Cable/DSL Router

AT-AR220E

Installation Guide

PN 613-50157-00 Rev B

Allied Telesyn

Simply Connecting the IP World

Electrical Safety and Emission Statement

Standards: This product meets the following standards.

U.S. Federal Communications Commission
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: This device may not cause harmful interference. 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.

Canadian Department of Communications
This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations. Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

CE Marking Warning: This is a Class B product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Important: Appendix A contains translated safety statements for installing this equipment. When you see the ☞, go to Appendix A for the translated safety statement in your language.

Wichtig: Anhang A enthält übersetzte Sicherheitshinweise für die Installation dieses Geräts. Wenn Sie ☞ sehen, schlagen Sie in Anhang A den übersetzten Sicherheitshinweis in Ihrer Sprache nach.

Vigtigt: Tillæg A indeholder oversatte sikkerhedsadvarsler, der vedrører installation af dette udstyr. Når De ser symbolet ☞, skal De slå op i tillæg A og finde de oversatte sikkerhedsadvarsler i Deres eget sprog.

Belangrijk: Appendix A bevat vertaalde veiligheidsopmerkingen voor het installeren van deze apparatuur. Wanneer u de ☞ ziet, raadpleeg Appendix A voor vertaalde veiligheidsinstructies in uw taal.

Important : L'annexe A contient les instructions de sécurité relatives à l'installation de cet équipement. Lorsque vous voyez le symbole ☞, reportez-vous à l'annexe A pour consulter la traduction de ces instructions dans votre langue.

Tärkeää: Liite A sisältää tämän laitteen asentamiseen liittyvät käännetyt turvaohjeet. Kun näet ☞-symbolin, katso käännettyä turvaohjetta liitteestä A.

Importante: l'Appendice A contiene avvisi di sicurezza tradotti per l'installazione di questa apparecchiatura. Il simbolo ☞, indica di consultare l'Appendice A per l'avviso di sicurezza nella propria lingua.

Viktig: Tillegg A inneholder oversatt sikkerhetsinformasjon for installering av dette utstyret. Når du ser ☞, åpner du til Tillegg A for å finne den oversatte sikkerhetsinformasjonen på ønsket språk.

Importante: O Anexo A contém advertências de segurança traduzidas para instalar este equipamento. Quando vir o símbolo ☞, leia a advertência de segurança traduzida no seu idioma no Anexo A.

Importante: El Apéndice A contiene mensajes de seguridad traducidos para la instalación de este equipo. Cuando vea el símbolo ☞, vaya al Apéndice A para ver el mensaje de seguridad traducido a su idioma.

Obs! Bilaga A innehåller översatta säkerhetsmeddelanden avseende installationen av denna utrustning. När du ser ☞, skall du gå till Bilaga A för att läsa det översatta säkerhetsmeddelandet på ditt språk.

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Preface

Purpose of This Guide

This guide is intended for network administrators who are responsible for installing and maintaining the AT-AR220E Broadband Router.

How This Guide is Organized

This guide contains the following chapters and appendices:

Chapter 1, **Introduction**, describes the features, functions, LEDs, and ports on the router.

Chapter 2, **Installation**, describes how to install the router.

Chapter 3, **Configuration Interface**, describes the procedures for accessing the router through its Web interface and saving configuration changes.

Chapter 4, **Quick Setup**, describes the procedures for configuring the basic parameters, such as a dynamic or fixed WAN IP address and a subnet mask.

Chapter 5, **Advanced Configuration**, describes the procedures for entering configurations on advanced router features.

Chapter 6, **System Information and Help**, describes the procedures for obtaining (reading) current configuration information about the router.

Chapter 7, **Setting Up Client Computers for Internet Access**, describes the procedures for configuring a Windows client.

Chapter 8, **Troubleshooting**, describes procedures for resolving error conditions on the router.

Appendix A, **LED Display**, describes the router's LEDs.

Appendix B, **Specifications**, provides router specifications.

Appendix C, **FirstAid Agent for Emergency Firmware Upgrade**, describes how to use the utility to recover a router that cannot boot or is unresponsive, and how to return a router's parameter settings to their default values.

Appendix D, **Country and Territory Settings**, explains how to configure router parameters specific to a particular country or territory.

Appendix E, **Translated Electrical Safety and Emission Information**, contains multi-language translations of the cautions and warnings in this manual.

Document Conventions

This guide uses several conventions that you should become familiar with before you begin to install the product:

Note
A note provides additional information.

Warning
A warning indicates that performing or omitting a specific action may result in bodily injury.

Caution
A caution indicates that performing or omitting a specific action may result in equipment damage or loss of data.

Where to Find Related Guides

The Allied Telesyn web site at www.alliedtelesyn.com/support/prd_libs.htm contains the most recent documentation for all of our products. All web-based documents relating to this product and other Allied Telesyn products can be downloaded from the web site in PDF format.

Contacting Allied Telesyn Technical Support

You can contact Allied Telesyn technical support through the company's web site or by telephone or fax.

Online Support

You can request technical support online by filling out the Online Technical Support Form at www.alliedtelesyn.com/forms/support.htm.

Telephone and Fax Support

Americas
United States, Canada, Mexico, Central America, South America
Tel: 1 (800) 428-4835, option 4
Fax: 1 (425) 481-3790

Asia
Singapore, Taiwan, Thailand, Malaysia, Indonesia, Korea, Philippines, China, India, Hong Kong
Tel: (+65) 3815-612
Fax: (+65) 3833-830

Australia
Australia, New Zealand
Tel: 1 (800) 000-880
Fax: (+61) 2-9438-4966

France
France, Belgium, Luxembourg, The Netherlands, Middle East, Africa
Tel: (+33) 01-60-92-15-25
Fax: (+33) 01-69-28-37-49

Germany
Germany, Switzerland, Austria, Eastern Europe
Tel: (+49) 30-435-900-126
Fax: (+49) 30-435-70-650

Italy
Italy, Spain, Portugal, Greece, Turkey, Israel
Tel: (+39) 02-41-30-41
Fax: (+39) 02-41-30-42-00

Japan
Tel: (+81) 3-3443-5640
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latin_america@alliedtelesyn.com

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Returning Products

Products for return or repair must first be assigned a Return Materials Authorization (RMA) number. A product sent to Allied Telesyn without a RMA number will be returned to the sender at the sender's expense.

To obtain an RMA number, contact Allied Telesyn's Technical Support at one of the following locations:

- **United States and Canada**
  Toll-free: 1-800-428-4835, option 4
  Fax: 1-425-481-3790

- **Europe, Africa, and Middle East**
  Tel: +44-1793-501401
  Fax: +44-1793-431099

- **Latin America, Caribbean, and Virgin Islands**
  Tel: International code + 425-481-3852
  Fax: International code + 425-481-3895

- **Puerto Rico**
  Tel: 1-800-424-5012, ext. 3852 or
  Tel: 1-800-424-4284, ext. 3852

- **Mexico**
  Tel: 800-424-5012, ext. 3852
  Fax: International code + 425-481-3895

- **Asia and Southeast Asia**
  Tel: +65 381-5612
  Fax: +65 383-3830

- **Australia**
  Tel: 1-800-000-880
  Fax: +61-2-9438-4966

- **New Zealand**
  Tel: 0800-45-5782

FTP Server

If you need management software for an Allied Telesyn managed device, you can download the software by connecting directly to our FTP server at ftp.alliedtelesyn.com. At login, enter “anonymous” as the user name and your e-mail address as the password.

For Sales or Corporate Information

Allied Telesyn International, Corp.
19800 North Creek Parkway, Suite 200
Bothell, WA 98011
Tel: 1 (425) 487-8880
Fax: 1 (425) 489-9191

Allied Telesyn International, Corp.
960 Stewart Drive, Suite B
Sunnyvale, CA 94085
Tel: 1 (800) 424-4284 (USA and Canada)
Fax: 1 (408) 736-0100

Tell Us What You Think

If you have any comments or suggestions on how we might improve this or other Allied Telesyn documents, please fill out the Send us Feedback Form at www.alliedtelesyn.com/forms/feedback.htm.

Chapter 1
Introduction

Thank you for purchasing the AT-AR220E Broadband Router with a 4-port switch. This easy-to-use router offers small offices and home offices an economical way to connect their entire LAN to the Internet using an external DSL/Cable modem.

Router Features

- ❑ High speed Internet access

  Includes a WAN port for connection to an external DSL/Cable modem for high speed Internet access (20~200 times faster than your legacy 56K modem).

- ❑ Built-in four-port 10/100 Mbps Ethernet Switch

  Provides complete and fast connectivity for small offices.

- ❑ Shared single ISP account

  Provides an affordable Internet access for all the computers in your office using a single ISP account.

- ❑ DHCP (Dynamic Host Configuration Protocol)

  Simplifies setup and management of all you network resources.

- ❑ PPPoE

  Allows for flexible use and configuration of ADSL.

- ❑ Web-based management

  Includes an intuitive web-based configuration and administration interface to simplify router management.

- DNS Server

  Supports two DNS servers that relay DNS entries to speed up the Internet connection.

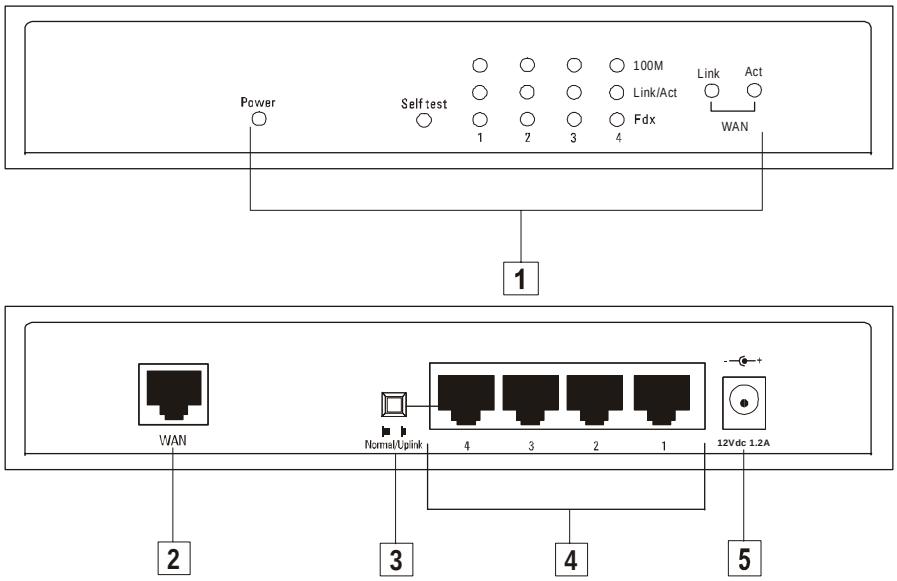
- Virtual Server

  Allows for a Virtual Server configuration (for example, an FTP Server) to allow remote access by outside users.

- Access control (packet filtering)

  Monitors and blocks specific packets or applications.

This illustration shows the front and rear panels of the router.



Number	Indicator	Description
1	Status LED	These LEDs provide a quick method for troubleshooting the unit. See Appendix A for more information.
2	WAN Port	This RJ-45 interface is for the DSL/Cable modem connection.
3	Normal/Uplink Push Button	This button is used to configure port 4 as either MDI-X or MDI. The Normal setting is MDI-X and the Uplink setting is MDI. The port is configured for normal wiring when the button is in the OUT position. When the button has been set to the IN position, the port is configured for uplink wiring.

Number	Indicator	Description
4	10Base-T/100Base-Tx port	These auto-sensing ports can automatically detect the connection speed of a link and set themselves automatically to either a 10Mbps connection for Ethernet devices or 100Mbps connection for Fast Ethernet devices. All of these ports are configured by default as MDI-X (crossover) and support a maximum cable length of 100 meters over Category 5 twisted pair cable.
5	Power jack	This plug connects to an external power adapter.

Package Contents

Check your router package for the following items. If an item is missing or damaged, contact your Allied Telesyn sales representative for assistance.

- ❑ One AT-AR220E Broadband Router
- ❑ One AC/DC power adapter
- ❑ Quick install guide
- ❑ One CD-ROM

The CD-ROM included in the package contains the following items:

- ❑ Microsoft Internet Explorer®
- ❑ Adobe Acrobat Reader™
- ❑ TFTP Server Software for Windows® operating system
- ❑ Failsafe FirstAid Agent Firmware for software upgrades
- ❑ Recovery version of firmware (used with FirstAid)
- ❑ PARAM.INI file for resetting the router parameters to their factory default settings (used with FirstAid)
- ❑ This installation guide

Chapter 2
Installation

Installing the Hardware

Perform the following procedures to install the router.

Reviewing Safety Precautions

Please review the following safety precautions before you begin to install the device in your network. Refer to Appendix E for translated safety statements in your language.

Warning
Lightning Danger: Do not work on this equipment or cables during periods of lightning activity. 1

Warning
Power cord is used as a disconnection device: To de-energize equipment, disconnect the power cord. 2

Warning
Electrical-Type Class 1 Equipment: This equipment must be earthed. The power plug must be connected to a properly wired earth ground socket outlet. An improperly wired socket outlet could place hazardous voltages on accessible metal parts. 3

Caution
Pluggable Equipment: The socket outlet should be installed near the equipment and should be easily accessible. 4

Caution
Air vents: The air vents must not be blocked on the unit and must have free access to the room ambient air for cooling. 5

Caution
Operating Temperature: This product is designed for a maximum ambient temperature of 40°C. 6

Caution
All Countries: Install this product in accordance with local and National Electric Codes. 7

Powering the Device

1. Plug the power adapter to an AC power outlet.
2. Connect the output of the power supply to the power connector on the rear of the device.

   The Power LED turns on immediately. The device then immediately runs a series of hardware diagnostics to ensure that the unit can operate properly.

POST (Power-On-Self-Test)

This series of hardware diagnostics is called Power-On-Self-Test (POST). While the POST is running, watch the front panel of the router. The Self-Test LED stays ON during the self-test process.

If the POST succeeds without encountering any problems, the Self-Test LED turns OFF. If the Self-Test LED stays ON, then the device has failed.

Connecting the Router to Computers and Network

The device features a built-in 4-port 10M/100M Ethernet switch. Any of the Ethernet ports can be connected to a computer that has an Ethernet card or NIC (Network Interface Card). Port 4 can be used as an uplink port to which you can connect another hub or switch, as illustrated in Figure 1.

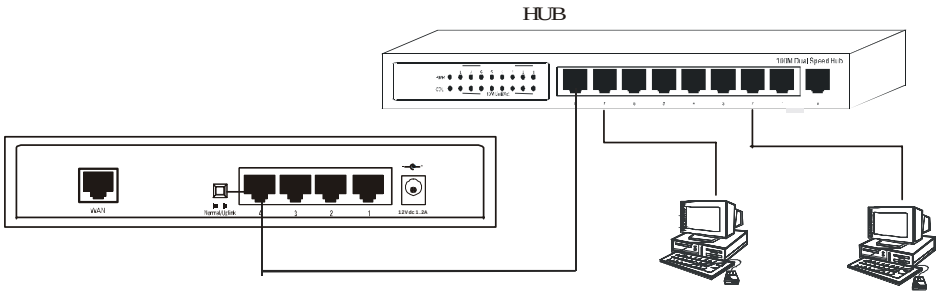


Figure 1 Port 4 Used as an Uplink Port

Modem Connection

The device has one WAN port that connects to an external DSL/Cable modem for Internet access. The following hardware items are needed for the modem connection:

- ❑ An external DSL/Cable modem with an Ethernet RJ-45 connector
- ❑ An RJ-45 to RJ-45 cable for connecting the modem to the router

Figure 2 illustrates a typical network topology using the router.

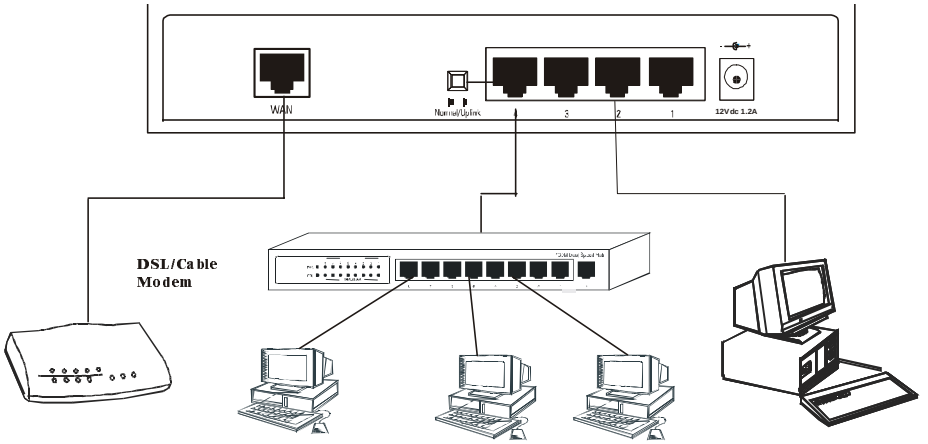


Figure 2 Network Topology Example

Install the System Software

Several software utilities are included with the router to simplify device management. The utilities are TFTP Server and Failsafe FirstAid Agent. You should install these utilities onto one of your workstations immediately after you connect the router to your network.

TFTP Server

The TFTP Server utility simplifies the task of upgrading the firmware on the router when Allied Telesyn releases new versions. Designate a workstation in your network as your FTP server and install the utility on that workstation. The workstation can then function as an FTP server from which you can download new versions of the firmware onto the router. New firmware versions are obtained from your Allied Telesyn representative or from the Allied Telesyn web site.

