DYNEX™

4-Port Cable/DSL Router

Product Name [French]
Product Name [Spanish]

DX-E401

USER GUIDE • GUIDE DE L'UTILISATEUR • GUÍA DEL USUARIO

Dynex 4-Port Cable/DSL Router

Introduction

This router enables you to quickly and easily share a high-speed Internet connection. The router also incorporates many advanced features traditionally found in more expensive routers.

After completing the steps outlined in the *Installation Guide* (included in your package) you will be able to share a single Internet connection, as well as sharing information and resources (such as files and printers) on your local network.

The router is compatible with most popular operating systems, including Windows, Linux, and Macintosh, and can be integrated into an existing network.

This manual provides a quick introduction to broadband router technology, firewalls, and local area networking. Take a moment to read through this manual and get acquainted these technologies.

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Important safety instructions

These precautions explain how to safely operate your new router, preventing injury to you or to others, or damage to the router.

Warning - read this carefully before proceeding.

- Do not open the router or attempt to disassemble or modify it.
- Do not insert fingers or foreign objects into the router.
- Do not expose the router to rain, use it near water or in damp or wet conditions, or place containers on it that contain liquids which might spill into openings.
- Follow the *Installation Guide* and this *User Guide* carefully. Follow the correct procedures when setting up the router.

Introduction to broadband router technology

A *router* is a device that forwards data packets from a source to a destination using IP addresses, not MAC addresses. A router forwards data from the Internet to a particular computer on your network.

The information that makes up the Internet gets moved around using routers. When you click on a link on a Web page, you send a request to a server to show you the next page. The information that is sent and received from your computer is moved from your computer to the server using routers. A router also determines the best route that your information should follow to ensure that the information is delivered correctly.

A router controls the amount of data that is sent through your network by eliminating information that should not be there. This provides security for the computers connected to your router, because computers from the outside cannot access or send information directly to any computer on your network. The router determines which computer the information should be forwarded to, then sends it. If the information is not intended for any computer on your network, the data is discarded. This keeps unwanted or harmful information from accessing or damaging your network.

Firewalls

A firewall is a device that is set up between your computer and the Internet which prevents unauthorized access to or from your network. A firewall can be a computer using firewall software or a device built specifically to act as a firewall. In most circumstances, a firewall is used to prevent unauthorized Internet users from accessing your network.

A firewall analyzes all of the information moving to and from your network and analyzes each piece of data and checks it against a set of criteria that the administrator sets. If any data does not meet the criteria, that data is blocked and discarded. If the data meets the criteria, the data is passed through. This is called *packet filtering*.

A firewall can also run specific security functions based on the type of software or type of port that is being used. For example, a firewall can be configured to work with an FTP or Telnet server, or with specific UDP or TCP ports to allow certain software or games to work correctly over the Internet.

LANs and WANs

A Local Area Network (LAN) is several computers connected together within a small area such as a building or group of buildings. A collection of LANs connected over a large area is called a *Wide Area Network* (WAN).

Although there are many ways to connect computers together, the most common way is Cat-5 cable (UTP or STP twisted pair wire). Wireless networks, which use radio waves instead of wires, are becoming more common. Each computer must have a *Network Interface Card* (NIC), which transfers the data between computers. A NIC can be a 10 Mbps, 10/100 Mbps, or 10/100/1000 Mbps network card.

Most networks use hardware devices such as hubs or switches to connect computers. A hub takes any data arriving through each port and forwards the data to all other ports. A switch is more sophisticated, in that a switch can determine the destination port for a specific piece of data. A switch minimizes network traffic overhead and speeds up communication over a network.

Features

Broadband modem and IP sharing

Connects multiple computers to a broadband (cable or DSL) modem to share the Internet connection.

Ethernet switch

Allows you to quickly and easily share an Internet connection with multiple computers and devices.

VPN supported

Supports multiple and concurrent IPSec and PPTP pass-through sessions, so multiple users behind the router can access corporate networks through various VPN clients more securely.

Advanced firewall and parental control features

The Web-based user interface displays a number of advanced network management features including:

Content filtering—Easily applied content filtering based on MAC address, IP address, URL, or domain name.

Filter scheduling—Filters can be scheduled to be active on certain days or for a duration of hours and minutes.

Network Address Translation (NAT)—Allows your networked computers to share a single IP address and protects you from outside intruders gaining access to your private network.

DHCP server supported

All networked computers can retrieve TCP/IP settings automatically from the router.

Web-based management

The router is configurable through any network computer's Web browser.

Access control supported

Allows you to assign user-specific access rights.

Virtual server supported

Allows you to make WWW, FTP, and other services on your LAN accessible to Internet users.

Special applications supported

Special applications requiring multiple connections are supported, such as Internet gaming, video conferencing, and Internet telephony. The router can detect the application type and open a multi-port tunnel for it.

DMZ HOST SUPPORTED

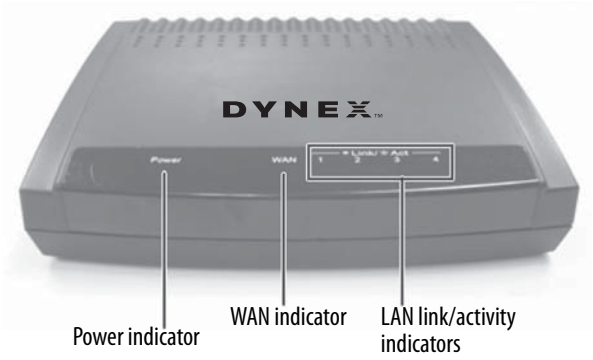
Allows a networked computer to be fully exposed to the Internet. This function is used when the Special Applications feature is insufficient to allow an application to function correctly.

System requirements for configuration

- Ethernet-based cable or DSL modem
- Computers with Windows, Macintosh, or Linux-based operating systems with an installed Ethernet adapter
- Internet Explorer Version 6.0 or Netscape Navigator 6.0 and above

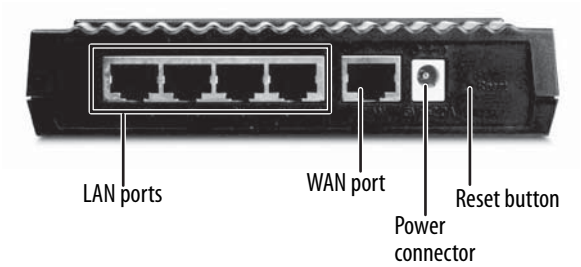
Product components

FRONT PANEL



Component	Function
Power indicator	Turns green when the router is plugged in.
WAN indicator	Turns green when a WAN connection exists.
LAN link/activity indicators	Turns green when connected to a network device. Flashes when the corresponding port is sending or receiving data.

REAR PANEL



Component	Function
Reset button	Press to restore the router to factory default settings.
LAN ports 1-4*	The LED glows steadily when a port is connected to a network device in your local area network (LAN.)
WAN port*	Connect your cable or DSL modem to this port.
Power connector	Connect one end of the included power adapter to the power connector and the other end to a power outlet.

**All ports (both LAN and WAN) are Auto-MDIX. All ports auto-sense cable types to accommodate straight-through or crossover cable.*

Setting up the router

Network settings

To use the router, you must correctly configure the network settings of your computers. The default IP address of the router is 192.168.0.1, and the default subnet mask is 255.255.255.0. These addresses can be changed as needed, but the default values are used in this manual. If the TCP/IP environment of your computer has not yet been configured, see "Configuring your computers" on page 45, for information.

We recommend that you configure your computers to obtain TCP/IP settings automatically from the DHCP server feature of the router.

Since the IP address of the router is 192.168.0.1, the IP address of your computer must be 192.168.0.X (where "X" is a number between 2 and 254.) Each computer on your network must have a different IP address within that range. The default gateway must be 192.168.0.1 (the IP address of the router).

Web-based management utility

The router has a Web-based management utility which is operating system independent. You can configure your router through a Java Script enabled Web browser in Windows, Macintosh, Linux, or UNIX-based platforms.

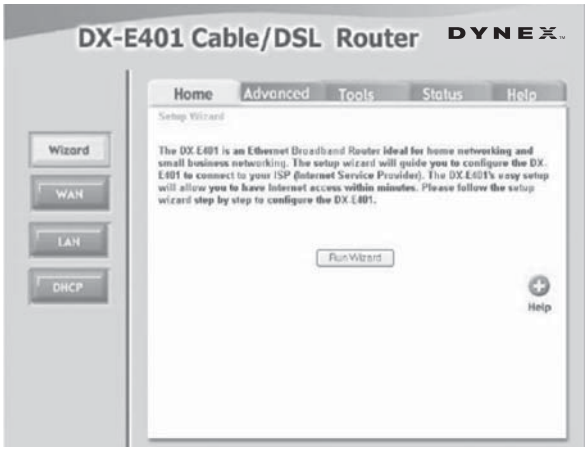
START UP AND LOG IN

To access the Web-based management utility:

1. Open your Web browser and enter the IP address of the router into the **Location** (for Netscape) or **Address** (for Internet Explorer) field, then press **Enter**. The default IP address of the router is 192.168.0.1

   For example, type **192.168.0.1**

   After the connection is established, the logon screen opens.
2. To log in as an administrator, enter the user name of **admin** and leave the password field blank (default), then click **OK**. The Web management *Home* screen opens.



Using the Setup Wizard

Follow the Wizard step-by-step to quickly configure the router.

