

Dell C9010, C1048P, N20xx, and N30xx Systems Release Notes, OS Version 9.14(1.10)

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(1.10)

Release Date: 2021-09-30

Previous Release Version: 9.14(1.9P4)

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Document Revision History

Table 1. Revision History

Date	Description
2021-09	Initial release

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

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

i **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 have been added to the C9010 with Dell EMC Networking OS version 9.14(1.10):

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
```

i **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-l3-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 hardware 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), Smart Scripting, and Virtual Server Networking (VSN). The C9010 does not support these OA features: Open Management Infrastructure (OMI), Puppet, and Representational State Transfer (REST) application programming interface (API).
- 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

The following default behavior and CLI syntax changes occurred during the Dell EMC Networking OS release:

- To enhance security, the default RSA key size has been changed to 2048 bits from 1024 bits from 9.14.1.10 onwards.
- A new CLI command has been introduced In 9.14(1.7) to configure the Port Extender (PE) LLDP multiplier value. By default, the PE LLDP timeout is set to 9 seconds (Default Hello interval: 3 seconds * multiplier: 3 seconds). To change the PE LLDP timeout, modify the multiplier value using the `pe-lddp-multiplier <3-10>` command, where 3-10 is the multiplier value. Use `no pe-lddp-multiplier` to unconfigure the PE LLDP multiplier value. This CLI works in Normal and Batch mode.

Example (Configuring the PE LLDP multiplier value)

```
DellEMC(conf)#pe-lddp-multiplier ?
<3-10>                Multiplier value (default = 3)
DellEMC(conf)#pe-lddp-multiplier 5
DellEMC(conf)#
DellEMC(conf)#do show running-config | grep pe-
pe-lddp-multiplier 5
DellEMC(conf)#
```

Example (Unconfiguring the PE LLDP multiplier value)

```
DellEMC(conf)#no pe-lddp-multiplier
DellEMC(conf)#
DellEMC(conf)#do show running-config | grep pe-
DellEMC(conf)#
```

NOTE: The configured multiplier takes precedence over the remote TTL in the PE-TLV LLDP packet.

Restrictions

The following restrictions apply to the C9010 switch and its port extenders.

Hardware Restrictions

- If you downgrade the Dell EMC Networking OS version from 9.14(1.10) 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
```

- You can use non-Dell EMC qualified cables, adapters, and optics for a C9010 switch and its port extenders, 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
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 8         0      UNKNOWN   UNKNOWN     USC1D6J             No**
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 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 Dell Qualified

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

- You can connect up to 40 C1048P, N20xx or N30xx PEs (standalone and stacked) to a C9010 switch.

Software Restrictions

- REST API does not support AAA authentication.
- To upgrade from Dell EMC Networking OS release 9.9(0.0) to 9.10(0.0) or later, you must first remove any existing VLT configurations in the primary and secondary VLT nodes. After the upgrade process completes, add the VLT configurations again. During the upgrade process, you must ensure that the PEs are single-homed.
- If you downgrade from a Dell EMC Networking OS version later than 9.10(0.0) to version 9.9.(0.0), downgrade the GRUB first.
- You can use the `negotiation auto` command to turn auto-negotiation on or off only on fiber interfaces operating at 1G speed.
- If you use the `interface range` command to select multiple interfaces that are added to the management VRF, the `ipv6 address` command does not display the `autoconfig` option. You can configure the `autoconfig` command on individual interfaces.
- If you use the `interface range` command to select multiple interfaces that are added to the management VRF, the `ipv6 nd` command displays the following options but they do not take effect if you use them:
 - `dns-server`
 - `hop-limit`
 - `managed-config-flag`
 - `max-ra-interval`
 - `mtu`
 - `other-config-flag`
 - `prefix`
 - `ra-guard`
 - `ra-lifetime`
 - `reachable-time`
 - `retrans-timer`
 - `suppress-ra`
- 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.
- 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.

Deferred Issues

Issues that appear in this section were reported in Dell EMC Networking OS version 9.14(1.0) as open, but have since been deferred. Deferred issues are those that are found to be invalid, not reproducible, or not scheduled for resolution.