To install this utility, perform the following procedure:

1. Insert the Router CD into the CD-ROM drive on the workstation that is to be the FTP server.
2. Go to the PROGRAM directory on the CD and start the SETUP.EXE program. Alternatively, select the Install System Software item.

   The component installation window in Figure 3 is displayed.

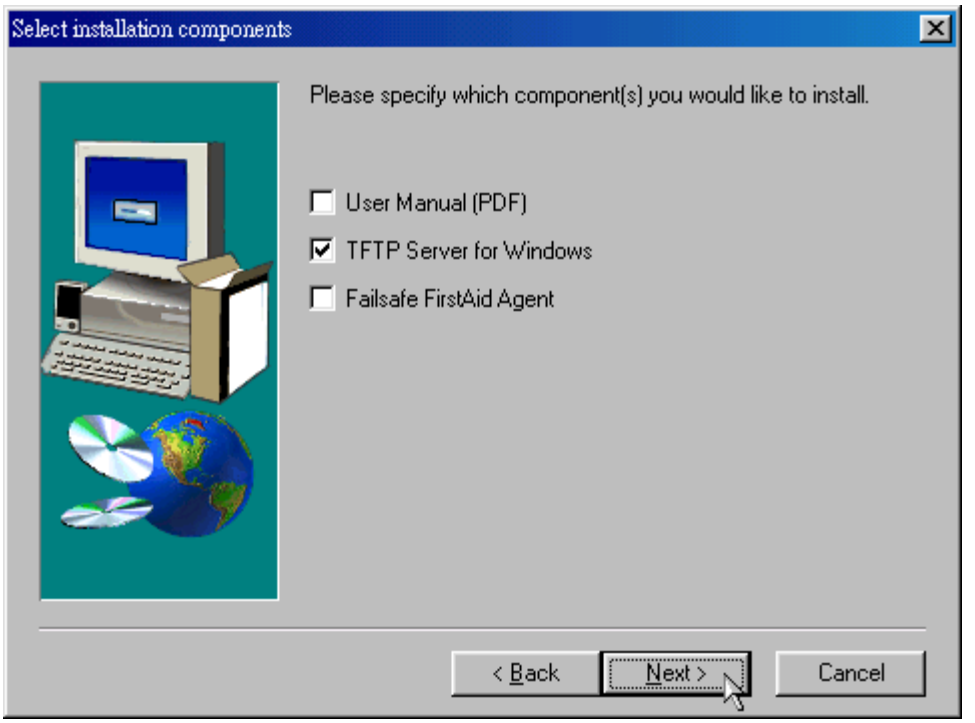


Figure 3 Select Installation Components Menu

3. Select the TFTP Server for Windows item and click Next.

   The window in Figure 4 is displayed.

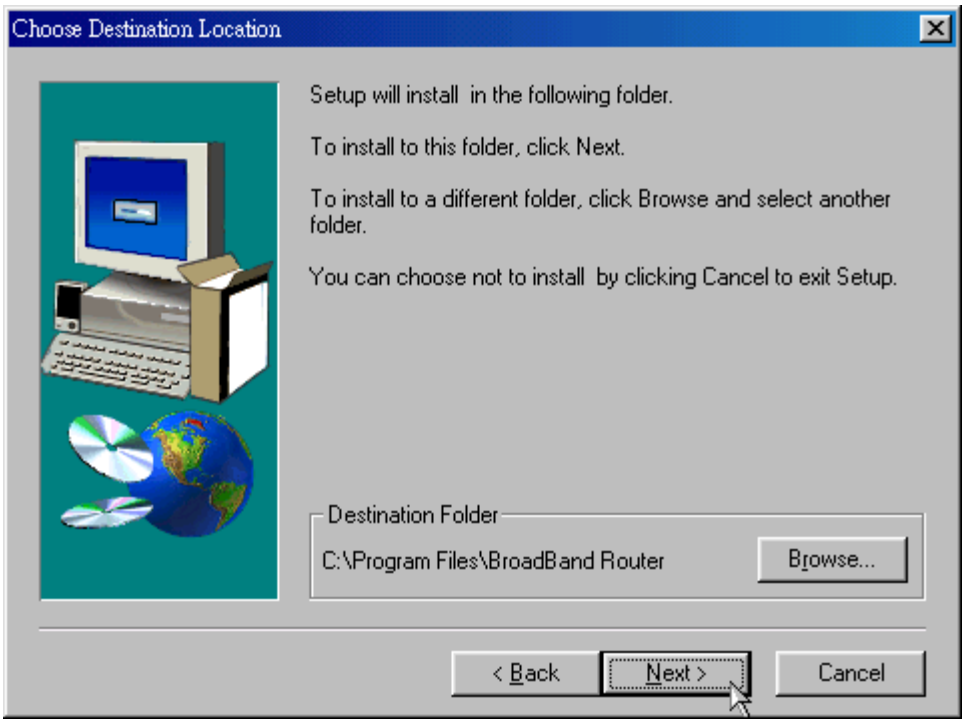


Figure 4 Specifying a Destination Directory

4. Use the window to specify the directory on the workstation where the TFTP utility will be stored.

   The default directory is C:\Program Files\BroadBand Router.

5. Click Next.

   The installation program installs the utility.

Failsafe FirstAid Agent

This utility is useful when the router is experiencing a problem, such as when the device cannot boot or is unable to complete a firmware upgrade. Further information about this utility can be found in Appendix C.

To install this utility, perform the following procedure:

1. Insert the Router CD into the CD-ROM drive on the workstation.
2. Go to the PROGRAM directory on the CD and start the SETUP.EXE program. Alternatively, select the Install System Software item.

   The window in Figure 3 is displayed.

3. Select the Failsafe FirstAid Agent item and click the Next button.

   The window in Figure 4 is displayed.

4. Use the window to specify the directory on the workstation where the program will be stored.

   The default directory is C:\Program Files\BroadBand Router.

5. Click Next.

   The installation program installs the utility.

Setting Up a Client Computer

To access the router's Web-based management interface, you need a computer that supports the TCP/IP protocol and has a Web browser. This workstation must be in the same subnet as the router.

The default IP address of the router is **192.168.1.1**. The default network mask is **255.255.255.0**. The router features a standalone DHCP server feature that can configure a client workstation's TCP/IP setting automatically. Alternatively, you can manually configure the client workstation's TCP/IP settings as follows:

- IP address of 192.168.1.200
- Network mask of 255.255.255.0.
- The router's IP address as the client workstation's DNS (Domain Name System) device
- The router's IP address as the client workstation's default gateway

For detailed information on the DHCP server feature, refer to Chapter 7.

Setting Up the Router

To establish an Internet connection to your ISP (Internet Service Provider) via a DSL/Cable modem, set up the modem and the ISP information on the router. Use a Web browser from a management station to open the Quick Setup interface. This procedure is described in Chapter 4, Quick Setup.

Chapter 3
Configuration Interface

The router features a Web-based management interface. This chapter explains how to start a management session.

Note
The router allows multiple users to log in via the Web interface at the same time.

Web Interface

Note
The Web browser software (Netscape Communicator and Microsoft Internet Explorer) are included in the CD shipped with the router. The browsers can also be downloaded from Netscape Communications' web site at <http://www.netscape.com> and Microsoft's web site at <http://www.microsoft.com>.

The router is preconfigured from the factory with the default IP address 192.168.1.1.

1. Start your web browser on a workstation that has the TCP/IP protocol. (The workstation and the router must be on the same IP subnet.)

2. Type the router's IP address in the URL field. For example:

   http://192.168.1.1

   and press Enter.

   The router's default IP address 192.168.1.1. If the IP address of the router has been changed, then enter the current one.

The Login window shown in Figure 5 is displayed.

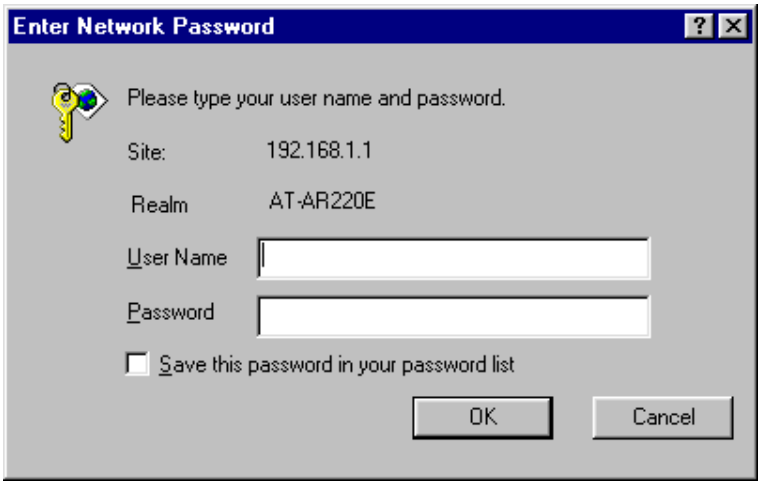


Figure 5 Login Window

3. Type **root** in the Login Name field and click OK.

Note
The router is factory-configured with **root** as the default administrator name and no password.

The Introduction page is displayed. You can start configuring the router.

Following are short descriptions of the buttons and menu items found in most of the management screens:

Button or Menu Item	Description
Apply	Store the new configurations in flash memory.
Add	Add a new entry to a configuration table.
Modify	Modify an entry in a configuration table.
Cancel	Cancel the changes and restore a configuration to its previous values.
Back	Return to the previous page.
Refresh	Refresh the information displayed in the System Information page.
Upgrade	Upgrade the router's firmware. This button is found only on the Upgrade Firmware page.

Button or Menu Item	Description
Help	Show related information about a configuration and help the administrator finish the configuration tasks.
Delete	Delete an entry from a configuration table.
Execute	Only used in System Config to execute the “Reboot the System” and “Reset to Factory Default” commands.

Saving and Activating Configuration Changes

The configuration changes that you made through the Web interface are automatically saved into the router’s flash memory within 30 seconds after clicking Apply, but are not activated until you reboot the system.

To activate the changes, reboot the router:

1. Go to the Advanced Config/ System Config>Reboot the System.
2. Click Execute.

The router is rebooted and any new configuration settings are activated.

Chapter 4
Quick Setup

This chapter explains how to use the Quick Setup utility to configure the Internet access settings of the router.

To use the Quick Setup utility:

1. Launch your browser and enter the router's IP address in the URL field using the following format:

   http://192.168.1.1

   The IP address shown is the default IP address of your router.

   Note
   The router is pre-configured at the factory with a default IP address of 192.168.1.1. If this IP address is already being used by another device on your network, you must turn off the other network device until you have assigned the router a new IP address.

   The first Web page you see is the Login screen, as shown in Figure 5.

2. Enter the administrator's user name (the default is **root**) and the password (the default is no password).

3. Click the OK button to display the Introduction page.

   You configure the router from this page by clicking the configuration items in the left-side window.

4. Click the Quick Setup item in the left-side window to start the utility.

Dynamic WAN IP Address

If you did not receive a fixed (static) IP address from your ISP, select **WAN IP Dynamic**. The window in Figure 6 is displayed. By entering the IP address of up to two DNS servers, the IP address of the WAN port on the router will be assigned dynamically each time a connection is established.

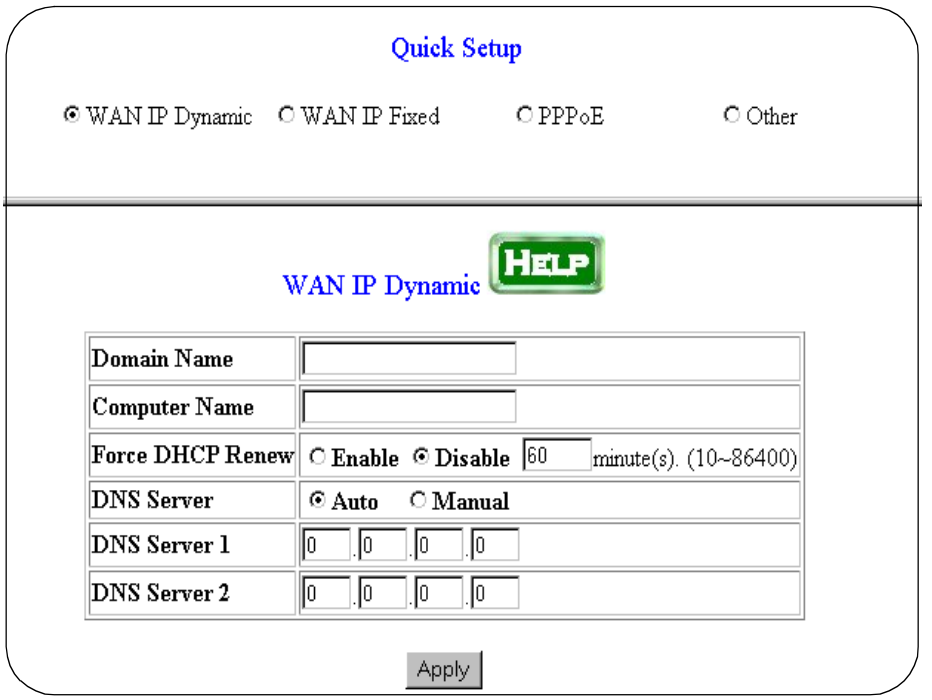


Figure 6 Quick Setup Menu (WAN IP Dynamic)

The fields in the window are defined below. Your ISP will provide you with the necessary information.

Domain Name: The domain where the DNS server is located.

Computer Name: The name of the router.

Force DHCP Renew: The method by which the router determines how often it must renew the lease on its IP address. In order for the router to continue to use an IP address obtained from an ISP, it must occasionally renew the address lease. This renewal is to prevent the ISP from assigning the IP address to another device. Normally, the ISP will notify the router of the time interval required for renewal of the IP lease. The Force DHCP Renew option is used for situations where the ISP does not provide the time interval. By activating this option and entering a time interval (in minutes), you control how often the router renews its lease of the IP address with the ISP.

DNS Server (Auto or Manual): The method by which the router obtains the IP address of the DNS servers. If you select Auto, the ISP assigns the IP addresses automatically. If you select Manual, the IP addresses of the DNS servers are obtained from the DNS Server 1 and 2 fields.

DNS Server 1 and 2: The IP addresses of up to two DNS servers, provided by your IPS.

After you have configured the table, click Apply. A dialog box appears to remind you reboot your device to apply the new configuration settings. Clicking OK reboots the device and activates the new settings.

Fixed (Static) WAN IP Address

If you have received a fixed (static) IP address from your ISP, use this page to enter the IP address.

1. Select “WAN IP Fixed.” The fields in Figure 7 are displayed.

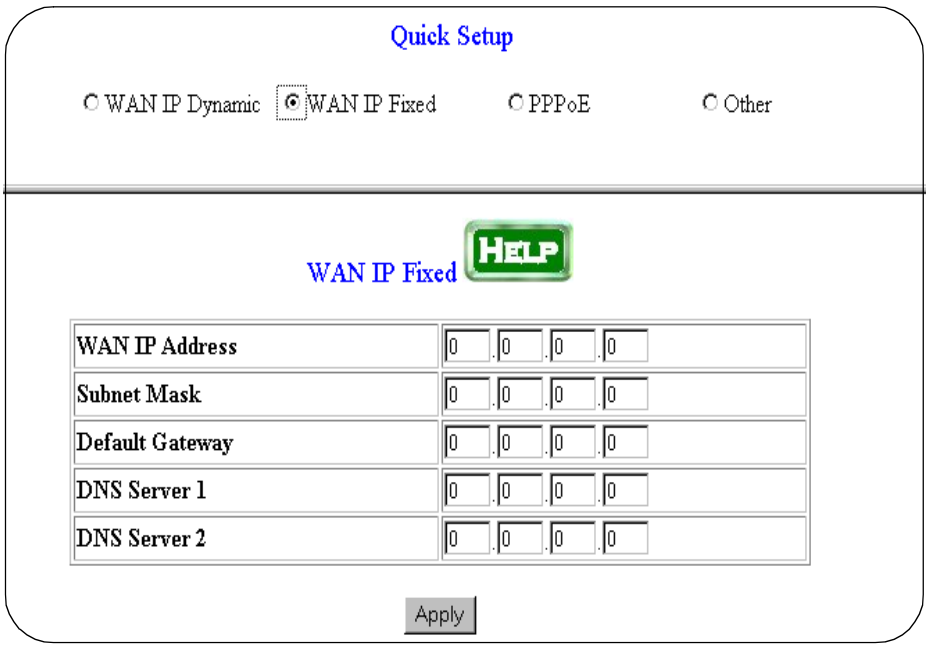


Figure 7 Quick Setup Menu (WAN IP Fixed)

You can use this window to specify a fixed IP address for your router. All values for this window are provided by your ISP. The fields in the window are defined below:

WAN IP Address: Specifies the IP address of the router, as seen by external users on the Internet (including your ISP).

Subnet Mask: Specifies the subnet mask of the router, as seen by external users on the Internet (including your ISP).

Default Gateway: Specifies the gateway IP address.

DNS Server 1 and 2: Specifies the IP addresses of up to two DNS servers. Your ISP provides you these addresses. If the router is configured to obtain the IP addresses of the DNS servers automatically, these values are assigned by your ISP automatically.

2. Enter your configurations and click Apply.

   A dialog box appears to remind you reboot your device to apply the new configuration settings.

