



Your PDF Guides

You can read the recommendations in the user guide, the technical guide or the installation guide for NETGEAR FWG114P. You'll find the answers to all your questions on the NETGEAR FWG114P in the user manual (information, specifications, safety advice, size, accessories, etc.). Detailed instructions for use are in the User's Guide.

User manual NETGEAR FWG114P
User guide NETGEAR FWG114P
Operating instructions NETGEAR FWG114P
Instructions for use NETGEAR FWG114P
Instruction manual NETGEAR FWG114P

Reference Manual for the ProSafe Wireless 802.11g Firewall/Print Server Model FWG114P v2



NETGEAR

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201-10301-02
May 2005

201-10301-02, May 2005



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Manual abstract:

Statement of Conditions In the interest of improving internal design, operational function, and/or reliability, NETGEAR reserves the right to make changes to the products described in this document without notice. NETGEAR does not assume any liability that may occur due to the use or application of the product(s) or circuit layout(s) described herein. Federal Communications Commission (FCC) Compliance Notice: Radio Frequency Notice This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: Reorient or relocate the receiving antenna. Increase the separation between the equipment and receiver. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected. Consult the dealer or an experienced radio/TV technician for help.

FCC Caution 1. FCC RF Radiation Exposure Statement: The equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user authority to operate the equipment.

2. 3. EN 55 022 Declaration of Conformance This is to certify that the ProSafe Wireless 802.11g Firewall/Print Server Model FWG114P v2 is shielded against the generation of radio interference in accordance with the application of Council Directive 89/336/EEC, Article 4a. Conformity is declared by the application of EN 55 022 Class B (CISPR 22).

ii 201-10301-02, May 2005 Bestätigung des Herstellers/Importeurs Es wird hiermit bestätigt, daß das ProSafe Wireless 802.11g Firewall/Print Server Model FWG114P v2 gemäß der im BMPT-AmtsblVfg 243/1991 und Vfg 46/1992 aufgeführten Bestimmungen entstört ist. Das vorschriftsmäßige Betreiben einiger Geräte (z.B. Testsender) kann jedoch gewissen Beschränkungen unterliegen. Lesen Sie dazu bitte die Anmerkungen in der Betriebsanleitung. Das Bundesamt für Zulassungen in der Telekommunikation wurde davon unterrichtet, daß dieses Gerät auf den Markt gebracht wurde und es ist berechtigt, die Serie auf die Erfüllung der Vorschriften hin zu überprüfen. Certificate of the Manufacturer/Importer It is hereby certified that the ProSafe Wireless 802.11g Firewall/Print Server Model FWG114P v2 has been suppressed in accordance with the conditions set out in the BMPT-AmtsblVfg 243/1991 and Vfg 46/1992. The operation of some equipment (for example, test transmitters) in accordance with the regulations may, however, be subject to certain restrictions.

Please refer to the notes in the operating instructions. Federal Office for Telecommunications Approvals has been notified of the placing of this equipment on the market and has been granted the right to test the series for compliance with the regulations. Voluntary Control Council for Interference (VCCI) Statement This equipment is in the second category (information equipment to be used in a residential area or an adjacent area thereto) and conforms to the standards set by the Voluntary Control Council for Interference by Data Processing Equipment and Electronic Office Machines aimed at preventing radio interference in such residential areas. When used near a radio or TV receiver, it may become the cause of radio interference. Read instructions for correct handling.

Product and Publication Details Model Number: Publication Date: Product Family: Product Name: Home or Business Product: Language: Publication Part Number: FWG114P v2 May 2005 wireless access point ProSafe Wireless 802.11g Firewall/Print Server Model FWG114P v2 Business English 201-10301-02 iii 201-10301-02, May 2005 iv 201-10301-02, May 2005 Contents Chapter 1 About This Manual Audience, Scope, Conventions, and Formats

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..... E-18 Appendix F Virtual Private Networking What is a VPN? .

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.....*F-1 What is IPSec and How Does It Work?* ..

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.....*F-2 IPSec Security Features* ..

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.....*F-2 Encapsulating Security Payload (ESP)*

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.....F-3 Authentication Header (AH) .

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....F-4 IKE Security Association

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....F-4 Mode

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...F-5 Key Management ..

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.....F-6 Understand the Process Before You Begin .

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.....*F-6 VPN Process Overview* ...

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F-7 Network Interfaces and Addresses

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.....*F-7 Interface Addressing* .

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.....*F-7 Firewalls* .

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..F-8 Setting Up a VPN Tunnel Between Gateways ...

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....F-8 VPNC IKE Security Parameters .

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.....F-10 VPNC IKE Phase I Parameters ...

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.....F-10 VPNC IKE Phase II Parameters

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..F-11 Testing and Troubleshooting ...

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.F-11 Additional Reading

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....F-11 Appendix G NETGEAR VPN Configuration FVS318 or FVM318 to FWG114P v2 Configuration Template

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.. G-1 Step-By-Step Configuration of FVS318 or FVM318 Gateway A

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..... G-2 Step-By-Step Configuration of FWG114P Gateway B ..

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..... G-5 Test the VPN Connection .

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However, basic computer network, Internet, firewall, and VPN technologies tutorial information is provided in the Appendices and on the Netgear website. This guide uses the following typographical conventions: Table 1-1. italics bold fixed Typographical Conventions Emphasis, books, CDs, URL names User input Screen text, file and server names, extensions, commands, IP addresses This guide uses the following formats to highlight special messages: Note: This format is used to highlight information of importance or special interest. This manual is written for the FWG114P v2 Wireless Firewall/Print Server according to these specifications: Table 1-2. Product Version Manual Publication Date Manual Scope ProSafe Wireless 802.11g Firewall/Print Server Model FWG114P v2 May 2005 Note: Product updates are available on the NETGEAR, Inc. Web site at http://kbserver.netgear.com/products/FWG114P_v2.asp. About This Manual 201-10301-02, May 2005 1-1 Reference Manual for the ProSafe Wireless 802.11g Firewall/Print Server Model FWG114P v2 How to Use This Manual The HTML version of this manual includes the following: · · Buttons, at a time and , for browsing forwards or backwards through the manual one page A button that displays the table of contents and an button. Double-click on a link in the table of contents or index to navigate directly to where the topic is described in the manual. A product model. button to access the full NETGEAR, Inc. online knowledge base for the · · Links to PDF versions of the full manual and individual chapters. 1-2 201-10301-02, May 2005 About This Manual Reference Manual for the ProSafe Wireless 802.

