



# NETGEAR®

## Cable/DSL Firewall/VPN Routers

with 4 or 8-port 10/100 Mbps switch **FR314/FR318/FV318**



### Installation Guide

(FR318 shown)

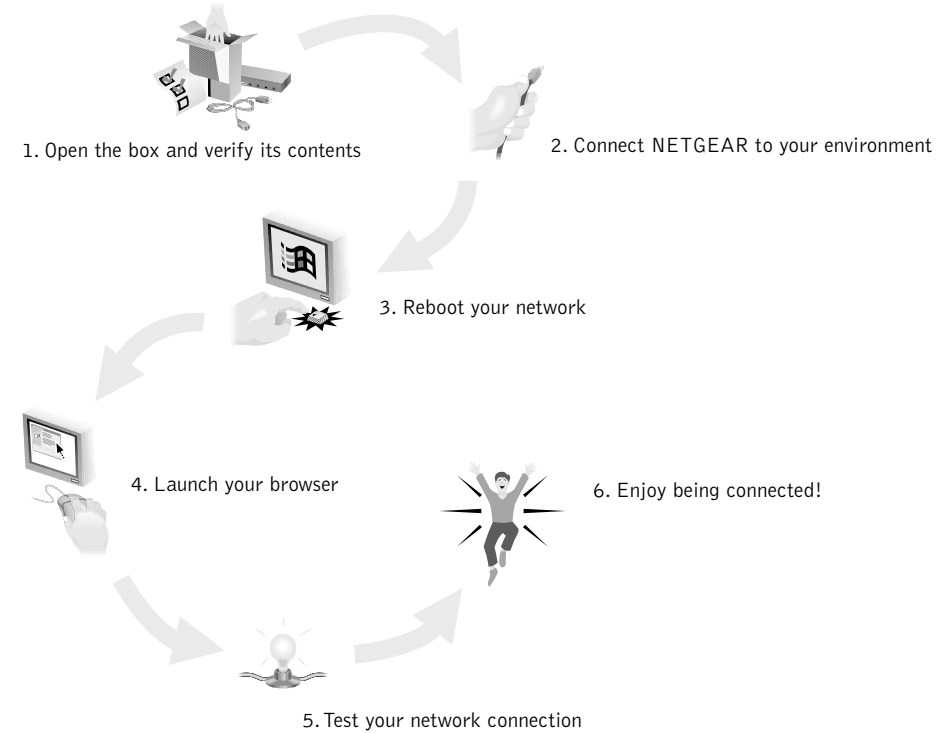
#### Introduction

NETGEAR's FR314, FR318, and FV318 Routers provide your network with true hardware-based firewall security. Designed with Stateful Packet Inspection technology to prevent Denial of Service (DoS) attacks and malicious packets, they also give you Internet access filtering ability based on time of day, URL, or Web page content; high-speed Internet sharing for up to eight PCs (FV318 starts with 20), upgradable to 45 PCs; Web-based setup; and logging and reporting capabilities.

This guide shows you how to configure your NETGEAR routers and your PC network—which can include Windows and Macintosh platform personal computers—for secure Internet access. For more detailed information about installation or for configuring advanced features, refer to the *Reference Guide for the FR314/FR318/FV318 Routers* on the enclosed *FR314/FR318/FV318 Resource CD-ROM*.

#### START HERE

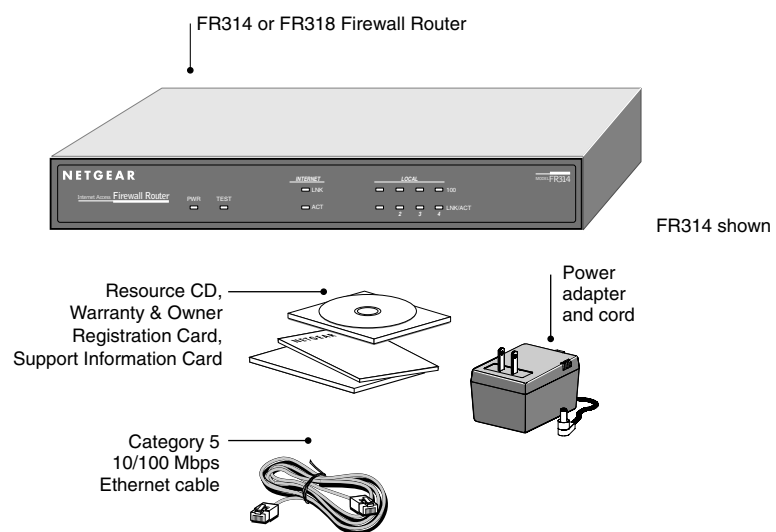
##### Setup Sequence



##### Plan Your Time

Estimated setup time for this product is only **0:30** minutes.

