



Cisco IOS Release 15.9(3)M4a – Release Notes for Cisco IR800 Industrial Integrated Services Routers and Cisco CGR1000 Series Connected Grid Routers

The following release notes support the Cisco IOS 15.9(3)M4a release. These release notes are updated to describe new features, limitations, troubleshooting, recommended configurations, caveats, and provide information on how to obtain support and documentation.

Revised: November 30, 2021

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PSIRT ADVISORY

IMPORTANT INFORMATION – PLEASE READ!

FPGA and BIOS have been signed and updated to new versions.

For the 15.9 Release Train, this image (15.9-3.M) is considered as the baseline. Downgrade is **STRICTLY UNSUPPORTED** and bundle install to previous releases (158-3.M2a/157-3.M4b/156-3.M6b) will cause an error and fail if attempted. Any manual downgrade [non bundle operations] will impair router functionality thereafter.

Note: After upgrading to this release, make sure to delete any old image files that may still be in flash:. This will prevent an unintended IOS downgrade.

For additional information on the PSIRT see the following:

<https://tools.cisco.com/security/center/content/CiscoSecurityAdvisory/cisco-sa-20190513-secureboot>

Image Information and Supported Platforms

Note: You must have a Cisco.com account to download the software.

Cisco IOS Release 15.9(3)M4a includes the following Cisco IOS images:

IR8x9

- System Bundled Image: ir800-universalk9-bundle.SPA.159-3.M4a

This bundle contains the following components:

- IOS: ir800-universalk9-mz.SPA.159-3.M4a
- Guest Operating System: ir800-ref-gos.img.1.14.0.8.gz
- Hypervisor: ir800-hv.srp.SPA.3.1.21
- FPGA: 2.B.0
- BIOS: 27
- MCU Application: 34

CGR1K

- System Bundled image: cgr1000-universalk9-bundle.SPA.159-3-M4a

- IOS Version: cgr1000-universalk9-mz.SPA.159-3-M4a
- Guest Operating System: cgr1000-ref-gos.img.1.8.2.21.gz
- Hypervisor: cgr1000-hv.srp.SPA.3.0.64
- FPGA: 2.E.0
- BIOS: 18

CG-OS to IOS Migration Important Note

It is always recommended to upgrade from the Golden image to required IOS image, for example:

CG-OS to 15.8(3)M3b, then to *<latest version>*

Software Downloads

IR800 Series

The latest image files for the IR800 product family can be found here:

<https://software.cisco.com/download/navigator.html?mdfid=286287045&flowid=75322>

Click on the 809 or 829 link to take you to the specific software you are looking for.

Software Downloads

Caution: MANUAL [non-bundle] DOWNGRADE IS STRICTLY PROHIBITED. For newer releases with the PSIRT fix - while bundle downgrade to 158-3.M2a/157-3.M4b/156-3.M6b is supported, manual downgrade is unsupported.

IR809

The IR809 link shows the following entries:

- IOS Software
 - ir800-universalk9-bundle.<version>.bin
 - ir800-universalk9_npe-bundle.<version>.bin
- IOx Cartridges
 - Yocto 1.7.2 Base Rootfs (ir800_yocto-1.7.2.tar)
 - Python 2.7.3 Language Runtime (ir800_yocto-1.7.2_python-2.7.3.tar)
 - Azul Java 1.7 EJRE (ir800_yocto-1.7.2_zre1.7.0_65.7.6.0.7.tar)
 - Azul Java 1.8 Compact Profile 3 (ir800_yocto-1.7.2_zre1.8.0_65.8.10.0.1.tar)

IR829

The IR829 link shows the following entries:

Software on Chassis

- IOS Software
 - ir800-universalk9-bundle.<version>.bin
 - ir800-universalk9_npe-bundle.<version>.bin
- IOx Cartridges
 - Yocto 1.7.2 Base Rootfs (ir800_yocto-1.7.2.tar)
 - Python 2.7.3 Language Runtime (ir800_yocto-1.7.2_python-2.7.3.tar)
 - Azul Java 1.7 EJRE (ir800_yocto-1.7.2_zre1.7.0_65.7.6.0.7.tar)
 - Azul Java 1.8 Compact Profile 3 (ir800_yocto-1.7.2_zre1.8.0_65.8.10.0.1.tar)

AP803 Access Point Module

- Autonomous AP IOS Software
 - WIRELESS LAN (ap1g3-k9w7-tar.153-3.JH1.tar)
- Lightweight AP IOS Software
 - WIRELESS LAN (ap1g3-k9w8-tar.153-3.JH1.tar)
 - WIRELESS LAN LWAPP RECOVERY (ap1g3-rcvk9w8-tar.153-3.JH1.tar)

Note: On the IR8x9 devices, the IR800 bundle image can be copied via Trivial File Transfer Protocol (TFTP) or SCP to the IR800, and then installed using the `bundle install flash:<image name>` command. The IR800 <image>.bin file can NOT be directly booted using the `boot system flash:/image_name`. Detailed instructions are found in the [Cisco IR800 Integrated Services Router Software Configuration Guide](#).

Known Limitations

Note: On the IR8x9 devices, the cipher **dhe-aes-256-cbc-sha** (which is used with the commands **ip http client secure-ciphersuite** and **ip http secure-ciphersuite**) is no longer available in IOS 15.6(3)M and later as part of the weak cipher removal process. This cipher was flagged as a security vulnerability.

