Table of Contents

CHAPTER 1 Introduction

What’s New in 7.7

New in Netopia Firmware Version 7.7 are the following features:

- Internet Group Management Protocol (IGMP) Version 3 support. See “IGMP (Internet Group Management Protocol)” on page 112.
- TR-101 Support:
  - Concurrent support for PPPoE and IPoE connections on the WAN. See “WAN” on page 73.
  - Multiple LAN IP Subnet support. See “LAN” on page 51.
  - Additional DHCP range support. These ranges are associated with the additional LAN subnets on a 1-to-1 basis.
  - DHCP option filtering support. Allows DHCP option data to be used to determine the desired DHCP address range. See “DHCP Option Filtering” on page 277.
  - Support for additional WAN settings to control multicast forwarding as well as if *0.0.0.0* is used as the source address for IGMP packets. See “Advanced:” on page 76.
  - Support for “unnumbered” interfaces. For IP interfaces, this allows the address to be set to *0* and the DHCP client also to be disabled. See page 79.
- PPPoE/DHCP Autosensing. See “WAN” on page 73.
- Wireless Multimedia Mode (WMM) support. See “WiFi Multimedia” on page 67.
- Support of VLAN ID 0 on the Ethernet WAN and support for setting p-bits on a segment/port basis. See “VLAN” on page 121 and CLI “VLAN Settings” on page 346.
- Firewall: ClearSailing is automatically enabled on all 2200-Series ADSL2+ platforms. (Explicit exceptions: bonded and VDSL2, 3341, and 3387WG.) See “Firewall” on page 149.

- TR-069 Remote device management is automatically enabled by default for 2200-Series Gateways. (Explicit exceptions: bonded and VDSL2, 3341, 3387WG). See "TR-069" on page 349.

Corresponding commands have been added to the Command Line Interface (CLI). See "Command Line Interface" on page 247.

- Reset WAN port counter and CLI command to display individual Ethernet port statistics. See "reset enet [all]" on page 257 and "show enet [all]" on page 259.
- CLI for Netopia ATA Remote Management. See "Remote ATA Configuration Commands" on page 269.
- Provide Bandwidth Management using Weighted Fair Queueing for VDSL2 Platforms. See "Queue Configuration" on page 298.

About Netopia Documentation

NOTE:

This guide describes the wide variety of features and functionality of the Netopia Gateway, when used in Router mode. The Netopia Gateway may also be delivered in Bridge mode. In Bridge mode, the Gateway acts as a pass-through device and allows the workstations on your LAN to have public addresses directly on the Internet.

Netopia, Inc. provides a suite of technical information for its 2200- and 3300-series family of intelligent enterprise and consumer Gateways. It consists of:

- *Software User Guide*
- Dedicated Quickstart guides
- Specific White Papers

The documents are available in electronic form as Portable Document Format (PDF) files. They are viewed (and printed) from Adobe Acrobat Reader, Exchange, or any other application that supports PDF files.

They are downloadable from Netopia's website:
http://www.netopia.com/

Intended Audience

This guide is targeted primarily to residential service subscribers.

Expert Mode sections may also be of use to the support staffs of broadband service providers and advanced residential service subscribers.

See "Expert Mode" on page 41.

Documentation Conventions

General

This manual uses the following conventions to present information:

Convention (Typeface)	Description
bold italic monospaced	Menu commands
bold italic sans serif	Web GUI page links and button names
`terminal`	Computer display text
`bold terminal`	User-entered text
Italic	Italic type indicates the complete titles of manuals.

