Dell S6000-ON Networking OS PowerSwitch User Guide

Technologies
Dell System S6000–ON 9.14(2.14) Release
User Guide

Notes
This document contains information on open and resolved caveats, and operational information specific to the Dell Networking OS software and the S6000-ON platform.
Current Release Version: 9.14(2.14)
Release Date: 2022-04-15
Previous Release Version: 9.14(2.12)

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.
Incorrect behavior or unexpected caveats are listed as the Problem Report (PR) numbers within the appropriate sections.
For more information on hardware and software features, commands, and capabilities, refer to the Dell Networking website at: https://www.dellemc.com/networking.

Contents

Document Revision History

Table 1. Revision History

Date	Description
2022–04	Initial release.

Supported Hardware

The following hardware is supported with this platform:
Hardware
S6000-ON chassis
Thirty-two QSFP+ ports (40 Gbps)
Two AC/DC PSUs
Three fan subsystems

NOTE: If all the three fan trays are found to be empty or faulty, the system shuts down after one minute.

Supported Software

The following software is supported with this platform:

Software	Minimum Release Requirement
Dell Networking OS	9.14(2.14)
Big Switch	4.0.0
Cumulus: S6000-ON (S6000 with ONIE)	Cumulus Linux 2.1
ONIE	v3.20.1.3

New Dell Networking OS Version 9.14(2.14) Features

The following features are integrated into the Dell Networking 9.14.2 branch through this release:
None

Restrictions

- You can use non-Dell qualified cables, adapters, and optics in a S6000-ON switch, but Dell Networking does not guarantee their performance as the S6000-ON does not support non-Dell qualified transceivers of 25G and above. If you insert a non-Dell qualified transceiver of 25G and above into a SFP28, QSFP+, or QSFP28 port, the switch places the interface in an error-disabled (operationally down) state and generates a syslog message, such as: % S6000LC0640 : 8 % IF AGT – 2 – TRANSCE IVER _ U NSUP PORTED _ ERROR : Transceiver in slot 1 port 49 unrecognized , putting interface in operational – downstate.
  To verify the error-disabled status of an interface, enter any of the following show commands.

```
Dell# show inventory media
Slot   Port   Type        Media         Serial Number   DellQualified
-------------------------------------------------------------------
   1     49   UNKNOWN     UNKNOWN         USC1D6J           No**
   1     50   QSFP        40GBASE-LR4     UQ90C7B           No**
   1     51   QSFP        40GBASE-SR4     7503835V009Y      Yes
   1     52   QSFP        40GBASE-CR4     10190002          No
   1     53   QSFP        40GBASE-SR4     FE2429470007      Yes
   1     54           Media not present or accessible
** Interface is down(error disabled) as transceiver is not DellQualified

Dell# show interfaces fortyGigE 1/49
fortyGigE 1/49 is up, line protocol is down(error-disabled[Transceiver Unsupported])
...
```

- Prerequisite steps to upgrade the Dell 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 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 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 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 Networking OS and OA package, see the respective
  Dell System Release Notes.
- If you downgrade the Dell Networking OS version from 9.14.2.14 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 (c o n f d _ c d b . t a r . g z . v e r s i o n and c o n f d _ c d b . t a r . g z). To remove the files, use the following steps:

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

- In a VXLAN scenario, hybrid port is not supported.
- While deploying the system in the normal-reload mode in BMP configuration, use the ipssh serve renable command at the beginning of the startup configuration if the write memory command is used at the end of the configuration.
- 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.
- The following features are not available in the Dell 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)
- You can use the negotiation auto command to turn auto-negotiation on or off only on fiber interfaces operating at 1G speed.
- When 1024 or more VNI profiles are configured, the system takes more time to load. Dell recommends to restrict the VNI profiles to be less than 1000.
- If you use the interface rang e command to select multiple interfaces that are added to the management VRF, the ipv 6 address command does not display the auto config option. You can configure the auto config command on individual interfaces.
- If you use the interface range command to select multiple interfaces that are added to the management VRF, the ip v6 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
- You cannot use the established keyword in an ACL rule, along with the other control flags.
- While using the established keyword in an ACL rule, all the other TCP control flags are masked, to avoid redundant TCP control flags configuration in a single rule. When you use any TCP control flag in an ACL rule, established is masked and other control flags are available.

Changes to Default Behavior and CLI Syntax

- If you are upgrading from an earlier OS9 version to 9.14.2.x, ensure you first upgrade to version 9.13.0.0 before upgrading to the required version of 9.14.2.x to prevent any issues during the upgrade procedure.

Upgrading the CPLD
The S6000-ON system with Dell Networking OS Version 9.14(2.14) requires System CPLD revision 10, Master CPLD revision 12, and Slave CPLD revision 10.

