NETGEAR®

Voice Cable Modem

User Manual

Model CM500V

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Support

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Compliance

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Hardware Setup

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This chapter covers the following topics:

- Unpack Your Cable Modem
- 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*.

Note An uninterruptible power supply (UPS) can be purchased separately for continued service during power outages. For a list of supported UPS models, visit netgear.com/support/product/CM500V.

Unpack Your Cable Modem

Your package contains the following items.



Figure 1. Package contents

- 1. High Speed Cable Modem (Model CM500V)
- 2. Phone cable
- 3. Ethernet cable
- 4. Power adapter

Front Panel and LEDs

The cable modem provides status LEDs on the front.



Figure 2. Front panel

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

Table 1. LED descriptions

LED	Icon	Description	
Power	U	 Solid green. 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 <i>Use LEDs to Troubleshoot</i> on page 26. 	
Downstream	V ₁	 Solid amber. One downstream channel is locked. Solid green. Two or more downstream channels are locked. Blinking amber. The cable modem is scanning for a downstream channel. Blinking green. The cable modem is in partial service mode. Off. No downstream channel is locked. 	

Table 1. LED descriptions (Continued)

Upstream	**	•	Solid amber. One upstream channel is locked. Solid green. Two or more upstream channels are locked. Blinking amber. The cable modem is scanning for an upstream channel. Blinking green. The cable modem is in partial service mode. Off. No upstream channel is locked.
Internet		•	Solid green. The cable modem is online. Blinking green. The cable modem is synchronizing with the cable provider's cable modem termination system (CMTS). Off. The cable modem is offline.

Table 1. LED descriptions (Continued)

Ethernet	**		Green. A powered-on device is connected to the Ethernet port at 1000 Mbps. Amber. A powered-on device is connected to the Ethernet port at 10 Mbps or 100 Mbps. Off. No device is connected to the Ethernet port. Blinking green or amber. The Ethernet port is processing traffic.
Tel 1 and 2	1) 2)	•	Solid green. The Tel 1 or 2 port is online. Blinking green. The Tel 1 or 2 port is processing a call or the phone is off-hook. Off. The Tel 1 or 2 port is not in use.

Rear Panel

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



Figure 3. Rear panel

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

- Power On/Off button. Press the Power On/Off button to provide power to the cable modem.
- DC power connector. Connect the power adapter that came in the product package to the DC power connector.
- Tel 1 and 2 ports. Connect your phone line to the Tel 1 port.

Note The Tel 2 port works only for a two-phone-line subscription.

- Ethernet port. For installation and activation, connect a computer to this port. After you install the cable modem and activate your Internet service, you can disconnect the computer and connect a router to this port.
- 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 green and the cable modem returns to its factory settings.
- Coaxial cable port. Connect the cable port to a cable wall outlet.

Label

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



Figure 4. Cable modem label

System Requirements

You need the following to install your cable modem:

- Compatible operating system:
 - Windows 7
 - Windows 8
 - Windows 10
 - 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
- XFINITY cable broadband Internet service

Note An uninterruptible power supply (UPS) can be purchased separately for continued service during power outages. For a list of supported UPS models, visit netgear.com/support/product/CM500V.

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.

Activate Your Internet Service With Comcast XFINITY

To activate your Internet service, call Comcast XFINITY customer service at either of the following phone numbers:

- 1-855-OK-BEGIN (1-855-652-3446)
- 1-800-XFINITY (1-800-934-6489)

Before you call Comcast, collect the following information:

- XFINITY account number
- The phone number associated with your XFINITY account
- XFINITY login information (your email address or user name and password)
- Modem model number, which is CM500V
- Modem serial number
- Modem MAC address
- Modem MTA MAC address

Your cable modem's serial number and MAC address are on the cable modem label.



Figure 5. Label

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.



Figure 6. Connect the cable modem to a computer

To connect your cable modem directly to a computer:

- 1. Use a coaxial cable that is provided by Comcast XFINITY to connect the cable port on the cable modem to a cable wall outlet.
 - Make sure that the cable is tightly connected.
- 2. (Optional) If you use XFINITY Voice, connect your phone to the Tel 1 port on the cable modem with phone cable.

For more information, see Connect a Telephone Line on page 15.

Note The Tel 2 port works only for a two-phone-line subscription.

- Connect the power adapter to the cable modem and plug the power adapter into an electrical outlet.When the startup is complete, the Power LED lights green. If the Power LED does not light, press the Power On/Off button.
- 4. Wait for the cable modem to come online.

The cable modem comes online when the Internet LED stops blinking and lights solid green.