Internal Web Interface

Convention (Graphics)	Description
blue rectangle or line	Denotes an “excerpt” from a Web page or the visual truncation of a Web page
solid rounded rectangle with an arrow	Denotes an area of emphasis on a Web page

Command Line Interface

Syntax conventions for the Netopia Gateway command line interface are as follows:

Convention	Description
straight ([ ]) brackets in cmd line	Optional command arguments

curly ({ }) brackets, with values separated with vertical bars (|).	Alternative values for an argument are presented in curly ({ }) brackets, with values separated with vertical bars (|).
`bold terminal type face`	User-entered text
`italic terminal type face`	Variables for which you supply your own values

Organization

This guide consists of nine chapters, including a glossary, and an index. It is organized as follows:

- **Chapter 1, "Introduction"** — Describes the Netopia document suite, the purpose of, the audience for, and structure of this guide. It gives a table of conventions.
- **Chapter 2, "Basic Mode Setup"** — Describes how to get up and running with your Netopia Gateway.
- **Chapter 3, "Expert Mode"** — Focuses on the "Expert Mode" Web-based user interface for advanced users. It is organized in the same way as the Web UI is organized. As you go through each section, functions and procedures are discussed in detail.
- **Chapter 4, "Basic Troubleshooting"** — Gives some simple suggestions for troubleshooting problems with your Gateway's initial configuration.
- **Chapter 5, "Advanced Troubleshooting"** — Gives suggestions and descriptions of expert tools to use to troubleshoot your Gateway's configuration.
- **Chapter 6, "Command Line Interface"** — Describes all the current text-based commands for both the SHELL and CONFIG modes. A summary table and individual command examples for each mode is provided.
- **Chapter 7, "Glossary"**
- **Chapter 8, "Technical Specifications and Safety Information"**
- **Chapter 9, "Overview of Major Capabilities"** — Presents a product description summary.
- **Index**

A Word About Example Screens

This manual contains many example screen illustrations. Since Netopia 2200- and 3300 Series Gateways offer a wide variety of features and functionality, the example screens shown may not appear exactly the same for your particular Gateway or setup as they appear in this manual. The example screens are for illustrative and explanatory purposes, and should not be construed to represent your own unique environment.

CHAPTER 8 Technical Specifications and Safety Information

Description

Dimensions:

Smart Modems: 13.5 cm (w) x 13.5 cm (d) x 3.5 cm (h); 5.25” (w) x 5.25” (d) x 1.375” (h)
Wireless Models: 19.5 cm (w) x 17.0 cm (d) x 4.0 cm (h); 7.6” (w) x 6.75” (d) x 1.5” (h)
3342/3342N/3352/3352N: 8.5 cm (w) x 4.5 cm (d) x 2 cm (h); 3.375” (w) x 1.75” (d) x .875” (h)
2200-Series Modems: 1.06"(2.69 cm) H, 4.36" (11.07 cm) W, 5.71"(14.50 cm) L
2200-Series Wireless Models: 1.2"(3.0cm) H, 8.7" (22.0 cm) W, 5.2"(13.2cm) L

Communications interfaces: The Netopia Gateways have an RJ-11 jack for DSL line connections or an RJ-45 jack for cable/DSL modem connections and 1 or 4–port 10/100Base-T Ethernet switch for your LAN connections. Some models have a USB port that can be used to connect to your PC; in some cases, the USB port also serves as the power source. Some models contain an 802.11b or 802.11g wireless LAN transmitter.

Power requirements

- 12 VDC input
- **USB-powered models only:** For Use with Listed I.T.E. Only

Environment

Operating temperature: 0° to +40° C

Storage temperature: 0° to +70° C

Relative storage humidity: 20 to 80% noncondensing

Software and protocols

Software media: Software preloaded on internal flash memory; field upgrades done via download to internal flash memory via TFTP or web upload. (does not apply to 3342/3352)

Routing: TCP/IP Internet Protocol Suite, RIP

WAN support: PPPoA, PPPoE, DHCP, static IP address

Security: PAP, CHAP, UI password security, IPsec, SSL certificate

Management/configuration methods: HTTP (Web server), Telnet, SNMP, TR-069 DSL Forum CPE WAN Management Protocol

Diagnostics: Ping, event logging, routing table displays, statistics counters, web-based management, traceroute, nslookup, and diagnostic commands.

