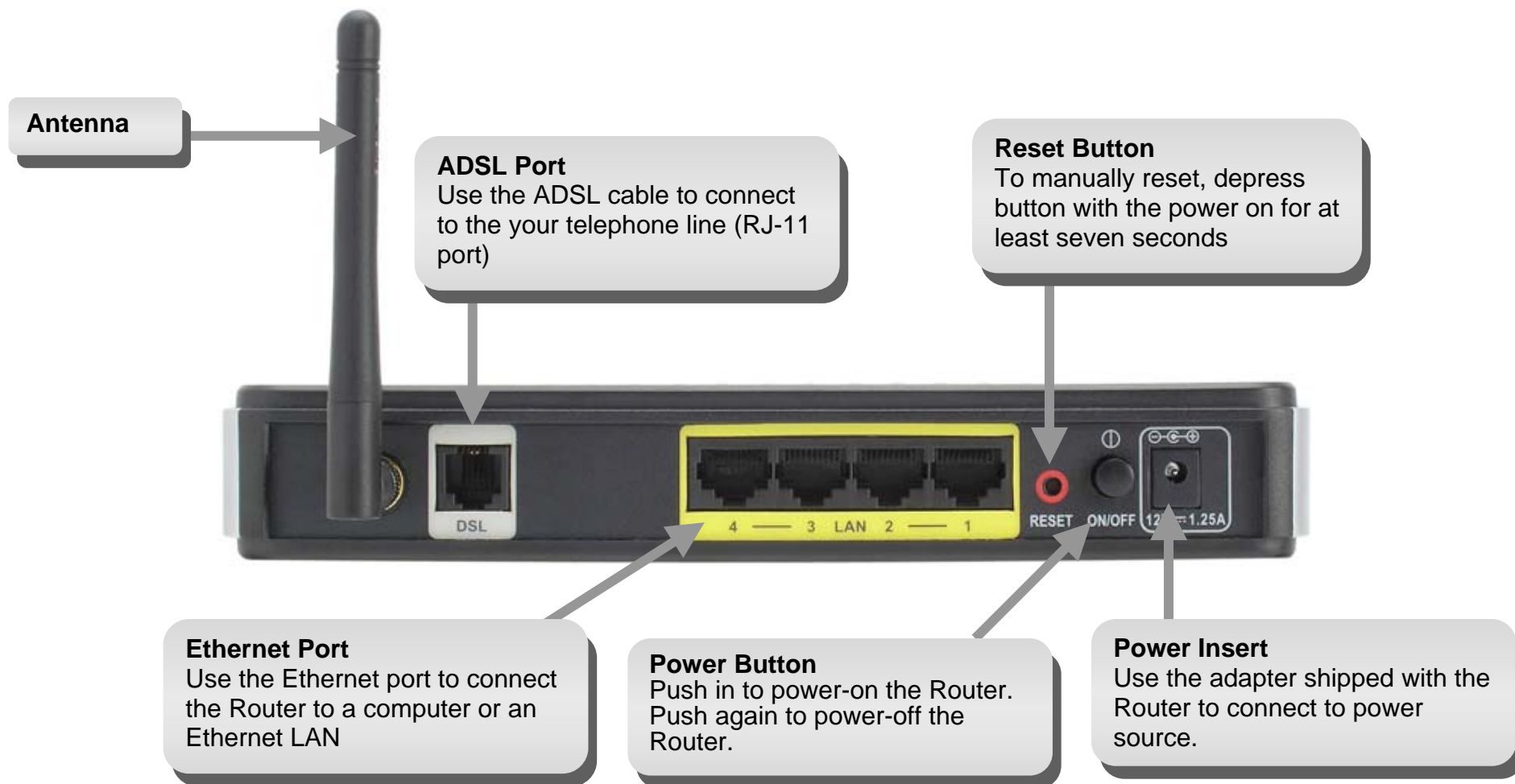
System Requirements

- 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-2642B 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-2642B 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-2642B 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-2642B 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-2642B 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 using the G.dmt standard.
- **Full Network Management** – The DSL-2642B 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-2642B 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