11g Firewall/Print Server Model FWG114P v2 How to Print this Manual To print this manual you can choose one of the following several options, according to your needs. · Printing a Page in the HTML View. Each page in the HTML version of the manual is dedicated to a major topic. Use the Print button on the browser toolbar to print the page contents. · Printing a Chapter. Use the PDF of This Chapter link at the top left of any page. Click the PDF of This Chapter link at the top right of any page in the chapter you want to print. The PDF version of the chapter you were viewing opens in a browser window. Note: Your computer must have the free Adobe Acrobat reader installed in order to view and print PDF files. The Acrobat reader is available on the Adobe Web site at <http://www.adobe.com>. Click the print icon in the upper left of the window. Tip: If your printer supports printing two pages on a single sheet of paper, you can save paper and printer ink by selecting this feature. · Printing the Full Manual. Use the Complete PDF Manual link at the top left of any page. Click the Complete PDF Manual link at the top left of any page in the manual. The PDF version of the complete manual opens in a browser window. Click the print icon in the upper left of the window. Tip: If your printer supports printing two pages on a single sheet of paper, you can save paper and printer ink by selecting this feature.

About This Manual 201-10301-02, May 2005 1-3 Reference Manual for the ProSafe Wireless 802.11g Firewall/Print Server Model FWG114P v2 1-4 201-10301-02, May 2005 About This Manual Chapter 2 Introduction This chapter describes the features of the NETGEAR ProSafe Wireless 802.11g Firewall/Print Server Model FWG114P v2. Key Features of the FWG114P v2 The ProSafe Wireless 802.11g Firewall/Print Server Model FWG114P v2, with a 4-port switch, connects your LAN to the Internet through a broadband modem. With auto fail-over connectivity through the serial port, the FWG114P v2 provides highly reliable Internet access. The FWG114P v2 is a complete security solution that protects your network from attacks and intrusions and enables secure communications using Virtual Private Networks (VPNs). Unlike simple Internet sharing routers that rely on Network Address Translation (NAT) for security, the FWG114P v2 uses Stateful Packet Inspection for Denial of Service attack (DoS) attack protection and intrusion detection. The FWG114P v2 allows Internet access for up to 253 users. It provides multiple Web content filtering options, plus browsing activity reporting and instant alerts via e-mail. Parents or network administrators can establish restricted access policies based on time-of-day, Web site addresses and address keywords, and share high-speed cable/DSL Internet access for up to 253 personal computers. With minimum setup, you can install and use the router within minutes. The FWG114P v2 Wireless Firewall/Print Server provides the following features: · · · · · 802.11g and 802.11b standards-based wireless networking.

Easy, Web-based setup for installation and management. Supports two VPN tunnels, Content Filtering, and Site Blocking Security. Wireless Multimedia (WMM) support. Built-in 4-port 10/100 Mbps Switch and USB 2.0 Printer Port. Ethernet and Serial ports for connection to a WAN device, such as a broadband modem. Extensive Protocol Support. Login capability. Front panel LEDs for easy monitoring of status and activity. 2-1 201-10301-02, May 2005 Introduction Reference Manual for the ProSafe Wireless 802.11g Firewall/Print Server Model FWG114P v2 · · Flash memory for firmware upgrade. NAT off (classical routing). Full Routing on Both the Broadband and Serial Ports You can install, configure, and operate the FWG114P v2 to take full advantage of a variety of routing options on both the serial and broadband WAN ports, including: · · Internet access via either the serial or broadband port. Auto fail-over connectivity through an analog or ISDN modem connected to the serial port. If the broadband Internet connection fails, after waiting for an amount of time you specify, the FWG114P v2 can automatically establish a backup ISDN or dial-up Internet connection via the serial port on the firewall.

Remote Access Server (RAS) that allows you to log in remotely through the serial port to access a server on your LAN, other LAN resources, or the Internet, based on a user name and password you define. LAN-to-LAN access between two FWG114P v2 wireless firewall/print servers through the serial port, with the option of enabling auto-failover Internet access across the serial LAN-to-LAN connection. · · 802.11g and 802.11b Wireless Networking The FWG114P v2 Wireless Firewall/Print Server includes an 802.11g-compliant wireless access point. The access point provides: · · · · · 802.11b standards-based wireless networking at up to 11 Mbps. 802.11g wireless networking at up to 54 Mbps, which conforms to the 802.11g standard. WPA and WPA2 enterprise class strong security with RADIUS and certificate authentication as well as dynamic encryption key generation.

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WPA-PSK and WPA2-PSK pre-shared key authentication without the overhead of RADIUS servers but with all of the strong security of WPA and WPA2. 64-bit and 128-bit WEP encryption security. WEP keys can be generated manually or by passphrase.

Wireless access can be restricted by MAC Address. 2-2 201-10301-02, May 2005 Introduction Reference Manual for the ProSafe Wireless 802.11g Firewall/Print Server Model FWG114P v2 · Wireless network name broadcast can be turned off so that only devices that have the network name (SSID) can connect. Virtual Private Networking The FWG114P v2 Wireless Firewall/Print Server provides a secure encrypted connection between your local network and remote networks or clients. Its VPN features include: · Support for up to 2 simultaneous VPN connections.

