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DELL S6100-ON Networking System User Guide

Rev. A00
April 2022
Dell System S6100–ON 9.14(2.14) Release

Contents

S6100-ON Networking System

Notes

This document contains information about open and resolved caveats, and operational information specific to the Dell Networking operating software (OS) and the S6100-Open Networking (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 about hardware and software features, commands, and capabilities, see the Dell Networking website at: **http://www.dell.com/en-us/work/learn/networking**.

Document Revision History

Table 1. Revision History

Date	Description
2022–04	Initial release.

Requirements

The following requirements apply to the S6100-ON system.

Hardware Requirements

The following lists the Dell S6100-ON system hardware requirements:

- Up to four I/O modules of 8 x 10/25/40/50/100 GbE QSFP28 port
- Up to four I/O modules of 16 x 10/40 GbE QSFP+ ports
- Up to four I/O modules of 4 x 10/25/40/50/100 GbE QSFP28 ports and 4 x 100 GbE CXP ports
- Up to one hundred twenty-eight 10G ports
- Up to one hundred twenty-eight 25G ports
- Up to sixty-four 40G ports
- Up to sixty-four 50G ports
- Up to thirty-two 100G ports
- One each RJ–45 management and console ports, micro universal serial bus (Micro USB-B) 2.0 port, and USB type A port
- Two small form-factor pluggable plus (SFP+) 10G ports
- Two AC or DC power supply units (PSUs)
- Four fans with airflow from the I/O side to the power supply unit (PSU) side or from the PSU side to the I/O side (optional fan subsystem available)

The following lists the individual Dell S6100-ON system hardware components that are available to order:

- Fan with airflow from I/O side to PSU side (red—normal air flow direction)
- Fan with airflow from PSU side to I/O side (blue—reversed air flow direction)

- AC or DC power supply with airflow from I/O side to PSU side

- AC or DC power supply with airflow from PSU side to I/O side

ⓘ **NOTE:** Fan modules and power supplies are field replaceable units.

ⓘ **NOTE:** All fans and PSUs must have the same airflow direction. If you mix the airflow direction, the switch detects the discrepancy, issues an alarm, and may auto shutdown to avoid heat damage to components. You must correct the mixed airflow direction.

Software Requirements
Table 2. Software Requirements

Software	Minimum Release Requirement
Dell Networking OS	9.14(2.14)
ONIE	3.25.1.3
DIAG-OS	3.25.4.1

NOTE: For information about non-Dell OS versions, see Dell S6100-Open Networking (ON) System Release Notes.

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 S6100-ON switch, but Dell Networking does not guarantee their performance as the S6100-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: % S 6100 LC0 640: 8 % IFAGT – 2 -TRANSCEIVER _ UNSUP 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. Smart Scripts

    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 (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
```

- In a VXLAN scenario, hybrid port is not supported.
- 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.
- Do not configure the vxlan – in stance command on the port, which is configured with the port modehybrid command. Do not configure the vxlan-instance enabled port as a member of VLAN, which does not have VXLAN-VNI configuration.
- File system partition:

  ○ The ONIE installer, of OS versions 9.10(0.1P9) and later, changes the file system partition scheme to facilitate the installation of certain third-party networking operating systems.

  ○ If you have installed Dell Networking OS using the ON IEi nstall option, you cannot downgrade from Dell Networking OS 9.14(2.14) to versions earlier than 9.10(0.1P9), using the upgrad esy stem command, due to file system partition compatibility issues.

  ⓘ **NOTE:** The above restriction is not applicable if you have upgraded Dell Networking OS using the upgrade system command, instead of the ONIE install option.

- To downgrade Dell Networking OS version 9.14(2.14) to a version earlier than 9.10(0.1P9), follow these steps:

  1. From the ONIE menu, use the ONIE unin stall option to uninstall Dell Networking OS 9.14(2.14).

2. Use the ONIE install option to install the older version of Dell Networking OS.

- REST API does not support AAA authentication.
- The systems shipped with OS 9.11(1.0) and above might contain one of the following chipsets:
  - BCM56960_B1 chipset with part number F6N2R or 6N1J1.
  - BCM56960_B0 chipset with part number KPX54 or H68CJ.

  You can check the part number using the show inventory command.
- In a system using BCM56960_B1 chipset, you cannot downgrade from Dell Networking OS 9.14(2.14) to OS versions earlier than 9.10(0.2), due to NPU compatibility issues.

  (i) **NOTE:** The above restriction is not applicable for systems using BCM56960_B0 chipset.
- You cannot use the establ ished 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.
- DIAG version can also be 3.25.4.1
- 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 Dell Networking OS:
  - Protocol-independent multicast (PIM) equal cost multi path (ECMP)
  - Static Internet group management protocol (IGMP) join (ip igmp static – group)
  - IGMP querier timeout configuration (ip igm pquerier – timeout)
  - IGMP group join limit (ip igmp group join – limit)
- 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 interfacerang e command to select multiple interfaces that are added to the management VRF, the ipv6 address command does not display the auto config option. You can configure the auto config command on individual interfaces.
- If you use the inter facerange command to select multiple interfaces that are added to the management VRF, the ipv6nd 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-none

Changes to the Default Behavior and CLI Syntax
The following behavior and CLI changes are applicable to the S6100-ON switch with Dell Networking OS version 9.14(2.14):

None.

Documentation Corrections

This section describes the errors that are 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 here were reported in Dell Networking OS version 9.14(2.0) as open, but have since been deferred. Deferred caveats are those issues 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	S1—Crash: A software crash occurs in the kernel or a running process that requires a restart of AFM, the router, switch, or process. S2—Critical: An issue that renders the system or a major feature unusable, which can have a pervasive impact on the system or network, and for which there is no work-around acceptable to the customer. S3—Major: An issue that affects the functionality of a major feature or negatively effects the network for which there exists a work-around that is acceptable to the customer. S4—Minor: A cosmetic issue or an issue in a minor feature with little or no network impact for which there might be a work-around.
Synopsis	Synopsis is the title or short description of the issue.
Release Notes	Release Notes description contains more detailed information about the issue.
Work around	Work around describes a mechanism for circumventing, avoiding, or recovering from the issue. It might not be a permanent solution. Issues listed in the "Closed Caveats" section should not be present, and the work-around is unnecessary, as the version of code for which this release note is documented has resolved the caveat.

Deferred S6100-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	Description
PR#	Problem Report number that identifies the issue.
Severity	S1—Crash: A software crash occurs in the kernel or a running process that requires a restart of AFM, the router, switch, or process. S2—Critical: An issue that renders the system or a major feature unusable, which can have a pervasive impact on the system or network, and for which there is no work-around acceptable to the customer. S3—Major: An issue that affects the functionality of a major feature or negatively effects the network for which there exists a work-around that is acceptable to the customer. S4—Minor: A cosmetic issue or an issue in a minor feature with little or no network impact for which there might be a work-around.
Synopsis	Synopsis is the title or short description of the issue.
Release Notes	Release Notes description contains more detailed information about the issue.
Work around	Work around describes a mechanism for circumventing, avoiding, or recovering from the issue. It might not be a permanent solution. Issues listed in the "Closed Caveats" section should not be present, and the work-around is unnecessary, as the version of code for which this release note is documented has resolved the caveat.

Fixed S6100-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.
See 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	Sev 3
Severity:	The B N _ m o d _ s q r t ( ) function, which computes a modular square root, contains a bug that can cause it to loop forever for non-prime moduli (CVE-2022-0778).
Synopsis:	The B N _ m o d _ s q r t ( ) function, which computes a modular square root, contains 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	Description
PR#	Problem Report number that identifies the issue.
Severity	S1—Crash: A software crash occurs in the kernel or a running process that requires a restart of AFM, the router, switch, or process. S2—Critical: An issue that renders the system or a major feature unusable, which can have a pervasive impact on the system or network, and for which there is no work-around acceptable to the customer. S3—Major: An issue that affects the functionality of a major feature or negatively effects the network for which there exists a work-around that is acceptable to the customer. S4—Minor: A cosmetic issue or an issue in a minor feature with little or no network impact for which there might be a work-around.
Synopsis	Synopsis is the title or short description of the issue.
Release Notes	Release Notes description contains more detailed information about the issue.
Work around	Work around describes a mechanism for circumventing, avoiding, or recovering from the issue. It might not be a permanent solution. Issues listed in the "Closed Caveats" section should not be present, and the work-around is unnecessary, as the version of code for which this release note is documented has resolved the caveat.

Known S6100–ON 9.14(2.14) Software Issues

The following caveats are open in Dell Networking OS version 9.14(2.14):

None.

Upgrading the ONIE Package for the S6100-ON System

To upgrade the ONIE package, use one of the following two processes:

- Zero touch (dynamic): Copy the update ONIE installer for your system to the TFTP or HTTP server. Configure the DHCP options using the ONIE specifications shown at the following link: **https://github.com/opencomputeproject/onie/wiki/Design-Spec-SW-Updating-ONIE**.

- Manual: Copy the image onto the TFTP or HTTP server and boot into ONIE. Update the ONIE using the onie –selfu pdate command, then download and run an ONIE updater image (onie-updater-x86_64-s6100_c2538-r0). The supported URL types are: HTTP, FTP, TFTP, and FILE.

To upgrade ONIE, 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 autoboot process:

```
Press Esc to stop autoboot ... 5
 Grub 1.99~rc1 (Dell EMC)
 Built by build at bsdlab on Mon_Feb_21_10:41:12_UTC_2022
S6100 Boot Flash Label 3.25.2.14 NetBoot Label 3.25.2.14
```

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

```
Grub 1.99~rc1 (Dell EMC)
 Built by root at ubuntu on Mon_Feb_21_10:41:12_UTC_2022
 S6100-ON Boot Flash Label 3.25.2.14 NetBoot Label 3.25.2.14
 +-----------------------------------------------------------------------+
 |Dell EMC Networking OS                                                 |
 |Dell EMC-Boot Line Interface                                           |
 |DIAG-OS                                                                |
 |ONIE                                                                   |

 +-----------------------------------------------------------------------+
       Use the ^ and v keys to select which entry is highlighted.
       Press enter to boot the selected OS, 'f' to boot Dell EMC Networking OS, 'b' to
go to
       BLI, 'o' to boot ONIE, 'd' to boot DIAG-OS, 'e' to edit the commands
       before booting or 'c' for a command-line.
```

3. From the menu, choose the O N I E option.

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

The following menu appears:

```
      GNU GRUB  version 1.99~rc1

  +------------------------------------------------+
  | ONIE: Install OS                               |
  | ONIE: Rescue                                   |
  | ONIE: Uninstall OS                             |
  |*ONIE: Update ONIE                              |
  | ONIE: Embed ONIE                               |
  | EDA-DIAG                                       |
  |                                                |
  +------------------------------------------------+

  Use the ^ and v keys to select which entry is highlighted.
  Press enter to boot the selected OS, `e' to edit the commands
  before booting or `c' for a command-line.
```

4. From this menu, choose the ONIE : Upd ate ONIE option.

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

The ONIE update mode is enabled and the ONIE prompt appears, as shown:

```
ONIE: ONIE Update Mode ...
Version   : 3.25.1.3
Build Date: 2022-02-21T14:41-0700
Info: Mounting kernel filesystems... done.
Info: Mounting LABEL=ONIE-BOOT on /mnt/onie-boot ...
Info: Using eth0 MAC address: 90:b1:1c:f4:23:56
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: ONIE update mode detected.  Running updater.
Starting: discover... done.

Please press Enter to activate this console. Info: eth0:  Checking link... up.
Info: Trying DHCPv4 on interface: eth0

To check the install status inspect /var/log/onie.log.
Try this:  tail -f /var/log/onie.log

** ONIE Update Mode Enabled **
ONIE:/ #
```

5. At the ONIE prompt, to stop the ONIE discovery process, enter the following command:

ONIE :/# onie – discovery – stop

The ONIE discovery stops, as shown:

```
discover: ONIE update mode detected.
Stopping: discover... done.
ONIE:/ #
```

6. Configure an interface and assign an IP address to that interface using the following command:

ONIE :/ # ifc o n f i g e t h 0 1 0 . 1 6 . 1 2 9 . 1 3 1 / 1 6

7. Enter the following command to upgrade ONIE: O N I E : / # o n i e – s e l f – u p d a t e t f t p : / / < t f t p – s e r v e r – a d d r e s s > /

o n i e – u p d a t e r – x 8 6 _ 6 4 – s 6 1 0 0 _ c 2 5 3 8 – r 0.

ⓘ **NOTE:** Copy the o n i e – u p d a t e r – x 8 6 _ 6 4 – s 6 1 0 0 _ c 2 5 3 8 – r 0 file to the / t f t p b o o t folder in the server.

ONIE is updated on the system, as shown:

```
discover: ONIE update mode detected.
Stopping: discover... done.
Info: Fetching tftp://10.16.127.86/onie-updater-x86_64-s6100_c2538-r0...
onie-updater- 100% |*****************************|  8561k  0:00:00 ETA
ONIE: Executing installer: tftp://10.16.127.86/onie-updater-x86_64-s6100_c2538-r0
Verifying image checksum ... OK.
Preparing image archive ... OK.
ONIE: Version        : 3.25.1.3
ONIE: Architecture   : x86_64
ONIE: Machine        : dell_S6100_c2538
ONIE: Machine Rev    : 0
ONIE: Config Version: 1
Installing ONIE on: /dev/sda
Rebooting...
ONIE:/ # discover: ONIE update mode detected.
Stopping: discover...start-stop-daemon: warning: killing process 299: No such process
 done.
Stopping: dropbear ssh daemon... done.
Stopping: telnetd... done.
Stopping: syslogd... done.
Info: Unmounting kernel filesystems
The system is going down NOW!
Sent SIGTERM to all processes
Sent SIGKILL tosd 4:0:0:0: [sda] Synchronizing SCSI cache
Restarting system.
machine restart



BIOS (Dell EMC, Inc.) Boot Selector
S6100 3.25.0.0-6 32 port 100G / 2 port sfp+ mgmt

Booting Primary BIOS
  SMF Version 0x12: Last POR=0x11, Reset=0x55


POST Configuration
  CPU Signature 406D8
  CPU FamilyID=6, Model=4D, SteppingId=8, Processor=0
  Microcode Revision 125
  Platform ID: 0x10041A57
  PMG_CST_CFG_CTL: 0x40006
  BBL_CR_CTL3: 0x7E2801FF
  Misc EN: 0x840081
  Gen PM Con1: 0x203808
  Therm Status: 0x88440000
  POST Control=0xEA010303, Status=0xE6009F00

BIOS initializations...