3. Click OK to reboot the device and activates the new settings.

PPPoE

If your ISP supports the PPPoE feature, use the following procedure to enter the appropriate PPPoE values.

1. Select “PPPoE” to display the window in Figure 8.

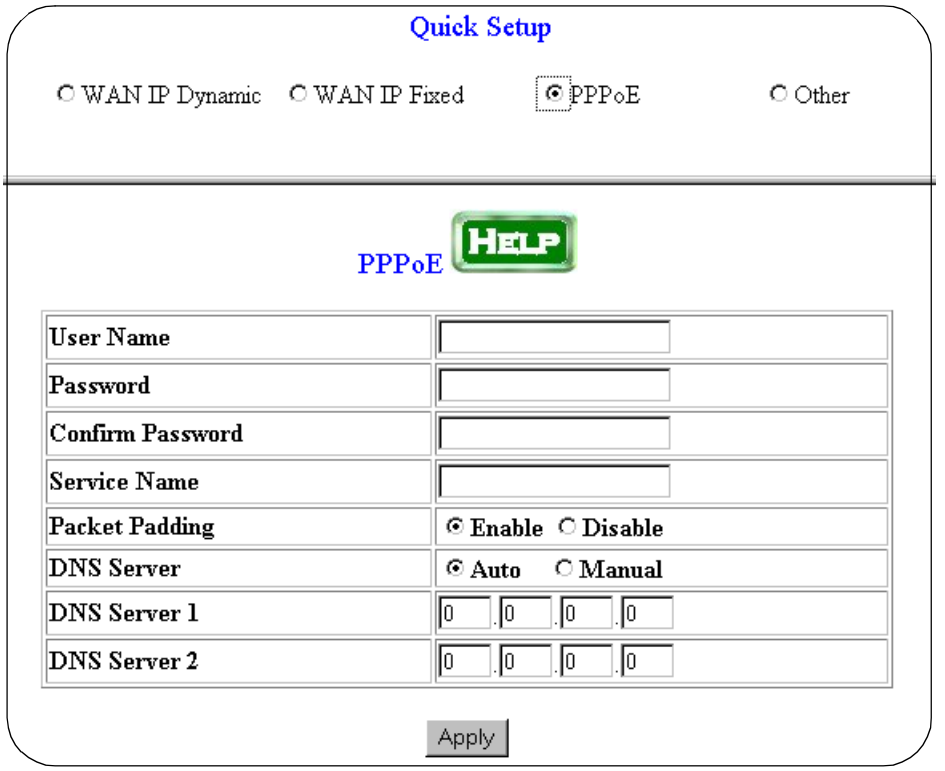


Figure 8 Quick Setup Menu (PPPoE)

The fields in the window are defined below. Your ISP will provide you with the appropriate values if it supports PPPoE.

User Name: Specifies the ISP account’s login name.

Password: Specifies the login password for the account.

Confirm Password: Specifies the same login password for confirmation.

Service Name: Specifies the service name.

Packet Padding: Specifies how the router is to handle packets smaller than 64 bytes, which is typically the minimum packet size for an Ethernet frame. Some applications generate packets smaller than the allowed minimum. Normally, the router will drop these small packets, which can result in the loss of network sessions. If the router

will be handing small packets, enable the Packet Padding option. Disabling this option will cause the router to drop frames smaller than 64 bytes.

DNS Server (Auto or Manual): Specifies the method by which the router obtains the IP address of the DNS server. If you select Auto, the ISP assigns the IP addresses automatically. If you select Manual, the IP addresses of the DNS servers are obtained from the DNS Server 1 and 2 fields.

DNS Server 1 and 2: The IP addresses of up to two DNS servers, provided by your IPS.

2. Enter your configurations and click Apply.

   A dialog box appears to remind you reboot your device to apply the new configuration settings.

3. Click OK to reboot the device and activate the new settings.

Other

The selection Other in the Quick Setup window displays a window with router and ISP parameters that are unique to a country or territory. You may need to adjust these parameters, depending on the location of your ISP. For further information on this selection, refer to **Appendix D**.

Default Settings

The following are the default values for additional router parameters automatically set by the Quick Setup program:

LAN IP Address: 192.168.1.1

Subnet Mask: 255.255.255.0

DHCP: Enable
Start Address: 192.168.1.11
End Address: 192.168.1.254

Chapter 5
Advanced Configuration

Selecting the Advanced Config item in the selection window on the left-hand side displays the Advanced Configuration menu page, shown in Figure 9.

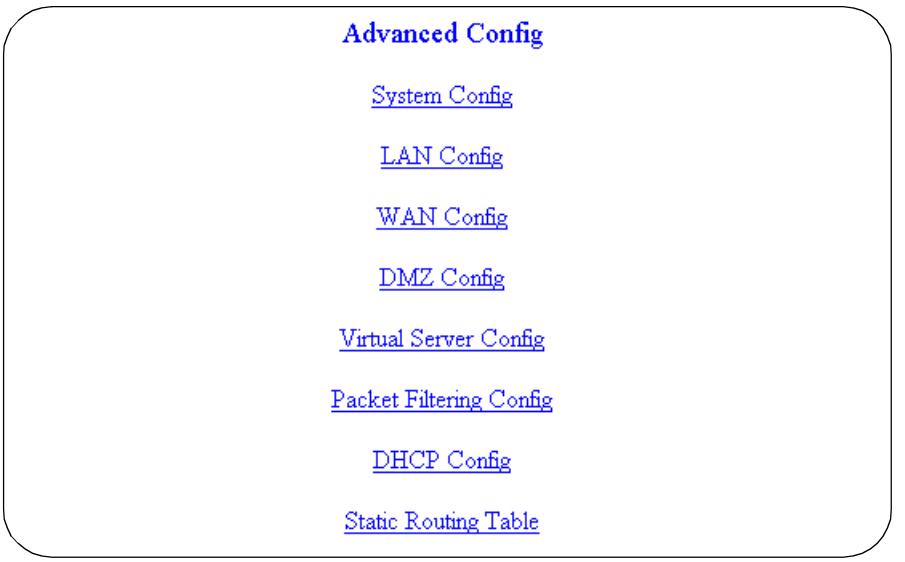


Figure 9 Advanced Configuration Window

System Configuration

Selecting the System Config item in the Advanced Config page displays the System Configuration window, shown in Figure 10.

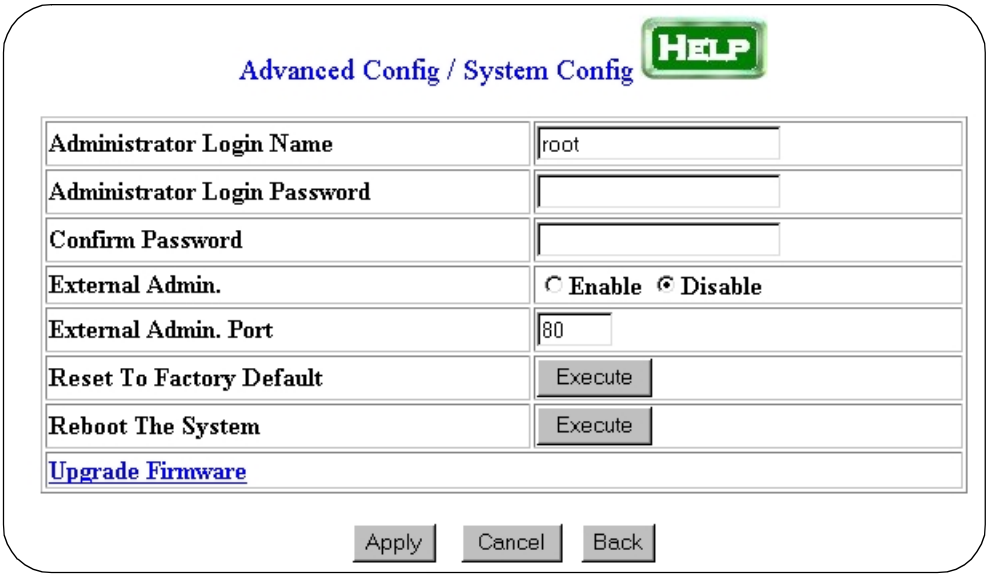


Figure 10 System Config Window

The fields and functions in the window are described in the following sections.

Administrator's Profile

The Administrator Login Name, Administrator Login Password, and Confirm Password fields are used to configure the administrator's profile. The fields are defined below.

Administrator Login Name: Specifies the login name used when logging into the router's management interface. The default is **root**.

Administrator Login Password: Specifies the login password. The default is no password. The password is displayed as a series of asterisks. If you enter a new password, be sure to enter it again in the Confirm Password field.

Confirm Password: Specifies the same login password for confirmation. The password is displayed as a series of asterisks.

External Admin: Controls whether the router can be managed from the Internet through the WAN port. The default setting is disabled, meaning that the router can only be managed from a workstation connected to one of its Ethernet ports. To prevent unauthorized individuals from making changes to the router's configuration, you should leave this feature disabled.

External Admin. Port: Specifies the CPU port number through which an administrator will manage the router through the WAN port if the External Administration feature has been activated. The default value of port 80 is the same CPU port used for LAN administrator. For this reason, it is recommended that you choose another CPU port number if you activate External Administration or if there is a Web server on your LAN.

If you make any changes to the administrator's profile, click the Apply button to activate the changes on the router.

Reset to Factory Default

The Reset to Factory Default function returns all values on the router back to the factory default settings. Clicking the Execute button displays the confirmation prompt in Figure 11.

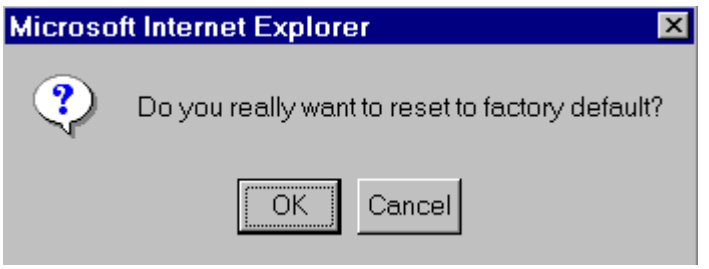


Figure 11 Reset Warning

Click OK to return the router to the factory default settings.

Reboot the System

The Reboot the System function reboots the router. You need to reboot the system whenever you change the router's configuration settings. Configuration changes are automatically saved into the router's flash memory within 30 seconds after the Apply button is clicked, but are not activated on the router until you either power cycle the unit or reboot the device using this function.

Clicking the Execute button displays the confirmation prompt in Figure 12.

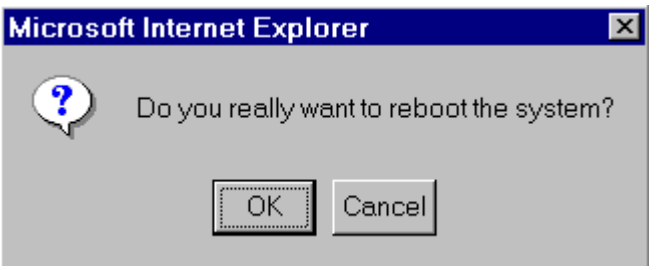


Figure 12 Reboot Warning

Clicking OK reboots the router and activates any new configuration settings. The reboot process takes several seconds to complete.

Upgrade Firmware

The Upgrade Firmware function lets you upgrade the firmware on the router using TFTP software, which is included with the router on the product's CD. For instructions for installing the TFTP server software, refer to Chapter 2, Installation.

Clicking Upgrade Firmware displays a prompt that asks you to save any changes you have made to the router's configuration before proceeding with the firmware upgrade. If you click OK, the Upgrade Firmware screen is displayed, as shown in Figure 13.

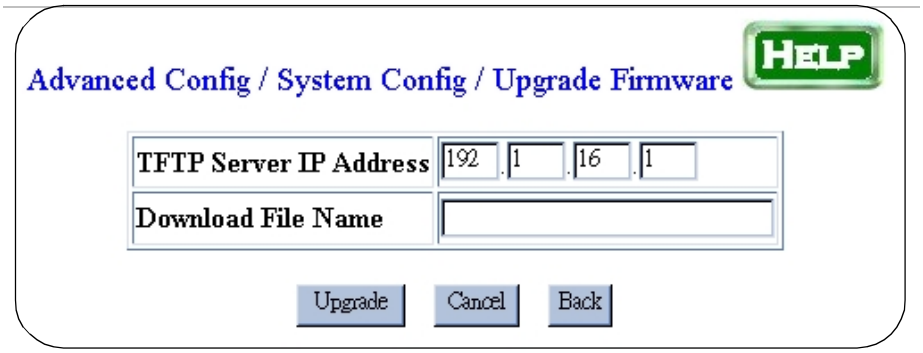


Figure 13 Upgrade Firmware

The fields in the window are defined below.

TFTP Server IP Address: Specifies the IP address of the PC running the TFTP server software.

Download File Name: Specifies the filename of the router's firmware to be downloaded from the TFTP server.

After entering the necessary information in the fields, click the Upgrade button. A confirmation window is displayed. Clicking OK initiates the upgrade process.

> **Note**
> Configuration changes are automatically saved into the router's flash memory within 30 seconds after you click the Apply button, but are not activated until you reboot the router.

If you are unable to upgrade the firmware on the router, refer to Appendix C for instructions on using the FirstAid Agent utility.

LAN Configuration

Clicking the LAN Config selection on the left-side window displays the LAN Configuration table shown in Figure 14.

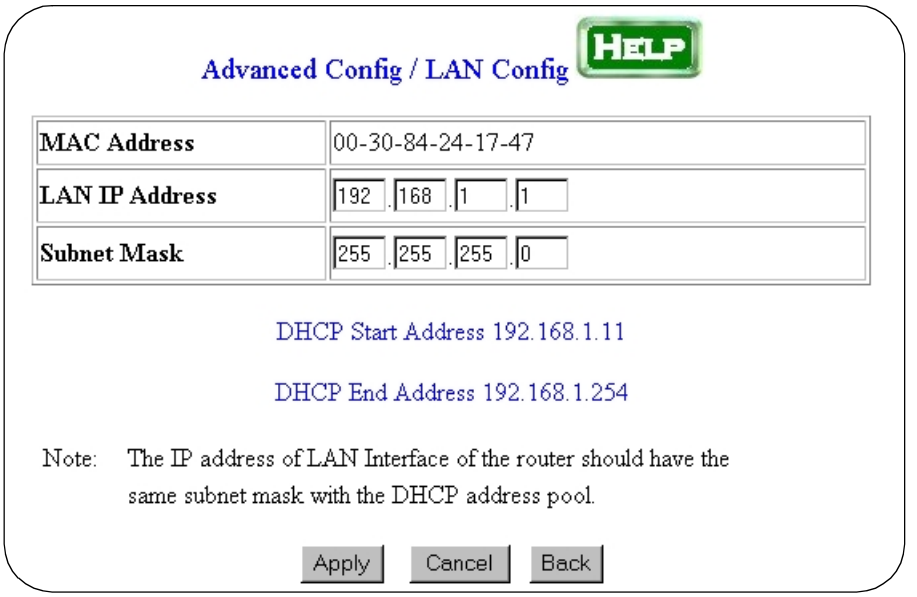


Figure 14 LAN Config

This table allows you to change the TCP/IP settings of the router's Ethernet LAN interface. The fields are defined below.

MAC Address: Contains the Ethernet MAC (Media Access Control) address of the LAN interface of the router. The address is shown in six hexadecimal numbers. This is a read-only field.

LAN IP Address: Specifies the IP address of the local LAN interface of the router. The default is 192.168.1.1. You can change the router's IP address if your existing network uses a different subnet or if the IP address is already being used by another device on your network. The LAN IP address is the IP address that the client computers on the LAN will use as their default gateway, as well as the address of their DNS server if you choose to use the built-in DNS feature of the router.

Note
The value of the IP address in this table and the range of the IP address pool in the DHCP server must be in the same subnet and have the same subnet mask. If not, the DHCP server will not function properly.

Subnet Mask: Specifies the local subnet mask of the LAN interface in the router. The default is 255.255.255.0.

Clicking the Apply button saves your changes in the router.

> **Note**
> Configuration changes are automatically saved into the router's flash memory within 30 seconds after you click the Apply button, but are not activated until you reboot the device.

WAN Configuration

Clicking the WAN Config item in the selection window displays the WAN Configuration table. The fields in the table are similar in function to those in the Quick Setup utility and are used to configure the settings of the WAN interface seen by outside users.

IP Dynamic

If you did not receive a fixed IP address from your ISP, you can use the IP Dynamic selection so that the IP address of the WAN port on the router is assigned dynamically each time an Internet connection is established through the DSL/Cable Modem port. Selecting this item displays the window in Figure 15.