#### 1 OPEN BOX AND VERIFY CONTENTS



##### Package Contents

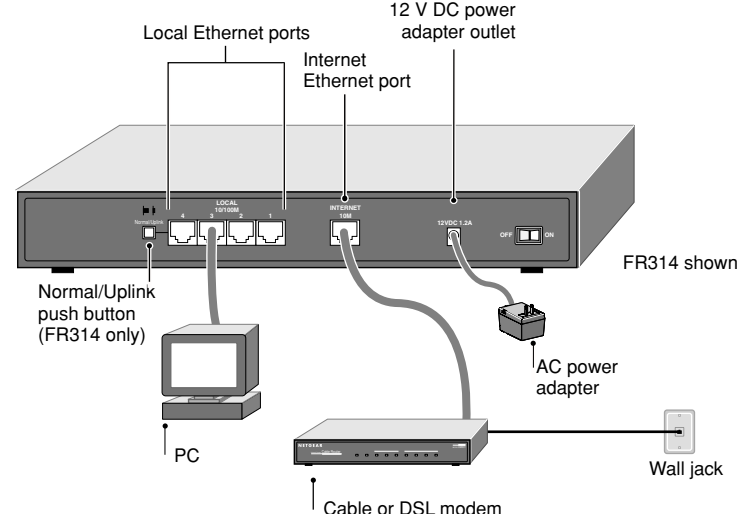
Make sure that your package contains the following:

- FR314, FR318, or FV318 Router
- AC power adapter, 12 V DC output
- Category 5 Ethernet cable, straight-through wiring
- *FR314/FR318/FV318 Resource CD-ROM*, including:
  - *Reference Guide for the FR314/FR318/FV318 Routers*
  - Application notes
- Warranty & Owner Registration Card
- Support Information Card

#### 2 CONNECT NETGEAR TO YOUR ENVIRONMENT

##### Setting Up the Hardware

The illustration below provides an example of how to connect and install your FR314, FR318, or FV318 Router.



##### Connecting the Router

To connect your router:

1. Connect the router's Internet port to the Ethernet port on your broadband (cable or DSL) modem. Use the Ethernet cable that shipped with your broadband modem to connect to the router. If you are using a DSL modem, the modem's connection to the phone line remains unchanged.
  - Note:** The Ethernet cable supplied by your ISP for connecting to your cable modem or DSL modem may have non-standard wiring. It is important to use this cable only to connect the modem to your router, not to connect your PCs to your router.
2. Connect your PCs to the router's LOCAL ports. Use Ethernet cables to connect your PCs to the LOCAL ports of the router. One cable is provided with your router. The router senses the speed of the connected port (10 Mbps or 100 Mbps) and automatically matches the speed.
  - Note:** For all 100 Mbps connections, use Category 5 (Cat 5) Ethernet cables. Your FR314/FR318/FV318 Router package contains one Category 5 cable.
3. Connect the power adapter to the outlet on the rear panel of the router, and plug the adapter into a wall outlet.

##### Verifying the Hardware Connections

After applying power to the Router, you can follow these steps to verify that all connections were properly made.

1. When power is first applied, verify that the POWER LED is on.
2. Verify that the TEST LED turns on within a few seconds.
3. After approximately 90 seconds, verify that:
  - The TEST LED has turned off.
  - The LOCAL LINK/ACT LEDs are lit for any local ports that are connected.
  - The INTERNET LINK/ACT LED is lit.
4. If any LOCAL port is connected to a 100 Mbps device, verify that the 100 LED for that port is lit.

