Enterprise SONiC Distribution by Dell Technologies

Quick Start Guide Release 4.4.1

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DELL Technologies

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.

Contents

1

SONiC overview

SONiC is an open-source, Linux-based network operating system (NOS) that runs on switches from multiple vendors and ASICs. SONiC stands for Software for Open Networking in the Cloud. It implements standard Layer 2 and Layer 3 protocols, and provides developers with a straightforward way to add new features.

SONiC offers teams the flexibility to create data center networking solutions, while using the collective strength of a large ecosystem with an active developer community. SONiC is designed for scalability and is in production today in large data center fabrics.

The benefits of SONiC include:

- Hardware independence
- Containerized architecture
- Open-sourced
- Access to a growing community

Topics:

SONiC and Dell Technologies

Dell Technologies introduces Enterprise SONiC Distribution as a hardened, validated, and supported version of SONiC for switch configuration and monitoring. It includes distribution of open-source community SONiC, and additional features to support the ecosystem and partners.

Enterprise SONiC supports an intuitive command-line interface, and object-based administration through a REST interface and Google's gRPC Network Management Interface (gNMI).

Enterprise SONiC Distribution by Dell Technologies

Enterprise SONiC is offered in the following bundles. Customers can deploy the most appropriate bundle for their network requirements:

- Cloud Standard
- Cloud Premium
- Enterprise Standard
- Enterprise Premium
- Lite

NOTE: The Lite bundle is supported only on S3248T-ON, N3248P-ON, N3248X-ON, N3248PXE-ON, N3248TE-ON, E3248P-ON, and E3248PXE-ON switches. These Dell PowerSwitch platforms cannot run the Cloud and Enterprise bundles. All other Dell PowerSwitch platforms cannot run the Lite bundle.

Dell PowerSwitch platforms

Enterprise SONiC is supported on the following ONIE-enabled Dell PowerSwitch platforms (which may have a different SONiC network operating system (NOS) or OS10 installed) with the specified port speeds:

- `Yes` means Supported; `No` means Not Supported. `Default` means default speed at access (user) ports.
- Dell PowerSwitches that are marked with `*` (asterisk) support Power over Ethernet (PoE).

Table 1. Speeds supported in Enterprise SONiC on Dell PowerSwitch Platforms

Dell PowerSwitch	800G	400G	200G	100G	50G	40G	25G	10G	5G	2.5G	1G	100M	10M
Z9864F-ON	Default	Yes	Yes	Yes	No	No	No	Yes	No	No	Yes	No	No
Z9664F-ON	No	Default	Yes	Yes	No	Yes	Yes	Yes	No	No	Yes	No	No

Table 1. Speeds supported in Enterprise SONiC on Dell PowerSwitch Platforms (continued)

Dell PowerSwitch	800G	400G	200G	100G	50G	40G	25G	10G	5G	2.5G	1G	100M	10M
Z9432F-ON	No	Default	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	No	No
Z9332F-ON	No	Default	Yes	Yes	No	Yes	Yes	Yes	No	No	Yes	No	No
Z9264F-ON	No	No	No	Default	No	Yes	Yes	Yes	No	No	Yes	No	No
S5448F-ON	No	Yes	Yes	Default	Yes	Yes	Yes	Yes	No	No	Yes	No	No
S5296F-ON	No	No	No	Yes	No	Yes	Default	Yes	No	No	Yes	No	No
S5248F-ON	No	No	No	Yes	No	Yes	Default	Yes	No	No	Yes	No	No
S5232F-ON	No	No	No	Default	Yes	Yes	Yes	Yes	No	No	Yes	No	No
S5224F-ON	No	No	No	Yes	No	Yes	Default	Yes	No	No	Yes	No	No
S5212F-ON	No	No	No	Yes	No	Yes	Default	Yes	No	No	Yes	No	No
S4348F-ON	No	No	No	Yes	No	Yes	Yes	Default	No	No	Yes	No	No
S3248T-ON	No	No	No	Yes	No	Yes	Yes	Yes	No	No	Default	Yes	Yes
N3248PXE-ON*	No	No	No	Yes	No	Yes	Yes	Default	Yes	Yes	Yes	Yes	Yes
N3248X-ON	No	No	No	Yes	No	Yes	Yes	Default	Yes	Yes	Yes	Yes	Yes
N3248TE-ON	No	No	No	Yes	No	Yes	Yes	Yes	No	No	Default	Yes	Yes
N3248P-ON	No	No	No	Yes	No	Yes	Yes	Yes	No	No	Default	Yes	Yes
E3248PXE-ON*	No	No	No	Yes	No	Yes	Yes	Default	Yes	Yes	Yes	Yes	Yes
E3248P-ON*	No	No	No	Yes	No	Yes	Yes	Yes	No	No	Default	Yes	Yes

NOTE: For information on the breakout modes, cables, and optics supported on each switch, contact your designated sales representative.

Table 2. Dell PowerSwitches supported in each bundle

Enterprise SONiC bundle	Z-Series: Z9864F-ON, Z9664F-ON, Z9432F-ON, Z9332F-ON, Z9264F-ON	S-Series: S5448F-ON, S5296F-ON, S5248F-ON, S5232F-ON, S5224F-ON, S5212F-ON	S-Series: S3248T-ON	N-Series: N3248P-ON, N3248PXE-ON, N3248TE-ON, N3248X-ON	E-Series: E3248PXE-ON, E3248P-ON
Cloud Standard	**Supported**	**Supported**	Not Supported	Not Supported	Not Supported
Cloud Premium	**Supported**	**Supported**	Not Supported	Not Supported	Not Supported
Enterprise Standard	**Supported**	**Supported**	Not Supported	Not Supported	Not Supported
Enterprise Premium	**Supported**	**Supported**	Not Supported	Not Supported	Not Supported
Lite	Not Supported	Not Supported	**Supported**	**Supported**	**Supported**

Additional Enterprise SONiC documentation

Table 3. Additional documentation

Document	Description
Enterprise SONiC Distribution by Dell Technologies, 4.4.0 User Guide	Product description and software configuration tasks

Table 3. Additional documentation (continued)

Document	Description
Enterprise SONiC Distribution by Dell Technologies, 4.4.0 Management Framework CLI Reference Guide	Management Framework CLI command syntaxes and examples
Enterprise SONiC Distribution by Dell Technologies, 4.4.0 Compatibility Matrix	Supported software features, scalability, interfaces, breakouts, cables, and optics
Enterprise SONiC Distribution by Dell Technologies, 4.4.0 High Power Optics	Supported high-power optics, thresholds, and switch ports
Enterprise SONiC Distribution by Dell Technologies, 4.4.0 Release Notes	New features introduced in the release; known and fixed issues

NOTE: This guide may contain language from third-party content that is not under Dell Technology control and is not consistent with Dell Technology guidelines. Dell Technology plans to update this reference guide when the third party updates their content.

2

Quick start

This chapter describes how to install an Enterprise SONiC image on your Dell PowerSwitch.