This process might take up to 10 minutes.

5. Connect a computer to the cable modem.

Use the Ethernet cable that is provided in the package to connect a computer to the Ethernet port on the cable modem.

6. Call Comcast XFINITY to activate your Internet service.

For information about how to activate your Internet service, see *Activate Your Internet Service With Comcast XFINITY* on page 10.

Note After you install and activate the cable modem, you can disconnect the computer and connect a router to the cable modem. For more information, see *Connect Your Cable Modem to a Router After Installation and Activation* on page 12.

7. Dial a number to place a test call.

Note To make calls, you need a voice service subscription with Comcast XFINITY.

Perform a Speed Test

To determine the accurate Internet speed, visit *speedtest.xfinity.com/* and perform a speed test. If your actual speed is lower than your subscribed speed, contact XFINITY.

Connect Your Cable Modem to a Router After Installation and Activation

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



Figure 7. Connect the cable modem to a router

▶To connect your cable modem to a router after installation and activation:

 Reboot the cable modem by unplugging the power cable from the cable modem and plugging it back in.

Wait for the Internet LED to stop blinking and light solid green.

- 2. Use an Ethernet cable to connect the Ethernet port on the cable modem to the WAN or Internet port on the router.
- 3. Power on the router.
- 4. Wait until the router is ready.
- 5. Connect a computer to the router.

For more information about how to set up your router, see the documentation that came with your router.

Monitor Voice Telephone Lines

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This chapter includes the following sections:

- Connect a Telephone Line
- View Voice Status
- View the MTA Call List
- View the EMTA Event Log

Connect a Telephone Line

If you use XFINITY Voice, you can connect your phone to the cable modem with phone cable.



Figure 8. Connect a telephone line

To connect a telephone line:

1. Connect one end of the phone cable to the Tel 1 port on the rear panel of the cable modem.

Note The Tel 2 port works only for a two-phone-line subscription.

- 2. Connect the other end of the phone cable to the telephone.
- 3. Call Comcast XFINITY customer service at 1-800-XFINITY (1-800-934-6489) and ask them to register the phone lines.

After the voice line is registered, you can hear a dial tone when the phone is off-hook.

View Voice Status

The cable modem functions as a multimedia terminal adaptor (MTA), allowing the cable modem to provide voice services. You can view some basic MTA voice information.

▶To view the MTA voice status:

- Launch a web browser from a computer that is attached over an Ethernet cable to the cable modem or from a computer that is connected to a WiFi router that is attached over an Ethernet cable to the 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 Voice.

The Voice Status page displays the following information:

- MTA Provision Status. This is the current MTA provision state.
- MTA MAC Address. This is the MAC address of the MTA interface.
- MTA Telephony Line 1 and Line 2 Status. These are the hook states of line 1 and line 2.
- MTA Line 1 and Line 2 HD Audio Status. These are the MTA HD audio states of line 1 and line 2 during codec negotiation. If the lines are enabled, it means that each line is capable of using the G.722 codec.
- 5. To refresh the Voice Status page, click the **Refresh** button.

View the MTA Call List

You can view the multimedia terminal adapter (MTA) call list for your cable modem. You can also view the codec used for the last call and some of the previous calls.

▶ To view or refresh the MTA call list:

- Launch a web browser from a computer that is attached over an Ethernet cable to the cable modem or from a computer that is connected to a WiFi router that is attached over an Ethernet cable to the 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 MTA Call List.

The MTA Call List page displays.

5. To see the most recent entries, click the **Refresh** button.

View the EMTA Event Log

You can view the embedded multimedia terminal adapter (EMTA) event log for your cable modem.

To view the EMTA event log:

- Launch a web browser from a computer that is attached over an Ethernet cable to the cable modem or from a computer that is connected to a WiFi router that is attached over an Ethernet cable to the 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 > EMTA Event Log.

The MTA Event Log page displays the EMTA event log.

5. To refresh the page, click the **Refresh** button.

Manage Your Network

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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
- 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:

- Launch a web browser from a computer that is attached over an Ethernet cable to the cable modem or from a computer that is connected to a WiFi router that is attached over an Ethernet cable to the 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.

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 can be up to 30 characters.

To set the password for the user name admin:

- Launch a web browser from a computer that is attached over an Ethernet cable to the cable modem or from a computer that is connected to a WiFi router that is attached over an Ethernet cable to the 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 **password**. 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:

- Launch a web browser from a computer that is attached over an Ethernet cable to the cable modem or from a computer that is connected to a WiFi router that is attached over an Ethernet cable to the 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 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:

- Launch a web browser from a computer that is attached over an Ethernet cable to the cable modem or from a computer that is connected to a WiFi router that is attached over an Ethernet cable to the 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.