Support for industry standard VPN protocols. The ProSafe Wireless 802.11g Firewall/Print Server Model FWG114P v2 supports standard keying methods (Manual or IKE), standard authentication methods (MD5 and SHA-1), and standard encryption methods (DES, 3DES). It is compatible with many other VPN products. · Support for up to 168 bit encryption (3DES) for maximum security. Support for VPN Main Mode, Aggressive mode, or Manual Keying. Support for Fully Qualified Domain Name (FQDN) configuration when the Dynamic DNS feature is enabled with one of the supported service providers. Wireless Multimedia (WMM) Support WMM is a subset of the 802.11e standard. WMM allows wireless traffic to have a range of priorities, depending on the kind of data.

Time-dependent information such as video or audio will have a higher priority than normal traffic. For WMM to function correctly, wireless clients must also support WMM. A Powerful, True Firewall with Content Filtering Unlike simple Internet sharing NAT routers, the FWG114P v2 is a true firewall, using stateful packet inspection to defend against hacker attacks. Its firewall features include: · DoS protection. Automatically detects and thwarts DoS attacks, such as Ping of Death, SYN Flood, LAND Attack, and IP Spoofing. · Blocks unwanted traffic from the Internet to your LAN. Blocks access from your LAN to Internet locations or services that you specify as off-limits. Introduction 201-10301-02, May 2005 2-3 Reference Manual for the ProSafe Wireless 802.11g Firewall/Print Server Model FWG114P v2 · Logs security incidents. The FWG114P v2 will log security events, such as blocked incoming traffic, port scans, attacks, and administrator logins.

You can configure the router to e-mail the log to you at specified intervals. You can also configure the router to send immediate alert messages to your e-mail address or e-mail pager whenever a significant event occurs. · With its content filtering feature, the FWG114P v2 prevents objectionable content from reaching your PCs. The router allows you to control access to Internet content by screening for keywords within Web addresses. You can configure the router to log and report attempts to access objectionable Internet sites.

Security The FWG114P v2 Wireless Firewall/Print Server is equipped with several features designed to maintain security, as described in this section: · PCs hidden by NAT. NAT opens a temporary path to the Internet for requests originating from the local network. Requests originating from outside the LAN are discarded, preventing users outside the LAN from finding and directly accessing the PCs on the LAN. · Port forwarding with NAT. Although NAT prevents Internet locations from directly accessing the PCs on the LAN, the router allows you to direct incoming traffic to specific PCs based on the service port number of the incoming request, or to one designated "DNS" host computer.

You can specify forwarding of single ports or ranges of ports. Autosensing Ethernet Connections with Auto Uplink With its internal 8-port 10/100 switch, the FWG114P v2 can connect to either a 10 Mbps standard Ethernet network or a 100 Mbps Fast Ethernet network. Both the LAN and WAN interfaces are autosensing and capable of full-duplex or half-duplex operation. The router incorporates Auto Uplink™ technology. Each Ethernet port will automatically sense whether the Ethernet cable plugged into the port should have a 'normal' connection, such as to a computer, or an 'uplink' connection, such as to a switch or hub. That port will then configure itself to the correct configuration. This feature also eliminates the need to worry about crossover cables, as Auto Uplink will accommodate either type of cable to make the right connection. 2-4 201-10301-02, May 2005 Introduction Reference Manual for the ProSafe Wireless 802.11g Firewall/Print Server Model FWG114P v2 Extensive Protocol Support The FWG114P v2 Wireless Firewall/Print Server supports the Transmission Control Protocol/ Internet Protocol (TCP/IP) and Routing Information Protocol (RIP). · The ability to enable or disable IP address sharing by NAT.

The FWG114P v2 allows several networked PCs to share an Internet account using only a single IP address, which may be statically or dynamically assigned by your Internet service provider (ISP). This technique, known as NAT, allows the use of an inexpensive single-user ISP account. This feature can also be turned off completely for using the FWG114P v2 in settings where you want to manage the IP address scheme of your organization. · Automatic configuration of attached PCs by DHCP. The FWG114P v2 Wireless Firewall/Print Server dynamically assigns network configuration information, including IP, gateway, and domain name server (DNS) addresses, to attached PCs on the LAN using the Dynamic Host Configuration Protocol (DHCP). This feature greatly simplifies configuration of PCs on your local network. · DNS Proxy. When DHCP is enabled and no DNS addresses are specified, the router provides its own address as a DNS server to the attached PCs. The router obtains actual DNS addresses from the ISP during connection setup and forwards DNS requests from the LAN. · PPP over Ethernet (PPPoE).

PPPoE is a protocol for connecting remote hosts to the Internet over a DSL connection by simulating a dial-up connection. This feature eliminates the need to run a login program, such as Entersys or WinPOET on your computer. · PPTP login support for European ISPs, BigPond login for Telstra cable in Australia. Classical IP (RFC 1577). Some Internet service providers, in Europe for example, use Classical IP in their ADSL services.

In such cases, the firewall is able to use the Classical IP address from the ISP. Introduction 201-10301-02, May 2005 2-5 Reference Manual for the ProSafe Wireless 802.11g Firewall/Print Server Model FWG114P v2 Easy Installation and Management You can install, configure, and operate the ProSafe Wireless 802.11g Firewall/Print Server Model FWG114P v2 within minutes after connecting it to the network.



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The following features simplify installation and management tasks: · Automatic fail-over connectivity through an analog or ISDN modem connected to the serial port.

If the broadband modem Internet connection fails, after waiting for an amount of time you specify, the FWG114P v2 can automatically establish a backup ISDN or dial-up Internet connection via the serial port on the firewall. Browser-based management. Browser-based configuration allows you to easily configure your router from almost any type of personal computer, such as Windows, Macintosh, or Linux. A user-friendly Setup Wizard is provided and online help documentation is built into the browser-based Web Management Interface. Smart Wizard. The FWG114P v2 Wireless Firewall/Print Server automatically senses the type of Internet connection, asking you only for the information required for your type of ISP account. Diagnostic functions. The firewall incorporates built-in diagnostic functions, such as Ping, DNS lookup, and remote reboot. Remote management. The firewall allows you to log in to the Web Management Interface from a remote location on the Internet.