To use the Setup Wizard:

1. Start the Web-based management utility. (For more information, see Start up and Log in on page 8.) The Web Management *Home* screen opens.
2. Click **Run Wizard**. The DX-E401 Setup Wizard starts.
3. Click **Next**. The *Set Password* screen opens.

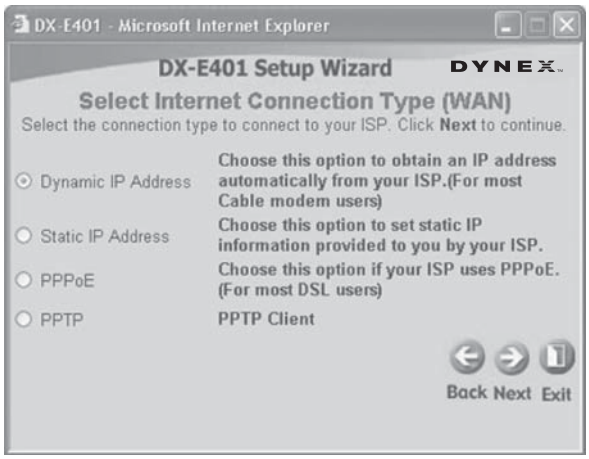
For security purposes, we recommend that you change the default admin password (that is, no password).

4. Type your new password, then type it in the **Verify Password** field a second time for confirmation.
5. Click **Next** to continue. The *Choose Time Zone* screen opens.
6. Click on the list to open it, then click the correct time zone for your location.
7. Click **Next**. The router will try to auto-detect your Internet connection type.

   If you have a Dynamic or PPPoE connection, and the router detects the connection, the corresponding page opens.
8. If the *Select Internet Connection Type (WAN)* screen opens, select the type of Internet connection that your ISP provides, then click **Next**.
   - **Dynamic IP Address—**(for example, cable users) Select this option to obtain an IP address automatically from your ISP. For more information,

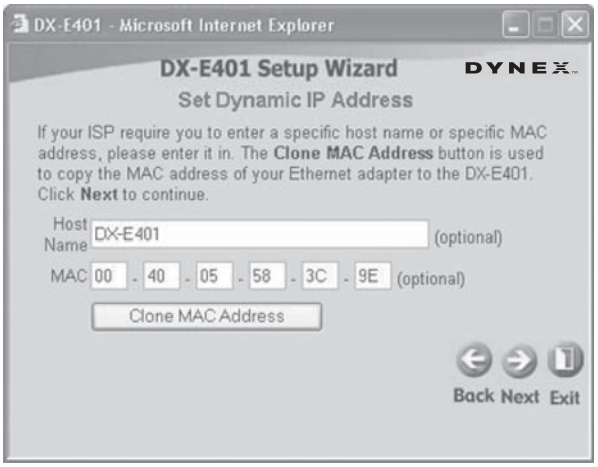
see Selecting a dynamic IP address in Windows XP or Windows 2000 on page 53.

- **Static IP Address—**Select this option to manually input the IP address that your ISP assigns to you. For more information, see Assigning a static IP address in Windows XP and Windows 2000 on page 51.
- **PPP over Ethernet (PPPoE)—**(for example, DSL users) Select this option if your ISP requires the use of PPPoE to connect to their services. For more information, see Configuring PPPoE on page 16.



9 If you selected **Dynamic IP Address**, go to Step 10.
If you selected **Static IP Address**, go to Step 13.
If you selected **PPP over Ethernet**, go to Step 16.

10 If you selected **Dynamic IP Address**, the *Set Dynamic IP Address* screen opens.

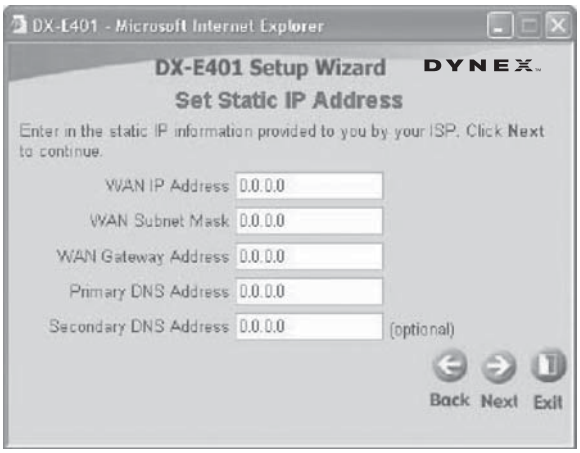


Note - *This setup should be done on the computer that is registered with your ISP.*

11 If your ISP requires you to enter a specific host name or specific MAC address, enter it here. Click **Clone MAC Address** to copy the MAC address of your Ethernet adapter to the MAC address fields (you can also type it in manually).

12 Go to step 18.

13 If you selected **Static IP Address**, the *Set Static IP Address* screen opens.



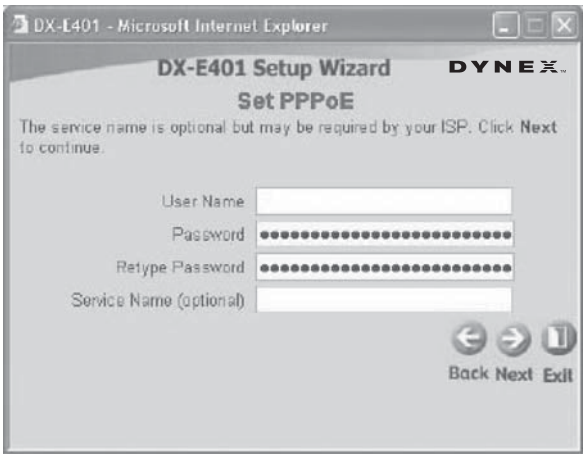
14 Type the IP address information provided to you by your ISP, including:

- WAN IP Address
- WAN Subnet Mask
- WAN Gateway Address
- Primary DNS Address

15 Go to step 18.

16 If you selected **PPP over Ethernet (PPPoE)**, the *Set PPPoE* screen opens.

Note - *Make sure that you remove any existing PPPoE client software installed on your computers.*



17 Type the **Username** and **Password** provided to you by your ISP, and type the **Service Name** if your ISP uses a service name for the PPPoE connection.

18 Click **Next.** The *Setup Completed* screen opens.

19 Click **Restart.** The router saves the changes and reboots.

20 Click **Close**. The router setup is now complete, and you should be able to access the Internet.

Configuring the router

Whenever you want to reconfigure your network or the router, you can access the Web-based configuration utility by opening your Web browser and typing in the IP Address of the router. The default IP Address is: **192.168.0.1** (also see Start-up and Log in on page 8).

To access the Web-based configuration utility:

1 Open your Web browser.

2 Type in the IP Address of the router (**http://192.168.0.1**).

Note - *if you have changed the default IP Address assigned to the router, make sure to enter the new IP Address.*

3 Type **admin** in the **User Name** field, and type your password in the **Password** field (default is blank, unless you have changed it), then click **OK**. The utility's *Home* screen opens.

WAN

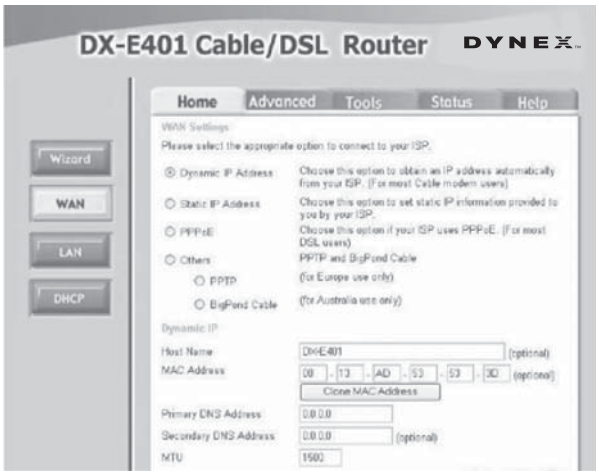
Configuring a dynamic IP address

A dynamic IP address obtains IP Address information automatically from your ISP. Use this if your ISP does not give you IP address numbers to use. This option is commonly used for cable modem services.

To configure your router to obtain a dynamic IP address:

1 Access the Web-based configuration utility by following the instructions in To access the Web-based configuration utility: on page 13.

2 Click the **WAN** button. The *WAN Settings* screen opens.



3 Click **Dynamic IP Address**, then enter the following settings, as appropriate:

Field	Description
Host Name	The Host Name is optional but may be required by some ISPs. The default host name is the device name of the router and may be changed.

Field	Description
MAC Address	The default MAC address is set to the WAN's physical interface MAC address on the broadband router. We do not recommend that you change the default MAC address unless required by your ISP.
Clone MAC Address	The default MAC address is set to the WAN's physical interface MAC address on the broadband router. You can click **Clone MAC Address** to copy the MAC address of your Ethernet card, or you may be required to enter the MAC address of your router. We recommend that you do not change the default MAC address unless required by your ISP.
Primary/Secondary DNS Address	Use this if you do not want to use the one provided by your ISP.
MTU	Use only if required by your ISP. Otherwise, leave the default setting.

