Cisco IOS Release 15.6(3)M3 and M3a - Release Notes for Cisco IR800 Industrial Integrated Services Routers

The following release notes support the Cisco IOS Releases 15.6(3)M3 and M3a release. These release notes are updated to describe new features, limitations, troubleshooting, recommended configurations, caveats, and how to obtain support and documentation.

There is no difference between the M3 and the M3a releases to describe in these notes.

Contents

This publication consists of the following sections:

Image Information and Supported Platforms

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

Cisco IOS Release 15.6(3)M3 includes the following Cisco IOS images:

- System Bundled Image: ir800-universalk9-bundle.SSA.156-3.M3.bin

    This bundle contains the following components:

    - IOS: final version 15.6(3)M3, RELEASE SOFTWARE (fc2)
    - Hypervisor: 2.6.23

Americas Headquarters:
Cisco Systems, Inc., 170 West Tasman Drive, San Jose, CA 95134-1706 USA

- FPGA: 2.6.0

- BIOS: 13

- MCU Bootloader : 28

- MCU Application: 31

- Guest Operating System: Cisco-GOS,version-1.3.2.3

The latest downloads for the IR809 and IR829 can be found at:

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

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

Software on the Chassis includes:

- IOS Software

- IOx Cartridges

- IOx Fog Node Software

The IR829 also includes downloads for the AP803 Access Point Module:

- Autonomous AP IOS Software

- Lightweight AP IOS Software

Note The ir800-universalk9-bundle.SPA.156-3.M3.bin 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.156-3.M3.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 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.

Caution A problem exists where the MCU upgrade fails to complete and the IR829 stays in bootloader mode. The router will get stuck in ROMMON and must be RMA to Cisco. The IR829 should only be upgraded to IOS version 15.6(3)M*x*. For example:
If the IR829 is running 15.5(3)M1, DO NOT upgrade to 15.5(3)M3. Go straight to 15.6(3)M*x*.

Known Limitations

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

On the IR800 series routers, there exists a condition where CAF may not be able to start, and Local Manager/Fog Director/ioxclient connectivity/management will not work. The problem occurs when you have Linux Containers (LXC) or Docker applications deployed prior to version 1.2.4.4 or later (for example: 1.0.0.4, 1.1.0.4, 1.2.4.2).

In order to correct this condition, you will have to uninstall the Docker or LXC applications prior to installing the new IR800 IOX image 1.2.4.4 or later, or the IR800 bundle image 15.6(3)M3 or later.

Then you will need to re-compile/re-image the Docker or LXC applications with the newer kernel version (for example from 3.19 to 4.1.30). At this point, you will be able to deploy them after the new IOX 1.2.4.4 (or later) installation.

Note: Starting with Cisco IOS release 15.6(3)M3 or later, IR800 IOX (either Ref Image or signed Dev-Net image) will be based on MontaVista CGX 2.0.0 Linux with the kernel 4.1.30-rt34-yocto-standard.

Caveat CSCvf76265 crosses over several different IOS software releases, and is a platform driver code issue. It is included here as a known limitation with the IR800 and CGR Industrial Routers.

On the IR800, the core dump fails to write into the local flash. The IOS is running as a virtual machine and then hypervisor is running underneath. The local flash is provided by the hypervisor as a virtual disk. When a crash occurs, this virtual disk is no longer available therefore copying to flash will fail. The workaround is to use an ftp server to copy the core dump to.

Related Documentation

The following documentation is available:

- Cisco IOS 15.6(3)M cross-platform release notes:

  http://www.cisco.com/c/en/us/td/docs/ios/15_6m_and_t/release/notes/15_6m_and_t.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

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 closed (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 15.6(3)M3

The following sections list caveats for Cisco IOS Release 15.6(3)M3:

Open Caveats

- **CSCvf74520**

  The IR829 keeps reloading back to IOS when the ignition management is enabled and the ignition is OFF.

  Conditions:

When the ignition management is enabled and the ignition is OFF, the IR829 does not stay shut down when its ignition off-timer expires. It keeps reloading back to IOS, getting shut down again and the same cycle repeats. The battery will be eventually drained due to this repeated cycle.

Workaround:

There is no workaround. Customers are recommended to use 15.6(3)M2 to avoid this problem.

- **CSCvd70062**

  The running-config always shows the `gyroscope-reading enable` setting even if the feature is disabled. The default setting for the gyroscope-reading feature is disabled, and the setting is supposed to be `no gyroscope-reading enable` in the running-config.

  Workaround:

  Issue the EXEC command **show platform gyroscope-data** to check whether the feature is actually enabled or disabled.

- **CSCvc12365**

  On the 800 series routers, configured with Dialer Watch configurations, if the interface cellular is up and device is reloaded, the dial-out does not happen and IP does not appear on cellular interface.

  Workaround:

  Perform a shut then noshut on the cellular interface.

- **CSCvc81796**

  Cgroups error message may occasionally show up during apps operations, such as install/uninstall.

  When an app is installed or uninstalled, this error message may show up in the GOS VM console:

  ```
  /software/apps/work/repo-proc# cgroup: cgcreate (762) created nested cgroup for
  controller "memory"
  ```
  which has incomplete hierarchy support. Nested cgroups may change behavior in the future. cgroup: "memory" requires setting `use_hierarchy` to 1 on the root.

  Workaround:

  None

- **CSCvd76690**

  Bundle install redundant lengthy time-out right after reload.

  On the IR800 series, right after router reboot, the IOS-VDS hb failure syslog message comes in quite late. Because of this, if the user erroneously tries a bundle install, the following is observed:

  Expected - Bundle install should immediately timeout/fail stating vds not up

  Observation - Bundle install continues for next 15 minutes and then times out.

  Expected - VDS eventually comes up within a minute or two, and can be reached

  Observation - Even though VDS is now accessible, bundle install continues to timeout. So no value add in letting it run.

  Workaround:

  Ping the IP address 127.1.3.1. Proceed with bundle install only if the ping to VDS succeeds.

- **CSCvd74884**

  On repeated reload, MCU reattempts to upgrade application firmware.

  This problem occurs very rarely on the IR800 series. Observed syslog:

%NOTICE: The system booted with MCU in bootloader mode, which triggers the MCU upgrade.For MCU upgrade, MCU must be in bootloader mode. MCU is going to bootloader mode This might cause System reload.

Workaround:

Device eventually comes back up in a couple of reboots.

- **CSCvd74257**

    BVI host list detail only shows IPv6 , not IPv4 address.

    On the IR800 series, IPv4 address does not show up in host list detail. Functionally no impact to Guest-OS, user can ping, ssh IOx v4 interface. It is just TPM issue.

    Workaround:

    Reboot router. No functional impact of defect.

- **CSCvd74252**

    SFP-GE-T in IR829 throws traceback as unrecognized device.

    Workaround:

    ```
    conf t
    service internal
    service unsupported-transceiver
    SFP shows up.
    ```

    Sometimes on system reload it recovers as well.

- **CSCvd47333**

    On the IR800 series, GOS restart times out with multiple applications running.

    With the new graceful shutdown of applications implementation, CAF takes longer to shutdown the apps. GOS restart times out.

    Workaround:

    Wait for 5 minutes. Applications should come up by themselves.

- **CSCvf75957**

    Problem Description:

    Bundle install failure/timeout, IOx failure

    Symptoms:

    1. ping to VDS fails:

        ```
        router#ping 127.1.3.1
        ```

    2. bundle install times out

    3. iox applications are not accessible anymore

    Conditions:

    Typically, when the router is left idle for many weeks and months, there is a possibility to observe this when upgrading to the next software image.

    Root Cause:

    Root cause was that dual modem logs in VDS were not rotating and size increased in time. Due to lack of memory, bundle install attempts failed. Reload the router before reattempting bundle install and image upgrade.

Issue is seen in all software images supporting dual modem [15.6(3)M and beyond]

Workaround:

Reload IOS and system will recover.

- **CSCvd41974**

    Problem Description:

    On IR829 and IR809 platform, there is a Wpan2 interface shown by default in 15.6(3)M2 and beyond software images.

    Condition:

    The show run command will by default show an additional interface, regardless of whether LoRa modem is attached or not.

    ```
    router#show run int wpan 2
    Building configuration...
    Current configuration : 78 bytes
    !
    interface Wpan2
     no ip address
     ieee154 txpower 25
     no ieee154 fec-off
    end
    ```

    Workaround:

    None