For security, you can limit remote management access to a specified remote IP address or range of addresses, and you can choose a nonstandard port number. Visual monitoring. The FWG114P v2 Wireless Firewall/Print Server's front panel LEDs provide an easy way to monitor its status and activity. Regional support, including ISPs like Telstra DSL and BigPond, or Deutsche Telekom. Flash memory for firmware upgrades. NETGEAR Related Products The following NETGEAR products are related to the ProSafe Wireless 802.11g Firewall/Print Server Model FWG114P v2: · · · · · 2-6 201-10301-02, May 2005 ProSafe™ Dual Band Wireless PC Card Model WAG511 ProSafe™ Dual Band Wireless PCI Adapter Model WAG311 Introduction Reference Manual for the ProSafe Wireless 802.11g Firewall/Print Server Model FWG114P v2 · · · · · 54 Mbps Wireless PC Card Model WG511 54 Mbps Wireless PCI Card Model WG311 54 Mbps Wireless USB 2.0 Adapter Model WG121 ProSafe™ Indoor 5 dBi Omni-directional Antenna Model ANT2405 ProSafe™ Indoor/Outdoor 18 dBi Patch Panel Directional Antenna Model ANT24D18 ProSafe™ Indoor/Outdoor 9 dBi Omni-directional Antenna Model ANT2409 Low-loss Antenna Cables Package Contents The product package should contain the following items: · · · · · ProSafe Wireless 802.11g Firewall/Print Server Model FWG114P v2.

AC power adapter. Category 5 (Cat 5) Ethernet cable. FWG114P Installation Guide (201-10301-01). Resource CD for the ProSafe Wireless 802.11g Firewall/Print Server Model FWG114P (SW-10023-03), including: -- This manual.

-- Application Notes and other helpful information. Registration and Warranty Card. · If any of the parts are incorrect, missing, or damaged, contact your NETGEAR dealer. Keep the carton, including the original packing materials, in case you need to return the router for repair. The FWG114P v2 Front Panel The front panel of the FWG114P v2 contains the status LEDs.

Use the LEDs to verify various operations. Viewed from left to right, Table 2-1 describes the LEDs on the front of the router. Broadband ProSafe 802.11g Wireless Firewall/Print Server ACT ACT LINK M O DEM 100 1 LNK/ACT IN TER N ET LO CA L 2 3 4 LNK/ACT 100 ALERT MODEL FWG114P PWR TEST P R IN TER W LA N Figure 2-1: FWG114P v2 Front Panel Introduction 201-10301-02, May 2005 2-7 Reference Manual for the ProSafe Wireless 802.11g Firewall/Print Server Model FWG114P v2 Table 2-1. Label POWER TEST PRINTER ACT ALERT LED Descriptions Activity On On Off Description Power is supplied to the firewall. The system is initializing. The system is ready and running. On Blinking On (Amber) The printer is connected and powered on. Data is being transmitted or received by the Printer port.

The printer has a problem, such as out of paper, out of ink, or a paper jam. MODEM ACT LINK INTERNET 100 (100 Mbps) LINK/ACT (Link/Activity) LOCAL 100 (100 Mbps) LINK/ACT (Link/Activity) WLAN On Off On Blinking On Blinking The Local port is operating at 100 Mbps. The Local port is operating at 10 Mbps. The Local port has detected a link with an attached device. The Local port is transmitting or receiving data. The Wireless (WLAN) port is operating. The Wireless (WLAN) port is transmitting or receiving data. Blinking On (Amber) Data is being transmitted or received by the Modem port. The port has detected a link with an attached device. Note: The operation of these LEDs depends on how the WAN port is configured.

On Off On Blinking The Internet (WAN) port is operating at 100 Mbps. The Internet (WAN) port is operating at 10 Mbps. The Internet port has detected a link with an attached device. Data is being transmitted or received by the Internet port. The FWG114P v2 Rear Panel The rear panel of the FWG114P v2 Wireless Firewall/Print Server contains the port connections listed below.

2-8 201-10301-02, May 2005 Introduction Reference Manual for the ProSafe Wireless 802.11g Firewall/Print Server Model FWG114P v2 USB MODEM LO CA L 4 3 10/100M 2 1 IN TER N ET 12VDC, 1.0A Figure 1-2: FWG114P v2 Rear Panel Viewed from left to right, the rear panel contains the following features: · · · · · Wireless antenna. DB-9 serial port for modem connection. USB 2.

0 Printer Port. Factory Default Reset push button. Four Ethernet LAN ports. Internet Ethernet WAN port for connecting the router to a broadband modem.

AC power adapter outlet. Introduction 201-10301-02, May 2005 2-9 Reference Manual for the ProSafe Wireless 802.11g Firewall/Print Server Model FWG114P v2 2-10 201-10301-02, May 2005 Introduction Chapter 3 Connecting the FWG114P v2 to the Internet This chapter describes how to set up the router on your local area network (LAN) and connect to the Internet. You will find out how to configure your ProSafe Wireless 802.11g Firewall/Print Server Model FWG114P v2 for Internet access using the Setup Wizard, or how to manually configure your Internet connection. What You Will Need Before You Begin You need to prepare these three things before you begin: 1.

2. 3. An active Internet service, such as those provided by a cable or DSL broadband account. Locate the Internet Service Provider (ISP) configuration information for your broadband account. Connect the router to a broadband modem and a computer as explained below. Cabling and Computer Hardware Requirements To use the FWG114P v2 Wireless Firewall/Print Server on your network, each computer must have an installed Ethernet Network Interface Card (NIC) and an Ethernet cable. If the computer will connect to your network at 100 Mbps, you must use a Category 5 (CAT5) cable, such as the one provided with your router.



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Computer Network Configuration Requirements The FWG114P v2 includes a built-in Web Configuration Manager. To access the configuration menus on the FWG114P v2, you must use a Java-enabled Web browser program that supports HTTP uploads, such as Microsoft Internet Explorer or Netscape Navigator. Use Internet Explorer or Netscape Navigator versions 4.

