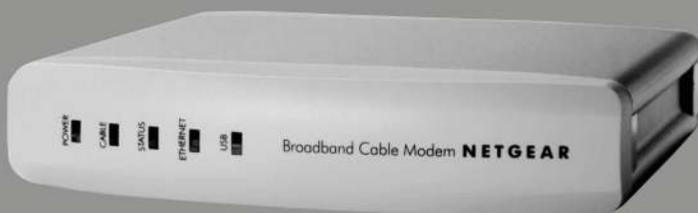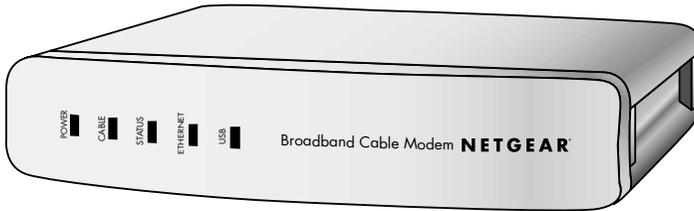# NETGEAR®

Broadband Cable Modem
Model CM212

Broadband Cable Modem **NETGEAR**

Installation Guide

Introduction

CM212 Broadband Cable Modem

Thank you for purchasing a NETGEAR CM212 Cable Modem. With this modem you can have secure high-speed Internet access and, if you have an Cable/DSL Gateway Router, share the modem with several computers.

This installation guide shows you how to connect the modem 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, refer to the troubleshooting section on pages 13 and 14. There's a short glossary available on page 15 if you have questions about terminology.

Installation Overview

Estimated time: 15 to 30 minutes

1. Prepare for installation.
2. Connect the cable modem to one computer.
3. Configure that computer to work with the cable modem.
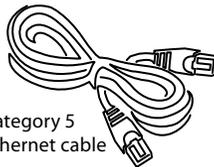4. Test the connection.

What's in the Box
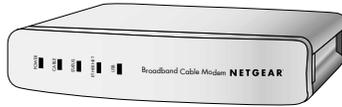
CM212 Broadband Cable Modem

Model CM212 GearBox CD, installation guide, support information card & warranty/registration card

Category 5 Ethernet cable
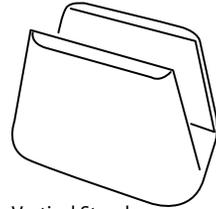
Vertical Stand

Power adapter

USB Cable

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

The package includes:

- NETGEAR CM212 Cable Modem
- AC power adapter
- Vertical stand
- Ethernet patch cable
- USB cable
- CM212 GearBox CD
- CM212 Installation Guide (this document)
- Warranty and registration card
- Support information card

1 Prepare for Installation

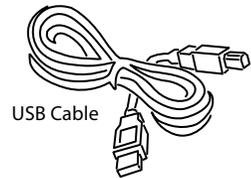Before installing the CM212 cable modem, you should have active (two-way) cable service and an Internet account with your cable provider.

Note: If you're connecting a single computer to the modem, you may use either the modem's USB or Ethernet port. If you're connecting more than one computer, you must use the Ethernet port combined with a Router.

USB Connection

If you're connecting the modem to one computer using the USB port, you must have:

- Windows® 98 Second Edition, Me, 2000, or XP.
- An available USB port in the computer.
- A USB cable.

Note: There is one USB cable in the box with the cable modem.

Ethernet Connection

If you're connecting the modem to one or more computers, for each computer you must have:

- An available RJ-45 Ethernet port (or adapter) – either built-in or from a network interface card (NIC) installed on the PC.
- TCP/IP networking installed.
- Windows® computers: Client for Microsoft® Networks software installed.

Note: TCP/IP and Client for Microsoft Networks is installed on most Windows computers. Please see Windows Help if you need help installing either on a Windows computer.

- A Category 5 (Cat 5) Ethernet patch cable.

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

Additionally, if you want to connect more than one computer to the modem, you need:

- A Ethernet router, hub, or switch (for example, RP614 Cable/DSL Web Safe Router Gateway).

Note: If using a hub or switch, you may need to get additional IP addresses from your ISP.

2 Install the Cable Modem

After unpacking the box, you can install the cable modem. You do not have to power down any equipment to do this, but if you need to move your computer (perhaps to get to a port in the back), you may want to shut down the computer before moving it.

USB Connection

Use the USB cable if you're connecting the modem to one Windows-based computer and you have an available USB port on your computer.

1. Connect the CATV cable from the wall outlet to the Cable port on the modem.

2. Connect the USB cable to the USB port on the modem and to a USB port on the computer.

3. Connect the power adapter into the back of the modem and then plug the adapter into a power source (such as a wall socket or power strip).

