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**24x8 cable modem plus
AC1900 router**

Model MG7700

User Guide





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SAFETY

This equipment is designed with the utmost care for the safety of those who install and use it. However, special attention must be paid to the dangers of electric shock and static electricity when working with electrical equipment. All guidelines of this and of the computer manufacture must therefore be allowed at all times to ensure the safe use of the equipment.

CAUTION:

These precautions help protect you and your MG7700.

- Do not put the MG7700 or its power cube in water, since this is a shock hazard.
- The MG7700 should normally be installed indoors. If you use it outdoors, protect it from moisture and be careful about temperature.
- Your MG7700 should be operated in an environment that's between 32 and 104° Fahrenheit (0 to 40° Centigrade).
- Your MG7700 should not be in a confined space. There should be room for air flow around the top, front, and sides of the MG7700.
- Make sure to use your MG7700's power cube and a compatible electrical outlet.
- The coaxial cable's ground shield is intended to be connected to the building's Earth ground. Attachment to Earth ground is typically provided through your cable service provider's installation.
- MOTOROLA and MTRLC assume no liability for damage caused by any improper use of the cable modem.



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Introduction

The Motorola Model MG7700 is a 24x8 DOCSIS 3.0 cable modem with a built-in AC1900 WiFi router that has 4 Gigabit Ethernet ports. This model connects to standard cable company Internet service. Model MG7700 can provide shared Internet access to Ethernet-capable and WiFi devices including computers, smartphones, tablets, HDTVs, game consoles, security cameras, and streaming media devices. The MG7700 is a dual-band WiFi router, and supports clients that operate on both the 2.4 and 5 GHz bands.

Basic Installation instructions for Model MG7700 are in the Quick Start that comes with Model MG7700 and that is duplicated in Chapter 2 of this User Guide.

Model MG7700 has a Configuration Manager that provides a lot of technical information about Model MG7700 and that tells you how to do some useful things as summarized below. Please note that some users will never need to use the Configuration Manager.

- Chapter 3: Alternate Ways to Connect Your Coax Cable
- Chapter 4: Connecting Devices to Your Cable Modem/Router
- Chapter 5: Setting up an HDTV, Streaming Media Device, or Other Device
- Chapter 6: Accessing the Configuration Manager by Using a Browser
- Chapter 7: Configuring Your MG7700 to Support Devices and Applications with Special Requirements, like Games Played on Game Consoles and PCs, and Security Cameras
- Chapter 8: Changing Wireless Settings
- Chapter 9: Changing Firewall Settings
- Chapter 10: Tuning Wireless Performance
- Chapter 11: Parental Control
- Chapter 12: VPN (Virtual Private Network)
- Chapter 13: Troubleshooting Tips



Quick Start

Packaged with your MG7700 modem/router



Power Cube



Coax Wrench



Ethernet Cable



Velcro® Cable Organizer

Para una Guía de Inicio Rápido en español,
por favor vaya a
www.motorolanetwork.com/MG7700ir



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Let's get started

If you don't have cable Internet service, please order that from your cable service provider.

Now connect your MG7700 as shown on the next panel.

Connecting to a Coax Cable

Please see the connection photo on the next panel. You connect your MG7700 to a "live" coax cable. Sometimes a cable will already be available. Sometimes there's a coax wall jack available, and you connect to the jack with a coax cable. Your MG7700 can also share a coax cable attached to a TV by using a coax splitter. Please note that a badly chosen splitter reduces a cable modem's speed; so if you need to use a splitter, use a 2-way splitter whose top frequency is 1,000 MHz or higher.



ON/OFF button

POWER

Connect the supplied power cube between the power jack and an electrical outlet.

ETHERNET (LAN 1-4)

You can connect a computer, HDTV, game station, or other Ethernet-capable device to any of these 4 LAN ports.

RESET

WPS button


COAX

Connect a "live" coax cable to the modem's COAX connector as discussed above. *(Tighten the nut so it's finger tight. You may want to use the supplied wrench. Make the connection snug but not over-tight.)*



Prepare to activate

By now you should have:

- Subscribed to cable Internet service.
- Connected your MG7700.
- Powered up your cable modem/router. To do this, the On/Off button needs to be On (Push the button in until it clicks). Wait for the green online connection light  to stop flashing and remain solidly lit. This may take up to 15 minutes.

You should have a recent cable bill handy because it has your account number and you'll probably need that.

If you're asked for information about the MG7700, you can find this on the label on the bottom of the modem/router.

Activate

For some service providers, you activate by calling them. Many service providers including Comcast and Cox prefer that you activate by opening the Web browser of a computer that's plugged into one of the MG7700's Ethernet ports. Once you've opened the browser, try to go to www.motorola.com. This should bring you to the service provider's activation page.

If you don't have a computer, you can use the Web browser of a WiFi device such as a smartphone or tablet for activation. In that case you'll need the unique Wireless Network Name and Password printed on the bottom of your MG7700. You'll use these in setting up your wireless device to connect to the MG7700. Once you've connected, you can open the browser of that wireless device.



For Comcast XFINITY Users Only:

If the activation page does not appear, please go to www.xfinity.com/internetsetup for more information and to activate your modem.

Here is a list of phone numbers for some major cable service providers. *(Note that this list is subject to change.)*

Comcast	1 (855) 652-3446
Cox	1 (800) 234-3993
Bright House	1 (855) 222-0102
Cable One	1 (877) 692-2253
Charter	1 (855) 757-7328
Spectrum	
RCN	1 (866) 832-4726
Suddenlink	1 (877) 794-2724
Time Warner	1 (800) 892-4357

Once your MG7700 is activated either online or by phone, your service provider will provision your MG7700 service. Typically this takes less than 5 minutes, but in some cases this may take 30 minutes or longer to complete.

Once you have activated, try to browse the Web using a device connected via Ethernet or WiFi to the MG7700. (See the section Wireless Router, below for information on connecting via WiFi). If browsing works, **Congratulations!** Your MG7700 is working.

If your MG7700 is NOT working, see **Troubleshooting Tips**.



Configuration Manager

You may not need to use the MG7700's Configuration Manager. Here are some reasons for using it:

- You want to change the wireless network name and password. For instance, maybe you want a more easily remembered name, or you're replacing a router and want to use your existing WiFi Network Name (SSID) and/or WiFi Password/Key instead of the unique ones that come with the MG7700.
- You want to set up special Internet gaming settings.
- You want to get performance information about the MG7700 modem and/or built-in router. This can be helpful in diagnosing DOCSIS performance issues and/or optimizing wireless performance.

If you need to access the MG7700 Configuration Manager, open your Web browser. Type `http://192.168.0.1` in the address bar and press the **Enter** key.

In the login dialog box, type the following User Name and Password in lower case, then click **OK**.

User Name: **admin**

Password: **motorola**

The Basic Status and Settings page will appear. If this page doesn't appear, please see the **Troubleshooting Tips** below.

You can get more detailed information about the MG7700 and its Configuration Manager, please see

www.motorolanetwork.com/MG7700manual



Wireless Router

As noted before, the MG7700 has a unique Wireless Network Name/SSID and Wireless Security Key/Password printed on the MG7700's bottom label. Set up your wireless devices to work with this SSID and security key, or the SSID and security key you specified, if you changed them.

Note that wireless performance depends on a number of factors. Please keep these things in mind:








- Where possible, put the MG7700 in a central place so that it's not too far away from your other wireless devices.
- Try to avoid interference from other wireless devices such as Bluetooth headsets and stereos, microwave ovens, WiFi-capable printers, and 2.4 GHz cordless phones and base stations. Don't put the MG7700 close to these interfering devices.
- Sometimes it helps to change the MG7700 wireless channel frequency to reduce interference with neighbors' wireless networks. This is discussed in the Troubleshooting section of this Quick Start.
- Wireless range can be limited by a variety of issues, including weak wireless clients and challenging building configurations. Some devices that connect to the MG7700 do not have as powerful a wireless signal, and often those devices can slow down your network's WiFi. If you need greater wireless range far away from your MG7700, you could add a Range Extender. For more information, please see www.motorolanetwork.com/extenders

If you have coaxial cable running near your router and a distant wireless access point, HDTV, or other device, MoCA is often a good way to connect the router to the device. MoCA can share the same cable used for cable TV or cable Internet. With the Motorola MM1000 MoCA Adapter, speeds are up to 1,000 Mbps. Please see www.motorolanetwork.com/MocaWifi



Front Panel Lights

During Power up, the lights will blink for about a minute.

LIGHT	COLOR	DESCRIPTION
 Power	Green	ON: MG7700 power on OFF: MG7700 power off
 Downstream	Green or Blue	Green Scanning for DS channel Blinking: Green ON: Connected on 1 Downstream channel Blue Negotiating bonded Blinking: channel(s) [†] Blue ON: Bonded with 2 or more channels
 Upstream	Green or Blue	Green Ranging in progress Blinking: Green ON: Connected on 1 channel Blue Negotiating bonded Blinking: channel(s) [†] Blue ON: Bonded with 2 or more channels OFF: Upstream not connected
 Online	Green	Blinking: Trying to go online ON: Online OFF: Offline
 2.4 GHz WLAN	Green	Blinking: Data is flowing ON: WiFi is enabled OFF: WiFi is not enabled
 5 GHz WLAN	Green	Blinking: Data is flowing ON: WiFi is enabled OFF: WiFi is not enabled
 WPS	Green	Blinking: WPS is in discovery mode ON: Light will remain solid after WPS configuration is successful

[†] If a blue light blinks continuously, this indicates partial service (at least one designated channel has not completed bonding). You should still get high Internet speeds, but your service provider may want to know so they can adjust their network.



