

Dell Networking C9010, C1048P, N20xx, and N30xx 9.14(2.9P1) Release Notes

This document describes the new features, enhancements, and fixed issues for the C9010 network director, C1048P, N20xx, and N30xx series port extenders (PEs).


Current Release Version: 9.14(2.9P1)

Release Date: 2021-02-18

Previous Release Version: 9.14(2.9)

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 **NOTE:** This document may contain language that is not consistent with current guidelines of Dell Technologies. There are plans to update this document over subsequent releases to revise the language accordingly.

Document Revision History

Table 1. Revision History

Date	Description
2021-02	9.14.2.9P1 - Added Fixed Issues for the release.
2020-12	Initial release

C9010 Hardware

The following hardware is shipped in the base C9010 configuration package:

- One C9010 chassis
- One full-width C9000 Series RPM
- Three C9000 Series fan modules
- One AC PSU (110-230V switching)
- AC power cord (IEC 60320 C19 cable)

- One DB-9 to RJ-45 serial console cable
- Blank panels: one RPM, three PSU, and nine half-width line card blanks

In addition, you can order the following Dell EMC C9010 hardware components:

- Up to three additional PSUs for redundancy or additional power
- One full-width C9000 Series RPM
- Half-width line cards:
 - 6-Port 40 Gigabit Ethernet QSFP+
 - 24-Port 1/10 Gigabit Ethernet SFP+
 - 24-Port 1/10 Gigabit Ethernet Base-T RJ-45
- SFP+ optics
- QSFP+ optics
- SFP+ direct attach copper (DAC) cables
- QSFP+ DAC cables
- DB-9 adapter
- Dell EMC ReadyRails™ kit (#1 and #2 Phillips and flat-tipped screwdrivers required) with four cage nuts
- Rack mount tray
- C1048P port extenders (PEs) for use with the C9010
- N20xx, N30xx series switches which you can convert to port extenders.

C1048P Hardware

The following hardware is shipped with the base C1048P package:

- One C1048P chassis
- One rack-mount kit for rack installation, including two mounting brackets, bolts, and cage nuts

N20xx Hardware


The following hardware is shipped in the base N20xx package:

- One N2024, N2024P, N2048, or N2048P chassis
- One rack-mount kit for rack installation, including two mounting brackets, bolts, and cage nuts
- One set of self-adhesive rubber pads for the free-standing switch

N30xx Hardware

The following hardware is shipped in the base N30xx package:

- One N3024, N3024P, N3048, N3048P, or N3024F chassis
- One ReadyRail kit for rack installation, including two mounting brackets, bolts, and cage nuts
- One set of self-adhesive rubber pads for the free-standing switch

 **NOTE:** You can use the optional module on the N30xx with 10G BASE-T or SFP+ module as PE uplink to the control bridge (C9010).

New in This Release

The following features are integrated into the Dell EMC Networking 9.14.2 branch through this release:

None.

Known Behavior

When installing and configuring the C9010 and C1048P, note the following hardware and software behavior and restrictions.

Known Hardware Behavior

- The port numbering on C9010 line-card ports is 0-based; the lowest-numbered port is 0. The port numbering on C1048P PE ports is 1-based; the lowest-numbered port is 1.

On both C9010 line cards and C1048P, N20xx, and N30xx PEs, odd-numbered ports are located in the upper row.

- You can connect up to 40 C1048P, N20xx, or N30xx port extenders (standalone and stacked) to a C9010 switch.
- While the C1048P, N20xx, or N30xx boot up in standalone or stacking mode, the Stack Master LED is solid green. After the PEs boots up, the Stack Master LED is off if it operates as a stack member or stack standby. The LED stays solid green if the PE operates as a stack master or in standalone mode.
- If you split a PE stack in a daisy-chain topology into two sub-stacks and each sub-stack has a PE uplink to the controlling bridge, the C9010 detects the stack split and generates an alarm. System administrator intervention is required to diagnose and correct the split condition; for example, check cable connections or reboot stack units to reactivate each PE stack.
- To locate a C1048P, N20xx, or N30xx, use the `location-led pe pe-id stack-unit unit-number {on|off}` command to illuminate the Power/Locator LED on the PE. When the LED is turned on, it blinks green; when the LED setting is turned off, it displays solid green.
- You can use non-Dell EMC qualified cables, adapters, and optics in a C9010 switch and C1048P, N20xx, or N30xx port extender, but Dell EMC Networking does not guarantee their performance. If you plug a non-Dell EMC qualified optic into a port, the Dell EMC Networking OS detects it and makes it operational. The system displays a syslog message similar to the following:

```
%C9000LC0640:8 %IFAGT-5-UNSUP_OPTICS: Non-qualified optics in slot 8 port 1
```

NOTE: Non-Dell EMC qualified 40G transceivers are not supported on the C9010. If you insert a non-Dell EMC qualified 40G transceiver into a C9010 40GbE port, the switch places the interface in an error-disabled (operationally down) state and generates a syslog message, such as: `%C9000LC0640:8 %IFAGT-2-TRANSCEIVER_UNSUPPORTED_ERROR: Transceiver in slot 8 port 4 unrecognized, putting interface in operational-down state.`

To verify the error-disabled status of an interface, enter any of the following show commands. The command outputs show examples of error-disabled 40GbE ports 8/0 and 8/4.

```
DellEMC# show inventory media 8
Slot   Port   Type           Media           Serial Number   DellQualified
-----
  8     0     UNKNOWN       UNKNOWN        USC1D6J         No**
  8     4     QSFP          40GBASE-LR4    UQ90C7B         No**
  8     8     QSFP          40GBASE-SR4    7503835V009Y   Yes
  8    12     QSFP          40GBASE-CR4    10190002        No
  8    16     QSFP          40GBASE-SR4    FE2429470007   Yes
  8    20
Media not present or accessible
** Interface is down(error disabled) as transceiver is not DellQualified

DellEMC# show interfaces fortyGigE 8/0
fortyGigE 8/0 is up, line protocol is down(error-disabled[Transceiver Unsupported])
...
```

Known Software Behavior

- On the C9010, OpenFlow supports only the scaled-I3-hosts hardware forwarding-table mode (UFT mode 3), providing a unified forwarding table (UFT) of:
 - L2 MAC entries: 160K
 - L3 host entries: 144K
 - L3 route entries: 16K

OpenFlow does not support the scaled-l3-routes forwarding-table mode (UFT mode 4) on the C9010. To configure the maximum scalable size for the L2 MAC, L3 host, and L3 route tables, use the `hardware forwarding-table mode` command.

- On the C9010, Data Center Bridging (DCB) is supported per-line card. If the traffic handled by a DCB map is transmitted on ports on different line cards, you must manually configure the DCB map on the backplane ports of the C9010 line cards on which the ports reside (`dcb-map linecard all backplane all` command).

If the DCB map you apply to the backplane ports of C9010 RPMs (`linecard 10-11`) configures two or more priority groups, you must increase the size of the PFC shared and total buffers (`dcb pfc-shared-buffer-size` and `dcb pfc-total-buffer-size` commands).

