



MGOS 4.4.2.1

RELEASE NOTES

About MGOS 4.4.2.1

MGOS 4.4.2.1 is an important general release for MG90 4G routers (currently running MGOS 4.3.1.2+) and 5G routers (currently running MGOS 4.4.0, MGOS 4.4.1, or MGOS 4.4.2).

This release addresses:

- MGOS 4.4.2 radio instability issue per [MGOS 4.4.2 Radio Instability Issue Bulletin](#)
- AirLink connection issues per [AirLink Connection Issues Bulletins](#)
- New features/updated functionality, addressed issues, and security updates

Important: *MGOS 4.4.2.1 replaces MGOS 4.4.2.*

- **Do not** upgrade to MGOS 4.4.2.
- **Do not** downgrade from MGOS 4.4.2.1 as the radio instability and AirLink connection issues may reappear.

Customers are recommended to upgrade to this latest release to take advantage of new features, updated functionality, security updates, and addressed field-reported issues that are described in this document.

Important: Customers using FIPS mode must upgrade to stay current with security bug fixes.

Important: *All MG90 5G customers running MGOS 4.4.0 must follow the [\(MG90 5G\) Upgrade MGOS 4.4.0 to MGOS 4.4.2.1](#) instructions on [page 2](#)—in brief, the required process is:*

1. Upgrade to MGOS 4.4.1 (via AMM OTA (Over-The-Air) or via USB stick).
2. Make sure the EM9190 module(s) are running the correct radio module firmware version.
If the wrong firmware is running, the router may not be able to connect to the carrier network.
3. Upgrade to MGOS 4.4.2.1.

If you upgraded directly from MGOS 4.4.0 to MGOS 4.4.2 or MGOS 4.4.2.1 and are experiencing network connectivity issues, please contact Support for further instructions.

Important: *MG90 5G customers only—If your MG90 5G routers are operating with a Sierra Wireless engineering-supplied version of EM9190 5G radio module firmware, please contact Support for further instructions on how to upgrade to MGOS 4.4.2.1.*

Note: Sierra Wireless recognizes that our customers deploy devices in a wide range of network environments with varying configurations. It is always good practice to install a new MGOS release with the planned operation workflow on a few trial devices to ensure that standard operation is maintained within your environment before deploying the new release across your fleet of MG90 5G devices.

Upgrade Methods

The following upgrade paths to MGOS 4.4.2.1 are supported:

- MG90 4G: MGOS 4.3.1.2+ → MGOS 4.4.2.1 (See below for details.)
- MG90 5G: MGOS 4.4.0 → MGOS 4.4.1 → MGOS 4.4.2.1 (See below for details.)
- MG90 5G: MGOS 4.4.1 → MGOS 4.4.2.1 (See [page 3](#) for details.)
- MG90 4G/MG90 5G: MGOS 4.4.2 → MGOS 4.4.2.1 (See [page 4](#) for details.)

(MG90 4G) Upgrade MGOS 4.3.1.2+ to MGOS 4.4.2.1

USB Stick Upgrade

1. Upgrade directly from MGOS 4.3.1.2+ to MGOS 4.4.2.1.
2. Reboot the MG90.

AMM OTA Upgrade

1. Confirm your AMM version—AMM 2.17.1 or newer is required to upgrade OTA to MGOS 4.4.2.1.

Important: *Upgrading using older AMM versions will result in MGOS firmware upgrade failures, and can require a USB-stick install to recover. For more information, refer to [Product Bulletin: AMM 2.16 Prerequisite to MG90 firmware upgrade](#).*

2. Make sure software update options are correctly configured—[Set MGOS Auto Software Update Options](#) on page 5.
3. In AMM, upgrade OTA to MGOS 4.4.2.1.

(MG90 5G) Upgrade MGOS 4.4.0 to MGOS 4.4.2.1

USB Stick Upgrade

1. Make sure software update options are correctly configured—[Set MGOS Auto Software Update Options](#) on page 5.
2. Upgrade via USB stick to MGOS 4.4.1.
3. Reboot the MG90.
4. Check the EM9190 firmware version—[Confirm Correct EM9190 Radio Module Firmware](#) on page 5.

