

NETGEAR®

User Manual

Nighthawk® CM2500 Cable Modem

Model CM2500

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NETGEAR, Inc.
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Nighthawk CM2500 Cable Modem

Support

Thank you for purchasing this NETGEAR product.

You can visit <https://www.netgear.com/support/> to register your product, get help, access the latest downloads and user manuals, and join our community. We recommend that you use only official NETGEAR support resources.

Contact your Internet service provider for technical support.

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Compliance and Conformity

For regulatory compliance information, visit <https://www.netgear.com/about/regulatory/>. See the regulatory compliance document before connecting the power supply.

Note to CATV system Installer- This reminder is provided to call the CATV systems installer's attention to Section 820-93 of the National Electrical Code which provide guidelines for proper grounding and in particular, specify that Coaxial cable shield shall connected to the grounding system of the building, as close to the point of cable entry as practical

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1

Hardware Setup

This chapter covers the following topics:

- [Front Panel and LEDs](#)
- [Rear Panel](#)
- [Label](#)
- [System Requirements](#)
- [Install and Activate Your Cable Modem](#)

For more information about the topics covered in this manual, visit the support website at support.netgear.com.

Front Panel and LEDs

The cable modem provides status LEDs on the front.








Figure 1. Front panel

You can use the LEDs to verify status and connections. The following table lists and describes each LED on the cable modem.

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Table 1. LED descriptions

LED	Icon	Description
Power		<ul style="list-style-type: none">• Solid white. Power is supplied to the cable modem.• Off. No power is supplied to the cable modem.• Solid red. The cable modem is too warm and might overheat. For more information about this condition, see Use LEDs to Troubleshoot on page 23.
Downstream		<ul style="list-style-type: none">• Solid amber. One downstream channel is locked.• Solid white. Two or more downstream channels are locked.• Blinking white. The cable modem is scanning for a downstream channel.• Off. No downstream channel is locked.
Upstream		<ul style="list-style-type: none">• Solid amber. One upstream channel is locked.• Solid white. Two or more upstream channels are locked.• Blinking white. The cable modem is scanning for an upstream channel.• Off. No upstream channel is locked.
Online		<ul style="list-style-type: none">• Solid white. The cable modem is online.• Blinking white. The cable modem is synchronizing with the cable provider's cable modem termination system (CMTS).• Off. The cable modem is offline.
Eth1 and Eth2		<ul style="list-style-type: none">• Solid white. A 1 Gbps connection is established.• Solid amber. A 10 Mbps or 100 Mbps connection is established.• Blinking white or amber. The port is sending or receiving traffic.• Off. No device is connected to the port.

Rear Panel

The connections and button on the rear panel are shown in the following figure.

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Figure 2. Rear panel

Viewed from top to bottom, the back panel contains the following components:

- **Reset button.** Pressing the **Reset** button resets the cable modem. If the **Reset** button is pressed for at least seven seconds, the Power LED blinks white and the cable modem returns to its factory settings.
- **Aggregate Ethernet ports.** If a device supports Ethernet aggregation like a NAS or managed network switch, you can use the Ethernet aggregate ports to cable the device to your cable modem. Use two Ethernet cables to connect these ports to the aggregated ports on a target network device.
- **Coaxial cable port.** Connect the cable port to a cable wall outlet.
- **DC power connector.** Connect the power adapter that came in the product package to the DC power connector.

Label

The cable modem label shows the login information, MAC address, and serial number.

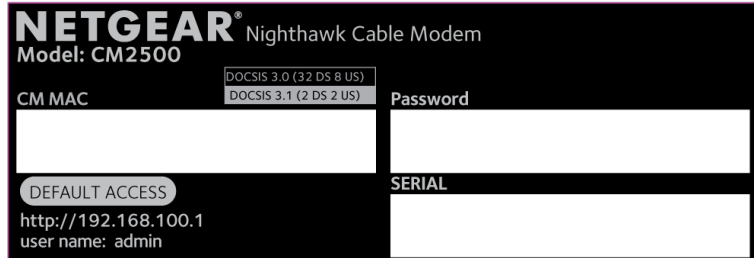


Figure 3. Cable modem label

System Requirements

You need the following to install your cable modem:

- Compatible operating system:
 - Windows 10
 - Windows 8
 - Windows 7
 - Windows Vista
 - Windows XP
 - Windows 2000
 - Mac OS
 - Other operating systems running a TCP/IP network
- Compatible web browser:
 - Microsoft Internet Explorer 5.0 or later
 - Firefox 2.0 or later
 - Safari 1.4 or later
 - Google Chrome 11.0 or later
- Cable broadband Internet service

Install and Activate Your Cable Modem

The cable modem provides a connection between your cable Internet provider's network and your computer, router, or WiFi router.