- The C1048P does not support more than one (redundant) port channel to the same network device on its front-end ports.
- The C9010 does not support the user datagram protocol (UDP) helper. The UDP helper allows you to forward IP/UDP broadcast traffic by creating a broadcast address and rewriting the destination IP address of packets with the new broadcast address.
- The C9010 supports the following Open Automation (OA) features: Bare Metal Provisioning (BMP), Open Management Infrastructure (OMI), Puppet, Representational State Transfer (REST) application programming interface (API), Smart Scripting, and Virtual Server Networking (VSN).
- PE loop detection — In the current code, when a loop is detected between PEX ports P1 and P2, the port numbers are compared numerically and the port which has the least ifIndex stays UP and the other port stays DOWN, and is moved to an error-disabled state. In most scenarios, bringing down the ifIndex with a large number is not correct. For example, MAC M1 is learnt on PE port P3 and there is a loop because PE port P1 and P2 are connected back-to-back. In this case, if P3 has a greater ifIndex than P1/P2, the current code will bring down P3. So, irrespective of the ifIndex value, it is appropriate to keep the P3 UP where the mac was originally learnt first, and bring down the port P1/P2 on detecting a loop.
- Controlling Bridge ports cannot be part of VLAN that is non-spanned across VLT domain.
- Layer 3 physical ports (CB ports) and Layer 3 Port-channel (with members as CB ports) cannot be part of non default VRF. If they need to be placed in VRF then they can be tagged/untagged to spanned VLT VLAN and this VLAN can be placed under the VRF.
- FEFD is not a HA-aware protocol. Due to this, the protocol states and corresponding data are not available on the standby system. While inter-operating with a third-party switch, the FEFD might move into an unknown state on the new RPM after failover. Due to this, the line protocol might go down.

Changes to Default Behavior and CLI Syntax

Following default behavior and CLI syntax changes occurred during the Dell EMC Networking OS release 9.14(2.9):

None.

Restrictions

- Prerequisite steps to upgrade the Dell EMC Networking OS from earlier version to 9.14.2.0 or later:
 1. Uninstall the older version of the Open Automation (OA) package
 2. Upgrade the Dell EMC Networking OS to 9.14.2.0 or later version
 3. Install the following OA packages from the respective upgraded version:
 - a. SmartScripts
 - b. Puppet
 - c. Open management infrastructure (OMI)
 - d. SNMP MIB

Prerequisite steps to downgrade the Dell EMC Networking OS from 9.14.2.0 or later to the earlier version:

1. Uninstall the OA package of 9.14.2.0 or later version
2. Downgrade the Dell EMC Networking OS to an earlier version
3. Install the respective OA package from an earlier version

For more information about installing, uninstalling and upgrading the Dell EMC Networking OS and OA package, refer the respective *Dell EMC System Release Notes*.

- If you downgrade the Dell EMC Networking OS version from 9.14.2.9 to 9.11.0.0 or any older versions, the system displays the following error message even though there is no functional impact:

```
CDB boot error:      C.cdb file format
```

Before downgrading, save the current configuration and then remove the CDB files (`confd_cdb.tar.gz.version` and `confd_cdb.tar.gz`). To remove the files, use the following steps:

```
DellEMC#write memory
DellEMC#delete flash://confd_cdb.tar.gz.version
DellEMC#delete flash://confd_cdb.tar.gz
DellEMC#reload
```

- While deploying the system in the normal-reload mode in BMP configuration, use the `ip ssh server enable` command at the beginning of the startup configuration if the write memory command is used at the end of the configuration.
- REST API does not support AAA authentication.
- The following features are not available in the Dell EMC Networking OS from version 9.7(0.0):
 - PIM ECMP
 - Static IGMP join (`ip igmp static-group`)
 - IGMP querier timeout configuration (`ip igmp querier-timeout`)
 - IGMP group join limit (`ip igmp group join-limit`)
- Half-Duplex mode is not supported.
- When FRRP is enabled in a VLT domain, no flavor of Spanning tree should concurrently be enabled on the nodes of that specific VLT domain. In essence FRRP and xSTP should not co-exist in a VLT environment.

Deferred Issues

Issues that appear in this section were reported in Dell EMC Networking OS version 9.14(2.0) as open, but have since been deferred. Deferred caveats are those that are found to be invalid, not reproducible, or not scheduled for resolution.

Deferred C9010 9.14(2.0) Software Issues

Issues that appear in this section were reported in Dell EMC Networking OS version 9.14(2.0) as open, but have since been deferred. Deferred caveats are those that are found to be invalid, not reproducible, or not scheduled for resolution.

The following issues have been deferred in the Dell EMC Networking OS version 9.14(2.0):

None.

Fixed Issues

Fixed issues are reported using the following definitions.

Category	Description
PR#	Problem Report number that identifies the issue.
Severity	<p>S1 — Crash: A software crash occurs in the kernel or a running process that requires a restart of AFM, the router, switch, or process.</p> <p>S2 — Critical: An issue that renders the system or a major feature unusable, which can have a pervasive impact on the system or network, and for which there is no work-around acceptable to the customer.</p> <p>S3 — Major: An issue that affects the functionality of a major feature or negatively effects the network for which there exists a work-around that is acceptable to the customer.</p> <p>S4 — Minor: A cosmetic issue or an issue in a minor feature with little or no network impact for which there might be a work-around.</p>
Synopsis	Synopsis is the title or short description of the issue.
Release Notes	Release Notes description contains more detailed information about the issue.

Category	Description
Work around	<p>Work around describes a mechanism for circumventing, avoiding, or recovering from the issue. It might not be a permanent solution.</p> <p>Issues listed in the “Closed Caveats” section should not be present, and the work-around is unnecessary, as the version of code for which this release note is documented has resolved the caveat.</p>

Fixed C9010 9.14(2.9P1) Software Issues

NOTE: Dell EMC Networking OS 9.14(2.9P1) includes fixes for caveats addressed in the previous 9.14 releases. Refer to the respective release notes documentation for the list of caveats fixed in the earlier 9.14 releases.

The following caveats are fixed in Dell EMC Networking OS version 9.14(2.9P1):

PR# 169575

Severity:	Sev 2
Synopsis:	In certain scenarios, port configuration does not take effect and you may see the IFMGR-3-IFA_COMM_FAIL syslog error.
Release Notes:	In certain scenarios, port configuration does not take effect and you may see the IFMGR-3-IFA_COMM_FAIL syslog error.
Workaround:	None

PR# 170018

Severity:	Sev 1
Synopsis:	Ethernet packet type 0x888e is not handled, leading to a memory leak.
Release Notes:	Ethernet packet type 0x888e is not handled, leading to a memory leak.
Workaround:	None


PR# 170024

Severity:	Sev 2
Synopsis:	On a fully scaled switch, with all ports fanned out, some ports fail to OPER UP after reload.
Release Notes:	On a fully scaled switch, with all ports fanned out, some ports fail to OPER UP after reload.
Workaround:	None

PR# 170041

Severity:	Sev 2
Synopsis:	In certain scenarios, in a VLT environment, the switch may encounter an exception during VLT failover.
Release Notes:	In certain scenarios, in a VLT environment, the switch may encounter an exception during VLT failover.
Workaround:	None

Fixed C9010 9.14(2.9) Software Issues

 **NOTE:** Dell EMC Networking OS 9.14(2.9) includes fixes for caveats addressed in the previous 9.14 releases. Refer to the respective release notes documentation for the list of caveats fixed in the earlier 9.14 releases.

