

Upgrading Field Programmable Hardware Devices for Cisco Catalyst 9800 Series Wireless Controllers

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Document Revision History

The following table shows the changes made to this document:

Date	Change Summary
March 2020	First version of the document.
September 2020	Updated Upgrading Ethernet PHY (Fiber) section with firmware version 3.1.96.
August 2021	Updated Resolved Caveats section with ROMMON Release 17.3(3r) information.
April 2022	Updated Resolved Caveats section with ROMMON Release 17.7(3r) information.
March 2023	Updated Resolved Caveats section with ROMMON Release 17.11.01 information. The 17.11.01.pkg release is bundling the earlier released firmware only.



Note The hardware programmables are released independently and is not tied to any IOS-XE release trains.

Audience

This publication is for performing upgrades in the field on the ROMMON or FPGA upgrades of the following Cisco Catalyst 9800 Series Wireless Controllers.

- Cisco Catalyst 9800-80 Wireless Controller
- Cisco Catalyst 9800-40 Wireless Controller
- Cisco Catalyst 9800-L Wireless Controller

Conventions

Text Type	Indication
User input	Text the user should enter exactly as shown or keys a user should press appear in this font.
Document titles	Document titles appear in <i>this font</i> .
System output	Terminal sessions and information that the system displays appear in this font .
CLI commands	CLI command keywords appear in this font . Variables in a CLI command appear in <i>this font</i> .
[]	Elements in square brackets are optional.
{x y z}	Required alternative keywords are grouped in braces and separated by vertical bars.
[x y z]	Optional alternative keywords are grouped in brackets and separated by vertical bars.
String	A nonquoted set of characters. Do not use quotation marks around the string or the string will include the quotation marks.
< >	Nonprinting characters such as passwords are in angle brackets.
[]	Default responses to system prompts are in square brackets.
! #	An exclamation point (!) or a pound sign (#) at the beginning of a line of code indicates a comment line.



Note Means *reader take note*. Notes contain helpful suggestions or references to material not covered in the document.



Tip Means *the following information will help you solve a problem*. The tips information might not be troubleshooting or even an action, but could be useful information, similar to a Timesaver.



Caution Means *reader be careful*. In this situation, you might perform an action that could result in equipment damage or loss of data.

**Warning****IMPORTANT SAFETY INSTRUCTIONS**

This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. Use the statement number provided at the end of each warning to locate its translation in the translated safety warnings that accompanied this device.

SAVE THESE INSTRUCTIONS

Related Documentation

See the following documentation for more information about the Cisco Catalyst 9800 Series Wireless Controllers:

- [Release Notes for Cisco Catalyst 9800 Series Wireless Controller](#)
- [Cisco Catalyst 9800 Series Wireless Controller Software Configuration Guide](#)
- [Cisco Catalyst 9800 Series Wireless Controller Command Reference](#)
- [Cisco Wireless Solutions Software Compatibility Matrix](#)

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, using the Cisco Bug Search Tool (BST), submitting a service request, and gathering additional information, see [What's New in Cisco Product Documentation](#).

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Upgrading Field Programmable Hardware Devices Overview

This document describes how to perform upgrades in the field on the hardware programmable firmware of the following Cisco Catalyst 9800 Series Wireless Controllers.

- Cisco Catalyst 9800-80 Wireless Controller
- Cisco Catalyst 9800-40 Wireless Controller
- Cisco Catalyst 9800-L Wireless Controller

If the controller contains an old version of the hardware programmable firmware, then that hardware programmable firmware may need to be upgraded. To do this upgrade, a hardware programmable package is released to the customers.

Generally, an upgrade is only necessary in cases where a system message indicates one of the field programmable devices needs an upgrade or a Cisco technical support representative suggests an upgrade.

**Note**

During hw-programmables upgrade, the controller may reboot several times and it is not advisable to power cycle the device during this period as it may lead to device failure. Remember that a typical upgrade process would take about 30 minutes to complete the cycle.

**Important**

- Schedule a planned maintenance window before starting the upgrade activity.
- DO NOT disturb the device or power cycle the device till the upgrade activity is complete.

ROMMON Images

A ROMMON image is a software package used by ROM Monitor (ROMMON) software on a controller. The software package is separate from the consolidated package normally used to boot the controller. An independent ROMMON image (software package) may occasionally be released and the controller can be upgraded with the new ROMMON software.

Table 1: IOS-XE Version and the recommended ROMMON Version for Cisco Catalyst 9800-80 Wireless Controller

IOS-XE Version	ROMMON Version
Cisco IOS XE Gibraltar 16.10.x, 16.11.x, 16.12.x	C9800-80-rommon.173-3r.pkg
Cisco IOS XE Amsterdam 17.1.x, 17.2.x, 17.3.x	C9800-80-rommon.173-3r.pkg
Cisco IOS XE Bengaluru 17.4.x, 17.5.x, 17.6.x	C9800-80-rommon.173-3r.pkg
Cisco IOS XE Cupertino 17.7.x, 17.8.x, 17.9.x	C9800-80-rommon.173-3r.pkg
Cisco IOS XE Dublin 17.10.x, 17.11.x, 17.12.x	C9800-80-rommon.173-3r.pkg

Table 2: IOS-XE Version and the recommended ROMMON Version for Cisco Catalyst 9800-40 Wireless Controller

IOS-XE Version	ROMMON Version
Cisco IOS XE Gibraltar 16.10.x, 16.11.x, 16.12.x	qwlc-rommon.177-3r.pkg
Cisco IOS XE Amsterdam 17.1.x, 17.2.x, 17.3.x	qwlc-rommon.177-3r.pkg
Cisco IOS XE Bengaluru 17.4.x, 17.5.x, 17.6.x	qwlc-rommon.177-3r.pkg
Cisco IOS XE Cupertino 17.7.x, 17.8.x, 17.9.x	qwlc-rommon.177-3r.pkg
Cisco IOS XE Dublin 17.10.x, 17.11.x, 17.12.x	qwlc-rommon.177-3r.pkg

Table 3: IOS-XE Version and the recommended ROMMON Version for Cisco Catalyst 9800-L Wireless Controller

IOS-XE Version	ROMMON Version
Cisco IOS XE Gibraltar 16.10.x, 16.11.x, 16.12.x	C9800-L-rommon.1612-3r.pkg
Cisco IOS XE Amsterdam 17.1.x, 17.2.x, 17.3.x	C9800-L-rommon.1612-3r.pkg
Cisco IOS XE Bengaluru 17.4.x, 17.5.x, 17.6.x	C9800-L-rommon.1612-3r.pkg
Cisco IOS XE Cupertino 17.7.x, 17.8.x, 17.9.x	C9800-L-rommon.1612-3r.pkg
Cisco IOS XE Dublin 17.10.x, 17.11.x, 17.12.x	C9800-L-rommon.1612-3r.pkg

Ethernet PHY Images

This firmware (software upgrade) is for Ethernet PHY and MAC images of the Cisco Catalyst 9800-L Wireless Controllers.

Table 4: IOS-XE Version and the recommended Hardware Programmable package for Cisco Catalyst 9800-L Wireless Controller

IOS-XE Version	Hardware Programmables
Cisco IOS XE Gibraltar 16.10.x, 16.11.x, 16.12.x	C9800-L-hw-programmables.17.11.01.pkg
Cisco IOS XE Amsterdam 17.1.x, 17.2.x, 17.3.x	C9800-L-hw-programmables.17.11.01.pkg
Cisco IOS XE Bengaluru 17.4.x, 17.5.x, 17.6.x	C9800-L-hw-programmables.17.11.01.pkg
Cisco IOS XE Cupertino 17.7.x, 17.8.x, 17.9.x	C9800-L-hw-programmables.17.11.01.pkg
Cisco IOS XE Dublin 17.10.x, 17.11.x, 17.12.x	C9800-L-hw-programmables.17.11.01.pkg



Note The FPGAs in Cisco Catalyst 9800-80 and 9800-40 Wireless Controllers does not need an upgrade when the controller's version numbers are as follows.

