Diva 2440 ADSL Router
User's Guide

Second Edition (June 2001) **206-378-02**

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Introduction

This chapter provides introductory information on your Diva 2440 ADSL Router.

Introducing the Diva 2440 ADSL Router

The Eicon® Networks Diva 2440 ADSL Router provides fast access to the Internet via ADSL and is perfect for home users and small office / home office users. It is easy to set up and has many features that will help you get the most out of your ADSL line.

The Diva 2440 can accommodate two users directly via its Ethernet and USB ports (USB can be used with Windows® 98/2000/Me only). You can also connect a hub to the Diva 2440 and share Internet access amongst all users on the network. The Diva 2440's built-in DHCP server can automatically assign IP addresses to all workstations on your LAN.

The Diva 2440 addresses security concerns via built-in Network Address Translation (NAT) which allows multiple computers to share a single external IP address while making them invisible to the Internet.

The Diva 2440 also features a pass-through telephone port with built-in microfilter.

The following provides a brief overview of the many features of the Diva 2440.

General Features

- **Easy to Set Up:** Installation is a simple and straightforward procedure. You will be up and running in just a few minutes.
- **Web-base Configuration:** The Diva 2440 is configured via a web browser. Settings are organized in logical groups, and making changes is quick and easy.
- **Command Line Interface:** All settings can also be configured using a command line interface (Telnet application required).

ADSL and Network Features

- **Support for Full-rate and G.Lite ADSL:** The Diva 2440 is an ADSL (Asymmetric Digital Subscriber Line) device supporting transfer of up to 8 Mbps. Two popular versions of ADSL are built in to the Diva 2440, Full-rate and G.Lite.
- **DHCP Support:** The Diva 2440 can act as a DHCP server for your LAN. This lets you avoid having to assign specific IP addresses to the computers on your network.

Hardware Features

- **USB and Ethernet Ports:** The Diva 2440 can connect to your computer through both the Ethernet and USB ports (USB is Windows 98/2000/Me only). Setup via either port is simple and easy. You can also connect the Diva 2440 to an Ethernet hub, giving all computers on the network access to the Internet.
- **Simultaneous Port Usage:** The USB and Ethernet ports can be used simultaneously. You can connect one computer to the Ethernet port and another to the USB port, and both devices can access the ADSL line when needed or exchange data between the two local computers. See **Connection Scenarios** on page 8 for more information.
- **Upgradable Firmware:** The Diva 2440's firmware (a set of software instructions that tells the device how to operate) is stored in flash memory on the device. This makes it easy to upgrade the firmware should it become necessary to do so.

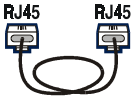
Package Contents

Your package should contain the following.

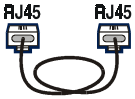
Diva 2440

Quick Install Guide

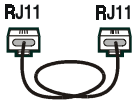
Ethernet Crossover Cable (Yellow)



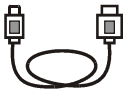
Ethernet Straight-through Cable (Blue or Grey)



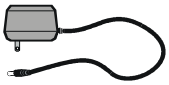
ADSL Phone Cable



USB Cable



Power Supply



CD-ROM

The yellow Ethernet cable is a crossover cable and is used to connect the Diva 2440 directly to a single computer. To connect the Diva 2440 to a network hub, you must use the included straight-through Ethernet cable. (This cable may be blue or grey.) You can also connect the yellow cable to the hub's uplink port, if available.

In addition, your package may include the following:

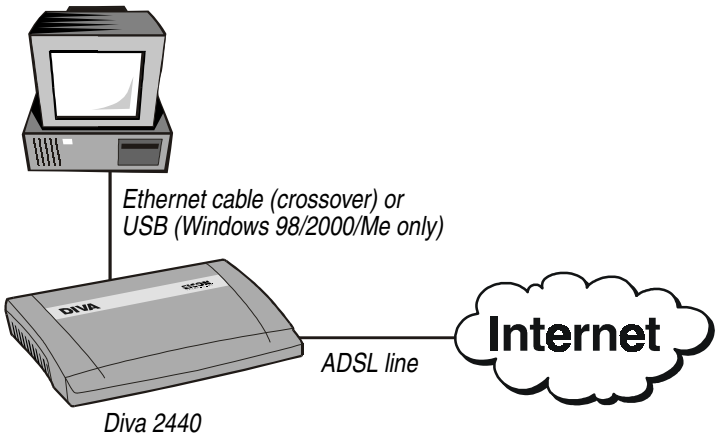
- A phone adapter may be provided for the ADSL cable if your wall jack is not RJ11 compatible.
- A microfilter may be provided if an ADSL splitter is not being used on your premises. The microfilter is connected between regular telephone devices and wall jacks in order to reduce background noise. If you are unsure if you should use a microfilter, contact your ADSL provider.

Connection Scenarios

The Diva 2440 has both a USB port and an Ethernet port. Both ports can be used at the same time, providing some flexibility in how you set up your equipment. You can also connect the Ethernet port to a third-party Ethernet hub.

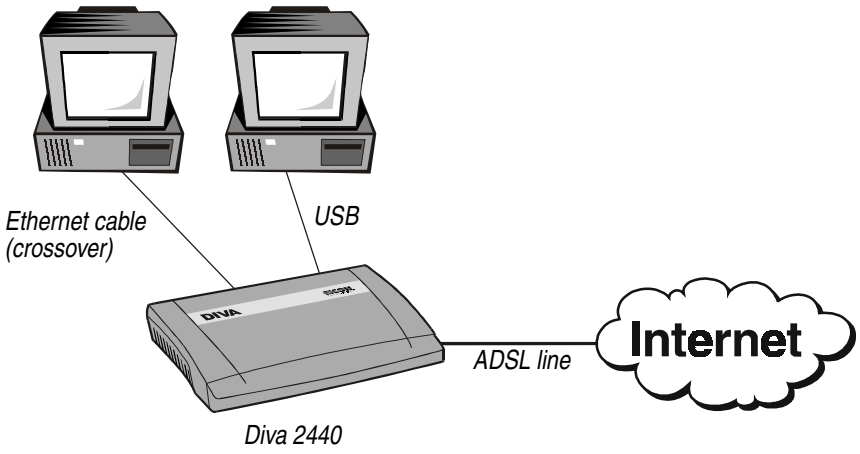
One Computer

For all operating systems that support an Ethernet network card, you may connect to the Diva 2440 via the Ethernet port. If you are using Windows 98, Windows 2000, or Windows Millennium Edition, you can connect a single computer to either the USB port or the Ethernet port.



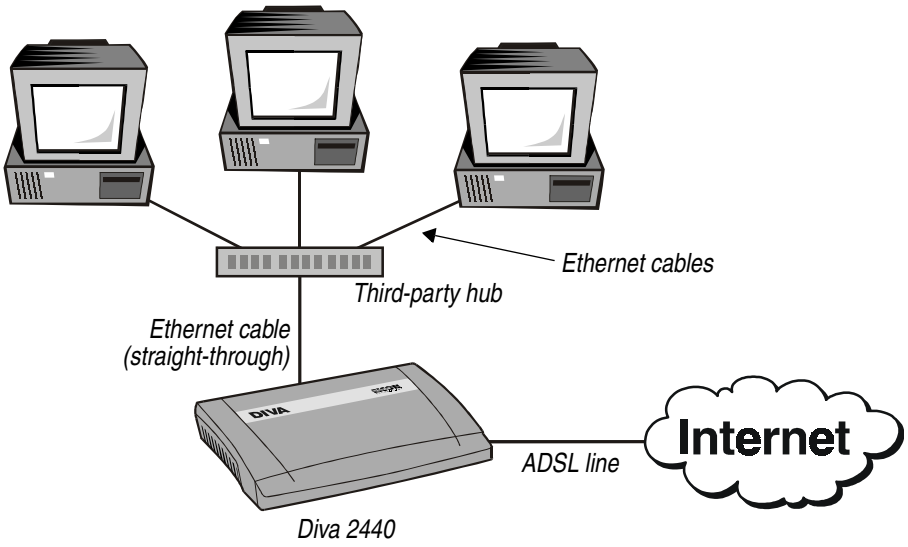
Two Computers at Once

You can connect two computers to the Diva 2440 for simultaneous access to your ADSL line. One computer is connected to the USB port and the other to the Ethernet port. The computer connected to the USB port must be using Windows 98/2000/Me.



More than Two Computers

A third-party hub can be connected to the Ethernet port, giving all computers on the network access to the ADSL line. Furthermore, you are still free to connect a computer to the USB port as long as the computer is using Windows 98/2000/Me.



If you plan on connecting the Diva 2440 to a hub or an existing local-area network as described above, see **LAN Setup** on page 24.

How ADSL Works

ADSL uses regular household telephone lines to receive and transmit data. To accomplish this task, ADSL data is transmitted on frequencies outside of the normal voice call range. This way the signals from the two devices do not interfere with each other.

ADSL provides two major benefits:

- **Phone lines always free:** Although the Diva 2440 uses the same wiring as your regular telephone, you can still pick up the phone and make a call at any time.
- **Instant access:** Unlike traditional dial-up modems, a connection made using the Diva 2440 is always on. You no longer have to wait while your modem dials into your Internet provider.

Splitters and 'Splitterless' Operation

A splitter is a device installed at the entry point of the telephone line to your house and is used to eliminate interference between the ADSL and voice signals. However, splitters must be installed by a technician from your telephone company and usually require new telephone wiring to be installed.

The Diva 2440 can operate with or without a splitter with both Full-rate and G.Lite ADSL.

Microfilters

For most splitterless installations, you most likely will need to install a microfilter between your telephone devices (telephone, fax machine, answering machine) and the telephone jacks. Microfilters filter out the frequencies outside of the normal voice call range and reduce interference between ADSL transmissions and voice transmissions.

See **About Microfilters** on page 33 for more information. Microfilters may or may not be included in your package. Contact your ADSL provider for more details.

Setup

This section describes how to set up your Diva 2440 to a single computer. General instructions for a LAN installation are also included.

Overview

Before you begin, please read the following general installation information.

Connecting to Both Ports

Once you connect a computer to either the USB or Ethernet port, you can connect a second computer to the unused port without reconfiguring the Diva 2440. However, to help ensure a problem-free setup, connect only one computer and verify that the device is working correctly before connecting a second computer.

Requirements

Your system requirements will depend on the type of installation and the computer you are using.

Ethernet	The Diva 2440 will work with any computer equipped with the following: • A 10BASE-T Ethernet network interface card, properly installed and configured to use the TCP/IP protocol. Consult the documentation that came with your card for instructions on how to do this. A 100 Mbps Ethernet card can be used if the card supports auto-sensing. • TCP/IP communications protocol configured to obtain its IP address automatically (DHCP client), and not configured to use a DNS server. See **TCP/IP Setup** on page 27 for more information.
USB	To connect using the Diva 2440's USB port, you will require a computer running Windows 98, Windows 98 SE, Windows 2000, or Windows Millennium Edition, equipped with an freeUSB port. You cannot use the Diva 2440's USB port with Windows 95, Windows NT, Apple® Macintosh®, or other systems.
Web Browser	The Diva 2440 is configured via web pages stored on the device. To use the web interface, you must be using Netscape Navigator 3.01 or Microsoft® Internet Explorer 4, or later versions. Additionally, your Web browser must be configured to connect to the Internet via a local area network (LAN) and not through a proxy server. An installer for Microsoft Internet Explorer is included on the Diva CD-ROM for all Windows operating systems except Windows 3.1. Windows NT® 4.0 requires SP3 or later, available from www.microsoft.com.
Diva Assistant	The Diva 2440 includes the Diva Assistant software, compatible with all Windows operating systems except Windows 3.1. The Diva Assistant provides convenient utilities and is also very useful during a LAN setup, but it is not required in order to use the Diva 2440.

Internet Account Information

During setup, you must enter account information as specified by your provider. Write this information down for future reference.

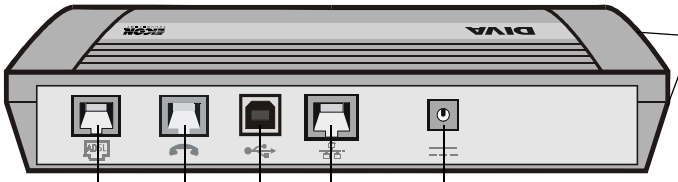
- VPI setting
- VCI setting
- Encapsulation
- Connection Type
- Username and password, if your connection type is set to ‘PPP over Ethernet’ or ‘PPP over ATM’.
- IP and DNS addresses, if your connection type is set to ‘IP over ATM’.

Note: *Most or all settings should be supplied by your ADSL provider.*

Ports and Indicator Lights

Before you begin installation, take a moment to become more familiar with the ports and indicator lights of the Diva 2440.

Ports



Reset Button

The reset button is located on the side or on the bottom, depending on the model. Press this button once to reset the device. Warning: Pressing the Reset button for 15 seconds resets the device back to factory defaults.

ADSL Port

This port is used for connecting the ADSL cable to your telephone jack.

Power Connector

Used for connecting the Diva 2440 to an electrical outlet.

Phone Port

This port is used for connecting a telephone or other analog device, and is available with certain models only.

Ethernet Port

Used for connecting the Diva 2440 to a computer's Ethernet adapter or to a network hub.

USB Port

Used for connecting the Diva 2440 to a computer equipped with a USB port. Can only be used with computers running Windows 98, Windows 2000, or Windows Millennium Edition. It cannot be used with Windows 95, Windows NT, Macintosh, or other systems.

Both the Ethernet and USB ports can be used at the same time, providing Internet access for two computers without a hub. You can also connect the Ethernet port to a hub and use the USB port with another computer.

Indicator Lights

Power Light

Solid Green: The unit is on and working correctly.

Off: The power adapter is not connected.

Red: The device has encountered a fault condition or is in boot mode. Press the Reset button once to return the device to normal.

Ethernet Light

Solid Green: The Ethernet cable is connected properly.

Flashing: Data is being transferred to or from your computer over the Ethernet cable.

Off: The Ethernet cable is not connected.

USB Light

Green: The USB cable is properly connected and the operating system is configured to use the device.

Flashing: Data is being transferred to or from your computer over the USB cable.

Off: The cable is not connected properly or the operating system is not configured for this device. This light may also go off if your computer is put in low power mode.

ADSL Light

Solid Green: An ADSL connection has been established.

Flashing Green: The Diva 2440 is attempting to synchronize with your provider's ADSL network.

Off: The ADSL cable is not connected properly, or your ADSL service provider has not yet activated ADSL services on your line.

Receive and Transmit Lights

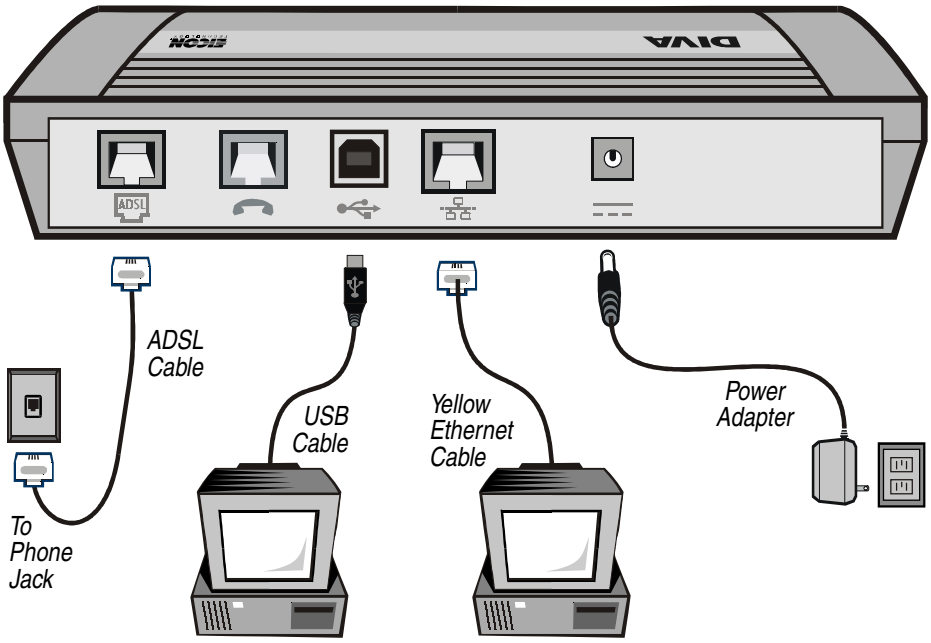
Flashing: Data is being received or transmitted via the ADSL connection.