Agency approvals

North America

Safety Approvals:

- United States – UL 60950, Third Edition
- Canada – CSA: CAN/CSA-C22.2 No. 60950-00

EMC:

- United States – FCC Part 15 Class B
- Canada – ICES-003

Telecom:

- United States – 47 CFR Part 68
- Canada – CS-03

International

Safety Approvals:

- Low Voltage (European directive) 73/23
- EN60950 (Europe)

EMI Compatibility:

- 89/336/EEC (European directive)
- EN55022:1994 CISPR22 Class B
- EN300 386 V1.2.1 (non-wireless products)
- EN 301-489 (wireless products)

Regulatory notices

European Community. This Netopia product conforms to the European Community CE Mark standard for the design and manufacturing of information technology equipment. This standard covers a broad area of product design, including RF emissions and immunity from electrical disturbances.

The Netopia Firmware Version 7.7 complies with the following EU directives:

- Low Voltage, 73/23/EEC
- EMC Compatibility, 89/336/EEC, conforming to EN 55 022

Manufacturer's Declaration of Conformance

Warnings:

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. Adequate measures include increasing the physical distance between this product and other electrical devices.
Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

United States. 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.

Service requirements. In the event of equipment malfunction, all repairs should be performed by our Company or an authorized agent. Under FCC rules, no customer is authorized to repair this equipment. This restriction applies regardless of whether the equipment is in or our of warranty. It is the responsibility of users requiring service to report the need for service to our Company or to one of our authorized agents. Service can be obtained at Netopia, Inc., 6001 Shellmound Street, Emeryville, California, 94608. Telephone: 510-597-5400.

Important

This product was tested for FCC compliance under conditions that included the use of shielded cables and connectors between system components. Changes or modifications to this product not authorized by the manufacturer could void your authority to operate the equipment.

Canada. 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 Réglement sur le matériel brouilleur du Canada.

Declaration for Canadian users

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

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

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

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines, and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

Caution

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

The Ringer Equivalence Number (REN) assigned to each terminal device provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Numbers of all the devices does not exceed 5.

Important Safety Instructions

Australian Safety Information

The following safety information is provided in conformance with Australian safety requirements:

Caution

DO NOT USE BEFORE READING THE INSTRUCTIONS: Do not connect the Ethernet ports to a carrier or carriage service provider's telecommunications network or facility unless: a) you have the written consent of the network or facility manager, or b) the connection is in accordance with a connection permit or connection rules.

Connection of the Ethernet ports may cause a hazard or damage to the telecommunication network or facility, or persons, with consequential liability for substantial compensation.

Caution

- The direct plug-in power supply serves as the main power disconnect; locate the direct plug-in power supply near the product for easy access.
- For use only with CSA Certified Class 2 power supply, rated 12VDC.

Telecommunication installation cautions

- Never install telephone wiring during a lightning storm.
- Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
- Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
- Use caution when installing or modifying telephone lines.
- Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electric shock from lightning.
- Do not use the telephone to report a gas leak in the vicinity of the leak.

47 CFR Part 68 Information

FCC Requirements

1. The Federal Communications Commission (FCC) has established Rules which permit this device to be directly connected to the telephone network. Standardized jacks are used for these connections. This equipment should not be used on party lines or coin phones.
2. If this device is malfunctioning, it may also be causing harm to the telephone network; this device should be disconnected until the source of the problem can be determined and until repair has been made. If this is not done, the telephone company may temporarily disconnect service.
3. The telephone company may make changes in its technical operations and procedures; if such changes affect the compatibility or use of this device, the telephone company is required to give adequate notice of the changes. You will be advised of your right to file a complaint with the FCC.
4. If the telephone company requests information on what equipment is connected to their lines, inform them of:

   a. The telephone number to which this unit is connected.

   b. The ringer equivalence number. [0.XB]

   c. The USOC jack required. [RJ11C]

   d. The FCC Registration Number. [XXXUSA-XXXXX-XX-E]

   Items (b) and (d) are indicated on the label. The Ringer Equivalence Number (REN) is used to determine how many devices can be connected to your telephone line. In most areas, the sum of the REN's of all devices on any one line should not exceed five (5.0). If too many devices are attached, they may not ring properly.