CPGC Memtest ............................. PASS
```

Upgrading the DIAG Package for the S6100-ON System

To upgrade the DIAG package, use one of the following two processes:

- Zero touch (dynamic): Copy the update ONIE installer for your system to the TFTP or HTTP server. Configure the DHCP options using the ONIE specifications shown at the following link:
  https://github.com/opencomputeproject/onie/wiki/Design-Spec-SW-Updating-ONIE.
- Manual: Copy the image onto the TFTP or HTTP server and boot ONIE. Update the ONIE using the $onie-s$
  $elfupdate$ command, then download and run an ONIE updater image ($diag-installer-x86\_64-$
  $dell\_s6100\_c2538r$
  $0.3.25.4.1.bin$). The supported URL types are: HTTP, FTP, TFTP, and FILE.

ⓘ **NOTE:** If Dell Networking OS is already installed on the S6100-ON system, before upgrading the DIAG package, you must first uninstall Dell Networking OS. For more information about uninstalling Dell Networking OS, see Uninstalling Dell Networking OS on the S6100-ON.

To upgrade DIAG, 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 autoboot process:

```
Press Esc to stop autoboot ... 5
 Grub 1.99~rc1 (Dell EMC Inc)
  Built by build at bsdlab on Mon_Feb_21_10:41:12_UTC_2022
S6100 Boot Flash Label 3.25.2.14 NetBoot Label 3.25.2.14
```

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

```
Grub 1.99~rc1 (Dell EMC)
 Built by root at ubuntu on Mon_Feb_21_10:41:12_UTC_2022
 S6100-ON Boot Flash Label 3.25.2.14 NetBoot Label 3.25.2.14
 +---------------------------------------------------------------------+
 |Dell EMC Networking OS                                               |
 |Dell EMC-Boot Line Interface                                         |
 |DIAG-OS                                                              |
 |ONIE                                                                 |

 +---------------------------------------------------------------------+
      Use the ^ and v keys to select which entry is highlighted.
      Press enter to boot the selected OS, 'f' to boot Dell EMC Networking OS, 'b' to
 go to
      BLI, 'o' to boot ONIE, 'd' to boot DIAG-OS, 'e' to edit the commands
      before booting or 'c' for a command-line.
```

3. From the menu, choose the O N I E option.

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

   The following menu appears:

```
     GNU GRUB   version 1.99~rc1

 +-------------------------------------------------+
 |*ONIE: Install OS                                |
 | ONIE: Rescue                                    |
 | ONIE: Uninstall OS                              |
 | ONIE: Update ONIE                               |
 | ONIE: Embed ONIE                                |
 |                                                 |
 +-------------------------------------------------+

 Use the ^ and v keys to select which entry is highlighted.
 Press enter to boot the selected OS, `e' to edit the commands
 before booting or `c' for a command-line.
```

4. From this menu, choose the O N I E : I n s t a l l O S option.

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

   The ONIE Installer mode is enabled and the ONIE prompt appears, as shown:

```
ONIE: OS Install Mode ...
Version    : 3.25.1.3
Build Date: 2022-02-21T14:41-0700
Info: Mounting kernel filesystems... done.
ERROR: fsck corrected errors.
Info: Mounting LABEL=ONIE-BOOT on /mnt/onie-boot ...
Info: Using eth0 MAC address: 90:b1:1c:f4:23:56
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: installer mode detected.  Running installer.
Starting: discover... done.

Please press Enter to activate this console. Info: eth0:  Checking link... up.
Info: Trying DHCPv4 on interface: eth0


To check the install status inspect /var/log/onie.log.
Try this:  tail -f /var/log/onie.log

** Installer Mode Enabled **
ONIE:/ #
```

5. At the ONIE prompt, to stop the ONIE discovery process, enter the following command: O N I E : / # o n i e – d i
   s c o v e r y – s t o p

   The ONIE discovery stops, as shown:

```
ONIE:/ # onie-discovery-stop
discover: installer mode detected.
Stopping: discover... done.
ONIE:/ #
```

6. Configure an interface and assign an IP address to that interface using the following command: O N I E : / # i f
   c o n f i g e t h 0 1 0 . 1 6 . 1 2 9 . 1 3 1 / 1 6

7. Enter the following command to upgrade DIAG on the S6100–ON system: o n i e – n o s – i n s t a l l f t p : / / f t
   p : f t p @ < f t p s e r v e r – a d r e s s > / t f t p b o o t / d i a g – i n s t a l l e r – x 8 6 _ 6 4 – d e l l _ s 6 1 0 0 _
   c 2 5 3 8 – r 0 . 3 . 2 5 . 4 . 1 . b i n

   ⓘ **NOTE:** Copy the d i a g – i n s t a l l e r – x 8 6 _ 6 4 – d e l l _ s 6 1 0 0 _ c 2 5 3 8 – r 0 . 3 . 2 5 . 4 . 1 . b i n
   file to the / t f t p b o o t folder in the server.

   The DIAG is updated on the system, as shown:

```
ONIE:/ # onie-nos-install ftp://ftp:ftp@10.11.227.233/tftpboot/diag-installer-x86_64-
dell_s6100_c2538-r0.3.25.4.1.bin
discover: installer mode detected.
Stopping: discover... done.
Info: Fetching ftp://ftp:ftp@10.11.227.233/tftpboot/diag-installer-x86_64-
dell_s6100_c2538-r0.3.25.4.1.bin ...
Connecting to 10.11.227.233 (10.11.227.233:21)
installer            100% |*****************************|   167M  0:00:00 ETA
ONIE: Executing installer: ftp://ftp:ftp@10.11.227.233/tftpboot/diag-installer-x86_64-
dell_s6100_c2538-r0.3.25.4.1.bin
Ignoring Verifying image checksum ... OK.
cur_dir / archive_path /installer tmp_dir /tmp/tmp.nC1CKc
Preparing image archive ...sed -e '1,/^exit_marker$/d' /installer | tar xf - OK.
DiagOS Installer: platform: x86_64-dell_S6100_c2538-r0

EDA-DIAG Partiton not found.
Diag OS Installer Mode : INSTALL
INSTALL mode : would remove existing partitions and create fresh...

