



# 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 <b>Upgrading Ethernet PHY (Fiber)</b> section with firmware version 3.1.96.   |
| August 2021    | Updated <b>Resolved Caveats</b> section with ROMMON Release 17.3(3r) information.   |
| April 2022     | Updated <b>Resolved Caveats</b> section with ROMMON Release 17.7(3r) information.   |
| March 2023     | Updated <b>Resolved Caveats</b> section with ROMMON Release 17.11.01 information.<br><br>The 17.11.01.pkg release is bundling the earlier released firmware only.   |
| October 2023   | Updated <b>Resolved Caveats</b> section with ROMMON Release 17.7(3r) information.<br><br>Updated <b>ROMMON Images</b> section with IOS-XE versions and the recommended ROMMON versions.                       |
| December 2023  | Updated <b>Resolved Caveats</b> section with ROMMON Release 17.12(1r) and 17.12(2r) information.<br><br>Updated <b>ROMMON Images</b> section with latest IOS-XE versions and the recommended ROMMON versions. |



**Note** The hardware programmables are released independently and is not tied to 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 <b>this font</b> .                                     |
| CLI commands    | CLI command keywords appear in <b>this font</b> .<br>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.   |
| !<br>#          | 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

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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 | <a href="#">C9800-80-rommon.1712-2r.pkg</a> |
| Cisco IOS XE Amsterdam 17.1.x, 17.2.x, 17.3.x    | <a href="#">C9800-80-rommon.1712-2r.pkg</a> |
| Cisco IOS XE Bengaluru 17.4.x, 17.5.x, 17.6.x    | <a href="#">C9800-80-rommon.1712-2r.pkg</a> |
| Cisco IOS XE Cupertino 17.7.x, 17.8.x, 17.9.x    | <a href="#">C9800-80-rommon.1712-2r.pkg</a> |
| Cisco IOS XE Dublin 17.10.x, 17.11.x, 17.12.x    | <a href="#">C9800-80-rommon.1712-2r.pkg</a> |
| Cisco IOS XE 17.13.x                             | <a href="#">C9800-80-rommon.1712-2r.pkg</a> |

**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 | <a href="#">C9800-40-rommon.1712-1r.pkg</a> |
| Cisco IOS XE Amsterdam 17.1.x, 17.2.x, 17.3.x    | <a href="#">C9800-40-rommon.1712-1r.pkg</a> |

| IOS-XE Version                                | ROMMON Version                              |
|---|---|
| Cisco IOS XE Bengaluru 17.4.x, 17.5.x, 17.6.x | <a href="#">C9800-40-rommon.1712-1r.pkg</a> |
| Cisco IOS XE Cupertino 17.7.x, 17.8.x, 17.9.x | <a href="#">C9800-40-rommon.1712-1r.pkg</a> |
| Cisco IOS XE Dublin 17.10.x, 17.11.x, 17.12.x | <a href="#">C9800-40-rommon.1712-1r.pkg</a> |
| Cisco IOS XE 17.13.x                          | <a href="#">C9800-40-rommon.1712-1r.pkg</a> |

**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 | <a href="#">C9800-L-rommon.1612-3r.pkg</a> |
| Cisco IOS XE Amsterdam 17.1.x, 17.2.x, 17.3.x    | <a href="#">C9800-L-rommon.1612-3r.pkg</a> |
| Cisco IOS XE Bengaluru 17.4.x, 17.5.x, 17.6.x    | <a href="#">C9800-L-rommon.1612-3r.pkg</a> |
| Cisco IOS XE Cupertino 17.7.x, 17.8.x, 17.9.x    | <a href="#">C9800-L-rommon.1612-3r.pkg</a> |
| Cisco IOS XE Dublin 17.10.x, 17.11.x, 17.12.x    | <a href="#">C9800-L-rommon.1612-3r.pkg</a> |
| Cisco IOS XE 17.13.x                             | <a href="#">C9800-L-rommon.1612-3r.pkg</a> |

**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 | <a href="#">C9800-L-hw-programmables.17.11.01.pkg</a> |
| Cisco IOS XE Amsterdam 17.1.x, 17.2.x, 17.3.x    | <a href="#">C9800-L-hw-programmables.17.11.01.pkg</a> |
| Cisco IOS XE Bengaluru 17.4.x, 17.5.x, 17.6.x    | <a href="#">C9800-L-hw-programmables.17.11.01.pkg</a> |
| Cisco IOS XE Cupertino 17.7.x, 17.8.x, 17.9.x    | <a href="#">C9800-L-hw-programmables.17.11.01.pkg</a> |
| Cisco IOS XE Dublin 17.10.x, 17.11.x, 17.12.x    | <a href="#">C9800-L-hw-programmables.17.11.01.pkg</a> |
| Cisco IOS XE 17.13.x                             | <a href="#">C9800-L-hw-programmables.17.11.01.pkg</a> |



**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




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**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.