FCC Statements

a) This equipment complies with Part 68 of the FCC rules and the requirements adopted by the ACTA. On the bottom of this equipment is a label that contains, among other information, a product identifier in the format US:AAAEQ##TXXXX. If requested, this number must be provided to the telephone company.

b) List all applicable certification jack Universal Service Order Codes (“USOC”) for the equipment: RJ11.

c) A plug and jack used to connect this equipment to the premises wiring and telephone network must comply with the applicable FCC Part 68 rules and requirements adopted by the ACTA. A compliant telephone cord and modular plug is provided with this product. It is designed to be connected to a compatible modular jack that is also compliant. See installation instructions for details.

d) The REN is used to determine the number of devices that may be connected to a telephone line. Excessive RENs on a telephone line may result in the devices not ringing in response to an incoming call. In most but not all areas, the sum of RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to a line, as determined by the total RENs, contact the local telephone company. For products approved after July 23, 2002, the REN for this product is part of the product identifier that has the format US:AAAEQ##TXXXX. The digits represented by ## are the REN without a decimal point (e.g., 03 is a REN of 0.3). For earlier products, the REN is separately shown on the label.

e) If this equipment, the Netopia 3300- or 2200-Series router, causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice isn't practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

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

g) If trouble is experienced with this equipment, the Netopia 3300- or 2200-Series router, for repair or warranty information, please contact:

Netopia Technical Support
510-597-5400
www.netopia.com.

If the equipment is causing harm to the telephone network, the telephone company may request that you disconnect the equipment until the problem is resolved.

h) This equipment not intended to be repaired by the end user. In case of any problems, please refer to the troubleshooting section of the Product User Manual before calling Netopia Technical Support.

i) Connection to party line service is subject to state tariffs. Contact the state public utility commission, public service commission or corporation commission for information.

j) If your home has specially wired alarm equipment connected to the telephone line, ensure the installation of this Netopia 3300- or 2200-Series router does not disable your alarm equipment. If you have questions about what will disable alarm equipment, consult your telephone company or qualified installer.

RF Exposure Statement:

NOTE: Installation of the wireless models must maintain at least 20 cm between the wireless router and any body part of the user to be in compliance with FCC RF exposure guidelines.

Electrical Safety Advisory

Telephone companies report that electrical surges, typically lightning transients, are very destructive to customer terminal equipment connected to AC power sources. This has been identified as a major nationwide problem. Therefore it is advised that this equipment be connected to AC power through the use of a surge arrestor or similar protection device.

CHAPTER 9 Overview of Major Capabilities

The Netopia Gateway offers simplified setup and management features as well as advanced broadband router capabilities. The following are some of the main features of the Netopia Gateway:

- "Wide Area Network Termination" on page 378

  The Gateway combines an ADSL modem with an Internet router. It translates protocols used on the Internet to protocols used by home personal computers and eliminates the need for special desktop software (i.e. PPPoE).
- "Simplified Local Area Network Setup" on page 379

  Built-in DHCP and DNS proxy features minimize or eliminate the need to program any network configuration into your home personal computer.
- "Management" on page 380

  A Web server built into the Netopia Operating System makes setup and maintenance easy using standard browsers. Diagnostic tools facilitate troubleshooting.
- "Security" on page 381

  Network Address Translation (NAT), password protection, Stateful Inspection firewall and other built-in security features prevent unauthorized remote access to your network. Pinholes, default server, and other features permit access to computers on your home network that you can specify.