CM212 Broadband
Cable Modem
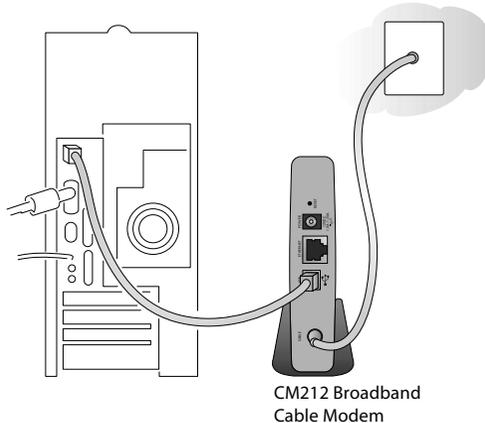
Once the Modem establishes a link with your service provider, the PC will automatically detect the modem on the USB port.

The Power, Cable, Status, and USB lights on the modem should be lit. If any of the lights are not lit, go to Troubleshooting on page 13.

Note: The modem must be connected to the Coaxial Cable and established link (Cable and Status Lights are solid Green) before your PC will recognize the modem.

Proceed to Chapter 3 page 6 to install the USB drivers.

Ethernet Connection

Use the Ethernet cable if you're connecting the modem to one or more computers and you have an available RJ-45 port on your computer.

1. Connect the CATV cable from the wall outlet to the Cable port on the modem.

2. Connect the Ethernet cable to the RJ-45 port on the computer and to the Ethernet port on the modem.

3. Connect the power adapter into the back of the modem and then plug the adapter into a power source (such as a wall socket or power strip).

CM212 Broadband
Cable Modem

4. If the computer was turned off, turn it on now.

The Power, Cable, Status, and Ethernet lights on the modem should be lit. If any of the lights are not light, go to Troubleshooting on page 13.

Note: If you plan on sharing your cable Internet Service among multiple PCs, refer to section 5 of this Guide.

3 Configure the Computer to Work with the Modem

Next, you configure the computer to interact with the modem.
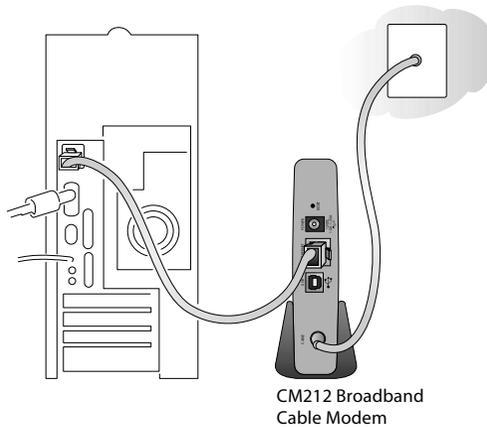
USB Connection

Note: The modem must be connected to the Coaxial Cable and established link (Cable and Status Lights are solid Green) before your PC will recognize the modem.

For the USB connection, you need to install USB drivers on your Windows computer.

1. If the computer was turned off, turn it on now.

2. Insert the *CM212 GearBox CD* in the computer's CD-ROM drive.

3. Once the following dialog box appears click **Next**.

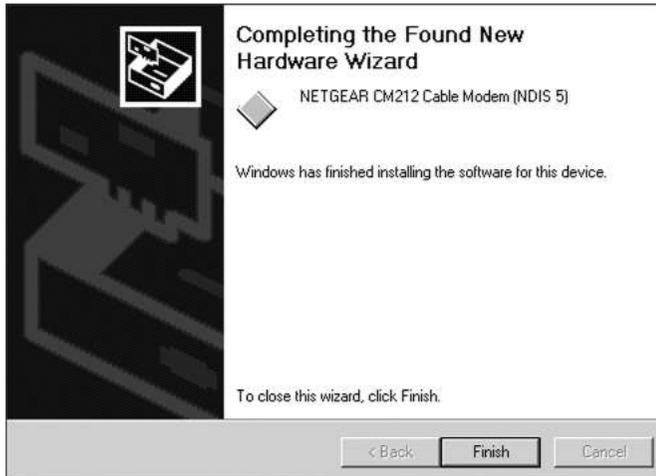4. Select **"Search for suitable drivers for my device"** and click **Next**

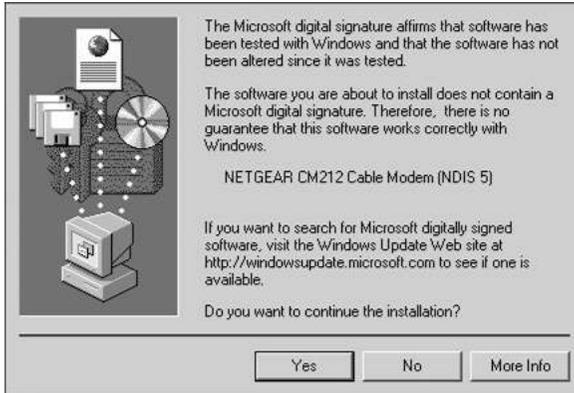5. Select **CD-ROM Drives** and click **Next**.