Hardware Overview

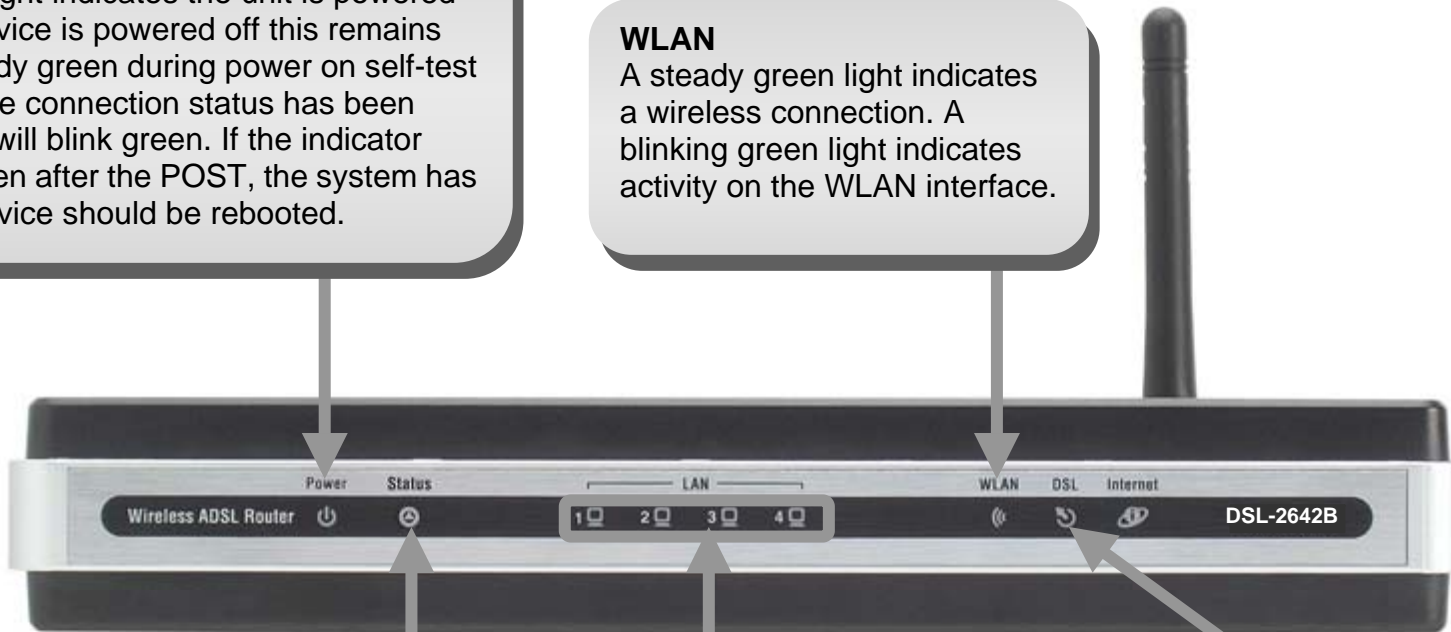
LEDs

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 the indicator lights steady green after the POST, the system has failed and the device should be rebooted.

WLAN

A steady green light indicates a wireless connection. A blinking green light indicates activity on the WLAN 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.

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.

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-2642B 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-2642B

Username

This is the Username needed 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-2642B

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-2642B

This is the subnet mask used by the DSL-2642B, 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-2642B to this Ethernet port using an Ethernet cable. You can also use the Ethernet ports on the DSL-2642B to connect to other computer or Ethernet devices.

DHCP Client status

Your DSL-2642B 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-2642B 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-2642B ADSL Router.

Device Installation

The DSL-2642B 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. 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 LAN 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.

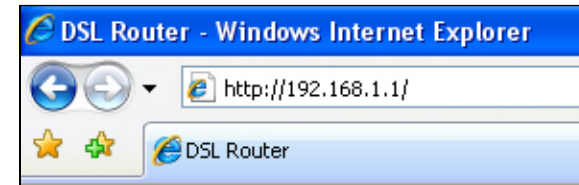
Web-based Configuration Utility

Connect to the Router

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.