0 or above. Free browser programs are readily available for Windows, Macintosh, or UNIX/Linux. Connecting the FWG114P v2 to the Internet 201-10301-02, May 2005 3-1 Reference Manual for the ProSafe Wireless 802.11g Firewall/Print Server Model FWG114P v2 For the initial connection to the Internet and configuration of your router, you will need to connect a computer to the router that is set to automatically get its TCP/IP configuration from the router via DHCP. The cable or DSL modem broadband access device must provide a standard 10 Mbps (10BASE-T) Ethernet interface.

Internet Configuration Requirements Depending on how your ISP set up your Internet account, you might need one or more of these configuration parameters to connect your router to the Internet: . . . Host and Domain Names. ISP login name and password. ISP Domain Name Server (DNS) Addresses. Fixed IP address which is also known as static IP address. Where Do I Get the Internet Configuration Parameters? There are several ways you can gather the required Internet connection information: . . . Your ISP provides all the information needed to connect to the Internet.

If you cannot locate this information, you can ask your ISP to provide it or you can try one of the options below. If you have a computer already connected using the active Internet access account, you can gather the configuration information from that computer. -- For Windows 95/98/ME, open the Network control panel, select the TCP/IP entry for the Ethernet adapter, and click Properties. Record all the settings for each tab page. -- For Windows 2000/XP, open the Local Area Network Connection, select the TCP/IP entry for the Ethernet adapter, and click Properties. Record all the settings for each tab page. -- For Macintosh computers, open the TCP/IP or Network control panel. Record all the settings for each section. . You may also refer to the FWG114P v2 Resource

CD for the NETGEAR Router ISP Guide which provides Internet connection information for many ISPs. Once you locate your Internet configuration parameters, you may want to record them on the following form: 3-2 Connecting the FWG114P v2 to the Internet 201-10301-02, May 2005 Reference Manual for the ProSafe Wireless 802.

11g Firewall/Print Server Model FWG114P v2 Record Your Internet Connection Information Print this page. Fill in the configuration parameters from your Internet Service Provider (ISP). ISP Login Name: The login name and password are case sensitive and must be entered exactly as given by your ISP. For AOL customers, the login name is their primary screen name. Some ISPs use your full e-mail address as the login name. The Service Name is not required by all ISPs. If you connect using a login name and password, then fill in the following: Login Name: _____ Password:

_____ Service Name: _____ Fixed or Static IP Address: If you have a static IP address, record the

following information. For example, 169.254.141.

148 could be a valid IP address. Fixed or Static Internet IP Address: _____ Gateway IP Address: _____

_____ Subnet Mask: _____

_____ ISP DNS Server Addresses: If you were given DNS server addresses, fill in the following: Primary DNS Server IP Address:

_____ Secondary DNS Server IP Address: _____ Host and Domain Names: Some ISPs use a specific host

or domain name like CCA7324-A or home. If you have not been given host or domain names, you can use the following examples as a guide: . . . If your main e-mail account with your ISP is aaa@yyy.com, then use aaa as your host name. Your ISP might call this your account, user, host, computer, or system name.

If your ISP's mail server is mail.xxx.yyy.com, then use xxx.yyy.com as the domain name. ISP Host Name: _____ ISP Domain Name:

_____ Serial Port Internet Access: If you use a dial-up account, record the following: Account/User Name:

_____ Password: _____ Telephone number: _____ Alternative number:

_____ Connecting the FWG114P v2 to the Internet 201-10301-02, May 2005 3-3 Reference Manual for the ProSafe Wireless 802.11g Firewall/Print Server Model FWG114P v2 Connecting the FWG114P v2 Wireless Firewall/Print Server This section provides instructions for connecting the FWG114P v2 Wireless Firewall/Print Server. Also, the Resource CD for the ProSafe Wireless 802.11g Firewall/Print Server Model FWG114P (SW-10023-03), included with your router, contains an animated Installation Assistant to help you through this procedure.

Verify That Basic Requirements Are Met Assure that the following requirements are met: . . . You have your broadband Internet service settings handy. The computer is configured to obtain an IP address automatically via DHCP. For instructions on how to do this, please see the Reference Manual on the Resource CD for the ProSafe Wireless 802.11g Firewall/Print Server Model FWG114P (SW-10023-03). 1.

CONNECT THE WIRELESS FIREWALL/PRINT SERVER Turn off your computer and cable or DSL modem. b. Disconnect the Ethernet cable (A) from your computer which connects to the broadband modem. a. Disconnect from computer A Figure 3-1: Disconnect the broadband modem 3-4 Connecting the FWG114P v2 to the Internet 201-10301-02, May 2005 Reference Manual for the ProSafe Wireless 802.

11g Firewall/Print Server Model FWG114P v2 c. Securely insert the Ethernet cable from your broadband modem into the Internet port (B) on the FWG114P v2. Internet Port USB MODEM 4 B LO CA L 3 10/100M 2 1 IN TER N ET 12VDC, 1.0A Broadband modem Figure 3-2: Connect the broadband modem to the router d. Securely insert one end of the Ethernet cable that came with your wireless firewall/print server into a Local port on the router, such as Local port 4 (C), and the other end into the Ethernet port of your computer (D). D C USB MODEM LO CA L 4 3 10/100M 2 1 IN TER N ET 12VDC, 1.0A Local Port 4 Broadband modem Figure 3-3: Connect the computers on your network to the router Note: The FWG114P v2 incorporates Auto Uplink™ technology which eliminates the need to worry about crossover cables by automatically adjusting to the cable type. Connecting the FWG114P v2 to the Internet 201-10301-02, May 2005 3-5 Reference Manual for the ProSafe Wireless 802.11g Firewall/Print Server Model FWG114P v2 2.



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RESTART YOUR NETWORK IN THE CORRECT SEQUENCE Warning: Failure to restart your network in the correct sequence could prevent you from connecting to the Internet.