Creating new diag-os partition /dev/sda3 with label EDA-DIAG ...
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.

volume label EDA-DIAG on device /dev/sda3
mke2fs 1.42.8 (21-Feb-2022)
Filesystem label=EDA-DIAG
OS type: Linux
Block size=4096 (log=2)
Fragment size=4096 (log=2)
Stride=0 blocks, Stripe width=0 blocks
65536 inodes, 262144 blocks
13107 blocks (5.00%) reserved for the super user
First data block=0
Maximum filesystem blocks=268435456
8 block groups
```

Installing Dell Networking OS on the S6100-ON using ONIE

ⓘ **NOTE:** You will need the Dell Networking OS installer package, O N I E – F T O S – S 6 1 0 0 – O N – 9 . 1 4 . 2 . 1 4 . b i n to install the
Dell Networking OS on your S6100-ON system that has only ONIE.

To install the Dell Networking OS version 9.14(2.14) on a new S6100-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 autoboot process:

   ```
   Grub 1.99~rc1 (Dell EMC)
    Built by build at bsdlab on Mon_Feb_21_10:41:12_UTC_2022
   S6100 Boot Flash Label 3.25.2.14 NetBoot Label 3.25.2.14
   ```

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

   ```
   Grub 1.99~rc1 (Dell EMC)
    Built by root at ubuntu on Mon_Feb_21_10:41:12_UTC_2022
    Z9100 Boot Flash Label 3.25.2.14 NetBoot Label 3.25.2.14
    +---------------------------------------------------------------------------+
    |Dell EMC Networking OS                                                     |
    |Dell EMC-Boot Line Interface                                               |
    |DIAG-OS                                                                    |
    |ONIE                                                                       |

    +---------------------------------------------------------------------------+
          Use the ^ and v keys to select which entry is highlighted.
          Press enter to boot the selected OS, 'f' to boot Dell EMC Networking OS, 'b' to
    go to
          BLI, 'o' to boot ONIE, 'd' to boot DIAG-OS, 'e' to edit the commands
          before booting or 'c' for a command-line.
   ```

3. From the menu, choose the O N I E 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:

```
      GNU GRUB   version 1.99~rc1


  +------------------------------------------------+
  |*ONIE: Install OS                               |
  | ONIE: Rescue                                   |
  | ONIE: Uninstall OS                             |
  | ONIE: Update ONIE                              |
  | ONIE: Embed ONIE                               |
  |                                                |
  +------------------------------------------------+


  Use the ^ and v keys to select which entry is highlighted.
  Press enter to boot the selected OS, `e' to edit the commands
  before booting or `c' for a command-line.
```

4. From this menu, choose the O N I E : I n s t a l l O S 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 ONIE Installer mode is enabled and the ONIE prompt appears, as shown:

```
ONIE: OS Install Mode ...
Version    : 3.25.1.3
Build Date: 2022-02-21T16:57-0700
Info: Mounting kernel filesystems... done.
Info: Mounting LABEL=ONIE-BOOT on /mnt/onie-boot ...
Info: Using eth0 MAC address: 4c:76:25:f5:17:00
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: installer mode detected.  Running installer.
Starting: discover... done.

Please press Enter to activate this console. 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
ONIE: Starting ONIE Service Discovery
FAT-fs (sda7): Invalid FSINFO signature: 0x82564557, 0x61417272 (sector = 1)

To check the install status inspect /var/log/onie.log.
Try this:  tail -f /var/log/onie.log

** Installer Mode Enabled **
ONIE:/ #
```

5. At the ONIE prompt, to stop the ONIE discovery process, enter the following command: O N I E : / # o n i e – d i

s c o v e r y – s t o p

The ONIE discovery stops, as shown:

```
ONIE:/ # onie-discovery-stop
discover: installer mode detected.
Stopping: discover... done.
ONIE:/ #
```

```
ONIE:/ # onie-discovery-stop
discover: installer mode detected.
Stopping: discover... done.
ONIE:/ #
```

6. Configure an interface and assign an IP address to that interface using the following command: O N I E : / # i f

   c o n f i g e t h 0 1 0 . 1 6 . 1 2 9 . 1 3 1 / 1 6

7. Enter the following command to begin the installation process:

```
ONIE:/ # onie-nos-install tftp://<tftp-server-address>/ONIE-FTOS-S6100-
ON-9.14.2.14.bin
```

Following is the installation and boot log of Dell Networking OS:

```
ONIE:/ # onie-nos-install tftp://10.16.127.144/FTOS-S6100-ON-9.14.2.14.bin
discover: installer mode detected.
Stopping: discover... done.
Info: Fetching tftp://10.16.127.144/FTOS-S6100-ON-9.14.2.14.bin ...
ONIE-FTOS-S6100-ON-9 100% |*****************************|   106M  0:00:00 ETA
ONIE: Executing installer: tftp://10.16.127.144/ONIE-FTOS-S6100-ON-9.14.2.14.bin
Verifying image checksum ... OK.
Preparing image archive from /installer ... Done.
Verifying Product Platform...
Product Name          : S6100-ON
Image Platform        : FTOS-S6100-ON
Image File            : FTOS-S6100-ON-bin
Image Compatibility   : Verified
Verifying MAC Address...
MAC Address is Configured
Image Platform        : FTOS-S6100-ON
Deleting Extra partitions... Done.
Creating New partitions... Done.
Creating Hybrid MBR... Done.
Mouting /dev/sda4,/dev/sda5 and /dev/sda6... Done.
Installing GRUB on /dev/sda4...Done.
Copying Images... Done.
Rebooting...
ONIE:/ # discover: installer mode detected.
Stopping: discover...start-stop-daemon: warning: killing process 297: No such process
 done.
Stopping: dropbear ssh daemon... done.
Stopping: telnetd... done.
Stopping: syslogd... done.
Info: Unmounting kernel filesystems
The system is going down NOW!
Sent SIGTERM to all processes
Sent SIGKILL tosd 4:0:0:0: [sda] Synchronizing SCSI cache
Restarting system.
machine restart

BIOS (Dell EMC) Boot Selector
S6100 3.25.0.0-6 IO card / 2 port sfp+ mgmt
```

8. After the installation completes, the system displays the following DELL prompt: D e l l E M C #

Upgrading the S6100-ON Dell Networking OS Image 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

The ONIE installer, of OS versions 9.10(0.1P9) and later, changes the file system partition scheme to facilitate the installation of certain third-party networking operating systems.

If you have installed Dell Networking OS using the O N I E i n s t a l l option, you cannot downgrade from Dell Networking OS 9.14(2.14) to versions earlier than 9.10(0.1P9), using the u p g r a d e s y s t e m command, due to file system partition compatibility

issues. If you try to downgrade, the system displays the following error message:

```
DellEMC#upgrade system tftp: a:
Address or name of remote host []: 10.16.127.44
Source file name []: FTOS-S6100-ON-9.10.0.1P8.bin
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
% Error: Detected System Image is incompatible with flash partition scheme.
% Error: Perform ONIE uninstall followed by onie-nos-install to upgrade to this version.
% Error: Upgrade system image failed.
DellEMC#Feb 21 03:39:57: %STKUNIT1-M:CP %DOWNLOAD-6-UPGRADE: Upgrade failed
```

To downgrade Dell Networking OS version 9.14(2.14) to versions earlier than 9.10(0.1P9), follow these steps:

1. From the ONIE menu, use the O N I E u n i n s t a l l option to uninstall Dell Networking OS 9.14(2.14).

2. Use the O N I E i n s t a l l option to install the older version of Dell Networking OS.

You can upgrade or downgrade to any version, if you have upgraded Dell Networking OS using the u p g r a d e s y s t e m command, instead of the O N I E i n s t a l l option.

The systems shipped with OS 9.14(2.14) and above might contain one of the following chipsets:

- BCM56960_B1 chipset with part number F6N2R or 6N1J1.
- BCM56960_B0 chipset with part number KPX54 or H68CJ.

You can check the part number using the s h o w i n v e n t o r y command
In a system using BCM56960_B1 chipset, you cannot downgrade from Dell Networking OS 9.14(2.14) to OS versions earlier than 9.10(0.2), due to NPU compatibility issues.
In a system using BCM56960_B1 chipset, if you try to downgrade from OS 9.14(2.14) to OS versions earlier than 9.10(0.2) using BMP or the u p g r a d e command, the system displays the following error message:

```
DellEMC#upgrade system tftp: a:
Address or name of remote host []: 10.16.127.44
Source file name []: FTOS-S6100-ON-9.10.0.1.bin
00:12:47 : Discarded 1 pkts. Expected block num : 56. Received block num: 55

% Error: Detected System Image is incompatible with NPU.
% Error: Upgrading Release File Corrupted.
% Error: Upgrade system image failed.
```

You can upgrade or downgrade the OS to any version in systems using BCM56960_B0 chipset.
Follow these steps carefully to upgrade your S6100-ON systems:

1. Cancel BMP and disable BMP from the next reload:

```
DellEMC# stop bmp
DellEMC#conf
DellEMC(conf)# reload-type
DellEMC(conf-reload-type)# boot-type normal-reload
DellEMC(conf-reload-type)# end
```

2. 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.

3. Upgrade the Dell Networking OS in flash partition A: or B:
   EXEC Privilege Mode
   u p g r a d e s y s t e m [f l a s h : | f t p : s t a c k − u n i t < i d > | t f t p : | s c p : | u s b f l a s h :] [A : | B :]

```
DellEMC#upgrade system tftp: A:
Address or name of remote host []: 10.16.127.144
Source file name []: FTOS-S6100-ON-9.14.2.14.bin
00:07:37 : Discarded 1 pkts. Expected block num : 51. Received block num: 50
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!..........!
78361787 bytes successfully copied
System image upgrade completed successfully.
DellEMC#Feb 21 19:00:53: %STKUNIT1-M:CP %DOWNLOAD-6-UPGRADE: Upgrade completed
successfully
```

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

   EXEC Privilege Mode

   s h o w b o o t s y s t e m s t a c k – u n i t 1 | a l l]

```
DellEMC#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)[boot]    9.14(2.12)
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.
```

5. Change the Primary Boot Parameter of the S6100-ON to the upgraded partition A: or B:

   CONFIGURATION Mode

   b o o t s y s t e m s t a c k – u n i t 1 p r i m a r y s y s t e m : [A : | B : | t f t p : | f t p :]

6. Save the configuration so that the configuration will be retained after a reload using the w r i t e m e m o r y command.

   EXEC Privilege Mode

   w r i t e m e m o r y

```
DellEMC#write memory
!
Feb 21 10:18:14: %STKUNIT1-M:CP %FILEMGR-5-FILESAVED: Copied running-config to
startup-config in flash by default

DellEMC#
```

7. Reload the unit.

   EXEC Privilege Mode

   r e l o a d

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

8. Verify the S6100–ON has been upgraded to the Dell Networking OS version 9.14(2.14).

   EXEC Privilege Mode

   s h o w v e r s i o n

```
DellEMC#show version
Dell EMC Real Time Operating System Software
Dell EMC Operating System Version:  2.0
Dell EMC Application Software Version:  9.14(2.14)
Copyright (c) 1999-2021 by Dell EMC Inc. All Rights Reserved.
Build Time: Mon Feb 21 00:15:13 2022
Build Path: /build/build08/SW/SRC
Dell EMC Networking OS uptime is 1 minute(s)

System image file is "FTOS-S6100.bin"

System Type: S6100-ON
Control Processor: Intel Rangeley with 3 Gbytes (3203289088 bytes) of memory, core(s)
4.

8G bytes of boot flash memory.

  1 4 Modules, 16x40G/8x100G ports TE/TF/FO/FI/HU G (S6100-ON)
14 Ten GigabitEthernet/IEEE 802.3 interface(s)
12 Twenty Five GigabitEthernet/IEEE 802.3 interface(s)
  2 Hundred GigabitEthernet/IEEE 802.3 interface(s)
DellEMC#
```

Upgrade the Boot Selector and Boot Flash Images from Dell Networking OS

To upgrade the Boot Selector and Boot Flash images from Dell Networking OS, perform the following steps:

1. Upgrade the S6100-ON Boot Selector image.

   EXEC Privilege Mode

   u p g r a d e b o o t b o o t s e l e c t o r – i m a g e s t a c k – u n i t [< i d > | a l l] [b o o t e d] To upgrade the Boot Selector image to the image version packed with the loaded Dell Networking OS image, use the booted option. You can find the Boot Selector image version packed with the loaded Dell Networking OS using the s h o w o s – v e r s i o n command in EXEC Privilege mode.

```
DellEMC#upgrade boot bootselector-image stack-unit 1 booted

Current Boot information in the system:
=============================================================================
  Card                      BootSelector     Current Version      New Version
-----------------------------------------------------------------------------
    Unit1                   Boot Selector         3.25.0.0-5          3.25.0.0-6

    ****************************************************************************
    *   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.
DellEMC#
```

2. Reload the unit.

   EXEC Privilege Mode

   r e l o a d

3. Upgrade the Dell Networking OS GRUB.

   EXEC Privilege Mode

   u p g r a d e b o o t b o o t f l a s h – i m a g e s t a c k – u n i t < s t a c k – u n i t – i d > b o o t e d

```
Current Boot information in the system:
========================================================================
  Card                          BootFlash    Current Version    New Version
------------------------------------------------------------------------
    Unit1                       Boot Flash        3.25.2.11        3.25.2.14

    ***********************************************************************
    *   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.
DellEMC#
```

4. Reload the unit.

   EXEC Privilege Mode

   r e l o a d

5. Verify whether the upgrade is successful.