Verify that a CPLD upgrade is required

NOTE: If your CPLD revisions are higher than the ones shown here, DO NOT make any changes. If you have questions regarding the CPLD revision, contact technical support.

Use the following command to identify the CPLD version:

```
Dell#show revision

--  Stack unit 0  --
S6000 SYSTEM CPLD          : 10

S6000 MASTER CPLD          : 12

S6000 SLAVE CPLD           : 10
```

Use the following command to view CPLD version that is associated with the Dell Networking OS image:

```
Dell#show os-version

RELEASE IMAGE INFORMATION :
------------------------------------------------------------------------
      Platform          Version        Size           ReleaseTime
    S-Series:SI        9.14(2.14)    62072761    Feb 21 2022 09:48:25

TARGET IMAGE INFORMATION :
------------------------------------------------------------------------
          Type          Version                  Target    checksum
       runtime         9.14(2.14)        Control Processor      passed

BOOT IMAGE INFORMATION :
------------------------------------------------------------------------
          Type          Version                  Target    checksum
    boot flash          3.1.1.7        Control Processor      passed

BOOTSEL IMAGE INFORMATION :
------------------------------------------------------------------------
          Type          Version                  Target    checksum
 boot selector          3.1.0.3        Control Processor      passed

FPGA IMAGE INFORMATION :
------------------------------------------------------------------------
         Card                      FPGA Name    Version
 stack-unit 0              S6000 SYSTEM CPLD        10
 stack-unit 0              S6000 MASTER CPLD        12
 stack-unit 0               S6000 SLAVE CPLD        10
```

Installing Dell Networking OS on the S6000-ON using ONIE

NOTE: The Dell Networking OS installer package, ONIE-FTOS-SI-ON-9.14.2.14.bin, is required for installing Dell Networking OS on S6000-ON that has only ONIE.
To upgrade the ONIE package you have installed, use one of the following two processes: zero touch (dynamic)

update or manual update.

1. Zero touch (dynamic): Copy the update ONIE installer and the DIAG installer for your system to the TFTP/HTTP server. Configure the DHCP options using the ONIE specifications shown at the following link: **http://opencomputeproject.github.io/onie/docs/design-spec/updater.html**

   S 6 0 0 0 – O N i m a g e > > > > o n i e – u p d a t e r – x 8 6 _ 6 4 – d e l l _ s 6 0 0 0 _ s 1 2 2 0 – r 0
2. Manual: Copy the image onto the TFTP/HTTP servers and boot ONIE. Update the ONIE using the onie-self-update command, then download and run an ONIE updater image. The supported URL types are: HTTP, FTP, TFTP, and FILE.

   S 6 0 0 0 – O N i m a g e > > > > o n i e – u p d a t e r – x 8 6 _ 6 4 – d e l l _ s 6 0 0 0 _ s 1 2 2 0 – r 0
3. UPGRADING ONIE ON AN EXISTING S6000–ON SYSTEM. The following example uses TFTP to upgrade ONIE.

   ```
   ONIE:/ # onie-self-update tftp:tftp server IP address/ONIE installer image path
   ONIE:/ # onie-self-update tftp://10.11.227.233/onie-updater-x86_64-dell_s6000_s1220-r0
   Info: Fetching tftp://10.11.227.233/onie-updater-x86_64-dell_s6000_s1220-r0 ...
   onie-updater-x86_64- 100% |*******************************| 8541k 0:00:00
   ETA
   ONIE: Executing installer: tftp://10.11.227.233/onie-updater-x86_64-dell_s6000_s1220-
   r0
   ...
   ...
   Reboot.
   ```

   The following example uses HTTP to upgrade ONIE.

   ```
   ONIE:/ # onie-nos-install http:http server IP address/ONIE installer image path
   ONIE:/ # onie-nos-install http://10.11.227.233/dell/onie/S6000-ON/image-drop-21022022/
   diag-in[Jstaller-x86_64-dell_s6000_s1220-r0.bin
   ************* Mon Feb 21 14:53:08 PDT 2022 **************

   Stopping: discover... done.
   Info: Fetching http://10.11.227.223/dell/onie/S6000-ON/image-drop-21022022/diag-
   installer-x86_64-dell_s6000_s1220-r0.bin ...
   Connecting to 10.11.227.233 (10.11.56.31:80)
   installer 33% |********** | 1730k 0:00:01
   ETAinstaller 100% |*******************************| 5091k
   0:00:00 ETA
   ONIE: Executing installer: http://10.11.227.233/dell/onie/S6000-ON/image-
   drop-21022022/diag-installer-x86_64-dell_s6000_s1220-r0.bin
   Ignoring Verifying image checksum ... OK.
   Preparing image archive ...sed -e '1,/^exit_marker$/d' /installer | tar xf - OK.
   Diag Installer: platform: x86_64-dell_s6000_s1220-r0
   Total Partitions are 2
   false
   Creating new diag partition /dev/sda3 ...
   Warning: The kernel is still using the old partition table.
   The new table will be used at the next reboot.
   The operation has completed successfully.


   The system is going down NOW!.
   Sent SIGTERM to all processes
   Sent SIGKILL tosd 0:0:0:0: [sda] Synchronizing SCSI cache
   Restarting system.
   machine restart
   ```
4. Upgrade the DIAG installer package.

   ```
   ONIE:/ # onie-nos-install tftp or http:IP address and path
   014/diag-in[Jstaller-x86_64-dell_s6000_s1220-r0.bin
   ************* Mon Feb 21 14:53:08 PDT 2022 **************
   Stopping: discover... done.
   ```

```
Info: Fetching http://10.11.56.31/dell/onie/S6000-ON/image-drop-21022022/diag-
installer-x86_64-dell_s6000_s1220-r0.bin ...
Connecting to 10.11.56.31 (10.11.56.31:80)
installer 33% |********** | 1730k 0:00:01
ETAinstaller 100% |*****************************| 5091k
0:00:00 ETA
ONIE: Executing installer: http://10.11.56.31/dell/onie/S6000-ON/image-drop-21022022/
diag-installer-x86_64-dell_s6000_s1220-r0.bin
Ignoring Verifying image checksum ... OK.
Preparing image archive ...sed -e '1,/^exit_marker$/d' /installer | tar xf - OK.
Diag Installer: platform: x86_64-dell_s6000_s1220-r0
Total Partitions are 2
false
Creating new diag partition /dev/sda3 ...
Warning: The kernel is still using the old partition table.
The new table will be used at the next reboot.
The operation has completed successfully.
.
.
.
The system is going down NOW!
Sent SIGTERM to all processes
Sent SIGKILL tosd 0:0:0:0: [sda] Synchronizing SCSI cache
Restarting system.
machine restart
```

5. Upgrade the BIOS image using the BIOS image and Flash rom utility included with the diagnostic package.

```
ONIE:/ # flashrom -E -p internal

flashrom v0.9.10-r1711 on Linux 3.2.35-onie+ (x86_64)
flashrom is free software, get the source code at http://www.flashrom.org

Calibrating delay loop... OK.
Found chipset "Intel CentertonLPC". Enabling flash write... OK.
Found Macronix flash chip "MX25L12805(D)" (16384 kB, SPI) at physical address
0xff000000.
Erasing and writing flash chip... Erase/write done.
ONIE:/ #

ONIE:/ # flashrom -w /tmp/diag/S6000-ON-BIOS-3.20.0.3.bin -p internal

flashrom v0.9.10-r1711 on Linux 3.2.35-onie+ (x86_64)
flashrom is free software, get the source code at http://www.flashrom.org

Calibrating delay loop... OK.
Found chipset "Intel CentertonLPC". Enabling flash write... OK.
Found Macronix flash chip "MX25L12805(D)" (16384 kB, SPI) at physical address
0xff000000.
Reading old flash chip contents... done.
Erasing and writing flash chip... Erase/write done.
Verifying flash... VERIFIED.
ONIE:/ #
.
.
.
.
auto reboot
```

S6000–ON Upgrade Procedures: Overview

To upgrade the Dell Networking OS to the latest version, complete these steps:

NOTE: When upgrading from an earlier version of OS9 (example: 9.10.0.1) to 9.14.2.x, first upgrade to 9.13.0.0 to prevent any issues during the upgrade procedure.

- Upgrade the S6000–ON Dell Networking OS Image and Boot Code
- Upgrading the CPLD
- VLT Upgrade Procedure

Upgrade the S6000-ON Dell Networking OS Image and Boot Code using Dell Networking OS CLI

Bare Metal Provisioning

ⓘ **NOTE:** If you are using Bare Metal Provisioning (BMP), see the Bare Metal Provisioning topic in the Dell Networking OS Configuration Guide or the Open Automation Guide.

Manual Upgrade Procedure

Follow these steps carefully to upgrade your S6000-ON systems:

1. Dell Networking recommends that you back up your startup configuration and any important files and directories to an external media prior to upgrading the system.
2. Upgrade the Dell Networking OS in flash partition A: or B:

   EXEC Privilege Mode

   upgrade system [flash: | ftp : | stack – unit<1 – 6 | all > | tftp:| scp: | usbflash :] [A : |B :]

```
Dell#upgrade system tftp: A:
Address or name of remote host []: 10.16.127.35
Source file name []: S6K_on
02:08:59 : Discarded 1 pkts. Expected block num : 51. Received block num: 50
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!..
......................................................................................
......................................................................................
......................................................................................
......................................................................................
......................................................................................
......................................................................................
......................................................................................
.........................................................!
63287484 bytes successfully copied
System image upgrade completed successfully.
Dell#Feb 21 14:21:21: %STKUNIT1-M:CP %DOWNLOAD-6-UPGRADE: Upgrade completed
successfully
```

3. In case of a stack setup, upgrade the Dell Networking OS for the stacked units.

   EXEC Privilege Mode

   upgrade system stack – unit [0 – 1 1 | a l l] [A : | B :] If A: is specified in the command, the Dell Networking OS version present in Management unit's A: partition will be pushed to the stack units. If B: is specified in the command, the Management unit's B: will be pushed to the stack units. Upgrade of stack units can be done on individual units by specifying the unit id [1-6] or on all units by using all in the command.

```
Dell#upgrade system stack-unit all A:
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Image upgraded to all
Dell#
```

4. Verify that the Dell Networking OS has been upgraded correctly in the upgraded flash partition.

   EXEC Privilege Mode

   show boot system stack – unit [1-6 |all]

```
Dell#show  boot system stack-unit all

Current system image information in the system:
=========================================================
Type           Boot Type       A                B
---------------------------------------------------------
stack-unit 1   FLASH BOOT      9.14(2.14)   9.14(2.12)[boot]
```

```
stack-unit 2 is not present.
stack-unit 3 is not present.
stack-unit 4 is not present.
stack-unit 5 is not present.
stack-unit 6 is not present.
Dell#
```

5. Upgrade the S6000-ON Boot Flash and Boot Selector images

   EXEC Privilege Mode

   upgrade boot [all| boot flash- image | boot selector – image] stack – unit [1 – 6 | all] [booted| flash: | ftp: | scp: | tftp : | usbflash:] Dell Networking OS version 9.14(2.14) requires S6000-ON Boot Flash image version 3.20.2.5 and Boot Selector image version 3.20.0.3. The Boot Flash and Boot Selector images can be upgraded together by selecting all in the command. If the user wants to upgrade Boot Flash image or Boot Selector image separately, the options boot flash-image or boot selector image needs to be given separately in the command. The booted option is used to upgrade the Boot flash and Boot Selector images to the image versions packed with the loaded Dell Networking OS image. The Boot Flash and Boot Selector image versions packed with the loaded Dell Networking OS can be found using the show os – version command in EXEC PRIVILEGE mode. Dell # upgrade boot all stack – unit 1 booted

```
Dell# show os-version
RELEASE IMAGE INFORMATION :
------------------------------------------------------------------------
      Platform          Version        Size           ReleaseTime
 S-Series:SI-ON        9.14(2.14)    63304169    Feb 21 2022 09:47:31

TARGET IMAGE INFORMATION :
------------------------------------------------------------------------
          Type          Version                   Target    checksum
       runtime        9.14(2.14)        Control Processor      passed

BOOT IMAGE INFORMATION :
------------------------------------------------------------------------
          Type          Version                   Target    checksum
    boot flash          3.20.2.5        Control Processor      passed

BOOTSEL IMAGE INFORMATION :
------------------------------------------------------------------------
          Type          Version                   Target    checksum
 boot selector          3.20.0.3        Control Processor      passed

FPGA IMAGE INFORMATION :
------------------------------------------------------------------------
         Card                        FPGA Name    Version
 stack-unit 1           S6000-ON SYSTEM CPLD         10
 stack-unit 1           S6000-ON MASTER CPLD         12
 stack-unit 1            S6000-ON SLAVE CPLD         10
Dell#

Dell#upgrade boot bootflash-image stack-unit 1 ftp:
Address or name of remote host []: 10.16.127.35
Destination file name []: FTOS-SI-ON-9.14.2.14.bin
User name to login remote host: ftpuser
Password to login remote host:
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!

Current Boot information in the system:
========================================================================
  Card                  BootFlash    Current Version     New Version
------------------------------------------------------------------------
  Unit1                 Boot Flash          3.20.2.5        3.20.2.5

    ************************************************************************
    *  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 upgrade Boot Flash image for stack-unit 1 [yes/no]: yes

!!!!!!
```

```
Bootflash image upgrade for stack-unit 1 completed successfully.
Dell#
Dell#upgrade boot bootselector-image stack-unit 1 ftp:
Address or name of remote host []: 10.16.127.35
Destination file name []: FTOS-SI-ON-9.14.2.14.bin
User name to login remote host: ftpuser
Password to login remote host:
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!

Current Boot information in the system:
==========================================================================
  Card                    BootSelector    Current Version    New Version
--------------------------------------------------------------------------
     Unit1                 Boot Selector         3.20.0.3       3.20.0.3

    ***************************************************************************
    *  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 upgrade Boot Selector image for stack-unit 1 [yes/no]: yes

!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Bootselector image upgrade for stack-unit 1 completed successfully.
```

6. Change the Primary Boot Parameter of the S6000-ON to the upgraded partition A: or B:

   CONFIGURATION Mode

   boot system stack – unit [1–6 | all] primary system: [A: | B: | tftp: | ftp:]

7. Save the configuration so that the configuration will be retained after a reload using write memory command.

   EXEC Privilege Mode

   write memory

```
Dell#write memory
!
Feb 21 18:58:59: %STKUNIT1-M:CP %FILEMGR-5-FILESAVED: Copied running-config to
startup-config in flash by default

Dell#
```

8. Reload the unit.

   EXEC Privilege Mode

   reload

```
Command    : reload
Mode       : EXEC PRIVILEGE
Dell#reload
Proceed with reload [confirm yes/no]: y
```

9. Verify that the ONIE has been upgraded to the Dell Networking OS version 9.14(2.14).

   EXEC Privilege Mode

   show version

```
Dell#show version
Dell Real Time Operating System Software
Dell Operating System Version:  2.0
Dell Application Software Version:  9.14(2.14)
Copyright (c) 1999-2021 by Dell Inc. All Rights Reserved.
Build Time: Mon Feb 21 09:28:18 2022
Build Path: /build/build03/SW/SRC
Dell Networking OS uptime is 1 minute(s)

System image file is "system://B"

System Type: S6000-ON
```

```
Control Processor: Intel Centerton with 3 Gbytes (3203911680 bytes) of memory,
core(s) 2.

16G bytes of boot flash memory.

  1 32-port TE/FG (SI-ON)
 32 Forty GigabitEthernet/IEEE 802.3 interface(s)
Dell#
```

10. Verify that the S6000–ON has been upgraded to the latest Boot Flash and Boot Selector images.

    EXEC Privilege Mode

    show system stack – unit [1-6]

```
Dell#show system stack-unit 1

--  Unit 1 --
Unit Type                  : Management Unit
Status                     : online
Next Boot                  : online
Required Type              : S6000-ON - 32-port TE/FG (SI-ON)
Current Type               : S6000-ON - 32-port TE/FG (SI-ON)
Master priority            : 14
Hardware Rev               : 4.0
Num Ports                  : 128
Up Time                    : 1 min, 2 sec
Dell Networking OS Version : 9.14(2.14)
Jumbo Capable              : yes
POE Capable                : no
FIPS Mode                  : disabled
Boot Flash                 : 3.20.2.5
Boot Selector              : 3.20.0.3
Memory Size                : 3203911680 bytes
Temperature                : 33C
Voltage                    : ok
Serial Number              : NA
Part Number                :            Rev
Vendor Id                  : DL
Date Code                  : 02212022
Country Code               : CN
Piece Part ID              : CN-08YWFG-28298-3AG-0009
PPID Revision              : N/A
Service Tag                : N/A
Expr Svc Code              : 0
Auto Reboot                : enabled
Burned In MAC              : 1a:ba:2a:b8:2d:9d
No Of MACs                 : 3

--  Power Supplies  --
Unit   Bay   Status       Type    FanStatus   FanSpeed(rpm)
-------------------------------------------------------------
  2     1    up           AC      up          6720
  2     2    down         UNKNOWN down        0

--  Fan  Status  --
Unit Bay   TrayStatus  Fan1    Speed   Fan2    Speed
-----------------------------------------------------
 2    1     up          up      7021    up      6922
 2    2     up          up      6971    up      7072
 2    3     up          up      7021    up      6971

Speed in RPM
Dell#
```

Upgrading the CPLD

The S6000-ON system with Dell Networking OS Version 9.14(2.14) requires System CPLD revision 10, Master CPLD revision 12, and Slave CPLD revision 10.

NOTE: For the Port LEDs to work properly with the Dell Networking OS version 9.9(0.0P5), downgrade the CPLD version to 12.

Verify that a CPLD upgrade is required

Use the following command to identify the CPLD version:

```
Dell#show revision

--  Stack unit 1  --
S6000-ON SYSTEM CPLD     : 10

S6000-ON MASTER CPLD     : 12

S6000-ON SLAVE CPLD      : 10
Dell#
```

Use the following command to view CPLD version that is associated with the Dell Networking OS image:

```
Dell# show os-version

RELEASE IMAGE INFORMATION :
------------------------------------------------------------------------
      Platform          Version        Size           ReleaseTime
 S-Series:SI-ON        9.14(2.14)    63304169    Feb 21 2022 09:47:31

TARGET IMAGE INFORMATION :
------------------------------------------------------------------------
          Type          Version                   Target    checksum
       runtime          9.14(2.14)        Control Processor      passed

BOOT IMAGE INFORMATION :
------------------------------------------------------------------------
          Type          Version                   Target    checksum
    boot flash          3.20.2.5        Control Processor      passed

BOOTSEL IMAGE INFORMATION :
------------------------------------------------------------------------
          Type          Version                   Target    checksum
 boot selector          3.20.0.3        Control Processor      passed

FPGA IMAGE INFORMATION :
------------------------------------------------------------------------
         Card                         FPGA Name    Version
 stack-unit 1           S6000-ON SYSTEM CPLD         10
 stack-unit 1           S6000-ON MASTER CPLD         12
 stack-unit 1            S6000-ON SLAVE CPLD         10
Dell#
```

Upgrading the CPLD Image

NOTE: The upgrade fpga – image stack – unit 1 booted command is hidden when using the FPGA Upgrade feature in the CLI. However, it is a supported command and will be accepted when entered as documented.

NOTE: Ensure that the BIOS version is 3.20.0.3 or above. You can verify this version using show system stack – unit 1 command.

To upgrade the CPLD image on S6000-ON, follow these steps:

1. Upgrade the CPLD image.

   EXEC Privilege Mode

   upgrade fpga – image stack – unit [1– 6] booted

   ```
   Dell# upgrade fpga-image stack-unit 1 booted

   Current information for the system:
   ================================================================
     Card               Device Name    Current Version    New Version
   ----------------------------------------------------------------
    Unit1       S6000-ON SYSTEM CPLD              10             10
    Unit1       S6000-ON MASTER CPLD              12             12
    Unit1       S6000-ON SLAVE CPLD               10             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 stack-unit 1 [yes/no]:
   ```

2. Power cycle the system physically. Switch off the system by unplugging the power chords from the REAR PSUs and wait until the PSU FAN–REAR STATUS LED is completely OFF.

NOTE: Do not switch on the system with PSU–REAR LED glowing AMBER.

3. Switch on the system and wait for the Dell prompt. The CPLD version can be verified using the show revision command.

   EXEC Privilege Mode

   show revision

```
Dell#show revision

--  Stack unit 1  --
S6000-ON SYSTEM CPLD     : 10

S6000-ON MASTER CPLD     : 12

S6000-ON SLAVE CPLD      : 10
Dell#
```

NOTE: Do not use power – cycle stack – unit command to power cycle the system and do not power off the system while FPGA upgrade is in progress. For any queries, contact technical support.

Uninstalling Dell Networking OS from the S6000-ON

To uninstall the Dell Networking OS version 9.14(2.14) from the S6000-ON device, perform the following steps:

1. Reboot the system. During the reboot process, the system displays the following message prompting you to press the Esc key in order to stop the auto-boot process:

```
Version 2.15.1236. Copyright (C) 2021 American Megatrends, Inc.
BIOS Date: 02/21/2022 21:34:20 Ver: 0ACAH019
Press DEL or F2 to enter setup.
 Grub 1.99~rc1 (Dell Inc)
 Built by root at ubuntu on Mon_Feb_21_14:04:19_UTC_2022
 S6000ON Boot Flash Label 3.20.2.5 NetBoot Label 3.20.2.5
Press Esc to stop autoboot ... 5
```

2. At this prompt message, press the Esc key. The following menu appears:

```
+-------------------------------------------------------------------------+
 | FTOS
 | FTOS-Boot Line Interface
 | ONIE
+-------------------------------------------------------------------------+
```

3. From the menu, choose the ONIE option.

   NOTE: To choose an option from the menu, highlight one of the options using the up or down arrow key and press Enter.

   The following menu appears:

```
+-----------------------------------------------------------------+
 | ONIE: Install OS                                              |
 | ONIE: Rescue                                                  |
 |*ONIE: Uninstall OS                                            |
 | ONIE: Update ONIE                                             |
 | ONIE: Embed ONIE                                              |
 | ONIE: Diag                                                                  |
 | PLATFORM-DIAG x86_64-dell_s6000_s1220-r0                 |
+-----------------------------------------------------------------+
```

4. From this menu, choose the ONIE : Uninstall OS option.

   NOTE: To choose an option from the menu, highlight one of the options using the up or down arrow key

and press Enter.

The uninstall process begins. Following is the log generated by the system while Dell Networking OS 9.14(2.14) uninstalls:

```
ONIE: OS Uninstall Mode ...
Version   : feature/workspace-202202211619-dirty
Build Date: 2022-02-210T16:22-0700
Info: Mounting kernel filesystems... done.
Info: Mounting LABEL=ONIE-BOOT on /mnt/onie-boot ...
Info: Using eth0 MAC address: 90:b1:1c:f4:a2:4d
Info: eth0:  Checking link... up.
Info: Trying DHCPv4 on interface: eth0
DHCPv4 on interface: eth0 failedONIE: Using default IPv4 addr: eth0:
192.168.3.10/255.255.255.0
Starting: dropbear ssh daemon... done.
Starting: telnetd... done.
discover: Uninstall mode detected.  Running uninstaller.
Erasing internal mass storage device: /dev/sda4 (32MB)
  Percent complete: 100%
Erase complete.
Deleting partition 4 from /dev/sda
Erasing internal mass storage device: /dev/sda5 (300MB)
  Percent complete: 100%
Erase complete.
Deleting partition 5 from /dev/sda
Erasing internal mass storage device: /dev/sda6 (300MB)
  Percent complete: 100%
Erase complete.
Deleting partition 6 from /dev/sda
Erasing internal mass storage device: /dev/sda7 (14032MB)
  Percent complete: 100%
Erase complete.
Deleting partition 7 from /dev/sda
Installing for i386-pc platform.
Installation finished. No error reported.
Uninstall complete.  Rebooting...
umount: can't remount rootfs read-only
The system is going down NOW!
Sent SIGTERM to all processes
Sent SIGKILL to all processes
Requesting system reboot
sd 0:0:0:0: [sda] Synchronizing SCSI cache
Restarting system.
machine restart
BIOS (Dell Inc) Boot Selector
S6000-ON (SI) 3.20.0.3 (32-port TE/FG)


POST Configuration
  CPU Signature 30669
  CPU FamilyID=6, Model=36, SteppingId=9, Processor=0
  Microcode Revision 10b
  POST Control=0xea000303, Status=0xe6009f00
MSRs:
  Platform ID: f09884f046
```

```
ONIE: OS Uninstall Mode ...
Version   : feature/workspace-202202211619-dirty
Build Date: 2022-02-210T16:22-0700
Info: Mounting kernel filesystems... done.
Info: Mounting LABEL=ONIE-BOOT on /mnt/onie-boot ...
Info: Using eth0 MAC address: 90:b1:1c:f4:a2:4d
Info: eth0:  Checking link... up.
Info: Trying DHCPv4 on interface: eth0
DHCPv4 on interface: eth0 failedONIE: Using default IPv4 addr: eth0:
192.168.3.10/255.255.255.0
Starting: dropbear ssh daemon... done.
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Erasing internal mass storage device: /dev/sda4 (32MB)
  Percent complete: 100%
Erase complete.
Deleting partition 4 from /dev/sda
Erasing internal mass storage device: /dev/sda5 (300MB)
  Percent complete: 100%
Erase complete.
Deleting partition 5 from /dev/sda
Erasing internal mass storage device: /dev/sda6 (300MB)
  Percent complete: 100%
Erase complete.
Deleting partition 6 from /dev/sda
Erasing internal mass storage device: /dev/sda7 (14032MB)
  Percent complete: 100%
Erase complete.
Deleting partition 7 from /dev/sda
Installing for i386-pc platform.
Installation finished. No error reported.
Uninstall complete.  Rebooting...
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  Microcode Revision 10b
  POST Control=0xea000303, Status=0xe6009f00
MSRs:
  Platform ID: f09884f046
```

```
  PMG_CST_CFG_CTL: 263006
  BBL_CR_CTL3: 7e00010f
  Perf Ctrl & status: 63d, 63d104606000648

  Perf cnt (curr/fixed): 17d50cf4/3f8d8e10
  Clk Flex Max: 0
  Misc EN: 60840080
  Therm Status: 88440000 (offset=0x0)
  MC0 Ctl: 0
  MC0 Status: 0
BIOS initializations...

CPGC Memtest for rank 0 ..................... PASS

CPGC Memtest for rank 1 ..................... PASS

POST:
  RTC Battery ok at last cold boot (0xb)
  RTC date Monday 02/21/2022 22:20:38

POST SPD test ............................... PASS


POST Lower DRAM Memory test
  SpeedStep enabled, Processor Bus Ratio=10, Vid=51

  Short memory cell test

  Perf cnt (curr/fixed): 24e32568/24e48b08

POST Lower DRAM Memory test ................. PASS
POST Lower DRAM ECC check ................... PASS

DxE POST

POST Upper DRAM Memory test
  SpeedStep enabled, Processor Bus Ratio=10, Vid=51

  Short memory cell test

  Perf cnt (curr/fixed): ba0ec40/ba0ede8

POST Upper DRAM Memory test ................. PASS
POST Upper DRAM ECC check ................... PASS

POST PCIe test .............................. PASS
POST NVRAM check ............................ PASS

POST overall test results ................... PASS

POST SPD test ............................... PASS


POST Lower DRAM Memory test
  SpeedStep enabled, Processor Bus Ratio=10, Vid=51

  Short memory cell test

  Perf cnt (curr/fixed): 24e4db50/24e640f0

POST Lower DRAM Memory test ................. PASS
POST Lower DRAM ECC check ................... PASS

DxE POST
POST Upper DRAM Memory test
  SpeedStep enabled, Processor Bus Ratio=10, Vid=51

  Short memory cell test

  Perf cnt (curr/fixed): ba5bf38/ba5c0d8

POST Upper DRAM Memory test ................. PASS
POST Upper DRAM ECC check ................... PASS
```

```
POST PCIe test .............................. PASS
POST NVRAM check ............................ PASS

POST overall test results ................... PASS
```