Off: Data is not being received or transmitted.

Step 1: Connect the Cables

Leave your computer on when connecting the cables.

As shown in the diagram below, both the USB and Ethernet ports can be used at the same time. However, it is recommended that you use only one port during setup. Once you have verified that you can access the Internet, you can then connect a second computer.



ADSL Cable Notes

- Do not install a microfilter on the cable that connects your ADSL device to the telephone jack.
- If your Diva 2440 has a phone port, make sure you do not use this port to connect the ADSL cable.
- Several seconds after connecting the ADSL cable, the ADSL indicator light (ADSL on the front of the device) should start flashing. This light will stop flashing and stay on when a link has been established with your ADSL service provider's network.

Ethernet Cable Notes

- The Ethernet port can be used with any computer supporting an Ethernet card and TCP/IP.
- When connected, the Ethernet indicator light (on the front of the device) will turn green when the Diva 2440 is plugged in and the computer is on.
- When finished connecting the cables, restart your computer so that your Ethernet card acquires a new IP address.

USB Cable Notes

- USB requires Windows 98, Windows 2000, or Windows Millennium Edition. USB will not work with Windows 95 or Apple Macintosh computers.
- Once the power and USB cables are connected, Windows will request driver files. Follow the onscreen instructions, as described below.

Windows 98	1. Insert the Diva CD-ROM into your CD-ROM drive. 2. From the 'Hardware Wizard' window, click 'Next'. 3. Select the option 'Search for the best driver', then click 'Next'. 4. When asked for the location of the driver files, select 'Specify a location' and clear all other options. In the 'Location' field, type in **D:\USB\WIN98** (with 'D' being the letter of your CD-ROM drive), then click 'Next'. 5. Once the driver is located, click 'Next' to begin installation. 6. When installation is complete, click 'Finish'.
Windows Me	1. Insert the Diva CD-ROM into your CD-ROM drive. 2. Select 'Specify the location of the driver', then click 'Next'. 3. For the location, type in **D:\USB\WIN98** (with 'D' being the letter of your CD-ROM drive), then click 'Next'. 4. When installation is complete, click 'Finish'.
Windows 2000	1. Insert the Diva CD-ROM into your CD-ROM drive. 2. Click 'Next'. 3. Select 'Search for a suitable driver', then click 'Next'. 4. When asked for the location of the driver files, select 'Specify a location' and clear all other options. In the 'Location' field, type in **D:\USB\WIN98** (with 'D' being the letter of your CD-ROM drive), then click 'Next'. 5. Once the driver is located, click 'Next' to begin installation. 6. When installation is complete, click 'Finish'.

Updating or reinstalling USB drivers

If you must reinstall or update the USB drivers, follow the instructions below.

7. From your desktop, right-click 'My Computer', click 'Properties', then click the 'Device Manager' tab. The System Properties window opens.
8. Double-click 'Network Adapters', right-click 'Eicon Diva 2400 Series Virtual LAN Adapter for USB', and select 'Properties'. The dialog box opens.
9. Click the 'Drivers' tab and click 'Update Driver'. Follow the onscreen instructions. You will asked to insert your Windows Installation Disk, and you will also need the new USB drivers. The drivers are also located in the USB folder on the Diva CD-ROM.

   Note: *This procedure may vary according to the Operating System installed.*

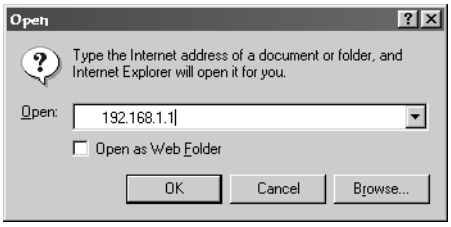
To continue

See **Step 2: Access the Diva 2440 Web Interface** on page 18.

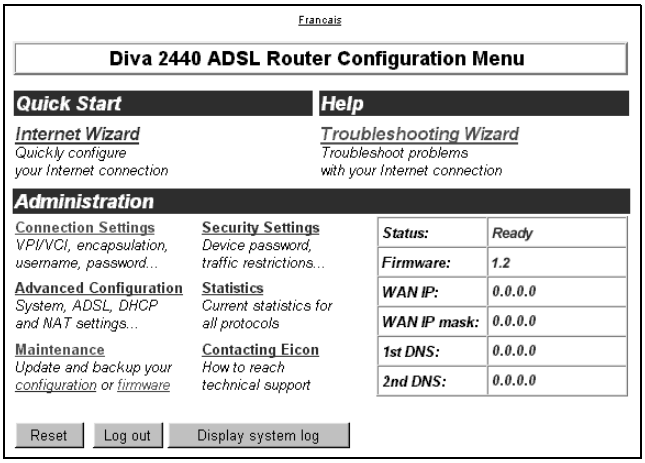
Step 2: Access the Diva 2440 Web Interface

To access the Internet through your provider's network, you must first enter configuration information, such as username and password, via a web browser (Internet Explorer 4.0 or later, or Netscape Navigator 3.0 or later). If you do not have a web browser, an installer for Internet Explorer for Windows is located in the 'bonus' folder on the Diva CD-ROM.

1. Make sure you have restarted your computer. (If you are using the USB port, Windows should have already asked you to do so upon installation of the USB drivers.)
2. Launch your web browser.
3. Click 'File', 'Open', enter **192.168.1.1** and click 'OK'.



4. The Diva 2440 main configuration page should appear.



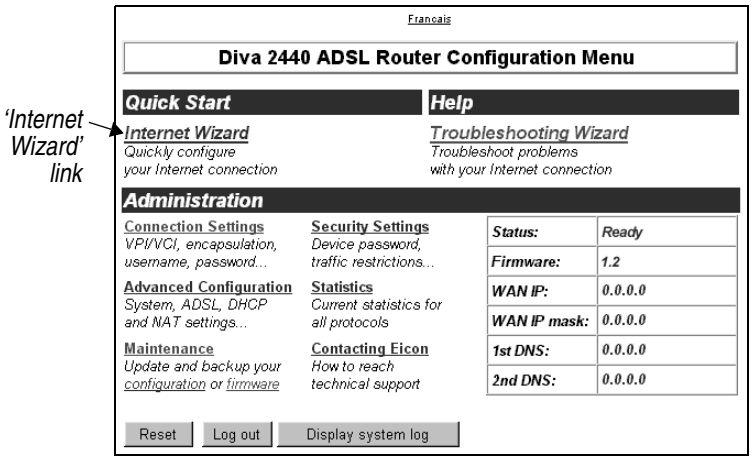
Note: *If you do not see the main configuration page, see* ***Troubleshooting*** *on page 31.*

5. To continue, see **Step 3: Complete the Internet Wizard** on page 19.

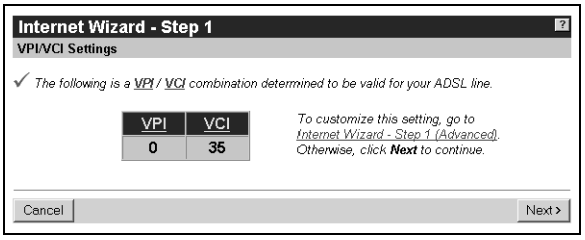
Step 3: Complete the Internet Wizard

All parameters should be specified by your ADSL provider. See **Internet Account Information** on page 13 for more information.

1. From the main menu, click ‘Internet Wizard’.

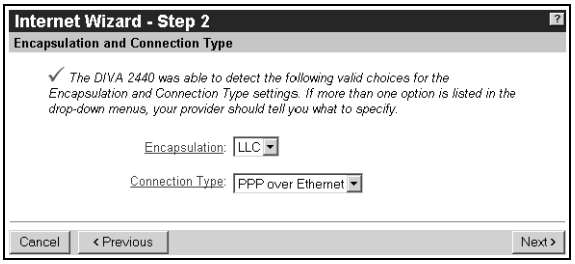


2. This first page of the Internet Wizard displays the detected VPI/VCI settings for your ADSL connection.



If the default settings are incorrect, click the ‘Internet Wizard - Step 1 (Advanced)’ link to edit the settings. Otherwise, click the ‘Next’ button to continue.

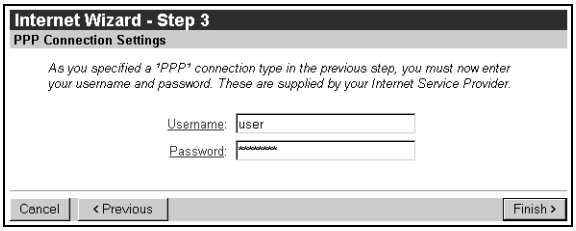
3. In Step 2 of the wizard, you are presented with ‘encapsulation’ and ‘connection type’ settings. Normally, these settings are detected automatically, and you should only have one option for each.



Click the ‘Next’ button to continue.

4. Step 3 in the wizard will differ depending on the connection type specified in Step 2.

   - If you are using a connection-oriented type ('PPP over Ethernet' or 'PPP over ATM'), you will be asked to enter your username and password.



   - If you are using an always-on connection type ('IP over ATM'), you will be asked for your IP and DNS addresses.

   Click the 'Finish' button to complete the setup wizard.
   If an error is reported, see **Troubleshooting** on page 31.

Setup Complete!

Congratulations! You may now surf the Internet!

Try accessing an external web page, such as **www.eicon.com** (Eicon Networks's web site).

It is recommend you register your purchase right away. Visit the Diva 2440 web page at **www.eicon.com/diva2440**.

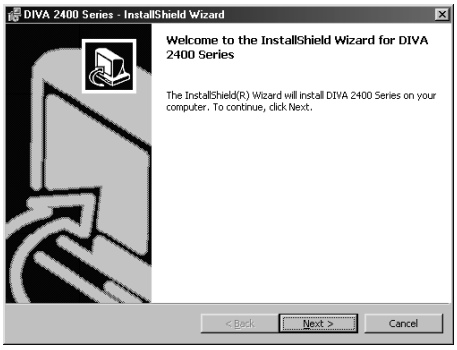
Optional: Installing the Diva Assistant

The Diva Assistant software (compatible with Windows 9x, Windows NT 4.0, Windows 2000, and Windows Me) provides convenient features for using your Diva 2440, such as viewing of device performance and log messages, easy access to the web interface, and firmware upgrade. The Diva Assistant also provides status information for the device. However, use of the Diva Assistant is optional.

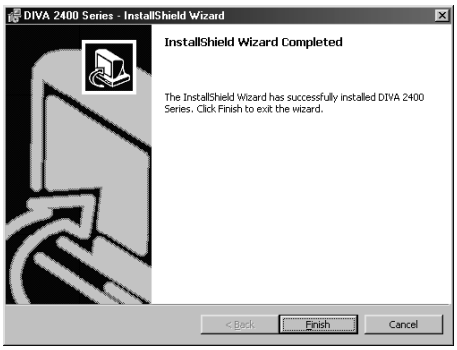
1. Quit all running applications.
2. Insert the Diva CD-ROM into your CD-ROM drive if you have not done so already. The setup program should start automatically.

   Note: *If the setup program does not start on its own, double-click 'My Computer' on your desktop, double-click your CD-ROM drive, then double-click the 'CDSETUP.EXE' file.*

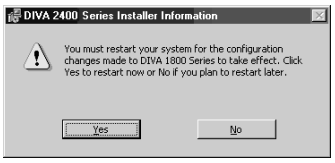
3. From the 'Welcome' screen, click 'Installation', then click 'Diva Assistant Software'.
4. The setup wizard starts. Click 'Next' and follow the onscreen instructions.



5. When installation is complete, click 'Finish'.



6. After you click ‘Finish’, you will see a message stating that you must restart your computer. Click ‘Yes’.



You may encounter problems using the software if you do not restart your computer after installation.

Once you have returned to the Windows desktop, the Diva Assistant icon will be visible in the system tray. Double-click the icon to open the software.

A Diva Assistant shortcut is also copied to your desktop.

Connecting a Second Computer

Once you connect a computer to either the USB or Ethernet port, you can connect a second computer to the unused port without reconfiguring the device. However, to help ensure a problem-free setup, connect only one computer and verify that the device is working correctly before connecting a second computer.

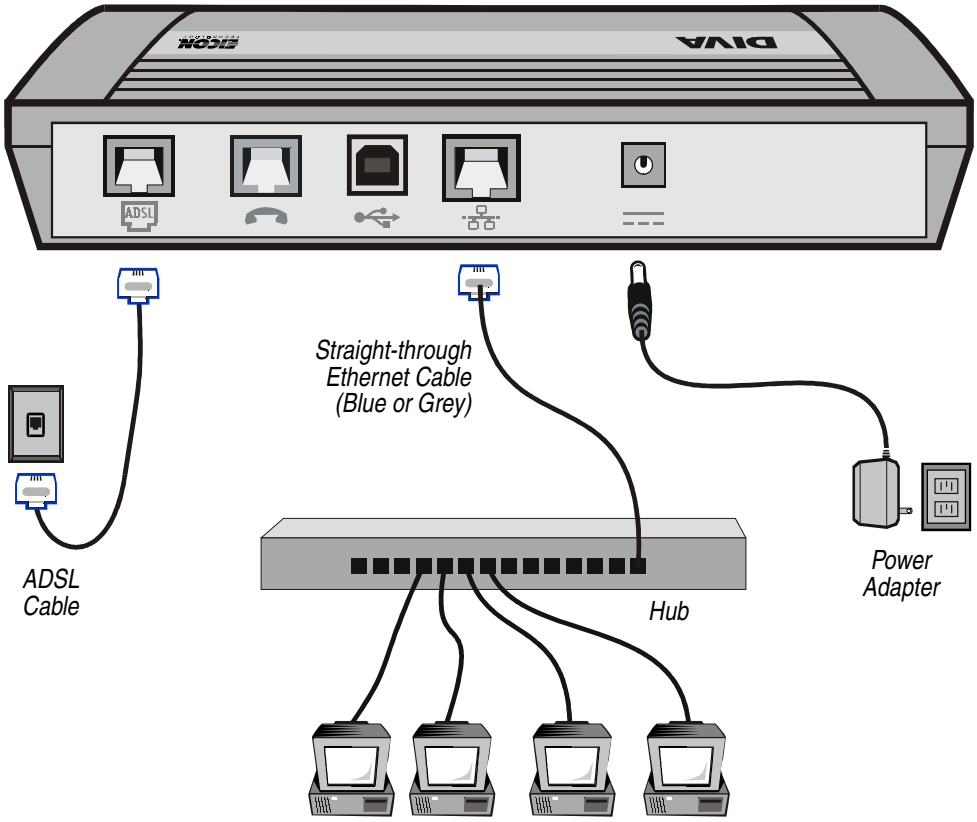
If you are connecting a second computer to the Ethernet port, make sure that the computer is set to acquire its IP address from a DHCP server, as described in **TCP/IP Setup** on page 27. Once you connect the cable, restart your computer. You should then be able to access the Internet.

Remember that the computer connected to the USB port must be using Windows 98, Windows 2000, or Windows Millennium Edition. Once you connect the USB cable, follow the instructions as described in **USB Cable Notes** on page 17. The USB drivers are located in the ‘USB’ folder on the Diva CD-ROM.

LAN Setup

Installing the Diva 2440 on an existing LAN can be extremely simple or quite challenging, depending on the complexity of your existing LAN setup. This section provides important points to keep in mind when installing the Diva 2440 on a LAN.

However, due to the wide range of networking equipment and topologies that are in use worldwide, your configuration needs may fall outside the strategy presented here. In this case, you should contact your network administrator, or other support person to help you with your installation.



About the Ethernet Cable

The yellow Ethernet cable is a crossover cable and is used to connect the Diva 2440 directly to a single computer. To connect the Diva 2440 to a network hub, you must use the included straight-through Ethernet cable. (This cable may be blue or grey.) You can also connect the yellow cable to the hub's uplink port, if available.

However, the yellow cable can be used if your hub has a uplink port. Consult the documentation included with your hub for further information.