Important: *The MG90 must be running MGOS version 4.4.1. Otherwise, it may not be able to connect to the carrier network.*

5. Upgrade via USB stick to MGOS 4.4.2.1.
6. Reboot the MG90.

AMM OTA Upgrade

1. Confirm your AMM version—AMM 2.17.1 or newer is required to upgrade OTA to MGOS 4.4.2.1.

Important: *Upgrading using older AMM versions will result in MGOS firmware upgrade failures, and can require a USB-stick install to recover. For more information, refer to [Product Bulletin: AMM 2.16 Prerequisite to MG90 firmware upgrade](#).*

2. Make sure software update options are correctly configured—[Set MGOS Auto Software Update Options](#) on page 5.
3. In AMM, upgrade OTA to **MGOS 4.4.1** (*do NOT upgrade to MGOS 4.4.2.1 yet*) from the Software Distribution panel.

Wait until AMM indicates Download Complete. (Note—AMM performs two downloads. If ‘Reboot when done’ was selected, the MG90 reboots after the first download and then AMM starts downloading the second file. Wait until Download Complete displays a second time.)

4. Reboot the MG90.
5. Check the EM9190 firmware version—[Confirm Correct EM9190 Radio Module Firmware](#) on page 5.

Important: *The MG90 must be running MGOS version 4.4.1. Otherwise, it may not be able to connect to the carrier network.*

6. In AMM upgrade OTA to MGOS 4.4.2.1.
7. Reboot the MG90.

Important: *If you upgraded directly from MGOS 4.4.0 to MGOS 4.4.2.1 (instead of 4.4.0→4.4.1→4.4.2.1) and are experiencing network connectivity issues, please contact Support for further instructions.*

(MG90 5G) Upgrade MGOS 4.4.1 to MGOS 4.4.2.1

USB Stick Upgrade

1. Confirm your AMM version—AMM 2.17.1 or newer is required to upgrade OTA to MGOS 4.4.2.1.

Important: *Upgrading using older AMM versions will result in MGOS firmware upgrade failures, and can require a USB-stick install to recover. For more information, refer to [Product Bulletin: AMM 2.16 Prerequisite to MG90 firmware upgrade](#).*

2. Make sure software update options are correctly configured—[Set MGOS Auto Software Update Options](#) on page 5.
3. Check the EM9190 firmware version—[Confirm Correct EM9190 Radio Module Firmware](#) on page 5.

Important: *The MG90 must be running MGOS version 4.4.1. Otherwise, it may not be able to connect to the carrier network.*

4. Upgrade via USB stick to MGOS 4.4.2.1.

AMM OTA Upgrade

1. Confirm your AMM version—AMM 2.17.1 or newer is required to upgrade OTA to MGOS 4.4.2.1.

Important: *Upgrading using older AMM versions will result in MGOS firmware upgrade failures, and can require a USB-stick install to recover. For more information, refer to [Product Bulletin: AMM 2.16 Prerequisite to MG90 firmware upgrade](#).*

2. Make sure software update options are correctly configured—[Set MGOS Auto Software Update Options](#) on page 5.
3. Check the EM9190 firmware version—[Confirm Correct EM9190 Radio Module Firmware](#) on page 5.

Important: *The MG90 must be running MGOS version 4.4.1. Otherwise, it may not be able to connect to the carrier network.*

4. In AMM upgrade OTA to MGOS 4.4.2.1.

(MG90 4G/MG90 5G) Upgrade MGOS 4.4.2 to MGOS 4.4.2.1

USB Stick Upgrade

1. Upgrade directly from MGOS 4.4.2 to MGOS 4.4.2.1.
2. Reboot the MG90.

AMM OTA Upgrade

1. Confirm your AMM version—AMM 2.17.1 or newer is required to upgrade OTA to MGOS 4.4.2.1.

Important: *Upgrading using older AMM versions will result in MGOS firmware upgrade failures, and can require a USB-stick install to recover. For more information, refer to [Product Bulletin: AMM 2.16 Prerequisite to MG90 firmware upgrade](#).*

2. Make sure software update options are correctly configured—[Set MGOS Auto Software Update Options](#) on page 5.
3. In AMM, upgrade OTA to MGOS 4.4.2.1.

Set MGOS Auto Software Update Options

Make sure the MG90 is configured to perform automatic radio module firmware updates—this is required if the EM9190 module(s) are running the wrong firmware version, and is recommended for all customers:

1. Go to General > Auto Software Updates.
2. Sierra Wireless recommends setting the download timeout value to 7200 s, to ensure the download completes in one attempt. (Otherwise, if the download times out, it will resume at the next opportunity — for example, when the active link changes, the next scheduled update window, when the device reboots, etc.)

In Download Timeout (Seconds), enter 7200.