Connect Your Cable Modem to a Computer

After you install the cable modem and activate your Internet service, you can disconnect the computer and connect a router to the cable modem.

To connect your cable modem directly to a computer:

1. Turn off and disconnect existing modems and routers.

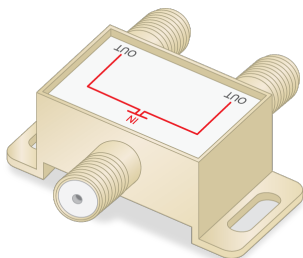
If you are replacing a modem that is currently connected in your home, unplug the modem and plug the new cable modem into the same outlet.

2. Connect a coaxial cable.



Use a coaxial cable to connect the cable port on the cable modem to a cable wall outlet. Make sure that the cable is tightly connected. We recommend that you connect your cable modem directly to a cable wall outlet.

If you must share the connection, use a 3.5dB (1 to 2) splitter.



3. Connect the power adapter to the cable modem and plug the power adapter into an electrical outlet.

The cable modem might reset multiple times when it is powered on.

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4. Wait for the cable modem to come online.

The cable modem comes online when the Internet LED stops blinking and lights solid white. This process might take up to 10 minutes.

After 10 minutes, if the Online LED doesn't light solid, make sure that the cable outlet is working or call your Internet service provider (ISP) to make sure you have service.

Note: When the Online LED lights solid, your cable modem is not connected to the Internet yet. You must connect a router or computer to your cable modem and then activate your cable modem with your cable Internet provider.

5. Connect a router to your cable modem.



- a. Connect the LAN port on the cable modem to the WAN or Internet port on the router.
 - b. Your cable modem comes with two plugs that cover the Ethernet 1 and Ethernet 2 ports. You can remove the plugs to connect a router that supports Ethernet port aggregation. For more information, see [Ethernet Port Aggregation](#) on page 17.
 - c. Power on the router.
 - d. Connect your computer or mobile device to the router.
6. Reboot the computer.

Activate Your Internet Service

Before you activate your Internet service, gather the following information:

- Your cable Internet provider account information
- Cable modem model number, which is CM2500

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- Cable modem serial number, which is on the cable modem label . See [Label](#) on page 8
- Cable modem MAC address, which is on the cable modem label. See [Label](#) on page 8

The following is contact information for cable Internet providers that support your cable modem.

Table 2. Cable Internet provider contact information

Cable Internet Provider	Contact Information
Cox	https://cox.com/activate 1-888-556-1193
Mediacom	https://support.mediacomcable.com/ 1-855-Mediacom (1-855-633-4226)
Optimum	https://install.optimum.com/JointInstall/ 1-877-810-6750
Sparklight	https://support.sparklight.com/ 1-877-692-2253
Spectrum	https://activate.spectrum.net/ 1-833-267-6094
Xfinity	Download the Xfinity app via the App Store or Google Play. https://xfinity.com/support/articles/activate-internet-gateway-modem https://www.xfinity.com/support/internet

Note: Your cable Internet provider’s contact information might change. You can find the contact information in your monthly Internet service billing statement.

To activate your Internet service:

1. Visit your cable Internet provider’s website and follow the onscreen instructions to activate your Internet service.
2. If you are unable to activate your Internet service using the instructions on your cable Internet provider’s website, call your cable Internet provider for support.
3. Perform an Internet speed test to verify that you are receiving the subscribed data rate.

Perform a Speed Test

To determine the accurate Internet speed, visit the speed test website of your cable Internet provider and perform a speed test.

If your actual speed is lower than your subscribed speed, contact your cable Internet provider.

2

Manage Your Network

After you set up the cable modem, you do not need to log in to the cable modem for normal operation. However, you can log in to the cable modem to change a very limited number of settings and monitor the cable modem.

This chapter includes the following sections:

- [Log in to the cable modem](#)
- [Change the admin password](#)
- [View cable modem initialization](#)
- [View cable modem status](#)
- [View and clear event logs](#)
- [Specify the cable connection starting frequency](#)
- [Ethernet Port Aggregation](#)
- [Set Up Ethernet Port Aggregation](#)
- [View the Ethernet Port Aggregation Status](#)
- [Change the Ethernet Port Aggregation Configuration Mode](#)
- [Reboot the cable modem](#)
- [Reset the cable modem to factory default settings](#)

Log in to the cable modem

To log in to the cable modem:

1. Connect a computer to your cable modem.

You can connect a computer to your cable modem using the following methods:

- Connect a computer to your cable modem using an Ethernet connection.
- Connect a WiFi router to your cable modem using an Ethernet connection, and then connect a computer to your router using a WiFi or Ethernet connection.