General Setup Procedure

The following is a general guideline for the setup procedure you must follow when setting up the device on a LAN.

1. Connect the Diva 2440 to the hub on your LAN.
2. Contact the Diva 2440 using a computer on your LAN as described in **Step 2: Access the Diva 2440 Web Interface** on page 18. If you are using Windows, this is more easily done with the Diva Assistant (see **Using the Diva Assistant to set on a LAN**).

   Note: *If you cannot contact the device over a LAN, use a single non-networked computer for initial configuration, with the yellow Ethernet cable.*
3. Complete the Internet Wizard as described in **Step 3: Complete the Internet Wizard** on page 19, then verify that the Internet is accessible from the required machines.
4. Adjust other LAN settings, such as those on a router or on the Diva 2440 itself.

Built-in DHCP Server

The Diva 2440 has a built-in DHCP server. When you drop the Diva 2440 into a LAN, the Diva 2440 senses if another DHCP server exists and de-activates its own DHCP services. To re-activate the DHCP server, disable the other server, then press the Reset button.

Using the Diva Assistant to set on a LAN

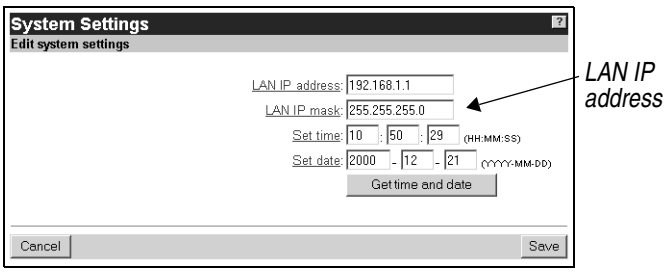
The default LAN IP address for the Diva 2440 is 192.168.1.1. Normally, in order to contact the Diva 2440 through TCP/IP, your computer's IP address must be on the same subnet as the device. For example, your computer could be set to 192.168.1.2.

If at least once computer on your LAN uses Windows, install the Diva Assistant on that computer and use it to contact and configure the Diva 2440. The Network Wizard, a feature of the Diva Assistant, will contact the Diva 2440 over a network, without having to change the computer's TCP/IP settings.

To use the Network Wizard, right-click on the Diva Assistant icon in the system tray and select 'Network Wizard'. Once the Diva Assistant has discovered the Diva 2440, you will be asked if you want to change its IP address.

IP Addressing

If your LAN uses static IP addressing, or if you are using an existing DHCP server, you must assign the Diva 2440 a unique IP address. To change this setting, access the web interface, click 'Advanced Configuration', click 'System Settings', enter a new IP address in the 'LAN IP Address' field, then click 'Save'.



Note: *This step is done automatically if the Diva Assistant is used.*

Once you click 'Save', you will lose contact with the device. To re-access the web interface, click 'File', 'Open' in your web browser, then enter the new IP address. You may need to change the TCP/IP settings on your computer before being able to access the Diva 2440 after the IP address has been changed.

However, if your computer is set to acquire its IP address dynamically from a DHCP server, you need only restart your computer (or reset the IP address manually using ‘winipcfg’ with Windows 9x or ‘ipconfig /renew’ for Windows 2000/NT). The Diva 2440 will assign the new address.

Adjusting LAN Settings

The following are further changes you may need to make to your LAN setup. However, due to the wide range of networking equipment and topologies, these are only guidelines.

If your LAN has a DHCP Server

If your LAN has a DHCP server, configure your DHCP server to return the address of the Diva 2440 as the ‘Default Gateway’ and ‘DNS Server’ to all clients.

If your LAN uses Static IP Addresses

If your LAN uses static addressing, you must configure the TCP/IP settings on each computer. Specifically, set each computer’s ‘Default Gateway’ and ‘DNS Server’ settings to the address of the Diva 2440.

If your LAN has a router

If you have a router on your LAN, it is likely configured as the default gateway for your computers. In this case, you will need to configure the routing table on your router to re-direct the appropriate traffic to the Diva 2440.

TCP/IP Setup

To be able to communicate with the Diva 2440 via Ethernet, your computer must have TCP/IP installed and configured to act as a DHCP client. This allows your computer to acquire its IP address and other settings from your provider's DHCP server dynamically.

The following procedures describe how to set your TCP/IP settings for Windows 95, Windows 98, Windows NT 4.0, Windows 2000, and Macintosh (Mac OS 8). For other platforms, consult the documentation for your operating system.

Windows 95/98

The following procedure describes how to verify and install TCP/IP on Windows 95 or Windows 98. If TCP/IP is already installed on your system, go to **Configuring TCP/IP** (below). Note that if you have more than one adapter installed on your system, you will have to use the adapter that is in use by the Diva 2440.

1. Click 'Start', 'Settings', 'Control Panel'.
2. Double-click the 'Network' icon. The 'Network' dialog box appears. By default, the 'Configuration' tab is displayed.
   - If 'TCP/IP' is not listed for your network adapter in the 'Components' list, go to **Installing TCP/IP** (below).
   - If 'TCP/IP' is listed for your network adapter in the 'Components' list, then the protocol is already installed. Go to **Configuring TCP/IP** (below).

Installing TCP/IP

1. Click 'Add'. The 'Select Network Component Type' dialog box appears.
2. Select 'Protocol', then click 'Add'. The 'Select Network Protocol' window appears.
3. In the 'Manufacturer' box, select 'Microsoft'.
   In 'Network Protocols', select 'TCP/IP'.
4. Click 'OK'. Once installation is complete, you are returned to the Network window.
5. Do not click the 'OK' button yet; next you will verify your TCP/IP settings. Go to **Configuring TCP/IP** (below).

Configuring TCP/IP

1. In the list of components, select 'TCP/IP' for your network card, then click 'Properties'. The 'TCP/IP Properties' dialog box appears.
2. Click the 'IP Address' tab and select 'Obtain an IP address automatically'. This defines your machine as a DHCP client.
3. Click the 'WINS Configuration' tab and select 'Use DHCP for WINS Resolution'.
4. Click the 'Gateway' tab and remove all existing gateways.

5. Click the ‘DNS Configuration’ tab and select ‘Disable DNS.’ This instructs your computer to obtain DNS server information via DHCP.
6. Click ‘OK’, then click ‘OK’ again.

   Note: *You may be asked to insert your original Windows installation CD-ROM.*

7. If prompted to restart your system:
   - Click ‘No’ if you are next going to install the Diva Assistant. You are required to restart after installing this software, and clicking ‘No’ will save you some time.
   - Click ‘Yes’ if you do not need to install the Diva Assistant. Your computer must be restarted in order to acquire a new IP address.

Windows NT 4.0

The following procedure describes how to install TCP/IP on Windows NT 4.0. If TCP/IP is already installed on your system, see **Configuring TCP/IP** (below). Note that if you have more than one adapter installed on your system, you will have to use the adapter that is in use by the Diva 2440.

1. Click ‘Start’, ‘Settings’, ‘Control Panel’.
2. Double-click the ‘Network’ icon. The Network dialog box appears.
3. Click the ‘Protocols’ tab.
   - If ‘TCP/IP’ is not listed, go to **Installing TCP/IP** (below).
   - If ‘TCP/IP’ is listed, then the protocol is already installed. Go to **Configuring TCP/IP** (below).

Installing TCP/IP

1. From the ‘Protocols’ tab, click ‘Add’.
2. Select ‘TCP/IP protocol’ as your network protocol, then click ‘OK’.
3. Click ‘Yes’ to use DHCP.
4. When prompted, insert the original Windows NT installation CD and enter **d:\i386** (where d: is the drive letter of your CD drive), and click ‘Continue’.
5. Do not click the ‘OK’ button yet; next you will verify your TCP/IP settings. Go to **Configuring TCP/IP** (below).

Configuring TCP/IP

1. Click the ‘Protocols’ tab.
2. Select ‘TCP/IP protocol’, then click ‘Properties’.
3. Select ‘Obtain an IP address from a DHCP server’.
4. Click the ‘DNS’ tab. Delete any DNS addresses are configured.
5. Click ‘OK’.

6. If prompted to restart your system:
   - Click ‘No’ if you are next going to install the Diva Assistant. You are required to restart after installing this software, and clicking ‘No’ will save you some time.
   - Click ‘Yes’ if you do not need to install the Diva Assistant. Your computer must be restarted in order to acquire a new IP address.

Windows 2000

Windows 2000 automatically created a network adapter profile (named ‘Local Area Connection’ by default) when the adapter was installed. However, the TCP/IP protocol is not installed by default. You must check if this profile has the Internet Protocol (TCP/IP) installed and properly configured. Note that if you have more than one adapter installed on your system, you will have to use the adapter that is in use by the Diva 2440.

1. Click ‘Start’, ‘Settings’, ‘Network and Dial-up Connections’, then ‘Local Area Connection’. (Note the name of this connection may be different as it can be changed by the user.) The status window for this adapter is displayed.
2. Click ‘Properties’. The properties window for this adapter is displayed.
   - If ‘Internet Protocol (TCP/IP)’ is not listed in the ‘Components’ list, go to **Installing TCP/IP** (below).
   - If ‘Internet Protocol (TCP/IP)’ is listed in the ‘Components’ list, then the protocol is already installed. Go to **Verifying TCP/IP Settings** (below).

Installing TCP/IP

1. Click the ‘Install’ button. The ‘Select Network Component Type’ window appears.
2. Select ‘Protocol’ and click ‘Add’. A list of available protocols appears.
3. Select ‘Internet Protocol (TCP/IP)’ then click ‘OK’. Once the installation is complete, you are returned to the properties window.
4. Do not click the ‘Close’ button yet; next you will verify your TCP/IP settings. Continue with **Verifying TCP/IP Settings** (below).

Verifying TCP/IP Settings

1. Select ‘Internet Protocol (TCP/IP)’, then click ‘Properties’.
2. The settings should be ‘Obtain an IP address automatically’ and ‘Obtain DNS server automatically’.
3. Click ‘OK’, then ‘OK’ again, then click ‘Close’.
4. If prompted to restart your system:
   - Click ‘No’ if you are next going to install the Diva Assistant. You are required to restart after installing this software, and clicking ‘No’ will save you some time.
   - Click ‘Yes’ if you do not need to install the Diva Assistant. Your computer must be restarted in order to acquire a new IP address.

Apple Macintosh (Mac OS 8 or later)

TCP/IP is installed by default with your Mac OS. If it is not in the Control Panels folder, reinstall it from your System Installation CD.

1. From the Apple menu, select ‘Control Panels’.
2. Select ‘TCP/IP’.
3. Set ‘Connect via’ to ‘Ethernet’.
4. Set ‘Configure’ to ‘Using DHCP Server’.
5. Close the TCP/IP control panel.
6. Click ‘Yes’ to save the changes.

It is not necessary to restart your computer after making these changes. Your computer will request a new IP address automatically.

Troubleshooting

When troubleshooting, examine the state of the ADSL light (**ADSL**) on the front panel of the Diva 2440.

If the ADSL light is glowing continuously (is not blinking), a connection to the ADSL network has been established. This means Internet access is possible. Try the following:

- Restart your computer and try accessing the Internet again.
- Verify that your setup information has been entered correctly as described in **Step 2: Access the Diva 2440 Web Interface** on page 18.
- Verify that the TCP/IP settings for your Ethernet card are set to acquire an IP address dynamically from a DHCP server. See **TCP/IP Setup** on page 27, or consult the documentation that came with your operating system for information on verifying TCP/IP settings.
- Verify that your Web browser is configured to use the local LAN, and is not configured to use a proxy server. See **Browser Settings** on page 31 for instructions.

If the ADSL light blinks continuously or stays off, Internet access is not possible – the Diva 2440 is unable to establish a connection with the ADSL network. Try the following:

- Check that your cables are connected properly.
- Verify that you have **not** connected a microfilter between the Diva 2440 and a telephone wall outlet.
- Disconnect the power cable from the Diva 2440, wait a few seconds, then reconnect the cable.

If the ADSL light continues to blink or stays off, contact your ADSL service provider.

Browser Settings

If you are not able to access the configuration pages, verify your browser settings as described below. Note that the steps may vary slightly depending on the browser version used.

- Internet Explorer version 5 or later:
  - From the ‘Tools’ menu, select ‘Internet Options’, then click the ‘Connections’ tab. Click ‘Setup’.
  - Select the option ‘I want to set up my Internet connection manually’, then click ‘Next’.
  - Select ‘I want to connect through a local area network’, then click ‘Next’.
  - Clear all proxy options, then click ‘Next’.
  - Clear the option ‘Connect to the Internet immediately’, then click ‘Finish’.

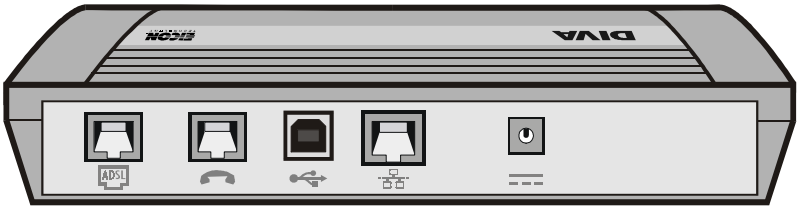
- Internet Explorer previous to version 5:
  - From the ‘View’ menu, select ‘Internet Options’, then click the ‘Connection’ tab.
  - Verify that ‘Connect to the internet using a local area network’ is enabled.
  - Verify that the ‘Proxy Server’ option is disabled.

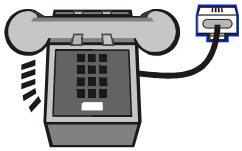
- Netscape Navigator (do one of the following):
  - Under Options, click ‘Network Preferences’, then ‘Proxies’. Verify that the ‘No Proxies’ option is selected.
  - Under the ‘Edit’ menu, click ‘Preferences’, ‘Advanced’, then ‘Proxies’. Verify that the ‘Direct Connection to the Internet’ is enabled.

Once finished making changes, click ‘OK’, then retry accessing the web-based configuration pages.

Connecting a Phone to the Pass-through Phone Port

Once setup is complete, you can connect an analog device (such as a telephone or fax machine) to the phone port on the back of the Diva 2440.





The pass-through phone port on the back of the Diva 2440 has a built-in microfilter. Do not use a microfilter when connecting a phone or fax machine to this port.

Note: *Telephone standards vary from region to region. If the cable for your analog device is not RJ11 compatible, you must connect an adapter to the cable before connecting it to the phone port.*

About Microfilters

A microfilter is a small device designed to reduce interference between ADSL signals and your regular telephone signals.

The use of microfilters is only required if your ADSL modem and your telephone devices share the same wiring. This is known as ‘splitterless’ ADSL. Without microfilters, ADSL may cause background noise on your phone. Additionally, ADSL data transfer may be interrupted by phone calls.

Note: *To test if the telephone jack you are using for ADSL is shared by another telephone jack in your location, connect a plain telephone to the telephone jack intended for use by the Diva 2440, and connect another telephone to the other telephone jack. Pick up the phone on one jack and have someone else pick up the phone on the other jack, then talk. If you hear the other person talking, the two jacks share the same wiring.*

If microfilters are required, you must install one on each telephone device that shares the same wiring as the ADSL signals, including telephones, answering machines, and fax machines.

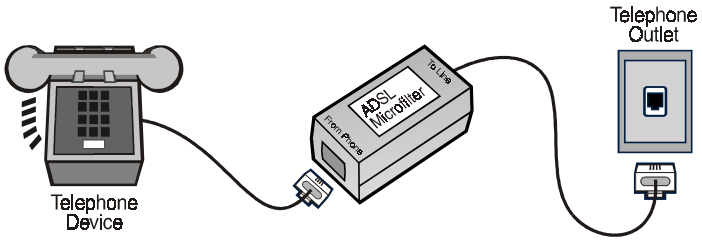
If your installation uses a splitter, it should not be necessary to use microfilters as ADSL data is carried on separate wiring up to the point of entry to your location. Contact your provider for more information.

Your package may or may not include a microfilter. If you are unsure as to how to connect the microfilter, or whether or not one is necessary, contact your ADSL provider.

Connecting a Microfilter

To install the microfilter, plug your phone or other analog device into the microfilter, then plug the microfilter into your telephone jack, as shown below.

You must use one microfilter per telephone device in your location.