```
DellEMC#show system stack-unit 1

-- Unit 1 --
Unit Type                    : Management Unit
Status                       : online
Next Boot                    : online
Required Type                : S6100-ON - 4 Modules, 16x40G/8x100G ports TE/TF/FO/FI/HU
G
Current Type                 : S6100-ON - 4 Modules, 16x40G/8x100G ports TE/TF/FO/FI/HU
G
Master priority              : NA
Hardware Rev                 : 0.0
Num Ports                    : 130
Up Time                      : 4 min, 47 sec
Dell EMC Networking OS Version : 9.14(2.14)
Jumbo Capable                : yes
POE Capable                  : no
FIPS Mode                    : disabled
Boot Flash                   : 3.25.2.14
Boot Selector                : 3.25.0.0-6
Memory Size                  : 3177226240 bytes
Temperature                  : 28C
Voltage                      : ok
Serial Number                : NA
Part Number                  : 0WKFYN      Rev X02
Vendor Id                    : NA
Date Code                    : NA
Country Code                 : NA
Piece Part ID                : CN-0WKFYN-77931-58K-0004
PPID Revision                : X02
Service Tag                  : 21VRG02
Expr Svc Code                : 446 737 939 4
Auto Reboot                  : enabled
Burned In MAC                : 4c:76:25:f5:17:00
No Of MACs                   : 3

-- Module 1 --
Status         : online
Module Type    : S6100-MOD-8xETH100-T - 8-port 100GE QSFP28+
Num Ports      : 8
Hot Pluggable  : no

-- Module 2 --
Status         : online
Module Type    : S6100-MOD-8xETH100-4CXP-T - 8-port 100GE QSFP28_4CXP+
Num Ports      : 8
Hot Pluggable  : no

-- Module 3 --
Status         : online
Module Type    : S6100-MOD-8xETH100-4CXP-T - 8-port 100GE QSFP28_4CXP+
Num Ports      : 8
Hot Pluggable  : no

-- Module 4 --
Status         : online
Module Type    : S6100-MOD-8xETH100-4CXP-T - 8-port 100GE QSFP28_4CXP+
Num Ports      : 8
Hot Pluggable  : no

-- Power Supplies --
Unit   Bay   Status        Type     FanStatus   FanSpeed(rpm)
----------------------------------------------------------
  1     1    down        UNKNOWN down          0
  1     2    up              AC     up         2496

-- Fan Status --
Unit Bay   TrayStatus  Fan1    Speed
------------------------------------
  1   1       up         up     3482
  1   2       up         up     3571
  1   3       up          up     3539
  1   4       up          up     3561

Speed in RPM
```

6. After you upgrade Dell Networking Networking OS to 9.14(2.14) from an earlier version and update the BIOS using the booted option, the system does not allow you to downgrade the BIOS to an earlier version. To run an earlier BIOS version, use FTP, TFTP, or SCP option from the current OS version.

```
DellEMC#upgrade boot bootselector-image stack-unit 1 tftp://10.16.127.7/FTOS-
SK-9.14.2.14.bin
Feb 21 09:32:03 : Discarded 1 pkts. Expected block num : 51. Received block num: 50
Feb 21 09:32:06 : Discarded 1 pkts. Expected block num : 65. Received block num: 64
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!.

Current Boot information in the system:
======================================================================
  Card                    BootSelector    Current Version    New Version
----------------------------------------------------------------------
    Unit1                 Boot Selector       3.38.0.1-4     3.38.0.1-3

    ****************************************************************
    *   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.
```

Upgrade the CPLD Images

On the S6100–ON, you must upgrade the switchcard, CXP, 40G, and 100G CPLD images separately.

ⓘ **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.

Verify that you need a CPLD upgrade
To identify the CPLD version, use the show revision command.

```
DellEMC#show revision

--   Stack unit 1   --
S6100-ON SWITCHCARD CPLD : 5

S6100-ON IOM CPLD1       : 5

S6100-ON IOM CPLD2       : 12

S6100-ON IOM CPLD4       : 4

S6100-ON MSS FPGA        : 1.1

S6100-ON MSS IAP         : 2.4

S6100-ON OOB-FPGA        : 1.0

DellEMC#
```

To view the CPLD version that is associated with the Dell Networking OS image, use the following command:

```
DellEMC#show os-version

RELEASE IMAGE INFORMATION :
---------------------------------------------------------------------
      Platform            Version          Size              ReleaseTime
 S-Series:S6100-ON       9.14(2.14)      78345374      Feb 21 2022 17:15:23

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

BOOT IMAGE INFORMATION :
---------------------------------------------------------------------
         Type              Version                      Target      checksum
    boot flash            3.25.2.14             Control Processor     passed

BOOTSEL IMAGE INFORMATION :
---------------------------------------------------------------------
         Type              Version                      Target      checksum
 boot selector           3.25.0.0-6             Control Processor     passed

FPGA IMAGE INFORMATION :
---------------------------------------------------------------------
         Card                         FPGA Name      Version
 stack-unit 1        S6100-ON SWITCHCARD CPLD            5
 stack-unit 1               S6100-ON IOM CPLD1            5
 stack-unit 1               S6100-ON IOM CPLD2           12
 stack-unit 1    : --- NO IOM CPLD3 FOUND ---            5
 stack-unit 1               S6100-ON IOM CPLD4            4
 stack-unit 1                S6100-ON MSS FPGA          1.1
 stack-unit 1                 S6100-ON MSS IAP          2.4
 stack-unit 1                S6100-ON OOB-FPGA          1.0
```

Upgrading the Switchcard-CPLD Image

The S6100-ON system with Dell Networking OS Version 9.14(2.14) requires switchcard-cpld image 5.

ⓘ **NOTE:** The u p g r a d e f p g a – i m a g e s w i t c h c a r d – c p l d s t a c k – u n i t 1 b o o t e d command is hidden when using the feature in the CLI. However, it is a supported command. The mod-id option represents the ID of the module slot on the S6100–ON.

ⓘ **NOTE:** Ensure that the BIOS version is 3.25.0.0-6. You can verify this version using the s h o w s y s t e m s t a c k – u n i t 1 command.

To upgrade the CPLD image, follow these steps.

1. Upgrade the switchcard-CPLD image.

   EXEC Privilege Mode

   u p g r a d e f p g a – i m a g e s w i t c h c a r d – c p l d s t a c k – u n i t < 1 > b o o t e d

```
Current information for the system:
===========================================================================
  Card                     Device Name     Current Version     New Version
---------------------------------------------------------------------------
 Unit1       S6100-ON SWITCHCARD CPLD              4                 5

    ********************************************************************
    *   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]: yes


Cpld upgrade in progress!!! Please do NOT power off the unit!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!

Upgrade result :
================
Unit 1 Cpld upgrade successful Unit 1. Please power cycle to take effect.