Requirements

- ONIE-enabled Dell PowerSwitch, which may have another SONiC network operating system or OS10 installed on a supported Dell PowerSwitch — see SONiC and Dell Technologies.
- Available DHCP server for automatic installation
- Valid Dell Digital Locker (DDL) account with sufficient license capacity
- HTTP, TFTP, or FTP server, or USB thumb drive with 4GB space available

Before you start

Verify that you have connected the ONIE-enabled device correctly:

1. Connect a serial cable or terminal emulator to the console serial port — required serial port settings are 115200, 8 data bits, and no parity.
2. Connect the Management port to the network if you prefer downloading an image over a network.

NOTE: The front panel ports that connect to the switching ASIC are not available in an ONIE installation.

See the *Getting Started Guide* shipped with your specific PowerSwitch to locate the Console and Management ports, or go to Manuals and search on the Dell PowerSwitch name to find the platform-specific *Installation Guide*.

Topics:

Download Enterprise SONiC image

1. Sign into DDL using your account credentials.
2. Locate your entitlement ID or order number and select the product name.
3. Select the **Available Downloads** tab on the Product page.
4. Select the Enterprise SONiC image to download and click **Download**.
5. Read the Dell End-User License Agreement. Scroll to the end of the agreement and click **Yes, I agree**.
6. Select how to download the software files and click **Download Now**.
7. Extract the files from the downloaded .zip file.
8. Follow the instructions in the README for Enterprise SONiC to verify the signature of the `bin` file that contains the image.

After you verify the image, install the image on the switch by using a USB thumb drive or over the network. See Install Enterprise SONiC image.

UEFI Secure Boot

Selected Dell PowerSwitch platforms include a Trusted Platform Module (TPM) that provides hardware-based encryption services to applications, such as UEFI Secure Boot. UEFI Secure Boot is a component of the BIOS that verifies and ensures the

file integrity of the network operating system (NOS) to boot. A Dell PowerSwitch, such as the Z9432F-ON, includes TPM and has UEFI Secure Boot enabled by default in the BIOS to allow only signed NOSs to be installed successfully.

Enterprise SONiC 4.2.0 and later releases support UEFI Secure Boot on the following platforms:

- Z9864F-ON
- Z9664F-ON
- Z9432F-ON
- S5448F-ON

On these platforms, by default, UEFI Secure Boot is enabled. If you have disabled UEFI Secure Boot previously, to use Secure Boot, use the following procedure to enable it:

NOTE: If you are already running Enterprise SONiC 4.1.x or a previous version on these platforms, secure boot is already disabled in the BIOS.

To check if your device supports secure boot or enabled, use the following command:

On a platform that does not support Secure Boot:

```
sonic# show platform sbstatus
SecureBoot is not supported on this system
```

On a platform that supports Secure Boot:

```
sonic# show platform sbstatus
SecureBoot is Disabled
```

Prerequisites to use secure boot

- Enable the Secure Boot in the BIOS firmware.
- If you are already running Enterprise SONiC 4.1.x or a previous version and would like to use the Secure Boot feature in the 4.2.0 or a later release, Install Enterprise SONiC only using the ONIE.
- The file names of the image and the signature file are the same.

Enable UEFI Secure Boot

CAUTION: Before entering BIOS to enable Secure Boot, backup your existing configuration file.

To enable UEFI Secure Boot in the BIOS firmware:

1. Attach a console to the serial port on the switch.
2. Power cycle the switch.
3. After the POWER-ON tests finish, press DEL or F2 when prompted to enter the BIOS menu. If prompted for a password, enter the service tag of the switch followed by an exclamation sign (!); for example: `G0K8PK2!`
4. When the BIOS menu is displayed, open the Security tab, select `Enable Secure Boot`, and press Enter and select **Enabled**.
5. Press F4 to save the change, exit the BIOS menu, and reboot the switch.

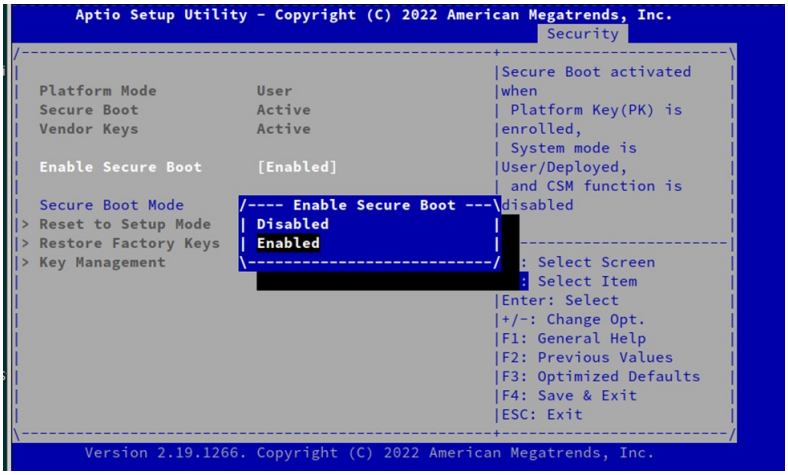

Figure 1. Enable secure Boot in BIOS menu

If you do not want to use Secure Boot

If you do not want to use UEFI Secure Boot, or if you use Enterprise SONiC 4.1.x or a previous version, disable UEFI Secure Boot to install or boot Enterprise SONiC on TPM-enabled switches, such as the Z9432F-ON, Z9664F-ON, and S5448F-ON.

Error messages

If you do not disable UEFI Secure Boot, the following error messages are displayed in the serial console during installation:

```
ONIE:~ # onie-nos-install http://ip-address/tftpboot/SONIC/dell_sonic/
Enterprise_SONiC_OS_4.4.0_Enterprise_Premium.bin
discover: Rescue mode detected. No discover stopped.
Connecting to ip-address
installer            100% |*******************************|   937M  0:00:00 ETA
ONIE: Executing installer: http://ip-address/tftpboot/SONIC/dell_sonic/
Enterprise_SONiC_OS_4.4.0_Enterprise_Premium.bin
Failure: sig file is not found
ONIE:~ #
```

Or later when Enterprise SONiC boots with Secure Boot enabled:

```
Version 2.19.1266. Copyright (C) 2018 American Megatrends, Inc.
BIOS Date: 12/05/2018 22:05:29 Ver: 0ACHI032
Press <DEL> or <F2> to enter setup.
Entering Setup...
```

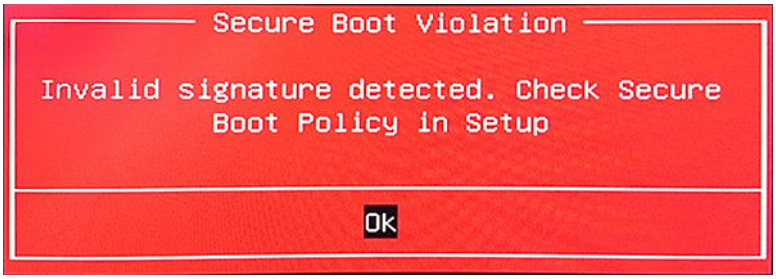

Figure 2. Secure Boot error message

Disable UEFI Secure Boot

To disable UEFI Secure Boot in the BIOS firmware:

1. Attach a console to the serial port on the switch.
2. Power cycle the switch.
3. After the POWER-ON tests finish, press DEL or F2 when prompted to enter the BIOS menu. If prompted for a password, enter the service tag of the switch followed by an exclamation sign (!); for example: `G0K8PK2!`
4. When the BIOS menu is displayed, open the Security tab, select `Enable Secure Boot`, and press Enter to disable UEFI Secure Boot.
5. Press F4 to save the change, exit the BIOS menu, and reboot the switch.