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Alternate Ways to Connect Your Coax Cable

As summarized in the Quick Start, one important connection is the coaxial cable connection that carries your cable Internet service to your MG7700. Here are the main ways you can make that connection:

1. Use the loose end of an available “live” coaxial cable from your cable service provider. Plug the loose end into the Coax jack of your cable modem.
2. If there’s a “live” coax jack in your wall, connect a coax cable between that jack and the Coax jack of your cable modem.
3. Use a “live” cable that’s plugged into one of your televisions. If you still want cable TV to go to that TV set, you can get a coaxial splitter and two cables of the right length as shown below.



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Connecting Devices to Your Cable Modem/Router

You can connect computers, smartphones, tablets, game consoles, security cameras, streaming media devices (like Roku, Chromecast & AppleTV), Internet-enabled HDTVs and other devices to your cable modem/router.

You can connect these devices either with an Ethernet cable (a wired connection), or via WiFi (a wireless connection).

An Ethernet connection is normally a faster, more reliable connection than a wireless connection. To make an Ethernet connection, you need a device with an Ethernet connector and a cable to connect between that device and your cable modem. In some cases, this may be impossible because of the location of the devices. In those cases, or if the device doesn't have an Ethernet connector, you will need to create a wireless connection as described below.

Connecting a Device via Ethernet

To make the connection at the Ethernet-capable device, simply plug in one end of the Ethernet cable to an Ethernet jack on the device. At the cable modem, plug the other end of the cable into any of the cable modem's LAN jacks. You can connect up to four devices by using the four LAN jacks.



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Connecting a Smartphone, Tablet or Other Wireless Device via Wireless

You will need to enter one or both of your wireless network names (SSIDs) and passwords into each client device that you want to connect to your network. Typically, you should enter SSIDs and Passwords for both the 2.4 and 5 GHz bands into client devices that support both bands. If you haven't changed the factory settings, you can find these on a label on the bottom of your modem's stand. If you have changed the network names and/or passwords, use your new values. (See Chapter 8 if you want to change your wireless settings).

If you want to connect devices to a Guest Network, use the Network Name and Password for that network. (See Chapter 8 if you want to set up a Guest Network).

Wireless devices vary, but they all have a Wireless Settings area. There you should first select the wireless network you want, namely the wireless network name or Guest network name of the MG7700. Now enter the password for your wireless network. Make sure to turn wireless ON on your client devices. Normally that's all you need to do.



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Setting up an HDTV, Streaming Media Device, or Other Device

A typical HDTV, for instance, has an Input or Setup section. Within that section there's normally a Network section. In that section you may need to specify that you have an Ethernet connection if that's how you connect to the MG7700. If you want to connect wirelessly to the MG7700, you'll need to select its wireless network name and then enter its wireless password.



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Accessing the Configuration Manager by Using a Browser

Model MG7700 has a Configuration Manager that provides a lot of technical information about Model MG7700 and that tells you how to do some useful things. Please note that some users will never need to use the Configuration Manager.

You can access the Configuration Manager from a computer or any other device that has a browser and that is connected via Ethernet or wirelessly to your cable modem. If you will be changing wireless settings, it's much better to use a device that connects via Ethernet while you make these changes.

To access the Configuration Manager, do the following:

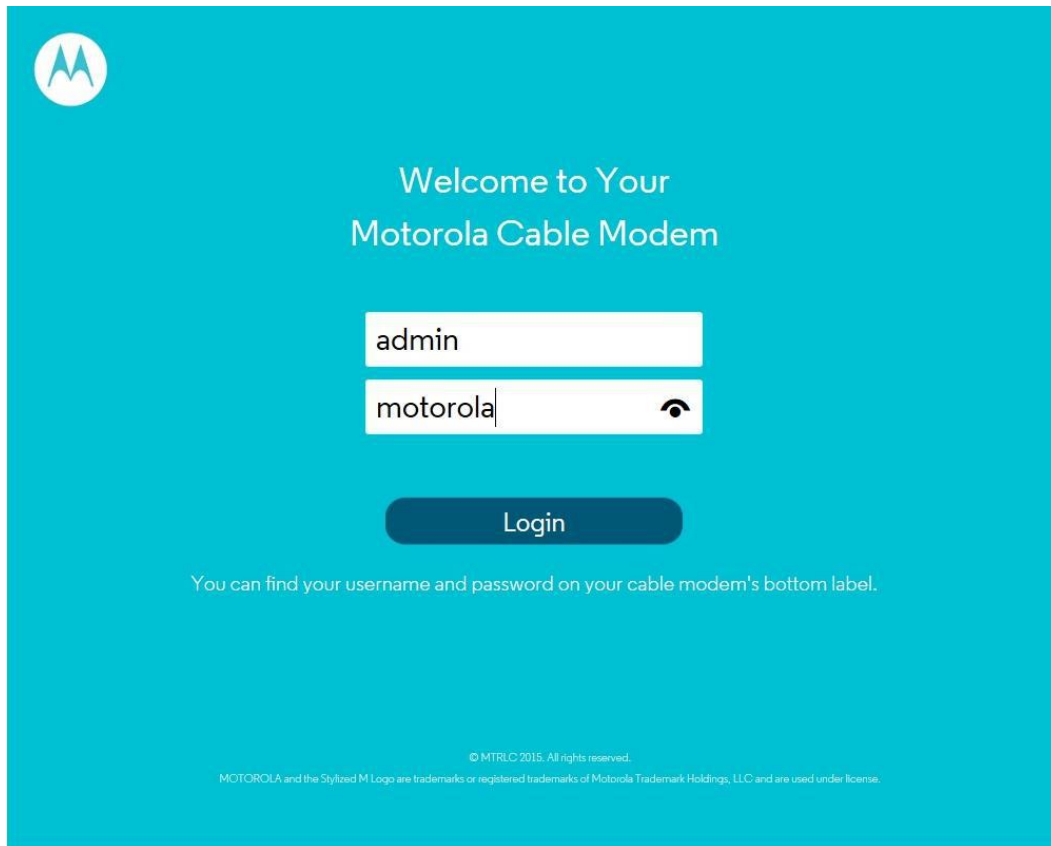
1. Open your browser.
2. Type **192.168.0.1** into your browser's address bar and press Enter.



You should see this page:

A screenshot of the Motorola Cable Modem login page. The page has a teal background. In the top left corner is the Motorola logo. The main heading reads 'Welcome to Your Motorola Cable Modem'. Below this are two white input fields: 'Username' and 'Password'. A dark teal 'Login' button is centered below the fields. A line of text below the button says 'You can find your username and password on your cable modem's bottom label.' At the bottom of the page, there is small copyright text: '© MTRLC 2015. All rights reserved. MOTOROLA and the Stylized M Logo are trademarks or registered trademarks of Motorola Trademark Holdings, LLC and are used under license.'

3. Type **admin** in the Username field.
4. Type **motorola** in the Password field.



5. Click the Login button.



This should bring you to the Basic Status and Settings page shown below.

The screenshot shows the 'Basic Status and Settings' page. At the top, there is a Motorola logo and two buttons: 'Advanced' and 'Logout'. The page is divided into three main sections:

- Internet Connection:** A table showing connection status. 'Online' is 'Not connected'. 'Number of Channels Connected' is 0. 'Downstream' and 'Upstream' are both 0. Information icons are present for each row.
- Wi-Fi® Privacy Settings:** A section with a 'Save' button. It is divided into '5 GHz' and '2.4 GHz' subsections. For 5 GHz, 'Network Name' is 'MOTO0FB8-5G' and 'Password' is masked with dots, with a 'Show Key' checkbox. For 2.4 GHz, 'Network Name' is 'MOTO0FB8' and 'Password' is masked with dots, with a 'Show Key' checkbox. Information icons are present for each field.
- Cable Modem Address and Version:** A table showing 'MAC Address' as '00:40:36:50:0f:b8' and 'Software Version' as '7700-5.7.1.8'. Information icons are present for each row.

The Basic Status and Settings page gives you information about your Internet connection, lets you view and modify your WiFi privacy settings, and shows you basic information about your cable modem's addresses and software version. The logout link lets you end your session with the Configuration Manager.

The Advanced button at the top of the page takes you to pages with more extensive information and options to configure your cable modem/router.



You can return to the Basic Status and Settings page from any Advanced page by clicking the Motorola stylized M Logo in the upper left-hand corner of the page.



Click the Motorola logo to return to the Basic page.

Note the circled (i) 'information' icons to the right of the page. You can click the icons for descriptions of entries:



Click the information icon for a description of the entry.