- C9800-80: CPLD version is 19042909
- C9800-40: CPLD version is 19030712

Upgrading Field Programmables for Cisco Catalyst 9800-L Wireless Controller

This section explains field programmable installation procedure for Cisco Catalyst 9800-L Wireless Controller.

Upgrading ROMMON for Cisco Catalyst 9800-L Wireless Controllers



Note During ROMMON upgrade, the controller may reboot several times and it is not advisable to power cycle the device during this period as it may lead to device failure. Remember that a typical upgrade process would take about 30 minutes to complete the cycle.

Before you begin

Verify the current ROMMON version using the following commands:

• Standalone Setup

```
Device# show rom-monitor chassis active r0
=====

System Bootstrap, Version 16.12(1r), RELEASE SOFTWARE
Copyright (c) 1994-2019 by cisco Systems, Inc.
```

• High-Availability Setup

Run the following commands on the active controller.

Verify the current ROMMON version for **Active** controller:

```
Device# show rom-monitor chassis active r0

=====
System Bootstrap, Version 16.12(1r), RELEASE SOFTWARE
Copyright (c) 1994-2019 by Cisco Systems, Inc.
```

Verify the current ROMMON version for **Standby** controller:

```
Device# show rom-monitor chassis standby r0

=====
System Bootstrap, Version 16.12(1r), RELEASE SOFTWARE
Copyright (c) 1994-2019 by cisco Systems, Inc.
```

If the ROMMON version is earlier than 16.12(3r) for the standalone, active, or standby controller, use the procedure given below to upgrade the ROMMON:



Note To upgrade ROMMON of the controller in an HA topology, see *Upgrading ROMMON in a High-Availability Topology* section.

Procedure

Step 1 Go to the software download page: <https://software.cisco.com/download/home/286321399/type>

- Select IOS XE ROMMON Software.
- Go to the release number.
- Click on the download button for the *C9800-L-rommon.1612-3r.pkg*.

Step 2 Copy the ROMMON image to bootflash, using TFTP, SCP, FTP, or HTTP .

Note We recommend that you use the TFTP method, though SCP, FTP, and HTTP are also supported.

```
copy tftp://ip address of TFTP server/file path/C9800-L-rommon.1612-3r.pkg bootflash:
```

After the system confirms that the copy operation is successful (sample output given below), proceed to the next step.

```
Device# $copy tftp://9.1.0.101/PATH/FILENAME bootflash:

Destination filename [C9800-L-rommon.1612-3r.pkg]?
Accessing tftp://9.1.0.101/c9800/C9800-L-rommon.1612-3r.pkg...
Loading c9800/C9800-L-rommon.1612-3r.pkg from 9.1.0.101 (via Vlan44):
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
[OK - 7805964 bytes]
7805964 bytes copied in 6.697 secs (1165591 bytes/sec)
```

Step 3 Initiate the upgrade using the command given below and follow the instructions from the tool.

```
Device# upgrade rom-monitor filename bootflash:C9800-L-rommon.1612-3r.pkg chassis active
r0
```

```
Verifying the code signature of the ROMMON package...
Chassis model C9800-L-F-K9 has a single rom-monitor.
```

```
Upgrade rom-monitor
```

```
Target copying rom-monitor image file
```

```
Secure update of the ROMMON image will occur after a reload.
```

```
8388608+0 records in
8388608+0 records out
```

```
Copying ROMMON environment 8388608+0 records in
```

```
131072 bytes (131 kB, 128 KiB) copied, 1.47571 s, 88.8 kB/s ROMMON upgrade complete.
To make the new ROMMON permanent, you must restart the RP.
```

Step 4 Reboot the controller by entering this command:

```
Device# reload
```

```
Reload command is being issued on Active unit, this will reload the whole stack Proceed
with reload? [confirm]
```

```
*Nov 27 11:06:31.648: %SYS-5-RELOAD: Reload requested by console. Reload Reason: Reload
Command.
Chassis 1 reloading, reason - Reload command
Nov 27 11:06:39.735: %PMAN-5-EXINov 27 11:06:39.755: %PMAN-5-EXITACTION: F0/0: pvp: Process
manager is exiting:
Nov 27 11:06:40.856: %PMAN-5-EX
```

```
Initializing Hardware ...
```

```
System Bootstrap, Version 16.12(1r), RELEASE SOFTWARE Copyright (c) 1994-2019 by cisco
Systems, Inc.
```

```
Current image running: Boot ROM1
Last reset cause: LocalSoft
The values of MSR 0x198h = 00001400 and MSR 0x199h = 00001400 for C9800-L C9800-L-X-K9
platform with 16777216 Kbytes of main memory
```

```
Successfully initiated a secure capsule update.
The system will be reset multiple times for completing the capsule update. Please wait till
you get the promp
Initializing Hardware ...
```

```
Platform Name: Grangeville-NS
Current Version: GRNV-NS.05.22.12.0008
Update Version: GRNV-NS.05.22.12.0008
Updating Block at FFFF0000h 0%
Updating Block at FFFF1000h 0%
Updating Block at FFFFE000h 99%
Updating Block at FFFFF000h 100%
```

```
Initializing Hardware ...
```

```
System Bootstrap, Version 16.12(3r), RELEASE SOFTWARE Copyright (c) 1994-2019 by Cisco
Systems, Inc.
```

Current image running: Boot ROM1
Last reset cause: LocalSoft

The values of MSR 0x198h = 00001400 and MSR 0x199h = 00001400 for C9800-L

C9800-L-X-K9 platform with 16777216 Kbytes of main memory

Secure capsule update was successful
Capsule Processed : 11/27/2019 11:12 UTC
Capsule Status : Success
Flash upgrade reset 1 in progress

Initializing Hardware ...

~

System Bootstrap, Version 16.12(3r), RELEASE SOFTWARE Copyright (c) 1994-2019 by Cisco Systems, Inc.

Current image running: *Upgrade in progress* Boot ROM0 Last reset cause: BootRomUpgrade
The values of MSR 0x198h = 00001400 and MSR 0x199h = 00001400 for C9800-L C9800-L-X-K9 platform with 16777216 Kbytes of main memory

File size is 0x38fed6b2
Located C9800-L-universalk9_wlc.16.12.02prd5.SPA.bin

Image size 956225202 inode num 21, bks cnt 233454 blk size 8*512

Boot image size = 956225202 (0x38fed6b2) bytes

ROM:RSA Self Test Passed

ROM:Sha512 Self Test Passed
Package header rev 3 structure detected Calculating SHA-1 hash...done
validate_package_cs: SHA-1 hash:
calculated ce3982a2:f0737625:72fcbb02:93ed3683:b7fe0a2e expected
ce3982a2:f0737625:72fcbb02:93ed3683:b7fe0a2e
Validating main package signatures
RSA Signed RELEASE Image Signature Verification Successful. Validating subpackage signatures
Image validated

Both links down, not waiting for other chassis Chassis number is 1
Nov 27 11:16:23.371: %PMAN-3-PROC_EMPTY_EXEC_FILE: R0/0: pvp: Empty executable used for process dpman

Nov 27 11:16:34.902: %PMAN-3-PROC_EMPTY_EXEC_FILE: R0/0: pvp: Empty executable used for process bt_logger

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Cisco IOS Software [Gibraltar], C9800 Software (C9800_IOSXE-K9), Version 16.12.2prd5, RELEASE SOFTWARE (fc1)

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FIPS: Flash Key Check : Key Not Found, FIPS Mode Not Enabled

All TCP AO KDF Tests Pass
Cisco C9800-L-F-K9 (C9800-L) processor (revision C9800-L) with 1711451K/6147K bytes of memory.