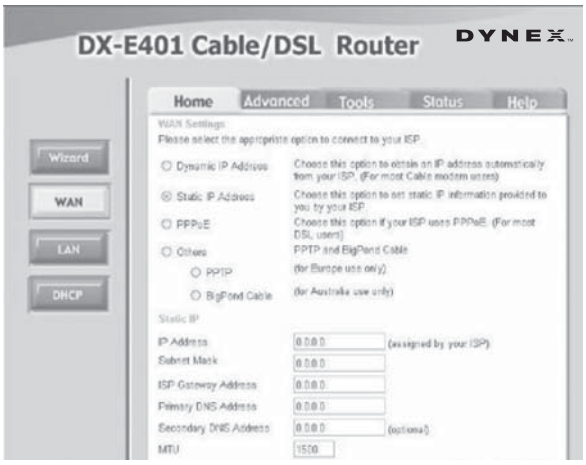
CONFIGURING A STATIC IP ADDRESS

Set a static IP address if all WAN IP information is provided to you by your ISP. You will need to enter in the IP address, subnet mask, gateway address, and DNS address(es) provided to you by your ISP. Each IP address entered in the fields must be in the appropriate IP form, which are four numbers (up to three digits each) separated by a dot (x.x.x.x). The router will not accept the IP address if it is not in this format.

To configure a static IP address:

1. Open the Configuration menu by following the instructions in To access the Web-based configuration utility: on page 13.

2 Click the **WAN** button. The *WAN Settings* screen opens.



3 Click **Static IP Address**, then enter the following settings, as appropriate:

Field	Description
IP Address	IP address assigned to you by your ISP.
Subnet Mask	All devices in the network must have the same subnet mask. The default is 255.255.255.0
ISP Gateway Address	The public IP address of the ISP to which you are connecting.
Primary DNS Address	The primary DNS (*Domain Name Server*) IP address provided by your ISP.
Secondary DNS Address	Optional
MTU	Use only if required by your ISP. Otherwise, leave the default setting.

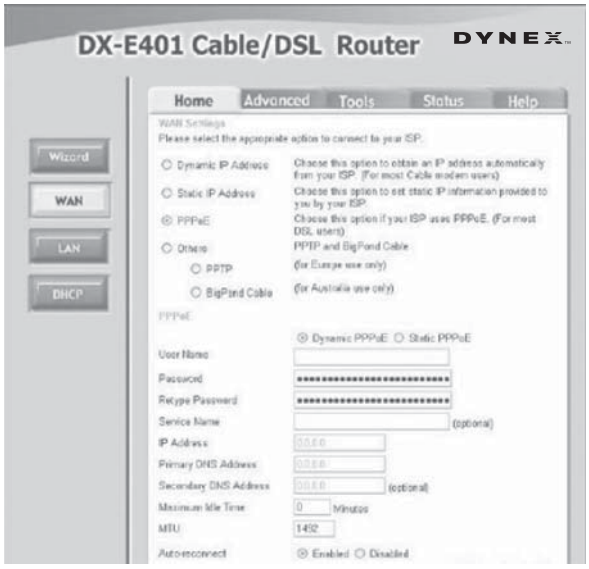
CONFIGURING PPPOE

Choose PPPoE (Point-to-Point Protocol over Ethernet) if your ISP uses a PPPoE connection. Your ISP provides you with a username and password. This option is typically used for DSL services. Select Dynamic PPPoE to obtain an IP address automatically for your PPPoE connection. Select Static PPPoE to use a static IP address for your PPPoE connection.

Make sure that you remove existing PPPoE client software installed on your computers.

To configure PPPoE:

1. Access the **Configuration** menu by following the instructions in To access the Web-based configuration utility: on page 13.
2. Click the **WAN** button. The *WAN Settings* screen opens.



3. Click **PPPoE**, then enter the following settings, as appropriate:

Field	Description
Dynamic PPPoE	Click this if you receive an IP address automatically from your ISP.
Static PPPoE	Click this if you have an assigned (static) IP Address.
User Name	Your PPPoE username provided by your ISP.
Password	Your PPPoE password.
Retype Password	Re-enter the PPPoE password
Service Name	The Service Name provided by your ISP (optional).

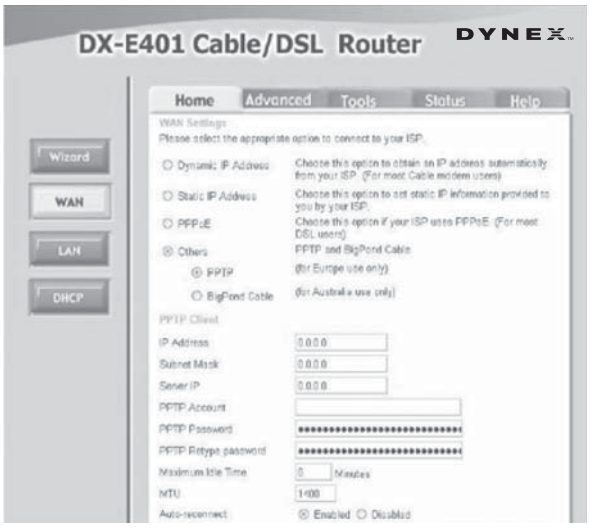
Field	Description
IP Address	The static IP Address for the PPPoE connection. This option is only available for Static PPPoE.
Primary DNS Address	The primary DNS IP address provided by our ISP.
Secondary DNS Address	The static IP Address for the PPPoE connection. This option is only available for Static PPPoE.
MTU	Maximum Transmission Unit-1492 is the default setting. You may need to change the MTU for optimal performance with your specific ISP.
Auto-reconnect	If this is enabled, the router will automatically connect to your ISP after your system is restarted or if the PPPoE connection is dropped.

CONFIGURING PPTP

PPTP, or *Point-to-Point Tunneling Protocol*, is a WAN connection type used in Europe.

To configure PPTP:

1. Access the **Configuration** menu by following the instructions in To access the Web-based configuration utility: on page 13.
2. Click the **WAN** button. The *WAN Settings* screen opens.



3 Click **PPTP**, then enter the following settings, as appropriate:

Field	Description
My IP Address	Your IP address.
My Subnet Mask	Tour subnet mask.
Server IP Address	The server IP address.
PPTP Account	The PPTP account name.
PPTP Password	Your PPTP password.
Connection ID	The connection ID if required by your ISP. (Optional)
Maximum Idle Time	The maximum idle time during which your Internet connection is maintained during inactivity. To disable this feature, enable Auto-reconnect.

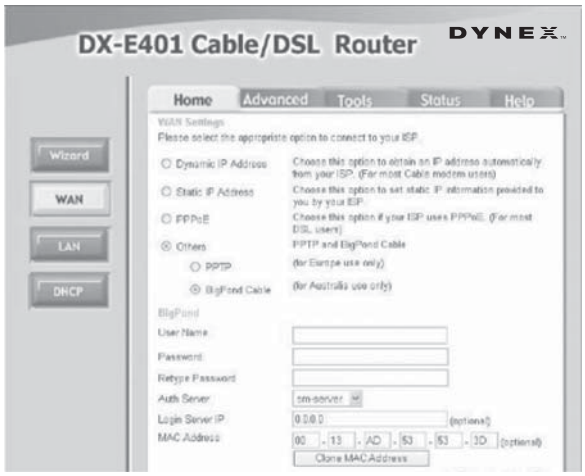
CONFIGURING BIGPOND CABLE

Dynamic IP Address for BigPond is a WAN connection used in Australia.

To configure BigPond Cable:

1 Access the **Configuration** menu by following the instructions in To access the Web-based configuration utility: on page 13.

2 Click the **WAN** button. The *WAN Settings* screen opens.



3 Click **BigPond Cable**, then enter the following settings, as appropriate:

Field	Description
User Name	The username for your BigPond account.
Password	The password for your BigPond account.
Login Server IP	The IP address of the Login Server, if required. (Optional)
Renew IP forever	If this is enabled, the router automatically connects to your ISP after it is restarted or when the connection is dropped.

LAN

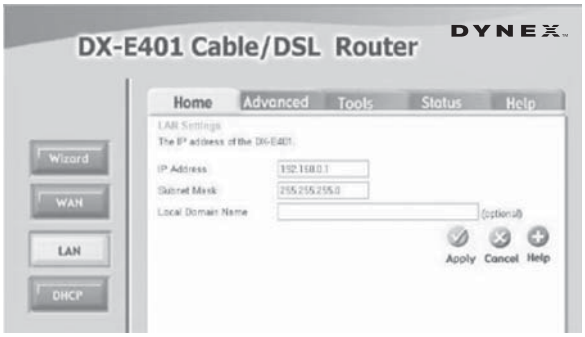
CONFIGURING YOUR LAN

LAN is short for *Local Area Network*, and is considered your internal network. These are the IP settings of the LAN interface for the router. The LAN IP address is private to your internal network and cannot be seen on the Internet.

To configure your LAN:

1 Access the **Configuration** menu by following the instructions in To access the Web-based configuration utility: on page 13.