The information icons appear on every page, including Advanced pages.

The Advanced pages include more detailed status information, as well as exhaustive configuration options for the WiFi, Router and Firewall functions of your device. In addition, there is a Parental Control page, and pages to set up Virtual Private Networks (VPNs).



Click the Advanced button. Note the Menus and Submenus at the top of the page. The currently selected menu item is highlighted (top row), and submenu items corresponding to the selected menu item are displayed in the second row. The currently selected submenu item is indicated by a small white pointer underneath it.

In this screenshot, the menu item Status and submenu item Software are selected.

The screenshot shows the Motorola web interface. At the top, there is a navigation bar with the Motorola logo and several menu items: 'Back to Basic Page', 'Status', 'Basic Router', 'Advanced Router', 'Wireless', 'Protection & Parental Control', and 'VPN'. Below this, there is a secondary navigation bar with 'Firewall Basic', 'Firewall EventLog', and 'Parental Control'. The main content area is titled 'Software' and contains a section for 'Device Information' with the following data:

Device Information		
Cable Specification Version	DOCSIS 3.0	(i)
Hardware Version	V1.0	(i)
Software Version	7550-5.7.1.17	(i)
Cable Modem MAC Address	00:40:36:41:71:64	(i)
Cable Modem Serial Number	1646-MG7550-2759	(i)
CM Certificate	Installed	(i)
	5.7.1mp1	(i)

The following sections in this guide will walk you through the features that users most often want to configure.



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Configuring Your MG7700 to Support Devices and Applications with Special Requirements

For Games Played on Game Consoles and PCs, and Security Cameras

Devices including game consoles and security cameras often require special router settings to work correctly. This may also be true of games that you play on a PC or another device. For gaming, you probably want to use special settings if you're playing another person or a computer over the Internet. You don't need special settings for games that don't involve connecting to another player or computer over the Internet.

Typically, you will have to open ports on your router to support these devices. There may be other settings that you need to change.

To open ports, first log into the Configuration Manager as described in chapter 4. In summary, you type **192.168.0.1** in the address bar of your browser, go to that address, enter the Username **admin** and Password **motorola**, then click the Login button.

This will bring you to the Basic Status and Settings page. Click the Advanced button in the upper right. This will bring you to the Status → Software page. Hover over the Advanced Router menu item, and select the Forwarding submenu:



Forwarding

Add a Forwarding Rule

Forward Requests from the Internet to these LAN Addresses and Ports

Local

IP Address

Start Port

End Port

External

IP Address

Start Port

End Port

Protocol

Description

Enable/Disable

Add_IPv4 Add_IPv6

Forwarding Rules Added

Clear All Forwarding Rules

You can create forwarding rules for both IPv4 and IPv6 environments. These rules determine how data flows from the address to specified LAN addresses and ports. In this document we will describe how to create a rule for an IPv4 network. The steps are similar for IPv6.

To create an IPv4 Forwarding Rule, first click the Add_IPv4 button. You can now enter your port forwarding information.



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Status Basic Router **Advanced Router** Wireless Protection & Parental Control VPN

Options IP Filtering MAC Filtering Port Filtering **Forwarding** Port Triggers RIP DMZ

Forwarding

Add a Forwarding Rule ⓘ

Forward Requests from the Internet to these LAN Addresses and Ports

Local

IP Address

Start Port

End Port

External

IP Address

Start Port

End Port

Protocol

Description

Enable/Disable

Forwarding Rules Added ⓘ

Review your game or device documentation to find the port or ports that need to be forwarded. Also, determine the IP Address that your device is using. Your game or device documentation should show you where to find this.

Your game or device may need more than one port to be forwarded. In some cases, the ports will be numbered sequentially, in a range. In other cases, the ports may be separated. In this case, you will have to set up a separate forwarding rule for each port.



To Create a Port Forwarding Rule

1. Under Local IP Address, enter the address of the game station, PC or other device. In the case of a security camera, enter the address of the camera's DVR.
2. Under Local Start Port, enter the starting port that your device or game needs.
3. Under Local End Port, if your device uses a sequential range of port numbers, enter the highest number in the range. Otherwise, if there is only one number, enter the start port number again.
4. Unless instructed otherwise in your game or device documentation, leave the External entries blank. They will fill in automatically.
5. Select the protocol, TCP, UDP or Both, indicated in your documentation.
6. Select Enable in the Enable/Disable pulldown.
7. Click Save.

Repeat these steps as necessary to create rules for multiple ports or port ranges.

The rule or rules you create will appear at the bottom of the page, as shown below. Note that you can clear individual rules, or all rules.



Motorola Router Configuration Interface - Forwarding Section

Navigation: Status | Basic Router | **Advanced Router** | Wireless | Protection & Parental Control | VPN

Sub-navigation: Options | IP Filtering | MAC Filtering | Port Filtering | **Forwarding** | Port Triggers | RIP | DMZ

Forwarding

Add a Forwarding Rule ⓘ

Forward Requests from the Internet to these LAN Addresses and Ports

Local

- IP Address
- Start Port
- End Port

External

- IP Address
- Start Port
- End Port

Protocol

Description

Enable/Disable

[Add_IPv4](#) [Add_IPv6](#)

Forwarding Rules Added ⓘ

Local IP Address	192.168.0.10
Start Port	825
End Port	840
External (Internet) IP Address	0.0.0.0
Start Port	125
End Port	140
Protocol	TCP
Description	
Enable/Disable	Disable

[Edit](#) [Clear](#)

[Clear All Forwarding Rules](#)

For games and game consoles, you may also need to enable UPnP and to set the Firewall to OFF.



Options | IP Filtering | MAC Filtering | Port Filtering | Forwarding | Port Triggers | RIP | DMZ

Options

Router Selections Save

WAN Blocking	<input type="checkbox"/> Enable	?
IPSec PassThrough	<input checked="" type="checkbox"/> Enable	?
PPTP PassThrough	<input checked="" type="checkbox"/> Enable	?
Remote Config Management	<input type="checkbox"/> Enable	?
Multicast	<input checked="" type="checkbox"/> Enable	?
UPnP	<input checked="" type="checkbox"/> Enable	?
Primary Network Bridged	<input type="checkbox"/> Enable	?

Pass Through These MAC Addresses ?

Number (limit 32)	MAC Address	
1	<input type="text"/>	Add

Clear List

NAT ALG Status Save ?

RSVP	<input checked="" type="checkbox"/> Enable
FTP	<input checked="" type="checkbox"/> Enable
TFTP	<input checked="" type="checkbox"/> Enable
Kerb88	<input checked="" type="checkbox"/> Enable
NetBios	<input checked="" type="checkbox"/> Enable

Click the UPnP Enable box, and click Save at the top of the Router Selections box.



Navigation: Status | Basic Router | Advanced Router | Wireless | Protection & Parental Control | VPN

Sub-navigation: Firewall Basic | Firewall EventLog | Parental Control

Firewall Basic

Firewall Setup

IPv4 Firewall Protection	Off	Save	i
IPv6 Firewall Protection	Enabled	Save	i
Attack Detection	<input type="checkbox"/> Enable	Save	i
Block Fragmented IP Packets	<input type="checkbox"/> Enable	Save	i
Port Scan Detection	<input type="checkbox"/> Enable	Save	i
IP Flood Detection	<input type="checkbox"/> Enable	Save	i

List of Allowed Services

Service	Port Range	Protocol
No Ports Restricted		

Select Off in the IPv4 Firewall Protection pulldown, and click Save.



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Changing Wireless Settings


The MG7700 comes set up for wireless-N (2.4 GHz band) and wireless-AC (5 GHz band) with WPA2 security, with unique wireless network names (SSIDs) for each band, and a unique password. Both bands use this password. There's a good chance that you'll want to use these settings. In that case you will need to configure client wireless devices (laptops, smartphones, etc.) with your MG7700's wireless network names and password to connect the devices to the Primary Network on your MG7700. (You may want to enable a separate Guest Network or Networks for visitors and others for whom you want to provide Internet access without also providing access to your computers and other devices connected to your network.)

You may want to change the wireless settings on the Primary Network. The most common reason is that you're replacing a cable modem/router and you want to use the same wireless network names and passwords that you've had. If you change the wireless settings on your MG7700 to match your previous settings, you won't have to change the settings of wireless devices that worked with your previous router. Unless there's a good reason to change your wireless settings, you should use the unique ones assigned at the factory.

To change the wireless settings, first log into the Configuration Manager as described in chapter 6. In summary, you type **192.168.0.1** in the address bar of your browser, go to that address, enter the Username **admin** and Password **motorola**, then click the Login button.