Quick Setup

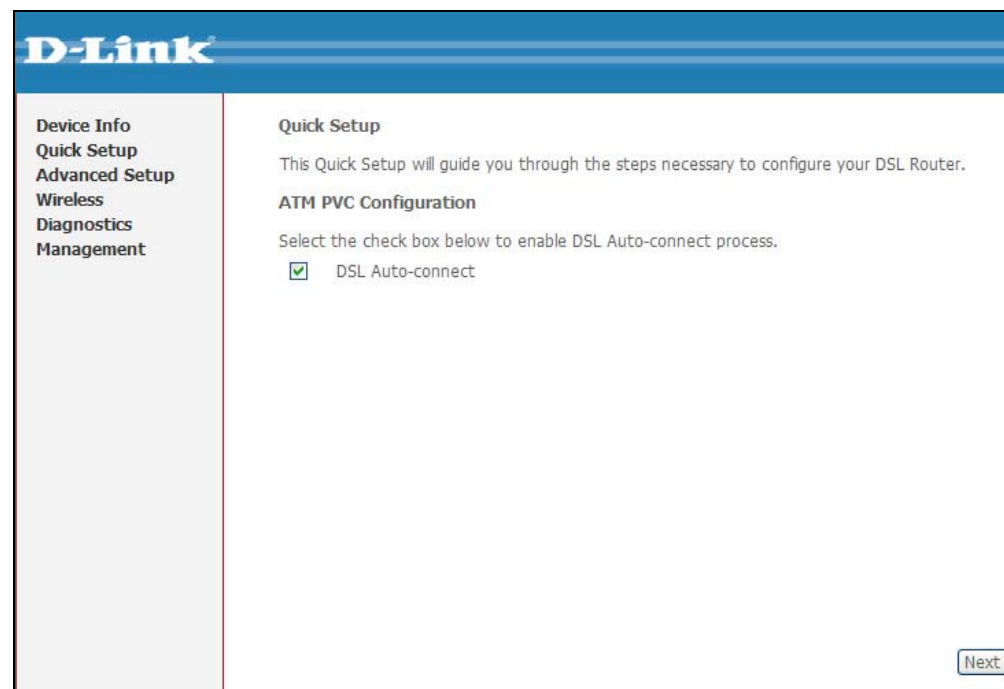
This chapter is concerned with using your computer to configure the WAN connection. The following chapter describes the various windows used to configure and monitor the Router including how to change IP settings and DHCP server setup.

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, deselect 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]

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 priorities for the applications.

Enable Quality Of Service

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 ▾

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.

Unselect the check box below to disable this WAN service

Enable Bridge Service:

Service Name:

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:

Subnet Mask:

QUICK SETUP – BRIDGING

This window allows you to configure Wireless settings of the Router. Tick **Enable Wireless** and enter SSID to enable Wireless LAN. Click the **Next** button to continue.

Wireless -- Setup

Enable Wireless

Enter the wireless network name (also known as SSID).

SSID:

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:	Disabled
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.

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

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:

Enable NAT

Enable Firewall

Obtain default gateway automatically

Use the following default gateway:

Use IP Address:

Use WAN Interface:

PPP IP extension

Advanced DMZ

Non DMZ IP Address:

Non DMZ Net Mask:

Dial on demand (with idle timeout timer)

Use Static IP Address

Retry PPP password on authentication error

Enable PPP Debug Mode

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.

Enable IGMP Multicast, and WAN Service

Enable IGMP Multicast

Enable WAN Service

Service Name

PPPoE Link Setting

MTU

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.

QUICK SETUP - PPPoA

This window allows you to configure Wireless settings of the Router. Tick **Enable Wireless** and enter SSID to enable Wireless LAN. Click the **Next** button to continue.

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

Wireless -- Setup

Enable Wireless

Enter the wireless network name (also known as SSID).

SSID:

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:	Disabled
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.

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 ▾

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**

Enable NAT

Enable Firewall

Obtain default gateway automatically

Use the following default gateway:

Use IP Address:

Use WAN Interface: **pppoe_0_0_35_1/ppp_0_0_35_1**

PPP IP extension

Advanced DMZ

Non DMZ IP Address:

Non DMZ Net Mask:

Dial on demand (with idle timeout timer)

Use Static IP Address

Retry PPP password on authentication error

Enable PPP Debug Mode

Bridge PPPoE Frames Between WAN and Local Ports (Default Enabled)

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.

Enable IGMP Multicast, and WAN Service

Enable IGMP Multicast

Enable WAN Service

Service Name

PPP Link Setting

MTU

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:

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 window allows you to configure Wireless settings of the Router. Tick **Enable Wireless** and enter SSID to enable Wireless LAN. Click the **Next** button to continue.

Wireless -- Setup

Enable Wireless

Enter the wireless network name (also known as SSID).