The following caveats are fixed in Dell EMC Networking OS version 9.14(2.9):

PR# 169919

Severity:	Sev 3
Synopsis:	The switch may encounter a software exception due to invalid memory access on bootup.
Release Notes:	The switch may encounter a software exception due to invalid memory access on bootup.
Workaround:	None

PR# 169921

Severity:	Sev 2
Synopsis:	Static routes are not restored when BFD is disabled at interface level.
Release Notes:	Static routes are not restored when BFD is disabled at interface level.
Workaround:	None

PR# 169941

Severity:	Sev 2
Synopsis:	The <code>show environment pe</code> command output displays an incorrect value for average power output.
Release Notes:	The <code>show environment pe</code> command output displays an incorrect value for average power output.
Workaround:	None

PR# 169959

Severity:	Sev 2
Synopsis:	A memory leak may occur when a new PE is checked-in.
Release Notes:	A memory leak may occur when a new PE is checked-in.
Workaround:	None

PR# 169972

Severity:	Sev 2
Synopsis:	DHCPv6 <code>relay-reply</code> packet drops in the L2 VLAN when DHCPv6 relay is configured in the L3 VLAN.
Release Notes:	DHCPv6 <code>relay-reply</code> packet drops in the L2 VLAN when DHCPv6 relay is configured in the L3 VLAN.
Workaround:	None

PR# 169983

Severity:	Sev 3
Synopsis:	The switch does not detect the state of the fan tray when online insertion or removal is performed.
Release Notes:	The switch does not detect the state of the fan tray when online insertion or removal is performed.
Workaround:	None

PR# 169984

Severity:	Sev 2
Synopsis:	The switch may encounter a software exception when running the <code>show ipv6 ospf database router</code> CLI command.
Release Notes:	The switch may encounter a software exception when running the <code>show ipv6 ospf database router</code> CLI command.
Workaround:	None


Known Issues

Known issues are reported using the following definitions.

Category	Description
PR#	Problem Report number that identifies the issue.
Severity	S1 — Crash: A software crash occurs in the kernel or a running process that requires a restart of AFM, the router, switch, or process. S2 — Critical: An issue that renders the system or a major feature unusable, which can have a pervasive impact on the system or network, and for which there is no work-around acceptable to the customer. S3 — Major: An issue that affects the functionality of a major feature or negatively effects the network for which there exists a work-around that is acceptable to the customer. S4 — Minor: A cosmetic issue or an issue in a minor feature with little or no network impact for which there might be a work-around.
Synopsis	Synopsis is the title or short description of the issue.
Release Notes	Release Notes description contains more detailed information about the issue.
Work around	Work around describes a mechanism for circumventing, avoiding, or recovering from the issue. It might not be a permanent solution. Issues listed in the “Closed Caveats” section should not be present, and the work-around is unnecessary, as the version of code for which this release note is documented has resolved the caveat.

Known C9010 9.14(2.9) Software Issues

The latest information related to Open Caveats is available on support site through the BugTrack search tool.

 **NOTE:** You must have a user account to access the BugTrack tool.

To use the search tool:

1. Go the Main Customer Support page: <https://www.force10networks.com/csportal20/Main/SupportMain.aspx>.
2. Log in.

3. Click the BugTrack link, located in the Quick Links menu directly below the login bar.

This takes you to the BugTrack search page: <https://www.force10networks.com/csportal20/BugTrack/SearchIssues.aspx>.

4. Enter for a specific PR or select an Dell EMC Networking OS version, platform, severity, or category to get a list of PRs.
5. Click the Search button.
6. Click the PR number to view specific PR details.

The PR (or PRs) appears on the page below the tool.

The following caveats are open in Dell EMC Networking OS version 9.14(2.9):

None.

Documentation Errata

In Dell EMC Networking C9000 Series documentation, errors occur in the following documents. Use the information in this section to install and configure the C9010, C1048P, N20xx or N30xx.

None.

Installation Instructions

To install and perform the initial software configuration of the C9010 network director, C1048P, N20xx, and N30xx port extenders, see the *Dell EMC Networking C9010 Getting Started Guide*, *Dell EMC Networking C1048P Getting Started Guide*, *Dell EMC Networking N20xx and N30xx Getting Started Guide*, and *Dell EMC Networking N20xx and N30xx Installation Guide*. For complete information about how to configure and monitor the C9010 network director, C1048P, N20xx, and N30xx port extenders, see the *Dell EMC Networking C9000 Series Configuration Guide*.

Update Instructions

The following upgrades are available for the Dell EMC Networking operating system (OS) on a C9010 switch. If you upgrade more than one type of software image on the C9010, do so in the following order:

1. Upgrade the OS image on C9010 RPMs, line cards, and attached port extenders (PEs).
2. Upgrade the boot flash and boot selector images on C9010 RPMs and line cards, and the boot flash image on attached PEs.
3. Upgrade the FPGA and CPLD images on C9010 RPMs and line cards.
4. Upgrade the CPLD image on attached PEs.
5. Upgrade the PoE controller on attached PEs.

i **NOTE:** Effective from Dell EMC Networking OS 9.11(0.0P1), you can convert N20xx or N30xx series switches to port extenders for the C9010 network director. For more details about converting the N20xx and N30xx series switches to port extenders, see the *Dell EMC Networking OS Conversion Guide for the N20xx/N30xx Series*.

Prerequisites

Before you update C9010 software:

- You must be able to access the switch through an attached console, Telnet, or SSH.
- You must have administrator privilege.

Upgrading the Operating Software Image

Upgrade the OS image on C9010 RPMs, line cards, and attached port extenders by following the procedure in this section.

i **NOTE:** The configurations shown here are examples only and are not intended to duplicate any real system or network.

i **NOTE:** If you installed the Open Automation (OA) package on the C9010, Dell EMC Networking strongly recommends uninstalling the OA package before you upgrade the Dell EMC Networking OS image. Then reinstall a compatible OA

package. In this way, the system installs enhancements and uninstalls incompatible OA packages after the Dell EMC Networking OS upgrade.

NOTE: Dell EMC Networking strongly recommends using the Management Interface to upgrade the new image in both BMP mode and the Upgrade System CLI. Using front-end ports takes more time (approximately 25 minutes) to download and install new image due to the large file size.

NOTE: If you are using bare metal provisioning (BMP), see the *Bare Metal Provisioning* chapter in the *Open Automation Guide*.