Processor board ID FCL234400CV

1 Virtual Ethernet interface

4 2.5 Gigabit Ethernet interfaces

2 Ten Gigabit Ethernet interfaces

32768K bytes of non-volatile configuration memory. 16777216K bytes of physical memory.

26251263K bytes of eUSB flash at bootflash:.

0K bytes of WebUI ODM Files at webui:.

Base Ethernet MAC Address : F4:BD:9E:56:5F:E0

Installation mode is BUNDLE

Press RETURN to get started!

*Nov 27 11:17:18.273: %SMART_LIC-6-EXPORT_CONTROLLED: Usage of export controlled features is not allowed

Adding registry invocations for the WLC platform

*Nov 27 11:17:19.690: %SMART_LIC-6-AGENT_READY: Smart Agent for Licensing is initialized

*Nov 27 11:17:19.690: %SMART_LIC-6-AGENT_ENABLED: Smart Agent for Licensing is enabled

*Nov 27 11:18:00.374: %LINEPROTO-5-UPDOWN: Line protocol on Interface TenGigabitEthernet0/1/1, changed state to up

*Nov 27 11:18:07.446: %SMART_LIC-6-EXPORT_CONTROLLED: Usage of export controlled features is not allowed

*Nov 27 11:18:07.446: %CALL_HOME-6-CALL_HOME_ENABLED: Call-home is enabled by Smart Agent for Licensing.

Step 5 Verify the update on the active controller by entering this command:

Device# **show rom-monitor chassis active r0**

=====

System Bootstrap, Version 16.12(3r), RELEASE SOFTWARE

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Step 6 Verify the update on the standby controller by entering this command:

```
Device# show rom-monitor chassis standby r0
=====

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```

Upgrading Ethernet PHY (Fiber)**Before you begin**

This Ethernet PHY upgrade procedure applies only to Fiber SKU (C9800-L-F-K9) model of the Cisco Catalyst 9800-L Wireless Controller.

Use the following command identify the models.

```
Device# show inventory

NAME: "Chassis 2", DESCR: "Cisco C9800-L-F-K9 Chassis"
PID: C9800-L-F-K9 , VID: 01 , SN: FCW2328H00A
```

Verify the current Ethernet PHY version on the standalone, active, or standby controllers using the following **show** commands:

• Standalone Setup

```
Device# show platform hardware chassis active qfp datapath pmd ifdev | i FW
=====

FW Version      : 0x80000757
FW MDIO         : 9.1.2 ID: 43503 vers: 37230
FW Version      : 0x80000757
FW MDIO         : 9.1.2 ID: 43503 vers: 37230
FW Version      : 0x80000756
FW MDIO         : 9.1.2 ID: 43503 vers: 37230
FW Version      : 0x80000756
FW MDIO         : 9.1.2 ID: 43503 vers: 37230
FW Version      : 3.1.121
FW Version      : 3.1.121
```

• High-Availability Setup

Run the following commands only on the active controller.

Verify the current Ethernet PHY version for **Active** controller.

```
Device# show platform hardware chassis active qfp datapath pmd ifdev | i FW
=====

FW Version      : 0x80000757
FW MDIO         : 9.1.2 ID: 43503 vers: 37230
FW Version      : 0x80000757
FW MDIO         : 9.1.2 ID: 43503 vers: 37230
FW Version      : 0x80000756
FW MDIO         : 9.1.2 ID: 43503 vers: 37230
FW Version      : 0x80000756
FW MDIO         : 9.1.2 ID: 43503 vers: 37230
```

```
FW Version      : 3.1.121
FW Version      : 3.1.121
```

Verify the current Ethernet PHY version for **Standby** controller.

```
Device# show platform hardware chassis standby qfp datapath pmd ifdev | i FW
```

```
=====
```

```
FW Version      : 0x80000757
FW MDIO         : 9.1.2 ID: 43503 vers: 37230
FW Version      : 0x80000757
FW MDIO         : 9.1.2 ID: 43503 vers: 37230
FW Version      : 0x80000756
FW MDIO         : 9.1.2 ID: 43503 vers: 37230
FW Version      : 0x80000756
FW MDIO         : 9.1.2 ID: 43503 vers: 37230
FW Version      : 3.1.121
FW Version      : 3.1.121
```

If any of the Ethernet PHY firmware (FW or MDIO) versions are earlier than the firmware version given in the **show** command output for the standalone, active, or standby controller, use the procedure given below to upgrade the Ethernet PHY firmware:



Note For PHY, CPLD, and FPGA hardware programmable upgrades, break the HA before the upgrade and reconfigure the HA after the upgrade.

Procedure

Step 1 Go to the software download page: <https://software.cisco.com/download/home/286321399/type>

- Select IOS Hardware Programmable Devices.
- Go to the release number.
- Click on the download button for the *C9800-L-hw-programmables.17.03.02.pkg*

Step 2 Copy the Ethernet PHY image to bootflash: using TFTP or USB.

- TFTP:

```
copy tftp://ip address of TFTP server/file path/
C9800-L-hw-programmables.17.03.02.pkg bootflash:
```

- USB:

```
copy usb0: C9800-L-hw-programmables.17.03.02.pkg bootflash:
```

After the system confirms that the copy operation is successful (sample output given below), proceed to the next step.

```
Device# $copy tftp://9.1.0.101/PATH/FILENAME bootflash:
```

```

Destination filename [C9800-L-hw-programmables.17.03.02.pkg ]?
Accessing tftp://9.1.0.101/c9800/C9800-L-hw-programmables.17.03.02.pkg
Loading c9800/ C9800-L-hw-programmables.17.03.02.pkg from 9.1.0.101 (via Vlan44):
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
[OK - 2106376 bytes]

```

Step 3 Initiate the upgrade using the command given below and follow the instructions from the tool.

```

Device# upgrade hw-programmable phy filename bootflash: C9800-L-hw-programmables.17.03.02.pkg

Update PHY firmware on C9800-L platform.
Upgrade Ver for AQR412 is 9.1.2.1385
Upgrade Ver for AQC100 is 3.1.106

PHY upgrade pending for Reboot. Please reboot to upgrade the firmware.

```

Step 4 Reboot the controller by entering this command:

```

Device# reload

Reload command is being issued on Active unit, this will reload the whole stack Proceed
with reload? [confirm]

*Mar  6 04:25:52.650: %SYS-5-RELOAD: Reload requested by new on console. Reload Reason:
Reload Command.