DellEMC#Feb 21 12:41:34: %S6100-ON:1 %DOWNLOAD-6-FPGA_UPGRADE: stack-unit 1 fpga
upgrade success.
```

Upgrading the CXP Module CPLD image

The S6100-ON system with Dell Networking OS Version 9.14(2.14) requires CXP MODULE CPLD image 5. To display the CXP module CPLD version currently running on an S6100-ON, use the s h o w r e v i s i o n command.

(i) **NOTE:** The u p g r a d e f p g a – i m a g e m o d – i d s t a c k – u n i t 1 b o o t e d command is hidden when using the feature in the CLI. However, it is a supported command. The mod-id option represents the ID of the module slot on the S6100–ON.

To upgrade the CPLD image, follow these steps.

1. Upgrade the CXP module CPLD image.

   EXEC Privilege Mode

   u p g r a d e f p g a – i m a g e m o d – i d s t a c k – u n i t 1 b o o t e d

   (i) **NOTE:** In this example, the CXP Module is in slot 2.

```
DellEMC#upgrade fpga-image 2 stack-unit 1 booted

Current information for the system:
===========================================================================
  Card                     Device Name     Current Version     New Version
---------------------------------------------------------------------------
 Unit1           S6100-ON IOM CPLD2              4                 5

    ********************************************************************
    *   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]: yes
```

Upgrading the 40G Module CPLD image

The S6100-ON system with Dell Networking OS Version 9.14(2.14) requires 40G MODULE CPLD image 12. To display the 40G module CPLD version currently running on an S6100-ON, use the s h o w r e v i s i o n command.

(i) **NOTE:** The u p g r a d e f p g a – i m a g e m o d – i d s t a c k – u n i t 1 b o o t e d command is hidden when using the feature in the CLI. However, it is a supported command. The mod-id option represents the ID of the module slot on the S6100–ON.

Upgrade the 40G module CPLD image.

1. Upgrade the 40G module CPLD image.

    EXEC Privilege Mode

    u p g r a d e f p g a – i m a g e m o d – i d s t a c k – u n i t 1 b o o t e d

    ⓘ **NOTE:** In this example, the 40G Module is in slot 3.

```
DellEMC#upgrade fpga-image 3 stack-unit 1 booted

Current information for the system:
=========================================================================
   Card                     Device Name      Current Version      New Version
-------------------------------------------------------------------------
   Unit1              S6100-ON IOM CPLD3                 11                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 stack-unit 1 [yes/no]: yes


Cpld upgrade in progress!!! Please do NOT power off the unit!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!

Upgrade result :
================
Unit 1 Cpld upgrade successful Unit 1. Please power cycle to take effect.

DellEMC#Feb 21 13:29:39: %S6100-ON:1 %DOWNLOAD-6-FPGA_UPGRADE: stack-unit 1 fpga
upgrade success.
```

Upgrading the 100G Module CPLD image
The S6100-ON system with Dell Networking OS Version 9.14(2.14) requires 100G QSFP28 module CPLD image
4. To display the 100G QSFP28 module CPLD version currently running on an S6100-ON, use the s h o w r e v i s
i o n command.

ⓘ **NOTE:** The u p g r a d e f p g a – i m a g e m o d – i d s t a c k – u n i t 1 b o o t e d command is hidden when
using the feature in the CLI. However, it is a supported command. The mod-id option represents the ID of the
module slot on the S6100–ON.

To upgrade the CPLD image, follow these steps.

1. Upgrade the 100G module CPLD image.

    EXEC Privilege Mode

    u p g r a d e f p g a – i m a g e m o d – i d s t a c k – u n i t 1 b o o t e d

    ⓘ **NOTE:** In this example, the 100G Module is in slot 4.

```
DellEMC#upgrade fpga-image 4 stack-unit 1 booted

Current information for the system:
======================================================================
  Card                    Device Name     Current Version    New Version
----------------------------------------------------------------------
 Unit1            S6100-ON IOM CPLD4               3               4

    **********************************************************************
    *  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]: yes


Cpld upgrade in progress!!! Please do NOT power off the unit!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!

Upgrade result :
================
Unit 1 Cpld upgrade successful Unit 1. Please power cycle to take effect.

DellEMC#Feb 21 13:38:19: %S6100-ON:1 %DOWNLOAD-6-FPGA_UPGRADE: stack-unit 1 fpga
upgrade success.
```

Upgrading the Smart Fusion Microcontroller Subsystem — SMF MSS-IAP

The S6100-ON system with Dell Networking OS Version 9.14(2.14) requires mss-iap image 2.4.
To upgrade the Smart Fusion Microcontroller Subsystem — SMF MSS-IAP, follow these steps:

1. Upgrade the SMF MSS-IAP image.

    EXEC Privilege Mode

    upgrade mss-iap-image stack-unit <stack-unit-id> booted


```
DellEMC#upgrade mss-iap-image stack-unit 1 booted

Current information for the system:
======================================================================
  Card                    Device Name     Current Version    New Version
----------------------------------------------------------------------
   CP               S6100-ON MSS IAP              2.1             2.4

    **********************************************************************
    *  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 !                        *
    **********************************************************************

Warning - PSU and FANTRAYS Syslog messages may appear during SMF FPGA upgrade.
Please ignore these messages !!!

Upgrade image for stack-unit 1 [yes/no]: yes

SMF MSS upgrade in progress!!! Please do NOT power off the unit!!! Auto Reset will
happen at the end of Upgrade!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!

Upgrade result :
================
UNIT1 SMF MSS upgrade successful UNIT1. will go for reboot to complete the upgrade.

DellEMC#Feb 21 11:28:09: %STKUNIT1-M:CP %DOWNLOAD-6-FPGA_UPGRADE: UNIT 1 fpga upgrade
success.


BIOS (Dell EMC) Boot Selector
S6100 3.25.0.0-6 4 IO card / 2 port sfp+ mgmt.
```

After the SMF MSS-IAP upgrade is successfully completed, the system re-boots automatically.

Upgrading the Smart Fusion Microcontroller Subsystem — SMF MSS-FPGA

The S6100-ON system with Dell Networking OS Version 9.14(2.14) requires mss-fpga image 1.1.

ⓘ **NOTE:** Before upgrading the Smart Fusion Microcontroller Subsystem SMF MSS-FPGA, you must first upgrade the SMF MSS-IAP.

To upgrade the Smart Fusion Microcontroller Subsystem — SMF MSS-FPGA, follow these steps:

1. Upgrade the SMF MSS-FPGA image.

   EXEC Privilege Mode

   upgrade mss-fpga-image stack-unit <stack-unit-id> booted

```
DellEMC#upgrade mss-fpga-image stack-unit 1 booted

Current information for the system:
===================================================================
  Card                    Device Name     Current Version     New Version
-------------------------------------------------------------------
    CP              S6100-ON MSS FPGA             1.1                1.1

    ********************************************************************
    *   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]: yes


SMF FPGA upgrade in progress!!! Please do NOT power off the unit!!! Auto Reset will
happen at the end of Upgrade!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!