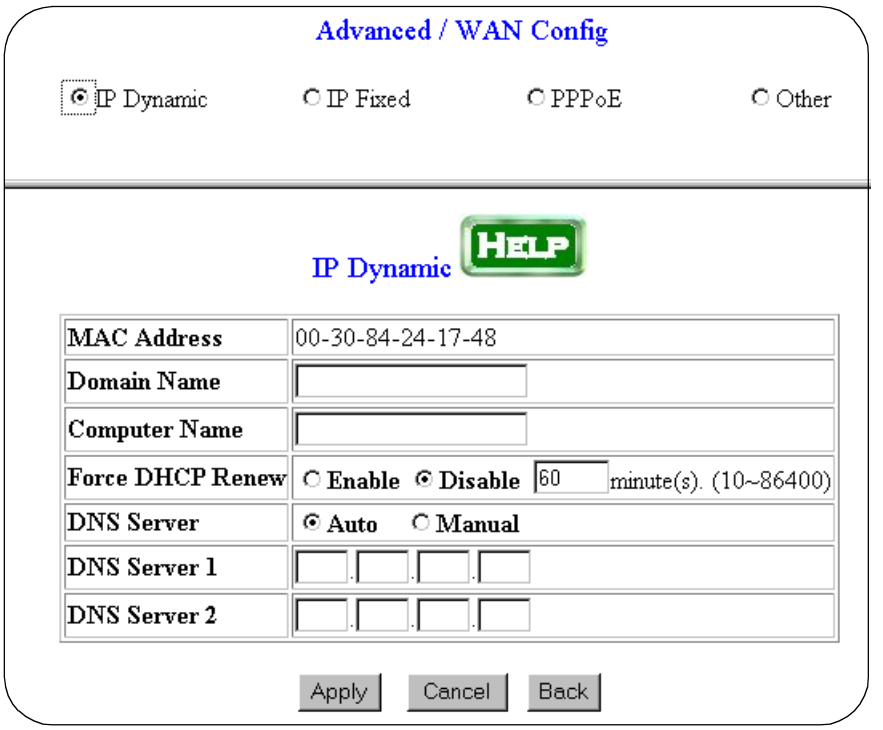


Figure 15 WAN Config (IP Dynamic)

The fields in the window are described below. Your ISP will provide you with the appropriate information.

MAC Address: Contains the Ethernet MAC (Media Access Control) address of the WAN interface on the router. The number is shown in hexadecimal. This is a read-only field.

Domain Name: The domain where the DNS server is located.

Computer Name: The name of the router.

Force DHCP Renew: The method by which the router determines how often it must renew the lease on its IP address. In order for the router to continue to use an IP address obtained from an ISP, it must occasionally renew the address lease. This renewal is to prevent the ISP from assigning the IP address to another device. Normally, the ISP will notify the router of the time interval required for renewal of the IP lease. The Force DHCP Renew option is used for situations where the ISP does not provide the renewal time interval. By activating this option and entering a time interval (in minutes), you control how often the router renews its lease of the IP address with the ISP.

DNS Server (Auto or Manual): Specifies the method by which the router obtains the IP address of the DNS server. If you select Auto, the ISP assigns the IP addresses automatically. If you select Manual, the IP addresses of the DNS servers are obtained from the DNS Server 1 and 2 fields in the table.

DNS Server 1 and 2: Specifies the IP addresses of up to two DNS servers, provided by your IPS.

IP Fixed

The IP Fixed selection allows you to assign a fixed (static) IP address to the DSL/Cable Modem connection on the router. You must obtain this address from your ISP. Selecting this item displays the table in Figure 16.

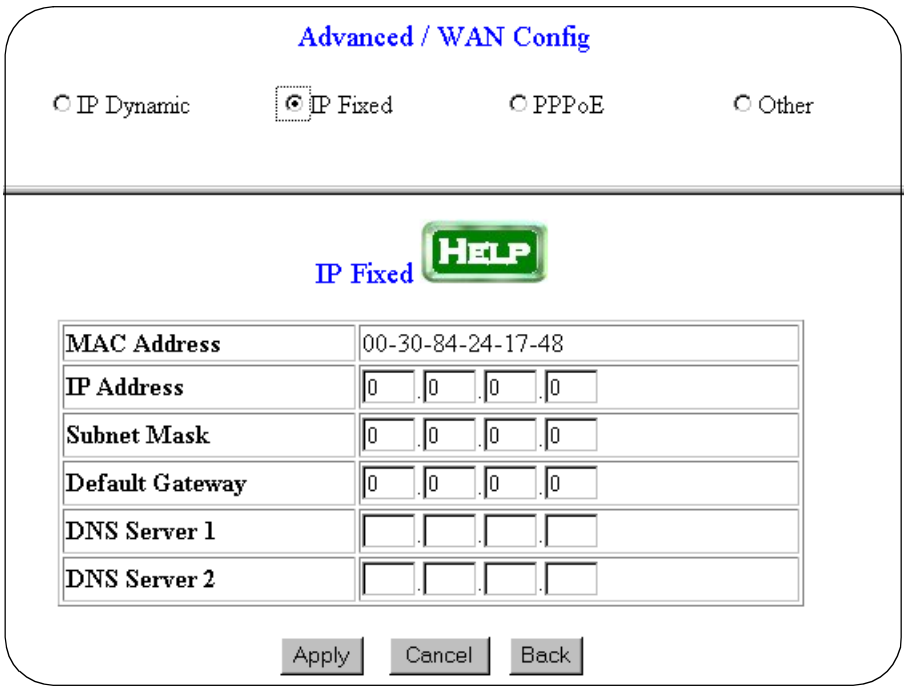


Figure 16 WAN Config (IP Fixed)

The fields in the table are described below.

MAC Address: Contains the Ethernet MAC (Media Access Control) address of the WAN interface of the router in hexadecimal. This is a read-only field.

IP Address: Specifies the IP address of the router as seen by external users on the Internet (including your ISP). This address is provided by your ISP.

Subnet Mask: Specifies the subnet mask of the router as seen by external users on the Internet (including your ISP). The subnet mask is provided by your ISP.

Default Gateway: Specifies the router's gateway IP address. This address is provided by your ISP. If the router is set to dynamically obtain its IP parameters, this value is assigned by your ISP automatically.

DNS Server 1 and 2: Specifies the IP addresses of up to two DNS servers. The addresses are provided by your ISP. If the router is set to obtain its IP parameters dynamically, these values are assigned by your ISP automatically.

PPPoE

Select the PPPoE item if your ISP supports this feature. Selecting the item displays the window in Figure 17.

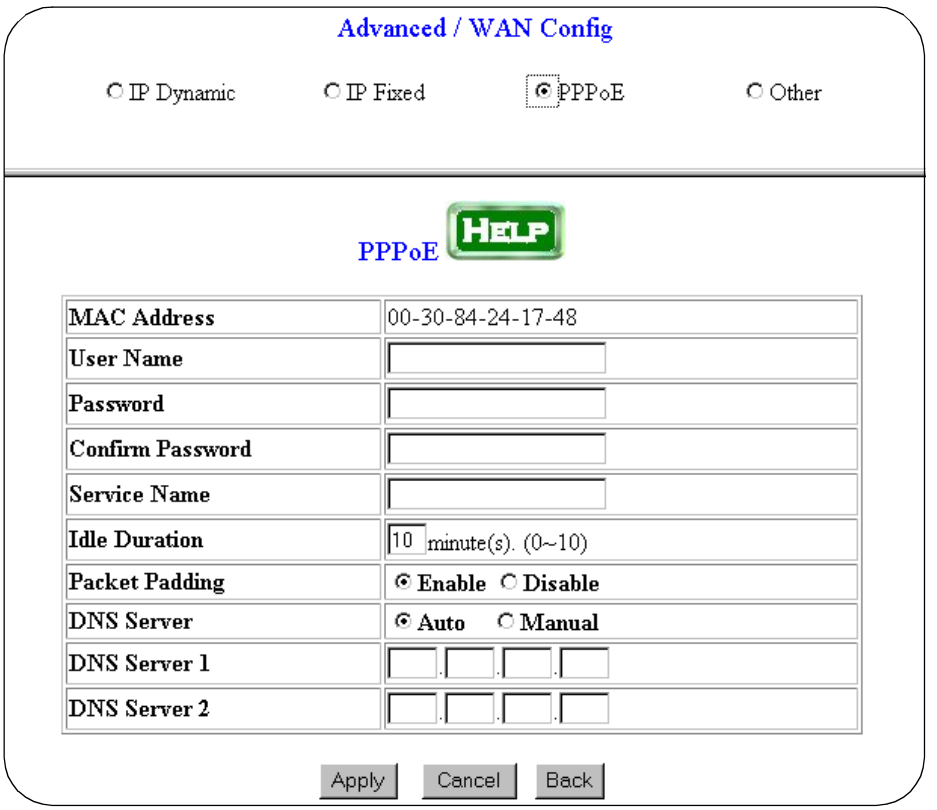


Figure 17 WAN Config (PPPoE)

The fields in the table are defined below. All of the values must be provided to you by your ISP.

MAC Address: Contains the Ethernet MAC (Media Access Control) address of the WAN interface of the router in hexadecimal. This is a read-only field.

User Name: Specifies the ISP account's login name.

Password: Specifies the login password for the account.

Confirm Password: Specifies the same password for confirmation.

Service Name: Specifies the Service Name.

Idle Duration: Specifies the idle time before terminating an active ISP connection. The default is 10 minutes.

Packet Padding: Specifies how the router is to handle packets smaller than 64 bytes. Some applications generate packets smaller than 64 bytes, the minimum packet size for a Ethernet frame. Normally, the router will drop these small packets, which can result in the loss of network sessions. If the router will be handing small packets, enable the Packet Padding option. Disabling this option will cause the router to drop frames smaller than 64 bytes.

DNS Server (Auto or Manual): Specifies the method by which the router obtains the IP address of the DNS server. If you select Auto, the ISP assigns the IP addresses automatically. If you select Manual, the IP addresses of the DNS servers are obtained from the DNS Server 1 and 2 fields in the table.

DNS Server 1 and 2: The IP addresses of up to two DNS servers.

Click the Apply button when you have finished configuring the appropriate table.

> **Note**
> Configuration changes are automatically saved into the router's Flash memory within 30 seconds after you click the Apply button, but are not activated until you reboot the device.

Other

The selection Other in the Advanced Configuration window displays a window with router and ISP parameters that are unique to a country or territory. You may need to adjust these parameters, depending on the location of your ISP. For further information on this selection, refer to **Appendix D**.

DMZ

The AT-AR220E router allows you to specify one end node on your private network as a DMZ. This feature is useful if you have a host on your network that contains a TCP/IP service, such as NetMeeting or Timbuktu, that needs to be fully exposed to the public network.

Caution
Once a host on your network has been designated as a DMZ host, the router cannot protect it from malicious attacks from the WAN. For this reason, it is recommended that you protect the DMZ host with additional firewall tools.

Selecting the DMZ Configuration selection from the Advanced Configuration menu displays the window in Figure 18.

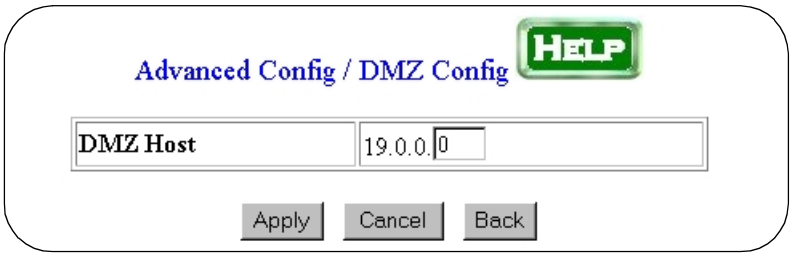


Figure 18 DMZ Configuration

The router automatically displays the subnet address of the local network. All you need to enter is the host part of the IP address of the device that is to function as a DMZ host. Entering a 0, which is the default, disables this feature.

Virtual Server

In some situations you might want users on the Internet to be able to access servers on your LAN, such as an email server or a Web server. Access is accomplished by creating “virtual servers.” Each virtual server has its own IP address and shares a single public IP address. Each server is defined by the service type (TCP or UDP) and a TCP/UDP port number.

To view the existing virtual servers or to create a new virtual server, click the Virtual Server item in the left-side window. The Virtual Server window shown in Figure 19 is displayed.

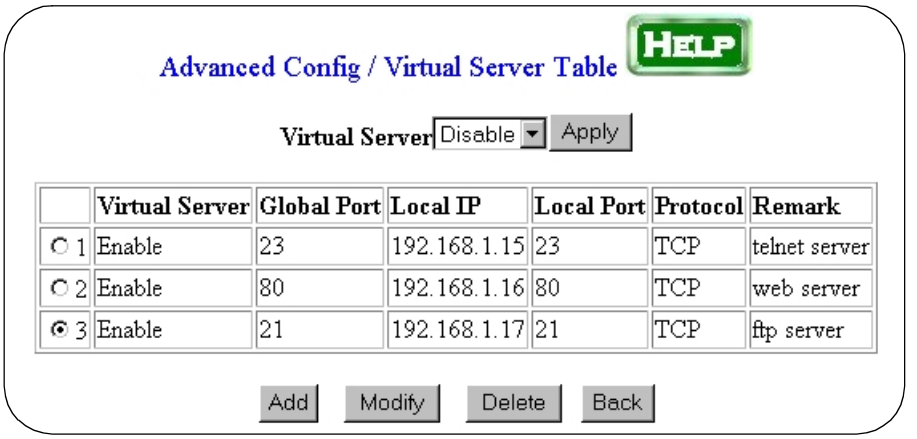


Figure 19 Virtual Server

This window displays the status of the existing virtual servers on the LAN. You can use the table to enable or disable this feature on the router or to enable or disable individual virtual servers.

To add a new virtual server:

1. Click the Add button.

The window shown in Figure 20 is displayed.

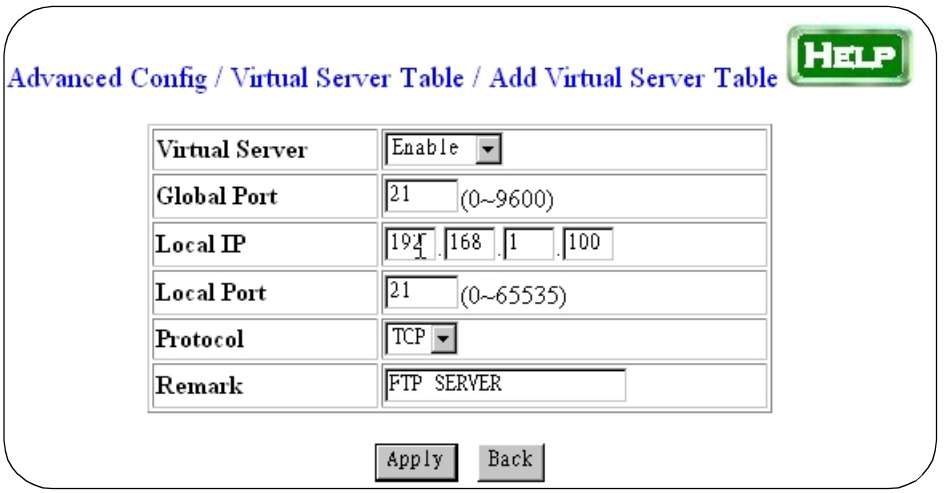


Figure 20 Add Virtual Server

The fields in the window are defined below.

Virtual Server: Specifies the status of the virtual server as either enabled or disabled. Only enabled virtual servers can be accessed by remote users over the Internet.

Global Port: Specifies the TCP or UDP port number used by the server computer on the WAN. This value is also called the external port number because this port number is visible to the users on the Internet.

Local IP: Specifies the IP address of the server computer on the LAN.

Local Port: Specifies the TCP or UDP port number used by the server computer on the LAN. The designated external port number will be translated into this internal port number.

Protocol: Specifies the appropriate protocol. Most well known protocols have default port numbers defined by various standards (e.g., Web servers use TCP port number 80).

Remark: Contains a description of the virtual server.

2. After entering in the information for the new virtual server, click Apply to add the new entry to the virtual server table.

Note
Configuration changes are automatically saved into the router's flash memory within 30 seconds after you click the Apply button, but are not activated until you reboot the device.

Packet Filtering

Packet filtering allows you to block users from accessing specific services (or applications) on the Internet. For example, the administrator can deny the users access to SMTP/POP3 email services on the Internet, while allowing them access to the Web/HTTP services. By default, packet filtering is disabled.

Clicking the Packet Filtering item in the left-side window displays the Packet Filtering page, shown in Figure 21.

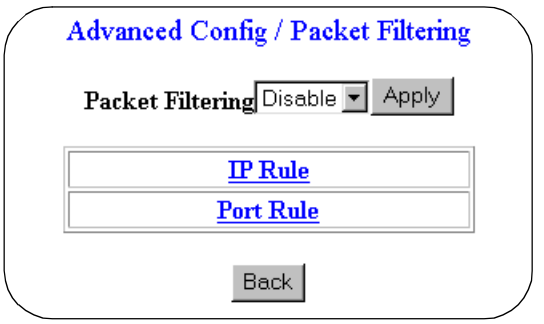


Figure 21 Packet Filtering

To enable or disable the Packet Filtering feature:

1. Change the Packet Filtering field as desired.
2. Click the Apply button.

   If you enable packet filtering, you can specify the filtering rules by either IP address or port number. Both methods are described in the following sections.

IP Rule

To filter packets by IP address:

1. Click the IP Rule selection to display the window in Figure 22.

Figure 22 IP Rule

2. Click the Add button to display the window in Figure 23.

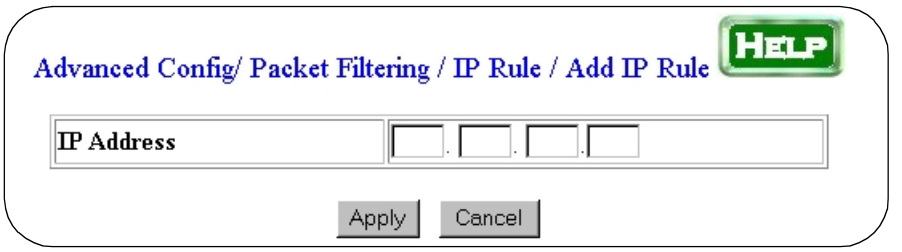


Figure 23 Add IP Rule

IP Address: Enter the IP address of the network device that the users are prohibited from accessing. All packets sent to that IP address will be block by the router.