##### Preparing Your Network

All PCs in your network must have an installed Ethernet Network Interface Card (NIC). In preparation for using the router to connect your LAN to the Internet, you need to do the following:

1. Order Internet service from an Internet Service Provider (ISP). See the "ISP Checklist" and "Account Information" sections.
2. Set up your PCs for using the Transmission Control Protocol/Internet Protocol (TCP/IP) networking protocol. See the "Network Checklist" section.

##### ISP Checklist

Contact an ISP to request a single-user Internet access account that provides a broadband access device such as a cable modem or DSL modem to connect to the Internet. This modem must be a separate physical box (not a card) and must provide an Ethernet port intended for connection to a NIC in a PC.

For a single-user Internet account, your ISP supplies TCP/IP configuration information for one PC. With a typical account, much of the configuration information is assigned dynamically when your PC is first booted up while connected to the ISP, and you will not need to know that dynamic information.

In order to share the Internet connection among several computers, your Router will take the place of the single PC, and must be programmed with the TCP/IP configuration information that would normally be used by that single PC. The Router then allows the PCs on the LOCAL network to masquerade as the single PC to access the Internet through the broadband modem. The method used by the Router to accomplish this is called Network Address Translation (NAT).

##### Account Information

Unless the information is dynamically assigned, your ISP should provide you with the following basic account information:

- Internet Protocol (IP) address and subnet mask
- Domain Name System (DNS) server IP addresses
- Gateway IP address
- Host name and domain name

For example, your account's mail server name may look like this:  
mail.xxx.yyy.com

In this example, the domain name is xxx.yyy.com.

If an ISP technician configured your PC during modem installation, or if you configured it using instructions provided by your ISP, you will need to obtain the account information from your PC's network setup. For information about this procedure, refer to the *Reference Guide for the FR314/FR318/FV318 Router* on the *FR314/FR318/FV318 Resource CD-ROM*.

Some ISPs require a special login protocol, such as PPP over Ethernet (PPPoE). If your ISP requires one, you need a login name and password, and you also need to select PPPoE when you configure the Router. After your network and Router are configured, the Router performs the login task when needed, and you will no longer need to log in from your PC.

##### Network Checklist

The Router uses the Internet Protocol. IP configuration has the following requirements:

- All PCs must have the TCP/IP installed and selected as the networking protocol. See "Configuring Windows 95 or later versions of Windows for IP Networking," next.
- All PCs and the router must be assigned IP addresses. The router's DHCP function automatically assigns IP addresses for you, but the PC's IP address must be set to "Obtain an IP address automatically" in the Network Control Panel. See "Configuring TCP/IP Properties."

##### Configuring Windows 95 or Later Versions of Windows for IP Networking

As part of the PC preparation process, you need to manually install and configure TCP/IP on each networked PC. Before starting, locate your Windows CD; you may need to insert it during the TCP/IP installation process.

To configure Microsoft® Windows® 95 or later versions of Windows for IP networking:

1. On the Windows taskbar, click the Start button, point to Settings, and then click Control Panel.
2. Double-click the Network icon. The Network window opens, which displays a list of installed components.

You must have an Ethernet adapter, the TCP/IP protocol, and Client for Microsoft Networks.

**Note:** It is not necessary to remove any other network components shown in the Network window in order to install the adapter, TCP/IP, or Client for Microsoft Networks.

If you need the adapter:

- a) Click the Add button.
- b) Select Adapter, and then click Add.
- c) Select the manufacturer and model of your Ethernet adapter, and then click OK.

If you need TCP/IP:

- a) Click the Add button.
- b) Select Protocol, and then click Add.
- c) Select Microsoft.
- d) Select TCP/IP, and then click OK.

If you need Client for Microsoft Networks:

- a) Click the Add button.
- b) Select Client, and then click Add.
- c) Select Microsoft.
- d) Select Client for Microsoft Networks, and then click OK.

3. Restart your PC for the changes to take effect.

##### Configuring TCP/IP Properties (Windows)

NETGEAR recommends that you leave the TCP/IP setup parameters at their factory default settings unless you have a specific reason to change them. With the default settings, your PC is configured to obtain its TCP/IP configuration information automatically from a DHCP server on the local network. The Router is shipped preconfigured as a DHCP server and assigns the TCP/IP configuration information as described below. You should also verify that your PC is set to "Obtain an IP address automatically" in the Network Control Panel.