Validating subpackage signatures
Image validated
Tue Mar 6 04:28:37 UTC 2018 Calling Aquantia Firmware upgrade process
Tue Mar 6 04:29:34 UTC 2018 file: /bootflash/aq_phy_upgrade_info deleted
Tue Mar 6 04:29:34 UTC 2018 Updating Phy firmware from package file =
/bootflash/C9800-L-hw-programmables.17.03.02.pkg
Tue Mar 6 04:29:35 UTC 2018 Bay0: Firmware:
/tmp/hwprg_upgrade_pub/hwprog/RP/KATAR/PHY/AQR412/upgrade_phy.cld
Tue Mar 6 04:29:35 UTC 2018 Bay0: Firmware Version: 9.1.2.1385

Tue Mar 6 04:29:35 UTC 2018 Bay1: Firmware:
/tmp/hwprg_upgrade_pub/hwprog/RP/KATAR/PHY/AQC100/upgrade_phy.clx
Tue Mar 6 04:29:35 UTC 2018 Bay1: Firmware Version: 3.1.106

Tue Mar 6 04:29:35 UTC 2018 /bootflash/C9800-L-hw-programmables.17.03.02.pkg is code signed
Tue Mar 6 04:29:35 UTC 2018 #####

Tue Mar 6 04:29:35 UTC 2018 # Please make sure POWER SUPPLY is always ON during this period.
#
Tue Mar 6 04:29:35 UTC 2018 # Loss of POWER will completely kill this unit and make it #
Tue Mar 6 04:29:36 UTC 2018 # unrecoverable #

Tue Mar 6 04:29:36 UTC 2018 #####
Tue Mar 6 04:29:36 UTC 2018 #####

Tue Mar 6 04:29:36 UTC 2018 Aquantia Bay-0 upgrade firmware:
/tmp/hwprg_upgrade_pub/hwprog/RP/KATAR/PHY/AQR412/upgrade_phy.cld found
Tue Mar 6 04:29:36 UTC 2018 Aquantia firmware upgrade for Bay-0 started. Please wait.

Tue Mar 6 04:29:36 UTC 2018 #####

Tue Mar 6 04:29:37 UTC 2018 Current version of Bay-0 firmware: 9.1.2.1385 upgrade version:
9.1.2.1385
Tue Mar 6 04:31:38 UTC 2018 Aquantia firmware upgrade succeeded for Bay-0

```

```
#####
#####
Tue Mar 6 04:31:38 UTC 2018 Aquantia Bay-1 upgrade firmware:
/tmp/hwprg_upgrade_pub/hwprog/RP/KATAR/PHY/AQC100/upgrade_phy.clx found
Tue Mar 6 04:31:38 UTC 2018 Aquantia firmware upgrade for Bay-1 port-1 started
#####
Tue Mar 6 04:31:39 UTC 2018 Current version of Bay-1 port-1 firmware: 3.1.96 upgrade version:
  3.1.106
Tue Mar 6 04:31:59 UTC 2018 Aquantia firmware upgrade succeeded for Bay-1 port-1
Tue Mar 6 04:31:59 UTC 2018 #####
Tue Mar 6 04:31:59 UTC 2018 #####
Tue Mar 6 04:31:59 UTC 2018 Aquantia firmware upgrade for Bay-1 port-2 started
Tue Mar 6 04:31:59 UTC 2018 #####
Tue Mar 6 04:31:59 UTC 2018 Current version of Bay-1 port-1 firmware: 3.1.96 upgrade version:
  3.1.106
Tue Mar 6 04:32:18 UTC 2018 Aquantia firmware upgrade succeeded for Bay-1 port-2
Tue Mar 6 04:32:18 UTC 2018 #####
Tue Mar 6 04:32:18 UTC 2018 Aquantia firmware upgrade completed successfully!!!
Tue Mar 6 04:32:18 UTC 2018 Rebooting box
```

Initializing Hardware ...

Step 5 After the upgrade is complete, device power cycles automatically, and IOS prompt is displayed.

Step 6 Verify the update on the controller by entering this command:

```
Device# show platform hardware chassis active qfp datapath pmd ifdev | i FW
```

```
=====
FW Version      : 0x80000757
FW MDIO         : 9.1.2 ID: 43503 vers: 37230
FW Version      : 0x80000757
FW MDIO         : 9.1.2 ID: 43503 vers: 37230
FW Version      : 0x80000756
FW MDIO         : 9.1.2 ID: 43503 vers: 37230
FW Version      : 0x80000756
FW MDIO         : 9.1.2 ID: 43503 vers: 37230
FW Version      : 3.1.121
FW Version      : 3.1.121
```

Upgrading Ethernet PHY (Copper)

This procedure upgrades the Ethernet PHY version of your controller.

Before you begin

This Ethernet PHY upgrade procedure applies only to Copper SKU (C9800-L-C-K9) model of the Cisco Catalyst 9800-L Wireless Controller.

Use the **show inventory** command identify the model.

```
Device# show inventory
```

```
NAME: "Chassis 2", DESCR: "Cisco C9800-L-C-K9 Chassis"
PID: C9800-L-C-K9 , VID: 01 , SN: FCW2328H00A
```

Verify the current Ethernet PHY version on the standalone, active, or standby controllers using the following **show** commands:

• Standalone Setup

```
Device# show platform hardware chassis active qfp datapath pmd ifdev | i FW
```

```
=====

FW Version      : 0x80000757
FW MDIO         : 9.1.2 ID: 43503 vers: 1376
FW Version      : 0x80000757
FW MDIO         : 9.1.2 ID: 43503 vers: 1376
FW Version      : 0x80000756
FW MDIO         : 9.1.2 ID: 43503 vers: 1376
FW Version      : 0x80000756
FW MDIO         : 9.1.2 ID: 43503 vers: 1376
FW Version      : 3.1.76
FW Version      : 3.1.76
```

• High-Availability Setup

Run the following command on the active controller.

Verify the current Ethernet PHY version for **Active** controller.

```
Device# show platform hardware chassis active qfp datapath pmd ifdev | i FW
```

```
=====

FW Version      : 0x80000757
FW MDIO         : 9.1.2 ID: 43503 vers: 1376
FW Version      : 0x80000757
FW MDIO         : 9.1.2 ID: 43503 vers: 1376
FW Version      : 0x80000756
FW MDIO         : 9.1.2 ID: 43503 vers: 1376
FW Version      : 0x80000756
FW MDIO         : 9.1.2 ID: 43503 vers: 1376
FW Version      : 3.1.76
FW Version      : 3.1.76
```

Verify the current Ethernet PHY version for **Standby** controller.

```
Device# show platform hardware chassis standby qfp datapath pmd ifdev | i FW
```

```
=====

FW Version      : 0x80000757
FW MDIO         : 9.1.2 ID: 43503 vers: 1376
FW Version      : 0x80000757
FW MDIO         : 9.1.2 ID: 43503 vers: 1376
FW Version      : 0x80000756
FW MDIO         : 9.1.2 ID: 43503 vers: 1376
FW Version      : 0x80000756
FW MDIO         : 9.1.2 ID: 43503 vers: 1376
FW Version      : 3.1.76
FW Version      : 3.1.76
```

If any of the Ethernet PHY firmware (FW or MDIO) versions is earlier than the firmware version given in the **show** command output for the standalone, active, or standby controller, use the procedure given below to upgrade the Ethernet PHY firmware:

Procedure

Step 1 Go to the software download page: <https://software.cisco.com/download/home/286321399/type>

- Select IOS Hardware Programmable Devices.
- Go to the release number.
- Click on the download button for the *C9800-L-hw-programmables.17.03.02.pkg*.

Step 2 Copy the Ethernet PHY image to bootflash: using TFTP or USB.

- TFTP:

```
copy tftp://ip address of TFTP server/file path/C9800-L-hw-programmables.17.03.02.pkg
bootflash:
```

- USB:

```
copy usb0: C9800-L-hw-programmables.17.03.02.pkg bootflash:
```

After the system confirms that the copy operation is successful (sample output given below), proceed to the next step.