3. Click Apply to enter the IP address into the IP Rule table.

Note
Configuration changes are automatically saved into the router's flash memory within 30 seconds after you click the Apply button, but are not activated until you reboot the device.

Port Rule

Different services or applications on the Internet have their corresponding port numbers. The router provides the capability to filter packets based on port numbers to prevent users from accessing selected services.

To filter packets by port:

1. Click the Port Rule to display the window in Figure 24.

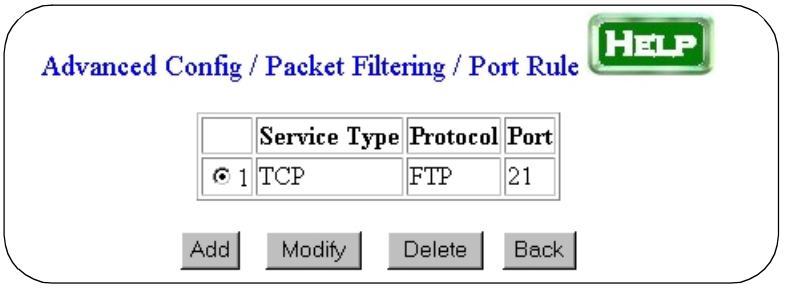


Figure 24 Port Rule

This window displays any existing port rule settings.

2. Click the Add button to add a new entry to the table.

The window in Figure 25 is displayed.

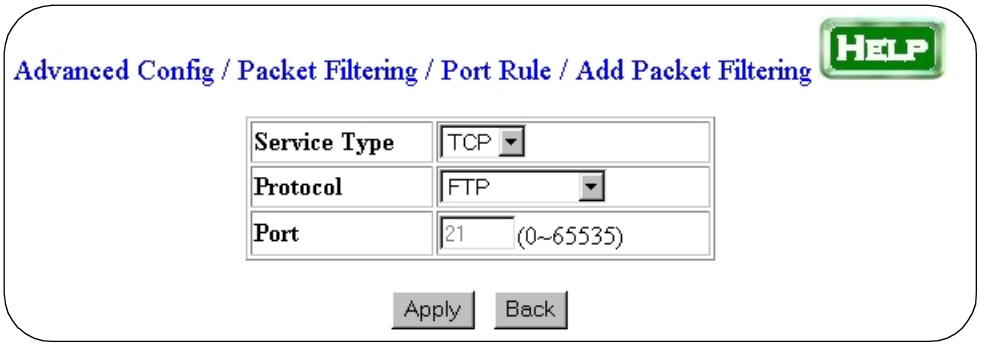


Figure 25 Add Packet Filtering

The fields in the window are defined below.

Service Type: Specifies the service types as either TCP or UDP.

Protocol: Specifies the protocol (or application), such as FTP or HTTP. If a well known protocol is selected from the list, the corresponding port number is set according to various Internet standards, and the Port edit box will be grayed out and is disabled. Choose the option User-Defined to specify a protocol not found in the list.

Port: Specifies the TCP or UDP port number. Use this field if the protocol (or application) is not found in the list or a non-default port number is used.

3. After entering your configurations, click Apply to add the new entry to the table.

Note
Configuration changes are automatically saved into the router's flash memory within 30 seconds after you click the Apply button, but are not activated until you reboot the device.

Dynamic Host Configuration Protocol (DHCP) Configuration

DHCP allows you to configure the TCP/IP settings of the computers automatically on the LAN, such as the IP addresses and the subnet mask. The router has DHCP incorporated in it. You can use the DHCP server to simplify the setup of TCP/IP networks. The server can provide the following settings to the client computers:

- IP addresses
- Subnet masks
- Default gateway (which is the IP address of the router)
- DNS (Domain Name System) server

Click the Advance Config selection and then the DHCP Configuration selection on the left-side window. The window in Figure 26 is displayed.

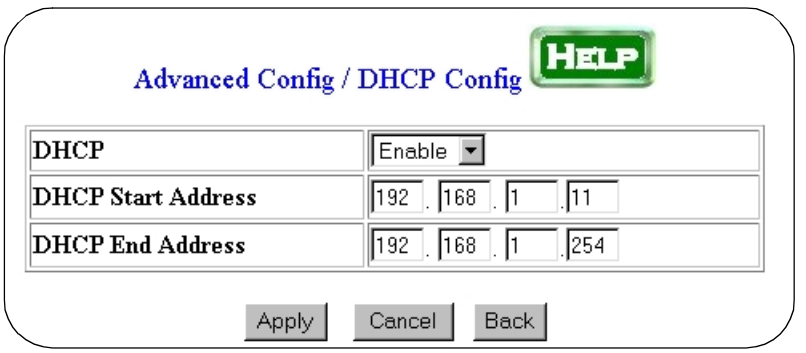


Figure 26 DHCP Config

The fields and functions is the window are explained in the following sections.

DHCP Profile

To enable DHCP and specify the IP address pool:

1. Enter your configurations in the first three fields in the window as defined below:

   DHCP: Enables or disables the DHCP feature.

   DHCP Start Address: Specifies the starting IP address of the IP address pool in the DHCP server. The default is 192.168.1.11.

   DHCP End Address: Specifies the ending IP address of the address pool in the DHCP server. The default is 192.168.1.254.

2. Click Apply to save the configurations into flash memory.

Fixed IP Table

You can use the Fixed IP table to assign fixed IP addresses to specific devices in your network. This feature is useful when there are devices on your network that need permanent IP addresses. The IP addresses must be within the address pool of the DHCP server. The client computers are identified by their MAC addresses.

To assign a fixed IP address to a device:

1. Click the Fixed IP Table selection to display the window in Figure 27.

   The table lists any devices that have already been assigned a specific IP address.

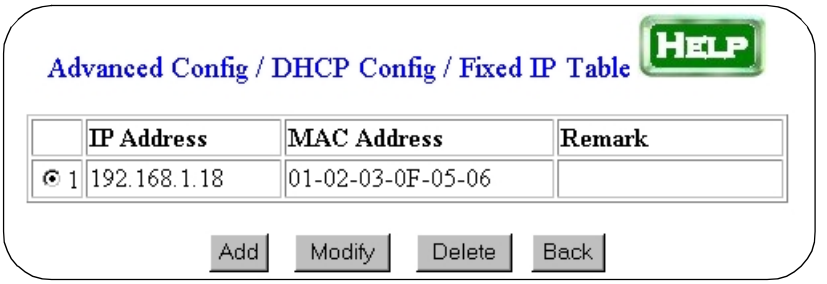


Figure 27 Fixed IP Table

2. Click the Add button to display the window in Figure 28.

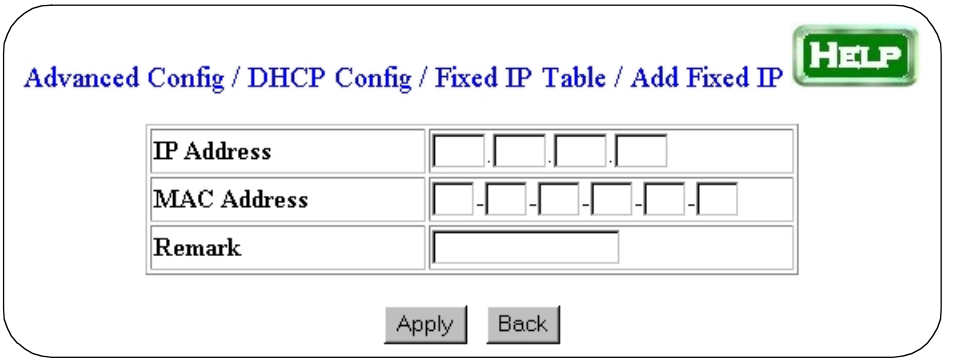


Figure 28 Add Fixed IP

The fields in the table are defined below.

IP Address: Specifies the fixed IP address for the client device. This IP must be within the address pool of the DHCP server.

Mac Address: Specifies the Mac address of the client device to be assigned the fixed address.

Remark: Contains a description of the client device.

3. After entering your configurations, click Apply to add the new entry to the Fixed IP table.

Excluded IP Table

You can use the Excluded IP table to prevent the DHCP server from assigning specific IP addresses. This feature is useful if you want to reserve IP addresses so you can assigned these manually to selected network devices. The IP addresses to be added to the table must be within the address pool of the DHCP server.

To add an IP address to the Excluded IP table:

1. Click the Excluded IP Table selection to display the table in Figure 29.

   The table displays any IP addresses that have already been specified as excluded from assignment to a network device.

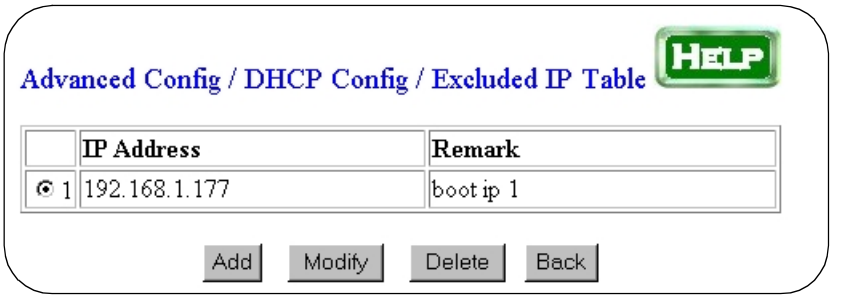


Figure 29 Excluded IP Table

2. To add a new entry to the table, click the Add button.

   The table in Figure 30 is displayed.

Figure 30 Add Excluded IP

The fields in the table are defined below.

IP Address: Specifies the IP address that is not to be assigned to a network device. This IP address must be within the address pool in the DHCP server.

Remark: Contains a description of the excluded IP address.

3. After entering your configurations, click Apply.

   The new entry is added to the Excluded IP table.

BootP IP Table

You can use the BootP IP Table to reserve IP addresses for network devices that will be obtaining their IP addresses from the BootP service. The IP addresses must be within the address pool of the DHCP server.

To add a new entry to the BootP IP Table:

1. Click the BootP IP Table selection to display the table in Figure 31.

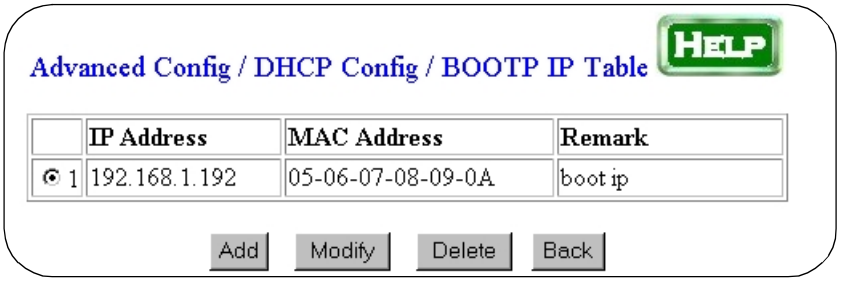


Figure 31 BootP IP Table

2. To add a new entry to the table, click the Add button.

   The table in Figure 32 is displayed.

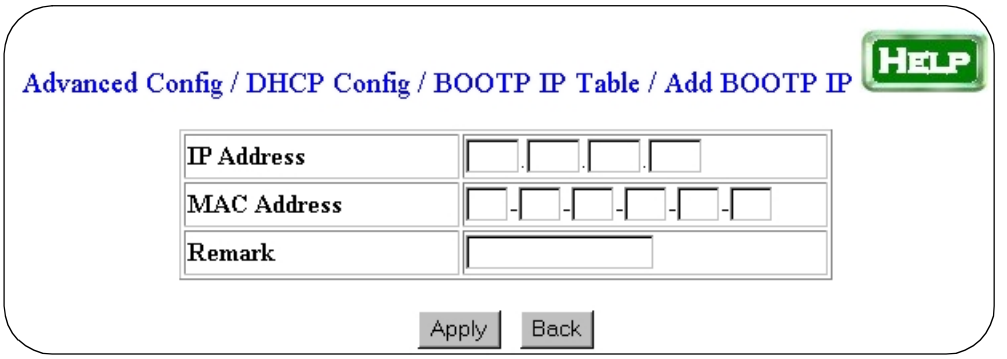


Figure 32 Add BootP IP

The fields in the table are defined below.

IP Address: Specifies the IP address to be used by the BootP protocol. This IP address must be within the address pool of the DHCP server.

MAC Address: Specifies the MAC address of the client device for the IP address.

Remark: Contains a description of the IP address or client device.

3. After entering your configurations, click Apply. The new entry is added to the Excluded IP table.

Note
Configuration changes are automatically saved into the router's flash memory within 30 seconds after you click the Apply button, but are not activated until you reboot the device.

Static Routing Table

The router supports static TCP/IP routing. It can serve as a router between two different TCP/IP networks (or subnets). The static routing table allows the router to exchange packets with other network segments. Modifying the static routing table may be necessary when there are other routers on your network and at least one of the routers is connected to more than one network (or subnet).

Clicking the Routing Table item on the left-side window displays the static routing table. An example of the table is shown in Figure 33.

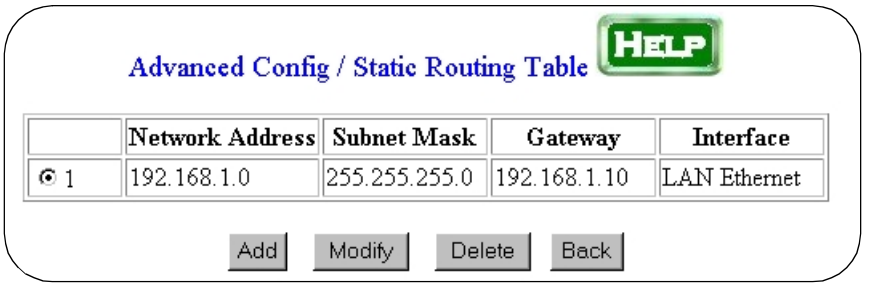


Figure 33 Static Routing Table

To add a new entry to the table:

1. Click the Add button to display the table in Figure 34.

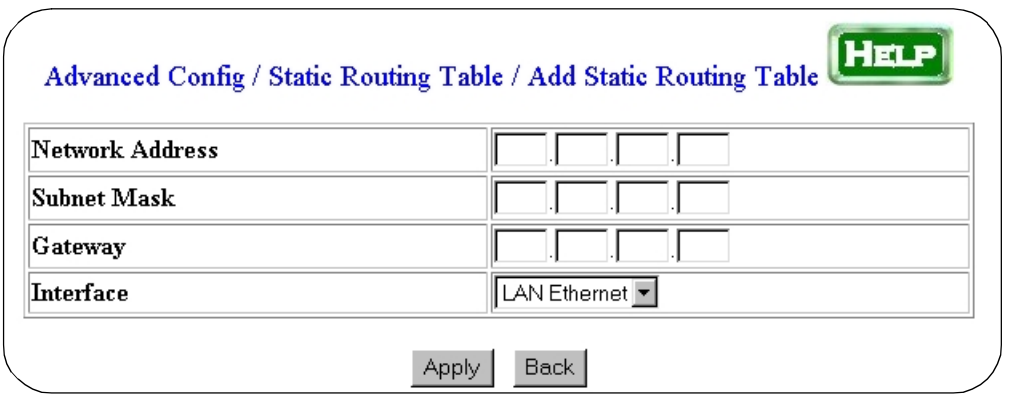


Figure 34 Add Static Routing Table

The fields in the table are defined below.

Network Address: Specifies the IP address of the destination network.

Subnet Mask: Specifies the subnet mask of the destination network.

Gateway: Specifies the IP address of the gateway or router through which packets destined for the destination network will be forwarded.

Interface: Specifies the output interface to which packets will be forwarded. The value can be a LAN Ethernet port or a WAN port.

2. After entering your configurations, click Apply.

   The new entry is added to the table.

Note
Configuration changes are automatically saved into the router's flash memory within 30 seconds after you click the Apply button, but are not activated until you reboot the device.

Chapter 6
System Information and Help

System Information

The System Information selection in the selection window on the left-hand side displays basic information about the router. Clicking the selection displays the System Information table, shown in Figure 35.