This will bring you to the Basic Status and Settings page where you can change your network name and password:

Advanced Logout

Basic Status and Settings



Internet Connection

Online	Not connected	
Number of Channels Connected		
Downstream	0	
Upstream	0	



Wi-Fi® Privacy Settings

Save



5 GHz

Network Name	<input type="text" value="MOTO0FB8-5G"/>	
Password	<input type="password" value="....."/>	<input type="checkbox"/> Show Key 

2.4 GHz

Network Name	<input type="text" value="MOTO0FB8"/>	
Password	<input type="password" value="....."/>	<input type="checkbox"/> Show Key 

Cable Modem Address and Version

MAC Address	00:40:36:50:0f:b8	
Software Version	7700-5.7.1.8	



To Change the Network Name and Password

For the 5 GHz band:

- 1 Select and delete the old Network Name in the Wi-Fi Privacy Settings section, then type in the new Network Name.
- 2 Click the Save button.
- 3 You can click the Show Key box to check your typing for Password.
- 4 Select and delete the old Password, then type in the new Password.
- 5 Click the Save button.

For the 2.4 GHz band:

- 1 Select and delete the old Network Name in the Wi-Fi Privacy Settings section, then type in the new Network Name.
- 2 Click the Save button.
- 3 You can click the Show Key box to check your typing for Password.
- 4 Select and delete the old Password, then type in the new Password.
- 5 Click the Save button.

Network Name can be from 6 - 32 characters long. You can use the upper and lower case letters (a - z and A - Z), numbers (0 - 9) and special characters (e.g. \$/_/& etc.) except the single quote ' .

Password can be from 8 - 63 characters long. You can use upper and lower case letters (a - z and A - Z), numbers (0 - 9) and special characters (e.g. \$/_/& etc.) except the single quote ' .

Be sure to write down and save the new wireless network names and passwords in a place where you can easily find it. One approach is to write them on a small piece of paper and tape it on the bottom of your cable modem. Some people like to take a picture of the settings with their phone, which is fine as long as long as they save it in a place where they are sure to find it when they need it.



motorola

Wireless Guest Networks

You can enable one or more Guest Networks to let friends use your Internet connection without giving them access to other devices on your network.

To set up a Guest Network, first log into the Configuration Manager as described in chapter 4. In summary, you type **192.168.0.1** in the address bar of your browser, go to that address, enter the Username **admin** and Password **motorola**, then click the Login button.

This will bring you to the Basic Status and Settings page. Click the Advanced button in the upper right. This will bring you to the Status → Software page. Hover over the Wireless menu item, and select the Guest submenu:



To configure and enable a Guest Network on the 2.4 GHz band, first select the 2.4 GHz tab, and then:

- 1 Select the desired Guest Network (there are six (6) available).
- 2 Click the Save button.
- 3 Select Enabled and click Save to enable the selected Guest Network.

The following steps are optional. Follow them if you want to change the default Guest Network Name and Password:

- 4 Select and delete the old Guest Network Name, then type in the new Guest Network Name and click Save.
- 5 You can click the Show Key box to check your typing for Password.
- 6 Select and delete the old Password, then type in the new Password.
- 7 Click the Save button.



To configure and enable a Guest Network on the 5 GHz band, first select the 5 GHz tab, and then repeat the steps above.

Network Name can be from 6 - 32 characters long. You can use the upper and lower case letters (a - z and A - Z), numbers (0 - 9) and special characters (e.g. \$/_/& etc.) except the single quote ' ' .

Password can be from 8 - 63 characters long. You can use upper and lower case letters (a - z and A - Z), numbers (0 - 9) and special characters (e.g. \$/_/& etc.) except the single quote ' ' .

Changing Firewall Settings

A Firewall helps protect your Model MG7700 and the devices attached to it from harm from outsiders connecting via the Internet. Model MG7700 comes with reasonable firewall settings. The firewall allows all normal traffic to pass, but protects against well-known attacks. Normally you just leave the firewall settings in place. If you want to change them, you go to the Protection→Firewall section of the Configuration Manager. First log into the Configuration Manager as described in chapter 6. In summary, you type **192.168.0.1** in the address bar of your browser, go to that address, enter the Username **admin** and Password **motorola**, then click the Login button.

This will bring you to the Basic Status and Settings page. Click the Advanced button in the upper right. This will bring you to the Status → Software page. Hover over the Protection & Parental Control menu item, and select the Firewall submenu.



The screenshot shows the 'Firewall Basic' configuration page. At the top, there are navigation tabs: Status, Basic Router, Advanced Router, Wireless, Protection & Parental Control, and VPN. Below these are sub-tabs: Firewall Basic, Firewall EventLog, and Parental Control. The main content area is titled 'Firewall Basic' and contains two sections:

- Firewall Setup**: A table of settings with 'Save' and 'i' icons for each row.

Setting	Value	Save	i
IPv4 Firewall Protection	Low	Save	i
IPv6 Firewall Protection	Enabled	Save	i
Attack Detection	<input type="checkbox"/> Enable	Save	i
Block Fragmented IP Packets	<input type="checkbox"/> Enable	Save	i
Port Scan Detection	<input type="checkbox"/> Enable	Save	i
IP Flood Detection	<input type="checkbox"/> Enable	Save	i
- List of Allowed Services**: A table with columns for Service, Port Range, and Protocol. The current entry is 'No Ports Restricted'.

Service	Port Range	Protocol
No Ports Restricted		

The firewall lets you set your protection level through IPv4 Firewall Protection, for example. By default, with the Low setting, all services are allowed. If you select Medium or High protection, the firewall will block all services except those listed in the List of Allowed Services at the bottom of the page. Select the desired protection level, and click Save.

The higher protection levels will make it harder for attackers to penetrate your network. You may find that if you select one of these levels, that some Internet activities may fail. If that is the case, you may need to use a lower level of protection during those activities.

Note that in order to play some games, you may need to turn protection off.

When enabled, Port Scan Detection and IP Flood Detection will generate reports in the Firewall Log if they detect their respective attacks.



Tuning Wireless Performance

This chapter discusses steps to tune wireless performance. These steps can optimize wireless performance in many cases.

First, note that placement of your MG7700 can be very important. Make sure it is not too close to other wireless devices like Bluetooth transmitters (e.g. for headsets), or a neighbor's wireless router. For example, in an apartment an MG7700 could be only feet away from a neighbor's device on the other side of a shared wall.

There are also optimizations you can make by using the MG7700's Configuration Manager.

Log into the Configuration Manager as described in chapter 4. In summary, you type **192.168.0.1** in the address bar of your browser, go to that address, enter the Username **admin** and Password **motorola**, then click the Login button.

This will bring you to the Basic Status and Settings page. When the Basic Status and Settings page comes up, click the Advanced button at the top right.

Remember that you can go back to the Basic Status and Settings page at any time by clicking the Motorola 'M' logo at the upper left of the page.

To optimize wireless performance, check channel usage of neighboring devices. This is more likely to be an issue in the 2.4 GHz band than in the 5 GHz band, but we will show you how to check both bands. You can do this by looking at the wireless Scan Results table.



Select the Wireless Scan/Bridge page. Hover over the Wireless menu item to bring the Wireless submenu options into view, then click the Scan/Bridge submenu option. This brings you to the Wireless Scan/Bridge page:

The screenshot displays the Motorola router's configuration interface for the 'Wireless Scan & Extended Network Range (Bridging)' page. The navigation bar at the top includes 'Status', 'Basic Router', 'Advanced Router', 'Wireless', 'Protection & Parental Control', and 'VPN'. The 'Wireless' menu is expanded to show 'Basic', 'Radio', 'WPS RADIUS WEP', 'Guest', 'Access', 'Advanced', 'WMM', and 'Scan/Bridge'. The page title is 'Wireless Scan & Extended Network Range (Bridging)'. There are two tabs for frequency bands: '2.4 GHz' (selected) and '5 GHz'. The 'Primary Radio MAC Address' section shows a MAC Address of 'F8:CF:C5:F4:2F:FC'. The 'Wireless Bridging' section has a dropdown menu set to 'Disabled' and a list of 'Remote Bridge MAC Addresses' with four empty input fields, each with 'Save' and 'Clear' buttons. The 'Wireless Scan' section has a 'Scan Wireless APs' button.



Select the tab for the band you want to scan, 2.4 GHz or 5 GHz. Then click the “Scan Wireless APs” button at the bottom of the page. This will pop up the wireless Scan Results table:

The screenshot shows a web browser window with the URL <http://192.168.0.1/MotowlanScanResult.asp>. The page features the Motorola logo and a heading "Scan Results". Below the heading is a table titled "Nearby Wireless Access Points". The table has seven columns: Network Name, Security Mode, Mode, PHY Mode, RSSI, Channel, and Bandwidth. The data rows are as follows:

Network Name	Security Mode	Mode	PHY Mode	RSSI	Channel	Bandwidth
111beach4e	WPA-PSK TKIP	Managed	802.11b/g	-54 dBm	6	20 MHz
hpsetup	NONE	Ad Hoc	802.11b/g	-76 dBm	6	20 MHz
	WPA2-PSK AES-CCMP TKIP	Managed	802.11n	-78 dBm	6	20 MHz
	WPA2-PSK AES-CCMP TKIP	Managed	802.11n	-71 dBm	6	20 MHz
11FX08174819	WEP	Managed	802.11b/g	-70 dBm	6	20 MHz
PCHWiFi	WPA2 AES-CCMP	Managed	802.11n	-58 dBm	6	20 MHz
CoPatient	WPA2-PSK AES-CCMP	Managed	802.11n	-54 dBm	11	20 MHz
Credo	WPA2-PSK AES-CCMP	Managed	802.11n	-51 dBm	11	20 MHz
PCU	WPA2-PSK AES-CCMP	Managed	802.11n	-50 dBm	6	20 MHz

Note that as in these sample Scan Results, you may need to scroll down to see all neighboring networks.