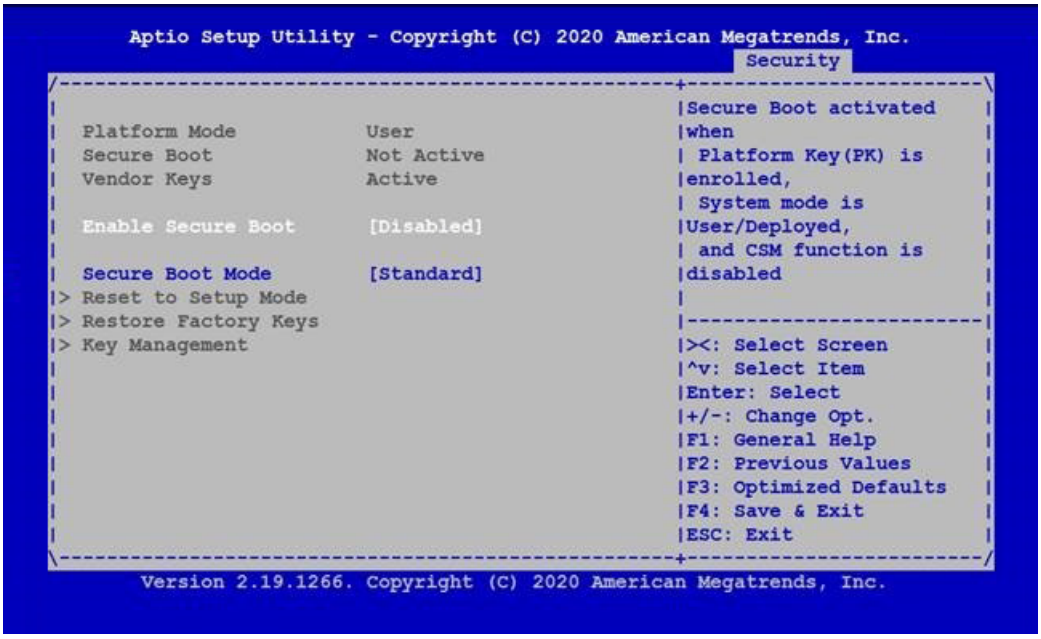

Figure 3. BIOS menu

Install Enterprise SONiC image

This section describes how to install an Enterprise SONiC image on your Dell PowerSwitch.

When you turn on the ONIE-enabled device, the boot menu is visible and accessible using the console:

- **Install OS** — Installs an Enterprise SONiC image offering both zero-touch through DHCP or manual installation.
- **Rescue** — Provides access to troubleshoot or reinstall an ONIE image.
- **Uninstall OS** — Deletes the contents of all disk partitions except ONIE.
- **Update ONIE** — Installs a new ONIE image.
- **Embed ONIE** — Formats an empty disk and installs ONIE.

For Secure Boot-enabled devices

If you use Secure Boot, place the signature (.sig) file that came with the Enterprise SONiC image (.bin) file in the same location. For example, if you install the image from a USB drive, place the image file `Enterprise_SONiC_OS_4.4.0_Enterprise_Premium.bin` and the signature file `Enterprise_SONiC_OS_4.4.0_Enterprise_Premium.bin.sig` in the same folder on the USB drive. Without the signature file, a Secure Boot-enabled device does not install or boot into Enterprise SONiC.

Automatic installation

You can automatically (zero-touch) install an Enterprise SONiC image using the ONIE discovery process. Before you start installation, ensure that the image file follows the naming convention that is required for ONIE autodiscovery. The image file name must start with the keyword `onie-installer`.

Manual installation

If zero-touch not available, there are several other ways to install the Enterprise SONiC image. This section describes how to install the Enterprise SONiC image over a network.

To start the installation process, the IP address of the Management interface is required, along with the IP address of the file server, and the path of the ONIE image. If an IP address for the Management interface is not found when the switch boots, 192.168.3.10 is automatically assigned by default.

1. Store the Enterprise SONiC image on an HTTP, TFTP, or FTP server.
2. Power up the switch and boot ONIE.
3. Select `ONIE: Install OS` for manual installation. If prompted, enter your username and password. The default username/password is `root/service-tag!`.

   NOTE: If the switch is running any other operating system, such as OS10, use the down arrow to select `ONIE: Uninstall OS` and uninstall the operating system. Then select `ONIE: Install OS`.

```
+--------------------------------------------------------------------------+
|*ONIE: Install OS       <----- Select this one                            |
| ONIE: Rescue                                                             |
| ONIE: Uninstall OS                                                       |
| ONIE: Update ONIE                                                        |
| ONIE: Embed ONIE                                                         |
+--------------------------------------------------------------------------+
```

4. Stop the ONIE discovery process if using manual installation.

```
ONIE:/# onie-discovery-stop
```

5. If a DHCP server is not available, configure the Management port IP address. Once you configure the Management port, the response should be `up`.

```
ONIE:/# ifconfig eth0 192.168.0.2 netmask 255.255.255.0
```

6. (Optional) Configure the default gateway.

```
ONIE:/# route add default gw <gateway-IP>
ONIE:/# echo "nameserver 8.8.8.8" > /etc/resolv.conf
```

7. Install the Enterprise SONiC image on the switch.

```
ONIE:/# onie-nos-install https://192.168.2.210/
Enterprise_SONiC_OS_4.4.0_Enterprise_Premium.bin
```

   When the installation finishes, the PowerSwitch reboots into Enterprise SONiC by default.

USB installation

You can manually install the Enterprise SONiC image using USB media. Verify that the USB storage device supports FAT, EXT2, EXT3, or EXT4 file system. Plug the USB storage device into the USB port on the device.

1. (Optional) If the device boots to `ONIE: Install OS`, stop the ONIE discovery process.

```
ONIE:/# onie-discovery-stop
```

2. Select `ONIE: Rescue` or `ONIE: Install OS`.
3. Create a USB mount location on the system.

```
ONIE:/# mkdir /mnt/usb
```

4. Mount the USB media plugged into the USB port on the device. You can use either command based on the file system of the USB storage device (FAT or Linux).

```
ONIE:/# mount —t vfat /dev/sdb /mnt/usb
```

   Or

```
ONIE:/# mount -t ext2 /dev/sdb /mnt/usb
```

5. Install the software from the USB, where /mnt/media specifies the path where the USB partition is mounted.

```
ONIE:/# onie-nos-install /mnt/usb/image_file
```

   The ONIE autodiscovery process discovers the image file at the specified USB path, loads the software image, and reboots.

Default login

The Management interface is configured as DHCP by default to acquire an IP address automatically.

NOTE: Enterprise SONiC uses SSHv2 as its connection protocol for secure connectivity over a network. In this document, references to "SSH" mean "SSHv2".