SSID:

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
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.

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:

Advanced DMZ

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:

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:

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.

QUICK SETUP - MER

This window allows you to configure Wireless settings of the Router. Tick **Enable Wireless** and enter SSID to enable Wireless LAN. Click the **Next** button to continue.

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

Wireless -- Setup

Enable Wireless

Enter the wireless network name (also known as SSID).

SSID:

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:	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.

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.

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.

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

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: 192.168.1.2

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:

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:

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 - IPoA

This window allows you to configure Wireless settings of the Router. Tick **Enable Wireless** and enter SSID to enable Wireless LAN. Click the **Next** button to continue.

Wireless -- Setup

Enable Wireless

Enter the wireless network name (also known as SSID).

SSID:

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

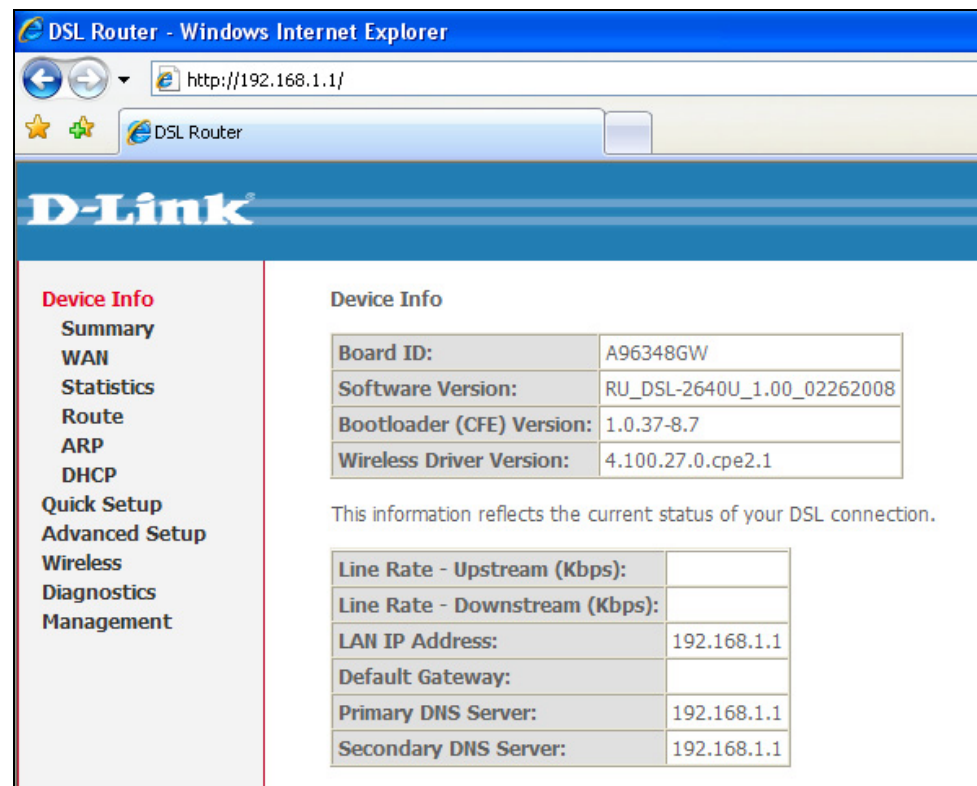
Make sure that the settings below match the settings provided by your ISP.

PORT / VPI / VCI:	0 / 0 / 35
Connection Type:	IPoA
Service Name:	ipoa_0_0_35
Service Category:	UBR
IP Address:	192.168.1.2
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.

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

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:	A96348GW
Software Version:	RJ_DSL-2640U_1.00_02262008
Bootloader (CFE) Version:	1.0.37-8.7
Wireless Driver Version:	4.100.27.0.cpe2.1

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** button in the **Device Info** directory.

This window displays the current status of your WAN connection.

