Cisco IOS Release 15.6(3)M1 - Release Notes for Cisco IR800 Industrial Integrated Services Routers, Cisco 1000 and 2000 Series Connected Grid Routers

Last Updated: September 12, 2017

The following release notes support the Cisco IOS Releases 15.6(3)M1 release. These release notes are updated to describe new features, limitations, troubleshooting, recommended configurations, caveats, and how to obtain support and documentation.

Note   Some of the software functionality in this release will only be available on new SKUs due to be released approximately the end of 2016.

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)M1 includes the following Cisco IOS images:

- ir800-universalk9-bundle.SSA.156-3.M1.bin

  This bundle contains the following components:

  - Hypervisor: 2.6.14

  - Guest Operating System: Cisco-GOS,version-1.2.4.2

  - IOS: final version 15.6(3)M1

- cgr1000-universalk9-bundle.SSA.156-3.M1

  - Hypervisor: 2.0.3

  - Guest Operating System: Cisco-GOS,version-1.40

  - IOS: final version 15.6(3)M1

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

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

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

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

Note The ir800-universalk9-bundle.SPA.156-3.M.bin bundle must be copied via Trivial File Transfer Protocol (TFTP) to the IR800, and then installed using the `bundle install flash:<image name>` command. The ir800-universalk9-bundle.SPA.156-3.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 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)M2. Go straight to 15.6(3)M*x*.

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#pgfId-998856

Cellular Interface Naming Convention

There was an omission in the previous release notes for IOS 15.6(3)M0a concerning a naming convention change.

IR829

The IR829 interface names cellular 0 and cellular 1 were replaced by cellular 0/0 and cellular 0/1. The following table helps to illustrate the relationships between Modem, SIM, Interface, and Controller:

Modem	SIM	Interface	Controller
Modem 0	Slot 0	Cellular 0/0 and Cellular 0/1	Controller 0
Modem 1	Slot 1	Cellular 1/0 and Cellular 1/1	Controller 1

CGR1120

Dual Modem cellular interfaces are Cellular 3/1 and Cellular 4/1.

CGR1240

Dual Modem cellular interfaces are Cellular 3/1 and Cellular 6/1.

Major Enhancements

This release includes the following enhancements to the IR800 series:

CGR Compute Module

The CGR Compute Module, is a modular, hardened server module for CGR 1000 routers. The compute module runs on Cisco IOx, a hypervisor architecture. Customers can run Internet of Things (IoT) applications on a Virtual Machine (VM) and connect legacy networking technologies through a network interface card. The compute module functions as a fog computing node at the edge of the network.

Minimum software requirements:

- Cisco IOS 15.6(3)M1 for CGR 1000 Routers
- Cisco IOx Release 1.2.0

For additional information, see the Release Notes for Cisco IOx, Release 1.2.0:

http://www.cisco.com/c/en/us/td/docs/routers/access/800/software/guides/iox/release-notes/iox120rn.html

4G LTE IPv6 Support

Support has been added to open up IPv6 configuration for cellular interface if it is a 4G interface.

The following example shows the steps to create an IPV6 profile, show the IOS configuration interface, verify the IPv6 address, and then test using the ping command.

Step 1 Create the IPV6 profile for cellular interface.

```
IR800# cellular 0/0 lte profile create 1 vzwinternet none ipv6
```