CGR1K Series

The latest image file for the CGR 1000 Series Cisco IOS image is:

<https://software.cisco.com/download/navigator.html?mdfid=284165761&flowid=75122>

For details on the CGR1000 installation, please see:

<http://www.cisco.com/c/en/us/td/docs/routers/connectedgrid/cgr1000/ios/release/notes/OL-31148-05.html#pgfld-9>

Warning about Installing the Image

Note: The bundle can be copied via Trivial File Transfer Protocol (TFTP) or SCP to the device, and then installed using the `bundle install flash:<image name>` command. The bin file can NOT be directly booted using the `boot system flash:/image_name`.

Caution: MANUAL [non-bundle] DOWNGRADE IS STRICTLY PROHIBITED.

Known Limitations

This release has the following limitations or deviations from expected behavior:

Please ensure there is a minimum 30MB additional space in the flash: file system before attempting an upgrade or downgrade between releases. Otherwise, the FPGA/BIOS will not have enough space to store files and perform the upgrade. In these current releases, the bundle installation will not display a warning, but future releases from September 2019 going forward will have a warning.

■ CSCvq88011 - IR809, IR829

Bundle install should internally handle “firmware downgrade enable” check

Symptoms: If you manually downgrade hypervisor and IOS only from releases (159-3.M+, 158-3.M3+, 156-3.M7+, 157-3.M5+) to the releases (158-3.M2a, 157-3.M4b, 156-3.M6b), the router will be stuck in a boot loop.

Workaround: If you use the recommended 'bundle install' to downgrade, the process will run correctly.

Major Enhancements

This section provides details on new features and functionality available in this release. Each new feature is preceded by the platform which it applies to.

■ SSH access to Guest-OS - IR8x9, CGR1K

Starting with 15.9(3)M4a and going forward, SSH access to Guest-OS (IOx) shell is enabled by default on the IR8x9 and CGR1K platforms. The user credentials validation between GOS and IOS is protected for security. The user can SSH to GOS using its IOx IP address, which is available in the command **show iox host list detail**.

Related Documentation

The following documentation is available:

- Cisco IOS 15.9M cross-platform release notes:

Caveats

<https://www.cisco.com/c/en/us/td/docs/ios-xml/ios/15-9m/release/notes/15-9-3-m-rel-notes.html>

- All of the Cisco IR800 Industrial Integrated Services Router documentation can be found here:
<http://www.cisco.com/c/en/us/support/routers/800-series-industrial-routers/tsd-products-support-series-home.html>
- All of the Cisco CGR 1000 Series Connected Grid Routers documentation can be found here:
<http://www.cisco.com/c/en/us/support/routers/1000-series-connected-grid-routers/tsd-products-support-series-home.html>
- IoT Field Network Director
<https://www.cisco.com/c/en/us/support/cloud-systems-management/iot-field-network-director/products-installation-and-configuration-guides-list.html>
- Cisco IOx Documentation is found here:
<https://www.cisco.com/c/en/us/support/cloud-systems-management/iox/tsd-products-support-series-home.html>
- Cisco IOx Developer information is found here:
<https://developer.cisco.com/docs/iox/>

Caveats

Caveats describe unexpected behavior in Cisco IOS releases. Caveats listed as open in a prior release are carried forward to the next release as either open or resolved.

Note: You must have a Cisco.com account to log in and access the Cisco Bug Search Tool. If you do not have one, you can [register for an account](#).

For more information about the Cisco Bug Search Tool, see the [Bug Search Tool Help & FAQ](#).

Cisco IOS Release 15.9(3)M4a

The following sections list caveats for Cisco IOS Release 15.9(3)M4a:

Open Caveats

- **CSCwa29494 - IR8x9**
FSCK must not be used as a condition to determine if a storage-related operation should fail or pass.
Symptoms: Random bundle install failure occurred during IOD upgrade.

Resolved Caveats

- **CSCvx42406 - IR829**
Accessing web-server results in frozen console.
Symptoms: The IR829 Console freezes while accessing the device IP in a web browser **https://<IP>**.
Workaround: Hard reboot recovers the router. The console recovers completely after the hard reboot.

Communications, Services, and Additional Information

- To receive timely, relevant information from Cisco, sign up at [Cisco Profile Manager](#).
- To get the business impact you're looking for with the technologies that matter, visit [Cisco Services](#).
- To submit a service request, visit [Cisco Support](#).
- To discover and browse secure, validated enterprise-class apps, products, solutions and services, visit [Cisco Marketplace](#).
- To obtain general networking, training, and certification titles, visit [Cisco Press](#).
- To find warranty information for a specific product or product family, access [Cisco Warranty Finder](#).

Modifications to this product not authorized by Cisco could void the FCC approval and negate your authority to operate the product.

The Cisco implementation of TCP header compression is an adaptation of a program developed by the University of California, Berkeley (UCB) as part of UCB's public domain version of the UNIX operating system. All rights reserved. Copyright © 1981, Regents of the University of California.

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Model Driven Telemetry - gRPC Dial-Out: Expands existing Model Driven Telemetry capabilities with the addition of gRPC protocol support and Dial-Out (configured) telemetry subscriptions.

YANG Data Models: For the list of Cisco IOS XE YANG models available navigate to:

<https://github.com/YangModels/yang/tree/master/vendor/cisco/xe/>

Revision statements embedded in the YANG files indicate if there has been a model revision. The README.md file in the same GitHub location highlights changes that have been made in the release.

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