Upgrade result :
================
UNIT1 SMF FPGA upgrade successful UNIT1. will go for reboot to complete the upgrade.

DellEMC#Feb 21 13:49:27: %STKUNIT1-M:CP %DOWNLOAD-6-FPGA_UPGRADE: UNIT 1 fpga upgrade
success.

BIOS (Dell EMC) Boot Selector
S6100 3.25.0.0-6 4 IO card / 2 port sfp+ mgmt.
```

ⓘ **NOTE:** Although the system displays that the system power cycles automatically after the upgrade, the system may not power cycle. If the system does not power cycle automatically, wait for at least five minutes and power cycle the system by switching off and switching on the system.

Upgrading the OOB-FPGA Image

The S6100-ON system with Dell Networking OS Version 9.14(2.14) requires oob-fpga image 1.0.
To upgrade the OOB-FPGA, follow these steps:

1. Upgrade the OOB-FPGA image.

   EXEC Privilege Mode

   upgrade fpga-image system fpga stack-unit <stack-unit-id> booted

```
DellEMC#upgrade fpga-image system fpga stack-unit 1 booted

Current information for the system:
========================================================================
  Card                   Device Name     Current Version     New Version
------------------------------------------------------------------------
    CP               S6100-ON OOB-FPGA               1.0             1.0

    **********************************************************************
    *  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 system 1 [yes/no]: yes


OOB FPGA upgrade in progress!!! Please do NOT power off the unit!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!

Upgrade result :
================
UNIT1 OOB FPGA upgrade successful UNIT1. Please power cycle to take effect.

DellEMC#Feb 21 12:15:57: %STKUNIT1-M:CP %DOWNLOAD-6-FPGA_UPGRADE: UNIT 1 fpga upgrade
success.
```

Uninstalling the Dell Networking OS

To uninstall the Dell Networking OS version 9.14(2.14) from your S6100-ON system, 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:

```
Press Esc to stop autoboot ... 5
 Grub 1.99~rc1 (Dell EMC)
  Built by root at ubuntu on Mon_Feb_21_10:41:12_UTC_2022
S6100 Boot Flash Label 3.25.2.14 NetBoot Label 3.25.2.14
```

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

```
 Grub 1.99~rc1 (Dell EMC)
  Built by root at ubuntu on Mon_Feb_21_10:41:12_UTC_2022
  Z9100 Boot Flash Label 3.25.2.14 NetBoot Label 3.25.2.14
   +--------------------------------------------------------------------------+
   |Dell EMC Networking OS                                                    |
   |Dell EMC-Boot Line Interface                                              |
   |DIAG-OS                                                                   |
   |ONIE                                                                      |

   +--------------------------------------------------------------------------+
       Use the ^ and v keys to select which entry is highlighted.
       Press enter to boot the selected OS, 'f' to boot Dell EMC Networking OS, 'b' to
   go to
       BLI, 'o' to boot ONIE, 'd' to boot DIAG-OS, 'e' to edit the commands
       before booting or 'c' for a command-line.
```

3. From the menu, choose the O N I E option.

   (i) **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:

```
   GNU GRUB   version 1.99~rc1

   +-------------------------------------------+
   | ONIE: Install OS                          |
   | ONIE: Rescue                              |
   |*ONIE: Uninstall OS                        |
   | ONIE: Update ONIE                         |
   | ONIE: Embed ONIE                          |
   | EDA-DIAG                                  |
   |                                           |
   +-------------------------------------------+

   Use the ^ and v keys to select which entry is highlighted.
   Press enter to boot the selected OS, `e' to edit the commands
   before booting or `c' for a command-line.
```

4. From this menu, choose the O N I E : U n i n s t a l l O S option.

(i) **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, as shown:

```
ONIE: OS Uninstall Mode ...
Version    : 3.25.1.3
Build Date: 2022-02-21T16:57-0700
Info: Mounting kernel filesystems... done.
Info: Mounting ONIE-BOOT on /mnt/onie-boot ...
```

```
Info: Using eth0 MAC address: 4c:76:25:f5:15:80
Info: eth0:  Checking link... up.
Info: Trying DHCPv4 on interface: eth0
Warning: Unable to configure interface using DHCPv4: eth0
ONIE: Using default IPv4 addr: eth0: 192.168.3.10/24
ONIE: Using link-local IPv4 addr: eth0: 169.254.40.85/16
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 (500MB)
  Percent complete: 100%
Erase complete.
Deleting partition 5 from /dev/sda
Erasing internal mass storage device: /dev/sda6 (500MB)
  Percent complete: 100%
Erase complete.
Deleting partition 6 from /dev/sda
Erasing internal mass storage device: /dev/sda7 (13085MB)
  Percent complete: 100%
Erase complete.
Deleting partition 7 from /dev/sda
Installing for i386-pc platform.
Installation finished. No error reported.
Uninstall complete.  Rebooting...
discover: Uninstall mode detected. No discover stopped.
Stopping: dropbear ssh daemon... done.
Stopping: telnetd... done.
Stopping: syslogd... done.
Info: Unmounting kernel filesystems
The system is going down NOW!
Sent SIGTERM to all processes
Sent SIGKILL to all processes
Requesting system reboot
sd 4:0:0:0: [sda] Synchronizing SCSI cache
Restarting system.
machine restart

BIOS (Dell EMC) Boot Selector
S6100 3.25.0.0-6 32 port 100G / 2 port sfp+ mgmt

Booting Primary BIOS
  SMF Version 0x12: Last POR=0x11, Reset=0x55
```

```
POST Configuration
  CPU Signature 406D8
  CPU FamilyID=6, Model=4D, SteppingId=8, Processor=0
  Microcode Revision 125
  Platform ID: 0x10041A57
  PMG_CST_CFG_CTL: 0x40006
  BBL_CR_CTL3: 0x7E2801FF
  Misc EN: 0x840081
  Gen PM Con1: 0x203808
  Therm Status: 0x88440000
  POST Control=0xEA010303, Status=0xE6009F00

BIOS initializations...

CPGC Memtest ............................... PASS

POST:
  RTC Battery OK at last cold boot
  RTC date  Monday 02/21/2022 8:49:12

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

POST Lower DRAM Memory test
....   Perf cnt (curr,fixed): 0x1DA77F97A,0x3B4F007C8

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

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

O N I E : / #

Installing a Third Party Operating System

Apart from the Dell Networking OS, you can also install a supported third party operating system on the S6100-ON system. For more information on installing a third party operating system, refer to the third party OS vendor's website for OS installation instructions.

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.

DELL Technologies

Documents / Resources

	DELL S6100-ON Networking System [pdf] User Guide S6100-ON Networking System, S6100-ON, Networking System, System

References

- 🌐 **Computers, Monitors & Technology Solutions | Dell USA**
- **Dell Networking Solutions | Dell USA**
- **Support | Dell US**
- **GitHub - opencomputeproject/onie: Open Network Install Environment**
- **Home · opencomputeproject/onie Wiki · GitHub**

Manuals+,