1. Log in to the Linux shell from the console or through an SSH connection using the default username `admin` and password `YourPaSsWoRd`.

```
At Console:
Debian GNU/Linux 11 sonic ttyS1

sonic login: admin
Password: YourPaSsWoRd

SSH from any remote server to sonic can be done by connecting to the IP address of
the Management interface
user@debug:~$ ssh admin@sonic_ip_address(or SONIC DNS Name)
admin@sonic's password:
```

2. When you log in for the first time, you are prompted to change your password (minimum 8 characters).

```
You are required to change your password immediately (administrator enforced)
Changing password for admin.
(current) UNIX password: YourPaSsWoRd
Enter new UNIX password: *********
Retype new UNIX password: ********
Linux sonic 5.10.0-21-amd64 #1 SMP Debian 5.10.162-1 (2023-01-21) x86_64
You are on
 _____   ___  _   _ _____
/  ___| /  _ \| \ | (_)/  ___|
\___ \| | | |  \| | | |
 ___)| |_| | |\  | | |___
|____/ \___/|_| \_|_|\____|

-- Software for Open Networking in the Cloud --

Unauthorized access and/or use are prohibited.
All access and/or use are subject to monitoring.

Help:    https://sonic-net.github.io/SONiC/

admin@sonic:~$
```

Get the system ready

Before you can start configuration, you must verify that the system is ready. Use `show system status` and wait until the system reports ready before continuing.

```
admin@sonic:~$ show system status brief
System is ready

admin@sonic:~$
```

CA-signed certificates for HTTPS REST gRPC Telemetry service

This chapter describes how to install an Enterprise SONiC image on your Dell PowerSwitch.

By default, Enterprise SONiC does not have preconfigured certificates for the HTTPS REST and gRPC telemetry servers. Because there are no preconfigured certificates for these services, they generate their own self-signed certificates at startup. The self-signed certificates are valid for two years.

Regardless of the validity period, Dell Technologies recommends that you do not use self-signed certificates. Instead, install your own CA-signed certificates. See the *Enterprise SONiC Distribution User Guide: gNMI certificate authentication* and *REST certificate authentication* sections for instructions on how to configure CA-signed certificates and restart the REST and telemetry servers.

After you install your own CA-signed certificates, the REST and telemetry servers continue to use them at a specified directory path after the switch reloads.

Install Enterprise SONiC on an OS10 switch

On an ONIE-enabled Dell PowerSwitch that is running OS10, you can uninstall OS10 (or any SONiC NOS) and install Enterprise SONiC. A Dell PowerSwitch switch provides an environment where hardware and software are fully modular.

NOTE: When you install an Enterprise SONiC image on an ONIE-enabled OS10 switch, the factory-installed perpetual license for OS10 is uninstalled and the license is removed. **This process is not reversible**.

To install an Enterprise SONiC image on an ONIE-enabled OS10 switch, use an automatic or manual installation as described in Install Enterprise SONiC image:

- For automatic installation, configure ZTP to discover the DHCP server, connect to an image server, and download and install an ONIE-enabled Enterprise SONiC image — see the **Zero Touch Provisioning** chapter in the *Dell EMC Enterprise SONiC Distribution User Guide*. For more information, see Third-Party NOS Installation Guide for Dell EMC PowerSwitch Data Center Switches.
- For manual installation if a DHCP or HTTP server is not available, when the switch boots into the ONIE menu, select the `ONIE: Install OS` option.

CAUTION: Installing Enterprise SONiC or a third-party NOS image erases all OS10 configurations on the switch. The configuration settings are not recoverable. Back up all software configurations and installed licenses on the switch before performing operating system updates or changes. Store a regular backup of the switch configuration off the switch.

3

Command reference

This chapter describes how to start the command-line interface (CLI). SONiC includes commands to view platform, transceivers, Layer 2, IP, BGP status, and so on. All SONiC devices support both a serial console-based and SSH-based login. If you use an SSH login, log in to the Management interface (`Management0`) IP address.

Topics:

Start the CLI

1. Log in to the Linux shell from the console or through an SSH connection using the default username `admin` and password `YourPaSsWoRd`.

```
At Console:
Debian GNU/Linux 11 sonic ttyS1

sonic login: admin
Password: YourPaSsWoRd

SSH from any remote server to sonic can be done by connecting to the IP address of
the Management interface
user@debug:~$ ssh admin@sonic_ip_address(or SONIC DNS Name)
admin@sonic's password:
```

2. When you log in for the first time, you are prompted to change your password (minimum 8 characters). Follow the instructions to change your password and log in to the Linux shell. If this is not your first login, go to Step 3.

```
You are required to change your password immediately (administrator enforced)
Changing password for admin.
(current) UNIX password: YourPaSsWoRd
Enter new UNIX password: *********
Retype new UNIX password: ********
Linux sonic 5.10.0-21-amd64 #1 SMP Debian 5.10.162-1 (2023-01-21) x86_64
You are on
 ____   ___   _   _ _____
/ ___| / _ \| \ | (_)/ ___|
\___ \| | | |  \| | | |
 ___)| |_| | |\  | | |___
|____/ \___/|_| \_|_|\____|

-- Software for Open Networking in the Cloud --

Unauthorized access and/or use are prohibited.
All access and/or use are subject to monitoring.

Help:    https://sonic-net.github.io/SONiC/

admin@sonic:~$
```

3. To access the Management Framework CLI, enter `sonic-cli` from the Linux shell. You are placed at the command-line interface in Exec mode (`sonic#`). From this mode, you can run `show` commands to monitor various functions on the switch or `debug` commands to troubleshoot switch operation. Use `?` to display the available commands.

NOTE: You cannot run the `sonic-cli` command from the root user level.

NOTE: By default, command output that cannot shown on one screen displays `-- more --` at the bottom of the output. To view the remainder of the output, press the Space bar or Enter key. To display complete output (scroll down to view it all) each time, use the `show example command | no-more` command.

```
admin@sonic:~$ sonic-cli
sonic# ?
  alarm               Alarm related commands
  clear               Clear commands
  configure           Enter configuration mode
  consistency-check   Performs consistency check
  copy                Perform file operations
  crypto              Configure PKI
  debug               Enter debugsh mode
  delete              Delete the file from local filesystem
  dir                 Show folder contents
  exit                Exit from the CLI
  fast-reboot         fast-reboot
  image               Image related commands
  interface           interfaces Utility
  locator-led         Locator Chassis LED Utility
  logger              Enter messages into the system log
  ls                  Show folder contents
  no                  No commands under Exec mode
  ping                Send ICMP ECHO_REQUEST to network hosts
  ping6               Send ICMPv6 ECHO_REQUEST to network hosts
  poe                 Reset PoE Port(s)
  reboot              reboot
  renew               Renew commands
  show                Display running system information
  terminal            Set terminal settings
  test                Run diagnostics test program
  tpcm                SONiC image installation manager
  traceroute          Print the route packets take to the host
  traceroute6         Print the route packets take to the IPv6 host
  usb                 Mount or un-mount usb partitions
  warm-reboot         warm-reboot
  write               Save config
```

4. Access Configuration mode to configure switch settings.

```
sonic# config terminal
sonic(config)#
```

In Configuration mode, you can change the current running configuration. Configuration changes are not automatically saved by default. You must use the `write memory` command in Exec mode.

```
sonic(config)# exit
sonic# write memory
```

To return to the Linux shell from Configuration mode:

```
sonic# exit
admin@sonic:~$
```

From Configuration mode, you can enter EXEC-level commands by using the `do` command; for example:

```
sonic(config)# do show running-configuration
```

Initial configurations

Change interface naming mode

NOTE: Dell Technologies recommends that you use the standard interface-naming mode instead of the default native mode.