6. Click **Next** when the following dialog box appears.

7. Click **Finish**.

8. When the following dialog box appears, click **Yes**.

The Microsoft digital signature affirms that software has been tested with Windows and that the software has not been altered since it was tested.

The software you are about to install does not contain a Microsoft digital signature. Therefore, there is no guarantee that this software works correctly with Windows.

NETGEAR CM212 Cable Modem (NDIS 5)

If you want to search for Microsoft digitally signed software, visit the Windows Update Web site at http://windowsupdate.microsoft.com to see if one is available.

Do you want to continue the installation?

| Yes | No | More Info |

9. Restart the computer.
10. Proceed to Chapter 4 – *Test the Connection* on page 11.

Ethernet Connection

For the Ethernet connection, configure the TCP/IP settings on the computer and then restart the computer. How you do this depends on your computer.
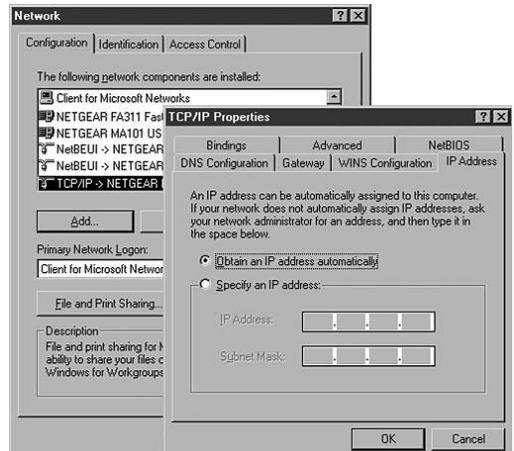
Windows Operating System

Normally, you 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 adapter or NIC.

5. Click **Properties**.

6. Click the **IP Address** tab.

7. If not selected, select **Obtain an IP address automatically**.

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. Restart the computer.

**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** and **Obtain DNS server address automatically**.

5. Click **OK** twice and click **Close**.

6. Restart the computer.

Macintosh Operating System

Mac OS® 8.6 or 9.x

1. Choose **Control Panels > TCP/IP** from the Apple (🍎) menu.

2. Choose **User Mode** from the **Edit** menu.

3. Click **Advanced** and click **OK**.

4. If not already selected, select Ethernet in the Connect via list.

5. Select **Using DHCP Server** in the Configure list.

6. Clear the **Use 802.3** check box if it's selected.

7. Click **Options**.

8. Select Active and click **OK**.

9. Click the **Close** box.

10. Click **Save**.

11. Restart the computer.
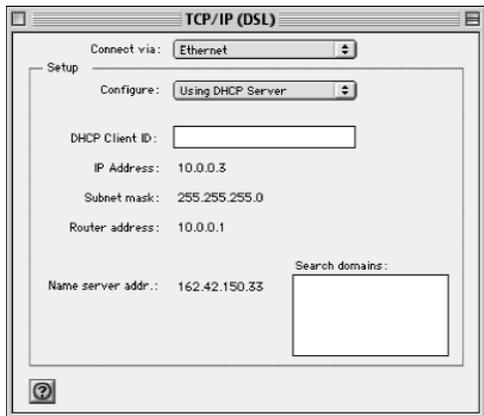
Mac OS X

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. Restart the computer.

Linux® or UNIX® Operating System

If you're installing the gateway with a Linux-based or UNIX-based computer, see your system documentation to set up TCP/IP networking to obtain IP addresses automatically using DHCP.

4 Test the Connection

To test your setup, you view a Web page online.

1. Start your Internet browser on the computer

2. Go to NETGEAR's Web site (www.NETGEAR.com).

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

3. Quit your Internet browser.

5 Sharing Your Cable Internet with Multiple Computers

Combining a Cable/DSL router with your Cable Modem enables you to connect multiple computers so they can share access.