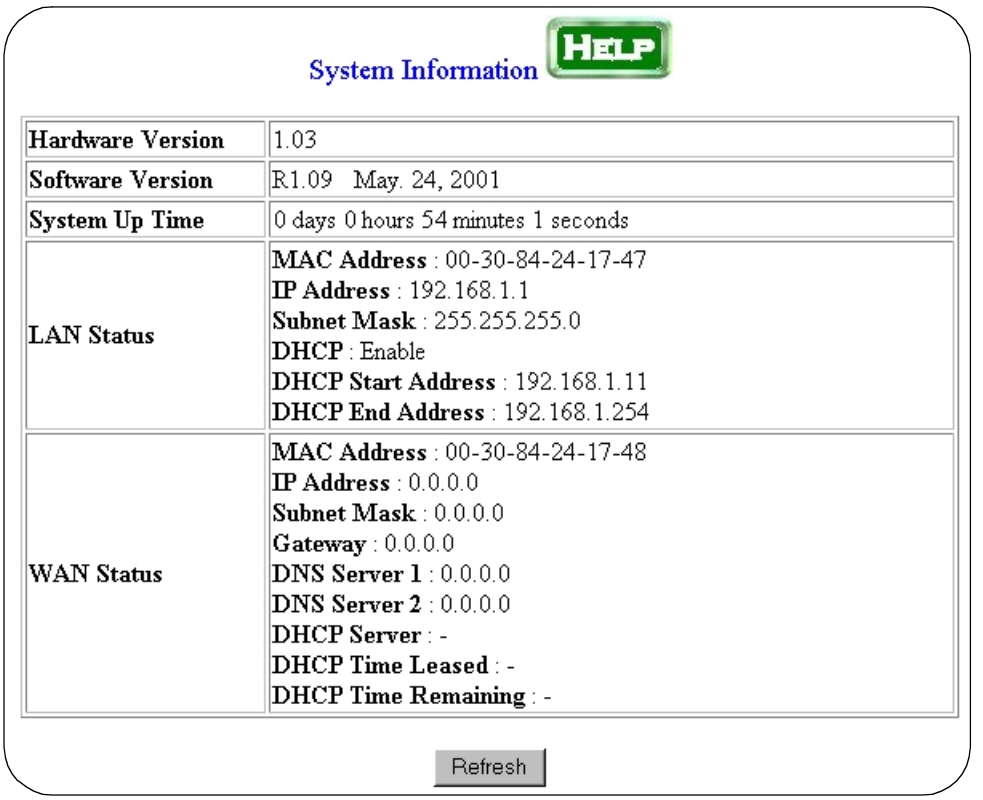


Figure 35 System Information

Clicking the Refresh button queries the router for the latest system information and refreshes the System Information table. The fields in the table are described below:

Hardware Version: Displays the version number of the router's hardware.

Software Version: Displays the version number of the router's software.

System Up Time: Displays the amount of time since the router was last powered ON or rebooted.

LAN Status

MAC Address: Displays the Ethernet MAC address of the LAN interface of the router. The number is shown in hexadecimal.

IP Address: Displays the IP address of the local LAN interface of the router. The default is 192.168.1.1.

Subnet Mask: Displays the local subnet mask of the LAN interface of the router. The default is 255.255.255.0.

DHCP Start and End Addresses: Displays the status of the DHCP server and the range of IP addresses controlled by the DHCP server.

WAN Status

MAC Address: Displays the Ethernet MAC (Media Access Control) address of the WAN interface of the router. The number is shown in hexadecimal.

IP Address: Displays the IP address of the router as seen by external users on the Internet (including your ISP).

Subnet Mask: Displays the local subnet mask of the WAN interface of the router.

Gateway: Displays the gateway IP address provided by your ISP.

DNS Server: Displays the IP address of the DNS server.

DHCP Server: Displays the IP address of the DHCP server.

DHCP Time Leased: Displays the amount of time that a WAN IP address has been assigned to the router by a DHCP server.

DHCP Time Remaining: Displays the amount of time remaining until the lease on the IP address must be renewed.

Help Feature

The router's management interface provides an easy-to-use help function. Click the Help button in each configuration page for procedures to configure every parameter and to display definitions of the parameters. You can also click the Help item on the selection window to view overall help information.

Chapter 7
Setting Up Client Computers for Internet Access

Client Computer Requirements

A client PC with Windows 95/98/2000 or Windows NT must have the following:

- Ethernet (10/100BaseT or 10BaseT) network interface card
- TCP/IP network protocol
- A CD-ROM drive if you need to install a web browser from the CD shipped with the router.

Setting up Windows 95/98 PC Clients

Configuring a Client Computer Using the DHCP Server

If you choose to use the server's built-in DHCP server to configure a client PC, the server automatically provides the following TCP/IP configuration information to the PC:

- ❑ The PC's IP address
- ❑ The PC's subnet mask
- ❑ The IP address of the default gateway, which is the IP address of the server itself
- ❑ The DNS (Domain Name System)

The configuration procedures are described below:

1. From Windows' Control Panel, double-click on the Network icon to bring up the Network Control Panel.
2. Double-click on **TCP/IP** in the network component list.
3. Click on the IP Address tab.
4. Select **Obtain an IP address automatically**.
5. Click on the DNS tab.
6. Select **Enable DNS** and add the server's IP address to DNS Server Search Order list.
7. Save the changes and then restart the computer.

   Your PC is ready to access the Internet through the server.

Configuring a Client Computer Manually

If you do not want to use the DHCP server to configure the client computer, you must configure the computer manually. The following describes how to configure the IP parameters for a client computer using Windows 95/98.

1. From Windows' Control Panel, double-click on the Network icon to bring up the Network Control Panel.
2. Double-click on **TCP/IP** in the network component list.
3. Click on the IP Address tab.
4. Select **Specifying an IP address**.
5. Enter the IP address for this PC.

6. Enter the subnet mask. If you kept the default subnet mask setting on the server, enter **255.255.255.0**.
7. Click on the Gateway tab.
8. Enter the server's IP address and click Add to insert the entry as the first item in the Installed Gateway list.
9. Click on the DNS tab.
10. Select **Enable DNS**.
11. Add the server's IP address to DNS Server Search Order list.
12. Save the changes and then restart the computer.

    Your PC is ready to access the Internet through the server.

Setting Up Windows NT 4.0 Clients

Before proceeding with the setup below, make sure that the TCP/IP protocol is already installed on the client computer. Please refer to the Windows NT's manuals for the installation procedures.

Configuring a Client Computer Using the DHCP Server

It is recommended that you use the router's built-in DHCP server to configure the TCP/IP settings for Windows NT client computers. The server will provide the following TCP/IP configuration information to your PCs:

- ❑ The PC's IP address
- ❑ The PC's subnet mask
- ❑ The IP address of the default gateway, which is the IP address of the server itself
- ❑ The DNS (Domain Name System) server

The configuration procedure is described below:

1. From the Windows Control Panel, double click on the Network icon to bring up the Network Control Panel.
2. Click on the Protocols tab.

3. Double-click on **TCP/IP Protocol** in the Network Protocols list, shown in Figure 36.

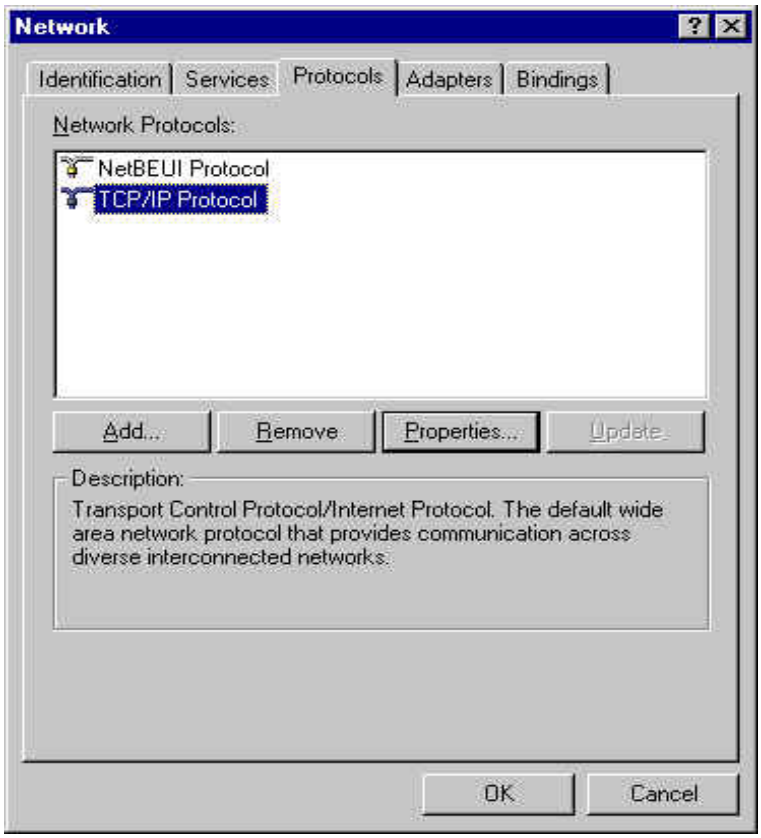


Figure 36 Network Menu

4. In the TCP/IP Properties window, click on the IP Address tab.

5. Select **Obtain an IP address from a DHCP server** as shown in Figure 37.

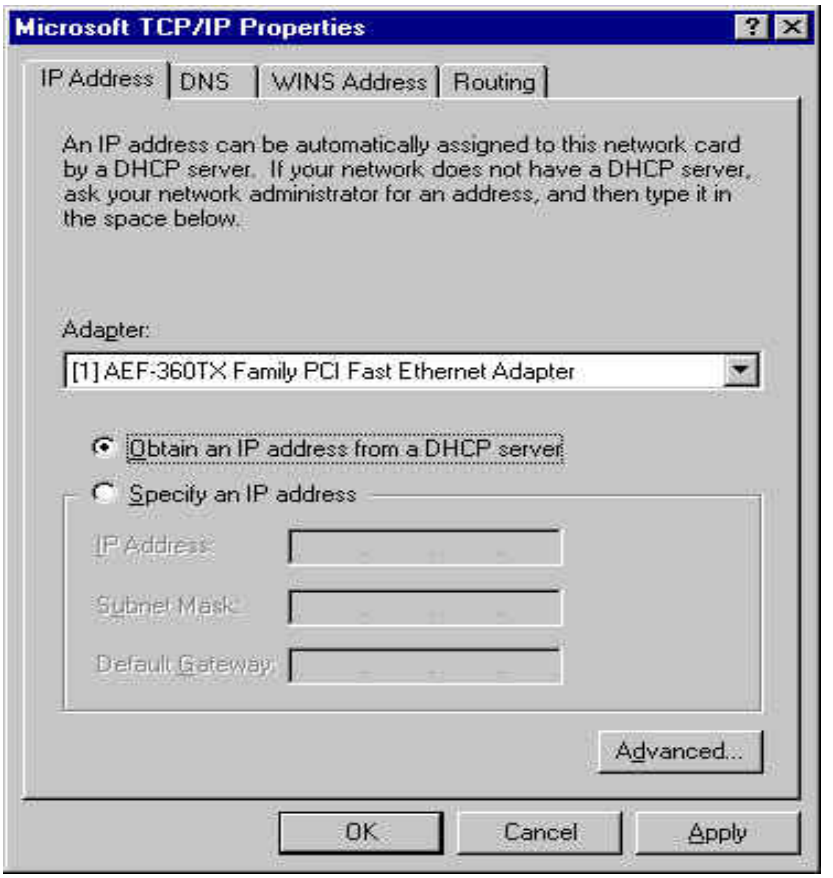


Figure 37 Microsoft TCP/IP Properties Menu

6. Save the changes and then restart the computer.

   Your PC is ready to access the Internet through the server.

Configuring a Client Computer Manually

If you do not want to use the DHCP server to configure the client computer, you must configure the computer manually. The following procedure describes how to configure the IP parameters for a client computer using Windows NT.

1. From the Windows Control Panel, double-click on the Network icon to bring up the Network Control Panel.
2. Double-click on **TCP/IP** in the network component list.
3. Click on the IP Address tab.

4. Select the **Specifying an IP address** as shown in Figure 38.

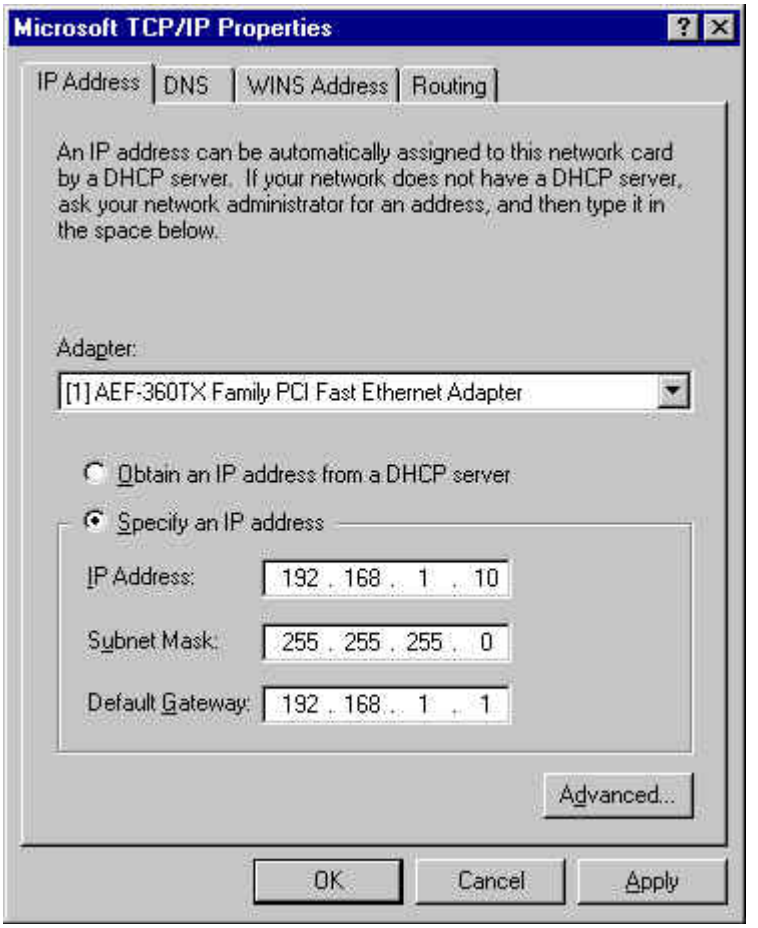


Figure 38 Microsoft TCP/IP Properties Menu

5. Enter the IP address for this PC.
6. Enter the subnet mask. If you kept the default subnet mask setting on the server, then enter **255.255.255.0**.
7. Enter the server's IP address into the Default Gateway field.
8. Click on the DNS tab.

9. Add the server's IP address to the **DNS Service Search Order** list, as shown in Figure 39.

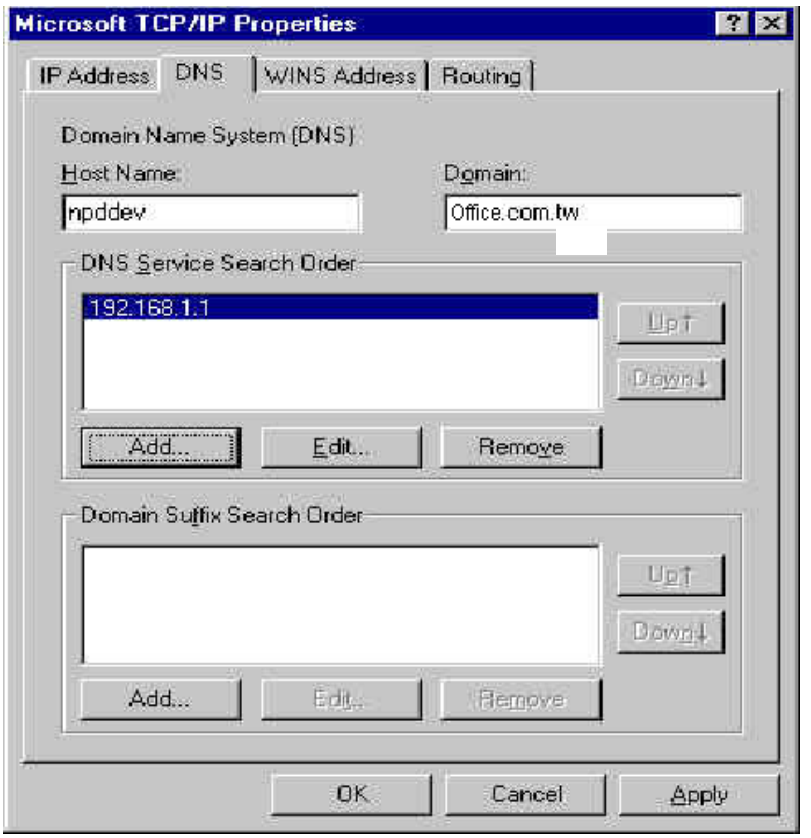


Figure 39 Microsoft TCP/IP Properties (DNS) Menu

10. Enter this PC's name to the Host Name field. (You usually do not need to fill in the Domain field.)

11. Save the changes and then restart the computer.

    Your PC is ready to access the Internet through the server.

Chapter 8
Troubleshooting

This chapter provides troubleshooting information.

Power LED OFF

If the power and other LEDs are OFF, do the following:

- ❑ Make sure the power adapter is properly connected to the router.
- ❑ Make sure you are using the 12Vdc power adapter supplied for this product.

If the problem persists, there might be a hardware problem. Contact technical support.

Self Test LED Never Blinks or LED Stays ON

If the router is powered ON, the Self Test LED lights for a few seconds while the router runs through its self-tests. At the end of the self -test, the Self Test LED turns OFF, indicating that the router is ready for normal operations. If the Self Test LED remains ON, do the following:

- ❑ Cycle the power to see if the router recovers and the Self Test LED turns OFF.

If the error persists, you might have a hardware problem. Contact technical support.

Testing the LAN Path to Your Router

To test the LAN connection to the router, do the following:

- Check the Ethernet wiring connection between your computer and the server.
- Use TCP/IP's PING command to determine if the TCP/IP settings on both your computer and your server are correct. For example, if your computer is a PC with Windows, then open an MS-DOS command window and enter the following commands:

  ping 192.168.1.1

  This command assumes that the IP address of the router is 192.168.1.1. If the router does not respond to the ping command, contact technical support.