As telephone standards vary from region to region, your telephone equipment may vary than those illustrated here.

Note: *Do not install a microfilter on the cable that connects your ADSL device to the telephone jack. It is also unnecessary to use a microfilter on the Diva 2440’s built-in phone port.*

Technical Support

- For technical support, visit our web site at **www.eicon.com/support.**
- For other contact information, visit **www.eicon.com/support/contact.asp.**
- For service, contact your Eicon Networks supplier.

Using your Diva 2440

This section provides a general introduction to configuring and using your Diva 2440. More specific information on the Diva 2440's features are found later in this guide.

General Information

The following are common questions related to your Diva 2440.

How do I dial out to my Internet Provider?

Internet access via ADSL is an ‘always on’ connection. You need only launch the application you want to use (such as a web browser or e-mail program), and the Diva 2440 takes care of the rest.

How do I register my Diva 2440?

Once you are up and running, you should visit the Eicon Networks web site and register your Diva 2440. This ensures that you will always be kept up-to-date of new features and firmware releases. Open the following URL in your web browser:

http://www.eicon.com/diva2440/

How do I make changes to device settings?

The Diva 2440 settings are accessed via a web browser. You log on to the device just like any web server, go to the appropriate settings page, and make changes. To learn more about this topic, see **Starting the Web-based Configuration Interface** on page 38.

How do I define a login password?

See **Login Password and other Security Features** on page 43.

What do the indicator lights mean?

See **Ports and Indicator Lights** on page 14.

Resetting the Device

Normal Reset

To do a normal reset, press the ‘Reset’ button. This button is located on the side or underneath the device, depending on the model.

Note: *If your unit has the reset button on the side, you must use a straightened paperclip to access this button.*

A normal reset ‘reboots’ the device. Your settings are left intact.

You can reset the device via the main menu of the web interface (see **Starting the Web-based Configuration Interface** on page 38).

Reset Settings to Factory Defaults

This procedure resets the device settings to the factory defaults.

Warning: As configuration settings are returned to factory default settings, all custom settings are lost.

To reset to factory defaults, hold down the ‘Reset’ button for about 15 seconds. The Power light will turn red after the first five seconds, and after a total of 15 seconds, the Power light will turn green again, indicating the reset is complete.

Note: *This procedure will return the default IP address of the Diva 2440 to 192.168.1.1. If you changed the IP address of the Diva 2440 from this default setting, you will need to use the default IP address 192.168.1.1 to access the web configuration menu.*

A factory reset can also be performed via the web interface (see **Configurations – Saving, Restoring, and Resetting** on page 40).

Boot Mode

If you hold the Reset button down for five seconds, then let go of the button, the Diva 2440 enters ‘Boot Mode’. This mode is used for advanced installation and troubleshooting purposes.

Press the ‘Reset’ button once more to return the device back to normal operation.

Note: *The device is not accessible via USB when in boot monitor mode, or when the device experiences a fault condition (power light turns red). To access the device under these circumstances (to get a memory dump, for example), it is necessary to connect the device via the Ethernet port.*

Starting the Web-based Configuration Interface

Only one user can access the web-based configuration interface at a time.

Procedure

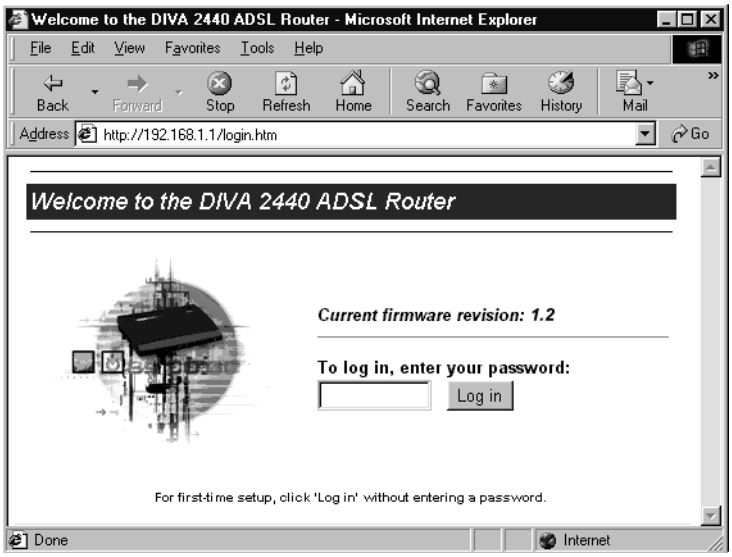
1. If you installed the Diva Assistant software, right-click the Diva 2440 icon in the Windows system tray, then click ‘Properties’. Once the Diva Assistant window opens, click ‘Tools’ then ‘Configure’.

   If you did not install the Diva Assistant software, start your web browser software, click ‘File’, ‘Open’, enter **192.168.1.1** and click ‘OK’. (If you changed the address of the Diva 2440, enter the new name or address instead.)

   Note: *You can also use the word* ***diva*** *or* ***diva.dsl*** *instead of the 192.168.1.1 IP address (Internet Explorer 5.0 or later required).*

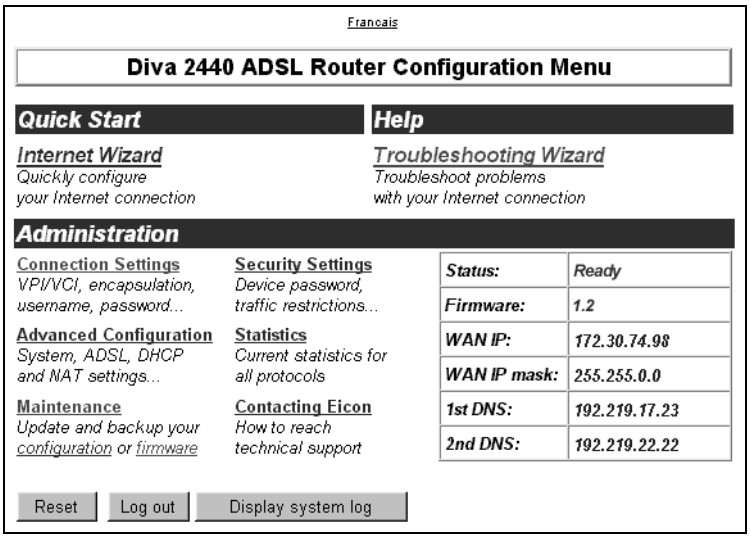
2. If a password has been defined for your Diva 2440, you will see the ‘Log In’ page. Enter the system password and click ‘Log In’.

   If your Diva 2440 has no password, this page will not be shown and you will go directly to the main menu (see next step).



Note: *By default, there is no password. If you have forgotten your password, you can hold down the reset button for 15 seconds to reset the device to factory defaults. This will erase the existing password. However, you will also lose all customize configuration settings, including username and password you may have entered in order to access your Internet service.*

3. The Diva 2440 then displays the main menu.



4. Click on any of the links in the 'Administration' section to change settings for that particular feature. For example, passwords are grouped in the 'Security Settings' page.

'Reset' and other buttons on the Main Menu

- The 'Reset' button resets the device. Settings are not lost.
- When you click 'Logout', you are logged out of the web interface. This is a security feature. The 'Login' page is then shown. It is recommended that you log out when you are finished configuring the device.
- The 'Display System Log' button will show the most recent log entries.

Editing Settings Pages

- Each configuration menu has a 'Save' button. Changes take effect immediately upon saving.
- If you click 'Cancel', you are returned to the main menu, and your changes made in the current page are not saved.
- Click 'Reset Form' to return all settings in the current page to the values they had when you initially opened the page.
- To access online help, click on a setting's name. A help window will appear with a description of that setting. General help is available through a question-mark icon at the top right of most (but not all) pages.
- If this is the first time you have configured the device, you may need to wait up to one minute (after making changes) before being able to access the Internet. This is because your computer may have initially been assigned its network settings from the Diva 2440, as the ADSL line was down and your provider's server was not available. If, after a minute, it is still not working, reboot your computer in order to force a new DHCP request.

Configurations – Saving, Restoring, and Resetting

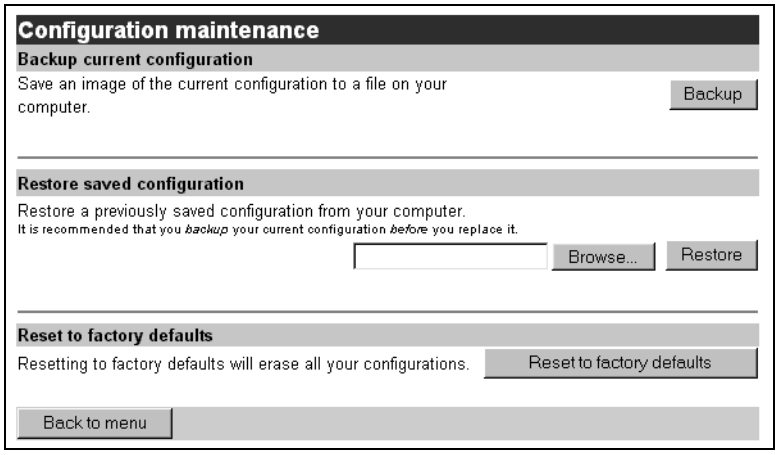
The web-based configuration interface makes it easy to save and restore configuration settings on the Diva 2440. This is useful for backup purposes or if you intend to maintain several different configurations.

When you save the configuration settings, they are stored in a file on your computer.

Note: *Configuration settings are not lost when upgrading the firmware to a newer version. However, configuration settings may not be saved if you load an older firmware on the device. For more information on upgrading firmware, see* ***Upgrading Firmware*** *on page 41.*

Accessing the Configuration Page

From the main menu, click the 'Configuration' link (bottom left of the screen). The 'Configuration Maintenance' page appears.



Backing up the current configuration

Click 'Backup' to save your configuration settings to a file on your computer.

Restoring a configuration from a file

Click 'Browse' to select the configuration file, then click 'Restore'.

Resetting to factory defaults

Click 'Reset factory settings' to return all settings to factory defaults. All configuration changes you have made will be returned to default values.

Note: *Resetting to factory defaults will return the default IP address of the Diva 2440 to 192.168.1.1. If you changed the IP address of the Diva 2440 from this default setting, you will lose contact with the web configuration interface after the reset is completed. To get back to main menu, enter 192.168.1.1 in your browser's URL field and press Enter.*

Upgrading Firmware

The Diva 2440 contains special software, called firmware, that controls its operation. The firmware is stored in flash memory, which allows it to be replaced by uploading a new version.

Note: *Configuration settings are not lost when upgrading the firmware to a newer version. However, configuration settings may be lost if you upload an older firmware to the device.*

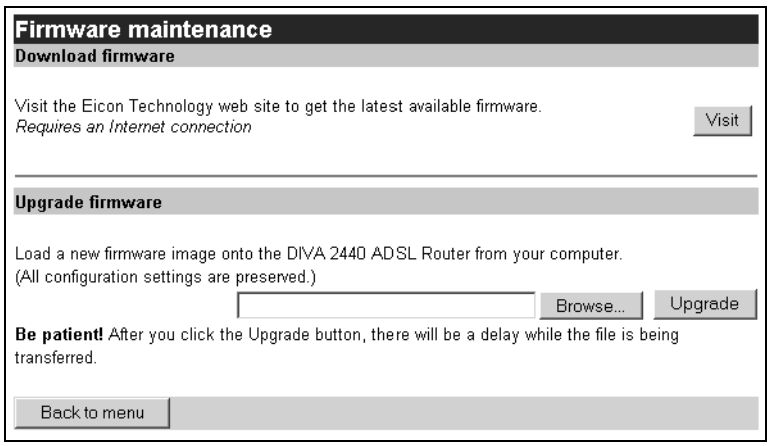
The Diva CD-ROM contains firmware that may be newer or older than the version currently installed on your Diva 2440. In addition, Eicon Networks posts the latest Diva 2440 firmware on its web site. An added benefit of visiting the Eicon Networks web site is that you can register your purchase.

Backing up Configuration Files

If you wish, you can create a backup of your configuration settings before updating your firmware. See **Configurations – Saving, Restoring, and Resetting** on page 40.

Opening to the Firmware Maintenance Page

From the main menu, click the ‘Firmware’ link (bottom left of the screen).
The Diva 2440 displays the ‘Firmware Maintenance’ page.



Retrieving Firmware from the Eicon Networks Web Site

To retrieve new firmware from the Eicon Networks web site, click the ‘Visit’ button. A working Internet connection is required. This points your web browser to the Diva 2440 firmware upgrade web page.

Uploading New Firmware

1. Click the ‘Browse’ button.
2. Select the new firmware file.

   If you downloaded new firmware, point to the file you downloaded from the Eicon Networks web site. A firmware file is also located in the ‘Firmware’ folder on the CD-ROM that came with your Diva 2440.

3. Click the ‘Upgrade’ button to upload the firmware to the Diva 2440.

   This may take a few minutes. Do not turn off or unplug the device during this time.

   When complete, the Diva 2440 is automatically reset to activate the new firmware. There is no need to click the ‘Reset’ button on the main menu.

Login Password and other Security Features

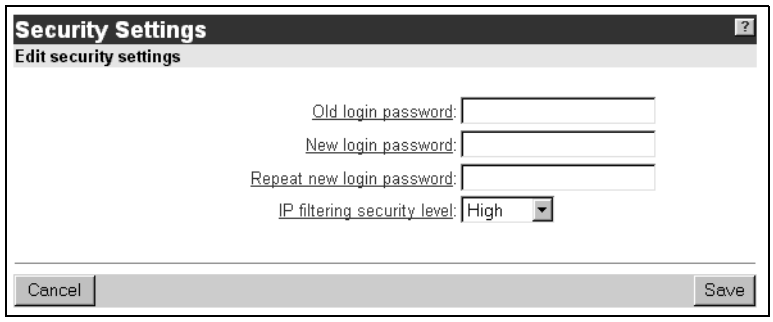
Connecting your computers to the Internet creates a wide range of benefits, but also exposes your computer to certain risks. To safeguard your data and systems, the Diva 2440 provides the following security features:

Login Password

The Diva 2440 provides a system password that restricts access to the web-based configuration and command line interfaces. This ensures that configuration changes can only be made by authorized personnel. By default, no password is defined.

Defining a password

1. From the main page, click ‘Security Settings’.
2. Enter the current password in the ‘Old Login Password’ field.
   Enter the new password in the ‘Login Password’ and ‘Repeat Login Password’ fields.



3. Click ‘Save’. The changes take effect immediately.

If the password you enter in ‘Old Login Password’ does not match the current password, the changes will not be saved. Likewise, if the ‘New Login Password’ and ‘Repeat Login Password’ fields do match, the changes will not be saved.

Erasing the system password

To erase the system password:

1. Open the ‘Security Settings’ menu.
2. Enter the current password in the ‘Old login password field’.
3. Clear the text (if any) in the ‘New Login Password’ and ‘Repeat Login Password’ fields.
4. Click ‘Save’.

The next time you log in you will not need to enter a password.

Automatic Log Out

The Diva 2440 applies an automatic time-out to configuration sessions. When a configuration session is idle for more than the time-out value, the Diva 2440 automatically logs the user out. This reduces the risk of unauthorized persons taking advantage of a logged-in computer that has been left unattended. The time-out values cannot be configured and are set as follows:

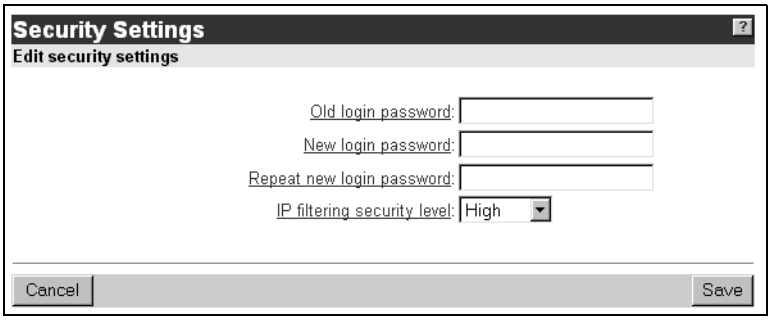
- If you are using the web interface, the time-out is 30 minutes.
- If you are using Telnet, the time-out is 5 minutes.