Deferred 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.
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 “Fixed Issues” 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 issue.</p>

Deferred C9010 9.14(1.0) Software Issues

The following issues have been deferred in the Dell EMC Networking OS version 9.14(1.0):


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.
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>The work-around is unnecessary, as the version of code for which this release note is documented has resolved the issue.</p>

Fixed C9010 9.14(1.10) Software Issues

 **NOTE:** Dell EMC Networking OS 9.14(1.10) includes fixes for issues addressed in previous 9.14 releases. Refer to the respective release notes documentation for the list of issues fixed in earlier 9.14 releases.

The following issues are fixed in Dell EMC Networking OS version 9.14(1.10):

PR#170115

Severity: Sev 3

Synopsis: The switch may encounter an exception when an incorrect length field is specified in a TACACS packet.

Release Notes: The switch may encounter an exception when an incorrect length field is specified in a TACACS packet.

Workaround: None

PR#170159

Severity: Sev 3

Synopsis: SSH connections with Cipher Block Chaining (CBC) ciphers are vulnerable.

Release Notes: SSH connections with Cipher Block Chaining (CBC) ciphers are vulnerable.

Workaround: Configure a stronger Cipher/MAC/KEX setting using the `ip ssh server` command.

PR#170161

Severity: Sev 2

Synopsis: SSH connections may be vulnerable with switches running on a 1024 bit RSA key.

Release Notes: SSH connections may be vulnerable with switches running on a 1024 bit RSA key.

Workaround: Create a new 2048 bit RSA key using the `crypto key generate rsa` command.

PR#170206

Severity: Sev 2

Synopsis: Addressed OpenSSL CVE's: CVE-2021-3711 and CVE-2021-3712.

Release Notes: The following CVEs have been addressed:

- CVE-2021-3711
- CVE-2021-3712

The CVE database can be accessed here: https://cve.mitre.org/cve/search_cve_list.html.

Workaround: None

PR#170211

Severity: Sev 2

Synopsis: When a switch with scaled VLANs is reloaded, traffic drop may occur due to a delay in VLAN programming.

Release Notes:	When a switch with scaled VLANs is reloaded, traffic drop may occur due to a delay in VLAN programming.
Workaround:	None

Known Issues

Known 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.
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 “Fixed Issues” 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 issue.</p>

Known C9010 9.14(1.10) Software Issues

The following issues are open in Dell EMC Networking OS version 9.14(1.10):

PR#169841	
Severity:	Sev 2
Synopsis:	In certain scenarios, an MSDP learnt PIM TIB entry stays in <code>registering</code> state indefinitely.
Release Notes:	In certain scenarios, an MSDP learnt PIM TIB entry stays in <code>registering</code> state indefinitely.
Workaround:	Set the affected node as a non-designated router in the RPF neighbor interface.

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.

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.

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

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: 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`

i **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-C9000-9.14.1.10.bin B:
!.....!
.....!
158656163 bytes successfully copied
Image upgraded to CP.
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Sep 24 15:06:29: %PE0-UNIT0-M:CP %DOWNLOAD-6-UPGRADE: Upgrade request received from
Controlling Bridge.
Sep 24 15:06:29: %PE1-UNIT0-M:CP %DOWNLOAD-6-UPGRADE: Upgrade request received from
Controlling Bridge.
Sep 24 15:07:00: %RPM1-P:CP %DOWNLOAD-6-UPGRADE: PE 1 manual upgrade response -
upgrade in progress.
Sep 24 15:07:02: %RPM1-P:CP %DOWNLOAD-6-UPGRADE: PE 0 manual upgrade response -
upgrade in progress.
Sep 24 15:09:35: %RPM1-P:CP %DOWNLOAD-6-UPGRADE: PE 0 manual upgrade result - upgrade
success.
Sep 24 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#

```

i **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:]