Step 2 Show the running configuration.

```
IR800# sh run
Building configuration...

Current configuration : 3638 bytes

!Last configuration change at 11:34:54 UTC Thu Sep 1 2016
!
version 15.6
!
hostname IR800
!
boot-start-marker
boot system flash:ir800-universalk9-mz.SSA.156-20160709_012039
boot system flash:ir800-universalk9-mz.SPA.156-2.T
boot-end-marker
!
no ip domain lookup
ip cef
ipv6 unicast-routing        !IPv6 config
ipv6 cef
!
controller Cellular 0
lte sim data-profile 1 attach-profile 1 slot 0
lte modem link-recovery rssi onset-threshold -110
lte modem link-recovery monitor-timer 20
lte modem link-recovery wait-timer 10
lte modem link-recovery debounce-count 6
!
Cellular 0 lte
 no ip address
ip virtual-reassembly in
encapsulation slip
load-interval 30
dialer in-band
dialer idle-timeout 0
dialer string lte
dialer-group 1
no peer default ip address
ipv6 address autoconfig        !IPv6 config
async mode interactive
routing dynamic
!
interface Dialer0
```

```
no ip address
load-interval 30
dialer in-band
dialer idle-timeout 0
ipv6 address autoconfig
!
!dialer-list 1 protocol ipv6 permit        !IPv6 config
ipv6 route ::/0 Cellular0
!
line 3
 password cisco
script dialer lte
login local
modem InOut
no exec
 rxspeed 100000000
txspeed 50000000
```

Step 3   Verify the IPV6 address on cellular interface.

```
IR800# Show cellular 0/0 profile
Profile 3 = ACTIVE*
--------
PDP Type = IPv6
PDP IPV6 address = 2600:1010:B06D:4E6B:2CAC:6FF:FE55:7D08/64  Scope: Global  !IPv6 Config
PDP IPV6 address = FE80:0:0:0:2CAC:6FF:FE55:7D08/64  Scope: Link
Access Point Name (APN) = vzwinternet
Authentication = None
        Primary DNS address = 198.224.173.135
        Secondary DNS address = 198.224.174.135
        Primary DNS IPV6 address = 2001:4888:68:FF00:608:D:0:0
        Secondary DNS IPV6 address = 2001:4888:61:FF00:604:D:0:0
```

Step 4   Test with the ping command.

```
IR800# ping ipv 2001:4860:4860::8888
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 2001:4860:4860::8888, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 32/119/278 ms
```

Support for Flexible Mesh Key Lifetime and PTK/PMK Multiplier

A new command line interface was added to change gtk, pmk and ptk lifetimes.

The following is an example to illustrate the new CLI:

```
CGR1000(config)#int wpAN 4/1
CGR1000(config-if)#mesh-security mesh-key lifetime ?
  <60-62208000>  key lifetime (in seconds)
  <cr>

CGR1000(config-if)#mesh-security mesh-key lifetime 62208000 ?
  ptk-lifetime-multiplier  temporal key lifetime multiplier: ptklifetime =
                           gtklifetime * ptk-lifetime-multiplier
  <cr>

CGR1000(config-if)#$y lifetime 62208000 ptk-lifetime-multiplier ?
  <2-25>  temporal key lifetime multiplier
  <cr>
```

```
CGR1000(config-if)#$y lifetime 62208000 ptk-lifetime-multiplier 2

CGR1000(config-if)#mesh-security mesh-key lifetime 62208000 ptk-lifetime-multiplier 2 ?
  pmk-lifetime-multiplier  master key lifetime multiplier: pmklifetime = ptklifetime
*pmk-lifetime-multiplier
  <cr>

CGR1000(config-if)#mesh-security mesh-key lifetime 62208000 ptk-lifetime-multiplier 2
pmk-lifetime-multiplier ?
  <1-5>  master key lifetime multiplier
  <cr>

CGR1000(config-if)#mesh-security mesh-key lifetime 62208000 ptk-lifetime-multiplier 2
pmk-lifetime-multiplier 5?
<1-5>

CGR1000(config-if)#mesh-security mesh-key lifetime 62208000 ptk-lifetime-multiplier 2
pmk-lifetime-multiplier 5 ?
  <cr>

CGR1000(config-if)#mesh-security mesh-key lifetime 62208000 ptk-lifetime-multiplier 2
pmk-lifetime-multiplier 5
```

Support Multiple UDP Ports for Multicast Traffic Forwarding

A new command line interface was added for wpan multicast-agent optional ports.