2. Launch a web browser.

3. Enter **http://192.168.100.1**.

A login window opens.

4. Enter the admin user name and password.

The user name is **admin**. The default password is printed on the product label. The user name and password are case-sensitive.

The BASIC Home page displays.

Change the admin password

You can change the default password that is used to log in to the cable modem with the admin user name.

Note: Be sure to change the password for the user name admin to a secure password. The ideal password contains no dictionary words from any language and contains uppercase and lowercase letters, numbers, and symbols. It must be at least 6 and up to 32 characters.

To set the password for the user name admin:

1. Launch a web browser from a computer that is connected to your cable modem.

2. Enter or **http://192.168.100.1**.

A login window opens.

3. Enter the admin user name and password.

The user name is **admin**. The default password is printed on the product label. The user name and password are case-sensitive.

The BASIC Home page displays.

4. Select **ADVANCED > Administration > Set Password**.
The Set Password page displays.
5. Type the old password, and type the new password twice.
6. Click the **Apply** button.
Your settings are saved.

View cable modem initialization

You can track the initialization procedure of the cable modem and get details about the downstream and upstream cable channel. The time is displayed after the cable modem is initialized.

The cable modem automatically goes through the following steps in the provisioning process:

1. Scans and locks the downstream frequency and then ranges the upstream channels.
2. Obtains a WAN address for the cable modem.
3. Connects to the Internet.

To view the status of the cable modem initialization:

1. Launch a web browser from a computer that is connected to your cable modem.
2. Enter **http://192.168.100.1**.
A login window opens.
3. Enter the admin user name and password.
The user name is **admin**. The default password is printed on the product label. The user name and password are case-sensitive.
The BASIC Home page displays.
4. Select **Cable Connection**.
The Cable Connection page displays.
The Startup Procedure section displays the initialization progress. The page also displays the status of all downstream and upstream channels. (You must scroll down to view all the channels.) The number of downstream and upstream channels that are locked depends on the number of channels that your Internet provider uses.

View cable modem status

To view cable modem status and usage information:

1. Launch a web browser from a computer that is connected to your cable modem.
2. Enter **http://192.168.100.1**.
A login window opens.
3. Enter the admin user name and password.
The user name is **admin**. The default password is printed on the product label. The user name and password are case-sensitive.
The BASIC Home page displays.
4. Click the **ADVANCED** tab.
The ADVANCED Home page displays information about your cable modem.

View and clear event logs

Event logs capture important cable modem events.

To view and clear the event logs:

1. Launch a web browser from a computer that is connected to your cable modem.
2. Enter **http://192.168.100.1**.
A login window opens.
3. Enter the admin user name and password.
The user name is **admin**. The default password is printed on the product label. The user name and password are case-sensitive.
The BASIC Home page displays.
4. Select **ADVANCED > Administration > Event Log**.
The Event Log page displays the following information:
 - **Time**. The time the event was recorded.
 - **Priority**. The severity for this event.
 - **Description**. A description of this event.
5. To refresh the page, click the **Refresh** button.
6. To clear the log entries, click the **Clear Log** button.

Specify the cable connection starting frequency

The starting frequency is automatically generated. For most Internet connections, you do not need to specify this information. If you must enter a starting frequency, contact your Internet provider.

To change the starting frequency:

1. Launch a web browser from a computer that is connected to your cable modem.
2. Enter **http://192.168.100.1**.
A login window opens.
3. Enter the admin user name and password.
The user name is **admin**. The default password is printed on the product label. The user name and password are case-sensitive.
The BASIC Home page displays.
4. Select **Cable Connection**.
The Cable Connection page displays the status of all downstream and upstream channels.
5. In the **Starting Frequency** field, type a number as instructed by your cable Internet provider.
6. Click the **Apply** button.
Your settings are saved.

Ethernet Port Aggregation

Ethernet aggregation lets you use the LAN 1 and 2 ports on your cable modem to improve the aggregated transfer speed. Note that Ethernet port aggregation is also referred to as link aggregation, teaming port, and port trunking. If a router or computer supports Ethernet aggregation, you can connect your router or computer to the LAN 1 and 2 ports on your cable modem.

To set up Ethernet port aggregation with your cable modem, you need the following:

- A service provider that offers an Internet speed that's over 1 Gbps.
- A router or computer that supports the following:
 - 802.3ad LACP
 - Ethernet port aggregation on its WAN ports

WARNING: To avoid causing broadcast looping, which can shut down your network, do not connect an unmanaged switch to the LAN 1 and 2 port on your cable modem.