For the 2.4 GHz band:

Look at the Channel column. This shows the channels that your neighboring networks use. Available channels are 1 through 11. Many installations use only channels 1, 6 or 11, because ideally wireless devices should be separated by 5 channels.



If there are very few neighboring wireless devices in your location, you should follow the rule of choosing a channel separated by 5 from all other channels. For example, if there are two neighboring networks using channels 6 and 11, you should choose channel 1.

If there are many neighboring networks, you may find that most use channels 1, 6 and 11. In that case, you may find you achieve better performance by choosing an unused channel between the most-used channels, for example one of channels 3, 4, 8 or 9. You may need to experiment to find the best channel. Note good candidate channels to use for your network. Then, navigate to the Wireless Basic page.

For the 5 GHz band:

Look at the Channel column. This shows the channels that your neighboring networks use. Available channels include 36 - 48 and 149 - 165. Some channels from 52 - 144 may also be available; however, these channels may be allocated to uses including weather RADAR and other government sanctioned applications.

As of this writing (2018) it is unusual for the 5 GHz band to be crowded. If it is crowded in your location, choose a channel or channels that are unused or little used by neighbors. Then, navigate to the Wireless Basic page.

Hover over the Wireless menu item to bring the Wireless submenu options into view, then click the Basic submenu option. This brings you to the Wireless Basic page:



Back to Basic Page Status Basic Router Advanced Router Wireless Protection & Parental Control VPN

Basic Radio WPS RADIUS WEP Guest Access Advanced WMM Scan/Bridge

Basic

2.4 GHz 5 GHz

Primary Network

Primary Network Status	Enabled	Save	i
Network Name (SSID)	MOTO4BCA	Save	i
Security Key / Password	•••••••• <input type="checkbox"/> Show Key	Save	i
Channel	Auto	Save	i
Bandwidth	20 Mhz	Save	i
Sideband for Control Channel	Lower	Save	i
Protected Management Frames	Off	Save	i

Select the tab for the band you want to change. Then select the desired channel from the Channel pulldown, and click Save. Wait for a minute or so for client devices to resynchronize to the new channel.

Check to see whether wireless performance has improved. If not, you can try another channel selection.



WiFi Multimedia (WMM)

Another possible way to improve performance is to change WiFi Multimedia (WMM) settings. From the Wireless menu, click the WMM submenu:

The screenshot shows the Motorola router's configuration interface. At the top, there is a navigation bar with the Motorola logo and several menu items: 'Back to Basic Page', 'Status', 'Basic Router', 'Advanced Router', 'Wireless', 'Protection & Parental Control', and 'VPN'. Below this, a secondary navigation bar shows 'Basic', 'Radio', 'WPS RADIUS WEP', 'Guest', 'Access', 'Advanced', 'WMM', and 'Scan/Bridge'. The 'WMM' option is highlighted. The main content area is titled 'Wi-Fi Multimedia (WMM)'. It features two tabs: '2.4 GHz' (active) and '5 GHz'. Below the tabs is a 'WMM Setup' section with a teal header. This section contains three rows of settings, each with a dropdown menu, a 'Save' button, and an information icon (i):
1. 'WMM Support' is set to 'On'.
2. 'No-Acknowledgement' is set to 'Off'.
3. 'Power Save Support' is set to 'On'.

WMM is designed to provide Quality of Service (QoS) support for multi-media traffic on your network. The multi-media applications must also support WMM. When they do, WMM facilitates smoother traffic flow for these traffic types. WMM cannot be turned off.

If you find wireless traffic is not flowing well, you can turn on No-Acknowledgement. No-Acknowledgement improves packet throughput with the trade-off of higher error rates. In many cases this can result in an overall improvement in performance.

Power Save Support is designed to support client devices with the Power Save feature. The Power Save feature extends battery life by reducing power consumption. However, sometimes this feature results in suboptimal wireless performance. You can turn Power Save Support



Off and see if that improves performance in your network. Select the tab for the band you are experiencing suboptimal performance with. Then select Off and click Save.



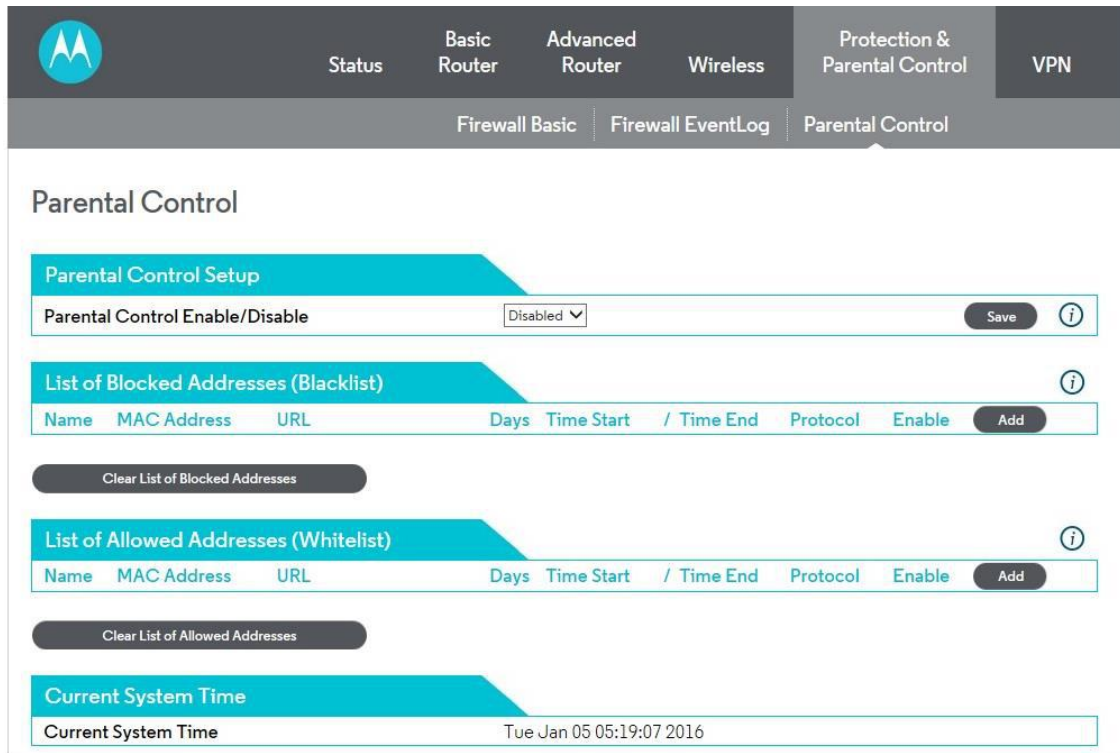
Parental Control

Note that the Parental Control feature only works with unsecure websites. It does not work with secure websites (sites with URLs starting with https://).

Parental Control lets you limit access to the Internet from particular devices on your network. For a device like a child's computer or tablet, you can create lists of websites that the device is allowed to visit, blocking all others (whitelists). Alternatively, you can create lists of websites that the device may not visit, allowing all others (blacklists). You can also set times where Internet access is allowed and not allowed.

To make Parental Control settings, go to the Protection & Parental Control section of the Configuration Manager. First log into the Configuration Manager as described in chapter 6. In summary, you type **192.168.0.1** in the address bar of your browser, go to that address, enter the Username **admin** and Password **motorola**, then click the Login button.

This will bring you to the Basic Status and Settings page. Click the Advanced button in the upper right. This will bring you to the Status → Software page. Hover over the Protection & Parental Control menu item, and select the Parental Control submenu:



Parental Control

Parental Control Setup

Parental Control Enable/Disable Disabled Save i

List of Blocked Addresses (Blacklist) i

Name	MAC Address	URL	Days	Time Start	/ Time End	Protocol	Enable	Add
------	-------------	-----	------	------------	------------	----------	--------	-----

Clear List of Blocked Addresses

List of Allowed Addresses (Whitelist) i

Name	MAC Address	URL	Days	Time Start	/ Time End	Protocol	Enable	Add
------	-------------	-----	------	------------	------------	----------	--------	-----

Clear List of Allowed Addresses

Current System Time

Current System Time Tue Jan 05 05:19:07 2016

Note that Parental Control is Disabled by default. You should leave it disabled until you have set up all desired Whitelists and Blacklists. Enable Parental Control once the Whitelist and Blacklist settings are complete. Select Enable, and then Save.

If you need to modify the Whitelists or Blacklists, first Disable Parental Control and Save. Then, Enable Parental Control when the changes are complete, and Save again.

To set up either a Whitelist or a Blacklist, you will need to first find the MAC Address of the device you want to control. On some devices, this may be found on a label. On others, there may be a way to query the device to display this. Check your user documentation for that device.