```
Device# $copy tftp://9.1.0.101/PATH/FILENAME bootflash:
```

```
Destination filename [C9800-L-hw-programmables.17.03.02.pkg ]?
Accessing tftp://9.1.0.101/c9800/C9800-L-hw-programmables.17.03.02.pkg
Loading c9800/C9800-L-hw-programmables.17.03.02.pkg from 9.1.0.101 (via Vlan44):
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
[OK - 7805964 bytes]
7805964 bytes copied in 6.697 secs (1165591 bytes/sec)
```

Step 3 Initiate the upgrade using the command given below and follow the instructions from the tool.

```
Device# upgrade hw-programmable phy filename bootflash:C9800-L-hw-programmables.17.03.02.pkg
```

```
Update PHY firmware on C9800-L platform.
Upgrade Ver for AQR412 is 9.1.2.1385
Upgrade Ver for AQC107 is 3.1.76
```

```
PHY upgrade pending for Reboot. Please reboot to upgrade the firmware.
```

Step 4 Reboot the controller by entering this command:

```
Device# reload
```

```
Reload command is being issued on Active unit, this will reload the whole stack Proceed
with reload? [confirm]
Chassis 1 reloading, reason - Reload command
```

```
System Bootstrap, Version 17.03, RELEASE SOFTWARE Copyright (c) 1994-2019 by cisco
Systems, Inc.
Current image running: Boot ROM0
Last reset cause: LocalSoft
The values of MSR 0x198h = 00001400 and MSR 0x199h = 00001400 for C9800-L C9800-L-X-K9
platform with 16777216 Kbytes of main memory
File size is 0x38fed6b2
```

```

Located C9800-L-hw-programmables.17.03.02.pkg
Image size 956225202 inode num 21, bks cnt 233454 blk size 8*512
#####
Boot image size = 956225202 (0x38fed6b2) bytes
ROM:RSA Self Test Passed
ROM:Sha512 Self Test Passed
Package header rev 3 structure detected Calculating SHA-1 hash...done
validate_package_cs: SHA-1 hash:
calculated ce3982a2:f0737625:72fcbb02:93ed3683:b7fe0a2e expected
ce3982a2:f0737625:72fcbb02:93ed3683:b7fe0a2e Validating main package signatures
RSA Signed RELEASE Image Signature Verification Successful. Validating subpackage signatures
Image validated

Tue Feb 18 07:06:47 UTC 2020 Calling Aquantia Firmware upgrade process
Tue Feb 18 07:07:40 UTC 2020 file: /bootflash/aq_phy_upgrade_info deleted
Tue Feb 18 07:07:41 UTC 2020 Updating Phy firmware from package file =
/bootflash/C9800-L-hw-programmables.17.03.02.pkg
Tue Feb 18 07:07:41 UTC 2020 Bay0: Firmware:
/tmp/hwprg_upgrade_pub/hwprog/RP/C9800-L/PHY/AQR412/upgrade_phy.cld
Tue Feb 18 07:07:41 UTC 2020 Bay0: Firmware Version: 9.1.2.1385

Tue Feb 18 07:07:41 UTC 2020 Bay1: Firmware:
/tmp/hwprg_upgrade_pub/hwprog/RP/C9800-L/PHY/AQC107/upgrade_phy.clx
Tue Feb 18 07:07:41 UTC 2020 Bay1: Firmware Version: 3.1.76

Tue Feb 18 07:07:41 UTC 2020 /bootflash/C9800-L-hw-programmables.17.03.02.pkg is code signed

Tue Feb 18 07:07:41 UTC 2020
#####
Tue Feb 18 07:07:41 UTC 2020 # Please make sure POWER SUPPLY is always ON during this period.
#
Tue Feb 18 07:07:42 UTC 2020 # Loss of POWER will completely kill this unit and make it #
#
Tue Feb 18 07:07:42 UTC 2020 # unrecoverable #

Tue Feb 18 07:07:42 UTC 2020
#####
Tue Feb 18 07:07:42 UTC 2020 #####

Tue Feb 18 07:07:42 UTC 2020 Aquantia Bay-0 upgrade
firmware:/tmp/hwprg_upgrade_pub/hwprog/RP/C9800-L/PHY/AQR412/
upgrade_phy.cld found

Tue Feb 18 07:07:42 UTC 2020 Aquantia firmware upgrade for Bay-0 started. Please wait.

Tue Feb 18 07:07:42 UTC 2020 #####

Tue Feb 18 07:07:43 UTC 2020 Current version of Bay-0 firmware: 9.1.0.1275 upgrade version:
9.1.2.1385
Tue Feb 18 07:09:43 UTC 2020 Aquantia firmware upgrade succeeded for Bay-0

Tue Feb 18 07:09:43 UTC 2020
#####
Tue Feb 18 07:09:44 UTC 2020 #####

Tue Feb 18 07:09:44 UTC 2020 Aquantia Bay-1 upgrade
firmware:/tmp/hwprg_upgrade_pub/hwprog/RP/C9800-L/PHY/AQC107/
upgrade_phy.clx found

Tue Feb 18 07:09:44 UTC 2020 Aquantia firmware upgrade for Bay-1 port-1 started

Tue Feb 18 07:09:44 UTC 2020 #####

Tue Feb 18 07:09:44 UTC 2020 Current version of Bay-1 port-1 firmware: 3.1.76 upgrade

```



```

version: 3.1.76
Tue Feb 18 07:09:44 UTC 2020 Aquantia Bay-1 port-1 firmware version: 3.1.76 same as upgrade
  version file: 3.1.76
Tue Feb 18 07:09:44 UTC 2020 Skipping upgrade for Bay-1 port-1.

Tue Feb 18 07:09:44 UTC 2020 #####

Tue Feb 18 07:09:44 UTC 2020 Aquantia firmware upgrade for Bay-1 port-2 started

Tue Feb 18 07:09:45 UTC 2020 #####

Tue Feb 18 07:09:45 UTC 2020 Current version of Bay-1 port-1 firmware: 3.1.76 upgrade
version: 3.1.76
Tue Feb 18 07:09:45 UTC 2020 Aquantia Bay-1 port-2 firmware version: 3.1.76 same as upgrade
  version file: 3.1.76
Tue Feb 18 07:09:45 UTC 2020 Skipping upgrade for Bay-1 port-2.

Tue Feb 18 07:09:45 UTC 2020 Aquantia firmware upgrade completed successfully!!!

Tue Feb 18 07:09:45 UTC 2020 Rebooting box

```

```

Initializing Hardware ...
Initializing Hardware ...
System Bootstrap, Version 16.12(3r), RELEASE SOFTWARE Copyright (c) 1994-2019 by cisco
Systems, Inc.
Current image running: Boot ROM0
Last reset cause: PowerOn
The values of MSR 0x198h = 00001400 and MSR 0x199h = 00001400 for C9800-L C9800-L-X-K9
platform with 16777216 Kbytes of main memory
Warning: filesystem is not clean
File size is 0x38fed6b2
Located C9800-L-universalk9_wlc.16.12.02prd5.SPA.bin
Image size 956225202 inode num 21, bks cnt 233454 blk size 8*512
#####
Boot image size = 956225202 (0x38fed6b2) bytes
ROM:RSA Self Test Passed
ROM:Sha512 Self Test Passed
Package header rev 3 structure detected Calculating SHA-1 hash...done
validate_package_cs: SHA-1 hash:
calculated ce3982a2:f0737625:72fcbb02:93ed3683:b7fe0a2e expected
ce3982a2:f0737625:72fcbb02:93ed3683:b7fe0a2e Validating main package signatures
RSA Signed RELEASE Image Signature Verification Successful. Validating subpackage signatures
Image validated
Both links down, not waiting for other chassis Chassis number is 1

```

Step 5 After the upgrade is complete, device power cycles automatically, and IOS prompt is displayed.

Step 6 Use the following **show** commands to verify the update on a standalone controller.