Note: *Changes that have not been saved are lost when the configuration session is terminated this way.*

IP Filtering Security Level

The IP Filtering Security level is a built-in set of IP Filtering parameters that controls what is allowed through the Diva 2440 and onto your local network. The higher the security level, the less traffic allowed in, but this increases the chances of barring legitimate traffic.

1. From the main page, click ‘Security Settings’.
2. Choose a security level from the drop-down menu.



Note: *For information on what each filtering level means, click on the ‘IP Filtering Security Level’ link to bring up the context sensitive help.*

3. Click ‘Save’. The changes take effect immediately.

Network Address Translation

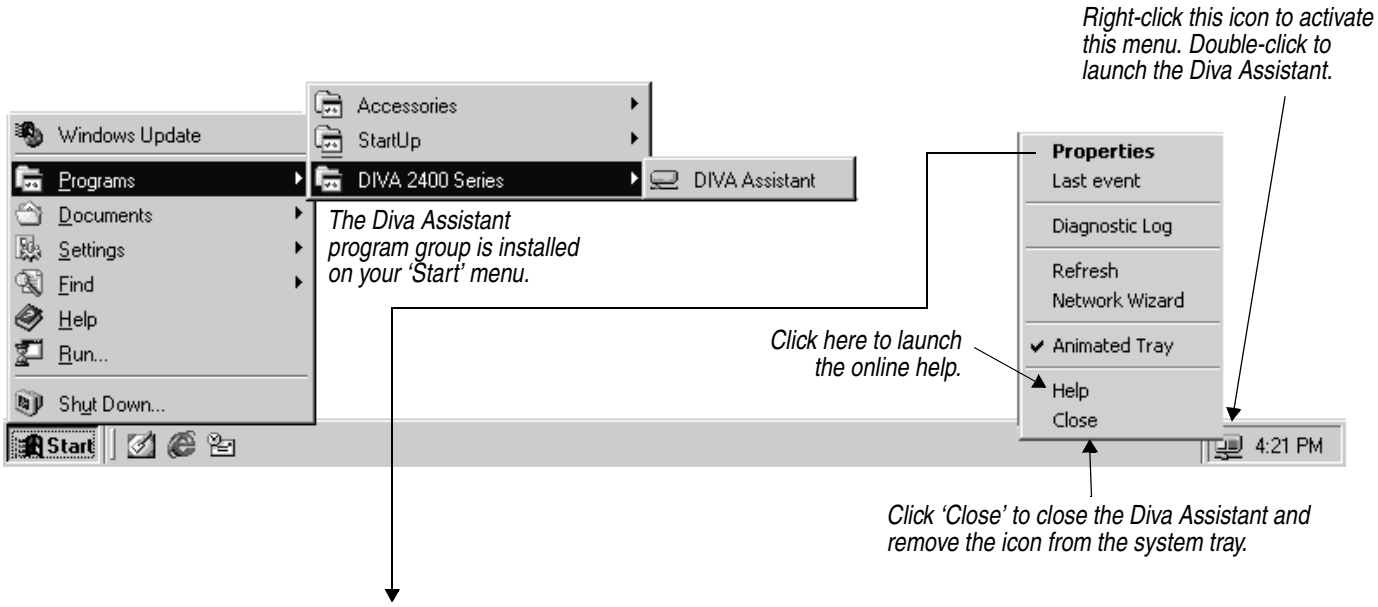
Network Address Translation (NAT) is used to ‘hide’ the local LAN from all external resources. The benefits of this are the ability for all connected computers to access the Internet using one Internet address and ISP account. NAT is always on. For more information on this topic, see **Network Address Translation** on page 52.

About the Diva Assistant

The Diva Assistant provides a convenient way to manage your Diva Assistant. The following is a brief description of how to use the software. For more information, consult the Diva Assistant online help.

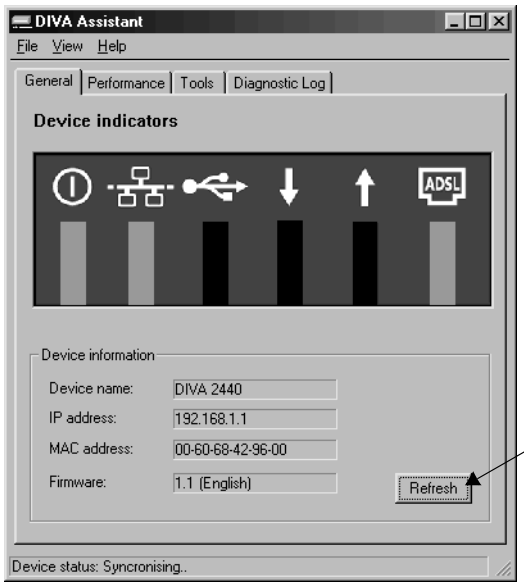
Launching the Diva Assistant

Once you install the Diva Assistant and restart your computer, the Diva Assistant icon will appear in the system tray.

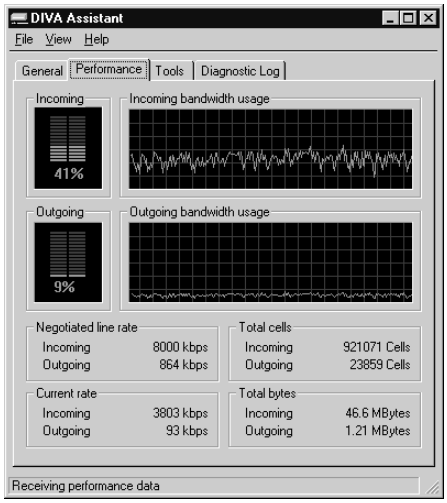


General Tab

The 'General' tab is the first tab you see when you open the Diva Assistant.



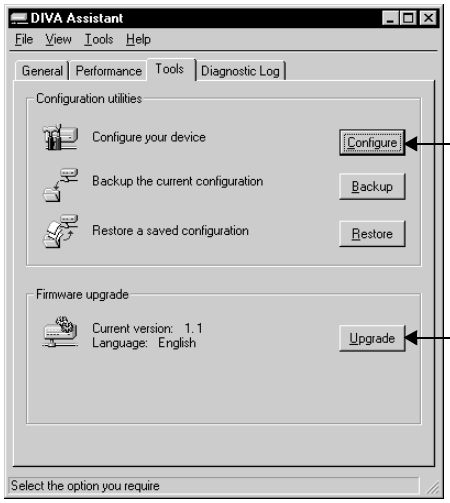
Performance Tab



This tab displays information about incoming and outgoing bandwidth usage.

You can drag the performance windows onto the desktop.

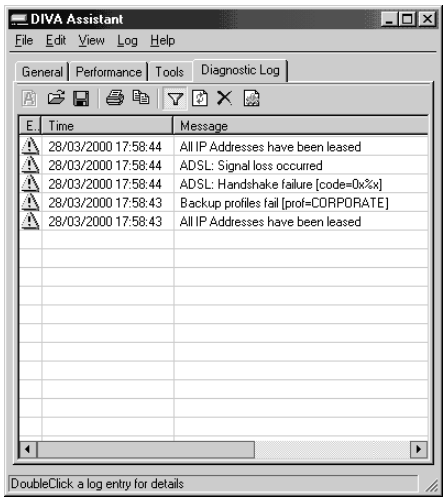
Tools Tab



Starts the web-based configuration interface using your default browser.

Lets you upgrade your Diva 2440's firmware.

Diagnostic Log Tab



The Diagnostic Log displays the messages sent by the Diva 2440.

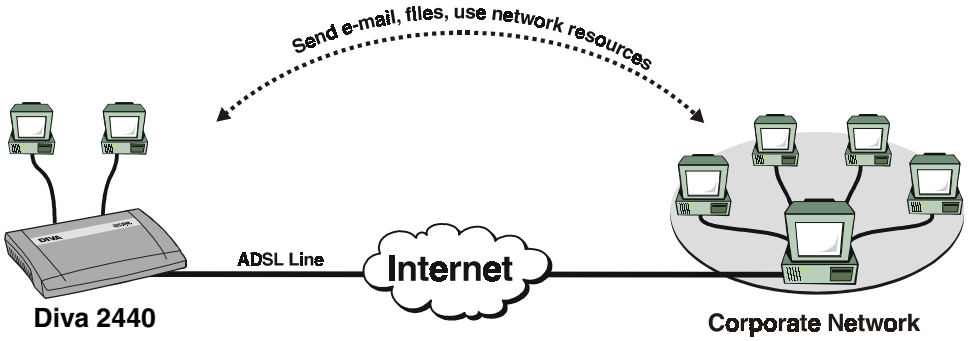
Double-click on an entry to get more information on a particular entry.

Advanced Topics

This section provides detailed information on advanced topics concerning the Diva 2440, and is aimed at the experienced computer and networking user.

Virtual Private Networking

A virtual private network (VPN) is an interconnection between two networks that uses the PPTP (point-to-point tunneling protocol). By using the Internet to transport data, a VPN can eliminate long distance charges associated with traditional dial-up solutions. Since PPTP provides a secure connection, network security is not compromised.



Requirements

- If you are using Windows 95, Dial-Up Networking 1.3 (available from Microsoft's web site at http://www.microsoft.com) is required to create a VPN. Do not install DUN 1.3 on Windows 98 or Windows NT 4.0, as a VPN adapter is included with these operating systems; however, it may not be installed (see below).
- From your network administrator, obtain the IP address or host name of the VPN server, as well as the user name and password for each user who is to have access to the VPN.

Instructions

Setting up a VPN with Windows 95/98

Verify that your Internet access is working properly before setting up the VPN connection.

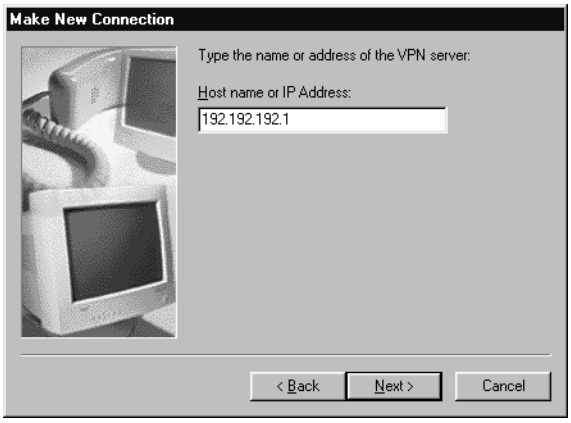
1. Double-click 'My Computer', 'Dial-Up Networking', then 'Make New Connection'. You will see the following dialog box.

2. Enter a name for your connection.

3. Select ‘Microsoft VPN Adapter’ as the device.

   Note: *If you do not see ‘Microsoft VPN Adapter’ as an option, make sure the VPN adapter is installed on your system.*

4. Click ‘Next’. You will see the following dialog box.



5. Enter the IP address or host name of the VPN server in the ‘Host name or IP Address’ field.

6. Click ‘Next’, then click ‘Finish’.

To connect to the VPN, double-click the connection you just created. When prompted, enter your user name and password and click ‘Connect’. You will see a Dial-Up Networking dialog box, showing the details of your connection.

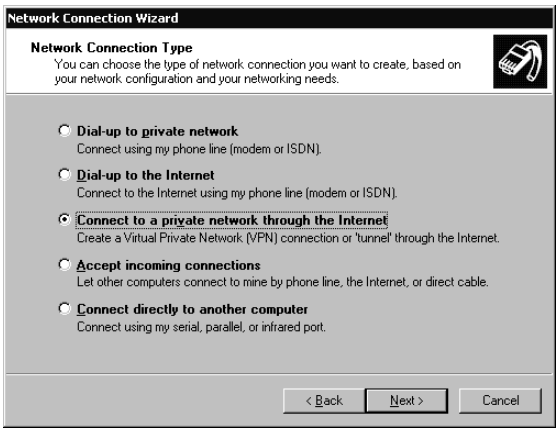
Note: *The bps value reported by this dialog box is your LAN Ethernet speed.*

Setting up a VPN with Windows 2000

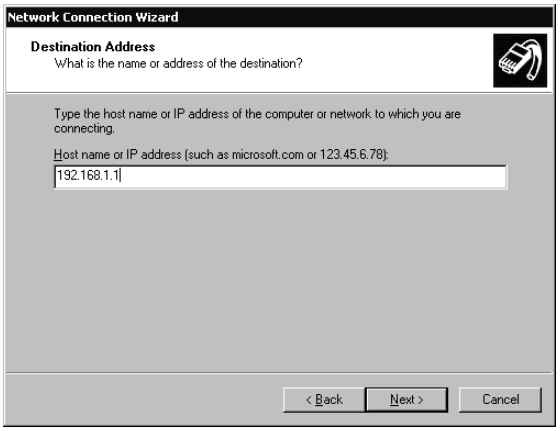
Verify that your Internet access is working properly before setting up the VPN connection.

1. Click ‘Start’, point to ‘Settings’, ‘Network and Dial-up Connections’, and then double-click ‘Make New Connection’.

2. The ‘Network Connection Wizard’ opens. Click ‘Next’.
3. Select ‘Connect to a private network through the Internet’ and click ‘Next’.



4. Select ‘Do not dial the initial connection’, then click ‘Next’.
5. Type the host name or IP address of the VPN Server, and then click Next.



6. The Connection Availability screen opens. Select ‘For all users’ to make the connection available to all users on your network. Select ‘Only for myself’ to reserve the connection for personal use. Click ‘Next’.

7. The ‘Completing the Network Connection Wizard’ window opens. Type a name for the connection, then click ‘Finish’.

You can create multiple VPN connections by copying them in the Network and Dial-up Connections folder. You can then rename the connections and modify settings.

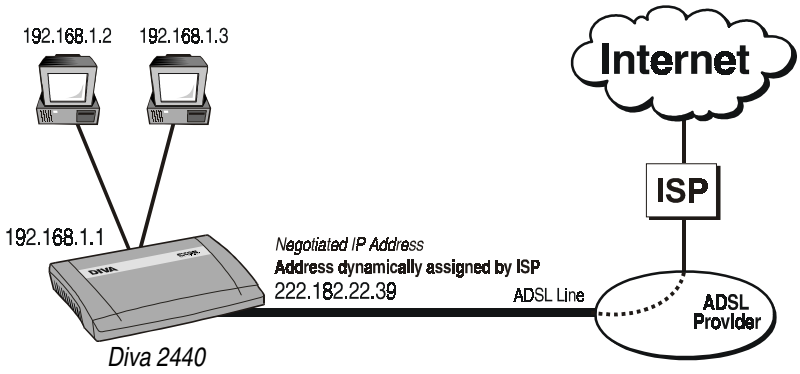
Connecting the VPN

To connect to the VPN, double-click the connection you just created. When prompted, enter your user name and password and click ‘Connect’. You will see a Dial-Up Networking dialog box, showing the details of your connection.

Note: *The bps value reported by this dialog box is your LAN Ethernet speed.*

Network Address Translation

The Diva 2440 uses network address translation (NAT) to 'hide' the local LAN from all external resources. The benefits of this are the ability for all connected computers to access the Internet using one Internet address and ISP account. For example, when communicating with the Internet, the two computers in the following diagram share the dynamically assigned address '222.182.22.39'.



Notes

- NAT operates transparently, translating internal addresses to a single external one for all data traffic. There is no effect on throughput.
- Most applications will work with NAT. However, certain applications may experience problems because NAT is turned on.
- NAT is enabled by default, and can only be disabled through the command line interface with the DISABLE NAT command (see **NAT (Network Address Translation) Commands** on page 78 for more information). It is recommended that you do not turn NAT off unless you have a specific requirement to do so.

Security benefits

An additional benefit of NAT is increased network security. Like a firewall, NAT restricts access to the computers that reside on the local LAN. By default, no computer on the internal LAN is visible to the Internet. Computers on the internal network cannot act as FTP or web servers, nor can they share their drives using Windows Network Neighborhood. However, these security features can be weakened if you use NAT static mappings.

NAT static mappings

With NAT enabled, computers outside of the internal LAN do not have access to any computers on the internal LAN. The computers on the internal LAN are effectively invisible to the outside network. If you need a computer on the internal LAN to be visible to the external network (such as a web server), the Diva 2440 provides a solution through NAT static mappings.