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#### Before you begin




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**Note** To upgrade the ROMMON from 16.12(1r) or a previous version to higher versions, first upgrade ROMMON to 16.12(3r) and then to the required version. Downgrading to older ROMMON versions from release 16.12(3r) is not supported.

16.12(3r) is a mandatory requirement to upgrade to Cisco IOS-XE 17.9.x and later releases.

- **Upgrade path:** 16.12(1r) to 16.12(3r)
  - **Downgrade path:** Downgrade is not supported from 16.12(3r) to previous releases.
- 

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** Download the software image. See the [ROMMON Images](#) section for the recommended ROMMON Version and its corresponding software download link.

**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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Software feature.

```

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:.

OK 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
Copyright (c) 1994-2019 by Cisco Systems, Inc.

```

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

```

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

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

```

## 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** To upgrade the Ethernet PHY of the controller in a High Availability topology, see [Upgrading Ethernet PHY in a High-Availability Topology, on page 30](#).

## Procedure

**Step 1** Download the software image. See the [Ethernet PHY Images](#) section for the recommended Hardware Programmable package and its corresponding software download link.

**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      : 3.1.176
FW Version      : 3.1.176

```

- **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:




---

**Note** To upgrade the Ethernet PHY of the controller in a High Availability topology, see [Upgrading Ethernet PHY in a High-Availability Topology, on page 30](#).

---

## Procedure

**Step 1** Download the software image. See the [Ethernet PHY Images](#) section for the recommended Hardware Programmable package and its corresponding software download link.

**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, first upgrade ROMMON to 17.3(3r) and then to the required version. To downgrade ROMMON from a higher version to 16.12(5R) or to an older version, first downgrade ROMMON to 17.3(3r) and then to 16.12(5r).

17.3(3r) is a mandatory requirement to upgrade to Cisco IOS-XE 17.9.x and later releases.

- **Upgrade path:** 16.12(5r) to 17.3(3r)
- **Downgrade path:** 17.3(3r) to 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** Download the software image. See the [ROMMON Images](#) section for the recommended ROMMON version and its corresponding software download link.

**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/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 FDF0000h    0%
    Updating Block at FE04200h    1%
    Updating Block at FF00500h    50%
    Updating Block at FFFFE00h    99%
    Updating Block at FFFFF00h   100%
    Updating Block at FFFFF00h   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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San Jose, California 95134-1706

Cisco IOS Software [Gibraltar], C9800 Software (C9800\_IOSXE-K9), Version 16.12.1t, RELEASE SOFTWARE (fc1)

Technical Support: <http://www.cisco.com/techsupport>

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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**

**Note** To upgrade the ROMMON from 16.10(2r) or a previous version to higher versions, first upgrade ROMMON to 17.7(3r) and then to the required version. Downgrading to older ROMMON versions from release 17.7(3r) is not supported.

17.7(3r) is a mandatory requirement to upgrade to Cisco IOS-XE 17.9.x and later releases.

- **Upgrade path:** 16.10(2r) to 17.7(3r)
- **Downgrade path:** Downgrade is not supported from 17.7(3r) to previous releases

Verify the current ROMMON version using the following commands:

- **Standalone Setup**

```
Device# show rom-monitor chassis active r0
=====
System Bootstrap, Version 17.7(3r), RELEASE SOFTWARE
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```

- **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
=====
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```

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

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

If the ROMMON version is earlier than 17.7(3r) 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** Download the software image. See the [ROMMON Images](#) section for the recommended ROMMON Version and its corresponding software download link.

**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

System Bootstrap, Version 17.7(3r), RELEASE SOFTWARE
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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

System Bootstrap, Version 17.7(3r), RELEASE SOFTWARE
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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

System Bootstrap, Version 17.7(3r), RELEASE SOFTWARE
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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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Cisco Systems, Inc.  
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-gladus/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
```

```

=====
System Bootstrap, Version 17.7(3r), RELEASE SOFTWARE
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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.

## Upgrading Ethernet PHY in a High-Availability Topology

This procedure helps to upgrade PHY 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.