```
Device# show platform hardware chassis active qfp datapath pmd ifdev | i FW
```

```

=====
FW Version   : 0x80000757
FW MDIO      : 9.1.2 ID: 43503 vers: 1385
FW Version   : 0x80000757
FW MDIO      : 9.1.2 ID: 43503 vers: 1385
FW Version   : 0x80000756
FW MDIO      : 9.1.2 ID: 43503 vers: 1385
FW Version   : 0x80000756
FW MDIO      : 9.1.2 ID: 43503 vers: 1385
FW Version   : 3.1.76

```

```
FW Version : 3.1.76
```

Step 7 Use the following **show** commands to verify the update on a HA setup.

- a) To get the current Ethernet PHY version for active controller, use the following command:

```
Device# show platform hardware chassis active qfp datapath pmd ifdev | i FW
```

```
=====
FW Version : 0x80000757
FW MDIO : 9.1.2 ID: 43503 vers: 1385
FW Version : 0x80000757
FW MDIO : 9.1.2 ID: 43503 vers: 1385
FW Version : 0x80000756
FW MDIO : 9.1.2 ID: 43503 vers: 1385
FW Version : 0x80000756
FW MDIO : 9.1.2 ID: 43503 vers: 1385
FW Version : 3.1.76
FW Version : 3.1.76
```

- b) To get the current Ethernet PHY version for standby controller, use the following command:

```
Device# show platform hardware chassis standby qfp datapath pmd ifdev | i FW
```

```
=====
FW Version : 0x80000757
FW MDIO : 9.1.2 ID: 43503 vers: 1385
FW Version : 0x80000757
FW MDIO : 9.1.2 ID: 43503 vers: 1385
FW Version : 0x80000756
FW MDIO : 9.1.2 ID: 43503 vers: 1385
FW Version : 0x80000756
FW MDIO : 9.1.2 ID: 43503 vers: 1385
FW Version : 3.1.76
FW Version : 3.1.76
```

Upgrading Field Programmable for Cisco Catalyst 9800-80 Wireless Controller

This section explains field programmable installation procedure for the Cisco Catalyst 9800-80 Wireless Controller.

Before you begin



Note To upgrade the ROMMON from 16.12(5R) (or a previous version) to higher versions, you should first upgrade ROMMON to 17.3(3r) and then to the desired version. This procedure applies to downgrades as well. To downgrade ROMMON from a higher version to 16.12(5R) (or an older version), you should first downgrade ROMMON to 17.3(3r) and then to 16.12(5R).

- **Upgrade path:** 16.12(5R) > 17.3(3R)
- **Downgrade path:** 17.3(3R) > 16.12(5R)

Verify the current ROMMON version using the following commands:

• Standalone Setup

```
Device# show rom-monitor chassis active r0
=====

System Bootstrap, Version 16.10(6r), RELEASE SOFTWARE
Copyright (c) 1994-2019 by Cisco Systems, Inc.
```

• High-Availability Setup

Run the following command on the active controller.

Verify the current ROMMON version for **Active** controller:

```
Device# show rom-monitor chassis active r0

System Bootstrap, Version 16.10(6r), RELEASE SOFTWARE
Copyright (c) 1994-2019 by Cisco Systems, Inc.
```

Verify the current ROMMON version for **Standby** controller:

```
Device# show rom-monitor chassis standby r0
=====

System Bootstrap, Version 16.10(6r), RELEASE SOFTWARE
Copyright (c) 1994-2019 by cisco Systems, Inc.
```

If you ROMMON version is earlier than 16.12(5r) for the standalone, active, or standby controller, use the procedure given below:



Note To upgrade ROMMON of the controller in an HA topology, see *Upgrading ROMMON in a High-Availability Topology* section.

Procedure

-
- Step 1** Go to the software download page: <https://software.cisco.com/download/home/286321396/type>
- Select IOS XE ROMMON Software.
 - Go to the release number.
 - Click on the download button for the *C9800-80-rommon.1612-5r.pkg*.
- Step 2** Copy the ROMMON image to bootflash, using TFTP or USB.
- TFTP:


```
copy tftp://ip address of TFTP server/file path/ C9800-80-rommon.1612-5r.pkg bootflash:
```
 - USB:

```
copy usb0: C9800-80-rommon.1612-5r.pkg bootflash:
```

After the system confirms that the copy operation is successful (sample output given below), proceed to the next step.

```
Device# $copy tftp://9.1.0.101/PATH/FILENAME bootflash:
```

```
Destination filename [C9800-80-rommon.1612-5r.pkg]?
Accessing tftp://9.1.0.101/c9800-80-rommon.1612-5r.pkg...
Loading c9800/ C9800-80-rommon.1612-5r.pkg from 9.1.0.101 (via Vlan44):
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
[OK - 7805964 bytes]
7805964 bytes copied in 6.697 secs (1165591 bytes/sec)
```

Step 3 Initiate the upgrade using the command given below and follow the instructions from the tool.

```
Device# upgrade rom-monitor filename bootflash:C9800-80-rommon.1612-5r.pkg chassis active
r0
```

```
Verifying the code signature of the ROMMON package...
Chassis model C9800-80-K9 has a single rom-monitor.
```

```
Upgrade rom-monitor
```

```
Target copying rom-monitor image file
```

```
Secure update of the ROMMON image will occur after a reload.
```

```
131072+0 records in
131072+0 records out
131072 bytes (131 kB, 128 KiB) copied, 0.461893 s, 284 kB/s
Copying ROMMON environment
131072+0 records in
131072+0 records out
131072 bytes (131 kB, 128 KiB) copied, 0.80982 s, 162 kB/s
131072+0 records in
131072+0 records out
131072 bytes (131 kB, 128 KiB) copied, 0.801238 s, 164 kB/s
ROMMON upgrade complete.
To make the new ROMMON permanent, you must restart the RP.
```

Step 4 Reboot the controller by entering this command:

```
Device# reload
```

```
Reload command is being issued on Active unit, this will reload the whole stack
Proceed with reload? [confirm]
```

```
*Feb 12 05:43:27.912: %SYS-5-RELOAD: Reload requested by console. Reload Reason: Reload
Command.
```

```
Chassis 1 reloading, reason - Reload command
```

```
Feb 12 05:43:33.012: %PMAN-5-EXITACTION: F0/0: pvp: Process manager is exiting:
```

```
Feb 12 05:43:33.028: %PMAN-5-EXITACTION: C0/0: pvp: Process manager is exiting:
```

```
Feb 12 05:43:34.210:
```

```
Initializing Hardware ...
```

```
System integrity status: 90170200 12030107
```

System Bootstrap, Version 16.10(6r), RELEASE SOFTWARE
Copyright (c) 1994-2018 by cisco Systems, Inc.

Current image running: Boot ROM0

Last reset cause: LocalSoft

C9800-80-K9 platform with 67108864 Kbytes of main memory

Successfully initiated a secure capsule update.

The system will be reset multiple times for completing the capsule update.

Please wait till you get the prompt.

Initializing Hardware ...

System integrity status: 90170200 12030107

Insyde H2OFFT (Flash Firmware Tool) Version (SEG) 100.00.09.02
Copyright (C) 2018 Insyde Software Corp. All Rights Reserved.

Platform Name: Purley
Current Version: Purley.05.21.51.0058
Update Version: Purley.05.21.51.0058

Updating Block at FDFF0000h 0%
Updating Block at FE042000h 1%
Updating Block at FF005000h 50%
Updating Block at FFFFE000h 99%
Updating Block at FFFFF000h 100%
Updating Block at FFFFF000h 100%

Initializing Hardware ...

System integrity status: 90170200 12030107

System Bootstrap, Version 16.10(6r), RELEASE SOFTWARE
Copyright (c) 1994-2018 by cisco Systems, Inc.

Current image running: Boot ROM0

Last reset cause: PowerCycleRequest

C9800-80-K9 platform with 67108864 Kbytes of main memory
Secure capsule update was successful

Capsule Processed : 02/12/2020 05:51 UTC
Capsule Status : Success

Flash upgrade reset 1 in progress
.....

Initializing Hardware ...

System integrity status: 90170200 12030107

System Bootstrap, Version 16.10(6r), RELEASE SOFTWARE
Copyright (c) 1994-2018 by cisco Systems, Inc.

Current image running: Boot ROM0

Last reset cause: PowerCycleRequest

C9800-80-K9 platform with 67108864 Kbytes of main memory

Secure capsule update was successful

```

Capsule Processed : 02/12/2020 05:51 UTC
Capsule Status    : Success

Flash upgrade reset 2 in progress

.....