The following is an example to illustrate the new CLI:

```
CGR1000(config)#wpan mcast-agent ?
  optional ports  Maximum of two port: Ports 61624 and 1153 are reserved

CGR1000(config)#wpan mcast-agent optional ports ?
  <1024-65535>  Mcast agent first optional port

CGR1000(config)#wpan mcast-agent optional ports 10000 ?
  <1024-65535>  Mcast agent second optional port
  <cr>

CGR1000(config)#wpan mcast-agent optional ports 10000 20000 ?
  <cr>

CGR1000(config)#wpan mcast-agent optional ports 10000 20000
```

Scale up to 50,000 BACT devices

Support has been added to make the dot1x authentication optimization setting configurable. There is a new command setting in the WPAN interface mode to enable (for memory reduction) or disable the preservation of the dot1x authenticated sessions.

The following is an example to illustrate the new CLI:

```
CGR1000(config)#int wpAN 2/1

CGR1000(config-if)#mesh-security ?
  authentication-timeout              Set authentication timeout
  dot1x-cleanup                       Cleanup dot1x sessions (to reduce memory usage)
```

```
    key-exchange-message-failures    Set maximum key exchange message failures
    key-exchange-message-retries     Set maximum key exchange message retries
    key-exchange-message-timeout     Set key exchange message timeout
    key-exchange-permanent-timeout   Set maximum time for permanent key exchange
    keystore-update-period           Set keystore update period
    max-active-authentication        Set number of parallel authentications
    max-active-key-exchange          Set number of parallel key exchanges
    mesh-key                         Mesh key

CGR1000(config-if)#mesh-security dot1x-cleanup ?
  <cr>

CGR1000(config-if)#mesh-security dot1x-cleanup
```

Accelerometer and Gyroscope Support

Support has been added to enable an existing hardware feature on the IR829 in software in order to track the speed and angular movement of the device.

Two configuration CLIs and one show CLI are introduced:

```
IR829(config)#[no] gyroscope-reading enable
```

Once this is enabled, gyroscope reading will start by the frequency currently set.

```
IR829 (config)#gyroscope-reading frequency ?
  1/min    Reading 1 times per minute
  1/sec    Reading 1 time per second
  10/min   Reading 10 times per minute
```

Default frequency is 1/sec. If this is configured, it would overwrite default frequency and any later reading would be according to the newly set frequency.

```
IR829 #show platform gyroscope-data
Starting Entry = 0, next_entry = 1003, start time = , wrap_around = 0
Date        Time        G-X       G-Y       G-Z       XL-X     XL-Y     XL-Z
2016:09:19  18:23:09.26 -1636.25 -367.50   1400.00   -5.795   16.470   1026.203
2016:09:19  18:24:09.23 -2073.75 -481.25   1382.50   -10.309  24.705   1016.504
2016:09:19  18:25:09.28 2152.50  -253.75   1496.25   -7.564   27.267   1016.443
2016:09:19  18:26:08.83 402.50   -647.50   1295.00   -8.113   43.493   1030.046
2016:09:19  18:27:08.90 -1706.25 -1058.75  1295.00   -6.771   41.724   1017.419
2016:09:19  18:28:08.85 253.75   -498.75   1452.50   -4.819   31.110   1030.168
```

This CLI would only show data if "gyroscope-reading" is enabled. All readings since start (unless wrap-around occurs, which means table is full), would be shown in the order from the most recent to the oldest.

Each entry shows G-X, Y, Z(3D gyroscope data) in mdps (Milli Degrees Per Second) and XL-X,Y, Z (3D accelerator data) in unit mg (milli g forces) where g is $\approx$ 9.81 m/s^2.

Note Configurations would be in running-config and would stay over reload if saved.

IOXVM Storage Partition Enhancement

This enhancement to the IR800 series is to provide more flexibility to provide a customizable disk partitioning. With a smaller partition for system files, the user can put larger applications in the remaining partition.