1. Save the running configuration on the switch.

```
EXEC Privilege mode
write memory
```

2. Back up your startup configuration to a secure location (for example, an FTP server as shown here).

```
EXEC Privilege mode
copy startup-config destination
```

```
DellEMC# copy running-config ftp:
Address or name of remote host []: 10.10.10.10
Destination file name [startup-config]: startup-config
User name to login remote host:
Password to login remote host: xxxx
!
5179 bytes successfully copied
DellEMC#
```

3. Upgrade the Dell EMC Networking OS on all C9010 RPMs, line cards, and attached PEs.

```
EXEC Privilege mode
```

```
upgrade system-image all {flash: | ftp: | scp: | tftp:| usbflash:} file-url [A: | B:]
```

Where {flash: | ftp: | scp: | tftp:| usbflash:} *file-url* specifies the file transfer method and location of the software image file used to upgrade the C9010, and is in one of the following formats:

- `ftp://user-id:password@host-ip/file-path`
- `scp://user-id:password@host-ip/file-path`
- `tftp://host-ip/file-path`
- `flash://directory-path/filename`
- `usbflash://directory-path/filename`

NOTE: Dell EMC Networking recommends using FTP to copy the new image with the `upgrade system` command due to the large file size.

```
DellEMC# upgrade system-image all flash://FTOS-C9000-9.14.2.9.bin B:
!.....!
158656163 bytes successfully copied
Image upgraded to CP.
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Dec 15 15:06:29: %PE0-UNIT0-M:CP %DOWNLOAD-6-UPGRADE: Upgrade request received from
Controlling Bridge.
Dec 15 15:06:29: %PE1-UNIT0-M:CP %DOWNLOAD-6-UPGRADE: Upgrade request received from
Controlling Bridge.
Dec 15 15:07:00: %RPM1-P:CP %DOWNLOAD-6-UPGRADE: PE 1 manual upgrade response -
upgrade in progress.
Dec 15 15:07:02: %RPM1-P:CP %DOWNLOAD-6-UPGRADE: PE 0 manual upgrade response -
upgrade in progress.
Dec 15 15:09:35: %RPM1-P:CP %DOWNLOAD-6-UPGRADE: PE 0 manual upgrade result - upgrade
success.
Dec 15 15:09:45: %RPM1-P:CP %DOWNLOAD-6-UPGRADE: PE 1 manual upgrade result - upgrade
success.
PE (0) Image upgraded successfully.
```

```
PE (1) Image upgraded successfully.
Image upgraded to RP, Standby RPM and all linecards.
DellEMC#
```

NOTE: To upgrade the OS image on a specified C9010 RPM, line card, PE, or PE stack, use one of the following commands:

```
upgrade system-image linecard [{0-11} | all] [rpmA: | rpmB:]

upgrade system-image rpm [{0-1} | all] [[flash: | ftp: | scp: | tftp: | usbflash:]
file-url [A: | B:] | rpmA: | rpmB:]

upgrade system-image pe {0-255} [stack-unit [{0-7} | all]] [rpmA: | rpmB:] | all
[rpmA: | rpmB:]
```

- Verify that the Dell EMC Networking OS image was correctly upgraded.

EXEC Privilege mode

```
show boot system all
```

```
DellEMC# show boot system all
Current system image information in the system:
=====
Type                Boot Type          A                    B
-----
rpm 0 (CP)          FLASH BOOT         9.14.2.9[boot]      9.14 (2.8)
rpm 1 (CP)          FLASH BOOT         9.14.2.9[boot]      9.14 (2.8)
rpm 0 (RP)          FLASH BOOT         9.14.2.9[boot]      9.14 (2.8)
rpm 1 (RP)          FLASH BOOT         9.14.2.9[boot]      9.14 (2.8)
linecard 0          FLASH BOOT         9.14.2.9[boot]      9.14 (2.8)
linecard 1 is not present.
linecard 2 is not present.
linecard 3 is not present.
linecard 4 is not present.
linecard 5          FLASH BOOT         9.14.2.9[boot]      9.14 (2.8)
linecard 6          FLASH BOOT         9.14.2.9[boot]      9.14 (2.8)
linecard 7 is not present.
linecard 8 is not present.
linecard 9 is not present.
linecard 10         FLASH BOOT         9.14.2.9[boot]      9.14 (2.8)
linecard 11         FLASH BOOT         9.14.2.9[boot]      9.14 (2.8)
DellEMC#
```

- Change the primary boot parameter to the upgraded partition (A: or B:) on the primary and standby RPMs. Both RPMs will boot from the same system image.

Configuration mode

```
boot system {rpm0 | rpm1} primary system: {A: | B:} [tftp://file-url | ftp://file-url]
```

```
DellEMC(conf)# boot system rpm0 primary system: A:
DellEMC(conf)# boot system rpm1 primary system: A:
DellEMC(conf)# boot system rpm0 secondary system: B:
DellEMC(conf)# boot system rpm1 secondary system: B:
DellEMC(conf)# exit
DellEMC# show running-config boot
!
boot system rpm0 primary system: A:
boot system rpm0 secondary system: B:
boot system default system A:
boot system rpm1 primary system: A:
boot system rpm1 secondary system: B:
boot system default system A:
```

- Save the upgrade configuration so that it is retained after a reload.

EXEC Privilege mode

```
write memory
```

```
DellEMC# write memory
!
00:11:17: %SYSTEM:CP %FILEMGR-5-FILESAVED: Copied running-config to startup-config
```

```
in flash by default
DellEMC#
```

7. Reload the system so that the Dell EMC Networking OS image is retrieved from flash.

EXEC Privilege mode

```
reload
```

```
DellEMC# write memory
!
00:11:17: %SYSTEM:CP %FILEMGR-5-FILESAVED: Copied running-config to startup-config
in flash by default
DellEMC#
```

```
DellEMC# reload
Proceed with reload [confirm yes/no]: y
rebooting...
```

After the C9010 reloads, the switch automatically upgrades all attached port extenders.

```
Dec 15 15:25:09: %RPM0-P:CP %IFMGR-5-OSTATE_UP: Changed interface state to up: Te 1/0
Dec 15 15:25:09: %RPM0-P:CP %BRM-5-PE_DISCOVERED: PE:f8:b1:56:00:01:44 is detected on
cascade port:TenGigabitEthernet 1/0.
Dec 15 15:25:09: %RPM0-P:CP %IFMGR-5-OSTATE_UP: Changed interface state to up: Po 258
Dec 15 15:25:11: %RPM0-P:CP %IFMGR-5-OSTATE_UP: Changed interface state to up: Te 1/1
Dec 15 15:25:11: %RPM0-P:CP %DOWNLOAD-6-VERSION_MISMATCH_INFO: Received checkin from
PE 0. Expected version = 9-14(2-9) checkin version = 9-14(2-8)
Dec 15 15:25:12: %RPM0-P:CP %DOWNLOAD-6-UPGRADE_PROGRESS: PE 0 firmware auto sync is
in progress.
Dec 15 15:25:13: %RPM0-P:CP %BRM-5-PE_UNIT_DOWN: PE:0 Unit:0 Unit
MAC:ab:cd:ef:00:01:02 is operationally down.
Dec 15 15:25:14: %RPM0-P:CP %BRM-5-BRM_LOG_PE_UNIT_VALIDATE_ERROR: PE:0 Unit:0 is in
error: SW version incompatible state.
Dec 15 15:25:15: %RPM0-P:CP %BRM-5-PE_DISCOVERED: PE:f8:b1:56:00:01:78 is detected on
cascade port:TenGigabitEthernet 1/1.
Dec 15 15:25:15: %RPM0-P:CP %IFMGR-5-OSTATE_UP: Changed interface state to up: Po 259
Dec 15 15:25:17: %RPM0-P:CP %DOWNLOAD-6-VERSION_MISMATCH_INFO: Received checkin from
PE 1. Expected version = 9-14(2-9) checkin version = 9-14(2-8)
Dec 15 15:25:17: %RPM0-P:CP %DOWNLOAD-6-UPGRADE_PROGRESS: PE 1 firmware auto sync is
in progress.
Dec 15 15:25:19: %RPM0-P:CP %BRM-5-PE_UNIT_DOWN: PE:1 Unit:1 Unit
MAC:ab:cb:ef:00:01:03 is operationally down.
Dec 15 15:25:19: %RPM0-P:CP %BRM-5-BRM_LOG_PE_UNIT_VALIDATE_ERROR: PE:1 Unit:1 is in
error: SW version incompatible state.
Dec 15 15:30:03: %RPM0-P:CP %DOWNLOAD-6-UPGRADE: PE 0 auto upgrade result - upgrade
success, initiating reset.
Dec 15 15:30:05: %RPM0-P:CP %IFMGR-5-OSTATE_DN: Changed interface state to down: Te
1/0
Dec 15 15:30:05: %RPM0-P:CP %IFMGR-5-OSTATE_DN: Changed interface state to down: Po
258
Dec 15 15:30:09: %RPM0-P:CP %DOWNLOAD-6-UPGRADE: PE 1 auto upgrade result - upgrade
success, initiating reset.
Dec 15 15:30:12: %RPM0-P:CP %IFMGR-5-OSTATE_DN: Changed interface state to down: Te
1/1
Dec 15 15:30:12: %RPM0-P:CP %IFMGR-5-OSTATE_DN: Changed interface state to down: Po
259
```

