Release Notes for Cisco 819 4G LTE M2M Gateway Integrated Services Routers

Published: October 24, 2012,
Last Updated: September 9, 2013
OL-27801-01

This Release Notes document describes the Cisco® 819G and 819HG Fourth-Generation Long-Term Evolution (4G LTE) Integrated Services Routers (ISRs). This document should be used with the documents listed in the "Related Documentation" section on page 12.

This document is updated as needed. To ensure that you have the latest version of the Release Notes document, go to http://www.cisco.com/en/US/partner/products/hw/routers/ps380/tsd_products_support_series_home.html. Choose **Release and General Information > Release Notes**, and locate the latest release notes pertaining to your release.

Contents

Cisco Systems, Inc.
www.cisco.com

Introduction

In Cisco IOS Release 15.2(4)M3, the multimode 4G LTE feature is supported on the Cisco 819 ISRs. The Cisco 819HG-4G and Cisco 819G-4G routers have the Sierra Wireless multimode modem embedded in them and support 4G LTE and 3G cellular networks.

Summary of Changes Between Cisco IOS Release 15.2(4)M3 and Later

For Cisco IOS Release 15.2(4)M3 or later image, the external link recovery script is not required. Ensure that the link recovery script is removed from Flash before upgrading to Cisco IOS Release 15.2(4)M3 or later, which also contains an embedded modem link recover mechanism that eliminates the need for link recovery scripts. Ensure that the *cell_recovery_vx.tcl* and *cel_cli_vx.tcl* scripts are removed from router flash, where *x* stands for the script version number that is in use, for example, *cell_recovery_v2.tcl* and *cel_cli_v2.tcl*.

The Cisco IOS Release 15.2(4)M3 or later image also requires a mandatory upgrade to the latest versions of modem firmware. The new modem firmware versions contain significant modem stability enhancements. Cisco IOS Release 15.2(4)M3 or later should not be installed without upgrading the LTE eHWIC modem firmware to the appropriate 3.*x* release. The following are the new firmware versions supported on the LTE SKUs in Cisco IOS Release 15.2(4)M3 or later:

- C819(H)G-4G-V : 3.5.10.6
- C819(H)G-4G-A : 3.5.10.2
- C819(H)G-4G-G : 3.5.19.4

Cisco IOS Release 15.2(4)M3 also includes an upgrade to a newer and more stable version of vendor-provided SDK Version 1.8.0 that provides support for the new modem firmware.

The modem firmware files and the associated documentation for upgrading the modems are available at the following locations:

- EHWIC-4G-LTE-V : 3.5.10.6 - http://software.cisco.com/download/release.html?mdfid=284772061&flowid=40082&softwareid=284285628&release=3.5.10.6&relind=AVAILABLE&rellifecycle=&reltype=latest
- EHWIC-4G-LTE-A : 3.5.10.2 - http://software.cisco.com/download/release.html?mdfid=284772058&flowid=39842&softwareid=284285628&release=3.5.10.2&relind=AVAILABLE&rellifecycle=&reltype=latest
- EHWIC-4G-LTE-G : 3.5.19.4 - http://software.cisco.com/download/release.html?mdfid=284772598&flowid=39503&softwareid=284285628&release=3.5.19.4&relind=AVAILABLE&rellifecycle=&reltype=latest

System Requirements

Memory Requirements

Cisco 819 4G LTE ISRs with Cisco IOS Release 15.2(4)M3 have 1 GB DRAM and 1 GB compact flash support in IDE mode (internal).

Hardware Supported

Table 1 shows the SKUs by mode, operating region, and frequency band for Cisco 819 4G LTE ISRs.

