



NETGEAR

Cable/DSL Security Router
with 8-port 10/100 Mbps switch RO318



Installation Guide



NETGEAR

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Support Information
See Support Information Card for phone numbers.

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, 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.

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March 2001

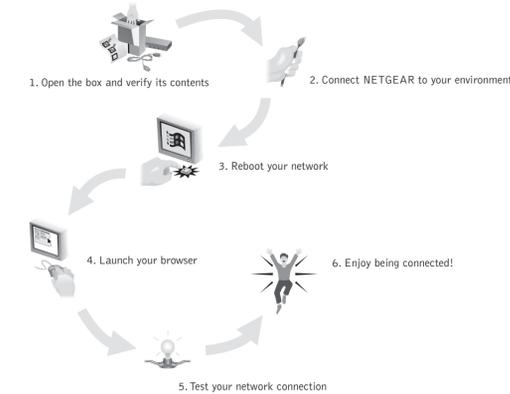
Introduction

NETGEAR's sturdy metal RO318 Cable/DSL Security Router with 8-port switch provides your network with Stateful Packet Inspection to prevent Denial of Service (DoS) attacks, while Network Address Translation (NAT) maintains network security against hackers. Utilize multiple Web content filtering options and receive regular browsing activity reports and instant alerts via e-mail. Network administrators can establish restricted access policies based on time of day, day of week, web address and web address keywords. As many as 253 users can share your high-speed cable/DSL Internet access. Just follow easy, Web-based installation instructions and your network can be up and running in less than an hour. Setup is easy—web-based instructions guide you through the process so your cable system can be up and running in less than an hour.

This guide shows you how to configure your NETGEAR RO318 Cable/DSL Security Router and your PC network, including Windows, Macintosh and Linux operating systems, for secure Internet access and router activity monitoring. For more detailed information about installation or for configuring advanced features, refer to the *Reference Guide for the Model RO318 Cable/DSL Security Router* in the enclosed *Model RO318 Resource CD-ROM*.

START HERE

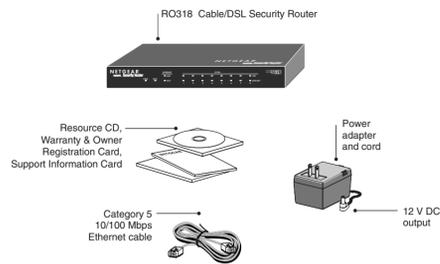
Setup Sequence



Plan Your Time

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

1 OPEN BOX AND VERIFY CONTENTS



Package Contents

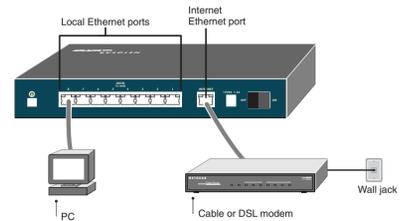
Make sure that your package contains the following:

- RO318 Cable/DSL Security Router
- AC power adapter, 12 V DC output
- Category 5 Ethernet cable, straight-through wiring
- Model RO318 Resource CD-ROM, including:
 - Reference Guide for the Model RO318 Cable/DSL Security Router
 - 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 RO318 Cable/DSL Security 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 RO318 Cable/DSL Security 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. Set the power switch to the ON position.
- 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 begins to blink within a few seconds.
 3. After approximately 30 seconds, verify that:
 - The TEST LED has turned off.
 - The LOCAL LINK/ACT LEDs are lit for any local ports that are connected. If a LINK/ACT LED is lit, a link has been established to the connected device.
 - The INTERNET LINK 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 NAT (Network Address Translation).

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 Model RO318 Cable/DSL Security Router* on the *Model RO318 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 RO318 Cable/DSL Security Router uses the Internet Protocol (IP). IP configuration has the following requirements:

- All PCs must have the TCP/IP installed and selected as the networking protocol. See the following sections for configuring Windows and Macintosh computers for TCP/IP networking.
- All PCs and the router must have 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 RO318 Cable/DSL Security 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 IP Gateways are shown, remove them.
10. Click OK.