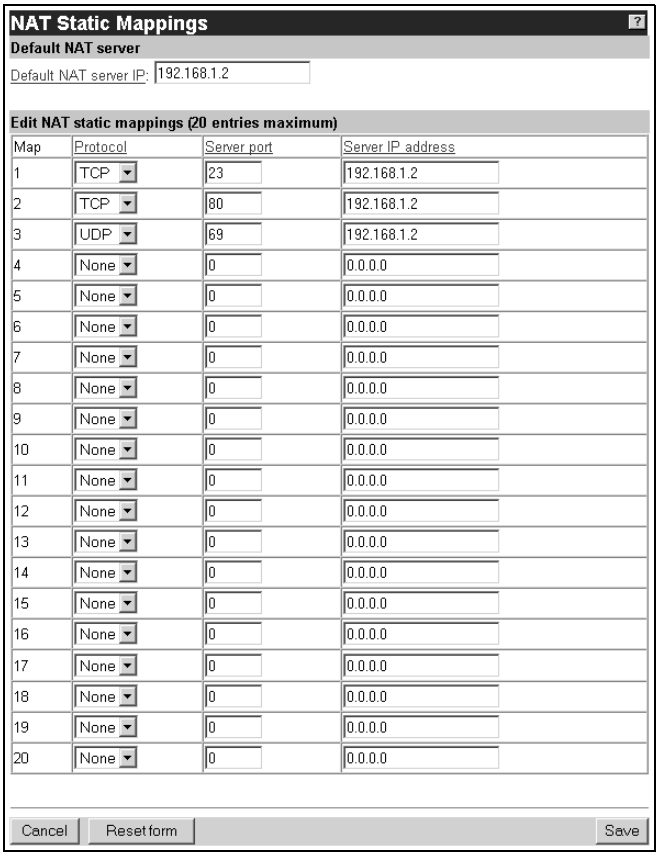
How It Works

NAT static mappings allow you to allow specific computers on the internal LAN to receive certain incoming network traffic. For example, you could designate a computer to receive all incoming HTTP traffic, essentially allowing it to function as a web server. However, the actual IP address of this computer is still hidden by NAT. Remote users must specify the address of the Diva 2440 to gain access to the web server.

When you create a NAT static mapping, the Diva 2440 routes *all* traffic for the protocol you specify to the designated computer. This includes traffic normally handled by the Diva 2440 itself. Only *one* computer on the internal LAN can be designated to receive the traffic for a *specific* protocol. This means, for example, you cannot create multiple web servers; all web traffic must be sent to one computer on your LAN.

Creating Static NAT Mappings

1. Launch the web configuration interface.
2. From the main menu, click 'Advanced Settings', then click 'NAT Static Mappings'.



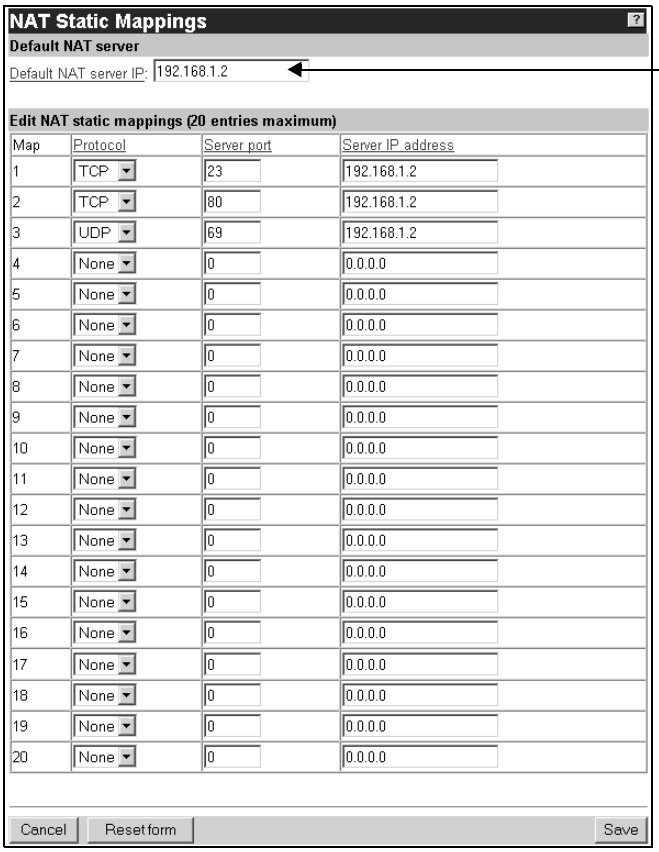
3. For each server that you want to define, specify the following parameters:
   - 'Protocol': The protocol that remote computers will use to access the server.
   - 'Server port': The port number that the protocol will use on the server.
   - 'Server address': The IP address of the computer that will act as the server. The server address must be on the same LAN as the Diva 2440 (or must be reachable via the LAN).
4. Click 'Save'.

Specifying a Default NAT Server

When the Diva 2440 receives incoming datagrams containing protocols it is not supposed to accept, the datagrams are discarded. For example, if an incoming datagram contains an FTP request, and no FTP server has been defined using a static mapping, the datagram is discarded.

In some cases, you may want to forward all datagrams containing unspecified protocols to a computer on your LAN. The Diva 2440 calls this computer the ‘default NAT server’.

To define a default NAT server, enter the IP address of the device that should receive these datagrams into the ‘Default NAT server’ field on the IP Parameters panel. (From the main menu, click ‘Advanced Configuration’, then ‘NAT Static Mappings’.

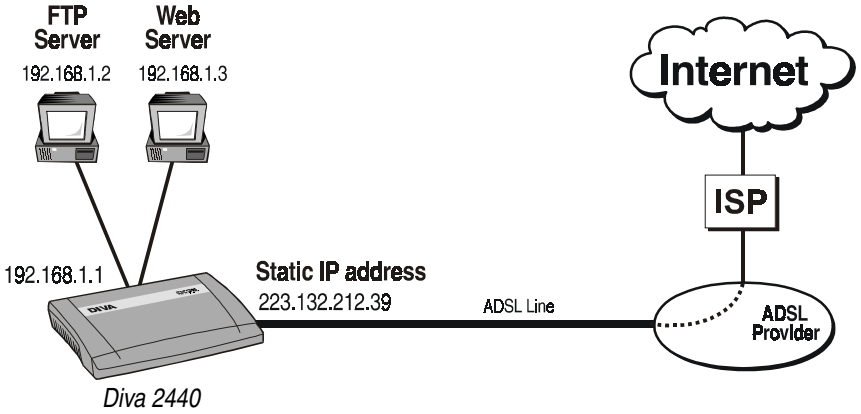


‘Default NAT Server’ field

Note: *The Diva 2440 handles traffic with the following protocols: HTTP, Telnet, TFTP, ECHO (UDP port 7), and SNMP. Only traffic that does not contain these protocols will be forwarded to the default NAT server. To forward the aformentioned protocols you must define a NAT static mapping for each one.*

Example: Allowing Web or FTP Request using NAT Static Mappings

Two of the most common reasons to use NAT static mappings are to run a web server or FTP server on a computer connected to the Diva 2440. Use the following diagram as a reference as you examine the NAT mapping examples that follow. Note that the Diva 2440 has been assigned the static IP address 223.132.212.39.



Configuring for FTP Traffic

FTP traffic is carried on TCP ports 20 and 21. Therefore, the following two NAT mappings would be required:

Map	Protocol	Server port	Server IP address
1	TCP	20	192.168.1.2
2	TCP	21	192.168.1.2

Configuring for Web Traffic

Web traffic is carried on TCP port 80. Therefore, the following NAT mapping would be required:

Map	Protocol	Server port	Server IP address
1	TCP	80	192.168.1.3

To access the web server, a remote computer uses the URL `HTTP://223.132.212.39/`. The Diva 2440 sees that the datagram is intended for port 80 and forwards all web traffic to the appropriate computer on the internal LAN.

Command Line Interface (CLI)

The command line interface provides you with access to all Diva 2440 parameters. Some advanced parameters are only accessible via this interface.

Prerequisites

To access the CLI, you will require:

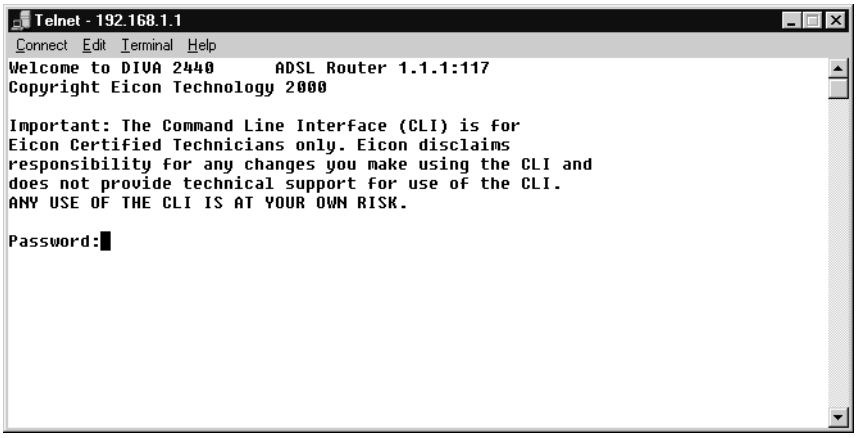
- Telnet software for an IP connection (for Windows, Telnet or HyperTerminal).
- Connection via an Ethernet or USB port.
- System password to log on, if required (see **Login Password** on page 43).

Establishing a Telnet Connection

Make sure that you are using VT100 terminal emulation, otherwise the command line interface may not display properly on your screen and certain keys will not function correctly.

1. Start your Telnet software. (If you are running Window, you can click 'Start', 'Run', type 'TELNET', and press Enter.)
2. Connect to the address **192.168.1.1**.

   Note: *The address 192.168.1.1 is the default assigned to the Diva CD-ROM. If you have changed the default address, use the new address.*
3. A welcome message appears on your screen. It will include a request to enter a password.



   Note: *The above example uses the telnet software included with Windows NT and 2000. The screen was brought up by entering the command* `telnet 192.168.1.1` *at a DOS prompt.*
4. Type the appropriate password and press Enter.
5. The Diva 2440 displays the command line prompt '>'.

The Diva 2440 is now ready to accept your commands.

Using the CLI

When using the CLI, the following keys are available:

- **Up/down arrows:** Moves back and forth through previously issued commands.
- **F1:** Provides help tailored to the current command you are entering. For example, if you are part way through typing a command, it will show you the valid syntax to complete it.

  Pressing F1 to bring up help does not work with Windows 2000. To retrieve the help for a command, you must type the command, a space, then a question mark. For example, typing in `RESET ?` will display help on the reset command.
- **F2:** List commands similar to what you are typing (does not work with Windows 2000).
- **Tab or Space:** To speed up entry of commands, you need only enter enough of the command so that the CLI can uniquely recognize it, or press TAB or SPACE and the CLI will automatically complete the current keyword for you. For example: The PROFILE command can be shortened to PROF. Pressing TAB expands it to PROFILE.

When a command requires for a string of alphanumeric characters, you can use "" (two double-quotes one after another) to enter an empty string.

About configuration context

The command line interface identifies the configuration context you are in by changing the prompt. When you first activate the CLI interface you are in the General configuration context, which is identified by a plain prompt (>). All other contexts are identified by a label added to the prompt.

About profiles

To make the configuration of the Diva 2440 easier, the parameters that control its operation have been combined into groups according to function. These groups are called profiles. When you want to customize the operation of the Diva 2440, you use a CLI command to change the setting of a parameter in one of its profiles. To do this, you must set the focus (also called the configuration context) of the command line interface to be on that profile.

Connection profiles

Certain profiles define the characteristics of a connection, instead of just operational settings for the Diva 2440. For example, the VC-1 profile defines a connection that enables the Diva 2440 to connect using the Virtual Circuit defined the settings in the profile. When the profile is active (to the ADSL line), the features and functions defined by the profile are active.

Default profiles

The Diva 2440 has following default profiles:

- **VC-1:** The default VC profile.
- **LAN**: The Diva 2440 LAN settings.

Command Line Reference

See **Command Line Reference** on page 60 for a complete list of all CLI commands and their descriptions.

Using TFTP to Transfer Files

The TFTP interface lets you upload and download configuration files and firmware. However, it is often easier to use the web or command line interface to do most TFTP tasks.

Prerequisites

- The TFTP interface requires TFTP client software. A shareware client is included on the Diva CD-ROM.
- Connection via an Ethernet or USB port (except when device is in boot or fault mode).
- Support for TFTP server must be enabled via command line interface.

Enabling TFTP server support

TFTP is disabled by default. To enable TFTP support, log into the CLI (see **Command Line Interface (CLI)** on page 56) and enter the following commands.

```
enable tftp server
save
```

Uploading/downloading configuration files

All configuration settings on the Diva 2440 are stored in configuration files.

Using TFTP, you can access these files to retrieve and set configuration values.

File Name	Access	Mode	Port	Description
image.eim	Write	Boot / Normal	USB / Ethernet	Contains the Diva 2440 firmware. Write to this file to update the firmware. After writing is complete, a reset is automatically performed.
message.txt	Read-only	Boot	Ethernet	Description of why boot monitor mode was entered. You are in boot monitor mode if the Power status indicator is alternating between red and green. You can enter boot monitor mode by holding down the Reset button for more than 5 seconds but less than 15 seconds. To exit boot monitor mode, press the Reset button once.
dump.dmc	Read-only	Boot	Ethernet	A file containing a memory dump. This is used for troubleshooting purposes.
config.bat	Write-only	Normal	USB / Ethernet	A file containing CLI commands. The commands in this file are automatically executed after being uploaded with TFTP. Trace commands are not supported by this file.
`trace.bat`	Write-only			Same as config.bat except that it supports trace commands.
result.txt	Read-only	Normal	USB / Ethernet	Contains the results of the last .bat file that was executed.

File Name	Access	Mode	Port	Description
config.all	Read-only			Contains the list of commands that define the current active configuration. Retrieve this file to view the entire configuration of the Diva 2440.
config.bin	Read/write	Normal	USB / Ethernet	Contains a binary image of the current active configuration. You can download this file to backup the current configuration. (Download as a binary file.)
system.log	Read-only			The system log contains a record of a variety of events (trace data, connected/disconnected messages, security-related messages. warning and errors messages) that have occurred on the Diva 2440. The log can contain over 15000 entries before it wraps around.

Files marked as 'boot mode' can only be downloaded if the device is in boot mode (the power light is flashing red; boot mode is entered if a hardware fault occurs or if you hold down the reset button for five seconds and less than 15 seconds). Files marked as 'normal mode' can only be accessed in normal operational mode.

Note: *The device is not accessible via USB when in boot monitor mode, or when the device experiences a fault condition (power light turns red). To access the device under these circumstances (to get a memory dump, for example), it is necessary to connect the device via the Ethernet port.*

Examples

Loading New firmware via TFTP

To upload new firmware to the Diva 2440, use your TFTP client software to transfer the firmware file. For example, using the TFTP program that comes with Windows NT, you could issue the following command:

```
tftp -i 192.168.1.1 put 2440c1en.eim image.eim
```

...where:

- '192.168.1.1' is the IP address of the Diva 2440.
- '2440c1en.eim' is the name of the firmware you want to upload.
- 'image.eim' is the target file name on the Diva 2440. Do not change this name.

Retrieving message.txt

To retrieve the 'message.txt' file, which describes why boot monitor mode was entered, use the following TFTP command.

```
TFTP -i 192.168.1.1 get message.txt filename.txt
```

Command Line Reference

This section describes each command available from the Diva 2440.

Overview

This section provides a description for each CLI command. The commands are grouped according to functionality.

Notational Conventions

The section uses the following conventions:

Syntax Example	Description
Cancel	Boldface type indicates the name of an item (a parameter name, command button, menu option, etc.) you need to select or perform an action on.
RESET	UPPERCASE TYPE indicates keywords. The actual words can be entered in either uppercase or lowercase.
[/C *n*]	Items enclosed in square brackets are optional. You can either include them or not. Do not enter the brackets. If the items are separated by vertical bars, you must choose one of the items. Enter only one item. Do not enter the vertical bar.
numHops	Items in lowercase type are user-supplied input. Replace these items with values appropriate to your system.
{ THIS | THAT }	Two or more items enclosed in braces and separated by a vertical bars means you must choose one item. Enter only one item. Do not enter the vertical bar.