Table 1 Cisco 819 4G LTE ISR SKUs by Mode, Operating Region, and Frequency

SKU	Mode	Operating Region	Frequency Band
C819HG-4G-V-K9	LTE—DOrA	North America	700 MHz (band 13) for LTE 800/1900 MHz for CDMA 1xRTT, 1xEVDO Rev A
C819G-4G-V-K9	LTE—DOrA	North America	700 MHz (band 13) for LTE 800/1900 MHz for CDMA 1xRTT, 1xEVDO Rev A
C819HG-4G-A-K9	LTE—HSPA+, HSPA, UMTS, EDGE and GPRS	North America	700 MHz (band 17), AWS (band 4) and 2100 MHz (band 1) for LTE 800, 850, 1900, and 2100 MHz for UMTS, HSPA+, and HSPA 850, 900, 1800 and 1900 MHz for GSM, EDGE and GPRS
C819G-4G-A-K9	LTE—HSPA+, HSPA, UMTS, EDGE, and GPRS	North America	700 MHz (band 17), AWS (band 4) and 2100 MHz (band 1) for LTE 800, 850, 1900, and 2100 MHz for UMTS, HSPA+, and HSPA 850, 900, 1800, and 1900 MHz for GSM, EDGE, and GPRS

Table 1 Cisco 819 4G LTE ISR SKUs by Mode, Operating Region, and Frequency (continued)

SKU	Mode	Operating Region	Frequency Band
C819HG-4G-G-K9	LTE—HSPA+, HSPA, UMTS, EDGE, and GPRS	Global	800 MHz (band 20), 900 MHz (band 8), 1800 MHz (band 3), 2100 MHz (band 1), and 2600 MHz (band 7) for LTE 900 and 2100 MHz for UMTS, HSPA+, and HSPA 900,1800 and 1900 MHz for GSM, EDGE, and GPRS
C819G-4G-G-K9	LTE—HSPA+, HSPA, UMTS, EDGE, and GPRS	Global	800 MHz (band 20), 900 MHz (band 8), 1800 MHz (band 3), and 2100 MHz (band 1)/2600 MHz (band 7) for LTE 900 and 2100 MHz for UMTS, HSPA+, and HSPA 900, 1800, and 1900 MHz for GSM, EDGE, and GPRS

Table 2 shows the antennas supported for Cisco 819 4G LTE ISRs.

Note The Cisco 4G Indoor/Outdoor Active GPS Antenna (GPS-ACT-ANTM-SMA) will be available at a later date.

Table 2 Supported Antennas

SKU	Description
4G-LTE-ANTM-D (Antenna)	Indoor 4G dipole antenna
4G-ANTM-OM-CM (Antenna)	Indoor omnidirectional antenna
ANT-4G-OMNI-OUT-N (Antenna)	Outdoor omnidirectional stick antenna
ANT-4G-SR-OUT-TNC (Antenna)	Outdoor omnidirectional saucer antenna
CGR-LA-NF-NF (Lightning Arrestor Female-to-Female)	Lightning arrestor kit
CGR-LA-NM-NF (Lighning Arrestor Male-to-Female)	Lightning arrestor kit

Note The -N antennae, cables, and lightning arrestors can be ordered only as spare; they work together as an accessories bundle. For details on -N accessories, refer to Table 1-3 in the Chapter "Cisco CGR 1000 and 2000 Series Connected Grid Antennas Overview" of the *Connected Grid Antennas Installation Guide.*

Table 3 shows the cables and accessories supported in Cisco 819 4G LTE ISRs.

Table 3 Supported Cables and Accessories

SKU	Description
4G-CAB-LMR240-25	25-foot low loss LMR-240 cable
4G-CAB-LMR240-50	50-foot low loss LMR-240 cable
4G-CAB-LMR240-75	75-foot low loss LMR-240 cable
4G-CAB-LMR240-25N	Non-plenum-rated 25-foot outdoor cable
4G-CAB-ULL-20	20-foot cable with TNC connectors
4G-CAB-ULL-50	50-foot cable with TNC connectors
CAB-L400-20-TNC-N	20-foot cable with N-type and TNC connectors
CAB-L400-50-TNC-N	50-foot cable with N-type and TNC connectors
CAB-L400-20-N-N	20-foot cable with N-type connectors on both ends
4G-AE010-R	Extension base with 10-foot cable
4G-AE015-R	Extension base with 15-foot cable

Software Compatibility

For ISRs with EHWIC-4G-LTE-V and C819(H)G-4G-V-K/9, the use of Cisco IOS Release 15.2(4)M3 or later requires LTE modem firmware 3.5.10.6.

