Cisco IOS Release 15.9(3)M2a – Release Notes for Cisco IR8x9 Industrial Integrated Services Routers

The following release notes support the Cisco IOS 15.9(3)M2a 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: July 30, 2020

Contents

This publication consists of the following sections:

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 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)M2a includes the following Cisco IOS images:

IR8x9

- System Bundled Image: ir800-universalk9-bundle.SPA.159-3.M2a

  This bundle contains the following components:

  - IOS: ir800-universalk9-mz.SPA.159-3.M2a

  - Guest Operating System: ir800-ref-gos.img.1.11.0.5.gz

  - Hypervisor: ir800-hv.srp.SPA.3.1.6

  - FPGA: 2.B.0

  - BIOS: 26

  - MCU Application: 34

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 807, 809 or 829 link to take you to the specific software you are looking for.

Caution: MANUAL [non-bundle] DOWNGRADE IS STRICTLY PROHIBITED. For newer releases with the PSIRT fix - while bundle downgrade to 158-3.M2/157-3.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-universalk9-bundle.SPA.158-3.M bundle 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-universalk9-bundle.SPA.158-3.M.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.

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.

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.

- **SSH access to GuestOS disabled:**

  From 15.9(3)M1, access to GuestOS through SSH is completely disabled to address vulnerabilities in IOS - GuestOS communication.

  However, to access GuestOS, reverse telnet to the GuestOS shell with this command:

  ```
  router#telnet <GOS interface IP> 2070
  ```

  Note: Only privilege 15 user will be able to do reverse telnet to GuestOS.

Major Enhancements

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

Related Documentation

The following documentation is available:

- Cisco IOS 15.9M cross-platform release notes:

  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

- 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)M2a

The following sections list caveats for Cisco IOS Release 15.9(3)M2a:

Open Caveats

- **CSCvs77133 – CGR1120, CGR1240**

  LPMR reason is displayed incorrectly. The correct result should be off if the radio is turned off by the user. Instead it shows Low power.

  Symptoms: When the user initiates an **lte radio off** command under the controller cellular 3/1, the reason displayed should be OFF when the **show cellular 3/1 radio** command is executed. It displays as Low Power. No functionality impact. Only a Display issue.

  Workaround: None

- **CSCvu74786 – IR8x9 Platform**

  Lock the nvram variables to be unconfigurable in rommon mode during no service password recovery.

  Symptoms: During no service password recovery configuration, if an IOS image is not present in flash, the router will get into rommon-2. Plan to lock the nvram variables configuration in the rommon prompts. This caveat will be resolved in next release.

  Workaround: Not Applicable

Resolved Caveats

- **CSCvu92455 – IR8x9 Platform**

  IR829 Dual LTE modems PnP not able to reach PnP Connect.

  Symptoms: When IR829 Dual LTE boots up under a clean configuration (erase nvram:, reload), it is not able to reach PnP Connect even though it has a working SIM and APN is configured