To confirm that IP addresses are automatically obtained:

1. From the Windows taskbar, click the Start button, point to Settings, and then click Control Panel.
2. Double-click the Network icon.
3. Select the Configuration tab.
4. From the list of network components, select TCP/IP. If you have several TCP/IP entries in the network components list, choose the one associated with the Ethernet adapter in your PC.
5. Click Properties. The TCP/IP window opens.
6. Select the IP address tab.
7. Click "Obtain an IP address automatically."
8. Select the Gateway tab.
9. If any gateway IP addresses are listed, remove them.
10. Select the DNS tab.
11. Enter your ISP's DNS Server addresses and click OK, or click "Disable DNS" to allow automatic assignment.
12. Click OK and close the Network Control Panel.
13. Repeat this for each PC on your network.

##### Configuring TCP/IP Properties (Macintosh)

To configure the Macintosh for IP networking:

1. From the Apple menu, select the TCP/IP Control Panel.
2. From the "Connect via" box, select your Mac's Ethernet interface.
3. From the "Configure" box, select Using DHCP Server.
  - You can leave the DHCP Client ID box empty.
4. Close the TCP/IP Control Panel.
5. Repeat this for each Mac on your network.

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##### Support Information

For 24 x 7 technical support in North America, call 1-888-NETGEAR. If you are outside of North America, please refer to the support information card included with your product for the technical support center near you.

##### Internet / World Wide Web

Go to <http://www.NETGEAR.com> for the NETGEAR Web page.  
Defective or damaged merchandise can be returned to your point-of-sale representative.

##### IMPORTANT!

Please register online. YOU MUST REGISTER TO OBTAIN TECHNICAL SUPPORT. PLEASE RETAIN PROOF OF PURCHASE and this warranty information. To register your product, follow the instructions on the General Status screen during configuration. To get product support, or to obtain product information and NETGEAR product documentation, direct your Web browser to the <http://www.NETGEAR.com> Web page. If you do not have access to the World Wide Web, you can register your product using the enclosed registration card and mail it to NETGEAR customer service.

### 3. REBOOT NETWORK

To obtain the configuration information from the router:

1. Turn on the router. Be sure the router has been on for at least one minute before continuing to the next step.
2. Reboot the PC you will use for configuring the router.
3. Disconnect and then reconnect power to your broadband modem. Wait for it to synchronize to the Internet.

### 4. LAUNCH YOUR BROWSER

From your browser, you can access the router's Setup Wizard, which walks you through the process of configuring your router for Internet access.

To configure your router:

1. Launch your Web browser.
2. In the browser's Address box, type **http://192.168.0.1** and press Enter. A Login box appears.
3. Type **admin** in the Name box, and **password** in the Password box, and then click OK. If your FR314 Firewall Router password was previously changed, enter the current password.
4. In the Main Menu, select Setup Wizard.
5. In the first Wizard window, choose a new Password and then click Next.
6. In the Time Zone window, select your time zone from the pull-down window and then click Next.
7. If your ISP account requires a PPPoE login, you will see the PPPoE window next. Enter your account login name and password, and then click Next.
8. If your ISP account does not dynamically assign an IP address, you are prompted to enter your static (fixed) address information in the next window. Enter the information provided by your ISP and then click Next.
9. In the ISP settings window, enter your account's Host Name and Domain Name.
10. The final Setup Wizard screen opens. Click Finish.
11. Reboot your Router, and then reboot the attached PCs.

Your PCs should now have secure Internet access. You can test this by browsing to any Internet location, such as NETGEAR's Web site at [www.NETGEAR.com](http://www.NETGEAR.com). Next you can register the router and download the Content Filter List, if desired.

12. Re-enter the router configuration (steps 1-3) and select General, then Status. Follow the onscreen instructions to register the router

13. If you wish to download the Content Filter List, select Filter, then Categories. under Filter List Updates, click Download Now

For more information about installing your Router, see the *Reference Guide for the FR314/FR318/FV318 Router* on the *FR314/FR318/FV318 Resource* CD-ROM.