You may also find the device's MAC Address by looking at the client list on your MG7700. Click Basic Router → DHCP and look at the MAC Addresses in the DHCP Client List:

DHCP Client List							
MAC Address	IP Address	Subnet Mask	Duration	Expires	Hostname	Select	
448a5ba1101e	192.168.000.020	255.255.255.000	D:01 H:00 M:00 S:00	-----:--:--	DESKTOP-V4M2NFJ	<input type="radio"/>	

You may have to do a little sleuthing to find your device's MAC Address, for example by turning the device off and on again to see which MAC Address is removed and then restored to the list.

Setting up a Blacklist

Before you make any changes, make sure Parental Control at the top of the page is Disabled, and click Save if you had to change this.

Under the tab List of Blocked Addresses (Blacklist), click the Add button to the right. A set of fields will appear. Give your Blacklist a name, and then type in the MAC Address of the device you want your Blacklist to apply to. Use the format XX:YY:ZZ:WW:VV:UU.

Next, enter the URL of the first domain that you want to block, for example BadSite.com.

If you want to the Blacklist to apply only during certain hours, enter the start and stop times for the period you want the Blacklist to apply. If you want the Blacklist to apply always, make sure to set the start time to 12:00 am and the end time to 11:59 pm.

Next, select which protocols the Blacklist should apply to. If you're not sure, leave this selection at the default setting, BOTH.



Here is an example entry to block access to BadSite.com at all times:

List of Blocked Addresses (Blacklist) (i)									
Name	MAC Address	URL	Days	Time Start	/	Time End	Protocol	Enable	
BadSite	00:12:34:56:78:9A	BadSite.com	All	12:00	AM	11:59	PM	Both	<input checked="" type="checkbox"/>
									<input type="button" value="Add"/> <input type="button" value="Save"/> <input type="button" value="Cancel"/>

Finally, make sure to check the Enable box, and click the Save button.

List of Blocked Addresses (Blacklist) (i)									
Name	MAC Address	URL	Days	Time Start	/	Time End	Protocol	Enable	
BadSite	00:12:34:56:78:9A	BadSite.com	+ All	12:00am	/	11:59pm	BOTH	<input checked="" type="checkbox"/>	
									<input type="button" value="Add"/> <input type="button" value="Edit"/> <input type="button" value="Clear"/>

Click the + sign to add another site to block for this device:

List of Blocked Addresses (Blacklist) (i)									
Name	MAC Address	URL	Days	Time Start	/	Time End	Protocol	Enable	
BadSite	00:12:34:56:78:9A	BadSite.com	+ All	12:00am	/	11:59pm	BOTH	<input checked="" type="checkbox"/>	
									<input type="button" value="Add"/> <input type="button" value="Edit"/> <input type="button" value="Clear"/>

Click the + sign to add another site to the Blacklist.

Now you can add another site, for example WorseSite.com, to the Blacklist:

List of Blocked Addresses (Blacklist) (i)										
Name	MAC Address	URL	Days	Time Start	/	Time End	Protocol	Enable		
BadSite	00:12:34:56:78:9A	BadSite.com	+ All	12:00am	/	11:59pm	BOTH	<input checked="" type="checkbox"/>		
		<input type="text" value="WorseSite.com"/>								<input type="button" value="Add"/> <input type="button" value="Edit"/> <input type="button" value="Clear"/>
									<input type="button" value="Save"/> <input type="button" value="Cancel"/>	

Remember to click Save.

Click the + sign again to add more sites if you like.



Click the Add button to configure a blacklist for another device, if you like.

When you have completed all Blacklists, remember to Enable Parental Control at the top of the page, and click Save.



Setting up a Whitelist

Before you make any changes, make sure Parental Control at the top of the page is Disabled, and click Save if you had to change this.

Under the tab List of Blocked Addresses (Whitelist), click the Add button to the right. A set of fields will appear. Give your Whitelist a name, and then type in the MAC Address of the device you want your Whitelist to apply to. Use the format XX:YY:ZZ:WW:VV:UU.

Next, enter the URL of the first domain that you want to allow, for example Jill _Site_1.com.

If you want to the Whitelist to apply only during certain hours, enter the start and stop times for the period you want the Whitelist to apply. If you want the Whitelist to apply always, make sure to set the start time to 12:00 am and the end time to 11:59 pm.

Next, select which protocols the Whitelist should apply to. If you're not sure, leave this selection at the default setting, BOTH.

Finally, make sure to check the Enable box, and click the Save button.



Here is an example entry to allow access to Jill_Site.com from 4:00 pm to 8:00 pm:

List of Allowed Addresses (Whitelist)									
Name	MAC Address	URL	Days	Time Start / Time End	Protocol	Enable	Add	Edit	Clear
Jills_PC	00:ED:CB:A9:87:65	Jill_Safe_1.com	+ All	04:00pm / 08:00pm	BOTH	<input checked="" type="checkbox"/>			

Now you can add another device, for example Joey's PC, to the Whitelist. First click the Add button.

Then enter the entry name, device MAC Address, site to allow, and start and end time for the entry. In the example below, we have named the entry Joeys_PC, and the site Joey_Safe_1.com, with active time from 10:00 am to 2:00 pm.

Remember to click Save.

Click the + sign to add another site to allow for this device:

List of Allowed Addresses (Whitelist)									
Name	MAC Address	URL	Days	Time Start / Time End	Protocol	Enable	Add	Edit	Clear
Jills_PC	00:ED:CB:A9:87:65	Jill_Safe_1.com	+ All	04:00pm / 08:00pm	BOTH	<input checked="" type="checkbox"/>			
Joeys_PC	00:CB:A9:87:65:43	Joey_Safe_2.com	+ All	10:00am / 02:00pm	BOTH	<input checked="" type="checkbox"/>			
		Joey_Safe_1.com							

Click the + sign to add another site to the Whitelist.

Click the Add button to configure a Whitelist for yet another device, if you like.



When you have completed all Whitelists, remember to Enable Parental Control at the top of the page, and click Save.



Setting up Times when Internet Access is Allowed and Not Allowed

Before you make any changes, make sure Parental Control at the top of the page is Disabled, and click Save if you had to change this.

You can set up times when Internet is allowed by configuring a Whitelist entry with a universal URL. By doing this, you can allow Internet access for a particular device only during hours that you specify. Access will be allowed to all Internet sites. Internet access will not be allowed to any site outside of the hours that you specify.

Under the tab, List of Allowed Addresses (Whitelist), click the Add button to the right. A set of fields will appear. Give your Whitelist a name, and then type in the MAC Address of the device you want your Whitelist to apply to. Use the format XX:YY:ZZ:WW:VV:UU. In this case, enter . (that is, the single character 'dot' or 'period') as the URL. Parental Control will interpret this to apply to all websites.



Now set the start and end times of when you want to allow the device to have Internet access. Here is an example of entries to allow Internet access in an after-school period from 5:00 pm to 10:00 pm. We have named the sample entry AfterSch:

Name	MAC Address	URL	Days	Time Start	/ Time End	Protocol	Enable	
AfterSch	00:34:56:78:9A:BC	.	All	5:00 PM	10:00 PM	Both	<input checked="" type="checkbox"/>	<input type="button" value="Add"/> <input type="button" value="Save"/> <input type="button" value="Cancel"/>

Make sure to check the Enable box, and click the Save button.

Click the Add button to configure a Whitelist entry for an allowed schedule for another device, if you like.

When you have completed all Whitelists, remember to Enable Parental Control at the top of the page, and click Save.

Parental Control Setup

Parental Control Enable/Disable Enabled



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VPN (Virtual Private Network)

Virtual Private Networks (VPNs) provide protected connections across the Internet. Some companies and other organizations provide remote access to their internal networks via a VPN. Employees are typically provided with software that makes the VPN connection from a computer.

When a computer provisioned for this type of VPN connection is connected behind the MG7700, the MG7700 must pass through the VPN traffic. The MG7700 is configured by default for VPN pass-through. (The IPsec and PPTP Pass-through settings on the Advanced→Options page respectively enable IPsec and PPTP VPN pass-through. IPsec and PPTP are protocols used in different VPN implementations. The pass-through settings for both are enabled by default).