Native interface-naming mode

By default, an Ethernet interface is identified in *native* mode in the command-line interface as `Ethernet number` or `Ethernetnumber` — with or without a blank space; for example:

```
sonic(config)# interface Ethernet 4
sonic(config-if-Ethernet4)#
```

Or

```
sonic(config)# interface Ethernet4
sonic(config-if-Ethernet4)#
```

In native interface-naming mode, Ethernet interfaces display in show outputs as:

```
sonic# show vlan
Q: A - Access (Untagged), T - Tagged
NUM        Status      Q  Ports      Autostate  Dynamic
2          Inactive    A  Ethernet8   Enable     No
                       T  Ethernet18  No
                       T  Ethernet36  No
```

```
sonic# show interface status
------------------------------------------------------------------------------
Name  Description  Oper  Reason      AutoNeg  Speed   MTU   Alternate Name
------------------------------------------------------------------------------
Ethernet0  -        down  admin-down  off      100000  9100  Eth1/1
Ethernet4  -        down  admin-down  off      100000  9100  Eth1/2
...
```

Standard interface-naming mode

To easily identify the front-panel port associated with an interface, enable *standard* interface-naming mode. In standard mode, non-breakout interfaces and breakout subinterfaces are identified in the CLI and displays in the format `Eth`*`slot/port`*`[/`*`breakout-port`*`]`; for example:

```
sonic(config)# interface Eth1/2
sonic(config-if-Eth1/2)#
```

```
sonic(config)# interface Eth1/2/4
sonic(config-if-Eth1/2/4)#
```

In standard interface-naming mode, Ethernet interfaces display in show outputs as:

```
sonic# show vlan
Q: A - Access (Untagged), T - Tagged
NUM        Status      Q  Ports      Autostate  Dynamic
2          Inactive    A  Eth1/3     Enable     No
                       T  Eth1/5/2
                       T  Eth1/10
```

```
sonic# show interface status
------------------------------------------------------------------------------
Name  Description  Oper  Reason      AutoNeg  Speed   MTU   Alternate Name
------------------------------------------------------------------------------
Eth1/1  -          down  admin-down  off      100000  9100  Ethernet0
Eth1/2  -          down  admin-down  off      100000  9100  Ethernet4
...
```

Enable standard mode

To enable standard interface naming:

```
sonic(config)# interface-naming standard
```

To return to the default native interface naming:

```
sonic(config)# no interface-naming standard
```

After you change the interface-naming mode from native to standard or from standard to native, you are prompted to restart your Enterprise SONiC session:

```
Broadcast message: Interface naming mode has changed. Users running 'sonic-cli' are
required to restart your session.
sonic(config)# end
sonic#
sonic# exit
admin@sonic:~$
admin@sonic:~$ sonic-cli
sonic#
```

For more information, see the *Enterprise SONiC Distribution by Dell Technologies 4.4.0 User Guide*.

Configure username and password

You can add new users with the `username` command. Enter a password that is 8 characters minimum. You can enter multiple roles for a username. Separate role entries with a comma.

```
sonic# config terminal
sonic(config)# username newuser password password role {admin | operator | secadmin |
netadmin}
```

For example:

```
sonic(config)# username tango password sample248 role operator
sonic(config)# username alpha password adminsenior role secadmin,netadmin
```

Basic show commands

System commands

- `show version` — Displays the software version and docker containers in the running Enterprise SONiC image.

```
sonic# show version

Software Version  : 4.4.0-Cloud_Premium_Build106
Product           : Enterprise SONiC Distribution by Dell Technologies
Distribution      : Debian 11.9
Kernel            : 5.10.0-21-amd64
Config DB Version : version_4_3_1
Build Commit      : 8595cec683
Build Date        : Sun Jul  7 14:06:57 UTC 2024
Built By          : sonicbld@bld-lvn-csg-10
Platform          : x86_64-dell_z9864f-r0
HwSKU             : Dell-Z9864f-O64
ASIC              : broadcom
Serial Number     :
Uptime            : 20:24:24 up 0 min, 1 user, load average: 4.37, 1.08, 0.36

REPOSITORY                      TAG                             IMAGE ID      SIZE
docker-database                 4.4.0-Cloud_Premium_Build106  6daaca363758  400MB
docker-database                 latest                        6daaca363758  400MB
docker-dhcp-relay-cloud-advanced 4.4.0-Cloud_Premium_Build106  d0f2d9bb80bc  452MB
docker-dhcp-relay-cloud-advanced latest                       d0f2d9bb80bc  452MB
docker-eventd                   4.4.0-Cloud_Premium_Build106  5fe29840d970  402MB
docker-eventd                   latest                        5fe29840d970  402MB
docker-fpm-frr                  4.4.0-Cloud_Premium_Build106  31e8678ad6fb  484MB
```

```
docker-fpm-frr                   latest                          31e8678ad6fb  484MB
docker-gbsyncd-brcm              4.4.0-Cloud_Premium_Build106  76fbf6736e48  932MB
docker-gbsyncd-brcm              latest                          76fbf6736e48  932MB
docker-iccpd                     4.4.0-Cloud_Premium_Build106  e9c10f757c3f  451MB
docker-iccpd                     latest                          e9c10f757c3f  451MB
docker-lldp                      4.4.0-Cloud_Premium_Build106  d0445105f4ec  490MB
docker-lldp                      latest                          d0445105f4ec  490MB
docker-nat                       4.4.0-Cloud_Premium_Build106  3e3aebf63cc4  450MB
docker-nat                       latest                          3e3aebf63cc4  450MB
docker-platform-monitor          4.4.0-Cloud_Premium_Build106  a224dc75f700  576MB
docker-platform-monitor          latest                          a224dc75f700  576MB
docker-router-advertiser         4.4.0-Cloud_Premium_Build106  10b1f3000ed3  400MB
docker-router-advertiser         latest                          10b1f3000ed3  400MB
docker-sflow                     4.4.0-Cloud_Premium_Build106  3e6be54cc324  450MB
docker-sflow                     latest                          3e6be54cc324  450MB
docker-snmp                      4.4.0-Cloud_Premium_Build106  fde213b4beab  429MB
docker-snmp                      latest                          fde213b4beab  429MB
docker-sonic-mgmt-framework      4.4.0-Cloud_Premium_Build106  2c98e0666f39  656MB
docker-sonic-mgmt-framework      latest                          2c98e0666f39  656MB
docker-sonic-telemetry           4.4.0-Cloud_Premium_Build106  f2a373ebbfbe  582MB
docker-sonic-telemetry           latest                          f2a373ebbfbe  582MB
docker-swss-brcm-cld-advanced    4.4.0-Cloud_Premium_Build106  653b62b7dff0  445MB
docker-swss-brcm-cld-advanced    latest                          653b62b7dff0  445MB
docker-syncd-brcm-cld-advanced   4.4.0-Cloud_Premium_Build106  cb5194da67e5  900MB
docker-syncd-brcm-cld-advanced   latest                          cb5194da67e5  900MB
docker-tam                       4.4.0-Cloud_Premium_Build106  00ee9a02af1b  442MB
docker-tam                       latest                          00ee9a02af1b  442MB
docker-teamd                     4.4.0-Cloud_Premium_Build106  9dfb60527c59  448MB
docker-teamd                     latest                          9dfb60527c59  448MB
docker-udld                      4.4.0-Cloud_Premium_Build106  20a37f2744c9  454MB
docker-udld                      latest                          20a37f2744c9  454MB
docker-vrrp                      4.4.0-Cloud_Premium_Build106  0758a10afa8b  456MB
docker-vrrp                      latest                          0758a10afa8b  456MB
```