Wide Area Network Termination

PPPoE/PPPoA (Point-to-Point Protocol over Ethernet/ATM)

The PPPoE specification, incorporating the PPP and Ethernet standards, allows your computer(s) to connect to your Service Provider's network through your Ethernet WAN connection. The Netopia-series Gateway supports PPPoE, eliminating the need to install PPPoE client software on any LAN computers.

Service Providers may require the use of PPP authentication protocols such as Challenge Handshake Authentication Protocol (CHAP) or Password Authentication Protocol (PAP). CHAP and PAP use a username and password pair to authenticate users with a PPP server.

A CHAP authentication process works as follows:

1. **The password is used to scramble a challenge string.**
2. **The password is a shared secret, known by both peers.**
3. **The unit sends the scrambled challenge back to the peer.**

PAP, a less robust method of authentication, sends a username and password to a PPP server to be authenticated. PAP's username and password pair are not encrypted, and are therefore sent "unscrambled".

Instant-On PPP

You can configure your Gateway for one of two types of Internet connections:

- Always On
- Instant On

These selections provide either an uninterrupted Internet connection or an as-needed connection.

While an Always On connection is convenient, it does leave your network permanently connected to the Internet, and therefore potentially vulnerable to attacks.

Netopia's Instant On technology furnishes almost all the benefits of an Always-On connection while providing two additional security benefits:

- Your network cannot be attacked when it is not connected.

- Your network may change address with each connection making it more difficult to attack.

When you configure Instant On access, you can also configure an idle time-out value. Your Gateway monitors traffic over the Internet link and when there has been no traffic for the configured number of seconds, it disconnects the link.

When new traffic that is destined for the Internet arrives at the Gateway, the Gateway will instantly re-establish the link.

Your service provider may be using a system that assigns the Internet address of your Gateway out of a pool of many possible Internet addresses. The address assigned varies with each connection attempt, which makes your network a moving target for any attacker.

Simplified Local Area Network Setup

DHCP (Dynamic Host Configuration Protocol) Server

DHCP Server functionality enables the Gateway to assign to your LAN computer(s) a “private” IP address and other parameters that allow network communication. The default DHCP Server configuration of the Gateway supports up to 253 LAN IP addresses.

This feature simplifies network administration because the Gateway maintains a list of IP address assignments. Additional computers can be added to your LAN without the hassle of configuring an IP address.

DNS Proxy

Domain Name System (DNS) provides end users with the ability to look for devices or web sites by typing their names, rather than IP addresses. For web surfers, this technology allows you to enter the URL (Universal Resource Locator) as text to surf to a desired website.

The Netopia DNS Proxy feature allows the LAN-side IP address of the Gateway to be used for proxying DNS requests from hosts on the LAN to the DNS Servers configured in the gateway. This is accomplished by having the Gateway's LAN address handed out as the “DNS Server” to the DHCP clients on the LAN.

NOTE:

The Netopia DNS Proxy only proxies UDP DNS queries, not TCP DNS queries.

Management

Embedded Web Server

There is no specialized software to install on your PC to configure, manage, or maintain your Netopia Gateway. Web pages embedded in the operating system provide access to the following Gateway operations:

- Setup
- System and security logs
- Diagnostics functions

Once you have removed your Netopia Gateway from its packing container and powered the unit up, use any LAN attached PC or workstation running a common web browser application to configure and monitor the Gateway.

Diagnostics

In addition to the Gateway's visual LED indicator lights, you can run an extensive set of diagnostic tools from your Web browser.

Two of the facilities are:

- Automated "Multi-Layer" Test

  The ***Run Diagnostics*** link initiates a sequence of tests. They examine the entire functionality of the Gateway, from the physical connections to the data traffic.
- Network Test Tools

  Three test tools to determine network reachability are available:

  Ping - tests the "reachability" of a particular network destination by sending an ICMP echo request and waiting for a reply.

  NSLookup - converts a domain name to its IP address and vice versa.

TraceRoute - displays the path to a destination by showing the number of hops and the router addresses of these hops.

The system log also provides diagnostic information.