Testing the LAN Path from your PC to a Remote Device

To test the LAN connection to a remote device, type in the PING -n 10 command followed by the IP address of a remote device, such as your ISP's DNS server. If the path is functioning properly, the remote device will send replies in response to the PING command. If no replies are received, do the following:

- Make sure your PC has the IP address of your router as the default gateway. If the IP configuration of your PC is assigned by DHCP, this information will not be visible in the control panel network utility. Start the Run window and run **winipcfg** to see if the IP address of the router appears as the Default Gateway.
- Make sure the network address of your PC (the portion of the IP address specified by the netmask) is different from the network address of the remote device.
- Check the System Information table with the Web configuration tool to verify the WAN status. If the WAN status is down, make sure your Cable/DSL modem is connected and operating.
- If your ISP assigned a host name to your PC, enter the host name as the router name in the WAN Configuration.

Upgrading Firmware

You can use the web-based interface to upgrade the router's firmware and to restore the configuration values. Upgrading the firmware is explained in Chapter 5.

If the router is not operating normally and you are unable to upgrade its firmware through the Web-based Interface, run the FirstAid Agent utility as explained in Appendix C.

Appendix A
LED Display

Label	Activity	Description
Power	ON	The device is powered ON.
Self Test	ON	System initialization is in progress.
	OFF	The system is operating normally.
10/100M Ethernet: Link/Act/Speed 1-4		
100 Mbps	ON	The speed of the LAN port is 100 Mbps.
	OFF	The speed of the LAN port is 10 Mbps.
Link/Act	ON	The LED is green if connected to a link partner and the 100 M IDLE symbol or 10 M Link Pulse is detected.
	Blinking	Data is being transmitted/received.
Fdx	ON	Mode is full-duplex.
	OFF	Mode is half-duplex.
WAN Port		
Link	ON	The WAN port is connected.
Act	Blinking	Data is being transmitted/received on the Ethernet port.
	OFF	The LED is OFF most of the time (even if the ADSL modem is connected and turned ON).

Appendix B

Specifications

Model No	**Cable/DSL Router with 4-port Switch**
Standards	IEEE 802.3, IEEE 802.3U
Network Protocols	TCP/IP, DHCP, DNS, NAT, TFTP, HTTP
WAN Port	1 RJ-45 connector
LAN Ports	4 RJ-45 UTP connectors
LED Indicators	1 Power 1 Self Test 12 LAN Port Status 2 WAN Port Status
Power	External 12V DC, 1.2A
Operating Temperature	40° ~ 0°
Storage Temperature	70° ~ -20°
Dimensions	W x D x H 177 x 103 x 31 mm

Appendix C
FirstAid Agent for Emergency Firmware Upgrade

A software utility called FirstAid Agent is included with this router on the Installation CD. This program is designed for the rare circumstance where the router is unable to function because it contains an incomplete or corrupted version of its operating software, and you are unable to resolve the problem by performing a standard upgrade procedure.

This problem can result from a failure during a software upgrade procedure. During the upgrade process, the router's flash memory is erased and then rewritten with the new operating software. If a power failure occurs while the flash is being overwritten, the router will fail to boot normally because the firmware upgrade was not completed. In this situation, the router will be unable to function and, as a result, you will not be able to repeat the upgrade procedure.

The FirstAid Agent allows you to resolve this problem by turning the PC where the utility is installed into both a BOOTP server and TFTP server. To use the utility, you must disconnect all devices from the router except for the PC containing the utility. You start the utility, specify the filename of the router's operating software, and then power on the router. As part of its normal boot up procedure, the router will send out a BOOTP request prior to loading its operating software. Upon receiving the request, the FirstAid Agent on the PC will respond by instructing the router to download a new version of its operating software.

The current configuration settings of a gateway are maintained when the gateway's software is restored. If you want to return the settings to the factory default values, use the FirstAid utility and the PARAM.INI file, as explained later in this appendix. Returning the unit to its default settings can be useful if you forget the unit's IP address and cannot connect to it for administrative purposes.

Note
The FirstAid utility should only be used to upgrade a router whose software is incomplete or corrupted. Never use the utility to upgrade a router that can be upgraded through the normal upgrade procedure described in Chapter 5**.**

Loading a New Version of the AT-AR220E Firmware

Below are the instructions on how to use the FirstAid utility to load a new version of the firmware onto the router.

1. Install the utility on your PC, as explained in Chapter 2. This PC must also contain the latest version of the router's operating firmware.
2. Copy the new version of the router's software onto the PC. The filename of the software will be in the form "R109.bin".
3. Assign the PC an IP address, if it does not already have one.
4. Power OFF the router and disconnect all devices from the router except for the PC containing the FirstAid utility. The PC should be connected to one of the LAN ports on the router.
5. Start the FirstAid.EXE from the following directory: C:\Program Files\Broadband\FirstAid.

6. Select **File>FirstAid Agent Configuration**, as shown in Figure 40.

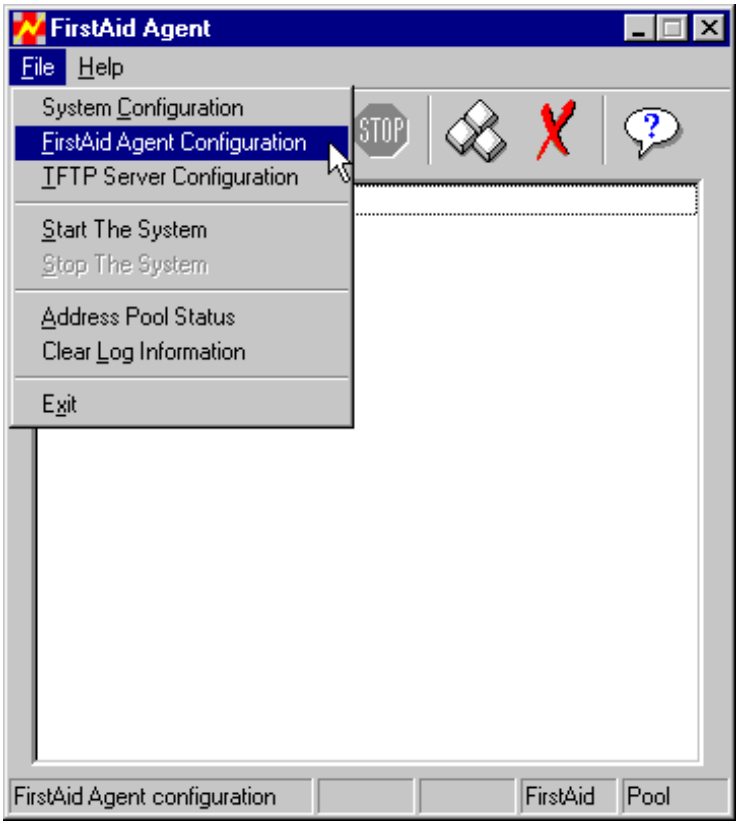


Figure 40 FirstAid Agent Configuration

7. When prompted, specify the path and filename of the router's operating software. The filename of the software will be in the form "R109.bin". Select OK.

8. Select **File>Start The System**, as shown in Figure 41.

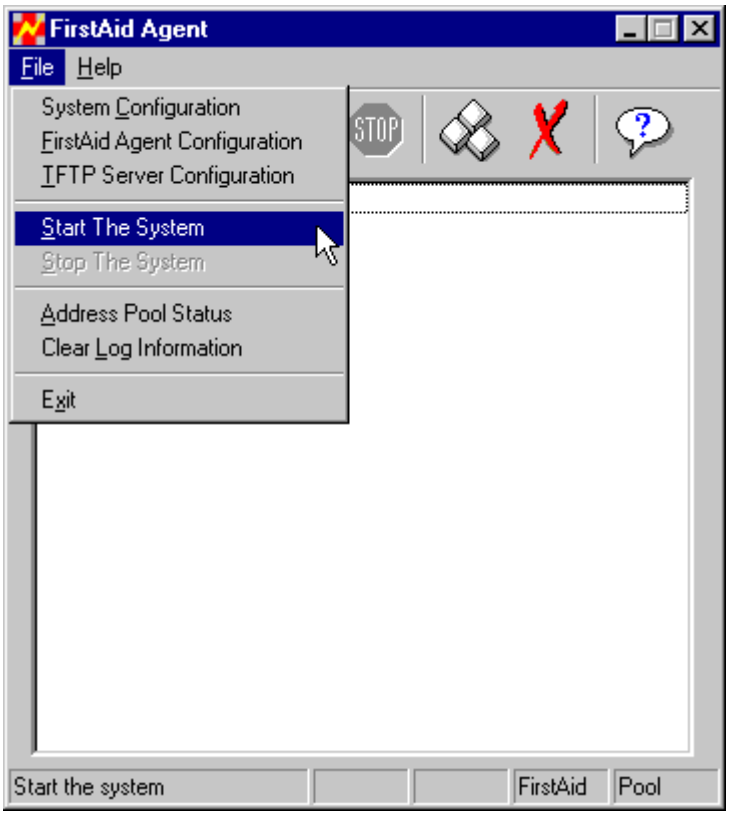


Figure 41 Start the System

9. Power ON the router.

The router will send a BOOTP request. The FirstAid utility will respond by instructing the router to load a new version of its operating software. The start of the upgrade process will be reflected in the utility's dialogue window, as shown in Figure 42.

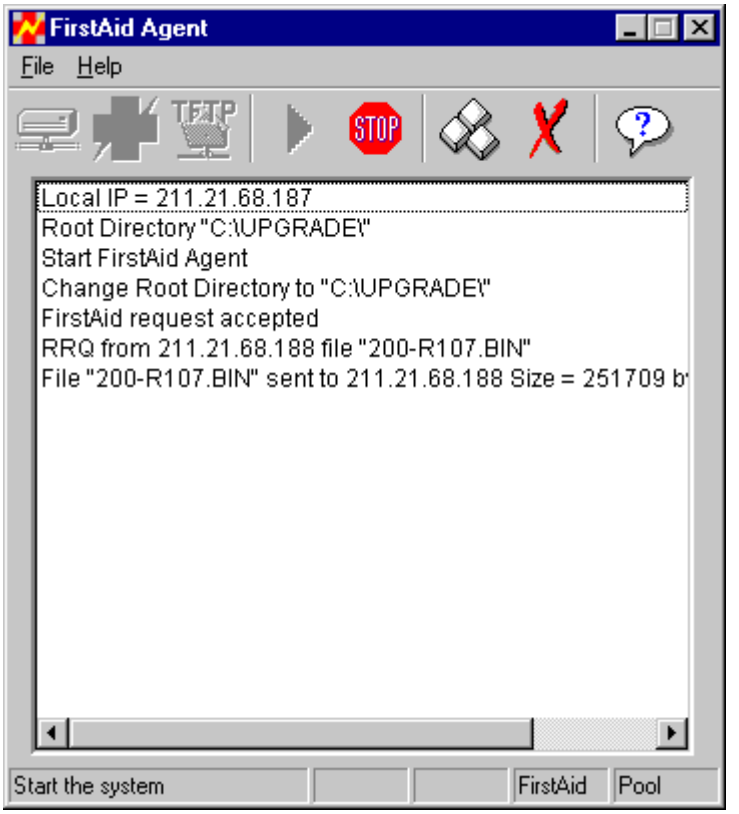


Figure 42 FirstAid's Dialogue Window

10. Wait for the router's Self Test LED to start blinking. This indicates that the upgrade is complete.

11. When the upgrade is finished, select **File > Stop the System**, as shown in Figure 43.

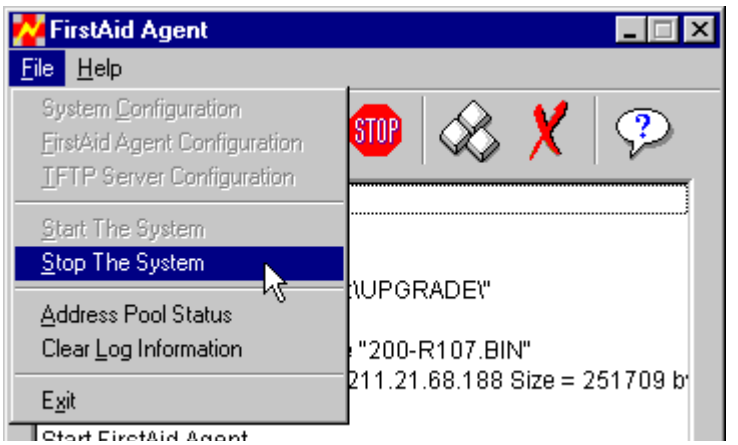


Figure 43 Stop the System

Note
Do not reboot the router before you select **Stop the System**, otherwise the router will reenter its upgrade mode.

12. Reboot the router.
13. After the router has rebooted, power OFF the unit.

Go to the next procedure to return the router's parameter settings to their default settings.

Returning the AT-AR220E Parameters to the Default Settings

This procedure returns the gateway's parameter settings to their factory default values. This procedure can be of value if you forget the IP address of your router and cannot connect to it for administrative purposes. This procedure requires the FirstAid program and the PARAM.INI file, both of which are stored on the CD included with the product.

1. If you have not already, install both the FirstAid utility and the PARAM.INI file on your PC. Instructions for installing the utility can be found in Chapter 2.
2. Assign the PC an IP address, if it does not already have one.
3. If the router is powered ON, power OFF the unit and disconnect all devices from the router except for the PC containing the FirstAid utility. The PC should be connected to one of the LAN ports on the router.
4. Start the FirstAid.EXE from the following directory: C:\Program Files\Broadband\FirstAid.
5. Select **File > Stop the System**.
6. Select **File > FirstAid Agent Configuration**.
7. Specify the path and filename to the PARAM.INI file stored on the PC.
8. Select **File > Start the System**.
9. Power ON the router.

   The FirstAid utility displays a series of messages as it loads the default parameter settings onto the unit. The process is complete when the Self Test LED on the router flashes continuously. (If this fails to occur, close the FirstAid utility and repeat this procedure.)
10. Select **File > Stop the System**.
11. Power cycle the router by disconnecting and connecting the power cable.

The default settings for the router have now been returned to their default settings. The router's IP address is 192.168.1.1. To log on to the router, go to Chapter 4.

Appendix D
Country and Territory Settings

The selection Other found in both the Quick Start utility and the Advanced Configuration window is used to configure parameters settings that are unique to the country or territory in which an ISP is located. You might need to adjust these settings depending on the location of your ISP.

Note
The selection Other in version 1.09 of the router software configures the device for the DANA protocol, used by some Alcatel-based ADSL services in Singapore. It is important to note, however, that some service providers in Singapore also use the conventional PPPoE service. You should ask your service provider which service you are using before you configure these settings.

To configure the router for the DANA protocol, select Other from either the Quick Start utility or the Advanced Configuration window. The window in Figure 44 is displayed.

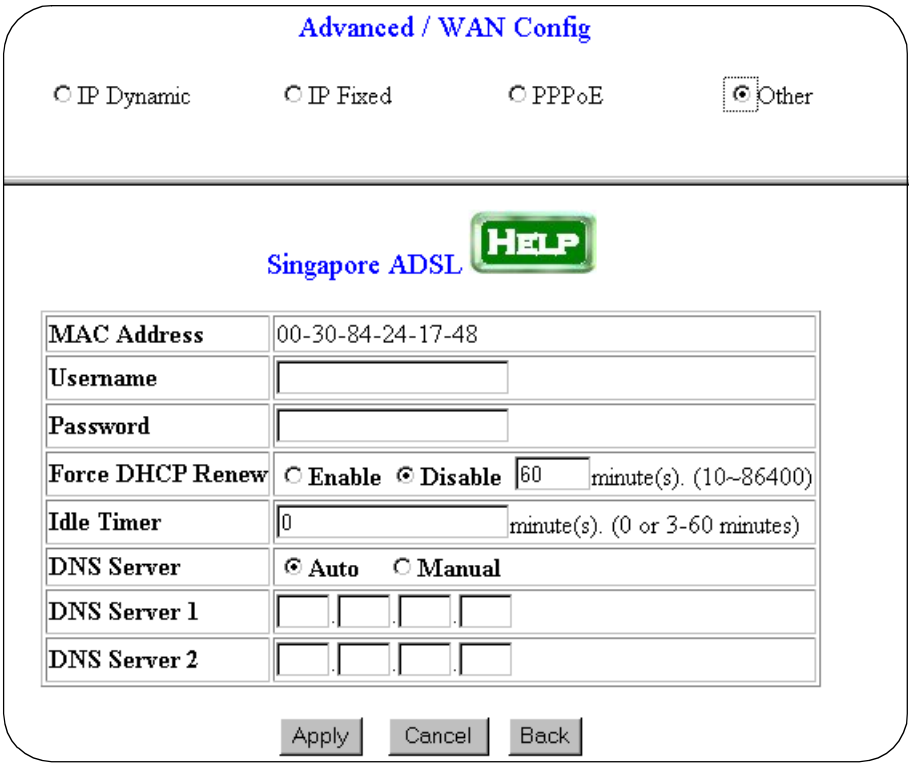


Figure 44 Other

The fields in the window are defined below. Your ISP will provide you with the necessary information.

MAC Address: Contains the Ethernet MAC (Media Access Control) address of the LAN interface of the router. The address is shown in six hexadecimal numbers. This is a read-only field. (This field is not included when this window is displayed using the Quick Install utility.)

User Name: Specifies the ISP account's login name.

Password: Specifies the login password for the account.