- `show platform firmware` — Displays the firmware installed on a switch.

```
sonic# show platform firmware
--------------------------------------------------------------------------------
Chassis   Module  Component         Version     Description
--------------------------------------------------------------------------------
Z9864F-ON  N/A    BIOS              1CAWT005    Performs initialization of hardware...
                  BMC               3.03        Platform management controller for...
                  FPGA              9.0         Used for managing the system LEDs
                  PCIe              2.12        ASIC PCIe firmware
                  Secondary CPLD 1  6.0         Used for managing SFP28/QSFP28 port...
                  Secondary CPLD 2  6.0         Used for managing SFP28/QSFP28 port...
                  System CPLD       15.0        Used for managing the CPU power
                                                sequence...

sonic# show platform firmware detail
-----------------------------
Platform Firmware Information
-----------------------------
Chassis:            Z9864F-ON
Module:             N/A
Component:          BIOS
Firmware Version:   1CAWT005
Description:        Performs initialization of hardware components during booting

Chassis:            Z9864F-ON
Module:             N/A
Component:          BMC
Firmware Version:   3.03
Description:        Platform management controller for on-board temperature
                    monitoring, in-chassis power, Fan and LED control

Chassis:            Z9864F-ON
Module:             N/A
Component:          FPGA
Firmware Version:   9.0
Description:        Used for managing the system LEDs

Chassis:            Z9864F-ON
Module:             N/A
Component:          PCIe
Firmware Version:   2.12
```

```
Description:        ASIC PCIe firmware

Chassis:            Z9864F-ON
Module:             N/A
Component:          Secondary CPLD 1
Firmware Version:   6.0
Description:        Used for managing OSFP112 port transceivers (OSFP112 1-32)

Chassis:            Z9864F-ON
Module:             N/A
Component:          Secondary CPLD 2
Firmware Version:   6.0
Description:        Used for managing OSFP112 port transceivers (OSFP112 33-64)

Chassis:            Z9864F-ON
Module:             N/A
Component:          System CPLD
Firmware Version:   15.0
Description:        Used for managing the CPU power sequence and CPU states
```

- `show system` — Displays hostname, current time, boot time, and other system details.

```
sonic# show system
-------------------------------------------------------------
Attribute            Value/State
-------------------------------------------------------------
Boot Time           :00:02:27
Current Datetime    :2024-07-09T20:26:08Z
Hostname            :sonic
```

- `show system status` — Displays the status of core system services.

```
sonic# show system status
System is ready

Service-Name                  Service-Status       App-Ready-Status     Down-Reason
swss                          OK                   OK                   -
bgp                           OK                   OK                   -
teamd                         OK                   OK                   -
pmon                          OK                   OK                   -
syncd                         OK                   OK                   -
database                      OK                   OK                   -
mgmt-framework                OK                   OK                   -
gbsyncd                       OK                   OK                   -
auditd                        OK                   OK                   -
autobreakoutmgrd              OK                   OK                   -
caclmgrd                      OK                   OK                   -
ccd                           OK                   OK                   -
config-chassisdb              OK                   OK                   -
config-setup                  OK                   OK                   -
containerd                    OK                   OK                   -
critical-monitoring           OK                   OK                   -
cron                          OK                   OK                   -
databse-chassis               OK                   OK                   -
db-post-startup               OK                   OK                   -
determine-reboot-cause        OK                   OK                   -
dhcp_relay                    OK                   OK                   -
disk-log-rotate-daemon        OK                   OK                   -
docker                        OK                   OK                   -
eventd                        OK                   OK                   -
export                        OK                   OK                   -
hamd                          OK                   OK                   -
histogram                     OK                   OK                   -
hostcfgd                      OK                   OK                   -
hostname-config               OK                   OK                   -
iccpd                         OK                   OK                   -
in-memory-log-rotate-daemon   OK                   OK                   -
in-memory                     OK                   OK                   -
interfaces-config             OK                   OK                   -
ccdkdump-tools                OK                   -
lacp-helper                   OK                   OK                   -
lldp                          OK                   OK                   -
nat                           OK                   OK                   -
```

```
netfilter-persistent           OK                  OK                  -
ntp-config                     OK                  OK                  -
ntp                            OK                  OK                  -
opennsl-modules                OK                  OK                  -
platform-init                  OK                  OK                  -
platfprm-modules-z9864f        OK                  OK                  -
platform-ready                 OK                  OK                  -
portinitdone                   OK                  OK                  -
procdockerstatsd               OK                  OK                  -
radv                           OK                  OK                  -
ras-mc-ctl                     OK                  OK                  -
resrcmgrd                      OK                  OK                  -
rsyslog-config                 OK                  OK                  -
rsyslog                        OK                  OK                  -
sflow                          OK                  OK                  -
snmp                           OK                  OK                  -
sonic-hostservice              OK                  OK                  -
sonic-init-updatedb            OK                  OK                  -
ssh                            OK                  OK                  -
sysmonitor                     OK                  OK                  -
tam                            OK                  OK                  -
telemetry                      OK                  OK                  -
tcpm@default                   OK                  OK                  -
udld                           OK                  OK                  -
updategraph                    OK                  OK                  -
vrrp                           OK                  OK                  -
warmboot-finalizer             OK                  OK                  -
watchdog-control               OK                  OK                  -
ztp-config                     OK                  OK                  -
system-health                  OK                  OK                  -
```

- `show system cpu` — Displays CPU usage details per core and consolidated CPU usage.

```
sonic# show system cpu
Polling Interval: 120.0 seconds
------------------------------------------------------------------------
CPU                  %KERNEL             %USER                %IDLE
------------------------------------------------------------------------
CPU-ALL              3                   8                    87
CPU-0                3                   8                    87
CPU-1                3                   8                    87
CPU-2                3                   9                    86
CPU-3                3                   8                    87
CPU-4                3                   8                    87
CPU-5                5                   9                    85
CPU-6                3                   9                    87
CPU-7                4                   9                    86
```

- `show system memory` — Displays memory usage and availability information.

```
sonic# show system memory
-----------------------------------------------------------
Attribute            Value/State
-----------------------------------------------------------
Total                :15819320
Used                 :5310036
Free                 :4613004
Buff/Cache           :5896280
```

