

Upgrading Dell EMC Networking N2000 Series Switches to 6.7.1.27 Firmware

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Introduction

This document provides specific procedures for upgrading the Dell EMC Networking N2024/N2024P/N2048/N2048P switches to firmware version 6.7.1.27 or later.

 **IMPORTANT:** Verify after upgrading the switch firmware version to 6.7.1.27, the boot code update is required on N2000 Series via serial console if switch is running with the older boot code version. The latest boot code version available for N2000 Series is “U-Boot 2012.10-00079-g20827d2 (May 22, 2017 - 16:58:14)” Administrators upgrading N2000 switches **MUST** follow the boot-code update instructions documented in this procedure below.

 **IMPORTANT:** Verify CPLD Version with the command 'show version' from CLI. New CPLD version 20 is available for N2000 Series switches as part of firmware version 6.7.1.27. If switches are already running the latest CPLD version 20, please **DO NOT** attempt to update CPLD again. Updating CPLD v20 over v20 may result in an inoperable switch and require power cycle to recover the switch. After upgrading switches to firmware version 6.7.1.27, the CPLD can be updated manually via CLI command 'update cpld' on stack master or standalone switches. To update CPLD on stack members, execute 'update cpld <switch#>' command from the serial console of each members of the stack individually.

Please **DO NOT** power cycle the switch when CPLD update is in progress. Switch will reset on its own after CPLD update completes and new CPLD version will take effect after boot-up. Verify new CPLD Version with the command 'show version' from CLI after switch reboot completes.

It is recommended that this document be thoroughly reviewed prior to installing or upgrading of this product.

Global Support

For information regarding the latest available firmware, release note revisions, or additional assistance, please visit support.dell.com.

Upgrade Overview

Administrators must have access to the CLI via telnet, SSH or the serial port to perform the upgrade procedure.

Upgrade Dell EMC Networking N2000 Series Switches

The upgrade procedure given below upgrades an individual switch or a stack of switches running firmware version 6.x.x.x. This is a normal operation of the upgrade procedure.

Please do not interrupt switch operation during the upgrade process as this may result in corruption of flash memory. Do not power off a switch undergoing the upgrade process unless specifically directed to do so by the instructions.



NOTE: A TFTP server must be on the network and the switch software must be accessible to the TFTP server before attempting to download the switch software by TFTP.



NOTE: The following TFTP server may be used if you do not have one:
http://tftpd32.jounin.net/tftpd32_download.html

To upgrade a switch firmware version from 6.x.x.x to 6.7.1.27 version or later uses the procedure below. An annotated upgrade example is shown following this section.

1. Back up your configuration.
2. Upgrade using telnet or SSH require default enable authentication method or enable password in current configuration. If not configured, follow steps below to configure an enable password:

```
console#configure
console(config)#enable password <password>
console(config)#exit
console#copy running-config startup-config
```
3. Download the 6.7.1.27 firmware image to the switch or stack master.



NOTE: Activate the image to use as the boot (active) image after the switch resets. Images on the N2000 series switches are named active and backup.

4. Activate 6.7.1.27 firmware.



NOTE: Boot code update is required for Dell Networking N2000 Series Switches after reloading the switch with firmware version 6.7.1.27 as active image if switch is running with the older boot-code version.



NOTE: Hiveagent is not supported starting from feature release 6.7.0.4/6.7.0.34 onwards. Please delete hiveagent using below mentioned procedure before proceeding with upgrade to 6.7.1.27

```
console#application stop hiveagent
console#delete user-apps/ah_ha.conf_s
Delete user-apps/ah_ha.conf_s ? (y/n) y
console#delete user-apps/hiveagent_pr_s
Delete user-apps/hiveagent_pr_s ? (y/n)
y console#delete user-apps/ah_ha.conf
Delete user-apps/ah_ha.conf ? (y/n) y
console#delete user-apps/hiveagent_pr
```

```

Delete user-apps/hiveagent_pr ? (y/n) y
console#delete user-apps/hiveagent
Delete user-apps/hiveagent ? (y/n) y

```

In a stacked switches, delete “ah_ha.conf_s”, “hiveagent_pr_s”, “ah_ha.conf”, “hiveagent_pr” and “hiveagent” files under “user-apps” directory of all the member switches from binshell mode using “devshell binsh” command.