Note The LTE modem firmware will be available in near future. Do not use Cisco IOS Release 15.2(4)M3 or later on ISRs with LTE eHWICs until the LTE modem is upgraded.

Cisco IOS Release 15.2(4)M3 or later includes Verizon Wireless LTE modem drivers that operate with the latest MC7750 LTE modem firmware. Due to backward compatibility issues with the existing LTE modem firmware (1.0.9.3), Cisco IOS Release 15.2(4)M3 or later should be used only after upgrading the existing LTE modem firmware to the Release 3.5.10.6, or with the new EHWIC-4G-LTE-V and C819(H)G-4G-V-K/9 units with firmware 3.5.10.6 factory loaded.

Check the LTE modem firmware using the Cisco IOS command **show cellular 0/x/0 hardware** (for EHWIC-4G-LTE-V, with *x* being the EHWIC slot number) or the **show cellular 0 hardware** command (for C819(H)G-4G-V).

The latest certified firmware version for your carrier having Cisco IOS compatibility is available at http://www.cisco.com/en/US/prod/collateral/modules/ps5949/ps7272/datasheet_c78-710314.html.

Platforms

The multimode 4G LTE feature is supported on the hardened and nonhardened versions of the Cisco 819 ISRs with Cisco IOS Release 15.2(4)M3 or later.

Table 4 lists the SKUs supported on the Cisco 819 4G LTE ISRs.

Table 4 SKUs Supported on Cisco 819 4G LTE ISRs

Part Number	Description
C819HG-4G-V-K9	Compact, hardened Cisco 819 router with the multimode LTE feature dedicated to Verizon Wireless networks. This comes with a Sierra Wireless MC7750 modem.
C819G-4G-V-K9	Compact, nonhardened Cisco 819 router with the multimode LTE feature dedicated to Verizon Wireless networks. This comes with a Sierra Wireless MC7750 modem.
C819HG-4G-A-K9	Compact, hardened Cisco 819 router with the multimode LTE feature dedicated to AT&T Wireless networks. This comes with a Sierra Wireless MC7700 modem.
C819G-4G-A-K9	Compact, nonhardened Cisco 819 router with multimode LTE feature dedicated to AT&T Wireless networks. This comes with a Sierra Wireless MC7700 modem.
C819HG-4G-G-K9	Compact, hardened Cisco 819 router with the multimode LTE feature dedicated to global wireless networks. This comes with a Sierra Wireless MC7710 modem.
C819G-4G-G-K9	Compact, nonhardened Cisco 819 router with the multimode LTE feature dedicated to global wireless networks. This comes with a Sierra Wireless MC7710 modem.

Feature Set Tables

Use Cisco Feature Navigator to find information about platform support and software image support. Cisco Feature Navigator enables you to determine which software images support a specific software release, feature set, or platform. To access Cisco Feature Navigator, go to http://www.cisco.com/go/cfn. An account on Cisco.com is not required.

Table 5 lists the feature information for Cisco 819 4G LTE ISRs.

Table 5 Feature Information for Cisco 819 4G LTE ISRs

Feature Name	Releases	Feature Information
Multimode 4G LTE Support for Cisco 819 ISRs	Cisco IOS Release 15.2(4)M3	4G LTE feature is supported on Cisco 819G and Cisco 819HG ISRs.

New Software Feature in Release 15.3(3)M

- Dual SIM feature (Cisco 819(H)G-4G-G ISR only)
- 4G SMS
- SMS initiated data callback
- 3G/4G Simple Network Management Protocol (SNMP) MIB.

Note GPS is not supported in Cisco IOS Release 15.3(3)M. GPS will be supported in Cisco IOS Release 15.3(3)M1.