First, turn on the broadband modem and wait 2 minutes. b. Now, turn on your wireless firewall/print server. c. Last, turn on your computer. Note: If software usually logs you in to the Internet, do not run that software, or cancel it if it starts automatically. a. Broadband ProSafe 802.11g Wireless Firewall/Print Server ACT ACT LINK M O DEM 100 1 LNK/ACT IN TER N ET LO CA L 2 3 4 LNK/ACT 100 ALERT MODEL FWG114P PWR TEST P R IN TER W LA N Power Test Internet Port Local Port 4 Figure 3-4: Verify the connections to the firewall d. Check the status lights and verify the following: . . . Power: The power light goes on when you turn the wireless firewall/print server on.

Test: The test light turns on, then goes off after less than a minute. Local: A Local light on the router is lit. If no Local lights are lit, check that the Ethernet cable connecting the powered on computer to the router is securely attached at both ends. Internet: The Internet light on the wireless firewall/print server is lit. If the Internet light is not lit, make sure the Ethernet cable is securely attached to the wireless firewall/print server Internet port and the powered on modem.

Connecting the FWG114P v2 to the Internet 201-10301-02, May 2005 · 3-6 Reference Manual for the ProSafe Wireless 802.11g Firewall/Print Server Model FWG114P v2 3. LOG IN TO THE WIRELESS FIREWALL/PRINT SERVER a. b. From your PC, launch your Internet browser.

Because you are not yet connected to the Internet, your browser will display a page not found message. Connect to the wireless firewall/print server by typing <http://192.168.0.1> in the address field of Internet Explorer or Netscape® Navigator. Figure 3-5: Log in to the firewall c. Enter admin for the router user name and password for the router password, both in lower case letters. A login window opens as shown here: Figure 3-6: Login window Connecting the FWG114P v2 to the Internet 201-10301-02, May 2005 3-7 Reference Manual for the ProSafe Wireless 802.11g Firewall/Print Server Model FWG114P v2 d. After logging in to the router, you will see the login result page.

Figure 3-7: Login Result page 3-8 Connecting the FWG114P v2 to the Internet 201-10301-02, May 2005 Reference Manual for the ProSafe Wireless 802.11g Firewall/Print Server Model FWG114P v2 4. RUN THE SETUP WIZARD TO CONNECT TO THE INTERNET Figure 3-8: Setup Wizard a. b. You are now connected to the router. If you do not see the menu above, click the Setup Wizard link on the upper left of the main menu. Choose NAT or Classical Routing.

Typically, NAT is used. NAT automatically assigns private IP addresses (192.168.

0.x) to LAN connected devices. Classical routing lets you directly manage the IP addresses the FWG114P v2 uses. Note: If you choose not to use NAT, each computer on the LAN connected to the FWG114P v2 must have a valid public IP address in the same subnet as the Wan port of the FWG114P v2. For more information on NAT, please see "Single IP Address Operation Using NAT" on page B-7.

Furthermore, if you turn NAT off and plan to use VPN, you will have to open UDP port 500 in the Security settings according to the instructions at Click Next to proceed. Input your ISP settings, as needed. d. At the end of the Setup Wizard, click the Test button to verify your Internet connection and register your product. If you have trouble connecting to the Internet, use the Troubleshooting Tips below to correct basic problems, or refer to the Reference Manual on the CD.

c. If you were unable to connect to the firewall, please refer to Basic Functioning "Basic Functioning" on page 11-1. You are now connected to the Internet! Note: For wireless placement and range guidelines, and wireless configuration instructions, please see Chapter 4, "Wireless Configuration." Connecting the FWG114P v2 to the Internet 201-10301-02, May 2005 3-9 Reference Manual for the ProSafe Wireless 802.11g Firewall/Print Server Model FWG114P v2 Basic Setup Troubleshooting Tips Here are some tips for correcting simple problems that prevent with you from connecting to the Internet or connecting to the wireless firewall/print server. Be sure to restart your network in the correct sequence. Follow this sequence. Turn off the modem, wireless firewall/print server, and computer. Turn on the modem first and wait two minutes. Next, turn on the wireless firewall/print server, and finally the computer.

Make sure the Ethernet cables are securely plugged in. · For each powered on computer connected to the wireless firewall/print server with a securely plugged in Ethernet cable, the corresponding wireless firewall/print server Local port status light will be lit. The label on the bottom of the wireless firewall/print server identifies the number of each Local port. · The Internet port status light on the wireless firewall/print server will be lit if the Ethernet cable from the wireless firewall/print server to the modem is plugged in securely and the modem and wireless firewall/print server are turned on. Make sure the network settings of the computer are correct. LAN connected computers must be configured to obtain an IP address automatically via DHCP, unless you have turned NAT off and are managing the IP addresses directly. For instructions on these configuration settings, please see the Reference Manual on the Resource CD for the ProSafe Wireless 802.11g Firewall/Print Server Model FWG114P (SW-10023-03). FWG114P v2 Setup Wizard Auto Detection There are two ways you can configure your firewall to connect to the Internet: · · Let the FWG114P v2 auto-detect the type of Internet connection you have and configure it. Manually choose which type of Internet connection you have and configure it.

These options are described below. Unless your ISP uses DHCP, you will need the parameters from your ISP you entered in "Record Your Internet Connection Information" on page 3. The Setup Wizard will can check for the following connection types: · · 3-10 Dynamic IP assignment A login protocol, such as PPPoE Connecting the FWG114P v2 to the Internet 201-10301-02, May 2005 Reference Manual for the ProSafe Wireless 802.11g Firewall/Print Server Model FWG114P v2 · Fixed IP address assignment Next, the Setup Wizard will report which connection type it has discovered, and then display the appropriate configuration menu. If the Setup Wizard finds no connection, you will be prompted to check the physical connection between your firewall and the cable or DSL modem.