A new CLI is introduced for this purpose:

```
IR829# guest-os 1 ?
  disk-repartition  Guest OS disk repartition
  image             Guest OS bootable image
  restart           Restart Guest OS
  start             Start Guest OS
  stop              Stop Guest OS

IR829# guest-os 1 disk-repartition ?
  <30-90>  Percentage Guest OS system partition takes
```

The user can input a number between 30 and 90 which would be rounded up to multiples of 5.

For example, typing in 30 means the system partition would take 30% of total space.

IOS communicates with VDS, which will actually perform disk repartition for GOS. After the action is completed by VDS, VDS will send a notification message back to IOS to indicate the status of operation.

After the disk repartitioning, the user will need to reinstall the GOS.

```
IR829# guest-os 1 disk-repartition 1
WARNING - Running this command will delete all application data in IOx. This operation
cannot be undone. Continue? [no]: yes
Guest-OS disk repartitioning with option 1................................ Done!
```

After the repartition is successful, you should see the following syslog message:

```
%IR800_GOS_DISK_REP-6-SUCCESS_GOS_OPERATION: Successfully performed DISK REPARTITION
operation for GOS.
```

After the disk is repartitioned, the GOS needs to be reinstalled by one of two methods:

```
IR800# bundle install flash:ir800-universalk9-bundle.SSA.156-3.M1 exclude HV-IOS
-or
IR800# guest-os install flash:ir800-ref-gos.img.1.40.gz
```

Finally, manually restart the GOS.

```
IR800# guest-os 1 start
```

IOXVM Graceful Shutdown

On the CGR1000, and the IR800 platforms, the Guest OS will now perform a graceful shutdown before a reload of the device. Previously, the GOS would not go through the shutdown command, which sometimes would result in unexpected behavior.

Support for New Modems and Dual Modems

Support has been added for dual active LTE radios. There are two new modems available, the MC7455 and MC7430. This provides Multi-carrier support for active and backup use cases.

There are new SKUs that utilize these modems:

SKU ID	Description
IR829-2LTE-EA-AK9	Dual Modem LTE for Canada
IR829-2LTE-EA-BK9	Dual Modem LTE for USA
IR829-2LTE-EA-EK9	Dual Modem LTE for Europe
IR829GW-LTE-LA-QK9	Single Modem LTE for Japan
IR829GW-LTE-LA-DK9	Single Modem LTE for India
IR829GW-LTE-LA-ZK9	Single Modem LTE for Australia/New Zealand
IR829GW-LTE-LA-KK9	Single Modem LTE for Korea
IR829GW-LTE-LA-SK9	Single Modem LTE for Hong Kong

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

- 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

Known Limitations

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

- The IR800 series is feature equivalent to the to C8xx series, however, support for this initial release has not implemented or validated for all features.

  For example:

  C8xx supports the following features under Ge0:

```
c819(config)#int gigabitEthernet 0
c819(config-if)#ethernet ?
  cfm       Ethernet CFM interface commands
  dot1ad    dot1ad port
  lmi       Ethernet LMI interface commands
  loopback  Ethernet Dataplane Loopback
  oam       Operations, Administration and Maintenance
  uni       Configure Ether UNI
  vlan      Configure Ethernet vlan
```

  IR8xx supports the following:

```
IR800_2(config)#int gigabitEthernet 0
IR800_2(config-if)#ethernet ?
```

```
cfm  Ethernet CFM interface commands
lmi  Ethernet LMI interface commands
```

- Show led command has a lag from the actual LEDs at first, then it stabilizes.

- Changing the default Guest OS CPU allocation may after the router performance. Detailed instructions are found in the Cisco IR829 Integrated Services Router Hardware Installation Guide and the Cisco IR809 Integrated Services Router Hardware Installation Guide.

- Copper SFP support on the IR829 GE0 port was added in Cisco IOS Release 15.6(3)M0a. However, it only works for 1Gbs set-up. Auto-negotiation is not supported, neither the 10Mbs or 100Mbs data rate can be set on the release.