```

4. 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	9.14.1.10[boot]	9.14 (1.9P4)
rpm 1 (CP)	FLASH BOOT	9.14.1.10[boot]	9.14 (1.9P4)
rpm 0 (RP)	FLASH BOOT	9.14.1.10[boot]	9.14 (1.9P4)
rpm 1 (RP)	FLASH BOOT	9.14.1.10[boot]	9.14 (1.9P4)
linecard 0	FLASH BOOT	9.14.1.10[boot]	9.14 (1.9P4)
linecard 1	is not present.		
linecard 2	is not present.		
linecard 3	is not present.		
linecard 4	is not present.		
linecard 5	FLASH BOOT	9.14.1.10[boot]	9.14 (1.9P4)
linecard 6	FLASH BOOT	9.14.1.10[boot]	9.14 (1.9P4)
linecard 7	is not present.		
linecard 8	is not present.		
linecard 9	is not present.		
linecard 10	FLASH BOOT	9.14.1.10[boot]	9.14 (1.9P4)
linecard 11	FLASH BOOT	9.14.1.10[boot]	9.14 (1.9P4)
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#
```

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

EXEC Privilege mode

reload

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

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

```
Sep 24 15:25:09: %RPM0-P:CP %IFMGR-5-OSTATE_UP: Changed interface state to up: Te 1/0
Sep 24 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.
Sep 24 15:25:09: %RPM0-P:CP %IFMGR-5-OSTATE_UP: Changed interface state to up: Po 258
Sep 24 15:25:11: %RPM0-P:CP %IFMGR-5-OSTATE_UP: Changed interface state to up: Te 1/1
Sep 24 15:25:11: %RPM0-P:CP %DOWNLOAD-6-VERSION_MISMATCH_INFO: Received checkin from
PE 0. Expected version = 9-14(1-59) checkin version = 9-14(1-6)
Sep 24 15:25:12: %RPM0-P:CP %DOWNLOAD-6-UPGRADE_PROGRESS: PE 0 firmware auto sync is
in progress.
```

```

Sep 24 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.
Sep 24 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.
Sep 24 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.
Sep 24 15:25:15: %RPM0-P:CP %IFMGR-5-OSTATE_UP: Changed interface state to up: Po 259
Sep 24 15:25:17: %RPM0-P:CP %DOWNLOAD-6-VERSION_MISMATCH_INFO: Received checkin from
PE 1. Expected version = 9-14(1-59) checkin version = 9-14(1-6)
Sep 24 15:25:17: %RPM0-P:CP %DOWNLOAD-6-UPGRADE_PROGRESS: PE 1 firmware auto sync is
in progress.
Sep 24 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.
Sep 24 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.
Sep 24 15:30:03: %RPM0-P:CP %DOWNLOAD-6-UPGRADE: PE 0 auto upgrade result - upgrade
success, initiating reset.
Sep 24 15:30:05: %RPM0-P:CP %IFMGR-5-OSTATE_DN: Changed interface state to down: Te
1/0
Sep 24 15:30:05: %RPM0-P:CP %IFMGR-5-OSTATE_DN: Changed interface state to down: Po
258
Sep 24 15:30:09: %RPM0-P:CP %DOWNLOAD-6-UPGRADE: PE 1 auto upgrade result - upgrade
success, initiating reset.
Sep 24 15:30:12: %RPM0-P:CP %IFMGR-5-OSTATE_DN: Changed interface state to down: Te
1/1
Sep 24 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(1.10), 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
Sep 24 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 3.6
- RPM FPGA version 2.0
- Line-card MSS FPGA version 3.10
- Line-card IAP version 3.2
- Line-card CPLD version 3.1
- 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              3.6
*****
* 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

```

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 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

```

DellEMC(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

```

DellEMC(standby)# upgrade cpld-image rpm booted
Current information for the system:
=====
Card                Device Name      Current Version  New Version
-----
CP                   CPLD              3.4              3.6
*****
* 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
!
Sep 24 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
```

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             3.0              3.1
```

```

Linecard1          CPLD          3.0          3.1
Linecard2          CPLD          3.0          3.1

*****
* 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

```

Dell EMC(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.

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

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

EXEC Privilege

```

Dell EMC# 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	3.1	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	3.1	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	3.6	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


Issues are unexpected or incorrect behavior and are listed in order of Problem Report (PR) number within the appropriate sections.

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.