Set Up Ethernet Port Aggregation

To set up Ethernet port aggregation:

1. Configure your router or computer before connecting it to the cable modem.
For information about how to set up Ethernet port aggregation on your router or computer, see the documentation that came with your router or computer.
2. Connect the Ethernet ports on your router or computer that support Ethernet port aggregation to the LAN 1 and 2 ports on your cable modem.
For information about viewing your cable modem's Ethernet port aggregation status, see [View the Ethernet Port Aggregation Status](#) on page 18.

View the Ethernet Port Aggregation Status

To view your cable modem's Ethernet port aggregation status:

1. Launch a web browser from a computer that is connected to your cable modem.
2. Enter **http://192.168.100.1**.
A login window opens.
3. Enter the admin user name and password.
The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.
The BASIC Home page displays.
4. Select **ADVANCED > Advanced Setup > Ethernet Port Aggregation**.
The Ethernet Port Aggregation page displays the Ethernet port aggregation status on the page.

Change the Ethernet Port Aggregation Configuration Mode

To change your cable modem's Ethernet port aggregation configuration mode:

1. Launch a web browser from a computer that is connected to your cable modem.
2. Enter **http://192.168.100.1**.
A login window opens.
3. Enter the admin user name and password.
The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.
The BASIC Home page displays.
4. Select **ADVANCED > Advanced Setup > Ethernet Port Aggregation**.
The Ethernet Port Aggregation page displays.
5. Select a configuration mode:
 - **Disable**. This is the default mode. This mode disables the Ethernet port aggregation function on the cable modem. Do not use the LAN 2 port if you select this mode.
 - **Enable (LACP-IEEE 803.3ad)**. The cable modem communicates with the router or computer that is connected to the LAN 2 port on your cable modem and checks to see if Ethernet port aggregation is supported on the router or computer. If Ethernet port aggregation is supported, the cable modem automatically trunks the LAN 2 port. If not, the LAN 2 port will not pass traffic.

Reboot the cable modem

Rebooting the cable modem disconnects all network connections to the cable modem's local area network (LAN). After the cable modem is finished booting and reestablishes a connection with the Internet, the devices on your network reconnect to the cable modem's LAN.

To reboot the cable modem:

1. Launch a web browser from a computer that is connected to your cable modem.
 2. Enter **http://192.168.100.1**.
A login window opens.
-

3. Enter the admin user name and password.
The user name is **admin**. The default password is printed on the product label. The user name and password are case-sensitive.
The BASIC Home page displays.
4. Click the **ADVANCED** tab.
The ADVANCED Home page displays.
5. Click the **Reboot** button.
A confirmation message displays.
6. Click the **OK** button.
The cable modem reboots.

Reset the cable modem to factory default settings

To reset the cable modem to factory default settings, you can use either the **Reset** button on the back panel of the cable modem or the **Factory reset** software button. However, if you changed the default password that you use to access the cable modem and lost the password, you must use the **Reset** button on the back panel.

After you reset the cable modem to factory default settings, the password is printed on the product label. The LAN IP address is always 192.168.100.1. You cannot change this LAN IP address.

Use the reset button on the back panel

CAUTION: This process erases all settings that you configured in the cable modem.

To reset the cable modem to factory default settings using the Reset button:

1. On the back of the cable modem, locate the **Reset** button.
2. Using a straightened paper clip, press and hold the **Reset** button until the cable modem reboots itself.

The configuration is reset to factory default settings. This process takes about one minute.

Use the factory reset software button

CAUTION: This process erases all settings that you configured in the cable modem.

To reset the cable modem to factory default settings using the Factory reset software button:

1. Launch a web browser from a computer that is connected to your cable modem.
2. Enter **http://192.168.100.1**.
A login window opens.
3. Enter the admin user name and password.
The user name is **admin**. The default password is printed on the product label. The user name and password are case-sensitive.
The BASIC Home page displays.
4. Click the **ADVANCED** tab.
The ADVANCED Home page displays.
5. Click the **Factory reset** button.
A confirmation message displays.
6. Click the **OK** button.
The configuration is reset to factory default settings. When the reset is complete, the cable modem reboots. This process takes about one minute.

WARNING: To avoid the risk of corrupting the firmware, do not interrupt the reset. For example, do not close the browser, click a link, or load a new page. Do not turn off the cable modem.

3

Troubleshooting

This chapter provides information about troubleshooting your cable modem.