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

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 both the CGR1000 and 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.

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)M1

The following sections list caveats for Cisco IOS Release 15.6(3)M1:

Open Caveats

- **CSCvc53524**

  On the IR800 or the CGR1K platforms, the MC73XX modem Firmware cannot be upgraded on the 15.6(3)M1 image.

  Conditions:

  The 'microcode reload' command will fail to upgrade the modem Firmware. After a modem power-cycle, the platform should be able to work on the previous modem Firmware.

  Workaround:

Either wait for the IOS fix following version 15.6(3)M1, or stay with current MC73XX modem Firmware.

- **CSCvc53541**

  Application Hosting from IOx may not work.

  Symptoms:

  - No access to local manager

  - Cannot access device from fog director

  - unable to manually start applications

  - CAF does not start

  - The product ID value in CAF is 'default', when it should update with the product ID sent by IOS.

  Workaround:

1. Login to IOx. The simplest method is to reverse telnet to the g0 interface on an IR809, or the g5 interface on an IR829 using port 2070. For Example:

   ```
   IOS# telnet 9.1.2.2 2070
   ```

2. Ensure Line1/4 has 'transport input/output all' on it.

3. Ensure IPv6 is enabled in the IOx interface.

4. Once logged in, check the following:

   ```
   #monit summary
   ```

   The most likely status is that CAF will be stopped.

5. To resolve the problem:

   ```
   # cd /software/caf/work
   # vi product_id
   Manually delete 'default'
   Manually edit the Product_ID of the device to reflect your product ID
   For example: IR829GW-LTE-NA-AK9
   ```

6. Restart CAF again.

   ```
   # monit start caf
   ```

7. Verify that CAF is up.

   ```
   # monit summary
   ```

   CAF should be in a RUNNING state.

- **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.

- **CSCuu49331**

  LED status report for PoE is inconsistent across different commands.

  Workaround:

  None

- **CSCuy79750**

  After completion of a bundle installation, the Guest OS might not function.

  Conditions:

  Perform a bundle installation with the Guest OS running. After the bundle installation is completed with Guest OS updated, the device needs to be reloaded.

  Workaround:

  It is recommended to shutdown the Guest OS before performing a bundle install. After the bundle installation is completed, the device needs to be reloaded.

- **CSCuz40849**

  Cisco IOS cannot decode certificate lifetime past the year 2099

  Conditions:

  The validity end-time for either CA certificate or certificates must be 2099 or earlier. Cisco IOS cannot decode dates past 2099. BER/DER decoding failure will be generated during authentication and enrollment phases.

  Workaround:

  None

- **CSCuz51085**

  Registration on the CGR1K, IR800, and C819 will always fails after a flash format or folder deletion.

  Conditions:

  Once a device has been tunnel-provisioned (including those that have been registered to FND), any attempt to format its flash partition or delete the managed folder on the flash will cause any future registration (e.g. after a router reload, or a fresh ZTD operation) to fail.

  Sample Registration Failure:

  java.io.IOException: Failed to retrieve inventory from device. Reason: [invalid cli command] Sent [[show iox host list detail | format flash:/managed/odm/cg-nms.odm, show iox application list | format flash:/managed/odm/cg-nms.odm]]

  Workaround:

  Access the FND's Oracle database and delete the MD5 checksum of the updated odm file for these eid's from the database.

- **CSCuz66824**

  The alarm contact configuration command syntax changed in 15.6(3)M.

  Conditions:

  In the 15.6(3)M or later releases, there is a slight change in the command syntax for the alarm contact configuration. If alarm contact is configured in IOS images prior to 15.6(3)M, and the device is upgraded to15.6(3)M, the alarm contact will need to be reconfigured using the new command syntax. Otherwise, the alarm contact setting will be lost.