WAN Info											
Port/VPI/VCI	VLAN Mux	Con. ID	Category	Service	Interface	Protocol	Igmp	QoS	State	Status	IP Address
0/0/35	Off	1	UBR	br_0_0_35	nas_0_0_35	Bridge	N/A	Disabled	Enabled	Unknown	

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	923098	7027	0	0	2623722	6839	0	0
Wireless	0	0	0	0	48863	427	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	
br_0_0_35	0/0/35	Bridge	nas_0_0_35	0	0	0	0	0	0	0	0	0

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

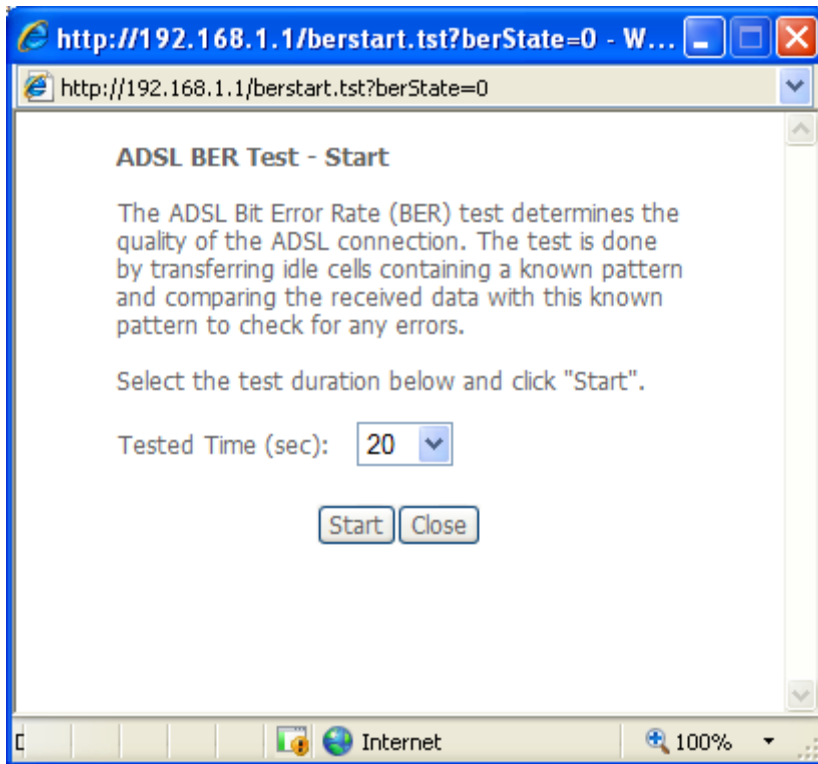
VPI/VCI	CRC Errors	SAR Timeouts	Oversized SDUs	Short Packet Errors	Length Errors

Reset

Section 3 – Configuration

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:		
<input type="button" value="ADSL BER Test"/> <input type="button" value="Reset Statistics"/>		

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
10.0.0.0	0.0.0.0	255.0.0.0	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
192.168.1.200	Complete	00:0C:6E:AA:B9:C0	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

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 status and other information used to examine performance and for troubleshooting.

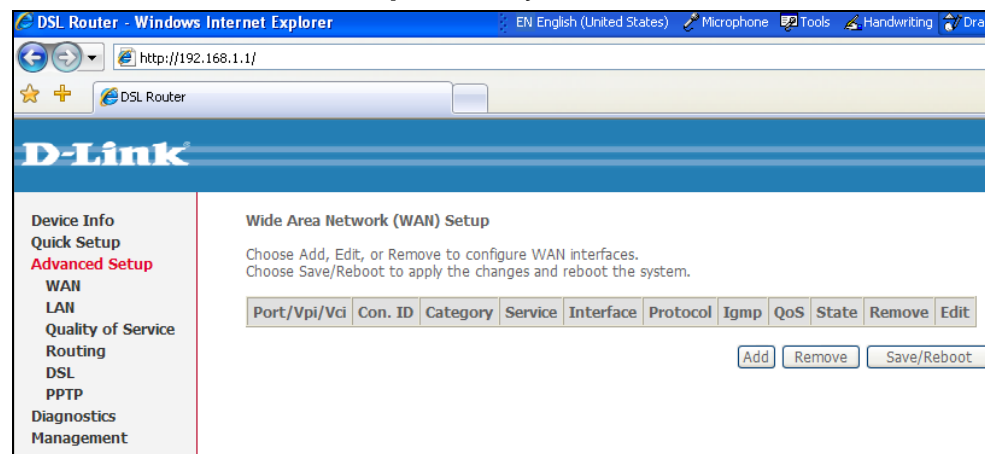
WAN

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.



Section 3 – Configuration

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.

ATM PVC Configuration
This screen allows you to configure an ATM PVC identifier (PORT and VPI and VCI) and select a service category. Otherwise choose an existing interface by selecting the checkbox to enable it.