### 5. TEST YOUR NETWORK CONNECTION

When your Router and PCs are configured correctly, your Router automatically accesses the Internet when one of your LAN devices requires access. It is not necessary to run a dialer application such as Dial-Up Networking or PPPoE Login to connect, log in, or disconnect. These functions are performed by the Router as needed. In addition, the firewall functions are enabled and configured by default for basic security.

To access the Internet:

1. From any PC connected to your router, launch a browser such as Microsoft Internet Explorer or Netscape Navigator. You should see the Internet LED blink, indicating communication to the ISP. The browser should begin to display a Web page.
2. If you have trouble accessing the Internet, refer to the "Troubleshooting" section of this guide.

### 6. ENJOY BEING CONNECTED!

#### Features

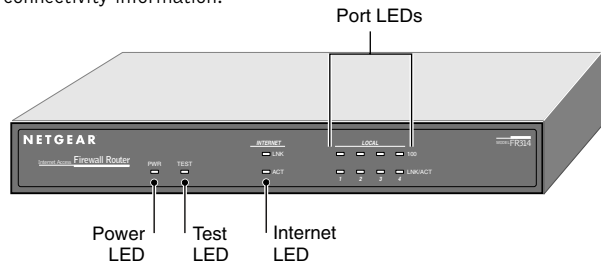
Your Router offers the following key features:

- True firewall security
- Uses Stateful Packet Inspection technology
- Protects against DoS attacks
- Up to eight PCs can share one single-user broadband line (FV318 starts with 20)
- Blocks unwanted traffic from the Internet to your LAN
- Enforces policies such as time-of-day and restricted Web access
- Content filtering features prevent objectionable content from reaching your PCs
- Configurable logging and alerting options
- Port forwarding lets you direct incoming traffic to specific local PCs
- Complete, easy-to-use Web browser based setup and configuration
- Visual monitoring of router status and activity
- Integrated 4-port (FR314) or 8-port (FR318) 10/100 Mbps switch
- Flash EPROM for firmware upgrade
- Five-year warranty, two years on power adapter
- Free technical support seven days a week, twenty-four hours a day

### PRODUCT ILLUSTRATIONS

#### Front Panel (FR314 shown)

The front panel of the Router contains LEDs that provide diagnostic and connectivity information.



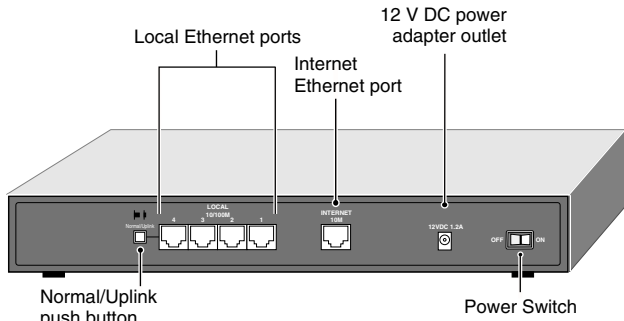
#### LEDs

You can use some of the LEDs to verify connections. All LEDs are green when lit with the exception of TEST, which is amber.

Label	Activity	Description
POWER	On	Power is supplied to the Router.
TEST	On Off	The system is initializing. The system is ready and running.
INTERNET — LINK	On	The Internet port has detected a link with an attached device.
ACT (Activity)	Blinking	Data is being transmitted or received by the Internet port.
LOCAL — LINK/ACT	On	The Local port has detected a link with an attached device.
(Link/Activity)	Blinking	Data is being transmitted or received by the Local port.
100 (100 Mbps)	On Off	The Local port is operating at 100 Mbps. The Local port is operating at 10 Mbps.

#### Rear Panel (FR314 shown)

The rear panel of the Router is shown below. You can refer to this diagram to identify the Router ports before you attempt to make any connections.