- `show system processes` — Displays brief information about all the processes running in the host system.

```
sonic# show system processes
-------------------------------------------------------------
PID       %CPU   %MEMORY   MEM-USAGE(Bytes)  NAME
-------------------------------------------------------------
1          0        0       58761216         /sbin/init
10         0        0       0                [lru-add-drain]
100        0        0       0                [scsi_eh_0]
1000       0        0       409763840        docker
101        0        0       0                [scsi_tmf_0]
10179      0        0       12124160         /bin/bash
102        0        0       0                [scsi_eh_1]
10217      0        0       42135552         python
```

```
103         0         0        0                [scsi_tmf_1]
107         0         0        0                [bioset]
10862       0         0        256139264        /usr/sbin/rsyslogd
109         0         0        0                [kworker/3:1H]
11          0         0        0                [watchdog/0]
110         0         0        0                [kworker/2:1H]
11044       0         0        111427584        containerd-shim
11088       0         0        109920256        containerd-shim
111         0         0        0                [kworker/0:1H]
11119       0         0        109920256        containerd-shim
11140       0         0        59592704         /usr/bin/python
11177       0         0        111362048        containerd-shim
112         0         0        0                [kworker/1:1H]
11204       0         0        59600896         /usr/bin/python
11223       0         0        61095936         /usr/bin/python
11272       0         0        189263872        /usr/bin/orchagent
11308       0         0        58249216         /usr/bin/python
```

- `show system processes pid` — Displays detailed information of a specified process.

```
sonic# show system processes pid 1
-------------------------------------------
Attribute           Value/State
-------------------------------------------
Cpu Usage System    :720
Cpu Usage User      :574
Cpu Utilization     :1
Memory Usage        :11726848
Memory Utilization  :0
Name                :/sbin/init
Pid                 :1
Start Time          :2023-03-17 21:12:28+0000
Uptime              :00:19:12
```

- `show system processes mem-util` — Displays detailed information about the memory utilities.

```
sonic# show system processes mem-util
-------------------------------------------------------------
PID       %CPU   %MEMORY   MEM-USAGE(Bytes)  NAME
-------------------------------------------------------------
4333      22        2       1833492480       /usr/bin/syncd
6822       0        1       1597079552       /usr/sbin/rest_server
6881       0        1       1057107968       telemetry
9868       0        1       355176448        /usr/lib/frr/ospfd
1          0        0       59277312         /sbin/init
10         0        0       0                [lru-add-drain]
10007      0        0       12148736         /bin/bash
10011      0        0       409763840        docker
10118      0        0       100298752        /usr/sbin/ntpd
10266      0        0       49336320         python2.7
10303      1        0       164511744        /usr/bin/python
10333      0        0       84725760         /usr/sbin/snmpd
10377      3        0       365019136        python3.6
10384      0        0       293613568        python3.6
104        0        0       0                [ata_sff]
105        0        0       0                [ixgbe]
10988      0        0       0                [kworker/1:0]
11         0        0       0                watchdog/0]
1112       0        0       112869376        containerd-shim
1128       0        0       59650048         /usr/bin/python
11614      0        0       0                [kworker/3:2]
--more--
```

- `show platform environment` — Displays available environment information.

```
sonic# show platform environment
Onboard Temperature Sensors :
    CPU Temp             : 30.0 degrees C
    NPU Temp             : 63.0 degrees C
    NPU Rear Temp        : 32.0 degrees C
    INLET Left Temp      : 26.0 degrees C
    INLET Right Temp     : 26.0 degrees C
    OUTLET Left Temp     : 21.0 degrees C
```

```
    OUTLET Right Temp    : 22.0 degrees C
    OSFP Rear Temp       : 26.0 degrees C
    CPUCD Front Temp     : 23.0 degrees C
    PSU1 AF Temp         : 31.0 degrees C
    PSU1 MID Temp        : 45.0 degrees C
    PSU1 Rear Temp       : 43.0 degrees C
    PSU2 AF Temp         : 32.0 degrees C
    PSU2 MID Temp        : 41.0 degrees C
    PSU2 Rear Temp       : 43.0 degrees C
Fan Trays :
    FanTray1 :
            Fan1 Speed    : 7504 RPM
            Fan1 State    : Normal
            Fan1 Airflow  : Exhaust
            Fan2 Speed    : 6901 RPM
            Fan2 State    : Normal
            Fan2 Airflow  : Exhaust

    FanTray2 :
            Fan1 Speed    : 7504 RPM
            Fan1 State    : Normal
            Fan1 Airflow  : Exhaust
            Fan2 Speed    : 6968 RPM
            Fan2 State    : Normal
            Fan2 Airflow  : Exhaust

    FanTray3 :
            Fan1 Speed    : 7504 RPM
            Fan1 State    : Normal
            Fan1 Airflow  : Exhaust
            Fan2 Speed    : 6968 RPM
            Fan2 State    : Normal
            Fan2 Airflow  : Exhaust

    FanTray4 :
            Fan1 Speed    : 7571 RPM
            Fan1 State    : Normal
            Fan1 Airflow  : Exhaust
            Fan2 Speed    : 6968 RPM
            Fan2 State    : Normal
            Fan2 Airflow  : Exhaust

PSUs :
    PSU1 :
        Input Voltage          : 207.0 Volts
        Input Power            : 432.0 Watts
        Input Current          : 2.1 Amps
        Output Current         : 33.6 Amps
        Output Power           : 408.0 Watts
        Output Voltage         : 12.0 Volts
        AF Temp Temperature    : 31.0 degrees C
        MID Temp Temperature   : 45.0 degrees C
        Rear Temp Temperature  : 43.0 degrees C
        FAN RPM                : 6885 RPM
        Airflow                : Exhaust

    PSU2 :
        Input Voltage          : 207.0 Volts
        Input Power            : 432.0 Watts
        Input Current          : 2.1 Amps
        Output Current         : 33.6 Amps
        Output Power           : 408.0 Watts
        Output Voltage         : 12.0 Volts
        AF Temp Temperature    : 32.0 degrees C
        MID Temp Temperature   : 41.0 degrees C
        Rear Temp Temperature  : 43.0 degrees C
        FAN RPM                : 7395 RPM
        Airflow                : Exhaust
```

- `show platform psustatus` — Displays the power supply status.

```
sonic# show platform psustatus
--------------------------------
```

```
PSU                   Status
-------------------------------
PSU 1                 OK
PSU 2                 OK
```

- `show platform psusummary` — Displays power supply information and status.

```
sonic# show platform psusummary
PSU 1:
   Description :02RPHXA00
   Mfg Name :DELL
   Fans :1
   Oper Status :OK
   Serial Number :CNDED0092L0084
   Status LED: :N/A
   Type (AC/DC) :AC
   Input Current: 0.32 Amps
    Input Power: 80 Watts
    Input Voltage: 209 Volts
   Output Current (A) :5.50
   Output Power (W) :70.00
   Output Voltage (V) :12.40
   Fan Speed (RPM) :7680
   Fan Direction :exhaust
PSU 2:
   Description :02RPHXA00
   Mfg Name :DELL
   Fans :1
   Oper Status :OK
   Serial Number :CNDED0092L008N
   Status LED: :N/A
   Type (AC/DC) :AC
   Input Current: 0.32 Amps
    Input Power: 70 Watts
    Input Voltage: 209 Volts
   Output Current (A) :4.50
   Output Power (W) :50.00
   Output Voltage (V) :12.50
   Fan Speed (RPM) :7440
   Fan Direction :exhaust
```