5. Reload the switch.
6. Update boot code if switch is running with the older boot-code version. The latest boot-code version is “**U-Boot 2012.10-00079-g20827d2 (May 22 2017 - 16:58:14)**” which can be identified from the console log on switch boot-up. Please skip this step if switch is already running with the latest boot-code version.
7. Reload the switch again for boot code to take effect.
8. Update CPLD to latest version 20 (if switch is running with the older CPLD version)

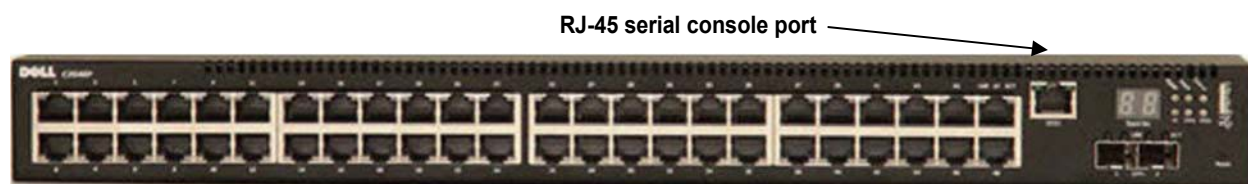
How to Access Serial Console Port on N2000 series switches


NOTE: How to access serial console of the N2000 Series switch?

- Use a supplied “RJ45 Yost to DB9 serial cable” to access the serial console.
- Connect the RJ45 end of the cable to the RJ45 serial console port and the DB9 connector to your PC.
- Download and Install the terminal emulation software on your PC (for example., PuTTY) to access the serial console with the correct settings (default setting 9600 baud, 8 data bits, no parity bit, 1 stop bit, and no flow control).

NOTE: N2000 Switches do not have out-of-band interface.

Figure.2 N2048 Switch with 48 10/100/1000BASE-T Ports (Front Panel)



-  **NOTE:** By default, no network information is configured. The DHCP client is enabled on VLAN 1 by default on the N2000 switches. DNS is enabled, but no DNS servers are configured. If you assign an IP address to VLAN 1, you can connect to the switch management interface by using any of the front-panel switch ports. This is required to manage the N2000 switches over an Ethernet port.

Upgrade Example for Dell EMC Networking N2000 Series Switches

This example shows an annotated upgrade example for a N2048 switch running 6.x.x.x firmware. This example presumes the administrator is logged in to the switch via Serial console. You can also follow this upgrade procedure via telnet or SSH after setting enable password if it is not set so.

1. Copy running-config to a TFTP server using following commands to back up your configuration.

```
console#copy running-config tftp://10.10.10.200/myconfig.txt
Mode. .... TFTP
Set TFTP Server IP. .... 10.10.10.200
TFTP Path. .... /
TFTP Filename. .... myconfig.txt
Data Type..... Config Script
Source Filename. .... running-config
Management access will be blocked for the duration of the transfer
Are you sure you want to start? (y/n) y
11062 bytes transferred
File transfer operation completed successfully.
console#
```

2. Set an enable password and save the configuration (not required if an alternative enable authentication method is already configured).

```
console#configure
console(config)# enable password <password>
console(config)# exit
console# copy running-config startup-config
```

3. Download the 6.7.1.27 firmware image from a TFTP server.

```
console#copy tftp://10.10.10.200/N2000Stdv6.7.1.27.stk backup
Transfer Mode. .... TFTP
Server IP Address. .... 10.10.10.200
Source File Path. .... /
Source Filename..... N2000Stdv6.7.1.27.stk
Data Type. .... Code
Destination Filename. .... backup
Management access will be blocked for the duration of the transfer
Are you sure you want to start? (y/n) y

TFTP Code transfer starting...
35013000 bytes transferred...
File contents are valid. Copying file to flash...
Attempting to send the STK file to other units in the stack...
File transfer operation completed successfully.
```

```
console#show version
```

```
Machine Description..... Dell Networking Switch
System Model ID. .... N2048
Machine Type..... Dell Networking N2048
Serial Number. .... CN0H784T282983AR0013A00
Manufacturer. .... 0xbc00
Operating System..... Linux 3.6.5-fa655e13
Burned In MAC Address..... F8B1.561A.60E3
System Object ID. .... 1.3.6.1.4.1.674.10895.3058
SOC Version..... BCM56340_A0
HW Version. .... 3
CPLD Version. .... 13
```

unit	active	backup	current-active	next-active
1	6.6.0.24	6.7.1.27	6.6.0.24	6.6.0.24

4. Activate the 6.7.1.27 firmware

```
console#boot system backup
Activating image backup ..
```

 **NOTE: Hiveagent is not supported starting from feature release 6.7.0.4/6.7.0.34 onwards. Please delete hiveagent using below mentioned procedure before proceeding with upgrade to 6.7.1.27.**

```
console#application stop hiveagent
console#delete user-apps/ah_ha.conf_s
Delete user-apps/ah_ha.conf_s ? (y/n) y
console#delete user-apps/hiveagent_pr_s
Delete user-apps/hiveagent_pr_s ? (y/n)
y console#delete user-apps/ah_ha.conf
Delete user-apps/ah_ha.conf ? (y/n) y
console#delete user-apps/hiveagent_pr
Delete user-apps/hiveagent_pr ? (y/n) y
console#delete user-apps/hiveagent
Delete user-apps/hiveagent ? (y/n) y
```

In a stacked switches, delete “ah_ha.conf_s”, “hiveagent_pr_s”, “ah_ha.conf”, “hiveagent_pr” and “hiveagent” files under “user-apps” directory of all the member switches from binshell mode using “devshell binsh” command.

5. Reload the switch.

```
console#reload
Management switch has unsaved changes.
Are you sure you want to continue? (y/n) y

Configuration Not Saved!
Are you sure you want to reload the stack? (y/n)
```

6. On Completion of switch reboot, login and verify that the firmware has been updated to the **6.7.1.27** version using the **show version** command. Reboot process may take around two minutes for a switch, whereas for stack of switches it may take significantly longer time.

```
console#show version
Machine Description..... Dell EMC Networking Switch
System Model ID..... N2048
Machine Type..... Dell EMC Networking N2048
Serial Number..... CN0WKWF4282983AQ0001A00
Manufacturer..... 0xbc00
Burned In MAC Address..... F8B1.5619.C843
System Object ID..... 1.3.6.1.4.1.674.10895.3061
SOC Version..... BCM56342_A0
HW Version..... 3
CPLD Version..... 13
Image File..... N2000Stdv6.7.1.27
Software Capability..... Stack Limit = 12, VLAN Limit = 4093
```

unit	active	backup	current-active	next-active
1	6.7.1.27	6.6.0.24	6.7.1.27	6.7.1.27

7. Switch is now ready for normal operation. Verify the configuration and make any changes needed prior to connecting the switch to the operational network.
8. Update Boot Code using the hidden CLI command **update bootcode** if switch is running with older boot-code version. Please skip steps 9 and 10 if switch is running the latest boot-code version. The latest boot-code version is “**U-Boot 2012.10-00079-g20827d2 (May 22 2017 - 16:58:14)**” which can be identified from the console log on switch boot-up.

```
console#update bootcode
Are you sure you would like to update the bootcode? (y/n) y
Issuing boot code update command...
Boot code update command issued.
```

9. Reload the switch for new boot-code to take effect.
10. Check for the latest version of CPLD using **show version** command. Skip step 11 and 12 if the CPLD version is 20. If CPLD version is not updated to latest version 20 use **update cpld** command on stack master or standalone switch.


```
console#update cpld
This operation will reset the switch on completion. Are you sure you would like to update
the CPLD? (y/n) y
Management switch has unsaved changes.
Would you like to save the changes? (y/n).y
Configuration Saved!
Issuing CPLD update command...
Warning: This operation will reset the switch on completion.
Processing virtual machine file "/mnt/application/cpld.vme".....
Diamond Deployment Tool 3.9
CREATION DATE: Tue Dec 19 13:16:40 2017
```
11. Switch will reboot on its own after CPLD update completes and new CPLD version 20 will take effect after boot-up.
13. Verify the boot-code version “U-Boot 2012.10-00079-g20827d2 (May 22 2017 - 16:58:14)” from the serial console on switch boot-up.
14. After switch power-cycle, verify the CPLD version is updated to the latest version 20 by running the command “show version”