The rear panel of the Router includes the following:

- Erase Software switch
- UPLINK switch for connecting the firewall to a hub or switch (FR314 only)
- Local Ethernet ports for connecting the firewall to the local PCs
- Internet Ethernet port for connecting the firewall to a cable or DSL modem AC adapter connector
- POWER switch

### TROUBLESHOOTING

Symptom	Cause	Solution
PWR and other LEDs are not lit when you switch on your router	No power is received to the router	Make sure the power cord is properly connected to the router. Make sure you are using the correct NETGEAR power adapter supplied with your router. Make sure the power adapter is properly connected to a functioning power outlet. After you apply power to the router, the TEST LED should turn off after approximately 90 seconds. If the TEST LED does not turn off, switch off the router; then switch it on again.
LOCAL or INTERNET LINK/ACT LEDs do not light when connected to your PCs or modem	Hardware connection problem	Make sure the Ethernet cable connections are secure at the router and at the device to which you are connected. Make sure the connected device is powered on. Be sure you are using the correct cable: <ul style="list-style-type: none"><li>• If you are connecting one of the router's LOCAL ports to a PC, use a standard straight-through Ethernet cable like the one provided with your router.</li><li>• When connecting the router's INTERNET port to a cable or DSL modem, use the Ethernet cable that your ISP supplied with the modem. This cable may have a non-standard (crossover) wiring.</li><li>• If you are connecting the FR314's LOCAL port 4 to a PC, set the NORMAL/UPLINK switch to the NORMAL position.</li><li>• If you are connecting the FR314's LOCAL port 4 to another hub or switch, set the router's NORMAL/UPLINK switch to the UPLINK position unless you are connecting to the other hub's UPLINK port.</li></ul>
Router is unable to load any Web pages from the Internet	Your PC may not recognize any DNS server addresses	A DNS server is a host on the Internet that translates Internet names (such as WWW addresses) to numeric IP addresses. Typically your ISP will provide the addresses of one or two DNS servers for your use. If you entered a DNS address into your router during the configuration, reboot your PC and verify the DNS address as described in "Verifying TCP/IP Properties." Alternatively, you may manually configure your PC with DNS addresses as explained in "Configuring TCP/IP" in the <i>Reference Guide for the FR314/FR318/FV318 Router</i> .
	Your PC may not have the router configured as its TCP/IP gateway	If your PC obtains its information from the router by DHCP, reboot the PC and verify the gateway address as described below in "Verifying TCP/IP Properties."
	Your router may have been unable to obtain a WAN IP address from the ISP	Verify that the router has a WAN IP address by following these steps: <ol style="list-style-type: none"><li>1. In your browser's Address box, type <b>http://192.168.0.1</b> and press Enter.</li><li>2. Log in to the Web Management Interface by typing <b>admin</b> in the Name box and <b>password</b> (or the current password) in the Password box.</li><li>3. In the navigation bar on the left, click General and then select Network.</li><li>4. Check that an IP address is shown for the WAN Port. If no WAN IP address is shown, reconfirm the configuration information from your ISP.</li></ol>

#### Verifying TCP/IP Properties (Windows)

After the Windows PC is configured and has rebooted, you can check the TCP/IP configuration using the Windows utility winipcfg.exe (for Windows NT systems, use ipconfig.exe).

To check your PC's TCP/IP configuration:

1. On the Windows taskbar, click the Start button, and then click Run. The Run window opens.
2. Type **winipcfg**, and then click OK. The IP Configuration window opens.
3. Select your Ethernet adapter. The window is updated to show your settings, which should match the values below if you are using the default TCP/IP settings that NETGEAR recommends:
  - The IP Address is between 192.168.0.2 and 192.168.0.9
  - The Subnet Mask is 255.255.255.0
  - The Default Gateway is 192.168.0.1
4. Click More Info, and verify that the "DNS Servers" box displays one of your ISP's DNS server addresses.

#### Verifying TCP/IP Properties (Macintosh)

After the Macintosh has rebooted, check the TCP/IP properties:

1. From the Apple menu, select the TCP/IP Control Panel.
2. If you are using the default TCP/IP settings that NETGEAR recommends, your setting should match these:
  - The IP Address is between 192.168.0.2 and 192.168.0.9
  - The Subnet Mask is 255.255.255.0
  - The Router address is 192.168.0.1
  - Name server address is one of your ISP's DNS server addresses

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#### 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 FR314/FR318/FV318 Router 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 FR314/FR318/FV318 Router 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.

#### 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 FR314/FR318/FV318 Router 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.

#### Canadian Department of Communications Radio Interference Regulations

This digital apparatus (NETGEAR FR314/FR318/FV318 Router) 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 FR314/FR318/FV318 Router) 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.