Software Features in Release 15.2(4)M3

- IPv4 bearer
- MIPv4, NEMOv4, RFC 3025
- IPv4 subnet behind LTE UE interface
- Evolved High-Rate Packet Data (EHRPD), which allows seamless handoff between LTE and 3G services (C819(H)G-4G-V-K9 only)
- Seamless handoff between LTE and EHRPD network (C819(H)G-4G-V-K9 only)
- Support for UMTS service as a fallback option from LTE service (C819(H)G-4G-A-K9 and C819(H)G-4G-G-K9 only)
- Seamless handoff between LTE and UMTS service (C819(H)G-4G-A-K9 and C819(H)G-4G-G-K9 only)
- Over the Air Device Management (OTA-DM) including wireless configuration Firmware over the Air (FOTA) (in EHWIC-4G-LTE-V only)
- Mini USB type 2 connector for modem provisioning

Limitations and Restrictions

- Currently, cellular networks support only outgoing calls.
- Throughput—Due to the shared nature of wireless communications, the experienced throughput varies depending on the number of active users or congestion in a given network.
- Cellular networks have higher latency compared to wired networks. Latency rates depend on the technology and carrier. Latency may be higher because of network congestion.
- Any restrictions that are part of the terms of service from your carrier.
- Public Land Mobile Network (PLMN) CLIs exist but the feature is not supported in this release.
- SMS—Only one text message up to 160 characters to one recipient at a time is supported. Larger texts are automatically truncated to the proper size before being sent.
- For the router that runs the SNMP agent, you must configure appropriate access control (for example, SNMP-server community) using the Cisco IOS CLI for the NMS and agent to work properly.
- It is strongly recommended that you configure SNMP V3 with authentication/privacy when implementing SNMP SET operation.
- GPS is not supported in Release 15.3(3)M.

Caveats

- Open Caveats—Release 15.3(3)M, page 8
- Resolved Caveats—Release 15.2(4)M3 and Later, page 10

Open Caveats—Release 15.3(3)M

- CSCui61199

  Modem Type: All LTE modems.

  Symptom: Inablility to configure the cellular profile username and password through the CLI if a 32 character password is required. This problem will be fixed in 15.3(3)M1.

  Condition: The username and password configuration issue occurs when a 4G modem connects in UMTS mode to a 3G network.

  Workaround: None

- CSCug04917

  Modem Type: AT&T and Global LTE.

  Symptom: The cellular interface may reset after deleting SMS messages from a full SMS SIM.

  Condition: When the system sends traffic over cellular link, the LTE modem continues to receive SMS messages even though the SIM card has reached its full capacity.

  Workaround: Setup the FTP server path for auto SMS archiving when the SIM/USIM is full, or delete SMS messages before the SIM is full.

- CSCue48693

  Modem Type: Verizon

Symptom: Low throughput is seen when uplink carries traffic.

Condition: Send IMIX traffic rate 16 Mbps and greater to the uplink.

Workaround: None.

- CSCue41706

  Modem Type: All LTE modems.

  Symptom: UUT SMS special characters sent does not match receiving device.

  Condition: When a special character (‘\’, ‘$’, ‘@’) is sent by way of SMS from different carriers.

  Workaround: None

- CSCts51164

  Modem Type: All LTE modems

  Symptom: Modem becomes unresponsive.

  Condition: This symptom is observed when a small packet traffic (64 B) goes downlink at the rate of 35 Mb/s.

  Workaround: In the context of small packet traffic (64 B), lower the downlink rate to 25 Mb/s.

- CSCtw47467

  Modem Type: AT&T

  Symptom: The MC7700 modem fails to ping to the network.

  Condition: This symptom is observed in the context of pings when a packet size of 1045 B or greater is present and has the Access Point Name (APN) set to Broadband.

  Workaround: Use packet size of 1044 B or smaller.

Resolved Caveats—Release 15.2(4)M3 and Later

Table 6 lists the resolved caveats for Cisco 819 4G LTE ISRs with Cisco IOS Release 15.2(4)M3.