PORT: [0-3]

VPI: [0-255]

VCI: [32-65535]

VLAN Mux - Enable Multiple Protocols Over a Single PVC

Service Category: ▼

Enable Quality Of Service

Enabling packet level QoS for a PVC improves performance for selected classes of applications. QoS cannot be set for CBR and Realtime VBR. QoS consumes system resources; therefore the number of PVCs will be reduced. Use **Advanced Setup/Quality of Service** to assign priorities for the applications.

Enable Quality Of Service

Section 3 – Configuration

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.

If the connection type of WAN interface is in Bridging, **Security IP Filtering** with the **IP Filtering** and **Parental Control** sub-menus will appear in the **Advanced Setup** directory.

If the connection type of WAN Interface is not in Bridging, **NAT** and **Security** with **MAC Filtering** and **Parental Control** will appear in the **Advanced Setup** directory.

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 ▾

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.

Local Area Network (LAN) Setup

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

IP Address:

Subnet Mask:

Enable UPnP

Enable IGMP Snooping

Standard Mode

Blocking Mode

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

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.

Server Name	External Port Start	External Port End	Protocol	Internal Port Start	Internal Port End	Server IP Address	Remove
-------------	---------------------	-------------------	----------	---------------------	-------------------	-------------------	--------

Section 3 – Configuration

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: ▼

Custom Server:

Server IP Address:

External Port Start	External Port End	Protocol	Internal Port Start	Internal Port End
<input type="text"/>	<input type="text"/>	TCP ▼	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	TCP ▼	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	TCP ▼	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	TCP ▼	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	TCP ▼	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	TCP ▼	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	TCP ▼	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	TCP ▼	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	TCP ▼	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	TCP ▼	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	TCP ▼	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	TCP ▼	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	TCP ▼	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	TCP ▼	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	TCP ▼	<input type="text"/>	<input type="text"/>

Port Triggering

Some applications require that the remote parties open specific ports in the Router's firewall for access. Port Trigger dynamically opens the Open Ports in the firewall when an application on the LAN initiates a TCP/UDP connection to a remote party using Trigger 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.

Applications such as games, video conferencing, and other remote access applications require that specific ports in the Router's firewall be opened for access by applications.

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.

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

Section 3 – Configuration

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: ▼

Custom application:

Trigger Port Start	Trigger Port End	Trigger Protocol	Open Port Start	Open Port End	Open Protocol
<input type="text"/>	<input type="text"/>	TCP ▼	<input type="text"/>	<input type="text"/>	TCP ▼
<input type="text"/>	<input type="text"/>	TCP ▼	<input type="text"/>	<input type="text"/>	TCP ▼
<input type="text"/>	<input type="text"/>	TCP ▼	<input type="text"/>	<input type="text"/>	TCP ▼
<input type="text"/>	<input type="text"/>	TCP ▼	<input type="text"/>	<input type="text"/>	TCP ▼
<input type="text"/>	<input type="text"/>	TCP ▼	<input type="text"/>	<input type="text"/>	TCP ▼
<input type="text"/>	<input type="text"/>	TCP ▼	<input type="text"/>	<input type="text"/>	TCP ▼
<input type="text"/>	<input type="text"/>	TCP ▼	<input type="text"/>	<input type="text"/>	TCP ▼
<input type="text"/>	<input type="text"/>	TCP ▼	<input type="text"/>	<input type="text"/>	TCP ▼
<input type="text"/>	<input type="text"/>	TCP ▼	<input type="text"/>	<input type="text"/>	TCP ▼

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:

Security

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

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 to block outgoing 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. 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 IP filtering, click the **Add** button.

Outgoing IP Filtering Setup

By default, all outgoing IP traffic from LAN is allowed, but some IP traffic can be **BLOCKED** by setting up filters.

Choose Add or Remove to configure outgoing IP filters.

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

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 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:

Select IP Range by:

Source Port (port or port:port):

Select IP Range by:

Destination Port (port or port:port):

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.			
	<table border="1" style="width: 100%;"> <tr> <td style="width: 30%;">Source IP Address</td> <td>Enter the start and end IP address for the range of IP addresses which you are creating the filter rule.</td> </tr> <tr> <td>Source IP Address & Source Subnet Mask</td> <td>This is the IP address and their associated subnets for which you are creating the filter rule.</td> </tr> </table>	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
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

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 **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 Inbound IP Filtering table.