2 Click the **LAN** button. The *LAN Settings* screen opens.



3 Enter the following settings, as appropriate:

Field	Description
IP Address	The IP address of the LAN interface. The default IP address is: 192.168.0.1
Subnet Mask	The subnet mask of the LAN interface. The default subnet mask is 255.255.255.0

Field	Description
Local Domain Name	The local domain name. (Optional)

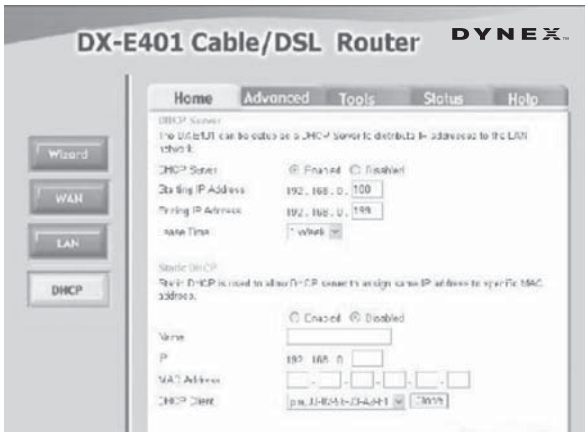
DHCP

CONFIGURING YOUR DHCP SERVER

DHCP stands for *Dynamic Host Control Protocol*. The router has a built-in DHCP server which will automatically assign an IP address to the computers on the LAN. Set your computers to be DHCP clients by setting their TCP/IP settings to **Obtain an IP Address Automatically**. When you turn your computers on, they will automatically load the proper TCP/IP settings provided by the router. The DHCP Server will automatically allocate an unused IP address from the IP address pool to the requesting computer. You must specify the starting and ending address of the IP address pool.

To configure your DHCP server:

1. Access the **Configuration** menu by following the instructions in To access the Web-based configuration utility: on page 13.
2. Click the **DHCP** button. The *DHCP Server* screen opens.



3. Click **Enabled**, then enter the following settings, as appropriate:

Field	Description
Starting IP Address	The starting IP address for the DHCP server's IP assignment.

Field	Description
Ending IP Address	The ending IP address for the DHCP server's IP assignment.
Lease Time	The length of time for the IP lease. The default setting is one hour.

Advanced

Configuring a virtual server

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

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

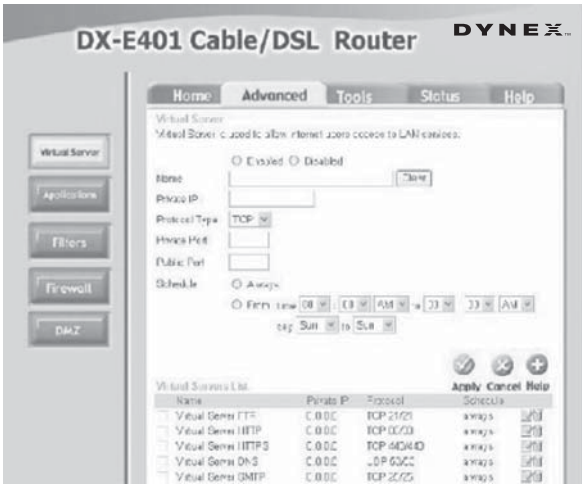
The router is also capable of port-redirection. Port-redirection takes incoming traffic to a particular port and redirects it to a different port on the server computer.

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

To configure a virtual server:

1. Access the **Configuration** menu by following the instructions in To access the Web-based configuration utility: on page 13.

2 Click the **Advanced** tab, then click **Virtual Server**. The *Virtual Server* screen opens.



3 Click **Enabled**, then enter the following settings, as appropriate:

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

Example #1:

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

Name: Web Server
Private IP: 192.168.0.25
Protocol Type: TCP
Private Port: 80
Public Port: 80
Schedule: always

Click this icon  to edit the virtual service.

Click this icon  to delete the virtual service.

Example #2:

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

Name: FTP Server
Private IP: 192.168.0.30
Protocol Type: TCP
Private Port: 21
Public Port: 2100
Schedule: From: 01:00AM to 01:00AM, Sat to Sun

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

CONFIGURING SPECIAL APPLICATIONS

Some applications require multiple connections, such as Internet gaming, video conferencing, and Internet telephony. These are applications that have difficulties working through NAT (Network Address Translation). Special Applications makes some of these applications work with the router.

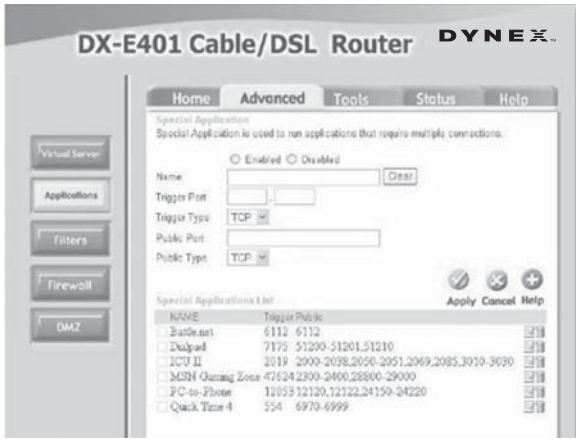
To run applications that require multiple connections:

1. Specify the port normally associated with an application in the **Trigger Port** field, then select the protocol type as **TCP** or **UDP**.
2. Enter the public ports associated with the trigger port to open them for inbound traffic.
3. The router provides some predefined applications in the table on the bottom of the Web page. Select the application you want to use, then click **Enable** to enable it.

   Note - *Only one computer can use each Special Application tunnel.*

To configure special applications:

1. Access the **Configuration** menu by following the instructions in To access the Web-based configuration utility: on page 13.
2. Click the **Advanced** tab, then the **Application** button. The *Special Application* screen opens.



3 Enter the following settings, as appropriate:

Field	Description
Name	The name referencing the special application.
Trigger Port	The port used to trigger the application. It can be either a single port or a range of ports.
Trigger Type	The protocol used to trigger the special application.
Public Port	The port number on the WAN side that will be used to access the application. You can define a single port or a range of ports. You can use a comma to add multiple ports or port ranges.
Public Type	The protocol used for the special application.

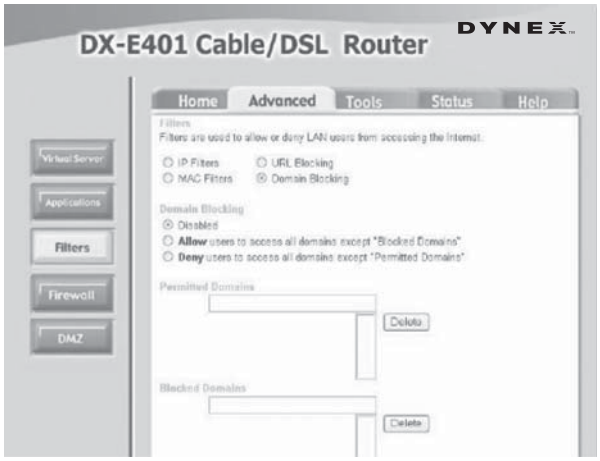
CONFIGURING IP FILTERS

Filters are used to deny or allow LAN computers from accessing the Internet. The router can be set up to deny access to internal computers by their IP or MAC addresses. The router can also block users from accessing restricted Web sites.

To configure IP filters:

1 Access the **Configuration** menu by following the instructions in To access the Web-based configuration utility: on page 13.

2 Click the **Advanced** tab, then the **Filters** button. The *Filters* screen opens.



3 Click **IP Filters**, then click **Enabled**.

4 Enter the following settings, as appropriate:

Field	Description
IP	The IP address of the LAN computer that will be denied access to the Internet.
Port	The single port or port range that will be denied access to the Internet.
Protocol Type	The protocol type for the selected filter.
Schedule	The days and times when the IP filter will be enabled.

CONFIGURING URL BLOCKING

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

To block a text string:

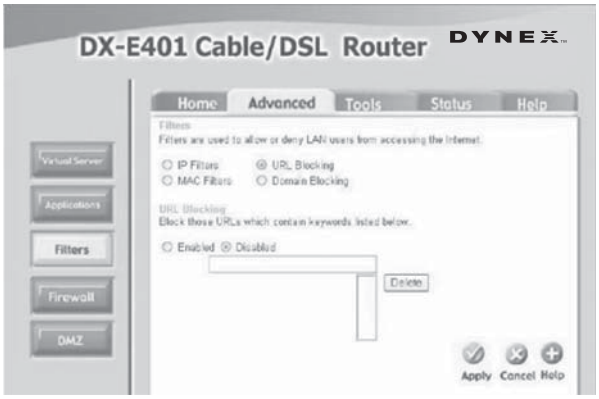
1 Enter the text string to be blocked, then click **Apply**. The text to be blocked appears in the list.

2 To delete the text, highlight it and click **Delete**.

To configure URL blocking:

1 Access the **Configuration** menu by following the instructions in To access the Web-based configuration utility: on page 13.

2 Click the **Advanced** tab, then the **Filters** button. The *Filters* screen opens.



3 Click **URL Blocking**, then click **Enabled**.

4 Enter the following, as appropriate:

Field	Description
Keywords	This setting blocks URLs which contain keywords you enter.

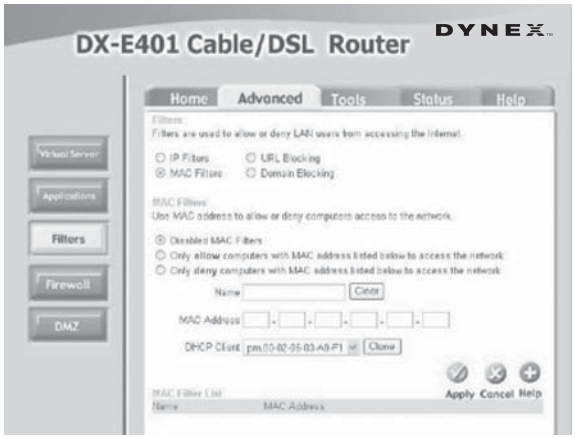
CONFIGURING MAC FILTERS

Use MAC filters to allow or deny LAN computers access to the network, based on their MAC addresses. You can either manually add a MAC address or select the MAC address from the list of clients that are currently connected to the broadband router.