Table 6 Resolved Caveats for Cisco IOS Release 15.2(4)M3

Defect ID	Modem Type	Summary
CSCty52922	Global	The MC7710 modem always shows -110 dBm RSSI.
CSCub86032	All LTE modems	Update to RSSI callback and get functions.
CSCuc17938	All LTE modems	Incorrect value for Packet Service and Session status in **show cellular** command.
CSCuc20331	All LTE modems	Heartbeat timeout message on console with the **test cell-host 0 usb-to-dm** command.
CSCuc40100	All LTE modems	SDK process stuck and no calls, until console messages were flushed.
CSCuc79143	All LTE modems	Cellular Profile Inactive should bring down the Cellular Interface.
CSCud06180	All LTE modems	CWAN_SHIM/SDK crash EHWIC-4G-LTE-V.
CSCtn24365	All LTE modems	Line speed is not being updated.
CSCue19242	All LTE modems	4G Cellular Interface RSSI is not updated after temporary network outage.
CSCts38674	All LTE modems	UTT cannot establish a call using Dialer with no IP address.
CSCtq22132	Verizon	EVDO LED does not come up when UUT is in EHRPD mode.
CSCtq79411	Verizon and AT&T	Sometimes ping fails after the **test cellular 0/x/0 modem-reset** command.
CSCtw71369	All LTE modems	The SIM status is incorrect after unblocking the SIM.
CSCts84019	All LTE modems	Technology preference mode is not saved after router reload.
CSCtw50379	All LTE modems	The **sh cell <x> network** command shows "Current Service Status = Emergency Only".
CSCtr21366	All LTE modems	LTE EHWIC FPGA download done; sequence check does not correspond to the hardware specifications.
CSCtu28648	Not applicable. Specific to EHWIC hardware.	Router bootup error.
CSCtx20754	Not applicable. Specific to EHWIC hardware.	FPGA Critical Error: Kirkwood CPU Watchdog Event.
CSCto12629	All LTE modems	LTE LED is ON even when there is no LTE service.
CSCtx81919	All LTE modems	Firmware upgrade on MC77xx failed.
CSCty39273	All LTE modems	Current Service Status and MCC/MNC display data may be incorrect after a modem reset.
CSCtx84262	All LTE modems	MCC and MNC information are invalid after router reload.
CSCuc09975	Verizon	IMSI value incorrectly displays as 0000 when cellular interface is power cycled or reset.

Table 6 Resolved Caveats for Cisco IOS Release 15.2(4)M3

Defect ID	Modem Type	Summary
CSCue09818	Verizon	Even after saving the Release 15.2(4)M-specific configuration changes, the values fall back to default after a reload.
CSCue09823	Verizon	Clears the counters without clearing the input drops field in the **show cellular 0/0/0 logs dm-log** command output.

Related Documentation

- *Cisco 819 Integrated Services Router Hardware Installation Guide*

  Provides instructions for hardware installation of the Cisco 819 4G LTE ISRs.

  http://www.cisco.com/en/US/docs/routers/access/800/819/hardware/install/guide/819hwinst.html
- *Cisco 819 Integrated Services Router Software Configuration Guide*

  http://www.cisco.com/en/US/docs/routers/access/800/819/software/configuration/Guide/819_SCG.html
- *Configuring Cisco 4G LTE Wireless WAN EHWIC*

  Provides instructions for configuring Cisco 4G LTE WWAN EHWICs and Cisco 819 4G LTE ISRs.

  http://www.cisco.com/en/US/docs/routers/access/interfaces/software/feature/guide/EHWIC-4G-LTESW.html

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html

Subscribe to the *What's New in Cisco Product Documentation* as a Really Simple Syndication (RSS) feed and set content to be delivered directly to your desktop using a reader application. The RSS feeds are a free service. Cisco currently supports RSS Version 2.0.

This document is to be used in conjunction with the documents listed in the Related Documentation section.