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.

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 each PC on your network.
3. Disconnect and then reconnect power to your broadband modem. Wait for it to synchronize to the Internet.

4 LAUNCH YOUR BROWSER

This section describes the steps required to configure your router using a web browser such as Microsoft Internet Explorer or Netscape Navigator. This will provide a basic configuration for Internet access.

1. From any PC on your local network, launch your web browser.
2. In the Address box of your browser, type <http://192.168.0.1> and press ENTER.
3. A log-in box will appear. For Name, enter admin. For Password, enter 1234.

If your router's configuration password has been previously changed from the factory default of 1234, enter the current password.

4. At the opening screen, select WIZARD SETUP.
5. In the first Wizard screen, enter your account's Host Name and Domain Name.
6. Click Next to go to the ISP Parameters screen.

This screen determines whether a login program will be run.

- a. If your service provider does not require a login program, leave Encapsulation as Ethernet and proceed to Step 7.

- b. If your service provider uses PPPoE, select Encapsulation as PPPoE, and enter these additional parameters:

- If your connection supports multiple ISPs, enter the Service Name of the one you use. Otherwise leave Service Name blank.
- Enter the user name and password provided by your ISP. These fields are case sensitive.
- If you wish to change the login timeout, enter a new value in seconds.

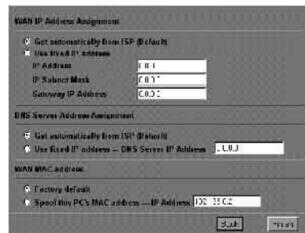
Proceed to Step 7.

- c. If your service provider is RoadRunner AND you are required to run a RoadRunner login program, leave Encapsulation as Ethernet and select Service Type as either RR-Manager or RR-Toshiba. Enter these additional parameters:

- If your cable modem is Toshiba, select RR-Toshiba. Otherwise select RR-Manager.
- Enter the user name and password provided by your ISP. These fields are case sensitive.
- If RoadRunner provided an authentication server address, enter it as Login Server IP address. Otherwise, leave this field as 0.0.0.0.

Not all RoadRunner regions require a login program. If your region does not require a login, leave Service Type as Standard.

7. Click on Next to go to the final Wizard screen shown below.



- a. WAN IP Address Assignment: Unless your ISP has assigned a fixed permanent IP address for you, select "Get automatically from ISP". Otherwise, enter your IP Address, Subnet Mask, and the IP Address of your ISP's gateway router.

- b. DNS Server Address Assignment: If you know that your ISP does not automatically transmit DNS addresses to the router during login, select "Use this server" and enter the IP address of the ISP's DNS server.

A DNS server is a host on the Internet that translates Internet names (such as www addresses) to numeric IP addresses. Typically your ISP transfers the IP addresses of one or two DNS servers to your router 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 router.

- c. WAN MAC address: If your ISP allows access by only one specific PC's Ethernet MAC address, select "Spoof this PC's MAC address" and enter the IP address of that PC.

– For convenience, the IP address of the PC you are now using should already appear. If this is not the PC whose MAC address is to be used, enter that PC's IP address.

– Some ISPs will register the Ethernet MAC address of the network interface card in your PC when your account is first opened. They will then only accept traffic from the MAC address of that PC. This feature allows your router to masquerade as that PC by using its MAC address.

8. Click Finish.

5 TEST YOUR CONNECTION

Accessing the Internet

Click the NETGEAR Web site address to test your Internet 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 RoadRunner Login, to connect, log in, or disconnect. These functions are performed by the router as needed.

To access the Internet:

1. From the 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.

If you have trouble accessing the Internet, refer to the "Troubleshooting" section of this guide.

Configuring for Content Filtering and Reporting

After you have successfully configured your router for Internet access, you can configure it for content filtering and reporting by following these steps:

1. Re-enter the browser configuration by accessing <http://192.168.0.1>, logging in if necessary.

2. Click Advanced, then Security. To receive logs and alerts by e-mail:

- a. Select the e-mail tab and enter your e-mail account's Outgoing (SMTP) Mail Server name.
- b. Enter the e-mail address to which the router should send logs and alerts.
- c. Select when you would like to receive logs and alerts.
- d. Click Apply.