To configure MAC filtering:

1 Access the **Configuration** menu by following the instructions in To access the Web-based configuration utility: on page 13.

2 Click the **Advanced** tab, then the **Filters** button. The *Filters* screen opens.



3 Click **MAC Filters**, then click one of the following:

- Disable MAC filters
- Only allow computers with MAC addresses listed below to access the network
- Only deny computers with MAC addresses listed below to access the network

4 Enter the following, as appropriate:

Field	Description
Name	The filter name.
MAC Address	The MAC address(es) you want affected by the selected filter.
DHCP Client	Select a DHCP client from the pull-down list, then click **Clone** to copy that MAC address.

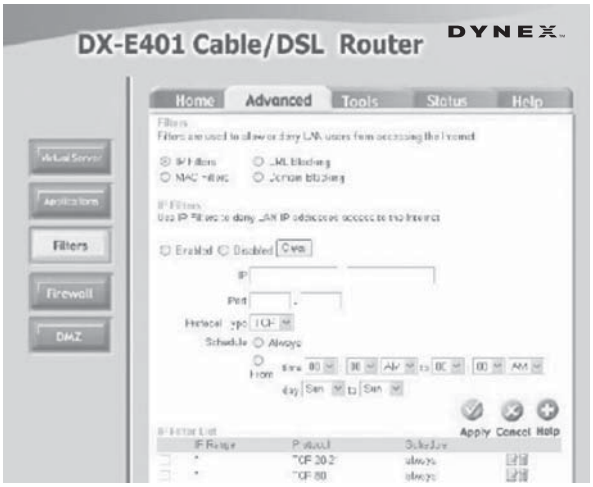
CONFIGURING DOMAIN BLOCKING

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

To configure domain blocking:

1 Access the **Configuration** menu by following the instructions in To access the Web-based configuration utility: on page 13.

2 Click the **Advanced** tab, then the **Filters** button. The *Filters* screen opens.



3 Click **domain blocking**, then click one of the following:
- **Disabled**—disables domain blocking
- **Allow**—allows access to all domains except Blocked Domains
- **Deny**—denies users access to all domains except Permitted Domains

4 Enter the following, as appropriate:

Field	Description
Permitted Domains	The domains to which access is allowed.
Blocked Domains	The domains to which access is blocked.

Configuring Firewall Rules

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

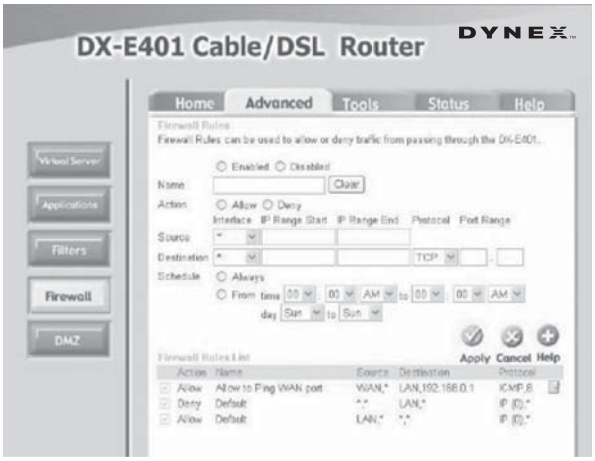
The priorities of the Firewall Rules are listed in the firewall rules List at the bottom of the screen, with the highest priority rules at the top and the lowest at the bottom.

Note - *The router MAC address filtering rules have precedence over the Firewall Rules.*

To configure Firewall Rules:

1 Access the **Configuration** menu by following the instructions in To access the Web-based configuration utility: on page 13.

2 Click the **Advanced** tab, then the **Firewall** button. The *Firewall Rules* screen opens.



3 Click **Firewall Rules**, then click one of the following:

- **Enabled**—Enables the firewall
- **Disabled**—Disables the firewall

4 Enter the following, as appropriate:

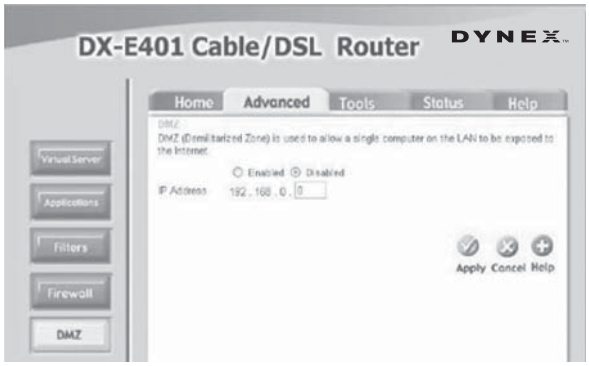
Field	Description
Name	The name of the firewall.
Action	Allow or Deny access to the selected range of IP addresses.
Source	The IP address range.
Destination	The IP address range, the protocol, and the port range.
Schedule	The time period when the firewall rules apply. Click **Always** or enter a time range.

CONFIGURING THE DMZ

If you have a client PC that cannot run Internet applications correctly from behind the router, then you can set the client up for unrestricted Internet access. Unrestricted access allows a computer to be exposed to the Internet (useful for gaming). Enter the IP address of the internal computer that will be the DMZ host. Adding a client to the DMZ (*Demilitarized Zone*) may expose your local network to a variety of security risks, so only use this option as a last resort.

To configure the DMZ:

1. Access the **Configuration** menu by following the instructions in To access the Web-based configuration utility: on page 13.
2. Click the **Advanced** tab, then the **DMZ** button. The *DMZ* screen opens.



3. Click one of the following:
   - **Enabled**—Enables the DMZ
   - **Disabled**—Disables the DMZ
4. Enter the following, as appropriate:

Field	Description
IP Address	The IP address of the computer to be in the DMZ.

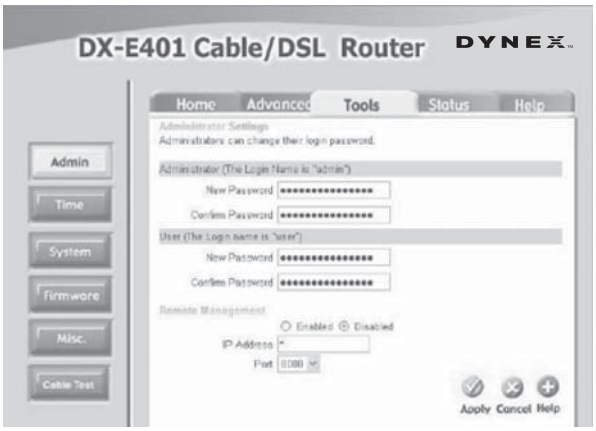
Tools

CONFIGURING THE ADMINISTRATOR SETTINGS

Use this page to change the system passwords. The two accounts that can access the router's Web management interface are **admin** and **user**. Admin has read/write access, while user has read-only access. A user can only view the settings but cannot make any changes.

To configure administrator settings:

1. Access the **Configuration** menu by following the instructions in To access the Web-based configuration utility: on page 13.
2. Click the **Tools** tab, then the **Admin** button. The *Administrator Settings* screen opens.



3. Enter the following, as appropriate:

Field	Description
New Password (Administrator)	The new administrator password.
Confirm Password (Administrator)	Re-enter the new administrator password to confirm.
New Password (User)	The new user password.
Confirm Password (User)	Re-enter the new user password to confirm.

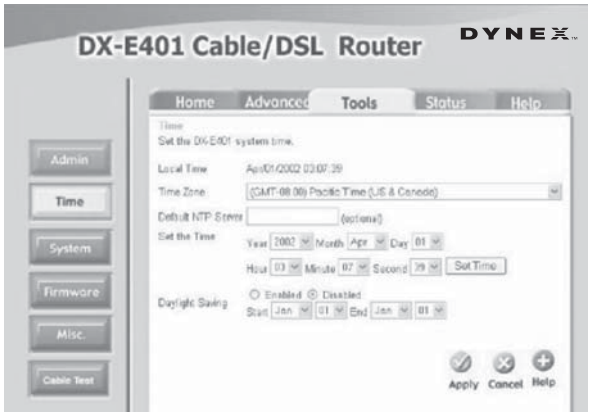
Field	Description
Remote Management	Remote management allows the router to be configured from the Internet by a Web browser. A username and password are still required to access the Web management interface. In general, only a member of your network can browse the built-in Web pages to perform administrator tasks. This feature enables you to perform administrator tasks from the remote (Internet) host.
IP Address	The Internet IP address of the computer that has access to the router. If you input an asterisk (*) into this field, any computer can access the router. Putting an asterisk (*) into this field would present a security risk and is not recommended.
Port	The port number used to access the router. Example **http://x.x.x.x:8080** where x.x.x.x is the WAN IP address of the router and 8080 is the port used for the Web management interface.

CONFIGURING THE SYSTEM TIME

The system time is the time used by the router for scheduling services. You can manually set the time or connect to a NTP (Network Time Protocol) server. If an NTP server is set, you will only need to set the time zone. If you manually set the time, you may also set Daylight Saving dates and the system time will automatically adjust on those dates.

To configure the system time:

1. Access the **Configuration** menu by following the instructions in To access the Web-based configuration utility: on page 13.
2. Click the **Tools** tab, then the **Time** button. The *Time* screen opens.