SHOW ADSL CONFIGURATION

Displays the current configuration for the ADSL line.

SET ADSL MODULATION TYPE [G_992_2 | MULTIMODE]

Sets the ADSL modulation type. If no argument is specified, the existing setting is displayed. Default: Multimode.

G_992_2	Use G.lite ADSL (G.992.2).
MULTIMODE	Attempts to negotiate the following modulation types: Full-rate (G.992.1), G.lite (G.992.2), and ANSI.T1.413.

SHOW ADSL STATISTICS

Displays the current statistics for ADSL line.

SHOW ATM CONFIGURATION

Valid context: Profile

Shows the ATM configuration settings for the ATM VC associated with the current profile.

Show ATM VC

Shows the table of ATM VCs (Virtual Circuits) and their properties.

SET ATM VC <vpi> <vci> <LLC | VCMUXBRIDGED> [rate | MAX]

Valid context: Profile

Configures an ATM VC (Virtual Circuit) for this interface.

<vpi>	Virtual Path Identifier. Range: 0-255.
<vci>	Virtual Channel Identfier. Range: 0-65535.
<encaps-type>	Encapsulation type (LLC or VCMUXBRIDGED). LLC: Use LLC (may carry different protocols). VCMUXBRIDGED: Use VC Multiplexed (carries only one type of protocol).
[rate]	Optional 'max' or Peak Cell Rate in kilobits per second. Default: MAX. Range: 1-832.

SET ATM SERVICE CATEGORY {UBR | CBR}

Valid context: Profile

Sets the ATM service category for the current profile.

UBR	Unspecified Bit Rate (default). No service guarantees. ATM cells are sent but no feedback is returned about whether or not data has reached its destination. Suitable for http, ftp, and other data transfer protocols that are not time-sensitive.
CBR	Constant Bit Rate. This service category promises a constant transport rate. Suitable for time-sensitive data transfer.

SET DHCP TYPE <SERVER | RELAY | NONE>

Sets the type of DHCP services provided to other network devices. The DHCP server is enabled by default.

SERVER	IP addresses will be dynamically assigned when a DHCP request is received from a network device.
RELAY	Relays DHCP requests to a separate DHCP server (use SET DHCP SERVERADDR to specify).
NONE	DHCP requests are ignored.

SHOW DHCP STATUS

Displays DHCP server status and a list of currently-defined IP addresses.

SET DHCP IPRANGE <startIPaddress> <range>

Defines the pool of addresses used to assign dynamic addresses when operating as a DHCP server.

<startIPaddress>	Starting address for the pool. This address must be on the same network as the LAN IP address. Default: 192.168.1.2.
<range>	Number of addresses in the pool. Range: 1-250. Default: 250.

Example: If the starting address is set to 192.168.1.2 and the range is set to 10, addresses 192.168.1.2 to 192.168.1.11 are available for DHCP.

SET DHCP LEASEDURATION <duration> <MINS | HOURS | DAYS>

Defines the length of time a client address assigned by the DHCP server is valid.

Range	30 minutes to 30 days.

SET DHCP DNS <PRIMARY | SECONDARY> <ipaddress>

Defines the primary and secondary DNS server addresses sent to a DHCP client when a DHCP lease is requested. By default, the primary DNS is 192.168.1.1 (this is the default address of the device); the secondary is blank.

<PRIMARY>	Primary DNS server.
<SECONDARY>	Secondary DNS server.
<ipaddress>	IP address of the DNS server.

SET DHCP WINS <PRIMARY|SECONDARY> ipaddress

Defines the primary and secondary WINS server addresses sent to a DHCP client when a DHCP lease is requested.

<PRIMARY>	Primary WINS server.
<SECONDARY>	Secondary WINS server.
<ipaddress>	IP address of the WINS server.

SET DHCP DOMAIN <domain>

Defines the domain name sent to a DHCP client when a DHCP lease is requested.

<domain>	Domain name, a string of up to 31 characters.

SHOW DHCP CONFIGURATION

Displays the settings for all DHCP-related parameters.

SET DHCP SERVERADDR <PRIMARY | SECONDARY> ipaddress

Defines where DHCP requests are forwarded when the device is acting as a DHCP relay agent (using SET DHCP TYPE RELAY). DHCP is on by default.

<PRIMARY>	Primary DHCP server.
<SECONDARY>	Secondary DHCP server.
<ipaddress>	IP address of the DHCP server where requests are to be relayed.

ADD DHCP STATICMAP <ipaddress> <MACaddress>

Adds a new entry to the STATICMAP table, which contains the static IP address assignments used by DHCP clients.

<ipaddress>	IP address in dotted-decimal notation (#.#.#.#).
<MACaddress>	MAC address of the target device. This address must be 12 hexadecimal digits separated by colons, commas, or hyphens (11:22:33:44:55:66 for example).

SET DHCP STATICMAP <ipaddress> <MACaddress>

Modifies an existing entry in the STATICMAP table, which contains the static IP address assignments used by DHCP clients.

<ipaddress>	IP address of the entry to modify.
<MACaddress>	New value for the MAC address of the target device. This address must be 12 hexadecimal digits separated by colons, commas, or hyphens (11:22:33:44:55:66 for example).

DELETE DHCP STATICMAP <ipaddress>

Deletes an entry from the STATICMAP table, which contains the static IP address assignments used by DHCP clients.

<ipaddress>	IP address of the entry to delete.

SHOW DHCP STATICMAP

Displays the list of defined static DHCP addresses, which contains the static IP address assignments used by DHCP clients. Each entry consists of an IP address and IP mask for the MAC address of a DHCP client.

ENABLE DHCP STATICMAP <ipaddress>
DISABLE DHCP STATICMAP <ipaddress>

Enables/disables static address assignment for this IP address. When a device makes a DHCP request, the MAC address of the device is compared to the MAC address of each enabled entry in the STATICMAP table. If a match is found, the device is assigned the corresponding static IP address.

<ipaddress>	IP address of the entry to enable or disable.

SHOW ETHERNET STATISTICS

Displays Ethernet statistics.

SHOW ETHERNET ADDRESS

Valid context: Port

Displays the Ethernet address of the device. You must be in the LAN profile to issue this command (type LAN and press Enter first).

NEXT
PREVIOUS

Valid context: IP_Filter, Ether_Filter

Sets the active context to the next or previous filter. This allows you to edit the filter.

ADD IP FILTER <number>

Valid context: Profile, Port

Adds a new IP filter at the specified position. A filter that already has the number you specify is shifted one higher. Use SHOW FILTER to see a list of filters.

<number>	Position where new filter is to be added.

ADD ETHERNET FILTER <number>

Valid context: Profile, Port

Adds a new Ethernet filter at the specified position. A filter that already has the number you specify is shifted one higher. Use SHOW FILTER to see a list of filters.

<number>	Position where new filter is to be added.

DELETE FILTER <number>

Valid context: Profile, Port

Deletes the specified filter. Use SHOW FILTER to see a list of filters.

<number>	Number of the filter that is to be deleted.

SET FILTER <number>

Valid context: Profile, Port

Sets the active context to the specified filter. This allows you to edit the filter.
Use SHOW FILTER to see a list of filters.

<number>	Number of the filter to edit.

SHOW FILTER

Valid context: Profile, Port, IP_Filter, Ether_Filter

Displays all filters for the current profile. If the active context is set to a specific filter, the list will include entries defined for the current filter only.

ENABLE FILTER
DISABLE FILTER

Valid context: Profile, Port, IP_Filter, Ether_Filter

In a profile context, this command enables/disables all filters defined for the current profile. In a filter context, this command enables/disables the filters defined for the current filter only.

COPY FILTER <number>

Valid context: IP_Filter, Ether_Filter

Copies an existing filter to the current filter. This command is only available in the filter context. Use SHOW FILTER to see a list of filters.

<number>	Number of the filter to copy.

SET ACTION <DROP | FORWARD>

Valid context: IP_Filter, Ether_Filter

Sets the action this filter takes when data matching the filter setting is encountered.

DROP	Discard the data.
FORWARD	Forward the data to the next filter.

SET DIRECTION <IN | OUT | ANY>

Valid context: IP_Filter, Ether_Filter

Defines whether a filter applies to incoming or outgoing data.

IN	Filter applies to incoming data only.
OUT	Filter applies to outgoing data only.
ANY	Filter applies to both incoming and outgoing data (default).

SET IP SOURCE <ipaddress> <mask>
SET IP DESTINATION <ipaddress> <mask>

Valid context: IP_Filter

SET IP SOURCE defines a source address and network mask for this filter. This filter will process data from this source only and will ignore data from other sources.

SET IP DESTINATION defines a destination address and network mask for this filter. This filter will process data sent to this address only and will ignore data intended for other locations.

<ipaddress>	Source IP address of data to filter.
<mask>	Source network mask of data to filter.

SET UDP SOURCE <lowPort> <highPort>
SET UDP DESTINATION <lowPort> <highPort>

Valid context: IP_Filter

Sets the minimum and maximum source or destination UDP (User Datagram Protocol) ports for which this filter will process data.

<lowPort>	Minimum UDP port number of data to filter. Range: 0 to highPort. Default: 0.
<highPort>	Maximum UDP port number of data to filter. Range: lowPort to 65535. Default: 65535.

SET TCP SOURCE <lowPort> <highPort>
SET TCP DESTINATION <lowPort> <highPort>

Valid context: IP_Filter

Sets the minimum and maximum source or destination TCP (Transmission Control Protocol) ports for which this filter will process data.

<lowPort>	Minimum TCP port number of data to filter. Range: 0 to highPort. Default: 0.
<highPort>	Maximum TCP port number of data to filter. Range: lowPort to 65535. Default: 65535.

SET TYPE { ALL | UDP | TCP | SYN | ANYICMP | ICMP} [icmp_type] [icmp_code]

Valid context: IP_Filter

Sets the type of data to which this filter applies.

ALL	Applies to all data.
UDP	Applies to UDP data.
TCP	Applied to TCP data (default).
SYN	Applies to TCP connection (SYN) data.
ANYICMP	Applies to all ICMP data.
ICMP	Applies to specific ICMP data only (set by type and code)
icmp_type	ICMP type to filter (if ICMP is specified).
icmp_code	ICMP code to filter (if ICMP is specified).

SET ETHERNET SOURCE <macaddress>
SET ETHERNET DESTINATION <macaddress>

Valid context: Ether_Filter

Defines a source/destination MAC address for an Ethernet filter. This filter will process data matching this source/destination only.

<macaddress>	source or destination MAC address.

SET ETHERNET FRAMETYPE <type>

Valid context: Ether_Filter

Defines the Ethernet frame type for this filter. This filter will process data that uses this frame type only and will ignore data with other frame types.

<type>	Hexidecimal number indicating type of Ethernet frame.

SET ETHERNET MULTICAST <ON | OFF>

Valid context: Ether_Filter

Turns Ethernet multicast filtering on or off.

ON	Enable Ethernet multicast filtering.
OFF	Disable Ethernet multicast filtering.

General Commands

HELP

Displays the commands available in the current context, with a short description of each command's functionality.

SAVE

Saves the current configuration settings to the device's non-volatile memory. Save your changes before powering off or resetting the hardware; otherwise, changes are lost.

EXIT
LOGOUT

Closes the current configuration session.

SET TIME hh:mm[:ss]

Sets the internal system clock.

hh	Hours	Range: 00 to 24.
mm	Minutes	Range: 00 to 59.
ss	Seconds	Range: 00 to 59

SET DATE [yy]yy-mm-dd

Sets the internal system date in the format yyyy-mm-dd.

mm	Month	Range: 01 to 12.
dd	Day	Range: 01 to 31.
yyyy	Year	Can be entered as two or four digits. A two-digit year between 00 and 70 is assumed to be after 2000. Examples: 00 is 2000, 55 is 2055, but 85 is 1985.

SHOW DATE
SHOW TIME

Displays the current system date and time. You can set the date with SET DATE and the time with SET TIME.

SET PASSWORD <password>

Sets the password users must specify when logging on to any of the configuration interfaces (web, Telnet, etc.). Maximum of 10 alphanumeric characters, spaces are not allowed, passwords are case-sensitive (‘PASS’ and ‘pass’ are not the same).

RESET

Resets the device. Configuration settings are not lost.

RESET FACTORY

Resets the device, returning all parameters to their factory default settings.

Warning: This command deletes your password and all settings!

SHOW SYSTEM STATUS
SHOW VERSION

Displays system information: memory, firmware version, etc.

ENABLE ECHO SERVER
DISABLE ECHO SERVER

Enables/disables the echo server, which answers echo protocol queries sent to the echo server port. UDP and TCP queries are supported. Echo server is disabled by default.

ENABLE SYSMAN
DISABLE SYSMAN

Enables/disables the Sysman module, which sends runtime statistics to external applications running on your computer (such as the Diva Assistant). Disabling Sysman will prevent such applications from displaying runtime status information. Sysman is enabled by default.

ENABLE SCROLL BREAK
DISABLE SCROLL BREAK

When Scroll Break is enabled, you will be prompted to press a key when output exceeds the number of lines available in the Telnet window, as could happen when viewing a long trace or log. Enabled by default.

SET IP ADDRESS <ipaddress>

Valid context: Profile, Port

Sets the IP address this profile should use if a static address is assigned to the device by your ISP or network administrator. In most cases, specify 0.0.0.0 to allow dynamic negotiation when the connection is established.

Note: *Dynamic negotiation is not supported by the LAN profile.*

SET IP MASK <ipaddress>

Valid context: Profile, Port

Sets the subnet mask for this profile.

SHOW IP ADDRESS

Valid context: GENERAL PROFILE PORT

Displays the current IP address. The addresses you see may be the ones negotiated by IP and not the ones you have defined. For example, if an IP address is set to 0, it is negotiated to a new value when the device connects. Addresses for the current profile are displayed unless you are in the GENERAL context, in which case all addresses are displayed.

SHOW IP CONFIGURATION
SHOW IP STATUS

Valid context: Profile, Port

Displays IP configuration settings for the current profile or context.

ENABLE IP DIALONDEMAND
DISABLE IP DIALONDEMAND

Enables/disables IP dial-on-demand. When this feature is enabled, the actual connection will be established only when the Diva 2440 receives an external access request. When dial-on-demand feature is disabled, the unit is set to always-on mode.

SET IP DEFAULT GATEWAY

Sets the IP address of a default remote gateway. The command will modify/add a default IP route pointing to the gateway specified in the argument.

Note: *Setting the default gateway address is only necessary for IPoE profile type and only when a static configuration is used (DHCP client is disabled).*

SET IP DNS1
SET IP DNS2

Defines the DNS address (DNS1 for primary; DNS2 for secondardy) to be used by the internal DNS relay.

SHOW STATISTICS

Displays statistics for the IP protocol. These statistics reflect the combined usage of all profiles that use the IP protocol and not statistics for a particular profile.

PING <ipaddress> [number] [size]

PING tests if an IP address is reachable by sending a packet to the receiving address and waiting for a reply.

<ipaddress>	IP address of device you want to PING.
[number]	Number of messages to send. Range: 1-no limit. Default: 4.
[size]	Message size in bytes Range: 1-1472. Default: 64.

ADD IP ROUTE <ipaddress> <mask>[:metric] [gateway]
DELETE IP ROUTE <ipaddress> [mask[:metric]]
SET IP ROUTE <ipaddress> <mask>[:metric] [gateway]

Valid context: Profile, Port

Adds/deletes/modifies a static IP route.

<ipaddress>	IP address of datagrams that should be routed.
<mask>	Mask for IP address. You can specify the number of bits checked when comparing the address of a datagram to that specified by the <ipaddress> parameter (range: 0-32) or the full IP mask in dotted format. Optional for DELETE command.
[:metric]	Metric (i.e. cost) for the destination (optional).
[gateway]	If a match is found, datagrams are forwarded to this IP address (optional).

SHOW IP ROUTE

Valid context: Profile, Port

Displays all defined static and dynamic IP routes.