8. Verify that the system is upgraded to the latest Dell EMC Networking OS version.

EXEC Privilege mode

```
show chassis brief
```

```
show pe {0-255} system brief
```

Upgrading the Boot Flash and Boot Selector Images

If your C9010 system is running Dell EMC Networking OS version 9.14(2.9), upgrade RPMs and line cards to boot flash (GRUB) version 3.3.1.21, and boot selector (BIOS) version 3.3.0.4. Upgrade PEs to boot flash version 3.3.1.9. (The boot selector is not supported on a PE.)

CAUTION: If you are configuring the BIOS for a VT100+ terminal emulation package with a 80x24 window size and serial port settings of 9600,n,8,1, do not use flow control.

CAUTION: Upgrading the BIOS may take some time to complete. There are no progress indicators while the upgrade is proceeding. Do not reboot or attempt other operations until the upgrade is complete.

NOTE: If the boot flash version of a C9010 is running with a version equal to, or higher than, the upgraded boot code version, DO NOT proceed with the upgrade process. If you have questions regarding the boot code version for your system, contact Dell EMC Networking technical support.

Ensure that you have upgraded to the latest Dell EMC Networking OS version. If you have not already done so, complete the [Upgrade the Operating Software Image](#) procedure.

You cannot upgrade the boot flash and boot selector images together at the same time; upgrade the images separately by entering different upgrade commands (`upgrade bootflash-image` and `upgrade bootselector-image`). There is no required order in which the upgrades must be done; you can either upgrade the boot flash before the boot selector image or the boot selector before the boot flash image.

To upgrade the boot flash or boot selector images to the image versions packed with the loaded Dell EMC Networking OS image, use the `booted` option in an upgrade command. To display the image versions, enter the `show revision` command in EXEC PRIVILEGE mode.

1. From a console attached to the primary RPM, upgrade the boot flash (GRUB) image on the primary RPM, all installed line cards, and all PEs attached to the C9010.

EXEC Privilege mode

```
upgrade bootflash-image all booted
```

```
DellEMC# upgrade bootflash-image all booted

Current Boot information in the system:
=====
Card                BootFlash      Current Version  New Version
-----
rpm 1 (CP)          Boot Flash     3.3.1.18        3.3.1.21
rpm 1 (RP)          Boot Flash     3.3.1.18        3.3.1.21
Linecard0           Boot Flash     3.3.1.18        3.3.1.21
Linecard1           Boot Flash     3.3.1.18        3.3.1.21
Linecard2           Boot Flash     3.3.1.18        3.3.1.21
Linecard10          Boot Flash     3.3.1.18        3.3.1.21
Linecard11          Boot Flash     3.3.1.18        3.3.1.21
PE (0/0)            Boot Flash     3.3.1.8         3.3.1.9
PE (1/0)            Boot Flash     3.3.1.8         3.3.1.9
PE (1/1)            Boot Flash     3.3.1.8         3.3.1.9
*****
* Warning - Upgrading boot flash is inherently risky and should only *
* be attempted when necessary. A failure at this upgrade may cause *
* a board RMA. Proceed with caution !                               *
*****
Proceed Boot Flash image for all cards [yes/no]: y
!!!!!!!
Bootflash image upgrade for all cards completed successfully.
Warning: Kindly save the system configuration before reloading.
DellEMC#
```

NOTE: To upgrade the boot flash image only on C9010 line cards, PEs, or PE stacks, use one of the following commands:

```
upgrade bootflash-image linecard {all | {0-11}} booted
```

```
upgrade bootflash-image pe {all | {0-255}} [stack-unit [{0-11} | all]] booted
```

To upgrade the boot flash image on a standby RPM, see Step 2.

2. If the C9010 uses a standby RPM, upgrade the boot flash image on the standby RPM:
 - a. Connect the C9010 console to the console port on the standby RPM and log in.
 - b. Upgrade the boot flash image on the standby RPM.

EXEC Privilege mode

upgrade bootflash-image rpm booted

```
DellEMC(standby)# upgrade bootflash-image rpm booted

Current Boot information in the system:
=====
  Card                BootFlash      Current Version  New Version
-----
rpm 0 (CP)           Boot Flash     3.3.1.18         3.3.1.21
rpm 0 (RP)           Boot Flash     3.3.1.18         3.3.1.21
*****
* Warning - Upgrading boot flash is inherently risky and should only *
* be attempted when necessary. A failure at this upgrade may cause *
* a board RMA. Proceed with caution ! *
*****
Proceed Boot Flash image for all cards [yes/no]: y
!!!!!!!!!!
Bootflash image upgrade for RPM 0 completed successfully.
Warning: Kindly save the system configuration before reloading.
DellEMC#
```

3. From a console attached to the primary RPM, upgrade the boot selector (BIOS) image on the primary RPM and all line cards installed in the C9010.

EXEC Privilege mode

upgrade bootselector-image all booted

```
DellEMC# upgrade bootselector-image all booted

Current Boot information in the system:
=====
  Card                BootSelector    Current Version  New Version
-----
rpm 1 (CP)           Boot Selector   3.3.0.3          3.3.0.4
rpm 1 (RP)           Boot Selector   3.3.0.3          3.3.0.4
Linecard0            Boot Selector   3.3.0.3          3.3.0.4
Linecard1            Boot Selector   3.3.0.3          3.3.0.4
Linecard2            Boot Selector   3.3.0.3          3.3.0.4
Linecard10           Boot Selector   3.3.0.3          3.3.0.4
Linecard11           Boot Selector   3.3.0.3          3.3.0.4
*****
* Warning - Upgrading boot selectors is inherently risky and should *
* only be attempted when necessary. A failure at this upgrade may *
* cause a board RMA. Proceed with caution ! *
*****
Proceed Boot Selector image for all cards [yes/no]: y
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Bootselector image upgrade for all cards completed successfully.
```

NOTE: To upgrade the boot selector image only on C9010 line cards:

```
upgrade bootselector-image linecard [all | {0-11}] [booted | [[flash: | ftp: | scp: |
tftp: | usbflash:] file-url]]
```

Where [[flash: | ftp: | scp: | tftp:| usbflash:] *file-url*] specifies the file transfer method and location of the boot selector image file used to upgrade the C9010, and is in one of the following formats:

- *ftp://user-id:password@host-ip/file-path*
- *scp://user-id:password@host-ip/file-path*
- *tftp://host-ip/file-path*
- *flash://directory-path/filename*
- *usbflash://directory-path/filename*

To upgrade the boot selector image on a standby RPM, see Step 2.