3 Enter the following, as appropriate:

Field	Description
Time Zone	Your time zone.
Default NTP Server	*Network Time Protocol* (NTP) synchronizes computer clock times in a network of computers. (Optional)
Set the Time	To manually input the time, enter the values in these fields for the **year**, **month**, **day**, **hour**, **minute**, and **second**, then click **Set Time**.
Daylight Saving	To select daylight saving time manually, click **enabled** or **disabled**, then enter a start date and an end date for daylight saving time.

CONFIGURING THE SYSTEM SETTINGS

The current system settings can be saved as a file onto the local hard drive. The saved file, or any other saved setting file, can be loaded back on the router.

To reload a system settings file:

- Click **Browse** to browse the local hard drive and locate the system file to be used, then click Load to load the file.

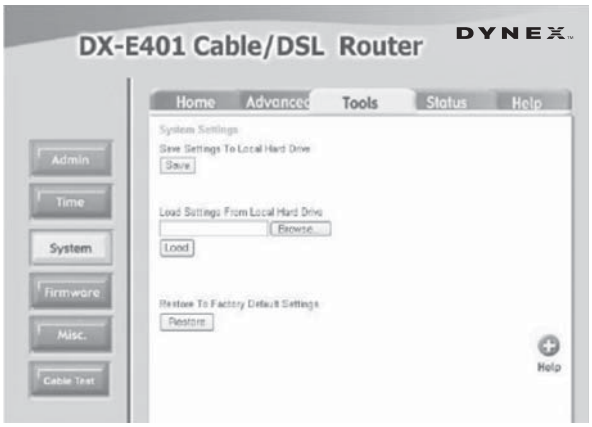
  - OR -

  Click **Restore** to reset the router to factory settings.

To configure the system settings:

1. Access the **Configuration** menu by following the instructions in To access the Web-based configuration utility: on page 13.

2 Click the **Tools** tab, then the **System** button. The *System Settings* screen opens.



3 Enter the following, as appropriate:

Field	Description
Save Settings to Local Hard Drive	Click **Save** to save a system settings file to your local hard drive.
Load Settings from Local Hard Drive	Click **Browse** to find the system settings file saved to your local hard drive, then click **Load** to reload the file.
Restore to Factory Default Settings	Click **Restore** to restore the factory default system settings to your router.

UPGRADING THE FIRMWARE

You can upgrade the firmware of the router.

To make sure the firmware you want to use is on the local hard drive:

- Click **Browse** to browse your local hard drive and locate the firmware to be used for the update. Check the Dynex Web site for current firmware upgrades to download at www.dynexproducts.com.

To upgrade the firmware:

1 Access the **Configuration** menu by following the instructions in To access the Web-based configuration utility: on page 13.

2 Click the **Tools** tab, then the **Firmware** button. The *Firmware Upgrade* screen opens.

3 Enter the following, as appropriate:

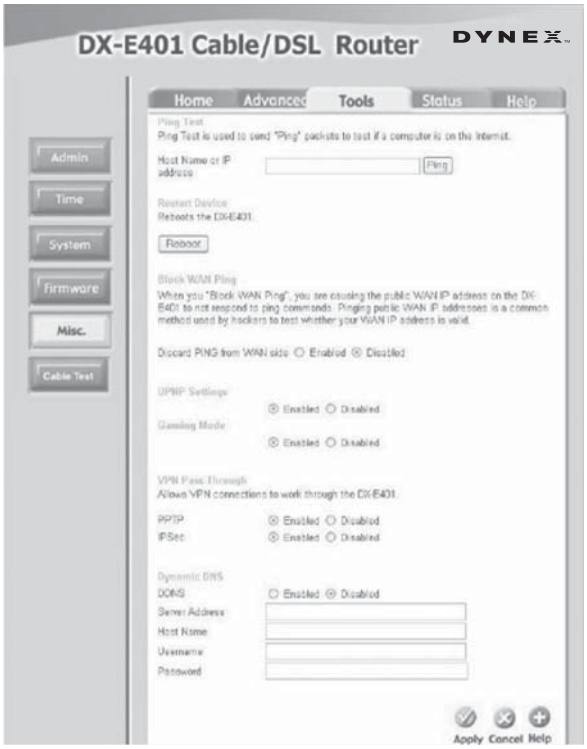
Field	Description
Firmware Upgrade	Click on the link in this screen to find out if there is an updated firmware; if so, download the new firmware to your hard drive.
Browse	After you have downloaded the new firmware, click **Browse** in this window to locate the firmware update on your hard drive, then click **Apply** to complete the firmware upgrade.

CONFIGURING MISCELLANEOUS SETTINGS

To configure miscellaneous settings:

1 Access the **Configuration** menu by following the instructions in To access the Web-based configuration utility: on page 13.

2 Click the **Tools** tab, then the **Misc.** button. The *Miscellaneous Settings* screen opens.



3 Enter the following, as appropriate:

Field	Description
Ping Test	The ping test is used to send ping packets to test if a computer is on the Internet. Enter the IP address that you want to ping, then click **Ping**.
Restart Device	Click **Reboot** to restart the router.
Block WAN Ping	If you choose to block WAN ping, the WAN IP address of the router will not respond to pings. Blocking the ping can provide some extra security from hackers. Click **Enabled** to block the WAN ping.

Field	Description
UPNP	To use the universal plug and play feature, click **Enabled**.
Gaming Mode	Gaming mode allows a form of pass-through for certain Internet games. If you are using Xbox, Playstation2, or a computer, make sure you are using the latest firmware and that Gaming Mode is enabled. To utilize Gaming Mode, click **Enabled**. If you are not using a gaming application, we recommend that you disable Gaming Mode.
VPN Pass Through	The router supports VPN (Virtual Private Network) pass-through for both PPTP (Point-to-Point Tunneling Protocol) and IPSec (IP Security). Once VPN pass-through is enabled, there is no need to open up virtual services. Multiple VPN connections can be made through the router. This is useful when you have many VPN clients on the LAN network. PPTP—click **Enabled** or **Disabled** IPSec—click **Enabled** or **Disabled**
Dynamic DNS	The Dynamic Domain Name System is a method of keeping a domain name linked to a changing IP address. This is a useful feature since many computers do not use a static IP address.

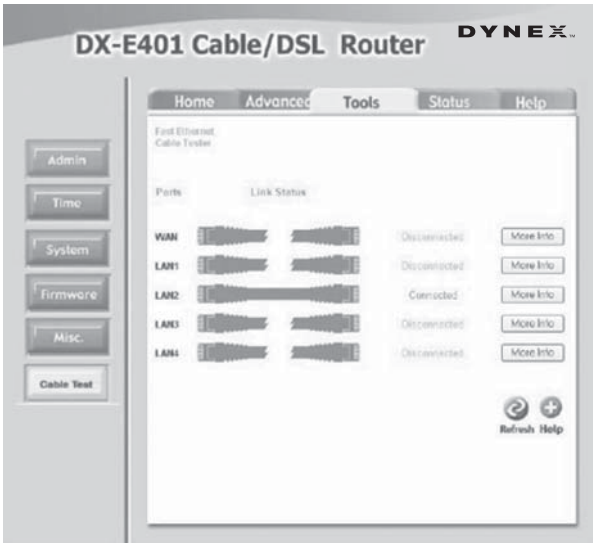
Using the fast Ethernet cable tester

Cable Test is an advanced feature that integrates a LAN cable tester on every Ethernet port on the router. Cable Test can be used to remotely diagnose and report cable faults such as opens, shorts, swaps, and impedance mismatch. The Cable Test feature significantly reduces service calls and returns by allowing you to easily troubleshoot your own cable connections.

To use the cable tester:

1. Access the **Configuration** menu by following the instructions in To access the Web-based configuration utility: on page 13.

2 Click the **Tools** tab, then the **Cable Test** button. The *Fast Ethernet Cable Tester* screen opens.



Field	Description
Ports	The Ethernet port names associated to the physical ports.
Link Status	The current link status of the Ethernet cable connected to the respective Ethernet port.
More Info	Click **More Info** for detailed information about the cable link status.
Refresh	Click **Refresh** to run the cable test. Allow the router a few seconds to complete the test.

Status

Reviewing device information

This page displays the current information for the router, including:

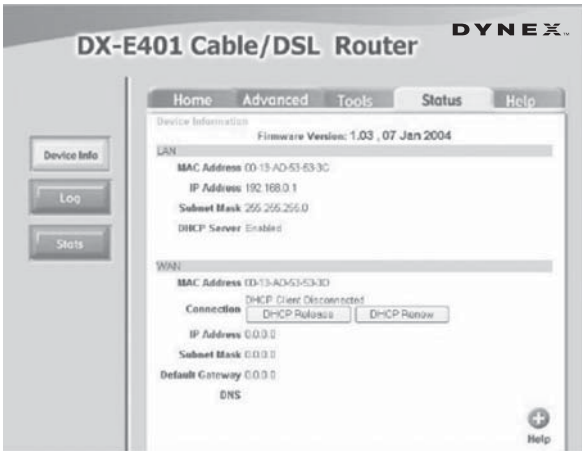
- LAN information
- WAN information
- MAC address information

To review device information:

1. Access the **Configuration** menu by following the instructions in To access the Web-based configuration utility: on page 13.
2. Click the **Status** tab, then the **Device Info** button. The *Device Information* screen opens.