Upgrade Stack of Dell EMC Networking N2000 Series Switches

Note on “**copy**” command from steps 2,3 and 4 in switch upgrade above:

- “**copy**” command will take longer to complete with a stack of switches. This is due to the master switch copying the software to the member switches. The master switch will display the line “Distributing the code to the members of the stack!” for several minutes until the copy is done.
- “**copy**” command will copy the software to all the switches as “backup” image

```
console#show version
Machine Description..... Dell Networking Switch
System Model ID. .... N2048
Machine Type..... Dell Networking N2048
Serial Number. .... CN0H784T282983AR0013A00
Manufacturer. .... 0xbc00
Operating System..... Linux 3.6.5-fa655e13
Burned In MAC Address..... F8B1.561A.60E3
System Object ID. .... 1.3.6.1.4.1.674.10895.3058
SOC Version..... BCM56340_A0
HW Version. .... 3
CPLD Version. .... 13
```

unit	active	backup	current-active	next-active
1	6.6.0.24	6.7.1.27	6.6.0.24	6.6.0.24
2	6.6.0.24	6.7.1.27	6.6.0.24	6.6.0.24
3	6.6.0.24	6.7.1.27	6.6.0.24	6.6.0.24

```
console# boot system backup
Activating image backup ..
```

```
console#show version
Machine Description..... Dell Networking Switch
System Model ID. .... N2048
Machine Type..... Dell Networking N2048
```



```

Serial Number. .... CN0H784T282983AR0013A00
Manufacturer. .... 0xbc00
Operating System..... Linux 3.6.5-fa655e13
Burned In MAC Address..... F8B1.561A.60E3
System Object ID. .... 1.3.6.1.4.1.674.10895.3058
SOC Version..... BCM56340_A0
HW Version. .... 3
CPLD Version. .... 13

```

	unit active	backup	current-active	next-active
1	6.6.0.24	6.7.1.27	6.6.0.24	6.7.1.27
2	6.6.0.24	6.7.1.27	6.6.0.24	6.7.1.27
3	6.6.0.24	6.7.1.27	6.6.0.24	6.7.1.27

console#reload

```

Management switch has unsaved changes.
Are you sure you want to continue? (y/n) y

```

```

Configuration Not Saved!
Are you sure you want to reload the stack? (y/n) y

```

After the stack of switches has finished rebooting, log in and verify that the firmware has been updated to the 6.7.1.27 version using the **show version** command. A single switch will typically reboot in around two minutes. A stack may take significantly longer to complete the upgrade process.

console#show version

```

Machine Description..... Dell EMC Networking Switch
System Model ID. .... N2048
Machine Type..... Dell EMC Networking N2048
Serial Number. .... CN0DMD5F282983AQ0024A00
Manufacturer. .... 0xbc00
Burned In MAC Address..... F8B1.5619.CB5B
System Object ID. .... 1.3.6.1.4.1.674.10895.3054
SOC Version..... BCM56340_A0
HW Version. .... 3
CPLD Version. .... 17
Image File. .... N2000Stdv6.7.1.27
Software Capability..... Stack Limit = 8, VLAN Limit = 4093

```

	unit active	backup	current-active	next-active
1	6.7.1.27	6.6.0.24	6.7.1.27	6.7.1.27
2	6.7.1.27	6.6.0.24	6.7.1.27	6.7.1.27
3	6.7.1.27	6.6.0.24	6.7.1.27	6.7.1.27

The latest boot-code version is “**U-Boot 2012.10-00079-g20827d2 (May 22 2017 - 16:58:14)**” which can be identified from the console log on switch boot-up. Please skip next two steps if switch is already running with the latest boot-code version. Update Boot Code using the hidden CLI command **update bootcode** from Stack Master. This will update boot code on all members in the stack.

console#update bootcode

```

Are you sure you would like to update the bootcode? (y/n) y

```

Reload the stack of switches for boot code update to take effect.

console#reload

```

Management switch has unsaved changes.
Are you sure you want to continue? (y/n) y

```

```

Configuration Not Saved!
Are you sure you want to reload the stack? (y/n) y

```

Update CPLD to version 20 using the hidden CLI command **update cpld** if switch (stack master or standalone) is

running with older CPLD version. To update CPLD to version 20 on stack members, execute *'update cpld <switch#>'* command from the switch master serial console

```
console#update cpld 2
This operation will reset the switch on completion. Are you sure you would like to update
the CPLD? (y/n) y
Management switch has unsaved changes.
Would you like to save the changes? (y/n).y
Configuration Saved!
Issuing CPLD update command...
Warning: This operation will reset the switch on completion.
Processing virtual machine file "/mnt/application/cpld.vme".....
Diamond Deployment Tool 3.9
CREATION DATE: Tue Dec 19 13:16:40 2017
```


Firmware Downgrade

Downgrading from 6.7.1.27 to 6.x.x.x is supported on Dell Networking N2000 Series switches.

 **IMPORTANT: Dell Networking N2000 Series switches require firmware version 6.0.1.3 or later and cannot be downgraded to earlier releases.**

Migration of configuration information from a later release to an earlier release is not supported. The existing configuration may or may not work with downgraded firmware, therefore, it is best to be physically present at the switch site and to be prepared to access the switch over the serial port if necessary when downgrading firmware.

Auto-downgrade of a stack is not enabled by default. If downgrading a stack, be sure to enable auto-downgrade by configuring the switch using CLI command *boot auto-copy-sw allow-downgrade* before loading new firmware onto the stack master.


 **NOTE: Downgrading from firmware version 6.7.1.27 with the updated CPLD version 15, 17 or 20 to prior version 6.x.x.x can be done ONLY by downgrading via an interim FW version B.6.3.2 on Dell Networking N2000 Series switches. With interim FW image, the switches can be downgraded to older CPLD code version 13 first.**

To downgrade a switch running FW version 6.7.1.27 (with CPLD Ver. 15, 17 or 20) to 6.x.x.x version (with CPLD Ver. 13), use the procedure below. This procedure is applicable only for switches running with the latest CPLD version 15 or 17 and decide to downgrade the switches to FW version 6.x.x.x.

1. Back up your configuration.
2. Download the interim firmware image (**N3000_N2000vB.6.3.2.stk**) to the switch or stack master. Both images are available as part of download package of latest image version.

 **NOTE: Activate the interim image to use as the boot (active) image after the switch resets. The interim image is running with the older CPLD version 13.**

3. Activate B.6.3.2 firmware.

 **NOTE: CPLD Downgrade to version 13 is required for Dell Networking N2000 Series Switches if switch needs to be downgraded to any prior 6.x.x.x version from 6.7.1.27 and later. After downgrading the CPLD to version 13 while running FW version B.6.3.2, the switches should be power-cycled for the CPLD code**

version 13 to take effect.

4. Reload the switch or stack of switches.
5. When switch is running FW version **B.6.3.2**, update the CPLD version to **13** from Serial console session. Run CLI command 'update cpld' from stack master. To update stack members, run 'devshell cpldUpdate' command from serial console of each stack members. Please DO NOT power-cycle the switch when CPLD update is in progress
6. Required to power cycle the switches after CPLD update to version 13 complete
7. After switch boot-up, download and activate any 6.x.x.x firmware image to the switch.

Boot Code Upgrade and Downgrade

Boot Code upgrade is required for **N2024/N2024P/N2048/N2048P** switches after upgrading from 6.x.x.x to 6.7.1.27 firmware. The latest boot-code version is “**U-Boot 2012.10-00079-g20827d2 (May 22 2017 - 16:58:14)**” which can be identified from the console log on switch boot-up. No Boot Code downgrade is required for **N2024/N2024P/N2048/N2048P** switches

Hardware Supported

Dell Networking N2024, N2024P, N2048, N2048P Ethernet Switch

End of document