3. To specify blocking of keywords in Web site names, or blocking of Internet domains:

- a. Click the Keywords tab.
- b. Click the Enable Keyword Blocking checkbox.
- c. Enter the keywords or domain names that you wish to block access to. For each entry, type the entry and click Add Keyword.
- d. Click Apply.

For more information on configuring the content filtering and reporting features of your router, refer to the Reference Guide for the Model R0318 Cable/DSL Security Safe Router in the enclosed Model R0318 Resource CD-ROM.

6 ENJOY BEING CONNECTED!

Features

Your R0318 Cable/DSL Security Router provides you with the following key features:

- Stateful Packet Inspection (SPI) for Denial of Service (DoS) attack protection from hackers
- Customized Web content filtering capability, based on time-of-day, web address and web address keywords
- E-mailed instant alerts and notification of router activity
- Shared, high-speed Internet access using one Internet address
- Provides VPN pass-thru for an extra layer of security for shared resources
- Hardware-based Network Address Translation (NAT)
- Integrated 8-port, 10/100 Mbps switch
- Visual monitoring of router status and activity
- Compatibility with Windows, Macintosh, and Linux operating systems
- Five-year warranty on unit, one-year warranty on power supply
- Free technical support seven days a week, twenty-four hours a day

PRODUCT ILLUSTRATIONS

Front Panel

The front panel of the Model R0318 Cable/DSL Security Router contains LEDs that provide diagnostic and connectivity information.



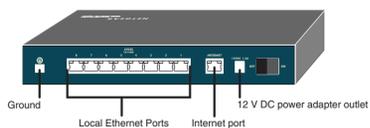
LEDs

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	A fault has been detected.
	Blinking	The system is initializing.
	Off	The system is ready and running.
Internet (WAN)		
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 (LAN)		
100	On	The Local port is operating at 100 Mbps.
	Off	The Local port is operating at 10 Mbps.
LNK/ACT	On	The Local port had detected a link with an attached device.
	Blinking	Data is being transmitted or received by the Local port.

Rear Panel

The rear panel of the R0318 Cable/DSL Security Router is shown below. You can refer to this diagram to identify the router ports before you attempt to make any connections.



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 LNK/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">• If you are connecting one of the router's LAN ports to a PC, use a standard straight-through Ethernet cable like the one provided with your router.• When connecting the router's Internet port to a cable or DSL modem, use the cable supplied with your modem, not the one supplied with your router.
Router is unable to load any Web pages from the Internet	Your PC may not recognize any DNS server addresses Your PC may not have the router configured as its TCP/IP gateway Your router may have been unable to obtain a WAN IP address from the ISP	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 Reference Guide for the Model R0318 Cable/DSL Web Safe Router. 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." Verify that the router has a WAN IP address by following these steps: <ol style="list-style-type: none">1. Launch a browser and select an external site.2. Return to the Main Menu of the router's configuration (http://192.168.0.1).3. Under the Advanced heading, click on Maintenance.4. Check that an IP address is shown for the WAN Port. If 0.0.0.0 is shown, reconfirm the configuration information from your ISP.

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 **wincfg**, 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 192.168.0.32
 - 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 192.168.0.1.

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 192.168.0.32
 - The Subnet Mask is 255.255.255.0
 - The Router address is 192.168.0.1
 - Name server address is 192.168.0.1

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Trademarks

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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 Model R0318 Cable/DSL Security Router has been suppressed in accordance with the conditions set out in the BMT-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 R0318 Cable/DSL Security Router gemäß der im BMT-AmtsblVfg 243/1991 und Vfg 46/1992 aufgeführten Bestimmungen entworfen 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 Model R0318 Cable/DSL Security 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 Model R0318 Cable/DSL Security 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 Model R0318 Cable/DSL Security 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.