- `show platform syseeprom` — Displays system EEPROM data.

```
sonic# show platform syseeprom
------------------------------------------------------
Attribute                Value/State
------------------------------------------------------
Base Mac Address         :e8:b2:65:b9:cc:5b
Crc 32                   :0xAA6EFAC6
Platform                 :x86_64-dell_z9864f-r0
Device Version           :1
Diag Version             :v2.0.0
Hardware Version         :X02a
Product Name             :Z9864F-ON
Location                 :Slot 1
Mac Addresses            :768
Manufacture Country      :TW
Mfg Date                 :2024-02-20
Mfg Name                 :DNT00
Onie Version             :v2.0.0
Part Number              :0V1Y60
Serial Number            :TW0V1Y60DNT004250007
Service Tag              :8XXM9Q3
Vendor Ext               :0x00 0x00 0x02 0xA2
Vendor Name              :Dell
```

Interface commands

- `show interface status` — Displays a brief summary of the interfaces.

```
sonic# show interface status
------------------------------------------------------------------------------
Name     Description  Oper   Reason    AutoNeg  Speed  MTU   Alternate Name
```

```
--------------------------------------------------------------------------------
Ethernet0    -        up     oper-up     off    10000  9100  Eth1/1
Ethernet1    -        down   admin-down  off    10000  9100  Eth1/2
Ethernet2    -        down   admin-down  off    10000  9100  Eth1/3
Ethernet3    -        up     oper-up     off    10000  9100  Eth1/4
Ethernet4    -        down   admin-down  off    10000  9100  Eth1/5
Ethernet5    -        down   admin-down  off    10000  9100  Eth1/6
...
```

- `show interface Ethernet id` — Displays details about a specific interface.

```
show interface Ethernet 120

Ethernet120 is up, line protocol is up, reason oper-up
Hardware is Eth, address is 20:04:0f:37:1b:4c
Mode of IPV4 address assignment: not-set
IPV6 address is fe80::2204:fff:fe37:1b4c/64
Mode of IPV6 address assignment: MANUAL
IP MTU 9100 bytes
LineSpeed 100GB, Auto-negotiation off
Link-training: off
Unreliable-LOS: off
FEC: DISABLED
Events:
  initialized at 2023-03-17T07:26:27.376716Z
  admin-up at 2023-03-17T07:26:32.059165Z
  xcvr-status-down at 2023-03-17T07:27:25.633885Z
  xcvr-status-up at 2023-03-17T07:27:26.735729Z
  port-enabled at 2023-03-17T07:27:26.776707Z
  phy-link-up at 2023-03-17T07:29:00.699229Z
Last clearing of "show interface" counters: never
10 seconds input rate 151130 packets/sec, 1204171624 bits/sec, 150521453 Bytes/sec
10 seconds output rate 4 packets/sec, 2912 bits/sec, 364 Bytes/sec
Input statistics:
        38546944236 packets, 38391775150833 octets
        34857 Multicasts, 0 Broadcasts, 38546909384 Unicasts
        0 error, 0 discarded, 0 Oversize
        19 Packets (128 to 255 Octects)
Output statistics:
        23150229 packets, 22184672240 octets
        34849 Multicasts, 0 Broadcasts, 23115380 Unicasts
        0 error, 0 discarded, 0 Oversize
Time since last interface status change: 2d22h56m
```

- `show interface Ethernet` — Displays details about all physical interfaces.

```
sonic# show interface Ethernet

Ethernet0 is up, line protocol is up, reason oper-up
Hardware is Eth, address is 20:04:0f:37:1b:4c
Mode of IPV4 address assignment: not-set
IPV6 address is fe80::2204:fff:fe37:1b4c/64
Mode of IPV6 address assignment: MANUAL
IP MTU 9100 bytes
LineSpeed 100GB, Auto-negotiation off
Link-training: off
Unreliable-LOS: off
FEC: DISABLED
Events:
  initialized at 2023-03-17T07:26:27.376716Z
  admin-up at 2023-03-17T07:26:32.059165Z
  xcvr-status-down at 2023-03-17T07:27:25.633885Z
  xcvr-status-up at 2023-03-17T07:27:26.735729Z
  port-enabled at 2023-03-17T07:27:26.776707Z
  phy-link-up at 2023-03-17T07:29:00.699229Z
Last clearing of "show interface" counters: never
10 seconds input rate 151130 packets/sec, 1204178928 bits/sec, 150522366 Bytes/sec
10 seconds output rate 4 packets/sec, 2944 bits/sec, 368 Bytes/sec
Input statistics:
        38556004382 packets, 38400798810498 octets
        34866 Multicasts, 0 Broadcasts, 38555969521 Unicasts
        0 error, 0 discarded, 0 Oversize
        19 Packets (128 to 255 Octects)
```

```
Output statistics:
        23150479 packets, 22184695325 octets
        34857 Multicasts, 0 Broadcasts, 23115622 Unicasts
        0 error, 0 discarded, 0 Oversize
Time since last interface status change: 2d22h57m

Ethernet4 is up, line protocol is up, reason oper-up
Hardware is Eth, address is 20:04:0f:37:1b:4c
Mode of IPV4 address assignment: not-set
IPV6 address is fe80::2204:fff:fe37:1b4c/64
Mode of IPV6 address assignment: MANUAL
IP MTU 9100 bytes
LineSpeed 100GB, Auto-negotiation off
Link-training: off
Unreliable-LOS: off
FEC: DISABLED
...
```

- `show interface counters` — Displays port statistics of all physical interfaces.

```
sonic# show interface counters
-------------------------------------------------------------------------------
Interface  State RX_OK   RX_ERR RX_DRP RX_OVERSIZE TX_OK   TX_ERR TX_DRP TX_OVERSIZE
-------------------------------------------------------------------------------
Ethernet28 U     201809144 0      0      0          201809148 0      0      0
Ethernet32 U     201803931 0      0      0          201803929 0      0      0
Ethernet36 D     0         0      0      0          0         0      0      0
```

Secure Boot command

- `show platform sbstatus` — Displays whether Secure Boot is supported on an Enterprise SONiC switch. (The Z9864F-ON, Z9664F-ON, Z9432F-ON, and S5448-ON switches support Secure Boot.)
  - If a switch supports secure boot:

    ```
    sonic# show platform sbstatus
    SecureBoot is Enabled
    ```

  - If a switch does not support secure boot:

    ```
    sonic# show platform sbstatus
    SecureBoot is not supported on this system
    ```

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Support resources

The Dell Support site provides a range of documents and tools to assist you with effectively using Dell devices. Through the support site you can obtain technical information regarding Dell products, access software upgrades and patches, download available management software, and manage your open cases. The Dell support site provides integrated, secure access to these services.

To access the Dell Technologies Support site, go to Welcome to Dell Support. To display information in your language, scroll down to the bottom of the page and select your country or region from the drop-down menu.

- To obtain product-specific information, enter the 7-character service tag or 11-digit express service code of your switch and click **Submit**.
- To view the service tag or express service code, pull out the luggage tag on the chassis or enter the `show chassis` command from the CLI.
- To receive additional kinds of technical support, click **Contact Us**, then click **Technical Support**.

To access Enterprise SONiC documentation, search on **Enterprise SONiC Distribution**, then click on the **Documentation** tab and scroll down to **Manuals and Documents**.

To search for drivers and downloads, go to Enterprise SONiC Distribution, sign in, and click the **Drivers & Downloads** tab.

To participate in Dell community blogs and forums, go to Dell Community.