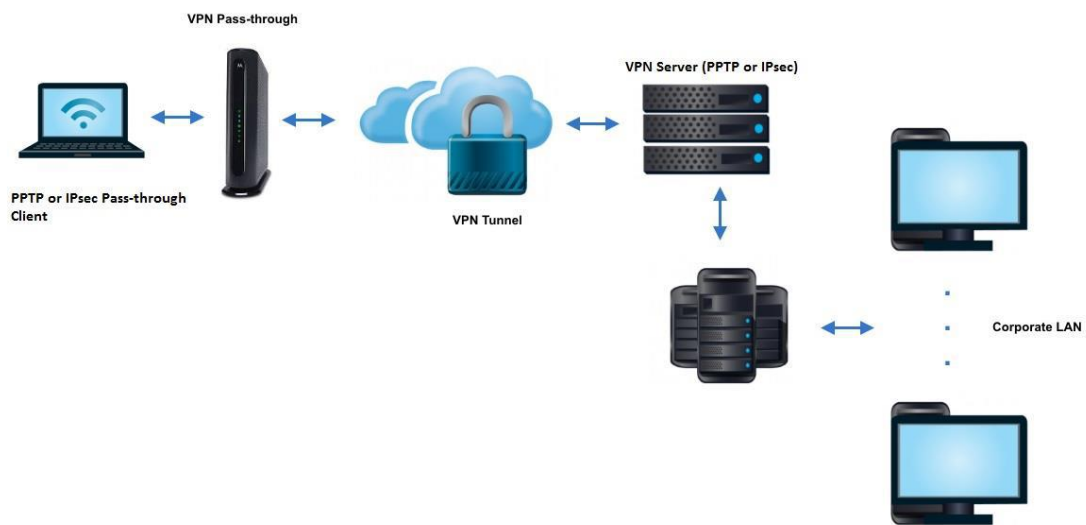
The most common type of VPN connection that MG7700 users will encounter is the type of VPN described above, that simply needs to pass through the MG7700. The VPN pages support features that allow you to terminate VPN connections on the MG7700 itself.

The MG7700 can terminate PPTP, L2TP and IPsec connections in specific scenarios. It can act as a VPN server to terminate PPTP and L2TP connections, for example from remote client computers. It can act as a VPN endpoint for IPsec connections, for example from a remote office to a central office ("site-to-site"). It cannot act as a VPN server to terminate IPsec connections from remote client computers.



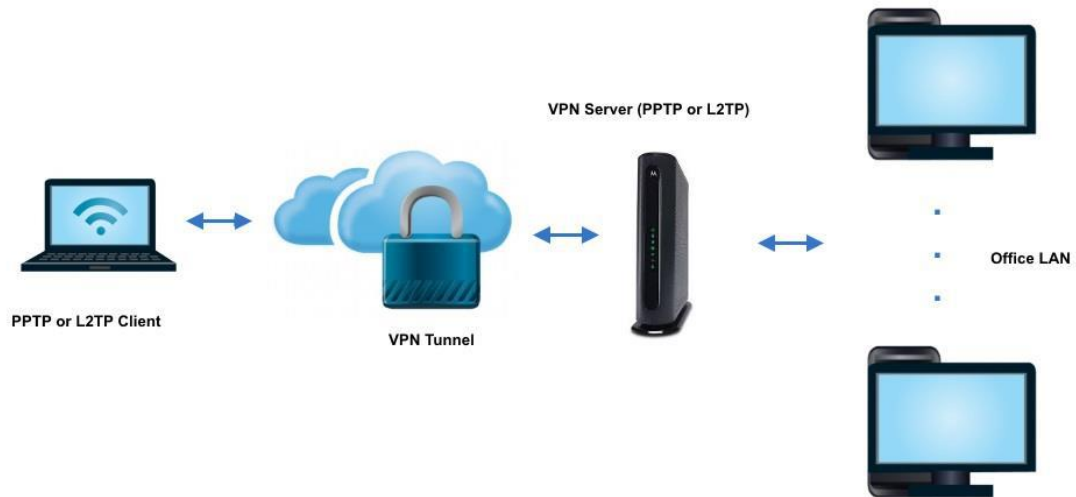
To summarize, the MG7700 supports:

- VPN Pass-through (for clients connected behind the device that need to access for example a corporate network)



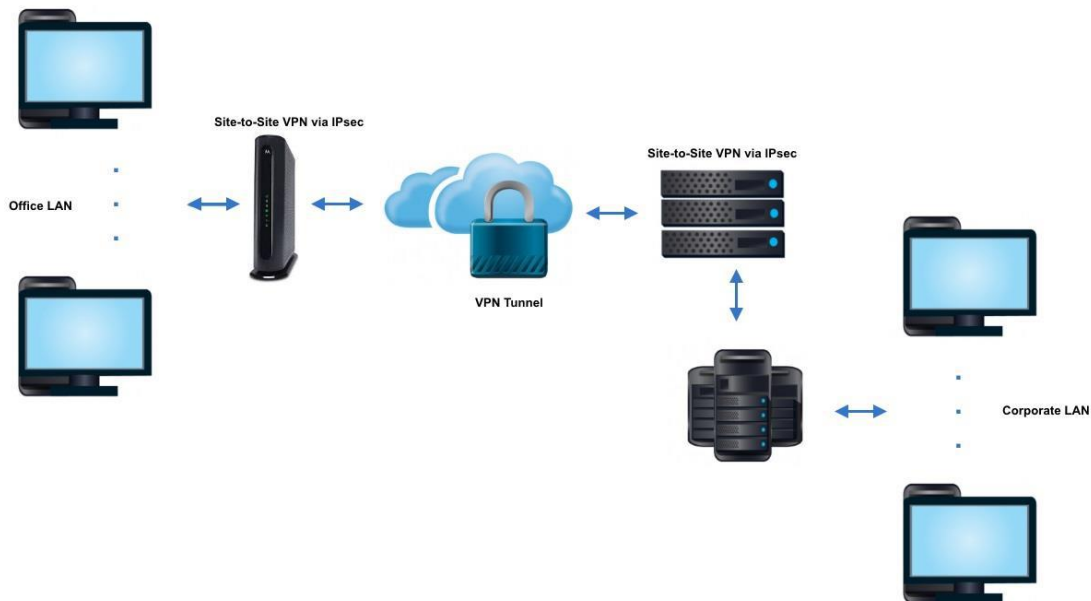


- Termination of VPN clients via PPTP & L2TP (The MG7700 can be configured as a VPN server in a small office or similar environment. Clients located on the Internet can connect to the small office network through VPN tunnels terminated at the MG7700.)





- Site-to-Site VPN via IPsec (the MG7700 can be configured to create a tunnel for all devices on the MG7700's LAN side to connect to a corporate network).



- The MG7700 will NOT support termination of client VPN connections via IPsec.

A couple of notes about VPN options. IPsec uses encryption and provides the strongest security. PPTP is considered to be the least secure VPN option. PPTP connections are not required to include encryption or authentication. L2TP is based on PPTP, and adds some level of compulsory authentication.

In the implementation of PPTP and L2TP on the MG7700, MPPE encryption is optional. Both protocols require a login; L2TP requires a passkey for authentication.



There are three pages under VPN in the MG7700 configuration manager: IPsec, L2TP/PPTP and Event Log. Use the IPsec page to set up an endpoint for a site to site IPsec connection. Use the PPTP/L2TP page to set up a server for a set of remote clients that connect via PPTP or L2TP. You may find the Event Log useful to determine what has gone wrong if you have trouble setting up a VPN.

For details on how to configure a VPN on the MG7700, follow the help available through the information icons on the configuration manager pages.

When the MG7700 is configured as a VPN endpoint, devices that connect to the endpoint will need to know the IP Address of the MG7700. You can find this address on the Status→Connections page. To provide the most stable VPN connections, the MG7700's router should be provisioned with a static IP Address. You will need to order this from your cable service provider.

The VPN implementations on the MG7700 are best effort. They are also Windows-centric. You will have to verify suitability for your own environment.



Changing Your MG7700's Username and Password, and Resetting to Factory Defaults

Changing Your MG7700's Username and Password

To change your MG7700'S Username and Password, first log into the Configuration Manager as described in chapter 6. In summary, you type 192.168.0.1 in the address bar of your browser, go to that address, enter the Username admin and Password motorola, then click the Login button.

This will bring you to the Basic Status and Settings page. Select Advanced at the top of the screen, and then Status and Security.

The screenshot shows the Motorola MG7700 Configuration Manager interface. At the top, there is a navigation bar with the Motorola logo and several menu items: Status, Basic Router, Advanced Router, Wireless, Protection & Parental Control, and VPN. Below this, there is a secondary navigation bar with tabs for Software, Connection, Diagnostics, Security, and Event Log. The Security tab is selected. The main content area is titled 'Security' and features a sub-section titled 'Username & Password' with a 'Save' button. This section contains five input fields: 'Username', 'Current Password', 'New Username', 'New Password', and 'Repeat New Password'. There are also two information icons (i) on the right side of the form.

You will need to enter the Current Username and Password, and then the new Username and Password. Your new Password will have to be entered twice. Both the Username and Password fields accept entries up to 15 characters long. Both Username and Password may include lower- and upper-case letters (a - z, A - Z) and numbers (0 - 9). Special



characters are not allowed. Be sure to click Save to write your changes to memory.

Caution: Once you make this change, you will not be able to log into the modem if you forget the new Username and Password . To recover, you will have to reset the modem to factory defaults. When you reset the device to factory defaults, you will lose all changes you have made to the modem.

Resetting to Factory Defaults

There may be occasions when you need to reset your cable modem/router to factory defaults, for example if you have changed the Username and Password and lost the new values. Note that if you reset your device to its factory defaults, you will lose any changes you have made to settings in the device.

To reset to factory defaults:

1. Make sure the cable modem/router is powered on.
2. Find the reset button on the rear of the unit. It is marked RESET.
3. Press and hold the Reset button for at least 10 seconds.
4. The device will flash its LEDs and commence a reboot sequence.