Incoming IP Filtering Setup

By default, all incoming IP traffic from the WAN is blocked when the firewall is enabled. However, some IP traffic can be **ACCEPTED** by setting up filters.

Choose Add or Remove to configure incoming IP filters.

Filter Name	VPI/VCI	Protocol	Source Address / Mask	Source Port	Dest. Address / Mask	Dest. Port	Remove
<input type="button" value="Add"/> <input type="button" value="Remove"/>							

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:

Select IP Range by:

Source Port (port or port:port):

Select IP Range by:

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

pppoe_1_1_35_1/ppp_1_1_35_1

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.	

MAC Filtering

The **MAC Filtering** button appears when configuring WAN interface in Bridging.

MAC filtering are used to block or allow various types of packets through the WAN/LAN interface. This may be done for security or to improve network efficiency. The rules are configured for individual devices based on MAC address. Filter rules can be set up for source, destination or both. You can set up filter rules and disable the entire set of rules without losing the rules that have been configured.

Click **Change Policy** to configure the global policy as **Forwarded** or **Blocked**.

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

MAC Filtering Setup

MAC Filtering Global Policy: **FORWARDED**

MAC Filtering is only effective on ATM PVCs configured in Bridge mode. **FORWARDED** means that all MAC layer frames will be **FORWARDED** except those matching with any of the specified rules in the following table. **BLOCKED** means that all MAC layer frames will be **BLOCKED** except those matching with any of the specified rules in the following table.

Choose Add or Remove to configure MAC filtering rules.

VPI/VCI	Protocol	Destination MAC	Source MAC	Frame Direction	Remove
---------	----------	-----------------	------------	-----------------	--------

Select a protocol (All, PPPoE, IPv4, IPv6, Apple Talk, IPX, NetBEUI or IGMP) in the **Protocol Type** list, type in a Destination MAC, a Source MAC or both in the entry fields. Select a direction (LAN=>WAN, WAN=>LAN, or LAN<=>WAN) in the **Frame Direction** list. Click the **Save/Apply** button to add the entry in the Active Bridge Filters table.

Add MAC Filter

Create a filter to identify the MAC layer frames by specifying at least one condition below. If multiple conditions are specified, all of them take effect. Click "Apply" to save and activate the filter.

Protocol Type:

Destination MAC Address:

Source MAC Address:

Frame Direction:

WAN Interfaces (Configured in Bridge mode only)

Select All

br_0_0_35/nas_0_0_35

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
----------	-----	-----	-----	-----	-----	-----	-----	-----	-------	------	--------

Section 3 – Configuration

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

Other MAC Address

(xx:xx:xx:xx:xx:xx)

Days of the week	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Click to select	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Start Blocking Time (hh:mm)

End Blocking Time (hh:mm)

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.

QoS -- Queue Management Configuration

If Enable QoS checkbox is selected, choose a default DSCP mark to automatically mark incoming traffic without reference to a particular classifier. Click 'Save/Apply' button to save it.

Note: If Enable QoS checkbox is not selected, all QoS will be disabled for all interfaces.

Note: The default DSCP mark is used to mark all egress packets that do not match any classification rules.

Enable QoS

Queue Config

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

QoS Queue Configuration -- A maximum 24 entries can be configured.
If you disable WMM function in Wireless Page, queues related to wireless will not take effects
The QoS function has been disabled. Queues would not take effects.

Interfacename	Description	Precedence	Queue Key	Enable	Remove
wireless	WMM Voice Priority	1	1		
wireless	WMM Voice Priority	2	2		
wireless	WMM Video Priority	3	3		
wireless	WMM Video Priority	4	4		
wireless	WMM Best Effort	5	5		
wireless	WMM Background	6	6		
wireless	WMM Background	7	7		
wireless	WMM Best Effort	8	8		

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 Queue Configuration

The screen allows you to configure a QoS queue entry and assign it to a specific network interface. Each interface with QoS enabled will be allocated three queues by default. Each of the queues can be configured for a specific precedence. The queue entry configured here will be used by the classifier to place ingress packets appropriately. **Note: Lower integer values for precedence imply higher priority for this queue relative to others** Click 'Save/Apply' to save and activate the filter.

Queue Configuration Status

Queue:

Queue Precedence: