



NETGEAR®

Cable/DSL ProSafe Wireless Firewall
with Print Server MODEL FM114P



Installation Guide

Introduction



Model FM114P ProSafe Wireless Firewall/Print Server

Thank you for purchasing a NETGEAR FM114P Cable/DSL ProSafe Wireless Firewall with Print Server. A firewall is a special type of router that incorporates features for network security. With this firewall you can have secure Internet access through a high-speed DSL or cable modem and share the single modem with several computers. The FM114P also incorporates a built-in print server.

This installation guide shows you how to connect the firewall and configure it and your computers for secure Internet access. Setup is easy—follow the instructions in this guide and your system will be up and running quickly.

If you have problems, there is a troubleshooting section on page 13 to help you—or you can get more detailed troubleshooting information from the Reference Manual on the CD, online from www.NETGEAR.com or by phone.

Installation Overview

Estimated time: 15 to 30 minutes

1. Gather the configuration information you have for your working DSL or cable modem connection to the Internet.
2. Install the firewall between the DSL or cable modem and one computer.
3. Configure that computer to work with the firewall and restart the computer and modem.
4. Configure the firewall and go online to test the connection.
5. Connect other computers, configure them and restart each. (optional)
6. Configure for using the print server. (optional)

On the FM114P Resource CD, you'll find the FM114P Installation Assistant, which supplements the instructions in this installation guide by animating the step-by-step procedures given here. For more detailed information about installation, troubleshooting and configuration procedures, see the Reference Manual on the CD.

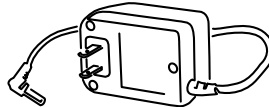
What's in the Box



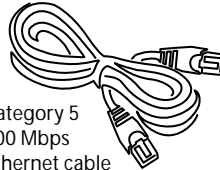
Model FM114P ProSafe Wireless Firewall/Print Server



FM114P Resource CD,
installation guide, support
information card &
warranty/registration card



Power adapter



Category 5
100 Mbps
Ethernet cable

When you open the box, verify that you received everything.

The package includes:

- FM114P Cable/DSL ProSafe Firewall with Print Server
- AC power adapter
- Ethernet patch cable
- FM114P Resource CD, including a full Reference Manual and Installation Assistant.
- FM114P Installation Guide (this document)
- Warranty and registration card
- Support information card

If you don't have everything listed above, see the support information card for contact information. If the support information card is missing, you can get contact information at www.NETGEAR.com in the Customer Service area.

1 Gather Configuration Information for Your Working Connection to the Internet

Before installing the FM114P firewall, you should have an external DSL or cable modem with an Ethernet port set up and working with one computer. You'll be installing the firewall between the modem and the computer.

For each computer that you want to connect to the firewall, you must have

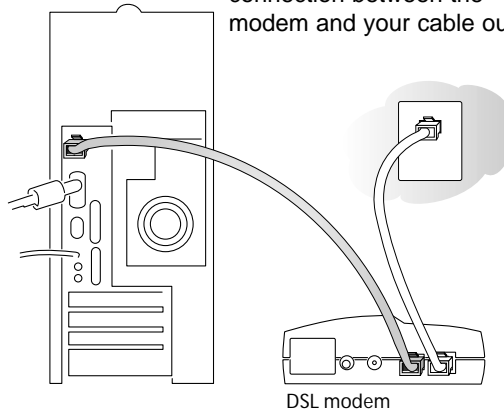
- An available RJ-45 Ethernet port (or adapter) — either built-in or from a network interface card (NIC) installed in the computer
OR
an 802.11b-compliant wireless adapter.
- TCP/IP installed.
- If your computer is a Windows® computer, it must have the Client for Microsoft® Networks software installed.

Note: Please see the Reference Manual on the CD if you need help installing TCP/IP software or the Client for Microsoft Networks software on any Windows computer that hasn't been networked previously.

- A Category 5 (Cat 5) Ethernet patch cable

Note: There is one cable in the box with the firewall.

Note: If you have a cable modem, you will have a cable connection between the modem and your cable outlet.



Connection information

Later in the setup process you'll need to configure the firewall to work with your network. A Setup Wizard is available to help you through this procedure. You can configure the firewall yourself using information that you can get from your computer or your ISP about your current Internet connection.

The next page includes blanks for you to fill in and refer to later. To get the needed information from your computer:

- (Windows 98/Me) Open the Network control panel, select the TCP/IP entry, and click Properties.
- (Windows 2000/XP) Open Local Area Network Connection and click Properties.
- (Macintosh®) Open the TCP/IP (or Network) control panel.

Your ISP should have provided you with a summary sheet of all the information needed to connect your computer to the Internet. If you cannot locate the information, you'll have to contact your ISP.

An ISP Guide is included with your firewall's documentation, either as a printed card or on the Resource CD. The ISP Guide contains specific configuration guidelines for connecting to many popular ISPs.

Host and Domain Names

Some ISPs use a specific host or domain name—like jsmith or earthlink.net. If you haven't been given specific information about host or domain names then 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 name, user name, or system name.)
- If your ISP's mail server is mail.xxx.yyy.com, then use xxx.yyy.com as the domain name.

Host name: _____

Domain name: _____

Login Name

If your ISP requires a login name and password (possibly because you have a PPPoE account), fill in the following:

Login name: _____

(may be your full e-mail address)

Password: _____

Note: The login name could be called a user name or account name by your ISP. The login name is case sensitive. You must type it exactly as given by your ISP. For example, c_jones is a different login name than C_Jones or cjones.

Fixed (or static) IP address

If you have a static IP address through your ISP, fill in the following information:

IP address: _____._____._____._____

Subnet mask: _____._____._____._____

Gateway IP address: _____._____._____._____

DNS server address information

If you were given specific Domain Name System (DNS) server addresses, fill in the following:

DNS Server IP address(es): _____._____._____._____

_____._____._____._____

Install the Firewall

After unpacking the box and locating the configuration information, you're ready to install the firewall.

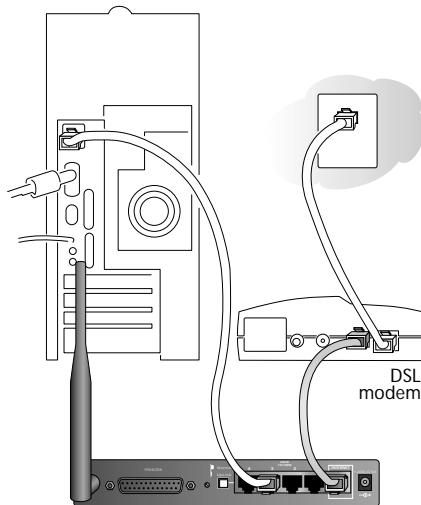
Note: You do not have to power down any equipment to do this, but if you need to move your computers (perhaps to get to ports in the back), you may want to shut down the computers before moving them around.

1. Locate the Ethernet cable currently going from the DSL or cable modem to the computer that you use to access the Internet.

Note: You must use this cable to connect the DSL or cable modem to your firewall since this may be a special cable even though it looks like other LAN cables.

2. Remove this cable from the computer and insert that end into the Internet port on the rear panel of the firewall.
3. Use the Ethernet patch cable that came with the firewall to connect the computer to one of the four numbered local Ethernet ports on the rear panel of the firewall.
4. Connect the power adapter's cord into the back of the firewall and then plug the adapter into a power source (such as a wall socket or power strip).

Note: If you want to connect other computers to the firewall, don't connect them now. Do that after you know that the modem/firewall setup works with one computer.



Model FM114P ProSafe Wireless Firewall with Print Server

Check the setup

- The Test light turns on for a few seconds and then goes off.

Note: If the Test light remains on for more than one minute, go to Troubleshooting on page 13.

- The Power and Internet Link lights should be lit.
- The WLAN light should be lit.
- If your computer is on, the Local Link light should be on for the port number that your computer is connected to.

Note: If the port connection is a 100 Mbps connection, the 100 light should be on.

If either the Power, Internet Link, or Local port Link light isn't lit, go to Troubleshooting on page 13.

3 Configure the Computer to Work with the Firewall and Restart the Network

Next, make sure that the computer can interact with the firewall. To do this, configure the TCP/IP settings on the computer and then restart the network. How you do this depends on your computer.

Windows Operating System

Normally, you can leave the TCP/IP setup parameters at their factory default settings unless you have a specific reason to change them. You should verify that the computer is set to 'obtain an IP address automatically' in the Network control panel.

Windows 98 or Me

1. Choose Settings>Control Panel from the Start menu.
2. Double-click the Network icon.
3. Click the Configuration tab.
4. In the list of installed network components, select the TCP/IP entry for the computer's Ethernet or wireless adapter.
5. Click Properties.
6. Click the IP Address tab.
7. Check that Obtain an IP Address Automatically is selected, select if not.
8. Click the Gateway tab.
9. Select and remove any IP Gateway addresses that are listed.
10. Click OK and click OK again to close the Network control panel.
11. Go to Restarting the Network on the next page.

Windows 2000 or XP

1. Right-click My Network Place and choose Properties.
2. Double-click Local Area Network Connection and click Properties.
3. Select Internet Protocol (TCP/IP) and click Properties.
4. Select Obtain IP address automatically.
5. Click OK twice and click Close.
6. Go to Restarting the Network.



Windows 98/Me

Macintosh Operating System

Mac OS® 8.6 or 9.x

1. Choose Control Panels >TCP/IP from the Apple menu.
2. If not already selected, select Ethernet in the Connect via list.
3. Select Using DHCP Server in the Configure list.
4. Click the close box.
5. If asked if you want to save this configuration, click Save.
6. Go to Restarting the Network.



Mac OS X

1. Choose System Preferences from the Apple menu.
2. Double-click Network.
3. If not already selected, select Built-in Ethernet in the Configure list.
4. If not already selected, select Using DHCP in the TCP/IP tab.
5. Click Save.
6. Go to Restarting the Network.

Linux® or UNIX® Operating System

If you're installing the firewall with a Linux-based or UNIX-based computer see your system documentation for TCP/IP and networking setup information.

Restarting the Network

Once you've set up your computer to work with the firewall, you must reset the network for the devices to be able to communicate correctly.

1. Turn off the DSL or cable modem, wait 15 seconds, and then turn it on again.

Note: If the modem doesn't have an on/off switch, either pull the modem's power adapter out of the wall socket or power down the power strip.

2. If the firewall was powered down, power it up again and wait until the Test light turns off.
3. Restart the computer that is connected to the firewall.

Note: You may also configure the firewall from a wireless PC. In that case, set the PC's SSID to the firewall's default SSID: Wireless and be sure to Disable WEP encryption.

4 Configure the Firewall and Test the Connection

Now you configure the firewall to work with your DSL or cable connection. You configure your firewall using Internet browser software such as Microsoft® Internet Explorer 5.0 or Netscape Navigator® 4.7 or later. You can either use the Setup Wizard or configure the firewall manually.

1. Start a browser on the computer connected to the firewall.
2. In the Address or Location box, type `http://192.168.0.1` and press Enter or Return.

Note: You may want to bookmark this address in your browser for handy access in the future.

3. In the User Name box, type admin
4. In the Password box, type password

Note: The User Name and Password are case sensitive.

5. Click OK. The firewall's Setup Wizard page appears. If not, select setup wizard from the bar on the left.
6. To have the Setup Wizard automatically configure the firewall, click Yes, click Next and follow the instructions on screen. To configure it manually, click No, then click Next and continue with the steps listed here.
7. Fill in the form on the Basic Settings page. (Refer to page 5 where you filled in the information previously.)

Note: Helpful information appears on the right side of the screen to assist you as you fill in the form.

8. Click Apply to have your information sent to the firewall.

Test the Connection

1. Click the Test button on the Basic Settings page.
This should open a new browser window and take you to NETGEAR's Web site (www.NETGEAR.com).

Note: If NETGEAR's Web site doesn't appear, go to Troubleshooting on page 13.

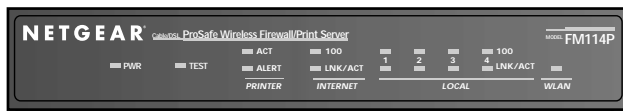
2. Close the browser window showing NETGEAR's home page.
3. Click the Logout button on the left navigation area.

5 Connect and Configure Other Computers (Optional)

Now that you have one computer set up to access the Internet through the firewall, you can connect other computers so they can share the modem.

Wired PCs

1. Connect a Category 5 Ethernet patch cable between another computer and one of the remaining numbered Local ports on the firewall.
2. Check to make sure that the associated port number's Link light is lit on the firewall.



Note: If the numbered Link light isn't lit, go to Troubleshooting on page 13.

3. Go back to Installation Step 3 (pages 8 and 9) and go through the sequence of steps applicable for each computer.
4. Restart each computer.
5. Test each computer's connection by going to NETGEAR's Web site (www.NETGEAR.com) from each computer.

Note: If you have more than 4 wired computers or devices to connect to this firewall, you must connect them to a hub or switch (such as the NETGEAR 8-port Fast Ethernet Switch) and then connect the hub or switch to the firewall. Connect the other hub or switch to Port 4 of the FM114P and press the Uplink button. If Port 4's Link light is not lit, change the Uplink button to the other position and check the Link light again. By using hubs or switches, you may connect up to 253 computers to the firewall.

Wireless PCs

1. Set the PC's SSID to the firewall's SSID. The default is Wireless
2. Configure the PC's WEP encryption to match the settings of the firewall. The default setting is WEP Disabled.
3. Restart the PC, open a browser, and make sure the computer can access the Internet.

6 Optional Configurations

Using the Printer Server (Optional)

To use the Model FM114P's Print Server, your computer must have a network printing driver installed, and you must add the printer to the computer's list of known printers. The procedure depends on your PC's operating system.

Windows 95/98/ME, Windows NT 4.0, Windows 2000/XP

For Windows network printing, you can either use Windows Peer to Peer (PTP) or Line Printer Remote (LPR) protocol. You can install driver software from the FM114P Resource CD. Please refer to the Reference Manual on the FM114P Resource CD.

Macintosh OS8, OS9, OSX

Macintosh computers can connect to a network printer using the Line Printer Remote (LPR) protocol. LPR printing can be set up on any Macintosh that has Desktop Printing installed or available. Desktop Printing is supported on MacOS versions beginning from 8.1. LaserWriter8 version 8.5.1 or higher is also required. Refer to your MacOS documentation and to the Reference Manual on the FM114P Resource CD.

Linux and others

Linux, FreeBSD, and other similar operating systems can use the Line Printer Remote (LPR) protocol to connect to the network print server. Please refer to the Reference Manual on the FM114P Resource CD.

Internet Services (Optional)

To have a Web server, e-mail server, or other server on your network accessible from the Internet, to use Internet communication features (such as NetMeeting), or to play Internet enabled games, you'll have to allow access to your computers from the Internet. You do this by configuring inbound rules using the Rules page in the configuration menus. For more information about rules and services, refer to the Reference Manual on the FM114P Resource CD.

Troubleshooting

No lights are lit on the firewall

The firewall has no power.

- Make sure the power cord is properly connected to the firewall.
- Make sure the power adapter is properly connected to a functioning power outlet. If it's in a power strip, make sure the power strip is turned on.
- Make sure you are using the correct NETGEAR power adapter supplied with your firewall.

Test light doesn't turn off

After you plug in the power adapter, the Test light should turn on and then, after approximately 10 seconds, turn off.

- If the Test light does not go off, switch the firewall off for a few seconds, then on again. Contact NETGEAR if this doesn't solve the problem.

The Internet Link light doesn't light up

The Power light is lit, but the Internet Link light isn't lit.

- You have the wrong cable between the firewall and the modem. Use the cable that came with the modem—not the one that came with the firewall.

There is no numbered Link light lit for a connected device

There's a hardware connection problem.

- Make sure the cable connectors are securely plugged in at the firewall and the device.
- Make sure the connected device is turned on.

I cannot get onto the Internet with a computer

You may not have restarted the computer or the network to have TCP/IP changes take effect.

- Restart the computer.
- Restart the Network as described on page 9.

Your computer may not recognize any DNS addresses.

- If you typed in addresses of one or two DNS servers when you configured the firewall, restart your computer. Open the firewall's Settings pages and verify that the DNS addresses appear. See instructions on page 10 to view the firewall's Basic Settings page.

Your computer may not have the correct TCP/IP settings to recognize the firewall.

- Restart the computer and check that you have TCP/IP set up properly on your computer. For Windows, the Network Properties should have Obtain an IP address automatically selected (see page 8). For Macintosh computers, the TCP/IP (or Network) control panel should be set to Using DHCP Server (see page 8).
- You should also verify that the gateway address or the firewall's local IP address is 192.168.0.1. The computer's IP address should be between 192.168.0.2 and 192.168.0.254.

Your firewall might not be able to obtain an IP address from the ISP.

1. Start your browser, type the address for an external site (like www.NETGEAR.com), and press Enter (Windows) or Return (Macintosh).
2. Go to the firewall's Settings pages by going to <http://192.168.0.1>.
3. In the User ID box type admin, in the Password box type password, and click OK.
4. Under the Maintenance heading, click Router Status.
5. Check that an IP address is shown for the WAN Port. If you see 0.0.0.0, contact your ISP to get current configuration information.

Your wireless connection may be misconfigured.

- Verify that the PC's SSID and WEP settings match the firewall's settings.

Resetting TCP/IP Properties (Windows)

If you're on a Windows computer and are still having problems, you may try the following procedure before contacting technical support.

Windows 98/Me

1. Click the Start button and then click Run.
2. Type winipcfg, and then click OK.
3. Select your Ethernet adapter.
4. Click More Info and verify that the DNS Servers box displays 192.168.0.1.
5. Click Release All and then Renew All.
6. Verify that you got a valid address and click OK.

Windows 2000

1. Click the Start button and then click Run.
2. Type CMD and click OK.
3. Type ipconfig /all.
4. Type ipconfig /release.
5. Type ipconfig /renew.
6. Verify that you got a valid address and close the window.

Windows XP

1. Open My Network Places.
2. Click View network connections (Network Tasks).
3. Click your enabled LAN connection.
4. Click Repair this connection (Network Tasks).
5. Verify that you got a valid address and close the window.

Note: For Windows XP, you'll find the TCP/IP information in the Details area.

For any Windows computer, if you are using the recommended default TCP/IP settings, they should be:

- IP Address: between 192.168.0.2 and 192.168.0.254
- Subnet Mask: 255.255.255.0
- Default Gateway: 192.168.0.1

Glossary of Terms

You'll find a more extensive glossary in the Reference Manual on the FM114P Resource CD.

Category 5 (CAT5): A twisted pair cable that meets specified requirements for high-speed networking.

Domain Name System (DNS) server: A server that matches Internet names (such as www.netgear.com) to numeric IP addresses.

IP Address: A 4-part number uniquely defining each host on the Internet. Usually written in dotted-decimal notation with separating periods (for example, 134.177.244.57).

ISP: Internet service provider.

Local Area Network (LAN): A communications network within a limited area, such as one building.

PPP: Point-to-Point Protocol, the standard Internet protocol for dial-up connections.

PPP over Ethernet (PPPoE): A protocol for connecting remote hosts to the Internet over an always-on connection by simulating a dial-up connection.

TCP/IP: Transfer Control Protocol (TCP) with Internet Protocol (IP). The main internetworking protocol used in the Internet.

Wide Area Network (WAN): A long distance link used to extend or connect remotely located local area networks (for example, connecting your home computer to the Internet).

Firewall System Requirements

To use the firewall in your network you must have:

- Cable or DSL modem with Ethernet interface
- Working Internet service
- Ethernet network card (NIC) or built-in networking for each computer
- Network software (Windows, Mac OS, Linux)
- Internet Explorer 5.0 or later; Netscape 4.7 or later

Firewall Specifications

Routing Protocols: TCP/IP, RIP-1, RIP-2, DHCP, NAT, PPTP, PPPoE, IPsec

Dimensions: W: 191mm (7.4") D: 127mm (5.1") H: 35mm (1.3")

Weight: .82 kg (1.8 lbs)

Microprocessor: ARM7, 75MHz

Memory: 1 MB Flash, 4 MB SDRAM

LAN: 10BASE-T or 100BASE-Tx, RJ45

WAN: 10BASE-T or 100BASE-Tx, RJ45

Power Adapter: 12 V DC 0.8 A with localized plug for North America, Japan, UK, Europe and Australia

Environmental Specifications

Operating temperature: 0°C to 40°C (32° to 104°F)

Operating humidity: 90% maximum relative humidity, noncondensing

Electromagnetic

Emissions: FCC Part 15 Class B

VCCI Class B

EN 55 022 (CISPR 22), Class B Interface Specifications

Voluntary Control Council for Interference (VCCI) Statement

This equipment is in the second category (information equipment to be used in residential areas) and conforms to the standards set by the Voluntary Control Council for Interference by Data Processing Equipment and Electronic Office Machines that are aimed at preventing radio interference in residential areas.

EN 55 022 Declaration of Conformance

This is to certify that the NETGEAR Model FM114P Cable/DSL ProSafe Wireless Firewall with Print Server 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).

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.

Federal Communications Commission (FCC) Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna shall not be less than 20 cm (8 inches) during normal operation.

Canadian Department of Communications Radio Interference Regulations

This digital apparatus (NETGEAR Model FM114P Cable/DSL ProSafe Wireless Firewall with Print Server) does not exceed the Class B limits for radio-noise emissions from digital apparatus as set out in the Radio Interference Regulations of the Canadian Department of Communications.

Règlement sur le brouillage radioélectrique du ministère des Communications

Cet appareil numérique (NETGEAR Model FM114P Cable/DSL ProSafe Wireless Firewall with Print Server) respecte les limites de bruits radioélectriques visant les appareils numériques de classe B prescrites dans le Règlement sur le brouillage radioélectrique du ministère des Communications du Canada.

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.

Certificate of the Manufacturer/Importer

It is hereby certified that the NETGEAR Model FM114P Cable/DSL ProSafe Wireless Firewall with Print Server 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.

Bestätigung des Herstellers/Importeurs

Es wird hiermit bestätigt, daß das Model FM114P Cable/DSL ProSafe Wireless Firewall with Print Server 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.

NETGEAR, INC.

Support Information

Phone: 1-888-NETGEAR

E-mail: support@NETGEAR.com

www.NETGEAR.com

Technical Support

YOU MUST REGISTER TO OBTAIN TECHNICAL SUPPORT. PLEASE RETAIN PROOF OF PURCHASE and the warranty information.

To register your product, get product support or obtain product information and product documentation, go to <http://www.NETGEAR.com/register>.

You'll find technical support information at: <http://www.NETGEAR.com/> through the customer service area. If you want to contact technical support by telephone, see the support information card for the correct telephone number for your country.

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May 2002