   If your WAN connection is set up for a dynamic IP address, a **Release** button and a **Renew** button are available. Click **Release** to disconnect from your ISP and click **Renew** to reconnect to your ISP.

   If your WAN connection is set up for PPPoE, a **Connect** button and a **Disconnect** button are available. Click **Disconnect** to drop the PPPoE connection and click **Connect** to reestablish the PPPoE connection.



Field	Description
Firmware Version	The firmware version installed in the router.
LAN	IP Address: LAN/private IP address of the router Subnet Mask: LAN/private subnet mask of the DX-401
WAN	IP Address: WAN/public IP address Subnet Mask: WAN/public subnet mask Gateway: WAN/public gateway IP address Domain Name Server: WAN/public DNS IP address WAN Status: WAN connection status

VIEWING THE LOG

The router keeps a running log of events and activities occurring on the router. If the router is rebooted, the logs are automatically cleared. You can save the log files under Log Settings.

To view the Log:

1. Access the **Configuration** menu by following the instructions in To access the Web-based configuration utility: on page 13.
2. Click the **Status** tab, then the **Log** button. The *View Log* screen opens.

Button	Description
First Page	The first page of the log.
Last Page	The last page of the log.
Previous	Moves back one log page.
Next	Moves forward one log page.
Clear	Clears the logs completely.
Log Settings	Brings up the page to configure the log.

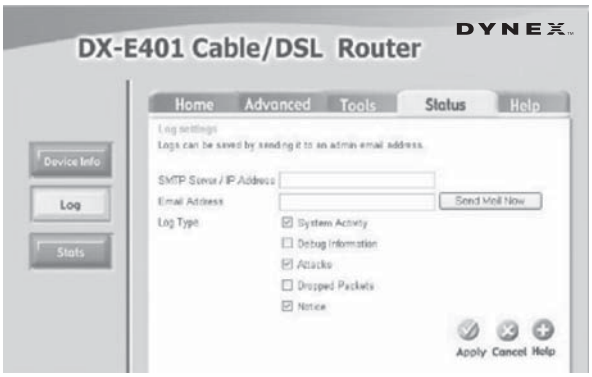
CONFIGURING THE LOG

Not only does the router display the logs of activities and events, it can be set up to send these logs to a specific e-mail address.

To configure the log:

1. Access the **Configuration** menu by following the instructions in To access the Web-based configuration utility: on page 13.
2. Click the **Status** tab, then the **Log** button. The *View Log* screen opens.

3 Click the **Log Settings** button. The *Log settings* screen opens.



Button	Description
SMTP Server / IP Address	The address of the SMTP server that will be used to send the logs.
Email Address	Enter the e-mail address of the person who will receive the e-mail log.
Send Mail Now	Click to send the e-mail log immediately.
Log Type	Select the types of activity to log. By default, all values are selected.

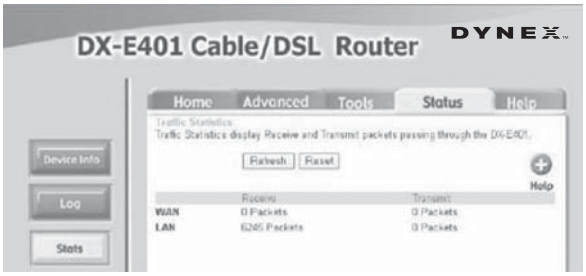
VIEWING TRAFFIC STATISTICS

The traffic statistics screen shows the number of packets that pass through the router on both the WAN and the LAN ports. The traffic counter will reset if the router is rebooted.

To view traffic statistics:

1 Access the **Configuration** menu by following the instructions in To access the Web-based configuration utility: on page 13.

2 Click the **Status** tab, then the **Stats** button. The *Traffic Statistics* screen opens.



Field	Description
Refresh	This updates the page.
Reset	This resets the packet counter to zero.
WAN	Displays received/transmitted packets from the WAN port.
LAN	Displays received/transmitted packets from the LAN port.

Help

USING HELP

This screen displays the complete Help menu. For help at any time, click the **Help** tab in the **Configuration** menu.

To use help:

1 Access the **Configuration** menu by following the instructions in To access the Web-based configuration utility: on page 13.

2 Click the **Help** tab. The *Help* screen opens.

Reset

To reset the system settings to factory defaults:

1 Leave the router turned on.

2 Use a paper-clip to press and hold the reset button for about 10 seconds, then release it.

The router automatically reboots itself.

Configuring your computers

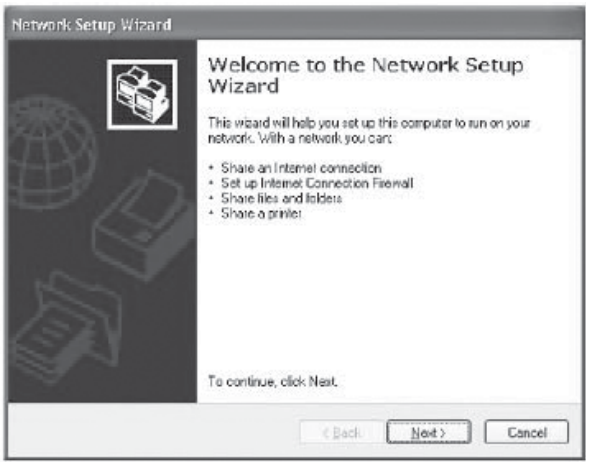
Using the Network Setup Wizard in Windows XP

This section shows you how to establish a network at home or work, using Microsoft Windows XP.

Note - *Please refer to Web sites such as www.homenethelp.com and www.microsoft.com/windows2000 for information about networking computers using Windows 2000 or ME.*

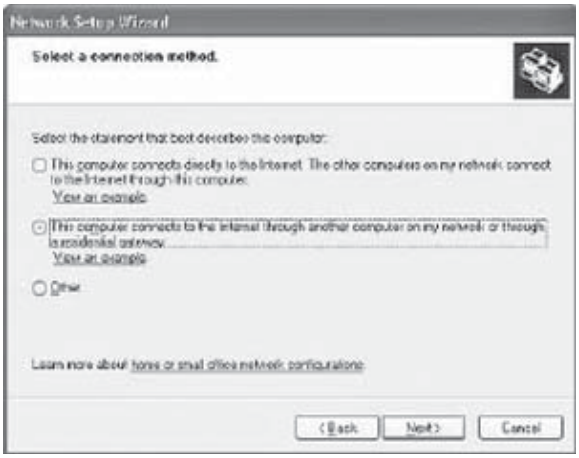
To use the Network Setup Wizard in Windows XP:

1. From the Windows Desktop, click **Start**, **Control Panel**, then **Network Connections**. The Windows Network Setup Wizard opens.

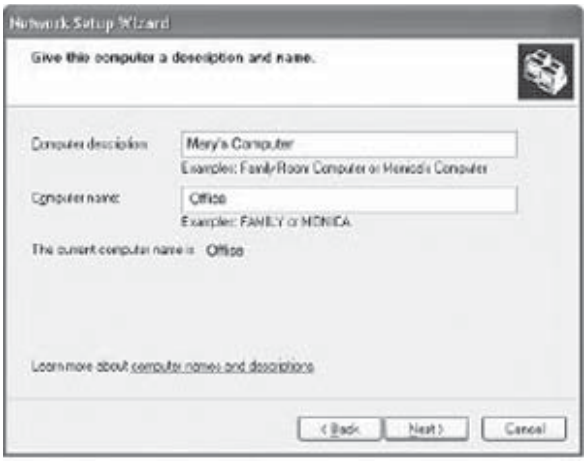


2. Click **Set up a home or small office network**, then click **Next**. The *Before you begin* screen opens.

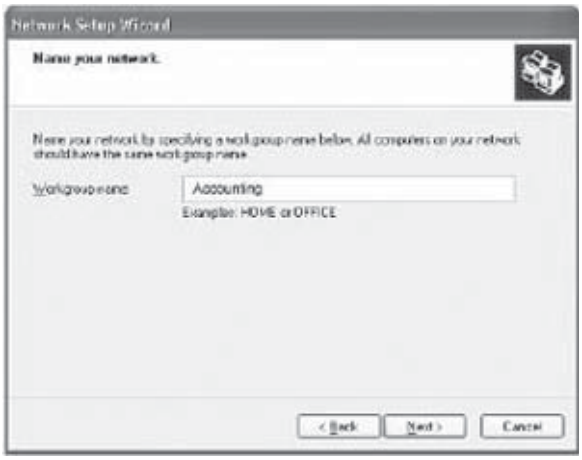
3 If you have completed the steps outlined, click **Next** to continue. The *Select a connection method* screen opens.



4 Select a connection method that best describes your situation, then click **Next**. The *Give the computer a description and name screen* opens.



5 Enter a **Computer Description** and a **Computer Name**, then click **Next**. The *Name your computer* screen opens.



6 Enter a **Workgroup name**, then click **Next**. The *Ready to apply network settings* screen opens.

7 When you are ready to apply the network changes, click **Next** to continue, then wait while the Wizard configures your computer.

8 On the next screen, click the option that applies to your situation, then follow the on-screen prompts.

9 When the Network Setup Wizard is done, click **Finish** to complete the process. You will be prompted to restart your computer.