Note that you will have to manually re-enter any required changes.



Configuring Alternate WiFi Security Settings

Alternatives to WPA2--WPA, WEP, and RADIUS

Your Cable Modem/Router comes from the factory configured for WPA2-PSK wireless security with AES encryption. Some older clients may not support this security mode. (For details, see About Wireless Security, below). To change the wireless security mode, first open the page WPS_RADIUS_WEP.

To do this, first log into the Configuration Manager. In summary, you type **192.168.0.1** in the address bar of your browser, go to that address, enter the Username **admin** and Password **motorola**, then click the Login button.

This will bring you to the Basic Status and Settings page. Click the Advanced button in the upper right. This will bring you to the Status → Software page. Hover over the Wireless menu item, and select the WPS_RADIUS_WEP submenu:

To enable WPA-PSK, follow these steps:

1. Under 802.11n Mode Enable/Disable, select Disable from the pulldown.
2. Find the WPA2-PSK Security Settings tab. If WPA2-PSK is not enabled, select Enabled from the WPA2-PSK pulldown and then click Save.
3. Find the WPA-PSK Security Settings tab. Select Enabled from the WPA-PSK pulldown.
4. Click Save.
5. Under Encryption, select AES+TKIP.
6. Click Save.
7. The device will now operate in mixed WPA-PSK / WPA2-PSK mode.



If you need to support WEP, follow these steps.

1. Disable all WPA, WPA-PSK, and WPA2-PSK entries.
2. Make sure to click Save for each entry you change.
3. Under 802.11n Mode Enable/Disable, select Disable from the pulldown.
4. Click Save.
5. Find the tab WEP Security Settings.
6. In the field PassPhrase, enter a sequence of letters. This can be words, names, or an arbitrary sequence.
7. Click the button Generate WEP Keys.
8. In the WEP Encryption pulldown, select either **WEP-64 bit** or **WEP-128 bit**. (WEP-128 offers more security).
9. Select Enabled on the Show Keys pulldown.
10. Note the setting of Current Network Key. This determines which Network Key you need to use on your clients. You can change this value by selecting a different number in the pulldown.
11. Click the Save button at the top of the WEP Security Settings box.
12. Note the Network Key that you selected, and save this for use on your clients. (Also store a copy in a safe place, such as on a piece of paper taped to the bottom of your device).



About Wireless Security

There are two basic wireless security modes: WPA and WEP. There are two versions of WPA: WPA and WPA2. When configured as part of a typical home or small office network, WPA and WPA2 require a Pre-Shared Key, or PSK. These modes are typically called WPA-PSK and WPA2-PSK, respectively, though sometimes they're just called WPA and WPA2. You can enable either WPA-PSK or WPA2-PSK alone, or you can enable both WPA-PSK and WPA2-PSK together. By default, your Cable Modem/Router has WPA2-PSK with AES encryption enabled. You will only need to change the security mode if you have a device in your wireless network that only supports WEP or WPA-PSK with TKIP encryption. If you want an unsecured network, disable all security methods.



How to Tell if Your Clients Support WPA2

You can check to see if all other clients that you plan to put on the network support WPA2. You can do this by checking the manual that came with each device or by checking the configuration software for the installed device. Look under **Security** or **Encryption** or **Setup** or **Advanced Features**.

How to Configure Wireless Security for a RADIUS Server

If you have a Radius Server, select the WPA/WPA2 options without PSK.

To enable WPA and WPA2 without PSK, follow these steps:

1. Under 802.11n Mode Enable/Disable, select Disabled from the pulldown.
2. Find the WPA-PSK Security Settings tab. If WPA-PSK is Enabled, select Disabled from the WPA-PSK pulldown and click Save. (Note that WPA-PSK is Disabled by default).
3. If WPA2-PSK is Enabled, select Disabled from the WPA2-PSK pulldown and click Save. . (Note that WPA2-PSK is Enabled by default).
4. Select Enabled for WPA2. Do not click Save yet.
5. Enter the RADIUS Server Address and click Save.
6. Enter the RADIUS Port and click Save.
7. Enter the RADIUS Key and click Save.
8. If you want to enable WPA, select Enabled for WPA, and click Save.
9. If you want to enable WPA2, make sure Enabled is selected for WPA2, and click Save.
10. If you want to disable WPA2, select Disabled for WPA2, and click Save.
11. Under Encryption, if you have enabled WPA, or WPA and WPA2, select AES+TKIP. If you have enabled WPA2 only, select AES only.
12. Click Save.



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Troubleshooting Tips

What if I can't make an Internet connection right after installation?

- First turn your MG7700 off for at least 8 seconds, then on, to see if that fixes the problem.
- Check the connections you've made to your MG7700. Power and coax connections are required, and up to 4 Ethernet connections are optional. Are those connections good? Be sure that the coax cable connection is tight enough, possibly using the coax wrench.
- Check that the MG7700's power cube is plugged into a live outlet, and that the Ethernet cable is connected securely.
- Make sure that your coax cable is live. You can check that by using it with a TV.
- Check that you provided the correct setup information to your cable service provider.
- Contact your cable service provider to make sure they've turned on your Internet service.

What if my MG7700 has been working then stops working?

- First turn your MG7700 off for at least 8 seconds, then on, to see if that fixes the problem.
- If the MG7700's lights don't come on, check that the modem is getting power from its power cube and that the MG7700's power button is on.
- Check your MG7700 cables.
- Check with your service provider. Sometimes there's a service outage or some other service issue. Sometimes a service outage also affects your TV service, so check that.



What if I'm getting Internet service but my speed is disappointing?

- Be sure you know what speed you're paying for.
- Check the speed with a computer plugged into one of the modem's Ethernet ports. Use one of the tools found when you search the phrase: broadband speed test. Make sure your computer's LAN port supports gigabit rates (1000BT or GE). You will need this to achieve service speeds of 100 Mbps or greater.
- If you get good speed when a computer's directly connected to the modem, you may have a wireless problem. In that case, please re-read the wireless router section.
- Some video streaming services get bottlenecked, especially at busy times like after dinner. See whether you have the speed problem at less busy times.
- Try connecting your MG7700 nearer to where the coaxial cable comes into your home. This lets you see whether your home's cabling is a problem.
- If you're using a splitter with your MG7700, try the MG7700 without the splitter to see if that helps. If it does, you may need to get a better splitter, one with a top frequency of at least 1,000 MHz.

What if I'm told that my MG7700 isn't approved by my cable service provider?

That's probably not true. Leading cable service providers have a list of certified cable modems, and you can check the list for your service provider. You can also find information about certifications at www.motorolanetwork.com/services

What if I am connected wirelessly but my connection seems slow or keeps dropping?

Please re-read the Wireless Router sections in this User Manual.



What if I don't know my MG7700's Wireless Network Names/SSIDs or Security Key/Password?

The default values are printed on the bottom label of the MG7700. Use these unless you changed them. If you changed them, try to remember where you saved copies of the new values. Alternatively, if you have a device that connects wirelessly to the MG7700, it may show the Wireless Network Name/SSID and Password. You can also find this information through the MG7700's Configuration Manager. Information about doing this is in the Configuration Manager section above.

If all else fails, reset the device to factory defaults by holding the Reset button for 10 seconds. You can then use the default values.

What if I think that wireless devices are interfering with my MG7700 wireless router?

1. Where possible, put the MG7700 as far away as possible from interfering devices such as Bluetooth transmitters and neighbors' WiFi routers.
2. To try to pick a less used wireless channel for your MG7700. First go in to your MG7700's Configuration Manager.
3. Click the Advanced button at the top of the page, then click the Wireless and Scan/Bridge menu items at the top of the page.
4. Select the band you are having trouble with. Then click the ScanWirelessAPs button. A list will appear of competing wireless networks, including the channels they are using. Write down one or more of the less used channel numbers. Less used channels should be better for your MG7700.
5. On the top of the page, click the Wireless Basic menu item.
6. On the Basic page, select the band you are having trouble with, then select a channel you noted above in the Channel pulldown, and then click Save.

Do you have any other questions? We have lots more information at www.motorolanetwork.com/mentor



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Support

We like to help.

Please visit our support Website or call our support specialists. Our Website has our Motorola Mentor information, and also provides returns and warranty information.

www.motorolanetwork.com/support

Email: support@motorolanetwork.com

Phone: 800-753-0797 or 617-753-0562

Limited Warranty

MTRLC LLC warrants this product against defects in material and workmanship for a warranty period of 2 years. To read the full warranty, please go to www.motorolanetwork.com/warranty



Compliance

FCC Statement

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, and/or consult the dealer or an experienced radio/TV technician for help.

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment and it also complies with Part 15 of the FCC RF Rules. This equipment must be installed and operated in accordance with provided instructions and the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. End-users and installers must be provided with antenna installation instructions and consider removing the no-collocation statement.

This device complies with Class B Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

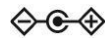


FCC Caution:

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note to CATV System Installer:

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



DC input connector is center-pin positive polarity.

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