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:

- Launch a web browser from a computer that is attached over an Ethernet cable to the cable modem or from a computer that is connected to a WiFi router that is attached over an Ethernet cable to the 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 > 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:

- Launch a web browser from a computer that is attached over an Ethernet cable to the cable modem or from a computer that is connected to a WiFi router that is attached over an Ethernet cable to the 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 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.

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:

- Launch a web browser from a computer that is attached over an Ethernet cable to the cable modem or from a computer that is connected to a WiFi router that is attached over an Ethernet cable to the 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.

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 **password**. 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 Upstream and Downstream LEDs light amber.
- 3. Release the **Reset** 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, if you are connected to the web management interface, do not close the browser, click a link, or load a new page. Do not turn off the cable modem.

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:

- Launch a web browser from a computer that is attached over an Ethernet cable to the cable modem or from a computer that is connected to a WiFi router that is attached over an Ethernet cable to the 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.

The ADVACNED 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.

Troubleshooting

This chapter provides information to help you diagnose and solve problems you might experience with your cable modem. If you do not find the solution here, check the NETGEAR support site at *support.netgear.com* for product and contact information.

The chapter contains the following sections:

- Use LEDs to Troubleshoot
- Cannot Log In to the Cable Modem
- Troubleshoot the Cable Internet Connection
- Troubleshoot Voice Connectivity

Use LEDs to Troubleshoot

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

Table 2. Troubleshooting with LEDs

LED Behavior	Action
All LEDs are off when the cable modem is plugged in.	 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. Make sure 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.	 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.	 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.

Table 2. Troubleshooting with LEDs (Continued)

LED Behavior	Action
The Internet LED is off and the cable modem is connected to the cable wall jack.	 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.	 The cable modem is too warm and might overheat. Do the following: Disconnect the power adapter. Wait a few minutes to let the cable modem cool down. Make sure that the cable modem is placed in a vertical position. Make sure that the cable modem is placed in a location with good ventilation. Reconnect the power adapter.

Cannot Log In to the Cable Modem

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

- If your computer is connected to the cable modem with an Ethernet cable, check the connection.
- 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.
- 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. The cable modem user name admin is lowercase (Caps Lock is off).

If the 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. The changes occurred, but the web browser might be caching the old configuration.

Troubleshoot the Cable Internet Connection

When your cable modem cannot access the Internet and your Internet LED is on, register the cable MAC address or device MAC address of your cable modem with your cable Internet provider.

Additionally, make sure that the cable modem is specified as the TCP/IP gateway for your computer. If your computer obtains its information from the cable modem by DHCP, reboot the computer and verify the gateway address. For more information, see *Install and Activate Your Cable Modem* on page 10.

Troubleshoot Voice Connectivity

The following table includes tips for troubleshooting voice connectivity.

Table 3. Quick tips for troubleshooting voice connectivity

Problem	Possible Solution
No dial tone	 If you use a cordless phone, make sure that the base of your phone is turned on and receiving power and that the cordless phone battery is not low. Make sure that the phone cable connections are secure at the cable modem and at base of your phone, and that the cable modem is turned on and receiving power.
No ringing for incoming calls	 Make sure that call forwarding is not enabled. If you use a cordless phone, make sure that the ringer is not turned off.
No caller ID name	It is possible that the calling party blocked caller ID. If this is true, you might be able to program your phone to recognize an incoming number and associate a name with that number.

Technical Specifications

This appendix covers the cable modem's technical specifications.

Technical Specifications

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

Table 4. Technical specifications

Feature	Specification	
Power adapter		
	• Input: 110–120V, 47–60 Hz	
	Output: 12 VDC, 1.5A	
Physical specifications		
	 Dimensions (W x D x H): 2.5 x 4.9 x 7.6 in. (64 x 124 x 193 mm) 	
	• Weight: 0.65 lb (0.30 kg)	
Environmental		
	 Operating temperature: 32° to 104°F (0° to 40°C) 	
	 Operating humidity: 90% maximum relative humidity, noncondensing 	
Interface		
	 Local: One 10/100/1000 RJ-45 Gigabit Ethernet port 	
	 Voice: Two bridged RJ-11 phone ports 	
	 Internet: Coaxial cable connector, DOCSIS 3.0; backward compatible with DOCSIS 2.0 	
Memory		
	8 MB Flash	
	• 128 MB RAM	
Channels		
	16 bonded downstream	
	4 bonded upstream	
Certifications	CableLabs certified for U.S. cable Internet services	