4. If the C9010 uses a standby RPM, upgrade the boot selector image on the standby RPM:
 - a. Connect the C9010 console to the console port on the standby RPM and log in.
 - b. Upgrade the boot selector image on the standby RPM.

EXEC Privilege mode

```
upgrade bootselector-image rpm booted
```

```
DellEMC(standby)# upgrade bootselector-image rpm booted

Current Boot information in the system:
=====
   Card                BootSelector    Current Version    New Version
-----
rpm 0 (CP)            Boot Selector    3.3.0.3             3.3.0.4
rpm 0 (RP)            Boot Selector    3.3.0.3             3.3.0.4
*****
* Warning - Upgrading boot selectors is inherently risky and should *
* only be attempted when necessary. A failure at this upgrade may *
* cause a board RMA. Proceed with caution !                          *
*****
Proceed Boot Selector image for RPM 0 [yes/no]: y
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Bootselector image upgrade for RPM 0 completed successfully.
```

5. Reload the system.

EXEC Privilege mode

```
reload
```

```
DellEMC# reload
System configuration has been modified. Save? [yes/no]: y
Dec 15 06:22:25: %STKUNIT0-M:CP %FILEMGR-5-FILESAVED: Copied running-config to
startup-config
in flash by default
Proceed with reload [confirm yes/no]: y
syncing disks... done
unmounting file systems...
unmounting /f10/usbflash (/dev/sd0d)...
unmounting /f10/flash (/dev/wd0e)...
unmounting /boot (/dev/wd0b)...
```

6. Verify that the C9010 system is upgraded with the latest boot flash and boot selector images in the CP, RP, and all line cards.

EXEC Privilege mode

```
show revision
```

Upgrading the CPLD and FPGA Images

To upgrade CPLD and FPGA images on the C9010, you must upgrade the CPLD, FPGA, microcontroller (MSS) FPGA, and MSS inapplication programming (IAP) images on each component. There are separate commands for each operation.

If the C9010 is running Dell EMC Networking OS 9.14(1.2) or earlier, upgrade to:

- RPM MSS FPGA version 3.12
- RPM IAP version 3.2
- RPM CPLD version 3.7
- RPM FPGA version 2.0
- Line-card MSS FPGA version 3.10
- Line-card IAP version 3.2
- Line-card CPLD version 3.2
- PE CPLD version 25
- PE PoE Controller version 2.65

If your system is loaded with a CPLD and an FPGA version that are the same or higher than these versions, do not upgrade the CPLD or FPGA.

Your system must have the Dell EMC Networking OS 9.11(0.0P1) loaded before you can upgrade the CPLD and FPGA images. To view the CPLD and FPGA versions packed with Dell EMC Networking OS 9.11(0.0P1), enter the `show revision` command in EXEC PRIVILEGE mode.

Overview

To upgrade the CPLD and FPGA images on a C9010 and attached PEs:

1. Upgrade the MSS FPGA, IAP, and CPLD images on C9010 RPMs.
 2. Upgrade the MSS FPGA, IAP, and CPLD images on installed C9010 line cards.
 3. Upgrade the CPLD image on C1048P, N20xx or N30xx PE.
 4. Upgrade the FPGA on C9010 RPMs. After you receive a "successful upgrade" message, power cycle the chassis.
- All C9010 RPMs, line cards, and attached PEs should be online.

Upgrading the MSS FPGA, IAP, and CPLD on C9010 RPMs

1. Upgrade the MSS IAP image on the primary RPM. This operation takes about 5 minutes to complete.

EXEC Privilege mode

`upgrade mss-iap-image rpm booted`

```
DellEMC# upgrade mss-iap-image rpm booted
Current information for the system:
=====
Card                Device Name      Current Version  New Version
-----
CP                  IAP              3.1              3.2

*****
* Warning - Upgrading IAP is inherently risky and should *
* only be attempted when necessary. A failure at this upgrade may *
* cause a board RMA. Proceed with caution ! *
*****
Upgrade image for rpm 0 [yes/no]: y
IAP upgrade in progress!!! Please do NOT power off the unit!!!
!!!!!!!!!!!!!!System shall reboot in few minutes after FPGA/eNVM programming....
Please wait...
Upgrade result :
=====
RPM0 IAP upgrade successful. Please power cycle the system manually to take effect.
```

2. Upgrade the CPLD image on the primary RPM. This operation takes about 4 minutes to complete.

EXEC Privilege mode

`upgrade cpld-image rpm booted`

```
DellEMC# upgrade cpld-image rpm booted
Current information for the system:
=====
Card                Device Name      Current Version  New Version
-----
CP                  CPLD              3.6              3.7

*****
* Warning - Upgrading CPLD is inherently risky and should *
* only be attempted when necessary. A failure at this upgrade may *
* cause a board RMA. Proceed with caution ! *
*****
Upgrade image for rpm 0 [yes/no]: y
CPLD upgrade in progress!!! Please do NOT power off the unit!!!
!!!!!!!!!!!!!!
Upgrade result :
=====
RPM0 CPLD upgrade successful. Please power cycle the system manually to take effect.
```

3. If the C9010 has two RPMs installed, an MSS FPGA upgrade is supported only from the standby RPM. If the C9010 uses one RPM, you can upgrade the MSS FPGA from the master RPM.

If the C9010 uses a standby RPM, upgrade the MSS FPGA, IAP, and CPLD images on the standby RPM:

- a. Connect the C9010 console to the console port on the standby RPM and log in.
- b. Upgrade the MSS FPGA image on the standby RPM. This operation takes about 15 minutes to complete.

EXEC Privilege mode

upgrade mss-fpga-image rpm booted

```
DelleEMC(standby)# upgrade mss-fpga-image rpm booted

Current information for the system:
=====
Card           Device Name      Current Version   New Version
-----
CP             FPGA 1           3.12             3.12

*****
* Warning - Upgrading FPGA is inherently risky and should      *
* only be attempted when necessary. A failure at this upgrade may *
* cause a board RMA. Proceed with caution !                     *
*****
Upgrade image for rpm 1 [yes/no]: y
```

- c. Upgrade the MSS IAP image on the standby RPM. This operation takes about 5 minutes to complete.