When the connection is properly made, the firewall's Internet LED should be on. The procedures for filling in the configuration menu for each type of connection follow below.



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Wizard-Detected Login Account Setup If the Setup Wizard determines that your Internet service account uses a login protocol, such as PPP over Ethernet (PPPoE), you will be directed to a menu like the PPPoE menu in Figure 3-9: Figure 3-9: Setup Wizard menu for PPPoE login accounts 1. Enter your Account Name (may also be called Host Name) and Domain Name. These parameters may be necessary to access your ISP's services, such as mail or news servers. If you leave the Domain Name field blank, the firewall will attempt to learn the domain automatically from the ISP. If this is not successful, you may need to enter it manually. Enter the PPPoE login user name and password provided by your ISP. These fields are case sensitive. If you wish to change the idle timeout, enter a new value in minutes. 2. Connecting the FWG114P v2 to the Internet 201-10301-02, May 2005 3-11 Reference Manual for the ProSafe Wireless 802.11g Firewall/Print Server Model FWG114P v2 Note: You will no longer need to launch the ISP's login program on your computer in order to access the Internet. When you start an Internet application, your firewall will automatically log you in. 3.

The Idle Timeout setting determines how long to wait after there is no activity before disconnecting from the Internet. This is useful in countries where Internet service charges are based on the amount of time connected to the Internet. Whenever a computer on the network requests access to the Internet the FWG114P v2 will automatically reconnect. Domain Name Server (DNS) Address: If you know that your ISP does not automatically transmit DNS addresses to the firewall during login, select "Use these DNS servers" and enter the IP address of your ISP's Primary DNS Server. If a Secondary DNS Server address is available, enter it also. Note: If you enter an address here, after you finish configuring the firewall, reboot your PCs so that the settings take effect. 4. 5. 6. Click Apply to save your settings.

Click Test to test your Internet connection. If the NETGEAR Web site does not appear within one minute, refer to Chapter 11, "Troubleshooting". 3-12 Connecting the FWG114P v2 to the Internet 201-10301-02, May 2005 Reference Manual for the ProSafe Wireless 802.11g Firewall/Print Server Model FWG114P v2 **Wizard-Detected Dynamic IP Account Setup** If the Setup Wizard determines that your Internet service account uses Dynamic IP assignment, you will be directed to the menu shown in Figure 3-10 below: Figure 3-10: Setup Wizard menu for Dynamic IP address 1. Enter your Account Name (may also be called Host Name) and Domain Name.

These parameters may be necessary to access your ISP's services, such as mail or news servers. If you leave the Domain Name field blank, the firewall will attempt to learn the domain automatically from the ISP. If this is not successful, you may need to enter it manually. If you know that your ISP does not automatically transmit DNS addresses to the firewall during login, select "Use these DNS servers" and enter the IP address of your ISP's Primary DNS Server. If a Secondary DNS Server address is available, enter it also.

Note: DNS servers are required to perform the function of translating an Internet name, such as www.netgear.com to a numeric IP address. For a fixed IP address configuration, you must obtain DNS server addresses from your ISP and enter them manually here. You should reboot your PCs after configuring the firewall for these settings to take effect. 2. 3. The Router's MAC Address is the Ethernet MAC address that will be used by the firewall on the Internet port. Connecting the FWG114P v2 to the Internet 201-10301-02, May 2005 3-13 Reference Manual for the ProSafe Wireless 802.11g Firewall/Print Server Model FWG114P v2 If your ISP allows access from only one specific computer's Ethernet MAC address, select "Use this MAC address.

" The firewall will then capture and use the MAC address of the computer that you are now using. You must be using the one computer that is allowed by the ISP. Otherwise, you can type in a MAC address. Note: Some ISPs will register the Ethernet MAC address of the network interface card in your computer when your account is first opened. They will then only accept traffic from the MAC address of that computer. This feature allows your firewall to masquerade as that computer by using its MAC address. 4. 5. Click Apply to save your settings. Click Test to test your Internet connection.

If the NETGEAR Web site does not appear within one minute, refer to Chapter 11, "Troubleshooting". **Wizard-Detected Fixed IP Account Setup** If the Setup Wizard determines that your Internet service account uses Fixed IP assignment, you will be directed to the menu shown in Figure 3-11 below: Figure 3-11: Setup Wizard menu for Fixed IP address 3-14 Connecting the FWG114P v2 to the Internet 201-10301-02, May 2005 Reference Manual for the ProSafe Wireless 802.11g Firewall/Print Server Model FWG114P v2 1. Enter your assigned IP Address, Subnet Mask, and the IP Address of your ISP's gateway router. This information should have been provided to you by your ISP.

You will need the configuration parameters from your ISP you recorded in "Record Your Internet Connection Information" on page 3. Enter the IP address of your ISP's Primary DNS Server. If a Secondary DNS Server address is available, enter it also. Note: DNS servers are required to perform the function of

translating an Internet name, such as www.netgear.com to a numeric IP address. For a fixed IP address configuration, you must obtain DNS server addresses from your ISP and enter them manually here. You should reboot your PCs after configuring the firewall for these settings to take effect. 2. 3. 4. Click Apply to save the settings. Click Test to test your Internet connection. If the NETGEAR Web site does not appear within one minute, refer to Chapter 11, "Troubleshooting. How to Configure the Serial Port as the Primary Internet Connection Use the procedure below to configure an Internet connection via the serial port of your firewall.

There are three steps to configuring the serial port of your firewall for an Internet connection: 1. 2. 3. Connect the firewall to your ISDN or dial-up analog modem. Configure the firewall. Connect to the Internet. Follow the steps below to configure a serial port Internet connection on your firewall. 1. Connect the Firewall to your ISDN or dial-up modem a. b.

Turn off your modem and connect the cable from the serial port of the FWG114P v2 to the modem. Turn on the modem and wait about 30 seconds for the lights to stop blinking. 2. Configure the Serial Port of the Firewall. a.

b. Use a browser to log in to the firewall at <http://192.168.0.1> with its default User Name of admin and default Password of password, or using whatever Password you have set up.