Force DHCP Renew: The method by which the router renews the lease of its IP address. In order for the router to continue to use an IP address obtained from an ISP, it must occasionally renew the address lease. This renewal is to prevent the ISP from assigning the IP address to another device. Normally, the ISP will notify the router of the frequency at which it must renew the IP lease. The Force DHCP Renew option is used for situations where the ISP does not provide the renewal frequency. By activating this option and entering a time interval (in minutes), you can specify how frequently the router must renew its lease of the IP address with the ISP.

Idle Timer: Specifies the length of inactivity on the WAN port after which the router disconnects from the ISP. This parameter can be useful in situations where the ISP charges by the length of connection time. By specifying an idle timer value, you can minimize service connection charges. The router will disconnect from the ISP when it detects no activity on the WAN port after the specified idle time period has passed. Entering a value of zero (0), which is the default, disables this feature.

DNS Server (Auto or Manual): The method by which the router obtains the IP address of the DNS servers. If you select Auto, the ISP assigns the IP addresses automatically. If you select Manual, the IP addresses of the DNS servers are obtained from the DNS Server 1 and 2 fields.

DNS Server 1 and 2: The IP addresses of up to two DNS servers, provided by your IPS.

After you have configured the window, click Apply. A dialog box appears to remind you reboot your device to apply the new configuration settings. Clicking OK reboots the device and activates the new settings.

Appendix E

Translated Electrical Safety and Emission Information

Important: This appendix contains multiple-language translations for the safety statements in this guide.

Wichtig: Dieser Anhang enthält Übersetzungen der in diesem Handbuch enthaltenen Sicherheitshinweise in mehreren Sprachen.

Vigtigt: Dette tillæg indeholder oversættelser i flere sprog af sikkerhedsadvarslerne i denne håndbog.

Belangrijk: Deze appendix bevat vertalingen in meerdere talen van de veiligheidsopmerkingen in deze gids.

Important: Cette annexe contient la traduction en plusieurs langues des instructions de sécurité figurant dans ce guide.

Tärkeää: Tämä liite sisältää tässä oppaassa esiintyvät turvaohjeet usealla kielellä.

Importante: questa appendice contiene traduzioni in più lingue degli avvisi di sicurezza di questa guida.

Viktig: Dette tillegget inneholder oversettelser til flere språk av sikkerhetsinformasjonen i denne veiledningen.

Importante: Este anexo contém traduções em vários idiomas das advertências de segurança neste guia.

Importante: Este apéndice contiene traducciones en múltiples idiomas de los mensajes de seguridad incluidos en esta guía.

Obs! Denna bilaga innehåller flerspråkiga översättningar av säkerhetsmeddelandena i denna handledning.

Standards: This product meets the following safety standards.

U.S. Federal Communications Commission
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: This device may not cause harmful interference. 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.

Canadian Department of Communications
This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations. Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

1 **LIGHTNING DANGER**
DANGER: DO NOT WORK on equipment or CABLES during periods of LIGHTNING ACTIVITY.

2 **CAUTION:** POWER CORD IS USED AS A DISCONNECTION DEVICE. TO DE-ENERGIZE EQUIPMENT, disconnect the power cord.

3 ELECTRICAL - TYPE CLASS 1 EQUIPMENT
THIS EQUIPMENT MUST BE EARTHED. Power plug must be connected to a properly wired earth ground socket outlet. An improperly wired socket outlet could place hazardous voltages on accessible metal parts.

4 PLUGGABLE EQUIPMENT, the socket outlet shall be installed near the equipment and shall be easily accessible.

5 **CAUTION:** Air vents must not be blocked and must have free access to the room ambient air for cooling.

6 **OPERATING TEMPERATURE:** This product is designed for a maximum ambient temperature of 40° degrees C.

7 **ALL COUNTRIES:** Install product in accordance with local and National Electrical Codes.

Normen: Dieses Produkt erfüllt die Anforderungen der nachfolgenden Normen.

1 **GEFAHR DURCH BLITZSCHLAG**
GEFAHR: Keine Arbeiten am Gerät oder an den Kabeln während eines Gewitters ausführen.

2 **VORSICHT:** DAS NETZKABEL DIENT ZUM TRENNEN DER STROMVERSORGUNG. ZUR TRENNUNG VOM NETZ, KABEL AUS DER STECKDOSE ZIEHEN.

3 GERÄTE DER KLASSE 1
DIESE GERÄTE MÜSSEN GEERDET SEIN. Der Netzstecker darf nur mit einer vorschriftsmäßig geerdeten Steckdose verbunden werden. Ein unvorschriftsmäßiger Anschluß kann die Metallteile des Gehauses unter gefährliche elektrische Spannungen setzen.

4 STECKBARES GERÄT: Die Anschlußbuchse sollte in der Nähe der Einrichtung angebracht werden und leicht zugänglich sein."

5 **VORSICHT**
Die Entlüftungsöffnungen dürfen nicht versperrt sein und müssen zum Kühlen freien Zugang zur Raumluft haben.

6 **BETRIEBSTEMPERATUR:** Dieses Produkt wurde für den Betrieb in einer Umgebungstemperatur von nicht mehr als 40° C entworfen.

7 **ALLE LÄNDER:** Installation muß örtlichen und nationalen elektrischen Vorschriften entsprechen.

Standarder: Dette produkt tilfredsstiller de følgende standarder.

1 **FARE UNDER UVEJR**
FARE: UNDLAD at arbejde på udstyr eller KABLER i perioder med LYNAKTIVITET.

2 **ADVARSEL:** DEN STRØMFØRENDE LEDNING BRUGES TIL AT AFBRYDE STRØMMEN. SKAL STRØMMEN TIL APPARATET AFBRYDES, tages ledningen ud af stikket.

3 ELEKTRISK - KLASSE 1-UDSTYR
DETTE UDSTYR KRÆVER JORDFORBINDELSE. Stikket skal være forbundet med en korrekt installeret jordforbunden stikkontakt. En ukorrekt installeret stikkontakt kan sætte livsfarlig spænding til tilgængelige metaldele.

4 UDSTYR TIL STIKKONTAKT, stikkontakten bør installeres nær ved udstyret og skal være lettilgængelig.

5 **ADVARSEL:** Ventilationsåbninger må ikke blokeres og skal have fri adgang til den omgivende luft i rummet for afkøling.

6 **BETJENINGSTEMPERATUR:** Dette apparat er konstrueret til en omgivende temperatur på maksimum 40 grader C.

7 **ALLE LANDE:** Installation af produktet skal ske i overensstemmelse med lokal og national lovgivning for elektriske installationer.

Eisen: Dit product voldoet aan de volgende eisen.

1 **GEVAAR VOOR BLIKSEMINSLAG**
GEVAAR: NIET aan toestellen of KABELS WERKEN bij BLIKSEM.

2 **WAARSCHUWING:** HET TOESTEL WORDT UITGESCHAKELD DOOR DE STROOMKABEL TE ONTKOPPELEN.OM HET TOESTEL STROOMLOOS TE MAKEN: de stroomkabel ontkoppelen.

3 ELEKTRISCHE TOESTELLEN VAN KLASSE 1
DIT TOESTEL MOET GEAARD WORDEN. De stekker moet aangesloten zijn op een juist geaarde contactdoos. Een onjuist geaarde contactdoos kan de metalen onderdelen waarmee de gebruiker eventueel in aanraking komt onder gevaarlijke spanning stellen.

4 AAN TE SLUITEN APPARATUUR, de contactdoos wordt in de nabijheid van de apparatuur geïnstalleerd en is gemakkelijk te bereiken."

5 **OPGELET:** De ventilatiegaten mogen niet worden gesperd en moeten de omgevingslucht ongehinderd toelaten voor afkoeling.

6 **BEDRIJFSTEMPERATUUR:** De omgevingstemperatuur voor dit produkt mag niet meer bedragen dan 40 graden Celsius.

7 **ALLE LANDEN:** het toestel installeren overeenkomstig de lokale en nationale elektrische voorschriften.

Normes: ce produit est conforme aux normes de suivantes:

1 **DANGER DE FOUDRE**
DANGER: NE PAS MANIER le matériel ou les CÂBLES lors d'activité orageuse.

2 **ATTENTION:** LE CORDON D'ALIMENTATION SERT DE MISE HORS CIRCUIT. POUR COUPER L'ALIMENTATION DU MATÉRIEL, débrancher le cordon.

3 ÉQUIPEMENT DE CLASSE 1 ÉLECTRIQUE
CE MATÉRIEL DOIT ÊTRE MIS A LA TERRE. La prise de courant doit être branchée dans une prise femelle correctement mise à la terre car des tensions dangereuses risqueraient d'atteindre les pièces métalliques accessibles à l'utilisateur.

4 EQUIPEMENT POUR BRANCHEMENT ELECTRIQUE, la prise de sortie doit être placée près de l'équipement et facilement accessible".

5 **ATTENTION:** Ne pas bloquer les fentes d'aération, ceci empêcherait l'air ambiant de circuler librement pour le refroidissement.

6 **TEMPÉRATURE DE FONCTIONNEMENT:** Ce matériel est capable de tolérer une température ambiante maximum de ou 40 degrés Celsius.

7 **POUR TOUS PAYS:** Installer le matériel conformément aux normes électriques nationales et locales.

Standardit: Tämä tuote on seuraavien standardien mukainen.

1 **SALAMANISKUVAARA**
HENGENVAARA: ÄLÄ TYÖSKENTELE laitteiden tai KAAPELEIDEN KANSSA SALAMOINNIN AIKANA.

2 **HUOMAUTUS:** VIRTAJOHTOA KÄYTETÄÄN VIRRANKATKAISULAITTEENA. VIRTA KATKAISTAAN irrottamalla virtajohto.

3 SÄHKÖ - TYYPPILUOKAN 1 LAITTEET
TÄMÄ LAITE TÄYTYY MAADOITTAA. Pistoke täytyy liittää kunnollisesti maadoitettuun pistorasiaan. Virheellisesti johdotettu pistorasia voi altistaa metalliosat vaarallisille jännitteille.

4 PISTORASIAAN KYTKETTÄVÄ LAITE; pistorasia on asennettava laitteen lähelle ja siihen on oltava esteetön pääsy."

5 **HUOMAUTUS:** Ilmavaihtoreikiä ei pidä tukkia ja niillä täytyy olla vapaa yhteys ympäröivään huoneilmaan, jotta ilmanvaihto tapahtuisi.

6 **KÄYTTÖLÄMPÖTILA:** Tämä tuote on suunniteltu ympäröivän ilman maksimilämpötilalle 40°C.

7 **KAIKKI MAAT:** Asenna tuote paikallisten ja kansallisten sähköturvallisuusmääräysten mukaisesti.

Standard: Questo prodotto è conforme ai seguenti standard.

1 **PERICOLO DI FULMINI**
PERICOLO: NON LAVORARE sul dispositivo o sui CAVI durante PRECIPITAZIONI TEMPORALESCHE.

2 **ATTENZIONE:** IL CAVO DI ALIMENTAZIONE È USATO COME DISPOSITIVO DI DISATTIVAZIONE. PER TOGLIERE LA CORRENTE AL DISPOSITIVO staccare il cavo di alimentazione.

3 ELETTRICITÀ - DISPOSITIVI DI CLASSE 1
QUESTO DISPOSITIVO DEVE AVERE LA MESSA A TERRA. La spina deve essere inserita in una presa di corrente specificamente dotata di messa a terra. Una presa non cablata in maniera corretta rischia di scaricare una tensione pericolosa su parti metalliche accessibili.

4 APPARECCHIATURA COLLEGABILE, la presa va installata vicino all'apparecchio per risultare facilmente accessibile".

5 **ATTENZIONE:** le prese d'aria non vanno ostruite e devono consentire il libero ricircolo dell'aria ambiente per il raffreddamento.

6 **TEMPERATURA DI FUNZIONAMENTO:** Questo prodotto è concepito per una temperatura ambientale massima di 40 gradi centigradi.

7 **TUTTI I PAESI:** installare il prodotto in conformità delle vigenti normative elettriche nazionali.

Sikkerhetsnormer: Dette produktet tilfredsstiller følgende sikkerhetsnormer.

1 **FARE FOR LYNNEDSLAG**
FARE: ARBEID IKKE på utstyr eller KABLER i TORDENVÆR.

2 **FORSIKTIG:** STRØMLEDNINGEN BRUKES TIL Å FRAKOBLE UTSTYRET. FOR Å DEAKTIVISERE UTSTYRET, må strømforsyningen kobles fra.

3 ELEKTRISK - TYPE 1- KLASSE UTSTYR
DETTE UTSTYRET MÅ JORDES. Strømkontakten må være tilkoplet en korrekt jordet kontakt. En kontakt som ikke er korrekt jordet kan føre til farlig spenninger i lett t ilgjengelige metalldeler.

4 UTSTYR FOR STIKKONTAKT. Stikkontakten skal monteres i nærheten av utstyret og skal være lett tilgjengelig."

5 **FORSIKTIG:** Lufteventilene må ikke blokkeres, og må ha fri tilgang til luft med romtemperatur for avkjøling.

6 **DRIFTSTEMPERATUR:** Dette produktet er konstruert for bruk i maksimum romtemperatur på 40 grader celsius.

7 **ALLE LAND:** Produktet må installeres i samsvar med de lokale og nasjonale elektriske koder.

Padrões: Este produto atende aos seguintes padrões.

1 **PERIGO DE CHOQUE CAUSADO POR RAIO**
PERIGO: NÃO TRABALHE no equipamento ou nos CABOS durante períodos suscetíveis a QUEDAS DE RAIO.

2 **CUIDADO:** O CABO DE ALIMENTAÇÃO É UTILIZADO COMO UM DISPOSITIVO DE DESCONEXÃO. PARA DESELETRIFICAR O EQUIPAMENTO, desconecte o cabo de ALIMENTAÇÃO.

3 ELÉTRICO - EQUIPAMENTOS DO TIPO CLASSE 1
DEVE SER FEITA LIGAÇÃO DE FIO TERRA PARA ESTE EQUIPAMENTO. O plugue de alimentação deve ser conectado a uma tomada com adequada ligação de fio terra. Tomadas sem adequada ligação de fio terra podem transmitir voltagens perigosas a peças metálicas expostas.

4 EQUIPAMENTO DE LIGAÇÃO, a tomada eléctrica deve estar instalada perto do equipamento e ser de fácil acesso."

5 **CUIDADO:** As aberturas de ventilação não devem ser bloqueadas e devem ter acesso livre ao ar ambiente para arrefecimento adequado do aparelho.

6 **TEMPERATURA DE FUNCIONAMENTO:** Este produto foi projetado para uma temperatura ambiente máxima de 40 graus centígrados.

7 **TODOS OS PAÍSES:** Instale o produto de acordo com as normas nacionais e locais para instalações elétricas.

Estándares: Este producto cumple con los siguientes estándares.

1 **PELIGRO DE RAYOS**
PELIGRO: NO REALICE NINGUN TIPO DE TRABAJO O CONEXION en los equipos o en LOS CABLES durante TORMENTAS ELECTRICAS.

2 **ATENCION:** EL CABLE DE ALIMENTACION SE USA COMO UN DISPOSITIVO DE DESCONEXION. PARA DESACTIVAR EL EQUIPO, desconecte el cable de alimentación.

3 ELECTRICO - EQUIPO DEL TIPO CLASE 1
ESTE EQUIPO TIENE QUE TENER CONEXION A TIERRA. El cable tiene que conectarse a un enchufe a tierra debidamente instalado. Un enchufe que no está correctamente instalado podría ocasionar tensiones peligrosas en las partes metálicas que están expuestas.

4 EQUIPO CONECTABLE, el tomacorriente se debe instalar cerca del equipo, en un lugar con acceso fácil".

5 **ATENCION:** Las aberturas para ventilación no deberán bloquearse y deberán tener acceso libre al aire ambiental de la sala para su enfriamiento.

6 **TEMPERATURA REQUERIDA PARA LA OPERACIÓN:** Este producto está diseñado para una temperatura ambiental máxima de 40 grados C.

7 **PARA TODOS LOS PAÍSES:** Monte el producto de acuerdo con los Códigos Eléctricos locales y nacionales.

Standarder: Denna produkt uppfyller följande standarder.

1 **FARA FÖR BLIXTNEDSLAG**
FARA: ARBETA EJ på utrustningen eller kablarna vid ÅSKVÄDER.

2 **VARNING:** NÄTKABELN ANVÄNDS SOM STRÖMBRYTARE FÖR ATT KOPPLA FRÅN STRÖMMEN, dra ur nätkabeln.

3 ELEKTRISKT - TYP KLASS 1 UTRUSTNING
DENNA UTRUSTNING MÅSTE VARA JORDAD. Nätkabeln måste vara ansluten till ett ordentligt jordat uttag. Ett felaktigt uttag kan göra att närliggande metalldelar utsätts för högspänning. Apparaten skall anslutas till jordat uttag, när den ansluts till ett nätverk.

4 UTRUSTNING MED PLUGG. Uttaget skall installeras i utrustningens närhet och vara lättåtkomligt".

5 **VARNING:** Luftventilerna får ej blockeras och måste ha fri tillgång till omgivande rumsluft för avsvalning.

6 **DRIFTSTEMPERATUR:** Denna produkt är konstruerad för rumstemperatur ej överstigande 40 grader Celsius.

7 **ALLA LÄNDER:** Installera produkten i enlighet med lokala och statliga bestämmelser för elektrisk utrustning.