NOTE:

Your Service Provider may request information that you acquire from these various diagnostic tools. Individual tests may be performed at the command line. (See “Command Line Interface” on page 247.).

Security

Remote Access Control

You can determine whether or not an administrator or other authorized person has access to configuring your Gateway. This access can be turned on or off in the Web interface.

Password Protection

Access to your Netopia device can be controlled through two access control accounts, **Admin** or **User**.

- The **Admin**, or administrative user, performs all configuration, management or maintenance operations on the Gateway.
- The **User** account provides monitor capability **only**.
  A user may **NOT** change the configuration, perform upgrades or invoke maintenance functions.

Account usernames can now be changed for the **Admin** and **User** accounts.

Network Address Translation (NAT)

The Netopia Gateway Network Address Translation (NAT) security feature lets you conceal the topology of a hard-wired Ethernet or wireless network connected to its LAN interface from routers on networks connected to its WAN interface. In other words, the end computer stations on your LAN are **invisible** from the Internet.

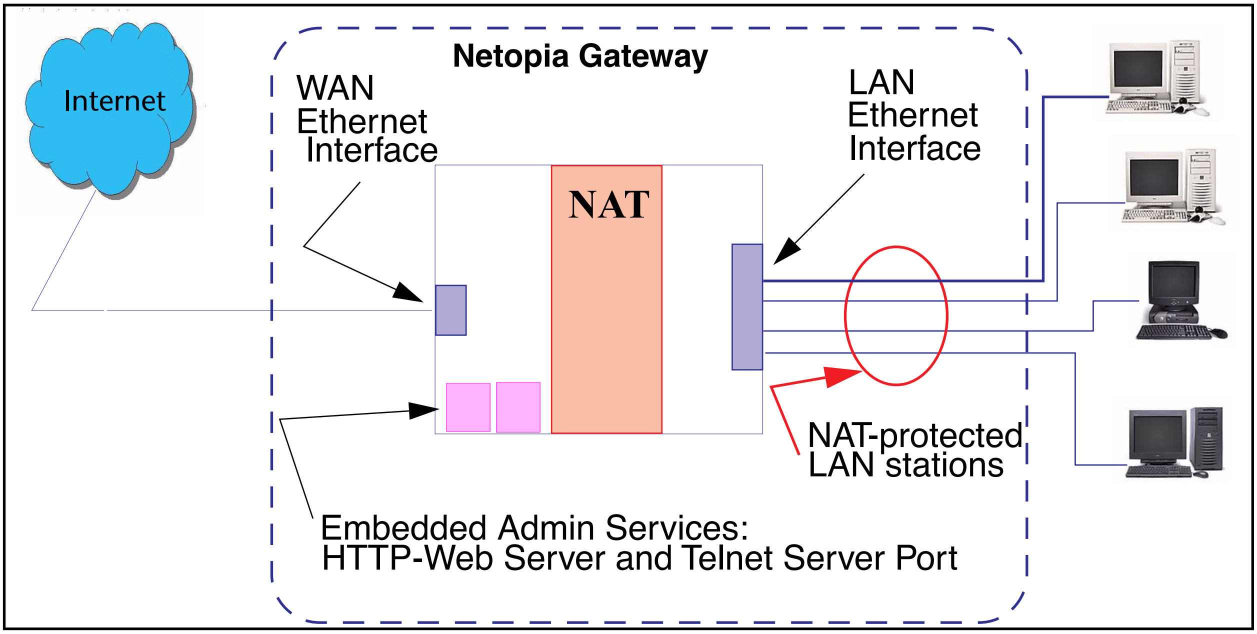
Only a **single WAN IP address** is required to provide this security support for your entire LAN.

LAN sites that communicate through an Internet Service Provider typically enable NAT, since they usually purchase only one IP address from the ISP.

- When NAT is **ON**, the Netopia Gateway “proxies” for the end computer stations on your network by pretending to be the originating host for network communications from non-originating networks. The WAN interface address is the only IP address exposed.