10 For the new settings to take effect, click **Yes** to restart your computer.

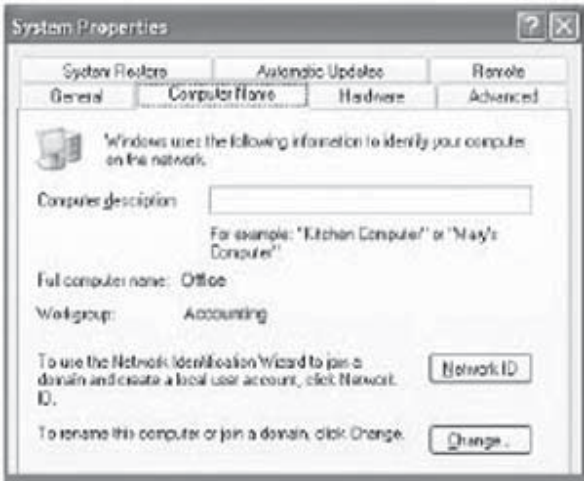
Naming your computer

This section describes how to name your computer using Microsoft Windows XP.

To name your computer:

1 From the Windows Desktop, click **Start**, then right-click **My Computer**.

2 Click **Properties**, then click the **Computer Name** tab. The *Computer Name* dialog box opens.



3 Enter a **Computer Description** (optional) if you want, then click **Change** to rename of your computer. The *Computer Name Changes* dialog box opens.

4 Enter the name of your computer, then click **Workgroup** and enter the name of your workgroup.

Note - *All computers in your local network must have the same workgroup name.*

5 Click **OK** to save your changes and exit.

Checking your computer's IP address

The wireless adapter-equipped computers in your network must be in the same IP address range (for additional information, see Network Settings on page 7.) This section shows you how to check your computer's IP address using Microsoft Windows XP.

To check your computer's IP address:

1. From the Windows Desktop, right-click the **Local Area Network** icon in the taskbar.
2. Click **Status.** The *Wireless Network Connection x Status* screen opens.

3. Click the **Support** tab to view the IP address information.
4. Click **Close** to exit.

Assigning a static IP address in Windows XP and Windows 2000

Residential gateways and broadband routers automatically assign IP addresses to the computers on their networks using DHCP (Dynamic Host Configuration Protocol) technology.

If you are not using a DHCP-capable gateway or router, or if you need to assign a static IP address, follow the steps detailed below.

To assign a static IP address:

1. From the Windows Desktop, click **Start** (in the lower left corner of your screen), then double-click **Control Panel**. The *Control Panel* screen opens.
2. Double-click **Network Connections**, right-click **Local Area Connections**, then click **Properties**. The *Local Area Connection x Properties* screen opens.

3 Click **Internet Protocol (TCP/IP)**, then click **Properties**. The *Internet Protocol (TCP/IP) Properties* screen opens.

4 Enter the static IP address and subnet mask. (The IP addresses on your network must be within the same range. For example, if one computer has an IP address of 192.168.0.2, the other computers should have IP addresses that are sequential, like 192.168.0.3 and 192.168.0.4. The subnet mask must be the same for all the computers on your network.)

5 Enter your DNS server addresses (if you are entering a DNS server, you must enter the IP address of the Default Gateway). The DNS server information is be supplied by your ISP (Internet Service Provider).

6 Click **OK** to save your changes and exit.

Selecting a dynamic IP address in Windows XP or Windows 2000

Residential gateways and broadband routers automatically assign IP addresses to the computers on their networks using DHCP (Dynamic Host Configuration Protocol) technology. If you are using a DHCP-capable gateway or router you will not need to assign static IP addresses.

To configure your computer to obtain a dynamic IP address:

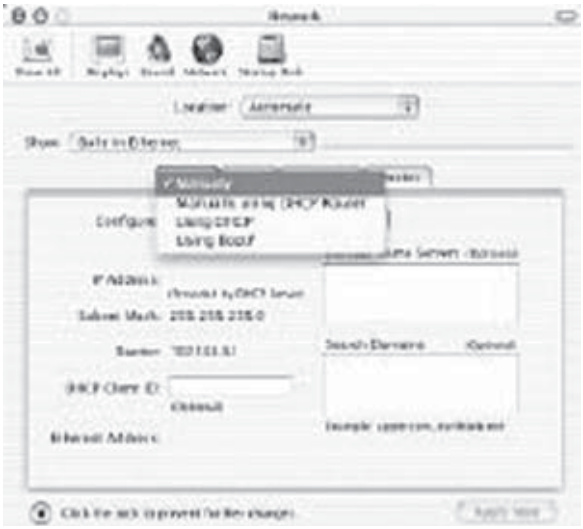
1. From the Windows Desktop, click **Start** (in the lower left corner of your screen), then double-click **Control Panel**. The *Control Panel* screen opens.
2. Double-click **Network Connections**, right-click **Local Area Connections**, then click **Properties**. The *Local Area Connection x Properties* screen opens.

3 Click **Internet Protocol (TCP/IP)**, then click **Properties**. The *Internet Protocol (TCP/IP) Properties* screen opens.
4 Click **Obtain an IP address automatically** and **Obtain a DNS server address automatically**.
5 Click **OK** to save your changes and exit.

Assigning a static IP address with Macintosh OS X

To assign a static IP address with Macintosh OS X:

1 Go to the **Apple** menu, then click **System Preferences**.
2 Click **Network**, then click **Built-in Ethernet** in the **Show** list.



3 Click **Manually** on the **Configure** list, then enter the static IP address, the subnet mask, and the router IP address in the appropriate fields.

4 Click **Apply Now** to save your settings and exit.

Selecting a dynamic IP address with Macintosh OS X

To select a dynamic IP address with Macintosh OS X:

1 Go to the **Apple** menu, then click **System Preferences**.

2 Click **Network**, then click **Built-in Ethernet** in the **Show** list.

3 Click **Using DHCP** on the **Configure** list, then click **Apply Now**. The IP address, subnet mask, and the router's IP address appear in a few seconds.

Checking the wireless connection by pinging in Windows XP and Windows 2000

To check the wireless connection by pinging in Windows XP and Windows 2000:

1 From the Windows Desktop, click **Start** (in the lower left corner of your screen), click **Run**, type **cmd** in the box, then click **OK**. The *Command Prompt* screen opens.

2 Type **ping xxx.xxx.xxx.xxx**, where xxx is the IP address of the router.

A good wireless connection shows four replies from the router.

Troubleshooting

This section provides solutions to problems that can occur during the installation and operation of the DX-E401 Cable/DSL Router. It covers various aspects of the network setup, including the network adapters. Read the following if you are having problems.

Confirm your computer's IP configuration

Using IPCONFIG (for Windows XP and Windows 2000)

To use IPCONFIG:

1. From the Windows Desktop, click **Start** (in the lower left corner of your screen), click **Run,** then type **cmd** in the box. The *Command Prompt* screen opens.
2. Type **IPCONFIG** at the command prompt, the press **Enter**.

   Your computer's IP information will appear on the screen.

Obtaining a dynamic IP address

Residential gateways and broadband routers will automatically assign IP addresses to the computers on the network, using DHCP (Dynamic Host Configuration Protocol) technology. If you are using a DHCP-capable gateway or router you will not need to assign static IP addresses. For more information, see Selecting a dynamic IP address in Windows XP or Windows 2000 on page 53.

Assigning a static IP address

If you are not using a DHCP-capable gateway or router, you will need to assign a static IP address to your computer. For more information, see Assigning a static IP address in Windows XP and Windows 2000 on page 51.

Specifications

Standards	IEEE 802.3 10Base-T Ethernet IEEE 802.3u 100Base-TX Fast Ethernet IEEE 802.3 Auto Negotiation
VPN pass-through/ multi-sessions	PPTP L2TP IPSec
Device management	Web-based—Internet Explorer 6 or later, Netscape Navigator 6 or later, or other Java-enabled browsers.
Media access control	CMSA/CA with ACK
LEDs	Power WAN LAN (10/100)

Operating temperature	32°F to 131°F (0°C to 55°C)
Humidity	95% maximum (non-condensing)
Safety and emissions	FCC UL
Physical dimensions	5.51 × 4.37 × 1.10 inches (140 × 111 × 28 mm)
Power input	External power supply DC 5V, 2.0A
Weight	10.8 oz. (0.3 kg)
Warranty	1 year

Technical Support

You can find software updates and user documentation on the Dynex Web site.

Dynex provides free technical support for customers within the United States for the duration of the warranty period on this product.

U.S. customers can contact Dynex technical support through our Web site, or by phone.

Tech support for customers within the United States:

Dynex Technical support over the Telephone: (800) 305-2204

Dynex Technical support over the Internet: www.dynexproducts.com

When contacting technical support, provide the following information:

· Serial number of the router

· Model number or product name

· Software type and version number

Warranty

Dynex warrants that for 1 year from date of purchase as stated on your receipt, it will replace this product if found to be defective in materials or workmanship. If defective, return the item to the store where it was purchased before the expiration of the 1 year warranty period, with your original receipt, and we will replace it with a then-current equivalent Dynex product (or a pro-rated refund at

Dynex's option). This warranty is available only for the original purchaser of this product. Dynex will not be responsible for any incidental or consequential damages or for any loss arising in connection with the use or inability to use this product. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

For defective products purchased online, contact: www.dynexproducts.com

Dynex support service at 1-800-305-2204

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Federal Communications Commission (FCC) Statement

This equipment has been tested and found to comply with the limits for a class B device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio / TV technician help.

FCC Warning

Changes or modification not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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