Initializing Hardware ...

System integrity status: 90170200 12030117

System Bootstrap, Version 16.12(5r), RELEASE SOFTWARE
Copyright (c) 1994-2019 by cisco Systems, Inc.
Current image running: *Upgrade in progress* Boot ROM1

Last reset cause: BootRomUpgrade

C9800-80-K9 platform with 67108864 Kbytes of main memory

File size is 0x392a32f3

Located C9800-80-universalk9_wlc.16.12.01t.SPA.bin

Image size 959066867 inode num 12, bks cnt 234148 blk size 8*512
#####

Boot image size = 959066867 (0x392a32f3) bytes

ROM:RSA Self Test Passed
ROM:Sha512 Self Test Passed

Package header rev 3 structure detected

Calculating SHA-1 hash...done

validate_package_cs: SHA-1 hash:

    calculated 026dcd56:56c756c1:68aaf4a2:cd5208af:b2412efe
    expected   026dcd56:56c756c1:68aaf4a2:cd5208af:b2412efe

Validating main package signatures

RSA Signed RELEASE Image Signature Verification Successful.

Validating subpackage signatures

Image validated

Both links down, not waiting for other chassis
Chassis number is 1
Feb 12 05:57:59.083: %PMAN-3-PROC_EMPTY_EXEC_FILE: R0/0: pvp: Empty executable used for
process bt_logger
Feb 12 05:58:00.630: %PMAN-3-PROC_EMPTY_EXEC_FILE: R0/0: pvp: Empty executable used for
process bt_logger
Feb 12 05:58:01.972: %PMAN-3-PROC_EMPTY_EXEC_FILE: R0/0: pvp: Empty executable used for
process bt_logger
Feb 12 05:58:08.654: %PMAN-3-PROC_EMPTY_EXEC_FILE: R0/0: pvp: Empty executable used for
process bt_logger
Feb 12 05:58:10.459: %PMAN-3-PROC_EMPTY_EXEC_FILE: R0/0: pvp: Empty executable used for
process bt_logger
Feb 12 05:58:12.889: %PMAN-3-PROC_EMPTY_EXEC_FILE: R0/0: pvp: Empty executable used for
process bt_logger

```

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FIPS: Flash Key Check : Key Not Found, FIPS Mode Not Enabled

All TCP AO KDF Tests Pass
cisco C9800-80-K9 (2DA) processor (revision 2DA) with 9903871K/6147K bytes of memory.
Processor board ID FXS2312Q2U5
1 Virtual Ethernet interface
18 Ten Gigabit Ethernet interfaces
32768K bytes of non-volatile configuration memory.
67108864K bytes of physical memory.
26255359K bytes of eUSB flash at bootflash:.
234365527K bytes of SATA hard disk at harddisk:.
0K bytes of WebUI ODM Files at webui:.

Base Ethernet MAC Address : 10:B3:D5:A5:84:00

Installation mode is BUNDLE

Press RETURN to get started!

*Nov 27 11:17:18.273: %SMART_LIC-6-EXPORT_CONTROLLED: Usage of export controlled features

```

is not allowed
Adding registry invocations for the WLC platform
*Nov 27 11:17:19.690: %SMART_LIC-6-AGENT_READY: Smart Agent for Licensing is initialized
*Nov 27 11:17:19.690: %SMART_LIC-6-AGENT_ENABLED: Smart Agent for Licensing is enabled

*Nov 27 11:18:00.374: %LINEPROTO-5-UPDOWN: Line protocol on Interface TenGigabitEthernet0/1/1,
changed state to up
*Nov 27 11:18:07.446: %SMART_LIC-6-EXPORT_CONTROLLED: Usage of export controlled features
is not allowed
*Nov 27 11:18:07.446: %CALL_HOME-6-CALL_HOME_ENABLED: Call-home is enabled by Smart Agent
for Licensing.

```

Step 5 Verify the update on both active and standby controllers by entering this command:

```

Device# show rom-monitor chassis active r0
=====

System Bootstrap, Version 16.12(5r), RELEASE SOFTWARE
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```

Upgrading Field Programmable for Cisco Catalyst 9800-40 Wireless Controllers

This section explains field programmable installation procedure for the Cisco Catalyst 9800-40 Wireless Controller.

Before you begin

Verify the current ROMMON version on the standalone, active, or standby controllers using the following **show** commands:

• Standalone Setup

```

Device# show rom-monitor chassis active r0
=====

System Bootstrap, Version 17.7(3r), RELEASE SOFTWARE
Copyright (c) 1994-2022 by cisco Systems, Inc.

```

• High-Availability Setup

Run the following commands on the active controller.

Verify the current ROMMON version for **Active** controller:

```

Device# show rom-monitor chassis active r0
=====

System Bootstrap, Version 17.7(3r), RELEASE SOFTWARE
Copyright (c) 1994-2022 by cisco Systems, Inc.

```

Verify the current ROMMON version for **Standby** controller:

```

Device# show rom-monitor chassis standby r0
=====

```



```
System Bootstrap, Version 17.7(3r), RELEASE SOFTWARE
Copyright (c) 1994-2022 by cisco Systems, Inc.
```

Procedure

Step 1 Go to the software download page: <https://software.cisco.com/download/home/286316412/type>

- Select IOS XE ROMMON Software.
- Go to the release number.
- Click on the download button for the *qwlc-rommon.177-3r.pkg*.

Step 2 Copy the ROMMON image to bootflash, using TFTP or USB.

- TFTP:

```
copy tftp://ip address of TFTP server/file path/ qwlc-rommon.177-3r.pkg bootflash:
```

- USB:

```
copy usb0: qwlc-rommon.177-3r.pkg bootflash:
```

After the system confirms that the copy operation is successful (sample output given below), proceed to the next step.

```
Device# copy tftp://9.1.0.101/PATH/FILENAME bootflash:
```

```
Destination filename [qwlc-rommon.177-3r.pkg]?
Accessing ftp://*:9.1.0.101/UN/pleelara/qwlc-rommon.177-3r.pkg...!!!!!!!!!!!!!!!!!!!!!!
[OK - 4645908/4096 bytes]
4645908 bytes copied in 5.719 secs (812364 bytes/sec)
```

Step 3 Initiate the upgrade using the command given below and follow the instructions from the tool.

```
Device# upgrade rom-monitor filename bootflash:qwlc-rommon.177-3r.pkg chassis active r0
```

```
Verifying the code signature of the ROMMON package...
Chassis model C9800-40-K9 has a single rom-monitor.
```

```
Upgrade rom-monitor
```

```
Target copying rom-monitor image file
```

```
Secure update of the ROMMON image will occur after a reload.
```

```
131072+0 records in
131072+0 records out
131072 bytes (131 kB, 128 KiB) copied, 0.888236 s, 148 kB/s
Copying ROMMON environment
131072+0 records in
131072+0 records out
131072 bytes (131 kB, 128 KiB) copied, 0.796147 s, 165 kB/s
131072+0 records in
131072+0 records out
131072 bytes (131 kB, 128 KiB) copied, 0.798177 s, 164 kB/s
```

ROMMON upgrade complete.
To make the new ROMMON permanent, you must restart the RP.