EXEC Privilege mode

upgrade mss-iap-image rpm booted

```
DelleEMC(standby)# upgrade mss-iap-image rpm booted

Current information for the system:
=====
Card           Device Name      Current Version   New Version
-----
CP             IAP              3.1              3.2

*****
* Warning - Upgrading IAP is inherently risky and should      *
* only be attempted when necessary. A failure at this upgrade may *
* cause a board RMA. Proceed with caution !                     *
*****
Upgrade image for rpm 1 [yes/no]: y
IAP upgrade in progress!!! Please do NOT power off the unit!!!
!!!!!!!!!!!!!!System shall reboot in few minutes after FPGA/eNVM programming....
Please wait...
Upgrade result :
=====
RPM1 IAP upgrade successful. Please power cycle the system manually to take effect.
```

- d. Upgrade the CPLD image on the standby RPM.

EXEC Privilege mode

upgrade cpld-image rpm booted

```
DelleEMC(standby)# upgrade cpld-image rpm booted

Current information for the system:
=====
Card           Device Name      Current Version   New Version
-----
CP             CPLD             3.4              3.7

*****
* Warning - Upgrading CPLD is inherently risky and should      *
* only be attempted when necessary. A failure at this upgrade may *
* cause a board RMA. Proceed with caution !                     *
*****
Upgrade image for rpm 1 [yes/no]: y
CPLD upgrade in progress!!! Please do NOT power off the unit!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Upgrade result :
=====
RPM0 CPLD upgrade successful. Please power cycle the system manually to take effect.
```

- 4. Upgrade the MSS FPGA image on the primary RPM. This upgrade requires that you failover the primary RPM so that it becomes the standby. The upgrade `mss-fpga-image rpm booted` command is supported only on the standby RPM.

EXEC Privilege mode

- a. Connect the C9010 console to the console port on the primary RPM and log in.

- b. Perform a force-failover on the primary RPM.

```
DelleMC# redundancy force-failover rpm
System configuration has been modified. Save? [yes/no]: yes
!
Dec 15 17:01:49: %RPM0-P:CP %FILEMGR-5-FILESAVED: Copied running-config to startup-
config in flash by default
Synchronizing data to peer RPM
!!!
Proceed with RPM hot failover [confirm yes/no]: yes
```

- c. Wait for the RPM to reboot as the standby.

- d. Upgrade the MSS FPGA image.

```
upgrade mss-fpga-image rpm booted
```

```
DelleMC(standby)# upgrade mss-fpga-image rpm booted
Current information for the system:
=====
Card                Device Name        Current Version    New Version
-----
CP                   FPGA 1             3.12               3.12
*****
* Warning - Upgrading FPGA is inherently risky and should      *
* only be attempted when necessary. A failure at this upgrade may *
* cause a board RMA. Proceed with caution !                    *
*****
Upgrade image for rpm 0 [yes/no]: y
FPGA upgrade in progress!!! Please do NOT power off the unit!!!
```

Upgrading the MSS FPGA, MSS IAP, and CPLD on C9010 Line Cards

1. From the primary RPM, upgrade the MSS FPGA image on C9010 line cards. This operation takes 10 minutes to complete.

EXEC Privilege mode

```
upgrade mss-fpga-image linecard all booted
```

NOTE: To upgrade the MSS FPGA image on a specified line card, use the command:

```
upgrade mss-fpga-image linecard {0-9} booted
```

```
DelleMC# upgrade mss-fpga-image linecard all booted
Current information for the system:
=====
Card                Device Name        Current Version    New Version
-----
Linecard0           FPGA               3.10               3.10
Linecard1           FPGA               3.10               3.10
Linecard2           FPGA               3.10               3.10
*****
* Warning - Upgrading FPGA is inherently risky and should      *
* only be attempted when necessary. A failure at this upgrade may *
* cause a board RMA. Proceed with caution !                    *
*****
Upgrade image for all linecards [yes/no]: y
FPGA upgrade in progress!!! Please do NOT power off the unit!!!
```

2. Upgrade the MSS IAP image on C9010 line cards. This operation takes about 10 minutes to complete.

EXEC Privilege mode

```
upgrade mss-iap-image linecard all booted
```

NOTE: To upgrade the MSS IAP FPGA image on a specified line card, use the command:

```
upgrade mss-iap-image linecard {0-9} booted
```

```
DelleMC# upgrade mss-iap-image rpm booted
Current information for the system:
=====
Card                Device Name        Current Version    New Version
-----
```

```

Linecard0          IAP          3.1          3.2
Linecard1          IAP          3.1          3.2
Linecard2          IAP          3.1          3.2
*****
* Warning - Upgrading IAP is inherently risky and should *
* only be attempted when necessary. A failure at this upgrade may *
* cause a board RMA. Proceed with caution ! *
*****
Upgrade image for all linecards [yes/no]: y
IAP upgrade in progress!!! Please do NOT power off the unit!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Upgrade result :
=====
IAP upgrade successful for all linecards.Please power cycle the system manually to
take effect.

```

3. Upgrade the CPLD image on C9010 line cards. This operation takes two minutes to complete.

EXEC Privilege mode

```
upgrade cpld-image linecard all booted
```

i **NOTE:** To upgrade the CPLD image on a specified line card, use the command:

```
upgrade cpld-image linecard {0-9} booted
```

```

DellEMC# upgrade cpld-image linecard all booted
Current information for the system:
=====
Card                Device Name      Current Version  New Version
-----
Linecard0           CPLD             3.1              3.2
Linecard1           CPLD             3.1              3.2
Linecard2           CPLD             3.1              3.2
*****
* Warning - Upgrading CPLD is inherently risky and should *
* only be attempted when necessary. A failure at this upgrade may *
* cause a board RMA. Proceed with caution ! *
*****
Upgrade image for all linecards [yes/no]: y
CPLD upgrade in progress!!! Please do NOT power off the unit!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Upgrade result :
=====
CPLD upgrade successful for all linecards. Please power cycle the system manually to
take effect.

```

4. Power cycle the C9010 by turning off each power supply, waiting two minutes, and then turning on each power supply.

Upgrading the CPLD on C1048P, N20xx, or N30xx PEs

1. From a console attached to the primary RPM, upgrade the CPLD image on C1048P, N20xx and N30xx PEs attached to the C9010.

EXEC Privilege mode

```
upgrade cpld-image pe all booted
```

i **NOTE:** To upgrade the CPLD image on a specified PE, use the command:

```
upgrade cpld-image pe {0-255} booted
```

```

DellEMC# upgrade cpld-image pe all booted
Current information for the system:
=====
PE      Stack Unit      Device Name      Current Version  New Version
-----
0       0               CPLD             24              25
1       0               CPLD             24              25
1       1               CPLD             24              25
*****
* Warning - Upgrading CPLD is inherently risky and should *

```

```

* only be attempted when necessary. A failure at this upgrade may *
* cause a board RMA. Proceed with caution ! *
*****
Upgrade CPLD Image for all pes ? [yes/no]: yes
CPLD upgrade in progress!!! Please do NOT power off the unit!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
%PE1-C1048P:0 %DOWNLOAD-6-CPLD_UPGRADE: stack-unit 0 cpld upgrade success.
%PE1-C1048P:1 %DOWNLOAD-6-CPLD_UPGRADE: stack-unit 1 cpld upgrade success.
Upgrade result :
=====
%RPM0-P:CP %DOWNLOAD-6-UPGRADE: PE (0/0) CPLD upgrade response, Upgrade Success.
%RPM0-P:CP %DOWNLOAD-6-UPGRADE: PE (1/0) CPLD upgrade response, Upgrade Success.
CPLD upgrade successful for all pes.Please power cycle the system manually to take
effect.