CM212 Broadband Cable Modem

Cable/DSL Web Safe Router RP614
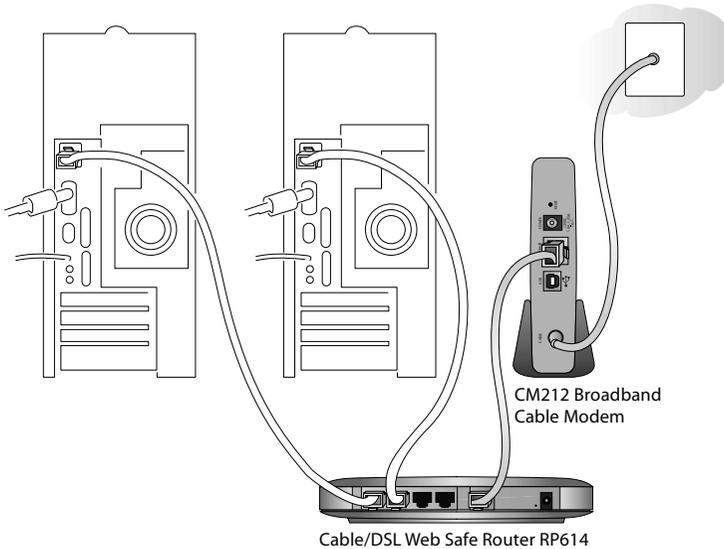
Refer to your Router documentation for complete installation instructions.

Troubleshooting

No lights are lit on the modem

The modem has no power.

- Make sure the power adapter is properly connected to the modem.
- 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're using the correct power adapter.

The Cable light doesn't light up

There's a hardware connection problem.

- Make sure the CATV cable connector is securely plugged in at the modem.
- Turn the power off and on to the modem.

You don't have cable service.

- You may not have active cable service yet. Contact your provider to verify activation.

The USB or Ethernet light doesn't light up

There's a hardware connection problem.

- Make sure the USB or Ethernet cable connectors are securely plugged in at the modem and the computer.
- If you're not using the cable included with the modem, check that the Ethernet cable is a straight-through patch cable.

If you are using USB, the Modem must first be connected to the CATV Cable and the Status and Cable Indicators must both be solid Green. This is not necessary, if you are using the Ethernet port.

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.
- If you have a multiple computers setup, turn the power off and on to the network device and restart the computers.
- Turn the power off and on to the modem.

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

- Restart the computer and check that you have TCP/IP set up properly.

For Windows, the Network Properties should have **Obtain an IP address** automatically selected (see page 9). For Macintosh computers, the TCP/IP (or Network) control panel should be set to **Using DHCP Server** (see page 10).

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 **Release All** and then **Renew All**.
5.   Verify that you have 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/release**.
4.   Type **ipconfig/renew**.
5.   Verify that you have 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 have a valid address and close the window.

     Note: You'll find the TCP/IP information in the Details area.

Glossary of Terms

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

Community Antenna Television (CATV): Broadband cable TV and Internet access service.

DOCSIS: Data Over Cable Service Interface Specification. A specification that defines interface requirements for cable modems.

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.

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

Universal Serial Bus (USB): A local connection for serial peripheral devices.

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).

Cable Modem System Requirements

To use the modem in your network you must have:
• CATV service
• An account with an ISP
• For an Ethernet connection:
     • Ethernet network card (NIC) or built-in networking for each computer
     • Network software (Windows, Mac OS, Linux or UNIX)
• For a USB connection:
     • An available USB port (Windows only)

Modem Specifications

Protocols:	UDP, TCP/IP, ARP, ICMP, DHCP, TFTP, SNMP, HTTP
Dimensions:	W: 175 mm (6.89") D: 118 mm (4.65") H: 28 mm (1.10")
Weight:	0.3 kg (0.661 lbs.)
LAN:	10BASE-T/100BASE-TX RJ-45 and USB B type
WAN:	Female "F" type RF connector
Power adapter:	12 V AC, 1.25 A with localized plug for North America, Japan, UK, Europe or Australia
Power consumption:	8 Watts
Security:	Baseline Privacy
Transmission speed:	38 Mbps (downstream), 10Mbps (upstream)

Environmental Specifications

Operating temperature:	0 to 40°C (32˚ to 104˚F)
Operating humidity:	10% to 90% 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 CM212 Cable Modem 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 CM212 Cable Modem) 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 CM212 Cable Modem) 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 CM212 Cable Modem 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 CM212 Cable Modem 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.

Technical Support

PLEASE REFER TO THE SUPPORT INFORMATION CARD THAT SHIPPED WITH YOUR PRODUCT.

By registering your product at www.NETGEAR.com/register, we can provide you with faster expert technical support and timely notices of product and software upgrades.

NETGEAR, INC.

Support Information

Phone: 1-888-NETGEAR (For US & Canada only)
See Support Information card for other countries.

E-mail: support@NETGEAR.com

www.NETGEAR.com

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