Automatic Software Update Configuration

Options

Enabled:

Allow Downgrade:

Upgrade Options:

- Download Updates Only
- Download and Apply Updates on Next Boot
- Download and Apply Updates during Scheduled Time (UTC time without DST)

Download Bandwidth Limit (KB/s):

Download Timeout (Seconds):

Download on High Cost Link:

3. Expand the Radio Module Firmware Options section (click anywhere in the section heading).

Radio Module Firmware Options

Firmware Upgrade Option:

Firmware Upgrade on High Cost Link:

SIM-based Switching Enabled on CA:

SIM-based Switching Enabled on CB:

4. Make sure Firmware Upgrade Option is set to Upgrade Active or Upgrade All.
5. Make sure SIM-based Switching Enabled is selected for each EM9190.
6. Click Submit.

Confirm Correct EM9190 Radio Module Firmware

Before upgrading from MGOS 4.4.1 to MGOS 4.4.2.1, it is important to ensure the MG90 5G router's EM9190 module(s) are running carrier firmware version(s) from the following list:

AT&T	01.07.13.00_00_ATT_012.007_001
GENERIC	01.07.13.00_00_GENERIC_016.006_001
T-MOBILE	01.07.13.00_00_TMO_001.005_001
VERIZON	01.07.23.00_01_VERIZON_012.019_000

1. Display the currently running firmware version(s) for the EM9190 module(s)—Use either of the following methods, and compare them to the list above:
 - Go to General > Auto Software Updates—The firmware is listed in the Radio Module Current Status section as “Firmware”.

Radio Module Current Status

Cellular CA		Cellular CB	
RM:	EM9190	RM:	EM9190
SIM:	GENERIC	SIM:	UNKNOWN
SIM ICCID:	89302720399911475274	SIM ICCID:	UNKNOWN
SIM IMSI:	302720491186132	SIM IMSI:	UNKNOWN
Firmware:	01.07.13.00_GENERIC_016.006_001	Firmware:	01.07.13.00_GENERIC_016.006_001
SKU PRI:	9909484	SKU PRI:	9909484
Carrier PRI:	9999999_9909621_SWIX55C_01.07.13.00_00_GENERIC_016.006_001	Carrier PRI:	9999999_9909621_SWIX55C_01.07.13.00_00_GENERIC_016.006_001

- Go to Status > WAN > Extended Status—The carrier firmware is listed in the Cellular Info section as “Carrier PRI ID”.

<u>Cellular Info</u>	
IMEI	351735110108939
MEID	35173511010893
SIM ID	89302720399911475274
Network Type	LTE
Band Number	66
Bandwidth	20MHz
SSC1	State: Inactive, Band: 7, BW: 20MHz, Channel: 3050
SSC2	State: Not Assigned
SSC3	State: Inactive, Band: 12, BW: 10MHz, Channel: 5070
SSC4	State: Not Assigned
RSSI	-76.0dBm / -77.0dBm
RSRP	-90.0dBm / -92.0dBm
RSRQ	-13.4dB
SINR	4.4dB
Programmed APN(s)	m2minternet.apn, ims, m2minternet.apn
Manufacturer	Sierra Wireless, Incorporated
Model	EM9190
Hardware Version	G
Firmware Version	SWIX55C_01.07.13.00
SKU PRI ID, Revision	9909484, 001.020
Carrier PRI ID	9999999_9909621_SWIX55C_01.07.13.00_00_GENERIC_016.006_001

Important: Make sure the entire version matches—sometimes only the last digit is different. (i.e., 01.07.13.00_00_GENERIC_016.006_000 vs 01.07.13.00_00_GENERIC_016.006_001.

2. If the wrong firmware is running, AMM should automatically download the correct firmware—AMM will indicate “Downloading” when it starts.

When AMM indicates “Download Complete”, reboot the MG90.

New Features/Updated Functionality

WAN Connection (Cellular)

Updated network negotiation process to meet AT&T/FirstNet MTU size requirements.

Implemented the EM9190 radio module's Smart Transmit (SAR backoff) feature to satisfy certification requirements.

Added support for additional AT&T SIMs that have the following prefixes: 8901280, 8901380, 8901560, 8901180, 8901950.

WAN Link Configuration (Cellular)

Added 5G band support in the band list when the Custom Band Setting Mode is set to Restrict to Bands, or to Exclude Bands.

Updated Setting for Band options:

- Changed "Automatic" to "All Bands" to accurately reflect functionality of the Custom Band Setting Mode band lists.
- Added 5G NR ALL option.

Added Enable TCP MSS Clamping option to avoid dropped or fragmented TCP packets by reducing the maximum TCP packet size.