From the Setup Basic Settings menu, click Serial Port.



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3-15 Connecting the FWG114P v2 to the Internet 201-10301-02, May 2005 Reference Manual for the ProSafe Wireless 802.11g Firewall/Print Server Model FWG114P v2 Figure 3-12: Serial Internet Connection configuration menu c. Fill in the ISDN or analog ISP Internet configuration parameters as appropriate: · For a Dial-up Account, enter the Account information. Check "Connect as required" to enable the firewall to automatically dial the number. To enable Idle Time disconnect, check the box and enter a time in minutes. To configure the Internet IP settings, fill in the address parameters your ISP provided. · d. Configure the Modem parameters. 3-16 Connecting the FWG114P v2 to the Internet 201-10301-02, May 2005 Reference Manual for the ProSafe Wireless 802.

11g Firewall/Print Server Model FWG114P v2 Note: You can validate modem string settings by first connecting the modem directly to a computer, establishing a connection to your ISP, and then copying the modem string settings from the computer configuration and pasting them into the FWG114P v2 Modem Properties Initial String field. For more information on this procedure, please refer to the support area of the NETGEAR Web site. · Select the Serial Line Speed. This is the maximum speed the modem will attempt to use. For ISDN permanent connections, the speeds are typically 64000 or 128000 bps. For dial-up modems, 56000 bps would be a typical setting. Select the Modem Type: For ISDN, select "Permanent connection (leased line)." For dial-up, select your modem from the list. "Standard Modem" should work in most cases. If your modem is not on the list, select "User Defined" and enter the Modem Properties.

· Note: If you are using the "User Defined" Modem Type, you must first use the Serial Port menu Modem link to fill in the Modem Properties settings for your modem. e. 3. Click Apply to save your settings. Connect to the Internet to test your configuration.

a. b. If you have a broadband connection, disconnect it. From a workstation, open a browser and test your serial port Internet connection. Note: The response time of your serial port Internet connection will be slower than a broadband Internet connection.

Testing Your Internet Connection After completing the Internet connection configuration, you can test your Internet connection. Log in to the firewall, then, from the Setup Basic Settings link, click the Test button. If the NETGEAR Web site does not appear within one minute, refer to Chapter 11, "Troubleshooting."

Note: Popup blocking software may block the test page from opening. Alternately, you can just open a new browser window and browse the Internet. To access the Internet from any computer connected to your firewall, launch a browser, such as Microsoft Internet Explorer or Netscape Navigator. You should see the firewall's Internet LED blink, indicating communication to the ISP. The browser should begin to display a Web page. Connecting the FWG114P v2 to the Internet 201-10301-02, May 2005 3-17 Reference Manual for the ProSafe Wireless 802.11g Firewall/Print Server Model FWG114P v2 Manually Configuring Your Internet Connection You can manually configure your firewall using the menu below, or you can allow the Setup Wizard to determine your configuration as described in the previous section.

ISP Does Not Require Login ISP Does Require Login Figure 3-13: Browser-based configuration Basic Settings menu 3-18 Connecting the FWG114P v2 to the Internet 201-10301-02, May 2005 Reference Manual for the ProSafe Wireless 802.11g Firewall/Print Server Model FWG114P v2 How to Manually Configure the Primary Internet Connection Use these steps to manually configure the primary Internet connection in the Basic Settings menu. 1. Select your Internet connection type (broadband with or without login, or serial). Note: If you are a Telstra BigPond broadband customer, or if you are in an area, such as Austria that uses broadband PPTP, login is required. If so, select BigPond or PPTP from the Internet Service Type drop down box. 2. 3. Enter your Account Name (may also be called Host Name) and Domain Name. These parameters may be necessary to access your ISP's services, such as mail or news servers.

If needed, enter the PPPoE login user name and password provided by your ISP. These fields are case sensitive. To change the login timeout, enter a new value in minutes. Note: You will no longer need to run the ISP's login program on your computer in order to access the Internet. When you start an Internet application, your firewall automatically logs you in.

4. You should only disable NAT if you are sure you do not require it. NAT automatically assigns private IP addresses (for example, 192.168.0.x) to LAN connected devices. When NAT is disabled, only standard routing is performed by this router. Note: Disabling NAT will reboot the router and reset all the FWG114P v2 configuration settings to the factory default. Disable NAT only if you plan to install the FWG114P v2 in a setting where you will be manually administering the IP address space on the LAN side of the router. 5. Internet IP Address: If your ISP assigned you a permanent, fixed IP address for your computer, select "Use Static IP Address." Enter the IP address your ISP assigned. Also enter the IP Subnet Mask and the Gateway IP address. The Gateway is the ISP's router to which your firewall will connect. Domain Name Server (DNS) Address: If your ISP does not automatically transmit DNS addresses to the firewall during login, select "Use These DNS Servers" and enter the IP address of your ISP's Primary DNS Server.

If a Secondary DNS Server address is available, enter it. Note: A DNS server is a host on the Internet that translates Internet names (such as www.netgear.com) to numeric IP addresses. Typically your ISP transfers the IP address of one or two DNS servers to your firewall during login. If the ISP does not transfer an address, you must obtain it from the ISP and enter it manually here. If you enter an address here, you should reboot your PCs after configuring the firewall. 6. Connecting the FWG114P v2 to the Internet 201-10301-02, May 2005 3-19 Reference Manual for the ProSafe Wireless 802.11g Firewall/Print Server Model FWG114P v2 7.

Router's MAC Address: This section determines the Ethernet MAC address that will be used by the firewall on the Internet port. Some ISPs will register the Ethernet MAC address of the network interface card in your computer when your account is first opened. They will then only accept traffic from the MAC address of that computer. This feature allows your firewall to masquerade as that computer by "cloning" its MAC address. To change the MAC address, select "Use This Computer's MAC Address."

"The firewall will then capture and use the MAC address of the computer that you are now using."



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