Step 4 Reboot the controller by entering this command:

Device# **reload**

Reload command is being issued on Active unit, this will reload the whole stack
Proceed with reload? [confirm]

System integrity status: 90170200 12030117

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Current image running: Boot ROM1
Last reset cause: LocalSoft

C9800-40-K9 platform with 33554432 Kbytes of main memory

Successfully initiated a secure capsule update.

The system will be reset multiple times for completing the capsule update.
Please wait till you get the prompt.System integrity status: 90170200 12030117

```
Platform    Name: Grangeville
Current    Version: GRNV.05.05.15.0021
Update     Version: GRNV.05.05.15.0021
```

Updating Block at FFFFF000h 100%

```
System integrity status: 90170200 12030117
System integrity status: 90170200 12030117
```

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Current image running: Boot ROM1
Last reset cause: PowerCycleRequest

C9800-40-K9 platform with 33554432 Kbytes of main memory

```
Secure capsule update was successful
Capsule Processed : 10/18/2022 16:19 UTC
Capsule Status    : Success
Flash upgrade reset 1 in progress
.....System integrity status: 90170200 12030107
System integrity status: 90170200 12030107
```

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Current image running: *Upgrade in progress* Boot ROM0
Last reset cause: BootRomUpgrade

C9800-40-K9 platform with 33554432 Kbytes of main memory

```
rommon 1 >
rommon 1 > boot bootflash:wsma_gladius.SSA.bin
```

```
File size is 0x54cd7b92
Located wsma_gladius.SSA.bin
Image size 1422752658 inode num 33, bks cnt 347352 blk size 8*512
=====
Boot image size = 1422752658 (0x54cd7b92) bytes
```

```
ROM:RSA Self Test Passed
ROM:Sha512 Self Test Passed
```

```
Package header rev 3 structure detected
Validating main package signatures
```

```
RSA Signed DEVELOPMENT Image Signature Verification Successful.
Validating subpackage signatures
Image validated
Both links down, not waiting for other chassis
Chassis number is 1
```

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170 West Tasman Drive
San Jose, California 95134-1706

```
Cisco IOS Software [Dublin], C9800 Software (C9800_IOSXE-K9), Experimental Version
17.11.20220928:115219
[BLD_POLARIS_DEV_S2C_20220927_143721-dirty:/nobackup/srimoort/wsma-gladius/polaris 102]
Copyright (c) 1986-2022 by Cisco Systems, Inc.
Compiled Wed 28-Sep-22 19:00 by srimoort
```

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```

The default license boot level has been set to none

Database already initialized
FIPS: Flash Key Check : Key Not Found, FIPS Mode Not Enabled
cisco C9800-40-K9 (1GL) processor (revision 1GL) with 3681607K/6147K bytes of memory.
Processor board ID TTM22480QTM
Router operating mode: Autonomous
1 Virtual Ethernet interface
4 Ten Gigabit Ethernet interfaces
32768K bytes of non-volatile configuration memory.
33554432K bytes of physical memory.
26255359K bytes of eUSB flash at bootflash:.
234365527K bytes of SATA hard disk at harddisk:.

Base Ethernet MAC Address          : D4:C9:3C:0A:DF:E0

Installation mode is BUNDLE

-----
System is booted with ASCII based startup configuration
due to missing binary configuration or previous condition.
Please perform "write mem" to generate binary
configuration. System uses binary-config internally to
reduce overall boottime significantly.
-----

WARNING: ** NOTICE ** The H.323 protocol is no longer supported from IOS-XE release 17.6.1.
Please consider using SIP for multimedia applications.

Press RETURN to get started!

```

Step 5 Verify the update on both active and standby controllers by entering this command:

```

Device# show rom-monitor chassis active r0
=====

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```

Upgrading ROMMON in a High-Availability Topology

This procedure helps to upgrade ROMMON of the controller in an High Availability (HA) topology. This procedure is applicable to all the versions of the Cisco Catalyst 9800 Series Wireless Controllers.

Follow the steps given for upgrading your controller until the upgrade step (Step 3) and then continue with this procedure.

Procedure

- Step 1** Run the upgrade command on the active device.
- ```
Device# upgrade rom-monitor filename bootflash:rommonfile.pkg chassis active r0
```
- The ROMMON gets upgraded and requires a reboot.
- Step 2** Run the following command on the current active to complete the upgrade.
- ```
Device# redundancy force-switchover
```
- After running this command, wait for the controller to join the HA pair and proceed to the next step.
- Step 3** Run the upgrade command on the standby device.
- ```
Device# upgrade rom-monitor filename bootflash:rommonfile.pkg chassis active r0
```
- The ROMMON gets upgraded and requires a reboot.
- Step 4** Run the following command on the standby device to complete the upgrade.
- ```
Device# redundancy force-switchover
```
- After running this command, wait for the controller to join the HA pair.
- Step 5** Use the following **show** commands to verify the updates on the HA setup.
- ```
Device# show rom-monitor chassis active r0
```
- This verifies the ROMMON version on the active device.
- ```
Device# show rom-monitor chassis standby r0
```
- This verifies the ROMMON version on the standby device.

Resolved Caveats

Cisco Catalyst 9800-L Wireless Controller

Table 5: Ethernet PHY Release C9800-L-hw-programmables 17.11.01

Caveat ID	Description
CSCwb65534	C9800-L CRC error observed on bay-0 ports bundled in port-channel.

Table 6: Ethernet PHY Release C9800-L-hw-programmables.17.03.02

Caveat ID	Description
CSCvz23067	9800-L-C: WLC RX counters stop on TenGig uplink ports.

Table 7: ROMMON Release 16.12(3r)

Caveat ID	Description
CSCVq88840	9800-L: Fan always runs at maximum speed and is very loud.
CSCvr72052	9800-L: Default config register disables breaking into ROMMON, preventing password recovery.

Table 8: Ethernet PHY

Caveat ID	Description
CSCVq48018	9800-L: MAC congested @Low PPS, drops/TX_XOFF in Bay 0-Tune settings and pause frames in mgig ports
CSCVq70386	9800-L-F: The show hw-module subslot 0/1 transceiver 0 idprom brief command failed to display output.
CSCvs15116	9800L-F: Bay-1 Onegig and TenGigabitEthernet0/1/0 are not coming up when Bay-1 FW upgraded to 3.1.96

Cisco Catalyst 9800-80 Wireless Controller

Table 9: ROMMON Release 17.3(3r)

Caveat ID	Description
This release addresses only internal bug fixes.	

Table 10: ROMMON Release 16.12(5r)

Caveat ID	Description
CSCVp25150	Support booting of higher size images.

Cisco Catalyst 9800-40 Wireless Controller



Note From 17.7(3R), you cannot downgrade to older ROMMON versions. 17.7(3R) version is a mandatory requirement to upgrade to future IOS-XE releases.

Table 11: ROMMON Release 17.7(3r)

Caveat ID	Description
CSCVp25150	Support booting of higher size images.