5. After the installation completes, the system displays the following ONIE prompt:
   ONIE :/#

Documentation Corrections

This section describes the errors identified in the current release of the Dell Networking OS.

- The router bgp command allows you to configure only one L3 interface with an IPv4 address. The Configuration guide does not mention this limitation and will be corrected in the next release of the guide.

Deferred Issues

Issues that appear in this section were reported in Dell 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 issues are reported using the following definitions.

Category PR#

Severity

Description
Problem Report number that identifies the issue.
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
Release Notes
Work around

Synopsis is the title or short description of the issue.
Release Notes description contains more detailed information about the issue.
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.

Deferred S6000-ON 9.14(2.0) Software Issues
Issues that appear in this section were reported in Dell 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 Networking OS version 9.14(2.0):
None.

Fixed Issues
Fixed issues are reported using the following definitions.

Category PR#
Severity

Description
Problem Report number that identifies the issue.
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.
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Synopsis
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Work around

Synopsis is the title or short description of the issue.
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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.

Fixed S6000-ON 9.14(2.14) Software Issues

NOTE: Dell Networking OS 9.14(2.14) 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 have been fixed in Dell Networking OS version 9.14(2.14):

PR# 170114	
Severity:	Sev 2
Synopsis:	The switch experiences memory leaks when processing certain types of packets.
Release Notes:	The switch experiences memory leaks when processing certain types of packets.
Workaround:	None
PR# 170232	
Severity:	Sev 2
Synopsis:	The switch sends deprecated VRRP traps.
Release Notes:	The switch sends deprecated VRRP traps.
Workaround:	None
PR# 170301	
Severity:	Sev 3
Synopsis:	The BN _ mod _ sqrt ( ) function, which computes a modular square root, contai ns a bug that can cause it to loop forever for non-prime moduli (CVE-2022-0778).
Release Notes:	The BN _ mod _ sqrt ( ) function, which computes a modular square root, contai ns a bug that can cause it to loop forever for non-prime moduli (CVE-2022-0778).
Workaround:	None

Known Issues

Known issues are reported using the following definitions.

Category PR#
Severity

Description
Problem Report number that identifies the issue.
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
Release Notes
Work around

Synopsis is the title or short description of the issue.
Release Notes description contains more detailed information about the issue.
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.

KnownS6000-ON 9.14(2.14) Software Issues
The following caveats are open in Dell Networking OS version 9.14(2.14):
None
Support Resources
The following support resources are available for theS6000 system.
Documentation Resources

This document contains operational information specific to the S6000–ON system.
For information about using the S6000–ON, refer to the following documents at **http://www.dell.com/support**:

- Installing the S6000-ON System
- Quick Start Guide
- Dell Networking Command Line Reference Guide for the S6000-ON System
- Dell Networking Configuration Guide for the S6000-ON System

For more information about hardware features and capabilities, refer to the Dell Networking website at **https://www.dellemc.com/networking**.
For more information about the open network installation environment (ONIE)-compatible third-party operating system, refer to **http://onie.org**.

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 S6000–ON system.

- For information about using the S6000–ON, refer to the documents at **http://www.dell.com/support**.
- For more information about hardware features and capabilities, refer to the Dell Networking website at **https://www.dellemc.com/networking**.
- For more information about the open network installation environment (ONIE)-compatible third-party operating system, refer to **http://onie.org**.

Contacting Dell

NOTE: If you do not have an active Internet connection, you can find contact information on your purchase invoice, packing slip, bill, or Dell product catalog.
Dell 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 for sales, technical support, or customer service issues:
Go to www.dell.com/support.

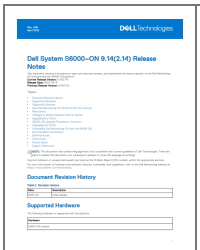
Notes, cautions, and warnings

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.

Documents / Resources

	Dell S6000-ON Networking OS PowerSwitch [pdf] User Guide S6000-ON Networking OS PowerSwitch, S6000-ON, Networking OS PowerSwitch, OS PowerSwitch, PowerSwitch

References

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- Dell Networking Solutions | Dell USA
- flashrom README — flashrom documentation
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