  Command Syntax Difference:

  Pre-15.6(3)M with hyphen between alarm and contact:

  ```
  hostname(config)#alarm-contact ?
    <1-2>  Alarm contact number
    all    Configure all alarm contacts
  ```

Post-15.6(3)M with no hyphen between alarm and contact:

```
hostname(config)#alarm contact ?
  <1-2>  Alarm contact number
  all    Configure all alarm contacts
```

Workaround:

Reconfigure the alarm contact after upgrading to 15.6(3)M.

- **CSCuu60617**

  Media-type rs485 is configurable under IR800 serial port 0 interface (async1), however the serial port 1 (async1) interface does not support media-type rs485.

  Conditions: When you configure 'media-type rs485" under the async1 interface, the configuration is acceptable.

  Workaround: None

- **CSCux43383**

  On the IR829 with a 4GModem, the modem can enter into an unknown state after several modem resets.

  Conditions: After 100+ modem resets and attach to BSS, the modem enters into a state where it no longer displays modem info on IOS (`show cellular 0 all`). It neither attaches to the BSS or sends IP traffic. Modem seems to respond to the AT commands.

  Workaround: None

- **CSCuy83574**

  Enabling GPS on the CGR1000 3G/4G cellular controller will lock up the console.

  Conditions: The regular GPS settings for 3G or 4G cellular controller in the CGR1000 routers must not be used. Cellular modem-based GPS in CGR1000 routers is not supported.

  Workaround: Only a CONFIG RESET button recovery may help to restore the CGR1000 back to working condition.

- **CSCuy91651**

  Inconsistent version numbering for the Ref-GOS image name in the IR800 bundle image.

  Conditions: In the IR800 bundle image, the REF GOS image name is: `ir800-ref-gos.img.2.3.gz.`

  Installing the GOS image will produce this version string:

  ```
  Installation: Cisco-GOS,version-1.0.0.2
  ```

  Guest OS status:

  ```
  Installation: Cisco-GOS,version-1.0.0.2
  ```

  The IR800 GOS image is properly versioned in the form: `ir800-ioxvm-1.0.0.x`

  Workaround: None

- **CSCvd30726**

  No negotiation auto not possible on onboard int gig0/1.

  ```
  cgr2010-ast03-lab(config-if)# no negotiation auto
                                  ^
  % Invalid input detected at '^' marker.
  ```

  Conditions: Configuring interface with SFP

  ```
  cgr2010-ast03-lab(config)#int gig0/1
  cgr2010-ast03-lab(config-if)#media-type sfp
  ```

```
cgr2010-ast03-lab(config-if)#no negotiation auto
                            ^
% Invalid input detected at '^' marker.
```

Workaround: None

- **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

Closed Caveats

The following caveats are fixed with this release:

- **CSCuy79750**

  After completion of a bundle installation, the Guest OS might not function.

  Conditions:

  Perform a bundle installation with the Guest OS running. After the bundle installation is completed with Guest OS updated, the device needs to be reloaded.

- **CSCuy91636**

  CGR1000 GOS image version is not matching the version in the filename.

  Conditions: The version in the CGR1000 GOS file name "`cgr1000-ref-gos.img.1.30.gz`" is 1.30, but after a bundle install and restarting the IOX VM, the GOS version being retrieved from "`sh platform guest-os`" is 1.29.

- **CSCvb00767**

  On the IR800, need to reload router once VDS lost connection.

  Symptom:

  The IR800 watchdog monitors the VDS communication from IOS. This modification to the watchdog tracks the number of missed heartbeats from VDS. When missed heartbeats reaches its limit (i.e. 60), the watchdog will trigger a system reload with a "VDS communication failure" message.

- **CSCva66036**

  After upgrading the modem on a CGR1240, the modem needed to be power-cycled in order to bring it up.

- **CSCva32006**

  When executing a series of show and configuration commands quickly on an ISR-G2, via an SSH session, an SSH Process Thrash message is generated.

  Workaround:

  When executing multiple commands, wait a few seconds between each command.