B29 support—B29 is now enabled by default for EM7511/EM7565 radio modules unless it is manually excluded in the Cellular WAN Link Configuration screen using the Custom Band Setting Mode options "Exclude Bands" or "Restrict to Bands".

WAN Link Policies (Cellular)

Enhanced the WAN Signal Strength policy:

- Included additional RF condition metrics (RSRP, RSRQ, SINR).
- Updated the penalty behavior to remove the penalty in one step at the end of the recovery period, rather than linearly over the course of the period.

VPN

Added "Single Subnet Per Child SA" option. This option enables a VPN to be configured to use IKEv2 instead of IKEv1 to connect the MG90 to a Cisco Adaptive Security Appliance (ASA).

Resolved issue that prevented reliable connection of IKEv1 Host-to-LAN VPNs with multiple local subnets.

Resolved issue with establishing IKEv1 LAN-to-LAN IPsec VPNs with multiple remote subnets.

AMM

Added support for AMM 2.17.2 multiple unit reboot feature for MG90 routers. This feature enables AMM to force an immediate reboot on multiple MG90 routers with one command.

Broadcast (Gateway State Beacon)

Enhanced the VPN Status option to allow broadcast of a single status for all VPNs combined, or separate statuses for all VPNs.

GNX

Added support for GNX to use AMM as a configuration server and data server via the management tunnel. GNX traffic is directed through the management tunnel when enabled through the LCI (Application > GNS) “Use Management Tunnel” option.

When connected to an MG90 router, the MG90’s serial number is added to the GNX default configuration file if the GNX software has been configured to read and report it.

Radio Module Firmware

New radio module firmware for:

- EM7511 (AT&T, Bell, Generic, Sprint, TMO, Verizon)
(Note—New Bell firmware can be downloaded from AMM and manually installed.)
- EM7565 (Generic)
- EM9190 (AT&T, Generic, TMO, Verizon)

SIM-based Switching—Automatic image switching to Bell firmware for EM7511 when a Bell SIM is inserted is now supported.

Serial

Added support for updated IOGEAR USB-RS232 adapter cable.

Device Management (Logging) System

Added options to enable DNS logging and set the log severity level (General > Services).

Notes

Cellular

MG90 5G routers with Verizon SIMs will connect only to LTE.

Addressed Issues

WAN

Resolved an issue in MGOS 4.3.0.1 (only when FIPS is enabled) that prevented port forwarding on Host-to-LAN VIPs.

Resolved an issue that caused the router to do a link recovery reboot when the link was still up.

Resolved an issue that deleted the carrier APN for an active cellular connection, causing the connection to drop.

Resolved an issue that caused WAN link instability on MG90s with either two active EM7511 modules or two active MC7455 modules connecting to different carriers.

MGOS 4.4.2 radio instability issue per [MGOS 4.4.2 Radio Instability Issue Bulletin](#).

Resolved AirLink connection issues per [AirLink Connection Issues Bulletins](#).

VPN

Resolved an issue that caused the Verizon network to reject an active connection, causing repeated reconnections.

Resolved an issue that caused IPsec VPNs to go down for extended periods.

Wi-Fi

Resolved an issue that caused traffic interruptions on Wi-Fi WAN.

Resolved an issue that caused the router's Wi-Fi SSID (access point) to stop broadcasting, requiring a reboot to restore it.

GNSS

Resolved an issue that could cause the indicated location of a stationary router to drift.

Resolved an issue that, in certain cases, caused infrequent loss of GPS/GNSS fix.

Ethernet

Resolved an issue where an Ethernet port connected to third-party equipment would not be available on power up or when reconfigured from IDLE to LAN or WAN.

AMM

Resolved an issue in MGOS 4.3.0.1 (FIPS only) that could cause an incorrect VPN status to be reported in the AMM Link Utilization report.

Resolved issue that caused connected Wi-Fi clients to be incorrectly reported as disconnected.

Resolved issue that prevented log files from being uploaded to AMM.

Vehicle Telemetry

Resolved an issue that intermittently displayed erroneous speed information.

Resolved an issue that prevented the MG90 from detecting the electronic control unit (ECU) on the 2021 Chevrolet Tahoe.

Router Shutdown Configuration

Resolved an issue that caused the reset button to not work for some Button Reset Time values.

Device Management (Logging) System

Resolved an issue that reported a false over-voltage to the management system.

Resolved an issue that caused the router to reboot.

Security Updates

Software

Upgraded to BIND version 9.11.36 and DHCP version 4.4.3