**Note** This procedure results in zero downtime.

### Procedure

**Step 1** Check PHY versions in both the active and standby units of HA.

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

**Step 2** Transfer the Ethernet PHY image to the bootflash of the active controller.

```
Device# copy tftp://a.b.c.d/CC9800-L-hw-programmables.17.11.01.pkg bootflash:
```

**Step 3** Execute the upgrade command in the active device.

```
Device# upgrade hw-programmable phy filename bootflash:C9800-L-hw-programmables.17.11.01.pkg
```

**Step 4** Initiate a switchover

```
Device# redundancy force-switchover
```

After running this command, wait till the rebooting unit is UP and HA is synced.

**Step 5** Use the following **show** command to verify the the redundancy states.

```
Device# show redundancy states
```

**Note** Repeat **Steps 2, 3, and 4** to upgrade in the active unit after the switchover. This activates the upgrade in the standby unit.

**Step 6** Use the following **show** commands to verify the updates in the HA setup.

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

This verifies the PHY version in the active device.

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

This verifies the PHY version in the standby device.

## Resolved Caveats

### Cisco Catalyst 9800-L Wireless Controller



**Note** The most recent release includes fixes from all preceding releases.

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

| Caveat ID                  | Description   |
|----------------------------|---|
| <a href="#">CSCwb65534</a> | 9800-L: CRC error is observed on bay-0 ports bundled in port-channel. |

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

| Caveat ID                  | Description  |
|----------------------------|--|
| <a href="#">CSCvz23067</a> | 9800-L-C: WLC RX counters stop on TenGigabitEthernet uplink ports. |

**Table 7: Ethernet PHY Release C9800-L-hw-programmables 17.03.01**

| Caveat ID                  | Description   |
|----------------------------|---|
| <a href="#">CSCvq48018</a> | 9800-L: MAC congested @Low PPS, drops/TX_XOFF in Bay 0-Tune settings and pause frames in mgig ports.          |
| <a href="#">CSCvq70386</a> | 9800-L-F: The <b>show hw-module subslot 0/1 transceiver 0 idprom brief</b> command failed to display output.  |
| <a href="#">CSCvs15116</a> | 9800L-F: Bay-1 Onegig and TenGigabitEthernet0/1/0 are not coming up when Bay-1 firmware is upgraded to 3.1.96 |

**Table 8: ROMMON Release 16.12(3r)**

| Caveat ID                  | Description  |
|----------------------------|--|
| <a href="#">CSCvq88840</a> | 9800-L: Fan always runs at maximum speed and is very loud. |

| Caveat ID                  | Description  |
|----------------------------|--|
| <a href="#">CSCvr72052</a> | 9800-L: Default config register disables breaking into ROMMON; preventing password recovery. |

### Cisco Catalyst 9800-80 Wireless Controller



**Note** The most recent release includes fixes from all preceding releases.

*Table 9: ROMMON Release 17.12(2r)*

| Caveat ID                  | Description  |
|----------------------------|--|
| <a href="#">CSCvz25229</a> | Interfaces are going down after upgrading ROMMON to 17.4.1r.       |
| <a href="#">CSCvx23605</a> | Insyde flash tool should ignore product name while upgrading bios. |
| <a href="#">CSCvx80281</a> | Revert bios's name from "Purley-R" to "Purley".                    |
| <a href="#">CSCvy73224</a> | ConfigRegister set to 0X0 does not land on ROMMON prompt.          |
| <a href="#">CSCwd69343</a> | KGV test failure PCR0.   |

*Table 10: ROMMON Release 17.3(3r)*

| Caveat ID                                       | Description |
|---|-------------|
| This release addresses only internal bug fixes. |             |

*Table 11: ROMMON Release 16.12(5r)*

| Caveat ID                  | Description                            |
|----------------------------|--|
| <a href="#">CSCvp25150</a> | Support booting of higher size images. |

### Cisco Catalyst 9800-40 Wireless Controller



**Note** The most recent release includes fixes from all preceding releases.

*Table 12: ROMMON Release 17.12(1r)*

| Caveat ID                  | Description            |
|----------------------------|------------------------|
| <a href="#">CSCwd69343</a> | KGV test failure PCR0. |



**Table 13: ROMMON Release 17.7(3r)**

| <b>Caveat ID</b>           | <b>Description</b>  |
|----------------------------|---|
| <a href="#">CSCvp25150</a> | Support booting of higher size images.  |
| <a href="#">CSCvy08919</a> | Data ports are failing during boot. ROMMON: DS31408 fails to lock to APLL 2.                      |
| <a href="#">CSCvz25229</a> | Cisco Catalyst 9800-80/40 controller interfaces are going down after upgrading ROMMON to 17.4.1r. |