  The Netopia Gateway tracks which local hosts are communicating with which remote hosts. It routes packets received from remote networks to the correct computer on the LAN (Ethernet) interface.
- When NAT is **OFF**, a Netopia Gateway acts as a traditional TCP/IP router, all LAN computers/devices are exposed to the Internet.

A diagram of a typical NAT-enabled LAN follows:



NOTE:

1. The default setting for NAT is **ON**.
2. Netopia uses Port Address Translation (PAT) to implement the NAT facility.
3. NAT Pinhole traffic (discussed below) is always initiated from the WAN side.

Netopia Advanced Features for NAT

Using the NAT facility provides effective LAN security. However, there are user applications that require methods to selectively by-pass this security function for certain types of Internet traffic.

Netopia Gateways provide special pinhole configuration rules that enable users to establish NAT-protected LAN layouts that still provide flexible by-pass capabilities.

Some of these rules require coordination with the unit’s embedded administration services: the internal Web (HTTP) Port (TCP 80) and the internal Telnet Server Port (TCP 23).

Internal Servers

The internal servers are the embedded Web and Telnet servers of the Gateway. You would change the internal server ports for Web and Telnet of the Gateway if you wanted to have these services on the LAN using pinholes or the Default server.

Pinholes

This feature allows you to:

- Transparently route selected types of network traffic using the port forwarding facility.
  FTP requests or HTTP (Web) connections are directed to a specific host on your LAN.
- Setup multiple pinhole paths.
  Up to 32 paths are supported
- Identify the type(s) of traffic you want to redirect by port number.

Common TCP/IP protocols and ports are:

FTP (TCP 21)
SMTP (TCP 25)
SNMP (TCP 161, UDP 161)
telnet (TCP 23)
HTTP (TCP 80)

See page 90 for How To instructions.

Default Server

This feature allows you to:

- Direct your Gateway to forward all externally initiated IP traffic (TCP and UDP protocols only) to a default host on the LAN.
- Enable it for certain situations:

  Where you cannot anticipate what port number or packet protocol an in-bound application might use.
  For example, some network games select arbitrary port numbers when a connection is opened.

When you want all unsolicited traffic to go to a specific LAN host.

Combination NAT Bypass Configuration

Specific pinholes and Default Server settings, each directed to different LAN devices, can be used together.

WARNING:

Creating a pinhole or enabling a Default Server allows inbound access to the specified LAN station. Contact your Network Administrator for LAN security questions.

IP-Passthrough

Netopia OS now offers an IP passthrough feature. The IP passthrough feature allows a single PC on the LAN to have the Gateway's public address assigned to it. It also provides PAT (NAPT) via the same public IP address for all other hosts on the private LAN subnet.