SET LOG FILTER {EVENT | DEBUG | INFO | SECURITY | WARNING}

Specifies the type of information that is to be written to the event log. Use SHOW LOG to see the event log. Use SHOW LOG STATUS to see the current log filter.

ENABLE LOG MODULE <taskName | ALL>
DISABLE LOG MODULE <taskName | ALL>

Each firmware module issues status messages during operation. These commands enable or disable the inclusion in the event log of messages from the specified firmware module. Use SHOW LOG to see the event log. Use SHOW LOG STATUS to see which modules are currently excluded.

taskName	A module name (as seen in SHOW LOG). Examples: DHCP.
ALL	Enable all module messages.

ENABLE LOG OUTPUT REMOTE hostAddr
DISABLE LOG OUTPUT REMOTE

Enables/disables the sending of event log information to the specified device each time an event occurs.

hostAddr	IP address of the remote device (only required when enabling).

SHOW LOG [STATUS]

Displays the event log. SHOW LOG STATUS displays log status only.

START TRACE module [frame_size]

Starts a trace for the specified module. The optional ‘frame_size’ argument specifies the maximum size of one frame for that module. You can disable a trace with STOP TRACE.

STOP TRACE module

Disables a trace for a module. Traces are started with the START TRACE command.

SHOW TRACE module

Shows traces saved for the specified modules. Traces are started with the START TRACE command.

SHOW LOG PLUS module

Shows the log plus specified traces.

NAT (Network Address Translation) Commands

ENABLE NAT
DISABLE NAT

Valid context: Profile, Port

Enables/disables NAT (Network Address Translation). NAT allows your router to use only one IP address when communicating with remote sites via the ADSL port, effectively 'hiding' connected devices. Enabled by default.

SHOW IP NAT

Displays the IP NAT table, which contains the settings for all computers on the internal LAN that are visible to the external network.

ADD IP NAT <UDP | TCP> <port> <ipaddress>
DELETE IP NAT <UDP | TCP> <port>

ADD IP NAT allows a computer on the internal LAN to be visible to the external network for a particular protocol. For example, if you want an internal computer to function as a SMTP (E-mail) server, set TCP to port 25 and enter the IP address of the computer.

Use DELETE IP NAT to remove the NAT assignment.

UDP | TCP	UDP or TCP protocol.
<port>	Port to use.
<ipaddress>	IP address of the computer on the internal LAN.

SET IP NAT <UDP | TCP> <port> <ipaddress>

Changes an existing entry in IP NAT table.

UDP | TCP	UDP or TCP protocol.
<port>	Port to use.
<ipaddress>	IP address of the computer on the internal LAN.

SET PPP MRU <value>

Valid context: Profile

Defines the initial Maximum Receive Unit (MRU) the local PPP entity will advertise to the remote entity. If set to 0, the local PPP entity will not advertise any MRU to the remote entity, and the default MRU will be assumed. Takes effect when the link is next restarted (use the DISCONNECT and CONNECT commands).

<value>	Range: 0-2147483647. Default: 1500.

SET PPP RESTARTDELAY <value>

Valid context: Profile

Defines the number of milliseconds to wait before retransmitting another configure request when no valid response has been received. Takes effect on the next connection.

<value>	Range: 0-2147483647. Default: 3000.

SET PPP MAX CONFIGURE <value>

Valid context: Profile

Defines the number of configure requests to transmit before considering the link faulty. Takes effect on the next connection.

<value>	Range: 0-2147483647. Default: 10.

SET PPP MAX TERMINATE <value>

Valid context: Profile

Defines the number of terminate requests to transmit before going down when no response is received. Takes effect on the next connection.

<value>	Range: 0-2147483647. Default: 2.

SET PPP MAX FAILURE <value>

Valid context: Profile

Defines the number of identical ‘Configure NAK’ messages to send before rejecting an option. Takes effect on the next connection.

<value>	Range: 0-2147483647. Default: 5.

SET PPP ECHO REQUEST INTERVAL <value>

Valid context: Profile

Defines the interval in milliseconds for PPP Echo Requests. Takes effect on the next connection. Enable with ENABLE PPP ECHO REQUEST.

<value>	Range: 0-2147483647 milliseconds. Default: 10000.

ENABLE PPP ECHO REQUEST
DISABLE PPP ECHO REQUEST

Valid context: Profile

Enables/disables the sending of echo requests, which help monitor connections with the peer. The echo request interval is set with SET PPP ECHO REQUEST INTERVAL.

ENABLE PPP PHASE LOGGING
DISABLE PPP PHASE LOGGING

Valid context: Profile

Enables/disables logging of phase changes.

ENABLE PPP FSM LOGGING
DISABLE PPP FSM LOGGING

Valid context: Profile

Enables/disables logging of FSM changes.

ENABLE PPP NEGOTIATION LOGGING
DISABLE PPP NEGOTIATION LOGGING

Valid context: Profile

Enables/disables logging of packet exchange negotiations.

ENABLE PPP OPTION LOGGING
DISABLE PPP OPTION LOGGING

Valid context: Profile

Enables/disables logging of option build/check messages.

ENABLE PPP CLEARTEXT AUTHENTICATION
DISABLE PPP CLEARTEXT AUTHENTICATION

Valid context: Profile

Enables/disables using cleartext when sending username and password during PPP authentication phase.

SET PPP LOCAL USERNAME
SET PPP LOCAL PASSWORD

Valid context: Profile

Defines the username/password sent when replying to valid authentication requests. For example, when connecting to an ISP, this is the name used to log on in combination with your password. Range: 0-64 alphanumeric characters (no spaces).

SHOW PPP CONFIGURATION

Valid context: Profile

Shows PPP layer configuration for the current profile.

PROFILE profileName

Changes the active context to the specified profile. If no name is specified, you are placed in the General context. If you are in the Filter context and no name is specified, you are returned to the profile you came from.

profileName	Name of an existing profile (ATM-1 or LAN for example).

SHOW PROFILES

Valid context: General, Profile, Port

Displays the configuration settings for all profiles.

SET PROFILE NAME name

Valid context: PROFILE

Changes the name of the current profile.

name	New name for the profile. The name must not contain spaces.

ENABLE PROFILE
DISABLE PROFILE

Valid context: Profile

Enables/disables the current profile.

CONNECT
DISCONNECT

Valid context: Profile

Connects/disconnects the current profile. Use these commands so that changes to ATM or ADSL settings take effect.

SET PROFILE TYPE IPoA | PPPoA | PPPoE

Valid context: Profile

Changes the connection type for the current profile. The options are:

IPoA	IP over ADSL
PPPoA	PPP over ADSL
PPPoE	PPP over Ethernet
IPoE	IP over Ethernet (bridged ADSL)

SHOW SAR CONFIGURATION

Shows current SAR configuration. SAR defines the method used to segment packets of varying sizes for delivery via ATM cells.

SHOW SAR VC <index>

Displays the SAR configuration for a VC (Virtual Circuit). Using SHOW SAR VC with no parameters is the same as SHOW SAR VC TABLE, which displays an indexed table of SAR VCs.

<index>	Index of the VC taken from the SAR VC table.

SHOW SAR VC TABLE

Displays general SAR information for each VC (Virtual Circuit). The index number is used in SHOW SAR VC.

ENABLE TFTP SERVER
DISABLE TFTP SERVER

Enables/disables TFTP (Trivial File Transfer Protocol) server. When enabled, the device acts as a TFTP server and can respond to upload or download requests from TFTP clients. TFTP server is disabled by default.

GET TFTP FILE <ipaddress> <localfn> <remotefn>
PUT TFTP FILE <ipaddress> <localfn> <remotefn>

Downloads (GET) or uploads (PUT) a file from the device using TFTP. The TFTP server must be enabled first with ENABLE TFTP SERVER.

<ipaddress>	IP address of the server you want to reach.
<localfn>	Name of the file on the local system.
<remotefn>	Name of the file on the device.

SET TIMEPROTOCOL SERVER <timeServer>

Defines the Internet address of a time server. The device will then periodically fetch the date and time from the timer server to update its internal clock. The timeserver is enabled by default.

<timeServer>	address of the time server.

SET TIMEPROTOCOL ZONE <timeZoneDiff>

Defines the difference, in hours, between your time zone and Greenwich Mean Time (GMT).

Range	-12 to 12.

ENABLE TIMEPROTOCOL
DISABLE TIMEPROTOCOL

Enables/disables time synchronization with a time server. If enables, the device will periodically fetch the date and time from the timer server to update its internal clock. The time server address is defined with SET TIMEPROTOCOL SERVER. By default the time is fetched from your computer.

SHOW TIMEPROTOCOL CONFIGURATION

Displays the time protocol settings.

Specifications and Regulatory Information

In this Section

Specifications

General Specifications

Packaging Contents

- Diva 2440 ADSL Router
- Diva CD-ROM (includes Diva Assistant software, documentation in PDF and HTML formats, and bonus third-party software)
- Installation Guide
- USB cable
- Ethernet crossover cable (RJ45)
- ADSL telephone cable (RJ11) for connecting your ADSL line
- External power supply
- Microfilters (optional) (for connection to existing telephone devices)
- Telephone cable adapter (optional) (if required in your region)

Hardware Features

- USB port
- Ethernet port (RJ45) (10 Mbps)
- ADSL port (RJ11)
- Pass-through telephone port (RJ11) with microfilter (certain models only)
- Power jack
- Reset button
- Flash memory for storage of firmware for easy upgrade
- LED status indicators

LED Status Indicators

- Power
- Ethernet
- USB
- Data Receiving
- Data Transmitting
- ADSL Status

Power Supply

- External AC wall mount adapter providing 15VDC / 800 mA
- Power consumption: 6 Watts maximum
- Self-powered (does not draw power from USB connector)

Environmental Requirements

- Operating temperature: 0° C to +50° C
- Storage temperature: -20° C to +70° C
- Relative humidity: 5% to 95% (non-condensing)

Software and Firmware Specifications

Installation Features

- Easy access to configuration pages via a web browser
- Auto detection of common problems (connection not possible, incorrect configuration, etc.)

Administration Features

- Web-based interface (accessed via a web browser)
- Command line interface (accessed via Telnet)
- File configuration (accessed via TFTP)
- Diva Assistant (Windows only) accessible from system tray
- Password protection (Web and CLI)
- Simple firmware upgrade procedure (via Web, CLI, and Diva Assistant)
- Configuration update and backup to local drive (via web, CLI, and Diva Assistant)

ADSL Features

- Full-rate (G.992.1 and T1.413 Issue 2), providing a maximum of 8 Mbps downstream and 820 Kbps upstream (can be used with or without a splitter)
- G.Lite (G.992.2), providing a maximum of 1.5 Mbps downstream and 512 Kbps upstream (can be used with or without a splitter)
- Splitterless operation may require the use of microfilters for analog devices using the same wiring as the ADSL modem
- G.994.1 (G.hs) (DSL handshaking)
- ANSI T1.413 Issue 2 compliant
- Interleaved and fast-path ADSL channels
- Interoperable with ITU and ANSI standards-based DSLAM

IP Services

- IP, IP over Ethernet, IP over IEEE 802 Networks
- DHCP server
- TFTP client and server
- Telnet server
- HTTP server

Security

- IP Filtering
- Ethernet Filtering
- Password protection

ATM Features

- AAL5 (ATM Adaptation Layer 5)
- VC Multiplexed
- LLC Encapsulation
- UNI 3.0, 3.1
- F4/F5 OAM Cells (ATM Loopback)
- Precise Peak Cell Rate Traffic Shaping on a per VC basis
- Up to 8 active VCs
- VPI Address Range 0-255
- VCI Address Range 0-65535
- UBR/CBR

Regulatory Information for the United States

Warning: Changes or modifications to this unit not expressly approved by Eicon Networks Corporation could void the user's authority to operate the equipment.

FC Declaration of Conformity

We:

Eicon Networks Corporation
2155 Chenault Drive, Suite 503
Carrollton, Texas USA 75006
1-800-80-EICON
(972) 417-5500
Fax: (972) 417-5610

Declare under our sole legal responsibility that the products listed below to which this declaration relates, are in conformity with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) This device must accept any interference received, including interference that may cause undesired operation.

Note: *This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a 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 the 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 for help.

FCC Part 68 Notice

This unit complies with Part 68 of the FCC rules. On the bottom of this equipment is a label that contains, among other information, the FCC registration number. If requested, this information must be provided to the telephone company.

An FCC compliant telephone cord and modular plug is provided with this equipment, designed to be connected to the telephone network or premises wiring using a compatible modular jack which is Part 68 compliant.

This equipment cannot be used on telephone company-provided coin service. Connection to party line service is subject to state tariffs.

If this equipment causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. If advance notice isn't practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

The telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the operation of the equipment. If this happens, the telephone company will provide advance notice in order for you to make the necessary modifications in order to maintain uninterrupted service.

If trouble is experienced with this equipment, please contact us for repair and warranty information. If the trouble is causing harm to the telephone network, the telephone company may request you to remove the equipment from the network until the problem is resolved.

Safety Notice

Use certified class 2 power supply with this equipment.

Regulatory Information for Canada

NOTICE: The Industry Canada label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational and safety requirements. Industry Canada does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the company's inside wiring associated with a single line individual service may be extended by means of certified connector assembly (telephone extension cord). The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

For their own protection, users should ensure that any electrical ground connections of the power utility, telephone lines and internal metallic water pipe system are connected together. This precaution is particularly important in rural areas.

Warning: Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

Safety Notice

Use certified class 2 power supply with this equipment.

Regulatory Information for the European Union

CE EU Declaration of Conformity

EN: Eicon Networks Corporation declares that this equipment is in compliance with the essential requirements and other relevant provisions of Directive1999/5/EC.

DE: Eicon Networks Corporation erklärt, daß diese Telekommunikations_endeinrichtung den grundlegenden Anforderungen und anderen relevanten Bestimmungen der Richtlinie 1999/5/EG entspricht.

DK: Eicon Networks Corporation erklærer, at dette udstyr er i overensstemmelse med vigtige krav og andre relevante provisioner i Direktiv 1999/5/EC.

ES: Eicon Networks Corporation declara que este equipo cumple con los requisitos esenciales y otras disposiciones pertinentes de la Directiva 1999/5/EC.

FI: Eicon Networks Corporation takaa, että tämä laite on 1999/5/EC-direktiivin olennaisten vaatimusten ja muiden lausekkeiden mukainen.

FR: Eicon Networks Corporation déclare que cet équipement répond aux exigences essentielles et autres dispositions pertinentes de la directive 1999/5/EC.

GR: Eicon Networks Corporation προβαίνει στην ανακοίνωση ότι αυτά τα μηχανήματα έχουν τις βασικές απαιτούμενες προδιαγραφές και υπόκεινται στις υπόλοιπες σχετικές διατάξεις της Οδηγητικής 1999/5/EC.

IC: Eicon Networks Corporation lýsir hér með yfir að þetta tæki uppfyllir grunnkröfur og tengd ákvæði ESB tilskipunar nr. 1999/5/EC.

IT: La Eicon Networks Corporation certifica che la presente apparecchiatura è conforme ai requisiti di legge stabiliti nella direttiva 1999/5/EC.

NL: Eicon Networks Corporation verklaart, dat deze uitrusting in overeenstemming is met de essentiële vereisten en andere relevante bepalingen van Richtlijn 1999/5/EC.

NO: Eicon Networks Corporation erklærer herved at dette utstyret oppfyller de vesentligste krav og relevante bestemmelser i direktiv 1999/5/EF om radio- og teleterminalutstyr.

PT: A Eicon Networks Corporation declara que este equipamento está de acordo com os requisitos básicos e outras provisões relevantes da Directiva 1999/5/EC.

SE: Eicon Networks Corporation förklarar att denna utrustning överensstämmer med de väsentliga krav och regler som finns i direktivet 1999/5/EG.

To receive a detailed R&TTE Declaration for this product please send a request specifying the product name to the following e-mail address: certification@eicon.com.

Safety Status: TNV-3

No voltages within this equipment exceed SELV voltages. The DSL port has TNV-3 Safety Status and all other interconnection points and ports are SELV.

Power Consumption

The user must ensure that the total power drawn by the host computer and all peripherals drawing power from it, including internally installed cards, does not exceed the capability of the host power supply unit. Maximum power consumption of the unit can be found in **Specifications** on page 87.

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