```

2. Power cycle each C1048P, N20xx or N30xx PE by unplugging the power cord, waiting two minutes, and then re-plugging the power cord.

Upgrading the FPGA on C9010 RPMs

1. Upgrade the FPGA image on the primary RPM. This operation takes about 5 minutes to complete.

EXEC Privilege mode

upgrade fpga-image booted

```

DellEMC# upgrade fpga-image booted
Current information for the system:
=====
Card                Device Name          Current Version      New Version
-----
CP                   FPGA 2               1.0                  2.0
*****
* Warning - Upgrading FPGA is inherently risky and should *
* only be attempted when necessary. A failure at this upgrade may *
* cause a board RMA. Proceed with caution ! *
*****
Upgrade image for rpm 0 [yes/no]: y
FPGA upgrade in progress!!! Please do NOT power off the unit!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!

```

2. Wait for a successful upgrade result.

```

Upgrade result :
=====
RPM0 FPGA upgrade successful. Please power cycle the system manually to take effect.

```

3. If the C9010 uses a standby RPM, upgrade the FPGA image on the standby RPM:
 - a. Connect the C9010 console to the console port on the standby RPM and log in.
 - b. Upgrade the FPGA image on the standby RPM. This operation takes about 5 minutes to complete.

EXEC Privilege mode

upgrade fpga-image rpm booted

```

DellEMC(standby)# upgrade fpga-image booted
Current information for the system:
=====
Card                Device Name          Current Version      New Version
-----
CP                   FPGA 2               1.0                  2.0
*****
* Warning - Upgrading FPGA is inherently risky and should *
* only be attempted when necessary. A failure at this upgrade may *
* cause a board RMA. Proceed with caution ! *
*****
Upgrade image for rpm 1 [yes/no]: y
FPGA upgrade in progress!!! Please do NOT power off the unit!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!

```

c. Wait for a successful upgrade result.

```
Upgrade result :
=====
RPM1 FPGA upgrade successful. Please power cycle the system manually to take effect.
```

4. Power cycle the C9010 by turning off each power supply, waiting two minutes, and then turning on each power supply. All C9010 RPMs, line cards, and attached PEs should be online.

Upgrading the PoE Controller

From a console attached to the primary RPM, upgrade the PoE controller image on C1048P, N20xx and N30xx PEs attached to the C9010.

1. Upgrade the PoE controller image on a specified PE stack unit.

```
upgrade poe-controller pe pe-id stack-unit unit-number
EXEC Privilege
```

```
DellEMC# upgrade poe-controller pe 0 stack-unit all

Current PoE-Controller information in the system:
=====
Pe Unit                Current Version        New Version
-----
0/0                    2.65                   2.65

*****
* Warning - Upgrading PoE Controller should only be attempted *
* when necessary. Port-Extender will be reset automatically after *
* upgrade. PoE to all ports of the unit would be suspended until *
* upgrade completes and unit gets reloaded successfully. Please do not *
* Reset/Powercycle or Reload. Proceed with caution ! *
*****

Upgrade PoE Controller Firmware for pe 0 stack-unit 0 ? [yes/no]: yes

PoE Controller upgrade in progress. Please do NOT POWER-OFF the card.
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!

Upgrade result :
=====
PE 0 Slot 0 PoE Controller FirmWare upgrade successful. Resetting the port-extender.
DellEMC#
```

Displaying SW Versions of C9010 and C1048P, N20xx, and N30xx Components

To verify software upgrades on C9010 RPMs, line cards, and attached port extenders, use the `show revision` command.

```
DellEMC#show revision

DEVICE IMAGE INFORMATION :
-----
Type                Version                Target
MSS FPGA            3.10                   linecard (0)
CPLD                 3.2                    linecard (0)
IAP                  3.2                    linecard (0)
Boot Flash           3.3.1.21               linecard (0)
Boot Selector        3.3.0.4                linecard (0)
MSS FPGA            3.10                   linecard (1)
CPLD                 3.2                    linecard (1)
IAP                  3.2                    linecard (1)
Boot Flash           3.3.1.21               linecard (1)
```

```

Boot Selector          3.3.0.4          linecard (1)
  MSS FPGA            3.12            CP (0)
  CPLD                3.7             CP (0)
  FPGA                2.0             CP (0)
  IAP                 3.2             CP (0)
  Boot Flash          3.3.1.19        CP (0)
Boot Selector          3.3.0.3          CP (0)
  Boot Flash          3.3.1.19        RP (0)
Boot Selector          3.3.0.3          RP (0)
  Boot Flash          3.3.1.21        LP (0)
Boot Selector          3.3.0.4          LP (0)

```

NOTE: In show revision output:

- The FPGA 1 version on an RPM is upgraded with the upgrade `mss-fpga-image rpm booted` command.
- The FPGA 2 version on an RPM is upgraded with the upgrade `fpga-image booted` command.
- The FPGA version on a line card is upgraded with the upgrade `mss-fpga-image linecard {all | 0-9} booted` command.

Support Resources

The following support resources are available for the C9010, C1048P, N20xx and N30xx devices.

Documentation Resources

For information about using the C9010, N20xx, N30xx and C1048P, see the following documents at <http://www.dell.com/support>:

- *Dell EMC Networking C9010 Getting Started Guide*
- *Dell EMC Networking C1048P Getting Started Guide*
- *Dell EMC Networking N20xx and N30xx Series Switch Getting Started Guide*
- *Dell EMC Networking C9010 Installation Guide*
- *Dell EMC Networking C1048P Installation Guide*
- *Dell EMC Networking N20xx and N30xx Series Switch Installation Guide*
- *Dell EMC Networking C9000 Series Command-Line Reference Guide*
- *Dell EMC Networking C9000 Series Configuration Guide*
- *Dell EMC Networking OS Conversion Guide for the N20xx/N30xx Series*

For more information on hardware and software features, commands, and capabilities, refer to the Dell EMC Networking support website at: <https://www.dell.com/support>

Issues

Incorrect behavior or unexpected caveats are listed as the Problem Report (PR) numbers within the appropriate sections.


NOTE: You can subscribe to issue update reports or use the BugTrack search tool to read current information about open and closed issues. To subscribe or use BugTrack, visit Dell EMC Support at: <https://www.force10networks.com/CSPortal20/BugTrack/SearchIssues.aspx>.

Finding Documentation

This document contains operational information specific to the C9010 switch and its port extenders.

- For information about using the C9010, refer to the documents at <http://www.dell.com/support>.
- For more information about hardware features and capabilities, refer to the Dell EMC Networking website at <https://www.dellemc.com/networking>.


Contacting Dell EMC

 **NOTE:** If you do not have an active Internet connection, you can find contact information on your purchase invoice, packing slip, bill, or Dell EMC product catalog.

Dell EMC provides several online and telephone-based support and service options. Availability varies by country and product, and some services may not be available in your area. To contact Dell EMC for sales, technical support, or customer service issues:

Go to www.dell.com/support.

Notes, cautions, and warnings

 **NOTE:** A NOTE indicates important information that helps you make better use of your product.

 **CAUTION:** A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

 **WARNING:** A WARNING indicates a potential for property damage, personal injury, or death.