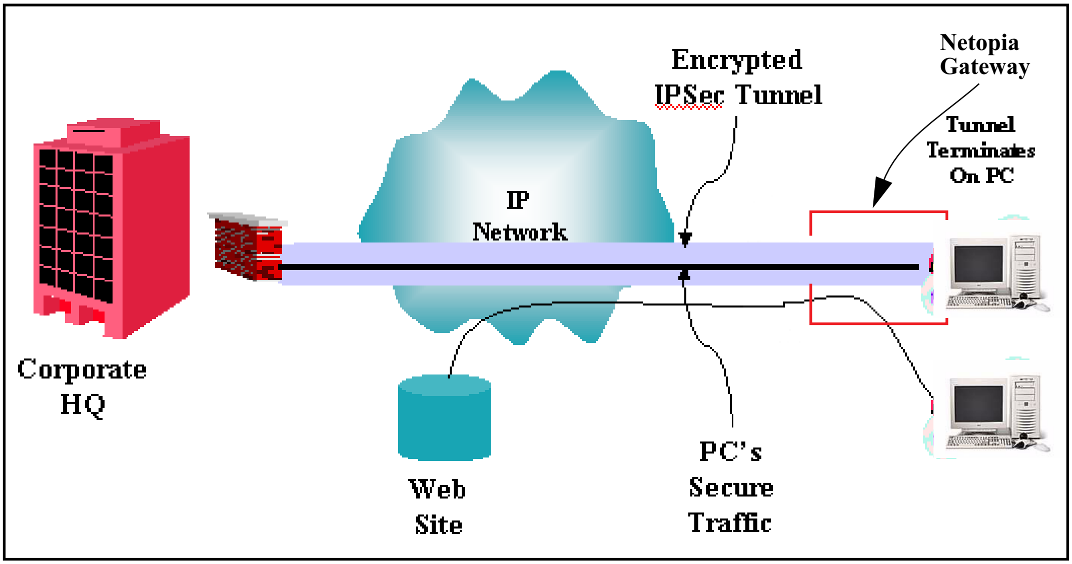
VPN IPSec Pass Through

This Netopia service supports your independent VPN client software in a transparent manner. Netopia has implemented an Application Layer Gateway (ALG) to support multiple PCs running IP Security protocols.

This feature has three elements:

1. **On power up or reset, the address mapping function (NAT) of the Gateway's WAN configuration is turned on by default.**
2. **When you use your third-party VPN application, the Gateway recognizes the traffic from your client and your unit. It allows the packets to pass through the NAT "protection layer" via the encrypted IPSec tunnel.**
3. **The encrypted IPSec tunnel is established "through" the Gateway.**

A typical VPN IPSec Tunnel pass through is diagrammed below:



NOTE:

Typically, no special configuration is necessary to use the IPSec pass through feature.
In the diagram, VPN PC clients are shown behind the Netopia Gateway and the secure server is at Corporate Headquarters across the WAN. You cannot have your secure server behind the Netopia Gateway.
When multiple PCs are starting IPSec sessions, they must be started one at a time to allow the associations to be created and mapped.

VPN IPSec Tunnel Termination

This Netopia service supports termination of VPN IPsec tunnels at the Gateway. This permits tunnelling from the Gateway without the use of third-party VPN client software on your client PCs.

Stateful Inspection Firewall

Stateful inspection is a security feature that prevents unsolicited inbound access when NAT is disabled. You can configure UDP and TCP “no-activity” periods that will also apply to NAT time-outs if stateful inspection is enabled on the interface.

Technical details are discussed in “Expert Mode” on page 41.

SSL Certificate Support

On selected models, you can also install a Secure Sockets Layer (SSL V3.0) certificate from a trusted Certification Authority (CA) for authentication purposes. If this feature is available on your Gateway, an additional link will appear in the Install page.

Netopia Firmware Version 7.7 uses SSL certificates for TR-069 support.

See “Install Certificate” on page 213.

VLANs

Netopia's VGx technology allows a single Netopia VGx-enabled broadband gateway to act as separate virtual gateways, treating each individual service as a single service "channel." The VGx-enabled gateway applies specific policies, routing, and prioritization parameters to each service channel, ensuring delivery of that service to the appropriate peripheral device with the requisite level of QoS and correct feature sets — making it ideal for delivery of triple play voice, video, and data services.

VGx was developed to ensure that subscribers receive the quality of voice, video, and data services they expect — to prevent a large data download from causing jittery video or poor voice quality. VGx achieves this goal by providing superior service segmentation and QoS features obtained by mapping multiple local virtual local area networks (**VLANs**) to one or more specific permanent virtual circuits (PVCs) for DSL, or wide area network VLANs for a fiber network.

Traffic prioritization is determined through the Institute of Electrical Engineering (IEEE) standard **802.1p**, which specifies **QoS** algorithms to prioritize traffic based on protocol and source. This insures that each service receives the QoS treatment it requires; for example,

- video is free from latency,
- VoIP service is prioritized to insure aural quality, and
- data is securely and efficiently routed.

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Netopia 2200 and 3300 series by Netopia

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