The chapter includes the following sections:

- [Use LEDs to Troubleshoot](#)
- [Cannot log in to the cable modem](#)
- [Troubleshoot the cable internet connection](#)

Use LEDs to Troubleshoot

The following table provides help when you are using the LEDs for troubleshooting.

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Table 3. Troubleshooting with LEDs

LED Behavior	Action
All LEDs are off when the cable modem is plugged in.	<ul style="list-style-type: none">• Make sure that the power cord is properly connected to your cable modem and that the power supply adapter is properly connected to a functioning power outlet.• Check that you are using the 12 VDC, 1.5A power adapter from NETGEAR for this product.• If the error persists, a hardware problem occurred. Contact Technical Support.
All LEDs stay on.	<ul style="list-style-type: none">• Reset the configuration of the cable modem to its factory defaults.• If the error persists, a hardware problem occurred. Contact Technical Support
The Ethernet LED is off for a port with an Ethernet connection.	<ul style="list-style-type: none">• Make sure that the Ethernet cable connections are secure at the cable modem and at the computer, router, or WiFi router.• Make sure that power is turned on to the connected hub or computer.• Be sure that you are using the correct cable.
The Internet LED is off and the cable modem is connected to the cable wall jack.	<ul style="list-style-type: none">• Make sure that the coaxial cable connections are secure at the cable modem and at the wall jack.• Make sure that your Internet service provider provisioned your cable Internet service. Your ISP can verify that the signal quality is good enough for cable modem service.• Remove any excessive splitters that you installed on your cable line.
The Power LED lights red.	<p>The cable modem is too warm and might overheat. Do the following:</p> <ol style="list-style-type: none">1. Disconnect the power adapter.2. Wait a couple of minutes to let the cable modem cool down.3. Make sure that the cable modem is placed in a vertical position.4. Make sure that the cable modem is placed in a location with good ventilation.5. Reconnect the power adapter.

Cannot log in to the cable modem

If you cannot access your cable modem from a computer that is connected to your cable modem or to a router that is connected your cable modem, check the following:

- If your computer is connected to your cable modem with an Ethernet cable, check the connection.
- Make sure that Java, JavaScript, or ActiveX is enabled in your browser. If you are using Internet Explorer, click the **Refresh** button to make sure that the Java applet is loaded.
- Try quitting the browser and launching it again.
- Make sure that you are using the correct login information. Your cable modem user name **admin** is lowercase (Caps Lock is off).
- Make sure that your computer's IP address is on the same subnet as the cable modem. The IP address of your computer must be in the range of 192.168.100.2 to 192.168.100.254.

If your cable modem does not save changes you made, do the following:

- When entering configuration settings, be sure to click the **Apply** button before moving to another page, or your changes are lost.
- Click the **Refresh** or **Reload** button in the web browser. It is possible that the changes occurred, but the web browser is caching the old configuration.

Troubleshoot the cable internet connection

If your cable modem cannot access the Internet but the Online LED lights white, make sure that the cable MAC address or device MAC address of your cable modem is registered with Internet service provider (see [Activate Your Internet Service](#) on page 10).

4

Supplemental Information

This appendix covers the following topics:

- [Factory Settings](#)
- [Technical Specifications](#)

Factory Settings

The following table shows the factory default settings for the cable modem.

Table 4. Factory default settings

Feature		Default Setting
Cable modem login	User login URL	http://192.168.100.1
	User name (case-sensitive)	admin
	Login password (case-sensitive)	Printed on the product label
Internet connection	Cable modem MAC address	Use default hardware address
	Port speed	AutoSensing

Technical Specifications

The following table lists the technical specifications for the cable modem.

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Table 5. Technical specifications

Feature	Specification
Power adapter	<ul style="list-style-type: none">• Input: 110-120V, 47-60 Hz• Output: 12 VDC, 1.5 A
Physical specifications	<ul style="list-style-type: none">• Dimensions: (W X D X H) 6.8 x 3.7 x 8.2 in. (172 x 94 x 208 mm)• Weight: 1.09 lb (495 g)
Environmental	<ul style="list-style-type: none">• Operating temperature: 32° to 104°F (0° to 40°C)• Operating humidity: 90% maximum relative humidity, noncondensing
Interface	<ul style="list-style-type: none">• Aggregate: Two aggregated 1 Gigabit RJ-45 Ethernet ports• Internet: Coaxial cable connector DOCSIS 3.1; backward-compatible with DOCSIS 3.0
Channels	<ul style="list-style-type: none">• 2 OFDM and 32 SC-QAM bonded downstream• 2 OFDMA and 8 SC-QAM bonded upstream
Certifications	<ul style="list-style-type: none">• CableLabs certified for U.S. cable internet services.• FCC/UL